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October 10, 2011

Mr. Alan De Salvio
Supervising Air Quality Engineer
Mojave Desert Air Quality Management District
14306 Park Avenue
Victorville, CA 92392-2310

Subject: BrightSource Energy Rio Mesa Solar Electric Generating Facility
Application for Determination of Compliance and Authority to Construct

Dear Mr. De Salvio:

On behalf of BrightSource Energy, we are pleased to provide this Application for Determination of Compliance (DOC) and Authority to Construct (ATC) for the proposed Rio Mesa Solar Electric Generating Facility (Rio Mesa SEGF) to be located on the Palo Verde Mesa in Riverside County, California, approximately 13 miles southwest of Blythe. Please find attached a copy of the Project Description, Air Quality, and Public Health sections and Appendix 5.1 from the Application for Certification (AFC) to the California Energy Commission (CEC) for the Rio Mesa SEGF project. These AFC sections, together with the enclosed Mojave Desert AQMD (District) permit application forms and air quality modeling data on compact disc, are provided for your review. The AFC was filed with the CEC on October 14, 2011.

The "Applicant" for purposes of the AFC and DOC/ATC Application comprises Rio Mesa Solar I, LLC, Rio Mesa Solar II, LLC, and Rio Mesa Solar III, LLC, owners of the three separate solar plants and certain shared facilities being proposed. These three Delaware limited liability companies will hold equal one-third shares in the ownership of shared facilities and will separately own their respective plants. They are wholly owned by Rio Mesa Solar Holdings, LLC (a Delaware limited liability company), which is in turn wholly owned by BrightSource Energy, Inc. (BrightSource), a Delaware corporation and the ultimate parent company. Because each of the solar plants will be under separate ownership and control, we request that each plant be permitted separately with respect to the issuance of the ATCs.

The Rio Mesa SEGF will include three solar concentrating thermal power plants and a shared common area to include shared systems. Each solar concentration thermal power plant will utilize a solar power boiler, located on top of a dedicated concrete tower, and solar field based on heliostat mirror technology developed by BrightSource. The heliostat (mirror) fields will focus solar energy on the solar power boiler, referred to as

"solar receiver steam generator" (SRSG), which converts the solar energy to superheated steam. In each plant, a Rankine cycle non-reheat steam turbine will receive this superheated steam and generate electricity.

The solar field and power generation equipment will start each morning after sunrise and will shut down in the evening (unless augmented by the auxiliary boilers) when insolation drops below the level required to keep the turbine online. To save water in the site's desert environment, each plant will use dry cooling to cool and condense process water.

Each of the three solar plants includes three natural gas-fired auxiliary boilers that will be used for augmenting the solar operation when solar energy diminishes or during transient cloudy conditions. Each solar plant also includes a natural gas-fired start-up boiler that will be used during the morning start-up cycle to assist the plant in coming up to operating temperature more quickly. In addition, each plant will include one natural gas-fired night-time preservation boiler that will provide overnight heat to systems for a total of 15 boilers subject to District permit requirements. Finally, one emergency diesel generator and one diesel fire pump engine will be installed at each solar plant and in the project common area, for a total of four emergency generators and four fire pump engines. Daily and annual fuel use limitations are being proposed for the fuel-burning equipment to ensure that emissions remain below certain regulatory thresholds.

The following equipment will also be part of the project but are exempt from the requirement to obtain a District permit:

Equipment Description	Exemption
three wet surface air coolers	Rule 219.E.4.c (exempting "[w]ater cooling towers…not used for evaporative cooling of process water…").
three oil-water separators	Rule 219.E.14.c (exempting "containers, reservoirs or tanks used exclusively for: … unheated storage of organic materials with an initial boiler point of 300 F or greater.").
three 8,000-gallon diesel fuel storage tanks	Rule 219.E.14.c (exempting "containers, reservoirs or tanks used exclusively for: … unheated storage of organic materials with an initial boiling point of 300 F or greater").

A check for $11,813 payable to the Mojave Desert AQMD to cover the initial filing fee for the DOC/ATC application package for the proposed project will be submitted to the District within the next few days. This amount is based on the Rule 301.C.1.a filing fee of $231 for each of the proposed 23 permit units. In addition, this amount includes the Rule 301.C.2.a complex source evaluation deposit of $6,500. We understand that the District may bill BrightSource Energy for additional evaluation fees if the amount enclosed does not cover the actual costs incurred by the District.

Thank you for your time and consideration in this matter. If you have any questions regarding this application, please contact me at (916) 444-6666.

Sincerely,

Tom Andrews
Senior Engineer

Enclosures

cc: Todd Stewart, BrightSource Energy, Inc.
Andrea Grenier, Grenier & Associates, Inc.
Chris Ellison, Ellison Schneider & Harris
Angela Leiba, URS
CEC Dockets Office

sierra research

Application to the Mojave Desert Air Quality Management District for a Determination of Compliance and Authority to Construct

Rio Mesa Solar Electric Generating Facility

prepared for:

Rio Mesa Solar I, LLC,
Rio Mesa Solar II, LLC, and
Rio Mesa Solar III, LLC

October 2011

prepared by:

Sierra Research, Inc.
1801 J Street
Sacramento, California 95811
(916) 444-6666

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
14306 Park Avenue, Victorville, CA 92392-2310
(760) 245-1661 Facsimile: (760) 245-2022

www.mdaqmd.ca.gov
Eldon Heaston
Executive Director

APPLICATION FOR AUTHORITY TO CONSTRUCT AND PERMIT TO OPERATE

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar I, LLC	1a. Federal Tax ID No.: 32-0354147
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa I	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Location UTM or Lat/Long: UTMN: 3703518 UTME: 706212

5. Contact Name/Title:	Email Address:	Phone/Fax Nos.:
Todd Stewart, Project Manager Rio Mesa SEGF	tstewart@brightsourceenergy.com	510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Boilers, emergency generator engine, emergency firepump engine (see attached equipment forms)

Air Pollution Control Equipment, if any (note that most APCE require a separate application):
Not Applicable

7. Application is for:	For modification or change of owner:
[X] New Construction [ ] Modification* [ ] Change of Owner*	*Current Permit Number: Not Applicable

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. General Nature of Business:	Principal Product:	SIC Code (if known):
Power Generation	Electricity	4911

10. Distances (feet and direction to closest):

2000	Fenceline	14123	Residence	15800	Business	81000	School

11. Facility Annual Throughput by Quarters (percent):				12. Expected Facility Operating Hours:			
25 %	25 %	25 %	25 %	16	7	52	5,824
Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Hrs/Day	Days/Wk	Wks/Yr	Total Hrs/Yr

13. Do you claim Confidentiality of Data (if yes, state nature of data on reverse in Remarks)? [ ] Yes [X] No

14. Signature of Responsible Official:	Official Title:	
Stephen Wiley	Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official:	Phone Number:	Date Signed:
Stephen Wiley	510-899-8938	10-6-11

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
GENERAL APPLICATION, continued

15. Stack Emissions Information:

Stack No.	Stack Height	Stack Diameter	Exhaust Temp	Exhaust Flow Rate	Exhaust Velocity
1	See individual equipment forms.				
2					
3					

(list additional stacks on a separate sheet)

Stack Height is the distance above ground level to discharge point (feet)
Stack Diameter is the diameter (or equivalent circular diameter) of discharge point (nearest tenth foot)
If using cross-sectional area (A in square feet), equivalent diameter is D = (1.273A)^0.5
Exhaust Temp in degrees F, actual or estimated to nearest 50 deg F
Exhaust Flow Rate at discharge point in actual cubic feet per minute (ACFM)
Exhaust Velocity in feet per second, design or measured

16. Remarks (basis for confidentiality of data, process description, modification description, etc.):

If you wish to specify process information as proprietary or confidential, space is provided for this purpose. The kinds and rates of emissions may not be held confidential; emissions are subject to public disclosure.

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APPLICATION FOR EXTERNAL COMBUSTION ENGINE (BOILER, ETC.) ONLY

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

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2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa I	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Facility UTM or Lat/Long: UTMN: 3703518 UTME: 706212

5. Contact Name/Title: Todd Stewart, Project Manager Rio Mesa SEGF	Email Address: tstewart@brightsourceenergy.com	Phone/Fax Nos.: 510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Auxiliary Boiler Number 1

7. Application is for: [X] New Construction [ ] Modification* [ ] Change of Owner*	For modification or change of owner: *Current Permit Number: _____

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. Distances (feet and direction to closest):

2000	Fenceline	14123	Residence	15800	Business	81000	School

10. General Nature of Business: Power Generation	11. Principal Product: Electricity

12. Facility Annual Throughput by Quarters (percent):				13. Facility Operating Hours:			
25 %	25 %	25 %	25 %	16	7	52	5824
Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Hrs/Day	Days/Wk	Wks/Yr	Total Hrs/Yr

14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No

15. Signature of Responsible Official: Stephen Wiley	Official Title: Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official: Stephen Wiley	Phone Number: 510-899-8938	Date Signed: 10-6-11

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
EXTERNAL COMBUSTION APPLICATION, continued

16. INFORMATION ON EQUIPMENT:

[X] Boiler [ ] Dryer [ ] Furnace [ ] Heater [ ] Kiln [ ] Oven [ ] Other, specify: _____

Manufacturer: Rentech or equivalent

Model No.: TBD Serial No.: TBD

Maximum heat input rating (use Higher Heating Value): 500 MMBtu/hr MMBtu/hr or kW

Burner Manufacturer: TBD Burner Model No.: TBD

Number of burners: 1 Burner max heat input rating: 500 MMBtu/hr MMBtu/hr or kW

Percent excess air (or n/a): 13.90% Operating temps (C or F): n/a Av. n/a Max

Specify Primary Fuel (*attach fuel analysis for these fuels specifying HHV and sulfur content):

[X] Natural Gas [ ] LPG (Propane) [ ] CARB Diesel [ ] Coal* [ ] Petroleum Coke*

[ ] Digester Gas* [ ] Landfill Gas* [ ] Refinery Gas* [ ] Other,* specify: _____

Max hourly primary fuel usage: 490,196 Fuel units (ft^3, gal, etc.): scf/hr

If secondary fuel is proposed, specify: Not Applicable Max hourly usage: n/a

Feedstock type and max process rate (specify units): 350,000 lbs/hr steam

Unit Lat/Long or UTM Coordinates: UTME 706346 UTMN 3703546

Max annual hours: 200 @ full load Exhaust Stack Height (feet): 135 Inside Diameter (inches): 100

17. EMISSION CONTROLS: Check all that apply:

[X] Low NOx Burner [ ] Oxygen Trim [X] Flue or Exhaust Gas Recirculation (FGR or EGR)

[ ] Oxidation Catalyst [ ] Selective Catalytic Reduction (SCR) [ ] Selective Non-Catalytic Reduction (SNCR)

[ ] Afterburner [ ] ESP [ ] Baghouse [ ] Other - Please specify: _____

18. MAX EMISSION RATES (CONTROLLED):

Pollutant	Concentration ppmvd or gr/dscf	Mass pounds/hour
Oxides of Nitrogen (NOx)	9 ppm @ 3% O2	5.5
Oxides of Sulfur (SOx)	0.0021 lbs/MMBtu	1.1
Carbon Monoxide (CO)	50 ppm @ 3% O2	18.3
Total Particulates (TSP or PM30)	0.005 lbs/MMBtu	2.5
Coarse Respirable Particulates (PM10)	0.005 lbs/MMBtu	2.5
Fine Respirable Particulates (PM2.5)	0.005 lbs/MMBtu	2.5
Total Organics (TOG)		
Volatile Organic Compounds (VOC, ROG or NMOG)	12.6 ppm @ 3% O2	2.7

19. DRYERS ONLY Check one:

[ ] Centrifugal [ ] Chip [ ] Fluidized Bed [ ] Rotary [ ] Spray [ ] Other, specify: _____

20. FURNACE ONLY Check one:

[ ] Annealing [ ] Burnoff [ ] Calcining [ ] Crucible [ ] Cupola [ ] Diffusion [ ] Electric [ ] Forge [ ] Pot

[ ] Holding [ ] Heat Treating [ ] Melting [ ] Reverbatory [ ] Rotary [ ] Sweating [ ] Oxide Growth

21. OVEN ONLY Check one:

[ ] Bakery [ ] Baking [ ] Curing [ ] Drying [ ] Fluidized Bed [ ] Stripping [ ] Solder Reflow

[ ] Roasting, specify type: _____ Firing Method: [ ] Direct [ ] Indirect

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Eldon Heaston
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APPLICATION FOR EXTERNAL COMBUSTION ENGINE (BOILER, ETC.) ONLY

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar I, LLC	1a. Federal Tax ID No.: 32-0354147
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa I	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Facility UTM or Lat/Long: UTMN: 3703537 UTME: 706379

5. Contact Name/Title: Todd Stewart, Project Manager Rio Mesa SEGF	Email Address: tstewart@brightsourceenergy.com	Phone/Fax Nos.: 510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Auxiliary Boiler Number 2

7. Application is for: [X] New Construction [ ] Modification* [ ] Change of Owner*	For modification or change of owner: *Current Permit Number: _____

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. Distances (feet and direction to closest):
2000 Fenceline 14123 Residence 15800 Business 81000 School

10. General Nature of Business: Power Generation	11. Principal Product: Electricity

12. Facility Annual Throughput by Quarters (percent):				13. Facility Operating Hours:			
25 %	25 %	25 %	25 %	16	7	52	5824
Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Hrs/Day	Days/Wk	Wks/Yr	Total Hrs/Yr

14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No

15. Signature of Responsible Official: Stephen Wiley	Official Title: Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official: Stephen Wiley	Phone Number: 510-899-8938	Date Signed: 10-6-11

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
EXTERNAL COMBUSTION APPLICATION, continued

16. INFORMATION ON EQUIPMENT:

[X] Boiler [ ] Dryer [ ] Furnace [ ] Heater [ ] Kiln [ ] Oven [ ] Other, specify: _____

Manufacturer: Rentech or equivalent

Model No.: TBD Serial No.: TBD

Maximum heat input rating (use Higher Heating Value): 500 MMBtu/hr MMBtu/hr or kW

Burner Manufacturer: TBD Burner Model No.: TBD

Number of burners: 1 Burner max heat input rating: 500 MMBtu/hr MMBtu/hr or kW

Percent excess air (or n/a): 13.90% Operating temps (C or F): n/a Av. n/a Max

Specify Primary Fuel (*attach fuel analysis for these fuels specifying HHV and sulfur content):

[X] Natural Gas [ ] LPG (Propane) [ ] CARB Diesel [ ] Coal* [ ] Petroleum Coke*

[ ] Digester Gas* [ ] Landfill Gas* [ ] Refinery Gas* [ ] Other,* specify: _____

Max hourly primary fuel usage: 490,196 Fuel units (ft^3, gal, etc.): scf/hr

If secondary fuel is proposed, specify: Not Applicable Max hourly usage: n/a

Feedstock type and max process rate (specify units): 350,000 lbs/hr steam

Unit Lat/Long or UTM Coordinates: UTME 706346 UTMN 3703546

Max annual hours: 200 @ full load Exhaust Stack Height (feet): 135 Inside Diameter (inches): 100

17. EMISSION CONTROLS: Check all that apply:

[X] Low NOx Burner [ ] Oxygen Trim [X] Flue or Exhaust Gas Recirculation (FGR or EGR)

[ ] Oxidation Catalyst [ ] Selective Catalytic Reduction (SCR) [ ] Selective Non-Catalytic Reduction (SNCR)

[ ] Afterburner [ ] ESP [ ] Baghouse [ ] Other - Please specify: _____

18. MAX EMISSION RATES (CONTROLLED):

Pollutant	Concentration ppmvd or gr/dscf	Mass pounds/hour
Oxides of Nitrogen (NOx)	9 ppm @ 3% O2	5.5
Oxides of Sulfur (SOx)	0.0021 lbs/MMBtu	1.1
Carbon Monoxide (CO)	50 ppm @ 3% O2	18.3
Total Particulates (TSP or PM30)	0.005 lbs/MMBtu	2.5
Coarse Respirable Particulates (PM10)	0.005 lbs/MMBtu	2.5
Fine Respirable Particulates (PM2.5)	0.005 lbs/MMBtu	2.5
Total Organics (TOG)		
Volatile Organic Compounds (VOC, ROG or NMOG)	12.6 ppm @ 3% O2	2.7

19. DRYERS ONLY Check one:

[ ] Centrifugal [ ] Chip [ ] Fluidized Bed [ ] Rotary [ ] Spray [ ] Other, specify: _____

20. FURNACE ONLY Check one:

[ ] Annealing [ ] Burnoff [ ] Calcining [ ] Crucible [ ] Cupola [ ] Diffusion [ ] Electric [ ] Forge [ ] Pot

[ ] Holding [ ] Heat Treating [ ] Melting [ ] Reverbatory [ ] Rotary [ ] Sweating [ ] Oxide Growth

21. OVEN ONLY Check one:

[ ] Bakery [ ] Baking [ ] Curing [ ] Drying [ ] Fluidized Bed [ ] Stripping [ ] Solder Reflow

[ ] Roasting, specify type: _____ Firing Method: [ ] Direct [ ] Indirect

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Eldon Heaston
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APPLICATION FOR EXTERNAL COMBUSTION ENGINE (BOILER, ETC.) ONLY

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar I, LLC	1a. Federal Tax ID No.: 32-0354147
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa I	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Facility UTM or Lat/Long: UTMN: 3703491 UTME: 706324

5. Contact Name/Title: Todd Stewart, Project Manager Rio Mesa SEGF	Email Address: tstewart@brightsourceenergy.com	Phone/Fax Nos.: 510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Auxiliary Boiler Number 3

7. Application is for: [X] New Construction [ ] Modification* [ ] Change of Owner*	For modification or change of owner: *Current Permit Number: _____

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. Distances (feet and direction to closest):
2000 Fenceline 14123 Residence 15800 Business 81000 School

10. General Nature of Business: Power Generation	11. Principal Product: Electricity

12. Facility Annual Throughput by Quarters (percent):				13. Facility Operating Hours:			
25 %	25 %	25 %	25 %	16	7	52	5824
Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Hrs/Day	Days/Wk	Wks/Yr	Total Hrs/Yr

14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No

15. Signature of Responsible Official: Stephen Wiley	Official Title: Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official: Stephen Wiley	Phone Number: 510-899-8938	Date Signed: 10-6-11

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
EXTERNAL COMBUSTION APPLICATION, continued

16. INFORMATION ON EQUIPMENT:

[X] Boiler [ ] Dryer [ ] Furnace [ ] Heater [ ] Kiln [ ] Oven [ ] Other, specify: _____

Manufacturer: Rentech or equivalent

Model No.: TBD Serial No.: TBD

Maximum heat input rating (use Higher Heating Value): 500 MMBtu/hr MMBtu/hr or kW

Burner Manufacturer: TBD Burner Model No.: TBD

Number of burners: 1 Burner max heat input rating: 500 MMBtu/hr MMBtu/hr or kW

Percent excess air (or n/a): 13.90% Operating temps (C or F): n/a Av. n/a Max

Specify Primary Fuel (*attach fuel analysis for these fuels specifying HHV and sulfur content):

[X] Natural Gas [ ] LPG (Propane) [ ] CARB Diesel [ ] Coal* [ ] Petroleum Coke*

[ ] Digester Gas* [ ] Landfill Gas* [ ] Refinery Gas* [ ] Other,* specify: _____

Max hourly primary fuel usage: 490,196 Fuel units (ft^3, gal, etc.): scf/hr

If secondary fuel is proposed, specify: Not Applicable Max hourly usage: n/a

Feedstock type and max process rate (specify units): 350,000 lbs/hr steam

Unit Lat/Long or UTM Coordinates: UTME 706346 UTMN 3703546

Max annual hours: 200 @ full load Exhaust Stack Height (feet): 135 Inside Diameter (inches): 100

17. EMISSION CONTROLS: Check all that apply:

[X] Low NOx Burner [ ] Oxygen Trim [X] Flue or Exhaust Gas Recirculation (FGR or EGR)

[ ] Oxidation Catalyst [ ] Selective Catalytic Reduction (SCR) [ ] Selective Non-Catalytic Reduction (SNCR)

[ ] Afterburner [ ] ESP [ ] Baghouse [ ] Other - Please specify: _____

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Oxides of Nitrogen (NOx)	9 ppm @ 3% O2	5.5
Oxides of Sulfur (SOx)	0.0021 lbs/MMBtu	1.1
Carbon Monoxide (CO)	50 ppm @ 3% O2	18.3
Total Particulates (TSP or PM30)	0.005 lbs/MMBtu	2.5
Coarse Respirable Particulates (PM10)	0.005 lbs/MMBtu	2.5
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Total Organics (TOG)		
Volatile Organic Compounds (VOC, ROG or NMOG)	12.6 ppm @ 3% O2	2.7

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[ ] Centrifugal [ ] Chip [ ] Fluidized Bed [ ] Rotary [ ] Spray [ ] Other, specify: _____

20. FURNACE ONLY Check one:

[ ] Annealing [ ] Burnoff [ ] Calcining [ ] Crucible [ ] Cupola [ ] Diffusion [ ] Electric [ ] Forge [ ] Pot

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[ ] Roasting, specify type: _____ Firing Method: [ ] Direct [ ] Indirect

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4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Facility UTM or Lat/Long: UTMN: 3703518 UTME: 706212

5. Contact Name/Title:	Email Address:	Phone/Fax Nos.:
Todd Stewart, Project Manager Rio Mesa SEGF	tstewart@brightsourceenergy.com	510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Startup Boiler

7. Application is for:
[X] New Construction [ ] Modification* [ ] Change of Owner*

For modification or change of owner:
*Current Permit Number: _____

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

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Power Generation	Electricity

12. Facility Annual Throughput by Quarters (percent):				13. Facility Operating Hours:			
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Stephen Wiley	Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official:	Phone Number:	Date Signed:
Stephen Wiley	510-899-8938	10-6-11

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Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
EXTERNAL COMBUSTION APPLICATION, continued

16. INFORMATION ON EQUIPMENT:

[X] Boiler [ ] Dryer [ ] Furnace [ ] Heater [ ] Kiln [ ] Oven [ ] Other, specify: _____

Manufacturer: Rentech or equivalent

Model No.: TBD Serial No.: TBD

Maximum heat input rating (use Higher Heating Value): 249 MMBtu/hr MMBtu/hr or kW

Burner Manufacturer: TBD Burner Model No.: TBD

Number of burners: 1 Burner max heat input rating: 249 MMBtu/hr MMBtu/hr or kW

Percent excess air (or n/a): 13.90% Operating temps (C or F): n/a Av. n/a Max

Specify Primary Fuel (*attach fuel analysis for these fuels specifying HHV and sulfur content):

[X] Natural Gas [ ] LPG (Propane) [ ] CARB Diesel [ ] Coal* [ ] Petroleum Coke*

[ ] Digester Gas* [ ] Landfill Gas* [ ] Refinery Gas* [ ] Other,* specify: _____

Max hourly primary fuel usage: 244,118 Fuel units (ft^3, gal, etc.): scf/hr

If secondary fuel is proposed, specify: Not Applicable Max hourly usage: n/a

Feedstock type and max process rate (specify units): 185,000 lbs/hr steam

Unit Lat/Long or UTM Coordinates: UTME 706313 UTMN 3703556

Max annual hours: 800 @ full load Exhaust Stack Height (feet): 135 Inside Diameter (inches): 66

17. EMISSION CONTROLS: Check all that apply:

[X] Low NOx Burner [ ] Oxygen Trim [X] Flue or Exhaust Gas Recirculation (FGR or EGR)

[ ] Oxidation Catalyst [ ] Selective Catalytic Reduction (SCR) [ ] Selective Non-Catalytic Reduction (SNCR)

[ ] Afterburner [ ] ESP [ ] Baghouse [ ] Other - Please specify: _____

18. MAX EMISSION RATES (CONTROLLED):

Pollutant	Concentration ppmvd or gr/dscf	Mass pounds/hour
Oxides of Nitrogen (NOx)	9 ppm @ 3% O2	2.7
Oxides of Sulfur (SOx)	0.0021 lbs/MMBtu	0.5
Carbon Monoxide (CO)	25 ppm @ 3% O2	4.5
Total Particulates (TSP or PM30)	0.005 lbs/MMBtu	1.3
Coarse Respirable Particulates (PM10)	0.005 lbs/MMBtu	1.3
Fine Respirable Particulates (PM2.5)	0.005 lbs/MMBtu	1.3
Total Organics (TOG)		
Volatile Organic Compounds (VOC, ROG or NMOG)	12.6 ppm @ 3% O2	1.3

19. DRYERS ONLY Check one:

[ ] Centrifugal [ ] Chip [ ] Fluidized Bed [ ] Rotary [ ] Spray [ ] Other, specify: _____

20. FURNACE ONLY Check one:

[ ] Annealing [ ] Burnoff [ ] Calcining [ ] Crucible [ ] Cupola [ ] Diffusion [ ] Electric [ ] Forge [ ] Pot

[ ] Holding [ ] Heat Treating [ ] Melting [ ] Reverbatory [ ] Rotary [ ] Sweating [ ] Oxide Growth

21. OVEN ONLY Check one:

[ ] Bakery [ ] Baking [ ] Curing [ ] Drying [ ] Fluidized Bed [ ] Stripping [ ] Solder Reflow

[ ] Roasting, specify type: _____ Firing Method: [ ] Direct [ ] Indirect

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
14306 Park Avenue, Victorville, CA 92392-2310
(760) 245-1661 Facsimile: (760) 245-2022

www.mdaqmd.ca.gov
Eldon Heaston
Executive Director

APPLICATION FOR EXTERNAL COMBUSTION ENGINE (BOILER, ETC.) ONLY

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar I, LLC	1a. Federal Tax ID No.: 32-0354147
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa I	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Facility UTM or Lat/Long: UTMN: 3703518 UTME: 706212

5. Contact Name/Title: Todd Stewart, Project Manager Rio Mesa SEGF	Email Address: tstewart@brightsourceenergy.com	Phone/Fax Nos.: 510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Nighttime Preservation Boiler

7. Application is for: [X] New Construction [ ] Modification* [ ] Change of Owner*	For modification or change of owner: *Current Permit Number: _____

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. Distances (feet and direction to closest):

2000	Fenceline	14123	Residence	15800	Business	81000	School

10. General Nature of Business: Power Generation	11. Principal Product: Electricity

12. Facility Annual Throughput by Quarters (percent):

25 %	25 %	25 %	25 %
Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec

13. Facility Operating Hours:

16	7	52	5824
Hrs/Day	Days/Wk	Wks/Yr	Total Hrs/Yr

14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No

15. Signature of Responsible Official: Stephen Wiley	Official Title: Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official: Stephen Wiley	Phone Number: 510-899-8938	Date Signed: 10-6-11

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
EXTERNAL COMBUSTION APPLICATION, continued

16. INFORMATION ON EQUIPMENT:

[X] Boiler [ ] Dryer [ ] Furnace [ ] Heater [ ] Kiln [ ] Oven [ ] Other, specify: _____

Manufacturer: Rentech or equivalent

Model No.: TBD Serial No.: TBD

Maximum heat input rating (use Higher Heating Value): 15 MMBtu/hr MMBtu/hr or kW

Burner Manufacturer: TBD Burner Model No.: TBD

Number of burners: 1 Burner max heat input rating: 15 MMBtu/hr MMBtu/hr or kW

Percent excess air (or n/a): 13.90% Operating temps (C or F): n/a Av. n/a Max

Specify Primary Fuel (*attach fuel analysis for these fuels specifying HHV and sulfur content):

[X] Natural Gas [ ] LPG (Propane) [ ] CARB Diesel [ ] Coal* [ ] Petroleum Coke*

[ ] Digester Gas* [ ] Landfill Gas* [ ] Refinery Gas* [ ] Other,* specify: _____

Max hourly primary fuel usage: 14,706 Fuel units (ft^3, gal, etc.): scf/hr

If secondary fuel is proposed, specify: Not Applicable Max hourly usage: n/a

Feedstock type and max process rate (specify units): 10,000 lbs/hr steam

Unit Lat/Long or UTM Coordinates: UTME 706278 UTMN 3703549

Max annual hours: 4036 @ full load Exhaust Stack Height (feet): 35 Inside Diameter (inches): 18

17. EMISSION CONTROLS: Check all that apply:

[X] Low NOx Burner [ ] Oxygen Trim [X] Flue or Exhaust Gas Recirculation (FGR or EGR)

[ ] Oxidation Catalyst [ ] Selective Catalytic Reduction (SCR) [ ] Selective Non-Catalytic Reduction (SNCR)

[ ] Afterburner [ ] ESP [ ] Baghouse [ ] Other - Please specify: _____

18. MAX EMISSION RATES (CONTROLLED):

Pollutant	Concentration ppmvd or gr/dscf	Mass pounds/hour
Oxides of Nitrogen (NOx)	9 ppm @ 3% O2	0.2
Oxides of Sulfur (SOx)	0.0021 lbs/MMBtu	0.03
Carbon Monoxide (CO)	50 ppm @ 3% O2	0.6
Total Particulates (TSP or PM30)	0.005 lbs/MMBtu	0.1
Coarse Respirable Particulates (PM10)	0.005 lbs/MMBtu	0.1
Fine Respirable Particulates (PM2.5)	0.005 lbs/MMBtu	0.1
Total Organics (TOG)		
Volatile Organic Compounds (VOC, ROG or NMOG)	12.6 ppm @ 3% O2	0.1

19. DRYERS ONLY Check one:

[ ] Centrifugal [ ] Chip [ ] Fluidized Bed [ ] Rotary [ ] Spray [ ] Other, specify: _____

20. FURNACE ONLY Check one:

[ ] Annealing [ ] Burnoff [ ] Calcining [ ] Crucible [ ] Cupola [ ] Diffusion [ ] Electric [ ] Forge [ ] Pot

[ ] Holding [ ] Heat Treating [ ] Melting [ ] Reverbatory [ ] Rotary [ ] Sweating [ ] Oxide Growth

21. OVEN ONLY Check one:

[ ] Bakery [ ] Baking [ ] Curing [ ] Drying [ ] Fluidized Bed [ ] Stripping [ ] Solder Reflow

[ ] Roasting, specify type: _____ Firing Method: [ ] Direct [ ] Indirect

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Eldon Heaston
Executive Director

APPLICATION FOR INTERNAL COMBUSTION ENGINE (I.C.E.) ONLY

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar I, LLC		1a. Federal Tax ID No.: 32-0354147
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612		
3. Facility or Business License Name (for equipment location): Rio Mesa I		
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe		Facility UTM or Lat/Long: UTMN: 3703518 UTME: 706212
5. Contact Name/Title: Todd Stewart, Project Manager Rio Mesa SEGF	Email Address: tstewart@brightsourceenergy.com	Phone/Fax Nos.: 510-550-8908
6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment: Emergency Generator Engine		
7. Application is for: [X] New Construction [ ] Modification* [ ] Change of Owner*		For modification or change of owner: *Current Permit Number: _____
8. Type of Organization (check one): [ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency		
9. Distances (feet and direction to closest): 2000 Fenceline 14123 Residence 15800 Business 81000 School		
10. General Nature of Business: Power Generation	11. Principal Product: Electricity	
12. Facility Annual Throughput by Quarters (percent): 25 % Jan-Mar 25 % Apr-Jun 25 % Jul-Sep 25 % Oct-Dec	13. Expected Operating Hours of IC Engine: 16 Hrs/Day 7 Days/Wk 52 Wks/Yr 5824 Total Hrs/Yr	
14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No		
15. Signature of Responsible Official: Stephen Wiley	Official Title: Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official: Stephen Wiley	Phone Number: 510-899-8938	Date Signed: 10-6-11

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
I.C.E. APPLICATION, continued

16. INFORMATION ON I.C.E.:

Manufacturer: Caterpillar or equivalent

Model No.: Generator Set Model 2500 eKW Serial No.: TBD

Number of Cylinders: 16 Year of Manufacture: 2012 or later

Rating: 3633 BHP Speed: 1800 RPM

I.C.E. is? [X] New [ ] Existing Date Installed (MM/YYYY): TBD

Prime [ ] Standby [ ] Emergency [X] Portable (Yes or No)?: No

USEPA Family Name: EPA Tier 3 CARB Certification EO#: TBD

Is this engine included in a Demand Response plan?: Yes [ ] No [X]

Type of Fuel(s): Natural Gas [ ] Digester Gas [ ] Ethanol [ ] Landfill Gas [ ]
Propane [ ] CARB Diesel [X] Methanol [ ] Other: ____

Max fuel usage per hour: 175 Fuel units (ft^3, gal, etc.): gal/hr

Engine Lat/Long or UTM Coordinates: UTMN: 3703537 UTME: 706175

Exhaust Stack Height (feet): 10 Inside Diameter (inches): 18 Y/N: Vertical? Yes Capped? No

Is this I.C.E. (select all that apply):

Direct Injected? [X] After Cooled? [X]
Turbo Charged? [X] Inter Cooled? [ ]
Timing Retarded? [ ] Other - Please specify: ____

17. EMISSION RATES:

Pollutant	at Max.Load	Units	Origin of Emission Rate data: Manufacturer	or Source Test
Oxides of Nitrogen (NOx)	4.80	g/bhp-hr	X	
Oxides of Sulfur (SOx)	0.005	g/bhp-hr	X	
Carbon Monoxide (CO)	2.60	g/bhp-hr	X	
Particulates (PM10)	0.15	g/bhp-hr	X	
Total Hydrocarbons (VOC)	0.17	g/bhp-hr	X	

18. EMISSION CONTROL EQUIPMENT: Add on emission control equipment? [ ] Yes [X] No

If yes: Manufacturer: ____ Model No.: ____
Serial No.: ____ *CARB EO#: ____

Type: SCR: [ ] Particulate Trap*: [ ] Ammonia Injection: [ ] Water Injection: [ ]
Non-S CR: [ ] Exhaust Gas Recirc*: [ ] Oxidation Catalyst*: [ ]

Other - Please specify: ____

19. INFORMATION OF ITEM BEING POWERED: This I.C.E. is used to power:

Electrical Generator [X] Compressor [ ] Pump [ ]
Paint Spray Gun [ ] Conveyor or Drive [ ] Fire Pump [ ]

Other - Please specify: ____

Manufacturer: ____
Model No.: ____ Serial No.: ____
Type, Size or Rating: ____

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Eldon Heaston
Executive Director

APPLICATION FOR INTERNAL COMBUSTION ENGINE (I.C.E.) ONLY

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar I, LLC	1a. Federal Tax ID No.: 32-0354147
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa I	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Facility UTM or Lat/Long: UTMN: 3703518 UTME: 706212

5. Contact Name/Title: Todd Stewart, Project Manager Rio Mesa SEGF	Email Address: tstewart@brightsourceenergy.com	Phone/Fax Nos.: 510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Emergency Firepump Engine

7. Application is for:
[X] New Construction [ ] Modification* [ ] Change of Owner*

For modification or change of owner:
*Current Permit Number: _____

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. Distances (feet and direction to closest):

2000	14123	15800	81000
Fenceline	Residence	Business	School

10. General Nature of Business: Power Generation	11. Principal Product: Electricity

12. Facility Annual Throughput by Quarters (percent):

25 %	25 %	25 %	25 %
Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec

13. Expected Operating Hours of IC Engine:

16	7	52	5824
Hrs/Day	Days/Wk	Wks/Yr	Total Hrs/Yr

14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No

15. Signature of Responsible Official: Stephen Wiley	Official Title: Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official: Stephen Wiley	Phone Number: 510-899-8938	Date Signed: 10-6-11

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
I.C.E. APPLICATION, continued

16. INFORMATION ON I.C.E.:

Manufacturer: Cummins or equivalent

Model No.: Fire Power Model CFP7E-F30 (or eq.) Serial No.: TBD

Number of Cylinders: 6 Year of Manufacture: 2012 or later

Rating: 200 BHP Speed: 2100 RPM

I.C.E. is? [X] New [ ] Existing Date Installed (MM/YYYY): TBD

Prime [ ] Standby [ ] Emergency [X] Portable (Yes or No)?: No

USEPA Family Name: EPA Tier 3 CARB Certification EO#: TBD

Is this engine included in a Demand Response plan?: Yes [ ] No [X]

Type of Fuel(s): Natural Gas [ ] Digester Gas [ ] Ethanol [ ] Landfill Gas [ ]
Propane [ ] CARB Diesel [X] Methanol [ ] Other: ____

Max fuel usage per hour: 12 Fuel units (ft^3, gal, etc.): gal/hr

Engine Lat/Long or UTM Coordinates: UTMN: 3703609 UTME: 706141

Exhaust Stack Height (feet): 10 Inside Diameter (inches): 4 Y/N: Vertical? Yes Capped? No

Is this I.C.E. (select all that apply):

Direct Injected? [X] After Cooled? [X]
Turbo Charged? [X] Inter Cooled? [ ]
Timing Retarded? [ ] Other - Please specify: ____

17. EMISSION RATES:

Pollutant	at Max.Load	Units	Origin of Emission Rate data: Manufacturer	or Source Test
Oxides of Nitrogen (NOx)	3.00	g/bhp-hr	X	
Oxides of Sulfur (SOx)	0.006	g/bhp-hr	X	
Carbon Monoxide (CO)	2.60	g/bhp-hr	X	
Particulates (PM10)	0.15	g/bhp-hr	X	
Total Hydrocarbons (VOC)	0.18	g/bhp-hr	X	

18. EMISSION CONTROL EQUIPMENT: Add on emission control equipment? [ ] Yes [X] No

If yes: Manufacturer: ____ Model No.: ____
Serial No.: ____ *CARB EO#: ____

Type: SCR: [ ] Particulate Trap*: [ ] Ammonia Injection: [ ] Water Injection: [ ]
Non-S CR: [ ] Exhaust Gas Recirc*: [ ] Oxidation Catalyst*: [ ]

Other - Please specify: ____

19. INFORMATION OF ITEM BEING POWERED: This I.C.E. is used to power:

Electrical Generator [ ] Compressor [ ] Pump [ ]
Paint Spray Gun [ ] Conveyor or Drive [ ] Fire Pump [X]

Other - Please specify: ____

Manufacturer: ____
Model No.: ____ Serial No.: ____
Type, Size or Rating: ____

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Eldon Heaston
Executive Director

APPLICATION FOR AUTHORITY TO CONSTRUCT AND PERMIT TO OPERATE

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar II, LLC	1a. Federal Tax ID No.: 35-2422568
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa II	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Location UTM or Lat/Long: UTMN: 3705134 UTME: 705030

5. Contact Name/Title: Todd Stewart, Project Manager Rio Mesa SEGF	Email Address: tstewart@brightsourceenergy.com	Phone/Fax Nos.: 510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Boilers, emergency generator engine, emergency firepump engine (see attached equipment forms)

Air Pollution Control Equipment, if any (note that most APCE require a separate application):
Not Applicable

7. Application is for: [X] New Construction [ ] Modification* [ ] Change of Owner*	For modification or change of owner: *Current Permit Number: Not Applicable

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. General Nature of Business: Power Generation	Principal Product: Electricity	SIC Code (if known): 4911

10. Distances (feet and direction to closest):

2400	Fenceline	19419	Residence	22000	Business	80000	School

11. Facility Annual Throughput by Quarters (percent):				12. Expected Facility Operating Hours:			
25 %	25 %	25 %	25 %	16	7	52	5,824
Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Hrs/Day	Days/Wk	Wks/Yr	Total Hrs/Yr

13. Do you claim Confidentiality of Data (if yes, state nature of data on reverse in Remarks)? [ ] Yes [X] No

14. Signature of Responsible Official: Stephen Wiley	Official Title: Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official: Stephen Wiley	Phone Number: 510-899-8938	Date Signed: 10-6-11

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
GENERAL APPLICATION, continued

15. Stack Emissions Information:

Stack No.	Stack Height	Stack Diameter	Exhaust Temp	Exhaust Flow Rate	Exhaust Velocity
1	Please see individual equipment forms.				
2					
3					

(list additional stacks on a separate sheet)

Stack Height is the distance above ground level to discharge point (feet)
Stack Diameter is the diameter (or equivalent circular diameter) of discharge point (nearest tenth foot)
If using cross-sectional area (A in square feet), equivalent diameter is D = (1.273A)^0.5
Exhaust Temp in degrees F, actual or estimated to nearest 50 deg F
Exhaust Flow Rate at discharge point in actual cubic feet per minute (ACFM)
Exhaust Velocity in feet per second, design or measured

16. Remarks (basis for confidentiality of data, process description, modification description, etc.):

If you wish to specify process information as proprietary or confidential, space is provided for this purpose. The kinds and rates of emissions may not be held confidential; emissions are subject to public disclosure.

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Eldon Heaston
Executive Director

APPLICATION FOR EXTERNAL COMBUSTION ENGINE (BOILER, ETC.) ONLY

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1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar II, LLC	1a. Federal Tax ID No.: 35-2422568
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa II	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Facility UTM or Lat/Long: UTMN: 3705134 UTME: 705030

5. Contact Name/Title:	Email Address:	Phone/Fax Nos.:
Todd Stewart, Project Manager Rio Mesa SEGF	tstewart@brightsourceenergy.com	510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Auxiliary Boiler Number 1

7. Application is for:	For modification or change of owner:
[X] New Construction [ ] Modification* [ ] Change of Owner*	*Current Permit Number: _____

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. Distances (feet and direction to closest):

2400	Fenceline	19419	Residence	22000	Business	80000	School

10. General Nature of Business:	11. Principal Product:
Power Generation	Electricity

12. Facility Annual Throughput by Quarters (percent):				13. Facility Operating Hours:			
25 %	25 %	25 %	25 %	16	7	52	5824
Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Hrs/Day	Days/Wk	Wks/Yr	Total Hrs/Yr

14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No

15. Signature of Responsible Official:	Official Title:	
Stephen Wiley	Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official:	Phone Number:	Date Signed:
Stephen Wiley	510-899-8938	10-6-11

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Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
EXTERNAL COMBUSTION APPLICATION, continued

16. INFORMATION ON EQUIPMENT:

[X] Boiler [ ] Dryer [ ] Furnace [ ] Heater [ ] Kiln [ ] Oven [ ] Other, specify: _____

Manufacturer: Rentech or equivalent

Model No.: TBD Serial No.: TBD

Maximum heat input rating (use Higher Heating Value): 500 MMBtu/hr MMBtu/hr or kW

Burner Manufacturer: TBD Burner Model No.: TBD

Number of burners: 1 Burner max heat input rating: 500 MMBtu/hr MMBtu/hr or kW

Percent excess air (or n/a): 13.90% Operating temps (C or F): n/a Av. n/a Max

Specify Primary Fuel (*attach fuel analysis for these fuels specifying HHV and sulfur content):

[X] Natural Gas [ ] LPG (Propane) [ ] CARB Diesel [ ] Coal* [ ] Petroleum Coke*

[ ] Digester Gas* [ ] Landfill Gas* [ ] Refinery Gas* [ ] Other,* specify: _____

Max hourly primary fuel usage: 490,196 Fuel units (ft^3, gal, etc.): scf/hr

If secondary fuel is proposed, specify: Not Applicable Max hourly usage: n/a

Feedstock type and max process rate (specify units): 350,000 lbs/hr steam

Unit Lat/Long or UTM Coordinates: UTME 705145 UTMN 3705156

Max annual hours: 200 @ full load Exhaust Stack Height (feet): 135 Inside Diameter (inches): 100

17. EMISSION CONTROLS: Check all that apply:

[X] Low NOx Burner [ ] Oxygen Trim [X] Flue or Exhaust Gas Recirculation (FGR or EGR)

[ ] Oxidation Catalyst [ ] Selective Catalytic Reduction (SCR) [ ] Selective Non-Catalytic Reduction (SNCR)

[ ] Afterburner [ ] ESP [ ] Baghouse [ ] Other - Please specify: _____

18. MAX EMISSION RATES (CONTROLLED):

Pollutant	Concentration ppmvd or gr/dscf	Mass pounds/hour
Oxides of Nitrogen (NOx)	9 ppm @ 3% O2	5.5
Oxides of Sulfur (SOx)	0.0021 lbs/MMBtu	1.1
Carbon Monoxide (CO)	50 ppm @ 3% O2	18.3
Total Particulates (TSP or PM30)	0.005 lbs/MMBtu	2.5
Coarse Respirable Particulates (PM10)	0.005 lbs/MMBtu	2.5
Fine Respirable Particulates (PM2.5)	0.005 lbs/MMBtu	2.5
Total Organics (TOG)		
Volatile Organic Compounds (VOC, ROG or NMOG)	12.6 ppm @ 3% O2	2.7

19. DRYERS ONLY Check one:

[ ] Centrifugal [ ] Chip [ ] Fluidized Bed [ ] Rotary [ ] Spray [ ] Other, specify: _____

20. FURNACE ONLY Check one:

[ ] Annealing [ ] Burnoff [ ] Calcining [ ] Crucible [ ] Cupola [ ] Diffusion [ ] Electric [ ] Forge [ ] Pot

[ ] Holding [ ] Heat Treating [ ] Melting [ ] Reverbatory [ ] Rotary [ ] Sweating [ ] Oxide Growth

21. OVEN ONLY Check one:

[ ] Bakery [ ] Baking [ ] Curing [ ] Drying [ ] Fluidized Bed [ ] Stripping [ ] Solder Reflow

[ ] Roasting, specify type: _____ Firing Method: [ ] Direct [ ] Indirect

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APPLICATION FOR EXTERNAL COMBUSTION ENGINE (BOILER, ETC.) ONLY

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar II, LLC	1a. Federal Tax ID No.: 35-2422568
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa II	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Facility UTM or Lat/Long: UTMN: 3705134 UTME: 705030

5. Contact Name/Title: Todd Stewart, Project Manager Rio Mesa SEGF	Email Address: tstewart@brightsourceenergy.com	Phone/Fax Nos.: 510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Auxiliary Boiler Number 2

7. Application is for: [X] New Construction [ ] Modification* [ ] Change of Owner*	For modification or change of owner: *Current Permit Number: _____

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. Distances (feet and direction to closest):

2400	Fenceline	19419	Residence	22000	Business	80000	School

10. General Nature of Business: Power Generation	11. Principal Product: Electricity

12. Facility Annual Throughput by Quarters (percent):				13. Facility Operating Hours:			
25 %	25 %	25 %	25 %	16	7	52	5824
Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Hrs/Day	Days/Wk	Wks/Yr	Total Hrs/Yr

14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No

15. Signature of Responsible Official: Stephen Wiley	Official Title: Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official: Stephen Wiley	Phone Number: 510-899-8938	Date Signed: 10-6-11

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
EXTERNAL COMBUSTION APPLICATION, continued

16. INFORMATION ON EQUIPMENT:

[X] Boiler [ ] Dryer [ ] Furnace [ ] Heater [ ] Kiln [ ] Oven [ ] Other, specify: _____

Manufacturer: Rentech or equivalent

Model No.: TBD Serial No.: TBD

Maximum heat input rating (use Higher Heating Value): 500 MMBtu/hr MMBtu/hr or kW

Burner Manufacturer: TBD Burner Model No.: TBD

Number of burners: 1 Burner max heat input rating: 500 MMBtu/hr MMBtu/hr or kW

Percent excess air (or n/a): 13.90% Operating temps (C or F): n/a Av. n/a Max

Specify Primary Fuel (*attach fuel analysis for these fuels specifying HHV and sulfur content):

[X] Natural Gas [ ] LPG (Propane) [ ] CARB Diesel [ ] Coal* [ ] Petroleum Coke*

[ ] Digester Gas* [ ] Landfill Gas* [ ] Refinery Gas* [ ] Other,* specify: _____

Max hourly primary fuel usage: 490,196 Fuel units (ft^3, gal, etc.): scf/hr

If secondary fuel is proposed, specify: Not Applicable Max hourly usage: n/a

Feedstock type and max process rate (specify units): 350,000 lbs/hr steam

Unit Lat/Long or UTM Coordinates: UTME 705178 UTMN 3705145

Max annual hours: 200 @ full load Exhaust Stack Height (feet): 135 Inside Diameter (inches): 100

17. EMISSION CONTROLS: Check all that apply:

[X] Low NOx Burner [ ] Oxygen Trim [X] Flue or Exhaust Gas Recirculation (FGR or EGR)

[ ] Oxidation Catalyst [ ] Selective Catalytic Reduction (SCR) [ ] Selective Non-Catalytic Reduction (SNCR)

[ ] Afterburner [ ] ESP [ ] Baghouse [ ] Other - Please specify: _____

18. MAX EMISSION RATES (CONTROLLED):

Pollutant	Concentration ppmvd or gr/dscf	Mass pounds/hour
Oxides of Nitrogen (NOx)	9 ppm @ 3% O2	5.5
Oxides of Sulfur (SOx)	0.0021 lbs/MMBtu	1.1
Carbon Monoxide (CO)	50 ppm @ 3% O2	18.3
Total Particulates (TSP or PM30)	0.005 lbs/MMBtu	2.5
Coarse Respirable Particulates (PM10)	0.005 lbs/MMBtu	2.5
Fine Respirable Particulates (PM2.5)	0.005 lbs/MMBtu	2.5
Total Organics (TOG)		
Volatile Organic Compounds (VOC, ROG or NMOG)	12.6 ppm @ 3% O2	2.7

19. DRYERS ONLY Check one:

[ ] Centrifugal [ ] Chip [ ] Fluidized Bed [ ] Rotary [ ] Spray [ ] Other, specify: _____

20. FURNACE ONLY Check one:

[ ] Annealing [ ] Burnoff [ ] Calcining [ ] Crucible [ ] Cupola [ ] Diffusion [ ] Electric [ ] Forge [ ] Pot

[ ] Holding [ ] Heat Treating [ ] Melting [ ] Reverbatory [ ] Rotary [ ] Sweating [ ] Oxide Growth

21. OVEN ONLY Check one:

[ ] Bakery [ ] Baking [ ] Curing [ ] Drying [ ] Fluidized Bed [ ] Stripping [ ] Solder Reflow

[ ] Roasting, specify type: _____ Firing Method: [ ] Direct [ ] Indirect

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
14306 Park Avenue, Victorville, CA 92392-2310
(760) 245-1661 Facsimile: (760) 245-2022

www.mdaqmd.ca.gov
Eldon Heaston
Executive Director

APPLICATION FOR EXTERNAL COMBUSTION ENGINE (BOILER, ETC.) ONLY

Page 1 of 2: please type or print

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar II, LLC	1a. Federal Tax ID No.: 35-2422568
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa II	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Facility UTM or Lat/Long: UTMN: 3705134 UTME: 705030

5. Contact Name/Title:	Email Address:	Phone/Fax Nos.:
Todd Stewart, Project Manager Rio Mesa SEGF	tstewart@brightsourceenergy.com	510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Auxiliary Boiler Number 3

7. Application is for:
[X] New Construction [ ] Modification* [ ] Change of Owner*

For modification or change of owner:
*Current Permit Number: _____

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. Distances (feet and direction to closest):
2400 Fenceline 19419 Residence 22000 Business 80000 School

10. General Nature of Business:	11. Principal Product:
Power Generation	Electricity

12. Facility Annual Throughput by Quarters (percent):

25 %	25 %	25 %	25 %
Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec

13. Facility Operating Hours:

16	7	52	5824
Hrs/Day	Days/Wk	Wks/Yr	Total Hrs/Yr

14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No

15. Signature of Responsible Official:	Official Title:	
Stephen Wiley	Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official:	Phone Number:	Date Signed:
Stephen Wiley	510-899-8938	10-6-14

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
EXTERNAL COMBUSTION APPLICATION, continued

16. INFORMATION ON EQUIPMENT:

[X] Boiler [ ] Dryer [ ] Furnace [ ] Heater [ ] Kiln [ ] Oven [ ] Other, specify: _____

Manufacturer: Rentech or equivalent

Model No.: TBD Serial No.: TBD

Maximum heat input rating (use Higher Heating Value): 500 MMBtu/hr MMBtu/hr or kW

Burner Manufacturer: TBD Burner Model No.: TBD

Number of burners: 1 Burner max heat input rating: 500 MMBtu/hr MMBtu/hr or kW

Percent excess air (or n/a): 13.90% Operating temps (C or F): n/a Av. n/a Max

Specify Primary Fuel (*attach fuel analysis for these fuels specifying HHV and sulfur content):

[X] Natural Gas [ ] LPG (Propane) [ ] CARB Diesel [ ] Coal* [ ] Petroleum Coke*

[ ] Digester Gas* [ ] Landfill Gas* [ ] Refinery Gas* [ ] Other,* specify: _____

Max hourly primary fuel usage: 490,196 Fuel units (ft^3, gal, etc.): scf/hr

If secondary fuel is proposed, specify: Not Applicable Max hourly usage: n/a

Feedstock type and max process rate (specify units): 350,000 lbs/hr steam

Unit Lat/Long or UTM Coordinates: UTME 705121 UTMN 3705102

Max annual hours: 200 @ full load Exhaust Stack Height (feet): 135 Inside Diameter (inches): 100

17. EMISSION CONTROLS: Check all that apply:

[X] Low NOx Burner [ ] Oxygen Trim [X] Flue or Exhaust Gas Recirculation (FGR or EGR)

[ ] Oxidation Catalyst [ ] Selective Catalytic Reduction (SCR) [ ] Selective Non-Catalytic Reduction (SNCR)

[ ] Afterburner [ ] ESP [ ] Baghouse [ ] Other - Please specify: _____

18. MAX EMISSION RATES (CONTROLLED):

Pollutant	Concentration ppmvd or gr/dscf	Mass pounds/hour
Oxides of Nitrogen (NOx)	9 ppm @ 3% O2	5.5
Oxides of Sulfur (SOx)	0.0021 lbs/MMBtu	1.1
Carbon Monoxide (CO)	50 ppm @ 3% O2	18.3
Total Particulates (TSP or PM30)	0.005 lbs/MMBtu	2.5
Coarse Respirable Particulates (PM10)	0.005 lbs/MMBtu	2.5
Fine Respirable Particulates (PM2.5)	0.005 lbs/MMBtu	2.5
Total Organics (TOG)		
Volatile Organic Compounds (VOC, ROG or NMOG)	12.6 ppm @ 3% O2	2.7

19. DRYERS ONLY Check one:

[ ] Centrifugal [ ] Chip [ ] Fluidized Bed [ ] Rotary [ ] Spray [ ] Other, specify: _____

20. FURNACE ONLY Check one:

[ ] Annealing [ ] Burnoff [ ] Calcining [ ] Crucible [ ] Cupola [ ] Diffusion [ ] Electric [ ] Forge [ ] Pot

[ ] Holding [ ] Heat Treating [ ] Melting [ ] Reverbatory [ ] Rotary [ ] Sweating [ ] Oxide Growth

21. OVEN ONLY Check one:

[ ] Bakery [ ] Baking [ ] Curing [ ] Drying [ ] Fluidized Bed [ ] Stripping [ ] Solder Reflow

[ ] Roasting, specify type: _____ Firing Method: [ ] Direct [ ] Indirect

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2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa II	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Facility UTM or Lat/Long: UTMN: 3705134 UTME: 705030

5. Contact Name/Title: Todd Stewart, Project Manager Rio Mesa SEGF	Email Address: tstewart@brightsourceenergy.com	Phone/Fax Nos.: 510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Startup Boiler

7. Application is for: [X] New Construction [ ] Modification* [ ] Change of Owner*	For modification or change of owner: *Current Permit Number: _____

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. Distances (feet and direction to closest):
2400 Fenceline 19419 Residence 22000 Business 80000 School

10. General Nature of Business: Power Generation	11. Principal Product: Electricity

12. Facility Annual Throughput by Quarters (percent):				13. Facility Operating Hours:			
25 %	25 %	25 %	25 %	16	7	52	5824
Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Hrs/Day	Days/Wk	Wks/Yr	Total Hrs/Yr

14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No

15. Signature of Responsible Official: Stephen Wiley	Official Title: Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official: Stephen Wiley	Phone Number: 510-899-8938	Date Signed: 10-6-11

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
EXTERNAL COMBUSTION APPLICATION, continued

16. INFORMATION ON EQUIPMENT:

[X] Boiler [ ] Dryer [ ] Furnace [ ] Heater [ ] Kiln [ ] Oven [ ] Other, specify: _____

Manufacturer: Rentech or equivalent

Model No.: TBD Serial No.: TBD

Maximum heat input rating (use Higher Heating Value): 249 MMBtu/hr MMBtu/hr or kW

Burner Manufacturer: TBD Burner Model No.: TBD

Number of burners: 1 Burner max heat input rating: 249 MMBtu/hr MMBtu/hr or kW

Percent excess air (or n/a): 13.90% Operating temps (C or F): n/a Av. n/a Max

Specify Primary Fuel (*attach fuel analysis for these fuels specifying HHV and sulfur content):

[X] Natural Gas [ ] LPG (Propane) [ ] CARB Diesel [ ] Coal* [ ] Petroleum Coke*

[ ] Digester Gas* [ ] Landfill Gas* [ ] Refinery Gas* [ ] Other,* specify: _____

Max hourly primary fuel usage: 244,118 Fuel units (ft^3, gal, etc.): scf/hr

If secondary fuel is proposed, specify: Not Applicable Max hourly usage: n/a

Feedstock type and max process rate (specify units): 185,000 lbs/hr steam

Unit Lat/Long or UTM Coordinates: UTME 705113 UTMN 3705167

Max annual hours: 800 @ full load Exhaust Stack Height (feet): 135 Inside Diameter (inches): 66

17. EMISSION CONTROLS: Check all that apply:

[X] Low NOx Burner [ ] Oxygen Trim [X] Flue or Exhaust Gas Recirculation (FGR or EGR)

[ ] Oxidation Catalyst [ ] Selective Catalytic Reduction (SCR) [ ] Selective Non-Catalytic Reduction (SNCR)

[ ] Afterburner [ ] ESP [ ] Baghouse [ ] Other - Please specify: _____

18. MAX EMISSION RATES (CONTROLLED):

Pollutant	Concentration ppmvd or gr/dscf	Mass pounds/hour
Oxides of Nitrogen (NOx)	9 ppm @ 3% O2	2.7
Oxides of Sulfur (SOx)	0.0021 lbs/MMBtu	0.5
Carbon Monoxide (CO)	25 ppm @ 3% O2	4.5
Total Particulates (TSP or PM30)	0.005 lbs/MMBtu	1.3
Coarse Respirable Particulates (PM10)	0.005 lbs/MMBtu	1.3
Fine Respirable Particulates (PM2.5)	0.005 lbs/MMBtu	1.3
Total Organics (TOG)		
Volatile Organic Compounds (VOC, ROG or NMOG)	12.6 ppm @ 3% O2	1.3

19. DRYERS ONLY Check one:

[ ] Centrifugal [ ] Chip [ ] Fluidized Bed [ ] Rotary [ ] Spray [ ] Other, specify: _____

20. FURNACE ONLY Check one:

[ ] Annealing [ ] Burnoff [ ] Calcining [ ] Crucible [ ] Cupola [ ] Diffusion [ ] Electric [ ] Forge [ ] Pot

[ ] Holding [ ] Heat Treating [ ] Melting [ ] Reverbatory [ ] Rotary [ ] Sweating [ ] Oxide Growth

21. OVEN ONLY Check one:

[ ] Bakery [ ] Baking [ ] Curing [ ] Drying [ ] Fluidized Bed [ ] Stripping [ ] Solder Reflow

[ ] Roasting, specify type: _____ Firing Method: [ ] Direct [ ] Indirect

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
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Eldon Heaston
Executive Director

APPLICATION FOR EXTERNAL COMBUSTION ENGINE (BOILER, ETC.) ONLY

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar II, LLC	1a. Federal Tax ID No.: 35-2422568
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa II	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Facility UTM or Lat/Long: UTMN: 3705134 UTME: 705030

5. Contact Name/Title: Todd Stewart, Project Manager Rio Mesa SEGF	Email Address: tstewart@brightsourceenergy.com	Phone/Fax Nos.: 510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Nighttime Preservation Boiler

7. Application is for: [X] New Construction [ ] Modification* [ ] Change of Owner*	For modification or change of owner: *Current Permit Number: _____

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. Distances (feet and direction to closest):

2400	Fenceline	19419	Residence	22000	Business	80000	School

10. General Nature of Business: Power Generation	11. Principal Product: Electricity

12. Facility Annual Throughput by Quarters (percent):

25 %	25 %	25 %	25 %
Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec

13. Facility Operating Hours:

16	7	52	5824
Hrs/Day	Days/Wk	Wks/Yr	Total Hrs/Yr

14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No

15. Signature of Responsible Official: Stephen Wiley	Official Title: Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official: Stephen Wiley	Phone Number: 510-899-8938	Date Signed: 10-6-11

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
EXTERNAL COMBUSTION APPLICATION, continued

16. INFORMATION ON EQUIPMENT:

[X] Boiler [ ] Dryer [ ] Furnace [ ] Heater [ ] Kiln [ ] Oven [ ] Other, specify: _____

Manufacturer: Rentech or equivalent

Model No.: TBD Serial No.: TBD

Maximum heat input rating (use Higher Heating Value): 15 MMBtu/hr MMBtu/hr or kW

Burner Manufacturer: TBD Burner Model No.: TBD

Number of burners: 1 Burner max heat input rating: 15 MMBtu/hr MMBtu/hr or kW

Percent excess air (or n/a): 13.90% Operating temps (C or F): n/a Av. n/a Max

Specify Primary Fuel (*attach fuel analysis for these fuels specifying HHV and sulfur content):

[X] Natural Gas [ ] LPG (Propane) [ ] CARB Diesel [ ] Coal* [ ] Petroleum Coke*

[ ] Digester Gas* [ ] Landfill Gas* [ ] Refinery Gas* [ ] Other,* specify: _____

Max hourly primary fuel usage: 14,706 Fuel units (ft^3, gal, etc.): scf/hr

If secondary fuel is proposed, specify: Not Applicable Max hourly usage: n/a

Feedstock type and max process rate (specify units): 10,000 lbs/hr steam

Unit Lat/Long or UTM Coordinates: UTME 705077 UTMN 3705162

Max annual hours: 4036 @ full load Exhaust Stack Height (feet): 35 Inside Diameter (inches): 18

17. EMISSION CONTROLS: Check all that apply:

[X] Low NOx Burner [ ] Oxygen Trim [X] Flue or Exhaust Gas Recirculation (FGR or EGR)

[ ] Oxidation Catalyst [ ] Selective Catalytic Reduction (SCR) [ ] Selective Non-Catalytic Reduction (SNCR)

[ ] Afterburner [ ] ESP [ ] Baghouse [ ] Other - Please specify: _____

18. MAX EMISSION RATES (CONTROLLED):

Pollutant	Concentration ppmvd or gr/dscf	Mass pounds/hour
Oxides of Nitrogen (NOx)	9 ppm @ 3% O2	0.2
Oxides of Sulfur (SOx)	0.0021 lbs/MMBtu	0.03
Carbon Monoxide (CO)	50 ppm @ 3% O2	0.6
Total Particulates (TSP or PM30)	0.005 lbs/MMBtu	0.1
Coarse Respirable Particulates (PM10)	0.005 lbs/MMBtu	0.1
Fine Respirable Particulates (PM2.5)	0.005 lbs/MMBtu	0.1
Total Organics (TOG)		
Volatile Organic Compounds (VOC, ROG or NMOG)	12.6 ppm @ 3% O2	0.1

19. DRYERS ONLY Check one:

[ ] Centrifugal [ ] Chip [ ] Fluidized Bed [ ] Rotary [ ] Spray [ ] Other, specify: _____

20. FURNACE ONLY Check one:

[ ] Annealing [ ] Burnoff [ ] Calcining [ ] Crucible [ ] Cupola [ ] Diffusion [ ] Electric [ ] Forge [ ] Pot

[ ] Holding [ ] Heat Treating [ ] Melting [ ] Reverbatory [ ] Rotary [ ] Sweating [ ] Oxide Growth

21. OVEN ONLY Check one:

[ ] Bakery [ ] Baking [ ] Curing [ ] Drying [ ] Fluidized Bed [ ] Stripping [ ] Solder Reflow

[ ] Roasting, specify type: _____ Firing Method: [ ] Direct [ ] Indirect

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Eldon Heaston
Executive Director

APPLICATION FOR INTERNAL COMBUSTION ENGINE (I.C.E.) ONLY

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar II, LLC	1a. Federal Tax ID No.: 35-2422568
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa II	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Facility UTM or Lat/Long: UTMN: 3705134 UTME: 705030

5. Contact Name/Title: Todd Stewart, Project Manager Rio Mesa SEGF	Email Address: tstewart@brightsourceenergy.com	Phone/Fax Nos.: 510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Emergency Generator Engine

7. Application is for: [X] New Construction [ ] Modification* [ ] Change of Owner*	For modification or change of owner: *Current Permit Number: _____

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. Distances (feet and direction to closest):
2400 Fenceline 19419 Residence 22000 Business 80000 School

10. General Nature of Business: Power Generation	11. Principal Product: Electricity

12. Facility Annual Throughput by Quarters (percent): 25 % Jan-Mar; 25 % Apr-Jun; 25 % Jul-Sep; 25 % Oct-Dec	13. Expected Operating Hours of IC Engine: 16 Hrs/Day; 7 Days/Wk; 52 Wks/Yr; 5824 Total Hrs/Yr

14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No

15. Signature of Responsible Official: Stephen Wiley	Official Title: Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official: Stephen Wiley	Phone Number: 510-899-8938	Date Signed: 10-6-11

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
I.C.E. APPLICATION, continued

16. INFORMATION ON I.C.E.:

Manufacturer: Caterpillar or equivalent

Model No.: Generator Set Model 2500 eKW Serial No.: TBD

Number of Cylinders: 16 Year of Manufacture: 2012 or later

Rating: 3633 BHP Speed: 1800 RPM

I.C.E. is? [X] New [ ] Existing Date Installed (MM/YYYY): TBD

Prime [ ] Standby [ ] Emergency [X] Portable (Yes or No)?: No

USEPA Family Name: EPA Tier 3 CARB Certification EO#: TBD

Is this engine included in a Demand Response plan?: Yes [ ] No [X]

Type of Fuel(s): Natural Gas [ ] Digester Gas [ ] Ethanol [ ] Landfill Gas [ ]
Propane [ ] CARB Diesel [X] Methanol [ ] Other: ____

Max fuel usage per hour: 175 Fuel units (ft^3, gal, etc.): gal/hr

Engine Lat/Long or UTM Coordinates: UTMN: 3705154 UTME: 704974

Exhaust Stack Height (feet): 10 Inside Diameter (inches): 18 Y/N: Vertical? Yes Capped? No

Is this I.C.E. (select all that apply):

Direct Injected? [X] After Cooled? [X]
Turbo Charged? [X] Inter Cooled? [ ]
Timing Retarded? [ ] Other - Please specify: ____

17. EMISSION RATES:

Pollutant	at Max.Load	Units	Origin of Emission Rate data: Manufacturer	or Source Test
Oxides of Nitrogen (NOx)	4.80	g/bhp-hr	X	
Oxides of Sulfur (SOx)	0.005	g/bhp-hr	X	
Carbon Monoxide (CO)	2.60	g/bhp-hr	X	
Particulates (PM10)	0.15	g/bhp-hr	X	
Total Hydrocarbons (VOC)	0.17	g/bhp-hr	X	

18. EMISSION CONTROL EQUIPMENT: Add on emission control equipment? [ ] Yes [X] No

If yes: Manufacturer: ____ Model No.: ____

Serial No.: ____ *CARB EO#: ____

Type: SCR: [ ] Particulate Trap*: [ ] Ammonia Injection: [ ] Water Injection: [ ]
Non-S CR: [ ] Exhaust Gas Recirc*: [ ] Oxidation Catalyst*: [ ]

Other - Please specify: ____

19. INFORMATION OF ITEM BEING POWERED: This I.C.E. is used to power:

Electrical Generator [X] Compressor [ ] Pump [ ]
Paint Spray Gun [ ] Conveyor or Drive [ ] Fire Pump [ ]

Other - Please specify: ____

Manufacturer: ____

Model No.: ____ Serial No.: ____

Type, Size or Rating: ____

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3. Facility or Business License Name (for equipment location): Rio Mesa II	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Facility UTM or Lat/Long: UTMN: 3705134 UTME: 705030

5. Contact Name/Title: Todd Stewart, Project Manager Rio Mesa SEGF	Email Address: tstewart@brightsourceenergy.com	Phone/Fax Nos.: 510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Emergency Firepump Engine

7. Application is for: [X] New Construction [ ] Modification* [ ] Change of Owner*	For modification or change of owner: *Current Permit Number: _____

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. Distances (feet and direction to closest):
2400 Fenceline 19419 Residence 22000 Business 80000 School

10. General Nature of Business: Power Generation	11. Principal Product: Electricity

12. Facility Annual Throughput by Quarters (percent): 25 % Jan-Mar; 25 % Apr-Jun; 25 % Jul-Sep; 25 % Oct-Dec	13. Expected Operating Hours of IC Engine: 16 Hrs/Day; 7 Days/Wk; 52 Wks/Yr; 5824 Total Hrs/Yr

14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No

15. Signature of Responsible Official: Stephen Wiley	Official Title: Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official: Stephen Wiley	Phone Number: 510-899-8938	Date Signed: 10-6-11

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
I.C.E. APPLICATION, continued

16. INFORMATION ON I.C.E.:

Manufacturer: Cummins or equivalent

Model No.: Fire Power Model CFP7E-F30 (or eq.) Serial No.: TBD

Number of Cylinders: 6 Year of Manufacture: 2012 or later

Rating: 200 BHP Speed: 2100 RPM

I.C.E. is? [X] New [ ] Existing Date Installed (MM/YYYY): TBD

Prime [ ] Standby [ ] Emergency [X] Portable (Yes or No)?: No

USEPA Family Name: EPA Tier 3 CARB Certification EO#: TBD

Is this engine included in a Demand Response plan?: Yes [ ] No [X]

Type of Fuel(s): Natural Gas [ ] Digester Gas [ ] Ethanol [ ] Landfill Gas [ ]
Propane [ ] CARB Diesel [X] Methanol [ ] Other:

Max fuel usage per hour: 12 Fuel units (ft^3, gal, etc.): gal/hr

Engine Lat/Long or UTM Coordinates: UTMN: 3705227 UTME: 704942

Exhaust Stack Height (feet): 10 Inside Diameter (inches): 4 Y/N: Vertical? Yes Capped? No

Is this I.C.E. (select all that apply):

Direct Injected? [X] After Cooled? [X]
Turbo Charged? [X] Inter Cooled? [ ]
Timing Retarded? [ ] Other - Please specify:

17. EMISSION RATES:

Pollutant	at Max.Load	Units	Origin of Emission Rate data: Manufacturer	or Source Test
Oxides of Nitrogen (NOx)	3.00	g/bhp-hr	X	
Oxides of Sulfur (SOx)	0.006	g/bhp-hr	X	
Carbon Monoxide (CO)	2.60	g/bhp-hr	X	
Particulates (PM10)	0.15	g/bhp-hr	X	
Total Hydrocarbons (VOC)	0.18	g/bhp-hr	X	

18. EMISSION CONTROL EQUIPMENT: Add on emission control equipment? [ ] Yes [X] No

If yes: Manufacturer: Model No.:
Serial No.: *CARB EO#:

Type: SCR: [ ] Particulate Trap*: [ ] Ammonia Injection: [ ] Water Injection: [ ]
Non-S CR: [ ] Exhaust Gas Recirc*: [ ] Oxidation Catalyst*: [ ]

Other - Please specify:

19. INFORMATION OF ITEM BEING POWERED: This I.C.E. is used to power:

Electrical Generator [ ] Compressor [ ] Pump [ ]
Paint Spray Gun [ ] Conveyor or Drive [ ] Fire Pump [X]

Other - Please specify:

Manufacturer:
Model No.: Serial No.:
Type, Size or Rating:

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
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Eldon Heaston
Executive Director

APPLICATION FOR INTERNAL COMBUSTION ENGINE (I.C.E.) ONLY

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar II, LLC	1a. Federal Tax ID No.: 35-2422568
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa II	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Facility UTM or Lat/Long: UTMN: 3705134 UTME: 705030

5. Contact Name/Title: Todd Stewart, Project Manager Rio Mesa SEGF	Email Address: tstewart@brightsourceenergy.com	Phone/Fax Nos.: 510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Common Area Emergency Generator Engine

7. Application is for: [X] New Construction [ ] Modification* [ ] Change of Owner*	For modification or change of owner: *Current Permit Number: _____

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. Distances (feet and direction to closest):

900	8859	15500	71000
Fenceline	Residence	Business	School

10. General Nature of Business: Power Generation	11. Principal Product: Electricity

12. Facility Annual Throughput by Quarters (percent):				13. Expected Operating Hours of IC Engine:			
25 %	25 %	25 %	25 %	16	7	52	5824
Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Hrs/Day	Days/Wk	Wks/Yr	Total Hrs/Yr

14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No

15. Signature of Responsible Official: Stephen Wiley	Official Title: Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official: Stephen Wiley	Phone Number: 510-899-8938	Date Signed: 10-6-11

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
I.C.E. APPLICATION, continued

16. INFORMATION ON I.C.E.:

Manufacturer: Caterpillar or equivalent

Model No.: Generator Set Model 250 eKW (or eq.) Serial No.: TBD

Number of Cylinders: 6 Year of Manufacture: 2012 or later

Rating: 398 BHP Speed: 1800 RPM

I.C.E. is? [X] New [ ] Existing Date Installed (MM/YYYY): TBD

Prime [ ] Standby [ ] Emergency [X] Portable (Yes or No)?: No

USEPA Family Name: EPA Tier 3 CARB Certification EO#: TBD

Is this engine included in a Demand Response plan?: Yes [ ] No [X]

Type of Fuel(s): Natural Gas [ ] Digester Gas [ ] Ethanol [ ] Landfill Gas [ ]
Propane [ ] CARB Diesel [X] Methanol [ ] Other: ____

Max fuel usage per hour: 20 Fuel units (ft^3, gal, etc.): gal/hr

Engine Lat/Long or UTM Coordinates: UTMN: 3705527 UTME: 708141

Exhaust Stack Height (feet): 10 Inside Diameter (inches): 8 Y/N: Vertical? Yes Capped? No

Is this I.C.E. (select all that apply):

Direct Injected? [X] After Cooled? [X]
Turbo Charged? [X] Inter Cooled? [ ]
Timing Retarded? [ ] Other - Please specify: ____

17. EMISSION RATES:

Pollutant	at Max.Load	Units	Origin of Emission Rate data: Manufacturer	or Source Test
Oxides of Nitrogen (NOx)	3.00	g/bhp-hr	X	
Oxides of Sulfur (SOx)	0.005	g/bhp-hr	X	
Carbon Monoxide (CO)	2.60	g/bhp-hr	X	
Particulates (PM10)	0.15	g/bhp-hr	X	
Total Hydrocarbons (VOC)	0.17	g/bhp-hr	X	

18. EMISSION CONTROL EQUIPMENT: Add on emission control equipment? [ ] Yes [X] No

If yes: Manufacturer: ____ Model No.: ____
Serial No.: ____ *CARB EO#: ____

Type: SCR: [ ] Particulate Trap*: [ ] Ammonia Injection: [ ] Water Injection: [ ]
Non-S CR: [ ] Exhaust Gas Recirc*: [ ] Oxidation Catalyst*: [ ]

Other - Please specify: ____

19. INFORMATION OF ITEM BEING POWERED: This I.C.E. is used to power:

Electrical Generator [X] Compressor [ ] Pump [ ]
Paint Spray Gun [ ] Conveyor or Drive [ ] Fire Pump [ ]

Other - Please specify: ____

Manufacturer: ____
Model No.: ____ Serial No.: ____
Type, Size or Rating: ____

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www.mdaqmd.ca.gov
Eldon Heaston
Executive Director

APPLICATION FOR INTERNAL COMBUSTION ENGINE (I.C.E.) ONLY

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar II, LLC		1a. Federal Tax ID No.: 35-2422568
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612		
3. Facility or Business License Name (for equipment location): Rio Mesa II		
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe		Facility UTM or Lat/Long: UTMN: 3705134 UTME: 705030
5. Contact Name/Title: Todd Stewart, Project Manager Rio Mesa SEGF	Email Address: tstewart@brightsourceenergy.com	Phone/Fax Nos.: 510-550-8908
6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment: Common Area Emergency Firepump Engine		
7. Application is for: [X] New Construction [ ] Modification* [ ] Change of Owner*	For modification or change of owner: *Current Permit Number: _____	
8. Type of Organization (check one): [ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency		
9. Distances (feet and direction to closest): 900 Fenceline 8859 Residence 15500 Business 71000 School		
10. General Nature of Business: Power Generation	11. Principal Product: Electricity	
12. Facility Annual Throughput by Quarters (percent): 25 % Jan-Mar 25 % Apr-Jun 25 % Jul-Sep 25 % Oct-Dec	13. Expected Operating Hours of IC Engine: 16 Hrs/Day 7 Days/Wk 52 Wks/Yr 5824 Total Hrs/Yr	
14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No		
15. Signature of Responsible Official: Stephen Wiley	Official Title: Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official: Stephen Wiley	Phone Number: 510-899-8938	Date Signed: 10-6-11

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
I.C.E. APPLICATION, continued

16. INFORMATION ON I.C.E.:

Manufacturer: Cummins or equivalent

Model No.: Fire Power Model CFP5E-F30 (or eq.) Serial No.: TBD

Number of Cylinders: 4 Year of Manufacture: 2012 or later

Rating: 125 BHP Speed: 2100 RPM

I.C.E. is? [X] New [ ] Existing Date Installed (MM/YYYY): TBD

Prime [ ] Standby [ ] Emergency [X] Portable (Yes or No)?: No

USEPA Family Name: EPA Tier 3 CARB Certification EO#: TBD

Is this engine included in a Demand Response plan?: Yes [ ] No [X]

Type of Fuel(s): Natural Gas [ ] Digester Gas [ ] Ethanol [ ] Landfill Gas [ ]
Propane [ ] CARB Diesel [X] Methanol [ ] Other: ____

Max fuel usage per hour: 8 Fuel units (ft^3, gal, etc.): gal/hr

Engine Lat/Long or UTM Coordinates: UTMN: 3705683 UTME: 708244

Exhaust Stack Height (feet): 10 Inside Diameter (inches): 4 Y/N: Vertical? Yes Capped? No

Is this I.C.E. (select all that apply):

Direct Injected? [X] After Cooled? [X]
Turbo Charged? [X] Inter Cooled? [ ]
Timing Retarded? [ ] Other - Please specify: ____

17. EMISSION RATES:

Pollutant	at Max.Load	Units	Origin of Emission Rate data: Manufacturer	or Source Test
Oxides of Nitrogen (NOx)	3.00	g/bhp-hr	X	
Oxides of Sulfur (SOx)	0.006	g/bhp-hr	X	
Carbon Monoxide (CO)	3.70	g/bhp-hr	X	
Particulates (PM10)	0.22	g/bhp-hr	X	
Total Hydrocarbons (VOC)	0.18	g/bhp-hr	X	

18. EMISSION CONTROL EQUIPMENT: Add on emission control equipment? [ ] Yes [X] No

If yes: Manufacturer: ____ Model No.: ____
Serial No.: ____ *CARB EO#: ____

Type: SCR: [ ] Particulate Trap*: [ ] Ammonia Injection: [ ] Water Injection: [ ]
Non-S CR: [ ] Exhaust Gas Recirc*: [ ] Oxidation Catalyst*: [ ]

Other - Please specify: ____

19. INFORMATION OF ITEM BEING POWERED: This I.C.E. is used to power:

Electrical Generator [ ] Compressor [ ] Pump [ ]
Paint Spray Gun [ ] Conveyor or Drive [ ] Fire Pump [X]

Other - Please specify: ____

Manufacturer: ____
Model No.: ____ Serial No.: ____
Type, Size or Rating: ____

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
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Eldon Heaston
Executive Director

APPLICATION FOR AUTHORITY TO CONSTRUCT AND PERMIT TO OPERATE

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar III, LLC	1a. Federal Tax ID No.: 36-4710176
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa III	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Location UTM or Lat/Long: UTMN: 3708032 UTME: 707115

5. Contact Name/Title: Todd Stewart, Project Manager Rio Mesa SEGF	Email Address: tstewart@brightsourceenergy.com	Phone/Fax Nos.: 510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Boilers, emergency generator engine, emergency firepump engine (see attached equipment forms)

Air Pollution Control Equipment, if any (note that most APCE require a separate application):
Not Applicable

7. Application is for: [X] New Construction [ ] Modification* [ ] Change of Owner*	For modification or change of owner: *Current Permit Number: Not Applicable

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. General Nature of Business: Power Generation	Principal Product: Electricity	SIC Code (if known): 4911

10. Distances (feet and direction to closest):
2500 Fenceline 13338 Residence 23780 Business 69000 School

11. Facility Annual Throughput by Quarters (percent): 25 % Jan-Mar; 25 % Apr-Jun; 25 % Jul-Sep; 25 % Oct-Dec	12. Expected Facility Operating Hours: 16 Hrs/Day; 7 Days/Wk; 52 Wks/Yr; 5,824 Total Hrs/Yr

13. Do you claim Confidentiality of Data (if yes, state nature of data on reverse in Remarks)? [ ] Yes [X] No

14. Signature of Responsible Official: Stephen Wiley	Official Title: Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official: Stephen Wiley	Phone Number: 510-899-8938	Date Signed: 10-6-11

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
GENERAL APPLICATION, continued

15. Stack Emissions Information:

Stack No.	Stack Height	Stack Diameter	Exhaust Temp	Exhaust Flow Rate	Exhaust Velocity
1	Please see individual equipment forms.				
2					
3					

(list additional stacks on a separate sheet)

Stack Height is the distance above ground level to discharge point (feet)
Stack Diameter is the diameter (or equivalent circular diameter) of discharge point (nearest tenth foot)
If using cross-sectional area (A in square feet), equivalent diameter is D = (1.273A)^0.5
Exhaust Temp in degrees F, actual or estimated to nearest 50 deg F
Exhaust Flow Rate at discharge point in actual cubic feet per minute (ACFM)
Exhaust Velocity in feet per second, design or measured

16. Remarks (basis for confidentiality of data, process description, modification description, etc.):

If you wish to specify process information as proprietary or confidential, space is provided for this purpose. The kinds and rates of emissions may not be held confidential; emissions are subject to public disclosure.

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Eldon Heaston
Executive Director

APPLICATION FOR EXTERNAL COMBUSTION ENGINE (BOILER, ETC.) ONLY

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar III, LLC	1a. Federal Tax ID No.: 36-4710176
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa III	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Facility UTM or Lat/Long: UTMN: 3708032 UTME: 707115

5. Contact Name/Title: Todd Stewart, Project Manager Rio Mesa SEGF	Email Address: tstewart@brightsourceenergy.com	Phone/Fax Nos.: 510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Auxiliary Boiler Number 1

7. Application is for: [X] New Construction [ ] Modification* [ ] Change of Owner*	For modification or change of owner: *Current Permit Number: _____

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. Distances (feet and direction to closest):
2500 Fenceline 13338 Residence 23780 Business 69000 School

10. General Nature of Business: Power Generation	11. Principal Product: Electricity

12. Facility Annual Throughput by Quarters (percent):				13. Facility Operating Hours:			
25 %	25 %	25 %	25 %	16	7	52	5824
Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Hrs/Day	Days/Wk	Wks/Yr	Total Hrs/Yr

14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No

15. Signature of Responsible Official: Stephen Wiley	Official Title: Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official: Stephen Wiley	Phone Number: 510-899-8938	Date Signed: 10-6-11

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Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
EXTERNAL COMBUSTION APPLICATION, continued

16. INFORMATION ON EQUIPMENT:

[X] Boiler [ ] Dryer [ ] Furnace [ ] Heater [ ] Kiln [ ] Oven [ ] Other, specify: _____

Manufacturer: Rentech or equivalent

Model No.: TBD Serial No.: TBD

Maximum heat input rating (use Higher Heating Value): 500 MMBtu/hr MMBtu/hr or kW

Burner Manufacturer: TBD Burner Model No.: TBD

Number of burners: 1 Burner max heat input rating: 500 MMBtu/hr MMBtu/hr or kW

Percent excess air (or n/a): 13.90% Operating temps (C or F): n/a Av. n/a Max

Specify Primary Fuel (*attach fuel analysis for these fuels specifying HHV and sulfur content):

[X] Natural Gas [ ] LPG (Propane) [ ] CARB Diesel [ ] Coal* [ ] Petroleum Coke*

[ ] Digester Gas* [ ] Landfill Gas* [ ] Refinery Gas* [ ] Other,* specify: _____

Max hourly primary fuel usage: 490,196 Fuel units (ft^3, gal, etc.): scf/hr

If secondary fuel is proposed, specify: Not Applicable Max hourly usage: n/a

Feedstock type and max process rate (specify units): 350,000 lbs/hr steam

Unit Lat/Long or UTM Coordinates: UTME 707241 UTMN 3708046

Max annual hours: 200 @ full load Exhaust Stack Height (feet): 135 Inside Diameter (inches): 100

17. EMISSION CONTROLS: Check all that apply:

[X] Low NOx Burner [ ] Oxygen Trim [X] Flue or Exhaust Gas Recirculation (FGR or EGR)

[ ] Oxidation Catalyst [ ] Selective Catalytic Reduction (SCR) [ ] Selective Non-Catalytic Reduction (SNCR)

[ ] Afterburner [ ] ESP [ ] Baghouse [ ] Other - Please specify: _____

18. MAX EMISSION RATES (CONTROLLED):

Pollutant	Concentration ppmvd or gr/dscf	Mass pounds/hour
Oxides of Nitrogen (NOx)	9 ppm @ 3% O2	5.5
Oxides of Sulfur (SOx)	0.0021 lbs/MMBtu	1.1
Carbon Monoxide (CO)	50 ppm @ 3% O2	18.3
Total Particulates (TSP or PM30)	0.005 lbs/MMBtu	2.5
Coarse Respirable Particulates (PM10)	0.005 lbs/MMBtu	2.5
Fine Respirable Particulates (PM2.5)	0.005 lbs/MMBtu	2.5
Total Organics (TOG)		
Volatile Organic Compounds (VOC, ROG or NMOG)	12.6 ppm @ 3% O2	2.7

19. DRYERS ONLY Check one:

[ ] Centrifugal [ ] Chip [ ] Fluidized Bed [ ] Rotary [ ] Spray [ ] Other, specify: _____

20. FURNACE ONLY Check one:

[ ] Annealing [ ] Burnoff [ ] Calcining [ ] Crucible [ ] Cupola [ ] Diffusion [ ] Electric [ ] Forge [ ] Pot

[ ] Holding [ ] Heat Treating [ ] Melting [ ] Reverbatory [ ] Rotary [ ] Sweating [ ] Oxide Growth

21. OVEN ONLY Check one:

[ ] Bakery [ ] Baking [ ] Curing [ ] Drying [ ] Fluidized Bed [ ] Stripping [ ] Solder Reflow

[ ] Roasting, specify type: _____ Firing Method: [ ] Direct [ ] Indirect

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Eldon Heaston
Executive Director

APPLICATION FOR EXTERNAL COMBUSTION ENGINE (BOILER, ETC.) ONLY

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar III, LLC	1a. Federal Tax ID No.: 36-4710176
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa III	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Facility UTM or Lat/Long: UTMN: 3708032 UTME: 707115

5. Contact Name/Title: Todd Stewart, Project Manager Rio Mesa SEGF	Email Address: tstewart@brightsourceenergy.com	Phone/Fax Nos.: 510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Auxiliary Boiler Number 2

7. Application is for: [X] New Construction [ ] Modification* [ ] Change of Owner*	For modification or change of owner: *Current Permit Number: _____

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. Distances (feet and direction to closest):

2500	13338	23780	69000
Fenceline	Residence	Business	School

10. General Nature of Business: Power Generation	11. Principal Product: Electricity

12. Facility Annual Throughput by Quarters (percent):

25 %	25 %	25 %	25 %
Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec

13. Facility Operating Hours:

16	7	52	5824
Hrs/Day	Days/Wk	Wks/Yr	Total Hrs/Yr

14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No

15. Signature of Responsible Official: Stephen Wiley	Official Title: Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official: Stephen Wiley	Phone Number: 510-899-8938	Date Signed: 10-6-11

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
EXTERNAL COMBUSTION APPLICATION, continued

16. INFORMATION ON EQUIPMENT:

[X] Boiler [ ] Dryer [ ] Furnace [ ] Heater [ ] Kiln [ ] Oven [ ] Other, specify: _____

Manufacturer: Rentech or equivalent

Model No.: TBD Serial No.: TBD

Maximum heat input rating (use Higher Heating Value): 500 MMBtu/hr MMBtu/hr or kW

Burner Manufacturer: TBD Burner Model No.: TBD

Number of burners: 1 Burner max heat input rating: 500 MMBtu/hr MMBtu/hr or kW

Percent excess air (or n/a): 13.90% Operating temps (C or F): n/a Av. n/a Max

Specify Primary Fuel (*attach fuel analysis for these fuels specifying HHV and sulfur content):

[X] Natural Gas [ ] LPG (Propane) [ ] CARB Diesel [ ] Coal* [ ] Petroleum Coke*

[ ] Digester Gas* [ ] Landfill Gas* [ ] Refinery Gas* [ ] Other,* specify: _____

Max hourly primary fuel usage: 490,196 Fuel units (ft^3, gal, etc.): scf/hr

If secondary fuel is proposed, specify: Not Applicable Max hourly usage: n/a

Feedstock type and max process rate (specify units): 350,000 lbs/hr steam

Unit Lat/Long or UTM Coordinates: UTME 707273 UTMN 3708033

Max annual hours: 200 @ full load Exhaust Stack Height (feet): 135 Inside Diameter (inches): 100

17. EMISSION CONTROLS: Check all that apply:

[X] Low NOx Burner [ ] Oxygen Trim [X] Flue or Exhaust Gas Recirculation (FGR or EGR)

[ ] Oxidation Catalyst [ ] Selective Catalytic Reduction (SCR) [ ] Selective Non-Catalytic Reduction (SNCR)

[ ] Afterburner [ ] ESP [ ] Baghouse [ ] Other - Please specify: _____

18. MAX EMISSION RATES (CONTROLLED):

Pollutant	Concentration ppmvd or gr/dscf	Mass pounds/hour
Oxides of Nitrogen (NOx)	9 ppm @ 3% O2	5.5
Oxides of Sulfur (SOx)	0.0021 lbs/MMBtu	1.1
Carbon Monoxide (CO)	50 ppm @ 3% O2	18.3
Total Particulates (TSP or PM30)	0.005 lbs/MMBtu	2.5
Coarse Respirable Particulates (PM10)	0.005 lbs/MMBtu	2.5
Fine Respirable Particulates (PM2.5)	0.005 lbs/MMBtu	2.5
Total Organics (TOG)		
Volatile Organic Compounds (VOC, ROG or NMOG)	12.6 ppm @ 3% O2	2.7

19. DRYERS ONLY Check one:

[ ] Centrifugal [ ] Chip [ ] Fluidized Bed [ ] Rotary [ ] Spray [ ] Other, specify: _____

20. FURNACE ONLY Check one:

[ ] Annealing [ ] Burnoff [ ] Calcining [ ] Crucible [ ] Cupola [ ] Diffusion [ ] Electric [ ] Forge [ ] Pot

[ ] Holding [ ] Heat Treating [ ] Melting [ ] Reverbatory [ ] Rotary [ ] Sweating [ ] Oxide Growth

21. OVEN ONLY Check one:

[ ] Bakery [ ] Baking [ ] Curing [ ] Drying [ ] Fluidized Bed [ ] Stripping [ ] Solder Reflow

[ ] Roasting, specify type: _____ Firing Method: [ ] Direct [ ] Indirect

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
14306 Park Avenue, Victorville, CA 92392-2310
(760) 245-1661 Facsimile: (760) 245-2022

www.mdaqmd.ca.gov
Eldon Heaston
Executive Director

APPLICATION FOR EXTERNAL COMBUSTION ENGINE (BOILER, ETC.) ONLY

Page 1 of 2: please type or print

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar III, LLC	1a. Federal Tax ID No.: 36-4710176
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa III	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Facility UTM or Lat/Long: UTMN: 3708032 UTME: 707115

5. Contact Name/Title:	Email Address:	Phone/Fax Nos.:
Todd Stewart, Project Manager Rio Mesa SEGF	tstewart@brightsourceenergy.com	510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Auxiliary Boiler Number 3

7. Application is for:	For modification or change of owner:
[X] New Construction [ ] Modification* [ ] Change of Owner*	*Current Permit Number: _____

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. Distances (feet and direction to closest):
2500 Fenceline 13338 Residence 23780 Business 69000 School

10. General Nature of Business:	11. Principal Product:
Power Generation	Electricity

12. Facility Annual Throughput by Quarters (percent):				13. Facility Operating Hours:			
25 %	25 %	25 %	25 %	16	7	52	5824
Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Hrs/Day	Days/Wk	Wks/Yr	Total Hrs/Yr

14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No

15. Signature of Responsible Official:	Official Title:	
Stephen Wiley	Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official:	Phone Number:	Date Signed:
Stephen Wiley	510-899-8938	10-6-11

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
EXTERNAL COMBUSTION APPLICATION, continued

16. INFORMATION ON EQUIPMENT:

[X] Boiler [ ] Dryer [ ] Furnace [ ] Heater [ ] Kiln [ ] Oven [ ] Other, specify: _____

Manufacturer: Rentech or equivalent

Model No.: TBD Serial No.: TBD

Maximum heat input rating (use Higher Heating Value): 500 MMBtu/hr MMBtu/hr or kW

Burner Manufacturer: TBD Burner Model No.: TBD

Number of burners: 1 Burner max heat input rating: 500 MMBtu/hr MMBtu/hr or kW

Percent excess air (or n/a): 13.90% Operating temps (C or F): n/a Av. n/a Max

Specify Primary Fuel (*attach fuel analysis for these fuels specifying HHV and sulfur content):

[X] Natural Gas [ ] LPG (Propane) [ ] CARB Diesel [ ] Coal* [ ] Petroleum Coke*

[ ] Digester Gas* [ ] Landfill Gas* [ ] Refinery Gas* [ ] Other,* specify: _____

Max hourly primary fuel usage: 490,196 Fuel units (ft^3, gal, etc.): scf/hr

If secondary fuel is proposed, specify: Not Applicable Max hourly usage: n/a

Feedstock type and max process rate (specify units): 350,000 lbs/hr steam

Unit Lat/Long or UTM Coordinates: UTME 707214 UTMN 3707993

Max annual hours: 200 @ full load Exhaust Stack Height (feet): 135 Inside Diameter (inches): 100

17. EMISSION CONTROLS: Check all that apply:

[X] Low NOx Burner [ ] Oxygen Trim [X] Flue or Exhaust Gas Recirculation (FGR or EGR)

[ ] Oxidation Catalyst [ ] Selective Catalytic Reduction (SCR) [ ] Selective Non-Catalytic Reduction (SNCR)

[ ] Afterburner [ ] ESP [ ] Baghouse [ ] Other - Please specify: _____

18. MAX EMISSION RATES (CONTROLLED):

Pollutant	Concentration ppmvd or gr/dscf	Mass pounds/hour
Oxides of Nitrogen (NOx)	9 ppm @ 3% O2	5.5
Oxides of Sulfur (SOx)	0.0021 lbs/MMBtu	1.1
Carbon Monoxide (CO)	50 ppm @ 3% O2	18.3
Total Particulates (TSP or PM30)	0.005 lbs/MMBtu	2.5
Coarse Respirable Particulates (PM10)	0.005 lbs/MMBtu	2.5
Fine Respirable Particulates (PM2.5)	0.005 lbs/MMBtu	2.5
Total Organics (TOG)		
Volatile Organic Compounds (VOC, ROG or NMOG)	12.6 ppm @ 3% O2	2.7

19. DRYERS ONLY Check one:

[ ] Centrifugal [ ] Chip [ ] Fluidized Bed [ ] Rotary [ ] Spray [ ] Other, specify: _____

20. FURNACE ONLY Check one:

[ ] Annealing [ ] Burnoff [ ] Calcining [ ] Crucible [ ] Cupola [ ] Diffusion [ ] Electric [ ] Forge [ ] Pot

[ ] Holding [ ] Heat Treating [ ] Melting [ ] Reverbatory [ ] Rotary [ ] Sweating [ ] Oxide Growth

21. OVEN ONLY Check one:

[ ] Bakery [ ] Baking [ ] Curing [ ] Drying [ ] Fluidized Bed [ ] Stripping [ ] Solder Reflow

[ ] Roasting, specify type: _____ Firing Method: [ ] Direct [ ] Indirect

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Eldon Heaston
Executive Director

APPLICATION FOR EXTERNAL COMBUSTION ENGINE (BOILER, ETC.) ONLY

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar III, LLC	1a. Federal Tax ID No.: 36-4710176
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa III	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Facility UTM or Lat/Long: UTMN: 3708032 UTME: 707115

5. Contact Name/Title: Todd Stewart, Project Manager Rio Mesa SEGF	Email Address: tstewart@brightsourceenergy.com	Phone/Fax Nos.: 510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Startup Boiler

7. Application is for: [X] New Construction [ ] Modification* [ ] Change of Owner*	For modification or change of owner: *Current Permit Number: _____

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. Distances (feet and direction to closest):
2500 Fenceline 13338 Residence 23780 Business 69000 School

10. General Nature of Business: Power Generation	11. Principal Product: Electricity
12. Facility Annual Throughput by Quarters (percent): 25 % Jan-Mar; 25 % Apr-Jun; 25 % Jul-Sep; 25 % Oct-Dec	13. Facility Operating Hours: 16 Hrs/Day; 7 Days/Wk; 52 Wks/Yr; 5824 Total Hrs/Yr

14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No

15. Signature of Responsible Official: Stephen Wiley	Official Title: Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official: Stephen Wiley	Phone Number: 510-899-8938	Date Signed: 10-6-11

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
EXTERNAL COMBUSTION APPLICATION, continued

16. INFORMATION ON EQUIPMENT:

[X] Boiler [ ] Dryer [ ] Furnace [ ] Heater [ ] Kiln [ ] Oven [ ] Other, specify: _____

Manufacturer: Rentech or equivalent

Model No.: TBD Serial No.: TBD

Maximum heat input rating (use Higher Heating Value): 249 MMBtu/hr MMBtu/hr or kW

Burner Manufacturer: TBD Burner Model No.: TBD

Number of burners: 1 Burner max heat input rating: 249 MMBtu/hr MMBtu/hr or kW

Percent excess air (or n/a): 13.90% Operating temps (C or F): n/a Av. n/a Max

Specify Primary Fuel (*attach fuel analysis for these fuels specifying HHV and sulfur content):

[X] Natural Gas [ ] LPG (Propane) [ ] CARB Diesel [ ] Coal* [ ] Petroleum Coke*

[ ] Digester Gas* [ ] Landfill Gas* [ ] Refinery Gas* [ ] Other,* specify: _____

Max hourly primary fuel usage: 244,118 Fuel units (ft^3, gal, etc.): scf/hr

If secondary fuel is proposed, specify: Not Applicable Max hourly usage: n/a

Feedstock type and max process rate (specify units): 185,000 lbs/hr steam

Unit Lat/Long or UTM Coordinates: UTME 707209 UTMN 3708059

Max annual hours: 800 @ full load Exhaust Stack Height (feet): 135 Inside Diameter (inches): 66

17. EMISSION CONTROLS: Check all that apply:

[X] Low NOx Burner [ ] Oxygen Trim [X] Flue or Exhaust Gas Recirculation (FGR or EGR)

[ ] Oxidation Catalyst [ ] Selective Catalytic Reduction (SCR) [ ] Selective Non-Catalytic Reduction (SNCR)

[ ] Afterburner [ ] ESP [ ] Baghouse [ ] Other - Please specify: _____

18. MAX EMISSION RATES (CONTROLLED):

Pollutant	Concentration ppmvd or gr/dscf	Mass pounds/hour
Oxides of Nitrogen (NOx)	9 ppm @ 3% O2	2.7
Oxides of Sulfur (SOx)	0.0021 lbs/MMBtu	0.5
Carbon Monoxide (CO)	25 ppm @ 3% O2	4.5
Total Particulates (TSP or PM30)	0.005 lbs/MMBtu	1.3
Coarse Respirable Particulates (PM10)	0.005 lbs/MMBtu	1.3
Fine Respirable Particulates (PM2.5)	0.005 lbs/MMBtu	1.3
Total Organics (TOG)		
Volatile Organic Compounds (VOC, ROG or NMOG)	12.6 ppm @ 3% O2	1.3

19. DRYERS ONLY Check one:

[ ] Centrifugal [ ] Chip [ ] Fluidized Bed [ ] Rotary [ ] Spray [ ] Other, specify: _____

20. FURNACE ONLY Check one:

[ ] Annealing [ ] Burnoff [ ] Calcining [ ] Crucible [ ] Cupola [ ] Diffusion [ ] Electric [ ] Forge [ ] Pot

[ ] Holding [ ] Heat Treating [ ] Melting [ ] Reverbatory [ ] Rotary [ ] Sweating [ ] Oxide Growth

21. OVEN ONLY Check one:

[ ] Bakery [ ] Baking [ ] Curing [ ] Drying [ ] Fluidized Bed [ ] Stripping [ ] Solder Reflow

[ ] Roasting, specify type: _____ Firing Method: [ ] Direct [ ] Indirect

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
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Eldon Heaston
Executive Director

APPLICATION FOR EXTERNAL COMBUSTION ENGINE (BOILER, ETC.) ONLY

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar III, LLC	1a. Federal Tax ID No.: 36-4710176
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa III	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Facility UTM or Lat/Long: UTMN: 3708032 UTME: 707115

5. Contact Name/Title:	Email Address:	Phone/Fax Nos.:
Todd Stewart, Project Manager Rio Mesa SEGF	tstewart@brightsourceenergy.com	510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Nighttime Preservation Boiler

7. Application is for:
[X] New Construction [ ] Modification* [ ] Change of Owner*

For modification or change of owner:
*Current Permit Number: _____

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. Distances (feet and direction to closest):
2500 Fenceline 13338 Residence 23780 Business 69000 School

10. General Nature of Business:	11. Principal Product:
Power Generation	Electricity

12. Facility Annual Throughput by Quarters (percent):

Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
25 %	25 %	25 %	25 %

13. Facility Operating Hours:

Hrs/Day	Days/Wk	Wks/Yr	Total Hrs/Yr
16	7	52	5824

14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No

15. Signature of Responsible Official:	Official Title:	
Stephen Wiley	Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official:	Phone Number:	Date Signed:
Stephen Wiley	510-899-8938	10-6-11

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
EXTERNAL COMBUSTION APPLICATION, continued

16. INFORMATION ON EQUIPMENT:

[X] Boiler [ ] Dryer [ ] Furnace [ ] Heater [ ] Kiln [ ] Oven [ ] Other, specify: _____

Manufacturer: Rentech or equivalent

Model No.: TBD Serial No.: TBD

Maximum heat input rating (use Higher Heating Value): 15 MMBtu/hr MMBtu/hr or kW

Burner Manufacturer: TBD Burner Model No.: TBD

Number of burners: 1 Burner max heat input rating: 15 MMBtu/hr MMBtu/hr or kW

Percent excess air (or n/a): 13.90% Operating temps (C or F): n/a Av. n/a Max

Specify Primary Fuel (*attach fuel analysis for these fuels specifying HHV and sulfur content):

[X] Natural Gas [ ] LPG (Propane) [ ] CARB Diesel [ ] Coal* [ ] Petroleum Coke*

[ ] Digester Gas* [ ] Landfill Gas* [ ] Refinery Gas* [ ] Other,* specify: _____

Max hourly primary fuel usage: 14,706 Fuel units (ft^3, gal, etc.): scf/hr

If secondary fuel is proposed, specify: Not Applicable Max hourly usage: n/a

Feedstock type and max process rate (specify units): 10,000 lbs/hr steam

Unit Lat/Long or UTM Coordinates: UTME 707173 UTMN 3708056

Max annual hours: 4036 @ full load Exhaust Stack Height (feet): 35 Inside Diameter (inches): 18

17. EMISSION CONTROLS: Check all that apply:

[X] Low NOx Burner [ ] Oxygen Trim [X] Flue or Exhaust Gas Recirculation (FGR or EGR)

[ ] Oxidation Catalyst [ ] Selective Catalytic Reduction (SCR) [ ] Selective Non-Catalytic Reduction (SNCR)

[ ] Afterburner [ ] ESP [ ] Baghouse [ ] Other - Please specify: _____

18. MAX EMISSION RATES (CONTROLLED):

Pollutant	Concentration ppmvd or gr/dscf	Mass pounds/hour
Oxides of Nitrogen (NOx)	9 ppm @ 3% O2	0.2
Oxides of Sulfur (SOx)	0.0021 lbs/MMBtu	0.03
Carbon Monoxide (CO)	50 ppm @ 3% O2	0.6
Total Particulates (TSP or PM30)	0.005 lbs/MMBtu	0.1
Coarse Respirable Particulates (PM10)	0.005 lbs/MMBtu	0.1
Fine Respirable Particulates (PM2.5)	0.005 lbs/MMBtu	0.1
Total Organics (TOG)		
Volatile Organic Compounds (VOC, ROG or NMOG)	12.6 ppm @ 3% O2	0.1

19. DRYERS ONLY Check one:

[ ] Centrifugal [ ] Chip [ ] Fluidized Bed [ ] Rotary [ ] Spray [ ] Other, specify: _____

20. FURNACE ONLY Check one:

[ ] Annealing [ ] Burnoff [ ] Calcining [ ] Crucible [ ] Cupola [ ] Diffusion [ ] Electric [ ] Forge [ ] Pot

[ ] Holding [ ] Heat Treating [ ] Melting [ ] Reverbatory [ ] Rotary [ ] Sweating [ ] Oxide Growth

21. OVEN ONLY Check one:

[ ] Bakery [ ] Baking [ ] Curing [ ] Drying [ ] Fluidized Bed [ ] Stripping [ ] Solder Reflow

[ ] Roasting, specify type: _____ Firing Method: [ ] Direct [ ] Indirect

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
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Eldon Heaston
Executive Director

APPLICATION FOR INTERNAL COMBUSTION ENGINE (I.C.E.) ONLY

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar III, LLC	1a. Federal Tax ID No.: 36-4710176
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa III	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Facility UTM or Lat/Long: UTMN: 3708032 UTME: 707115

5. Contact Name/Title: Todd Stewart, Project Manager Rio Mesa SEGF	Email Address: tstewart@brightsourceenergy.com	Phone/Fax Nos.: 510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Emergency Generator Engine

7. Application is for: [X] New Construction [ ] Modification* [ ] Change of Owner*	For modification or change of owner: *Current Permit Number: _____

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. Distances (feet and direction to closest):
2500 Fenceline 13338 Residence 23780 Business 69000 School

10. General Nature of Business: Power Generation	11. Principal Product: Electricity

12. Facility Annual Throughput by Quarters (percent):				13. Expected Operating Hours of IC Engine:			
25 %	25 %	25 %	25 %	16	7	52	5824
Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Hrs/Day	Days/Wk	Wks/Yr	Total Hrs/Yr

14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No

15. Signature of Responsible Official: Stephen Wiley	Official Title: Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official: Stephen Wiley	Phone Number: 510-899-8938	Date Signed: 10-6-4

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
I.C.E. APPLICATION, continued

16. INFORMATION ON I.C.E.:

Manufacturer: Caterpillar or equivalent

Model No.: Generator Set Model 2500 eKW Serial No.: TBD

Number of Cylinders: 16 Year of Manufacture: 2012 or later

Rating: 3633 BHP Speed: 1800 RPM

I.C.E. is? [X] New [ ] Existing Date Installed (MM/YYYY): TBD

Prime [ ] Standby [ ] Emergency [X] Portable (Yes or No)?: No

USEPA Family Name: EPA Tier 3 CARB Certification EO#: TBD

Is this engine included in a Demand Response plan?: Yes [ ] No [X]

Type of Fuel(s): Natural Gas [ ] Digester Gas [ ] Ethanol [ ] Landfill Gas [ ]
Propane [ ] CARB Diesel [X] Methanol [ ] Other:

Max fuel usage per hour: 175 Fuel units (ft^3, gal, etc.): gal/hr

Engine Lat/Long or UTM Coordinates: UTMN: 3708054 UTME: 707070

Exhaust Stack Height (feet): 10 Inside Diameter (inches): 18 Y/N: Vertical? Yes Capped? No

Is this I.C.E. (select all that apply):

Direct Injected? [X] After Cooled? [X]
Turbo Charged? [X] Inter Cooled? [ ]
Timing Retarded? [ ] Other - Please specify:

17. EMISSION RATES:

Pollutant	at Max.Load	Units	Origin of Emission Rate data: Manufacturer	or Source Test
Oxides of Nitrogen (NOx)	4.80	g/bhp-hr	X	
Oxides of Sulfur (SOx)	0.005	g/bhp-hr	X	
Carbon Monoxide (CO)	2.60	g/bhp-hr	X	
Particulates (PM10)	0.15	g/bhp-hr	X	
Total Hydrocarbons (VOC)	0.17	g/bhp-hr	X	

18. EMISSION CONTROL EQUIPMENT: Add on emission control equipment? [ ] Yes [X] No

If yes: Manufacturer: Model No.:
Serial No.: *CARB EO#:

Type: SCR: [ ] Particulate Trap*: [ ] Ammonia Injection: [ ] Water Injection: [ ]
Non-S CR: [ ] Exhaust Gas Recirc*: [ ] Oxidation Catalyst*: [ ]

Other - Please specify:

19. INFORMATION OF ITEM BEING POWERED: This I.C.E. is used to power:

Electrical Generator [X] Compressor [ ] Pump [ ]
Paint Spray Gun [ ] Conveyor or Drive [ ] Fire Pump [ ]

Other - Please specify:

Manufacturer:
Model No.: Serial No.:
Type, Size or Rating:

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Executive Director

APPLICATION FOR INTERNAL COMBUSTION ENGINE (I.C.E.) ONLY

REMIT $231.00 WITH THIS DOCUMENT ($132.00 FOR CHANGE OF OWNER)

1. Permit To Be Issued To (company name to receive permit): Rio Mesa Solar III, LLC	1a. Federal Tax ID No.: 36-4710176
2. Mailing/Billing Address (for above company name): 1999 Harrison Street, Suite 2150, Oakland, CA 94612	
3. Facility or Business License Name (for equipment location): Rio Mesa III	
4. Facility Address - Location of Equipment (if same as for company, enter "Same"): Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe	Facility UTM or Lat/Long: UTMN: 3708032 UTME: 707115

5. Contact Name/Title: Todd Stewart, Project Manager Rio Mesa SEGF	Email Address: tstewart@brightsourceenergy.com	Phone/Fax Nos.: 510-550-8908

6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:
Emergency Firepump Engine

7. Application is for: [X] New Construction [ ] Modification* [ ] Change of Owner*	For modification or change of owner: *Current Permit Number: _____

8. Type of Organization (check one):
[ ] Individual Owner [ ] Partnership [X] Corporation [ ] Utility [ ] Local Agency [ ] State Agency [ ] Federal Agency

9. Distances (feet and direction to closest):
2500 Fenceline 13338 Residence 23780 Business 69000 School

10. General Nature of Business: Power Generation	11. Principal Product: Electricity
12. Facility Annual Throughput by Quarters (percent): 25 % Jan-Mar; 25 % Apr-Jun; 25 % Jul-Sep; 25 % Oct-Dec	13. Expected Operating Hours of IC Engine: 16 Hrs/Day; 7 Days/Wk; 52 Wks/Yr; 5824 Total Hrs/Yr

14. Do you claim Confidentiality of Data (if yes, state nature of data in attachment)? [ ] Yes [X] No

15. Signature of Responsible Official: Stephen Wiley	Official Title: Senior Vice President U.S. Project Development	
Typed or Printed Name of Responsible Official: Stephen Wiley	Phone Number: 510-899-8938	Date Signed: 10-6-11

- For District Use Only -

Application Number:	*Invoice Number:*	*Permit Number:*	*Company/Facility Number:*

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT
I.C.E. APPLICATION, continued

16. INFORMATION ON I.C.E.:

Manufacturer: Cummins or equivalent

Model No.: Fire Power Model CFP7E-F30 (or eq.) Serial No.: TBD

Number of Cylinders: 6 Year of Manufacture: 2012 or later

Rating: 200 BHP Speed: 2100 RPM

I.C.E. is? [X] New [ ] Existing Date Installed (MM/YYYY): TBD

Prime [ ] Standby [ ] Emergency [X] Portable (Yes or No)?: No

USEPA Family Name: EPA Tier 3 CARB Certification EO#: TBD

Is this engine included in a Demand Response plan?: Yes [ ] No [X]

Type of Fuel(s): Natural Gas [ ] Digester Gas [ ] Ethanol [ ] Landfill Gas [ ]
Propane [ ] CARB Diesel [X] Methanol [ ] Other: ____

Max fuel usage per hour: 12 Fuel units (ft^3, gal, etc.): gal/hr

Engine Lat/Long or UTM Coordinates: UTMN: 3708130 UTME: 707043

Exhaust Stack Height (feet): 10 Inside Diameter (inches): 4 Y/N: Vertical? Yes Capped? No

Is this I.C.E. (select all that apply):

Direct Injected? [X] After Cooled? [X]
Turbo Charged? [X] Inter Cooled? [ ]
Timing Retarded? [ ] Other - Please specify: ____

17. EMISSION RATES:

Pollutant	at Max.Load	Units	Origin of Emission Rate data: Manufacturer	or Source Test
Oxides of Nitrogen (NOx)	3.00	g/bhp-hr	X	
Oxides of Sulfur (SOx)	0.006	g/bhp-hr	X	
Carbon Monoxide (CO)	2.60	g/bhp-hr	X	
Particulates (PM10)	0.15	g/bhp-hr	X	
Total Hydrocarbons (VOC)	0.18	g/bhp-hr	X	

18. EMISSION CONTROL EQUIPMENT: Add on emission control equipment? [ ] Yes [X] No

If yes: Manufacturer: ____ Model No.: ____

Serial No.: ____ *CARB EO#: ____

Type: SCR: [ ] Particulate Trap*: [ ] Ammonia Injection: [ ] Water Injection: [ ]
Non-SCR: [ ] Exhaust Gas Recirc*: [ ] Oxidation Catalyst*: [ ]

Other - Please specify: ____

19. INFORMATION OF ITEM BEING POWERED: This I.C.E. is used to power:

Electrical Generator [ ] Compressor [ ] Pump [ ]
Paint Spray Gun [ ] Conveyor or Drive [ ] Fire Pump [X]

Other - Please specify: ____

Manufacturer: ____

Model No.: ____ Serial No.: ____

Type, Size or Rating: ____

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Mojave Desert Air Quality Management District
for a
Determination of Compliance and Authority to Construct

Rio Mesa Solar Electric Generating Facility

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PROJECT DESCRIPTION

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SECTION 2 PROJECT DESCRIPTION

2.1 INTRODUCTION

2.1.1 Application for Construction

This Application for Certification (AFC) for the Rio Mesa Solar Electric Generating Facility (Rio Mesa SEGF or Project) has been prepared in accordance with the California Energy Commission's (CEC) Power Plant Site Certification Regulations (CEC-140-2008-001-REV1, current as of July 2008). In addition, this AFC includes elements necessary for the United States (U.S.) Bureau of Land Management (BLM) to permit the Project through the National Environmental Policy Act (NEPA). The "Applicant" for purposes of this AFC comprises Rio Mesa Solar I, LLC, Rio Mesa Solar II, LLC, and Rio Mesa Solar III, LLC, owners of the three separate solar plants and certain shared facilities being proposed. These three Delaware limited liability companies will hold equal one-third shares in the ownership of shared facilities and will separately own their respective plants. They are wholly owned by Rio Mesa Solar Holdings, LLC (a Delaware limited liability company) which is in turn wholly owned by BrightSource Energy, Inc. (BrightSource), a Delaware corporation and the ultimate parent company. The Applicant will use BrightSource's solar thermal technology for the Rio Mesa SEGF.

Consistent with the CEC's past practice, the Applicant requests that the final Orders of Approval for the Rio Mesa SEGF AFC recognize that each plant will be independently owned and operated,[1] and that during the construction and/or operation phase, the Conditions of Certification shall apply severally and individually to the respective Rio Mesa Solar I, LLC, Rio Mesa Solar II, LLC and Rio Mesa Solar III, LLC plants, such that non-compliance of one plant shall not be deemed non-compliance by another plant

2.1.2 Location and Jurisdiction

The proposed project site consist of three plants is situated on the Palo Verde Mesa in Riverside County, California, 13 miles southwest of Blythe, and is located partially on private land and partially on public land administered by BLM. (see Figure 2-1, Composite Map; all figures are located at the end of this section, see also figures 5.13-1a and 5.6-2 for maps showing settled areas, parks, recreational areas and wilderness areas).

The first plant, a 250 megawatt (MW) (nominal) facility known as Rio Mesa I, will be constructed at the south end of the project and owned by Rio Mesa Solar I, LLC. The second plant, another 250 MW (nominal) facility known as Rio Mesa II, will be located in the central portion of the project site and owned by Rio Mesa Solar II, LLC. Rio Mesa III, a third 250 MW (nominal) facility, will be constructed in the northern portion of the project site and owned by Rio Mesa Solar III, LLC.

A Form SF-299 right-of-way (ROW) grant application for use of the BLM land was submitted by Rio Mesa Solar III, LLC to the BLM Desert District office in Moreno Valley, California on July 8, 2011. The project site has been previously disturbed by military training operations during World War II, and

[1] See the Orders of Approval for the Ivanpah Solar Electric Generating System (07-AFC-5), Document CEC-800-2010-004 CMF.

investigative activities resulting from the proposed SunDesert Nuclear Power Plant by San Diego Gas and Electric (SDG&E) in the 1970s. Additionally, existing transmission lines traverse the project site.

The legal description of the land administered by BLM on which a portion of the Rio Mesa SEGF will be located is:

> *Portions of Sections 2, 3, 10, 11, 14, and 15, Township 08 South, Range 21 East, San Bernardino Meridian, Riverside County, California.*

The legal description of the land administered by BLM on which the generator tie-line (gen-tie line) will be located is:

> *Portions of Sections 7, 8, 9, 15, 16, 17, 22, 23, 25, 26, and 35, Township 07 South, Range 21 East, San Bernardino Meridian, Riverside County, California.*

The legal description of the private lands under lease from MWD on which the balance of the Rio Mesa SEGF facility will be located is:

> *All of Section 28 and portions of Sections 15, 16, 20, 21, 22, 23, 27, 29, 33, and 34, Township 08 South, Range 21 East, San Bernardino Meridian, Riverside County, California.*

Four additional features, consisting of linear corridors used for site access and electrical service lines, also are part of the Project. For purposes of defining the approximate ROW for each 200-foot corridor, the areas extending 100 feet on either side of centerline are included in the ROW descriptions. The legal descriptions of the land on which these four linear features will be located are as follows:

Bradshaw Trail Access Road Corridor:

> *Portions of Sections 12 through 14, Township 08 South, Range 21 East, and Portions of 7 and 18, Township 08 South, Range 22 East, San Bernardino Meridian, Riverside County, California.*

33 kV Service Line Corridor New ROW:

> *Portions of Sections 12 through 14, and 23, Township 08 South, Range 21 East, San Bernardino Meridian, Riverside County, California.*

33 kV Service Line Corridor Existing ROW Overbuild:

> *Portions of Sections 3 through 10, 17, and 18, Township 08 South, Range 22 East, San Bernardino Meridian, Riverside County, California.*

34th Avenue Access Road Corridor:

> *Portions of 23 through 26, Township 08 South, Range 21 East, San Bernardino Meridian, Riverside County, California.*

Based on the CEC's exclusive jurisdiction for the licensing of thermal power plants of 50 MW or more and given that the Project will be situated partially on BLM lands and considered a major federal action under the NEPA, the Project will require certification both by the CEC and BLM. The Applicant anticipates that the BLM's and CEC's certification processes will be conducted in parallel, though each agency will produce its own documents. The BLM grant applications will cover about 4,100 acres (the property boundary and the gen-tie line route study area located on BLM property) but the NEPA analysis will cover the entire project area. The CEC application also will cover the entire project area.

2.1.3 Land Required

Each 250 MW plant requires about 1,850 acres (or 2.9 square miles) of land to operate. The total area required for all three plants, including the shared facilities, is approximately 5,750 acres. Rio Mesa Solar Holdings, LLC holds an option agreement with the Metropolitan Water District of Southern California (MWD) for approximately 6,741 acres in which area is planned for development of the southern portion of the Project. In addition Rio Mesa Solar III, LLC, has applied for a ROW grant from BLM for two areas: a 2,800 acre parcel in which the northern portion of the project site is located, and an additional 1,300 acre study area in which the common generator tie line (gen-tie line) will be located. Portions of this ROW will be assigned to Rio Mesa Solar I, LLC for the gen-tie line, and to Rio Mesa Solar II, LLC for the gen-tie line and portions of the solar field. The gen-tie line will link the project facilities to the new Southern California Edison (SCE) Colorado River Substation (CRS), see Figure 2-2, Project Features Map. Although project development will be phased, the AFC analyzes the Project as though all phases will be simultaneously operational.

2.1.4 Proposed Project

The proposed project will include three solar concentrating thermal power plants and a shared common area to include shared systems. Each solar concentration thermal power plant will utilize a solar power boiler, located on top of a dedicated concrete tower, and solar field based on heliostat mirror technology developed by BrightSource, known as "LPT". The reflecting area of an individual heliostat (which includes two mirrors) is about 19 square meters [205 square feet (sq. ft.)]. The heliostat (mirror) fields will focus solar energy on the solar power boiler, referred to as "solar receiver steam generator" (SRSG) which converts the solar energy to superheated steam. In each plant, a Rankine cycle non-reheat steam turbine receiving this superheated steam will be directly connected to a rotating generator that generates and pushes the electricity onto the transmission system steam.

Each power plant will generate electricity using solar energy as its primary fuel source. However, auxiliary boilers will be used to operate in parallel with the solar field during partial load conditions and occasionally in the afternoon when power is needed after the solar energy has diminished to a level that no longer will support solar generation of electricity. These auxiliary boilers will also assist with daily start-up of the power generation equipment and night time preservation.

Each plant in the Project will have five natural-gas-fired boilers as follows:

- Three packaged natural-gas-fired auxiliary boilers used for power augmentation. It is assumed that the auxiliary boilers will be operated in the later afternoon/early evening.
- One "night-time preservation" boiler that will provide overnight heat to systems.

- One "start-up" boiler that will be used to minimize the amount of time required for startup each morning.

The power generation equipment will be started up each morning before sunrise, and shut down every evening when insolation drops below the level required to keep the steam turbine generators (STGs) on line except as described above.

The main parameters for the plants are presented in Table 2.1-1.

Table 2.1-1
Main Plant Parameters

Plant	Capacity (Nominal MW)	No. of Heliostats (approximately)	Annual Production Solar Boiler (Net MWHs)	Annual Production Nat. Gas Boilers (Net MWHs)	Total Annual Production (Net MWHs)	Utility Interconnection
Rio Mesa I	250 MW	85,000	705,300	30,000	735,300	SCE 220 kV
Rio Mesa II	250 MW	85,000	705,300	30,000	735,300	SCE 220 kV
Rio Mesa III	250 MW	85,000	705,300	30,000	735,300	SCE 220 kV

kV = kilovolt
MW = megawatt
MWH = megawatt hour
SCE = Southern California Edison

The shared facilities (located in the common area) will include a combined administration, control, maintenance and warehouse building, heliostat assembly building, evaporation ponds, groundwater wells, water treatment plant, construction laydown and parking areas, mobile equipment maintenance facilities for the maintenance crew and operators, and natural gas tap and meter station. A common switchyard will be installed on site where all three plant substation underground transmission lines will terminate. Electricity will be transmitted on a common gen-tie line and tower system from the switchyard to SCE's new CRS, located approximately 9.7 miles to the northwest of the project site. These shared facilities will be jointly and equally owned by all three project companies.

The plants will be operated and maintained by a common crew of operators, working out of the administration and maintenance complex located in the common area east of Rio Mesa II.

2.1.5 Infrastructure

2.1.5.1 Water

Raw water will be drawn daily from on-site wells located in the common area. The wells will be designed to have sufficient capacity to supply water required for operation of the Project. Groundwater will pass

through a treatment system before being used for potable water, service water, firewater, boiler make-up water, auxiliary cooling water, and to wash the heliostats. A raw water treatment plant will be located in the common area to clean raw well water for use by the Project. The treatment plant will be designed to remove impurities and make the water suitable for use in process production and mirror washing
To save water, due to the desert environment in which the site is located, each plant will use an air-cooled condenser (ACC) for the main steam cycle. Water consumption, therefore, will be minimal [estimated at no more than 84.5 acre-feet (ft) per year (afy) for each of the three plants, and 6.5 afy for the common area, for a total of 260 afy]. Water consumption during construction will peak at no more than 400 afy. Major contributors to water use during construction will include dust control activities and on-site concrete batch plants. The land lease agreement with MWD allows for access to up to 600 afy of water.

2.1.5.2 Gas

The Project's natural gas system will be connected to the TransCanada Gas Transmission Company (TCGT) North Baja Transmission Line. The TCGT line passes through the MWD land and runs adjacent to the existing Western Area Power Administration (WAPA) 161 kilovolt (kV) transmission line

2.1.5.3 Electricity

Stand-by power and back-up power will be provided for all auxiliary components for which failures would cause an electrical or steam production shut down at the project site. The backup power components will be installed and kept in a ready status, in case of failure, and will be available for immediate service. One station service transformer will be required at each plant for backup power purposes.

Project construction and emergency backup power to the Project will be provided from one of two alternatives. The first alternative is to receive 33 kV of power from SCE, sourced at an existing substation in the Blythe area and routed over SCE's existing electric distribution system to a point east of the Project on Bradshaw Trail (30th Avenue) where new power poles and distribution cable would be installed to serve the construction loads, common facility loads, and subsequently the emergency backup needs of the completed Project.

A second alternative is for SCE to source the power from the existing WAPA's 161 kV transmission line that bisects the site. Under this alternative, WAPA would contract with SCE to supply wholesale power to a new substation that SCE would construct on the project site in or near the common area. SCE would then supply power at 33 kV to the Project owner entities as retail customers. Alternative two is likely the lowest cost option and least impactful means to supply power, but it relies on WAPA and SCE to enter into a voluntary "fringe agreement" in order to execute the installation.

2.1.5.4 Waste

The Project will also include an on-site wastewater treatment plant located in a common area. The wastewater effluent from the Project will be discharged to evaporation ponds that will be located in the common area. Domestic waste streams for such items as showers and toilets will be routed through on-site septic systems and leach fields. Sewage sludge from the septic tanks will be removed from the site by

a sanitary service provider. Additional information regarding the common area facilities and water treatment facilities is provided in Water Resources, Section 5.15.

2.1.6 Access to Site

Access to the three plants will be via 34th Avenue (primary) and Bradshaw Trail off of State Route 78 (to the east). The access road will travel adjacent to agricultural land before reaching the project site. In addition to the access road, each plant will have perimeter access/maintenance roads.

The following sections describe the generating facility design and operation (Section 2.2), applicable laws, ordinances, regulations, and standards (LORS) (Section 2.3), Project engineering (Section 2.4), and facility closure procedures (Section 2.5).

2.2 LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

The LORS in Section 2.2.1 are generally applicable to the engineering aspects of the Project. LORS for the environmental aspects are provided in each of their subsections in Section 5 of the AFC.

2.2.1 General Laws, Ordinances, Regulations, and Standards

The LORS identified below will be applicable to the Project.

- California Building Code—2010 or current revision
- California Fire Code, 2010
- Occupational Safety and Health Act—29 CFR 1910 and 29 CFR 1926
- Environmental Protection Agency—40 CFR 60, 40 CFR 75, 40 CFR 112, 40 CFR 302, 40 CFR 423, 40 CFR 50, 40 CFR 100, 40 CFR 260, 40 CFR 300, and 40 CFR 400
- California Code of Regulations—Title 8, §§ 450 and 750 and Title 24, 2001, Titles 14, 17, 19, 20, 22, 23, 26, and 27
- California Department of Transportation—Standard Specifications
- California Occupational Safety and Health Administration—Regulations and Standards
- California Business and Professions Code—§§ 6704, 6730, and 6736
- California Vehicle Code—§35780
- California Labor Code—§ 6500
- Federal Aviation Agency—Obstruction Marking and Lighting AC No. 70/7460-1H

Codes and standards pertinent to the generating facility are presented in Engineering Appendices 2A through 2F.

2.3 GENERATING FACILITY DESIGN AND OPERATION

This section describes the conceptual design and proposed operation of the facilities.

2.3.1 Process Description

The heliostat fields will focus solar energy on the SRSG on top of the power towers to produce steam. Each heliostat array will be comprised of four to eight sections with distinct focal lengths for the mirrors. In each plant, one Rankine-cycle non-reheat steam turbine will receive live steam from the SRSG, which will be located in the power block at the top of its own tower (see Figure 2-3, Power Block Plot Plan).

Each plant will include auxiliary steam boilers that may be required during transient cloudy conditions in order to maintain the turbine on-line. After the clouds pass, production will resume from solar thermal input. After the solar thermal input resumes, the turbine will be returned to full solar production and the auxiliary boilers will be shut down. The daily volume of energy generated by the plant may be extended, as described above, using the auxiliary boilers. In addition to the boilers, each plant will use an air-cooled condenser or dry cooling to minimize water usage. Auxiliary equipment supporting the SRSG, solar field, and turbine/generator at each plant will include the following:

- Boiler feedwater and condensate pumps
- Feedwater heaters
- Deaerator
- Condensate polisher
- Wet-surface air cooler (WSAC) (hybrid auxiliary cooler)
- Air-cooled condenser for main process steam
- Transformers
- Emergency diesel generators
- Diesel and motor-driven fire pumps

The facilities will be connected to the SCE grid through a new 220 kV line that will be built as part of the Project and will run north approximately 10 miles to connect to the approved CRS. This new substation will be operated for the benefit of the Project and other interconnection customers in the region. The new substation is targeted by SCE to become operational in 2013.

2.3.2 Power Cycle

The plants' power cycles will be based on a Rankine cycle turbine with three pressure-stage casings. Figure 2-4 provides a preliminary heat balance diagram for the 250 MW plants. Primary thermal input will be via a SRSG located at the top of an approximately 750-foot-tall power tower (height includes the SRGS). Live superheated steam will enter a high-pressure turbine casing at 2,465 pounds-force per square inch absolute (psia), or 170 bar absolute (bara) and 1,085 degrees Fahrenheit (°F), or 585 degrees Celsius

(°C). Steam from the high-pressure (HP) turbine exhaust will be routed directly to the intermediate-pressure (IP) turbine inlet casing. A portion of the HP turbine exhaust steam will be routed to the HP feedwater heaters.

The HP exhaust will enter the IP casing at approximately 537 psia (37 bara) and 665°F (352°C). Steam from the IP casing will be exhausted directly to the low-pressure (LP) turbine casing. The IP exhaust will enter the LP casing at 78 psia (5.4 bara) and 311°F (155°C). Exhaust steam at 3.25 inches of mercury absolute (inHgA) (0.11 bara) will be condensed in an air-cooled condenser and collected in a condensate collection tank (condenser well).

Condensate will be sent from the condensate collection tank through a condensate polisher to four LP feedwater preheaters, then to the deaerator, which will also serve as the feedwater reserve. From the deaerator, HP feedwater pumps will send feedwater through three HP feedwater preheaters and then to the SRSG drum.

2.3.3 Solar Field, Solar Receiver Boiler, Steam Turbine Generator, and Condenser

Electricity will be produced by generating HP/high-temperature steam through the use of solar mirrors focusing on the SRSG, and expanding that steam through a turbine which will be directly connected to a rotating generator that generates and pushes the electricity onto the transmission system. The following sections describe the major components of the generating facility.

2.3.3.1 Solar Tower

The tower is to be a cylindrical concrete tower with the SRSG located atop the concrete structure. The overall tower and SRSG height (750 ft), with lightning rod (10 ft), for an approximate total of 760 feet (231.6 meters). The height of the tower allows for denser heliostat arrays, which is more efficient on a megawatt per acre basis.

2.3.3.2 Solar Receiver Steam Generator (SRSG)

The SRSG will consist of evaporation-steam generation (EVA) and superheating (SH) sections.

The SRSG will be designed and manufactured in accordance with conventional power boiler standards and procedures. Each SRSG section requires different intensity and distribution levels of energy flux. The energy flux on the SRSG will be controlled by the SFINCS based on mathematical calculation algorithms, steam temperature measurements at SRSG panel headers, and flux models with second-degree protection using infrared cameras. The solar field operates like a conventional fuel burner and its controller functions like a boiler management controller, including control and safety functions.

2.3.3.3 Solar Field Including Heliostats, Mirrors, and Layout Principles

The heliostats will be arranged in arrays around each solar receiver boiler. Each heliostat will be comprised of a tracking controller with azimuth and elevation positioning capability, a power unit, and two mirrors. Each heliostat will track the sun throughout the day and reflect the solar energy to the receiver boiler. Each mirror is 8.5 ft [2.6 meters (m)] wide by 12 ft (3.66 m) high, resulting in a total

reflecting surface of 102.4 ft^2 [9.5 square meters (m^2)] per mirror, and 205 ft^2 (19 m^2) per heliostat. The heliostats will be arranged concentrically around the power tower SRSG, as described below.

The solar field will contain approximately 85,000 heliostats of LH-2.3 design arranged around the power tower (see Figure 2-5, Solar Field Layout). The layout of each solar field will be designed according to various parameters, including but not limited to ground topography and plant design parameters. The solar field will be controlled by the solar field integrated control system (SFINCS), which controls the heliostat and all solar field (SF) auxiliary equipment, independently and collectively, according to the SRSG energy demand and general system requirements.

Each heliostat will be an independent unit standing on a single pylon with rectangular mirrors on both sides. The heliostat installation will allow for an approximately 0.5-m (1.5-ft) clearance from ground when the heliostat is in the vertical position. Each heliostat will be driven by a dual-axis drive that tracks the sun and maintains the focal point on the SRSG. The dual-axis drive will have two stepper motors that will regulate the azimuth and elevation angles, respectively. Each heliostat will be controlled by its own heliostat controller, which will be controlled by the SFINCS. The LH-2.3 heliostat will be autonomous. Its power supply will be based on a photovoltaic (PV) system and super capacitor; its communication will be based on either wireless or wired infrastructure.

2.3.3.4 Steam Turbine Generator

The steam turbine system will consist of a non-reheat, condensing STG with eight extractions, a gland steam system, a lubricating oil system, a hydraulic control system, and steam admission/induction valving. HP steam will be received from the superheater of the SRSG and will enter the steam turbine through the inlet steam system. The steam will expand through multiple stages of the turbine, driving the generator. Upon exiting the LP turbine, the steam will be directed into the air-cooled, dry-surface condenser.

2.3.3.5 Air Cooled Condenser

An air-cooled steam condenser system is the main steam-cycle heat rejection system. The air cooled steam condenser will receive exhaust steam from the low-pressure section of the steam turbine and from the boiler feed pump turbine drive and condense it back to water for reuse. The condenser will remove heat from the condensing steam up to a maximum of 1,230 MMBtu/hr depending on ambient temperature and plant load while maintaining normally operate pressure of about 3.25 inHgA (see Figure 2-4, Heat Balance Diagram).

2.3.4 Major Electrical Equipment and Systems

The following sections describe the various power supply systems associated with the Project.

2.3.4.1 AC Power—Transmission

Power will be generated at 21 kV by the three STGs and then stepped up by transformers for transmission to the grid. The plants will connect to the utility at 220 kV. Surge arresters will be provided at the high-voltage bushings of the step-up transformers to protect the transformers from surges on the system

caused by lightning strikes or other system disturbances. The transformers will be set on concrete pads within containments designed to contain the transformer oil in the event of a leak or spill. Fire protection systems will be provided for the transformers. The high-voltage side of the step-up transformers will be connected to a switchyard at each plant. From the plant switchyards, power will be transmitted via a 220 kV transmission line to a common area switchyard. The common area switchyard then will be connected to the SCE CRS. A detailed discussion of the transmission system is provided in Section 3 of the AFC.

2.3.4.2 AC Power—Distribution to Auxiliaries

Auxiliary power to the steam turbine power block will be supplied at by an oil-filled, three-winding unit auxiliary transformer (UAT) to medium voltage (6.9kV/13.8kV) switchgear. All plant loads will be fed from the medium voltage switchgear lineup. The high-voltage side (21 kV) of the UATs will be connected to the output of the STG. The connection point for the UATs will be between the STG generator breaker and the generator step-up transformer (21 kV to 220 kV). This connection point will allow the switchgear to be powered from the generator during operation, or by back-feeding power from the grid when the STG is off line (i.e., when the STG generator circuit breaker is open).

A separate, oil-filled station service transformer (SST) also will be provided in each power block. The high-voltage side of the SST will be 33 kV, and will be fed from a separate SCE distribution system. The low-voltage side of the SST will be 6.9 kV and will be used as a backup source of emergency power for critical shutdown loads (i.e., as a backup for the emergency diesel generator).

The medium voltage switchgear lineup will supply power to the various 6.9 kV motors, and to the load center (LC)/ motor control center (MCC) transformers for 480 volt (V) power distribution. The switchgear will have vacuum-interrupter circuit breakers for the main incoming feeds and vacuum contactors for power distribution. The LC transformers will be oil-filled, each supplying 480V, 3-phase power to the MCCs.

The MCCs will distribute power to 480V motors, to 480V power distribution panels, and lower voltage lighting and distribution panel transformers. Power for the AC power supply (120V/208V) systems will be provided by the 480V MCCs and 480V power panels. 480-120/208V dry-type transformers will be used to transform the 480V power to 120/208V power.

2.3.4.3 125V DC Power Supply System

One 125V DC power supply system, consisting of one 100-percent-capacity battery bank, two 100-percent static battery chargers, a switchboard, and two or more distribution panels, will be used for the balance-of-plant and STG equipment for each unit.

One 100 percent capacity battery bank, one 100 percent static battery charger, a switchboard will also be supplied for back up plant protection system for each unit.

One common 125V DC power supply system consisting of one 100 percent capacity battery banks, one 100 percent static battery chargers, a switchboard will be supplied for common area switchyard.

Under normal operating conditions, the battery chargers will supply DC power to the DC loads. The battery chargers will receive 480V, three-phase AC power from the AC power supply (480V) system and continuously charge the battery banks while supplying power to the DC loads.

Under abnormal or emergency conditions, when power from the AC power supply (480V) system is unavailable, the batteries will supply DC power to the DC system loads. Recharging of a discharged battery will occur whenever 480V power becomes available from the AC power supply (480V) system. The rate of charge will depend on the characteristics of the battery, battery charger, and the connected DC load during charging. The maximum recharge time is anticipated to be 12 hours.

The 125 volt DC system will also be used to provide control power to the 220 kV switchyard breakers, to the 21 kV generator breakers, to the medium voltage switchgear, to the 480 volt LCs/MCC incoming breakers, to critical control circuits, and to the emergency DC motors.

2.3.4.4 Uninterruptible Power Supply System

One 100 percent 120V AC UPS system will be provided for each steam turbine power block to supply AC power to essential instrumentation for critical equipment loads and to unit protection and safety systems that require uninterruptible AC power. One 100 percent 480V AC UPS system will be provided in the power block to provide power to critical 480V AC loads in the solar boiler.

One 480V AC UPS system will be provided for each boiler circulation pump in the power block to provide backup power during a plant trip for a minimum duration until emergency diesel generator power is available.

The common area will have two 100 percent 120 volt AC, single-phase, 60-hertz (Hz) uninterruptible power supply (UPS) systems for critical Central Control Room equipment.

UPS inverters will supply 120V AC, single-phase power or 480V AC three-phase power to the UPS panel boards that supply critical AC loads. The 120V AC UPS inverter for steam turbine power block will be fed from the station 125V DC power supply system. All other UPS inverters will be fed from a dedicated battery for each UPS system. Each UPS system will consist of one full-capacity inverter, a static transfer switch, a manual bypass switch, an alternate source transformer, and two or more panel boards.

The normal source of power to the system will be from the 125V DC power supply through the inverter to the panel board. A solid-state static transfer switch will continuously monitor both the inverter output and the alternate AC source. The transfer switch will automatically transfer essential AC loads without interruption from the inverter output to the alternate source upon loss of the inverter output. A manual bypass switch will also be included to enable isolation of the inverter for testing and maintenance without interruption to the essential service AC loads.

The distributed control system (DCS) operator stations will be supplied from the UPS. The continuous emission monitoring (CEM) equipment, DCS controllers, and input/output (I/O) modules will be fed using either 120V AC UPS or 125V DC power directly.

2.3.5 Natural Gas Fuel System

The natural gas supply for the Rio Mesa SEGF will connect to the TransCanada Gas Transmission Company (TCGT) North Baja pipeline, which runs adjacent to the eastern edge of the proposed solar fields. However, TCGT is not a natural gas retailer. Current plans are for the gas supply to be obtained from one or more suppliers on the TCGT pipeline. This same philosophy was employed at BrightSource's Ivanpah project. A preliminary equipment arrangement for the TCGT interconnection and metering facilities was prepared based on the actual arrangement of similar facilities specified for the Ivanpah project. For Rio Mesa SEGF, the physical facilities associated with the natural gas supply system for the proposed Project will include one or more tap and meter stations to be located on the main TCGT transmission pipeline. A gas metering station will be required at the TCGT tap point to measure and record gas volumes for custody transfer. In addition, facilities will be installed either at the tap station or the power block to regulate the gas pressure and to remove any liquids or solid particles. The metering station will require a minimum area of approximately 150 ft by 150 ft.

Construction activities related to the metering station and metering sets will include grading a pad and installing aboveground and belowground gas piping, metering equipment, gas conditioning, pressure regulation, and pigging facilities. A distribution power line, thermal generator, or PV system will be supplied for tap-/metering-station operation lighting and communication equipment. A perimeter chain-link fence will also be installed to provide security.

2.3.6 Water Supply and Use

This subsection describes the quantity of water required, the sources of the water supply, and water treatment requirements. Water balance diagrams for the 250 MW plants are included as Figure 2-6a and Figure 2-6b.

Raw water will be drawn from wells located within the common area. Each 250 MW plant will require up to 85 afy, raw water make-up, or a total of 260 afy for the entire 750 MW (nominal) Rio Mesa SEGF. This includes approximately 5 afy for common area uses. The make-up flow rates are based on pumping for 24 hours per day, 365 days per year. The actual system design will include higher pumping rates for operational and emergency needs.

A treated water tank sized to accommodate a two-day reserve of process water that will include makeup for the demineralizer and WSAC will be located in the common area. A separate mirror wash tank will be provided in the power block area. In addition, a combined service water/firewater storage tank that has sufficient capacity for service water and a dedicated 2-hour reserve volume for firewater will be provided in the power block area. A dedicated firewater storage tank, with the capacity to fight a 2-hour fire, also will be provided in the common area.

The Rio Mesa SEGF will operate an average of 8 to 16 hours a day, 7 days a week throughout the year, with the exception of a scheduled shutdown in winter for maintenance (at a time negotiated with the transmission system operator). The water treatment plant is planned to be operated continuously during the night in order to minimize cost while using off-peak energy. A more detailed description of the water supply system, treatment, and permits is provided in AFC Section 5.15, Water Resources.

2.3.6.1 Water Requirements

A breakdown of the estimated average daily quantity of water required for operation of the facilities is presented in Table 2.2-1. The daily water requirements shown are estimated based on the plant operating at full load.

Table 2.2-1
Average Daily Water Requirements with All Three Plants in Operation

Water Use	Average Daily Use (gpd)	Annual Use (afy)
Process and heliostat wash	226,200	253.5
Potable water service	4,800	6.5

Abbreviations/Acronyms:
afy = acre-feet per year (based on an annual operation of approximately 3,600 hours/year)
gpd = gallons per day

2.3.6.2 Water Supply

The plants will use air-cooled condensers to save water. Water consumption will, therefore, be minimal. Water will be used mainly to replace boiler blowdown, provide supplemental cooling for critical plant auxiliary systems, and provide water for washing heliostats. The latter is required for the two-week washing cycle associate with the heliostats in order that they function at full performance. Because of dust created during site grading, the washing cycle may be more frequent during this time period (i.e., when one plant is operating and another power block and associated roads are being graded), but the increase in the washing cycle is not likely to more than double. Based on this calculation, during construction, total water usage at the plant may peak at 400 afy.

2.3.6.3 Water Quality

The Water Resources section (Section 5.15) includes a projection of the quality of the water that would be produced by the on-site wells. The water quality projection was based on data obtained from existing wells that were tested on the MWD property within the Rio Mesa SEGF site during May 2011.

2.3.6.4 Water Treatment

The main raw water treatment systems will be supplied by a water treatment specialty company, and will include the components described below.

Reverse Osmosis Membrane Filtration

Two multi-stage reverse osmosis (RO) membrane filtration units will be supplied along with a feed tank, feed pumps, and miscellaneous chemical feeds. After being treated by the RO, permeate will be stored in the treated water storage tank.

Mixed-Bed Demineralizer

Two mixed-bed (cation/anion) demineralizers will be supplied to the Project, along with feed pumps, a spent resin storage tank, fresh resin storage tank, and resin sluice pumps. The resin will be regenerated off-site by an outside water treatment supplier. The demineralized water will be stored in the demineralized water storage tank.

Potable Water Treatment System

Potable water treatment systems will be located in the common area and at each power block. The potable water treatment system will consist of storage tanks, supply pumps, carbon filtration, ultraviolet, and chlorination equipment. Carbon filters will be replaced as needed by an outside water treatment supplier.

2.3.7 Plant Cooling Systems

The main steam-cycle heat rejection system will consist of an air-cooled steam condenser system. The heat rejection system will receive exhaust steam from the low-pressure section of the steam turbine and from the boiler feed pump turbine drive and condense it back to water for reuse. The condenser will be designed to normally operate at a pressure of about 3.25 inHgA. The condenser will remove heat from the condensing steam up to a maximum of 1,230 MMBtu/hr depending on ambient temperature and plant load (see Figure 2-4, Heat Balance Diagram).

Cooling of auxiliary plant equipment coolers will be through a hybrid closed-cooling water system consisting of dry fin-fan coolers operating in series with a WSAC. The WSAC will operate in a dry mode for the majority of the year. Only when the ambient air temperature exceeds 85°F will the use of external spray water over the WSAC tube bundles be initiated. The WSAC will remove up to 37 MMBtu/hr of heat from the closed cooling water system.

2.3.8 Waste Management

Waste management is the process whereby all wastes produced at each 250-MW plant within the Rio Mesa SEGF will be properly collected, treated (if necessary), and disposed. Wastes will include process and sanitary wastewater, and nonhazardous waste and hazardous waste, both liquid and solid. Waste management is discussed in greater detail in Section 5.14.

2.3.8.1 Wastewater Collection, Treatment, and Disposal

The primary wastewater collection system will collect process wastewater from all of the plant equipment, including the boilers and WSAC blowdowns. To the extent practical, process wastewater will be recycled and reused. Each plant will have an on-site wastewater treatment (WWT) system consisting of either a thermal distillation system with mechanical vapor compression or RO with ion exchange. Distillate/permeate collected from the WWT plant will be recycled to the treated water storage tank for reuse within the plant. Concentrate from the WWT system will be disposed in two evaporation ponds in the common area and allowed to evaporate. Each pond will be lined with a high-density polyethylene (HDPE) liner to prevent infiltration of process water into the soil below. Provisions for avian protection

netting will be determined based on local jurisdiction and agency requirements. When needed, pond sludge will be removed from the project site by an outside contractor.

Plant Drains and Oil/Water Separator

General plant drains will collect liquids from containment areas, sample drains, and facility equipment drains. Water from these areas will be collected in a system of floor drains, hub drains, sumps, and piping and routed to the wastewater collection system. Drains that potentially could contain oil or grease will first be routed through an oil/water separator.

Raw Water Treatment System Waste

Reject waste produced from the reverse osmosis process in the raw water treatment system will be captured in the wastewater collection tank and treated in the wastewater treatment system.

Power-Cycle Makeup Water Treatment Wastes

Demineralized water from the mixed-bed system will be used as the feed water for the power-cycle makeup treatment system. The mixed-bed unit will be a self-contained skid-mounted unit that will be regenerated off site. There will be no liquid waste from the power cycle makeup water treatment equipment.

Boiler Blowdown

Boiler blowdown consists of water discharged from each SRSG to maintain the water chemistry within acceptable ranges. Boiler blowdown from the SRSG will be routed to the SRSG flash tank. Flash steam from the flash tank will be recovered back into the steam cycle via the deaerator. Condensate from the flash tank will be further flashed to the atmosphere, then cooled and recovered in the treated water storage tank. As an alternative, blowdown may be discharged to the wastewater collection tank for treatment.

Blowdown from the night-time preservation, start-up and auxiliary boilers will be collected in blowdown tanks and recovered in the treated water storage tank. As an alternative, blowdown may be discharged to the wastewater collection tank for treatment.

2.3.8.2 Sanitary Waste Collection and Disposal

Each plant and the common area will include a septic system for sewage disposal and for potable and domestic water streams. Sewage generated from these systems will be collected and discharged to individual on-site septic tank and leach field. When needed, sewage sludge will be removed from the site by a sanitary service company.

2.3.8.3 Solid Wastes

The Rio Mesa SEGF will produce maintenance and plant wastes typical of power generation operations. Generation plant wastes will include oily rags, broken and rusted metal and machine parts, defective or broken electrical materials, empty containers, and other solid wastes, including the typical municipal

refuse generated by workers. Solid wastes will be trucked off site for recycling or disposal (see Section 5.14, Waste Management).

2.3.8.4 Hazardous Wastes

Several methods will be used to properly manage and dispose of hazardous wastes generated at the Rio Mesa SEGF. Waste lubricating oil will be recovered and recycled by a waste oil recycling contractor. Spent lubrication oil filters will be disposed in a Class I landfill. Workers will be trained to handle hazardous wastes generated at the site.

Chemical cleaning wastes will consist of alkaline and acid cleaning solutions that have been used during pre-operational chemical cleaning of the boilers, and acid cleaning solutions used for chemical cleaning of the boilers after the units are put into service. These wastes, which contain high concentrations of metals, will be temporarily stored on site in portable tanks or sumps, and disposed of off-site by the chemical cleaning contractor in accordance with applicable regulatory requirements.

2.3.9 Management of Hazardous Materials

A variety of chemicals will be stored and used during construction and operation of the Rio Mesa SEGF. The storage, handling, and use of all chemicals will be conducted in accordance with applicable LORS. Chemicals will be stored in appropriate chemical storage facilities. Bulk chemicals will be stored in storage tanks if needed, and most other chemicals will be stored in returnable delivery containers. Chemical storage and chemical feed areas will be designed to contain leaks and spills. The design of the concrete containment pits and drain piping will allow a full-tank capacity spill to occur without the containment overflowing. For multiple tanks located within the same containment area, the capacity of the largest single tank will determine the volume of the containment area and drain piping. Drain piping for reactive chemicals will be trapped and isolated from other drains to preclude the generation of noxious or toxic vapors.

Safety showers and eyewash stations will be provided adjacent to, or in the vicinity of, chemical storage and use areas. Plant personnel will use approved personal protective equipment (PPE) during chemical spill containment and cleanup activities. Personnel will be properly trained in the handling of these chemicals and instructed in the procedures to follow in case of a chemical spill or accidental release. Adequate supplies of absorbent material will be stored on site for spill cleanup.

A list of the chemicals anticipated to be used at Rio Mesa SEGF and their storage locations is provided in Section 5.5, Hazardous Materials Handling. This list identifies each chemical by type and intended use, and the estimated quantity to be stored on site.

2.3.10 Emission Control and Monitoring

Air emissions from the combustion of natural gas in the auxiliary and start-up boilers will be controlled using state-of-the-art systems. To ensure that the systems perform correctly, continuous or parametric emissions monitoring systems for nitrogen oxides (NOx) and carbon monoxide (CO) will be employed as required by the Mojave Desert Air Quality Management District (MDAQMD). Section 5.1, Air Quality, includes additional information on emission control and monitoring.

2.3.10.1 NOx Emission Control

The boilers will be provided with ultra-low-NOx burner(s) and sufficient flue gas recirculation to guarantee maximum NOx emissions of 9 parts per million (ppm) [0.011 pound (lb)/MMBtu], which complies with the New Source Performance Standards (NSPS) NOx standard of 0.2 lb/MMBtu.

2.3.10.2 Particulate Emission Control

Particulate emissions will be controlled by the use of best combustion practices which will include the use of natural gas, which is low in sulfur, as the sole fuel for the boilers, and high-efficiency air inlet filtration.

2.3.10.3 Continuous Emission Monitoring

For each gas-fired auxiliary boiler that may require a continuous emission monitoring system (CEMS), the exhaust gas primary elements will be connected to a common CEMS. The CEMS will sample, analyze, and record fuel gas flow rate, NOx and CO concentration levels, and percentage of oxygen (O_2) in the exhaust gas from each of the auxiliary boiler stacks. The CEMS will transmit emission data to a data acquisition system (DAS) that will store the data and generate emission reports in accordance with permit requirements. The DAS will also include alarm features that will send signals to the plant DCS when the emissions approach or exceed pre-selected limits.

2.3.10.4 Predictive Emission Monitoring

For each of the start-up boilers, a predictive emissions monitoring system (PEMS) will be used. PEMS are allowed on boilers that are rated at less than 250 MMBTU/hr. PEMS can be classified as a software-based CEMS in which key operating parameters are correlated to pollutant emission rates. A mathematical model is developed which then "predicts" emission levels based on the operating parameters.

2.3.11 Fire Protection

The fire protection system will be designed to protect personnel and limit property loss and plant downtime in the event of a fire. The primary source of fire protection water will be the service/firewater storage tank in each plant, and the fire water storage tank in the common area. An electric jockey pump and electric-motor-driven main fire pump will be provided to maintain the water pressure in each plant and the common area fire main to the level required to serve all firefighting systems. In addition, a back-up diesel engine-driven fire pump will be provided in each plant and the common area to pressurize the fire loop if the power supply to the electric-motor-driven main fire pump fails. A fire pump controller will be provided for each fire pump.

The fire pumps will discharge to a dedicated underground firewater loop piping system. Normally, the jockey pumps will maintain pressure in the firewater loop. Both the fire hydrants and the fixed-suppression systems will be supplied from the firewater loop. Fixed fire suppression systems will be installed at determined fire risk areas, such as the transformers and turbine lube oil equipment. Sprinkler systems will also be installed in areas such as Administration/ Control/Warehouse/Maintenance

Building/Heliostat Assembly Building, and fire pump enclosure as required by National Fire Protection Association (NFPA) and local code requirements. Handheld fire extinguishers of the appropriate size and rating will be located, in accordance with NFPA 850, throughout the facility. Generator step-up transformers and other oil-filled transformers will be contained and provided with a deluge system.

Section 5.5, Hazardous Materials Handling, includes additional information for fire and explosion risk, and Section 5.10, Socioeconomics, provides information on local fire protection capability.

2.3.12 Plant Auxiliaries

The following systems will support, protect, and control the generating facility.

2.3.12.1 Lighting

The lighting system will provide personnel with illumination for operation under normal conditions and for egress under emergency conditions, and will include emergency lighting to perform manual operations during an outage of the normal power source. The system also will provide 120V AC convenience outlets for portable lamps and tools.

2.3.12.2 Grounding

The electrical system will be susceptible to ground faults, lightning, and switching surges that could result in high voltage that may constitute a hazard to site personnel and electrical equipment. The station grounding system will provide an adequate path to permit the dissipation of current created by these events.

The station grounding grid will be designed for adequate capacity to dissipate the ground fault current from the ground grid under the most severe conditions in areas of high ground fault current concentration. The grid spacing will maintain safe voltage gradients. Bare conductors will be installed below grade in a grid pattern. Each junction of the grid will be bonded together by a compression connection. Ground resistivity readings will be used to determine the necessary grid spacing and numbers of ground rods if required to ensure safe step and touch potentials under severe fault conditions. Grounding conductors will be brought from the ground grid to connect to building steel and non-energized metallic parts of electrical equipment.

2.3.12.3 Distributed Control System

The DCS will provide modulating control, digital control, monitoring, and indicating functions for the plant power block systems. The functions identified below will be provided.

- Interfacing with or controlling the following: STG, SRSG, auxiliary, start-up and night-time preservation boilers, heliostat mirrors, air-cooled condenser, various pumps, and other systems in a coordinated manner.
- Controlling the balance-of-plant systems in response to plant demands.

- Monitoring controlled plant equipment and process parameters and delivery of this information to plant operators.
- Providing control displays [printed logs, liquid-crystal diode (LCD) video monitors] for signals generated within the system or received from I/O).
- Providing consolidated plant process status information through displays presented in a timely and meaningful manner.
- Providing alarms for out-of-limit parameters or parameter trends, displaying on alarm video monitors(s), and recording on an alarm log printer.
- Providing storage and retrieval of historical data.

The DCS will be a redundant microprocessor-based system and will consist of the following major components:

- personal computer (PC)-based operator consoles with LCD video monitors
- engineer work station;
- distributed processing units;
- I/O cabinets;
- historical data unit;
- printers; and
- data links to the combustion turbine and steam turbine control systems.

The DCS will have a functionally distributed architecture comprising a group of similar redundant processing units linked to a group of operator consoles and the engineer workstation by redundant data highways. Each processor will be programmed to perform specific dedicated tasks for control information, data acquisition, annunciation, and historical purposes. By being redundant, no single processor failure can cause or prevent a unit trip.

The DCS will interface with the control systems furnished by heliostat mirror and STG suppliers to provide remote control capabilities, as well as data acquisition, annunciation, and historical storage of turbine and generator operating information.

The system will be designed with sufficient redundancy to preclude the failure of a single device from significantly affecting overall plant control and operation. This also will allow critical control and safety systems to have redundancy of controls, as well as an uninterruptible power source. As part of the quality control program, daily operator logs will be available for the purpose of assessing the status of the operating equipment.

2.3.12.4 Cathodic Protection

The cathodic protection system will be designed to control the external corrosion of designated metal piping buried in the soil. Depending upon the corrosion potential and the site soils, either passive or impressed current cathodic protection will be provided.

2.3.12.5 Service Air

The service air system will supply compressed air to hose connections for general plant use. Service air headers will be routed to hose connections located at various points throughout each plant and the common area.

2.3.12.6 Instrument Air

The instrument air system will provide dry air to pneumatic operators and devices. An instrument air header will be routed to locations within each plant and common area equipment areas and within the water treatment facility where pneumatic operators and devices will be located.

2.3.13 Transmission Lines Description, Design, and Operation

Rio Mesa I, II, and III will be interconnected to the SCE grid through the CRS which will be interconnected to SCE's Palo Verde-Devers 500 kV line, which passes approximately 10 miles north of the site on an east-west ROW (see Figure 2-2, Project Features Map). SCE has developed a service plan for the CRS to interconnect with additional projects and allow for future growth. The new CRS and other system upgrades will be for the benefit of Rio Mesa SEGF and other interconnecting customers in the region, as well as future growth. Construction of the CRS will be completed before the Rio Mesa SEGF comes on line, and is currently projected to occur in 2013-2014. Power from each Rio Mesa plant will be interconnected to the California Independent System Operator (CAISO) grid via a common 220 kV gen-tie line to the new CRS. Figure 2-7 provides a single-line diagram of the plant transmission system. Interconnection is discussed in greater detail in Section 3.0, Transmission System Engineering.

2.3.14 Telecommunications

Rio Mesa Solar, LLC intends to utilize millimeter wave wireless technology for internet and telephone service to the project site during construction and operations. This technology provides the speed and security of a physical fiber optic system, but mitigates the requirement for disturbance off site to connect into an existing fiber optic cable system operated by one of the commercial carriers. The wireless signal "shot" would be a single millimeter wave signal of approximately 50 MB of bandwidth from the common area of the project site to an existing fiber optic access location at the Blythe airport approximately 9 miles to the north. According to Quantum Wireless Technologies, the millimeter wave service supplier, there will be no new ground disturbance resulting from the installation of a radio and receiver/transmitter equipment at the Blythe airport location. From the Blythe Airport location, the telecommunications traffic from the Project will access a commercial carrier's existing fiber optic cable system. At this point, Rio Mesa Solar LLC has not selected a specific carrier (e.g. AT&T, Sprint, etc.).

2.3.15 Project Construction

Construction of the entire generating facility, from site preparation and grading to commercial operation, is expected to take place from the Fourth Quarter of 2013 to the First Quarter of 2016. Major milestones are listed in Table 2.2-2; however, the construction order may change. Construction of the shared facilities will occur during construction of the first plant.

Table 2.2-2
Project Schedule Major Milestones

Activity	Date
Plant 1 (Rio Mesa I)	
Begin Construction	Fourth Quarter 2013
Start-up and test	Third Quarter 2015
Commercial operation	Fourth Quarter 2015
Plant 2 (Rio Mesa II)	
Begin construction	First Quarter 2014
Start-up and test	Fourth Quarter 2015
Commercial operation	First Quarter 2016
Plant 3 (Rio Mesa III)	
Begin construction	Second Quarter 2014
Start-up and test	First Quarter 2016
Commercial operation	Second Quarter 2016

Based on an approximate 36-month construction period, there will be an average and peak workforce of approximately 1,040 and 2,500, respectively. The workforce will consist of construction craft people, supervisory, support, and construction management personnel. The peak construction site workforce level is expected to occur in Month 21. During some construction periods and during the start-up phase of the project, some activities will occur 24 hours per day, 7 days per week.

Table 2.2-3 provides an estimate of the average and peak construction traffic during the 36-month construction period for the plants and associated linear facilities.

Table 2.2-3
Average and Peak Construction Traffic

Vehicle Type	Peak Daily Round Trips	AM Peak Trips			PM Peak Trips		
		Inbound	Outbound	Total	Inbound	Outbound	Total
Construction Worker Vehicles1	2756	1378	0	1378	0	1378	1378
Delivery Vehicles (including heavy trucks)2	318	80	40	120	0	40	40

Source: Bechtel Power Corporation, *Forecast Traffic Impact - Rio Mesa_090711.xls*

1 Peak workforce was conservatively analyzed at 1378 worker vehicle trips during peak month of construction. These worker vehicle trips were conservatively assumed to commute during the morning (7-9 AM) and evening (4-6 PM) peak hours.

2 Delivery vehicles were adjusted into Passenger Car Equivalent (1 Heavy Vehicle = 3 PCE) vehicle in the traffic impact analysis. Analysis assumed 50 percent of 53 (actual trucks) delivery vehicles arrive and 25 percent leave during the 7 to 9 AM peak hour; 25 percent leave during the 4 to 6 PM peak hour. Numbers shown on the table are passenger car equivalent adjusted.

The construction laydown and parking area will be located in and around the common facilities, as well as those areas of each solar plant that are either outside the edges of the heliostat fields, or not previously or currently under construction in and around the power block area (see Figure 2-8). Construction access will generally be from 34th Avenue and Bradshaw Trail to the plant entrance road. Materials and equipment will be delivered by truck.

2.3.16 Generating Facility Operation

Management, engineering, administrative staff, skilled workers, and operators will serve all three plants. Rio Mesa SEGF is expected to employ up to 150 full-time employees: 30 with Rio Mesa I, 30 with Rio Mesa II, and 30 with Rio Mesa III, as well as 60 for the common area. The facility will be operated 7 days a week, typically up to 16 hours per day.

Detailed long-term maintenance schedules are currently unavailable, but will include periodic maintenance and overhauls in accordance with manufacturer recommendations. Replacements of solar field components are anticipated to occur at a rate of 0.5 percent per year, on average. The unskilled labor demand will include 12 hours of nightly mirror washing, with the entire solar field being washed over a period of 2 weeks.

The annual plant availability is expected to be 92 to 98 percent, however, it is possible that plant availability will exceed 98 percent during a given 12-month period.

The facility may be operated in either of the modes described below.

- Operation will occur at maximum continuous output for as many hours per year as thermal input allows.
- Shutdown may occur due to equipment malfunction, transmission line disconnect, or scheduled maintenance.

2.4 ENGINEERING

In accordance with CEC regulations, this section, together with the engineering appendices and Section 4.0, Gas Supply, presents information concerning the design and engineering of the Rio Mesa SEGF. The LORS applicable to the engineering of the Rio Mesa SEGF are provided, along with a list of agencies that have jurisdiction, the contact persons within those agencies, and a list of the permits that will be required.

2.4.1 Facility Design

A detailed description of the Rio Mesa SEGF is provided in Section 2.3, Generating Facility Description, Design, and Operation. Design for safety is provided in Section 2.4.1.1, Facility Safety Design. Appendices 5.4A and 5.11A contain Preliminary Geotechnical Reports for Private and Public Lands pertaining to the Rio Mesa SEGF site. Information contained in the reports is based on borings collected from the project site.

Descriptions of the design criteria are included in the appendices identified below.

- Appendix 2A, Civil Engineering Design Criteria
- Appendix 2B, Structural Engineering Design Criteria
- Appendix 2C, Mechanical Engineering Design Criteria
- Appendix 2D, Electrical Engineering Design Criteria
- Appendix 2E, Control Engineering Design Criteria
- Appendix 2F, Chemical Engineering Design Criteria
- Appendix 2G, Geologic and Foundation Design Criteria

Design and engineering information and data for specific systems are found in the sections of this AFC identified below.

- **Power Generation**—See Section 2.3.4, STGs, Boilers, and Condenser. Also see Appendix 2C and Section 2.2.5 through 2.2.13, which describe the various plant auxiliaries.
- **Heat Dissipation**—See Section 2.3.8, Plant Cooling Systems, and Appendix 2C.
- **Air Emission Control System**—See Section 2.3.11, Emission Control and Monitoring, and Section 5.1, Air Quality.
- **Waste Disposal System**—See Section 2.3.9 and Section 5.14, Waste Management.
- **Noise Abatement System**—See Section 5.7, Noise.
- **Switchyards/Transformer Systems**—See Section 2.3.5, Major Electrical Equipment and Systems; Section 2.3.13.2, Grounding; Section 2.3.5.1, AC Power-Transmission; Section 2.3.14, Interconnect to Electrical Grid; Section 3.0, Electric Transmission; and Appendix 2D.

2.4.1.1 Facility Safety Design

Rio Mesa SEGF will be designed to maximize safe operation. Potential hazards that could affect the facility include earthquake, flood, and fire. Facility operators will be trained in safe operation, maintenance, and emergency response procedures to minimize the risk of personal injury and damage to the plant.

Natural Hazards

Earthquakes represent the principal natural hazard associated with the project site. Structures will be designed to meet the seismic requirements of CCR Title 24 and the California Building Code (CBC) (Revision 2010). Section 5.4, Geologic Hazards and Resources, includes a review of potential geologic hazards, seismic ground motion, and potential for soil liquefaction due to ground shaking. Potential seismic hazards will be mitigated by implementing the current CBC construction guidelines. Appendix 2B, Structural Engineering, includes the structural seismic design criteria for the buildings and equipment.

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel # 06025C0275C (effective date of September 26, 2008), the project site is not impacted by a special flood hazard area. Although the FIRM does not depict any special flood hazard areas impacting the site, the California Department of Water Resources (DWR) recently published a study that identifies the area as an "awareness floodplain" or "100-year floodplain based upon best available data." The DWR study shows that four separate 100-year floodplains traverse the site. The "awareness floodplains" are treated as 100-year floodplains for the purpose of development of the Project. This means that 100-year water surfaces would need to be defined and structures would need to be raised above the 100-year water surface or the structures would need to be flood proofed to protect against the 100-year water surface. Riverside County Flood Control staff indicated that no FEMA submittal is required for developing within an "awareness floodplain" (RFCD & WCD Manual 1978, and DWR 2009). Therefore, facilities within the power blocks and common area are considered protected from flooding. Section 5.15, Water Resources, includes additional information on the potential for flooding.

Emergency Systems and Safety Precautions

This subsection discusses the fire protection systems, emergency medical services, and safety precautions to be used by Project personnel. Section 5.10, Socioeconomics, includes additional information on area medical services, and Section 5.16, Worker Safety, includes additional information on safety for workers. Appendices 2A through 2G contain the design practices and codes applicable to safety design for the Project. Compliance with these requirements will minimize the impact of the Project to public and employee safety.

Fire Protection Systems

The Project will rely both on on-site fire protection systems and on local fire protection services.

On-site Fire Protection Systems

The fire protection systems will be designed to protect personnel and limit property loss and plant downtime from fire or explosion. The Project will use the following fire protection systems:

- **Steam Turbine Lube Oil Areas Water Spray/Foam System.** This system provides suppression for the steam turbine area lube oil piping and lube oil storage.
- **Fire Hydrants/Hose Stations.** This system will supplement the plants' fixed fire suppression systems. Water will be supplied from the plants' fire water systems.
- **Fire Suppression.** The Project's administrative/control/warehouse/maintenance building, the heliostat assembly building, the plant water treatment building, and other structures will be equipped with fixed fire suppression systems and portable fire extinguishers as required by the local fire department.

Local Fire Protection Services

Rio Mesa SEGF is within the jurisdiction of Riverside County Station #44 in Ripley, California, which provides fire services in the area. Their approximate response time is 14-16 minutes. Station #44 has a Type 1 engine. Three staff members are on duty at all times (two firefighters and one paramedic).

The Hazardous Materials Risk Management Plan (see Section 5.5, Hazardous Materials Handling) for the plants will include all information necessary to allow firefighting and other emergency response agencies to plan and implement safe responses to fires, spills, and other emergencies.

Personnel Safety Program

The Rio Mesa SEGF will operate in compliance with federal and state occupational safety and health program requirements. Compliance with these programs will minimize the impacts of the Project on employee safety. These programs are described in Section 5.16, Worker Safety.

2.4.2 Facility Reliability

This subsection discusses the expected facility availability, equipment redundancy, fuel availability, water availability, and Project quality control measures.

2.4.2.1 Facility Availability

Because of the Rio Mesa SEGF system design and redundancy, and the ability to make repairs overnight, it is anticipated that the facility will normally operate at high average annual capacity factors.

The Rio Mesa SEGF will be designed for an operating life of 25 years. Reliability and availability projections are based on this operating life. Operation and maintenance procedures will be consistent with industry standard practices to maintain the useful life status of plant components.

The percentage of time that the power plants are projected to be operational is defined as the service factor. The service factor considers the amount of time that a unit is operating and generating power,

whether at full or partial load. The projected service factor for the power block, which considers projected percent of time of operation, differs from the equivalent availability factor (EAF), which considers the projected percent of energy production capacity achievable.

The EAF may be defined as a weighted average of the percent of full energy production capacity achievable. The projected equivalent availability factor for the Rio Mesa SEGF is estimated to be approximately 92 to 98 percent.

2.4.2.2 Redundancy of Critical Components

The following subsection identifies the redundancy of equipment that will exist as it applies to Project availability. A summary of the equipment redundancy is shown in Table 2.3-1. The final design could differ from what is described in Table 2.3.1.

Table 2.3.1
Equipment Redundancy

Component	Required per Power Plant	Project Spare Equipment stored in Common Area
Boiler Circulation Pumps	4 – 25% installed including VFD and UPS (100% represents MCR conditions)	2 – 25% spare pump including VFD and UPS per Project
Air Compressor	2 – 100% installed	-
Compressed Air Dryers	2 – 100% installed	-
ACC Vacuum Pumps (normal operation)	2 – 100% installed	-
ACC Vacuum Pump (night operation)	1 – 100% installed	-
CCW Pumps	2 – 100% installed	-
CCW Booster Pumps	2 – 100% installed	-
SRSG Boiler Feed Main and Booster Pump Set	1 – 100% Turbine-driven BFP with turbine drive installed. 1 – 100% electric motor-driven BFP with fluid coupling installed	1 – 100% Turbine-driven BFP per Project in storage consisting of a spare pump cartridge (both booster & main pump) & key spare parts for turbine drive 1 – 100% electric motor-driven BFP per Facility in storage consisting of a spare pump cartridge (both booster & main) with common electrical drive and fluid coupling
Condensate Pump	2 – 50% (including VFD)	1 – 50% (including VFD per Project in storage

Table 2.3.1
Equipment Redundancy

Component	Required per Power Plant	Project Spare Equipment stored in Common Area
Condensate Polisher/Pre-filter	2 – 100% installed (off-site regenerated)	Spare cation and anion resin available in storage
ACC duct drain pump	2 – 100% (including VFD) installed	
Auxiliary Boiler - Feed Pump	1 – 100% per boiler installed including VFD (3 Total)	1 – 100% spare pump and driver with VFD per Project
Night Preservation Boiler - Feedwater Pump	2 – 100% installed	
Startup Boiler – - Feedwater Pump	2 – 100% installed	
Demineralized Water Transfer Pump	2 – 100% installed	
Sump Pumps	2 – 100% per sump installed	
Diesel Fire Pump	1 – 100% installed	
Electric Fire Pump	1 – 100% installed	
Jockey Fire Pump	1 – 100% installed	
Well Water Pump	2 – 100% installed	
Well Water Pump (Common Area)	2- 100% installed	
Generator Step-up (GSU) Transformer	1 – 100% installed	1 – GSU Transformer per project in storage
Unit Auxiliary Transformer	1 – 100% installed	1 – UAT Transformer per project in storage
Station Service Transformer	1 – 100% installed	
Station Service Transformer	1 – 100% installed	
Battery Chargers	2 – 100% per plant for main power block DC 1 – 100% per plant for Backup Protection 1 – 100% for Common Area	
Uninterruptible Power Supply	1 – 100% Power Block UPS 1 – 100% Solar Field UPS 1 – 100% SRSG UPS 1 – 100% UPS for each BCP 2 – 100% for Common Area UPS	

2.4.3 Power Block

Each Plant will have a SRSG. Thermal energy from the steam generation system will be converted to mechanical energy, and then electrical energy in the STG. The expanded steam from the STG will be condensed and recycled to the feedwater system.

The major components of the power block are described below. The power block is served by the balance-of-plant systems described in Section 2.4.2.2

2.4.3.1 Steam Generation Subsystems

The steam generation subsystems will consist of the SRSG and blowdown systems. The SRSGs will collect solar energy from the heliostat mirrors and transfer it to feedwater for steam production. This heat transfer will produce steam at the pressures and temperatures required by the steam turbine. The blowdown system will maintain feedwater quality. The system will include safety and auto relief valves and will process continuous and intermittent blowdown streams.

2.4.3.2 Steam Turbine Generator Subsystems

The steam turbine will convert the thermal energy in the steam to mechanical energy to drive the direct connected generator. The basic subsystems will include the steam turbine and auxiliary systems, WSAC, turbine lube oil system, and generator/exciter system. The generator will be Totally Enclosed, Water to Air Cooled (TEWAC).

2.4.3.3 Distributed Control System

The DCS will be a redundant microprocessor-based system that will provide the following functions:

- interfacing with or controlling the following: heliostat mirrors, STG, and other systems in response to unit load demands (coordinated control),
- providing control room operator interface,
- monitoring plant equipment and process parameters and providing this information to the plant operators in a meaningful format, and
- providing visual and audible alarms for abnormal events based on field signals or software-generated signals from plant systems, processes, or equipment.

The DCS will have functionally distributed architecture comprising a group of similar redundant processing units linked to a group of operator consoles and an engineer workstation by redundant data highways. Each processor will be programmed to perform specific dedicated tasks for control information, data acquisition, annunciation, and historical purposes.

Plant operation will be controlled from the operator panel located in the control room. The operator panel will consist of two individual video/keyboard consoles and one engineering workstation. Each video/keyboard console will be an independent electronic package so that failure of a single package will

not disable more than one video/keyboard. The engineering workstation will allow the control system operator interface to be revised by authorized personnel.

2.4.3.4 Condensate System

The condensate system will provide a flow path from the condensate collection tank to the deaerator. The condensate system will include the air-cooled condenser, condensate pumps, condensate polisher, and four LP feedwater heaters.

2.4.3.5 Boiler Feedwater System

The boiler feedwater system will transfer feedwater from the deaereator to the SRSG. The system will consist of the deaerator, one turbine-driven boiler feedwater pump, including booster, one motor-driven boiler feedwater pump, including booster pump, and three HP feedwater heaters. Separate boiler feedwater pumps will be provided with the night-time preservation, start-up, and auxiliary boilers.

2.4.3.6 Boiler Feedwater Chemistry Control

The chemical injection system will consist of an all-volatile treatment (AVT) reducing system as described in the following sections. The system will provide pH control and limit the O_2 content in the condensate and feedwater systems.

2.4.3.7 Demineralized Water System

The demineralizer system will consist of ion exchangers. Resin media from the vessels will likely be regenerated off site by a third-party water treatment supplier. Spare resin for all three plants will be stored in the warehouse located in the common area. Demineralized water will be stored in the demineralized water storage tank.

2.4.3.8 Raw Water Treatment System (to be located in the Common Area)

The raw water treatment system will consist of an RO membrane filtration train. RO permeate will be stored in the treated water tank and used for mirror washing, hybrid auxiliary cooling tower makeup, and demineralizer feed. Reject from the RO system will be sent to the wastewater collection tank for further treatment and reuse.

2.4.3.9 Wastewater Treatment System

The components of the wastewater treatment system are described below.

Waste Water Collection: The Project will be designed for zero process liquid discharge. The Project will be designed to minimize the amount of water usage and optimizing reuse of process wastewater. Liquid waste from the SRSG and the WSAC blowdown and drains will be collected, treated, and recycled. In order to avoid having to treat large volumes of oily water, a rain canopy will be provided on top of all equipment that contains large volumes of oil (e.g., boiler feedwater pumps). Liquid waste from the

transformer pits will be drained to the storm water drain on an as-needed basis by means of portable pumps equipped with disposable oil filters.

Sumps and Drains: Process wastewater sumps will have two 100%-capacity pumps. The sumps and associated piping material, instrumentation, pumps, and valve materials will be designed for the appropriate service, considering proper operation and maintenance (e.g., concrete coatings and diaphragm seals where necessary).

Sanitary Sewage System: Sewage generated from the Plant Services Building will be collected using a gravity system that is connected to the power block lift station. The lift station will have two 100%-capacity submersible pumps. The lift pumps will discharge to the power block septic tank that drains via a gravity system into the power block leach field.

2.4.3.10 Wet-Surface Air Cooler Chemistry Control

The function of the WSAC chemical injection system will be to provide pH and alkalinity control along with scale/corrosion and microbiological control in the spray water.

2.4.3.11 Power Cycle Makeup and Storage

The power cycle makeup and storage subsystem will provide demineralized water storage and pumping capabilities to supply high-purity water for system cycle makeup. Major components of the system will consist of the demineralized water storage tank (2 days of operational storage at peak load), and demineralized water transfer pumps that will distribute water from the demineralized water storage tank for the following uses:

- steam cycle make-up
- auxiliary boiler make-up
- startup boiler make-up
- night-time preservation boiler make-up
- air-cooled condenser condensate storage tank fill
- air-cooler condenser vacuum pump make-up
- condensate polisher sluice water

2.4.3.12 Compressed Air

The compressed air system will provide instrument air and service air to points of use throughout each plant. The compressed air system will include motor-driven air compressors, air dryers, an air receiver, instrument air header, and service air header. All instrument air will be dried. A control valve will be provided in the service air header to prevent high consumption of service air from reducing the instrument air header pressure below critical levels.

2.4.4 Common Area

A 120-acre common area will be established on the eastern border of the site to accommodate an administration, warehouse, and maintenance complex; an onsite substation; asphalt-paved visitor and employee parking area; and landscape areas (Figure 2.1-2). The administration complex will occupy approximately 6 acres and will be served by power from the local 33 kV distribution system and water from water supply wells located in the common area.

The common area will also be used for temporary construction parking areas, construction trailers, a tire cleaning station, and other construction support facilities. The surface areas within the common area that are used for construction will be stabilized and dust suppression maximized in areas subject to heavy daily traffic.

2.4.4.1 Fuel Availability

Natural gas will be delivered via pipeline as described above and in Section 4.0, Natural Gas Supply.

2.4.4.2 Water Availability

The Project will use up to 260 afy of well water for operations. Water will be treated for reuse to limit the impact to the desert environment. Access to up to 600 afy of well water has been contracted from MWD within the lease agreement.

Potable water for drinking, safety showers, fire protection water, service water, and sanitary uses will be provided from the on-site wells and will be treated appropriately.

The ability of water to meet the needs of Rio Mesa SEGF is discussed in more detail in Section 5.15, Water Resources.

2.4.4.3 Project Quality Control

The Quality Control Program that will be implemented at the Rio Mesa SEGF is summarized in this section. The objective of the Quality Control Program will be to ensure that the appropriate quality measures are applied to all systems and components, whether during design, procurement, fabrication, construction, or operation of the facility. The goal of the Quality Control Program will be to achieve the desired levels of safety, reliability, availability, operability, constructability, and maintainability while electricity is being generated.

The required quality assurance for a system will be obtained by applying controls to various activities, based on the activity being performed. For example, the appropriate controls for design work are checking and reviewing, and the appropriate controls for manufacturing and construction are inspecting and testing. Appropriate controls will be applied to each of the various activities conducted at the Project.

Project Stages

For quality assurance planning purposes, the Project activities have been divided into the eight stages, described below, that apply to specific periods of time during the Project.

- **Conceptual Design Criteria.** Activities such as definition of requirements and engineering analyses.
- **Detail Design.** Activities such as the preparation of calculations, drawings, and lists needed to describe, illustrate, or define systems, structures, or components.
- **Procurement Specification Preparation.** Activities necessary to compile and document the contractual, technical and quality provisions for procurement specifications for plant systems, components, or services.
- **Manufacturer's Control and Surveillance.** Activities necessary to ensure that the manufacturers conform to the provisions of the procurement specifications.
- **Manufacturer Data Review.** Activities required to review manufacturers' drawings, data, instructions, procedures, plans, and other documents to ensure coordination of plant systems and components, and conformance to procurement specifications.
- **Receipt Inspection.** Inspection and review of a product at the time of delivery to the construction site.
- **Construction/Installation.** Inspection and review of storage, installation, cleaning, and initial testing of systems or components at the facility.
- **System/Component Commissioning and Startup.** Actual operation of generating facility components in a system in a controlled manner to ensure that the performance of systems and components conform to specified requirements.

As the Project progresses, the design, procurement, fabrication, erection, and checkout of each generating facility system will progress through the eight stages defined above.

Quality Control Records

The following quality control records will be maintained for review and reference:

- Project instructions manual
- Design calculations
- Project design manual
- Quality assurance audit reports
- Conformance to construction records drawings
- Procurement specifications (contract issue and change orders)
- Purchase orders and change orders

- Project correspondence

For procured component purchase orders, a list of qualified suppliers and subcontractors will be developed. Before contracts are awarded, the subcontractors' capabilities will be evaluated. The evaluation will consider suppliers' and subcontractors' personnel, production capability, past performance, and the quality assurance program.

During construction, field activities will be accomplished during the following four stages of the Project: receipt inspection, construction/installation, system/component testing, and plant operations. The construction contractor will be contractually responsible for performing the work in accordance with the quality requirements specified by contract.

The subcontractors' quality compliance programs will be assessed through conducting inspections and audits, and by the administration of independent testing contracts.

A plant operation and maintenance program, typical of a project this size, will be implemented by the Applicant to control the quality of operation and maintenance activities. A specific program for the Project will be defined and implemented during initial plant startup.

2.5 FACILITY CLOSURE

Facility closure can be temporary or permanent. Temporary closure is defined as a shutdown for a period exceeding the time required for normal maintenance, including closure for overhaul or replacement of the steam turbine. Causes for temporary closure include a disruption in the supply of natural gas, or damage to the plants from earthquake, fire, storm, or other natural acts. Permanent closure is defined as a cessation in operations with no intent to restart operations owing to plant age, damage to the plant beyond repair, economic conditions, or other reasons. Section 2.5.1 discusses temporary facility closure; Section 2.5.2 discusses permanent facility closure.

2.5.1 Temporary Closure

For a temporary facility closure, where there is no release of hazardous materials, security of the facilities will be maintained on a 24-hour basis. The CEC and BLM (for the portions of the Project located on BLM land) will be notified. Other responsible agencies will also be notified, as necessary and appropriate. Depending on the length of shutdown necessary, a contingency plan for the temporary cessation of operations will be implemented. The contingency plan will be conducted to ensure conformance with all applicable LORS and the protection of public health, safety, and the environment. The plan, depending on the expected duration of the shutdown, may include the draining of all chemicals from storage tanks and other equipment, and the safe shutdown of all equipment. All wastes will be disposed of according to applicable LORS, as discussed in Section 5.14, Waste Management.

Where the temporary closure includes damage to the facility, and there is a release or threatened release of regulated substances or other hazardous materials into the environment, procedures will be followed as set forth in a Risk Management Plan (RMP) and a Hazardous Materials Business Plan (HMBP) to be developed as described in Section 5.5, Hazardous Materials. Procedures will include methods to control releases, notification of applicable authorities and the public, emergency response, and training for plant

personnel in responding to and controlling releases of hazardous materials. Once the immediate problem is solved, and the regulated substance/hazardous material release is contained and cleaned up, temporary closure will proceed as described above for a closure where there is no release of hazardous materials.

2.5.2 Permanent Closure

When the facility is permanently closed, the closure procedure will follow a plan that will be developed as described below.

The removal of the facility from service, or decommissioning, may range from mothballing to the removal of all equipment and appurtenant facilities, depending on conditions at the time. Because the conditions that would affect the decommissioning decision are largely unknown at this time, these conditions would be presented to the CEC when more information is available and the timing for decommissioning is more imminent.

To ensure that public health and safety and the environment are protected during decommissioning, a decommissioning plan will be submitted to the CEC for approval prior to decommissioning. The plan will include the information described below.

- Proposed decommissioning activities for the facility and all appurtenant facilities constructed as part of the facility.
- Conformance of the proposed decommissioning activities to all applicable LORS and local/regional plans.
- Activities necessary to restore the site if the plan requires removal of all equipment and appurtenant facilities.
- Associated costs of the proposed decommissioning and the source of funds to pay for the decommissioning.

In general, the decommissioning plan for the facility will attempt to maximize the recycling of all facility components. The Applicant will attempt to sell unused chemicals back to the suppliers or other purchasers or users. All equipment containing chemicals will be drained and shut down to ensure public health and safety and to protect the environment. All nonhazardous wastes will be collected and disposed in appropriate landfills or waste collection facilities. All hazardous wastes will be disposed of according to all applicable LORS. The site will be secured 24 hours per day during the decommissioning activities.

2.6 REFERENCES

California Department of Water Resources (DWR). 2009. 100-Year Floodplains Based Upon Best Available Data.

Riverside County Flood Control and Water Conservation District (RFCDWCD). 1978. Hydrology Manual. April.

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5.1 AIR QUALITY

5.1.1 Introduction

This Application for Certification (AFC) for the Rio Mesa Solar Electric Generating Facility (Rio Mesa SEGF or Project) has been prepared in accordance with the California Energy Commission's (CEC) Power Plant Site Certification Regulations (CEC-140-2008-001-REV1, current as of July 2008). In addition, this AFC includes elements necessary for the United States (U.S.) Bureau of Land Management (BLM) to permit the Project through the National Environmental Policy Act (NEPA). The "Applicant" for purposes of this AFC comprises Rio Mesa Solar I, LLC, Rio Mesa Solar II, LLC, and Rio Mesa Solar III, LLC, owners of the three separate solar plants and certain shared facilities being proposed. These three Delaware limited liability companies will hold equal one-third shares in the ownership of shared facilities and will separately own their respective plants. They are wholly owned by Rio Mesa Solar Holdings, LLC (a Delaware limited liability company) which is in turn wholly owned by BrightSource Energy, Inc. (BrightSource) a Delaware corporation and the ultimate parent company. The Applicant will use BrightSource's solar thermal technology for the Rio Mesa SEGF.

The proposed project site is situated on the Palo Verde Mesa in Riverside County, California, 13 miles southwest of the City of Blythe, and is located partially on private land and partially on public land administered by BLM. The project will include three solar concentrating thermal power plants and a shared common area to include shared systems. The first plant, a 250 megawatt (MW) (nominal) facility known as Rio Mesa I, will be constructed at the south end of the project and owned by Rio Mesa Solar I, LLC. The second plant, another 250 MW (nominal) facility known as Rio Mesa II, will be located in the central portion of the project site and owned by Rio Mesa Solar II, LLC. Rio Mesa III, a third 250 MW (nominal) facility, will be constructed in the northern portion of the project site and owned by Rio Mesa Solar III, LLC. These three plants will be connected via a common overhead 220 kilovolt (kV) generator tie-line (gen-tie line) to the Southern California Edison (SCE) Colorado River Substation (CRS) approximately 9.7 miles to the north.

Each plant will utilize a solar power boiler (referred to as a solar receiver steam generator or SRSG), located on top of a dedicated concrete tower, and solar field based on proprietary heliostat mirror technology developed by BrightSource. The reflecting area of an individual heliostat (which includes two mirrors) is about 19 square meters (205 square feet [sq. ft.]). The heliostat (mirror) fields will focus solar energy onto the SRSG which converts the solar energy to superheated steam. In each plant, a Rankine cycle non-reheat steam turbine receiving this superheated steam will be directly connected to a rotating generator that generates and pushes the electricity onto the transmission system steam. Each plant will generate electricity using solar energy as its primary fuel source. However, auxiliary boilers will be used to operate in parallel with the solar field during partial load conditions and occasionally in the afternoon when power is needed after the solar energy has diminished to a level that no longer will support solar generation of electricity. These auxiliary boilers will also assist with daily start-up of the power generation equipment and night time preservation.

This section of the AFC describes existing air quality conditions; maximum potential impacts from the project; compliance with applicable laws, ordinances, regulations and standards; and mitigation measures that keep project impacts below applicable thresholds of significance. The methodology and results of the

air quality analysis used to assess potential impacts are also presented. The analysis has been conducted according to the CEC power plant siting requirements and also addresses Mojave Desert Air Quality Management District (MDAQMD) air permitting requirements.

- Section 5.1.2, Laws, Ordinances, Regulations, and Standards, describes applicable laws, ordinances, regulations, and standards (LORS) pertaining to air quality aspects of the project.
- Section 5.1.3, Affected Environment, describes elements of the local environment that are relevant to evaluation of the Project's potential air quality effects. These include topography, climate, and existing air quality. The most representative meteorological data—including wind speed and direction, temperature, relative humidity, and precipitation—and the most representative recent measurements of ambient air pollutant concentrations in the Project vicinity are summarized. Air pollutants emitted by the Project may travel in the atmosphere over long distances, but for practical purposes, the Project air quality study area can be considered to be the eastern section of Riverside County.
- Section 5.1.4, Environmental Analysis, evaluates the maximum potential air quality effects due to the Project's emissions of criteria pollutants [nitrogen oxides (NOx), carbon monoxide (CO), sulfur oxides (SOx), volatile organic compounds (VOC), particulate matter less than 10 microns in diameter (PM_{10}), and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$)]. Estimated emissions of these pollutants are presented for the construction phase of the Project, as well as for operation of the installed equipment. Because of the nature of the Project, operational emissions will be small; however, a modeling analysis conducted for operational emissions of nitrogen dioxide (NO_2), CO, sulfur dioxide (SO_2), and particulate matter ($PM_{2.5}$ and PM_{10}) is presented. The results show that the Project will neither cause an exceedance of the California and/or National Ambient Air Quality Standards (CAAQS and NAAQS), nor contribute significantly to an existing exceedance.
- Section 5.1.5, Cumulative Air Quality Impacts, addresses the cumulative effects of the Project emissions with other potential new sources of air pollution in the area around the Rio Mesa SEGF.
- Section 5.1.6, Consistency with Laws, Ordinances, Regulations, and Standards, describes all applicable LORS.
- Section 5.1.7, Mitigation Measures, describes the emission mitigation measures proposed for Project construction. Emission sources associated with the operational Project will be limited to exhaust from vehicles working on the site in support of solar collector cleaning and facility maintenance, in addition to diesel internal combustion engine drivers for one emergency fire water pump and one backup generator. These engines will only be tested periodically to ensure their operability in the event of a fire or emergency loss of grid power.
- Section 5.1.8, Involved Agencies and Agency Contacts, lists the agency personnel contacted during preparation of the air quality assessment.
- Section 5.1.9, Permits Required and Permit Schedule
- Section 5.1.10, References, lists the references used to conduct the air quality assessment.

The focus of this assessment of the Project's potential air quality effects is on criteria pollutants, i.e., those pollutants for which federal and California ambient standards have been promulgated. Information on the Project's emissions of toxic air contaminants and the associated health risks is presented in Section 5.16, Public Health and Safety.

5.1.2 Laws, Ordinance, Regulations and Standards

Each level of government—federal, state, and local—has adopted specific regulations that regulate emissions from stationary sources, several of which are applicable to this project. Each of these regulatory programs is discussed in the following sections. Table 5.1-1 summarizes the applicable laws, ordinances, regulations and standards (LORS) related to air quality.

Table 5.1-1
Laws, Ordinances, Regulations and Standards (LORS)

LORS	Summary	AFC Section Explaining Conformance
Federal		
National Environmental Policy Act (NEPA) of 1969	NEPA establishes a public, interdisciplinary framework for federal decision-making and ensures that Federal agencies take environmental factors into account when considering federal actions.	Section 5.1.2.1
Clean Air Act (CAA) §160-169A and implementing regulations, Title 42 United States Code (USC) §7470-7491 (42 USC §7470-7491), Title 40 Code of Federal Regulations (CFR) Parts 51 & 52 (Prevention of Significant Deterioration [PSD] Program)	Requires PSD review and facility permitting for construction of new or modified major stationary sources of air pollution. PSD review applies to pollutants for which ambient concentrations are lower than National Ambient Air Qualtiy Standards (NAAQS).	Section 5.1.2.1
CAA §171-193, 42 USC §7501 et seq. (New Source Review [NSR])	Requires NSR facility permitting for construction or modification of specified stationary sources. NSR applies to pollutants for which ambient concentration levels are higher than NAAQS.	Section 5.1.2.1
CAA §401 (Title IV), 42 USC §7651 (Acid Rain Program)	Requires reductions in NO_x and SO_2 emissions.	Section 5.1.2.1
CAA §501 (Title V), 42 USC §7661 (Federal Operating Permits Program)	Establishes comprehensive permit program for major stationary sources.	Section 5.1.2.1
CAA §111, 42 USC §7411, 40 CFR Part 60 (New Source Performance Standards [NSPS])	Establishes national standards of performance for new stationary sources.	Section 5.1.2.1

Table 5.1-1
Laws, Ordinances, Regulations and Standards (LORS)

LORS	Summary	AFC Section Explaining Conformance
CAA §112, 42 USC §7412, 40 CFR Part 63 (National Emission Standards for Hazardous Air Pollutants [NESHAP])	Establishes national emission standards to limit emissions of hazardous air pollutants (HAPs, or air pollutants identified by United States Environmnetal Protection Agency [EPA] as causing or contributing to the adverse health effects of air pollution, but for which NAAQS have not been established) from major sources of HAPs in specific source categories.	Section 5.1.2.1
State		
Warren-Alquist State Energy Resources Conservation and Development Act, California Public Resources Code, §§ 25000, et seq.	Gives the California Energy Commission (CEC) licensing authority in lieu of state, regional, and local permits and requirements.	Section 5.1.2.2
California Environmental Quality Act (CEQA) California Public Resources Code, Division 13, §§ 21000-21177, as amended 2010.	Requires all agencies of State government that regulate activities of private individuals, corporations, and public agencies, which are found to affect the quality of the environment, shall regulate such activities so that major consideration is given to preventing environmental damage.	Section 5.1.2.2
HSC §44300-44384; California Code of Regulations (CCR) §93300-93347 (Toxic "Hot Spots" Act)	Requires preparation and biennial updating of facility emission inventory of hazardous substances; risk assessments.	Section 5.1.2.2
California Public Resources Code §25523(a); 20 CCR §§1752, 2300-2309 (CEC & California Air Resources Board [CARB] Memorandum of Understanding)	Requires that CEC's decision on AFC include requirements to assure protection of environmental quality; AFC required to address air quality protection.	Section 5.1.2.2
17 CCR § 93115 (Airbone Toxic Control Measure [ATCM] for Stationary Compression Ignition Engines)	Establishes emission and operational limits for Diesel-fueled stationary compression ignition engines.	Section 5.1.2.2
Local		
Mojave Desert Air Quality Management District (MDAQMD) Regulation XIII (New Source Review)	NSR: Requires that pre-construction review be conducted for all proposed new or modified sources of air pollution, including best available control technology (BACT), emissions offsets, and air quality impact analysis.	Section 5.1.2.3
MDAQMD Rule 1320 (New Source Review for Toxic Air Contaminants)	Requires that pre-construction review be conducted for all proposed new or modified sources of toxic air contaminants.	Section 5.1.2.3
MDAQMD Regulation XII (Federal Operating Permits)	Implements operating permits requirements of CAA Title V.	Section 5.1.2.3

Table 5.1-1
Laws, Ordinances, Regulations and Standards (LORS)

LORS	Summary	AFC Section Explaining Conformance
MDAQMD Rule 1210 (Acid Rain Provisions of Federal Operating Permits)	Implements Acid Rain regulations of CAA Title IV.	Section 5.1.2.3
MDAQMD Rule 401 (Visible Emissions)	Limits visible emissions to no darker than Ringelmann No. 1 for periods greater than 3 minutes in any hour.	Section 5.1.2.3
MDAQMD Rule 402 (Nuisance)	Prohibits emissions in quantities that adversely affect public health, other businesses, or property.	Section 5.1.2.3
MDAQMD Rule 403 (Fugitive Dust)	Limits PM emissions from construction activity.	Section 5.1.2.3
MDAQMD Rule 404 (Particulate Matter)	Limits PM emissions from combustion sources.	Section 5.1.2.3
MDAQMD Rule 406 (Specific Contaminants)	Limits SO_2 emissions from stationary sources.	Section 5.1.2.3
MDAQMD Rule 407 (Liquid and Gaseous Air Contaminants)	Limits CO emissions from combustion sources.	Section 5.1.2.3
MDAQMD Rule 409 (Combustion Contaminants)	Limits PM emissions from combustion sources.	Section 5.1.2.3
MDAQMD Rule 431 (Sulfur Content of Fuels)	Limits the sulfur content of fuels combusted in stationary sources.	Section 5.1.2.3
MDAQMD Rule 475 (Electric Power Generating Equipment)	Limits NO_x and PM emissions from power generating equipment (e.g.., emergency engines, boilers).	Section 5.1.2.3
MDAQMD Rule 476 (Steam Generating Equipment)	Limits NO_x emissions from boilers.	Section 5.1.2.3

AFC = Application for Certification
ATSM = Airbone Toxic Control Measure
BACT = best available control technology
CAA = Clean Air Act
CARB = California Air Resources Board
CCR = California Code of Regulations
CEC = California Energy Commission
CEQA = Calfiornia Environmnetal Quality Act
CFR = Code of Federal Regulations
CO = Carbon monoxide
EPA = United States Environmental Protection Agency
HAP = Hazardous Air Particles
LORS = laws, ordinances, regulations and standards
MDAQMD = Mojave Desert Air Quality Management District
NEPA = National Environmnetal Policy Act
NESHAP = National Emission Standards for Hazardous Air Pollutants
NOx = Nitrous oxides
NSPS = New Source Performance Standards
NSR = New Source Review
PM = particulate matter
PSD = prevention of significant deterioration
SO_2 = Sulfur dioxide
USC = United States Code

5.1.2.1 Federal

National Environmental Policy Act

The NEPA establishes a public, interdisciplinary framework for Federal agencies reviewing projects under their jurisdiction to consider environmental impacts. NEPA's basic policy is to assure that all branches of government give proper consideration to the environment prior to undertaking any major federal action that significantly affects the environment.

The BLM, as lead Federal agency for the Project, is responsible for preparation of an Environmental Impact Statement (EIS) in compliance with NEPA to evaluate the environmental impacts of the portions of the Rio Mesa SEGF on federal lands. The Rio Mesa Solar III plant and the Project gen-tie line are located on lands administered and managed by the BLM. NEPA compliance is required for these portions of the Project through preparation of a Draft and Final EIS. BLM is also responsible for Native American consultation, including government to government consultation.

Clean Air Act

The U.S. Environmental Protection Agency (EPA) implements and enforces the requirements of many of the federal environmental laws. EPA Region 9, which has its offices in San Francisco, administers federal air programs in California. The federal Clean Air Act, as most recently amended in 1990, provides EPA with the legal authority to regulate air pollution from stationary sources. EPA has promulgated the following stationary source regulatory programs to implement the requirements of the federal Clean Air Act:

- Prevention of Significant Deterioration (PSD)
- New Source Review (NSR)
- Title IV: Acid Rain Program
- Title V: Operating Permits
- National Standards of Performance for New Stationary Sources (NSPS)
- National Emission Standards for Hazardous Air Pollutants (NESHAPs)

Clean Air Act §160-169A, 42 USC §7470-7491; 40 CFR Parts 51 and 52 - Prevention of Significant Deterioration (PSD) Program

Requirements: Requires pre-construction review and permitting of new or modified major stationary sources of air pollution to prevent significant deterioration of ambient air quality. PSD applies to pollutants for which ambient concentrations do not exceed the corresponding National Ambient Air Quality Standards (NAAQS) (i.e., attainment pollutants). The PSD program allows new sources of air pollution to be constructed, or existing sources to be modified, while preserving the existing ambient air quality levels, protecting public health and welfare, and protecting Class I areas (e.g., national parks, wilderness areas). Although this program is normally implemented at the local level with federal oversight, it is presently implemented in the MDAQMD by EPA Region 9.

The PSD requirements apply to any project that is a new major stationary source or a major modification to an existing major stationary source. A major source is a listed facility (one of 28 PSD source categories listed in the federal Clean Air Act) that emits at least 100 TPY, or any other facility that emits at least 250 TPY.

Effective July 1, 2011, a stationary source that emits more than 100,000 TPY of greenhouse gases (GHGs) is also considered to be a major stationary source. A major modification is any project at a major stationary source that results in a significant increase in emissions of any PSD pollutant. A PSD pollutant is a criteria pollutant for which an area is classified as unclassified/attainment.

A significant increase for a PSD pollutant is an increase above the significant emission rate for that pollutant (Table 5.1-2) It is important to note that, once PSD is triggered by any pollutant, PSD requirements apply to any PSD pollutant with an emission increase above the significance level, regardless of whether the facility is a major source for that pollutant.

Table 5.1-2
PSD Significant Emission Thresholds

Pollutant	PSD Significant Emission Threshold[a] (tpy)
NOx	40
SO_2	40
CO	100
VOC	40
PM_{10}	15
$PM_{2.5}$	10
Lead	0.6
GHG[b]	75,000

Notes:
[a] 40 CFR 52.21 (b)(1)(23).
[b] PSD/Title V GHG Tailoring Rule, June 3, 2010.

The principal requirements for the PSD program are outlined below.

- Emissions of the PSD pollutants that are subject to PSD review must be controlled using BACT.
- Air quality impacts in combination with other increment-consuming sources must not exceed maximum allowable incremental increases.
- Air quality impacts of all sources in the area plus ambient pollutant background levels cannot exceed NAAQS.
- Pre- and/or post-construction air quality monitoring may be required.

The air quality impacts on soils, vegetation, and nearby PSD Class I areas (specific national parks and wilderness areas) must be evaluated. Because of its low emissions levels, the Rio Mesa SEGF is not expected to require a PSD permit.

Administering Agency: EPA Region 9.

Clean Air Act §171-193, 42 USC §7501 et seq.; 40 CFR Parts 51 and 52 - New Source Review (NSR)

Requirement: Requires pre-construction review and permitting of new or modified major stationary sources of air pollution to allow industrial growth without interfering with the attainment and maintenance of NAAQS. New source review jurisdiction has been delegated to the MDAQMD.

Administering Agency: MDAQMD.

Clean Air Act §401 (Title IV), 42 USC §7651 - Acid Rain Program

Requirement: Requires the monitoring and reporting of emissions of acidic compounds and their precursors from combustion equipment at electric power generating facilities. The principal source of these compounds is the combustion of fossil fuels. Therefore, Title IV established national standards to monitor, record, and, in some cases, limit SO_2 and NO_x emissions from electrical power generating facilities. These standards are implemented at the local level with federal oversight.

Administering Agency: MDAQMD, with EPA Region 9 oversight.

Clean Air Act §501 (Title V), 42 USC §7661 - Title V Operating Permits Program

Requirements: Requires the issuance of operating permits that identify all applicable federal performance, operating, monitoring, recordkeeping, and reporting requirements. Title V applies to major facilities, Phase II Acid Rain facilities, subject solid waste incinerator facilities, and any facility listed by EPA as requiring a Title V permit. EPA has delegated authority for this program to MDAQMD.

Administering Agency: MDAQMD, with EPA Region 9 oversight.

Clean Air Act §111, 42 USC §7411; 40 CFR Part 60 - National Standards of Performance for New Stationary Sources

Requirements: Establishes national standards of performance to limit the emissions of criteria pollutants (air pollutants for which EPA has established NAAQS) from new or reconstructed facilities in specific source categories. Applicability of these regulations depends on equipment size, process rate, and date of construction. The Rio Mesa SEGF will be subject to the following NSPS:

- Subpart Da, Standards of Performance for Electric Utility Steam Generating Units, is applicable to the Rio Mesa SEGF boilers associated with the three 250 MW power blocks. For natural gas fired units, Subpart Da includes the following emission limits:

- NOx: 0.11 lbs/MMBtu (30-day average)
- SOx: 1.4 lbs/MWh (30-day average)
- PM: 0.015 lbs/MMBtu

- Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, is applicable to the emergency engines and the fire pump engines. These standards are enforced at the local level with federal and state oversight.

Administering Agency: MDAQMD, with EPA Region 9 oversight.

Clean Air Act §112, 42 USC §7412 - National Emission Standards for Hazardous Air Pollutants

Requirements: Establishes national emission standards to limit emissions of hazardous air pollutants (HAPs, or air pollutants identified by EPA as causing or contributing to the adverse health effects of air pollution, but for which NAAQS have not been established) from major sources of HAPs in specific source categories. These standards are implemented at the local level with federal oversight.

The requirements of 40 CFR 63 Subpart ZZZZ (National Emission Standards for Reciprocating Internal Combustion Engines) will apply to the emergency compression-ignition engines that are part of the project. For engines in this size range, compliance with the requirements of Subpart ZZZZ is achieved by purchasing engines that comply with the applicable NSPS (40 CFR 60 Subpart IIII).

40 CFR 63 Subpart JJJJJJ (National Emission Standards for Area Sources: Industrial/ Commercial/Institutional Boilers) does not include requirements for natural gas-fired boilers, so this regulation will not apply to the auxiliary boilers at the Rio Mesa SEGF.

Administering Agency: MDAQMD, with EPA Region 9 oversight.

Consistency with Federal Requirements

The MDAQMD has been delegated authority by the EPA to implement and enforce most federal requirements that are applicable to the project, including new source performance standards and new source review for nonattainment pollutants. Compliance with the MDAQMD regulations assures compliance and consistency with the corresponding federal requirements as well. The project would also be required to comply with the Federal Acid Rain requirements (Title IV). Because the MDAQMD is delegated authority to implement Title IV through its Title V permit program, the Title V Federal Operating Permit would include the necessary requirements for compliance with the Title IV Acid Rain provisions.

5.1.2.2 State

Warren-Alquist Act

The California Public Resources Code (PRC) establishes the CEC as the decision-making authority over land use decisions and environmental determinations during the AFC process. This is in accordance with

the Warren-Alquist Act, codified in §§ 25000 et seq. of the PRC. The CEC has exclusive jurisdiction over thermal power plant siting (50 MW or greater), including California Environmental Quality Act (CEQA) implementation. The Project will demonstrate conformity with state, regional, and local laws, including land use laws.

Under the Warren-Alquist Act, the CEC's licensing process is legally equivalent to CEQA and is guided by CEQA regulations.

California Environmental Quality Act

The CEC will be the lead agency enforcing CEQA for the Project. Under California law, the CEC is responsible for reviewing the AFCs filed for projects, and also has the role of lead agency for the environmental review of these projects under CEQA (PRC, §§ 25500 et seq; PRC, §§21000 et seq.). The CEC conducts this review in accordance with the administrative adjudication provisions of the Administrative Procedure Act (5 United States Code, §§ 500 et. seq.) and its own regulations governing site certification proceedings (CCR, Title 20, §§ 1701 et seq.). These provisions require the staff to conduct an independent analysis of AFCs and prepare an independent assessment of a project's potential environmental impacts, feasible mitigation measures, and alternatives as part of this process.

The CEC considers the Staff Assessment(s), along with the environmental analysis provided by the Applicant, as well as input from interested local, regional, State, and Federal agencies, intervenors, and interested Native American tribes, in developing its final decision on whether to issue a license for a proposed project. The CEC has a certified regulatory program under CEQA that exempts the agency from having to draft an Environmental Impact Report (EIR) and, instead, requires a Final Staff Assessment (FSA), evidentiary hearings, and a decision based on the hearing record, which includes the staff's and other parties' assessments.

The California Air Resources Board (CARB) was created in 1968 by the Mulford-Carrell Air Resources Act, through the merger of two other state agencies. CARB's primary responsibilities are to develop, adopt, implement, and enforce the state's motor vehicle pollution control program; to administer and coordinate the state's air pollution research program; to adopt and update, as necessary, the CAAQS; to review the operations of the local air pollution control districts (APCDs); and to review and coordinate preparation of the State Implementation Plan (SIP) for achievement of the NAAQS. CARB has implemented the following state or federal stationary source regulatory programs in accordance with the requirements of the federal Clean Air Act and California Health & Safety Code (HSC):

- SIP
- California Clean Air Act
- Toxic Air Contaminant Program
- Airborne Toxic Control Measure for Stationary Compression-Ignition Engines
- Nuisance Regulation
- Air Toxics "Hot Spots" Act
- CEC and CARB Memorandum of Understanding
- Climate Change Regulatory Program

Health & Safety Code (HSC) §39500 et seq. - State Implementation Plan (SIP)

Requirements: Required by the federal Clean Air Act, the SIP must demonstrate the means by which all areas of the state will attain and maintain NAAQS within the federally mandated deadlines. CARB reviews and coordinates preparation of the SIP. Local districts must adopt new rules (and/or revise existing rules) and demonstrate that the resulting emission reductions, in conjunction with reductions in mobile source emissions, will result in the attainment of NAAQS. The relevant MDAQMD Rules and Regulations that have also been incorporated into the SIP are discussed with the local LORS.

Administering Agency: MDAQMD, with CARB and EPA Region 9 oversight.

HSC §40910 – 40930 - California Clean Air Act

Requirements: Established in 1989, the California Clean Air Act requires local districts to attain and maintain both national and state ambient air quality standards at the "earliest practicable date." Local districts must prepare air quality plans demonstrating the means by which the ambient air quality standards will be attained and maintained. The relevant components of the MDAQMD Air Quality Plan are discussed with the local LORS.

Administering Agency: MDAQMD, with CARB oversight

HSC §39650 – 39675 - Toxic Air Contaminant (TAC) Program

Requirements: Established in 1983, the Toxic Air Contaminant Identification and Control Act created a two-step process to identify toxic air contaminants and control their emissions. CARB identifies and prioritizes the pollutants to be considered for identification as toxic air contaminants, and also assesses the potential for human exposure to a substance; the Office of Environmental Health Hazard Assessment (OEHHA) evaluates the corresponding health effects. Both agencies collaborate in the preparation of a risk assessment report, which concludes whether a substance poses a significant health risk and should be identified as a toxic air contaminant. In 1993, the Legislature amended the program to identify the 187 federal hazardous air pollutants as toxic air contaminants. CARB reviews the emission sources of an identified toxic air contaminant and, if necessary, develops air toxics control measures to reduce the emissions.

Administering Agency: CARB

Title 17, California Code of Regulations, §93115 - Airborne Toxic Control Measure for Stationary Compression-Ignition Engines

Requirements: The purpose of the airborne toxic control measure (ATCM) is to reduce Diesel particulate matter (DPM) and criteria pollutant emissions from stationary Diesel-fueled compression ignition engines. The ATCM applies to stationary compression-ignition engines with a rating greater than 50 brake horsepower. The ATCM requires the use of CARB-certified Diesel fuel or equivalent, and limits emissions from, and operations of, compression ignition engines.

Administering Agency: MDAQMD and CARB

CA Health & Safety Code §41700 - Nuisance Regulation

Requirements: Provides that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."

Administering Agency: MDAQMD and CARB

H& SC §44300-44384; 17 CCR §93300-93347 - Air Toxic "Hot Spots" Act

Requirements: Established in 1987, the Air Toxics "Hot Spots" Information and Assessment Act supplements the toxic air contaminant program, by requiring the development of a statewide inventory of air toxics emissions from stationary sources. The program requires affected facilities to prepare (1) an emissions inventory plan that identifies relevant air toxics and sources of air toxics emissions; (2) an emissions inventory report quantifying air toxics emissions; and (3) a health risk assessment, if necessary, to characterize the health risks to the exposed public. Facilities whose air toxics emissions are deemed to pose a significant health risk must issue notices to the exposed population. In 1992, the Legislature amended the program to further require facilities whose air toxics emissions are deemed to pose a significant health risk to implement risk management plans to reduce the associated health risks. This program is implemented at the local level with state oversight.

Administering Agency: MDAQMD with CARB oversight.

CEC and CARB Memorandum of Understanding

Authority: CA Pub. Res. Code §25523(a); 20 CCR §1752, 1752.5, 2300-2309 and Div. 2, Chap. 5, Art. 1, Appendix B, Part (k)

Requirements: Provides for the inclusion of requirements in the CEC's decision on an AFC to assure protection of environmental quality; thus the AFC is required to include information concerning air quality protection.

Administering Agency: CEC

Stats. 2006, Ch. 488 and CA Health & Safety Code § 38500-38590 - California Climate Change Regulatory Program

Requirements: The State of California adopted the Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32) on September 27, 2006, which requires sources within the state to reduce carbon emissions by approximately 25 percent by the year 2020. The California Climate Action Registry had already published protocols for voluntary reporting of GHG emissions from a number of sectors of the economy, and CARB has adopted regulations to limit GHG emissions from electric power plants and other specific source categories. In addition, CARB has issued guidance with recommended emission factors for calculating GHG emissions.

AB 32 also sets the following milestone dates for CARB to take specific actions:

- June 30, 2007: Identify a list of discrete early action GHG emission reduction measures (first report published April 20, 2007, with additional measures adopted on October 25, 2007).
- January 1, 2008: Establish a statewide GHG emission cap for 2020 that is equivalent to 1990 emissions.
- January 1, 2008: Adopt mandatory reporting rules for significant sources of GHGs.
- January 1, 2009: Adopt a scoping plan that will indicate how GHG emission reductions will be achieved from significant GHG sources through regulations, market-based compliance mechanisms, and other actions, including recommendation of a de minimis threshold for GHG emissions, below which sources would be exempt from reduction requirements.
- January 1, 2011: Adopt regulations to achieve maximum technologically feasible and cost-effective GHG emission reductions, including provisions for both market-based and alternative compliance mechanisms.
- January 1, 2012: Regulations adopted prior to January 1, 2010, become effective.

Senate Bill (SB) 97, adopted August 21, 2007, requires the California Office of Planning and Research (OPR) to develop CEQA guidelines "for the mitigation of GHG emissions or the effects of GHG emissions" by July 1, 2009. SB 97 further requires the Resources Agency Secretary to adopt these CEQA guidelines by January 1, 2010. Finally, SB 97 removes GHG emissions as a cause of action under CEQA for specified state-financed infrastructure projects until January 1, 2010.

The AFC is required to include the project's emission rates of greenhouse gases (CO_2, CH_4, N_2O, and SF_6) from the stack, cooling towers, fuels and materials handling processes, delivery and storage systems, and from all on-site secondary emission sources.

On January 25, 2007, the PUC and CEC jointly adopted an interim Greenhouse Gas Emissions Performance Standard (EPS) in an effort to help mitigate the impacts of greenhouse gas emissions on climate change. The EPS is a facility-based emissions standard requiring that all new long-term commitments for baseload generation to serve California consumers be with power plants that have emissions no greater than a combined-cycle gas turbine plant. That level is established at 1,100 pounds of CO_2 per megawatt-hour.

Administering Agencies**: CARB and CEC.**

Consistency with State Requirements

As discussed in Section 5.1.2.2, state law set up local air pollution control districts and air quality management districts with the principal responsibility for regulating emissions from stationary sources. The proposed project is under the local jurisdiction of the MDAQMD, and compliance with MDAQMD regulations will assure compliance with state air quality requirements.

5.1.2.3 Local

When the state's air pollution statutes were reorganized in the mid-1960s, local districts were required to be established in each county of the state. There are three different types of districts: county, regional (including the MDAQMD), and unified. In addition, special air quality management district (AQMDs), with more comprehensive authority over non-vehicular sources, as well as transportation and other regional planning responsibilities, have been established by the Legislature for several regions in California. Local districts have principal responsibility to do the following:

- Develop plans for meeting the NAAQS and California ambient air quality standards;
- Develop control measures for non-vehicular sources of air pollution necessary to achieve and maintain both state and federal air quality standards;
- Implement permit programs established for the construction, modification, and operation of sources of air pollution;
- Enforce air pollution statutes and regulations governing non-vehicular sources; and
- Develop programs to reduce emissions from indirect sources.

Under the regulations that govern new sources of emissions, the project is required to secure a preconstruction Determination of Compliance from the MDAQMD, as well as demonstrate continued compliance with regulatory limits when the new equipment becomes operational. The preconstruction review includes demonstrating that the new boilers will use best available control technology (BACT) and will provide any necessary emission offsets.

HSC §40914 - Mojave Desert Air Quality Plans

Requirements: Air quality plans define the proposed strategies, including stationary source and transportation control measures and new source review rules that will be implemented to attain and maintain the state ambient air quality standards. The relevant stationary source control measures and new source review requirements are discussed with MDAQMD Rules and Regulations.

Administering Agency: MDAQMD with EPA Region 9 and CARB oversight.

HSC §4000 et seq., HSC §40200 et seq., indicated MDAQMD Rules - MDAQMD Rules and Regulations

Requirements: Establishes procedures and standards for issuing permits; establishes standards and limitations on a source-specific basis.

Administering Agency: MDAQMD with EPA Region 9 and CARB oversight.

Authority to Construct

Regulation II—Permits, Rule 201 (Permit to Construct) specifies that any facility installing nonexempt equipment that causes or controls the emission of air pollutants must first obtain an Authority to

Construct from the MDAQMD. Under Regulation XIII Rule 1306 (Electric Energy Generating Facilities) Section (E)(3)(b), the District's Final Determination of Compliance acts as an authority to construct for a power plant upon approval of the project by the CEC.

Review of New or Modified Sources

Regulation XIII (New Source Review) implements the federal NSR and PSD programs, as well as the New Source Review requirements of the California Clean Air Act. The rule contains the following elements:

- BACT and Lowest Achievable Emission Rates (LAER)
- Emission offsets
- Air quality impact analysis (AQIA)

Best Available Control Technology (BACT)

BACT must be applied to any new or modified permit unit which has a potential to emit 25 pounds per day or more of any Nonattainment Air Pollutant. The Nonattainment Air Pollutants are ozone and its precursors NO_x and VOC, and particulate matter (PM_{10}) and its precursors NOx, SOx, and VOC.

The MDAQMD defines BACT (Rule 1301(K)(2)) for a non-major facility as the most stringent emission limitation or control technique that:

- Has been achieved in practice for the category or class of source; or
- Is any emission limitation or control technique determined to be technologically feasible and cost-effective; or
- Is contained in any SIP approved by EPA for such emission unit category, unless demonstrated to not be proven in field application, not be technologically feasible, or not be cost-effective.

Emission Offsets

A new or modified facility resulting in facility-wide emission increases above the thresholds shown in Table 5.1-3 must offset emission increases of nonattainment pollutants (and their precursors).

Table 5.1-3
MDAQMD Offset Emission Thresholds

Pollutant	Offset Threshold, tpy
CO	100
Hydrogen Sulfide	10
Lead	0.6

Table 5.1-3
MDAQMD Offset Emission Thresholds

Pollutant	Offset Threshold, tpy
PM_{10}	15
NOx	25
SOx	25
VOC	25

Source: MDAQMD Regulation XIII, Rule 1303 (B)(1)

Toxic Risk Management

Regulation XIII, Rule 1320 (New Source Review for Toxic Air Contaminants) provides a mechanism for evaluating the potential impact of air emissions of toxic air contaminant (TAC, also called non-criteria pollutants) from new, modified, and relocated facilities or permit units in the MDAQMD. The rule imposes more stringent requirements on permit units with higher risks, as shown in Table 5.1-4.

Table 5.1-4
MDAQMD Health Risk Thresholds

Requirement	Risk Threshold	Hazard Index
Utilize TBACT	1×10^{-6} (residential receptor) 1×10^{-5} (point of maximum impact)	--
Public Notification	10×10^{-5}	1
Application Denial	100×10^{-5}	10

CEC Review

Regulation XIII, Rule 1306 establishes a procedure for coordinating MDAQMD review of power plant projects with the CEC's AFC and Small Power Plant Exemption (SPPE) processes. Under this rule, the MDAQMD reviews the AFC/SPPE and issues a Determination of Compliance for a proposed project. Upon approval of the project by the CEC, this Determination of Compliance is equivalent to an Authority to Construct. A Permit to Operate is issued following demonstration of compliance with all permit conditions.

Prevention of Significant Deterioration

In the MDAQMD the Federal PSD program is administered by EPA, Region IX.

Acid Rain Permit

Regulation XII Rule 1210 (Acid Rain Provisions of Federal Operating Permits) adopts, by reference, the federal requirements of 40 CFR Part 72, which requires that certain subject facilities comply with maximum operating emissions levels for SO_2 and NOx, and monitor SO_2, NOx, and carbon dioxide emissions and exhaust gas flow rates. A Phase II Acid Rain facility, such as a new power plant project, must obtain an Acid Rain permit. A permit application must be submitted to the MDAQMD at least 24 months before operation of the new unit commences. The application must present all relevant Phase II sources at the facility, a compliance plan for each unit, applicable standards, and an estimated commencement date of operations.

Federal Operating Permit

Regulation XII (Federal Operating Permits) requires new or modified major facilities, NSPS sources, NESHAP sources, and/or Phase II Acid Rain facilities to obtain an operating permit containing the federally enforceable requirements mandated by Title V of the 1990 Clean Air Act Amendments. A Title V permit application for a new or modified source must be submitted to the MDAQMD within 12 months of commencing operation. The application must present a process description, all new stationary sources at the facility, applicable regulations, estimated emissions, associated operating conditions, alternative operating scenarios, a facility compliance plan, and a compliance certification.

New Source Performance Standards

Regulation IX Rule 900 (Standards of Performance for New Stationary Sources) adopts, by reference, the federal standards of performance for new or modified stationary sources. The NSPS for Electric Utility Steam Generation Units (40 CFR 60, Subpart Da) applies to new large boilers (>250 MMBtu/hr capacity) that make steam used to generate electricity. The applicability and requirements of the New Source Performance Standards are discussed above under the federal regulations section.

MDAQMD Prohibitory Rules

The general prohibitory rules in Regulation IV applicable to the project are summarized below.

Rule 401– Visible Emissions: Prohibits visible emissions as dark as, or darker than, Ringelmann No. 1 for periods greater than three minutes in any hour.

Rule 402– Nuisance: Prohibits the discharge from a facility of air pollutants that cause injury, detriment, nuisance, or annoyance to the public, or that damage business or property.

Rule 403—Fugitive Dust: Prohibits visible dust emissions off property due to transport, handling, construction, or storage activity. Requires dust minimization during grading and clearing of land. Limits the difference between upwind and downwind PM concentrations of 100 μg/cubic meter (5 hour average). Requires removal of particulate matter from equipment prior to movement on paved streets.

Rule 403.2—Fugitive Dust Control for the Mojave Desert Planning Area: The project lies outside the Mojave Desert Planning Area.

Rule 404 – Particulate Matter: Prohibits PM emissions in excess grains per dry standard cubic foot (gr/dscf) limits based on the exhaust flow rate of the equipment in question. This rule applies to the boilers and engines at the proposed project.

Rule 406 – Specific Contaminants: Prohibits sulfur emissions, calculated as SO_2, in excess of 0.05 percent by volume (500 parts per million by volume, ppmv), and acid gas emissions above specified levels. This rule applies to the boilers and engines at the proposed project.

Rule 407 – Liquid and Gaseous Air Contaminants: Prohibits carbon monoxide emissions in excess of 2000 parts per million by volume, ppmv. This rule applies to the boilers and engines at the proposed project.

Rule 409 – Combustion Contaminants: This rule prohibits PM emissions in excess of 0.1 gr/dscf from combustion equipment. This rule applies to the boilers and engines at the proposed project.

Rule 431 – Sulfur Content of Fuels: Prohibits the burning of gaseous fuel with a sulfur content of more than 800 ppm and liquid fuel with a sulfur content of more than 0.5 percent sulfur by weight. This rule applies to the boilers and engines at the proposed project.

Rule 475 – Electric Power Generating Equipment: Limits NO_x and PM emissions from electrical generating equipment rated greater than or equal to 50 MMBtu/hr to RACT levels. The NO_x and PM limits of this rule apply to the auxiliary and startup boilers at the proposed project (NO_x limit = 80 ppmv @ 3 percent O2; PM limit not to exceed 0.01 gr/dscf @ 3 percent O2 and 11 lbs/hour).

Rule 476 – Steam Generating Equipment: Limits NO_x emissions from steam generators rated above 50 MMBtu/hr to 125 ppm. This rule applies to the boilers at the proposed project.

Rule 1157 – Boilers and Process Heaters : Limits CO and NO_x from boilers. Applies only to boilers located within the Federal Ozone Nonattainment Area, which as defined in the rule includes only portions of San Bernardino County. Therefore this rule is not applicable to the proposed project.

Rule 1158 – Electric Utility Operations : Limits NO_x from electrical generating steam boilers. Applies only to boilers located within the Federal Ozone Nonattainment Area, which as defined in the rule includes only portions of San Bernardino County. Therefore this rule is not applicable to the proposed project.

Rule 1160 – Internal Combustion Engines: Limits emissions from internal combustion engines. Applies only to engines located within the Federal Ozone Nonattainment Area, which as defined in the rule includes only portions of San Bernardino County. Therefore this rule is not applicable to the proposed project.

5.1.3 Affected Environment

This section describes the regional climate and meteorological conditions that influence transport and dispersion of air pollutants and the existing air quality within the Project region. The data presented in this section are considered to be reasonably representative of the project site.

The Rio Mesa SEGF consists of the project site, linears, and a temporary laydown area (Figure 2-2, Project Features Map, Section 2.0). The project site is located in an unincorporated area of Riverside County south of Interstate 10, about 6 miles southwest of the Blythe Airport (about 13 miles southwest of downtown Blythe).

5.1.3.1 Geography and Topography

The project site is on the western slope of the Lower Colorado River Valley (on the pediment, outside the irrigated zone), approximately 392 feet above mean sea level.

5.1.3.2 Climate and Meteorology

Consistent with the typical weather of the interior deserts of Southern California, eastern Riverside County in general has an arid climate characterized by very low precipitation, hot summers, and mild winters. Temperature inversions occur, but are not as strong as in coastal areas, where the marine influence is important. The area's climatic conditions are strongly influenced by the large-scale sinking and warming of air in the semi-permanent subtropical high-pressure center over the eastern Pacific. This high-pressure system effectively blocks out most mid-latitude storms, except in winter when the ridge is weaker and farther south. The coastal mountains to the west also have a major influence on climate, serving as a meteorological boundary that effectively removes moisture from the marine air flowing from the Pacific.

The nearest full-time meteorological monitoring station to the proposed project site is maintained at the Blythe Airport approximately 6 miles northeast of the project site. Based on 86 years of climate data available from U.S. Historical Climatological Network (1909-1994), the annual average temperature measured at Blythe is 70 degrees Fahrenheit (°F). Temperatures of 32°F or below rarely occur at this station, but temperatures of 100°F or above are more frequent, occurring from June through September. During the fall, Santa Ana winds can last for several days. These are strong, dry northerly winds from the Great Basin and result in high temperatures (greater than 90°F) and low relative humidity (often below 20 percent) in the project area.

Eastern Riverside County receives a portion of its annual rainfall from November to March, when the semi-permanent high-pressure system over the eastern Pacific Ocean moves south, allowing storms to move through the area; and another portion of its annual rainfall at the height of summer, when the southwestern monsoon is present. In August, the boundary between the easterly, tropical trade winds and the mid-latitude westerlies sometimes moves north of the project site, and thunderstorms, sometimes even mesoscale convective complexes of thunderstorms, can be present in the vicinity. The average annual precipitation at the project site is about 3.5 inches. Local wind circulations are channeled north-south by the presence of the Colorado River Valley. Winds are typically of light to moderate strength from either the northwest or the southwest, and channeled by the river valley. Composite annual and quarterly wind roses are shown in Figures 5.1-1 through 5.1-5 (figures are provided at the end of this section). Individual annual and quarterly wind roses and quarterly wind frequency distributions for the project area are provided in Appendix 5.1A.

The nearest long-term meteorological station with available temperature and precipitation means and extremes is the National Weather Service Blythe CAA Airport station. This weather station is located

approximately 6 miles to the northeast of the Project at latitude 33°37'N, longitude 114°43'W. Data collected at this station over a 60-year period (1949-2010) are presented in Table 5.1-5. The hottest month, July, has an average maximum temperature of 108.4°F and an average minimum temperature of 81.1°F. The coldest month, January, has an average maximum temperature of 66.8°F and an average minimum temperature of 41.6°F.

Table 5.1-5
Average Temperature and Precipitation Data at Blythe (1949-2010)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Average Max. Temperature (°F)	66.8	72.0	78.4	86.4	95.2	104.5	108.4	106.7	101.4	89.8	76.0	66.6	87.7
Average Min. Temperature (°F)	41.6	45.4	50.2	56.5	64.5	72.7	81.1	80.2	73.1	60.8	48.6	41.2	59.7
Average Total Precipitation (in.)	0.49	0.44	0.36	0.15	0.02	0.02	0.23	0.62	0.35	0.26	0.20	0.41	3.54

Source: Western Regional Climate Center (http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca0927)
Note: °F = degrees Fahrenheit

Monthly mean precipitation amounts at Blythe range from 0.62 inches in August to 0.02 inches in May or June. Relative humidity levels are generally low. In the summer relative humidity averages 20 to 40 percent in the early morning and 10 to 30 percent in the afternoon. In winter, relative humidity averages 30 to 50 percent in the early morning and 10 to 30 percent in the afternoon. Wind speeds are normally light or calm.

5.1.3.3 Overview of Air Quality Standards

The EPA has established NAAQS for ozone, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and airborne lead. Areas with ambient levels above these standards are designated by EPA as "nonattainment areas" subject to planning and pollution control requirements that are more stringent than standard requirements.

The CARB has established California ambient air quality standards for ozone, CO, NO_2, SO_2, sulfates, PM_{10}, $PM_{2.5}$, airborne lead, hydrogen sulfide, and vinyl chloride at levels designed to protect the most sensitive members of the population, particularly children, the elderly, and people who suffer from lung or heart diseases.

Both state and national air quality standards consist of two parts: an allowable concentration of a pollutant, and an averaging time over which the concentration is to be measured. Allowable concentrations are based on the results of studies of the effects of the pollutants on human health, crops and vegetation, and, in some cases, damage to paint and other materials. The averaging times are based on whether the damage caused by the pollutant is more likely to occur during exposures to a high concentration for a short time (one hour, for instance), or to a relatively lower average concentration over a longer period (8 hours, 24 hours, or 1 month). For some pollutants there is more than one air quality standard, reflecting both short-term and long-term effects. Table 5.1-6 presents the NAAQS and CAAQS for selected pollutants. The California standards are generally set at concentrations lower than the federal standards and, in some cases, have shorter averaging periods.

Table 5.1-6
National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards		Federal Standards		
		Concentration	Method	Primary	Secondary	Method
Ozone	1 Hour	0.09 ppm (180 µg/m3)	Ultraviolet Photometry	--	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.07 ppm (137 µg/m3)		0.075 ppm (147 µg/m3)		
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m3	Gravimetric or Beta Attenuation	150 µg/m3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m3		--		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard		35 µg/m3 a	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m3	Gravimetric or Beta Attenuation	15.0 µg/m3		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (1 mg.m3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg.m3)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg.m3)		35 ppm (40 mg/m3)		
Nitrogen Dioxide (NO2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m3)	Gas Phase Chemiluminescence	53 ppb (100 µg/m3)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.18 ppm (339 µg/m3)		100 ppb b (188 µg/m3)	None	
Sulfur Dioxide (SO2)	24 Hour	0.04 ppm (105 µg/m3)	Ultraviolet Fluorescence	--	--	Ultraviolet Fluorescence Spectrophotometry (Parasaniline Method)
	3 Hour	--		--	0.5 ppm (1300 µg/m3)	
	1 Hour	0.25 ppm (655 µg/m3)		75 ppbc (196 µg/m3)	--	
Lead	30 Day Average	1.5 µg/m3	Atomic Absorption	--	--	--
	Calendar Quarter	--		1.5 µg/m3	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Average	--		0.15 µg/m3		

Table 5.1-6
National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards		Federal Standards		
		Concentration	Method	Primary	Secondary	Method
Visibility Reducing Particles	8 Hour	Extinction Coefficient of 0.23 per kilometer—visibility of ten miles or more due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24 Hour	25 µg/m3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m3)	Ultraviolet Fluorescence			
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m3)	Gas Chromatography			

Notes:
a To attain this standard, the 3-year average of the 98th percentile of the daily concentrations must not exceed 35 µg/m3.
b To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hr average must not exceed 100 ppb.
c To attain this standard, the 3-year average of the 99th percentiles of the daily maximum 1-hr average must not exceed 75 ppb.

5.1.3.4 Existing Air Quality

All ambient air quality data presented in this section were published by CARB on the ADAM website and/or by EPA on the AirData data website. Ambient air concentrations of ozone (O_3), NO_2, SO_2, CO, PM_{10}, and $PM_{2.5}$ are recorded at monitoring stations in Riverside County. The immediate area surrounding the project site (within 1.5 to 2 miles) is an area with sparse population. Further out, areas to the north, northwest, west, and southwest are all vacant with very sparse population. However, there are suburban areas with moderate residential areas more than 2 miles to the east (Blythe). The monitoring stations were generally positioned to represent area-wide ambient conditions rather than the localized impacts of any particular emission source or group of sources. In rural areas of the county, pollutant concentrations are not expected to vary dramatically from one location to the next, because the emission sources are few and widely distributed.

Ambient air quality monitoring data for ozone, PM_{10}, $PM_{2.5}$, CO, NO_2, and SO_2 were compared to the most stringent applicable standards for the years 2006 through 2010 at the most representative monitoring stations for each pollutant. Ozone data are from the Blythe-445 West Murphy Street monitoring station; PM_{10}, $PM_{2.5}$, NO_2, and CO data are from the Palm Springs Fire Station monitoring station; and SO_2 data are from the Victorville-14306 Park Avenue monitoring station. Airborne lead levels are taken from the San Bernardino-24302 4th Street monitoring station. The locations of these monitoring stations relative to the project site are shown in Figure 5.1-6. The representativeness of the data collected at these monitoring stations for the project site is discussed in Appendix 5.1H.

Ozone (O_3)

Ozone is an end-product of complex reactions between VOC and NO_x in the presence of ultraviolet solar radiation. VOC and NO_x emissions from vehicles and stationary sources, combined with daytime wind

flow patterns, mountain barriers, temperature inversions, and intense sunlight, generally result in the highest O_3 concentrations. The entire Mojave Desert air basin is classified as a nonattainment area with respect to state ambient standards for ozone, and the project location within the air basin is an unclassified/attainment area with respect to national ambient standards for ozone. Table 5.1-7 shows the measured ozone levels at the Blythe monitoring station during the period from 2006 to 2010. The 1-hour ozone CAAQS of 0.09 parts per million (ppm) was not exceeded from 2006 to 2010.

The federal 8-hour ozone NAAQS requires that the 3-year average of the fourth-highest values for individual years be maintained at or below 0.075 ppm. Therefore, the number of days in each year with maximum 8-hour concentrations above the standard in Table 5.1-7 does not equate to the number of violations.

Table 5.1-7
Ozone Levels at Blythe (ppm)

Blythe Station, Riverside County	2006	2007	2008	2009	2010
Maximum 1-hour Average	0.078	0.092	0.074	0.072	0.072
Number of Days Exceeding California 1-hour Standard (0.09 ppm)	0	0	0	0	0
Number of Days Exceeding Old National 1-hour Standard (0.12 ppm)a	0	0	0	0	0
Maximum 8-hour Average	0.059	0.076	0.071	0.066	0.068
Number of Days Exceeding California 8-hour Standard (0.07 ppm)	0	1	1	0	0
Number of Days Exceeding National 8-hour Standard (0.075 ppm)b	0	0	0	0	0

Sources: CARB ADAM Website (www.arb.ca.gov/adam/welcome.html); EPA AirData Website (http://www.epa.gov/air/data/index.html).

a EPA revoked the 1-hour ozone standard in all areas on June 15, 2005.
b To attain this standard, the 3-year average of the fourth-highest maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm. (Effective May 27, 2008).
ppm = parts per million.

Nitrogen Dioxide (NO_2)

NO_2 is formed primarily from reactions in the atmosphere between NO (nitric oxide) and oxygen (O_2) or ozone. NO is formed during high-temperature combustion processes, when the nitrogen and oxygen in the combustion air combine. Although NO is much less harmful than NO_2, it can be converted to NO_2 in the atmosphere within a matter of hours, or even minutes, under certain conditions. The control of NO and NO_2 emissions is also important because of the role of both compounds in the atmospheric formation of ozone.

Table 5.1-8 shows NO_2 levels recorded at the Palm Springs station for the years 2006 through 2010.

The Mojave Desert air basin is classified as an attainment area with respect to state ambient standards for NO_2 and an unclassified/attainment area with respect to national ambient standards for NO_2. During the period from 2006 to 2010, there were no violations of the CAAQS 1-hour standard (0.18 ppm) at any monitoring station in Riverside County. The highest 1-hour concentration recorded at the Palm Springs Fire Station monitoring station during the years 2006 to 2010 was 0.093 ppm in 2006. A new federal 1-hour NO_2 standard of 0.100 ppm became effective on April 12, 2010. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within Mojave Desert air basin must not exceed 0.100 ppm. Table 5.1-8 also shows that there were no violations of the annual NAAQS (0.053 ppm) or annual CAAQS (0.030 ppm) at the Palm Springs Fire Station monitoring station during this period.

Table 5.1-8
Nitrogen Dioxide Levels at Palm Springs (ppm)

Palm Springs Fire Station Monitoring Station, Riverside County	2006	2007	2008	2009	2010
Maximum 1-hour Average	0.093	0.063	0.049	0.048	0.046
Annual Average	0.011	0.010	0.009	0.008	0.009
Days Over State Standard (0.18 ppm, 1-hour)	0	0	0	0	0
Days Over Federal Standard (0.100 ppm, 1-hour)[a]	0	0	0	0	0

Sources: CARB ADAM Website (www.arb.ca.gov/adam/welcome.html); EPA AirData Website (http://www.epa.gov/air/data/index.html).

Notes:
new federal 1-hour average NO2 standard of 0.100 ppm was announced by EPA on February 9, 2010 and became effective April 12, 2010. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average values at each monitor must not exceed 100 ppb.

Daily max values were obtained from EPA AirExplorer (http://www.epa.gov/airexplorer/index.htm), Query Concentrations. None of the daily max values from 2006 to 2010 exceeded the new federal 1-hour average standard of 100 ppb, indicating no exceedances occurred in any of the days.

ppm = parts per million

Carbon Monoxide (CO)

Carbon monoxide is a product of incomplete combustion and is emitted principally from automobiles and other mobile sources of pollution. It is also a product of combustion from stationary sources (both industrial and residential) burning fuels. Peak CO levels occur typically during winter months due to a combination of higher emission rates and stagnant weather conditions.

Table 5.1-9 shows the available data on maximum 1-hour and 8-hour average CO levels recorded at the Palm Springs Fire Station monitoring station during the period from 2006 to 2010. As indicated by this table, the maximum measured 1-hour average CO levels comply with the NAAQS and CAAQS (35.0 ppm and 20.0 ppm, respectively) and the maximum 8-hour values comply with the NAAQS and CAAQS

of 9.0 ppm. The highest individual 1-hour and 8-hour CO concentrations at this station during the period from 2006 to 2010 were 2.3 ppm and 0.9 ppm, respectively, both recorded in 2006. The project location within the Mojave Desert air basin is an unclassified area with respect to the state CO ambient standard, and the entire Mojave Desert air basin is an unclassified/attainment area with regards to the federal CO standards.

Table 5.1-9
Carbon Monoxide Levels at Palm Springs (ppm)

Palm Springs Fire Station Monitoring Station, Riverside County	2006	2007	2008	2009	2010
Maximum 1-hour Average[a]	2.3	1.5	1.0	2.3	1.6
Maximum 8-hour Average	0.85	0.79	0.54	0.67	0.56
Days Over the 8-hour California Standard (9 ppm)	0	0	0	0	0
Days Over the 8-hour Federal Standard (9 ppm)	0	0	0	0	0

Sources: CARB ADAM Website (www.arb.ca.gov/adam/welcome.html); EPA AirData Website (http://www.epa.gov/air/data/index.html)

[a] 2009 and 2010 Max 1-hour Average obtained from http://www.epa.gov/mxplorer/index.htm, "Query Concentrations" function and the "24 Hourly Measurements for a Site and Day" on CARB ADAM Website (www.arb.ca.gov/adam/welcome.html)

ppm = parts per million

Sulfur Dioxide (SO_2)

SO_2 is produced by the combustion of any sulfur-containing fuel. It is also emitted by chemical plants that treat or refine sulfur or sulfur-containing chemicals. Natural gas contains nearly negligible sulfur, whereas fuel oils may contain much larger amounts. Because of the complexity of the chemical reactions that convert SO_2 to other compounds (such as sulfates), peak concentrations of SO_2 occur at different times of the year in different parts of California, depending on local fuel characteristics, weather, and topography. The Mojave Desert air basin is considered to be in attainment with respect to the state air quality standard and unclassified with respect to the federal air quality standard for SO_2.

Table 5.1-10 shows the available data on maximum 1-hour, 3-hour, 24-hour, and annual average SO_2 levels recorded at the Victorville station during the period from 2006 to 2010. As indicated by this table, the maximum measured 1-hour average SO_2 levels comply with the new NAAQS (75 ppb) and CAAQS (0.25 ppm); the maximum 3-hour average SO_2 levels comply with the NAAQS (0.5 ppm); and the maximum 24-hour values comply with the NAAQS and CAAQS of 0.14 ppm and 0.04 ppm, respectively. The table also demonstrates compliance with the annual SO_2 NAAQS of 0.03 ppm. Note that the 24-hour and annual NAAQS for SO_2 have been superseded by the new 1-hour NAAQS, which became effective on August 23, 2010.

Table 5.1-10
Sulfur Dioxide Levels at Victorville (ppm)

Victorville Station, San Bernardino County	2006	2007	2008	2009	2010
Highest 1-hour average	0.018	0.009	0.006	0.028	0.052
Highest 3-hour average	0.012	0.006	0.005	0.028	0.043
Highest 24-hour average	0.005	0.005	0.002	0.005	0.007
Annual Average	0.002	0.001	0.001	0.001	0.001
Days Over 1-hour State Standard (0.25 ppm)	0	0	0	0	0
Days Over 1-hour Federal Standard (75 ppb)[a]	NA	NA	NA	NA	NA
Days Over 24-hour State Standard (0.04 ppm)	0	0	0	0	0
Days Over 3-hour Federal Standard (0.5 ppm)	0	0	0	0	0

Sources: CARB ADAM Website (www.arb.ca.gov/adam/welcome.html); EPA AirData Website (http://www.epa.gov/air/data/index.html)

a Final rule signed June 22, 2010, effective August 23, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

NA = not applicable
ppm = parts per million

Particulates

Respirable Particulate Matter (PM_{10})

Particulates in the air are caused by a combination of wind-blown fugitive dust; particles emitted from combustion sources and manufacturing processes; and organic, sulfate, and nitrate aerosols formed in the air from emitted hydrocarbons, sulfur oxides, and nitrogen oxides. Particulates with a diameter less than or equal to 10 microns are referred to as PM_{10}, and are regulated because they can be inhaled, leading to health effects. Fine particulates, referred to as $PM_{2.5}$ and having a diameter equal to or less than 2.5 microns, are a subset of PM_{10} that are also regulated. $PM_{2.5}$ standards are discussed later in this section.

Table 5.1-11 shows the maximum PM_{10} levels recorded at the Palm Springs Fire Station monitoring station during the period from 2006 through 2010 and the arithmetic annual average concentrations for the same period. (The arithmetic annual average is simply the arithmetic mean of the daily observations.) PM_{10} is monitored according to different protocols for evaluating compliance with the state and federal standards for this pollutant. Specifically, California uses a gravimetric or beta attenuation method, whereas compliance with federal standards is evaluated based on an inertial separation and gravimetric analysis. This accounts for the slightly differing 24-hour concentrations listed in Table 5.1-11 that represent data obtained by means of the state and federal samplers.

Table 5.1-11
Particulate Matter (PM_{10}) Levels at Palm Springs ($\mu g/m^3$)

Palm Springs Fire Station Monitoring Station, Riverside County	2006	2007	2008	2009	2010
Maximum 24-hour Average (federal testing samplers)	226.0	83.0	75.0	140.0	37.0
Maximum 24-hour Average (state testing samplers)	222.0	81.0	73.0	133.0	-- [b]
Annual Arithmetic Meana	28.0	30.0	17.7	20.4	18.8
Estimated Number of Days Exceeding Federal Standard (150 $\mu g/m^3$)	6.6	0	-- [b]	-- [b]	0
Estimated Number of Days Exceeding State Standard (50 $\mu g/m^3$)	19.6	0	0	-- [b]	-- [b]

Sources: CARB ADAM Website (www.arb.ca.gov/adam/welcome.html); EPA AirData Website (http://www.epa.gov/air/data/index.html)

a On December 17, 2006, the annual PM_{10} federal standard (50 $\mu g/m^3$) was revoked.

b There were insufficient (or no) data available to determine the value

$\mu g/m^3$ = micrograms per cubic meter
PM_{10} = particulate matter less than 10 microns in diameter

At the Palm Springs Fire Station monitoring station, the maximum 24-hour PM_{10} levels exceed the CAAQS state standard of 50 micrograms per cubic meter ($\mu g/m^3$) a number of times per year. The maximum daily concentration[1] recorded during the analysis period was 222 $\mu g/m^3$ (state samplers) in 2006. The maximum annual arithmetic mean concentration recorded at Palm Springs was 30.0 $\mu g/m^3$ in 2007, which is above the state standard of 20 $\mu g/m^3$. The federal annual PM_{10} standard was revoked by the EPA in 2006 due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution. The attainment status of the project location within Riverside County is "unclassified" with respect to the federal PM_{10} standard, and nonattainment with respect to the state PM_{10} standards.

Fine Particulates ($PM_{2.5}$)

Fine particulates result from fuel combustion in motor vehicles and industrial processes, residential and agricultural burning, and atmospheric reactions involving NOx, SOx, and organics. Fine particulates are referred to as $PM_{2.5}$ and have a diameter equal to or less than 2.5 microns. In 1997, EPA established annual and 24-hour NAAQS for $PM_{2.5}$ for the first time. The most recent revision to the standard regulating the 3-year average of the 98th percentile of 24-hour $PM_{2.5}$ concentrations (35 $\mu g/m^3$) became effective on December 17, 2006.

The $PM_{2.5}$ data in Table 5.1-12 show that the national 24-hour average NAAQS of 35 $\mu g/m^3$ was not exceeded from 2006 to 2010. The maximum recorded 24-hour average 98th percentile value was 21

[1] Excluding approved exceptional events.

μg/m^3 in 2006. The annual $PM_{2.5}$ data are also presented in this table. The maximum annual arithmetic mean was 8.5 μg/m^3, recorded in 2007, which is below the national and stand standards of 15 and 12 μg/m^3, respectively. The project location within Riverside County is in attainment with regard to the federal $PM_{2.5}$ standards and is unclassified/attainment with regard to the state $PM_{2.5}$ standard.

Table 5.1-12
Particulate Matter ($PM_{2.5}$) Levels at Palm Springs (μg/m^3)

Palm Springs Fire Station Monitoring Station, Riverside County	2006	2007	2008	2009	2010
Maximum 24-hr Average 98th Percentile[a]	21	20	18	17	15
Annual Arithmetic Mean	7.8	8.5	7.1	6.5	5.9
Estimated Number of Days Exceeding Federal Standard (35 μg/m^3)	0	0	0	0	0

Sources: CARB ADAM Website (www.arb.ca.gov/adam/welcome.html); EPA AirData Website (http://www.epa.gov/air/data/index.html)

[a] EPA lowered the 24-hour standard from 65 μg/m^3 to 35 μg/m^3 on December 17, 2006. Compliance with this standard is based on the 3-year average of the 98th percentile daily concentrations.

μg/m^3 = micrograms per cubic meter
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter

Airborne Lead (Pb)

Lead pollution has historically been emitted predominantly from the combustion of fuels; however, legislation in the early 1970s required a gradual reduction of the lead content of gasoline. Beginning with the introduction of unleaded gasoline in 1975, lead levels have been dramatically reduced throughout the U.S., including California, and violations of the ambient standards for this pollutant have been virtually eliminated.

On October 15, 2008, EPA revised the federal ambient air quality standard for lead, lowering it from 1.5 μg/m^3 to 0.15 μg/m^3 for both the primary and the secondary standard. EPA determined that numerous health studies are now available that demonstrate health effects at much lower levels of lead than previously thought. EPA subsequently published the final rule in the Federal Register on November 12, 2008. This is the first time that the federal lead standard has been revised since it was first issued in 1978.

In addition to revising the level of the standard, EPA changed the averaging time from a quarterly average to a rolling three-month average. The level of the standard is "not to be exceeded" and is evaluated over a three-year period. Lead levels are measured as lead in total suspended particulate (TSP). The revised lead standard also includes new monitoring requirements.

Ambient lead levels are monitored in San Bernardino. Table 5.1-13 lists the federal air quality standard for airborne lead and the levels reported in San Bernardino between 2006 and 2010. Maximum quarterly levels are not reported on EPA's website; because the maximum 24-hour averages must be higher than the quarterly average, the data show that lead levels are actually well below the federal standard. The

Mojave Desert air basin is in attainment with respect to the state ambient standard for lead; there is no area designation information for the federal standard.

Table 5.1-13
Airborne Lead (Pb) Levels at San Bernardino (μg/m^3)

San Bernardino Monitoring Station, San Bernardino County	2006	2007	2008	2009	2010
Maximum 24-hour Average	0.03	0.07	0.02	0.02	0.02
Number of Days Exceeding Federal Standard (1.5 μg/m^3)	0	0	0	0	0

Sources: EPA AirData Website (http://www.epa.gov/air/data/index.html)
2009 and 2010 Max 24-hour Average obtained from http://www.epa.gov/mxplorer/index.htm, "Query Concentrations" function
Notes:
μg/m^3 = micrograms per cubic meter

Particulate Sulfates

Sulfate compounds found in the lower atmosphere consist of both primary and secondary particles. Primary sulfate particles are directly emitted from open pit mines, dry lakebeds, and desert soils. Fuel combustion is another source of sulfates, both primary and secondary. Secondary sulfate particles are produced when oxides of sulfur (SOx) emissions are transformed into particles through physical and chemical processes in the atmosphere. Particles can be transported long distances. The Mojave Desert air basin is in attainment with respect to the state ambient standard for sulfates; there is no federal standard.

Other State-Designated Criteria Pollutants

Along with sulfates, California has designated hydrogen sulfide and visibility-reducing particles as criteria pollutants, in addition to the federal criteria pollutants. The Mojave Desert air basin remains unclassified for both pollutants.

5.1.4 Environmental Analysis

Ambient air quality impact analyses for the Project have been conducted to satisfy the MDAQMD and CEC requirements for analysis of impacts from criteria pollutants (NO_2, CO, PM_{10}, $PM_{2.5}$, and SO_2) and noncriteria pollutants during project construction and operation. The analyses cover each phase of the project. Section 5.1.4.1 gives an overview of the analytical approach and the emitting units at the facility. Section 5.1.4.2 discusses facility operations. Section 5.1.4.3 presents the emissions for project operation and construction of the project. Section 5.1.4.4 discusses emissions and fuel use monitoring, and Section 5.1.4.5 presents the ambient air quality impacts of project construction and operation.

5.1.4.1 Overview of the Analytical Approach to Estimating Facility Impacts

The following sections describe the emission sources that have been evaluated, the results of the ambient impact analyses, and the evaluation of Project compliance with the applicable air quality regulations, including the MDAQMD's NSR requirements. These analyses are designed to confirm that the project's

design features lead to less-than-significant impacts even with the following conservative analysis assumptions and procedures: maximum allowable emission rates, project operating schedules that lead to maximum emissions, worst-case meteorological conditions, and adding the worst-observed existing air quality to the highest potential ground-level impact from modeling, even when all of these situations could not physically occur at the same time.

Emitting Units

The project comprises three identical 250 MW (nominal) plants: Plant 1 to the south, Plant 2 in the middle, Plant 3 to the north. The three solar plants will be constructed concurrently. The project also includes a common area. The relative locations of these areas are shown in Figure 2-2, Power Block Plot Plan, Section 2.0.

Each plant will include a power block with eight emitting units, consisting of five natural gas-fired boilers, two diesel fuel-fired emergency engines, and a wet surface air cooler. The Project also includes a common area with diesel fuel-fired emergency equipment consisting of a small emergency generator and a fire pump.

Three types of boilers will be used at each power block. Each boiler will be equipped with low-NO_x burners and flue gas recirculation (FGR) for NO_x control; CO will be controlled using good combustion practices; and particulate and VOC emissions will be minimized through the use of natural gas as the fuel. Specifications for the new boilers are summarized in Table 5.1-14.

To augment the solar output when solar energy diminishes or during transient cloudy conditions, each plant will utilize three 500 MMBtu/hr natural gas-fired auxiliary boilers, to be operated up to several hours on summer weekdays. The auxiliary boilers may also be used to extend daily power generation when there is not enough solar energy to fully utilize the solar boilers. Annual heat input to the auxiliary boilers will be limited to be less than 10 percent of annual solar energy capture.

Table 5.1-14
Natural Gas Boiler Specifications

	Auxiliary Boilers	Startup Boilers	Nighttime Preservation Boilers
Make & Model	Rentech or equivalent	Rentech or equivalent	Rentech or equivalent
Fuel	Natural gas	Natural gas	Natural gas
Maximum Boiler Heat Input Rate	500 MMBtu/hr @ HHV	249 MMBtu/hr @ HHV	15 MMBtu/hr @ HHV
Steam Production Rate	350,000 lb/hr	185,000 lb/hr	10,000 lb/hr
Stack Exhaust Temperature	406 °F	300 °F	300°F
Exhaust Flow Rate	167,000 acfm	74,100 acfm	5,800 acfm
Exhaust O2 Concentration, dry volume	3.0%	3.0%	3.0%

Table 5.1-14
Natural Gas Boiler Specifications

		Auxiliary Boilers	Startup Boilers	Nighttime Preservation Boilers
Exhaust CO2 Concentration, dry volume		10.2%	10.2%	10.2%
Exhaust Moisture Content, wet volume		16.3%	16.3%	16.3%
Emission Controls:	NOx	Low-NO_x Burners/FGR (9.0 ppmvd NO_x @ 3% O2)	Low-NOx Burners/FGR (9.0 ppmvd NO_x @ 3% O2)	Low-NOx Burners/FGR (9.0 ppmvd NO_x @ 3% O2)
	CO	Combustion controls (50 ppmvd @ 3% O2)	Combustion controls (25 ppmvd @ 3% O2)	Combustion controls (50 ppmvd @ 3% O2)
	VOC	Combustion controls (12.6 ppmvd @ 3% O2)	Combustion controls (12.6 ppmvd @ 3% O2)	Combustion controls (12.6 ppmvd @ 3% O2)

Each plant will use one 249 MMBtu/hr natural gas fired startup boiler to preheat the solar boiler and steam turbine generator piping before solar energy is available. This will enhance project efficiency by allowing solar flux to maximize output more quickly than if solar heating alone were used to preheat the entire system. During cloudy days or in case of emergency shutdown, the startup boilers may be used to keep the system hot to facilitate plant restart.

Finally, one small (15 MMBtu/hr) natural gas-fired boiler, called a nighttime preservation boiler, will be used at each plant to provide superheated steam to keep the steam turbine generators and boiler pump gland systems under vacuum overnight and during other shutdown periods when steam is not available. Using these small boilers will be more efficient than allowing these systems to cool and then using the larger startup boilers to reestablish the vacuums in the morning.

Table 5.15-15 presents the nominal fuel properties for the CPUC-regulated natural gas to be used by the boilers.

Each plant will also have one 2,500 kW diesel emergency generator at each power block to provide backup power to the facility in case of loss of line power; there will be one smaller 500 kW diesel emergency generator to provide emergency power to the common area (for a total of four engine generators). Specifications for these engine generators are provided in Table 5.1-16.

Table 5.1-15
Nominal Fuel Properties—Natural Gas

Component Analysis		Chemical Analysis	
Component	Average Concentration, Volume	Constituent	Percent by Weight
CH_4	97.1%	C	73 %

Table 5.1-15
Nominal Fuel Properties—Natural Gas

Component Analysis		Chemical Analysis	
Component	Average Concentration, Volume	Constituent	Percent by Weight
C_2H_6	1.3%	H	24 %
C_3H_8	0.2%	N	1 %
Iso-C_4H_{10}	0.04%	O	2 %
n-C_4H_{10}	0.04%	S	0.75 gr/100 scf
iso-C_5H_{12}	0.01%	Higher Heating Value	1,020 Btu/scf
n-C_5H_{12}	0.01%		22,840 Btu/lb
C_6+	0.01%		
N_2	0.30%		
CO_2	0.99%		
S	<0.0001%		
Total	100%		

Table 5.1-16
Emergency Generator Specifications

	Power Blocks (2 total)	Common Area
Make & Model	Caterpillar Gen. Set 2500 eKW or equivalent	Caterpillar Gen. Set 250 eKW or equivalent
EPA Cert	Tier 2	Tier 3
Fuel	CARB diesel	CARB diesel
Generator Rating, kW	2,500	250
Engine Rating, bhp	3,633	398
Fuel Consumption, gallons/hr	175	20
Stack Exhaust Temperature	925°F	855°F
Exhaust Flow Rate	19,600 acfm	2,250 acfm

One Diesel fire pump engine will be located in each power block as well as in the common area (total of four fire pump engines) to comply with fire codes. Typical specifications for these units are provided in Table 5.1-17.

Table 5.1-17
Specifications for the Diesel Fire Pump Engines

	Power Block Fire Pump Engines	Common Area Fire Pump Engine
Make & Model	Cummins CFP7E-F30 or equivalent	Cummins CFP5E-F30 or equivalent
EPA Cert	Tier 3	Tier 3
Fuel	CARB diesel	CARB Diesel
Engine Rating, bhp	200	125
Fuel Consumption, gallons/hr	12	8
Stack Exhaust Temperature	975°F	950°F
Exhaust Flow Rate	1,650 acfm	975 acfm

Diesel Fuel Supply and Storage

Diesel fuel for the emergency generators and fire pump engines will be stored in individual day tanks located adjacent to the units. The fire pump engine day tanks will be located in the individual fire pump houses. The diesel generator day tanks will be located in the generator skid bases. Diesel fuel consumption rates and diesel tank capacities are shown in Table 5.1-18.

Table 5.1-18
Maximum Diesel Fuel Use and Tank Capacities

Engine	Maximum Fuel Consumption Rate, gal/hr	Target Fuel Supply, Hours	Fuel Day Tank Capacity, gal
Emergency Diesel Generators, Power Blocks	175	9	1500
Emergency Diesel Generator, Common Area	40	13	500
Diesel Fire Pumps, Power Blocks	12	46	550
Diesel Fire Pump, Common Area	8	69	550

Diesel fuel for the mirror cleaning vehicles will be stored in an 8,000-gallon double-walled aboveground concrete storage tank. Nominal dimensions will be 23 feet long, 8 feet wide and 9 feet high.

The tanks are exempt from District permitting requirements per Rule 219.E.14.c ("Unheated storage of organic materials with an initial boiling point of 300 F or greater").

Wet Surface Air Coolers

The main process steam cooling system will use dry cooling. The Applicant proposes to use one partial dry-cooling system (PDCS) in each power block for the auxiliary systems, including, but not limited to, generator and lube oil cooling for major equipment. The PDCS is a closed-loop two-stage cooling system. In this system, the heat will be rejected using ambient air in a dry cooling system, followed by a closed-loop evaporative fluid cooler for additional cooling at higher ambient temperatures. Under most conditions, all cooling will be provided by the dry portion of the cooling system. The wet portion is operated only when the ambient temperature is 86°F or higher.

The dry cooling portion of the PDCS has no air emissions. The wet portion of the PDCS will be a small wet surface air cooler (WSAC). A WSAC uses mechanical, induced-draft technology in a closed circuit. In the fluid cooler, the process fluid to be cooled is pumped through coils and cooling water passes over the coils, cooling the process fluid by evaporation. In this system, the cooling water does not contact the process fluid. Particulate emissions result from evaporation of the cooling water that drifts from the fluid cooler. Treated well water will be used for makeup water. The Total Dissolved Solids (TDS) level of the recirculating water is expected to be approximately 1,500 ppmw after concentration. High efficiency drift eliminators will help to minimize emissions from the WSACs. The WSACs are exempt from MDAQMD permit requirements per District Rule 219.E.4.c (exempting "[w]ater cooling towers…not used for evaporative cooling of process water…").

Oil-Water Separators and Evaporators

As discussed in Section 2.0, Project Description, the Project will include small oil-water separators and evaporators at each power block. General plant drains will collect containment area washdown, sample drains, and drainage from facility equipment drains. Water from these areas will be collected in a system of floor drains, hub drains, sumps, and piping and routed to the collection system. Drains that potentially could contain oil or grease will first be routed through the oil/water separators. Water passing through the oil/water separator will be reduced in volume by small thermal evaporators that will operate intermittently, using either electrical energy or steam.

The capacity of each oil-water separator will be 50 gallons per minute; however, the expected throughput, based on the water balance, is only 2 gallons per minute at each power block. The oil-water separators are exempt from permitting per District Rule 219.E.14.c (exempting "containers, reservoirs or tanks used exclusively for: … unheated storage of organic materials with an initial boiler point of 300 F or greater.")

5.1.4.2 Facility Operations

The auxiliary boilers will be operated mainly on weekdays during the peak summer months (June through September) to augment the solar operation when solar energy diminishes or during transient cloudy conditions when solar insolation alone is not sufficient to generate adequate steam for the steam turbines. The auxiliary boilers will be started each summer weekday at about 2:30 p.m. and heated up using intermittent gas burner firing. At about 3:00 p.m. the boilers will start to generate steam and the load will be increased at a rate dictated by the boiler manufacturer. The auxiliary boilers are expected to reach full capacity by 6:00 p.m. and will continue to operate at full load for several hours. In this operating mode, all three boilers at a plant would be started, loaded, and operated in the same manner. On cloudy days,

the auxiliary boilers may operate independently, depending upon steam requirements, and may operate more hours at different loads. One auxiliary boiler at each power block would be maintained on hot standby mode (with very low heat input to maintain full pressure and minimum steam flow), while the other boilers would be on warm standby (in which a boiler is periodically started and held at low fire until it returns to the warm standby temperature). NO_x emissions from the auxiliary boilers will be continuously monitored to ensure that daily NO_x emissions remain below 25 pounds per day per boiler. The auxiliary boilers are not expected to operate between October and May. Maximum annual auxiliary boiler use will be the equivalent of approximately 200 full-load hours per year per boiler. Heat input from natural gas will be limited to below 15 percent of the heat input from the sun, on an annual basis.

The startup boilers will be operated up to two hours per day in the morning to warm the main steam systems before solar energy is available to the solar boilers. During cloudy days or in case of emergency shutdown of the solar boilers, the startup boilers may be used to keep the system hot to facilitate plant restart. Daily maximum impacts from boiler operations were calculated assuming that each boiler would be fired up to two hours at full load on any given day.

The nighttime preservation boilers will operate up to 12 hours per day (8 to 10 hours during the summer months, more during the winter months) to maintain system temperatures overnight.

Maximum annual startup boiler use will be the equivalent of approximately 800 full-load hours per year per boiler; maximum annual nighttime boiler operation will be the equivalent of approximately 4,036 full-load hours per year per boiler. The annual operating schedule is summarized in Table 5.1B-8, Appendix 5.1B.

Boiler heat inputs, as summarized in Table 5.1-14, correspond to the proposed individual unit emission limits. The daily and annual natural gas fuel use corresponding to the operating schedule described above are shown in Table 5.1-19: hourly heat input to each unit, total combined daily heat input to all units at the three plants, and total combined annual heat input to the three plants.

Emission rates and operating parameters for the boilers are shown in Appendix 5.1B, Tables 5.1B-1, B-2 and B-3. Emission rates and operating parameters for the emergency engines are shown in Appendix 5.1B, Tables 5.1B-4 and B-5. Emission rates and operating parameters for the fire pump engines are shown in Appendix 5.1B, Tables 5.1B-6 and B-7. The daily and annual fuel use levels are based on the daily/annual boiler operating hours shown in Appendix 5.1B, Table 5.1B-11.

Table 5.1-19
Maximum Facility Natural Gas Fuel Use, Boilers (MMBtu)[a]

Period	Auxiliary Boilers	Startup Boilers	Nighttime Preservation Boilers	Total Fuel Use (all boilers)
Per Hour (each unit)	500	249	15	--
Per Day (total, all units)	18,000	1,494	360	19,854
Per Year (total, all units)	900,000	597,600	181,620	1,679,220

Notes:
[a] MMBtu: million Btu

Emergency engines will be tested to ensure that they will function when needed. In order to provide maximum flexibility, it was assumed that each engine would use the 50 hours of testing allowed under the state stationary engine Airborne Toxics Control Measure (ATCM) plus an additional 150 hours per year of emergency operation.[2] It was also assumed that as a worst case, all of the emergency generator and fire pump engines would be tested at the same time. The engines would not be tested on days when the auxiliary boilers are operating. Combined annual fuel use in all engines, as shown in Table 5.1-20, will be limited by permit condition.

Table 5.1-20
Maximum Facility Diesel Fuel Use, Engines (MMBtu)[a]

Period	Power Block Emergency Engines	Common Area Emergency Engine	Power Block Fire Pump Engines	Common Area Fire Pump Engine	Total Fuel Use (all engines)
Per Hour (each unit)[b]	11.9	1.4	0.8	0.6	--
Per Day (total, all units)	35.7	1.4	2.4	0.6	40.1
Per Year (total, all units)	14,280	544	979	218	16,021

Notes:
[a] MMBtu: million Btu
[b] Based on 30-minute test operations.

As discussed above, the main process steam will be cooled using a dry cooling system. A PDCS will be used in each power block for auxiliary system cooling, including but not limited to lube and seal oil cooling for major equipment, and chemical feed system cooling requirements. Only the WSAC portion

[2] For annual criteria pollutant emissions calculations, emergency engine operation was limited to 50 hours/year to match the limit in the ATCM for operation for maintenance/testing purposes. However, for the calculation of annual greenhouse gas emissions, engine emergency operations must be included (see Section 5.1.4.5.5, Greenhouse Gas Emissions).

of the cooling system will have air emissions, and that portion of the cooling system is expected to operate only under high ambient temperature conditions.

5.1.4.3 Emissions Calculations

This section presents calculations of emissions increases from the proposed new boilers and engines. Tables containing the detailed calculations are included in Appendix 5.1B.

Criteria Pollutant Emissions: Combustion Equipment

The boilers, emergency engines, and Diesel fire pump engine emission rates have been calculated from data provided by the project engineering firm, project design criteria, and established emission calculation procedures. The emission rates for the boilers are shown in the following tables. The emission rates for the Diesel emergency and fire pump engines are shown in Tables 5.1B-4 through B-7 of Appendix 5.1B.

Boiler Emissions during Normal Operations

Emissions of NOx, CO, VOC, and SOx were calculated from the heat input (in MMBtu) and emission limits (in lbs/MMBtu). The NO_x emission limit reflects the use of low-NO_x burners and flue gas recirculation. The SOx emission factor of 0.0021 lb/MMBtu was derived from the maximum allowable (i.e., CPUC-approved tariff limit) fuel sulfur content of 0.75 grains per 100 standard cubic feet (gr/100 scf). Maximum emissions are based on the highest heat input rates shown in Table 5.1-14.

The VOC and CO emission limits reflect the use of good combustion practices. SOx, PM_{10}, and $PM_{2.5}$ emission rates are based on the use of natural gas as the fuel and good combustion practices.

Maximum hourly PM_{10} emissions are based on design specifications. $PM_{2.5}$ emissions were determined based on the assumption that all boiler exhaust particulate is less than 2.5 microns in diameter.

Emissions for the boilers are summarized in Table 5.1-21. The auxiliary and startup boilers are expected to have a 4:1 turndown ratio; the nighttime preservation boilers are expected to have a 5:1 turndown ratio. Full-load emission rates will be achieved throughout the turndown range. Emissions during other activities are discussed in more detail below.

Table 5.1-21
Maximum Hourly Emission Rates: Boilers, Normal Operations

Pollutant	ppmvd @ 3% O_2	lb/MMBtu	lb/hr
Auxiliary Boilers (each)			
NOx	9.0	0.011	5.5
SO2[a]	1.7	0.002	1.1
CO	50	0.037	18.7
VOC	12.6	0.0054	2.7

Table 5.1-21
Maximum Hourly Emission Rates: Boilers, Normal Operations

Pollutant	ppmvd @ 3% O_2	lb/MMBtu	lb/hr
$PM_{10}/PM_{2.5}$	n/a	0.005	2.5
Startup Boilers (each)			
NOx	9.0	0.011	2.7
SO2[a]	1.7	0.002	0.5
CO	25	0.018	4.7
VOC	12.6	0.0054	1.3
$PM_{10}/PM_{2.5}$	n/a	0.005	1.25
Nighttime Preservation Boilers (each)			
NOx	9.0	0.011	0.17
SO2[a]	1.7	0.002	0.03
CO	50	0.037	0.55
VOC	12.6	0.0054	0.08
$PM_{10}/PM_{2.5}$	n/a	0.005	0.08

Notes:
[a] Based on maximum natural gas sulfur content of 0.75 grains/100 scf.

Auxiliary Boiler Emissions During Hot/Warm Standby

During cloudy conditions, when solar energy is not sufficient to keep the steam turbine online, the auxiliary boilers will be kept in warm or hot standby mode to allow them to ramp up to operating pressure within about 30 minutes. In hot stand-by, a boiler is maintained at full pressure with minimum steam flow by firing at up to about 5 percent of rated heat input. In warm standby, a boiler is periodically started and held at low fire until it returns to a preset warm standby temperature. Because of the extremely low heat input experienced during these modes, combustion is less efficient and NOx, VOC, CO, and PM_{10} emission concentrations are elevated. However, hourly mass emission rates during these standby modes will be lower than full load emission rates because of the extremely low heat input rate. Hourly emission rates for the auxiliary boilers during hot standby are summarized in Table 5.1-22. Hourly emission rates for the boilers during warm standby operations will be even lower because firing will be intermittent.

Table 5.1-22
Maximum Hourly Emission Rates: Auxiliary Boilers, Hot/Warm Standby Operations

Pollutant	ppmvd @ 3% O2	lb/MMBtu	lb/hr
Auxiliary Boilers (each)			
NOx	100	0.12	3.0
SO2[a]	1.7	0.002	0.05
CO	250	0.18	4.6
VOC	25	0.0105	0.3
$PM_{10}/PM_{2.5}$	n/a	0.01	0.25

Note:
[a] Based on maximum natural gas sulfur content of 0.75 grains/100 scf.

Boiler Emissions During Startup/Shutdown

The auxiliary boilers may require up to 6 hours to achieve permitted emission limits (at 25 percent load) after an extended period of shutdown (cold start). The startup boilers may require up to 5 hours to achieve permitted limits, while the nighttime preservation boilers are expected to require less than 4 hours. Emissions during cold startup of each boiler were calculated assuming an average heat input rate over the startup period equivalent to half the minimum load (12.5 percent of maximum hourly heat input for the auxiliary and startup boilers and 10 percent of maximum hourly heat input for the nighttime preservation boilers). Expected emissions during a cold startup of the auxiliary and startup boilers are shown in Table 5.1-23; startup emissions for the nighttime preservation boilers are shown in Table 5.1-24. Emissions were calculated assuming that only one auxiliary or nighttime preservation boiler at each plant will be in cold startup at a time, and a boiler would require the full number of hours for startup and have the emissions shown only when other boilers are not operating and available to provide preheat steam. The startup boilers may undergo a cold startup when the nighttime preservation boilers are in operation.

A cold startup of an auxiliary boiler is expected to occur about once every 2 weeks during the summer season. Based on 4 months of expected summertime operation, a cold startup of an auxiliary boiler would occur about 8 times per year. To minimize daily emissions, the cold startup of an auxiliary boiler will be staged over a two-day period. Because the startup and nighttime preservation boilers will operate year-round, cold startups of these boilers would be expected to occur about every 4 weeks, or approximately 13 times per year.

Table 5.1-23
Maximum Hourly Emission Rates: Auxiliary and Startup Boilers, Startup Operations

Pollutant	ppmvd @ 3% O2	lb/MMBtu	Auxiliary Boiler lb/hr	Startup Boiler lb/hr
NOx	75	0.09	5.6	2.8
SO2[a]	1.7	0.002	0.13	0.07
CO	300	0.22	13.7	6.8
VOC	60	0.025	1.6	0.8
$PM_{10}/PM_{2.5}$	n/a	0.01	0.63	0.31

Notes:
[a] Based on maximum natural gas sulfur content of 0.75 grains/100 scf.

Table 5.1-24
Maximum Hourly Emission Rates: Nighttime Preservation Boilers, Startup Operations

Pollutant	ppmvd @ 3% O2	lb/MMBtu	lb/hr
NOx	70	0.084	0.13
SO2[a]	1.7	0.002	0.003
CO	275	0.20	0.31
VOC	55	0.023	0.04
$PM_{10}/PM_{2.5}$	n/a	0.01	0.02

Notes:
[a] Based on maximum natural gas sulfur content of 0.75 grains/100 scf.

Hourly NO_x emissions during cold startup of the auxiliary and startup boilers are expected to be slightly higher than hourly emissions during normal operation. Hourly CO emissions from the startup boiler may also be higher during cold startup than during normal operation.

During routine daily startups, emissions concentrations may be higher than those shown for normal operations in Table 5.1-21 until each boiler reaches its minimum compliant load (25 percent of rated load for the auxiliary and startup boilers; 20 percent of rated load for the nighttime preservation boilers). However, because of the shorter startup times and low heat input rates, the boilers are expected to comply with the pound per hour emission rates on a 3-hour average basis during these routine daily startups.

Boiler Operations During Commissioning Activities

During plant commissioning, emissions will be elevated during the first several days of operation of each boiler as it is started up and held at low loads for tuning. Expected emissions during boiler commissioning activities are shown in Table 5.1B-17, Appendix 5.1B. Only one boiler at a time will be undergoing commissioning activities.

Criteria Pollutant Emissions: Wet Surface Air Coolers

The dry cooling portion of the PDCS has no air emissions. The wet portion of each cooling system emits only water vapor and will be equipped with a 4,000 gallons per minute (gpm) WSAC. Particulate emissions result from evaporation of the cooling water that drifts from the fluid cooler.

Treated well water will be used for makeup water, and the Total Dissolved Solids (TDS) level of the recirculating water is expected to be approximately 1,500 ppmw after concentration.

Details of the cooling water drift calculation for the WSACs are shown in Appendix 5.1B, Table 5.1B-9. Particulate emissions from each cooling system will be about 40 pounds per year.

Criteria Pollutant Emissions: Mirror Cleaning

Mirror washing will employ a high-pressure system using treated water, by means of vehicle-towed trailers that contain a water tank, positive displacement water pumps that deliver water at high-pressure, and spray nozzles operated by the cleaning crew. The washing is expected to be done on a 2-week rotating cycle. The water washing will be supplemented with brushing, which will be done on an 8-week schedule.

Each solar field is divided into three zones for the purpose of heliostat cleaning, depending upon the locations and density of heliostat placement. These zones determine what type of mirror washing machine can be used for the heliostats in the zone. The Near Tower Zone (NTZ) consists of the area closest to the tower. The layout in this zone allows a vehicle to drive between the heliostats so that each heliostat can be accessed directly. The NTZ mirror washing machines are small and maneuverable. Each solar plant will require four NTZ mirror washing machines.

Heliostats beyond the Near Tower Zone cannot be accessed directly and must be reached with a crane. The heliostats that are more than about 400 meters from the tower will be cleaned using tractor-towed trailers with telescoping arms that can reach the heliostats from the limited areas in which vehicles can drive. Each machine will drive a short distance, park and anchor, and then extend its crane arm to clean as many heliostats as can be reached from its location. Each solar plant will require a total of 17 tractor-pulled trailers for cleaning heliostats outside the NTZ.

Two components contribute to emissions from site maintenance activities: combustion emissions from vehicles, and fugitive dust from driving over unpaved surfaces. Calculations of emissions from mirror cleaning activities are shown in Appendix 5.1B, Table 5.1B-10 and are summarized in Table 5.1-25 below.

Table 5.1-25
Emissions from Mirror Cleaning Activities

	Pollutant						
	NOx	SO2	CO	VOC	PM_{10}	$PM_{2.5}$	DPM
Hourly, lb/hr	10.7	0.19	3.1	5.1	2.9	0.6	0.4
Daily, lb/day	112.3	2.0	33.0	53.5	30.5	6.4	3.7
Annual, ton/yr	20.5	0.37	6.0	9.8	5.6	1.2	0.7

Criteria Pollutant Emissions: Plant Operation

The calculation of maximum facility emissions shown in Table 5.1-26 is based on the boiler emission rates shown in Table 5.1-21, the fuel use levels in Table 5.1-19, and the following assumptions:

- Although the auxiliary, startup and nighttime preservation boilers are unlikely to be operated at the same time, a worst-case assumption is that boiler operations occur simultaneously.
- Each engine may be operated for maintenance and testing for up to 30 minutes on a single day and up to 50 hours per year. Although it is highly unlikely that all engines will be tested at the same time, the analysis of maximum hourly emissions during emergency engine testing assumes that all of the engines may be tested at the same time. Engines will not be tested on a day when the auxiliary boilers are operating.

Mirror cleaning will occur at night and will overlap only with operation of the nighttime preservation boilers.

Hourly, daily, and annual emissions from the new facility are shown in Appendix 5.1B, Table 5.1B-11. The maximum hourly, daily, and annual emissions, summarized in Table 5.1-26, are used in the air dispersion modeling to calculate the maximum potential ground-level concentrations contributed by the project to the ambient air.

Greenhouse Gas Emissions

Direct emissions of GHGs from the Project are presented in Table 5.1-27. with the detailed GHG calculations included in Appendix 5.1B, Table 5.1B-12. Carbon dioxide, nitrous oxide, and methane emissions are based on default emission factors for boilers and reciprocating internal combustion engines in the California Air Resources Board GHG Reporting Regulation.[3] The estimated emissions include sulfur hexafluoride leakage emissions from six circuit breakers at the switchyard (five in use, one in storage) and one Generator Circuit Breaker (GCB) at each power block. Emissions of methane, nitrous

[3] CARB, *Regulation for the Mandatory Reporting of Greenhouse Gas Emissions, Appendix A*, December 2007

oxide, and sulfur hexafluoride have been converted to carbon dioxide equivalents using GHG warming potentials of 21, 310, and 23,900, respectively.

When calculating criteria pollutant emissions from the emergency generators, only the allowable hours per year of operation for testing and maintenance are used to determine maximum annual emissions; emergency use is not considered.[4] However, EPA guidance for determining potential to emit from emergency engines requires the inclusion of all operations: "EPA has no policy that specifically requires exclusion of 'emergency'… emissions."[5] In the absence of any permit limitation on annual emissions, EPA "believes that 500 hours is an appropriate default assumption for estimating the number of hours that an emergency generator could be expected to operate under worst-case conditions."[6] Therefore, in the absence of any limiting permit condition, the calculation of PTE for GHG would have to assume that each emergency engine and fire pump engine will operate for 500 hours per year. The Applicant believes that operation of the emergency equipment will in fact not exceed 200 hours per year and is proposing an annual combined fuel use limit, equivalent to 200 hours per year of full-load operation of each unit, that will limit the GHG potential to emit for the emergency units and ensure that GHG emissions from the facility will be less than 100,000 tpy. As discussed in Section 5.1.5.2, for facility-wide annual criteria pollutant emissions calculations, engine operation was limited to 50 hours/year to match the limit in the ATCM for operation for maintenance/testing purposes.

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[4] CARB, *Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled* Engines, October 2000; Footnote 3 to Table 1, Permitting Requirements for New Stationary Diesel-Fueled Engines ("The annual hours of operation for emergency standby engines include the hours of operation for maintenance and testing runs only.")

[5] EPA, Letter from Steven C. Riva, Chief, Permitting Section, Air Programs Branch, to William O'Sullivan, Director, Division of Air Quality, New Jersey Department of Environmental Protection, February 14, 2006.

[6] EPA, Memorandum from John S. Seitz, Director, OAQPS, to Regional Directors, re: "Calculating Potential to Emit (PTE) for Emergency Generators," September 6, 1995.

Table 5.1-26
Maximum Emissions from New Equipment

	Pollutant				
Emissions/Equipment	NOx	SO_2	CO	VOC	$PM_{10}/PM_{2.5}$
Maximum Hourly Emissions[a]					
Boilers	58.2	11.1	179.8	28.6	26.5
Emergency Engines	59.0	0.06	32.3	2.1	1.9
Diesel Fire Pump Engines	2.4	<0.01	2.2	0.1	0.1
WSACs	--	--	--	--	<0.01
Total, pounds per hour	61.4	11.1	179.8	28.6	26.5
Maximum Daily Emissions[b]					
Boilers	260.4	42.8	801.2	118.9	104.0
Emergency Engines	59.0	0.06	32.3	2.1	1.9
Diesel Fire Pump Engines	2.4	<0.01	2.2	0.1	0.1
WSACs	--	--	--	--	0.5
Total, pounds per day	260.4	42.8	801.2	118.9	104.5
Maximum Annual Emissions					
Boilers	10.8	1.8	28.8	5.0	4.4
Emergency Engines	2.9	<0.01	1.7	0.1	0.1
Diesel Fire Pump Engines	0.1	<0.01	0.1	0.01	0.01
WSACs	--	--	--	--	0.04
Total, tons per year	13.8	1.8	30.6	5.1	4.5

Notes:
[a] Boilers and engines will not operate during the same hour (see Table 5.1B-11, Appendix 5.1B). Maximum hourly emissions occur during boiler operations.

[b] Engine testing will occur only on days when the auxiliary boilers do not operate (see Table 5.1B-11, Appendix 5.1B). Maximum daily emissions occur on a day when the startup boilers undergo cold startup.

Table 5.1-27
Annual Emissions of Greenhouse Gases (GHGs)

Pollutant	Emissions (metric ton/year)	CO2 Equivalent (metric ton/yr)	CO2 Equivalent (tons/yr)
CO_2	89,951	89,951	--
Nitrous Oxide	0.2	55.0	--
Methane	1.6	32.8	--
SF6	3.0x10-3	71.7	--
Total	--	90,111	99,122

Evaluation of Potential PSD Applicability

For the purposes of determining applicability of the PSD program requirements, the following regulatory procedure is used. Project emissions are compared with regulatory significance thresholds to determine whether the facility is major and thus may be subject to PSD review. If the facility emissions exceed these thresholds, it is a major facility. The comparison in Table 5.1-28 indicates that the Project would not be a major source because its emissions of all pollutants are below the applicable major source thresholds.

Table 5.1-28
Comparison of Project Emissions With PSD Major Source Thresholds

Pollutant	Maximum Annual Project Emissions (tpy)	PSD Major Source Threshold (tpy)	Is Facility a Major Source?
NO_2	13.8	100	No
SO_2	1.8	100	No
CO	30.6	100	No
VOC	5.1	100	No
PM_{10}	4.5	100	No
$PM_{2.5}$	4.5	100	No
CO_2e	99,122	100,000	No

Non-Criteria Pollutant Emissions

Maximum hourly and annual noncriteria pollutant (TAC) emissions were estimated for the proposed boilers, emergency generators, emergency fire pumps, and partial dry cooling systems (WSACs).

Maximum proposed TAC emissions for the boilers are shown in Table 5.1-29, and were calculated from the heat input rates (in MMBtu/hr and MMBtu/yr) shown in Table 5.1-19 and Table 5.1-20, EPA emission factors (in lb/MMscf), and the nominal higher heating value for the natural gas of 1020 Btu/scf.

Because Diesel particulate matter is regulated by the State of California as a TAC, all of the PM_{10} emissions from the Diesel emergency engines and Diesel fire pump engines are also included. (These are shown in Table 5.1-17, with supporting calculations shown in Appendix 5.1B, Tables 5.1B-4 through B-7.) The ambient impact of these non-criteria pollutant emissions is determined by the potential health risks calculated in the screening health risk assessment (see Section 5.1.4.6).

Detailed calculations of the TAC emissions from the facility are shown in Appendix 5.1B, Tables 5.1B-14 and 5.1B-15. Toxic air contaminant emissions from the WSACs are negligible, as shown in Table 5.1B-16 of Appendix 5.1B.

Table 5.1-29
Summary of Toxic Air Contaminant (TAC) Emissions from Project Operation

Compound	Maximum Proposed Emissions (total, all units)	
	lb/hr	tpy
Boilers[a]		
Acetaldehyde	4.8×10^{-3}	9.5×10^{-4}
Acrolein	4.2×10^{-3}	8.4×10^{-4}
Benzene	9.0×10^{-3}	1.8×10^{-3}
Ethylbenzene	1.1×10^{-2}	2.1×10^{-3}
Formaldehyde	1.9×10^{-2}	3.8×10^{-3}
Hexane	6.9×10^{-3}	1.4×10^{-3}
Naphthalene	1.6×10^{-3}	2.5×10^{-4}
Polycyclic Aromatics	5.2×10^{-4}	8.4×10^{-5}
Propylene	1.0×10^{-1}	5.9×10^{-2}
Toluene	4.1×10^{-2}	8.2×10^{-3}
Xylene	3.1×10^{-2}	6.1×10^{-2}
Emergency Engines[b]		
Diesel Particulate Matter	1.9	9.3×10^{-2}
Fire Pump Engines[b]		
Diesel Particulate Matter	0.1	7.0×10^{-3}
Mirror Cleaning[c]		
Diesel Particulate Matter	0.4	0.7
Total HAPs[d]		2.6×10^{-2}

Notes:
[a] Emission factors obtained from Ventura County APCD. See Appendix 5.1B, Tables 5.1B-13 through 5.1B-15.
[b] All PM_{10} emissions from Diesel engines are TACs.
[c] From Table .
[d] Propylene and Diesel Particulate Matter are not HAPs.

As emissions of each individual federally regulated HAP are below 10 tons per year and total HAP emissions are below 25 tons per year, the project is an area source of HAPs. Compliance with the applicable NESHAPs is discussed in Section 5.1.6.1.

Construction Emissions: Project Construction

Rio Mesa SEGF is comprised of three power blocks. All power blocks will be constructed at the same time, over a 36-month period.

There are two types of construction emissions: combustion emissions and fugitive dust. Combustion emissions come from the workers' vehicles, from heavy equipment (both stationary and mobile), and from delivery vehicles. Fugitive dust comes from moving, disturbing, and traveling over the work site and roads and from windblown dust sources. Other activities that create dust include scraping and grading of the site, earth moving, and the movement of various construction vehicles around the site. Two concrete batch plants will also be operated for about 21 months of the 36-month construction period. Although emissions from the batch plants will be minimized by powering the equipment with electric power instead of diesel-powered generators, the transfer activities will be a potential source of fugitive dust.

The construction schedule is broken down into several activities: mobilization, during which the sites are set up to support the equipment and workers that will be on the site; clear and grub and road construction, during which vegetation is removed from the heliostat fields, the terrain is smoothed (not, however, graded, except for the power block areas), and plant and heliostat field access roads are constructed; heliostat erection; and power block, tower and dry cooling system (air-cooled condenser) erection. Commissioning and testing will begin at the end of the construction period, when heliostat erection and power block construction are complete. Estimated land disturbance for major construction activities is summarized in Section 2.0, Project Description.

Construction equipment and vehicle exhaust emissions were estimated using equipment lists and construction scheduling information provided by the project design engineering firm, which are presented in Section 2.0, Project Description, and Appendix 5.1F. CARB's OFFROAD2007 and EMFAC2007 models were used to generate equipment-specific emission factors for all criteria pollutants for diesel-fueled construction equipment and for on-road vehicles, respectively. Assumptions used in calculating project construction emissions included a 36-month construction period with 5 construction days per week. Double-shift work schedules will be used during solar field assembly and installation activities and construction activities will continue around the clock when concrete is poured for the solar towers. A single-shift, 8- to 10-hour workday will be used for the remainder of the construction activities. The list of fueled equipment needed during each month of the construction effort (see Appendix 5.1F, Attachment 5.1F-1) served as the basis for estimating pollutant emissions throughout the term of construction and helped to identify the periods of probable maximum short-term emissions.

Fugitive dust emissions resulting from on-site soil disturbances were estimated using EPA AP-42 emission factors for activities including bulldozing and dirt-pushing, travel on paved and unpaved roads, material handling, and wind erosion to storage of aggregate materials. The mitigation measures of frequent watering and limiting speeds to 15 miles per hour were assumed to achieve a combined dust control efficiency of 85 percent for traveling on unpaved surfaces at the project site and temporary

construction area activities. Emissions from on-road delivery trucks and worker commute trips were estimated using trip generation information presented in Section 5.12, Traffic and Transportation, and emission factors provided by CARB's EMFAC2007 model.

The short-term maximum emissions were calculated using Month 15 for construction equipment and Month 12 for fugitive dust. Annual emissions were based on the worst 12 consecutive months of the construction period.

Detailed construction emissions calculations are provided in Appendix 5.1F. Maximum daily project construction emissions are summarized in Table 5.1-30. Maximum annual project construction emissions are summarized in Table 5.1-31.

Table 5.1-30
Maximum Daily Project Construction Emissions, Pounds Per Day, Month 15 (Combustion), Month 12 (Fugitive Dust)

	NO_x	CO	VOC	SO_x	PM_{10}	$PM_{2.5}$
Onsite						
Construction Equipment (including batch plant)	220.0	120.9	22.0	0.5	13.2	11.5
Fugitive Dust	--	--	--	--	136.5	17.4
Offsite						
Worker Travel, Truck Deliveries	754.7	872.1	118.5	1.1	39.0	31.1
Total	974.7	993.0	140.5	1.6	188.7	60.0

Table 5.1-31
Maximum Annual Onsite Construction Emissions, Tons Per Year

	NO_x	CO	VOC	SO_x	PM_{10}	$PM_{2.5}$	GHG[a]
Onsite							
Construction Equipment	25.7	14.2	2.6	0.1	1.3	1.3	5,518
Fugitive Dust	--	--	--	--	13.0	1.8	--
Offsite							
Worker Travel, Truck Deliveries	74.6	99.1	12.8	0.1	3.9	3.1	7,144
Total	100.3	113.3	15.4	0.2	18.2	6.2	12,662

Notes:
[a] GHG emissions shown as total MT for construction period.
GHG = greenhouse gases.

Construction Emissions: Linears

Rio Mesa SEGF will require an approximately 10-mile-long transmission line to connect the project to the electrical grid. The transmission line will originate at the project's onsite switchyard and head north to a new substation that will be constructed by SCE (CRS). Natural gas will be supplied to the proposed project by connecting to the TransCanada Gas Transmission Company's North Baja pipeline, which runs adjacent to the eastern edge of the solar fields. Because the natural gas supply pipeline is located towards the edge of the solar field, the natural gas tie in construction emissions are included with the power plant construction emission calculations.

Transmission line construction activities will include clearing rights-of-way, laydown areas and temporary equipment storage yards; building new temporary and permanent access roads; installing transmission structures; and conductor pulling. Some blasting may be required in rocky terrain.

Construction of the new transmission line will require approximately 4 months. Calculations of offsite construction emissions are provided in Appendix 5.1F. Expected daily transmission construction emissions are summarized in Table 5.1-32. Annual emissions from construction of linears are summarized in Table 5.1-33.

Table 5.1-32
Expected Daily Transmission Line Construction Emissions, Pounds Per Day

	NO_x	CO	VOC	SO_x	PM_{10}	$PM_{2.5}$
Construction Equipment	181.8	113.6	14.1	0.3	7.9	7.9
Fugitive Dust	--	--	--	--	130.1	12.9
Worker Travel	21.5	20.8	3.0	0.03	1.1	0.9
Total	203.3	134.4	17.1	0.3	139.1	21.7

Table 5.1-33
Transmission Line Construction Emissions, Tons Per Year

	NO_x	CO	VOC	SO_x	PM_{10}	$PM_{2.5}$	GHG
Construction Equipment	4.9	3.1	0.4	0.01	0.2	0.2	287
Fugitive Dust	--	--	--	--	2.8	0.3	--
Worker Travel	0.3	0.3	0.0	0.00	0.02	0.01	62
Total	5.2	3.4	0.4	0.01	3.0	0.5	349

Note:
GHG = greenhouse gases; units are total MT for the construction period.

5.1.4.4 Emissions and Fuel Use Monitoring

The auxiliary boilers will be equipped with continuous emissions monitoring systems (CEMS) to measure and record emissions of NO_x and O_2, as required under 40 CFR Parts 60 and 75. The fuel flow rate (in MMscf) and oxygen levels for each of the boilers will be monitored continuously and permanently recorded.

For the startup boilers, NO_x emissions will be monitored using a predictive monitoring system (PEMS), as required under 40 CFR Part 60. This system will also monitor and permanently record fuel use. The nighttime preservation boilers will monitor and record fuel use. Vendor supplied emission factors will be used to calculate nighttime preservation boiler emissions based on fuel use data. Operating hours and fuel use will also be monitored and recorded for each of the emergency diesel engines and fire pump engines.

5.1.4.5 Air Quality Impact Analysis

The air quality impact analysis for the Project evaluates the emissions presented above in ambient air dispersion modeling and health risk assessments. These analyses are presented in this section.

Air Quality Modeling Methodology

An assessment of impacts from the Project on ambient air quality was conducted using EPA-approved air quality dispersion models. These models use a mathematical description of atmospheric dispersion to simulate the actual processes by which emissions are transported to potential ground-level impact areas. A detailed description of the methodology is provided in the Ambient Air Quality Modeling Protocol and follow-up correspondence with the MDAQMD and CEC staffs, which are included as Appendix 5.1H.

Using conservative assumptions, dispersion modeling was used to determine the maximum ground-level impacts of the Project. The results were compared with state and federal ambient air quality standards. If the standards are not exceeded in the analysis, then the facility will cause no exceedances under any operating or ambient conditions, at any location, under any meteorological conditions. In accordance with the air quality impact analysis guidelines developed by EPA[7] and CARB,[8] the ground-level impact analysis includes the following assessments:

- Impacts in simple, intermediate, and complex terrain;
- Aerodynamic effects (downwash) due to nearby building(s) and structures; and
- Impacts from inversion breakup (fumigation).

Simple, intermediate, and complex terrain impacts were assessed for all meteorological conditions that would limit the amount of final plume rise. Plume impaction on elevated terrain, such as on the slope of a nearby hill, can cause high ground-level concentrations, especially under stable atmospheric conditions.

[7] EPA. Guideline on Air Quality Models, 40 CFR Part 51, Appendix W.

[8] ARB. Reference Document for California Statewide Modeling Guideline, April 1989.

Another dispersion condition that can cause high ground-level pollutant concentrations is caused by building downwash. Downwash can occur when wind speeds are high and a sufficiently tall building or structure is in close proximity to the emission stack. This can result in building wake effects where the plume is drawn down toward the ground by the lower pressure region that exists in the lee (downwind) side of the building or structure.

Fumigation conditions occur when the plume is emitted into a layer of stable air (inversion) that then becomes unstable from below, resulting in a rapid mixing of pollutants out of the stable layer and towards the ground in the unstable layer underneath. The low mixing height that results from this condition allows little diffusion of the stack plume before it is carried downwind to the ground. Although fumigation conditions are short-term, rarely lasting as long as an hour, relatively high ground-level concentrations may be reached during that period. Fumigation tends to occur under clear skies and light winds, and is more prevalent in summer.

The basic model equation used in this analysis assumes that the concentrations of emissions within a plume can be characterized by a Gaussian distribution about the centerline of the plume. Concentrations at any location downwind of a point source such as a stack can be determined from the following equation:

$$C(x,y,z,H) = \left(\frac{Q}{2\pi\sigma_y\sigma_z u}\right) * \left(e^{-1/2(y/\sigma y)^2}\right) * \left(\left[e^{-1/2(z-H/\sigma_z)^2}\right] + \left[e^{-1/2(z+H/\sigma_z)^2}\right]\right)$$

Where:

C = the concentration in the air of the substance or pollutant in question

Q = the pollutant emission rate

σ_y, σ_z = the horizontal and vertical dispersion coefficients, respectively, at downwind distance x

u = the wind speed at the height of the plume center

x,y,z = the variables that define the 3-dimensional Cartesian coordinate system used; the downwind, crosswind, and vertical distances from the base of the stack

H = the height of the plume above the stack base (the sum of the height of the stack and the vertical distance that the plume rises due to the momentum and/or buoyancy of the plume)

Gaussian dispersion models are approved by EPA for regulatory use and are based on conservative assumptions (e.g., the models tend to over predict actual impacts by assuming steady-state conditions, no pollutant loss through conservation of mass, no chemical reactions). The EPA models were used to determine if ambient air quality standards would be exceeded, and whether a more accurate and sophisticated modeling procedure would be warranted to make the impact determination. The following sections describe:

- Model selection;
- Refined air quality impact analysis;

- Existing ambient pollutant concentrations and preconstruction monitoring; and
- Results of the ambient air quality modeling analyses.

Model Selection

The air quality impact analyses were performed using the American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee (AERMIC) model, also known as AERMOD (current version 11103). The AERMOD model is a steady-state, multiple-source, Gaussian dispersion model designed for use with stack emission sources situated in terrain where ground elevations can exceed the stack heights of the emission sources (i.e., complex terrain). The model is capable of estimating concentrations for a wide range of averaging times (from 1 hour to 1 year). Inputs required by the AERMOD model include the following:

- Model options;
- Meteorological data;
- Source data; and
- Receptor data.

Model options refer to user selections that account for conditions specific to the area being modeled or to the emissions source that needs to be examined. Examples of model options include use of site-specific vertical profiles of wind speed and temperature; consideration of stack and building wake effects; and time-dependent exponential decay of pollutants. The model supplies recommended default options for the user for some of these parameters.

AERMOD uses hourly meteorological data to characterize plume dispersion. The representativeness of the data is dependent on the proximity of the meteorological monitoring site to the area under consideration, the complexity of the terrain, the exposure of the meteorological monitoring site, and the period of time during which the data are collected. The meteorological data set used in this analysis combined surface meteorological data (e.g., wind speed and direction, temperature) from the Blythe Airport, monitoring station, surface data (cloud cover) from the McCarran Airport in Las Vegas, NV, and upper air data from Tucson, AZ.

For the purposes of modeling, a stack height beyond what is required by Good Engineering Practices (GEP) is not allowed (40 CFR Part 60 §51.164). However, this requirement does not place a limit on the actual constructed height of a stack. GEP as used in modeling analyses is the height necessary to ensure that emissions from the stack do not result in excessive concentrations of any air pollutant in the immediate vicinity of the source as a result of atmospheric downwash, eddies, or wakes that may be created by the source itself, nearby structures, or nearby terrain obstacles. In addition, the GEP stack height modeling restriction assures that any required regulatory control measure is not compromised by the effect of that portion of the stack that exceeds the GEP height. The EPA guidance ("Guideline for Determination of Good Engineering Practice Stack Height," Revised 6/85) for determining GEP stack height indicates that GEP is the greater of 65 meters or H_g, where H_g is calculated as follows:

$$H_g = H + 1.5L$$

Where:

H_g = Good Engineering Practice stack height, measured from the ground-level elevation at the base of the stack

H = height of nearby structure(s) measured from the ground-level elevation at the base of the stack

L = lesser dimension, height or maximum projected width, of nearby structure(s)

The boiler stack heights, at between 35 and 135 feet, are less than the GEP limit of 65 meters (213 feet). Stack heights therefore do not need to be adjusted for GEP.

Receptor Grid Selection and Coverage

Receptor and source base elevations were determined from U.S. Geological Survey (USGS) National Elevation Dataset (NED) data in the GeoTIFF format at a horizontal resolution of 1 arc-second (approximately 30 meters). All coordinates were referenced to UTM North American Datum 1983 (NAD83), Zone 11. The AERMOD receptor elevations were interpolated among the Digital Elevation Map (DEM) nodes according to standard AERMAP procedures. For determining concentrations in elevated terrain, the AERMAP terrain preprocessor receptor-output (ROU) file option was chosen; hills were not imported into AERMOD for CTDM-like processing.

Cartesian coordinate receptor grids were used to provide adequate spatial coverage surrounding the project area for assessing ground-level pollution concentrations, to identify the extent of significant impacts, and to identify maximum impact locations. A 250-meter resolution coarse receptor grid was developed and extended outwards at least 5 km.[9] For the full impact analyses, a nested grid was developed to fully represent the maximum impact area(s). This grid has 25-meter resolution along the facility fence-line in a single tier of receptors composed of four segments extending out to 100 meters from the fenceline, 100-meter resolution from 100 meters to 1,000 meters from the fenceline, and 250-meter spacing out to 5 km from the fenceline,. Additional refined receptor grids with 25-meter resolution were placed around the maximum first-high and maximum second-high coarse grid impacts and extended out 500 meters in all directions. Concentrations within the facility fenceline were not calculated. The regions imported in Geographical Coordinates for the USGS NED data are bounded as follows:

- South West corner: UTM Zone 11 (NAD 83) 690000.0 m, 3700000.0 m; and
- North East corner: UTM Zone 11 (NAD 83) 730000.0 m, 3740000.0 m.

Meteorological Data Selection

EPA defines the term "on-site data" to mean data that would be representative of atmospheric dispersion conditions at the source and at locations where the source may have a significant impact on air quality.

[9] Although the modeling protocol indicated that the coarse receptor grid would extend up to 10 km from the fenceline, the maximum impacts were very close to the project and a larger grid was not needed to identify significant impact areas.

Representativeness has been defined in the PSD Monitoring Guideline as data that characterize the air quality for the general area in which the proposed project would be constructed and operated. The meteorological data requirement originates in the Clean Air Act at §165(e)(1), which requires an analysis "of the ambient air quality at the proposed site and in areas which may be affected by emissions from such facility for each pollutant subject to regulation under [the Act] which will be emitted from such facility."

This requirement and EPA's guidance on the use of on-site monitoring data are also outlined in the On-Site Meteorological Program Guidance for Regulatory Modeling Applications.[10] The representativeness of the data depends on (a) the proximity of the meteorological monitoring site to the area under consideration, (b) the complexity of the topography of the area, (c) the exposure of the meteorological sensors, and (d) the period of time during which the data are collected.

Hourly surface meteorological data (e.g., hourly wind speed and direction, temperature) have been obtained from the Blythe Airport for calendar years 2006 through 2010. Cloud cover data from the McCarran Airport, near Las Vegas, were used as no cloud cover data are collected at the Blythe station. Upper air data were recorded at Tucson, AZ. The Blythe monitoring station is approximately 6 miles (10 km) from the project site, and is located at a similar elevation on the same high desert plateau. Therefore, the met data station meets criteria (a), (b) and (c) above. In addition, the use of five years of meteorological data ensures adequate representation of temporal variation. Based on these considerations, the applicant believes that the proposed meteorological data are representative of conditions at the project site.

Representativeness is best evaluated when sites are climatologically similar, as are the project site and the Blythe meteorological monitoring station. The Blythe meteorological monitoring station is in close proximity to the proposed project site (distance between the two locations is approximately 6 miles with no significant intervening terrain features), and the same large-scale topographic features located to the east and south that influence the meteorological data monitoring station influence the proposed project site in the same manner.

The values for the surface characteristics of albedo, Bowen Ratio, and surface roughness appropriate to the area around the Blythe Airport meteorological monitoring station have been obtained from AERSURFACE, designed to aid in obtaining realistic and reproducible surface characteristic values for AERMET, following EPA guidance. AERSURFACE uses land cover data from the USGS National Land Cover Data 1992 archives, meaning that the land cover data used to develop surface characteristics for the Blythe Airport area reflect conditions in 1992, before development took place in the area. The area within one kilometer of the met station, which is used in the AERMOD model to define surface characteristics, has seen some isolated development to the southwest, southeast, and east. The rest of the area surrounding the met station remains undeveloped. The prevailing winds in the area are from the south through southwest, so only the development to the south would be likely to have any significant influence on meteorological conditions monitored at the station. Because of the sparse distribution and the regular shapes of these buildings, the impacts of these buildings on the monitor are expected to be

[10] EPA, *Supplement A to the Guideline on Air Quality Models (Revised)*, 1987.

minimal. Finally, the surface characteristics associated with the Blythe Airport met data reflect conditions consistent with "shrubland (arid region)" and are in no way similar to residential or commercial surface roughness values. Therefore, the surface characteristics associated with the Blythe Airport meteorological station data appropriately reflect surface characteristics at the project site.

Upper air meteorological data are taken from soundings obtained at Tucson, AZ, located approximately 240 miles southeast of the Project. The closest upper air station to the project site is located about 150 miles southwest, at Miramar Naval Air Station, California. Miramar is a coastal site, however, and the marine-influenced surface boundary layer affects Miramar soundings in ways that would not occur in the Lower Colorado River Valley. Therefore, the meteorological data are climatologically dissimilar to the project site.

The next closest upper air station to the project site is located about 224 miles northwest, at Desert Rock, NV. For the period 2006 through 2010; however, the upper air data from Desert Rock are incomplete—approximately 15 percent missing data, which exceeds the 10 percent EPA data completeness threshold.

The third-closest upper air station to Blythe is located at Tucson. Despite its distance, Tucson is the most climatologically similar upper-air station to the project site, mostly due to its latitude. In the late summer, particularly in August, the tropical easterlies migrate so far north that they cross the U.S. Mexican border. Late in the afternoon and into the night, these easterlies sometimes bear big mesoscale convective complexes (MCCs), with all their rain. Because Blythe and Tucson are roughly the same latitude, they see these easterlies; Desert Rock does not because it is farther north. Apart from elevation differences, this difference in summertime wind direction (and precipitation) is the main distinction between the deserts of the lower Colorado River Valley, and the Mojave Desert farther north. So, despite being a farther away from Blythe than Desert Rock, Tucson is more suitable than Desert Rock for upper air data because Tucson and Blythe have more similar latitudes.

Ambient Background Data Selection

Background ambient air quality data for the project area from the monitoring site most representative of the conditions that exist at the proposed project site were used to represent regional background concentrations. Table 5.1-34 shows the monitoring stations that provide the most representative ambient air quality background data.[11]

[11] Selection of the background monitoring stations is also discussed in the modeling protocol, Appendix 5.1H.

Table 5.1-34
Representative Background Ambient Air Quality Monitoring Stations

Pollutant(s)	Monitoring Station	Distance to Project Site
Ozone	Blythe, CA (Riverside County)	6 miles
PM_{10}, $PM_{2.5}$, NO_2, CO	Palm Springs, CA (Riverside County)	107 miles
SO_2	Victorville, CA (San Bernardino County)	163 miles
Lead	San Bernardino, CA (San Bernardino County)	151 miles

Background data representative of conditions at the project site are summarized in Table 5.1-35.

Table 5.1-35
Representative Background Concentrations in the Project Area ($\mu g/m^3$)

Pollutant	Averaging Time	2008	2009	2010
Palm Springs, CA (Riverside County)				
NO_2	1 hour (1st high)	92.4	90.5	86.8
	1 hour (98th percentile)[a]	84.9	73.6	75.4
	Annual	17.0	15.1	17.0
CO	1 hour	1,148	2,641	1,837
	8 hours (CA. 1st high)	620	769	643
PM_{10}	24 hours	75	140	37
	Annual Arithmetic Mean	17.7	20.4	18.8
$PM_{2.5}$	24 hours (3-yr avg, 98th Percentile)[b]	18	17	15
	Nat'l 3-yr Avg AAM[c]	7.8	7.4	6.5
Victorville, CA (San Bernardino County)				
SO_2	1 hour	15.8	73.5	136.6
	3 hours	13.1	73.5	112.9
	24 hours	5.3	13.1	18.4
	Annual	2.6	2.6	2.6

Notes:
[a] Per email from Ms. Cohanim at SCAQMD, dated 8/4/2011.
[b] See Table 5 of the modeling protocol in Appendix 5.1H.
Three-year averages are calculated from the annual 98th percentile values.
[c] Annual arithmetic mean.

Construction Impacts

Section 5.1.4.3 describes the development of project emissions estimates over the planned 36-month construction period. An Excel workbook was created to estimate pollutant emissions from construction activities. Emissions from worker commuter trips to and from the project site and heavy trucks delivering materials to and from the site during specific construction activities were also included (see Appendix 5.1F).

Based on information provided by the project engineering design contractor and the emission estimates in Appendix 5.1F, the peak month in terms of combustion air pollutant emissions is expected to be Month 15 and Month 12 for fugitive dust emissions. Worst-case modeling was conducted for short-term averaging times using all combustion emissions from all construction equipment for Month 15 and dust emissions from activities in Month 12 (see Table 5.1-30 and Table 5.1-31). Construction activities were assumed to occur during a 20-hour work day during these periods, reflecting double-shift activity. The maximum 12-month period during the 36-month construction schedule was used to model annual impacts. The emission sources for the construction site were grouped into three categories: exhaust emissions, construction dust emissions, and windblown dust emissions. The vehicle exhaust and construction dust emissions were modeled as 50 volume sources with a vertical dimension of 6 meters. Based on the width of the construction area, the horizontal dimension for each volume source was set to 576.8 meters, with sigma-y = 134.1 meters. The fugitive dust emissions from disturbed areas were represented for modeling purposes as a single area source of approximately 5,060 acres. The effective plume height for this one area source was set at 0.5 meters in the modeling analysis.

As discussed in the modeling protocol, the OLM option of AERMOD was used to account for the role of ambient ozone levels on the atmospheric conversion rate of NO_x emissions (initially mostly in the form of nitric oxide) to NO_2 (the pollutant addressed by ambient standards). Hourly ozone measurements at the Blythe monitoring station during the same five years of the meteorological input data set were used to support the OLM calculations.

Modeling results are shown in Table 5.1-36.

Table 5.1-36 shows that the worst-case background concentration of 24-hour average PM_{10} is already above the state standard and the worst-case background annual PM_{10} concentration is equal to the state annual standard. The project's modeled construction PM_{10} impacts are small relative to the background with PM_{10} impacts below the 24-hr and annual PM_{10} federal thresholds for significance of 5 and 1 $\mu g/m^3$, respectively. Because the project's modeled construction impacts are below the federal significance thresholds, the project's construction emissions would not add a significant contribution to background PM_{10} levels.

Table 5.1-36
Modeled Maximum Impacts During Project Construction

Pollutant	Averaging Period	Maximum Predicted Impact (µg/m³)	Maximum Background Concentration (µg/m³)	Total Concentration[a] (µg/m³)	NAAQS (µg/m³)	CAAQS (µg/m³)
NO_2	1-hr (highest)	30.5	92.4	123	--	339
	1-hr (98th percentile)[b]		78.0	109	188	--
	Annual	0.9	17.0	18	100	57
SO_2	1-hr	0.08	136.6	137	196	655
	3-hr	0.05	112.9	113	1300	--
	24-hr	0.02	18.4	18	--	105
	Annual	0.00	2.6	3	80	--
CO	1-hr	18.6	1,837	1,856	40,000	23,000
	8-hr	8.8	643	652	10,000	20.000
PM_{10}	24-hr	4.5	140	145	150	50
	Annual	0.5	20.4	21	--	20
$PM_{2.5}$	24-hr[b]	0.9	18	19	35	--
	Annual[c]	0.1	7.8	8	15.0	12

Notes:
[a] Total concentrations shown in this table are the sum of the maximum predicted impact and the maximum measured background concentration. Because the maximum impact will not occur at the same time as the maximum background concentration, the actual maximum combined impact will be lower.
[b] Background concentration shown is the three-year average of the 98th percentile values (2008 to 2010), in accordance with the form of the federal standard Total concentrations shown for 1-hour NO2 is maximum modeled project impact combined with maximum background concentration (Tier 1 analysis in Section 3.6 of the modeling protocol).
[c] Background concentration shown is the three-year average of the annual arithmetic mean, in accordance with the form of the standard.

Emissions and modeled impacts from construction activities are not unusual compared with those from other construction projects. Appendix 5.1F describes the mitigation measures that will be used during construction to minimize these impacts.

The data summarized in Table 5.1-36 show that construction emissions will not cause new exceedances of any other state or federal air quality standards, including the state and federal 1-hour NO_2 standards.

Operational Impacts

Normal Plant Operations

The results of the AERMOD assessment for normal plant operations are summarized in Table 51.37. Listed below are the operating assumptions used in developing the emission rates for each emissions unit

and averaging period. Emission rates and stack parameters used in modeling impacts during normal plan operations are shown in Table 5.1D-2, Appendix 5.1D.

1-hour averages

- All emergency engines operational for testing with operation of startup/nighttime preservation boilers at full load; OR
- All boilers operating at full load.

3-hour and 8-hour averages

- All emergency engines operational for testing with operation of startup/nighttime preservation boilers at full load; OR
- All boilers operating at full load.

24-hour averages

- All boilers operating with maximum daily emissions and WSACs in operation; OR
- Startup and nighttime preservation boilers operating at full load and all emergency engines operational for testing.

Annual Averages

- All equipment included.
- For all pollutants, maximum annual emissions used to calculate average hourly emission rate.

Startup Impact Analysis

As discussed in Section 5.1.4.2, the boilers will need to undergo occasional cold startups, during which they may operate for extended periods at low loads with, in some cases, emission rates that are slightly higher than emissions during normal operations. The ambient air quality impact analysis included assessments of potential air quality impacts of boiler startups. To simplify the analyses and make sure they are conservative, the following scenarios were evaluated:

- Auxiliary boiler startup: One unit at each power block is in startup simultaneously. No other boilers or engines are operating. Although startup times for the auxiliary boilers will not exceed 6 hours and cold startups will be phased over a two-day period, 8-hour CO emission rates reflect 8 hours of startup to be conservative.
- Startup boiler startup: Startup boiler at each power block is in startup simultaneously; nighttime boilers are in operation as well. Although startup times for the startup boilers will not exceed 5 hours, 8-hour CO emission rates reflect 8 hours of startup to be conservative.
- Nighttime boiler startup: Nighttime boiler at each power block is in startup simultaneously. Startups may occur while auxiliary boilers are in operation. Although startup times for the

nighttime preservation boilers will not exceed 4 hours, 8-hour CO emission rates reflect 8 hours of startup to be conservative.

Emission rates and stack parameters for the boiler startup analyses are shown in Table 5.1D-3, Appendix 5.1D. Results of the startup impact analysis are shown in Table 5.1-37 along with results for other operating conditions. The highest startup impacts occur during startup of the auxiliary boilers.

Table 5.1-37
Summary of Modeling Results for Facility Operations

Pollutant	Averaging Period	Modeled Concentration (μg/m³)				PSD Significant Impact Level (μg/m³)
		Normal Operation	Startup Operation	Hot Standby Operation	Inversion Breakup Fumigation	
NO_2	1-hr (max)	194a	35	31	27	7.5e
	1-hr (98th pct)	149a	27	19	n/ac	--
	Annual	0.08	n/ab	n/ab	n/ad	1.0
SO_2	1-hr	10	0.9	0.6	5	7.8e
	3-hr	4	0.4	0.2	4	25
	24-hr	0.2	n/ab	n/ab	2	5
	Annual	0.01	n/ab	n/ab	n/ad	1.0
CO	1-hr	237	95	52	68	2000
	8-hr	19	24	11	45	500
PM_{10}	24-hr	0.4	n/ab	n/ab	0.8	5
	Annual	0.02	n/ab	n/ab	n/ad	1
$PM_{2.5}$	24-hr	0.4	n/ab	n/ab	0.8	1.2
	Annual	0.02	n/ab	n/ab	n/ad	0.3

Notes:

[a] Highest 1-hour average NO_2 impacts occur during emergency engine testing; maximum impacts for other pollutants and averaging periods occur during boiler operation. Maximum 1-hour NO_2 impact during normal boiler operations is 47 μg/m³; 98th percentile NO_2 impact during normal boiler operation is 32 μg/m³. All NO_2 results except fumigation reflect ozone limiting.

[b] Startup and hot standby operations are short-term operating modes and do not affect averaging periods longer than 8 hours.

[c] Inversion breakup fumigation is modeled using screening models so no 98th percentile value can be produced.

[d] Inversion breakup fumigation is a short-term phenomenon and does not affect annual impacts.

[e] These are interim SILs and have not been formally adopted by EPA.

Ambient Impacts During Hot Standby Operation

On some days when cloudy weather is anticipated, the auxiliary boilers may be operated on hot standby starting earlier in the day so that they will be available to augment the solar operations when solar energy diminishes or during transient cloudy conditions. When operating in hot standby mode, the boilers would operate at about 5 percent of their rated heat input rate. As discussed earlier, emissions during hot standby will be very low because of the low heat input. However, because of the low potential stack

velocities, this operating mode has been included in the ambient air quality assessment. The modeling analysis for this operating mode assumes that all six boilers are on hot standby simultaneously for up to 8 hours. This assumption conservatively overestimates impacts during this operating mode. Emission rates and stack parameters used in evaluating impacts during hot standby operation are shown in Table 5.1D-4, Appendix 5.1D. Modeled impacts are shown in Table 5.1-37.

Inversion Breakup Fumigation Modeling

Inversion breakup fumigation occurs when a stable layer of air lies a short distance above the release point of a plume and unstable air lies below. Under these conditions, an exhaust plume may be drawn to the ground, causing high ground-level pollutant concentrations. Although fumigation conditions rarely last as long as 1 hour, relatively high ground-level concentrations may be reached during that time. For this analysis, fumigation was assumed to occur for up to 90 minutes, per EPA guidance.

The SCREEN3 model was used to evaluate maximum ground-level concentrations for short-term averaging periods (24 hours or less). Guidance from EPA[12] was followed in evaluating fumigation impacts. The maximum fumigation impact from this analysis, which is shown in more detail in Table 5.1D-5, Appendix 5.1D, showed that impacts under fumigation conditions are expected to be higher than the maximum concentrations calculated by AERMOD under normal operations for 8-hr average CO, 24-hr average SO2, and 24-hr average $PM_{10}/PM_{2.5}$ impacts. Inversion breakup impacts are also shown in Table 5.1-37.

The modeling results in Table 5.1-37 show that only 1-hour NO_2 and SO_2 impacts exceed the interim PSD SILs—all other modeled impacts during all operating scenarios are below the significant impact levels.

Demonstration of Compliance

The maximum facility impacts calculated from the modeling analyses described above are summarized in Table 5.1-37 above. The highest modeled 1-hr average NO_2 and CO impacts are expected to occur during engine testing; the highest impacts for other pollutants and averaging periods occur under normal boiler operations. To determine the project's air quality impacts, the modeled concentrations are added to the highest reported background ambient air concentrations and then compared to the applicable ambient air quality standards. The highest reported background ambient concentrations were discussed in Section 5.1.3.4 and the monitored concentrations during the past three years are shown in Table 5.1-35. More detailed discussions of why the data collected at these stations are representative of ambient concentrations in the vicinity of the project are provided in Appendix 5.1H.

Maximum project modeling results and background ambient levels are shown in Table 5.1-38. Table 5.1-38 shows that the worst-case background concentration of 24-hour average PM_{10} is already above the state standard and the worst-case background annual PM_{10} concentration is equal to the state annual standard. The project's modeled PM_{10} impacts are below the 24-hr and annual PM_{10} federal thresholds

[12] EPA-454/R-92-019, "Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised."

for significance of 5 and 1 μg/m3, respectively. Because the project's modeled impacts are below the federal significance thresholds, the project's emissions would not add a significant contribution to background PM_{10} levels. The data summarized in Table 5.1-38 show that project emissions will not cause new exceedances of any other state or federal air quality standards, including the state and federal 1-hour NO_2 standards.

Table 5.1-38
Summary of Results (Modeled Maximum Impacts plus Background)

Pollutant	Averaging Time	Project Impact (μg/m³)	Background Concentration (μg/m³)	Total Concentration (Project Impact plus Background) (μg/m³)	NAAQS (μg/m³)	CAAQS (μg/m³)
NO_2	1-hr (max)	194	92.4	286	--	339
	1-hr (98th percentile)	149	78.0	167[a]	188	--
	Annual	0.08	17.0	17	100	57
SO_2	1-hr	10	136.6	147	196	655
	3-hr	4	112.9	117	1300	--
	24-hr	2	18.4	20	--	105
	Annual	0.01	2.6	3	80	--
CO	1-hr	237	1,837	2,074	40,000	23,000
	8-hr	45	643	688	10,000	20
PM_{10}	24-hr	0.8	140	141	150	50
	Annual	0.02	20.4	20	--	20
$PM_{2.5}$	24-hrb	0.8	18	19	35	--
	Annualc	0.02	7.8	8	15	12

Note:
[a] Total concentrations shown for 1-hour NO_2 are modeled project impacts combined with concurrent hourly NO_2 monitoring data (Tier 4 analysis in Section 3.6 of the modeling protocol). This value represents the five-year average of the annual 1-hr NO_2 98th percentile (modeled impact plus background) for each year (2006 to 2010) as required by June 28, 2010 EPA 1-hr NO_2 NAAQS guidance document. All other totals shown are maximum modeled project impacts combined with maximum monitored background data from Table .Table .

[b] Background concentration shown is the three-year average of the 98th percentile values (2008 to 2010), in accordance with the form of the federal standard.

[c] Background concentration shown is the three-year average of the annual arithmetic mean, in accordance with the form of the standard.

PSD Increment Consumption

The PSD program was established to allow emission increases (increments of consumption) that do not result in significant deterioration of ambient air quality in areas where criteria pollutants have not exceeded the NAAQS. As discussed in Section 5.1.6.1, the project is not subject to PSD review.

Preconstruction Monitoring

Because the Project is not subject to PSD review, EPA will not require preconstruction ambient air quality monitoring data for the purposes of establishing background pollutant concentrations in the impact area.

Commissioning Impacts

Commissioning emissions are quantified in Table 5.1B-17, Appendix 5.1B. Maximum emissions from each boiler are expected to occur during the cold start/tuning phase of commissioning, and during that period boiler operation and emissions are expected to be similar to those that occur during cold startups. Ambient impacts during boiler startups were evaluated above (see Table 5.1-37) and shown not to be expected to cause or contribute to any violations of the ambient air quality standards.

5.1.4.6 Screening Health Risk Assessment

The screening health risk assessment (SHRA) was conducted to determine expected impacts on public health of the noncriteria pollutant emissions from the operation of the boilers and emergency Diesel engines.[13] The SHRA was conducted in accordance with the OEHHA's "Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments" (October 2003).

The SHRA estimated the offsite potential Maximum Incremental Cancer Risk (MICR) at the point of maximum impact, at the location (e.g., residence) of the maximally exposed individual (MEI), and to the maximally exposed worker (MEW); and the potential long-term (chronic) and short-term (acute) non-carcinogenic health impacts from non-carcinogenic emissions. The CARB/OEHHA-approved Hotspots Analysis and Reporting Program (HARP) (Version 1.4d) was used to evaluate multipathway exposure to non-criteria pollutant emissions. The individual pollutant carcinogenic risks are assumed to be additive. Because of the conservatism (over prediction) built into the established risk analysis methodology, the actual risks will be lower than those estimated.

The SHRA utilized the following information:

- Inhalation cancer potency factors for the carcinogenic emissions.
- Noncancer Reference Exposure levels (RELs) for determining chronic and acute non-carcinogenic health impacts.
- One-hour and annual average emission rates for each non-criteria pollutant.
- The modeled maximum offsite concentration of each non-criteria pollutant emitted.

Many of the carcinogenic compounds also have non-carcinogenic health effects and are therefore included in the determination of both potential carcinogenic and noncarcinogenic effects. RELs are used

[13] The WSACs were not included in the screening HRA because their TAC emissions are negligible (see Table 5.1B-16, Appendix 5.1B).

as indicators of potential non-carcinogenic adverse health effects. RELs are generally based on the most sensitive adverse health effect reported and are designed to protect the most sensitive individuals. However, exceeding the REL does not automatically indicate a health impact. The OEHHA RELs were used to determine potential adverse health effects from noncarcinogenic compounds. A potential chronic health hazard index for each relevant non-carcinogenic pollutant is then determined by the ratio of the pollutant maximum annual average concentration to its respective REL. Similarly, a potential acute health hazard index for each relevant non-carcinogenic pollutant is determined by the ratio of the pollutant maximum one-hour average concentration to its respective REL. The individual indices are summed to determine the overall hazard index for the project. Because noncarcinogenic compounds target different internal systems or organs (e.g., respiratory system, nervous system, eyes), this sum is considered conservative.

The SHRA results are compared with the established risk management procedures for the determination of acceptability. The established risk management criteria include those listed below.

- If the MICR at a residential receptor is less than one in one million, the facility risk is considered not significant.
- If the MICR at a residential receptor is greater than one in one million but less than ten in one million and Toxics-Best Available Control Technology (T-BACT) has been applied to reduce risks, the facility risk is considered acceptable.
- If the MICR at PMI is greater than ten in one million but less than 100 in one million and there are mitigating circumstances that, in the judgment of a regulatory agency, outweigh the risk, the risk is considered acceptable.
- For non-carcinogenic effects, total hazard indices of one or less are considered not significant.
- For a hazard index greater than one, OEHHA, the CEC, and the MDAQMD may conduct a more refined review of the analysis and determine whether the impact is acceptable.

The SHRA includes the noncriteria pollutants listed above in Table 5.1-29. The receptor grid described earlier for criteria pollutant modeling was used for the SHRA. The potential health risks are presented in Table 5.1-39, and the detailed calculations are provided in Appendix 5.1E. The locations of the maximum modeled risks are shown in Appendix 5.1E, Figure 5.1E-1.

Table 5.1-39
Potential Health Risks from the Operation of the Project

	Project	Significance Thresholds	Significant?
Maximum Incremental Cancer Risk (MICR) at Point of Maximum Impact	1.38 in one million	10 in one million	No
MICR at Residential Receptor	0.10 in one million	1 in one million	No
Acute Inhalation Health Hazard Index: 1-hour	0.003	1.0	No

Table 5.1-39
Potential Health Risks from the Operation of the Project

	Project	Significance Thresholds	Significant?
Acute Inhalation Health Hazard Index: 8-hour	0.002	1.0	No
Chronic Inhalation Health Hazard Index	0.0007	1.0	No

The acute and chronic health hazard indices are well below 1.0, and hence, are not significant. The MICR at a residential receptor is 0.1 in one million, below the MDAQMD's 1 in one million threshold for additional analysis, and the MICR at PMI is less than the ten in one million significance threshold for the project. The project will not pose a significant health risk at any location, under any weather conditions, under any operating conditions.

Potential health risks during construction are evaluated in Appendix 5.1F. This evaluation concludes that health risks during construction will not be significant.

5.1.5 Cumulative Effects

A CEQA cumulative impacts analysis examines potential cumulative air quality impacts that may result from the project and other reasonably foreseeable projects. Such an analysis is generally required only when project impacts are significant.

5.1.5.1 Cumulative Construction Impacts

Project construction will occur over a 36-month period, as discussed in Appendix 5.1F. In addition, as discussed in Appendix 5.1F, impacts during construction will be localized. Construction of the transmission line will occur concurrently with on-site construction, but most of the linears construction will occur at average distances of approximately 5 miles from the project site. Because impacts from linears construction are also expected to be localized, it is unlikely that any cumulative construction impacts will occur with the exception of the construction of the linears that are closest to the project. Therefore any cumulative construction impacts will be temporary and localized and as such are not expected to be significant.

5.1.5.2 Cumulative Operational Impacts

To ensure that potential cumulative impacts of the project and other nearby projects are adequately considered, a cumulative impacts analysis will be conducted in accordance with the protocol included as Appendix 5.1G.

5.1.5.3 Greenhouse Gas Cumulative Effects Analysis

In 2006, the California Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. This legislation started California on the path to reduce emissions of greenhouse gases (GHGs) in California to 1990 levels. The principal regulated GHG is carbon dioxide, which is emitted primarily from the combustion of fossil fuels.

The legislation requires CARB to determine the 1990 levels, and to adopt regulatory mechanisms to bring California's emissions back down to those levels by 2020. The legislation does not require that individual facilities or sectors return to 1990 levels. It is expected that some sectors will achieve greater reductions than others.

It is unlikely that California's entire program will have a measurable impact on global climate change. Rather, it is asserted that California's effort, in conjunction with similar efforts worldwide, could reduce or even eliminate the negative impacts associated with anthropogenically induced global climate change.

It follows that no individual project, or even the cumulative effects of all of the reasonably foreseeable projects in California, will have a measurable impact on global climate change. However, new emissions of carbon dioxide will make it more difficult for the state to meet its goal of reducing GHG emissions to 1990 levels.

State agencies are developing the plans and regulations necessary to achieve the GHG emission reductions required by AB 32. The starting point of these plans is a projection of what emissions would be in 2020 if business went on as usual. A significant amount of new emissions in the "business as usual" scenario comes from increased demand for electricity in California. In the absence of established thresholds of significance or methodologies for assessing impacts, this analysis of GHG emission impacts consists of quantifying project-related GHG emissions, determining their significance in comparison to the goals of AB 32, and discussing the potential impacts of climate change within the state as well as strategies for minimizing those impacts.

Regulations already in place require that much of that increased demand for electricity in California be met by projects like Rio Mesa SEGF, which generate energy that does not derive from the combustion of fossil fuels. Senate Bill x12 (SB 2), which requires 33 percent of retail electricity sales to come from renewable resources by 2020. SB 2 also establishes interim targets for renewable generation to ensure that timely progress is made toward the 33 percent RPS goal, requiring that 75 percent of generation must come from within California by 2016. The Rio Mesa SEGF project will help to further progress toward the SB 2 goals by providing a reliable, in-state source of renewable electricity that will come online before the 2016 interim deadline.

Most renewable energy facilities such as wind and solar are "intermittent resources," meaning these resources are not available to generate in all hours and thus have limited operating capacity. For example, intermittent resources can be limited by meteorological conditions on an hourly, daily, and seasonal basis. In addition, the availability of intermittent resources is often unrelated to the load profile they serve. For example, some solar resources reach peak production around 12:00 noon, while the electrical demand sometimes peaks between 5:00 p.m. and 7:00 p.m. Rio Mesa SEGF has the advantage over many other solar facilities of being able to provide electricity during the peak evening demand period through the use

of the auxiliary boilers to augment the solar operation when solar energy diminishes or during transient cloudy conditions that impact the available solar energy.

The proposed project supports the state's strategy to reduce fuel use and GHG emissions. Although the use of natural gas-fired auxiliary boilers will result in GHG emissions, the overall GHG emission rate for the project will be below the RPS standard of 0.500 metric tons CO_2 per MWh and below the rates for comparably sized fossil-fueled projects. Table 5.1-40 compares the GHG emissions performance of Rio Mesa SEGF with that of other types of power plants.

Table 5.1-40
Comparison of GHG Emissions Performance

Type of Power Plant	GHG Emissions Performance, MT CO_2/MW[a]
Rio Mesa SEGF	0.043
Natural Gas Combined Cycle	0.370 to 0.430
EPS	0.500
Natural Gas-Fired Boiler	0.550 to 0.650
Natural Gas-Fired Peaking Turbine	0.550 to 0.900
Coal-Fired Boiler	~1.00

Note:
[a] All GHG emissions performance data except Rio Mesa SEGF from Ivanpah FSA, Appendix Air-1, October 2009.

Further, even though it is possible to quantify how many gross GHG emissions are attributable to a project, it is difficult to determine whether this will result in a net increase of these emissions—and, if so, by how much—due to the displacement by the Project of emissions from fossil generating resources. However, the loading order adopted in 2003 by the CEC and PUC prioritizes the use of generation from renewables, such as Rio Mesa SEGF, over generation from fossil fuel resources. According to the CEC, "[a]s California moves towards an increase reliance on renewable energy, non-renewable energy sources will be curtailed or displaced."[14] Therefore, it would be speculative to conclude that greenhouse gas emissions from any given project will cause a cumulatively significant adverse impact.

Demand for electricity in California will not be affected by Rio Mesa SEGF. Every megawatt-hour generated by the Project, however, will displace a megawatt-hour that would otherwise have been generated by a more traditional (i.e., fossil-fuel-fired) source of electricity. The Project will increase renewable generation and contribute to the state's efforts to move toward a high-renewable, low-GHG electricity system. The Project is therefore expected to result in a net reduction in GHG emissions.

[14] Commission Decision for the Ivanpah SEGS, CEC-800-2010-004 CMF, September 2010.

As directed by SB 97, the Resources Agency adopted Amendments to the CEQA Guidelines for greenhouse gas emissions (GHG CEQA Guidance) on December 30, 2009. On March 18, 2010, those amendments became effective.

The GHG CEQA Guidance included the following elements:

- Quantification of GHG emissions;
- Determination of whether the project may increase or decrease GHG emissions as compared to existing environmental setting;
- Determination of whether the project emissions exceed a threshold of significance determined by the lead agency;
- The extent to which the project complies with state, regional, or local plans for reduction or mitigation of GHGs; and
- Mitigation measures.

GHG emissions were quantified in Table 5.1-27. The discussion above supports a determination that the project can be expected to decrease GHG emissions as compared with the current situation. Rio Mesa SEGF will provide more than 2,205 GWh per year of renewable generation that could replace aging, less-efficient, coal-fired and/or once-through cooled generating resources. The preceding discussion also demonstrates that GHG emissions from the Project will be below the EPS, which is generally accepted as a threshold of significance for GHG emissions from electric generation facilities, and will further the state's progress toward its RPS and SB 2 goals. Because the GHG emissions are not expected to be significant, no additional mitigation is necessary.

5.1.6 Consistency with Laws, Ordinances, Regulations, and Standards

This section considers consistency separately for federal, state, and local requirements.

5.1.6.1 Consistency with Federal Requirements

Prevention of Significant Deterioration Program

The PSD requirements apply, on a pollutant-specific basis, to any project that is a new major stationary source or a major modification to an existing major stationary source. A major source is a listed facility (one of 28 PSD source categories listed in the federal Clean Air Act) that emits at least 100 TPY, or any other facility that emits at least 250 TPY. Effective July 1, 2011, PSD will also apply to a new stationary source that emits more than 100,000 TPY of greenhouse gases (GHGs) and more than 100 TPY of any individual GHG. Because the emissions of all PSD pollutants will be below 100 TPY, and the GHG emissions for the proposed project will be below the PSD major source threshold of 100,000 TPY, the proposed project is not subject to PSD review.

Nonattainment New Source Review

Nonattainment New Source Review jurisdiction has been delegated to the MDAQMD for all pollutants and is discussed further under local requirement conformance below.

New Source Performance Standards

The boilers used at the proposed project will be subject to the following NSPS:

- Subpart Da: New Source Performance Standards for Electric Utility Steam Generating Units (auxiliary boilers).
- Subpart Db: New Source Performance Standards for Industrial-Commercial-Institutional Steam Generating Units (startup boilers).
- Subpart Dc: New Source Performance Standards for Small Industrial-Commercial-Institutional Steam Generating Units (nighttime preservation boilers).

The NSPS emissions limits are compared with the proposed permit limits in Table 5.1-41 below. Emissions from the boilers will be well below the NSPS limits.

Table 5.1-41
Comparison of Boiler Emission Rates with Applicable NSPS Standards

	NO_x	SO_2	PM
Subpart Da Limit (Auxiliary Boilers)	0.11 lb/MMBtu	1.4 lb/MWh	0.015 lb/MMBtu
Subpart Db Limit (Startup Boilers)	0.20 lb/MMBtu	0.20 lb/MMBtu	none
Subpart Dc Limit (Nighttime Preservation Boilers)	None	none	none
Proposed Permit Level	0.011 lb/MMBtu	0.0021 lb/MMBtu	0.005 lb/MMBtu

The boilers are exempt from the continuous opacity and SOx monitoring requirements of the NSPS because they will burn solely natural gas fuel. The auxiliary boilers must continuously monitor NO_x emissions (40 CFR 60.49a), but will use the NO_x CEMS required under Part 75 to meet the NO_x monitoring requirement. The startup boilers will use predictive emissions monitoring in lieu of continuous monitoring for NO_x (40 CFR 48b(g)(2)).

- Subpart IIII: New Source Performance Standards for Stationary Compression Ignition Engines (emergency engines, including fire pump engines)

The power block emergency generators, rated at 2.5 MW, are subject to Nonroad Tier 2 emission standards;[15] the Project will comply by purchasing Tier 2 engines. The common area emergency generator, rated at 500 kW, is subject to Nonroad Tier 3 standards; a Tier 3 –certified engine has been selected for this application. The fire pump engines proposed for the project are certified to Tier 3 nonroad standards, as required by the NSPS.

National Emission Standards for Hazardous Air Pollutants

This program establishes national emission standards to limit emissions of hazardous air pollutants (HAPs, or air pollutants identified by EPA as causing or contributing to the adverse health effects of air pollution but for which NAAQS have not been established) from facilities in specific source categories. These standards are implemented at the local level with federal oversight. EPA has promulgated NESHAP for boilers at area sources (40 CFR 63 Subpart JJJJJJ) and compression ignition engines (RICE; 40 CFR 63 Subpart ZZZZ). However, the area source boiler NESHAP does not apply to natural gas-fired units, while the RICE NESHAP requires only new emergency RICE to comply with the applicable NSPS. Therefore the NESHAP will impose no additional requirements on the facility.

Acid Rain Program

This program requires the monitoring and reporting of emissions of acidic compounds and their precursors from combustion power generation equipment. These requirements are implemented at the local level with federal oversight. MDAQMD has received delegation authority to implement Title IV. The project will comply with the acid rain program requirements and will file an acid rain permit application in accordance with the deadlines in MDAQMD Rule 1210.

Title V Operating Permits Program

This program requires the issuance of operating permits that identify all applicable federal performance, operating, monitoring, recordkeeping, and reporting requirements. Title V applies to major facilities, Phase II acid rain facilities, subject solid waste incinerator facilities, and any facility listed by EPA as requiring a Title V permit. MDAQMD has received delegation authority for this program. The project will comply with the requirements of Title V by filing a Title V permit application in accordance with the deadlines in MDAQMD Regulation XII.

5.1.6.2 Consistency with State Requirements

As discussed in Section 5.1.2.2, state law established local air pollution control districts and air quality management districts with the principal responsibility for regulating emissions from stationary sources. The proposed project is under the local jurisdiction of the MDAQMD; therefore, compliance with MDAQMD regulations will assure compliance with state air quality requirements.

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[15] Because these are emergency engines, they are not required to meet standards that require "add-on" controls, such as diesel particulate filters or SCR.

The CO_2 emission rate of 0.041 MT/MWh would meet the EPS of 0.51 MT/MWh. However, as a solar power plant, the project is not designed or intended for base load generation. The EPS applies only to procurements that entail an annualized capacity factor in excess of 60 percent. With an expected operating capacity that is the equivalent of approximately 3,000 full-load hours per year, the project's annualized capacity factor will be less than 50 percent. Therefore, the SB 1368 limitation does not apply to this facility.

5.1.6.3 Consistency with Local Requirements

The MDAQMD has been delegated responsibility for implementing local, state, and federal air quality regulations in the Mojave Desert Air Basin. The proposed project is subject to District regulations that apply to new stationary sources, to the prohibitory regulations that specify emission standards for individual equipment categories, and to the requirements for evaluation of impacts from non-criteria pollutants. The following sections include the evaluation of facility compliance with applicable District requirements.

New Source Review Requirements

The MDAQMD's NSR rule (Regulation XIII-New Source Review) establishes the criteria for siting new and modified emission sources; this rule is applicable to the proposed project. There are three basic requirements within the NSR rules. First, BACT requirements must be applied at any new facility with potential emissions above specified threshold quantities. Second, all potential emission increases of nonattainment pollutants or precursors from the proposed source above specified thresholds must be offset by real, quantifiable, surplus, permanent, and enforceable emission decreases in the form of ERCs. Third, an ambient air quality impact analysis must be conducted to confirm that the project does not cause or contribute to a violation of a national or California AAQS or jeopardize public health.

BACT

A comparison of potential emissions with the BACT thresholds in MDAQMD Rule 1303.A is presented in Tbale 5.1-42. The detailed per unit daily emission calculations are included in Appendix 5.1.B, Table 5.1B-11. Under Rule 219.E.4.c, the WSACs are exempt from permitting requirements due to a water recirculation rate per WSAC of less than 10,000 gallons per minute.[16] Therefore, the WSACs are not included in this table. This table shows that the boilers and emergency engines are not required to use BACT for NOx, VOC, SO_2 or PM_{10}.

Nevertheless, a detailed discussion regarding control technology options for the boilers is provided in Appendix 5.1C. A summary of the proposed controlled emission rates is provided in Table 5.1-43

[16] The WSACs are exempt from permit requirements (MDAQMD Rule 219.E.4.c: water cooling towers with a water recirculation rate of less than 10,000 gpm and not used for evaporative cooling of process water).

Table 5.1-42
Applicability of BACT Requirements Under NSR

Pollutant	BACT Threshold, lb/day	Maximum Boiler Emissions - Per Unit, lb/day	Maximum Engine Emissions – Per Unit, lb/day	BACT Required?
NOx	25	22	19	no
VOC	25	11	1	no
SO_2	25	4	0	no
PM_{10}	25	10	1	no

Table 5.1-43
Summary of Proposed BACT

Pollutant	Control Technology	Concentration
NOx, boilers	ultra-low NO_x burners, flue gas recirculation	9 ppmc
CO	good combustion practices	25 to 50 ppmc
VOC	good combustion practices	12.6 ppmc
SO_2	natural gas fuel	--
$PM_{10}/PM_{2.5}$, boilers	natural gas fuel	--
$PM_{10}/PM_{2.5}$, WSACs	high-efficiency drift eliminators	0.0005% (drift rate)
GHGs	natural gas fuel supplementing solar generation	0.043 Mt/MWh

Offsets

MDAQMD Rule 1303.B requires that projects with operational emissions above 100 tons/year of CO, 25 tons/year of NOx, VOC, or SOx, or 15 tons/year of PM_{10} provide emission offsets by emission reductions from other sources. As shown in Table 5.1-28 above, the facility-wide annual emissions from the project will not exceed the District's offset thresholds.

Air Quality Impact Analysis

Under MDAQMD new source review regulations (Rule 1302.C.2.b), if a new or modified project triggers the offset requirements under Rule 1303.B, an air quality impact analysis must be performed to confirm that the emission increases for a project will not interfere with the attainment or maintenance of an applicable ambient air quality standard or cause additional violations of a standard anywhere the standard is already exceeded. As discussed above, the proposed project will not trigger offset requirements; therefore, an air quality modeling analysis is not required under the MDAQMD new source review regulations. Nonetheless, the modeling results presented in Section 5.1.4.5 show that the proposed

project will not interfere with the attainment or maintenance of the applicable air quality standards or cause additional violations of any standards.

New Source Review Requirements for Air Toxics

Regulation XIII, Rule 1320 (NSR for TACs) provides a mechanism for evaluating the potential impact of toxic air contaminant air emissions from new, modified, and relocated facilities or permit units in the MDAQMD. The rule requires a demonstration that the source will not exceed the applicable health risk thresholds. The project will comply with the requirements of this rule. An air toxics health risk assessment consistent with MDAQMD requirements is provided in Section 5.16, Public Health.

New Source Performance Standards

The MDAQMD's New Source Performance Standards (Regulation IX) incorporates the federal NSPS from 40 CFR Part 60. The applicability and requirements of and compliance with the New Source Performance Standards are discussed above under the federal regulations section.

Federal Programs and Permits

The federal Title IV acid rain program requirement and Title V operational permit requirements are in MDAQMD's Regulation XII. The applicability and requirements of and compliance with these programs and permits are discussed above under the federal regulations section.

Public Notification

Public notice under Rule 1306.E.2 (Electric Energy Generating Facilities) is required and the applicant expects the MDAQMD Air Pollution Control Officer will provide this notice in a timely manner.

Permit Fees

The MDAQMD requirements regarding permit fees are specified in Regulation III. This regulation establishes the filing and permit review fees for specific types of new sources, as well as annual renewal fees and penalty fees for existing sources. The project will pay the applicable fees in accordance with these requirements.

Prohibitions

The MDAQMD prohibitions for specific types of sources and pollutants are addressed in Regulation IV. The prohibition rules that apply to the project are summarized below.

Rule 401 – Visible Emissions: This rule prohibits any source from discharging any emissions of any air contaminant that is darker in shade than that designated as Number 1 on the Ringelmann Chart for a period or periods aggregating more than 3 minutes in any period of 60 consecutive minutes. The project's use of natural gas would eliminate the possibility of dark visible emissions. Therefore, the project is expected to comply with this requirement.

Rule 402 – Nuisance: This rule prohibits the discharge from a facility of air contaminants that cause injury, detriment, nuisance, or annoyance to the public, or cause damage to business or property. The project would not emit odorous pollutants, and the screening level health risk assessment included in the Section 5.16, Public Health demonstrates that the potential health risk from the emissions is less than significant.

Rule 403 – Fugitive Dust: This rule prohibits visible dust emissions off property due to transport, handling, construction, or storage activity. Requires dust minimization during grading and clearing of land. Limits the difference between upwind and downwind PM concentrations to 100 μg/cubic meter (5 hour average). Requires removal of particulate matter from equipment prior to movement on paved streets. Construction emission mitigation measures will ensure compliance with this requirement.

Rule 404 – Particulate Matter: This rule prohibits PM emissions in excess of grains per dry standard cubic foot (gr/dscf) limits based on exhaust flow rates. The combustion of fuels in steam generators is exempt from this rule. Therefore, this rule only applies to the emergency engines at the proposed project. The proposed PM_{10} emission rates for the engines are below the rule limits. For example, the power block emergency engine PM_{10} emissions are approximately 0.0065 gr/dscf compared to the rule limit of approximately 0.06 gr/dscf.

Rule 406 – Specific Contaminants: This rule prohibits sulfur emissions, calculated as SO_2, in excess of 0.05 percent by volume (500 ppmv), and acid gas emissions above specified levels. SO_2 emissions from the project will be below 0.5 ppmv, based on the maximum expected fuel sulfur content of 0.75 gr/100 scf.

Rule 407 – Liquid and Gaseous Air Contaminants: This rule prohibits carbon monoxide emissions in excess of 2000 parts per million by volume, ppmv. CO emissions from the project boilers and engines will be well below 2000 ppmv.

Rule 409 – Combustion Contaminants: This rule prohibits PM emissions in excess of 0.1 grains per dry standard cubic foot (gr/dscf) from combustion equipment. This rule applies to the boilers and emergency engines at the proposed project. The proposed PM_{10} emission rates for the boilers and engines are below the rule limit. For example, the power block emergency engine PM_{10} emissions are approximately 0.0065 gr/dscf and the auxiliary boiler PM_{10} emissions are approximately 0.0019 gr/dscf.

Rule 431 – Sulfur Content of Fuels: This rule prohibits any stationary source from using any gaseous fuel containing a total sulfur content of more than 800 ppm (47 grains per 100 cubic feet) and liquid fuel with a sulfur content of more than 0.5 percent sulfur by weight. The natural gas used for the Project will have a maximum sulfur content of 0.75 (short term) grains per 100 cubic feet of dry gaseous fuel and the CARB Diesel used by the emergency engines will have a maximum sulfur content of 0.0015 percent by weight, well below the limits under this rule.

Rule 475 – Electric Power Generating Equipment: This rule limits NO_x and PM emissions from electrical generating equipment rated greater than or equal to 50 MMBtu/hr to RACT levels. The NO_x and PM limits apply to the auxiliary and startup boilers (NO_x limit = 80 ppmv @ 3 percent O2; PM limit not to exceed 0.01 gr/dscf @ 3 percent O2 and 11 lbs/hour). The proposed auxiliary and startup boilers will meet this requirement.

Rule 476 – Steam Generating Equipment: This rule limits NO_x emissions from steam generators rated above 50 MMBtu/hr to 125 ppm. This rule applies to the boilers at the proposed project. The boilers will be designed to meet a NO_x level of 9 ppm.

5.1.7 Mitigation Measures

5.1.7.1 Operational Emissions: Permitted Units

The project's emissions are below the levels that require BACT or offsets under MDAQMD regulations. Although BACT is not required, emissions from the boilers and engines will be well controlled, as discussed in Appendix 5.1C. Modeling shows that the project will not result in any significant air quality impacts.

Table 5.1-44 compares the emissions from the project with the emissions that would occur if the energy provided by the project were provided by a new 750 MW natural gas-fired combined cycle turbine project operating 3,000 hours per year, utilizing Best Available Control Technology (assumptions: heat rate of 7,000 Btu/kWh HHV, 2 ppmv NOx, 3 lb PM_{10} per 100 MW, 2 ppmv CO, 1.4 ppmv VOC, 0.0006 lb/MMBtu SO_2, 200 starts per year per gas turbine at approximately 56 lbs/start for NO_x per 250 MW gas turbine and 417 lbs/start for CO per 250 MW gas turbine).

Table 5.1-44
Comparison of Emissions Between Rio Mesa Solar Electric Generating Facility and a Well-Controlled Gas Turbine

Emissions/Equipment	Pollutant					
	NO_x	SO_2	CO	VOC	$PM_{10}/PM_{2.5}$	GHG
Maximum Annual Emissions, total tons per year						
Rio Mesa SEFG	13.8	1.8	30.6	5.1	4.5	99,122
Combined-Cycle Gas Turbine Project	82.9	4.7	118.1	12.6	33.8	916,837

5.1.7.2 Construction Activities

Mitigation measures for construction period impacts are discussed in Appendix 5.1F.

5.1.7.3 Greenhouse Gas Emissions

Every megawatt-hour generated by the project will displace a megawatt-hour that would otherwise have been generated by a more traditional (i.e., fossil-fuel-fired) source of electricity. The project therefore is expected to result in a net reduction in emissions of GHGs.

As discussed above, the project's GHG impacts are not significant. GHG regulatory offset requirements will be addressed through CARB-approved measures, including the possible acquisition of allowances under a cap-and-trade program.

5.1.7.4 Mirror Cleaning and Other Maintenance Activities

Emissions from mirror cleaning activities were quantified in Section 5.1.4.3. To minimize exhaust emissions from the mirror washing and refueling vehicles, the project will use new model year vehicles that meet then-current California on-road vehicle emission standards or applicable EPA /California off-road engine emission standards for the model year in effect when the vehicles are purchased. To minimize fugitive dust emissions from maintenance operations, including travel of mirror washing vehicles on unpaved roads, a dust control plan will be prepared that includes fugitive dust control measures such as use of soil stabilization techniques and limits on vehicle speed. Mitigation measures that will be included in the operational dust control plan include the following:

- Operations and wind erosion control techniques, such as windbreaks and chemical dust suppressants, and ongoing maintenance procedures that will be used on areas that could be disturbed by vehicles or wind anywhere within the project boundaries; and
- Limitations on vehicles speeds to not more than 10 mph on unpaved roadways that are not stabilized and up to 25 mph on stabilized unpaved roads as long as such speeds to not create visible dust emissions.

5.1.8 Involved Agencies and Agency Contacts

The EPA has responsibility for enforcing, on a national basis, the requirements of many of the country's environmental and hazardous waste laws. California is under the jurisdiction of EPA Region 9, which has its offices in San Francisco. Region 9 is responsible for the local administration of EPA programs for California, Arizona, Nevada, Hawaii, and certain Pacific trust territories. EPA's activities relative to the California air pollution control program focus principally on reviewing California's submittals for the SIP. The SIP is required by the federal Clean Air Act to demonstrate how all areas of the state will meet the national ambient air quality standards within the federally specified deadlines (42 USC §7409, 7411).

CARB was created in 1968 by the Mulford-Carrell Air Resources Act, through the merger of two other state agencies. CARB's primary responsibilities are to develop, adopt, implement, and enforce the state's motor vehicle pollution control program; to administer and coordinate the state's air pollution research program; to adopt and update as necessary the state's ambient air quality standards; to review the operations of the local air pollution control districts; and to review and coordinate preparation of the SIP for achievement of the federal ambient air quality standards (HSC §39500 et seq.).

When the state's air pollution statutes were reorganized in the mid-1960s, local APCDs were required to be established in each county of the state (HSC §40000 et seq.). There are three different types of districts: county, regional, and unified. In addition, special air quality management districts (AQMDs), with more comprehensive authority over non-vehicular sources as well as transportation and other regional planning responsibilities, have been established by the Legislature for several regions in California (HSC §40200 et seq.).

Air pollution control districts and air quality management districts in California have principal responsibility for:

- Developing plans for meeting the state and federal ambient air quality standard;
- Developing control measures for non-vehicular sources of air pollution necessary to achieve and maintain both state and federal air quality standards;
- Implementing permit programs established for the construction, modification, and operation of sources of air pollution;
- Enforcing air pollution statutes and regulations governing non-vehicular sources; and
- Developing employer-based trip reduction programs.

Each level of government has adopted specific regulations that limit emissions from stationary combustion sources, several of which are applicable to this project. The other air agencies having permitting authority for this project are shown inTable 5.1-45. The applicable federal LORS and compliance with these requirements are discussed in more detail in Subsection 5.1.7. An application for a Determination of Compliance will be filed with the MDAQMD at approximately the same time as the AFC is filed with the Commission. An application for an Acid Rain permit will be filed at approximately the same time as the AFC. An application for a federal operating permit (Title V permit) will be filed within 12 months of commencement of operation of the facility.

Table 5.1-45
Agency Contacts

Agency	Authority	Contact
Right-of-Way Grant	Bureau of Land Management	Cedric Perry, Bureau of Land Management 22835 Calle San Juan de Los Lagos Moreno Valley, CA 92553-9046 (951) 697-5200 cperry@blm.gov
Application for Certification	California Energy Commission	Pierre Martinez, California Energy Commission 1516 Ninth Street, Sacramento, CA 95814 (916) 651-3765 PMartine@energy.state.ca.us
United States Environmental Protection Agency Region 9	Prevention of Significant Deterioration Permit Issuance, Enforcement	Gerardo Rios, Chief Permits Office, EPA Region 9 75 Hawthorne Street, San Francisco, CA 94105 (415) 972-3974
California Air Resources Board	Regulatory Oversight	Mike Tollstrup, Chief, Project Assessment Branch California Air Resources Board 2020 L Street, Sacramento, CA 95814 (916) 322-6026

Table 5.1-45
Agency Contacts

Agency	Authority	Contact
Mojave Desert Air Quality Management District	Permit Issuance, Enforcement	Eldon Heaston, Executive Director Mojave Desert Air Quality Management District 14306 Park Avenue, Victorville, CA 92392 (760) 245-1661

5.1.9 Permits Required and Permit Schedule

Under Regulations II and XIII of its Rules and Regulations, MDAQMD regulates the construction, alteration, replacement, and operation of new stationary emissions sources and modifications to existing sources. In addition, pursuant to its Rule 1306 Electric Energy Generating Facilities, the District's Air Pollution Control Officer will conduct a Determination of Compliance (DOC) review upon receipt of the AFC for the Project. This DOC for the project will be provided by MDAQMD as part of the CEC review to confirm that the project will meet all of the District's rules and regulations. A preliminary DOC (PDOC) is expected within approximately 180 days after the District accepts the application as complete. The PDOC will be circulated for public comment, and a final DOC (FDOC) will be issued by the MDAQMD after comment has been considered and addressed. Upon approval of the AFC by the CEC with conditions incorporating the requirements of the FDOC, the FDOC will confer upon the applicant all of the rights and privileges of an Authority to Construct (ATC). The District will then assume responsibility for issuing and enforcing a Permit to Operate (PTO) for the Project. This permitting process allows the MDAQMD to adequately review new and modified air pollution sources to ensure compliance with all applicable prohibitory rules and to ensure that appropriate emission controls will be used. An ATC allows for the construction of the air pollution source and remains in effect until the PTO application is granted, denied, or canceled. Once the project has completed construction and commences operations, MDAQMD will require verification that the Project conforms to the ATC application and, following such verification, will issue a PTO. The PTO specifies conditions that the air pollution source must meet to comply with all air quality standards and regulations.

The MDAQMD has also received delegation from EPA to administer the federal Title IV and Title V programs for sources in the MDAB. The Project will be exempt from many of the acid rain program requirements, but the Project will be required to estimate SO_2 and CO_2 emissions from the project and to monitor NO_x and O_2 emissions with a certified CEMS, and will submit an acid rain permit application 24 months prior to commencement of operation pursuant to MDAQMD Rule 1210. The Rio Mesa SEGF must also submit a Title V permit application within 12 months after commencement of plant operation pursuant to MDAQMD Regulation XII.

Table 5.1-46
Permits and Permit Schedule

Permit	Agency Contact	Permit Schedule

Table 5.1-46
Permits and Permit Schedule

Permit	Agency Contact	Permit Schedule
Determination of Compliance (DOC) with conditions limiting emissions.	Eldon Heaston, Executive Director Mojave Desert Air Quality Management District (MDAQMD)	Agency approval to be obtained before start of construction.
Acid Rain program requirements included in Determination of Compliance, Permit to Operate, and Title V permit.	Eldon Heaston, Executive Director MDAQMD	Meet compliance deadlines listed in regulations.
Title V permit after review of application.	Eldon Heaston, Executive Director MDAQMD	Permit application to be submitted within 12 months after commencement of operation.
DOC with conditions limiting emissions.	Eldon Heaston, Executive Director MDAQMD	Screening Health Risk Assessment (HRA) submitted as part of AFC. Agency approval to be obtained before start of construction.
Final Certification with conditions limiting emissions.	Pierre Martinez, Project Manager California Energy Commission (CEC)	MDAQMD issuance of DOC precedes CEC approval of AFC.
Issues Title V permit after review of application.	Eldon Heaston, Executive Director MDAQMD	Application to be made within 12 months of start of facility operation.
Title IV requirements included in DOC, Permit to Operate, and Title V permit.	Eldon Heaston, Executive Director MDAQMD	Application to be made 24 months before start of facility operation.

Notes:
AFC = Application for Certification
DOC = Determination of Compliance
CEC = California Energy Commission
HRA = Health Risk Assessment
MDAQMD = Mojave Air Quality Management District

5.1.10 References

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Figure 5.1-1
2006-2010 Annual Wind Rose -- Blythe, CA #23158

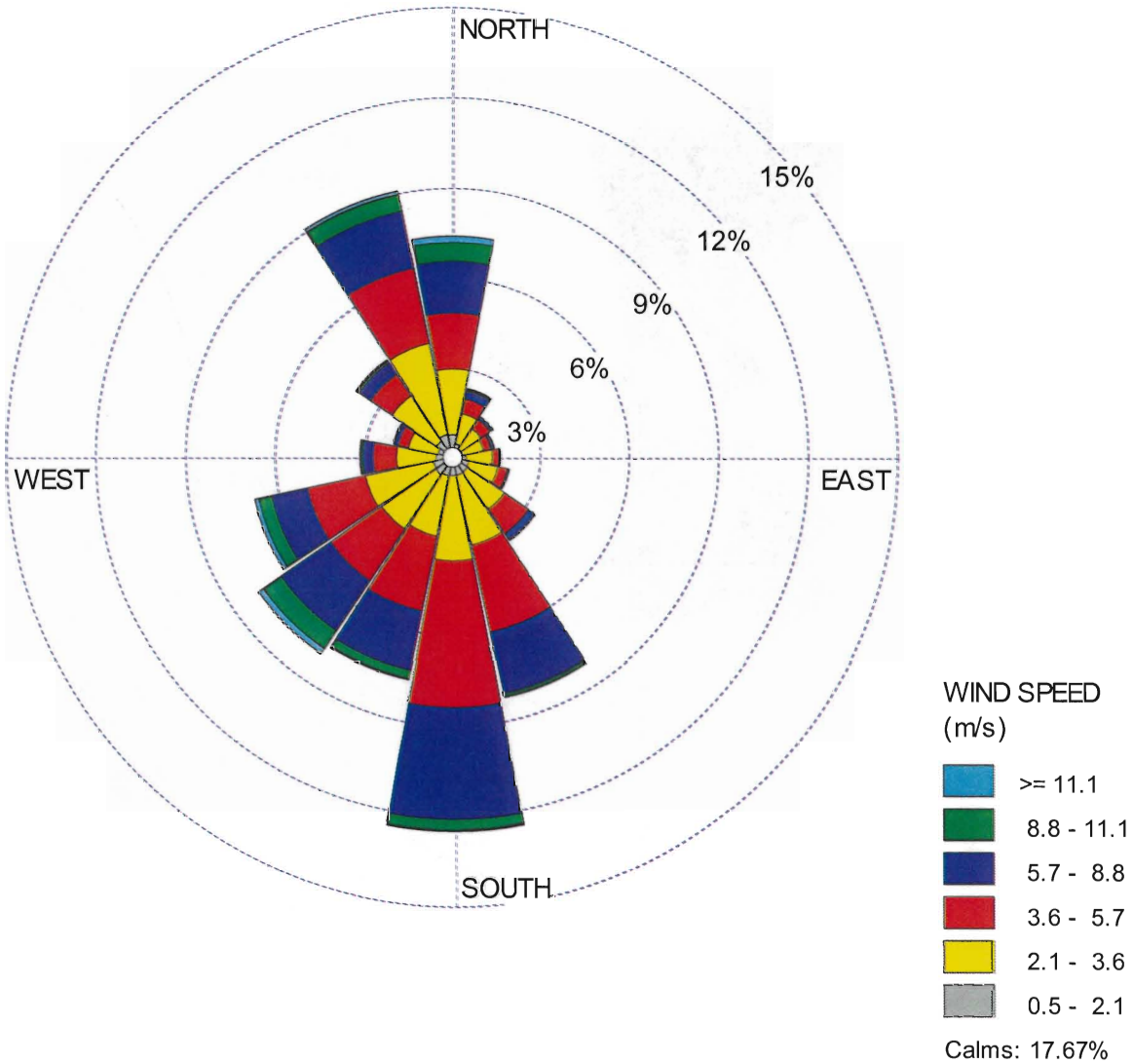


Figure 5.1-2
2006-2010 First Quarter Wind Rose -- Blythe, CA #23158

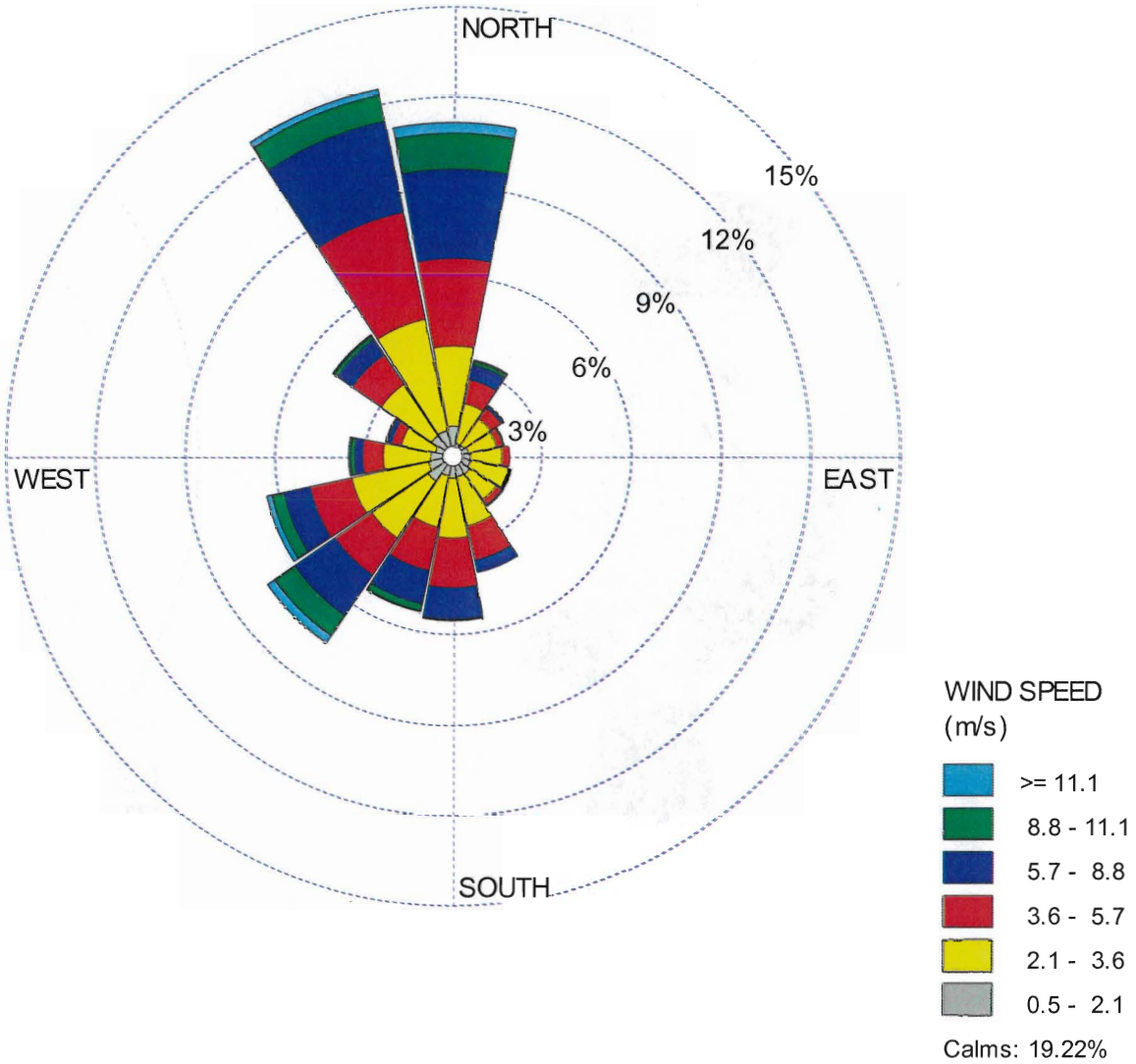


Figure 5.1-3
2006-2010 Second Quarter Wind Rose -- Blythe, CA #23158

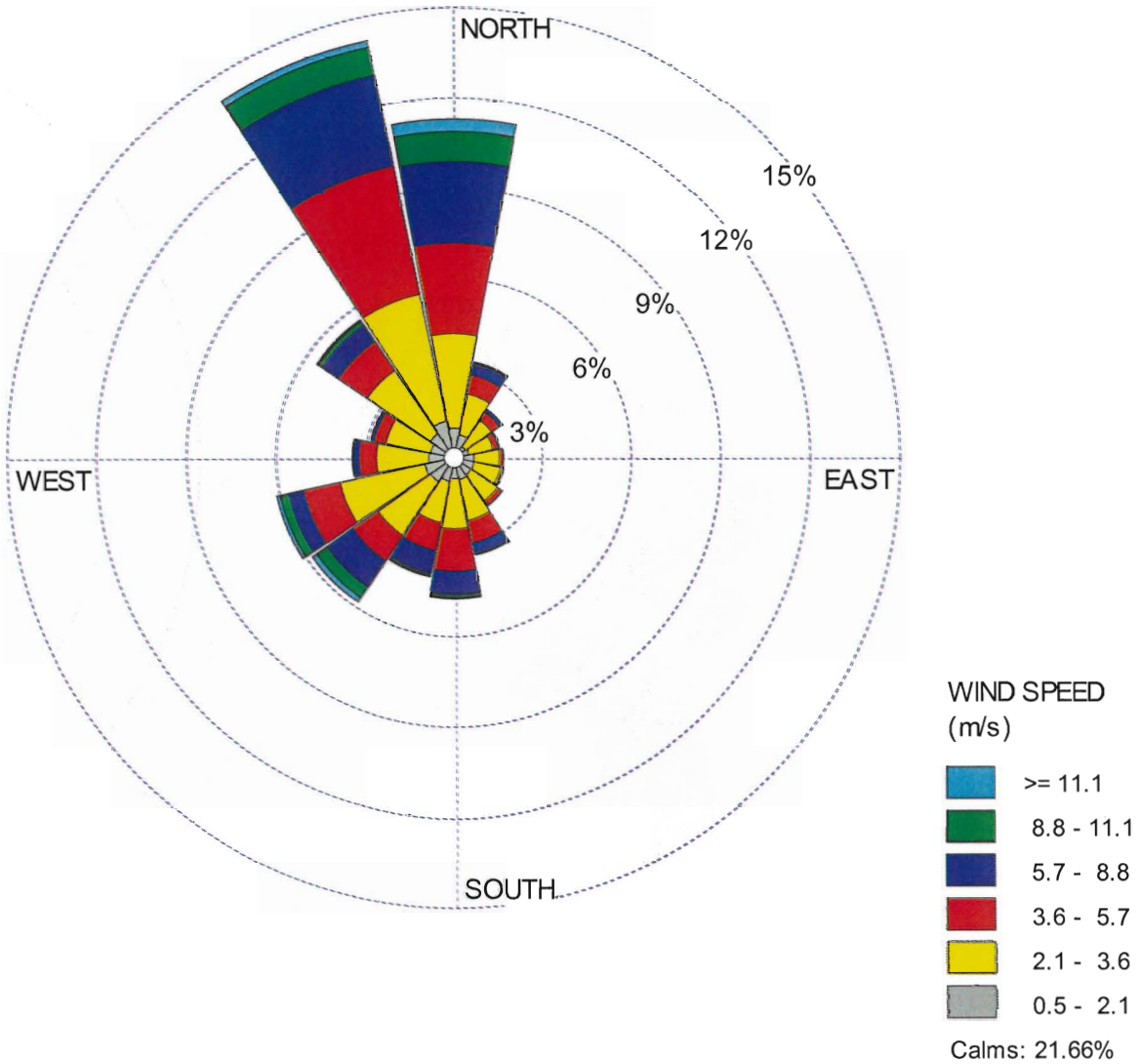


Figure 5.1-4
2006-2010 Third Quarter Wind Rose -- Blythe, CA #23158

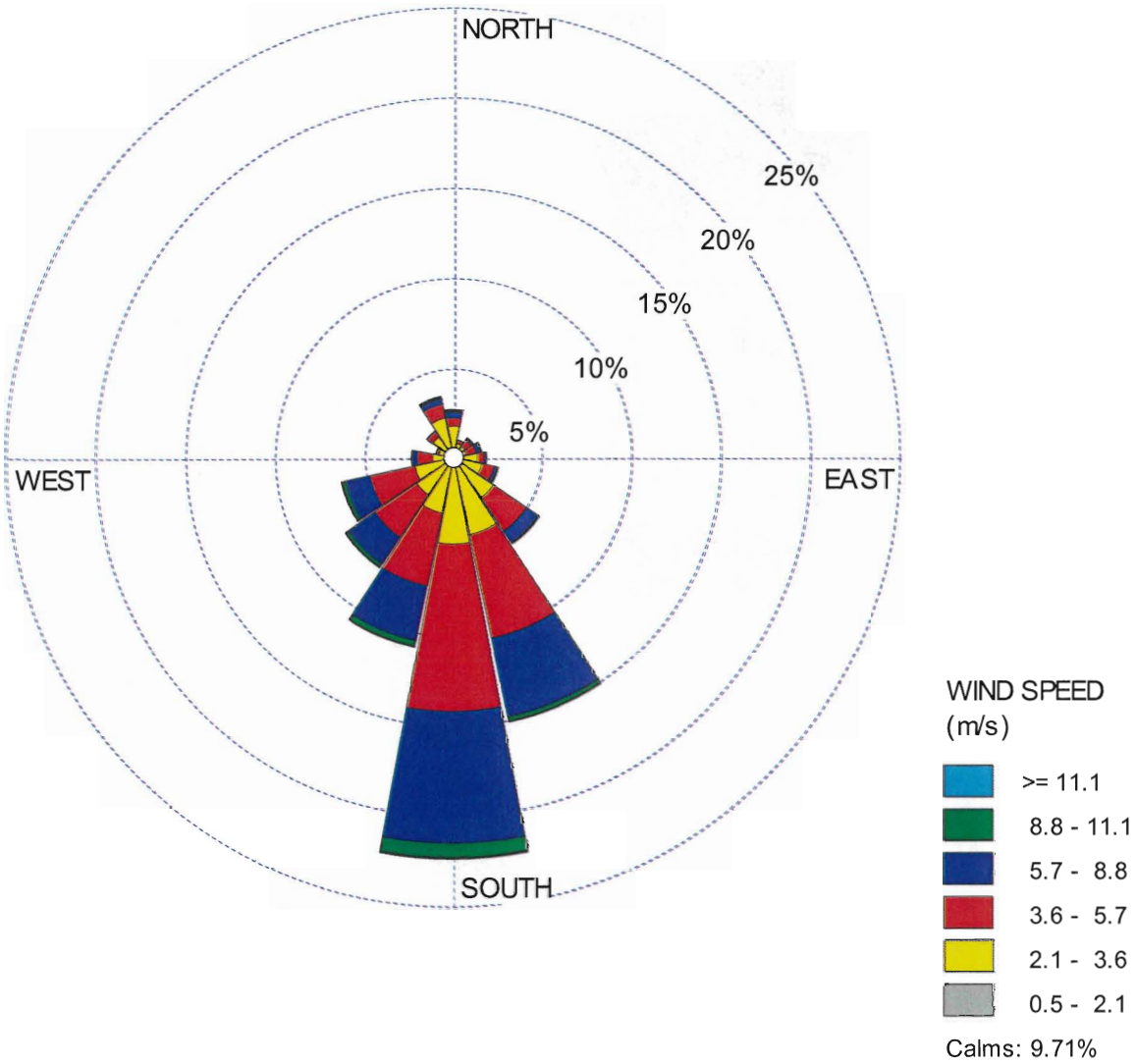
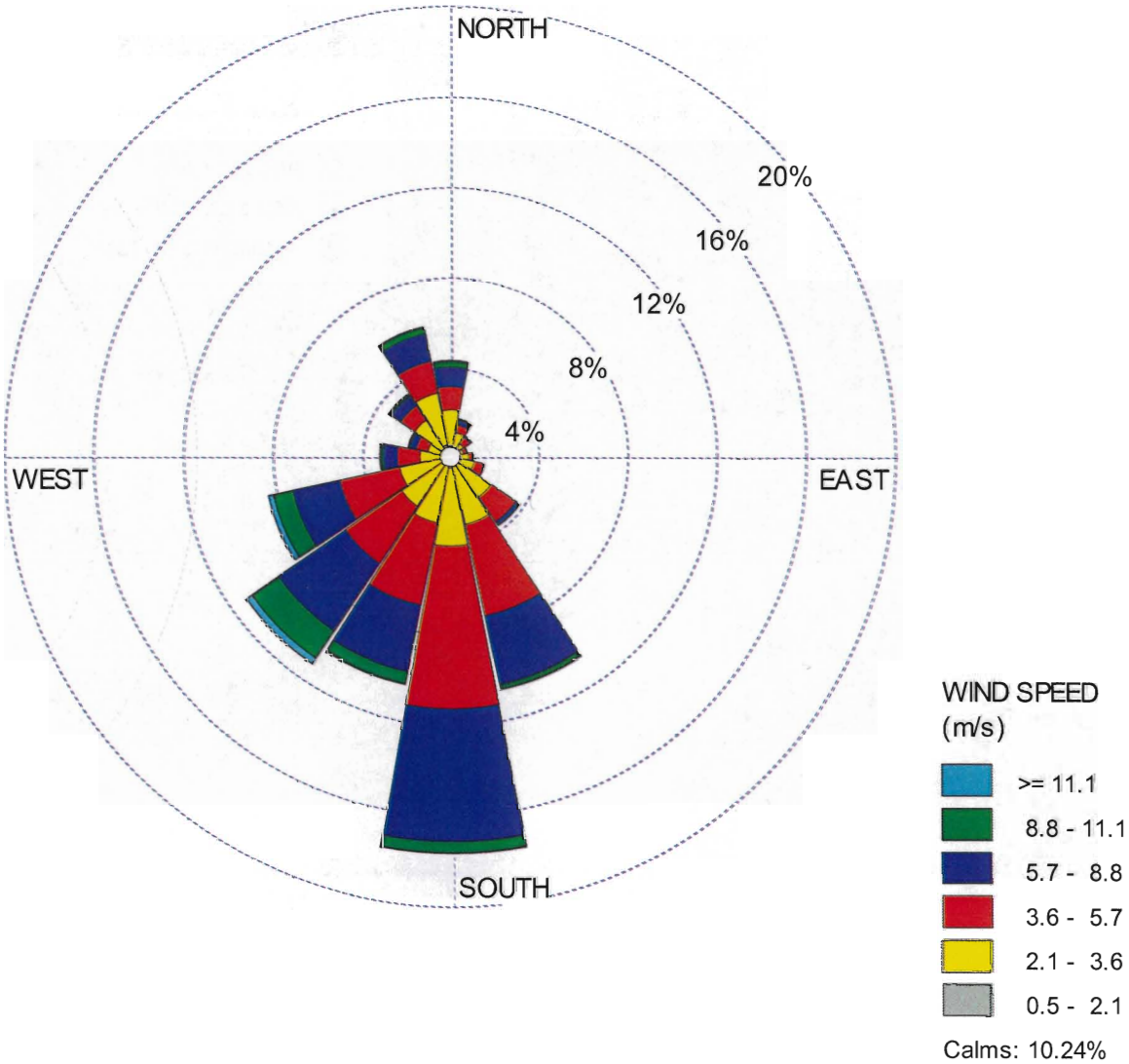


Figure 5.1-5
2006-2010 Fourth Quarter Wind Rose -- Blythe, CA #23158



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PUBLIC HEALTH SECTION

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5.9 PUBLIC HEALTH AND SAFETY

5.9.1 Introduction

This Application for Certification (AFC) for the Rio Mesa Solar Electric Generating Facility (Rio Mesa SEGF or Project) has been prepared in accordance with the California Energy Commission's (CEC) Power Plant Site Certification Regulations (CEC-140-2008-001-REV1, current as of July 2008). In addition, this AFC includes elements necessary for the United States (U.S.) Bureau of Land Management (BLM) to permit the Project through the National Environmental Policy Act (NEPA). The "Applicant" for purposes of this AFC comprises Rio Mesa Solar I, LLC, Rio Mesa Solar II, LLC, and Rio Mesa Solar III, LLC, owners of the three separate solar plants and certain shared facilities being proposed. These three Delaware limited liability companies will hold equal one-third shares in the ownership of shared facilities and will separately own their respective plants. They are wholly owned by Rio Mesa Solar Holdings, LLC (a Delaware limited liability company) which is in turn wholly owned by BrightSource Energy, Inc. (BrightSource) a Delaware corporation and the ultimate parent company. The Applicant will use BrightSource's solar thermal technology for the Rio Mesa SEGF.

The proposed project site is situated on the Palo Verde Mesa in Riverside County, California, 13 miles southwest of the City of Blythe, and is located partially on private land and partially on public land administered by BLM. The project will include three solar concentrating thermal power plants and a shared common area to include shared systems. The first plant, a 250 megawatt (MW) (nominal) facility known as Rio Mesa I, will be constructed at the south end of the project and owned by Rio Mesa Solar I, LLC. The second plant, another 250 MW (nominal) facility known as Rio Mesa II, will be located in the central portion of the project site and owned by Rio Mesa Solar II, LLC. Rio Mesa III, a third 250 MW (nominal) facility, will be constructed in the northern portion of the project site and owned by Rio Mesa Solar III, LLC. These three plants will be connected via a common overhead 220 kilovolt (kV) generator tie-line (gen-tie line) to the Southern California Edison (SCE) Colorado River Substation (CRS) approximately 9.7 miles to the north.

Each plant will utilize a solar power boiler (referred to as a solar receiver steam generator or SRSG), located on top of a dedicated concrete tower, and solar field based on proprietary heliostat mirror technology developed by BrightSource. The reflecting area of an individual heliostat (which includes two mirrors) is about 19 square meters (205 square feet [sq. ft.]). The heliostat (mirror) fields will focus solar energy onto the SRSG which converts the solar energy to superheated steam. In each plant, a Rankine cycle non-reheat steam turbine receiving this superheated steam will be directly connected to a rotating generator that generates and pushes the electricity onto the transmission system steam. Each plant will generate electricity using solar energy as its primary fuel source. However, auxiliary boilers will be used to operate in parallel with the solar field during partial load conditions and occasionally in the afternoon when power is needed after the solar energy has diminished to a level that no longer will support solar generation of electricity. These auxiliary boilers will also assist with daily start-up of the power generation equipment and night time preservation.

This section presents the methodology and results of a human health risk assessment (HRA) performed to assess potential impacts and public exposure associated with airborne emissions from Rio Mesa SEGF construction and operation. This screening HRA has been performed in accordance with guidance

established by the California Office of Environmental Health Hazard Assessment (OEHHA)[1] and the California Air Resources Board (CARB)[2].

This subsection describes the applicable laws, ordinances, regulations, and standards (LORS) related to public health and safety, and the environmental setting. It provides an analysis of the Project impacts that could occur as a result of Project construction and operation. This subsection also presents protection and mitigation measures that will avoid, minimize, or compensate for adverse impacts, when required. A list of agency contacts and permits that will be required is included at the end of the subsection.

5.9.2 Laws, Ordinances, Regulations and Standards

An overview of the regulatory process for public health issues is presented in this section. Table 5.9-1 identifies the relevant LORS that affect public health and are applicable to this Project. The regulatory compliance associated with each of the LORS applicable to public health is also presented in this table.

Table 5.9-1
Laws, Ordinances Regulations and Standards (LORS)

LORS	Requirements/ Applicability	AFC Section Explaining Conformance
Federal		
National Environmental Policy Act (NEPA) of 1969	NEPA establishes a public, interdisciplinary framework for federal decision-making and ensures that Federal agencies take environmental factors into account when considering federal actions.	Section 5.9.2.1
Clean Air Act (CAA)	Requires large facilities to provide offsets and demonstrate that new emissions will not cause or contribute to violation of a federal ambient air quality standard	Section 5.9.2.1
Risk Management Plan (RMP) 40 Code of Federal Regulations (CFR) Part 68	Requires facilities storing or handling significant amounts of acutely hazardous materials to prepare and submit RMPs	Section 5.9.2.1
State		
Warren-Alquist State Energy Resources Conservation and Development Act, California Public Resources Code, §§ 25000, et seq.	Gives the California Energy Commission (CEC) licensing authority in lieu of state, regional, and local permits and requirements.	Section 5.9.2.2

[1] OEHHA. Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, August 2003.

[2] CARB, http://www.arb.ca.gov/ab2588/riskassess.htm.

Table 5.9-1
Laws, Ordinances Regulations and Standards (LORS)

LORS	Requirements/ Applicability	AFC Section Explaining Conformance
California Environmental Quality Act (CEQA) California Public Resources Code, Division 13, §§ 21000-21177, as amended 2010.	Requires all agencies of State government that regulate activities of private individuals, corporations, and public agencies, which are found to affect the quality of the environment, shall regulate such activities so that major consideration is given to preventing environmental damage.	Section 5.9.2.2
Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) California Health and Safety Code §§ 25249.5 et seq.	Activities resulting in doses or carcinogenic risks above specified thresholds require Proposition 65 exposure warnings.	Section 5.9.2.2
California Accidental Release Prevention Program California Health and Safety Code, Article 2, Chapter 6.95, §§ 25531 to 25541; Title 19 California Code of Regulations (CCR) Division 2, Chapter 4.5	Requires facilities storing or handling significant amounts of acutely hazardous materials to prepare and submit RMPs	Section 5.9.2.2
Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) California Health & Safety Code §§ 44360 to 44366	Requires preparation and biennial updating of facility emission inventory of hazardous substances; risk assessments.	Section 5.9.2.2
Local		
Mojave Desert Air Quality Management District (MDAQMD) Rule 1320, New Source Review For Toxic Air Contaminants	Requires the evaluation of the potential impact of toxic air contaminants (TACs) from new sources and modifications.	Section 5.9.2.3

AB 2588 = Air Toxics "Hot Spots" Information and Assessment Act
AFC = Application for Certification
CAA = Clean Air Act
CCR = California Code of Regulations
CEC = California Energy Commission
CEQA = California Environmental Quality Act
CFR = Code of Federal Regulations
LORS = Laws, ordinances, regulations and standards
MDAQMD = Mojave Desert Air Quality Management District
NEPA = National Environmental Policy Act
Proposition 65 = Safe Drinking Water and Toxic Enforcement Act of 1986
RMP = Risk Management Plan

5.9.2.1 Federal

National Environmental Policy Act of 1969

The National Environmental Policy Act (NEPA) establishes a public, interdisciplinary framework for Federal agencies reviewing projects under their jurisdiction to consider environmental impacts. NEPA's

basic policy is to assure that all branches of government give proper consideration to the environment prior to undertaking any major federal action that significantly affects the environment.

The Bureau of Land Management (BLM), as lead Federal agency for the Project, is responsible for preparation of an Environmental Impact Statement (EIS) in compliance with NEPA to evaluate the environmental impacts of the portions of the Rio Mesa SEGF on federal lands. The Rio Mesa Solar III plant and the Project gen-tie line are located on lands administered and managed by the BLM. NEPA compliance is required for these portions of the Project through preparation of a Draft and Final EIS. BLM is also responsible for Native American consultation, including government to government consultation.

Clean Air Act

The Clean Air Act (CAA) requires large projects (new or modified sources at major stationary sources) to go through a federal permitting process that ensures that the project will not cause or contribute to a violation of a national ambient air quality standard. The emissions from the Project are below the thresholds of a federal permitting requirement.

Risk Management Plan, 40 Code of Federal Regulations (CFR) Part 68

Facilities storing or handling significant amounts of acutely hazardous materials must prepare and submit risk management plans. No regulated substance will be present in quantities exceeding the applicability thresholds; therefore, a Risk Management Plan (RMP) is not required.

5.9.2.2 State

Warren-Alquist Act

The California Public Resources Code (PRC) establishes the California Energy Commission (CEC) as the decision-making authority over land use decisions and environmental determinations during the Application for Certification (AFC) process. This is in accordance with the Warren-Alquist Act, codified in §§ 25000 et seq. of the PRC. The CEC has exclusive jurisdiction over thermal power plant siting (50 MW or greater), including California Environmental Quality Act (CEQA) implementation. The Project will demonstrate conformity with state, regional, and local laws, including land use laws.

Under the Warren-Alquist Act, the CEC's licensing process is legally equivalent to CEQA and is guided by CEQA regulations.

California Environmental Quality Act

The CEC will be the lead agency enforcing CEQA for the Project. Under California law, the CEC is responsible for reviewing the AFCs filed for projects, and also has the role of lead agency for the environmental review of these projects under CEQA (PRC, §§ 25500 et seq; PRC, §§21000 et seq.). The CEC conducts this review in accordance with the administrative adjudication provisions of the Administrative Procedure Act (5 United States Code, §§ 500 et. seq.) and its own regulations governing site certification proceedings (CCR, Title 20, §§ 1701 et seq.). These provisions require the staff to

conduct an independent analysis of AFCs and prepare an independent assessment of a project's potential environmental impacts, feasible mitigation measures, and alternatives as part of this process.

Safe Drinking Water and Toxic Enforcement Act of 1986, California Health & Safety Code §§ 25249.5 et seq.

The Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) states that activities which expose the public to significant levels of chemicals that are carcinogenic or that can cause reproductive harm must provide warnings.

Based on an HRA that follows CARB / OEHHA guidelines, non-criteria pollutant emission rates and resulting doses and carcinogenic risks will not exceed thresholds that require Proposition 65 exposure warnings.

California Accidental Release Prevention Program, California Health & Safety Code, §§ 25531-25541 (Article 2, Chapter 6.95); California Code of Regulations (CCR) Title 19, Division 2, Chapter 4.5

According to the California Accidental Release Prevention Program, facilities storing or handling significant amounts of acutely hazardous materials are required to prepare and submit RMPs.

No regulated substance will be present in quantities exceeding the applicability thresholds. An RMP is not required.

Air Toxics "Hot Spots" Information and Assessment Act, California Health & Safety Code §§ 44360-44366

Under the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) facilities with emissions of toxic air contaminants are prioritized based on emissions. If the facility's priority score is high enough, the facility is required to prepare an HRA. High risk facilities may be required to provide notification to neighbors or to develop and implement a risk reduction plan.

Based on the emission estimates described in this report, Rio Mesa SEGF will not be a high-priority facility.

5.9.2.3 Local

Mojave Desert Air Quality Management District Rule 1320, New Source Review For Toxic Air Contaminants

The Mojave Desert Air Quality Management District (MDAQMD)'s Rule 1320 describes the requirements and standards for evaluating the potential impact of toxic air contaminants (TACs) from facilities that emit TACs. The rule requires a demonstration that a new or modified source will not exceed the applicable health risk thresholds.

Based on the results of the HRA described in this report, the Project will not exceed the applicable health risk thresholds.

5.9.3 Affected Environment

The California Energy Commission (CEC) defines sensitive receptors as infants and children, the elderly, the chronically ill, and any other members of the general population who are more susceptible to the effects of exposure to environmental contaminants than the population at large. For the purposes of this analysis, sensitive receptors are defined as the locations occupied by groups of individuals who may be more susceptible to health risks from a chemical exposure: schools (public and private), day-care facilities, convalescent / nursing homes, retirement homes, health clinics, and hospitals. Because sensitive individuals may be located at any residential site, risk-based standards apply to existing residences and places where residences may be built without a change in zoning as well as sensitive receptors. If Project impacts are protective of sensitive individuals at the point of maximum impact, they are protective at all locations. Identification of sensitive receptors is done to ensure that notice of possible impacts is provided to the community.

No daycare, hospital, park, preschool, or school receptors were found within six miles of the project site.

The nearest residence[3] to the Rio Mesa SEGF property boundary is approximately 8,200 feet (1.55 miles) south of the Rio Mesa I solar array fence line (see Figure 5.7-1 in Section 5.7 Noise). The nearest residence to any power block equipment is approximately 13,120 feet (2.48 miles) east of the Rio Mesa III power block.

A variety of studies have been published regarding cancer and respiratory illnesses and diseases in Riverside County and in the broader Mojave Desert Air Basin (MDAB). In addition, the local public health department, Riverside County Health and Human Services, provides information on its website regarding public health issues for county residents (Riverside County, 2011). Asthma diagnosis rates in Riverside County are higher than average rates throughout the state for adults and children (Wolstein et al., 2010). The percentage of adults who have been diagnosed with asthma was 8.8 percent in 2005 and 2007, compared with 7.7 percent of the population statewide. Rates for children were 11.5 percent compared with 10.1 percent statewide for the same time period (Wolstein et al., 2010). Cancer death rates in Riverside County have declined slightly between 2003 and 2007, averaging 174 per 100,000. However, cancer death rates in the county remain slightly higher than the statewide average of 167 per 100,000 population (National Cancer Institute, 2011). According to this website, asthma is triggered by a variety of factors including dust, pollen, smoke, smog, and even cockroaches.

While there are no ambient monitors measuring TACs in the MDAB, there is an ambient monitor in Riverside County in the upwind South Coast Air Basin (SCAB).[4] Air quality and health risk data presented by CARB in the *California Almanac of Emissions and Air Quality – 2009 Edition* (CARB, n.d.) for Riverside County show that over the period 1990 through 2005, the average concentrations for the top ten TACs have been substantially reduced, and the associated health risks are showing a steady downward trend as well. CARB-estimated emissions inventory values for the top ten TACs for 2008 for Riverside

[3] The buildings at this site are not currently inhabited. The Applicant assumes for the purpose of this analysis, that there could be a habitable dwelling at this location.

[4] Air pollution transport from the SCAB to the MDAB is discussed in Title 17 CCR §75000, Transport Identification.

County and ambient levels and associated potential risks for Riverside County in the upwind SCAB are presented in Table 5.9-2.

Table 5.9-2
Top Ten Toxic Air Contaminants (TACs) Emitted in the Project Area

TAC	2008 Emissions, Riverside County (tons/year)	2007 Levels and Risks, Riverside County[a]	
		Annual Average Concentration (ppbv)	Potential Health Risk[b] (in 1 million)
Acetaldehyde	214	1.08	5
Benzene	302	0.404	37
1,3-Butadiene	77	0.08	30
Carbon tetrachloride	0	0.093 (2003)	24 (2003)
Chromium, hexavalent	0	0.23 ng/m^3	35
Para-Dichlorobenzene	63	0.15 (2006)	10 (2006)
Formaldehyde	502	2.88	21
Methylene chloride	234	0.19	<1
Perchloroethylene	216	0.035	1
Diesel Particulate Matter(PM)[c]	856	2.4 µg/m^3 (2000)	720 (2000)
Total Health Risk[d]	N/A	N/A	129

Source: CARB. The California Almanac of Emissions and Air Quality, 2009 Edition, http://www.arb.ca.gov/aqd/almanac/almanac09/pdf/appc09.pdf. Tables C-118, C-20, and C-25.

Notes:

[a] There are no ambient monitors in Mojave Desert Air Basin (MDAB) that measure air toxics, so data from the Rubidoux, Riverside County ambient monitor in the South Coast Air Basin (SCAB), which is upwind of the MDAB, is provided as a conservative estimate of background concentrations and health risks.

[b] Health Risk represents the number of excess cancer cases per million people based on a 70-year exposure to the annual average concentration. Health risk represents only the compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and health risk information is not available.

[c] The diesel particulate matter (PM) concentrations are estimates for the SCAB based on receptor modeling, and are available only for selected years.

[d] Total Health Risk shown excludes diesel PM because diesel PM concentrations are not available for 2007.

Abbreviations:

µg/m^3 = micrograms per cubic meter
ng/m^3 = nanograms per cubic meter
ppbv = parts per billion by volume
MDAB = Mojave Desert Air Basin
PM = Particulate Matter
SCAB = South Coast Air Basin
TAC = Toxic Air Contaminant

5.9.4 Environmental Analysis

This section discusses the sources and different kinds of air emissions associated with construction and operation of the Project (see Section 5.1, Air Quality), the methodology used in the HRA, and the results of the assessment of potential health risks from construction and operation of the Project.

Air will be the dominant pathway for potential public exposure to non-criteria pollutants released by the project. Emissions to the air will consist primarily of combustion by-products produced by the boilers and emergency engines. Potential health risks from combustion emissions will occur almost entirely by direct inhalation. To be conservative, additional pathways for dermal absorption, soil ingestion, and mother's

milk ingestion were included in the health risk modeling; however, direct inhalation is the dominant exposure pathway. Consistent with OEHHA guidance, because of the remote desert location of the proposed project, the produce and fish pathways were not evaluated.[5]

Combustion byproducts with established national and California ambient air quality standards (referred to as "criteria pollutants") are addressed in Section 5.1, Air Quality. Some discussion of the potential health risks associated with these substances is also presented in this section. Potential public exposure to accidental releases of hazardous materials on the project site during operation is addressed in Section 5.5, Hazardous Materials Handling. To ensure worker safety during operations and construction, safe work practices will be followed (see Section 5.16, Worker Safety).

Project emissions to the air will consist of combustion byproducts from the natural gas-fired boilers. Another source of combustion pollutants will be the routine testing and maintenance of the diesel-fueled emergency generators and the emergency fire water pump engine. Inhalation is the main pathway by which air pollutants can potentially cause public health impacts. Other pathways, including dermal absorption and ingestion of soil, homegrown vegetables, and mother's milk, are also evaluated for potential exposure. As discussed below, these health impacts will not be significant.

Construction emissions are presented in detail in Appendix 5.1F, along with an air dispersion analysis demonstrating that with the exception of the state 24-hour particulate matter (PM) measuring less than 10 microns in diameter (PM_{10}) standard (which is already being exceeded), ambient air quality standards will not be exceeded during Project construction. The dominant emission with potential health risk is diesel PM from combustion of diesel fuel in construction equipment (e.g., cranes, dozers, excavators, graders, front-end loaders, backhoes). A screening-type calculation in Section 5.4 of Appendix 5.1F demonstrates that the potential carcinogenic risk of diesel PM emissions during construction will be less than significant.

5.9.4.1 Significance Criteria

To evaluate potential health risks during Project operation, the measures of these risks are first described in terms of the types of public health effects and the significance criteria and thresholds for those effects.

Significance criteria exist for both cancer and non-cancer risks, and are discussed separately below.

Cancer Risk

Cancer risk is the probability or chance of contracting cancer over a human life span (assumed to be 70 years). Carcinogens are assumed to have no threshold below which there would be no human health impact. Any exposure to a carcinogen is assumed to have some probability of causing cancer: the lower the exposure, the lower the cancer risk (i.e., a linear, no-threshold model). Under state regulations, an incremental cancer risk greater than 10-in-one million due to a project is considered to be a significant

[5] *"The other exposure pathways (e.g., the ingestion of homegrown produce or fish) are evaluated on a site-by-site basis. If the resident can be exposed through an impacted exposure pathway, then it must be included in the HRA. However, if there were no vegetable gardens or fruit trees within the zone of impact for a facility, for example, then the produce pathways would not be evaluated."* OEHHA 2003.

impact on public health. The 10-in-one million risk level is also used by the AB 2588 program and Proposition 65 as the public notification level for air toxic emissions from existing sources.

Animal studies or human epidemiological studies (often based on workplace exposures) are used to estimate the relationship between the dose of a particular carcinogen and the resulting excess cancer risk. The cancer potency factor for that carcinogen is the slope of that dose-response relationship. Cancer risk is estimated by multiplying the dose of a particular carcinogen times its cancer potency factor. The dominant exposure pathway is inhalation; however, additional exposure pathways are considered in this screening HRA.

Non-Cancer Health Impacts

Non-cancer health effects can be either long-term (chronic) or short-term (acute). In determining potential non-cancer health risks from air toxics, it is assumed there is a dose of the TAC below which there would be no impact on human health. The air concentration corresponding to this dose is called the Reference Exposure Level (REL). A non-cancer health impact is measured in terms of a health hazard quotient for each TAC, which is the modeled maximum annual concentration of each TAC divided by its REL. Health hazard quotients for TACs affecting the same target organ are typically summed, with the resulting totals expressed as health hazard indices for each organ system. A health hazard index of less than 1.0 is considered by the regulatory agencies to be a less-than-significant health risk. For this HRA, as a conservative assumption that will tend to over predict risk, all hazard quotients were summed regardless of target organ.

This methodology leads to a conservative (upper bound) assessment. RELs used in the hazard index calculations were those published in the CARB / OEHHA listing, updated as of February 14, 2011 (CARB, 2011) (see Appendix 5.1E of Section 5.1, Air Quality).

Chronic toxicity is defined as adverse health effects from prolonged chemical exposure, caused by chemicals accumulating in the body. Because chemical accumulation to toxic levels typically occurs slowly, symptoms of chronic effects usually do not appear until long after exposure commences. The lowest no-effect chronic exposure level for a non-carcinogenic air toxic is the chronic REL. Below this threshold, the body is capable of eliminating or detoxifying the chemical rapidly enough to prevent its accumulation. The chronic health hazard index was calculated as the sum of the chronic health hazard quotients, each of which is calculated as the chronic TAC annual concentration divided by the chronic REL of the TAC.

Acute toxicity is defined as adverse health effects caused by a brief chemical exposure of no more than 24 hours. For most chemicals, the air concentration required to produce acute effects is higher than the level required to produce chronic effects because the duration of exposure is shorter. Because acute toxicity is predominantly manifested in the upper respiratory system at threshold exposures, all acute health hazard quotients are typically summed to calculate the acute health hazard index. This method leads to an upper bound assessment.

The maximum one- and eight-hour average concentrations of each TAC with acute health effects is divided by the specific TAC's acute one- and eight-hour REL, respectively, to obtain the one- and eight-hour health hazard quotient for health effects caused by relatively high, short-term exposure to air toxics. RELs used in the hazard index calculations were those published in the CARB / OEHHA listing,

updated February 14, 2011 (CARB, 2011). New RELs initially adopted by OEHHA on December 19, 2008, included 8-hour average RELs for acetaldehyde, acrolein and formaldehyde.[6] However, because these 8-hour RELs are not yet included in CARB's Hotspots Analysis and Reporting Program (HARP) software, they have been evaluated manually in this screening HRA.

Construction Impacts

Construction of the Rio Mesa SEGF, from site preparation and grading to commercial operation, is expected to take place from the fourth quarter of 2013 to the first quarter of 2016 (36 months total).

No significant public health effects are expected during construction. Construction practices that incorporate safety measures and reflect compliance with applicable LORS will be followed. In addition, mitigation measures to reduce air emissions from construction impacts will be implemented as described in Appendix 5.1F.

Temporary air emissions from construction are presented in detail in Appendix 5.1F, along with a criteria pollutant air dispersion analysis that demonstrates ambient air quality standards will not be exceeded by construction of the project with the exception of PM_{10} for which the standard is already exceeded. The dominant emission with potential health risk during construction is diesel PM from combustion of diesel fuel in construction equipment (e.g., cranes, dozers, excavators, graders, front-end loaders, backhoes). Diesel PM emissions from on-site construction are summarized in Table 5.9-3.

Table 5.9-3
Maximum Onsite Diesel Particulate Matter (PM) Emissions During Construction

Emitting Activity	Pounds per Day	Tons per Year
Construction Equipment	11.2	1.3

The detailed HRA calculations in Appendix 5.1E demonstrate that the potential cancer risk of diesel PM emissions during project construction will not exceed the significance threshold of 10 in one million. This HRA was performed in accordance with OEHHA (2003) guidance, which requires adjusting the 70-year lifetime exposure risk for an exposure period of nine years, despite the actual construction timeline of 36 months. The resulting maximum off-property cancer risk would be approximately 2.4 in one million.

Ambient air modeling for PM_{10}, carbon monoxide (CO), sulfur dioxide (SO_2), and nitrogen dioxide (NO_2) was performed as described in Section 5.1.5.5 and Appendix 5.1D. Construction-related criteria pollutant emission impacts are temporary and localized, resulting in no long-term significant health impacts to the public.

Small quantities of hazardous waste may be generated during construction of the Project. Hazardous waste management plans will be in place so the potential for public exposure is minimal. Refer to Section 5.14, Waste Management, for more information. No acutely hazardous materials will be used or

[6] Eight-hour RELs were also adopted for arsenic, manganese, and mercury. However, those chemicals are not emitted in any significant amount from natural gas-fired gas boilers and Diesel engines, so are not included in this screening HRA.

stored onsite during construction (see Section 5.5, Hazardous Materials Handling). To ensure worker safety during construction, safe work practices will be followed (see Section 5.16, Worker Safety).

Operations Impacts

Potential human health impacts associated with the Project result from exposure to air emissions from operation of the natural gas-fired boilers and diesel-fueled emergency equipment. The non-criteria pollutants emitted from the project include certain volatile organic compounds and polycyclic aromatic hydrocarbons (PAHs) from the combustion of natural gas. These pollutants are listed in Table 5.9-4, and the detailed emission summaries and calculations are presented in Appendix 5.1B.

Table 5.9-4
Air Emitted Pollutants from the Project

Criteria Pollutants	Non-criteria Pollutants
Carbon monoxide	Acetaldehyde
Oxides of nitrogen	Acrolein
Particulate matter	Benzene
Oxides of sulfur	Ethylbenzene
Volatile organic compounds	Formaldehyde
	Hexane
	Naphthalene
	PAHs
	Propylene
	Toluene
	Xylene
	Diesel Particulate Matter

Emissions of criteria pollutants will not cause or contribute significantly to violations of the national or California ambient air quality standards as discussed in Section 5.1, Air Quality.

Air dispersion modeling results (see Section 5.1.5.5) show that emissions will not result in ambient concentrations of criteria pollutants that exceed the ambient air quality standards, with the exception of the state PM_{10} standard. For PM_{10}, existing 24-hour average PM_{10} background concentrations already exceed ambient standards Modeling results indicate the Project would not add a significant contribution of PM_{10}. Air quality standards are intended to protect the general public with a wide margin of safety. Therefore, the Project will not have a significant impact on public health from emissions of criteria pollutants.

The HRA, which assesses potential impacts associated with emissions of non-criteria pollutants to the air from the Project, is presented in Appendix 5.1E. The HRA was prepared using the latest version (1.4d) of the CARB's HARP model (CARB, 2009), the CARB February 2011 health database (CARB, 2011), and the OEHHA Hot Spots Program Guidance Manual (OEHHA, 2003).

5.9.4.2 Public Health Impact Study Methods

Emissions of non-criteria pollutants from the project were analyzed using emission factors previously approved by CARB and the United States Environmental Protection Agency (EPA). Air dispersion modeling combined the emissions with site-specific terrain and meteorological conditions to analyze short-term and long-term arithmetic mean concentrations in air for use in the HRA. The EPA-recommended atmospheric dispersion modeling system (AERMOD) was used along with five years (2005–2009) of compatible meteorological data from the Blythe Airport meteorological station. Because HARP is built on a previous EPA-approved air dispersion model, Industrial Source Complex Short Term, Version 3 (ISCST3), the HARP On-Ramp (CARB, n.d.) was used to integrate the air dispersion modeling output from the AERMOD with the risk calculations in the HARP risk module.

Risk Analysis Method

The criteria pollutant modeling analysis was performed using the AERMOD model, the five-year meteorological data set described above, specific receptor grids, and the stack parameters for the combustion equipment (see Section 5.1, Air Quality). The highest annual, eight-hour and one-hour average concentrations were used to determine cancer risk and chronic health hazard index, and acute eight-hour and one-hour health hazard indices, as appropriate. Health risks potentially associated with the estimated concentrations of pollutants in air were characterized in terms of potential lifetime cancer risk (for carcinogenic substances), or comparison with RELs for non-cancer health effects (for non-carcinogenic substances).

Health risks were evaluated for a hypothetical Maximum Exposed Individual (MEI) located at the Point of Maximum Impact (PMI) as well as risks to the MEI at residential locations (MEIR). The cancer risk to the MEI at the PMI is referred to as the Maximum Incremental Cancer Risk (MICR). Human health risks associated with emissions from the project are unlikely to be higher at any other location than at the PMI. If there is no significant impact associated with concentrations in air at the PMI location, it is assumed to be unlikely that there would be significant impacts in any other location. Health risks were also evaluated at the nearest residence. The PMI (and thus the MICR) is not necessarily associated with actual exposure because in many cases the PMI is in an uninhabited area. Therefore, the MICR is generally higher than the cancer risk to the nearest resident. Both risks are based on a 24 hours per day, 3650 days per year, 70-year lifetime exposure.

Health risks are also assessed for the hypothetical Maximally Exposed Individual Worker, or MEIW, at the PMI. This assessment reflects potential workplace risks, which have a shorter duration than residential risks. Workplace risks reflect 8 hour per day, 245 days per year, 40 year exposure.

Health risks potentially associated with concentrations of carcinogenic pollutants in air were calculated as estimated excess lifetime cancer risks. The total cancer risk at any specific location is found by summing the contributions from each carcinogen.

The inhalation cancer potency factors and RELs used to characterize health risks associated with modeled concentrations in air are taken from the *Consolidated Table of OEHHA / CARB Approved Risk Assessment Health Values* (CARB, 2011) and are presented in Table 5.9-5.

Table 5.9-5
Toxicity Values Used to Characterize Health Risks

Toxic Air Contaminant	Inhalation Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Chronic REL($\mu g/m^3$)	Acute REL ($\mu g/m^3$)
Acetaldehyde	0.010	140	470 (1-hr) 300 (8-hr)
Acrolein	—	0.35	2.5 (1-hr) 0.7 (8-hr)
Ammonia	—	200	3,200
Benzene	0.10	60	1,300
1,3-Butadiene	0.60	20	—
Ethylbenzene	0.0087	2,000	—
Formaldehyde	0.021	9	55 (1-hr) 9 (8-hr)
Hexane	—	7,000	—
Naphthalene	0.12	9.0	—
Polycyclic Aeromatic Hydrocarbons (PAHs) (as BaP)	3.9	—	—
Propylene	—	3,000	—
Toluene	—	300	37,000
Xylene	—	700	22,000
Diesel particulate matter	1.1	5	—

Source: CARB, 2011.
$\mu g/m^3$ = micrograms per cubic meter
mg/kg-d = milligrams per kilogram per day
BaP = Benzo(a)pyrene
PAH = Polycyclic Aeromatic Hyrdocarbons

5.9.4.3 Characterization of Risks from Toxic Air Pollutants

The estimated potential maximum cancer risks for the MICR and the MEIW at the location of maximum impact (PMI), and for the MEIR, are shown in Table 5.9-6. The maximum carcinogenic risk is below the MDAQMD's one in-one million threshold at a residential receptor triggering additional analysis and well below the CEC's 10-in-one million threshold of significance.

Cancer risks potentially associated with the project were also assessed in terms of cancer burden. Cancer burden is a hypothetical upper-bound estimate of the additional number of cancer cases that could be associated with emissions from the project. Cancer burden is calculated as the maximum product of any potential carcinogenic risk greater than 1 in one million and the number of individuals at that risk level. Because the MICR is above the 1 in one million threshold in an area that extends only approximately 50

meters south of the common area fenceline and because there are no residential receptors in this small area, the potential cancer burden is zero.

Table 5.9-6
Summary of Estimated Maximum Potential Health Risks

Receptor	Carcinogenic Risk[a] (per million)	Cancer Burden	Acute Health Hazard Index		Chronic Health Hazard Index
			1-hour	8-hour	
Maximum Incremental Cancer Risk (MICR) and Health Hazard Indexes (HHIs) at Point of Maximum Impact (PMI)	1.38 in one million	0	0.003	0.002	0.0007
MICR and HHIs at Residential Receptors	0.10 in one million	0	0.0003	0.00008	0.00005
Maximally Exposed Individual Worker (MEIW) at PMI	0.21 in one million	0	n/a[b]	n/a[b]	n/a[c]
Significance Level	10	1.0	1.0	1.0	1.0

[a] Derived (OEHHA) Method used to determine significance of modeled risks.

[b] Acute analysis is always done as a single point exposure and is not affected by the type of analysis or exposure duration.

[c] The worker is assumed to be exposed at the work location for 8 hours per day, instead of 24; for 245 days per year, instead of 365; and for 40 years, instead of 70. Therefore, a 70-year-based chronic health hazard index is not applicable to a worker.

HHI = Health Hazard Index
MEIW = Maximally Exposed Individual Worker
MICR = Maximum Incremental Cancer Risk
PMI = Point of Maximum Impact

The maximum potential acute non-cancer health hazard indexes for one-hour and eight-hour exposures associated with concentrations in air are shown in Table 5.9-6. As indicated in Table 5.9-6, the acute non-cancer health hazard indexes for all target organs fall well below 1.0, the threshold of significance. Further description of the methodology used to calculate health risks associated with emissions to the air is presented in Appendix 5.1E.

Similarly, the maximum potential chronic non-cancer health hazard index associated with concentrations in air is also shown in Table 5.9-6. The chronic non-cancer health hazard index also falls below 1.0, the threshold of significance.

The estimates of cancer and non-cancer risks associated with chronic or acute exposures thresholds are used for regulating emissions of toxic air contaminants to the air. Historically, exposure to any level of a carcinogen has been considered to have a finite risk of inducing cancer. There is no threshold for carcinogenicity. Because risks at low levels of exposure cannot be quantified directly by either animal or epidemiological studies, mathematical models have estimated such risks by extrapolation from high to low doses. This modeling procedure is designed to provide a highly conservative estimate of cancer risks based on the most sensitive species of laboratory animal for extrapolation to humans (i.e., the assumption being that humans are as sensitive as the most sensitive animal species). Therefore, the risk is not likely to

be higher than risks estimated using inhalation cancer potency factors and is most likely lower, and could even be zero (EPA, 1991).

The analysis of potential cancer risk described in this section employs methods and assumptions generally applied by regulatory agencies for this purpose. Given the importance of assuring public health, this analysis uses highly conservative methods and assumptions, meaning they tend to over-predict the potential for adverse effects. Conservative methodology and assumptions include the following:

- The analysis includes representative weather data over a period of five years to ensure that the least favorable conditions producing the highest ground-level concentration of project emissions are included. The analysis then assumes that these worst-case weather conditions, which in reality occurred only once in five years, will occur continuously for 70 years.
- The Project is assumed to operate at hourly, daily, and annual emission conditions that produce the highest ground-level concentrations.
- The location of the highest ground-level concentration of project emissions is identified and the analysis then assumes that a sensitive individual resides at this location 24 hours a day, 7 days a week over the entire 70-year period, even though these assumptions are physically impossible.

Taken together, these methods and assumptions present a theoretical scenario that is more adverse to human health than conditions that exist in the real world. For example, if the worst-case weather conditions could occur only on a winter evening but the worst-case emission rates could occur only on a summer afternoon, the analysis nonetheless assumes that these events occur at the same time. The point of using these conservative assumptions is to overstate the potential impacts of the Project, so as to be assured that in the worst possible case that the project will not significantly impact public health. No one individual will experience exposures as great as those assumed for this analysis. By determining that even this highly overstated exposure will not be significant, the analysis provides a high degree of confidence that the much lower exposures that actual persons will experience will not result in any significant increase in cancer risk. In short, the analysis ensures that there will not be any significant public health impacts at any location, under any weather condition, under any operating condition.

5.9.4.4 Hazardous Materials

Hazardous materials will be used and stored at the facility. The hazardous materials stored in significant quantities onsite and descriptions of their uses are presented in Section 5.5, Hazardous Materials Handling. Use of chemicals at the project site will be in accordance with standard practices for storage and management of hazardous materials. Normal use of hazardous materials, therefore, will not result in significant impacts on public health. Best management practices will be used and mitigation measures will be in place to prevent releases. However, if an accidental release migrated offsite, potential impacts to the public could result.

The California Accidental Release Prevention (CalARP) Program regulations and 40 CFR 40 Part 68 under the Clean Air Act establish emergency response planning requirements for acutely hazardous materials. These regulations require, among other things, preparation of a RMP, which is a comprehensive program to identify hazards and predict the areas that may be affected by a release of a program-listed hazardous material.

An RMP is not required for this facility. No regulated substance will be present in quantities exceeding the applicability thresholds.

5.9.4.5 Operation Odors

The fuels used at the Rio Mesa SEGF will include natural gas and very low sulfur diesel fuel. Combustion contaminants will not be present at concentrations that could produce a significant odor.

5.9.4.6 Electromagnetic Field Exposure

The project will include additional onsite electric power-handling transformers and associated equipment, which are discussed in more detail in Section 3.0. Based on findings of the National Institute of Environmental Health Sciences (NIEHS, 1999), electromagnetic field exposures from the electric power generating and handling equipment and associated transmission lines would not result in a significant impact on public health. The NIEHS report to the United States Congress found that "the probability that electromagnetic field (EMF) exposure is truly a health hazard is currently small. The weak epidemiological associations and lack of any laboratory support for these associations provide only marginal scientific support that exposure to this agent is causing any degree of harm." (NIEHS, 1999).

5.9.4.7 Summary of Impacts

Results from the HRA based on emissions modeling indicate that there will be no significant incremental public health risks from construction or operation of the Rio Mesa SEGF. Results from criteria pollutant modeling for routine operations indicate that potential ambient concentrations of NO_2, CO, SO_2, and PM_{10} would not exceed ambient air quality standards, with the exception of the state 24-hour average PM_{10} standard. For this pollutant, existing background concentrations already exceed applicable standards, while the project would not add a significant contribution. The ambient air quality standards protect public health with a margin of safety for the most sensitive subpopulations (Section 5.1).

Beneficial aspects of the project regarding protection of public health include the following:

- Use of solar technology to generate electricity (with minimal use of fossil fuel); the project therefore has the potential to displace fossil fuel generation to the west of Riverside County that currently contributes adversely to air quality in the MDAB.
- Use of clean-burning, low sulfur content natural gas for support equipment, which reduces SO_2 emissions and subsequent sulfate fine particulate generation.
- Optimized stack height to reduce ground-level concentrations of exhaust pollutants below public health-related significance thresholds.

These features will ensure that the public health impacts of the project will be avoided or minimized.

Rio Mesa SEGF will not be a major stationary source under MDAQMD New Source Review (NSR) regulations because maximum facility emissions will be below 100 tons per year (tpy) for CO, 25 tpy for nitrous oxides (NO_x), sulfur oxides (SO_x), and volatile organic compounds, and 15 tpy for PM_{10}. The project will not be a major source under the federal Prevention of Deterioration (PSD) program because it

will have the potential to emit less than 100 tpy of each PSD criteria pollutant, and less than 100,000 tons per year of greenhouse gases (GHG).

5.9.5 Cumulative Effects

An analysis of potential cumulative air quality impacts that may result from the project and other past, present, and reasonably foreseeable projects is required by CEQA. A letter submitted to the MDAQMD requested the following information regarding other projects that qualify for review under the cumulative air quality impact analysis:[7]

- projects located within a six-mile radius of the project site; and
- projects issued a new Authority to Construct permit after January 1, 2010.

MDAQMD has responded that there are only two projects (Blythe Energy Project, Blythe Energy Project Phase II) located within six miles of the Project.

A procedure for performing the cumulative criteria pollutant impacts analysis is discussed in Appendix 5.1G. This cumulative criteria pollutant impact analysis determined that the Rio Mesa SEGF, in combination with other nearby, foreseeable projects, will not cause a combined air quality impact that exceeds significance thresholds.

In contrast with the approach used to estimate impacts for criteria pollutants, the significance thresholds developed for TACs are set sufficiently stringent so as to preclude the potential for any significant cumulative impacts. Thus, a separate cumulative impacts analysis for TACs is not required.

5.9.6 Mitigation Measures

The project has been designed to minimize TAC emissions and impacts. No additional mitigation measures are needed for the project TAC emissions because the potential air quality and public health impacts are less than significant.

5.9.7 Agencies and Agency Contacts

Table 5.9-7 provides contact information for agencies involved with public health.

Table 5.9-7
Agency Contacts

Issue	Agency	Contact
Public exposure to air pollutants	United States Environmental Protection Agency Region 9	Gerardo Rios EPA Region 9 75 Hawthorne Street, San Francisco, CA 94105 (415) 972-3974

[7] Copies of the correspondence are provided in Appendix 5.1G.

Table 5.9-7
Agency Contacts

Issue	Agency	Contact
Right-of-Way Grant	Bureau of Land Management	Cedric Perry Bureau of Land Management California Desert District 22835 Calle San Juan De Los Lagos, Moreno Valley, CA 92553 (951) 697-5388
Application for Certification	California Energy Commission	Pierre Martinez California Energy Commission 1516 Ninth Street, Sacramento, CA 95814-5512 (916) 651-3765
Public exposure to air pollutants	California Air Resources Board	Mike Tollstrup Project Assessment Branch California Air Resources Board 1001 I Street, Sacramento, CA 95812 (916) 323-8473
Public exposure to air pollutants	Mojave Desert Air Quality Management District	Eldon Heaston, Executive Director Mojave Desert Air Quality Management District 14306 Park Avenue, Victorville, CA 92392 (760) 245-1661
Public exposure to chemicals known to cause cancer or reproductive toxicity	California Environmental Protection Agency, Office of Environmental Health and Hazard Assessment	Cynthia Oshita or Susan Long Office of Environmental Health Hazard Assessment 1001 I Street, Sacramento, CA 95814 (916) 445-6900
Public exposure to accidental releases of hazardous materials	EPA Region 9	Deborah Jordan EPA Region 9 75 Hawthorne Street, San Francisco, CA 94105 (916) 947-4157
Public exposure to accidental releases of hazardous materials	California Office of Emergency Services	Moustafa Abou-Taleb Governor's Office of Emergency Services 3650 Schriever Avenue, Mather, CA 95655 (916) 845-8741
Public exposure to accidental releases of hazardous materials	Riverside County Sheriff's Department	Captain James Navarro 260 N. Spring Street, Blythe, CA 92225 (760) 921-7900

5.9.8 Permits and Permit Schedule

Agency required permits related to public health are listed in Table 5.9-8, and include the MDAQMD Final Determination of Compliance (FDOC). Upon approval of the Project by the CEC, the MDAQMD FDOC will act as an Authority to Construct. A Permit to Operate will be issued by the MDAQMD after construction and commencement of operation. These requirements are discussed in detail in Section 2, Air Quality.

Table 5.9-8
Applicable Permits

Permit	Agency Contact	Schedule
Determination of Compliance/ Authority to Construct/ Permit to Operate	Eldon Heaston, Executive Director Mojave Desert Air Quality Management District	District will issue a Preliminary Determination of Compliance within 180 days after issuing the Application Completeness Determination Letter.

5.9.9 References

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Riverside County Department of Public Health. 2011. http://www.rivcoph.org/

U.S. Environmental Protection Agency (EPA). 1991. Risk Assessment for Toxic Air Pollutants: A Citizen's Guide. EPA 450/3-90-024. March 1991. http://www.epa.gov/ttn/atw/3_90_024.html

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AIR QUALTIY APPENDICES
5.1A thru 5.1H

Appendix 5.1A
Quarterly Wind Roses and Wind Frequency Distributions

Figure 5.1A-1
2006 First Quarter Wind Rose -- Blythe, CA #23158

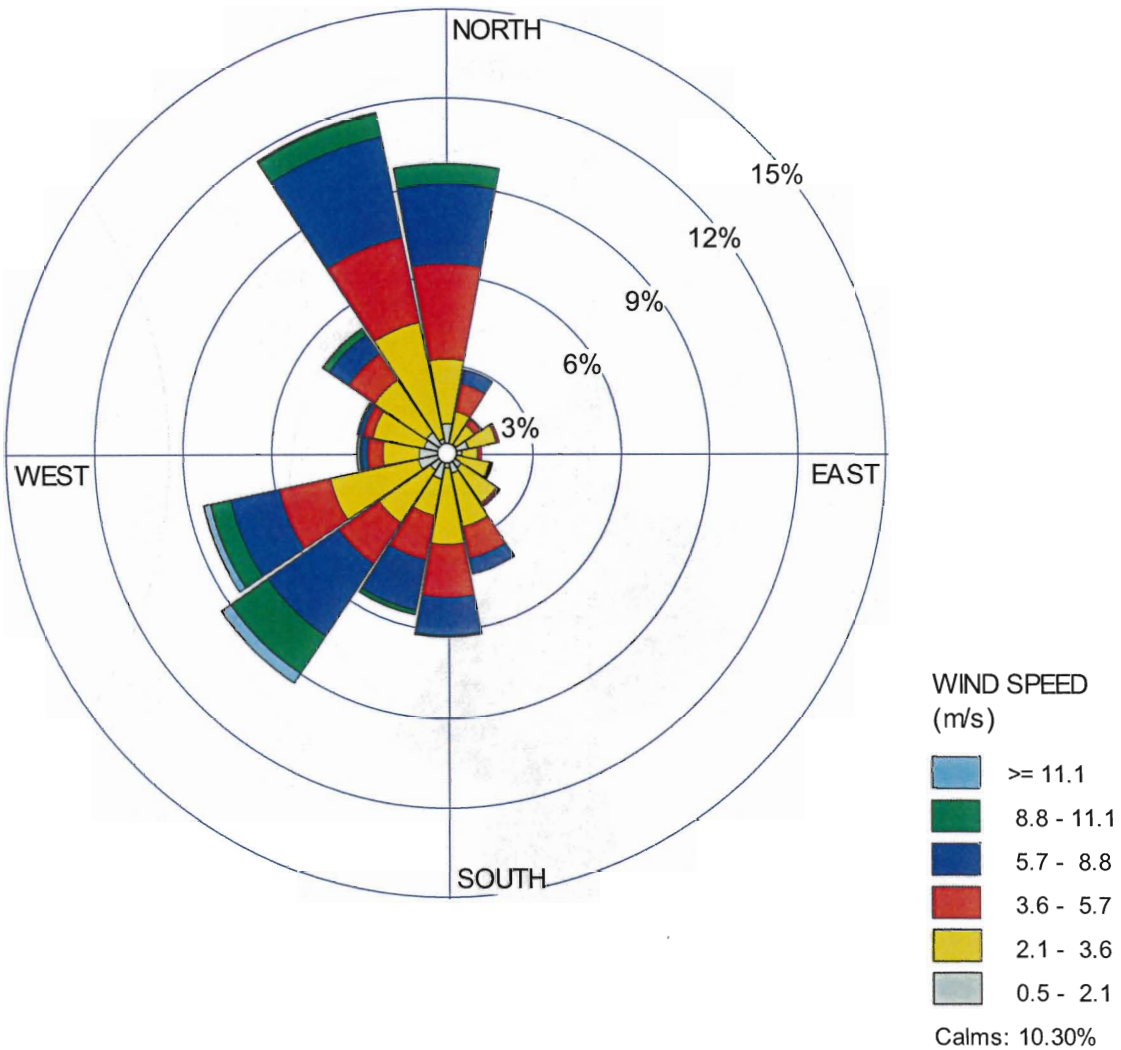

Figure 5.1A-2
2006 Second Quarter Wind Rose -- Blythe, CA #23158

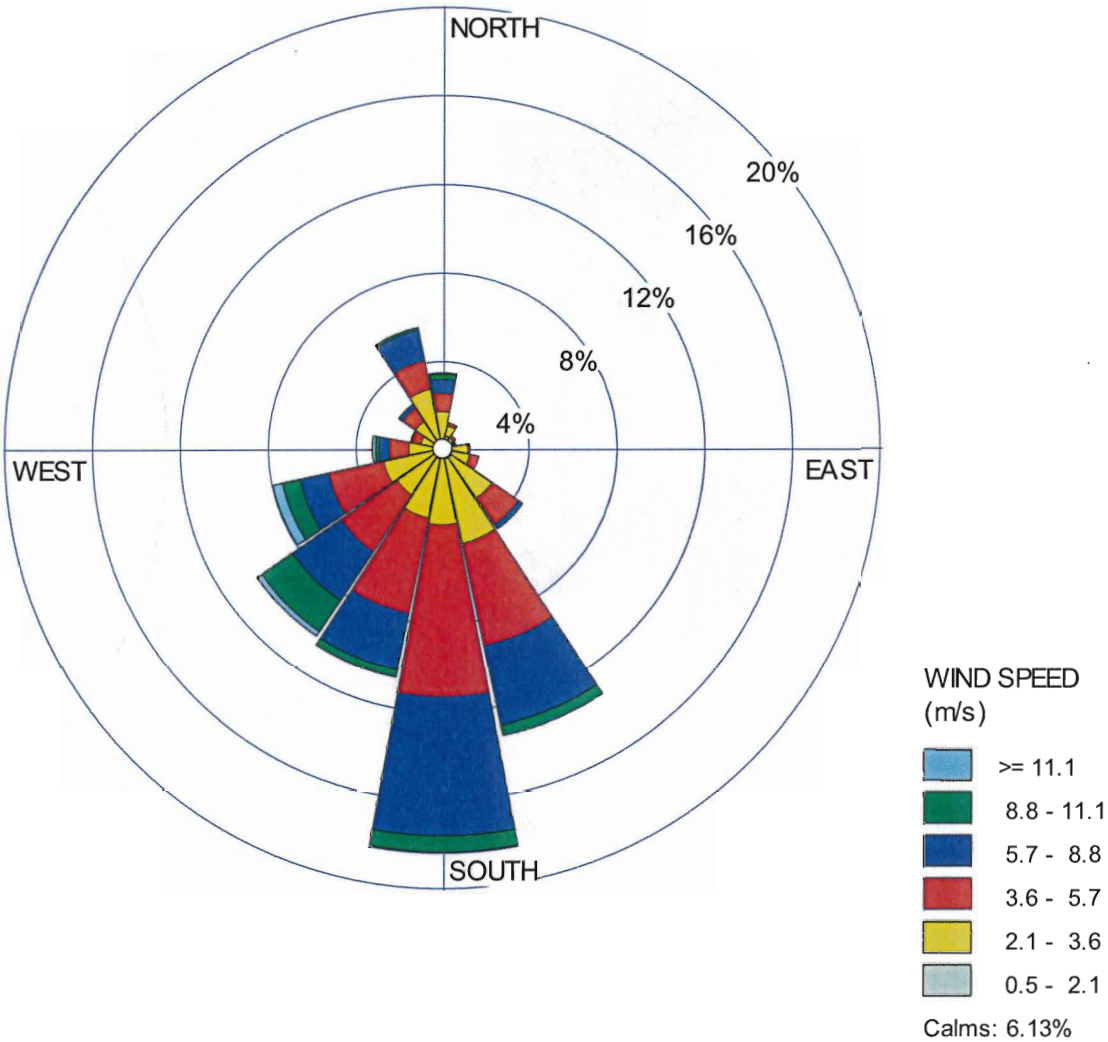

Figure 5.1A-3
2006 Third Quarter Wind Rose -- Blythe, CA #23158

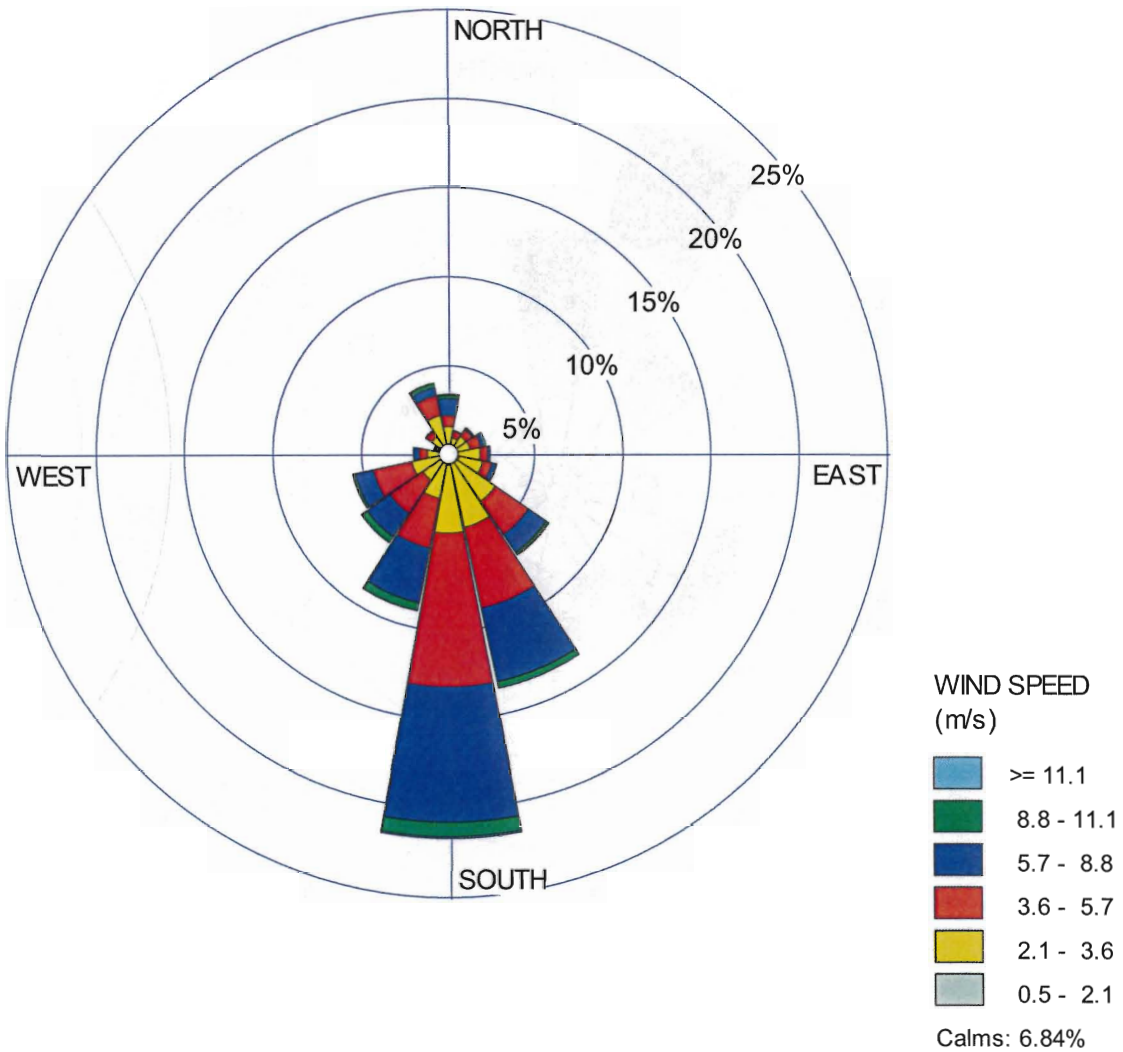

Figure 5.1A-4
2006 Fourth Quarter Wind Rose -- Blythe, CA #23158

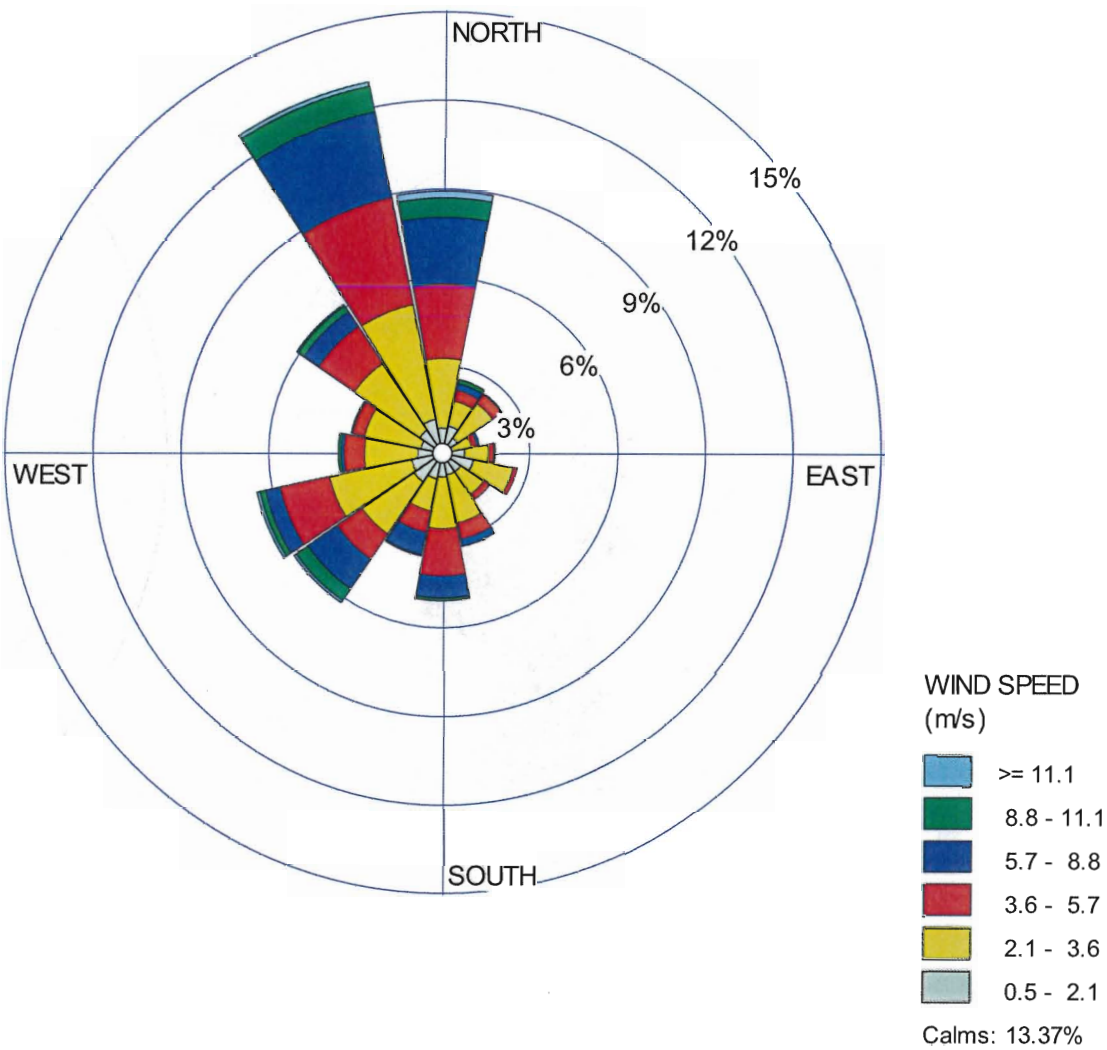

Figure 5.1A-5
2006 Annual Wind Rose -- Blythe, CA #23158

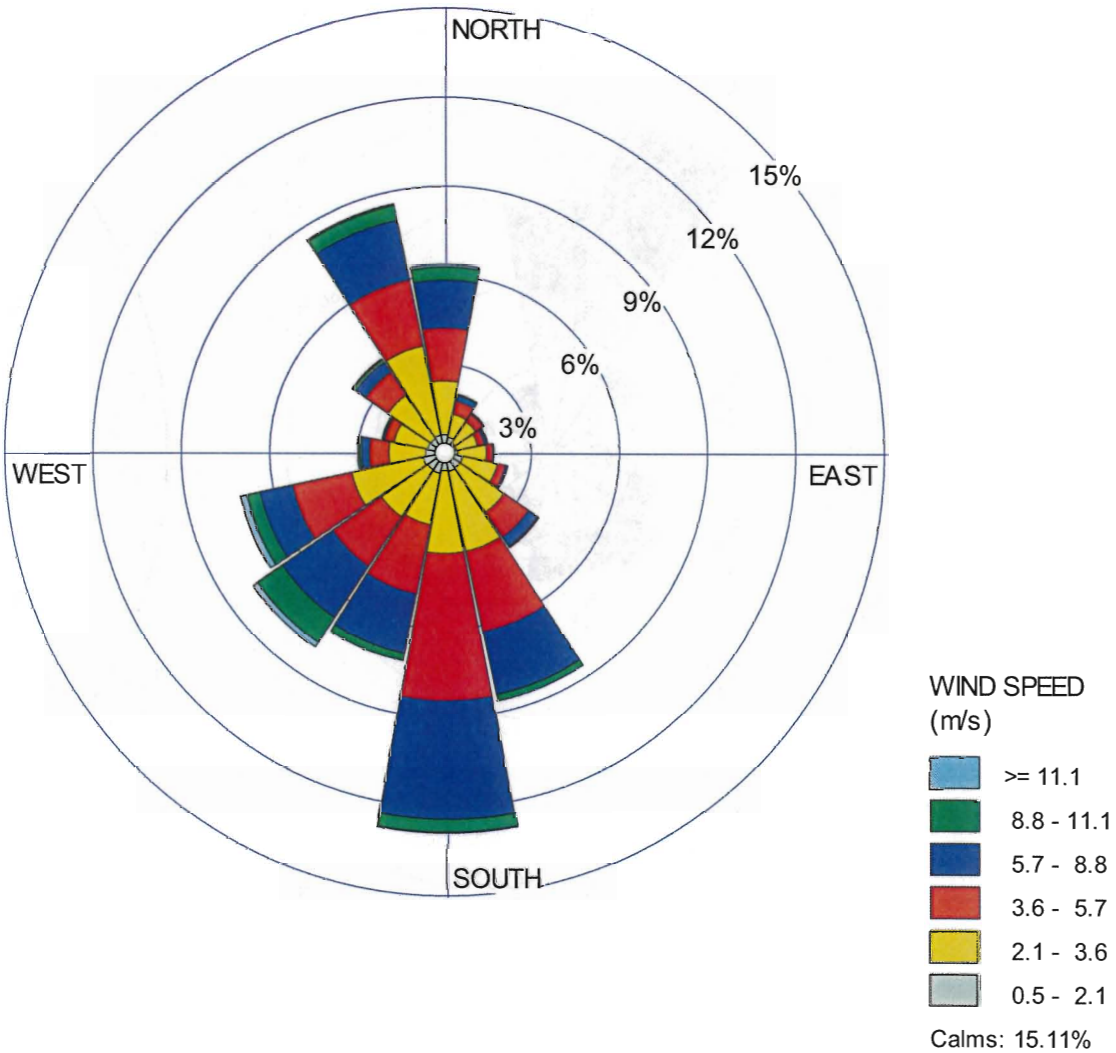

Figure 5.1A-6
2007 First Quarter Wind Rose -- Blythe, CA #23158

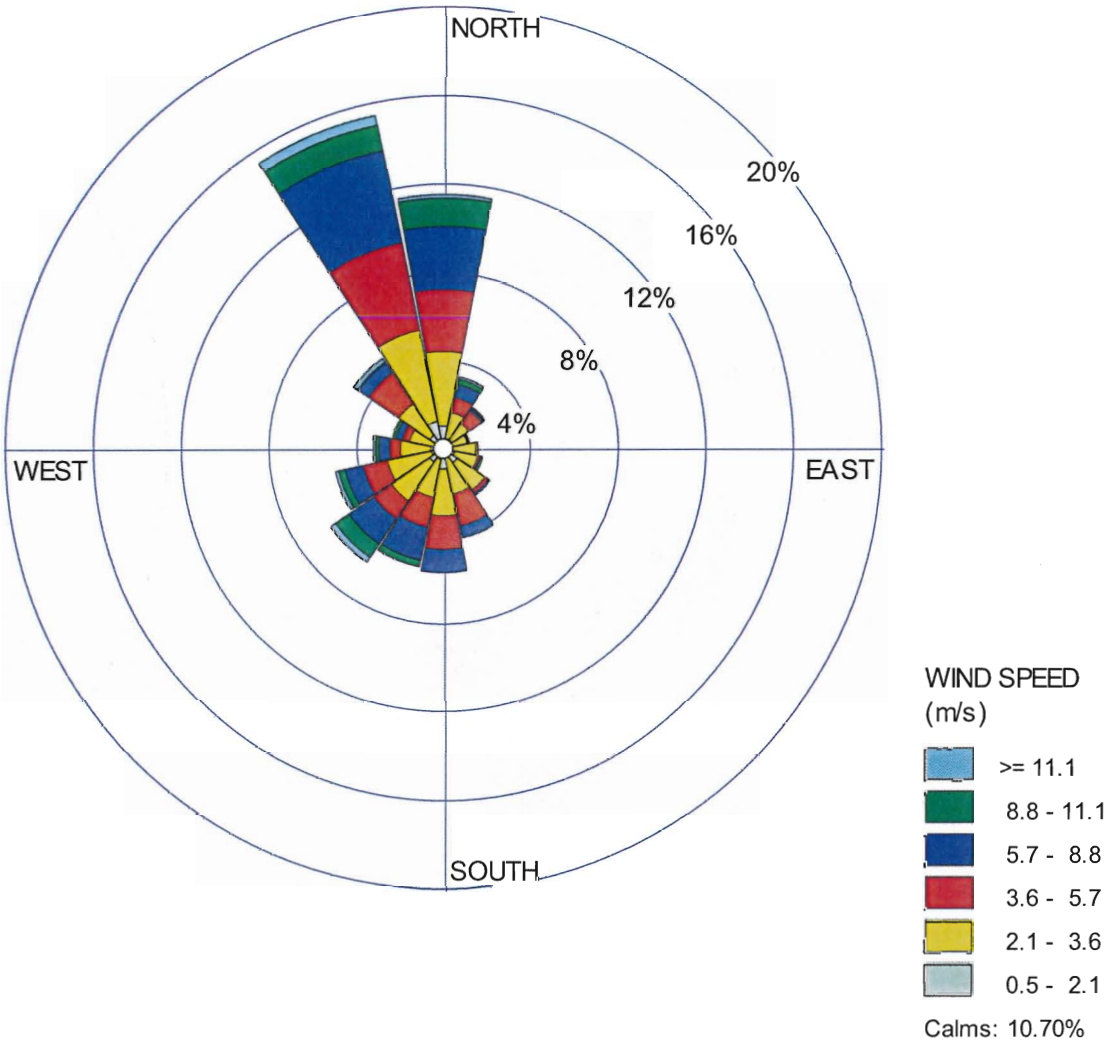

Figure 5.1A-7
2007 Second Quarter Wind Rose -- Blythe, CA #23158

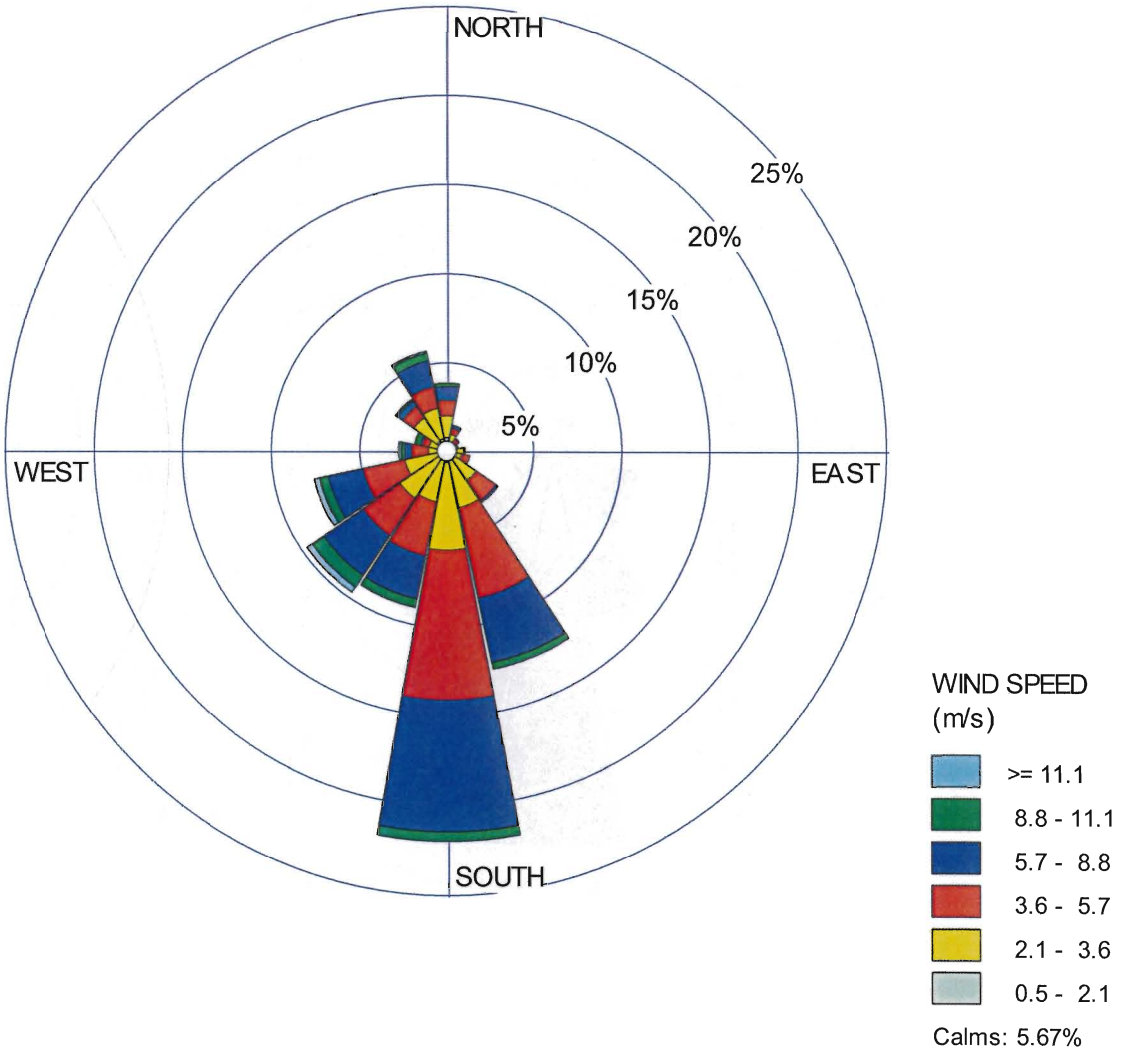

Figure 5.1A-8
2007 Third Quarter Wind Rose -- Blythe, CA #23158

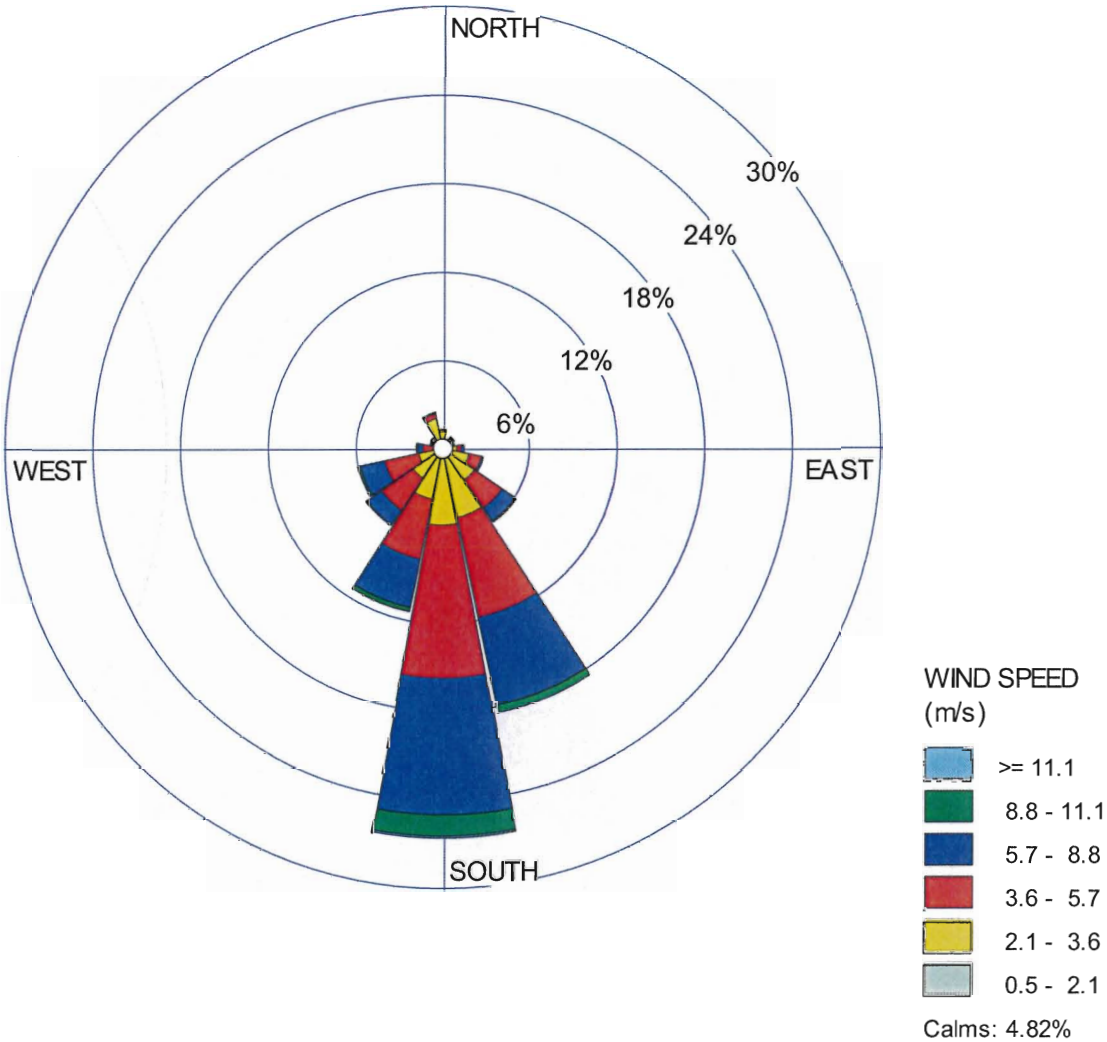

Figure 5.1A-9
2007 Fourth Quarter Wind Rose -- Blythe, CA #23158

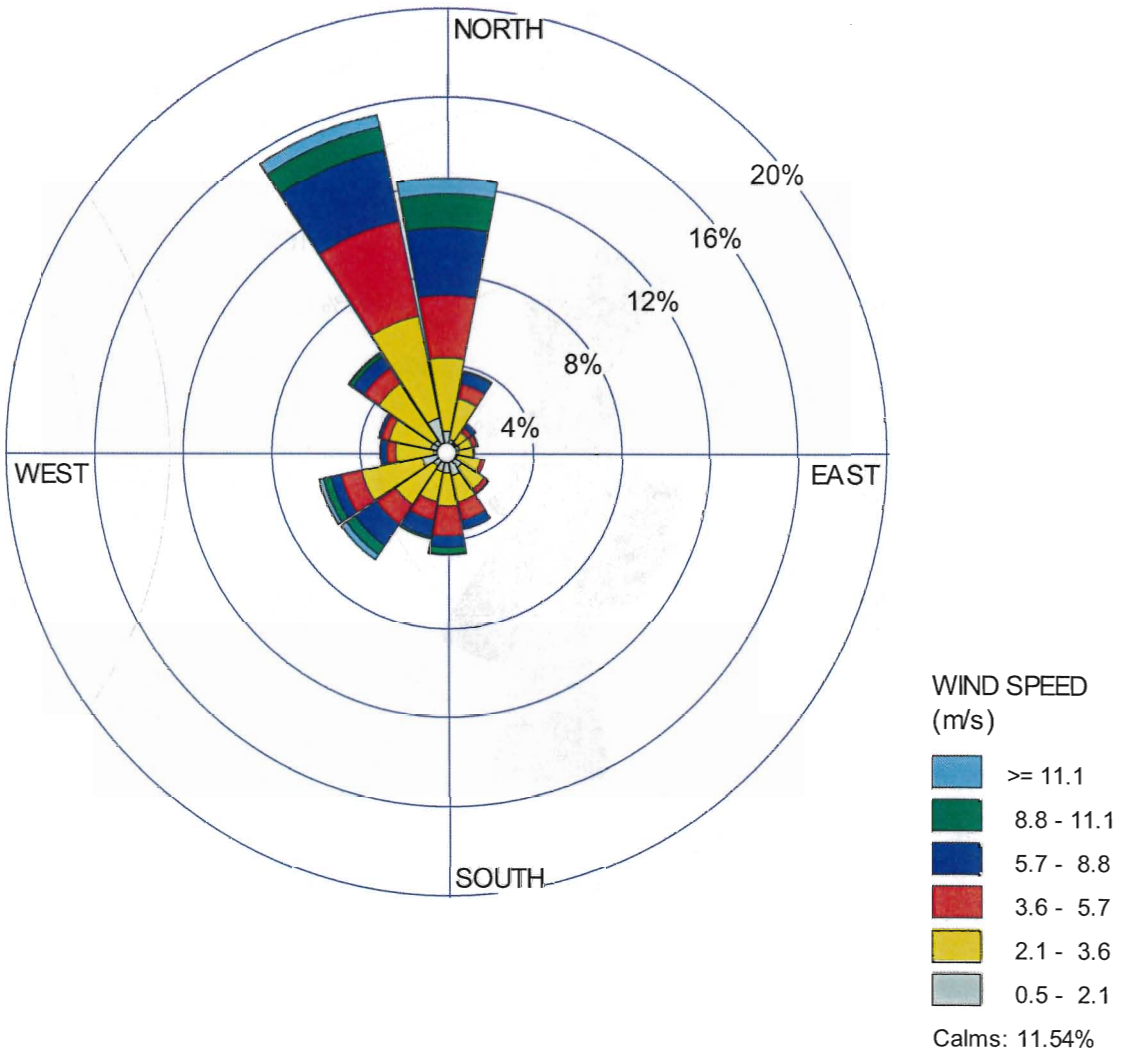

Figure 5.1A-10
2007 Annual Quarter Wind Rose -- Blythe, CA #23158

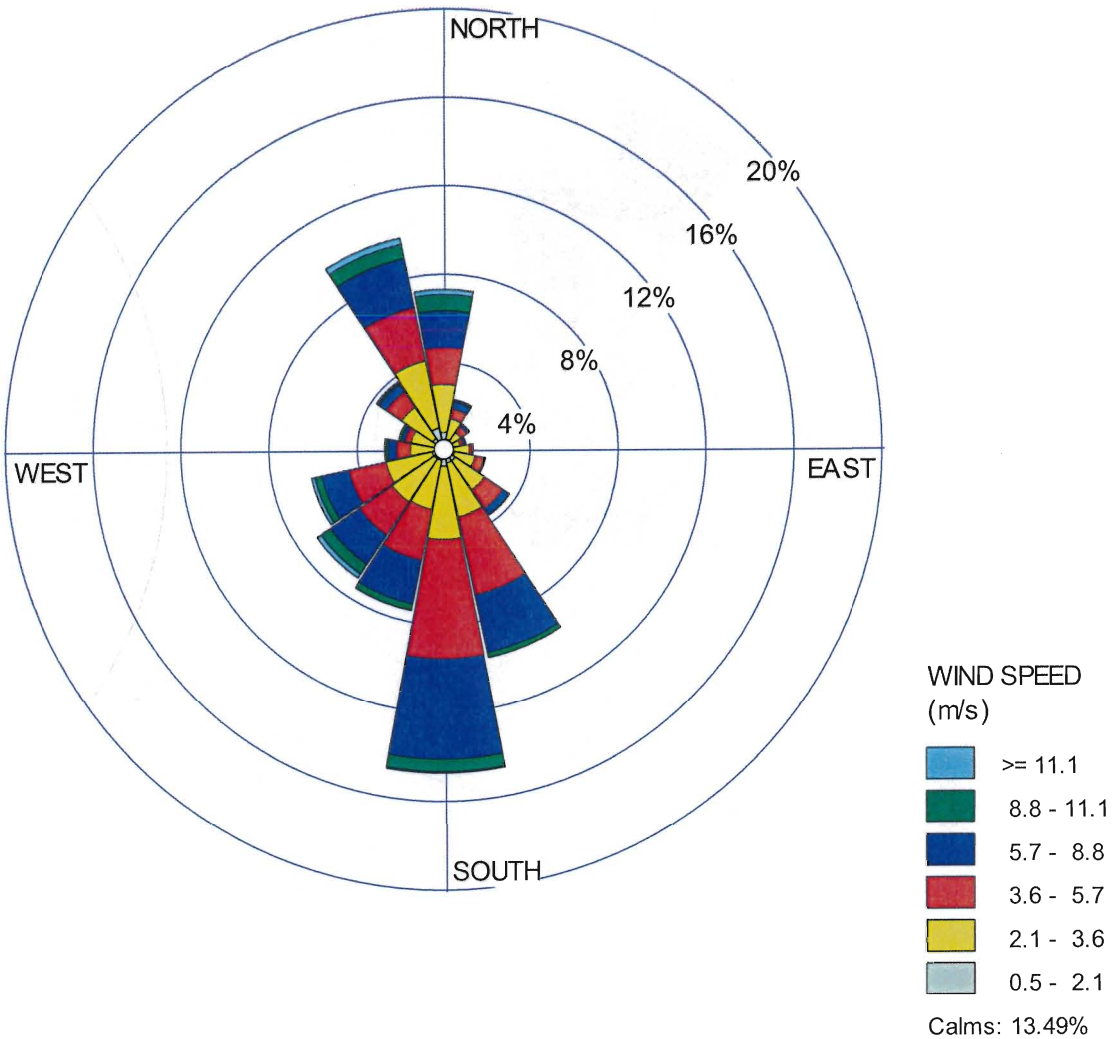

Figure 5.1A-11
2008 First Quarter Wind Rose -- Blythe, CA #23158

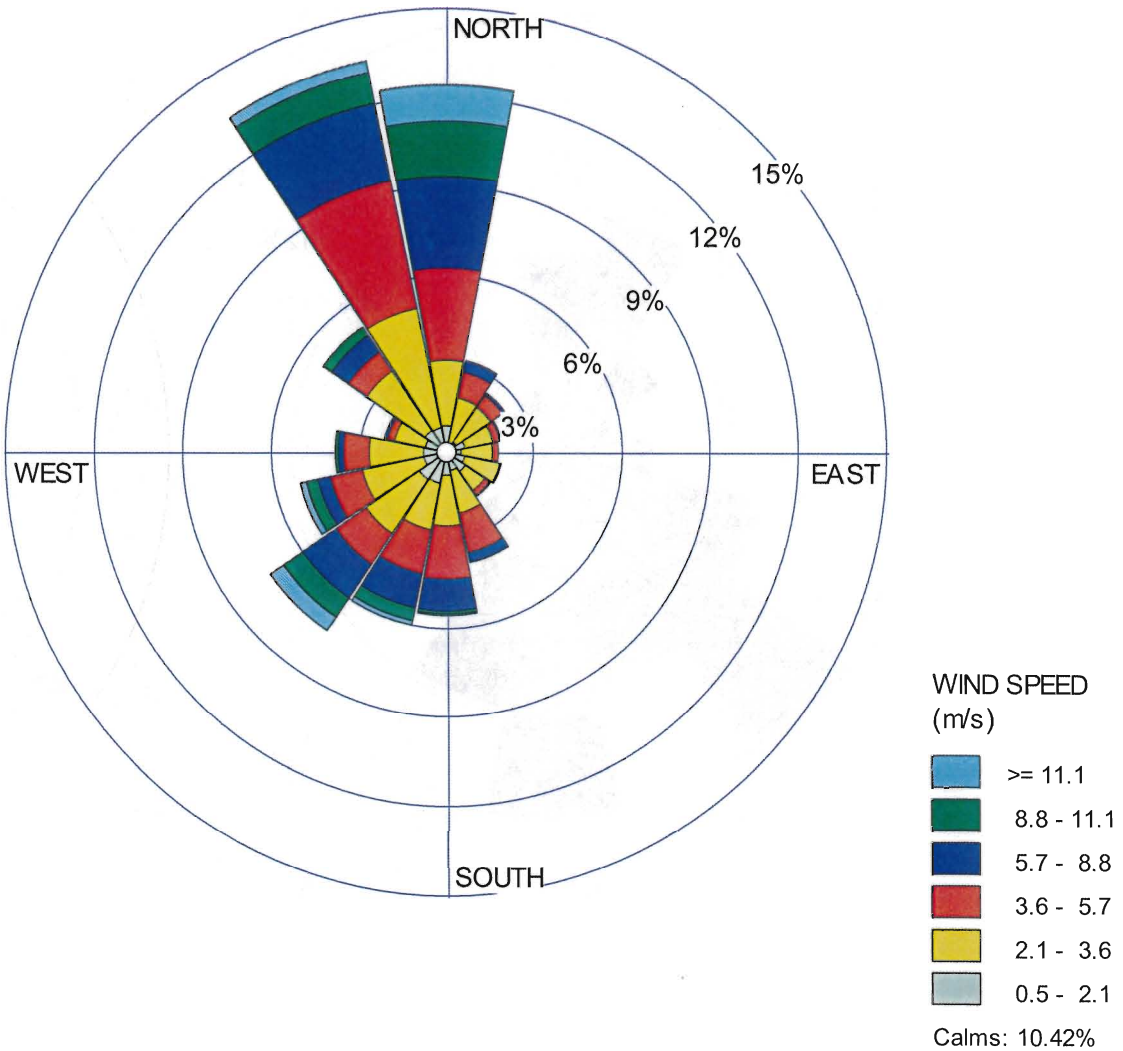

Figure 5.1A-12
2008 Second Quarter Wind Rose -- Blythe, CA #23158

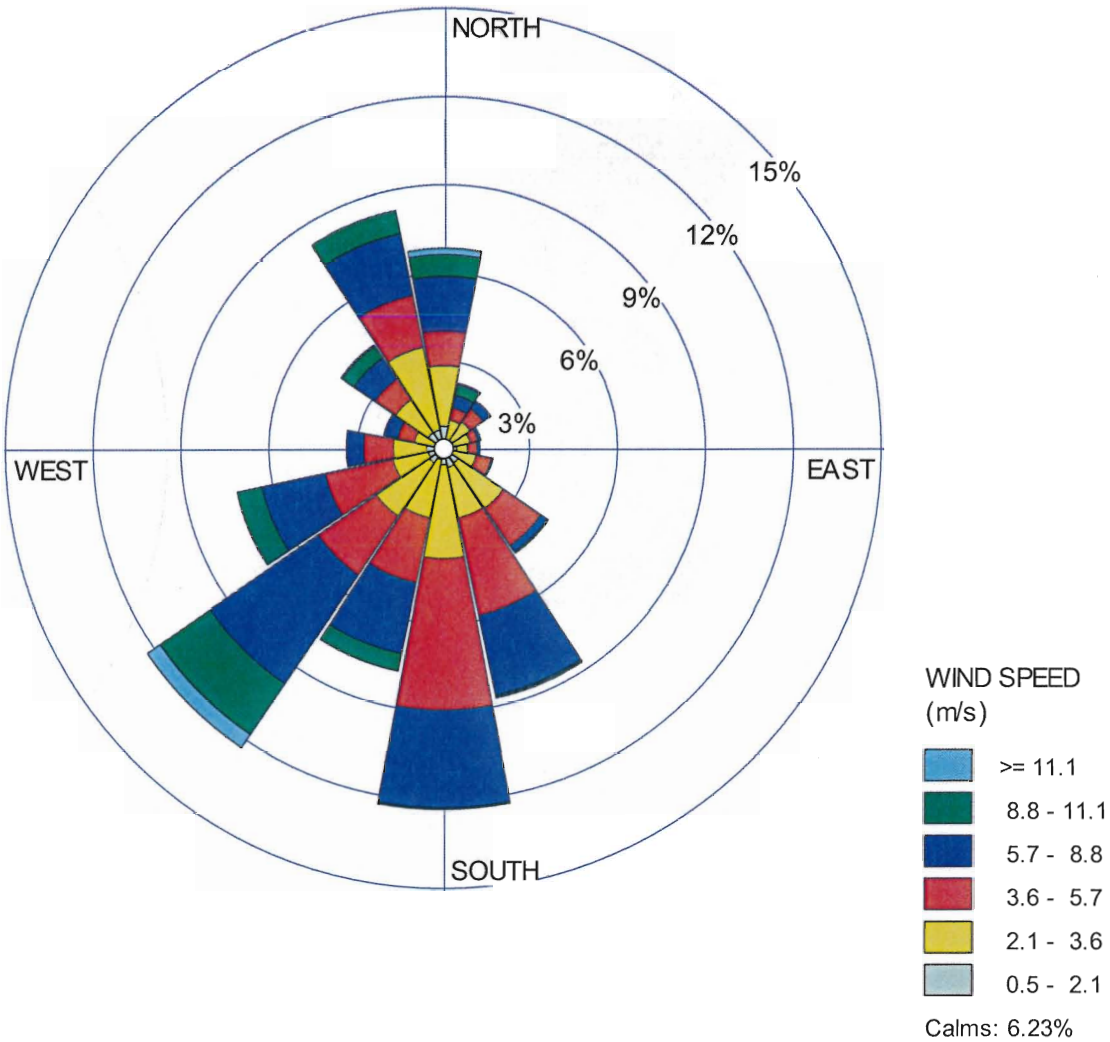

Figure 5.1A-13
2008 Third Quarter Wind Rose -- Blythe, CA #23158

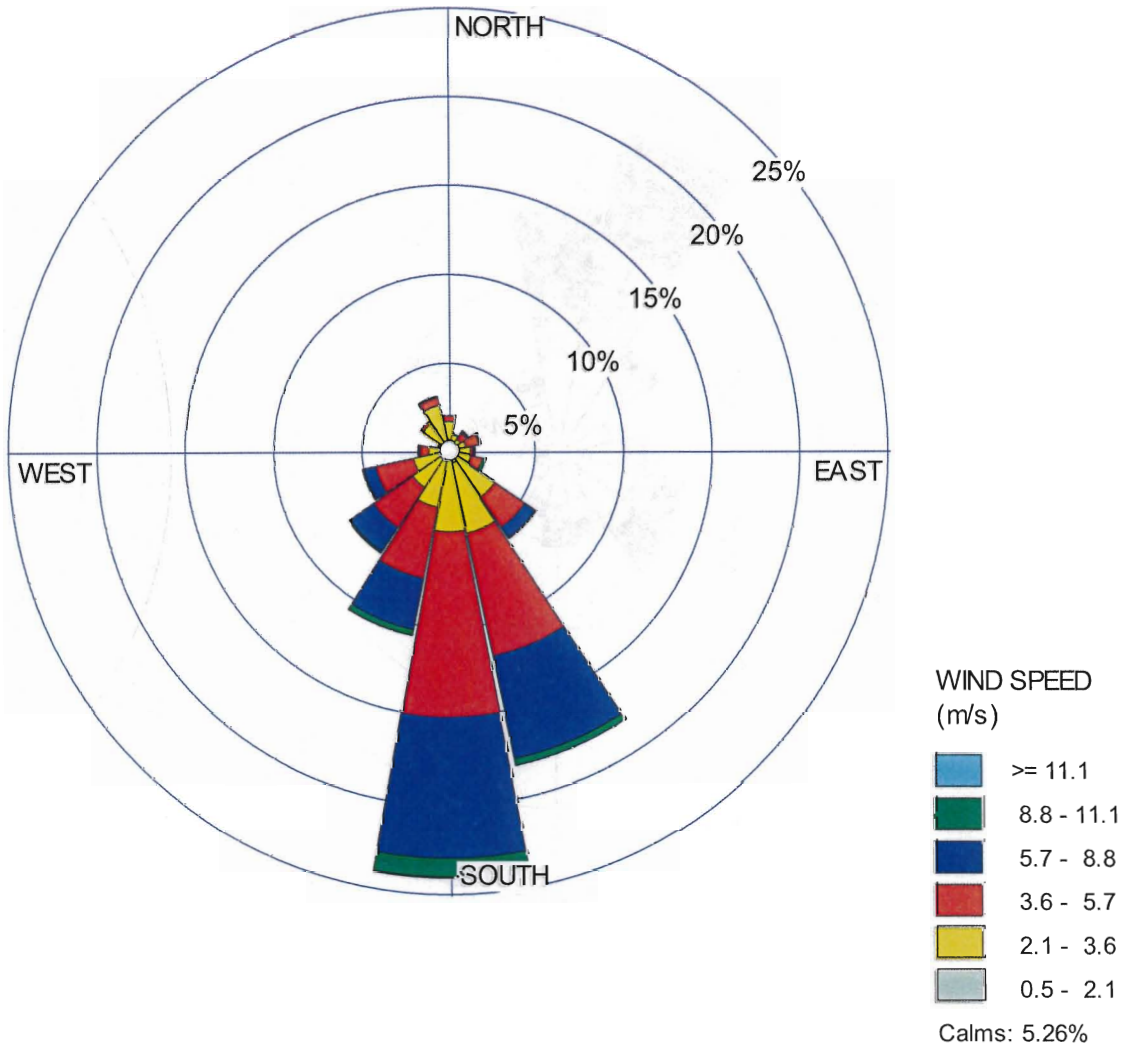

Figure 5.1A-14
2008 Fourth Quarter Wind Rose -- Blythe, CA #23158

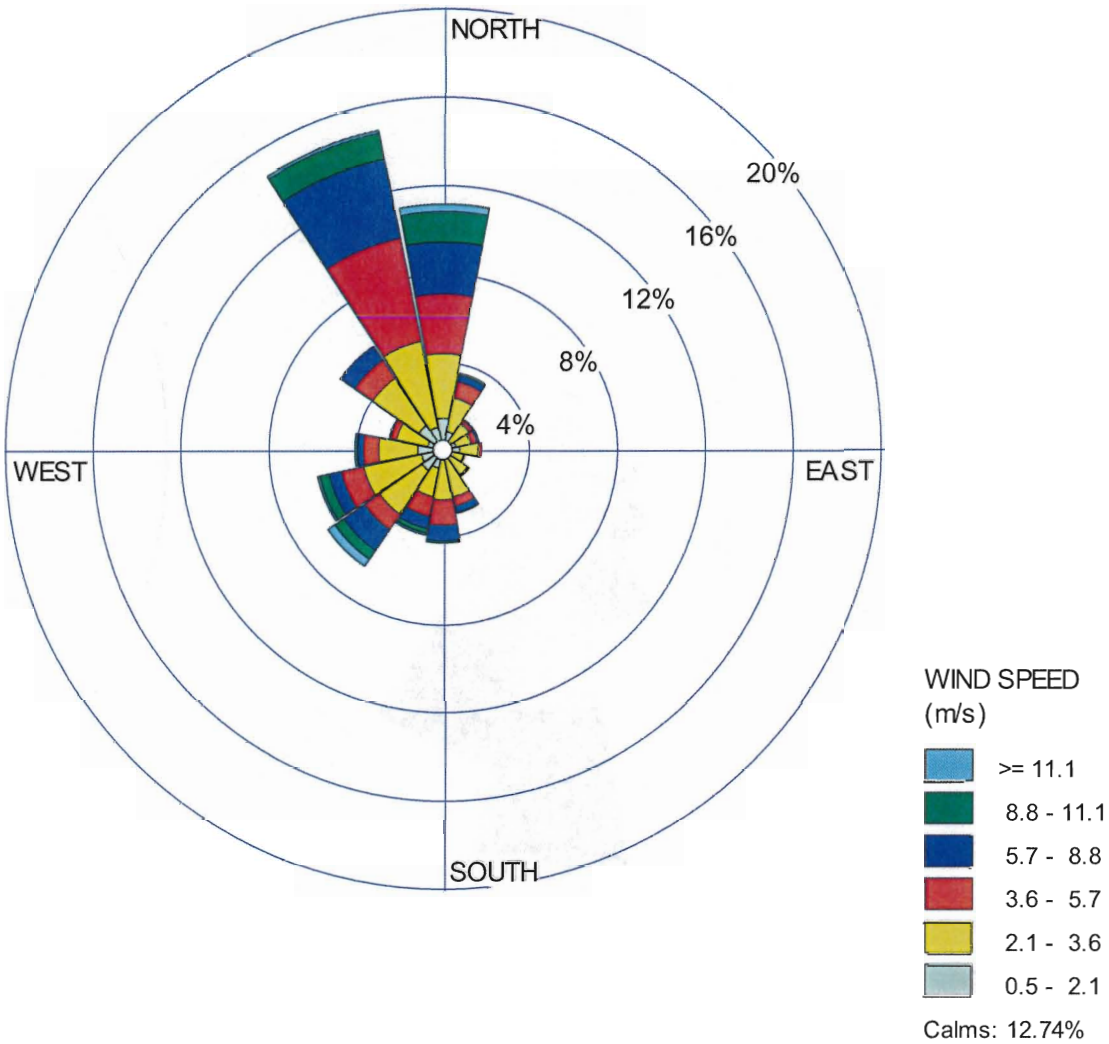

Figure 5.1A-15
2008 Annual Wind Rose -- Blythe, CA #23158

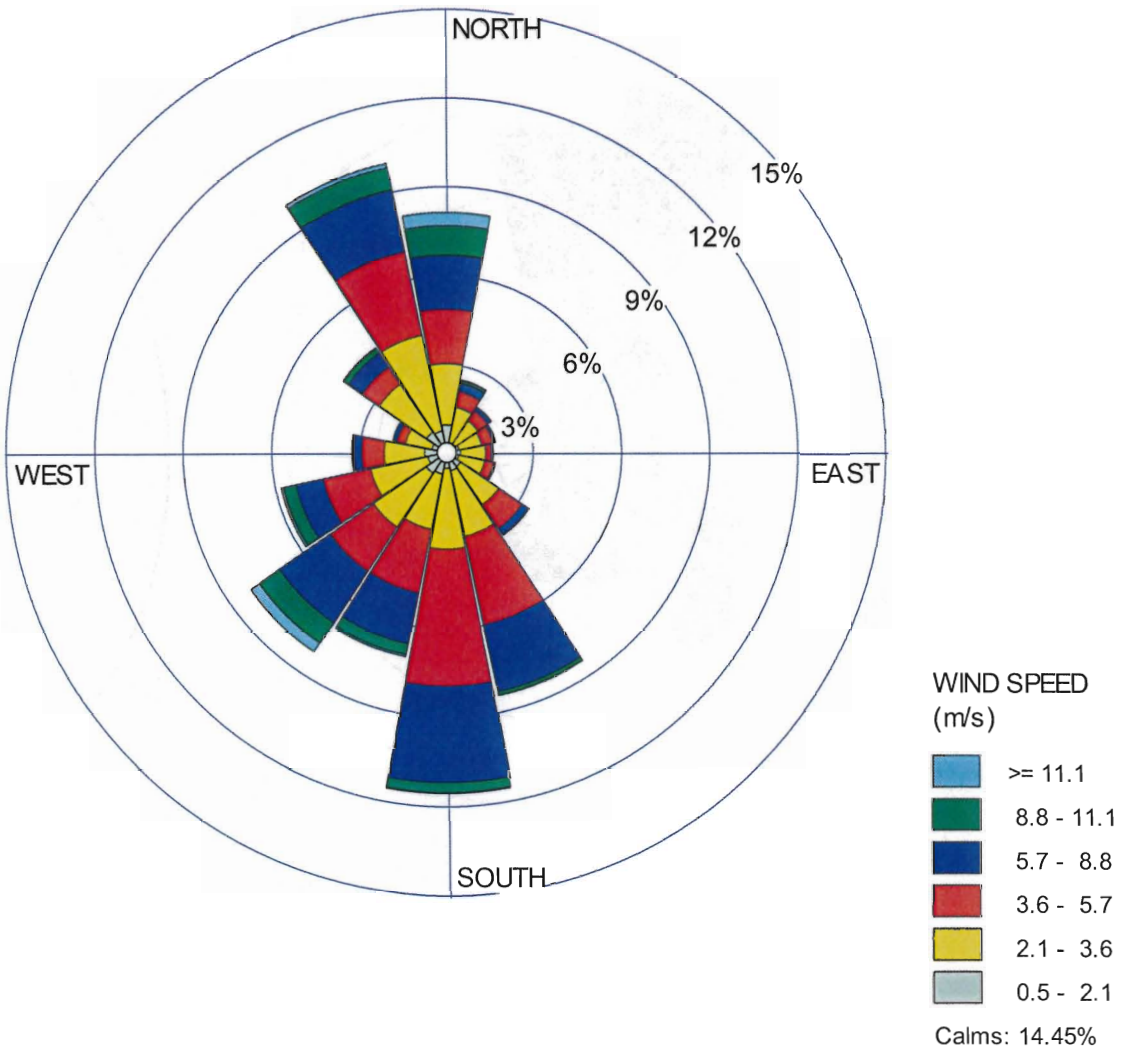

Figure 5.1A-16
2009 First Quarter Wind Rose -- Blythe, CA #23158

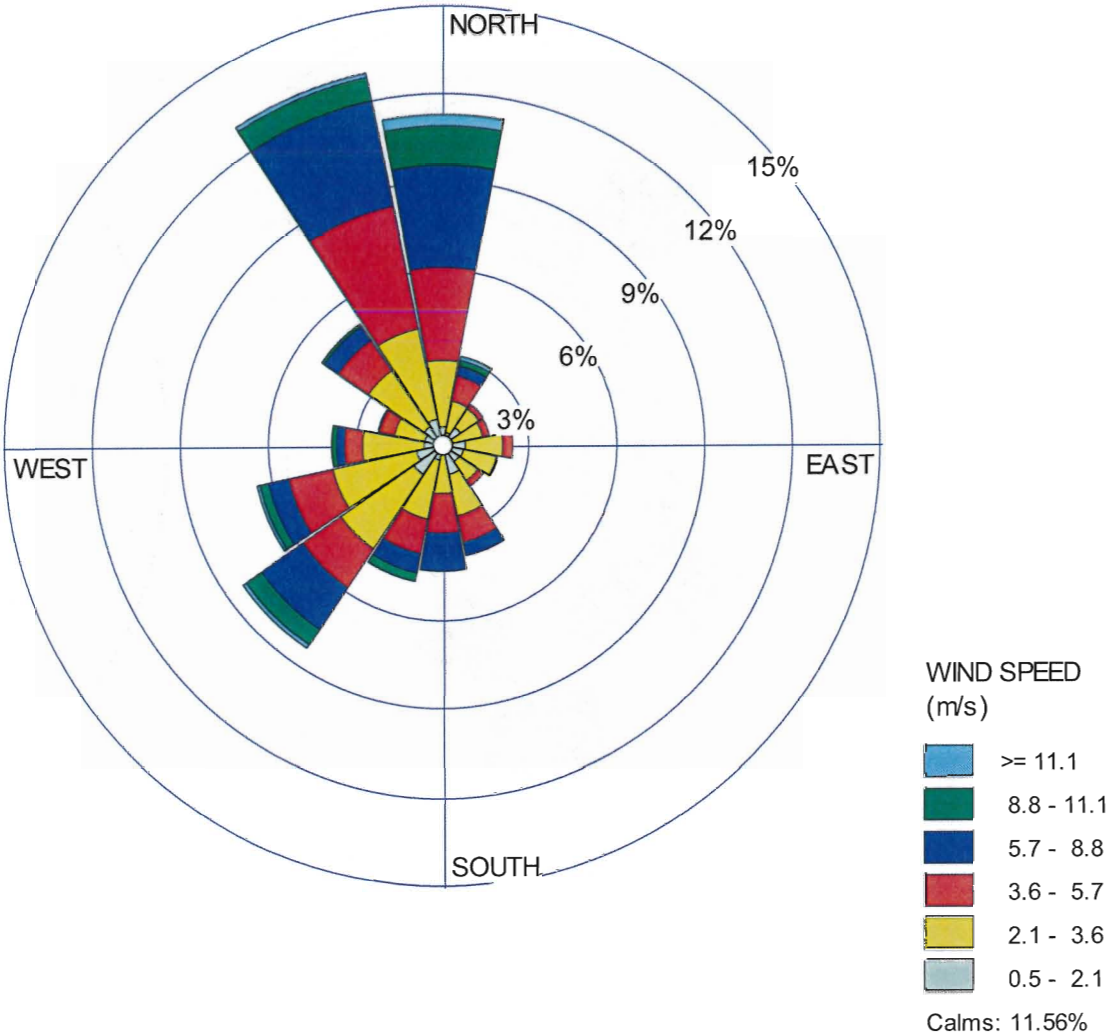

Figure 5.1A-17
2009 Second Quarter Wind Rose -- Blythe, CA #23158

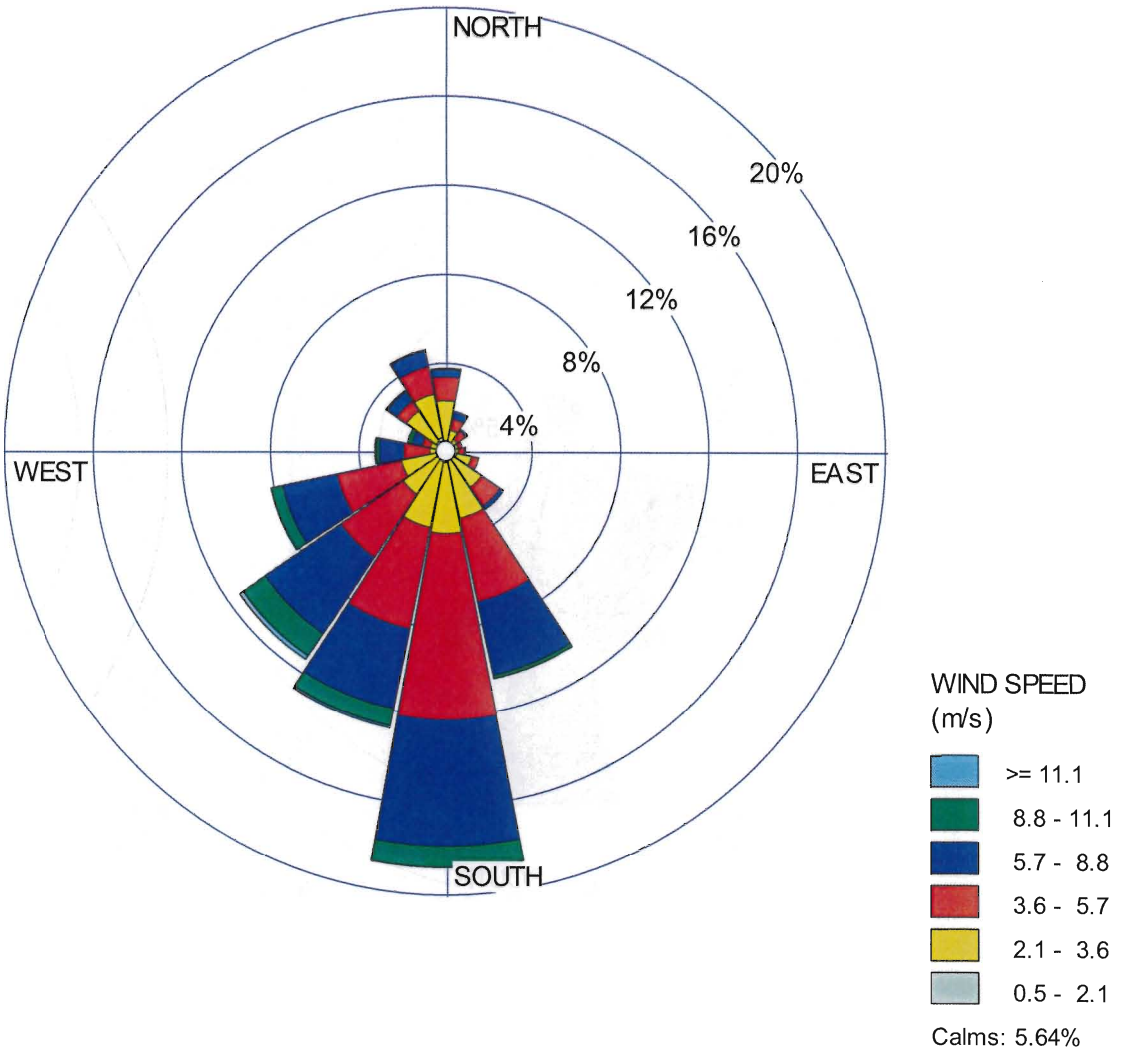

Figure 5.1A-18
2009 Third Quarter Wind Rose -- Blythe, CA #23158

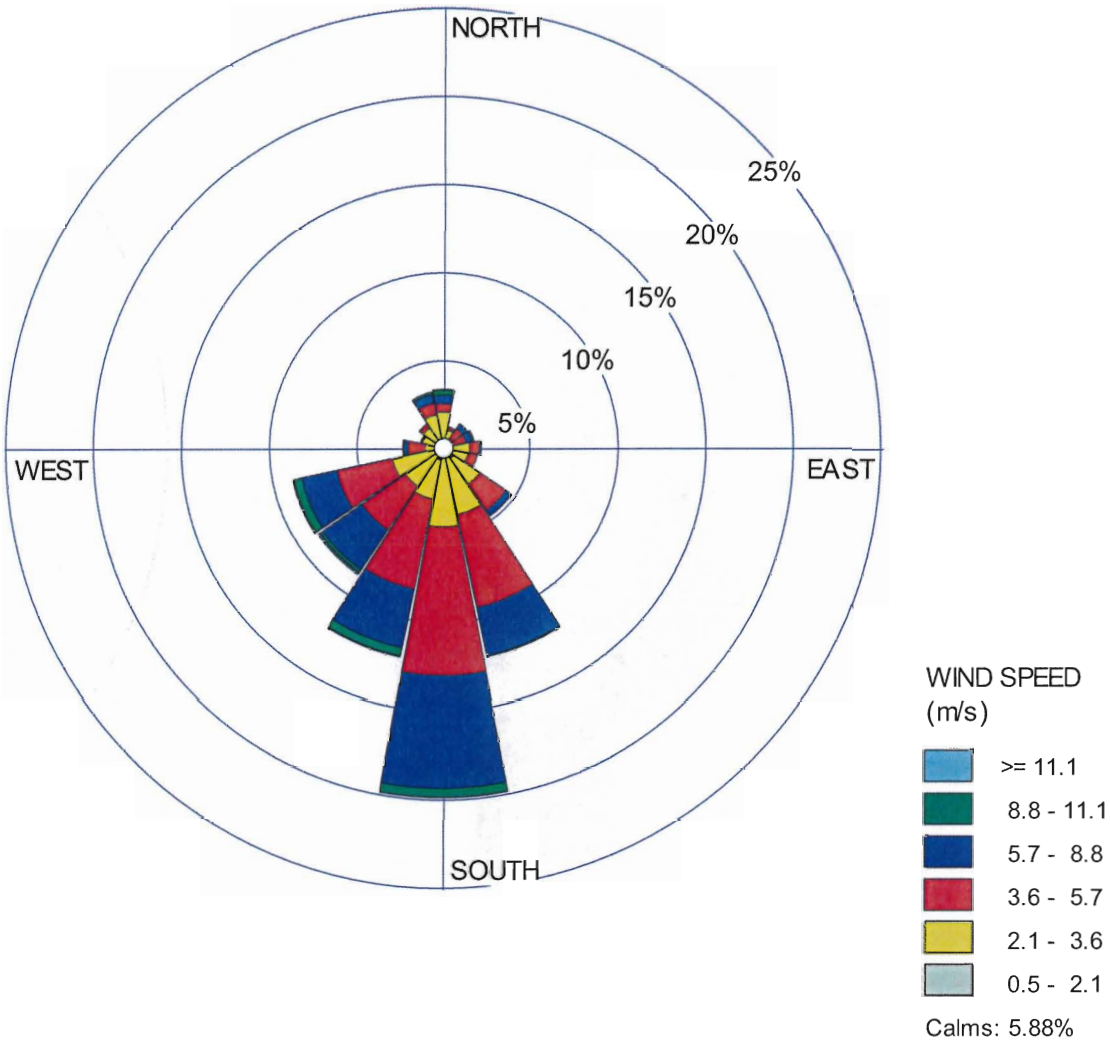

Figure 5.1A-19
2009 Fourth Quarter Wind Rose -- Blythe, CA #23158

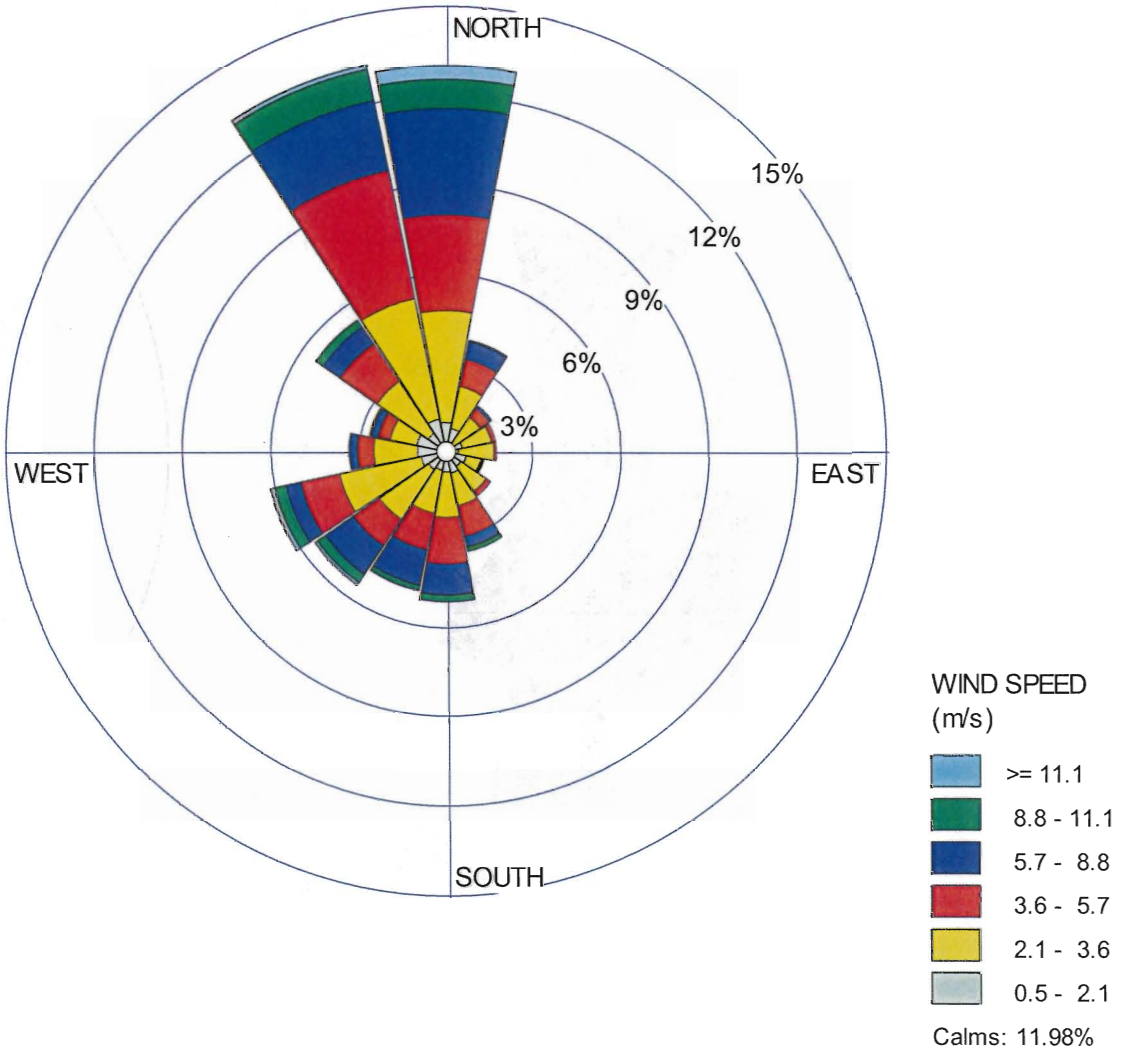

Figure 5.1A-20
2009 Annual Wind Rose -- Blythe, CA #23158

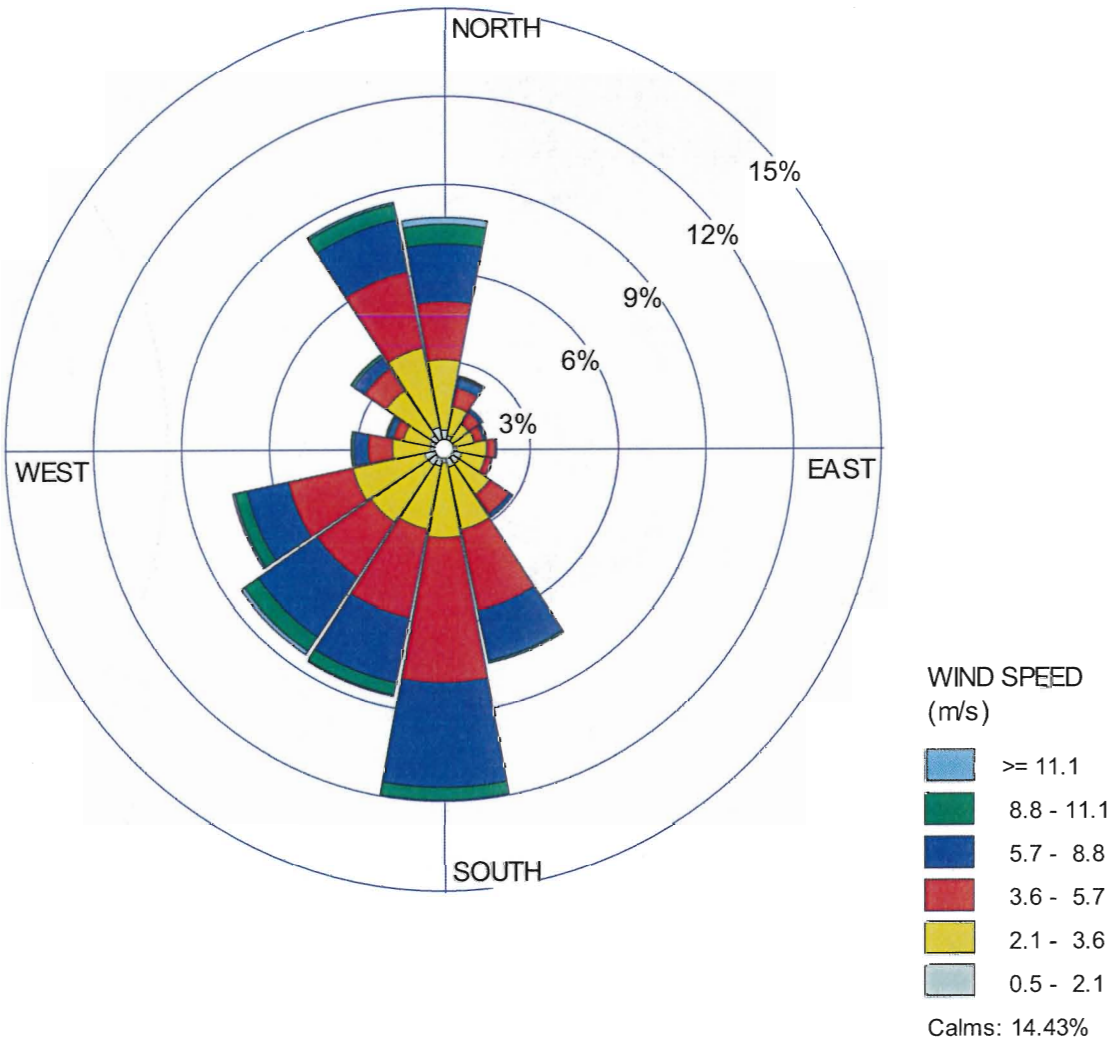

Figure 5.1A-21
2010 First Quarter Wind Rose -- Blythe, CA #23158

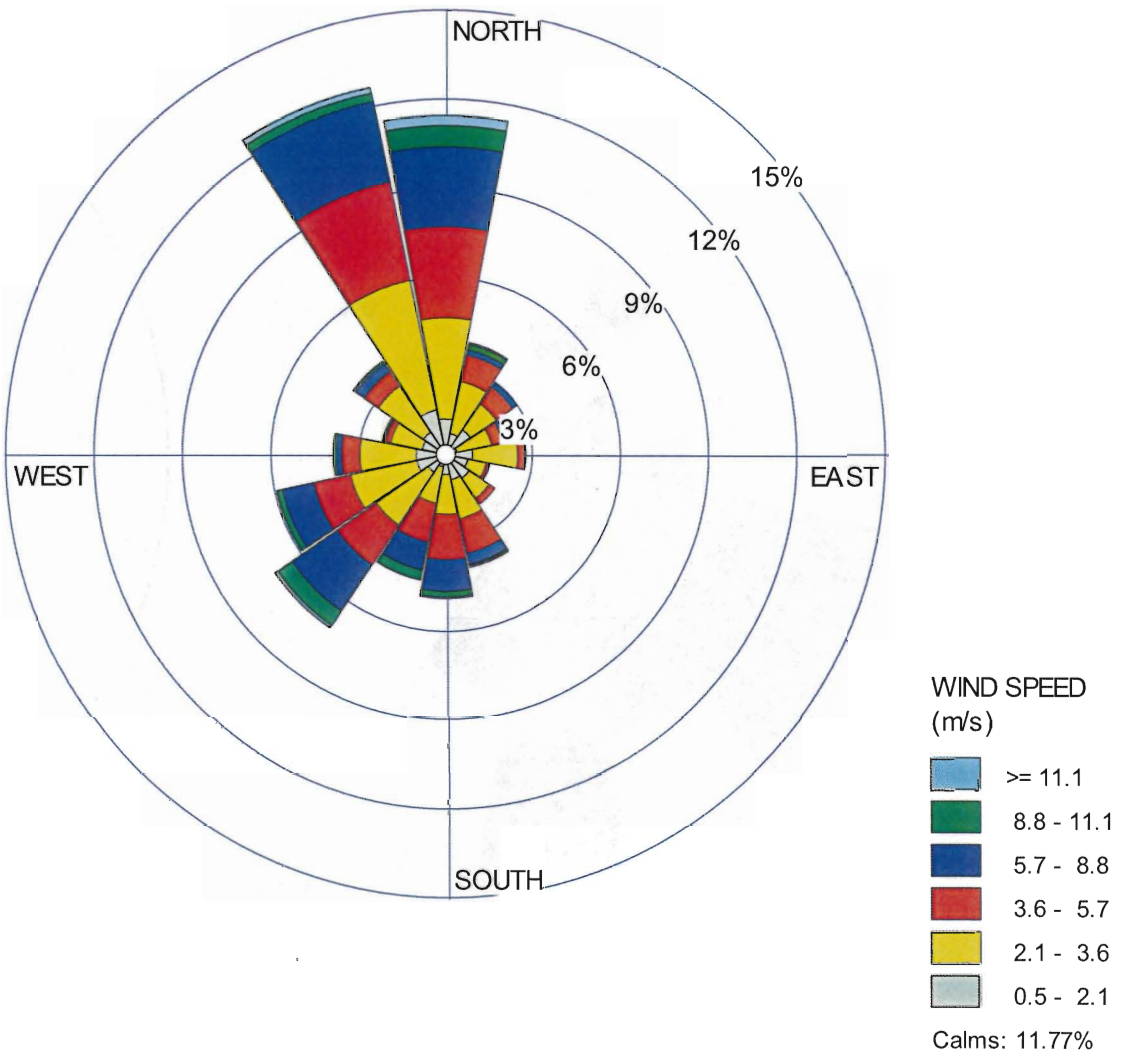

Figure 5.1A-22
2010 Second Quarter Wind Rose -- Blythe, CA #23158

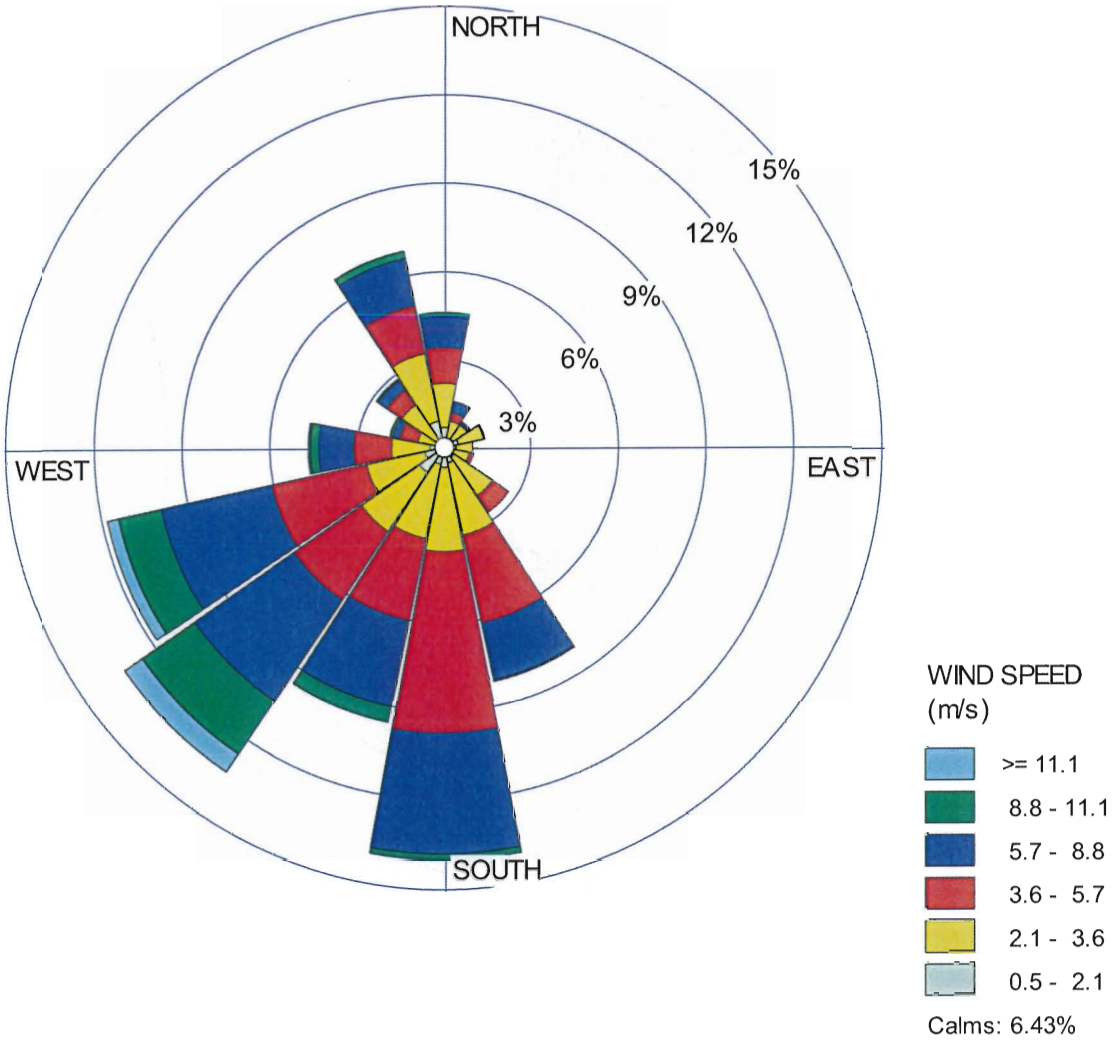

Figure 5.1A-23
2010 Third Quarter Wind Rose -- Blythe, CA #23158

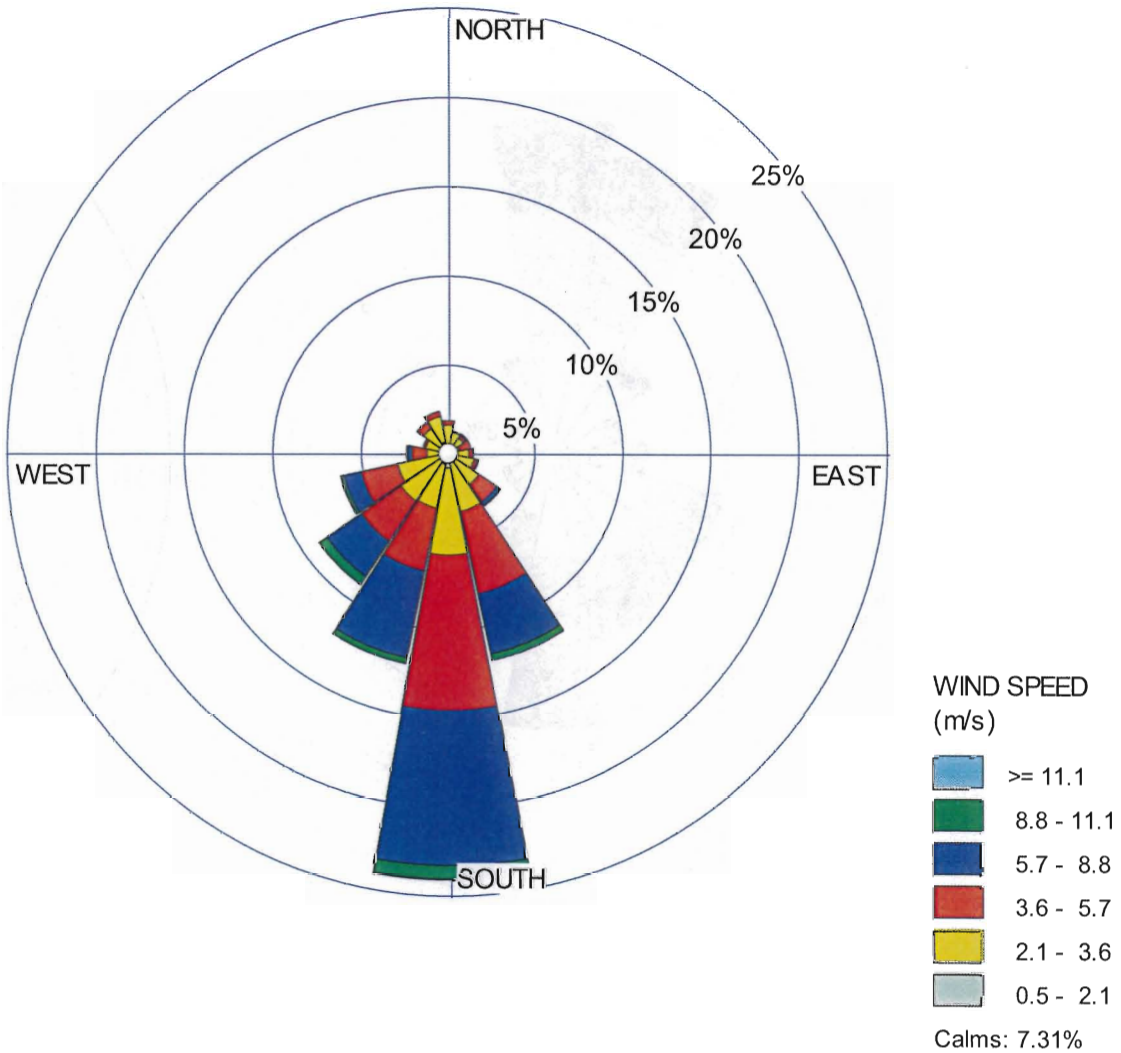

Figure 5.1A-24
2010 Fourth Quarter Wind Rose -- Blythe, CA #23158

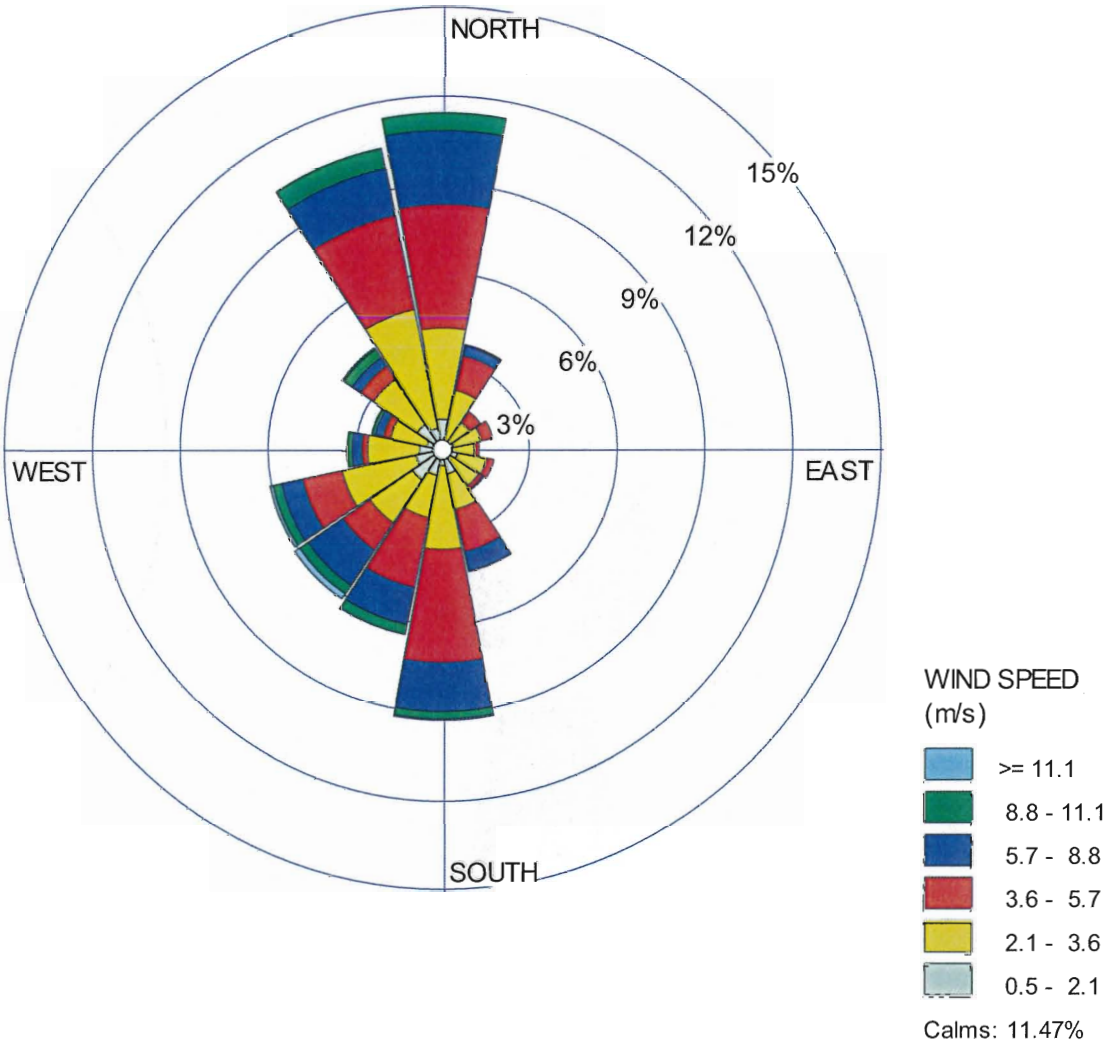

Figure 5.1A-25
2010 Annual Wind Rose -- Blythe, CA #23158

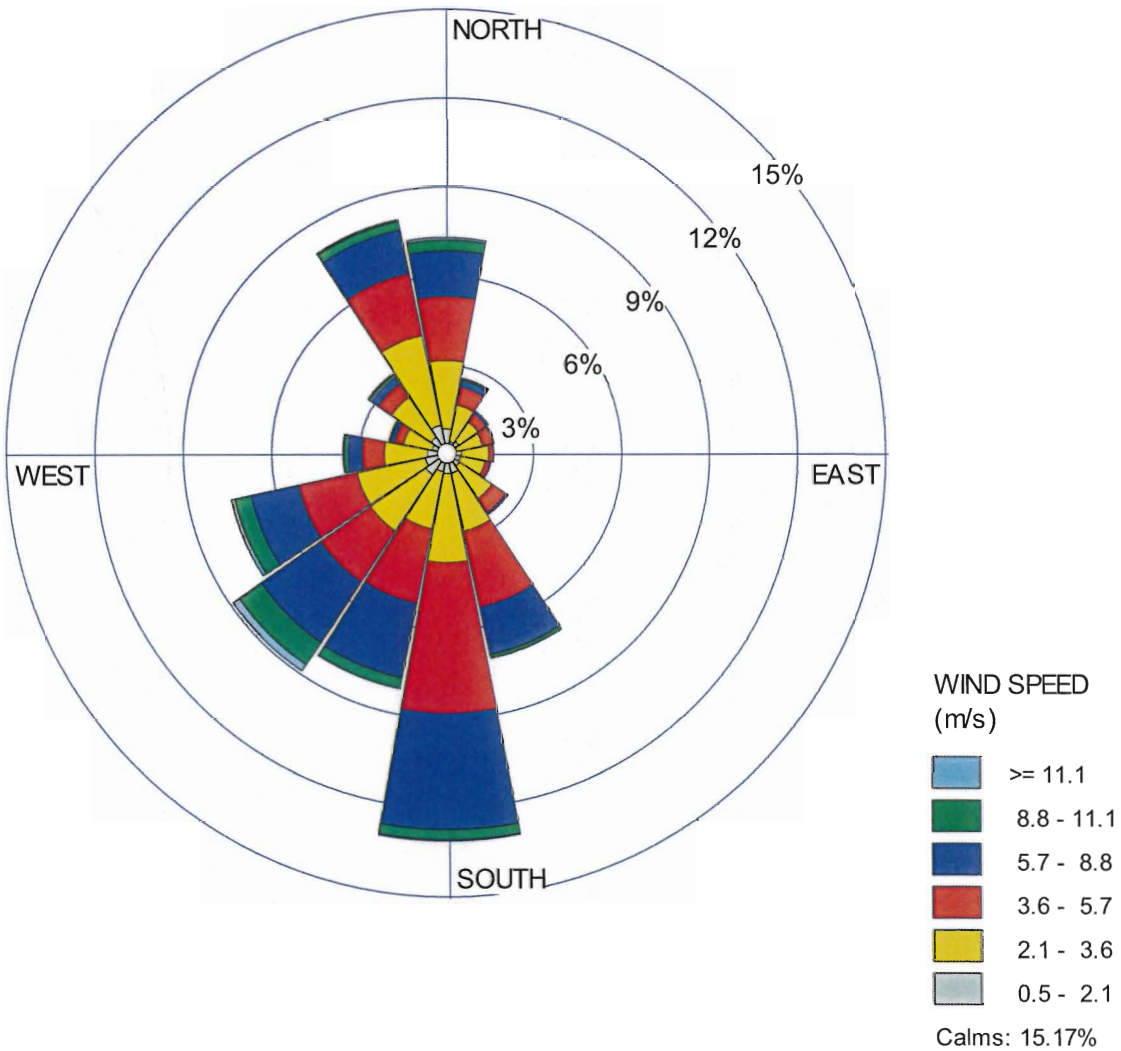

TABLE 5.1A-1
Blythe 2006-10

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	333	884	783	716	266	88	3070
11.25	33.75	NNE	203	431	222	112	26	9	1003
33.75	56.25	NE	172	324	154	44	3	2	699
56.25	78.75	ENE	161	303	124	31	5	6	630
78.75	101.25	E	205	375	85	17	2	0	684
101.25	123.75	ESE	240	391	117	16	7	0	771
123.75	146.25	SE	264	629	363	100	7	2	1365
146.25	168.75	SSE	286	970	1228	880	64	2	3430
168.75	191.25	S	276	1190	2075	1603	174	12	5330
191.25	213.75	SSW	286	836	1040	884	144	8	3198
213.75	236.25	SW	317	919	828	885	317	94	3360
236.25	258.75	WSW	301	951	812	534	179	51	2828
258.75	281.25	W	256	545	304	156	37	15	1313
281.25	303.75	WNW	231	419	132	61	19	0	862
303.75	326.25	NW	287	731	327	172	52	9	1578
326.25	348.75	NNW	357	1260	1029	809	230	48	3733

TABLE 5.1A-2
Blythe 2006-10, Quarter 1

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	102	275	316	303	121	43	1160
11.25	33.75	NNE	51	139	88	41	13	6	338
33.75	56.25	NE	66	101	47	9	1	1	225
56.25	78.75	ENE	57	101	21	5	0	0	184
78.75	101.25	E	69	113	21	1	0	0	204
101.25	123.75	ESE	65	108	6	4	2	0	185
123.75	146.25	SE	83	108	20	4	0	0	215
146.25	168.75	SSE	79	160	124	47	1	1	412
168.75	191.25	S	69	187	164	118	7	2	547
191.25	213.75	SSW	75	162	143	124	31	3	538
213.75	236.25	SW	97	239	147	190	87	29	789
236.25	258.75	WSW	92	257	141	98	38	14	640
258.75	281.25	W	86	175	65	28	11	4	369
281.25	303.75	WNW	74	127	34	14	4	0	253
303.75	326.25	NW	90	214	110	60	17	4	495
326.25	348.75	NNW	109	408	390	344	85	25	1361

TABLE 5.1A-3
Blythe 2006-10, Quarter 2

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	63	162	104	93	27	5	454
11.25	33.75	NNE	41	63	35	27	7	1	174
33.75	56.25	NE	30	49	31	11	0	0	121
56.25	78.75	ENE	25	59	13	3	1	0	101
78.75	101.25	E	32	64	16	3	0	0	115
101.25	123.75	ESE	41	72	39	1	0	0	153
123.75	146.25	SE	54	177	122	17	1	0	371
146.25	168.75	SSE	56	279	410	317	23	1	1086
168.75	191.25	S	63	349	733	547	51	1	1744
191.25	213.75	SSW	50	265	352	290	55	2	1014
213.75	236.25	SW	57	239	291	366	160	41	1154
236.25	258.75	WSW	50	195	278	242	85	23	873
258.75	281.25	W	37	106	110	76	16	8	353
281.25	303.75	WNW	33	68	49	28	12	0	190
303.75	326.25	NW	52	149	71	46	13	2	333
326.25	348.75	NNW	69	230	147	149	32	2	629

TABLE 5.1A-4
Blythe 2006-10, Quarter 3

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	52	123	38	30	10	2	255
11.25	33.75	NNE	32	73	17	1	0	0	123
33.75	56.25	NE	29	67	42	15	2	1	156
56.25	78.75	ENE	23	60	64	18	4	6	175
78.75	101.25	E	39	108	35	12	2	0	196
101.25	123.75	ESE	62	115	58	10	5	0	250
123.75	146.25	SE	62	231	202	77	6	2	580
146.25	168.75	SSE	65	383	602	474	36	0	1560
168.75	191.25	S	66	455	979	840	96	7	2443
191.25	213.75	SSW	68	265	416	374	40	1	1164
213.75	236.25	SW	52	220	281	200	26	2	781
236.25	258.75	WSW	47	208	256	135	22	1	669
258.75	281.25	W	36	82	74	26	4	1	223
281.25	303.75	WNW	39	64	12	3	0	0	118
303.75	326.25	NW	40	109	31	2	0	0	182
326.25	348.75	NNW	54	183	60	23	9	0	329

TABLE 5.1A-5
Blythe 2006-10, Quarter 4

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	11.25	116	324	325	290	108	38
11.25	33.75	NNE	33.75	79	156	82	43	6	2
33.75	56.25	NE	56.25	47	107	34	9	0	0
56.25	78.75	ENE	78.75	56	83	26	5	0	0
78.75	101.25	E	101.25	65	90	13	1	0	0
101.25	123.75	ESE	123.75	72	96	14	1	0	0
123.75	146.25	SE	146.25	65	113	19	2	0	0
146.25	168.75	SSE	168.75	86	148	92	42	4	0
168.75	191.25	S	191.25	78	199	199	98	20	2
191.25	213.75	SSW	213.75	93	144	129	96	18	2
213.75	236.25	SW	236.25	111	221	109	129	44	22
236.25	258.75	WSW	258.75	112	291	137	59	34	13
258.75	281.25	W	281.25	97	182	55	26	6	2
281.25	303.75	WNW	303.75	85	160	37	16	3	0
303.75	326.25	NW	326.25	105	259	115	64	22	3
326.25	348.75	NNW	348.75	125	439	432	293	104	21

TABLE 5.1A-6
Blythe 2006

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	55	149	149	135	37	7	532
11.25	33.75	NNE	49	64	38	16	3	0	170
33.75	56.25	NE	37	71	25	4	1	0	138
56.25	78.75	ENE	36	61	20	7	1	3	128
78.75	101.25	E	41	80	18	4	0	0	143
101.25	123.75	ESE	55	100	24	6	1	0	186
123.75	146.25	SE	55	151	85	32	3	1	327
146.25	168.75	SSE	57	230	230	182	18	0	717
168.75	191.25	S	54	233	414	334	35	3	1073
191.25	213.75	SSW	63	148	198	171	21	0	601
213.75	236.25	SW	61	161	168	174	84	15	663
236.25	258.75	WSW	66	207	173	94	38	16	594
258.75	281.25	W	58	105	55	22	6	5	251
281.25	303.75	WNW	53	97	28	6	1	0	185
303.75	326.25	NW	51	147	77	34	10	1	320
326.25	348.75	NNW	55	253	189	172	42	4	715

TABLE 5.1A-7
Blythe 2007

Speed	m/s						8.8-		
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	11.1	>=11.1	Total
348.75	11.25	N	69	181	138	139	62	19	608
11.25	33.75	NNE	43	80	38	28	6	2	197
33.75	56.25	NE	32	49	29	10	2	1	123
56.25	78.75	ENE	28	39	14	8	3	0	92
78.75	101.25	E	35	65	12	4	0	0	116
101.25	123.75	ESE	47	79	34	4	2	0	166
123.75	146.25	SE	57	133	85	29	1	1	306
146.25	168.75	SSE	57	208	300	225	19	0	809
168.75	191.25	S	69	275	451	380	47	4	1226
191.25	213.75	SSW	48	187	196	168	24	0	623
213.75	236.25	SW	49	193	151	134	42	18	587
236.25	258.75	WSW	51	178	144	104	26	13	516
258.75	281.25	W	32	99	54	31	9	5	230
281.25	303.75	WNW	41	90	26	13	9	0	179
303.75	326.25	NW	56	141	72	32	7	6	314
326.25	348.75	NNW	87	257	207	188	56	23	818

TABLE 5.1A-8
Blythe 2008

Speed	m/s						8.8-		
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	11.1	>=11.1	Total
348.75	11.25	N	79	166	150	147	81	36	659
11.25	33.75	NNE	31	99	43	22	7	3	205
33.75	56.25	NE	31	77	33	11	0	1	153
56.25	78.75	ENE	38	64	32	6	0	1	141
78.75	101.25	E	43	68	16	4	1	0	132
101.25	123.75	ESE	38	73	26	1	4	0	142
123.75	146.25	SE	50	127	78	21	2	0	278
146.25	168.75	SSE	54	183	247	189	10	1	684
168.75	191.25	S	47	221	375	264	27	2	936
191.25	213.75	SSW	64	154	177	143	31	5	574
213.75	236.25	SW	72	178	146	169	67	29	661
236.25	258.75	WSW	57	161	135	76	35	6	470
258.75	281.25	W	65	111	62	22	3	3	266
281.25	303.75	WNW	46	73	24	12	0	0	155
303.75	326.25	NW	71	157	57	46	16	1	348
326.25	348.75	NNW	64	266	233	171	63	11	808

TABLE 5.1A-9
Blythe 2009

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	58	198	167	166	56	19	664
11.25	33.75	NNE	43	83	53	27	5	3	214
33.75	56.25	NE	28	61	39	11	0	0	139
56.25	78.75	ENE	29	63	27	7	1	2	129
78.75	101.25	E	40	86	26	4	0	0	156
101.25	123.75	ESE	56	69	19	2	0	0	146
123.75	146.25	SE	55	108	68	12	0	0	243
146.25	168.75	SSE	57	184	234	148	7	0	630
168.75	191.25	S	45	213	413	299	36	0	1006
191.25	213.75	SSW	54	185	257	189	36	3	724
213.75	236.25	SW	59	198	190	204	49	11	711
236.25	258.75	WSW	61	209	191	121	35	6	623
258.75	281.25	W	43	108	71	40	7	1	270
281.25	303.75	WNW	45	77	29	17	5	0	173
303.75	326.25	NW	51	152	76	38	9	0	326
326.25	348.75	NNW	67	229	223	153	44	6	722

TABLE 5.1A-10
Blythe 2010

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	72	190	179	129	30	7	607
11.25	33.75	NNE	37	105	50	19	5	1	217
33.75	56.25	NE	44	66	28	8	0	0	146
56.25	78.75	ENE	30	76	31	3	0	0	140
78.75	101.25	E	46	76	13	1	1	0	137
101.25	123.75	ESE	44	70	14	3	0	0	131
123.75	146.25	SE	47	110	47	6	1	0	211
146.25	168.75	SSE	61	165	217	136	10	1	590
168.75	191.25	S	61	248	422	326	29	3	1089
191.25	213.75	SSW	57	162	212	213	32	0	676
213.75	236.25	SW	76	189	173	204	75	21	738
236.25	258.75	WSW	66	196	169	139	45	10	625
258.75	281.25	W	58	122	62	41	12	1	296
281.25	303.75	WNW	46	82	25	13	4	0	170
303.75	326.25	NW	58	134	45	22	10	1	270
326.25	348.75	NNW	84	255	177	125	25	4	670

TABLE 5.1A-11
Blythe 2006, Quarter 1

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	21	44	65	54	14	0	198
11.25	33.75	NNE	7	23	19	10	0	0	59
33.75	56.25	NE	8	16	5	1	0	0	30
56.25	78.75	ENE	16	20	2	0	0	0	38
78.75	101.25	E	11	11	3	0	0	0	25
101.25	123.75	ESE	6	25	1	1	0	0	33
123.75	146.25	SE	13	29	2	1	0	0	45
146.25	168.75	SSE	15	37	22	11	0	0	85
168.75	191.25	S	11	52	36	26	1	0	126
191.25	213.75	SSW	19	25	31	35	3	0	113
213.75	236.25	SW	15	43	34	59	31	8	190
236.25	258.75	WSW	21	62	36	34	14	5	172
258.75	281.25	W	20	25	11	4	1	2	63
281.25	303.75	WNW	17	36	7	3	1	0	64
303.75	326.25	NW	18	43	22	16	5	0	104
326.25	348.75	NNW	11	81	59	70	16	1	238

TABLE 5.1A-12
Blythe 2006, Quarter 2

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	6	30	17	13	5	1	72
11.25	33.75	NNE	13	10	3	0	0	0	26
33.75	56.25	NE	7	6	3	0	0	0	16
56.25	78.75	ENE	3	8	1	1	1	0	14
78.75	101.25	E	6	19	2	0	0	0	27
101.25	123.75	ESE	10	17	9	0	0	0	36
123.75	146.25	SE	11	46	30	5	0	0	92
146.25	168.75	SSE	11	80	98	76	10	0	275
168.75	191.25	S	10	62	161	130	15	1	379
191.25	213.75	SSW	11	56	91	54	7	0	219
213.75	236.25	SW	10	43	64	55	35	5	212
236.25	258.75	WSW	9	49	53	27	17	9	164
258.75	281.25	W	7	26	19	9	3	3	67
281.25	303.75	WNW	8	14	9	1	0	0	32
303.75	326.25	NW	5	27	15	4	0	0	51
326.25	348.75	NNW	6	52	27	29	2	0	116

TABLE 5.1A-13
Blythe 2006, Quarter 3

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	9	25	13	20	4	1	72
11.25	33.75	NNE	8	13	8	1	0	0	30
33.75	56.25	NE	8	19	9	2	1	0	39
56.25	78.75	ENE	11	17	13	4	0	3	48
78.75	101.25	E	7	33	9	3	0	0	52
101.25	123.75	ESE	15	29	11	5	1	0	61
123.75	146.25	SE	14	56	48	26	3	1	148
146.25	168.75	SSE	14	77	98	90	8	0	287
168.75	191.25	S	15	81	183	162	17	2	460
191.25	213.75	SSW	13	43	60	66	10	0	192
213.75	236.25	SW	10	29	48	34	8	0	129
236.25	258.75	WSW	12	35	47	22	3	0	119
258.75	281.25	W	12	15	10	7	0	0	44
281.25	303.75	WNW	11	5	3	1	0	0	20
303.75	326.25	NW	7	19	8	1	0	0	35
326.25	348.75	NNW	12	36	24	10	5	0	87

TABLE 5.1A-14
Blythe 2006, Quarter 4

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	19	50	54	48	14	5	190
11.25	33.75	NNE	21	18	8	5	3	0	55
33.75	56.25	NE	14	30	8	1	0	0	53
56.25	78.75	ENE	6	16	4	2	0	0	28
78.75	101.25	E	17	17	4	1	0	0	39
101.25	123.75	ESE	24	29	3	0	0	0	56
123.75	146.25	SE	17	20	5	0	0	0	42
146.25	168.75	SSE	17	36	12	5	0	0	70
168.75	191.25	S	18	38	34	16	2	0	108
191.25	213.75	SSW	20	24	16	16	1	0	77
213.75	236.25	SW	26	46	22	26	10	2	132
236.25	258.75	WSW	24	61	37	11	4	2	139
258.75	281.25	W	19	39	15	2	2	0	77
281.25	303.75	WNW	17	42	9	1	0	0	69
303.75	326.25	NW	21	58	32	13	5	1	130
326.25	348.75	NNW	26	84	79	63	19	3	274

TABLE 5.1A-15
Blythe 2007, Quarter 1

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	22	68	57	58	26	3	234
11.25	33.75	NNE	11	24	14	12	5	2	68
33.75	56.25	NE	11	18	14	2	1	1	47
56.25	78.75	ENE	10	14	1	1	0	0	26
78.75	101.25	E	10	21	2	0	0	0	33
101.25	123.75	ESE	12	21	2	1	2	0	38
123.75	146.25	SE	17	30	4	2	0	0	53
146.25	168.75	SSE	9	35	30	11	0	0	85
168.75	191.25	S	20	43	31	21	0	0	115
191.25	213.75	SSW	11	36	28	31	6	0	112
213.75	236.25	SW	16	43	20	28	15	5	127
236.25	258.75	WSW	12	42	23	17	6	3	103
258.75	281.25	W	13	28	10	10	3	2	66
281.25	303.75	WNW	9	24	7	6	3	0	49
303.75	326.25	NW	16	35	34	11	1	4	101
326.25	348.75	NNW	27	85	82	86	24	9	313

TABLE 5.1A-16
Blythe 2007, Quarter 2

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	17	25	18	16	4	0	80
11.25	33.75	NNE	13	8	7	4	0	0	32
33.75	56.25	NE	4	7	7	1	0	0	19
56.25	78.75	ENE	3	10	2	0	0	0	15
78.75	101.25	E	4	17	2	0	0	0	23
101.25	123.75	ESE	7	12	10	0	0	0	29
123.75	146.25	SE	12	31	28	3	0	0	74
146.25	168.75	SSE	11	58	107	77	8	0	261
168.75	191.25	S	15	102	174	153	11	0	455
191.25	213.75	SSW	7	55	64	51	10	0	187
213.75	236.25	SW	6	62	53	56	16	7	200
236.25	258.75	WSW	5	47	50	42	10	6	160
258.75	281.25	W	4	19	20	8	4	3	58
281.25	303.75	WNW	10	13	8	3	6	0	40
303.75	326.25	NW	15	33	16	7	2	1	74
326.25	348.75	NNW	16	36	25	31	9	2	119

TABLE 5.1A-17
Blythe 2007, Quarter 3

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	8	18	3	0	0	0	29
11.25	33.75	NNE	5	8	3	0	0	0	16
33.75	56.25	NE	4	12	3	2	1	0	22
56.25	78.75	ENE	1	3	6	6	3	0	19
78.75	101.25	E	8	13	7	4	0	0	32
101.25	123.75	ESE	16	24	18	3	0	0	61
123.75	146.25	SE	9	47	48	23	1	1	129
146.25	168.75	SSE	13	89	145	128	11	0	386
168.75	191.25	S	13	98	217	195	30	3	556
191.25	213.75	SSW	10	66	86	70	6	0	238
213.75	236.25	SW	10	43	55	25	1	0	134
236.25	258.75	WSW	8	29	50	35	3	0	125
258.75	281.25	W	1	15	15	7	2	0	40
281.25	303.75	WNW	5	12	3	1	0	0	21
303.75	326.25	NW	9	8	4	1	0	0	22
326.25	348.75	NNW	9	36	7	2	0	0	54

TABLE 5.1A-18
Blythe 2007, Quarter 4

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	22	70	60	65	32	16	265
11.25	33.75	NNE	14	40	14	12	1	0	81
33.75	56.25	NE	13	12	5	5	0	0	35
56.25	78.75	ENE	14	12	5	1	0	0	32
78.75	101.25	E	13	14	1	0	0	0	28
101.25	123.75	ESE	12	22	4	0	0	0	38
123.75	146.25	SE	19	25	5	1	0	0	50
146.25	168.75	SSE	24	26	18	9	0	0	77
168.75	191.25	S	21	32	29	11	6	1	100
191.25	213.75	SSW	20	30	18	16	2	0	86
213.75	236.25	SW	17	45	23	25	10	6	126
236.25	258.75	WSW	26	60	21	10	7	4	128
258.75	281.25	W	14	37	9	6	0	0	66
281.25	303.75	WNW	17	41	8	3	0	0	69
303.75	326.25	NW	16	65	18	13	4	1	117
326.25	348.75	NNW	35	100	93	69	23	12	332

TABLE 5.1A-19
Blythe 2008, Quarter 1

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	19	45	64	63	38	25	254
11.25	33.75	NNE	7	32	18	8	0	0	65
33.75	56.25	NE	9	29	10	2	0	0	50
56.25	78.75	ENE	14	20	5	1	0	0	40
78.75	101.25	E	11	22	4	0	0	0	37
101.25	123.75	ESE	14	25	1	0	0	0	40
123.75	146.25	SE	17	16	4	1	0	0	38
146.25	168.75	SSE	14	30	28	7	0	0	79
168.75	191.25	S	17	35	37	22	2	1	114
191.25	213.75	SSW	23	33	31	24	9	3	123
213.75	236.25	SW	24	45	26	28	16	11	150
236.25	258.75	WSW	17	44	23	9	8	4	105
258.75	281.25	W	17	38	18	4	2	0	79
281.25	303.75	WNW	16	22	5	2	0	0	45
303.75	326.25	NW	19	49	16	14	7	0	105
326.25	348.75	NNW	18	84	90	54	22	8	276

TABLE 5.1A-20
Blythe 2008, Quarter 2

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	15	38	22	35	14	4	128
11.25	33.75	NNE	1	18	8	8	7	1	43
33.75	56.25	NE	7	14	10	6	0	0	37
56.25	78.75	ENE	5	13	5	2	0	0	25
78.75	101.25	E	9	7	6	2	0	0	24
101.25	123.75	ESE	7	15	10	1	0	0	33
123.75	146.25	SE	12	35	29	5	1	0	82
146.25	168.75	SSE	13	33	63	52	1	1	163
168.75	191.25	S	11	60	96	62	1	0	230
191.25	213.75	SSW	8	38	42	46	11	0	145
213.75	236.25	SW	12	41	45	83	39	10	230
236.25	258.75	WSW	11	23	44	41	16	0	135
258.75	281.25	W	12	21	19	11	0	0	63
281.25	303.75	WNW	7	13	11	9	0	0	40
303.75	326.25	NW	13	25	16	16	9	1	80
326.25	348.75	NNW	13	53	34	40	15	0	155

TABLE 5.1A-21
Blythe 2008, Quarter 3

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	14	22	7	0	0	0	43
11.25	33.75	NNE	4	17	1	0	0	0	22
33.75	56.25	NE	6	12	9	2	0	1	30
56.25	78.75	ENE	5	17	16	1	0	1	40
78.75	101.25	E	6	21	3	2	1	0	33
101.25	123.75	ESE	9	19	14	0	4	0	46
123.75	146.25	SE	12	55	43	15	1	0	126
146.25	168.75	SSE	17	83	147	124	8	0	379
168.75	191.25	S	8	88	218	165	22	1	502
191.25	213.75	SSW	14	55	85	61	7	0	222
213.75	236.25	SW	11	42	57	34	2	0	146
236.25	258.75	WSW	7	37	46	14	2	0	106
258.75	281.25	W	11	14	10	2	0	1	38
281.25	303.75	WNW	7	7	2	0	0	0	16
303.75	326.25	NW	10	29	4	0	0	0	43
326.25	348.75	NNW	10	46	9	1	1	0	67

TABLE 5.1A-22
Blythe 2008, Quarter 4

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	31	61	57	49	29	7	234
11.25	33.75	NNE	19	32	16	6	0	2	75
33.75	56.25	NE	9	22	4	1	0	0	36
56.25	78.75	ENE	14	14	6	2	0	0	36
78.75	101.25	E	17	18	3	0	0	0	38
101.25	123.75	ESE	8	14	1	0	0	0	23
123.75	146.25	SE	9	21	2	0	0	0	32
146.25	168.75	SSE	10	37	9	6	1	0	63
168.75	191.25	S	11	38	24	15	2	0	90
191.25	213.75	SSW	19	28	19	12	4	2	84
213.75	236.25	SW	25	50	18	24	10	8	135
236.25	258.75	WSW	22	57	22	12	9	2	124
258.75	281.25	W	25	38	15	5	1	2	86
281.25	303.75	WNW	16	31	6	1	0	0	54
303.75	326.25	NW	29	54	21	16	0	0	120
326.25	348.75	NNW	23	83	100	76	25	3	310

TABLE 5.1A-23
Blythe 2009, Quarter 1

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	14	47	66	72	28	8	235
11.25	33.75	NNE	10	23	18	7	4	3	65
33.75	56.25	NE	16	16	4	0	0	0	36
56.25	78.75	ENE	8	22	5	0	0	0	35
78.75	101.25	E	17	27	7	0	0	0	51
101.25	123.75	ESE	16	24	0	1	0	0	41
123.75	146.25	SE	15	16	5	0	0	0	36
146.25	168.75	SSE	22	30	19	10	0	0	81
168.75	191.25	S	6	29	28	27	0	0	90
191.25	213.75	SSW	12	42	25	14	6	0	99
213.75	236.25	SW	26	63	33	36	13	3	174
236.25	258.75	WSW	20	61	32	15	6	2	136
258.75	281.25	W	14	44	13	6	3	0	80
281.25	303.75	WNW	14	22	11	1	0	0	48
303.75	326.25	NW	17	48	26	12	2	0	105
326.25	348.75	NNW	20	65	89	76	17	3	270

TABLE 5.1A-24
Blythe 2009, Quarter 2

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	10	38	22	7	1	0	78
11.25	33.75	NNE	10	11	11	7	0	0	39
33.75	56.25	NE	4	10	10	2	0	0	26
56.25	78.75	ENE	3	10	4	0	0	0	17
78.75	101.25	E	4	9	6	1	0	0	20
101.25	123.75	ESE	12	14	7	0	0	0	33
123.75	146.25	SE	10	32	21	4	0	0	67
146.25	168.75	SSE	9	56	79	71	3	0	218
168.75	191.25	S	12	66	174	117	20	0	389
191.25	213.75	SSW	11	63	96	77	16	2	265
213.75	236.25	SW	7	43	71	86	25	4	236
236.25	258.75	WSW	10	34	62	52	11	0	169
258.75	281.25	W	3	13	25	23	3	1	68
281.25	303.75	WNW	3	13	8	10	4	0	38
303.75	326.25	NW	12	34	11	11	1	0	69
326.25	348.75	NNW	14	41	26	15	1	0	97

TABLE 5.1A-25
Blythe 2009, Quarter 3

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	12	32	10	10	6	1	71
11.25	33.75	NNE	5	18	4	0	0	0	27
33.75	56.25	NE	3	9	17	7	0	0	36
56.25	78.75	ENE	5	9	15	7	1	2	39
78.75	101.25	E	9	24	11	3	0	0	47
101.25	123.75	ESE	12	20	11	0	0	0	43
123.75	146.25	SE	16	38	38	8	0	0	100
146.25	168.75	SSE	9	74	113	59	1	0	256
168.75	191.25	S	11	85	177	133	11	0	417
191.25	213.75	SSW	16	48	109	72	10	1	256
213.75	236.25	SW	9	48	63	57	4	2	183
236.25	258.75	WSW	11	53	68	43	10	1	186
258.75	281.25	W	4	19	21	5	1	0	50
281.25	303.75	WNW	5	22	1	1	0	0	29
303.75	326.25	NW	5	25	6	0	0	0	36
326.25	348.75	NNW	8	34	14	10	3	0	69

TABLE 5.1A-26
Blythe 2009, Quarter 4

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	22	81	69	77	21	10	280
11.25	33.75	NNE	18	31	20	13	1	0	83
33.75	56.25	NE	5	26	8	2	0	0	41
56.25	78.75	ENE	13	22	3	0	0	0	38
78.75	101.25	E	10	26	2	0	0	0	38
101.25	123.75	ESE	16	11	1	1	0	0	29
123.75	146.25	SE	14	22	4	0	0	0	40
146.25	168.75	SSE	17	24	23	8	3	0	75
168.75	191.25	S	16	33	34	22	5	0	110
191.25	213.75	SSW	15	32	27	26	4	0	104
213.75	236.25	SW	17	44	23	25	7	2	118
236.25	258.75	WSW	20	61	29	11	8	3	132
258.75	281.25	W	22	32	12	6	0	0	72
281.25	303.75	WNW	23	20	9	5	1	0	58
303.75	326.25	NW	17	45	33	15	6	0	116
326.25	348.75	NNW	25	89	94	52	23	3	286

TABLE 5.1A-27
Blythe 2010, Quarter 1

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	26	71	64	56	15	7	239
11.25	33.75	NNE	16	37	19	4	4	1	81
33.75	56.25	NE	22	22	14	4	0	0	62
56.25	78.75	ENE	9	25	8	3	0	0	45
78.75	101.25	E	20	32	5	1	0	0	58
101.25	123.75	ESE	17	13	2	1	0	0	33
123.75	146.25	SE	21	17	5	0	0	0	43
146.25	168.75	SSE	19	28	25	8	1	1	82
168.75	191.25	S	15	28	32	22	4	1	102
191.25	213.75	SSW	10	26	28	20	7	0	91
213.75	236.25	SW	16	45	34	39	12	2	148
236.25	258.75	WSW	22	48	27	23	4	0	124
258.75	281.25	W	22	40	13	4	2	0	81
281.25	303.75	WNW	18	23	4	2	0	0	47
303.75	326.25	NW	20	39	12	7	2	0	80
326.25	348.75	NNW	33	93	70	58	6	4	264

TABLE 5.1A-28
Blythe 2010, Quarter 2

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	15	31	25	22	3	0	96
11.25	33.75	NNE	4	16	6	8	0	0	34
33.75	56.25	NE	8	12	1	2	0	0	23
56.25	78.75	ENE	11	18	1	0	0	0	30
78.75	101.25	E	9	12	0	0	0	0	21
101.25	123.75	ESE	5	14	3	0	0	0	22
123.75	146.25	SE	9	33	14	0	0	0	56
146.25	168.75	SSE	12	52	63	41	1	0	169
168.75	191.25	S	15	59	128	85	4	0	291
191.25	213.75	SSW	13	53	59	62	11	0	198
213.75	236.25	SW	22	50	58	86	45	15	276
236.25	258.75	WSW	15	42	69	80	31	8	245
258.75	281.25	W	11	27	27	25	6	1	97
281.25	303.75	WNW	5	15	13	5	2	0	40
303.75	326.25	NW	7	30	13	8	1	0	59
326.25	348.75	NNW	20	48	35	34	5	0	142

TABLE 5.1A-29
Blythe 2010, Quarter 3

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	9	26	5	0	0	0	40
11.25	33.75	NNE	10	17	1	0	0	0	28
33.75	56.25	NE	8	15	4	2	0	0	29
56.25	78.75	ENE	1	14	14	0	0	0	29
78.75	101.25	E	9	17	5	0	1	0	32
101.25	123.75	ESE	10	23	4	2	0	0	39
123.75	146.25	SE	11	35	25	5	1	0	77
146.25	168.75	SSE	12	60	99	73	8	0	252
168.75	191.25	S	19	103	184	185	16	1	508
191.25	213.75	SSW	15	53	76	105	7	0	256
213.75	236.25	SW	12	58	58	50	11	0	189
236.25	258.75	WSW	9	54	45	21	4	0	133
258.75	281.25	W	8	19	18	5	1	0	51
281.25	303.75	WNW	11	18	3	0	0	0	32
303.75	326.25	NW	9	28	9	0	0	0	46
326.25	348.75	NNW	15	31	6	0	0	0	52

TABLE 5.1A-30
Blythe 2010, Quarter 4

Speed	m/s								
Wind	Direction	Sector	0.5-2.1	2.1-3.6	3.6-5.7	5.7-8.8	8.8-11.1	>=11.1	Total
348.75	11.25	N	22	62	85	51	12	0	232
11.25	33.75	NNE	7	35	24	7	1	0	74
33.75	56.25	NE	6	17	9	0	0	0	32
56.25	78.75	ENE	9	19	8	0	0	0	36
78.75	101.25	E	8	15	3	0	0	0	26
101.25	123.75	ESE	12	20	5	0	0	0	37
123.75	146.25	SE	6	25	3	1	0	0	35
146.25	168.75	SSE	18	25	30	14	0	0	87
168.75	191.25	S	12	58	78	34	5	1	188
191.25	213.75	SSW	19	30	49	26	7	0	131
213.75	236.25	SW	26	36	23	29	7	4	125
236.25	258.75	WSW	20	52	28	15	6	2	123
258.75	281.25	W	17	36	4	7	3	0	67
281.25	303.75	WNW	12	26	5	6	2	0	51
303.75	326.25	NW	22	37	11	7	7	1	85
326.25	348.75	NNW	16	83	66	33	14	0	212

Appendix 5.1B
Emissions and Operating Parameters

Table 5.1B-1
Emissions and Operating Parameters for the Auxiliary Boilers
Rio Mesa Solar Electric Generating Facility

Boiler Emission Characteristics				
		Normal	Hot Standby	Cold Startup
Heat Input, MMBtu/hr (HHV)		500.0	25.0	62.5
Boiler Rating, lb/hr		350,000	--	--
NOx, ppmvd @ 3% O2		9	100	75
CO, ppmvd @ 3% O2		50	250	300
VOC (as CH4), ppmvd @ 3% O2		12.6	25	60
NOx (as NO2), lb/hr		5.5	3.0	5.6
NOx, lb/MMBtu		0.0110	0.1200	0.0900
CO, lb/hr		18.3	4.57	13.7
CO, lb/MMBtu		0.0366	0.1827	0.2193
VOC (as CH4), lb/hr		2.70	0.26	1.57
VOC, lb/MMBtu		0.0054	0.0105	0.0251
PM10, lb/hr		2.5	0.25	0.63
PM10, lb/MMBtu		0.005	0.01	0.01
SO2, grains/100 scf		0.75	0.75	0.75
SO2, lb/hr		1.1	0.05	0.13
SO2, lb/MMBtu		0.0021	0.0021	0.0021
Boiler Stack Parameters				
Exhaust temp	deg F	406	358	345
Exhaust volume	acfm	167,000	17,619	21,267
Stack diameter	inches	100	100	100
Exhaust velocity	ft/sec	51	5	6

Table 5.1B-2
Rio Mesa Solar Electric Generating Facility
Emissions and Operating Parameters for Startup Boilers

Boiler Emission Characteristics			
		Normal	Cold Startup
Heat Input, MMBtu/hr (HHV)		249.0	31
Boiler Rating, lb/hr		185,000	--
NOx, ppmvd @ 3% O2		9	75
CO, ppmvd @ 3% O2		25	300
VOC (as CH4), ppmvd @ 3% O2		12.6	60
NOx (as NO2), lb/hr		2.7	2.8
NOx, lb/MMBtu		0.0110	0.090
CO, lb/hr		4.5	6.8
CO, lb/MMBtu		0.0180	0.219
VOC (as CH4), lb/hr		1.3	0.78
VOC, lb/MMBtu		0.0054	0.025
PM10, lb/hr		1.25	0.31
PM10, lb/MMBtu		0.005	0.01
SO2, grains/100 scf		0.75	0.75
SO2, lb/hr		0.52	0.07
SO2, lb/MMBtu		0.0021	0.0021
Boiler Stack Parameters			
Exhaust temp	deg F	300	345
Exhaust volume	acfm	74,100	10,591
Stack diameter	inches	66	66
Exhaust velocity	ft/sec	52	7.4

Table 5.1B-3
Rio Mesa Solar Electric Generating Facility
Emissions and Operating Parameters for Nighttime Preservation Boilers

Boiler Emission Characteristics			
		Normal	**Cold Startup**
Heat Input, MMBtu/hr (HHV)		15.0	1.5
Boiler Rating, lb/hr		10,000	--
NOx, ppmvd @ 3% O2		9	70
CO, ppmvd @ 3% O2		50	275
VOC (as CH4), ppmvd @ 3% O2		12.6	55
NOx (as NO2), lb/hr		0.17	0.13
NOx, lb/MMBtu		0.0110	0.084
CO, lb/hr		0.55	0.31
CO, lb/MMBtu		0.0366	0.201
VOC (as CH4), lb/hr		0.08	0.04
VOC, lb/MMBtu		0.0054	0.023
PM10, lb/hr		0.08	0.02
PM10, lb/MMBtu		0.005	0.01
SO2, grains/100 scf		0.75	0.75
SO2, lb/hr		0.03	0.003
SO2, lb/MMBtu		0.0021	0.0021
Boiler Stack Parameters			
Exhaust temp	deg F	300	300
Exhaust volume	acfm	5,800	492
Stack diameter	inches	18	18
Exhaust velocity	ft/sec	55	5

Table 5.1B-4
Power Block Diesel Emergency Generators
Rio Mesa Solar Electric Generating Facility

Engine				
Engine Mfr		Caterpillar		
Model		Generator Set Model 2500 eKW		
EPA Cert. Standard		Tier 2		
Useable Horsepower	hp	3633		
Generator Power Output	kW	2500		
Fuel		CA Diesel		
Specific Gravity		0.825		
Fuel Sulfur Content	wt %	0.0015%		
Fuel Consumption	gph	175		
	MMBtu/hr	23.8		
	Btu/bhp-hr	6,551		
Emissions				
NOx	g/bhp-hr	4.8		
CO	g/bhp-hr	2.6		
VOC(1)	g/bhp-hr	0.2		
PM10	g/bhp-hr	0.15		
NOx	lb/hr	38.4	lb/yr	1922
CO	lb/hr	20.8	lb/yr	1041
VOC	lb/hr	1.3	lb/yr	67
PM10	lb/hr	1.2	lb/yr	60
SO2	lb/hr	0.04	lb/yr	2
Exhaust Parameters				
Exhaust temp	deg F	925		
Exhaust volume	acfm	19,600		
Stack diameter	inches	18		
Exhaust velocity	ft/sec	185		

Notes:
(1) Estimate based on Tier II engine VOC emission factor from EPA Nonroad Engine Model guidance document, Nov. 2002.

Table 5.1B-5
Common Area Emergency Diesel Generator
Rio Mesa Solar Electric Generating Facility

Engine				
Engine Mfr		Caterpillar		
Model		Generator Set Model 250 eKW		
EPA Cert. Standard		Tier 3		
Useable Horsepower	hp	398		
Generator Power Output	kW	250		
Fuel		CA Diesel		
Specific Gravity		0.825		
Fuel Sulfur Content	wt %	0.0015%		
Fuel Consumption	gph	20		
	MMbtu/hr	2.7		
	Btu/bhp-hr	6,834		
Emissions				
NOx	g/bhp-hr	3.0		
CO	g/bhp-hr	2.6		
VOC(1)	g/bhp-hr	0.2		
PM10	g/bhp-hr	0.15		
NOx	lb/hr	2.6	lb/yr	132
CO	lb/hr	2.28	lb/yr	114
VOC	lb/hr	0.15	lb/yr	7
PM10	lb/hr	0.13	lb/yr	7
SO2	lb/hr	0.004	lb/yr	0
Exhaust Parameters				
Exhaust temp	deg F	855		
Exhaust volume	acfm	2,250		
Stack diameter	inches	8		
Exhaust velocity	ft/sec	107		

Notes:
(1) Estimate based on Tier III engine VOC emission factor from EPA Nonroad Engine Model guidance document, Nov. 2002.

Table 5.1B-6
Power Block Diesel Fire Pump Engine
Rio Mesa Solar Electric Generating Facility

Engine				
Engine Mfr		Cummins		
Model		Fire Power Model CFP7E-F30		
EPA Cert. Standard		Tier 3		
Useable Horsepower	hp	200		
Fuel		CA Diesel		
Specific Gravity		0.825		
Fuel Sulfur Content	wt %	0.0015%		
Fuel Consumption	gph	12.0		
	MMbtu/hr	1.6		
	Btu/bhp-hr	8,160		
Emissions				
NOx	g/bhp-hr	3.0		
CO	g/bhp-hr	2.6		
VOC(1)	g/bhp-hr	0.2		
PM10	g/bhp-hr	0.15		
NOx	lb/hr	1.3	lb/yr	66
CO	lb/hr	1.15	lb/yr	57
VOC	lb/hr	0.08	lb/yr	4
PM10	lb/hr	0.07	lb/yr	3
SO2	lb/hr	0.003	lb/yr	0
Exhaust Parameters				
Exhaust temp	deg F	975		
Exhaust volume	acfm	1,650		
Stack diameter	inches	4		
Exhaust velocity	ft/sec	315		

Notes:
(1) Estimate based on Tier III engine VOC emission factor from EPA Nonroad Engine Model guidance document, Nov. 2002.

Table 5.1B-7
Common Area Diesel Fire Pump Engine
Rio Mesa Solar Electric Generating Facility

Engine				
Engine Mfr		Cummins		
Model		Fire Power Model CFP5E-F30		
EPA Cert. Standard		Tier 3		
Useable Horsepower	hp	125		
Fuel		CA Diesel		
Specific Gravity		0.825		
Fuel Sulfur Content	wt %	0.0015%		
Fuel Consumption	gph	8.0		
	MMbtu/hr	1.1		
	Btu/bhp-hr	8,704		
Emissions				
NOx	g/bhp-hr	3		
CO	g/bhp-hr	3.7		
VOC(1)	g/bhp-hr	0.2		
PM10	g/bhp-hr	0.22		
NOx	lb/hr	0.8	lb/yr	41
CO	lb/hr	1.02	lb/yr	51
VOC	lb/hr	0.05	lb/yr	3
PM10	lb/hr	0.06	lb/yr	3
SO2	lb/hr	0.002	lb/yr	0
Exhaust Parameters				
Exhaust temp	deg F	950		
Exhaust volume	acfm	975		
Stack diameter	inches	4		
Exhaust velocity	ft/sec	186		

Notes:
(1) Estimate based on Tier III engine VOC emission factor from EPA Nonroad Engine Model guidance document, Nov. 2002.

Table 5.1B-8
Rio Mesa Solar Electric Generating Facility
Typical Annual Operating Schedule, Each Plant

Auxiliary boiler operation	**June - Sept.**		
	Weekdays	**Weekends**	**Oct.-May**
days	50	72	243
per unit operation, hours/day (average) (1)	4	0	0
Total hours/year			**200**

Start-up boiler operation	**June - Sept.**	**October-May**	**Hot restart mode (2)**
days	122	243	
per unit operation , hours/day (average)	2	2	
Subtotal hours/yr	244	486	70
Total hours/yr			**800**

Nighttime boiler operation	**June - Sept.**		
	Weekdays	**Weekends**	**Oct.-May**
days	50	72	243
per unit operation, hours/day (average)	8	10	12
Total hours/year			**4036**

Notes:

1. Hours shown are annual average equivalent full load hours; boilers may operate more hours on some days and/or at lower loads (including hot standby).
2. During cloudy periods or in case of emergency shutdown, the startup boilers may also be used to used to keep the system hot or to facilitate the plant restart.

Table 5.1B-9
Rio Mesa Solar Electric Generating Facility
Calculation of Wet Surface Air Cooler Emissions

Typical Worst-Case Design Parameters	
Water Flow Rate, 10E6 lbm/hr	2.00
Water Recirculation Rate, gal/min	4,000
Drift Rate, %	0.0005
Drift, lbm water/hr	10.00
PM10 Emissions based on TDS Level	
TDS level, ppm	1,500
PM10, lb/hr	0.015
PM10, lb/day	0.18
PM10, tpy	0.015

Table 5.1B-10
Rio Mesa Solar Electric Generating Facility
Emissions from Mirror Cleaning Activities

Pollutant	Emission Factor	Emissions Per Plant (lb/year)
Tractor-pulled trailers	VMT/yr	8,800
(DZ and NDZ MWMs)	gal/yr	781,672
NOx (lb/1000 gal)	11.77	9,200
VOC (lb/1000 gal)	5.6	4,377
SO2 (lb/1000 gal)	0.21	164
CO (lb/1000 gal)	3.58	2,798
(lb/1000 gal)	0.39	305
PM10 (road dust) (lb/VMT)	0.30	2,622
PM2.5 (road dust) (lb/VMT)	0.03	262
Smaller vehicles	VMT/yr	3,700
(Near Tower MWMs)	Gal/yr	379,600
NOx (lb/1000 gal)	11.77	4,468
VOC (lb/1000 gal)	5.6	2,126
SO2 (lb/1000 gal)	0.21	80
CO (lb/1000 gal)	3.2	1,215
PM10/PM2.5 (combustion)	0.39	148
PM10 (road dust) (lb/VMT)	0.17	633
PM2.5 (road dust) (lb/VMT)	0.02	63

Total lb/yr, all activities	Per Plant	Total 3 Plants	ton/yr	lb/day	lb/hr
NOx	13,668	41,005	20.5	112.3	10.7
VOC	6,503	19,509	9.8	53.5	5.1
SO2	244	732	0.37	2.0	0.19
CO	4,013	12,039	6.0	33.0	3.1
PM10	3,708	11,124	5.6	30.5	2.9
PM2.5	778	2,335	1.2	6.4	0.6
DPM	453	1,359	0.7	3.7	0.4
GHG		77,018,095	38,509		

Notes:

1. Emission factors from EPA Nonroad Model documentation, Tier 4 engines: >300-600 for NDZ/ 175-300 bhp for NTZ (available at http://www.epa.gov/otaq/models/nonrdmdl/nonrdmdl2010/420r10018.pdf)
2. Assume all combustion PM10 is <2.5 um in size
3. Assume all trucks are diesel fueled so all combustion PM is DPM
4. GHG emission factors from CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008; distillate fuel
5. Unpaved road dust factors from construction emissions calculations; 90% control

CO2 EF, kg/MMBtu	CH4 EF, kg/MMBtu	N2O EF, kg/MMBtu	GWP for CO2	GWP for CH4	GWP for N2O	Weighted CO2e, kg/MMBtu	Weighted CO2e, lb/MMBtu	Diesel HHV, MMBtu/gal	Weighted CO2e, lb/1000 gal
73.1	0.003	0.0006	1	21	310	73.349	161.4	0.137	22107.39

Table 5.1B-11
Rio Mesa Solar Electric Generating Facility
Calculations for Maximum Hourly Criteria Pollutant Emissions

Equipment	Hourly Emissions (lbs/hr), Each Unit				
	NOx	SOx	CO	VOC	PM10/PM2.5
Auxiliary Boilers					
Normal operation	5.50	1.05	18.30	2.70	2.50
Hot standby	3.00	0.05	4.57	0.26	0.25
Cold startup	5.63	0.13	13.70	1.57	0.63
Startup Boilers					
Normal operation	2.74	0.52	4.48	1.34	1.25
Cold startup	2.80	0.07	6.82	0.78	0.31
Nighttime Preservation Boilers					
Normal operation	0.17	0.03	0.55	0.08	0.08
Cold startup	0.13	0.003	0.31	0.04	0.02
Power Block Emergency Generators	38.44	0.04	20.82	1.34	1.20
Common Area Emergency Generator	2.63	0.004	2.28	0.15	0.13
Power Block Fire Pump Engines	1.32	0.003	1.15	0.08	0.07
Common Area Fire Pump Engine	0.83	0.002	1.02	0.05	0.06
WSAC	0	0	0	0	0.015

Maximum Hourly Emissions, Normal Boiler Operation

Equipment	Total Number of Units (1)	Each Unit Operation Max Hour	Hourly Emissions (lbs/hr), Combined Total for Three Plants					
			NOx	SO2	CO	VOC	PM10	PM2.5
Auxiliary Boilers	9	1	49.5	9.5	164.7	24.3	22.5	22.5
Startup Boilers	3	1	8.2	1.6	13.4	4.0	3.7	3.7
Nighttime Preservation Boilers	3	1	0.5	0.1	1.6	0.2	0.2	0.2
Power Block Emergency Generators	3	0	0.0	0.0	0.0	0.0	0.0	0.0
Common Area Emergency Generator	1	0	0.0	0.0	0.0	0.0	0.0	0.0
Power Block Fire Pump Engines	3	0	0.0	0.0	0.0	0.0	0.0	0.0
Common Area Fire Pump Engine	1	0	0.0	0.0	0.0	0.0	0.0	0.0
WSAC	3	1	0.0	0.0	0.0	0.0	0.04	0.04
Total Emissions, lb/hr			**58.2**	**11.1**	**179.8**	**28.6**	**26.5**	**26.5**

Maximum Hourly Emissions, Engine Testing

Equipment	Total Number of Units (1)	Each Unit Operation Max Hour	Hourly Emissions (lbs/hr), Combined Total for Three Plants					
			NOx	SO2	CO	VOC	PM10	PM2.5
Auxiliary Boilers	9	0	0.0	0.0	0.0	0.0	0.0	0.0
Startup Boilers	3	0	0.0	0.0	0.0	0.0	0.0	0.0
Nighttime Preservation Boilers	3	0	0.0	0.0	0.0	0.0	0.0	0.0
Power Block Emergency Generators	3	0.5	57.7	0.055	31.2	2.0	1.8	1.8
Common Area Emergency Generator	1	0.5	1.3	0.002	1.1	0.07	0.07	0.07
Power Block Fire Pump Engines	3	0.5	2.0	0.004	1.7	0.1	0.1	0.1
Common Area Fire Pump Engine	1	0.5	0.4	0.001	0.5	0.03	0.03	0.03
WSAC	3	0	0	0	0	0	0	0
Total Emissions, lb/hr			**61.4**	**0.1**	**34.6**	**2.2**	**2.0**	**2.0**

Table 5.1B-11 (cont.)
Rio Mesa Solar Electric Generating Facility
Maximum Daily Emissions, Auxiliary Boiler Operating Day

Equipment	Total Number of Units (1)	Each Unit Operation Hours/Day	Daily Emissions (lbs/day), Each Unit						Daily Emissions (lbs/day), Combined Total for Three Plants					
			NOx	SO2	CO	VOC	PM10	PM2.5	NOx	SO2	CO	VOC	PM10	PM2.5
Auxiliary Boilers	9	4	22.0	4.2	73.2	10.8	10.0	10.0	198.0	37.8	658.8	97.2	90.0	90.0
Startup Boilers	3	2	5.5	1.0	9.0	2.7	2.5	2.5	16.4	3.1	26.9	8.1	7.5	7.5
Nighttime Preservation Boilers	3	8	1.3	0.3	4.4	0.6	0.6	0.6	4.0	0.8	13.2	1.9	1.8	1.8
Power Block Emergency Generators	3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Common Area Emergency Generator	1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Power Block Fire Pump Engines	3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Common Area Fire Pump Engine	1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSAC	3	12	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.54	0.54
Total Emissions, lb/hr									218.4	41.7	698.9	107.2	99.8	99.8

Maximum Daily Emissions, Auxiliary Boiler Startup Day

Equipment	Total Number of Units (1)	Each Unit Operation Hours/Day	Daily Emissions (lbs/day), Each Unit						Daily Emissions (lbs/day), Combined Total for Three Plants					
			NOx	SO2	CO	VOC	PM10	PM2.5	NOx	SO2	CO	VOC	PM10	PM2.5
Auxiliary Boilers-- startup	3	3	16.9	0.4	41.1	4.7	1.9	1.9	50.6	1.2	123.3	14.1	5.6	5.6
Auxiliary Boilers-- normal operations	3	1	5.5	1.1	18.3	2.7	2.5	2.5	16.5	3.2	54.9	8.1	7.5	7.5
Auxiliary Boilers-- normal operations	6	4	22.0	4.2	73.2	10.8	10.0	10.0	132.0	25.2	439.2	64.8	60.0	60.0
Startup Boilers	3	2	5.5	1.0	9.0	2.7	2.5	2.5	16.4	3.1	26.9	8.1	7.5	7.5
Nighttime Preservation Boilers	3	8	1.3	0.3	4.4	0.6	0.6	0.6	4.0	0.8	13.2	1.9	1.8	1.8
Power Block Emergency Generators	3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Common Area Emergency Generator	1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Power Block Fire Pump Engines	3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Common Area Fire Pump Engine	1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSAC	3	12	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.54	0.54
Total Emissions, lb/hr									219.5	33.4	657.5	97.0	82.9	82.9

Maximum Daily Emissions, Startup Boiler Startup Day

Equipment	Total Number of Units (1)	Each Unit Operation Hours/Day	Daily Emissions (lbs/day), Each Unit						Daily Emissions (lbs/day), Combined Total for Three Plants					
			NOx	SO2	CO	VOC	PM10	PM2.5	NOx	SO2	CO	VOC	PM10	PM2.5
Auxiliary Boilers	9	4	22.0	4.2	73.2	10.8	10.0	10.0	198.0	37.8	658.8	97.2	90.0	90.0
Startup Boilers-- startup	3	5	14.0	0.4	34.1	3.9	1.6	1.6	42.0	1.1	102.4	11.7	4.7	4.7
Startup Boilers-- normal operations	3	2	5.5	1.0	9.0	2.7	2.5	2.5	16.4	3.1	26.9	8.1	7.5	7.5
Nighttime Preservation Boilers	3	8	1.3	0.3	4.4	0.6	0.6	0.6	4.0	0.8	13.2	1.9	1.8	1.8
Power Block Emergency Generators	3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Common Area Emergency Generator	1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Power Block Fire Pump Engines	3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Common Area Fire Pump Engine	1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSAC	3	12	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.54	0.54
Total Emissions, lb/hr									260.4	42.8	801.2	118.9	104.5	104.5

Maximum Daily Emissions, Nighttime Boiler Startup Day

Equipment	Total Number of Units (1)	Each Unit Operation Hours/Day	Daily Emissions (lbs/day), Each Unit						Daily Emissions (lbs/day), Combined Total for Three Plants					
			NOx	SO2	CO	VOC	PM10	PM2.5	NOx	SO2	CO	VOC	PM10	PM2.5
Auxiliary Boilers	9	4	22.0	4.2	73.2	10.8	10.0	10.0	198.0	37.8	658.8	97.2	90.0	90.0
Startup Boilers	3	2	5.5	1.0	9.0	2.7	2.5	2.5	16.4	3.1	26.9	8.1	7.5	7.5
Nighttime Pres. Boilers-- startup	3	4	0.5	0.0	1.2	0.1	0.1	0.1	1.5	0.0	3.7	0.4	0.2	0.2
Nighttime Pres. Boilers-- normal ops	3	6	1.0	0.2	3.3	0.5	0.5	0.5	3.0	0.6	9.9	1.5	1.4	1.4
Power Block Emergency Generators	3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Common Area Emergency Generator	1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Power Block Fire Pump Engines	3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Common Area Fire Pump Engine	1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSAC	3	12	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.54	0.54
Total Emissions, lb/hr									218.9	41.6	699.3	107.1	99.5	99.5

Maximum Daily Emissions, Engine Testing Day (No Auxiliary Boiler Operation)

Equipment	Total Number of Units (1)	Each Unit Operation Hours/Day	Daily Emissions (lbs/day), Each Unit						Daily Emissions (lbs/day), Combined Total for Three Plants					
			NOx	SO2	CO	VOC	PM10	PM2.5	NOx	SO2	CO	VOC	PM10	PM2.5
Auxiliary Boilers	9	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Startup Boilers	3	2	5.5	1.0	9.0	2.7	2.5	2.5	16.4	3.1	26.9	8.1	7.5	7.5
Nighttime Preservation Boilers	3	12	2.0	0.4	6.6	1.0	0.9	0.9	5.9	1.1	19.8	2.9	2.7	2.7
Power Block Emergency Generators	3	0.5	19.2	0.0	10.4	0.7	0.6	0.6	57.7	0.055	31.2	2.0	1.80	1.80
Common Area Emergency Generator	1	0.5	1.3	0.0	1.1	0.1	0.1	0.1	1.3	0.002	1.1	0.07	0.07	0.07
Power Block Fire Pump Engines	3	0.5	0.7	0.0	0.6	0.0	0.0	0.0	2.0	0.004	1.7	0.12	0.10	0.10
Common Area Fire Pump Engine	1	0.5	0.4	0.0	0.5	0.0	0.0	0.0	0.4	0.001	0.5	0.03	0.03	0.03
WSAC	3	12	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.54	0.54
Total Emissions, lb/hr									83.8	4.3	81.3	13.2	12.7	12.7

Table 5.1B-11 (cont.)
Rio Mesa Solar Electric Generating Facility
Maximum Annual Emissions

Equipment	Total Number of Units (1)	Each Unit Normal Operation Hours/Yr	Each Unit Cold Startup Hours/Yr	Annual Emissions (tons/year), Combined Total for Three Plants					
				NOx	SO2	CO	VOC	PM10	PM2.5
Auxiliary Boilers	9	200	48	6.2	1.0	19.4	2.8	2.4	2.4
Startup Boilers	3	800	65	3.6	0.6	6.0	1.7	1.5	1.5
Nighttime Preservation Boilers	3	4036	52	1.0	0.2	3.3	0.5	0.5	0.5
Power Block Emergency Generators	3	50	0	2.9	0.003	1.6	0.10	0.09	0.09
Common Area Emergency Generator	1	50	0	0.1	1.1E-04	0.06	0.004	0.003	0.003
Power Block Fire Pump Engines	3	50	0	0.1	1.9E-04	0.09	0.006	0.005	0.005
Common Area Fire Pump Engine	1	50	0	0.02	4.2E-05	0.03	0.001	0.002	0.002
WSAC	3	2000	0	0.0	0.0	0.0	0.0	0.04	0.04
Total Emissions, tons/yr				**13.8**	**1.8**	**30.6**	**5.1**	**4.5**	**4.5**

Note:
1. Total, 3x250 MW plants.

Table 5.1B-12
Rio Mesa Solar Electric Generating Facility
Greenhouse Gas Emissions Calculations

Unit	Total Number of Units (1)	Rated Heat Input, MMBtu/hr	Rated Capacity, MW (Note 1)	Operating Hours per year	Fuel Use, MMBtu/yr (1)	Estimated Net MWh/yr	Maximum Emissions, metric tonnes/yr				Max. Emissions, tons/yr CO2e	CO2 lb/MWh
							CO2	CH4	N2O	SF6		
Auxiliary Boilers	9	500	300	200	900,000	2,205,900	47,583	0.81	0.09	--		
Startup Boilers	3	249	n/a	800	597,600	n/a	31,595	0.54	0.06	--		
Nighttime Preservation Boilers	3	15.0	n/a	4036	181,620	n/a	9,602	0.16	0.02	--		
Power Block Emergency Generators	3	23.8	n/a	200	14,280	n/a	1,044	0.04	0.01	--		
Common Area Emergency Generator	1	2.72	n/a	200	544	n/a	40	1.6E-03	3.3E-04	--		
Power Block Fire Pump Engines	3	1.63	n/a	200	979	n/a	72	2.9E-03	5.9E-04	--		
Common Area Fire Pump Engine	1	1.09	n/a	200	218	n/a	16	6.5E-04	1.3E-04	--		
WSACs	3	--	n/a	2000	0	n/a	0	0.00	0.00	--		
Circuit breakers	9	--	n/a	8760	0	n/a	--	--	--	3.0E-03		
Total			--	--	1,695,241	2,205,900	89,951	1.56	0.18	3.0E-03		
CO2-Equivalent							89,951	32.75	55.04	71.73	99,122	90

Natural Gas GHG Emission Rates (2)

Fuel	Emission Factors, kg/MMBtu			Emission Factor
	CO2 (3)	CH4 (4)	N2O (5)	SF6 (6)
Natural Gas	52.870	9.00E-04	1.00E-04	n/a
Diesel Fuel	73.100	3.00E-03	6.00E-04	n/a
Global Warming Potential (4)	1	21	310	23,900

Notes:

1. Rated capacity and heat input from heat balance at annual average conditions, annual fuel use and gross generation based on 100% capacity factor.
2. Calculation methods and emission factors from ARB, "Regulation for the Mandatory Reporting of Greenhouse Gas Emissions," December 5, 2007 (Staff's Suggested Modifications to the Originally Proposed Regulation Order Released October 19, 2007).
3. Appendix A, Table 4; heat content 1000 to 1025 Btu/scf.
4. Appendix A, Table 6.
5. Appendix A, Table 2.
6. Sulfur hexafluoride (SF6) will be used as an insulating medium in six new 230 kV breakers (five in use, one in storage) in the common area and in one generator circuit breaker (GCB) at each power block. The 230 kV breakers will each contain approximately 208 lbs of SF6. The GCBs will each contain approximately 24.2 lbs of SF6. The IEC standard for SF6 leakage is less than 0.5%; the NEMA leakage standard for new circuit breakers is 0.1%. A maximum leakage rate of 0.5% per year is assumed.

Table 5.1B-13
Rio Mesa Solar Electric Generating Facility
Calculation of Noncriteria Pollutant Emissions from Auxiliary Boilers

Compound	Emission Factor, lb/MMcf (1)	Maximum Hourly Emissions, lb/hr per boiler(2)	Annual Emissions (3)	
			tpy per boiler	tpy, all boilers
Propylene	1.55E-02	7.61E-03	7.84E-04	7.06E-03
Hazardous Air Pollutants				
Acetaldehyde	9.0E-04	4.41E-04	4.54E-05	4.09E-04
Acrolein	8.0E-04	3.92E-04	4.04E-05	3.64E-04
Benzene	1.7E-03	8.33E-04	8.58E-05	7.73E-04
Ethylbenzene	2.0E-03	9.80E-04	1.01E-04	9.09E-04
Formaldehyde	3.6E-03	1.76E-03	1.82E-04	1.64E-03
Hexane	1.3E-03	6.37E-04	6.56E-05	5.91E-04
Naphthalene	3.0E-04	1.47E-04	1.51E-05	1.36E-04
PAHs (except naphthalene) (4)	1.0E-04	4.90E-05	5.05E-06	4.54E-05
Toluene	7.8E-03	3.82E-03	3.94E-04	3.54E-03
Xylene	5.8E-03	2.84E-03	2.93E-04	2.64E-03
Total HAPs		1.19E-02	1.23E-03	1.10E-02

Notes:

(1) All factors from Ventura County APCD, "AB2588 Combustion Emission Factors," Natural Gas Fired External Combustion Equipment >100 MMBtu/hr. Available at http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf

(2) Based on maximum hourly boiler heat input of 0.49 MMscf/hr

(3) Based on total annual heat input of 101.0 MMscf/yr

(4) Total PAHs, excluding naphthalene. See speciation below.

(5) Emission factors for individual PAHs obtained from AP-42, Table 1.4-3, then adjusted proportionally so that total of "Adjusted EF" equals Total PAH EF of 1.0 E-04 lb/MMscf per Ventura County factors.

Speciated PAHs (except naphthalene)

	Mean EF (Note 1)	Adjusted EF (Note 5)	Emissions per boiler	
			lb/hr	tpy
Benzo(a)anthracene	1.80E-06	1.58E-05	7.74E-06	7.97E-07
Benzo(a)pyrene	1.20E-06	1.05E-05	5.16E-06	5.31E-07
Benzo(b)fluoranthrene	1.80E-06	1.58E-05	7.74E-06	7.97E-07
Benzo(k)fluoranthrene	1.80E-06	1.58E-05	7.74E-06	7.97E-07
Chrysene	1.80E-06	1.58E-05	7.74E-06	7.97E-07
Dibenz(a,h)anthracene	1.20E-06	1.05E-05	5.16E-06	5.31E-07
Indeno(1,2,3-cd)pyrene	1.80E-06	1.58E-05	7.74E-06	7.97E-07
Total	1.14E-05	1.00E-04	4.90E-05	5.05E-06

Table 5.1B-14
Rio Mesa Solar Electric Generating Facility
Calculation of Noncriteria Pollutant Emissions from Startup Boilers

Compound	Emission Factor, lb/MMcf (1)	Maximum Hourly Emissions, lb/hr per boiler(2)	Annual Emissions (3)	
			tpy per boiler	tpy, all boilers
Propylene	1.55E-02	3.79E-03	1.53E-03	4.60E-03
Hazardous Air Pollutants				
Acetaldehyde	9.00E-04	2.20E-04	8.88E-05	2.66E-04
Acrolein	8.00E-04	1.95E-04	7.89E-05	2.37E-04
Benzene	1.70E-03	4.15E-04	1.68E-04	5.03E-04
Ethylbenzene	2.00E-03	4.88E-04	1.97E-04	5.92E-04
Formaldehyde	3.60E-03	8.79E-04	3.55E-04	1.07E-03
Hexane	1.30E-03	3.17E-04	1.28E-04	3.85E-04
Naphthalene	3.00E-04	7.32E-05	2.96E-05	8.88E-05
PAHs (except naphthalene) (4)	1.00E-04	2.44E-05	9.86E-06	2.96E-05
Toluene	7.80E-03	1.90E-03	7.69E-04	2.31E-03
Xylene	5.80E-03	1.42E-03	5.72E-04	1.72E-03
Total HAPs		5.93E-03	2.40E-03	7.19E-03

Notes:

(1) All factors from Ventura County APCD, "AB2588 Combustion Emission Factors," Natural Gas Fired External Combustion Equipment >100 MMBtu/hr. Available at http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf

(2) Based on maximum hourly boiler heat input of 0.24 MMscf/hr

(3) Based on total annual heat input of 197.3 MMscf/yr

(4) Total PAHs, excluding naphthalene. See speciation below.

(5) Emission factors for individual PAHs obtained from AP-42, Table 1.4-3, then adjusted proportionally so that total of "Adjusted EF" equals Total PAH EF of 1.0 E-04 lb/MMscf per Ventura County factors.

Speciated PAHs (except naphthalene)

	Mean EF (Note 1)	Adjusted EF (Note 5)	Emissions per boiler	
			lb/hr	tpy
Benzo(a)anthracene	1.80E-06	1.58E-05	3.85E-06	1.56E-06
Benzo(a)pyrene	1.20E-06	1.05E-05	2.57E-06	1.04E-06
Benzo(b)fluoranthrene	1.80E-06	1.58E-05	3.85E-06	1.56E-06
Benzo(k)fluoranthrene	1.80E-06	1.58E-05	3.85E-06	1.56E-06
Chrysene	1.80E-06	1.58E-05	3.85E-06	1.56E-06
Dibenz(a,h)anthracene	1.20E-06	1.05E-05	2.57E-06	1.04E-06
Indeno(1,2,3-cd)pyrene	1.80E-06	1.58E-05	3.85E-06	1.56E-06
Total	1.14E-05	1.00E-04	2.44E-05	9.86E-06

Table 5.1B-15
Rio Mesa Solar Electric Generating Facility
Calculation of Noncriteria Pollutant Emissions from Nighttime Preservation Boilers

Compound	Emission Factor, lb/MMscf (1)	Maximum Hourly Emissions, lb/hr per boiler(2)	Annual Emissions (3)	
			tpy per boiler	tpy, all boilers
Propylene	5.30E-01	7.79E-03	1.57E-02	4.72E-02
Hazardous Air Pollutants				
Acetaldehyde	3.10E-03	4.56E-05	9.21E-05	2.76E-04
Acrolein	2.70E-03	3.97E-05	8.02E-05	2.41E-04
Benzene	5.80E-03	8.53E-05	1.72E-04	5.17E-04
Ethylbenzene	6.90E-03	1.01E-04	2.05E-04	6.15E-04
Formaldehyde	1.23E-02	1.81E-04	3.66E-04	1.10E-03
Hexane	4.60E-03	6.76E-05	1.37E-04	4.10E-04
Naphthalene	3.00E-04	4.41E-06	8.91E-06	2.67E-05
PAHs (4)	1.00E-04	1.47E-06	2.97E-06	8.91E-06
Toluene	2.65E-02	3.90E-04	7.87E-04	2.36E-03
Xylene	1.97E-02	2.90E-04	5.85E-04	1.76E-03
Total HAPs		1.21E-03	2.44E-03	7.31E-03

Notes:

(1) All factors from Ventura County APCD, "AB2588 Combustion Emission Factors," Natural Gas Fired External Combustion Equipment 10-100 MMBtu/hr. Available at http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf

(2) Based on maximum hourly heat input of 0.015 MMscf/hr

(3) Based on total annual fuel use of 59.4 MMscf/yr

(4) Total PAHs, excluding naphthalene. See speciation below.

(5) Emission factors for individual PAHs obtained from AP-42, Table 1.4-3, then adjusted proportionally so that total of "Adjusted EF" equals Total PAH EF of 1.0 E-04 lb/MMscf per Ventura County factors.

Speciated PAHs (except naphthalene)

	Mean EF (Note 1)	Adjusted EF (Note 5)	Emissions per boiler	
			lb/hr	tpy
Benzo(a)anthracene	1.80E-06	1.58E-05	2.32E-07	4.69E-07
Benzo(a)pyrene	1.20E-06	1.05E-05	1.55E-07	3.13E-07
Benzo(b)fluoranthrene	1.80E-06	1.58E-05	2.32E-07	4.69E-07
Benzo(k)fluoranthrene	1.80E-06	1.58E-05	2.32E-07	4.69E-07
Chrysene	1.80E-06	1.58E-05	2.32E-07	4.69E-07
Dibenz(a,h)anthracene	1.20E-06	1.05E-05	1.55E-07	3.13E-07
Indeno(1,2,3-cd)pyrene	1.80E-06	1.58E-05	2.32E-07	4.69E-07
Total	1.14E-05	1.00E-04	1.47E-06	2.97E-06

Table 5.1B-16
Rio Mesa Solar Electric Generating Facility
Calculation of Noncriteria Pollutant Emissions from WSACs

Constituent	Concentration in Cooling Tower Recirculation Water	Emissions (1)		
		Emissions, lb/hr	Emissions, ton/yr	Emissions, lbs/year
Ammonia	0 ppm	0.00E+00	0.00E+00	0.0
Copper	0 ppm	0.00E+00	0.00E+00	0.0
Silver	0 ppm	0.00E+00	0.00E+00	0.0
Zinc	0 ppm	0.00E+00	0.00E+00	0.0
Hazardous Air Pollutants				
Arsenic	0 ppm	0.00E+00	0.00E+00	0.000
Beryllium	0 ppm	0.00E+00	0.00E+00	0.0
Cadmium	0 ppm	0.00E+00	0.00E+00	0.000
Chromium (III)	0 ppm	0.00E+00	0.00E+00	0.000
Lead	0 ppm	0.00E+00	0.00E+00	0.000
Mercury	0 ppm	0.00E+00	0.00E+00	0.000
Nickel	0 ppm	0.00E+00	0.00E+00	0.000
Dioxins/furans	-- ppm	--	--	--
PAHs	--	--	--	--
Total HAPs			0.00E+00	0.00E+00

Table 5.1B-17
Rio Mesa Solar Electric Generating Facility
Detailed Emission Calculations for Boiler Commissioning

Units	Activity	Days	Daily Operation (hrs/day)	Heat Input Rate (MMBtu/hr)	Pollutant	Emission Factor (lbs/MMBtu)	Hourly Emissions (lbs/hr)	Daily Emissions (lbs/day)	Total Emissions During Test (lbs)	Notes
Auxiliary Boilers	Cold start/ Tuning	9	5	62.5	NOx	0.09	5.63	28.1	253.2	1 day per boiler. Use cold start emission rates
					CO	0.22	13.70	68.5	616.7	
					VOC	0.025	1.57	7.8	70.6	
					SOx	0.0021	0.13	0.7	5.9	
					PM10	0.01	0.63	3.1	28.1	
Auxiliary Boilers	Warm start/ Tuning	9	5	62.5	NOx	0.09	5.6	28.1	253.2	1 day per boiler. Assume same as cold start emission rates
					CO	0.22	13.7	68.5	616.7	
					VOC	0.025	1.6	7.8	70.6	
					SOx	0.0021	0.1	0.7	5.9	
					PM10	0.01	0.6	3.1	28.1	
Auxiliary Boilers	Part Load Operation	54	5	188	NOx	0.0110	2.06	10.3	556.9	6 days per boiler. Assume fully controlled levels based on 25% minimum compliant load
					CO	0.0366	6.86	34.3	1,852.9	
					VOC	0.0054	1.01	5.1	273.4	
					SOx	0.0021	0.39	2.0	106.4	
					PM10	0.005	0.94	4.7	253.1	
Auxiliary Boilers	Full Load Operation	18	5	500	NOx	0.0110	5.5	27.5	495.0	2 days per boiler
					CO	0.0366	18.3	91.5	1,647.0	
					VOC	0.0054	2.7	13.5	243.0	
					SOx	0.0021	1.1	5.3	94.5	
					PM10	0.0050	2.5	12.5	225.0	
Startup Boilers	Cold start/tuning	3	4	31.1	NOx	0.09	2.80	11.2	33.6	1 day per boiler. Use cold start emission rates
					CO	0.22	6.82	27.3	81.9	
					VOC	0.025	0.78	3.1	9.4	
					SOx	0.0021	0.07	0.3	0.8	
					PM10	0.01	0.31	1.2	3.7	
Startup Boilers	Warm start/tuning	3	4	31.1	NOx	0.09	2.8	11.2	33.6	1 day per boiler. Assume same as cold start emission rates
					CO	0.22	6.8	27.3	81.9	
					VOC	0.03	0.8	3.1	9.4	
					SOx	0.0021	0.1	0.3	0.8	
					PM10	0.01	0.3	1.2	3.7	
Startup Boilers	Part Load Operation	12	6	93	NOx	0.0110	1.03	6.2	74.0	4 days per boiler. Assume fully controlled levels based on 25% minimum compliant load
					CO	0.018	1.68	10.1	121.0	
					VOC	0.0054	0.50	3.0	36.3	
					SOx	0.0021	0.20	1.2	14.1	
					PM10	0.005	0.47	2.8	33.6	
Startup Boilers	Full Load Operation	6	4	249	NOx	0.0110	2.7	11.0	65.7	2 days per boiler.
					CO	0.0180	4.5	17.9	107.6	
					VOC	0.0054	1.3	5.4	32.3	
					SOx	0.0021	0.5	2.1	12.6	
					PM10	0.01	1.2	5.0	29.9	
Nighttime Pres. Boilers	Cold Start Operation	3	4	1.9	NOx	0.0220	0.04	0.2	0.5	1 day per boiler. Assume cold start emissions are 2x normal emissions
					CO	0.0732	0.14	0.5	1.6	
					VOC	0.0108	0.02	0.1	0.2	
					SOx	0.0021	0.00	0.0	0.0	
					PM10	0.01	0.02	0.1	0.2	
Nighttime Pres. Boilers	Part Load Operation	3 3	6 4	5.6	NOx	0.011	0.06	0.4	1.9	2 days per boiler. Assume fully controlled levels based on 25% minimum compliant load
					CO	0.037	0.21	1.2	6.2	
					VOC	0.005	0.03	0.2	0.9	
					SOx	0.0021	0.01	0.1	0.4	
					PM10	0.005	0.03	0.2	0.8	
Nighttime Pres. Boilers	Full Load Operation	3	6	15	NOx	0.0110	0.2	1.0	3.0	1 day per boiler
					CO	0.0366	0.5	3.3	9.9	
					VOC	0.0054	0.1	0.5	1.5	
					SOx	0.0021	0.0	0.2	0.6	
					PM10	0.005	0.1	0.5	1.4	
Maximum/Total for the Commissioning Period		126	630		NOx		5.6	28.1	1,770.6	Maximum hourly, maximum daily and total commissioning period emissions
					CO		18.3	91.5	5,143.4	
					VOC		2.7	13.5	747.6	
					SOx		1.1	5.3	241.9	
					PM10		2.5	12.5	607.8	

Appendix 5.1C
Emission Control Technology Assessment

APPENDIX 5.1C

Emission Control Technology Assessment

MDAQMD Rule 1303.A requires the use of best available control technology (BACT) for new permit units that result in a net increase in emissions of 25 pounds or more per day of NOx, SOx, VOC, or PM_{10}. As shown in Section 5.1.4, maximum daily emissions of all pollutants from each permit unit will be below 25 lb/day, so BACT is not required. This section describes the emissions control technology that will be used to minimize emissions from each permitted unit, as well as control technology options that were considered and rejected, and the reason the options were rejected.

Auxiliary and Startup Boilers

As described in Section 5.1.4, the auxiliary boilers will be 500 MMBtu/hr natural gas-fired superheating boilers. These boilers will be used on summer weekday afternoons, up to about 200 equivalent full-load hours per year, for an annual capacity factor of less than 3% per year. The startup boilers will be 249 MMBtu/hr natural gas-fired boilers that are expected to operate approximately 2 hours per day.

The auxiliary boilers will be started each summer weekday afternoon and are expected to take several hours to come up to full capacity. They will then operate for several hours before being shut down. They may operate in hot or warm standby mode (approximately 5% of rated heat input and/or intermittent firing). The startup boilers will be used each morning to preheat the solar boilers and the piping so that solar flux from the heliostats will maximize solar plant output in minimal time.

Superheating boilers are typically much larger and have higher heat flux to produce superheated steam conditions compared to boilers producing saturated steam. Both factors contribute to higher uncontrolled NOx emission rates than those from saturated steam boilers. BACT databases published by the BAAQMD, SJVAPCD, and SCAQMD were reviewed to identify BACT guidelines and determinations relevant to large superheating boilers.

Bay Area Air Quality Management District – The BAAQMD has established a CO BACT guideline specifying good combustion practices in conjunction with a ULNB/flue gas recirculation (FGR) system, meeting a CO emission limit of 50 ppmv @ 3% O_2 for natural gas-fired boilers rated at 50 MMBtu/hr or more. The BAAQMD has further established, for this boiler category, a NOx BACT guideline specifying a ULNB/FGR system, meeting a NOx emission limit of 9 ppmv @ 3% O_2. The boilers for which the BAAQMD established its NOx BACT determination are three 97 MMBtu/hr boilers at the Genentech facility located in South San Francisco, California. The Genentech boilers are equipped with ULNB/FGR systems meeting a NOx emission limit of 9 ppmv @ 3% O_2. The BAAQMD has not established a separate NOx BACT guideline for larger superheating auxiliary boilers.

San Joaquin Valley Air Pollution Control District – The SJVAPCD recently rescinded its BACT determinations for boilers. Previously, however, the SJVAPCD had established natural gas fuel with a liquefied petroleum gas backup as BACT for CO emissions for natural gas-fired boilers rated at 20 MMBtu/hr or more. The SJVAPCD had also established a NOx BACT guideline specifying an ultra low-NOx burner (ULNB) system, meeting a NOx emission limit of 9 ppmv @ 3% O_2, for natural gas-fired boilers rated at 20 MMBtu/hr or more and operated within the operational response range of the ULNB system. The largest boiler for which the SJVAPCD had published a NOx BACT determination is a 182 MMBtu/hr boiler at the Los Gatos Tomato facility located in Huron, California. The Los Gatos Tomato boiler is equipped with an ULNB system meeting a NOx emission limit of 9 ppmv @ 3% O_2. The SJVAPCD had not established a separate NOx BACT guideline for larger superheating boilers.

South Coast Air Quality Management District – The SCAQMD does not publish a single governing BACT guideline for major sources (comparable in size to the proposed boilers), but rather maintains a database of historical BACT determinations. The largest boilers for which the SCAQMD has published a BACT determination (February 2006) are two 2,088 MMBtu/hr utility boilers at the AES Huntington Beach facility located in Huntingdon Beach, California. The AES utility boilers are equipped with a LNB/FGR, selective catalytic reduction (SCR), and oxidation catalyst systems meeting CO and NOx emission limits of 5 ppmv @ 3% O_2 each. The next largest boiler for which the SCAQMD has published a BACT determination (October 1999) is a 110 MMBtu/hr boiler at the Darling International facility located in Los Angeles, California. The Darling International boiler is equipped with a LNB/FGR and SCR system meeting CO and NOx emission limits of 100 ppmv @ 3% O_2 and 9 ppmv @ 3% O_2, respectively. As with the SJVAPCD and BAAQMD, the SCAQMD has not made a separate NOx BACT determination for larger superheating auxiliary boilers.

Other Control Technology Determinations – In 2009, the Mojave Desert AQMD issued a Final Determination of Compliance for the Ivanpah Solar Electric Generating System, which includes large superheating steam boilers similar to those proposed for the Rio Mesa SEGF. Emissions from those boilers were below the MDAQMD's BACT thresholds and were therefore not subject to BACT. The emission limits for the Ivanpah boilers (249 MMBtu/hr heat input) were 9 ppmc NOx, 12.6 ppmc VOC and 25 ppmc CO. The proposed limits for the Rio Mesa SEGF boilers are consistent with these limits, with the exception of a higher proposed CO limit for the auxiliary boilers. However, the proposed 50 ppmc CO limit for the auxiliary boilers is consistent with the BAAQMD CO BACT guideline.

Feasibility of SCR or SNCR for NOx Control – As discussed above, the auxiliary boilers will cycle on and off on summer weekdays and will operate at full load for only about 2 to 3 hours of the 7 hours per day of expected operation. The startup boilers will operate for only about 2 hours per day. The remainder of the operational hours will occur as the boilers are started up and are being brought up to full load. Selective catalytic reduction (SCR) or selective noncatalytic reduction (SNCR, or ammonia injection) technology is generally not effective during boiler startup because exhaust temperatures are too low for effective ammonia/NOx reactivity, even in the presence of a catalyst; therefore, SCR or SNCR control would potentially be effective in reducing NOx emissions from the boilers for only about half of the boiler operating hours, or about 100 hours per year for the auxiliary boilers. It would be very expensive (and not cost-effective) to install and maintain SCR or ammonia injection systems on the boilers for such limited operations. In addition, the use of either of

these control systems would result in the need to transport and store ammonia on-site. Because these economic and environmental impacts outweigh any potential air quality benefit, SCR and ammonia injection are not being proposed for use in the boilers.

Conclusions – The SCAQMD BACT determination for the AES Huntington Beach utility boilers constitutes the most stringent determination for a natural gas fired boiler. However, these utility boilers have operated at a maximum annual capacity factor of 31% (based upon a review of seven years of operating data contained in USEPA's Acid Rain database) and could operate at an even higher capacity factor. As such, this BACT determination for utility boilers is not relevant to large superheating auxiliary and startup boilers that will operate at a maximum capacity factor of approximately 3%.

The proposed boiler emission limits are consistent with recent BACT determinations and guidance and with permitted emission limits for similar boilers.

Nighttime Preservation Boilers

The nighttime preservation boilers are small 15 MMBtu/hr boilers that will be used to provide steam to the gland systems of the steam turbine and boiler feedwater pump overnight. BACT databases published by the BAAQMD, SJVAPCD, and SCAQMD were reviewed to identify BACT guidelines and determinations relevant to small boilers.

BAAQMD – The BAAQMD BACT guideline for small boilers (between 5 and 33.5 MMBtu/hr rated heat input) indicates that typical NOx control technology includes low NOx burners, flue gas recirculation, and in some cases, SCR. The BACT guideline indicates that good combustion practices and fuel selection are typical technology for VOC, CO, SOx and PM. A 50 ppm CO emission rate is shown as being achieved in practice and technologically feasible/cost effective. The controlled emission limits proposed for the nighttime preservation boilers are consistent with these technology listings.

SJVAPCD – SJVAPCD Rule 4320 is a prohibitory rule that limits NOx and CO emissions from small (between 5 and 20 MMBtu/hr rated heat input) boilers. NOx emissions are limited to 6 to 9 ppmc, depending upon the boiler permit date, and CO emissions must not exceed 400 ppmc.

SCAQMD – In 2000, the SCAQMD determined that 15 ppmc NOx and 50 ppmc CO were BACT for two 16.3 MMBtu/hr steam boilers—one at UCLA Med Center and one at Liberty Container. In 2002, a slightly larger boiler (39 MMBtu/hr) at LA County Internal Services Department was permitted with a NOx limit of 9 ppmc and a CO limit of 100 ppmc.

Conclusions – The proposed controlled emission limits of 9 ppmc NOx and 50 ppmc CO are consistent with the controlled emission levels required for boilers of this size range in other air districts. Because of the minimal NOx emissions expected from these small boilers (about ½ ton per year total for both units), the economic and environmental impacts of SCR outweigh any potential benefit of further NOx reductions.

Cooling System

The project will use air-cooled condensers (ACCs) for cooling and condensing process steam. Air cooled condensers have no air pollutant emissions. An auxiliary partial dry cooling system (PDCS) at each power block will cool the generator, steam turbine generator lubrication oil, boiler feed pump lubricating oil, SRSG circulating water pumps and other

equipment requiring cooling. A PDCS is a closed-loop two-stage cooling system. In the first stage, heat is rejected using ambient air in a dry cooling system. This is followed by a closed-loop evaporative fluid cooler for additional cooling. A PDCS reduces plant water consumption and therefore the potential for cooling water drift in two ways. First, the dry-cooling section will reduce the amount of heat that must be rejected in the closed-loop evaporative fluid cooler, which results in a corresponding reduction in the total amount of water evaporated during the cooling process. Second, the closed-loop evaporative fluid cooler allows the contaminants in the evaporative cooling water to be concentrated to a much greater extent than in a traditional open-loop cooling system because that water does not pass through the equipment being cooled.

Most of the auxiliary cooling will be provided by a fin-fan heat exchanger at each power block. Like ACCs, fin-fan coolers do not use water and therefore have no air pollutant emissions because no liquid droplets are entrained in the exhaust air. However, when the ambient temperature rises above 85° F, the fin-fan heat exchangers cannot achieve adequate heat rejection and must be supplemented with a small wet surface air cooler (WSAC) at each power block. The WSACs are exempt from permit requirements under District rules.

Potential particulate emissions from the cooling system are minimized through the use of dry cooling to the greatest extent possible. Wet cooling will be limited to high-temperature periods when the fin-fan cooler alone cannot provide sufficient cooling. Particulate emissions from the cooling system will be further minimized by using high efficiency drift eliminators and treated water with relatively low TDS levels.

Emergency Engines

The project will include four emergency diesel generators for emergency power and four diesel fire pump engines as required by fire codes to provide backup fire water pumping pressure in the event of a failure of the primary pump systems. Operation of diesel-powered emergency engines will be limited to 30 minutes per day and 50 hours per year for testing and maintenance. BACT for emergency diesel engines, including fire pump engines, is generally the use of the latest EPA Tier certification level[1] or the CARB ATCM limits[2] applicable for the engine horsepower range. The emergency diesel engines at Rio Mesa SEGF will be certified to the latest EPA Tier certification levels and CARB ATCM applicable at the time the engines are purchased.

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[1] See, for example, SJVAPCD BACT Guideline 3.1.1.

[2] See, for example, BAAQMD Guideline 96.1.3.

Appendix 5.1D
Ambient Air Quality Modeling Analysis

Table of Structures - Power Block

Facility	Length (ft)	Width (ft)	Height (ft)	Floor Area (sf)	Color/Surface Treatment
Buildings / Structures					
Mirror Wash Parking Shed	300'	50'	20'	15,000	painted
Plant Services Building	122'	38'	15'	8,000	painted
Water Treatment Building	150'	85'	30'	12,750	painted
Deaerator/Feedwater Heater Steel Support Structure	120'	60'	150'	7,200	painted steel structure
Tower and SRSG					
Solar Receiver Tower	96' diameter		573'	7,238	natural concrete finish
Solar Receiver Steam Generator (32 faceted sides supported on Solar Tower)	102' diameter		177'	--	coated w/ absorptive coating
Total Tower Height with SRSG	NA		750'		
Equipment					
Air Cooled Condenser	310'	210'	120'	65,100	painted
Generator Step-up Transformer	40'	58'	25' high concrete wall (one side)	2,320	painted
Unit Auxiliary Transformer	25'	20'	14' high concrete wall (one side)	500	painted
Steam Turbine Generator	110'	43'	45'	4,730	painted enclosure
Fin-Fan Dry Coolers	80'	60'	13' 6"	4,800	painted
WSAC (Wet Surface Air Cooler)	35'	48'	11'	1,680	painted
Emergency Diesel Generator	23'	8'	10'	184	painted
MCC Transformers	12'	8'	8'	96	painted
BCP UPS Transformers	9'	6'	7'	54	painted
Electrical Equipment Modules (5)					
Water Treatment Module	14'	48'	16'	672	painted enclosure
Solar Tower Module	24'	60'	16'	1,440	painted enclosure
Auxiliary Boiler Module	24'	60'	16'	1,440	painted enclosure
Air Cooled Condenser Module	29'	76'	16'	2,204	painted enclosure
Fuel Gas Module	14'	24'	16'	336	painted enclosure
Auxilliary Boilers (3)	80'	90'	25'	7,200	painted
Stack	8' 4" diameter		135'		to be determined
Start-up Boiler	68'	70'	18'	4,760	painted
Stack	5' 6" diameter		135'		to be determined
Night Preservation Boiler	25'	15'	14'	375	painted
Stack	1' 6" diameter		30'		to be determined
Tanks					
Demineralized Water Tank	23' diameter		16'	415	painted tank
Treated Water Storage Tank	33' diameter		32'	855	painted tank
Waste Water Collection Tank	23' diameter		16'	415	painted tank
Service/Fire Water Tank	33' 6" diameter		32'	882	painted tank
Mirror Wash Water Storage Tank	23' diameter		16'	415	painted tank
Potable Water Storage Tank	6' diameter		9'	28	HDPE

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Table 5.1D-1

Table of Structures - Common Area						
Facility		Length (ft)	Width (ft)	Height (ft)	Floor Area (sf)	Color/Surface Treatment
Buildings / Structures						
	Administration/Control Building/Warehouse	304'	85'	14' admin / 22' warehouse	25,840	painted
	Heliostat Assembly Building	480'	120'	30'	57,600	painted
	Pad Bonding Building(s)-2 each	140'	80'	30'	11,200	painted
	Mirror Wash Machine Maintenance Shed	100'	80'	24'	8,000	painted
	Switchyard Control House	55'	36'	12'	1,980	painted
Equipment						
	Emergency Diesel Generator	13'	4'	7'	52	painted
	MCC Transformers	12'	8'	8'	96	painted
Tanks						
	Potable Water Storage Tank	6' diameter		9'	28	HDPE
	Fire Water Storage Tank	33' diameter		24"	855	Painted

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Figure 5.1D-1
Structures and Emission Sources – Power Blocks

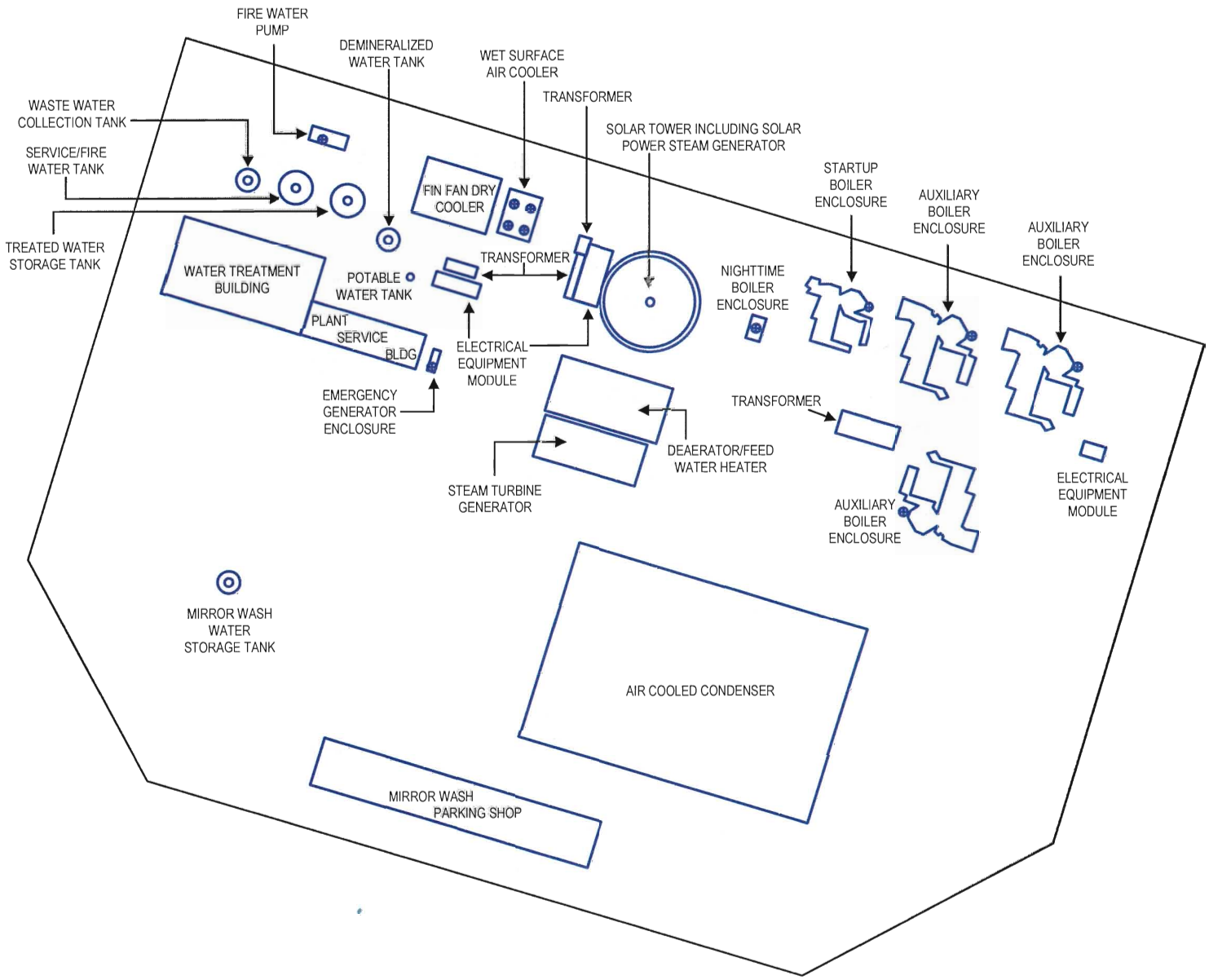

Figure 5.1D-2
Structures and Emission Sources in Common Area

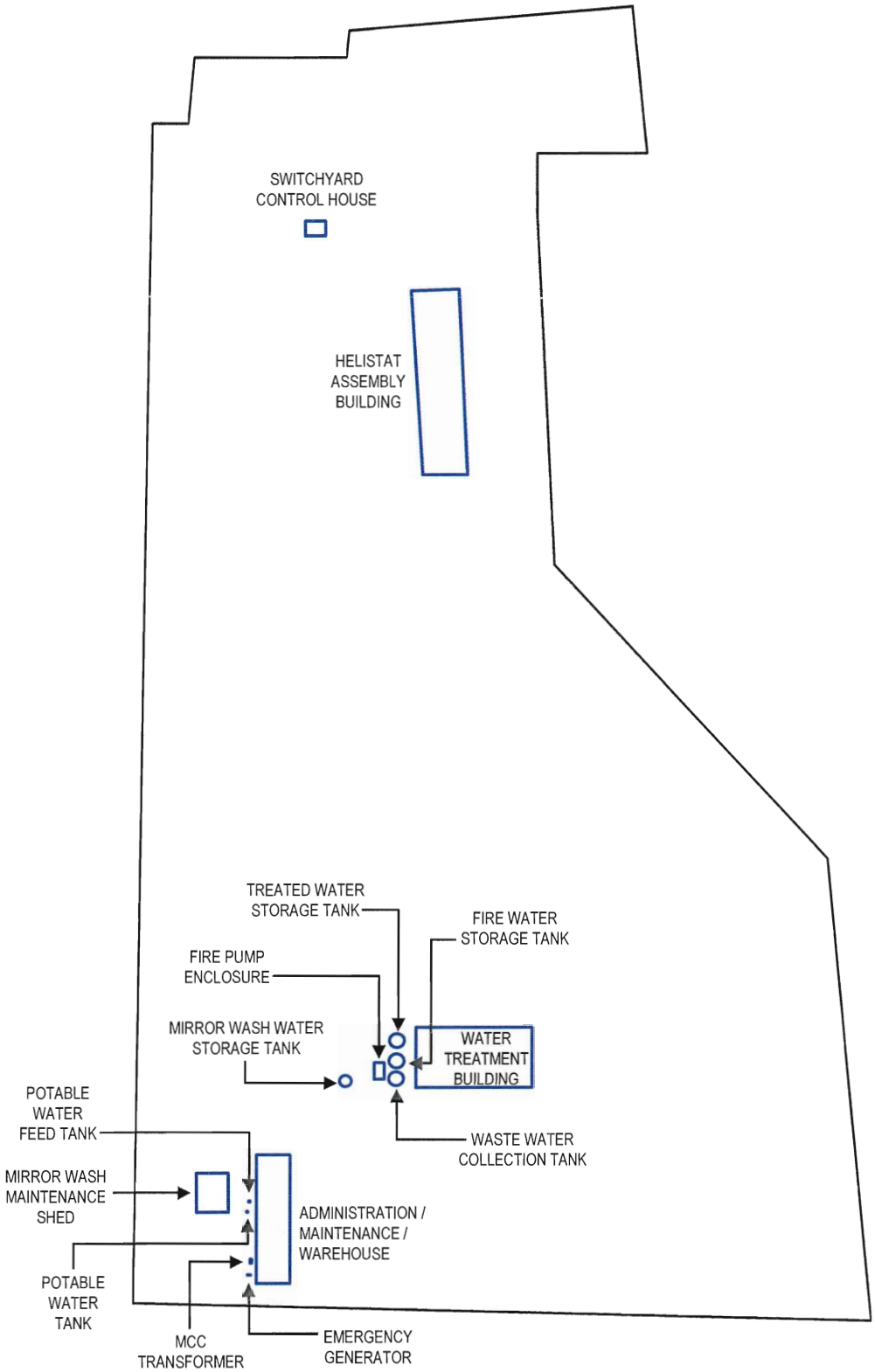

Table 5.1D-2
Rio Mesa Solar Electric Generating Facility
Emission Rates and Stack Parameters for Refined Modeling

	Stack Diam, m	Release Height m	Temp, deg K	Exhaust Flow, m3/s	Exhaust Velocity, m/s	Emission Rates, g/s			
						NOx	SO2	CO	PM10
Averaging Period: One hour, boiler operations									
Aux Boilers	2.540	41.148	480.78	78.815	15.554	0.6930	0.1324	2.306	n/a
Startup Boilers	1.676	41.148	421.89	34.971	15.844	0.3451	6.591E-02	0.5647	n/a
Nighttime Preservation Boilers	0.457	10.668	421.89	2.737	16.673	2.079E-02	3.971E-03	6.917E-02	n/a
Averaging Period: One hour, engine testing									
PB emergency generators (each)	0.457	3.048	769.11	9.250	56.344	2.422	2.316E-03	1.3119	n/a
PB fire pump engines (each)	0.102	3.048	796.89	0.779	96.051	8.333E-02	1.588E-04	7.222E-02	n/a
Common Area em generator	0.203	3.048	730.22	1.062	32.745	1.658E-01	2.646E-04	1.437E-01	n/a
Common Area fire pump engine	0.102	3.048	783.00	0.460	56.757	5.208E-02	1.059E-04	6.424E-02	n/a
Averaging Period: Three hours, boiler operations									
Aux Boilers	2.540	41.148	480.78	78.815	15.554	n/a	1.324E-01	n/a	n/a
Startup Boilers	1.676	41.148	421.89	34.971	15.844	n/a	6.591E-02	n/a	n/a
Nighttime Preservation Boilers	0.457	10.668	421.89	2.737	16.673	n/a	3.971E-03	n/a	n/a
Averaging Period: Three hours, engine testing									
PB emergency generators (each)	0.457	3.048	769.11	9.250	56.344	n/a	7.719E-04	n/a	n/a
PB fire pump engines (each)	0.102	3.048	796.89	0.779	96.051	n/a	5.293E-05	n/a	n/a
Common Area em generator	0.203	3.048	730.22	1.062	32.745	n/a	8.821E-05	n/a	n/a
Common Area fire pump engine	0.102	3.048	783.00	0.460	56.757	n/a	3.529E-05	n/a	n/a
Averaging Period: Eight hours, boiler operations									
Aux Boilers	2.540	41.148	480.78	78.815	15.554	n/a	n/a	1.153	n/a
Startup Boilers	1.676	41.148	421.89	34.971	15.844	n/a	n/a	1.412E-01	n/a
Nighttime Preservation Boilers	0.457	10.668	421.89	2.737	16.673	n/a	n/a	6.917E-02	n/a
Averaging Period: Eight hours, engine testing									
PB emergency generators (each)	0.457	3.048	769.11	9.250	56.344	n/a	n/a	1.640E-01	n/a
PB fire pump engines (each)	0.102	3.048	796.89	0.779	96.051	n/a	n/a	9.028E-03	n/a
Common Area em generator	0.203	3.048	730.22	1.062	32.745	n/a	n/a	1.797E-02	n/a
Common Area fire pump engine	0.102	3.048	783.00	0.460	56.757	n/a	n/a	8.030E-03	n/a

Table 5.1D-2
Rio Mesa Solar Electric Generating Facility
Emission Rates and Stack Parameters for Refined Modeling

	Stack Diam, m	Release Height m	Temp, deg K	Exhaust Flow, m3/s	Exhaust Velocity, m/s	Emission Rates, g/s			
						NOx	SO2	CO	PM10
Averaging Period: 24-hours, boiler operation									
Aux Boilers	2.540	41.148	480.78	78.815	15.554	n/a	2.206E-02	n/a	5.250E-02
Startup Boilers	1.676	41.148	421.89	34.971	15.844	n/a	5.493E-03	n/a	1.307E-02
Nighttime Preservation Boilers	0.457	10.668	421.89	2.737	16.673	n/a	1.324E-03	n/a	3.150E-03
WSACs (per cell, 4 cells per tower)	2.743	3.658	299.67	69.612	11.778	n/a	n/a	n/a	2.362E-04
Averaging Period: 24 hours, engine testing, no aux boiler operation									
Startup Boilers	1.676	41.148	421.89	34.971	15.844	n/a	5.493E-03	n/a	1.307E-02
Nighttime Preservation Boilers	0.457	10.668	421.89	2.737	16.673	n/a	1.985E-03	n/a	4.725E-03
PB emergency generators (each)	0.457	3.048	769.11	9.250	56.344	n/a	9.648E-05	n/a	3.154E-03
PB fire pump engines (each)	0.102	3.048	796.89	0.779	96.051	n/a	6.616E-06	n/a	1.736E-04
Common Area em generator	0.203	3.048	730.22	1.062	32.745	n/a	1.103E-05	n/a	3.455E-04
Common Area fire pump engine	0.102	3.048	783.00	0.460	56.757	n/a	4.411E-06	n/a	1.591E-04
WSACs (per cell, 4 cells per tower)	2.743	3.658	299.67	69.612	11.778	n/a	n/a	n/a	2.362E-04
Averaging Period: Annual									
Aux Boilers	2.540	41.148	480.78	78.815	15.554	1.971E-02	3.112E-03	n/a	7.623E-03
Startup Boilers	1.676	41.148	421.89	34.971	15.844	3.414E-02	6.088E-03	n/a	1.462E-02
Nighttime Preservation Boilers	0.457	10.668	421.89	2.737	16.673	9.675E-03	1.832E-03	n/a	4.365E-03
PB emergency generators (each)	0.457	3.048	769.11	9.250	56.344	2.765E-02	2.643E-05	n/a	8.640E-04
PB fire pump engines (each)	0.102	3.048	796.89	0.779	96.051	9.513E-04	1.813E-06	n/a	4.756E-05
Common Area em generator	0.203	5.486	730.22	1.062	32.745	1.893E-03	3.021E-06	n/a	9.465E-05
Common Area fire pump engine	0.102	3.962	783.00	0.460	56.757	5.946E-04	1.208E-06	n/a	4.360E-05
WSACs (per cell, 4 cells per tower)	2.743	3.658	299.67	69.612	11.778	n/a	n/a	n/a	1.078E-04

Table 5.1D-3
Rio Mesa Solar Electric Generating Facility
Emission Rates and Stack Parameters for Boilers in Startup

	Stack Diam, m	Release Height m	Temp, deg K	Exhaust Flow, m3/s	Exhaust Velocity, m/s	Emission Rates, g/s			
						NOx	SO2	CO	PM10
Auxiliary Boilers in startup (one unit at each power block)									
Averaging Period: One hour									
Aux Boiler	2.540	41.148	446.89	10.037	1.981	0.7090	1.655E-02	1.727	n/a
Averaging Period: Three hours									
Aux Boiler	2.540	41.148	446.89	10.037	1.981	n/a	1.655E-02	n/a	n/a
Averaging Period: Eight hours									
Aux Boiler	2.540	41.148	446.89	10.037	1.981	n/a	n/a	1.727	n/a
Startup Boilers in startup; Nighttime preservation boilers in operation									
Averaging Period: One hour									
Startup Boiler	1.676	41.148	446.89	4.998	2.265	0.3531	9.281E-03	0.860	n/a
Nighttime Pres. Boiler	0.457	10.668	421.89	2.737	16.673	0.0208	3.971E-03	0.069	n/a
Averaging Period: Three hours									
Startup Boiler	1.676	41.148	446.89	4.998	2.265	n/a	9.281E-03	n/a	n/a
Nighttime Pres. Boiler	0.457	10.668	421.89	2.737	16.673	n/a	3.971E-03	n/a	n/a
Averaging Period: Eight hours									
Startup Boiler	1.676	41.148	446.89	4.998	2.265	n/a	n/a	0.860	n/a
Nighttime Pres. Boiler	0.457	10.668	421.89	2.737	16.673	n/a	n/a	0.069	n/a
Nighttime Preservation Boilers in startup									
Averaging Period: One hour									
Nighttime Pres. Boiler	0.457	10.668	421.89	0.232	1.414	0.0162	4.052E-04	0.039	n/a
Averaging Period: Three hours									
Nighttime Pres. Boiler	0.457	10.668	421.89	0.232	1.414	n/a	4.052E-04	n/a	n/a
Averaging Period: Eight hours									
Nighttime Pres. Boiler	0.457	10.668	421.89	0.232	1.414	n/a	n/a	0.039	n/a

Table 5.1D-4
Rio Mesa Solar Electric Generating Facility
Emission Rates and Stack Parameters for Aux Boilers on Hot Standby

	Stack Diam, m	Release Height m	Temp, deg K	Exhaust Flow, m3/s	Exhaust Velocity, m/s	Emission Rates, g/s			
						NOx	SO2	CO	PM10
Averaging Period: One hour, all aux boilers on hot standby									
Aux Boilers	2.540	41.148	454.11	8.315	1.641	0.3781	6.624E-03	0.576	n/a
Averaging Period: Three hours, all aux boilers on hot standby									
Aux Boilers	2.540	41.148	454.11	8.315	1.641	n/a	6.624E-03	n/a	n/a
Averaging Period: Eight hours, all aux boilers on hot standby									
Aux Boilers	2.540	41.148	454.11	8.315	1.641	n/a	n/a	0.576	n/a

Table 5.1D-5
Rio Mesa Solar Electric Generating Facility
Calculation of Inversion Fumigation Impacts

Boiler Emission Rates, g/s

Unit	NOx	SO2	CO	PM10	# of Units
Auxiliary Boilers	0.693	0.132	2.306	5.250E-02	9
Startup Boilers	0.345	6.591E-02	0.565	1.307E-02	3
Nighttime Preservation Boilers	2.079E-02	3.971E-03	6.917E-02	3.150E-03	3

Flat Terrain Modeling Results from SCREEN3

Unit	Unit Impact, ug/m3 per g/s	Distance to Maximum (m)
Auxiliary Boilers	2.186	1100
Startup Boilers	5.82	779
Nighttime Preservation Boilers	73.83	201

Inversion Breakup Modeling Results from SCREEN3

	Unit Impact, ug/m3 per g/s	Distance to Maximum (m)
Auxiliary Boilers	2.58	9379
Startup Boilers	4.88	5843
Nighttime Preservation Boilers	0	n/a

Adjust 1-hour impacts for longer averaging periods to account for 90-minute duration of fumigation

	1-hr unit	3-hr unit	8-hr unit	24-hr unit
Auxiliary Boilers	2.58	2.15	1.58	0.88
Startup Boilers	5.82	5.24	4.08	2.33
Nighttime Preservation Boilers	73.83	66.45	51.68	29.53

Calculation of Fumigation Impacts

Case/Avg Period	NOx	SO2	CO	PM10
One-Hour				
Auxiliary Boilers	16.1	3.08	53.62	-
Startup Boilers	6.03	1.04	6.91	-
Nighttime Preservation Boilers[a]	4.60	0.88	7.85	-
Total	26.7	5.0	68.4	-
3 Hours				
Auxiliary Boilers	-	2.56	-	-
Startup Boilers	-	1.04	-	-
Nighttime Preservation Boilers[a]	-	0.79	-	-
Total	-	4.4	-	-
8 Hours				
Auxiliary Boilers	-	-	32.8	-
Startup Boilers	-	-	6.91	-
Nighttime Preservation Boilers[a]	-	-	5.49	-
Total	-	-	45.2	-
24 Hours				
Auxiliary Boilers	-	1.05	-	0.42
Startup Boilers	-	0.46	-	0.09
Nighttime Preservation Boilers[a]	-	0.35	-	0.28
Total	-	1.9	-	0.8

a Although inversion breakup fumigation impacts from the nighttime preservation boilers is zero, flat terrain impacts were included to ensure that the evaluation is conservative.

Appendix 5.1E
Screening Health Risk Assessment

APPENDIX 5.1E

Screening Health Risk Assessment

The screening level health risk assessment has been prepared using CARB's Hotspots Analysis and Reporting Program (HARP) computer program (Version 1.4d, January 2011) and associated guidance in the OEHHA's *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (August 2003). The HARP model was used to assess cancer risk as well as chronic and acute risk impacts. The most recent health database[1] provided by CARB, reflecting the RELs adopted by OEHHA in December 2008, has been used. Although the December 2008 RELs include 8-hour RELs for acetaldehyde, acrolein and formaldehyde, these 8-hour RELs have not yet been incorporated into the HARP software, so they have been calculated by hand for inclusion in the risk assessment.

Modeling Inputs

HAP emission rates used in the screening health risk assessment are shown in Tables 5.1E-2 and E-3 (emission rates in pounds per hour and pounds per year); Table 5.1E-4 (equivalent emission rates in g/s per μ/m^3 for the 8-hour acute exposures); and Table 5.1E-5 (stack parameters used for modeling). Maximum hourly heat input rates for each unit were used in calculating emissions for acute impacts; annual average heat input rates were used in calculating emission rates for the chronic and cancer risk analyses. Stack parameters were the same as those used in the criteria pollutant impact assessment. Because evaporative drift emissions from the WSACs are so low and because potential impacts will be minimized through the use of high efficiency drift eliminators and treated water with very low TDS levels, these units were not included in the HRA.

Risk Analysis Method

AERMOD/HARP

The dispersion analysis was performed using AERMOD in accordance with the procedures outlined in the modeling protocol (Appendix 5.1H), using the modeling inputs described above. AERMOD produces output files containing modeled concentrations of each compound shown in Section 5.1 at every receptor. However, because the HARP model was designed to use modeling output files from the ISCST3 model, rather than the current recommended guideline AERMOD model, the AERMOD results must be reformatted before they can be used in HARP.

The HARP On-Ramp is a tool provided by CARB that reformats output files from models other than ISCST3 so that they can be read by the HARP Risk Module. Version 1 of the On-Ramp tool was used to create files required by HARP to complete the screening health risk assessment.

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[1] February 2009, available at http://www.arb.ca.gov/toxics/harp/data.htm.

AERMOD for 8-Hour Acute HHI

Because HARP does not yet have the capability of evaluating an acute HHI for an 8-hour period, an alternative analysis method was used. In this method, a weighted acute risk factor is used in place of a g/s emission rate for each unit, and AERMOD is used to evaluate the maximum 8-hour acute HHI from all sources. To calculate the weighted risk for each source, the maximum hourly emission rate in g/s for each pollutant (acetaldehyde, acrolein and formaldehyde) was divided by the individual 8-hour reference exposure level for that pollutant in $\mu g/m^3$. The result was a weighted contribution to the acute 8-hour HHI, in units of g/s per $\mu g/m^3$, for each pollutant. These weighted contributions were then summed for each source. The calculations are shown in Table 5.1E-4.

Summary of Results

The results of the screening level health risk assessment are summarized in Table 5.1E-1.

TABLE 5.1E-1
Screening Level Risk Assessment Results

Risk Methodology	Project Impacts
Modeled Residential Cancer Risk (in one million)	
Residential: Derived (OEHHA) Method at PMI	1.38
Residential: Derived (OEHHA) Method at maximally impacted residential receptor	0.10
Modeled Worker Cancer Risk (in one million)	
Worker Exposure: Derived (OEHHA) Method at PMI	0.21
Modeled Acute and Chronic Impacts	
Acute HHI—1-hour RELs	0.003
Acute HHI—8-hour RELs	0.002
Chronic HHI	0.0007

As shown in Table 5.1E-1, the cancer risk from the project is well below the significance level of 10 in one million. In addition, the acute and chronic health hazard indices are well below the significance level of one. The analysis of potential cancer risk described in this section employs extremely conservative methods and assumptions, as follows:

- The analysis includes representative weather data over five years to ensure that the least favorable conditions producing the highest ground-level concentration of power plant emissions are included. The analysis then assumes that these worst-case weather conditions, which in reality occurred only once in five years, will occur every year for 70 years.

- The power plant is assumed to operate at hourly, daily, and annual emission conditions that produce the highest ground-level concentrations. In fact, the power plant is expected to operate at a variety of conditions that will produce lower emissions and impacts.
- The analysis assumes that a sensitive individual is at the location of the highest ground-level concentration of power plant emissions continuously over the entire 70-year period. In reality, people rarely live in their homes for 70 years, and even if they do, they leave their homes to attend school, go to work, go shopping, and so on.

The purpose of using these unrealistic assumptions is to consciously overstate the potential impacts. No one will experience exposures as great as those assumed for this analysis. By determining that even this highly overstated exposure will not be significant, there is a high degree of confidence that the much lower exposures that actual persons will experience will not result in a significant increase in cancer risk. In short, the analysis ensures that there will not be significant public health impacts at any location, under any weather condition, or under any operating condition. A more detailed discussion of potential project impacts on public health is provided in Section 5.16, Public Health.

The locations of the maximum acute, chronic, and cancer risks are shown in Figure 5.1E-1.

FIGURE 5.1E-1
Locations of Maximum Acute, Chronic, and Cancer Risks from Project Operation

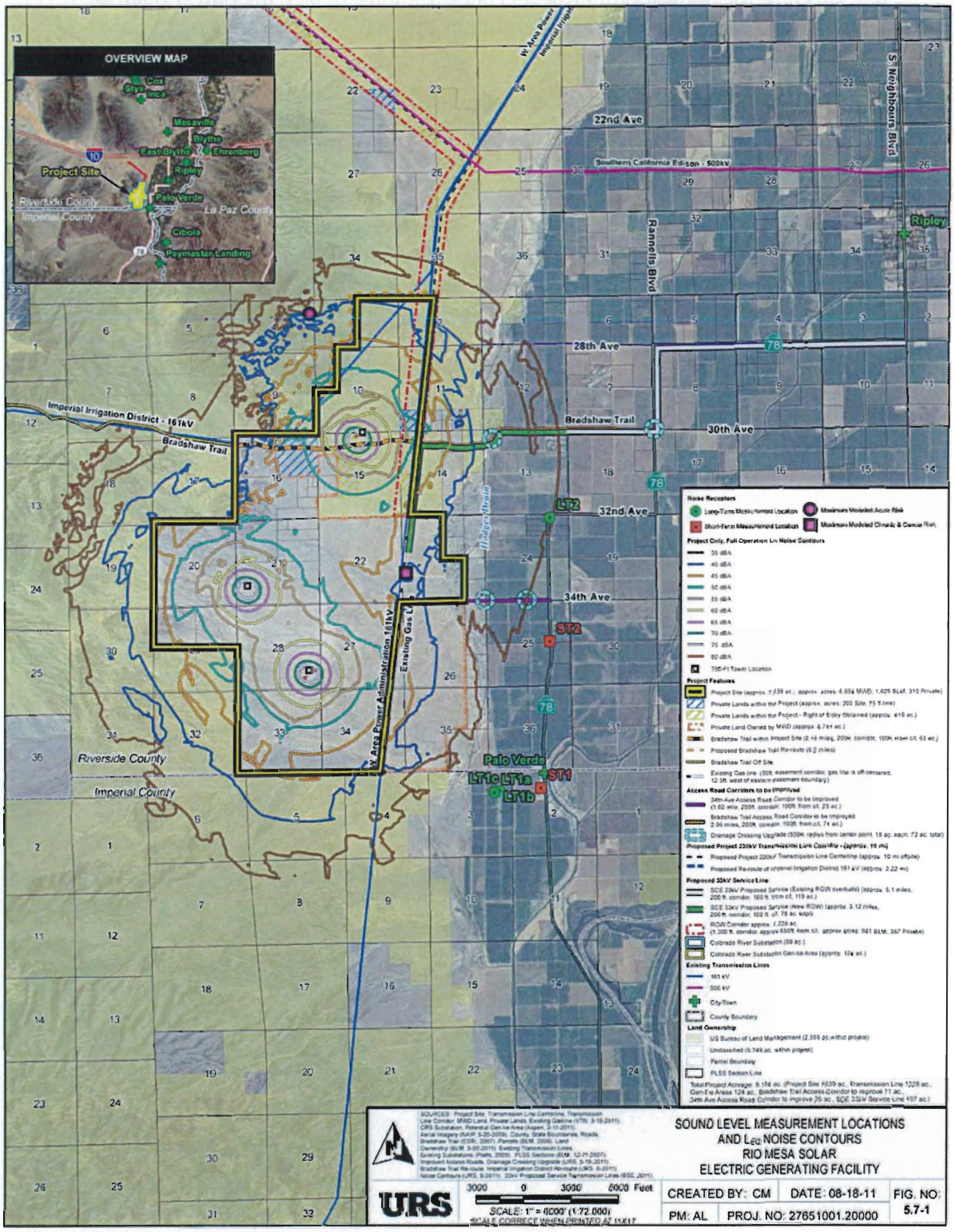

Table 5.1E-2
Rio Mesa Solar Electric Generating Facility
Risk Assessment Modeling Inputs for Boilers

	Auxiliary Boilers (each)		Startup Boilers (each)		Nighttime Boilers (each)	
	Emission Rates		Emission Rates		Emission Rates	
Compound	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr
Acetaldehyde	4.412E-04	9.088E-02	2.197E-04	1.775E-01	4.559E-05	1.842E-01
Acrolein	3.922E-04	8.078E-02	1.953E-04	1.578E-01	3.971E-05	1.605E-01
Benzene	8.333E-04	1.717E-01	4.150E-04	3.354E-01	8.529E-05	3.447E-01
Ethylbenzene	9.804E-04	2.020E-01	4.882E-04	3.946E-01	1.015E-04	4.101E-01
Formaldehyde	1.765E-03	3.635E-01	8.788E-04	7.102E-01	1.809E-04	7.310E-01
Hexane	6.373E-04	1.313E-01	3.174E-04	2.565E-01	6.765E-05	2.734E-01
Naphthalene	1.471E-04	3.029E-02	7.324E-05	5.918E-02	4.412E-06	1.783E-02
PAHs						
Benzo(a)anthracene	7.740E-06	1.594E-03	3.854E-06	3.115E-03	2.322E-07	9.384E-04
Benzo(a)pyrene	5.160E-06	1.063E-03	2.570E-06	2.077E-03	1.548E-07	6.256E-04
Benzo(b)fluoranthrene	7.740E-06	1.594E-03	3.854E-06	3.115E-03	2.322E-07	9.384E-04
Benzo(k)fluoranthrene	7.740E-06	1.594E-03	3.854E-06	3.115E-03	2.322E-07	9.384E-04
Chrysene	7.740E-06	1.594E-03	3.854E-06	3.115E-03	2.322E-07	9.384E-04
Dibenz(a,h)anthracene	5.160E-06	1.063E-03	2.570E-06	2.077E-03	1.548E-07	6.256E-04
Indeno(1,2,3-cd)pyrene	7.740E-06	1.594E-03	3.854E-06	3.115E-03	2.322E-07	9.384E-04
Propylene	7.613E-03	1.568	3.791E-03	3.064	7.794E-03	31.498
Toluene	3.824E-03	0.788	1.904E-03	1.539	3.897E-04	1.575
Xylene	2.843E-03	0.586	1.416E-03	1.144	2.897E-04	1.171

Table 5.1E-3
Rio Mesa Solar Electric Generating Facility
Risk Assessment Modeling Inputs for Emergency Engines

Unit	DPM Emission Rate lb/hr	lb/yr
Power Block Emergency Generators (each)	0.6007	60.069
Common Area Emergency Generator	6.581E-02	6.581
Power Block Fire Pump Engines (each)	3.307E-02	3.307
Common Area Fire Pump Engine	3.031E-02	3.031

Table 5.1E-4
Rio Mesa Solar Electric Generating Facility
Calculation of Screening HRA Inputs for 8-Hour Exposure Periods

		Auxiliary Boilers (each)		Startup Boilers (each)		Nighttime Preservation Boilers (each)	
Chemical	8-hour REL (ug/m3)	One-hour Emission Rate, g/s	Weighted Contribution to Acute HHI (g/s per ug/m3)	One-hour Emission Rate, g/s	Weighted Contribution to Acute HHI (g/s per ug/m3)	One-hour Emission Rate, g/s	Weighted Contribution to Acute HHI (g/s per ug/m3)
Acetaldehyde	300	5.56E-05	1.85E-07	2.77E-05	9.23E-08	5.74E-06	1.91E-08
Acrolein	0.7	4.94E-05	7.06E-05	2.46E-05	3.52E-05	5.00E-06	7.15E-06
Formaldehyde	9	2.22E-04	2.47E-05	1.11E-04	1.23E-05	2.28E-05	2.53E-06
	Acute Risk Factor		9.55E-05		4.75E-05		9.70E-06

Table 5.1E-5
Rio Mesa Solar Electric Generating Facility
Stack Parameters for Screening HRA

Stack Parameters				
	Stack Diam (m)	Stack Ht (m)	Exhaust Temp (deg K)	Exhaust Velocity (m/s)
Auxiliary Boilers	2.540	41.148	480.778	15.554
Startup Boilers	1.676	41.148	421.889	15.844
Nighttime Preservation Boilers	0.457	10.668	421.889	16.673
Power Block Emergency Generators (each)	0.457	3.048	769.111	56.344
Common Area Emergency Generator	0.203	3.048	730.222	32.745
Power Block Fire Pump Engines (each)	0.102	3.048	796.889	96.051
Common Area Fire Pump Engine	0.102	3.048	783.000	56.757

Appendix 5.1F
Construction Emissions and Impact Analysis

APPENDIX 5.1F

Construction Emissions and Impact Analysis

Construction of the Project is expected to last approximately 36 months. Construction activities will include the following activities:

- Site road work;
- Solar field clearing, grubbing, and grading;
- Construction of switchyard, onsite electrical transmission lines, gas metering area and onsite gas supply pipelines;
- Power block erection;
- Tower and boiler erection;
- Solar field assembly and installation;
- ACC erection;
- Transmission line construction; and
- Miscellaneous activities.

Construction Activities

The construction of the Project will begin with site preparation activities, which include establishing internal site roadways; clearing, grubbing, and grading of all site areas; and installing drainage systems, underground utilities and conduits. After site preparation is finished, the construction and installation of the heliostats is expected to begin. Concurrent with installation of the solar fields, installation and assembly of the mechanical equipment, electrical equipment, and site buildings will take place. Concurrent with these activities, the linear facilities (offsite transmission line) will be constructed. Double and triple-shift work schedules may be utilized during solar field assembly and installation activities, and a single-shift, 8-to 10-hour workday will be utilized for the remainder of the on-site construction activities.

Fugitive dust emissions from the construction of the project will result from the following:

- Dust entrained during site preparation and grading/excavation at the construction site;
- Dust entrained during onsite travel of construction vehicles on unpaved surfaces;
- Fugitive dust emitted from onsite concrete batch plants; and
- Wind erosion of areas disturbed during construction activities.

Combustion emissions during construction will result from the following:

- Exhaust from the diesel construction equipment used for site preparation, grading, excavation, trenching, and construction of onsite and offsite (onsite/offsite transmission line and onsite gas pipeline-related) structures;
- Exhaust from water trucks used to control construction dust emissions;
- Exhaust from portable welding machines, small generators, and compressors;

- Exhaust from pickup trucks and diesel trucks used to transport workers and materials around the construction areas;
- Exhaust from diesel trucks used to deliver concrete, fuel, and construction supplies to the construction areas; and
- Exhaust from automobiles used by workers to commute to the construction areas.

To determine the potential worst-case daily construction impacts, exhaust and dust emission rates have been evaluated for each source of emissions. Maximum short-term impacts are calculated based on the equipment mix expected during the peak months of the construction schedule.[1] Annual emissions are based on the equipment mix operating during the peak 12-month construction period.

Linear Facilities

The Proposed Project will require an approximately 10-mile-long transmission line to connect the project to the electrical grid. The transmission line will originate at the project's onsite switchyard and head north to a new substation that will be constructed by Southern California Edison (Colorado River Substation). Natural gas will be supplied to the Proposed Project by connecting to the TransCanada Gas Transmission Company's North Baja pipeline, which runs adjacent to the eastern edge of the solar fields. Because the natural gas supply pipeline is located along the edge of the solar fields, the natural gas tie-in construction emissions are included with the power plant construction emissions calculations.

Available Mitigation Measures

The following typical mitigation measures are proposed to control exhaust emissions from the diesel heavy equipment and potential emissions of fugitive dust during construction of the Project and the linear facilities. These measures are consistent with those required under MDAQMD Rule 401 (Fugitive Dust).[2]

- Unpaved roads and disturbed areas in the construction areas will be watered as frequently as necessary to prevent fugitive dust plumes. The frequency of watering can be reduced or eliminated during periods of precipitation.
- The vehicle speed limit will be 15 miles per hour within the construction areas.
- The construction area entrances shall be posted with visible speed limit signs.
- Construction equipment vehicle tires will be inspected and washed as necessary to be cleaned free of dirt prior to entering paved roadways.
- Gravel ramps of at least 20 feet in length will be provided at the tire washing/cleaning station.

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[1] See calculations in Attachment 5.1F-1.

[2] See Section 5.1.4.3.

- Unpaved exits from the construction areas will be graveled or treated to prevent track-out to public roadways.
- Construction vehicles will enter the construction areas through the treated entrance roadways, unless an alternative route has been submitted to and approved by the Compliance Project Manager.
- Construction areas adjacent to any paved roadway will be provided with sandbags or other measures as specified in the Storm Water Pollution Prevention Plan (SWPPP) to prevent run-off to roadways.
- Paved roads within the construction areas will be swept at least twice daily (or less during periods of precipitation) on days when construction activity occurs to prevent the accumulation of dirt and debris.
- At least the first 500 feet of any public roadway exiting from the construction areas shall be swept at least twice daily (or less during periods of precipitation) on days when construction activity occurs or on any other day when dirt or runoff from the construction site is visible on public roadways.
- Soil storage piles and disturbed areas that remain inactive for longer than 10 days will be covered or treated with appropriate dust suppressant compounds.
- Vehicles used to transport solid bulk material on public roadways and having the potential to cause visible emissions will be provided with a cover, or the materials will be sufficiently wetted and loaded onto the trucks in a manner to provide at least one foot of freeboard.
- Wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) will be used on all construction areas that may be disturbed. Any windbreaks installed to comply with this condition shall remain in place until the soil is stabilized or permanently covered with vegetation.

An on-site Air Quality Construction Mitigation Manager will be responsible for directing and documenting compliance with construction-related mitigation conditions for onsite construction.

Estimates of Emissions with Mitigation Measures—Onsite Construction

Tables 5.1F-1 and 5.1F-2 show the estimated maximum daily and annual heavy equipment exhaust and fugitive dust emissions with recommended mitigation measures for onsite construction activities. Detailed emission calculations are included as Attachment 5.1F-1.

TABLE 5.1F-1
Maximum Daily Emissions During Project Construction, Pounds Per Day, Month 15 (Combustion), Month 12 (Fugitive Dust)

	NOx	CO	VOC	SOx	PM_{10}	$PM_{2.5}$
Onsite						
Construction Equipment	220.0	120.9	22.0	0.5	11.2	11.2
Fugitive Dust	—	—	—	—	136.5	17.4
Concrete Batch Plant	—	—	—	—	2.0	0.3
Offsite						
Worker Travel, Truck Deliveries*	754.7	872.1	118.5	1.1	39.0	31.1
Total Emissions	**974.7**	**993.0**	**140.5**	**1.6**	**188.7**	**60.0**

*Offsite emissions.

TABLE 5.1F-2
Peak Annual Emissions During Project Construction, Tons Per Year

	NOx	CO	VOC	SOx	PM_{10}	$PM_{2.5}$
Onsite						
Construction Equipment	25.7	14.2	2.6	0.1	1.3	1.3
Fugitive Dust	—	—	—	—	12.8	1.8
Concrete Batch Plant	—	—	—	—	0.2	0.04
Offsite						
Worker Travel, Truck Deliveries*	74.6	99.1	12.8	0.1	3.9	3.1
Total Emissions	**100.3**	**113.3**	**15.4**	**0.2**	**18.2**	**6.2**

*Offsite emissions.

Estimates of Emissions with Mitigation Measures – Construction of the Linear Facilities

Tables 5.1F-3 and 5.1F-4 show the estimated maximum daily and annual heavy equipment exhaust and fugitive dust emissions with recommended mitigation measures for construction activities related to the gen-tie transmission line. Detailed emission calculations are included as Attachment 5.1F-1.

TABLE 5.1F-3
Maximum Daily Emissions During Construction of Transmission Line, Pounds Per Day

	NOx	CO	VOC	SOx	PM_{10}	$PM_{2.5}$
Construction Equipment	181.8	113.6	14.1	0.3	7.9	7.9
Fugitive Dust	—	—	—	—	130.1	12.9
Worker Travel, Truck Deliveries	21.5	20.8	3.0	0.03	1.1	0.9
Total Emissions	**203.3**	**134.4**	**17.1**	**0.3**	**139.1**	**21.7**

TABLE 5.1F-4
Maximum Annual Emissions During Construction of Transmission Line, Tons Per Year

	NOx	CO	VOC	SOx	PM_{10}	$PM_{2.5}$
Construction Equipment	4.9	3.1	0.4	0.01	0.2	0.2
Fugitive Dust	—	—	—	—	2.8	0.3
Worker Travel, Truck Deliveries	0.3	0.3	0.0	0.00	0.02	0.01
Total Emissions	**5.2**	**3.4**	**0.4**	**0.01**	**3.0**	**0.5**

Estimates of Greenhouse Gas Emissions During Construction

GHG emissions during project construction have also been calculated. These calculations, which are provided in Attachment 5.1F-1, include global warming potentials and emission factors for CO_2, CH_4, and N_2O based on USEPA's Mandatory Reporting of Greenhouse Gases Rule. GHG emissions during construction are summarized in Table 5.1F-5.

TABLE 5.1F-5
Peak Annual GHG Emissions During Construction of the Power Plants and Transmission Line, Metric Tons of CO_2e

Construction Project Element	CO_2 Equivalent (MT)
Onsite Construction	12,662
Transmission Line Construction	349
Construction Period Total	13,011

Analysis of Ambient Impacts from Onsite Construction

Ambient air quality impacts from emissions during construction of the project were estimated using an air quality dispersion modeling analysis. The modeling analysis

considers the construction site location, the surrounding topography, and the sources of emissions during construction, including vehicle and equipment exhaust emissions and fugitive dust.

Existing Ambient Levels

The ambient monitoring data collected from monitoring stations in the project area used to establish the ambient background levels for the operational and construction impact modeling analyses are summarized in Section 5.1.5.5.

Dispersion Model

The EPA guideline AERMOD model was used to estimate ambient impacts from construction activities.

The emission sources for the construction site were grouped into three categories: exhaust emissions, construction dust emissions, and windblown dust emissions. The exhaust and construction dust emissions were modeled as 50 volume sources with a vertical dimension of 6 meters. Based on the width of the construction area, the horizontal dimension for each volume source was set to 576.8 meters, with sigma-y = 134.1. The fugitive dust emissions from disturbed areas were represented for modeling purposes as a single source of approximately 5,060 acres. The effective plume height for this area source was set at 0.5 meters in the modeling analysis.

The construction impacts modeling analysis receptor set excluded the areas under the applicant's control, including the solar fields, laydown areas, and parking areas that will be fenced and used for equipment and workers' vehicles during the construction period.

To determine the construction impacts on short-term ambient standards (24 hours and less), the worst-case daily onsite construction emission levels shown in Table 5.1F-1 were used. For pollutants with annual average ambient standards, the annual onsite emission levels shown in Table 5.1F-2 were used.

As with the refined modeling discussed in Section 5.1.5.5, the construction impact modeling was performed using the five-year Blythe Airport monitoring station meteorological data set.

Modeling Results

Based on the emission rates of NOx, SO_2, CO, and PM_{10} and the meteorological data, the AERMOD model calculates hourly and annual ambient impacts for each pollutant. As mentioned above, the modeled 1-hour, 3-hour, 8-hour, and 24-hour ambient impacts are based on the worst-case daily emission rates of NOx, SO_2, CO, and PM_{10}. The annual impacts are based on the annual emission rates of these pollutants.

The 1-hour and annual average concentrations of NO_2 were computed in accordance with the procedures described in the modeling protocol (Appendix 5.1H).

The modeling analysis results are shown in Table 5.1F-6. Also included in the table are the maximum background levels that have occurred in the last three years and the resulting total ambient impacts. Construction impacts alone for all modeled pollutants are expected to be below the most stringent state and national standards. With the exception of the 24-hour and annual average state PM_{10} standards, construction activities are not expected to cause

an exceedance of state or federal ambient air quality standards. Table 5.1F-6 shows that the worst-case background concentration of 24-hour average PM_{10} is already above the state standard and the worst-case background annual PM_{10} concentration is equal to the state annual standard. The project's modeled PM_{10} impacts are small relative to the background with PM_{10} impacts below the 24-hr and annual PM_{10} federal thresholds for significance of 5 and 1 µg/m3, respectively.

The dust mitigation measures already proposed by the applicant are expected to be effective in minimizing fugitive dust emissions.

TABLE 5.1F-6
Modeled Maximum Impacts from Onsite Construction Activities

Pollutant	Averaging Period	Maximum Predicted Impact (µg/m^3)	Maximum Background Concentration (µg/m^3)	Total Concentration[a] (µg/m^3)	NAAQS (µg/m^3)	CAAQS (µg/m^3)
NO_2	1-hr (highest)	30.5	92.4	123	--	339
	1-hr (98th percntl)[b]		78.0	109	188	--
	Annual	0.9	17.0	18	100	57
SO_2	1-hr	0.08	136.6	137	196	655
	3-hr	0.05	112.9	113	1300	--
	24-hr	0.02	18.4	18	--	105
	Annual	0.00	2.6	3	80	--
CO	1-hr	18.6	1,837	1,856	40,000	23,000
	8-hr	8.8	643	652	10,000	20.000
PM_{10}	24-hr	4.5	140	145	150	50
	Annual	0.5	20.4	21	--	20
$PM_{2.5}$	24-hr[b]	0.9	18	19	35	--
	Annual[c]	0.1	7.8	8	15.0	12

Notes:
[a] Total concentrations shown in this table are the sum of the maximum predicted impact and the maximum measured background concentration. Because the maximum impact will not occur at the same time as the maximum background concentration, the actual maximum combined impact will be lower.
[b] Background concentration shown is the three-year average of the 98th percentile values (2008 to 2010), in accordance with the form of the federal standard. Total concentrations shown for 1-hour NO2 is maximum modeled impact combined with maximum background concentration (Tier 1 analysis of the modeling protocol).
[c] Background value shown is the three-year average of the annual arithmetic mean, in accordance with the form of the standard.

The maximum impacts occur on the project site fenceline, and concentrations decrease rapidly within a couple of hundred meters or less of the project site. The project construction site impacts are not unusual in comparison to most construction project analyses. Construction sites that use good dust suppression techniques and low-emitting vehicles typically do not cause exceedances of air quality standards. The input and output modeling files are being provided electronically.

Health Risk of Diesel Exhaust

The combustion portion of annual PM_{10} emissions from Table 5.1F-2 above was modeled separately to determine the annual average Diesel PM_{10} exhaust concentration. This was

used with HARP-derived risk values for Diesel exhaust particulate for a nine-year exposure to determine the potential carcinogenic risk from Diesel exhaust during construction.[3]

The maximum modeled annual average concentration of Diesel exhaust PM_{10} at any location is 0.045 $\mu g/m^3$. The cancer unit risk value obtained from HARP for a 9-year exposure is 5.33×10^{-5} per $\mu g/m^3$ (derived OEHHA method). Using the adjusted unit risk value described above, the carcinogenic risk due to exposure to Diesel exhaust during construction activities is expected to be approximately 2.4 in one million. This risk estimate is below the significance level of 10 in one million. This analysis remains conservative because of the inherently conservative assumptions made in the modeling analysis.

[3] OEHHA, "Adoption of Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments," 10/03/03, accessed at http://www.oehha.ca.gov/air/hot_spots/HRAguidefinal.html

Attachment 5.1F-1
Detailed Construction Emissions Calculations

Rio Mesa SEGF Summary of Emissions

Power Plant

Daily Construction Emissions (during peak month) (lbs/day)						
	NOx	CO	VOC	SOx	PM2.5	PM10
Onsite						
Construction Equipment	220.02	120.87	21.98	0.46	11.18	11.18
Fugitive Dust					17.36	136.46
Batch Plant					0.29	1.93
Subtotal =	220.02	120.87	21.98	0.46	28.83	149.57
Offsite						
Worker Travel	53.01	613.82	56.23	0.00	3.40	5.44
Truck Deliveries	701.67	258.27	62.29	1.11	27.68	33.52
Subtotal =	754.68	872.09	118.52	1.11	31.08	38.96
Total =	974.70	992.96	140.50	1.57	59.91	188.53

Annual Construction Emissions (during peak 12-month period) (tons/yr)						
	NOx	CO	VOC	SOx	PM2.5	PM10
Onsite						
Construction Equipment	25.71	14.19	2.60	0.05	1.30	1.30
Fugitive Dust					1.78	12.80
Batch Plant					0.04	0.23
Subtotal =	25.71	14.19	2.60	0.05	3.11	14.33
Offsite						
Worker Travel	6.39	74.05	6.78	0.00	0.41	0.66
Truck Deliveries	68.18	25.10	6.05	0.11	2.69	3.26
Subtotal =	74.58	99.14	12.84	0.11	3.10	3.91
Total =	100.28	113.34	15.44	0.16	6.21	18.24

Rio Mesa SEGF Summary of Emissions

Transmission Lines

Daily Construction Emissions (during peak month) (lbs/day)						
	NOx	CO	VOC	SOx	PM2.5	PM10
Onsite						
Construction Equipment	181.80	113.56	14.05	0.34	7.94	7.94
Fugitive Dust					12.86	130.12
Subtotal =	181.80	113.56	14.05	0.34	20.79	138.06
Offsite						
Worker Travel	1.15	13.32	1.22	0.00	0.07	0.12
Truck Deliveries	20.39	7.51	1.81	0.03	0.80	0.97
Subtotal =	21.54	20.82	3.03	0.03	0.88	1.09
Total =	203.35	134.39	17.08	0.37	21.67	139.15

Annual Construction Emissions (during peak 12-month period) (tons/yr)						
	NOx	CO	VOC	SOx	PM2.5	PM10
Onsite						
Construction Equipment	4.89	3.08	0.42	0.01	0.24	0.24
Fugitive Dust					0.27	2.75
Subtotal =	4.89	3.08	0.42	0.01	0.51	2.99
Offsite						
Worker Travel	0.02	0.18	0.02	0.00	0.00	0.00
Truck Deliveries	0.32	0.12	0.03	0.00	0.01	0.02
Subtotal =	0.33	0.29	0.04	0.00	0.01	0.02
Total =	5.23	3.38	0.46	0.01	0.53	3.00

Rio Mesa SEGF Greenhouse Gas Emission Calculations

Power Plant - Construction Equipment GHG Emissions

Diesel Fuel Used (gallons/ year)	Diesel HHV (MMBtu/ gallon)	CO_2 Emission Factor[a] (kg/gallon)	CH_4 Emission Factor[b] (kg/MMBtu)	N_2O Emission Factor[b] (kg/MMBtu)	Global Warming Potential Factor[c] for CO_2	Global Warming Potential Factor[c] for CH_4	Global Warming Potential Factor[c] for N_2O	Warming Potential CO_2 Emissions as CO_2e (MT/year)	Warming Potential CH_4 Emissions as CO_2e (MT/year)	Warming Potential N_2O Emissions as CO_2e (MT/year)	Total (MT/year)
552,135	0.137	9.96	0.003	0.0006	1	21	310	5,499	5	14	5,518

Notes:
a. CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008, Appendix A, Table 7
b. CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008, Appendix A, Table 6
c. CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008, Appendix A, Table 6

Power Plant - Construction Worker and Deliveries GHG Emissions

Vehicle	Annual Vehicle Trips	Average Round Trip Haul Distance (miles)	Vehicle Miles Traveled Per Year	GHG Emission Factors (lbs/mile) CO2[a]	CH4[b]	N2O[b]	Global Warming Potential Factor[c] for CO2	Global Warming Potential Factor[c] for CH4	Global Warming Potential Factor[c] for N2O	Global Warming Potential CO2 Emiss. as CO2e (lbs/year)	Global Warming Potential CH4 Emiss. as CO2e (lbs/year)	Global Warming Potential N2O Emiss. as CO2e (lbs/year)	Total CO2e (lbs/year)	Total CO2e (MT/year)
Truck	1,155	300.00	346,433	4.1	1.12E-05	1.06E-05	1	21	310	1,407,905	82	1,135	1,409,122	639
Worker	307,632	50	15,381,617	0.9	3.92E-05	6.01E-05	1	21	310	14,041,262	12,664	286,728	14,340,654	6,505
Total										15,449,167	12,746	287,864	15,749,776	7,144

Notes:
a. Emfac2007 V2.3, Mojave Desert Air Basin, all HHD Diesel and light duty gasoline vehicle models in the range from1969 to 2013
b. CARB Final Emission Factors for Mandatory Reporting Program, December 2, 2008, emission factors onroad vehicles, heavy Diesel trucks and gasoline light duty vehicles (2000 average model year
c. CARB Final Emission Factors for Mandatory Reporting Program, December 2, 2008, global warming potential table

Transmission Lines - Construction Equipment GHG Emissions

Diesel Fuel Used (gallons/ year)	Diesel HHV (MMBtu/ gallon)	CO_2 Emission Factor[a] (kg/gallon)	CH_4 Emission Factor[b] (kg/MMBtu)	N_2O Emission Factor[b] (kg/MMBtu)	Global Warming Potential Factor[c] for CO_2	Global Warming Potential Factor[c] for CH_4	Global Warming Potential Factor[c] for N_2O	Warming Potential CO_2 Emissions as CO_2e (MT/year)	Warming Potential CH_4 Emissions as CO_2e (MT/year)	Warming Potential N_2O Emissions as CO_2e (MT/year)	Total (MT/year)
28,736	0.137	9.96	0.003	0.0006	1	21	310	286	0	1	287

Notes:
a. CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008, Appendix A, Table 7
b. CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008, Appendix A, Table 6
c. CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008, Appendix A, Table 6

Transmission Lines - Construction Worker GHG Emissions

Vehicle	Annual Vehicle Trips	Average Round Trip Haul Distance (miles)	Vehicle Miles Traveled Per Year	GHG Emission Factors (lbs/mile) CO2a	CH4b	N2Ob	Global Warming Potential Factor[c] for CO2	Global Warming Potential Factor[c] for CH4	Global Warming Potential Factor[c] for N2O	Global Warming Potential CO2 Emiss. as CO2e (lbs/year)	Global Warming Potential CH4 Emiss. as CO2e (lbs/year)	Global Warming Potential N2O Emiss. as CO2e (lbs/year)	Total CO2e (lbs/year)	Total CO2e (MT/year)
Truck	85	300.00	25,500	4.1	1.12E-05	1.06E-05	1	21	310	103,632	6	84	103,722	47
Worker	727	50	36,367	0.9	3.92E-05	6.01E-05	1	21	310	33,198	30	678	33,905	15
Total										136,830	36	761	137,627	62

Notes:
a. Emfac2007 V2.3, Mojave Desert Air Basin, all HHD Diesel and light duty gasoline vehicle models in the range from1969 to 201
b. CARB Final Emission Factors for Mandatory Reporting Program, December 2, 2008, emission factors onroad vehicles, heavy Diesel trucks and gasoline light duty vehicles (2000 average model yea
c. CARB Final Emission Factors for Mandatory Reporting Program, December 2, 2008, global warming potential table

Rio Mesa SEGF Modeled Construction Emissions

Short Term Impacts (24 hours and less)					
	NOx	CO	SOx	PM2.5	PM10
TOTAL					
Combustion (lbs/day)	2.200E+02	1.209E+02	4.571E-01	1.118E+01	1.118E+01
Combustion (hrs/day)	1.900E+01	1.900E+01	1.900E+01	1.900E+01	1.900E+01
Combustion (lbs/hr)	1.158E+01	6.362E+00	2.406E-02	5.885E-01	5.885E-01
Combustion (g/sec)	1.459E+00	8.016E-01	3.031E-03	7.415E-02	7.415E-02
No. of volume sources	5.000E+01	5.000E+01	5.000E+01	5.000E+01	5.000E+01
Each volume source (g/s)	2.918E-02	1.603E-02	6.063E-05	1.483E-03	1.483E-03
Construction Dust (lbs/day)				1.490E+01	1.303E+02
Construction Dust (hrs/day)				1.900E+01	1.900E+01
Construction Dust (lbs/hr)				7.841E-01	6.859E+00
Construction Dust (g/sec)				9.880E-02	8.642E-01
No. of volume sources				5.000E+01	5.000E+01
Each volume source (g/s)				1.976E-03	1.728E-02
Windblown Dust (lbs/day)				2.458E+00	6.145E+00
Windblown Dust (hrs/day)				2.400E+01	2.400E+01
Windblown Dust (lbs/hr)				1.207E-02	8.046E-02
Windblown Dust (g/sec)				1.521E-03	1.014E-02
Windblown Dust (g/sec.m2)				7.426E-11	4.951E-10
Batch Plant (lb/day)				2.897E-01	1.931E+00
Batch Plant (hrs/day)				1.900E+01	1.900E+01
Batch Plant (lbs/hr)				1.524E-02	1.016E-01
Batch Plant (g/sec)				1.921E-03	1.281E-02
No. of volume sources				5.000E+01	5.000E+01
Each volume source (g/s)				3.842E-05	2.561E-04
Size of area source to use				2.048E+07	m2
Construction Shift				2.640E+02	days/year

Long Term Impacts (annual)					
	NOx	CO	SOx	PM2.5	PM10
TOTAL					
Combustion (tons/yr)	2.571E+01	1.419E+01	5.320E-02	1.296E+00	1.296E+00
Combustion (days/yr)	2.640E+02	2.640E+02	2.640E+02	2.640E+02	2.640E+02
Combustion (hrs/day)	1.900E+01	1.900E+01	1.900E+01	1.900E+01	1.900E+01
Combustion (lbs/hr)	1.025E+01	5.659E+00	2.121E-02	5.167E-01	5.167E-01
Combustion (g/sec)	1.292E+00	7.131E-01	2.673E-03	6.510E-02	6.510E-02
No. of volume sources	5.000E+01	5.000E+01	5.000E+01	5.000E+01	5.000E+01
Each volume source (g/s)	2.583E-02	1.426E-02	5.345E-05	1.302E-03	1.302E-03
Construction Dust (tons/yr)				1.428E+00	1.191E+01
Construction Dust (days/yr)				2.640E+02	2.640E+02
Construction Dust (hrs/day)				1.900E+01	1.900E+01
Construction Dust (lbs/hr)				5.695E-01	4.750E+00
Construction Dust (g/sec)				7.176E-02	5.985E-01
No. of volume sources				5.000E+01	5.000E+01
Each volume source (g/s)				1.435E-03	1.197E-02
Windblown Dust (tons/yr)				3.540E-01	8.849E-01
Windblown Dust (days/yr)				3.650E+02	3.650E+02
Windblown Dust (hrs/day)				2.400E+01	2.400E+01
Windblown Dust (lbs/hr)				8.082E-02	2.020E-01
Windblown Dust (g/sec)				1.018E-02	2.546E-02
Windblown Dust (g/sec.m2)				4.973E-10	1.243E-09
Batch Plant (tons/yr)				3.505E-02	2.337E-01
Batch Plant (days/yr)				2.640E+02	2.640E+02
Batch Plant (hrs/day)				1.900E+01	1.900E+01
Batch Plant (lbs/hr)				1.397E-02	9.316E-02
Batch Plant (g/sec)				1.761E-03	1.174E-02
No. of volume sources				5.000E+01	5.000E+01
Each volume source (g/s)				3.521E-05	2.348E-04

Rio Mesa SEGF Construction Worker and Deliveries Schedule

Power Plant

Year	2013												2014											
Calendar Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Project Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Construction Workers																								
Boiler Maker	0	0	0	0	0	0	0	0	27	52	77	95	164	172	168	200	508	638	937	1143	1357	1687	2149	2691
Carpernter	0	0	0	0	0	0	5	12	60	171	344	576	882	1116	1320	1494	1715	1802	1863	1833	1730	1528	1409	1275
Cement Mason	0	0	0	0	0	0	0	0	7	22	47	81	119	154	184	210	243	259	275	273	255	221	198	173
Electrician	0	0	0	0	0	0	8	19	38	106	256	437	640	664	639	646	934	1278	1593	1788	1935	2236	2769	3481
Iron Worker	0	0	0	0	0	0	0	0	0	102	201	337	526	678	829	993	1281	1462	1680	1815	1875	1868	1890	1875
Laborer	0	0	0	0	0	0	15	31	98	244	467	735	1134	1310	1442	1595	1895	1933	1915	1929	1881	1796	1756	1646
Mill-Wright	0	0	0	0	0	0	0	0	23	48	72	85	131	129	113	145	503	666	1049	1237	1316	1420	1556	1707
Operating Engineer	0	0	0	0	0	0	8	19	57	140	263	406	619	700	754	835	1046	1095	1142	1211	1249	1299	1383	1430
Pipe Fitter	0	0	0	0	0	0	0	32	91	189	316	456	671	810	917	1038	1497	1720	2187	2574	3001	3605	4400	5268
Teamster	0	0	0	0	0	0	6	12	23	43	71	103	187	208	224	246	332	349	364	378	382	386	389	384
Subcontractors	0	0	0	0	0	0	1000	2000	3000	5500	5000	4500	4000	3500	3000	2500	2000	1500	1000	950	900	850	800	750
Field Non-Manual	0	0	0	0	0	0	281	297	558	655	982	1309	1399	1509	1640	1980	2178	2233	2250	2250	2272	2338	2336	2347
Deliveries																								
Civil/Structural	0	0	0	0	0	0	35	66	206	157	444	706	665	787	932	757	805	921	537	414	303	92	32	22
Architechtural	0	0	0	0	0	0	45	74	109	137	102	70	30	0	0	0	0	0	0	0	0	0	0	0
Piping Bulks	0	0	0	0	0	0	0	0	2	5	10	15	20	15	10	20	25	30	25	10	25	20	15	10
Pipe Supports	0	0	0	0	0	0	0	0	0	0	0	2	5	10	15	10	5	5	0	0	0	0	0	0
Valves	0	0	0	0	0	0	0	0	0	24	28	43	22	34	21	24	5	1	0	0	0	0	0	0
Miscelaneous	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Insulation and Testing	0	0	0	0	0	0	0	0	0	0	7	0	7	0	7	0	0	0	0	0	0	0	0	0
Rotating Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	18	5	24	5	25	10	2	0
Thermal Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0	15	30	63	103	116	131	180	141	118	106	67
Heliostat Field	0	0	0	0	0	0	0	0	50	100	150	200	250	350	500	700	600	500	400	300	200	100	0	0
Water Treatment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material Handling	0	0	0	0	0	0	0	0	0	0	0	0	20	50	50	20	0	0	0	0	0	0	0	0
Power Generation	0	0	0	0	0	0	0	0	10	20	30	40	50	30	15	45	50	45	45	25	35	65	55	35
Electrical	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	161	193	98	143	200	88
Electrical Switchyard	0	0	0	0	0	0	0	0	0	0	2	5	18	10	6	3	17	4	14	1	20	0	0	0
Control Systems	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	20	26	30	26	30	20	12	0	0
Construction Material	0	0	0	0	0	0	6	6	6	26	10	34	60	80	90	80	95	120	65	45	35	30	25	25
Total Construction Workers Per Day	0	0	0	0	0	0	60	110	181	331	368	415	476	498	510	540	642	679	739	790	825	874	956	1047
Average Construction Workers Per Day																								
Total Deliveries in Month	0	0	0	0	0	0	86	146	383	469	783	1115	1147	1381	1678	1749	1749	1842	1428	1203	902	590	435	247
Average Deliveries in Month																								

Rio Mesa SEGF Construction Worker and De

Power Plant

Year	2015												2016												
Calendar Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Peak
Project Month	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	for Annual
Construction Workers																									
Boiler Maker	3210	3610	4200	4456	4395	4211	3770	3337	2593	1901	1541	1237	969	317	32	30	29	0	0	0	0	0	0	0	
Carpernter	1094	1026	1022	952	949	928	875	774	652	554	468	399	343	151	77	62	49	0	0	0	0	0	0	0	
Cement Mason	140	124	128	117	114	112	106	98	78	66	59	52	48	16	1	1	0	0	0	0	0	0	0	0	
Electrician	4226	4903	5596	6097	6347	6366	6069	5447	4603	3832	3086	2424	1869	935	390	186	73	0	0	0	0	0	0	0	
Iron Worker	1794	1729	1767	1681	1528	1413	1267	1069	840	682	556	485	439	155	30	28	24	0	0	0	0	0	0	0	
Laborer	1442	1287	1254	1233	1221	1193	1135	999	885	786	690	616	552	258	183	163	141	0	0	0	0	0	0	0	
Mill-Wright	1852	1931	2398	2594	2541	2485	2376	2211	1746	1485	1374	1249	1182	373	5	5	5	0	0	0	0	0	0	0	
Operating Engineer	1422	1399	1477	1519	1493	1445	1341	1176	980	816	689	590	508	218	111	93	78	0	0	0	0	0	0	0	
Pipe Fitter	6205	6939	7913	8427	8451	8240	7645	6746	5437	4377	3490	2751	2206	920	243	123	34	0	0	0	0	0	0	0	
Teamster	369	348	348	343	326	310	290	245	219	200	185	174	166	74	56	54	53	0	0	0	0	0	0	0	
Subcontractors	700	650	600	550	500	450	400	350	300	250	200	150	100	50	10	0	0	0	0	0	0	0	0	0	
Field Non-Manual	2369	2358	2356	2356	2114	2052	2013	1934	1861	1782	1716	1612	1480	1287	1029	847	671	424	11	11	0	0	0	0	
Deliveries																									
Civil/Structural	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	10	15	0	0	
Architechtural	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Piping Bulks	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pipe Supports	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Valves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Miscelaneous	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Insulation and Testing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Rotating Equipment	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Thermal Equipment	33	22	15	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Heliostat Field	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Water Treatment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Material Handling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Power Generation	15	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Electrical	178	153	64	10	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Electrical Switchyard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Control Systems	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Construction Material	50	45	20	13	8	30	26	5	6	25	21	2	3	3	11	0	0	0	0	0	0	0	0	0	
Total Construction Workers Per Day	1128	1196	1321	1378	1363	1328	1240	1108	918	760	639	534	448	216	99	72	53	19	1	1	0	0	0	0	1155
Average Construction Workers Per Day																								628	12-Mo. Rolling Average
Total Deliveries in Month	284	237	101	33	13	30	26	5	6	25	21	2	3	3	11	0	0	0	0	5	10	15	0	0	15567
Average Deliveries in Month																								454	12-Mo. Rolling Total

Rio Mesa SEGF Construction Worker and Deliveries Schedule

Transmission Lines

Year	2013												2014											
Calendar Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Project Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Construction Workers																								
Survey Crew	0	0	0	0	0	0	0	0	0	0	28	0	0	0	0	0	0	0	0	0	0	0	0	0
Marshalling yard	0	0	0	0	0	0	0	0	0	0	88	88	88	88	88	0	0	0	0	0	0	0	0	0
Roads & Landing Work	0	0	0	0	0	0	0	0	0	0	90	0	0	0	0	0	0	0	0	0	0	0	0	0
Foundations/Concrete & Tubular Steel Poles	0	0	0	0	0	0	0	0	0	0	70	70	0	0	0	0	0	0	0	0	0	0	0	0
Pole & Assemblies Haul	0	0	0	0	0	0	0	0	0	0	44	44		0	0	0	0	0	0	0	0	0	0	0
TSP Assembly & Erection	0	0	0	0	0	0	0	0	0	0	0	40	40	0	0	0	0	0	0	0	0	0	0	0
Concrete Pole Assembly & Erection	0	0	0	0	0	0	0	0	0	0	0	80	80	0	0	0	0	0	0	0	0	0	0	0
Install Conductor & OPGW	0	0	0	0	0	0	0	0	0	0	0	0	450	450	0	0	0	0	0	0	0	0	0	0
Restoration	0	0	0	0	0	0	0	0	0	0	0	0	0	70	0	0	0	0	0	0	0	0	0	0
Deliveries																								
Steel Poles	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
Concrete Poles	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0
Conductor & OPGW	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
Insulators & Assemblies	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
R-Bar Cages	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Anchor Bolts	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Construction Workers Per Day	0	0	0	0	0	0	0	0	0	0	15	15	30	28	4	0	0	0	0	0	0	0	0	0
Average Construction Workers Per Day																								
Total Deliveries in Month	0	0	0	0	0	0	0	0	0	0	10	60	15	0	0	0	0	0	0	0	0	0	0	0
Average Deliveries in Month																								

Rio Mesa SEGF Construction Worker and De

Transmission Lines

Year	2015												2016												
Calendar Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Peak
Project Month	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	for Annual
Construction Workers																									
Survey Crew	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Marshalling yard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Roads & Landing Work	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Foundations/Concrete & Tubular Steel Poles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pole & Assemblies Haul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TSP Assembly & Erection	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Concrete Pole Assembly & Erection	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Install Conductor & OPGW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Restoration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Deliveries																									
Steel Poles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Concrete Poles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Conductor & OPGW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Insulators & Assemblies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
R-Bar Cages	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Anchor Bolts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Construction Workers Per Day	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Average Construction Workers Per Day																								22	12-Mo. Rolling Average
Total Deliveries in Month	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85
Average Deliveries in Month																								28	12-Mo. Rolling Total

Rio Mesa SEGF On-Road Emission Factors and EMFAC Output

Onroad Emission Factors

	Emission Factors (1)						
	NOx	CO	VOC	SOx	PM10	PM2.5	CO2
Truck Hauling (lbs/vmt)	2.49E-02	9.17E-03	2.21E-03	3.95E-05	1.19E-03	9.83E-04	4.06E+00
Truck Idling (lb/idle-hour) (2					3.37E-04		
Light Duty Trucks/Cars (lbs/vmt)(1	8.31E-04	9.63E-03	8.82E-04	0.00E+00	8.53E-05	5.34E-05	9.13E-01

Notes:

(1) Emission factors for delivery trucks from EMFAC2007 V2.3, Mojave Desert Air Basin Average, model years 1969 to 2013. To avoid roundoff error due to small totals, the statewide inventory was used for SOx and

(2) Based on 2013 statewide HHD Diesel truck idling of 0.58 tons PM/day, 241,840 HHD Diesel trucks, and 101.2 minutes/truck of idiling per day, From EMFAC2007 v. 2.

Rio Mesa SEGF On-Road Truck Emissions

Power Plant--DeliveryTruck Emissions

Delivery Truck Peak Daily Emissions														
Max Number of Deliveries Per Day	Average Round Trip Haul Distance (miles)	Vehicle Miles Traveled Per Day	Emission Factors (lbs/vmt)						Daily Emissions (lbs/day)					
			NOx	CO	VOC	SOx	PM10	PM2.5	NOx	CO	VOC	SOx	PM10	PM2.5
94	300	28,152	0.0249	0.0092	0.0022	0.0000	0.0012	0.0010	701.67	258.27	62.29	1.11	33.52	27.68
Idle Exhaust							0.0003	(g/idle-hr)					0.03	

Delivery Truck Peak Annual Emissions														
Rolling 12-Mo. Peak No. of Deliveries Per Year	Average Round Trip Haul Distance (miles)	Vehicle Miles Traveled Per Year	Emission Factors (lbs/vmt)						Annual Emissions (tons/yr)					
			NOx	CO	VOC	SOx	PM10	PM2.5	NOx	CO	VOC	SOx	PM10	PM2.5
18,237	300	5,471,014	0.0249	0.0092	0.0022	0.0000	0.0012	0.0010	68.18	25.10	6.05	0.11	3.26	2.69
Idle Exhaust							0.0003	(g/idle-hr)					0.003	

Rio Mesa SEGF On-Road Truck Emissions

Power Plant--Worker Vehicle Emissions

Worker Travel Daily Emissions (Maximum)																	
Max Number of Workers Per Day	Average Employee Round Trips Per Day	Number of Round Trips Per Day	Average Round Trip Distance (Miles)	Vehicle Miles Traveled Per Day (Miles)	Emission Factors (lbs/vmt)						Daily Emissions (lbs/day)					
					NOx	CO	VOC	SOx	PM10	PM2.5	NOx	CO	VOC	SOx	PM10	PM2.5
1378	0.925	1,275	50.0	63,753	0.0008	0.0096	0.0009	0.0000	0.0001	0.0001	53.01	613.82	56.23	0.00	5.44	3.40

Worker Travel Peak Annual Emissions																	
Peak of Rolling 12-Mo. Average No. of Workers Per Day	Average Employee Round Trips Per Day	Number of Round Trips Per Day	Average Round Trip Distance (Miles)	Days per Year	Vehicle Miles Traveled Per Year	Emission Factors (lbs/vmt)						Annual Emissions (tons/yr)					
						NOx	CO	VOC	SOx	PM10	PM2.5	NOx	CO	VOC	SOx	PM10	PM2.5
1,155	0.925	1,068	50.0	288	15,381,617	0.0008	0.0096	0.0009	0.0000	0.0001	0.0001	6.39	74.05	6.78	0.00	0.66	0.41

Rio Mesa SEGF

Power Plant--Worker Vehicle Emissions

Worker Travel Daily Emissions (Maximum)																
Max Number of Workers Per Day	Average Employee Round Trips Per Day	Number of Round Trips Per Day	Average Round Trip Distance (Miles)	Vehicle Miles Traveled Per Day (Miles)	Emission Factors (lbs/vmt)						Daily Emissions (lbs/day)					
					NOx	CO	VOC	SOx	PM10	PM2.5	NOx	CO	VOC	SOx	PM10	PM2.5
1378	0.925	1,275	50.0	63,753	0.0008	0.0096	0.0009	0.0000	0.0001	0.0001	53.01	613.82	56.23	0.00	5.44	3.40

Worker Travel Peak Annual Emissions																	
Peak of Rolling 12-Mo. Average No. of Workers Per Day	Average Employee Round Trips Per Day	Number of Round Trips Per Day	Average Round Trip Distance (Miles)	Days per Year	Vehicle Miles Traveled Per Year	Emission Factors (lbs/vmt)						Annual Emissions (tons/yr)					
						NOx	CO	VOC	SOx	PM10	PM2.5	NOx	CO	VOC	SOx	PM10	PM2.5
1,155	0.925	1,068	50.0	288	15,381,617	0.0008	0.0096	0.0009	0.0000	0.0001	0.0001	6.39	74.05	6.78	0.00	0.66	0.41

Rio Mesa SEGF

Transmission Lines--Worker Vehicle Emissions

Worker Travel Daily Emissions (Maximum)																	
Max Number of Workers Per Day	Average Employee Round Trips Per Day	Number of Round Trips Per Day	Average Round Trip Distance (Miles)	Vehicle Miles Traveled Per Day (Miles)	Emission Factors (lbs/vmt)						Daily Emissions (lbs/day)					
					NOx	CO	VOC	SOx	PM10	PM2.5	NOx	CO	VOC	SOx	PM10	PM2.5
30	0.925	28	50.0	1,383	0.0008	0.0096	0.0009	0.0000	0.0001	0.0001	1.15	13.32	1.22	0.00	0.12	0.07

Worker Travel Peak Annual Emissions																	
Peak of Rolling 12-Mo. Average No. of Workers Per Day	Average Employee Round Trips Per Day	Number of Round Trips Per Day	Average Round Trip Distance (Miles)	Days per Year	Vehicle Miles Traveled Per Year	Emission Factors (lbs/vmt)						Annual Emissions (tons/yr)					
						NOx	CO	VOC	SOx	PM10	PM2.5	NOx	CO	VOC	SOx	PM10	PM2.5
8	0.925	7	50.0	104	36,367	0.0008	0.0096	0.0009	0.0000	0.0001	0.0001	0.02	0.18	0.02	0.00	0.00	0.00

Rio Mesa SEGF Construction Equipment Schedule

Power Plant

Year						2013												2014											
Calendar Month						Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Project Month						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Equipment	HP	Usage Factor	Load Factor	Daily Operation (hrs/day)																									
CLASS 01 AUTOMOTIVE																													
SEDAN LIGHT G	175	25%	ONROAD	2	hr/day	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CLASS 02 TRUCKS - LIGHT DUTY																													
PICKUP 1/2 TON 4X4 CREW CAB G	302	25%	ONROAD	8	hr/day	0	0	0	0	0	0	5	5	6	6	7	7	8	8	1	18	21	21	21	21	30	35	35	35
CLASS 03 TRUCKS - HEAVY DUTY																													
TRUCK DUMP TANDEM AXLE 13-15 CY D	325	40%	ONROAD	8	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	0	0
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2AX	375	30%	ONROAD	8	hr/day	0	0	0	0	0	0	0	1	1	1	1	1	2	3	3	5	5	5	5	5	5	5	5	5
TRUCK YARD DOG 4X2 D	200	40%	ONROAD	8	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2
CLASS 06 PERSONNEL CARRIERS																													
ROUGH TERRAIN UTILITY VEHICLE D	25	25%	50%	8	hr/day	0	0	0	0	0	0	5	5	5	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7
CLASS 07 EMERGENCY VEHICLES																													
AMBULANCE TYPE II VAN D	302	10%	ONROAD	8	hr/day	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CLASS 08 LIQUID STORAGE																													
TANK FUEL STRG 10,000G DBLWALLW/PUMP	0	N/A	N/A	8	hr/day	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CLASS 11 EARTHMOVING																													
ATT HOERAM 5,000LB 270-480 BPM CAT330	0	N/A	N/A	8	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
DOZER CRAWLER 131 - 160HP D	143	40%	60%	8	hr/day	0	0	0	0	0	0	2	2	2	5	5	5	10	10	10	10	10	10	10	10	5	5	5	2
EXCAVATOR CRAWLER	266	40%	70%	8	hr/day	0	0	0	0	0	0	0	0	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
GRADER 29860LB 12' 165HP W/RPR-SCAR D	165	40%	50%	8	hr/day	0	0	0	0	0	0	2	2	2	2	5	5	5	10	10	10	10	10	10	10	10	10	5	5
LOADER BACKHOE	93	35%	60%	8	hr/day	0	0	0	0	0	0	0	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3
TRACTOR INDUSTRIAL 60-79 PTO HP D	65	35%	50%	8	hr/day	0	0	0	0	0	0	0	2	2	6	6	6	12	12	12	20	20	20	20	20	20	20	20	20
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT																													
TRENCHER WHEEL CHAIN 60HP 0-60" D	55	35%	60%	8	hr/day	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	2	2	3	3	2	2	1	1	0
CLASS 13 COMPACTION																													
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	110	35%	70%	8	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	2	2	3	3	3	2	2	2
CLASS 14 CRANES																													
CRANE CRAWLER 220T M14000 D	360	40%	40%	8	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	4	4	5	6	6	6	6
CRANE RT 70T 210HP D	210	45%	50%	8	hr/day	0	0	0	0	0	0	0	0	0	0	1	1	4	4	10	10	20	20	30	30	36	36	36	36
TOWER CRANE LUFF M1280D 110T 250 X 271 D	700	40%	40%	8	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	2	2	3	3	3	2
CLASS 15 FORKLIFT																													
FORKLIFT WHS 5000LB G/LPG	48	25%	60%	8	hr/day	0	0	0	0	0	0	0	0	0	1	1	3	6	6	12	20	20	20	20	20	20	20	20	20
CLASS 17 AIR COMPRESSORS																													
AIR COMPR 750CFM 275HP D	275	50%	60%	8	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	9	9	14	14	19	19	19	19
CLASS 52 WELDING EQUIPMENT																													
WELDER MULTIPROCESS	40	20%	40%	8	hr/day	0	0	0	0	0	0	0	2	2	2	2	2	10	10	20	20	40	40	50	80	100	100	100	120
WELDER FUSION 4"- 12" G	20	20%	60%	8	hr/day	0	0	0	0	0	0	0	1	2	2	2	2	4	4	7	10	16	16	16	16	16	16	5	5
WACHS PIPE END PREP MACHINE 2-6 AIR	0	N/A	N/A	8	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	6	10	10	10	10
CONCRETE TRUCKS																													
TRANSMIXER	400	50%	50%	8	hr/day	0	0	0	0	0	0	0	1	2	7	20	30	27	27	30	25	27	30	20	16	14	11	9	7
CLASS 54 MANLIFTS / SCISSORLIFTS																													
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0	N/A	N/A	8	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	2	2	3	3
MANLIFT ARTICULATING 60-66FT 65HP D	65	25%	30%	8	hr/day	0	0	0	0	0	0	0	0	0	0	0	3	5	5	5	8	8	13	13	13	16	20	20	20
AWP PERSONNEL LIFT 20-26FT E	0	N/A	N/A	8	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	8	12	12	12	12	12	12
SCISSORLIFT 26-32FT E	0	N/A	N/A	8	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2
Generators	260	45%	50%	8	hr/day	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2

Rio Mesa SEGF Construction Equipment Schedule

Power Plant

Year	2015												2016															
Calendar Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec				
Project Month	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48				
Equipment																									Totals	Total HP-hr	Total HP-hr During Peak 12-months	During Peak 12 Months
CLASS 01 AUTOMOTIVE																												
SEDAN LIGHT G	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	0	0	0	0	0	0	34			17.0
CLASS 02 TRUCKS - LIGHT DUTY																												
PICKUP 1/2 TON 4X4 CREW CAB G	35	35	35	35	35	35	35	35	35	35	30	30	20	20	9	9	7	7	7	0	0	0	0	0	779			1558.0
CLASS 03 TRUCKS - HEAVY DUTY																												
TRUCK DUMP TANDEM AXLE 13-15 CY D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20			64.0
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2AX	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	1	1	0	0	0	0	0	107			256.8
TRUCK YARD DOG 4X2 D	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	42			134.4
CLASS 06 PERSONNEL CARRIERS																												
ROUGH TERRAIN UTILITY VEHICLE D	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	5	0	0	0	0	0	240	132000	45,100	
CLASS 07 EMERGENCY VEHICLES																												
AMBULANCE TYPE II VAN D	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	37			29.6
CLASS 08 LIQUID STORAGE																												
TANK FUEL STRG 10,000G DBLWALLW/PUMP	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	34	0	0	
CLASS 11 EARTHMOVING																												
ATT HOERAM 5,000LB 270-480 BPM CAT330	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	0	
DOZER CRAWLER 131 - 160HP D	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	126	761080	604,032	
EXCAVATOR CRAWLER	5	5	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	92	1205980	786,509	
GRADER 29860LB 12' 165HP W/RPR-SCAR D	5	5	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	137	795696	563,376	
LOADER BACKHOE	3	3	3	3	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	65	223423	113,430	
TRACTOR INDUSTRIAL 60-79 PTO HP D	20	20	20	20	12	12	12	6	6	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	370	740740	348,348	
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT																												
TRENCHER WHEEL CHAIN 60HP 0-60" D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	42689	38,623	
CLASS 13 COMPACTION																												
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	132810	90,121	
CLASS 14 CRANES																												
CRANE CRAWLER 220T M14000 D	6	6	5	5	4	4	4	2	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	85	861696	253,440	
CRANE RT 70T 210HP D	36	36	36	36	36	36	36	36	36	36	36	30	30	20	20	10	4	4	1	0	0	0	0	0	789	6561324	1,380,456	
TOWER CRANE LUFF M1280D 110T 250 X 271 D	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	532224	236,544	
CLASS 15 FORKLIFT																												
FORKLIFT WHS 5000LB G/LPG	20	20	17	17	17	17	13	13	13	13	6	4	2	0	0	0	0	0	0	0	0	0	0	0	381	482803	188,813	
CLASS 17 AIR COMPRESSORS																												
AIR COMPR 750CFM 275HP D	19	15	10	9	6	5	5	5	5	2	2	2	1	1	1	0	0	0	0	0	0	0	0	0	216	3136320	1,030,920	
CLASS 52 WELDING EQUIPMENT																												
WELDER MULTIPROCESS	120	120	100	100	100	100	80	40	20	20	20	10	10	10	10	10	10	0	0	0	0	0	0	0	1580	889856	211,763	
WELDER FUSION 4"- 12" G	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152	64205	46,886	
WACHS PIPE END PREP MACHINE 2-6 AIR	10	10	10	10	10	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	122	0	0	
CONCRETE TRUCKS																												
TRANSMIXER	5	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	312	5496000	4,784,000	
CLASS 54 MANLIFTS / SCISSORLIFTS																												
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	3	3	3	3	3	3	3	3	3	3	2	2	2	1	1	1	0	0	0	0	0	0	0	0	54	0	0	
MANLIFT ARTICULATING 60-66FT 65HP D	25	25	17	17	14	14	14	10	10	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	307	263406	76,362	
AWP PERSONNEL LIFT 20-26FT E	12	12	12	8	8	8	4	4	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	168	0	0	
SCISSORLIFT 26-32FT E	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	
Generators	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	71	731016	319,176	

Transmission Lines

Equipment	HP	Usage Factor	Load Factor	Daily Operation (hrs/day)		2013 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2014 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Calendar Month						Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Project Month						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Survey																													
3/4-Ton Pick-Up Truck, 4x4	275	80%	ONROAD	9	hr/day	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Marshalling Yard																													
1-Ton Crew Cab, 4x4	300	80%	ONROAD	2	hr/day	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0
30-Ton Crane Truck	350	80%	ONROAD	2	hr/day	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0
10,000 lb Rough Terrain Fork Lift	120	80%	30%	5	hr/day	0	0	0	0	0	0	0	0	0	0	2	2	2	2	0	0	0	0	0	0	0	0	0	0
40' Flat Bed Trailer	0	80%	ONROAD	2	hr/day	0	0	0	0	0	0	0	0	0	0	3	3	3	3	0	0	0	0	0	0	0	0	0	0
Truck, Semi, Tractor	400	80%	ONROAD	1	hr/day	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0
Roads & Landing Work																													
1-Ton Crew Cab, 4x4	300	80%	ONROAD	2	hr/day	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Road Grader	250	80%	60%	6	hr/day	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Truck	300	80%	ONROAD	8	hr/day	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
Backhoe/Front Loader	125	80%	54%	6	hr/day	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Drum Type Compactor	100	80%	43%	4	hr/day	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Track Type Dozer	150	80%	59%	6	hr/day	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Lowboy Truck/Trailer	450	80%	ONROAD	4	hr/day	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Install Foundations/Concrete & Tubular Steel Poles (TSP's)																													
1-Ton Crew Cab, 4x4	300	80%	ONROAD	2	hr/day	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0
30-Ton Crane Truck	350	80%	ONROAD	5	hr/day	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Backhoe/Front Loader	125	80%	55%	8	hr/day	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0
Auger Truck	210	80%	ONROAD	8	hr/day	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Water Truck	300	80%	ONROAD	8	hr/day	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0
Dump Truck	350	80%	ONROAD	4	hr/day	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
10-cu. yd. Concrete Mixer Truck	350	80%	ONROAD	5	hr/day	0	0	0	0	0	0	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0
Pole & Assemblies Haul																													
3/4-Ton Pick-up Truck, 4x4	275	80%	ONROAD	5	hr/day	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0
Crane/Boom Truck	350	80%	ONROAD	6	hr/day	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
40' Flat Bed Truck/ Trailer	400	80%	ONROAD	8	hr/day	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
TSP Assembly & Erection																													
3/4-Ton Pick-up Truck, 4x4	275	80%	ONROAD	5	hr/day	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
1-Ton Crew Cab, 4x4	300	80%	ONROAD	5	hr/day	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
Compressor Trailer	60	80%	48%	5	hr/day	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
80-Ton Rough Terrain Crane	275	80%	43%	6	hr/day	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
Concrete Pole Assembly & Erection																													
3/4-Ton Pick-up Truck, 4x4	275	80%	ONROAD	5	hr/day	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0
1-Ton Crew Cab, 4x4	300	80%	ONROAD	5	hr/day	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0
Compressor Trailer	60	80%	48%	6	hr/day	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
80-Ton RT Crane	275	80%	43%	6	hr/day	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
Install Conductor & OPGW																													
3/4-Ton Pick-up Truck, 4x4	275	80%	ONROAD	4	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0
1-Ton Crew Cab, 4x4	300	80%	ONROAD	4	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0
Wire Truck/Trailer	350	80%	ONROAD	4	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	6	6	0	0	0	0	0	0	0	0	0	0
Bucket Truck	250	80%	ONROAD	8	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0
Crane/Boom Truck	350	80%	ONROAD	8	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0
Rough Terrain Crane	215	80%	43%	4	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0
Dump Truck	350	80%	ONROAD	4	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
3 Drum Sock Line Puller	300	80%	51%	6	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Bull Wheel Puller	525	80%	51%	6	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Static Truck/ Tensioner	350	80%	51%	6	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Splicing Rig	350	80%	51%	8	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Backhoe/Front Loader	120	80%	55%	3	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Sag Cat w/ 2 winches	350	80%	51%	2	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
Lowboy Truck/Trailer	450	80%	ONROAD	4	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0
Hughes 500 E Helicopter	300	80%	100%	6	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Fuel, Helicopter Support Truck	300	80%	ONROAD	4	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Restoration																													
1-Ton Crew Cab, 4x4	300	80%	ONROAD	2	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
Road Grader	250	80%	61%	6	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Water Truck	300	80%	ONROAD	8	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Backhoe/Front Loader	125	80%	55%	6	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Drum Type Compactor	100	80%	43%	6	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Track Type Dozer	150	80%	59%	6	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Lowboy Truck/Trailer	450	80%	ONROAD	3	hr/day	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0

Transmission Lines

Year	2015												2016															
Calendar Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec				
Project Month	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48				
Equipment																									Totals	Total HP-hr	Total HP-hr During Peak 12-months	During Peak 12 Months
Survey																												
3/4-Ton Pick-Up Truck, 4x4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2			316.8
Marshalling Yard																												
1-Ton Crew Cab, 4x4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4			140.8
30-Ton Crane Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4			140.8
10,000 lb Rough Terrain Fork Lift	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	25344	25,344	
40' Flat Bed Trailer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12			422.4
Truck, Semi, Tractor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4			70.4
Roads & Landing Work																												
1-Ton Crew Cab, 4x4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1			35.2
Road Grader	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	15840	15,840	
Water Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3			422.4
Backhoe/Front Loader	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7128	7,128	
Drum Type Compactor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3027.2	3027.2	
Track Type Dozer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	9346	9,346	
Lowboy Truck/Trailer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1			70.4
Install Foundations/Concrete & Tubular Steel Poles (TSP's)																												
1-Ton Crew Cab, 4x4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4			140.8
30-Ton Crane Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2			176.0
Backhoe/Front Loader	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	38720	38,720	
Auger Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2			281.6
Water Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4			563.2
Dump Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2			140.8
10-cu. yd. Concrete Mixer Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10			880.0
Pole & Assemblies Haul																												
3/4-Ton Pick-up Truck, 4x4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4			352.0
Crane/Boom Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2			211.2
40' Flat Bed Truck/ Trailer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2			281.6
TSP Assembly & Erection																												
3/4-Ton Pick-up Truck, 4x4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2			176.0
1-Ton Crew Cab, 4x4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2			176.0
Compressor Trailer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5069	5,069	
80-Ton Rough Terrain Crane	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	24974.4	24974.4	
Concrete Pole Assembly & Erection																												
3/4-Ton Pick-up Truck, 4x4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4			352.0
1-Ton Crew Cab, 4x4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6			528.0
Compressor Trailer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	6082.56	6082.56	
80-Ton RT Crane	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	24974	24,974	
Install Conductor & OPGW																												
3/4-Ton Pick-up Truck, 4x4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8			563.2
1-Ton Crew Cab, 4x4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10			704.0
Wire Truck/Trailer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12			844.8
Bucket Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8			1126.4
Crane/Boom Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8			1126.4
Rough Terrain Crane	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	52068	52,068	
Dump Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4			281.6
3 Drum Sock Line Puller	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	32314	32,314	
Bull Wheel Puller	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	56549	56,549	
Static Truck/ Tensioner	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	37699	37,699	
Splicing Rig	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	50266	50,266	
Backhoe/Front Loader	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	6970	6,970	
Sag Cat w/ 2 winches	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	25133	25,133	
Lowboy Truck/Trailer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6			422.4
Hughes 500 E Helicopter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	63360	63,360	
Fuel, Helicopter Support Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2			140.8
Restoration																												
1-Ton Crew Cab, 4x4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2			70.4
Road Grader	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	16104	16,104	
Water Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1			140.8
Backhoe/Front Loader	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7260	7,260	
Drum Type Compactor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4541	4,541	
Track Type Dozer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	9346	9,346	
Lowboy Truck/Trailer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	

Rio Mesa SEGF Construction Equipment Emission Factors

Power Plant

		Tier (Nonroad) Avg mph (Onroad)	Base Emission Factors g/bhp (1)						Transient Adjustment Factor (2)							Adjustment (3)	Adjusted Emission Factors (g/bhp - Nonroad, lb/vmt Onroad)					
Equipment	HP		BSFC lb/hp-hr	NOx	CO	VOC	SOx	PM10	Adj. Type	BSFC	NOx	CO	VOC	SOx	PM10	PM10 Fuel S	BSFC	NOx	CO	VOC	SOx	PM10
CLASS 01 AUTOMOTIVE																						
SEDAN LIGHT G	175	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.31E-04	9.63E-03	8.82E-04	0.00E+00	8.53E-05
CLASS 02 TRUCKS - LIGHT DUTY																						
PICKUP 1/2 TON 4X4 CREW CAB G	302	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.31E-04	9.63E-03	8.82E-04	0.00E+00	8.53E-05
CLASS 03 TRUCKS - HEAVY DUTY																						
TRUCK DUMP TANDEM AXLE 13-15 CY D	325	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2AX	375	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	9.17E-03	2.21E-03	3.95E-05	1.19E-03
TRUCK YARD DOG 4X2 D	200	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.31E-04	9.63E-03	8.82E-04	0.00E+00	8.53E-05
CLASS 06 PERSONNEL CARRIERS																						
ROUGH TERRAIN UTILITY VEHICLE D	25	4	0.408	4.440	2.161	0.438	0.006	0.280	None	1.00	1.00	1.00	1.00	1.00	1.00	-0.0954	0.408	4.440	2.161	0.438	0.006	0.185
CLASS 07 EMERGENCY VEHICLES																						
AMBULANCE TYPE II VAN D	302	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	9.17E-03	2.21E-03	3.95E-05	1.19E-03
CLASS 08 LIQUID STORAGE																						
TANK FUEL STRG 10,000G DBLWALLW/PUMP	0	No Engine	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 11 EARTHMOVING																						
ATT HOERAM 5,000LB 270-480 BPM CAT330	0	No Engine	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.000	0.000	0.000	0.000	0.000
DOZER CRAWLER 131 - 160HP D	143	3	0.367	2.500	0.867	0.184	0.005	0.220	Hi LF	1.01	1.04	1.53	1.05	1.01	1.47	-0.0867	0.371	2.600	1.326	0.193	0.005	0.237
EXCAVATOR CRAWLER	266	3	0.367	2.500	0.748	0.184	0.005	0.150	Hi LF	1.01	1.04	1.53	1.05	1.01	1.47	-0.0867	0.371	2.600	1.144	0.193	0.005	0.134
GRADER 29860LB 12" 165HP W/RPR-SCAR D	165	3	0.367	2.500	0.867	0.184	0.005	0.220	Hi LF	1.01	1.04	1.53	1.05	1.01	1.47	-0.0867	0.371	2.600	1.326	0.193	0.005	0.237
LOADER BACKHOE	93	3	0.408	3.000	2.366	0.184	0.006	0.200	Hi LF	1.01	1.04	1.53	1.05	1.01	1.47	-0.0964	0.412	3.120	3.619	0.193	0.006	0.198
TRACTOR INDUSTRIAL 60-79 PTO HP D	65	4	0.408	3.000	0.237	0.184	0.006	0.200	None	1.00	1.00	1.00	1.00	1.00	1.00	-0.0954	0.408	3.000	0.237	0.184	0.006	0.105
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT																						
TRENCHER WHEEL CHAIN 60HP 0-60" D	55	4	0.408	3.000	0.237	0.184	0.006	0.200	None	1.00	1.00	1.00	1.00	1.00	1.00	-0.0954	0.408	3.000	0.237	0.184	0.006	0.105
CLASS 13 COMPACTION																						
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	110	3	0.367	3.000	2.366	0.184	0.005	0.200	None	1.00	1.00	1.00	1.00	1.00	1.00	N/A	N/A	2.49E-02	9.17E-03	2.21E-03	3.95E-05	1.19E-03
CLASS 14 CRANES																						
CRANE CRAWLER 220T M14000 D	360	3	0.367	2.500	0.843	0.167	0.005	0.150	Hi LF	1.01	1.04	1.53	1.05	1.01	1.47	-0.0867	0.371	2.600	1.289	0.175	0.005	0.134
CRANE RT 70T 210HP D	210	3	0.367	2.500	0.748	0.184	0.005	0.150	None	1.00	1.00	1.00	1.00	1.00	1.00	-0.0859	0.367	2.500	0.748	0.184	0.005	0.064
TOWER CRANE LUFF M1280D 110T 250 X 271 D	700	3	0.367	2.500	1.327	0.167	0.005	0.150	None	1.00	1.00	1.00	1.00	1.00	1.00	-0.0859	0.367	2.500	1.327	0.167	0.005	0.064
CLASS 15 FORKLIFT																						
FORKLIFT WHS 5000LB G/LPG	48	4	0.408	4.728	0.153	0.279	0.006	0.200	None	1.00	1.00	1.00	1.00	1.00	1.00	-0.0954	0.408	4.728	0.153	0.279	0.006	0.105
CLASS 17 AIR COMPRESSORS																						
AIR COMPR 750CFM 275HP D	275	3	0.367	2.500	0.748	0.184	0.005	0.150	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	9.17E-03	2.21E-03	3.95E-05	1.19E-03
CLASS 52 WELDING EQUIPMENT																						
WELDER MULTIPROCESS	40	4	0.408	4.728	0.153	0.279	0.006	0.200	None	1.00	1.00	1.00	1.00	1.00	1.00	-0.0954	0.408	4.728	0.153	0.279	0.006	0.105
WELDER FUSION 4"- 12" G	20	4	0.408	4.440	2.161	0.438	0.006	0.280	None	1.00	1.00	1.00	1.00	1.00	1.00	-0.0954	0.408	4.440	2.161	0.438	0.006	0.185
WACHS PIPE END PREP MACHINE 2-6 AIR	0	No Engine	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.000	0.000	0.000	0.000	0.000
CONCRETE TRUCKS																						
TRANSMIXER	400	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.12E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03
CLASS 54 MANLIFTS / SCISSORLIFTS																						
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0	No Engine	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.000	0.000	0.000	0.000	0.000
MANLIFT ARTICULATING 60-66FT 65HP D	65	4	0.408	3.000	2.366	0.184	0.006	0.200	None	1.00	1.00	1.00	1.00	1.00	1.00	-0.0954	0.408	3.000	2.366	0.184	0.006	0.105
AWP PERSONNEL LIFT 20-26FT E	0	No Engine	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.000	0.000	0.000	0.000	0.000
SCISSORLIFT 26-32FT E	0	No Engine	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.000	0.000	0.000	0.000	0.000
Generators	260	3	0.367	2.500	0.748	0.184	0.005	0.150	Hi LF	1.01	1.04	1.53	1.05	1.01	1.47	-0.0867	0.371	2.600	1.144	0.193	0.005	0.134

Transmission Lines

		Tier (Nonroad) Avg mph (Onroad)	Base Emission Factors g/bhp (1)						Transient Adjustment Factor (2)							Adjustment (3)	Adjusted Emission Factors (g/bhp - Nonroad, lb/vmt Onroad)					
Equipment	HP		BSFC lb/hp-hr	NOx	CO	VOC	SOx	PM10	Adj. Type	BSFC	NOx	CO	VOC	SOx	PM10	PM10 Fuel S	BSFC	NOx	CO	VOC	SOx	PM10
Survey																						
3/4-Ton Pick-Up Truck, 4x4	275	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.31E-04	9.63E-03	8.82E-04	0.00E+00	8.53E-05
Marshalling Yard																						
1-Ton Crew Cab, 4x4	300	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.31E-04	9.63E-03	8.82E-04	0.00E+00	8.53E-05
30-Ton Crane Truck	350	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03
10,000 lb Rough Terrain Fork Lift	120	3	0.367	2.500	0.867	0.184	0.005	0.220	Hi LF	1.01	1.04	1.53	1.05	1.01	1.47	-0.0867	N/A	2.600	1.326	0.193	0.005	0.237
40' Flat Bed Trailer	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000	0.000	0.000	0.000	0.000	0.000
Truck, Semi, Tractor	400	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03
Roads & Landing Work																						
1-Ton Crew Cab, 4x4	300	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.31E-04	9.63E-03	8.82E-04	0.00E+00	8.53E-05
Road Grader	250	3	0.367	2.500	0.748	0.309	0.005	0.150	Hi LF	1.01	1.04	1.53	1.05	1.01	1.47	-0.0867	0.371	2.600	1.144	0.324	0.005	0.134
Water Truck	300	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03
Backhoe/Front Loader	125	3	0.367	2.500	0.867	0.184	0.005	0.220	Lo LF	1.18	1.21	2.57	2.29	1.18	2.37	-0.1013	0.433	3.025	2.227	0.420	0.006	0.420
Drum Type Compactor	100	3	N/A	N/A	N/A	N/A	N/A	N/A	Hi LF	1.01	1.04	1.53	1.05	1.01	1.47	N/A	0.000	2.49E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03
Track Type Dozer	150	3	0.367	2.500	0.867	0.184	0.005	0.220	Hi LF	1.01	1.04	1.53	1.05	1.01	1.47	-0.0867	0.371	2.600	1.326	0.193	0.005	0.237
Lowboy Truck/Trailer	450	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03
Install Foundations/Concrete & Tubular Steel Poles (TSP's)																						
1-Ton Crew Cab, 4x4	300	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.31E-04	9.63E-03	8.82E-04	0.00E+00	8.53E-05
30-Ton Crane Truck	350	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03
Backhoe/Front Loader	125	3	0.367	2.500	0.867	0.184	0.005	0.220	Lo LF	1.18	1.21	2.57	2.29	1.18	2.37	-0.1013	0.433	3.025	2.227	0.420	0.006	0.420
Auger Truck	210	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03
Water Truck	300	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03
Dump Truck	350	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03
10-cu. yd. Concrete Mixer Truck	350	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03
Pole & Assemblies Haul																						
3/4-Ton Pick-up Truck, 4x4	275	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.31E-04	9.63E-03	8.82E-04	0.00E+00	8.53E-05
Crane/Boom Truck	350	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03
40' Flat Bed Truck/ Trailer	400	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03
TSP Assembly & Erection																						
3/4-Ton Pick-up Truck, 4x4	275	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.31E-04	9.63E-03	8.82E-04	0.00E+00	8.53E-05
1-Ton Crew Cab, 4x4	300	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.31E-04	9.63E-03	8.82E-04	0.00E+00	8.53E-05
Compressor Trailer	60	4	0.408	3.000	2.366	0.184	0.006	0.200	None	1.00	1.00	1.00	1.00	1.00	1.00	-0.0954	0.408	3.000	2.366	0.184	0.006	0.105
80-Ton Rough Terrain Crane	275	3	0.367	2.500	0.748	0.184	0.005	0.150	None	1.00	1.00	1.00	1.00	1.00	1.00	-0.0859	0.367	2.500	0.748	0.184	0.005	0.064
Concrete Pole Assembly & Erection																						
3/4-Ton Pick-up Truck, 4x4	275	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.31E-04	9.63E-03	8.82E-04	0.00E+00	8.53E-05
1-Ton Crew Cab, 4x4	300	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.31E-04	9.63E-03	8.82E-04	0.00E+00	8.53E-05
Compressor Trailer	60	4	0.408	3.000	2.366	0.184	0.006	0.200	None	1.00	1.00	1.00	1.00	1.00	1.00	-0.0954	0.408	3.000	2.366	0.184	0.006	0.105
80-Ton RT Crane	275	3	0.367	2.500	0.748	0.184	0.005	0.150	None	1.00	1.00	1.00	1.00	1.00	1.00	-0.0859	0.367	2.500	0.748	0.184	0.005	0.064
Install Conductor & OPGW																						
3/4-Ton Pick-up Truck, 4x4	275	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.31E-04	9.63E-03	8.82E-04	0.00E+00	8.53E-05
1-Ton Crew Cab, 4x4	300	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.31E-04	9.63E-03	8.82E-04	0.00E+00	8.53E-05
Wire Truck/Trailer	350	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03
Bucket Truck	250	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03
Crane/Boom Truck	350	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03
Rough Terrain Crane	215	3	0.367	2.500	0.748	0.184	0.005	0.150	None	1.00	1.00	1.00	1.00	1.00	1.00	-0.0859	0.367	2.500	0.748	0.184	0.005	0.064
Dump Truck	350	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03
3 Drum Sock Line Puller	300	3	0.367	2.500	0.843	0.167	0.005	0.150	Hi LF	1.01	1.04	1.53	1.05	1.01	1.47	-0.0867	0.371	2.600	1.289	0.175	0.005	0.134
Bull Wheel Puller	525	3	0.367	2.500	0.843	0.167	0.005	0.150	Hi LF	1.01	1.04	1.53	1.05	1.01	1.47	-0.0867	0.371	2.600	1.289	0.175	0.005	0.134
Static Truck/ Tensioner	350	3	0.367	2.500	0.843	0.167	0.005	0.150	Hi LF	1.01	1.04	1.53	1.05	1.01	1.47	-0.0867	0.371	2.600	1.289	0.175	0.005	0.134
Splicing Rig	350	3	0.367	2.500	0.843	0.167	0.005	0.150	Hi LF	1.01	1.04	1.53	1.05	1.01	1.47	-0.0867	0.371	2.600	1.289	0.175	0.005	0.134
Backhoe/Front Loader	120	3	0.367	2.500	0.867	0.184	0.005	0.220	Lo LF	1.18	1.21	2.57	2.29	1.18	2.37	-0.1013	0.433	3.025	2.227	0.420	0.006	0.420
Sag Cat w/ 2 winches	350	3	0.367	2.500	0.843	0.167	0.005	0.150	Hi LF	1.01	1.04	1.53	1.05	1.01	1.47	-0.0867	0.371	2.600	1.289	0.175	0.005	0.134
Lowboy Truck/Trailer	450	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03
Hughes 500 E Helicopter	300	3	0.367	2.500	0.843	0.167	0.005	0.150	None	1.00	1.00	1.00	1.00	1.00	1.00	-0.0859	0.367	2.500	0.843	0.167	0.005	0.064
Fuel, Helicopter Support Truck	300	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03
Restoration																						
1-Ton Crew Cab, 4x4	300	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.31E-04	9.63E-03	8.82E-04	0.00E+00	8.53E-05
Road Grader	250	3	0.367	2.500	0.843	0.167	0.005	0.150	Hi LF	1.01	1.04	1.53	1.05	1.01	1.47	-0.0867	0.371	2.600	1.289	0.175	0.005	0.134
Water Truck	300	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03
Backhoe/Front Loader	125	3	0.367	2.500	0.867	0.184	0.005	0.220	Lo LF	1.18	1.21	2.57	2.29	1.18	2.37	-0.1013	0.433	3.025	2.227	0.420	0.006	0.420
Drum Type Compactor	100	3	0.367	2.500	0.867	0.184	0.005	0.220	Hi LF	1.01	1.04	1.53	1.05	1.01	1.47	-0.0867	0.371	2.600	1.326	0.193	0.005	0.237
Track Type Dozer	150	3	0.367	2.500	0.867	0.184	0.005	0.220	Hi LF	1.01	1.04	1.53	1.05	1.01	1.47	-0.0867	0.371	2.600	1.326	0.193	0.005	0.237
Lowboy Truck/Trailer	450	10.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.49E-02	1.44E-02	2.91E-03	3.95E-05	1.23E-03

Rio Mesa SEGF Construction Equipment Emissions

Power Plant

Equipment	Daily NOx Emissions (lbs/day)																							
	2013												2014											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
CLASS 01 AUTOMOTIVE																								
SEDAN LIGHT G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 02 TRUCKS - LIGHT DUTY																								
PICKUP 1/2 TON 4X4 CREW CAB G	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.4	0.4	0.5	0.5	0.5	0.5	0.1	1.2	1.4	1.4	1.4	1.4	2.0	2.3	2.3	2.3
CLASS 03 TRUCKS - HEAVY DUTY																								
TRUCK DUMP TANDEM AXLE 13-15 CY D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2AX D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
TRUCK YARD DOG 4X2 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CLASS 06 PERSONNEL CARRIERS																								
ROUGH TERRAIN UTILITY VEHICLE D	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
CLASS 07 EMERGENCY VEHICLES																								
AMBULANCE TYPE II VAN D	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CLASS 08 LIQUID STORAGE																								
TANK FUEL STRG 10,000G DBLWALLW/PUMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING																								
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 150HP D	0.0	0.0	0.0	0.0	0.0	0.0	3.1	3.1	3.1	7.9	7.9	7.9	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	7.9	7.9	7.9	3.1
EXCAVATOR CRAWLER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1
GRADER 29850LB 12' 165HP W/RPR-SCAR D	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	3.0	3.0	7.6	7.6	7.6	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	7.6	7.6
LOADER BACKHOE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	2.1	2.1	2.1	2.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
TRACTOR INDUSTRIAL 60-70 PTO HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	3.6	3.6	3.6	7.2	7.2	7.2	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT																								
TRENCHER WHEEL CHAIN 60HP 0-60' D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	1.2	1.2	1.2	1.8	1.8	1.2	1.2	0.6	0.6	0.0
CLASS 13 COMPACTION																								
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 14 CRANES																								
CRANE CRAWLER 220T M14000 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	2.6	5.3	5.3	10.6	10.6	13.2	15.8	15.8	15.8	15.8
CRANE RT 70T 210HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	2.1	8.3	8.3	20.8	20.8	41.7	41.7	62.5	62.5	75.0	75.0	75.0	75.0
TOWER CRANE LUFF M1280D 110T 250 X 271 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	4.9	4.9	9.9	9.9	9.9	14.8	14.8	14.8	9.9
CLASS 15 FORKLIFT																								
FORKLIFT WHS 5000LB G/LPG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	1.8	3.6	3.6	7.2	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
CLASS 17 AIR COMPRESSORS																								
AIR COMPR 750CFM 275HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.1	0.3	0.3	0.5	0.5	0.7	0.7	0.7	0.7
CLASS 22 WELDING EQUIPMENT																								
WELDER MULTIPROCESS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	2.7	2.7	5.3	5.3	10.7	10.7	13.3	21.3	26.7	26.7	26.7	32.0
WELDER FUSION 4"- 12" G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.4	0.4	0.4	0.8	0.8	1.3	1.9	3.0	3.0	3.0	3.0	3.0	3.0	0.9	0.9
WACHS PIPE END PREP MACHINE 2-6 AIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS																								
TRANSMIXER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.6	1.3	2.0	1.8	1.8	2.0	1.7	1.8	2.0	1.4	1.1	0.9	0.6	0.6	0.5
CLASS 34 MANLIFTS / SCISSORLIFTS																								
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-65FT 65HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.3	1.3	1.3	2.1	2.1	3.4	3.4	3.4	4.1	5.2	5.2	5.2
AWP PERSONNEL LIFT 20-26FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 26-32FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Generators	0.0	0.0	0.0	0.0	0.0	0.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
Total =	0.00	0.00	0.00	0.00	0.00	0.00	15.86	20.09	20.41	45.78	53.30	56.79	80.55	90.56	115.61	130.21	155.39	167.66	190.75	200.48	219.43	220.02	210.11	205.02
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	0.00	0.00	346.04	442.04	448.97	1,006.73	1,172.52	1,249.42	1,772.11	1,998.94	2,543.45	2,864.52	3,418.56	3,688.56	4,196.54	4,410.66	4,827.56	4,840.54	4,622.36	4,510.48
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =												4,668.61	6,440.73	8,439.67	10,983.11	13,847.64	17,266.20	20,954.75	24,802.36	28,770.98	33,149.57	36,983.39	40,433.23	43,694.39
Annual Emissions - Max 12-Month Rolling Total (tons/year) =																								

Rio Mesa SEGF Construction Equipment Emissions

Power Plant

	2015												2016											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Equipment	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
CLASS 01 AUTOMOTIVE																								
SEDAN LIGHT G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 02 TRUCKS - LIGHT DUTY																								
PICKUP 1/2 TON 4X4 CREW CAB G	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.0	2.0	1.3	1.3	0.6	0.6	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
CLASS 03 TRUCKS - HEAVY DUTY																								
TRUCK DUMP TANDEM AXLE 13-15 CY D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2AX D	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
TRUCK YARD DOG 4X2 D	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 06 PERSONNEL CARRIERS																								
ROUGH TERRAIN UTILITY VEHICLE D	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.2	0.0	0.0	0.0	0.0	0.0
CLASS 07 EMERGENCY VEHICLES																								
AMBULANCE TYPE II VAN D	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
CLASS 08 LIQUID STORAGE																								
TANK FUEL STRG 10,000G DBLWALL W/PUMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING																								
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 160HP D	3.1	3.1	3.1	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EXCAVATOR CRAWLER	17.1	17.1	17.1	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GRADER 29860LB 12' 165HP W/RPR-SCAR D	7.6	7.6	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LOADER BACKHOE	3.2	3.2	3.2	3.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRACTOR INDUSTRIAL 60-79 PTO HP D	12.0	12.0	12.0	12.0	7.2	7.2	7.2	3.6	3.6	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT																								
TRENCHER WHEEL CHAIN 60HP 0-60" D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 13 COMPACTION																								
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 14 CRANES																								
CRANE CRAWLER 220T M14000 D	15.8	15.8	13.2	13.2	10.6	10.6	10.6	5.3	5.3	5.3	2.6	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CRANE RT 70T 210HP D	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	62.5	62.5	41.7	41.7	20.8	8.3	8.3	2.1	0.0	0.0	0.0	0.0	0.0
TOWER CRANE LUFF M1280D 110T 250 X 271 D	9.9	9.9	4.9	4.9	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 15 FORKLIFT																								
FORKLIFT WHS 5000LB G/LPG	12.0	12.0	10.2	10.2	10.2	10.2	7.8	7.8	7.8	7.8	3.6	2.4	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 17 AIR COMPRESSORS																								
AIR COMPR 750CFM 275HP D	0.7	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 52 WELDING EQUIPMENT																								
WELDER MULTIPROCESS	32.0	32.0	26.7	26.7	26.7	26.7	21.3	10.7	5.3	5.3	5.3	2.7	2.7	2.7	2.7	2.7	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WELDER FUSION 4"- 12" G	0.8	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WACHS PIPE END PREP MACHINE 2-6 AIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS																								
TRANSMIXER	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 54 MANLIFTS / SCISSORLIFTS																								
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-66FT 65HP D	6.4	6.4	4.4	4.4	3.6	3.6	3.6	2.6	2.6	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AWP PERSONNEL LIFT 20-26FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 26-32FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Generators	5.4	5.4	5.4	5.4	5.4	5.4	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	0.0	0.0	0.0	0.0	0.0
Total =	205.83	205.56	183.97	172.89	149.34	144.37	133.94	113.35	107.99	103.70	96.52	77.74	72.17	50.07	49.34	28.45	15.83	13.10	6.59	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	4,528.21	4,522.36	4,047.32	3,803.65	3,285.48	3,176.04	2,946.79	2,493.62	2,375.85	2,281.43	2,123.54	1,710.37	1,587.72	1,101.51	1,085.41	625.91	348.35	288.19	144.94	0.00	0.00	0.00	0.00	0.00
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =	46,450.38	48,973.79	50,477.67	51,416.79	51,283.72	50,771.20	49,521.45	47,604.41	45,152.69	42,593.58	40,094.76	37,294.66	34,354.17	30,933.32	27,971.41	24,793.67	21,856.54	18,968.69	16,166.84	13,673.22	11,297.37	9,015.95	6,892.40	51,417
Annual Emissions - Max 12-Month Rolling Total (tons/year) =																								25.7

Power Plant

Daily CO Emissions (lbs/day)

Equipment	2013 Jan 1	Feb 2	Mar 3	Apr 4	May 5	Jun 6	Jul 7	Aug 8	Sep 9	Oct 10	Nov 11	Dec 12
CLASS 01 AUTOMOTIVE												
SEDAN LIGHT G	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2
CLASS 02 TRUCKS - LIGHT DUTY												
PICKUP 1/2 TON 4X4 CREW CAB G	0.0	0.0	0.0	0.0	0.0	0.0	3.9	3.9	4.6	4.6	5.4	5.4
CLASS 03 TRUCKS - HEAVY DUTY												
TRUCK DUMP TANDEM AXLE 13-15 CY D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2axX D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7
TRUCK YARD DOG 4X2 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 06 PERSONNEL CARRIERS												
ROUGH TERRAIN UTILITY VEHICLE D	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.7	0.7	0.8
CLASS 07 EMERGENCY VEHICLES												
AMBULANCE TYPE II VAN D	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	0.7
CLASS 08 LIQUID STORAGE												
TANK FUEL STRG 10,000G DBLWALLW/PUMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING												
ATT HOERAM 5,900LB 270-480 BPM CAT330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 150HP D	0.0	0.0	0.0	0.0	0.0	0.0	1.6	1.6	1.6	4.0	4.0	4.0
EXCAVATOR CRAWLER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.5	7.5	7.5
GRADER 29800LB 12' 165HP W/RPR-SCAR D	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5	1.5	1.5	3.9	3.9
LOADER BACKHOE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	2.5	2.5	2.5	2.5
TRACTOR INDUSTRIAL 60-79 PTO HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.3	0.3
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT												
TRENCHER WHEEL CHAIN 60HP 0-60" D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 13 COMPACTION												
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 14 CRANES												
CRANE CRAWLER 220T M14000 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CRANE RT 70T 210HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
TOWER CRANE LUFF M1280D 110T 250 X 271 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 15 FORKLIFT												
FORKLIFT VHS 5000LB G/LPG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
CLASS 17 AIR COMPRESSORS												
AIR COMPR 750CFM 275HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 32 WELDING EQUIPMENT												
WELDER MULTIPROCESS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WELDER FUSION 4"- 12" G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2
WACHS PIPE END PREP MACHINE 2-6 AIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS												
TRANSMIXER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	2.5	7.9	22.5	34.1
CLASS 54 MANLIFTS / SCISSORLIFTS												
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-65FT 60HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
AWP PERSONNEL LIFT 20-26FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 26-32FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Generators	0.0	0.0	0.0	0.0	0.0	0.0	3.5	3.5	3.5	3.5	3.5	3.5
Total =	0.00	0.00	0.00	0.00	0.00	0.00	12.06	17.07	18.98	34.46	52.85	65.20
Monthly Emissions (lbs/month)=	0.00	0.00	0.00	0.00	0.00	0.00	265.37	375.44	417.46	758.23	1,162.67	1,434.31
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =												4,413.47
Annual Emissions - Max 12-Month Rolling Total (tons/year) =												

Equipment	2014 Jan 13	Feb 14	Mar 15	Apr 16	May 17	Jun 18	Jul 19	Aug 20	Sep 21	Oct 22	Nov 23	Dec 24
CLASS 01 AUTOMOTIVE												
SEDAN LIGHT G	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
CLASS 02 TRUCKS - LIGHT DUTY												
PICKUP 1/2 TON 4X4 CREW CAB G	6.2	6.2	6.8	13.9	16.2	16.2	16.2	16.2	23.1	27.0	27.0	27.0
CLASS 03 TRUCKS - HEAVY DUTY												
TRUCK DUMP TANDEM AXLE 13-15 CY D	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	0.0	0.0
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2axX D	1.5	2.2	2.2	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
TRUCK YARD DOG 4X2 D	0.0	0.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
CLASS 06 PERSONNEL CARRIERS												
ROUGH TERRAIN UTILITY VEHICLE D	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
CLASS 07 EMERGENCY VEHICLES												
AMBULANCE TYPE II VAN D	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
CLASS 08 LIQUID STORAGE												
TANK FUEL STRG 10,000G DBLWALLW/PUMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING												
ATT HOERAM 5,900LB 270-480 BPM CAT330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 150HP D	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	4.0	4.0	4.0	1.6
EXCAVATOR CRAWLER	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
GRADER 29800LB 12' 165HP W/RPR-SCAR D	3.9	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	3.9	3.9
LOADER BACKHOE	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
TRACTOR INDUSTRIAL 60-79 PTO HP D	0.6	0.6	0.6	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT												
TRENCHER WHEEL CHAIN 60HP 0-60" D	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
CLASS 13 COMPACTION												
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 14 CRANES												
CRANE CRAWLER 220T M14000 D	0.0	1.3	1.3	2.6	2.6	5.2	5.2	6.5	7.9	7.9	7.9	7.9
CRANE RT 70T 210HP D	2.5	2.5	6.2	6.2	12.5	12.5	16.7	16.7	22.4	22.4	22.4	22.4
TOWER CRANE LUFF M1280D 110T 250 X 271 D	0.0	0.0	2.6	2.6	2.6	5.2	5.2	5.2	7.9	7.9	7.9	5.2
CLASS 15 FORKLIFT												
FORKLIFT VHS 5000LB G/LPG	0.1	0.1	0.2	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
CLASS 17 AIR COMPRESSORS												
AIR COMPR 750CFM 275HP D	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3
CLASS 32 WELDING EQUIPMENT												
WELDER MULTIPROCESS	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.7	0.9	0.9	0.9	1.0
WELDER FUSION 4"- 12" G	0.4	0.4	0.6	0.9	1.5	1.5	1.5	1.5	1.5	1.5	0.5	0.5
WACHS PIPE END PREP MACHINE 2-6 AIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS												
TRANSMIXER	31.4	31.4	34.1	28.8	31.4	34.1	23.6	18.3	15.7	13.1	10.5	7.9
CLASS 54 MANLIFTS / SCISSORLIFTS												
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-65FT 60HP D	1.0	1.0	1.0	1.6	1.6	2.6	2.6	2.6	3.3	4.1	4.1	4.1
AWP PERSONNEL LIFT 20-26FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 26-32FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Generators	3.5	3.5	3.5	3.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Total =	74.52	80.44	86.11	98.17	108.95	117.88	113.79	110.06	118.88	120.87	111.08	103.55
Monthly Emissions (lbs/month)=	1,639.46	1,769.60	1,894.38	2,159.79	2,397.00	2,593.38	2,503.27	2,421.41	2,615.38	2,659.19	2,443.77	2,278.20
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =	6,052.93	7,822.54	9,715.92	11,876.72	14,273.72	16,867.10	19,105.01	21,150.98	23,449.90	25,249.86	26,530.96	27,374.86
Annual Emissions - Max 12-Month Rolling Total (tons/year) =												

Power Plant

Equipment	2015 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2016 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
CLASS 01 AUTOMOTIVE																								
SEDAN LIGHT G	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 02 TRUCKS - LIGHT DUTY																								
PICKUP 1/2 TON 4X4 CREW CAB G	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	23.1	23.1	15.4	15.4	6.9	6.9	5.4	5.4	5.4	0.0	0.0	0.0	0.0	0.0
CLASS 03 TRUCKS - HEAVY DUTY																								
TRUCK DUMP TANDEM AXLE 13-15 CY D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2AX D	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.5	1.5	1.5	1.5	0.7	0.7	0.0	0.0	0.0	0.0	0.0
TRUCK YARD DOG 4X2 D	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 06 PERSONNEL CARRIERS																								
ROUGH TERRAIN UTILITY VEHICLE D	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.0	0.0	0.0	0.0	0.0
CLASS 07 EMERGENCY VEHICLES																								
AMBULANCE TYPE II VAN D	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.0	0.0	0.0	0.0	0.0
CLASS 08 LIQUID STORAGE																								
TANK FUEL STRG 10,000G DBLWALL W/PUMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING																								
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 180HP D	1.6	1.6	1.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EXCAVATOR CRAWLER	7.5	7.5	7.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GRADER 29860LB 12' 165HP W/RPR-SCAR D	3.9	3.9	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LOADER BACKHOE	3.7	3.7	3.7	3.7	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRACTOR INDUSTRIAL 60-79 PTO HP D	1.0	1.0	1.0	1.0	0.6	0.6	0.6	0.3	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 12 PIPELAYING/TRENCHING EQUIPMENT																								
TRENCHER WHEEL CHAIN 60HP 0-60" D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 13 COMPACTION																								
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 14 CRANES																								
CRANE CRAWLER 220T M14000 D	7.9	7.9	6.5	6.5	5.2	5.2	5.2	2.6	2.6	2.6	1.3	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CRANE RT 70T 210HP D	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	18.7	18.7	12.5	12.5	6.2	2.5	2.5	0.6	0.0	0.0	0.0	0.0	0.0
TOWER CRANE LUFF M1280D 110T 250 X 271 D	5.2	5.2	2.6	2.6	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 15 FORKLIFT																								
FORKLIFT WHS 5000LB GALPG	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 17 AIR COMPRESSORS																								
AIR COMPR 750CFM 275HP D	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 52 WELDING EQUIPMENT																								
WELDER MULTIPROCESS	1.0	1.0	0.9	0.9	0.9	0.9	0.7	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WELDER FUSION 4"- 12" G	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WACHS PIPE END PREP MACHINE 2-6 AIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS																								
TRANSMIXER	5.2	3.1	1.6	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 54 MANLIFTS / SCISSORLIFTS																								
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-66FT 65HP D	5.1	5.1	3.5	3.5	2.8	2.8	2.8	2.0	2.0	0.8	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AWP PERSONNEL LIFT 20-26FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 26-32FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Generators	2.4	2.4	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.0	0.0	0.0	0.0	0.0
Total =	100.39	98.24	88.49	83.08	71.04	68.41	66.98	62.92	62.55	61.17	55.88	49.13	39.25	32.25	23.78	17.34	12.26	11.44	9.26	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	2,208.52	2,161.22	1,946.86	1,827.74	1,562.97	1,505.00	1,473.53	1,384.14	1,376.11	1,345.81	1,229.28	1,080.90	863.59	709.54	523.14	381.57	269.69	251.65	203.68	0.00	0.00	0.00	0.00	0.00
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =	27,943.92	28,335.53	28,388.01	28,055.96	27,221.93	26,133.55	25,103.81	24,066.55	22,827.28	21,513.90	20,299.41	19,102.10	17,757.17	16,305.49	14,881.77	13,435.60	12,142.32	10,888.96	9,619.10	8,234.96	6,858.85	5,513.04	4,283.75	28,388
Annual Emissions - Max 12-Month Rolling Total (tons/year) =																								14.2

Power Plant

Equipment	Daily VOC Emissions (lbs/day) 2013 Jan 1	Feb 2	Mar 3	Apr 4	May 5	Jun 6	Jul 7	Aug 8	Sep 9	Oct 10	Nov 11	Dec 12
CLASS 01 AUTOMOTIVE												
SEDAN LIGHT G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 03 TRUCKS - LIGHT DUTY												
PICKUP 1/2 TON 4X4 CREW CAB G	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.5	0.5
CLASS 03 TRUCKS - HEAVY DUTY												
TRUCK DUMP TANDEM AXLE 13-16 CY D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRUCK WATER 5000-4000G F-R SPR BAR / MONITOR 2AX D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2
TRUCK YARD DOG 4X2 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 06 PERSONNEL CARRIERS												
ROUGH TERRAIN UTILITY VEHICLE D	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2
CLASS 07 EMERGENCY VEHICLES												
AMBULANCE TYPE II VAN D	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.3
CLASS 08 LIQUID STORAGE												
TANK FUEL STRG 10 000G DBLWALLW/PUMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING												
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 160HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.6	0.6	0.6
EXCAVATOR CRAWLER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3
GRADER 29000LB 12' 165HP W/RPR-SCAR D	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.6	0.6
LOADER BACKHOE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
TRACTOR INDUSTRIAL 50-75 PTO HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.8	0.9	0.9
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT												
TRENCHER WHEEL CHAIN 60HP 0-60" D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
CLASS 13 COMPACTION												
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 14 CRANES												
CRANE CRAWLER 220T M14000 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CRANE RT 70T 210HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2
TOWER CRANE LUFF M1280D 110T 250 X 271 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 15 FORKLIFT												
FORKLIFT WHS 5000LB GA PG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
CLASS 17 AIR COMPRESSORS												
AIR COMPR 750CFM 275HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 52 WELDING EQUIPMENT												
WELDER MULTIPROCESS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WELDER FUSION 4"- 12" G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WACHS PIPE END PREP MACHINE 2-8 AIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS												
TRANSMIXER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	1.8	4.5	8.9
CLASS 54 MANLIFTS / SCISSORLIFTS												
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-66FT 65HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AWP PERSONNEL LIFT 20-26FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 26-32FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Generators	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	0.6
Total =	0.00	0.00	0.00	0.00	0.00	0.00	1.72	2.47	2.77	5.65	9.17	11.67
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	0.00	0.00	37.90	54.41	61.02	124.36	201.76	256.84
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =												736.29
Annual Emissions - Max 12-Month Rolling Total (tons/year) =												

Equipment	2014 Jan 13	Feb 14	Mar 15	Apr 16	May 17	Jun 18	Jul 19	Aug 20	Sep 21	Oct 22	Nov 23	Dec 24
CLASS 01 AUTOMOTIVE												
SEDAN LIGHT G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 03 TRUCKS - LIGHT DUTY												
PICKUP 1/2 TON 4X4 CREW CAB G	0.8	0.8	0.1	1.3	1.5	1.5	1.5	1.6	2.1	2.5	2.5	2.6
CLASS 03 TRUCKS - HEAVY DUTY												
TRUCK DUMP TANDEM AXLE 13-16 CY D	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.0
TRUCK WATER 5000-4000G F-R SPR BAR / MONITOR 2AX D	0.4	0.5	0.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
TRUCK YARD DOG 4X2 D	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CLASS 06 PERSONNEL CARRIERS												
ROUGH TERRAIN UTILITY VEHICLE D	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
CLASS 07 EMERGENCY VEHICLES												
AMBULANCE TYPE II VAN D	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
CLASS 08 LIQUID STORAGE												
TANK FUEL STRG 10 000G DBLWALLW/PUMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING												
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 160HP D	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.6	0.6	0.6	0.2
EXCAVATOR CRAWLER	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
GRADER 29000LB 12' 165HP W/RPR-SCAR D	0.6	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.6	0.6
LOADER BACKHOE	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
TRACTOR INDUSTRIAL 50-75 PTO HP D	0.4	0.4	0.4	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT												
TRENCHER WHEEL CHAIN 60HP 0-60" D	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
CLASS 13 COMPACTION												
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 14 CRANES												
CRANE CRAWLER 220T M14000 D	0.0	0.2	0.2	0.4	0.4	0.7	0.7	0.9	1.1	1.1	1.1	1.1
CRANE RT 70T 210HP D	0.6	0.6	1.5	1.5	3.1	3.1	4.6	4.6	5.5	5.5	5.5	5.5
TOWER CRANE LUFF M1280D 110T 250 X 271 D	0.0	0.0	0.3	0.3	0.3	0.7	0.7	0.7	1.0	1.0	1.0	0.7
CLASS 15 FORKLIFT												
FORKLIFT WHS 5000LB GA PG	0.2	0.2	0.4	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
CLASS 17 AIR COMPRESSORS												
AIR COMPR 750CFM 275HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
CLASS 52 WELDING EQUIPMENT												
WELDER MULTIPROCESS	0.2	0.2	0.3	0.3	0.8	0.8	0.8	1.3	1.8	1.8	1.8	1.9
WELDER FUSION 4"- 12" G	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1
WACHS PIPE END PREP MACHINE 2-8 AIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS												
TRANSMIXER	8.3	8.3	8.0	5.8	8.3	8.0	4.8	3.7	3.2	2.6	2.1	1.6
CLASS 54 MANLIFTS / SCISSORLIFTS												
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-66FT 65HP D	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3
AWP PERSONNEL LIFT 20-26FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 26-32FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Generators	0.6	0.6	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Total =	13.49	14.41	16.30	17.66	20.18	21.51	21.10	20.66	21.98	21.83	20.07	19.14
Monthly Emissions (lbs/month) =	296.79	317.02	358.60	388.51	443.87	473.13	464.15	454.39	483.60	480.28	441.61	421.14
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =	1,033.08	1,350.09	1,708.70	2,097.20	2,541.07	3,014.20	3,440.46	3,840.45	4,263.03	4,618.94	4,858.79	5,023.08
Annual Emissions - Max 12-Month Rolling Total (tons/year) =												

Power Plant

Equipment	2015 Jan 25	Feb 26	Mar 27	Apr 28	May 29	Jun 30	Jul 31	Aug 32	Sep 33	Oct 34	Nov 35	Dec 36
CLASS 01 AUTOMOTIVE												
SEDAN LIGHT G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 02 TRUCKS - LIGHT DUTY												
PICKUP 1/2 TON 4X4 CREW CAB G	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.1	2.1
CLASS 03 TRUCKS - HEAVY DUTY												
TRUCK DUMP TANDEM AXLE 13-15 CY D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2AX D	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRUCK YARD DOG 4X2 D	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
CLASS 06 PERSONNEL CARRIERS												
ROUGH TERRAIN UTILITY VEHICLE D	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1
CLASS 07 EMERGENCY VEHICLES												
AMBULANCE TYPE II VAN D	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
CLASS 08 LIQUID STORAGE												
TANK FUEL STRG 10,000G DBLWALLW/PUMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING												
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 160HP D	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EXCAVATOR CRAWLER	1.3	1.3	1.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GRADER 29860LB 12' 165HP W/RPR-SCAR D	0.6	0.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LOADER BACKHOE	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
TRACTOR INDUSTRIAL 60-79 PTO HP D	0.7	0.7	0.7	0.7	0.4	0.4	0.4	0.2	0.2	0.1	0.1	0.0
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT												
TRENCHER WHEEL CHAIN 60HP 0-60" D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 13 COMPACTION												
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 14 CRANES												
CRANE CRAWLER 220T M14000 D	1.1	1.1	0.9	0.9	0.7	0.7	0.7	0.4	0.4	0.4	0.2	0.2
CRANE RT 70T 210HP D	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	4.6
TOWER CRANE LUFEM1280D 110T 250 X 271 D	0.7	0.7	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 15 FORKLIFT												
FORKLIFT WHS 5000LB G/LPG	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.2	0.1
CLASS 17 AIR COMPRESSORS												
AIR COMPR 750CFM 275HP D	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 52 WELDING EQUIPMENT												
WELDER MULTIPROCESS	1.9	1.9	1.6	1.6	1.6	1.6	1.3	0.6	0.3	0.3	0.3	0.2
WELDER FUSION 4"- 12" G	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WACHS PIPE END PREP MACHINE 2-6 AIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS												
TRANSMIXER	1.1	0.8	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 54 MANLIFTS / SCISSORLIFTS												
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-66FT 65HP D	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1
AWP PERSONNEL LIFT 20-26FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 26-32FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Generators	0.4	0.4	0.4	0.4	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.2
Total =	18.32	17.88	16.16	15.22	13.38	13.04	12.39	11.12	10.79	10.53	9.75	8.32
Monthly Emissions (lbs/month) =	403.03	393.45	355.51	334.75	294.31	286.99	272.57	244.63	237.32	231.64	214.51	183.10
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =	5,129.32	5,205.76	5,202.67	5,148.91	4,999.35	4,813.20	4,621.62	4,411.86	4,165.58	3,916.94	3,689.84	3,451.81
Annual Emissions - Max 12-Month Rolling Total (tons/year) =												

Equipment	2016 Jan 37	Feb 38	Mar 39	Apr 40	May 41	Jun 42	Jul 43	Aug 44	Sep 45	Oct 46	Nov 47	Dec 48
CLASS 01 AUTOMOTIVE												
SEDAN LIGHT G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 02 TRUCKS - LIGHT DUTY												
PICKUP 1/2 TON 4X4 CREW CAB G	1.4	1.4	0.6	0.6	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
CLASS 03 TRUCKS - HEAVY DUTY												
TRUCK DUMP TANDEM AXLE 13-15 CY D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2AX D	0.5	0.4	0.4	0.4	0.4	0.2	0.2	0.0	0.0	0.0	0.0	0.0
TRUCK YARD DOG 4X2 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 06 PERSONNEL CARRIERS												
ROUGH TERRAIN UTILITY VEHICLE D	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
CLASS 07 EMERGENCY VEHICLES												
AMBULANCE TYPE II VAN D	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0
CLASS 08 LIQUID STORAGE												
TANK FUEL STRG 10,000G DBLWALLW/PUMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING												
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 160HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EXCAVATOR CRAWLER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GRADER 29860LB 12' 165HP W/RPR-SCAR D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LOADER BACKHOE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRACTOR INDUSTRIAL 60-79 PTO HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT												
TRENCHER WHEEL CHAIN 60HP 0-60" D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 13 COMPACTION												
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 14 CRANES												
CRANE CRAWLER 220T M14000 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CRANE RT 70T 210HP D	4.6	3.1	3.1	1.5	0.6	0.6	0.2	0.0	0.0	0.0	0.0	0.0
TOWER CRANE LUFEM1280D 110T 250 X 271 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 15 FORKLIFT												
FORKLIFT WHS 5000LB G/LPG	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 17 AIR COMPRESSORS												
AIR COMPR 750CFM 275HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 52 WELDING EQUIPMENT												
WELDER MULTIPROCESS	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WELDER FUSION 4"- 12" G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WACHS PIPE END PREP MACHINE 2-6 AIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS												
TRANSMIXER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 54 MANLIFTS / SCISSORLIFTS												
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-66FT 65HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AWP PERSONNEL LIFT 20-26FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 26-32FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Generators	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0
Total =	7.30	5.52	4.75	3.20	2.16	1.82	1.32	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	160.65	121.53	104.46	70.34	47.43	40.07	29.05	0.00	0.00	0.00	0.00	0.00
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =	3,209.42	2,937.50	2,686.45	2,422.04	2,175.16	1,928.24	1,684.72	1,440.09	1,202.77	971.13	756.62	5,206
Annual Emissions - Max 12-Month Rolling Total (tons/year) =												2.6

Power Plant

Daily SOx Emissions (lbs/day)

Equipment	2013 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	1	2	3	4	5	6	7	8	9	10	11	12
CLASS 01 AUTOMOTIVE												
SEDAN LIGHT G	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 02 TRUCKS - LIGHT DUTY												
PICKUP 1/2 TON 4X4 CREW CAB G	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 03 TRUCKS - HEAVY DUTY												
TRUCK DUMP TANDEM AXLE 13-15 CY D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TRUCK WATER 3800-4000G F-R SPR BAR / MONITOR 2AX D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.003	0.003	0.003	0.003
TRUCK YARD DOG 4X2 D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 06 PERSONNEL CARRIERS												
ROUGH TERRAIN UTILITY VEHICLE D	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.002	0.002	0.002	0.002
CLASS 07 EMERGENCY VEHICLES												
AMBULANCE TYPE II VAN D	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.003	0.003	0.003	0.003	0.003
CLASS 08 LIQUID STORAGE												
TANK FUEL STRG 10,000G DBLWALLW/PUMP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 11 EARTHMOVING												
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
DOZER CRAWLER 131 - 160HP D	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.006	0.006	0.015	0.015	0.015
EXCAVATOR CRAWLER	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.033	0.033	0.033
GRADER 29800LB 12' 165HP W/RPR-SCAR D	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.006	0.006	0.006	0.015	0.015
LOADER BACKHOE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.004	0.004	0.004	0.004
TRACTOR INDUSTRIAL 60-79 PTO HP D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.007	0.007	0.007
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT												
TRENCHER WHEEL CHAIN 60HP 0-60" D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
CLASS 13 COMPACTION												
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 14 CRANES												
CRANE CRAWLER 220T M14000 D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CRANE RT 70T 210HP D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.004
TOWER CRANE LUFF M1280D 110T 250 X 271 D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 15 FORKLIFT												
FORKLIFT WHS 5000LB G/LPG	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.002
CLASS 17 AIR COMPRESSORS												
AIR COMPR 750CFM 275HP D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 32 WELDING EQUIPMENT												
WELDER MUL TIPROCESS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001
WELDER FUSION 4"- 12" G	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WACHS PIPE END PREP MACHINE 2-6 AIR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CONCRETE TRUCKS												
TRANSMIXER	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.007	0.022	0.062	0.093
CLASS 54 MANLIFTS / SCISSORLIFTS												
ELEVATOR PERSMAT 7000LB 350 FT 2-CAR E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MANLIFT ARTICULATING 60-66FT 85HP D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
AWP PERSONNEL LIFT 20-26FT E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SCISSORLIFT 26-32FT E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Generators	0.000	0.000	0.000	0.000	0.000	0.000	0.016	0.016	0.016	0.016	0.016	0.016
Total =	0.000	0.000	0.000	0.000	0.000	0.000	0.032	0.047	0.050	0.112	0.165	0.201
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	0.00	0.00	0.71	1.03	1.10	2.46	3.63	4.42
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =												13.35
Annual Emissions - Max 12-Month Rolling Total (tons/year) =												

Equipment	2014 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	13	14	15	16	17	18	19	20	21	22	23	24
CLASS 01 AUTOMOTIVE												
SEDAN LIGHT G	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 02 TRUCKS - LIGHT DUTY												
PICKUP 1/2 TON 4X4 CREW CAB G	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 03 TRUCKS - HEAVY DUTY												
TRUCK DUMP TANDEM AXLE 13-15 CY D	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.000	0.000
TRUCK WATER 3800-4000G F-R SPR BAR / MONITOR 2AX D	0.006	0.009	0.009	0.015	0.018	0.015	0.015	0.015	0.015	0.015	0.015	0.015
TRUCK YARD DOG 4X2 D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 06 PERSONNEL CARRIERS												
ROUGH TERRAIN UTILITY VEHICLE D	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
CLASS 07 EMERGENCY VEHICLES												
AMBULANCE TYPE II VAN D	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
CLASS 08 LIQUID STORAGE												
TANK FUEL STRG 10,000G DBLWALLW/PUMP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 11 EARTHMOVING												
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
DOZER CRAWLER 131 - 160HP D	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.015	0.015	0.015	0.008
EXCAVATOR CRAWLER	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033
GRADER 29800LB 12' 165HP W/RPR-SCAR D	0.015	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.015	0.015
LOADER BACKHOE	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
TRACTOR INDUSTRIAL 60-79 PTO HP D	0.013	0.013	0.013	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT												
TRENCHER WHEEL CHAIN 60HP 0-60" D	0.001	0.001	0.002	0.002	0.002	0.003	0.003	0.002	0.002	0.001	0.001	0.000
CLASS 13 COMPACTION												
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 14 CRANES												
CRANE CRAWLER 220T M14000 D	0.002	0.005	0.005	0.010	0.010	0.020	0.020	0.020	0.031	0.031	0.031	0.031
CRANE RT 70T 210HP D	0.017	0.017	0.042	0.042	0.083	0.083	0.125	0.125	0.150	0.150	0.150	0.150
TOWER CRANE LUFF M1280D 110T 250 X 271 D	0.000	0.000	0.010	0.010	0.010	0.020	0.020	0.020	0.030	0.030	0.030	0.020
CLASS 15 FORKLIFT												
FORKLIFT WHS 5000LB G/LPG	0.004	0.004	0.008	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
CLASS 17 AIR COMPRESSORS												
AIR COMPR 750CFM 275HP D	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
CLASS 32 WELDING EQUIPMENT												
WELDER MUL TIPROCESS	0.003	0.003	0.008	0.008	0.013	0.013	0.018	0.018	0.031	0.031	0.031	0.038
WELDER FUSION 4"- 12" G	0.001	0.001	0.002	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.001	0.001
WACHS PIPE END PREP MACHINE 2-6 AIR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CONCRETE TRUCKS												
TRANSMIXER	0.086	0.086	0.093	0.079	0.086	0.093	0.065	0.050	0.043	0.036	0.029	0.022
CLASS 54 MANLIFTS / SCISSORLIFTS												
ELEVATOR PERSMAT 7000LB 350 FT 2-CAR E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MANLIFT ARTICULATING 60-66FT 85HP D	0.002	0.002	0.002	0.004	0.004	0.006	0.006	0.006	0.008	0.010	0.010	0.010
AWP PERSONNEL LIFT 20-26FT E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SCISSORLIFT 26-32FT E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Generators	0.016	0.016	0.016	0.016	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Total =	0.246	0.269	0.320	0.334	0.385	0.416	0.433	0.432	0.457	0.451	0.420	0.399
Monthly Emissions (lbs/month) =	5.40	5.91	7.04	7.34	8.48	9.16	9.52	9.50	10.06	9.92	9.24	8.78
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =	18.75	24.66	31.70	39.05	47.53	56.65	65.40	73.96	82.92	90.37	95.98	100.34
Annual Emissions - Max 12-Month Rolling Total (tons/year) =												

Power Plant

Equipment	2015 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	25	26	27	28	29	30	31	32	33	34	35	36
CLASS 01 AUTOMOTIVE												
SEDAN LIGHT G	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 02 TRUCKS - LIGHT DUTY												
PICKUP 1/2 TON 4X4 CREW CAB G	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 03 TRUCKS - HEAVY DUTY												
TRUCK DUMP TANDEM AXLE 13-15 CY D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2AX D	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
TRUCK YARD DOG 4X2 D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 06 PERSONNEL CARRIERS												
ROUGH TERRAIN UTILITY VEHICLE D	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
CLASS 07 EMERGENCY VEHICLES												
AMBULANCE TYPE II VAN D	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
CLASS 08 LIQUID STORAGE												
TANK FUEL STRG 10,000G DBLWALLW/PUMP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 11 EARTHMOVING												
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
DOZER CRAWLER 131 - 160HP D	0.008	0.008	0.008	0.008	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
EXCAVATOR CRAWLER	0.033	0.033	0.033	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GRADER 29860LB 12' 165HP W/RPR-SCAR D	0.015	0.015	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LOADER BACKHOE	0.006	0.006	0.006	0.006	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.000
TRACTOR INDUSTRIAL 60-79 PTO HP D	0.022	0.022	0.022	0.022	0.013	0.013	0.013	0.007	0.007	0.002	0.002	0.000
CLASS 12 PIPELAYING/TRENCHING EQUIPMENT												
TRENCHER WHEEL CHAIN 60HP 0-60" D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 13 COMPACTION												
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 14 CRANES												
CRANE CRAWLER 220T M14000 D	0.031	0.031	0.026	0.026	0.020	0.020	0.020	0.010	0.010	0.010	0.005	0.005
CRANE RT 70T 210HP D	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.125
TOWER CRANE LUFF M1280D 110T 250 X 271 D	0.020	0.020	0.010	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 15 FORKLIFT												
FORKLIFT WHS 5000LB G/LPG	0.015	0.014	0.012	0.012	0.012	0.012	0.009	0.009	0.009	0.009	0.004	0.003
CLASS 17 AIR COMPRESSORS												
AIR COMPR 750CFM 275HP D	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 52 WELDING EQUIPMENT												
WELDER MULTIPROCESS	0.038	0.038	0.031	0.031	0.031	0.031	0.026	0.013	0.006	0.006	0.006	0.003
WELDER FUSION 4"- 12" G	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WACHS PIPE END PREP MACHINE 2-6 AIR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CONCRETE TRUCKS												
TRANSMIXER	0.015	0.009	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 54 MANLIFTS / SCISSORLIFTS												
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MANLIFT ARTICULATING 60-66FT 65HP D	0.013	0.012	0.008	0.008	0.007	0.007	0.007	0.005	0.005	0.002	0.002	0.002
AWP PERSONNEL LIFT 20-26FT E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SCISSORLIFT 26-32FT E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Generators	0.010	0.010	0.010	0.010	0.010	0.010	0.005	0.005	0.005	0.005	0.005	0.005
Total =	0.388	0.382	0.341	0.319	0.271	0.261	0.247	0.215	0.209	0.201	0.191	0.158
Monthly Emissions (lbs/month) =	8.53	8.39	7.50	7.01	5.96	5.74	5.43	4.74	4.60	4.43	4.21	3.47
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =	103.46	105.94	106.40	106.06	103.55	100.13	96.05	91.29	85.84	80.35	75.32	70.01
Annual Emissions - Max 12-Month Rolling Total (tons/year) =												

Equipment	2016 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	37	38	39	40	41	42	43	44	45	46	47	48
CLASS 01 AUTOMOTIVE												
SEDAN LIGHT G	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 02 TRUCKS - LIGHT DUTY												
PICKUP 1/2 TON 4X4 CREW CAB G	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 03 TRUCKS - HEAVY DUTY												
TRUCK DUMP TANDEM AXLE 13-15 CY D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2AX D	0.009	0.006	0.006	0.006	0.006	0.003	0.003	0.000	0.000	0.000	0.000	0.000
TRUCK YARD DOG 4X2 D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 06 PERSONNEL CARRIERS												
ROUGH TERRAIN UTILITY VEHICLE D	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000
CLASS 07 EMERGENCY VEHICLES												
AMBULANCE TYPE II VAN D	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.000	0.000	0.000	0.000	0.000
CLASS 08 LIQUID STORAGE												
TANK FUEL STRG 10,000G DBLWALLW/PUMP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 11 EARTHMOVING												
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
DOZER CRAWLER 131 - 160HP D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EXCAVATOR CRAWLER	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GRADER 29860LB 12' 165HP W/RPR-SCAR D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LOADER BACKHOE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TRACTOR INDUSTRIAL 60-79 PTO HP D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 12 PIPELAYING/TRENCHING EQUIPMENT												
TRENCHER WHEEL CHAIN 60HP 0-60" D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 13 COMPACTION												
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 14 CRANES												
CRANE CRAWLER 220T M14000 D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CRANE RT 70T 210HP D	0.125	0.083	0.083	0.042	0.017	0.017	0.004	0.000	0.000	0.000	0.000	0.000
TOWER CRANE LUFF M1280D 110T 250 X 271 D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 15 FORKLIFT												
FORKLIFT WHS 5000LB G/LPG	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 17 AIR COMPRESSORS												
AIR COMPR 750CFM 275HP D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 52 WELDING EQUIPMENT												
WELDER MULTIPROCESS	0.003	0.003	0.003	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WELDER FUSION 4"- 12" G	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WACHS PIPE END PREP MACHINE 2-6 AIR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CONCRETE TRUCKS												
TRANSMIXER	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CLASS 54 MANLIFTS / SCISSORLIFTS												
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MANLIFT ARTICULATING 60-66FT 65HP D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AWP PERSONNEL LIFT 20-26FT E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SCISSORLIFT 26-32FT E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Generators	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.000	0.000	0.000	0.000	0.000
Total =	0.149	0.103	0.103	0.061	0.036	0.030	0.017	0.000	0.000	0.000	0.000	0.000
Monthly Emissions (lbs/month) =	3.28	2.26	2.26	1.35	0.80	0.66	0.38	0.00	0.00	0.00	0.00	0.00
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =	64.77	58.64	53.40	47.74	42.58	37.49	32.44	27.70	23.10	18.67	14.46	106
Annual Emissions - Max 12-Month Rolling Total (tons/year) =												0.1

Power Plant

Daily PM10 Emissions (lbs/day)

Equipment	2013 Jan 1	Feb 2	Mar 3	Apr 4	May 5	Jun 6	Jul 7	Aug 8	Sep 9	Oct 10	Nov 11	Dec 12
CLASS 01 AUTOMOTIVE												
SEDAN LIGHT G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 02 TRUCKS - LIGHT DUTY												
PICKUP 1/2 TON 4X4 CREW CAB G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 03 TRUCKS - HEAVY DUTY												
TRUCK DUMP TANDEM AXLE 13-15 CY D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2AX D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
TRUCK YARD DOG 4X2 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 06 PERSONNEL CARRIERS												
ROUGH TERRAIN UTILITY VEHICLE D	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
CLASS 07 EMERGENCY VEHICLES												
AMBULANCE TYPE II VAN D	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
CLASS 08 LIQUID STORAGE												
TANK FUEL STRG 10,000G DBLWALLW/PUMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING												
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 160HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.7	0.7	0.7
EXCAVATOR CRAWLER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9
GRADER 29850LB 12' 160HP W/RPR-SCAR D	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.7	0.7
LOADER BACKHOE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
TRACTOR INDUSTRIAL 60-79 PTO HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT												
TRENCHER WHEEL CHAIN 60HP 0-60" D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 13 COMPACTION												
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 14 CRANES												
CRANE CRAWLER 220T M14000 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CRANE RT 70T 210HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
TOWER CRANE LUFF M1280D 110T 250 X 271 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 15 FORKLIFT												
FORKLIFT WHS 6000LB GA PG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 17 AIR COMPRESSORS												
AIR COMPR 750CFM 275HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 32 WELDING EQUIPMENT												
WELDER MULTIPROCESS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WELDER FUSION 4", 12" G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WACHS PIPE END PREP MACHINE 2-6 AIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS												
TRANSMIXER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.7	1.9	2.9
CLASS 54 MANLIFTS / SCISSORLIFTS												
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-85FT 85HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AWP PERSONNEL LIFT 20-26FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 26-32FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Generators	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4
Total =	0.00	0.00	0.00	0.00	0.00	0.00	1.15	1.59	1.69	3.55	5.28	6.35
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	0.00	0.00	25.48	34.87	37.16	78.14	116.09	139.50
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =												431.33
Annual Emissions - Max 12-Month Rolling Total (tons/year) =												

Equipment	2014 Jan 13	Feb 14	Mar 15	Apr 16	May 17	Jun 18	Jul 19	Aug 20	Sep 21	Oct 22	Nov 23	Dec 24
CLASS 01 AUTOMOTIVE												
SEDAN LIGHT G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 02 TRUCKS - LIGHT DUTY												
PICKUP 1/2 TON 4X4 CREW CAB G	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2
CLASS 03 TRUCKS - HEAVY DUTY												
TRUCK DUMP TANDEM AXLE 13-15 CY D	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2AX D	0.2	0.3	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRUCK YARD DOG 4X2 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 06 PERSONNEL CARRIERS												
ROUGH TERRAIN UTILITY VEHICLE D	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CLASS 07 EMERGENCY VEHICLES												
AMBULANCE TYPE II VAN D	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CLASS 08 LIQUID STORAGE												
TANK FUEL STRG 10,000G DBLWALLW/PUMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING												
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 160HP D	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	0.7	0.7	0.7	0.3
EXCAVATOR CRAWLER	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
GRADER 29850LB 12' 160HP W/RPR-SCAR D	0.7	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	0.7	0.7
LOADER BACKHOE	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
TRACTOR INDUSTRIAL 60-79 PTO HP D	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT												
TRENCHER WHEEL CHAIN 60HP 0-60" D	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
CLASS 13 COMPACTION												
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 14 CRANES												
CRANE CRAWLER 220T M14000 D	0.0	0.1	0.1	0.3	0.3	0.6	0.6	0.7	0.8	0.8	0.8	0.8
CRANE RT 70T 210HP D	0.2	0.2	0.5	0.5	1.1	1.1	1.6	1.6	1.9	1.9	1.9	1.9
TOWER CRANE LUFF M1280D 110T 250 X 271 D	0.0	0.0	0.1	0.1	0.1	0.3	0.3	0.3	0.4	0.4	0.4	0.3
CLASS 15 FORKLIFT												
FORKLIFT WHS 6000LB GA PG	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
CLASS 17 AIR COMPRESSORS												
AIR COMPR 750CFM 275HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 32 WELDING EQUIPMENT												
WELDER MULTIPROCESS	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.5	0.6	0.6	0.6	0.7
WELDER FUSION 4", 12" G	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
WACHS PIPE END PREP MACHINE 2-6 AIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS												
TRANSMIXER	2.7	2.7	2.9	2.8	2.7	2.9	2.0	1.6	1.3	1.1	0.9	0.7
CLASS 54 MANLIFTS / SCISSORLIFTS												
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-85FT 85HP D	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
AWP PERSONNEL LIFT 20-26FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 26-32FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Generators	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total =	7.61	8.53	9.36	9.68	10.40	11.18	10.89	10.74	10.50	10.42	9.22	8.54
Monthly Emissions (lbs/month) =	167.47	187.74	205.84	212.91	230.86	246.00	239.60	236.18	233.07	229.21	202.93	187.90
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =	568.80	786.54	992.38	1,205.29	1,436.15	1,682.15	1,896.27	2,097.57	2,293.48	2,484.56	2,531.36	2,579.70
Annual Emissions - Max 12-Month Rolling Total (tons/year) =												

Power Plant

Equipment	2015 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2016 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
CLASS 01 AUTOMOTIVE																								
SEDAN LIGHT G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 02 TRUCKS - LIGHT DUTY																								
PICKUP 1/2 TON 4X4 CREW CAB G	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 03 TRUCKS - HEAVY DUTY																								
TRUCK DUMP TANDEM AXLE 13-15 CY D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2AX D	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
TRUCK YARD DOG 4X2 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 06 PERSONNEL CARRIERS																								
ROUGH TERRAIN UTILITY VEHICLE D	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
CLASS 07 EMERGENCY VEHICLES																								
AMBULANCE TYPE II VAN D	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
CLASS 08 LIQUID STORAGE																								
TANK FUEL STRG 10,000G DBLWALLW/PUMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING																								
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 160HP D	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EXCAVATOR CRAWLER	0.9	0.9	0.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GRADER 29860LB 12' 165HP W/RPR-SCAR D	0.7	0.7	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LOADER BACKHOE	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRACTOR INDUSTRIAL 60-79 PTO HP D	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT																								
TRENCHER WHEEL CHAIN 60HP 0-60" D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 13 COMPACTION																								
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 14 CRANES																								
CRANE CRAWLER 220T M14000 D	0.8	0.8	0.7	0.7	0.5	0.5	0.5	0.3	0.3	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CRANE RT 70T 210HP D	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.6	1.6	1.1	1.1	0.5	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0
TOWER CRANE LUFF M1280D 110T 250 X 271 D	0.3	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 15 FORKLIFT																								
FORKLIFT WHS 5000LB G/LPG	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 17 AIR COMPRESSORS																								
AIR COMPR 750CFM 275HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 52 WELDING EQUIPMENT																								
WELDER MULTIPROCESS	0.7	0.7	0.6	0.6	0.6	0.6	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WELDER FUSION 4"- 12" G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WACHS PIPE END PREP MACHINE 2-6 AIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS																								
TRANSMIXER	0.4	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 54 MANLIFTS / SCISSORLIFTS																								
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-66FT 65HP D	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AWP PERSONNEL LIFT 20-26FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 26-32FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Generators	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total =	8.16	7.98	6.93	6.32	4.85	4.72	4.41	3.74	3.62	3.47	3.21	2.68	2.41	1.75	1.68	1.14	0.81	0.65	0.48	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	179.59	175.51	152.44	139.12	106.68	103.85	97.05	82.32	79.68	76.35	70.57	58.91	53.00	38.56	36.91	25.08	17.76	14.36	10.57	0.00	0.00	0.00	0.00	0.00
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =	2,591.83	2,579.60	2,526.20	2,452.42	2,328.23	2,186.09	2,043.54	1,889.68	1,736.30	1,583.43	1,451.07	1,322.08	1,195.49	1,058.54	943.01	828.96	740.04	650.55	564.07	481.75	402.07	325.72	255.15	2,592
Annual Emissions - Max 12-Month Rolling Total (tons/year) =																								1.3

Rio Mesa SEGF Construction Equipment Emissions

Transmission Lines

	Daily NOx Emissions (lbs/day)																							
	2013												2014											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Equipment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Survey																								
3/4-Ton Pick-Up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshalling Yard																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10,000 lb Rough Terrain Fork Lift	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	1.7	1.7	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Truck, Semi, Tractor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Roads & Landing Work																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Foundations/Concrete & Tubular Steel Poles (TSP's)																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Auger Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-cu. yd. Concrete Mixer Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pole & Assemblies Haul																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Truck/ Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TSP Assembly & Erection																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.0	60.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Concrete Pole Assembly & Erection																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton RT Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Conductor & OPGW																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bucket Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 Drum Sock Line Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bull Wheel Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.4	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Static Truck/ Tensioner	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46.8	46.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Splicing Rig	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sag Cat w/ 2 winches	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hughes 500 E Helicopter	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.9	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel, Helicopter Support Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Restoration																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.22	93.81	181.80	127.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	928.86	2,063.77	3,999.71	2,796.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =												2,992.63	6,992.34	9,789.25	9,789.25	9,789.25	9,789.25	9,789.25	9,789.25	9,789.25	9,789.25	9,789.25	8,860.39	6,796.62
Annual Emissions - Max 12-Month Rolling Total (tons/year) =																								

Equipment	Jan 25	Feb 26	Mar 27	Apr 28	May 29	Jun 30	Jul 31	Aug 32	Sep 33	Oct 34	Nov 35	Dec 36	Jan 37	Feb 38	Mar 39	Apr 40	May 41	Jun 42	Jul 43	Aug 44	Sep 45	Oct 46	Nov 47	Dec 48
Survey																								
3/4-Ton Pick-Up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshalling Yard																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10,000 lb Rough Terrain Fork Lift	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Truck, Semi, Tractor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Roads & Landing Work																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Foundations/Concrete & Tubular Steel Poles (TSP's)																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Auger Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-cu. yd. Concrete Mixer Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pole & Assemblies Haul																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Truck/ Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TSP Assembly & Erection																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Concrete Pole Assembly & Erection																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton RT Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Conductor & OPGW																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bucket Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 Drum Sock Line Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bull Wheel Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Static Truck/ Tensioner	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Splicing Rig	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sag Cat w/ 2 winches	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hughes 500 E Helicopter	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel, Helicopter Support Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Restoration																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =	2,796.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9,789
Annual Emissions - Max 12-Month Rolling Total (tons/year) =																								4.9

Equipment	Daily CO Emissions (lbs/day)																							
	2013												2014											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Survey																								
3/4-Ton Pick-Up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshalling Yard																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10,000 lb Rough Terrain Fork Lift	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Truck, Semi, Tractor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Roads & Landing Work																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Foundations/Concrete & Tubular Steel Poles (TSP's)																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Auger Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-cu. yd. Concrete Mixer Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pole & Assemblies Haul																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Truck/ Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TSP Assembly & Erection																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	47.3	47.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Concrete Pole Assembly & Erection																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton RT Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Conductor & OPGW																								
3/4-Ton Pick-Up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bucket Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 Drum Sock Line Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bull Wheel Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Static Truck/ Tensioner	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.2	23.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Splicing Rig	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sag Cat w/ 2 winches	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hughes 500 E Helicopter	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel, Helicopter Support Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Restoration																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.13	70.79	113.56	67.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	618.81	1,557.28	2,498.35	1,491.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =																								
Annual Emissions - Max 12-Month Rolling Total (tons/year) =																								

	2015												2016											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Equipment	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Survey																								
3/4-Ton Pick-Up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshalling Yard																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10,000 lb Rough Terrain Fork Lift	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Truck, Semi, Tractor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Roads & Landing Work																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Foundations/Concrete & Tubular Steel Poles (TSP's)																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Auger Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-cu. yd. Concrete Mixer Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pole & Assemblies Haul																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Truck/ Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TSP Assembly & Erection																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Concrete Pole Assembly & Erection																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton RT Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Conductor & OPGW																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bucket Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 Drum Sock Line Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bull Wheel Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Static Truck/ Tensioner	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Splicing Rig	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sag Cat w/ 2 winches	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hughes 500 E Helicopter	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel, Helicopter Support Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Restoration																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =																								6,166
Annual Emissions - Max 12-Month Rolling Total (tons/year) =																								3.1

Daily VOC Emissions (lbs/day)

Equipment	2013 Jan 1	Feb 2	Mar 3	Apr 4	May 5	Jun 6	Jul 7	Aug 8	Sep 9	Oct 10	Nov 11	Dec 12	2014 Jan 13	Feb 14	Mar 15	Apr 16	May 17	Jun 18	Jul 19	Aug 20	Sep 21	Oct 22	Nov 23	Dec 24
Survey																								
3/4-Ton Pick-Up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshalling Yard																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10,000 lb Rough Terrain Fork Lift	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Truck, Semi, Tractor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Roads & Landing Work																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Foundations/Concrete & Tubular Steel Poles (TSP's)																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Auger Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-cu. yd. Concrete Mixer Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pole & Assemblies Haul																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Truck/ Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TSP Assembly & Erection																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Concrete Pole Assembly & Erection																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton RT Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Conductor & OPGW																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bucket Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 Drum Sock Line Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bull Wheel Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Static Truck/ Tensioner	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Splicing Rig	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sag Cat w/ 2 winches	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hughes 500 E Helicopter	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel, Helicopter Support Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Restoration																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.24	7.75	14.05	10.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	115.36	170.59	309.03	236.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =																								
Annual Emissions - Max 12-Month Rolling Total (tons/year) =																								

Equipment	2015 Jan 25	Feb 26	Mar 27	Apr 28	May 29	Jun 30	Jul 31	Aug 32	Sep 33	Oct 34	Nov 35	Dec 36	2016 Jan 37	Feb 38	Mar 39	Apr 40	May 41	Jun 42	Jul 43	Aug 44	Sep 45	Oct 46	Nov 47	Dec 48
Survey																								
3/4-Ton Pick-Up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshalling Yard																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10,000 lb Rough Terrain Fork Lift	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Truck, Semi, Tractor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Roads & Landing Work																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Foundations/Concrete & Tubular Steel Poles (TSP's)																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Auger Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-cu. yd. Concrete Mixer Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pole & Assemblies Haul																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Truck/ Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TSP Assembly & Erection																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Concrete Pole Assembly & Erection																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton RT Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Conductor & OPGW																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bucket Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 Drum Sock Line Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bull Wheel Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Static Truck/ Tensioner	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Splicing Rig	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sag Cat w/ 2 winches	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hughes 500 E Helicopter	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel, Helicopter Support Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Restoration																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =																								832
Annual Emissions - Max 12-Month Rolling Total (tons/year) =																								0.4

Equipment	Daily SOx Emissions (lbs/day)																							
	2013												2014											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Survey																								
3/4-Ton Pick-Up Truck, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Marshalling Yard																								
1-Ton Crew Cab, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30-Ton Crane Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10,000 lb Rough Terrain Fork Lift	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.003	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40' Flat Bed Trailer	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Truck, Semi, Tractor	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Roads & Landing Work																								
1-Ton Crew Cab, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Road Grader	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Water Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Backhoe/Front Loader	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Drum Type Compactor	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Track Type Dozer	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Lowboy Truck/Trailer	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Install Foundations/Concrete & Tubular Steel Poles (TSP's)																								
1-Ton Crew Cab, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30-Ton Crane Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Backhoe/Front Loader	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Auger Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Water Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Dump Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10-cu. yd. Concrete Mixer Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pole & Assemblies Haul																								
3/4-Ton Pick-up Truck, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Crane/Boom Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40' Flat Bed Truck/ Trailer	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TSP Assembly & Erection																								
3/4-Ton Pick-up Truck, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Crew Cab, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Compressor Trailer	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.111	0.111	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
80-Ton Rough Terrain Crane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Concrete Pole Assembly & Erection																								
3/4-Ton Pick-up Truck, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Crew Cab, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Compressor Trailer	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
80-Ton RT Crane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Install Conductor & OPGW																								
3/4-Ton Pick-up Truck, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Crew Cab, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Wire Truck/Trailer	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bucket Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Crane/Boom Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Rough Terrain Crane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Dump Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3 Drum Sock Line Puller	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bull Wheel Puller	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Static Truck/ Tensioner	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.091	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Splicing Rig	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Backhoe/Front Loader	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sag Cat w/ 2 winches	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Lowboy Truck/Trailer	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Hughes 500 E Helicopter	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fuel, Helicopter Support Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Restoration																								
1-Ton Crew Cab, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Road Grader	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Water Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Backhoe/Front Loader	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Drum Type Compactor	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Track Type Dozer	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Lowboy Truck/Trailer	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total =	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.072	0.169	0.337	0.236	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Monthly Emissions (lbs/month) =	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.590	3.729	7.416	5.184	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =																								
Annual Emissions - Max 12-Month Rolling Total (tons/year) =																								

Equipment	2015 Jan 25	Feb 26	Mar 27	Apr 28	May 29	Jun 30	Jul 31	Aug 32	Sep 33	Oct 34	Nov 35	Dec 36	2016 Jan 37	Feb 38	Mar 39	Apr 40	May 41	Jun 42	Jul 43	Aug 44	Sep 45	Oct 46	Nov 47	Dec 48
Survey																								
3/4-Ton Pick-Up Truck, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Marshalling Yard																								
1-Ton Crew Cab, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30-Ton Crane Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10,000 lb Rough Terrain Fork Lift	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40' Flat Bed Trailer	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Truck, Semi, Tractor	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Roads & Landing Work																								
1-Ton Crew Cab, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Road Grader	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Water Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Backhoe/Front Loader	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Drum Type Compactor	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Track Type Dozer	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Lowboy Truck/Trailer	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Install Foundations/Concrete & Tubular Steel Poles (TSP's)																								
1-Ton Crew Cab, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30-Ton Crane Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Backhoe/Front Loader	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Auger Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Water Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Dump Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10-cu. yd. Concrete Mixer Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pole & Assemblies Haul																								
3/4-Ton Pick-up Truck, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Crane/Boom Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40' Flat Bed Truck/ Trailer	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TSP Assembly & Erection																								
3/4-Ton Pick-up Truck, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Crew Cab, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Compressor Trailer	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
80-Ton Rough Terrain Crane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Concrete Pole Assembly & Erection																								
3/4-Ton Pick-up Truck, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Crew Cab, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Compressor Trailer	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
80-Ton RT Crane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Install Conductor & OPGW																								
3/4-Ton Pick-up Truck, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1-Ton Crew Cab, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Wire Truck/Trailer	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bucket Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Crane/Boom Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Rough Terrain Crane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Dump Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3 Drum Sock Line Puller	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bull Wheel Puller	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Static Truck/ Tensioner	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Splicing Rig	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Backhoe/Front Loader	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sag Cat w/ 2 winches	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Lowboy Truck/Trailer	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Hughes 500 E Helicopter	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fuel, Helicopter Support Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Restoration																								
1-Ton Crew Cab, 4x4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Road Grader	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Water Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Backhoe/Front Loader	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Drum Type Compactor	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Track Type Dozer	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Lowboy Truck/Trailer	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total =	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Monthly Emissions (lbs/month) =	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =																								17.918
Annual Emissions - Max 12-Month Rolling Total (tons/year) =																								0.009

Equipment	Daily PM10 Emissions (lbs/day)																							
	2013												2014											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Survey																								
3/4-Ton Pick-Up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshalling Yard																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10,000 lb Rough Terrain Fork Lift	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Truck, Semi, Tractor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Roads & Landing Work																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Foundations/Concrete & Tubular Steel Poles (TSP's)																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Auger Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-cu. yd. Concrete Mixer Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pole & Assemblies Haul																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Truck/ Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TSP Assembly & Erection																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Concrete Pole Assembly & Erection																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton RT Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Conductor & OPGW																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bucket Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 Drum Sock Line Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bull Wheel Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Static Truck/ Tensioner	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Splicing Rig	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sag Cat w/ 2 winches	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hughes 500 E Helicopter	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel, Helicopter Support Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Restoration																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	4.21	7.94	6.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.92	92.71	174.60	145.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =																								
Annual Emissions - Max 12-Month Rolling Total (tons/year) =																								

	2015												2016											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Equipment	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Survey																								
3/4-Ton Pick-Up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshalling Yard																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10,000 lb Rough Terrain Fork Lift	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Truck, Semi, Tractor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Roads & Landing Work																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Foundations/Concrete & Tubular Steel Poles (TSP's)																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Auger Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-cu. yd. Concrete Mixer Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pole & Assemblies Haul																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Truck/ Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TSP Assembly & Erection																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Concrete Pole Assembly & Erection																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton RT Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Conductor & OPGW																								
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bucket Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 Drum Sock Line Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bull Wheel Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Static Truck/ Tensioner	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Splicing Rig	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sag Cat w/ 2 winches	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hughes 500 E Helicopter	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel, Helicopter Support Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Restoration																								
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =																								479
Annual Emissions - Max 12-Month Rolling Total (tons/year) =																								0.2

Rio Mesa SEGF Dust Emission Process Rates

Power Plant

Equipment	Average Veh Travel Rate mph	Per Unit Daily Process Rate	Units	2013 Jan 1	Feb 2	Mar 3	Apr 4	May 5	Jun 6	Jul 7	Aug 8	Sep 9	Oct 10	Nov 11	Dec 12
CLASS 01 AUTOMOTIVE															
SEDAN LIGHT G	1.50	3.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	3.0	3.0	3.0	3.0
CLASS 02 TRUCKS - LIGHT DUTY															
PICKUP 1/2 TON 4X4 CREW CAB G	1.50	6.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	30.0	30.0	36.0	36.0	42.0	42.0
CLASS 03 TRUCKS - HEAVY DUTY															
TRUCK DUMP TANDEM AXLE 13-15 CY D	1.50	12.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2A	1.50	12.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0	12.0	12.0	12.0	12.0
TRUCK YARD DOG 4X2 D	1.50	12.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 06 PERSONNEL CARRIERS															
ROUGH TERRAIN UTILITY VEHICLE D	1.50	1.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	7.5	7.5	7.5	9.0	9.0	10.5
CLASS 07 EMERGENCY VEHICLES															
AMBULANCE TYPE II VAN D	1.50	12.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	12.0	12.0	12.0	12.0	12.0	12.0
CLASS 08 LIQUID STORAGE															
TANK FUEL STRG 10,000G DBLWALL W/PUMP	0.00	0.0	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING															
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.00	0.0	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 160HP D	1.50	3.2	HR	0.0	0.0	0.0	0.0	0.0	0.0	6.4	6.4	6.4	16.0	16.0	16.0
EXCAVATOR CRAWLER	1.50	3.4	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.8	16.8	16.8
GRADER 29860LB 12' 165HP W/RPR-SCAR D	1.50	2.4	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	4.8	4.8	4.8	4.8	12.0	12.0
LOADER BACKHOE	1.50	2.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	5.0	5.0	5.0	5.0
TRACTOR INDUSTRIAL 60-79 PTO HP D	1.50	2.1	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	4.2	12.6	12.6	12.6
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT															
TRENCHER WHEEL CHAIN 60HP 0-60" D	1.50	3.2	HR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2
CLASS 13 COMPACTION															
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	1.50	12.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 14 CRANES															
CRANE CRAWLER 220T M14000 D	0.25	0.3	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CRANE RT 70T 210HP D	0.25	0.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
TOWER CRANE LUFF M1280D 110T 250 X 271 D	0.25	0.3	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 15 FORKLIFT															
FORKLIFT WHS 5000LB GALPG	0.25	0.3	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.9
CLASS 17 AIR COMPRESSORS															
AIR COMPR 750CFM 275HP D	0.00	0.0	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 52 WELDING EQUIPMENT															
WELDER MULTIPROCESS	0.00	0.0	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WELDER FUSION 4"- 12" G	0.00	0.0	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WACHS PIPE END PREP MACHINE 2-6 AIR	0.00	0.0	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS															
TRANSMIXER	1.50	6.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.2	13.6	40.9	117.3	177.3
CLASS 54 MANLIFTS / SCISSORLIFTS															
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.00	0.0	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-66FT 65HP D	0.00	0.0	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AWP PERSONNEL LIFT 20-26FT E	0.00	0.0	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 26-32FT E	0.00	0.0	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WINDBLOW DUST (ACTIVE CONSTRUCTION AREA)	NA	N/A	SQ FT	0.0	0.0	0.0	0	0	0	0	816750	1470150	1470150	1633500	1633500

Equipment	2014 Jan 13	Feb 14	Mar 15	Apr 16	May 17	Jun 18	Jul 19	Aug 20	Sep 21	Oct 22	Nov 23	Dec 24
CLASS 01 AUTOMOTIVE												
SEDAN LIGHT G	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
CLASS 02 TRUCKS - LIGHT DUTY												
PICKUP 1/2 TON 4X4 CREW CAB G	48.0	48.0	6.0	108.0	126.0	126.0	126.0	126.0	180.0	210.0	210.0	210.0
CLASS 03 TRUCKS - HEAVY DUTY												
TRUCK DUMP TANDEM AXLE 13-15 CY D	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	0.0	0.0
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2A	24.0	36.0	36.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
TRUCK YARD DOG 4X2 D	0.0	0.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
CLASS 06 PERSONNEL CARRIERS												
ROUGH TERRAIN UTILITY VEHICLE D	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
CLASS 07 EMERGENCY VEHICLES												
AMBULANCE TYPE II VAN D	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
CLASS 08 LIQUID STORAGE												
TANK FUEL STRG 10,000G DBLWALL W/PUMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING												
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 160HP D	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	16.0	16.0	16.0	6.4
EXCAVATOR CRAWLER	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8
GRADER 29860LB 12' 165HP W/RPR-SCAR D	12.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	12.0	12.0
LOADER BACKHOE	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
TRACTOR INDUSTRIAL 60-79 PTO HP D	25.2	25.2	25.2	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT												
TRENCHER WHEEL CHAIN 60HP 0-60" D	3.2	3.2	6.4	6.4	6.4	9.6	9.6	6.4	6.4	3.2	3.2	0.0
CLASS 13 COMPACTION												
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	12.0	12.0	24.0	24.0	24.0	24.0	36.0	36.0	36.0	24.0	24.0	24.0
CLASS 14 CRANES												
CRANE CRAWLER 220T M14000 D	0.0	0.3	0.3	0.6	0.6	1.3	1.3	1.6	1.9	1.9	1.9	1.9
CRANE RT 70T 210HP D	1.8	1.8	4.5	4.5	9.0	9.0	13.5	13.5	16.2	16.2	16.2	16.2
TOWER CRANE LUFF M1280D 110T 250 X 271 D	0.0	0.3	0.3	0.3	0.3	0.6	0.6	0.6	1.0	1.0	1.0	0.6
CLASS 15 FORKLIFT												
FORKLIFT WHS 5000LB GALPG	1.8	1.8	3.6	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
CLASS 17 AIR COMPRESSORS												
AIR COMPR 750CFM 275HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 52 WELDING EQUIPMENT												
WELDER MULTIPROCESS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WELDER FUSION 4"- 12" G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WACHS PIPE END PREP MACHINE 2-6 AIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS												
TRANSMIXER	163.6	163.6	177.3	150.0	163.6	177.3	122.7	95.5	81.8	68.2	54.5	40.9
CLASS 54 MANLIFTS / SCISSORLIFTS												
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-66FT 65HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AWP PERSONNEL LIFT 20-26FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 26-32FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WINDBLOW DUST (ACTIVE CONSTRUCTION AREA)	1633500	2450250	2450250	2450250	2450250	2450250	2450250	2450250	2450250	2450250	2450250	2450250

Rio Mesa SEGF Dust Emission Process Rates

Power Plant

Equipment	Average Veh Travel Rate mph	Per Unit Daily Process Rate	Units	Jan 25	Feb 26	Mar 27	Apr 28	May 29	Jun 30	Jul 31	Aug 32	Sep 33	Oct 34	Nov 35	Dec 36	Jan 37	Feb 38	Mar 39	Apr 40	May 41	Jun 42	Jul 43	Aug 44	Sep 45	Oct 46	Nov 47	Dec 48
				2015																							
CLASS 01 AUTOMOTIVE																											
SEDAN LIGHT G	1.50	3.0	VMT/Day	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 02 TRUCKS - LIGHT DUTY																											
PICKUP 1/2 TON 4X4 CREW CAB G	1.50	6.0	VMT/Day	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	180.0	180.0	120.0	120.0	54.0	54.0	42.0	42.0	42.0	0.0	0.0	0.0	0.0	0.0
CLASS 03 TRUCKS - HEAVY DUTY																											
TRUCK DUMP TANDEM AXLE 13-15 CY D	1.50	12.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2AX	1.50	12.0	VMT/Day	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	24.0	24.0	24.0	24.0	12.0	12.0	0.0	0.0	0.0	0.0	0.0
TRUCK YARD DOG 4X2 D	1.50	12.0	VMT/Day	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 06 PERSONNEL CARRIERS																											
ROUGH TERRAIN UTILITY VEHICLE D	1.50	1.5	VMT/Day	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	7.5	0.0	0.0	0.0	0.0	0.0
CLASS 07 EMERGENCY VEHICLES																											
AMBULANCE TYPE II VAN D	1.50	12.0	VMT/Day	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	0.0	0.0	0.0	0.0	0.0
CLASS 08 LIQUID STORAGE																											
TANK FUEL STRG 10,000G DBLWALLW/PUMP	0.00	0.0	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING																											
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.00	0.0	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 160HP D	1.50	3.2	HR	6.4	6.4	6.4	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EXCAVATOR CRAWLER	1.50	3.4	VMT/Day	16.8	16.8	16.8	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GRADER 29860LB 12' 165HP W/RPR-SCAR D	1.50	2.4	VMT/Day	12.0	12.0	4.8	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LOADER BACKHOE	1.50	2.5	VMT/Day	7.6	7.6	7.6	7.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRACTOR INDUSTRIAL 60-79 PTO HP D	1.50	2.1	VMT/Day	42.0	42.0	42.0	42.0	25.2	25.2	25.2	12.6	12.6	4.2	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT																											
TRENCHER WHEEL CHAIN 60HP 0-60" D	1.50	3.2	HR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 13 COMPACTION																											
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	1.50	12.0	VMT/Day	12.0	12.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 14 CRANES																											
CRANE CRAWLER 220T M14000 D	0.25	0.3	VMT/Day	1.9	1.9	1.6	1.6	1.3	1.3	1.3	0.6	0.6	0.6	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CRANE RT 70T 210HP D	0.25	0.5	VMT/Day	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	13.5	13.5	9.0	9.0	4.5	1.8	1.8	0.5	0.0	0.0	0.0	0.0	0.0
TOWER CRANE LUFF M1280D 110T 250 X 271 D	0.25	0.3	VMT/Day	0.6	0.6	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 15 FORKLIFT																											
FORKLIFT WHS 5000LB G/LPG	0.25	0.3	VMT/Day	6.0	6.0	5.1	5.1	5.1	5.1	3.9	3.9	3.9	3.9	1.8	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 17 AIR COMPRESSORS																											
AIR COMPR 750CFM 275HP D	0.00	0.0	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 52 WELDING EQUIPMENT																											
WELDER MULTIPROCESS	0.00	0.0	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WELDER FUSION 4"- 12" G	0.00	0.0	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WACHS PIPE END PREP MACHINE 2-6 AIR	0.00	0.0	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS																											
TRANSMIXER	1.50	6.0	VMT/Day	27.3	16.4	8.2	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 54 MANLIFTS / SCISSORLIFTS																											
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.00	0.0	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-66FT 65HP D	0.00	0.0	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AWP PERSONNEL LIFT 20-26FT E	0.00	0.0	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 26-32FT E	0.00	0.0	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WINDBLOW DUST (ACTIVE CONSTRUCTION AREA)	NA	N/A	SQ FT	2450250	2450250	2450250	2450250	2450250	2450250	2450250	2450250	1633500	1633500	1633500	816750	816750	816750	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Transmission Lines

Transmission Lines

Equipment	Average Veh Travel Rate mph	Per Unit Daily Process Rate	Units	2013 Jan 1	Feb 2	Mar 3	Apr 4	May 5	Jun 6	Jul 7	Aug 8	Sep 9	Oct 10	Nov 11	Dec 12	2014 Jan 13	Feb 14	Mar 15	Apr 16	May 17	Jun 18	Jul 19	Aug 20	Sep 21	Oct 22	Nov 23	Dec 24
Survey																											
3/4-Ton Pick-Up Truck, 4x4	1.50	13.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshalling Yard																											
1-Ton Crew Cab, 4x4	1.50	3.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	1.50	3.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10,000 lb Rough Terrain Fork Lift	1.50	7.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.0	15.0	15.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40 Flat Bed Trailer	1.50	0.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Truck, Semi, Tractor	1.50	1.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Roads & Landing Work																											
1-Ton Crew Cab, 4x4	1.50	3.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	1.50	4.3	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	1.50	12.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	1.50	3.9	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.25	0.3	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	1.50	4.2	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	1.50	6.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Foundations/Concrete & Tubular Steel Poles (TSP's)																											
1-Ton Crew Cab, 4x4	1.50	3.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	1.50	7.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.5	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	1.50	5.3	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.6	10.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Auger Truck	1.50	12.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	1.50	12.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.0	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	1.50	6.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-cu. yd. Concrete Mixer Truck	1.50	7.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.5	37.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pole & Assemblies Haul																											
3/4-Ton Pick-up Truck, 4x4	1.50	7.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	1.50	9.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40 Flat Bed Truck/ Trailer	1.50	12.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TSP Assembly & Erection																											
3/4-Ton Pick-up Truck, 4x4	1.50	7.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.5	7.5	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	1.00	5.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	5.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	1.50	2.9	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	2.9	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton Rough Terrain Crane	1.50	3.1	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	3.1	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Concrete Pole Assembly & Erection																											
3/4-Ton Pick-up Truck, 4x4	1.50	7.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.0	15.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	1.50	7.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.5	22.5	22.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.25	0.6	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton RT Crane	1.50	3.1	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	3.1	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Conductor & OPGW																											
3/4-Ton Pick-up Truck, 4x4	1.50	6.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.0	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	1.50	6.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wire Truck/Trailer	1.50	6.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.0	36.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bucket Truck	1.50	12.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	48.0	48.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	1.50	12.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	48.0	48.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rough Terrain Crane	1.50	2.1	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	1.50	6.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 Drum Sock Line Puller	1.50	3.7	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bull Wheel Puller	1.50	3.7	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Static Truck/ Tensioner	1.50	3.7	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Splicing Rig	1.50	4.9	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	1.50	2.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sag Cat w/ 2 winches	1.50	1.2	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	1.50	6.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.0	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hughes 500 E Helicopter	0.00	0.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel, Helicopter Support Truck	1.50	6.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Restoration																											
1-Ton Crew Cab, 4x4	1.50	3.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	1.50	4.4	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	1.50	12.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	1.50	4.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.25	0.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	1.50	4.2	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	1.50	4.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Windblown Dust (active construction area)	NA	N/A	SQ FT	0	0	0	0	0	0	0	0	0	0	#######	#######	#######	1,986,336	0	0	0	0	0	0	0	0	0	0

Transmission Lines

Equipment	Average Veh Travel Rate mph	Per Unit Daily Process Rate	Units	Jan 25	Feb 26	Mar 27	Apr 28	May 29	Jun 30	Jul 31	Aug 32	Sep 33	Oct 34	Nov 35	Dec 36	Jan 37	Feb 38	Mar 39	Apr 40	May 41	Jun 42	Jul 43	Aug 44	Sep 45	Oct 46	Nov 47	Dec 48
				2015																							
Survey																											
3/4-Ton Pick-Up Truck, 4x4	1.50	13.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshalling Yard																											
1-Ton Crew Cab, 4x4	1.50	3.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	1.50	3.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10,000 lb Rough Terrain Fork Lift	1.50	7.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Trailer	1.50	0.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Truck, Semi, Tractor	1.50	1.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Roads & Landing Work																											
1-Ton Crew Cab, 4x4	1.50	3.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	1.50	4.3	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	1.50	12.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	1.50	3.9	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.25	0.3	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	1.50	4.2	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	1.50	6.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Foundations/Concrete & Tubular Steel Poles (TSP's)																											
1-Ton Crew Cab, 4x4	1.50	3.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	1.50	7.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	1.50	5.3	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Auger Truck	1.50	12.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	1.50	12.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	1.50	6.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-cu. yd. Concrete Mixer Truck	1.50	7.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pole & Assemblies Haul																											
3/4-Ton Pick-up Truck, 4x4	1.50	7.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	1.50	9.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Truck/ Trailer	1.50	12.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TSP Assembly & Erection																											
3/4-Ton Pick-up Truck, 4x4	1.50	7.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	1.00	5.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	1.50	2.9	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton Rough Terrain Crane	1.50	3.1	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Concrete Pole Assembly & Erection																											
3/4-Ton Pick-up Truck, 4x4	1.50	7.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	1.50	7.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.25	0.6	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton RT Crane	1.50	3.1	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Conductor & OPGW																											
3/4-Ton Pick-up Truck, 4x4	1.50	6.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	1.50	6.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wire Truck/Trailer	1.50	6.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bucket Truck	1.50	12.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	1.50	12.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rough Terrain Crane	1.50	2.1	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	1.50	6.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 Drum Sock Line Puller	1.50	3.7	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bull Wheel Puller	1.50	3.7	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Static Truck/ Tensioner	1.50	3.7	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Splicing Rig	1.50	4.9	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	1.50	2.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sag Cat w/ 2 winches	1.50	1.2	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	1.50	6.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hughes 500 E Helicopter	0.00	0.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel, Helicopter Support Truck	1.50	6.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Restoration																											
1-Ton Crew Cab, 4x4	1.50	3.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	1.50	4.4	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	1.50	12.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	1.50	4.0	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.25	0.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	1.50	4.2	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	1.50	4.5	VMT/Day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Windblown Dust (active construction area)	NA	N/A	SQ FT.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Rio Mesa SEGF Dust Emission Factor Derivation

Unpaved Road Travel and Active Excavation Area Control - Source: Control of Open Fugitive Dust Sources,Scraping, and Grading U.S EPA, 9/88

C = 100 - (0.8)(p)(d)(t)/(i)

p = potential average hourly daytime evaporation rate =	0.845	mm/hr (EPA document, Figure 3-2, summer)
evaporation rate =	0.637	mm/hr (EPA document, Figure 3-2, annual)
d = average hourly daytime traffic rate =	5.0	vehicles/hr (estimated)
t = time between watering applications =	6.00	hr/application (estimated)
i = application intensity =	1.4	L/m2 (typical level in EPA document, page 3-23)
C = average summer watering control efficiency =	85.1%	
C = average annual watering control efficiency =	88.8%	

Wind Erosion of Active Construction Area - Source: "Improvement of Specific Emission Factors (BACM Project No. 1), Final Report", prepared for South Coast AQMD by Midwest Research Institute, March 1996

Level 2 Emission Factor =	0.011	ton/acre-month
Construction Schedule =	30	days/month
=	0.7	lbs/acre-day
=	1.68196E-05	PM10 lbs/scf-day
	6.72783E-06	PM2.5 lbs/scf-day

Bulldozer Operation and Scraper Excavation - Source: AP-42, Table 11.9.1, 7/98

E = (0.75)(s^1.5)/(M^1.4)

s = silt content =	8.5%	(AP-42, Table 13.2.2-1, 12/03, construction haul route)
M = moisture content =	15.0%	(SCAQMD CEQA Handbook, Table A9-9-G-1)
E = emission factor =	0.42	PM10 lb/hr
E = emission factor =	0.23	PM2.5 lb/hr

Finish Grading - Source: AP-42, Table 11.9-1, 7/98

E = (0.60)(0.051)(S^2.0)

S = mean vehicle speed =	3.0	mph (estimate)
E = emission factor =	0.2754	PM10 lbs/scf-day
E = emission factor =	0.0193	PM2.5 lbs/scf-day

Rio Mesa SEGF Dust Emission Factor Derivation
Unpaved Road Travel - Source: AP-42, Section 13.2.2, 11/06.

E = (k)[(s/12)^0.9(W/3)^0.45*

k = particle size constant =	1.5	for PM10
k = particle size constant =	0.15	for PM2.5
s = silt fraction =	8.50	(AP-42, Table 13.2.2-1, 11/06, construction sites

Vehicle Weights

W = water truck avg. veh. weight =	10.0	tons empty (estimated)
=	39.4	tons loaded (estimated with 8,000 gallon water capacity
=	24.7	tons average
W = dump truck avg. veh. weight =	15.0	tons (for heavy duty Diesel trucks)
=	40.0	tons (for heavy duty Diesel trucks)
=	27.5	tons (for heavy duty Diesel trucks)
W = forklift avg. veh. weight =	8.0	tons empty (estimated)
W = auto/pickup avg. vehicle weight =	2.4	tons (CARB Area Source Manual, 9/97)
W = delivery truck avg. veh. wt. =	27.5	tons (for heavy duty Diesel trucks)
W = 3 ton truck avg. veh. Wt =	5.4	tons (estimate)
W = manlift =	25	tons (estimate from Terex Model RM75)
W = crawler crane	45	tons (estimate from Manitowoc Model 999)
W = rough terrain crane/picker =	88	tons (estimate from Grove RT 9130E)
W = farm tracotr =	3.1	tons (estimate from New Holland Model T4050)
W = scraper avg. veh. wt. =	28.2	tons empty (615 scraper, Caterpillar Performance Handbook, 10/89
W = weight backhoe =	7.0	tons (estimate from Caterpillar model 416)
	48.6	tons loaded (615 scraper, Caterpillar Performance Handbook, 10/89
	27.9	tons mean weight
W = fuel truck avg. veh. weight =	8.0	tons empty (estimated)
=	18.2	tons loaded (estimated with 3,000 gallons Diesel fuel capacity
=	13.1	tons average
W = loader avg. veh. Weight =	33.35	tons (avg. of loaded and unloaded weights, 980H loader, Caterpillar Performance Handbook, 2006
W= compactor wt. =	15.00	tons (estimate from Caterpillar model Cp-433)

PM10 Emission Factors

E = water truck emission factor =	2.84	lb PM10/VMT
E = dump truck emission factor =	2.98	lb PM10/VMT
E = forklift emiss. factor =	1.71	lb PM10/VMT
E = auto/pickup emiss. factor =	0.99	lb PM10/VMT
E = delivery truck emiss. factor =	2.98	lb PM10/VMT
E = man lift emission factor =	2.86	lb PM10/VMT
E = crawler crane emission factor =	3.72	lb PM10/VMT
E = rough terrain crane/picker =	5.03	lb PM10/VMT
E = farm tractor =	1.12	lb PM10/VMT
E = 3-ton truck emiss. factor =	1.43	lb PM10/VMT
E = scraper emiss. factor =	3.00	lb PM10/VMT
E = fuel truck emiss. factor =	2.13	lb PM10/VMT
E = loader emiss. factor =	3.25	lb PM10/VMT
E= backhoe emiss. factor =	1.61	lb PM10/VMT
E= compactor emiss. factor =	2.27	lb PM10/VMT

PM2.5 Emission Factors

E = water truck emission factor =	0.28	lb PM2.5/VMT
E = dump truck emission factor =	0.30	lb PM2.5/VMT
E = forklift emiss. factor =	0.17	lb PM2.5/VMT
E = auto/pickup emiss. factor =	0.10	lb PM2.5/VMT
E = delivery truck emiss. factor =	0.30	lb PM2.5/VMT
E = man lift emission factor =	0.29	lb PM2.5/VMT
E = crawler crane emission factor =	0.37	lb PM2.5/VMT
E = rough terrain crane/picker =	0.50	lb PM2.5/VMT
E = farm tractor =	0.11	lb PM2.5/VMT
E = 3-ton truck emiss. factor =	0.14	lb PM2.5/VMT
E = scraper emiss. factor =	0.30	lb PM2.5/VMT
E = fuel truck emiss. factor =	0.21	lb PM2.5/VMT
E = loader emiss. factor =	0.33	lb PM2.5/VMT
E = backhoe emiss factor =	0.16	lb PM2.5/VMT
E = compactor emiss. Factor =	0.23	lb PM2.5/VMT

Rio Mesa SEGF Dust Emission Factor Derivation
Gravel Road Travel - Source: AP-42, Section 13.2.2, 11/06.

E = (k)[(s/12)^0.9(W/3)^0.45*

k = particle size constant =	1.5	for PM10
k = particle size constant =	0.15	for PM2.5
s = silt fraction =	6.40	(AP-42, Table 13.2.2-1, 11/06, gravel road)
Vehicle Weights		
W = water truck avg. veh. weight =	10.0	tons empty (estimated)
=	39.4	tons loaded (estimated with 8,000 gallon water capacity)
=	24.7	tons average
W = dump truck avg. veh. weight =	15.0	tons (for heavy duty Diesel trucks)
=	40.0	tons (for heavy duty Diesel trucks)
=	27.5	tons (for heavy duty Diesel trucks)
W = forklift avg. veh. weight =	8	tons empty (estimated)
PM10 Emission Factors		
E = auto/pickup emiss. factor =	0.77	lb PM10/VMT
E = delivery truck emiss. factor =	2.31	lb PM10/VMT
PM2.5 Emission Factors		
E = auto/pickup emiss. factor =	0.08	lb PM2.5/VMT
E = delivery truck emiss. factor =	0.23	lb PM2.5/VMT

Paved Road Travel - Source AP-42, Section 13.2.1, 11/11

E = k(sL)^0.91*(W)^1.02

k = particle size constant =	0.0022	for PM10 (AP42, Table 13.2.1-1)
k = particle size constant =	0.00054	for PM2.5 (AP42, Table 13.2.1-1)
sL = silt loading =	0.6	g/m2 (AP42, Table 13.2.1-2)
sL = silt loading =	0.86	grains/ft2
PM10 Factor - Heavy Trucks	0.0564	lb PM10/VMT
PM2.5 Factor - Heavy Trucks	0.0138	lb PM2.5/VMT

Rio Mesa SEGF Dust Emission Factors

Power Plant

Equipment	Units	Uncontrolled PM2.5 Emission Factor (lbs/unit)	Uncontrolled PM10 Emission Factor (lbs/unit)	Control Factor (%)	Controlled PM2.5 Emission Factor (lbs/unit)	Controlled PM10 Emission Factor (lbs/unit)
CLASS 01 AUTOMOTIVE						
SEDAN LIGHT G	VMT	0.08	0.77	85%	0.01	0.11
CLASS 02 TRUCKS - LIGHT DUTY						
PICKUP 1/2 TON 4X4 CREW CAB G	VMT	0.08	0.77	85%	0.01	0.11
CLASS 03 TRUCKS - HEAVY DUTY						
TRUCK DUMP TANDEM AXLE 13-15 CY D	VMT	0.30	2.98	85%	0.04	0.44
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2AX I	VMT	0.28	2.84	85%	0.04	0.42
TRUCK YARD DOG 4X2 D	VMT	0.10	0.99	85%	0.01	0.15
CLASS 06 PERSONNEL CARRIERS						
ROUGH TERRAIN UTILITY VEHICLE D	VMT	0.30	2.98	85%	0.04	0.44
CLASS 07 EMERGENCY VEHICLES						
AMBULANCE TYPE II VAN D	VMT	0.10	0.99	85%	0.01	0.15
CLASS 08 LIQUID STORAGE						
TANK FUEL STRG 10,000G DBLWALLW/PUMP	N/A	0.00	0.00	0%	0.00	0.00
CLASS 11 EARTHMOVING						
ATT HOERAM 5,000LB 270-480 BPM CAT330	N/A	0.30	2.98	85%	0.04	0.44
DOZER CRAWLER 131 - 160HP D	HR	0.23	0.42	85%	0.03	0.06
EXCAVATOR CRAWLER	VMT	0.33	3.25	85%	0.05	0.48
GRADER 29860LB 12' 165HP W/RPR-SCAR D	VMT	0.37	3.72	85%	0.06	0.55
LOADER BACKHOE	VMT	0.33	1.61	85%	0.05	0.24
TRACTOR INDUSTRIAL 60-79 PTO HP D	VMT	0.11	1.12	85%	0.02	0.17
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT						
TRENCHER WHEEL CHAIN 60HP 0-60" D	HR	0.23	0.42	85%	0.03	0.06
CLASS 13 COMPACTION						
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	VMT	0.23	2.27	85%	0.03	0.34
CLASS 14 CRANES						
CRANE CRAWLER 220T M14000 D	VMT	0.37	3.72	85%	0.06	0.55
CRANE RT 70T 210HP D	VMT	0.50	5.03	85%	0.08	0.75
TOWER CRANE LUFF M1280D 110T 250 X 271 D	VMT	0.00	0.00	0%	0.00	0.00
CLASS 15 FORKLIFT						
FORKLIFT WHS 5000LB G/LPG	VMT	0.17	1.71	85%	0.03	0.25
CLASS 17 AIR COMPRESSORS						
AIR COMPR 750CFM 275HP D	N/A	0.00	0.00	0%	0.00	0.00
CLASS 52 WELDING EQUIPMENT						
WELDER MULTIPROCESS	N/A	0.00	0.00	0.00	0.00	0.00
WELDER FUSION 4"- 12" G	N/A	0.00	0.00	0%	0.00	0.00
WACHS PIPE END PREP MACHINE 2-6 AIR	N/A	0.00	0.00	0%	0.00	0.00
CONCRETE TRUCKS						
TRANSMIXER	VMT	0.01	0.06	0%	0.01	0.06
CLASS 54 MANLIFTS / SCISSORLIFTS						
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	N/A	0.00	0.00	0%	0.00	0.00
MANLIFT ARTICULATING 60-66FT 65HP D	N/A	0.00	0.00	0%	0.00	0.00
AWP PERSONNEL LIFT 20-26FT E	N/A	0.00	0.00	0%	0.00	0.00
SCISSORLIFT 26-32FT E	N/A	0.00	0.00	0%	0.00	0.00
WINDBLOW DUST (ACTIVE CONSTRUCTION AREA)	SQ FT.	6.73E-06	1.68E-05	85%	1.00E-06	2.51E-06

Transmission Lines

Equipment	Units	Uncontrolled PM2.5 Emission Factor (lbs/unit)	Uncontrolled PM10 Emission Factor (lbs/unit)	Control Factor (%)	Controlled PM2.5 Emission Factor (lbs/unit)	Controlled PM10 Emission Factor (lbs/unit)
Survey						
3/4-Ton Pick-Up Truck, 4x4	VMT	0.10	0.99	85%	0.01	0.15
Marshalling Yard						
1-Ton Crew Cab, 4x4	VMT	0.10	0.99	85%	0.01	0.15
30-Ton Crane Truck	VMT	0.30	2.98	85%	0.04	0.44
10,000 lb Rough Terrain Fork Lift	VMT	0.17	1.71	85%	0.03	0.25
40' Flat Bed Trailer	VMT	0.00	0.00	85%	0.00	0.00
Truck, Semi, Tractor	VMT	0.30	2.98	85%	0.04	0.44
Roads & Landing Work						
1-Ton Crew Cab, 4x4	VMT	0.10	0.99	85%	0.01	0.15
Road Grader	VMT	0.02	0.42	85%	0.00	0.06
Water Truck	VMT	0.28	2.84	85%	0.04	0.42
Backhoe/Front Loader	N/A	0.33	3.25	85%	0.05	0.48
Drum Type Compactor	VMT	0.30	2.98	85%	0.04	0.44
Track Type Dozer	VMT	0.23	0.42	85%	0.03	0.06
Lowboy Truck/Trailer	VMT	0.30	2.98	85%	0.04	0.44
Install Foundations/Concrete & Tubular Steel Poles (TSP's)						
1-Ton Crew Cab, 4x4	N/A	0.10	0.99	85%	0.01	0.15
30-Ton Crane Truck	VMT	0.30	2.98	85%	0.04	0.44
Backhoe/Front Loader	VMT	0.33	3.25	85%	0.05	0.48
Auger Truck	VMT	0.29	2.86	85%	0.04	0.43
Water Truck	VMT	0.28	2.84	85%	0.04	0.42
Dump Truck	N/A	0.30	2.98	85%	0.04	0.44
10-cu. yd. Concrete Mixer Truck	VMT	0.28	2.84	85%	0.04	0.42
Pole & Assemblies Haul						
3/4-Ton Pick-up Truck, 4x4	VMT	0.10	0.99	85%	0.01	0.15
Crane/Boom Truck	VMT	0.30	2.98	85%	0.04	0.44
40' Flat Bed Truck/ Trailer	VMT	0.30	2.98	85%	0.04	0.44
TSP Assembly & Erection						
3/4-Ton Pick-up Truck, 4x4	VMT	0.10	0.99	85%	0.01	0.15
1-Ton Crew Cab, 4x4	VMT	0.30	2.98	85%	0.04	0.44
Compressor Trailer	VMT	0.10	0.99	85%	0.01	0.15
80-Ton Rough Terrain Crane	N/A	0.50	5.03	85%	0.08	0.75
Concrete Pole Assembly & Erection						
3/4-Ton Pick-up Truck, 4x4	VMT	0.10	0.99	85%	0.01	0.15
1-Ton Crew Cab, 4x4	VMT	0.30	2.98	85%	0.04	0.44
Compressor Trailer	VMT	0.10	0.99	85%	0.01	0.15
80-Ton RT Crane	VMT	0.50	5.03	85%	0.08	0.75
Install Conductor & OPGW						
3/4-Ton Pick-up Truck, 4x4	VMT	0.10	0.99	85%	0.01	0.15
1-Ton Crew Cab, 4x4	VMT	0.10	2.98	85%	0.01	0.44
Wire Truck/Trailer	VMT	0.11	2.13	85%	0.02	0.32
Bucket Truck	VMT	0.29	2.86	85%	0.04	0.43
Crane/Boom Truck	VMT	0.29	2.86	85%	0.04	0.43
Rough Terrain Crane	VMT	0.50	5.03	85%	0.08	0.75
Dump Truck	VMT	0.30	2.98	85%	0.04	0.44
3 Drum Sock Line Puller	VMT	0.10	0.99	85%	0.01	0.15
Bull Wheel Puller	VMT	0.11	2.13	85%	0.02	0.32
Static Truck/ Tensioner	VMT	0.11	2.13	85%	0.02	0.32
Splicing Rig	VMT	0.11	2.13	85%	0.02	0.32
Backhoe/Front Loader	VMT	0.33	3.72	85%	0.05	0.55
Sag Cat w/ 2 winches	VMT	0.29	3.25	85%	0.04	0.48
Lowboy Truck/Trailer	VMT	0.30	2.98	85%	0.04	0.44
Hughes 500 E Helicopter	N/A	0	0	85%	0	0
Fuel, Helicopter Support Truck	VMT	0.30	2.98	85%	0.04	0.44
Restoration						
1-Ton Crew Cab, 4x4	VMT	0.10	0.99	85%	0.01	0.15
Road Grader	VMT	0.02	0.28	85%	0.00	0.04
Water Truck	VMT	0.28	2.84	85%	0.04	0.42
Backhoe/Front Loader	VMT	0.29	2.86	85%	0.04	0.43
Drum Type Compactor	VMT	0.23	2.27	85%	0.03	0.34
Track Type Dozer	VMT	0.23	0.42	85%	0.03	0.06
Lowboy Truck/Trailer	VMT	0.30	2.98	85%	0.04	0.44
Windblown Dust (active construction area)	SQ FT.	6.72783E-06	1.68196E-05	85%	1.00E-06	2.51E-06

Rio Mesa SEGF - Fugitive Dust Emissions

Power Plant - PM2.5 (lb/day)

Equipment	2013 Jan 1	Feb 2	Mar 3	Apr 4	May 5	Jun 6	Jul 7	Aug 8	Sep 9	Oct 10	Nov 11	Dec 12
CLASS 01 AUTOMOTIVE												
SEDAN LIGHT G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 02 TRUCKS - LIGHT DUTY												
PICKUP 1/2 TON 4X4 CREW CAB G	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.4	0.4	0.5	0.5
CLASS 03 TRUCKS - HEAVY DUTY												
TRUCK DUMP TANDEM AXLE 13-15 CY D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRUCK WATER 3500-4000G F-R SPR BAR / MONITOR 2AX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5
TRUCK YARD DOG 4X2 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 06 PERSONNEL CARRIERS												
ROUGH TERRAIN UTILITY VEHICLE D	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.4	0.4	0.5
CLASS 07 EMERGENCY VEHICLES												
AMBULANCE TYPE II VAN D	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2
CLASS 08 LIQUID STORAGE												
TANK FUEL STRG 10,000G DBLWALLW/PUMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING												
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 160HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.6	0.6	0.6
EXCAVATOR CRAWLER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8
GRADER 29860LB 12' 165HP W/RPR-SCAR D	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.7	0.7
LOADER BACKHOE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2
TRACTOR INDUSTRIAL 60-70 PTO HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT												
TRENCHER WHEEL CHAIN 60HP 0-60" D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
CLASS 13 COMPACTION												
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 14 CRANES												
CRANE CRAWLER 220T M14000 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CRANE RT 70T 210HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOWER CRANE LUFF M1280D 110T 290 X 271 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 15 FORKLIFT												
FORKLIFT WHS 5000LB G/LPG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 17 AIR COMPRESSORS												
AIR COMPR 750CFM 276HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 52 WELDING EQUIPMENT												
WELDER MULTIPROCESS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WELDER FUSION 4" - 12" G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WACHS PIPE END PREP MACHINE 2-6 AIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS												
TRANSMIXER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.6	1.6	2.5
CLASS 54 MANLIFTS / SCISSORLIFTS												
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-66FT 65HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AWP PERSONNEL LIFT 20-26FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 29-32FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WINDBLOW DUST (ACTIVE CONSTRUCTION AREA)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.8	1.8	1.8	1.8
Total =	0.00	0.00	0.00	0.00	0.00	0.00	1.38	3.13	3.93	5.67	7.39	8.41
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	0.00	0.00	30.30	68.91	86.51	124.71	162.61	185.11
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =												
Annual Emissions - Max 12-Month Rolling Total (tons/year) =												

Equipment	2014 Jan 13	Feb 14	Mar 15	Apr 16	May 17	Jun 18	Jul 19	Aug 20	Sep 21	Oct 22	Nov 23	Dec 24
CLASS 01 AUTOMOTIVE												
SEDAN LIGHT G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 02 TRUCKS - LIGHT DUTY												
PICKUP 1/2 TON 4X4 CREW CAB G	0.6	0.6	0.1	1.2	1.4	1.4	1.4	1.4	2.1	2.4	2.4	2.4
CLASS 03 TRUCKS - HEAVY DUTY												
TRUCK DUMP TANDEM AXLE 13-15 CY D	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0
TRUCK WATER 3500-4000G F-R SPR BAR / MONITOR 2AX	1.0	1.5	1.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
TRUCK YARD DOG 4X2 D	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
CLASS 06 PERSONNEL CARRIERS												
ROUGH TERRAIN UTILITY VEHICLE D	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CLASS 07 EMERGENCY VEHICLES												
AMBULANCE TYPE II VAN D	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
CLASS 08 LIQUID STORAGE												
TANK FUEL STRG 10,000G DBLWALLW/PUMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING												
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 160HP D	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.6	0.6	0.6	0.2
EXCAVATOR CRAWLER	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
GRADER 29860LB 12' 165HP W/RPR-SCAR D	0.7	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.7	0.7
LOADER BACKHOE	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
TRACTOR INDUSTRIAL 60-70 PTO HP D	0.4	0.4	0.4	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT												
TRENCHER WHEEL CHAIN 60HP 0-60" D	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.0
CLASS 13 COMPACTION												
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	0.4	0.4	0.8	0.8	0.8	0.8	1.2	1.2	1.2	0.8	0.8	0.8
CLASS 14 CRANES												
CRANE CRAWLER 220T M14000 D	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CRANE RT 70T 210HP D	0.1	0.1	0.3	0.3	0.7	0.7	1.0	1.0	1.2	1.2	1.2	1.2
TOWER CRANE LUFF M1280D 110T 290 X 271 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 15 FORKLIFT												
FORKLIFT WHS 5000LB G/LPG	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
CLASS 17 AIR COMPRESSORS												
AIR COMPR 750CFM 276HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 52 WELDING EQUIPMENT												
WELDER MULTIPROCESS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WELDER FUSION 4" - 12" G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WACHS PIPE END PREP MACHINE 2-6 AIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS												
TRANSMIXER	2.3	2.3	2.5	2.1	2.3	2.6	1.7	1.3	1.1	0.9	0.8	0.6
CLASS 54 MANLIFTS / SCISSORLIFTS												
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-66FT 65HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AWP PERSONNEL LIFT 20-26FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 29-32FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WINDBLOW DUST (ACTIVE CONSTRUCTION AREA)	1.8	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Total =	11.28	13.29	14.12	16.29	17.02	17.36	17.35	16.86	16.98	16.62	14.70	14.07
Monthly Emissions (lbs/month) =	248.21	292.45	310.64	358.37	374.50	381.85	381.60	371.27	373.49	365.56	323.30	309.45
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =												
Annual Emissions - Max 12-Month Rolling Total (tons/year) =												

Equipment	2015 Jan 25	Feb 26	Mar 27	Apr 28	May 29	Jun 30	Jul 31	Aug 32	Sep 33	Oct 34	Nov 35	Dec 36	2016 Jan 37	Feb 38	Mar 39	Apr 40	May 41	Jun 42	Jul 43	Aug 44	Sep 45	Oct 46	Nov 47	Dec 48
CLASS 01 AUTOMOTIVE																								
SEDAN LIGHT G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 02 TRUCKS - LIGHT DUTY																								
PICKUP 1/2 TON 4X4 CREW CAB G	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.1	2.1	1.4	1.4	0.6	0.6	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
CLASS 03 TRUCKS - HEAVY DUTY																								
TRUCK DUMP TANDEM AXLE 13-15 CY D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2A/	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.0	1.0	1.0	1.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0
TRUCK YARD DOG 4X2 D	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 06 PERSONNEL CARRIERS																								
ROUGH TERRAIN UTILITY VEHICLE D	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.0
CLASS 07 EMERGENCY VEHICLES																								
AMBULANCE TYPE II VAN D	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0
CLASS 08 LIQUID STORAGE																								
TANK FUEL STRG 10,000G DBLWALLW/PUMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING																								
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 160HP D	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EXCAVATOR CRAWLER	0.8	0.8	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GRADER 29860LB 12' 165HP W/RPR-SCAR D	0.7	0.7	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LOADER BACKHOE	0.4	0.4	0.4	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRACTOR INDUSTRIAL 60-79 PTO HP D	0.7	0.7	0.7	0.7	0.4	0.4	0.4	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT																								
TRENCHER WHEEL CHAIN 60HP 0-60' D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 13 COMPACTION																								
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 14 CRANES																								
CRANE CRAWLER 220T M14000 D	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CRANE RT 70T 210HP D	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.0	1.0	0.7	0.7	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
TOWER CRANE LUFF M1280D 110T 250 X 271 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 15 FORKLIFT																								
FORKLIFT WHS 5000LB G/LPG	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 17 AIR COMPRESSORS																								
AIR COMPR 750CFM 275HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 52 WELDING EQUIPMENT																								
WELDER MULTIPROCESS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WELDER FUSION 4"- 12" G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WACHS PIPE END PREP MACHINE 2-6 AIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS																								
TRANSMIXER	0.4	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 54 MANLIFTS / SCISSORLIFTS																								
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-66FT 65HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AWP PERSONNEL LIFT 20-26FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 26-32FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WINDBLOW DUST (ACTIVE CONSTRUCTION AREA)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.6	1.6	1.6	0.8	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total =	12.45	12.30	11.75	10.82	9.39	9.39	9.36	9.11	8.26	8.09	7.67	6.09	5.36	4.50	2.92	2.55	2.25	1.74	1.54	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	274.01	270.69	258.51	238.00	206.55	206.55	205.88	200.48	181.70	177.91	168.76	133.88	117.99	99.05	64.34	56.15	49.42	38.24	33.79	0.00	0.00	0.00	0.00	0.00
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =																								3564.8
Annual Emissions - Max 12-Month Rolling Total (tons/year) =																								1.8

Power Plant - PM10 (lb/day)

Equipment	Jan 1	Feb 2	Mar 3	Apr 4	May 5	Jun 6	Jul 7	Aug 8	Sep 9	Oct 10	Nov 11	Dec 12
	2013											
CLASS 01 AUTOMOTIVE												
SEDAN LIGHT G	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.3
CLASS 02 TRUCKS - LIGHT DUTY												
PICKUP 1/2 TON 4X4 CREW CAB G	0.0	0.0	0.0	0.0	0.0	0.0	3.4	3.4	4.1	4.1	4.8	4.8
CLASS 03 TRUCKS - HEAVY DUTY												
TRUCK DUMP TANDEM AXLE 13-15 CY D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2 AX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	5.1	5.1	5.1	5.1
TRUCK YARD DOG 4X2 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 06 PERSONNEL CARRIERS												
ROUGH TERRAIN UTILITY VEHICLE D	0.0	0.0	0.0	0.0	0.0	0.0	3.3	3.3	3.3	4.0	4.0	4.7
CLASS 07 EMERGENCY VEHICLES												
AMBULANCE TYPE II VAN B	0.0	0.0	0.0	0.0	0.0	0.0	1.8	1.8	1.8	1.8	1.8	1.8
CLASS 08 LIQUID STORAGE												
TANK FUEL STRG 10,000G DBLWALLW/PUMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING												
ATT HOERAM 5,000LB 270->80 BPM CAT330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 160HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	1.0	1.0	1.0
EXCAVATOR CRAWLER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1	8.1	8.1
GRADER 29800LS 12' 165HP W/RPR-SCAR D	0.0	0.0	0.0	0.0	0.0	0.0	2.7	2.7	2.7	2.7	6.7	6.7
LOADER BACKHOE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2
TRACTOR INDUSTRIAL 60-79 PTO HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	2.1	2.1	2.1
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT												
TRENCHER WHEEL CHAIN 80HP 0-60" D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
CLASS 13 COMPACTION												
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 14 CRANES												
CRANE CRAWLER 220T M-H000 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CRANE RT 70T 210HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
TOWER CRANE LUFF M12J0D 110T 250 X 271 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 15 FORKLIFT												
FORKLIFT WHS 5000LB G/LPG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2
CLASS 17 AIR COMPRESSORS												
AIR COMPR 750CFM 275HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 53 WELDING EQUIPMENT												
WELDER MULTIPROCESS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WELDER FUSION 4"- 12" G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WACHS PIPE END PREP MACHINE 2-6 AIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS												
TRANSMIXER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.6	2.3	6.6	10.0
CLASS 54 MANLIFTS / SCISSORLIFTS												
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-65FT 65HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AWP PERSONNEL LIFT 20-26FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 26-32FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WINDBLOW DUST (ACTIVE CONSTRUCTION AREA)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	3.7	3.7	4.1	4.1
Total =	0.00	0.00	0.00	0.00	0.00	0.00	11.97	21.47	24.10	36.53	46.26	50.67
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	0.00	0.00	263.29	472.31	530.30	803.62	1,017.82	1,114.67
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =												
Annual Emissions - Max 12-Month Rolling Total (tons/year) =												

Equipment	Jan 13	Feb 14	Mar 15	Apr 16	May 17	Jun 18	Jul 19	Aug 20	Sep 21	Oct 22	Nov 23	Dec 24
	2014											
CLASS 01 AUTOMOTIVE												
SEDAN LIGHT G	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
CLASS 02 TRUCKS - LIGHT DUTY												
PICKUP 1/2 TON 4X4 CREW CAB G	5.5	5.5	0.7	12.4	14.5	14.5	14.5	14.5	20.7	24.1	24.1	24.1
CLASS 03 TRUCKS - HEAVY DUTY												
TRUCK DUMP TANDEM AXLE 13-15 CY D	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	0.0	0.0
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2 AX	10.2	15.2	15.2	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4
TRUCK YARD DOG 4X2 D	0.0	0.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
CLASS 06 PERSONNEL CARRIERS												
ROUGH TERRAIN UTILITY VEHICLE D	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
CLASS 07 EMERGENCY VEHICLES												
AMBULANCE TYPE II VAN B	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
CLASS 08 LIQUID STORAGE												
TANK FUEL STRG 10,000G DBLWALLW/PUMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING												
ATT HOERAM 5,000LB 270->80 BPM CAT330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 160HP D	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0	1.0	0.4
EXCAVATOR CRAWLER	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
GRADER 29800LS 12' 165HP W/RPR-SCAR D	6.7	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	6.7	6.7
LOADER BACKHOE	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
TRACTOR INDUSTRIAL 60-79 PTO HP D	4.2	4.2	4.2	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT												
TRENCHER WHEEL CHAIN 80HP 0-60" D	0.2	0.2	0.4	0.4	0.4	0.6	0.6	0.4	0.4	0.2	0.2	0.0
CLASS 13 COMPACTION												
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	4.1	4.1	8.1	8.1	8.1	8.1	12.2	12.2	12.2	8.1	8.1	8.1
CLASS 14 CRANES												
CRANE CRAWLER 220T M-H000 D	0.0	0.2	0.2	0.4	0.4	0.7	0.7	0.9	1.1	1.1	1.1	1.1
CRANE RT 70T 210HP D	1.4	1.4	3.4	3.4	6.8	6.8	10.1	10.1	12.2	12.2	12.2	12.2
TOWER CRANE LUFF M12J0D 110T 250 X 271 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 15 FORKLIFT												
FORKLIFT WHS 5000LB G/LPG	0.5	0.5	0.9	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
CLASS 17 AIR COMPRESSORS												
AIR COMPR 750CFM 275HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 53 WELDING EQUIPMENT												
WELDER MULTIPROCESS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WELDER FUSION 4"- 12" G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WACHS PIPE END PREP MACHINE 2-6 AIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS												
TRANSMIXER	9.2	9.2	10.0	8.5	9.2	10.0	6.9	5.4	4.6	3.8	3.1	2.3
CLASS 54 MANLIFTS / SCISSORLIFTS												
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-65FT 65HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AWP PERSONNEL LIFT 20-26FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 26-32FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WINDBLOW DUST (ACTIVE CONSTRUCTION AREA)	4.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
Total =	75.34	89.31	95.55	119.49	125.70	127.02	131.38	129.82	136.46	134.88	116.79	115.22
Monthly Emissions (lbs/month) =	1,657.53	1,964.75	2,102.20	2,628.68	2,765.36	2,794.49	2,890.42	2,856.09	3,002.12	2,967.31	2,569.27	2,534.74
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =												
Annual Emissions - Max 12-Month Rolling Total (tons/year) =												

Power Plant - PM10 (lb/day)

Equipment	2015 Jan 25	Feb 26	Mar 27	Apr 28	May 29	Jun 30	Jul 31	Aug 32	Sep 33	Oct 34	Nov 35	Dec 36
CLASS 01 AUTOMOTIVE												
SEDAN LIGHT G	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.0	0.3	0.3	0.3
CLASS 02 TRUCKS - LIGHT DUTY												
PICKUP 1/2 TON 4X4 CREW CAB G	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	20.7	20.7
CLASS 03 TRUCKS - HEAVY DUTY												
TRUCK DUMP TANDEM AXLE 13-15 CY D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2A	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2
TRUCK YARD DOG 4X2 D	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	0.0
CLASS 06 PERSONNEL CARRIERS												
ROUGH TERRAIN UTILITY VEHICLE D	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.0	4.0	4.0
CLASS 07 EMERGENCY VEHICLES												
AMBULANCE TYPE II VAN D	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
CLASS 08 LIQUID STORAGE												
TANK FUEL STRG 10,000G DBL WALL W/PUMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING												
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 160HP D	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EXCAVATOR CRAWLER	8.1	8.1	8.1	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GRADER 29860LB 12' 165HP W/RPR-SCAR D	6.7	6.7	2.7	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LOADER BACKHOE	1.8	1.8	1.8	1.8	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.0
TRACTOR INDUSTRIAL 60-79 PTO HP D	7.0	7.0	7.0	7.0	4.2	4.2	4.2	2.1	2.1	0.7	0.7	0.0
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT												
TRENCHER WHEEL CHAIN 60HP 0-60" D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 13 COMPACTION												
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	4.1	4.1	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 14 CRANES												
CRANE CRAWLER 220T M14000 D	1.1	1.1	0.9	0.9	0.7	0.7	0.7	0.4	0.4	0.4	0.2	0.2
CRANE RT 70T 210HP D	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	10.1
TOWER CRANE LUFF M1280D 110T 250 X 271 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 15 FORKLIFT												
FORKLIFT WHS 5000LB G/LPG	1.5	1.5	1.3	1.3	1.3	1.3	1.0	1.0	1.0	1.0	0.5	0.3
CLASS 17 AIR COMPRESSORS												
AIR COMPR 750CFM 275HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 52 WELDING EQUIPMENT												
WELDER MULTIPROCESS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WELDER FUSION 4"- 12" G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WACHS PIPE END PREP MACHINE 2-6 AIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS												
TRANSMIXER	1.5	0.9	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 54 MANLIFTS / SCISSORLIFTS												
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-66FT 65HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AWP PERSONNEL LIFT 20-26FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 26-32FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WINDBLOW DUST (ACTIVE CONSTRUCTION AREA)	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	4.1	4.1	4.1	2.0
Total =	100.22	99.61	94.75	85.64	74.83	74.83	74.53	72.07	69.68	67.96	63.80	54.71
Monthly Emissions (lbs/month) =	2,204.90	2,191.37	2,084.39	1,884.19	1,646.33	1,646.33	1,639.59	1,585.65	1,533.00	1,495.16	1,403.64	1,203.64
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =												
Annual Emissions - Max 12-Month Rolling Total (tons/year) =												

Equipment	2016 Jan 37	Feb 38	Mar 39	Apr 40	May 41	Jun 42	Jul 43	Aug 44	Sep 45	Oct 46	Nov 47	Dec 48
CLASS 01 AUTOMOTIVE												
SEDAN LIGHT G	0.3	0.3	0.3	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 02 TRUCKS - LIGHT DUTY												
PICKUP 1/2 TON 4X4 CREW CAB G	13.8	13.8	6.2	6.2	4.8	4.8	4.8	0.0	0.0	0.0	0.0	0.0
CLASS 03 TRUCKS - HEAVY DUTY												
TRUCK DUMP TANDEM AXLE 13-15 CY D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRUCK WATER 3600-4000G F-R SPR BAR / MONITOR 2A	15.2	10.2	10.2	10.2	10.2	5.1	5.1	0.0	0.0	0.0	0.0	0.0
TRUCK YARD DOG 4X2 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 06 PERSONNEL CARRIERS												
ROUGH TERRAIN UTILITY VEHICLE D	4.0	4.0	4.0	4.0	4.0	4.0	3.3	0.0	0.0	0.0	0.0	0.0
CLASS 07 EMERGENCY VEHICLES												
AMBULANCE TYPE II VAN D	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0.0	0.0	0.0	0.0	0.0
CLASS 08 LIQUID STORAGE												
TANK FUEL STRG 10,000G DBL WALL W/PUMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 11 EARTHMOVING												
ATT HOERAM 5,000LB 270-480 BPM CAT330	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DOZER CRAWLER 131 - 160HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EXCAVATOR CRAWLER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GRADER 29860LB 12' 165HP W/RPR-SCAR D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LOADER BACKHOE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRACTOR INDUSTRIAL 60-79 PTO HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 12 PIPELAYING / TRENCHING EQUIPMENT												
TRENCHER WHEEL CHAIN 60HP 0-60" D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 13 COMPACTION												
COMPACTOR VIB SMOOTH 66" 7.7T 75HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 14 CRANES												
CRANE CRAWLER 220T M14000 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CRANE RT 70T 210HP D	10.1	6.8	6.8	3.4	1.4	1.4	0.3	0.0	0.0	0.0	0.0	0.0
TOWER CRANE LUFF M1280D 110T 250 X 271 D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 15 FORKLIFT												
FORKLIFT WHS 5000LB G/LPG	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 17 AIR COMPRESSORS												
AIR COMPR 750CFM 275HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 52 WELDING EQUIPMENT												
WELDER MULTIPROCESS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WELDER FUSION 4"- 12" G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WACHS PIPE END PREP MACHINE 2-6 AIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CONCRETE TRUCKS												
TRANSMIXER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLASS 54 MANLIFTS / SCISSORLIFTS												
ELEVATOR PERS/MAT 7000LB 350 FT 2-CAR E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANLIFT ARTICULATING 60-66FT 65HP D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AWP PERSONNEL LIFT 20-26FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCISSORLIFT 26-32FT E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WINDBLOW DUST (ACTIVE CONSTRUCTION AREA)	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total =	47.49	38.88	29.24	25.52	22.46	17.38	15.36	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	1,044.70	855.27	643.37	561.53	494.22	382.42	337.89	0.00	0.00	0.00	0.00	0.00
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =												25597.8
Annual Emissions - Max 12-Month Rolling Total (tons/year) =												12.8

Transmission Lines - PM2.5 (lb/day)

Equipment	2013 Jan 1	Feb 2	Mar 3	Apr 4	May 5	Jun 6	Jul 7	Aug 8	Sep 9	Oct 10	Nov 11	Dec 12	2014 Jan 13	Feb 14	Mar 15	Apr 16	May 17	Jun 18	Jul 19	Aug 20	Sep 21	Oct 22	Nov 23	Dec 24
Survey																								
3/4-Ton Pick-Up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshalling Yard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10,000 lb Rough Terrain Fork Lift	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Truck, Semi, Tractor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Roads & Landing Work	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Foundations/Concrete & Tubular Steel Poles (TSP's)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Auger Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-cu. yd. Concrete Mixer Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pole & Assemblies Haul	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Truck/ Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TSP Assembly & Erection	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Concrete Pole Assembly & Erection	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton RT Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Conductor & OPGW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bucket Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 Drum Sock Line Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bull Wheel Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Static Truck/ Tensioner	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spiking Rig	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Skg Cat w/ 2 winches	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hughes 500 E Helicopter	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel, Helicopter Support Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Restoration	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Windblown Dust (active construction area)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.89	10.18	12.86	11.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	235.19	223.60	282.86	262.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual Emissions (lbs/year) =																								
Annual Emissions (tons/year) =																								

Transmission Lines - PM2.5 (lb/day)

Equipment	2015 Jan 25	Feb 26	Mar 27	Apr 28	May 29	Jun 30	Jul 31	Aug 32	Sep 33	Oct 34	Nov 35	Dec 36
Survey												
3/4-Ton Pick-Up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshalling Yard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10,000 lb Rough Terrain Fork Lift	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Truck, Semi, Tractor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Roads & Landing Work	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Foundations/Concrete & Tubular Steel Poles (TSP's)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Auger Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-cu. yd. Concrete Mixer Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pole & Assemblies Haul	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Truck/ Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TSP Assembly & Erection	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Concrete Pole Assembly & Erection	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton RT Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Conductor & OPGW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bucket Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 Drum Sock Line Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bull Wheel Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Static Truck/ Tensioner	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Splicing Rig	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sag Cat w/ 2 winches	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hughes 500 E Helicopter	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel, Helicopter Support Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Restoration	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Windblown Dust (active construction area)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00
Annual Emissions (lbs/year) =												
Annual Emissions (tons/year) =												

Equipment	2016 Jan 37	Feb 38	Mar 39	Apr 40	May 41	Jun 42	Jul 43	Aug 44	Sep 45	Oct 46	Nov 47	Dec 48
Survey												
3/4-Ton Pick-Up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshalling Yard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10,000 lb Rough Terrain Fork Lift	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Truck, Semi, Tractor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Roads & Landing Work	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Foundations/Concrete & Tubular Steel Poles (TSP's)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Auger Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-cu. yd. Concrete Mixer Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pole & Assemblies Haul	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Truck/ Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TSP Assembly & Erection	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Concrete Pole Assembly & Erection	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton RT Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Conductor & OPGW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bucket Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 Drum Sock Line Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bull Wheel Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Static Truck/ Tensioner	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Splicing Rig	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sag Cat w/ 2 winches	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hughes 500 E Helicopter	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel, Helicopter Support Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Restoration	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Windblown Dust (active construction area)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual Emissions (lbs/year) =												545.3
Annual Emissions (tons/year) =												0.3

Transmission Lines - PM10 (lb/day)

Equipment	2013 Jan 1	Feb 2	Mar 3	Apr 4	May 5	Jun 6	Jul 7	Aug 8	Sep 9	Oct 10	Nov 11	Dec 12	2014 Jan 13	Feb 14	Mar 15	Apr 16	May 17	Jun 18	Jul 19	Aug 20	Sep 21	Oct 22	Nov 23	Dec 24
Survey																								
3/4-Ton Pick-Up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshalling Yard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10,000 lb Rough Terrain Fork Lift	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	3.8	3.8	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Truck, Semi, Tractor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Roads & Landing Work	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Foundations/Concrete & Tubular Steel Poles (TSP's)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Auger Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-cu. yd. Concrete Mixer Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.9	15.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pole & Assemblies Haul	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Truck/ Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TSP Assembly & Erection	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Concrete Pole Assembly & Erection	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton RT Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Conductor & OPGW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.3	13.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	11.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bucket Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.4	20.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.4	20.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 Drum Sock Line Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bull Wheel Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Static Truck/ Tensioner	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Splicing Rig	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sag Cat w/ 2 winches	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hughes 500 E Helicopter	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel, Helicopter Support Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Restoration	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Windblown Dust (active construction area)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	5.0	5.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	90.91	86.89	130.12	119.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,000.01	1,907.21	2,862.64	2,632.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual Emissions (lbs/year) =																								
Annual Emissions (tons/year) =																								

Transmission Lines - PM10 (lb/day)

Equipment	2015 Jan 25	Feb 26	Mar 27	Apr 28	May 29	Jun 30	Jul 31	Aug 32	Sep 33	Oct 34	Nov 35	Dec 36
Survey												
3/4-Ton Pick-Up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshalling Yard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10,000 lb Rough Terrain Fork Lift	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Truck, Semi, Tractor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Roads & Landing Work	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Foundations/Concrete & Tubular Steel Poles (TSP's)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Auger Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-cu. yd. Concrete Mixer Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pole & Assemblies Haul	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Truck/ Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TSP Assembly & Erection	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Concrete Pole Assembly & Erection	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton RT Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Conductor & OPGW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bucket Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 Drum Sock Line Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bull Wheel Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Static Truck/ Tensioner	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Splicing Rig	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sag Cat w/ 2 winches	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hughes 500 E Helicopter	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel, Helicopter Support Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Restoration	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Windblown Dust (active construction area)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00
Annual Emissions (lbs/year) =												
Annual Emissions (tons/year) =												

Equipment	2016 Jan 37	Feb 38	Mar 39	Apr 40	May 41	Jun 42	Jul 43	Aug 44	Sep 45	Oct 46	Nov 47	Dec 48
Survey												
3/4-Ton Pick-Up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshalling Yard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10,000 lb Rough Terrain Fork Lift	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Truck, Semi, Tractor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Roads & Landing Work	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Foundations/Concrete & Tubular Steel Poles (TSP's)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Ton Crane Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Auger Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-cu. yd. Concrete Mixer Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pole & Assemblies Haul	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40' Flat Bed Truck/ Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TSP Assembly & Erection	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Concrete Pole Assembly & Erection	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80-Ton RT Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Install Conductor & OPGW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/4-Ton Pick-up Truck, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bucket Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crane/Boom Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rough Terrain Crane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 Drum Sock Line Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bull Wheel Puller	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Static Truck/ Tensioner	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Splicing Rig	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sag Cat w/ 2 winches	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hughes 500 E Helicopter	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel, Helicopter Support Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Restoration	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1-Ton Crew Cab, 4x4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Road Grader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe/Front Loader	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drum Type Compactor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Track Type Dozer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Windblown Dust (active construction area)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual Emissions (lbs/year) =												5495.6
Annual Emissions (tons/year) =												2.7

Rio Mesa SEGF Concrete Batching Schedule

	Cubic Yards of Concrete Per Day																							
	2013												2014											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Equipment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Concrete Batching	0	0	0	0	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136
Total (cubic yards/month)	0	0	0	0	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Total (cubic yards)																								

	2015												2016											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Equipment	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Concrete Batching	136	136	136	136	136	136	136	136	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total (cubic yards/month)	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total (cubic yards)																								84000.0

Rio Mesa SEGF Concrete Batch Plant Emission Factors

Controlled Batch Plant Emission Factors(1)

Operation	Emission Factors PM10	PM2.5(3)	Units	Ton Material Material Per Ton Concete	Emission Factors PM10	PM2.5(3)	Units	Ton Per Cubic Yard	Emission Factors PM10	PM2.5(3)	Units
Aggregate Transfer	9.90E-04	1.49E-04	lb/ton aggregate	0.46	4.55E-04	6.83E-05	lb/ton concrete	2.012	9.16E-04	1.37E-04	lb/cy
Sand Transfer	2.97E-04	4.46E-05	lb/ton sand	0.35	1.04E-04	1.56E-05	lb/ton concrete	2.012	2.09E-04	3.14E-05	lb/cy
Cement Unloading to Elevated Storage Silo	3.40E-04	5.10E-05	lb/ton cement supplement	0.12	4.08E-05	6.12E-06	lb/ton concrete	2.012	8.21E-05	1.23E-05	lb/cy
Cement Supplement Unloading to Storage Silo	4.90E-03	7.35E-04	lb PM10/ton cement	0.02	9.80E-05	1.47E-05	lb/ton concrete	2.012	1.97E-04	2.96E-05	lb/cy
Weigh Hopper Loading	8.40E-04	1.26E-04	lb/ton concrete	1	8.40E-04	1.26E-04	lb/ton concrete	2.012	1.69E-03	2.54E-04	lb/cy
Truck Loading	5.50E-03	8.25E-04	lb/ton concrete	1	5.50E-03	8.25E-04	lb/ton concrete	2.012	1.11E-02	1.66E-03	lb/cy

(1)Emission factors from AP-42, Section 11.12, June 2006
(2)The batch plant will have dust control equipment achieving a 70% control efficiency during sand and aggregate transfer. Source for control efficiency: BAAQMD Permit Handbook, Section 11.5 Concrete Batch Plants, March 2009.
(3)PM2.5 factor derived from PM10 factor and the ratio of particlae size multipliers contained in Equation 11.12-1.

Rio Mesa SEGF Batch Plant Emissions

Rio Mesa Solar Electric Generating System (Total Both Plants) Daily Concrete Batching Emissions (lbs/day) - PM10

	PM10 Emissions (lb/day)																							
	2013												2014											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Operation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Aggregate Transfer	0.00	0.00	0.00	0.00	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Sand Transfer	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Cement Unloading to Elevated Storage Silo	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cement Supplement Unloading to Storage Silo	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Weigh Hopper Loading	0.00	0.00	0.00	0.00	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Truck Loading	0.00	0.00	0.00	0.00	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51
Total =	0.00	0.00	0.00	0.00	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	42.48	42.48	42.48	42.48	42.48	42.48	42.48	42.48	42.48	42.48	42.48	42.48	42.48	42.48	42.48	42.48	42.48	42.48	42.48	42.48
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =																								
Annual Emissions - Max 12-Month Rolling Total (tons/year) =																								

Rio Mesa Solar Electric Generating System (Total Both Plants) Daily Concrete Batching Emissions (lbs/day) - PM2.5

	PM2.5 Emissions (lb/day)																							
	2013												2014											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Operation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Aggregate Transfer	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Sand Transfer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cement Unloading to Elevated Storage Silo	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cement Supplement Unloading to Storage Silo	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Weigh Hopper Loading	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Truck Loading	0.00	0.00	0.00	0.00	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Total =	0.00	0.00	0.00	0.00	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Monthly Emissions (lbs/month) =	0.00	0.00	0.00	0.00	6.37	6.37	6.37	6.37	6.37	6.37	6.37	6.37	6.37	6.37	6.37	6.37	6.37	6.37	6.37	6.37	6.37	6.37	6.37	6.37
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =																								
Annual Emissions - Max 12-Month Rolling Total (tons/year) =																								

	2015												2016											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Operation	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Aggregate Transfer	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sand Transfer	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cement Unloading to Elevated Storage Silo	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cement Supplement Unloading to Storage Silo	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Weigh Hopper Loading	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Truck Loading	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total =	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	42.48	42.48	42.48	42.48	42.48	42.48	42.48	42.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =																								467.31
Annual Emissions - Max 12-Month Rolling Total (tons/year) =																								0.2

Rio Mesa Solar Electric Generating System (Total Both Pla

	2015												2016											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Operation	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Aggregate Transfer	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sand Transfer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cement Unloading to Elevated Storage Silo	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cement Supplement Unloading to Storage Silo	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Weigh Hopper Loading	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Truck Loading	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total =	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Monthly Emissions (lbs/month) =	6.37	6.37	6.37	6.37	6.37	6.37	6.37	6.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual Emissions - Max 12-Month Rolling Total (lbs/year) =																								70.10
Annual Emissions - Max 12-Month Rolling Total (tons/year) =																								0.0

Appendix 5.1G
Cumulative Impacts Analysis

APPENDIX 5.1G

Cumulative Impacts Analysis

Cumulative air quality impacts from the Rio Mesa SEGF and other reasonably foreseeable projects will be both regional and localized in nature. Regional air quality impacts are possible for pollutants such as ozone and $PM_{2.5}$ which are formed through photochemical processes that can take hours to occur. Carbon monoxide, NOx, and SOx impacts are generally localized in the area in which they are emitted. PM_{10} can create a local air quality problem in the vicinity of its emission source, but can also be a regional issue when it is formed in the atmosphere from VOC, SOx, and NOx.

The cumulative impacts analysis considers the potential for both regional and localized impacts due to emissions from proposed operation of the Rio Mesa SEGF. Regional impacts are evaluated by comparing maximum daily and annual emissions from the project with emissions of ozone and PM precursors in Riverside County. Localized impacts are evaluated by looking at other local sources of pollutants that are not included in the background air quality data to determine whether these sources in combination with Rio Mesa SEGF would be expected to cause significant cumulative air quality impacts.

Regional Impacts

Regional impacts are normally evaluated by assessing the project's contribution to regional emissions. Although the relative importance of VOC and NOx emissions in ozone formation differs from region to region and from day to day, state law requires reductions in emissions of both precursors to reduce overall ozone levels. The change in the sum of emissions of these pollutants, equally weighted, is used to provide a rough estimate of the impact of the project on regional ozone levels. However, because of the rural and relatively undeveloped nature of the project area (southeastern Riverside County), the MDAQMD and ARB have determined that ozone concentrations in the area largely reflect the impact of transport from the South Coast Air Basin.[1] Therefore, in this instance a comparison of project emissions with emissions in the air basin is not particularly informative because regional air quality is not correlated with local or regional sources of emissions. However, this also suggests that the project emissions will have minimal impact on local ozone levels because the majority of ozone in the project area comes from outside the air basin.

A comparison of the emissions of PM_{10} and $PM_{2.5}$ precursor emissions from the project with regional PM_{10} and $PM_{2.5}$ precursor emissions can be used to provide an estimate of the impact of the Project on regional PM_{10} and $PM_{2.5}$ levels. As discussed above, emissions of NOx and VOC, which are PM_{10}/$PM_{2.5}$ precursors as well as ozone precursors, are relatively low. The majority of regional PM_{10} and $PM_{2.5}$ comes from directly emitted particulate matter in the form of unpaved road dust and fugitive windblown dust.

---

1 CARB, "Second Triennial Review Of The Assessment Of The Impacts Of Transported Pollutants On Ozone Concentrations In California", Section III.G, November 1996.

Table 5.1G-1 summarizes these comparisons. Project emissions are compared with projected regional emissions in 2015. Riverside County emissions projections for 2015 were obtained using CARB's web-based emission inventory projection software.[2] Emissions from the project would result in very small increases in total emissions in the county. Because of the relatively small emissions contribution from the project and because regional air quality is heavily influenced by transport, we expect that the overall impact of the project on regional air quality will not be significant.

TABLE 5.1G-1
Comparison of Project Emissions to Regional Precursor Emissions in 2015: Annual Basis[a]

Ozone Precursors – Annual Basis	
Total Riverside County Ozone Precursors, tons/year	66,744
Total Project Ozone Precursor Emission, tons/year	18.9
Project Emissions as Percentage of Countywide Ozone Precursor Emissions	0.028%
PM_{10} Precursors – Annual Basis	
Total Riverside County PM_{10} Precursors, tons/year	98,187
Total Project PM_{10} Precursor Emissions, tons/year	25.2
Project Emissions as Percentage of Countywide PM_{10} Precursor Emissions	0.026%
$PM_{2.5}$ Precursors – Annual Basis	
Total Riverside County $PM_{2.5}$ Precursors, tons/year	74,492
Total Project $PM_{2.5}$ Precursor Emissions, tons/year	25.2
Project Emissions as Percentage of Countywide $PM_{2.5}$ Precursor Emissions	0.034%

[a] County-wide emissions calculated as 365 times daily emissions

Localized Impacts

To evaluate potential cumulative impacts of the project in combination with other projects in the area, we requested from the MDAQMD information regarding projects within a radius of 10 km (6 miles) of the project.

Within this search area, two types of projects were used as criteria for identification:

- Projects for which air pollution permits to construct have been issued since January 1, 2010; and
- Projects for which air pollution permits to construct have not been issued, but that are reasonably foreseeable.

Existing projects that have been in operation since at least 2010 are reflected in the ambient air quality data that has been used to represent background concentrations; consequently, no further analysis of the emissions from this category of facilities is required.

A copy of the information request for information about potential projects is attached. The MDAQMD responded that the only two facilities located within 6-miles of the Proposed Project are the Blythe Energy Project and Blythe Energy Project Phase II. Per the approach

[2] http://www.arb.ca.gov/app/emsinv/fcemssumcat2009.php, accessed August 2011.

discussed in the modeling protocol (Appendix 5.1H), these two projects were reviewed to determine whether the Blythe Energy Project or Blythe Energy Project Phase II have the potential to create a significant concentration gradient within the Proposed Project's modeled significant impact area. The Proposed Project's significant impact area is the area surrounding the project site where modeled impacts are above the corresponding EPA significant impact levels (SILs). Based on a review of the air quality modeling results for the Blythe Energy Project and Blythe Energy Project Phase II filed with the CEC during the permitting of these two projects, the only overlap between the significant impact areas of the three projects (Blythe, Blythe II, and the Rio Mesa SEGF) was associated with modeled 1-hr NO_2 impacts (EPA SIL of 7.5 $\mu g/m^3$). Therefore, only 1-hr NO_2 impacts were examined further for these three projects. A modeling analysis of the combined 1-hr NO_2 impacts for the three projects was performed using the same air dispersion model, meteorological data, and ambient background data as for the Proposed Project's modeling analysis (Section 5.1.5.5). The Blythe Energy Project and Blythe Energy Project Phase II NOx emission rates and stack parameters for this analysis were based on the air quality modeling files filed with the CEC. As shown in Table 5.1G-2, this analysis shows that the combined impacts for the three projects will not cause new exceedances of the state and federal air quality standards for 1-hr NO_2. Because there is no overlap between significant impact areas for the three projects with the exception of 1-hr NO_2 impacts and because the analysis of the combined 1-hr NO_2 impacts shows no exceedances of state and federal air quality standards, the localized cumulative air quality impacts are not expected to be significant for the Proposed Project.

Table 5.1G-2

Summary of Combined 1-hr NO_2 Results (Modeled Maximum Impacts plus Background)

Pollutant	Averaging Time	Combined Impact Three Projects ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration (Modeled Impact plus Background) ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	CAAQS ($\mu g/m^3$)
NO_2	1-hr (max)	194[a]	92.4	286	--	339
	1-hr (98th percentile)	149[a]	78.0[c]	167[b]	188	--

Note:

[a] Highest 1-hour average NO_2 impacts occur during emergency engine testing at the Proposed Project.

[b] Total concentrations shown for 1-hour NO_2 are modeled project impacts combined with concurrent hourly NO_2 monitoring data (Tier 4 analysis in Section 3.6 of the modeling protocol). This value represents the five-year average of the annual 1-hr NO_2 98th percentile (modeled impact plus background) for each year (2006 to 2010) as required by June 28, 2010 EPA 1-hr NO_2 NAAQS guidance document.

[c] Background concentration shown is the three-year average of the 98th percentile values (2008 to 2010), in accordance with the form of the federal standard.

ATTACHMENT 5.1G-1

Correspondence Related To Cumulative Impacts Analysis

July 27, 2011

sierra research

1801 J Street
Sacramento, CA 95811
Tel: (916) 444-6666
Fax: (916) 444-8373

Ann Arbor, MI
Tel: (734) 761-6666
Fax: (734) 761-6755

Mr. Eldon Heaston
Executive Director
Mojave Desert Air Quality Management District
14306 Park Avenue
Victorville, CA 92392

Re: Cumulative Impacts Analysis
BrightSource Energy Rio Mesa Solar Electric Generating Facility

Dear Mr. Heaston:

Rio Mesa Solar I, LLC; Rio Mesa SolarII, LLC; Rio Mesa Solar III, LLC; (collectively, the Applicant) will be submitting an application for a Determination of Compliance to the District and an Application for Certification to the California Energy Commission for the Rio Mesa Solar Electric Generating Facility (RMSEGF) during the 4th quarter of this year. The Applicant is proposing to construct a 750 megawatt solar thermal power plant in Riverside County just south of Interstate 10, about six to seven miles southwest of the Blythe Airport. A map showing the location of the proposed project is attached. As part of the project review, the CEC requires the Applicant to prepare an analysis of the project's cumulative air quality impacts. This is defined by the CEC as "a cumulative air quality modeling impacts analysis of the project's typical operating mode in combination with other stationary source emissions sources **within a six-mile radius** *which have received construction permits but are not yet operating, or are in the permitting process*." [Emphasis added.] We have interpreted this as follows:

- Projects for which permits to construct have been issued since January 1, 2010; and
- Projects for which permits to construct have not been issued, but are reasonably foreseeable.

We would like to obtain from the District a list of projects within six miles of the new power plant location for which permits to construct have been issued since January 1, 2010, and for which permits to construct have not been issued, but are reasonably foreseeable, along with sufficient emissions information and stack parameters so that we can include these sources in our air quality modeling. Facilities that meet these criteria but emit only VOCs can be excluded.

Thank you very much for your assistance. If you have any questions regarding the information we are requesting, feel free to call.

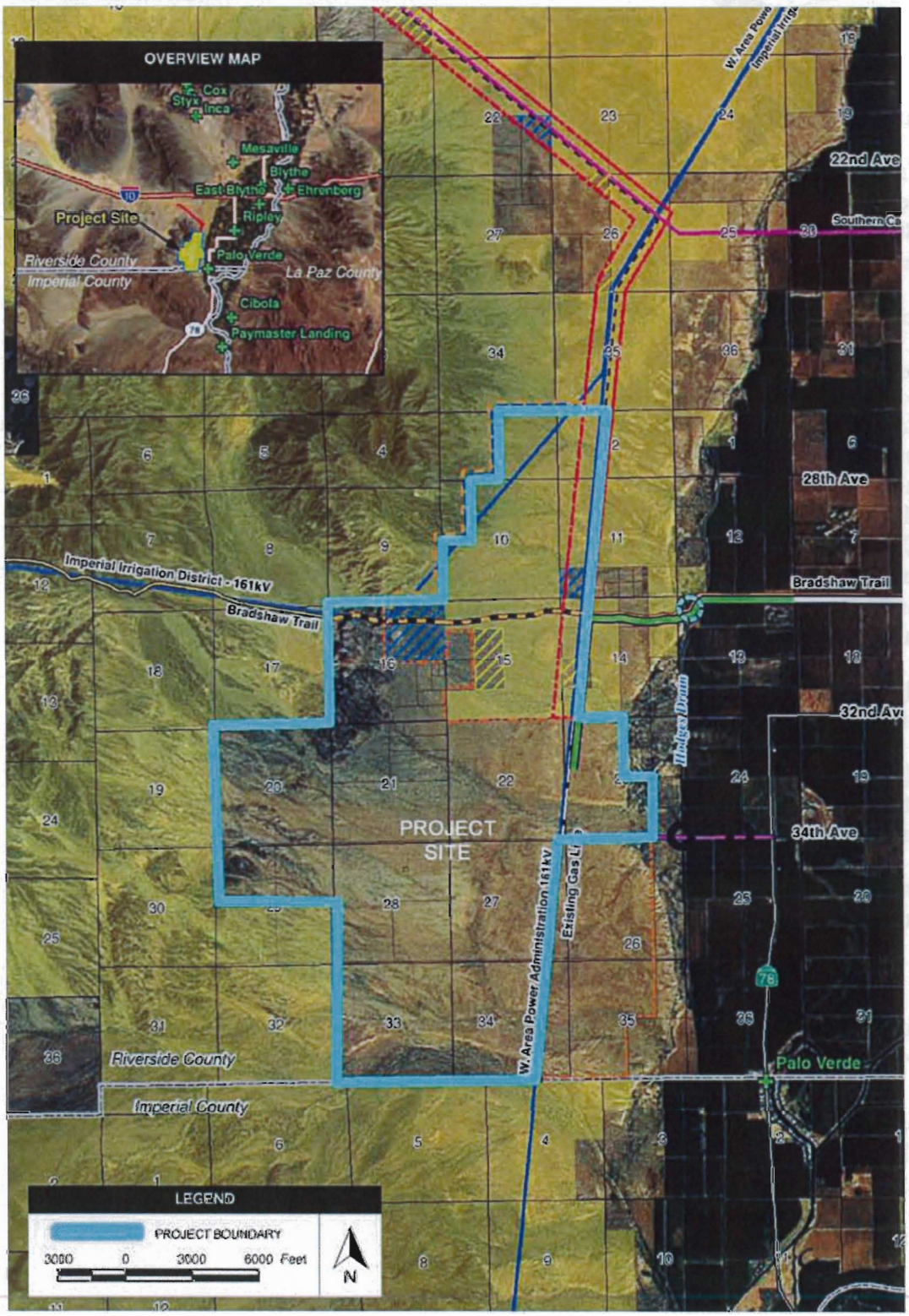
Sincerely,

Tom Andrews

Attachment

cc: Todd Stewart, BrightSource Energy, Inc.
Andrea Grenier, Grenier & Associates, Inc.
Chris Ellison, Ellison Schneider & Harris

Location of the Rio Mesa Solar Electric Generating Facility Project Site



Mojave Desert Air Quality Management District
14306 Park Avenue, Victorville, CA 92392-2310
760.245.1661 • fax 760.245.2699
Visit our web site: http://www.mdaqmd.ca.gov
Eldon Heaston, Executive Director

August 29, 2011

Mr. Tom Andrews
Sierra Research
1801 "J" Street
Sacamento, CA 95811

Subject: MDAQMD Projects Within 6 Miles of Rio Mesa Solar Project

Dear Mr. Andrews:

Pursuant to your request, the Mojave Desert Air Quality Management (District) has prepared a list of projects for which the District has issued permits (or in the process of issuing permits) and are located within 6 miles of the proposed Rio Mesa Solar Electric Generating Facility. All projects located within the 6 mile radius are approved California Energy Commission (CEC) Projects. The list below provides for each project- name, address, and CEC docket number. The District will provide under a separate cover sufficient emissions and stack data for these identified sources. Actual emissions data will be provided for facilities which are currently operating.

Blythe Energy Project; Hobsonway & Buck Boulevard, Blythe, California. CEC Docket number 99-AFC-8.

Blythe Energy Project, Phase II; BEPII site boundary is located on approximately a 76 acre site immediately adjacent to the operational Blythe Energy Project (BEPI). CEC Docket number 02-AFC-1.

Should you have any questions please contact Mr. Christian Anderson, (760) 245-1661 extension 1846.

Sincerely,

Christopher A. Collins
Supervising Air Quality Engineer

cja

Appendix 5.1H
Modeling Protocol and Related Correspondence

sierra research

1801 J Street
Sacramento CA 95811
Tel: (916) 444-6666
Fax: (916) 444-8373

Ann Arbor MI
Tel: (734) 761-6666
Fax: (734) 761-6755

May 27, 2011

Mr. Eldon Heaston
Executive Director
Mojave Desert Air Quality Management District
14306 Park Avenue
Victorville, CA 92392

Subject: Modeling Protocol for BrightSource Energy's Proposed Rio Mesa Solar Electric Generating Facility in Riverside County

Dear Mr. Heaston:

On behalf of BrightSource Energy, we are pleased to submit the enclosed air quality modeling protocol for BrightSource Energy's proposed Rio Mesa Solar Electric Generating Facility solar thermal power plant project to be located in Riverside County. BrightSource will be applying to the California Energy Commission for certification, and to the Mojave Desert Air Quality Management District for a Determination of Compliance. Attached for your review and approval is a description of the analytical approach that will be used to comply with the District's modeling requirements for the project. We intend to file an Application for a Determination of Compliance and Authority to Construct with the District during the 4th quarter of this year.

We would be pleased to meet with you to discuss this protocol if such a meeting would be useful. We look forward to working with you and your staff on this project. If you have any questions regarding this protocol, please do not hesitate to call Tom Andrews or me. Thank you for your attention in this matter.

Sincerely,

(For GSR)

Gary Rubenstein
Senior Partner

Attachment

cc: Todd Stewart, BrightSource Energy, Inc.
Andrea Grenier, Grenier & Associates, Inc.
Chris Ellison, Ellison Schneider & Harris

sierra research

1801 J Street
Sacramento CA 95811
Tel: (916) 444-6666
Fax: (916) 444-8373

Ann Arbor MI
Tel: (734) 761-6666
Fax: (734) 761-6755

May 27, 2011

Matt Layton
Siting Division
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Subject: Modeling Protocol for BrightSource Energy's Proposed Rio Mesa Solar Electric Generating Facility in Riverside County

Dear Matt:

On behalf of BrightSource Energy, we are pleased to submit the enclosed air quality modeling protocol for BrightSource Energy's proposed Rio Mesa Solar Electric Generating Facility solar thermal power plant project to be located in Riverside County. BrightSource will be applying to the California Energy Commission for certification, and to the Mojave Desert Air Quality Management District for a Determination of Compliance. Attached for your review and concurrence is a description of the analytical approach that we propose to use to comply with the CEC's modeling requirements for the project. We intend to file an Application for Certification with the CEC during the 4th quarter of this year.

We would like to meet with you and your staff to discuss the air quality-related aspects of the project, and will contact you in the near future to set up the meeting. We look forward to working with you and your staff on this project. If you have any questions regarding this protocol, please do not hesitate to call Tom Andrews or me. Thank you for your attention in this matter.

Sincerely,

Gary Rubenstein (For GSR)
Senior Partner

Attachment

cc: Todd Stewart, BrightSource Energy, Inc.
Andrea Grenier, Grenier & Associates, Inc.
Chris Ellison, Ellison Schneider & Harris

sierra research

Air Dispersion Modeling and Health Risk Assessment Protocol Rio Mesa Solar Electric Generating Facility Riverside County, California

Submitted to:

Mojave Desert Air Quality Management District
California Energy Commission

prepared for:

BrightSource Energy, Inc.

May 2011

prepared by:

Sierra Research, Inc.
1801 J Street
Sacramento, California 95811
(916) 444-6666

Air Dispersion Modeling and Health Risk Assessment Protocol
Rio Mesa Solar Electric Generating Facility
Riverside County, California

May 2011

prepared by:

Sierra Research, Inc.
1801 J Street
Sacramento, California 95811
(916) 444-6666

Air Dispersion Modeling and Health Risk Assessment Protocol
Rio Mesa Solar Electric Generating Facility

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1. INTRODUCTION

BrightSource Energy (BSE) intends to submit an Application for Certification (AFC) to the California Energy Commission (CEC) and an Application for a Determination of Compliance to the Mojave Desert Air Quality Management District (District) for a new solar thermal power project in southeastern Riverside County.[1] The proposed Rio Mesa Solar Energy Generating Facility project will consist of three solar concentrating thermal power plants, based on distributed power tower and heliostat mirror technology, in which heliostat (mirror) fields focus solar energy on power tower receivers near the center of the heliostat array. The project will have a total output of 750 MW (nominal net, at site design conditions). Air emitting sources at the plants will include large and small natural gas-fired auxiliary boilers, Diesel emergency generators, Diesel fire pump engines, air-cooled condensers, and partial dry cooling systems that include evaporative coolers.

The location of the proposed project is shown in Figure 1.

Certification by the CEC will be required because the project is a thermal power plant that will generate more than 50 MW of electric power. The project will be required to provide an assessment of impacts on air quality as part of the CEC review process. In addition, while the project is not expected to trigger the ambient air quality impact analysis requirements under District Rule 1302(C)(2)(b) (for new or modified major sources), the District may require such an analysis in order to prepare a comprehensive New Source Review regulatory evaluation of the project. Furthermore, the project will be required to provide an analysis of toxic air pollutant impacts per District Rule 1320.

The project is not expected to be subject to federal PSD requirements (40 CFR 52.21) because potential emissions of each attainment pollutant will be below the 100 ton per year major source threshold that is applicable to facilities of this type.[2] Greenhouse gas (GHG) emissions will be limited to below the 100,000 ton per year major source threshold for GHG. PSD applicability will be addressed in the application documents. The applications that will be submitted to the District and the CEC (and, potentially, the USEPA) will include air quality impact analyses. Air dispersion modeling for these analyses will address criteria and toxic air pollutants as required by the District New Source Review Regulations (Regulation XIII); CEC requirements[3] for evaluation of

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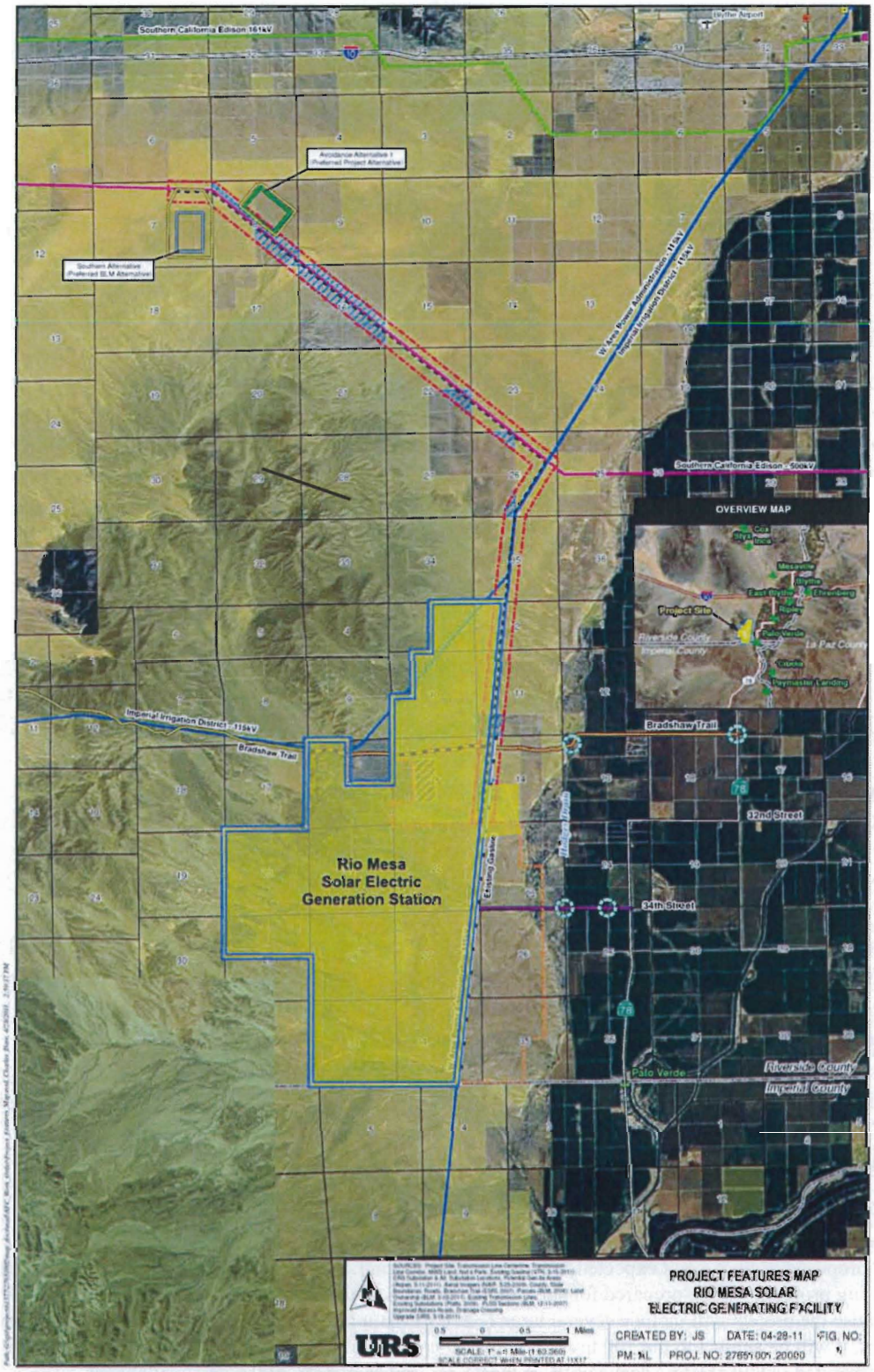
[1] The proposed project is not expected to require a PSD permit. If a PSD permit is required, a separate modeling protocol will be prepared for submittal to the U.S. Environmental Protection Agency (USEPA).
[2] Because the project will include several large (>250 MMBtu/hr heat input) natural gas-fired auxiliary boilers, it will be subject to the 100 tpy major stationary source threshold in 40 CFR 52.21(b)(1)(i)(a).
[3] Summarized in CEC Data Adequacy Worksheets, revised March 28, 2007, and available at *http://www.energy.ca.gov/sitingcases/documents/index.html.*

Figure 1
Location of the Proposed Rio Mesa Solar Electric Generating Facility



project air quality and public health impacts. The purpose of this document is to present the procedures for meeting District and CEC air quality modeling requirements for the proposed project.

This protocol describes the modeling procedures that will be used, which follow modeling guidance provided by the USEPA in its "*Guideline on Air Quality Models*" (USEPA 2005, including supplements), 40 CFR part 51, Appendix W, and the San Joaquin Valley Air Pollution Control District's *Guidance for Air Dispersion Modeling* (SJVAPCD, 2007).[4]

Impacts from operation of the facility will be compared to the criteria shown in Table 1.

Table 1
Air Quality Impact Analysis

Air Quality Criteria	NO_2	PM_{10}	$PM_{2.5}$	CO	SO_2
PSD Significant Impact Levels [a]	√	√	√	√	√
Ambient Air Quality Standards (AAQS)	√	√	√	√	√
Impacts to Soils and Vegetation [b]	√	√	√	NA[c]	√

Notes:
a. Used as an objective standard to determine whether modeled air quality impacts are significant.
b. Used in assessing impacts to biological resources.
c. NA: Not applicable.

[4] While the project is not located in the San Joaquin Valley, the SJVAPCD has developed detailed guidance for implementing the 1-hour NO_2 national ambient air quality standard in non-PSD permits that is useful in laying out a tiered approach to modeling compliance with the 1-hour standard.

2. FACILITY DESCRIPTION AND SOURCE INFORMATION

The Rio Mesa Solar Electric Generating Facility will be located on approximately 6,858 acres about 6 miles south of Interstate 10 and to the southwest of the Blythe airport in Riverside County. Figure 2 shows the project site and its immediate surroundings. The nominal site elevation is approximately 350 feet above mean sea level.

Figure 2
Aerial View of the Immediate Vicinity
Around the Proposed Rio Mesa Solar Electric Generating Facility

The project will include three 250-MW (nominal, net) solar concentrating thermal power plants, based on distributed power tower and heliostat mirror technology, in which heliostat (mirror) fields focus solar energy on power tower receivers near the center of the heliostat array. The three power plants will be constructed on adjacent property and will share a natural gas supply source from TransCanada's North Baja gas transmission pipeline, an electric transmission generator tie-line infrastructure to a Southern California Edison (SCE) owned substation, and a common control area, so are considered a single facility under District Rule 1301.Y.

In each power plant, one Rankine-cycle reheat steam turbine receives steam from a solar boiler located at the top of the power tower adjacent to the turbine. The solar field and power generation equipment are started up each morning, and shut down in the evening. To optimize the power output of the plants and extend generating capability into the late afternoon/early evening shoulder period when solar insolation alone is not sufficient to generate adequate steam for the steam turbine, each plant will utilize three 500-MMBtu natural gas-fired auxiliary boilers, to be operated as required each day on summer weekdays. In addition, a small natural gas-fired start-up and night-time preservation boiler are provided to assist with and quicken startup of the solar boilers each morning, and to regulate and maintain minimum system temperatures at night. Annual heat input to the auxiliary boilers will be limited to be less than 15% of annual solar energy capture. The boilers will utilize advanced combustion design to limit emissions of nitrogen oxides (NOx), carbon monoxide (CO), and volatile organic compounds (VOC). Emissions of particulate matter with nominal aerodynamic diameter less than or equal to 10 and 2.5 microns (PM_{10} and $PM_{2.5}$), and sulfur oxides (SOx) will be kept to a minimum through the exclusive use of natural gas as the fuel.

In addition, each plant will have emergency standby Diesel fuel-fired internal combustion engine driven generators (to provide power to operate boiler feed and recirculation pumps if power is otherwise unavailable). Finally, each plant will be equipped with a Diesel fuel-fired emergency firewater pump engine. Air-cooled condensers will be used for cooling and condensing process steam. Partial dry cooling systems will be used to cool auxiliary equipment, including generators, lube oil, and pumps. The wet surface air coolers that are part of the partial dry cooling systems will be used to provide auxiliary cooling only during the hottest periods of the year and are required for equipment protection and reliability. For the purposes of the AQIA, all combustion particulate matter and particulate emissions from the wet surface air coolers will be treated as $PM_{2.5}$.

3. DISPERSION MODEL PROCEDURES

3.1 AERMOD Modeling

The following USEPA air dispersion models are proposed for use to quantify pollutant impacts on the surrounding environment based on the emission sources' operating parameters and their locations:

- American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee (AERMIC) model, also known as AERMOD (Version 11059);
- Building Profile Input Program – Plume Rise Model Enhancements (BPIP-PRIME, Version 04274); and
- SCREEN3 (Version 96043).

The main air dispersion modeling will be conducted with the latest version (Version 11059) of AERMOD, USEPA's preferred/recommended dispersion model for new source review and PSD air quality impact assessments. The air quality modeling analysis will follow the March 2009 USEPA AERMOD Implementation Guide, USEPA's "Guideline on Air Quality Models," and the SJVAPCD's "Guidance for Air Dispersion Modeling."[5] USEPA default options will be used.

AERMOD can account for building downwash effects on dispersing plumes. Stack locations and heights and building locations and dimensions will be input to BPIP-PRIME. The first part of BPIP-PRIME determines and reports on whether a stack is being subjected to wake effects from a structure or structures. The second part calculates direction-specific building dimensions for each structure, which are used by AERMOD to evaluate wake effects. The BPIP-PRIME output is formatted for use in AERMOD input files.

Simple, Complex, and Intermediate Terrain Impacts – The AERMOD air dispersion model to be used for simple, complex, and intermediate terrain is a steady-state, multiple-

[5] As discussed above, the project will not be located in the SJVAPCD. However, the SJVAPCD has developed detailed modeling guidance that incorporates procedures for implementing the 1-hour federal NO_2 standard for non-PSD projects and we are proposing to follow that guidance in the absence of other state or local guidance.

source, Gaussian dispersion model designed for use with stack emission sources situated in terrain where ground elevations can exceed the stack heights of the emission sources (i.e., complex terrain). The AERMOD model requires hourly meteorological data consisting of wind direction and speed (with reference height), temperature (with reference height), Monin-Obukhov length, surface roughness length, heights of the mechanically and convectively generated boundary layers, surface friction velocity, convective velocity scale, and vertical potential temperature gradient in the 500-meter layer above the planetary boundary layer. AERMOD is considered a steady-state model because it assumes that there is no variability in meteorological parameters over a one-hour time period.

Standard AERMOD control parameters will be used, including stack tip downwash, non-screening mode, non-flat terrain, and sequential meteorological data check. The stack-tip downwash algorithm will be used to adjust the effective stack height downward following the methods of Briggs (1972) for cases where the stack exit velocity is less than 1.5 times the wind speed at stack top. The rural default option will be used by not invoking the URBANOPT option.[6] The use of the rural default in modeling for this project is consistent with the project's remote location.

Background ambient air quality data for the project area from the monitoring site most representative of the conditions that exist at the proposed project site will be used to represent regional background concentrations. Table 2 shows the monitoring stations we propose to use as they provide the most representative ambient air quality background data. The locations of these stations relative to the project site are shown in Figure 3.

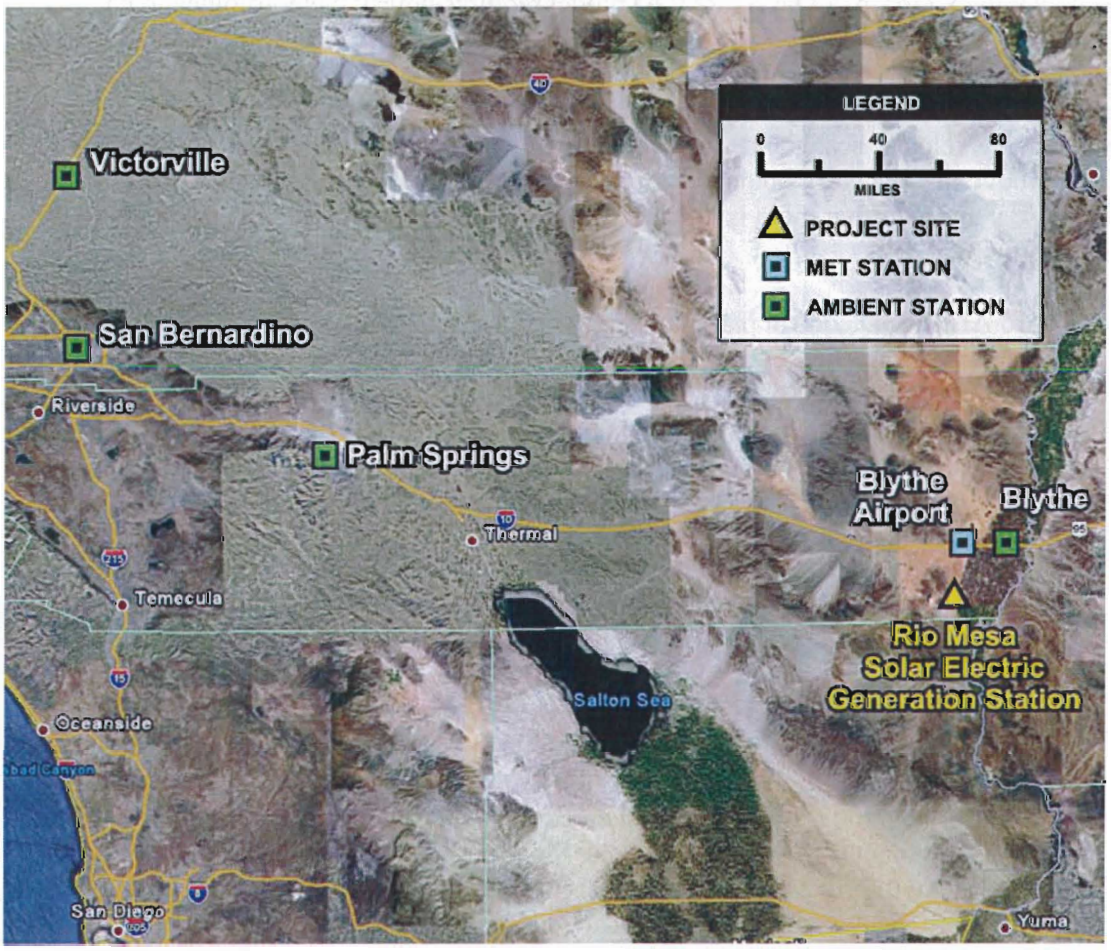
The 3-year period 2007-2009 is the most recent 3-year period for which complete background ambient data sets are available for the project area. Modeled concentrations for the project will be added to these representative background concentrations to determine compliance with the CAAQS and NAAQS (see Section 3.6).

Table 2
Representative Background Ambient Air Quality Monitoring Stations

Pollutant(s)	Monitoring Station	Distance to Project Site
Ozone	Blythe, CA (Riverside County)	6 miles
PM_{10}, $PM_{2.5}$, NO_2, CO	Palm Springs, CA (Riverside County)	107 miles
SO_2	Victorville, CA (San Bernardino County)	163 miles
Lead	San Bernardino, CA (San Bernardino County)	151 miles

[6] The rural vs. urban option in AERMOD is primarily designed to set the fraction of incident heat flux that is transferred into the atmosphere. This fraction becomes important in urban areas having an appreciable "urban heat island" effect due to a large presence of land covered by concrete, asphalt, and buildings. This situation does not exist for the proposed project site.

Figure 3
Relative Locations of the Project and Monitoring Stations



If more detailed evaluation of impacts at receptors in terrain above stack-top height is required, the screening version of the USEPA guideline Complex Terrain Dispersion Model PLUS (CTDMPLUS), Complex Terrain Screening Model (CTSCREEN), would be used. The CTSCREEN model is discussed in more detail in Appendix A. However, because there is no terrain above stack-top height within approximately 2 miles of the plant site, it is unlikely that this more refined analysis will be needed.

3.1.1 Ambient Ratio Method and Ozone Limiting Method

Annual NO_2 concentrations will be calculated using the Ambient Ratio Method (ARM), adopted in Supplement C to the Guideline on Air Quality Models (USEPA, 1995). The Guideline allows a nationwide default of 75% for the conversion of nitric oxide (NO) to NO_2 on an annual basis and the calculation of NO_2/NOx ratios.

If NO_2 concentrations need to be examined in more detail, the Ozone Limiting Method (OLM) (Cole and Summerhays, 1979), implemented through the "OLMGROUP ALL"

option in AERMOD (USEPA, 2011a), will be used. AERMOD OLM will be used to calculate the NO_2 concentration based on the OLM method and hourly ozone data. Contemporaneous hourly ozone data collected at the Blythe monitoring station will be used in conjunction with OLM to calculate hourly NO_2 concentrations from modeled hourly NOx concentrations.

The Ozone Limiting Method assumes that 10% of the NOx in the exhaust is converted to NO_2 during and immediately after combustion. The remaining percentage of the NOx emissions is assumed to be nitric oxide (NO). As the exhaust leaves the stack and mixes with the ambient air, the NO reacts with ambient ozone (O_3) to form NO_2 and molecular oxygen (O_2). The OLM assumes that at any given receptor location, the amount of NO that is converted to NO_2 by this oxidation reaction is proportional to the ambient O_3 concentration. If the O_3 concentration is less than the NO concentration, the amount of NO_2 formed by this reaction is limited. However, if the O_3 concentration is greater than or equal to the NO concentration, all of the NO is assumed to be converted to NO_2.

A detailed discussion of how OLM modeling results and monitored background NO_2 will be combined is provided in Section 3.6.1.2.

3.1.2 $PM_{2.5}$

$PM_{2.5}$ impacts will be modeled in accordance with USEPA guidance (USEPA, 2010a). A detailed discussion of how modeled $PM_{2.5}$ impacts will be evaluated is provided in Section 3.6.1.

3.2 Fumigation Modeling

The SCREEN3 model will be used to evaluate inversion breakup fumigation impacts for short-term averaging periods (24 hours or less), as appropriate. The methodology in *Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised* (USEPA, 1992b) will be followed for these analyses. Combined impacts for all sources under fumigation conditions will be evaluated, based on USEPA modeling guidelines.

3.3 Health Risk Modeling

A health risk assessment (HRA) will be performed according to the Office of Environmental Health Hazard Analysis "Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments" (August 2003). For the CEC AFC, a complete HRA will be performed. The HRA modeling will be prepared using the California Air Resources Board's (CARB's) Hotspots Analysis and Reporting Program (HARP) computer program (Version 1.4d) and AERMOD with the CARB "on-ramp."[7] HARP will be used to assess cancer risk as well as non-cancer chronic and acute health

[7] HARP has not yet been revised to utilize AERMOD, but CARB has developed "on-ramp" software that allows HARP to incorporate AERMOD output files. Therefore, HARP is now compatible with AERMOD.

hazards. Because the TACs emitted by the project include polycyclic aromatic hydrocarbons (PAHs), the HRA will address not only the inhalation pathway, but also the following three pathways: dermal absorption, soil, and mother's milk ingestion. Consistent with the following OEHHA (2003) guidance, because of the remote desert location of the proposed project, the produce and fish pathways will not be evaluated:

> *The other exposure pathways (e.g., the ingestion of homegrown produce or fish) are evaluated on a site-by-site basis. If the resident can be exposed through an impacted exposure pathway, then it must be included in the HRA.* ***However, if there were no vegetable gardens or fruit trees within the zone of impact for a facility, for example, then the produce pathways would not be evaluated.***[8] [emphasis added]

3.4 Meteorological Data

Hourly surface meteorological data (e.g., hourly wind speed and direction and temperature) have been obtained from Blythe, CA for calendar years 2001 through 2009 and will be processed for use in AERMOD using AERMET. Barring any problems regarding met data completeness, the final five years (2005-2009) will be used for modeling purposes. Cloud cover data from the McCarran International Airport at Las Vegas will be used, as no cloud cover data are collected at the Blythe station. Upper air data will be used from Tucson, AZ. These datasets will be processed using AERMET to generate AERMOD-compatible meteorological data for air dispersion modeling. The locations of these meteorological monitoring stations relative to the project site are shown in Figure 3. The multi-year composite wind roses for the Blythe site are included as Appendix B.

EPA defines the term "on-site data" to mean data that would be representative of atmospheric dispersion conditions at the source and at locations where the source may have a significant impact on air quality. The meteorological data requirement originates in the Clean Air Act at Section 165(e)(1), which requires an analysis "of the ambient air quality at the proposed site and in areas which may be affected by emissions from such facility for each pollutant subject to regulation under [the Act] which will be emitted from such facility."

This requirement and USEPA's guidance on the use of on-site monitoring data are also outlined in the On-Site Meteorological Program Guidance for Regulatory Modeling Applications (USEPA, 1987c). The representativeness of the data depends on (a) the proximity of the meteorological monitoring site to the area under consideration, (b) the complexity of the topography of the area, (c) the exposure of the meteorological sensors, and (d) the period of time during which the data are collected. The Blythe, CA, monitoring station is 6 miles from the project site, and is located at a similar elevation on the same Lower Colorado River Valley slope. Therefore, the met data station meets criteria (a), (b), and (c) above. In addition, we proposed to use five years of

[8] OEHHA (2003) p. 5-3.

meteorological data to ensure adequate representation of temporal variation. Based on these considerations, the applicant believes that the proposed meteorological data are representative of conditions at the project site.

Representativeness has also been defined in the *Workshop on the Representativeness of Meteorological Observations* (Nappo et. al., 1982) as "the extent to which a set of measurements taken in a space-time domain reflects the actual conditions in the same or different space-time domain taken on a scale appropriate for a specific application." Representativeness is best evaluated when sites are climatologically similar, as are the project site and the Blythe meteorological monitoring station. Representativeness has additionally been defined in the PSD Monitoring Guideline (USEPA, 1987a) as data that characterize the air quality for the general area in which the proposed project would be constructed and operated. As can be seen in Figure 3, the Blythe meteorological monitoring station is in close proximity to the proposed project site (distance between the two locations is approximately six miles, with no significant intervening terrain features), and the same large-scale topographic features located to the east and south that influence the meteorological data monitoring station influence the proposed project site in the same manner.

The surface characteristics input to AERMET should be based on the topographic conditions in the vicinity of the meteorological tower used to provide meteorological data.[9] The values for the surface characteristics of albedo, Bowen Ratio and surface roughness appropriate to the area around the Blythe meteorological monitoring station will be obtained, if possible, from AERSURFACE, a program designed to aid in obtaining realistic and reproducible surface characteristic values for AERMET, following USEPA guidance (USEPA, 2008). If Blythe's proximity to the Arizona border makes it impossible to obtain AERSURFACE data for the site, however, default USEPA tabulated land-use values for "desert scrubland" will be used.

Upper air meteorological data will be taken from soundings obtained at Tucson, AZ, located approximately 240 miles ESE of the project.

The closest upper air station to the project site is located about 150 miles WSW, at Miramar Naval Air Station, California. Miramar is a coastal site, however, and the marine-influenced surface boundary layer affects Miramar soundings in ways that would not occur in the Lower Colorado River Valley. Therefore, the meteorological data are climatologically dissimilar to the project site.

The next closest upper air station to the project site is located about 224 miles NNW, at Desert Rock, NV. For the period 2005 through 2009, however, the upper air data from Desert Rock are incomplete—approximately 15% missing data, which exceeds the 10% USEPA data completeness threshold.

The third-closest upper air station to Blythe is located at Tucson. Despite its distance, Tucson is the most climatologically similar upper-air station to the project site, mostly

[9] Based on guidance in USEPA (2005), §8.3.c, and USEPA (2009).

due to its latitude. In the late summer, particularly in August, the tropical easterlies migrate so far north that they cross the U.S. Mexican border. Late in the afternoon and into the night, these easterlies sometimes bear big mesoscale convective complexes (MCCs), with all their rain. Because Blythe and Tucson are roughly the same latitude, they see these easterlies; Desert Rock does not because it is farther north. Apart from elevation differences, this difference in summertime wind direction (and precipitation) is the main distinction between the deserts of the lower Colorado River Valley, and the Mojave Desert farther north. So, despite being a bit farther away from Blythe than Desert Rock, Tucson is more suitable than Desert Rock for upper air data because Tucson and Blythe have more similar latitudes.

3.4.1 Missing Data Protocol

Using the OLM method to model project-generated 1-hour NO_2 concentrations requires the use of ambient monitored O_3 concentrations. Because the OLM method uses the ambient ozone concentration for a particular hour to limit the conversion of NO to NO_2, it is important to have ozone concentrations for every hour. It is also important that any missing hourly ozone concentration be filled in with a value that does not underestimate the ozone concentration for that hour, to avoid underestimating the resulting NO_2 concentration. In addition, computation of total hourly NO_2 concentrations requires use of the ambient monitored hourly NO_2 concentrations from the nearest monitoring station. As for the hourly ozone data, it is important to have a background NO_2 value for every hour that does not underestimate actual background.

As discussed above, background ambient O_3 and NO_2 concentrations for the project area during 2007-2009 will be obtained from the monitoring stations at Blythe and Palm Springs, respectively. While these datasets exceed USEPA's 90% completeness criterion (that is, more than 90% of the data values are present for each month), there are still occasional missing values that must be filled in. We propose to use linear interpolation, as described in "San Joaquin Valley Air Pollution Control District's EPA Background Files" (SJVAPCD, 2011) to fill in the missing values. The SJVAPCD guidance follows USEPA guidance (USEPA, 2011a) for a single missing hour, but uses a somewhat different approach for filling in multi-hour data gaps. As discussed earlier, although the proposed project is not in the SJVAPCD, the SJVAPCD has prepared detailed guidance for evaluating one-hour NO_2 impacts from non-PSD projects that is not available from the state or other local districts. As we propose to follow this guidance for evaluating one-hour NO_2 impacts, we also propose to use this guidance to prepare the underlying datasets.

The procedure to be used for filling in multi-hour data gaps is as follows:

- If three or fewer consecutive hours of O_3 or NO_2 ambient concentrations are missing, linear interpolation will be used to fill in the missing concentrations based on the previous and subsequent hour concentrations from the same day as follows:
  - If only A_n is missing, then A_n = arithmetic mean of A_{n-1} and A_{n+1}, where A_{n-1} is the previous concentration and A_{n+1} is the subsequent concentration.

- If A_n and A_{n+1} are missing, then $A_n = A_{n-1}*0.67+A_{n+2}*0.33$ and $A_{n+1} = A_{n-1}*0.33+A_{n+2}*0.67$.

- If A_{n-1}, A_n and A_{n+1} are missing, then $A_{n-1}= A_{n-2}*0.75+ A_{n+2}*0.25$, $A_n= A_{n-2}*0.5+ A_{n+2}*0.5$, $A_{n+1} = A_{n-2}*0.25+ A_{n+2}*0.75$.

- If four or more consecutive hours of O_3 or NO_2 ambient concentrations are missing, then substitution for each missing concentration will be by the arithmetic mean of the concentrations from the same hour of the most recent previous day and soonest subsequent day.

3.5 Receptor Grids

Receptor and source base elevations will be determined from USGS National Elevation Dataset (NED) data in the GeoTIFF format at a horizontal resolution of 1 arc-second (approximately 30 meters). All coordinates will be referenced to UTM North American Datum 1983 (NAD83), Zone 11. The AERMOD receptor elevations will be interpolated among the DEM nodes according to standard AERMAP procedure. For determining concentrations in elevated terrain, the AERMAP terrain preprocessor receptor-output (ROU) file option will be chosen. Hills will not be imported into AERMOD for CTDM-like processing.

Cartesian coordinate receptor grids will be used to provide adequate spatial coverage surrounding the project area for assessing ground-level pollution concentrations, to identify the extent of significant impacts, and to identify maximum impact locations. A 250-meter resolution coarse receptor grid will be developed and will extend outwards at least 10 km (or more if necessary to calculate the significant impact area).

For the full impact analyses, a nested grid will be developed to fully represent the maximum impact area(s). This grid will have 25-meter resolution along the facility fence-line in a single tier of receptors composed of four segments extending out to 100 meters from the fenceline, 100-meter resolution from 100 meters to 1,000 meters from the fenceline, and 250-meter spacing out to at least 10 km from the most distant source modeled, not to exceed 50 km from the project site. Additional refined receptor grids with 25-meter resolution will be placed around the maximum first-high or maximum second-high coarse grid impacts and extended out 1,000 meters in all directions. Concentrations within the facility fenceline will not be calculated.

The Regions to be imported in Geographical Coordinates for the USGS National Elevation Dataset (NED) data are bounded as follows:

- South West corner: UTM Zone 11 (NAD 83) 690000.0 m, 3700000.0 m; and
- North East corner: UTM Zone 11 (NAD 83) 730000.0 m, 3740000.0 m.

3.6 Ambient Air Quality Impact Analyses (AQIA)

The majority of the pollutant emissions to the atmosphere from the proposed project will occur from combustion of natural gas in the boilers and Diesel fuel in the emergency engines, with a small amount of additional particulate matter from cooling tower drift. The expected emission rates from all sources will be based on vendor data and additional conservative assumptions of equipment performance.

Exhaust and fugitive dust emissions impacts from trucks involved in washing the heliostat mirrors will also be quantified and assessed under CEQA. Impacts from these sources will be modeled in accordance with the procedures described for construction sources in Section 3.9 below.

3.6.1 Combustion Sources and Evaporative Coolers

The purpose of the ambient air quality impact analysis is to demonstrate compliance with applicable ambient air quality standards. Both USEPA and the District have regulations that prohibit construction of a project that will cause or contribute to violations of applicable standards.

If, for a given pollutant and averaging time, the project's impact is below the significance thresholds shown in Table 3, the project's impact is deemed to be *de minimis*, and no further analysis is required. If the project's impact is above the significance threshold, the project has the potential to cause or contribute to a violation of the ambient air quality standard at the times and locations where the threshold is exceeded. In that case, the analysis must consider the contribution of other sources to the ambient concentration. If the analysis indicates that there will be a violation of an ambient air quality standard, and the project's impact *at the time and place of the violation* is significant, then the project may not be approved unless the project's impact is reduced.

Table 3
Significance Levels for Air Quality Impacts in Class II Areas ($\mu g/m^3$)

Pollutant	Averaging Period				
	Annual	24-hour	8-hour	3-hour	1-hour
NO_2	1	--	--	--	7.5[10]
SO_2	1	5	--	25	7.8[10]
CO	--	--	500	--	2000
PM_{10}	1	5	--	--	--
$PM_{2.5}$	0.3	1.2	--	--	--

[10] EPA has not yet defined significance levels (SILs) for one-hour NO_2 and SO_2 impacts. However, EPA has suggested that, until SILs have been promulgated, interim values of 4 ppb (7.5 $\mu g/m^3$) for NO_2 and 3 ppb (7.8 $\mu g/m^3$) for SO_2 may be used (USEPA (2010c); USEPA (2010d)). These values will be used in this analysis as interim SILs.

An air quality impact analysis is required for certification by the CEC and for issuance of a Determination of Compliance by the District. Each agency has its own criteria for preparation of the air quality impact analysis; however, the criteria used by the CEC and the District are similar enough that the same analysis will satisfy both.

3.6.1.1 Step 1: Project Impact

The first step in the compliance demonstration is to determine, for each pollutant and averaging period, whether the proposed new equipment for the project has the potential to cause a significant ambient impact at any location, under any operating or meteorological conditions. As indicated in the NSR Workshop Manual,[11] "[i]f the significant net emissions increase from a proposed source would not result in a significant ambient impact anywhere, the application is usually not required to go beyond a preliminary analysis in order to make the necessary showing of compliance for a particular pollutant." The significance levels for air quality impacts are shown in the following table. If the maximum modeled impact for any pollutant and averaging period is below the appropriate significance level, no further analysis is necessary.

Based on the following USEPA (2010e) guidance, no further analysis is necessary for any location where the modeled impacts from the project alone are below the significance thresholds shown in the table above.

> *The primary purpose of the SILs is to identify a level of ambient impact that is sufficiently low relative to the NAAQS or increments that such impact can be considered trivial or de minimis. Hence, the EPA considers a source whose individual impact falls below a SIL to have a de minimis impact on air quality concentrations that already exist. Accordingly, a source that demonstrates that the projected ambient impact of its proposed emissions increase does not exceed the SIL for that pollutant at a location where a NAAQS or increment violation occurs is not considered to cause or contribute to that violation. In the same way, a source with a proposed emissions increase of a particular pollutant that will have a significant impact at some locations is not required to model at distances beyond the point where the impact of its proposed emissions is below the SILs for that pollutant. When a proposed source's impact by itself is not considered to be "significant," EPA has long maintained that any further effort on the part of the applicant to complete a cumulative source impact analysis involving other source impacts would only yield information of trivial or no value with respect to the required evaluation of the proposed source or modification.*[12]

[11] USEPA (1990), p. C.51.
[12] USEPA (2010e), p. 64891.

For $PM_{2.5}$, the highest average of the maximum annual averages and of the 24-hour averages modeled over the five years of meteorological data will be compared with the SILs in Table 3 to determine whether the modeled $PM_{2.5}$ project impacts are significant.[13] For NO_2, the highest modeled concentrations will be compared with the SILs.

For pollutants with modeled project impacts below the significance thresholds, a summary table will show the maximum modeled project impacts plus background concentrations. Although this information is not required by federal modeling guidance, it will be provided as part of the CEQA analysis.

3.6.1.2 Step 2: Project Plus Background

Pollutants/averaging periods that are not screened out in Step 1 are required to undergo a full air quality impact analysis. In this step, the ambient impacts of the project are modeled and added to background concentrations. The results are compared to the relevant state and federal ambient standards.

The second step of the compliance demonstration is required to show that the proposed new project, in conjunction with existing sources, will not cause or contribute to a violation of any ambient air quality standard. As discussed in more detail below, the impacts of existing sources are represented by the existing ambient air quality data collected at the monitoring stations shown in Table 2. In accordance with Section 8.2.1 of Appendix W to 40 CFR Part 51,

> *Background concentrations are an essential part of the total air quality concentration to be considered in determining source impacts. Background air quality includes pollutant concentrations due to: (1) Natural sources; (2) nearby sources other than the one(s) currently under consideration; and (3) unidentified sources. Typically, air quality data should be used to establish background concentrations in the vicinity of the source(s) under consideration.*

The impact of natural sources and unidentified sources will be represented by ambient air quality monitoring data collected at the nearby monitoring stations. In this protocol, these impacts are characterized as part of the "regional background."

Nearby sources are those non-project sources that have the potential to create a significant concentration gradient in the project's impact area. Because of the remote location of the proposed project, we do not believe that there are any nearby, non-project sources that are not represented in the regional background monitoring data.

If a Step 2 analysis is required, the modeled impacts from all project sources will be added to the representative background concentration for a comparison with the NAAQS. In accordance with USEPA guidelines,[14] the highest second-highest modeled

[13] USEPA (2010a), p. 6.
[14] USEPA (2005), 11.2.3.2 and 11.2.3.3

concentrations will be used to demonstrate compliance with the short-term federal standards (except for the statistically based federal 1-hour NO_2 and SO_2, and 24-hour $PM_{2.5}$, standards) and the highest modeled concentration will be used to demonstrate compliance with the federal annual and all state standards. If the predicted total ground-level concentration is below the state or federal ambient air quality standard for each pollutant and averaging period, no further analysis is required for that pollutant and averaging period.

For the 1-hour average federal NO_2 standard for the District and CEC analyses, the comparison of impacts with the new federal 1-hour standard will be done in accordance with the four-tier process developed by the San Joaquin Valley Air Pollution Control District (SJVAPCD, 2010b).[15] The tiered screening approach was developed to allow demonstration of compliance using the lowest amount of resources necessary. Each tier is a progressively more sophisticated and comprehensive analysis that reduces the level of conservatism without reducing the level of assurance of compliance.

- Tier 1 Analysis – In Tier 1, the maximum predicted 1-hour NO_2 concentration from all sources in the five-year modeling period is added to the representative background concentration for a comparison with the 1-hour NAAQS. If compliance is demonstrated using Tier 1 values, no further analysis is required.

- Tier 2 Analysis – Tier 2 is the same as Tier 1, except that the 8th highest maximum predicted 1-hour NO_2 concentration (in the five-year modeling period) is used.

- Tier 3 Analysis – Tier 3 is the same as Tier 1, except that the highest 98th percentile predicted 1-hour concentration at any receptor during the five-year modeling period is used. The 98th percentile 1-hour predicted concentration will be determined as implemented in the current version of AERMOD.

- Tier 4 Analysis – The 98th percentile predicted 1-hour concentrations developed under Tier 3 are paired in time with monitored NO_2 concentrations.

The one-hour SO_2 analysis will follow the same steps, except that Tier 2 will use the 4th highest maximum predicted concentrations, while Tiers 3 and 4 will utilize the 99th percentile predicted one-hour average SO_2 concentrations.

For the 24-hour average federal $PM_{2.5}$ standard for the District and CEC analyses, the comparison of impacts with the federal 24-hour average standard will be done in accordance with USEPA March 23, 2010 guidance (USEPA, 2010a). This guidance calls

[15] "This modeling protocol is meant to define the stepwise approach necessary to satisfy the requirements in General Guidance for Implementing the 1-Hour NO_2 National Ambient Air Quality Standard in Prevention of Significant Deterioration Permits, Including an Interim NO_2 Significant Impact Level and the Applicability of Appendix W Modeling Guidance for 1-Hour NO_2 National Ambient Air Quality Standard. Nothing in this protocol should be taken as overriding guidance contained in those two memoranda, or Appendix W of Part 51 of Title 40 of the Code of Federal Regulations (40 CFR 51, Appendix W)." (SJVAPCD, 2010b)

for basing the initial determination of compliance with the standard on the 5-year average of the highest modeled annual and 24-hour averages, combined with background concentrations based on the form of the standards (the 3-year average of the annual $PM_{2.5}$ concentrations and the 3-year average of the 98th percentile 24-hour averages).[16] If a more detailed assessment of $PM_{2.5}$ impacts is required, a second tier analysis may be necessary. USEPA's March 23, 2010 memo provides minimal guidance regarding this type of more detailed analysis, saying only "a Second Tier modeling analysis may be considered that would involve combining the monitored and modeled $PM_{2.5}$ concentrations on a seasonal or quarterly basis, and re-sorting the total impacts across the year to determine the cumulative design value."[17] As no additional guidance has been provided, such an analysis would be discussed with the District prior to implementation.

3.7 Ambient Air Quality Data

The closest District-, state-, or federal-operated stations are used to provide representative background ambient levels for the project site during 2007–2009. These representative background levels are shown in Table 4. The monitoring station locations were shown previously in Figure 3.

Table 4
Background Concentrations, 2007-2009 ($\mu g/m^3$)

Pollutant	Averaging Time	2007	2008	2009
Palm Springs (Riverside County)				
PM_{10}	24 hours	**83**	75	140
	Annual (Nat'l)	**30**	17.7	20.4
$PM_{2.5}$	24 hours (3-yr avg, 98th Percentile)[a]	**19.8**	17.8	17.4
	Nat'l 3-Year Avg AAM [b]	**8.2**	7.8	7.4
NO_2	1 hour (1st high)	**118.4**	92.1	90.2
	1 hour (98th percentile)[a]	**95.9**	84.6	73.3
	Annual	**18.8**	16.9	15.0
CO	1 hour	**920**	575	805
	8 hours (CA. 1st high)	**909**	621	771
Victorville, (San Bernardino County)				
SO_2	1 hour	**23.4**	15.6	72.8
	3 hours	**15.6**	13.0	72.8
	24 hours	**13.0**	5.2	13.0
	Annual	**2.6**	2.6	1.8

Notes:
PM_{10}, $PM_{2.5}$, NO_2, and CO statistics calculated from CARB's Air Quality Data Statistics (ADAM) and USEPA's AirExplorer data: *http://www.arb.ca.gov/adam/index.html*, *http://www.epa.gov/mxplorer /index.htm*. SO_2 calculated from CARB's ADAM site and hourly monitoring data.
[a] See Table 5. Annual arithmetic mean
[b] Annual arithmetic mean

[16] USEPA (2010a), p. 9.
[17] USEPA (2010a), p. 8.

For NO_2, SO_2, PM_{10} and CO, the highest values monitored during the most recent available three-year period (shown in bold in Table 4) will be used to represent ambient background concentrations in the project area (except for the Tier 3 and 4 NO_2 analyses as described above). For CEQA analyses of 24-hour and annual $PM_{2.5}$ impacts, the three-year average of the 98th percentile 24-hour monitored levels for the period between 2005 and 2009 will be used to represent project background because these values correspond to the method used for determining compliance with the federal $PM_{2.5}$ standards and are consistent with the guidance cited above. Table 5 shows the individual 98th percentile 24-hour averages used to calculate the 3-year averages shown in Table 4.

Table 5
98th Percentile 24-hour Average $PM_{2.5}$ Concentrations from Palm Springs

Period	2005	2006	2007	2008	2009
Individual 98th Pctl Monitored Concentrations	23.1[b]	15.8[b]	20.5[a]	17.1[a]	14.6[a]
3-year Averages			19.8	17.8	17.4

Notes:
[a] From *http://www.arb.ca.gov/adam/*
[b] Calculated from *http://www.epa.gov/air/data/index.html*, Monitoring Values Report.

3.8 Health Risk Assessment

A health risk assessment will be performed according to the Office of Environmental Health Hazard Analysis "Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments" (OEHHA, 2003). The HRA modeling will be prepared using CARB's Hotspots Analysis and Reporting Program (HARP) computer program (Version 1.4d, January 2011). The HARP model will be used to assess cancer risk as well as non-cancer chronic and acute health hazards. Because the TACs emitted by the project include PAHs, the HRA will address not only the inhalation pathway, but also the following three pathways: dermal absorption, soil ingestion, and mother's milk ingestion.[18]

The HARP model incorporates the ISCST3 model previously approved by USEPA. CARB offers a software program that allows AERMOD data to be imported into the HARP model, called HARP On-Ramp. The on-ramp will be used with most recent versions of AERMOD and HARP for the screening risk assessment.

[18] As discussed in Section 3.3, produce pathways are not included, per OEHHA guidance (2003).

3.9 Construction Air Quality Impact Analysis

The potential ambient impacts from air pollutant emissions during the construction of the project will be evaluated by air quality modeling that will account for the construction site location and the surrounding topography; the sources of emissions during construction, including vehicle and equipment exhaust emissions; and fugitive dust.[19]

Types of Emission Sources – Construction of the project can be viewed as three main sequential phases: site preparation; construction of foundations; and installation and assembly of power towers, boilers, steam turbines, and associated equipment. The construction impacts analysis will include a schedule for construction operation activities. Site preparation includes site excavation, excavation of footings and foundations, and backfilling operations.

Fugitive dust emissions from the construction of the project result from the following activities:

- Excavation and grading at the construction site;
- Onsite travel on paved and unpaved roads and across the unpaved construction site;
- Aggregate and soil loading and unloading operations;
- Raw material transfer to and from material stockpiles; and
- Wind erosion of areas disturbed during construction activities.

Engine exhaust will be emitted from the following sources:

- Heavy equipment used for excavation, grading, and construction of onsite structures;
- Water trucks used to control construction dust emissions;
- Diesel- and gasoline-fueled welding machines, generators, air compressors, and water pumps;
- Gasoline-fueled pickup trucks and Diesel-fueled flatbed trucks used onsite to transport workers and materials around the construction site;
- Transport of mechanical and electrical equipment to the project site;
- Transport of rubble and debris from the site to an appropriate landfill; and
- Transport of raw materials to and from stockpiles.

Emissions from a peak activity day will be modeled. Annual average emissions over the construction period will also be calculated and modeled for comparison with annual standards.

[19] As discussed above, the procedures described in this section will also be used to evaluate the impacts of mirror washing activities under CEQA.

Existing Ambient Levels – The background data discussed earlier will be used to represent existing ambient levels for the construction analysis as well as the analysis of the impacts of project operations.

Model Options – The AERMOD "OLMGROUP ALL" option will be used to estimate ambient impacts from construction emissions. The modeling options and meteorological data described above will be used for the modeling analysis.

The construction site will be represented as both a set of volume sources and a separate set of area sources in the modeling analysis. Emissions will be divided into three categories: exhaust emissions, mechanically generated fugitive dust emissions, and wind-blown fugitive dust emissions. Exhaust emissions and mechanically generated fugitive dust emissions (e.g., dust from wheels of a scraper) will be modeled as volume sources with a height of 6 meters. Wind-blown fugitive dust emissions, sources at or near the ground that are at ambient temperature and have negligible vertical velocity, will be modeled as area sources with a release height of 0.5 meters.

Combustion Diesel PM_{10} emission impacts from construction equipment will be evaluated to demonstrate that the cancer risk from construction activities will be below ten in one million at all receptors.

For the construction modeling analysis, the receptor grid will begin at the property boundary and will extend approximately one kilometer in all directions. Receptor spacing will be 60 meters, except for one tier of receptors along the project boundary composed of four segments with 25-meter spacing that extends out 100 meters.

3.10 Cumulative Air Quality Impact Analysis

To address CEC requirements, a cumulative air quality modeling impacts analysis of the project's typical operating mode will be performed in combination with other stationary source emissions sources within a six-mile radius that have received construction permits since January 1, 2010, or are in the permitting process. For each criteria pollutant, facilities having an emission increase of less than five tons per year are generally considered to be *de minimis*, and these facilities may be excluded from the cumulative impacts analysis after consultation with the CEC staff. Information on any recently constructed/permitted sources that might be appropriate for a cumulative air quality impact analysis (as defined above) will be requested from the Mojave Desert AQMD.

Upon receipt of sufficient information from the local air agencies to allow air dispersion modeling of the recently constructed/permitted non-project sources to be included in the cumulative air quality impact analysis, AERMOD will be used in a procedure similar to that described earlier in this protocol.

4. REPORTING

The results of the criteria pollutant and TAC modeling will be integrated into the application documents, and will include the information listed below.

- Project Description – Site map and site plan along with descriptions of the emitting equipment and air pollution control systems.

- Model Options and Input – Model options, screening and refined source parameters, criteria pollutant and TAC emission rates, meteorological data, and receptor grids used for the modeling analyses.

- Air Dispersion Modeling – Dispersion modeling results will include the following:

  - Plot plan showing emission points, nearby buildings (including dimensions), cross-section lines, property lines, fence lines, roads, and UTM coordinates;
  - A table showing building heights used in the modeling analysis;
  - Summaries of maximum modeled impacts; and
  - Model input and output files, including BPIP-PRIME and meteorological files as well as hourly ozone and NO_2 files used in demonstrating compliance with the 1-hour NO_2 standard, in electronic format on a compact disc, together with a description (README file) of all filenames.

- HRA – The HRA will include the following:

  - Descriptions of the methodology and inputs to the construction and operation AERMOD runs;
  - Tables of TAC emission rates and health impacts;
  - Figures showing sensitive receptor locations; and
  - Model input and output files in electronic format on a compact disc, together with a description (README file) of all filenames.

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Appendix A

Information on CTSCREEN Model

The CTDMPLUS and CTSCREEN Models

Complex terrain impacts may need to be modeled with more accuracy than that provided by AERMOD. The use of more refined modeling techniques is specifically addressed in USEPA's Appendix W[20] modeling guidance, as follows:

> *Since AERMOD treats dispersion in complex terrain, we have merged sections 4 and 5 of appendix W, as proposed in the April 2000 NPR [Notice of Proposed Rulemaking]. And while AERMOD produces acceptable regulatory design concentrations in complex terrain, it does not replace CTDMPLUS for detailed or receptor-oriented complex terrain analysis, as we have made clear in Guideline section 4.2.2. CTDMPLUS remains available for use in complex terrain. [p. 68225]*
>
> *4.2.2 Refined Analytical Techniques*
> *d. If the modeling application involves a well defined hill or ridge and a detailed dispersion analysis of the spatial pattern of plume impacts is of interest, CTDMPLUS, listed in Appendix A, is available. CTDMPLUS provides greater resolution of concentrations about the contour of the hill feature than does AERMOD through a different plume-terrain interaction algorithm. [p. 68233]*

CTSCREEN is the same basic model as CTDMPLUS, except that meteorological data are handled internally in a simplified manner. As discussed in the CTSCREEN users guide,[21]

> *Since [CTDMPLUS] accounts for the three-dimensional nature of plume and terrain interaction, it requires detailed terrain and meteorological data that are representative of the modeling domain. Although the terrain data may be readily obtained from topographic maps and digitized for use in the CTDMPLUS, the required meteorological data may not be as readily available.*
>
> *Since the meteorological input requirements of the CTDMPLUS can limit its application, the EPA's Complex-Terrain-Modeling, Technology-Transfer Workgroup developed a methodology to use the advanced*

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[20] 40 CFR 51 Subpart W, as amended November 9, 2005 at 70 FR 68218, "Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions."

[21] USEPA, EPA-600/8-90-087, "User's Guide to CTDMPLUS: Volume 2. The Screening Mode (CTSCREEN)," October 1990.

techniques of CTDMPLUS in situations where on-site meteorological measurements are limited or unavailable. This approach uses CTDMPLUS in a "screening" mode--actual source and terrain characteristics are modeled with an extensive array of predetermined meteorological conditions.

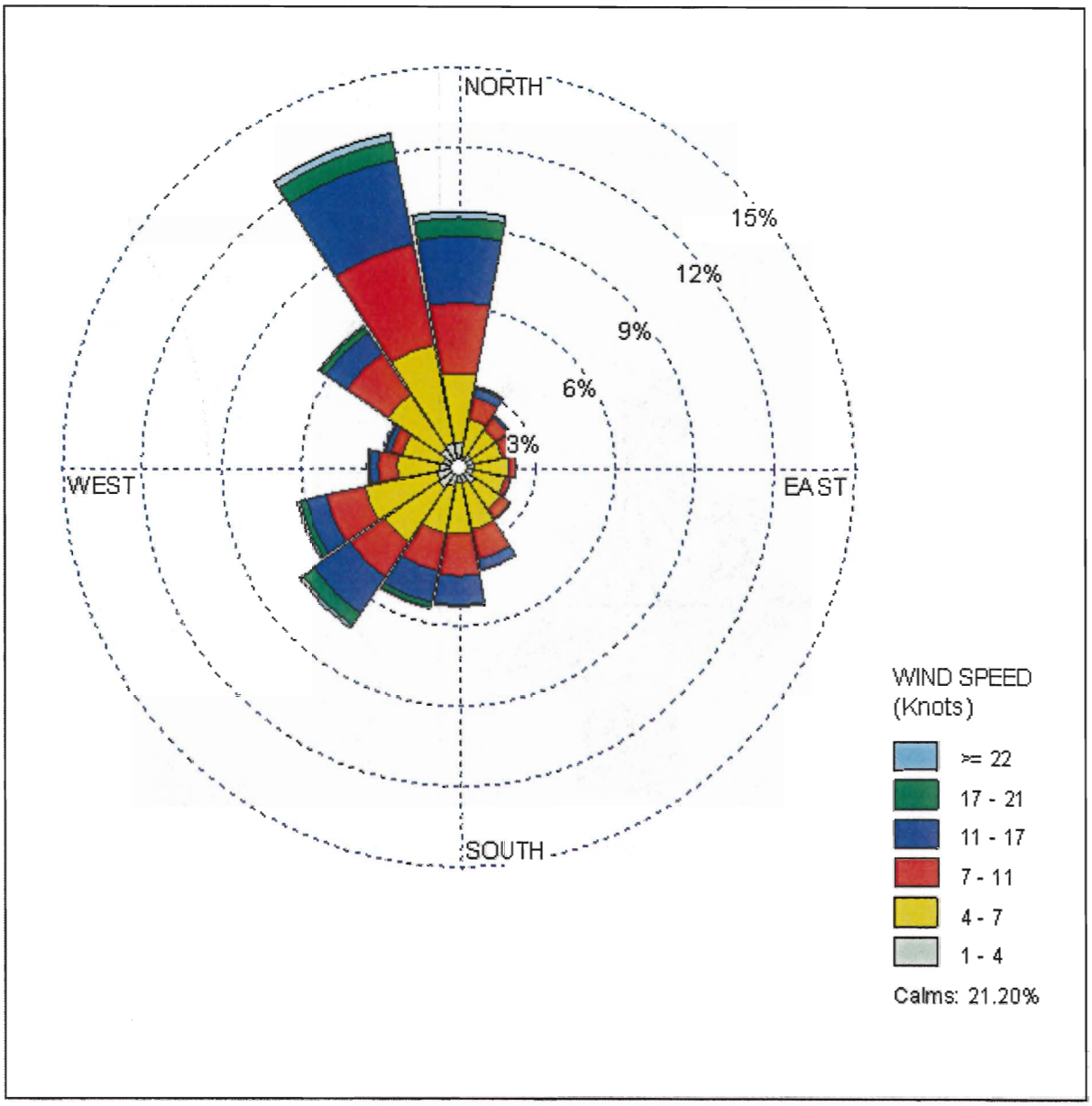
This CTDMPLUS screening mode (CTSCREEN) serves several purposes in regulatory applications. When meteorological data are unavailable, CTSCREEN can be used to obtain conservative (safely above those of refined models), yet realistic, impact estimates for particular sources.

Therefore, the use of the CTSCREEN version of CTDMPLUS is consistent with USEPA guidance.

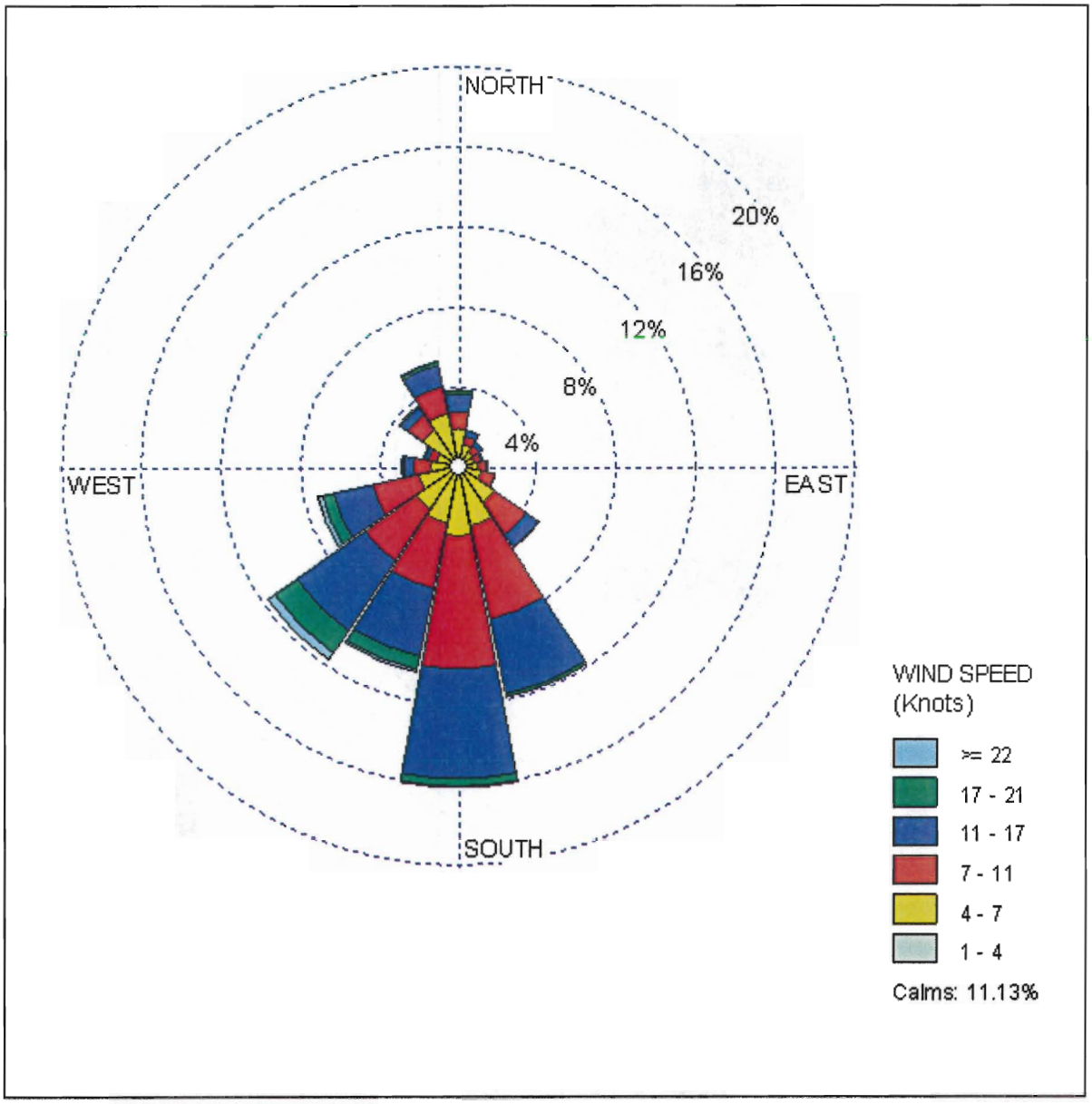
Appendix B

Composite Quarterly and Annual Wind Roses for Blythe, CA
2001 – 2009

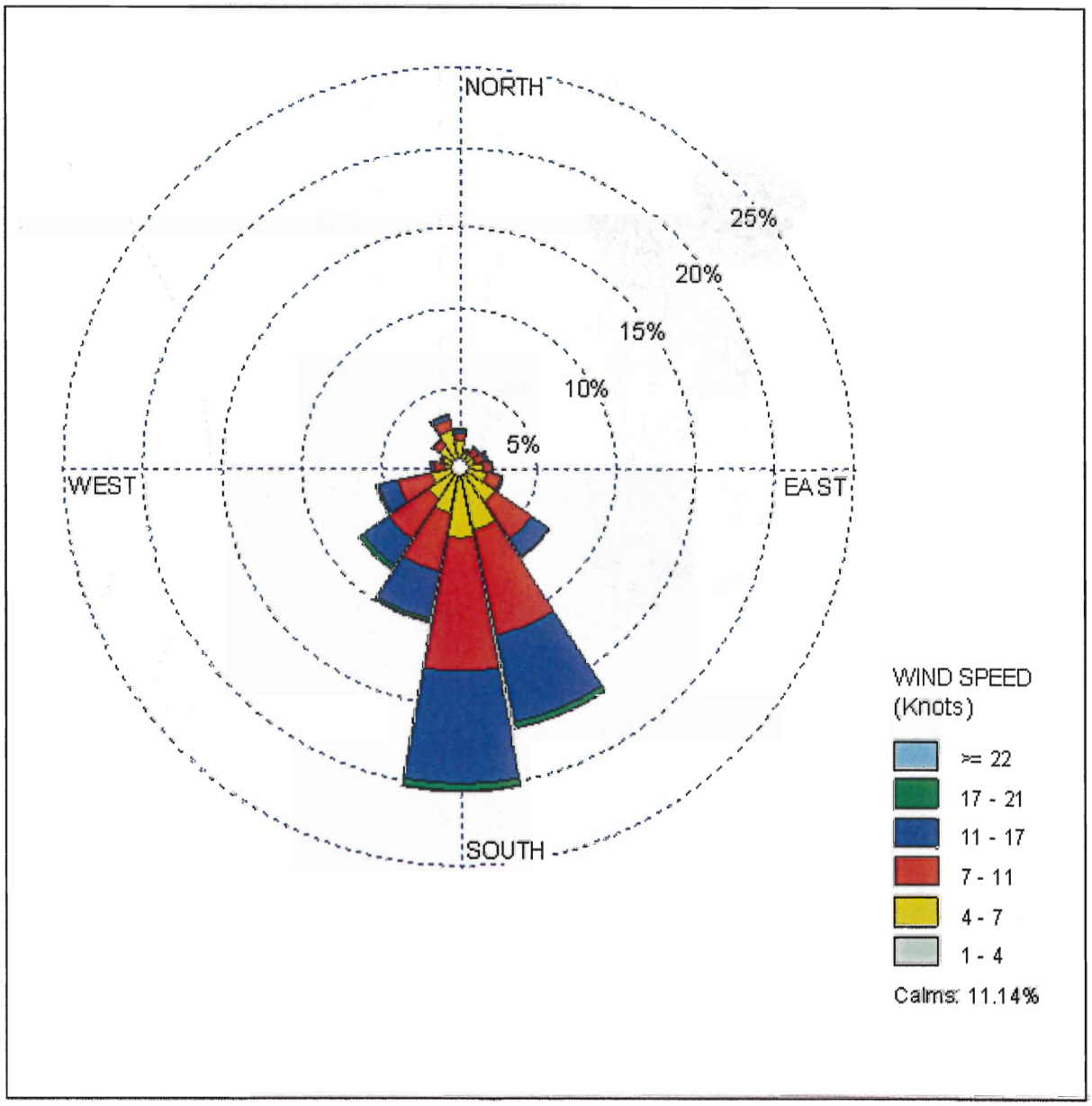
First Quarter, 2001 – 2009



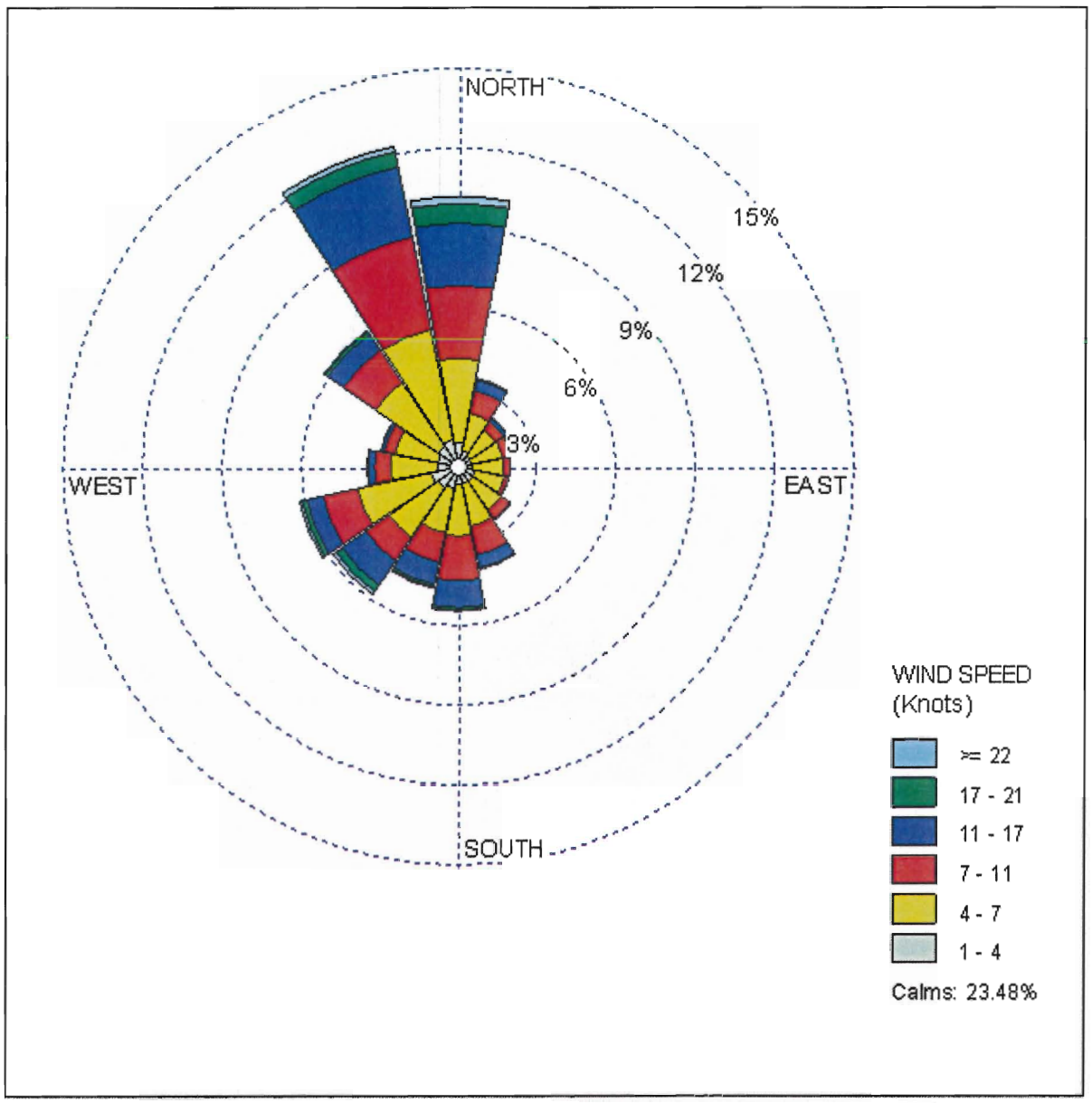
Second Quarter, 2001 – 2009



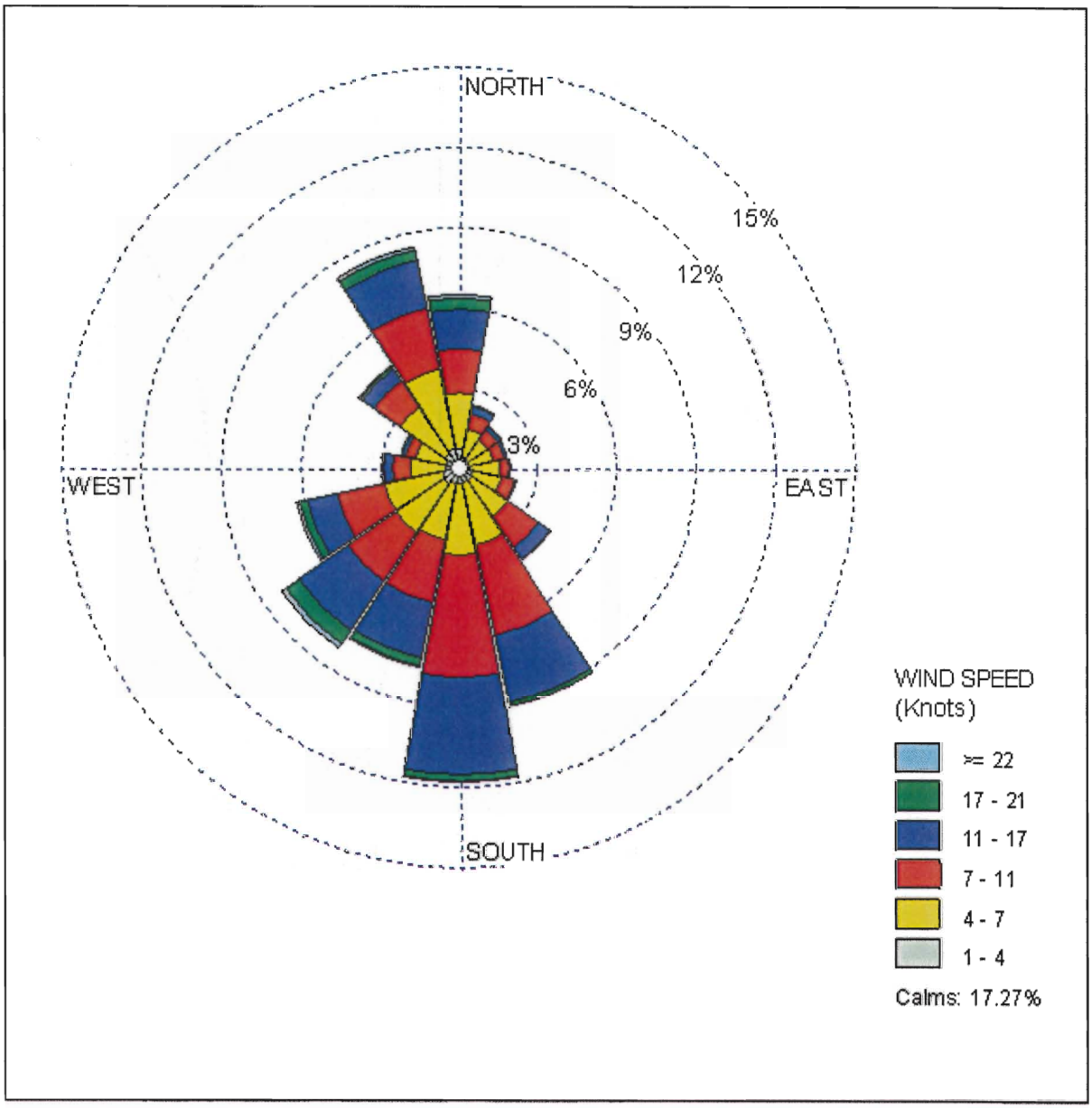
Third Quarter, 2001 – 2009



Fourth Quarter, 2001 – 2009



Annual, 2001 – 2009



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July 28, 2011

Memo to: Chris Anderson
MDAQMD

Gerry Bemis
CEC Siting Division

From: Tom Andrews

Subject: BrightSource Energy Rio Mesa Solar Electric Generating Facility
Responses to Comments on Modeling Protocol

Thank you for taking the time to review the May 27, 2011 air quality modeling protocol for the proposed Rio Mesa Solar Electric Generating Facility in Riverside County. The purpose of this memo is to explain how we plan to address your comments in the Application for Certification that is expected to be filed later this year.

1. **Would the ambient data collected at the Twentynine Palms monitoring station be more representative of background ambient levels for the project site compared to the ambient monitoring stations proposed in the modeling protocol?**

As discussed in the May 27, 2011 modeling protocol, we propose using ambient data collected over the three-year period from 2007-2009 for the monitoring stations shown in Table 1. This three-year period represents the most recent three-year period for which complete background ambient data sets are available for the project area.

Table 1
Background Ambient Air Quality Monitoring Stations

Pollutant(s)	Monitoring Station	Distance to Project Site
Ozone	Blythe, CA (Riverside County)	6 miles
PM_{10}, $PM_{2.5}$, NO_2, CO	Palm Springs, CA (Riverside County)	107 miles
SO_2	Victorville, CA (San Bernardino County)	163 miles

With regard to the background ambient data collected at a monitoring station located in Twentynine Palms, CA, based on our review of ambient data shown on the CARB and

EPA ambient air quality data websites, ambient PM_{10} data collection at the Twentynine Palms station stopped at the end of 2005. Therefore, the data collected at Twentynine Palms are not as current as the proposed data set. Neither the CARB nor EPA website showed $PM_{2.5}$, NO_2, CO, or SO_2 ambient data collected at this monitoring station. In addition, at a distance of approximately 85 miles from the project site, the Twentynine Palms monitoring station is not located significantly closer to the project site compared to the proposed Palm Springs monitoring station. Therefore, for the above reasons, we believe that PM_{10} data collected at the Palm Springs monitoring station should be used for the ambient air quality impact analysis that will be included as part of the application for certification and permit application for the RMS Project.

2. Please explain how the background ambient monitoring stations proposed in the modeling protocol are representative for the project site.

Table 1 lists the ambient monitoring stations proposed for the air quality modeling analysis for this project. While our preference would be to use ambient data collected at monitoring stations located closer to the project site, the only nearby ambient monitoring station is the Blythe ozone monitor. Because the proposed monitoring stations are all located in arid areas in Southern California, they are generally representative of the regional background levels for the project site. In addition to being representative, we believe it is equally important that background ambient data be conservative in terms of not underestimating background levels for a project site.

One of the more critical background ambient pollutants listed in the above table is ozone. This is because hourly background ozone levels will be used directly in the AERMOD air dispersion model to determine ambient NO_2 impacts due to the use of ozone limiting methods. For ozone, the ambient data are based on a monitoring station located only approximately 6 miles from the project site. For background NO_2, CO, PM_{10}, and $PM_{2.5}$ levels, we are proposing to use ambient data collected at the Palm Springs monitoring station. Because the Palm Springs station is located closer to large urbanized areas than the project site, it is likely that the background ambient levels measured at the Palm Springs monitoring station are higher than the levels at the project site[1]. Therefore, the use of these data is conservative and will not underestimate background levels for the project site. The same is true with the SO_2 ambient data collected at the Victorville monitoring station, which is also located closer to large urbanized areas than compared to the project site.

In addition to the above factors, it is important to remember that data collected from the ambient monitoring stations listed in Table 1 were also used for the air quality analyses performed for the following three recently approved solar power projects located near the RMS Project site:

---

[1] For example, 2003 to 2005 24-hr average PM_{10} levels at the Twentynine Palms monitoring station show maximum levels of 64, 40, and 53 $\mu g/m^3$, respectively, compared to 106, 78, and 64 $\mu g/m^3$ at the Palm Springs monitoring station. In addition, the number of days above the state 24-hr PM_{10} standard during 2003 to 2005 at the Twentynine Palms station were 3, 0, and 2, respectively, compared to 4, 2, and 2 at the Palm Springs station.

- Blythe Solar Power Project (09-AFC-6), CEC approval on 9/15/2010;
- Genesis Solar Energy Project (09-AFC-8), CEC approval on 9/29/2010; and
- Palen Solar Power Project (09-AFC-7), CEC approval on 12/15/2010.

Therefore, the use of the ambient background data collected at the monitoring stations listed above in Table 1 is consistent with other similar projects recently permitted by the CEC in this area.

For the above reasons, we believe the ambient data collected at the monitoring stations listed in Table 1 are appropriate for the air quality impact analysis that will be performed for the RMS Project.

3. It may not be appropriate to use the default assumption that 10% of the NOx in the exhaust of all project emission sources is emitted as NO_2.

Since we are attempting to use San Joaquin Valley APCD assumptions whenever possible in the modeling analysis for this Project, we propose the use of the equipment-specific NO_2 fractions provided in the San Joaquin Valley APCD's NO_2 modeling guidance.[2] The fractions to be used are summarized in Table 2.

Table 2
In-Stack NO_2/NOx Ratios

SJVAPCD Equipment Category	RMS Project Equipment	Ratio (%)
NG Boilers (all)	All boilers	10%
Diesel IC engines	Diesel emergency generators	20%
Diesel IC engine: 322 bhp water pump	Diesel fire pump engines	15.64%

4. The procedures used for filling in missing values in the NO_2 and ozone datasets may not be adequately conservative.

In the protocol, we proposed using the missing data filling procedures provided by the SJVAPCD on its website. After submitting the protocol, we discovered that the staffs of several air pollution control districts are working, through CAPCOA, to develop a CAPCOA-recommended procedure for filling in missing data. We consulted with the SJVAPCD staff on the status of the CAPCOA work, and Glenn Reed of the SJVAPCD provided draft guidance that is being submitted by a subcommittee for approval by CAPCOA. The SDAPCD, SJVAPCD, and other district staffs are collaborating on this draft guidance.

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[2] SJVAPCD, "Assessment of Non-Regulatory Option in AERMOD," Appendix C, March 2011. Accessed at *http://www.valleyair.org/busind/pto/Tox_Resources/AssessmentofNon-RegulatoryOptionsinAERMODAppendixC32111.xls.*

A copy of the draft guidance is attached. Our proposal to use linear interpolation for filling in single missing hours (p. 13 of the protocol) is consistent with the attached guidance (Section 1.1.1: "For a single hour, it is widely accepted that the best method of gap filling is the use of a liner interpolation of the hour before and after the missing hour."), so we are not proposing to make any changes to the missing data procedure for single hours. For multiple hours, the attached draft guidance provides the SDAPCD-developed procedure as one of the options (Section 1.1.2.2, Option 2). We propose using this procedure for multi-hour gaps.

5. **The air quality ambient impact analysis should be performed using the most current version of the AERMOD model.**

On April 13, 2011 EPA announced the replacement of AERMOD version 11059 with version 11103. Therefore, for the air quality impact analysis for the RMS Project, we will use AERMOD version 11103.

6. **How will nearby existing stationary emission sources be accounted for in the modeling analysis?**

As discussed in the modeling protocol (p.16 of the protocol), existing nearby stationary sources that will be examined as part of the RMS Project ambient impact analysis are non-project sources that have the potential to create a significant concentration gradient within the Proposed Project's modeled significant impact area. The Proposed Project's significant impact area is the area surrounding the project site where modeled impacts are above the corresponding EPA significant impact levels (SILs). For the RMS Project site, the only nearby existing stationary source that we are aware of that could potentially cause a significant concentration gradient within the modeled significant impact area for the RMS Project is the Blythe I Power Plant. As part of the air quality impact analysis for the RMS Project, we will examine the modeling results for the Blythe I Power Plant to see if there is an overlap between significant impact areas of the two projects (Blythe I and the RMS Project). If there is an overlap in these significant impacts, the Blythe I Power Plant impacts will be included in the RMS Project modeling analysis.

Thank you again for your comments on the modeling protocol. If you have any questions regarding these responses, please do not hesitate to contact us.

Attachment

cc: Todd Stewart, BrightSource Energy, Inc.
Andrea Grenier, Grenier & Associates, Inc.
Chris Ellison, Ellison Schneider & Harris

1 Gap Filling For Ozone and NO_2 Datasets

There are several reasons why missing data may exist in a dataset. They may be missing because of equipment malfunction, human error, or maintenance of the monitoring equipment. Nevertheless data gaps should be addressed to ensure that underestimation of NO_2 impacts are minimized. The following section provides several options that may be used to fill-in data gaps. **Please note:** The reviewing agency should be consulted to determine the appropriate method to be used.

This section only describes the method by which missing data can be filled and does not describe in any detail the procedure used to create/update ozone or NO_2 files used in ISCST3 or AERMOD.

1.1 Missing Data Procedures

Several approaches may be taken when addressing missing data, but each has its own issues from being too conservative or not conservative enough. Therefore, the reviewing agency will need to determine which method is appropriate for its regulatory needs.

1.1.1 Single Hour

For a single hour, it is widely accepted that the best method of gap filling is the use of a liner interpolation of the hour before and after the missing hour. This method is also known as the mean-before-after.

- Sum of the concentrations for the hour before and after
- Divide the sum by 2

1.1.2 Multiple Hours

For data gaps spanning more than a single hour no single acceptable method has been developed to date. Therefore the following section will describe several methods that may be used to fill-in gaps when more than a single hour is missing. **Please note:** The methods presented here are not an exhaustive list of procedures that may be acceptable to the reviewing agency. Therefore, the reviewing agency should be consulted before processing any dataset.

Note: The following methods are only intended to be used for multiple consecutive missing hours, unless otherwise noted. If only a single hour is missing it is recommended that the method described in Section 1.1.1 be used.

1.1.2.1 Simple Fill Methods

These methods are considered to be simple fill methods because they require a minimum amount of resources to be implemented and are more conservative in nature.

Gap filling Methods for Multi-hour Gaps:

1. Maximum Annual Hourly Concentration Over the Model Period (5yrs)
   - Determine maximum hourly concentration for each year
   - Select the highest hourly concentration over the modeled period
   - Use this value to fill-in all remaining missing hours
2. Maximum Annual Hourly Concentration – For each year modeled
   - Determine maximum hourly concentration for each year
   - Use this value to fill-in all remaining missing hours
3. Maximum Annual Average Hourly Concentration – Over the modeling period (5yrs)
   - Determine maximum hourly concentration for each year
   - Take the average of the maximum hourly concentration over the modeled period
   - Use this concentration to fill-in all remaining missing hours
4. Quarterly Maximum Concentration – For each year
   - Determine maximum hourly concentration for each quarter (1st Qtr = Jan - March, 2nd Qtr = April – June, 3rd Qtr = July – Sept, 4th Qtr = Oct – Dec)
   - Use each quarter's maximum concentration to substituted for any missing data within that quarter until all missing data is filled
5. Monthly Maximum Concentration
   - Determine maximum hourly concentration for each month
   - Use each month's maximum concentration to fill gaps for any missing data within that month until all missing data is filled.

1.1.2.2 Complex Fill Methods

The method described in this section are considered complex in nature since they are resource intensive and may require some programming or expertise in meteorology and using spreadsheets. Additionally, this method provides a more realistic interpolation of the actual missing data because it accounts for the diurnal and seasonal change in ozone and NO_2 concentration.

Gap Filling Methods:

1. Monthly Hourly Concentration - Option 1 (For each year)
   - For each month determine the maximum concentration for each hour (1, 2, 3, …) of the day. For each month you should have 24 values.

- For each missing hour within a month use the corresponding maximum hourly concentration.
- Perform the above steps until all hours are filled.
- Any missing hour will be filled in manually

2. Monthly Hourly Concentration - Option 2 (For each year)
   a. Fill any single missing hour with the maximum of the:
      i. Preceding hour
      ii. Succeeding hour
      iii. Same hour of day on previous day
      iv. Same hour of day on succeeding day

      If there is missing data for either iii and/or iv, use only the maximum of the available data to fill the missing hour (both a and b are guaranteed to be present since only single missing hours are filled in this step). Note that the most likely scenario for both c and d to be missing is for years when the monitor is calibrated at the same hour each day. In this case, the 30-day rolling average (see step b) for that hour will also not be available.

   b. For hours that are not filled by step a (all periods with more than one hour missing), fill the missing hour with the maximum for that hour of day for a 30-day rolling period centered on the hour (i.e., for the 15 preceding days and the 15 succeeding days). Note that 30-day rolling period will extend into the preceding and succeeding year at the start or end, respectively, of the modeling period.
   c. For hours not filled by step b, fill the missing data with the maximum of the 30-day rolling period for the preceding or succeeding hour.
   d. Any hours not filled by steps a–c, are likely periods with more than a month of missing data for all hours. These will be filled on a case-by-case basis.
   e. **For NO_2 File Only** - Check all filled hours for which the filled concentration is higher than the maximum monitored concentration recorded for that day (for a complete day of missing data, the maximum monitored concentration is considered zero for purposes of this comparison). If the filled concentration is higher than the appropriate nth highest daily maximum monitored concentration for the calendar year for determining compliance with federal 1-hour standard (e.g., for 351 or more days of valid data, the 8th highest daily maximum is the appropriate value), then replace filled concentration with the appropriate nth highest daily

maximum to fill that hour. Note: This prevents the filling procedure from changing the nth highest daily maximum for the year.

Tom W. Andrews

From: Tom W. Andrews
Sent: Wednesday, August 24, 2011 11:24 AM
To: canderson@mdaqmd.ca.gov
Cc: Tom W. Andrews
Subject: Rio Mesa SEGF air quality modeling

Chris:

Per our telecon today, we understand that it is OK to go forward with the air quality impact modeling for the proposed Rio Mesa Solar Electric Generating Facility based on the May 2011 modeling protocol submitted to the District with the changes/corrections discussed in the July 28, 2011 letter to the District. These changes are:

- Rather than a default NO2/NOx ratio of 10%, we will perform the modeling using the NO2/NOx ratios in the San Joaquin Valley APCD modeling guidelines (see July 28, 2011 letter, response to question number 3).
- We will perform the modeling using the 1-hr NO2 and ozone missing data substitution method per CAPCOA guidelines (see July 28, 2011 letter, response to question number 4).
- We will perform the modeling using the current version of the AERMOD model - version 11103 (see July 28, 2011 letter, response to question number 5).
- We will examine the modeling results for the Blythe I Power Plant to see if there is an overlap in the significant impacts areas for the two projects (Blythe I vs. Rio Mesa SEGF). If there is such an overlap, the Blythe I Power Plant modeled ambient impacts will be included in the Rio Mesa SEGF modeling results (see July 28, 2011 letter, response to question number 6).

In addition to the above changes, 2010 ambient background monitoring data is now available for the monitoring stations identified in the May 2011 modeling protocol. Therefore, rather than using background ambient monitoring data for the period from 2005 to 2009 (as discussed in the May 2011 modeling protocol), we will perform the modeling using ambient monitoring data for the period from 2006 to 2010. With this change to the five-year period for background ambient data, we will perform the modeling using met. data for the period from 2006 - 2010 (to match the background monitoring data) rather than the period of 2005 – 2009 discussed in the May 2011 modeling protocol. If you have any questions, please let us know.

Tom W. Andrews

From: Gerry Bemis <Gbemis@energy.state.ca.us>
Sent: Tuesday, August 16, 2011 12:00 PM
To: Tom W. Andrews
Cc: Joseph Hughes
Subject: Re: Rio Mesa Solar Electric Generating Facility - Air QualityModeling

Thanks, Tom..... this looks good.

If construction activities include portable generators, you need to include them in the construction modeling. These were omitted in some of the earlier AQ modeling for other solar projects. Having such large areas of construction, it is reasonable that not all construction-related electricity would come from SCE, or whom ever serves the area.

-- Gerry

Gerald R. Bemis
Air Resources Supervisor I
Air Quality/Public Health/T-line
Safety & Nuisance Unit
California Energy Commission
1516 Ninth Street, MS 40 Sacramento, CA 95814
(916) 654-4960

>>> "Tom W. Andrews" <TAndrews@sierraresearch.com> 8/16/2011 11:49 AM >>>
Gerry:

We are very close to beginning the air quality impact modeling for the proposed Rio Mesa Solar Electric Generating Facility. We would like to perform this modeling based on the enclosed May 2011 modeling protocol with the changes/corrections discussed in the enclosed July 28, 2011 letter. These changes are:

- Rather than a default NO2/NOx ratio of 10%, we will perform the modeling using the NO2/NOx ratios in the San Joaquin Valley APCD modeling guidelines (see response to question number 3).
- We will perform the modeling using the 1-hr NO2 and ozone missing data substitution method per CAPCOA guidelines (see response to question number 4).
- We will perform the modeling using the current version of the AERMOD model - version 11103 (see response to question number 5).
- We will examine the modeling results for the Blythe I Power Plant to see if there is an overlap in the significant impacts areas for the two projects (Blythe I vs. Rio Mesa SEGF). If there is such an overlap, the Blythe I Power Plant modeled ambient impacts will be included in the Rio Mesa SEGF modeling results (see response to question number 6).

In addition to the above changes, 2010 ambient background monitoring data is now available for the monitoring stations identified in the modeling protocol. Therefore, rather than using background ambient monitoring data for the period from 2005 to 2009 (as discussed in the May 2011 modeling protocol), we will perform the modeling using ambient monitoring data for the period from 2006 to 2010. With this change to the five-year period for background ambient data, we will perform the modeling using met. data for the period from 2006 - 2010 (to match the background monitoring data) rather than the period of 2005 – 2009 discussed in the May 2011 modeling protocol. Please let us know if with the above changes it is OK to begin the modeling for this proposed project. If you have any questions, please let us know.