

SUMMARY

This permit modification is being submitted to the Agency to address the addition of a 2220 hp diesel fuel emergency power generator. Aires utilized AP-42 emission factors to calculate average and potential to emit emissions from the new emergency generator. The emission calculations spreadsheet attached to the application outlines the emissions anticipated from this new process.

All previously permitted equipment and processes remain unchanged as described in the Lifetime Operating Permit issued January 24, 2001.



STATE OF ILLINOIS
 ENVIRONMENTAL PROTECTION AGENCY
 DIVISION OF AIR POLLUTION CONTROL
 PERMIT SECTION
 P. O. BOX 19506
 SPRINGFIELD, ILLINOIS 62794-9506

This Agency is authorized to require and you must disclose this information under 415 ILCS 5/39. Failure to do so could result in the application being denied and penalties under 415 ILCS 5 et seq. It is not necessary to use this form in providing this information. This form has been approved by the forms management center.

APPLICATION FOR PERMIT (A) <input checked="" type="checkbox"/> CONSTRUCT <input checked="" type="checkbox"/> OPERATE NAME OF EQUIPMENT TO BE CONSTRUCTED OR OPERATED: <u>FCC Emergency Diesel Generator</u> (B)	FOR AGENCY USE ONLY I.D. NO. _____ PERMIT NO. _____ DATE _____
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NOTE: THIS APPLICATION FORM IS ONLY FOR SOURCES NOT REQUIRED TO OBTAIN A FESOP OR CAAPP PERMIT PURSUANT SECTION 39.5 OF THE ILLINOIS ENVIRONMENTAL PROTECTION ACT.

1a. NAME OF OWNER: <u>US Department of Energy</u>		2a. NAME OF OPERATOR: <u>Universities Research Association</u>	
1b. STREET ADDRESS OF OWNER: <u>Wilson Road, PO Box 2000</u>		2b. STREET ADDRESS OF OPERATOR: <u>Wilson Road, PO Box 500</u>	
1c. CITY OF OWNER: <u>Batavia</u>		2c. CITY OF OPERATOR: <u>Batavia</u>	
1d. STATE OF OWNER: <u>IL</u>	1e. ZIP CODE: <u>60510</u>	2d. STATE OF OPERATOR: <u>IL</u>	2e. ZIP CODE: <u>60510</u>

3a. NAME OF CORPORATE DIVISION OR PLANT: <u>Fermilab</u>		3b. STREET ADDRESS OF EMISSION SOURCE: <u>Wilson Road</u>		
3c. CITY OF EMISSION SOURCE: <u>Batavia</u>	3d. LOCATED WITHIN CITY LIMITS: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	3e. TOWNSHIP: <u>Batavia</u>	3f. COUNTY: <u>Kane</u>	3g. ZIP CODE: <u>60510</u>

4. ALL CORRESPONDENCE TO: (TITLE AND/OR NAME OF INDIVIDUAL) <u>Jane L. Monhart</u>	5. YOUR DESIGNATION FOR THIS APPLICATION: (C) <u>FCCDIESGEN</u>
6. ADDRESS FOR CORRESPONDENCE: (CHECK ONLY ONE) <input checked="" type="checkbox"/> OWNER <input type="checkbox"/> OPERATOR <input type="checkbox"/> EMISSION SOURCE	7. WHO IS THE PERMIT APPLICANT? <input checked="" type="checkbox"/> OWNER <input type="checkbox"/> OPERATOR

8. THE UNDERSIGNED HEREBY MAKES APPLICATION FOR A PERMIT AND CERTIFIES THAT THE STATEMENTS CONTAINED HEREIN ARE TRUE AND CORRECT, AND FURTHER CERTIFIES THAT ALL PREVIOUSLY SUBMITTED INFORMATION REFERENCED IN THIS APPLICATION REMAINS TRUE, CORRECT AND CURRENT. BY AFFIXING HIS/HER SIGNATURE HERETO THE UNDERSIGNED FURTHER CERTIFIES THAT HE/SHE IS AUTHORIZED TO EXECUTE THIS APPLICATION.

AUTHORIZED SIGNATURE(S): (D)

BY _____ DATE _____ SIGNATURE <u>Michael Witherell</u> TYPED OR PRINTED NAME OF SIGNER <u>Fermilab Director</u> TITLE OF SIGNER _____	BY _____ DATE _____ SIGNATURE <u>Jane L. Monart</u> TYPED OR PRINTED NAME OF SIGNER <u>DOE Fermilab Group Manager</u> TITLE OF SIGNER _____
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(A) THIS FORM IS TO PROVIDE THE ILLINOIS EPA WITH GENERAL INFORMATION ABOUT THE EQUIPMENT TO BE CONSTRUCTED OR OPERATED. THIS FORM MAY BE USED TO REQUEST A CONSTRUCTION PERMIT, AN OPERATING PERMIT, OR A JOINT CONSTRUCTION AND OPERATING PERMIT.

(B) ENTER THE GENERIC NAME OF THE EQUIPMENT TO BE CONSTRUCTED OR OPERATED. THIS NAME WILL APPEAR ON THE PERMIT WHICH MAY BE ISSUED PURSUANT TO THIS APPLICATION. THIS FORM MUST BE ACCOMPANIED BY OTHER APPLICABLE FORMS AND INFORMATION.

(C) PROVIDE A DESIGNATION IN ITEM 5 ABOVE WHICH YOU WOULD LIKE THE ILLINOIS EPA TO USE FOR IDENTIFICATION OF YOUR EQUIPMENT. YOUR DESIGNATION WILL BE REFERENCED IN CORRESPONDENCE FROM THIS AGENCY RELATIVE TO THIS APPLICATION. YOUR DESIGNATION MUST NOT EXCEED TEN (10) CHARACTERS. (OPTIONAL)

(D) THIS APPLICATION MUST BE SIGNED IN ACCORDANCE WITH 35 ILL. ADM. CODE 201.154 OR 201.159 WHICH STATES: "ALL APPLICATIONS AND SUPPLEMENTS THERETO SHALL BE SIGNED BY THE OWNER AND OPERATOR OF THE EMISSION SOURCE OR AIR POLLUTION CONTROL EQUIPMENT, OR THEIR AUTHORIZED AGENT, AND SHALL BE ACCOMPANIED BY EVIDENCE OF AUTHORITY TO SIGN THE APPLICATION."

IF THE OWNER OR OPERATOR IS A CORPORATION, SUCH CORPORATION MUST HAVE ON FILE WITH THE ILLINOIS EPA A CERTIFIED COPY OF A RESOLUTION OF THE CORPORATION'S BOARD OF DIRECTORS AUTHORIZING THE PERSONS SIGNING THIS APPLICATION TO CAUSE OR ALLOW THE CONSTRUCTION OR OPERATION OF THE EQUIPMENT TO BE COVERED BY THE PERMIT.

STATE OF ILLINOIS
 ENVIRONMENTAL PROTECTION AGENCY
 DIVISION OF AIR POLLUTION CONTROL
 1021 NORTH GRAND AVENUE, EAST
 SPRINGFIELD, ILLINOIS 62702

DATA AND INFORMATION INCORPORATION BY REFERENCE	
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THIS FORM IS TO BE USED TO INCORPORATE OR TRANSFER INFORMATION FROM ONE PERMIT APPLICATION TO ANOTHER, INCLUDING THE TRANSFER OF INFORMATION FROM A CONSTRUCTION PERMIT APPLICATION INTO AN OPERATING PERMIT APPLICATION. THIS FORM SHOULD ACCOMPANY THE APPLICATION INTO WHICH INFORMATION IS TO BE TRANSFERRED.

1. NAME OF OWNER: US Department of Energy	2. NAME OF CORPORATE DIVISION OR PLANT (IF DIFFERENT FROM OWNER): Fermilab	
3. STREET ADDRESS OF EMISSION SOURCE: Wilson Road	4. CITY OF EMISSION SOURCE: Batavia	5. IDENTIFICATION NUMBER: 043807AAI

6. APPLICATION NUMBER: 79070012	7. <input type="checkbox"/> CONSTRUCTION <input checked="" type="checkbox"/> OPERATION OF: Fermilab Site Lifetime Operating Permit - NESHAP	
8. SHOULD ALL INFORMATION IN THIS APPLICATION BE INCORPORATED BY REFERENCE OR TRANSFERRED? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF "NO", LIST ITEMS TO BE INCORPORATED		
9a. ITEM TO BE INCORPORATED:	b. PAGE:	c. FLOW DIAGRAM DESIGNATION (IF APPLICABLE):
10. DOES THE DATA & INFORMATION DESCRIBING THESE ITEMS REMAIN TRUE, CORRECT, CURRENT, AND COMPLETE? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF "NO", SUBMIT THE APPLICATION FORMS AND CLEARLY STATE THE DATA AND INFORMATION WHICH IS NO LONGER TRUE, CORRECT, CURRENT, AND COMPLETE.		

11. APPLICATION NUMBER:	12. <input type="checkbox"/> CONSTRUCTION <input type="checkbox"/> OPERATION OF:	
13. SHOULD ALL INFORMATION IN THIS APPLICATION BE INCORPORATED BY REFERENCE OR TRANSFERRED? <input type="checkbox"/> YES <input type="checkbox"/> NO IF "NO", LIST ITEMS TO BE INCORPORATED		
14a. ITEM TO BE INCORPORATED:	b. PAGE:	c. FLOW DIAGRAM DESIGNATION (IF APPLICABLE):
15. DOES THE DATA & INFORMATION DESCRIBING THESE ITEMS REMAIN TRUE, CORRECT, CURRENT, AND COMPLETE? <input type="checkbox"/> YES <input type="checkbox"/> NO IF "NO", SUBMIT THE APPLICATION FORMS AND CLEARLY STATE THE DATA AND INFORMATION WHICH IS NO LONGER TRUE, CORRECT, CURRENT, AND COMPLETE.		

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 1/2, Section 1039. Disclosure of this information is required under that Section. Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

STATE OF ILLINOIS
 ENVIRONMENTAL PROTECTION AGENCY
 DIVISION OF AIR POLLUTION CONTROL
 1021 NORTH GRAND AVENUE, EAST
 SPRINGFIELD, ILLINOIS 62702

<p>* DATA AND INFORMATION</p> <p>FUEL COMBUSTION EMISSION SOURCE</p>	
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* THIS INFORMATION FORM IS TO BE COMPLETED FOR A FURNACE, BOILER, OR SIMILAR EQUIPMENT USED FOR THE PRIMARY PURPOSE OF PRODUCING HEAT OR POWER BY INDIRECT HEAT TRANSFER. AN EMISSION SOURCE THAT DOES NOT FIT THIS DESCRIPTION, INCLUDING AND EMISSION SOURCE USING DIRECT HEATING, IS EITHER A PROCESS EMISSION SOURCE OR AN INCINERATOR.

1. NAME OF PLANT OWNER: US Department of Energy	2. NAME OF CORPORATE DIVISION OR PLANT (IF DIFFERENT FROM OWNER): Fermilab
3. STREET ADDRESS OF EMISSION SOURCE: Wilson Road	4. CITY OF EMISSION SOURCE: Batavia

GENERAL INFORMATION		
5. FLOW DIAGRAM DESIGNATION(S) OF EMISSION SOURCE: Engine (See Figure 5)		
6. MANUFACTURER: Cummins Onan	7. MODEL NUMBER: DSLE-4960228	8. SERIAL NUMBER: S010250478
9. AVERAGE OPERATING TIME OF EMISSION SOURCE: 1 HRS/DAY 1 DAYS/WK 52 WKS/YR	10. MAXIMUM OPERATING TIME OF EMISSION SOURCE: 9.5 HRS/DAY 1 DAYS/WK 52 WKS/YR	
11. PERCENT OF ANNUAL HEAT INPUT: DEC-FEB 25 % MAR-MAY 25 % JUN-AUG 25 % SEPT-NOV 25 %		

INSTRUCTIONS
<ol style="list-style-type: none"> 1. COMPLETE THE ABOVE IDENTIFICATION AND GENERAL INFORMATION SECTION. 2. COMPLETE THE APPROPRIATE FUEL SECTION OR SECTIONS. IF MORE THAN ONE FUEL IS FIRED OR IF THE CAPABILITY EXISTS TO FIRE MORE THAN ONE FUEL, THE ACTUAL USAGE OF FUELS AND THE RELATIONSHIP BETWEEN FUELS, SIMULTANEOUS FIRING, ALTERNATE FIRING, RESERVE FUEL, ETC., MUST BE MADE CLEAR. 3. EMISSION AND EXHAUST POINT INFORMATION MUST BE COMPLETED, UNLESS EMISSIONS ARE EXHAUSTED THROUGH AIR POLLUTION CONTROL EQUIPMENT. 4. FIRING RATES AND CERTAIN OTHER ITEMS REQUIRE BOTH <u>AVERAGE</u> AND <u>MAXIMUM</u> VALUES 5. FOR GENERAL INFORMATION REFER TO "GENERAL INSTRUCTIONS FOR PERMIT APPLICATIONS," APC-201.

DEFINITIONS
<p>AVERAGE - THE VALUE THAT <u>SUMMARIZES OR REPRESENTS</u> THE GENERAL CONDITION OF THE <u>EMISSION SOURCE</u>, OR THE GENERAL STATE OF HEAT PRODUCTION OF THE EMISSION SOURCE. SPECIFICALLY:</p> <p>AVERAGE OPERATING TIME - ACTUAL TOTAL HOURS OF OPERATION FOR THE PRECEDING TWELVE MONTH PERIOD.</p> <p>AVERAGE RATE - ACTUAL TOTAL QUANTITY OF "MATERIAL" FOR THE PRECEDING TWELVE MONTH PERIOD, DIVIDED BY THE AVERAGE OPERATING TIME.</p> <p>AVERAGE OPERATION - OPERATION TYPICAL OF THE PRECEDING TWELVE MONTH PERIOD, AS REPRESENTED BY AVERAGE OPERATING TIME AND AVERAGE RATES.</p> <p>MAXIMUM - THE <u>GREATEST</u> VALUE <u>ATTAINABLE OR ATTAINED</u> FOR THE <u>EMISSION SOURCE</u>, OR THE PERIOD OF GREATEST OR UTMOST HEAT PRODUCTION OF THE EMISSION SOURCE. SPECIFICALLY:</p> <p>MAXIMUM OPERATING TIME - GREATEST EXPECTED TOTAL HOURS OF OPERATIONS FOR ANY TWELVE MONTH PERIOD.</p> <p>MAXIMUM RATE - GREATEST QUANTITY OF "MATERIAL" EXPECTED PER ANY ONE HOUR OF OPERATION.</p> <p>MAXIMUM OPERATION - GREATEST EXPECTED OPERATION, AS REPRESENTED BY MAXIMUM OPERATING TIME AND MAXIMUM RATES.</p>

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 1/2, Section 1039. Disclosure of this information is required under that Section. Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

GAS FIRING			
*11. ORIGIN OF GAS: <input type="checkbox"/> DISTILLATE FUEL <input type="checkbox"/> OTHER LIQUID FUEL <input type="checkbox"/> SOLID FUEL <input type="checkbox"/> BYPRODUCT <input type="checkbox"/> PIPELINE OIL GASIFICATION GASIFICATION GASIFICATION SPECIFY SOURCE			
12. ARE YOU ON AN INTERRUPTABLE GAS SUPPLY: <input type="checkbox"/> YES <input type="checkbox"/> NO IF "YES", SPECIFY ALTERNATE FUEL:			
13. ANNUAL CONSUMPTION:	SCF	*14. HEAT CONTENT:	BTU/SCF
		*15. SULFUR CONTENT:	% BY WT.
16. AVERAGE FIRING RATE:	BTU/HR	17. MAXIMUM FIRING RATE:	BTU/HR

* IF THE GAS FIRED IS NATURAL GAS, THESE ITEMS NEED NOT BE COMPLETED.

OIL FIRING			
18. TYPE OF OIL: Diesel Fuel GRADE NUMBER: <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 OTHER: SPECIFY			
19. ANNUAL CONSUMPTION:	5200	20. HEAT CONTENT:	137,000
			<input checked="" type="checkbox"/> BTU/LB <input type="checkbox"/> BTU/GAL
21. SULFUR CONTENT:	0.20	22. ASH CONTENT:	Negligible
			% BY WT
23. DIRECTION OF FIRING: <input type="checkbox"/> HORIZONTAL <input type="checkbox"/> TANGENTIAL <input type="checkbox"/> OTHER: SPECIFY N/A			
24. AVERAGE FIRING RATE:	N/A	25. MAXIMUM FIRING RATE:	N/A
			BTU/HR

SOLID FUEL FIRING			
26. TYPE OF SOLID FUEL <input type="checkbox"/> SUB-BITUMINOUS COAL <input type="checkbox"/> BITUMINOUS COAL <input type="checkbox"/> ANTHRACITE COAL <input type="checkbox"/> OTHER: SPECIFY			
27. ANNUAL CONSUMPTION:		28. HEAT CONTENT AS FIRED:	
		TONS	BTU/LB
29. MOISTURE CONTENT AS FIRED:	% BY WT.	30. ASH CONTENT AS FIRED:	% BY WT.
		31. SULFUR CONTENT AS FIRED:	% BY WT.
32. TYPE OF FIRING: <input type="checkbox"/> CYCLONE <input type="checkbox"/> PULVERIZED { <input type="checkbox"/> WET BOTTOM OR <input type="checkbox"/> DRY BOTTOM, <input type="checkbox"/> HORIZONTALLY OPPOSED OR <input type="checkbox"/> OTHER: SPECIFY _____			
<input type="checkbox"/> SPREADER STOKER: % REINJECTION		<input type="checkbox"/> OTHER: SPECIFY _____	
33. AVERAGE FIRING RATE:	BTU/HR	34. MAXIMUM FIRING RATE:	BTU/HR

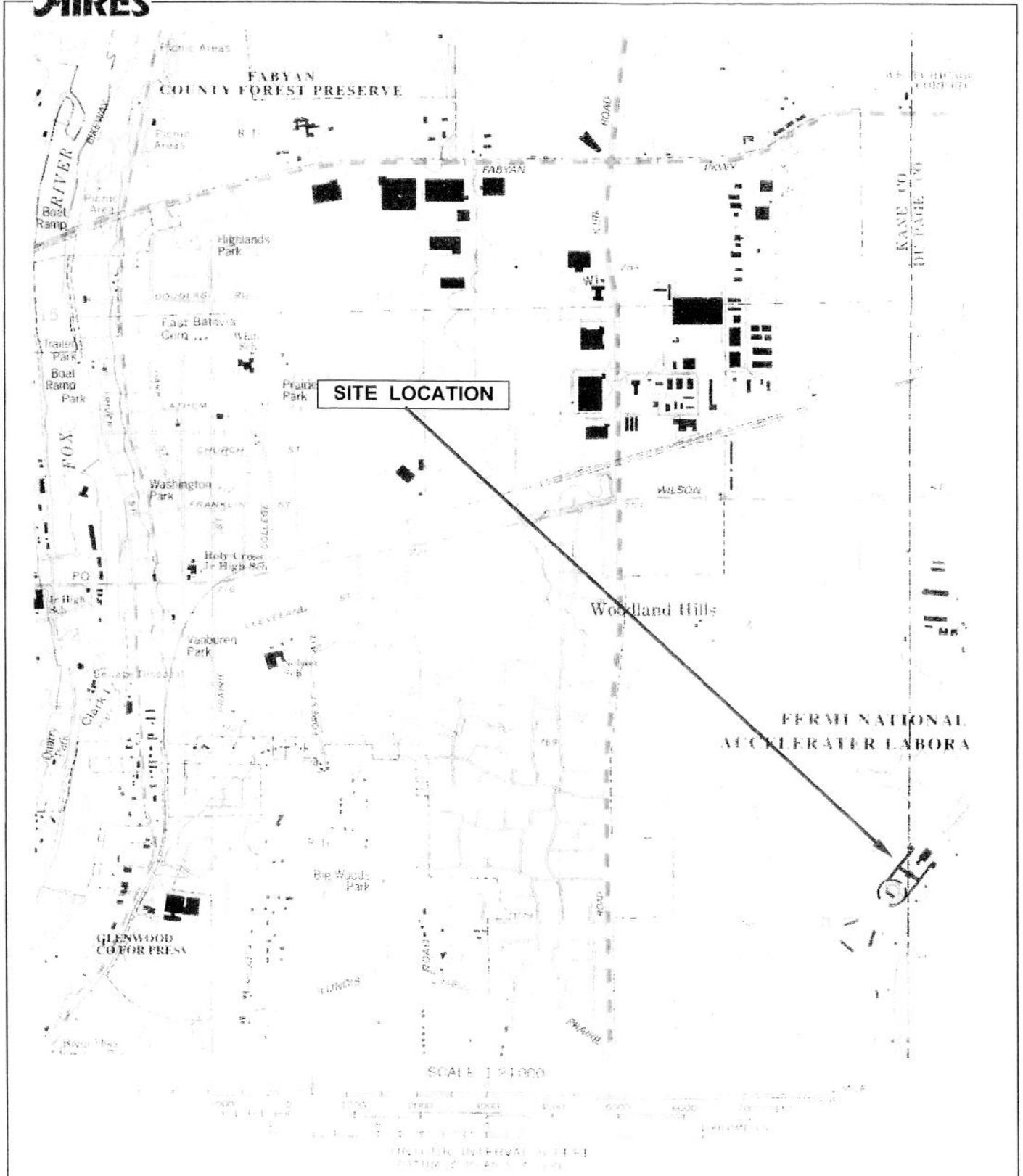
SUBMIT COPIES OF THOSE PORTIONS OF COAL OR OTHER SOLID FUEL CONTRACTS WHICH SET FORTH THE SPECIFICATIONS OF THE FUEL AND THE DURATION OF THE CONTRACT. IF THE ACTUAL FUEL FIRED IS A BLEND OF SOLID FUELS, SUBMIT APPROPRIATE PORTIONS OF ALL FUEL CONTRACTS AND SET FORTH THE MANNER IN WHICH THE FUELS ARE BLENDED AND ACTUALLY FIRED. REFERENCE THIS INFORMATION TO THIS FORM.

*EMISSION INFORMATION					
35. NUMBER OF IDENTICAL SOURCES (DESCRIBE AS REQUIRED):					
1					
AVERAGE OPERATION					
CONTAMINANT	CONCENTRATION OR EMISSION RATE PER IDENTICAL SOURCE			METHOD USED TO DETERMINE CONCENTRATION OR EMISSION RATE	
PARTICULATE MATTER	36a.	GR/SCF	b. 1.55	<input type="checkbox"/> LB/10 ⁶ BTU <input checked="" type="checkbox"/> LB/HR	c. Ap-42
CARBON MONOXIDE	37a.	PPM (VOL)	b. 12.21	<input type="checkbox"/> LB/10 ⁶ BTU <input checked="" type="checkbox"/> LB/HR	c. Ap-42
NITROGEN OXIDES	38a.	PPM (VOL)	b. 53.28	<input type="checkbox"/> LB/10 ⁶ BTU <input checked="" type="checkbox"/> LB/HR	c. Ap-42
ORGANIC MATERIAL	39a.	PPM (VOL)	b. 1.56	<input type="checkbox"/> LB/10 ⁶ BTU <input checked="" type="checkbox"/> LB/HR	c. Ap-42
SULFUR DIOXIDE	40a.	PPM (VOL)	b. 17.95	<input type="checkbox"/> LB/10 ⁶ BTU <input checked="" type="checkbox"/> LB/HR	c. Ap-42
MAXIMUM OPERATION					
CONTAMINANT	CONCENTRATION OR EMISSION RATE PER IDENTICAL SOURCE			METHOD USED TO DETERMINE CONCENTRATION OR EMISSION RATE	
PARTICULATE MATTER	41a.	GR/SCF	b. 1.55	<input type="checkbox"/> LB/10 ⁶ BTU <input checked="" type="checkbox"/> LB/HR	c. Ap-42
CARBON MONOXIDE	42a.	PPM (VOL)	b. 12.21	<input type="checkbox"/> LB/10 ⁶ BTU <input checked="" type="checkbox"/> LB/HR	c. Ap-42
NITROGEN OXIDES	43a.	PPM (VOL)	b. 53.28	<input type="checkbox"/> LB/10 ⁶ BTU <input checked="" type="checkbox"/> LB/HR	c. Ap-42
ORGANIC MATERIAL	44a.	PPM (VOL)	b. 1.56	<input type="checkbox"/> LB/10 ⁶ BTU <input checked="" type="checkbox"/> LB/HR	c. Ap-42
SULFUR DIOXIDE	45a.	PPM (VOL)	b. 17.95	<input type="checkbox"/> LB/10 ⁶ BTU <input checked="" type="checkbox"/> LB/HR	c. Ap-42

* IF EMISSIONS ARE EXHAUSTED THROUGH AIR POLLUTION CONTROL EQUIPMENT, OR IF NATURAL GAS IS THE FUEL FIRED, ITEMS 36 THROUGH 47 NEED NOT BE COMPLETED.

**EXHAUST POINT INFORMATION	
46. FLOW DIAGRAM DESIGNATION(S) OF EXHAUST POINT: Exhaust	
47. DESCRIPTION OF EXHAUST POINT (LOCATION IN RELATION TO BUILDINGS, DIRECTION, HOODING, ETC.): Two vertical exhaust	
48. EXIT HEIGHT ABOVE GRADE: 11.25'	50. EXIT DIAMETER: 8"
49. GREATEST HEIGHT OF NEARBY BUILDINGS: 52.5'	51. EXIT DISTANCE FROM NEAREST PLANT BOUNDARY: 6603 FT
AVERAGE OPERATION	
52. EXIT GAS TEMPERATURE: 960 °F	54. EXIT GAS TEMPERATURE: 960 °F
53. GAS FLOW RATE THROUGH EACH EXIT: 10,650 ACFM	55. GAS FLOW RATE THROUGH EACH EXIT: 10,600 ACFM
MAXIMUM OPERATION	

** IF EMISSIONS ARE EXHAUSTED THROUGH AIR POLLUTION CONTROL EQUIPMENT THIS SECTION SHOULD NOT BE COMPLETED.



DEPARTMENT OF THE INTERIOR/GEOLOGIC SURVEY
1993

10913



FERMILAB	
FIGURE 1	
SITE LOCATION MAP	
SCALE: 1:24,000	BY: JAN
PROJECT: 04-14915	DATE: 09/09/04

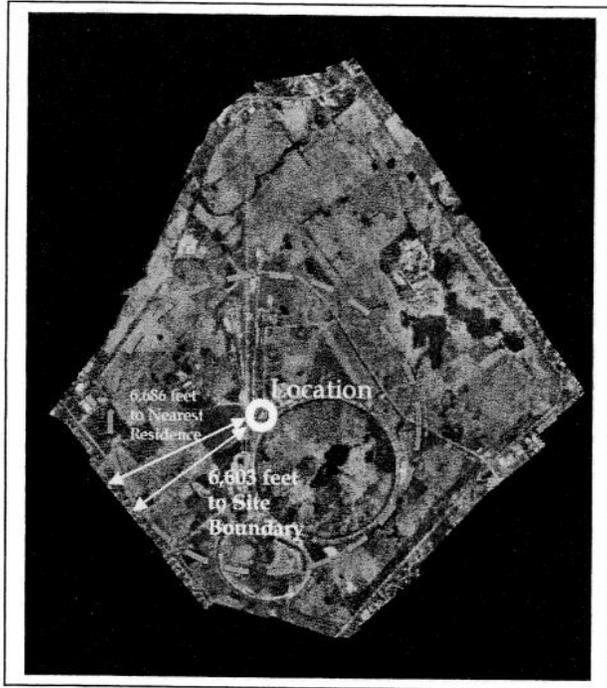


Figure 2 - Fermilab Site

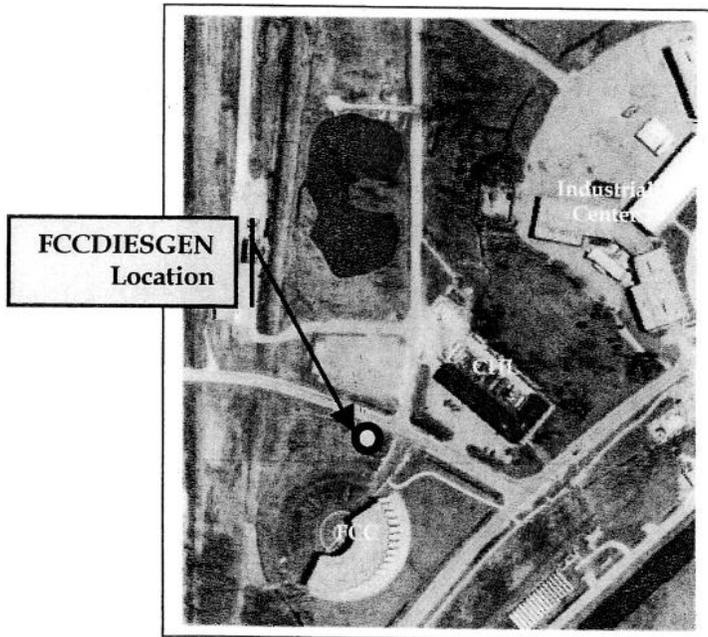


Figure 3 - Feynman Computing Center

11/9/13

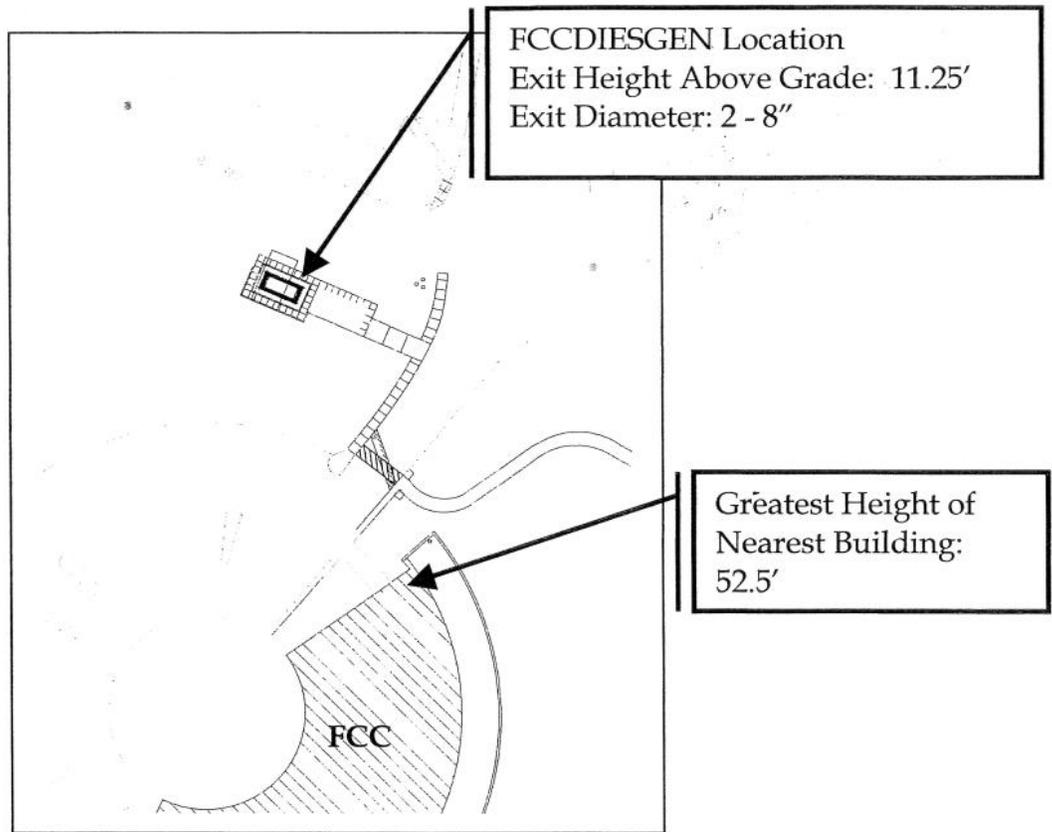


Figure 4 – Site Layout Plan

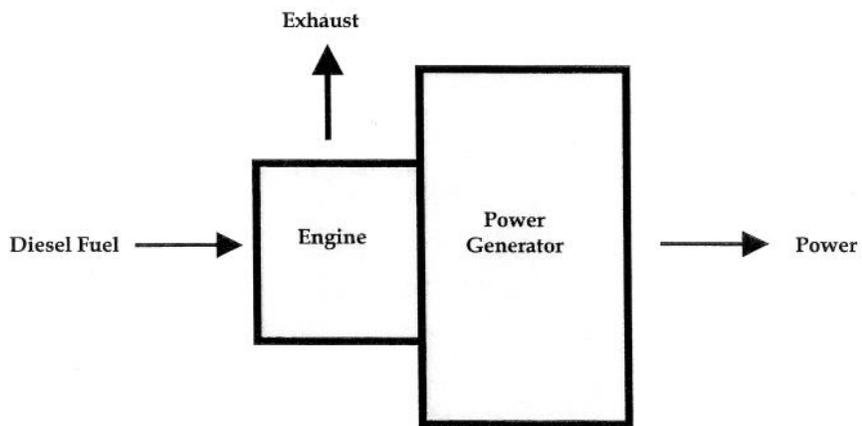


Figure 5 - Process Flow Diagram

12/13

**FERMILAB
ANNUAL AIR EMISSIONS - EMERGENCY GENERATOR**

Operating Mode	Hours of Operation per Year	Engine Horsepower	Air Contaminant	AP-42 Emission Factor (Lb./HP-Hr.)	AP-42 Emission Factor (Lb./Hr.)
Average Operation	130	2220	NOx	0.024000	53.280000
			CO	0.005500	12.210000
			SO2	0.008090	17.959800
			PM	0.000700	1.554000
			VOM	0.000705	1.565100
Potential to Emit	500	2220	NOx	0.024000	53.280000
			CO	0.005500	12.210000
			SO2	0.008090	17.959800
			PM	0.000700	1.554000
			VOM	0.000705	1.565100

	AVERAGE OPERATION	PTE
VOM	0.10	0.39 Tons/Year
CO Emitted	0.79	3.05 Tons/Year
NOx Emitted	3.46	13.32 Tons/Year
SO2 Emitted	1.17	4.49 Tons/Year
PM Emitted	0.10	0.39 Tons/Year

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