State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

Interoffice Memorandum

DER
MAY 2 1986
BAQM

FOR ROUTING TO OTHER THAN THE ADDRESSEE

To: ______ Loctn: MAY 1 1986
To: ______ Loctn: ______
To: ______ Loctn: ______
From: ______ Date: ______

Office of the Secretary

TO: Al Devereaux

FROM: Clair Fancy

DATE: May 1, 1986

SUBJ: Resource Recovery Facility Permitting

The Bureau of Air Quality Management is in the process of reviewing a permit application for a resource recovery facility to be located in Lake County. The facility will process a total of 500 tons per day municipal solid waste.

In view of our concern to control acid gas emissions from resource recovery facilities and the events that have transpired since initiating permitting of the 2,250 tons per day South Broward County unit, the bureau is uncertain how smaller units in sparsely populated areas, such as the Lake County unit, should be handled.

Do you feel that an across the board policy should be developed for all resource recovery units in regard to acid gas control or should unit size and location be taken into account when deciding what level of acid gas control is required? Please advise.

CHF/BA/bjs

Over all I would think that usin BACT logic that a uniform policy should be established. The sociologic environmental and economic issues should still be evaluated. Thus all BACT might not require the same technology. Thus we might start out with a certain BACT and wind up relaxing after analysis. Thus I feel this makes more sense working our way from the bottom up on each case. What do you think? AD

Ultimately we want to continue to improve the quality of the air in a reasonable way.

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

1. TO: (NAME, OFFICE, LOCATION) Clair Fancy	Initial	
	Date	5/1
2. Barry 5/5	Initial	
	Date	
3. Lets discuss / Cl	Initial	
	Date	
4.	Initial	
	Date	

REMARKS:

DER

MAY 2 1986

BAQ

INFORMATION	
	Review & Return
	Review & File
	Initial & Forward

DISPOSITION	
	Review & Respond
	Prepare Response
	For My Signature
	For Your Signature
	Let's Discuss
	Set Up Meeting
	Investigate & Report
	Initial & Forward
	Distribute
	Concurrence
	For Processing
	Initial & Return

FROM: Deveaux

DATE

PHONE

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

March 26, 1986

Mr. Bruce P. Miller
Acting Chief
Air Programs Branch
U.S. EPA, Region IV
345 Courtland Street, N.E.
Atlanta, Gerogia 30365

Dear Mr. Miller:

RE: PSD Application Potentially Affecting Class I Area
Lake County Waste to Energy Facility, PSD-FL-113

Enclosed for your review and comment is a copy of an application from NRG/Recovery Group for the Lake County, Florida, Waste to Energy Facility. If you have any comments or questions, please contact Ed Svec or Tom Rogers at the above address or at (904)488-1344.

Sincerely,

Patty Adams

Patty Adams
Bureau of Air Quality
Management

/pa

PTPLU (VERSION 81036)
IBM PC VERSION 3.00 COPYRIGHT 1983 JAMES C. CLARY, JR.
S/N 2015
AN AIR QUALITY DISPERSION MODEL IN
SECTION 2. NON-GUIDELINE MODELS.
IN UNAMAP (VERSION 5) DEC 82
SOURCE: FILE 12 ON UNAMAP MAGNETIC TAPE FROM NTIS.

)))INPUT PARAMETERS(((

** TITLE*** SOURCE NUMBER 1 NRG. HCl impact. per application data

OPTIONS*
= 1. USE OPTION
= 0. IGNORE OPTION
OPT(1) = 1 (GRAD PLUME RISE)
OPT(2) = 1 (STACK DOWNWASH)
OPT(3) = 0 (BUOY. INDUCED DISP.)
RECEPTOR HEIGHT* = 2.00 (M)

METEOROLOGY
AMBIENT AIR TEMPERATURE = 293.00 (K)
MIXING HEIGHT = 1500.00 (M)
ANEMOMETER HEIGHT = 10.00 (M)
WIND PROFILE EXPONENTS = A: .10, B: .15, C: .20
D: .25, E: .30, F: .30

SOURCE
EMISSION RATE = 23.60 (G/S)
STACK HEIGHT = 38.10 (M)
EXIT TEMP. = 450.00 (K)
EXIT VELOCITY = 20.00 (M/S)
STACK DIAM. = 1.83 (M)

)))CALCULATED PARAMETERS(((

VOLUMETRIC FLOW = 52.60 (M**3/SEC)
BUOYANCY FLUX PARAMETER = 57.29 (M**4/SEC**3)

SOURCE NUMBER 1 NRG. HCl impact. per application data

****WINDS CONSTANT WITH HEIGHT****

STABILITY	WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
1	.50	40.04	1.422	916.5(2)
1	.80	43.39	1.040	587.1(2)
1	1.00	46.54	.943	477.3(2)
1	1.50	52.15	.793	330.9(2)
1	2.00	55.75	.705	257.7(2)
1	2.50	58.13	.645	213.8(2)
1	3.00	61.74	.551	176.4

****STACK TOP WINDS (EXTRAPOLATED FROM 10.0 METERS)****

WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
.57	39.25	1.237	806.5(2)
.91	45.28	.981	518.4(2)
1.14	48.43	.890	422.3(2)
1.71	53.88	.750	294.2(2)
2.29	57.23	.668	230.2(2)
2.86	59.22	.600	191.8
3.43	65.48	.518	154.3

****WINDS CONSTANT WITH HEIGHT****

STABILITY	WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
2	.50	13.61	5.686	916.5(2)
2	.80	18.42	3.538	587.1(2)
2	1.00	21.41	2.928	477.3(2)
2	1.50	27.67	2.095	330.9(2)
2	2.00	32.62	1.667	257.7(2)
2	2.50	36.61	1.406	213.8(2)
2	3.00	39.85	1.228	184.5
2	4.00	44.64	1.004	147.9
2	5.00	47.81	.867	125.9

****STACK TOP WINDS (EXTRAPOLATED FROM 10.0 METERS)****

WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
.61	15.37	4.477	756.9(2)
.98	21.09	2.984	487.3(2)
1.22	24.38	2.477	397.5(2)
1.83	31.09	1.785	277.7(2)
2.44	36.21	1.430	217.8(2)
3.06	40.17	1.212	181.8
3.67	43.25	1.066	157.9
4.89	47.52	.879	127.9
6.11	50.05	.766	110.0

****WINDS CONSTANT WITH HEIGHT****

STABILITY	WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
3	2.00	24.94	3.314	257.7(2)
3	2.50	28.92	2.700	213.8(2)
3	3.00	32.30	2.297	184.5
3	4.00	37.61	1.803	147.9
3	5.00	41.44	1.511	125.9
3	7.00	46.10	1.184	100.8
3	10.00	48.73	.944	82.0
3	12.00	48.95	.852	74.7
3	15.00	49.01	.753	66.8

****STACK TOP WINDS (EXTRAPOLATED FROM 10.0 METERS)****

WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
2.61	29.74	2.594	205.8(2)
3.27	33.69	2.134	172.5
3.92	37.24	1.833	150.1
5.23	42.14	1.461	122.1
6.53	45.29	1.248	105.3
9.15	48.34	.996	86.1
13.07	48.77	.815	71.7
15.68	49.03	.735	65.3
19.60	48.66	.535	57.1

****WINDS CONSTANT WITH HEIGHT****

STABILITY	WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
4	.50	9999.99	999.999(3)	916.5(2)
4	.80	2.61	59.971	587.1(2)
4	1.00	3.65	39.831	477.3(2)
4	1.50	6.34	21.290	330.9(2)
4	2.00	9.03	13.640	257.7(2)
4	2.50	11.67	10.000	213.8(2)
4	3.00	14.01	7.931	184.5
4	4.00	18.18	5.490	147.9
4	5.00	21.69	4.201	125.9
4	7.00	26.92	2.994	100.8
4	10.00	30.98	2.168	82.0
4	12.00	32.34	1.873	74.7
4	15.00	33.92	1.571	66.8
4	20.00	35.40	1.368	58.2

****STACK TOP WINDS (EXTRAPOLATED FROM 10.0 METERS)****

WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
.70	2.12	77.148	686.8(2)
1.12	4.30	32.551	431.0(2)
1.40	5.80	23.831	352.5(2)
2.10	9.54	12.704	247.7(2)
2.79	13.07	8.707	195.3
3.49	16.15	6.508	162.8
4.19	18.90	5.184	142.9
5.59	23.46	3.700	116.7
6.99	26.90	2.998	101.0
9.78	30.78	2.209	83.0
13.97	33.30	1.665	69.3
16.77	34.68	1.441	63.3
20.96	35.48	1.229	57.1
27.94	35.01	1.029	50.9

****WINDS CONSTANT WITH HEIGHT****

STABILITY	WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
5	2.00	30.87	9.630	129.0
5	2.50	28.51	8.677	122.5
5	3.00	26.85	7.997	117.5
5	4.00	23.85	7.037	110.3
5	5.00	21.80	6.394	105.1

****STACK TOP WINDS (EXTRAPOLATED FROM 10.0 METERS)****

WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
2.99	26.69	8.016	117.7
3.73	24.50	7.354	113.0
4.48	22.79	6.710	107.6
5.97	20.24	5.933	101.2
7.47	18.39	5.415	96.7

****WINDS CONSTANT WITH HEIGHT****

STABILITY	WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
6	2.00	21.17	18.671	113.6
6	2.50	20.30	16.020	108.2
6	3.00	19.53	14.999	104.0
6	4.00(4)	17.92	14.999	98.0
6	5.00(4)	16.50	13.681	93.7

****STACK TOP WINDS (EXTRAPOLATED FROM 10.0 METERS)****

WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
2.99	19.55	14.999	104.1
3.73	18.34	14.999	99.4
4.48	17.19	14.432	95.9
5.97(4)	15.41	12.561	90.5
7.47(4)	14.06	11.322	86.7

1) THE DISTANCE TO THE POINT OF MAXIMUM CONCENTRATION IS SO GREAT THAT THE SAME STABILITY IS NOT LIKELY TO PERSIST LONG ENOUGH FOR THE PLUME TO TRAVEL THIS FAR.
2) THE PLUME IS CALCULATED TO BE AT A HEIGHT WHERE CARE SHOULD BE USED IN INTERPRETING THE COMPUTATION.
3) NO COMPUTATION WAS ATTEMPTED FOR THIS HEIGHT AS THE POINT OF MAXIMUM CONCENTRATION IS GREATER THAN 100 KILOMETE FROM THE SOURCE.
4) STABILITY CATEGORY F, AS DEFINED BY PASQUILL, DOES NOT EXIST AT WIND SPEEDS GREATER THAN 3.0 METERS PER SECOND

PTPLU (VERSION 81036)
IBM PC VERSION 3.00 COPYRIGHT 1983 JAMES C. CLARY, JR.
S/N 2015
AN AIR QUALITY DISPERSION MODEL IN
SECTION 2. NON-GUIDELINE MODELS.
IN UNAMAP (VERSION 5) DEC 82
SOURCE: FILE 12 ON UNAMAP MAGNETIC TAPE FROM NTIS.

Stack temp. has changed per EPA 450/4-77-001 v1.10 24 hr avg = (PTPLU) x (0.9)

)))INPUT PARAMETERS(((

** TITLE*** SOURCE NUMBER 2 NRG. HCl impact. B & W design data

OPTIONS*
= 1. USE OPTION
= 0. IGNORE OPTION -
PT(1) = 1 (GRAD PLUME RISE)
PT(2) = 1 (STACK DOWNWASH)
PT(3) = 0 (BUOY. INDUCED DISP.)
RECEPTOR HEIGHT* = 2.00 (M)

METEOROLOGY
AMBIENT AIR TEMPERATURE = 293.00 (K)
MIXING HEIGHT = 1500.00 (M)
ANEMOMETER HEIGHT = 10.00 (M)
WIND PROFILE EXPONENTS = A: .10, B: .15, C: .20
D: .25, E: .30, F: .35

SOURCE
EMISSION RATE = 23.80 (G/S
STACK HEIGHT = 38.10 (M)
EXIT TEMP. = 500.00 (K)
EXIT VELOCITY = 22.20 (M/S
STACK DIAM. = 1.83 (M)

)))CALCULATED PARAMETERS(((

LUMETRIC FLOW = 58.39 (M**3/SEC) BUOYANCY FLUX PARAMETER = 75.46 (M**4/SEC**3)

URCE NUMBER 2 NRG. HCl impact. B & W design data

****WINDS CONSTANT WITH HEIGHT****

TABILITY	WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
1	.50	38.05	1.558	1074.4(2)
1	.80	34.84	1.121	685.8(2)
1	1.00	37.47	1.014	556.2(2)
1	1.50	42.30	.850	383.5(2)
1	2.00	45.55	.754	297.2(2)
1	2.50	47.81	.689	245.4(2)
1	3.00	53.79	.575	194.1

****STACK TOP WINDS (EXTRAPOLATED FROM 10.0 METERS)*

WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
.57	34.53	1.461	944.6(2)
.91	36.40	1.055	604.7(2)
1.14	39.07	.956	491.4(2)
1.71	43.85	.804	340.3(2)
2.29	46.94	.714	264.7(2)
2.86	52.40	.589	204.5(2)
3.43	57.44	.540	169.0

****WINDS CONSTANT WITH HEIGHT****

TABILITY	WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
2	.50	11.79	7.292	1074.4(2)
2	.80	13.92	4.080	685.8(2)
2	1.00	16.24	3.368	556.2(2)
2	1.50	21.19	2.398	383.5(2)
2	2.00	25.21	1.899	297.2(2)
2	2.50	28.52	1.594	245.4(2)
2	3.00	31.29	1.388	210.8(2)
2	4.00	35.56	1.125	167.6
2	5.00	38.58	.965	141.7

****STACK TOP WINDS (EXTRAPOLATED FROM 10.0 METERS)*

WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
.61	11.69	5.381	886.0(2)
.98	16.00	3.433	568.0(2)
1.22	18.57	2.842	462.0(2)
1.83	23.95	2.036	320.7(2)
2.44	28.18	1.622	250.1(2)
3.06	31.57	1.369	207.7(2)
3.67	34.30	1.198	179.4
4.89	38.30	.980	144.1
6.11	40.90	.847	122.9

****WINDS CONSTANT WITH HEIGHT****

TABILITY	WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
3	2.00	18.80	3.874	297.2(2)
3	2.50	22.00	3.140	245.4(2)
3	3.00	24.78	2.659	210.8(2)
3	4.00	29.31	2.068	167.6
3	5.00	32.75	1.720	141.7
3	7.00	37.31	1.330	112.1
3	10.00	40.57	1.044	89.9
3	12.00	41.36	.935	81.3
3	15.00	41.49	.825	72.6

****STACK TOP WINDS (EXTRAPOLATED FROM 10.0 METERS)*

WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
2.61	22.66	3.014	236.4(2)
3.27	25.11	2.464	196.7
3.92	28.99	2.104	170.3
5.23	33.41	1.651	137.2
6.53	36.47	1.399	117.4
9.15	39.95	1.106	94.7
13.07	41.50	.890	77.8
15.68	41.65	.804	70.8
19.60	41.87	.709	63.2

****WINDS CONSTANT WITH HEIGHT****

TABILITY	WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
4	.50	9999.99	999.999(3)	1074.4(2)
4	.80	1.72	81.509	685.8(2)
4	1.00	2.41	53.930	556.2(2)
4	1.50	4.35	27.713	383.5(2)
4	2.00	6.27	17.580	297.2(2)
4	2.50	8.19	12.492	245.4(2)
4	3.00	10.07	9.990	210.8(2)
4	4.00	13.32	6.765	167.6
4	5.00	16.17	5.112	141.7
4	7.00	20.69	3.462	112.1
4	10.00	24.83	2.503	89.9
4	12.00	26.39	2.137	81.3
4	15.00	27.74	1.790	72.6
4	20.00	29.75	1.420	62.6

****STACK TOP WINDS (EXTRAPOLATED FROM 10.0 METERS)*

WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
.70	9999.99	999.999(3)	779.8(2)
1.12	2.85	43.961	501.7(2)
1.40	3.96	30.000	409.0(2)
2.10	6.63	16.352	285.3(2)
2.79	9.31	10.582	223.5(2)
3.49	11.72	8.072	186.4
4.19	13.90	6.371	161.7
5.59	17.65	4.477	130.8
6.99	20.66	3.469	113.3
9.79	24.62	2.553	91.1
13.97	27.35	1.892	75.2
16.77	28.67	1.630	68.4
20.96	29.94	1.371	61.2
27.94	30.33	1.129	54.1

****WINDS CONSTANT WITH HEIGHT****

TABILITY	WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
5	2.00	25.63	10.460	137.8
5	2.50	23.87	9.862	130.6
5	3.00	22.38	9.055	135.2
5	4.00	20.14	7.956	117.2
5	5.00	18.48	7.300	111.5

****STACK TOP WINDS (EXTRAPOLATED FROM 10.0 METERS)*

WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
2.99	22.42	9.071	125.3
3.73	20.66	8.203	119.1
4.48	19.28	7.557	114.3
5.97	17.22	6.864	107.3
7.47	15.71	6.063	102.4

****WINDS CONSTANT WITH HEIGHT****

TABILITY	WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
6	2.00	16.83	22.661	120.8
6	2.50	16.28	19.352	114.9
6	3.00	15.69	17.083	110.4
6	4.00(4)	14.78	14.999	103.8
6	5.00(4)	13.85	14.999	99.0

****STACK TOP WINDS (EXTRAPOLATED FROM 10.0 METERS)*

WIND SPEED (M/SEC)	MAX CONC (UG/CU M)	DIST OF MAX (KM)	PLUME HT (M)
2.99	15.70	17.121	110.5
3.73	15.02	14.999	105.3
4.48	14.33	14.999	101.3
5.97(4)	13.00	14.340	95.5
7.47(4)	11.94	12.871	91.4

1) THE DISTANCE TO THE POINT OF MAXIMUM CONCENTRATION IS SO GREAT THAT THE SAME STABILITY IS NOT LIKELY TO PERSIST LONG ENOUGH FOR THE PLUME TO TRAVEL THIS FAR.
2) THE PLUME IS CALCULATED TO BE AT A HEIGHT WHERE CARE SHOULD BE USED IN INTERPRETING THE COMPUTATION.
3) NO COMPUTATION WAS ATTEMPTED FOR THIS HEIGHT AS THE POINT OF MAXIMUM CONCENTRATION IS GREATER THAN 100 KILOMETE FROM THE SOURCE.
4) STABILITY CATEGORY F, AS DEFINED BY PASQUILL, DOES NOT EXIST AT WIND SPEEDS GREATER THAN 3.0 METERS PER SECOND

UNCONTROLLED - GOOD COMBUSTION
REFERENCE: ENVIRONMENT CANADA (1985) TABLE 10 of the MICHIGAN STUDY (1986)

POLLUTANT	g/tonne	1000 tons/day → 907.18 tonnes/day → g/day
TSP	843	764,752.74
HCl	4,400	399,592
PCDD	428×10^{-6}	.388
PCDF	570×10^{-6}	.517
PCB	$3,413 \times 10^{-6}$	3.096
PAH	$29,305 \times 10^{-6}$	26.585
CHLOROPHENOL	$18,403 \times 10^{-6}$	16.695
CHLOROBENZENE	$18,014 \times 10^{-6}$	16.342
Cd	3.8	3,447
Pb	54.8	49,713
Cr	.2	181
Ni	1.0	907
Hg	2.8	2,540
Sb	2.3	2,087

Table 10 pp 60

1000 kg/metric ton → 907.18 metric tonnes
907.18 kg/ton → 907.18 × 10³ kg
1000 tons

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

March 26, 1986

Chief, Permit Review and Technical
Support Branch
National Park Service - AIR
Post Office Box 25287
Denver, Colorado 80225

Dear Sir:

RE: PSD Application Potentially Affecting Class I Area
Lake County Waste to Energy Facility, PSD-FL-113

The Bureau of Air Quality Management is reviewing an application from NRG/Recovery Group for the Lake County, Florida, Waste to Energy Facility. Since the proposed facility is within 100 kilometers of the Chassahowitzka Class I area, please review the enclosed application and submit any comments or questions to Tom Rogers at the above address or at (904)488-1344.

Sincerely,

Patty Adams

Patty Adams
Bureau of Air Quality
Management

/pa