

CHAPTER 2.0 RAIL LINE SEGMENT, RAIL YARD, AND INTERMODAL FACILITY IMPACTS ARIZONA

This chapter provides an analysis of the potential environmental impacts resulting from increased traffic on rail segments and increased activity at rail yards and intermodal facilities in Arizona as part of the proposed merger. In analyzing these impacts, the Surface Transportation Board's (Board) Section of Environmental Analysis (SEA), consistent with its environmental rules at 49 CFR Part 1105.7(e), specifically considered: (1) impacts to air quality, (2) impacts to noise, (3) impacts to local, regional and national transportation systems, and (4) impacts to safety.

The following rail line segments, rail yards, and intermodal facilities would meet or exceed the Board's environmental analysis thresholds:

- Yuma to Picacho (SP).
- Picacho to Tucson (SP).
- Tucson to Cochise (SP).
- Cochise to Lordsburg, New Mexico (SP).
- Yuma rail yard (SP).
- Phoenix rail yard (SP).
- Nogales rail yard (SP).
- Phoenix intermodal facility (SP).

Each rail line segment, rail yard, or intermodal facility is discussed in this chapter by impact category, as follows:

- Air quality (Section 2.1).
- Air quality at grade crossings (Section 2.2).
- Noise (Section 2.3).
- Transportation systems (Section 2.4).
- Safety (Section 2.5).

If a rail line segment, rail yard, or intermodal facility would not experience impacts in any one of these categories as a result of proposed merger, no analysis was necessary. Accordingly, no discussion is provided.

Chapter 1 of this volume describes the thresholds established for analysis of potential air quality and noise impacts and the methods used to evaluate these and other potential impacts.

2.1 Air Quality Analysis

Arizona contains five Air Quality Centrol Regions (AQCRs) with rail segments, rail yards, and/or intermodal facilities that would experience increased activity as a result of the proposed merger and thereby trigger one or more of the Board's thresholds for analysis. In each of these regions, increased emissions along the length of rail segments through the AQCR (sometimes over a distance of hundreds of miles) could result in a potential for adverse air quality impacts. SEA concludes that increased rail operation activities in these regions would result in increased emissions of nitrogen dioxide (NO₂), which contributes to the formation of ozone. Increases in emissions, however, would be partially offset by decreases in train activity on other segments.

Potential adverse impacts to air quality in these five AQCRs as a result of the proposed merger are discussed individually below.

2.1.1 Southeast Arizona (AQCR 501)

Rail operations in the Southeast Arizona AQCR (501) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of two rail segments (Tucson to Cochise and Cochise to Lordsburg, New Mexico), and the Nogales rail yard. There are no intermodal facilities in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Southeast Arizona AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The Southeast Arizona AQCR (501) includes the counties of Graham, Greenlee, Cochise, and Santa Cruz, portions of which are designated as nonattainment for sulfur dioxide (SO₂), total suspended particulates (TSP), and particulate matter (PM-10). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along the two rail segments and the rail yard. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the Southeast Arizona nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on three rail segments that pass through or are connected to the Southeast Arizona AQCR (501). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

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Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Tucson AZ	Cochise AZ	78	15.1	51%	27%
Cochise AZ	Lordsburg NM	85	14.6	48%	24%
Tucson AZ	Nogales AZ	63	0.3	25%	25%

Two of the three rail segments listed above (Tucson to Cochise and Cochise to Lordsburg, New Mexico) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The estimated increased emissions from these two segments are shown below. The impacts of these emissions are discussed below in the section on Analysis of Combined Activity.

Rail	AQCR	Esti	mated Increa	ise in Emissio	ons (tons per	year)
Segment	(ID No.)	HC	со	NO ₂	SO ₂	PM-10
Tucson - Cochise	501	11.2	34.9	261.2	18.9	5.7
Cochise - Lordsburg NM	501	5.4	16.7	125.3	9.1	2.7
Total		16.6	51.6	386.5	28.0	8.4

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Emissions from Increased Rail Yard Activity

The proposed merger would lead to an increase in rail yard activity of 22.6 percent in the Nogales Yard. This activity includes fueling, switching, and assembling of trains. The estimated increased emissions from this rail yard are shown below. The impacts of these emissions are discussed below in the section on Analysis of Combined Activity.

Rail Yard	AQCR	Estin	nated Increa	se in Emissio	ns (tons per	year)
	(ID No.)	НС	со	NO ₂	SO ₂	PM-10
Nogales	501	0.0	0.1	1.0	0.1	0.0

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen oxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Combined Activity

Rail	AQCR	Estin	Estimated Increase in Emissions (tons per year)				
Facility	(ID No.)	НС	СО	NO ₂	SO ₂	PM-10	
Rail Segments Total	501	16.6	51.6	386.5	28.0	8.4	
Rail Yards Total	501	0.0	0.1	1.0	0.1	0.0	
Total		16.6	51.7	387.5	28.1	8.4	

This section discusses the impact to the Southeast Arizona AQCR based on the combined' estimated emissions from the rail segments and the rail yard related to the proposed merger. The total estimated increase in pollutant emissions are listed below:

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Most of the estimated increases in pollutants that would result from the proposed merger in the Southeast Arizona AQCR (501) would be from the rail segments, which are not stationary sources. Pollutants from the Nogales rail yard facility would be lower than the EPA definition of significance (as defined in Prevention of Significant Deterioration at 40 CFR 51.166) for all pollutants. The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of ozone pollution in the Southeast Arizona AQCR, primarily from mobile rail segment emissions.

2.1.2 Pima (AQCR 502)

Rail operations in the Pima AQCR (502) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of two rail segments (Picacho to Tucson and Tucson to Cochise). There are no intermodal facilities or rail yards in this AQCR that exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Pima AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR. The Pima AQCR (502) includes Pima County, portions of which are designated as nonattainment for sulfur dioxide (SO₂), total suspended particulates (TSP), particulate matter (PM-10), and carbon monoxide (CO). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along the two rail segments. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the Pima nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changed activity on three rail segments that pass through or are connected to the Pima AQCR (502). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Tucson AZ	Cochise AZ	78	15.1	51%	27%
Picacho AZ	Tucson AZ	50	15.7	61%	39%
Tucson AZ	Nogales AZ	63	0.3	25%	25%

Two of the three rail segments listed above (Picacho to Tucson and Tucson to Cochise) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The estimated increased emissions from these two segments are shown below. The impacts of these emissions are discussed below in the section on Analysis of Activity.

Rail	AQCR	Estin	nated Increas	se in Emissio	ns (tons per	year)
Segment	(ID No.)	НС	со	NO ₂	SO ₂	PM-10
Tucson - Cochise	502	11.2	34.9	261.2	18.9	5.7
Picacho - Tucson	502	11.3	35.0	262.2	19.0	5.7
Total		22.5	69.9	523.4	37.9	11.4

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity



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pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Pima AQCR, primarily from mobile rail segment emissions.

2.1.3 Mohave-Yuma AQCR (503)

Rail operations in the Mohave-Yuma AQCR (503) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of two rail segments (West Colton, California to Yuma and Yuma to Picacho) and the Yuma rail yard. There are no intermodal facilities in this AQCR that exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Mohave-Yuma AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The Mohave-Yuma AQCR (503) includes the counties of Mohave and Yuma, portions of which are designated as nonattainment for particulate matter (PM-10). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along the two rail segments and the rail yard. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as all pollutants in the Mohave-Yuma nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changed activity on two rail segments that pass through or are connected to the Mohave-Yuma AQCR. The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin Station	Destination Station	Miles	Change in # of Trains/Day	%Change in Trains/Day	%Change in Tons/Year
Yuma AZ	Picacho AZ	203	13.4	52%	23%
W. Colton CA	Yuma AZ	195	11.1	40%	24%

Both of the rail segments listed above (West Colton, California to Yuma and Yuma to Picacho) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The estimated increased emissions from these two segments are shown below. The impacts of these emissions are discussed below in the section on Analysis of Combined Activity

Rail	AQCR	Estin	nated Increa	se in Emissio	ns (tons per	year)
Segment	(ID No.)	HC	со	NO ₂	SO2	PM-10
Yuma - Picacho	503	20.5	63.8	477.2	34.6	10.3
W. Colton CA - Yuma	503	0.1	0.5	3.4	0.2	0.1
Total		20.6	64.3	480.6	34.8	10.4

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Emissions from Increased Rail Yard Activity

The proposed merger would lead to an increase in rail yard activity of 58.6 percent in the Yuma Yard. This activity would include fueling, switching, and assembling of trains. The estimated increased emissions from this rail yard are shown below. The impacts of these emissions are discussed below in the section on Analysis of Combined Activity.

Rail Yard	AQCR	Estim	Estimated Increase in Emissions (tons per year)				
	(ID No.)	HC	СО	NO ₂	SO ₂	PM-10	
Yuma	503	0.0	0.1	0.7	0.0	0.0	

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Combined Activity

This section discusses the impact to the Mohave-Yuma AQCR based on the combined estimated emissions from the rail segments and the rail yard related to the proposed merger. The total estimated increases in pollutant emissions are listed below:

Rail	AQCR	Estin	nated Increas	se in Emissio	ns (tons per	year)
Facility	(ID No.)	HC	со	NO ₂	SO ₂	PM-10
Rail Segments Total	503	20.6	64.3	480.6	34.8	10.4
Rail Yards Total	503	0.0	0.1	0.7	0.0	0.0
Total		20.6	64.4	481.3	34.8	10.4

Key:

HC = hydrocarbons, CO = carbon monoxide, NO₂ = nitrogen dioxide, SO₂ = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Most of the estimated increase in pollutants that would result from the proposed merger in the Mohave-Yuma AQCR (503) would be from the rail segments, which are not stationary sources. Pollutants from the Yuma rail yard facility would be lower than the EPA definition of significance (as defined in Prevention of Significant Deterioration at 40 CFR 51.166) for all pollutants. The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Mohave-Yuma AQCR, primarily from mobile rail segment emissions.

2.1.4 Maricopa AQCR (504)

Rail operations in the Maricopa AQCR (504) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of one rail segment (Yuma to Picacho), the Phoenix rail yard, and the Phoenix intermodal facility. Based on increased activity levels as a result of the proposed merger, SEA examined the Maricopa AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The Maricopa AQCR (504) includes Maricopa County, portions of which are designated as nonattainment for total suspended particulates (TSP), particulate matter (PM-10), carbon monoxide (CO_2) , and ozone (O_3) . In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along one rail segment, the rail yard, and the intermodal facility. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the Maricopa nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changed activity on two rail segments that pass through or are connected to the Maricopa AQCR (504). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Yuma AZ	Picacho AZ	203	13.4	52%	23%
Picacho AZ	Phoenix AZ	71	-0.9	-31%	-31%

One of the two rail segments listed above (Yuma to Picacho) was assessed for air quality impacts because it would exceed the Board's analysis thresholds. The estimated increased emissions from this segment are shown below. The impacts of these emissions are discussed below in the section on Analysis of Combined Activity.

Rail	AQCR	Estimated Increase in Emissions (tons per year)					
Segment	(ID No.)	HC	со	NO ₂	SO ₂	PM-10	
Yuma - Picacho	504	17.1	53.1	397.7	28.8	8.6	

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Emissions from Increased Rail Yard Activity

The proposed merger would lead to an increase in rail yard activity of 25.3 percent in the Phoenix rail yard. This activity would include fueling, switching, and assembling of trains. The estimated increased emissions from this rail yard are shown below. The impacts from these emissions are discussed below in the section on Analysis of Combined Activity.

Rail Yard	AQCR	Estimated Increase in Emissions (tons per year)					
	(ID No.)	НС	со	NO ₂	SO ₂	PM-10	
Phoenix	504	0.2	0.5	3.5	0.3	0.1	

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

L.nissions from Increased Intermodal Activity

The proposed merger would lead to an increase in intermodal activity of 50 trucks per day at the Phoenix facility. The estimated increased emissions from this intermodal facility are shown below. The impacts of these emissions are discussed below in the section on Analysis of Combined Activity.

Intermodal Facility	AQCR	Estin	nated Increa	se in Emissio	ns (tons per	year)
	(ID No.)	HC	со	NO ₂	SO2	PM
Phoenix	504	1.3	6.0	7.1	0.2	1.3

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Combined Activity

This section discusses the impact to the Maricopa AQCR based on the combined estimated emissions from the rail segments, the rail yard, and the intermodal facility related to the proposed merger. The total estimated increase in pollutant emissions are listed below:

Rail	AQCR	Estimated Increase in Emissions (tons per year)					
Facility	(ID No.)	НС	со	NO ₂	SO ₂	PM-10	
Rail Segments Total	504	17.1	53.1	397.7	28.8	8.6	
Rail Yards Total	504	0.2	0.5	3.5	0.3	0.1	
Intermodal Facilities Total	504	1.3	6.0	7.1	0.2	1.3	
Total		18.6	59.6	408.3	29.3	10.0	

Key:

HC = hydrocarbons, CO = carbon monoxide, $NO_2 = nitrogen dioxide$, $SO_2 = sulfur dioxide$, PM-10 = particulate matter less than 10 microns in diameter

Most of the estimated increases in pollutants that would result from the proposed merger in the Maricopa AQCR (504) would be from rail segments, which are not stationary sources. Pollutants from the Phoenix rail yard facility and intermodal facility would be lower than the EPA

definition of significance (as defined in Prevention of Significant Deterioration at 40 CFR 51.166) for all pollutants. The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Maricopa AQCR, primarily from mobile rail segment emissions.

2.1.5 Central Arizona (AQCR 505)

Rail operations in the Central Arizona AQCR associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of two rail segments (Yuma to Picacho and Picacho to Tucson). There are no intermodal facilities or rail yards in this AQCR that exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Central Arizona AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The Central Arizona AQCR (505) includes the counties of Gila and Pinal, portions of which are designated as nonattainment for total suspended particulates (TSP) and particulate matter (PM-10). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along two rail segment and the rail yard. SEA concludes that increased rail operations would contribute to increased levels of ozone in the Central Arizona nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changed activity on three rail segments that pass through or are connected to Central Arizona AQCR (505). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination	Miles	Change in #	%Change	%Change
Otation	Station	willes	of Trains/Day	in Trains/Day	in ions/year
Picacho AZ	Phoenix AZ	71	-0.9	-31%	31%
Yuma AZ	Picacho AZ	203	13.4	52%	23%
Picacho AZ	Tucson AZ	50	15.7	61%	39%

Two of the three rail segments above (Yuma to Picacho and Picacho to Tucson) were

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assessed for air quality impacts because they would exceed the Board's analysis thresholds. The estimated increased emissions from these two segments are shown below. The impacts of these emissions are discussed below in the section on Analysis of Activity.

Rail	AQCR	Estimated Increase in Emissions (tons per year)					
Segment	(ID No.)	НС	со	NO ₂	SO ₂	PM-10	
Yuma - Picacho	505	11.2	34.9	261.3	18.9	5.7	
Picacho- Tucson	505	8.9	27.5	206.0	14.9	4.5	
Total		20.1	62.4	467.3	33.8	10.2	

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail divisions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Central Arizona AQCR, primarily from mobile rail segment emissions.

2.2 Air Quality Impacts at Grade Crossings

SEA assessed the overall air quality impacts of emissions from idling vehicles waiting at grade crossings. On average, annual emissions at a grade crossing with 5,000 vehicles per day would be 0.0021 ton of volatile organic compounds, 0.0013 ton of hydrocarbons, 0.0111 ton of carbon monoxide, and 0.0003 ton of nitrogen dioxide (NO₂) per train crossing. Traffic volumes of more than 5,000 vehicles per day would increase the estimated emissions accordingly. Railroad crossings tend to be grade-separated when roadway and/or train traffic volumes become high, so the air quality impacts at grade crossings would generally be relatively minor. In Arizona, most grade crossings carry 5,000 or fewer vehicles. SEA concludes that no adverse air quality impacts would result from increased grade crossing delays as a result of the proposed merger. Section 2.4.2 of this chapter contains information on the transportation impacts of grade crossing delays associated with increased rail segment activity.

2.3 Noise Analysis

SEA performed noise analyses to identify noise-sensitive land uses where the proposed changes in operations could result in increases in noise exposure that meet or exceed the Board's environmental analysis thresholds at 49 CFR 1105.7(e)(6). The following discussion provides an estimate of the number of noise-sensitive receptors (e.g., residences, schools, churches) where the Board's thresholds would be exceeded, potentially causing an adverse increase in noise exposure. The noise level impact assessment was based on the baseline and projected activity level data provided by UP/SP.

2.3.1 Increased Rail Segment Activity

West Colton, California to Yuma

This rail segment, which currently has 27.7 trains/day, would experience an increase of 11.1 trains/day (a 24.1 percent change in gross ton-miles per year) as a result of the proposed merger. The projected increase in train volume and gross ton-miles on this segment would cause less than a 2 dBA increase in the L_{dn} . No adverse noise impacts are expected.

Yuma to Picacho

This rail segment, which currently has 25.8 trains/day, would experience an increase of 13.4 trains/day (a 23 percent change in gross ton-miles per year) as a result of the proposed merger. The projected increase in train volume and gross ton-miles on this segment would cause less than a 2 dBA increase in the L_{dn} . No adverse noise impacts are expected.

Picacho to Tucson

This rail segment currently has 25.7 trains/day and would experience an increase of 15.7 trains/day (a change of 38.6 percent in gross ton-miles per year) as a result of the proposed merger. This change in through train activity would result in an increase in the L_{dn} of 2.1 dBA. Most of these noise impacts would occur at or near grade crossings where train horns are sounded as a warning. Currently, the noise impact zone at grade crossings extends approximately 750 feet perpendicular to the tracks, whereas after the proposed merger the noise impact zone would increase to 1,000 feet. The only large population center that could be affected by noise from this line segment is the City of Tucson.

The line segment cuts through the northwestern portion of Tucson, commencing at the yard along Aviation Parkway between 22nd and 36th Streets. Although much of the alignment is bordered by industrial and commercial land uses, there are some dense residential areas with

houses as close as 75 feet to the tracks. The industrial buildings near the tracks should provide some acoustical shielding for buildings farther from the tracks. Currently 110 residences, 3 schools, and 2 churches are within the 65 L_{dn} contour. An additional 113 residences, 1 school, and 1 church would lie within the post-merger 65 L_{dn} contour. Other communities along this segment include Rillito, Marana, Red Rock, and Picacho. However, none of these communities have sensitive receptors within either the current pre-merger or projected post-merger 65 L_{dn} contours.

With the projected level of train traffic as a result of the proposed merger, a total of 223 residences, 4 schools, and 3 churches would be located within the 65 L_{dn} contour, as shown below:

Community	Number of Sensitive Receptors							
		Pre-Merge	r	Post-Merger				
	Resid.	School	Church	Resid.	School	Church		
Tucson, AZ	110	3	2	223	4	3		
TOTAL	110	3	2	223	4	3		

NOISE SUMMARY PICACHO TO TUCSON (SP) LINE SEGMENT

Tucson to Cochise

This rail segment, which currently has 29.6 trains/day, would experience an increase of 15.1 trains/day (a 27.3 percent change in gross ton-miles per year) as a result of the proposed merger. The projected increase in train volume and gross ton-miles on this segment would cause less than a 2 dBA increase in the L_{dn} . No adverse noise impacts are expected.

Cochise to Lordsburg, New Mexico

This rail segment, which currently has 30.3 trains/day, would experience an increase of 14.6 trains/day (a 24.2 percent change in gross ton-miles per year) as a result of the proposed merger. The projected increase in train volume and gross ton-miles on this segment would cause less than a 2 dBA increase in the L_{dn} . No adverse noise impacts are expected.

2.3.2 Increased Intermodal Facility Activity

Phoenix

The SP Phoenix intermodal facility currently serves approximately 68 trucks per day. This facility is expected to realize an average increase of 50 trucks per day based on UP/SP projections. The increase in noise levels from the increased truck volume and the increased crane activity would generate an increase in the L_{dn} greater than the Board's impact criterion of 2 dBA. However,

there would be no noise impacts within the 65 dBA L_{dn} contour.

2.4 Transportation Systems

The Board's environmental rules at 49 CFR 1105.7(e)(2) require a description of the effects of the proposed merger on local and regional transportation systems. The primary transportation impacts of the proposed merger are related to: (1) additional truck traffic generated at those intermodal facilities where intermodal activity is projected to increase, and (2) increases in roadway delays at grade crossings as a result of increased train traffic on rail segments.

The impacts near intermodal facilities would result from increased truck traffic using local roadways to enter and exit the intermodal facility. For those facilities with an expected increase of 50 trucks or more per day, SEA analyzed the impacts of this increased traffic on the local roadway system in terms of increases in daily and peak hour traffic. SEA collected traffic count data from local and state transportation officials for this analysis. While the offsetting benefits of the proposed merger were not quantified at the local level, the traffic impacts from added truck traffic at intermodal facilities would be partially offset in many localities by truck-to-rail diversions and consolidation of operations. SEA concludes that the impacts from the single intermodal facility in Arizona would not cause adverse impacts on the local transportation system.

SEA addressed the concerns of local communities about increased traffic delays at grade crossings through an evaluation of vehicle delay and wait times at grade crossing locations. It is important to note that the acceptability of delays at grade crossings varies substantially based on local conditions such as the location of land uses by type, availability of alternative travel routes, the degree of use by emergency vehicles, and other local variables. While the time of delay at grade crossings would increase proportionately with the increase in train traffic, most of the grade crossings in Arizona carry fewer than 5,000 vehicles per day. SEA concludes that increases in vehicle delay and/or wait time due to merger-related operational changes would not be excessive.

2.4.1 Intermodal Facilities

Phoenix

The SP Phoenix facility is located on West Harrison Street. Truck transportation to the facility is via U.S. Route 60, Interstate 17 and 7th Avenue or 15th Avenue. This intermodal facility currently serves approximately 68 trucks per day. After the proposed merger, this facility would experience an average increase of 50 trucks per day based on UP/SP projections. SEA obtained Average Daily Traffic (ADT) counts for the vicinity of the intermodal facility from the City of Phoenix. A count performed in 1994 showed an ADT of 25,396 along 7th Avenue, north of Lincoln Avenue. The projected increase of 50 trucks per day at this facility represents a 0.4 percent increase in ADT on

7th Avenue. SEA concludes that this small increase would not cause any adverse impacts to local transportation systems.

2.4.2 Grade Crossings

In order to analyze the effects of the proposed merger on the roadway system at grade crossings, SEA determined the number of crossings along rail segments that would exceed the Board's analysis thresholds for air quality analysis. Approximate delays over the course of 24 hours were calculated, as were average queue lengths. While an increase in the number of trains would result in more crossing closings per day, the length of the queue at each individual crossing closing event would change only if the train length changes. Vehicle delay impacts at rail line segments in Arizona are summarized below.

West Colton, California to Yuma

Average rail traffic on the West Colton, California to Yuma line is proposed to increase from 27.2 to 38.8 trains per day, a train volume increase of about 43 percent. There are no grade crossings in the Arizona segment that ends in Yuma, less than a mile from the border.

Yuma to Picacho

On the 203-mile Yuma to Picacho line, average rail traffic is proposed to increase from 25.8 to 39.2 trains per day, a train volume increase of about 52 percent. There are 37 grade crossings along this segment, none of which have ADT counts greater than 5,000 vehicles per day. At typical and high speed grade crossings along the route (e.g., train speed of 70 mph), delay to vehicle traffic would increase from 38 minutes (pre-merger) to 58 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic would range from one to seven vehicles, and the corresponding delay per vehicle would vary from 1.04 to 1.07 minutes.

Picacho to Tucson

Average rail traffic on the Picacho to Tucson line is proposed to increase from 25.7 to 41.4 trains per, a train volume increase of about 61 percent. There are 14 grade crossings on this segment, 6 of which have ADT counts greater than 5,000 vehicles per day. At typical and low speed grade crossings along the route (e.g., train speed of 40 mph), delay to vehicle traffic would increase from 54 minutes (pre-merger) to 87 minutes (post-merger) over a 24-hour period. At the highest speed grade crossings (e.g., train speed of 70 mph), delay to vehicle traffic would increase from 38 minutes (pre-merger) to 61 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic would range from 1 to 35 vehicles, and the corresponding delay per vehicle would vary from 1.04 to 1.35 minutes.

Tucson to Cochise

On the Tucson to Cochise line, average rail traffic is proposed to increase from 29.6 to 44.7 trains per day, a train volume increase of about 51 percent. There are 14 grade crossings on this segment, 2 of which have ADT counts greater than 5,000 vehicles per day. At typical speed grade crossings along the route (e.g., train speed of 55 mph), delay to vehicle traffic would increase from 50 minutes (pre-merger) to 76 minutes (post-merger) over a 24-hour period. At the highest speed grade crossings (e.g., train speed of 70 mph) delay to vehicle traffic would increase from 44 minutes (pre-merger) to 66 minutes (post-merger) over a 24-hour period. At the lowest speed grade crossings (e.g., train speed of 40 mph), delay to vehicle traffic would increase from 62 minutes (pre-merger) to 93 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic would range from one to nine vehicles, and the corresponding delay per vehicle would vary from 1.04 to 1.35 minutes.

Cochise to Lordsburg, New Mexico

On the 85-mile Cochise to Lordsburg, New Mexico line, average rail traffic is proposed to increase from 30.3 to 44.9 trains per day, a train volume increase of about 48 percent. There are nine grade crossings in Arizona, none of which have ADT counts greater than 5,000 vehicles per day. At typical and high speed grade crossings along the route (e.g., train speed of 70 mph), delay to vehicle traffic would increase from 45 minutes (pre-merger) to 67 minutes (post-merger) over a 24-hour period. At the lowest speed grade crossings (e.g., train speed of 60 mph), delay to vehicle traffic would increase from 49 minutes (pre-merger) to 73 minutes (post-merger) over 24-hour period. The maximum queue length per train due to peak hour vehicle traffic would range from one to three vehicles, and the corresponding delay per vehicle would vary from 1.04 to 1.11 minutes.

2.5 Safety

SEA assessed a number of safety issues associated with the proposed merger, including the probability of increased accidents at grade crossings, and the risks associated with increased shipments of hazardous commodities.

2.5.1 Grade Crossing Safety

Accidents at grade crossings are a function of the number of trains, train speed, number of train tracks, grade crossing condition and warning facilities, roadway condition and number of lanes, and amount of roadway traffic. Since the proposed merger would not result in any new grade crossings and would affect only the number of trains passing through existing grade crossings, the probability of an increase in the number of accidents at grade crossings would

depend on the increased number of trains on rail segments. SEA concludes that the accident exposure in Arizona will range from an increase of 61 percent to a decrease of 31 percent depending on rail segment.

2.5.2 Hazardous Commodities

Certain rail line segments in Arizona are subject to heavy movements of chemicals and hazardous materials, as discussed in Chapter 1 of this volume. SEA has recommended mitigation measures in Section 2.8 of this chapter, "SEA Recommended Mitigation."

Federal regulations govern the transport of hazardous commodities. The proposed merger is not expected to affect the policies or operation of UP/SP concerning the type or quantity of hazardous commodities transported or the method of handling. A total of 420,000 and 305,000 hazardous commodity shipments were transported by UP and SP, respectively, in 1994. These shipments resulted in 118 reportable incidents for UP and 35 incidents for SP. Therefore, 99.98 percent of the shipments arrived at their destination without incident. The Applicants have noted that the consolidation of the companies will result in a "best practice" approach to hazardous commodity handling. SEA concludes that, using the same rate of safe transport, the projected increases in accidents and shipments of hazardous materials as a result of the proposed merger do not constitute a significant safety risk.

2.6 Summary of Agency Comments

In considering the potential environmental impacts of the increased rail line segment, rail yard, and intermodal facility activity associated with the proposed UP/SP merger, SEA sent consultation letters to various Federal, state, and local agencies on January 29, 1996. These letters, samples of which are included in **Volume 5**, Appendix D, Exhibits D-1 through D-9, provided early notification of this EA and requested information and comments on the effects to the environment of the proposed merger and related operational changes. Each letter included a state information packet and maps that listed the specific merger-related proposals. A sample packet is shown in **Volume 5**, Appendix D, Exhibit D-10. SEA contacted agencies by telephone to alert them to the distribution of the consultation letter and to confirm its receipt. The Applicant also contacted these agencies in preparation of the Environmental Report which accompanied the merger application. That correspondence and all responses were reviewed, verified, and considered by SEA in the preparation of this EA.

All comments received (through mid-March 1996) in response to the January 29th letter are shown in **Volume 5**, Appendix E, Exhibits E-1 through E-11. As necessary, SEA conducted additional consultation with agencies as shown in **Volume 5**, Appendix E, Table E-1. Agency comments regarding the proposed increases in rail line segment, rail yard, and intermodal facility

activities in Arizona are summarized below:

- Natural Resources Conservation Service does not have any comments on this proposal.
- Arizona Department of Environmental Quality does not have any comments on this proposal.

2.7 Suggested Mitigation

No specific mitigation measures were suggested for the proposed changes to rail line segment, rail yard, or intermodal facility operations in Arizona by the various parties consulted in the process of preparing the EA for the proposed merger. (See **Volume 5**, Appendices D and E, for agency consultation lists.)

2.8 SEA Recommended Mitigation

This section contains the mitigation measures that SEA recommends that the Board impose in any final decision approving the changes to rail line segment, rail yard, or intermodal facility operations in Arizona. SEA will consider all comments on the EA recommendation is final recommendation to the Board. The Board will consider SEA's recommendations and the environmental record in making its final decision. SEA's recommended mitigation is as follows.

Air Quality

 UP/SP shall consult with appropriate Federal, state, and local agencies responsible for regulating air quality in AQCRs 501, 502, 503, 504, and 505 concerning any possible mitigation measures to reduce any potential adverse emissions from the rail segments, rail yards, and intermodal facilities in these regions. UP/SP shall advise SEA of the results of these consultations.

Noise

 To reduce potential noise level impacts to sensitive receptors along the Yuma to Picacho, Picacho to Tucson, Tucson to Cochise, and Cochise to Lordsburg, New Mexico rail line segments, UP/SP shall consult with appropriate state and local agencies to develop noise abatement plans. The Applicant shall advise SEA of the results of these consultations and provide SEA with a copy of any resulting noise abatement plans.

- 2. To reduce potential noise level impacts to sensitive receptors near the Yuma, Phoenix, and Nogales rail yards, UP/SP shall consult with appropriate state and local agencies to develop noise abatement plans. The Applicant shall advise SEA of the results of these consultations and provide SEA with a copy of any resulting noise abatement plans.
- To reduce potential noise level impacts to sensitive receptors near the Phoenix intermodal facility, UP/SP shall consult with appropriate state and local agencies to develop noise abatement plans. The Applicant shall advise SEA of the results of these consultations and provide SEA with a copy of any resulting noise abatement plans.

Transportation and Safety

- UP/SP shall maintain all rail line and grade crossing warning devices according to Federal Railroad Administration Standards (49 CFR Part 213).
- UP/SP shall transport all hazardous materials in compliance with the U.S. Department of Transportation Hazardous Materials Regulations (49 CFR Parts 171 to 180).
- In the case of a hazardous materials spill, UP/SP shall follow appropriate emergency response procedures outlined in their Emergency Response Plans.

CHAPTER 3.0 RAIL LINE SEGMENT, RAIL YARD, AND INTERMODAL FACILITY IMPACTS ARKANSAS

This chapter provides an analysis of the potential environmental impacts resulting from increased traffic on rail segments and increased activity at rail yards and intermodal facilities in Arkansas as part of the proposed merger. In analyzing these impacts, the Surface Transportation Board's (Board) Section of Environmental Analysis (SEA), consistent with its environmental rules at 49 CFR Part 1105.7(e), specifically considered: (1) impacts to air quality, (2) impacts to noise, (3) impacts to local, regional and national transportation systems, and (4) impacts to safety.

The following rail line segments would meet or exceed the Board's environmental analysis thresholds:

- Paragould to Dexter Junction, Missouri (SP).
- Fair Oaks to Paragould (SP).
- Brinkley to Fair Oaks (SP).
- Pine Bluff to Brinkley (SP).

Each rail line segment is discussed in this chapter by impact category, as follows:

- Air quality (Section 3.1).
- Air quality at grade crossings (Section 3.2).
- Noise (Section 3.3).
- Transportation systems (Section 3.4).
- Safety (Section 3.5).

If a rail line segment would not experience impacts in any one of these categories as a result of proposed merger, no analysis was necessary. Accordingly, no discussion is provided.

Chapter 1 of this volume describes the thresholds established for analysis of potential air guality and noise impacts and the methods used to evaluate these and other potential impacts.

3.1 Air Quality Analysis

Arkansas contains two Air Quality Control Regions (AQCR) with rail segments that would experience increased activity as a result of the proposed merger, and thereby trigger one or more of the Board's thresholds for analysis. In each of these regions, increased emissions along the length of rail segments through the AQCR (sometimes over a distance of hundreds of miles) could result in a potential for adverse air quality impacts. SEA concludes that increased rail operation

activities in these regions would result in increased emissions of nitrogen dioxide (NO₂), which contributes to the formation of ozone. Increases in emissions, however, would be partially offset by decreases in train activity on other segments.

Potential adverse impacts to air quality in these two AQCRs as a result of the proposed merger are discussed individually below.

3.1.1 Central Arkansas (AQCR 16)

Rail operations in the Central Arkansas AQCR (16) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of a portion of one rail segment (Pine Bluff to Brinkley). There are no intermodal facilities or rail yards in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Central Arkansas AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The Central Arkansas AQCR (16) includes the counties of Chicot, Clark, Cleveland, Conway, Dallas, Desha, Drew, Faulkner, Garland, Grant, Hot Spring, Jefferson, Lincoln, Lonoke, Perry, Pope, Pulaski, Saline, and Yell, all of which are designated as in attainment. In considering the potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along one rail segment. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the Central Arkansas attainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changed activity on eight rail segments that pass through or are connected to the Central Arkansas AQCR (16). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Alexandria LA	McGehee AR	190	0.6	7%	19%
Bald Knob AR	N. Little Rock AR	54	-8.6	-19%	-7 %
Pine Bluff AR	Brinkley AR	71	9.0	40%	91%
McGehee AR	Pine Bluff AR	59	-0.7	-5%	17%
N. Little Rock AR	Texarkaria AR	156	-11	-32%	-8%
N. Little Rock AR	Van Buren AR	157	-0.1	-1%	1%
Pine Bluff AR	N. Little Rock AR	45	3.9	30 %	25%
Pine Bluff AR	Camden AR	72	7.9	38 %	57%



One of the eight rail segments listed above (Pine Bluff to Brinkley) was assessed for air quality impacts because it would exceed the Board's analysis thresholds. The estimated increased emissions from this segment are shown below. The impacts of these emissions are discussed below in the section on Analysis of Activity.

Rail	AQCR	Estimated Increase in Emissions by (tons per year)					
Segment	(ID No.)	НС	со	NO ₂	SO ₂	PM-10	
Pine Bluff - Brinkley	16	10.4	32.3	241.4	17.5	5.2	

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Central Arkansas AQCR, primarily from mobile rail segment emissions.

3.1.2 Northeast Arkansas (AQCR 20)

Rail operations in the Northeast Arkansas AQCR (20) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of four rail segments (Pine Bluff to Brinkley, Paragould to Dexter Jct., Brinkley to Fair Oaks, and Fair Oaks to Paragould). There are no intermodal facilities or rail yards in this AQCR that exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Northeast Arkansas AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The Northeast Arkansas AQCR (20) includes the counties of Arkansas, Clay, Craighead, Cross, Greene, Independence, Jackson, Lawrence, Lee, Mississippi, Monroe, Phillips, Poinsett, Prairie, Randolph, Saint Francis, Sharp, White, and Woodruff, all of which are designated as in attainment. In considering the potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along the four rail segments. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the



Northeast Arkansas attainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changed activity on 12 rail segments that pass through or are connected to Northeast Arkansas (20). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each segment would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Bald Knob AR	N. Little Rock AR	54	-8.6	-19%	-7%
Pine Bluff AR	Brinkley AR	71	9.0	40%	91%
Paragould AR	Dexter Jct. MO	69	6.3	39%	43%
Fair Oaks AR	Bald Knob AR	31	0.1	1%	8%
Brinkley AR	Fair Oaks AR	26	10.3	90%	98%
Memphis TN	Wynne AR	48	0.4	3%	20%
Memphis TN	Brinkley AR	69	-1.3	-12%	25%
Newport AR	Bald Knob AR	27	-8.7	-25%	-11%
Fair Oaks AR	Paragould AR	69	8.3	73%	69%
Paragould AR	Wynne AR	60	-1.7	-37%	-22%
Poplar Bluff AR	Newport AR	31	-7.7	-25%	-13%
Wynne AR	Fair Oaks AR	14	2.1	21%	35%

Four of the 12 rail segments listed above (Pine Bluff to Brinkley, Paragould to Dexter Jct., Brinkley to Fair Oaks, and Fair Oaks to Paragould) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The estimated increased emissions from these four segments are shown below. The impacts of these emissions are discussed below in the section on Analysis of Activity.

	*	

Rail	AQCR	Estin	nated Increas	e in Emissio	ns (tons per	year)
Segment (ID	(ID No.)	НС	со	NO ₂	SO ₂	PM-10
Pine Bluff - Brinkley	20	18.4	57.3	429.2	31.1	9.3
Paragould - Dexter Jct.	20	7.8	24.2	181.1	13.1	3.9
Brinkley - Fair Oaks	20	9.2	28.7	214.6	15.6	4.7
Fair Oaks - Paragould	20	17.3	53.8	402.5	29.2	8.7
Total		52.7	164.0	1227.4	89.0	26.6

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HC = hydrocarbons, CO = carbon monoxide, NO₂ = nitrogen dioxide, SO₂ = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity



The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Northeast Arkansas AQCR, primarily from mobile rail segment emissions.

3.2 Air Quality Impacts at Grade Crossings

SEA assessed the overall air quality impacts of emissions from idling vehicles waiting at grade crossings. On average, annual emissions at a grade crossing with 5,000 vehicles per day would be 0.0021 tons of volatile organic compounds, 0.0013 tons of hydrocarbons, 0.0111 tons of carbon monoxide, and 0.0003 tons of nitrogen dioxide (NO₂) per train crossing. Increases in traffic over 5,000 vehicles per day would increase the estimated emissions accordingly. Railroad crossings tend to be grade-separated when roadway and/or train traffic volumes become high, so the air quality impacts at grade crossings would generally be relatively minor. In Arkansas, most grade crossings carry 5,000 or fewer vehicles. SEA concludes that no adverse air quality impacts would result from increased grade crossing delays as a result of the proposed merger. Section 3.4.1 of this chapter contains information on the transportation impacts of grade crossing delays associated with increased rail segment activity.

3.3 Noise Analysis

SEA performed noise analyses to identify noise-sensitive land uses where proposed changes in operations could result in increased noise that meet or exceed the Board's environmental analysis thresholds at 49 CFR 1105.7(e)(6). The following reports the number of noise-sensitive receptors (e.g., residences, schools, churches) at which the Board's thresholds would be exceeded. The noise level impact assessment was based on baseline and projected activity level data provided by UP/SP.

3.3.1 Increased Rail Segment Activity

Pine Bluff to Brinkley

This rail segment, which currently has 22.6 trains/day, would experience an increase of 9.0 trains/day (a 91.3% change in gross ton-miles per year) as a result of the proposed merger. The projected increases would cause less than a 2 dBA increase in the L_{dn} . Therefore, no adverse noise impacts are expected.

Brinkley to Fair Oaks

This rail segment currently has 11.4 trains/day and would experience an increase of 10.3 trains/day (a change of 97.5% gross ton-miles per year) as a result of the proposed merger. This change in through train activity would result in an increase in the L_{dn} of 2.8 dBA along the alignment. The majority of noise impacts occur at or near grade crossings where train horns are sounded as a warning. Currently, the noise impact zone at grade crossings extends approximately 550 feet perpendicular to the tracks, whereas after the proposed merger the noise impact zone would increase to about 685 feet. Land use and noise impacts along the segment are described below.

<u>Fair Oaks</u>. The segment commences at the intersection with the east-west running tracks. There are scattered residences in this area, most relatively close to the tracks, and a church within 500 feet of the tracks. Currently, nine residences and one church are within the 65 L_{dn} contour. An additional four residences would lie within the post-merger contour.

<u>Hunter.</u> The tracks pass through Hunter with residences on both east and west sides. There are several grade crossings in Hunter. Currently 53 residences and 1 church lie within the 65 L_{dn} contour. An additional 23 residences would lie within the projected post-merger contour.

Brinkley. The tracks run north/south through Brinkley and the segment terminates at the

intersection with the east-west running tracks just north of Cypress Street. There are three grade crossings north of the termination point. There are numerous residences and six churches within 1000 feet of the track. Currently 76 residences and 4 churches lie within the 65 L_{dn} contour. The increased train traffic would draw an additional 22 residences and 2 churches in to the 65 L_{dn} contour.

<u>Other Communities</u>. Other small communities along this line segment affected by an increase in noise associated with the proposed UP/SP merger include: Hillemann, Zent, and Fargo. Collectively they have 20 residences within the 65 L_{dn} contour. An additional ten residences would be within the post-merger contour.

Currently 158 residences and 6 churches are within the 65 L_{dn} contour along this line segment. With the proposed increase in train traffic, this would increase by 59 residences and 2 churches, for a total of 217 residences and 8 churches within the post-merger 65 L_{dn} contour, as shown below:

	Number of Sensitive Receptors							
Community	Pre-Merger			Post-Merger				
	Resid.	School	Church	Resid.	School	Church		
Fair Oaks (South), AR	9	0	1	13	0	1		
Hillemann, AR	11	0	0	18	0	0		
Hunter, AR	53	0	1	76	0	1		
Zent, AR	5	0	0	8	0	0		
Fargo, AR	4	0	0	4	0	0		
Brinkley, AR	76	0	4	98	0	6		
TOTAL	158	0	6	217	0	8		

NOISE SUMMARY BRINKLEY TO FAIR OAKS (SP) LINE SEGMENT

Fair Oaks to Paragould

This line currently has 11.4 trains per day and would experience an increase of 8.3 trains/day (a change of 68.9% in gross ton-miles per year) as a result of the proposed merger. The change in train activity would increase the L_{dn} by 2.4 dBA. The majority of noise impacts occur at or near grade crossings where train horns are sounded as a warning. Currently, the noise impact zone at grade crossings extends approximately 550 feet perpendicular to the tracks, whereas after the proposed merger the noise impact zone would increase to about 650 feet. Land use and noise impacts along the segment are described below:

<u>Paragould.</u> The track runs north-south through the approximate center of town with 14 grade crossings. There are numerous residences on both sides of the track, shielded by commercial buildings for several blocks north and south of the Highway 412 intersection with the track. There has been significant new residential construction at the south end of town within 1000 feet of the track. Currently an estimated 284 residences, 1 school, and 2 churches are within the 65 L_{dn} contour. An additional 104 residences and 1 church would lie within the contour for the projected increase in train traffic.

<u>Brookland</u>. The track runs through the center of town with three grade crossings. There is a mix of commercial and residential buildings within 700 feet of the track. Currently 75 residences and 2 churches are within the 65 L_{dn} contour. An additional 25 residences would lie within the post-merger contour.

<u>Jonesboro</u>. The segment runs through the northern section of Jonesboro, and there are eight grade crossings. BN tracks just to the north of the SP alignment increase the distance to noise-sensitive land uses in that direction. There is residential land use south of the tracks through much of Jonesboro. Currently 168 residences and 2 churches are within the 65 L_{dn} contour and an additional 56 residences and 2 churches would be within the projected postmerger contour.

<u>Fisher</u>. Fisher has three grade crossings. There are three churches and a concentration of residences on both sides of the track within 700 feet. Currently 109 residences and 3 churches are within the 65 L_{dn} contour. An additional 34 residences are estimated to be within the projected 65 L_{dn} contour.

<u>Hickory Ridge</u>. Hickory Ridge has three grade crossings with a fairly dense concentration of residences near the tracks. There are also several schools and churches within 700 feet of the tracks. Currently 150 residences and 2 churches are within the 65 L_{dn} contour. This would increase by 26 residences and 1 school with the projected increase in train traffic along this segment.

<u>Fair Oaks.</u> The rail segment terminates in Fair Oaks at the intersection with the east-west running tracks. There are only scattered residences in Fair Oaks, most relatively close to the tracks. The only grade crossing is at the north end of town. There are currently six residences and one church which are within the 65 L_{dn} contour, and this would increase by two residences as a result of the proposed merger.

Other Communities. Other small communities along this line segment which would be affected by an increase in noise associated with the proposed merger include: Bethel, Jonesboro Jct., Otwell, Weiner, Waldenbur, Prittinger, and Tilton. Collectively these

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communities currently have 65 residences and 2 churches within the 65 L_{dn} contour. An additional 34 residences and 1 church would be within the projected post-merger contour.

Currently 857 residences, 1 school, and 14 churches are estimated to be within the existing 65 L_{dn} contour. With the projected increase in train activity, an additional 281 residences, an additional school, and 4 additional churches would be within the 65 L_{dn} contour for a post-merger total of 1138 residences, 2 schools, and 18 churches, as shown below:

	Number of Sensitive Receptors							
Community	Pre-Merger			Post-Merger				
	Resid.	School	Church	Resid.	School	Church		
Paragould, AR	284	1	2	388	1	3		
Bethel, AR	8	0	1	9	0	1		
Brookland, AR	75	0	2	100	0	2		
Jonesboro Jct., AR	4	0	0	4	0	0		
Jonesboro, AR	168	0	2	224	0	4		
Otwell, AR	11	0	0	18	0	0		
Weiner, AR	10	0	0	29	0	1		
Waldenburg, AR	10	0	1	13	0	1		
Fisher, AR	109	0	3	143	0	3		
Prittinger, AR	14	0	0	18	0	0		
Hickory Ridge, AR	150	0	2	176	1	2		
Tilton, AR	8	0	0	8	0	0		
Fair Oaks (North), AR	6	0	1	8	0	1		
TOTAL	857	1	14	1138	2	18		

NOISE SUMMARY FAIR OAKS TO PARAGOULD (SP) LINE SEGMENT

3.4 Transportation Systems

The Board's environmental rules at 49 CFR 1105.7(e)(2) require a description of the effects of the merger action on local and regional transportation systems. The primary transportation impacts of the proposed merger are related to: (1) additional truck traffic generated at those intermodal facilities where intermodal activity is projected to increase, and (2) increases in roadway delays at grade crossings as a result of increased train traffic on rail segments.

The impacts near intermodal facilities would result from increased truck traffic using local roadways to enter and exit the intermodal facility. For those facilities with an expected increase

of 50 trucks or more per day, SEA analyzed the impacts of this increased traffic on the local roadway system in terms of increases in daily and peak hour traffic. SEA collected traffic count data was collected from local and state transportation officials for this analysis. While offsetting benefits of the proposed merger were not quantified at the local level, the traffic impacts from added truck traffic at intermodal facilities would be partially offset in many localities by truck-to-rail diversions and consolidation of operations.

SEA addressed the concerns of local communities about increased traffic delays at grade crossing through an evaluation of vehicle delay and wait times at grade crossings. The acceptability of delays at grade crossings varies substantially based on local conditions such as the location of land uses by type, availability of alternative travel routes, the degree of use by emergency vehicles, and other local variables. While the time of delay at crossings would increase proportionately with the increase in train traffic, most of the grade crossings in Arkansas carry fewer than 5,000 vehicles per day. SEA concludes that increases in vehicle delay and/or wait time due to proposed merger-related operational changes would not be excessive.

The primary transportation impact resulting from the proposed merger would be related to local transportation systems around intermodal facilities. However, because there are no intermodal facilities in Arkansas that would experience an increase in truck traffic above the Board's analysis threshold as a result of the proposed merger, SEA concludes that there are no significant transportation impacts.

3.4.1 Grade Crossings

In order to analyze the effects of the proposed merger on the roadway system at railroad grade crossings, SEA determined the number of crossings along rail segments that would exceed the Board's analysis thresholds for air quality analysis. Approximate delays over the course of 24 hours were calculated as were average queue lengths. While an increase in the number of trains would result in more crossing closings per day, the length of the queue at each individual crossing closing event would change only if the train length changes. Vehicle delay impacts at rail line segments in Arkansas are summarized below.

Pine Bluff to Brinkley

Average rail traffic on the Pine Bluff to Brinkley line would increase from 22.6 to 31.3 trains per day, a train volume increase of about 39 percent. At low speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic due to the additional daily trains would increase from 60 minutes (pre-merger) to 84 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 50 mph), delay would increase from 42 minutes (pre-merger) to 59 minutes (post-merger) over a 24-hour period.

Brinkley to Fair Oaks

On the Brinkley to Fair Oaks line, average rail traffic would increase from 11.4 to 21.7 trains per day, a train volume increase of about 90 percent. At low speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic due to the additional daily trains would increase from 30 minutes (pre-merger) to 58 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 50 mph), delay would increase from 21 minutes (pre-merger) to 41 minutes (post-merger) over a 24-hour period.

Fair Oaks to Paragould

Average rail traffic on the Fair Oaks to Paragould line would increase from 11.4 to 19.7 trains per day, a train volume increase of about 73 percent. At low speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic due to the additional daily trains would increase from 30 minutes (pre-merger) to 53 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 50 mph), delay would increase from 21 minutes (pre-merger) to 37 minutes (post-merger) over a 24-hour period.

Paragould to Dexter Junction, Missouri

On the Paragould to Dexter Junction, Missouri line, average rail traffic is expected to grow from 16.0 to 22.3 trains per day, a train volume increase of about 39 percent. At low speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic due to the additional daily trains would increase from 43 minutes (pre-merger) to 60 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 50 mph), delay would increase from 30 minutes (pre-merger) to 42 minutes (post-merger) over a 24-hour period.

3.5 Safety

SEA assessed a number of safety issues associated with the proposed merger, including the probability of increased accidents at grade crossings, and the risks associated with increased shipments of hazardous commodities.

3.5.1 Grade Crossing Safety

Accidents at grade crossings are a function of the number of trains, train speed, number of train tracks, grade crossing condition and warning facilities, roadway condition and number of lanes, and amount of roadway traffic. Since the proposed merger would not result in any new grade crossings and would affect only the number of trains passing through existing grade crossings, the probability of an increase in the number of accidents at grade crossings would

depend on the increased number of trains on rail segments. SEA concludes that the accident exposure in Arkansas will range from an increase of 90 percent to a decrease of 32 percent depending on rail segment.

3.5.2 Hazardous Commodities

Certain rail line segments in Arkansas are subject to heavy movements of chemicals and hazardous materials, as discussed in **Chapter 1** of this volume. SEA has recommenced mitigation measures as in Section 3.8 of this chapter, "SEA Recommended Mitigation."

Federal regulations govern the transport of hazardous commodities. The proposed merger is not expected to affect the policies or operation of UP/SP concerning the type or quantity of hazardous commodities transported or the method of handling. A total of 420,000 and 305,000 hazardous commodity shipments were transported by UP and SP, respectively, in 1994. These shipments resulted in 118 reportable incidents for UP and 35 incidents for SP. Therefore, 99.98 percent of the shipments arrived at their destination without incident. The Applicants have noted that the consolidation of the companies will result in a "best practice" approach to hazardous commodity handling. SEA concludes that, using the same rate of safe transport, the projected increases in accidents and shipments of hazardous materials as a result of the proposed merger do not constitute a significant safety risk.

3.6 Summary of Agency Comments

In considering the potential environmental impacts of the increased rail line segment, rail yard, and intermodal facility activity associated with the proposed UP/SP merger, SEA sent consultation letters to various Federal, state, and local agencies on January 29, 1996. These letters, samples of which are included in **Volume 5**, Appendix D, Exhibits D-1 through D-9, provided early notification of this EA and requested information and comments on the effects to the environment of the proposed merger and related operational changes. Each letter included a state information packet and maps that listed the specific merger-related proposals. A sample packet is shown in **Volume 5**, Appendix D, Exhibit D-10. SEA contacted agencies by telephone to alert them to the distribution of the consultation letter and to confirm its receipt. The Applicant also contacted these agencies in preparation of the Environmental Report which accompanied the merger application. That correspondence and all responses were reviewed, verified, and considered by SEA in the preparation of this EA.

All comments received (through mid-March 1996) in response to the January 29th letter are shown in **Volume 5**, Appendix E, Exhibits E-1 through E-11. As necessary, SEA conducted additional consultation with agencies as shown in **Volume 5**, Appendix E, Table E-1. Agency comments regarding the proposed increases in rail line segment activities in Arkansas are

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summarized below:

- Arkansas Department of Pollution Control states that there are no significant adverse impacts.
- Arkansas Department of Transportation (DOT) recommends that final plans should be reviewed by DOT.
- Clark County is in complete agreement with the proposed merger.

3.7 Suggested Mitigation

No specific mitigation measures were suggested for the proposed changes to rail line segment operations in Arkansas by the various parties consulted in the process of preparing the EA for the proposed merger. (See **Volume 5**, Appendices D and E, for agency consultation lists.)

3.8 SEA Recommended Mitigation

This section contains the mitigation measures that SEA recommends the Board impose in any final decision approving the changes to rail line segment operations in Arkansas. SEA will consider all comments on the EA in making its final recommendation to the Board. The Board will consider SEA's recommendations and the environmental record in making its final decision. SEA's recommended mitigation is as follows.

Air Quality

 UP/SP shall consult with appropriate Federal, state and local agencies responsible for regulating air quality in AQCRs 16, 18, and 20, concerning any possible mitigation measures to reduce any potential adverse emissions from the rail segments in these regions. UP/SP shall advise SEA of the results of these consultations.

Noise

1. To reduce potential noise level impacts to sensitive receptors along the Pine Bluff to Brinkley, Brinkley to Fair Oaks, Fair Oaks to Paragould, and Paragould to Dexter Junction, Missouri rail line segments, UP/SP shall consult with appropriate state and local agencies to develop noise abatement plans. The Applicants shall advise SEA of the results of these consultations and provide SEA with a copy of any resulting noise abatement plans.

Transportation and Safety

- UP/SP shall maintain all rail lines and grade crossing warning devices according to Federal Railroad Administration Standards (49 CFR Part 213).
- UP/SP shall transport all hazardous materials in compliance with the U.S. Department of Transportation Hazardous Materials Regulations (49 CFR Parts 171 to 180).
- In the case of a hazardous materials spill, UP/SP shall follow appropriate emergency response procedures outlined in their Emergency Response Plans.
- 4. UP/SP shall conduct rail line capacity simulations to verify that the directional operations involving St. Louis, Missouri; Memphis, Tennessee; and Dallas, San Antonio, and Houston, Texas can be safely accomplished. These simulations should also include BN/Santa Fe train movements. UP/SP shall submit these simulations to FRA for its review and shall comply with FRA's recommendations. UP/SP shall submit its analysis, as well as FRA's findings to SEA for the following rail line segments:
 - Dexter Junction, Missouri to Paragould, Arkansas (SP).
 - Paragould to Fair Oaks, Arkansas (SP).
 - Poplar Bluff, Missouri to Newport, Arkansas (UP).
 - Newport to Bald Knob, Arkansas (UP).
 - Bald Knob to North Little Rock, Arkansas (UP).
 - North Little Rock to Texarkana, Arkansas (UP).
 - Fair Oaks to Brinkley, Arkansas (SP).
 - Texarkana, Arkansas to Marshall, Texas (UP).
 - Brinkley, Arkansas to Memphis, Texas (SP).
 - Brinkley to Pine Bluff, Arkansas (SP).
 - Pine Bluff to Camden, Arkansas (SP).
 - Camden to Lewisville, Arkansas (SP).
 - Lewisville, Arkansas to Texarkana, Texas (SP).
 - Memphis, Tennessee to Wynne, Arkansas (UP).
 - Wynne to Fair Oaks, Arkansas (UP).
 - Fair Oaks to Bald Knob, Arkansas (UP).
 - Lewisville to Shreveport, Louisiana (SP).
- UP/SP shall conduct a safety analysis of the SP line segment between Houston, Texas and Lewisville, Arkansas to determine the need for installing an Automatic

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Block Signal (ABS) system or a Centralized Traffic Control (CTC) system. This SP line between Houston and Lewisville comprises three line segments: Lewisville, Arkansas to Shreveport, Louisiana; Shreveport, Louisiana to Lufkin, Texas; and Lufkin to Houston, Texas. This analysis shall address, at a minimum, the added level of safety that these systems provide for train movements and rail break detection. UP/SP shall submit its analysis to FRA for its review and shall comply with FRA's recommendations. UP/SP shall submit its analysis, as well as FRA's findings, to SEA for the rail line segment from Lewisville, Arkansas to Shreveport, Louisiana.
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CHAPTER 4.0 RAIL LINE SEGMENT, RAIL YARD, AND INTERMODAL FACILITY IMPACTS CALIFORNIA

This chapter provides an analysis of the potential environmental impacts resulting from increased traffic on rail segments and increased activity at rail yards and intermodal facilities in California as part of the proposed merger. In analyzing these impacts, the Surface Transportation Board's (Board) Section of Environmental Analysis (SEA), consistent with its environmental rules at 49 CFR Part 1105.7(e), specifically considered: (1) impacts to air quality, (2) impacts to noise, (3) impacts to local, regional and national transportation systems, and (4) impacts to safety.

The following rail line segments, rail yards, and intermodal facilities would meet or exceed the Board's environmental analysis thresholds:

- Sacramento to Roseville (SP).
- Roseville to Marysville (SP).
- Marysville to Dunsmuir (SP).
- Dunsmuir to Klamath Falls, Oregon (SP).
- Roseville to Sparks, Nevada (SP).
- Niles Junction to Oakland (UP).
- Oakland to Martinez (SP).
- Martinez to Stockton (Lathrop) (SP).
- Stockton (Lathrop) to Sacramento (UP).
- Palmdale to West Colton (SP).
- West Colton to Yuma, Arizona (SP).
- Long Beach to Slauson Junction (SP).
- Slauson Junction to Los Angeles (SP).
- Keddie to Bieber (UP).
- Montclair rail yard (UP).
- Niland rail yard (SP).
- Martinez rail yard (SP).
- Lathrop rail yard (SP).
- Roseville rail yard (SP).
- East Los Angeles intermodal facility (UP).
- Oakland intermodal facility (UP).
- Oakland intermodal facility (SP).
- Lathrop intermodal facility (UP).
- Roseville intermodal facility (SP).





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category, as follows:

- Air quality (Section 4.1).
- Air quality at grade crossings (Section 4.2).
- Noise (Section 4.3).
- Transportation systems (Section 2.4).
- Safety (Section 2.5).

If a rail line segment, rail yard, or intermodal facility would not experience impacts in any one of these categories as a result of proposed merger, no analysis was necessary. Accordingly, no discussion is provided.

Chapter 1 of this volume describes the thresholds established for analysis of potential air quality and noise impacts and the methods used to evaluate these and other potential impacts.

4.1 Air Quality Analysis

California contains seven Air Quality Control Regions (AQCR) with rail segments, rail yards, and/or intermodal facilities that would experience increased activity as a result of the proposed merger. and thereby trigger one or more of the Board's analysis thresholds for analysis. In each of these regions, increased emissions along the length of rail segments through the AQCR (sometimes over a distance of hundreds of miles) could result in a potential for adverse air quality impacts. SEA concludes that increased rail operation activities in these regions would result in increased emissions of nitrogen dioxide (NO₂), which contributes to the formation of ozone. Increases in emissions, however, would be partially offset by decreases in train activity on other segments. of the seven AQCRs in California (Metropolitan Los Angeles, San Joaquin Valley, Southeast Desert, and Mountain Counties) are designated as nonattainment for ozone.

Potential adverse impacts to air quality on these seven AQCRs as a result of the proposed merger are discussed individually below.

4.1.1 Metropolitan Los Angeles (AQCR 24)

Rail operations in the Metropolitan Los Angeles AQCR (24) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of four rail segments (Slauson Jct. to Los Angeles, Long Beach to Slauson Jct., Palmdale to West Colton, and West Colton to Yuma, Arizona), the Montclair rail yard, and the East Los Angeles intermodal facility. Based on increased activity levels as a result of the proposed merger, SEA examined the Metropolitan Los Angeles AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The Metropolitan Los Angeles AQCR (24) includes the counties of Ventura, Orange, and portions of Riverside, San Bernardino, Los Angeles, and Santa Barbara, counties. Portions of these AQCR counties are designated as nonattainment for nitrogen dioxide (NO_2), total suspended particulates (TSP), particulate matter (PM-10), carbon monoxide (CO), and ozone (O_3). In considering the potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along four rail segments, the rail yard, and the intermodal facility. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the Metropolitan Los Angeles nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changed activity on 18 rail segments that pass through or are connected to Metropolitan Los Angeles AQCR (24), the total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Bartelo	Los Nietos	4	-4.6	-70%	-62%
Burbank Jct.	Oxnard	55	-1.9	-10%	-13%
Burbank Jct.	Palmdale	57	-1.6	-10%	-15%
City of Industry	Los Angeles (via SP)	19	2.5	8%	-4%
City of Industry	Bartelo (via UP)	8	2.0	6%	-7%
City of Industry	Los Angeles	14	2.0	6%	-7%
Colton	Riverside	10	2.7	5%	12%
Los Angeles	Burbank Jct.	8	-3.1	-9%	-27%
Slauson Jct.	Los Angeles	6	6.2	32%	-5%
Los Nietos	Slauson Jct.	9	-4.6	-70%	-63%
Oxnard	Santa Barbara	37	-1.9	-18%	-13%
Riverside	City of Industry	40	0.1	0%	13%
Santa Barbara	San Luis Obispo	119	-1.9	-18%	-15%
Long Beach	Slauson Jct.	14	3.6	16%	-19%
Palmdale (via Hiland)	W. Colton	80	3.9	42%	49%
W. Colton	City of Industry	34	2.8	7%	-32%
Yermo	Colton	99	-3.9	-18%	3%
W. Colton CA	Yuma AZ	195	11.1	40.8%	24%

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Four of the 18 rail segments listed above (Slauson Jct. to Los Angeles, Long Beach to Slauson Jct., Palmdale to W. Colton, and W. Colton to Yuma, Arizona) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The estimated increased emissions from these four segments are shown below. The impacts of these emissions are discussed in the section on Analysis of Combined Activity.

Rail	AQCR	Estin	nated Increas	e in Emissio	ns (tons per	year)
Segment	(ID No.)	НС	CO	NO ₂	SO ₂	PM-10
Slauson Jct Los Angeles	24	-0.2	-0.5	-3.7	-0.3	-0.1
Long Beach - Slauson Jct.	24	-1.6	-5.0	-37.3	-2.7	-0.8
Palmdale - W. Colton	24	10.0	31.1	233.0	16.9	5.1
W. Colton - Yuma	24	6.0	18.6	139.6	10.1	3.0
Total		14.2	44.2	331.6	24.0	7.2

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Emissions from Increased Rail Yard Activity

The proposed merger would lead to an increase in rail yard activity of 31.2 percent in the Montclair Yard. This activity would include fueling, switching, and assembling of trains. The estimated increased emissions from this rail yard are shown below. The impacts of these emissions are discussed in the section on Analysis of Combined Activity.

Rail Yard	AQCR	Estir	nated Increas	se in Emissio	ns (tons per	year)
	(ID No.)	HC	CO	NO ₂	SO ₂	PM-10
Montc'air	24	0.1	0.2	1.3	0.1	0.0

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Emissions from Increased Intermodal Activity

The proposed merger would lead to an increase in intermodal activity of 587 trucks per day at the East Los Angeles facility. The estimated increased emissions from this intermodal facility are shown below. The impacts of these emissions are discussed in the section on Analysis of Combined Activity.

Intermodal	AQCR	Estin	nated Increas	se in Emissio	ns (tons per	year)
Facility	(ID No.)	HC	CO	NO ₂	SO ₂	PM-10
E. Los Angeles	24	15.0	70.1	82.8	2.3	14.7

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Combined Activity

This section discusses the impact to the Metropolitan Los Angeles AQCR based on the combined estimated emissions from the rail segments, the rail yard, and the intermodal facility related to the proposed merger. The total estimated increase in pollutant emissions are listed below:

Rail	AQCR	Estimated Increase in Emissions (tons per year)				
Facility	(ID No.)	HC	CO	NO ₂	SO ₂	PM-10
Rail Segments Total	24	14.2	44.2	331.6	24.0	7.2
Rail Yards Total	24	0.1	0.2	1.3	0.1	0.0
Intermodal Facilities Total	24	15.0	70.1	82.3	2.3	14.7
Total		29.3	114.5	415.2	26.4	21.9

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Almost all of the estimated increases in pollutants that would result from the proposed merger in the Metropolitan Los Angeles AQCR (24) would be from the rail segments, which are not stationary sources. Pollutants from the East Los Angeles intermodal facility would exceed the EPA definition of significance (as defined in Prevention of Significant Deterioration at 40 CFR 51.166) for NO₂. The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to



National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Metropolitan Los Angeles AQCR, primarily from mobile source rail segment emissions.

4.1.2 Northeast Plateau (AQCR 27)

Rail operations in the Northeast Plateau AQCR (27) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of two rail segments (Dunsmuir to Klamath Falls, Oregon, and Keddie to Bieber). There are no intermodal facilities or rail yards in this AQCR that exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Northeast Plateau AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The Northeast Plateau AQCR (27) includes the counties of Lassen, Modoc, Siskiyou, and portions of Shasta County. All of these counties are designated as being in attainment. In considering the potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along one rail segment. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the Northeast Plateau attainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changed activity on four rail segments that pass through or are connected to Northeast Plateau AQCR (27). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Dunsmuir CA	Klamath Falls OR	106	5.2	32%	10%
Flanigan NV	Keddie CA	103	-8.4	-52%	-52%
Flanigan NV	Klamath Falls OR	106	0.0	0%	0%
Keddie CA	Bieber CA	112	3.0	300%	60%

Two of the four rail segments listed above (Dunsmuir to Klamath Falls, Oregon, and Keddie to Bieber) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The estimated increased emissions from these two segments are shown below. The

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impacts of these emissions are discussed in the section on Analysis of Activity.

Rail	AQCR	Estin	nated Increas	se in Emissio	ns (tons per	year)
Segment	(ID No.)	HC	СО	NO ₂	SO ₂	PM-10
Dunsmuir - Klamath Falls	27	4.6	14.3	107.3	7.8	2.3
Keddie - Bieber	27	1.1	3.3	24.7	1.8	0.5
Total		5.7	17.6	132.0	9.6	2.8

Key:

HC = hydrocarbons, CO = carbon monoxide, NO₂ = nitrogen dioxide, SO₂ = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Northeast Plateau AQCR, primarily from mobile rail segment emissions.

4.1.3 Sacramento Valley (AQCR 28)

Rail operations in the Sacramento Valley AQCR (28) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of five rail segments (Dunsmuir to Klamath Falls, Oregon, Marysville to Dunsmuir, Roseville to Marysville, Sacramento to Roseville, and Stockton (Lathrop) to Sacramento). There are no intermodal facilities or rail yards in this AQCR that exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Sacramento Valley AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The Sacramento Valley AQCR (28) includes the counties of Butte, Colusa, Glenn, Sacramento, Sutter, Tehama, Yolo, Yuba, and portions of Shasta, and Solano Counties. Portions of these AQCR counties are designated as nonattainment for total suspended particulates (TSP), particulate matter (PM-10), carbon monoxide (CO), and ozone (O₃). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along

five rail segments. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the Sacramento Valley nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changed activity on nine rail segments that pass through or are connected to Sacramento Valley AQCR (28). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Dunsmuir CA	Klamath Fails OR	106	5.2	32%	10%
Keddie CA	Marysville CA	106	-8.0	-45%	-56%
Marysville CA	Dunsmuir CA	174	5.2	31%	10%
Marysville CA	Sacramento C.A	37	-6.3	-36%	-53%
Roseville CA	Marysville CA	34	3.5	21%	7%
Sacramento CA	Roseville CA	18	7.0	24%	49%
Sacramento CA	Martinez CA		2.5	14%	28%
Sacramento CA	Stockton CA	47	-9.7	-55%	-57%
Stockton	Sacramento CA	46	9.7	73%	56%
(Lathrop) CA			L		

Five of the nine rail segments listed above (Dunsmuir to Klamath Falls, Oregon, Marysville to Dunsmuir, Roseville to Marysville, Sacramento to Roseville, and Stockton (Lathrop) to Sacramento) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The estimated increased emissions from these five segments are shown below. The impacts of these emissions are discussed in the section on Analysis of Activity.

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Rail	AQCR	Estin	Estimated Increase in Emissions (tons per year)					
Segment	(ID No.)	НС	со	NO ₂	SO ₂	PM-10		
Dunsmuir - Klamath Falls	28	0.0	0.1	0.8	0.1	0.0		
Marysville - Dunsmuir	28	9.6	29.8	222.7	16.1	4.8		
Roseville - Marysville	28	0.5	1.5	11.0	0.8	0.2		
Sacramento- Roseville	28	4.9	15.2	114.0	8.3	2.5		
Stockton (Lathrop) - Sacramento	28	7.7	24.0	179.6	13.0	3.9		
Total		22.7	70.6	528.1	38.3	11.4		

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Sacramento Valley AQCR, primarily from mobile rail segment emissions.

4.1.4 San Francisco Bay (AQCR 30)

Rail operations in the San Francisco Bay AQCR (30) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of three rail segments (Oakland to Martinez, Niles Jct. to Oakland, and Martinez to Stockton (Lathrop), the Martinez rail yard, and the Oakland (UP) and Oakland (SP) intermodal facilities. Based on increased activity levels as a result of the proposed merger, SEA examined the San Francisco Bay AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The San Francisco Bay AQCR (30) includes the counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, and portions of Solano, and Sonoma Counties. Portions of these AQCR counties are designated as nonattainment for total suspended particulates (TSP) and carbon monoxide (CO). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along three rail segments, the rail yard, and the intermodal facilities. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the San Francisco Bay Area nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changed activity on six rail segments that pass through or are connected to San Francisco Bay AQCR (30). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Oakland CA	Martinez CA	32	6.9	27%	48%
Niles Jct. CA	Oakland CA	25	5.4	22%	6%
Sacramento	Martinez CA	57	2.5	14%	28%
CA					
San Jose CA	Niles Jct. CA	18	0.4	3%	-18%
Stockton CA	Niles Jct. CA	87	2.3	20%	-1%
Martinez CA	Stockton	48	4.0	N/A	N/A
(via Mococo)	(Lathrop) CA				

Three of the six rail segments listed above (Oakland to Martinez, Niles Jct. to Oakland, and Martinez to Stockton (Lathrop) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The estimated increased emissions from these three segments are shown below. The impacts of these emissions are discussed in the section on Analysis of Combined Activity.

Rail	AQCR	Estin	Estimated Increase in Emissions (tons per year)					
Segment	(ID No.)	HC	CO	NO ₂	SO ₂	PM-10		
Oakland -	30	3.6	11.2	83.6	6.1	1.8		
Martinez								
Niles Jct	30	0.5	1.6	12.0	0.9	0.3		
Oakland								
Martinez -	30	1.6	5.0	37.2	2.7	0.8		
Stockton								
(Lathrop)		l	l					
Total		5.7	17.8	132.8	9.7	2.9		

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Emissions from Increased Rail Yard Activity

The proposed merger would lead to an increase in rail yard activity of 29.1 percent in the Martinez Yard. This activity includes fueling, switching, and assembling of trains. The estimated increased emissions from this rail yard are shown below. The impacts of these emissions are discussed in the section on Analysis of Combined Activity.

Rail Yard	AQCR	Estin	nated Increas	se in Emissio	ons (tons per	year)
	(ID No.)	HC	со	NO ₂	SO ₂	PM-10
Martinez	30	0.1	0.3	1.9	0.1	0.0

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Emissions from Increased Intermodal Activity

The proposed merger would lead to an increase of 79 trucks per day at the Oakland (UP) facility, and an increase of 68 trucks per day at the Oakland (SP) facility. The estimated increased emissions from these two intermodal facilities are shown below. The impacts of these emissions are discussed in the section on Analysis of Combined Activity.

Intermodal	AQCR	Estimated Increase in Emissions (tons per year)					
Facility	(ID No.)	HC	CO	NO ₂	SO ₂	PM-10	
Oakland (UP)	30	2.0	9.4	11.1	0.3	2.0	
Oakland (SP)	30	1.7	8.1	9.6	0.3	1.7	
Total		3.7	17.5	20.7	0.6	3.7	

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Combined Activity

This section discusses the impact to the San Francisco Bay AQCR based on the combined estimated emissions from the rail segments, the rail yard, and the intermodal facilities related to the proposed merger. The total estimated increase in pollutant emissions are listed below:

Rail	AQCR	Estin	Estimated Increase in Emissions (tons per year)					
Facility	(ID No.)	HC	CO	NO ₂	SO ₂	PM-10		
Rail Segments Total	30	5.7	17.8	132.8	9.7	2.9		
Rail Yards Total	30	0.1	0.3	1.9	0.1	0.0		
Intermodal Facilities Total	30	3.7	17.5	20.7	0.6	3.7		
Total		9.5	35.6	155.4	10.4	6.6		

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Most of the estimated increases in pollutants that would result from the proposed merger in the San Francisco Bay Area AQCR (30) would be from the rail segments, which are not stationary sources. Pollutants from the Martinez rail yard facility and Oakland intermodal facilities would not exceed the EPA definition of significance (as defined in Prevention of Significant Deterioration at 40 CFR 51.166) for all pollutants. The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity.

regulations, the proposed merger would result in increased levels of all pollutants in the San Francisco Bay Area AQCR, primarily from mobile rail segment emissions.

4.1.5 San Joaquin Valley (AQCR 31)

Rail operations in the San Joaquin Valley AQCR (31) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of two rail segments (Martinez to Stockton (Lathrop) and Stockton (Lathrop) to Sacramento), the Lathrop rail yard, and the Lathrop intermodal facility. Based on increased activity levels as a result of the proposed merger, SEA examined the San Joaquin Valley AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The San Joaquin Valley AQCR (31) includes the counties of Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus, Tulare, and portions of Kern County. Portions of these AQCR counties are designated as nonattainment for total suspended particulates (TSP), particulate matter (PM-10), carbon monoxide (CO), and ozone (O₃). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along two rail segments, the rail yard, and the intermodal facility. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as all pollutants in the San Joaquin Valley nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changed activity on seven rail segments that pass through or are connected to San Joaquin Valley AQCR (31). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Bakersfield CA	Fresno CA	108	1.8	14%	23%
Fresno CA	Stockton/	106	1.6	12%	27%
	Lathrop CA				
Mojave CA	Bakersfield	67	1.9	14%	22%
	CA				
Sacramento	Stockton CA	47	-9.7	-55%	-57%
CA					
Stockton CA	Niles Jct. CA	87	2.3	20%	-1%
Martinez CA	Stockton	48	4.0	N/A	N/A
(via Mococo)	(Lathrop) CA				
Stockton	Sacramento	46	9.7	73%	56%
(Lathrop) CA	CA				

Two of the seven rail segments listed above (Martinez to Stockton (Lathrop) and Stockton (Lathrop) to Sacramento) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The estimated increased emissions from these two segments are shown below. The impacts of these emissions are discussed in the section on Analysis of Combined Activity.

Rail	AQCR	Estir	Estimated Increase in Emissions (tons per year)					
Segment	(ID No.)	HC	СО	NO ₂	SO ₂	PM-10		
Martinez -	31	1.5	4.6	34.4	2.5	0.7		
Stockton								
(Lathrop)								
Stockton	31	9.4	29.3	219.6	15.9	4.8		
(Lathrop) -								
Sacramento				1				
Total		10.9	33.9	254.0	18.4	5.5		

Key:

HC = hydrocarbons, CO = carbon monoxide, NO₂ = nitrogen dioxide, SO₂ = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Emissions from Increased Rail Yard Activity

The proposed merger would lead to an increase in rail yard activity of 66.1 percent in the Lathrop Yard. This activity includes fueling, switching of locomotives and of cars, and assembling of trains. The estimated increased emissions from this rail yard are shown below. The impacts of these emissions are discussed in the section on Analysis of Combined Activity.

Rail Yard	AQCR	Estir	nated Increas	se in Emissio	ns (tons per	year)
	(ID No.)	HC	CO	NO ₂	SO2	PM-10
Lathrop	31	0.2	0.6	4.2	0.3	0.1

Key:

HC = hydrocarbons, CO = carbon monoxide, $NO_2 = nitrogen dioxide$, $SO_2 = sulfur dioxide$, PM-10 = particulate matter less than 10 microns in diameter

Emissions from Increased Intermodal Activity

The proposed merger would lead to an increase of 103 trucks per day at the Lathrop facility. The estimated increased emissions from this intermodal facility are shown below. The impacts of these emissions are discussed in the section on Analysis of Combined Activity.



Intermodal	AQCR	Estin	nated Increas	se in Emissio	ns (tons per	year)
Facility	(ID No.)	HC	СО	NO ₂	SO ₂	PM-10
Lathrop	31	2.6	12.3	14.5	0.4	2.6

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Combined Activity

This section discusses the impact to the San Joaquin Valley AQCR based on the combined estimated emissions from the rail segments, the rail yard, and the intermodal facility related to the proposed merger. The total estimated increase in pollutant emissions are listed below:

Rail	AQCR	Estin	Estimated Increase in Emissions (tons per year)				
Facility	(ID No.)	HC	CO	NO ₂	SO ₂	PM-10	
Rail Segments Total	31	10.9	33.9	254.0	18.4	5.5	
Rail Yards Total	31	0.2	0.6	4.2	0.3	0.1	
Intermodal Facilities Total	31	2.6	12.3	14.5	0.4	2.6	
Total		13.7	46.8	272.7	19.1	8.2	

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Most of the estimated increases in pollutants that would result from the proposed merger in the San Joaquin Valley AQCR (31) would be from the rail segments, which are not stationary sources. Pollutants from the Lathrop rail yard facility and intermodal facility would not exceed the EPA definition of significance (as defined in Prevention of Significant Deterioration at 40 CFR 51.166) for all pollutants. The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest are see in NO₂. These estimates of increased emissions are conservative, however, because where on the account for offsetting decreases that could result from truck-to-rail diversions. Overally, and concludes that while the proposed action is not subject to National Ambient Air Quality and and General Conformity regulations, the proposed merger would result in increased levels of all pollutants and pollutants in the San Joaquin Valley AQCR, primarily from mobile rail segment emissions.

4.1.6 Southeast Desert (AQCR 33)

Rail operations in the Southeast Desert AQCR (33) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of two rail segments (Palmdale to W. Colton and W. Colton to Yuma, Arizona) and the Niland rail yard. There are no proposed intermodal facilities in this AQCR that exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Southeast Desert AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The Southeast Desert AQCR (33) includes Imperial County and portions of Kern, Los Angeles, Riverside, and San Bernardino. Portions of these AQCR counties are designated as nonattainment for total suspended particulates (TSP), particulate matter (PM-10), and ozone (O₃). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along two rail segments and the rail yard. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the Southeast Desert nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changed activity on eight rail segments that pass through or are connected to Southeast Desert AQCR (33). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Burbank Jct. CA	Palmdale CA	57	-1.6	-10%	-15%
Las Vegas NV	Yermo CA	160	-4.1	-19%	4%
Mojave CA	Bakersfield CA	67	1.9	14%	22%
Palmdale CA	Mojave CA	34	2.3	18%	30%
Palmdale CA (via Hiland)	W. Colton CA	80	3.9	42%	49%
Yermo CA	Mojave CA	69	0.9	3%	6%
Yermo CA	Colton CA	99	-3.9	-18%	3%
W. Colton CA	Yuma AZ	195	11.1	40%	24%

Two of the eight rail segments listed above (Palmdale to W. Colton and W. Colton to Yuma, Arizona) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The estimated increased emissions from these two segments are shown below. The impacts of these emissions are discussed in the section on Analysis of Combined Activity.

Rail	AQCR	Estir	nated Increas	se in Emission	ns (tons per	year)
Segment	(ID No.)	HC	CO	NO ₂	SO ₂	PM-10
Palmdale - W. Colton	33	3.0	9.3	69.6	5.0	1.5
W. Colton - Yuma	33	41.9	130.4	975.9	70.7	21.2
Total		44.9	139.7	1045.5	75.7	22.7

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Emissions from Increased Rail Yard Activity

The proposed merger would lead to an increase in rail yard activity of 20.4 percent in the Niland Yard. This activity includes fueling, switching, and assembling of trains. The estimated increased emissions from this rail yard are shown below. The impacts of these emissions are discussed in the section on Analysis of Combined Activity.

Rail Yard	AQCR	Estin	nated Increa	se in Emissio	ons (tons per	year)
	(ID No.)	HC	со	NO ₂	SO ₂	PM-10
Niland	33	0.0	0.1	1.0	0.1	0.0

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Combined Activity

This section discusses the impact to the Southeast Desert AQCR based on the combined estimated emissions from the rail segments and the rail yard related to the proposed merger. The total estimated increase in pollutant emissions are listed below:

Rail	AQCR	Estimated Increase in Emissions (tons per year)					
Facility	(ID No.)	HC	со	NO ₂	SO ₂	PM-10	
Rail Segments Total	33	44.9	139.7	1045.5	75.7	22.7	
Rail Yards Total	33	0.0	0.1	1.0	0.1	0.0	
Total		44.9	139.8	1046.5	75.8	22.7	

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Almost all of the estimated increases in pollutants that would result from the proposed merger in the Southeast Desert AQCR (33) would be from the rail segments, which are not stationary sources. Pollutants from the Niland rail yard facility would not exceed the EPA definition of significance (as defined in Prevention of Significant Deterioration at 40 CFR 51.166) for all pollutants. The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Southeast Desert AQCR, primarily from mobile rail segment emissions.

4.1.7 Mountain Counties (AQCR 508)

Rail operations in the Mountain Counties AQCR (508) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of four rail segments (Keddie to Bieber, Roseville to Marysville, Sacramento to Roseville, and Roseville to Sparks, Nevada), the Roseville rail yard, and the Roseville intermodal facility. Based on increased activity levels as a result of the proposed merger, SEA examined the Mountain Counties AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The Mountain Counties AQCR (508) includes the counties of Amador, Calaveras, Mariposa, Nevada, Pinmas, Sierra and Tuolumne, and portions of Placer and El Dorado Counties. Portions of these AQCR counties are designated as nonattainment for ozone (O₃). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along the rail segments, the rail yard, and the intermodal facility. SEA concludes that increased rail

operations would contribute to increased levels of ozone as well as other pollutants in the Mountain Counties nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changed activity on six rail segments that pass through or are connected to Mountain Counties AQCR (508). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Flanigan NV	Keddie CA	103	-8.4	-52%	-52%
Keddie CA	Marysville CA	106	-8.0	-45%	-56%
Keddie CA	Bieber CA	112	3.0	300%	60%
Roseville CA	Marysville CA	34	3.5	21%	7%
Sacramento	Roseville CA	18	7.0	24%	49%
CA					
Roseville CA	Sparks NV	139	11.3	82%	79%

Four of the six rail segments listed above (Keddie to Bieber, Roseville to Marysville, Sacramento to Roseville, and Roseville to Sparks, Nevada) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The estimated increased emissions from these four segments are shown below. The impacts of these emissions are discussed in the section on Analysis of Combined Activity.

Rail	AQCR	Estimated Increase in Emissions (tons per year)					
Segment	(ID No.)	HC	CO	NO ₂	SO ₂	PM-10	
Keddie - Bieber	508	0.4	1.3	9.6	0.7	0.2	
Roseville - Marysville	508	0.8	2.5	18.8	1.4	0.4	
Sacramento - Roseville	508	1.4	4.3	32.1	2.3	0.7	
Roseville - Sparks	508	35.4	110.0	823.1	59.6	17.8	
Total		38.0	118.1	883.6	64.0	19.1	

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter



Emissions from Increased Rail Yard Activity

The proposed merger would lead to an increase in rail yard activity of 57.2 percent in the Roseville Yard. This activity includes fueling, switching, and assembling of trains. The estimated increased emissions from this rail yard are shown below. The impacts of these emissions are discussed in the section on Analysis of Combined Activity.

Rail Yard	AQCR	Estimated Increase in Emissions (tons per year)					
	(ID No.)	HC	CO	NO ₂	SO ₂	PM-10	
Roseville	508	1.1	3.3	25.1	1.8	0.5	

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Emissions from Increased Intermodal Activity

The proposed merger would lead to an increase of 103 trucks per day at the Roseville facility. The estimated increased emissions from this intermodal facility are shown below. The impacts of these emissions are discussed in the section on Analysis of Combined Activity.

Intermodal Facility	AQCR	Estir	nated Increas	se in Emissio	ns (tons per	year)
	(ID Nc.)	HC	СО	NO ₂	SO ₂	PM-10
Roseville	508	2.6	12.3	14.5	0.4	2.6

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Combined Activity

This section discusses the impact to the Mountain Counties AQCR based on the combined estimated emissions from the rail segments, the rail yard, and the intermodal facility related to the proposed merger. The total estimated increase in pollutant emissions are listed below:

-	-	-

Rail	AQCR	Estimated Increase in Emissions (tons per year)					
Facility	(ID No.)	HC	CO	NO ₂	SO ₂	PM-10	
Rail Segments Total	508	38.0	118.1	883.6	64.0	19.1	
Rail Yards Total	508	1.1	3.3	25.1	1.8	0.5	
Intermodal Facilities Total	508	2.6	12.3	14.5	0.4	2.6	
Total		41.7	133.7	923.2	66.2	22.2	

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Most of the estimated increases in pollutants that would result from the proposed merger in the Mountain Counties AQCR (508) would be from the rail segments, which are not stationary sources. Pollutants from the Roseville rail yard facility and intermodal facility would not exceed the EPA definition of significance (as defined in Prevention of Significant Deterioration at 40 CFR 51.166) for all pollutants. The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants and the proposed merger would result in increased levels of all pollutants.

4.2 Air Quality Impacts at Grade Crossings

SEA assessed the overall air quality impacts of emissions from idling vehicles waiting at grade crossings. On average, annual emissions at a grade crossing with 5,000 vehicles per day would be 0.0021 ton of volatile organic compounds, 0.0013 ton of hydrocarbons, 0.0111 ton of carbon monoxide, and 0.0003 ton of nitrogen dioxide (NO₂) per train crossing. Increases in traffic over 5,000 vehicles per day would increase the estimated emissions accordingly. Railroad grade crossings tend to be grade-separated when roadway and/or train traffic volumes become high, so the air quality impacts at grade crossings would generally be relatively minor. In California, most grade crossings carry 5,000 or fewer vehicles. SEA concludes that no adverse air quality impacts would result from increased grade crossing delays as a result of the proposed merger. Section 4.4.2 of this chapter contains information on the transportation impacts of grade crossing delays associated with increased rail segment activity.

4.3 Noise Analysis

SEA performed noise analyses to identify noise-sensitive land uses where the proposed changes in operations could result in increases in noise exposure that meet or exceed the Board's environmental analysis thresholds at 49 CFR 1105.7(e)(6). The following discussion provides an estimate of the number of noise-sensitive receptors (e.g., residences, schools, churches) where the Board's thresholds would be exceeded, potentially causing an adverse increase in noise exposure. The noise level impact assessment was based on the baseline and projected activity level data provided by UP/SP.

4.3.1 Increased Rail Segment Activity

West Colton to Yuma, AZ

This rail segment, which currently has 27.7 trains/day, would experience an increase of 11.1 trains/day (a 24.1 percent change in gross ton-miles per year) as a result of the proposed merger. The projected increases in train volume and gross ton-miles on this segment would cause less than a 2 dBA increase in the L_{dn} . No adverse noise impacts are expected.

Martinez to Stockton (Lathrop)

This rail segment currently has no trains on it and would experience an increase of 4.0 trains/day as a result of the proposed merger. It extends from Martinez to Stockton through a number of areas where there has been substantial residential development over the past decade. After the merger, the majority of impacts would occur at or near grade crossings where train horns would be sounded as a warning. The noise impact zone at grade crossings would extend approximately 350 feet perpendicular to the tracks. Land use and noise impacts for sensitive receptors along this segment are described below:

<u>Stockton.</u> The segment commences in the yard at the southern edge of Stockton. Because it then travels south out of town through an industrial area, there would be no affected noise-sensitive receptors in Stockton as a result of the proposed merger.

<u>French Camp.</u> French Camp is a small community south of Stockton with residential areas on both sides of the tracks. Primarily because of horn noise at the 2 grade crossings in town, 20 residences would be within the 65 L_{dn} contour as a result of the proposed merger.

<u>Lathrop.</u> The line passes along the east side of Lathrop, in which there are two grade crossings. One of the grade crossings is near a residential area in which 10 residences would be within the 65 L_{dn} post-merger contour.

<u>Banta.</u> Banta is a small community which straddles the tracks and has three grade crossings. Approximately 10 residences would be within the 65 L_{dn} contour created by post-merger train traffic.

<u>Tracy.</u> The railroad tracks pass through the southern end of Tracy. There are residential and commercial developments, a school, and a church near the tracks and several grade crossings which would expose most of the town to horn noise. An estimated 80 residences, 1 school, and 1 church would be within the 65 L_{dn} contour as a result of the proposed merger.

<u>Byron</u>. Byron is a relatively small town with residential development stretching along both sides of the rail line. There are two grade crossings. Approximately 26 residences would be within the post-merger 65 L_{dn} contour.

<u>Brentwood</u> A mid-sized community which has had considerable new residential development over the past 20 years. Most of the non-agricultural land use in the Brentwood area is residential, including a new apartment complex on the outskirts of Brentwood and several mobile home parks. The several grade crossings in and around Brentwood would expose approximately 74 residences and 1 church to post-merger horn noise which would place them within the 65 L_{dn} contour.

<u>Oakley.</u> Most of Oakley is approximately 1 mile east of the SP tracks. However, there has been some residential development along the rail line. Six homes would lie within the 65 L_{dn} contour created by post-merger train traffic.

<u>Antioch.</u> The site visit to Antioch revealed that several grade crossings in town have been eliminated in recent years. There are some remaining grade crossings near residential areas, but the majority are located near commercial or industrial facilities. 35 residences near the remaining grade crossings would be within the post-merger 65 L_{dn} contour.

<u>Pittsburg.</u> Pittsburg is a fairly large town with several sets of tracks passing through it. However, most of its automobile thoroughfares now have overpasses instead of grade crossings. This eliminates the need for train engineers to sound the horn through most of Pittsburg. Therefore, although there is some residential development alongside the tracks in Pittsburg, none would lie within the 65 L_{dn} contour caused by post-merger train passby noise.

<u>Martinez.</u> The line is located along the San Francisco Bay north of the town center and residential land uses. It terminates at the yard at the northeast corner of Martinez which is surrounded by oil refineries. No noise-sensitive receptors would lie within the 65 L_{dn} contour as a result of the proposed merger.



Because there are currently no trains on this segment, there are currently no affected noisesensitive receptors. As a result of the proposed merger, 261 residences, 1 school, and 2 churches would be within the 65 L_{dn} contour, as shown below.

	Number of Sensitive Receptors								
Community		Pre-Merge	r	Post-Merger					
	Resid.	School	Church	Resid.	School	Church			
Stockton, CA	0	0	0	0	0	0			
French Camp, CA	0	0	0	20	0	0			
Lathrop, CA	0	0	0	10	0	0			
Banta, CA	0	0	0	10	0	0			
Tracy, CA	0	0	0	80	1	1			
Byron, CA	0	0	0	26	0	0			
Brentwood, CA	0	0	0	74	0	1			
Oakley, CA	0	0	0	6	0	0			
Antioch, CA	0	0	0	35	0	0			
Pittsburg, CA	0	0	0	0	0	0			
Martinez, CA	0	0	0	0	0	0			
TOTAL	0	0	0	261	1	2			

NOISE SUMMARY MARTINEZ TO STOCKTON (LATHROP) (SP) LINE SEGMENT

Stockton (Lathrop) to Sacramento

This segment currently has an average of 13.3 trains per day and is projected to experience an increase of 9.7 trains per day and an increase of 56 percent in gross ton-miles per year as a result of the proposed merger. The change in train volume would result in an L_{dn} increase of 2.4 dB. Train horns sounded before grade crossings are the dominant noise source in most of this corridor. Currently, the L_{dn} 65 contour at grade crossings extends 590 feet perpendicular to the tracks. The distance to the L_{dn} 65 contour would increase to 800 feet with the projected increase in traffic. Potential noise impacts along the segment are described below.

<u>Stockton.</u> The line segment commences in the yard south of the area of Stockton known as The Homestead. It passes through the city core where there are numerous grade crossings and many residences on both sides of the tracks. There is also a large development corridor north of the city which parallels the line. This development corridor is situated west of the line by about 100 feet. Parts of this corridor are protected by a 10 foot wall between the residences and the track. Currently there are 115 residences within the pre-merger L_{dn} 65 contour. An additional 97 residences would lie within the post-merger contour. One church and one school would also fall within the post-merger contour. <u>Lodi to Stockton</u>. The area between Lodi and Stockton is rural. Ten farmhouses are currently within the pre-merger L_{dn} 65 contour. No additional receptors would be within the post-merger contour.

<u>Lodi.</u> The track runs through the eastern section of town. Grade crossings exist throughout the area, but there are few residences. The grade crossings through the southern part of Lodi make the largest contribution to the pre-merger impact of 50 residences. An additional 30 residences would lie within the post-merger contour. No schools or churches were identified in either impact area.

<u>Acampo.</u> Between Galt and Lodi the land is mostly undeveloped, however, 23 residences are currently within the L_{dn} 65 contour in the area around the Acampo Road grade crossing. Following the UP/SP merger, an additional 12 residences and 1 church are projected to be within the L_{dn} 65 contour.

<u>Galt.</u> The tracks run through the western side of this town parallel to and between 3rd and 4th Streets. Grade crossings occur at many cross streets. Currently there are 78 residences and 3 churches within the L_{dn} 65 contour. An additional 72 residences would lie within the post-merger contour.

<u>Twin Cities.</u> There is not much development along the tracks in this area because the line runs through a wetlands area. Currently there are seven residences within the existing L_{dn} 65 contour, most near the Twin Cities Road grade crossing. Following the merger, an additional six residences would lie within the L_{dn} 65 contour.

<u>Elk Grove</u>. The line passes through the center of Elk Grove, a community which has had a lot of development in recent years. A lot of the newer residences are partially shielded from train noise by sound barrier walls. There is one grade crossing near the center of town and two more to the north. Currently 55 residences are within the L_{dn} 65 contour. An additional 28 residences would lie within the post-merger contour.

<u>Sacramento County.</u> This is the unincorporated area between Sacramento and Elk Grove. There are several new developments in this area that are within 150 feet of the tracks, including extensive development south of Gerber Road. All of these recent developments are at least partially shielded by sound walls running parallel to the tracks. There are grade crossings at Sheldon Road, Calvine Road, and Gerber Road. Currently an estimated 20 residences lie within the L_{dn} 65 contour. An estimated additional 10 residences would lie within the post-merger contour.

Florin. The line passes through the center of this small community on the outskirts of

Sacramento. There is one grade crossing at Florin Road. Currently 22 residences are within the 65 L_{dn} contour. An additional nine residences and one church would lie within the post-merger contour.

<u>Sacramento.</u> The line enters the southeastern corner of Sacramento. It passes west of the Sacramento Army Depot, the CYA Reception Center, Sacramento State College, and through several residential areas before terminating at the yard near the intersection of 12th Street and D Street. Although there are several miles of track within the Sacramento city limits, there are only four grade crossings before the yard. Currently, mostly in the areas near these crossings, there are 85 residences within the L_{dn} 65 contour. An additional 40 residences would lie within the post-merger contour. No schools or churches are affected now, nor would there be any affected after the merger.

Along the Stockton (Lathrop) to Sacramento line segment, there are currently 465 residences, no schools, and 3 churches within the L_{dn} 65 contour. The majority of these impacts are due to train horns near grade crossings. With the proposed increase in train traffic, this would increase by 304 residences, 1 school, and 3 churches, for a total of 769 residences, 1 school, and 6 churches within the post-merger L_{dn} 65 contour, as shown below.

	Number of Sensitive Receptors							
Community		Pre-Merge	r	Post-Merger				
	Resid.	School	Church	Resid.	School	Church		
Stockton, CA	115	0	0	212	1	1		
Lodi to Stockton, CA	10	0	0	10	0	0		
Lodi, CA	50	0	0	80	0	0		
Acampo, CA	23	0	0	35	0	1		
Galt, CA	78	0	3	150	0	3		
Twin Cities, CA	7	0	0	13	0	0		
Elk Grove, CA	55	0	0	83	0	0		
Sacramento County, CA	20	0	0	30	0	0		
Florin, CA	22	0	0	31	0	1		
Sacramento, CA	85	0	0	125	0	0		
TOTAL	465	0	3	769	1	6		

NOISE SUMMARY STOCKTON (LATHROP) TO SACRAMENTO (UP) LINE SEGMENT

Roseville to Sparks, Nevada

This rail segment currently has 13.8 trains/day and this would increase by 11.3 trains/day (a change of 79 percent in gross ton-miles per year) as a result of the proposed merger. The increase

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would result in a 2.6 dBA increase in the L_{dn} along the line. The California portion of the segment extends from Truckee, near the Nevada border, to Roseville. The prediction of noise exposure is complicated along much of this route because the line passes through some of the most mountainous terrain in California. In addition, there is significant wheel squeal in the mountainous areas where the grade is steep and the turns are tight. Wheel squeal is not included in the noise analysis. Topographical shielding of receivers may occur. Currently, the noise impact zone at grade crossings extends approximately 400 feet perpendicular to the tracks, whereas after to merger the noise impact zone would increase to about 600 feet. Land use and noise impacts for sensitive receptors in California along this segment are described below:

<u>Truckee</u>. Truckee is a small community in the mountains east of Donner Pass. The line runs through the center of town, north of the Truckee River, and has one grade crossing at Highway 267. The commercial center of the community borders the northern side of the rail line. Residential areas near the track exist east of 267 on River Street, at Highway 89 and W. River Street, up the hill behind Donner Pass Road south of Highway 80, and up the hill north of the tracks east of town between Olympic Road and Olympic Blvd. Currently 35 residences are within the 65 L_{dn} contour. An additional 11 residences would lie within the post-merger contour.

<u>Alta, Dutch Flat Station, & Gold Run</u>. These three small towns each have a grade crossing in the center and several residences near the track. Collectively there are currently 57 residences in these towns within the 65 L_{dn} contour. An additional 33 residences would lie within the post-merger contour.

<u>Colfax.</u> The line runs north-south through the center of the town, which has two grade crossings. There are several industrial buildings near the tracks that should provide some shielding to the residences behind them. There are numerous residences on both sides of the tracks. Currently 41 residences are within the 65 L_{dn} contour. An additional 56 residences and 1 school would lie within the post-merger contour.

<u>Weimer</u>. There is one grade crossing with several residences close by and others are scattered along the tracks. Currently there are 36 residences within the 65 L_{dn} contour. An additional 11 residences would lie within the post-merger contour.

<u>Auburn.</u> The line separates into two tracks just north of Auburn. There are four grade crossings on the eastern line through town and none on the western. There are numerous residences near the track, many of them recently constructed at the north and south ends of town. Currently 144 residences, 1 school, and 1 church are within the 65 L_{dn} contour. An additional 183 residences would lie within the post-merger contour.

<u>Penryn</u>. The line passes through the center of town and there is one grade crossing. Residences are scattered on both sides of the tracks. Currently 46 residences are within the 65 L_{dn} contour. An additional 40 residences and 1 church would lie within the post-merger contour.

<u>Loomis.</u> In the center of Loomis are some siding tracks which have industrial buildings to the east and residential buildings beyond. There is one grade crossing in the center of town and another two blocks to the north. There is some residential development west of the former and north of the latter. Another grade crossing about 1 mile south of town also has some residential development nearby. A split in the line sends a track looping north of Loomis near some scattered rural residences. Currently 30 residences and 1 church in the Loomis area are within the 65 L_{dn} contour. An additional 55 residences would lie within the post-merger contour.

<u>Rocklin.</u> This is a residential area just to the northeast of Roseville. The residences are much closer together than in Loomis and Penryn. The line runs through the center of the town and there are several grade crossings throughout the residential area. There are residences on both sides of the tracks, some within 200 feet, but the majority are over 500 feet distant. Currently 82 residences and 1 church are within the 65 L_{dn} contour. An additional 98 residences would lie within the post-merger contour.

<u>Roseville</u>. The line terminates at the Roseville Yard at the northeastern corner of town, after passing through the Woodbridge Park area. There are two grade crossings in this area, horn noise for which affect noise-sensitive receptors on both sides of the tracks. Currently 101 residences, 1 school, and 1 church are within the 65 L_{dn} contour. An additional 76 residences would lie within the post-merger contour.

<u>Other Communities</u>. Other small communities along this route which would be affected by an increase in noise associated with the merger include: Soda Springs, Blue Canyon, New England Mills, and Applegate. Collectively these communities currently have 27 residences and 1 school within the 65 L_{dn} contour. An additional 20 residences would lie within the postmerger contour.

Currently 599 residences, 3 schools, and 4 churches along this segment in California are exposed to noise levels greater than or equal to 65 dBA L_{dn} . This would increase by 583 residences, 1 school, and 1 church as a result of the proposed merger. Thus, there would be a total of 1182 residences, 4 schools, and 5 churches within the post-merger 65 L_{dn} contour, as shown below.

NOISE SUMMARY FOR CALIFORNIA PORTION OF THE ROSEVILLE TO SPARKS, NEVADA (SP) LINE SEGMENT

	Number of Sensitive Receptors							
Community		Pre-Merge	er	Post-Merger				
	Resid.	School	Church	Resid.	School	Church		
Truckee, CA	35	0	0	46	0	0		
Soda Springs, CA	1	0	0	4	0	0		
Blue Canyon, CA	18	1	0	23	1	0		
Alta, CA	17	0	0	26	0	0		
Dutch Flat Station, CA	23	0	0	39	0	0		
Gold Run, CA	17	0	0	25	0	0		
Colfax, CA	41	0	0	97	1	0		
New England Mills, CA	4	0	0	13	0	0		
Weimar, CA	36	0	0	47	0	0		
Applegate, CA	4	0	0	7	0	0		
Auburn, CA	144	1	1	327	1	1		
Penryn, CA	46	0	0	86	0	1		
Loomis, CA	30	0	1	85	0	1		
Rocklin, CA	82	0	1	180	0	1		
Roseville, CA	101	1	1	177	1	1		
TOTAL	599	3	4	1182	4	5		

4.3.2 Increased Rail Yard Activity

Rail car activity at yards in California would not exceed the Board's threshold for analysis. However, the absolute increase in cars at the Roseville facility would be substantial, and an analysis was performed to determine the extent of noise impact surrounding the Roseville yard.

Roseville

Construction of a new mainline track is planned at the Roseville Yard to increase the capacity of the facility. The yard straddles Citrus Heights and Roseville. The projected increased car load would not exceed the Board's threshold criterion, however the volume of yard activity at this facility would be substantial, increasing by over 580 cars to over 1600 cars/day. The land use surrounding the yard is a mixture of residential, commercial and agricultural/ranching. With all noise sources from the taken into account, including mainline trains and intermodal facilities, there would be sensitive receptors within the 65 dBA L_{dn} contour. Dowty retarders have been used for the inert

retarders, thereby eliminating this noise source. These receptors would be primarily impacted by noise from the hump switcher engine, mainline trains and the master and group retarders. There are approximately eighty-eight residences, one school and three churches currently within the potential impact area. The post-merger conditions would result in an additional one-hundred-ninety-five residences falling within the 65 dBA L_{an} contour.

4.3.3 Increased Intermodal Facility Activity

The East Los Angeles, Lathrop, Oakland (UP), Oakland (SP), and Roseville intermodal facilities in California are projected to have activity increases greater than the Board's threshold of 50 trucks per day. At one of these locations, noise increases exceeding the Board's impact criterion would result from facility consolidations. The SP LATC ramp would be consolidated with the UP East Los Angeles intermodal facility.

East Los Angeles

The UP East Los Angeles intermodal facility currently serves approximately 743 trucks per day. This facility is expected to realize an average increase of 587 trucks per day based on UP/SP projections. The East Los Angeles facility is located on East Washington Boulevard, west of Interstate 710 and south of Interstate 5. The expected noise exposure increase due just to intermodal facility truck traffic on East Washington Street near this intermodal facility is expected to be about 2.5 dB. However, assuming that five percent of the traffic is currently trucks, the additional 587 trucks per day expected at this facility would produce a 1.5 dB increase in noise due to total truck traffic on East Washington Boulevard. The current traffic would be moved to the ICTF facility, and operations from the closed LATC facility would be shifted to East Los Angeles. The increase in the number of trucks would exceed the Board's analysis criterion. The increase in noise levels would exceed the Board's impact criterion of 2 dBA L_{dn}, and the volume of intermodal activity at this facility would be significant, with 607,000 lifts/year. The land use surrounding this facility is predominantly industrial, and there would be no sensitive receptors within the 65 dBA L_{dn} contour for either the pre- or post-merger conditions.

Lathrop

The UP Lathrop intermodal facility currently serves approximately 226 trucks per day. This facility is expected to realize an average increase of 103 trucks per day based on UP/SP projections, exceeding the Board's threshold criterion. The UP Lathrop facility is located on East Roth Road, east of Interstate 5. The primary truck transportation route to the facility is via Interstate 5. Interstate 5 supports substantial truck traffic, and the expected noise increase due to truck traffic along Interstate 5 is expected to be negligible. The expected increase in truck traffic on State Highway 20 near this intermodal facility would cause less than a 0.4 dBA increase in noise

exposure along this road. The Lathrop facility is surrounded by commercial and farming land use. The increased noise from truck and intermodal crane activity would not exceed 2 dBA L_{dn}, therefore no further noise analysis was undertaken.

Oakland (UP)

The UP Oakland intermodal facility currently serves approximately 333 trucks per day. This facility is expected to realize an average increase of 79 trucks per day based on UP/SP projections. The UP Oakland facility is located on Ferro Street, south of Interstate 880. The primary truck transportation route to the facility is via Interstate 880, Broadway or Market Avenue, Third Street, and Middle Harbor Road. Noise increases along Third street are projected to be 0.1 dB and are considered negligible. This facility is bordered by industrial facilities (north, west and south), and to the east by (residential, and commercial use). The increased noise from truck and intermodal crane activity would be less than the Board's impact criterion of 2 dBA L_{dn}, therefore, no further noise analysis was performed.

Oakland (SP)



The SP Oakland intermodal facility currently serves approximately 327 trucks per day. This facility is expected to realize an average increase of 68 trucks per day based on UP/SP projections, exceeding the Board's threshold criterion. The SP Oakland facility is located on Middle Harbor Road and is in close proximity to the UP facility. The primary truck transportation route to the facility is via Interstate 880, Broadway or Market Avenue, Third Street, and Middle Harbor Road. This is the same access route as to the UP ramp. The additional 68 trucks per day expected at this facility would represent a 2 percent increase in ADT volume on Third Street. The combined increase in trucks accessing the UP and SP facilities is 147 trucks per day, which represents a 4.4 percent increase in ADT. This is not considered significant. This facility is bordered by industrial facilities (north, west and south), and to the east by (residential, and commercial use). The increased noise from truck and intermodal crane activity would be less than the Board's impact criterion of 2 dBA L_{an}, therefore no further noise analysis was performed.

Roseville

The SP Roseville intermodal facility currently serves approximately 88 trucks per day. This facility is expected to realize an average increase of 103 trucks per day based on UP/SP projections, exceeding the Board's threshold criterion. The SP Roseville facility is located on the northwest side of the yard, accessed via Antelope Road North. The primary truck transportation route to the facility is via Interstate 80, Riverside, Cirby Way, Vernon Avenue to Foothills Blvd, PFE Road and Antelope Road North. The additional 103 trucks per day expected at this facility would represent an 0.8 percent increase in ADT volume on Vernon Avenue, which would produce a noise

increase of 0.03 dB, which is not considered significant. There are residences to the north of the Intermodal facility. The increase in noise levels from the combination of intermodal trucks and cranes would exceed the Board's impact criterion of 2 dBA L_{dn} . With noise from these intermodal operations only, no sensitive receptors would lie within the 65 dBA L_{dn} contour for either the preor for the post-merger conditions.

4.4 Transportation Systems

In considering the potential impacts of the proposed merger, the Board's environmental rules at 49 CFR 1105.7(e)(2) require a description of the effects of the merger action on local and regional transportation systems. The two primary transportation effects resulting from the increased rail traffic of the proposed merger would result from: (1) additional truck traffic generated at those intermodal facilities where intermodal activity is projected to increase, and (2) increases in roadway delays at grade crossings as a result of increased train traffic on rail segments.

The impacts near intermodal facilities would result from increased truck traffic using local roadways to enter and exit the intermodal facility. For those facilities with an expected increase of 50 trucks or more per day, SEA analyzed the impacts of this increased traffic on the local roadway system in terms of increases in daily and peak hour traffic. SEA collected traffic count data was collected from local and state transportation officials for this analysis. While offsetting benefits of the proposed merger were not quantified at the local level, the traffic impacts from added truck traffic at intermodal facilities would be partially offset in many localities by truck-to-rail diversions and consolidation of operations.

SEA addressed the concerns of local communities about increased traffic delays at grade crossings through an evaluation of vehicle delay and wait times at grade crossing locations. It is important to note that the acceptability of delays at grade crossings varies substantially based on local conditions such as the location of land uses by type, availability of alternative travel routes, the degree of use by emergency vehicles, and other local variables.

SEA concludes that the impacts on the transportation system from the five intermodal facility in California would not cause significant adverse impacts to local transportation systems. Local traffic impacts at intermodal facilities in California are summarized below:

4.4.1 Intermodal Facilities

East Los Angeles

The East Los Angeles facility is located on East Washington Boulevard, west of Interstate 710 and south of Interstate 5. The primary truck transportation route to the facility is via Interstate 710 and East Washington Boulevard, which is a four lane road. UP's East Los Angeles intermodal facility currently serves approximately 743 trucks per day. This facility is expected to realize an average increase of 587 trucks per day based on UP/SP projections. This increase is greater than the Board's threshold of 50 trucks per day for this nonattainment AQCR.

ADT volume for the vicinity of the intermodal facility was obtained from the Los Angeles Department of Public Works. A count done in 1993 showed ADT volume along East Washington Boulevard at 27,900. It is assumed that one truck equals 2.5 passenger vehicles. The additional 587 trucks per day expected at this facility would represent a 4.2 percent increase in ADT volume on East Washington Boulevard. Peak hour traffic volume in this vicinity is approximately 2,200 vehicles; the additional truck traffic is therefore not significant. Relative to cumulative impacts, it is noted that the BN/Santa Fe intermodal facility is located adjacent to the East Los Angeles facility, and increases in truck traffic are expected at this facility as a result of the recent BN/Santa Fe merger. Because this is a consolidated facility, traffic increases in the East Los Angeles area will be offset by closing the LATC ramp.

Lathrop



The UP Lathrop facility is located on East Roth Road, east of Interstate 5. The primary truck transportation route to the facility is via Interstate 5. The ADT volume on East Roth Road is not available at this time; however, since the facility is located adjacent to Interstate 5, adverse effects are not expected. The UP Lathrop intermodal facility currently serves approximately 226 trucks per day. This facility is expected to realize an average increase of 103 trucks per day based on UP/SP projections. This increase is greater than the Board's analysis threshold of 50 trucks per day for this nonattainment AQCR.

Oakland (UP)

The UP Oakland facility is located on Ferro Street, south of Interstate 880. The primary truck transportation route to the facility is via Interstate 880, Broadway or Market Avenue, Third Street, and Middle Harbor Road. The UP Oakland intermodal facility currently serves approximately 333 trucks per day. This facility is expected to realize an average increase of 79 trucks per day based on UP/SP projections. This increase is greater than the Board's analysis threshold of 50 trucks per day for this non-attainment AQCR.

ADT volume for the vicinity of the intermodal facility was obtained from the City of Oakland. A count done in 1995 showed the ADT volume along Third Street at 3,381 vehicles. The additional 79 trucks per day expected at this facility would represent a 4.7 percent increase in ADT volume on Third Street, which is not expected to be significant. This is equivalent to less than nine passenger vehicles per hour.

Oakland (SP)

The SP Oakland facility is located on Middle Harbor Road and is in close proximity to the UP facility. The primary truck transportation route to the facility is via Interstate 880, Broadway or Market Avenue, Third Street, and Middle Harbor Road. This is the same access route as to the UP ramp. The SP Oakland intermodal facility currently serves approximately 327 trucks per day. This facility is expected to realize an average increase of 68 trucks per day based on UP/SP projections.

ADT volume for the vicinity of the intermodal facility was obtained from the City of Oakland. A count done in 1995 showed the ADT volume along Third Street at 3,381 vehicles. The additional 68 trucks per day expected at this facility would represent a 2 percent increase in ADT volume on Third Street. The combined increase in trucks accessing the UP and SP facilities is 147 trucks per day, which represents a 4.4 percent increase in ADT. This would not have any major impacts on local traffic systems.

Roseville

The SP Roseville facility is located on Vernon Avenue. The primary truck transportation route to the facility is via Interstate 80, Riverside, Cirby Way, and Vernon Avenue, a 4 lane road. The SP Roseville intermodal facility currently serves approximately 88 trucks per day. This facility is expected to realize an average increase of 103 trucks per day based on UP/SP projections. This increase is greater than the Board's analysis threshold of 50 trucks per day for this nonattainment AQCR.

ADT volume for the vicinity of the intermodal facility was obtained from the City of Roseville. A count done in 1995 showed ADT volume along Vernon Avenue at 13,570 vehicles. The additional 103 trucks per day expected at this facility would represent an 0.8 percent increase in ADT volume on Vernon Avenue, which is not considered significant.

4.4.2 Grade Crossings

In order to analyze the effects of the proposed merger on the roadway system at railroad grade crossings, SEA determined the number of crossings along rail segments that would exceed the Board's analysis thresholds for air quality analysis. Approximate delays over the course of 24 hours were calculated, as were average queue lengths. While an increase in the number of trains would result in more crossing closings per day, the length of the queue at each individual crossing closing event would change only if the train length changes. While the time of delay at grade crossings would increase proportionately with the increase in train traffic, most of the grade crossings in California carry less than 5,000 vehicles per day. Vehicle delay impacts at rail line
segments in California are summarized below:

Long Beach to Slauson Junction

Average rail traffic on the Long Beach to Slauson Junction line would increase from 22 to 25.6 trains per day, a train volume increase of about 16 percent. There are 37 grade crossings along this segment, 24 of which have ADT counts greater than 5,000 vehicles per day. At typical speed grade crossings along the route (e.g., train speed of 25 mph), delay to vehicle traffic would increase from 65 minutes (pre-merger) to 75 minutes (post-merger) over a 24-hour period. At the lowest speed grade crossings (e.g., train speed of 10 mph), delay to vehicle traffic would increase from 140 minutes (pre-merger) to 163 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic ranges from 4 to 91 vehicles, and the corresponding delay per vehicle would vary from 1.77 to 3.48 minutes.

Slauson Junction to Los Angeles

On the Slauson Junction to Los Angeles line, average rail traffic would increase from 19 to 25.6 trains per day, a train volume increase of about 32 percent. There are 8 grade crossings along this segment, 5 of which have ADT counts greater than 5,000 vehicles per day. At typical speed grade crossings along the route (e.g., train speed of 25 mph), delay to vehicle traffic would increase from 57 minutes (pre-merger) to 75 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic ranges from 1 to 21 vehicles, and the corresponding delay per vehicle would vary from 1.2 to 1.7 minutes.

Keddie to Bieber

On the Keddie to Bieber line, average rail traffic would increase from 1 to 4 trains per day, a train volume increase of about 300 percent. There are 22 grade crossings along this segment, none of which have ADT counts greater than 5,000 vehicles per day. At typical and high speed grade crossings along the route (e.g., train speed of 40 mph), delay to vehicle traffic would increase from 2 minutes (pre-merger) to 8 minutes (post-merger) over a 24-hour period. At low speed grade crossings along the route (e.g., train speed of 25 mph), delay to vehicle traffic would increase from 3 minutes (pre-merger) to 12 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic ranges from 1 to 5 vehicles, and the corresponding delay per vehicle would vary from 1.35 to 1.77 minutes.

Palmdale to West Coiton

On the 80-mile Palmdale to West Colton line, average rail traffic would increase from 9.2 to 13.1 trains per day, a train volume increase of about 42 percent. There are 20 grade crossings

along this segment, 16 of which have ADT counts greater than 5,000 vehicles per day. At typical speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic would increase from 24 minutes (pre-merger) to 34 minutes (post-merger) over a 24-hour period. At the highest speed grade crossings (e.g., train speed of 60 mph), delay to vehicle traffic would increase from 15 minutes (pre-merger) to 21 minutes (post-merger) over a 24-hour period. At the lowest speed grade crossings (e.g., train speed of 15 mph), delay to vehicle traffic would increase from 41 minutes (pre-merger) to 58 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic ranges from 1 to 28 vehicles, and the corresponding delay per vehicle would vary from 1.11 to 2.53 minutes.

West Colton to Yuma, Arizona

Average rail traffic on the West Colton to Yuma, Arizona line would increase from 27.2 to 38.3 trains per day, a train volume increase of about 41 percent. There are 35 grade crossings along this segment in California, 5 of which have ADT counts greater than 5,000 vehicles per day. At typical and low speed grade crossings along the route (e.g., train speed of 40 mph), delay to vehicle traffic would increase from 57 minutes (pre-merger) to 81 minutes (post-merger) over a 24-hour period. At the highest speed grade crossings (e.g., train speed of 65 mph), delay to vehicle traffic would increase from 42 minutes (pre-merger) to 60 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic ranges from 1 to 24 vehicles, and the corresponding delay per vehicle would vary from 1.07 to 1.35 minutes.

Niles Junction to Oakland

On the Niles Junction to Oakland line, average rail traffic would increase from 24.4 to 29.8 trains per day, a train volume increase of about 22 percent. There are 37 grade crossings along this segment, 23 of which have ADT counts greater than 5,000 vehicles per day. At typical speed grade crossings along the route (e.g., train speed of 40 mph), delay to vehicle traffic would increase from 51 minutes (pre-merger) to 62 minutes (post-merger) over a 24-hour period. At the highest speed grade crossings (e.g., train speed of 60 mph), delay to vehicle traffic would increase from 39 minutes (pre-merger) to 48 minutes (post-merger) over a 24-hour period. At the lowest speed grade crossings (e.g., train speed of 15 mph), delay to vehicle traffic would increase from 109 minutes (pre-merger) to 132 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic ranges from 1 to 44 vehicles, and the corresponding delay per vehicle would vary from 1.11 to 2.53 minutes.

Oakland to Martinez

On the 32-mile Oakland to Martinez line, average rail traffic would increase from 25.2 to 31.9 trains per day, a train volume increase of about 27 percent. There are 19 grade crossings along

this segment, seven of which have ADT counts greater than 5,000 vehicles per day. At typical speed grade crossings along the route (e.g., train speed of 40 mph), delay to vehicle traffic would increase from 53 minutes (pre-merger) to 67 minutes (post-merger) over a 24-hour period. At the highest speed grade crossings (e.g., train speed of 60 mph), delay to vehicle traffic would increase from 41 minutes (pre-merger) to 52 minutes (post-merger) over a 24-hour period. At the lowest speed grade crossings (e.g., train speed of 30 mph), delay to vehicle traffic would increase from 65 minutes (pre-merger) to 52 minutes (post-merger) over a 24-hour period. At the lowest speed grade crossings (e.g., train speed of 30 mph), delay to vehicle traffic would increase from 65 minutes (pre-merger) to 82 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic ranges from 1 to 68 vehicles and the corresponding delay per vehicle would from 1.11 to 1.58 minutes.

Martinez to Stockton (Lathrop)

Average rail traffic on the Martinez to Stockton (Lathrop) line would increase from 0 to 4 trains per day, an increase of more than 100 percent. There are 25 grade crossings along this segment, 6 of which have ADT counts greater than 5,000 vehicles per day. At typical and low speed grade crossings along the route (e.g., train speed of 25 mph), delay to vehicle traffic would increase from 0 minutes (pre-merger) to 12 minutes (post-merger) over a 24-hour period. At the highest speed grade crossings (e.g., train speed of 40 mph), delay to vehicle traffic would increase from 0 minutes (pre-merger) to 8 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic ranges from 1 to 24 vehicles, and the corresponding delay per vehicle would vary from 1.35 to 1.77 minutes.

Stockton (Lathrop) to Sacramento

On the Stockton (Lathrop) to Sacramento line, average rail traffic would increase from 13.3 to 23 trains per day, a train volume increase of about 73 percent. There are 52 grade crossings along this segment, 21 of which have ADT counts greater than 5,000 vehicles per day. At typical speed grade crossings along the route (e.g., train speed of 40 mph), delay to vehicle traffic would increase from 28 minutes (pre-merger) to 37 minutes (post-merger) over a 24-hour period. At the highest speed grade crossings (e.g., train speed of 65 mph), delay to vehicle traffic would increase from 21 minutes (pre-merger) to 27 minutes (post-merger) over a 24-hour period. At the lowest speed grade crossings (e.g., train speed of 20 mph), delay to vehicle traffic would increase from 47 minutes (pre-merger) to 62 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic ranges from 1 to 35 vehicles, and the corresponding delay per vehicle would vary from 1.07 to 2.06 minutes.

Sacramento to Roseville

On the 18-mile Sacramento to Roseville line, average rail traffic would increase from 29.1 to 36.1 trains per day, a train volume increase of about 24 percent. There are no grade crossings

along this segment; thus, there are no vehicle queues or delays.

Roseville to Sparks, Nevada

Average rail traffic on the Roseville to Sparks, Nevada line would increase from 13.8 to 25.1 trains per day, a train volume increase of about 82 percent. There are 39 grade crossings along this segment in California, 5 of which have ADT counts greater than 5,000 vehicles per day. At typical speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic would increase from 35 minutes (pre-merger) to 64 minutes (post-merger) over a 24-hour period. At the highest speed grade crossings (e.g., train speed of 40 mph), delay to vehicle traffic would increase from 29 minutes (pre-merger) to 52 minutes (post-merger) over a 24-hour period. At the lowest speed grade crossings (e.g., train speed of 25 mph), delay to vehicle traffic would increase from 41 minutes (pre-merger) to 74 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic ranges from 1 to 45 vehicles, and the corresponding delay per vehicle would vary from 1.35 to 1.77 minutes.

Roseville to Marysville

On the Roseville to Marysville line, average rail traffic would increase from 16.7 to 20.2 trains per day, a train volume increase of about 21 percent. There are 20 grade crossings along this segment, 1 of which has an ADT count greater than 5,000 vehicles per day. At typical and high speed grade crossings along the route (e.g., train speed of 65 mph), delay to vehicle traffic would increase from 26 minutes (pre-merger) to 31 minutes (post-merger) over a 24-hour period. At the lowest speed grade crossings (e.g., train speed of 25 mph), delay to vehicle traffic would increase from 49 minutes (pre-merger) to 59 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic ranges from 1 to 10 vehicles, and the corresponding delay per vehicle would vary from 1.07 to 1.20 minutes.

Marysville to Dunsmuir

On the 174-mile Marysville to Dunsmuir line, average rail traffic would increase from 16.7 to 21.9 trains per day, a train volume increase of about 31 percent. There are 103 grade crossings along this segment, 15 of which have ADT counts greater than 5,000 vehicles per day. At typical and high speed grade crossings along the route (e.g., train speed of 65 mph), delay to vehicle traffic would increase from 26 minutes (pre-merger) to 34 minutes (post-merger) over a 24-hour period. At the lowest speed grade crossings (e.g., train speed of 25 mph), delay to vehicle traffic would increase from 49 minutes (pre-merger) to 64 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic ranges from 1 to 34 vehicles, and the corresponding delay per vehicle would vary from 1.07 to 1.77 minutes.

Dunsmuir to Klamath Falls, Oregon



4.5 Safety

SEA assessed a number of safety issues associated with the proposed merger, including the probability of increased accidents at grade crossings, and the risks associated with increased shipments of hazardous commodities.

4.5.1 Grade Crossing Safety

Accidents at grade crossings are a function of the number of trains, train speed, number of train tracks, grade crossing condition and warning facilities, roadway condition and number of lanes, and amount of roadway traffic. Since the proposed merger would not result in any new grade crossings and would affect only the number of trains passing through existing grade crossings, the probability of increased accidents at grade crossings would depend on the increased number of trains on rail segments. SEA concludes that the accident exposure in Arizona will range from an increase of 300 percent to a decrease of 70 percent depending on rail segment.

4.5.2 Hazardous Commodities

Federal regulations govern the transport of hazardous commodities. The proposed merger is not expected to affect the policies or operation of UP/SP concerning the type or quantity of hazardous commodities transported or the method of handling. A total of 420,000 and 305,000 hazardous commodity shipments were transported by UP and SP, respectively, in 1994. These shipments resulted in 118 reportable incidents for UP, and 35 incidents for SP. Therefore, 99.98 percent of the shipments arrived at their destination without incident. The Applicants have noted that the consolidation of the companies will result in a "best practice" approach to hazardous commodity handling. SEA concludes that, using the same rate of safe transport, the projected increases in accidents and shipments of hazardous materials as a result of the proposed merger de not constitute a significant safety risk.

4.6 Summary of Agency Comments

In considering the potential environmental impacts of the increased rail line segment, rail yard, and intermodal facility activity associated with the proposed UP/SP merger, SEA sent consultation letters to various Federal, state, and local agencies on January 29, 1996. These letters, samples of which are included in **Volume 5**, Appendix D, Exhibits D-1 through D-9, provided early notification of this EA and requested information and comments on the effects to the environment of the proposed merger and related operational changes. Each letter included a state information packet and maps that listed the specific merger-related proposals. A sample packet is shown in **Volume 5**, Appendix D, Exhibit D-10. SEA contacted agencies by telephone to alert them to the distribution of the consultation letter and to confirm its receipt. The Applicant also contacted these agencies in preparation of the Environmental Report which accompanied the merger application. That correspondence and all responses were reviewed, verified, and considered by SEA in the preparation of this EA.

All comments received (through mid-March 1996) in response to the January 29th letter are shown in **Volume 5**, Appendix E, Exhibits E-1 through E-11. As necessary, SEA conducted additional consultation with agencies as shown in **Volume 5**, Appendix E, Table E-1. Agency comments regarding the proposed increases in rail line segment, rail yard, and intermodal facility activities in California are summarized below:

- East Bay Regional Park District states significant changes in the density and character of traffic may affect the use and enjoyment of the District's lands. There are concerns relating to a series of grade separations or at-grade crossings of SP main line right-ofway on San Pablo Bay and Carquinez Strait shoreline which are needed for public access to the District's parklands and regional trail corridors. (Martinez to Sacramento line segment.)
- Butte County will experience an increase in rail traffic on the Marysville to Dunsmuir segment. The increase is projected at 5.2 trains per day as compared to the existing volume of 16.7 trains per day. There will be an increase in emissions of air pollutants and noise. They would like to continue to review and comment on all future environmental documents.
- Placer County expressed concerns that post-merger rail traffic will increase on Roseville to Sparks and Roseville to Marysville routes. This traffic increase could have impacts on existing local and regional transportation systems, air emissions and ambient air quality conditions, noise, and public health and safety. They would like the document to address each of these issues.

- Shasta County states that there are significant transportation efficiency and safety issues at existing rail line intersections with existing streets and roads along the Marysville to Dunsmuir segment. The planned rail traffic increases will exacerbate this existing condition. These areas require improvements such as grade separation crossings or reconfiguration of existing intersections.
- Nevada County states that there will be substantial increased train traffic in the Town
 of Truckee at crossing of SH 267. Other issues that need to be addressed are air
 quality and water quality. (Roseville to Sparks, Nevada line segment.)
- Town of Truckee states there will be substantial increased train traffic in the Town of Truckee at crossing of SH 267. Other issues that need to be addressed are air quality and water quality.

4.7 Suggested Mitigation

This section highlights the specific mitigation measures that various parties, consulted in the process of preparing the EA for the proposed merger, have requested:

Nevada County states that each time a train moves through the Town of Truckee, auto traffic comes to gridlock; during peak traffic times, the queues extend two miles south into the Martis Valley. On the north side of the crossing, emergency vehicles are frequently blocked from exiting the Truckee fire station. The increase in train traffic has been the potential to increase particulate matter and other pollutants. The Truckee River canyon is part of an important and sensitive watershed. Potential degradation of water quality in Truckee River should be addressed and potential for contamination that may occur if a train carrying hazardous materials has an accident near the river. The geography of SR 267/SP crossing precludes the installation of a grade-separated crossing at that location. There is an existing grade-separated crossing on SR 89, a short distance west--potential mitigation is to provide funding to assist in widening at SR 89. Provide passenger rail service into region. Nevada County and the State of California are planning a bypass of SR 267 to bypass Truckee and bridge the river and railroad; consider providing some funding.

4.8 SEA Recommended Mitigation

This section contains the mitigation measures that SEA recommends that the Board impose in any final decision approving the proposed changes to rail line segments, rail yards, or intermodal facility operations in California. SEA will consider all comments on the EA in making its final recommendation to the Board. The Board will consider SEA's recommendations and the environmental record in making its final decision. SEA's recommended mitigation is as follows.

Air Quality

 UP/SP shall consult with appropriate Federal, state and local agencies responsible for regulating air quality in AQCRs 24, 27, 28, 30, 31, 33, and 508, concerning any possible mitigation measures to reduce any potential adverse emissions from the rail segments, rail yards, and intermodal facilities in these seven regions. UP/SP shall advise SEA of the results of these consultations.

Noise

- 1. To reduce potential noise level impacts to sensitive receptors along the Sacramento to Roseville, Roseville to Marysville, Marysville to Duns, Car, Dunsmuir to Klamath Falls, Oregon, Roseville to Sparks, Nevada, Niles Junction to Oakland, Oakland to Martinez, Martinez to Stockton (Lathrop), Stockton (Lathrop) to Sacramento, Palmdale to West Colton, West Colton to Yuma, Arizona, Long Beach to Slauson Junction, Slauson Junction to Los Angeles, and Keddie to Bieber rail line segments, UP/SP shall consult with appropriate state and local agencies to develop noise abatement plans. The Applicant shall advise SEA of the results of these consultations and provide SEA with a copy of any resulting noise abatement plans.
- 2. To reduce potential noise level impacts to sensitive receptors near the Martinez, Montclair, Niland, Lathrop and Roseville rail yards, UP/SP shall consult with appropriate state and local agencies to develop noise abatement plans. The Applicant shall advise SEA of the results of these consultations and provide SEA with a copy of any resulting noise abatement plans.
- 3. To reduce potential noise level impacts to sensitive receptors near the East Los Angeles, Oakland (SP), Oakland (UP), Lathrop, and Roseville intermodal facilities, UP/SP shall consult with appropriate state and local agencies to develop noise abatement plans. The Applicant shall advise SEA of the results of these consultations and provide SEA with a copy of any resulting noise abatement plans.

Transportation and Safety

 UP/SP shall consult with the East Bay Regional Park District, the Counties of Butte, Nevada, Placer, and Shasta. and the Town of Truckee; and with other communities concerned about safety and the potential effects of additional rail traffic on vehicular traffic. UP/SP and the above communities shall then develop a mutually agreeable mitigation plan. UP/SP shall periodically advise SEA of the status of these consultations and shall submit any final mitigation plans to SEA.

- 2. UP/SP shall conduct traffic studies for intermodal facilities located in Oakland and East Los Angeles that could experience increases of two to four percent in truck traffic as a result of operational changes associated with the proposed merger. This level of traffic increase could potentially result in a noticeable impact on local traffic densities around the intermodal facility. These studies will assist local jurisdictions in developing transportation plans for these areas.
- UP/SP shall maintain all rail line and grade crossing warning devices according to Federal Railroad Administration Standards (49 CFR Part 213).
- UP/SP shall transport all hazardous materials in compliance with the U.S. Department of Transportation Hazardous Materials Regulations (49 CFR Parts 171 to 180).
- 5. In the case of a hazardous materials spill, UP/SP shall follow appropriate emergency response procedures outlined in their Emergency Response Plans.

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CHAPTER 5.0 RAIL LINE SEGMENT, RAIL YARD, AND INTERMODAL FACILITY IMPACTS COLORADO

This chapter provides an analysis of the potential environmental impacts resulting from increased traffic on rail segments and increased activity at rail yards and intermodal facilities in Colorado as part of the proposed merger. In analyzing these impacts, the Surface Transportation Board's (Board) Section of Environmental Analysis (SEA), consistent with its environmental rules at 49 CFR Part 1105.7(e), specifically considered: (1) impacts to air quality, (2) impacts to noise, (3) impacts to local, regional and national transportation systems, and (4) impacts to safety.

The following rail line segments, rail yards, and intermodal facilities would meet or exceed the Board's environmental analysis thresholds:

- Denver to Cheyenne, Wyoming (UP).
- Denver to Oakley, Kansas (UP).
- Bond to Denver (SP).
- Dotsero to Bond (SP).
- Grand Junction rail yard (SP).
- Rolla rail yard (UP).
- Nogales rail yard (SP).
- LaSalle rail yard (UP)
- Denver intermodal facility (UP).

Each rail line segment, rail yard, or intermodal facility is discussed in this chapter by impact category, as follows:

- Air quality (Section 5.1).
- Air quality at grade crossings (Section 5.2).
- Noise (Section 5.3).
- Transportation systems (Section 5.4).
- Safety (Section 5.5).

If a rail line segment, rail yard, or intermodal facility would not experience impacts in any one of these categories as a result of proposed merger, no analysis was necessary. Accordingly, no discussion is provided.

Chapter 1 of this volume describes the thresholds established for analysis of potential air quality and noise impacts and the methods used to evaluate these and other potential impacts.



5.1 Air Quality Analysis

Colorado contains five Air Quality Control Regions (AQCR) with rail segments, rail yards, and/or intermodal facilities that would experience increased activity as a result of the proposed merger, and thereby trigger one or more of the Board's thresholds for analysis. In each of these regions, increased emissions along the length of rail segments through the AQCR (sometimes over a distance of hundreds of miles) could result in a potential for adverse air quality impacts. SEA concluded that increased rail operation activities in these regions would result in increased emissions of nitrogen dioxide (NO₂), which contributes to the formation of ozone. Increases in emissions, however, would be partially offset by decreases in train activity on other segments.

Potential adverse impacts to air quality in these five AQCRs as a result of the proposed merger are discussed individually below.

5.1.1 Commanche (AQCR 34)

Rail operations in the Commanche AQCR (34) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of a portion of one rail segment (Denver to Oakley, Kansas). There are no intermodal facilities or rail yards in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Commanche AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The Commanche AQCR (34) includes the counties of Baca, Bent, Cheyenne, Crowley, Elbert, Kiowa, Kit, Lincoln, Otero, Prowers, portions of which are designated as nonattainment for particulate matter (PM-10). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along one rail segment. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the Commanche nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on the seven rail segments that pass through or are connected to Commanche AQCR (34). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

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Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Denver CO	Pueblo CO	122	N/A	N/A	13%
Genesco KS	Pueblo CO	372	-12.9	-100%	-100%
La Junta CO	Stratford TX	171	2.7	31%	42%
Denver CO	Oakley KS	262	6.9	383%	444%
Pueblo CO	La Junta CO	65	2.7	25%	35%
Pueblo CO	Dotsero CO	222	-11.4	-94%	-95%
Pueblo CO	Alamosa TX	128	0.0	0%	0%

One of the seven rail segments listed above (Denver to Oakley, Kansas) was assessed for air quality impacts because it would exceeds the Board's analysis thresholds. The estimated increased emissions from this segment are shown below. The impacts of these emissions are discussed below in the section on Analysis of Activity.

Rail	AQCR	Estir	nated Increas	se in Emissio	ns (tons per	year)
Segment	(ID No.)	НС	00	NO ₂	SO ₂	PM-10
Denver - Oakley	34 .	33.6	104.5	782.4	56.7	17.0

Key

HC=hydrocarbons, CO = carbon monoxide, NO₂ = nitrogen dioxide, SO₂ = sulfur dicxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increase rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would results in increased level of all pollutants in the Commanche AQCR, primarily from mobile rail segment emissions.

5.1.2 Grand Mesa (AQCR 35)

Rail operations in the Grand Mesa AQCR (35) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of two segments (Dotsero to Bond and Bond to Denver), and the Grand Junction rail yard. There are no intermodal facilities in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined

the Grand Mesa AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The Grand Mesa AQCR (35) includes the counties of Delta, Eagle, Garfield, Gunnison, Hinsdale, Mesa, Montrose, Ouray, Pitkin, San Miguel, and Summit, portions of which are designated as nonattainment for total suspended particulates (TSP) and particulate matter (PM-10). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along two rail segments and the rail yard. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the Grand Mesa nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on six rail segments that pass through or are connected to Grand Mesa AQCR (35). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Charge	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Bond CO	Phippsburg CO	39	0.6	12%	0%
Dostero CO	Bond CO	38	8.0	133%	202%
Bond CO	Denver CO	127	8.6	78%	88%
Dotsero CO	Grand Jct. CO	106	-3.4	-17%	-20%
Grand Jct. CO	Helper UT	176	-4.3	21%	-27%
Pueblo CO	Dotsero CO	222	-11.4	-94%	-95%

Two of the six rail segments listed above (Dostero to Bond and Bond to Denver) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The increased emissions from these two segments are shown below. The impacts of these emissions are discussed below in the section on Analysis of combined Conditions.

Rail	AQCR	Estir	nated Increa	se in Emissio	ns (tons per	year)
Segment	(ID No.)	НС	со	NO ₂	SO ₂	PM-10
Dotsero - Bond	35	12.8	39.8	297.9	21.6	6.5
Bond - Denver	35	3.0	9.3	69.8	5.1	1.5
Total		15.8	49.1	367.7	26.7	8.0

Key:

HC=hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Emissions from Increased Rail Yard Activity

The proposed merger would lead to an increase in rail yard activity of 22.1 percent at the Grand Junction rail yard. This activity includes fueling, switching, and assembling of trains. The estimated increased emissions from this rail yard are shown below. The impact of these emissions are discussed below in the section on Analysis of Combined Activity.

Rail Yard	AQCR	Estin	nated Increa	se in Emissio	ns (tons per	year)	
	(ID No.)	HC CO NO ₂ SO ₂ PM-10					
Grand Jct.	35	0.0	0.1	0.7	0.1	0.0	

Key:

HC=hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Combined Activity

This section discusses the impact to the Grand Mesa AQCR based on the combined estimated emissions from the rail segments and the rail yard to the proposed merger. The total estimated increase in pollutant emissions are listed below:

Rail	AQCR	Estimated Increase in Emissions (tons per year)				
Facility	(ID No.)	HC	со	NO ₂	SO ₂	PM-10
Rail Segments Total	35	15.8	49.1	367.7	26.7	8.0
Rail Yards Total	35	0.0	0.1	0.7	0.1	0.0
Total		15.8	49.2	368.4	26.8	8.0

Key:

HC=hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Most of the estimated increases in pollutants that would result from the proposed merger in the Grand Mesa AQCR (35) would be from the rail segments, which are not stationary sources. Pollutants from the Grand Junction rail yard facility would be lower than the EPA definition of

significance (as defined in Prevention of Significant Deterioration at 40 CFR 51.166) for all pollutants. The increased activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of ozone and all other pollutants in the Grand Mesa AQCR, primarily from mobile rail segment emissions.

5.1.3. Metropolitan Denver (AQCR 36)

Rail operations in the Metropolitan Denver AQCR (36) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of three rail segments (Bond to Denver, Denver to Cheyenne, Wyoming, and Denver to Oakley, Kansas), the Rolla rail yard, and the Denver intermodal facility. Based on increased activity levels as a result of the proposed merger, SEA examined the Metropolitan Denver AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The Metropolitan Denver AQCR (36) includes the counties of Adams, Arapahoe, Boulder, Clear Creek, Denver, Douglas, Gilpin, and Jefferson, portions of which are designated as nonattainment for total suspended particulates (TSP), particulate matter (PM-10), and carbon monoxide (CO). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along three rail segments, the rail yard, and the intermodal facility. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as all pollutants in the Metropolitan Denver nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on four rail segments that pass through or are connected to Metropolitan Denver AQCR (36). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Bond CO	Denver CO	127	8.6	78%	88%
Denver CO	Pueblo CO	122	No Change	No Change	13%
Denver CO	Cheyenne WY	105	4.9	47%	79%
Denver CO	Oakley KS	262	6.9	383%	444%

Three of the four rail segments listed above (Bond to Denver, Denver to Cheyenne, Wyoming, and Denver to Oakley, Kansas) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The estimated increased emissions from these three segments are shown below. The impacts of these emissions are discussed in the section on Analysis of Combined Activity.

Rail	AQCR	Estin	nated Increas	e in Emissio	ns (tons per	year)
Segment	(ID No.)	HC	со	NO ₂	SO ₂	PM-10
Bond - Denver	36	15.4	48.0	359.1	26.0	7.8
Denver - Cheyenne	36	5.2	16.1	120.5	8.7	2.6
Denver - Oakley	36	15.1	46.9	351.3	25.5	7.6
Total		35.7	111.0	830.9	60.2	18.0

Key:

HC=hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Emissions from Increased Rail Yard Activity

The proposed merger would lead to an increase in rail yard activity of 53.8 percent at the Rolla rail yard. This activity includes fueling, switching, and assembling of trains. The estimated increased emissions from this rail yard are shown below. The impacts of these emissions are discussed below in the section on Analysis of Combined Activity.

Rail Yard	AQCR	2CR Estimated Increase in Emissions (tons per yea						
	(ID No.)	HC CO NO ₂ SO ₂ PM-1						
Rolla	36	0.1	0.2	1.6	0.1	0.0		

Key:

HC=hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Emissions from Increased Intermodal Activity



Combined Activity.

Intermodal	AQCR	Estin	nated Increa	se in Emissio	ns (tons per	year)
Facility	(ID No.)	НС	со	NO ₂	SO ₂	PM-10
Denver	36	1.6	7.3	8.6	0.2	1.5

Key:

HC=hydrocarbons, CO = carbon monoxide, NO₂ = nitrogen dioxide, SO₂ = sulfur dioxide, PM-10 = particulate matter less t₁ an 10 microns in diameter

Analysis of Combined Activity

This section discusses the impact to the Metropolitan Denver AQCR based on the combined estimated emissions from the rail segments, the rail yard, and the intermodal facility related to the proposed merger. The total estimated increase pollutant emissions are listed below:

Rail	AQCR	Estim	nated Increas	e in Emissio	ns (tons per	year)
Facility (ID No.)	(ID No.)	НС	со	NO ₂	SO ₂	PM-10
Rail Segments Total	36	35.7	111.0	830.9	60.2	18.0
Rail Yards Total	36	0.1	0.2	1.6	0.1	0.0
Intermodal Facilities Total	36	1.6	7.3	8.6	0.2	1.5
Total		37.4	118.5	841.1	60.5	19.5

Key:

HC=hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Most of the estimated increases in pollutants that would result from the proposed merger in the Metropolitan Denver AQCR (36) would be from rail segments, which are not stationary sources. Pollutants from the Rolla rail yard facility and the Denver intermodal facility would be lower than the EPA definition of significance (as defined in Prevention of Significant Deterioration at 40 CFR 51.166) for all pollutants. The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action

is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Metropolitan Denver AQCR, primarily from mobile rail segment emissions.

5.1.4 Pawnee (AQCR 37)

Rail operations in the Pawnee AQCR (37) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of a portion of one rail segment (Denver to Cheyenne, Wyoming), and the La Salle rail yard. There are no intermodal facilities in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Pawnee AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The Pawnee AQCR (37) includes the counties of Larimer, Logan, Morgan, Phillips, Sedgwick, Washington, Weld, and Yuma, portions of which are designated as nonattainment for total suspended particulates (TSP) and carbon monoxide (CO). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along one rail segment and the rail yard. SEA concludes that increased rail operations would contribute to increased levels of air pollution in the Pawnee nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on two rail segments that pass through or are connected to Pawnee AQCR (37). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin Station	Destination Station	Miles	Change in # of Trains/Day	%Change in Trains/Day	%Change in Tons/Year
Denver CO	Cheyenne WY	105	4.9	47%	79%
North Platte NE	Cheyenne WY	259	1.7	3%	5%

One of the two rail segments listed above (Denver to Cheyenne, Wyoming) was assessed for air quality impacts because it would exceed the Board's analysis thresholds. The estimated increased emissions from this segment are shown below. The impacts of these emissions are discussed in the section on Analysis of Combined Activity.

Rail	AQCR	Estin	nated Increa	se in Emissio	ns (tons per	year)
Segment	(ID No.)	НС	со	NO ₂	SO ₂	PM-10
Denver - Cheyenne	37	21.3	66.3	496.2	36.0	10.8

Key:

HC=hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Emissions from Increased Rail Yard Activity

The proposed merger would lead to an increase in rail yard activity of 28.3 percent at the La Salle rail yard. This activity includes fueling, switching, and assembling of trains. The estimated increased emissions from this rail yard are listed in the table below. The impacts of these emissions are discussed in the section on Analysis of Combined Activity.

Rail Yard	AQCR	Estimated Increase in Emissions (tons per year)						
	(ID No.)	НС	со	NO ₂	SO ₂	PM-10		
La Salle	37	0.1	0.2	1.5	0.1	0.0		

Key:

HC=hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Combined Activity

This section discusses the impact to the Pawnee AQCR based on the combined estimated emissions from the rail segment and the rail yard related to the proposed merger. The total estimated increase in pollutant emissions are listed below:

Rail	AQCR	Estimated Increase in Emissions (tons per year)						
Facility	(ID No.)	НС	со	NO ₂	SO ₂	PM-10		
Rail Segments Total	37	21.3	66.3	496.2	36.0	10.8		
Rail Yards Total	37	0.1	0.2	1.5	0.1	0.0		
Total		21.4	66.5	497.7	36.1	10.8		

Key:

HC=hydrocarbons, CO = carbon monoxide, NO₂ = nitrogen dioxide, SO₂ = sulfur dioxide, PM-10 \approx particulate matter less than 10 microns in diameter

Most of the estimated increases in pollutants that would result from the proposed merger in the Pawnee AQCR (37) would be from rail segments, which are not stationary sources. Pollutants from the La Salle rail yard facility would be lower than the EPA definition of significance (as defined in Prevention of Significant Deterioration at 40 CFR 51.166) for all pollutants. The increased activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Pawnee AQCR, primarily from mobile rail segment emissions.

5.1.5 Yampa (AQCR 40)

Rail operations in the Yampa AQCR (40) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of a portion of one rail segment (Bond to Denver). The are no intermodal facilities or rail yards in this AQCR that exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Yampa AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The Yampa AQCR (40) includes the counties of Grand, Jackson, Moffat, Rio Blanco, and Routt, portions of which are designated as nonattainment for total suspended particulates (TSP) and particulate matter (PM-10). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along one rail segment. SEA concludes that increased rail operations would contribute to increased levels of ozone and other pollutants in the Yampa nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to increased activity on one rail segments that passes through or is connected to Yampa AQCR (40). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for this segment would be as follows:

Origin	Destination	Miles	Change in #	%Change	%Change
Station	Station		of Trains/Day	in Trains/Day	in Tons/Year
Bond CO	Denver CO	127	8.6	78%	88%

The rail segment listed above (Bond to Denver) was assessed for air quality impacts because it would exceed the Board's analysis thresholds. The increased emissions from this segment are

shown below. The impacts of these emissions are discussed in the section on Analysis of Activity.

Rail Segment	AQCR	Estimated Increase in Emissions (tons per year)						
	(ID No.)	HC	со	NO ₂	SO ₂	PM-10		
Bond - Denver	40	24.4	76.0	568.6	41.2	12.3		

Key:

HC=hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail segment activity in this AQCR would result in increased levels of ozone and other pollutants. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Yampa AQCR, primarily from mobile rail segment emissions.

5.2 Air Quality Impacts at Grade Crossings

SEA assessed the overall air quality impacts of emissions from idling vehicles waiting at grade crossings. On average, annual emissions at a grade crossing with 5,000 vehicles per day would be 0.0021 tons of volatile organic compounds, 0.0013 tons of hydrocarbons, 0.0111 tons of carbon monoxide, and 0.0003 tons of nitrogen dioxide (NO₂) per train crossing. Increases in traffic over 5,000 vehicles per day would increase the estimated emissions accordingly. Railroad crossings tend to be grade-separated when roadway and/or train traffic volumes become high, so the air quality impacts at grade crossings would generally be relatively minor. In Colorado, most grade crossings carry 5,000 or fewer vehicles. SEA concludes that the no adverse air quality impacts would result from increased grade crossing delays as a result of the proposed merger. Section 5.4.2 of this chapter contains information on the transportation impacts of grade crossing delays associated with increased rail segment activity.

5.3 Noise Analysis

SEA performed noise analyses to identify noise-sensitive land uses where the proposed changes in operations could result in increases in noise exposure that meet or exceed the Board's environmental analysis thresholds at 49 CFR 1105.7(e)(6). The following discussion provides an estimate of the number of noise-sensitive receptors (e.g., residences, schools, churches) where the Board's thresholds would be exceeded, potentially causing an adverse increase in noise

exposure. The noise level impact assessment was based on the baseline and projected activity level data provided by the UP/SP.

5.3.1 Increased Rail Segment Activity

Dotsero to Bond

This rail segment, which currently has 6 trains/day, would experience an increase of 8 trains/day (a 202 percent change in gross ton-miles per year) as a result of the proposed merger. This would result in a 3.7 dBA increase in the L_{dn} along the alignment. The track primarily runs along the river. Whereas, the road connecting the five communities (Bond, Burns, Ranger, Sweetwater and Dotsero) is generally away from the river. The only grade crossing in this line segment appears to be south of Sweetwater. Consequently, residences, of which there are assumed to be none, would need to be within 200 feet of the track to be within the post-merger L_{dn} 65 contour. Therefore, there would appear to be no sensitive receptors within the 65 L_{dn} contour nor would there be after the proposed merger.

Bond to Denver

This rail segment currently has 11 trains/day and would experience an increase of 8.6 trains/day (a change of 88 percent in gross ton-miles per year) as a result of the proposed merger. This change in through train activity would result in an increase in the L_{dn} of 2.5 dBA along the alignment, exceeding the STB threshold for noise analysis. The majority of noise impacts occur at or near grade crossings where train horns are sounded as a warning. Currently, the noise impact zone at grade crossings extends approximately 500 feet perpendicular to the tracks, whereas after the merger the noise impact zone would increase to about 700 feet. Potential noise impact by community for the sensitive receptors along this segment are summarized below.

<u>Denver.</u> The rail line passes through industrial areas in Denver. Consequently there are no sensitive receptors within the L_{dn} 65 contour pre- or post-merger.

<u>Arvada.</u> The SP railroad track bisects this community which is located to the northwest of Denver. In Arvada the line runs through a primarily residential area with numerous homes within 700 feet on both sides of the tracks. East of Sheridan Boulevard, there are a couple of isolated residential areas that would be affected. West of Lamar Boulevard, the land use is essentially all residential on both sides of the line. In the vicinity of Pierce Boulevard, there are three large apartment complexes that would be affected. There are 10 grade crossings in Arvada. Currently there are 387 residences, one church and one school within the $65 L_{dn}$ contour. An additional 379 residences and one school would lie within the post-merger contour.



<u>Leyden.</u> This small community lies to the northwest of Arvada with the SP line running along the northern edge of town. Several residences within 700 feet of the tracks west of Simms Street would be affected. There is one grade crossing on the city boundary with Arvada at Simms Street. Currently there are 33 residences and one church within the 65 L_{dn} contour. An additional 24 residences would lie within the post-merger contour.

<u>Pinecliffe.</u> Pinecliffe is a small residential community located along Route 72 in the canyon of South Boulder Creek. The SP railroad track runs through the middle of town with one grade crossing. Currently there are 48 residences within the 65 L_{dn} contour. An additional 19 residences would lie within the post-merger contour.

<u>Rollinsville.</u> This small community, which is located along Route 119, has no grade crossings. Route 119 is on an overpass and the dirt road which runs west towards East Portal passes under the tracks. Currently there are two residences within the 65 L_{dn} contour. An additional 14 residences would lie within the post-merger contour.

<u>Tolland</u>. This small residential community lies to the south of the tracks along the dirt road to East Portal. There is one grade crossing to the east which allows access to several residences on the north side of Boulder Creek. The dirt road to East Portal crosses the line to the west of town. Currently there are five residences within the 65 L_{dn} contour. An additional 12 residences would lie within the post-merger contour. What appears to be an old schoolhouse is situated 400 feet from the tracks to the west of the grade crossing. However, it does not appear to be in use and was not included as an affected building.

<u>Old Winter Park.</u> The SP track emerges from Moffet Tunnel immediately to the east of the "Winter Park" ski area. In the area, are several large resort hotels, ski lodges and bed and breakfast establishments in addition to a several condominium complexes and other vacation homes. It has been assumed that trains do not sound their horn as they pass the buildings comprising the ski area, however this does not affect the analysis, because the ski resort buildings are not considered noise sensitive. A special ski train between Denver and Winter Park provides service to skiers. This ski train stops at the platform at "Winter Park" ski area and does sound its horn (several times) before leaving the platform. The large resort hotels in the area including Vintage Hotel, Raintree Inn and Iron Horse Resort Retreat are far enough away so as not to be within the L_{dn} 65 contour. The three hotels are from approximately 800 to 1200 feet from the entrance to Moffet Tunnel. To the north end of the community is one grade crossing providing access to two inns (Timber House and The Pines Inn) and a few vacation homes close to the track. Currently there are 21 residences including Timber house and The Pines Inn within the 65 L_{dn} contour. An additional eight residences would lie within the post-merger contour.

Winter Park. This town (originally known as Hideaway Park) on Route 40 just to the north

of the "Winter Park" ski area is a vacation community with a commercial district along the highway which runs through the middle of town. The line runs along the hillside east of the highway. There a numerous residences including several large condominium complexes (among them Silvarado I and II, Timber Ridge, Mountain View, Braidwood, King's Crossing and The Peaks) on both sides of the track. Also there are the Lich's Gate lodge and two bed and breakfast establishments within 700 feet of the track. Within the residential area of town are two grade crossings. Currently there are 51 residences (including Silvarado I and most of Silvarado II, Timber Ridge and King's Crossing) within the 65 L_{dn} contour. An additional 47 residences including Mountain View, Braidwood and The Peaks) would lie within the postmerger contour. Sundance West, Timber Run, Creekside, and Tall Pines condominium complexes appear to be outside the L_{dn} 65 post-merger contour. The track at the Vasquez Road grade crossing are on a curve of approximately 800 foot radius which results in significant wheel squeal from both the freight cars and locomotives. Although, the wheel squeal noise has not been included in the L_{dn} noise as discussed in the methodology, wheel squeal will produce additional noise impact for this area.

<u>Fraser.</u> This community which is located along Route 40 just a few miles north of Winter Park has the SP railroad tracks running through the middle of town which is primarily residential except for a commercial area along Route 40 and Eisenhower Avenue to the east of to the tracks. There is one grade crossing in town and one to the north of town. Currently there are 53 residences and the area's elementary school within the 65 L_{dn} contour. An additional 42 residences and one church would lie within the post-merger contour.

<u>Tabernash.</u> The SP line divides as it approaches this community on Route 40 from the south. If trains primarily use the easternmost track, there are no existing noise impacts and the merger would not change this situation. However, if it is assumed that trains pass through town, the one grade crossing results in additional residences being affected by noise. Based on this latter assumption, there currently are 24 residences within the 65 L_{dn} contour. An additional 16 residences would lie within the post-merger contour.

<u>Granby</u>. Most of the town of Granby sits on a bluff above the tracks which run parallel with Route 40 to the south of town. The land use along Route 40 is essentially all commercial. However, on the edge of the bluff there are a few residences. There is one grade crossing in town. Currently there are nine residences including one to the north of Route 40 and one south of the tracks within the 65 L_{dn} contour. No new residences, but the town school, would lie within the post-merger contour.

<u>Hot Sulphur Springs.</u> The SP line runs along the northern edge of the Colorado River with this community along the south side of the river. The town has an established hot springs resort to the north of one of the three grade crossings in the area. Currently there are three residences and the "Hot Sulphur Springs Resort" within the 65 L_{dn} contour. An additional two

residences to the east of town would lie within the post-merger contour. There are two historic hotels in town (Riverside and Stagestop), but they would be outside of the postmerger contour.

<u>Parshall.</u> This small community on Route 40 is situated north of the Colorado River with the SP tracks east of Route 40. The town has one grade crossing providing access to two residences and a wilderness area to the east of town. Currently there are 14 residences within the 65 L_{dn} contour. An additional 12 residences and the town's church would lie within the post-merger contour.

<u>Kremmling.</u> This is the last community along this line segment before the SP track enters the Colorado River gorge. Part of the town sits on a bluff above the track. The track runs along the southern edge of town with two grade crossings which provide access to cattle grazing land between the track and the Colorado River. Assuming the trains blow there horns at these crossings there are currently 23 residences within the 65 L_{dn} contour. An additional 26 residences would lie within the post-merger contour, assuming horns are blown at the grade crossings. If, in fact trains do not regularly blow there horns at these crossings, because of there little use there only a few residences (approximately 10) along Depot Street that are close enough to be affected (within 200 feet).

<u>Other Communities.</u> There are other small to very small communities (hamlets) along this line segment that would be affected by and increase in noise associated with the merger. They include: Plainview, Crescent, Lincoln Hills, East Portal, Elkdale, Troublesome, Radium, and Sate Bridge. Collectively these communities have 27 residences currently within the L_{dn} 65 contour. Included in this count are three residences at East Portal which probably belong to the railroad. An additional 17 residences (including one residence at East Portal presumed owned by the railroad) would lie within the post-merger contour.

In the Denver to Bond line segment, there are currently 700 residences, two schools, and two churches within the 65 L_{dn} contour. The majority of the impacts are due to train horns near grade crossings. With the proposed increase in train traffic, this would increase by 618 residences, two schools and two churches for a total of 1318 residences, four schools and four churches within the post-merger 65 L_{dn} contour as shown below.

	Number of Sensitive Receptors									
Community		Pre-Merge	r		Post-Merge	r				
	Resid.	School	Church	Resid.	School	Church				
Denver, CO	0	0	0	0	0	0				
Aivada, CO	387	1	1	766	2	1				
Leyden, CO	33	0	1	57	0	1				
Plainview, CO	3	0	0	5	0	0				
Crescent, CO	6	0	0	7	0	0				
Pinecliffe, CO	48	0	0	67	0	0				
Lincoln Hills, CO	1	0	0	3	0	0				
Rollinsville, CO	2	0	0	16	0	0				
Toliand, CO	5	0	0	17	0	0				
East Portal, CO	3	0	0	6	0	0				
Old Winter Park, CO	21	0	0	29	0	0				
Winter Park, CO	51	0	0	98	0	0				
Fraser, CO	53	1	0	95	1	1				
Tabernash, CO	24	0	0	40	0	0				
Elkdale, CO	5	0	0	9	0	0				
Granby, CO	9	0	0	9	1	0				
Hot Sulphur Springs,	3	0	0	5	0	0				
СО										
Parshall, CO	14	0	0	26	0	1				
Troublesome, CO	0	0	0	3	0	0				
Kremmling, CO	23	0	0	49	0	0				
Radium, CO	4	0	0	5	0	0				
State Bridge, CO	5	0	0	6	0	0				
TOTAL	700	2	2	1318	4	4				

NOISE SUMMARY BOND TO DENVER (SP) LINE SEGMENT

Denver to Oakley, Kansas

This rail segment, which currently has 1.8 trains/day, would experience an increase of 6.8 trains/day (a 443.6 percent change in gross ton-miles per year) as a result of the UP/SP merger. The increase would cause a 6.8 dBA increase in the L_{dn} along the alignment. The portion of this alignment within the state of Colorado runs from Arapahoe, near the Kansas border, to Denver. Currently the distance for potential noise impacts at grade crossings extends approximately 200 feet perpendicular to the tracks, whereas after the merger this distance would increase to about 600 feet. Potential noise impacts along the segment are described below:



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<u>Chevenne Wells.</u> The tracks pass along the southern edge of the town. There are three grade crossings, two of which are near residential areas. However, because the nearest noise-sensitive receptor is more than 200 feet away from grade crossing, there are currently no residences, schools, or churches within the 65 L_{dn} contour. After the proposed merger, there would be 20 residences which experience L_{dn} levels of 65 or more.

<u>Hugo.</u> Most of Hugo is situated north of the tracks, where the residential area is partially shielded by a row of commercial buildings which face the tracks. There is also a residential area south of the tracks. There are two grade crossings in Hugo, however, because the nearest noise sensitive receptor is more than 200 feet away from the nearest grade crossing, there are currently no residences, schools, or churches within the 65 L_{dn} contour. After the proposed merger, there would be 20 residences which experience L_{dn} levels of 65 or more.

<u>Agate.</u> Agate is a small town with one grade crossing. Because the nearest noise sensitive receptor is more than 200 feet away from the grade crossing, there are currently no residences, schools, or churches within the 65 L_{dn} contour. After the proposed merger, there would be 10 residences and one church which experience L_{dn} levels of 65 or more.

<u>Deer Trail.</u> The tracks pass approximately 400 feet to the west of Deer Trail. There are two grade crossings, one of which is located near a residential area. There are currently no residences, schools, or churches within the 65 L_{dn} contour. After the proposed merger, there would be 14 residences which experience L_{dn} levels of 65 or more.

<u>Byers.</u> The tracks run through the middle of Byers, which has two grade crossings. There are both commercial and residential land uses on both sides of the alignment. However, because the nearest noise sensitive receptor is more than 200 feet away from the nearest grade crossing, there are currently no residences, schools, or churches within the 65 L_{dn} contour. After the proposed merger, there would be 28 residences and one church which experience L_{dn} levels of 65 or more.

<u>Strasburg.</u> Strasburg is located over 800 feet north of the tracks. There are, however, some residences within 600 feet of the tracks between the two grade crossings. Because the nearest residence is more than 200 feet away from the nearest grade crossing, no residences are currently within the 65 L_{dn} contour. After the proposed merger, there would be 10 residences which experience L_{dn} levels of 65 or more.

<u>Bennett.</u> The tracks pass through the center of Bennett with both residences and commercial establishments on either side. There are two grade crossings in town. The first, near the older part of town, is primarily surrounded by commercial land use, while the second (located west of the town center) is near some residential development. Because the nearest noise sensitive receptor is more than 200 feet away from the nearest grade crossing,

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there are currently no residences, schools, or churches within the 65 L_{dn} contour. After the proposed merger, there would be 20 residences which experience L_{dn} levels of 65 or more.

<u>Watkins.</u> Watkins is a small, scattered residential community just east of Denver. Although the buildings are not dense, many lie within 600 feet of the town's only grade crossing. However, because the nearest noise sensitive receptor is more than 200 feet away from the grade crossing, there are currently no residences, schools, or churches within the 65 L_{dn} contour. After the proposed merger, there would be 10 residences and one school which experience L_{dn} levels of 65 or more.

<u>Denver.</u> The line segment ends at the Pullman Shops just west of York Street. There is a residential area with some commercial and light industrial land uses along the tracks between York Street and Colorado Boulevard. There are several grade crossings along this section which require the trains to sound their horns, but some of the residences benefit from the acoustical shielding provided by the one- and two-story commercial buildings along the tracks. Between Colorado Boulevard and Quebec Street there are no residential areas close to the tracks. There are residences within 600 feet of the tracks west of Interstate-225 and new residential development east of Tower Road. There is a grade crossing at Tower Road. Currently 26 residences are within the 65 L_{dn} contour. An additional 67 residences would lie within the post-merger contour.

<u>Other Communities.</u> Other communities along this line segment which would be affected by an increase in noise associated with the proposed UP/SP merger are: Arapahoe, Kit Carson, Wild Horse, Boyero, Clifford, Limon, and Manilla. Collectively these communities currently have no residences, schools, or churches within the 65 L_{dn} contour. Twenty-four residences and one church would be within the post-merger contour.

Currently 26 residences are within the 65 L_{dn} contour along the Colorado portion of the Oakley, KS to Denver line segment. With the proposed increase in train traffic, a total of 249 residences, 1 school and 3 churches would be within the post-merger 65 L_{dn} contour, as shown below.

NOISE SUMMARY FOR COLORADO PORTION OF THE OAKLEY, KANSAS TO DENVER (UP) LINE SEGMENT

	Number of Sensitive Receptors									
Community		Pre-Merge	r	Post-Merger						
	Resid.	School	Church	Resid.	School	Church				
Arapahoe, CO	0	0	0	8	0	0				
Cheyenne Wells, CO	0	0	0	20	0	0				
Kit Carson, CO	0	0	0	0	0	1				
Wild Horse, CO	0	0	0	5	0	0				
Boyero, CO	0	0	0	2	0	0				
Clifford, CO	0	0	0	1	0	0				
Hugo, CO	0	0	0	20	0	0				
Limon, CO	0	0	0	4	0	0				
Agate, CO	0	0	0	10	0	1				
Deer Trail, CO	0	0	0	14	0	0				
Byers, CO	0	0	0	28	0	1				
Strasburg, CO	0	0	0	10	0	0				
Bennett, CO	0	0	0	20	0	0				
Manilla, CO	0	0	0	4	0	0				
Watkins, CO	0	0	0	10	1	0				
Denver, CO	26	0	0	93	0	0				
TOTAL	26	0	0	249	1	3				

5.3.2 Increased Intermodal Facility Activity

The UP and SP intermodal facilities in the Denver area would be consolidated to the UP ramp location at 36th/40th Street, which is projected to experience an increase in activity greater than the Board's analysis threshold of 50 trucks per day. The UP Denver intermodal facility currently serves approximately 180 trucks per day. This facility is expected to experience an average increase of 61 trucks per day due to consolidation of SP Denver intermodal activities at the UP Denver facility. The UP Denver facility is located on 40th Avenue (State Route 33), south of Interstate 70 and west of York Street. The primary truck transportation route to the facility is via Interstate 70, Steele Street, York Street or Brighton Street, or 40th Avenue. The increase in noise level due to trucks at the intermodal facility traffic would be about 1.3 dB. The increase in noise levels from intermodal trucks and crane activity combined would not exceed the Board's impact criterion of 2 dBA L_{dm} therefore no further noise analysis was performed.

5.4 Transportation Systems

The Board's environmental rules at 49 CFR 1105.7(e)(2) require a description of the effects of the merger action on local and regional transportation systems. The primary transportation impacts of the proposed merger are related to: (1) additional truck traffic generated at those intermodal facilities where intermodal activity is projected to increase, and (2) increases in roadway delays at grade crossings as a result of increased train traffic on rail segments.

The impacts near intermodal facilities would result from increased truck traffic using local roadways to enter and exit the intermodal facility. For those facilities with an expected increase of 50 trucks or more per day, SEA analyzed the impacts of this increased traffic on the local roadway system in terms of increases in daily and peak hour traffic. SEA collected traffic count data from local and state transportation officials for this analysis. While offsetting benefits of the proposed merger were not quantified at the local level, the traffic impacts from added truck traffic at intermodal facilities would be partially offset in many localities by truck-to-rail diversions and consolidation of operations. SEA concludes that traffic increases around intermodal facilities in Colorado would not cause adverse impacts to the local transportation system.

SEA addressed the concerns of local communities about increased traffic delays at grade crossings through an evaluation of vehicle delay and wait times at grade crossing locations. It is important to note that the acceptability of delays at grade crossings varies substantially based on local conditions such as the location of land uses by type, availability of alternative travel routes, the degree of use by emergency vehicles, and other local variables. SEA concludes that increases in vehicle delay and/or wait time due to merger-related operational changes would not be excessive.

5.4.1 Intermodal Facilities

Denver

In Denver, the SP's existing intermodal facility is proposed to be consolidated into UP's Denver intermodal facility. Improvements to the intermodal facility include the construction of an additional yard track, paving for parking trailers and containers, and operation of a crane within the existing yard. Under the proposal, truck traffic at the existing SP intermodal facility would cease. Truck traffic at the expanded UP facility would grow from the present traffic level of 180 trucks/day to 241 trucks/day, an increase of 61 trucks per day. Access to the UP intermodal facility is via 40th Avenue (Colorado State Highway 33). The yard is located one-half mile south of Interstate-70. Current (1993) traffic volume on 40th Avenue is 8,600 vehicles/day. An additional 61 trucks represents an increase in ADT of less than 1 percent; no change in level-of-service on the area roadway network is expected.

5.4.2 Grade Crossings

In order to analyze the effects of the proposed merger on the roadway system at railroad grade crossings, SEA determined the number of crossings along rail segments that would exceed the Board's analysis thresholds for air quality analysis. Approximate delays over the course of 24 hours were calculated, as were average queue lengths. While an increase in the number of trains would result in more crossing closings per day, the length of the queue at each individual crossing closing event would change only if the train length changes. While the time of delay at grade crossings would increase proportionately with the increase in train traffic. Most of the grade crossings in Colorado carry fewer than 5,000 vehicles per day. Vehicle delay impacts at rail line segments in Colorado are summarized below:

Dotsero to Bond

Average rail traffic on the Dotsero to Bond line would increase from 6.0 to 14.0 trains per day, a train volume increase of about 233 percent. At the only grade crossing on this route, ADT is less than 5,000 vehicles per day. Delay to vehicle traffic due to the additional daily trains would increase from 13 minutes (pre-merger) to 29 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic ranges would be about one vehicle and the corresponding delay per vehicle would be about 1.35 minutes.

Bond to Denver

On the 127-mile Bond to Denver line, average rail traffic would increase from 11.0 to 19.6 trains per day, a train volume increase of about 78 percent. There are 35 grade crossings on this line segment, with only 5 with ADT of greater than 5,000 vehicles per day. At low speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic due to the additional daily trains would increase from 28 minutes (pre-merger) to 50 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 50 mph), delay would increase from 20 minutes (pre-merger) to 35 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic ranges from 1 to 14 vehicles and the corresponding delay per vehicle would vary from 1.11 to 2.94 minutes.

Denver to Cheyenne, Wyoming

On the Denver to Cheyenne, Wyoming line, average rail traffic would increase from 9.6 to 14.5 trains per day, a train volume increase of about 51 percent. There are 97 grade crossings in this segment, of which four have ADT counts greater than 5,000 vehicles per day. At low speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic due to the additional daily trains would increase from 25 minutes (pre-merger) to 37 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 50 mph), delay would

increase from 17 minutes (pre-merger) to 26 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic ranges from one to nine vehicles and the corresponding delay per vehicle would vary from 1.2 to 2.06 minutes.

Denver to Oakley, Kansas

Average rail traffic on the Denver to Oakley, Kansas line would increase from 1.8 to 8.7 trains per day, a train volume increase of about 383 percent. There are 85 grade crossings in this segment, of which 8 had ADT counts of greater than 5,000 vehicles per day. At low speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic due to the additional daily trains would increase from less than 5 minutes (pre-merger) to 22 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 40 mph), delay would increase from about 4 minutes (pre-merger) to 18 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic ranges from zero to 17 vehicles and the corresponding delay per vehicle would vary from 1.35 to 2.53 minutes.

5.5 Safety

SEA assessed a number of safety issues associated with the proposed merger, including the probability of increased accidents at grade crossings, and the risks associated with increased shipments of hazardous commodities.

5.5.1 Grade Crossing Safety

Accidents at grade crossings are a function of the number of trains, train speed, number of train tracks, grade crossing condition and warning facilities, roadway condition and number of lanes, and amount of roadway traffic. Since the proposed merger would not result in any new grade crossings and would affect only the number of trains passing through existing grade crossings, the probability of an increase in the number of accidents at grade crossings would depend on the increased number of trains on rail segments. SEA concludes that the accident exposure in Colorado would range from an increase of 383 percent to a decrease of 100 percent depending on the rail segment.

5.5.2 Hazardous Commodities

Federal regulations govern the transport of hazardous commodities. The proposed merger is not expected to affect the policies or operation of UP/SP concerning the type or quantity of hazardous commodities transported or the method of handling. A total of 420,000 and 305,000 hazardous commodity shipments were transported by UP and SP, respectively, in 1994. These shipments resulted in 118 reportable incidents for UP, and 35 incidents for SP. Therefore, 99.98 percent of the shipments arrived at their destination without incident. The Applicants have noted

that the consolidation of the companies will result in a "best practice" approach to hazardous commodity handling. SEA concludes that, using the same rate of safe transport, the projected increases in accidents and shipments of hazardous materials as a result of the proposed merger do not constitute a significant safety risk.

5.6 Summary of Agency Comments

In considering the potential environmental impacts of the increased rail line segment, rail yard, and intermodal facility activity associated with the proposed UP/SP merger, SEA sent consultation letters to various Federal, state, and local agencies on January 29, 1996. These letters, samples of which are included in **Volume 5**, Appendix D, Exhibits D-1 through D-9, provided early notification of this EA and requested information and comments on the effects to the environment of the proposed merger and related operational changes. Each letter included a state information packet and maps that listed the specific merger-related proposals. A sample packet is shown in **Volume 5**, Appendix D, Exhibit D-10. SEA contacted agencies by telephone to alert them to the distribution of the consultation letter and to confirm its receipt. The Applicant also contacted these agencies in preparation of the Environmental Report which accompanied the merger application. That correspondence and all responses were reviewed, verified, and considered by SEA in the preparation of this EA.

All comments received (through mid-March 1996) in response to the January 29th letter are shown in **Volume 5**, Appendix E, Exhibits E-1 through E-11. As necessary, SEA conducted additional consultation with agencies as shown in **Volume 5**, Appendix E, Table E-1. Agency comments regarding the proposed increases in rail line segment, rail yard, and intermodal facility activities in Colorado are summarized below:

- National Forest Service indicates that being considered as interested party is not acceptable. The proceeding could have profound effect on their management of this corridor, and hazardous material liability for the federal taxpayer. Concerns include implications of a new operator on scenic and sensitive National Forest System lands crossed by the line and consideration of railbanking. They have substantial concerns about hazardous substances under CERCLA.
- U.S. Fish and Wildlife Service have no comments due to staffing and budget constraints.
- Natural Resources Conservation Service indicates that there is no apparent impact on prime farmland or farmland of statewide importance.
- Colorado Historical Society indicates that in order to supply information about known historic, archaeological or cultural resources, it will be necessary to provide lega!

locations (township/range/section) and universal transverse mercator (UTM) points for unsectioned areas.

Cheyenne County expressed concerns regarding the accessibility of emergency equipment (specific locations given). There are three crossings within 1.4 miles. They requesting that in process of line upgrade, automatic warning signals be installed (where needed). Trains have started fires and UP has not maintained access roads along track to provide access for fire fighting equipment. Lack of an access road also precludes treatment of bindweed on right-of-way which can smother crops if not treated.

Crowley County expressed concerns about increased local truck traffic and additional traffic would increase deterioration of existing highway and increase accidents and fatalities. They cited the Foxley Cattle Company feedlot that now ships grain via rail that would be by truck. There are also concerns about additional hazardous material movement via truck which would create emission problems.

Lake County expressed concerns for local regional and national transportation systems; local land use; air emissions and ambient air quality conditions; public health and safety including hazardous materials, and economic impacts. They stated concerns that hazardous materials would be moved from rail to truck, with increases in air emission, risk of exposure, accidents or spills, and damage and maintenance costs to highway and bridges.

Mesa County indicated that an increase in rail traffic will increase conflicts at-grade crossings. They noted the crossing at the east end of SP yard that now blocks vehicle crossing for 20+ minutes per day. Requests that UP/SP cooperate with the County in locating a site for grade-separated crossing for Grand Junction yard and participate with the County in financing its construction.

5.7 Suggested Mitigation

No specific mitigation measures were suggested for the proposed changes to rail line segment, rail yard, or intermodal facility operations in Colorado by the various parties consulted in the process of preparing the EA for the proposed merger. (See **Volume 5**, Appendices D and E, for agency consultation lists.)

5.8 SEA Recommended Mitigation

This section contains the mitigation measures that SEA recommends that the Board impose in any final decision approving the changes to rail line segment, rail yard, and intermodal facility operations in Colorado. SEA will consider all comments on the EA in making its final recommendation to the Board. The Board will consider SEA's recommendations and the environmental record in making its final decision. SEA's recommended mitigation is as follows.

Air Quality

 UP/SP shall consult with appropriate Federal, state and local agencies responsible for regulating air quality in AQCRs 34, 35, 36, 37, and 40, concerning any possible mitigation measures to reduce any potential adverse emissions from the rail segments, rail yards, and intermodal facilities in these five regions. UP/SP shall advise SEA of the results of these consultations.

Noise

- To reduce potential noise level impacts to sensitive receptors along the Denver tc Cheyenne, Wyoming, Denver to Oakley, Kansas, Bond to Dotsero, and Dotsero to Bond rail line segments, UP/SP shall consult with appropriate state and local agencies to develop noise abatement plans. The Applicant shall advise SEA of the results of these consultations and provide SEA with a copy of any resulting noise abatement plans.
- To reduce potential noise level impacts to sensitive receptors near the Denver intermodal facility, UP/SP shall consult with appropriate state and local agencies to develop noise abatement plans. The applicants shall advise SEA of the results of these consultations and provide SEA with a copy of any resulting noise abatement plans.

Transportation and Safety

- UP/SP shall consult with Cheyenne County and Mesa County which are concerned about safety and the potential effects of additional rail traffic. Accordingly, UP/SP and the above counties shall develop a mutually agreeable mitigation plan. For Mesa County, this would include consideration of the need for a grade-separated crossing for Grand Junction yard. UP/SP periodically advise SEA of the status of the consultations and shall submit any final mitigation plans to SEA.
- 2. UP/SP shall maintain all rail lines and grade crossing warning devices according to Federal Railroad Administration Standards (49 CFR Part 213).
- 3. UP/SP shall transport all hazardous materials in compliance with the U.S.


Department of Transportation Hazardous Materials Regulations (49 CFR Parts 171 to 180).

4. In the case of a hazardous materials spill, UP/SP shall follow appropriate emergency response procedures outlined in their Emergency Response Plans.

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CHAPTER 6.0 RAIL LINE SEGMENT, RAIL YARD, AND INTERMODAL FACILITY IMPACTS ILLINOIS

This chapter provides an analysis of the potential environmental impacts resulting from increased traffic on rail segments and increased activity at rail yards and intermodal facilities in Illinois as part of the proposed merger. In analyzing these impacts, the Surface Transportation Board's (Board) Section of Environmental Analysis (SEA), consistent with its environmental rules at 49 CFR Part 1105.7(e), specifically considered: (1) impacts to air quality, (2) impacts to noise, (3) impacts to local, regional and national transportation systems, and (4) impacts to safety.

The following rail line segments, rail yards, and intermodal facilities would meet or exceed the Board's environmental analysis thresholds:

- Nelson to Clinton, Iowa (UP).
- Nelson to Geneva (UP).
- Geneva to West Chicago (UP).
- Galesburg to Buda (BN/SF).
- Buda to Nelson (UP).
- Villa Grove to Chicago (UP).
- Salem rail yard (UP).
- Canal Street (Chicago) rail yard (UP).
- Dupo (East St. Louis) intermodal facility (UP).
- Global II intermodal facility (UP).
- Canal Street (Chicago) intermodal facility (UP).
- Dolton intermodal facility (UP).

Each rail line segment, rail yard, or intermodal facility is discussed in this chapter by impact category, as follows:

- Air quality (Section 6.1).
- Air quality at grade crossings (Section 6.2).
- Noise (Section 6.3).
- Transportation systems (Section 6.4).
- Safety (Section 6.5).

If a rail line segment, rail yard, or intermodal facility would not experience impacts in any one of these categories as a result of proposed merger, no analysis was necessary. Accordingly, no discussion is provided.



Chapter 1 of this volume describes the thresholds established for analysis of potential air quality and noise impacts and the methods used to evaluate these and other potential impacts.

6.1 Air Quality Analysis

Illinois contains eight Air Quality Control Regions (AQCRs) with rail segments, rail yards, and/or intermodal facilities that would experience increased activity as a result of the proposed merger, and thereby trigger one or more of the Board's thresholds for analysis. In each of these regions, increased emissions along the length of rail segments through the AQCR (sometimes over a distance of hundreds of miles) could result in a potential for adverse air quality impacts. SEA concludes that increased rail operation activities in these regions would result in increased emissions of nitrogen dioxide (NO₂), which contributes to the formation of ozone. Increases in emissions, however, would be partially offset by decreases in train activity on other segments. Two of the eight AQCRs in Illinois (Metropolitan Chicago and Metropolitan St. Louis) are in nonattainment for ozone.

Potential adverse impacts to air quality in these eight AQCRs as a result of the proposed merger are discussed individually below.

6.1.1 Burlington-Keokuk (AQCR 65)

Rail operations in the Burlington-Keokuk AQCR (65) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of a portion of one rail segment (Galesburg to Buda). There are no rail yards or intermodal facilities in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Burlington-Keokuk AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality may result from increased rail segment activity in this AQCR.

The Burlington-Keokuk AQCR (65) includes the counties of Fulton, Hancock, Henderson, Knox, McDonough, Mason, Peoria, Tazewell, Warren, and Woodford, all of which are designated as in attainment. In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along one rail segment. SEA concludes that increased rail operations would contribute to increased level of ozone and other pollutants in the Burlington-Keokuk attainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on seven rail segments that pass through or are connected to Burlington-Keokuk AQCR (65). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin Station	Destination Station	Miles	Change in # of Trains/Day	%Change in Trains/Day	%Change in Tons/Year
Buda IL	Peoria Jct. IL	46	0.3	5%	-18%
Galesburg IL	Buda IL	43	6.4	38%	17%
Galesburg IL	Ft. Madison IA	37	7.2	18%	7%
Galesburg IL	W. Quincy IL	97	-1.1	-9%	-17%
Joliet IL	Galesburg IL	141	-1.2	-3%	-12%
Peoria Jct. IL	Barr IL	51	2.0	50%	51%
W. Quincy IL	Kansas City MO	209	-1.1	-16%	-39%

One of the seven rail segments listed above (Galesburg to Buda) was assessed for air quality impacts because it would exceed the Board's analysis thresholds (while the Burlington-Keokuk AQCR is in attainment, this segment exceeds the threshold because at least a portion of it passes through a nonattainment AQCR). The estimated increased emissions from this segment are shown below. The impacts of these emissions are discussed below in the section on Analysis of Activity.

Rail AQCR Segment (ID No.)	AQCR	Estimated Increase in Emissions (tons per year)				
	(ID No.)	HC	со	NO ₂	SO ₂	PM-10
Galesburg - Buda	65	2.2	7.0	52.2	3.8	1.1

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail segment activity in this AQCR would result in increased levels of ozone and other pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail divisions. Overall, SEA concludes that while the proposed action is not subject of National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Burlington-Keokuk AQCR, primarily from mobile rail segment emissions.

6.1.2 East Central Illinois (AQCR 66)

Rail operations in the East Central Illinois AQCR (66) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of a portion of one rail segment (Villa Grove to Chicago). There are no intermodal facilities or any rail yards in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the East Central Illinois AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality may result from increased rail segment activity in this AQCR.

The East Central Illinois AQCR (66) includes the counties of Champaign, Clark, Coles, Cumberland, De Witt, Douglas, Edgar, Ford, Iroquois, Livingstone, McLean, Moultrie, Piatt, Shelby, and Vermillion, all of which are designated as in attainment. In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along one rail segment. SEA concludes that increased rail operations would contribute to increased levels of ozone and other pollutants in the East Central Illinois attainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on seven rail segments that pass through or are connected to East Central Illinois AQCR (66). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin Station	Destination Station	Miles	Change in # of Trains/Day	%Change in Trains/Day	%Change in Tons/Year
Bloomington IL	Springfield IL	56	-2.2	-19%	-35%
Villa Grove IL	Chicago IL	127	3.0	19%	24%
Findlay Jct. IL	Salem IL	65	3.0	20%	49%
Findlay Jct. IL.	E. St. Louis IL	95	-1.1	-14%	-2%
Joliet IL	Galesburg IL	141	-1.2	-3%	-12%
Joliet IL	Bloomington IL	90	-2.3	-22%	-36%
Villa Grove IL	Findlay Jct. IL	40	1.9	8%	24%

One of the seven rail segments listed above (Villa Grove to Chicago) was assessed for air quality impacts because it would exceed the Board's analysis thresholds (while the East Central Illinois AQCR is in attainment, this segment exceeds the threshold because at least a portion of it passes through a nonattainment AQCR). The estimated increased emissions from this segment are shown below. The impacts of these emissions are discussed below in the section on Analysis of Activity.

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Rail AQCR	Estimated Increase in Emissions (tons per year)					
Segment	Segment (ID No.)	HC	со	NO ₂	SO ₂	PM-10
Villa Grove- Chicago	66	9.9	30.9	231.4	16.8	5.0

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail operations activity in this AQCR would result in increased levels of ozone and other pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail divisions. Overall, SEA concludes that while the proposed action is not subject of National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the East Central Illinois AQCR, primarily from mobile rail segment emissions.

6.1.3 Metropolitan Chicago (AQCR 67)

Rail operations in the Metropolitan Chicago AQCR (67) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of four rail segments (Villa Grove to Chicago, W. Chicago to Chicago-Proviso, Nelson to Geneva, and Geneva to W. Chicago), the Canal Street rail yard, and the Dolton, Global II, and Canal Street intermodal facilities. Based on increased activity levels as a result of the proposed merger, SEA examined the Metropolitan Chicago AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality may result from increased rail segment activity in this AQCR.

The Metropolitan Chicago AQCR (67) which includes the counties of Cook, DuPage, Grundy, Kane, Kankakee, Kendall, Lake, McHenry, and Will is designated as nonattainment for particulate matter (PM-10), carbon monoxide (CO), total suspended particulates (TSP), and ozone (O₃). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along four rail segments, the rail yard, and the intermodal facilities. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the Metropolitan Chicago nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on 20 rail segments that pass through or are connected to Metropolitan Chicago AQCR (67). The total length (in miles), the change in

the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin Station	Destination Station	Miles	Change in # of Trains/Day	%Change in Trains/Day	%Change in Tons/Year
Villa Grove IL	Chicago IL	127	3.0	19%	24%
Chicago IL	Chicago IL Joliet IL (via IC)		1.6	12%	10%
Chicago IL	Joliet IL (via BN/SF)	27	-1.2	-3%	-14%
Chicago IL (Cicero)	Buda IL	112	-2.5	-15%	-11%
Chicago IL (Proviso)	Normal IL	11	-0.4	-1%	1%
W. Chicago IL	Chicago- Proviso IL	15	14.1	15%	22%
Nelson IL	Geneva IL	69	14.1	32%	23%
Harvard IL	Janesville WI	26	-1.0	-15%	-0%
Joliet IL	Bloomington IL	90	-2.3	-22%	-36%
Joliet IL	Galesburg IL	141	-1.2	-3%	-12%
Lake Bluff IL	Waukegan IL	6	0.6	1%	12%
Norma IL	Seeger IL	1	-1.0	-20%	-1%
Norma IL	Valley IL	10	0.6	4%	1%
Seeger IL	Harvard IL	42	-1.0	-4%	-1%
Tower KO IL	K D Jct. WI	22	0.0	0%	0%
Tower KO IL	Lake Bluff IL	2	0.6	28%	7%
Valley IL	Tower KO IL	8	0.6	4%	1%
Waukegan IL	Kenosha WI	16	-1.4	-6%	18%
W. Chicago IL	Rockford IL	63	-1.0	-42%	-2%
Geneva IL	W. Chicago IL	6	14.1	18%	23%

Four of the 20 rail segments listed above (Villa Grove to Chicago, W. Chicago to Chicago-Proviso, Nelson to Geneva, and Geneva to W. Chicago) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The estimated increased emissions from these four segments are shown below. The impacts of these emissions are discussed in the section on Analysis of Combined Activity.

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Rail	AQCR	Estimated Increase in Emissions (tons per year)					
Segment	(ID No.)	HC	CO	NO ₂	SO ₂	PM-10	
Vilia Grove -Chicago	67	4.9	15.2	114.0	8.3	2.5	
W. Chicago - Chicago (Proviso)	67	5.8	18.0	134.6	9.8	2.9	
Nelson - Geneva	67	5.3	16.5	123.8	9.0	2.7	
Geneva - W. Chicago	67	2.3	7.2	53.8	3.9	1.2	
Total		18.3	56.9	426.2	31.0	9.3	

<u>Key</u>: HC = hydrocarbons, CO = carbon monoxide, $NO_2 =$ nitrogen dioxide, $SO_2 =$ sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Emissions from Increased Rail Yard Activity

The proposed merger would lead to an increase in rail yard activity of 62.0 percent at the Canal Street rail yard. This activity includes fueling, switching, and assembling of trains. The estimated increased emissions from this rail yard are shown below. The impacts of these emissions are discussed below in the section on Analysis of Combined Activity.

Rail Yard AQCR (ID No.)	AQCR	Estin	nated Increa	se in Emissio	ns (tons par	(car)
	НС	со	NO ₂	SO ₂	PM-10	
Canal St.	67	0.4	1.1	8.5	0.6	0.2

Key:

HC = hydrocarbons, CO = carbon monoxide, NO₂ = nitrogen dioxide, SO₂ = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Emissions from Increased Intermodal Activity

The proposed merger would lead to an increase of 85 trucks per day at the Dolton facility, 425 trucks per day at the Global II facility, and 186 trucks per day at the Canal Street facility. The estimated increased emissions from these three intermodal facilities are shown below. The impacts of these emissions are discussed below in the section on Analysis of Combined Activity.



Intermodal AQ Facility (ID	AQCR	Estimated Increase in Emissions (tons per year)					
	(ID NO.)	НС	со	NO ₂	SO ₂	PM-10	
Dolton	67	2.2	10.2	12.0	0.3	2.1	
Giobal II	67	10.9	50.7	59.9	1.7	10.6	
Canal St.	67	4.8	22.2	26.3	0.7	4.7	
Total		17.9	83.1	98.2	2.7	17.4	

Key:

HC = hydrocarbons, CO = carbon monoxide, NO₂ = nitrogen dioxide, SO₂ = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Combined Activity

This section discusses the impact to the Metropolitan Chicago AQCR based on the combined estimated emissions from the rail segments, the rail yard, and the intermodal facilities related to the proposed merger. The total estimated increase in pollutant emissions are listed below:

Rail	AQCR	Estim	ated Increas	e in Emissio	ns (tons per	year)
Facility	acility (ID No.)	НС	со	NO ₂	SO ₂	PM-10
Rail Segments Total	67	18.3	56.9	426.2	31.0	9.3
Rail Yards Total	67	0.4	1.1	8.5	0.6	0.2
Intermodal Facilities Total	67	17.9	83.1	98.2	2.7	17.4
Total		36.6	141.1	532.9	34.3	26.9

Key:

HC = hydrocarbons, CO = carbon monoxide, NO₂ = nitrogen dioxide, SO₂ = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

A majority of the estimated pollutants that would result from the proposed merger in the Metropolitan Chicago AQCR would be from rail segments, which are not stationary sources. Pollutants from the Canal Street rail yard facility and the Dolton, Global II, and Canal Street intermodal facilities would exceed the EPA definition of significance (as defined in Prevention of Significant Deterioration at 40 CFR 51.166) for NO₂. The increased rail segment activity in this AQCR would result in increased levels of ozone and other types of pollution, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however because, they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA

concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Metropolitan Chicago AQCR, primarily from mobile rail segment emissions.

6.1.4 Metropolitan Quad Cities (AQCR 69)

Rail operations in the Metropolitan Quad Cities AQCR (69) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of a portion of one rail segment (Galesburg to Buda). There are no intermodal facilities or any rail yards in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Metropolitan Quad Cities AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality may result from increased rail segment activity in this AQCR.

The Metropolitan Quad Cities AQCR (69) includes the counties of Carroll, Henry, Mercer, Rock Island, and Whiteside, portions of which are designated as nonattainment for sulfur dioxide (SO₂). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along one rail segment. SEA concludes that increase rail operations would contribute to increased levels of ozone and other pollutants in the Metropolitan Quad Cities nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on one rail segment that passes through or is connected to Metropolitan Quad Cities (69). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for this segment would be as follows:

Origin	Destination	Miles	Change in #	%Change	%Change
Station	Station		of Trains/Day	in Trains/Day	in Tons/Year
Galesburg IL	Buda IL	43	6.4	38%	17%

The rail segment listed above (Galesburg to Buda) was assessed for air quality impacts because it would exceed the Board's analysis thresholds. The estimated increased emissions from this segment are shown below. The impacts of these emissions are discussed below in the section on Analysis of Activity.



Rail A Segment (II	AQCR	Estimated Increase in Emissions (tons per year)					
	(ID No.)	HC	со	NO ₂	SO ₂	PM-10	
Galesburg - Buda	69	1.4	4.5	33.7	2.4	0.7	

Key:

HC = hydrocarbons, CO = carbon monoxide, NO₂ = nitrogen dioxide, SO₂ = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail segment activity in this AQCR would result in increased levels of ozone and other pollution. These estimates of increased emissions is conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail divisions. Overall, SEA concludes that while the proposed action is not subject of National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Metropolitan Quad Cities AQCR, primarily from mobile rail segment emissions.

6.1.5 Metropolitan St Louis (AQCR 70)

Rail operations in the Metropolitan St. Louis AQCR (70) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of the Dupo (East St. Louis) intermodal facility. There are no rail segments nor any rail yards in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Metropolitan St. Louis AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality may result from increased intermodal facility activity in this AQCR.

The Metropolitan St. Louis AQCR (70) includes the counties of Bond, Clinton, Madison, Monroe, Randolph, St. Clair, and Washington, portions of which are designated as nonattainment for particulate matter (PM-10), carbon monoxide (CO), total suspended particulates (TSP) and ozone (O_3). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity at the intermodal facility. SEA concludes that increased rail operations would contribute to increased levels of ozone and other pollutants in the Metropolitan St. Louis nonattainment area.

Emissions from Increased Intermodal Activity

The proposed merger would lead to an increase of 178 trucks per day at the Dupo facility. The estimated increased emissions from this intermodal facility are shown below. The impacts of these emissions are discussed below in the section on Analysis of Activity.



Intermodal	AQCR	Estir	nated Increas	se in Emissio	ons (tons per	year)
Facility	(10 110.)	HC	со	NO ₂	SO ₂	PM- 10
Dupo (E. St. Louis)	70	4.5	21.2	25.1	0.7	4.4

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide. SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

Pollutants from the Dupo (East St. Louis) intermodal facility would be lower than the EPA definition of significance (as defined in Prevention of Significant Deterioration at 40 CFR 51.166) for all pollutants. The increased intermodal facility activity in this AQCR would result in increased levels of ozone and other pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Metropolitan St. Louis AQCR.

6.1.6 North Central Illinois (AQCR 71)

Rail operations in the North Central Illinois AQCR (71) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of four rail segments (Galesburg to Buda, Nelson to Geneva, Buda to Nelson, and Nelson to Clinton, Iowa). There are no intermodal facilities or any rail yards in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the North Central Illinois AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality may result from increased rail segment activity in this AQCR.

The North Central Illinois AQCR (71) includes the counties of Bureau, La Salle, Lee, Marshall, Putnam, and Stark, portions of which are designated as nonattainment for particulate matter (PM-10) and total suspended particulates (TSP). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along four rail segments. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the North Central Illinois nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on six rail segments that pass through or are connected to North Central Illinois AQCR (71). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin Station	Destination Station	Miles	Change in # of Trains/Day	%Change in Trains/Day	%Change in Tons/Year
Galesburg IL	Buda IL	43	6.4	38%	17%
Buda IL	Peoria Jct. IL	46	0.3	5%	-18%
Chicago IL (Cicero)	Buda IL	112	-2.5	-15%	-11%
Nelson IL	Geneva IL	69	14.1	32%	23%
Buda IL	Nelson IL	34	10.1	166%	97%
Nelson IL	Clinton IA	34	4.0	9%	8%

Four of the six rail segments listed above (Galesburg to Buda, Nelson to Geneva, Buda to Nelson, and Nelson to Clinton) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The estimated increased emissions from these four segments are shown below. The impacts of these emissions are discussed below in the section on Analysis of Activity.

Rail	AQCR	Estimated Increase in Emissions (tons per year)					
Segment	(ID No.)	НС	со	NO ₂	SO ₂	PM-10	
Galesburg - Buda	71	1.0	3.1	22.9	1.7	0.5	
Nelson - Geneva	71	10.1	31.4	235.3	17.0	5.1	
Buda - Nelson	71	8.1	25.3	189.3	13.7	4.1	
Nelson - Clinton	71	0.2	0.5	4.0	0.3	0.1	
Total		19.4	60.3	451.5	32.7	9.8	

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail segment activity in this AQCR would result in increased levels of ozone and other pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail divisions. Overall, SEA concludes that while the proposed action is not subject of National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the North Central Illinois AQCR, primarily from mobile rail segment emissions.

6.1.7 Rockford-Janesville-Beloit (AQCR 73)

Rail operations in the Rockford-Janesville-Beloit AQCR (73) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of a portion of one rail segment (Nelson to Geneva). There are no intermodal facilities or any rail yards in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Rockford-Janesville-Beloit AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality may result from increased rail segment activity in this AQCR.

The Rockford-Janesville-Beloit AQCR (73) includes the counties of Boone, DeKalb, Ogle, Stephenson, and Winnebago, all of which are designated as in attainment. In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along one rail segment. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the Rockford-Janesville-Beloit attainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changed activity on three rail segments that pass through or are connected to Rockford-Janesville-Beloit AQCR (73). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin Station	Destination Station	Miles	Change in # of Trains/Day	%Change in Trains/Day	%Change in Tons/Year
Nelson IL	Geneva IL	69	14.1	32%	23%
Harvard IL	Janesville WI	26	-1.0	-15%	-1%
W. Chicago IL	Rockford IL	63	-1.0	-42%	-2%

One of the three rail segments listed above (Nelson to Geneva) was assessed for air quality impacts because it would exceed the Board's analysis thresholds. The estimated increased

emissions from this segment are shown below. The impacts of these emissions are discussed below in the section on Analysis of Activity.

Rail	AQCR	Estimated Increase in Emissions (tons per year)				
Segment (ID No.)	НС	со	NO ₂	SO ₂	PM-10	
Nelson - Geneva	73	11.2	34.7	260.0	18.8	5.6

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail segment activity in this AQCR would result in increased levels of ozone and other pollutants, with the greatest increase in NO_2 . These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail divisions. Overall, SEA concludes that while the proposed action is not subject of National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of air pollution in the Rockford-Janesville-Beloit AQCR, primarily from mobile rail segment emissions.

6.1.8 Southeast Illinois (AQCR 74)

Rail operations in the Southeast Illinois AQCR (74) associated with the proposed UP and SP merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of the Salem rail yard. There are no rail segments or any intermodal facilities in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Southeast Illinois AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality may result from increased rail yard activity in this AQCR.

The Southeast Illinois AQCR (74) includes the counties of Clay, Crawford, Edwards, Effingham, Fayette, Franklin, Gallatin, Hamilton, Hardin, Jackson, Jasper, Jefferson, Lawrence, Marion, Perry, Richland, Saline, Wabash, Wayne, White, and Williamson, all of which are designated as in attainment. In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity at the Salem rail yard. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the Southeast Illinois attainment area.

Emissions from Increased Rail Yard Activity

The proposed merger would lead to an increase in rail yard activity of 108.1 percent in the Salem Yard. This activity includes fueling, switching, and assembling of trains. The estimated increased emissions from this rail yard are shown below. The impacts of these emissions are discussed below in the section on Analysis of Activity.

Rail Yard	I Yard AQCR (ID No.)	Estin	Estimated Increase in Emissions (tons per year)					
		НС	со	NO ₂	SO ₂	PM-10		
Salem	74	0.1	0.4	3.0	0.2	0.1		

Key:

HC = hydrocarbons, CO = carbon monoxide, $NO_2 = nitrogen dioxide$, $SO_2 = sulfur dioxide$, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

Pollutants from the Salem rail yard facility would be lower than the EPA definition of significance (as defined in Prevention of Significant Deterioration at 40 CFR 51.166) for all pollutants. The increased rail yard activity in this AQCR would result in increased levels of ozone and other pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Southeast Illinois AQCR.

6.2 Air Quality Impacts at Grade Crossings

SEA assessed the overall air quality impacts of emissions from idling vehicles waiting at grade crossings. On average, annual emissions at a grade crossing with 5,000 vehicles per day would be 0.0021 ton of volatile organic compounds, 0.0013 ton of hydrocarbons, 0.0111 ton of carbon monoxide, and 0.0003 ton of nitrogen dioxide (NO₂) per train crossing. Traffic volumes of more than 5,000 vehicles per day would increase the estimated emissions accordingly. Railroad crossings tend to be grade-separated when roadway and/or train traffic volumes become high, so the air quality impacts at grade crossings would generally be relatively minor. In Illinois, most grade crossings carry 5,000 or fewer vehicles. SEA concludes that no adverse air quality impacts would result from increased grade crossing delays as a result of the proposed merger. Section 6.4.2 of this chapter contains information on the transportation impacts of grade crossing delays associated with increased rail segment activity.

6.3 Noise Analysis

SEA performed noise analyses to identify noise-sensitive land uses where the proposed changes in operations could result in increases in noise exposure that meet or exceed the Board's environmental analysis thresholds at 49 CFR 1105.7(e)(6). The following discussion provides an estimate of the number of noise-sensitive receptors (e.g., residences, schools, churches) where the Board's thresholds would be exceeded, potentially causing an adverse increase in noise exposure. The noise level impact assessment was based on the baseline and projected activity level data provided by the UP/SP.

6.3.1 Increased Rail Segment Activity

Geneva to Nelson

This rail segment, which currently has 43.8 trains/day, would experience an increase of 14.1 trains/day (a 23 percent change in gross ton-miles per year) as a result of the proposed merger. The projected increase in train volume and gross ton-miles on this segment would cause less than a 2 dBA increase in the L_{dn} . No adverse noise impacts are expected.

Nelson to Buda

This rail segment, which currently has 6.1 trains/day, would experience an increase of 10.1 trains/day (a 97.2 percent change in gross ton-miles per year) as a result of the proposed merger. The projected increase in train volume and gross ton-miles on this segment would increase the L_{dn} by 4.3 dBA along the tracks. The majority of noise impacts occur at or near grade crossings where trains horns are sounded as a warning. Currently the noise impact zone at grade crossings extends approximately 430 feet perpendicular to the tracks, whereas after the merger the zone would increase to nearly 700 feet. Noise impacts along the segment are described below:

<u>Nelson.</u> Three sets of tracks leave the Nelson yard: one goes east towards Geneva, one goes west towards Clinton, Iowa, and the other goes south towards Buda. The town of Nelson lies northeast of the yard and is situated on the Nelson-Geneva segment. Residences in the town of Nelson would not be affected by operations on the Buda to Nelson segment.

<u>Manlius.</u> The line runs north-south through the center of the town, in which there are two grade crossings. There are residential areas on both sides of the tracks, with the larger residential area to the east. The nearest buildings on both sides of the tracks are commercial structures. The residences are not significantly shielded by the commercial structures, and the residences on the west side of the track are slightly elevated relative to the track by about 10 feet. The nearest residential structures are about 250 feet from the tracks on both sides.

Currently 14 residences are within the 65 L_{dn} contour. An additional 11 residences would lie within the post-merger contour.

<u>Buda.</u> The rail line runs west of the town, and there are grade crossings located west and north of the town. There is one residence about 250 feet from the northern crossing. The main section of town is bypassed by the rail line at a distance of about 0.6 mile, and thus is not affected by rail noise. Currently one residence is within the 65 L_{dn} contour. No additional noise-sensitive receptors would lie within the post-merger contour.

<u>Other Communities.</u> Three other small communities and two isolated residences would be affected by an increase in noise associated with the proposed merger. The communities are: Van Petten, Hahnaman, and Normandy. Together with the two isolated residences these communities currently have four residences within the 65 L_{dn} contour. An additional nine residences would lie within the post-merger contour.

Currently 19 residences, no schools and no churches are exposed to noise levels greater than or equal to 65 dBA L_{dn} . This would increase by 20 residences as a result of the proposed merger. Thus, there would be a total of 39 residences within the post-merger 65 L_{dn} contour, as shown below.

		Number of Sensitive Receptors								
Community		Pre-Merge	r	Post-Merger						
	Resid.	School	Church	Resid.	School	Church				
Nelson, IL	0	0	0	0	0	0				
Van Petten, IL	0	0	0	1	0	0				
Hahnaman, IL	2	0	0	4	0	0				
Normandy, IL	2	0	0	6	0	0				
Manlius, IL	14	0	0	25	0	0				
Buda, IL	1	0	0	1	0	0				
(Isolated residences)	0	0	0	2	0	0				
TOTAL	19	0	0	39	0	0				

NOISE SUMMARY BUDA TO NELSON (UP) LINE SEGMENT

Geneva to West Chicago

This rail segment, which currently has 78.6 trains/day, would experience an increase of 14.1 trains/day (a 22.7 percent change in gross ton-miles per year) as a result of the proposed merger. The projected increase in train volume and gross ton-miles on this segment would cause less than a 2 dBA increase in the L_{dn} . No adverse noise impacts are expected.



West Chicago to Chicago (Proviso)

This rail segment, which currently has 92.7 trains/day, would experience an increase of 14.1 trains/day (a 22.4 percent change in gross ton-miles per year) as a result of the proposed merger. The projected increase in train volume and gross ton-miles on this segment would cause less than a 2 dBA increase in the L_{dn} . No adverse noise impacts are expected.

6.3.2 Increased Rail Yard Activity

Salem

This rail yard is located in a rural area northeast of Salem, Illinois. Although the yard is in a sparsely populated area, there are several houses located to the east of the yard, with homes approximately 100 feet from the yard boundary. The carload activity at this facility is projected to increase from 64 to 133, representing a potential L_{dn} increase of 3 dBA in the vicinity of the yard. One additional residence would experience L_{dn} of 65 dBA or greater after the proposed merger.

6.3.3 Increased Intermodal Facility Activity

The Canal Street, Global II, Dupo (East St. Louis), and Dolton intermodal facilities in Illinois are projected to have activity increases equal to or greater than the Board's threshold of 50 trucks per day. Current operations at three Chicago area facilities (Chicago-IMX, Chicago-Forest Hill, and Chicago-MIT) would be consolidated into the Global II, Canal Street and Dolton facilities. The SP East St. Louis ramp would be consolidated with UP operations at Dupo.

Canal Street

The Canal Street intermodal facility is part of the Chicago Terminal. The UP Canal Street intermodal facility currently serves approximately 329 trucks per day. This facility would realize an average increase of 186 trucks per day based on UP/SP projections. The primary truck transportation routes to the facility are via Interstate 55, Ashland Avenue, Archer Avenue and Canal Street. The expected increase in truck traffic on Canal Street near this intermodal facility is projected to cause a maximum of a 0.9 dBA increase in noise exposure along this road. The increase in noise levels from the combination of intermodal trucks and cranes at the Canal Street Yard would not exceed the Board's impact criterion of 2 dBA L_{dn} . However, the volume of intermodal activity at this facility would be significant, with 235,000 lifts/year. The land use surrounding this facility is predominantly industrial, and there would be no sensitive receptors within the 65 dBA L_{dn} contour for either the pre- or post-merger conditions.

Dolton

The Dolton intermodal facility is part of the Chicago Terminal. The UP Dolton intermodal facility currently serves approximately 395 trucks per day, and would increase by 85 trucks after the proposed merger. The UP Dolton facility is located in metropolitan Chicago at West 147th Street and Indiana Avenue. Truck transportation routes to the facility are via Interstate 94, Interstate 294, Interstate 80, Interstate 57, and Indiana Avenue. The expected addition of 85 trucks per day would produce a maximum noise exposure increase by the facility alone of 0.9 dB. The increase in noise levels from the combination of intermodal trucks and cranes at Yard Center would not exceed the Board's impact criterion of 2 dBA L_{dn} . No adverse noise impacts are expected.

Global II

The Global II intermodal facility is part of the Chicago Terminal. The UP Global II intermodal facility currently serves approximately 425 trucks per day, and would realize an average increase of 425 trucks per day based on UP/SP projections. The UP Global II facility is located on 47th Avenue, east of Interstate 294. The primary truck transportation route to the facility is via Interstate 90/290, Interstate 294, and U.S. Route 20. The maximum noise exposure increase due to truck traffic is projected to 3 dB. The increase in noise levels at the Global II intermodal facility would exceed the Board's criterion of 2 dBA L_{dn}. There are some residences to the southwest and northeast of the yard; however, there would be no sensitive receptors within the 65 dBA L_{dn} contour for either the pre- or post-merger condition. No adverse noise impacts are expected.

Dupo (East St. Louis)

The UP Dupo intermodal facility currently serves approximately 287 trucks per day, and would experience an average increase of 178 trucks per day due to consolidation of SP East St. Louis intermodal activities at the UP Dupo facility. The UP Dupo facility is located on North Main Street in Dupo. The primary truck transportation route to the facility is via Interstate 255, Highway 3, and North Main Street. The expected increase in truck traffic on North Main Street near this intermodal facility is projected to cause a maximum of a 0.7 dBA increase in noise exposure along this road. The increase in noise levels from the intermodal trucks and cranes at Dupo Yard would exceed 2 dBA L_{dn} , and the volume of intermodal activity at this facility would be significant, with 212,000 lifts/year. The land use surrounding this facility is a mix of residential and agricultural. There are approximately 15 homes which currently lie within the 65 dBA contour, and there would be an additional 28 homes within the post-merger 65 dBA contour.

6.4 Transportation Systems

The Board's environmental rules at 49 CFR 1105.7(e)(2) require a description of the effects of the merger action on local and regional transportation systems. The primary transportation

impacts of the proposed merger are related to: (1) additional truck traffic generated at those intermodal facilities where intermodal activity is projected to increase, and (2) increases in roadway delays at grade crossings as a result of increased train traffic on rail segments.

The impacts near intermodal facilities would result from increased truck traffic using local roadways to enter and exit the intermodal facility. For those facilities with an expected increase of 50 trucks or more per day, SEA analyzed the impacts of this increased traffic on the local roadway system in terms of increases in daily and peak hour traffic. SEA collected traffic count data from local and state transportation officials for this analysis. While the offsetting benefits of the proposed merger were not quantified at the local level, the traffic impacts from added truck traffic at intermodal facilities would be partially offset in many localities by truck-to-rail diversions and consolidation of operations. SEA concludes that the impacts on the local transportation system from the four intermodal facilities in Illinois would not cause adverse impacts on the local transportation system.

SEA addressed the concerns of local communities about increased traffic delays at grade crossings through an evaluation of vehicle delay and wait times at grade crossing locations. It is important to note that the acceptability of delays at grade crossings varies substantially based on local conditions such as the location of land uses by type, availability of alternative travel routes, the degree of use by emergency vehicles, and other local variables. SEA concludes that increases in vehicle delay and/or wait time due to merger-related operational changes would not be excessive.

6.4.1 Intermodal Facilities

Canal Street

The Canal Street facility is located on the east side of Canal Street at VV. 25th Street, south of Interstate Route 55. The primary access routes to this facility are Interstate 55, Ashland Avenue, S. Archer Avenue, and Canal Street. The Canal Street intermodal facility is expected to experience an increase of 85,000 lifts per year, or an average of 186 trucks per day due to the consolidation of the SP facilities. The increase represents a 56.5 percent increase in the number of trucks per day. The increase in trucks per day was assumed to be distributed based on the scheduled arrivals and departures of appropriate trains. The distribution of train arrivals and departures and the increase of 186 trucks per day is allocated equally among four 6-hour periods of the day.

The 1985 Average Daily Traffic (ADT) for I-55 was 119,000 vehicles per day (vpd), for Ashland Avenue was 21,000 vpd, and for Cermak Road was 9,500 vpd. The Chicago Department of Transportation acknowledged that these data are somewhat dated. However, traffic volumes change little in established urbanized areas, such as this location, unless limited access facilities are constructed, or existing streets are radically changed (e.g., closed or converted to one-way

facilities). No traffic data was available for S. Archer Avenue or Canal Street. Due to the absence of actual peak hour data, a factor of 10 percent of the ADT was assumed as the peak hour volumes on these multi-lane facilities with equal distribution of travel flow. On this basis, Ashland Avenue operates well below the level of capacity. With a total daily increase of 372 truck-trips, the increase in ADT for I-55 would be less than one percent, and the increase in ADT on Ashland Avenue would be 1.8 percent. These minor increases in ADT would have only minor impacts on I-55 and Ashland Avenue. Although no traffic data are available for S. Archer Street and Canal Street, the minor increases in ADT and peak hour volumes are not expected to have adverse impacts on area traffic or roadway facilities.

Dolton

The Dolton facility is located at the intersection of Indiana Avenue and West 147th Street, north of State Route 83 (Sibley Boulevard). The primary truck access routes will be Interstate Route 75 from the west, and Interstate Route 94 from the east, along State Route 83 (Sibley Boulevard), and Indiana Avenue. The UP Dolton intermodal facility is expected to experience an increase of 39,000 lifts per year, or an average of 85 trucks per day based on the UP/SP projections. The increase represents a 21.5 percent increase in the number of trucks per day. The Dolton facility would be expanded to accommodate the increase activity. The increase in the trucks per day was assumed to be distributed based on the scheduled arrivals and departures of appropriate trains. The distribution of train arrivals and departures and the increase of 85 trucks per day is allocated equally across four 6-hour periods of the day.

The ADT volumes for roadways in the vicinity of this facility were obtained from the Illinois Department of Transportation. The 1994 ADT for State Route 83 (Sibley Boulevard) was 24,800 vpd. Traffic data are not available for Indiana Avenue. In the absence of actual peak hour volumes, a factor of 10 percent of the ADT was assumed as the peak hour volume with equal distribution of travel flow. Based on this assumption, State Route 83 (Sibley Boulevard) is operating well below capacity levels. The total daily increase in truck traffic would be less than one percent of the ADT. This minor increase would have no significant impact on State Route 83 (Sibley Boulevard). Although no traffic data are available for Indiana Avenue, the slight increase of 85 trucks per day is not expected to significantly impact area traffic flow or the base road network at any period of the day.

Global II

The Global II intermodal facility is located on 47th Street, east of Interstate Route 290, and south of U.S. Route 20 (W. Lake Street). The primary truck access is provided via Interstate Route 290, U.S. Route 20 (W. Lake Street), and 47th Street. Interstate Route 294 (Tri-State Tollway) is adjacent to this intermodal facility. However, this is a toll route and is not expected to serve as a primary access route for trucks destined to the intermodal facility. The UP Global II facility would

receive activity from the closed SP facilities in the Chicago area. The Global II facility is expected to experience an increase of 194,000 lifts per year, or an average of 425 trucks per day due to the consolidated UP/SP activities. The increase represents a 100 percent increase in the number of trucks per day. The Global II facility would be expanded to accommodate the increase in activity. The increase in the trucks per day was assumed to be distributed based on the scheduled arrivals and departures of appropriate trains. The distribution of train arrivals and departures and the increase of 425 trucks per day is allocated equally among four 6-hour periods of the day.

The ADT volumes for roadways in the vicinity of this facility were obtained from the Illinois Department of Transportation. The 1993 ADT for Interstate Route 290 was 125,400 vpd, and for US Route 20 (west of I-290) was 40,100 vpd. Traffic data were not available for US Route 20 or 47th Street adjacent to the intermodal facility. In the absence of actual peak hour volumes, a factor of 10 percent of the ADT with equal travel flow distribution was assumed for this analysis. On this basis, the roadway facilities would operate well below capacity levels. With a total daily increase of 850 truck trips, the increase in ADT for I-290 would be less than one percent, and for US Route 20 would be 2.2 percent. This increase would have minor impact on the performance of Interstate Route 290 and US Route 20.

Dupo (East St. Louis)

The Dupo intermodal facility is located to the west of State Route 3 (North Main Street) and north of the Interstate Route 255/State Route 3 interchange. The primary access routes to this facility are Interstate Route 255 and State Route 3. The East St. Louis SP facility operation would be consolidated with the UP Dupo facility. The Dupo facility is expected to experience an increase of 81,000 lifts per year, or an average of 178 trucks per day due to the consolidation of these facilities. The increase represents a 62 percent increase in the number of trucks per day. The Dupo facility will be expanded to accommodate the increase activity. The increase in the trucks per day was assumed to be distributed based on the scheduled arrivals and departures of appropriate trains.

The ADT volumes for roadways in the vicinity of this facility were obtained from the Illinois Department of Transportation. The 1995 ADT for Interstate Route 255 was 32,700 vpd, and for State Route 3 was 13,500 vpd. In the absence of actual peak hour volumes, a factor of 10 percent of the ADT was assumed for both multi-lane facilities with equal distribution of travel flow. On this basis, both facilities are operating well below capacity levels. With a total daily increase of 356 truck trips, the increase in ADT for I-255 would be 1.1 percent, and for State Route 3 would be 2.6 percent of the total ADT. These increases would have a minor impact on the performance of Interstate 255 and State Route 3.

6.4.2 Grade Crossings

In order to analyze the effects of the proposed merger on the roadway system at railroad grade crossings, SEA determined the number of crossings that would exceed the Board's analysis thresholds for air quality analysis. Approximate delays over the course of 24 hours were calculated, as were average queue lengths. While an increase in the number of trains would result in more crossing closings per day, the length of the queue at each individual crossing closing event would change only if the train length changes. Vehicle delay impacts at rail line segments in Illinois are summarized below.

Nelson to Clinton, Iowa

Average rail traffic on the Nelson to Clinton, Iowa line would increase from 43.8 to 47.8 trains per day, a train volume increase of about 9 percent. At low speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic due to the additional daily trains would increase from 117 minutes (pre-merger) to 128 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 50 mph), delay would increase from 82 minutes (pre-merger) to 89 minutes (post-merger) over a 24-hour period.

Nelson to Geneva

On the Nelson to Geneva line, average rail traffic would increase from 43.8 to 57.9 trains per day, a train volume increase of about 32 percent. At low speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic due to the additional daily trains would increase from 117 minutes (pre-merger) to 155 minutes (post-merger) over a period of 24 hours. At higher speed crossings (e.g., train speed of 50 mph), delay would increase from 82 minutes (pre-merger) to 108 minutes (post-merger) over a 24-hour period.

Geneva to West Chicago

Average rail traffic on the Geneva to West Chicago line would increase from 78.6 to 92.7 trains per day, a train volume increase of about 18 percent. At low speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic due to the additional daily trains would increase from 210 minutes (pre-merger) to 248 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 50 mph), delay would increase from 147 minutes (pre-merger) to 173 minutes (post-merger) over a 24-hour period.

West Chicago to Chicago-Proviso

On the West Chicago to Chicago-Proviso line, average rail traffic would increase from 92.7 to 106.8 trains per day, a train volume increase of about 15 percent. At low speed grade crossings

along the route (e.g., train speed of 30 mph), delay to vehicle traffic due to the additional daily trains would increase from 248 minutes (pre-merger) to 285 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 50 mph), delay would increase from 173 minutes (pre-merger) to 200 minutes (post-merger) over a 24-hour period.

Galesburg to Buda

Average rail traffic on the Galesburg to Buda line would increase from 17.1 to 23.5 trains per day, a train volume increase of about 37 percent. At low speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic due to the additional daily trains would increase from 46 minutes (pre-merger) to 63 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 50 mph), delay would increase from 32 minutes (pre-merger) to 44 minutes (post-merger) over a 24-hour period.

Buda to Nelson

On the Buda to Nelson line, average rail traffic would increase from 6.1 to 16.2 trains per day, a train volume increase of about 167 percent. At low speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic due to the additional daily trains would increase from 16 minutes (pre-merger) to 43 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 50 mph), delay would increase from 11 minutes (pre-merger) to 30 minutes (post-merger) over a 24-hour period.

Villa Grove to Chicago

On the 127-mile Villa Grove to Chicago line, average rail traffic would increase from 16.2 to 19.2 trains per day, a train volume increase of about 19 percent. At low speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic due to the additional daily trains would increase from 43 minutes (pre-merger) to 51 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 50 mph), delay is anticipated to increase from 30 minutes (pre-merger) to 36 minutes (post-merger) over a 24-hour period.

6.5 Safety

SEA assessed a number of safety issues associated with the proposed merger, including the probability of increased accidents at grade crossings, and the risks associated with increased shipments of hazardous commodities.

6.5.1 Grade Crossing Safety

Accidents at grade crossings are a function of the number of trains, train speed, number of train tracks, grade crossing condition and warning facilities, roadway condition and number of lanes, and amount of roadway traffic. Since the proposed merger would not result in any new grade crossings and would affect only the number of trains passing through existing grade crossings, the probability of an increase in the number of accidents at grade crossings would depend on the number of trains on rail segments. SEA concludes that the accident exposure in Illinois will range from an increase of 166 percent to a decrease of 42 percent, depending on rail segment.

6.5.2 Hazardous Commodities

Certain rail line segments in Illinois are subject to heavy movements of chemicals and hazardous materials, as discussed in Chapter 1 of this volume. SEA has recommended mitigation measures in Section 6.8 of this chapter, "SEA Recommended Mitigation."

Federal regulations govern the transport of hazardous commodities. The proposed merger is not expected to affect the policies or operation of UP/SP concerning the type or quantity of hazardous commodities transported or the method of handling. A total of 420,000 and 305,000 hazardous commodity shipments were transported by UP and SP, respectively, in 1994. These shipments resulted in 118 reportable incidents for UP, and 35 incidents for SP. Therefore, 99.98 percent of the shipments arrived at their destination without incident. The Applicants have noted that the consolidation of the companies will result in a "best practice" approach to hazardous commodity handling. SEA concludes that, using the same rate of safe transport, the projected increases in accidents and shipments of hazardous materials as a result of the proposed merger do not constitute a significant safety risk.

6.6 Summary of Agency Comments

In considering the potential environmental impacts of the increased rail line segment, rail yard, and intermodal facility activity associated with the proposed UP/SP merger, SEA sent consultation letters to various Federal, state, and local agencies on January 29, 1996. These letters, samples of which are included in **Volume 5**, Appendix D, Exhibits D-1 through D-9, provided early notification of this EA and requested information and comments on the effects to the environment of the proposed merger and related operational changes. Each letter included a state information packet and maps that listed the specific merger-related proposals. A sample packet is shown in **Volume 5**, Appendix D, Exhibit D-10. SEA contacted agencies by telephone to alert them to the distribution of the consultation letter and to confirm its receipt. The Applicant also contacted these agencies in preparation of the Environmental Report which accompanied the

merger application. That correspondence and all responses were reviewed, verified, and considered by SEA in the preparation of this EA.

All comments received (through mid-March 1996) in response to the January 29th letter are shown in **Volume 5**, Appendix E, Exhibits E-1 through E-11. As necessary, SEA conducted additional consultation with agencies as shown in **Volume 5**, Appendix E, Table E-1. Agency comments regarding the proposed increases in rail line segment, rail yard, and intermodal facility activities in Illinois are summarized below:

- U.S. Corps of Engineers stated that any activities associated with the proposed merger appear not to fall within the jurisdiction of the Ohio River Division.
- Environmental Protection Agency stated that it has no objections. If purchase or lease
 of federal lands becomes a factor, the agency must be contacted.
- Macoupin County stated that the proposed project will have no adverse environmental effects on the citizens or property.
- Whiteside County expressed general concern for increased traffic and safety issues for crossings without lights and gates on county and township roads. Increased noise and public health are also issues.
- City of Morrison reported no objection to the proposed merger, but expressed concern over the increased train traffic from Clinton, Iowa to Nelson, Illinois. The issues are noise, public health and safety, and hazardous materials. The overall impact on the City cannot be determined without a local EIS.

6.7 Suggested Mitigation

No mitigation measures were suggested for the proposed changes to rail line segment, rail yard, or intermodal facility operations in Illinois by the various parties consulted in the process of preparing the EA for the proposed merger. (See **Volume 5**, Appendices D and E, for agency consultation lists.)

6.8 SEA Recommended Mitigation

This section contains the mitigation measures that SEA recommends that the Board impose in any final decision approving the proposed changes to rail line segment, rail yard, and intermodal facility operations in Illinois. SEA will consider all comments on the EA in making its final recommendation to the Board. The Board will consider SEA's recommendations and the environmental record in making its final decision. SEA's recommended mitigation is as follows.

Air Quality

 UP/SP shall consult with appropriate Federal, state, and local agencies responsible for regulating air quality in AQCRs 65, 66, 67, 69, 70, 71, 73, and 74, concerning any possible mitigation measures to reduce any potential adverse emissions from the rail segments, rail yards, and intermodal facilities in these eight regions. UP/SP shall advise SEA of the results of these consultations.

Noise

- To reduce potential noise level impacts to sensitive receptors along the Nelson to Clinton, Iowa, Nelson to Geneva, Geneva to West Chicago, West Chicago to Chicago (Proviso), Galesburg to Buda, Buda to Nelson, and Villa Grove to Chicago rail line segments, UP/SP shall consult with appropriate state and local agencies to develop noise abatement plans. The Applicant shall advise SEA of the results of these consultations and provide SEA with a copy of any resulting noise abatement plans.
- To reduce potential noise level impacts to sensitive receptors near the Canal Street (Chicago) and Salem rail yards, UP/SP shall consult with appropriate state and local agencies to develop noise abatement plans. The Applicant shall advise SEA of the results of these consultations and provide SEA with a copy of any resulting noise abatement plans.
- 3. To reduce potential noise level impacts to sensitive receptors near Dupo (East St. Louis, Global II, Canal Street (Chicago), and Dolton intermodal facilities, UP/SP shall consult with appropriate state and local agencies to develop noise abatement plans. The Applicant shall advise SEA of the results of these consultations and provide SEA with a copy of any resulting noise abatement plans.

Transportation and Safety

- UP/SP shall consult with Whiteside County, which is concerned about safety and the potential effects of additional rail traffic on vehicular traffic. UP/SP and Whiteside County shall then develop a mutually agreeable mitigation plan. UP/SP shall then periodically advise SEA of the status of these consultations and shall submit any final mitigation plans to SEA.
- 2. UP/SP shall conduct traffic studies for intermodal facilities located in Chicago (Global II) and Dupo (East St. Louis) that could experience increases of 2 to 4

percent in truck traffic as a result of operational changes associated with the proposed merger. This level of traffic increase could potentially result in a noticeable impact on local traffic densities around the intermodal facility. These studies will assist local jurisdictions in developing transportation plans for these areas.

- 3. UP/SP shall conduct rail line capacity simulations to verify that the directional operations involving St. Louis, Missouri, Memphis, Tennessee, and Dallas, San Antonio, and Houston, Texas can be safely accomplished. These simulations should also include BN/Santa Fe train movements. UP/SP shall submit these simulations to FRA for its review and shall comply with FRA's recommendations. UP/SP shall submit its analysis, as well as FRA's findings to SEA for the rail line segments between East St. Louis, to Gorham Illinois and Gorham Illinois to Dexter Jct., Missouri.
- 4. UP/SP shall maintain all rail lines and grade crossing warning devices according to Federal Railroad Administration Standards (49 CFR Part 213).
- UP/SP shall transport all hazardous materials in compliance with the U.S. Department of Transportation Hazardous Materials Regulations (49 CFR Parts 171 to 180).
- 6. In the case of a hazardous materials spill, UP/SP shall follow appropriate emergency response procedures outlined in their Emergency Response Plans.

CHAPTER 7.0 RAIL LINE SEGMENT, RAIL YARD, AND INTERMODAL FACILITY IMPACTS IOWA

This chapter provides an analysis of the potential environmental impacts resulting from increased traffic on rail segments and increased activity at rail yards and intermodal facilities in lowa as part of the proposed merger. In analyzing these impacts, the Surface Transportation Board's (Board) Section of Environmental Analysis (SEA), consistent with its environmental rules at 49 CFR Part 1105.7(e), specifically considered: (1) impacts to air quality, (2) impacts to noise, (3) impacts to local, regional and national transportation systems, and (4) impacts to safety.

The following rail line segments would meet or exceed the Board's environmental analysis thresholds:

- Nelson, Illinois to Clinton (UP).
- Vinton to Clinton (UP).
- California Junction to Missouri Valley (UP).
- California Junction to Fremont, Nebraska (UP).

Each rail line segment is discussed in this chapter by impact category, as follows:

- Air quality (Section 7.1).
- Air quality at grade crossings (Section 7.2).
- Noise (Section 7.3).
- Transportation systems (Section 7.4).
- Safety (Section 7.5).

If a rail line segment would not experience impacts in any one of these categories as a result of proposed merger, no analysis was necessary. Accordingly, no discussion is provided.

Chapter 1 of this volume describes the thresholds established for analysis of potential air quality and noise impacts and the methods used to evaluate these and other potential impacts.

7.1 Air Quality Analysis

Iowa contains four Air Quality Control Regions (AQCR) with rail segments, rail yards, and/or intermodal facilities that would experience increased activity as a result of the proposed merger and thereby trigger one or more of the Board's thresholds for analysis. In each of these regions, increased emissions along the length of rail segments through the AQCR (sometimes over a distance of hundreds of miles) could result in a potential for adverse air quality impacts. SEA

concludes that increased rail operation activities in these regions would result in increased emissions of nitrogen dioxide (NO_2), which contributes to the formation of ozone. Increases in emissions, however, would be partially offset by decreases in train activity on other segments.

Potential adverse impacts to air quality in these four AQCRs as a result of the proposed merger are discussed individually below.

7.1.1 Metropolitan Quad Cities (AQCR 69)

Rail operations in the Metropolitan Quad Cities AQCR (69) associated with the proposed UP and SP merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of two rail segments (Vinton to Clinton and Nelson, Illinois to Clinton). There are no rail yards or proposed intermodal facilities in this AQCR that would exceed the Board's thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Metropolitan Quad Cities AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail operations activity in this AQCR.

The Metropolitan Quad Cities AQCR (69) includes the counties of Clinton, Louisa, Muscatine, and Scott, portions of which are designated as nonattainment for sulfur dioxide (SO₂) and total suspended particulates (TSP). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along the four rail segments. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the Metropolitan Quad Cities nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on two rail segments that pass through or are connected to Metropolitan Quad Cities AQCR (69). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin Station	Destination Station	Miles	Change in # of Trains/Day	%Change in Trains/Day	%Change in Tons/Year
Vinton IA	Clinton IA	81	5.1	12%	8%
Nelson IL	Clinton IA	34	4.0	9%	8%

Both of the rail segments listed above (Vinton to Clinton and Nelson, Illinois to Clinton) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The increased emissions from these two rail line segments are shown below. The impacts of these emissions are discussed in the section on Analysis of Activity.

7-2

Rail	AQCR	R Estimated Increase in Emissions (tons per year					
Segment	(ID No.)	НС	со	NO ₂	SO ₂	PM-10	
Vinton - Clinton	69	4.0	12.4	92.7	6.7	2.0	
Nelson - Clinton	69	4.1	12.9	96.5	7.0	2.1	
Total		8.1	25.3	189.2	13.7	4.1	

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail segment activity in this AQCR would result in increased levels of ozone and other pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Metropolitan Quad Cities AQCR, primarily from mobile rail segment emissions.

7.1.2 Northeast Iowa (AQCR 88)

Rail operations in the Northeast Iowa AQCR (88) associated with the proposed UP and SP merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of a portion of one rail segment (Vinton to Clinton). There are no rail yards or intermodal facilities in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Northeast Iowa AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail operations activity in this AQCR.

The Northeast Iowa AQCR (88) includes the counties of Allamakee, Benton, Black Hawk, Bremer, Buchanan, Chickasaw, Delaware, Fayette, Howard, Jones, Linn, and Winneshiek, all of which are designated as in attainment. In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along one rail segment. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the Northeast Iowa attainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on two rail segments that pass through or are connected to Northeast Iowa AQCR (88). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin Station	Destination Station	Miles	Change in # of Trains/Day	%Change in Trains/Day	%Change in Tons/Year
Vinton IA	Marshalltown IA	65	5.0	11%	7%
Vinton I.A	Clinton IA	81	5.1	12%	8%

One of the two rail segments listed above (Vinton to Clinton) was assessed for air quality impacts because it would exceed the Board's thresholds. The increased emissions from this segment are shown below. The impacts of these emissions are discussed in the section on Analysis of Activity.

Rail	AQCR	Estir	nated Increas	se in Emissio	ns (tons per	year)
Segment	(ID No.)	НС	со	NO ₂	SO ₂	PM-10
Vinton - Clinton	88	5.5	17.2	128.8	9.3	2.8

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail segment activity in this AQCR would result in increased levels of ozone and other pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservation owever, because they do not account for offsetting decreases that could result from truck versions. Overall, SFA concludes that while the proposed action is not subject to Nation: ant Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Northeast Iowa AQCR, primarily from mobile rail segment emissions.

7.1.3 Southeast Iowa (AQCR 91)

Rail operations in the Southeast Iowa AQCR (91) as d with the proposed UP and SP merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of a portion of one rail segment (Vinton to Clinton). There are no rail yards

or intermodal facilities in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Southeast iowa AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail operations activity in this AQCR.

The Southeast Iowa AQCR (91) includes the counties of Cedar, Davis, Henry, Iowa, Jefferson, Johnson, Keokuk, Van Buren, Wapello, and Washington, all of which are designated as in attainment with air quality standards. In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along one rail segment. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the Southeast Iowa attainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on one rail segment that passes through or is connected to Southeast Iowa AQCR (91). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of this segment would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Vinton IA	Clinton IA	81	5.1	12%	8%

The rail segment listed above (Vinton to Clinton) was assessed for air quality impacts because it would exceed the Board's analysis thresholds. The estimated increased emissions from this segment are shown below. The impacts of these emissions are discussed in the section on Analysis of Activity.

Rail Segment	AQCR (ID No.)	Estimated Increase in Emissions (tons per year)				
		HC	со	NO ₂	SO ₂	PM-10
Vinton - Clinton	91	1.5	4.8	36.1	2.6	0.8

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail segment activity in this AQCR would result in increased levels of ozone and other pollutants, with the greatest increase in NO₂. These estimates of increased emissions
are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Southeast Iowa AQCR, primarily from mobile rail segment emissions.

7.1.4 Southwest Iowa (AQCR 93)

Rail operations in the Southwest Iowa AQCR (93) associated with the proposed UP and SP merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of two rail segments (California Jct. to Fremont, Nebraska and California Jct. to Missouri Valley). There are no rail yards or intermodal facilities in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Southwest Iowa AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail operations activity in this AQCR.

The Southwest Iowa AQCR (93) includes the counties of Adair, Adams, Audubon, Carroll, Cass, Crawford, Fremont, Greene, Guthrie, Harrison, Mills, Monona, Montgomery, Page, Ringgold, Shelby, Taylor, and Union, all of which are designated as in attainment. In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along the two rail segments. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the Southwest Iowa attainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on six rail segments that pass through or are connected to Southwest Iowa AQCR (93). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Boone IA	Grand Jct. IA	20	7.6	20%	19%
California Jct. IA	Fremont NE	31	8.5	38%	34%
Grand Jct. IA	Missouri Valley IA	104	7.6	20%	19%
Missouri Valley IA	Council Bluffs IA	20	-1.6	-8%	-4%
California Jct. IA	Missouri Valley IA	6	8.5	29%	28%
Sioux City IA	California Jct. IA	70	0.0	0%	-11%

Two of the six rail segments listed above (California Jct. to Fremont, Nebraska and California Jct. To Missouri Valley) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The increased emissions from these two segments are shown below. The impacts of these emissions are discussed in the section on Analysis of Activity.

Rail	AQCR	Estimated Increase in Emissions (tons per year)					
Segment	(ID No.)	HC	со	NO ₂	SO ₂	PM-10	
California Jct Fremont	93	1.3	4.1	30.7	2.2	0.7	
California Jct Missouri Valiey	93	1.8	5.6	41.7	3.0	0.9	
Total		3.1	9.7	72.4	5.2	1.6	

Key:

HC = hydrocarbons, CO = carbon monoxide, NO₂ = nitrogen dioxide, SO₂ = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail segment activity in this AQCR would result in increased levels of ozone and other pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Southwest Iowa AQCR, primarily from mobile rail segment emissions.

7.2 Air Quality Impacts at Grade Crossings

SEA assessed the overall air quality impacts of emissions from idling vehicles waiting at grade crossings. On average, annual emissions at a grade crossing with 5,000 vehicles per day would be 0.0021 tons of volatile organic compounds, 0.0013 tons of hydrocarbons, 0.0111 tons of carbon monoxide, and 0.0003 tons of nitrogen dioxide (NO₂) per train crossing. Increases in traffic over 5,000 vehicles per day would increase the estimated emissions accordingly. Railroad crossings tend to be grade-separated when roadway and/or train traffic volumes become high, so the air quality impacts at grade crossings would generally be relatively minor. In Iowa, most grade



crossings carry 5,000 or fewer vehicles. SEA concludes that no adverse air quality impacts would result from increased grade crossing delays as a result of the proposed merger. Section 7.4.1 of this chapter contains information on the transportation impacts of grade crossing delays associated with increased rail segment activity.

7.3 Noise Analysis

SEA performed noise analyses to identify noise-sensitive land uses where the proposed changes in operations could result in increases in noise exposure that meet or exceed the Board's environmental analysis thresholds at 49 CFR 1105.7(e)(6). The following discussion provides an estimate of the number of noise-sensitive receptors (e.g., residences, schools, churches) where the Board's thresholds would be exceeded, potentially causing an adverse increase in noise exposure. The noise level impact assessment was based on the baseline and projected activity level data provided by UP/SP.

7.3.1 Increased Rail Segment Activity

California Junction to Fremont, Nebraska

This rail segment, which currently has 22.6 trains/day, would experience an increase of 8.5 trains/day (a 33.7 percent change in gross ton-miles per year) as a result of the proposed merger. The projected increase in train volume and gross ton-miles on this segment would cause less than a 2 dBA increase in the L_{dn} . No adverse noise impacts are expected.

California Junction to Missouri Valley

This rail segment, which currently has 28.9 trains/day, would experience an increase of 8.5 trains/day (a 28 percent change in gross ton-miles per year) as a result of the proposed merger. The projected increase in train volume and gross ton-miles on this segment would cause less than a 2 dBA increase in the L_{dn} . No adverse noise impacts are expected.

7.4 Transportation Systems

The Board's environmental rules at 49 CFR 1105.7(e)(2) require a description of the effects of the proposed merger on local and regional transportation systems. The primary transportation impacts of the proposed merger are related to: (1) additional truck traffic generated at those intermodal facilities where intermodal activity is projected to increase, and (2) increases in roadway delays at grade crossings as a result of increased train traffic on rail segments.

The impacts near intermodal facilities would result from increased truck traffic using local roadways to enter and exit the intermodal facility. For those facilities with an expected increase of 50 trucks or more per day, SEA analyzed the impacts of this increased traffic on the local roadway system in terms of increases in daily and peak hour traffic. SEA collected traffic count data from local and state transportation officials for this analysis. While the offsetting benefits of the proposed merger were not quantified at the local level, the traffic impacts from added truck traffic at intermodal facilities would be partially offset in many localities by truck-to-rail diversions and consolidation of operations. Because there are no intermodal facilities in Iowa that would experience an increase in truck traffic above the Board's analysis threshold as a part of the proposed merger, SEA concludes that there would be no adverse impacts to the local transportation system.

SEA addressed the concerns of local communities about increased traffic delays at grade crossing through an evaluation of vehicle delay and wait times at grade crossing locations. It is important to note that the acceptability of delays at grade crossings varies substantially based on local conditions such as the location of land uses by type, availability of alternative travel routes, the degree of use by emergency vehicles, and other local variables. While the time of delay at grade crossings would increase proportionately with the increase in train traffic, most of the grade crossings in lowa carry fewer than 5,000 vehicles per day. SEA concludes that increases in vehicle delay and/or wait time due to merger-related operational changes would not be excessive.

7.4.1 Grade Crossings

In order to analyze the effects of the proposed merger on the roadway system at railroad grade crossings, SEA determined the number of crossings along rail segments that would exceed the Board's analysis thresholds for air quality analysis. Approximate delays over the course of 24 hours were calculated, as were average queue lengths. While an increase in the number of trains would result in more crossing closings per day, the length of the queue at each individual crossing closing event would change only if the train length changes. Vehicle delay impacts at rail line segments in lowa are summarized below:

California Junction to Fremont, Nebraska

Average rail traffic on the California Junction to Fremont, Nebraska line would increase from 22.6 to 31.1 trains per day, a train volume increase of about 38 percent. There are 5 grade crossings on this segment; none of which have Average Daily Traffic (ADT) counts greater than 5,000 vehicles per day. At low speed grade crossings along the route (e.g., train speed of 40 mph), delay to vehicle traffic due to the additional daily trains would increase from 40 minutes (premerger) to 65 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 70 mph), delay would increase from 33 minutes (pre-mergcr) to 46 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic would range from 0 to 5 vehicles, and the corresponding delay per vehicle would vary from 1.48 to 2.09 minutes.

California Junction to Missouri Valley

On the California Junction to Missouri Valley line, average rail traffic would increase from 28.9 to 37.4 trains per day, a train volume increase of about 29 percent. There are 3 grade crossings on this segment, none of which have ADT counts greater than 5,000 vehicles per day. At low speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic due to the additional daily trains would increase from 74 minutes (pre-merger) to 96 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 60 mph), delay would increase from 47 minutes (pre-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic would be less than 1 vehicle, and the corresponding delay per vehicle would vary from 1.11 to 1.58 minutes.

Vinton to Clinton

Average rail traffic on the Vinton to Clinton line would increase from 42.8 to 47.9 trains per day, a train volume increase of about 12 percent. There are 101 grade crossings on this segment, 11 of which have ADT counts greater than 5,000 vehicles per day. At low speed grade crossings along the route (e.g., train speed of 40 mph), delay to vehicle traffic due to the additional daily trains would increase from 89 minutes (pre-merger) to 100 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 70 mph), delay would increase from 63 minutes (pre-merger) to 71 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic would range from 0 to 10 vehicles, and the corresponding delay per vehicle would vary from 1.48 to 2.09 minutes.

Nelson, Illinois to Clinton

Average rail traffic on the Nelson to Clinton, Iowa line would increase from 43.8 to 47.8 trains per day, a train volume increase of about 9 percent. At low speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic due to the additional daily trains would increase from 117 minutes (pre-merger) to 128 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 50 mph), delay would increase from 82 minutes (pre-merger) to 89 minutes (post-merger) over a 24-hour period.

7.5 Safety

SEA assessed a number of safety issues associated with the proposed merger, including the probability of increased accidents at grade crossings, and the risks associated with increased shipments of hazardous commodities.

7.5.1 Grade Crossing Safety

Accidents at grade crossings are a function of the number of trains, train speed, number of train tracks, grade crossing condition and warning facilities, roadway condition and number of lanes, and amount of roadway traffic. Since the proposed merger would not result in any new grade crossings and would affect only the number of trains passing through existing grade crossings, the probability of increased accidents at grade crossings would depend on the increased number of trains on rail segments. SEA concludes that the accident exposure in Iowa would range from an increase of 38 percent to a decrease of 8 percent depending on rail segment, and that the projected increase in accidents do not constitute a significant safety risk.

7.5.2 Hazardous Commodities

Federal regulations govern the transport of hazardous commodities. The proposed merger is not expected to affect the policies or operation of UP/SP concerning the type or quantity of hazardous commodities transported or the method of handling. A total of 420,000 and 305,000 hazardous commodity shipments were transported by UP and SP, respectively, in 1994. These shipments resulted in 118 reportable incidents for UP, and 35 incidents for SP. Therefore, 99.98 percent of the shipments arrived at their destination without incident. The Applicants have noted that the consolidation of the companies will result in a "best practice" approach to hazardous commodity handling. SEA concludes that, using the same rate of safe transport, the projected increases in accidents and shipments of hazardous materials as a result of the proposed merger do not constitute a significant safety risk.

7.6 Summary of Agency Comments

In considering the potential environmental impacts of the increased rail line segment, rail yard, and intermodal facility activity associated with the proposed UP/SP merger, SEA sent consultation letters to various Federal, state, and local agencies on January 29, 1996. These letters, samples of which are included in **Volume 5**, Appendix D, Exhibits D-1 through D-9, provided early notification of this EA and requested information and comments on the effects to the environment of the proposed merger and related operational changes. Each letter included a state information packet and maps that listed the specific merger-related proposals. A sample packet is shown in **Volume 5**, Appendix D, Exhibit D-10. SEA contacted agencies by telephone to alert them to the distribution of the consultation letter and to confirm its receipt. The Applicant also contacted these agencies in preparation of the Environmental Report which accompanied the merger application. That correspondence and all responses were reviewed, verified, and considered by SEA in the preparation of this EA.

All comments received (through mid-March 1996) in response to the January 29th letter are shown in **Volume 5**, Appendix E, Exhibits E-1 through E-11. As necessary, SEA conducted

additional consultation with agencies as shown in **Volume 5**, Appendix E, Table E-1. Agency comments regarding the proposed increases in rail line segment activities in Iowa are summarized below:

- Iowa Natural Resources Conservation Service found no obvious environmental impact.
- Iowa Department of Natural Resources indicated that there are no records of rare specius or significant natural communities. Based on their knowledge of the site and the project, they do not think the project will affect protected species or rare natural communities.
- Linn County Emergency Management Agency expressed concerns involving increased noise in the late evening and early morning. Primary concern is focused on shipment of hazardous materials through Linn County and on the current railroad's ability to handle the increased traffic load safely.

7.7 Suggested Mitigation

No specific mitigation measures were suggested for the proposed changes to rail line segment operations in Iowa by the various parties consulted in the process of preparing the EA for the proposed merger. (See **Volume 5**, Appendices D and E, for agency consultation lists.)

7.8 SEA Recommended Mitigation

This section contains the mitigation measures that SEA preliminarily recommends that the Board impose in any final decision approving the changes to rail line segment operations in Iowa. SEA will consider all comments on the EA in making its final recommendation to the Board. The Board will consider SEA's recommendations and the environmental record in making its final decision. SEA's recommended mitigation is as follows.

Air Quality

 UP/SP shall consult with appropriate Federal, state and local agencies responsible for regulating air quality in AQCRs 69, 88, 91 and 93, concerning any possible mitigation measures to reduce any potential adverse emissions from the rail segments in these four regions. UP/SP shall advise SEA of the results of these consultations. Noise

 To reduce potential noise level impacts to sensitive receptors along the Vinton to Clinton, California Junction to Missouri Valley, and California Junction to Fremont, Nebraska rail line segments, UP/SP shall consult with appropriate state and local agencies to develop noise abatement plans. The Applicant shall advise SEA of the results of these consultations and provide SEA with a copy of any resulting noise abatement plans.

Transportation and Safety

- 1. UP/SP shall maintain all rail line and grade crossing warning devices according to Federal Railroad Administration Standards (49 CFR Part 213).
- UP/SP shall transport all hazardous materials in compliance with the U.S. Department of Transportation Hazardous Materials Regulations (49 CFR Parts 171 to 180).
- 3. In the case of a hazardous materials spill, UP/SP shall follow appropriate emergency response procedures outlined in their Emergency Response Plans.

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CHAPTER 8.0 RAIL LINE SEGMENT, RAIL YARD, AND INTERMODAL FACILITY IMPACTS KANSAS

This chapter provides an analysis of the potential environmental impacts resulting from increased traffic on rail segments and increased activity at rail yards and intermodal facilities in Kansas as part of the proposed merger. In analyzing these impacts, the Surface Transportation Board's (Board) Section of Environmental Analysis (SEA), consistent with its environmental rules at 49 CFR Part 1105.7(e), specifically considered: (1) impacts to air quality, (2) impacts to noise, (3) impacts to local, regional and national transportation systems, and (4) impacts to safety.

The following rail line segments, rail yards, and intermodal facilities would meet or exceed the Board's environmental analysis thresholds:

- Salina to Oakley (UP).
- Herington to Lost Springs (UP)
- Lost Springs to Wichita (UP)
- Stratford, Texas to Hutchinson, Kansas (SP).
- Marysville to Valley, Nebraska (UP).
- Wichita to Chickasha, Oklahoma (UP)
- Herington rail yard (SP).
- Kansas City intermodal facility (SP).

Each rail line segment, rail yard, or intermodal facility is discussed in this chapter by impact category, as follows:

- Air quality (Section 8.1).
- Air quality at grade crossings (Section 8.2).
- Noise (Section 8.3).
- Transportation systems (Section 8.4).
- Safety (Section 8.5).

If a rail line segment, rail yard, or intermodal facility would not experience impacts in any one of these categories as a result of proposed merger, no analysis was necessary. Accordingly, no discussion is provided.

Chapter 1 of this volume describes the thresholds established for analysis of potential air quality and noise impacts and the methods used to evaluate these and other potential impacts.

8.1 Air Quality Analysis

Kansas contains six AQCRs in which rail segments, rail yards, and/or intermodal facilities are located that would experience increased activity as a result of the proposed merger and thereby trigger one or more of the Board's thresholds for analysis. In each of these regions, increased emissions along the length of rail segments through the AQCR (sometimes over a distance of hundreds of miles) could result in a potential for adverse air quality impacts. SEA concludes that increased rail operation activities in these regions would result in increases in nitrogen dioxide (NO_2) which contributes to the formation of ozone. Increases in emissions, however, would be partially offset by decreases in train activity on other segments.

Potential adverse impacts to air quality in these six AQCRs as a result of the proposed merger are discussed individually below.

8.1.1 Metropolitan Kansas City (AQCR 94)

Rail operations in the Metropolitan Kansas City AQCR associated with the proposed merger that require analysis, as specified by Board's environmental rules at 49 CFR 1105.7(e)(5), consist of one intermodal facility (Kansas City). There are no rail segments or rail yards in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Metropolitan Kansas City AQCR for potential air quality impacts. SEA concludes that adverse to air quality could result from increased intermodal facility activity in this AQCR.

The Metropolitan Kansas City AQCR (94) includes the counties of Johnson, Leavenworth, and Wyandotte, all of which are designated as in attainment. In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity at the intermodal facility. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the Metropolitan Kansas City attainment area.

Emissions from Increased Intermodal Activity

The proposed merger would lead to an increase of 173 trucks per day at the Kansas City facility. The estimated increased emissions from these intermodal facilities are shown below. The impacts of these emissions are discussed in the section on Analysis of Activity.

Intermodal	AQCR	Estir	mated Increas	se in Emissio	ons (tons per	year)
Facility	(ID No.)	HC	со	NO ₂	SO ₂	PM-10
Kansas City	94	4.4	20.7	24.4	0.7	4.3
Kansas City	94	4.4	20.7	24.4	0.7	<u> </u>

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

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Analysis of Activity

Pollutants from the Kansas City intermodal facility would be lower than the EPA definition of significance (as defined in Prevention of Significant Deterioration at 40 CFR 51.166) for all pollutants. The increased intermodal facility activity would result in increased levels of all pollutants, with the greatest increase in NO₂. The estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of air pollution the Metropolitan Kansas City AQCR.

8.1.2 Northeast Kansas (AQCR 95)

Rail operations in the Northeast Kansas AQCR (95) associated with the proposed merger that require analysis, as specified by Board's environmental rules at 49 CFR 1105.7(e)(5), consist of a portion of one rail segment (Valley, Nebraska to Marysville). There are no intermodal facilities or rail yards in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Northeast Kansas AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The Northeast Kansas (AQCR 95) includes the counties of Atchison, Brown, Doniphan, Douglas, Franklin, Jackson, Jefferson, Marshall, Miami, Nemaha, Osage, Pottawatomie, Shawnee, and Wabaunsee, all of which are designated as in attainment. In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along one rail segment. SEA concludes that increased rail operations in this region would contribute to increased levels of ozone and other pollutants in the Northeast Kansas attainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on nine rail segments that pass through or are connected to the Northeast Kansas. The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Kansas City MO	Topeka KS	68	-9.1	-12%	-42%
Kansas City MO	Paola KS	48	-0.3	-1%	-7%
Valley NE	Marysville KS	134	2.0	222%	134%
Marysville KS	Gibbon NE	140	-4.6	-10%	-4%
Paola KS	Parsons KS	92	-2.6	-17%	-29%
Paola KS	Coffeyville KS	141	-10.2	-57%	-28%
Topeka KS	Herington KS	82	-3.4	-15%	-14%
Topeka KS	Salina KS	115	1.1	23%	76%
Topeka KS	Marysville KS	81	-4.5	-10%	-2%

One of the nine rail segments listed above (Valley, Nebraska to Marysville) was assessed for air quality impacts because it would exceed the Board's analysis thresholds. The increased emissions from this segments are shown below. The impacts of these emissions are discussed in the section on Analysis of Activity.

Rail	AQCR	Estin	nated Increa	se in Emissio	ons (tons per	year)
Segment	(ID No.)	HC	со	NO ₂	SO ₂	PM-10
Valley - Marysville	95	0.3	1.0	7.1	0.5	0.2

Key:

HC = hydrocarbons, CO = carbon monoxide, NO₂ = nitrogen dioxide, SO₂ = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Northeast Kansas AQCR, primarily from mobile rail segment emissions.

8.1.3 North Central Kansas (AQCR 96)

Rail operations in the North Central Kansas AQCR (96) associated with the proposed merger

that require analysis, as specified by Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of two rail segments (Herington to Lost Springs and Salina to Oakley), and the Herington rail yard. There are no intermodal facilities in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the North Central Kansas AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment, activity in this AQCR.

The North Central Kansas AQCR (96) includes the counties of Clay, Cloud, Dickinson, Ellsworth, Geary, Jewell, Lincoln, McPherson, Mitchell, Morris, Ottawa, Republic, Rice, Riley, Saline, and Washington, all of which are designated as in attainment. In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along two rail segment. SEA concludes that increased rail operations in this region would contribute to increased levels of ozone and other pollutants in the North Central Kansas attainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on ten of the rail segments that pass through or are connected to the North Central Kansas AQCR (96). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Genesco KS	Pueblo CO	372	-12.9	-100%	-100%
Herington KS	Lost Springs KS	7	10.3	10300%	17006%
Herington KS	Hutchinson KS	34	2.8	23%	-1%
Herington KS	Lindsburg KS	44	-16.9	-100%	-100%
Lindsburg KS	Genesco KS	29	-14.9	-100%	-98%
Marysville KS	Gibbon NE	140	-4.6	-10%	-4%
Salina KS	Lost Springs KS	55	-0.3	-16%	-74%
Salina KS	Oakley KS	191	6.0	273%	388%
Topeka KS	Salina KS	115	1.1	23%	76%
Topeka KS	Herington KS	82	-3.4	-15%	-14%

Two of the ten rail segments listed above (Herington to Lost Springs and Salina to Oakley) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The increased emissions from these two rail line segments are shown below. The impacts of these emissions are discussed in the section on Analysis of Combined Activity.



Rail	AQCR	Estimated Increase in Emissions (tons per year)						
Segment	(ID No.)	HC	со	NO ₂	SO ₂	PM-10		
Herington - Lost Springs	96	2.3	7.2	54.1	3.9	1.2		
Salina - Oakley	96	14.0	43.5	325.7	23.6	7.1		
TOTAL		16.3	50.7	379.8	27.5	8.3		

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Emissions from Increased Rail Yard Activity

The proposed merger would lead to an increase in rail yard activity of 266.5 percent at the Herington rail yard. This activity includes fueling, switching, and assembling of trains. The estimated increased emissions from this rail yard are shown below. The impacts of the emissions are discussed in the section on Analysis of Combined Activity.

Rail Yard	AQCR	Estir	nated increa	se in Emissio	ons (tons per	year)
	(ID No.)	HC	со	NO ₂	SO ₂	PM-10
Herington	96	0.7	2.3	17.1	1.2	0.4

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Combined Activity

This section discusses the impact to North Central Kansas AQCR based on the combined estimated emissions from the rail segments and the rail yard facility related to the proposed merger. The total estimated increase in pollutant emissions are listed below:

Rail	AQCR	CR Estimated Increase in Emissions (tons per year)					
Facility	(ID No.)	НС	СО	NO ₂	SO ₂	PM-10	
Rail Segments Total	96	16.3	50.7	379.8	27.5	8.3	
Rail Yards Total	96	0.7	2.3	17.1	1.2	0.4	
TOTAL		17.0	53.0	396.9	28.7	8.7	

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Most of the estimated pollutants from the proposed merger in the North Central Kansas AQCR would be from the rail line segments, which are not stationary sources. Pollutants from the Herington rail yard facility would be lower than the EPA definition of significance (as defined in Prevention of Significant Deterioration at 40 CFR 51.166) for all pollutants. The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the North Central Kansas AQCR, primarily from mobile rail segment emissions.

8.1.4 Northwest Kansas (AQCR 97)

Rail operations in the Northwest Kansas AQCR (97) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of two rail segments (Denver, Colorado to Oakley and Salina to Oakley). There are no rail yards or intermodal facilities in this AQCR that exceed the Board's environmental thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Northwest Kansas AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The Northwest Kansas AQCR (97) includes the counties of Barton, Cheyenne, Decatur, Ellis, Gove, Graham, Logan, Ness, Norton, Osborne, Phillips, Rawlings, Rooks, Rush, Russell, Sheridan, Sherman, Smith, Thomas, Trego, and Wallace, all of which are designated as in attainment. In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along two rail segments. SEA concludes that increased rail line operations in this region could contribute to increased levels of ozone as well as other pollutants in the Northwest



Kansas attainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on three rail segments that pass through or are connected to the Northwest Kansas AQCR. The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Genesco KS	Pueblo CO	372	-12.9	-100%	-100%
Denver CO	Oakley KS	262	5.9	383%	444%
Salina KS	Oakley KS	191	6.0	273%	388%

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Two of the three segments listed above (Denver, Colorado to Oakley and Salina to Oakley) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The estimated increased emissions from these two segments are shown below. The impacts of these emissions are discussed in the section on Analysis of Activity.

Rail	AQCR	AQCR Estimated Increase in Emissions (tons per year)					
Segment	(ID No.)	НС	со	NO ₂	SO ₂	PM-10	
Denver - Oakley	97	19.9	61.9	463.0	33.6	10.0	
Salina - Oakley	97	36.0	111.9	837.5	60.7	18.2	
TOTAL		55.9	173.8	1300.5	94.3	28.2	

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail segment activity would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air



Quality Standards General Conformity regulations, the proposed merger would result in increased levels of air pollution in the Northwest Kansas AQCR from mobile rail segment emissions.

8.1.5 South Central Kansas (AQCR 99)

Rail operations in the South Central Kansas AQCR (99) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of four rail segments (Herington to Lost Springs, Stratford, Texas to Hutchinson, Lost Springs to Wichita, Chickasha, Oklahoma to Wichita). There are no intermodal facilities or rail yards in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the South Central Kansas AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The South Central Kansas AQCR (99) includes the counties of Butler, Chase, Cowley, Harper, Harvey, Kingman, Marion, Reno, Sedgwick, and Sumner, all of which are designated as in attainment. In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along four rail segments. SEA concludes that increased rail operations in this region would contribute to increased levels of ozone and other pollutants in the Northwest Kansas attainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to increased activity on 11 rail segments that pass through or are connected to South Central Kansas AQCR (99). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Ellinor KS	Winfield KS	102	-2.0	-4%	-1%
Ellinor KS	Newton KS	69	7.7	154%	99%
Herington KS	Lost Springs KS	7	10.3	10300%	17006%
Herington KS	Hutchinson KS	34	2.8	23%	-1%
Stratford TX	Hutchinson KS	274	8.8	78%	24%
Kansas City MO	Ellinor KS	123	5.7	11%	9%
Lost Springs KS	Wichita KS	64	10.0	526%	362%
Newton KS	Hutchinson KS	33	6.0	56%	50%
Newton KS	Winfield KS	66	-1.7	-23%	-3%
Chickasha OK	Wichita KS	192	7.4	168%	129%
Winfield KS	Purcell OK	168	-2.0	-11%	-3%

Four of the 11 rail segments listed above (Herington to Lost Springs, Stratford, Texas to Hutchinson, Lost Springs to Wichita, and Chickasha, Oklahoma to Wichita) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The estimated increased emissions from these four segments are shown below. The impacts of these emissions are discussed in the section on Analysis of Activity.

Rail	AQCR	Estimated Increase in Emissions (tons per year)						
Segment	(ID No.)	НС	со	NO ₂	SO ₂	PM-10		
Herington - Lost Springs	99	0.8	2.4	18.0	1.3	0.4		
Stratford - Hutchinson	99	3.2	9.9	74.4	5.4	1.6		
Lost Springs - Wichita	99	25.4	79.1	591.9	42.9	12.8		
Chickasha - Wichita	99	17.6	54.9	410.7	29.8	8.9		
TOTAL		47.0	146.3	1095.0	79.4	23.7		

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of air pollution in the South Central Kansas AQCR, primarily from mobile rail segment emissions.

8.1.6 Southwest Kansas (AQCR 100)

Rail operations in the Southwest Kansas AQCR (100) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of a portion of one rail segment (Stratford, Texas to Hutchinson). There are no intermodal facilities or rail yards in this AQCR that would exceed the Board's thresholds. Based on increased

activity levels as a result of the proposed merger, SEA examined the Southwest Kansas AQCR for air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The Southwest Kansas AQCR (100) includes the counties of Barber, Clark, Comanche, Edwards, Finney, Ford, Grant, Gray, Greeley, Hamilton, Haskell, Hodgeman, Kearny, Kiowa, Lane, Meade, Morton, Pawnee, Pratt, Scott, Seward, Stafford, Stanton, Stevens, and Wichita, all of which are designated as in attainment. In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along one rail segment. SEA concludes that increased rail operations in this region would contribute to increased levels of ozone and other pollutants in the Southwest Kansas attainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on two rail segments that pass through or are connected to Southwest Kansas AQCR 100. The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Genesco KS	Pueblo CO	372	-12.9	-100%	-100%
Stratford TX	Hutchinson KS	274	8.8	78%	24%

One of the two rail segments listed above (Stratford, Texas to Hutchinson) was assessed for air quality impacts because it would exceed the Board's analysis thresholds. The increased emissions from this segment are shown below. The impacts of these emissions are discussed in the section on Analysis of Activity.

Rail	AQCR	Estimated Increase in Emissions (tons per year)					
Segment (I	(ID No.)	HC	со	NO ₂	SO ₂	PM-10	
Stratford - Hutchinson	100	15.4	48.0	359.5	26.1	7.8	

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail segment activity in this AQCR would result in increased levels of all

pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of air pollution in the Southwest Kansas AQCR, primarily from mobile rail segment emissions.

8.2 Air Quality Impacts at Grade Crossings

SEA assessed the overall air quality impacts of emissions from idling vehicles waiting at grade crossings. On average, annual emissions at a grade crossing with 5,000 vehicles per day would be 0.0021 ton of volatile organic compounds, 0.0013 ton of hydrocarbons, 0.0111 ton of carbon monoxide, and 0.0003 ton of nitrogen dioxide (NO₂) per train crossing. Traffic volumes of more than 5,000 vehicles per day would increase the estimated emissions accordingly. Railroad crossings tend to be grade-separated when roadway and/or train traffic volumes become high, so the air quality impacts at grade crossings would generally be relatively minor. In Kansas, most grade crossings carry 5,000 or fewer vehicles. SEA concludes that no adverse air quality impacts would result from increased grade crossing delays as a result of the proposed merger. Section 8.4.2 of this chapter contains information on the transportation impacts of grade crossing delays associated with increased rail segment activity.

8.3 Noise Analysis

SEA performed noise analyses to identify noise-sensitive land uses where the proposed changes in operations could result in increases in noise exposure that meet or exceed the Board's environmental analysis thresholds at 49 CFR 1105.7(e)(6). The following discussion provides an estimate of the number of noise-sensitive receptors (e.g., residences, schools, churches) where the Board's thresholds would be exceeded, potentially causing an adverse increase in noise exposure. The noise level impact assessment was based on the baseline and projected activity level data provided by UP/SP.

8.3.1 Increased Rail Segment Activity

Herington to Lost Springs

This rail segment currently has 0.2 trains/day and would experience an increase of 10.2 trains/day as a result of the proposed merger (an increase of 17,006 percent in annual gross-tons). This change in through train activity would result in an increase in the L_{dn} of 18.7 dBA along the alignment. The majority of noise impacts would occur at or near grade crossings where train horns are sounded as a warning. Currently, the noise impact zone at grade crossings extends less than 50 feet perpendicular to the tracks, whereas after the proposed merger the noise impact zone.

would increase to about 580 feet. Potential noise impacts along the segment are described below:

<u>Herington</u>. The segment commences at the yard which lies north of the town. It then passes through Herington alongside Lime Creek. There is one grade crossing at Walnut Street, and there are residences on both sides of the tracks within 600 feet of the grade crossing. Currently no residences, schools, or churches are within the 65 L_{dn} contour. After the proposed merger, 30 residences would lie within the 65 L_{dn} contour.

<u>Lost Springs</u>. The tracks pass several hundred feet east of Lost Springs, which is a small community. There is one grade crossing near the town. The line segment terminates the track siding south of town. Currently no residences, schools, or churches are within the 65 L_{dn} contour. After the merger, two residences would lie within the 65 L_{dn} contour.

On the Herington to Lost Springs segment, there are currently no residences, schools, or churches within the 65 L_{dn} contour. The majority of the impacts would be due to train horns near grade crossings. With the proposed increase in train traffic, this would increase by 32 residences, for a total of 32 residences within the post-merger 65 L_{dn} contour, as shown below:

Community	Number of Sensitive Receptors								
		Pre-Merger		Post-Merger					
	Resid.	School	Church	Resid.	School	Church			
Herington	0	0	0	30	0	0			
Lost Springs	0	0	0	2	0	0			
TOTAL	0	0	0	32	0	0			

NOISE SUMMARY HERINGTON TO LOST SPRINGS (UP) LINE SEGMENT

Stratford, Texas to Hutchinson

This rail segment currently has 11.3 trains/day and would experience an increase of 8.8 trains/day (a change of 24.3 percent in gross ton-miles per year) as a result of the proposed merger. This change in through train activity would result in an increase in the L_{dn} of 2.5 dBA along the alignment. The Kansas portion of this segment runs from Hutchinson to Liberal, near the Oklahoma border. The majority of noise impacts occur at or near grade crossings where train horns are sounded as a warning. Currently, the noise impact zone at grade crossings extends approximately 610 feet perpendicular to the tracks, whereas after the proposed merger the noise impact zone would increase to about 740 feet. Potential noise impacts along the segment are



described below:

<u>Hutchinson</u>. The SP yard is on the southwest side of town outside of the town limits. No noise-sensitive receptors in Hutchinson would be affected by train operations on this segment.

<u>Partridge.</u> The line passes southeast of Partridge. The closest residences are 200 feet northwest of the tracks. There is a school 400 feet from the line on the north side of the tracks. Most of the noise comes from train horns at 2 grade crossings. Currently 8 residences are within the 65 L_{dn} contour. An additional 9 residences and 1 school would lie within the post-merger contour.

<u>Arlington.</u> The tracks pass diagonally through the middle of Arlington, in the center of which are two grade crossings. Although most of the land use adjacent to the tracks is commercial or industrial, there are a number of homes and several churches within 800 feet of the alignment. Currently 15 residences and 2 churches are within the 65 L_{dn} contour. An additional 10 residences would lie within the post-merger contour.

<u>Langdon</u>. Langdon is a small residential community, in which over half of the residences are within 800 feet of the SP tracks. There are two grade crossings in town. Currently 16 residences are within the 65 L_{dn} contour. An additional eight residences would lie within the post-merger contour.

<u>Preston.</u> The line passes along the northwest edge of the main town of Preston, but there are also some residences to the north of the tracks. There are two grade crossings which require the trains to sound their horns through most of the town. Currently 15 residences and 2 churches are within the 65 L_{dn} contour. An additional 15 residences would lie within the post-merger contour.

<u>Pratt.</u> The line runs through a residential area on the northwest side of this mid-sized town. There are approximately 50 houses within 200 feet and another 30 houses 250 to 400 feet away. There are five grade crossings, and all are in or near residential areas. Currently 100 residences are within the 65 L_{dn} contour. An additional 80 residences would lie within the post-merger contour.

<u>Haviland</u>. The line passes through the south side of Haviland. There is commercial land use next to the tracks in the center of town and some houses within 200 feet of the tracks on the west side of town. There are two grade crossings. Most of the town's residences are more than 400 feet from the tracks and there is a church is approximately 500 feet from the tracks. Currently 40 residences and one church are within the 65 L_{dn} contour. An additional 35 residences would lie within the post-merger contour.

<u>Greensburg.</u> The line passes on the north side of Greensburg. It goes through a residential area which has numerous houses on both sides of the tracks. Two grade crossings are in the immediate area of the residences. Northeast of town, there are four trailer homes near another grade crossing. Currently 25 residences are within the 65 L_{dn} contour. An additional 20 residences and 1 church would lie within the post-merger contour.

<u>Bucklin</u>. The only grade crossing in Bucklin which affects noise-sensitive receptors is at the northeast corner of the town. Currently eight residences in this part of town are within the $65 L_{dn}$ contour. An additional eight residences would lie within the post-merger contour.

<u>Minneola.</u> The line passes along the northern edge of this small town, and there are two grade crossings. The land use nearest to the grade crossings is commercial, but there are many residences behind the commercial buildings and at the east and west ends of town. Currently 10 residences are within the 65 L_{dn} contour. An additional five residences would lie within the post-merger contour.

<u>Plains.</u> The tracks pass through the southeast corner of Plains, with only a few residences south of the tracks. North of the tracks there are both commercial and residential land uses within 800 feet of the tracks. There are two grade crossings in Plains. Currently 20 residences are within the 65 L_{dn} contour. An additional 10 residences would lie within the post-merger contour.

<u>Kismet.</u> The line passes through the middle of this small town, which has one grade crossing at its center. There are residences on both sides of the tracks and a school approximately 700 feet northwest of the grade crossing. Currently 15 residences are within the 65 L_{dn} contour. An additional seven residences and one school would lie within the post-merger contour.

<u>Liberal.</u> The line passes through the center of town where horn noise from grade crossings would affect numerous receptors. North of the tracks, there are 16 houses within 200 feet at the eastern edge of town. On the south side of the line, a trailer park is located about 600 feet from the tracks. Approximately 60 trailer homes and houses are located along the tracks from the center of town to the western edge of town on the north side. There are also four grade crossings in this area, all located near houc 2s. Currently 50 residences are within the 65 L_{dn} contour. An additional 25 residences would lie within the post-merger contour.

<u>Other Communities.</u> Other small communities along this segment which would be affected by an increase in noise as a result of the proposed merger are Turon, Cullison, Wellsford, Mullinville, Kingsdown, Bloom, Fowler and Meade. Collectively, in these communities there are currently 41 residences within the 65 L_{dn} contour. An additional 42 residences and 1 church would lie within the post-merger contour. In the Kansas portion of the Stratford, Texas to Hutchinson segment, there are currently 363 residences and 5 churches within the 65 L_{dn} contour. The majority of the impacts are due to train horns near grade crossings. With the proposed increase in train traffic, this would increase by 274 residences, 2 schools, and 2 churches, for a total of 637 residences, 2 schools and 7 churches within the post-merger 65 L_{dn} contour, as shown below:

NOISE SUMMARY FOR KANSAS PORTION OF THE STRATFORD, TEXAS TO HUTCHINSON (SP) LINE SEGMENT

	Number of Sensitive Receptors								
Community		Pre-Merger		1	Post-Merge	r			
	Resid.	School	Church	Resid.	School	Church			
Hutchinson	0	0	0	0	0	0			
Partridge	8	0	0	17	1	0			
Arlington	15	0	2	25	0	2			
Langdon	16	0	0	24	0	0			
Turon	6	0	0	10	0	0			
Preston	15	0	2	30	0	2			
Pratt	100	0	0	180	0	0			
Cullison	6	0	0	12	0	0			
Wellsford	0	0	0	1	0	0			
Haviland	40	0	1	75	0	1			
Greensburg	25	0	0	45	0	1			
Mullinville	6	0	0	10	0	0			
Bucklin	8	0	0	16	0	0			
Kingsdown	6	0	0	10	0	0			
Bloom	8	0	0	10	0	1			
Minneola	10	0	0	15	0	0			
Fowier	5	0	0	15	0	0			
Meade	4	0	0	15	0	0			
Plains	20	0	0	30	0	0			
Kismet	15	0	0	22	1	0			
Liberal	50	0	0	75	0	0			
TOTAL	363	0	5	637	2	7			

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Lost Springs to Wichita

This rail segment currently has 1.9 trains/day and would experience an increase of 9.9 trains/day (a change of 362.4% in gross ton-miles per year) as a result of the proposed merger. This change in through train activity would result in an increase in the L_{dn} of 8 dBA along the alignment. The majority of noise impacts occur at or near grade crossings where train horns are sounded as a warning. Currently, the noise impact zone at grade crossings extends approximately 225 feet perpendicular to the tracks, whereas after the proposed merger the noise impact zone would increase to about 630 feet. Potential noise impacts along the segment are described below:

<u>Lost Springs</u>. The segment commences at the track siding south of Lost Springs, hence noise-sensitive receptors in the town are not affected by train operations on this segment.

<u>Lincolnville.</u> The tracks pass through the western side of this small community, in which there are three grade crossings. Currently two residences are within the 65 L_{dn} contour. An additional 38 residences would lie within the post-merger contour.

<u>Marion.</u> The tracks are on the west side of Marion, avoiding most of the residential areas. There are three grade crossings in town. Currently 10 residences are within the 65 dBA L_{dn} contour. The increased train activities would generate noise impacts to an additional 45 residences and 1 church.

<u>Peabody</u>. The rail line passes through the west central part of town with residential areas on both sides of the tracks. There are five grade crossings in Peabody. There are currently five residences within the 65 dBA L_{dn} contour. The increased train activities would generate noise impacts to an additional 45 residences.

<u>Elbing.</u> The tracks pass through the center of Elbing, in which there are several grade crossings. There are currently two residences within the 65 dBA L_{dn} contour. The increased train activities would generate noise impact to an additional 48 residences, 2 schools, and 1 church. One of the schools is the Berean Academy.

<u>Whitewater.</u> The tracks pass along the northwestern edge of Whitewater. There is one grade crossing about 0.2 mile north of town and another at the midpoint of the northwestern edge. There is currently one residence within the 65 dBA L_{dn} contour. The increased train activities would generate noise impacts to an additional 19 residences.

Wichita. The segment ends in the yard between 29th Street and the tank farm at the north end of Wichita. No noise-sensitive areas are located near the tracks.

Other Communities. Other small communities along this segment which would be affected

by an increase in noise as a result of the proposed merger are Antelope, Furley, and Kechi. Collectively, in these communities there is currently one residence within the 65 L_{dn} contour. An additional 26 residences in these towns would lie within the post-merger contour.

On the Lost Springs to Wichita segment, there are currently 21 residences, no schools, and no churches within the 65 L_{dn} contour. The majority of the impacts are due to train horns near grade crossings. With the proposed increase in train traffic, this would increase by 221 residences, two schools, and 2 churches, for a total of 242 residences, 2 schools and 2 churches within the post-merger 65 L_{dn} contour, as shown below:

	Number of Sensitive Receptors							
Community		Pre-Merger	•	Post-Merger				
	Resid.	School	Church	Resid.	School	Church		
Lost Springs	0	0	0	0	0	0		
Lincolnville	2	0	0	40	0	0		
Antelope	0	0	0	7	0	0		
Marion	10	0	0	55	0	1		
Peabody	5	0	0	50	0	0		
Elbing	2	0	0	50	2	1		
Whitewater	1	0	0	20	0	0		
Furley	0	0	0	12	0	0		
Kechi	1	0	0	8	0	0		
Wichita	0	0	0	0	0	0		
TOTAL	21	0	0	242	2	2		

NOISE SUMMARY LOST SPRINGS TO WICHITA (UP) LINE SEGMENT

Valley, Nebraska to Marysville

This UP rail segment currently has 0.9 trains/day and would experience an increase of 2 trains/day (a change of 133.6 percent in gross ton miles per year) as a result of the proposed merger. This change in through train activity would result in an increase in the L_{dn} by 5 dBA. All of the noise impacts occur at or near grade crossings where train horns are sounded as a warning. Prior to merger the impact zone at grade crossing extends to approximately 150 feet perpendicular to the tracks, whereas after the proposed merger, the noise impact zone would increase to 300 feet. Potential noise impacts along this segment are described below:

<u>Marysville.</u> The line segment runs north from the Marysville Yard. The north end of the yard is well outside of the developed portion of Marysville, and there are no noise-sensitive receptors near this line segment.

<u>Marietta.</u> This very small community, which is located three miles east of Route 77, has the UP railroad tracks running to the west of town and one grade crossing. Currently there are no residences within the 65 L_{dn} contour. One residence would lie within the post-merger contour.

<u>Oketo.</u> This small community, which is located just north of Marietta and approximately four miles east of Route 77, also has the UP railroad tracks running west of town and one grade crossing. The town has a small commercial section in its middle and most of the residences are more than 300 feet from the tracks. Currently there is one residence within the 65 L_{dn} contour. Two residences would lie within the post-merger contour.

Currently there is one residence (in Oketo) in the Kansas portion of this line segment that is within the 65 L_{dn} contour. The number of receptors affected by the proposed merger would be two new residences as indicated in the table below, for a total of three residences within the 65 L_{dn} contour after merger. These new impacts would be due entirely to horns being sounded at grade crossings.

	Number of Sensitive Receptors								
Community		Pre-Merger	•	Post-Merger					
	Resid.	School	Church	Resid.	School	Church			
Marysville	0	0	0	0	0	0			
Marietta	0	0	0	1	0	0			
Oketo	1	0	0	2	0	0			
TOTAL	1	0	0	3	0	0			

NOISE SUMMARY FOR KANSAS PORTION OF THE MARYSVILLE TO VALLEY, NEBRASKA (UP) LINE SEGMENT

Denver, Colorado to Oakley

This rail segment currently has 1.8 trains/day and would experience an increase of 6.8 trains/day (a change of 443.6 percent in gross ton-miles per year) as a result of the proposed merger. This change in through train activity would result in an increase in the L_{dn} of 6.8 dBA along the alignment. The Kansas portion of this segment runs from Cakley to Weskan, near the



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Colorado border. The majority of noise impacts occur at or near grade crossings where train horns are sounded as a warning. Currently, the noise impact zone at grade crossings extends approximately 180 feet perpendicular to the tracks, whereas after the proposed merger the noise impact zone would increase to about 410 feet. Potential noise impacts along the segment are described below:

<u>Oakley.</u> The line segment commences west of the town of Oakley. Therefore, noisesensitive receptors in Oakley are not affected by train operations on this segment.

<u>Monument.</u> Because there are no grade crossings near Monument, and therefore no horn noise from trains, the 65 L_{dn} contour distance is currently 50 feet and would increase to 140 feet after the merger. As there are no noise-sensitive receptors within 200 feet of the tracks, there would be no noise impacts in Monument.

<u>Page City.</u> Page City is a sparsely built community with two grade crossings. Currently one residence is within the 65 L_{dn} contour. An additional three residences would lie within the post-merger contour.

<u>Winona.</u> The tracks pass along the south side of Winona. Buildings adjacent to the tracks are used for either commercial or industrial purposes. Residential areas are behind these buildings. There are two grade crossings in town. Currently no noise-sensitive receptors are within the 65 L_{dn} contour. Eight residences would lie within the post-merger contour.

<u>Wallace</u>. Wallace is a sparsely built community with one grade crossing. The nearest residence to the track is more than 200 feet away. Currently no noise-sensitive receptors are within the 65 L_{dn} contour. Four residences would lie within the post-merger contour.

<u>Sharon Springs.</u> Most of Sharon Springs is located south of U.S. Route 40 and north of the line. A few residences are less than 200 feet from the tracks, and most are 300 feet or more. There is one grade crossing. Currently there are no residences, schools or churches within the 65 L_{dn} contour. Two residences would lie within the post-merger contour.

<u>Weskan</u>. Weskan is a small community through which the UP line passes. There is one grade crossing in town. Currently there are no noise-sensitive receptors within the 65 L_{dn} contour. Eight residences and one church would lie within the post-merger contour.

In the Kansas portion of the Denver, Colorado to Oakley line segment, there is currently one residence within the 65 L_{dn} contour. With the proposed increase in train traffic, this would increase by 25 residences and 1 church, for a total of 26 residences and 1 church within the post-merger 65 L_{dn} contour, as shown below:

NOISE SUMMARY FOR THE KANSAS PORTION OF THE DENVER, COLORADO TO OAKLEY (UP) LINE SEGMENT

	Number of Sensitive Receptors								
Community		Pre-Merge	er	Post-Merger					
	Resid.	School	Church	Resid.	School	Church			
Oakley	0	0	0	0	0	0			
Monument	0	0	0	0	0	0			
Page City	1	0	0	4	0	0			
Winona	0	0	0	8	0	0			
Wallace	0	0	0	4	0	0			
Sharon Springs	0	0	0	2	0	0			
Weskan	0	0	0	8	0	1			
TOTAL	1	0	0	26	0	1			

Salina to Oakley

This rail segment currently has 2.2 trains/day and would experience an increase of 6 trains/day (a change of 388 percent in gross ton-miles per year) as a result of the proposed merger. This change in through train activity would result in an increase in the L_{dn} of 5.7 dBA along the alignment. The majority of noise impacts occur at or near grade crossings where train horns are sounded as a warning. Currently, the noise impact zone at grade crossings extends approximately 250 feet perpendicular to the tracks, whereas after the proposed merger the noise impact zone would increase to about 500 feet. Potential noise impacts along the segment are described below:

Salina. The line originates at the Salina Yard in the northeastern part of Salina. The BN/Santa Fe tracks parallel the UP tracks for the first 2,000 feet west of the yard. There are a number of residences north of the line; the nearest is about 30 feet from track center. The nearest buildings south of the line are commercial. Towards the west end of the city are residences at both the sides of the tracks, opposite an un-gated grade crossing. The nearest residences on the south side are about 300 feet from the track. From Ohio Street to Broadway there are six grade crossing. Current train speed is low, due to poor track conditions. Currently there are 10 residences within the 65 L_{dn} contour. An additional 30 residences would lie within the post-medical contour.

<u>Bavaria</u>. The line runs to the north of the town, in which there are two grade crossings. Most of the noise-sensitive receptors are south of the tracks. Currently eight residences are within the 65 L_{dn} contour. An additional 10 residences and 1 church would lie within the post-

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merger contour.

<u>Kanapolis.</u> The line passes through the north part of Kanapolis. There are only a few residences less than 200 feet from the tracks, and 20 to 30 within 500 feet of the tracks. There are two grade crossings in town near the residential areas. Currently there is one residence within the 65 L_{dn} contour. An additional 13 residences would lie within the post-merger contour.

<u>Ellsworth.</u> The line passes through the south part of town. There are six grade crossings, all but one of which are near a residential area south of the tracks. Currently there are 21 residences and 1 church within the 65 L_{dn} contour. An additional 50 residences and 1 church would lie within the post-merger contour.

<u>Wilson.</u> The UP line passes through the center of Wilson. There are four grade crossings, three of which are near the center of town. Land use immediately adjacent to the tracks is mostly commercial and industrial. The nearest residence is approximately 200 feet from the tracks, and the majority are more than 250 feet from the tracks. Currently two residences are within the 65 L_{dn} contour. An additional 13 residences and 1 church would lie within the post-merger contour.

<u>Dorrance</u>. The line passes through the middle of Dorrance. North of the tracks through town and south of the tracks at the west end of town the buildings are primarily commercial and industrial. There is one grade crossing with a number of noise-sensitive receptors on both sides of the tracks. Currently there are no noise-sensitive receptors within the 65 L_{dn} contour. Ten residences and one church would lie within the post-merger contour.

<u>Bunker Hill.</u> The tracks pass through the center of town. There are three grade crossings, all in the central part of Bunker Hill. Currently one residence is within the 65 L_{dn} contour. An additional 15 residences, 1 school, and 1 church would lie within the post-merger contour.

<u>Russell.</u> The line goes through northern Russell. !.and use north of the tracks is primarily residential, while south of the tracks land use is mostly commercial. There are three grade crossings in Russell and another west of town. Currently three residences are within the 65 L_{dn} contour. An additional 50 residences and 1 church would lie within the post-merger contour.

<u>Gorham.</u> The line passes through the center of Gorham. Land use adjacent to the tracks on both sides is commercial and industrial, but there are residential areas behind these buildings. There are two grade crossings in town. Currently two residences are within the $65 L_{do}$ contour. An additional 14 residences would lie within the post-merger contour. <u>Victoria.</u> The UP line goes through the southern part of Victoria, but there are some residences south of the alignment. On the north side of the tracks, there are approximately 50 new homes on the east side of town. There are two grade crossings in Victoria which are near these residential areas. Currently four residences are within the 65 L_{dn} contour. An additional 14 residences would lie within the post-merger contour.

<u>Hays.</u> The line passes through the middle of Hays, with a number of grade crossings through the town. There are noise-sensitive receptors on both sides of the tracks. These include single-family residences, several apartment buildings, some townhouse-style buildings, and Fort Hays State College. Several of the college academic buildings are approximately 250 feet from the tracks. Currently 59 residences are within the 65 L_{dn} contour. An additional 115 residences, Fort Hays State College, and 1 church would lie within the post-merger contour.

<u>Ellis.</u> The line goes through the center of town, bordered primarily by commercial and industrial buildings. There are residences behind the commercial buildings and some which front the tracks on the west side of town. Currently there are no noise-sensitive receptors within the 65 L_{dn} contour. Twenty-eight residences would lie within the post-merger contour.

<u>Walker</u>. The tracks pass through the middle of Walker, which is a small community centered around the town's one grade crossing. Currently three residences are within the 65 L_{dn} contour. An additional 12 residences, 1 school, and 1 church would lie within the post-merger contour.

<u>Ogallah.</u> The line passes through Ogallah, a sparsely built community. There is one grade crossing near the center of the community, and two others outside of town - one to the east and the other to the west. Currently three residences are within the 65 L_{dn} contour. An additional seven residences and one school would lie within the post-merger contour.

<u>Wakeeney.</u> The UP line goes through the southern end of Wakeeney. South of the tracks, the land use is primarily commercial and industrial with only a few residences on the eastern side. North of the tracks, there are several blocks of residences which front the tracks, although the residences are typically more than 250 feet away from the tracks. There are five grade crossings within the boundaries of the town. Currently ten residences are within the 65 L_{dn} contour. An additional 40 residences would lie within the post-merger contour.

<u>Collyer.</u> The tracks pass through Collyer in a northeast to southwest direction. North of the line is the commercial area of town with some residences beyond them. Land use south of the tracks is mostly residential. There is one grade crossing in the center of town and another at the southwest corner. Currently three residences are within the 65 L_{dn} contour. An additional seven residences would lie within the post-merger contour.

<u>Oakley.</u> The line passes through the southern part of Oakley, and there is residential land use both north and south of the tracks. There is one grade crossing in town. The segment terminates on the west side of town, where another set of UP tracks splits off to the north. Much of land bordering the tracks is used for commercial or industrial purposes. Currently no noise-sensitive receptors are within the 65 L_{dn} contour. Thirty-six residences would lie within the post-merger contour.

<u>Other Communities.</u> Other small communities along this segment which would be affected by an increase in noise as a result of the proposed merger include: Brookville, Carneiro, Black Wolf, Yocemento, Voda, Quinter, Park, Grainfield, Grinnell, and Campus. Collectively, in these communities there are currently 13 residences within the 65 L_{dn} contour. An additional 32 residences would lie within the post-merger contour.

On the Salina to Oakley line segment, there are currently 143 residences and 1 church within the 65 L_{dn} contour. The majority of the impacts are due to train horns near grade crossings. With the proposed increase in train traffic, this would increase by 496 residences, 4 schools, and 8 churches, for a total of 639 residences, 4 schools and 9 churches within the post-merger 65 L_{dn} contour, as shown below:

	Number of Sensitive Receptors							
Community	Pre-Merger			Post-Merger				
	Resid.	School	Church	Resid.	School	Church		
Salina	10	0	0	40	0	0		
Bavaria	8	0	0	18	0	1		
Brookville	1	0	0	8	0	0		
Carneiro	5	0	0	8	0	0		
Kanapolis	1	0	0	14	0	0		
Ellsworth	21	0	1	71	0	2		
Black Wolf	0	0	0	1	0	0		
Wilson	2	0	0	15	0	1		
Dorrance	0	0	0	10	0	1		
Bunker Hill	1	0	0	16	1	1		
Russell	3	0	0	53	0	1		
Gorham	2	0	0	16	0	0		
Victoria	4	0	0	18	0	0		

NOISE SUMMARY SALINA TO OAKLEY (UP) LINE SEGMENT

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	Number of Sensitive Receptors								
Community		Pre-Merger	•	Post-Merger					
	Resid.	School	Church	Resid.	School	Church			
Hays	59	0	0	174	1	1			
Yocemento	2	0	0	6	0	0			
Ellis	0	0	0	28	0	0			
Walker	3	0	0	15	1	1			
Ogallah	3	0	0	10	1	0			
Wakeeney	10	0	0	50	0	0			
Voda	0	0	0	2	0	0			
Collyer	3	0	0	10	0	0			
Quinter	0	0	0	8	0	0			
Park	0	0	0	3	0	0			
Grainfield	3	0	0	6	0	0			
Grinnell	0	0	0	1	0	0			
Campus	2	0	0	2	0	0			
Oakley	0	0	0	36	0	0			
TOTAL	143	0	1	639	4	9			

Chickasha, Oklahoma to Wichita

This rail segment currently has 4.4 trains/day and would experience an increase of 7.4 trains/day (a change of 129.3 percent in gross ton-miles per year) as a result of the proposed merger. This change in through train activity would result in an increase in the L_{dn} of 4.3 dBA along the alignment. The Kansas portion of this segment runs from Wichita to Caldwell, near the Oklahoma border. The majority of noise impacts occur at or near grade crossings where train horns are sounded as a warning. Currently, the noise impact zone at grade crossings extends approximately 360 feet perpendicular to the tracks, whereas after the merger the noise impact zone would increase to about 620 feet. Potential noise impacts along the segment are described below:

<u>Wichita.</u> The line commences in the yard on the north side of Wichita just south of 29th Street. It travels south through the central part of Wichita and then through the suburbs of Glenville, Midland, Midland Park, and Sunset Park. Most of the land use through the central part of Wichita is industrial, although there are some pockets of residences and several churches. In the suburban part of the city, the homes are often within 200 feet of the tracks. There are numerous grade crossings through both the urban and suburban parts of Wichita.



Currently 90 residences and 5 churches are within the 65 L_{dn} contour. An additional 210 residences, 2 schools, and 2 churches would lie within the post-merger contour.

<u>Haysville.</u> Residences are located about 100 feet to the west of the line in the southern part of the town. There is one grade crossing at Grant Avenue. There are currently 40 residences and 2 churches within the 65 dBA L_{dn} contour. The increased train activities would generate noise impacts to an additional 20 residences, 1 school and 1 church.

<u>Wellington</u>. The area along the line is densely populated, with residences within 200 feet of the line. Buildings close to the tracks and Route 81 would provide acoustical shielding from train noise for areas farther from the line. There are currently 10 residences and 1 church within the 65 dBA L_{dn} contour. The increased train activities would generate noise impact to an additional 40 residences and 1 church.

<u>Caldwell.</u> The tracks pass along the eastern edge of Caldwell. There is one grade crossing where the tracks intersect U.S. Route 81. Although there are some residences near this grade crossing, most of the town's residences are more than 1,000 feet west of the tracks. There are currently six residences within the 65 dBA L_{dn} contour. The increased train activities would generate noise impact to an additional nine residences.

<u>Other Communities.</u> Other small communities in Kansac along this segment which would be affected by an increase in noise as a result of the proposed merger are Peck, Riverdale, Perth and Corbin. Collectively, in these communities there are currently nine residences within the 65 L_{dn} contour. An additional 15 residences and 1 school in these towns would be within the post-merger contour.

In the Kansas portion of the Wichita to Chickasha, Oklahoma segment, there are currently 155 residences and 8 churches within the 65 L_{dn} contour. The majority of the impacts are due to train horns near grade crossings. With the proposed increase in train traffic, this would increase by 294 residences, 4 schools, and 4 churches, for a total of 449 residences, 4 schools and 12 churches within the post-merger 65 L_{dn} contour, as shown below:
NOISE SUMMARY FOR THE KANSAS PORTION OF THE CHICKASHA, OKLAHOMA TO WICHITA (UP) LINE SEGMENT

	Number of Sensitive Receptors							
Community		Pre-Merger	•	F	Post-Merger			
	Resid.	School	Church	Resid.	School	Church		
Wichita	90	0	5	300	2	7		
Haysville	40	0	2	60	1	3		
Peck	5	0	0	12	0	0		
Riverdale	3	0	0	8	1	0		
Wellington	10	0	1	50	0	2		
Perth	1	0	0	2	0	0		
Corbin	0	0	0	2	0	0		
Caldwell	6	0	0	15	0	0		
TOTAL	155	0	8	449	4	12		

8.3.2 Increased Rail Yard Activity

Herington

The Herington rail yard in Herington is projected to have a carload activity increase of 267 percent, well above the Board's analysis threshold. The Herington Yard is a low-volume yard used for classification and consolidation. The closest residential area is located 300 to 1000 feet west of the yard, in the vicinity of 8th Street. The houses are far apart, so that little acoustical shielding exists within the neighborhood. A church in the neighborhood is located about 750 feet from the center of the yard, opposite the south end of the yard. To the east of the yard, there is a park and residential area, which are beyond a heavily wooded slope and more than 1000 feet from the yard. The area is very quiet, so that yard operations would be very audible over the background noise. Most of the yard extends northward into a rural area. Based on the existing rail car volume of 150 cars per day, the existing L_{dn} is projected to be less than 65 dBA at all of these noise-sensitive sites. The post-merger transportation plan is to increase carload activity by an average of 400 per day, resulting in a projected L_{dn} increase of 5.6 dBA. Most of the projected noise impact would be in the residential area west of the yard.

8.3.3 Increased Intermodal Facility Activity

Kansas City

The Kansas City intermodal facility is part of the Kansas City Terminal. The SP Kansas City (Armourdale) intermodal facility currently serves approximately 123 trucks per day. This facility would experience an average increase of 173 trucks per day due to consolidation of UP's Kansas City intermodal activities at Neff Yard into the SP Armourdale facility. The SP Armourdale facility is located on Bayard Street, south of Interstate 70. Access to the facility is via Kansas Avenue or Interstate 70, State Route 69 (South 18th Expressway) and Bayard Street. There are no noisesensitive receivers along the access routes to Interstate 70, the area being primarily industrial in nature. The expected increase in truck traffic on Kansas Avenue near this intermodal facility is projected to cause a maximum of a 1.4 dBA increase in noise exposure along this road. Because of the lack of noise-sensitive receivers near the intermodal facility, no noise impact is expected. Residential areas are located north of the facility, at substantial distance. Interstate 70 passes between the facility and the these residential receivers, which are thus exposed to highway noise. No noise impact is expected at these residential receivers. There is a mixed residential and light industrial area located east of the facility and south of the yard. Truck traffic would not pass through these areas, except perhaps along Kansas Avenue. No noise impacts are expected in these areas.

8.4 Transportation Systems

The Board's environmental rules at 49 CFR 1105.7(e)(2) require a description of the effects of the merger action on local and regional transportation systems. The primary transportation impacts of the proposed merger are related to: (1) additional truck traffic generated at those intermodal facilities where intermodal activity is projected to increase, and (2) increases in roadway delays at grade crossings as a result of increased train traffic on rail segments.

The impacts near intermodal facilities would result from increased truck traffic using local roadways to enter and exit the intermodal facility. For those facilities with an expected increase of 50 trucks or more per day, SEA analyzed the impacts of this increased traffic on the local roadway system in terms of increases in daily and peak hour traffic. SEA collected traffic count data from local and state transportation officials for this analysis. While the offsetting benefits of the proposed merger were not quantified at the local level, the traffic impacts from added truck traffic at intermodal facilities would be partially offset in many localities by truck-to-rail diversions and consolidation of operations. SEA concludes that the impacts on the local transportation system from the one intermodal facility in Kansas would not cause adverse impacts.

SEA addressed the concerns of local communities about increased traffic delays at grade crossing through an evaluation of vehicle delay and wait times at grade crossing locations. It is



important to note that the acceptability of delays at grade crossings varies substantially based on local conditions such as the location of land uses by type, availability of alternative travel routes, the degree of use by emergency vehicles, and other local variables. While the time of delay at grade crossings would increase proportionately with the increase in train traffic, most of the grade crossings in Kansas carry fewer than 5,000 vehicles per day. SEA concludes that increases in vehicle delay and/or wait time due to merger-related operational changes would not be excessive.

8.4.1 Intermodal Facilities

Kansas City

The Kansas City (Armourdale) intermodal facility is located on Bayard Street, south of Interstate Route 70 and west of US Route 69. The UP Kansas City intermodal facility at Neff Yard will be consolidated with the SP Kansas City Armourdale facility and will result in an additional 79,000 lifts per year, or an average 173 trucks per day increase in activity. The increase represents a 141 percent increase in the number of trucks per day. The increase in the number of trucks per day was assumed to be distributed based on the scheduled arrivals and departures of appropriate trains. The distribution of train arrivals and departures and the increase of 173 trucks per day is allocated upon the basis of four 6-hour periods of the day.

SEA obtained the Average Daily Traffic (ADT) volumes for roadways in the vicinity of this facility from the Kansas Department of Transportation. The 1995 ADT for Interstate Route 70 was 62,700 vehicles per day (vpd) and the 1994 ADT for US Route 69 was 31,500 vpd. The peak hour volume was assumed to be 10 percent of the ADT. As both of these facilities have multi-lanes, the existing peak hour volumes are well below capacity. The total daily increase of 346 truck trips represents about a 1.1 percent increase in ADT on US Route 69. Such small increases in total traffic would have a minor impact on travel performance of Interstate Route 70 and US Route 69. The truck traffic generated during the peak periods would have a negligible impact on area traffic and the original highway network.

8.4.2 Grade Crossings

In order to analyze the effects of the proposed merger on the roadway system at railroad grade crossings, SEA determined the number of crossings along rail segments that would exceed the Board's analysis thresholds for air quality analysis. Approximate delays over the course of 24 hours were calculated as were average queue lengths. While an increase in the number of trains would result in more crossing closings per day, the length of the queue at each individual crossing closing event would change only if the train length changes. Vehicle delay impacts at rail line segments in Kansas are summarized below.

Lost Springs to Wichita

Average rail traffic on the Lost Springs to Wichita line would increase from 1.9 to 11.8 trains per day, a train volume increase of about 521 percent. There are 51 grade crossings on this segment; none of these have ADT counts greater than 5,000 vehicles per day. At low speed grade crossings along the route (e.g., train speed of 20 mph), delay to vehicle traffic due to the additional daily trains would increase from 5 minutes (pre-merger) to 32 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 40 mph), delay would increase from 4 minutes (pre-merger) to 22 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak-hour vehicle traffic would range from 0 to 2 vehicles, and the corresponding delay per vehicle would vary from 1.35 to 2.06 minutes.

Herington to Lost Springs

On the Herington to Lost Springs line, average rail traffic would increase from 0.1 to 10.4 trains per day, a train volume increase of about 10,300 percent. There are 5 grade crossings on this segment; none of these have ADT counts greater than 5,000 vehicles per day. At each grade crossing along the route, delay to vehicle traffic due to the additional daily trains would increase from 1 minute (pre-merger) to 22 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak-hour vehicle traffic would range from 0 to 1 vehicle, and the corresponding delay per vehicle would be about 1.35 minutes.

Salina to Oakley

On the Salina to Oakley line, average rail traffic would increase from 2.2 to 8.2 trains per day, a train volume increase of about 273 percent. There are 200 grade crossings on this segment; 5 of these have ADT counts greater than 5,000 vehicles per day. At low speed grade crossings along the route (e.g., train speed of 20 mph), delay to vehicle traffic due to the additional daily trains would increase from 7 minutes (pre-merger) to 29 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 40 mph), delay would increase from 4 minutes (pre-merger) to 17 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak-hour vehicle traffic would range from 0 to 13 vehicles, and the corresponding delay per vehicle would vary from 1.35 to 2.06 minutes.

Stratford to Hutchinson, Kansas

On the 274-mile Stratford to Hutchinson, Kansas line, average rail traffic would increase from 11.3 to 20.1 trains per day, a train volume increase of about 78 percent. There are 181 grade crossings along this segment in Kansas. At low speed grade crossings along the route (e.g., train speed of 60 mph), delay to vehicle traffic due to the additional daily trains would increase from 18 minutes (pre-merger) to 33 minutes (post-merger) over a period of 24 hours. At higher speed

crossings (e.g., train speed of 70 mph), delay would increase from 17 minutes (pre-merger) to 21 minutes (post-merger) over a 24-hour period.

Denver, Colorado to Oakley, Kansas

Average rail traffic on the Denver to Oakley, Kansas line would increase from 1.8 to 8.7 trains per day, a train volume increase of about 383 percent. At low speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic due to the additional daily trains would increase from less than 5 minutes (pre-merger) to 23 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 50 mph), delay would increase from about 3 minutes (pre-merger) to 16 minutes (post-merger) over a 24-hour period.

Chickasha to Wichita, Kansas

Average rail traffic on the Chickasha to Wichita, Kansas line would increase from 4.4 to 11.8 trains per day, a train volume increase of about 168 percent. There are 238 grade crossings of this line, but there is insufficient data to determine how many have ADT counts greater than 5,000 vehicles per day. At low speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic due to the additional daily trains would increase from 11 minutes (pre-merger) to 30 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 50 mph), delay would increase from 8 minutes (pre-merger) to 22 minutes (post-merger) over a 24-hour period.

8.5 Safety

SEA assessed a number of safety issues associated with the proposed merger, including the probability of increased accidents at grade crossings, and the risks associated with increased shipments of hazardous commodities.

8.5.1 Grade Crossing Safety

Accidents at grade crossings are a function of the number of trains, train speed, number of train tracks, grade crossing condition and warning facilities, roadway condition and number of lanes, and amount of roadway traffic. Since the proposed merger would not result in any new grade crossings and would affect only the number of trains passing through existing grade crossings, the probability of an increase in the number of accidents at grade crossings would depend on the increased number of trains on rail segments. SEA concludes that the accident exposure in Kansas would range from an increase of 383 percent to a decrease of 100 percent depending on rail segment.

8.5.2 Hazardous Commodities

Federal regulations govern the transport of hazardous commodities. The proposed merger is not expected to affect the policies or operation of UP/SP concerning the type or quantity of hazardous commodities transported or the method of handling. A total of 420,000 and 305,000 hazardous commodity shipments were transported by UP and SP, respectively, in 1994. These shipments resulted in 118 reportable incidents for UP, and 35 incidents for SP. Therefore, 99.98 percent of the shipments arrived at their destination without incident. The Applicants have noted that the consolidation of the companies will result in a "best practice" approach to hazardous commodity handling. SEA concludes that, using the same safe rate of transport, the projected increases in accidents and shipments of hazardous materials as a result of the proposed merger do not constitute a significant safety risk.

8.6 Summary of Agency Comments

In considering the potential environmental impacts of the increased rail line segment, rail yard, and intermodal facility activity associated with the proposed merger, SEA sent consultation letters to various Federal, state, and local agencies on January 29, 1996. These letters, samples of which are included in **Volume 5**, Appendix D, Exhibits D-1 through D-9, provided early notification of this EA and requested information and comments on the effects to the environment of the proposed merger and related operational changes. Each letter included a state information packet and maps that listed the specific merger-related proposals. A sample packet is shown in **Volume 5**, Appendix D, Exhibit D-10. SEA contacted agencies by telephone to alert them to the distribution of the consultation letter and to confirm its receipt. The Applicant also contacted these agencies in preparation of the Environmental Report which accompanied the merger application. That correspondence and all responses were reviewed, verified, and considered by SEA in the preparation of this EA.

All comments received (through mid-March 1996) in response to the January 29th letter are shown in **Volume 5**, Appendix E, Exhibits E-1 through E-11. As necessary, SEA conducted additional consultation with agencies as shown in **Volume 5**, Appendix E, Table E-1. Agency comments regarding the proposed increases in rail line segment, rail yard, and intermodal facility activities in Kansas are summarized below:

- U.S. Army Corps of Engineers (Kansas City District) indicated that if increased rail activity near Herington causes excavation or discharges of dredge or fill material in waters of the United States, including wetlands, a Department of the Army permit may be required.
- Kansas Cultural Resources Division requested more specific information, including an inventory of structures and buildings over 50 years in age that would be affected by the

increased traffic to the existing SP yard at Herington, the phaseout of the SP yard at Topeka, and the Kansas City (SP) Armourdale intermodal facility.

- Marshall County stated that the only change in proximity would be possible increased rail traffic. Neither the County Engineer nor the Board of County Commissioners believe this would adversely effect the environment.
- McPherson County expressed concerns about the approaches to the railroad crossing involving vehicle traffic safety (on the northeast side of the City of Hutchinson to the City of McPherson). There are several crossings without flashing lights or crossarms; therefore the situation will be exacerbated, creating more safety issues.
- Ellsworth County requested that all information be forwarded to Kansas Department of Wildlife and Parks.
- City of Abilene expressed concerns for providing police and fire services and minimizing negative impact. The location of a grade separation south of town may be an appropriate solution to the ongoing problems with trains blocking the streets in town. The City also attached a letter from Dwight D. Eisenhower Library stating increased traffic on the Union Pacific rail line is of grave concern to the public safety of the facility. The homes and the Presidential Library south of the track are effectively cut off from an even minimal guarantee of fire, police and other emergency services. Currently some events at the library are time scheduled. The current train traffic often causes delays in these events due to long waiting periods for tourists to cross the tracks. Further increases in train traffic will cause additional delays and decrease visitation to the library.

8.7 Suggested Mitigation

This section highlights the specific mitigation measures that various parties; consulted in the process of preparing this EA for the proposed merger, have requested:

 City of Abilene expressed concerns for providing police and fire services and minimizing negative impact. The location of a grade separation south of town may be an appropriate solution to the ongoing problems with trains blocking the streets in town.

8.8 SEA Recommended Mitigation

This section contains the mitigation measures that SEA recommends that the Board impose in any final decision approving the changes to rail line segment, rail yard, and intermodal facility operations in Kansas. SEA will consider all comments on the EA in making its final recommendation to the Board. The Board will consider SEA's recommendations and the environmental record in making its final decision. SEA's recommended mitigation is as follows.

Air Quality

 UP/SP shall consult with appropriate Federal, state and local agencies responsible for regulating air quality in AQCRs 94, 95, 96, 97, 99, and 100 concerning any possible mitigation measures to reduce any potential adverse emissions from the rail segments, rail yards, and intermodal facilities in these six regions. UP/SP shall advise SEA of the results of these consultations.

Noise

- To reduce potential noise level impacts to sensitive receptors along the Salina to Oakley, Herington to Lost Springs, Lost Springs to Wichita, Stratford, Texas to Hutchinson, Kansas, Valley, Nebraska to Marysville, and Chickasha, Oklahoma to Wichita rail line segments, UP/SP shall consult with appropriate state and local agencies to develop noise abatement plans. The Applicant shall advise SEA of the results of these consultations and provide SEA with a copy of any resulting noise abatement plans.
- To reduce potential noise level impacts to sensitive receptors near the Kansas City intermodal facility, UP/SP shall consult with appropriate state and local agencies to develop noise abatement plans. The Applicant shall advise SEA of the results of these consultations and provide SEA with a copy of any resulting noise abatement plans.

Transportation and Safety

- UP/SP shall consult with the cities of Abilene and Wichita, and McPherson County, which are concerned about safety and the potential effects of additional rail traffic on vehicular traffic. UP/SP and the above communities shall then develop a mutually agreeable mitigation plan. UP/SP shall periodically advise SEA of the status of these consultations and shall submit any final mitigation plans to SEA.
- UP/SP shall maintain all rail line and grade crossing warning devices according to Federal Railroad Administration Standards (49 CFR Part 213).
- UP/SP shall transport all hazardous materials in compliance with the U.S. Department of Transportation Federal Hazardous Materials Regulations (49 CFR

Parts 171 to 180).

4. In the case of a hazardous materials spill, UP/SP shall follow appropriate emergency response procedures outlined in their Emergency Response Plans.

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CHAPTER 9.0 RAIL LINE SEGMENT, RAIL YARD, AND INTERMODAL FACILITY IMPACTS LOUISIANA

This chapter provides an analysis of the potential environmental impacts resulting from increased traffic on rail segments and increased activity at rail yards and intermodal facilities in Louisiana as part of the proposed merger. In analyzing these impacts, the Surface Transportation Board's (Board) Section of Environmental Analysis (SEA), consistent with its environmental rules at 49 CFR Part 1105.7(e), specifically considered: (1) impacts to air quality, (2) impacts to noise, (3) impacts to local, regional and national transportation systems, and (4) impacts to safety.

The following rail line segments and rail yards would meet or exceed the Board's environmental analysis thresholds:

- Avondale to Lafayette (SP).
- Lafayette to Iowa Junction (SP).
- Iowa Junction to Beaumont, Texas (SP).
- Livonia to Kinder (UP).
- Lufkin, Texas to Shreveport (SP).
- DeQuincy rail yard (UP).
- Lake Charles rail yard (SP).
- Livonia rail yard (UP).

Each rail line segment and rail yard is discussed in this chapter by impact category, as follows:

- Air quality (Section 9.1).
- Air quality at grade crossings (Section 9.2).
- Noise (Section 9.3).
- Transportation systems (Section 9.4).
- Safety (Section 9.5).

If a rail line segment or rail yard would not experience impacts in any one of these categories as a result of proposed merger, no analysis was necessary. Accordingly, no discussion is provided.

Chapter 1 of this volume describes the thresholds established for analysis of potential air quality and noise impacts and the methods used to evaluate these and other potential impacts.

9.1 Air Quality Analysis

Louisiana contains two Air Quality Control Regions (AQCR) with rail segments and rail yards

9-1

that would experience increased activity as a result of the proposed merger, and thereby trigger one or more of the Board's thresholds for analysis. In each of these regions, increased emissions along the length of rail segments through the AQCR (sometimes over a distance of hundreds of miles) could result in a potential for adverse air quality impacts. SEA conclude that increased rail operation activities in these regions would result in increased emissions of nitrogen dioxide (NO₂), which contributes to the formation of ozone. Increases in emissions, however, would be partially offset by decreases in train activity on other segments. One of the two AQCRs in Louisiana (Southern Louisiana-Southeast Texas) is designated as nonattainment for ozone.

Potential adverse impacts to air quality in these two AQCRs as a result of the proposed merger are discussed individually below.

9.1.1 Shreveport-Texarkana Tyler (AQCR 22)

Rail operations in the Shreveport-Texarkana-Tyler AQCR (22) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of a portion of one rail segment (Lufkin, Texas Shreveport). There are no intermodal facilities or any rail yards in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Shreveport-Texarkana-Tyler AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The Shreveport-Texarkana-Tyler AQCR (22) includes the parishes of Bienville, Bossier, Caddo, Claiborne, De Soto, Jackson, Lincoln, Natachitoches, Red River, Sabine, Webster, and Winn, all of which are designated as in attainment. In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along one rail segment. SEA concludes that increased rail operations would contribute to increased levels of ozone and other pollutants in the Shreveport-Texarkana-Tyler attainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on four rail segments that pass through or are connected to Shreveport-Texarkana-Tyler AQCR (22). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each segment would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Alexandria LA	Shreveport LA	128	0.0	0%	10%
Lewisville AR	Shreveport LA	62	4.3	49%	31%
Shreveport LA	Marshall TX	36	-2.7	-35%	10%
Lufkin TX	Shreveport LA	116	3.5	42%	3%



One of the four rail segments listed above (Lufkin, Texas to Shreveport) was assessed for air quality impacts because it would exceed the Board's analysis thresholds. The estimated increased emissions from this segment are shown below. The impacts of these emissions are discussed below in the section on Analysis of Activity.

Rail	AQCR	Estim	nated Increas	se in Emissio	ns (tons per	year)
Segment	(ID No.)	НС	со	NO ₂	SO ₂	PM-10
Lufkin - Shreveport	22	0.3	1.0	7.5	0.5	0.2

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen oxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Shreveport-Texarkana-Tyler AQCR, primarily from mobile rail segment emissions.

9.1.2 Southern Louisiana-Southeast Texas (AQCR 106)

Rail operations in the Southern Louisiana-Southeast Texas AQCR (106) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of four rail segments (Avondale to Lafayette, Iowa Jct. to Beaumont, Texas, Lafayette to Iowa Jct., and Livonia to Kinder) and the DeQuincy, Lake Charles, and Livonia rail yards. There are no intermodal facilities in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Southern Louisiana-Southeast Texas AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail segment activity in this AQCR.

The Southern Louisiana-Southeast Texas AQCR includes the parishes of Acadia, Allen, Ascension, Assumption, Avoyelles, Beauregard, Calcasieu, Carreron, East Baton Rouge, East Feliciana, Evangeline, Grant, Iberia, Iberville, Jefferson Davis, Lafayette, Lafourche, Livingston, Orleans, Plaquemines, Pointe Coupee, Rapides, St. Bernard, St. Charles, St. Helena, St. James, St. John the Baptist, St. Landry, St. Martin, St. Tammary, Tangipahoa, Terrebonne, Vermilion, Vernon, Washington, West Baton Rouge, and West Feliciana, portions of which are designated as nonattainment for ozone (O_3). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along the four rail segments and the rail yards. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the Southern Louisiana-Southeast Texas nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on 11 rail segments that pass through or are connected to the Southern Louisiana-Southeast Texas AQCR (106). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Alexandria LA	Shreveport LA	128	0.0	0%	10%
Alexandria LA	McGehee AR	190	0.6	7%	19%
Avondale LA	Lafayette LA	125	5.5	45%	-20%
Avondale LA	Livonia LA	104	0.3	2%	11%
DeQuincy LA	Beaumont TX	217	-8.9	-70%	-78%
lowa Jct.	Beaumont TX	75	15.3	99%	74%
Kinder LA	Alexandria LA	63	0.0	0%	34%
Kinder LA	DeQuincy LA	37	-3.4	-34%	-5%
Lafayette LA	Iowa Jct. LA	58	5.5	49%	-22%
Livonia LA	Kinder LA	76	1.6	24%	59%
Livonia LA	Alexandria LA	80	0.3	3%	10%

Four of the 11 rail segments listed above (Avor dale to Lafayette, Iowa Jct. to Beaumont, Texas Lafayette to Iowa Jct. and Livonia to Kinder) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The estimated increased emissions from these four segments are shown below. The impacts of these emissions are discussed below in the section on Analysis of Combined Activity.

Rail	AQCR	Estin	nated Increa	se in Emissio	ns (tons per	year)
Segment	(ID No.)	НС	со	NO ₂	SO ₂	PM-10
Avondale - Lafayette	106	-10.2	-31.8	-238.0	-17.2	-5.2
lowa Jct Beaumont	106	19.3	60.1	449.8	32.6	9.8
Lafayette - Iowa Jct.	106	-5.1	-15.9	-118.9	-8.6	-2.6
Livonia - Kinder	106	11.6	36.0	269.7	19.5	5.8
Total		15.6	48.4	362.6	26.3	7.8

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen oxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Emissions from Increased Rail Yard Activity

The proposed merger would lead to an increase in rail yard activity of 74.1 percent in the DeQuincy Yard, 85.9 percent in the Lake Charles Yard, and 29.9 percent in the Livonia Yard. This activity includes fueling, switching, and assembling of trains. The estimated increased emissions from these three rail yards are shown below. The impacts of these emissions are discussed below in the section on Analysis of Combined Activity.

Rail	AQCR	Estin	nated Increas	se in Emissio	ns (tons per	year)
Yard	(ID No.)	НС	со	NO ₂	SO ₂	PM-10
DeQuincy	106	0.0	0.1	0.7	0.0	0.0
Lake Charles	106	0.2	0.6	4.4	0.3	0.1
Livonia	106	0.6	1.8	13.6	1.0	0.3
Total		0.8	2.5	18.7	1.3	0.4

Key:

HC = hydrocarbons, CO = carbon monoxide, NO₂ = nitrogen oxide, SO₂ = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Combined Activity

This section discusses the impact to the Southern Louisiana-Southeast Texas AQCR based

on the combined estimated emissions from the rail segments and the rail yards related to the proposed merger. The total estimated increases in pollutant emissions are listed below:

Rail	AQCR	Estin	nated Increas	se in Emissio	ns (tons per	year)
Facility	(ID No.)	НС	со	NO ₂	SO ₂	PM-10
Rail Segments Total	106	15.6	48.4	362.6	26.3	7.8
Rail Yards Total	106	0.8	2.5	18.7	1.3	0.4
Total		16.4	50.9	381.3	27.6	8.2

Key:

HC = hydrocarbons, CO = carbon monoxide, NO₂ = nitrogen oxide, SO₂ = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Most of the estimated increase in pollutants that would result from the proposed merger in the Southern Louisiana-Southeast Texas AQCR (106) would be from the rail line segments, which are not stationary sources. Pollutants from the DeQuincy, Lake Charles, and Livonia rail yard facilities would be lower than the EPA definition of significance (as defined in Prevention of Significant Deterioration at 40 CFR 51.166) for all pollutants. The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants.

9.2 Air Quality Impacts at Grade Crossings

SEA assessed the overall air quality impacts of emissions from idling vehicles waiting at grade crossings. On average, annual emissions at a grade crossing with 5,000 vehicles per day would be 0.0021 ton of volatile organic compounds, 0.0013 ton of hydrocarbons, 0.0111 ton of carbon monoxide, and 0.0003 ton of nitrogen dioxide (NO₂) per train crossing. Traffic volumes of more than 5,000 vehicles per day would increase the estimated emissions accordingly. Railroad crossings tend to be grade-separated when roadway and/or train traffic volumes become high, so the air quality impacts at grade crossings would generally be relatively minor. In Louisiana, most grade crossings carry 5,000 or fewer vehicles. SEA concludes that no adverse air quality impacts would result from increased grade crossing delays as a result of the proposed merger. Section 9.4.1 of this chapter contains information on the transportation impacts of grade crossing delays

associated with increased rail segment activity.

9.3 Noise Analysis

SEA performed noise analyses to identify noise-sensitive land uses where the proposed changes in operations could result in increases in noise exposure that meet or exceed the Board's environmental analysis thresholds at 49 CFR 1105.7(e)(6). The following discussion provides an estimate of the number of noise-sensitive receptors (e.g., residences, schools, churches) where the Board's thresholds would be exceeded, potentially causing an adverse increase in noise exposure. The noise level impact assessment was based on the baseline and projected activity level data provided by UP/SP.

9.3.1 Increased Rail Segment Activity

Iowa Junction to Beaumont, Texas

This rail segment currently has 15.5 trains/day and would experience an increase of 15.3 trains/day (a change of 74 percent gross ton-miles per year) as a result of the proposed merger. This change in through train activity would result in an increase in the L_{dn} of 3 dBA along the alignment. The Louisiana portion of this segment runs from Iowa to Toomey, near the Texas border. The majority of noise impacts occur at or near grade crossings where train horns are sounded as a warning. Currently, the noise impact zone at grade crossings extends approximately 600 feet perpendicular to the tracks, whereas after the proposed merger the noise impact zone would increase to about 900 feet. Potential noise impacts along the segment are described below:

<u>lowa Junction</u>. The line passes through the center of town with one grade crossing in the town. There are residences to the north and south of the tracks. The residences are fairly dense in this area, with a few industrial buildings to the south of the tracks providing some acoustical shielding to the residences behind them. The closest residences are about 100 feet from the track. There are several residences located about a mile east of Iowa, at State Route 165. There are also some scattered residences to the west of the town located about 150 feet from the track. Between Iowa and Lake Charles, there are two grade crossings, with scattered residences along the southern side of the line located about 150 feet from the track, and concentrated at the grade crossings. Currently 26 residences are within the 65 L_{dn} contour. An additional 29 residences and 1 school would lie within the post-merger contour.

<u>Lake Charles.</u> The line runs through the north-central part of the town, cutting through the areas known as Mallard Junction and Goosport. There are residences in the city on both the north and south sides of the tracks. There are two schools which have campuses adjacent to the tracks, one of which is Washington College. The closest residences are 100 feet from

the track, and there are several grade crossings in these residential areas. Commercial areas are located near Interstate 10. Currently 72 residences are within the 65 L_{dn} contour. An additional 58 residences and 2 schools would lie within the post-merger contour.

<u>Westlake</u>. This is a residential area, with residences mostly to the north of the line. There are two grade crossings in the area. Currently 61 residences are within the 65 L_{dn} contour. An additional 92 residences would lie within the post-merger contour.

<u>Maplewood</u>. Maplewood is a residential community with a grade crossing at Prater Road. Most of the residences are more than 500 feet south of the tracks, but some are near the grade crossing. Currently nine residences are within the 65 L_{dn} contour. An additional 15 residences would lie within the post-merger contour.

<u>Sulphur</u>. The line passes through the center of Sulphur, which has three grade crossings. Land use adjacent to the track is primarily industrial or commercial, providing some acoustical shielding to noise sensitive receptors behind them. There is some residential development on both the east and west sides of town near the grade crossings. There are also a number of churches both to the north and south of the tracks. Currently 143 residences and 5 churches are within the 65 L_{dn} contour. An additional 46 residences and 3 churches would lie within the post-merger contour.

<u>Edgerly.</u> Edgerly is a small community at the intersection of U.S. Highway 90 and Highway 388. There is one grade crossing with residences nearby on both sides of the track. The commercial area is closest to the track, but provides little acoustical shielding. Currently 12 residences and 1 church are within the 65 L_{dn} contour. An additional 25 residences would lie within the post-merger contour.

<u>Vinton.</u> The line goes through the center of the town, parallel to U.S. Highway 90, which is just to the south of the tracks. There are five grade crossings. There are many residences and commercial buildings on both sides of the line, with the north side being more densely occupied with residences. The closest residences are about 500 feet from the track, with commercial structures located between the track and the residences. There are also several churches north of the tracks. Currently 65 residences and 1 church are within the 65 L_{dn} contour. An additional 87 residences would lie within the post-merger contour.

<u>Toomey.</u> From Toomey to Route 3063, the line runs parallel and north of U.S. Highway 90. Several residences are located along the line outside of Toomey about 500 feet from the tracks. There is a grade crossing in the commercial area of Toomey. Currently 16 residences are within the 65 L_{dn} contour. An additional nine residences would lie within the post-merger contour. In the Louisiana portion of the Iowa Jct. to Beaumont, Texas segment, there are currently 404 residences and 7 churches within the 65 L_{dn} contour. The majority of the impacts are due to train horns near grade crossings. With the proposed increase in train traffic, this would increase by 300 residences, for a total of 704 residences, 3 schools and 10 churches within the post-merger 65 L_{dn} contour, as shown below:

NOISE SUMMARY FOR LOUISIANA PORTION OF THE IOWA JCT. TO BEAUMONT, TEXAS (SP) LINE SEGMENT

	Number of Sensitive Receptors								
Community		Pre-Merge	r	Post-Merger					
	Resid.	Schoo!	Church	Resid.	School	Church			
Iowa, LA	26	0	0	55	1	0			
Lake Charles, LA	72	0	0	130	2	0			
Westlake, LA	61	0	0	92	0	0			
Maplewood, LA	9	0	0	24	0	0			
Sulphur, LA	143	0	5	189	0	8			
Edgerly, LA	12	0	1	37	0	1			
Vinton, LA	65	0	1	152	0	1			
Toomey, LA	16	0	0	25	0	0			
TOTAL	404	0	7	704	3	10			



Livonia

Incremental expansion of rail facilities is planned at several locations in the Livonia rail yard. This hump facility is projected to have a carload activity increase below the Board's analysis threshold of a 100 percent increase in railcar activity; however, the existing volume of 1,058 cars per day is substantial. The proposed merger would result in an increase of more than 300 cars per day. The land use surrounding the Livonia rail yard is primarily agricultural, and there would be no sensitive receptors within the 65 dBA L_{dn} contour for either the pre- or post-merger conditions.

9.4 Transportation Systems

The Board's environmental rules at 49 CFR 1105.7(e)(2) require a description of the effects of the merger action on local and regional transportation systems. The primary transportation impacts of the proposed merger are related to: (1) additional truck traffic generated at those intermodal facilities where intermodal activity is projected to increase, and (2) increases in roadway

delays at grade crossings as a result of increased train traffic on rail segments.

The impacts near intermodal facilities would result from increased truck traffic using local roadways to enter and exit the intermodal facility. For those facilities with an expected increase of 50 trucks or more per day, SEA analyzed the impacts of this increased traffic on the local roadway system in terms of increases in daily and peak hour traffic. SEA collected traffic count data from local and state transportation officials for this analysis. While the offsetting benefits of the proposed merger were not quantified at the local level, the traffic impacts from added truck traffic at intermodal facilities would be partially offset in many localities by truck-to-rail diversions and consolidation of operations. Because there are no intermodal facilities in Louisiana that would experience an increase in truck traffic above the Board's analysis threshold as a part of the proposed merger, SEA concludes that there would be no adverse impacts to the local transportation system.

SEA addressed the concerns of local communities about increased traffic delays at grade crossing through an evaluation of vehicle delay and wait times at grade crossing locations. It is important to note that the acceptability of delays at grade crossings varies substantially based on local conditions such as the location of land uses by type, availability of alternative travel routes, the degree of use by emergency vehicles, and other local variables. While the time of delay at grade crossings would increase proportionately with the increase in train traffic, most of the grade crossings in Louisiana carry fewer than 5,000 vehicles per day. SCA concludes that increases in vehicle delay and/or wait time due to merger-related operational changes would not be excessive.

9.4.1 Grade Crossings

In order to analyze the effects of the proposed merger on the roadway system at railroad grade crossings, SEA determined the number of crossings along rail segments that would exceed the Board's analysis thresholds for air quality analysis. Approximate delays over the course of 24 hours were calculated, as were average queue lengths. While an increase in the number of trains would result in more crossing closings per day, the length of the queue at each individual crossing closing event would change only if the train length changes. Vehicle delay impacts at along rail line segments in Louisiana are summarized below.

Avondale to Lafayette

On the Avondale to Lafayette line, average rail traffic would increase from 12.2 to 17.7 trains per day, a train volume increase of about 451 percent. There are 144 grade crossings, of which 20 have Average Daily Traffic (ADT) counts greater than 5,000 vehicles per day. At typical and high speed grade crossings along the route (e.g., train speed of 60 mph), delay to vehicle traffic would increase from 20 minutes (pre-merger) to 29 minutes (post-merger) over a 24-hour period. At the lowest speed grade crossings (e.g., train speed of 25 mph), delay to vehicle traffic would

increase from 36 minutes (pre-merger) to 52 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic would range from 1 to 38 vehicles and the corresponding delay per vehicle would vary from 1.11 to 1.77 minutes.

Lafayette to Iowa Junction

On the Lafayette to Iowa Junction line, average rail traffic would increase from 11.2 to 16.7 trains per day, a train volume increase of about 49 percent. There are 78 grade crossings, of which four have ADT counts greater than 5,000 vehicles per day. At typical grade crossings along the route (e.g., train speed of 45 mph), delay to vehicle traffic would increase from 22 minutes (premerger) to 32 minutes (post-merger) over a 24-hour period. At high speed grade crossings along the route (e.g., train speed of 60 mph), delay to vehicle traffic would increase from 18 minutes (premerger) to 27 minutes (post-merger) over a 24-hour period. A the lowest speed grade crossings (e.g., train speed of 25 mph), delay to vehicle traffic would increase from 28 minutes (pre-merger) to 50 minutes per day (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour vehicle traffic would range from 1 to 17 vehicles. The corresponding delay per vehicle would vary from 1.11 to 1.77 minutes.

Iowa Junction to Beaumont, Texas

Average rail traffic on the Iowa Junction to Beaumont, Texas line would increase from 15.5 to 30.8 trains per day, a train volume increase of about 99 percent. There are 63 grade crossings of the line. At low speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic trains would increase from 39 minutes (pre-merger) to 79 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 50 mph), delay would increase from 28 minutes (pre-merger) to 56 minutes (post-merger) over a 24-hour period.

Livonia to Kinder

On the Livonia to Kinder line, average rail traffic would increase from 6.8 to 8.4 trains per day, a train volume increase of about 24 percent At low speed grade crossings along the route (e.g., train speed of 25 mph), delay to vehicle traffic due to the additional daily trains would increase increase from 20 minutes (pre-merger) to 25 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 50 mph), delay would increase from 12 minutes (pre-merger) to 15 minutes (post-merger) over a 24-hour period.

Lufkin, Texas to Shreveport

On the Lufkin, Texas to Shreveport line, average rail traffic would increase from 8.3 to 11.8 trains per day, a train volume increase of about 42 percent. There are 35 grade crossings in Louisiana, of which one has ADT counts greater than 5,000 vehicles per day. At typical and high

speed grade crossings along the route (e.g., train speed of 50 mph), delay to vehicle traffic would increase from 15 minutes (pre-merger) to 21 minutes (post-merger) over a 24-hour period. At lower speed crossings (e.g., train speed of 20 mph), delay would increase from 29 minutes (pre-merger) to 41 minutes (post-merger) over a period of 24-hours. The maximum queue length per train due to peak hour vehicle traffic would range from 1 to 36 vehicles. The corresponding delay per vehicle would vary from 1.2 to 2.06 minutes.

9.5 Safety

SEA assessed a number of safety issues associated with the proposed merger, including the probability of increased accidents at grade crossings, and the risks associated with increased shipments of hazardous commodities.

9.5.1 Grade Crossing Safety

Accidents at grade crossings are a function of the number of trains, train speed, number of train tracks, grade crossing condition and warning facilities, roadway condition and number of lanes, and amount of roadway traffic. Since the proposed merger would not result in any new grade crossings and would affect only the number of trains passing through existing grade crossings, the probability of an increase in the number of accidents at grade crossings would depend on the increased number of trains on rail segments. SEA concludes that the accident exposure in Louisiana would range from an increase of 49 percent to a decrease of 70, percent depending on rail segment.

9.5.2 Hazardous Commodities

Certain rail line segments in Louisiana are subject to heavy movements of chemicals and hazardous materials, as discussed in Chapter 1 of this volume. SEA has recommended mitigation measures as set forth in Section 9.8 of this chapter, "SEA Recommended Mitigation."

Federal regulations govern the transport of hazardous commodities. The proposed merger is not expected to affect the policies or operation of UP/SP concerning the type or quantity of hazardous commodities transported or the method of handling. A total of 420,000 and 305,000 hazardous commodity shipments were transported by UP and SP, respectively, in 1994. These shipments resulted in 118 reportable incidents for UP, and 35 incidents for SP. Therefore, 99.98 percent of the shipments arrived at their destination without incident. The Applicants have noted that the consolidation of the companies will result in a "best practice" approach to hazardous commodity handling. SEA concludes that, using the same rate of safe transport, the projected increases in accidents and shipments of hazardous materials as a result of the proposed merger do not constitute a significant safety risk.

9.6 Summary of Agency Comments

In considering the potential environmental impacts of the increased rail line segment, rail yard, and intermodal facility activity associated with the proposed UP/SP merger, SEA sent consultation letters to various Federal, state, and local agencies on January 29, 1996. These letters, samples of which are included in **Volume 5**, Appendix D, Exhibits D-1 through D-9, provided early notification of this EA and requested information and comments on the effects to the environment of the proposed merger and related operational changes. Each letter included a state information packet and maps that listed the specific merger-related proposals. A sample packet is shown in **Volume 5**, Appendix D, Exhibit D-10. SEA contacted agencies by telephone to alert them to the distribution of the consultation letter and to confirm its receipt. The Applicant also contacted these agencies in preparation of the Environmental Report which accompanied the merger application. That correspondence and all responses were reviewed, verified, and considered by SEA in the preparation of this EA.

All comments received (through mid-March 1996) in response to the January 29th letter are shown in **Volume 5**, Appendix E, Exhibits E-1 through E-11. As necessary, SEA conducted additional consultation with agencies as shown in **Volume 5**, Appendix E, Table E-1. Agency comments regarding the proposed increases in rail line segment and rail yard activities in Louisiana are summarized below:

- U.S. Army Corps of Engineers indicated that there is a possible need for permits; provided points of contact.
- Louisiana Department of Transportation and Development indicated that the proposed merger is not in conflict with Statewide Transportation Plan. Its Maintenance Division should be consulted regarding changes to existing crossings or addition of new crossings at public roads. Relocation of U.S. Highway 171 overpass pier shall be closely coordinated with LDOTD and the Louisiana Division FHWA.
- Louisiana Department of Wildlife and Fisheries, Baton Rouge Office identifies three sensitive species that are known to occur within 5 miles of the Lake Charles Yard. Also identifies Sam Houston Jones State Park which is approximately 3.5 miles north of the site. No wetlands will be affected to their knowledge.
- Acadia Parish Police Jury indicates that the UP/SP traffic will decrease approximately 50% (six trains) this will be offset by an increase of approximately five BN/SF trains. Therefore, no difference should be realized.
- Calcasieu Parish Police Jury provided a map showing all Parish parks within five miles
 of the Lake Charles Yard. The Jury is extremely concerned that the increased activity

within the Yards will result in blocked Parish Roads, in particular Trousdale Road adjacent to the Lake Charles Yard.

9.7 Suggested Mitigation

No specific mitigation measures were suggested for the proposed changes to rail line segment and rail yard operations in Louisiana by the various parties consulted in the process of preparing the EA for the proposed merger. (See **Volume 5**, Appendices D and E, for agency consultation lists.)

9.8 SEA Recommended Mitigation

This section contains the mitigation measures that SEA recommends that the Board impose in any final decision approving the proposed changes to rail line segment and rail yard operations in Louisiana. SEA will consider all comments on the EA in making its final recommendation to the Board. The Board will consider SEA's recommendations and the environmental record in making its final decision. SEA's recommended mitigation is as follows.

Air Quality

 UP/SP shall consult with appropriate Federal, state and local agencies responsible for regulating air quality in AQCRs 22 and 106, concerning any possible mitigation measures to reduce any potential adverse emissions from rail segment and rail yard operations in these regions. UP/SP shall advise SEA of the results of these consultations.

Noise

- 1. To reduce potential noise level impacts to sr al ng w. rdale to Lafayette, Lafayette to Iowa June" nction sain At. Texas. a to Kinder, and Lufkin, Tr ___ to Shrevepo. ts UP/SP 1 and lear consult with appropria emonic plans. The Applicant shall a is of the consultations and provide SEA with a cop plans.
- 2. To reduct potent, use level in the sensitive reconnections, and Livonia railly SP shall be state and local agencies to develop abatement plus advise SEA of the results of these consultations and provided with a copy of any resulting noise abatement plans.

Transportation and Safety

- UP/SP shall consult with Calcasieu Parish, which is concerned about safety and the potential effects of additional rail traffic on vehicular traffic. UP/SP and Calcasieu Parish shall then develop a mutually agreeable mitigation plan. UP/SP shall periodically advise SEA of the status of these consultations and shall submit the final mitigation plan to SEA.
- 2. UP/SP shall conduct rail line capacity simulations to verify that the directional operations involving St. Louis, Missouri; Memphis, Tennessee; and Dallas, San Antonio, and Houston, Texas can be safely accomplished. These simulations should also include BN/Santa Fe train movements. UP/SP shall submit these simulations to FRA for its review and shall comply with FRA's recommendations. UP/SP shall submit its analysis, as well as FRA's findings to SEA for the following rail line segments: Lewisville, Arkansas to Shreveport, Louisiana and Shreveport, Louisiana to Lufkin, Texas.
- 3. UP/SP shall conduct a safety analysis of the SP line segment between Houston, Texas and Lewisville, Arkansas to determine the need for installing an Automatic Block Signal (ABS) system or a Centralized Traffic Control (CTC) system. This SP line between Houston and Lewisville comprises three line segments: Lewisville, Arkansas to Shreveport, Louisiana; Shreveport, Louisiana to Lufkin, Texas; and Lufkin to Houston, Texas. This analysis shall address, at a minimum, the added level of safety that these systems provide for train movements and rail break detection. UF/SP shall submit its analysis to FRA for its review and shall comply with FRA's recommendations. UP/SP shall submit its analysis, as well as FRA's findings, to SEA for the rail line segment from Lewisville, Arkansas to Shreveport, Louisiana and Shreveport, Louisiana to Lufkin, Texas.
- UP/SP shall maintain all rail line and grade crossing warning devices according to Federal Railroad Administration (FRA) Standards (49 CFR Part 213).
- UP/SP shall transport all hazardous materials in compliance with the U.S. Department of Transportation Hazardous Materials Regulations (49 CFR Parts 171 to 180).
- 6. In the case of a hazardous materials spill, UP/SP shall follow appropriate emergency response procedures outlined in their Emergency Response Plans.

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CHAPTER 10.0 RAIL LINE SEGMENT, RAIL YARD, AND INTERMODAL FACILITY IMPACTS MISSOURI

This chapter provides an analysis of the potential environmental impacts resulting from increased traffic on rail segments and increased activity at rail yards and intermodal facilities in Missouri as part of the proposed merger. In analyzing these impacts, the Surface Transportation Board's (Board) Section of Environmental Analysis (SEA), consistent with its environmental rules at 49 CFR Part 1105.7(e), specifically considered: (1) impacts to air quality, (2) impacts to noise, (3) impacts to local, regional and national transportation systems, and (4) impacts to safety.

The following rail line segment and rail yard facility would meet or exceed the Board's environmental analysis thresholds:

- Paragould, Arkansas to Dexter (SP).
- Poplar Bluff rail yard (SP).

Each rail line segment and rail yard is discussed in this chapter by impact category, as follows:

- Air quality (Section 10.1).
- Air quality at grade crossings (Section 10.2).
- Noise (Section 10.3).
- Transportation systems (Section 10.4).
- Safety (Section 10.5).

If the rail line segment or rail yard would not experience impacts in any one of these categories as a result of proposed merger, no analysis was necessary. Accordingly, no discussion is provided.

Chapter 1 of this volume describes the thresholds established for analysis of potential air quality and noise impacts and the methods used to evaluate these and other potential impacts.

10.1 Air Quality Analysis

Missouri contains one AQCR with one rail segment and one rail yard that would experience increased activity as a result of the proposed merger, and thereby trigger one or more of the Board's thresholds for analysis. In this region, increased emissions along the length of rail segments through the AQCR could result in a potential for adverse air quality impacts. SEA concludes that increased rail operation activities in this region would result in increased emissions

of nitrogen dioxide (NO₂), which contributes to the formation of ozone. Increases in emissions, however, would be partially offset by decreases in train activity on other segments.

Potential adverse impacts to air quality in this AQCR as a result of the proposed merger are discussed individually below.

10.1.1 Southeast Missouri (AQCR 138)

Rail operations in the Southeast Missouri AQCR (138) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of a portion of one rail segment (Paragould, Arkansas, to Dexter Jct.) and one rail yard (Poplar Bluff). There are no intermodal facilities in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Southeast Missouri AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result irom increased rail operations activity in this AQCR.

The Southeast Missouri AQCR (138) includes the counties of Bolinger, Butler, Cape Girardeau, Carter Crawford, Dent, Dunkin, Gasconade, Iron, Madison, Maries, Mississippi, New Madrid, Pemiscot, Perry, Phelps, Reynolds, Ripley, St. Francis, Ste. Genevieve, Scott, Stoddard, Washington, and Wayne, and is designated as a nonattainment area for lead. In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along the rail segment and in the rail yard. SEA concludes that increased rail operations would contribute to increased levels of ozone as well as other pollutants in the Southeast Missouri nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on five rail segments that pass through or are connected to Southeast Missouri AQCR (138). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

		 -	
1	1		

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Dexter Jct. MO	Poplar Bluff MO	28	-11	-39%	-22%
Paragould AR	Dexter Jct. MO	69	6.3	39%	43%
Gorham IL	Dexter Jct. MO	85	-4.9	-11%	1%
Poplar Bluff AR	Newport AR	31	-7.7	-25%	-13%
St. Louis MO	Poplar Bluff (Desolo) MO	162	0.4	13%	11%

One of the five rail segments listed above (Paragould, Arkansas to Dexter Jct.) was assessed for air quality impacts because it would exceed the Board's analysis thresholds. The estimated increased emissions from the rail segment are shown below. The impacts of these emissions are discussed in the section on Analysis of Combined Activity.

Rail	AQCR	Estin	nated Increa	se in Emissio	ns (tons per	year)
Segment	(ID No.)	НС	со	NO ₂	SO ₂	PM-10
Paragould - Dexter Jct.	138	6.9	21.5	160.6	11.6	3.5

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Emissions from Increased Rail Yard Activity

The proposed merger would lead to an increase in rail yard activity of 28.2 percent in the Poplar Bluff yard. This activity includes fueling, switching, and assembling of trains. The estimated increased emissions from this rail yard are shown below. The impacts of these emissions are discussed in the section on Analysis of Combined Activity.

Rail Yard AQCR (ID No.)	AQCR	Estin	nated Increas	se in Emissio	ns (tons per	year)
	HC	со	NO ₂	SO2	PM-10	
Poplar Bluff	138	0.0	0.0	0.4	0.0	0.0

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Combined Activity

This section discusses the impact to Southeast Missouri AQCR based on the combined estimated emissions from the rail segment and the rail yard related to the proposed merger. The total estimated increase in pollutant emissions are listed below:

Rail Facility	AQCR (ID No.)	Estimated Increase in Emissions (tons per year)				
		HC	СО	NO ₂	SO ₂	PM-10
Rail Segments Total	138	6.9	21.5	160.6	11.6	3.5
Rail Yards Total	138	0.0	0.0	0.4	0.0	0.0
Total		6.9	21.5	161.0	11.6	3.5

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Most of the estimated pollutants from the proposed merger in the Southeast Missouri AQCR (138) would be from the rail segment, which is not a stationary source. Pollutants from the Poplar Bluff rail yard would be lower than the EPA definition of significance (as defined in Prevention of Significant Deterioration at 40 CFR 51.166) for all pollutants. The increased rail operations activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of ozone pollution in the Southern Missouri AQCR, primarily from mobile rail segment emissions.

10.2 Air Quality Impacts at Grade Crossings

SEA assessed the overall air quality impacts of emissions from idling vehicles waiting at grade crossings. On average, annual emissions at a grade crossing with 5,000 vehicles per day would be 0.0021 ton of volatile organic compounds, 0.0013 ton of hydrocarbons, 0.0111 ton of carbon monoxide, and 0.0003 ton of nitrogen dioxide (NO₂) per train crossing. Traffic volumes of more than 5,000 vehicles per day would increase the estimated emissions accordingly. Railroad crossings tend to be grade-separated when roadway and/or train traffic volumes become high, so the air quality impacts at grade crossings would generally be relatively minor. In Missouri, most grade crossings carry 5,000 or fewer vehicles. SEA concludes that no adverse air quality impacts would result from increased grade crossing delays as a result of the proposed merger. Section 10.4.1 of this chapter contains information on the transportation impacts of grade crossing delays associated with increased rail segment activity.



There are no rail facilities in Missouri that would meet the Board's thresholds for noise analysis.

10.4 Transportation Systems

The Board's environmental rules at 49 CFR 1105.7(e)(2) require a description of the effects of the proposed merger action on local and regional transportation systems. The primary transportation impacts of the proposed merger are related to: (1) additional truck traffic generated at those intermodal facilities where intermodal activity is projected to increase, and (2) increases in roadway delays at grade crossings as a result of increased train traffic on rail segments.

The impacts near intermodal facilities would result from increased truck traffic using local roadways to enter and exit the intermodal facility. For those facilities with an expected increase of 50 trucks or more per day, SEA analyzed the impacts of this increased traffic on the local roadway system in terms of increases in daily and peak hour traffic. SEA collected traffic count data from local and state transportation officials for this analysis. While the offsetting benefits of the proposed merger were not quantified at the local level, the traffic impacts from added truck traffic at intermodal facilities would be partially offset in many localities by truck-to-rail diversions and consolidation of operations. Because there are no intermodal facilities in Missouri that would experience an increase in truck traffic above the Board's analysis threshold as a part of the proposed merger, SEA concludes that there would be no adverse impacts to the local transportation system.

SEA addressed the concerns of local communities about increased traffic delays at grade crossing through an evaluation of vehicle delay and wait times at grade crossing locations. It is important to note that the acceptability of delays at grade crossings varies substantially based on local conditions such as the location of land uses by type, availability of alternative travel routes, the degree of use by emergency vehicles, and other local variables. While the time of delay at grade crossings would increase proportionately with the increase in train traffic, most of the grade crossings in Missouri carry fewer that 5,000 vehicles per day. SEA concludes that increases in vehicle delay and/or wait time due to merger-related operational changes would not be excessive.

10.4.1 Grade Crossings

In order to analyze the effects of the proposed merger on the roadway system at railroad grade crossings, SEA determined the number of crossings along rail segments that would exceed the Board's analysis thresholds for air quality analysis. Approximate delays over the course of 24 hours were calculated, as were average queue lengths. While an increase in the number of trains would result in more crossing closings per day, the length of the queue at each individual crossing

closing event would change only if the train length changes. Vehicle delay impacts at rail line segments in Missouri are summarized below.

Paragould, Arkansas to Dexter Junction

On the Paragould, Arkansas to Dexter Junction line, average rail traffic would increase from 16.0 to 22.3 trains per day, a train volume increase of about 39 percent. At low speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic would increase from 43 minutes (pre-meiger) to 60 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 50 mph), delay is anticipated to increase from 30 minutes (pre-merger) to 42 minutes (post-merger) over a 24-hour period.

10.5 Safety

SEA assessed a number of safety issues associated with the proposed merger, including the probability of increased accidents at grade crossings, and the risks associated with increased shipments of hazardous commodities.

10.5.1 Grade Crossing Safety

Certain rail line segments in Missouri are subject to heavy movements of chemicals and hazardous materials, as discussed in Chapter 1 of this volume. SEA has recommended mitigation measures in Section 10.8 of this chapter, "SEA Recommended Mitigation."

Accidents at grade crossings are a function of the number of trains, train speed, number of train tracks, grade crossing condition and warning facilities, roadway condition and number of lanes, and amount of roadway traffic. Since the proposed merger would not result in any new grade crossings and would affect only the number of trains at existing grade crossings, the probability of an increase in the number of accidents at grade crossings would depend on the increased number of trains on rail segments. SEA concludes that the accident exposure in Missouri will range from an increase of 39 percent to a decrease of 39 percent, depending on rail segment.

10.5.2 Hazardous Commodities

Federal regulations govern the transport of hazardous commodities. The proposed merger is not expected to affect the policies or operation of UP/SP concerning the type or quantity of hazardous commodities transported or the method of handling. A total of 420,000 and 305,000 hazardous commodity shipments were transported by UP and SP, respectively, in 1994. These shipments resulted in 118 reportable incidents for UP, and 35 incidents for SP. Therefore, 99.98 percent of the shipments arrived at their destination without incident. The Applicants have noted that the consolidation of the companies will result in a "best practice" approach to hazardous



commodity handling. SEA concludes that, using the same rate of safe transport, the projected increases in accidents and shipments of hazardous materials as a result of the proposed merger do not constitute a significant safety risk.

10.6 Summary of Agency Comments

In considering the potential environmental impacts of the increased rail line segment, rail yard, and intermodal facility activity associated with the proposed UP/SP merger, SEA sent consultation letters to various Federal, state, and local agencies on January 29, 1996. These letters, samples of which are included in **Volume 5**, Appendix D, Exhibits D-1 through D-9, provided early notification of this EA and requested information and comments on the effects to the environment of the proposed merger and related operational changes. Each letter included a state information packet and maps that listed the specific merger-related proposals. A sample packet is shown in **Volume 5**, Appendix D, Exhibit D-10. SEA contacted agencies by telephone to alert them to the distribution of the consultation letter and to confirm its receipt. The Applicant also contacted these agencies in preparation of the Environmental Report which accompanied the merger application. That correspondence and all responses were reviewed, verified, and considered by SEA in the preparation of this EA.

All comments received (through mid-March 1996) in response to the January 29th letter are shown in **Volume 5**, Appendix E, Exhibits E-1 through E-11. As necessary, SEA conducted additional consultation with agencies as shown in **Volume 5**, Appendix E, Table E-1. Agency comments regarding the proposed increases in rail line segment and rail yard activities in Missouri are summarized below:

 Missouri Department of Natural Resources (Historic Preservation Program) comments relate to the phase-out of existing UP rail yard on Lesperance St. The Department is concerned that phase-out will result in demolition or abandonment/surplusing. If so, a review of the rail yard needs to occur to determine if it has any historic significance.

10.7 Suggested Mitigation

No specific mitigation measures were suggested for the proposed changes to the rail line segment or rail yard operations in Missouri by the various parties consulted in the process of preparing the EA for the proposed merger. (See **Volume 5**, Appendices D and E, for agency consultation lists.)

10.8 SEA Recommended Mitigation

This section contains the mitigation measures that SEA recommends that the Board impose in any final decision approving the proposed changes in rail line segment or rail yard in Missouri. SEA will consider all comments on the EA in making its final recommendation to the Board. The Board will consider SEA's recommendations and the environmental record in making its final decision. SEA's recommended mitigation is as follows.

Air Quality

 UP/SP shall consult with appropriate Federal, state and local agencies responsible for regulating air quality in AQCR 138, concerning any possible mitigation measures to reduce any potential adverse emissions from the rail segment and rail yard in this region. UP/SP shall advise SEA of the results of these consultations.

Noise

- To reduce potential noise level impacts to sensitive receptors along the Paragould, Arkansas to Dexter rail line segment, UP/SP shall consult with appropriate state and local agencies to develop noise abatement plans. The Applicant shall advise SEA of the results of these consultations and provide SEA with a copy of any resulting noise abatement plans.
- To reduce potential noise level impacts to sensitive receptors near the Poplar Bluff rail yard, UP/SP shall consult with appropriate state and local agencies to develop noise abatement plans. The Applicant shall advise SEA of the results of these consultations and provide SEA with a copy of any resulting noise abatement plans.

Transportation and Safety

- UP/SP shall conduct rail line capacity simulations to verify that the directional operations involving St. Louis, Missouri; Memphis, Tennessee; and Dallas, San Antonio, and Houston, Texas can be safely accomplished. These simulations should also include BN/Santa Fe train movements. UP/SP shall submit these simulations to FRA for its review and shall comply with FRA's recommendations. UP/SP shall submit its analysis, as well as FRA's findings to SEA for the following rail line segments:
 - Gorham, Illinois to Dexter Jct., Missouri (Joint UP-SP).
 - Dexter Jct. Missouri to Parago ...d, Arkansas (SP).
 - Dexter Jct. to Poplar Bluff, Missouri (UP).
 - Poplar Bluff, Missouri to Newport, Arkansas (UP).

- 2. UP/SP shall maintain all rail line and grade crossing warning devices according to Federal Railroad AdministrationStandards (49 CFR Part 213).
- UP/SP shall transport all hazardous materials in compliance with the U.S. Department of Transportation Hazardous Materials Regulations (49 CFR Parts 171 to 180).
- In the case of a hazardous materials spill, UP/SP shall follow appropriate emergency response procedures outlined in their Emergency Response Plans.

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CHAPTER 11.0

RAIL LINE SEGMENT, RAIL YARD, AND INTERMODAL FACILITY IMPACTS NEBRASKA

This chapter provides an analysis of the potential environmental impacts resulting from increased traffic on rail segments in Nebraska as part of the proposed merger. In analyzing these impacts, the Surface Transportation Board's (Board) Section of Environmental Analysis (SEA), consistent with its environmental rules at 49 CFR Part 1105.7(e), specifically considered: (1) impacts to air quality, (2) impact to noise, (3) impacts to local, regional and national transportation systems, and (4) impacts to safety.

The following rail line segments would meet or exceed the Board's environmental analysis thresholds:

- Valley to Marysville, Kansas (UP).
- California Junction, Iowa to Fremont (UP).

Each rail line segment is discussed in this chapter by impact category, as follows:

- Air quality (Section 11.1).
- Air quality at grade crossings (Section 11.2).
- Noise (Section 11.3)
- Transportation systems (Section 11.4).
- Safety (Section 11.5).

If a rail line segment would not experience impacts in any one of these categories as a result of proposed merger, no analysis was necessary. Accordingly, no discussion is provided.

Chapter 1 of this volume describes the thresholds established for analysis of potential air quality and noise impacts and the methods used to evaluate these and other potential impacts.

11.1 Air Quality Analysis

Nebraska contains three Air Quality Control Regions (AQCR) with rail segments that would experience increased activity as a result of the proposed merger, and thereby trigger one or more of the Board's thresholds for analysis. In each of these regions, increased emissions along the length of rail segments through the AQCR (sometimes over a distance of hundreds of miles) could result in a potential for adverse air quality impacts. SEA concludes that increased rail operation activities in this region would result in increased emissions of nitrogen dioxide (NO₂), which

contributes to the formation of ozone. Increases in emissions, however, would be partially offset by decreases in train activity on other segments.

Potential adverse impacts to air quality in these three AQCRs as a result of the proposed merger are discussed individually below.

11.1.1 Metropolitan Omaha-Council Bluffs (AQCR 85)

Rail operations in the Metropolitan Omaha-Council Bluffs AQCR (85) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consists of one rail segment (Valley to Marysville, Kansas). There are no rail yards or intermodal facilities in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Metropolitan Omaha-Council Bluffs AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail operations activity in this AQCR.

The Metropolitan Omaha-Council Bluffs AQCR includes the counties of Douglas and Sarpy, portions of which are designated as nonattainment for lead (Pb). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along the rail segment. SEA concludes increased rail operations would contribute to increased levels of ozone as well as other pollutants in the Metropolitan Omaha-Council Bluffs nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on four rail segments that pass through or are connected to Metropolitan Omaha-Council Bluffs (85). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Council Bluffs IA	Valley NE	27	-2.1	-6%	-9%
Valley NE	Marysville KS	134	2.0	222%	134%
Omaha (Summit) NE	Kansas City MO	203	-1.1	-9%	-34%
Valley NE	Fremont NE	11	-2.1	-6%	-6%

One of the four rail segments listed above (Valley to Marysville, Kansas) was assessed for air quality impacts because it would exceed the Board's analysis thresholds. The estimated increased emissions from this rail line segment are shown below. The impacts of these emissions are discussed in the section on Analysis of Activity.

Rail	AQCR	Estin	nated Increas	se in Emissio	ns (tons per	year)
Segment	(ID No.)	HC	со	NO ₂	SO ₂	PM-10
Valley - Marysville	85	0.0	0.1	1.0	0.1	0.0

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of air pollutants in the Metropolitan Omaha-Council Bluffs AQCR, primarily from mobile rail segment emissions.

11.1.2 Lincoln-Beatrice-Fairbury (AQCR 145)

Rail operations in the Lincoln-Beatrice-Fairbury AQCR (145) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of a portion of one rail segment (Valley to Marysville, Kansas). There are no rail yards or intermodal facilities in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Lincoln-Beatrice-Fairbury AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail operations activity in this AQCR.

The Lincoln-Beatrice-Fairbury AQCR (145) includes the counties of Gage, Jefferson, Lancaster, and Thayer, all of which are designated as in attainment. In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along the rail segments. SEA concludes that increased rail operations in this region would contribute to increased levels of ozone and other pollutants in the Lincoln-Beatrice-Fairbury attainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on two rail segments that pass through or are connected to Lincoln-Beatrice-Fairbury (145) AQCR. The total length (in miles), the

change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin Station	Destination Station	Miles	Change in # of Trains/Day	%Change in Trains/Day	%Change in Tons/Year
Marysville KS	Gibbon NE	140	-4.6	-10%	-4%
Valley NE	Marysville KS	134	2.0	222%	134%

One of the two rail segments listed above (Valley to Marysville, Kansas) was assessed for air quality impacts because it would exceed the Board's analysis thresholds. The increased emissions from this rail segment are shown below. The impacts of these emissions are discussed in the section on Analysis of Activity.

Rail Segment	AQCR	Estin	nated Increa	se in Emissio	ns (tons per	year)
	(ID No.)	НС	со	NO ₂	SO ₂	PM-10
Valley - Marysville	145	2.9	9.1	68.1	4.9	1.5

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of pollution in the Lincoln-Beatrice-Fairbury AQCR, primarily from mobile rail segments emissions.

11.1.3 Nebraska (AQCR 146)

Rail operations in the Nebraska AQCR associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of two rail segments (Valley to Marysville, Kansas and California Jct., Iowa, to Fremont). There are no rail yards or intermodal facilities in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Nebraska AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail operations activity in this AQCR. The Nebraska AQCR is designated as an attainment area. In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along the rail segments. SEA concludes that increased rail operations would contribute to increased levels of ozone and other pollutants in the Nebraska attainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on 13 rail segments that pass through or are connected to Nebraska AQCR (146). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
California Jct.	Fremont NE	31	8.5	38%	34%
IA					
Crawford NE	Dakota Jct.	5	0.0	0%	0%
	NE				
Dakota Jct.	Chadron NE	23	0.0	0%	0%
NE					
Dakota Jct.	Rapid City SD	97	0.0	0%	0%
NE					
Fremont NE	Gibbon NE	136	7.4	12%	11%
Gibbon NE	North Platte	111	2.7	3%	3%
	NE				
Marysville KS	Gibbon NE	140	-4.6	-10%	-4%
Valley NE	Marysville KS	134	2.0	222%	134%
North Platte	South Morrill	174	-0.9	-2%	1%
NE	NE				
North Platte	Cheyenne WY	259	1.7	3%	5%
NE					
Omaha	Kansas City	203	-1.1	-9%	-34%
(Summit) NE	MO				
S. Morrill NE	Bill WY	145	-0.4	-1%	1%
Valley NE	Fremont NE	11	-2.1	-6%	-6%

Two of the 13 rail segments listed above (Valley to Marysville, Kansas, and California Jct., lowa to Fremont) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The increased emissions from these two rail segments are shown below. The impacts of these emissions are discussed in the section on Analysis of Activity.



Rail	AQCR	Estimated Increase in Emissions (tons per year)				
Segment	(ID No.)	HC	со	NO ₂	SO ₂	PM-10
Valley - Marysville	146	2.9	9.1	68.1	4.9	1.5
California Jct Fremont	146	7.5	23.2	173.8	12.6	3.8
TOTAL		10.4	32.3	241.9	17.5	5.3

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail operations activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Nebraska AQCR, primarily from mobile rail segment emissions.

11.2 Air Quality Impacts at Grade Crossings

SEA assessed the overall air quality impacts of emissions from idling vehicles waiting at grade crossings. On average, annual emissions at a grade crossing with 5,000 vehicles per day would be 0.0021 ton of volatile organic compounds, 0.0013 ton of hydrocarbons, 0.0111 ton of carbon monoxide, and 0.0003 ton of nitrogen dioxide (NO₂) per train crossing. Traffic volumes of more than 5,000 vehicles per day would increase the expected emissions accordingly. Grade crossings tend to be grade-separated when roadway and/or train traffic volumes become high, so the air quality impacts at grade crossings would generally be relatively minor. In Nebraska, most grade crossings carry 5,000 or fewer cars and trucks. SEA concludes that no adverse air quality impacts would result from increased grade crossing delays as a result of the proposed merger. Section 12.4.1 of this chapter contains information on the transportation impacts of grade crossing delays associated with increased rail segment activity.

11.3 Noise Analysis

SEA performed noise analyses to identify noise-sensitive land uses where the proposed



changes in operations could result in increases in noise exposure that meet or exceed the Board's environmental analysis thresholds at 49 CFR 1105.7(e)(6). The following discussion provides an estimate of the number of noise-sensitive receptors (e.g., residences, schools, churches) where the Board's thresholds would be exceeded, potentially causing an adverse increase in noise exposure. The noise level impact assessment was based on the baseline and projected activity level data provided by UP/SP.

11.3.1 Increased Rail Segment Activity

California Junction, Iowa to Fremont

This rail segment, which currently has 22.6 trains/day, would experience an increase of 8.5 trains/day (a 33.7% change in gross ton-miles per year) as a result of the proposed merger. The projected increase in train volume and gross ton-miles on this segment would cause less than a 2 dBA increase in the L_{dn} . No adverse noise impacts are expected.

Marysville, Kansas to Valley

This UP rail segment currently has 0.9 trains/day and would experience an increase of 2 trains/day (a change of 133.6% in gross ton miles per year) as a result of the proposed merger. This change in through train activity would result in an increase in the L_{dn} by 5 dBA. The majority of noise impacts occur at or near grade crossings where train horns are sounded as a warning. The noise impact zone at grade crossings currently extends to approximately 150 feet perpendicular to the tracks, whereas after the proposed merger the noise impact zone would increase to 300 feet. The following discussion summarizes the potential noise impacts by community for the sensitive receptors located in Nebraska along this segment.

<u>Barneston</u>. The rail line is located on the west side of this small town, with most residences further than 300 feet from the tracks. There is one grade crossing within town and one each to the north and south of town. Currently in Barneston there are no residences, churches, or schools located within the L_{dn} 65 contour. Five residences would lie within the contour for the projected increase in train traffic.

<u>Wymore and Blue Springs</u>. The UP line passes approximately 2000 feet east of Wymore and 3000 feet east of Blue Springs, so train noise is not substantial in the residential areas of these two communities. However, there are a few residences within 300 feet of the tracks and near a grade crossing located approximately 3/4 mile to the northeast of Blue Springs. Currently one residence in this group is within the 65 L_{dn} contour. One additional residence would lie within the contour after the merger.

Beatrice. The line passes through the west side of Beatrice just east of the Big Blue River

and Indian Creek. Most of the residences are to the east of the tracks, with a sizeable commercial area, mostly running along Route 77 and along Court Street, in the center of town. There are 12 grade crossings in the city. Currently 10 residences in Beatrice are within the 65 L_{dn} contour. An additional 37 residences would lie within the post-merger contour.

<u>Cortland</u>. The rail line passes through the middle of this small community. There are residences on both sides of the track, which parallels Route 77. There is also a small commercial area along Route 77 and 4th Street in the center of town. Cortland has two grade crossings. Currently 2 residences on the east side of the tracks are within the 65 L_{dn} contour. An additional 23 residences (mostly on the west side of the tracks) and 2 churches would lie within the post-merger contour.

Lincoln and West Lincoln. The rail line is located just east of Salt Creek on the west side of Lincoln. Much of the area is relatively open, with the exception of an area just south of the Lincoln yard that is developed and a new residential development on Old Cheny Road (just one home was built at the time of the field survey) that would be affected by noise. The residential area near Cooper Park in Lincoln between A and H Streets has many single family homes that would be affected by noise. There are seven grade crossings in this residential area. Currently there are 76 residences in the Cooper Park neighborhood within the 65 L_{dn} contour. An additional 78 residences would lie within the post-merger contour. The line passes through the west side of West Lincoln, with Route 77 between the tracks and the residential area with a grade crossing to access NW 12th Street. Currently there are no residences in West Lincoln within the 65 L_{dn} contour. Two residences would lie within the post-merger contour.

<u>Raymond</u>. The line is on the west side of this community, which is just east of Route 79. There are a few commercial buildings along the main street which runs next to the track. There are four grade crossings in town and two to the south of town. Most of the residences are farther than 300 feet from the tracks. Currently there are five residences within the 65 L_{dn} contour. An additional 12 residences would lie within the post-merger contour. Two of the affected residences are near grade crossings approximately 1/2 mile south of town.

<u>Valpariso</u>. In this community, along Route 79, the UP line runs through the middle of town. Many of the residences here located within 300 feet of the track, and the town has four grade crossings. Currently there are 19 residences within the 65 L_{dn} contour. An additional 32 residences and a school (Raymond Elementary) would lie within the post-merger contour.

<u>Weston</u>. In this community, which is located south of Route 92, the UP line runs through the middle of town. Currently there are two residences within the 65 L_{dn} contour. An additional 14 residences would lie within the post-merger contour.

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<u>Wahoo</u>. The UP line passes through the south end and along the east side of Wahoo. Directly adjacent to the line on the east side of town, the land use is industrial. There are seven grade crossings in town and one 3/4 mile to the north of town. Currently there are 10 residences within the 65 L_{dn} contour. An additional 22 residences and the city's high school would lie within the post-merger contour.

<u>Mead</u>. Mead is located just south of Route 92 with the UP line running through the middle of town. There are three grade crossings in town. Currently there are 10 residences within the 65 L_{dn} contour. An additional 17 residences and 2 churches would lie within the post-merger contour.

<u>Yutan.</u> This community is located north of Route 92. The line runs through the middle of town with four grade crossings. Many of the town residences are within 300 feet of the tracks. Currently there are 14 residences within the 65 L_{dn} contour. An additional 36 residences and 1 church would lie within the post-merger contour.

<u>Valley</u>. The line in Valley approaches the Valley rail yard from the southwest passing, Pleasure Lake and the northern part of Valley. This area includes some residential land uses, a former school now used as a library and city offices, and industrial land uses. There are two grade crossings close to the residential areas. Most of the residences in town are to the south of the tracks and are farther than 300 feet away. Route 275 separates some of the residences to the northeast of town from the rest of the town. Currently there are 13 residences within the 65 L_{dn} contour. An additional 13 residences and a library would lie within the post-merger contour.

<u>Other Communities</u>. There are other small communities along this line segment that would be affected by an increase in noise associated with the merger. They include: Holmesville, Pickrell, Roca, Jamaica, Agnew, and Touhy. Collectively these communities have four residences currently within the 65 L_{dn} contour. An additional 24 residences would be within the post-merger contour. The community of Princeton would not be affected by noise impacts associated with the merger, because the residences in Princeton are farther than 300 feet away from the tracks.

Currentiy there 166 residences in the Nebraska portion of this line segment that are within the 65 L_{dn} contour. Although the volume of trains would be relatively low on this segment, the number of affected receptors would increase by 316 residences, 2 schools and 5 churches as a result of the proposed merger. Post-merger, a total of 482 residences, 2 schools and 5 churches would be affected as shown in the table below. Almost all of these impacts are due to horns being sounded at grade crossings.

NOISE SUMMARY FOR NEBRASKA PORTION OF THE VALLEY TO MARYSVILLE, KANSAS (UP) LINE SEGMENT

Community	Number of Sensitive Receptors						
		Pre-Merger		F	Post-Merge	r	
	Resid.	School	Church	Resid.	School	Church	
Barneston	0	0	0	5	0	0	
Wymore	0	0	0	0	0	0	
Blue Springs	1	0	0	2	0	0	
Holmesville	1	0	0	6	0	0	
Beatrice	10	0	0	47	0	0	
Pickrell	0	0	0	7	0	0	
Cortland	2	0	0	25	0	2	
Princeton	0	0	0	0	0	0	
Roca	0	0	0	1	0	0	
Jamaica	0	0	0	2	0	0	
Lincoln	76	0	0	154	0	0	
West Lincoln	0	0	0	2	0	0	
Raymond	5	0	0	17	0	0	
Agnew	2	0	0	7	0	0	
Valpariso	19	0	0	51	1	0	
Touhy	1	0	0	5	0	0	
Weston	2	0	0	16	0	0	
Wahoo	10	0	0	32	1	0	
Mead	10	0	0	27	0	2	
Yutan	14	0	0	50	0	1	
Valley ⁽¹⁾	13	0	0	26	0	0	
TOTAL	166	0	0	482	2	5	

(1) A library would be within the post-merger 65 L_{dn} contour for this community.

11.4 Transportation Systems

The Board's environmental rules at 49 CFR 1105.7(e)(2) require a description of the effects of the proposed merger on local and regional transportation systems. The primary transportation impacts of the proposed merger are related to: (1) additional truck traffic generated at those

intermodal facilities where intermodal activity is projected to increase, and (2) increases in roadway delays at grade crossings as a result of increased train traffic on rail segments.

The impacts near intermodal facilities would result from increased truck traffic using local roadways to enter and exit the intermodal facility. For those facilities with an expected increase of 50 trucks or more per day, SEA analyzed the impacts of this increased traffic on the local roadway system in terms of increases in daily and peak hour traffic. SEA collected traffic count data from local and state transportation officials for this analysis. While the offsetting benefits of the proposed merger were not quantified at the local level, the traffic impacts from added truck traffic at intermodal facilities would be partially offset in many localities by truck-to-rail diversions and consolidation of operations. Because there are no intermodal facilities in Nebraska that would experience an increase in truck traffic above the Board's analysis threshold as a part of the proposed merger, SEA concludes that there would be no adverse impacts to the local transportation system.

SEA addressed the concerns of local communities about increased traffic delays at grade crossings through an evaluation of vehicle delay and wait times at grade crossing locations. It is important to note that the acceptability of delays at grade crossings varies substantially based on local conditions such as the location of land uses by type, availability of alternative travel routes, the degree of use by emergency vehicles, and other local variables. While the time of delay at grade crossings would increase proportionately with the increase in train traffic, most of the grade crossings in Nebraska carry fewer than 5,000 vehicles per day. SEA concludes that increases in vehicle delay and/or wait time due to merger-related operational changes would not be excessive.

11.4.1 Grade Crossings

In order to analyze the effects of the proposed merger on the roadway system at railroad grade crossings, SEA determined the number of crossings along rail segments that would exceed the Board's analysis thresholds for air quality analysis. Approximate delays over the course of 24 hours were calculated, as were average queue lengths. While an increase in the number of trains would result in more crossing closings per day, the length of the queue at each individual crossing closing event would change only if the train length changes. Vehicle delay impacts along rail line segments in Nebraska are summarized below:

Valley to Marysville, Kansas

Average rail traffic on the Valley to Marysville, Kansas line would increase from 0.9 to 2.9 trains per day, a train volume increase of about 222 percent. There are 128 grade crossings on this segment, 5 of which have Average Daily Traffic (ADT) counts greater than 5,000 vehicles per day. At low speed grade crossings along the route (e.g., train speed of 20 mph) delay to vehicle traffic due to the additional daily trains would increase from 3 minutes (pre-merger) to about 10

minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 40 mph), delay would increase from just under 2 minutes (pre-merger) to 6 minutes (post-merger) over a 24-hour period. The maximum queue length per train due to peak hour traffic would range from 0 to 27 vehicles, and the corresponding delays per vehicle would vary from 1.35 minutes to 3.48 minutes

California Junction, Iowa to Fremont

Average rail traffic on the California Junction, Iowa to Fremont line would increase from 22.6 to 31.1 trains per day, a train volume increase of about 38 percent. At low speed grade crossings along the route (e.g., train speed of 30 mph), delay to vehicle traffic due would increase from 60 minutes (pre-merger) to 83 minutes (post-merger) over a 24-hour period. At higher speed crossings (e.g., train speed of 50 mph), delay would increase from 42 minutes (pre-merger) to 58 minutes (post-merger) over a 24-hour period.

11.5 Safety

SEA assessed a number of safety issues associated with the proposed merger, including the probability of increased accidents at grade crossings, and the risks associated with increased shipments of hazardous commodities.

11.5.1 Grade Crossing Safety

Accidents at grade crossings are a function of the number of trains, train speed, number of train tracks, grade crossing condition and warning facilities, roadway condition and number of lanes, and amount of roadway traffic. Since the proposed merger would not result in any new grade crossings and would affect only the number of trains passing through existing grade crossings, the probability of an increase in the number of accidents at grade crossings would depend on the number of trains on rail segments. SEA concludes that the accident exposure in Nebraska would range from an increase of 222 percent to a decrease of 10 percent, depending on rail segment.

11.5.2 Hazardous Commodities

Federal regulations govern the transport of hazardous commodities. The proposed merger is not expected to affect the policies or operation of UP/SP concerning the type or quantity of hazardous commodities transported or the method of handling. A total of 420,000 and 305,000 hazardous commodity shipments were transported by UP and SP, respectively, in 1994. These shipments resulted in 118 reportable incidents for UP, and 35 incidents for SP. Therefore, 99.98 percent of the shipments arrived at their destination without incident. The Applicants have noted that the consolidation of the companies will result in a "best practice" approach to hazardous



commodity handling. SEA concludes that, using the same safe rate of transport, the projected increases in accidents and shipments of hazardous materials as a result of the proposed merger do not constitute a significant safety risk.

11.6 Summary of Agency Comments

In considering the potential environmental impacts of the increased rail line segment, rail yard, and intermodal facility activity associated with the proposed UP/SP merger, SEA sent consultation letters to various Federal, state, and local agencies on January 29, 1996. These letters, samples of which are included in **Volume 5**, Appendix D, Exhibits D-1 through D-9, provided early notification of this EA and requested information and comments on the effects to the environment of the proposed merger and related operational changes. Each letter included a state information packet and maps that listed the specific merger-related proposals. A sample packet is shown in **Volume 5**, Appendix D, Exhibit D-10. SEA contacted agencies by telephone to alert them to the distribution of the consultation letter and to confirm its receipt. The Applicant also contacted these agencies in preparation of the Environmental Report which accompanied the merger application. That correspondence and all responses were reviewed, verified, and considered by SEA in the preparation of this EA.

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All comments received (through mid-March 1996) in response to the January 29th letter are shown in **Volume 5**, Appendix E, Exhibits E-1 through E-11. As necessary, SEA conducted additional consultation with agencies as shown in **Volume 5**, Appendix E, Table E-1. Agency comments regarding the proposed increases in rail line segment activities in Nebraska are summarized below:

- Natural Resources Conservation Service indicated that it has no comments to make at this time.
- Nebraska State Historical Society stated that historic context property resources will be affected.
- Dodge County stated no objections to the proposed merger.

11.7 Suggested Mitigation

No specific mitigation measures were suggested for the proposed changes to rail line segment operations in Nebraska by the various parties consulted in the process of preparing the EA for the proposed merger. (See **Volume 5**, Appendices D and E, for agency consultation lists.)

1.8 SEA Recommended Mitigation

This section contains the mitigation measures that SEA recommends that the Board impose in any final decision approving the proposed changes to rail line segment operations in Nebraska. SEA will consider all comments on the EA in making its final recommendation to the Board. The Board will consider SEA's recommendations and the environmental record in making its final decision. SEA's recommended mitigation is as follows.

Air Quality

 UP/SP shall consult with appropriate Federal, state and local agencies responsible for regulating air quality in AQCRs 85, 145, and 146, concerning any possible mitigation measures to reduce any potential adverse emissions from the rail segments in these four regions. UP/SP shall advise SEA of the results of these consultations.

Noise

 To reduce potential noise level impacts to sensitive receptors along the Valley to Marysville, Kansas and California Junction, Iowa to Fremont rail line segments, UP/SP shall consult with appropriate state and local agencies to develop noise abatement plans. The Applicant shall advise SEA of the results of these consultations and provide SEA with a copy of any resulting noise abatement plans.

Transportation and Safety

- 1. UP/SP shall maintain all ail line and grade crossing warning devices according to Federal Railroad Administration Standards (49 CFR Part 213).
- UP/SP shall transport all hazardous materials in compliance with the U.S. Department of Transportation Hazardous Materials Regulations (49 CFR Parts 171 to 180).
- 3. In the case of a hazardous materials spill, UP/SP shall foliow appropriate emergency response procedures outlined in their Emergency Response Plans.

CHAPTER 12.0 RAIL LINE SEGMENT, RAIL YARD, AND INTERMODAL FACILITY IMPACTS NEVADA

This chapter provides an analysis of the potential environmental impacts resulting from increased traffic on rail segments and increased activity at rail yards and intermodal facilities in Nevada as part of the proposed merger. In analyzing these impacts, the Surface Transportation Board's (Board) Section of Environmental Analysis (SEA), consistent with its environmental rules at 49 CFR Part 1105.7(e), specifically considered: (1) impacts to air quality, (2) impacts to noise, (3) impacts to local, regional and national transportation systems, and (4) impacts to safety.

The following rail line segments would meet or exceed the Board's environmental analysis thresholds:

- Roseville, California to Sparks (SP).
- Sparks to Winnemucca (SP).
- Ogden, Utah to Alazon (SP).
- Winnemucca to Alazon (SP).

Each rail line segment is discussed in this chapter by impact category, as follows:

- Air quality (Section 12.1).
- Air quality at grade crossings (Section 12.2).
- Noise (Section 12.3).
- Transportation systems (Section 12.4).
- Safety (Section 12.5).

If a rail line segment would not experience impacts in any one of these categories as a result of proposed merger, no analysis was necessary. Accordingly, no discussion is provided.

Chapter 1 of this volume describes the thresholds established for analysis of potential air quality and noise impacts and the methods used to evaluate these and other potential impacts.

12.1 Air Quality Analysis



Nevada contains two Air Quality Control Regions (AQCRs) with rail segments that would experience increased activity as a result of the merger and thereby trigger one or more of the Board's thresholds for analysis. In each of these regions, increased emissions along the length of rail segments through the AQCR (sometimes over a distance of hundreds of miles) result in a potential for adverse air quality impacts. SEA concludes that increased rail operation activities in these regions would result in increased emissions of nitrogen dioxide (NO₂), which contributes to

the formation of ozone. Increases in emissions, however, would be partially offset by decreases in train activity on other segments. One of the two AQCRs in Nevada is in nonattainment for ozone.

Potential adverse impacts to air quality in these two AQCRs as a result of the proposed merger are discussed individually below.

12.1.1 Nevada (AQCR 147)

Rail operations in the Nevada AQCR (147) associated with the proposed UP and SP merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of three rail segments (Ogden, Utah, to Alazon, Sparks to Winnemucca, and Winnemucca to Alazon). There are no rail yards or intermodal facilities in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Nevada AQCR for potential air quality impacts. SEA concludes that adverse impacts to air quality could result from increased rail operations activity in this AQCR.

The Nevada AQCR includes all of the state of Nevada, except for those counties in AQCR 148 (Northwest Nevada). The Nevada AQCR (147) is designated as a nonattainment area for sulfur dioxide (SO₂) and total suspended particulates (TSP). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along three rail segments. SEA concludes that increased rail operations would contribute to increased levels of ozone and other pollutants in the Nevada AQCR nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changes in activity on six rail segments that pass through or are connected to the Nevada AQCR (147). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Winnemucca NV	Alazon NV	182	4.0	13%	20%
Milford UT	Las Vegas NV	244	-2.7	-11%	1%
Ogden UT	Alazon NV	178	10.3	81%	77%
Salt Lake City UT	Alazon NV	214	-5.7	-28%	-42%
Winnemucca NV	Flanigan NV	152	-8.4	-52%	-56%
Sparks NV	Winnemucca NV	175	12.4	90%	74%

Three of the six rail segments listed above (Ogden, Utah to Alazon, Sparks to Winnemucca, and Winnemucca to Alazon) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The estimated increased emissions from these three segments are shown below. The impacts of these emissions are discussed in the section on Analysis of Activity.

Rail	AQCR	Estimated Increase in Emissions (tons per year)					
Segment	(ID No.)	НС	со	NO ₂	SO ₂	PM-10	
Ogden - Alazon	147	20.4	63.5	475.7	34.5	10.3	
Sparks - Winnemucca	147	38.2	118.7	888.2	64.4	19.3	
Winnemucca - Alazon	147	33.9	105.5	789.4	57.2	17.1	
TOTAL		92.5	287.7	2153.3	156.1	46.7	

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter



Analysis of Activity

The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions is conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of air pollution in the Nevada AQCR, primarily from mobile rail segment emissions.

12.1.2 Northwest Nevada (AQCR 148)

Rail operations in the Northwest Nevada AQCR (148) associated with the proposed merger that require analysis, as specified by the Board's environmental rules at 49 CFR 1105.7(e)(5), consist of portions of two rail segments (Roseville, California to Sparks and Sparks 'c Winnemucca). There are no rail yards or intermodal facilities in this AQCR that would exceed the Board's analysis thresholds. Based on increased activity levels as a result of the proposed merger, SEA examined the Northwest Nevada AQCR for potential air quality impacts. SEA concludes that adverse impacts could result from increased rail segment activity in this AQCR.

The Northwest Nevada AQCR (148) includes the counties of Carson City, Douglas, Lyon, Storey, Washoe, and is designated as a nonattainment area for total suspended particulates (TSP), particulate matter (PM-10), carbon monoxide (CO), and ozone (O_3). In considering potential environmental impacts, SEA assessed the potential air quality impacts of increased activity along two rail segments. SEA concludes that increased rail operations would contribute to increased levels of ozone and other pollutants in the Northwest Nevada nonattainment area.

Emissions from Increased Rail Segment Activity

The proposed merger would lead to changed activity on five rail segments that pass through or are connected to the Northwest Nevada AQCR (148). The total length (in miles), the change in the number of trains per day on the segment, and the percent change in annual gross ton miles for each of these segments would be as follows:

Origin	Destination		Change in #	%Change	%Change
Station	Station	Miles	of Trains/Day	in Trains/Day	in Tons/Year
Flanigan NV	Keddie CA	103	-8.4	-52%	-52%
Flanigan NV	Klamath Falls OR	219	0.0	0%	0%
Roseville CA	Sparks NV	139	11.3	82%	79%
Sparks NV	Winnemucca NV	175	12.4	90%	-74%
Winnemucca NV	Flanigan NV	152	-8.4	-52%	-56%

Two of the five rail segments listed above (Roseville, California to Sparks and Sparks to Winnemucca) were assessed for air quality impacts because they would exceed the Board's analysis thresholds. The increased emissions from these two segments are shown below. The impacts of these emissions are discussed in the section on Analysis of Activity.

Rail	AQCR	Estin	nated Increas	se in Emissio	ns (tons per	year)
Segment	(ID No.)	НС	со	NO ₂	SO ₂	PM-10
Roseville - Sparks	148	3.1	9.6	71.6	5.2	1.6
Sparks - Winnemucca	148	38.2	118.7	888.2	64.4	19.3
TOTAL		41.3	128.3	959.8	69.6	20.9

Key:

HC = hydrocarbons, CO = carbon monoxide, NO_2 = nitrogen dioxide, SO_2 = sulfur dioxide, PM-10 = particulate matter less than 10 microns in diameter

Analysis of Activity

The increased rail segment activity in this AQCR would result in increased levels of all pollutants, with the greatest increase in NO₂. These estimates of increased emissions are conservative, however, because they do not account for offsetting decreases that could result from truck-to-rail diversions. Overall, SEA concludes that while the proposed action is not subject to National Ambient Air Quality Standards General Conformity regulations, the proposed merger would result in increased levels of all pollutants in the Northwest Nevada AQCR, primarily from mobile rail segments emissions.

12.2 Air Quality Impacts at Grade Crossings

SEA assessed the overall air quality impacts of emissions from idling vehicles waiting at grade crossings. On average, annual emissions at a grade crossing with 5,000 vehicles per day would be 0.0021 ton of volatile organic compounds, 0.0013 ton of hydrocarbons, 0.0111 ton of carbon monoxide, and 0.0003 ton of nitrogen dioxide (NO₂) per train crossing. Traffic volumes of more than 5,000 vehicles per day would increase the estimated emissions accordingly. Railroad crossings are usually grade-separated when roadway and/or train traffic volumes become high, so the air quality impacts at grade crossings would generally be relatively minor. In Nevada, most grade crossings carry 5,000 or fewer vehicles. SEA concludes that no adverse air quality impacts would result from increased grade crossing delays as a result of the proposed merger. Section 12.4.1 of this chapter contains information on the transportation impacts of grade crossing delays associated with increased rail segment activity.

12.3 Noise Analysis

SEA performed noise analyses to identify noise-sensitive land uses where the proposed changes in operations could result in increases in noise exposure that meet or exceed the Board's environmental analysis thresholds at 49 CFR 1105.7(e)(6). The following discussion provides an estimate of the number of noise-sensitive receptors (e.g., residences, schools, churches) where the Board's thresholds would be exceeded, potentially causing an adverse increase in noise exposure. The noise level impact assessment was based on the baseline and projected activity level data provided by UP/SP.

12.3.1 Increased Rail Segment Activity

Roseville, California to Sparks



This rail segment currently has 13.8 trained and would experience an increase of 11.3 trains/day (a change of 79 percent in gross ton-index per year) as a result of the proposed merger. This change in through train activity would result in an increase in the L_{dn} of 2.6 dBA along the

alignment. The Nevada portion of this segment runs from Sparks to Verdi, near the California border. The majority of noise impacts occur at or near grade crossings where train horns are sounded as a warning. Currently, the noise impacts at grade crossings extend approximately 480 feet perpendicular to the tracks, whereas after the merger the distance for noise impacts would increase to about 670 feet. Noise impacts along the segment are described below:

<u>Sparks.</u> The area from the Sparks yard to Reno is mainly industrial. However, the two block area between 21st St. and Cedar Street, on the south side of the tracks, includes 28 residences. Currently 17 of these residences are within the 65 L_{dn} contour. An additional nine residences would lie within the post-merger contour.

<u>Reno.</u> The line runs through the center of Reno and is bounded by multiple hotels and other downtown development. There are 13 grade crossings along the tracks. The area is mainly industrial and commercial, but there are residential areas near Sparks, between Washington and Ralston Streets on the north side of the tracks, and on the western edge of town. There are also numerous trailer parks and new residences in West Reno, Mogul and Lawton, where there are two more grade crossings. Currently 75 residences and one church are within the $65 L_{dn}$ contour. An additional 58 residences would lie within the post-merger contour.

<u>Verdi.</u> The line runs through the center of Verdi. There is one grade crossing in town, and the majority of the residences are on the northern side of the tracks. A significant number of houses and trailer homes have been built within the past 14 years. Currently 64 residences and one church are within the 65 L_{dn} contour. An additional 19 residences would lie within the post-merger contour.

In the Nevada portion of the Roseville, California to Sparks segment, there are currently 156 residences and two churches within the 65 L_{dn} contour. The majority of the impacts are due to train horns near grade crossings. With the proposed increase in train traffic, this would increase by 86 residences for a total of 242 residences and 2 churches within the post-merger 65 L_{dn} , contour as shown below:

NOISE SUMMARY FOR NEVADA PORTION OF THE ROSEVILLE, CALIFORNIA TO SPARKS (SP) LINE SEGMENT

	Number of Sensitive Receptors							
Community		Pre-Merge	r	Post-Merger				
	Resid.	School	Church	Resid.	School	Church		
Sparks, NV	17	0	0	26	0	0		
Reno, NV	75	0	1	133	0	1		
Verdi. NV	64	Q	1	83	0	1		
TOTAL	156	0	2	242	0	2		

Sparks to Winnemucca

This rail segment currently has 13.8 trains/day and would experience an increase of 12.4 trains/day (a change of 74 percent in gross ton-miles per year) as a result of the proposed merger. This change in through train activity would result in an increase in the L_{dn} of 2.8 dBA along the alignment. The majority of noise impacts occur at or near grade crossings where train horns are sounded as a warning. Currently, the noise impact zone at grade crossings extends approximately 480 feet perpendicular to the tracks, whereas after the proposed merger the noise impact zone would increase to about 710 feet. Land use descriptions along this segment are based on the USGS topographic maps. Noise impacts along the segment are described below:

<u>Winnemucca.</u> The line runs through the center of the town where there is one grade crossing. The closest residences are approximately 150 feet from the tracks. The buildings south of town on the east side of the tracks are assumed to be residences. Currently 34 residences are within the 65 L_{dn} contour. An additional 35 residences and 1 school would lie within the post-merger contour.

<u>Imlay.</u> The tracks run approximately 600 feet north of the center of this hamlet, which is not affected by train noise. There are, however, approximately 20 homes near the grade crossing west of town. Of these residences, eight are currently within the 65 L_{dn} contour. An additional seven residences would lie within the post-merger contour.

<u>Lovelock</u>. The line runs through the eastern part of Lovelock and residences are assumed to be located on both sides of the tracks. Land use in the block immediately to the west of the tracks is assumed to be commercial businesses, while the buildings on blocks east of the tracks are assumed to be residences. There appear to be five grade crossings in Lovelock - one north of town, one to the south, and three in the center. Currently 70 residences are within the 65 L_{dn} contour. An additional 77 residences and one church would lie within the post-merger contour.

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<u>Fernley</u>. Fernley is spread out along a 2-mile portion of track. There appear to be two grade crossings, neither of which is particularly close to residential areas. The nearest residences are approximately 200 feet from the tracks. Currently one residence is within the 65 L_{dn} contour. An additional 12 residences would lie within the post-merger contour.

<u>Sparks.</u> The line enters Sparks from the east side and passes through an industrial area until the segment terminates at the Sparks yard. There are no noise-sensitive receptors along the track on this line segment.

There are currently 113 residences along the Sparks to Winnemucca line segment within the 65 L_{dn} contour. The majority of the impacts are due to train horns near grade crossings. With the proposed increase in train traffic, this would increase by 132 residences, 1 school and 1 church for a total of 2442 residences, one school and one church would be within the post-merger 65 L_{dn} contour, as shown below.

	Number of Sensitive Receptors							
Community	Pre-Merger			Post-Merger				
	Resid.	School	Church	Resid.	School	Church		
Winnemucca, NV	34	0	0	69	1	0		
Imlay, NV	8	0	0	15	0	0		
Lovelock, NV	70	0	0	147	0	1		
Fernley, NV	1	0	0	13	0	0		
Sparks, NV	0	0	0	0	0	0		
TOTAL	113	0	0	244	1	1		

NOISE SUMMARY SPARKS TO WINNEMUCCA (SP) LINE SEGMENT

Ogden, Utah to Alazon

This rail segment currently has 12.7 trains/day and would experience an increase of 10.3 trains/day (a change of 77.2 percent in gross ton-miles per year) as a result of the proposed merger. This change in through train activity would result in an increase in the L_{dn} of 2.6 dBA along the alignment. Currently, the area for potential noise impacts at grade crossings extends approximately 550 feet perpendicular to the tracks, whereas after the proposed merger the noise impact area would increase to about 800 feet. Noise impacts along the segment are described below:

<u>Montello.</u> The line passes along the southeast edge of Montelio. All of the town's residences are at least 300 feet away from the tracks and State Route 30 lies between the town and the tracks. There are no grade crossings in the immediate vicinity of Montello, so the town is not

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exposed to horn noise from trains. Along the rail line segment, the noise impact area is currently about 120 feet from the tracks; this would increase to 240 feet as a result of the proposed merger. Hence, there are currently no noise-sensitive receptors within the 65 L_{dn} contour nor would there be after the proposed merger.

<u>Wells.</u> The line runs through the northern part of the town, which has two grade crossings. There are several industrial buildings to the south with houses behind them, and a residential area north of the tracks. US Highway 40 runs through the town south of the tracks. Currently 55 residences and 2 churches are within the 65 L_{dn} contour. An additional seven residences and one church would lie within the post-merger contour.

Alazon. There are no noise-sensitive receptors in Alazon.

In the Nevada portion of the Ogden, Utah to Alazon segment, there are currently 55 residences and 2 churches within the 65 L_{dn} contour. All of the impacts are due to train horns near grade crossings in the town of Wells. With the proposed increase in train traffic, a total of 62 residences and 3 churches would be within the post-merger 65 L_{dn} contour as shown in the table below.

Community	Number of Sensitive Receptors							
	Pre-Merger			Post-Mery				
	Resid.	School	Church	Resid.	School	Church		
Montello, NV	0	0	0	0	0	0		
Wells, NV	55	0	2	62	0	3		
Alazon, NV	0	0	0	0	0	0		
TOTAL	55	0	2	62	0	3		

NOISE SUMMARY FOR THE NEVADA PORTION OF THE OGDEN, UTAH TO ALAZON (SP) LINE SEGMENT

12.4 Transportation Systems

The Board's environmental rules at 49 CFR 1105.7(e)(2) require a description of the effects of the proposed merger on local and regional transportation systems. The primary transportation impacts of the proposed merger are related to: (1) additional truck traffic generated at those intermodal facilities where intermodal activity is projected to increase, and 2) increases in roadway delays at grade crossings as a result of increased train traffic on rail segments.

The impacts near intermodal facilities would result from increased truck traffic using local roadways to enter and exit the intermodal facility. For those facilities with an expected increase