BLACK & VEATCH
CONSULTING ENGINEERS

TEL. (913) 967-2000
TELEX 42-6263

1500 MEADOW LAKE PARKWAY
MAILING ADDRESS: P.O. BOX NO. 8405
KANSAS CITY, MISSOURI 64114

Orlando Utilities Commission
Stanton Energy Center, Unit 1
Draft Conditions of Certification

B&V Project 8927
B&V File 8927.32.0203
February 12, 1982

Mr. H. S. Oven
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Dear Mr. Oven:

In accordance with our discussions on February 8, 1982, concerning the draft Conditions of Certification, enclosed are responses to four of the items on which we indicated that additional information would be provided. The four conditions addressed in the enclosure are as follows.

Item I.A.1.a	Sulfur dioxide emissions.
Item I.A.3.c	Coal and limestone handling facilities opacity limits.
Item I.A.4	Fly ash handling emission.
Item I.A.5	Coal, limestone, and fly ash handling systems opacity limits.

We would like to discuss the above items during our February 17, 1982 meeting. at 10[15]

Very truly yours,

BLACK & VEATCH

E. C. Windisch

SAA:cmm
Enclosure

cc: Mr. W. H. Herrington
Mr. L. E. Stone
Mr. H. C. Luff
Mr. B. E. Shoup
Mr. T. B. Tart, Esq.
Mr. K. van Assenderp, Esq.

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

CENTRAL AIR PERMITTING SECTION

ACTION NO

ACTION DUE DATE

TO: (NAME, OFFICE, LOCATION)				INITIAL	DATE
1. AMODIO	BOCK	FANCY	GEORGE		
2. HANKS	HERON	HOLLADAY	FANCY		
3. MITCHELL	BECKY	PALAGYI	POWELL		
4. ROGERS	SVEC	THOMAS			

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 & REPT / INITIAL & FORWARD / DISTRIBUTE / CONCURRENCE / FOR PROCESSING / INITIAL & RETURN

REMARKS:

Stanley Armbruster on SO_2

913 967 2166

Van [illegible]

967 7206

FROM: DATE PHONE

John Ketteringham

Burn PCB's (50-500 ppm)

in their boiler after

modifications. They

ref. EPA 450/2-80-063 [illegible]

40CFR 60.761

Clair F. 9/18

Don Swenson

913-967-7436

stack heights — 1/4 mile

Guideline for Evaluation of Visible Emissions

EPA340/1-75-007 4/75 ed.

ALAN W. FERGUSON

Black & Veatch CONSULTING ENGINEERS

1500 Meadow Lake Parkway, Kansas City, Mo. 64114, 913/967-2000

Clair Fancy

This is the

OUC-Stanton

Plant Info

promised on 2/8/82

8600(s)

1.2#/10^6 2hr ave

Buck Oven

CONDITION OF CERTIFICATION

I.A.1.a. SO_2 - 1.2 lb per million Btu heat input, maximum two hour average, 0.76 lb/MMBtu on a 30-day rolling average, 3,143.4 lb per hour.

B&V COMMENT

The original submittal of the Site Certification Application included an analysis of sulfur dioxide emissions and ground level concentrations based on the coal used as the design basis for the scrubber. The scrubber design coal is an unwashed Illinois Basin Coal. Designing the scrubber for this coal allows use of many other coals. The maximum sulfur dioxide production rate from the scrubber design coal would be 7.34 lb SO_2 per million Btu. Based on 90 per cent removal, an emission rate of .734 lb SO_2 per million Btu was used in the analysis of ground level concentrations. The original submittal did not include any credit for reduction in washing, should a washed coal be burned at the site.

In Amendment 4 to the Site Certification Application, a new coal was added for consideration of sulfur dioxide emissions. This coal was identified as an unwashed Illinois Basin Coal with a maximum sulfur dioxide production rate of 8.25 lb SO_2 per million Btu. This coal is in fact, however, a washed coal. If it had been an unwashed coal, the scrubber would not be capable of removing 90 per cent of the sulfur dioxide produced during maximum unit operation and worst case coal properties. Therefore, we request that this coal be withdrawn from further consideration.

However, we understand from our meeting that the DER will allow credit for sulfur dioxide removal resulting from coal washing. Attached is a tabulation of worst case (maximum sulfur content, minimum heating value) sulfur dioxide production rates for all 38 coals bid to OUC for the Stanton Energy Center Unit 1. As can be seen from the tabulation, thirty-three of the thirty-eight coals bid are washed coals. For a washed coal, the tabulation shows the sulfur dioxide production rates for both the raw coal and the washed coal. Also noted on the table is the scrubber design basis coal and two coals that cannot be adequately handled by the scrubber under conditions of maximum unit operation and worst case coal properties. The scrubber is designed to allow burning any of the remaining thirty-six coals with emissions

less than NSPS for SO_2. The tabulation shows that the worst case potential sulfur dioxide production would be 11.76 lbs SO_2 per million Btu. NSPS requires 90 per cent removal for this coal; therefore, the allowable NSPS emission would be 1.176 lbs SO_2 per million Btu. The total removal required would be 10.584 lbs SO_2 per million Btu. Coal washing has removed 4.42 lbs; therefore, at least 6.164 lbs would be removed in the scrubber.

Also attached for your review are the coal analyses of the first six coals listed in the tabulation and the coal analysis for the scrubber design coal. Analyses of the remaining coals are available for inspection if desired by the DER.

SULFUR DIOXIDE PRODUCTION FROM COALS BID ON OUC STANTON ENERGY CENTER UNIT 1

State County Supplier	Mine Name (Mine Type)	Type Of Coal	Worst Case SO_2 Production ($lb/10^6$ Btu) Raw Coal	 Washed Coal	Remarks
Illinois Washington Peabody Coal Company	Elkton Reserve (Underground)	Washed	11.76	7.34	
Illinois Sangamon Western Associated Coal Crop.	Chatham Mine (Underground)	Washed	11.75	7.76	
Illinois St. Clair & Washington Peabody Coal Company	Kaskaskia Reserve Area (Underground)	Washed	11.06	7.21	
Illinois Washington Freeman United Coal Mining Co.	Okawville 1 (Underground)	Washed	9.38	6.35	
Kentucky Union R. L. Burns Corporation	Pyro (Undergroynd)	Washed	9.2	5.04	
West Virginia Ohio The Valley Camp Coal Company	Valley Camp 3 (Underground)	Washed	9.18	5.65	
West Virginia Ohio The Valled Camp Coal Company	VC 1 (Underground)	Washed	8.71	5.50	
Illinois White Mapco Coals, Inc.	White County (Underground)	Washed	8.55	5.26	
Kentucky Webster The Pittsburg & Midway Coal Mining Company	Sebree Mine (Underground)	Washed	8.52	5.76	

State County Supplier	Mine Name (Mine Type)	Type Of Coal	Worst Case SO_2 Production ($lb/10^6$ Btu) Raw Coal	 Washed Coal	Remarks
Indiana Gibson Consolidated Coal Company	Francisco (Underground)	Washed	Not Available (8.47 Average)	Not Available (5.98 Average)	
Illinois Randolph Ziegler Coal Company	Mine No. 11 (Underground)	Washed	8.46	5.67	
Indiana Clay and Vigo Amax Coal Company	Chinook Mine (Surface)	Washed	Not Available	8.25	Exceeds scrubber capability at maximum unit capicity.
Kentucky Muhlenberg Island Creek Coal Sales Co.	Crescent Mine #9 (Underground)	Raw	8.2	Not Applicable	Exceeds scrubber capability at maximum unit capicity.
Illinois Edwards Arco Coal Company	Black Hawk Mine	Washed	8.03	5.64	
Illinois Saline Kerr-McGee Coal Company	Galatia Mine 56-1 (Underground) Herrion #5	Washed	Not Available (7.89 Average)	5.31	
Kentucky Webster Island Creek Coal Sales Co.	Providence No. 1 Mine (Underground)	Raw	7.34	Not Applicable	Scrubber design coal
Kentucky Webster (washed) Island Creek Coal Sales Co.	Providence No. 1 Mine (Underground)	Washed	7.34	5.08	
Illinois Williamson & Salina Amax Coal Company	Delta Mine (Surface)	Washed	Not Available	5.51	

State County Supplier	Mine Name (Mine Type)	Type Of Coal	Worst Case SO_2 Production ($lb/10^6$ Btu) Raw Coal	 Washed Coal	Remarks
Kentucky East Kentucky Randall Fuel Company, Inc.	Various (Surface and Underground)	Raw	5.36	Not Applicable	
Illinois Saline Kerr-McGee Coal Croporation	Galatia Mine 56-1 (Underground)	Washed	Not Available	5.31	
Indiana Knox Consolidation Coal Company	Oaktown (Underground)	Washed	Not Available	Not Available (5.20 Average)	
West Virginia Boone Armco Materials Resources	Big Mountain (Surface and Deep)	Washed	3.43	1.72	
Kentucky Bell A. T. Massey Coal Co., Inc.	Appollo (Surface)	Raw	3.4	Not Applicable	
Virginia Dickenson Rapoca Energy Company	Nora (Underground)	Washed	3.25	1.73	
Kentucky Letcher Blue Diamond Coal Company	Blue Diamond Mine (Underground)	Washed	3.00	1.29	
Virginia Wise General Coal Company	Transloader Complex (Surface and Deep)	Washed	2.86	1.73	
West Virginia Mingo Island Creek Coal Sales Co.	Mine 25 (Surface)	Washed	2.78	1.97	
West Virginia Logan & Mingo Island Creek Coal Sales Co.	Mine 22 (Surface and Deep)	Washed	2.78	1.97	

State County Supplier	Mine Name (Mine Type)	Type Of Coal	Worst Case SO_2 Production ($lb/10^6$ Btu) Raw Coal	 Washed Coal	Remarks
Illinois Saline Kerr-McGee Coal Corporation	Galatia Mine 56-1 (Underground) Harrisburg #5	Washed	Not Available	Not Available (2.2 Average)	
West Virginia Boone Ashland Coal, Inc.	H-21 (Surface and Deep)	Washed	2.00	1.87	
Indiana Gibson Mapco Coals, Inc.	Gibson County Property (Underground)	Raw	Not Available (1.95 Average)	Not Applicable	
Virginia Dickenson Pittston Coal Sales Corp.	McClure 1 (Underground)	Washed	Not Available	1.94	
West Virginia Logan Ashland Coal, Inc.	Hobet 7 (Surface)	Washed	1.82	1.83	
Kentucky Perry & Knott Diamond Shamrock Coal Sales	Perry County (Surface and Underground)	Washed	Not Available	1.74	
West Virginia Boone A. T. Massey Coal Co., Inc.	Laurel (Underground)	Washed	Not Available	1.67	
West Virginia Kanawha The Valley Camp Coal Company	Sanderson (Underground)	Washed	Not Available	Not Available (1.67 Average)	
West Virginia Logan Diamond Shamrock Coal Sales	Omar (Surface)	Washed	Not Available	Not Available (1.22 Average)	
West Virginia Mingo A. T. Massey Coal Co., Inc.	Marrowbone (Underground and Surface)	Washed	Not Available	1.21	

ELKTON MINE, Washed Coal

Producer--Peabody Coal Co.

As Received Coal Quality

	Typical	Range
Heating Value (Btu/lb)	10,750	10,350-11,000
Proximate Analysis (%)		
Moisture	15.08	13.0-17.0
Ash	8.70(8.1)*	8.0-12.5
Volatile	31.82	29.8-34.1
Fixed Carbon	44.40	42.4-46.7
Ultimate Analysis (%)		
Moisture	15.08	13.0-17.0
Carbon	59.88	57.8-61.8
Hydrogen	4.36	3.8-4.8
Nitrogen	1.15	1.0-1.5
Chlorine	0.10	0.05-0.2
Sulfur	3.27(3.0)	3.0-3.8
Ash	8.70	8.0-12.5
Oxygen	7.46	5.5-10.0
Sulfur Forms (%)		
Pyritic	0.88	0.07-1.1
Organic	2.32	2.0-2.6
Sulfate	0.07	0.0-0.15
Mineral Analysis of Ash (%)		
Phosphate Pentoxide (P_2O_5)	0.2	0.1-0.4
Silica (SiO_2)	47.1	42.0-52.0
Ferric Oxide (Fe_2O_3)	17.2	14.0-20.0
Alumina, (Al_2O_3)	19.5	16.8-22.8
Titania, (TiO_2)	1.0	0.5-1.5
Lime, (CaO)	6.5	4.3-9.2
Magnesia, (MgO)	0.8	0.5-1.4
Sulfur Trioxide, (SO_3)	4.7	3.2-7.2
Potassium Oxide, (K_2O)	1.8	1.3-2.5
Sodium Oxide, (Na_2O)	1.2	0.6-1.7
Undetermined	0.0	--

	Typical	Range
Fusion Temperature of Ash, F		
Viscosity T_{250}	2,395	2,340-2,475
Reducing Atmosphere		
Initial Deformation	1,995	1,900-2,100
Softening (H=W)	2,135	2,050-2,300
Hemispherical (H=W/2)	2,190	2,100-2,350
Fluid	2,285	2,200-2,410
Oxidizing Atmosphere		
Initial Deformation	2,300	2,150-2,450
Softening (H=W)	2,365	2,180-2,525
Hemispherical (H=W/2)	2,410	2,240-2,575
Fluid	2,560	2,325-2,690
Base/Acid Ratio	0.4	0.3-0.5
Moisture Potential	[54.3]**	[47-61]
Hardgrove Grindability Index	55	50-60
Size Consist (% by weight)		
Plus 2"	1.33	0.0-3.0
2" by 1"	17.22	15.0-20.0
1" by 1/2"	22.38	18.0-26.0
1/2" by 1/4"	21.41	18.0-25.0
1/4" by 10 Mesh	18.41	15.0-24.0
10 Mesh by 0	19.25	15.0-25.0
For Washed Coal		
Heating Value Raw (Btu/lb)	9,190	8,500-9,700
Sulfur Raw (%)	4.26(4.6)	3.8-5.0
Sulfur Reduction (%)	[34.4]	--

*Numbers in parenthesis represent lb/MBtu.

**Numbers in brackets calculated by Black & Veatch.

CHATHAM MINE, Washed Coal

Producer--Western Associated Coal Corp.

As Received Coal Quality

	Typical	Range
Heating Value (Btu/lb)	10,200	9,870-10,380
Proximate Analysis (%)		
Moisture	18.6	16.7-19.3
Ash	8.5(8.3)*	7.0-10.5
Volatile	32.0	30.5-33.5
Fixed Carbon	40.9	39.3-41.9
Ultimate Analysis (%)		
Moisture	18.6	16.7-19.3
Carbon	55.50	55.50-56.9
Hydrogen	4.04	4.04-4.23
Nitrogen	0.97	0.90-1.06
Chlorine	0.10	0.09-0.11
Sulfur	3.38(3.3)	3.01-3.83
Ash	8.5	6.84-7.81
Oxygen	8.91	8.47-9.44
Sulfur Forms (%)		
Pyritic	1.58	1.42-1.75
Organic	1.74	1.48-1.96
Sulfate	0.06	0.0-0.11
Mineral Analysis of Ash (%)		
Phosphate Pentoxide (P_2O_5)	0.12	0.10-0.20
Silica (SiO_2)	47.28	45.00-50.00
Ferric Oxide (Fe_2O_3)	20.90	17.80-23.40
Alumina, (Al_2O_3)	18.12	16.00-19.00
Titania, (TiO_2)	0.90	0.77-1.02
Lime, (CaO)	2.78	2.00-3.00
Magnesia, (MgO)	0.99	0.85-1.20
Sulfur Trioxide, (SO_3)	2.00	1.50-2.50
Potassium Oxide, (K_2O)	2.10	1.80-2.50
Sodium Oxide, (Na_2O)	1.41	1.20-1.70
Undetermined	3.40	--

	Typical	Range
Fusion Temperature of Ash, F		
Viscosity T_{250}	2,385	2,310-2,460
Reducing Atmosphere		
Initial Deformation	1,945	1,820-2,070
Softening (H=W)	2,005	1,890-2,090
Hemispherical (H=W/2)	2,040	1,930-2,150
Fluid	2,115	2,020-2,530
Oxidizing Atmosphere		
Initial Deformation	2,400	2,300-2,530
Softening (H=W)	2,450	2,320-2,580
Hemispherical (H=W/2)	2,480	2,346-2,610
Fluid	2,530	2,400-2,650
Base/Acid Ratio	0.4	0.3-0.6
Moisture Potential	[55.0]**	[53-58]
Hardgrove Grindability Index	50	48-55
Size Consist (% by weight)		
4" by 1/4"	55	35.0-65.0
1/4" by 28 Mesh	33	25.0-45.0
28 Mesh by 100 Mesh	6	5.0-10.0
100 Mesh by 0	6	5.0-10.0
For Washed Coal		
Heating Value Raw (Btu/lb)	9,075	8,780-9,235
Sulfur Raw (%)	4.56(5.0)	3.95-5.16
Sulfur Reduction (%)	[34.1]	--

*Numbers in parenthesis represent lb/MBtu.
**Numbers in brackets calculated by Black & Veatch.

KASKASKIA MINE, Washed Coal

Producer--Peabody Coal Co.

As Received Coal Quality

	Typical	Range
Heating Value (Btu/lb)	10,800	10,400-11,000
Proximate Analysis (%)		
Moisture	14.00	12.0-16.0
Ash	10.50(9.7)*	9.0-11.5
Volatile	31.70	29.8-34.1
Fixed Carbon	43.80	42.4-46.7
Ultimate Analysis (%)		
Moisture	14.00	12.0-16.0
Carbon	59.57	57.8-61.8
Hydrogen	4.31	3.8-4.8
Nitrogen	1.14	1.0-1.5
Chlorine	0.14	0.08-0.23
Sulfur	3.20(3.0)	2.75-3.75
Ash	10.50	9.0-11.5
Oxygen	7.14	5.5-10.0
Sulfur Forms (%)		
Pyritic	0.90	0.70-1.1
Organic	2.24	2.0-2.6
Sulfate	0.06	0.0-0.15
Mineral Analysis of Ash (%)		
Phosphate Pentoxide (P_2O_5)	0.2	0.1-0.4
Silica (SiO_2)	49.3	44.0-54.0
Ferric Oxide (Fe_2O_3)	16.2	13.0-19.0
Alumina, (Al_2O_3)	20.8	18.0-24.0
Titania, (TiO_2)	1.0	0.5-1.5
Lime, (CaO)	5.3	3.0-8.0
Magnesia, (MgO)	0.9	0.5-1.4
Sulfur Trioxide, (SO_3)	3.3	2.0-5.8
Potassium Oxide, (K_2O)	1.9	1.3-2.5
Sodium Oxide, (Na_2O)	1.1	0.6-1.6
Undetermined	0.0	--

	Typical	Range
Fusion Temperature of Ash, F		
Viscosity T_{250}	2,465	2,395-2,545
Reducing Atmosphere		
Initial Deformation	1,995	1,900-2,100
Softening (H=W)	2,145	2,050-2,300
Hemispherical (H=W/2)	2,195	2,100-2,350
Fluid	2,325	2,250-2,450
Oxidizing Atmosphere		
Initial Deformation	2,305	2,105-2,450
Softening (H=W)	2,385	2,200-2,525
Hemispherical (H=W/2)	2,425	2,250-2,575
Fluid	2,530	2,300-2,680
Base/Acid Ratio	0.4	0.3-0.5
Moisture Potential	[52.8]**	[46-60]
Hardgrove Grindability Index	55	50-60
Size Consist (% by weight)		
Plus 2"	1.33	0.0-3.0
2" by 1"	17.22	15.0-20.0
1" by 1/2"	22.38	18.0-26.0
1/2" by 1/4"	21.41	18.0-25.0
1/4" by 10 Mesh	18.41	15.0-24.0
10 Mesh by 0	19.25	15.0-25.0
For Washed Coal		
Heating Value Raw (Btu/lb)	9,170	8,500-9,600
Sulfur Raw (%)	3.96(4.3)	3.5-4.7
Sulfur Reduction (%)	[31.4]	--

*Numbers in parenthesis represent lb/MBtu.
**Numbers in brackets calculated by Black & Veatch.

OKAWVILLE 1 MINE, Washed Coal

Producer--Freeman United Coal Mining Co.

As Received Coal Quality

	Typical	Range
Heating Value (Btu/lb)	10,940	10,770-11,195
Proximate Analysis (%)		
Moisture	13.30	11.30-14.60
Ash	8.80(8.0)*	7.20-10.60
Volatile	36.10	34.85-37.65
Fixed Carbon	41.80	40.35-43.60
Ultimate Analysis (%)		
Moisture	13.30	11.30-14.60
Carbon	60.95	60.50-62.05
Hydrogen	4.33	4.29-4.56
Nitrogen	0.95	0.70-1.14
Chlorine	0.15	0.10-0.21
Sulfur	3.16(2.9)	2.84-3.42
Ash	8.80	7.20-10.60
Oxygen	8.36	8.05-9.14
Sulfur Forms (%)		
Pyritic	0.90	0.70-1.40
Organic	2.23	1.98-2.78
Sulfate	0.03	0.02-0.04
Mineral Analysis of Ash (%)		
Phosphate Pentoxide (P_2O_5)	0.09	0.06-0.18
Silica (SiO_2)	48.25	41.50-52.53
Ferric Oxide (Fe_2O_3)	16.84	13.17-26.03
Alumina, (Al_2O_3)	20.69	17.76-23.35
Titania, (TiO_2)	0.94	0.81-1.01
Lime, (CaO)	4.03	2.46-5.76
Magnesia, (MgO)	1.35	0.88-2.95
Sulfur Trioxide, (SO_3)	3.34	1.62-5.94
Potassium Oxide, (K_2O)	2.16	1.89-2.39
Sodium Oxide, (Na_2O)	1.72	1.40-2.11
Undetermined	0.59	0.10-1.11

	Typical	Range
Fusion Temperature of Ash, F		
Viscosity T_{250}	2,445	2,250-2,575
Reducing Atmosphere		
Initial Deformation	2,031	1,960-2,085
Softening (H=W)	2,169	2,095-2,250
Hemispherical (H=W/2)	2,249	2,160-2,300
Fluid	2,405	2,235-2,580
Oxidizing Atmosphere		
Initial Deformation	2,299	2,170-2,410
Softening (H=W)	2,434	2,385-2,540
Hemispherical (H=W/2)	2,499	2,430-2,580
Fluid	2,589	2,510-2,660
Base/Acid Ratio	0.4	0.2-0.6
Moisture Potential	[52.3]**	[49-56]
Hardgrove Grindability Index	52	49-54
Size Consist (% by weight)		
1-1/2"	3.9	0.0-9.6
1-1/2" by 1"	5.6	2.6-7.2
1" by 1/2"	19.0	18.7-19.7
1/2" by 1/4"	17.5	17.2-18.2
1/4" by 28 Mesh	44.2	43.6-46.3
28 Mesh by 0	9.8	6.3-15.8
For Washed Coal		
Heating Value Raw (Btu/lb)	10,600	10,45[illegible]0,750
Sulfur Raw (%)	4.13(3.9)	3.6[illegible]4.90
Sulfur Reduction (%)	[25.9]	--

*Numbers in parenthesis represent lb/MBtu.
**Numbers in brackets calculated by Black & Veatch.

PYRO MINE, Washed Coal

Producer--R. L. Burns Corp.

As Received Coal Quality

	Typical	Range*
Heating Value (Btu/lb)	12,489	12,300-12,900
Proximate Analysis (%)		
Moisture	7.01	5.6-7.6
Ash	9.09(7.3)**	7.0-10.0
Volatile	37.66	35.68-38.5
Fixed Carbon	46.24	45.00-48.95
Ultimate Analysis (%)		
Moisture	7.01	5.6-7.6
Carbon	68.91	45.0-72.0
Hydrogen	4.82	4.0-5.5
Nitrogen	0.92	0.90-1.8
Chlorine	0.25	0.23-0.30
Sulfur	2.87(2.3)	2.40-3.1
Ash	9.09	7.0-10.0
Oxygen	6.13	5.5-7.1
Sulfur Forms (%)		
Pyritic	1.24	1.0-1.8
Organic	1.63	1.14-1.73
Sulfate	0.00	0.00-0.01
Mineral Analysis of Ash (%)		
Phosphate Pentoxide (P_2O_5)	0.26	0.01-0.26
Silica (SiO_2)	48.70	44.93-50.33
Ferric Oxide (Fe_2O_3)	22.11	20.27-23.25
Alumina, (Al_2O_3)	21.66	19.87-21.81
Titania, (TiO_2)	1.10	0.94-1.11
Lime, (CaO)	1.50	1.50-4.08
Magnesia, (MgO)	0.59	0.59-0.90
Sulfur Trioxide, (SO_3)	1.24	0.88-3.36
Potassium Oxide, (K_2O)	2.40	1.75-2.48
Sodium Oxide, (Na_2O)	0.37	0.30-0.67
Undetermined	0.07	0.07-2.28

	Typical	Range
Fusion Temperature of Ash, F		
Viscosity T_{250}	2,439	2,358-2,550
Reducing Atmosphere		
Initial Deformation	2,100	2,000-2,150
Softening (H=W)	2,300	2,130-2,350
Hemispherical (H=W/2)	2,360	2,170-2,400
Fluid	2,470	2,290-2,520
Oxidizing Atmosphere		
Initial Deformation	2,450	2,340-2,500
Softening (H=W)	2,550	2,440-2,600
Hemispherical (H=W/2)	2,590	2,480-2,640
Fluid	2,660	2,550-2,710
Base/Acid Ratio	0.4	0.3-0.5
Moisture Potential	[50.4]***	[41-58]
Hardgrove Grindability Index	56	54.7-57
Size Consist (% by weight)		
3" by 2"	3.5	--
2" by 1-1/2"	6.5	--
1-1/2" by 1"	10.6	--
1" by 1/2"	18.6	--
1/2" by 1/4"	24.8	--
1/4" by 0	36.0	--
For Washed Coal		
Heating Value Raw (Btu/lb)	10,500	10,000-11,000
Sulfur Raw (%)	4.4(4.2)	3.8-4.6
Sulfur Reduction (%)	[45.2]	--

*Range of all mines.
**Numbers in parenthesis represent lb/MBtu.
***Numbers in brackets calculated by Black & Veatch.

NO. 3 MINE, Washed Coal

Producer--The Valley Camp Coal Co.

As Received Coal Quality

	Typical	Range
Heating Value (Btu/lb)	12,700	12,400-12,900
Proximate Analysis (%)		
Moisture	6.00	4.0-9.0
Ash	9.0(7.1)*	6.4-10.0
Volatile	36.0	34.0-38.0
Fixed Carbon	49.0	47.0-51.0
Ultimate Analysis (%)		
Moisture	6.00	4.0-9.0
Carbon	69.52	66.4-73.07
Hydrogen	4.95	3.6-4.95
Nitrogen	1.34	0.9-1.9
Chlorine	0.12	0.0-0.5
Sulfur	3.00(2.4)	2.7-3.5
Ash	9.00	6.4-10.0
Oxygen	6.07	4.6-7.7
Sulfur Forms (%)		
Pyritic	1.3	1.0-1.6
Organic	1.7	1.4-2.0
Sulfate	0.0	
Mineral Analysis of Ash (%)		
Phosphate Pentoxide (P_2O_5)	0.00	--
Silica (SiO_2)	42.65	40.0-45.0
Ferric Oxide (Fe_2O_3)	27.94	26.0-30.0
Alumina, (Al_2O_3)	20.20	18.0-22.0
Titania, (TiO_2)	0.91	0.5-1.5
Lime, (CaO)	2.62	2.0-3.0
Magnesia, (MgO)	0.81	0.5-1.5
Sulfur Trioxide, (SO_3)	2.35	2.0-3.0
Potassium Oxide, (K_2O)	2.21	2.0-3.0
Sodium Oxide, (Na_2O)	0.31	0.0-0.5
Undetermined	0.00	--

	Typical	Range
Fusion Temperature of Ash, F		
Viscosity T_{250}	--	--
Reducing Atmosphere		
Initial Deformation	2,000	1,975-2,025
Softening (H=W)	2,050	2,025-2,075
Hemispherical (H=W/2)	2,100	2,075-2,100
Fluid	2,400	2,350-2,400
Oxidizing Atmosphere		
Initial Deformation	2,435	2,400-2,450
Softening (H=W)	2,475	2,450-2,500
Hemispherical (H=W/2)	2,505	2,475-2,525
Fluid	2,500	2,500-2,550
Base/Acid Ratio	0.5	0.0-1.0
Moisture Potential	[50.6]**	[36-54]
Hardgrove Grindability Index	57	54-62
Size Consist (% by weight)		
1-1/2" by 3/4"	11	8-14
3/4" by 1/2"	13	10-16
1/2" by 1/4"	24	20-28
1/4" by 28 Mesh	40	35-45
28 Mesh by 0	12	9-15
For Washed Coal		
Heating Value Raw (Btu/lb)	8,800	8,500-9,10
Sulfur Raw (%)	3.6(4.1)	3.3-3.9
Sulfur Reduction (%)	[42.3]	--

*Numbers in parenthesis represent lb/MBtu.
**Numbers in brackets calculated by Black & Veatch.

PROVIDENCE 1 MINE, Raw Coal

Producer--Island Creek Coal Sales Co.

As Received Coal Quality

	Typical	Range
Heating Value (Btu/lb)	11,000	10,900-11,300
Proximate Analysis (%)		
Moisture	7.50	6.5-8.5
Ash	16.5(15.0)*	15.5-18.5
Volatile	35.40	33.5-37.0
Fixed Carbon	40.60	39.0-42.0
Ultimate Analysis (%)		
Moisture	7.50	6.5-8.5
Carbon	60.15	58.0-62.0
Hydrogen	4.20	4.0-4.4
Nitrogen	1.14	1.0-1.3
Chlorine	0.12	0.08-0.16
Sulfur	3.85(3.5)	3.5-4.0
Ash	16.50	15.5-18.5
Oxygen	6.54	5.5-7.0
Sulfur Forms (%)		
Pyritic	2.08	1.85-2.31
Organic	1.69	1.57-1.80
Sulfate	0.08	0.06-0.09
Mineral Analysis of Ash (%)		
Phosphate Pentoxide (P_2O_5)	0.18	0.15-0.20
Silica (SiO_2)	43.66	42.0-45.0
Ferric Oxide (Fe_2O_3)	21.21	20.0-22.4
Alumina, (Al_2O_3)	16.17	15.5-17.0
Titania, (TiO_2)	0.81	0.65-0.95
Lime, (CaO)	6.70	6.0-7.5
Magnesia, (MgO)	0.90	0.8-1.0
Sulfur Trioxide, (SO_3)	7.20	6.5-8.0
Potassium Oxide, (K_2O)	2.19	2.0-2.4
Sodium Oxide, (Na_2O)	0.58	0.5-0.7
Undetermined	0.40	--

	Typical	Range
Fusion Temperature of Ash, F		
Viscosity T_{250}	2,290	2,270-2,310
Reducing Atmosphere		
Initial Deformation	2,020	1,950-2,050
Softening (H=W)	2,130	2,050-2,200
Hemispherical (H=W/2)	2,160	2,100-2,200
Fluid	2,300	2,250-2,350
Oxidizing Atmosphere		
Initial Deformation	2,150	2,100-2,200
Softening (H=W)	2,320	2,280-2,360
Hemispherical (H=W/2)	2,350	2,300-2,400
Fluid	2,480	2,430-2,520
Base/Acid Ratio	0.5	0.4-0.6
Moisture Potential	[45.3]**	[42-49]
Hardgrove Grindability Index	55	53-58
Size Consist (% by weight)		
Plus 2"	2.0	1.0-3.0
2" by 1-1/4"	13.22	12.0-14.0
1-1/4" by 3/4"	17.39	16.0-18.0
3/4" by 1/4"	30.98	28.5-31.5
1/4" by 28 Mesh	27.91	25.0-29.0
28 Mesh by 0	8.50	7.0-10.0
For Washed Coal		
Heating Value Raw (Btu/lb)	--	--
Sulfur Raw (%)	--	--
Sulfur Reduction (%)	--	--

*Numbers in parenthesis represent lb/MBtu.
**Numbers in brackets calculated by Black & Veatch.

CONDITION OF CERTIFICATION

I.A.3.c. Water sprays or chemical wetting agents and stabilizers will be applied to storage piles, handling equipment, etc., during dry periods and as necessary to all facilities to maintain an opacity of less than or equal to 5 per cent.

B&V COMMENT

Water sprays, chemical sprays, compaction and telescopic chutes will be used to control emissions from the coal piles and coal moving operations in the unenclosed coal storage area. An opacity of 5 per cent as proposed equates to no visible plume during these coal moving operations. It is expected that a visible plume will be created during coal moving operations even with the use of the above dust suppression techniques. OUC will make every reasonable attempt to minimize generation of emissions and visible plumes; however, it is not expected that 5 per cent opacity can be achieved. Therefore, an opacity consistent with NSPS, 20 per cent, is requested.

021282

CONDITION OF CERTIFICATION

I.A.4. Particulate emissions from fly ash handling shall not exceed 0.2 lb/hr.

B&V COMMENT

The fly ash handling system is presently being bid. The system is designed to convey 70 tons per hour of fly ash. Information from the bidders can be summarized as follows.

- The vacuum fly ash system will have three sets of filtration equipment; primary separators, secondary separators, and bag filters.
- Primary separators are 80 per cent efficient. Secondary separators are 85 per cent efficient. Bag filters are a maximum of 99.9 per cent efficient.
- Overall removal efficiency would be 99.997 per cent.
- Two vacuum pumps would operate, each discharging 1,325 scfm through a 10 inch diameter pipe.

Based on a 99.997 per cent removal, emissions at maximum unit operation (140,000 lb/hr ash handling) would be 4.2 lb/hr. The resulting opacity at the pipe discharge is estimated from these emissions to be 11 per cent. During normal operation on the design coal (same coal as scrubber design coal), fly ash production would be 49,632 lb/hr (based on an average ash content and heating valuve). Using the 99.997 per cent removal, 1.49 lb/hr would be emitted. Opacity at the 1.49 lb/hr condition is 4 per cent for two pump operation and 8 per cent for one pump operation.

Meth 9 — how far for opacity

021282

CONDITION OF CERTIFICATION

I.A.5 Visible emissions from the following facilities shall be limited to 5 per cent opacity: coal, limestone, and fly ash handling systems.

B&V COMMENT

A visible emission of 5 per cent opacity from the coal and limestone handling bag filters and baghouses is probably acheivable. However, emissions from the fly ash handling system may exceed 5 per cent at times. Please refer to comments on Condition of Certification I.A.4.

They want ??
10% flyash
5% coal & limestone handling
20% @ dry points

021282

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee		
To: Bill Thomas	Loctn.:	
To:	Loctn.:	
To:	Loctn.:	
From:	Date:	
Reply Optional [ ]	Reply Required [ ]	Info. Only [ ]
Date Due:	Date Due:	

TO: Power Plant Siting Review Committee

FROM: Hamilton S. Oven, Jr. HSO

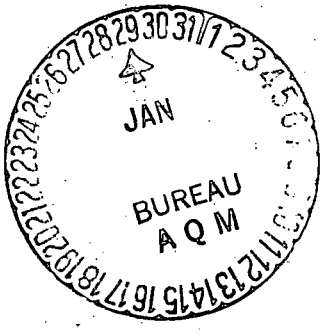
DATE: January 28, 1982

SUBJECT: Orlando Utilities Commission
Stanton Power Plant

There will be a meeting on February 8, 1982 in conference Room C to discuss unresolved issues with OUC and their technical consultants. From 9:00 a.m. to 10:30 a.m. groundwater and solid waste issues will be discussed. At 10:30 a.m. discussion of the BACT determination will commence.

HSOjr:my

cc: Terry Cole



AGENDA

FLORIDA DER/OUC/B&V

FEBRUARY 8, 1982

TALLAHASSEE, FLORIDA

I. INTRODUCTIONS AND ORGANIZATION OF MEETING

II. AIR ISSUES
   a. CO
   b. SO_2
   c. Conditions of Certification

III. GEOLOGY AND GROUNDWATER
   a. Jammal Report
   b. Phase II Data
   c. Solid Waste Disposal
   d. Coal Pile
   e. Zone of Discharge
   f. Variance or Exemption
   g. Conditions of Certification

IV. OTHER CONDITIONS OF CERTIFICATION

V. DRAFT DER REPORT

VI. OTHER MATTERS

020682

Babcock & Wilcox

a McDermott company

Fossil Power Generation Division

20 S. Van Buren Ave.
Barberton, OH 44203
(216) 753-4511

October 7, 1981

Black & Veatch
Consulting Engineers
P.O. Box 8405
Kansas City, MO 64114

Attn: Mr. D.D. Schultz

Re: Orlando Utilities Commission
Stanton Energy Center, Unit 1
B&V Project 8927.62.3401.02
B&W Ref: RB-611, 334-0611
Subject: CO Emissions

Dear Mr. Schultz:

In response to your letter of September 21, 1981, on the above referenced subject, we offer the following responses:

1. If the steam generator is operated in accordance with our Operating Instructions, such that the firing pattern is reasonable balanced and excess air is maintained in the normal range of 20% to 30%, we would expect that CO emissions would be in the range of 0.1 to 0.2 lbs/MBtu.

2. The best method for controlling CO emissions is by maintaining a reasonably balanced firing pattern and proper excess air levels, so that proper mixing between the fuel and combustion air is realized.

3. B&W has not offered guarantees on CO emissions in the past.

We understand that the State of Florida has questioned CO emissions on this unit during some of the permit and licensing hearings, and we feel that their questions are basically generated based on experience with predominately oil fired steam generating units. It is common on oil fired units to operate in a lower excess air mode, with excess air levels in the 3% to 5% range, in order to minimize NO_x emissions. When operating in this manner, CO emissions can become a much more significant item than they would be with the much higher excess air levels required for pulverized coal combustion.

We trust that the above information adequately answers your questions, however, should you desire further clarification, please do not hesitate to contact us.

Very truly yours,

I.S. DeRonde, Project Manager
FPGD-Project Management

ISD/ram
cc. W.H. Herrington
G.M. Makely, Atlanta
M.D. McCoy, Kansas City Sales

Babcock & Wilcox

a McDermott company

Fossil Power Generation Division

20 S. Van Buren Avenue
Barberton, OH 44203
(216) 753-4511

December 16, 1981

ORLANDO UTILITIES COMMISSION
STANTON ENERGY CENTER - PROJECT 8927

S.A. Armbruster	R.A. Pretz
W.C. Buckheit	D.D. Schultz
F.P. Chael	R.I. Unruh
W.F. Danner	K.R. Weiss
S.M. Day	E.C. Windisch
C.M. Graham	P.H. Woodard
G.J. Moore	

Received 12-21-81 File 62.3401.0

Black & Veatch
Consulting Engineers
P.O. Box 8405
Kansas City, MO 64114

Attn: Mr. D.D. Schultz

Re: Orlando Utilities Commission
Stanton Energy Center, Unit 1
Steam Generator
B&W Order RB-611, 334-0611
B&V Project 8927, File 62.3401.02
Subject: Data on CO Emissions

Gentlemen:

Please find attached with this letter various data that we have collected on CO emissions on a number of different units. We have limited our selection of data to recent units using dual register burners similar to those that will be installed on RB-611. It should be noted that the CO data in all cases was collected for informational purposes and was not the primary reason for the testing.

The enclosed data is from the following units:

B&W CONTRACT	B&W CUSTOMER
UP-121	Buckeye Power
RB-544	Public Service of New Mexico
RB-495	East Kentucky Rural Electric
RB-568	Big Rivers Electric
RB-499	City of Freemount
RB-558	Missouri Basin
RB-543	Colorado UTE Electric
RB-515	Cincinnati Gas & Electric

What is NOx during these tests.

Since thereare several sets of data for each unit, you can assume that the highest steam flow rating as shown represents essentially full load on the boiler. As indicated, the CO readings range from 0.012 up to .291 with the majority of readings falling in our .01 to 0.2 lbs/MKB as previously noted. There is one reading of 0.673 lbs/MKB which can be explained by the low excess air that was run during that test.

Also, attached for your information is a typical fuel analysis for each of the units referenced.

All CO emissions were monitored on a Beckman non-dispersive infrared CO monitor.

This information is meant to supplement previous letters written to you on this subject.

Very truly yours,

D.A. Sampson, Contract Manager
FPGD-Project Management

DAS/ram

cc. W.H. Herrington w/attachment
M.D. McCoy, Kansas City Sales w/attachment
G.M. Makely, Atlanta w/attachment

BDS 3.20-2

BABCOCK & WILCOX

	UNITS						
CUSTOMER		BUCKEYE POWER, CARDINAL					
TEST NUMBER		1	2	2A	3	4	5
TEST DATE		10-16-79	10-18-79	10-18-79	10-16-79	10-17-79	10-17-79
TIME		1645	1350	1630	2020	1845	2300
LOAD	MW	650	650	650	650	530	530
F.W. FLOW	MLBS/HR	4380	4260	4260	4380	3300	3360
PULVERIZER OUT OF SERVICE		NONE	NONE	NONE	# 6	NONE	# 1 & 6
O_2	%	3.74	3.84	3.82	4.31	4.16	4.86
CO_2	%	15.17	15.17	15.12	14.71	15.0	14.25
EXCESS AIR	%	22.0	22.5	22.5	25.5	24.0	30.0
CO (FROM MONITOR)	ppm	85	28	145	74	105	28
CO, CORRECTED TO 3% O_2	ppm	89	29	152	80	112	31
CO	LBS/MKB	0.074	0.024	0.127	0.067	0.094	0.026
CUSTOMER		BUCKEYE	POWER				
TEST NUMBER		6	7				
TEST DATE		10-18-79	10-18-79				
TIME		0100	0345				
LOAD	MW	440	440				
F.W. FLOW	MLBS/HR	2760	2700				
PULVERIZER OUT OF SERVICE		#1	# 1 & 4				
O_2	%	4.64	5.57				
CO_2	%	14.51	13.6				
EXCESS AIR	%	28	35.5				
CO (FROM MONITOR)	ppm	28	36				
CO, CORRECTED TO 3% O_2	ppm	31	42				
CO	LBS/MKB	0.026	0.035				

CUSTOMER BUCKEYE POWER, CARDINAL

SUBJECT CO LEVELS

DUAL REGISTER BURNERS

JOB NO. UP-121

BY GBB

DATE 12-9-81

BDS. 120-1

BABCOCK & WILCOX

	UNITS						
CUSTOMER		PUBLIC SERVICE OF NEW MEXICO →					
TEST NUMBER		I-2	I-3	III-1	I-7	I-8	I-14
TEST DATE		9-26-80	9-26-80	9-26-80	9-19-80	9-19-80	9-22-80
TIME		1630	1910	2230	1545	1800	2030
LOAD	MW	495	491	511	505	504	467
STEAM FLOW	MLBS/HR	3765	3755	3950	3800	3755	3516
PULVERIZER OUT OF SERVICE		NONE	NONE	NONE	B	B	B
TYPE OF FIRING		CONVENTIONAL	TWO-STAGE	TWO-STAGE	CONVENTIONAL	TWO-STAGE	TWO-STAGE
O_2	%	4.2	3.3	3.3	4.5	4.2	4.1
CO_2	%	14.9	15.6	15.6	14.4	14.8	14.9
EXCESS AIR	%	25	19	13.5	27	25	23.5
CO (FROM MONITOR)	ppm						
CO, CORRECTED TO 3% O_2	ppm	77.7	42.8	150.4	39.9	34.7	82.2
CO	LBS/MKB	0.066	0.036	0.127	0.034	0.029	0.069
CUSTOMER		PUBLIC SERVICE OF NEW MEXICO →					
TEST NUMBER		I-15	I-18A	I-18	I-20	I-21	III-4
TEST DATE		9-22-80	9-25-80	9-25-80	9-26-80	9-26-80	9-26-80
TIME		1715	1505	1715	0055	0240	0340
LOAD	MW	449	435	436	387	377	380
STEAM FLOW	MLBS/HR	3300	3050	3112	2775	2750	2675
PULVERIZER OUT OF SERVICE		B	B, E	B, E	NONE	NONE	NONE
TYPE OF FIRING		CONVENTIONAL	CONVENTIONAL	TWO-STAGE	CONVENTIONAL	TWO-STAGE	TWO-STAGE
O_2	%	4.4	4.7	4.9	4.7	4.7	4.3
CO_2	%	14.7	14.4	14.3	14.4	14.4	14.8
EXCESS AIR	%	25.5	28	29.5	28.5	28	25
CO (FROM MONITOR)	ppm	—	—	—	—	—	—
CO, CORRECTED TO 3% O_2	ppm	44.4	58.3	48.5	80.3	30.3	39.3
CO	LBS/MKB	0.038	0.049	0.041	0.068	0.026	0.033

CUSTOMER PUBLIC SERVICE OF NEW MEXICO	JOB NO. RB-544
SUBJECT CO LEVELS	
DUAL REGISTER BURNERS	BY GBB
	DATE 12-9-81

BDS 120-1

BABCOCK & WILCOX

	UNITS						
CUSTOMER		EAST KENTUCKY RURAL ELECTRIC →					
TEST NUMBER		1	1A	2	3	4	5
TEST DATE		3-21-79	3-21-79	3-20-79	3-22-79	3-22-79	3-21-79
TIME		0900	1235	1730	1350	1545	1600
LOAD	MW	300	300	260	216	218	165
F.W. FLOW	MLBS/HR	2175	2185	1826	1540	1532	1194
PULVERIZERS OUT OF SERVICE		NONE	NONE	NONE	A, F	A, F	A, F, H
O_2	%	3.2	3.0	4.9	5.6	6.2	5.9
CO_2	%	15.9	16.1	14.2	13.9	13.2	13.7
EXCESS AIR	%	17	16	30	37	42	39
CO (FROM MONITOR)	ppm	—	—	—	—	—	—
CO, CORRECTED TO 3% O_2	ppm	163	118	170	—	—	50
CO	LBS/MKB	0.138	0.099	0.143	—	—	0.042
CUSTOMER							
TEST NUMBER							
TEST DATE							
TIME							
LOAD	MW						
STEAM FLOW	MLBS/HR						
BURNERS OUT OF SERVICE							
O_2	%						
CO_2	%						
EXCESS AIR	%						
CO (FROM MONITOR)	ppm						
CO, CORRECTED TO 3% O_2	ppm						
CO	LBS/MKB						

CUSTOMER EAST KENTUCKY RURAL ELECTRIC	JOB NO. RB-495
SUBJECT CO LEVELS	
DUAL REGISTER BURNERS	BY GBB
	DATE 12-9-81

BDS 120.-1

BABCOCK & WILCOX

	UNITS						
CUSTOMER		BIG RIVERS					
TEST NUMBER		1	2	3	4	5	
TEST DATE		5-6-80	5-8-80	5-8-80	5-8-80	5-8-80	
TIME		1400	1000	1300	1730	1945	
LOAD	MW	242	240	241	213	181	
STEAM FLOW	MLBS/HR	1775	1775	1775	1560	1350	
PULVERIZER OUT OF SERVICE		NONE	D	D	D	D	
O_2	%	4.66	3.74	4.67	—	—	
CO_2	%	13.92	14.68	13.97	—	—	
EXCESS AIR	%	29	21	28.5	—	—	
CO (FROM MONITOR)	ppm	13.32	103	123	—	—	
CO, CORRECTED TO 3% O_2	ppm	14.67	107.4	135.5	—	—	
CO	LBS/MKB	0.012	0.091	0.115	—	—	
CUSTOMER							
TEST NUMBER							
TEST DATE							
TIME							
LOAD	MW						
STEAM FLOW	MLBS/HR						
BURNERS OUT OF SERVICE							
O_2	%						
CO_2	%						
EXCESS AIR	%						
CO (FROM MONITOR)	ppm						
CO, CORRECTED TO 3% O_2	ppm						
CO	LBS/MKB						

CUSTOMER BIG RIVERS	JOB NO. RB-569
SUBJECT CO LEVELS	
DUAL REGISTER BURNERS	BY GBB
	DATE 12-9-81

BDS 128-1

BABCOCK & WILCOX

	UNITS						
CUSTOMER		CITY OF	FREMONT	→			
TEST NUMBER		1	2	20			
TEST DATE		4-15-80	4-15-80	4-14-80			
TIME		1145	1700	1800			
LOAD	MW	90	72	87			
STEAM FLOW	MLBS/HR	630	480	595			
BURNERS OUT OF SERVICE							
O_2	%	4.7	4.9	5.2			
CO_2	%	—	—	—			
EXCESS AIR	%	29	31	34			
CO (FROM MONITOR)	ppm	38	312	140			
CO, CORRECTED TO 3% O_2	ppm	42	349	159			
CO	LBS/MKB	0.035	0.291	0.133			
CUSTOMER							
TEST NUMBER							
TEST DATE							
TIME							
LOAD	MW						
STEAM FLOW	MLBS/HR						
BURNERS OUT OF SERVICE							
O_2	%						
CO_2	%						
EXCESS AIR	%						
CO (FROM MONITOR)	ppm						
CO, CORRECTED TO 3% O_2	ppm						
CO	LBS/MKB						

CUSTOMER CITY OF FREEMONT	JOB NO. RB-499
SUBJECT CO LEVELS	
DUAL REGISTER BURNERS	BY GBB
	DATE 12-9-81

BDS 220-1

BABCOCK & WILCOX

	UNITS						
STOMER		MISSOURI	BASIN →				
TEST NUMBER		1	3A	5	5A	7	8
TEST DATE		4-3-81	4-4-81	4-2-81	4-2-81	4-5-81	4-5-81
TIME		1545	0845	0900	0400	1945	0910
LOAD	MW	596	594	599	525	468	479
STEAM FLOW	MLBS/HR	3565	3552	3541	3060	2648	2642
BURNERS OUT OF SERVICE		E	NONE	E	E	A	B+C
O_2	%	4.0	3.8	4.4	3.9	4.8	5.2
CO_2	%	15.1	15.5	14.9	15.3	14.7	14.7
EXCESS AIR	%	24	22	27	23	29	33
CO (FROM MONITOR)	ppm	13	33	19	15	19	30
CO, CORRECTED TO 3% O_2	ppm	14	36	21	16	21	34
CO	LBS/MKB	0.012	0.030	0.018	0.014	0.018	0.029
CUSTOMER		MISSOURI BASIN					
TEST NUMBER		9					
TEST DATE		4-5-81					
TIME		1540					
LOAD	MW	464					
STEAM FLOW	MLBS/HR	2596					
BURNERS OUT OF SERVICE		A+G					
O_2	%	5.4					
CO_2	%	13.4					
EXCESS AIR	%	35					
CO (FROM MONITOR)	ppm	15					
CO, CORRECTED TO 3% O_2	ppm	17					
CO	LBS/MKB	0.014					

CUSTOMER MISSOURI BASIN

SUBJECT CO LEVELS

DUAL REGISTER BURNERS

JOB NO. RB-558

BY GBB

DATE 12-9-81

BDS 120-1

BABCOCK & WILCOX

	UNITS						
CUSTOMER		COLORADO UTE ELECTRIC →					
TEST NUMBER		1	3	4	5	7	8
TEST DATE		7-10-80	7-10-80	7-11-80	7-12-80	7-12-80	7-12-80
TIME		1400	1600	1115	0845	0545	0345
LOAD	MW	456	456	449	360	278	276
STEAM FLOW	MLBS/HR	3230	3230	3180	2533	1863	1866
PULVERIZER OUT OF SERVICE		NONE	NONE	B	NONE	NONE	B
O_2	%	3.5	2.7	4.0	4.3	6.0	5.7
CO_2	%	15.5	16.3	15.1	14.7	13.3	14.2
EXCESS AIR	%	20	14	23	25	39	31
CO (FROM MONITOR)	ppm	164	808	205	155	135	132
CO, CORRECTED TO 3% O_2	ppm	169	795	217	167	162	155
CO	LBS/MKB	0.143	0.673	0.183	0.141	0.137	0.131
CUSTOMER		COLORADO UTE ELECTRIC					
TEST NUMBER		6	10				
TEST DATE		7-12-80	7-14-80				
TIME		0130	0410				
LOAD	MW	276	137				
STEAM FLOW	MLBS/HR	1880	982				
PULVERIZER OUT OF SERVICE		B	B, D, E				
O_2	%	7.0	10.0				
CO_2	%	12.4	9.7				
EXCESS AIR	%	49	91				
CO (FROM MONITOR)	ppm	138	28				
CO, CORRECTED TO 3% O_2	ppm	177	46				
CO	LBS/MKB	0.150	0.039				

CUSTOMER COLORADO UTE ELECTRIC	JOB NO. RB-543
SUBJECT CO LEVELS	
DUAL REGISTER BURNERS	BY GBB
	DATE 12-9-81

BDS 120-1

BABCOCK & WILCOX

	UNITS						
CUSTOMER		CINCINNATI GAS & ELECTRIC →					
TEST NUMBER		4	4A	5	6	51	61
TEST DATE		1-23-79	1-23-79	1-23-79	1-23-79	1-24-79	1-25-79
TIME		1115	1510	1725	1925	2250	0055
LOAD	MW	530	519	526	526	473	482
STEAM FLOW	MLBS/HR	3290	3270	3290	3290	2960	3000
PULVERIZER OUT OF SERVICE		NONE	NONE	8-3	8-3	8-5	8-5
O_2	%	4.0	3.9	3.7	3.8	5.4	5.1
CO_2	%	14.9	15.1	15.2	15.3	13.8	14.1
EXCESS AIR	%	24	23	21	22	34	31
CO (FROM MONITOR)	ppm	34	36	38	30	33	58
CO, CORRECTED TO 3% O_2	ppm	36	38	40	31	38	66
CO	LBS/MKB	0.030	0.032	0.034	0.026	0.032	0.055
CUSTOMER		CINCINNATI GAS & ELECTRIC					
TEST NUMBER		41	7	8	9		
TEST DATE		1-25-79	1-25-79	1-25-79	1-25-79		
TIME		0230	0355	0525	0620		
LOAD	MW	482	419	420	420		
STEAM FLOW	MLBS/HR	3000	2500	2500	2500		
PULVERIZER OUT OF SERVICE		NONE	NONE	8-3	8-3		
O_2	%	5.2	6.9	6.6	6.6		
CO_2	%	14.0	12.6	12.8	12.8		
EXCESS AIR	%	32	49	46	46		
CO (FROM MONITOR)	ppm	49	25	18	24		
CO, CORRECTED TO 3% O_2	ppm	56	32	23	30		
CO	LBS/MKB	0.047	0.027	0.019	0.025		

CUSTOMER CINCINNATI GAS & ELECTRIC	JOB NO. RB-515
SUBJECT CO LEVELS	
DUAL REGISTER BURNERS	BY GBB
	DATE 12-9-81

MISSOURI BASIN

FUEL ANALYSIS (AS FIRED) FOR RB-558 :

MOISTURE	30.0
CARBON	47.9
HYDROGEN	3.5
NITROGEN	0.7
SULFUR	0.3
ASH	6.2
OXYGEN	11.4

BTU CONTENT 8213 BTU/LB (AS FIRED)

CITY OF FREMONT

FUEL ANALYSIS (AS FIRED) FOR RB-499 =

MOISTURE	12.0
CARBON	60.7
HYDROGEN	4.4
NITROGEN	0.8
SULFUR	0.3
ASH	8.4
OXYGEN	13.4

BTU CONTENT 10595 BTU/LB (AS FIRED)

COLORADO - UTE ELECTRIC

FUEL ANALYSIS (AS FIRED) FOR RB-543:

MOISTURE	18.1
CARBON	57.7
HYDROGEN	3.9
NITROGEN	1.3
SULFUR	0.3
ASH	6.1
OXYGEN	12.5

BTU CONTENT 9838 BTU/LB (AS FIRED)

CINCINNATI GAS & ELECTRIC

FUEL ANALYSIS (AS FIRED) FOR RB-515

MOISTURE	8.6
CARBON	67.4
HYDROGEN	4.4
NITROGEN	1.2
SULFUR	0.8
ASH	10.7
OXYGEN	6.8

BTU CONTENT 11950 BTU/LB (AS FIRED)

BUCKEYE POWER / AEP

FUEL ANALYSIS (AS FIRED) FOR UP-121

MOISTURE	8.2
CARBON	63.8
HYDROGEN	4.2
NITROGEN	1.2
SULFUR	0.8
ASH	14.8
OXYGEN	7.1
	~100.0

BTU CONTENT 11295 BTU/LB (AS FIRED)

BIG RIVERS ELECTRIC

FUEL ANALYSIS (AS FIRED) FOR RB-568:

MOISTURE	10.7
CARBON	57.7
HYDROGEN	4.1
NITROGEN	1.2
SULFUR	4.0
ASH	15.6
OXYGEN	6.7
	100.0

BTU CONTENT 10400 BTU/LB (AS FIRED)

EAST KENTUCK RURAL
ELECTRIC

FUEL ANALYSIS (AS FIRED) FOR RB-495

MOISTURE	8.2
CARBON	64.7
HYDROGEN	4.5
NITROGEN	1.2
SULFUR	1.4
ASH	11.8
OXYGEN	8.2
	100.0

BTU CONTENT 11457 BTU/LB (AS FIRED)

PUBLIC SERVICE OF NEW MEXICO

FUEL ANALYSIS (AS FIRED) FOR RB-544

Ash	20.42
Carbon	51.40
Hydrogen	3.85
Sulfur	0.75
Oxygen	10.16
Nitrogen	1.09
Moisture	12.33
	~ 100.00

BTU Content 9,000 BTU/LB (AS FIRED)

State of Florida Department of
Environmental Regulation
Orlando Utilities Commission
Curtis H. Stanton Energy Center Unit 1
PA 81-14

CONDITIONS OF CERTIFICATION

FEBRUARY 9, 1982

State of Florida Department of Environmental Regulation
Orlando Utilities Commission
Curtis H. Stanton Energy Center Unit 1
PA 81-14

CONDITIONS OF CERTIFICATION

I. Air

The construction and operation of Unit 1 at Orlando Utilities Commission, Curtis H. Stanton Energy Center (CHSEC) steam electric power plant site shall be in accordance with all applicable provisions of Chapters 17-2, 17-4, and 17-5, Florida Administrative Code. In addition to the foregoing, the permittee shall comply with the following conditions of certification:

A. Emission Limitations

1. The proposed steam generating station shall be constructed and operated in accordance with the capabilities and specifications of the application including the 460 (gross) megawatt generating capacity and the 4136 MMBtu/hr heat input rate for each steam generator. Based on a maximum heat input of 4136 million BTU per hour, stack emissions from CHSEC Unit 1 shall not exceed the following when burning coal:

   a. SO_2 - 1.2 lb. per million BTU heat input, maximum two hour average, 0.76 lb/MMBtu on a 30-day rolling average, 3143.4 lb. per hour

   b. NO_x - 0.60 lb. per million BTU heat input, 2481.6 lb. per hour

   c. Particulates - 0.03 lb. per million BTU heat input, 124.1 lb. per hour

   d. Visible emissions - 20% (6-minute average), except one 6-minute period per hour of not more than 27% opacity

   e. CO - 0.05 lb. per million BTU heat input, 206.8 lb. per hour

delete →

2. The height of the boiler exhaust stack for CHSEC Unit 1 shall not be less than 550 ft. above grade.

3. Particulate emissions from the coal, lime and

limestone handling facilities:

a. All conveyors and conveyor transfer points will be enclosed to preclude PM emissions (except those directly associated with the coal stacker/reclaimer for which enclosure is operationally infeasible).

b. Inactive coal storage piles will be shaped, compacted and oriented to minimize wind erosion.

c. Water sprays or chemical wetting agents and stabilizers will be applied to storage piles, handling equipment, etc. during dry periods and as necessary to all facilities to maintain an opacity of less than or equal to 10 percent except for coal drop points that will be allowed 10%. R5

d. The limestone handling receiving hopper, transfer conveyors and day silos will be maintained at negative pressures with the exhaust vented to a control system.

e. The fly ash handling system (including transfer and silo storage) will be totally enclosed and vented (including pneumatic system exhaust) through fabric filters; and

f. The permittee must submit to the Department within thirty (30) days after it becomes available, copies of technical data pertaining to the selected particulate emissions control for the coal and limestone handling facilities. These data should include, but not be limited to, guaranteed efficiency and emission rates, and major design parameters such as air/cloth ratio and flow rate. The Department may, upon review of these data, disapprove the use of any such device if the Department determines the selected control device to be inadequate to meet the emission limits specified in 5 below. Such disapproval shall be issued within 30 days of receipt of the technical data. 4

4. Visible emissions from the following facilities shall be limited to 5% opacity:

coal, limestone and fly ash handling systems except for coal drop points that will be allowed 10%

5. Compliance with opacity limits of the facilities listed in Condition 5 will be determined by EPA reference method 9 (Appendix A, 40 CFR 60).

6. Construction shall reasonably conform to the plans and schedule given in the application.

7. The permittee shall report any delays in construction and completion of the project which would delay commercial operation by more than 90 days to the Department's St. Johns River District Office in Orlando.

8. Reasonable precautions to prevent fugitive particulate emissions during construction, such as coating of roads and construction sites used by contractors, regrassing or watering areas of disturbed soils, will be taken by the permittee.

9. Coal shall not be burned in the unit unless both electrostatic precipitator and limestone scrubber are operating properly except as provided under 40 CFR Part 60 Subpart Da.

10. The fuel oil to be fired in Unit No. 1 and the auxiliary boiler shall be "new oil", which means an oil which has been refined from crude oil and has not been used. The maximum sulfur content of the No. 2 fuel oil used by the auxiliary boiler shall not exceed the allowable limits listed in the following table.

Allowable Emission Limits

Pollutant	lb/MMBtu
PM	0.015
SO_2	0.31
NO_x	0.16
Visible emissions	Maximum 20% opacity

11. The flue gas scrubber shall be put into service during normal operational startup, and shut down when No. 6 fuel oil is being burned. The emission limits when burning No. 6 fuel oil shall be 0.80 lb/MMBTU for SO_2 and

double space

0.03 lb/MMBTU for particulate matter, except during normal startup and shut down and malfunctions as provided in 40 CFR 60.46a.

12. No fraction of flue gas shall be allowed to bypass the FGD system to reheat the gases existing from the FGD system, if the bypass will cause overall SO_2 removal efficiency less than 90 percent (or 70% for mass SO_2 emission rates less than or equal to 0.6 lb/MMBTU). The percentage and amount of flue gas bypassing the FGD system shall be documented and records kept for a minimum of two years available for FDER's inspection.

13. Samples of all fuel oil and coal fired in the boilers shall be taken and analyzed for sulfur content, ash content, and heating value. Accordingly, samples shall be taken of each fuel oil shipment received. Coal sulfur content shall be determined and recorded in accordance with 40 CFR 60.47a. Records of all the analyses shall be kept for public inspection for a minimum of two years after the data is recorded.

14. Within 90 days of commencement of operations, the applicant will determine and submit to EPA and FDER the pH level in the scrubber effluent that correlates with 90% removal of the SO_2 in the flue gas (or 70% for mass SO_2 emission rates less than or equal to 0.6 lb/MMBtu). Moreover, the applicant is required to operate a continuous pH meter equipped with an upset alarm to ensure that the pH level of the scrubber effluent does not fall below this level and to act as a backup in the event of malfunction of the continuous SO_2 monitor. The minimum value pH may be revised at a later date provided notification to EPA and FDER is made demonstrating the minimum percent removal will be achieved on a continuous basis. Further, if compliance data show that higher FGD performance is necessary to maintain the minimum removal efficiency limit, a higher minimum pH value will be determined and maintained.

15. The applicant will comply with all requirements and provisions of the New Source Performance Standard for electric utility steam generating units (40 CFR 60 Part Da).

16. As a requirement of this specific condition, the applicant will comply with all emissions limits and enforceable restrictions required by the State of Florida Department of Environmental Regulation which may be adopted by regulation and which are more restrictive, that is lower emissions limits or more strict operating requirements and equipment specifications, than the requirements of specific conditions I.A. 1-16 of these conditions.

B. Air Monitoring Program

1. A flue gas oxygen meter shall be installed for each unit to continuously monitor a representative sample of the flue gas. The oxygen monitor shall be used with automatic feedback or manual controls to continuously maintain low excess air (LEA) air/fuel ratio parameters. Performance tests shall be conducted and operating procedures established. The document "Use of Flue Gas Oxygen Meter as BACT for Combustion Controls" may be used as a guide. The permittee shall install and operate continuously monitoring devices for each main boiler exhaust for sulfur dioxide, nitrogen dioxide, and opacity. The monitoring devices shall meet the applicable requirements of Section 17-2.710, FAC, and 40 CFR 60.47a. The opacity monitor may be placed in the duct work between the electrostatic precipitator and the FGD scrubber.

2. The permittee shall operate two continuous ambient monitoring devices for sulfur dioxide in accordance with DER quality control procedures and EPA reference methods in 40 CFR, Part 53, and two ambient monitoring devices for suspended particulates, and one continuous NO_x monitor. The monitoring devices shall be specifically located at a location approved by the Department. The frequency of operation of the particulate monitors shall be every six days commencing as specified by the Department.

3. The permittee shall maintain a daily log of the amounts and types of fuel used and copies of fuel analyses containing information on sulfur content, ash content and heating values.

4. The permittee shall provide stack sampling facilities as required by Rule 17-2.700(4) FAC.

5. The ambient monitoring program shall begin at least one year prior to initial start up of Unit 1 and shall continue for at least one year of commercial operation. The Department and the permittee shall review the results of the monitoring program annually and determine the necessity for continuation of ~~modified~~ monitoring or modifications to the program.

6. Prior to operation of the source, the permittee shall submit to the Department a plan or procedure that will allow the permittee to monitor emission control equipment efficiency and enable the permittee to return malfunctioning equipment to proper operation as expeditiously as possible.

C. Stack Testing

1. Within 30 calendar days after achieving the maximum capacity at which each unit will be operated, but no later than 180 operating days after initial startup, the permittee shall conduct performance tests for particulates SO_2, NO_xm, and visible emissions during normal operations near (±10%) 4136 MMBtu/hr heat input and furnish the Department a written report of the results of such performance tests within 30 days of completion of the tests. The performance tests will be conducted in accordance with the provisions of 40 CRF 60.46a, 48a, and 49a.

2. Performance tests shall be conducted and data reduced in accordance with methods and procedures outlined in Section 17-2.700 FAC.

3. Performance tests shall be conducted under such conditions as the Department shall specify based on representative performance of the facility. The permittee shall make available to the Department such records as may be necessary to determine the conditions of the performance tests.

4. The permittee shall provide 30 days notice of the performance tests or 10 working days for stack tests in order to afford the Department

the opportunity to have an observer present.

5. Stack tests for particulates NO_x and SO_2 and visible emissions shall be performed annually in accordance with Conditions C.2, 3, and 4 above.

D. Reporting

1. For CHSEC, stack monitoring, fuel usage and fuel analysis data shall be reported to the Department's St. Johns River District Office and to the Orange County Pollution Control Department on a quarterly basis commencing with the start of commercial operation in accordance with 40 CFR, Part 60, Section 60.7, and in accordance with Section 17-2.08, FAC.

2. Utilizing the SAROAD or other format approved in writing by the Department, ambient air monitoring data shall be reported to the Bureau of Air Quality Management of the Department quarterly. Commencing on the date of certification, such reports shall be due within 45 days following the quarterly reporting period. Reporting and monitoring shall be in conformance with 40 CFR Parts 53 and 58.

3. Beginning one month after certification, the permittee shall submit to the Department a monthly status report briefly outlining progress made on engineering design and purchase of major pieces of air pollution control equipment. All reports and information required to be submitted under this condition shall be submitted to the Administrator of Power Plant Siting, Department of Environmental Regulation, 2600 Blair Stone Road, Tallahassee, Florida, 32301.

II. Cooling Tower

A. Makeup Water Constituency

The CHSEC shall utilize only treated sewage effluent, or stormwater runoff from the makeup water supply storage pond, as cooling tower makeup water. The effluent shall have received prior to use in the tower best available treatment from the Iron Bridge Facility, but as a minimum, secondary treatment, as well as treat-

ment described in Condition XIV.C.2 below. Use of waters other than treated sewage effluent or site storm-water, i.e., higher quality potable waters, or lower quality less-than-secondarily-treated sewage effluent, will require a modification of conditions agreed to by the St. Johns River Water Management District and the Department, and must be approved by the Governor and Cabinet.

B. Chlorination

Free chlorine levels in the cooling tower makeup water shall be continuously monitored, prior to insertion in the cooling towers. Sewage effluent used as makeup shall be treated if necessary to maintain a 1.0 mg/liter free chlorine residual after fifteen minutes contact time at an effluent turbidity of 5 Nephelometric Turbidity Units or less. At a turbidity of 1 NTU's or less a chlorine residual of 0.5 to 1 mg/l free chlorine is acceptable, or alternately a demonstration that a viral concentration of less than one PFU per 25 gallons can be achieved at lower levels of chlorination.

C. Special Studies

Upon satisfactory demonstration to the Department that the number of viruses entering the towers in the effluent makeup can be reduced to an undetectable level with the use of a lesser amount of chlorination or alternate treatment, the above requirement may be altered. This demonstration may occur through performance of special studies approved by the Department. Alteration of the chlorination requirements must still insure adequate treatment for the control of bacterial growth in the cooling towers.

III. Water Discharges

A. Surface Waters

Any discharges from the site storage ponds or wastewater treatment system via any emergency overflow structure which result from any event LESS than a 25 year, 24 hour storm (as defined by the U.S. Weather Bureau Technical Paper No. 40, or the DOT drainage manual, or similar documents) shall meet State Water Quality Standards, Chapter 17-3, FAC.

B. Compliance

Any discharges into any waters of the State during construction and operation of CHSEC Unit 1 shall be in

accordance with all applicable provisions of Chapter 17-3, FAC, and 40 CFR, Part 423, Effluent Guidelines and Standards for Steam Electric Power Generating Point Source Category, except as provided herein.

C. Plant Effluents and Receiving Body of Water

For discharges made from the power plant the following conditions shall apply:

1. Receiving Body of Water (RBW)

The receiving body of water has been determined by the Department to be those waters of the Hart Branch, Cowpen Branch, or any other waters affected which are considered to be waters of the State within the definition of Chapter 403, Florida Statutes.

2. Point of Discharge (P.O.D)

The point of discharge has been determined by the Department to be where the effluent physically enters the waters of the State in Hart or Cowpen Branch.

3. Chemical Wastes

All discharges of low volume wastes (demineralizer regeneration, floor drainage, labs drains, FGD flowdown and similar wastes) and metal cleaning wastes shall comply with chapter 17-3. If violations of Chapter 17-3 occur, corrective action shall be taken. These wastewaters shall be directed to an adequately sized and constructed treatment and detention facility.

During periods when treated wastewater does not comply with pH discharge limitations, the treated wastewater may be recycled to the recycle basin, except when the sedimentation pond has insufficient capacity to retain the recycled wastewater and the runoff from a rainfall event equal to or less than a 25 year, 24 hour storm.

4. Coal Pile

Coal pile runoff shall be directed to the recycle basin and shall not be directly discharged to surface waters, except that

discharge of stormwater runoff from the coal pile is allowed only during periods of high rainfall in excess of the 25 year, 24 hour storm.

5. pH

The pH of the combined discharges shall be such that the pH will fall within the range of 6.0 to 9.0.

6. Polychlorinated Biphenyl Compounds

There shall be no net discharge of polychlorinated biphenyl compounds.

7. Metal Cleaning and Bottom Ash Sluice System Blowdown

Blowdown from the metal cleaning wastes and from the bottom ash sluice system shall be treated as appropriate prior to reuse and retention.

8. Solid Waste and Limestone Storage Areas

There shall be no direct discharge of stormwater runoff to surface waters from the solid waste and limestone storage areas prior to treatment.

9. Storm Water Runoff

During plant operation, necessary measures shall be used to settle, filter, treat or absorb silt-containing or pollutant-laden stormwater runoff to limit the suspended solids to 50 mg/l or less at the POD during rainfall periods less than the 25 year, 24 hour rainfall, and to prevent an increase in turbidity of more than 50 Jackson Turbidity Units above background in waters of the State.

Control measures shall consist at the minimum of filters, sediment traps, barriers, berms or vegetative planting. Exposed or disturbed soil shall be protected as soon as poissible to minimize silt- and sediment-laden runoff. The pH shall be kept within the range of 6.0 to 8.5 at the POD.

D. Water Monitoring Program

The permittee shall monitor and report to the Department the listed parameters on the basis specified herein. The methods and procedures utilized shall receive written approval by the Department. The monitoring program may be reviewed annually by the Department, and a determination may be made as to the necessity and extent of continuation, and may be modified in accordance with Condition No. XXV.

1. Chemical Monitoring

The following parameters shall be monitored during operation as shown, commencing with the start of commercial operation of CHSEC and reported quarterly to the Department's St. Johns River District Office:

Parameter	Location	Sample Type	Frequency
Flow, groundwater	Wellfield Pipeline	Pump Logs	Continuous
Flow, Cooling, Water Makeup	Intake	Pump Logs	Daily
Flow, Cooling Tower Blowdown	Cooling Towers	Pump Logs	Daily
TSS	Cooling Tower Blowdown	Grab	Two/per week
	Sewage and Treatment Facility	8 Hour Composite	Monthly
Chlorine	Cooling Tower	Multiple Grab	Weekly
Free Available, Total Residual	Sewage Treatment Plant, Cooling Tower, and Iron Bridge STP Cooling Water Supply Pipe	Grab	Weekly

2. Groundwater Monitoring

The groundwater levels shall be monitored continuously as selected wells as approved by the St. Johns River Water Management District. Chemical analyses shall be made on samples

from all monitored wells identified in Condition IV.F below. The location, frequency, and selected chemical analyses shall be given in Condition IV.F.

The groundwater monitoring program shall be implemented at least one year prior to operation of CHSEC Unit 1. The chemical analyses shall be in accord with the latest edition of Standard Methods for the Analysis of Water and Wastewater. The data shall be submitted within 30 days of collection/analysis to the St. Johns River Water Management District, the DER St. Johns River District Office, and the DER Power Plant Siting Section.

Conductivity shall be monitored in wells around all lined solid waste disposal sites, coal piles, and wastewater treatment and sedimentation ponds.

IV. Groundwater

A. General

The use of groundwater from the wellfield for plant service water for CHSEC Unit 1 shall be minimized to the greatest extent practicable, but in no case shall exceed 0.44 mgd on an average daily basis from any new wells averaged over a 12 month period or 1.0 mgd maximum on any day.

B. Well Criteria

The submission of well logs and test results and location, design and construction of wells to provide plant service water shall be in accordance with applicable rules of the Department of Environmental Regulation and the St. Johns River Water Management District (SJRWMD). Total water use per month shall be reported quarterly to SJRWMD commencing with the start of construction.

C. Well Withdrawal Limits

OUC is authorized to make a combined average annual withdrawal of .44 million gallons of water per day with a maximum combined withdrawal rate not to exceed 1.0 gallons during a single day. Withdrawals may be made from a wellfield consisting of up to two (2) wells. After wells have been constructed, St. Johns River Water

Management District may evaluate the individual wells and may recommend to the Department authorization of different withdrawals based upon hydrologic characteristics for the individual wells. The Department pursuant to Section 403.516, F.S., may modify the above withdrawal limitations with the concurrence of SJRWMD and the permittee.

D. Water Use Restriction

Said water is restricted to uses other than main steam condensing. Any change in the use of said water will require a modification of this condition.

E. Emergency Shortages

In the event an emergency water shortage should be declared pursuant to Section 373.175 or 373.246, F.S., by St. Johns River Water Management District for an area including the location of these withdrawal points, the Department pursuant to Section 403.516, F.S., may alter, modify, or declare to be inactive, all or parts of Condition IV.A.-G. An authorized Water Management District Representative, at any reasonable time, may enter the property to inspect the facilities.

F. Monitoring and Reporting

OUC shall, within the time limits hereinafter set forth, complete the following items.

1. OUC shall utilize pump logs to record flow in compliance with SJRWMD specifications on all production wells.

2. OUC shall submit to SJRWMD, on forms available from the District, a record of pumpage for each meter installed in F.1 above. Said pumpage shall be provided on a monthly basis, and shall be submitted by April 15, July 15, October 15, and January 15, for each preceding calendar quarter.

3. OUC shall maintain and operate a continuous water level recorder on a well located at the Stanton site in Orange County, Florida. Detailed hydrographs of water level fluctuations shall be constructed with the date collected from the water level recorder and shall be submitted to SJRWMD by April 15, July 15, October 15, and January 15 for each preceding calendar quarter.

4. Water quality analysis shall be performed on water withdrawn from each production well. The water samples collected from each ofthe wells shall be collected immediately after removal by pumping of a quantity of water equal to two casing volumes. The OUC and staff of SJRWMD may determine and adjust the intervals to be monitored in accordance with hydrologic conditions determined from drilling logs. The water quality analyses shall be performed monthly during the first year of operation, quarterly during the second year and twice each year (May and September) thereafter. Results shall be submitted to SJRWMD within 45 days after following such analyses were performed. Testing for the following parameters is required:

Calcium	Magnesium	Sodium
Potassium	Bicarbonate	Sulfate
Chloride	Nitrate	Total Dissolved Solids
Hardness	Color	Total Phosphate
Gross Alpha		

5. In the event that SJRWMD determines there is a sufficient change in the water quality (substantially caused by CHSEC and causing a potentially significant effect on water use), the Department may propose pursuant to Section 403.516, F.S., that the permittee be required to reduce or cease withdrawal from these groundwater sources.

6. If the Department and SJRWMD at a future date establish a minimum water level of general applicability to all users in the aquifer or aquifers hydrologically associated with these withdrawals, they may propose pursuant to Section 403.516, F.S., that OUC reduce or cease withdrawal from these groundwater sources at times when water levels fall below these minimums.

G. Shallow Aquifer Monitoring Wells

After consultation with the DER and SJRWMD, OUC shall

install a monitoring well network to monitor groundwater quality horizontally and vertically through to the top of the Hawthorne Formation's first clayey lithologic unit. Groundwater quantity and flow directions will be determined seasonally at the site through the preparation of seasonal watertable contour maps. From these maps, the water quality monitoring well network will be located. Monitoring well locations and designs shall be submitted to the Department and SHRWMD for review. Approval or disapproval of the locations and design shall be granted within 60 days. Monitoring wells shall be installed upgradient and downgradient from each solid waste disposal area, each liquid waste pond and each coal pile storage area. An additional monitoring well will be placed immediately downgradient of the first section of each solid waste landfill to be utilized. The water samples collected from each of the monitor wells shall be collected immediately after removal by pumping of a quantity of water equal to two casing volumes. The water quality analyses shall be performed monthly during the year prior to commercial operation and quarterly thereafter. Results shall be submitted to the Department and the SJRWMD by the fifteenth (15th) day of the month following the month during which such analyses were performed. Testing for the following constituents is required:

TDS	Zinc
Conductance	Copper
pH	Nickel
Sulfate	Selenium
Sulfite	Chromium
Color	Arsenic
Nitrate	Beryllium
Chloride	Mercury
Iron	Lead
Aluminum	Gross Alpha
Cadmium	

H. Leachate

1. Zone of Discharge

Leachate from the solid waste landfills, sludge disposal test cells, coal storage piles, wastewater treatment ponds, or sedimentation ponds shall not contaminate waters of the State (including both surface and groundwaters) in excess of the limitations of Chapter 17-3, FAC., beyond the boundary of a zone of discharge extending 50 feet below the ground surface and 250 feet from the edge

of the landfill coal pile or ponds.

2. Corrective Action

When the groundwater monitoring system shows a violation of the groundwater water quality standards of Chapter 17-3, FAC., the appropriate ponds, combustion waste landfill, or coal pile shall be bottom sealed, relocated, or the operation of the affected facility shall be altered in such a manner as to assure the Department that no violation of the groundwater standards will occur beyond the boundary of the zone of discharge. The ponds, landfill or coal pile shall be lined with sufficient material or fixed to achieve a permeability not greater than 1×10^{-7} cm/sec, or an interception system shall be utilized to collect and retain leachate or pond seepage, or the combustion waste landfill shall be capped with an impermeable material.

V. Control Measures During Construction

A. Stormwater Runoff

During construction, appropriate measures shall be used to settle, filter, treat or absorb silt-containing or pollutant-laden stormwater runoff to limit the suspended solids to 50 mg/l or less at the POD during rainfall periods less than the 25 year, 24 hour rainfall, and to prevent an increase in turbidity of more than 50 Jackson Turbidity Units above background in waters of the State at the POD to Hart Branch or Cowpen Branch. Oil and grease shall not exceed 5 mg/l at any discharge from the makeup water storage supply pond or any other pond.

Control measures shall consist at the minimum of sediment traps, barriers, berms or vegetative planting. Exposed or disturbed soil shall be protected as soon as possible to minimize silt- and sediment-laden runoff. The pH shall be kept within the range of 6.0 to 8.5 at the POD.

Final drainage plans illustrating all stormwater treatment facilities and conveyances for construction phases and ultimate operations for the entire Curtis H. Stanton Energy Center site shall be submitted to the FDER St. Johns River District Manager, the Orange County Pollution Control Depart-

ment, and the St. Johns River Water Management District for review and approval prior to construction of any such conveyance or facility. The Department shall indicate its approval or disapproval within 60 days of the submittal.

B. Sanitary Wastes

Disposal of sanitary wastes from construction toilet facilities shall be in accordance with applicable regulations of the Department and appropriate local health agency. The sewage treatment plant shall be operated in accordance with Chapters 17-3, 17-6, 17-16, and 17-19, FAC.

C. Environmental Control Program

An environmental control program shall be established under the supervision of a qualified person to assure that all construction activities conform to good environmental practices and the applicable conditions of certification.

The permittee shall notify the Department by telephone if unexpected harmful effects or evidence of irreversible environmental damage are detected during construction, shall immediately report in writing to the Department and shall within two weeks provide an analysis of the problem and a plan to eliminate or significantly reduce the harmful effects or damage and a plant to prevent reoccurrence.

D. Construction Dewatering Effluent

Construction dewatering effluent shall be treated when appropriate to limit surface water discharges of suspended solids to no more than 50 mg/l. The discharge of construction dewatering liquids shall not cause turbidity in excess of 50 Jackson Turbidity Units above ambient beyond a 20 meter radius from the point of discharge. Weekly grab samples will be collected and analyzed for suspended solids.

A program for controlling the groundwater impacts of construction dewatering shall be submitted to the Department and the St. Johns River Water Management District for review and approval prior to implementation.

E. Pond Perimeter Berms

Construction of perimeter berms shall be in conformance with the provisions of Chapter 17-9, FAC, regarding earthen dams, and should be inspected regularly by a licensed engineer.

VI. Solid Wastes

Solid wastes resulting from construction or operation shall be disposed of in accordance with the applicable regulations of Chapter 17-7, FAC. The permittee shall submit a program for approval outlining the methods to be used in handling and disposal of solid wastes. Such a program shall indicate at the least methods for erosion control, covering, vegetation, and quality control.

Open burning in connection with land clearing shall be in accordance with Chapters 17-5 and 51-2, FAC. No additional permits shall be required, but the Orange County Pollution Control Department shall be notified prior to burning. Open burning shall not occur if the Division of Forestry has issued a ban on burning due to fire hazard conditions.

VII. Operation Safeguards

The overall design, layout, and operation of the facilities shall be such as to minimize hazards to humans and the environment. Security control measures shall be utilized to prevent exposure of the public to hazardous conditions. The Federal Occupational Safety and Health Standards will be complied with during construction. The Safety Standards specified under Section 440.56, F.S., by the Industrial Safety Section of the Florida Department of Commerce will also be complied with.

VIII. Screening

The permittee shall provide screening of the site though the use of aesthetically acceptable structures, vegetated earthen walls and/or existing or planted vegetation.

IX. Potable Water Supply System

The potable water supply system shall be designed and operated in conformance with Chapter 17-22, FAC. Information as required in 17-22.108 shall be submitted to the Department prior to construction and operation. The operator of the potable water supply system shall be certified in accordance with Chapter 17-16, FAC.

X. Transformer and Electric Switching Gear

The foundations for transformers, capacitators, and switching gear necessary to connect CHSEC Unit 1 to existing distribution system shall be constructed in such a manner as to allow complete collection and recovery of any spills or leakage of oily, toxic, or hazardous substances.

XI. Toxic, Deleterious, or Hazardous Materials

The spill of any toxic, deleterious, or hazardous materials shall be reported in the manner specified by Condition XV.

XII. Construction in Waters of the State

A. No construction on sovereign submerged lands shall commence without obtaining lease easement or title from the Department of Natural Resources and/or Trustees of the Internal Improvement Trust Fund.

B. Construction of piling, railroad right-of-way, culverts, access roads, pipelines, and transmission towers shsll be done in a manner to minimize turbidity. Turbidity screens should be used to prevent turbidity in excess of 50 JTU's above background beyond 150 meters from the excavation, right-of-way, pile driving, or construction site.

All spoil from construction of the CHSEC and related facilities shall be trucked to an upland disposal site of sufficient capacity to retain all material.

XIII. Solid Waste Landfill

A. The proposed solid waste landfill area shall be monitored and studied pursuant to a detailed groundwater testing and monitoring program as defined in Condition IV, F. and G. The results of the program will be used by the Department in determining whether OUC has affirmatively demonstrated that Florida Water Criteria (Chapter 17-3, FAC) will not be violated.

B. OUC shall either provide an impermeable liner under the solid waste disposal areas or shall utilize a chemical fixation process, stabilization, or other approved methods to control leachate from the solid waste.

C. Prior to the commencement of operation of solid waste disposal areas the following shall be submitted to the St. Johns River District Manager for review and approval:

1. Plot Plan - should be drawn on a scale not greater than 200 ft. to the inch showing the following:

   a. Dimensions and legal description of the site

   b. Location and depth corrected to MSL of soil borings

   c. Proposed trenching plan

   d. Cover stock piles

   e. Fencing or other measures to restrict access

   f. Cross sections showing both original and proposed fill elevation

   g. Location, depth corrected to MSL and construction details of monitoring wells or ditch monitoring points

2. Design Drawings and Maps - may be combined with plot plan and should be drawn on a scale not greater than 200 ft. to the inch showing the following:

   a. Topographic map with five foot contour intervals

   b. Proposed fill areas

   c. Borrow area

   d. Access roads

   e. Grades required for proper drainage

   f. Typical cross sections of disposal site including lifts, borrow areas and drainage controls

   g. Special drainage devices

3. Soil map, Interpretive Guide Sheets and a

report giving the suitability of the site for such an operation.

4. Operation plans to direct and control the use of the site.

5. An indication by discussion or drawings or both of how the site is designed to meet water quality standards of Chapter 17-3 and 17-4, FAC at the waste site boundary or the boundary of the zone of discharge.

Based on the Department's reviews of the above, additions to or modifications of the overall monitoring program may be required for monitoring of runoff, groundwaters, and surface waters which may be affected by the various landfilling operations.

The Department shall indicate its approval or disapproval of the submitted plans, drawings, maps, analyses and contingency plans within 60 days.

XIV. Transmission Lines, Access Road and Rail Spur

A. General

1. Filling and construction in water of the State shall be minimized to the extent practicable. No such activities shall take place without obtaining lease, title or title from the Department of Natural Resources and/or TIITF where required. Construction and access roads should avoid wetlands and be located in surrounding uplands.

2. Placement of fill in wetland areas shall be minimized by spanning such areas with the maximum span practicable.

3. The Department may determine that any fill required in wetlands for construction but not required for maintenance purposes shall be removed and the ground restored to its original contours after transmission line, roadway or rail spur placement.

4. Where fill in wetlands is necessary for access, keyhole fills from upland areas should

be oriented as nearly parallel to surface water flow lines as possible.

5. Sufficient size and number of culverts or other structures shall be placed through fill causeways to maintain substantially unimpaired sheet flow.

6. Turbidity control measures, including but not limited to hay bales, turbidity curtains, sodding, mulching, and seeding, shall be employed to prevent violation of water quality standards.

7. The Right-of-Way shall be located so as to minimize impacts in or on stream beds such as the removal of vegetation, to the extent practicable. Within 25 feet of the banks of any streams, rivers or lakes, vegetation shall be left undisturbed, except for selective topping of trees or removal of trees which topping would kill. If it is necessary to remove such trees within 25 feet of the banks of streams, rivers or lakes, the root mat shall be left undisturbed.

8. Any necessary water quality certifications which must be made to the Corps of Engineers shall be made at the time of a finding of compliance for specific work atr specific locations.

9. Construction activities should proceed as much as practicable during the dry season.

B. Other Construction Activities

1. Maintenance roads under control of the permittee shall be planted with native species to prevent erosion and subsequent water quality degradation where drainage from such roads would impact waters of the State significantly.

2. Good environmental practices such as described in Environmental Criteria for Electric Transmission Systems as published by the U.S. Department of Interior and the U.S. Department of Agriculture shall be followed to the extent practicable.

3. Compliance with the most recent version of the

National Electric Safety Code adopted by the Public Service Commission is required.

4. Fences running parallel to the transmission line which may become conductive shall be grounded at appropriate intervals; fences running perpendicular to the line shall be grounded at the edge of the right-of-way.

5. Field reconnaissance of rare and endangered species shall be performed in order to minimize impacts on these species.

6. Open burning in connection with land clearing shall be in accordance with the applicable rules of the Department of Agriculture and Consumer Services. No additional permits shall be required, but the Orange County Pollution Control Board shall be notified prior to burning. Open burning shall not occur if the Division of Forestry has issued a ban on burning due to fire hazard conditions.

C. Maintenance

1. Vegetative clearing operations for maintenance purposes to be carried out within the corridor shall follow the general standards for clearing right-of-way for overhead transmission lines as referenced in Sections XIV.A.7 and XIV.B.2. Selective clearing of vegetation is preferred over clearing and grubbing or clear cutting.

2. If chemicals or herbicides are to be used for vegetation control, the name, type, proposed use, locations, and manner of application shall be provided to the Department prior to their application for assessment of compliance with applicable regulations.

D. Archaeological Sites

Any archaeological sites discovered during construction of the transmission lines, access roads or rail spurs shall be disturbed as little as possible and such discovery shall be communicated to the Department of State, Division of Archives, History and Record Management (DAHRM). Potentially affected areas will be surveyed, and if a significant site is located, the site shall be avoided, protected, or excavated as directed by

DAHRM.

E. Road Crossing

For all locations where the transmission line or the rail spur will cross State highways, the applicant will submit materials pursuant to the Department of Transportation's (DOT) "Utility Accommodation Guide" to DOT's district office for review and approval. All applicable regulations pertaining to roadway crossings by rail or transmission lines shall be complied with. Crossing of county roads shall be coordinated with the County Engineer.

F. Emergency Reporting

Emergency replacement of previously existing right-of-way or transmission lines shall not be considered a modification pursuant to Section 403.516, F.S. A verbal report of the emergency shall be made to the Department as soon as possible. Within fourteen (14) calendar days after correction of the emergency, a report to the Department shall be made outlining the details of the emergency and the steps taken for its temporary relief. The report shall be a written description of all of the work performed and shall set forth and polluton control measures or mitigative measures which were utilized or are being utilized to prevent pollution of waters, harm to sensitive areas or alteration or archaeological or historical resources.

G. Final Right-of Way Location

A map of 1:24000 scale showing final location of the right-of-way shall be submitted to the Department upon completion of acquisition.

H. Compliance

Construction and maintenance shall comply with the applicable rules and regulations of the Department and those agencies specified in 17-17.54(2)(a) and (b), FAC.

XV Change in Discharge

All discharges or emissions authorized herein shall be consistent with the terms and conditions of this certification. The discharge of any pollutant not

identified in the application or any dscharge more frequent than, or at a level in excess of, that authorized herein shall constitute a violation of the certification. Any anticipated facility expansions, production increases, or process modification which will result in new, different or increased discharges or expansion in steam generating capacity will require a submission of a new or supplemental application pursuant to Chapter 403, F.S.

XVI. Non-Compliance Notification

If, for any reason, the permittee does not comply with or will be unable to comply with any limitation specified in this certification, the permittee shall notify the manager of DER's St. Johns River District office by telephone during the working day in which the permittee becomes aware of said non-compliance and shall confirm this situation in writing within seventy-two hours supplying the following information:

A. A description and cause of non-compliance; and

B. The period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the non-complying event.

XVII. Facilities Operation

The permittee shall at all times maintain in good working order and operate at the efficiencies set forth in the design criteria and as necessary to meet emission limitations all treatment or control facilities or systems installed or used by the applicant to achieve compliance with the terms and conditions of this certification. Such systems are not to be bypased without prior Department approval.

XVIII. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impacts resulting from non-compliance with any limitation specified in this certification, including, but not limited to, such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying event.

XIX. Right of Entry

The permittee shall allow the Secretary of the Florida Department of Environmental Regulation and/or authorized representatives, upon the presentation of credentials:

A. To enter upon the permittee's premises where an effluent source is located or in which records are required to be kept under the terms and conditions of this permit; and

B. To have access to and copy all records required to be kept under the conditions of this certification; and

C. To inspect and test any monitoring equipment or monitoring method required in this certification and to sample any discharge or pollutants; and

D. To assess any damage to the environment or violation of ambient standards.

XX. Revocation or Suspension

This certification may be suspended or revoked pursuant to Section 403.512, Florida Statutes, or for violations of any Condition of Certification.

XXI. Civil and Criminal Liability

This certification does not relieve the permittee from civil or criminal responsibility or liability for non-compliance with any conditions of this certification, applicable rules or regulations of the Department, or Chapter 403, F.S., or regulations thereunder.

Subject to Section 403.511, F.S., this certification shall not preclude the institution of any legal action or relieve the permittee from any responsibilities for penalties established pursuant to any other applicable State Statutes or regulations.

XXII. Property Rights

The issuance of this certification does not convey any property rights in either real or personal property, tangible or intangible, nor any exclusive privileges, nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. The applicant will obtain title, lease or right of use to any sovereign submerged lands occupied by the plant, transmission line structures, or appurtenant facilities from the State of Florida.

XXIII. Severability

The provisions of this certification are severable, and, if any provision of this certification or the application of any provision of this certification to any circumstances is held invalid, the application of such provision to other circumstances and the remainder of the certification shall not be affected thereby.

XXIV. Definitions

The meaning of terms used herein shall be governed by the definitions contained in Chapter 403, F.S., and any regulation adopted pursuant thereto. In the event of any dispute over the meaning of a term used in these general or special coditions which is not defined in such statutes or regulations, such dispute shall be resolved by reference to the most relevant definitions contained in any other state or federal statute or regulation or, in the alternative, by the use of the commonly accepted meaning as determined by the Department.

XXV. Review of Site Certification

The certification shall be final unless revised, revoked or suspended pursuant to law. At least every five years from the date of issuance of this certification or any National Pollutant Discharge Elimination System Permit issued pursuant to the Federal Water Pollution Control Act Amendments of 1972 for the plant units, the Department shall review all monitoring data that has been submitted to it during the preceeding five-year period for the purpose of determining the extent of the permittee's compliance with the conditions of this certification of the environmental impact of this facility. The Department shall submit the results of its review and recommendations to the permittee. Such review will be repeated at least every five years thereafter.

XXVI. Modification of Conditions

The conditions of this certification may be modified in the following manner:

A. The Board hereby delegates to the Secretary the authority to modify, after notice and opportunity for hearing, any conditions pertaining to consumptive use of water, monitoring, sampling, groundwater, mixing zones, zones of discharge, leachate control programs, effluent limitations or variances to water quality standards.

B. All other modifications shall be made in accordance with Sections 403.516, Florida Statutes.

XXVII. Flood Control Protection

The plant and associated facilities shall be constructed in such a manner as to comply with the Orange County flood protection requirements.

XXVIII. Effect of Certification

Certification and conditions of certification are predicated upon design and performance criteria indicated in the application. Thus, conformance to those criteria, unless specifically amended, modified, or as the Department and parties are otherwise notified, is binding upon the applicant in the preparation, construction, and maintenance of the certified project. In those instances where a conflict occurs between the application's design criteria and the conditions of certification, the conditions shall prevail.

XXIX. Noise

To mitigate the effects of noise produced by the steam blowout of steam boiler tubes, OUC shall conduct public awareness campaigns prior to such activities to forewarn the public of the estimated time and duration of the noise.

XXX. Railroad Spur Line

Modifications to the railroad spur line proposal as presented in the Site Certification Application would require that the modifications be reviewed by the South Florida Water Management District's staff for concurrence, and approved by the Secretary.

XXXI. Red Cockaded Woodpecker Management Plan

The management plan for the Red-Cockaded Woodpecker as described in Section 5.7 and Appendix 5.7A of the application shall be implemented for the life of the facility. The monitoring program shall be extended to cover the first five years of plant operation unless the Florida Game and Fresh Water Fish Commission should recommend a termination of the monitoring program.

XXXII. Nitrate

OUC shall monitor nitrate levels in Hart Branch during construction to establish background levels of that parameter. Monitoring of nitrate shall continue during plant operation. If nitrate levels exceed 1.0 mg/l or 25% above background during plant operation, OUC shall construct a toe interceptor ditch around the makeup water storage supply pond and install appropriate pumps and collection systems to intercept and retain seepage from the pond.

(1) According to DA on SO2 emissions.
For E-PSD based on 0.83 lbs/mmbtu modeled.
use EPA
✓ If they 1.2 lb/mmbtu, we bring the
two hours average. — p. 56 from part D.
compare p.D & p.Da.
need to check with OAC
(2) 5% opacity, 10% for drop points.
for baghouse
(3) CO BACT dropped.

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee

To: Bob King Loctn.: Rm 601
To: _____ Loctn.: _____
To: _____ Loctn.: _____
From: _____ Date: _____

Reply Optional [ ] Reply Required [ ] Info. Only [ ]
Date Due: _____ Date Due: _____

TO: Power Plant Siting Review Committee

FROM: J. Alan Cox
Assistant General Counsel

DATE: February 8, 1982

SUBJECT: Orlando Utilities Commission Stanton Power Plant

Please review the attached copies of the Department's preliminary lists of issues and witnesses. I must file our final lists with the Division of Administrative Hearings on Friday, February 12, 1982. If you have any changes to suggest for the lists, please provide your comments to me by no later than February 11, 1982.

If there are any questions, please call me at 488-9730. Thank you for your cooperation.

JAC/dg

Attachments

BEFORE THE STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

IN RE: ORLANDO UTILITIES COMMISSION CURTIS STANTON POWER PLANT, UNIT NO. 1, SITE CERTIFICATION.	)	DOAH Case No. 81-1431

PRELIMINARY LIST OF ISSUES OF THE
STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

The State of Florida, Department of Environmental Regulation files this its preliminary list of issues, for the certification hearing.

ISSUES

I. Whether the Orlando Utilities Commission Curtis H. Stanton Power Plant (OUC) as proposed will:

A. Assure the Citizens of Florida that operation safeguards are technically sufficient for their welfare and protection;

B. Effect a reasonable balance between the need for the facility and the environmental impact resulting from construction and operation of the facility;

C. Cause a significant deterioration of air quality;

D. Utilize Best Available Control Technology to control air pollutant emissions;

E. Comply with applicable statutes, rules, regulations and other criteria of the State of Florida, Department of Environmental Regulation as set forth in Chapters 253 and 403, Florida Statutes, and Chapter 17, Florida Administrative Code, as regards the construction and operation of the proposed facility.

II. Whether the OUC proposal should be certified pursuant to Part II, Chapter 403, Florida Statutes.

III. Whether the Conditions of Certification to be proposed by DER are reasonable and necessary to minimize the adverse environmental impacts which will result from the construction and operation of the facility.

IV. Whether the OUC proposal demonstrates sufficient justification to warrant granting a variance or exception to groundwater quality criteria.

V. Whether leachate from the coal pile and the combustion waste disposal area will violate groundwater quality criteria.

VI. Whether leachate from the makeup water storage supply pond will violate groundwater or surface water quality criteria.

VII. Whether the groundwater monitoring program proposed by OUC is acceptable pursuant to the rules and regulations of the Department.

J. ALAN COX
Assistant General Counsel

State of Florida, Department
of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301
Telephone: (904) 488-9730

8. Steve Boyes
Groundwater Section
State of Florida, Department of
Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

9. Rodney DeHan
Groundwater Section
State of Florida, Department of
Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

Richard P. Lee for

J. ALAN COX
Assistant General Counsel

State of Florida, Department
of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301
Telephone: (904) 488-9730

BEFORE THE STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

IN RE:	ORLANDO UTILITIES COMMISSION CURTIS STANTON POWER PLANT, UNIT NO. 1, SITE CERTIFICATION.	DOAH Case No. 81-1431

WITNESS LIST OF
THE STATE OF FLORIDA,
DEPARTMENT OF ENVIRONMENTAL REGULATION

1. Hamilton S. Oven, Jr.
   State of Florida, Department of
   Environmental Regulation
   2600 Blair Stone Road
   Tallahassee, Florida 32301

2. Larry George (Meterologist, Modeler)
   Bureau of Air Quality Management
   State of Florida, Department of
   Environmental Regulation
   2600 Blair Stone Road
   Tallahassee, Florida 32301

3. Clair Fancy (P.E. IV)
   Bureau of Air Quality Management
   State of Florida, Department of
   Environmental Regulation
   2600 Blair Stone Road
   Tallahassee, Florida 32301

4. Cindy Hilty (Impact of nitrate on water supply pond and on surface waters)
   Bureau of Air Quality Management
   State of Florida, Department of
   Environmental Regulation
   2600 Blair Stone Road
   Tallahassee, Florida 32301

5. Chuck Collins (Air Engineer)
   St. Johns River District
   3319 Maquire Blvd., Suite 232
   Orlando, Florida 32803

6. Leslee Williams (Bacteriologist)
   State of Florida, Department of
   Environmental Regulation
   2600 Blair Stone Road
   Tallahassee, Florida 32301

7. Don Kell
   Groundwater Section
   State of Florida, Department of
   Environmental Regulation
   2600 Blair Stone Road
   Tallahassee, Florida 32301

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee		
To: _____ Loctn.: _____		
To: _____ Loctn.: _____		
To: _____ Loctn.: _____		
From: _____ Date: _____		
Reply Optional [ ]	Reply Required [ ]	Info. Only [ ]
Date Due: _____	Date Due: _____	

TO: Terry Cole

FROM: Steve Smallwood

DATE: February 2, 1982

SUBJ: BAQM Comments on OUC Stanton Energy Center, Conditions of Certification and Staff Analysis Report

Conditions of Certification

Prior to full concurrence with the January 1982 conditions of certification for Unit No. 1 we feel that several issues should be further defined. Detailed comments follow.

The emission limitations of section A paragraph 1 follow from 40 CFR 60 (Subpart Da). It is our understanding that OUC has objected to both the SO_2 limits of a. and the CO limits of e. The SO_2 limitation was based on the 90% reduction from the worst case design for Illinois Basin unwashed coal of 10900 BTU/lb. with 3.5% S and 11300 BTU/lb with 4% S. The 10813 BTU/lb. with 4.46% resulting in .83 lb/MMBTU cited in B. E. Shoup to H. S. Oven letter of October 29, 1981 was brought in later. EPA in a similar situation on TECO Big Bend #4 disallowed this type of request.

The CO limitation was based on figures contained in OUC's original application. That figure was withdrawn when the boiler manufacturer would not offer a guarantee. Subpart Da does not contain a CO limitation.

Paragraphs 3c and 5 disagree on opacity limits from storage piles and handling equipment. BAQM feels that with proper wetting and housekeeping, 5% opacity should be attainable and was specified as BACT.

Paragraph 4 limits emissions from flyash handling to 0.2 lb/hr. Since the system is required to be enclosed and vented through a fabric filter, BAQM feels that an opacity limit of 5% should suffice for compliance.

BAQM suggests that paragraph 12 be rewritten as follows:

The flue gas scrubber shall be in service during startup and shutdown when No. 6 fuel oil is being burned. At all other times except malfunction as provided in 40 CFR 60.46a. the emission limits when burning No. 6 fuel oil shall be 0.80 lb/MMBTU for SO_2 and 0.03 lb/MMBTU for particulate matter.

Paragraph 13 is redundant. We recommend deletion of it and retention of paragraph 14 as written.

The stack monitoring devices required in paragraph B.1. are in accordance with 40 CFR 60.47a. The report "Use of Flue Gas Oxygen Meter as BACT for Combustion Controls" should be informational and not included by reference as a requirement.

The post-construction ambient monitoring referred to in paragraphs B.2., B.5. & D.2. is not required under PSD rules. BAQM feels that unless the ambient data are required for a specific purpose, the requirement should be deleted.

Staff Analysis Report

We have reviewed Section VI. A. (Facility Specific Concerns-Air Quality) of the staff analysis report. Since this section has been assembled from several unrelated documents (the State BACT determination, the draft federal PSD permit, the JEA analysis, etc.), it is not well organized and contains some technical errors. We are returning a marked-up copy of this section indicating the corrections we suggest to the Power Plant Siting Section.

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee		
To: _____	Loctn.: _____	
To: _____	Loctn.: _____	
To: _____	Loctn.: _____	
From: _____	Date: _____	
Reply Optional [ ]	Reply Required [ ]	Info. Only [ ]
Date Due: _____	Date Due: _____	

TO: Terry Cole

FROM:

DATE:

SUBJECT: Power Plant Siting Review: Orlando Utilities, Stanton Power Plant

I have reviewed the Staff Analysis Report. I concur_____
I disagree_____

Comments:

I have reviewed the Conditions of Certification. I concur_____
I disagree_____

Comments:

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO.

ACTION DUE DATE

	INITIAL	DATE
1. TO: (NAME, OFFICE, LOCATION) Steve Smallwood		
2.		
3.		
4.		

REMARKS:

1. Please discuss with your staff and return attached memo to Terry Cole by 1/29/82.

2. OUC objects to the BACT emission limits for SO_2 + CO. They want to meet with BAQM staff on 2/8/82 or 2/11/82. Will confirm meeting time

Jack Owen

DATE 2/21/82

PHONE

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 & REPT
- INITIAL & FORWARD
- DISTRIBUTE
- CONCURRENCE
- FOR PROCESSING
- INITIAL & RETURN

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee

To: Bob K Locatn.: _____
To: _____ Locatn.: _____
To: _____ Locatn.: _____
From: _____ Date: _____

Reply Optional [ ] Reply Required [ ] Info. Only [ ]
Date Due: _____ Date Due: _____

TO: Buck Oven

FROM: Bill Thomas BT

DATE: January 19, 1982

SUBJ: OUC Stanton Energy Center
Comments on Conditions of Certification

A copy of BAQM's Air Quality Impact Analysis is attached. It is final draft for inclusion in the federal PSD permit. It is my understanding that preliminary drafts of the remainder of the proposed PSD permit have already been furnished to you. The AQ Impact Analysis includes the latest figures furnished by OUC through Revision 4.

Comments follow on the air portion of the draft "Conditions of Certification and are addressed in the order presented.

A. Emission Limitations

1. No particular comment. These directly reflect the BACT which in turn comes from 40 CFR 60 Subpart Da.

2. It might be better to substitute "approximately" for "not less than" since, although not probable, the present wording could open the possibility of a "tall stack".

Items 6 through 11 - No comment.

12. I cannot find a reference to support this directly but it certainly seems reasonable to define startup. Indirect reference is exception in 40 CFR 60.46a(c) for startup, shutdown and limited exception for malfunctions.

13. & 14. No. 13 may be redundant. After the scrubbers, reheat will be necessary so the lb/hr & 90% requirement should basically cover it. Gas analysis as a function of coal could be added.

15 & 16. OK - No Comment

17. 40 CFR 60 Subpart Da has not been adopted by DER as a part of 17-2. Numerical limits from Da have been brought in through the BACT process. All the other ramifications will be a part of the federal PSD so the net effect is academic. I just question the authority for inclusion by reference here.

18. Legal question-As I read this it negates any assurance granted by permit conditions.

B. Air Monitoring Program

1. OK - No comment.

2. Suggest the use of continuous SO_2 monitors be considered.

3 through 6 - OK - No Comment.

C. Stack Testing

1 through 5 - OK - No comment.

D. Reporting

1. OK - No comment.

2. Suggest that operation & reporting be required to comply with 40 CFR 53 & 40 CFR 58. This will insure data acceptability through Q/A, etc.

3. OK - No comment.

BT/bjm

State of Florida

DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee	
To:	Loctn.:
To:	Loctn.:
To:	Loctn.:
From:	Date:

ST. JOHNS RIVER DISTRICT

TO: Hamilton S. Oven, Jr. OSJ-82-091

THROUGH: A. Senkevich

THROUGH: T. Hunnicutt

FROM: C. Collins CMC

DATE: January 12, 1982

SUBJECT: OUC/Curtis H. Stanton
Energy Center Staff
Analysis Report

As requested, I have completely reviewed the report and found it very well written and comprehensive.

The following are our suggested recommendations and comments:

1. On page 0156 change southwest to southeast.

2. Page 4 - typographical error item 15 "oilt".

3. Page 5 - Designate OUC as the party responsible for the monitoring of the air so they don't feel that Orange County Pollution Control Program has the obligation. If any quality control measures are required by the Bureau of Air Quality Management, please spell it out here.

4. Page 5-B-5.- Add Expansion or modification expenses to be borne by the applicant.

5. Page 6-C-1. - Change to "Within thirty (30) days after achieving."

6. Page 7 - As the Iron Bridge STP will have AWT sewage effluent, why allow the use of secondary treatment effluent? Why not state the best treatment available from Iron Bridge or state AWT?

7. Page 11, IV A. - Clarify .3 MGD on a daily basis, averaged over a 12 month period.

8. Page 12 E. - Are we stating, if there is an emergency water shortage they can't withdraw any water? They surely will object.

9. Page 16, D. - Add for review..."and approval" prior to.

CONTINUED . . .

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO.	
ACTION DUE DATE	

TO: (NAME, OFFICE, LOCATION)	
1. ~~Clair Fancy~~	INITIAL / DATE
2. ~~Bill~~ 85	INITIAL / DATE
3. Larry H	INITIAL / DATE
4.	INITIAL / DATE

REMARKS:

Bob King
File

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 & REPT
INITIAL & FORWARD
DISTRIBUTE
CONCURRENCE
FOR PROCESSING
INITIAL & RETURN

JAN
BUREAU
A Q M
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

FROM: C. Collins

DATE 1-14-82

PHONE

10. Page 16, VI - In Orange County. the Orange County Pollution Control Office is called for a permit for Land Clearing Burning. Mr. John Bateman, Director, expressed his wishes that this be continued.

11. Page 20, B. 6. - Orange County Pollution Control Program to be called for a burning permit.

12. Page 22, XVI - Make it clear that acceptance of the certification obligates OUC to comply with all regulations. This section may give OUC the idea that they can accept the certification and later just contact the District Manager if they can't meet any of the regulations.

13. Page 22, XVII - Change "as efficiently as possible" to at the efficiencies set forth in the design criteria and as necessary to meet emission limitations.

14. As no permit is involved, eliminate any reference to the "permittee" state "applicant" or "OUC", The use of the word permittee may give them an escape clause later on.

15. Please see our December 14, 1981 memo items #2, 4 and 7 attached. These are still concerns. We are enclosing an article on Limestone beds for treating coal pile runoff. The high watertable would mean adding fill to carry out the design but should the water quality deteriate this may be an alternate treatment method. Even a bed of limestone may help.

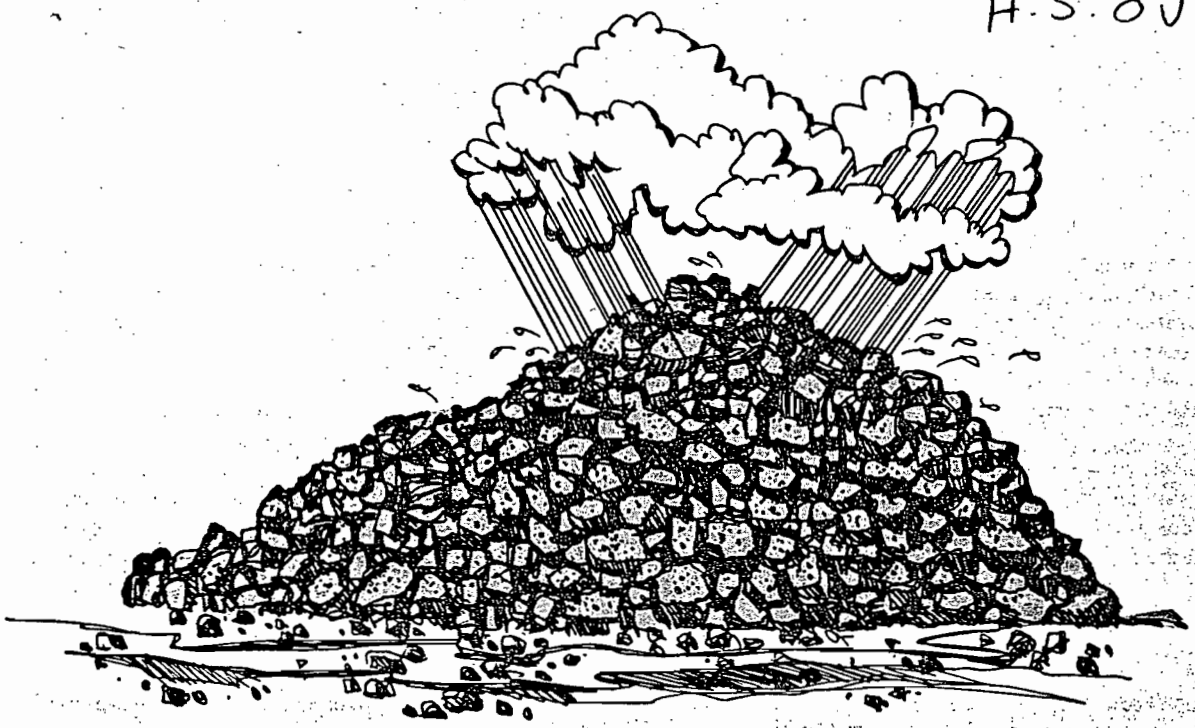
16. We feel some detail on the lining of the runoff ponds should be placed in the permit to stress its importance.

17. On page 1684, Table 2 - We note that the predicted concentrations of SO_2 - 3 hour concentrations are 233 ug/m^3 or 46% of the allowable increment is consumed based on just one Unit. As they ultimately plan to construct 4 units, this would translate to 184% of the limit. It would appear (if the present rules are still in effect years from now) that they could not even build 3 units. Even based on the 24 hour average concentrations.

Buck, a lot of time has gone into these reviews but lets hope OUC does a superior job and releases us from our dependency on oil.

CMC:es
Enclosures: December 14 memo
Article - Limestone bed

H.S. Oven, Jr.



Limestone bed treats coal pile runoff

RICHARD L HUNTINGTON

Acid leachate caused by storm runoff from a 5-acre coal storage area caused a serious water pollution problem and discolored the banks of a creek for 3 miles. To overcome this problem, the surface of the coal pile storage area was analyzed and treated with surplus of powdered agricultural limestone to neutralize the acid in place as it formed.

Acid generation

Sulfur in coal exists in the form of pyrites and organic compounds in relatively equal proportions. The pyrites readily undergo oxidation in the presence of moisture and oxygen, swell and cause the coal to fragment. The exothermic nature of the reaction in combination with increased coal particle surface area and oxidation rate result in the buildup of heat and contribute to spontaneous combustion.

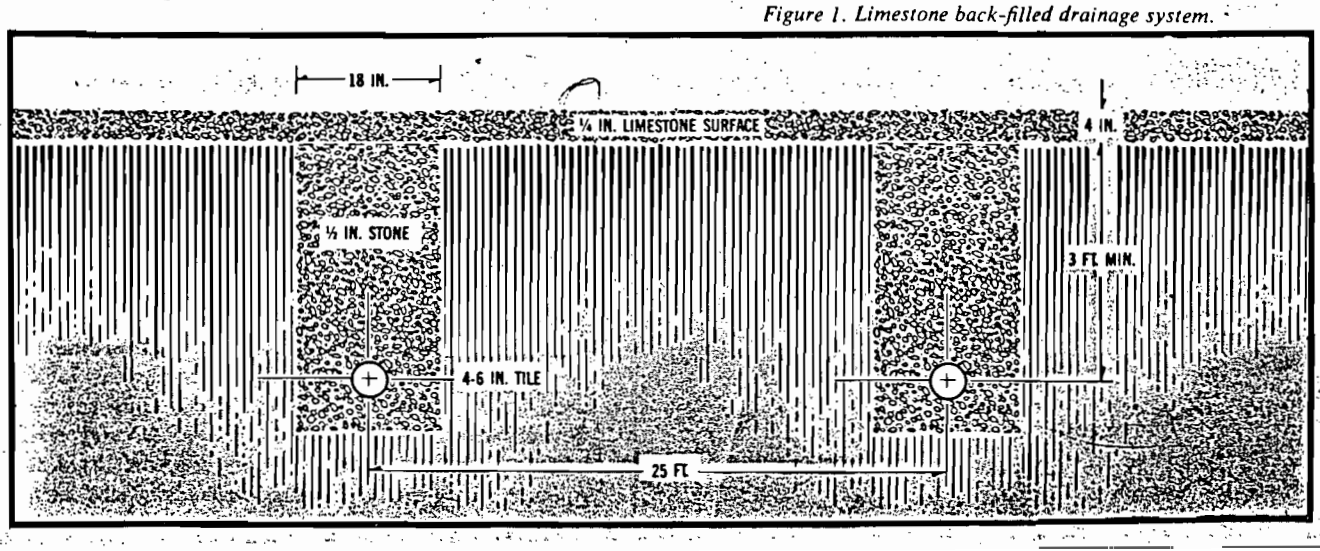
Sulfuric acid and iron sulfates are formed and washed onto the surface of the coal storage area together with unreacted pyrites where they accumulate in the coal slack. The ferric sulfate reacts further with pyrite at low pH in an aqueous solution in the slack to form ferrous sulfate.

During warm weather the acid generation rate is at a maximum, the slack and soil effloresce due to the high surface evaporation rates, concentrating the acid constituents on the surface. The pyrite can exist in the form of yellow pyrite (FeS_2), silver arseno-pyrite (FeAsS), and lesser sulfides. Arseno-pyrite is a major source of arsenic in the runoff. Manganese is also present with the iron.

Acid neutralization

Sulfuric acid and the iron sulfates are highly acidic with runoff pH varying from 3 to 3.5. The acid constitu-

Figure 1. Limestone back-filled drainage system.



ents can be readily neutralized in place by a large number of weakly alkaline compounds since the maximum concentrations are on the surface of the coal storage areas.

Caustic soda, soda ash, slaked lime, magnesium carbonate and limestone can each be used for neutralization. In the case of limestone a large surplus must be used to compensate for its lower reaction rate.

In the case of high calcium limestone and lime, all of the sulfates are precipitated out in the form of calcium sulfate, as contrasted with dolomitic limestone where half is in the form of soluble magnesium sulfate.

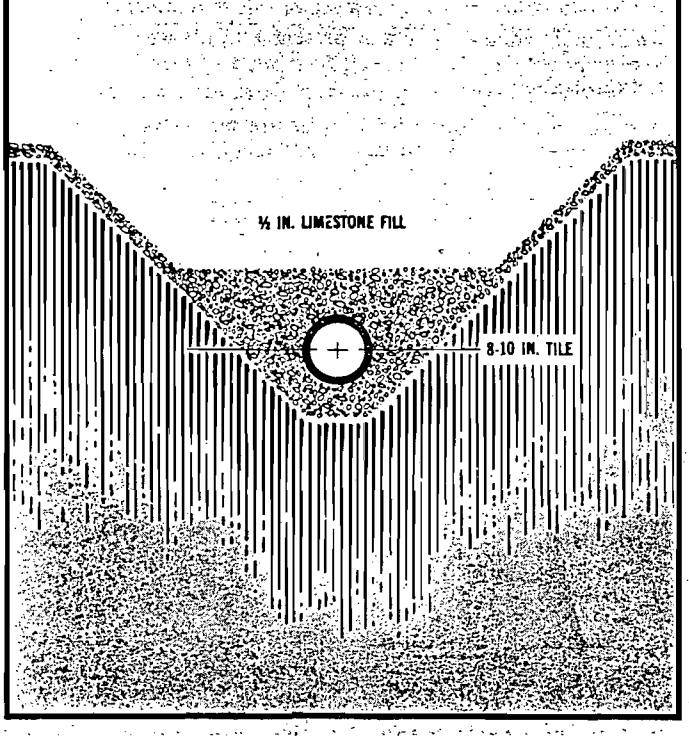
Limestone requirements

A 3-liter composite sample of coal pile storage area slack was tested in the laboratory to determine neutralization requirements. It was soaked with 1-liter of water and the leachate titrated with 0.10 N sodium hydroxide to a phenolphthalein endpoint. The sample was then neutralized with slaked lime to a 7 pH, drained, dried, and exposed to 96 percent relative humidity at 96 F for 1 week to determine acid generation rate. The sample was again soaked with water and titrated with sodium hydroxide to a phenolphthalein endpoint.

	Leachate	Limestone Requirements		
Test No.	pH	Dolomite	Calcium	Units
1	2.5	1,198	1,300	lb/acre ft yr
2	5	2,764	2,999	lb/acre ft yr

In addition to the above limestone requirements approximately 200 lb/acre ft yr are leached from the storage area by carbon dioxide in the rainwater in the form of soluble calcium and magnesium bicarbonate.

Figure 2. Limestone-filled drainage ditch.



Application

The coal storage area was treated with powdered agricultural limestone by a local hauler using two applications. The coal pile was moved to a heavily limed area in the center of the storage area to increase runoff residence time on the surface. The coal pile was then ringed with an extra heavy application of limestone. The surface of the storage area was subsequently leveled and roughened with a spiked drag harrow to work the limestone into the slack and further increase water residence time on the storage area.

After the initial application and following rain, the surface of the coal pile was found to be streaked with bright red iron oxide, while the bottom of the runoff retention pond was found to be covered with blue green ferrous carbonate.

Samples of pondwater were tested immediately after the storm to determine the need for further treatment. After a 9-day period the pond was drained.

Runoff Water Analysis		
Contaminant	After Storm	9 days
Total Iron, ppb	1,000	400
Dissolved Iron, ppb	600	<100
Manganese, ppb	160	<100
Arsenic, ppb	<10	<5
pH	7.45	7.50
Suspended Solids, ppm	15	3
Turbidity, STU	16	0.8

Note: Total iron includes dissolved iron and iron in the suspended solids

From this analysis it was apparent that direct application of limestone to the surface of the storage area in combination with adequate pond retention time was capable of meeting our NPDES permit limitations and eliminating contaminants at the source.

Designing a new area

In the layout of a new coal pile storage area, the site should be diked with limestone fill. The area should then be drained and drainage tiling installed. The storage area should be graded flat with the perimeter drained by an open ditch to catch runoff water. Adequate sedimentation time of runoff water must be provided in open ditches and a retention pond.

An excess amount of limestone must be maintained as a safety factor in the ground on a yearly basis. Periodically the coal storage area should be roughened and leveled with a spiked drag to break the surface crust to minimize surface runoff. PE

Richard L. Huntington has BChE and MS degrees in chemical and metallurgical engineering. He is senior manufacturing engineer for environmental and energy conservation, Columbus Products Co., Columbus, OH.

H. S. Oven, Dr

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee

To: file		Loctn.:	
To:		Loctn.:	
To:		Loctn.:	
From:		Date:	

ST. JOHNS RIVER DISTRICT

TO: Hamilton S. Oven OSJ-81-3655

THROUGH: A. Senkevich

THROUGH: T. Hunnicutt

FROM: C. Collins CMC

DATE: December 14, 1981

SUBJECT: Orlando Utilities Commission
Curtis H. Stanton Energy Center

As requested, we are submitting our concerns and operational recommendations as final input to the Site Certification of Coal Fired Steam Generator, Orlando Utilities Commission, Unit #1.

1. We feel that we should insist upon six (6) months of continuous monitoring of the ambient air for NO_x emissions to assess the impact of Unit #1, operation on the formation of Ozone and to compare to the measured baseline levels. Only the hours from 6:00 AM to 9:00 AM are critical and the six month time span must encompass the summer months where the intractor of hydocarbons and nitrogen dioxide would be important.

2. If at all possible, we would like any logging operations on the site to be stopped and a tree planting or tree seeding operation to take place. As most of the uncontrolled particulate emissions will come from the limestone handling piles, the trees would act to redcue any particulate carry over to future housing developments.

3. As we have a good stabilized water quality baseline, we feel a series of quarterly water samples should be taken in the immediate plant site area. The start of the samples should commence three (3) months after startup or no later than six(6) months after the coal arrives.

4. The lining of the coal storage runoff ponds is fine, but would like to see the coal pile area lined. An alternate to this would be to watch the water quality very carefully in the immediate area of the coal pile and make corrections when the other units are constructed if a buildup of pollutants is noticed.

5. The rolling average method of SO_2 control should not be carried to the point that the FGD unit is turned off where the SO_2 flume could mix with the cooling tower mist and contribute to the formulation of acid mist. A proviso could be placed

CONTINUED . . . .

in the certification to guard against this possibility. The mist eliminator they mentioned may eliminate the possibility, but I think we sould cover all contingencies.

6. As Governor Graham had asked for strict controls on dams acting as retention walls or berms for water reservoirs, the certification should call for serveral strict inspections by a Professional Engineer conducted during the critical phases of reservoir construction.

7. We are assuming that Dr. Wellings' concerns about the potential for health impacts from aerosolized pathogens from the Cooling Tower is resolved as we are informed that the Iron Bridge treatment effluent standard question (secondary vs. AWT) is resolved and that the permit calls for AWT standards. If not, we would like to see Dr. Wellings' suggested chlorine treatment standards placed in the certification as minimum standards.

8. On the possibility of a sinkhole developing from the weight of the coal piles, we can only suggest the surcharging of an area and observing any rapid settling taking place before deciding on a permanent site for the coal. We note the objections received from other department's concerning sinkholes, but do not feel the science of detecting sinkholes is developed to a point where we can be assured that a sinkhole will not occur.

   Surcharging a proposed construction with excessive earth loadings prior to building bridges is an accepted engineering practice.

9. We are attaching Mr. Alex Senkevich's comments on the proposed variance on the nitrate standard.

Buck, if there is anything you would like to talk about or if the Committee is to meet in the future, please let me know.

CMC:es

EO 12-11-81

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee

To: _____ Loctn.: _____
To: _____ Loctn.: _____
To: _____ Loctn.: _____
From: _____ Date: _____

ST. JOHNS RIVER DISTRICT

TO: Hamilton S. Oven, Jr. OSJ-81-3597

FROM: A. Senkevich

DATE: December 11, 1981

SUBJECT: Orlando Utilities Commission
Curtis H. Stanton Energy Center

This will acknowledge receipt of your December 7, 1981 memorandum and attachments regarding a proposed variance from Chapter 17-3.101 (11), Florida Administrative Code, (F.A.C.), for nitrate.

We cannot adequately review the request based on the information provided, since it is lacking in all aspects.

The effluent from the Iron Bridge plant is available for use and it is designed to contain 3 mg/l total nitrogen. There is no indication as to the source of the 20 mg/l nitrate.

How do they know what zone of discharge will be designated? Have they been advised? If 10 mg/l nitrate nitrogen is discharged to the Econlockhatchee, why are we spending 50-60 million dollars to treat the domestic waste to 3 mg/l total nitrogen and 40± million to transport it away from this area to the Iron Bridge site for discharge?

Have you seen the cost estimate details for the 8.5 million cost to seal the 113 acre pond? Were other methods of sealing considered? What is the total cost of the total project?

The material provided provides no documentation to justify the variance request.

We also understand that certification will not require further permits, we therefore, assume site geohydrology has been defined with a suitable groundwater monitoring program proposed. We also assume the final design of the transmission system from the Iron Bridge Road wastewater treatment plant to the site and back have received review.

We further understand that there will be circumstances under which no make-up water will be needed at this plant so the total discharge at the Iron Bridge site will not be reduced during such periods.

AS/wbw
cc: Dr. Thabaraj
Dr. Rodney DeHan
Charles Collins
W. Bostwick

ORLANDO UTILITIES COMMISSION
500 SOUTH ORANGE AVENUE • P. O. BOX 3193 • ORLANDO, FLORIDA 32802 • 305/423-9100

October 29, 1981

Mr. H. S. Oven
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Dear Buck:

A Best Available Control Technology Determination (BACT)was signed on August 28, 1981 for the proposed Curtis H. Stanton Energy Center. OUC has reviewed the determination and provides the following comments.

1. Unit 2 Determination

The BACT determination should be made for Unit 2 as well as for Unit 1. The application is for a two unit phased construction permit as described in the Introduction to the Site Certification Application. The proposed BACT for Unit 2 is identical to Unit 1. OUC believes that a phased construction permit is essential to protect OUC's investments being made in common facilities which will serve Unit 2 as well as Unit 1. OUC also understands that the BACT determination for Unit 2 will be reexamined under the current rules prior to its start of construction. Therefore, OUC requests again that the BACT determination for Unit 2 be made (subject to later reevaluation) as requested in the PSD permit application.

2. Date of Receipt of Application

The date of receipt of the BACT application was not July 9, 1981 as indicated on Page 2 of the BACT determination. The application was part of the Site Certification Application submitted on May 18, 1981 and accepted as complete for filing on May 26, 1981.

3. BACT for SO_2 - Steam Generator

The BACT determination requested was identical to NSPS. The BACT determination made by the DER was more stringent than NSPS at 0.76 pounds/10^6 BTU heat input. OUC has examined the sulfur content and heat content of the 38 coals which were bid to OUC for combustion in the unit. The limit of 0.76 would eliminate two of these coals unnecessarily. The low heat content of the worst bid coal is 10,813 BTU/pound. The high sulfur content is 4.46%. This would yield uncontrolled emissions of 8.25 pounds of SO_2/10^6 BTU heat input. OUC would like to maintain flexibility in fuel selection so that the most economical energy can be produced. An emission limit of 0.83 pounds SO_2/10^6 BTU heat input (30 day rolling average) would include these other two coals and would provide OUC with the flexibility needed. OUC therefore requests that the DER reconsider its BACT determination of SO_2 for the steam generator to a level of 0.83 rather than 0.76.

4. BACT for CO - Steam Generator

The BACT determination by the DER was 0.05 pounds CO/10^6 BTU heat input. As you are aware, emission measurements for CO are almost nonexistent. The emission rates which would actually occur from the facility are currently unknown. Because of this lack of information, no CO emission guarantee can be obtained from our boiler manufacturer. In view of this lack of emission data, OUC must object to the imposition of a CO emission limit as part of the BACT determination.

5. BACT for Fluorides

OUC has determined that Fluoride emissions may potentially exceed three tons per year and hence may require a BACT determination. More detailed information on Fluoride emissions is being developed and will be submitted shortly.

AP-42 38S SO_2 Emission factor

$4.46 \times 38 = 169$ #SO_2/Ton burned

BASIS $\frac{1 \text{ Ton}}{hr} = 169 \times 1 = 169$ #SO_2/hr

$1 \frac{\text{Ton Coal}}{hr} \times \frac{2000}{\text{Ton}}^{\#} \times 10813 \frac{BTU}{\#} = 21.626 \times 10^6$ BTU

$\frac{169 \text{ \#}SO_2/hr}{21.626 \text{ BTU}} = 7.8$ #SO_2/10^6 BTU 90% reduction = .78 #/10^6 BTU

6. BACT for Opacity - Coal, Limestone, and Flyash Handling Systems

The BACT determination made by the DER for coal, limestone, and flyash handling systems for opacity is 5% maximum. The NSPS for coal processing plants is 20% and, while no NSPS exists for the other facilities, OUC believes that a BACT of 20% opacity is the proper determination for emissions from these facilities and requests a reevaluation of this BACT determination.

7. Other BACT Matters

OUC is still reviewing other portions of the BACT determination and may be submitting additional comments prior to the BACT hearings.

Please advise me as to the proper procedure for obtaining the reevaluations requested in this letter. By copy of this letter, Steve Smallwood, Victoria Tschinkel, and the other members of the BACT Review Group are being advised of OUC's request.

Sincerely yours,

B. E. Shoup

B. E. Shoup
Director
Environmental Division

BES/jh

cc: Mr. C. H. Stanton
Mr. H. C. Luff
Mr. L. E. Stone
Mr. W. H. Herrington
Mr. J. T. Gurney, Sr.
Mr. T. B. Tart
Mr. E. C. Windisch
Mr. S. M. Day
Ms. V. Tschinkel
Mr. S. Smallwood
Mr. C. Collins
Mr. R. King
Mr. Larry George