Pyramid Lake
Elev. 3787 ft

Pyramid Lake Fishway

Marble Bluff Dam

Nixon

446

Pyramid Lake Indian Reservation

Numana Dam
Elev. 3920 ft
Gaging Station

Truckee River

447

alt 95

80

Gaging Station

Wadsworth
Elev. 4085 ft

MP 275

MP 270

Fernley

Truckee Canal

alt 50

Derby Dam
Elev. 4200 ft

MP 260

395

445

alt 395

SPARKS

Chalk Bluff
Pumping Station

MP 240

Gaging Station

Vista
Elev. 4396 ft

Glendale Intake

MP 250

RENO
Elev. 4500 ft

Truckee River

Orr Ditch
Diversion Intake

Highland Ditch
Diversion Intake

**Figure 4.2-1 (Page 2 of 2)**
**Truckee River Project Area**

Primary road
Secondary road
Light duty road
Unimproved road
Trail
Stream
Railroad
MP 0 Milepost (locations are approximate)

0 1 2 3 4
Miles

Map Location

### 4.2.2 Topographic Analysis

To supplement the general observations made during the highrail trips, SEA performed a topographic analysis of the Reno corridor from Donner Pass to Wadsworth. The slope from the tracks to the Truckee River was determined using the method described below. The derived slope data were used as a modeling parameter in derailment and hazardous materials release estimates provided in Section 4.3.

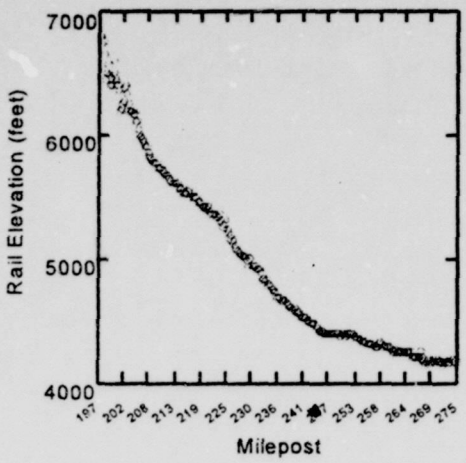
Topographic data were based on a 1:24,000-scale digital elevation model (DEM), obtained from the United States Geological Survey (USGS). The data were stored and managed using a UNIX-based Geographic Information System (ARC/INFO 7.1.1). Vector data, comprising hydrography and transportation (including the rail line) were based on 1:100,000-scale Digital Line Graphs (DLG), also from USGS. Vector data were supplemented by 1:24,000-scale DLG's, which were available for six of the 13 USGS 1:24,000-scale quadrangles that cover this portion of the rail line. To facilitate computational analyses, the rail line was divided into 314 quarter-mile segments. The starting point of this analysis was at milepost 195.2, near Donner Pass, California, at an elevation of 6,720 feet. The terminus was at the U.S. Alt. Route 95 overpass (milepost 275.0), in Fernley, Nevada, at an elevation of 4,163 feet.

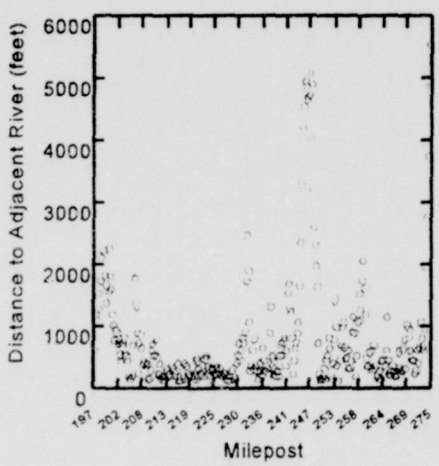
For each quarter-mile segment, the GIS was used to compute the following measures: mean elevation of the rail line, mean elevation of the Truckee River adjacent to the rail line, mean distance to the Truckee River, rail grade, and slope between the tracks and the adjacent portion of the Truckee River. The rail grade was calculated as the arctangent of the change in elevation from the beginning to the end of the segment divided by the length (0.25 mi), for each rail segment. The slope from the tracks to the Truckee River was calculated as the arctangent of the change in elevation from the rail bed to the adjacent portion of the Truckee River divided by the distance between the rail bed and the river. A graphical summary of the spatial variation of rail elevation, distance from rail to adjacent river, and slope from rail to the adjacent river is provided in Figure 4.2-2.

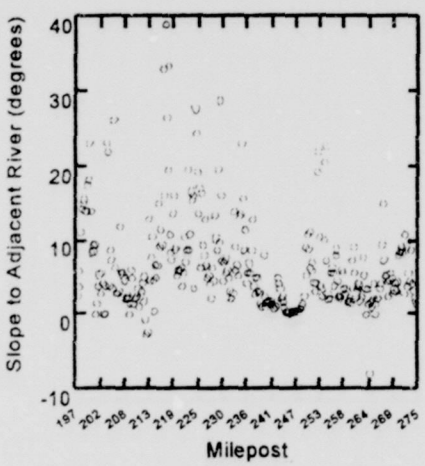
As the rail descends in elevation, several topographic trends become apparent (see Figure 4.2-2). The rate at which the rail line descends varies, with the steepest declines in the higher elevations, and the flatter declines in the lower elevations. Both the rail grade and the slope to the adjacent river vary most in the higher elevations and least near Reno, Nevada (MP 241-247; Figure 4.2-2). In general, the slope is negatively related to the distance to the river. Where the river is most distant from the rail line, the slope is nearly flat. The steepest slopes occur where the river is close (< 500 feet) to the rail line.

The results of the GIS analysis including mean elevation of the rail line, mean elevation of the Truckee River adjacent to the rail line, mean distance to the Truckee River, rail grade, and slope between the tracks and the adjacent portion of the Truckee River are summarized in Table 4.2-1.

**Figure 4.2-2**
**Spatial Variation of Rail Elevation, Distance from Rail to Adjacent River, And Slope from Rail to Adjacent River**



| Table 4.2-1<br>Topographic Characteristics of Rail Line from Truckee, California to Fernley, Nevada. | | | |
|---|---|---|---|
| | Entire length (MP 195.2-275.0) | California (MP 195.2-228.5) | Nevada MP(228.5-275.0) |
| Number of segments | 314 | 128 | 186 |
| Mean grade of track (percent) | 0.5 | 0.7 | 0.3 |
| Mean absolute value of grade (percent) | 1.4 | 1.7 | 1.0 |
| Mean distance to the river (feet) | 793 | 531 | 988 |
| Mean slope to the river (degrees) | 6.5 | 9.0 | 4.7 |

As shown in Table 4.2-1, the average distance from the rail bed to the Truckee River ranges from 531 feet for the California segment (MP 195.2-228.5), to 988 feet for the Nevada segment (MP 228.5-275.0), with an overall average of 793 feet for the entire length evaluated (MP 195.2 to 228.5). The average slope from the rail bed to the Truckee River ranges from 9.0 degrees slope for the California segment (MP 195.2-228.5), to 4.7 degrees slope for the Nevada segment (MP 228.5-275.0), with an overall average of 6.5 degrees slope for the entire length evaluated (MP 195.2 to 228.5).

Above milepost 206.6, measurements were made relative to Donner Lake, Donner Creek, or Cold Creek, as these water bodies were adjacent to the rail line, not the Truckee River. From mileposts 200.0 to 205.3, the rail line is adjacent to Cold Creek, which flows into Donner Creek, a tributary of the Truckee River. Approximately 3,471 feet of the rail line in this area is within 200 feet of Cold Creek. The downstream distance to the Truckee River from portions of the rail within 200 feet of Cold Creek ranges from 3.2 miles to 2.2 miles.

### 4.2.3 Truckee River Flow Characteristics

Surface-water flow (i.e., discharge) in the Truckee River varies both seasonally and spatially. This section describes the physical setting of the river, key factors affecting river discharge (such as local climate and manmade diversions), and the effect of spring discharge on cui-ui spawning in the lower river.

The Truckee River begins near Lake Tahoe, California and flows down the eastern slope of the Sierra Nevada mountains to its terminus at Pyramid Lake, Nevada, a distance of approximately 120 miles (see Figure 4.2-3). The Truckee River headwaters are found at altitudes greater than 10,000 feet, whereas Pyramid Lake lies at an elevation of approximately 3,800 feet. Pyramid Lake is topographically closed. Surface-water inflow is lost only through evaporation. Pyramid Lake is the largest lake lying completely within Nevada. In 1977, the lake had a surface area of 171 square miles, a maximum depth of 338 feet, and a total dissolved solids (TDS) concentration of 5,200 mg/L (Galat et al. 1981). Before a large-scale diversion of water from the Truckee River to the Truckee Canal began in 1905 (see below), the lake was 75 feet deeper and more dilute (TDS 3,900 mg/L) (Nowlin et al. 1980).

The climate in the Truckee River basin is strongly influenced by the physical barrier created by the Sierra Nevada mountains. As the prevailing westerly winds laden with moist Pacific air ascend the mountain slopes to altitudes where the temperature is cooler, condensation causes abundant snow and rain during the winter and spring. Most of the precipitation in the mountains is in the form of snow. The average annual snowfall in the Sierra Nevada range near Lake Tahoe typically is greater than 20 feet, with as much as 65 feet falling in some years (Nowlin et al. 1980 and references therein). Relatively little moist air passes to the east side of the mountains. For example, average annual precipitation in Reno, Nevada is only about 11 inches.

Discharge in the Truckee River is derived primarily from snowmelt in its headwaters. The peak discharge occurs in May during spring snowmelt. Discharge is lowest in late summer and early autumn. This is illustrated in Figure 4.2-4 with discharge data from five United States Geological Survey (USGS) Truckee River stream-flow gauges: Tahoe City, California; Farad, California; Reno, Nevada; Wadsworth, Nevada; and Nixon, Nevada (see Figure 4.2-1 for gauge locations). Discharge in the Truckee River at Tahoe City, California does not show a springtime peak (see Figure 4.2-4A) because the discharge from Lake Tahoe is regulated by a spillway.

Figure 4.2-4 also illustrates the difference in discharge between river locations. Figure 4.2-4A shows the large increase in discharge that occurs in the upper Truckee River between Lake Tahoe and Farad, California. Water from snowmelt, several reservoirs, and groundwater enters the river between these locations. Discharge generally decreases with increasing distance from the mountain front due to withdrawals and diversions of water for agricultural and municipal uses. The largest diversion occurs at Derby Dam, where water is diverted to the Carson River basin through the Truckee Canal for irrigation use near Fallon, Nevada (see Figure 4.2-3 for dam locations). As a result, discharge at Wadsworth, Nevada is approximately 50 percent less than discharge at Reno, Nevada. Discharge increases between Wadsworth and Nixon, Nevada as a result of irrigation return flow and groundwater entering the river between these locations (La Camera et al. 1984).

Because the monthly discharge values shown in Figure 4.2-4 are averages of several decades of USGS streamflow measurements (see the key in Figure 4.2-4 for period of record), they do not illustrate the extreme variability in discharge that may occur from year-to-year. This variability is shown in Figure 4.2-5 for the river at Nixon, Nevada using USGS streamflow data for water years 1984 through 1995. Discharge can vary by over an order of magnitude from one year to the next. Water years 1984-1987 and 1993-1995 were years of average or above average precipitation in the Sierra Nevada mountains, and a pronounced peak in discharge occurred in these years during spring snowmelt. Conversely, water years 1988-1992 were characterized by less than average snowfall in the mountains and markedly reduced spring runoff (see Figure 4.2-5). Discharge in drought years in the portion of the river below Derby Dam is additionally reduced, because a higher percentage of available water (80-90 percent) is diverted to the Truckee Canal to supply water for irrigation use near Fallon, Nevada during these years.

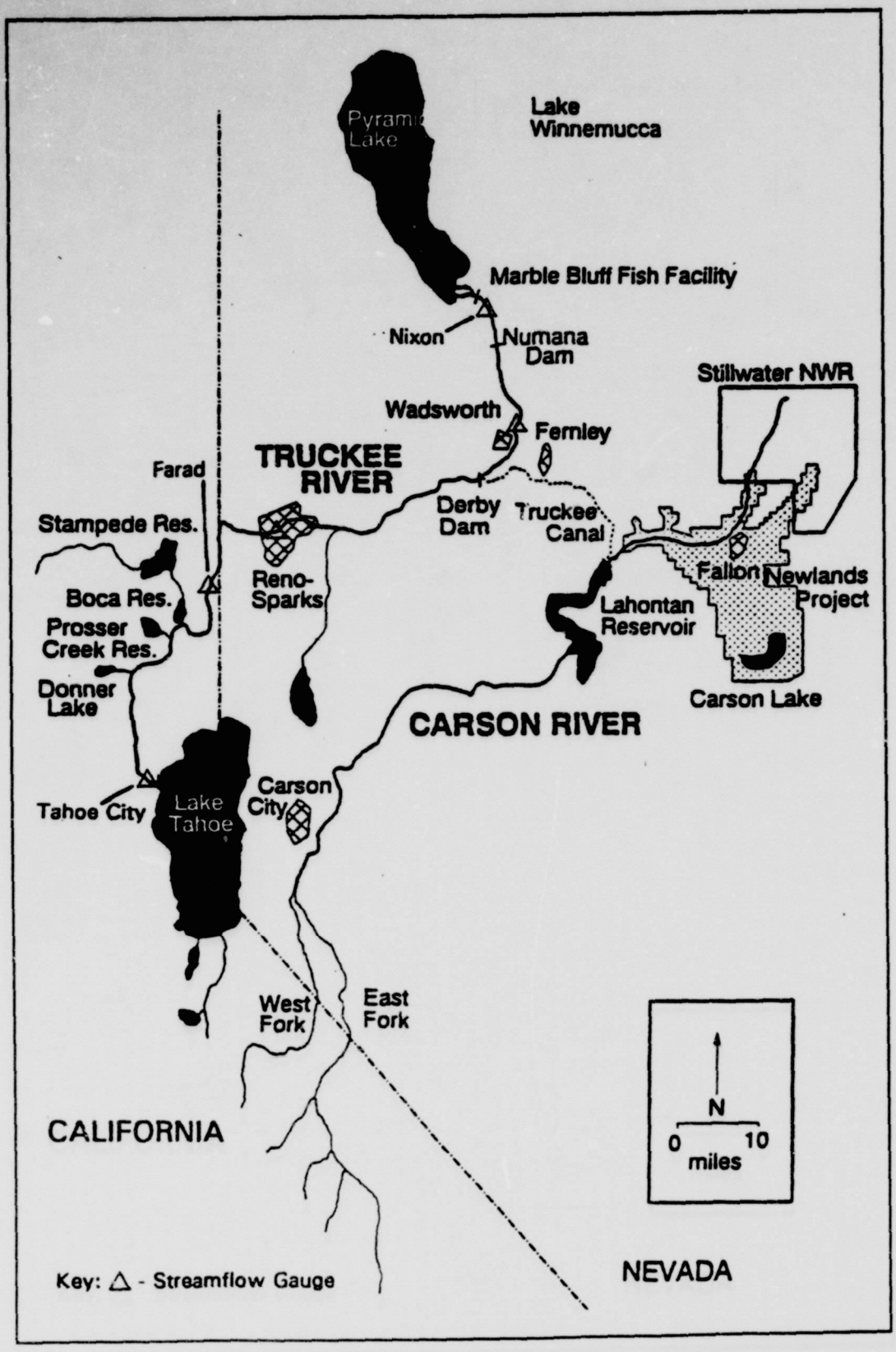
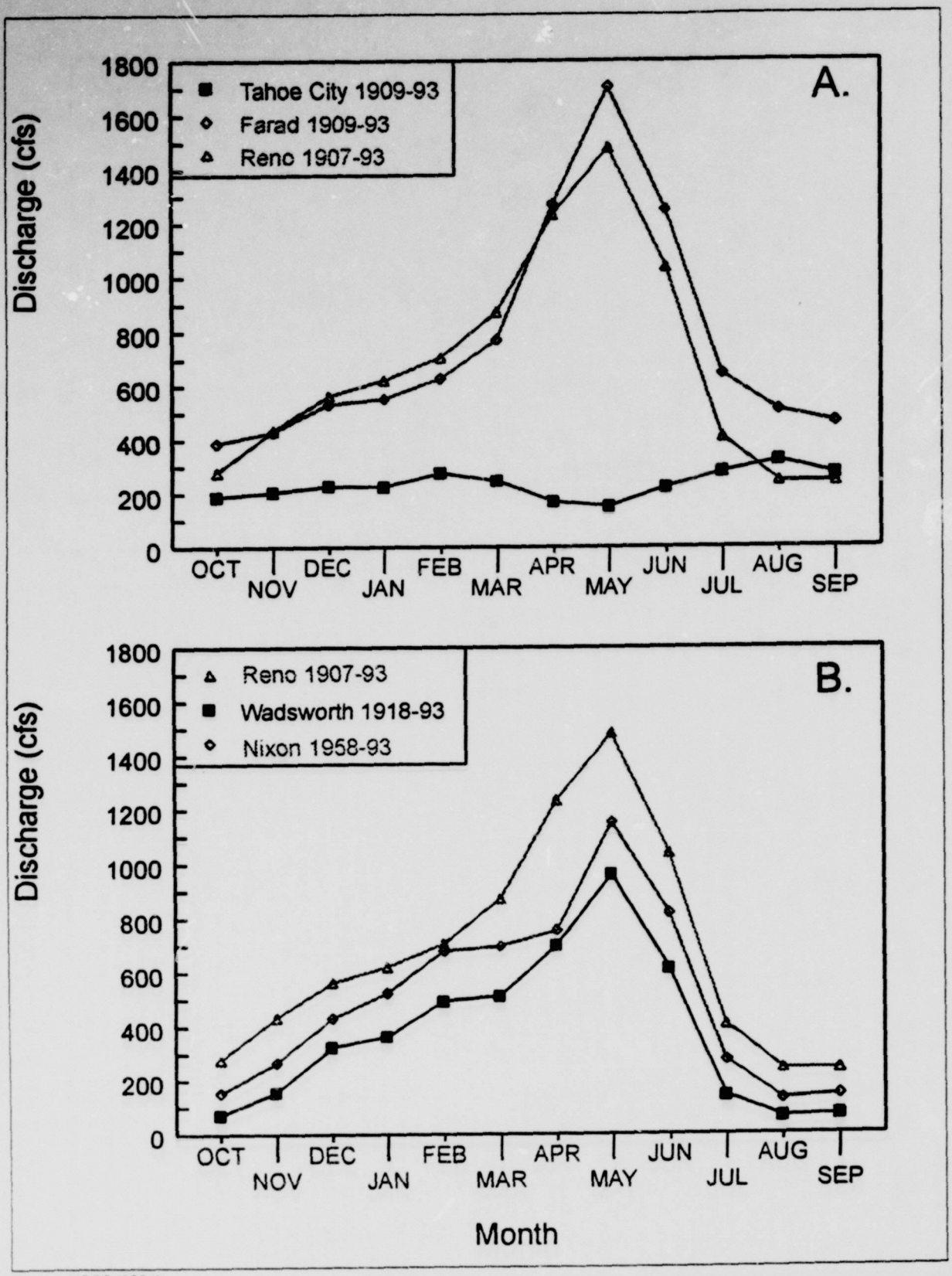
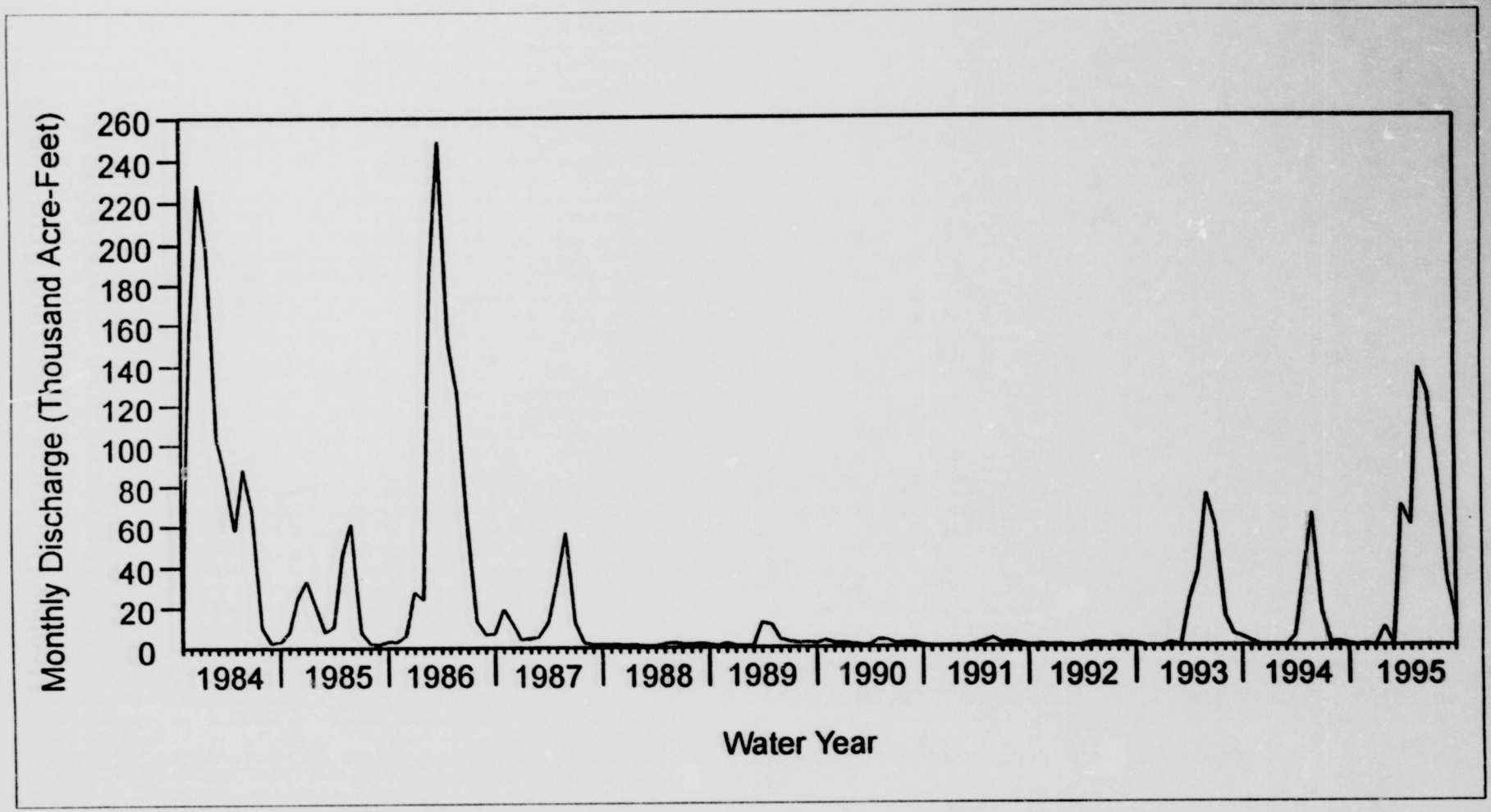



**Figure 4.2-3 MAJOR FEATURES OF THE TRUCKEE/CARSON RIVER BASIN**




Source: USGS (1994).

Figure 4.2-4. Mean monthly discharge at selected gauges on the upper (A) and lower (B) Truckee River.




SOURCE: http://www.state.nv.us/cnr/ndwp/truckee/351700_0.htm

Figure 4.2-5. Monthly discharge for the Truckee River near Nixon, NV for wateryears 1984 through 1995.

Diversion of water away from the lower Truckee River has resulted in a major decline in the cui-ui population in Pyramid Lake (see Section 4.6.1). The cui-ui spawn in the lower Truckee River between Pyramid Lake and Numana Dam[1] and low discharge in this portion of the river is detrimental to the spawning effort in two ways: (a) it is insufficient to attract the fish to the river to begin the upstream spawning migration, and (b) it may result in water temperatures in the river high enough to adversely affect survival of the fry. The recovery plan for the Pyramid Lake cui-ui population (USFWS 1992) aims to remedy this situation by managing flow in the lower Truckee River to facilitate successful spawning. The recovery plan lists the following flow management targets:

- Maintenance of an attraction volume of 60,000 to 176,000 acre-feet from January through April to initiate the spawning run. A minimum attraction volume of 60,000 acre-feet is required when the lake surface elevation in high enough (equal to or greater than 3,812 feet) to allow the fish to swim upstream through the extensive delta. A minimum attraction volume of 176,000 acre-feet is required when the lake surface is too low for the fish to pass the delta and the only access to the lower Truckee River is through the manmade Pyramid Lake fishway.
- Maintenance of a minimum discharge during May and June of 1,000 cubic feet per second (cfs -- approximately 60,000 acre-feet/month) to achieve an average daily water temperature of 17.2°C at Nixon, Nevada. A discharge greater than 1,000 cfs will improve egg survival by maintaining lower water temperature. However, discharges greater than 2,500 cfs may result in increased mortality of eggs and fry due to excessive scouring. Consequently, the discharge will be managed not to exceed this value.

The new management goals for the lower Truckee River are designed to avoid extreme high and low discharges that occurred in earlier decades (see Figure 4.2-5). To achieve these goals, USFWS proposes that water from Stampede Reservoir be used to adjust volume and timing of Truckee River discharge to enhance cui-ui spawning runs and maintain water temperatures suitable for egg incubation (USFWS 1992). The reservoir is located on the Little Truckee River about 90 miles upstream from Pyramid Lake (see Figure 4.2-1).

## 4.3 Hazardous Materials Release Assessment

The overall approach to estimating the potential for releases of rail-borne hazardous materials along the Reno corridor entering the Truckee River waterway system consisted of four distinct steps:

- Estimation of the expected frequency of mainline railroad accidents, using rates derived from nationwide accident experience reflected in the FRA's Accident/Incident database.

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[1] Staff of the Reno office of the USFWS indicated during a recent conversation with the SEA study team that the spawning area for the cui-ui now includes a portion of the Truckee River upstream from Numana Dam.

- Estimation of the expected frequency of hazardous materials releases as the result of estimated accidents, based on release data contained in the FRA's Accident/Incident database.
- Estimation of the conditional probability of a hazardous materials release resulting in some of that material entering the river.
- Estimation of the release frequency for potentially harmful hazardous materials commodities, based on the above analysis in conjunction with commodity traffic data provided by UP, and the hazard evaluation provided in Section 4.4.

Each of these steps was taken for individual route segments of one-quarter mile in length between MP 195.2 and MP 275. The methodology for the first step is discussed Section 4.3.1; the methodology for the second step is provided in Section 4.3.2; the methodology for the third step is described in Section 4.3.3; and the basis for the fourth step is provided in Section 4.3.4.

The term "reportable accidents," as used in this section, refers to events required to be reported using FRA Form 6180-54, pursuant to 49 CFR 225. Events are reported using Form 6180-54 if they result in more than $6,300 in damage to track or equipment, or cause a fatality, injury, or occupational illness. The information reported on Form 6180-54 is entered into the FRA Accident/Incident database.

All grade crossing accidents including "any impact, regardless of severity, between a railroad on-track consist and any user of a public or private crossing site" are reported on FRA Form 6180-57 and are also included in the FRA National Grade Crossing Incident database. An estimated 3.5 percent of incidents reported on Form 6180-57 exceed the thresholds for reporting on Form 6180-54.

Releases of hazardous materials, regardless of quantity or commodity, are required to be reported in the U.S. Department of Transportation (DOT) Hazardous Material Incident Reporting System (HMIRS) database. About 11 percent of these events are reportable under the criteria for Form 6180-54.

### 4.3.1 Accident Frequency

Hazardous materials release estimates were derived from FRA-reportable accident rates for each segment of the main line. Separate methods were used for each of four classes of accident:

- *Derailments*, based on the segment's train-miles, car-miles, train movement control method, and FRA track class.
- *Collisions*, based on the segment's traffic density, track class, and train movement control method.
- *Grade crossing accidents*, based on FRA's established grade crossing risk assessment methodology.

- *Other* accidents, i.e., those that are not derailments, collisions, or grade crossing accidents (e.g., fires, explosions, collisions with livestock) based on train-miles for a particular rail-line segment.

These methods are presented in the following subsections.

### Derailment Frequency

Accident rates for derailments were derived from accidents reported to FRA for 1994-1996 inclusive. Rates were estimated using the total number of freight train- and car-miles operated annually for a combination of FRA track class and train movement control method and dividing accidents designated either as train-mile- or car-mile-dependent by these quantities. Results of these calculations are provided in Table 4.3-1. For some types of accidents, the presence of Automatic Train Protection (ATP) or automatic train stop (ATS) features will further reduce accident rates for signaled territory.

**Table 4.3-1**
**Stratified Derailment Rates for Mainline Segments**

| Train Movement Control Method | FRA Track Class | Train-Mile Derailment Rate, $DR_{tm}$ | Car-Mile Derailment Rate, $DR_{cm}$ |
|---|---|---|---|
| Unsignaled | 1 or exempt | $6.2 \times 10^{-7}$ | $2.00 \times 10^{-8}$ |
| Unsignaled | 2 | $3.30 \times 10^{-7}$ | $1.80 \times 10^{-8}$ |
| Unsignaled | 3 | $2.90 \times 10^{-7}$ | $6.10 \times 10^{-9}$ |
| Unsignaled | 4 | $2.80 \times 10^{-7}$ | $7.10 \times 10^{-9}$ |
| Unsignaled | 5 or 6 | $2.80 \times 10^{-7}$ | $7.10 \times 10^{-9}$ |
| Signaled (ABS, CTC) | 1 or exempt | $3.30 \times 10^{-7}$ | $6.20 \times 10^{-9}$ |
| Signaled (ABS, CTC) | 2 | $2.50 \times 10^{-7}$ | $7.50 \times 10^{-9}$ |
| Signaled (ABS, CTC) | 3 | $1.90 \times 10^{-7}$ | $4.70 \times 10^{-9}$ |
| Signaled (ABS, CTC) | 4 | $1.50 \times 10^{-7}$ | $5.50 \times 10^{-9}$ |
| Signaled (ABS, CTC) | 5 or 6 | $1.50 \times 10^{-7}$ | $5.50 \times 10^{-9}$ |
| Signaled with (ATP/ATS) | 1 or exempt | $1.65 \times 10^{-7}$ | $6.20 \times 10^{-9}$ |
| Signaled with (ATP/ATS) | 2 | $1.25 \times 10^{-7}$ | $7.50 \times 10^{-9}$ |
| Signaled with (ATP/ATS) | 3 | $1.00 \times 10^{-7}$ | $4.70 \times 10^{-9}$ |
| Signaled with (ATP/ATS) | 4 | $1.00 \times 10^{-7}$ | $5.50 \times 10^{-9}$ |
| Signaled with (ATP/ATS) | 5 or 6 | $1.00 \times 10^{-7}$ | $5.50 \times 10^{-9}$ |

Annual derailments were estimated as:

$$A_{derail} = DR_{tm} * TM + DR_{cm} * CM$$

where:

TM are the annual train-miles on the segment;

CM are the annual car-miles on the segment;

$Dr_{tm}$ is the per-train-mile derailment rate for the segment; and

$Dr_{cm}$ is the per-car-mile derailment rate for the segment.

### Collision Frequency

Annual collisions were estimated by a stratified collision rate per train-mile, multiplied by an adjusting factor for density:

$$A_{collision} = F_{density} * CR_{tm} * TM$$

The stratified values for the rate $CR_{tm}$ are shown in Table 4.3-2.

**Table 4.3-2**
**Stratified Collision Rates for Mainline Segments**

| Train Movement Control Method | FRA Track Class | Car-Mile Derailment Rate, $DR_{cm}$ |
|---|---|---|
| Unsignaled | 1 or exempt | $1.98 \times 10^{-7}$ |
| Unsignaled | 2 | $5.71 \times 10^{-8}$ |
| Unsignaled | 3 | $5.71 \times 10^{-8}$ |
| Unsignaled | 4 | $5.71 \times 10^{-8}$ |
| Unsignaled | 5 or 6 | $5.71 \times 10^{-8}$ |
| Signaled (ABS, CTC) | 1 or exempt | $1.35 \times 10^{-7}$ |
| Signaled (ABS, CTC) | 2 | $4.33 \times 10^{-8}$ |
| Signaled (ABS, CTC) | 3 | $4.33 \times 10^{-8}$ |
| Signaled (ABS, CTC) | 4 | $4.33 \times 10^{-8}$ |
| Signaled (ABS, CTC) | 5 or 6 | $4.33 \times 10^{-8}$ |
| Signaled with (ATP/ATS) | 1 or exempt | $1.08 \times 10^{-7}$ |
| Signaled with (ATP/ATS) | 2 | $3.71 \times 10^{-8}$ |
| Signaled with (ATP/ATS) | 3 | $3.71 \times 10^{-8}$ |
| Signaled with (ATP/ATS) | 4 | $3.71 \times 10^{-8}$ |
| Signaled with (ATP/ATS) | 5 or 6 | $3.71 \times 10^{-8}$ |

A density-adjustment factor, $F_{density}$, was derived by comparing the actual and predicted collision rates among strata as follows:

$$F_{density} = 0.75 + 0.75 / (1.0 + e^{[2.25 - 0.034\ TPD - 0.445\ \ln(TPD + 0.001)]})$$

where TPD is the total trains per day (freight and passenger) on the segment.

### Grade Crossing Accident Frequency

Grade crossing accidents were estimated for each crossing in the corridor by the method established by FRA for this purpose. These methods are discussed in Appendix K of the Reno Preliminary Mitigation Plan (PMP).

Because these formulas estimate all grade crossing accidents rather than just those that meet the threshold for an FRA accident/incident report (via Form 6180-54), a factor of 3.5 percent was applied to convert the total estimated grade crossing accidents into accident/incident reportable grade crossing accidents.

### Other Accident Frequency

Non-grade crossing accidents other than derailments and collisions with other trains were found to occur at a relatively uniform rate per train-mile when compared by the strata used for other types of accidents. The types of accidents in this category, such as onboard fires or collisions with debris or livestock, cannot be readily explained in terms of track characteristics or train movement control methods. Therefore, a uniform rate was applied:

$$A_{other} = 9.7 \times 10^{-8} \text{ TM}$$

### Summary of Estimated Accident Frequency

Table 4.3-3 summarizes the estimated accidents by class, for locations east and west of Sparks, Nevada (where the composition and quantity of hazardous materials traffic change), and for the entire section along the Truckee River.

**Table 4.3-3**
**Summary of Estimated Annual Reportable Mainline Accidents**

| Accident Class | West of Sparks, NV (MP 195.2-MP 246) | | East of Sparks, NV (MP 246 - MP 275) | | Combined (MP 195.2- MP 275) | |
|---|---|---|---|---|---|---|
| | Pre-Merger | Post-Merger | Pre-Merger | Post-Merger | Pre-Merger | Post-Merger |
| Derailments | 0.1899 | 0.3589 | 0.1153 | 0.2278 | 0.3052 | 0.5867 |
| Collisions | 0.0082 | 0.0173 | 0.0048 | 0.0107 | 0.0130 | 0.0280 |
| Grade Crossing Accidents | 0.0359 | 0.0433 | 0.0009 | 0.0011 | 0.0368 | 0.0444 |
| Other Accidents | 0.0183 | 0.0346 | 0.0107 | 0.0212 | 0.0290 | 0.0558 |
| **TOTAL** | **0.2523** | **0.4541** | **0.1317** | **0.2608** | **0.3840** | **0.7149** |

### 4.3.2 Frequency of Hazardous Materials Releases

The potential frequency of hazardous materials releases as the result of a mainline railroad accident was determined in two general steps. First, the conditional probability of a release was determined based on accident rates. Second, the distribution of physical states of various commodities in the hazardous materials stream was considered.

#### Probability of a Hazardous Materials Release

The expected annual hazardous materials releases for each class of accident were estimated by applying a rate for each class to the estimated accidents. The estimate of total expected annual hazardous materials releases (of any hazardous materials carried) associated with reportable mainline accidents on a segment was:

$$HMR = C_{hm} (P_{derail} A_{derail} + P_{coll} A_{coll} + A_{rgc} P_{rgc} + P_{other} A_{other})$$

where

HMR is the expected annual hazardous materials releases on a segment;

$C_{hm}$ is the number of cars in an average train's consist carrying hazardous materials;

$P_{derail}$ is the conditional probability of a hazardous materials release for a car carrying hazardous materials that is involved in a derailment;

$A_{derail}$ is the expected number of annual derailments in the segment;

$P_{rgc}$ is the conditional probability of a hazardous materials release for a car carrying hazardous materials that is involved in a reportable grade crossing accident, estimated from FRA accident data as 0.0081;

$A_{rgc}$ is the expected number of annual reportable grade crossing accidents in the segment, estimated as 3.5 percent of total grade crossing accidents from the FRA formula as described in Section 4.3.1;

$P_{coll}$ is the conditional probability of a hazardous materials release for a car carrying hazardous materials that is involved in a collision, estimated from FRA accident data as 0.0078;

$A_{coll}$ is the expected number of collisions in the segment;

$P_{other}$ is the conditional probability of a hazardous materials release for a car carrying hazardous materials that is involved in a non-grade crossing accident other than a derailment, estimated from FRA accident data as 0.0078; and

$A_{other}$ is the expected number of annual non-grade crossing accidents other than derailments in the segment.

The estimate of the conditional probability of release for derailments, $P_{derail}$, was related to the segment's typical freight speed (TFS):

$$P_{derail} = 0.128 / (1.0 + e^{[2.6135 - 0.0385\,TFS - 0.8075(TFS/60)^2]})$$

This expression increases with TFS, and was derived from the FRA accident/incident database for 1994-96 for derailments occurring in various speed ranges. It approaches 0.128 at very high speeds, and decreases to about 0.0091 at 1 mph.

### Frequency of Hazardous Materials Releases

In addition to the properties and hazards of specific hazardous materials commodities discussed in Section 4.4, their importance as commodities of concern depends on their relative frequency as part of the hazardous materials traffic on a specific route. UP has provided information on total estimated hazardous materials carloads east and west of Sparks, Nevada, for both the pre- and post-merger conditions.

For any particular hazardous materials commodity, the expected annual number of releases of that commodity was estimated as:

$$HMR_{commodity} = HMR * (CH_{commodity} / CH)$$

where:

HMR is the expected annual hazardous materials releases on a segment, as estimated according to the methodology presented in Section 4.3.2;

$CH_{commodity}$ is the annual estimated carloads of the commodity carried on the segment; and

CH is the total annual carloads of hazardous materials handled on the segment.

Total estimated annual hazardous materials releases along the route were estimated as described above, assuming a distribution of: 5.6 percent of hazardous materials products in a solid state; 11.7 percent of hazardous materials products in a gaseous state; and 82.7 percent in a liquid state. Table 4.3-4 summarizes the results for locations east and west of Sparks, Nevada, and for the entire section.

| Table 4.3-4<br>Summary of Estimated Annual Hazardous Materials Releases<br>from Reportable Mainline Accidents | | | |
|---|---|---|---|
| | West of Sparks, NV (MP 195.2-MP 246) | East of Sparks, NV (MP 246 - MP 275) | Combined (MP 195.2- MP 275) |
| **Pre-Merger** | 0.013092 | 0.01552 | 0.02861 |
| Years Between Expected Releases | 76.4 | 64.4 | 35.0 |
| **Post-Merger** | 0.020956 | 0.02523 | 0.046186 |
| Years Between Expected Releases | 47.7 | 39.6 | 21.7 |

### 4.3.3 Likelihood of Hazardous Materials Commodities Entering the River

Because the total hazardous materials release frequency (estimated in Section 4.3.2) is relatively low, the estimated frequencies of release for individual commodities are lower and comprise a certain portion of total releases, estimated to be in proportion to their shares of total carload traffic. To estimate the conditional probability that a hazardous materials release of a given threshold size would enter the river given a hazardous materials release on a specific route segment, a preliminary screening model of hazardous materials releases was developed.

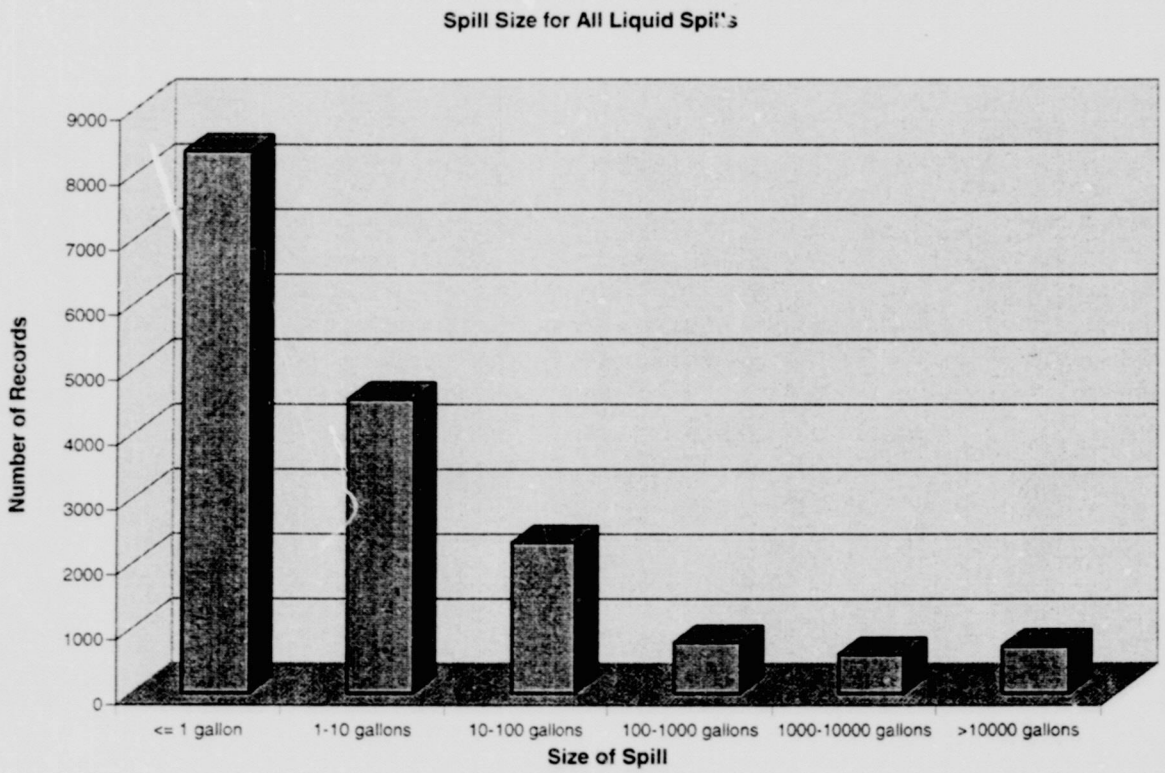
The conditional probabilities used for this assessment were modeled as dependent on the quantity released, the state of the hazardous materials (solid, liquid, or gas), and the average segment topography. Underlying the method are the simplifying assumptions that:

- All hazardous materials of the same state (solid, liquid, or gas) would exhibit similar distributions of release size, and would behave similarly in terms of physical transport to the river.
- There would be basically two types of release size distribution: Type I, characteristic of FRA-reportable damage to the track or car (e.g., a car overturning, jackknifing, or running loose); and Type II, characteristic of minor or negligible damage to the car (e.g., the car stays in line in the event of a derailment).
- The derived average terrain characteristics of quarter-mile segments would reasonably represent actual terrain.

#### Frequency and Quantity of Release

The relationships between frequency and quantity of hazardous materials released were estimated based on data from DOT's Hazardous Materials Incident Reporting System (HMIRS). The HMIRS database is intended to capture all incidents of hazardous materials releases in transportation nationwide, regardless of reporting requirements for the transportation regulatory agencies (e.g., FRA's Form 6180-54 for railroads). Figure 4.3-1 shows the distribution of size for all liquid spills in the HMIRS database for railroads. Note that the preponderance of spills is concentrated in the less-than-one-gallon and the one-to-10 gallon categories.

**Figure 4.3-1**
**Summary Distributions for Quantity Spilled from Railcars in the HMIRS Database (1971-1996)**




Because the majority of hazardous materials releases are very small, there is a distinct difference in both the frequency of releases and the distribution of the quantity of hazardous materials released between reportable releases and non-reportable releases. For the period 1971-1996, the HMIRS includes records for releases from 16,383 railroad cars, an average of about 630 releases per year. Examination of the reported damages and casualties associated with these releases indicates that 1,762 of them would meet FRA reportability criteria (i.e., an average of 68 reportable releases per year). By comparison, during the combined periods 1985-1989 and 1994-1996, hazardous materials releases were reported to FRA from 542 cars, also an average of 68 reportable releases per year. Therefore, only about 11 percent of hazardous materials releases in the HMIRS database meet FRA reportability requirements.

The primary reason that many releases included in the HMIRS database are non-reportable on FRA Form 6180-54 is their small size. Table 4.3-5 shows the differences in terms of the median release quantities as indicated in the HMIRS database.

| Table 4.3-5<br>Comparison of Railroad Hazardous Materials Release Quantities by Reportability | | | |
|---|---|---|---|
| **Hazardous Material State** | **Unit of Measurement** | **Median Value (50th percentile) for Releases Reportable on FRA Form 6180-54** | **Median Value (50th percentile) for Releases Not Reportable on FRA Form 6180-54** |
| Gas | Cubic Feet | 2,870 | 0.67 |
| Liquid | Gallons | 800 | 2 |
| Solid | Pounds | 20,000 | 50 |

The size distributions assumed for this release assessment (one each for solids, liquids, and gases) were estimated by Poisson regression to the observed cumulative frequency distribution for releases which met the requirements for FRA reportability.

Rail accidents involving FRA-reportable damage to the track or car (e.g., a car overturning, jackknifing, or running loose) are classified as Type I. For Type I releases, the assumed cumulative frequency distributions of release size corresponded to releases in the HMIRS database which themselves met the criteria for FRA reportability:

$$CFD^{I}_{gas} = 1.0 / [1.0 + e^{(1.78 - 0.00051\,Q - 0.0952\,\ln Q)}]$$

$$CFD^{I}_{liquid} = 1.0 / [1.0 + e^{(0.7404 - 0.000092\,Q - 0.062\,\ln Q)}]$$

$$CFD^{I}_{solid} = 1.0 / [1.0 + e^{(1.98 - 0.0000183\,Q - 0.155\,\ln Q)}]$$

where the units of quantity, Q, are cubic feet, gallons, and pounds for gases, liquids, and solids respectively.

Non-reportable rail accidents involving minor or negligible damage to the car (e.g., the car stays in line in the event of a derailment) are classified as Type II. For Type II releases, the assumed cumulative frequency distributions of release size for solids and liquids corresponded to releases in the HMIRS database which did *not* meet the criteria for FRA reportability:

$$CFD^{II}_{liquid} = 1.0 / [1.0 + e^{(0.423 - 0.00000723\,Q - 0.437\,\ln Q)}]$$

$$CFD^{II}_{solid} = 1.0 / [1.0 + e^{(1.11 - 0.0000228\,Q - 0.292\,\ln Q)}]$$

where the units of quantity, Q, are gallons and pounds for liquids and solids respectively; a distribution was not estimated for gases, because it was assumed that gases would not enter the river from a Type II release.

### Lateral Displacement of Material Released

Evaluation of the potential for released material to enter the river requires consideration of the state of the material released, and the estimated lateral displacement of a car between the river and the tracks as a result of the accident causing the release.

Based on the sketches of 121 derailed freight cars prepared for NTSB accident reports 96-05, 91-04, 83-07, 78-4, and 78-8, (which were selected randomly from a shelf of such reports), the cumulative frequency of the farthest point on a derailed car from the centerline of track on the "prevailing" side of the tracks was estimated, as was the ultimate position of the car (in-line, overturned or jackknifed in proximity to other cars, or "loose"). The "prevailing" side is either the downslope side or the outside of a curve, toward which derailed cars are more likely to move. For the purposes of estimating possible contamination of the Truckee River, a "conservative" assumption was made: that the river would always be on the "prevailing" side of the tracks.

The NTSB data were the basis for the following assumptions for ultimate positions of a car following an accident:

- Twelve (12) percent would lie on the "far" side of the tracks (i.e., on the side opposite the "prevailing" side); because of the cross-section of the railroad, these would present negligible risk of hazardous materials release reaching the river;
- Thirty-six (36) percent would lie "on-line" with the tracks, exhibiting a Type II release quantity distribution;
- Forty-six (46) percent would overturn or jackknife in close proximity to the tracks, and if on level terrain, would come to rest within one car length of the tracks, exhibiting a Type I release size distribution; and
- Six (6) percent would separate completely from the train, coming to rest some distance from the tracks, and exhibiting a Type I release size distribution.

Some adjustments to the above assumptions were made when the tracks were on bridges or in tunnels or snow sheds. On bridges, it was assumed that only 18 percent of cars would come to rest "on-line," and all of the remaining 82 percent would enter the river, exhibiting a Type I release size distribution. In tunnels or snow sheds, it was assumed that all cars would remain "in-line," with a Type II release size distribution.

### Topographic Factors

A likelihood of entering the river was estimated for two groups of cars: overturned/jackknifed and "loose." This estimation was based on a two-piece representation of the terrain between the tracks and the river; one piece representing the first 200 feet from the tracks (projected horizontally); and one piece representing the remainder of the distance to the river. Where the distance to the river was less than 200 feet, a one-piece representation was employed. The terrain was represented by an average slope for each piece, determined from the topographic analysis (see Section 4.2), averaged over one-quarter mile segments along the

railroad from MP 195.2 to MP 275. For cars off the tracks, a constant coefficient of sliding friction of 0.35 was assumed over the terrain from the track to the river.

Overturned/jackknifed cars were assumed to tumble or slide to the base of the first (200-foot) section if the slope piece component of their acceleration under gravity exceeded the coefficient of friction times the car's mass. The terminal velocity at the bottom of this segment, if any, was used as an initial velocity for the second (remaining distance) segment; if the terminal velocity at the base of the second segment was zero or more, the car was assumed to enter the river. A conservative assumption was made that no energy would be lost in the transition between the two portions.

From the distribution of distances traveled by cars in the NTSB sample, a characteristic cumulative frequency distribution of lateral velocity toward the "prevailing" side was estimated for "loose" cars:

$$CFD_{lateral\ v} = 1.0 / [1.0 + e^{(6.579 - 0.1535\ V)}]$$

Working backwards from a terminal velocity of zero at the river, using the same terrain and energy assumptions as for overturned/jackknifed cars, a threshold lateral velocity at the tracks was estimated which would result in a car's entering the river. The portion of loose cars estimated to exceed this threshold velocity, according to the assumed distribution, was assumed to enter the river. The remaining portion of loose cars were assumed to come to rest at a point between the tracks and the river.

For liquid hazardous materials, it was necessary to estimate the likelihood that a quantity greater than the threshold amount would enter the river both from overturned/jackknifed cars which came to rest between the tracks and the river, and from "in-line" cars. Based on an assumed runoff coefficient of 0.3 for undeveloped terrain, it was assumed that the soil in the vicinity of the spill site would absorb 70 percent of the material. It was further assumed that the spill would cover an area of 0.65 square feet per gallon spilled, and that the runoff would descend toward the river in a stream one foot wide, for an average distance of one-half distance between the tracks and river. Based on the assumed total area of the spill and the streamflow to the river, a higher effective threshold for the spill was estimated as:

$$Q_{eff} = 2.167 * [(Q/0.65) + ((D - 200)/2.0)]$$

where D was the distance between the tracks and the river in feet (200 feet or greater), and Q is the threshold release quantity into the river. The portion of spills exceeding the effective threshold was estimated in the same way as for releases directly into the river, substituting $Q_{eff}$ for Q in the expressions for Type I or Type II releases as applicable.

### 4.3.4 Likelihood of Potentially Hazardous Materials Commodities Entering the River

The model described above provides a means of estimating the probability of hazardous material releases along the Reno corridor, as well as releases that may enter the Truckee River or its tributaries. Evaluation of potential adverse impacts associated with hazardous materials releases also requires consideration of additional hazardous materials commodity characteristics including: physical and chemical properties, hazards (toxicity or flammable/explosive), and the frequency of particular commodities relative to total hazardous materials traffic along the Reno corridor (see Section 4.4). This information was then used to estimate the likelihood of releases of hazardous commodities at particular locations relevant to release/impact scenarios.

This approach was used to evaluate potential hazardous material releases associated with each of three release/impact scenarios. These scenarios included hazardous material releases potentially affecting threatened and endangered fish, the potable water supply, and the potentially exposed population of Reno/Sparks (see Section 4.6). For each scenario, releases along specific critical track segments were estimated, and different assumptions were used to reflect the portion of commodities posing potential risks relevant to the particular scenario (i.e., aquatic toxicity, drinking water toxicity, or physical hazard/inhalation toxicity).

### 4.3.5 Validation of Hazardous Materials Release Estimates

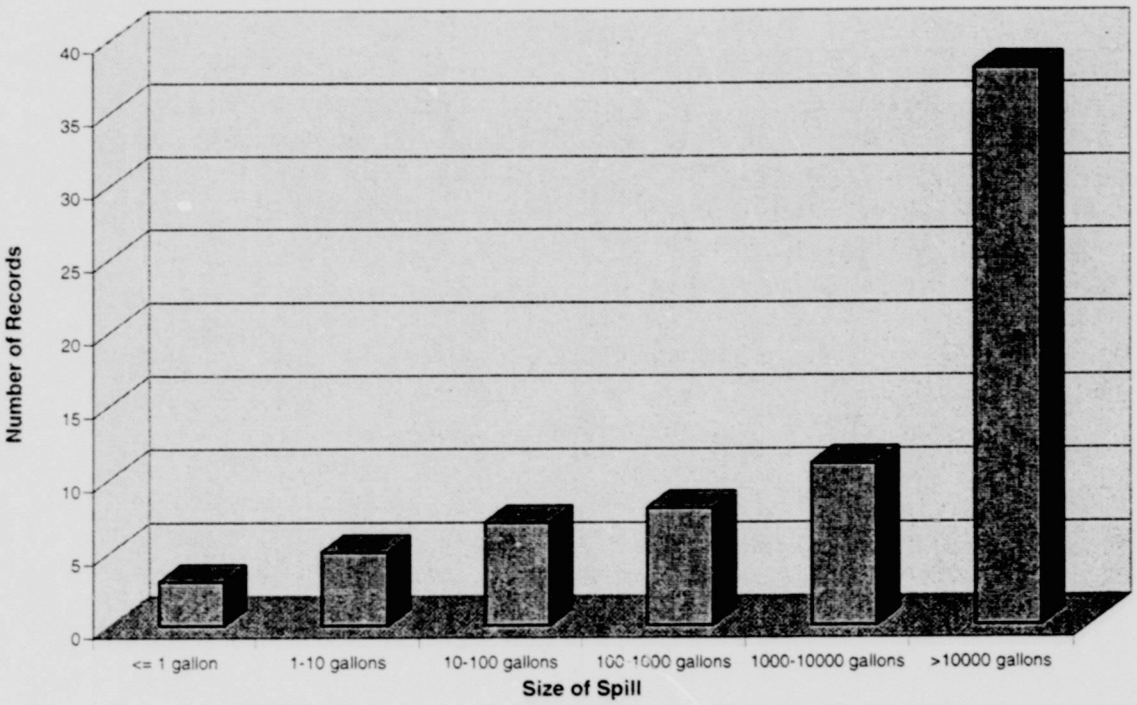
FRA's accident/incident reporting system does not include information on the immediate environment of the reported accident, although the location information includes both route and milepost, and could (in principle) be used as a basis for determining proximity to rivers. The HMIRS database's identification of the location of hazardous materials releases is less specific (e.g., city and route). Actual accident data cannot therefore be readily stratified by the characteristics of the immediate environment.

In terms of the overall estimate of hazardous materials releases associated with reportable accidents, the estimates are generally consistent with both average nationwide experience and an independent estimate of the potential for hazardous materials releases along the Truckee River.

The HMIRS database does provide some information to construct a "benchmark" value for the conditional probability of contamination (about 0.325 for liquid hazardous materials along the Truckee River, according to the model). The HMIRS database records indicate whether a release enters a waterway or sewer; this happens most often with a liquid material. For releases at the high end of the quantity range (i.e., more than 3,000 gallons per car), about 2.25 percent of the release incidents (or about 3.6 percent of hazardous materials cars that released), are recorded as entering a waterway or sewer. This portion does not increase over about 3,000 gallons.

Figure 4.3-2 shows how often various sizes of liquid spills in the HMIRS data base enter waterways or sewers. As shown, larger spills, more than 10,000 gallons, are much more likely to enter the waterways or sewers. Yet as shown in Figure 4.3-1, these spills represent a small portion of all spills.

**Figure 4.3-2**
**Summary Distributions for Quantity Spilled from Railcars in HMIRS Database for Liquid Spills Entering Waterways/Sewers (1971-1996)**




Note that the number of records of spills (on the Y-axis) entering the waterways/sewers for each category is less than 40, as compared to the number of records for all spills (Y-axis) for the categories on Figure 4.3-1, which is more than 8,000 for the less-than-one-gallon category. This low ratio of spills into the waterways/sewers must be adjusted, however, recognizing that not all the nation's railroad system is adjacent to waterways or sewers. It is also possible that the occurrences of entry into waterways or sewers are under-reported, particularly for small releases. Examination of a nationwide sample of maps suggests that the true mean of the portion of railroad mainline track-miles that are adjacent to waterways is very likely to lie between 0.30 and 0.60. It is therefore unlikely that the nationwide average reported conditional probability of a liquid hazardous materials spill contaminating a waterway or sewer exceeds 0.0225/0.30, or about 0.075, for trackage adjacent to waterways.

There is no readily available source for estimating potential under-reporting of hazardous materials releases into waterways in the HMIRS database. A recent paper provides some

indication of the possible extent of differences in accident rates which can arise from reporting and other procedural differences.[2] This paper compared the ratios of estimated fatal accident rates for multi-unit trucks using the Trucks Involved in Fatal Accidents (TIFA) database in conjunction with the Federal Highway Performance Monitoring System (HPMS) travel data, versus the U.S. DOT Fatal Accident Reporting System (FARS) in conjunction with the Bureau of the Census TIUS travel data. Relative to single-trailer and single-unit trucks, these rates were about 35 and 94 percent higher respectively. This suggests that it would not be remarkable for the true benchmark to be as much as twice that estimated using the HMIRS data.

In the case of the railroad along the Truckee River and its tributaries, this benchmark value could also reasonably be expected to be exceeded because of the challenging terrain. One possible benchmark for this might be the ratio of mountainous Arkansas' motor vehicle fatality rate (the nation's highest according to the paper discussed above) to the national average: about 1.43. In light of the above crude approximations, a possible benchmark value for the Truckee River might be 0.075 x 2 x 1.43 = 0.2145, which suggests that the model's estimate of 0.325 is not unreasonable and may be conservative.

## 4.4 Hazardous Material Commodities

This section describes the chemical and physical properties and toxicity of hazardous commodities transported by rail through Reno, Nevada. In addition, this section also describes the potential hazards of these materials from potential releases to the environment. A hazardous material, for the purpose of this report, is defined as a substance or material, which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated. The term includes hazardous substances, hazardous wastes, marine pollutants, and elevated temperature materials (CFR 1996). Lists of the hazardous commodities used in this evaluation were obtained from surveys of hazardous material commodities transported through the Reno corridor. These surveys were performed by UP, and included a one-week inventory (from 16 to 24 October, 1997), and a four-month survey (from May 1 to August 31, 1997). Several additional hazardous commodities identified by Carr (1996), but not identified during the 1997 surveys, were also included in this evaluation.

### 4.4.1 Chemical and Physical Properties

Sixty hazardous commodities transported by rail through Reno, Nevada are listed in Table 4-1, along with some chemical and physical properties and toxicity data useful in assessing risks to the Truckee River aquatic ecosystem and human health. In general, the hazardous commodities can be grouped by physical state as liquids, solids, and gaseous materials.

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[2]Mingo, R.D., Esterlitz, J.R., and Mingo, B.L., "Accident Rates of Multiunit Combination Vehicles Derived from Large-Scale Data Bases," *Transportation Research Record No 1322*, National Research Council, 1991.

**Table 4.4-1a**
**CHEMICAL AND PHYSICAL PROPERTIES AND TOXICITY DATA FOR TRANSPORTED COMMODITIES**

| CAS, UN, NA, or UP Number | Commodity | Formula | Vapor Pressure | Source | Water Solubility | Source | Aquatic Toxicity | Source |
|---|---|---|---|---|---|---|---|---|
| 1634-04-4 UN 2308 | Methyl *tert*-butyl ether | $C_5H_{12}0$ | 245 mm Hg at 25° C | Windholz et. al. 1983 | 4.8 g/100 $cm^3$ | Windholz et. al. 1983 | $LC_{50}$ 100-1000 mg/L fathhead minnow 96 hr | U.S. EPA 1993 |
| 7664-939 UN1830 | Sulfuric acid | $H_2SO_4$ | 1 mm Hg | NIOSH 1990 | Miscible | West 1984; CHRIS 1991 | $LC_{50}$ 24.5 mg/L bluegill 24 hr | CHRIS 1991 |
| 7664-38-2 UN 1805 | Phosphoric acid | $H_3PO_4$ | 1 mm Hg | NIOSH 1990 | Miscible | CHRIS 1991 | $TL_m$ 138 mg/L mosquito fish 24 hr | CHRIS 1991 |
| 7664-41-7 UN 1005 | Anhydrous ammonia | $NH_3$ | >1atm | NIOSH 1990 | Miscible | CHRIS 1991 | $LC_{50}$ 2.0 - 2.5[b] mg/L goldfish 24 to 96 hr; $TL_m$ 8.2[b] fathead minnow 96 hr | CHRIS 1991 |
| 1310-73-2 UN 1824 | Sodium hydroxide, solution | NaOH | 0 mm Hg | NIOSH 1990 | 42 g/100 $cm^3$ | CHRIS 1991 | TLm 125 mg/L mosquito fish 96 hr | CHRIS 1991 |
| 6484-52-2 UN 1942 | Ammonium Nitrate | $NH_4NO_3$ | NA | NA | 118.3 g/100 $cm^3$ | West 1984 | $LC_{50}$ 2.0 - 2.5[f] mg/L goldfish 24 to 96 hr; $TL_m$ 8.2[f] fathead minnow 96 hr | CHRIS 1991 |
| 67-56-1 UN 1230 | Methyl alcohol or Methanol | $CH_3OH$ | 92 mm Hg | NIOSH 1990 | Miscible | CHRIS 1991 | $LC_{100}$ 250 mg/L goldfish 11 hr | CHRIS 1991 |
| 7782-50-5 UP 1017 | Chlorine | $Cl_2$ | >1 atm | NIOSH 1990 | 0.65 g/100 $cm^3$ | CHRIS 1991 | $TL_m$ 0.08 mg/L trout 168 hr | CHRIS 1991 |
| 80-62-6 UN 1247 | Methyl methacrylate, monomer, inhibited | $C_4H_6O_2$ | 40 mm Hg | NIOSH 1990 | 1.5 g/100 $cm^3$ | NIOSH 1990 | $TL_m$ 250 mg/L bluegill 96 hr | CHRIS 1991 |
| UN 3257 | Elevated temperature liquid, n.o.s., at above 100° C and below its flash point | — | NA | — | NA | — | NA | — |
| UN 2693 | Bisulfides, aqueous solution, n.o.s. | — | NA | — | NA | — | NA | — |
| 64-17-5 NA 1987 | Denatured alcohol Ethyl alcohol or Ethanol | $C_2H_6O$ | 40 mm Hg at 19° C | Sax and Lewis 1989 | Miscible | CHRIS 1991 | $LC_{100}$ 250 mg/L goldfish | CHRIS 1991 |
| 74-98-6 UN 1075 | Propane | $C_3H_8$ | 8.4 atm at 70° F | NIOSH 1994 | Insoluble | CHRIS 1991 | >10,000[b] mg/L | CHRIS 1991 |
| 7647-01-0 UN 1789 | Hydrochloric acid | HCl | > 1 atm | CHRIS 1991 | Miscible | CHRIS 1991 | $TL_m$ 282 mg/L mosquito fish 96 hr | CHRIS 1991 |
| UN 1993 | Flammable liquid, n.o.s,. (xylenes and toluene) | — | NA | — | 0.05 g/100 $cm^3$ at 68.02° F for toluene insoluble for xylenes | CHRIS 1991 | $TL_m$ 22 - 1,180[g] mg/L | CHRIS 1991 |

**Table 4.4-1a**
**CHEMICAL AND PHYSICAL PROPERTIES AND TOXICITY DATA FOR TRANSPORTED COMMODITIES**

| CAS, UN, NA, or UP Number | Commodity | Formula | Vapor Pressure | Source | Water Solubility | Source | Aquatic Toxicity | Source |
|---|---|---|---|---|---|---|---|---|
| UN 3077 | Environmentally hazardous substance, solid (aluminum sulfate) | $Al_2(SO_4)_3$ $18H_2O$ | NA | — | 38.17 g/100 $cm^3$ at 60° F | CHRIS 1991 | $LC_{100}$ 14 mg/L fundulus 36 hr; $TL_m$ 240 mg/L mosquito fish 48 hr | CHRIS 1991 |
| 7446-09-5 UN 1079 | Sulfur Dioxide | $SO_2$ | > 1atm | NIOSH 1990 | 10 g/100 $cm^3$ at 60.2° F | NIOSH 1990 | $LC_{100}$ 5 mg/L trout 1 hr | CHRIS 1991 |
| 1310-58-3 UN 1814 | Potassium hydroxide | KOH | 1 mm Hg at 317° F | NIOSH 1994 | 107 g/100 $cm^3$ | West 1984 | $TL_m$ 80 mg/L mosquito fish 24 hr | CHRIS 1991 |
| 68334-305 UN 1993 | Diesel fuel | — | 2.12 - 26.4[c] mm Hg | U.S. DHHS 1995b | Insoluble | NIOSH 1990 | $TL_m$ 204[c] mg/L juvenile american shad 24 hr | CHRIS 1991 |
| UN 0242 | Charges, propelling, for cannon | — | NA | — | NA | — | NA | — |
| 75-20-7 UN 1602 | Calcium carbide | $CaC_2$ | NA | NA | Reacts with water to form acetylene gas | CHRIS 1991 | $LC_{50}$ 2.0 - 2.5[b,f] mg/L goldfish 24 to 96 hr; $TL_m$ 8.2[b,f] fathead minnow 96 hr | CHRIS 1991 |
| 108-95-2 UN 2312 | Phenol, molten | $C_6H_5OH$ | 0.4 mm Hg | NIOSH 1994 | 8.4 g/100 $cm^3$ at 68.02° F | CHRIS 1991 | $TL_m$ 11.5 - 28.5 mg/L bluegill 96 hr | CHRIS 1991 |
| UN 1760 | Corrosive liquids, n.o.s. | — | NA | — | NA | — | NA | — |
| 7722-64-1 | Hydrogen peroxide, stabilized or hydrogen | $H_2O_2$ | 5 mm Hg at 85° F | NIOSH 1994 | Miscible | CHRIS 1991 | $LC_{100}$ > 400[b] mg/L fingerling trout | CHRIS 1991 |
| 7705-08-0 UN 2582 | Ferric chloride, solution | $FeCl_3$ | 1 mm Hg at 194° C | Sax and Lewis 1989 | 97.2 g/100 $cm^3$ at 70° F | CHRIS 1991 | $LC_{50}$ 1.2 mg/L stickback 240 hr. | CHRIS 1991 |
| 78-93-3 UN 1193 | Methyl ethyl ketone | $C_4H_8O$ | 71 mm Hg | NIOSH 1990 | 27 g/100 $cm^3$ at 68.02° F | CHRIS 1991 | $TL_m$ 5640 mg/L bluegill 48 hr | CHRIS 1991 |
| NA 1993 | Combustible liquid, n.o.s., (contains mineral spirits) | — | NA | — | NA | — | NA | — |
| 7722-64-1 | Hydrogen peroxide, aqueous solution | $H_2O_2$ | 5 mm Hg at 85° F | NIOSH 1994 | Miscible | CHRIS 1991 | $LC_{100}$ > 400[b] mg/L fingerling trout | CHRIS 1991 |
| — | Corrosive solid, basic inorganic, n.o.s. | — | NA | — | NA | — | NA | — |
| — | Fak-hazardous materials | — | NA | — | NA | — | NA | — |
| — | Other regulated substances, liquid, n.o.s. | — | NA | — | NA | — | NA | — |
| 7440-37-1 UN 1006 UN 1951 | Argon | Ar | 1 mm Hg at -218.2° C | West 1984 | 5.6 g/100 $cm^3$ | West 1984 | NA | — |
| 67-64-1 UN 1090 | Acetone | $C_3H_6O$ | 180 mm Hg | NIOSH 1994 | Miscible | NIOSH 1994 | $LC_{100}$ 14,250 mg/L sunfish 24 hr; $TL_m$ 13,000 mg/L mosquito fish 48 hr | CHRIS 1994 |

**Table 4.4-1a**
**CHEMICAL AND PHYSICAL PROPERTIES AND TOXICITY DATA FOR TRANSPORTED COMMODITIES**

| CAS, UN, NA, or UP Number | Commodity | Formula | Vapor Pressure | Source | Water Solubility | Source | Aquatic Toxicity | Source |
|---|---|---|---|---|---|---|---|---|
| 74-83-9 UN 1062 | Methyl bromide | $CH_3Br$ | 1.7 mm Hg | NIOSH 1994 | 0.09 g/100 $cm^3$ at 68.02° F | CHRIS 1991 | $LC_{50}$ 1,000 to 10,000[b] mg/L | CHRIS 1991 |
| 12125-01-8 UN 2505 | Ammonium fluoride | $NH_4F$ | NA | NA | 82.78 g/100 $cm^3$ at 70° F | CHRIS 1991 | $LC_{50}$ 2.0-2.5[a] mg/L goldfish 24 to 96 hours; $TL_m$ 8.2[h] fathead minnow 96 hr | CHRIS 1991 |
| 1309-45-1 UN 1778 | Fluorosilicic acid | $F_6H_2Si$ | NA | NA | Miscible | CHRIS 1991 | $LC_{50}$ > 10,000[b] mg/L | CHRIS 1991 |
| 1327-52-2 UN 1553 | Arsenic acid, solution | $AsH_3O_4$ | NA | — | 40.07 g/100 $cm^3$ at 70° F | CHRIS 1991 | $LC_{50}$ < 1[b] mg/L | CHRIS 1991 |
| UN 0048 | Charges, demolition | — | NA | — | NA | — | NA | — |
| 95-47-6/ 108-38-3/ 106-42-3 UN 1307 | Xylenes | $C_8H_{10}$ | 7 - 9 mm Hg | NIOSH 1994 | Insoluble | CHRIS 1994 | $TL_m$ 22 - >100[d] mg/L | CHRIS 1994 |
| — | Flammable liquids, n.o.s., corrosive | — | NA | — | NA | — | NA | — |
| — | Cleaning compounds | — | NA | — | NA | — | NA | — |
| 7664-39-3 UN 1790 | Hydrofluoric acid solution | HF | 400 mm Hg at 2.5° C | Sax and Lewis 1989 | Miscible | CHRIS 1991 | $LC_{100}$ 60 mg/L fish | CHRIS 1991 |
| UN 0160 | Powder, smokeless | — | NA | — | NA | — | NA | — |
| 64-19-7 | Acetic acid glacial or acetic acid solution | $C_2H_4O_2$ | 11 mm Hg | NIOSH 1994 | Miscible | CHRIS 1991 | $TL_m$ 75 mg/L bluegill 96 hr; $TL_m$ 100 mg/L goldfish 96 hr | CHRIS 1991 |
| 68-12-2 UN 2265 | N, N-Dimethylformamide | $C_3H_7NO$ | 3.7 mm Hg at 25° C | Sax and Lewis 1989 | Miscible | CHRIS 1991 | $LC_{50}$ 100 - 1000[b] mg/L | CHRIS 1991 |
| 1310-73-2 UN 1824 | Sodium hydroxide, solution waste | NaOH | 0 mm Hg | NIOSH 1990 | 42 g/100 $cm^3$ | West 1984 | $TL_m$ 125 mg/L mosquito fish 96 hr | CHRIS 1991 |
| UN 1206 | Naphtha solvents | — | < 5 mm Hg | NIOSH 1990 | Insoluble | CHRIS 1991; NIOSH 1990 | 5 - 1,180[g] mg/L | CHRIS 1991 |
| 7647-01-0 UN 1790 | Hydrochloric acid, solution | HCl | > 1 atm | NIOSH 1990 | Miscible | CHRIS 1991 | $TL_m$ 282 mg/L mosquito fish 96 hr | CHRIS 1991 |
| UN 2924 | Flammable liquids, corrosive, n.o.s. (toluene and alkyl phosphine adduct) | — | 20 mm Hg at 65° F for toluene | NIOSH 1990 | 0.05 g/100 $cm^3$ at 68.02° C for toluene | CHRIS 1991 | $TL_m$ 1,180 mg/L sunfish 96 hr for toluene | CHRIS 1991 |
| 124-40-3 UN 1032 | Dimethylamine, anhydrous | $C_2H_7N$ | 1 mm Hg | NIOSH 1994 | 2 g/100 $cm^3$ | NIOSH 1994 | NA | NA |

**Table 4.4-1a**
**CHEMICAL AND PHYSICAL PROPERTIES AND TOXICITY DATA FOR TRANSPORTED COMMODITIES**

| CAS, UN, NA, or UP Number | Commodity | Formula | Vapor Pressure | Source | Water Solubility | Source | Aquatic Toxicity | Source |
|---|---|---|---|---|---|---|---|---|
| 542-75-6/ 78-88-8 UN 2047 | Dichloropropenes | $C_3H_4Cl_2$ | 28[f] mm Hg | NIOSH 1994 | 0.2 g/100 $cm^3$ to insoluble[i] | NIOSH 1994 CHRIS 1994 | $LC_{100}$ 100[b] mg/L daphnia; $TL_m$ 10 - 100[j] mg/L finfish 96 hr | CHRIS 1994 |
| 141-32-2 UN 2348 | Butyl acrylate | $C_7H_{12}O_2$ | 4 mm Hg | NIOSH 1994 | 0.2 g/100 $cm^3$ at 68.02° F | CHRIS 1991 | $LC_{50}$ 1,000 to 10,000[b] mg/L | CHRIS 1991 |
| 27176-6-87-0 NA 2584 | Dodecylbenzenesulfonic acid | $C_{18}H_{30}SO_3$ | NA | — | Soluble | CHRIS 1991 | $TL_m$ 4.2 - 5.6 mg/L fathead minnow and bluegill soft water 96 hr; $TL_m$ 3.5 - 4.4 mg/L minnow and bluegill hard water 96 hr | CHRIS 1991 |
| 7758-94-3 NA 1760 | Ferrous chloride, solution | $FeCl_2$ | 10 mm Hg at 700° C | Sax and Lewis 1989 | 63.42 g/100 $cm^3$ at 70° F | CHRIS 1991 | $LC_{100}$ 36 mg/L daphnia 64 hr | CHRIS 1991 |
| 1310-73-2 UN 1823 | Sodium hydroxide | NaOH | 0 mm Hg | NIOSH 1990 | 42 g/100 $cm^3$ | West 1984 | $TL_m$ 125 mg/L mosquito fish 96 hr | CHRIS 1991 |
| 142-96-1 | Butyl ether | $C_8H_{18}O$ | 4.8 mm Hg at 20° C | Verschueren 1997 | 0.03 g/100 $cm^3$ at 68° F | CHRIS 1991 | $LC_{50}$ 32.3 mg/L fathead; >430 mg/L sheepshead 48 hr | AQUIRE 1996 |
| MX8030-31-7 | Naphtha (coal tar) | — | <5 mm Hg | NIOSH 1990 | Insoluble | CHRIS 1991; NIOSH 1990 | $TL_m$ 5 - 1,180[d] mg/L | CHRIS 1991 |
| 106-97-8 | Butane | $n\text{-}C_4H_{10}$ | 2.05 atm | NIOSH 1994 | Insoluble | CHRIS 1991 | >10,000[a] mg/L | CHRIS 1991 |
| 75-15-0 | Carbon disulfide | $CS_2$ | 297 mm Hg | NIOSH 1990 | Insoluble | CHRIS 1991 | $TL_m$ 35 mg/L mosquito fish 48 hr | CHRIS 1991 |
| 115-10-6 | Methyl ether | $C_2H_6O$ | 760 mm Hg at -23.7° C | Windholz et. al. 1983 | 7 g/100 $cm^3$ at 68° F | CHRIS 1991 | NA | — |

[a] CFR 49 172.101 - special provisions codes 1 through 6.
[b] Provided by CHRIS (1991) as a range of values.
[c] Value for fuels oil 1-D (light diesel fuel) and 2-D (medium diesel fuel).
[d] Values for benzene ($LC_{100}$ 5 mg/L minnow 6 hr; $TL_m$ 20 mg/L sunfish 24 hr), toluene ($TL_m$ 1,180 mg/L sunfish 96 hr) m-xylene ($TL_m$ 22 mg/L bluegill 96 hr), o-xylene ($TL_m$ >100 mg/L D. magna 96 hr),
and p-xylene ($TL_m$ 22 mg/L bluegill 96 hr).
[e] Values for benzene ($LD_{50}$ 5 to 500 mg/kg); for toluene, and m-, o-, p-xylene (5 to 15 g/kg).
[f] Value for anhydrous ammonia.
[g] Value for acetylene (slightly toxic).
[h] Value for 1,3-dichloropropene.
[i] Value of 0.2 g/100 $cm^3$ for 1,3-dichloropropene and insoluble for 2,3-dichloropropene.
[j] Value for 2,3-dichloropropene.
[k] Value for dodecylbenzenesulfonic acid sodium salt.

**Key:**

Ceiling (C) = The exposure that shall not be exceeded during any part of the workday

IG = Inert gas. Simple asphyxiant "inert" gases or vapors when present in high concentrations in air act primarily as simple asphyxiant by displacing oxygen without other significant effects.

$LC_{100}$ = Means that approximately 100% of the fish will die under the conditions of the concentration and time given.

$LC_{50}$ = Means that approximately 50% of the fish will die under the conditions of concentration and time given.

MAK = Federal Republic of Germany maximum concentration values in the workplace.

n.o.s = Not otherwise specified.

NA = Not available.

PEL = National Institute for Occupational Safety and Health Recommended Exposure Limits.

REL = National Institute for Occupational Safety and Health Recommended Exposure Limits.

STEL = Short-term exposure limit. Usually a 15-minute time weighted average (TWA) exposure that should not be exceeded at any time during a weekday, even if the 8-hour TWA is within the TLV-TWA, PEL-TWA, or REL-TWA.

$TL_m$ = Means that approximately 50% of the fish will show abnormal behavior (including death) under the conditions of the concentrations and time given. The term $EC_{50}$ (Effective concentration) is used instead of $TL_m$.

TLV = Threshold limit value.

TWA = Time-weighted average exposure concentration for a conventional 8-hour (TLV, PEL) or up to a 10-hour (REL) workday and a 40-day workweek.

Table 4.4-1b

CHEMICAL AND PHYSICAL PROPERTIES AND TOXICITY DATA FOR TRANSPORTED COMMODITIES

| CAS, UN, NA, or UP Number | Commodity | Human Oral Toxicity | Source | Occupational Exposure Limits (mg/m$^3$) | | | DOT Poison by Inhalation[a] |
|---|---|---|---|---|---|---|---|
| | | | | TWA (8 hr/day, 40 hr/week) | STEL (15 min) or Ceiling (C) | Source | |
| 1634-04-4 UN 2308 | Methyl *tert*-butyl ether | NA | — | TLV 144 | NA | ACGIH 1996 | No |
| 7664-939 UN1830 | Sulfuric acid | $LD_{50}$ 0.5 to 5[b] g/kg | CHRIS 1991 | PEL 3 | TLV 3 | ACGIH 1996 | No |
| 7664-38-2 UN 1805 | Phosphoric acid | $LD_{50}$ 0.5 to 5[b] g/kg | CHRIS 1991 | TLV 1 | TLV 3 | ACGIH 1996 | No |
| 7664-41-7 UN 1005 | Anhydrous ammonia | $LD_{50}$ 0.5 to 5[b] g/kg | CHRIS 1991 | TLV 17 | TLV 24 | ACGIH 1996 | Yes |
| 1310-73-2 UN 1824 | Sodium hydroxide, solution | LD50 0.6 g/kg orally in rats | Windholz et. al. 1983 | PEL 2 | TLV 2 C | ACGIH 1996 | No |
| 6484-52-2 UN 1942 | Ammonium Nitrate | $LD_{50}$ 0.5 to 5[b] g/kg | CHRIS 1991 | NA | NA | — | No |
| 67-56-1 UN 1230 | Methyl alcohol or Methanol | $LD_{50}$ 5 to 15[b] g/kg | CHRIS 1991 | PEL 260 skin | REL 325 C | ACGIH 1996 | No |
| 7782-50-5 UP 1017 | Chlorine | $LD_{50}$ 0.5 to 5[b] g/kg | CHRIS 1991 | TLV 1.5 | TLV 2.9 | ACGIH 1996 | Yes |
| 80-62-6 UN 1247 | Methyl methacrylate, monomer, inhibited | $LD_{50}$ 0.5 to 5[b] g/kg | CHRIS 1991 | TLV 410 | NA | ACGIH 1996 | No |
| UN 3257 | Elevated temperature liquid, n.o.s., at above 100° C and below its flash point | NA | — | NA | NA | — | NA |
| UN 2693 | Bisulfides, aqueous solution, n.o.s. | NA | — | — | NA | NA | No |
| 64-17-5 NA 1987 | Denatured alcohol Ethyl alcohol or Ethanol | $LD_{50}$ 5 to 15[b] g/kg | CHRIS 1991 | TLV 1,880 | NA | ACGIH 1996 | No |
| 74-98-6 UN 1075 | Propane | $LD_{50}$ >15[b] g/kg | CHRIS 1991 | PEL 1,800 | NA | ACGIH 1996 | No |
| 7647-01-0 UN 1789 | Hydrochloric acid | $LD_{50}$ 0.5 to 5[b] g/kg | CHRIS 1991 | PEL 7.5 | NA | ACGIH 1996 | No |
| UN 1993 | Flammable liquid, n.o.s., (xylenes and toluene) | $LD_{50}$ 0.05 to 15[b,c] g/kg | CHRIS 1991 | TLV 188 skin, for toluene; TLV 474 for xylenes | TLV 651 for xylenes | ACGIH 1996 | No |
| UN 3077 | Environmentally hazardous substance, solid (aluminum sulfate) | NA | NA | NA | NA | — | No |
| 7446-09-5 UN 1079 | Sulfur Dioxide | $LD_{50}$ >15[b] g/kg | CHRIS 1991 | TLV 5.2 | TLV 13 | ACGIH 1996 | Yes |
| 1310-58-3 UN 1814 | Potassium hydroxide | $LD_{50}$ 1.23 g/kg orally in rats | Windholz et. el. 1983 | REL 2 | TLV 2 C | ACGIH 1996 | No |
| 68334-305 UN 1993 | Diesel fuel | $LD_{50}$ 7.5 orally in rats g/kg | IPCS 1996 | TLV 350 | NA | ACGIH 1996 | No |
| UN 0242 | Charges, propelling, for cannon | NA | — | NA | NA | — | No |
| 75-20-7 UN 1602 | Calcium carbide | REL 2,500[d] mg/L | NIOSH 1994 | NA | NA | — | No |
| 108-95-2 UN 2312 | Phenol, molten | $LD_{50}$ 0.5 to 5[b] g/kg | CHRIS 1991 | PEL 19 skin | REL C 60 | ACGIH 1996 | No |
| UN 1760 | Corrosive liquids, n.o.s. | NA | — | NA | NA | — | No |
| 7722-64-1 | Hydrogen peroxide, stabilized or hydrogen | $LD_{50}$ 0.5 to 15[b] g/kg | CHRIS 1991 | TLV 1.4 | REL 1.4 | ACGIH 1996 | No |

Table 4.4-1b

CHEMICAL AND PHYSICAL PROPERTIES AND TOXICITY DATA FOR TRANSPORTED COMMODITIES

| CAS, UN, NA, or UP Number | Commodity | Human Oral Toxicity | Source | Occupational Exposure Limits ($mg/m^3$) | | Source | DOT Poison by Inhalation[a] |
|---|---|---|---|---|---|---|---|
| | | | | TWA (8 hr/day, 40 hr/week) | STEL (15 min) or Ceiling (C) | | |
| 7705-08-0 UN 2582 | Ferric chloride, solution | $LD_{50}$ 900 mg/L orally in rats | Windholz et. al. 1983 | TLV 1 | NA | ACGIH 1996 | No |
| 78-93-3 UN 1193 | Methyl ethyl ketone | $LD_{50}$ 0.5 to 5[a] g/kg | CHRIS 1991 | TLV 590 | TLV 885 | ACGIH 1996 | No |
| NA 1993 | Combustible liquid, n.o.s., (contains mineral spirits) | NA | — | TLV 525 | REL 1,800 C | ACGIH 1996 | No |
| 7722-64-1 | Hydrogen peroxide, aqueous solution | $LD_{50}$ 0.5 to 15[b] g/kg | CHRIS 1991 | TLV 1.4 | REL 1.4 | ACGIH 1996 | No |
| — | Corrosive solid, basic inorganic, n.o.s. | NA | — | NA | NA | — | NA |
| — | Fak-hazardous materials | NA | — | NA | NA | — | NA |
| — | Other regulated substances, liquid, n.o.s. | NA | — | NA | NA | — | NA |
| 7440-37-1 UN 1006 UN 1951 | Argon | NA | — | IG | IG | — | No |
| 67-64-1 UN 1090 | Acetone | $LD_{50}$ 5 to 15[b] g/kg | CHRIS 1994 | TLV 1,188 | TLV 1,782 | ACGIH 1996 | No |
| 74-83-9 UN 1062 | Methyl bromide | $LD_{50}$ > 15[b] g/kg | CHRIS 1991 | TLV 3.9 skin | PEL 80 C skin | ACGIH 1996 | No |
| 12125-01-8 UN 2505 | Ammonium fluoride | NA | — | TLV 2.5 for fluoride | NA | ACGIH 1996 | No |
| 1309-45-1 UN 1778 | Fluorosilicic acid | $LD_{50}$ 50 to 500[b] mg/kg | CHRIS 1991 | NA | NA | — | No |
| 1327-52-2 UN 1553 | Arsenic acid, solution | $LD_{50}$ 0.5 to 5[b] g/kg | CHRIS 1991 | TLV 0.01 | NA | ACGIH 1996 | No |
| UN 0048 | Charges, demolition | NA | — | NA | NA | — | No |
| 95-47-6/ 108-38-3/ 106-42-3 UN 1307 | Xylenes | $LD_{50}$ 5 to 15[b] g/kg | CHRIS 1994 | TLV 434 | TLV 651 | ACGIH 1996 | No |
| — | Flammable liquids, n.o.s., corrosive | NA | — | NA | NA | — | No |
| — | Cleaning compounds | NA | — | NA | NA | — | No |
| 7664-39-3 UN 1790 | Hydrofluoric acid solution | $LD_{50}$ < 50[b] mg/kg | CHRIS 1991 | NA | NA | — | |
| UN 0160 | Powder, smokeless | NA | — | NA | NA | — | — |
| 64-19-7 | Acetic acid glacial or acetic acid solution | $LD_{50}$ 0.5 to 15[b] g/kg | CHRIS 1991 | TLV 25 | TLV 37 | ACGIH 1996 | No |
| 68-12-2 UN 2265 | N, N-Dimethylformamide | $LD_{50}$ 0.5 to 5[b] g/kg | CHRIS 1991 | TLV 30 skin | NA | ACGIH 1996 | No |
| 1310-73-2 UN 1824 | Sodium hydroxide, solution waste | $LD_{50}$ 0.5 g/kg orally in rats | Windholz et. el.1983 | PEL 2 | TLV 2 C | ACGIH 1996 | No |
| UN 1206 | Naphtha solvents | $LD_{50}$ 0.05 to 15[b,c] g/kg | CHRIS 1991 | PEL 400 | NA | ACGIH 1996 | No |
| 7647-01-0 UN 1790 | Hydrochloric acid, solution | $LD_{50}$ 0.5 to 5[b] g/kg | CHRIS 1991 | PEL 7.5 | NA | ACGIH 1996 | No |
| UN 2924 | Flammable liquids, corrosive, n.o.s. (toluene and alkyl phosphine adduct) | $LD_{50}$ 5 to 15[b] g/kg for toluene | CHRIS 1991 | NA | NA | — | No |
| 124-40-3 UN 1032 | Dimethylamine, anhydrous | $LD_{50}$ 1,410 mg/kg orally in rats | Sax and Lewis 1989 | TLV 25 skin | TLV 50 skin | ACGIH 1996 | No |

**Table 4.4-1b**

**CHEMICAL AND PHYSICAL PROPERTIES AND TOXICITY DATA FOR TRANSPORTED COMMODITIES**

| CAS, UN, NA, or UP Number | Commodity | Human Oral Toxicity | Source | Occupational Exposure Limits (mg/m$^3$) | | | DOT Poison by Inhalation[a] |
|---|---|---|---|---|---|---|---|
| | | | | TWA (8 hr/day, 40 hr/week) | STEL (15 min) or Ceiling (C) | Source | |
| 542-75-6/ 78-88-8 UN 2047 | Dichloropropenes | $LD_{50}$ 50 to 500[b] mg/kg | CHRIS 1994 | TLV 4.5[h] | NA | ACGIH 1996 | No |
| 141-32-2 UN 2348 | Butyl acrylate | $LD_{50}$ 0.5 to 15[b] g/kg | CHRIS 1991 | TLV 52 | NA | ACGIH 1996 | No |
| 27176-6-87-0 NA 2584 | Dodecylbenzenesulfonic acid | $LD_{50}$ 2[k] g/kg orally in rats | Windholz et. al.1983 | NA | NA | — | No |
| 7758-94-3 NA 1760 | Ferrous chloride, solution | NA | — | TLV 1 | NA | ACGIH 1996 | No |
| 1310-73-2 UN 1823 | Sodium hydroxide | $LD_{50}$ 0.5 g/kg orally in rats | Windholz et. al.1983 | PEL 2 | TLV 2 C | ACGIH 1996 | No |
| 142-96-1 | Butyl ether | $LD_{50}$ 7.4 g/kg orally in rats | Windholz et. el. 1983 | NA | NA | — | No |
| MX8030-31-7 | Naphtha (coal tar) | $LD_{50}$ 0.05 to 15[b,c] g/kg | CHRIS 1991 | PEL 400 | NA | ACGIH 1996 | No |
| 106-97-8 | Butane | $LD_5$ >15[b] g/kg | CHRIS 1991 | TLV 1990 | NA | ACGIH 1996 | No |
| 75-15-0 | Carbon disulfide | $LD_{50}$ 5 to 15[b] g/kg | CHRIS 1991 | TLV 31 | REL 90 C | ACGIH 1996 | No |
| 115-10-6 | Methyl ether | NA | — | MAK 19 | NA | ACGIH 1996 | No |

[a] CFR 49 172.101 - special provisions codes 1 through 6.
[b] Provided by CHRIS (1991) as a range of values.
[c] Value for fuels oil 1-D (light diesel fuel) and 2-D (medium diesel fuel).
[d] Values for benzene ($LC_{100}$ 5 mg/L minnow 6 hr; $TL_m$ 20 mg/L sunfish 24 hr), toluene ($TL_m$ 1,180 mg/L sunfish 96 hr) m-xylene ($TL_m$ 22 mg/L bluegill 96 hr), o-xylene ($TL_m$ >100 mg/L D. magna 96 hr), and p-xylene ($TL_m$ 22 mg/L bluegill 96 hr).
[e] Values for benzene ($LD_{50}$ 5 to 500 mg/kg); for toluene, and m-, o-, p-xylene (5 to 15 g/kg).
[f] Value for anhydrous ammonia.
[g] Value for acetylene (slightly toxic).
[h] Value for 1,3-dichloropropene.
[i] Value of 0.2 g/100 cm$^3$ for 1,3-dichloropropene and insoluble for 2,3-dichloropropene.
[j] Value for 2,3-dichloropropene.
[k] Value for dodecylbenzenesulfonic acid sodium salt.

**Key:**
Ceiling (C) = The exposure that shall not be exceeded during any part of the workday
IG = Inert gas. Simple asphyxiant "inert" gases or vapors when present in high concentrations in air act primarily as simple asphyxiant by displacing oxygen without other significant effects.
$LC_{100}$ = Means that approximately 100% of the fish will die under the conditions of the concentration and time given.
$LC_{50}$ = Means that approximately 50% of the fish will die under the conditions of concentration and time given.
MAK = Federal Republic of Germany maximum concentration values in the workplace.
n.o.s = Not otherwise specified.
NA = Not available.
PEL = National Institute for Occupational Safety and Health Recommended Exposure Limits.
REL = National Institute for Occupational Safety and Health Recommended Exposure Limits.
STEL = Short-term exposure limit. Usually a 15-minute time weighted average (TWA) exposure that should not be exceeded at any time during a weekday, even if the 8-hour TWA is within the TLV-TWA, PEL-TWA, or REL-TWA.
$TL_m$ = Means that approximately 50% of the fish will show abnormal behavior (including death) under the conditions of the concentrations and time given. The term $EC_{50}$ (Effective concentration) is used instead of $TL_m$.
TLV = Threshold limit value.
TWA = Time-weighted average exposure concentration for a conventional 8-hour (TLV, PEL) or up to a 10-hour (REL) workday and a 40-day workweek.

The liquid commodities include nine acids or acid solutions (sulfuric acid, phosphoric acid, hydrochloric acid, fluorosilicic acid, acetic acid or solution, hydrofluoric acid, and dodecylbenzenesulfonic acid; and arsenic, hydrochloric acid solutions), eight petroleum products, or distillate (flammable liquid–n.o.s., xylenes and toluene, combustible liquid–n.o.s., containing mineral spirits, flammable liquid–n.o.s., corrosive, diesel fuel, gasoline, flammable liquid–containing toluene and alkyl phosphine adduct, naphtha coal tar and naphtha solvents), two bases (sodium hydroxide solution and waste), two alcohols (denatured/ethyl and methyl alcohol), and miscellaneous other chemicals. Sulfuric, phosphoric, and hydrochloric acids are colorless to dark brown, oily to watery, odorless to sharply irritating, liquids that ionize readily in water and are corrosive (NIOSH 1994; Cotton and Wilkinson 1980). Hydrofluoric and acetic acids are colorless to greenish liquids that exhibit an irritating vinegar or strong odor. Fluorosilicic acid is a corrosive, colorless liquid with a sharp unpleasant odor. Dodecylbenzenesulfonic acid is a light yellow to brown, corrosive liquid that exhibits a sulfur odor (CHRIS 1991). Arsenic acid is a white or colorless, soluble liquid that is very toxic.

Diesel fuel (a blended material formulated to meet standard specifications) is generally a brown, slightly viscous, liquid that may be flammable at room temperature. Commercial diesel fuels contain aliphatic, olefinic, cycloparaffinic, and aromatic hydrocarbons (IPCS 1996). Naphtha coal tars and naphtha solvents are by-products of the carbonization of coal to produce coke and/or natural gas. Physically, they are usually colorless to pale yellow watery liquids and are complex combinations of benzene, toluene, and xylene compounds (CHRIS 1991; U.S. DHHS 1996). Solutions of sodium hydroxide are corrosive, oily, and odorless solutions (Sax and Lewis 1989). Denatured and methyl alcohols are clear, colorless, mobile, highly polar, and flammable liquids (CHRIS 1991).

The solid commodities consist of two caustic materials (sodium and potassium hydroxide), ammonium nitrate, calcium carbide, ammonium fluoride, aluminum sulfate and other miscellaneous materials. Sodium and potassium hydroxide are odorless, white to yellowish solid (flakes or pellets), and soluble materials that are very corrosive (NIOSH 1994). Ammonium nitrate is a colorless-to-light-yellow or brown, flammable, and soluble solid that undergoes decomposition at elevated temperatures. Ammonium nitrate acts as an oxidizing agent in many reactions, and in aqueous solutions, it is reduced by various metals. Calcium carbide is a gray-to bluish black, granular solid that reacts with water to form acetylene gas (NIOSH 1990; Sax and Lewis 1988; IPCS 1986). Ammonium fluoride is a white, water soluble, odorless solid. Aluminum sulfate is a gray-to-white, soluble, odorless solid (CHRIS 1996).

Commodities transported as liquefied gas include anhydrous ammonia, methyl ether, sulfur dioxide, chlorine, argon, butane, and propane; and other miscellaneous gases (methyl bromide and dimethylamine gases). Anhydrous ammonia is a colorless gas at atmospheric pressure and dissolves readily in water where it ionizes to form ammonium ions. At the pH of most environmental systems, ammonia exists predominantly in the ionized form (IPCS 1986). Sulfur dioxide is a nonflammable and colorless gas that exhibits a sharp irritating odor (CHRIS 1991). Chlorine is a greenish-yellow, slightly-water-soluble, toxic and irritating gas. Argon is an odorless, inert, nonflammable gas (Sax and Lewis 1989 and CHRIS 1996). Methyl ether is

also a colorless, moderately soluble, flammable gas. Butane and propane are colorless, odorless, flammable, and insoluble gases.

The aqueous solubility of these commodities ranges over orders of magnitude (see Table 4-1), for example, from insoluble for naphtha coal tar, naphtha solvents, diesel fuel, butane, carbon disulfide, and propane to miscible for sulfuric and phosphoric acids, anhydrous ammonia, denatured alcohol, N, N-dimethylformamide, hydrochloric acid, and methyl alcohol; to very soluble for ammonium nitrate, sodium hydroxide, and potassium hydroxide. Similarly, the vapor pressures of these commodities also ranges several orders of magnitude, from zero vapor pressure (zero millimeters of mercury pressure - mm Hg) for sodium hydroxide to 8.4 atmospheres of pressure (atm) for propane.

The acute aquatic (LC50 or TLm) and human toxicity (LD50) threshold values for these commodities also are listed in Table 4.4-1. These values were compiled from available published data. The range of acute aquatic toxicity values covers orders of magnitude, from 0.08 mg/L for chlorine to values greater than 10,000 mg/L for butane and propane. The LD50 values also vary considerably from 0.05 g/kg to greater than 15 g/kg.

### 4.4.2 Identification of Commodities and Hazardous Materials of Concern

Commodities transported through Reno, Nevada have the potential to release hazardous materials into the air, water, or soil. The general approach used in the identification of commodities of potential concern was to evaluate the physical state, release and transport properties, physical hazard properties, and potential toxicity of each material. Since the commodities may contain a mixture of chemicals, the individual constituents of concern were identified if possible. The evaluation is summarized in Table 4.4-2 and discussed below.

The physical and chemical characteristics of each commodity that affect its fate, transport, and potential physical hazards in the environment include its physical state, volatility, solubility, and flow characteristics. The vapor pressure of the commodity was used to estimate its potential to volatilize. Other characteristics that could affect downstream transport of a commodity in the Truckee River include its water solubility and multiphase flow potential (i.e., does it float or sink in water, mixing potential, etc.). The physical hazards of these commodities include properties such as flammability, corrosiveness, or potential to cause an adverse change in pH.

To address potential toxicity in surface water to humans or aquatic life, the acute aquatic and human toxicity threshold values and odor properties were used to classify the materials on a relative scale of zero (lowest) to four (highest). The water pollution ranking criteria developed by the National Academy of Sciences (presented in Table 4.4-3) were used to rank the materials. In addition, potential inhalation poisons were identified based on the information provided in Table 4-1 (i.e., occupational exposure limits and classification as a DOT poison by inhalation).

Table 4.4-2

SUMMARY OF CHEMICAL AND PHYSICAL PROPERTIES AND TOXICITY OF TRANSPORTED COMMODITIES

| CAS, UN, NA, or UP Number | Commodity | Formula | Shipped As | Release and Transport Properties | | | Constituents of Concern | Physical Hazard Property | Water Pollution Ranking[c] | | | Inhalation Poison | Hazard Class[d] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Volatility[b] | Water Solubility | Multiphase Flow Potential | | | Aquatic Toxicity | Human Toxicity | Aesthetic Effect | | |
| 1634-04-4 UN 2308 | Methyl *tert*-butyl ether | $C_5H_{12}0$ | Liquid | Medium | Soluble | Colorless liquid | Methyl *tert*-butyl ether | Flammable | 2 | NA | NA | No | 3 |
| 7664-939 UN1830 | Sulfuric acid | $H_2SO_4$ | Liquid | Medium | Miscible | Sinks and mixes violently in water | Sulfate, sulfuric acid | Acidification, corrosion, heat | 3 | 2 | 2 | No | 8 |
| 7664-38-2 UN 1805 | Phosphoric acid | $H_3PO_4$ | Liquid | Medium | Miscible | Sinks and mixes with water | Phosphate, phosphoric acid | Acidification, corrosion | 2 | 2 | 2 | No | 8 |
| 7664-41-7 UN 1005 | Anhydrous ammonia | $NH_3$ | Liquefied gas | High | Miscible | Floats and boils in water | Ammonium, ammonia | Corrosion | 3 | 2 | 2 | Yes | 2 |
| 1310-73-2 UN 1824 | Sodium hydroxide, solution | NaOH | Liquid | Low | Soluble | Sinks and mixes in water | Sodium, sodium hydroxide | Corrosion, alkalinity | 2[e] | 2[e] | 0[e] | No | 8 |
| 6484-52-2 UN 1942 | Ammonium Nitrate | $NH_4NO_3$ | Solid (flakes or pellets) | NA | Soluble | Sinks and mixes in water | Ammonium, nitrate | Flammable, heat | 3[e] | 2[e] | 2[e] | No | 9 |
| 67-56-1 UN 1230 | Methyl alcohol or Methanol | $CH_3OH$ | Liquid | High | Very soluble | Floats on water | Methyl alcohol | Flammable | 1 | 1 | 1 | No | 3 |
| 7782-50-5 UP 1017 | Chlorine | $Cl_2$ | Liquefied gas | High | Slightly soluble | Sinks and boils in water. Poisonous visible cloud | Chlorine | Poison, strong oxidizer | 4 | 2 | 2 | Yes | 2 |
| 80-62-6 UN 1247 | Methyl methacrylate, monomer, inhibited | $C_4H_6O_2$ | Liquid | Medium | Slightly soluble | Floats on water | Methyl methacrylate | Flammable | 2 | 2 | 2 | No | 2 |
| UN 3257 | Elevated temperature liquid, n.o.s., at above 100° C and below its flash point | — | Liquid | NA | NA | — | NA | Hot | NA | NA | NA | NA | 9 |
| UN 2693 | Bisulfides, aqueous solution, n.o.s. | — | Liquid | NA | NA | — | Bisulfides | Corrosive | NA | NA | NA | No | 8 |
| 64-17-5 NA 1987 | Denatured alcohol Ethyl alcohol or Ethanol | $C_2H_6O$ | Liquid | Medium | Miscible | Floats and mixes with water | alcohol | Flammable | 2 | 1 | 1 | No | 3 |
| 74-98-6 UN 1075 | Propane | $C_3H_8$ | Liquefied gas | High | Insoluble | Floats and boils on water | Propane | Flammable | 0 | 0 | 0 | No | 3 |
| 7647-01-0 UN 1789 | Hydrochloric acid | HCl | Liquid | High | Miscible | Sinks and mixes with water | acidification | Corrosive | 2 | 2 | 2 | No | 8 |

**Table 4.4-2**

SUMMARY OF CHEMICAL AND PHYSICAL PROPERTIES AND TOXICITY OF TRANSPORTED COMMODITIES

| CAS, UN, NA, or UP Number | Commodity | Formula | Shipped As | Release and Transport Properties | | | Constituents of Concern | Physical Hazard Property | Water Pollution Ranking[c] | | | Inhalation Poison | Hazard Class[d] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Volatility[b] | Water Solubility | Multiphase Flow Potential | | | Aquatic Toxicity | Human Toxicity | Aesthetic Effect | | |
| UN 1993 | Flammable liquid, n.o.s., (xylenes and toluene) | — | Liquid | NA | Slightly soluble to insoluble | Floats on water | Xylenes and toluene | Flammable | 1[e,f], 2[e,g], 3[e,h] | 1, C | 2 | No | 3 |
| UN 3077 | Environmentally hazardous substance, solid (aluminum sulfate) | $Al_2(SO_4)_3$ $18H_2O$ | Solid | NA | Soluble | Sinks and mixes slowly with water | Aluminum sulfate, acidification | — | 2, 3 | NA | 0[b] | No | 9 |
| 7446-09-5 UN 1079 | Sulfur Dioxide | $SO_2$ | Liquefied gas | High | Soluble | Sinks and boils in water; poisonous visible vapor | Sulfur dioxide | Poison | 3 | 0 | 1 | Yes | 2 |
| 1310-58-3 UN 1814 | Potassium hydroxide | KOH | Solid | Low | Soluble | Sinks and mixes slowly with water | Potassium hydroxide | Caustic, heat, alkalinity | 3[e] | 2[e] | 0[e] | No | 8 |
| 68334-305 UN 1993 | Diesel fuel | — | Liquid | Medium | Insoluble | Floats on water | Monoaromatic hydrocarbons (e.g., benzene, ethylbenzene, xylene) | Flammable | 2[e] | 1[e],C | 1[e] | No | 3 |
| UN 0242 | Charges, propelling, for cannon | – | Solid | NA | NA | NA | Explosive compounds | Explosive | NA | NA | NA | No | 1 |
| 75-20-7 UN 1602 | Calcium carbide | $CaC_2$ | Solid | NA | Reacts with water | Sinks in water and bubbles on surface | Calcium, Calcium carbide | Flammable | 3[e] | 1[e] | 0[e] | No | 4 |
| 108-95-2 UN 2312 | Phenol, molten | $C_6H_5OH$ | Liquid | Medium | Moderately soluble | May float or sink, and mixes slowly with water | Phenol | Poison, strong oxidizer | 3 | 2 | 3 | No | 6 |
| UN 1760 | Corrosive liquids, n.o.s. | — | Liquid | NA | NA | NA | NA | Corrosive | NA | NA | NA | NA | 8 |
| 7722-64-1 | Hydrogen peroxide, stabilized or hydrogen | $H_2O_2$ | Liquid | Medium | Miscible | Sinks and mixes with water | Hydrogen peroxide | Oxidizer | 3 | 1, C | 1 | No | 5 |
| 7705-08-0 UN 2582 | Ferric chloride, solution | $FeCl_3$ | Liquid | Low | Soluble | Sinks and mixes with water | Ferric chloride | Corrosive | 3 | 2[e] | 0[e] | No | 8 |
| 78-93-3 UN 1193 | Methyl ethyl ketone | $C_4H_8O$ | Liquid | Medium | Soluble | Floats and mixes with water | Methyl ethyl ketone | Flammable | 1 | 2 | 1 | No | 3 |

Table 4.4-2

SUMMARY OF CHEMICAL AND PHYSICAL PROPERTIES AND TOXICITY OF TRANSPORTED COMMODITIES

| CAS, UN, NA, or UP Number | Commodity | Formula | Shipped As | Release and Transport Properties | | | Constituents of Concern | Physical Hazard Property[c] | Water Pollution Ranking[e] | | | Inhalation Poison | Hazard Class[d] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Volatility[b] | Water Solubility | Multiphase Flow Potential | | | Aquatic Toxicity | Human Toxicity | Aesthetic Effect | | |
| NA 1993 | Combustible liquid, n.o.s., (contains mineral spirits) | — | Liquid | NA | NA | — | — | Flammable | NA | NA | NA | No | NA |
| 7722-64-1 | Hydrogen peroxide, aqueous solution | $H_2O_2$ | Liquid | Medium | Miscible | Sinks and mixes with water | Hydrogen peroxide | Oxidizer | 3 | 1, C | 1 | No | 5 |
| — | Corrosive solid, basic inorganic, n.o.s. | — | Solid | NA | NA | — | — | Corrosive | NA | NA | NA | NA | NA |
| — | Fak-hazardous materials | — | Solid | NA | NA | — | — | — | NA | NA | NA | NA | NA |
| — | Other regulated substances, liquid, n.o.s. | — | Liquid | NA | NA | — | — | — | NA | NA | NA | NA | NA |
| 7440-37-1 UN 1006 UN 1951 | Argon | Ar | Liquefied Gas and/or refrigerated | High | Moderately soluble | Colorless inert gas | Argon | Inert | NA | NA | NA | No | 2 |
| 67-64-1 UN 1090 | Acetone | $C_3H_6O$ | Liquid | Medium | Miscible | Floats and mixes with water | Acetone | Flammable | 0 | 1 | 1 | No | 3 |
| 74-83-9 UN 1062 | Methyl bromide | $CH_3Br$ | Liquefied gas | High | Slightly soluble | Sinks and boils in water | Methyl bromide | Flammable | 1 | 0, C | 2 | No | 2 |
| 12125-01-8 UN 2505 | Ammonium fluoride | $NH_4F$ | Solid | NA | Soluble | Sinks and mixes with water | Fluoride | Corrosive | 3 | NA | NA | No | 6 |
| 1309-45-1 UN 1778 | Fluorosilicic acid | $F_6H_2Si$ | Liquid | NA | Miscible | Sinks and mixes with water | Fluoride | Corrosive | 0 | 3 | 1 | No | 8 |
| 1327-52-2 UN 1553 | Arsenic acid, solution | $AsH_3O_4$ | Liquid | NA | Soluble | Sinks and mixes in water | Arsenic, acidification | Poison | 4 | 3 | 3 | Yes | 6 |
| UN 0048 | Charges, demolition | — | Solid | NA | NA | NA | Explosives compounds | Explosive | NA | NA | NA | No | 1 |
| 95-47-6/ 108-38-3/ 106-42-3 UN 1307 | Xylenes | $C_8H_{10}$ | Liquid | Medium | Insoluble | Floats on water | Xylenes | Flammable | 2[g], 3[h] | 1, C | 2 | No | 3 |
| — | Flammable liquids, n.o.s., corrosive | — | Liquid | NA | NA | NA | — | Corrosive | NA | NA | NA | No | 3 |
| — | Cleaning compounds | — | Liquid | NA | NA | NA | NA | NA | NA | NA | NA | No | NA |

Table 4.4-2

SUMMARY OF CHEMICAL AND PHYSICAL PROPERTIES AND TOXICITY OF TRANSPORTED COMMODITIES

| CAS, UN, NA, or UP Number | Commodity | Formula | Shipped As | Release and Transport Properties | | | Constituents of Concern | Physical Hazard Property | Water Pollution Ranking[c] | | | Inhalation Poison | Hazard Class[d] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Volatility[b] | Water Solubility | Multiphase Flow Potential | | | Aquatic Toxicity | Human Toxicity | Aesthetic Effect | | |
| 7664-39-3 UN 1790 | Hydrofluoric acid solution | HF | Liquid | Low | Miscible | Sinks and mixes with water | Hydrochloric acid, acidification | Corrosive | 3 | 4 | 2 | No | 8 |
| UN 0160 | Powder, smokeless | — | Solid | NA | NA | NA | NA | NA | NA | NA | NA | No | 1 |
| 64-19-7 | Acetic acid glacial or acetic acid solution | $C_2H_4O_2$ | Liquid | Medium | Miscible | Sinks and mixes with water | Acidification, acetic acid | Corrosive | 3 | 2 | 2 | No | 8 |
| 68-12-2 UN 2265 | N, N-Dimethylformamide | $C_3H_7NO$ | Liquid | Medium | Miscible | Floats and mixes with water | N, N-Dimethylformamide | Flammable | 2 | 2 | 2 | No | 3 |
| 1310-73-2 UN 1824 | Sodium hydroxide, solution waste | NaOH | Liquid | Low | Soluble | Sinks and mixes in water | Sodium, sodium hydroxide | Corrosion, alkalinity | 2[e] | 2[e] | 0[e] | No | 8 |
| UN 1206 | Naphtha solvents | — | Liquid | Medium | Insoluble | Floats on water | Benzene, toluene, m-, o-, and p-xylene | Flammable | 1[e,f], 2[e,g], 3[e,h] | 1[e,f], 3[e,j], C | 2[e,f], 3[e,j] | No | |
| 7647-01-0 UN 1790 | Hydrochloric acid, solution | HCl | Liquid | High | Miscible | Sinks and mixes with water | acidification | Corrosive | 2 | 2 | 2 | No | 8 |
| UN 2924 | Flammable liquids, corrosive, n.o.s. (toluene and alkyl phosphine adduct) | — | Liquid | Medium | Slightly soluble | Floats on water | Toluene, alkyl phosphine adduct | Flammable, corrosive | 1[f] | 1[f] | 2[f] | No | 3 |
| 124-40-3 UN 1032 | Dimethylamine, anhydrous | $C_2H_7N$ | Liquefied gas | Medium | Miscible | Floats and boils on water | Dimethylamine | Flammable | 3 | 3 | 3 | No | 2 |
| 542-75-6/ 78-88-8 UN 2047 | Dichloropropenes | $C_3H_4Cl_2$ | Liquid | Medium | Slightly soluble | Sinks in water | Chlorine, dichloropropenes | Flammable | 3 | 3, C | 3 | No | 3 |
| 141-32-2 UN 2348 | Butyl acrylate | $C_7H_{12}O_2$ | Liquid | Medium | Slightly soluble | Floats on water | Butyl acrylate | Flammable | 1 | 2, C | 2 | No | 3 |
| 27176-6-87-0 NA 2584 | Dodecylbenzenesulfonic acid | $C_{18}H_{30}SO_3$ | Liquid | NA | Soluble | Mixes with water | Acidification, dodecylbenzenesulfonic acid | Corrosive | 3 | 3[e] | 1[e] | No | 8 |
| 7758-94-3 NA 1760 | Ferrous chloride, solution | $FeCl_2$ | Liquid | Low | Soluble | Sinks and mixes slowly with water | Ferrous chloride | Corrosive | 3 | NA | NA | No | 8 |
| 1310-73-2 UN 1823 | Sodium hydroxide | NaOH | Solid (flakes or pellets) | Low | Soluble | Sinks and mixes in water | Sodium, sodium hydroxide | Corrosion, alkalinity | 2[e] | 2[e] | 0[e] | No | 8 |
| 142-96-1 | Butyl ether | $C_8H_{18}O$ | Liquid | Medium | Slightly soluble | Floats on water | Butyl ether | Flammable | 3[e] | 1[e] | 1[e] | No | 3 |

**Table 4.4-2**

**SUMMARY OF CHEMICAL AND PHYSICAL PROPERTIES AND TOXICITY OF TRANSPORTED COMMODITIES**

| CAS, UN, NA, or UP Number | Commodity | Formula | Shipped As | Release and Transport Properties | | | Constituents of Concern | Physical Hazard Property | Water Pollution Ranking[c] | | | Inhalation Poison | Hazard Class[d] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Volatility[b] | Water Solubility | Multiphase Flow Potential | | | Aquatic Toxicity | Human Toxicity | Aesthetic Effect | | |
| MX8030-31-7 | Naphtha (coal tar) | — | Liquid | Medium | Insoluble | Floats on water | Benzene, toluene, m-, o-, and p-xylene | Flammable | 1[e,f], 2[e,g], 3[e,h] | 1[e,f], 3[e,j], C | 2[e,f], 3[e,j] | No | 3 |
| 106-97-8 | Butane | $n\text{-}C_4H_{10}$ | Liquefied gas | High | Insoluble | Floats and boils on water | Butane | Flammable, reacts with water | 0 | 0 | 0 | No | 3 |
| 75-15-0 | Carbon disulfide | $CS_2$ | Liquid | High | Insoluble | Sinks in water | Carbon disulfide | Flammable | 3 | 1 | 2[e] | No | 3 |
| 115-10-6 | Methyl ether | $C_2H_6O$ | Liquefied gas | High | Moderately soluble | Floats and boils on water | Methyl ether | Flammable | NA | NA | 0[e] | No | 3 |

[a] Combined total number of carloads and/or tank cars inventoried during the survey period.
[b] The volatility potential was estimated using the vapor pressure (VP) values as follows: high volatility—VP greater or equal to 750 mm of Hg (VP for benzene); medium volatility—VP between 0.08 to 750 mm of Hg; and low volatility—VP below or equal to 0.08 mm of Hg (naphthalene).
[c] From CHRIS 1991. NAS (National Academy of Sciences) water pollution ranking.
[d] Classified by Carr 1996 or by using CFR 49, parts 100 to 185. From CFR 49, parts 100 to 185 (1996); class 2, a non-flammable compressed gas; class 3, a flammable and combustible liquid; a class 4, a dangerous when wet material; class 8, corrosive material; and class 9, miscellaneous hazardous material.
[e] From CHRIS 1991; U.S.DHHS 1995b; Verschueren 1977; Windholz et. al. 1983; Sax and Lewis 1989; NIOSH 1990 and1994; Weast 1984; IPCS 1996; and AQUIRE 1996. Values estimated using CHRIS water pollution ranking criteria.
[f] Value for toluene.
[g] Value for o-xylene.
[h] Values for benzene, m-xylene, or p-xylene.
[i] Value for toluene, m-, o-, or p-xylene.
[j] Value for benzene.
[k] Water pollution ranking for Ammonia.

Key:

C = Carcinogen. Diesel fuel, fuel No. 2, gasoline, 1,3-dichloropropene, 2A and/or 2B classification (International Agency for Research on Cancer); naphtha coal tar—for benzene 1; toluene 2; and butyl acrylate, methyl bromide, hydrogen peroxide, and xylenes 3 classification (International Agency for Research on Cancer).
NA = Not available.

Source:

CHRIS 1991; ICPS 1986; Verschueren 1977; Windholz, et. el. 1983; Sax and Lewis 1989; IPCS 1996; U.S.DHHS 1995a, 1995b, and 1995c; U.S.DHHS 1996; Weast 1984; NIOSH 1990; CFR 1996.

| Table 4.4-3<br>Water Pollution Ranking | | | |
|---|---|---|---|
| **Ranking** | **Human Toxicity** | **Aquatic Toxicity** | **Aesthetic Effect** |
| 0.00 | Nontoxic:<br>$LD_{50}$ > 15 g/kg | Acute threshold limits above 10,000 mg/L | No major pollution: gases and odorless liquids. |
| 1 | Practically nontoxic:<br>$LD_{50}$ = 5 to 15 g/kg | Threshold limits 1,000 to 10,000 mg/L | Mild-odored light oils and soluble chemicals. |
| 2 | Slightly toxic:<br>$LD_{50}$ = 0.5 to 5 g/kg | Threshold limits 100 to 1,000 mg/L | Mild-odored, colorless, water-insoluble oils; boiling point 100° - 450° F. |
| 3 | Moderately toxic:<br>$LD_{50}$ = 50 to 500 mg/kg | Threshold limits 1 to 100 mg/L | Light-colored, high-boiling oils; odorous, water-soluble compounds. |
| 4 | Toxic:<br>$LD_{50}$ < 50 mg/kg | Threshold limits below 1 mg/L | Heavy oils, colored or bad odors. |
| Source: CHRIS, 1991 | | | |

Each commodity was then evaluated to determine if it poses a potential risk via the following pathways: to humans through the air pathway (based on its flammability or expressiveness, or its inhalation toxicity), and to humans or aquatic life through the water pathway (to humans via drinking water toxicity, or to aquatic life through exposure in the water column). The commodities of potential concern for each pathway are summarized in Table 4.4-4. Materials with a water pollution ranking of 2 or above, if released in sufficient quantities, are expected to be toxic to aquatic life and/or pose risks to drinking water supplies. Moreover, except for gaseous materials such as propane, butane, etc., and materials such as calcium carbide that react with water to form a gas, all the materials are expected to be transported downstream (For the purposes of quantifying the portion of commodities potentially harmful to fish, commodities listed as "NA" in Table 4.4-4 for aquatic toxicity or downstream transport potential were conservatively assumed to be potentially harmful). Only one of the materials (arsenic acid) is expected to persist in the environment, and none is expected to bioaccumulate in the food chain since for the most part they readily either ionize into nonhazardous constituents, volatilize or react with water, or they are metabolized or biodegraded.

**Table 4.4-4**

**RISK POTENTIAL OF COMMODITIES OF CONCERN**

| CAS, UN, NA, or UP Number | Commodity | Formula | Air Pathway | | Water Pathway | | Fate and Transport Characteristics | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Flammable/ Explosive | Inhalation Toxicity | Ingestion Toxicity | Aquatic Toxicity | Downstream Transport | Persistence | Food Chain Bioaccumulation |
| 1634-04-4 UN 2308 | Methyl *tert*-butyl ether | $C_5H_{12}0$ | + | - | NA | + | + | - | - |
| 7664-939 UN1830 | Sulfuric acid | $H_2SO_4$ | - | - | + | + | + | - | - |
| 7664-38-2 UN 1805 | Phosphoric acid | $H_3PO_4$ | - | - | + | + | + | - | - |
| 7664-41-7 UN 1005 | Anhydrous ammonia | $NH_3$ | - | + | + | + | + | | - |
| 1310-73-2 UN 1824 | Sodium hydroxide, solution | NaOH | - | - | + | + | + | - | - |
| 6484-52-2 UN 1942 | Ammonium Nitrate | $NH_4NO_3$ | + | - | + | + | + | - | - |
| 67-56-1 UN 1230 | Methyl alcohol or Methanol | $CH_3OH$ | + | - | + | - | + | - | - |
| 7782-50-5 UP 1017 | Chlorine | $Cl_2$ | - | + | + | + | + | - | - |
| 80-62-6 UN 1247 | Methyl methacrylate, monomer, inhibited | $C_4H_6O_2$ | + | - | - | + | + | - | - |
| UN 3257 | Elevated temperature liquid, n.o.s., at above 100° C and below its flash point | — | - | - | NA | NA | NA | NA | NA |
| UN 2693 | Bisulfides, aqueous solution, n.o.s. | — | - | - | NA | - | NA | NA | NA |
| 64-17-5 NA 1987 | Denatured alcohol Ethyl alcohol or Ethanol | $C_2H_6O$ | + | - | - | - | + | - | - |
| 74-98-6 UN 1075 | Propane | $C_3H_8$ | + | - | - | + | - | - | - |
| 7647-01-0 UN 1789 | Hydrochloric acid | HCl | - | - | + | + | + | - | - |
| UN 1993 | Flammable liquid, n.o.s, (xylenes and toluene) | — | + | - | - | + | + | - | - |
| UN 3077 | Environmentally hazardous substance, solid (aluminum sulfate) | $Al_2(SO_4)_3$ $18H_2O$ | - | - | NA | + | + | - | - |

**Table 4.4-4**

**RISK POTENTIAL OF COMMODITIES OF CONCERN**

| CAS, UN, NA, or UP Number | Commodity | Formula | Air Pathway | | Water Pathway | | Fate and Transport Characteristics | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Flammable/ Explosive | Inhalation Toxicity | Ingestion Toxicity | Aquatic Toxicity | Downstream Transport | Persistence | Food Chain Bioaccumulation |
| 7446-09-5 UN 1079 | Sulfur Dioxide | $SO_2$ | – | + | – | + | – | – | – |
| 1310-58-3 UN 1814 | Potassium hydroxide | KOH | – | – | + | + | + | – | – |
| 68334-305 UN 1993 | Diesel fuel | — | + | – | – | + | + | – | – |
| UN 0242 | Charges, propelling, for cannon | – | + | – | NA | NA | NA | NA | NA |
| 75-20-7 UN 1602 | Calcium carbide | $CaC_2$ | + | – | | + | + | – | – |
| 108-95-2 UN 2312 | Phenol, molten | $C_6H_5OH$ | – | – | + | + | + | – | – |
| UN 1760 | Corrosive liquids, n.o.s. | — | NA | – | NA | NA | NA | NA | NA |
| 7722-64-1 | Hydrogen peroxide, stabilized or hydrogen | $H_2O_2$ | – | – | – | + | + | – | – |
| 7705-08-0 UN 2582 | Ferric chloride, solution | $FeCl_3$ | – | – | + | + | + | – | – |
| 78-93-3 UN 1193 | Methyl ethyl ketone | $C_4H_8O$ | + | – | + | – | + | – | – |
| NA 1993 | Combustible liquid, n.o.s., (contains mineral spirits) | — | + | – | NA | NA | NA | NA | NA |
| 7722-64-1 | Hydrogen peroxide, aqueous solution | $H_2O_2$ | – | – | – | + | + | – | – |
| — | Corrosive solid, basic inorganic, n.o.s. | — | – | NA | NA | NA | NA | NA | NA |
| — | Fak-hazardous materials | — | NA | NA | NA | NA | NA | NA | NA |
| — | Other reguiated substances, liquid, n.o.s. | — | NA | NA | NA | NA | NA | NA | NA |
| 7440-37-1 UN 1006 UN 1951 | Argon | Ar | – | – | – | – | – | – | – |
| 67-64-1 UN 1090 | Acetone | $C_3H_6O$ | + | – | – | – | + | – | – |
| 74-83-9 UN 1062 | Methyl bromide | $CH_3Br$ | + | – | – | – | – | – | – |

**Table 4.4-4**

**RISK POTENTIAL OF COMMODITIES OF CONCERN**

| CAS, UN, NA, or UP Number | Commodity | Formula | Air Pathway | | Water Pathway | | Fate and Transport Characteristics | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Flammable/ Explosive | Inhalation Toxicity | Ingestion Toxicity | Aquatic Toxicity | Downstream Transport | Persistence | Food Chain Bioaccumulation |
| 12125-01-8 UN 2505 | Ammonium fluoride | $NH_4F$ | – | – | NA | + | + | – | – |
| 1309-45-1 UN 1778 | Fluorosilicic acid | $F_6H_2Si$ | – | – | + | – | + | – | – |
| 1327-52-2 UN 1553 | Arsenic acid, solution | $AsH_3O_4$ | – | + | + | + | + | + | – |
| UN 0048 | Charges, demolition | — | + | – | NA | NA | NA | NA | NA |
| 95-47-6/ 108-38-3/ 106-42-3 UN 1307 | Xylenes | $C_8H_{10}$ | + | – | – | + | + | – | – |
| — | Flammable liquids, n.o.s., corrosive | — | + | – | NA | NA | NA | NA | NA |
| — | Cleaning compounds | — | – | NA | NA | NA | NA | NA | N |
| 7664-39-3 UN 1790 | Hydrofluoric acid solution | HF | – | – | + | + | + | – | – |
| UN 0160 | Powder, smokeless | — | NA | – | NA | NA | NA | NA | NA |
| 64-19-7 | Acetic acid glacial or acetic acid solution | $C_2H_4O_2$ | – | – | + | + | + | – | – |
| 68-12-2 UN 2265 | N, N-Dimethylformamide | $C_3H_7NO$ | + | – | + | + | + | – | – |
| 1310-73-2 UN 1824 | Sodium hydroxide, solution waste | NaOH | – | – | + | + | + | – | – |
| UN 1206 | Naphtha solvents | — | + | – | + | + | + | – | – |
| 7647-01-0 UN 1790 | Hydrochloric acid, solution | HCl | – | – | + | + | + | – | – |
| UN 2924 | Flammable liquids, corrosive, n.o.s. (toluene and alkyl phosphine adduct) | — | + | – | – | – | + | – | – |
| 124-40-3 UN 1032 | Dimethylamine, anhydrous | $C_2H_7N$ | + | – | + | + | – | – | – |
| 542-75-6/ 78-88-8 UN 2047 | Dichloropropenes | $C_3H_4Cl_2$ | + | – | + | + | + | – | – |

**Table 4-4**

**RISK POTENTIAL OF COMMODITIES OF CONCERN**

| CAS, UN, NA, or UP Number | Commodity | Formula | Air Pathway | | Water Pathway | | Fate and Transport Characteristics | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Flammable/ Explosive | Inhalation Toxicity | Ingestion Toxicity | Aquatic Toxicity | Downstream Transport | Persistence | Food Chain Bioaccumulation |
| 141-32-2 UN 2348 | Butyl acrylate | $C_7H_{12}O_2$ | + | - | + | - | + | - | - |
| 27176-6-87-0 NA 2584 | Dodecylbenzenesulfonic acid | $C_{18}H_{30}SO_3$ | - | - | + | + | + | - | - |
| 7758-94-3 NA 1760 | Ferrous chloride, solution | $FeCl_2$ | - | - | NA | + | + | - | - |
| 1310-73-2 UN 1823 | Sodium hydroxide | NaOH | - | - | + | + | + | - | - |
| 142-96-1 | Butyl ether | $C_8H_{18}O$ | + | - | - | + | + | - | - |
| MX8030-31-7 | Naphtha (coal tar) | -- | + | - | + | + | + | - | - |
| 106-97-8 | Butane | $n\text{-}C_4H_{10}$ | + | - | - | - | - | - | - |
| 75-15-0 | Carbon disulfide | $CS_2$ | + | - | - | + | - | - | - |
| 115-10-6 | Methyl ether | $C_2H_6O$ | + | - | NA | - | - | - | - |

Key:

\+ = Commodity has the potential to (a) adversely affect aquatic or drinking water, (b) be transported downstream, (c) to persist in the environment, or (d) significantly bioaccumulate.
\- = Commodity does not have the potential to (a) adversely affect aquatic or drinking water, (b) be transported downstream, (c) persist in the environment, or (d) bioaccumulate.
NA = Not available.

### 4.4.3 Toxicological Benchmarks for Aquatic Life

As discussed in Section 4.2 above, 44 of the commodities transported by rail along the Truckee River were judged to be commodities of potential concern for aquatic life based on their properties, toxicity, and potential for downstream transport. Commodities of concern are listed in Table 4.4-5 along with their water quality criteria or other available benchmarks for the protection of aquatic life. Acute criteria/benchmarks are listed since only short-term exposure (24 to 48 hours) is likely for aquatic life in the Truckee River given the rapid travel time of chemicals in the river (see Section 4.6.3). A criterion or benchmark was available for all acids, bases, and inorganic chemicals listed in the Table 4.4-5, but for only three of the ten organic chemicals listed. However, limited information is available on the acute toxicity of these seven chemicals to aquatic life (see Table 4.4-1).

## 4.5 Response Plans for Hazardous Material Releases

This section provides an evaluation of existing emergency response capabilities to mitigate risk by minimizing potential adverse consequences subsequent to a hazardous material release. Current emergency response approaches are discussed including planning and training activities for emergency response. An example of a hazardous materials release is also provided to illustrate the sequence of events that could take place, the actions required of UP and other responsible parties, and the integration of various emergency response elements.

### 4.5.1 Existing Conditions

The population in proximity to the Truckee River Corridor does not live in a risk free environment. For example, there are some major, non-railroad hazards present in the Reno area, including a large Liquefied Petroleum Gas (LPG) storage tank and a major sodium cyanide processing facility near Sparks serving the mining industry. This analysis, however, focuses only on the change in risk from the railroad caused by the UP/SP merger.

SEA has used risk models to examine the problem of unexpected release of hazardous materials and hazardous waste to the environment resulting from the effects of the merger. Sections 4.3 and 4.4 describe statistical models developed to predict the frequency of derailments of trains containing intermodal and standard rail cars and the probability of the hazardous materials release for damaged rail cars contaminating the Truckee River. What naturally follows is the question: "What if chemical X is spilled?" Assumed volumes of a specific chemical spilled at a specific location lead to a conclusion about the expected value (likely outcome) of the accident.

**Table 4.4-5**

**Toxicological Benchmarks for Aquatic Life for Chemicals of Potential Ecological Concern in the Truckee River**

| Commodity | Primary Toxic Component | Acute Criteria or Standard | Ref.[a] | Remarks |
|---|---|---|---|---|
| ***Acids and Bases*** | | | | |
| Arsenic acid | arsenic | 360 µg/L | 1 | Arsenic acid is less strong than most other mineral acids (i.e. sulfuric and hydrochloric acid) listed in this table. Consequently, its effects on aquatic biota will largely result from the toxicity of the As (V) anion. |
| Acetic acid | Acetic acid | See Table 4.1 | NA | pH effect |
| Dodecylbenezesulfonic acid | Dodecylbenez esulfonic acid | See Table 4.1 | NA | None |
| Hydrochloric acid | hydrogen ion | pH 7.0 - 8.3 ΔpH ± 0.5 max. | 2 | Chloride ion ($Cl^-$) toxicity insignificant compared with pH effect. |
| Hydrofluoric acid | hydrogen ion | " | 2 | Fluoride ion ($F^-$) toxicity insignificant compared with pH effect. |
| Phosphoric acid | hydrogen ion | " | 2 | Phosphate ion ($PO_4^{3-}$) toxicity insignificant compared with pH effect. |
| Potassium hydroxide | hydroxide ion | " | 2 | Potassium ion ($K^+$) toxicity insignificant compared with pH effect. |
| Sodium hydroxide | hydroxide ion | " | 2 | Sodium ion ($Na^+$) toxicity insignificant compared with pH effect. |
| Sulfuric acid | hydrogen ion | " | 2 | Sulfate ion ($SO_4^{2-}$) toxicity insignificant compared with pH effect. |
| ***Inorganic Chemicals*** | | | | |
| Aluminum sulfate | aluminum | 750 µg/L | 3 | In addition to direct toxicity from aluminum, aluminum salts such as aluminum sulfate are acids are can depress surface water pH. |
| Ammonium nitrate | unionized ammonia | 0.13 mg/L $NH_3$ | 4 | Nitrate ion ($NO_3^-$) toxicity insignificant compared with unionized ammonia. |
| Anhydrous ammonia | unionized ammonia | " | 4 | None |
| Bisulfite solution | hydrogen ion | pH 7.0 - 8.3 ΔpH ± 0.5 max. | 2 | The bisulfite ion ($HSO_3^-$) is a weak acid but has the potential to alter system pH if a large quantity enters the river. |
| Chlorine | Chlorine | 19 µg/L; less or equal to 20 µg/L | 1, 2 | None |
| Ferrous chloride | Ferrous Choride | See Table 4.1 | NA | None |
| Ferric chloride | Ferric Chloride | " | NA | None |

**Table 4.4-5**

**Toxicological Benchmarks for Aquatic Life for Chemicals of Potential Ecological Concern in the Truckee River**

| Commodity | Primary Toxic Component | Acute Criteria or Standard | Ref.[a] | Remarks |
|---|---|---|---|---|
| Hydrogen peroxide | Hydrogen Peroxide | " | NA | None |
| Sodium cyanide | Cyanide | 22 µg/L | 3 | None |
| Sulfur dioxide | hydrogen ion | See Table 4.1 | 2 | Sulfur dioxide ($SO_2$) reacts with oxygen and water to form sulfuric acid ($H_2SO_4$). |
| ***Organic Chemicals*** | | | | |
| Alkyl phosphine adduct | alkyl phosphine | See Table 4.1 | NA | None |
| Butyl ether | butyl ether | " | NA | None |
| Dichloropropene | Dichloro-propene | 6060 µg/L | 1 | None |
| Diesel fuel | various hydrocarbons | See Table 4.1 | NA | None |
| Methyl methacrylate monomer | methyl methacrylate | " | NA | None |
| Methyl tert-butyl ether | methyl tert-butyl ether | " | NA | None |
| N,N-dimethylformamide | N,N-dimethyl-formamide | " | NA | None |
| Naphtha | various hydrocarbons | " | NA | None |
| Phenol | phenol | 2010 | 5 | None |
| Toluene | toluene | 3150 µg/L | 5 | None |
| Xylene | xylene | 1540 µg/L | 5 | None |

[a] References:

1 = USEPA (1994) Ambient Water Quality Criterion; criterion maximum concentration.

2 = Water quality standard for Truckee River between Wadsworth, NV and Pyramid Lake (USFWS 1992).

3 = Acute National Ambient Water Quality Criteria (Suter and Mabrey 1994).

4 = Ambient Water Quality Criteria for Ammonia (USEPA 1984). One-hour average unionized ammonia concentration
not to be exceeded more than once every three years for pH 7.5 and 15°C (typical pH and temperature for the lower Truckee River in May) for aquatic systems were salmonids are present.

5 = Tier II Secondary Acute Value (Suter and Mabrey 1994).

Key:

NA = Not available.

Δ = Change in.

### 4.5.2 Estimated Travel Times for Hazardous Materials Releases

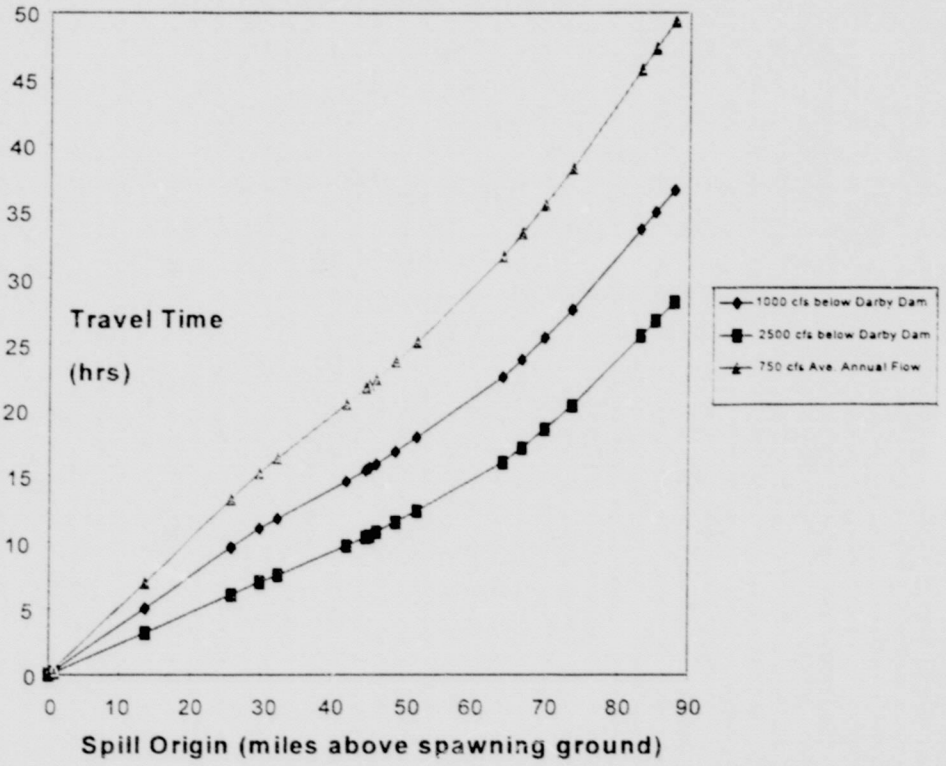
SEA used the Riverine Emergency Management Model (REMM) Version 3.0 to simulate spills of various chemicals at various locations along the Truckee River. The model is a computer program that uses associated river, chemical, and geographic information data files to estimate time of travel and the fate of a chemical spill on a river system for various flow conditions. The model's primary purpose is to give emergency planners the capability to make a reasonable determination of the travel time and the fate of chemical spills at locations downstream from a given location. REMM was developed by professional staff of the Engineering Division of the St. Paul District, US Army Corps of Engineers.

REMM is an interactive program for computing travel times and chemical parameters at locations along a river system. The program computes the month, day, time, and total event elapsed time that a waterborne substance may be expected to arrive at any selected location downstream. When a chemical spill is modeled, a chemical must be chosen from the REMM chemical database and information for the type and volume of the spill provided. The program then computes chemical concentrations as the plume travels downstream. Spill loadings can be either instantaneous or continuous. The output from the program provides data relative to the estimated arrival and passage time, and the maximum concentration of the contaminant plume passing a specific location, such as a water intake.

The basic model requires two data files: one for the river hydraulics and another for geographic landmarks along the river. In addition, a chemical properties database file serves as a lookup table. Basic hydraulic data for the model consist of a series of stage-discharge-velocity relationships at locations where hydraulic and hydrologic data are available and are contained in the model hydraulic file. REMM was originally written for the upper Mississippi river in the St. Paul area, and the example files included with the model reflect this area. Therefore, the first task in adapting REMM to the Truckee River was the collection and coding of the basic hydraulic information for the Truckee into the REMM hydraulic file format. These data for the Truckee River were obtained from U.S. Geological Survey Water Resources Division (USGS) gage information. Additionally, field dye studies were also employed to determine time of travel and generate the hydraulic relationships required by the model. These dye studies were from the USGS Open-File Report 84-238, "Data on Surface-Water Quality and Quantity, Truckee River System, Nevada and California, 1979-1981."

SEA generated travel time estimates for three different flow rate scenarios. Chemical spills in the Truckee were simulated under two different constraints, one for human health considerations and one for protection of the cui-ui. For human health, annual average flow conditions (750 cfs) were used. For the cui-ui, two different flow rates were used to represent management target flow conditions (100 and 2,500 cfs). It should be noted that the latter represent management targets, not actual current flow conditions. These targets were used to enable a worst case analysis for potential impacts to the cui-ui. Approximate travel times for releases at different points along the Truckee River under each of the different flow conditions are presented in Figure 4.5-1.

**Figure 4.5-1**
**Estimated Spill Travel Time**




These flow rate scenarios can be used to determine approximate required response time for a hazardous material release to water at particular locations along the river. This information can then be used to evaluate the adequacy of existing emergency response plans. As is evident in Figure 4.5-1, travel times for conservative substances (without consideration of mitigating factors like river buffering capacity, or degradation) range from a minimum of five hours, if a release were to occur at the bridge near Wadsworth, to more than 25 hours (2,500 cfs) to 48 hours (750 cfs) for a release near Truckee.

### 4.5.3 Emergency Response for Hazardous Material Releases

It is important to emphasize the Federal regulatory structure that requires that area and local emergency response plans be prepared. Title III, *Emergency Planning and the Community Right-to-Know*, of the Superfund Amendments and Reauthorization Act of 1986 [SARA III] makes it mandatory to plan for possible releases of hazardous substances. SARA III establishes State Emergency Response Commissions [SERC] and requires that they, in turn, form Local Emergency Planning Committees [LEPC]. A publicly coordinated LEPC exists in Reno, Nevada and has responsibility for hazardous materials response planning for this locality.

Other Federal regulations have established the National Contingency Plan and National Response Team, the Regional Contingency Plans and Regional Response Teams, and the Area Response Plans. These planning initiatives build upon the work of the LEPCs and SERCs, as well as the USEPA's Chemical Emergency Preparedness Program [CEPP]. A publicly coordinated Truckee River Area Contingency Plan Working Group is in place.

In addition to these federal and regional frameworks, state and local governments operate under municipal laws setting forth the responsibility for public safety. Such a general municipal law assigns local responsibilities to the fire departments and police agencies for protection against hazardous materials releases and other emergencies that threaten life and/or property. In the Truckee River Corridor, these public agencies are active with the LEPC and the Area Contingency Plan Working Group to assist in the preparation of response plans.

It is the recommendation of the USEPA that the bases of the planning activities be the National Response Team Guidance documents *NRT-1 [Planning Guide], NRT-1A [Criteria for Plan Review],* and the USEPA's *Technical Guidance for Hazardous Analysis.* These documents assure that, to every extent possible, local and area contingency plans are consistently prepared to a recognized standard. These NRT guidance documents are being used by the Truckee River Corridor ACP Working Group.

When hazardous materials are released on private property but pose no threat to life and/or property through migration via water, ground, or air, the responsible private authority has the sole responsibility and authority for control and clean up of the spill with standards and regulatory mandates defining the quality of the clean up. However, if an uncontrolled release of hazardous materials migrates from private property and constitutes a threat to nearby life and/or property, a public emergency response is warranted.

The emergency response process in the Truckee River Corridor is consistent with the regulations cited above and is divided into three general phases: planning and preparedness, response activities and, recovery of a normal state. These phases are implemented by the local public authority having jurisdiction, with assistance from the responsible private party such as the railroad, and other support resources such as regional public authorities and private contractors.

During the planning phase, general and specific scenarios covering potential major sources of hazardous materials releases form the basis of planning activities by a working group, which is led by the public authority. Activities of this combined working group include: determining hazards and risks; inventorying response resources; deriving policies and procedures; equipping; training; and conducting drills and exercises. Information and support are obtained from all participants including the potentially responsible private party for any given spill scenario.

The response component begins with the dispatch of the public first response units. This is followed by an initial evaluation and action by the professional response organizations, and materials confinement, containment, and mitigation, consistent with the response plan and established procedures. Through this phase, as defined by general municipal law, the public authority having jurisdiction controls all action that is undertaken. This public authority is often the local fire department command authority. However, for example, in certain highway accidents in California, the State Highway Patrol assumes command of the response. Any private party determined to have responsibility for any portion of the incident typically provides resources above and beyond those mustered by the public sector.

The recovery phase is overseen or even coordinated by the public authority having jurisdiction with the responsible private party committing the necessary resources to affect the action. This line of authority remains in place to assure that clean up and restoration result in a return to pre-incident conditions.

## Emergency Response Planning and Training Programs - Nevada Segment

In 1987, hazardous materials emergency response programs along the Truckee River corridor became recognized as an important part of the fire service and the public sector. These units have grouped themselves into a functional hazardous materials response system called the Triad (Reno, Sparks, Truckee Meadows). The Triad hazardous materials resources have been grouped into three stations, Reno Fire Department (FD) Station 3, Sparks FD Station 3, and Truckee Meadows FD Station 4. Reno's unit has the Incident Command System/Chemical Identification role. Sparks handles decontamination, and Truckee Meadows handles exclusion zone entry. All of the units are cross-trained in the other roles.

The combined team responds to hazardous materials incidents and has encountered a limited number of serious events each year. There are 100 paid firefighters in the combined team. The team includes special resources relevant to hazardous material releases including a nationally known railroad tank car expert and expert chemist, and an analytical laboratory on-call at a local college. There are active training programs in place for this team, and UP has already made itself available to provide classroom training. In addition, the railroad has provided an industry training tank car for use during a five-day training session.

The regional response resources include the Reno/Sparks/Truckee Meadows Hazardous Materials Organization (Triad), UP and its contractors, other outside contractors, and the more distant Quad Hazardous Materials Unit embracing Carson City, Storey County, Lyon, and the Nevada Department of Forestry.

UP also provides training to these local response resources. In 1997, UP conducted several training sessions that included but were not limited to:

- Six classroom training sessions, "Understanding Railroad Tank Cars."

- A railroad-sponsored five-day training course for members of the Triad unit at the Association of American Railroads' (AAR) Pueblo, CO training facility.
- Multiple practical training sessions for the Triad unit over a one-week period using the special railroad training tank car.
- A one-day tank car training program for the Quad unit, covering classroom and practical tank car release training.

Emergency response specialists attempt to plan and prepare for any major (high expected value) event predicted to occur. That is, emergency response planning should occur for any major event that has a probability of occurrence greater than zero. The statistical basis for such a position is an intuitive one. If a particular event has a probability of occurrence of once in every 88.0 years, or 0.01136, the implication is that the event may be a long way off. The pragmatic analysis is that, while the statistical basis may be sound, tomorrow may be the date of the event. Or, the event may never occur.

### Emergency Response Planning and Training Programs - California Segment

SEA reviewed the emergency response planning and training programs for the California and Nevada segments of the rail corridor, as well as the planning and training for UP.

For California, after the railroad crosses the California/Nevada border west of Reno, it passes through the towns of Floriston, Truckee, and Norden, California. Public emergency response protocol places responsibility on appropriate California authorities. If a hazardous materials accident on the railroad involves a portion of the freeway, the California Highway Patrol assumes incident command and calls upon local and regional hazardous materials response resources and the California Department of Transportation (CALTRANS).

A railroad accident that does not involve the freeway would be the responsibility of the railroad, unless the spilled materials leave the rail right-of-way. If the spilled materials involve property or human or animal life off-site, the local public emergency dispatcher would alert the Truckee (California) Fire Department for the initial emergency hazardous materials response. This fire department operates under standard procedures with training levels of personnel assured by the state fire authorities. These resources are compatible with Nevada emergency response resources in training, procedures, and equipment.

If the Truckee (California) Fire Department requires further assistance, the Placer County (California) Combined Hazardous Materials Response Team would respond. If the level of the incident grows to exceed the capabilities of these teams, the resources of the Area Contingency Plan would be utilized. In addition, a mutual aid agreement is in place that facilitates a combined response by California and Nevada resources.

## Hazardous Material Planning and Training Programs - Union Pacific

UP has played an active role in the improvement of overall emergency response to railroad accidents. The UP training director has been a ten-year member in the National Fire Protection Association's Hazardous Materials Standards Committee formulating procedures and recommendations to be followed nationally by all emergency response personnel including fire department hazardous materials teams. In addition, UP jointly participated with the USEPA in the development of a first responder training program for railroad and other transportation incidents. This training program has been offered throughout the western United States.

The nineteen hazardous materials officers of the UP system have been trained to the level of First Responder-Operations and many to the Technician level of HAZWOPER. Training, yard, and engine personnel are trained to the First Responder Awareness level and regularly recertified through the operating rules recertification. Two hundred track (Engineering) and car/locomotive (Maintenance Operations) personnel have received initial and current refresher training for Hazardous Materials Awareness as required by 49 CFR 172.700-172.704. In addition, UP publishes and distributes its own summary booklet for employees, "Instructions for Handling Hazardous Materials" (UP Form 8620). This information must be on-hand during all operations involving hazardous materials.

Railroad facilities along the Reno Corridor are inspected for Resource Conservation and Recovery Act (RCRA) compliance annually. All waste facilities used by the railroad are audited by environmental department personnel before the first shipment of waste is made. Internal ratings of UP facilities using an environmental risk index (ERI) are developed. Prevention and training activities including emergency response, hazard communications, and waste minimization are conducted based upon the ERI. UP has developed an Environmental Laws, and Policies and Procedures Handbook for managers to help them better understand their compliance requirements. Included in this handbook is a four-page Environmental Management Flowchart for quick reference addressing air, ground, and water cleanups.

UP has implemented additional proactive programs to minimize the potential for hazardous materials releases resulting from derailments or tank car leakage. All incidents involving a railcar wheel touching the ground must be reported to the UP Derailment Committee run by the UP Quality Assurance Division. The Derailment Committee regularly reviews these incidents, examining training, mechanical failure, and other causes that may need to be addressed to reduce potential derailments. UP has also implemented a comprehensive tank car inspection program involving random inspections by UP personnel.

Since March 4, 1997, 435 tank car inspections have been completed in Nevada with most occurring in the Sparks Yard. Twenty-four cars were noted to have some form of minor leakage which did not leave the premises of the railroad. Each incident was reported and was corrected by the railroad before the car was moved.

UP has established a toll-free number that can be used to contact the Risk Management Communication Center (RMCC) located in Denver, CO. The RMCC is staffed by communications specialists with training and experience handling emergencies involving hazardous materials, and the RMCC has the responsibility for making required emergency response notifications. These communications personnel can gain access to the emergency notification system to activate the railroad's hazardous materials personnel and the response plan. The number has been provided to all agency members of the Triad and Quad Hazardous Materials units. This program is currently being evaluated for potential ways to improve response capabilities.

## Truckee River Corridor Emergency Response Plan

UP is in the process of preparing a revised Truckee River Corridor Emergency Response Plan to guide railroad response during hazardous materials accidents. This plan includes a minimum of six core elements:

- Geographic description of the railroad right-of-way including proximity to resources at potential risk.
- Emergency procedures to be taken at various levels within the organization to assure a response appropriate to the magnitude of the accident.
- Core emergency response plan including:
  - Response roles
  - Severity of incidents
  - Levels of response
  - Training requirements
  - Response team equipment
  - Drills and exercises
  - Safety requirements including: site safety plans, personal protective equipment, and medical surveillance
  - Incident termination
  - Response resources and outside contractors
- Emergency Contacts and Communications including Internet/Intranet access
- Comprehensive Right-of Way Maps
- Appendices detailing special procedures for unique or problem areas.

These elements are applicable not only for safeguarding the potentially exposed population of Reno/Sparks, but are also important for protecting natural resources including the potable water supply, and threatened and endangered fish species in the Truckee River.

Upon completion of this plan by UP, SEA recommends presentation of all elements of the revised UP Truckee River Corridor Emergency Response Plan to the Truckee River Corridor Area Contingency Plan Working Group for integration into a unified contingency plan.

The Area Contingency Plan (ACP) is being developed by a local working group under the guidance of USEPA. The Feather River ACP is being used as a model. The UP principal who participated in the development of the Feather River ACP has been moved to Reno and is responsible for UP's planning work on the new ACP.

## Example Response for a Hazardous Materials Release

An example response for a hazardous materials release is provided below to illustrate the sequence of events that could take place, the actions required of UP and other responsible parties, and the integration of various emergency response elements. (This example is for illustration only, and is not based on any actual incident.)

- The engineer of an 80-car eastbound "key" train experiences an emergency brake application, which stops the train. The crew inspects the train and finds that four tank cars have entered the Truckee River. Three are intact, but one is leaking at a rate of 1,000 gallons per hour into the river.
- The engineer contacts the Dispatch Center to notify them of the accident and its location. He reviews the train's "consist," listing the cars and contents, and prepares an action plan. The railroad Dispatch Center, in accordance with the railroad's emergency response plan, notifies the National Response Center, contacts the Reno Fire Department Dispatch Center, and activates the railroad's emergency response plan.
- The Truckee Meadows Fire Department is dispatched to the scene and the local disaster coordinators are put on alert.
- A second call from the railroad Dispatch Center informs the Reno Fire Department dispatcher that hazardous materials are presumed to be involved in the accident. The fire department dispatcher activates the regional Triad Hazardous Materials Response Team.
- The first fire department units arrive at the scene, establish a Forward Command Post, and stage themselves in accordance with the department's hazardous materials response plan. Working with train personnel, a standoff surveillance of the accident scene is planned and undertaken by fire department personnel. Hazardous materials of concern are identified based on rail car identifying marks, as well as the location and status of the other involved rail cars. This information is passed to the forward command post, and compared to the train's consist.
- Triad units arrive on the scene, establish operating zones, and prepare for control of the released substances and decontamination operations in accordance with their operations policies and procedures. Using the hazardous materials information already obtained, the Triad's health and safety specialists develop a chemical-specific site safety plan for use by the response personnel. In addition, an action plan is developed for the safeguarding of any human populations near the accident scene that may be at risk.
- The local disaster coordinator activates the Area Contingency Plan(ACP), establishes an incident command post, and is joined by the forward elements of the railroad's emergency response team. An immediate plan is developed to confine and control any continuing releases, and to mitigate the damage using local emergency response resources, railroad resources, and contractors.

- The chemical is further identified as miscible in water and hazardous to humans and fish. Experts develop a chemical-specific mitigation plan for the river including river water control, neutralization options, and dilution projections.
- Following the ACP, the potable water supply for Reno is protected by Sierra Pacific Corp.'s action plans, including closure of water intakes along the river and shifting water demand to backup supply (reservoirs, tanks, and well fields).
- The U.S. Fish and Wildlife Service activates its endangered species contingency plans for the cui-ui and the Lahontan cutthroat trout.

If necessary, the ACP may call for the activation or the federal Regional Response Team (RRT) and the National Response Team (NRT). These teams provide access to additional regional and national emergency response resources such as the U.S. Coast Guard's National Hazardous Materials Strike Force.

## 4.6 Evaluation of Potential Releases/Risk Mitigation

This section incorporates information provided in previous sections to evaluate the likelihood of a hazardous materials release for specific release scenarios, the potential impacts of a release, and active and passive mitigation factors that decrease overall risks associated with specific scenarios. Risks and mitigation factors are discussed for releases potentially affecting aquatic organisms (particularly the cui-ui and Lahontan cutthroat trout), the potable water supply, and the potentially exposed population of Reno/Sparks. Because the focus of this evaluation is on incremental risks and mitigation associated with increased transport of hazardous materials subsequent to the UP/SP merger, release estimates and mitigation for both pre- and post-merger conditions are discussed.

### 4.6.1 Potential Impacts to Threatened and Endangered Fish Species

This hazard/risk mitigation evaluation considered the potential impacts of a hazardous materials release on two species of threatened and endangered fish in the Truckee River, the cui-ui (*Chasmistes cujus* Cope) and the Lahontan cutthroat trout (*Salmo clarki henshawi* Gill and Jordan). The potential impacts of different types of hazardous materials on fish survival, reproduction, or habitat, and factors that mitigate potential risks to these fish species are discussed. Because evaluation of these potential impacts requires an understanding of the biology and habitat of these fish, the following sections provide a brief review of relevant aspects of life history, spawning, and habitat requirements of the cui-ui and the Lahontan cutthroat trout.

#### Cui-ui Life History, Spawning Behavior, and Habitat Requirements

The cui-ui is a federally endangered lakesucker whose only population exists at Pyramid Lake. The fish enters the lower Truckee River in the spring to spawn. Dramatic declines in cui-ui numbers, associated with upstream storage and diversion of water, resulted in listing the cui-ui as endangered under the federal Endangered Species Act in 1967. This section summarizes aspects of cui-ui life history, spawning behavior, and habitat requirements that could affect its

vulnerability to a release of hazardous materials to the Truckee River. The primary source of information for this evaluation is the Cui-ui Recovery Plan (U.S. Fish and Wildlife Service, 1992). Other sources are cited in the text. Additional information is provided in the Preliminary Mitigation Plan, Appendix P (Surface Transportation Board, 1997).

The cui-ui is a large, long-lived fish. Adults weigh up to 7.72 pounds, and can live longer than 40 years. Both sexes reach maturity at 6 to 12 years. Females up to 30 years in age can produce from 25,000 to 186,000 eggs. Water temperature is critical to cui-ui egg development, with survival of newly-fertilized eggs decreasing markedly in water above 17.2 degrees C. Annual survivorship of cui-ui larvae and juveniles varies from as low as 0.2 percent to 75 percent. Adults may have a survival rate of 85 percent annually. Adults are vulnerable to bird predation while in the river, but have no predators in the lake. Eggs and young fish are eaten by other fish and birds.

The population status of the cui-ui has markedly improved in recent years. There were only two major year classes of cui-ui produced between 1950 and 1979, and numbers were declining. More recently, the cui-ui population has benefited from above-average water availability. Cui-ui reproduced successfully for seven years in the 1980s, and the cui-ui population was estimated at 300,000 adults and one to several million juveniles in 1991 (U.S. Fish and Wildlife Service, 1992). As a result of several above-average water years since 1991, the cui-ui adult population was reported to approach 1.6 million in 1995 (Las Vegas Review Journal 1997).

Adult fish are omnivorous, consuming primarily zooplankton. Most feeding is done around rocks, where attached algae is populated by microcrustaceans such as copepods and cladocerans (La Rivers 1994). Larvae and juveniles consume zooplankton, chironomid (midge) larvae, and algae.

The cui-ui is currently restricted to Pyramid Lake and the Truckee River downstream from Derby Dam (see Figure 4.2-3). Adult and juvenile fish inhabit Pyramid Lake year-round. For much of the year, cui-ui adults inhabit the littoral (bottom shoreline) zone of Pyramid Lake at depths of 60 to 100 feet. Juveniles appear to concentrate at the north and south ends of the lake. Adults utilize the lower river for spawning, with peak spawning in recent years occurring below Wadsworth. Marble Bluff and Numana Dams present physical impediments to fish passage upstream. In previous years, most spawning occurred in the 10-mile reach between Marble Bluff and Numana Dams. The area of spawning habitat between Marble Bluff and Numana Dams is improving due to restoration efforts in the area. In recent years, the fish have extended their spawning activity upstream of Numana Dam. Peak spawning in 1997 occurred in the vicinity of S Bar S Ranch, between Numana Dam and Wadsworth (Byers, personal communication).

Essential habitat has been defined as the Truckee River from Hunter Creek in west Reno downstream to and including Pyramid Lake and its tributaries. There is no designated critical habitat for the cui-ui.

Spawning runs occur from as early as late March to late June with adults congregating at the delta as early as late February (Byers, personal communication). Spawning is correlated with high flow (see Section 4.2.3). Adult fish respond to high flow conditions by forming a prespawning aggregate below Marble Bluff Dam. Individual fish pass upriver to complete their spawning over a 3- to 7-day period, although some may remain in the river up to 16 days. Migration and spawning occur only at night, and eggs are deposited in gravel to a depth of 10 cm (Scoppettone et al., 1983). Fertilized eggs hatch in one to two weeks, and yolk-sac larvae remain in the gravel for five to 10 days prior to emergence. Upon emergence, most larvae are swept immediately downriver to Pyramid Lake. Larvae may occur in the river as late as July (Byers, personal communication).

Because inflow to Pyramid Lake is often insufficient to attract spawners and stimulate fish migration into the river, successful spawning does not occur every year. For example, only three year classes (1942, 1946, and 1950) existed in 1966, and an additional year class (1969) comprised 97 percent of the spawning run in 1983. The species withstood an 18-year interval (1951-1969) without successful spawning and additions to the population (recruitment) (Scoppettone 1988). In addition, while adult cui-ui have the potential to spawn every year most individuals spawn only intermittently due to flow constraints and passage barriers. At the minimum attraction flow of 60,000 acre-feet, only 4.8 percent of the adult female population is estimated to enter the spawning run. At maximum flows, such as occurred in recent years, up to 52 percent of adult females are reported to enter the river for spawning (Byers, personal communication).

Although spawning may also occur along the Pyramid Lake shoreline at freshwater springs or mouths of small tributaries, spawning success at these locations is very low due to predation and fungal infection of eggs (Koch 1973). Within the lake, poor hatching success is also due to high total dissolved solids (Chatto 1979).

### Lahontan Cutthroat Trout Life History, Spawning Behavior, and Habitat Requirements

The Lahontan cutthroat trout is a subspecies of the cutthroat trout (*S. Clarki* Richardson). It is listed as a threatened species by the USFWS under the federal Endangered Species Act. The cutthroat trout is the most widespread trout species in western North America, and consists of three distinct subspecies and hybrid populations. The Lahontan cutthroat trout has been eliminated over much of its ancestral range, but native populations occur in Independence and Summit Lakes in the Sierra Nevada. The Lahontan cutthroat trout does not currently have a self-maintaining population in the Truckee River or Pyramid Lake, but it is maintained by stocking in Pyramid Lake and other rivers and lakes within its historic range.

The Lahontan cutthroat trout has adapted to the high salinity of Pyramid Lake, which has resulted from reduced water inflow (see Section 4.2.3). It is a large, predatory species that can reach sizes of greater than 10 pounds in Pyramid Lake. The average life span of the Lahontan cutthroat trout is about seven to eight years. It feeds on aquatic insects, fish, and other food items

that vary with location and size. In Pyramid Lake, the abundant tui chub (*Gila bicolor*) is a staple in the diet of adult Lahontan cutthroat trout (Sigler and Sigler 1987).

As an obligate stream spawning species, the Lahontan cutthroat trout is unable to reproduce in Pyramid Lake. Historically, the Pyramid Lake Lahontan cutthroat trout had spawning runs into the Truckee River in December through March, and a second run in March through May or June. Spawning runs no longer occur because viable spawning habitat has been severely reduced and the delta at Pyramid Lake presents an obstacle to upstream migration (Sigler and Sigler 1987). Additional information on the Lahontan cutthroat trout is provided in the Preliminary Mitigation Plan, Appendix P (Surface Transportation Board, 1997).

### Probability of a Release Affecting Fish Species

The probability of a hazardous materials release affecting the cui-ui and Lahontan cutthroat trout was calculated using the methods presented in Section 4.3. Four distinct types of impacts of a hazardous materials release to the Truckee River were evaluated, addressing potential effects on:

1. Cui-ui habitat.
2. Cui-ui prespawning aggregate.
3. Cui-ui adults and progeny during the spawning period.
4. Fish within Pyramid Lake (both species).

To evaluate the likelihood of a major adverse effect for any of these four cases, a reasonable worst case spill scenario was evaluated for the section of track that runs from the vicinity of Wadsworth (where the river turns away from the tracks and flows in a northerly direction to Pyramid Lake) to the Sparks railyard just east of Reno (MP 247 to MP 275). Although cui-ui and Lahontan cutthroat trout do not typically occur in this part of the river, it is an area of potential habitat. In addition, it is the area where a spill could be of most concern because of the short downstream travel time of materials to the fish spawning grounds below Wadsworth, and to Pyramid Lake. Moreover, a release to this section of the river would be more difficult to intercept or impede due to the diminishing availability of infrastructure and response resources farther downstream below the major population centers of Reno and Sparks.

Commodities of concern were identified from three independent surveys, as described in Section 4.4. The listings generated from these surveys included both commodities classified as hazardous materials according to DOT regulations and commodities classified as marine pollutants. The only commodity classified as a marine pollutant passing through Reno is chlorine gas. As shown in Table 4-1a , chlorine is toxic to aquatic life (i.e., a water pollution ranking of 4; see Table 4.4.3). The only other hazardous commodity with a water pollution ranking of 4 is arsenic acid. Other commodities range in toxicity from "moderately toxic" (24 commodities with a water pollution ranking of 3) to "slightly toxic" (17 commodities with a water pollution ranking of 2), to "practically nontoxic" (eight commodities with a water pollution ranking of 1), or "nontoxic" (5 commodities with a water pollution ranking of 0). The impact analysis included

all commodities with a rank greater than 1. (Commodities whose potential toxicity is unknown, as indicated by the designation "NA" in Table 4.1, are also included in the analysis).

As a check on the assumption that a release of commodities with a water pollution ranking of 2 or above could have the potential to affect aquatic life in the Truckee River, the commodities known to have caused environmental damage as a result of releases to waterways from historical records of railcar accidents were identified from a search of the HMIRS database. (The type of environmental damage is not specified in the database, but it is presumed to include fish kills). The commodities identified from this search are shown in Table 4.6-1 and include arsenic acid (water pollution ranking of 4; see Table 4.4-3) and sodium hydroxide (water pollution ranking of 2; see Table 4.4-3). None of the other commodities identified in Table 4.6-1 are known to be transported through Reno, except benzene as a constituent of diesel fuel and naphtha (water pollution ranking of 2).

**Table 4.6-1**
**Records of Hazardous Materials Releases to Waterways Resulting in Environmental Damage from HMIRS Database (1971 - 1996)**

| Commodity Shipping Name | Commodity Trade Name | Number of Database Records | Average Quantity Released |
|---|---|---|---|
| Arsenic Acid Liquid | - | 1 | 3,000 gallons |
| Crude Oil Petroleum | - | 9 | 13,965 gallons |
| Flammable Liquids N.O.S. | Benzene, Dicyclopentene | 1 | 21,850 gallons |
| Fuel Oil | Fuel Oil | 1 | 27,000 gallons |
| Petroleum Oil | Petroleum Lubricant | 1 | 23,800 gallons |
| White Phosphorus in Water | - | 2 | 500.5 lbs. |
| Sodium Hydroxide Liquid | Caustic Soda | 1 | 13,562 gallons |
| Sulfuric Acid | Sulfuric Acid | 1 | 4,200 gallons |

In addition to its inherent toxicity, the volume of material released to the river would also influence the potential impact of a hazardous commodity release. As shown in Table 4.6-1, the records in the HMIRS database identified as causing environmental damage in waterways have average spill volumes greater than or equal to 3,000 gallons. In general, as shown in Figure 4.3-1, most releases of hazardous commodities are relatively small (<800 gallons for liquid spills). Releases of sufficient magnitude to enter waterways tend to be larger than average. (See Figure 4.3-2.) Thus, while most small releases would not be expected to affect aquatic life, for this assessment, SEA conservatively assumed that any spill volume of a commodity with a water pollution ranking of 3 or 4 could potentially affect aquatic life if it enters the river. For liquid commodities ranked 2 (slightly toxic), SEA assumed that a spill volume of 3,000 gallons or greater would be required to have a major adverse effect on aquatic life. This threshold was selected, because the records in the HMIRS database identified as causing environmental damage in waterways have average spill volumes greater than or equal to 3,000 gallons, as shown in

Table 4.6-1 and discussed above. (This distinction is not necessary for gases and solids because none of these commodities is ranked as slightly toxic.)

The probability of a hazardous materials release was estimated separately for commodities transported through Reno as liquids, solids, and gases for the portion of the total number of railcars containing hazardous materials with a water pollution ranking of 2 or more. These separate probabilities were then summed to estimate the total probability of a release with the potential for a major adverse effect on aquatic life, expressed on an annual basis and as the estimated number of years between events. The probability of such a release into the river was calculated for pre-merger and post-merger traffic conditions (see Table 4.6-2).

**Table 4.6-2**
**Summary of Estimated Annual Release Probabilities into the Truckee River and Years Between Releases for Commodities Potentially Harmful to Aquatic Life**

| Commodity Group | Portion of Total Shipments Ranked as Potentially Harmful | Major Adverse Effect Scenario (MP 247-275) | | | |
|---|---|---|---|---|---|
| | | Pre-merger | | Post-Merger | |
| | | Annual Release Probability | Years Between Releases | Annual Release Probability | Years Between Releases |
| Liquids (moderately or highly toxic, any volume) | 0.34 | 0.001378 | 725 | 0.002235 | 447 |
| Liquids (slightly toxic, more than 3,000 gallons) | 0.59 | 0.001251 | 799 | 0.002028 | 493 |
| Solids | 1.00 | <0.001 | >1,000 | <0.001 | >1,000 |
| Gases | 0.85 | <0.001 | >1,000 | <0.001 | >1,000 |
| **Total** | **0.93** | **0.002655** | **376** | **0.004305** | **232** |

The results of this analysis indicate that there is a probability of one occurrence of a hazardous materials release into the river from a train accident with the potential for a major adverse effect on aquatic life every 376 years pre-merger and every 232 years post-merger for the major spill scenario between Wadsworth and Reno.

The potential magnitude of the effects on Lahontan cutthroat trout, cui-ui or their habitat of this spill scenario are difficult to quantify, given the complexities of flow conditions and other factors affecting the migration of chemicals of differing chemical properties downstream to the spawning area. However, SEA's analysis provides a basis for making a rough estimate of the likelihood of an impact as described below.

1. **Cui-ui habitat**. The probability of an effect on aquatic life once every 232 years, post-merger, presented in Table 4.6-2, is a worst-case estimate of the likelihood of a major adverse effect on the riverine habitat and food resources of cui-ui.

2. **Cui-ui prespawning aggregate**. If the probability of a major adverse effect is adjusted by the portion of the year cui-ui spend in the river spawning or in the prespawning aggregate (i.e., from February through July, or 50 percent of the year), the years between potential major effects are increased by a factor of two. Therefore, a release of hazardous materials into the river with the potential to affect the fish during their prespawning period is likely to occur once every 464 years, post-merger.

3. **Cui-ui adults and progeny during the spawning period**. As for potential effects on adult females in the river during the spawning period, the expected frequency of a major adverse impact is also once every 464 years, post-merger. However, since only approximately 50 percent of the females in the population participate in the spawning run, the entire population of adult cui-ui would not be at risk.

4. **Fish within Pyramid Lake (both species)**. The likelihood of a major effect on the fish in Pyramid Lake has not been quantified, but it is expected to be even lower, given the greater distance of travel and dilution of chemicals upon entering the lake.

Based on the information presented above, the likelihood of a major adverse effect on the endangered cui-ui, the threatened Lahontan cutthroat trout, or the habitat of these fish, resulting from the release of a hazardous commodity to the Truckee River from a rail accident downstream from Reno appears to be very remote, either before or after the UP/SP merger. A hazardous materials spill that entered the Truckee River would have to travel several miles downstream to the area below Wadsworth to affect current cui-ui spawning habitat. For contaminants that are not persistent in the environment, acute effects on cui-ui adults, eggs, or larvae in the Truckee River would only occur during the prespawning, spawning and emergence period lasting approximately 6 months during high flow in the spring and early summer. In general, the fish are likely to be most susceptible at this time due to their presence in relatively shallow water (0.8 to 4 feet deep), the presence of sensitive life stages, and the aggregation of large numbers of individuals in a relatively small and confined area. In addition, high flows increase the likelihood of a hazardous materials release moving rapidly downriver.

It should be noted that, based on historical evidence, river flow will not be sufficient to support spawning every year. However, because current and anticipated management practices that are intended to increase the availability of water for spawning (see Section 4.6.3), and to be conservative for the purposes of this evaluation, SEA presumed that fish would potentially utilize the lower Truckee River every year for spawning. Even under that assumption, it appears that no more than 50 percent of the adult female breeding population would be in the river in any given year. For the 50 percent of the year that is not during the high flow period, the fish inhabit deeper water in Pyramid Lake, further decreasing the likelihood of major exposure.

Although the shipping survey data that SEA use, which are described in Section 4.4, appear to be representative, it is possible that certain types of hazardous commodities shipped through Reno were not identified. For example, some commodities could be shipped seasonally and would not be captured in the survey data available for this assessment. However, it does not seem likely that these unidentified materials would include high volume commodities, nor would they include materials substantially more toxic than those already identified.

In general, the three commodities identified with the greatest relative toxicity to fish (i.e., ranked 3) that are shipped at the highest volume through Reno (greater than 50 railcars over the survey period) are sulfuric acid (liquid), anhydrous ammonia (liquefied gas), and ammonium nitrate (solid). High volume commodities with a ranking of 2 include the liquids methyl *tert*-butyl ether, phosphoric acid, and sodium hydroxide solution. (No commodities ranked 4 were shipped at volumes of greater than 50 railcars over the survey period.) Therefore, these six commodities, which include a gasoline additive, two acids, two ammonia compounds, and a corrosive base, appear to be of greatest concern for potential impacts to aquatic life.

It is unlikely that cui-ui are more sensitive than other fish to the commodities evaluated in this assessment. Although, in general, very little is known regarding cui-ui sensitivity to pollutants, warmwater fish such as lakesuckers tend to be relatively tolerant compared with coldwater species such as trout. Environmental stressors known or suspected to affect cui-ui survival and reproduction include the following: high water temperature, high dissolved solids, low dissolved oxygen, nutrient loading, and suspended sediment. Water temperatures below 17 degrees C during spawning and egg development are the most critical habitat requirement of the cui-ui. A study of the toxic effects of ammonia and other nitrogen compounds on cui-ui (Koch *et al.*, 1979) is particularly relevant to this assessment, given the fact that ammonia compounds were identified as commodities posing the greatest risk. Lethal effects on cui-ui egg development were observed at levels of unionized ammonia of 1.35 mg/l and higher (Koch *et al.*, 1979). This level of sensitivity is similar to that of related species, such as the white sucker and mountain sucker, and is less sensitive than some other fish such as several species of salmon, shiner, sunfish, and walleye (USEPA 1985). Therefore, although the available data are somewhat limited, there is no evidence to suggest that cui-ui are unusually sensitive to toxic exposure.

Moreover, it appears that the cui-ui population is resilient to the effects of one or more years of poor reproduction. The species has survived many consecutive years of unsuccessful spawning in the past due to insufficient flow. While the loss of an entire year-class (along with many adults) as a result of a hazardous materials release could be catastrophic in the short term, even the worst-case spill (potentially killing all adult fish and their progeny in the river) is not likely to have a pronounced long-term effect on population recovery, assuming adult and juvenile fish remaining in Pyramid Lake were not severely affected.

The possibility of long-term effects includes both the direct, acute effects on fish populations and effects on their habitat. Several review articles on recovery of stream communities and ecosystems from disturbance are available (Niemi *et al.* 1990, Yount and Niemi 1990, Detenbeck *et al.* 1992). These articles indicate that streams and rivers recover rapidly from

pulse disturbances such as chemical spills. Following such events, fish and benthic macroinvertebrate populations generally recover in less than three years and frequently less than one year. Periphyton and microbial communities recover in less time (i.e., weeks to months). The most commonly cited reasons for short recovery times are: (1) the high flushing rate of streams and rivers that allow them to quickly dilute or replace polluted waters; (2) the availability and accessibility of unaffected upstream areas, backwater areas, and other in-stream refuges that serve as sources of organisms for repopulation; (3) life-history characteristics such as short generation times, high fecundity, and good dispersal ability that allow rapid recolonization and repopulation of affected areas; and (4) the fact that many streams and rivers are naturally subject to a variety of disturbances, such as drought and floods, and the resident biota have evolved life-history characteristics that favor adaptability (Yount and Niemi 1990). The available information indicates that a spill of a non-persistent chemical to the Truckee River likely would not result in long-term impairment of the river as habitat for cui-ui spawning.

As described in Section 4.6.1, the Lahontan cutthroat trout does not currently have a self-maintaining population in the Truckee River or Pyramid Lake. Therefore, a hazardous materials spill could not affect the recovery of this species, unless it adversely affects their habitat in a way that inhibits long-term recovery. Only spills of persistent chemicals (i.e., chemicals with very slow degradation or removal rates) are expected to have the potential to reside in the environment for sufficient length of time to degrade the habitat for either the cui-ui or the Lahontan cutthroat trout. Of the commodities known to be transported by rail through Reno, arsenic acid is the only chemical that would be likely to persist in the environment at potentially harmful concentrations for more than several months.

Other pertinent data also support the conclusion that the chance of a major adverse effect on fish from the release of a hazardous commodity to the Truckee Rive is unlikely. No major railcar spills affecting the cui-ui or other fish populations of the Truckee River have occurred since records were kept beginning in 1971. Nationally, railroad incidents having serious consequences on aquatic life are rare, and compared to other sources, rail accidents are not important causes of fish kills. A fifteen-year (1961 to 1975) summary of the causes of fish kills by pollution in the United States (USEPA 1978) reported that rail accidents accounted for only 1 percent of fish-kill incidents and less than 1 percent of the number of fish killed. In general, the statistics indicate that transportation accidents are a minor cause of fish kills. Industrial operations, with 2,845 reported incidents (32 percent), led all other sources of pollution in reported fish-kill incidents. In terms of the number of fish killed, municipal operations accounted for nearly 200 million fish killed (42 percent) and led all other sources of pollution. Improper operation of sewerage systems was the most frequently reported source of municipal pollution that resulted in fish kills (USEPA 1978). USEPA (1978) also summarized the specific causes of reported fish kills. For the 85 reported rail incidents that resulted in fish kills in the period from 1961 to 1975, the causes (and number of incidents) were: petroleum (33), inorganic chemicals (11), unknown cause (11), organic chemicals (9), pesticides/poisons (6), pH effects (6), fertilizers (3), low dissolved oxygen (3), mixed chemicals (2), and combined causes (1). This listing is similar to the commodities carried by UP in Reno. Here, however, there is no reason to believe that a spill would be likely or than any spill that took place would have serious consequences on

acquatic life in the Truckee River. Therefore, the fact that UP carries hazardous materials of the sort that have been involved in rail incidents that resulted in fish kills in the past is not dispositive.

### Factors Mitigating Harmful Effects to Aquatic Life

A release to the water would require an immediate response from a trained, equipped, and qualified spill response team. Contingency plans to detail specific kinds of disasters have been or are being prepared and are expected to be periodically reviewed and updated to address spill responses. These plans identify responsibilities for communicating with other agencies, the media, and the public, in addition to coordinating people, transportation, equipment, supplies, and laboratory facilities in advance. Access routes to the potential spill locations are included.

The Cui-ui Recovery Plan (USFWS 1992) recommends reasonable actions believed to be needed for the recovery and conservation of the cui-ui. As part of this plan, the USFWS has identified the need for consideration of a catastrophic spill event which should include the introduction of identified action agencies, roles, and responsibilities and procedures to be taken should an acute contamination pose a threat. This plan should be used as guidance for responding to any contamination from transportation routes or fixed facilities at issue in the study area.

Several components of the UP *Truckee River Corridor Emergency Response Plan* (presented in Section 4.5.3) relate directly to elements of the Cui-ui Recovery Plan. In general, these components outline UP's responsibilities for emergency response actions, including planning (identification of resources at risk, response roles, training, and equipment needs) and establishing communication networks, so that timely notification and response can occur rapidly in the event of a hazardous material release. In order for the contamination-related objectives of the Cui-ui Recovery Plan to be accomplished, it is imperative that all entities involved in emergency response actions receive timely notification and are prepared to take necessary actions. For this reason, SEA recommends that all planning and communication elements of the UP Truckee River Corridor Emergency Response Plan be included in the Area Contingency Plan.

To the east of Reno, the Truckee River has three important dams that, during a contamination emergency, could serve as collecting reservoirs for potentially contaminated water to impede its moving further downstream. Derby Dam, the head of the Truckee Canal, Numana Dam, and Marble Bluff Dam have been identified as valuable response resources. As part of an emergency response strategy, such structures can be considered as potentially useful assets for flow control.

Mitigative measures for hazardous material release to the river would require the coordination of materials control devices and chemical neutralization. UP currently has a 20-foot tandem-axle truck with response equipment located in Sparks. For a major event, UP would call on the emergency response firm of Erickson Environmental located in the Reno/Sparks area. Erickson has additional equipment for emergency response located in a local warehouse.

During consultation, the USFWS requested that SEA evaluate the potential for placement of spill response equipment in the area of Marble Bluff along the Truckee River. UP has informed SEA that it is willing to work with USFWS and Native Americans in the Marble Bluff area to assure placement of response equipment (e.g., booms, absorbent pads, pumps, generators, hoses, etc.) in the Marble Bluff area, and SEA recommends that the Board adopt this as a mitigation measure.

### 4.6.2 Potential Impacts to the Potable Water Supply

The release of hazardous material commodities into the Truckee River has the potential to cause adverse effects in humans that drink the water, or limit use of water for agricultural purposes. This section discusses chemicals posing a potential drinking water hazard, the potential impacts of hazardous materials on potable water treatment systems, and factors that mitigate risks associated with potential impacts to the water supply. The analysis shows that the probability of a hazardous materials release resulting from a train accident affecting the potable water supply is low and that there are comprehensive emergency response plans in place and being updated.

#### Description of Potential Impacts

The potable water supply system is operated by the Sierra Pacific Corp. for the cities of Reno and Sparks and consists of three main service water intake stations: Highland Ditch, Orr Ditch Diversion, and the Glendale Intake (see Figure 4.2-1). Both the Highland and Orr intakes lift the water to the Chalk Bluff pumping station for distribution. The maximum flow (summer) from these intakes is 95 million gallons per day (MGPD). During the winter the flow may be as little as 35 MGPD. The system has a reserve tank or reservoir capacity of 90 MGPD (Hunter Creek reservoir, Highland Ditch Terminus, and other assorted smaller tanks). In addition, well field capacity of 45 MGPD is available to supplement the tanked reserves. Sierra Pacific Utilities has 24 production wells in Central Truckee Meadows that are used to augment the Truckee River-based municipal drinking water supply. Groundwater supplies approximately 20 to 25 percent of Metropolitan Reno's water supply, while surface water accounts for approximately 75 to 80 percent.

The five highest-volume hazardous material commodities that are currently transported by rail are sulfuric acid, anhydrous ammonia, ammonium nitrate, phosphoric acid, and sodium hydroxide. A release of any of these compounds into the water would affect the biological life, but the operation of the water treatment plant may not be adversely affected, depending on the river flow and buffering capacity at the time of release, and the location of the spill relative to the raw water intake at the treatment plant.

The upstream release of sulfuric acid, phosphoric acid, or sodium hydroxide would require continuous monitoring of the raw water pH at the raw water intake to stop the flow if a low or high pH was indicated. Within the treatment plant, overly acidic or basic water could damage mechanical equipment and interfere with the desired action of flocculants and disinfectants that are added for treatment. Finished water with a pH less than 6.5 or greater than 8.5 also violates

the federal Safe Drinking Water Act (SDWA) Secondary Drinking Water Standards. The acid or caustic, as appropriate, could be added to correct the pH of the raw water at the storage basin, with some added cost.

Anhydrous ammonia is transported as a liquid under pressure, and upon release of the pressure, would vaporize into the surrounding air. Both liquid ammonia or ammonium nitrate released into water are potentially toxic due to oxidation of ammonia to nitrate and nitrite. Maximum contaminant levels (MCLs) for these compounds in drinking water are 10 mg/L and 1 mg/L, respectively. If an upstream release occurred, the raw water would be monitored for nitrate and nitrite, and the raw water intake stopped if the concentrations exceeded the MCLs. Some removal of nitrate and nitrite would occur after the addition of chlorine for disinfection, but the raw water intake for these compounds could be limited to provide an additional measure of safety.

Other compounds that may be transported by rail in lesser volumes are listed in Section 4.4 The release of commodities identified as potentially toxic organic compounds like solvents or fuels, or toxic inorganic compounds like arsenic acid (see Section 4.4) to the water would likely require that the water plant intake be shut down until water quality tests are completed and the raw water supply is determined to be safe. Shutting down the water treatment plant raw water intake would require utilization of an alternative source of potable water, including reservoir storage or groundwater wells. In addition, water conservation measures could be implemented to reduce demand. If contaminants other than those associated with inorganic compounds (i.e., acids) identified above unknowingly entered the water treatment plant, decontamination of the basins and equipment may be required.

### Probability of a Hazardous Materials Release Affecting the Potable Water Supply

The probability of a hazardous materials release affecting the water supply was calculated using the methods described in Section 4.3. One worst case scenario was evaluated encompassing the entire track length from above Truckee to near the potable water intake (MP 195.2 to MP 240). The probability of a hazardous materials release along this section of track was calculated separately for commodities transported as liquids, solids, and gases, for the portion of commodities potentially harmful to humans (based on water pollution ranking of 2 or more, see Section 4.4). These separate probabilities were then summed to estimate the total probability of a release, expressed on an annual basis and as the number of years between events. The probability of a release, and the probability of a release into the river, were then calculated for the pre-merger and post-merger scenarios.

The results of the analysis for potential impacts to the potable water supply (see Table 4.6-3) suggest that there is a probability of a hazardous material entering the Truckee River following a release from this segment of track once every 333 years pre-merger and once every 208 years post-merger. This analysis includes the release of any quantity, small or large, of hazardous materials. Thus, the likelihood of a hazardous materials release being of such

magnitude that it would adversely affect the water supply is even less often than once every 208 years for post-merger.

**Table 4.6-3**
**Estimated Annual Releases and Years Between Releases for Commodities Potentially Entering the Truckee River and Affecting the Potable Water Supply**

| | Portion Potentially Harmful | Potable Supply (MP 195.2-240) | | | |
|---|---|---|---|---|---|
| | | Pre-merger | | Post-merger | |
| | | Annual Release | Years Between | Annual Release | Years Between |
| **Hazardous Releases into River** | | | | | |
| Liquids | 0.93 | 0.00294 | 340 | 0.00470 | 213 |
| Solids | 1.00 | < 0.001 | > 1,000 | < 0.001 | > 1,000 |
| Gas | 0.85 | < 0.001 | > 1,000 | < 0.001 | > 1,000 |
| **Total** | | **0.00301** | **333** | **0.00480** | **208** |

Note: Assumes all hazardous materials commodities with a water pollution ranking of 2 or greater pose risks to the potable water supply (See Section 4.4). The analysis includes release of any quantity, small or large, of hazardous materials. Thus, the likelihood of a hazardous materials release being of such magnitude that it would adversely affect the water supply is even less often than shown on the table.

## Factors Mitigating Harmful Effects to the Potable Water Supply

Protection of the potable water supply to the City of Reno from a contamination incident is the responsibility of the Sierra Pacific Corporation and would be accomplished through the implementation of its contingency planning process. As part of this plan, and through a very deliberate construction program, Sierra Pacific has three sources of potable water to satisfy the short term needs of the City during such an incident. The first source is from the three Truckee River intake locations. The second source is from reservoirs and tanks in which reserve water is accumulated during low usage periods. And the third source of potable water is from reserve well fields tapping ground water.

An accident scenario that introduces major adverse contamination to the Truckee River upstream from the potable water intakes would most likely be of one of two types: a large, short term quantity of contaminating chemical such as from a catastrophic failure of a rail tank car; and, a longer term flow of chemical into the river from, for example, one or more leaking tank cars. In the first case, given a known river flow rate and volume, and given the ability to perform confirmatory sampling, as the slug of chemical moves downstream the POTW intakes would be closed until the slug passes and is followed by uncontaminated water. In a similar fashion, intakes further down the river could be utilized until the predicted arrival of the slug of chemical and then closed.

In the second type of case, all three POTW river intakes would be closed until the level of the contaminant was reduced through containment of the release and the flushing action of the river flow. The reserve capacity of the tanks and reservoirs, and the well fields would support normal water needs for perhaps 24 hours. After that time the well fields could supply the needs during the winter but only supply about 50 percent of needs during the high use periods of the summer.

These capabilities suggest that the integrity of the POTW supply for the City of Reno could be maintained during a hazardous materials accident affecting the Truckee River to the west of Reno. The specific elements and procedures would be implemented by the Sierra Pacific Corporation, the Triad Hazardous Materials Response Team, and the Truckee River Corridor Area Contingency Plan Working Group. The key criterion for the effectiveness of the action indicated above would be the rapid and accurate communication of information to the authorities having jurisdiction from the very beginning of the incident. The occurrence of the incident, determination of the presence of a chemical contaminant in the water, and the rapid communication of information are all possible given the current detection devices and communications in use by the railroad. Additional elements of the *Truckee River Corridor Emergency Response Plan* relevant to railroad responses for hazardous material releases potentially affecting the potable water supply are presented in Section 4.5.3.

### 4.6.3 Potential Impacts to the Population of Reno/Sparks

The release of hazardous material commodities has the potential to cause adverse effects in humans due to chemicals that pose physical hazards (i.e., flammable or explosive commodities), toxic hazards, or both. This section discusses the potential impacts of hazardous materials on the potentially exposed populations of Reno/Sparks, and factors that mitigate incremental risks associated with the UP/SP merger. As discussed below, the likelihood of potential impacts to the population of Reno/Sparks are highly remote.

#### Description of Potential Impacts

The total risk to an individual can be defined as the probability that the individual will incur or develop a specific undesirable response (i.e., undesirable event) in a specific time frame such as a year or a lifetime. This definition is specific to the undesirable response and this does not incorporate degrees or levels of severity (e.g., types of responses or responses changing over time).

The analysis performed for this evaluation was based on a qualitative interpretation of the incremental, or additional risks, and hazards associated with the UP/SP merger and was based, in part, on historical data relating to rail car accidents. An additional factor for consideration was the improved mitigation and accident response actions that are currently being implemented as a result of the UP/SP merger. It should be emphasized that this evaluation considers only the incremental change to risk from the UP/SP merger and not the overall risk from rail transportation of various commodities.

The potential for adverse human health effects is dependent on many independent factors and scenarios. Consequences can be considered in two basic categories: catastrophic events and adverse health effects (toxicity). A series of events that must occur in order for a release to result in an adverse human health effect or a catastrophic impact; an adverse effect or impact is contingent on the presence of all of a number of required components.

It should be emphasized that few of the hazardous material commodities pose any carcinogenic risk, and most of the gaseous and liquid commodities relevant to this release/impact scenario will not persist in the environment. This means that the primary adverse health effects concerns relate to acute, and not chronic effects. For acute effects, increased transport of hazardous commodities under post-merger conditions will increase the probability of an accident, but the magnitude of the accident and its consequences would be similar pre- and post-merger (assuming no major change in the distribution of the commodities carried). For chronic exposure/effects, increased transport of hazardous commodities would pose no significant increase in risk between pre- and post-merger conditions, because the increased traffic would lead to no more than a doubling of a negligible risk over a lifetime.

The incremental risk/hazard for the occurrence of a catastrophic event such as a railcar explosion or dangerous gas or liquid plume depends on the following factors:

- Proximity to exposed population (i.e., location of the explosion).
- Explosive conditions present (e.g., $O_2$ availability, source of ignition, concentration of chemical).
- Severe accident occurrence.
- Transport mechanism for plume.
- Mitigation measures employed (e.g., condition of track).

Similarly, the incremental toxic risk/hazard associated with a chemical release depends on the following factors:

- Accident location.
- Quantity of chemical released.
- Toxicity of chemical released.
- Physical and chemical characteristics affecting exposure.
- Transport mechanisms (e.g., wind directions, flow patterns).
- Human exposure of sufficient dose (concentration and duration) to cause adverse health effects.

### Probability of a Hazardous Materials Release Impacting the Potentially Exposed Population of Reno/Sparks

The highest probability of a hazardous materials release affecting the potentially exposed population of Reno/Sparks was estimated using the methods presented in Section 4.3. A worst case scenario was evaluated to consider any release of a hazardous material commodity between

the western limits of the City of Reno and the eastern limits of the City of Sparks (MP 240 to MP 247). The probability of a hazardous materials release along this section of track was estimated separately for commodities transported as liquids, solids, and gases, using a portion of commodities potentially harmful to humans equal to one (for this release/impact scenario, all hazardous commodities were considered hazardous to humans). These separate probabilities were then summed to estimate the total probability of a release, expressed on an annual basis and as the number of years between events. The probability of a release was then estimated for the pre-merger and post-merger scenarios.

The results of this worst case hazardous materials release assessment (see Table 4.6-4) show a conservative estimate of probability of one occurrence of hazardous materials release from this segment of track once every 523 years pre-merger, and once every 315 years post-merger. For the purposes of considering the actual risk level, it should be noted that this analysis assumed that:

- All commodities would pose some potential hazard to humans.
- *Any* quantity released would pose a potential hazard to humans, i.e., that all releases would exceed the thresholds for adverse human health effects.
- Transport mechanisms (e.g., wind directions, flow patterns, the presence of storm sewer systems) would never act to decrease the exposure to humans.

**Table 4.6-4**
**Summary of Estimated Annual Release Probabilities and Years Between Release for any Commodity Potentially Harmful to Humans**

| | Portion Potentially Harmful | Impacts to Urban Reno/Sparks (MP 240-247) | | | |
|---|---|---|---|---|---|
| | | Pre-Merger | | Post-Merger | |
| | | Annual Releases | Years Between | Annual Releases | Years Between |
| Liquids | 1.00 | 0.00158 | 634 | 0.00262 | 382 |
| Solids | 1.00 | < 0.001 | > 1,000 | < 0.001 | > 1,000 |
| Gases | 1.00 | < 0.001 | > 1,000 | < 0.001 | > 1,000 |
| **Total** | | **0.00191** | **523** | **0.00317** | **315** |

Note: Assumes all hazardous material commodities are harmful for the potentially exposed population of Reno/Sparks (see Section 4.4), and includes releases of any quantity from the critical segment for this scenario. The probability of a released quantity exceeding the risk threshold is actually lower. In addition, contaminant transport mechanisms from the release site are required for human exposure to occur; this further reduces potential risks.

This suggests that the potential for a hazardous material release potentially affecting the exposed human population, either pre- or post-merger, is likely to be much less than that indicated in Table 4.6-4, i.e., quite remote.

The UP/SP merger affects rail traffic and potentially the accident occurrence rate in the Reno/Sparks area. However, mitigation measures imposed in Decision No. 44 and SEA's recommended additional mitigation measures will reduce the likelihood of accident occurrence,

thus offsetting the effects of increased rail traffic to some extent. Based on past site accident occurrence history and national railroad accident data involving similar chemicals and scenarios, the probability of a catastrophic explosion is extremely low, and the merger's impact on this very low level would not be major.

### Factors Mitigating Risks to the Potentially Exposed Population of Reno/Sparks

A hazardous materials release in either Reno or Sparks would require an immediate response from a trained, equipped, and qualified spill response team. Contingency plans that are disaster-specific have been prepared, and will be periodically reviewed and updated, to address the spill response for each of the major commodities transported by rail. These plans identify responsibilities for communicating with other agencies, the media, and the public, in addition to the advance coordination of people, transportation, equipment, supplies, and laboratory facilities. Access routes to the potential spill site(s) have also been determined.

For releases to air, determination of downwind plume and determination of the evacuation zones is covered by the joint contingency plan of the Triad unit (see Section 4.5). The Triad has the capacity to identify the adverse effects of an airborne chemical and to predict where and when population centers may be affected by it. The Triad unit also has in place relationships with other agencies that would facilitate the notification of the public and the directions that they are to follow, such as evacuation or shelter.

Responses to ground releases are not as time sensitive as releases to the water and air due to decreased potential for transportation or migration of the chemical and subsequent effects. The provisions for mobilization of recovery contractors included in the joint contingency plan are adequate to insure that mitigation and the recovery of a product in this case will be accomplished with a minimum of damage to the resources at risk.

Additional elements of the *Truckee River Corridor Emergency Response Plan* relevant to railroad responses for hazardous material releases potentially impacting the population of Reno/Sparks are presented in Section 4.5.3.

## 4.7. Mitigation Measures for Hazardous Material Risks

For a discussion of SEA's recommended mitigation measures regarding hazardous materials, please see Section 2.4.8.

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# Exhibit A
# SURFACE TRANSPORTATION BOARD'S DECISION NO. 44

**EXCERPTS RELATING TO RENO MITIGATION STUDY**

SURFACE TRANSPORTATION BOARD

Finance Docket No. 32760

UNION PACIFIC CORPORATION, UNION PACIFIC RAILROAD COMPANY, AND MISSOURI PACIFIC RAILROAD COMPANY--CONTROL AND MERGER--SOUTHERN PACIFIC RAIL CORPORATION, SOUTHERN PACIFIC TRANSPORTATION COMPANY, ST. LOUIS SOUTHWESTERN RAILWAY COMPANY, SPCSL CORP., AND THE DENVER AND RIO GRANDE WESTERN RAILROAD COMPANY

Decision No. 44

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Decided: August 6, 1996

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**ENVIRONMENTAL CONSIDERATIONS.**

**Extensive Environmental Review Process.** Under the National Environmental Policy Act (NEPA) and related environmental laws, the environmental effects of the merger and the ancillary abandonment and construction projects that were proposed by applicants must be considered, and we have thoroughly done so. Our environmental staff, the Section of Environmental Analysis (SEA), conducted various public outreach activities to inform the public about the proposed merger and to encourage and facilitate public participation in the environmental review process.[1]

As part of its environmental review, SEA prepared detailed analyses not only of the systemwide effects of the proposed merger, but also of particular merger-related activities that would affect individual rail line segments, rail yards, and intermodal facilities to a degree that would meet or exceed our thresholds[2] for environmental analysis. See 49 CFR

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[1] SEA sent approximately 400 consultation letters to various agencies seeking their comments. In addition, SEA consulted with federal, state, and local agencies, affected communities, UP and SP, and UP/SP's environmental consultants to gather and disseminate information about the proposal, identify potential environmental impacts, and develop appropriate mitigation measures.

[2] These thresholds ensure that those rail line segments and facilities that would experience a substantial increase in traffic as a result of the transaction are thoroughly analyzed for potential air quality, noise, transportation, and safety impacts.

1105.7(e)(5)(i) and (ii).[3] SEA conducted a thorough independent analysis, which included verifying projected rail operations; verifying and estimating noise level impacts; estimating increases in air emissions; assessing potential impacts on safety; and performing land use, habitat, surface water and wetlands surveys, ground water analyses, and historic and cultural resource surveys.

Based on the information provided by the parties and other agencies, SEA issued a comprehensive Environmental Assessment (EA) on April 12, 1996. SEA received approximately 160 comments following issuance of the EA. To address those comments and the other environmental comments received throughout the environmental review process (approximately 400 in total), SEA undertook additional environmental analysis, which culminated in the issuance of a detailed Post Environmental Assessment (Post EA) on June 24, 1996, refining some of the discussion and mitigation recommended in the EA.

As a result of its investigation, SEA concluded that the merger would result in several environmental benefits, including a systemwide net reduction of 35 million gallons of diesel fuel consumption (based on 1994 figures) from rail operations and truck-to-rail operations, systemwide improvements to air quality from reduced fuel use, and a reduction in long-haul truck miles, highway congestion and maintenance, and motor vehicle accidents.

SEA also concluded that the merger and related rail abandonments and constructions could have potential environmental effects regarding safety, air quality, noise, and transportation, including the transportation of hazardous materials, and, in the EA, SEA proposed mitigation measures addressing the environmental concerns that were raised. In the Post EA, based on further analysis and review of the environmental comments, SEA developed more comprehensive and specifically tailored mitigation recommendations. As a result of consultations with SEA, UP/SP agreed to undertake particular mitigation measures. In addition, several local communities negotiated memoranda of understanding with UP/SP to implement mitigation measures and take other appropriate actions to address their particular environmental concerns.

SEA concluded that, with the Post EA mitigation measures, the proposed merger would not significantly affect the quality of the human environment on a systemwide, regional, or local basis. We agree that the conditions recommended in the Post EA will

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[3] SEA and its independent third-party consultant conducted approximately 150 site visits. They also analyzed UP/SP's Environmental Report, operating plan, Preliminary Draft Environmental Assessment and other pleadings, all of the settlement agreements entered into during the environmental review process, and technical studies.

adequately mitigate the potential environmental impacts identified during the course of the environmental review, and we will impose those conditions here (see Appendix G).[4] We also adopt SEA's environmental analysis and the conclusions reached in the EA and the Post EA.

**No Need for Environmental Impact Statement.** We have considered the arguments of some parties that an environmental impact statement (EIS) is required here, but do not believe that one is needed. An EIS is required only for "major federal actions significantly affecting the quality of the human environment." 42 U.S.C. 4332(2)(C).[5] Under our environmental rules, 49 CFR 1105.6(b)(4), an EA is normally sufficient environmental documentation in rail merger cases to allow us to take the requisite "hard look" at the proposed action.[6] Moreover, interested parties received essentially the same benefits they would have received with an EIS. As the EA and Post EA show, SEA conducted a thorough and comprehensive environmental review. There was extensive notice and opportunity for input from the public and appropriate agencies throughout the process. In addition to the EA, SEA issued a detailed Post EA which contains SEA's individual responses to the comments on the

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[4] We note that the mitigation recommended in the Post EA for two proposed abandonments in Colorado (Sage to Leadville and Malta to Cañon City) has been modified to reflect our decision to permit only discontinuance of rail service, and not abandonment, at this time. Other clarifying changes have been made as well.

[5] The identification of such actions is a matter for the agency to determine, as long as the determination is not arbitrary or capricious. See Goos v. ICC, 911 F.2d 1283, 1292 (8th Cir. 1990), citing Marsh v. Oregon Natural Resources Council, 490 U.S. 360, 377 (1989).

[6] While this merger involves somewhat more trackage than other merger proposals that have come before our predecessor agency, the ICC, that does not mean that the qualitative environmental effects of this merger are greater (or different) than those of the other railroad mergers that have been considered. Similarly, the extensive trackage rights that we are granting in this decision to preserve competition generally will not create additional traffic (or potentially significant environmental impacts). Traffic that can be efficiently handled by train would be handled by train whether or not the trackage rights at issue here were granted.

EA and thus reflects not only the work of SEA but also the critical views of interested parties and agencies.

Finally, the environmental mitigation we are imposing here is far reaching and comprehensive.[7] As appropriate, it addresses impacts on a variety of levels: systemwide, rail corridor-specific, and local. There is mitigation for particular rail line segments, rail yards, intermodal facilities, and rail abandonments and constructions. In short, no EIS is required because our environmental mitigation conditions specifically address the potential environmental impacts associated with the merger and ensure there will be no significant environmental effects.[8]

**Reno and Wichita.** As discussed in the Post EA, in developing mitigation for two cities, Reno, NV, and Wichita, KS, SEA concluded that further, more focused mitigation studies are warranted, notwithstanding the extensive analysis (including site visits and meetings with city officials, emergency response representatives and business interests) that already has been done to identify environmental concerns and arrive at appropriate mitigation for these two communities. Nothing in the record here, however, suggests that the potential environmental effects of the merger in Reno or Wichita are so severe that implementation of the merger should not proceed prior to the

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[7] For example, with respect to safety, our mitigation includes more frequent track and train car inspections, signs on grade crossings identifying toll free numbers to call in the event of a signal malfunction, and a requirement that UP/SP provide emergency response personnel with information regarding anticipated train movements and work with communities to develop plans to deal with the transportation of hazardous materials, emergencies, and the upgrading of grade crossing signals. In addition, UP/SP will be required to equip certain trains carrying hazardous materials with two-way end-of-train devices to enhance braking capabilities on particular line segments. In response to concerns involving air pollution, UP/SP will have to reduce idling of locomotives, close box car doors on empty cars, and use more efficient locomotives when the equipment becomes available.

[8] See, e.g., Sierra Club v. DOT, 753 F.2d 120, 127 (D.C. Cir. 1985); Cabinet Mountains Wilderness v. Peterson, 685 F.2d 678, 682 (D.C. Cir. 1982).

completion of the studies.[9] To the contrary, in both Reno and Wichita the environmental impacts are limited to the effects of an increase in traffic on existing rail lines. Also, the mitigation conditions that we are imposing now assure that, while SEA conducts these studies, the environmental status quo will essentially be preserved in Reno and Wichita.[10]

As the EA and Post EA show, SEA already has carefully assessed the impact of the merger on Reno and Wichita and identified its likely environmental effects. Based on its analysis, SEA concluded that, with the systemwide and corridor-specific mitigation already imposed and the conditions to be arrived at following the independent mitigation studies, there will be no significant environmental impacts to Reno and Wichita, and we agree.

The sole purpose of the mitigation studies will be to arrive at specifically tailored mitigation plans that will ensure that localized environmental issues unique to these two communities are effectively addressed. For example, with respect to vehicular and pedestrian safety, SEA has determined that separated grade crossings and pedestrian overpasses and/or underpasses will be needed to address safety concerns on the existing rail lines in Reno and Wichita. Accordingly, the studies will identify the appropriate number and precise location

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[9] We note that the Supreme Court has rejected arguments that NEPA demands the formulation and adoption of a plan that will fully mitigate environmental harm before an agency can act. Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 352-53 (1989). Rather, the deferral of a decision on specific mitigation steps until more detailed information is available is embraced in the procedures promulgated under NEPA. See Public Utilities Comm'n of California v. FERC, 900 F.2d 269, 282-3 (D.C. Cir. 1990). NEPA "does not require agencies to adopt any particular internal decisionmaking structure." Baltimore Gas & Electric Co. v. NRDC, 462 U.S. 87, 100 (1983). It is well settled that NEPA does not repeal other statutes by implication and that if the agency meets NEPA's basic requirements, it may fashion its own procedural rules to discharge its multitudinous duties. Vermont Yankee v. NRDC, 435 U.S. 519 (1978); United States v. SCRAP, 412 U.S. 669, 694 (1973).

[10] The courts have recognized that there is no violation of NEPA where proposed actions will not effect a change in the status quo. See Sierra Club v. FERC, 754 F.2d 1506, 1509-10 (9th Cir. 1985).

of highway/rail grade separations and rail/pedestrian grade separations in Reno and Wichita. With respect to air quality, we have imposed mitigation measures that reduce locomotive fuel consumption and air pollution, call for more efficient railroad equipment and operating practices, and require consultation with air quality officials.[11] As further insurance, the studies will consider additional mitigation to address the air quality effects unique to Reno and Wichita. In this merger, noise impacts would result from more frequent exposure to horn noise rather than greater intensity of sound. No additional types of noise would be introduced. To address noise impacts, we are requiring UP/SP to consult with affected counties to develop focused noise abatement plans. As the Post EA notes, however, safety dictates that railroads sound their horns at grade crossings.[12] Any attempt significantly to reduce noise levels at grade crossings would jeopardize safety, which we consider to be of paramount importance.

The studies will be conducted by SEA with the assistance of an independent third party contractor. Although retained by UP/SP, SEA will select the contractor. The contractor will work under the sole supervision, direction, and control of SEA.

The mitigation studies will include consultations with the affected communities, counties, and states, Native American tribes, the FRA, and other appropriate agencies, as well as UP/SP. There will be public notice and participation. The public will be consulted regarding the range of additional mitigation to most effectively address increased rail traffic on the existing rail lines in Reno and Wichita. SEA will prepare draft mitigation studies and make them available to the public for review and comment. After SEA assesses the comments, it will design the most effective mitigation for these particular communities to add to the mitigation that has already been imposed.

SEA's final mitigation studies and its recommended mitigation plans for Reno and Wichita will be made available to

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[11] Because trains are mobile, rather than stationary sources, air quality impacts associated with locomotive emissions are spread over a large area. Therefore, the impacts at any individual location are typically relatively minor.

[12] SEA indicates that FRA has been directed by the Swift Act generally to require that horns be sounded at all grade crossings.

the public and will be submitted to us for our review and approval. We will then issue a decision imposing specific mitigation measures. This entire process will be completed within 18 months of consummation of the merger.

In the meantime, as explained in the Post EA, during the 18-month study period UP/SP will be permitted to add only an average of two additional freight trains per day to the affected rail line segments (Chickasha, OK, to Wichita and Roseville, CA, to Sparks, NV),[13] which is below the threshold level for environmental analysis.[14] UP/SP will be prohibited from increasing traffic to the levels they projected under the merger (11.3 daily trains for Reno and 7.4 trains for Wichita) without our approval.[15] Thus, there will be no significant adverse environmental impacts to these communities while SEA, the Board, and the parties work to arrive at additional tailored mitigation for those cities.

It should be noted that the studies will focus only on the mitigation of the environmental effects of additional rail traffic through Reno and Wichita resulting from the merger.

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[13] For nonattainment areas such as Reno, our rules permit railroads to operate up to three additional trains per day. The threshold for attainment areas such as Wichita is normally an increase of eight trains or more a day. Here, we are taking a more conservative approach and will permit for Wichita only an average increase of two trains per day. In short, these limited increases for Reno and Wichita are at or below the threshold levels, and the environmental status quo will essentially be maintained. This addition of an average of two trains a day includes BNSF trains but does not include Amtrak trains, which are unrelated to the merger.

[14] We note that an existing railroad can increase its level of operations without coming to us, and without limitation. Thus, if UP and SP had not proposed this merger, SP on its own could have increased the number of trains on its line in Reno to any level it considered appropriate. Allowing an increase of up to two trains per day during the interim period takes into account that the number of trains going through Reno and Wichita might have been increased even without the merger.

[15] UP/SP will be required to file verified copies of station passing reports of train movements for Reno and Wichita on a monthly basis with SEA for the duration of the study period. We will review them to ensure compliance.

Mitigation of conditions resulting from the preexisting development of hotels, casinos, and other tourist-oriented businesses on both sides of the existing SP rail line in Reno, or the preexisting switching operations that are a primary source of the congestion associated with the existing UP line in Wichita, are not within the scope of the studies. Similarly, the construction of a new rail line now under consideration by Reno is too preliminary to be assessed now.[16]

The studies will carefully examine private and public funding options, as we believe that the cost of mitigation for Reno and Wichita should be shared. Finally, the studies will provide the parties with additional time to pursue and agree to independent and innovative mitigation plans (such as the memorandum of understanding executed by UP/SP and Truckee, CA, whereby UP/SP will share in the cost of an underpass construction project and contribute to a fund to buy back obsolete wood burning stoves).

In sum, pending determination of the exact mitigation measures to be required for Reno and Wichita, UP/SP will be subject to a traffic cap on the affected rail lines to ensure that no adverse effects to the environment will occur and existing environmental conditions will essentially remain unchanged. Because we already know the nature and general parameters of the appropriate mitigation measures for Reno and Wichita, based on our analysis of the environmental impacts and imposition of systemwide and regional mitigation, we find that, with the more specific mitigation that will be developed, the merger will not significantly affect the quality of the environment in those two locations.

**Comments of EPA.** On July 12, 1996, we received comments from the United States Environmental Protection Agency (EPA) on various aspects of the EA and the Post EA.[17] EPA notes that, in

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[16] Plans for such a line are only in the development stage. SEA indicates that such a project could take up to 10 years to finalize. If the contemplated construction reaches the stage of an actual proposal requiring our approval, SEA would prepare an appropriate environmental document at that point. See Kleppe v. Sierra Club, 427 U.S. 390, 410 n.20 (1976); Crounse Corp. v. ICC, 781 F.2d 1176, 1193-96 (6th Cir. 1986).

[17] SEA agreed to EPA's request for an extension of time to comment on the Post EA. We welcome EPA's input after reviewing (continued...)

analyzing air quality, the EA failed specifically to identify "maintenance" areas,[18] which it believes may have caused air quality concerns to be overlooked.[19] But maintenance areas were not ignored in SEA's analysis. For those areas that were not classified as nonattainment, SEA applied the EPA conformity emission threshold levels applicable to maintenance areas. This means that SEA analyzed both attainment and maintenance areas under the more rigorous standards applicable to maintenance areas, and that, if anything, the anticipated effects of the proposed merger on air quality are conservative. We believe that air quality has been thoroughly analyzed, and that the mitigation we are imposing here, along with the more specific measures which will be arrived at in the further mitigation studies for Reno and Wichita,[20] adequately mitigates any potential adverse air impacts.

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[17](...continued)
our environmental analysis, since, as EPA notes, it generally does not comment on EAs.

[18] There are three classifications for air quality: attainment areas, in which levels of certain pollutants are considered equal to or better than federal and state ambient air quality standards; nonattainment areas, in which levels of one or more pollutants do not meet federal and state ambient air quality standards; and maintenance areas, which were at one time nonattainment areas but have subsequently improved their air quality and are now in attainment for the relevant pollutant(s).

[19] We note that EPA does not disagree with SEA's determination that the proposed merger is not subject to EPA's regulations entitled "Determining Conformity of General Federal Actions to State or Federal Implementation Plans" (General Conformity). The General Conformity criteria do not apply directly to railroad operations, except for future locomotive emission standards. SEA properly concluded that the proposed merger does not meet the definitions in the General Conformity regulations at 40 CFR 51.852 because, as a regulatory agency, the Board does not maintain program control over railroad emissions as part of its continuing responsibilities.

[20] SEA will take into account EPA's concerns and consult with them in conducting its mitigation studies for Reno and Wichita.

EPA further states that the EA used the terms $NO_2$ and $NO_x$ incorrectly. We recognize that $NO_x$ is not a criteria pollutant under EPA and state ambient air quality standards. In assessing air quality emissions, SEA looked at emission factors applicable to $NO_x$, instead of $NO_2$, because $NO_x$ emission factors are readily available through EPA documents and other sources, while $NO_2$ emissions are not. SEA based its calculations on the conservative assumption that all $NO_x$ emissions are composed of $NO_2$. This conservative approach, which is widely accepted, ensured that the criteria pollutant $NO_2$ was adequately assessed in SEA's analysis. Moreover, by using this approach, SEA used higher $NO_2$ emissions than would actually be emitted.

EPA also expressed some difficulty understanding SEA's estimates of the projected net increase and decrease in air emissions with the mitigation measures we are imposing. While we believe that the text of the Post EA adequately explains the data in Tables 3-5 and 4-4, we have generated and attached as Appendix H an additional table to further clarify the net emissions reflecting mitigation.

EPA notes that some of the proposed rail line abandonments in Colorado run through or near EPA-designated Superfund sites. EPA is troubled that soil in and around the railroad lines could require remediation, that UP/SP might not be obligated to honor a consent decree, and that possible future trail use could expose the public to hazardous substances. These concerns are premature because, as discussed above, we are permitting only the discontinuance of rail service, and not abandonment of the involved lines. Thus there will be no salvage of these lines or opportunity for trail use unless and until UP/SP obtains our authority to abandon these lines.[21]

While trail use requests can be made if the abandonments are granted, any trail arrangement would not supersede the requirements of the specific laws that govern Superfund sites.[22] Nor would we thereby become involved in negotiating or enforcing consent decrees involving remediation of those sites.

---

[21] At that point, we will analyze the potential environmental impacts of the proposed abandonments.

[22] See Union Pac. R.R. -- Abandonment -- Wallace Branch, ID, Docket No. AB-33 (Sub-No. 70) (ICC served Dec. 2, 1994).

EPA does not view requiring UP/SP to comply with existing federal, state, and local regulation as mitigation. We believe, however, that requiring compliance with other laws and regulations, such as FRA's safety regulations, can assist in reducing the potential environmental impacts of the actions before us. If the railroad fails to comply with conditions that we have imposed, parties can notify us and request that we (as well as the agency that has promulgated the regulation) take appropriate action.

In any event, the mitigation we are imposing here goes well beyond requiring compliance with other laws and regulations. For example, it includes more frequent track and train car inspections to reduce anticipated safety impacts and reduced idling of locomotives and the use of more efficient locomotives to offset air pollution emissions associated with the merger. Moreover, to enhance safety, UP/SP will be required to equip certain trains carrying hazardous materials with two-way end-of-train devices to improve braking capabilities on particular line segments.

EPA suggests that we failed to discuss the environmental impacts associated with the handling and disposal of waste materials for the proposed abandonments and constructions. But we have included detailed mitigation for these actions. See Appendix G, including conditions #26, #27, #62 and #63.

EPA questions whether SEA considered all the settlement agreements reached with competing railroads and trade associations. SEA specifically took all settlement agreements into account in its analysis, as the EA and Post EA show.

Finally, we disagree with EPA's suggestion that SEA should revisit its consultation efforts with Native American tribes. SEA's efforts to contact and consult with Native American tribes have been extensive. As part of its outreach activities, SEA contacted approximately 11 area offices of the Bureau of Indian Affairs to inform them about the proposed merger; three offices commented and provided the names of tribes that should be contacted. Both the EA and Post EA were distributed to 31 American Indian tribes. In addition, there was newspaper and Federal Register notice to inform all affected tribes and communities about the proposed merger and how they could participate. To ensure continued participation, SEA will contact the affected Native American tribes when initiating its mitigation studies for Reno and Wichita and invite them to participate.

## APPENDIX G: ENVIRONMENTAL MITIGATING CONDITIONS

The environmental mitigating conditions imposed in Finance Docket No. 32760 are categorized as follows: (A) Systemwide, (B) Corridor-Specific, (C) Rail Line Segments, (D) Rail Yards and Intermodal Facilities, (E) Proposed Abandonments, and (F) Construction Projects. These mitigation conditions are numbered sequentially.

### A. SYSTEMWIDE MITIGATION

The following systemwide mitigation conditions apply to rail line segments, rail yards, intermodal facilities, and rail line construction projects on new right-of-way.

1. UP/SP shall adopt UP's existing formula-based standards for track inspection for all rail lines of the merged system, which will increase the frequency of inspections on SP rail lines.

2. UP/SP shall adopt UP's existing tank car inspection programs for all appropriate facilities on the merged system.

3. For all highway grade crossing signals, UP/SP shall provide visible instructions designating an 800 number to be called if signal crossing devices malfunction.

4. UP/SP shall provide 800 numbers to all emergency response forces in all communities. These numbers shall provide access to UP/SP supervisors who shall provide train movement information and work cooperatively with communities in emergency situations. These numbers are not to be disclosed to the general public.

5. UP/SP shall participate on a systemwide basis in the TRANSCARE program to develop hazardous material and emergency response plans in cooperation with communities.

7. UP/SP shall adopt UP's training program for community and emergency response personnel for locations on the SP rail lines, and include personnel from SP served locations in UP's school at Pueblo, CO, for additional emergency response training.

8. UP/SP shall adopt existing UP training and operating practices that are designed to reduce locomotive fuel consumption and air pollution. These include: throttle modulation, use of dynamic braking, increased use of pacing and coasting trains, isolating unneeded horsepower, shutting down locomotives when not in use for more than an hour when temperatures are above 40 degrees, and maintaining and upgrading SP locomotives to UP standards.

9. As suggested by UP/SP, UP/SP shall extend to SP rail lines UP's program of closing boxcar doors on empty cars before movement on

the system in order to reduce wind resistance and, thereby, fuel consumption.

10. As suggested by UP/SP, UP/SP shall use its own security forces to conduct its own arrests and bookings, reducing reliance on local police forces.

11. UP/SP shall convert all railroad locomotives to the standards for visible smoke reduction that are established in the South Coast Air Quality Basin.

12. UP/SP shall adopt UP's existing policy of using head-hardened rail on curves in mountainous territory for SP rail lines to promote safer operations.

13. UP/SP shall comply with all applicable FRA rules and regulations in conducting rail operations on the merged system.

**B. CORRIDOR MITIGATION**

**General**

The following mitigation conditions apply to the Central, Southern, Northern, Illinois-Gulf Coast, and Pacific Coast (I-5) Corridors.

14. UP/SP shall implement the draft emissions standards for diesel-electric railroad locomotives that the Environmental Protection Agency (EPA) has developed. It is the Board's understanding that EPA plans to propose these standards and make them available for public comment in December 1996. Under these standards, UP/SP shall utilize newly manufactured or re-built locomotives that are more fuel efficient and produce less emissions. When this equipment becomes available, UP/SP shall assign these locomotives on a priority basis to the corridors or portions thereof specified below:

- **Southern Corridor:**
  - Fort Worth, TX, to West Colton, CA.

- **Central Corridor:**
  - Cheyenne, WY, to Hinkle, OR.
  - Chicago, IL, to Fremont, NE.
  - Ogden, UT, to Roseville, CA.
  - Denver, CO, to Grand Junction, CO.

- **Pacific Coast (I-5) Corridor:**
  - Seattle, WA, to West Colton, CA.
  - Sacramento, CA, to Bakersfield, CA.

15. To further facilitate the improvement of air quality for specific locations, UP/SP shall consult with appropriate state and local

air quality officials in the States of Arizona, California, Colorado, Illinois, Nevada, Oregon, Texas, Washington, and Wyoming, through which the Pacific (I-5), Southern, Central, and Northern Corridors extend in part. UP/SP shall advise SEA as to the status and the results of these consultations.

16. To address noise impacts, UP/SP shall consult with the affected counties that have communities that would experience an increase of 3 dBA or more as a result of the increased rail traffic over rail lines in the States of California, Colorado, Illinois, Kansas, Louisiana, Nebraska, Nevada, Oklahoma, and Texas. If appropriate, UP/SP shall develop a noise abatement plan. UP/SP shall submit the result of these consultations to SEA who will review these findings with FRA.

**Specific**

The following mitigation conditions apply to specific rail line segments within the Central, Southern, and Illinois-Gulf Coast Corridors.

17. UP/SP shall give priority to equipping key trains, as defined by Union Pacific Railroad Form 8620, on the corridor segments listed below with two-way end of train devices. This requirement also applies to BNSF key trains operating between Iowa Junction, LA, and Avondale, LA.

- **Central Corridor**
  - North Platte, NE, to Oakland, CA (UP and SP).
  - Cheyenne, WY, to Denver, CO (UP).

- **Southern Corridor**
  - Houston, TX, to Avondale (New Orleans), LA (SP).
  - Iowa Junction, LA, to Avondale, LA, via Kinder and Livonia (UP).
  - Houston, TX, to West Colton, CA (SP).

- **Illinois-Gulf Coast Corridor**
  - St. Louis, MO, and East St. Louis/Salem, IL, to Houston, TX, and Avondale, LA (UP and SP).

C. **RAIL LINE SEGMENT MITIGATION**

**General**

The following mitigation conditions apply to all of the rail line segments in the states identified below.

18. UP/SP shall consult with the states and appropriate local officials as well as FRA to develop a priority list for upgrading grade crossing signals, where necessary, due to increases in rail traffic resulting from the proposed merger. This process shall be undertaken for all rail line segments in the States of Arkansas, California, Colorado, Kansas, Nevada, Oregon, and Texas. UP/SP shall advise SEA as to the status and the results of these consultations.

**Specific**

The following detailed mitigation conditions apply to the specific rail line segments and/or locations identified below.

City of Reno

22a. UP/SP shall operate no more than a daily average count of 14.7 freight trains per day through the City of Reno. (This reflects the Base Year daily average of 13.8 trains -- 12.7 freight trains and 1.1 passenger trains -- plus 2 additional freight trains.) The addition of two freight trains per day does not exceed the Board's threshold for environmental analysis at 49 CFR 1105.7(e)(5)(ii). The 14.7 average freight train count per day does not include the following types of movements: (1) maintenance-of-way trains, (2) light locomotive movements, (3) local and industry switching train movements, (4) emergency trains operated under detour authority, for snow removal, for fire or other natural disaster purposes, and wreck removal purposes. This condition will be effective upon consummation of the merger and will continue in effect for 18 calendar months in total.

22b. For the purpose of monitoring the preceding condition, UP/SP shall file on a monthly basis with the Board verified copies of station passing reports of train movements through Reno, NV, for each day of each preceding month in the specified 18-month period. These reports shall also identify those train movements, specified in the above condition, that are excluded from the 14.7 trains per day average count.

22c. UP/SP, in consultation with and subject to the approval of SEA, shall retain an independent, third-party consultant to prepare a specific mitigation study to address the environmental effects on the City of Reno of the additional rail freight traffic projected as a result of the proposed merger. This study shall be prepared under the sole direction and supervision of SEA. It shall include a final mitigation plan based on a further study of the railway, highway, and pedestrian traffic flows and associated environmental effects on the City of Reno. This study would tailor mitigation to address environmental effects such as safety, hazardous materials transport, air quality, noise and water quality. UP/SP shall comply with the final mitigation plan developed under this study.

The study, which shall be completed within 18 months from the date of consummation of the merger, shall include the following:

- Projected post-merger increases in rail freight traffic on the Sparks to Roseville line segment.
- Consultations with the City of Reno, Washoe County, the Federal Railroad Administration, affected Native American Tribes, and other appropriate Federal, state and local agencies, and other interested parties.
- Consultations with UP/SP.
- Review of all existing information and studies including those prepared by the City of Reno, Washoe County and UP/SP.
- Independent analyses.
- With respect to vehicular and pedestrian safety, mitigation measures that identify the number and location of highway/rail grade separations and rail/pedestrian grade separations in downtown Reno.
- Funding options.
- Submission of a draft study to the public for review and comment and then issuance of a final mitigation study.

22d. SEA will submit the final mitigation study and its recommendations to the Board, which shall then issue a decision imposing mitigation. In the event UP/SP and the City of Reno and other appropriate parties reach agreement on a final mitigation plan, UP/SP and the City of Reno shall immediately notify SEA, and the Board will take appropriate action consistent with such an agreement.

**Exhibit B**
**SURFACE TRANSPORTATION BOARD'S DECISION NO. 71**

25447
EB

SERVICE DATE - APRIL 17, 1997

SURFACE TRANSPORTATION BOARD

DECISION

Finance Docket No. 32760

UNION PACIFIC CORPORATION, UNION PACIFIC RAILROAD COMPANY, AND MISSOURI PACIFIC RAILROAD COMPANY--CONTROL AND MERGER--SOUTHERN PACIFIC RAIL CORPORATION, SOUTHERN PACIFIC TRANSPORTATION COMPANY, ST. LOUIS SOUTHWESTERN RAILWAY COMPANY, SPCSL CORP., AND THE DENVER AND RIO GRANDE WESTERN RAILROAD COMPANY

[Decision No. 71]

Decided: April 15, 1997

In Decision No. 44 (served August 12, 1996), we approved the common control and merger of the rail carriers controlled by Union Pacific Corporation (Union Pacific Railroad Company and Missouri Pacific Railroad Company) and the rail carriers controlled by Southern Pacific Rail Corporation (Southern Pacific Transportation Company, St. Louis Southwestern Railway Company, SPCSL Corp., and the Denver and Rio Grande Western Railroad Company)(collectively UP/SP), subject to various conditions, including numerous environmental mitigating conditions. As pertinent here, the environmental conditions imposed in Decision No. 44 call for further, more focused, mitigation studies to arrive at specifically tailored mitigation plans for Wichita, KS and Reno, NV, in addition to the environmental mitigation that already has been imposed, to assure that localized environmental issues unique to those two communities are effectively addressed.

After Decision No. 44 was issued, the City of Wichita and the Board of County Commissioners of Sedgwick County, KS (Wichita/Sedgwick) filed an environmental court challenge in the United States Court of Appeals for the District of Columbia Circuit. No. 96-1293, City of Wichita v. Surface Transportation Board (pet. for review filed Aug. 21, 1996) (Wichita).[2] From pleadings filed in that litigation, it became apparent that the Wichita appeal is addressed solely to the sentence in Decision No. 44 (at p. 223) stating, "The [mitigation] studies [that are

---

[1] Proceedings pending before the Interstate Commerce Commission (ICC) on January 1, 1996, must be decided under the law in effect prior to that date if they involve functions retained by the ICC Termination Act of 1995, Pub. L. 104-88, 109 Stat. 803. This proceeding was pending with the ICC prior to January 1, 1996, and to functions retained under Surface Transportation Board (Board) jurisdiction pursuant to new 49 U.S.C. 11323-27. Citations are to the former sections of the statute, unless otherwise indicated.

[2] Another environmental court challenge is pending in the D.C. Circuit in No. 96-1418, City of Reno v. Surface Transportation Board (Reno). The D.C. Circuit, on its own motion, ordered the Reno and Wichita appeals consolidated with the petitions for review raising issues other than environmental issues that were filed in that court. The Board and the United States have moved to sever the Reno and Wichita appeals from the other cases seeking review of Decision No. 44 and to hold briefing in abeyance in these two cases because, unlike the other petitions seeking review of Decision No. 44, the Reno and Wichita petitions are environmental court challenges that are not ripe or final for judicial review at this time. That motion remains pending in the court.

now underway for Wichita and Reno] will carefully examine private and public funding options, as we believe that the cost of mitigation for Reno and Wichita should be shared.' Then, following an inquiry looking toward settlement of the Wichita litigation, petitioners' counsel in the Wichita case advised our General Counsel, by letter dated April 7, 1997,' that if the Board issues a decision clarifying that UP/SP will be required to pay 100% of the cost of mandated environmental mitigation, Wichita/Sedgwick will withdraw their appeal.

Petitioners' counsel states that Wichita/Sedgwick understands that, consistent with Decision No. 44, the Board is considering both "base line" mitigation, *i.e.*, mitigation including, but not limited to, the type discussed in Decision No. 44, that UP/SP would be required to implement and fund in order to increase the number of through trains operating through Wichita/Sedgwick, and alternative mitigation, *i.e.*, more expensive options. As to the latter, Wichita/Sedgwick understands that the Board may suggest funding alternatives, but such suggestions would be in no way binding. See Addendum A.

Having ascertained that UP/SP has no objection to the issuance of a decision clarifying the intent of the sentence at page 223 of Decision No. 44, quoted above, in the manner requested by Wichita/Sedgwick, it appears to us appropriate to clarify our intent with respect to developing final mitigation for Wichita and Reno. Specifically, the final environmental mitigation that will be developed for Wichita and Reno following the completion of the ongoing mitigation studies will include (in addition to the mitigation that has already been imposed) both (1) mandated or base line mitigation, which the Board will require UP/SP to implement and entirely fund, and (2) alternative mitigation that might be a more far reaching solution for all concerned, but which will not be binding absent a voluntary agreement by the parties to share costs or expend greater resources.

This action will not significantly affect either the quality of the human environment or the conservation of energy resources.

It is ordered:

1. The discussion of environmental mitigation in Decision No. 44 is clarified as set forth in this decision.

2. This decision is effective on the date of service.

By the Board, Chairman Morgan and Vice Chairman Owen.

Vernon A. Williams
Secretary

---

' A copy of that letter is attached as Addendum A.

# Exhibit C
## RECENT RENO CITY COUNCIL ACTIONS REGARDING UP/SP MERGER MITIGATION OPTIONS

# RENO CITY COUNCIL
## BRIEF OF MINUTES
## MARCH 12, 1996
## (Official Minutes in City Clerk's Office)

The Regular Meeting of the Reno City Council was called to order at 12:05 p.m. on March 12, 1996 in the Council Chambers at City Hall.

PRESENT: Council Members Hascheff, Pearce, Dalske, Pilzner and Mayor Griffin.

ABSENT: Council Members Herndon and Pruett.

ALSO PRESENT: Assistant City Manager Jaeck, City Attorney Lynch and City Clerk Cook.

Agenda Item No.

2 Approval of the Minutes - February 27, 1996.

Recommended: Council approve the Minutes as submitted.

It was moved by Councilperson Hascheff, seconded by Councilperson Pilzner to approve the February 27, 1996 Regular Meeting Minutes as submitted.

Motion carried with Councilpersons Herndon and Pruett absent.

3 Approval of the Agenda - March 12, 1996

Recommended: Council approve the March 12, 1996 Regular Council Meeting Agenda as submitted.

Mayor Griffin indicated that Items 6L and 13A have been withdrawn from the Agenda and Item 90 has been moved to Item 14E.

It was moved by Councilperson Hascheff, seconded by Councilperson Pearce to approve the March 12, 1996 Regular Meeting Agenda as amended.

Motion carried with Councilpersons Herndon and Pruett absent.

4 Cash Disbursements - February 12, 1996 through February 25, 1996.

Recommended: Council approve Cash Disbursements as submitted.

It was moved by Councilperson Hascheff, seconded by Councilperson Pilzner to approve the Cash Disbursements as submitted.

Motion carried with Councilpersons Herndon and Pruett absent.



(DRAFT COPY - MINUTES NOT APPROVED BY CITY COUNCIL)

Agenda Item No. 15

## CITY CLERK

15A1 Boards and Commissions - Financial Advisory Board.

NO ACTION WAS TAKEN ON THIS ITEM.

15A2 Boards and Commissions - Ward 1 - Southwest District Council.

NO ACTION WAS TAKEN ON THIS ITEM.

15A3 Boards and Commissions - C.I.T.Y. 2000 Arts Commission.

Councilperson Pearce nominated Peter Stremmel to serve on the C.I.T.Y. 2000 Arts Commission.

It was noted that Mr. Stremmel does not live in the City of Reno.

It was the consensus of the Council to direct the City Clerk to no longer accept applications from residents outside the City of Reno limits.

NO ACTION WAS TAKEN ON THIS ITEM.

## 16 MAYOR AND COUNCIL

16A Liaison Report and appropriate direction to staff.

NO ACTION WAS TAKEN ON THIS ITEM.

16B Mayor's Liaison Report

NO ACTION WAS TAKEN ON THIS ITEM.

16C Report and follow-up on the Railroad Merger Meetings.

Mayor Griffin provided the Council with an overview of the meeting with the Congressional Delegation and Union Pacific Railroad representatives.

It was moved by Councilperson Pilzner, seconded by Councilperson Pearce to approve the following recommendations as outlined in the memo from the City Manager:

1. The City of Reno designate the I-80 alternative as its preferred alternative because it provides the least safety and environmental impact to the community and vigorously pursue its implementation.

2. The railroad bear the full cost of whatever mitigation is approved by the City, including construction, planning and design.

3. If the railroad refuses to find a mitigation alternative acceptable to the City, that the city go on record opposing the merger.

Agenda Item No. 16C

Report and follow-up on the Railroad Merger Meetings, continued:

4. That the City Council direct the City Manager to take the lead in all aspects of negotiating an agreement with the railroad consistent with the City Council's policy position and report back to the Council on a regular basis.

5. The City make contact with other communities affected by the proposed merger to determine what, if any, opportunities exist to undertake joint efforts.

Motion carried with Councilpersons Haschеff, Herndon and Pruett absent.

17 Request from the Independent American Party of Nevada to discuss a proposed resolution regarding the changing of names of streets and boulevards named in honor of past leaders.

This matter was deferred to the March 26, 1996 Council Meeting Agenda at 4:30 p.m.

13A Appeal of denial of liquor license for Andrew Del Pozzo.

This item was deferred to the March 26, 1996 Council Meeting.

The meeting was adjourned at 8:10 p.m.



(DRAFT COPY - MINUTES NOT APPROVED BY CITY COUNCIL)

# CITY OF RENO
# OFFICE OF THE CITY CLERK
# INTER-OFFICE MEMO

**DATE:** February 19, 1997

**TO:** Charles McNeely, City Manager

**FROM:** Donald J. Cook, City Clerk

**SUBJECT:** UP/SP Railroad Merger Negotiations Update and Council Consideration of Depressed Trainway Alternative

At a regular meeting held February 18, 1997, the City Council directed the City Manager to negotiate with UP representatives emphasizing the Downtown Depressed Trainway as the City's primary objective and work with the UP to develop all forms of funding sources for the construction of a Downtown Depressed Trainway. The Council further directed that litigation be continued, the I-80 corridor not be ruled out, and that the City Manager include up-to-date costs borne by the City every time this matter comes before the Council.

Donald J. Cook
City Clerk

DJC:cdg

xc: Kris Forest, Agenda Coordinator

**RESOLUTION NO.** 5368

**INTRODUCED BY** Hascheff

**RESOLUTION DECLARING THE DEPRESSED TRAINWAY PROJECT AS A PRIORITY FOR THE CITY OF RENO**

WHEREAS, on February 18, 1997, the Reno City Council unanimously directed the City Manager to negotiate with the Union Pacific representatives emphasizing the depressed trainway project as the City's primary objective and to work with the Union Pacific to develop all forms of funding sources for the construction of the depressed trainway; and

WHEREAS, on June 6, 1997, the Regional Transportation Commission unanimously approved Amendment No. 4 to the FY 1997-2001 Regional Transportation Improvement Program (RTIP) which placed the depressed trainway project on the RTIP on the condition that the Council for the City of Reno declare, by not less than a 5/7th vote, that the depressed trainway is a priority for the City of Reno.

NOW, THEREFORE, BE IT RESOLVED, that the City Council of the City of Reno hereby declares that the depressed trainway project is a priority for the City of Reno.

BE IT FURTHER RESOLVED that the City Clerk be directed to forward a copy of this Resolution to Celia G. Kupersmith, Executive Director, Regional Transportation Commission.

On motion of Councilmember Hascheff, seconded by Councilmember Aiazzi, the foregoing Resolution was passed and adopted this 17th day of June, 1997 by the following vote:

AYES: Hascheff, Aiazzi, Herndon, Pearce, Newberg, Griffin NAYS: Pruett

ABSENT: None ABSTAIN: None

Approved this 17th day of June, 1997.

JEFF GRIFFIN, Mayor

ATTEST:

DONALD J. COOK, City Clerk
Clerk of the Reno City Council

CITY OF RENO * CORPORATE SEAL * WASHOE COUNTY, NEVADA

Train.way

# LIST OF PREPARERS

The following individuals participated in conducting the Reno Mitigation Study and preparing this Final Mitigation Plan.

## Surface Transportation Board, Section of Environmental Analysis

| | |
|---|---|
| Elaine K. Kaiser | Section Chief, Program Director |
| Harold McNulty | Environmental Analyst, Rail Operations |
| Evelyn Kitay | Legal Counsel |

## DeLeuw, Cather and Company, Independent, Third-Party Contractor

| | |
|---|---|
| Winn Frank | Study Director |
| Dave Mansen | Study Manager |
| Gui Shearin | Traffic delay, grade crossing safety |
| John Selin | Engineering |
| Nasser Ashrafi | Engineering |
| Bob McConnell | Hazardous Materials Risk Analysis |
| Larry Engleman | Emergency vehicle access |
| Ken Briers | Railroad operations, train survey |
| Duncan Allen | Rail Line Safety |
| David Tait | Traffic, land use, engineering technical analysis, document production |
| Joyce Hunting | Biological Effects |
| Karla Nicholas | Demographics |
| Li Boccia | Environmental Resources |
| Elia Rouzier | Word Processing |
| Mel Harvey | Project Administrator |

## Public Affairs Management

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|---|---|
| Bonnie Nixon | Deputy Study Director |
| Kay Wilson | Community Coordinator |
| Olivia Perreault | Outreach Coordinator |
| Beth Niestat | Editor |
| Nancy Roberts | Editor |
| Matt Trask | Public Comment Summaries, Editor |

## Specialty Consultants

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| Craig Thrasher, Ecology & Environment | Consultant, Emergency Response |
| Steve Peterson, Ecology & Environment | Consultant, Topography & Biological Effects |
| Phil Olekzyk, Worldwide Rail | Consultant, safety, Federal & State regulations |
| David Coate, Acentech, Inc. | Consultant, noise/vibration |
| Dan Luscher, Aurex Environmental | Consultant, air quality |
| Mary Rusco, Rusco & Rusco Consultant Services | Consultant, Native American Issues |
| Bob Schaevitz, Decision Economics, Inc. | Consultant, financing and funding |
| Barry Steinberg, Kutak Rock | Consultant, legal issues |

UP/SP Merger—Reno Mitigation Study

Reno, Nevada—February 1998

# Final Mitigation Plan

## Appendices

Volume 1 of 2

Surface Transportation Board
Section of Environmental Analysis

# TABLE OF CONTENTS
# COMMENTS RECEIVED ON PRELIMINARY MITIGATION PLAN
# VOLUME I

**Commenter** **Page #**

**THIS LIST IS PROVIDED IN TWO VOLUMES WHICH CONTAIN 534 COMMENTERS**

**(The public review period on the Reno Preliminary Mitigation Plan extended through October 16, 1997, but SEA considered comments received by or on October 23, 1997)**


## MERGER APPLICANT

Union Pacific/Southern Pacific (Represented on Task Force) 001

## ELECTED OFFICIALS - UNITED STATES

Nevada Senator Richard Bryan 036

Nevada Senator Harry Reid 037

## ELECTED OFFICIALS - STATE OF NEVADA

*Nevada Governor Bob Miller (Represented on Task Force)* 040

## ELECTED OFFICIALS -- CITY OF RENO

Reno City Councilman David L. Aiazzi 042

Reno City Councilwoman Judy Herman 044

## CITY OF RENO -- CITY COUNCIL SPECIAL SESSION (10/7/97)

**SPEAKERS (Listed in the order spoken)**

Mayor Griffin 046

Belaustegui, Merri, Deputy City Attorney, City of Reno 046

Councilmember Pearce 051

Coucilmember Newberg 053

Demuth, Mark A., City of Reno Environmental Team 055

McNeely, Charles, City Manager, City of Reno 060

Councilmember Aiazzi 060

Councilmember Herndon 064

Varela, Steve, Director of Public Works/City Engineer, City of Reno 068

Councilmember Hascheff 076

McCann, Terry 088

Dehne, Sam 090

Frankovich, John, Task Force Member, NFRA Alternate 093

Fetters, Jack 096

Lamboley, Paul, Counsel for the City of Reno 117

Partlow, Frank 143

## ELECTED OFFICIALS - NATIVE AMERICANS

Pyramid Lake Paiute Tribal Council, Craig C. Downer, Environmental Director 149

Reno-Sparks Indian Colony Tribal Chairman Arlan D. Melendez (Task Force Member - alternate) 152

Smith & Guenther, P.C., Patrick L. Smith, Attorney representing Reno-Sparks Indian Colony 157

## GOVERNMENT AGENCIES - UNITED STATES

U.S. Department of Transportation, Rosalind A. Knapp, Deputy General Counsel 158

## GOVERNMENT AGENCIES - STATE OF NEVADA

Nevada Department of Conservation and Natural Resources, David R. Cowperthwaite, Clearinghouse Coordinator 166

Nevada Department of Transportation, Jim Gallegos, P.E., Chief Safety Engineer (Represented on Task Force) 167

Nevada Public Service Commission, Craig Wesner (Task Force Member) *(see Reno Mitigation Task Force Meeting - 10/8/97)*

# TABLE OF CONTENTS
# COMMENTS RECEIVED ON PRELIMINARY MITIGATION PLAN
# VOLUME I


| Commenter | Page # |
|---|---|
| **GOVERNMENT AGENCIES - REGIONAL** | |
| Regional Emergency Medical Services Authority, Patrick Smith, President | 170 |
| Regional Transportation Commission, Gregory H. Krause, Planning Manager (Task Force Member) | 173 |
| **GOVERNMENT AGENCIES - COUNTY OF WASHOE** | |
| Washoe County Department of Community Development, Bob Webb, Community Coordinator (Task Force Member) | 175 |
| Washoe County Sheriff, Franklin N. Barnes, Captain, Patrol Division Commander | 214 |
| **GOVERNMENT AGENCIES - LOCAL** | |
| City of Reno, Paul H. Lamboley & Patricia A. Lynch, City Attorney, Counsel for the City of Reno | 216 |
| City of Reno, Merri Belaustegui-Traficanti, Deputy City Attorney (Task Force Member) | 224 |
| City of Reno, Larry S. Farr, Fire Marshal | 353 |
| City of Reno, Steve Varela, Director of Public Works/City Engineer (see Volume 2 for January 21,1998 letter) | |
| City of Sparks, Terry J. Reynolds, City Manager (Represented on Task Force) *No comments to address in the letter* | 356 |
| **RENO MITIGATION TASK FORCE MEETING (10/8/97)** | |
| TASK FORCE COMMENTS (Listed in the order spoken) | |
| Belaustegui, Merri, Deputy City Attorney, City of Reno | 365 |
| Demuth, Mark A., City of Reno Environmental Team | 375 |
| Starzel, Robert, Union Pacific Railroad | 384 |
| Webb, Bob, Community Coordinator, Washoe County Department of Community Development | 398 |
| Wesner, Craig, Manager Engineering Services, Nevada Public Utilities Commission | 403 |
| Hemmer, Mike, Union Pacific Railroad | 421 |
| Varela, Steve, Director of Public Works/City Engineer, City of Reno | 422 |
| Vitali, Rich, River Banks Homeowners | 425 |
| Bradhurst, Steve, Reno Citizens Representative - General Interest | 436 |
| Ogee, Tom, Union Pacific Railroad | 447 |
| Lang, Jerry, Union Pacific Railroad | 448 |
| Osgood, Bill, Chairperson, Reno Downtown Improvement Association | 454 |
| Berkley, Paula, Native American Representative | 468 |
| Farr, Larry, Fire Marshal, City of Reno | 475 |
| **PUBLIC COMMENTS AT TASK FORCE MEETING (10/8/97) (Listed in the order spoken)** | |
| Partlow, Frank | 488 |
| Zewadski, Guy | 493 |
| Fetters, Jack | 494 |
| Henderson, Colleen, City of Reno Environmental Team | 498 |
| Ruby, Eric, City of Reno Environmental Team | 499 |
| MacKay, Bruce | 501 |
| Napierski, Frank | 503 |
| **ASSOCIATIONS/SCHOOLS** | |
| Citizen Alert, Elizabeth Giedhill, Board Member | 507 |
| Greater Reno-Sparks Chamber of Commerce, Dave Howard, Public Policy Director | 508 |
| Greater Reno-Sparks Chamber of Commerce, Harry L. York, C.E.O. | 510 |
| International Brotherhood of Teamsters, David Cameron | 512 |
| Nevada Manufacturers Association, Ray Bacon | 516 |
| Nevadans For Fast and Responsible Action, Bob Burn, Chairman (Task Force Member) | 517 |
| Northern Nevada Center for Independent Living, Joe Bohl | 523 |
| Political Action for Public Awareness, Juanita Cox, Citizen Lobbyist | 524 |
| Reno Downtown Improvement Association, Bill Osgood (Task Force Member) *(see Reno Mitigation Task Force Meeting - 10/8/97)* | |
| Reno Mt. Rose Lions Club, Frank E. Mackin | 526 |
| T.M.C.C., Caroline Holme, Professor | 527 |
| University Family Fellowship, Robert Owens, Pastor | 529 |
| University of Nevada School of Medicine, David C. Fiore, Assoc. Prof. of Family and Community Medicine | 532 |

# TABLE OF CONTENTS
# COMMENTS RECEIVED ON PRELIMINARY MITIGATION PLAN
# VOLUME I

**Commenter** **Page #**

## INDIVIDUALS AND BUSINESSES


Adams, Robert W. 533
Adcock, William 534
Aiello, Joseph L. 535
Aird, Mark 536
Akridge, Virginia 537
Albiniano, Victor & Barbara 539
Albright, Charles 540
Allain, Jack and Barbara 541
Allen, Jerry D. 542
Allen, Kevin D. 543
Almasy, Otto 544
Anderson, Doris L. 545
Andrews, William C. 546
Armstrong, Juanita 547
Ash, Mary 548
Atkinson, Lynn 549
Austin, J. W. 550
Baker, Colleen 551
Baker, Jeanne 552
Bamford, Robert 553
Barchi, Peter A. 554
Barnard, Ed and Lisa 555
Bauer, Priscilla 556
Beenfeldt, Derek, Q&D Construction, Project Manager 559
Bell, Arthur and Frances 561
Bell, James A. 562
Bender, N. Frank, Bender Warehouse Company 563
Bengoechea, Joe L. 564
Berg, Dale and Linda 565
Bergdahl, Robert W. 566
Bergeson, Jan 567
Bernardini, Jackie 568
Biagiotti, Stephen 569
Bielsen, William 570
Bills, Jeff K., Saint Mary's Health Network, President 571
Bishop, Donna 573
Black, Mary 574
Blackman, Edwin T. 575
Bliss, Carl G. 576
Boatwright, C. D. 577
Booth, Ken 578
Bothe, Ralph 579
Boyd, Fred 580
Bradley, Randy 581
Brancon, Neil, Empire Equipment Co., Branch Manager-Nevada 582
Braun, Stephen 584
Brewer, Arleen 585
Bridgman, Gene E. 586
Bridgman, Martha C. 587
Brown, Cara, Fitzgeralds, Vice President and General Counsel 589
Buck, E. F. 590
Buckley, Don and Rayetta 591
Byrne, Doris 592
Campbell, Jack, Campbell Brothers Farms, Inc. 593
Campbell, Kathryn 594

# TABLE OF CONTENTS
# COMMENTS RECEIVED ON PRELIMINARY MITIGATION PLAN
# VOLUME I


| Commenter | Page # |
|---|---|
| Campbell, William J. | 595 |
| Carter, Carl A. | 596 |
| Casazza, Ralph, AIA, Casazza, Peetz & Associates | 597 |
| Catalano, Sesi M., Ph.D. | 598 |
| Chace, Betty | 600 |

UP/SP-325

BEFORE THE
SURFACE TRANSPORTATION BOARD

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Finance Docket No. 32760

UNION PACIFIC CORPORATION, UNION PACIFIC RAILROAD COMPANY
AND MISSOURI PACIFIC RAILROAD COMPANY
-- CONTROL AND MERGER --
SOUTHERN PACIFIC RAIL CORPORATION, SOUTHERN PACIFIC
TRANSPORTATION COMPANY, ST. LOUIS SOUTHWESTERN RAILWAY
COMPANY, SPCSL CORP. AND THE DENVER AND
RIO GRANDE WESTERN RAILROAD COMPANY

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COMMENTS OF UNION PACIFIC RAILROAD COMPANY
AND SOUTHERN PACIFIC TRANSPORTATION COMPANY
ON THE RENO PRELIMINARY MITIGATION PLAN

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October 16, 1997

BEFORE THE
SURFACE TRANSPORTATION BOARD

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Finance Docket No. 32760

UNION PACIFIC CORPORATION, UNION PACIFIC RAILROAD COMPANY
AND MISSOURI PACIFIC RAILROAD COMPANY
-- CONTROL AND MERGER --
SOUTHERN PACIFIC RAIL CORPORATION, SOUTHERN PACIFIC
TRANSPORTATION COMPANY, ST. LOUIS SOUTHWESTERN RAILWAY
COMPANY, SPCSL CORP. AND THE DENVER AND
RIO GRANDE WESTERN RAILROAD COMPANY

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# COMMENTS OF UNION PACIFIC RAILROAD COMPANY AND SOUTHERN PACIFIC TRANSPORTATION COMPANY ON THE RENO PRELIMINARY MITIGATION PLAN

Union Pacific Railroad Company ("UP") and Southern Pacific Transportation Company ("SP") (collectively, "UP/SP") offer the following comments on the Preliminary Mitigation Plan ("PMP") for the Reno area, issued on September 15, 1997. After a thorough review of the PMP, UP/SP concludes that the PMP prescribes workable and effective actions to offset the effects of adding approximately 11.3 additional trains per day to the UP/SP mainline through Reno. UP/SP can comply with the PMP and can safely operate its trains in the manner contemplated by the PMP, and UP/SP expressly agrees to do so.

As City of Reno ("City" or "Reno") representatives have made clear at meetings of the Reno Mitigation Task Force ("Task Force"), they are operating under City Council instructions to seek a depressed trainway, paid for by UP/SP, as the

core of any mitigation package. Public officials and Task Force members have openly urged SEA to impose additional costs on UP/SP, not because they are justified on the merits but for the express purpose of increasing pressure on UP/SP in negotiations over funding a depressed trainway. There is little doubt that SEA will receive a barrage of comments from Reno and its friends pursuing these objectives.

UP/SP submits these comments for SEA's consideration in evaluating demands for additional mitigation and in developing a Final Mitigation Plan and recommendation to the Board. We also hope these comments will prove useful to SEA and the Board in establishing policies to guide handling of similar situations in the future. In reviewing demands for additional mitigation, we urge SEA to consider the public policy implications of requiring railroads to mitigate the effects of continuing operations on existing rail lines. We also urge SEA to consider the direct responsibility of the City of Reno and business interests in Reno for the conditions UP/SP is being required to mitigate, and the tension between those requirements and the language of Decision No. 44.

UP/SP willingly cooperated in this intensive mitigation investigation, not only to obtain permission to add trains to its line through Reno, but also to respond to community concerns. The experiences of the last year, however, lead UP/SP to question the expense, burden and prudence of this type of mitigation process. UP/SP urges SEA

and the Board to reconsider, at least for future proceedings, whether it is necessary or desirable to impose mitigation when a railroad intends to use an existing rail line in the manner originally intended and as the railroad is free to use it without federal review. Even if UP/SP receives no benefit in this proceeding from this re-examination, we urge consideration of a less expensive and less potentially damaging approach to future mergers and other efficiency-enhancing transactions that affect the number of trains on existing rail lines.

UP/SP respectfully submits that this expensive and time-consuming process is not required by environmental law and that the experience with the current Reno and Wichita proceedings demonstrates that it is inadvisable as public policy. The ICC and the Board have never before treated conflicts between increased train frequencies and vehicular traffic caused by urban development as requiring mitigation at railroad expense. Unless cabined, this approach to increased train service threatens to impose enormous costs on future rail transactions that increase rail traffic on existing rail lines, even though those lines will be used as they were intended to be used, have been used in the past and could be used in the future without Board permission. SEA and the Board should protect interstate commerce from these costly impositions, or they may curtail efforts to increase the efficiency of the rail network.

Imposing any mitigation costs on the railroad -- much less the increased costs that Reno will demand -- under the extraordinary circumstances of Reno's recent history is especially unfair. Less than twenty years ago, at a time when SP was operating 24 trains per day through Reno and Reno expected that number to increase, SP agreed to participate in funding a depressed trainway. SP was to pay approximately 5% of the costs, and Reno the remainder. But Reno voters overwhelmingly rejected a bond issue to fund Reno's share of the trainway. In the face of this vote, Reno and its business interests proceeded with extensive casino and hotel development near the tracks, creating and intensifying the conflicts between urban development and rail operations that the PMP addresses. After creating these conflicts, Reno and the business interests now demand that UP/SP pay to resolve them.

By its terms, Decision No. 44 relieves UP/SP of responsibility for pre-merger development, yet the PMP does not recognize Reno's responsibility for development and places all responsibility for mitigation on the railroad. At the very least, UP/SP should not be allocated any greater responsibility for financing mitigation of Reno's development impacts than the PMP proposes.

1. NEPA Does Not Require Mitigation for Continuing Operation of a Railroad

UP/SP has high regard for the professional quality of the PMP. It recommends mitigation actions tailored to the

carefully measured effects of adding 11.3 additional through freight trains to the UP/SP mainline. But the PMP is the product of a new direction in regulatory policy that needs to be rethought.

The National Environmental Policy Act ("NEPA") was adopted in 1971, but neither the ICC nor the Board has ever before concluded that changes in the number of trains on an existing railroad line require mitigation of conflicts between rail operations and the highways and related development that have surrounded the nation's railroads. UP acquired Missouri Pacific, Western Pacific, Missouri-Kansas-Texas and Chicago & North Western after extensive environmental review, but there was no suggestion that the mere fact of increases in train operations requires mitigation like that proposed in the PMP. The same is true of ICC approval of mergers creating CSX Transportation, Norfolk Southern and BNSF. Similarly, the ICC and the Board have approved or exempted dozens of trackage rights arrangements that increase train frequencies on existing rail lines without ordering the participants to mitigate effects on urban development and road crossings.

The Reno and Wichita mitigation studies reflect a policy under which continuing use of rail lines for their intended purpose in a manner fully consistent with permissible unregulated activity requires extensive environmental mitigation at carrier expense. If this policy is followed in the future, it could devour the agency's resources and dissuade

railroads from pursuing efficiency-enhancing actions requiring Board approval. Based on the precedent the Board could be setting, there is nothing to stop demands for expensive mitigation for every country rail crossing and every developed area on any rail line where train frequencies increase.

If this new policy were required by law, SEA and the Board would, of course, have no choice but to follow it. But the law did not change in 1996 with adoption of the UP/SP decision. This new direction is not required under NEPA, and SEA should urge the Board to reconsider it. Even if the Board adopts this PMP, it should treat the Reno and Wichita situations as unique and avoid principles of broad application.

There is no debate about NEPA's essential thrust. It applies to all "major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332(2)(C). But it is equally clear that environmental mitigation is not required when a federal action maintains the status quo, continues existing operations or merely restores pre-existing conditions. Committee for Auto Responsibility v. Solomon, 603 F.2d 992, 1003 (D.C. Cir. 1979), cert. denied, 445 U.S. 915 (1980); Sierra Club v. Hassell, 636 F.2d 1095, 1099 (5th Cir. 1981); Burbank Anti-Noise Group v. Goldschmidt, 623 F.2d 115, 116-17 (9th Cir. 1980), cert. denied, 450 U.S. 965 (1981).

Changes in activity that constitute normal use of a facility *do not* require environmental mitigation, *even when*

*those fluctuations clearly will have adverse environmental effects.* For example, in Upper Snake River Chapter of Trout Unlimited v. Hodel, 921 F.2d 232 (9th Cir. 1990), the sporting and environmental group argued that the Bureau of Reclamation could not reduce water flow from a Bureau dam below 1,000 cubic feet per second during a drought -- a depressed flow level that had occurred only twice in the prior thirty years -- without environmental review. The parties agreed that the reduced flow would "have a negative effect on the downstream fishery." Id. at 234. However, the court held that no environmental investigation or mitigation was required:

> "[The government agencies] are simply operating the facility in the manner intended. In short, they are doing nothing new, nor more extensive, nor other than that contemplated when the project was first operational."

Id. at 235. Although water flow had been high for several years prior to the Bureau's action, the court distinguished flow restriction from situations where a project takes place in incremental stages of major proportions or there is a "revision or expansion of the original facilities." Id.

Similarly, the U.S. Navy's decision to lease its San Francisco shipyard to a private ship repair company did not require environmental mitigation, even though the shipyard had been closed for two years and reactivation would have adverse environmental impacts on traffic, noise and other

urban values. City & County of San Francisco v. United States, 615 F.2d 498 (9th Cir. 1980). As the court held, "It was not unreasonable to regard the leasing of the yard as a phase in an essentially continuous activity." Id. at 501.

It is entirely reasonable to regard changes in train frequency on an operating mainline railroad, including changes caused by a merger, as a phase in a continuous activity. That is even more clearly the case in Reno than it was in San Francisco, where the Navy facility had been closed for two years.

The rail line now owned by UP/SP was built for the purpose of carrying trains to, from and through Reno. It has been used continuously for that purpose since 1868. UP/SP plans to continue to use it for its original purpose. UP/SP will run no more trains over the line than SP did less than twenty years ago.

Another critical element of the status quo is that SP has always had -- and UP/SP today has -- the unrestricted right to add 11.3 more non-merger-related trains through Reno without environmental review or Board action. Although UP and SP have merged, and expect to route additional rail traffic through Reno as a result of their merger, SP would have been entirely free to expand the number of trains through Reno to the same extent as proposed by UP/SP without government

approval.[2/] That was the status quo before the merger, and the proposed post-merger operations are indistinguishable from those SP had the right to mount on its own.

UP/SP's use of this line -- like any railroad's use of any existing line -- is indistinguishable from the water flow below the dam in Hodel. Its volume may ebb or swell, but that is what one expects on a railroad line as economic conditions and operating circumstances change, new industries are constructed and lines are abandoned. There is no reason for environmental law, or the Board, to view changes attributable to efficiency-enhancing actions requiring Board approval as a change from a status quo that already includes a railroad's right to effect the same change.

2. Mitigation for Continuing Use of a Railroad Is an Undesirable Public Policy

Environmental mitigation of continuing rail operations on existing lines will give rise to ever-increasing levels of administrative litigation. SEA is already seeing the effects of its Reno and Wichita mitigation studies in the Conrail proceeding, and this effect is likely to continue to expand as the Not-In-My-BackYard phenomenon blossoms. These proceedings consume both SEA staff time and the time and resources of the parties. There is every reason to expect

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[2/] For example, Reno speculates -- probably incorrectly -- that the Port of Oakland may handle much more container traffic at some point in the next century. Without a merger, SP would have been free to compete for that traffic and carry it through Reno without government review.

these demands to increase. The Board should exercise extreme caution before encouraging this trend.

The direct costs of the Reno and Wichita investigations have been greater than UP/SP (and perhaps SEA) had expected. Before these mitigation studies are complete, UP/SP likely will be required to spend as much as $3 million for work performed by consultants for SEA. These funds could have been used to contribute to effective mitigation or to provide improved transportation service for the nation's shippers. If this type of proceeding becomes standard fare in rail licensing proceedings, such costs will continue to mushroom, as there is nothing to limit them. SEA and the Board may be asked to investigate the effects of increased train traffic on every city, town and road crossing where rail traffic is expected to increase due to a regulated transaction.

The costs to rail transportation may be great enough to impair railroads' ability to compete and may block efficiency-enhancing transactions. UP/SP already faces an exposure of some $25 million in the Wichita and Reno mitigation studies based on the PMPs, and SEA or the Board may increase that total. And the impact is not necessarily limited to rail mergers. The same logic applies not only to mergers but also to voluntary trackage rights agreements, poolings, build-ins, and other transactions. Since a primary purpose of many of these transactions is to enhance the

efficiency of rail service, heavy mitigation costs would become a tax on efficiency-enhancing actions.

This tax will have perverse effects. A railroad that engages in an efficiency-enhancing transaction requiring Board action will find itself paying environmental mitigation for running more trains, while a competing railroad running through the same city will pay nothing for operating more trains. Indeed, the two carriers will likely be competing for the same business, but one will be handicapped. This is exactly what is happening in Reno. UP/SP is required to pay mitigation costs, while its nose-to-nose competitor, BNSF, pays nothing.

These perverse effects will apply intermodally as well. A railroad seeking Board approval of an efficiency-enhancing transaction may be forced to pay millions in mitigation costs, while competing motor carriers are free to increase the number of trucks on Interstate 80 in order to compete for the same business. It is well established that motor carriers are less fuel efficient and cause greater pollution than railroads, yet the mitigation costs will be assessed against the more efficient mode and drive traffic to the less efficient alternative.

Mitigation for continuing use of a railroad has one final perverse effect. It discriminates in *favor* of cities and towns that have *not* made investments to address rail/highway conflicts in the past. The less a city has done

to facilitate vehicular movement over rail lines, the greater the alleged effects of the rail transaction. Those effects are the result of the city or town's growth over the years, unmitigated by actions to address it, but the city or town will blame the railroad transaction and seek reimbursement from the carrier. Meanwhile, a city that invests in infrastructure to remedy the impacts of its own growth will garner little or no mitigation.

Reno illustrates this pattern. Reno rejected the depressed trainway in 1980, yet continued to develop the area surrounding the SP tracks without any mitigation measures. Had Reno invested its funds (and SP was ready to contribute its reasonable share), those conflicts would not exist today. Yet, because of Reno's decision, which UP and SP could not control, UP/SP is now being required to bear the financial burden of reducing traffic delay and pedestrian activity. Meanwhile, a city like Sparks, which responsibly invested in overpasses, receives no mitigation because none is needed.

These perverse effects, which create negative incentives for cities and towns by discouraging investment in rail-highway facilities and encouraging litigation before the Board, are especially unfair in view of established public policies recognizing that such facilities primarily benefit highway users, not railroads. These policies have constitutional dimensions. By 1935, the Supreme Court had held that "the main purpose of grade separation . . . is now the

furtherance of uninterrupted, rapid movement by motor vehicles . . . . The railroad has ceased to be the prime instrument of danger and the main cause of accidents. It is the railroad which now requires protection from dangers incident to motor transportation." Nashville, Chattanooga & St. Louis Ry. v. Walters, 294 U.S. 294, 421-23 (1935). The Court also recognized that a highway crossing is of little benefit to railroads and, on the contrary, "serves to intensify the motor competition and to further deplete rail traffic." Id. at 423. The benefits are to the motorist: "The avoidance . . . of traffic interruptions incident to crossing at grade is now of far greater importance to the highway users than it is to the railroad crossed." Id. at 423-24. Cf. United States v. Chicago, Burlington & Quincy R.R., 412 U.S. 401, 414 (1973). As a result, the Court held that shifting the burdens of providing public benefits to railroads is unconstitutional.

This recognition is now built into ICC rulings and federal transportation policy. The ICC agreed in 1964 that the costs of improving rail-highway crossings "should be borne by public funds" because "it is the increasing highway traffic that is the controlling element in accident exposure at these crossings." Prevention of Rail-Highway Grade-Crossing Accidents Involving Railway Trains and Motor Vehicles, 322 I.C.C. 1, 81 (1964). As the ICC concluded, "the major costs of grade separation and protection at rail-highway grade crossings should be borne by the public since the public is

the principal recipient of the benefits." Id. at 82. The mitigation studies do not comport with this conclusion.

Similarly, DOT regulations limit the amounts states may ask railroads to contribute to federally funded grade-crossing improvements under 23 U.S.C. § 130. This amount cannot exceed the net benefit to the railroad, which is defined as 5-10%. 23 U.S.C. § 130(b); 23 C.F.R. § 646.210(b)(3). See also Moreno v. Consolidated Rail Corp., 99 F.3d 782, 785 (6th Cir. 1996).

Thus, although funding of rail-highway projects is governed by constitutional, statutory and regulatory law that limits railroad exposure and recognizes the benefits of such investments flow mainly to the public, the policy direction reflected in the mitigation studies would impose the costs on the party that receives very few benefits -- UP/SP. This is fundamentally unfair and of dubious legality.

3. Reno and Its Gaming Interests Are Responsible for Post-Merger Conflicts

Reno owes its very existence to the railroad. The western partner in the original transcontinental railroad, the Central Pacific Railroad, purchased the site for Reno in 1867 and sold the lots from which the City grew. Starrs at 5-6.[2/] Reno viewed the railroad not as a burden, but as

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[2/] This discussion draws on "Downtown Reno & The Railroad -- a Railroad Runs Through It" by Professor Paul F. Starrs of the University of Nevada at Reno and his assistants, Heather Van Wormer and Jeanne Harrah, Ph.D. That document was supplied to (continued...)

a lifeline essential for growth. Reno welcomed the railroad and prospered because it was there. As one Reno historian explains, Reno would have become a ghost town like many other Nevada towns without the Central Pacific. Id. at 8.

The conflicts addressed in the PMP began with the introduction of the motor vehicle, a pattern repeated throughout the United States. As Reno's citizenry began to adopt this new form of transportation, it simultaneously demanded its right to cross the SP (successor to the Central Pacific) tracks. Acting on these wishes, the City -- over SP objections -- demanded road crossings at all the streets in central Reno, including Virginia and Center. Id. at 24-26. Cars and trucks stop for trains at Virginia Street today because the City and its citizens threatened to sue SP over that crossing. Id.

No sooner was the last of the crossings completed in the late 1930s than Reno began to see the attractions of a depressed trainway to put the tracks below ground. Id. at 27. City and State officials studied the idea at least half a dozen times in the following decades, as the cost of the trainway soared with inflation and expanding environmental requirements. But not until the late 1970s did Reno make a concerted effort to build the trainway.

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2/ (...continued)
SEA and to counsel for the City of Reno in July 1997. A copy is attached.

The timing of that initiative is significant. Throughout the 1950s and 1960s, Reno's downtown gambling district had been located south of the SP tracks. Id. at 18. By 1980, however, as a report prepared for the City explained: "Recent rapid expansion of the tourist industry has caused development in downtown Reno to jump to the north across the tracks to accommodate demand for new hotels and casinos." Reno Railroad Study, 1978-80, p. 4. Reno's expanding gaming district focused attention on the tracks running through it and the need to mitigate conflicts caused by intensive development.

The timing of the initiative is significant for another reason. In 1980, SP operated almost exactly the same number of trains each day through Reno that UP/SP and BNSF propose to operate in the future. As the Reno Railroad Report stated, "at least 24 long freight trains pass through the City each day" and "volumes are expected to continue at present levels and perhaps to increase slightly." Id. Reno voters were asked to approve a $40.5 million bond issue, endorsed by the City Council and City Manager, to fund the trainway. Reno persuaded a reluctant SP to provide its 5% share of the costs of the project. Id. But the bond issue failed miserably in 1980.

Despite that failure -- a collective community decision to reject mitigation -- development north of the tracks slowed not a bit. Reno added more than 4,000 hotel

rooms in casinos north of the SP line in subsequent years. Starrs at 22. As one civic leader described the situation in the wake of this development, "The center of town now is the railroad track!" Id. at 18.

The historical facts are clear. Reno concluded that development of its downtown gaming area, visited by 24 freight trains per day, justified a depressed trainway. SP was willing to help fund the trainway. But Reno voters rejected the proposal. Notwithstanding that decision, and with the expectation that rail traffic would remain stable or increase, Reno marched ahead with further development adjacent to the SP tracks, performing no mitigation. Having made those decisions as a community, Reno now demands that UP/SP pay to mitigate the effects of its development.

It is difficult to imagine circumstances more clearly requiring a community, not its pre-existing railroad, to be responsible for conflicts between trains and cars or pedestrians. Reno moved astride the SP tracks, knew how many trains SP expected to operate, decided against mitigation and yet intensified the development pressure on the tracks. It should not be allowed to shift its responsibility for the conflicts between 24 trains and urban activities to the railroad in its midst.

Decision No. 44 clearly states that UP/SP is not responsible for the effects of Reno development. As the Board held,

> Mitigation of conditions resulting from the preexisting development of hotels, casinos, and other tourist-oriented businesses on both sides of the SP rail line in Reno . . . are not within the scope of the studies.

Decision No. 44, p. 223. The PMP, however, treats UP/SP as responsible for mitigating the costs of running the number of trains Reno expected SP to run when it rejected mitigation in 1980 and continued development. The PMP does not appear to allocate any responsibility for conflicts between trains and cars, pedestrians or other urban activities to preexisting development of casinos and hotels on both sides of the track. While UP/SP is willing to implement the PMP in its current form, we urge SEA and the Board to consider the contrast between the PMP and the language of Decision No. 44 in evaluating demands for additional mitigation measures.

UP/SP should not be required to mitigate the rail operations that Reno expected and chose to do nothing about. UP/SP and BNSF plan to use the former SP mainline exactly as SP planned to use it in 1980. Train operations declined only because of SP's financial condition and competitiveness, described in Decision No. 44. We ask SEA and the Board to consider the following question: Since Reno decided in 1980 that conflicts between intensive casino/hotel development and 24 daily freight trains were acceptable without mitigation, why should UP/SP be forced to pay to resolve the same con-

flicts between trains and intensive casino/hotel development in 1997?

4. The PMP Provides Practical, Reasonable and Sufficient Mitigation

As part of its campaign to discredit all mitigation actions other than depressed trainway, Reno questions UP/SP's ability to operate trains through Reno at 30 mph. UP/SP made an extensive presentation to the Task Force detailing the steps it would take to facilitate consistent 30 mph train speeds through Reno. UP/SP operating officers and railroad engineers told SEA at public meetings that the proposed speed limit is both practical and safer than the current 20 mph speed limit. The Task Force representative from the Nevada Public Utilities Commission confirmed, based on an independent analysis of UP/SP's plans, that UP/SP will be able to operate trains at 30 mph through Reno.

Attached as Exhibit A is a verified statement by UP/SP's senior officer on the Roseville Service Unit, which includes Reno and Sparks. Superintendent Carl Bradley testifies under oath that if UP/SP installs Centralized Traffic Control through the Reno/Sparks area and redesigns Sparks Yard so that trains can enter and leave the yard at full track speed, as required by the PMP, UP/SP trains will have no difficulty maintaining a 30 mph operating speed through Reno. He explains as well why the conditions that

today cause some trains to operate through Reno at speeds below 20 mph will be eliminated by the new investments.

Mr. Bradley also explains why rail operations at 30 mph will be safer than operations at 20 mph. Unlike cars, trucks and buses on city streets, trains are safer at higher speeds. (As SEA will recall, Amtrak's Task Force representative endorsed this perspective.) Freight trains moving 30 mph are fully extended so that they can stop smoothly if emergency brakes are applied. At 20 mph, by comparison, trains have slack between the cars that can cause derailments during emergency stops. In addition, railroad experience shows that both drivers and pedestrians show greater respect for trains moving at higher speeds, in part because they know they will not have to wait as long for the train to pass.

SEA should adjust its studies to eliminate the conservative bias against UP/SP of assuming that train speeds will increase by only 10 mph on average. They will increase to very close to 30 mph. This will further reduce the potential effects of increased train frequency on traffic delays, air quality and emergency vehicle access. UP/SP should not be required to pay for additional mitigation as a result of overly conservative calculations.

Once that correction is made, it will be even clearer than it already is that the cost of overpasses is not remotely justified by the results of SEA's studies. Reno argues that overpasses might be needed to reduce delays to

emergency vehicles. As speakers pointed out during SEA's public meeting, however, Reno placed hospitals and emergency response units on both sides of the track, and the PMP requires UP/SP to improve their response capabilities in several ways.

Using the PMP's conservative calculations, total "gate down" time after a 10 mph average speed increase will grow by less than 3/4 of a percentage point, which does not justify imposing millions of dollars in costs on the railroad. The City's claim that total "gate down" time is irrelevant to emergency vehicles, and that only train counts matter, is demonstrably wrong, because the question is how frequently an emergency vehicle will encounter a blocked crossing (an event that can be avoided entirely with new monitoring equipment prescribed in the PMP). Under Reno's logic, the problem would be virtually solved if UP/SP and BNSF combined all their trains into one long train each way per day, no matter how long it blocks crossings.

The real reason Reno and some other Reno interests are showing a sudden interest in grade crossings, however, is not a desire for grade crossings, but a hope that SEA will put its fingers on the negotiation scale and tip it toward Reno. Several speakers and public officials at SEA's public meetings candidly urged SEA to impose more costs on UP/SP so that UP/SP would be forced to donate more than the $35 million it already offered to contribute to a depressed trainway.

We are confident that SEA will not yield to calls for arbitrary and unlawful action that disregards the facts SEA has developed during this proceeding. UP/SP needs no encouragement to negotiate in good faith. It voluntarily offered far more than the share of a depressed railway that SP agreed to pay in 1980 or that any railroad could be required to pay under DOT regulations and state laws. The City should not be rewarded for its strategy of demanding an arbitrary $100 million from the railroad, unsupported by any form of fact or logic except that the City wants the money.

5. SEA Should Adjust the PMP to Reflect UP/SP's Safety Record

In the wake of several recent and tragic accidents on UP/SP lines, the FRA released a number of harsh judgments about UP/SP's safety compliance. UP/SP does not agree with all those statements, but UP/SP management determined from the outset that it will cooperate with FRA and with labor organizations, redoubling its dedication to addressing all safety concerns. As the FRA has reported, UP/SP is cooperating fully, and it will continue to do so. Working with employee organizations, UP/SP is empowering its employees to help implement this broad safety initiative.

On September 17, UP/SP joined with FRA and four of UP/SP's major labor unions to create a Safety Assurance Compliance Program ("SACP"), which is addressing safety problems identified during the FRA review. UP/SP instituted a hot

line, reviewed daily by its President, where employees can report safety concerns anonymously. UP/SP appointed a Senior Vice President to the new position of Safety Assurance and Compliance Process. The appointee reports directly to UP/SP's President. UP/SP also created a new position of Director of Alertness Assurance to work with unions on train crew fatigue. The SACP also includes review of all training programs, monitoring of train crew performance and rules complaince procedures. And UP/SP is reviewing dispatcher workloads with FRA.

At the same time, SEA should take into consideration the continuing dramatic improvement in safety on UP/SP, rather than treating railroad safety performance as static. In evaluating risks of derailments and incidents at grade crossings, SEA should consider the consistent and continuing record of improvement established by the railroad industry in general and UP in particular. Year after year for many years, UP has achieved a 20% reduction in derailments and reportable injuries. Even in this year of several well-publicized derailments, UP/SP has reduced the number of total derailments by 16% and the number of reportable derailments by 25% compared to 1996. Reportable injuries to employees have declined by 22% in 1997 compared to 1996, continuing a sharp decline over a multi-year span. Moreover, as UP/SP has previously reported, the merger itself should reduce derailments on SP lines by 50% as UP/SP brings SP facilities and safety programs

into line with UP policies and elevates safety results on SP to UP levels. Early experience confirms major improvement.

Although neither rail nor vehicular traffic volumes have declined, UP/SP has achieved similar reductions in grade crossing accidents, injuries and fatalities. During 1997, grade crossing accidents are down 25% compared to 1996. Injuries declined 23% and fatalities declined 14%.

In light of this record of continuous improvement, ongoing UP/SP programs such as Operation Lifesaver to reduce accidents even further and UP/SP's participation in the SACP with FRA and rail labor, SEA should adjust its assumptions to reflect the declining risk of incidents and evaluate mitigation measures accordingly. Historic derailment and accident rates are plainly outdated and misleading indicators of future derailment risk.

6. Reno Has Distorted the Public Input Process

Despite its best efforts, SEA is not obtaining accurate information about the views of Reno area residents because of persistent interference by the City of Reno and its advocates. The City packed the Task Force with members generally supportive of its policies. It has engaged in an extensive, well-funded propaganda campaign. Reno has been supported throughout by one-sided reporting in the primary Reno-area newspaper. Merely as examples, the Reno Gazette-Journal ran front-page stories when Reno brought suit in the Nevada District Court and about DOT Secretary Slater's

supposed intervention in the Reno Mitigation Study, but when Reno's lawsuit was dismissed and when Secretary Slater wrote that he had been misunderstood, the Reno Gazette-Journal did not report those developments at all.

Reno has attempted to incite its populace against UP/SP and, more recently, against the PMP. Attached as Exhibit B are the cover page and abstract of a document entitled "Sustaining Community Outrage," authored by Reno's environmental consultant, Mark A. Demuth. (UP/SP does not have the entire document. We asked Reno to produce it in discovery, but Reno refused.) In the abstract, Mr. Demuth recommends steps to build "new community outrage," and his document apparently presents "a specific action plan to sustain community outrage." Outrage is the reaction Reno citizens ought to have to the City's manipulation of public opinion.

Reno's propaganda machine has been surprisingly unsuccessful, especially in light of the amounts Reno spent. According to published reports, Reno distributed some 90,000 brochures urging residents to attend SEA's recent public meetings, but attendance -- including numerous City representatives, railroad representatives and outsiders -- did not tax the City Council chambers. At the afternoon session, a majority of speakers were unsupportive of the City's position.

CONCLUSION

From the outset, UP/SP has cooperated with the mitigation studies and has tried to assist SEA in addressing community needs. SEA and the Board may conclude, after devoting so much effort to these studies and raising expectations in Reno and Wichita, that they must go forward with mitigation plans, despite the policy implications. If so, and if the plans remain reasonable, UP/SP will comply. But SEA should urge the Board to consider long and hard before continuing on this path, because it leads only into quicksand. We urge SEA and the Board to reconsider this policy direction.

This policy is especially inappropriate when applied to Reno, a city that, although fully aware of expected rail operations indistinguishable from those proposed by UP/SP and BNSF, elected not to mitigate their effects and chose instead to intensify the conflicts between development and railroading. SEA should not punish UP/SP for Reno's choices.

Respectfully submitted,

CARL W. VON BERNUTH
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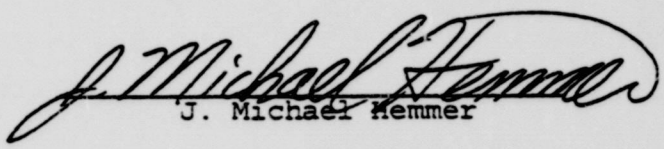
(202) 662-5388

Attorneys for Union Pacific Corporation, Union Pacific Railroad Company and Southern Pacific Transportation Company

October 16, 1997

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 16th day of October, 1997, I served a copy of the "Comments of Union Pacific Railroad Company and Southern Pacific Transportation Company on the Reno Preliminary Mitigation Plan" by first-class mail, postage prepaid on all parties in Finance Docket No. 32760 requesting service of filings regarding the Reno and Wichita Mitigation Studies, including counsel for the City of Wichita and Sedgwick County, Kansas (served by hand).



J. Michael Hemmer

## VERIFIED STATEMENT OF CARL BRADLEY

My name is Carl Bradley. I am Superintendent for Union Pacific Railroad Company's Roseville Service Unit. My business address is 10031 Foothills Blvd., Roseville, California 95678. I began my railroad career in 1960 as a brakeman on the St. Louis Southwestern Railway. I also worked as a conductor and later as an engineer. I was promoted to a position as an operating officer with Southern Pacific in 1976 and held positions of increasing responsibility in Pine Bluff, Dallas, Denver and San Antonio.

As Superintendent for the Roseville Service Unit, I have responsibility for Union Pacific's Roseville Subdivision, which includes the former Southern Pacific track through Reno and Sparks, Nevada. I am very familiar with this segment of track and with the Sparks Yard. I am also fully familiar with the plans developed by Union Pacific's Engineering Department to install Centralized Traffic Control through Reno and Sparks and to redesign Sparks Yard to facilitate higher and more consistent train speeds through Reno.

I have no doubt whatsoever that Union Pacific trains will be able to operate at a consistent speed very close to 30 mph through Reno once these plans are carried out. Our train crews attempt to operate at or as close to the posted speed limit as possible, and there will be no physical impediment to running trains at 30 mph through Reno after these changes are completed. The only exceptions will be very rare instances when a train suffers some sort of mechanical problem as it passes through

Reno, which could slow it down, or needs to make an emergency stop.

Today, westbound trains leaving Sparks sometimes do not reach full speed by the time they enter Reno because of the slow speed limits on switches in the yard at Sparks. If a train is leaving one of the yard tracks at Sparks, it cannot exceed 10 mph until the rear end of the train clears the switch. Union Pacific will replace those switches with new equipment so that trains can accelerate immediately to 30 mph, without slowing for the switches. Every westbound train will be capable of entering Reno at 30 mph without adding any additional locomotives.

Eastbound trains entering Reno are running downhill at speeds above 30 mph and will have no trouble slowing to 30 mph for the run through Reno. Today, eastbound trains are sometimes delayed because a train ahead is entering the yard tracks at Sparks at 10 mph. Once the new switches are installed, eastbound trains entering the yard tracks will be able to run at 30 mph through the switches without delaying following trains. In addition, with Centralized Traffic Control, trains will be able to operate on either track through Reno, so both tracks will be available for eastbound (and westbound) trains. Union Pacific has already removed a signal that sometimes delayed trains passing through Reno, and it replaced grade crossing equipment so that the crossing gates at all Reno crossings are activated 25 seconds before a train arrives, regardless of its speed.

As I said during my comments at the Reno public meeting, trains running at 30 mph are safer than trains running at 20 mph. The cars on a train running at 20 mph tend to bunch up, which can lead to derailments if the train must make an

emergency stop. At 30 mph, the drawbars on the train cars are fully extended, and the train will come to a smooth emergency stop with substantially less risk of derailment. Our experience is also that drivers and pedestrians show more respect for faster trains than for slower trains. Since they will experience less delay, they will be less likely to take chances by trying to beat the trains across the tracks.

One of Union Pacific's engineers said that Union Pacific is training its engineers to use Distributed Power, with locomotives spaced throughout the train, to run trains two to three times longer than we run today. We do use Distributed Power to runs trains up to 135 cars long out on the plains, but that will not happen through Reno because of the grades over Donner Pass. Union Pacific has been using Distributed Power on most trains through Reno for months. The train lengths have not changed and will not change, because we don't want the trains to be too heavy for the mountain grades. Also, many of our sidings and yard tracks in this corridor do not have the capacity to handle longer trains. The only thing we are doing differently is that we are using newer locomotives -- the most modern power on the Union Pacific system -- which are equipped for Distributed Power operation. These locomotives have the lowest emissions of any engines on our system.

VERIFICATION

STATE OF CALIFORNIA :
: ss:
COUNTY OF PLACER :

CARL BRADLEY, being duly sworn, deposes and says that he is Superintendent-Roseville Service Unit for Union Pacific Railroad Company and has read the foregoing document, knows the contents thereof, and that the same is true and correct.

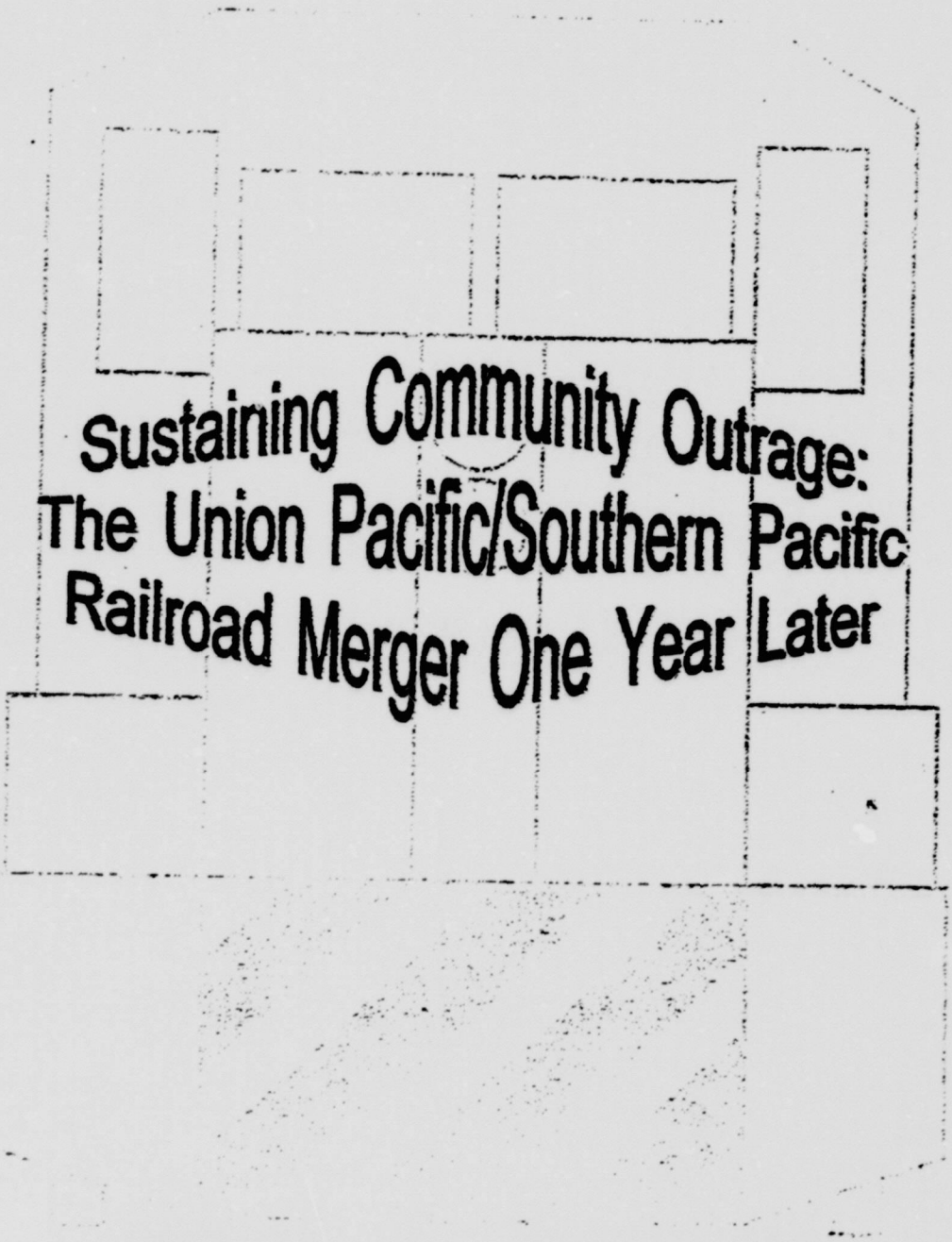
Carl Bradley
Carl Bradley

SUSBCRIBED AND SWORN to before me this 15th day of October, 1997.

C. M. Dales
Notary Public

My Commission Expires:

C. M. DALES
Comm. # 1121633
NOTARY PUBLIC CALIFORNIA
Placer County
My Comm. Expires Jan. 2, 2001



# Sustaining Community Outrage: The Union Pacific/Southern Pacific Railroad Merger One Year Later

Mark A. Demuth

December 10, 1996

# ABSTRACT

One year after the Union Pacific and Southern Pacific Railroads submitted an application to the now defunct Interstate Commerce Commission for authorization to merge their operations into a single Union Pacific Railroad Company, the City of Reno examines the difficulties in sustaining community outrage against a federal action which is perceived by the stakeholders to be inevitable. The discussion centers on stakeholder identification, existing community perceptions, communications from the City of Reno, and building new community outrage based on trust and credibility. The City of Reno concludes the need for a specific action plan to sustain community outrage which is presented.

RICHARD BRYAN
NEVADA
COMMITTEES:
FINANCE
BANKING, HOUSING, AND URBAN AFFAIRS
COMMERCE, SCIENCE, AND TRANSPORTATION
INTELLIGENCE

# United States Senate

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CENTRAL ADMINISTRATIVE UNIT
REC'D: Oct 14, 1997
DOCUMENT # 10-16-97 3:39:52pm
FD#32760 RL.04

Statement of Senator Richard Bryan
Surface Transportation Board Reno Public Meeting

While I appreciate the Board conducting this public meeting today, I am very concerned by the draft recommendations issued by the Section on Environmental Analysis on Sept. 15, 1997.

The draft recommendations do little to address the safety, environmental, and economic impacts of the Union Pacific/Southern Pacific merger in downtown Reno. Simply increasing train speeds, constructing more gates, and building a few pedestrian overpasses is not the kind of mitigation Reno city leaders believe will adequately address the impacts of the merger.

The Board's proposed mitigation plan ignores the Union Pacific Railroad's responsibility to mitigate the impacts of its merger, and leaves the City of Reno with the difficult, and expensive, task of dealing with the expected dramatic increases in train traffic. In addition to the obvious inconvenience to citizens trying to drive across town, the increased trains will have serious impact on air quality and noise, and will complicate and delay the community's ability to respond to police, fire, or medical emergencies. The Board's proposed mitigation plan insufficiently addresses each of these areas of concern.

I urge the Board to reconsider its proposed mitigation plan, and to develop a plan that is more sensitive to the needs of the local community. The City of Reno is willing to work with the railroad and the Board to develop an alternative that adequately mitigates the burden placed on the City by the merger, but the extremely low baseline mitigation suggested in the Board's draft report, a mitigation level even lower than that previously offered by the railroad, seriously compromises the City's ability to negotiate a more beneficial agreement with the railroad.

The Board's draft proposal is seriously deficient, and needs drastic improvement before it even comes close to mitigating the consequences of the merger to the citizens of Reno.

PRINTED ON RECYCLED PAPER

HARRY REID
NEVADA

CENTRAL ADMINISTRATIVE UNIT
REC'D: October 15 1997

FD#32760 RL.04

# United States Senate




October 15, 1997

Office of the Secretary
Case Control Unit
Surface Transportation Board
1925 K Street, NW
Room 700
Washington, DC 20423-001

Finance Docket No. 32760

Dear Sir/Madam:

Please accept the following comments filed in regard to the above referenced matter.

Sincerely,

Harry Reid

HARRY REID
United States Senator

HR:*

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C'D: October 15 1997
CUMENT # 10-17-97 12:57:28pm
D#32760
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RECEIVED
OCT 15 1997
MANAGEMENT
STB

# Comments of United States Senator Harry Reid
# Re: Finance Docket No. 32760, Union Pacific/Souther Pacific Merger
## Issuance of Reno Mitigation Study Preliminary Mitigation Plan
## October 15, 1997

I submit the following comments in my capacity as a United States Senator representing the state of Nevada. I have reviewed the Surface Transportation Board's (STB) preliminary Mitigation Plan and am concerned about the sufficiency of the mitigation measures recommended. While I appreciate the STB's review of the potential impacts resulting from the Union Pacific/Southern Pacific merger, I believe a more through examination, specifically an Environmental Impact Statement, is not only warranted but necessary.

The broad array of citizens who commented at last week's hearing in Reno is strong evidence of the serious concern that Nevadans' have about the ramifications of this merger. While we all appreciate the many hours of hard work that went into drafting the "Preliminary Mitigation Plan," it insufficiently addresses the many environmental problems facing Reno as a result of this merger. Additionally, it sends the wrong message to the principals negotiating the financing of the mitigation necessary to accommodate this merger.

While there are a myriad of environmental impacts in need of greater attention, I encourage the STB to include in its consideration the following points as it finalizes this plan:

- The safest way to accommodate the merger is to depress the tracks through downtown Reno, yet the plan does not address this proposal.
- The increase in the number of trains and the speed with which the may operate could significantly increase the number of vehicular and pedestrian accidents.
- Absent proper planning, the longer operating trains running through Reno could hinder the ability of emergency vehicles (e.g., ambulances, fire engines, police) to respond to emergencies.
- Efforts to comply with Clean Air regulations will be undermined as a result of the increased train traffic and longer trains.
- In light of the proximity of the train tracks to the Truckee River, Union Pacific's plans to transport hazardous wastes through the region must be given the strictest scrutiny.

I recognize the limitations of the STB. That said, I believe that it could do more to examine the many environmental issues raised by this merger. I understand that the STB is unable to impose mitigation requirements on any party other than the railroad and that, under your charter, you are unable to impose requirements or costs for any mitigation other than the incremental difference in trains before and after the merger.

In most circumstances, I would agree that this approach is appropriate. In this instance, it is obvious that the city of Reno is dealing with an aggregate problem, rather than an incremental one. The city is facing environmental and quality of life problems that are more than the sum of

a handful of additional trains. Without further mitigation, the train traffic goes beyond a tipping point.

The STB's preliminary selection of a strategy that imposes merely $12 million in costs on the railroad and would allow trains to move more quickly through the city seems to have been selected primarily because all costs can be imposed on the railroad. While this may be consistent with the STB's charter, it has the perverse effect of dissuading the railroad from continuing to negotiate on mitigation strategies that are both more acceptable to the city and involve financial participation by a number of different parties.

It is imperative that the STB consider the unique nature of this situation as it formulates its final recommendation. I understand that the City of Reno is willing to participate in the development of a final mitigation strategy and I urge the STB to explore the possibility of a final plan that implements a binding agreement between the parties. I share the STB's desire that the parties resume negotiations on a final solution to this problem. I am, however, concerned that the STB's preliminary recommendations do not adequately encourage such an agreement.

It is difficult to over estimate the significance of this merger. There is a lot at stake. While the railroad stands to realize significant profits and growth, it also assumes a new, and arguably greater, responsibility, to this community. To the extent that problems involving health, safety and the environment arise as a result of this merger, they have a responsibility to participate in solving them.

I believe the STB must take a closer examination of the many health, safety and environmental issues necessarily associated with this merger. I believe a thorough review vis-a-vis an Environmental Impact Statement is necessary and strongly encourage the STB to require such an examination. The Board has a responsibility to protect the interests of this community. In my capacity as the U. S. Senator who represents this community, I intend to do my best to ensure that the STB meets this responsibility.

ENTERED
Office of the Secretary
OCT 16 1997
5 Part of Public Record

BOB MILLER
Governor

STATE OF NEVADA
EXECUTIVE CHAMBER
Capitol Complex
Carson City, Nevada 89710

TELEPHONE
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October 10, 1997

Office of the Secretary
Case Control Unit
Surface Transportation Board
1925 K Street, NW, Room 700
Washington, D.C. 20423-0001

CENTRAL ADMINISTRATIVE UNIT
REC'D: 10-16-97
DOCUMENT # 10-17-97 3:40:26pm
FD #32760 RL.04

Attention: Ms. Elaine K. Kaiser
Chief, Section of Environmental Analysis
Environmental Filing - Reno

Dear Ms. Kaiser:

Thank you for the opportunity to comment on the UP/SP Merger Finance Docket No. 32760, Preliminary Mitigation Plan for Reno. As you know, I have previously commented on various aspects of the train merger, and I maintain the concerns mentioned in the past. Increased train traffic from the merger will create further delays threatening the health and safety of those who need immediate assistance from emergency medical teams, police, fire crews, etc. The greater probability of pedestrian accidents and derailments is also significant.

While there is no dispute over the harmful effects of increased traffic, there are many views on how to mitigate these effects. I would like to thank the Surface Transportation Board (STB) for convening a Mitigation Task Force to pinpoint the best methods of minimizing the effects of the merger. When properly mitigated, the increased rail service through Reno will be an enhancement to Northern Nevada's economy. In fact, there are ways to mitigate the new traffic that will benefit everyone affected. I am pleased that the STB has given all interested parties an opportunity to explore a win/win outcome.

The Preliminary Mitigation Plan (PMP), however, falls short of creating a positive situation for everyone. In fact, my concerns about the public's safety have not been appeased. The primary mitigation feature in the PMP increases train speed from 20 mph to 30 mph. Consequently, delays at train crossings would diminish from 3.4 to 2.8 minutes per train. This 33% savings is overestimated and does little, if anything, to relieve delays caused by the merger.

A study conducted by the Section on Environmental Analysis (SEA) earlier this year revealed as many as 30 percent of the trains already travel faster than 20 miles per hour. Since the current speed limit is 20 miles per hour, this study shows either a gross error in the data on which the PMP benefits are based, or it shows that 30 miles per hour is not as far from the status quo as presumed. Furthermore, there was no account taken for the expected lengthening of trains.

The results of the ten-month study are too variable. Not only is the benefit of increasing the speed unknown, there is no guarantee that the Union Pacific will indeed travel at faster speeds.

Most frustrating is the fact that many mitigation options such as grade separations were simply discarded by the SEA. The PMP was designed to be the product of the Mitigation Task Force; however, no one on the task force agreed to discontinue consideration of grade separations. A more thorough, conclusive examination of mitigating the train merger is necessary. Relief must be given to the longer delays at the train crossings, which are the result of the train merger.

Again, I would like to thank the STB for examining the mitigation options. This search, however, needs to be exhaustive. It would be futile to implement a plan like the PMP that is highly based on presumptions and variables.

Sincerely,

Bob Miller

BOB MILLER
Governor

BM/tc

Dave Aiazzi - Ward 5
Reno City Council

334-2016 - city hall
334-2097 - city hall fax

P.O. Box 1900
Reno, Nevada 89505

Wednesday, October 08, 1997

I would like to start out by saying that the City of Reno is not fighting the merger. The City of Reno is not against Union Pacific. This merger, while generating huge profits for U.P. will also improve the delivery system of goods throughout the United States and should also reduce the costs for those goods to the people in this country. An added benefit may be a reduction in truck traffic on our aging infrastructure.

That being said, let's move on to what the City of Reno IS trying to do. It is my opinion that what we are asking of Union Pacific is to help pay for mitigation being brought about by their merger. As a councilman this is something we require developers to do in our own city every day. When someone wants to build something that will substantially increase the use of infrastructure, we require them to pay impact fees.

I am asking the STB to take an overall view of what this merger is. As I see it, there is a major development going on in Oakland that will dramatically increase the use of the best possible route of the railway system. That route runs directly through Reno. After all, isn't this why they merged to begin with? If not to take advantage of this route and the Oakland Port, what was the reason? They saw an opportunity for profit and they took it. This is the purpose of business and we see nothing wrong with it. All we are asking the STB to do is to require them to help pay for mitigation of the increased traffic.

What should this mitigation be? A very good question but one which was answered months ago. Union Pacific and the City of Reno BOTH agree that the best solution is to depress the railway through the Reno area. I understand that this report was started long before we agreed to this and it is my hope that the STB thank the authors for their efforts and shelve this report. Since everyone

concerned has agreed to the solution I would urge the STB to step in and help us come to agreement as to how this already agreed to solution can be carried out.

Let me say a few things about the report itself. Many of the recommendations are very worthwhile and I hope that Union Pacific would follow through on them as they seem to benefit railroad operations and would provide their employees with a safer working environment.

Let me start with the biggest issue, in my mind, increasing the speed limit to 30 mph. Two things come to my mind;

1. This is not required in the report, just suggested. That being the case there is no mitigation involved.
2. If the concept of increasing speed to increase safety is going be the national norm, perhaps we should increase the speed limit in school zones to 45 mph. According to this report, there will be fewer accidents (by the way, there will be more fatalities, but that's apparently okay).

Next, the increase in train traffic. Certainly it may increase to 24 or 26 or even 28 per day in the next few years, but there is no upper limit placed on the UP. Let's all hope that the Oakland Port is wildly successful. Can anyone here guarantee that there will not be 40, 50 or even 60 trains per day in 20 years?

When this is the case and Reno is permanently bisected by trains, is there anything in this report that would require the UP to then come back and depress the railway? What would be the cost then?

In conclusion I would like to say that this is not a technical problem and it doesn't require a technical solution. Not only is there a common sense solution but it has already been agreed to. Let's depress the railway and come together to find a way to finance it. Did I mention that Reno has voluntarily asked to raise sales tax to pay for up to $90,000,000 of this project? With the UP's initial offer of $35,000,000 my feeling is we are discussing ways to finance $55,000,000 which is only 31% of the entire job. We are 70% of the way toward reaching the goal that both Union Pacific and the City of Reno have set. We've agreed to 70%, I am asking the STB to help us find an equitable solution for the last 30%.

Respectfully submitted,
David L. Aiazzi

# Comment Sheet

## UP/SP Merger
## Reno Mitigation Study

Please use this page to submit your comments about the Reno Mitigation Study. Please be as specific and concise as possible. Identify page numbers where applicable. We thank you for your interest in the UP/SP Merger Reno Mitigation Study.

Name JUDY HERMAN Phone/Fax 702-334-2015

Organization & Title (if applicable) CITY OF RENO - COUNCILWOMAN.

Address P.O. BOX 1900.

City/State/Zip RENO NV 89505

*Please mail completed comment sheet to: Office of the Secretary, Surfact Transportation Board, Finance Docket 32760, 1925 K Street, NW, Room 700 Washington, DC, 20423, Attention: Elaine Kaiser, Chief, Section of Environmental Analysis.*




CENTRAL ADMINISTRATIVE UNIT
REC'D: 10-8-97
DOCUMENT # 10-21-97 6:55:07pm
FD#32760 RL.04

*(If necessary please continue your comments on the other side)*

City of Reno

CITY COUNCIL

Special Session

480 South Center Street

Reno, Nevada

October 7, 1997

Transcribed by: Donna Davidson, CSR, RPR

MAYOR GRIFFIN: Item 5, staff report regarding the preliminary mitigation plan from the Surface Transportation Board regarding the UP/SP merger.

MS. BELAUSTEGUI: Good afternoon, everyone. For those of you who may not know me, I'm Merri Belaustegui with the City Attorney's Office, and for the last 18 months Patricia has graciously donated my time, I suppose, to working on this project.

As a very brief background, in 1995, December of '95, the Union Pacific filed an application to merge with the Southern Pacific. In order to do so, they had to ask permission from the Surface Transportation Board.

The Surface Transportation Board is the successor to the Interstate Commerce Commission, which we know as the I.C.C., and this was their very first act they ruled on.

On August 12 of '96, the Surface Transportation Board saw fit to approve the merger. The City of Reno did not oppose that merger and still today does not oppose it.

What we're asking for is that all of our environmental concerns be adequately rememdied, which they are required to do by law.

In decision number 44, as I put forth in the staff report to you, it specifically required what's called

a section on environmental analysis, and that's SEA. I'm going to refer to them as SEA today, the acronym S-E-A, to determine the precise number and location of underpasses or overpasses for the City of Reno.

They were also specifically required to come up with what they call a tailored mitigation plan to address the unique needs of both Reno and Wichita.

Interestingly, when the preliminary mitigation plan came out on September 15th, and I might add, SEA was gracious enough to send each of you your own copy; so what I've given you today is just the executive summary for a brief reference.

Seven of the eleven mitigation measures for Wichita, which is supposed to be a unique community, and so is Reno, are identical in the plan.

And what I'm going to do right now is I'm going to go briefly through these for you and tell you what the 16 mitigation measures for Reno were; and then I'm going to have Mark Demuth and Steve Varela speak to you a little more specifically about this.

The very first condition, number one, major required -- and I use the word "required" for a reason -- mitigation for Reno will be to increase the train speed to 30 miles per hour.

If you look at your staff report, though, SEA

specifically notes, though, that this speed will only be done if it's consistent with safe operating practices dictated by conditions present at the time each train traverses a segment.

What that means in English is just like a speed limit on a street, we all know a speed limit may be 30 miles an hour but a car is not required to go that fast; they only go that fast if it's safe to do so. That's the same thing with this mitigation, and yet it's called required. And we now know from reading the report that they are not actually required to go 30 miles a hour, they're just told to do so if it's safe.

Our studies in February show, when we monitored the traffic coming through Reno at the time when the Feather River route had flooded, the trains are actually going between 11 and 15 miles a hour. And there's a reason for that.

The reason is because the conditions downtown dictate that the trains go slowly. Sometimes they have night vision problems, sometimes there's people on the track, sometimes they're not sure what the condition is, so they need to go safely through town.

The second and third mitigation for Reno is they want the UP to be required to put in a train location color video display and a rail line color video display.

What that means is that if you see they're at the emergency dispatch, they're proposing, with the City's permission, and again this is supposed to be required mitigation, that when we do -- if and when we do put in our emergency dispatch center by the downtown that the railroads are required to put in video display monitors.

All they've required the UP to do is put the equipment in. They have made no provisions for maintaining that equipment, for monitoring the equipment, for training for the equipment.

And I'm going to let Mark, when he gets a chance to talk to you, tell you what that equipment could do, if it's used properly.

The next one is required mitigation is supposed to be to discontinue UP's practice of adding helper trains at Woodland Avenue. If you guys will think up in your heads, past Keystone there's a little intersection called Woodland Avenue. There's a housing development out there and some warehouses. They have one access across the tracks. And back in the days when the FC was coming through town, they used to stop right in front of that intersection and put their helper locomotives on to help the trains get over the path. It was a good, flat easy place to stop. And sometimes those residents were blocked for up to ten minutes, maybe longer.

In the report, though, SEA concedes that UP realizes this is not a good business practice to put their helper trains on at that location, so they stopped doing it anyway. So that's really not a required mitigation.

The next issue is, as we all know, if we can just think about this logically, if you increase the train speed through Reno, you're going to increase the severity of accidents and you're going to increase the fatality risks. SEA concedes that when they write this report. And their solution to that is what we're going to do for you is instead of your two gate guards that come down at each intersection, we're going to put two more gate guards down, so that if a vehicle was in the intersection and they were going to try to beat the train, they could make an S-curve through the gate. Well, if you put two more gates guards down in the opposite direction, it's supposed to reduce the likelihood of a car being able to make that S-curve through the gate. And that's how they're going to protect us safetywise from the trains racing through town.

The next thing they're going to do is provide an enhanced rail safety program, and if all of you have been reading about it in the paper, you'll note that the Federal Railroad Administration has some serious concerns about the UP's safety record. In fact, they've done a study over ten cities, and I might note Reno was not included, even though

we specifically requested to do so, to address their very serious safety issues.

So again, UP probably would have been doing that anyway.

(Inaudible comment.)

MS. BELAUSTEGUI: It's not defined in the report. It's just enhancing what they're already doing.

The next item is to help us with our safety issues. They're going to put in pedestrian gate skirts. And I provided a picture for you of that in your staff report. It's kind of hard to see because it's a black and white picture.

COUNCILMEMBER PEARCE: It's hard to tell what it is.

MS. BELAUSTEGUI: Basically what it is, Councilwoman Pearce, is you have a gate guard that's already coming down, an arm. There's two chains and a second little bar coming down below it. And I believe the thinking there is, it's supposed to make it more difficult for pedestrians to scoot under a gate once it's down. But if you'll look at that picture, you can still crawl under it, if you want to.

The next item is SEA recognizes in their report that we have a huge pedestrian traffic for traffic downtown, and they need to address that for safety reasons. So what they've proposed is that UP is required to construct

two pedestrian overpasses or underpasses at Virginia and Sierra Streets.

Now, for Virginia Street, what they've said is that if UP can get -- and again, this is required mitigation -- if you can get the Fitzgeralds to agree to modify their Rainbow Ridge, to feed the pedestrians back out to the street, then that's good enough for this intersection.

If you can't, then they want them to actually build a second pedestrian overpass, at both Virginia and Sierra Street.

Now, the problem there, and I'll just tell you this initially what we see with that, is that these are not proposed at the intersection, they're proposed mid block. So what this group is asking the tourists and the employees downtown to do is go to the intersection, go down the block, get on the walkway, go up and over, or under, come back out, and go back down to the intersection where you were trying to get across.

And as all of you guys know, we have an overpass out on Oddie, and I doesn't get used very often, and I kind of question the effectiveness of this when you're proposing it mid-block.

The next two items are interesting. When UP puts in these underpasses or overpasses for pedestrians,

they're supposed to conduct prehistoric/historic survey for the underpasses and consult with the native Americans.

Well, actually all this is saying is you need to comply with the law, because that is the law. If they're going to do this work, they have to do these next two mitigation measures.

The next one and the one on my next sheet I'm going to talk about together.

UP is being required to install a high, wide, shifted load detector at milepost 240 on both sides of the track and install an additional hot box. What this means is they're asking UP to put additional equipment on their trains to alert them sooner if the load is shifting, which might increase the risk of derailment and the installation of an additional hot box.

I believe what that means is it warns them ahead of time in their brakes are running hot, if they're having a problem. And again, these are just good, solid business practice UP probably would have done anyway.

Next they're going to --

COUNCILMEMBER NEWBERG: (Inaudible)

MS. BELAUSTEGUI: I'm not sure. Mark, do you know where milepost 240 is? I think it's somewhere before Truckee, but it wasn't delineated in the report.

COUNCILMEMBER NEWBERG: (Inaudible)

MS. BELAUSTEGUI: No, oh, no, it's down the tracks, outside of town. And I believe the location probably makes sense because it's when a risk of derailment is high because of the way they're coming on the curvature of the track.

The next mitigation is to establish a Community Advisory Panel. Again, this is required mitigation for UP, and that's asking a lot of this community to participate. If the community decides not to participate, then UP is off the hook on that one.

And the last two, self regulation by UP through Certificate of Compliance. What that means is UP is going to tell the board, yes, we have complied with these conditions, and that's what self regulation means.

And finally, those self regulation reports are going to be sent quarterly to the City of Reno and the County of Washoe.

So what we're here today to do is to explain what these mitigation measures were and to seek direction from council for the City of Reno to file its comment document which is supported by sound scientific evidence that refutes the conclusions reached in the SEA's report. We've done a number of studies, and we believe we can do that.

But before I ask for a motion, I'd like to

present Mark Demuth and Steve Varela, so they can answer any technical questions you may have. And I'd be happy to answer any questions, also. Thank you.

MAYOR GRIFFIN: Thank you, Merri.

MS. BELAUSTEGUI: And lest I forget, we are fortunate today to have our lead attorney from Washington D.C. Mr. Paul Lamboley here with us today. He would be more than happy to help out with this conversation. And he is going to be speaking to you directly on the next item on the agenda. Thanks.

MAYOR GRIFFIN: Candy?

COUNCILMEMBER PEARCE: Are we at question time?

MAYOR GRIFFIN: No, I think Mark has got something, and then I think we want to hear from Paul. You know, if you've got questions in the end --

MARK DEMUTH: If you have questions to direct us towards this morning, if there are points I don't think we've hit on, I'll be glad to touch on them.

COUNCILMEMBER PEARCE: My question would be on the potential environmental impacts of the SEA study, the point we're at where they're talking about what they're going to do, we're going to give input, can we, to go back and be a broken record, can we say that they haven't addressed any of the issues that are real issues.

I mean, to start with, downtown Reno is not all that's happening. We've got our main water source between Truckee and Reno. We've got environmental issues. We've got a negotiated settlement which we talked to them about when they were here that apparently has been ignored.

The native Americans in this community have some legal rights. They set the quality of the water. They've totally ignored that, which I find offensive, and the fact that if there was a problem, we would have no -- I mean, we know what the impact would be on our water supply. In addition to, excuse me, do we not deal with endangered species? Do we not deal with the cuiui. Do we not deal with sacred sites? I mean, this is just, the whole thing is appalling.

MS. BELAUSTEGUI: And those are very good observations. I might add that the majority if not all of the concerns that were raised during the nine-month task force process were addressed summarily as what they call tier two mitigation, which means if we want to pay for it, then yes, then those conditions will be resolved for us. The other --

COUNCILMEMBER PEARCE: Excuse me, though. Why would the citizens of Reno have to pay to protect their water supply so that a railroad that is going to make a fortune -- all we keep reading about is how they can't even

handle the amount of shipping they have now. Why should the citizens of Reno have their water supply at risk so that a group like that can make money?

MS. BELAUSTEGUI: And Councilwoman Pearce, that's an outstanding observation, and all I can really say to address that is to allow us to write a comment to address that and also to remind you and anyone who might be watching this that the Surface Transportation Board section on environmental analysis will be here Thursday, which is in two days. They're going to host two public meetings. There's an open house followed by a meeting at 2:30. The same thing will repeat again at 6:00. And they're looking for those kind of comments.

COUNCILMEMBER PEARCE: But, you know, I guess my question is, will they listen this time? They didn't listen before. I mean, this is like we have a report that on many levels is useless, but these are the things, you know, that I was focused on and have just been totally ignored.

MARK DEMUTH: I'd like to jump in. My name is Mark Demuth, and I'm the principal environmental consultant for Madcon, and we're part of a consortium of firms working on this project, for the record.

There is some discussion as opposed to the first time when things were totally ignored, there are

definitely some discussions. The problem is that certain assumptions that went into that we feel are false, and we have very good signs to prove they are false.

And probably most importantly to answer to your question about the endangered species they admit in the process that they are currently still looking at that and it won't be done for a while, and our comment to that effect is, "Well, fine, bring back your document once you know these things, but certainly don't ask the citizens of Reno to look at something with incomplete information."

So that's how they dealt with them, because clearly we've made the comment a number of times, specific to your request, that we wanted the water looked at and we waned endangered species.

The answer in the report is, "We're going to look at it in the future."

COUNCILMEMBER PEARCE: Well, my other question is, how in the world do you ignore a negotiated settlement that has taken the amount of time this has taken and has taken congress and everybody else in the world to get it done, how do you just ignore the quality of our water?

This isn't like the Sacramento River or something; I mean, this is the Truckee River, and we've gone through millions of dollars and years and years of negotiations, and it's a very tenuous situation with the

native Americans, and they have the right to set the quality.

And the railroad may want to fight with us, but I don't think they're on real good grounds with the native Americans. I mean, when is somebody going to sit down and be realistic about what we have at risk?

And my last comment would be, I was in New Orleans last week and I was sharing with the mayor the solution in Reno is that the trains go how fast though?

MS. BELAUSTEGUI: Thirty miles an hour. Up to.

COUNCILMEMBER PEARCE: I was reading in New Orleans, going through their tourism area there were stories in the paper on how the solution to their issue of safety is the trains can't go more than 15 miles an hour. And I think it's really interesting -- of course, you know -- but I had to laugh. I thought, boy it really depends on what's going on at the time.

MAYOR GRIFFIN: Let me ask a question. You know, at the end of this, we're going to end up with a recommendation, but I think that as each of the folks, as Candy has, makes their comments, please embrace that as part of your response. I don't think we're going to be able to wrap up in one motion, other than perhaps at the end saying everything you've heard, that's it.

COUNCILMEMBER PEARCE: Because we all have our own things.

MAYOR GRIFFIN: Absolutely. I mean, my point is, I don't want us to have to try and go back and craft a motion. I think the comments are valid, legitimate, and should be noted in terms of staff direction. That's okay?

MR. McNEELY: We will obviously take the comments that come from the council. We also have some specific actions that we're requesting once you --

MAYOR GRIFFIN: Okay. Dave, then Tom.

COUNCILMEMBER AIAZZI: What I didn't see in the report, and maybe I'm wrong, but is there an upper limit on the number of trains that can come through Reno?

MS. BELAUSTEGUI: Absolutely none.

COUNCILMEMBER AIAZZI: I mean, we're talking about 28 trains, but there actually could be 60 in 10 or 20 years.

MS. BELAUSTEGUI: That's correct. In fact, we had specifically asked during the task force meetings for the Surface Transportation Board section on environmental analysis. When they made it known to us very late in the task force proceedings that they were seriously considering speed as the mitigation for Reno, we asked them if that was an operational aspect under consideration they should also seriously consider and study shortening the number of trains

through town, because that would have the same effect, shorter trains versus faster trains, and also the number of trains coming through Reno.

That was not considered in the report. They note in an appendix that we asked for it, but nowhere in the document is it addressed. They did not study those two operational aspects.

COUNCILMEMBER AIAZZI: You sort of touched on my second question, there's no limit to the length of trains --

MS. BELAUSTEGUI: Correct.

COUNCILMEMBER AIAZZI: -- going through here either. There's no control of that.

Now, as I understand it, so people out there can understand why we're concerned is, they are rebuilding the port in Oakland; correct? So that will be another major West Coast shipping center. So the option of bringing more trains through Reno is a very, very valid option. They're spending a hundred million dollars in Oakland to upgrade that.

MS. BELAUSTEGUI: As well as their Roosevelt Yard, which is on our path. They're spending millions to improve that rail yard.

MARK DEMUTH: It's our understanding that the Port of Oakland, recently through a bond of their citizens,

a vote, passed somewhere near six hundred million dollars worth of bonding capacity just to improve the Port of Oakland.

We're making the assumption, since they have not filed such comments, that their intention is to expand their operation. I don't think you spend six hundred million dollars to maintain your operation. You clearly want to compete with the fact that in the papers we're hearing daily that Long Beach Port and the L.A. Port are having difficulties keeping up. And there's clearly capacity that needs to be met. And the Port of Oakland appears that they would like to be that.

They're also looking at a joint intermodal terminal which would combine B in Santa Fe -- UPB in Santa Fe and SP all have their own little facilities there. Now it really is just UP and BN, they're now saying, "Well, why don't we look at one, and that would also increase the capacity," and that is being studied, as well as it was studied by Union Pacific themselves in a report.

So we clearly -- you know, these are on the table. They are totally ignored in the report as saying that they are too far in the future to be considered.

COUNCILMEMBER AIAZZI: So we're probably wrong in telling people that the train traffic could go up to 28 trains a day?

MS. BELAUSTEGUI: That's always been the City of Reno's belief, but that is not what the UP has reported. I might also add that the UP just filed an operating report on October 1st. We received it yesterday. And in part of their reporting to the Surface Transportation Board, they have noted their problems with getting cargo from point A to point B. I think you've all been reading about it in the papers. One of their solutions they've now come up with is -- in fact, their statement was, "We no longer have the luxury of running shorter trains."

So I think it would be a reasonable assumption that our trains are going to be longer, because they need to get that cargo moved, and they're having trouble doing that.

COUNCILMEMBER AIAZZI: How often, now, does a train have to stop because of a -- in Reno because of a malfunction they have on the train or an accident or something like that? I mean, is that something that we can be quantify or have quantified?

MARK DEMUTH: I believe we could probably check with both the police and fire because they are notified when a train has to stop for a reason for blocking an intersection, I think, longer than 15 minutes. They have to notify the police department.

You bring up a valid point. I mean, there's

going to -- you know, you increase capacity, you increase number of trains, length of trains. You certainly would anticipate there are going to be problems accommodating all of that in the Sparks yard.

And since every train has to stop in Sparks to change a crew or every train starts from a dead stop in the Sparks yards going west that yes, those kind of incidents could become more frequent.

I apologize, we have not quantified that number because it hasn't fit into one of the specific studies we're working on, but certainly we can look into that and note just over, say, the study period how many times a train has had to stop and block. Because I know there has been a number of those where they were required to stop for 15 or more minutes.

COUNCILMEMBER AIAZZI: Those are all my questions.

COUNCILMEMBER HERNDON: First when we talk about the Port of Oakland my understanding is they plan to quadruple the capacity of that (inaudible)

And the other question is, in this report they talk about they're going to install some additional hot box rating equipment detectors, which are fine. At the point that they detect this hot box, the train is traveling 30 miles an hour. The normal stopping procedure is going to be

blocked and they come from Reno by the time they stop (inaudible) those hot boxes (inaudible) particularly it would have to be towards the tail end of this mile-long train.

And further my understanding is (inaudible) emergency stop requires a full inspection of the train.

MARK DEMUTH: I believe that --

COUNCILMEMBER HERNDON: We're talking about an hour if they have to stop for any kind of emergency, it will take an hour to inspect that train.

MARK DEMUTH: I agree there are a number of factors that would actually require longer blockages. And the reason for notifying our public safety officials is so that they can actually go into a different operating mode and entirely plan on nothing can cross the tracks except at Wells and at Stoker and Second. So that would, you know, possibly become more of a problem.

I think the main thing that you're saying is that the solution has as many problems as it seems to solve.

COUNCILMEMBER HERNDON: It all requires -- it presupposes maintenance of these mechanics (inaudible) and could not be with (inaudible) with what (inaudible) I suppose hadn't been (inaudible) at that point. From a official standpoint. But their maintenance safety record is (inaudible)

MARK DEMUTH: I guess it would be hard to say that if the report wasn't coming out now, would they not be still doing some of these things in light of the amount of --

COUNCILMEMBER HERNDON: (Inaudible) I don't think that particular one is board's fault.

But the part that really bothers me, we're talking about environment. Environment is everything that affects Reno.

There is nothing in there that deals with our economy, specifically the part of the environment, and one of the things that clearly sets us apart, for instance from Wichita, is the -- our 24-hour tourism. And there's nothing in there to address the economic impact of any sort of an accident on that 35 percent of our economy, which is to the extent that we're (inaudible) I believe it would be affecting home values and the equity of everyone within miles around, and to me that is a huge environmental impact that is not only possible but quite likely at some point to happen.

MARK DEMUTH: And I think the way that we have been instructed from the STB, and you've got to remember that we're not running the process, the STB is running the process, we're participating as fully as we can for the City.

We've tried to bring these issues up, and since we frequently get rebuffed, that's purely an economic issue that's not on the table, we feel that it's not an economic issue to discuss how noise, which is an impact, affects business as well as residential and how a derailment, spill, or accident would affect business as well as residents in the area that it does.

So we are bringing those things back constantly to the table. We have had very little luck on -- and there is one interesting little pass, one of the few times they take about economics in the entire report is a one-line sentence that cautions that the shoe fly for the depressed train way may impact the economics of the railroad.

And we found that kind of interesting that that snuck in there but yet the obvious impacts to all other businesses are clearly left out and explained why they're left out frequently in the report.

MS. BELAUSTEGUI: I might also add, Councilman Herndon, that SEA has acknowledged in their report that the reason they don't address the economic impacts on the community is ironically because decision 44, which told them to come here and do the study, does not address economics, it just says look at the environment.

I just find that a little curious, because the

decision 44 also directly told them to come here and determine the precise number and location of underpasses, yet they failed to do so under required mitigation.

MAYOR GRIFFIN: We do have Steve Varela still as part of this report.

MS. BELAUSTEGUI: Yes.

STEVE VARELLA: I'm just here to answer any questions.

MAYOR GRIFFIN: Oh, okay. Any other questions? I've got one, actually. I've got some comments, but I think we'll wait for that.

Aside from the fact that I think, you know, just deciding that the mitigation is going to be accomplished with increasing the speed, which I disagree with completely, I think that's an absurd response to a really vexing problem, who says they're going to go 30 miles an hour? I mean where does this happen? Is it our obligation to make sure that they are going 30 miles an hour, or it's a hoped for upper limit, or what is this thing --

MARK DEMUTH: It's a very valid question. First of all, our comment document is going to address -- and this is just because this has been coming up for months and months -- it's going to address -- you know, you always have to look at the effectiveness of a mitigation measure.

Is it clearly going to replace something that you're taking out, X number of acres or something with X number of acres, then you can clearly say there's been a hundred percent effectiveness with that.

The problem with thi is how do you determine effectiveness as something that's entirely discretionary? So we're trying to quantify, you know, how much time, what percentage of the time is it reasonable to think that I'm not going to be able to do 30 because of safety? What percentage of the time are they not going to be able to do 30 just because of pure tonnage starting or stopping.

What we're doing is we're having them demonstrate, okay, if this thing really is only 50 percent effective and we're only mitigating 50 percent, that's not mitigation then. You failed under the definition of mitigation. You are not offsetting the impacts you're creating.

MAYOR GRIFFIN: I've got a more substantive -- is this a compulsion that they go 30, or is this if you go 30 --

MARK DEMUTH: Clearly indicated it's an operational parameter based on the condition --

MAYOR GRIFFIN: It allows 30?

MS. BELAUSTEGUI: What it says is --

MAYOR GRIFFIN: Help me with the language.

I'm trying to find out is --

MS. BELAUSTEGUI: Here's exactly what the report says. UP shall then operate and require BNSF -- that's their --

MAYOR GRIFFIN: Yes.

MS. BELAUSTEGUI: -- to operate all trains over the described rail line segment at a speed of 30 miles per hour, consistent with safe operating practices dictated by the conditions present at the time each train traverses the segment.

MAYOR GRIFFIN: I'm not trying to be absurd myself or sarcastic, but if you said 60, then we could even mitigate it further, assuming it was in --

MS. BELAUSTEGUI: Ostensibly, yes.

MAYOR GRIFFIN: As long as it was safe.

MS. BELAUSTEGUI: As long as it was safe.

MARK DEMUTH: This is a paper solution. So you're right, I guess if you needed to go 60 to make the --

MAYOR GRIFFIN: Of course my response has been well, you know zero would fix the whole problem, a speed of zero, that would be the end -- we would be happy with that speed.

MARK DEMUTH: If it required to run 40 to make the effects look on paper that they went away, I would suggest that you would probably be seeing a report that

would say 40. But it would say, "as safety dictates," which I think we can all predict, since they're not presently running it at 30, and time is money, it's only logical to think if they had not been doing it in the past, there was a good reason they were not doing it in the past. And we've heard nothing that says this has changed, now it's going to be easier to run 30 than it was before.

MAYOR GRIFFIN: And Councilman Herndon was just asking the question, I mean 30 miles an hour where?

MARK DEMUTH: Yes.

MAYOR GRIFFIN: As it's pulling into Sparks yard, pulling east, or as it's going by Keystone on the west or --

MARK DEMUTH: We would interpret that to mean probably 30 during all of those crossings they're claiming to mitigate. So the entire length of the train must be doing 30 between Keystone and Lake.

So my argument would be picture it as what used to be the caboose and now isn't the caboose anymore goes flying by at 30 and leaves Lake Street, at that point they can then begin slowing down, and we would argue you end up in Fernley, you don't end up in Sparks.

MAYOR GRIFFIN: Last technical question. Is there any evidence or studies analysis that indicate the increase in likelihood of an accident and indicates the

increase of the severity of an accident based on speed?

MARK DEMUTH: Yes. There's two discussions in the document on vehicle accidents. Vehicle accidents, the frequency should not increase, because theoretically the timing of the gate events is exactly -- you have the same amount of time warning that you did regardless of speed. It's determined by the speed so that they come down 20 seconds before they arrive.

But they clearly state the severity of accidents at 30 is substantially more than at 20; and they go further to say what that means, which is an increase in fatality. So if you might have lived through a car accident at 20, you now have less likelihood to live through it at 30.

MAYOR GRIFFIN: I guess my question also is, is it more about finding yourself on the tracks. I'm talking about the likelihood of derailment at a higher speed and then obviously the severity of the derailment at a higher speed.

MARK DEMUTH: That derailment has an increase in both frequency and severity at higher speeds, as well as the pedestrians. They claim they don't know what the pedestrian problem is now, because they didn't study it adequately, so therefore they can't tell if it will get worse or not, but I think it's clearly been published in the

FRA reports that if you get hit by a train, probably the difference between 20 and 30 miles an hour is --

MAYOR GRIFFIN: Academic.

MARK DEMUTH: -- is not going to be the issue.

MAYOR GRIFFIN: But I mean, it goes to Candy's question, which I think his is a good one. I'm more concerned about derailment. I'm more concerned about one of those propane tanks or sulfuric acid tank cars. And my concern is that if we've got a hot box, you know, and I can conceptually understand what that is, I don't know what it looks like, but a detector, I mean now this thing is moving at twice the speed that it -- potentially it was before. The reaction time is obviously cut in half, the ability to actually slow this monster down, I would imagine, it is a little bit geometric in the sense that, you know, slowing something down that's that mass and that momentum at 30 is considerably longer than it is at 15, those kinds of elements. I guess my -- there is in -- I would like to see as part of our response, in other words, that that kind of -- not just observation and comment be made, but that there -- that whatever (inaudible) we might have available to us, that you could tie likelihood or frequency, if you will, and severity with increased speeds. I mean, it's got to be there. I would think if a train derailed, you're

going to be in a lot worse shape at 30 than you would be at 10 or 15.

Tom?

COUNCILMEMBER HERNDON: Along those lines, I didn't see anything in my reading of the report that covered the actual make-up of the trains. And the reason that's important is that in a crash when this thing compresses, if there are empties, empty cars in the middle of that train with heavy cars behind them, they tend to get popped out, if you will, in any sort of an emergency stop. And I didn't see anything that would require the railroad to put all the empty cars on the back of the train and then take the extra step for them of them having to sort it out wherever they're doing their switching, rather they just put them wherever it's convenient for them in their operation and distribution. And it seems to me that if we're going to address safety in mitigation, that would be a factor, a large factor.

MARK DEMUTH: There is. And my understanding -- and we are -- you know, I apologize. We are learning as we go through some of this, because we are not railroad experts, we are environmental experts. So some of the questions on technical aspects of the trains, I apologize, I do not have a technical expertise in railroad operations. We're environmental specialists.

We have been exploring -- there are requirements for certain commodities, and those would be the hazardous ones on how they are arranged on trains, how many there are, so there are -- certainly that's getting more attention than the other.

The problem would be -- and I think Larry Farr once stated it here before you -- is that frequently they have a difficulty telling us what's even on their trains, let alone where they're placed, and though you might have requirements that suggest certain things, whether they are being complied with, we are not aware of that. And certainly in the few times there have been incidents and Washoe County has had to respond, the haz mat team, there has been delays in getting the list of what is on the train so they know what to do. And we see nothing in this that says that will be solved. So it's certainly a comment we're making.

And I agree with you that there is so many variables to determining what's going to happen in a derailment. It's amazing.

Now, the two reports, the one that they did and the one that James Carr, professor at UNR did for Sierra Pacific Power clearly tried to define those, get those down to manageable numbers so that we can truly tell people like yourselves, you know, it's going to happen one in

twenty-nine years, and that's a reasonable thing for you to then make a decision based on.

The problem is that everybody's study looks at assumptions a slightly differently, and as each one of those is manipulated, you get different results. And that's clearly what we have here is a report that was put out long before this was an issue that has one set of findings, and now we're getting reports that are coming out specific to this that magically come out with substantially less risk.

And we've certainly question why when Union Pacific in a statement said they embraced the Carr report as being solid science, and that was in the Reno Gazette Journal, when the report came out, now suddenly it doesn't hold enough water to be used and a new report was required, and the new report doesn't come up with nearly as much risk.

So your comments are certainly noted and being dealt with in the environmental document we're putting together.

MAYOR GRIFFIN: Pierre?

COUNCILMEMBER HASCHEFF: Could you help me out with the number 44. And the (inaudible) Surface Transportation Board (inaudible) In 44 they seem to validate the studies that have been done up to the point where decision 44 was rendered, and then it seems to me that there's some backtracking in decision 71.

It indicates that they were trying to clarify the mandated mitigation. But again, it seems to me that what they came up with in decision 71 again was kind of a retreat based on the studies that had been done to date.

It says accordingly -- this is decision 44 -- studies will identify the appropriate number and precise locations of grade separations and pedestrian grade separations in the City of Reno and then also there must have been some other studies with grade crossings, et cetera.

What was staff's perspective on that? It seems to me that they clarified, but it's something that's substantially less than what they were originally going to do, or at least direct.

MS. BELAUSTEGUI: I'll go ahead and address that, if I may. That's one of our major concerns and why we really need a comment document. The clear mandate, the requirement, if you will, of decision 44 was the result of an environmental assessment and a post-environmental assessment.

They use those two documents to reach the conclusion -- which is called a FONSI, a finding of no significant impact. Interestingly, even though they found there was no significant environmental impact in Reno, they felt there was enough problem here that they needed to come

and conduct this 18-month study.

So what I believe happened, although I'm not speaking for the board, decision 44 directed SEA to look at something specific. They said, "We know there's a FONSI finding here in town, it's not that significant, but we also know your impacts are severe enough that we need to know where to put these overpasses or underpasses to help you out."

And of course, as you read the report, that's not required. If we want underpasses, we're going to have to help pay for it.

Decision 71 is another interesting bird all by itself. My perspective on this is the City of Wichita was concerned about the language in decision 44 that noted that some of these mitigation options might require some shared funding, it has to be paid for by the community.

Wichita filed a motion with the Surface Transportation Board back in March or April of last year and asked for clarification on that language. The City of Reno was not notified of this motion, nor were we have given an opportunity to participate. Instead, the board issued what's decision 71, and I quoted that for you. In decision 71 specifically Wichita's motion requesting clarification and it ostensibly is a clarification of Wichita's question about what does shared funding mean.

What they said in decision 71 was for both Reno and Wichita, we're going to come up with two plans. Plan one, or tier one, is going to be baselined or mandated mitigation. That means that only the railroad is responsible, because that's all they have jurisdiction to do.

But while they're at it, if they note something while they're here that might be another option that mitigates more than the merger impacts, that would be a solution that the community would have to help pay for.

In the report almost every concern the City of Reno raised ended up in tier two or shared funding and encompasses both the underpasses, the overpasses, and the depressed train way, along with some discussion about noise.

Although, I might say tier one completely ignores our noise impacts.

COUNCILMEMBER HASCHEFF: All right. So it's the staff's conclusion that 71 and 44 are more inconsistent than they are by way of clarification?

MS. BELAUSTEGUI: Yes. I'm still struggling with what they mean.

COUNCILMEMBER HASCHEFF: All right. Also, what happens -- they indicate that upper train operation speed only is the mitigation that's required. What happens a year from now if we determine that speed is not the proper

mitigation, it creates more problems than it solves? Is there a de facto result, or we just live with the mistake?

MARK DEMUTH: It appears from the document that there is no request to return to these topics; that once the board orders mitigation in March, this is over, the cap is removed, run your trains.

COUNCILMEMBER HASCHEFF: Right. Then the last question I have is on the numbers that they came up with, the 15 million dollars that looks like must be funded by the railroad. How good are those numbers? Are they simply estimates? What happens if they finally do the engineering studies and it turns out that 15 million dollars is really going to cost them something in excess of that?

MS. BELAUSTEGUI: My guess on that is whatever it costs, they have to complete this required mitigation. And those numbers were based on reports done by the Union Pacific, and they incorporated Union Pacific's reports on what it would cost to implement them.

For instance, to increase the train speed through Reno, Union Pacific determined they would have to do about 7.3 million dollars in improvements.

COUNCILMEMBER HASCHEFF: Right.

MS. BELAUSTEGUI: I think we attached a number next to the chart.

COUNCILMEMBER HASCHEFF: Right.

MS. BELAUSTEGUI: That was a memo that was prepared by Union Pacific officials, and they said if we spent 7.34-million dollars, we could do enough improvements to our Sparks rail yard to consistently run trains through Reno at a maximum speed of 30 miles per hour. So that's how the dollar figures, I believe, have been assigned to this.

COUNCILMEMBER HASCHEFF: So, in other words, if we were able to convince the railroad that in fact their mandated mitigation is going to cost them something substantially in excess of 15 million dollars, that would increase the price, so to speak, or the amount that they would be willing to contribute toward solving whatever other problems we had?

MS. BELAUSTEGUI: That could very well be, although I think most of these numbers came directly from the UP.

COUNCILMEMBER HASCHEFF: That's all I have, Mr. Mayor.

MAYOR GRIFFIN: Candy?

COUNCILMEMBER PEARCE: One last question. The fact that they ignored the whole issue of noise and vibration, from reading everything, it appeared to me there was a strong implication that because we're a tourism economy and property had been converted to tourism and hotel rooms that it wasn't an issue, it was like that's your

problem.

At any point in time, is anybody going to address the fact that the people that sold the property were the railroad to start with and that business made the most money out of it? I mean, I understand that tourism may need to put some money into this pot, but the idea that noise is not an issue, that vibration is not an issue because of tourism is sort of like the -- you know the scarlet S or something, or G for gaming. I mean, what is -- what's going on here? It's crazy.

MARK DEMUTH: You bring up two points. First of all, the assumption that the problem is brought on by ourselves or the community through the location of these entities. And I think yes, we have addressed it a number of times, specifically that -- you know, had that railroad not wanted anybody in the right of way, they certainly had that control since they were the primary property holder since the 1880's. So clearly --

COUNCILMEMBER PEARCE: Does it acknowledge that at all?

MARK DEMUTH: The report does not acknowledge that at all. We have certainly filed substantial amounts of information.

MAYOR GRIFFIN: Candy, if I may, let me just repeat a phrase that you've heard me say a lot in a

conversation with Mr. Jerry Davis, who is the president of the Union Pacific Railroad. His comment, which is etched in my memory is America's railroads in America's cities have not done a very good job of growing up together sometimes. And it was his observation that the worst example of that was the City of Reno and the Southern Pacific Railroad. Your point exactly. He's made that comment, and it appears nowhere in the report. You brought up a great point.

MARK DEMUTH: And we've provided title information showing exactly how those all happen to be and the fact that they're literally selling off the last little bits of feet that they could, because that was how SP was surviving at times.

COUNCILMEMBER PEARCE: Right.

MARK DEMUTH: And then the second part of your question, if I understood it correctly, was that the kind of not willing to acknowledge that hotels or I guess anything other than a residence is a sensitive noise receptor.

We filed a substantial amount of information and continue in our comment document to discuss the fact that this is one of the only federal agencies that has such limited regulation on what is a sensitive noise receptor. It's a church, a school, a retirement home, and a full-time residence, such as a house or apartment.

Clearly we've argued that the nature of our

housing stock here is somewhat unique, in the sense that a number of the older motels on what used to be Highway 40, have now become permanent residences, and it's clearly indicated by the fact that they're no longer paying hotel taxes that those are permanent residences of those people, yet they have been ignored in both this report and previous reports and councils' sensitive receptors, because, you know, it's got a label out front that says Fourth Street motel or something so therefore it cannot be counted under theirs.

We have counted all of those and will be filing in our comment document corrected numbers of receptors, which we think shows that there's a substantial significant impact created from noise, regardless of the -- you know, even if you want to get down to the point you start counting all of the hotel rooms adjacent to it.

I mean, just if you look at their definitions and correctly apply permanent living situations to what we know exists in our housing stock, the numbers rise. We argue completely that -- you know, that there's nothing that says that you can disturb somebody who is here on an nightly basis but you can't disturb somebody who permanently lives here. I mean, disturbance is disturbance.

COUNCILWOMAN PEARCE: Well, and there's some legal issues we've dealt with at the table of rights that

people have when they rent a room of privacy and other things.

MARK DEMUTH: It is (inaudible)

COUNCILMEMBER PEARCE: But the bigger issue is we wouldn't have the problem if the railroad still owned the property.

MARK DEMUTH: True, we would have a buffer.

COUNCILMEMBER PEARCE: And no one -- you can say the casinos ultimately benefitted from that or the resorts or whoever bought the property, but the first benefactor was the railroad system. So you know, I just think that it's really ridiculous in this report. They don't say they're ignoring it, but it's very clear they're ignoring it, and they really are sort of stamping us with the big tourism, forget them, they don't matter, they don't have any quality-of-life rights in this community because they make their money off of tourists.

And I don't know if it's even worth addressing again, because it sounds like everything we bring up they ignore. But I would like to see us address that.

MS. BELAUSTEGUI: And we will.

MARK DEMUTH: And we will.

MS. BELAUSTEGUI: You know, I might also add before we wrap this up that we've also tried very seriously to inform the public of this decision and to embark on a

very aggressive public awareness campaign.

We've spoken at no less than 15 service groups over the last two weeks, and I'm ready, willing, and able, if you know of anybody else that would like to hear from us. We've also prepared a brochure with the City of Reno's major environmental concerns, and contained in that brochure is a little punch-out postcard with a blank space. It's self addressed to the Surface Transportation Board, postage prepaid.

We're trying the make it as simple as possible for residents to express their concerns, if they have any, over this issue. And it's not a form, it's just a blank postcard so you can put in whatever you feel your concerns are. Heck, if you're pleased with the report, you can say that, too.

COUNCILMEMBER PEARCE: Are we distributing those?

MS. BELAUSTEGUI: Yes, those are going out as direct mailers to 89,000 residents. And we have many copies of these available here. We'll have them available Thursday night, or you can pick them up at the City Manager's Office.

COUNCILMEMBER PEARCE: You might want to consider distributing those at the churches and -- I mean, to actively -- sometimes it's harder to get people at home

to read their mail, you know, you tend to throw it away, but at a church service or something or to be there where you can fill them out and you don't have to mail it, that somebody else will mail it for you --

MS. BELAUSTEGUI: I might add, these are postage prepaid. They just need to put them in the mailbox.

COUNCILMEMBER PEARCE: The truth is, I think a lot of people pick them up and throw them away, sadly enough, but the more we can --

MS. BELAUSTEGUI: I think that's a good observation. We're just trying to do everything we can to give folks an opportunity to say what they think.

The last thing I might say is we only have until October 16th to fill these out. We've been given a very short 30-day deadline to comment. The STB apparently needs 60 days to review our comments, and then they're going to put a final draft out in December.

I might caution, though, that if the STB doesn't hear from the residents, they -- I would be tempted, if I were them, to just take the word "preliminary" off this report and write the word "final."

So if you're pleased with the way the report is, that's what we can get; and if you think that more work needs to be conducted, then I would highly encourage you to fill out the postcard and let them know what your specific

concerns are.

MAYOR GRIFFIN: Thank you. Candy?

COUNCILWOMAN PEARCE: I was just going to suggest to the city manager, I'd like to see us -- we have an excellent PR staff. I'd like to see us have them get together and put together a program to go on all the talk shows and -- the whole point of it just being you're going to get this in the mail, just fill it out, we don't care what you think, fill it out don't complain, just fill it out --

MS. BELAUSTEGUI: In fact, that's an excellent opportunity -- Terry McCann's here. He's actually the one that spear-headed this community awareness program. He scheduled much time on SNCAT for many of their shows. We're on several radio talk shows. And we're trying to hit as many service groups as would be interested in hearing from us.

But Terry McCann can probably explain the full program, if you'd like to hear it.

TERRY McCANN: I think Merri just did it. Your words are well-taken. We realize that when people get something like this in the mail that the general inclination might be to throw it out; so we've taken advantage of a number of opportunities with radio and television appearances to warn the public, and the media has been very

helpful with us in doing that.

I've done one or two stand-ups with our folks from Channel 2 over here to show that and to warn people that it was coming.

In addition to those that are being mailed, we are sending them by mail to the 89,000 residents of Reno, we are also making arrangements to add about 36,000 of them inserted into the newspaper that will reach the zip codes that reach those who are beyond Reno but are still within the impacted area.

But, no, your words are well taken, and I think we put a pretty good effort out in getting people on, to warn people that this thing is coming.

Any other questions for me?

MR. McNEELY: We will follow up on the church suggestion, because I think that's an excellent idea.

COUNCILMEMBER PEARCE: And I think the university would be real good.

MR. McNEELY: The meeting on Thursday night at six p.m., where is that going to be held?

MARK DEMUTH: It will be held here in the chambers. It is sponsored by the Surface Transportation Board. There is an hour open house for displays to be available, and then the consultants from the federal agency will be here to answer questions, and then the actual

meetings start at 2:30 and at 7:00.

It is our understanding that everybody will have an opportunity to speak and have their comments placed into the public record.

COUNCILMEMBER HERNDON: Will SNCAT be broadcasting that?

MARK DEMUTH: It's our understanding that SNCAT will be broadcasting it live, and then it will be repeated.

MAYOR GRIFFIN: We do have a couple of attendance cards. The first will be Sam Dehne, followed by John Frankovich.

SAM DEHNE: Sam Dehne, a Reno citizen. Boy, oh boy, do I have empathy for the problems you're going through right now.

I've been coming down to you folks for three years with the same -- not the same, worse problems about the airport, and to listen to you --

MAYOR GRIFFIN: This is on the subject --

SAM DEHNE: It's on the subject -- and to listen to you talking about the railroad -- I'm going to give you my analysis of what I think about the railroad.

MAYOR GRIFFIN: Then don't mention the word airport.

SAM DEHNE: I can mention the word airport

because you use -- sometimes you use correlations to try to analyze something.

And I loved the frustration in your voice, it did the my heart good, because now you know the frustration I've been going through with you folks and the folks at the airport authority. You're worried about 20 trains, you've got 214 airplanes and increasing every single day.

The analysis -- I mean, it just doesn't make any sense why you would be so worried about that and yet so indifferent to the airport problems. Okay, I won't go into that. You get my point.

COUNCILMEMBER AIAZZI: Do we need a motion if we believe he's off the agenda item? What do we have to do?

MAYOR GRIFFIN: I tell you what. Why don't you just stick on the subject, a comment on the railroad. I will cut you off if you wander off into the airport.

SAM DEHNE: Uh-oh. I'm in trouble now. Let's see. I've never done that before. I've never been up here before and not talked about the A word. Let me see.

You know, I'm not speaking for or against the trains or for or against any of this, to tell you the truth. I don't know what position to take because it's -- the airport -- I mean, the railroad does own the land and yet, you know, and all this kind of stuff, but I can understand

how terrible noise can be to people. It is a horrible thing, and they want to have this thing corrected. There's no doubt about it.

One of the main reasons I'm up here is what bothers me, as a citizen, is where this all came from. I never saw anything on a ballot where the citizens all wanted -- I would have to say a million and a half dollars probably has been spent, not counting your $680,000 propaganda staff that you've got out there, but probably --

MAYOR GRIFFIN: Sam, you're overstepping the bounds.

SAM DEHNE: No, I'm asking a question as where it --

MAYOR GRIFFIN: I don't want to hear you refer to our communications department as a propaganda machine, or I'll cut you off.

SAM DEHNE: Okay. Can I say brainwashing machine then?

MAYOR GRIFFIN: Try that and I will cut you off.

SAM DEHNE: Okay. Everybody knows what they are anyway. They should. Let's see.

My question is, where is all this money coming from to pay for this propaganda thing? It's just a rhetorical --

MAYOR GRIFFIN: That's it.

SAM DEHNE: Goodbye.

MAYOR GRIFFIN: Mr. Frankovich.

JOHN FRANKOVICH: John Frankovich appearing today as a member of NFFRA and a representative of NFFRA, which I think you're familiar with is a broad-based community group of businesses throughout the community, community organizations and citizens groups that was formed earlier this year for the purpose of supporting the City in the efforts to get appropriate mitigation for the railroad merger.

NFFRA did have a representative on the task force that you've heard about. Mr. Bob Burn from Washoe Med was the principal task force member, and I served as an alternate; and I'm appearing today in that capacity also.

We have reviewed the mitigation plan, as I'm sure you all have, and we have a great many concerns, most of which have been expressed today in many areas.

I think it's important to keep in mind that Reno has been identified as the single-most impacted community in this entire line, from the Pacific Ocean to Chicago.

The reason for that is it's highly congested 24 hours a day with pedestrians and with vehicles. The solution, double the train, double the speed, what's your

problem.

You don't need a lot of technical expertise. I'm sorry. That doesn't make sense. It certainly was not a recommendation that was sponsored or endorsed by the task force. You have trains stopping and starting in Sparks. It's not a solution that's achievable, it's not a solution that's enforceable, it's a solution that has very, very little concern for public safety and has no concern for the tourism industry in this community.

Part of the problem, as I see it, is this entire study is based on the railroad's estimate of an average number of trains of 24 to 25 a day. That average will be achieved in 2000. It's supposed to be a five-year projection, but it started in '95. But 2000 is a little more than two years away right now, so we're there very quickly.

But it's not the average, it's how many you're going to have on one day versus the other, because if you have an average, half of the time you're going to exceed that. We never could get a handle on what the top number is.

The other day in the newspaper for the first time the railroad admitted that some days you'll have as many as 38 trains. I would suggest that that's in the next two years.

Beyond that, when the open comes on, nobody knows how many they're going to have. But if you have an average of 38, the day you have 38, those impacts are going to be much greater than this average 24. And maybe the average is the way you're supposed to look at it, but if you're living in this community, the day they're 38 you're going to be very severely impacted.

You mentioned the noise. Absolutely no mitigation with respect to noise at all. They admit in the report that the principal source of noise is the whistle. They're going to substantially increase the number of whistles. They say it will increase the noise level but not significantly. Again, based on 24-hour average, they say it's not significant.

It's like a minor injury is an injury to somebody else. I'm sorry, if you have 38 trains going through on that day, blowing that whistle, that is a significant increase, and it's going to cause problems.

I'm not going to go on with all of the other issues, because there are many of them, but NFFRA believed that this issue was so important to this community and had so many concerns about the report that we have undertaken to get independent studies by independent experts relating to four subject matters; traffic, air quality, noise, and public safety.

Those reports are being prepared as we speak and will be submitted by NFFRA to the Surface Transportation Board as part of the comment process. They are also being made available to the City so that the City can incorporate them with your technical consultants and experts to submit in the comments with the City.

And we would -- we're really here today to encourage the City to continue this struggle and take whatever action is necessary to continue this fight, to see if we can't get some appropriate mitigation for Reno, because I believe, and I think many people in this community believe, that the very future of this community is at stake on this particular issue.

And I'll be glad to respond to any questions that any councilmember has. Thank you.

MAYOR GRIFFIN: I've got one. You had four elements or four areas of study?

JOHN FRANKOVICH: Yes.

MAYOR GRIFFIN: Have you contracted someone to analyze those separate from our efforts?

JOHN FRANKOVICH: Yes.

MAYOR GRIFFIN: Okay. Thank you. We do have one more attendance card. Jack Fetters.

JACK FETTERS: If it may please the Council, my name is Jack Fetters. I'm the state legislative director

for the United Transportation Union.

I represent approximately 250 railroad engineers, locomotives and conductors in the state, and as a matter of fact a good majority of them live in Sparks and run through --

MAYOR GRIFFIN: They probably live in Reno, actually, and work in Sparks, don't they?

JACK FETTERS: I' sorry. They live in Reno and work in Sparks, that's correct. My mistake.

I just wanted to clarify a few things that you were talking about, hot boxes and stuff like this. I've ridden freight trains for 21 years, so I know what a hot box is and I know what derailments are like, and I've hit people at crossings, and I'll leave it at that.

But let me start with the first thing that the lady had with her overhead projection, the speed up to 30 miles an hour. If you got the power, you'll go 30. If you don't have the power, you won't go 30. If you're going uphill, you'll go slower; if you're going downhill, you may go faster.

If I'm driving, maybe I'm comfortable at 25. If Mr. Griffin is driving, maybe he's comfortable at 30. That's a speed you will not go over. That's not a speed that you will do. You have to understand that.

Down at line 5, it enhanced rail safety

program. The City of Reno lobbyists, in conjunction with my union, the United Transportation Union, lobbied the legislature hot and heavy this past session for two more railroad inspectors. One would be stationed in Reno at the Sparks area, Reno-Sparks, the other one would be in Las Vegas.

The railroad lost this fight. They thought that they had enough inspectors, and they lost. We got two more inspectors. They haven't been hired yet. The railroad says if they have to pick up the costs of these two inspectors, they're going to go to court. I've been told that by Mr. Wayne Horiuchi, Larry Bennett, Joe Gill.

So an enhanced safety program, I don't really know what that means. If you let the railroad inspect their own stuff, they've had nine fatalities this year. They had a guy coupled up in Elko here a couple months ago, 28 years' service. So enhanced safety, I'd look at with a jaundiced eye when they say they'll enhance their safety programs. Right now the UP has no safety program, in my mind.

I do not know where milepost 240 is, but I know what a hot box detector is. A hot box detector has nothing to do with hot brakes. A hot box detector has things to do with axles, bearings that are freezing up that's being -- a car is being drug, the wheel is not turning like it should, it heats up, they melt like butter.

I've seen axles melt right in half, they get so hot.

A hot box detector will tell you, and I will give it voice for voice, because I know what they're like in Las Vegas, where I railroad. "UP detector milepost 341." That's all you hear. You run your train over it. It could be a 7,000 foot train, it could be a 2000 foot train. A minute or two later you'll hear, "UP detector milepost 341, first hot box, axle 345 from head of train. North side."

So you get out your pencil and paper and you start thinking, gosh, 345 axles, I wonder where the heck that's at. So you get out your manifest and you start, well, the locomotive's got six axles and I got four locomotives, so there's twenty-four axles; so now I got to go -- and there's four axles per car, supposedly, so you know, you go down 345 axles, or wherever, and you're back in the middle of your train somewhere.

You stop your train. I walk back, because there's no caboose, there's just an engineer and conductor, so I'm going to do the UP stroll. I'm in no big hurry to get back there, you know, to be honest with you.

I get back there, and I'm looking for this hot box. Well, this may be number 345, I may be off an axle or two. But the rule states you will check five cars ahead and five cars behind. So basically you've looked at ten cars.

And you'll go along and you'll feel the axle.

If it's too hot, okay, it must be a hot box. You'll set it out. If you don't find any hot axle, you stroll back up to the head of your train and you get back on and continue on your way.

If you go over another detector and it tells you the same thing, the car has to be set out, whether it's hot or not. If you get two indications that says it's a hot box, okay, set it out.

If it's a dangerous load, and it says it's a hot box, chlorine, sulfuric acid, whatnot, that car has to be set out no matter what. That's a safety issue.

Now, I'm not are here to throw darts at the Union Pacific Railroad, but you have to understand that these people, and I agree with you, they've kind of run roughshod over the good citizens of Reno in this merger.

If I can answer any questions, I'd be more than happy to.

MAYOR GRIFFIN: Quick question. I'm sorry. Go ahead, Tom.

COUNCILMEMBER HERNDON: Well, Mr. Fetters, I heard just recently from my brother-in-law, who just retired as a conductor, I guess the UP -- that UP wants to eliminate the conductors now and apparently have the engineers do the company stroll.

JACK FETTERS: Well, that has been bandied

about at times. I know in Canada, Viarail is phasing out conductors to where there will only be one man on a train; but I think that's passenger train.

Now, if it comes to the point of getting rid of the conductors, I can assure you the UTU will fight hot and heavy to keep -- I believe we should -- they've cut into muscle, instead of making theirselves a lean, mean machine. They have gotten rid of too many people, they have cut corners, and safety has suffered as a result.

COUNCILMEMBER HERNDON: My other question has to do with -- because I -- what happens when you did pull that train, as far as -- you know, if you have a light -- an empty boxcar in the middle and you lock them up on that engine, what happens to those light cars in the middle?

JACK FETTERS: Well, it all depends if you're going uphill or downhill, if you're on level ground. I would be more concerned if it was an empty flat car, because those are really light cars compared to covered top --

COUNCILMEMBER HERNDON: More so than a --

JACK FETTERS: They pop off the rail rather easy. You brought up a mention about train placement of stuff. If I'm working the head end of a train and I have to pick up a car, I'm going to pick it up on the head end. I'm not going to set it -- a hazardous car, like I said, chlorine, oxidizers, anything that's hazardous, cannot be

nearer than the sixth car from the head end of a train. It can be the rear car. But it can't be any closer than the sixth head car. That is a federal guideline, federal rights. Hazardous Material Act is what it's called.

COUNCILMEMBER HERNDON: That's to protect you guys, isn't it?

JACK FETTERS: Yeah, basically. It used to be you couldn't be from the sixth car from the caboose, but there's no cabooses no more; so as long as it's not nearer than the sixth car, it can be anywhere in the train.

I might also add that in April of this year there was a derailment in the Arden yard outside of Las Vegas. Three loaded chlorine cars from Pioneer Chemicals were tipped on their sides. The outer skin of one chlorine car was punctured.

Now, a tank car is basically a thermos bottle on wheels. They have an outer skin, then you have fiberglass insulation, then you have the tank itself. So it's not like a tanker in a ship or something. It's got two skins, basically.

The outer skin was ruptured, was cut. There was no chlorine leaked or not. The Union Pacific Railroad did not call anybody. They did not call Pioneer Chemical, they did not call Chem Trek, who is the hazardous response team that they were supposed to do, they basically went and

cleaned the mess up and didn't tell anybody in the City of Las Vegas what happened in the Arden yard.

That's a possibility that can happen here. I'm not saying that it will. But when UP starts talking safety, I would look at them with a jaundiced eye. I really would. And that's my own personal opinion.

COUNCILMEMBER PEARCE: I just have a question. You were talking about like if you identify -- you trigger two of those things and the car that you have has chemicals in it, that you set out the car. Now, explain to me what that means if you're like -- well, if you're coming into Reno or something.

MAYOR GRIFFIN: You're thinking of ability to do it in the yard.

JACK FETTERS: There's no hot box detectors in yards.

COUNCILMEMBER PEARCE: No, no, but what I'm asking is -- okay, you're -- because I don't quite understand. You're going along a track and it takes you a white to stop because it takes all this time to figure out where it is. Now you stop, now you figure out you need to set it out, as you put it. How do you do that right there?

JACK FETTERS: You don't. You take it to the next siding, and you set it out there, or the next track.

COUNCILMEMBER PEARCE: That's what I didn't

understand. Okay.

JACK FETTERS: You could be two or three miles between sidings. You'll leave part of your train there and take the bad order, we call it, up to the siding along with the rest of the train, whatever is, behind 20 deep or whatever, you'll set that car out, and then you'll go back to your train and continue your journey.

COUNCILMEMBER PEARCE: And then in the course of this, you're communicating with the railroad so they know that there's part of a train sitting on a track somewhere?

JACK FETTERS: There's signals that let you know that the block is occupied, is what they call it. You just don't go -- yes, in something like that you would you call the dispatcher, which is in Omaha, and you would say such and such train we got a hot box, I got to set it out, and they'll say okay, go do your thing, and you go set it out, and you come back and get your train all together and you tell them you're ready to go, and then you go on your way.

COUNCILMEMBER PEARCE: You are aware -- I guess I should ask, are you aware of the terrain that the train follows from Truckee to Reno?

JACK FETTERS: No, I'm not.

COUNCILMEMBER PEARCE: Okay. It's very mountainous there, and it's right on the river. And you

Well, decision 44 says you're going to have to do a couple of grade separations, it looks to us like. I mean, any reasonable reader of the English language would have that.

And when you listen to the engineers talk about grade separations in a built-up area like our downtown, they were talking in terms of, you know, someplace between 20 and 30 million dollars for each one of these. A grade separation, incidentally, can be the track over the road or the road over the track.

So you add all this up and you come up with somewhere in the order of 70, 75 maybe, some number millions of dollars as a minimum out of all of this.

And the thing about the preliminary mitigation plan that screws the negotiations is that tier one always was going to drive tier two; the bigger the number in tier one, the better chance you had to accomplish something in negotiations under tier two. And they took my number from somewhere between 70, 75, 80 million dollars and they took it down to 15 million dollars, by your own -- by our staff's own analysis.

And guess what, as a negotiater? I'm screwed. I have nothing to work with anymore. I don't have something out there that says hey, you're already going to have to pay 70, 80-some-odd million dollars, why don't you join with us, pay that and a little bit more and we'll solve this problem

I mean, it's like you want to build a house, you're going to be there and watch what's going on. You ain't going to say okay, call me in six months, I'll move in. You don't do that.

And especially with the railroad. They're getting ready to haul nuclear materials, they're hauling -- UP is the biggest shipper of hazardous materials in the nation, railroadwise. I can't say about trucking or not, but railroadwise there are. And there's a lot of nasty stuff going over rails.

COUNCILMEMBER NEWBERG: What if you get a hot box alert? You know, we talked about the nuclear shipments that are coming through. Would you set the car off?

JACK FETTERS: I would. I would.

COUNCILMEMBER NEWBERG: And we're going to set the car off somewhere around Woodland Avenue or something?

JACK FETTERS: I imagine if these nuclear shipments, when they do come, they're going to be heavily guarded; and if you set a car out, I imagine there will be somebody there with some kind of authority to stop trespassers.

COUNCILMEMBER NEWBERG: So there's not a good likelihood that UP will lose it somewhere and not know where it is?

JACK FETTERS: I wouldn't think something like

that. I would hope not, anyway.

COUNCILMEMBER PEARCE: Will that be up to the engineer, though? That's an interesting question. If what Councilman Newberg said happened, would it be a decision of the engineer?

JACK FETTERS: It's the decision of the conductor.

COUNCILMEMBER PEARCE: The conductor.

JACK FETTERS: The conductor is the boss on the train. The engineer gets all the glory, but me, being the conductor, I have the last say, you know, because I know what's back there.

And I want to mention something that was brought up also, something about manifests, that we don't know what we're hauling. When I look at a car -- I'll go to work and I'll get a wheeler, what we call them, it's a list of the train. We call them a wheeler. It will say such and such car, a load, how many tons it weighs. It will say mixed freight, you know, or FAK, freight all kinds. Mixed hazard.

If it's an absolute dangerous car, like chlorine, something like that, it will say -- you'll have a weigh bill that says chlorine, how many tons or how many gallons of this stuff is, you know, and where it's at in the train.

There's federal regulations that they have to let you know if it's a dangerous load where this dangerous load is in your train and where it's carrying. So it's not like you get on a train, oh, there's a tank car, I wonder what's in that. If it's dangerous, it will say -- you know, there will be a placard on the side of the car, for one thing, and on your manifest it will also say dangerous and what it contains and whatnot.

COUNCILMEMBER PEARCE: But to get back to what Councilman Newberg says, if there was a problem with any variety of that, and you're on the train, you don't, like, call Washington from the train and say what am I'm going to do, it's up to the conductor to make the decision. I didn't know that.

JACK FETTERS: Something like a nuclear train, maybe you --

MAYOR GRIFFIN: Those are exclusive trains, though --

JACK FETTERS: I would almost bet those are accompanied by half of the army.

COUNCILMEMBER PEARCE: Probably.

JACK FETTERS: You know, but I would say if the car is bad ordered, set it out. I mean, why jeopardize the rest of your train for one car. I mean, that's the thinking.

MAYOR GRIFFIN: I have one technical question, Mr. Fetters. If I can, just by way of deduction here, milepost 240, 242 is at Keystone and 238 is at Woodland, so somewhere around where McCarran crosses, I think, would be probably it.

I'm just -- I'm just curious on this whole process. When you go over one of these detectors and a hot -- and it indicates a hot box, I guess there's two questions -- what's your experience in terms of the frequency of that actually happening?

JACK FETTERS: Not very often.

MAYOR GRIFFIN: Oh, okay. And what would be the process? In other words, you pass something and it says you've got a melting axle or the equivalent of it, do you stop it right then and there, as soon as you get --

JACK FETTERS: Well, we're supposed to. It says -- like your 345th axle, well you figure out where that's at, you'll stop the train -- you know, if you're doing 50 miles an hour, it's going to take you a mile or two to stop.

MAYOR GRIFFIN: But I mean, you're going to stop it? You don't try to keep going to some convenient place to stop?

JACK FETTERS: No, no, no, no. The rule states you're supposed to stop the train, walk back, check

the car out; and if it's bad ordered --

MAYOR GRIFFIN: But the frequency of that is not that great, but it happens?

JACK FETTERS: One in twenty.

MAYOR GRIFFIN: One in twenty is a lot.

JACK FETTERS: That's just my experience. I mean, it doesn't happen a whole lot, I'll be honest with you, it really doesn't.

MAYOR GRIFFIN: Because if we're talking about 28 a day, that would be one a day when we stop that monster somewhere around Keystone.

JACK FETTERS: These hot boxes are not dependable either.

MAYOR GRIFFIN: I'm just personally concerned. I cross at Keystone all the time.

JACK FETTERS: Yeah, a hot box will say integrity failure, also. Well, that means the hot box is not working. So you got to go to the next one. And you reduce your speed to 35 miles an hour unless somebody, another employee is giving you a roll-by that says, you know, your train is okay to go.

MAYOR GRIFFIN: Okay. Great Appreciate it, Mr. Fetters.

JACK FETTERS: Thank you, sir.

MAYOR GRIFFIN: Thank you. Okay. We do have

a motion, and I know that that there will be an opportunity for any other comments at that particular time, but it sounds like we've pretty much given some here.

Care to make a motion, which is to give staff direction?

COUNCILMEMBER PEARCE: Councilman Herndon is our railroad authority.

COUNCILMEMBER HERNDON: I'll move to direct staff to prepare comprehensive comments to the SEA's PMP addressing significant health and safety concerns and file these comments on or before October 15th, 1997. I further move to direct the City's legal counsel to continue pursuing litigation and to seek a full environmental impact statement.

You know, I have a little problem with this, though. We just say health and safety concerns, and personally I think we need to address environmental -- or economic concerns, also.

MAYOR GRIFFIN: Your motion noting all the comments --

COUNCILMEMBER HERNDON: Yeah, noting specifically all the comments and discussions that have been taking place at this table.

MAYOR GRIFFIN: Is there a second?

COUNCILMEMBER PEARCE: Second.

MAYOR GRIFFIN: Discussion? Dave?

COUNCILMEMBER AIAZZI: The only discussion I'll make, coming late, this started before I got into office, but I'm a bit confused about this report.

In January Union Pacific came to us and said we think that burying the tracks would be the best idea. We just also agreed that burying the tracks would be the best idea. So I thought at that time we had some sort of agreement as to mitigation would be to put the tracks underground.

They gave us the letter in January stating that they would be able to do this without any impact financially to the City of Reno; although everyone agreed that this is the reasonable thing to do was just finding the money. We didn't particularly believe them that they would find the money, so we went to our legislature and found sales tax money to do this.

So this report to me, it sort of stymies me, because I thought we had the solution. I thought we had come to an agreement with the UP as to what the best solution for this was, and this is sort of superfluous. All of this stuff would go away if we just agree that what we have to do is depress the tracks, and I thought that's what we had agreed to do is depress the tracks and now we're trying to find the money to do it.

I think that this report is -- I don't know if feeble is too big of a word, but I think it is, in what -- even UP has agreed that their requirements are up to 35 million dollars, and this report says 17.

The example that they're giving here, if I could equate that to a school zone, it's like if we increase the speed limit of the school zone to 45 miles an hour the kids will be safer crossing the street. I don't think that that's realistic.

What we're actually trying to do here is -- the railroad is the developer, and they're building a huge development in California that's going to increase the traffic through Reno, and we're just asking them to pay their mitigation fees, just like we would with any developer that's building something in Reno.

I don't think we're asking for anything exorbitant or anything out of line here. In fact, we're even offering to pay for half or near to it.

So I guess my only comment is I think that this is far short of what is necessary, even by the UP's standards, or by Reno City Council's standards, or the Reno citizens' standards, and I hope that the Surface Transportation Board looks at that as far less than was even agreed to by the Union Pacific Railroad months ago.

COUNCILMEMBER HERNDON: Give me my letter

back.

COUNCILMEMBER PEARCE: Mr. Mayor, that's also the main thing that we're -- our parallel path is the legal path.

MR. McNEELY: As far as what the Surface Transportation Board, the committee out here, has urged us to meet with Union Pacific to work out a settlement agreement and try to negotiate. But the same time we have a document like this, that does nothing but hurt that effort. So it's going to counter everything that even the Surface Transportation Board has urged us to do.

COUNCILMEMBER AIAZZI: I haven't seen anything where we are actually opposing the merger or opposing Union Pacific. We're just trying the get them to pay for the mitigation of increased traffic, because, like you say, if a developer built a huge development and traffic on the road is increased, we would ask them to pay to fix the roads. It seems fairly clear-cut to me.

COUNCILMEMBER PEARCE: And we want somebody to address our quality-of-life issue.

COUNCILMEMBER AIAZZI: Yes.

MAYOR GRIFFIN: Any other comments?

(No response.)

MAYOR GRIFFIN: A couple if I can, just to add a little more fuel to this whole thing. I think the thing

that's interesting in all of this is the burden -- in the tier one mitigation suggestions or compulsions, the burden seems to be substantially, if not exclusively, shifted to the City.

If one of these monsters blows up, well, we'll see it on television, as near as I can tell, is their safety concern. I think that this whole thing also grossly understates, vastly understates the increase in traffic. It is simply a question that not only the railroad has dodged consistently, but the Surface Transportation Board has dodged.

I think that it was significant that when this merger was approved preliminarily that the existing level of traffic was the limitation placed on them, yet here we find now -- I assume if they're going from 14 to 28 and we need to cut it in half by going 30 miles an hour, if they go to 56, it will be 60 miles an hour, it is absurd on the face of it.

And the last thing that is really bothering me is, I believe the Surface Transportation Board in this case has acted as a lobbying group for America's railroads. Their obligation is to America's citizens, not to the industry they're supposed to regulate. And this report seems to me to indicate how can we help this railroad make this merger work.

That is not, in my view certainly, what their obligation is. Their obligation is to the citizens of this country and particularly to the citizens of the City of Reno.

I would like those comments embraced somewhere in there that in my view the Surface Transportation Board has acted more as an ex officio part of the railroad industry, and I think that's entirely inappropriate.

MS. BELAUSTEGUI: So noted.

MAYOR GRIFFIN: All those in favor, please signify by saying aye.

(Councilmembers responded.)

MAYOR GRIFFIN: Opposed?

(No response.)

MAYOR GRIFFIN: Motion carries unanimously.

COUNCILMEMBER PEARCE: Mr. Mayor, would you compliment staff? I think that --

MAYOR GRIFFIN: I mean, it goes without saying that the staff has done just an outstanding job of not only following this kind of activity and putting in all the hours, but keeping a group of people who quite frankly are not railroad experts, are not technical or legal experts, you've done an outstanding job of keeping us informed, and also the citizens informed, as to the concern and the impact that this will have.

This is an issue that I think is government at its best, in the sense that what we don't want to have happen is that we have a practical example of the impact of this railroad merger by an accident indicating the health and safety concerns that you have so well stated, but that you are leading the charge that said this can happen, and you're to be complimented. I think the council feels that way unanimously as well.

Okay. Let's see. We are going to move on.

Okay. We're going to move on to item 6, the presentation by our legal counsel in Washington, Paul Lamboley, on issues associated with the railroad merger.

PAUL LAMBOLEY: Mr. Mayor, Members of the Council, thank you very much. And I want to be the first to echo the complimentary commentary that you offered to the staff. I will have to tell you that I have had as much pleasure in working with the staff, Stu and Stuart, Terry and Mark and Steve and others, but most particularly, I have to say to the city attorney that Merri Belaustegui-Traficanti has been an absolute delight, and I'm very pleased that the city manager has made her kind of a point person on all of this, because she signs off every telephone communication with, "Thank you for your help."

But I want to say simply, thank you for your help, because without this, as you've just pointed out, you

would not have been able to advance the City's interests as much as you have. This is a tremendously difficult case, and many of you were asking questions, and in this discourse that you just had, and my suggestion right away would be, if there is a transcript to be made of this, I would suggest and recommend that this kind of dialogue and conversation be made a part of the record to be submitted to the board as a post-review, if you will, knowing that it is as much free-wheeling, as much unrehearsed, but as genuine a conversation about the concerns and where you are really coming from.

So Mr. Mayor, I would make a suggestion, for your consideration, that the afternoon's discussion on this be transcribed and submitted to the board so that they can have the benefit, should they wish to, of reading -- they didn't have the pleasure of being here, but reading at least the record that you've developed on the fairness of your concerns and the roundness of your consideration of issues.

MAYOR GRIFFIN: Would they like the video?

PAUL LAMBOLEY: Well, that maybe, too. Visual impacts are tremendously important.

I will also make the observation that in response to the mayor, I think you -- your comment was well directed in many respects. It hurt a bit, because I have

served as a member of this very same regulatory agency, its predecessor agency, and there was always the fear that the regulators get too close to the industry they regulate; that the economic interest that you regulate drive some of the decision making.

What's at issue here is not the regulatory, economic regulatory interests of the rail industry but rather the public health and safety of the communities that are involved with that rail transportation service. And it includes not only the human environment, it does include the interrelated economic environment and the impacts of the society in which this operates. So there are very clear ground rules of what to look at.

The Council in Environmental Quality, CEQ, as it's called, has published the standing rules that govern what you do when you take a look at environmental assessments and environmental impact statements.

The reason why we're always behind the gun the 30 days that we have to respond to this report, it is because if this were an EIS, the rules require minimum 45 days, but because they at the outset, the board at the outset, has determined that there is no significant impact as a result of this merger, the FONSI determination, the FONSI allows them to make any set of rules they wish, and it's an ad hoc investigation. And that's what we've been

dealing with.

So when you compliment your staff, you must truly compliment them of coming on a learning curve that is terribly steep and time is very, very short. And none of them are railroad operations people. And all of this, as you heard from Mr. Fetters, is rail op material.

Hot boxes, mile posts, you know, it's one thing for us as -- when we were children to put pennies on the railroad and watch it get squashed, it's another thing to understand exactly what was going on in the entire system.

This system has 34,000 miles in 25 states. Reno lies at the center of the most important corridor that is a part of this system, and that's what's called the overland or central corridor. It links the Pacific Coast with the Midwest directly.

And we don't need to go through the history, but the profiling is terribly important, because as a matter of litigation, it's taken us a while to get people to appreciate precisely why rail service in this community is different in terms of the analysis, and it ought to have been because the railroad is no stranger to this community by a long shot. Been here a long time.

And interestingly enough, I remember anecdotely that when the railroad made the observation one

day that they were here first, reminding the City that they were here before the City became existent, that some of our friends from the tribal colony made the point that remember, white man, the native American was here first, in this territory.

And I think it was very important to kind of get a sense of what we're talking about and what we're doing. You can't make those global statements and make them stick with any sense, because they don't solve problems. All they do is drive people into advocacy. And that's where I will take you right now.

The advocacy situation that the City has been facing has been one that has been somewhat ongoing. After we filed our original notice of intention to participate, we promptly, in March of 1996, provided them with -- provided the board with a profile of the City and our community and why you have to take a good look at the City of Reno. That is a site specific difference between Reno and all other cities that may be evident on the system that's involved.

And I think we made a very good presentation. Your staff put it together with the help of many of the community, and it's important that -- I should add hastily that it's important that there is a community involvement which your outreach has proven to be a very significant, very diligent, and it has been very valuable.

It has always been a situation that if this community wants the solution to this problem, it can be achieved. If this community does not want it to be solved, it will not be that way. And I think we generally all know that.

There isn't -- in my judgment, I will have to tell you -- probably any agency, whether it's traditional or administrative, who is going to order certain things. It's just beyond their capacity to think about doing something like that. They will be -- the solution that we will probably best obtain for the future is one that will put a premium on our negotiations. But in order to effect them, we've had to become very serious and substantive litigators and advocates.

We have currently not only participated throughout the course of the proceedings before the Surface Transportation Board since March of 1996, providing not only our initial fact-finding summary to alert them to our community and our concerns, we have also provided them with initial comments on the first go-around, which were very substantial and, weighty about why you are probably going to miss the boat, but interestingly enough, and we say miss the boat, because at the outset the applicants identified the thresholds of air quality and noise th would be exceeded by their own proposed operation.

So it isn't something that was brand new. The applicants knew that in certain areas the threshold that measured rail operations would be exceeded. Reno was clearly one of those. And noted as being a nonattainment area for air quality for three air quality pollutants. We emphasized that to say take a good hard look, which is the requirement.

We commented again on the environmental reports. We have filed briefs. And we've also filed a petition for review. But during the course of the proceeding, we also filed a case against the board seeking to compel the ongoing study to be done under identified recognized ground rules for environmental investigation and documentation. The consequence of what I've just said to you is that the Surface Transportation Board in the City of Reno seemed to be always on collision courses over issues.

We have proceedings in both the 9th Circuit, which is in San Francisco, as well as the D.C. Circuit in Washington D.C. The case proceeding in the D.C. Circuit was one we initially filed in San Francisco in the 9th Circuit. It was the petition to review decision number 44. That's the decision which approved the merger and conditionally imposed certain anti-competitive conditions as well as some environmental responsibilities, most being the two studies; the study for Wichita and the study for the City of Reno,

in addition to a series of conditions that are generic.

They are essentially conditions, as you've seen, which can be translated into either consult with the people in the areas that you're operating with and the agencies that are affected, both federal and state, and follow the law; compliance. The suggestion is you have the right not to follow the law and not to comply with public health and safety requirements.

So the proceeding that we filed in San Francisco was consolidated with the proceeding that was filed by the City of Wichita. They filed in the D.C. Circuit. The consequence was the lottery occurs and, walla, the D.C. Circuit turns out to be the selected form of choice, not our choice, by a long shot, but the choice nonetheless.

The District Court here in Reno which was considering our mandamus request was faced with a motion to transfer, which we filed, to say remove this case to San Francisco to companion with our petition for review; that is, we want to consider not only the FONSI determination and the proceedings leading up to it, but we also want protection over the ongoing, continuing study that was going to occur after decision 44.

The government, for its part, filed a motion to dismiss. The government's position, I will tell you a

little bit about it, only because it's important in that you will see the inconsistency, as you've already touched on the inconsistency in other attributes of this.

Before the District Court here in Reno, in response to the City's motion to transfer, the government filed a motion to dismiss, arguing that the decision is now final, there is no intermediary, interlocutory ongoing internal relief necessary that is all subsumed by the final decision, decision number 44, and the review of that decision, which is now moved from San Francisco to Washington.

Well, we filed, after the District Court denied our motion to transfer, granted the government's motion to dismiss, we filed a request to appeal, and that's where the litigation is in the 9th Circuit, and that's what the subject is; and the subject is whether or not the Court of Appeal had a right to hear the case and hear the interlocutory interim remedies that we're seeking to sort out what the ongoing mitigation study was to be conducted by one of the ground rules.

We have filed our opening brief, the government's replied, and we filed on the 15th our reply. I will tell you this, that when you read the government's reply in San Francisco, they try and uphold the notion that this is a final decision.

As soon as the case, however, that we have filed in San Francisco was removed to Washington, by virtue of the lottery system, the government promptly moved before the D.C. Court of Appeals to sever the Reno case and to hold in it abeyance, arguing first that Reno is unique. The environmental questions for Reno are different than the rest of the questions that are presented by the other cases, and so they ought not to be consolidated.

Secondly, they argued to hold the matter in abeyance and delay review until a final decision is rendered by the board. Now, out here in the west, the decision was final. I guess in Washington it's not final.

There is a certain revolving-door attribute of positions taken by the government in this proceeding. If decision number 44 is not final, then there is no appellate jurisdiction anywhere.

What we did is file a contingency motion pointing that out not only opposing the severance or opposing the delay, but arguing that if indeed the government is right, that their decision is not final, then this whole matter ought to be dismissed or it ought to be transferred back to San Francisco where the proper venue was to start with.

That's going to be part of the proceedings in Washington, because typical of perhaps some of the things

and hold in abeyance that the government filed without prejudice making us respond to that during the briefs.

Now, there's a limitation on pages and words, which almost everybody hopes that lawyers would follow, but now we have to address an issue that I think is unnecessary, but the court wants to hear about it, and it's going to come out of the space available for us to talk about the FONSI determination and the absence of proper environmental investigation and documentation under EIS procedures; that is, the preparation of environmental impact under recognized investigative structure.

It isn't an ad hoc arrangement, it isn't we'll try this, if you respond we'll try something else. It is a very well defined and laid out procedural examination of public health and safety and the related social, economic, and historic, as well as endangered species, and particularly with that, the environmental impacts on biological species.

And I would hasten to add quickly that we signaled at the outset, and the railroad knew, that the cuiui fish and the Lahonton cutthroat trout were endangered species in this area, and they also knew that the native Americans with respect to the cuiui believed that it was a sacred fish and the waters which form the Truckee fishery for that fish are sacred waters. It's part of the water

compact and the water dispute.

This isn't something we're jumping up and making out later as being an issue. These are issues that this community has struggled with for a long time, everybody has been aware of it, and the railroad has people on site and on the ground, in country, as they say, and they've known it all along.

The consequence has been to have all these things ignored. They've known all about our community for a long, long time. But we've done a very good job and your staff, again the compliment is owed them in adequately profiling why Reno has such a unique claim to attention in this environmental impact and, as you've pointed out, the issue has not been opposition to the merger but rather the post-merger operations.

In fact, we have many people who have supported the merger and on record and the council has always supported the record on merger -- on merger on record saying, "We do not oppose the merger. In fact, we think that improved efficient safe rail transportation is an appropriate consideration and is an appropriate business change, and not only will the railroad itself be the beneficiary of that, this community would be the beneficiary of those opportunities.

There are many things that are of value. But

what has been of troubling concern is the public health and safety and the environmental questions which we consistently presented, we have the litigation in the 9th Circuit, we have litigation in the D.C. Circuit, they are all coming to a head at the same time in terms of briefing. Decisionally, they will probably start moving down the same parallel paths in time, we will probably not have decisions for six to eight months.

By then, we will have the second decision of the Surface Transportation Board, and you can surely anticipate what they will do now is move to introduce the new decision, the second decision, and it's going to be -- see, the argument will be very simple. We're entitled to two bites of the apple. We may have missed the first go-around with the FONSI but we've cured it because we've spent 18 months studying the problem, and so they're going to say, "Your Honors, while we did not choice to do an EIS, we did the equivalent of the EIS, kind of an EIS light, you know, one of those kinds of things." And hopefully we will be persuasive enough to say the obligation at the outset was not to make the determination that there was no significant impact but to make the determination with all that record that was committed to you at the time that there was a significant adverse impact on public health and safety which under law requires that you do an EIS, and the fact that you

did some other study and you called it a mitigation study is not the equivalent and is not the functional equivalent and is not the legal equivalent of an EIS, and we're asking that you do it and do it over, and the time will have to be invested to do the investigation and documentation process under an EIS properly.

I would suspect that the litigation will occupy some time, but what is going to develop really is the ongoing proceedings that continue before the board. For instance, not only are we going to file comments next week in the Reno mitigation plan, we are going to -- we have already asked if -- there are a series of letters and inquiries that the manager has made in the course of this process to say, "Tell us what's going on, give us some database, give us some information so we, too can evaluate what you are relying on, because if it's correct, fine, if it is not or needs some further evaluation, let us maybe supplement it, augment it, or explain it, if you don't understand it."

Many of those answers have not been forthcoming. One of the answers, one of the questions we posed and we posed at the outset, was to have the board tell us what the compensation was both in terms of its basis and the amount that was being paid to the independent consultants.

The independent consultants are authorized by law to be engaged by an agency. The independent consultants are generally engaged by the agency, presumed to work under the supervision and direction of that agency, but frequently then the resources available to fund that independent consultant for environmental investigation is paid for by the applicant. Not much different than, perhaps, you're familiar with in our gaming investigations. Licensee holders must as a part of their application fee fund the investigation of their background.

Well, similarly, the use of an environmental investigative third party consultant is authorized by law, was engaged in this case by the board, the railroad pays the fees. As a part of what we think was appropriate supervision, one would ask and think that the question could be answered. Well, what are these people being paid, and how are they being paid, and what's the basis for the compensation?

The response to that question that we posed in the fall came the first part of the year in January, and that was, "We don't get into those things. We can't tell you what they're being paid because we are not involved in the compensation of a third-party consultant."

We asked, again, through one of the manager's letters, if we could set aside a little time in the task

force meetings to cover some of this, just by way of information, to be helpful, to perhaps clear up some concerns and some confusions.

The answer was, "We're having no -- we're no longer having any more meetings." And so they reiterated the fact that on that issue we don't have any further information than what we gave you in January.

So we have now filed interrogatories, formal interrogatories, to ask the railroad if they would tell us what they have been paying the independent consultants and how they have been paying them, and what's the frequency and the basis for the payment.

We've also asked them to provide us with the databases and traffic studies and other things for a window period well beyond the five years that seem to be going on and identify those and tell us whether or not you have shared those with the independent consultant or whether the independent consultant has asked for them.

Because it's our general belief that no one spends five billion dollars without doing some studies, some business studies and business plans and can tell you how many trains they expect and what the traffic and tonnage and the revenue is going to be. They certainly can project the revenue, they certainly have to be able to understand the specifics that underlie the revenue projections.

We think there are an awful lot of studies that have not been evaluated, but that are probably in the railroad's office manuals -- or office manuals, office files, and can tell us an awful lot about what they plan on doing.

In response, we've also asked them to provide us traffic studies specifically with relationship to the Port of Oakland. Oakland has, as you know by reading this report, been publicly diminished as being any significant port on the West Coast. In about three paragraphs in the recent report from the board, they indicate that it's almost really too speculative to credit.

Now, some of you may have seen the Chronicle or other reports in which the -- I think there's about 300 acres from the naval property that was just really transferred over to the Port of Oakland. Oakland has, as the market's reported, undertaken a bond issue that there is a very ambitious program at the Port of Oakland to expand and become a significantly larger and important port.

The reason why that it should concern us is very simple. In the Ports of Los Angeles, Long Beach have a tremendous amount of what is referred to as domestic container traffic, and that is because of the high density of population, 40 to 50 percent of the traffic that comes in there stays within 500 miles for distribution. The rest of

it is the discretionary traffic that's carried by rail essentially a land bridge across the country to other parts, either the Midwest or East.

As you can quickly see, northern California does not have that same kind of domestic content. But as Asian-rim countries develop and as manufacturing and trade have increased, the Port of Oakland has understood that it can be a major, major player, and the traffic that would come into Oakland is traffic that would obviously be intermodal container traffic destined for other places than northern California.

Simply put, it's on the central corridor, over Donner, through Reno, on to the rest of the United States. This is the main line. It is now, because of the merger, 400 miles shorter than it was before in its bits and pieces. It has tremendous deficiencies, and Oakland understands.

In short, we are on the line that is the exit strategy for the Port of Oakland's development; and we've been talking seriously with the Port of Oakland about what is going on, but it has been diminished, and I think in very public ways, in this last report to suggest that they should not even be considered as being a contributor to increase traffic plans and projections for the central corridor in which we lie.

These are the kinds of issues that not only have we presented before leading up to decision 44, these are the kinds of issues we've been continually presented and will present again, as you heard from the staff, in the comments that are due next week.

We have been somewhat disappointed that they have not been fielded with -- and perhaps accorded the respect that we think they should be, and I hope, Mayor, that you are wrong, that the agency is not the -- too close, if you will.

MAYOR GRIFFIN: The Lobbying group was the term --

PAUL LAMBOLEY: I was just going to try to move a little different direction -- too close to the industry and is capable of making an independent assessment of what really is at stake in the Reno circumstance and the site-specific activities that we have emphasized and underlined and have done so, I think, with not only great science but really some great writing.

You do have some people on board that have not only gathered together some very well-documented scientific and databased presentations, but also have been able to effectively and persuasively write and make the presentations necessary to underline and emphasize why Reno is involved in this and why we are concerned and why these