Emissions Units - Industrial Engine Information **Form EU1**

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
03/27/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION		
Company Name: DF-AP #3, LLC	Facility Name: Double A Dairy Digester	Facility ID No: 1
Brief Project Description:	Dairy Anaerobic Digester that collects biogas & makes electricity	

EXEMPTION

Please refer to IDAPA 58.01.01.222.01.c and d for a list of internal combustion engines that are exempt from the Permit to Construct requirements.

ENGINE (EMISSION UNIT) DESCRIPTION AND SPECIFICATIONS

1. Type of Unit: ☒ New Unit ☐ Unpermitted Existing Unit ☐ Modification to a Unit with Permit #: Date Issued:

2. Use of Engine: ☐ Normal Operation ☐ Emergency ☐ Back-up ☒ Other: Renewable Energy

3. Engine ID Number:	4. Rated Power:	
2	☒ 1057 Brake Horsepower(bhp)	☒ 750 Kilowatts(kW)
5. Construction Date: 5/1/08	6. Manufacturer: Guascor	7. Model: SFGLD 560
8. Date of Modification (if applicable):	9. Serial Number (if available):	10. Control Device (if any):

FUEL DESCRIPTION AND SPECIFICATIONS

11. Fuel Type	☐ Diesel Fuel (#) (gal/hr)	☐ Gasoline Fuel (gal/hr)	☐ Natural Gas (cf/hr)	☒ Other Fuels (unit:cf/hr)
12. Full Load Consumption Rate				12,532
13. Actual Consumption Rate				12,185
14. Sulfur Content wt%		N/A	N/A	

OPERATING LIMITS & SCHEDULE

15. Imposed Operating Limits (hours/year, or gallons fuel/year, etc.):

16. Operating Schedule (hours/day, months/year, etc.):
24 hours a day 365 days a year

Emissions Units - Industrial Engine Information **Form EU1**

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IDENTIFICATION

Company Name:	Facility Name:	Facility ID No:
DF-AP #3, LLC	Double A Dairy Digester	1
Brief Project Description:	Dairy Anaerobic Digester that collects biogas & makes electricity	

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3. Engine ID Number:	4. Rated Power:	
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5. Construction Date:	6. Manufacturer:	7. Model:
5/1/08	Guascor	SFGLD 560
8. Date of Modification (if applicable):	9. Serial Number (if available):	10. Control Device (if any):

FUEL DESCRIPTION AND SPECIFICATIONS

11. Fuel Type	☐ Diesel Fuel (#) (gal/hr)	☐ Gasoline Fuel (gal/hr)	☐ Natural Gas (cf/hr)	☒ Other Fuels (unit:cf/hr)
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5. Construction Date: 5/1/08	6. Manufacturer: Guascor	7. Model: SFGLD 560
8. Date of Modification (if applicable):	9. Serial Number (if available):	10. Control Device (if any):

FUEL DESCRIPTION AND SPECIFICATIONS

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12. Full Load Consumption Rate				12,532
13. Actual Consumption Rate				12,185
14. Sulfur Content wt%		N/A	N/A	

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5. Construction Date: 5/1/08	6. Manufacturer: Guascor	7. Model: SFGLD 560
8. Date of Modification (if applicable):	9. Serial Number (if available):	10. Control Device (if any):

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IDENTIFICATION

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DF-AP #3, LLC	Double A Dairy Digester	1
Brief Project Description:	Dairy Anaerobic Digester that collects biogas & makes electricity	

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5/1/08	Guascor	SFGLD 560
8. Date of Modification (if applicable):	9. Serial Number (if available):	10. Control Device (if any):

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12. Full Load Consumption Rate				12,532
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Revision 3
4/5/2007

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Company Name:	**DF-AP #3, LLC**
Facility Name:	Double A Dairy Digester
Facility ID No.:	1
Brief Project Description:	Dairy Anaerobic Digester which captures biogas to produce electricity through gensets.

SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - POINT SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_x		CO		VOC		Lead	
Emissions units	**Stack ID**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**
Point Source(s)													
Guascor 560	EP-1	6.94E-02	3.04E-01	5.15E-01	2.26	2.33	10.21	3.73	16.33	2.33	10.21	N/A	N/A
Guascor 560	EP-2	6.94E-02	3.04E-01	5.15E-01	2.26	2.33	10.21	3.73	16.33	2.33	10.21	N/A	N/A
Guascor 560	EP-3	6.94E-02	3.04E-01	5.15E-01	2.26	2.33	10.21	3.73	16.33	2.33	10.21	N/A	N/A
Guascor 560	EP-4	6.94E-02	3.04E-01	5.15E-01	2.26	2.33	10.21	3.73	16.33	2.33	10.21	N/A	N/A
Guascor 560	EP-5	6.94E-02	3.04E-01	5.15E-01	2.26	2.33	10.21	3.73	16.33	2.33	10.21	N/A	N/A
Guascor 560	EP-6	6.94E-02	3.04E-01	5.15E-01	2.26	2.33	10.21	3.73	16.33	2.33	10.21	N/A	N/A
Reduction in CH4													
Stack #1 = -1,164 Tons/year													
Stack #2 = -1,164 Tons/year													
Stack #3 = -1,164 Tons/year													
Stack #4 = -1,164 Tons/year													
Stack #5 = -1,164 Tons/year													
Stack #6 = -1,164 Tons/year													
Acetaldehyde		2.19E-03	9.58E-03										
Acrolein		1.07E-03	4.70E-03										
Benzene		2.84E-02	1.25E-01										
Dichloromethane		4.16E-03	1.82E-02										
Formaldehyde		7.84E-03	3.43E-02										
Isomers of Xylene		5.64E-03	2.47E-02										
Nickel		8.25E-05	3.61E-04										
Selenium		4.54E-04	1.99E-03										
Styrene		2.17E-03	9.50E-03										
Toluene		1.08E-02	4.73E-02										
Trichloroethylene		8.25E-04	3.61E-03										
Vinyl Chloride		2.31E-03	1.01E-02										
Total					13.56	13.98	61.26	22.38	97.98	13.98	61.26		

	DEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the **Air Permit Hotline - 1-877-5PERMIT**	**PERMIT TO CONSTRUCT APPLICATION** Revision 3 4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	**DF-AP #3, LLC**
Facility Name:	Double A Dairy Digester
Facility ID No.:	1
Brief Project Description:	Dairy Anaerobic Digester which captures biogas to produce electricity through gensets.

SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - POINT SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_x		CO		VOC		Lead	
Emissions units	**Stack ID**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**
Point Source(s)													

Instructions for Form EI-CP1

This form is designed to provide the permit writer and air quality modeler with a summary of the criteria pollutant emissions of each emission unit/point located at the facility. This information may be used by the IDEQ to perform an air quality analysis or to review an air quality analysis submitted with the permit application or requested by the IDEQ.

Please fill in the same company name, facility name, facility ID number, and brief project description as on form CS in the boxes provided. This is useful in case any pages of the application get separated.

1. Provide the name of all emission units at the facility. This name must match names on other submittals to IDEQ and within this application.

2. Provide the identification number for the stack which the emission unit exits.

3. Provide the emission rate in pounds per hour and tons per year for all criteria pollutants emitted by this point source. In this form, emission rates for a point source are the maximum allowable emissions for both short term (pounds per hour) and long term (tons per year). These emission rates are its permitted limits (if any). Otherwise, potential to emit should be shown. Potential to emit is defined as uncontrolled emissions at maximum design or achievable capacity (whichever is higher) and year-round continuous operation (8760 hours per year) if there are no federally enforceable permit limits on the emission point. If the emission point has or will have control equipment or some other proposed permit limitation such as hours of operation or material usage, the control efficiency or proposed permit limit(s) may be used in calculating potential to emit.

NOTE: Attach a separate sheet of paper, or electronic file, to provide additional documentation on the development of the emission rates. Documentation can include emissions factors, throughput, and example calculations.

DEQ AIR QUALITY PROGRAM
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PERMIT TO CONSTRUCT APPLICATION
Revision 3
4/5/2007

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Facility ID No.:	1
Brief Project Description:	Dairy Anaerobic Digester which captures biogas to produce electricity through gensets.

SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - POINT SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_x		CO		VOC		Lead	
Emissions units	**Stack ID**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**
Point Source(s)													
Guascor 560	EP-1	6.94E-02	3.04E-01	5.15E-01	2.26	2.33	10.21	3.73	16.33	2.33	10.21	N/A	N/A
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Reduction in CH4													
Stack #1 = -1,164 Tons/year													
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Benzene		2.84E-02	1.25E-01										
Dichloromethane		4.16E-03	1.82E-02										
Formaldehyde		7.84E-03	3.43E-02										
Isomers of Xylene		5.64E-03	2.47E-02										
Nickel		8.25E-05	3.61E-04										
Selenium		4.54E-04	1.99E-03										
Styrene		2.17E-03	9.50E-03										
Toluene		1.08E-02	4.73E-02										
Trichloroethylene		8.25E-04	3.61E-03										
Vinyl Chloride		2.31E-03	1.01E-02										
Total					13.56	13.98	61.26	22.38	97.98	13.98	61.26		

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Company Name:	**DF AP #3, LLC**
Facility Name:	Double A Dairy Digester
Facility ID No.:	1
Brief Project Description:	Dairy Anaerobic Digester which captures biogas to produce electricity through gensets.

SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - POINT SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_x		CO		VOC		Lead	
Emissions units	Stack ID	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Point Source(s)													

Instructions for Form EI-CP1

This form is designed to provide the permit writer and air quality modeler with a summary of the criteria pollutant emissions of each emission unit/point located at the facility. This information may be used by the IDEQ to perform an air quality analysis or to review an air quality analysis submitted with the permit application or requested by the IDEQ.

Please fill in the same company name, facility name, facility ID number, and brief project description as on form CS in the boxes provided. This is useful in case any pages of the application get separated.

1. Provide the name of all emission units at the facility. This name must match names on other submittals to IDEQ and within this application.

2. Provide the identification number for the stack which the emission unit exits.

3. Provide the emission rate in pounds per hour and tons per year for all criteria pollutants emitted by this point source. In this form, emission rates for a point source are the maximum allowable emissions for both short term (pounds per hour) and long term (tons per year). These emission rates are its permitted limits (if any). Otherwise, potential to emit should be shown. Potential to emit is defined as uncontrolled emissions at maximum design or achievable capacity (whichever is higher) and year-round continuous operation (8760 hours per year) if there are no federally enforceable permit limits on the emission point. If the emission point has or will have control equipment or some other proposed permit limitation such as hours of operation or material usage, the control efficiency or proposed permit limit(s) may be used in calculating potential to emit.

NOTE: Attach a separate sheet of paper, or electronic file, to provide additional documentation on the development of the emission rates. Documentation can include emissions factors, throughput, and example calculations.

	DEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the **Air Permit Hotline - 1-877-5PERMIT**	**PERMIT TO CONSTRUCT APPLICATION** Revision 2 4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	**DF-AP #3, LLC**
Facility Name:	Double A Dairy Digester
Facility ID No.:	1
Brief Project Description:	Dairy anaerobic digester which captures biogas to produce electricity through gensets.

SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - FUGITIVE SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_X		CO		VOC		Lead	
Fugitive Source Name	**Fugitive ID**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**
Fugitive Source(s)													
name of fugitive source1													
name of fugitive source2													
name of fugitive source3													
name of fugitive source4													
name of fugitive source5													
name of fugitive source6													
name of fugitive source7													
name of fugitive source8													
name of fugitive source9													
name of fugitive source10													
name of fugitive source11													
name of fugitive source12													
name of fugitive source13													
name of fugitive source14													
name of fugitive source15													
name of fugitive source16													
name of fugitive source17													
name of fugitive source18													
name of fugitive source19													
name of fugitive source20													
name of fugitive source21													
(insert more rows as needed)													
Total													

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Brief Project Description:	Dairy anaerobic digester which captures biogas to produce electricity through gensets.

SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - FUGITIVE SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_X		CO		VOC		Lead	
Fugitive Source Name	**Fugitive ID**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**
Fugitive Source(s)													

Instructions for Form EI-CP2

This form is designed to provide the permit writer and air quality modeler with a summary of the criteria pollutant emissions of each emission unit/point located at the facility. This information may be used by the IDEQ to perform an air quality analysis or to review an air quality analysis submitted with the permit application or requested by the IDEQ.

Please fill in the same company name, facility name, facility ID number, and brief project description as on form CS in the boxes provided. This is useful in case any pages of the application get separated.

Fugitive emissions are those emissions that cannot reasonably be made to pass through a stack or vent or equivalent opening. Examples include coal piles, unpaved roads, etc. Fugitive emission sources at your plant must be included in this form.

1. Provide the name of all fugitive sources at the facility. This name must match names on other submittals to IDEQ and within this application.

2. Provide the identification number for the fugitive source. This ID number should match ID numbers on other submittals to IDEQ and within this application.

3. Provide the emission rate in pounds per hour and tons per year for all criteria pollutants emitted by this fugitive source. In this form, emission rates for a fugitive source are the maximum allowable emissions for both short term (pounds per hour) and long term (tons per year). These emission rates are its permitted limits (if any). Otherwise, potential to emit should be shown. Potential to emit is defined as uncontrolled emissions at maximum design or achievable capacity (whichever is higher) and year-round continuous operation (8760 hours per year) if there are no federally enforceable permit limits on the emission point. If the emission point has or will have control equipment or some other proposed permit limitation such as hours of operation or material usage, then, the control efficiency or proposed permit limit(s) may be used in calculating potential to emit.

NOTE: Attach a separate sheet of paper, or electronic file, to provide additional documentation on the development of the emission rates. Documentation can include emissions factors, throughput, and example calculations.

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
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PERMIT TO CONSTRUCT APPLICATION
Revision 3
4/5/2007

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Company Name:	**DF-AP #3, LLC**
Facility Name:	Double A Dairy Digester
Facility ID No.:	1
Brief Project Description:	Dairy anaerobic digester which captures biogas to produce electricity through gensets.

SUMMARY OF EMISSIONS INCREASE (PROPOSED PTE - PREVIOUSLY MODELED PTE) - POINT SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_X		CO		VOC		Lead	
Emissions units	**Stack ID**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**
Point Source(s)													
name of the emissions unit1													
name of the emissions unit2													
name of the emissions unit3													
name of the emissions unit4													
name of the emissions unit5													
name of the emissions unit6													
name of the emissions unit7													
name of the emissions unit8													
name of the emissions unit9													
name of the emissions unit10													
name of the emissions unit11													
name of the emissions unit12													
name of the emissions unit13													
name of the emissions unit14													
name of the emissions unit15													
name of the emissions unit16													
name of the emissions unit17													
name of the emissions unit18													
name of the emissions unit19													
name of the emissions unit20													
name of the emissions unit21													
(insert more rows as needed)													
Total													

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4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	DF-AP #3, LLC
Facility Name:	Double A Dairy Digester
Facility ID No.:	1
Brief Project Description:	Dairy anaerobic digester which captures biogas to produce electricity through gensets.

SUMMARY OF EMISSIONS INCREASE (PROPOSED PTE - PREVIOUSLY MODELED PTE) - POINT SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_x		CO		VOC		Lead	
Emissions units	Stack ID	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Point Source(s)													

Instructions for Form EI-CP3

This form is designed to provide the permit writer and air quality modeler with a summary of the change in criteria pollutant emissions of each emission unit/point associated with this permit application. This information may be used by the IDEQ to perform an air quality analysis or to review an air quality analysis submitted with the permit application or requested by the IDEQ.

Please fill in the same company name, facility name, facility ID number, and brief project description as on form CS in the boxes provided. This is useful in case any pages of the application get separated.

1. Provide the name of the emission unit. This name should match names on other submittals to IDEQ and within this application.

2. Provide the identification number for the stack which the emission unit exits.

3. Provide the increase in emissions in pounds per hour and tons per year for all criteria pollutants emitted by this emission unit. In this form, increase in emissions for an emission unit are the proposed PTE - Previously modeled PTE. If the emission point has or will have control equipment or some other proposed permit limitation such as hours of operation or material usage, then, the control efficiency or proposed permit limit(s) may be used in calculating proposed potential to emit.

NOTE: Attach a separate sheet of paper, or electronic file, to provide additional documentation on the development of the emission rates. Documentation can include emissions factors, throughput, and example calculations.

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Please see instructions on page 2 before filling out the form.

Company Name:	**DF-AP #3, LLC**
Facility Name:	Double A Dairy Digester
Facility ID No.:	1
Brief Project Description:	Dairy anaerobic digester which captures biogas to produce electricity through gensets.

SUMMARY OF EMISSIONS INCREASE (PROPOSED PTE - PREVIOUSLY MODELED PTE) - FUGITIVE SOURCES

1.	2.	3. Air Pollutant Maximum Change in Emissions Rate (lbs/hr or t/yr)											
		PM_{10}		SO_2		NO_x		CO		VOC		Lead	
Fugitive Source Name	**Fugitive ID**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**
Fugitive Source(s)													
name of fugitive source1													
name of fugitive source2													
name of fugitive source3													
name of fugitive source4													
name of fugitive source5													
name of fugitive source6													
name of fugitive source7													
name of fugitive source8													
name of fugitive source9													
name of fugitive source10													
name of fugitive source11													
name of fugitive source12													
name of fugitive source13													
name of fugitive source14													
name of fugitive source15													
name of fugitive source16													
name of fugitive source17													
name of fugitive source18													
name of fugitive source19													
name of fugitive source20													
name of fugitive source21													
(insert more rows as needed)													
Total													

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Please see instructions on page 2 before filling out the form.

Company Name:	**DF-AP #3, LLC**
Facility Name:	Double A Dairy Digester
Facility ID No.:	1
Brief Project Description:	Dairy anaerobic digester which captures biogas to produce electricity through gensets.

SUMMARY OF EMISSIONS INCREASE (PROPOSED PTE - PREVIOUSLY MODELED PTE) - FUGITIVE SOURCES

1.	2.	3. Air Pollutant Maximum Change in Emissions Rate (lbs/hr or t/yr)											
		PM_{10}		SO_2		NO_X		CO		VOC		Lead	
Fugitive Source Name	**Fugitive ID**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**
Fugitive Source(s)													

Instructions for Form EI-CP4

This form is designed to provide the permit writer and air quality modeler with a summary of the change in criteria pollutant emissions of each emission unit/point associated with this permit application. This information may be used by the IDEQ to perform an air quality analysis or to review an air quality analysis submitted with the permit application or requested by the IDEQ.

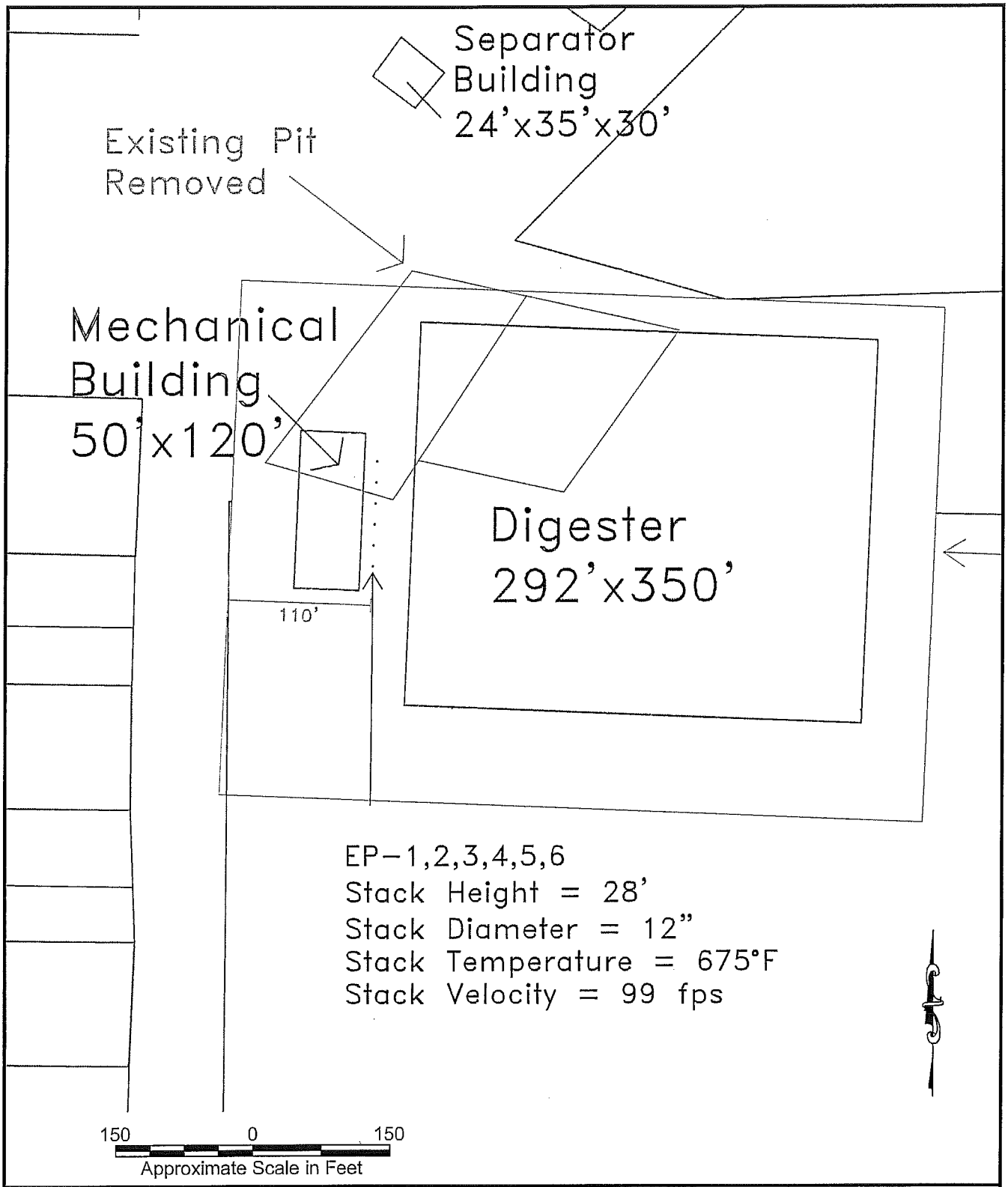
Please fill in the same company name, facility name, facility ID Number, and brief project description as on Form CS in the boxes provided. This is useful in case any pages of the application get separated.

1. Provide the name of the emission unit. This name should match names on other submittals to IDEQ and within this application.

2. Provide the identification number for the fugitive source. This ID should match IDs on other submittals to IDEQ and within this application.

3. Provide the increase in emissions in pounds per hour and tons per year for all criteria pollutants emitted by this fugitive source. In this form, increase in emissions for an emission unit are the proposed PTE - Previously modeled PTE. If the fugitive source has or will have control equipment or some other proposed permit limitation such as hours of operation or material usage, the control efficiency or proposed permit limit(s) may be used in calculating proposed potential to emit.

NOTE: Attach a separate sheet of paper, or electronic file, to provide additional documentation on the development of the emission rates. Documentation can include emissions factors, throughput, and example calculations.



KLEINFELDER 2315 S. Cobalt Point Way Meridian, Idaho 83642 PH. 208-893-9700 FAX. 208-893-9703 www.kleinfelder.com	**SITE DETAIL** Andgar Double A Dairy 305 County Line Road Jerome, Idaho	DRAWN BY: A. Kartchner REVISED BY: A.Kartchner CHECKED BY: K. Wetzel FIGURE **3**
DRAWN: April 2008 | APPROVED BY:_____	PROJECT NO. 93142 | FILE NAME:	

DEQ AIR QUALITY PROGRAM
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PERMIT TO CONSTRUCT APPLICATION

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Please see instructions on page 2 before filling out the form.

Company Name:	DF-AP #3, LLC
Facility Name:	Double A Dairy
Facility ID No.:	1
Brief Project Description:	Dairy anaerobic digester which captures biogas to produce electricity through gensets.

SUMMARY OF AIR IMPACT ANALYSIS RESULTS - CRITERIA POLLUTANTS

		1.		2.	3.	4.		5.
Criteria Pollutants	**Averaging Period**	**Significant Impact Analysis Results (µg/m3)**	**Significant Contribution Level (µg/m3)**	**Full Impact Analysis Results (µg/m3)**	**Background Concentration (µg/m3)**	**Total Ambient Impact (µg/m3)**	**NAAQS (µg/m3)**	**Percent of NAAQS**
PM_{10}	24-hour	5.30	5	5.30	73.00	78.30	150	52%
	Annual	1.06	1	1.06	26.00	27.06	50	54%
SO_2	3-hr	89.25	25	89.25	34.00	123.25	1300	9%
	24-hr	39.67	5	39.67	26.00	65.67	365	18%
	Annual	7.93	1	7.93	8.00	15.93	80	20%
NO_2	Annual	26.96	1	26.96	17.00	43.96	100	44%
CO	1-hr	719.04	2000	719.04	3,600.00	4,319.04	10000	43%
	8-hr	503.33	500	503.33	2,300.00	2,803.33	40000	7%

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Please see instructions on page 2 before filling out the form.

Company Name:	DF-AP #3, LLC
Facility Name:	Double A Dairy
Facility ID No.:	1
Brief Project Description:	Dairy anaerobic digester which captures biogas to produce electricity through gensets.

POINT SOURCE STACK PARAMETERS

1.	2.	3a.	3b.	4.	5.	6.	7.	8.	9.	10.
Emissions units	**Stack ID**	**UTM Easting (m)**	**UTM Northing (m)**	**Base Elevation (m)**	**Stack Height (m)**	**Modeled Diameter (m)**	**Stack Exit Temperature (K)**	**Stack Exit Flowrate (acfm)**	**Stack Exit Velocity (m/s)**	**Stack orientation (e.g., horizontal, rain cap)**
Point Source(s)										
6 Guascor 560 Generators	EP-1	706,751.00	4,747,343.00	1,189.00	8.53	0.30	630.00	1,218.00	30.18	vertical
(insert more rows as needed)										

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Please see instructions on page 2 before filling out the form.

Company Name:	DF-AP #3, LLC
Facility Name:	Double A Dairy
Facility ID No.:	1
Brief Project Description:	Dairy anaerobic digester which captures biogas to produce electricity through gensets.

FUGITIVE SOURCE PARAMETERS

1.	2.	3a.	3b.	4.	5.	6.	7.	8.	9.	10.
Emissions units	**Stack ID**	**UTM Easting (m)**	**UTM Northing (m)**	**Base Elevation (m)**	**Release Height (m)**	**Easterly Length (m)**	**Northerly Length (m)**	**Angle from North (°)**	**Initial Vertical Dimension (m)**	**Initial Horizontal Dimension (m)**
Area Source(s)										
name of the emissions unit1										
name of the emissions unit2										
name of the emissions unit3										
name of the emissions unit4										
name of the emissions unit5										
name of the emissions unit6										
name of the emissions unit7										
name of the emissions unit8										
name of the emissions unit9										
name of the emissions unit10										
Volume Source(s)										
name of the emissions unit11										
name of the emissions unit12										
name of the emissions unit13										
name of the emissions unit14										
name of the emissions unit15										
name of the emissions unit16										
name of the emissions unit17										
name of the emissions unit18										
name of the emissions unit19										
(insert more rows as needed)										

	DEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the **Air Permit Hotline - 1-877-5PERMIT**	**PERMIT TO CONSTRUCT APPLICATION** Revision 3 4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	DF-AP #3, LLC
Facility Name:	Double A Dairy
Facility ID No.:	1
Brief Project Description:	Dairy anaerobic digester which captures biogas to produce electricity through gensets.

BUILDING AND STRUCTURE INFORMATION

1.	2.	3.	4.	5.	6.	7.
Building ID Number	**Length (ft)**	**Width (ft)**	**Base Elevation (m)**	**Building Height (m)**	**Number of Tiers**	**Description/Comments**
Mechanical Building	50.00	120.00	1189.00	6.71	1	Mechanical building nearest to the digester.
Building 2 ID						
Building 3 ID						
(insert more rows as needed)						

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PERMIT TO CONSTRUCT APPLICATION

Revision 3
03/26/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION		
Company Name: DF-AP #3, LLC	Facility Name: Double A Dairy Digester	Facility ID No: 1
Brief Project Description: Dairy Anaerobic Digester which captures biogas to produce electricity through gensets		

APPLICABILITY DETERMINATION		
1. Will this project be subject to 1990 CAA Section 112(g)? (Case-by-Case MACT)	☒ NO	☐ YES* * If YES, applicant must submit an application for a case-by-case MACT determination [IAC 567 22-1(3)"b" (8)]
2. Will this project be subject to a New Source Performance Standard? (40 CFR part 60)	☐ NO	☒ YES* *If YES, please identify sub-part: JJJJ
3. Will this project be subject to a MACT (Maximum Achievable Control Technology) regulation? (40 CFR part 63) THIS ONLY APPLIES IF THE PROJECT EMITS A HAZARDOUS AIR POLLUTANT	☒ NO	☐ YES* *If YES, please identify sub-part: _____
4. Will this project be subject to a NESHAP (National Emission Standards for Hazardous Air Pollutants) regulation? (40 CFR part 61)	☒ NO	☐ YES* *If YES, please identify sub-part: _____
5. Will this project be subject to PSD (Prevention of Significant Deterioration)? (40 CFR section 52.21)	☒ NO	☐ YES
6. Was netting done for this project to avoid PSD?	☒ NO	☐ YES* *If YES, please attach netting calculations

IF YOU ARE UNSURE HOW TO ANSWER ANY OF THESE QUESTIONS, CALL THE AIR PERMIT HOTLINE AT 1-877-5PERMIT

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APPENDIX B

Air Quality Modeling Protocol

KLEINFELDER
An employee owned company

April 15, 2008
Kleinfelder Project No. 93142

Mr. Kevin Schilling
Airshed Dispersion Modeling Coordinator
Idaho Department of Environmental Quality
Air Quality Division
1410 N. Hilton
Boise, ID 83706

SUBJECT: AMBIENT AIR QUALITY MODELING PROTOCOL for ANDGAR CORPORATION, DOUBLE A DAIRY 305 COUNTY LINE ROAD JEROME, IDAHO 83338

Dear Mr. Schilling:

Kleinfelder is preparing a Permit to Construct (PTC) application on behalf of AgPower Partners #5, LLC for Double A Dairy located in Jerome, Idaho. The Project includes the installation of an anaerobic digester for processing onsite cow manure and six Genset electrical generators for conversion of the digester biogas to electricity. Andgar Corporation ("Andgar") will be installing the Genset electrical generators at the dairy. This modeling protocol is being submitted for approval to support the PTC application.

Andgar is installing similar manure digester systems in the state of Idaho. The projects include the installation of anaerobic digesters and Genset generators on leased property of existing dairies. There may be one or more emission stacks from the generators with similar emission characteristics. The generators are modeled as single point sources using EPA's Screen 3 model to estimate worst case emission impacts. Minor changes in input parameters may be necessary depending on the specific requirements of the project. The leased property boundary is used as the nearest public receptor.

In the meeting between DEQ representatives and Kleinfelder on April 9, 2008, it was discussed that Kleinfelder could submit a general modeling protocol on behalf of Andgar for future projects. Please consider this modeling protocol a request for approval for the specific projects and future similar manure digester projects.

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1 EXECUTIVE SUMMARY

The proposed Genset electrical generators will result in criteria pollutant emissions of carbon monoxide, particulate matter, nitrogen oxides, sulfur dioxide and volatile organic compounds. Modeling will be performed for the criteria pollutants, to demonstrate compliance with the NAAQS.

The proposed project will also result in potential emissions of non-carcinogenic toxic air pollutants ("TAPs") listed in IDAPA 58.01.01.585 including acrolein, isomers of xylene, selenium, styrene, toluene, and trichloroethylene. The potential emissions of these compounds are not expected to exceed their respective listed TAP screening emission levels ("EL") with the exception of trichloroethylene. In addition, the digester will result in emissions of carcinogenic TAPs listed in IDAPA 58.01.01.586 including acetaldehyde, benzene, dichloromethane, formaldehyde, nickel, trichloroethylene, and vinyl chloride. The potential emissions for acetaldehyde is not expected to exceed the listed TAP EL, however potential emissions for benzene, dichloromethane, formaldehyde, nickel, and trichloroethylene may exceed each of the respective TAP ELs. Therefore, modeling is expected to be required for these specific TAPs to demonstrate compliance with the Acceptable Ambient Concentration (AAC) for each pollutant.

This ambient air quality modeling protocol ("protocol") is being submitted to the Idaho Department of Environmental Quality, Air Quality Division ("IDEQ") for review. The Protocol was prepared consistent with the IDEQ Air Quality Modeling Guidelines ("Guidelines"), revised December 31, 2002, and the associated modeling protocol checklist (see Appendix B). The protocol addresses the approach for assessing the ambient air impacts from the proposed source emissions for comparison with the AAC/AACC for TAPs and National Ambient Air Quality Standards (NAAQS) for criteria pollutants.

We understand that IDEQ staff will review and approve the modeling protocol. If there are any questions or items of discussion, the following points of contact are available:

Andgar Corporation:

Mr. Kyle Juergens
6920 Salishan Pkwy. A-102
Ferndale, Washington 98248
(360) 366-9900
e-mail: kylej@andgar.com

Kleinfelder:

Mr. Andy Marshall, P.E.
2315 S. Cobalt Point Way
Meridian, Idaho 83642
(208) 893-9700
e-mail: amarshall@kleinfelder.com

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2 INTRODUCTION AND PURPOSE

2.1. General Overview

Andgar is proposing to construct an anaerobic digester at Double A Dairy. The anaerobic digester will be constructed for AgPower Partners #5, who in turn leases space on the dairy's property. The anaerobic digester is an independent source separate of the dairy.

The facility operates under SIC code 4911. The digester is designed to produce biogas from on-site dairy cattle manure. The resulting biogas will be used as combustion fuel in six on-site generators that will be used for primary electrical production for the facility or sold to the local utility. The six generators can operate independently or simultaneously. A PTC application will be submitted in support of the permitting for this new air emission source.

Double A Dairy is a minor source because the potential to emit is less than major source thresholds without requiring limits on its potential to emit.

The facility is located in Lincoln County, Idaho which is designated as attainment or unclassifiable for criteria pollutants. The approximate center point of the property is located at UTM 4747343 N by 706751 E, Zone 11. The surrounding area of the dairy is a sparsely populated, rural area with terrain at about 3,900 feet above mean sea level (MSL). A Site Location Map, Vicinity Map and Facility Layout Map are respectively provided as Figures A-1 through A-3 in Appendix A.

3 EMISSION AND SOURCE DATA

3.1. Facility Processes and Emission Controls Affected

The proposed source will allow for the production of electricity. Since this is Double A Dairy's initial PTC, existing facility processes or emission controls will not be affected.

3.2. Emission Points and Future Emission Rates

An estimate of the potential emission rates for the proposed source is summarized in Table 3-1. Since this is a new source, the current emission rates for all of these pollutants are zero.

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Table 3-1: Potential Emission Rates for Genset Generators

Pollutant	PTE (lbs/hr)	PTE (tons/yr)
PM_{10}	0.41	1.80
SO_2	3.09	13.5
NO_x	13.98	61.2
CO	22.37	98.0
VOC	13.98	61.2
Acetaldehyde	2.2E-03	9.6E-03
Acrolein	1.1E-03	4.7E-03
Benzene	2.8E-02	1.2E-01
Dichloromethane	4.2E-03	1.8E-02
Formaldehyde	7.8E-03	3.4E-02
Isomers of Xylene	5.6E-03	2.5E-02
Nickel	8.3E-05	3.6E-04
Selenium	4.5E-04	2.0E-03
Styrene	2.2E-03	9.5E-03
Toluene	1.1E-02	4.7E-02
Trichloroethylene	8.3E-04	3.6E-03
Vinyl Chloride	2.3E-03	1.0E-02

There are six Genset electrical generators proposed to be installed adjacent to each other. The six 750 kW generators have their own 12-inch (0.3048 meters) diameter stack extending 28 feet (8.5 meters) above ground. The emissions presented in Table 3-1 represent the total potential emissions if all of the generators were operating simultaneously, at capacity. In an emergency situation the biogas will be flared from the digester. During a flare event the emission characteristics and potential emission rate will be the same as the emission estimate from the Genset generators. An H_2S scrubbing system will be installed on the gas stream prior to entering the Genset generators, thus reducing the potential SO_2 emissions.

3.3. Good Engineering Practice (GEP) Stack-height Analysis

The exhaust stack from the Genset generators is 28 feet (8.5 meters) in height. Because the stack height is less than 55 meters and is located in simple terrain, the GEP stack-height analysis requires the use of the actual stack height in calculating emission limitations.

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3.4. Facility Layout

The facility layout is provided in Figure 3, Appendix A. As shown, the new planned anaerobic digester and biogas electrical generators will be located at the street address 305 County Line Road, Jerome, Idaho. The leased property boundary which encompasses the generators is also shown in Figure 3. The closest leased property boundary is 110 feet from the generators. This boundary is considered the nearest public receptor to the source.

3.5. Source Parameters

The source parameters for the proposed anaerobic digester are summarized in Table 3-2. The stack velocity and stack temperature are estimates of average operating conditions.

Table 3-2: Source Parameters

Source Description	UTM E	UTM N	Stack Height (m)	Stack Diameter (m)	Stack Velocity (m/sec)	Stack Temp (Deg K)	Receptor Distance (m)
6-Guascor 560 generators	706751	4747343	8.5	0.3048	30.18	630	33.53

3.6. Methodology for Including Emission Sources

The six proposed generator sources will be modeled as a single point source. Since the proposed generators are the only source of emissions, no other sources were considered in the modeling analysis.

3.7. Methodology for Including/Excluding Sources from the Modeling Analysis

We did not include the digester flares in the modeling analysis. The use of the flares would only occur in an upset condition and the characteristics of the emissions will be the same as the characteristics of the generator emissions. The generators and the flares will not operate simultaneously; therefore, including the flares will not have any substantial impact on the modeling results.

4 AIR QUALITY MODELING METHODOLOGY

4.1. Model Selection and Justification

The emission rates from the proposed source exceed the modeling thresholds for criteria pollutants requiring ambient air quality modeling for the proposed source. To properly demonstrate compliance with the ambient air quality standards, the SCREEN3 model was chosen to assess the potential air quality impacts from the project. This model was chosen since the facility consists of a simple terrain and simple and isolated

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emission sources. SCREEN3 uses worst case meteorological conditions to estimate worst case emission impacts.

4.2. Model Setup and Application

The SCREEN3 model will be set up following the EPA Guidelines and generally recommended procedures. The modeling options will be kept as regulatory default. The modeling parameter inputs for this modeling assessment are listed in Table 3-2.

4.3. Land-use Analysis

Following the land–use classification procedure provided in Appendix E of the IDEQ Modeling Guidelines, the area within 3km of the site has been classified as rural. The majority of the 3km radius around the Double A Dairy is largely agricultural or undeveloped, with the ground cover being mostly wild grasses, weeds and shrubs, and sparsely located trees.

4.4. Building Downwash

The regulatory building downwash option will be used in SCREEN3. The building housing the Genset electrical generators has a height of 6.71 meters, a minimum horizontal dimension of 15.24 meters and a maximum horizontal dimension of 36.57 meters.

4.5. Terrain Options

The terrain surrounding Double A Dairy is relatively flat. The surrounding terrain generally is not greater than the stack base elevation. Therefore, the flat terrain option will be selected for the model.

4.6. Choice of Meteorology

The full meteorology option will be selected as a worst case scenario for meteorological conditions. This includes all stability classes and wind speeds.

4.7. Discrete and Automated Distance Options

The discrete distance option will be selected to model to the nearest public receptor. The nearest receptor is 110 feet (33.53 meters). This is the minimum distance from the stack location to the leased property boundary. The automated distance option will also be selected to determine the maximum impact location.

4.8. Background Concentrations

Kleinfelder is proposing to use IDEQ's default background concentrations for rural/agricultural areas presented in Table 4-1.

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Table 4-1: Background Concentrations for Criteria Pollutants

Criteria Pollutant	24-hr (ug/m3)	Annual (ug/m3)	1-hr (ug/m3)	8-hr (ug/m3)	3-hr (ug/m3)
PM_{10}	73	26			
NO_2	17				
SO_2	26	8	--		34
CO			3,600	2,300	

5 APPLICABLE REGULATORY LIMITS

5.1 Methodology for Evaluation of Compliance with Standards

The modeled concentration of criteria pollutants will be compared to the National Ambient Air Quality Standards to demonstrate that the facility impacts will not cause or contribute to an exceedance of the NAAQS. The compliance standards for criteria pollutants are summarized in Table 5-1.

Table 5-1: Applicable Standards for Criteria Pollutants

Criteria Pollutant	NAAQS 24-hr (ug/m3)	NAAQS Annual (ug/m3)	NAAQS 1-hr (ug/m3)	NAAQS 8-hr (ug/m3)	NAAQS 3-hr (ug/m3)
Total PM	--	--			
PM_{10}	150	--			
$PM_{2.5}$	35	15			
NO_2	--	100			
SO_2	365	80	--		1,300
CO			40,000	10,000	
Lead					

SCREEN3 produces output for a one-hour average only. This one-hour average concentration must be adjusted to estimate the concentration for the appropriate averaging period. The one-hour average model output will be converted to averaging periods consistent with the standard for the pollutant modeled through the use of persistence factors presented in Table 5-2.

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Table 5-2: Persistency Conversion Factors for SCREEN3

Averaging Period	Simple Terrain Conversion Factor
3- hour	0.9
8-hour	0.7
24-hour	0.4
Quarterly	0.13
Annual (Criteria)	0.8
Annual (Carcinogenic TAPs)	0.125

The modeled concentrations of the TAP emissions will be compared to their respective Acceptable Ambient Concentration (AAC) or Acceptable Ambient Concentration for Carcinogens (AACC), presented in IDAPA 58.01.01 Sections 585 and 586. The compliance standards for TAP emissions are summarized in Table 5-3.

Table 5-3: Applicable Standards for TAPs

TAP	AAC (ug/m3) 24-hr Avg	AACC (ug/m3) Annual Avg
Acetaldehyde		0.45
Acrolein	12.50	
Benzene		0.12
Dichloromethane		0.24
Formaldehyde		0.077
Isomers of Xylene	21,750	
Nickel		0.0042
Selenium	0.010	
Styrene	1,000	
Toluene	18,750	
Trichloroethylene	13,450	0.77
Vinyl Chloride		0.14

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5.2 Preliminary Analysis

The proposed project will result in potential emissions of non-carcinogenic TAPs listed in IDAPA 58.01.01.585, including acrolein, isomers of xylene, selenium, styrene, toluene, and trichloroethylene. The potential emissions of these compounds are not expected to exceed their respective listed TAP screening emission levels ("EL") with the exception of trichloroethylene. In addition, the digester will result in emissions of carcinogenic TAPs listed in IDAPA 58.01.01.586 including acetaldehyde, benzene, dichloromethane, formaldehyde, nickel, trichloroethylene, and vinyl chloride. The potential emissions for acetaldehyde is not expected to exceed the listed TAP EL, however potential emissions for benzene, dichloromethane, formaldehyde, nickel, trichloroethylene, and vinyl chloride may exceed each of the respective TAP ELs. Therefore, modeling is expected to be required for these specific TAPs to demonstrate compliance with the Acceptable Ambient Concentration (AAC) for each pollutant.

5.3 Full Impact Analysis

The full impact analysis will include an evaluation of the modeled impacts to ambient air quality using SCREEN3. If the maximum modeled concentrations exceed significant contribution levels, then the modeled impacts will be added to the respective background concentration for each pollutant and compared to the ambient air quality standards to show compliance.

5.4 Presentation of Results

The results of the air quality modeling assessment will be included in a detailed report, as an appendix to the Permit to Construct application submitted for the project. A summary of the results will also be included in the PTC application. We will follow the State of Idaho Air Quality Modeling Guidelines, dated December 31, 2002.

The report will include a detailed description of the source and the potential emissions, modeling methods and results. The modeling results will be presented in a tabular format for easy comparison to the applicable standards. The permit application will include documentation, and references for the engineering parameters used in the modeling assessment.

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If you have any questions, please contact the undersigned at (208) 893-9700.

Sincerely,

KLEINFELDER WEST, INC.

Kelli Wetzel
Air Quality Engineer

Estee Lafrenz
Air Quality Engineer

Attachments:

References

Figures

Figure 1: Site Location Map
Figure 2: Vicinity Map
Figure 3: Facility Layout Detail

Modeling Protocol Checklist

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