

Appendix A
Operational Air Emissions

Appendix A – Contents

- Project URBEMIS 2007 v.9.2.0
- Project Stationary Emissions
- Rail Emissions

Summary of Annual Mobile Source Emissions

Source: Urbemis 2007 v. 9.2.0

Table 1. Baseline Emissions - 2007 (ton/yr)

Emission Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Employee Commute	2.2	2.2	28.2	0.0	2.4	0.5	1,249.9
Trucks	5.2	94.1	44.6	0.1	9.0	3.9	10,359.3
Project Total	7.4	96.3	72.8	0.1	11.4	4.3	11,609.2

Table 2. Proposed Emissions - 2009 (ton/yr)

Emission Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Employee Commute	2.5	2.5	32.0	0.0	3.2	0.6	1,661.3
Trucks	7.9	139.6	67.9	0.2	14.4	5.9	17,261.3
Project Total	10.4	142.1	99.9	0.2	17.6	6.5	18,922.5

Table 3. Project Increment: Proposed minus Baseline (ton/yr)

Emission Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Employee Commute	0.3	0.3	3.8	0.0	0.8	0.2	411.3
Trucks	2.7	45.5	23.3	0.1	5.4	2.0	6,902.0
Project Total	2.9	45.8	27.1	0.1	6.2	2.1	7,313.3

Summary of Daily Mobile Source Emissions

Source: Urbemis 2007 v. 9.2.0

Table 4. Baseline Emissions - 2007 (lb/day)

Emission Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Employee Commute	11.0	10.2	146.8	0.1	13.3	2.5	7,190.6
Trucks	27.9	481.4	232.6	0.5	49.4	21.2	56,763.2
Project Total	38.9	491.6	379.5	0.6	62.6	23.7	63,953.9

Table 5. Proposed Emissions - 2009 (lb/day)

Emission Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Employee Commute	12.4	11.5	167.2	0.1	17.7	3.4	9,565.4
Trucks	42.0	714.3	352.3	0.9	78.8	32.1	94,582.4
Project Total	54.4	725.8	519.5	1.0	96.4	35.5	104,147.8

Table 6. Project Increment: Proposed minus Baseline (lb/day)

Emission Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Employee Commute	1.4	1.3	20.4	0.0	4.4	0.8	2,374.8
Trucks	14.1	233.0	119.7	0.4	29.4	10.9	37,819.1
Project Total	15.5	234.3	140.0	0.4	33.8	11.8	40,193.9

Urbemis 2007 Version 9.2.0

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\John\Projects\Leprino\Leprino - Trucks 2009.urb9

Project Name: Leprino Foods - Total Truck Emissions - 2009

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Dairy Processing Plant	42.01	714.33	352.31	0.89	78.77	32.11	94,582.38
TOTALS (lbs/day, unmitigated)	42.01	714.33	352.31	0.89	78.77	32.11	94,582.38

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
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Dairy Processing Plant

533.00	1000 sq ft	1.00	533.00	31,340.40
			533.00	31,340.40

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.0	1.9	97.9	0.2
Light Truck < 3750 lbs	0.0	4.1	88.5	7.4
Light Truck 3751-5750 lbs	0.0	1.4	98.1	0.5
Med Truck 5751-8500 lbs	0.0	1.7	98.3	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	18.0	0.0	44.4	55.6
Med-Heavy Truck 14,001-33,000 lbs	26.0	7.7	15.4	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	56.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	0.0	71.8	28.2	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	10.0	80.0	10.0

Travel Conditions

	Residential			Commuter	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	3.6	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	58.8	58.8	58.8	58.8	58.8	58.8
Trip speeds (mph)	45.0	45.0	45.0	45.0	45.0	45.0
% of Trips - Residential	32.9	18.0	49.1			

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% of Trips - Commercial (by land use)

Dairy Processing Plant

0.0

0.0

100.0

Urbemis 2007 Version 9.2.0

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\John\Projects\Leprino\Leprino - Trucks 2009.urb9

Project Name: Leprino Foods - Total Truck Emissions - 2009

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Dairy Processing Plant	7.88	139.59	67.86	0.16	14.38	5.86	17,261.28
TOTALS (tons/year, unmitigated)	7.88	139.59	67.86	0.16	14.38	5.86	17,261.28

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
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Dairy Processing Plant

533.00	1000 sq ft	1.00	533.00	31,340.40
			533.00	31,340.40

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.0	1.9	97.9	0.2
Light Truck < 3750 lbs	0.0	4.1	88.5	7.4
Light Truck 3751-5750 lbs	0.0	1.4	98.1	0.5
Med Truck 5751-8500 lbs	0.0	1.7	98.3	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	18.0	0.0	44.4	55.6
Med-Heavy Truck 14,001-33,000 lbs	26.0	7.7	15.4	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	56.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	0.0	71.8	28.2	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	10.0	80.0	10.0

Travel Conditions

	Residential			Commuter	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	3.6	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	58.8	58.8	58.8	58.8	58.8	58.8
Trip speeds (mph)	45.0	45.0	45.0	45.0	45.0	45.0
% of Trips - Residential	32.9	18.0	49.1			

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% of Trips - Commercial (by land use)

Dairy Processing Plant

0.0

0.0

100.0

Urbemis 2007 Version 9.2.0

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\John\Projects\Leprino\Leprino - Trucks 2007.urb9
Project Name: Leprino Foods - Total Truck Emissions - 2007 Baseline
Project Location: San Joaquin Valley APCD
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Dairy Processing Plant	27.89	481.37	232.62	0.53	49.36	21.18	56,763.24
TOTALS (lbs/day, unmitigated)	27.89	481.37	232.62	0.53	49.36	21.18	56,763.24

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2007 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
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Dairy Processing Plant

320.00	1000 sq ft	1.00	320.00	18,816.00
			320.00	18,816.00

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.0	2.8	96.7	0.5
Light Truck < 3750 lbs	0.0	5.8	85.9	8.3
Light Truck 3751-5750 lbs	0.0	1.9	97.6	0.5
Med Truck 5751-8500 lbs	0.0	1.7	97.5	0.8
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	70.8	29.2
Lite-Heavy Truck 10,001-14,000 lbs	18.0	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	26.0	7.7	15.4	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	56.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	0.0	82.1	17.9	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	10.0	80.0	10.0

Travel Conditions

	Residential			Commuter	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	3.6	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	58.8	58.8	58.8	58.8	58.8	58.8
Trip speeds (mph)	45.0	45.0	45.0	45.0	45.0	45.0
% of Trips - Residential	32.9	18.0	49.1			

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% of Trips - Commercial (by land use)

Dairy Processing Plant

0.0

0.0

100.0

Urbemis 2007 Version 9.2.0

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\John\Projects\Leprino\Leprino - Trucks 2007.urb9

Project Name: Leprino Foods - Total Truck Emissions - 2007 Baseline

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Dairy Processing Plant	5.23	94.09	44.61	0.10	9.01	3.87	10,359.29
TOTALS (tons/year, unmitigated)	5.23	94.09	44.61	0.10	9.01	3.87	10,359.29

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2007 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
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Dairy Processing Plant

320.00	1000 sq ft	1.00	320.00	18,816.00
			320.00	18,816.00

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.0	2.8	96.7	0.5
Light Truck < 3750 lbs	0.0	5.8	85.9	8.3
Light Truck 3751-5750 lbs	0.0	1.9	97.6	0.5
Med Truck 5751-8500 lbs	0.0	1.7	97.5	0.8
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	70.8	29.2
Lite-Heavy Truck 10,001-14,000 lbs	18.0	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	26.0	7.7	15.4	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	56.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	0.0	82.1	17.9	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	10.0	80.0	10.0

Travel Conditions

	Residential			Commuter	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	3.6	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	58.8	58.8	58.8	58.8	58.8	58.8
Trip speeds (mph)	45.0	45.0	45.0	45.0	45.0	45.0
% of Trips - Residential	32.9	18.0	49.1			

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% of Trips - Commercial (by land use)

Dairy Processing Plant

0.0

0.0

100.0

Urbemis 2007 Version 9.2.0

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\John\Projects\Leprino\Leprino - Empl Commute 2009.urb9

Project Name: Leprino Foods - Worker Commute Emissions - 2009

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Dairy Processing Plant	12.40	11.49	167.19	0.09	17.65	3.35	9,565.39
TOTALS (lbs/day, unmitigated)	12.40	11.49	167.19	0.09	17.65	3.35	9,565.39

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
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Dairy Processing Plant

2,016.00	1000 sq ft	1.00	2,016.00	10,281.60
			2,016.00	10,281.60

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	46.5	1.9	97.9	0.2
Light Truck < 3750 lbs	13.2	4.1	88.5	7.4
Light Truck 3751-5750 lbs	23.0	1.4	98.1	0.5
Med Truck 5751-8500 lbs	13.0	1.7	98.3	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	44.4	55.6
Med-Heavy Truck 14,001-33,000 lbs	0.0	7.7	15.4	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	0.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.3	71.8	28.2	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	10.0	80.0	10.0

Travel Conditions

	Residential			Commuter	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	3.6	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	3.6	7.1	6.0	5.1	5.1	5.1
Trip speeds (mph)	35.0	35.0	40.0	40.0	40.0	40.0
% of Trips - Residential	32.9	18.0	49.1			

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% of Trips - Commercial (by land use)

Dairy Processing Plant

50.0

25.0

25.0

Urbemis 2007 Version 9.2.0

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\John\Projects\Leprino\Leprino - Empl Commute 2009.urb9

Project Name: Leprino Foods - Worker Commute Emissions - 2009

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Dairy Processing Plant	2.47	2.52	32.00	0.02	3.22	0.61	1,661.25
TOTALS (tons/year, unmitigated)	2.47	2.52	32.00	0.02	3.22	0.61	1,661.25

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
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Dairy Processing Plant

2,016.00	1000 sq ft	1.00	2,016.00	10,281.60
			2,016.00	10,281.60

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	46.5	1.9	97.9	0.2
Light Truck < 3750 lbs	13.2	4.1	88.5	7.4
Light Truck 3751-5750 lbs	23.0	1.4	98.1	0.5
Med Truck 5751-8500 lbs	13.0	1.7	98.3	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	44.4	55.6
Med-Heavy Truck 14,001-33,000 lbs	0.0	7.7	15.4	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	0.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.3	71.8	28.2	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	10.0	80.0	10.0

Travel Conditions

	Residential			Commuter	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	3.6	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	3.6	7.1	6.0	5.1	5.1	5.1
Trip speeds (mph)	35.0	35.0	40.0	40.0	40.0	40.0
% of Trips - Residential	32.9	18.0	49.1			

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% of Trips - Commercial (by land use)

Dairy Processing Plant

50.0

25.0

25.0

Urbemis 2007 Version 9.2.0

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\John\Projects\Leprino\Leprino - Empl Commute 2007.urb9

Project Name: Leprino Foods - Worker Commute Emissions - 2007 Baseline

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Dairy Processing Plant	11.02	10.20	146.84	0.07	13.27	2.52	7,190.64
TOTALS (lbs/day, unmitigated)	11.02	10.20	146.84	0.07	13.27	2.52	7,190.64

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2007 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
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Dairy Processing Plant

1,516.00	1000 sq ft	1.00	1,516.00	7,731.60
			1,516.00	7,731.60

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	46.6	2.8	96.7	0.5
Light Truck < 3750 lbs	13.2	5.8	85.9	8.3
Light Truck 3751-5750 lbs	22.9	1.9	97.6	0.5
Med Truck 5751-8500 lbs	13.0	1.7	97.5	0.8
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	70.8	29.2
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	7.7	15.4	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	0.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.3	82.1	17.9	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	10.0	80.0	10.0

Travel Conditions

	Residential			Commuter	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	3.6	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	3.6	7.1	6.0	5.1	5.1	5.1
Trip speeds (mph)	35.0	35.0	40.0	40.0	40.0	40.0
% of Trips - Residential	32.9	18.0	49.1			

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% of Trips - Commercial (by land use)

Dairy Processing Plant

50.0

25.0

25.0

Urbemis 2007 Version 9.2.0

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\John\Projects\Leprino\Leprino - Empl Commute 2007.urb9

Project Name: Leprino Foods - Worker Commute Emissions - 2007 Baseline

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Dairy Processing Plant	2.20	2.24	28.17	0.01	2.42	0.46	1,249.91
TOTALS (tons/year, unmitigated)	2.20	2.24	28.17	0.01	2.42	0.46	1,249.91

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2007 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
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Dairy Processing Plant

1,516.00	1000 sq ft	1.00	1,516.00	7,731.60
			1,516.00	7,731.60

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	46.6	2.8	96.7	0.5
Light Truck < 3750 lbs	13.2	5.8	85.9	8.3
Light Truck 3751-5750 lbs	22.9	1.9	97.6	0.5
Med Truck 5751-8500 lbs	13.0	1.7	97.5	0.8
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	70.8	29.2
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	7.7	15.4	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	0.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.3	82.1	17.9	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	10.0	80.0	10.0

Travel Conditions

	Residential			Commuter	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	3.6	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	3.6	7.1	6.0	5.1	5.1	5.1
Trip speeds (mph)	35.0	35.0	40.0	40.0	40.0	40.0
% of Trips - Residential	32.9	18.0	49.1			

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% of Trips - Commercial (by land use)

Dairy Processing Plant

50.0

25.0

25.0

LFC - Lemoore West Criteria Emissions - Estimated Impact of Expansion

R. Garcia, PE
Revised 7-28-2007

Assumptions:

- 1 Baseline Year of 2006
- 2 Linear increase in PM₁₀, NO_x, CO, from Whey Processing with increase in Milk Production
- 3 Linear increase in combustion emissions from Whey Processing with increase in Milk
- 4 Increase in Boiler combustion emissions increases linearly from a base of 14% (static system loss - based on downtime plant consumption of steam)
- 5 Gas input heating value - 1000 btu / cf
- 6 Dryer and Boiler emissions based on natural gas only - LPG is permitted but used only for emergency heating

Inputs:

LFC PM₁₀ spreadsheet includes emissions tracking for each process unit as per permit requirements
Unit by Unit emissions are based on Total Permitted Potential as per permit emission factor - lbs pollutant/lb production

Factor Increase Calculation

	Milk lb/yr	Milk lb/day
2006 Milk	2,104,190,820	6,011,974
Est. Expansion	3,544,238,715	10,011,974

Linear Expansion Factor (EF_L) 1.67 expansion lb/2006 lbs
Utility Expansion Factor (EF_{NL}) 1.43 expansion ratio - 14% static system heating factor

PM₁₀ Emissions:

Per unit - 2006	Actual 2006		Post Expansion		
	lbs/year	ton / yr	EF	lbs/year	Ton / yr
Lactose	4,927	2.46	1.67	8,205	4.10
WPC	5,213	2.61	1.67	8,681	4.34
NFDM	-	0.00	1.67	-	0.00
Vacuum	24	0.01	1.67	39	0.02
Boilers	4,622	2.31	1.43	6,588	3.29
TTL PM ₁₀	14,785	7.39		23,513	11.76

Combustion Emissions:

	Actual 2006 MMBTU Input / yr	NOx lb/yr	NOx ton/yr	CO lb/yr	CO ton/yr	VOC lb/yr	VOC ton/yr	SOx lb/yr	SOx ton/yr
Dryer	65,843	1,600	0.80	12,155	6.08	46	0.02	188	0.09
Boiler 1	178,802	1,967	0.98	3,969	1.98	983	0.49	519	0.26
Boiler 2	199,764	2,197	1.10	4,435	2.22	1,099	0.55	579	0.29
Boiler 3	200,157	2,202	1.10	4,443	2.22	1,101	0.55	580	0.29
Combustion emissions (2006)		7,966	3.98	25,002	12.50	3,229	1.61	1866	0.93

	Post Expansion MMBTU Input / yr	NOx lb/yr	NOx ton/yr	CO lb/yr	CO ton/yr	VOC lb/yr	VOC ton/yr	SOx lb/yr	SOx ton/yr
Dryer	109,651	2,665	1.33	20,242	10.12	77	0.04	313	0.16
Boiler 1	254,853	2,803	1.40	5,658	2.83	1,402	0.70	739	0.37
Boiler 2	284,731	3,132	1.57	6,321	3.16	1,566	0.78	826	0.41
Boiler 3	285,292	3,138	1.57	6,333	3.17	1,569	0.78	827	0.41
Combustion emissions (Post Expansion)		11,738	5.87	38,554	19.28	4,614	2.31	2,705	1.35

Criteria Emission Factors- as per unit permits

Boiler	Emission Factor - lb/MMBtu
NOx	0.011
SOx	0.0029
CO	0.0222
VOC	0.0055

Dryer	Emission Factor - lb/MMBtu
NOx	0.0243
SOx	0.00285
CO	0.1846
VOC	0.0007

Summary of Emissions Increase:

Criteria Emissions	2006		Expansion		Estimated Increase	
	lbs/yr	ton/yr	lbs/yr	ton/yr	lbs/yr	ton/yr
PM10	14,785	7.39	23,513	11.76	8,728	4.36
NOx	7,966	3.98	11,738	5.87	3,772	1.89
SOx	1,866	0.93	2,705	1.35	839	0.42
CO	25,002	12.50	38,554	19.28	13,552	6.78
VOC	3,229	1.61	4,614	2.31	1,385	0.69

APPENDIX A

Rail Emissions – NO_x Leprino Expansion – Annual

- Data from client (Kielsmeier, 7/18)
Additional 150 cars/year
- Assumptions: 3 car increment, 20 car delivery train from Goshen
All shipments to north from Goshen
100-car trains
- Distance from Goshen: 24 miles Average travel speed: 35 mph
- Distance to north edge of San Joaquin Valley Air Basin: 160 mi
Average travel speed 45 mph
- Goshen to Lemoore emissions

Operating hours: 150 cars/3cars per 20-car train = 50 trains
50 trains x 24 miles x 2 = 2,400 miles
2,400 miles/35 mph = 68.57 hrs.
68.57 hrs x 1 engine/train = 68.57 engine hours annually
@4,400 bhp = 301,714 bhp hr.

$$\frac{301,714 \text{ bhphr} \times 6.70 \text{ g/bhphr}}{907,185 \text{ g/ton}} = <2.23 \text{ tons}$$
$$3/20 \times 2.3 \text{ tons} = 0.35 \text{ tons}$$

Note: No allowance for ‘loading’ or ‘unloading’ of cars to train required; already accounted for with existing cars.

- Basin emissions (assuming all cars with out-of-basin origins/destinations)

One-way trips only
150 cars = 1 ½ trips, 100 car train
 $\frac{1.5 \times 160 \text{ mi} \times 4,400 \text{ bhp} \times 2 \text{ engines}}{45 \text{ mph}} = 46,932 \text{ bhp hrs}$
46,932 x 6.79/bhp hr = 0.35 tons
907,185 g/ton NO_x

Therefore, total NO_x emissions due to rail transport increase = 0.35 tons x 0.35 tons = 0.7 tons annually.