February 1, 1993

ENVIRONMENTAL
ENGINEERING
CONSULTANTS, INC.

Mr. John C. Brown, Jr., P.E.
Administrator
Air Permitting and Standards
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: File No. AC29-223724 Complete Resources Company

Dear Mr. Brown:

On behalf of our client, Complete Resources Company, we are providing the information requested in FDER's letter of January 7, 1993. The following response is keyed to the department's letter.

1. In the original application, one site in Hillsborough County was identified. Our client has informed us that one more site is currently been selected and is as follows:

   4102 Maine Avenue
   Lakeland, Florida 33801
   Lat: 28°, 0', 43.5", Long: 81°, 52', 51"
   UTM: 17-413.4 E, 3098.7 N

   A map showing the site location is attached.

   According to Complete Resources, further sites will be located in industrial areas or at roadway repair projects where concrete crushing is required. The grinding at these later type sites would normally take one to two months. Complete Resources, therefore, does not think the siting of these and future sites will cause a public nuisance.

2. There are two diesel engines associated with the equipment identified as follows:

   Catepillar 3406

   Catepillar 3208

   Data on the emissions of each unit are also provided. Both engines are to be fired on diesel fuel containing no more than 0.5% sulfur.

EEC#92090.003

5119 NORTH FLORIDA AVENUE
P.O. BOX 7854
TAMPA, FLORIDA 33673
813/237-3781
800/229-3781
TELEFAX 813/238-0036

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER [redacted]831

229CH 5480399831

RECIPIENT'S COPY

1 [redacted] Date 2/1/93

From (Your Name) Please Print: ROBERT E. WALLACE III, P.E. — **Your Phone Number (Very Important)**: (813)237-7781

Company: ENVIRONMENTAL ENGINEERING CONS — **Department/Floor No.**:

Street Address: 19 N FLORIDA AVE

City: TPA — **State**: FL — **ZIP Required**: 33603

2 **To (Recipient's Name) Please Print**: MR. JOHN C. BROWN, JR. — **Recipient's Phone Number (Very Important)**: ( )

Company: FL DEPT. OF ENVIRONMENTAL REGULATION — **Department/Floor No.**:

Exact Street Address *(We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.)*: 2600 BLAIR STONE ROAD

City: TALLAHASSEE — **State**: FL — **ZIP Required**: 32399-2400

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.): 030

H **IF HOLD FOR PICK-UP, Print FEDEX Address Here**
Street Address
City — State — ZIP Required

3 **PAYMENT** 1 [X] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct No 4 [ ] Bill Credit Card 5 [ ] Cash/Check [redacted]

4 **SERVICES** (Check only one box)

Priority Overnight (Delivery by next business morning†)	Standard Overnight (Delivery by next business afternoon No Saturday delivery††)
11 [ ] OTHER PACKAGING	51 [ ] OTHER PACKAGING
16 [ ] FEDEX LETTER*	56 [ ] FEDEX LETTER*
12 [ ] FEDEX PAK*	52 [ ] FEDEX PAK*
13 [ ] FEDEX BOX	53 [ ] FEDEX BOX
14 [ ] FEDEX TUBE	54 [ ] FEDEX TUBE
Economy Two-Day (Delivery by second business day ††)	**Government Overnight** (Restricted for authorized users only)
30 [ ] ECONOMY	46 [ ] GOV'T LETTER
	41 [ ] GOV'T PACKAGE

Freight Service (for packages over 150 lbs.)
70 [ ] OVERNIGHT FREIGHT** (Confirmed reservation required) †Delivery commitment may be later in some areas.
80 [ ] TWO-DAY FREIGHT** *Declared Value Limit $500 **Call for delivery schedule

5 **DELIVERY AND SPECIAL HANDLING** (Check services required)

HOLD FOR PICK-UP (Fill in Box H) 1 [ ] WEEKDAY or 31 [ ] SATURDAY
DELIVER 2 [X] WEEKDAY or 3 [ ] SATURDAY (Extra charge) (Not available to all locations)
4 [ ] DANGEROUS GOODS (Extra charge)
5 [ ]
6 [ ] DRY ICE Dangerous Goods Shipper's Declaration not required — Dry Ice 9 UN 1845 x ___ kg
7 [ ] OTHER SPECIAL SERVICE
9 [ ] SATURDAY PICK-UP (Extra charge)
[ ]
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

6

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE (See right)*
Total	Total	Total

DIM SHIPMENT (Chargeable Weight) [ ] lbs. L x W x H

Receiving AL
1 [ ] Regular Stop 2 [ ] On-Call Stop 3 [ ] Drop Box 4 [ ] B.S.C. 5 [ ] Station

7 **Release Signature:**

Emp. No. — Date

[ ] Cash Received
[ ] Return Shipment
[ ] Third Party [ ] Chg. To Del. [ ] Chg. To Hold

Street Address

City — State — Zip

Received By: X

Date/Time Received — FedEx Employee Number

Federal Express Use

Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 6/92
PART #137204 EXEM 9/92
FORMAT #136

136

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3. The feed rate to this minor facility can be approximated by determining the number of times the front end loader fills the hopper. Assuming a 5 yard bucket is used and the material in the bucket weighs approximately 5 tons. The maximum number of times the hopper could be loaded by the front end loader is 30 times in order not to exceed the 150 TPH. There may be some variability in the bucket weight based on the size of the chunks of concrete and the characteristics of material received, however, based on the applicant's experience, this value is a valid approximation.

4. The facility permitted under AC48-217048 has not been constructed yet. According to Complete Resources, construction should begin in three (3) months. After construction is complete, the necessary testing will be accomplished.

Should you or your staff have any additional questions, please call Jim Estler at (813) 238-3311.

Sincerely,

ENVIRONMENTAL ENGINEERING CONSULTANTS, INC.

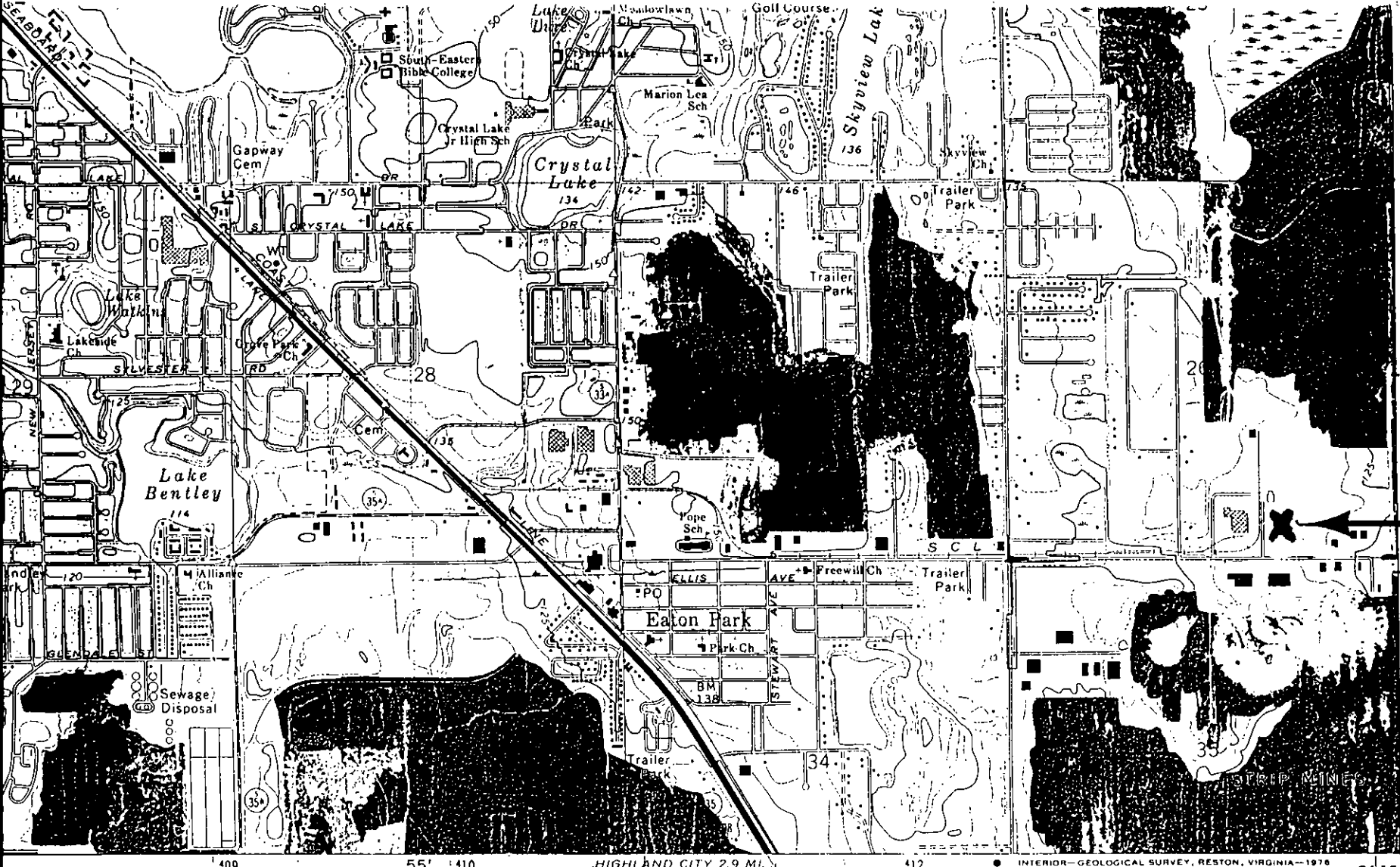
Robert E. Wallace III, P.E.
President

REW/je/lrp/dege

Enclosures

cc: Dave Vasu, Complete Resources
N. Hanks

EEC#92090.003



HIGHLAND CITY 2.9 MI.
BARTOW 9 MI.

INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1976

(BARTOW) 4639 V NE

1 MILE

000 5000 6000 7000 FEET

1 KILOMETRE

FEET
ATUM OF 1929

ROAD CLASSIFICATION

Primary highway, hard surface

Secondary highway, hard surface

Light-duty road, hard or improved surface

Unimproved road

Interstate Route U. S. Route State Route

FLORIDA

QUADRANGLE LOCATION

ACCURACY STANDARDS
RESTON, VIRGINIA 22092
MBOLS IS AVAILABLE ON REQUEST

LAKELAND, FLA.

N2800—W8152.5/7.5

1975

Holt-Refakis Equipment Company
5252 Walcutt Court
P.O. Box 28525
Columbus, Ohio 43228-9641
614/878-CATS
FAX: 614/851-5015

Power Systems Division

January 28, 1993

Complete Resources Company
702 Old Darby St.
Seffner, FL 33584

Attn: Mr. Dave Vasu

Re: Caterpillar 3406 Emissions Data

Dear Mr. Vasu,

Enclosed is the emissions and fuel consumption data for your Caterpillar model 3406 industrial engine. If you have any questions, please do not hesitate to call.

Yours truly,

Mark Pearson
Engine Sales Engineer

CINCINNATI
11330 Mosteller Road
Sharonville, Ohio 45241
513/771-0515
FAX: 513/771-6740

DAYTON
5855 Executive Blvd.
Huber Heights, Ohio 45424
513/236-4111
FAX: 513/236-9981

LUCASVILLE
U.S. Route 23 South
Lucasville, Ohio 45648
614/259-2350
FAX: 614/259-2891

TOLEDO
25970 State Route 25
Perrysburg, Ohio 43551
419/874-7975
FAX: 419/874-9626

CATERPILLAR®

Caterpillar Inc.

Engine Division
P.O. Box 610
Mossville, IL 61552-0610

January 26, 1993

Mr. Mark Pearson
Holt-Refakis Equipment Co.
5252 Walcutt Court
Columbus, OH 43228-9489

Dear David:

Subject: Emission Request for the Complete General Resources 3406 Engine Rated at 400 BHP at 2100 RPM

The emissions information you requested are attached. These numbers are the best estimates available at this time. The values listed are based on tests conducted at Caterpillar Inc., using instrumentation and procedures equivalent to those outlined in SAE 177a and SAE 215.

The NOx shown is not actually present in the exhaust. It is based on the assumption that the NO present the the exhaust is converted to NOx in the atmosphere. Both NO and NOx are corrected to 75 grains humidity. The SO2 is proportional the sulphur content of 0.2% by weight. Dry particulate matter (DPM) is an approximated value based on a correlation between DPM and smoke density.

This report provides the best information available at this time. It should not be reissued at a future date without verification as to its validity for the current engine. Please contact the undersigned if additional information is needed.

Very truly yours,

Howard E. Williamson

Senior Project Engineer
Industrial Commercial
Engine Applications
Medium Commercial Engine
Product

HEWilliamson
Telephone: (309) 578-6668
Fax: (309) 578-7219

cc: Dean Pellegata, Michigan Power Systems

CHRHREM.DOC/hew

EXHAUST CHEMISTRY

REQUEST NO: 92-91 DATE: 17NOV92

REQUESTED BY: HE WILLIAMSON APPLICATION: IND INT

IDENTIFICATION: 3406 DITA DRY
HP: 402
RPM: 2100

Exhaust Constituent	Pounds per Hour	Grams per Hour	Parts per Million (Wet)	Percent by Volume	Percent by Weight
CO2	434.1	196884	75433	7.54	11.59
N2	2766.9	1255018	761321	76.13	73.86
O2	367.7	166781	88836	8.88	9.82
H2O	171.8	77906	73030	7.30	4.59
CO	0.4	189	115	0.01	0.01
NO (NOTE 1)	4.5	2046		0.12	0.12
NOX	6.9	3128	1163	0.00	0.00
HC	0.1	29	35	0.00	0.00
SO2	0.5	250	67	0.01	0.01
DPM (NOTE 2)	0.0	11			

			g/Hr	g/n cu.M (NOTE 3)
SMOKE (Cat Units).....	0.01			
FUEL RATE.....	137.89	Lb/Hr		
INLET AIR FLOW.....	3608	Lb/Hr		
EXHAUST FLOW RATE.....	3746	Lb/Hr	NOX	3128	3.133
EXH. FLOW (60 deg F. and 760mm Hg).	822	SCFM	CO	189	0.189
EXH. FLOW (840 deg F. stack temp).	2055	CFM	HC	29	0.029

NOTES: 1. The NOX shown is not present in the exhaust but rather is formed in the atmosphere from the NO present in the exhaust.

2. Dry particulate matter is an approximation based on smoke density and therefore is not included in the total exhaust flow rate.

3. Grams per normal cubic meter values corrected to 5% Oxygen.

Both the NO and NOX are corrected to 75 grains humidity.

The SO2 is based on a SULFUR content of 0.2 pct. (by wt.) in the fuel.

This data is based on steady-state engine operating conditions of 77 deg. F, 29.61 In. Hg., and No.2 diesel fuel. This data is also subject to instrumentation, measurement, and engine-to-engine variations.

TC ARNETT
Engine Div. Engrg

-GKIGN1 TMI - ENGINE AND COMP PERF DATE: 01/28/93
05 - INDUSTRIAL ENGINE PERFORMANCE TIME: 09:48:21
3406B DI TA JW DRY MFLD HYDRA GOV IND-DIESEL
TM1687-04 INTERMITTEN 400 HP @ 2100 RPM FUEL TYPE
INFO CODE 01 -- GENERAL PERFORMANCE DATA *

ENG SPD RPM	ENG PWR HP	ENG TORQ LB-FT	ENG BMEP PSI	S FUEL CONSUM LB/HP-HR	FUEL RATE GPH	INTAKE MFLD T DEG F	INTAKE MFLD P IN-HG	INTAKE AIR FL CFM	EXHAUST MFLD T DEG F	EXHAUST STK T DEG F	EXHAUST GAS FL CFM
2100	400	999	169	.342	19.5	196	36.2	1023	1030	824	2440
2000	394	1034	174	.335	18.9	194	35.3	975	1026	829	2337
1900	386	1067	180	.330	18.3	192	34.5	922	1030	841	2234
1800	377	1100	186	.329	17.7	190	33.6	867	1041	859	2130
1700	366	1131	191	.329	17.2	188	32.5	809	1058	884	2027
1600	354	1161	196	.329	16.6	186	31.1	751	1081	913	1923
1500	340	1191	201	.330	16.1	184	29.5	692	1108	949	1819
1400	325	1218	206	.335	15.5	182	27.8	631	1142	991	1712
1300	307	1239	209	.340	14.9	180	25.9	569	1180	1038	1598

PRESS (ENTER) FOR ADDITIONAL DATA

NEXT TRAN: INFO CODE (01) UNIT TYPE (E)
HELP(PF1) ACF2(PF3) EXIT(PF4) RETURN(PF5) INDEX(PF9)

CATERPILLAR®

Caterpillar Inc.

Engine Division
P.O. Box 610
Mossville, IL 61552-0610

January 26, 1993

Mr. Mark Pearson
Holt-Refakis Equipment Co.
5252 Walcutt Court
Columbus, OH 43228-9489

Dear David:

Subject: Emission Request for the Complete General Resources 3406 Engine Rated at 400 BHP at 2100 RPM

The emissions information you requested are attached. These numbers are the best estimates available at this time. The values listed are based on tests conducted at Caterpillar Inc., using instrumentation and procedures equivalent to those outlined in SAE 177a and SAE 215.

The NOx shown is not actually present in the exhaust. It is based on the assumption that the NO present the the exhaust is converted to NOx in the atmosphere. Both NO and NOx are corrected to 75 grains humidity. The SO2 is proportional the sulphur content of 0.2% by weight. Dry particulate matter (DPM) is an approximated value based on a correlation between DPM and smoke density.

This report provides the best information available at this time. It should not be reissued at a future date without verification as to its validity for the current engine. Please contact the undersigned if additional information is needed.

Very truly yours,

Howard E. Williamson

Senior Project Engineer
Industrial Commercial
Engine Applications
Medium Commercial Engine
Product

HEWilliamson
Telephone: (309) 578-6668
Fax: (309) 578-7219

cc: Dean Pellegata, Michigan Power Systems

CHRHREM.DOC/hew

EXHAUST CHEMISTRY

REQUEST NO: 92-91 DATE: 17NOV92

REQUESTED BY: HE WILLIAMSON APPLICATION: IND INT

IDENTIFICATION: 3406 DITA DRY
HP: 402
RPM: 2100

Exhaust Constituent	Pounds per Hour	Grams per Hour	Parts per Million (Wet)	Percent by Volume	Percent by Weight
CO2	434.1	196884	75433	7.54	11.59
N2	2766.9	1255018	761321	76.13	73.86
O2	367.7	166781	88836	8.88	9.82
H2O	171.8	77906	73030	7.30	4.59
CO	0.4	189	115	0.01	0.01
NO (NOTE 1)	4.5	2046		0.12	0.12
NOX	6.9	3128	1163	0.00	0.00
HC	0.1	29	35	0.00	0.00
SO2	0.5	250	67	0.01	0.01
DPM (NOTE 2)	0.0	11			

				g/Hr	g/n cu.M (NOTE 3)
SMOKE (Cat Units).....	0.01				
FUEL RATE.....	137.89	Lb/Hr			
INLET AIR FLOW.....	3608	Lb/Hr			
EXHAUST FLOW RATE.....	3746	Lb/Hr	NOX	3128	3.133
EXH. FLOW (60 deg F. and 760mm Hg).	822	SCFM	CO	189	0.189
EXH. FLOW (840 deg F. stack temp).	2055	CFM	HC	29	0.029

NOTES: 1. The NOX shown is not present in the exhaust but rather is formed in the atmosphere from the NO present in the exhaust.

2. Dry particulate matter is an approximation based on smoke density and therefore is not included in the total exhaust flow rate.

3. Grams per normal cubic meter values corrected to 5% Oxygen.

Both the NO and NOX are corrected to 75 grains humidity.

The SO2 is based on a SULFUR content of 0.2 pct. (by wt.) in the fuel.

This data is based on steady-state engine operating conditions of 77 deg. F, 29.61 In. Hg., and No.2 diesel fuel. This data is also subject to instrumentation, measurement, and engine-to-engine variations.

TC ARNETT
Engine Div. Engrg

-GKIGN1 TMI - ENGINE AND COMP PERF DATE: 01/28/93
05 - INDUSTRIAL ENGINE PERFORMANCE TIME: 09:48:21
3406B DI TA JW DRY MFLD HYDRA GOV IND-DIESEL
TM1687-04 INTERMITTEN 400 HP @ 2100 RPM FUEL TYPE
INFO CODE 01 - GENERAL PERFORMANCE DATA *

ENG SPD RPM	ENG PWR HP	ENG TORQ LB-FT	ENG BMEP PSI	S FUEL CONSUM LB/HP-HR	FUEL RATE GPH	INTAKE MFLD T DEG F	INTAKE MFLD P IN-HG	INTAKE AIR FL CFM	EXHAUST MFLD T DEG F	EXHAUST STK T DEG F	EXHAUST GAS FL CFM
2100	400	999	169	.342	19.5	196	36.2	1023	1030	824	2440
2000	394	1034	174	.335	18.9	194	35.3	975	1026	829	2337
1900	386	1067	180	.330	18.3	192	34.5	922	1030	841	2234
1800	377	1100	186	.329	17.7	190	33.6	867	1041	859	2130
1700	366	1131	191	.329	17.2	188	32.5	809	1058	884	2027
1600	354	1161	196	.329	16.6	186	31.1	751	1081	913	1923
1500	340	1191	201	.330	16.1	184	29.5	692	1108	949	1819
1400	325	1218	206	.335	15.5	182	27.8	631	1142	991	1712
1300	307	1239	209	.340	14.9	180	25.9	569	1180	1038	1598

PRESS (ENTER) FOR ADDITIONAL DATA

NEXT TRAN: INFO CODE (01) UNIT TYPE (E)
HELP(PF1) ACF2(PF3) EXIT(PF4) RETURN(PF5) INDEX(PF9)

Holt-Refakis Equipment Company
5252 Walcutt Court
P.O. Box 28525
Columbus, Ohio 43228-9641
614/878-CATS
FAX: 614/851-5015

Power Systems Division

January 27, 1993

Complete Resources Company
702 Old Darby St.
Seffner, FL 33584

Attn: Mr. Dave Vasu

Re: Caterpillar 3208 Emissions Data

Dear Mr. Vasu,

Enclosed is the emissions and fuel consumption data for your Caterpillar model 3208 generator set. We are still waiting for the data on the 3406 industrial engine. This will be forwarded to you as soon as we receive it.

Yours truly,

Mark Pearson
Engine Sales Engineer

CINCINNATI
11330 Mosteller Road
Sharonville, Ohio 45241
513/771-0515
FAX: 513/771-6740

DAYTON
5855 Executive Blvd.
Huber Heights, Ohio 45424
513/236-4111
FAX: 513/236-9981

LUCASVILLE
U.S. Route 23 South
Lucasville, Ohio 45648
614/259-2350
FAX: 614/259-2891

TOLEDO
25970 State Route 25
Perrysburg, Ohio 43551
419/874-7975
FAX: 419/874-9626

CATERPILLAR®

Caterpillar Inc.

Engine Division
P.O. Box 610
Mossville, IL 61552-0610

January 22, 1993

Mark Pearson
Holt-Refakis Equipment Co.
5252 Walcutt Court
Columbus, OH 43228-9489

Dear Mark:

EMISSIONS REQUEST

The emissions you requested are attached. These numbers are the best estimate available at this time. The values listed are based on tests conducted at Caterpillar Inc. using instrumentation and procedures equivalent to those outlined in SAE 177a and SAE 215.

The NOx shown is not actually present in the exhaust. It is based on the assumption that the NO present in the exhaust is converted to NOx in the atmosphere. Both NO and NOx are corrected to 75 grains humidity. The SO2 is proportional to the sulphur content of 0.2% by weight. Dry particulate matter (DPM) is an approximate value based on a correlation between DPM and smoke density.

This report provides the best information available at this time. It should not be reissued at a future date without verification as to its validity for the current engine. Please contact Engine Division Engineering if additional information is needed.

Sincerely

DA Hale/EG Kach

MEP/3300 Product

DAHale
Telephone: (309) 578-7283
sjb

\eak\hale.ltr

EXHAUST CHEMISTRY

REQUEST NO: 92-31 A DATE: 22JAN93

REQUESTED BY: W. Oder APPLICATION: 60 HZ GEN SET PR

IDENTIFICATION: 3208 DIT
HP: 263
RPM: 1800

Exhaust Constituent	Pounds per Hour	Grams per Hour	Parts per Million (Wet)	Percent by Volume	Percent by Weight
CO2	289.6	131367	84937	8.49	13.10
N2	1624.1	736696	757253	75.73	73.46
O2	178.3	80864	73058	7.31	8.06
H2O	114.6	51982	82844	8.28	5.18
CO	1.6	740	763	0.08	0.07
NO (NOTE 1)	2.4	1091		0.11	0.11
NOX	3.7	1667	1050	0.00	0.00
HC	0.0	10	21	0.00	0.00
SO2	0.4	167	75	0.01	0.02
DPM (NOTE 2)	0.3	145			

			g/Hr	g/n cu.M (NOTE 3)
SMOKE (Cat Units).....	0.26			
FUEL RATE.....	92.05	Lb/Hr		
INLET AIR FLOW.....	2119	Lb/Hr		
EXHAUST FLOW RATE.....	2211	Lb/Hr	NOX	1667	2.500
EXH. FLOW (60 deg F. and 760mm Hg).	485	SCFM	CO	740	1.110
EXH. FLOW (1059 deg F. stack temp).	1417	CFM	HC	10	0.015

NOTES: 1. The NOX shown is not present in the exhaust but rather is formed in the atmosphere from the NO present in the exhaust.

2. Dry particulate matter is an approximation based on smoke density and therefore is not included in the total exhaust flow rate.

3. Grams per normal cubic meter values corrected to 5% Oxygen.

Both the NO and NOX are corrected to 75 grains humidity.

The SO2 is based on a SULFUR content of 0.2 pct. (by wt.) in the fuel.

This data is based on steady-state engine operating conditions of 77 deg. F, 29.61 In. Hg., and No.2 diesel fuel. This data is also subject to instrumentation, measurement, and engine-to-engine variations.

D HALE
Engine Div. Engrg
EXT. 87283

Mining Safety and Health Administration (MSHA) *

VENTILATION REQUIREMENTS

IDENTIFICATION: 3208 DIT

HP = 263.
RPM = 1800.

Per MSHA Schedule 24, the exhaust constituents must be diluted as follows for safe concentrations.

*** CONCENTRATION (BY VOLUME) ***

NOX:	0.0025 PCT.	(25 PPM)
CO :	0.0100 PCT.	(100 PPM)
CO2:	0.5000 PCT.	(5000 PPM)

The mine ventilations needed to attain these concentrations (without any safety factor) are:

NOX:	20378	CFM
CO:	3701	CFM
CO2:	8240	CFM

The worse case of the above ventilation rates with a 200 pct. (2x) safety factor included is 41000 CFM. This figure with the safety factor included is the amount calculated by using MSHA procedure and Caterpillar emission data.

(*) Formerly MESA (Mining Enforcement and Safety Administration and United States Bureau of Mines.)

-GKPGN1 TM1 - ENGINE AND COMP PERF DATE: 01/27/93
09 - PACKAGE SET PERFORMANCE TIME: 09:14:13
3206 DI T DRY MFLD CAT 3 GOV PACKAGE-DIE
TM2295-01 PRIME 60 HERTZ VOLTS
GEN 150 W/F KW 154 W/O F KW FLY 205 W/F HP 341 W/O F HP @ 1800 RPM
INFO CODE 01 - GENERAL PERFORMANCE DATA *

GEN W/F KW	PER CENT LOAD	ENG PWR HP	ENG BMEP PSI	S FUEL CONSUM LB/HP-HR	FUEL RATE GPH	INTAKE MFLD T DEG F	INTAKE MFLD P IN-HG	AIR FL CFM	EXH MFLD T DEG F	EXH STK T DEG F	EXH GAS FL CFM
150	100	345	167	.344	11.7	335	37.1	471	1193	1003	1274
150	94	327	157	.340	11.0	330	33.4	433	1135	972	1213
135	84	305	141	.339	9.9	304	15.3	401	1078	931	1154
120	75	283	126	.340	8.9	280	14.3	367	1007	874	994
105	66	260	111	.345	7.9	262	11.5	275	933	816	893
90	56	198	95	.347	6.3	243	8.8	355	857	757	804
75	47	116	80	.355	5.9	196	6.6	337	780	697	736
60	38	95	66	.361	5.0	185	4.7	283	708	633	654

PRESS <ENTER> FOR ADDITIONAL DATA

NEXT TRAN: INFO CODE (01) UNIT TYPE (E)
HELP(PF1) ADD(PF3) EXIT(PF4) RETURN(PF5) INDEX(PF7)

CATERPILLAR®

Caterpillar Inc.

Engine Division
P.O. Box 610
Mossville, IL 61552-0610

January 22, 1993

Mark Pearson
Holt-Refakis Equipment Co.
5252 Walcutt Court
Columbus, OH 43228-9489

Dear Mark:

EMISSIONS REQUEST

The emissions you requested are attached. These numbers are the best estimate available at this time. The values listed are based on tests conducted at Caterpillar Inc. using instrumentation and procedures equivalent to those outlined in SAE 177a and SAE 215.

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This report provides the best information available at this time. It should not be reissued at a future date without verification as to its validity for the current engine. Please contact Engine Division Engineering if additional information is needed.

Sincerely

MEP/3300 Product

D. A. Hale/C. A. Koch

DAHale
Telephone: (309) 578-7283
sjb

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EXHAUST CHEMISTRY

REQUEST NO: 92-31 A DATE: 22JAN93

REQUESTED BY: W. Oder APPLICATION: 60 HZ GEN SET PR

IDENTIFICATION: 3208 DIT
HP: 263
RPM: 1800

Exhaust Constituent	Pounds per Hour	Grams per Hour	Parts per Million (Wet)	Percent by Volume	Percent by Weight
CO2	289.6	131367	84937	8.49	13.10
N2	1624.1	736696	757253	75.73	73.46
O2	178.3	80864	73058	7.31	8.06
H2O	114.6	51982	82844	8.28	5.18
CO	1.6	740	763	0.08	0.07
NO (NOTE 1)	2.4	1091		0.11	0.11
NOX	3.7	1667	1050	0.00	0.00
HC	0.0	10	21	0.00	0.00
SO2	0.4	167	75	0.01	0.02
DPM (NOTE 2)	0.3	145			

			g/Hr	g/n cu.M (NOTE 3)
SMOKE (Cat Units).....	0.26			
FUEL RATE.....	92.05	Lb/Hr		
INLET AIR FLOW.....	2119	Lb/Hr		
EXHAUST FLOW RATE.....	2211	Lb/Hr	NOX	1667	2.500
EXH. FLOW (60 deg F. and 760mm Hg).	485	SCFM	CO	740	1.110
EXH. FLOW (1059 deg F. stack temp).	1417	CFM	HC	10	0.015

NOTES: 1. The NOX shown is not present in the exhaust but rather is formed in the atmosphere from the NO present in the exhaust.

2. Dry particulate matter is an approximation based on smoke density and therefore is not included in the total exhaust flow rate.

3. Grams per normal cubic meter values corrected to 5% Oxygen.

Both the NO and NOX are corrected to 75 grains humidity.

The SO2 is based on a SULFUR content of 0.2 pct. (by wt.) in the fuel.

This data is based on steady-state engine operating conditions of 77 deg. F, 29.61 in. Hg., and No.2 diesel fuel. This data is also subject to instrumentation, measurement, and engine-to-engine variations.

D HALE
Engine Div. Engrg
EXT. 87283

Mining Safety and Health Administration (MSHA) *

VENTILATION REQUIREMENTS

IDENTIFICATION: 3208 DIT

HP = 263.
RPM = 1800.

Per MSHA Schedule 24, the exhaust constituents must be diluted as follows for safe concentrations.

*** CONCENTRATION (BY VOLUME) ***

NOX:	0.0025 PCT.	(25 PPM)
CO :	0.0100 PCT.	(100 PPM)
CO2:	0.5000 PCT.	(5000 PPM)

The mine ventilations needed to attain these concentrations (without any safety factor) are:

NOX:	20378	CFM
CO:	3701	CFM
CO2:	8240	CFM

The worse case of the above ventilation rates with a 200 pct. (2x) safety factor included is 41000 CFM. This figure with the safety factor included is the amount calculated by using MSHA procedure and Caterpillar emission data.

(*) Formerly MESA (Mining Enforcement and Safety Administration and United States Bureau of Mines.)

-SKPGN1 TMI - ENGINE AND COMP PERF DATE: 01/27/93

09 - PACKAGE SET PERFORMANCE TIME: 09:14:13

3208 DI T DRY MFLD CAT 3 GOV PACKAGE-DIS

TM8295-01 PRIME 60 HERTZ VOLTS

GEN 160 W/F KW 164 W/O F KW FLY 235 W/F HP 241 W/O F HP @ 1800 RPM

INFO CODE 01 - GENERAL PERFORMANCE DATA * * * * * * * * * * * * * * * * * *

GEN W/F KW	PER CENT LOAD	ENG PWR HP	ENG BMEP PSI	B FUEL CONSUM LB/HP-HR	FUEL RATE GPH	INTAKE MFLD T DEG F	INTAKE MFLD P IN-HG	INTAKE AIR FL CFM	EXH MFLD T DEG F	EXH STK T DEG F	EXH GAS FL CFM
160	100	242	167	.344	11.9	225	27.1	471	1192	1002	1271
150	94	227	157	.340	11.0	220	23.4	455	1158	972	1212
135	84	205	142	.339	9.9	200	18.8	423	1132	931	1104
120	75	183	126	.340	8.9	180	14.8	397	1107	874	994
105	66	160	111	.343	7.8	162	11.5	375	933	816	892
90	56	138	95	.347	6.8	148	8.8	355	857	757	804
75	47	116	80	.355	5.9	136	6.6	337	780	697	724
60	38	95	66	.366	5.0	125	4.7	325	702	633	654

PRESS <ENTER> FOR ADDITIONAL DATA

NEXT TRAN: INFO CODE (01) UNIT TYPE (3)

HELP(PF1) ADPS(PF3) EXIT(PF4) RETURN(PF5) INDEX(PF9)