

NEIC

EPA-330/2-81-018

DATA ANALYSIS REPORT
LIDAR INVESTIGATION OF VISIBLE EMISSIONS
BRITISH PETROLEUM REFINERY
MARCUS HOOK, PENNSYLVANIA

[September 14-17, 1981]

December 1981

National Enforcement Investigations Center, Denver

U.S. Environmental Protection Agency



Office of Enforcement

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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Frank S. Mills

NATIONAL ENFORCEMENT INVESTIGATIONS CENTER
Denver, Colorado

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SUMMARY

The Environmental Protection Agency's Region III Enforcement Division requested that the National Enforcement Investigations Center (NEIC) assist in determining compliance with air pollution control regulations of stationary sources at the British Petroleum Oil Refinery in Marcus Hook, Pennsylvania. The sources were suspected of excessive nighttime visible emissions.

To provide the requested assistance, from September 14 to 17, 1981, NEIC investigated the compliance of visible emissions from the requested sources with the Pennsylvania Air Pollution Control Regulations, Chapter 123 - Standards for Contaminants, Sections 123, 41, 123.42, and 123.43. These regulations prohibit visible emissions with opacity greater than 20% for a period or periods aggregating more than 3 minutes in any one hour. No opacity greater than 60% is allowed.

From a location off the plant site, the NEIC Omega-1 Lidar was used to measure emissions opacity from the Fluidized Catalytic Cracker (FCC) stack during late night and early morning hours. No lidar measurements of emissions from other sources at British Petroleum were made because no emissions were observed during the investigation period. Figure 1 shows a map of the area indicating the source and the lidar location.

A total of 2,151 individual opacity measurements were made in six sets over a total measurement period of 5 hours and 22 minutes. One set of measurements was 22 minutes long. The other five sets of measurements were 1 hour each.

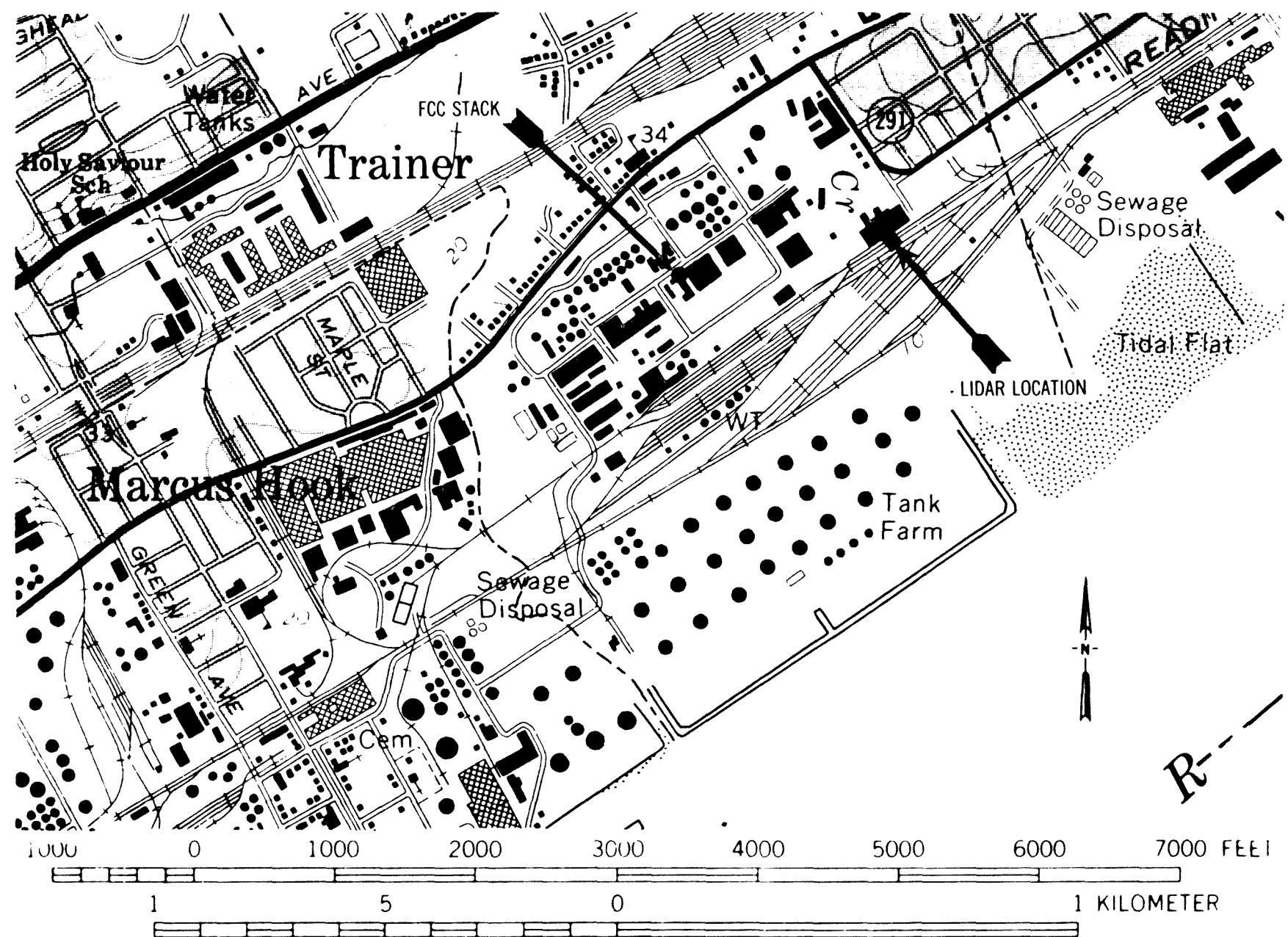


FIGURE 1. LOCATION MAP (MARCUS HOOK, PA. QUADRANGLE)

CONCLUSIONS

Some opacity measurements of visible emissions at the British Petroleum Oil Refinery FCC stack exceeded 60%, during three of the six measurement periods. The maximum allowed opacity is 60%. In addition, the opacity of visible emissions exceeded 20% for periods aggregating more than 3 minutes during four of the five 1-hour measurement periods. This exceeds the maximum aggregate time in excess of 20% allowed by the regulations. The results of the lidar measurements of opacity are summarized in Table 1.

Table 1
 VISIBLE EMISSIONS DATA SUMMARY
 FCC Stack
 British Petroleum Oil Refinery
 Marcus Hook, Pennsylvania

Date Sept 1981	Time Interval	Length of Run (minutes)	Individual Measurements Exceeding 60%	Aggregate Time Exceeding 20% (minutes)	Highest Opacity (%)	Lowest Opacity (%)
14	22:13:06 23:11:28	58	1	41.88	60	2
14 15	23:15:34 0:15:42	60	2	45.33	74	13
16	22:53:34 23:53:57	60	94	32.98	95	5
16 17	23:57:09 00:58:34	61	0	13.08	55	1
17	1:20:18 1:42:50	22	0	0.88	60	8
17	1:49:21 2:49:18	60	0	0.15	51	0

METHODS

MEASUREMENTS

This investigation was conducted using the EPA/NEIC Omega-1 Lidar according to 40 CFR 60*, Alternate Method 1 to Reference Method 9 of Appendix A (46 Federal Register, 53144-53162, October 28, 1981). The NEIC procedures for lidar operation and safety, document control, and chain of custody were followed.

Opacity measurements of emissions from the British Petroleum fluidized catalytic cracker were made between 10:00 p.m. and 1:00 a.m. on the night of September 14 and between 10:00 p.m. and 3:00 a.m. on the night of September 16, 1981. Two 1-hour data runs were made on September 14 and four data runs were made on the night of September 16, one 22 minutes long and the other three 1-hour each.

The lidar backscatter signal data were recorded on magnetic tape as an evidentiary record along with the azimuth and elevation angle for each shot. Measurements were made at a rate of approximately one every 9 seconds (400/hour).

Correct lidar performance was verified using the optical signal generator each night before opacity measurements were made. On the night of September 16, an additional performance verification test was done 4 hours after the first one, as specified in Section 3.2 of Alternate Method 1. The optical signal generator produces simulated lidar backscatter signals of known opacity. These signals are introduced at the front of the lidar receiver so the performance of the entire receiver, from detector to computer, can be verified.

* *Code of Federal Regulations, Title 40, Part 60.*

The results of the lidar performance verification tests are presented in Table 2. The known opacity of the simulated signals is listed in the first column under "Standard". The opacity measured by the lidar for each of the simulated signals is listed under "Meas." for each of the three tests. According to Section 3.3.2 of Alternate Method 1, the measured opacity may differ from the standard by no more than \pm 3% of full scale. All the measured opacities were well within this limit.

Table 2
LIDAR PERFORMANCE VERIFICATION TESTS

Standard	September 14		September 16 (test 1)		September 16 (test 2)	
	Meas.	Meas-Std.	Meas.	Meas-Std.	Meas.	Meas-Std.
0.54	0.03	-0.51	0.00	-0.54	0.57	0.03
10.64	10.70	0.06	10.40	-0.24	10.83	0.19
19.65	19.80	0.15	19.63	-0.02	18.83	-0.82
40.35	40.13	-0.22	40.50	0.15	40.30	-0.05
62.97	62.47	-0.50	62.83	-0.14	62.83	-0.14
80.50	79.37	-1.13	80.13	-0.37	79.33	-1.17

DATA ANALYSIS

The lidar data were analyzed in accordance with Section 2.6 of Alternate Method 1 using the NEIC PDP-11/70 computer. The individual opacity values and associated statistics were calculated using the backscatter data recorded on magnetic tape and the appropriate equations given in Section 2.6 of Alternate Method 1. The calculated opacity values were also corrected for elevation angle as specified in Section 2.6.2 of Alternate Method 1. The actual plume opacity was obtained from calculated plume opacity by subtracting 5% plus two standard deviations as defined in Section 2.6.3. This definition of actual opacity is provided in Alternate Method 1 for consistency with Method 9. Method 9 Visible Emission Observer readings are made in 5% increments. Therefore, Method 9 opacity measurements must be 5% greater than the applicable standard before a source is considered out of compliance.

Compliance of opacity readings with Sections 123.41, 123.42, and 123.43 of the Pennsylvania Air Pollution Control Regulations was determined in the following way. Any actual opacity which exceeded 60% was indicated as exceeding the standard. Also, any actual opacity which exceeded 20% was flagged. A period of time with actual opacity greater than the standard was considered to begin with the first value flagged, continuing as long as the actual opacity remained higher than 20%. If a measurement was not flagged, or if more than 20 seconds elapsed after a flagged measurement with no opacity measurement, the period of time with actual opacity greater than the standard was considered to end with the last flagged measurement. The next flagged value was then considered to be the beginning of the next period of time with actual opacity greater than 20%. For each run, the periods of time with actual opacity greater than 20%, as determined by this procedure, were aggregated. If, in any 1-hour period, the aggregate time with actual opacity greater than 20% exceeded 3 minutes, the limit specified in Section 123.41 was exceeded. Isolated measurements exceeding 20% were not counted in determining the aggregate time with actual opacity exceeding 20%.

DATA PRESENTATION

The opacity data are presented in two formats. For each data run, the calculated opacity minus 5% is plotted as a function of time, with range bars indicating plus or minus two standard deviations. For any particular opacity measurement, the actual opacity is indicated by the bottom of the range bar. Each plot covers 10 minutes of measurements. Also on each plot, the zero opacity level is indicated by a long-dashed line; the aggregate opacity standard is indicated by a short dashed line; and the single event opacity is indicated by a long-short dashed line.

Immediately following the plots for each data run, the actual opacity values are tabulated with the following information provided. For each opacity measurement:

- Date of data run
- Time of the opacity measurement (nearest second)
- Actual opacity value (%)
- Standard deviation S_0 in % (S_0 in Alternate Method 1)
- Noncompliance flag (this measurement exceeds the standard for a single measurement, 60% in Pennsylvania)
- Aggregate flag (this measurement exceeds the aggregate standard, 20% in Pennsylvania)
- Total aggregate time in this run with opacity exceeding the aggregate standard

DATA PRESENTATION

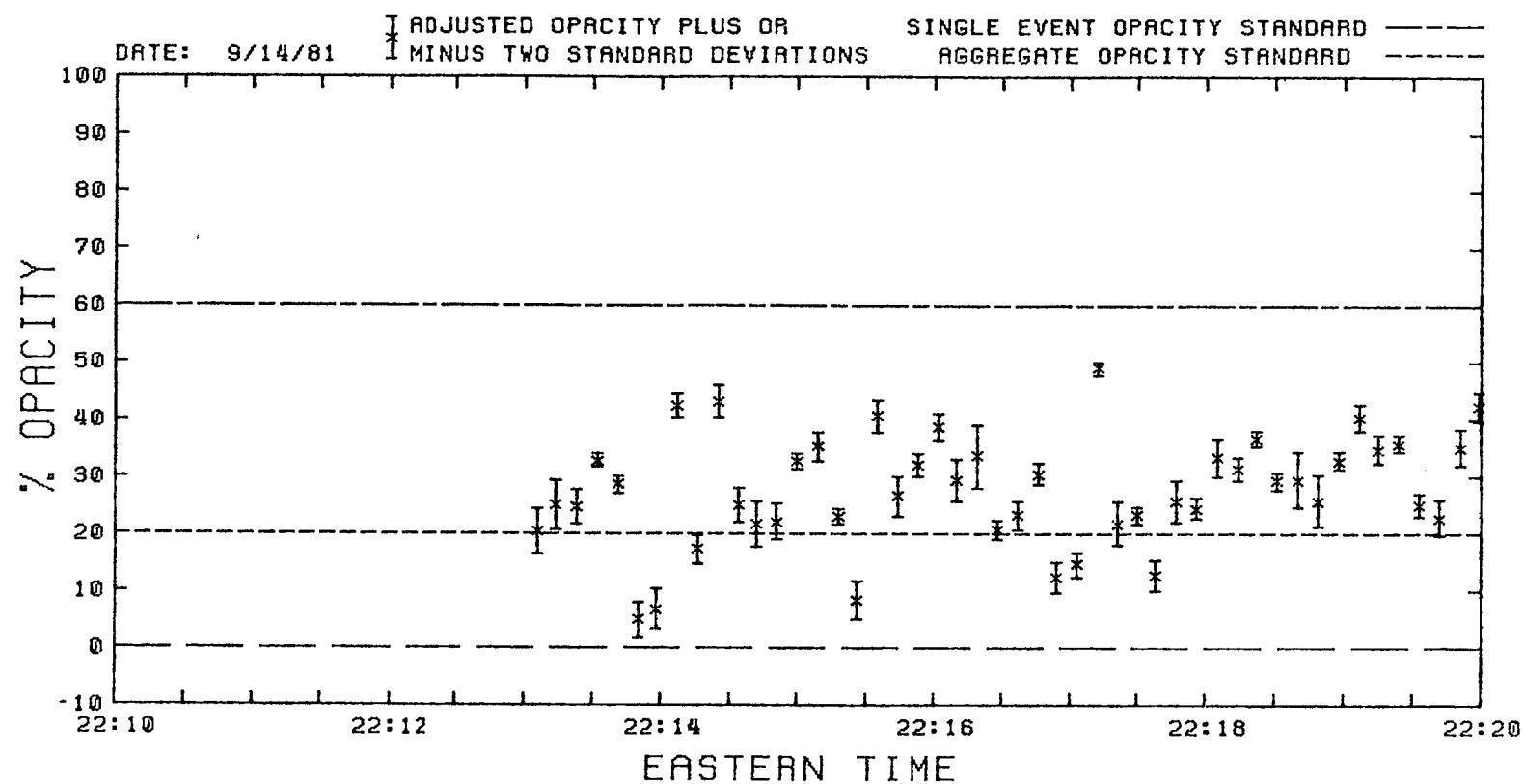
OMEGA - 0085

BRITISH PETROLEUM REFINERY
FLUIDIZED CATALYTIC CRACKER

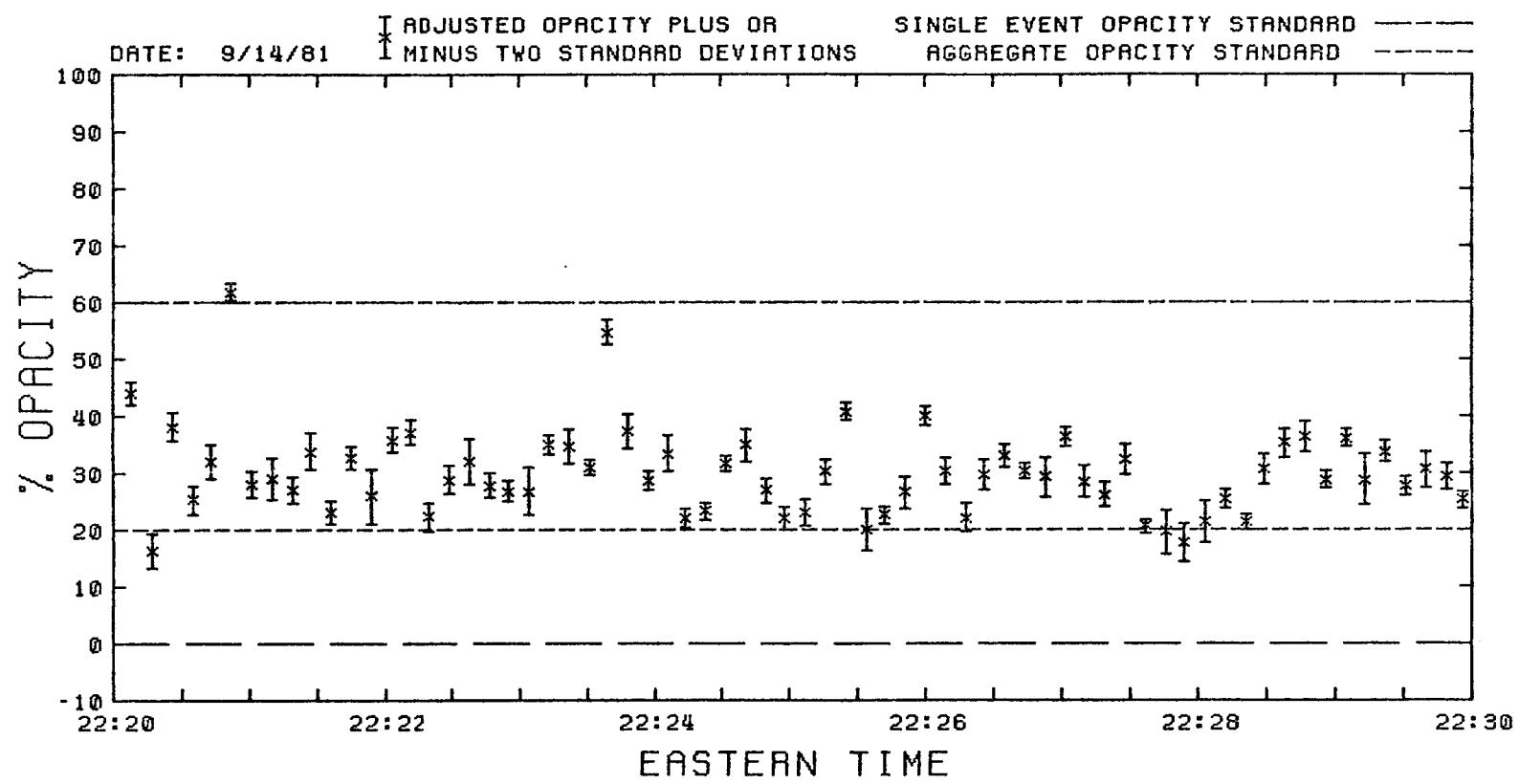
Marcus Hook, Pennsylvania

September 14, 1981

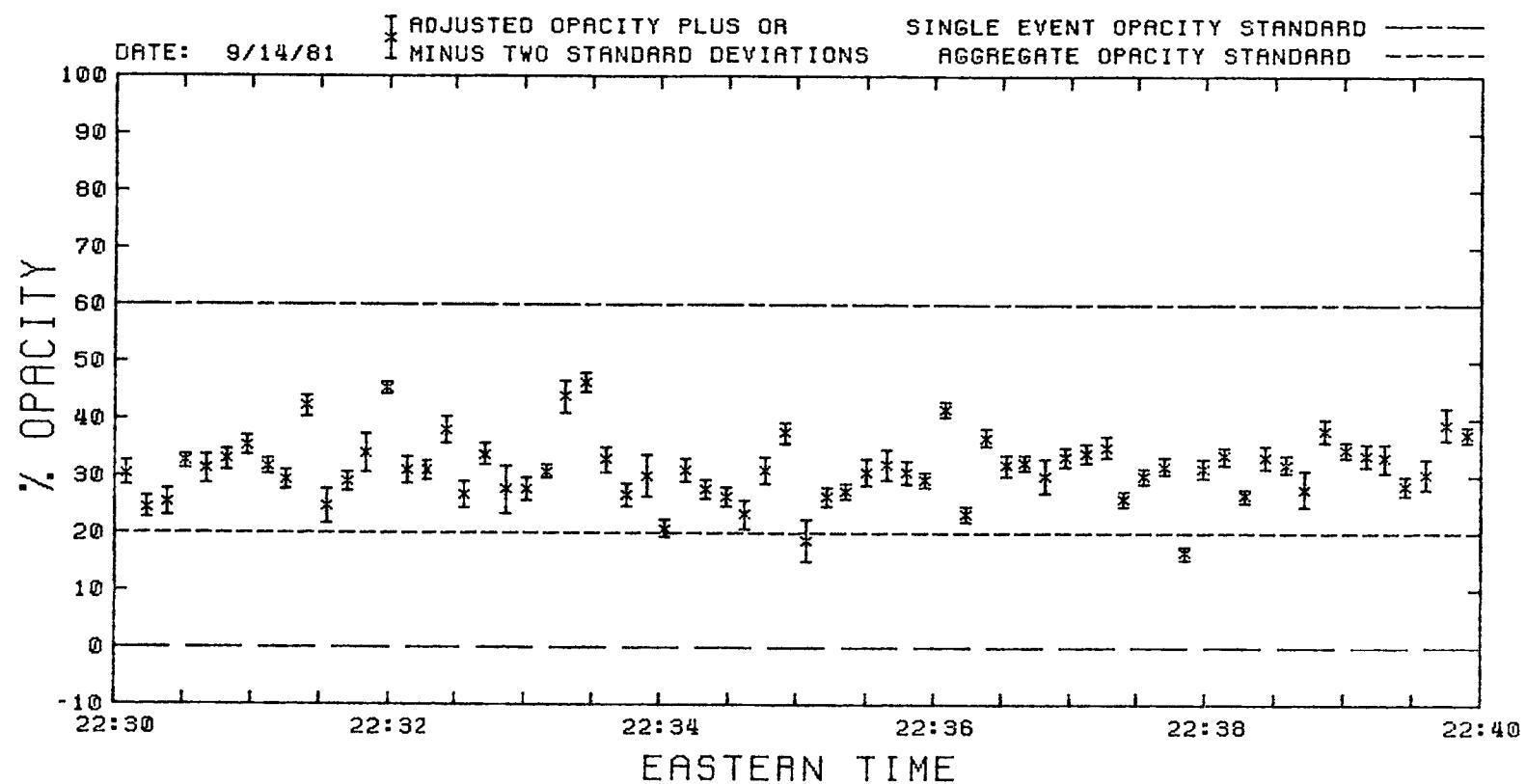
22:13:06 to 23:11:28



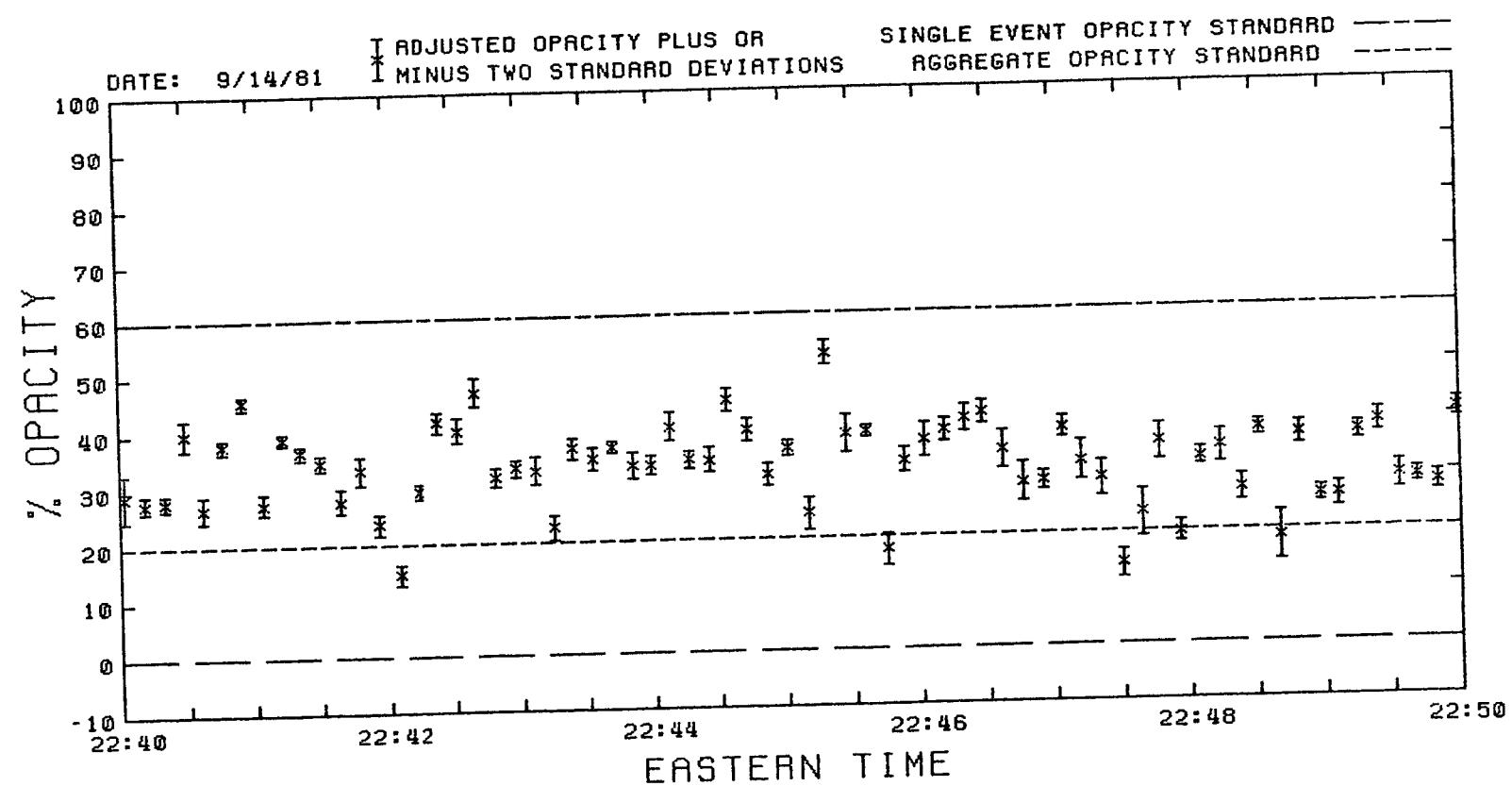
FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



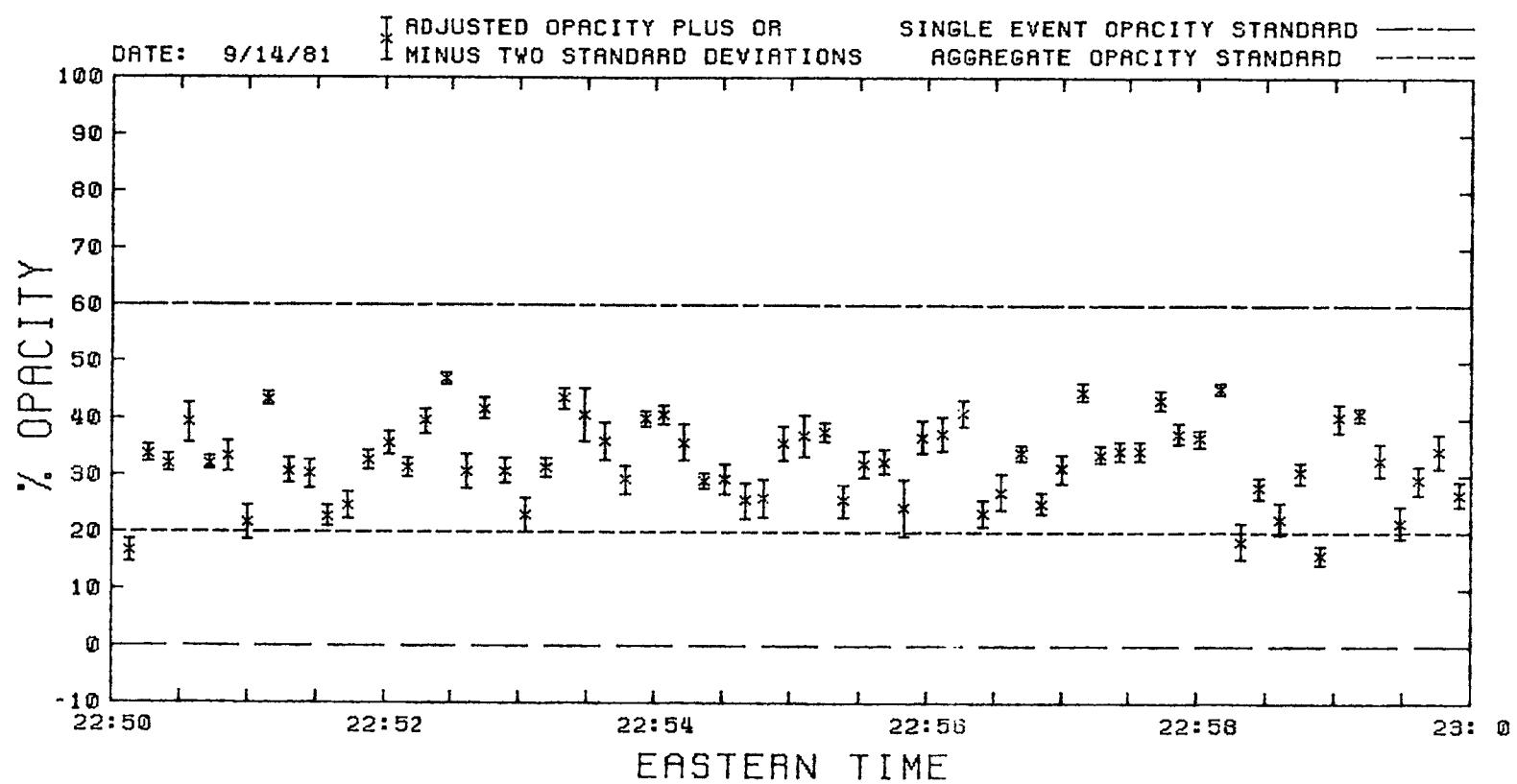
FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



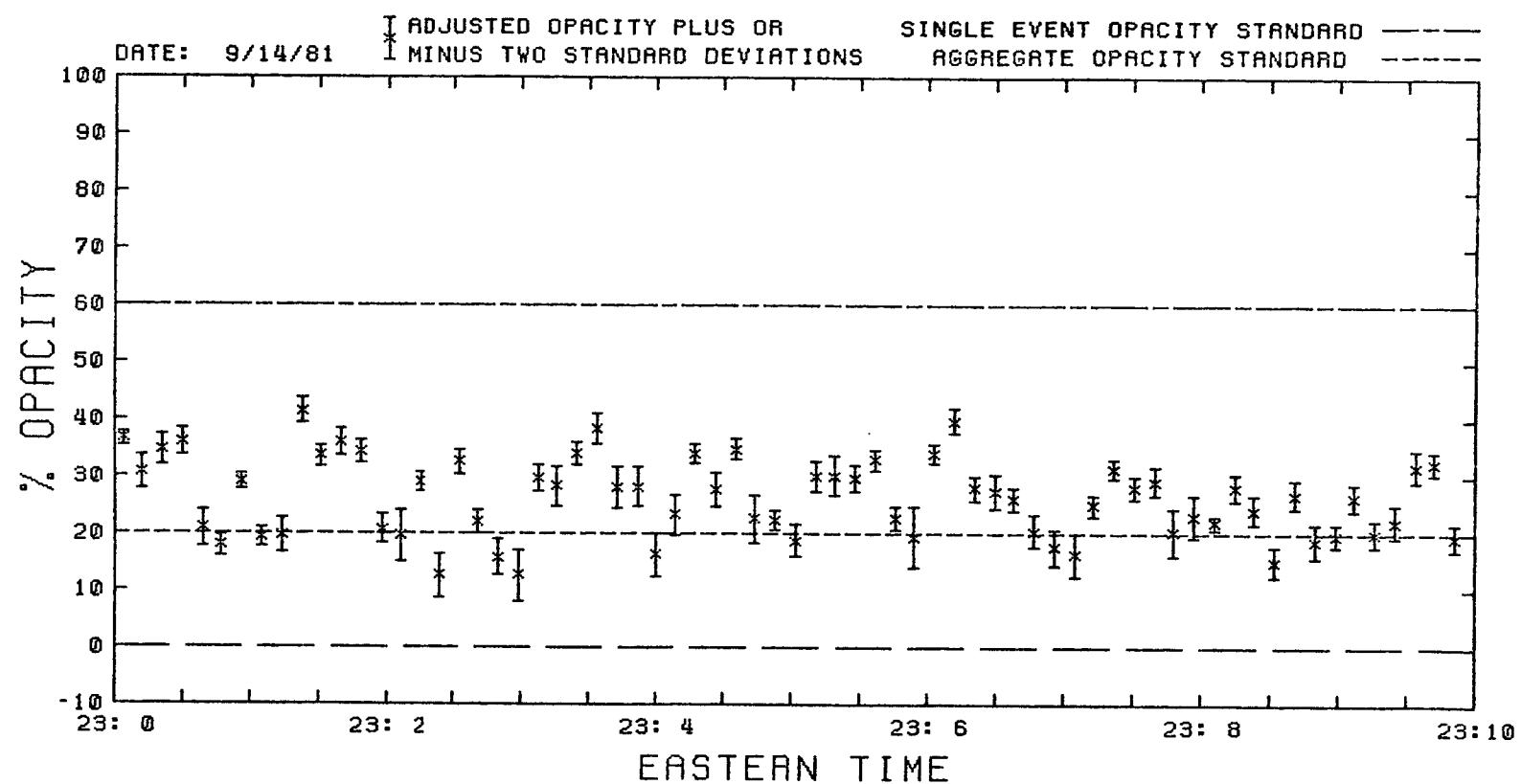
FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



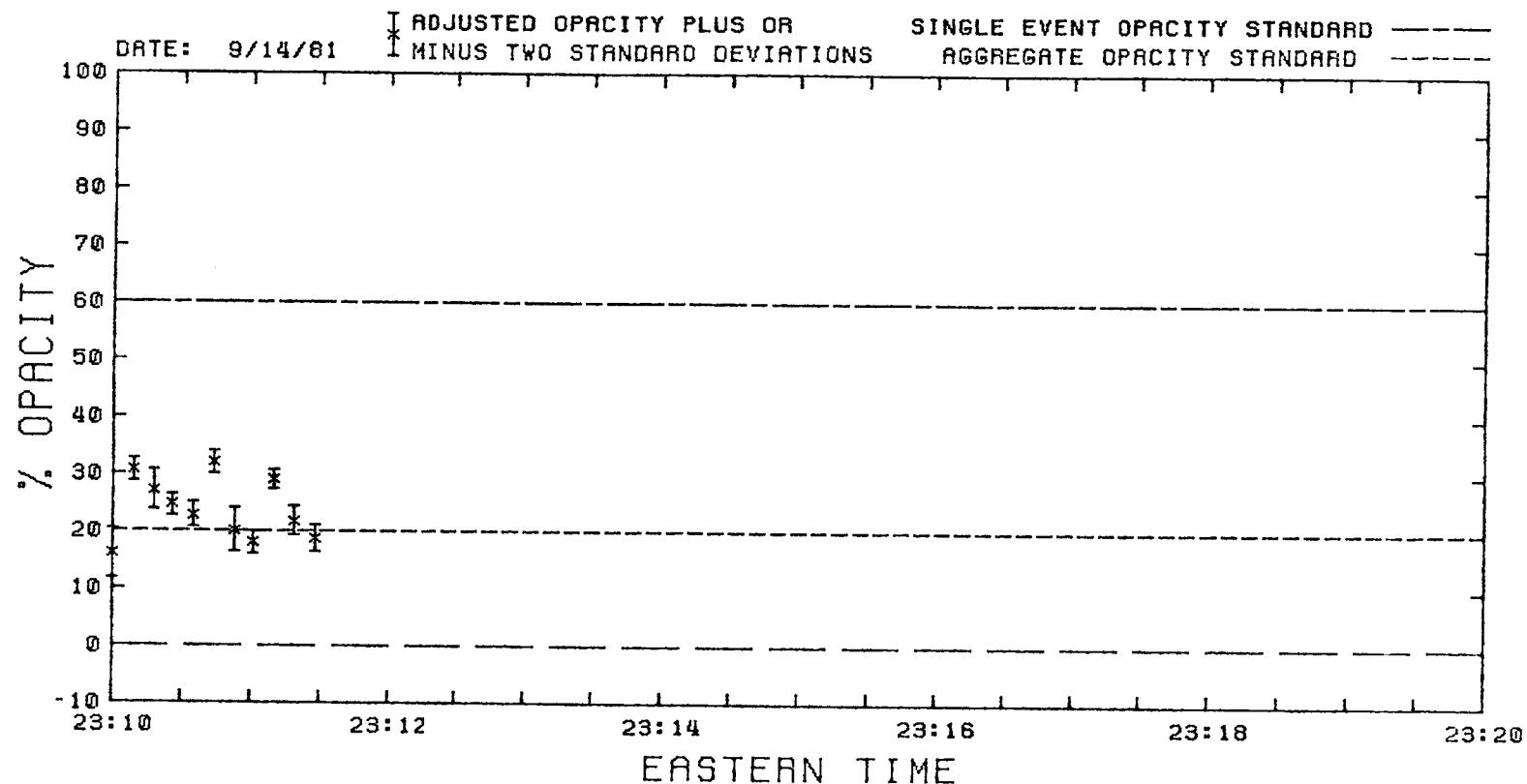
FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.

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 DENVER, COLORADO 80225

OMEGA-0085, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.

DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/14/81	22: 13: 6	16	2			0. 00 MINUTES
9/14/81	22: 13: 14	21	2	****		0. 00 MINUTES
9/14/81	22: 13: 23	22	2	****		0. 15 MINUTES
9/14/81	22: 13: 32	32	1	****		0. 30 MINUTES
9/14/81	22: 13: 41	27	1	****		0. 45 MINUTES
9/14/81	22: 13: 50	2	2			0. 45 MINUTES
9/14/81	22: 13: 58	3	2			0. 45 MINUTES
9/14/81	22: 14: 7	40	1	****		0. 45 MINUTES
9/14/81	22: 14: 16	15	1			0. 45 MINUTES
9/14/81	22: 14: 25	40	1	****		0. 45 MINUTES
9/14/81	22: 14: 34	22	2	****		0. 60 MINUTES
9/14/81	22: 14: 42	18	2			0. 60 MINUTES
9/14/81	22: 14: 51	19	2			0. 60 MINUTES
9/14/81	22: 15: 0	31	1	****		0. 60 MINUTES
9/14/81	22: 15: 9	33	1	****		0. 75 MINUTES
9/14/81	22: 15: 18	22	1	****		0. 90 MINUTES
9/14/81	22: 15: 26	5	2			0. 90 MINUTES
9/14/81	22: 15: 35	38	1	****		0. 90 MINUTES
9/14/81	22: 15: 44	23	2	****		1. 05 MINUTES
9/14/81	22: 15: 53	30	1	****		1. 20 MINUTES
9/14/81	22: 16: 2	36	1	****		1. 35 MINUTES
9/14/81	22: 16: 10	26	2	****		1. 48 MINUTES
9/14/81	22: 16: 19	28	3	****		1. 63 MINUTES
9/14/81	22: 16: 28	19	1			1. 63 MINUTES
9/14/81	22: 16: 37	21	1	****		1. 63 MINUTES
9/14/81	22: 16: 46	29	1	****		1. 78 MINUTES
9/14/81	22: 16: 54	9	1			1. 78 MINUTES
9/14/81	22: 17: 3	12	1			1. 78 MINUTES
9/14/81	22: 17: 12	48	1	****		1. 78 MINUTES
9/14/81	22: 17: 21	18	2			1. 78 MINUTES
9/14/81	22: 17: 30	22	1	****		1. 78 MINUTES
9/14/81	22: 17: 38	10	1			1. 78 MINUTES
9/14/81	22: 17: 47	22	2	****		1. 78 MINUTES
9/14/81	22: 17: 56	23	1	****		1. 93 MINUTES
9/14/81	22: 18: 5	30	2	****		2. 08 MINUTES
9/14/81	22: 18: 14	29	1	****		2. 23 MINUTES
9/14/81	22: 18: 22	35	1	****		2. 37 MINUTES
9/14/81	22: 18: 31	28	1	****		2. 52 MINUTES
9/14/81	22: 18: 40	25	2	****		2. 67 MINUTES
9/14/81	22: 18: 49	21	2	****		2. 82 MINUTES
9/14/81	22: 18: 58	31	1	****		2. 97 MINUTES
9/14/81	22: 19: 7	38	1	****		3. 12 MINUTES
9/14/81	22: 19: 15	32	1	****		3. 25 MINUTES
9/14/81	22: 19: 24	34	1	****		3. 40 MINUTES
9/14/81	22: 19: 33	23	1	****		3. 55 MINUTES
9/14/81	22: 19: 42	20	2	****		3. 55 MINUTES
9/14/81	22: 19: 51	32	2	****		3. 55 MINUTES
9/14/81	22: 19: 59	40	1	****		3. 68 MINUTES
9/14/81	22: 20: 8	42	1	****		3. 83 MINUTES
9/14/81	22: 20: 17	13	2			3. 83 MINUTES

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OMEGA-0085, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.

DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/14/81	22: 20: 26	36	1		****	3. 83 MINUTES
9/14/81	22: 20: 35	23	1		****	3. 98 MINUTES
9/14/81	22: 20: 43	29	2		****	4. 12 MINUTES
9/14/81	22: 20: 52	60	1	****	****	4. 27 MINUTES
9/14/81	22: 21: 1	26	1		****	4. 42 MINUTES
9/14/81	22: 21: 10	25	2		****	4. 57 MINUTES
9/14/81	22: 21: 19	25	1		****	4. 72 MINUTES
9/14/81	22: 21: 27	31	2		****	4. 85 MINUTES
9/14/81	22: 21: 36	21	1		****	5. 00 MINUTES
9/14/81	22: 21: 45	31	1		****	5. 15 MINUTES
9/14/81	22: 21: 54	21	2		****	5. 30 MINUTES
9/14/81	22: 22: 3	34	1		****	5. 45 MINUTES
9/14/81	22: 22: 11	35	1		****	5. 58 MINUTES
9/14/81	22: 22: 20	20	1			5. 58 MINUTES
9/14/81	22: 22: 29	26	1		****	5. 58 MINUTES
9/14/81	22: 22: 38	28	2		****	5. 73 MINUTES
9/14/81	22: 22: 47	26	1		****	5. 88 MINUTES
9/14/81	22: 22: 55	25	1		****	6. 02 MINUTES
9/14/81	22: 23: 4	23	2		****	6. 17 MINUTES
9/14/81	22: 23: 13	33	1		****	6. 32 MINUTES
9/14/81	22: 23: 22	32	2		****	6. 47 MINUTES
9/14/81	22: 23: 31	30	1		****	6. 62 MINUTES
9/14/81	22: 23: 39	53	1		****	6. 75 MINUTES
9/14/81	22: 23: 48	34	2		****	6. 90 MINUTES
9/14/81	22: 23: 57	27	1		****	7. 05 MINUTES
9/14/81	22: 24: 6	30	2		****	7. 20 MINUTES
9/14/81	22: 24: 14	20	1		****	7. 33 MINUTES
9/14/81	22: 24: 23	22	1		****	7. 48 MINUTES
9/14/81	22: 24: 32	30	1		****	7. 63 MINUTES
9/14/81	22: 24: 41	32	1		****	7. 78 MINUTES
9/14/81	22: 24: 50	25	1		****	7. 93 MINUTES
9/14/81	22: 24: 58	20	1		****	8. 07 MINUTES
9/14/81	22: 25: 7	21	1		****	8. 22 MINUTES
9/14/81	22: 25: 16	28	1		****	8. 37 MINUTES
9/14/81	22: 25: 25	39	1		****	8. 52 MINUTES
9/14/81	22: 25: 34	16	2			8. 52 MINUTES
9/14/81	22: 25: 42	21	1		****	8. 52 MINUTES
9/14/81	22: 25: 51	24	1		****	8. 67 MINUTES
9/14/81	22: 26: 0	38	1		****	8. 82 MINUTES
9/14/81	22: 26: 9	28	1		****	8. 97 MINUTES
9/14/81	22: 26: 18	20	1			8. 97 MINUTES
9/14/81	22: 26: 26	27	1		****	8. 97 MINUTES
9/14/81	22: 26: 35	31	1		****	9. 12 MINUTES
9/14/81	22: 26: 44	29	1		****	9. 27 MINUTES
9/14/81	22: 26: 53	26	2		****	9. 42 MINUTES
9/14/81	22: 27: 2	35	1		****	9. 57 MINUTES
9/14/81	22: 27: 10	26	1		****	9. 70 MINUTES
9/14/81	22: 27: 19	24	1		****	9. 85 MINUTES
9/14/81	22: 27: 28	30	1		****	10. 00 MINUTES
9/14/81	22: 27: 37	19	1			10. 00 MINUTES

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DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/14/81	22: 27: 46	16	2			10. 00 MINUTES
9/14/81	22: 27: 54	14	2			10. 00 MINUTES
9/14/81	22: 28: 3	18	2			10. 00 MINUTES
9/14/81	22: 28: 12	24	1	****		10. 00 MINUTES
9/14/81	22: 28: 21	20	1	****		10. 15 MINUTES
9/14/81	22: 28: 29	28	1	****		10. 28 MINUTES
9/14/81	22: 28: 38	33	1	****		10. 43 MINUTES
9/14/81	22: 28: 47	34	1	****		10. 58 MINUTES
9/14/81	22: 28: 56	27	1	****		10. 73 MINUTES
9/14/81	22: 29: 5	35	1	****		10. 88 MINUTES
9/14/81	22: 29: 13	24	2	****		11. 02 MINUTES
9/14/81	22: 29: 22	32	1	****		11. 17 MINUTES
9/14/81	22: 29: 31	26	1	****		11. 32 MINUTES
9/14/81	22: 29: 40	27	2	****		11. 47 MINUTES
9/14/81	22: 29: 49	27	1	****		11. 62 MINUTES
9/14/81	22: 29: 56	24	1	****		11. 73 MINUTES
9/14/81	22: 30: 5	28	1	****		11. 88 MINUTES
9/14/81	22: 30: 14	23	1	****		12. 03 MINUTES
9/14/81	22: 30: 23	23	1	****		12. 18 MINUTES
9/14/81	22: 30: 31	31	1	****		12. 32 MINUTES
9/14/81	22: 30: 40	29	1	****		12. 47 MINUTES
9/14/81	22: 30: 49	31	1	****		12. 62 MINUTES
9/14/81	22: 30: 58	34	1	****		12. 77 MINUTES
9/14/81	22: 31: 7	30	1	****		12. 92 MINUTES
9/14/81	22: 31: 15	28	1	****		13. 05 MINUTES
9/14/81	22: 31: 24	40	1	****		13. 20 MINUTES
9/14/81	22: 31: 33	22	2	****		13. 35 MINUTES
9/14/81	22: 31: 42	27	1	****		13. 50 MINUTES
9/14/81	22: 31: 50	31	2	****		13. 63 MINUTES
9/14/81	22: 31: 59	44	0	****		13. 78 MINUTES
9/14/81	22: 32: 8	29	1	****		13. 93 MINUTES
9/14/81	22: 32: 17	29	1	****		14. 08 MINUTES
9/14/81	22: 32: 26	36	1	****		14. 23 MINUTES
9/14/81	22: 32: 34	24	1	****		14. 37 MINUTES
9/14/81	22: 32: 43	32	1	****		14. 52 MINUTES
9/14/81	22: 32: 52	23	2	****		14. 67 MINUTES
9/14/81	22: 33: 1	26	1	****		14. 82 MINUTES
9/14/81	22: 33: 10	30	1	****		14. 97 MINUTES
9/14/81	22: 33: 18	41	1	****		15. 10 MINUTES
9/14/81	22: 33: 27	45	1	****		15. 25 MINUTES
9/14/81	22: 33: 36	31	1	****		15. 40 MINUTES
9/14/81	22: 33: 45	25	1	****		15. 55 MINUTES
9/14/81	22: 33: 54	26	2	****		15. 70 MINUTES
9/14/81	22: 34: 2	19	1			15. 70 MINUTES
9/14/81	22: 34: 11	29	1	****		15. 70 MINUTES
9/14/81	22: 34: 20	26	1	****		15. 85 MINUTES
9/14/81	22: 34: 29	25	1	****		16. 00 MINUTES
9/14/81	22: 34: 37	21	1	****		16. 13 MINUTES
9/14/81	22: 34: 46	29	1	****		16. 28 MINUTES
9/14/81	22: 34: 55	36	1	****		16. 43 MINUTES

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OMEGA-0085, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.

DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/14/81	22: 35: 4	15	2			16. 43 MINUTES
9/14/81	22: 35: 13	25	1	****		16. 43 MINUTES
9/14/81	22: 35: 21	26	1	****		16. 57 MINUTES
9/14/81	22: 35: 30	28	1	****		16. 72 MINUTES
9/14/81	22: 35: 39	29	1	****		16. 87 MINUTES
9/14/81	22: 35: 48	29	1	****		17. 02 MINUTES
9/14/81	22: 35: 56	28	1	****		17. 15 MINUTES
9/14/81	22: 36: 5	40	1	****		17. 30 MINUTES
9/14/81	22: 36: 14	22	1	****		17. 45 MINUTES
9/14/81	22: 36: 23	35	1	****		17. 60 MINUTES
9/14/81	22: 36: 32	30	1	****		17. 75 MINUTES
9/14/81	22: 36: 40	31	1	****		17. 88 MINUTES
9/14/81	22: 36: 49	27	2	****		18. 03 MINUTES
9/14/81	22: 36: 58	32	1	****		18. 18 MINUTES
9/14/81	22: 37: 7	32	1	****		18. 33 MINUTES
9/14/81	22: 37: 16	33	1	****		18. 48 MINUTES
9/14/81	22: 37: 24	25	1	****		18. 62 MINUTES
9/14/81	22: 37: 33	29	1	****		18. 77 MINUTES
9/14/81	22: 37: 42	30	1	****		18. 92 MINUTES
9/14/81	22: 37: 51	15	1			18. 92 MINUTES
9/14/81	22: 37: 59	30	1	****		18. 92 MINUTES
9/14/81	22: 38: 8	32	1	****		19. 07 MINUTES
9/14/81	22: 38: 17	25	1	****		19. 22 MINUTES
9/14/81	22: 38: 26	31	1	****		19. 37 MINUTES
9/14/81	22: 38: 35	31	1	****		19. 52 MINUTES
9/14/81	22: 38: 43	25	2	****		19. 65 MINUTES
9/14/81	22: 38: 52	36	1	****		19. 80 MINUTES
9/14/81	22: 39: 1	33	1	****		19. 95 MINUTES
9/14/81	22: 39: 10	32	1	****		20. 10 MINUTES
9/14/81	22: 39: 18	31	1	****		20. 23 MINUTES
9/14/81	22: 39: 27	27	1	****		20. 38 MINUTES
9/14/81	22: 39: 36	28	1	****		20. 53 MINUTES
9/14/81	22: 39: 45	36	1	****		20. 68 MINUTES
9/14/81	22: 39: 54	36	1	****		20. 83 MINUTES
9/14/81	22: 40: 2	29	2	****		20. 97 MINUTES
9/14/81	22: 40: 11	26	1	****		21. 12 MINUTES
9/14/81	22: 40: 20	27	1	****		21. 27 MINUTES
9/14/81	22: 40: 29	37	1	****		21. 42 MINUTES
9/14/81	22: 40: 37	24	1	****		21. 55 MINUTES
9/14/81	22: 40: 46	37	1	****		21. 70 MINUTES
9/14/81	22: 40: 55	44	1	****		21. 85 MINUTES
9/14/81	22: 41: 4	26	1	****		22. 00 MINUTES
9/14/81	22: 41: 13	38	0	****		22. 15 MINUTES
9/14/81	22: 41: 21	35	1	****		22. 28 MINUTES
9/14/81	22: 41: 30	33	1	****		22. 43 MINUTES
9/14/81	22: 41: 39	26	1	****		22. 58 MINUTES
9/14/81	22: 41: 48	31	1	****		22. 73 MINUTES
9/14/81	22: 41: 56	22	1	****		22. 87 MINUTES
9/14/81	22: 42: 5	13	1	****		22. 87 MINUTES
9/14/81	22: 42: 14	28	1	****		22. 87 MINUTES

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 NATIONAL ENFORCEMENT INVESTIGATIONS CENTER
 DENVER, COLORADO 80225

OMEGA-0085, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.

DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/14/81	22: 42: 23	40	1		****	23. 02 MINUTES
9/14/81	22: 42: 32	38	1		****	23. 17 MINUTES
9/14/81	22: 42: 40	44	1		****	23. 30 MINUTES
9/14/81	22: 42: 49	30	1		****	23. 45 MINUTES
9/14/81	22: 42: 58	32	1		****	23. 60 MINUTES
9/14/81	22: 43: 7	30	1		****	23. 75 MINUTES
9/14/81	22: 43: 15	20	1		****	23. 88 MINUTES
9/14/81	22: 43: 24	35	1		****	24. 03 MINUTES
9/14/81	22: 43: 33	33	1		****	24. 18 MINUTES
9/14/81	22: 43: 42	36	0		****	24. 33 MINUTES
9/14/81	22: 43: 51	31	1		****	24. 48 MINUTES
9/14/81	22: 43: 59	32	1		****	24. 62 MINUTES
9/14/81	22: 44: 8	38	1		****	24. 77 MINUTES
9/14/81	22: 44: 17	33	1		****	24. 92 MINUTES
9/14/81	22: 44: 26	32	1		****	25. 07 MINUTES
9/14/81	22: 44: 34	43	1		****	25. 20 MINUTES
9/14/81	22: 44: 43	37	1		****	25. 35 MINUTES
9/14/81	22: 44: 52	29	1		****	25. 50 MINUTES
9/14/81	22: 45: 1	35	1		****	25. 65 MINUTES
9/14/81	22: 45: 10	21	1		****	25. 80 MINUTES
9/14/81	22: 45: 18	51	1		****	25. 93 MINUTES
9/14/81	22: 45: 27	35	2		****	26. 08 MINUTES
9/14/81	22: 45: 36	38	0		****	26. 23 MINUTES
9/14/81	22: 45: 45	15	1		****	26. 23 MINUTES
9/14/81	22: 45: 53	31	1		****	26. 23 MINUTES
9/14/81	22: 46: 2	34	2		****	26. 38 MINUTES
9/14/81	22: 46: 11	37	1		****	26. 53 MINUTES
9/14/81	22: 46: 20	38	1		****	26. 68 MINUTES
9/14/81	22: 46: 28	40	1		****	26. 82 MINUTES
9/14/81	22: 46: 37	32	2		****	26. 97 MINUTES
9/14/81	22: 46: 46	26	2		****	27. 12 MINUTES
9/14/81	22: 46: 55	28	1		****	27. 27 MINUTES
9/14/81	22: 47: 4	37	1		****	27. 42 MINUTES
9/14/81	22: 47: 12	29	2		****	27. 55 MINUTES
9/14/81	22: 47: 21	26	2		****	27. 70 MINUTES
9/14/81	22: 47: 30	12	1			27. 70 MINUTES
9/14/81	22: 47: 39	19	2			27. 70 MINUTES
9/14/81	22: 47: 47	33	2		****	27. 70 MINUTES
9/14/81	22: 47: 56	18	1			27. 70 MINUTES
9/14/81	22: 48: 5	32	1		****	27. 70 MINUTES
9/14/81	22: 48: 14	32	1		****	27. 85 MINUTES
9/14/81	22: 48: 23	25	1		****	28. 00 MINUTES
9/14/81	22: 48: 31	37	1		****	28. 13 MINUTES
9/14/81	22: 48: 40	14	2			28. 13 MINUTES
9/14/81	22: 48: 49	35	1		****	28. 13 MINUTES
9/14/81	22: 48: 58	25	1		****	28. 28 MINUTES
9/14/81	22: 49: 6	24	1		****	28. 42 MINUTES
9/14/81	22: 49: 15	36	1		****	28. 57 MINUTES
9/14/81	22: 49: 24	37	1		****	28. 72 MINUTES
9/14/81	22: 49: 33	27	1		****	28. 87 MINUTES

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 NATIONAL ENFORCEMENT INVESTIGATIONS CENTER
 DENVER, COLORADO 80225

OMEGA-0085, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.

DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/14/81	22: 49: 41	28	1	****		29. 00 MINUTES
9/14/81	22: 49: 50	26	1	****		29. 15 MINUTES
9/14/81	22: 49: 59	39	1	****		29. 30 MINUTES
9/14/81	22: 50: 8	15	1	****		29. 30 MINUTES
9/14/81	22: 50: 16	32	1	****		29. 30 MINUTES
9/14/81	22: 50: 25	31	1	****		29. 45 MINUTES
9/14/81	22: 50: 34	36	2	****		29. 60 MINUTES
9/14/81	22: 50: 43	31	1	****		29. 75 MINUTES
9/14/81	22: 50: 51	31	1	****		29. 88 MINUTES
9/14/81	22: 51: 0	19	2	****		29. 88 MINUTES
9/14/81	22: 51: 9	42	1	****		29. 88 MINUTES
9/14/81	22: 51: 18	29	1	****		30. 03 MINUTES
9/14/81	22: 51: 27	28	1	****		30. 18 MINUTES
9/14/81	22: 51: 35	21	1	****		30. 32 MINUTES
9/14/81	22: 51: 44	22	1	****		30. 47 MINUTES
9/14/81	22: 51: 53	31	1	****		30. 62 MINUTES
9/14/81	22: 52: 2	34	1	****		30. 77 MINUTES
9/14/81	22: 52: 10	30	1	****		30. 90 MINUTES
9/14/81	22: 52: 19	37	1	****		31. 05 MINUTES
9/14/81	22: 52: 28	46	0	****		31. 20 MINUTES
9/14/81	22: 52: 37	28	2	****		31. 35 MINUTES
9/14/81	22: 52: 45	40	1	****		31. 48 MINUTES
9/14/81	22: 52: 54	29	1	****		31. 63 MINUTES
9/14/81	22: 53: 3	20	2	****		31. 78 MINUTES
9/14/81	22: 53: 12	30	1	****		31. 93 MINUTES
9/14/81	22: 53: 20	42	1	****		32. 07 MINUTES
9/14/81	22: 53: 29	36	2	****		32. 22 MINUTES
9/14/81	22: 53: 38	33	2	****		32. 37 MINUTES
9/14/81	22: 53: 47	27	1	****		32. 52 MINUTES
9/14/81	22: 53: 56	39	1	****		32. 67 MINUTES
9/14/81	22: 54: 4	39	1	****		32. 80 MINUTES
9/14/81	22: 54: 13	33	2	****		32. 95 MINUTES
9/14/81	22: 54: 22	28	1	****		33. 10 MINUTES
9/14/81	22: 54: 31	27	1	****		33. 25 MINUTES
9/14/81	22: 54: 40	22	2	****		33. 40 MINUTES
9/14/81	22: 54: 48	23	2	****		33. 53 MINUTES
9/14/81	22: 54: 57	33	2	****		33. 68 MINUTES
9/14/81	22: 55: 6	33	2	****		33. 83 MINUTES
9/14/81	22: 55: 15	36	1	****		33. 98 MINUTES
9/14/81	22: 55: 23	23	1	****		34. 12 MINUTES
9/14/81	22: 55: 32	30	1	****		34. 27 MINUTES
9/14/81	22: 55: 41	30	1	****		34. 42 MINUTES
9/14/81	22: 55: 50	19	2	****		34. 42 MINUTES
9/14/81	22: 55: 58	34	1	****		34. 42 MINUTES
9/14/81	22: 56: 7	34	2	****		34. 57 MINUTES
9/14/81	22: 56: 16	39	1	****		34. 72 MINUTES
9/14/81	22: 56: 25	21	1	****		34. 87 MINUTES
9/14/81	22: 56: 33	24	2	****		35. 00 MINUTES
9/14/81	22: 56: 42	33	1	****		35. 15 MINUTES
9/14/81	22: 56: 51	23	1	****		35. 30 MINUTES

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 NATIONAL ENFORCEMENT INVESTIGATIONS CENTER
 DENVER, COLORADO 80225

OMEGA-0085, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.

DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/14/81	22: 57: 0	29	1		****	35. 45 MINUTES
9/14/81	22: 57: 9	43	1		****	35. 60 MINUTES
9/14/81	22: 57: 17	32	1		****	35. 73 MINUTES
9/14/81	22: 57: 26	33	1		****	35. 88 MINUTES
9/14/81	22: 57: 35	33	1		****	36. 03 MINUTES
9/14/81	22: 57: 44	42	1		****	36. 18 MINUTES
9/14/81	22: 57: 52	36	1		****	36. 32 MINUTES
9/14/81	22: 58: 1	35	1		****	36. 47 MINUTES
9/14/81	22: 58: 10	44	0		****	36. 62 MINUTES
9/14/81	22: 58: 19	15	2			36. 62 MINUTES
9/14/81	22: 58: 27	26	1		****	36. 62 MINUTES
9/14/81	22: 58: 36	20	1			36. 62 MINUTES
9/14/81	22: 58: 45	29	1		****	36. 62 MINUTES
9/14/81	22: 58: 54	14	1			36. 62 MINUTES
9/14/81	22: 59: 2	38	1		****	36. 62 MINUTES
9/14/81	22: 59: 11	40	1		****	36. 77 MINUTES
9/14/81	22: 59: 20	30	1		****	36. 92 MINUTES
9/14/81	22: 59: 29	19	1			36. 92 MINUTES
9/14/81	22: 59: 37	27	1		****	36. 92 MINUTES
9/14/81	22: 59: 46	31	2		****	37. 07 MINUTES
9/14/81	22: 59: 55	25	1		****	37. 22 MINUTES
9/14/81	23: 0: 4	35	1		****	37. 37 MINUTES
9/14/81	23: 0: 12	28	2		****	37. 50 MINUTES
9/14/81	23: 0: 21	32	1		****	37. 65 MINUTES
9/14/81	23: 0: 30	34	1		****	37. 80 MINUTES
9/14/81	23: 0: 39	18	2			37. 80 MINUTES
9/14/81	23: 0: 47	16	1			37. 80 MINUTES
9/14/81	23: 0: 56	28	1		****	37. 80 MINUTES
9/14/81	23: 1: 5	18	1			37. 80 MINUTES
9/14/81	23: 1: 14	17	2			37. 80 MINUTES
9/14/81	23: 1: 23	39	1		****	37. 80 MINUTES
9/14/81	23: 1: 31	32	1		****	37. 93 MINUTES
9/14/81	23: 1: 40	34	1		****	38. 08 MINUTES
9/14/81	23: 1: 49	32	1		****	38. 23 MINUTES
9/14/81	23: 1: 58	18	1			38. 23 MINUTES
9/14/81	23: 2: 6	15	2			38. 23 MINUTES
9/14/81	23: 2: 15	27	1		****	38. 23 MINUTES
9/14/81	23: 2: 24	9	2			38. 23 MINUTES
9/14/81	23: 2: 33	30	1		****	38. 23 MINUTES
9/14/81	23: 2: 41	20	1			38. 23 MINUTES
9/14/81	23: 2: 50	12	2			38. 23 MINUTES
9/14/81	23: 2: 59	8	2			38. 23 MINUTES
9/14/81	23: 3: 8	27	1		****	38. 23 MINUTES
9/14/81	23: 3: 16	25	2		****	38. 37 MINUTES
9/14/81	23: 3: 25	32	1		****	38. 52 MINUTES
9/14/81	23: 3: 34	36	1		****	38. 67 MINUTES
9/14/81	23: 3: 43	24	2		****	38. 82 MINUTES
9/14/81	23: 3: 52	25	2		****	38. 97 MINUTES
9/14/81	23: 4: 0	12	2			38. 97 MINUTES
9/14/81	23: 4: 9	20	2			38. 97 MINUTES

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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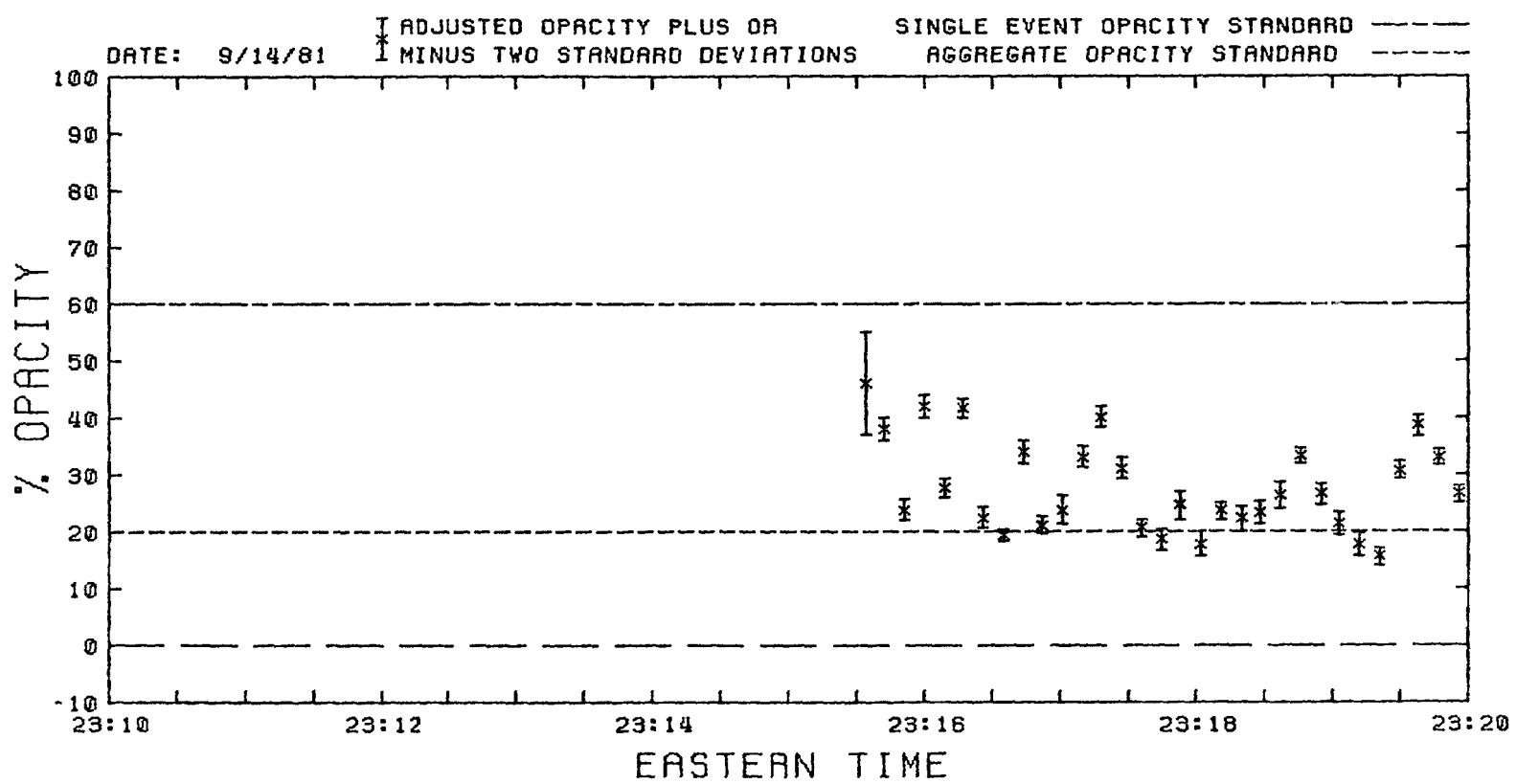
OMEGA-0085, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.
 DATE TIME OPACITY SO EXCEEDS 60% EXCEEDS 20% AGGREGATE TIME EXCEEDING 20%

9/14/81	23: 4: 18	32	1	****	38. 97 MINUTES
9/14/81	23: 4: 27	25	2	****	39. 12 MINUTES
9/14/81	23: 4: 36	33	1	****	39. 27 MINUTES
9/14/81	23: 4: 44	18	2	****	39. 27 MINUTES
9/14/81	23: 4: 53	21	1	****	39. 27 MINUTES
9/14/81	23: 5: 2	16	1		39. 27 MINUTES
9/14/81	23: 5: 11	27	1	****	39. 27 MINUTES
9/14/81	23: 5: 19	26	2	****	39. 40 MINUTES
9/14/81	23: 5: 28	27	1	****	39. 55 MINUTES
9/14/81	23: 5: 37	31	1	****	39. 70 MINUTES
9/14/81	23: 5: 46	21	1	****	39. 85 MINUTES
9/14/81	23: 5: 54	14	3		39. 85 MINUTES
9/14/81	23: 6: 3	32	1	****	39. 85 MINUTES
9/14/81	23: 6: 12	38	1	****	40. 00 MINUTES
9/14/81	23: 6: 21	26	1	****	40. 15 MINUTES
9/14/81	23: 6: 30	24	2	****	40. 30 MINUTES
9/14/81	23: 6: 38	24	1	****	40. 43 MINUTES
9/14/81	23: 6: 47	18	1		40. 43 MINUTES
9/14/81	23: 6: 56	14	2		40. 43 MINUTES
9/14/81	23: 7: 5	12	2		40. 43 MINUTES
9/14/81	23: 7: 13	23	1	****	40. 43 MINUTES
9/14/81	23: 7: 22	30	1	****	40. 58 MINUTES
9/14/81	23: 7: 31	26	1	****	40. 73 MINUTES
9/14/81	23: 7: 40	26	1	****	40. 88 MINUTES
9/14/81	23: 7: 48	16	2		40. 88 MINUTES
9/14/81	23: 7: 57	19	2		40. 88 MINUTES
9/14/81	23: 8: 6	21	1	****	40. 88 MINUTES
9/14/81	23: 8: 15	26	1	****	41. 03 MINUTES
9/14/81	23: 8: 23	22	1	****	41. 17 MINUTES
9/14/81	23: 8: 32	12	1		41. 17 MINUTES
9/14/81	23: 8: 41	24	1	****	41. 17 MINUTES
9/14/81	23: 8: 50	16	2		41. 17 MINUTES
9/14/81	23: 8: 59	18	1		41. 17 MINUTES
9/14/81	23: 9: 7	24	1	****	41. 17 MINUTES
9/14/81	23: 9: 16	18	1		41. 17 MINUTES
9/14/81	23: 9: 25	19	1		41. 17 MINUTES
9/14/81	23: 9: 34	29	1	****	41. 17 MINUTES
9/14/81	23: 9: 42	30	1	****	41. 30 MINUTES
9/14/81	23: 9: 51	17	1		41. 30 MINUTES
9/14/81	23: 10: 0	12	2		41. 30 MINUTES
9/14/81	23: 10: 9	29	1	****	41. 30 MINUTES
9/14/81	23: 10: 18	24	2	****	41. 45 MINUTES
9/14/81	23: 10: 26	23	1	****	41. 58 MINUTES
9/14/81	23: 10: 35	21	1	****	41. 73 MINUTES
9/14/81	23: 10: 44	30	1	****	41. 88 MINUTES
9/14/81	23: 10: 53	16	2		41. 88 MINUTES
9/14/81	23: 11: 1	16	1		41. 88 MINUTES
9/14/81	23: 11: 10	27	1	****	41. 88 MINUTES
9/14/81	23: 11: 19	19	1		41. 88 MINUTES
9/14/81	23: 11: 28	16	1		41. 88 MINUTES

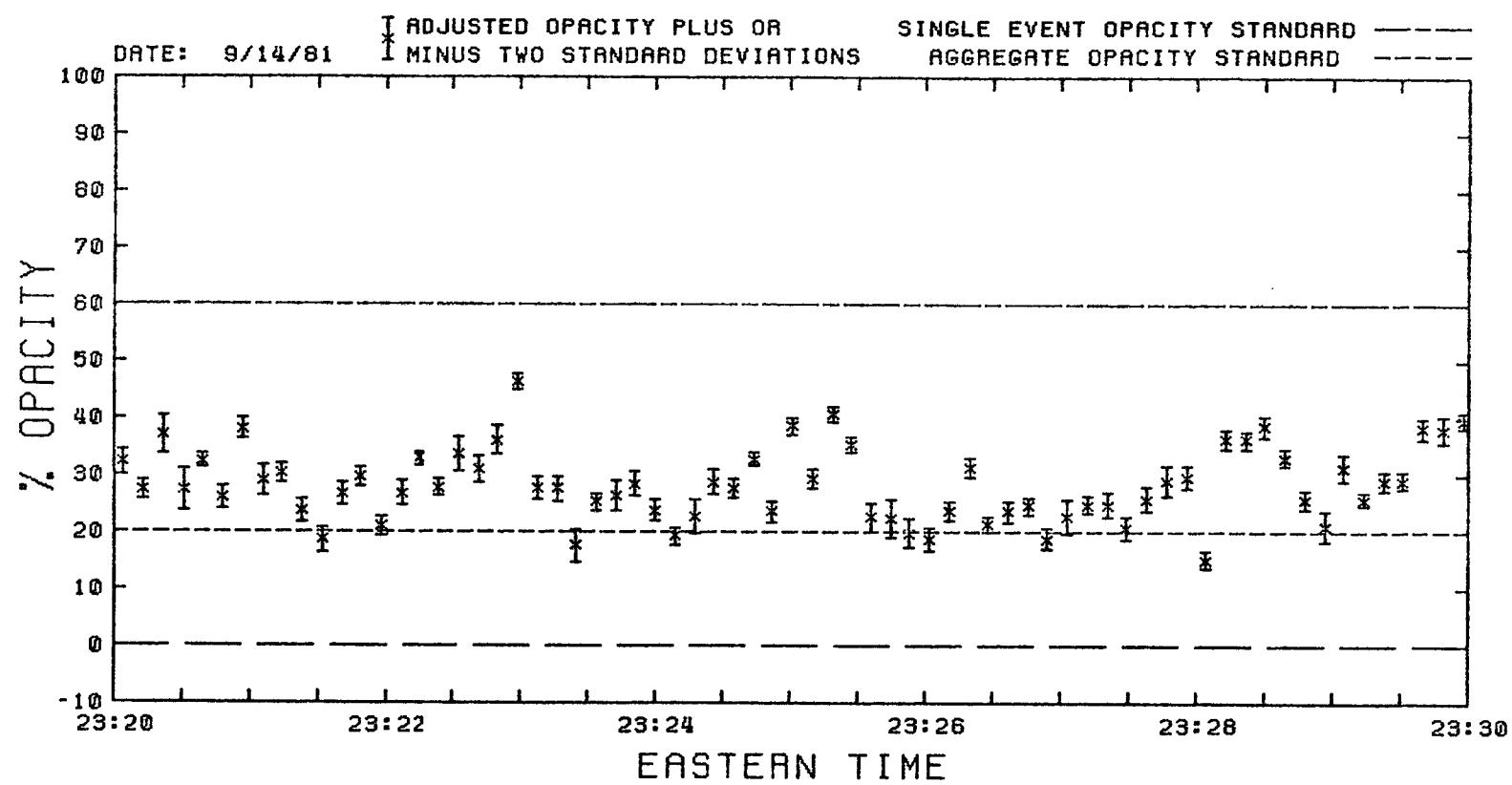
OMEGA - 0085

BRITISH PETROLEUM REFINERY
FLUIDIZED CATALYTIC CRACKER
Marcus Hook, Pennsylvania
September 14-15, 1981

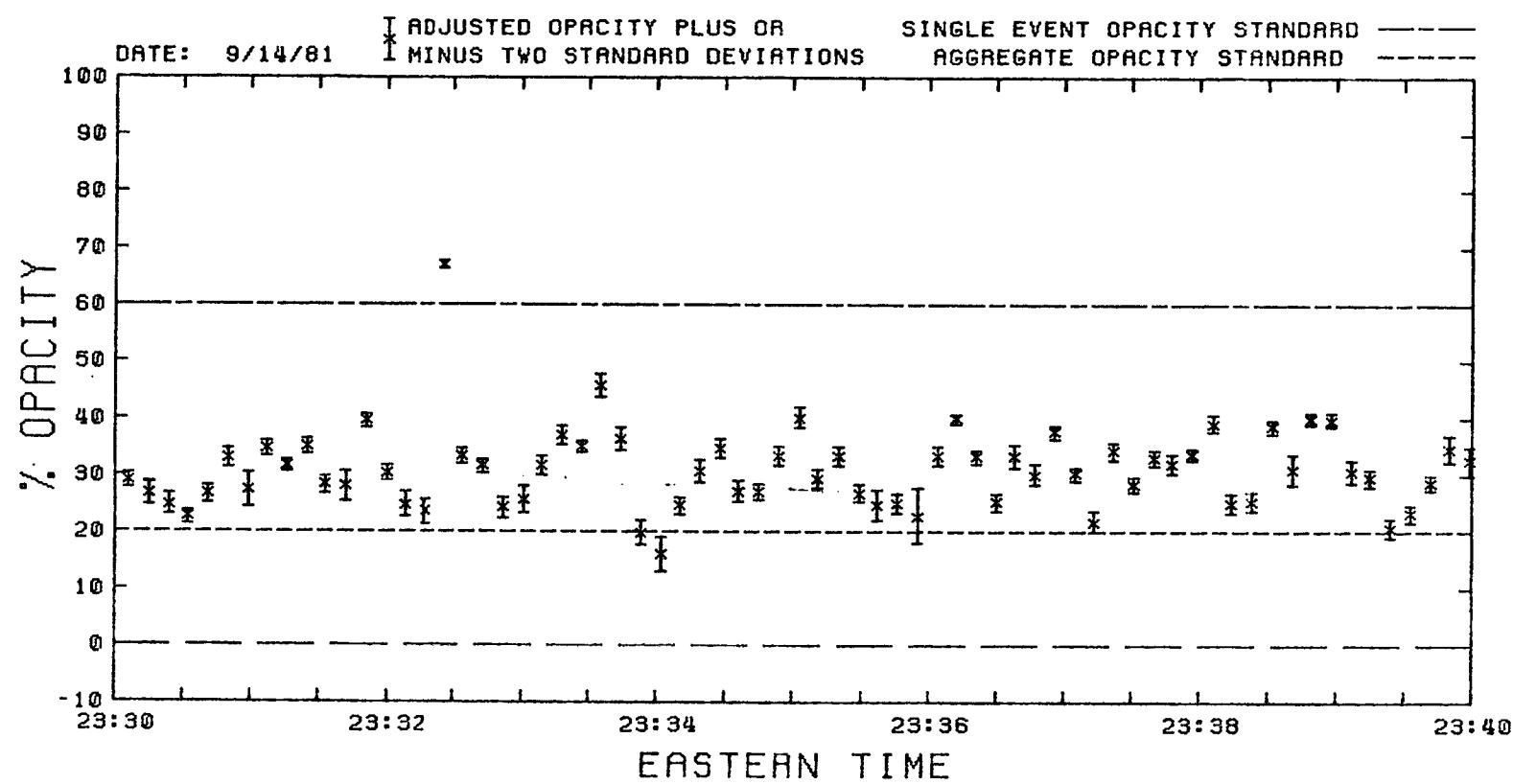
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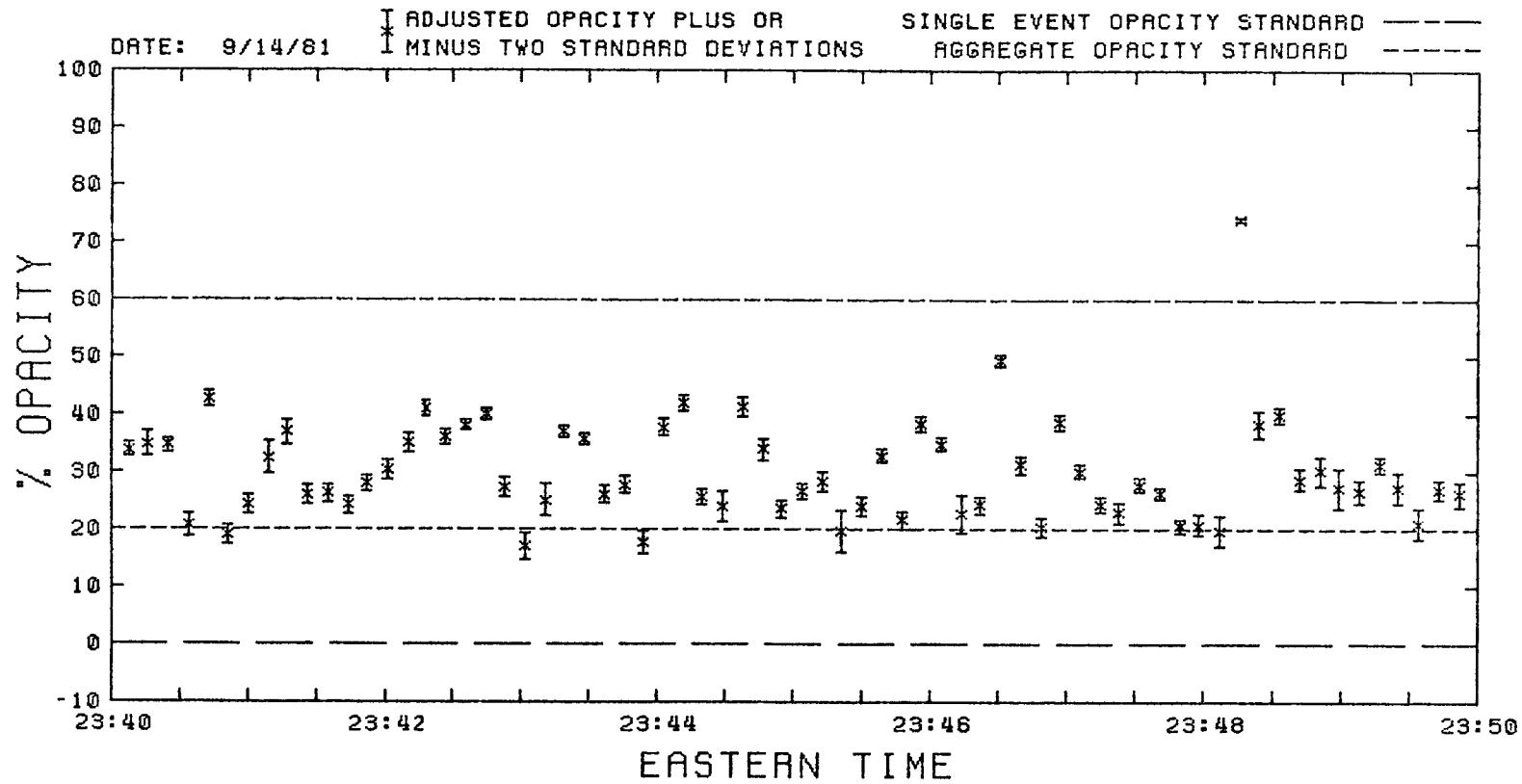
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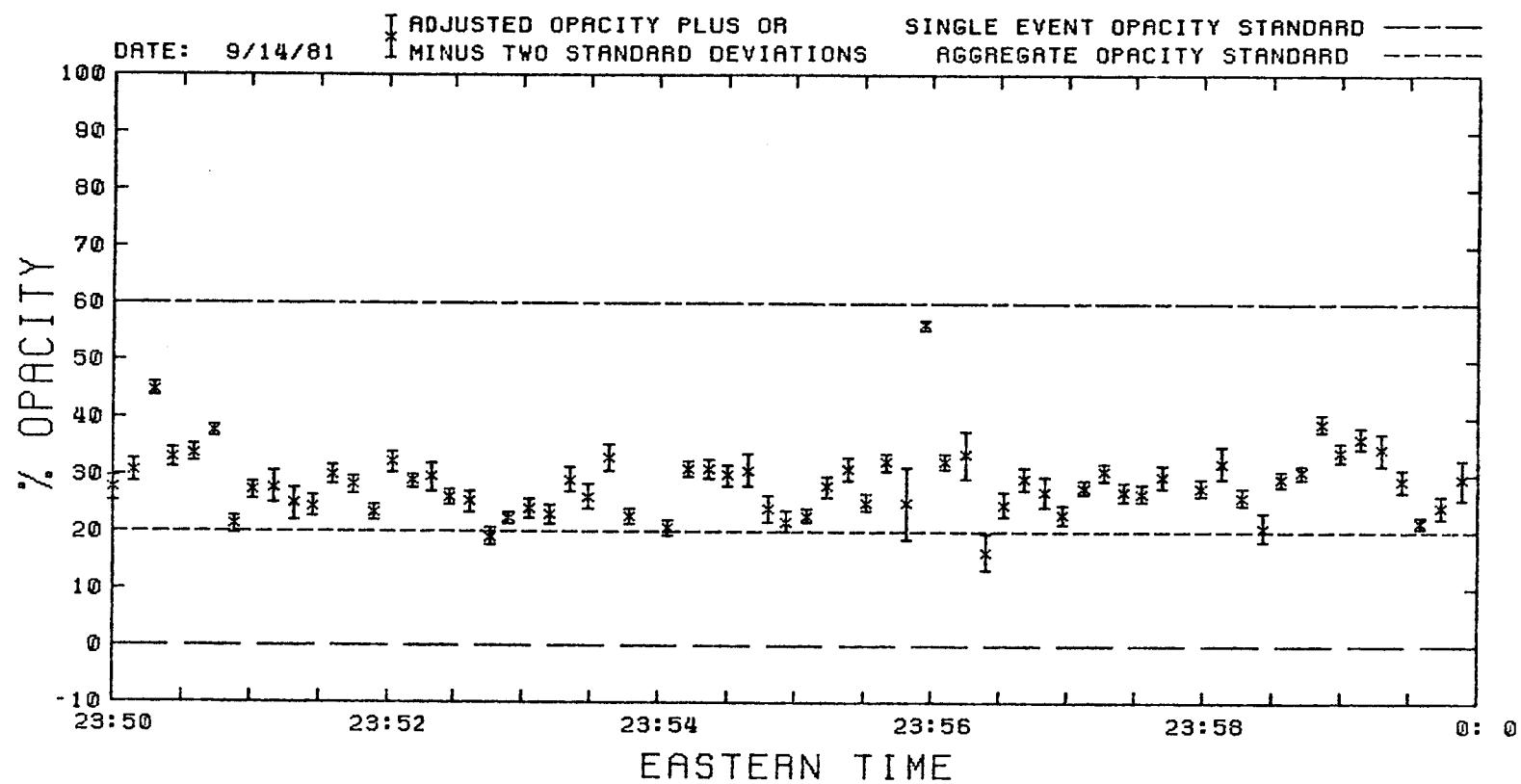
FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



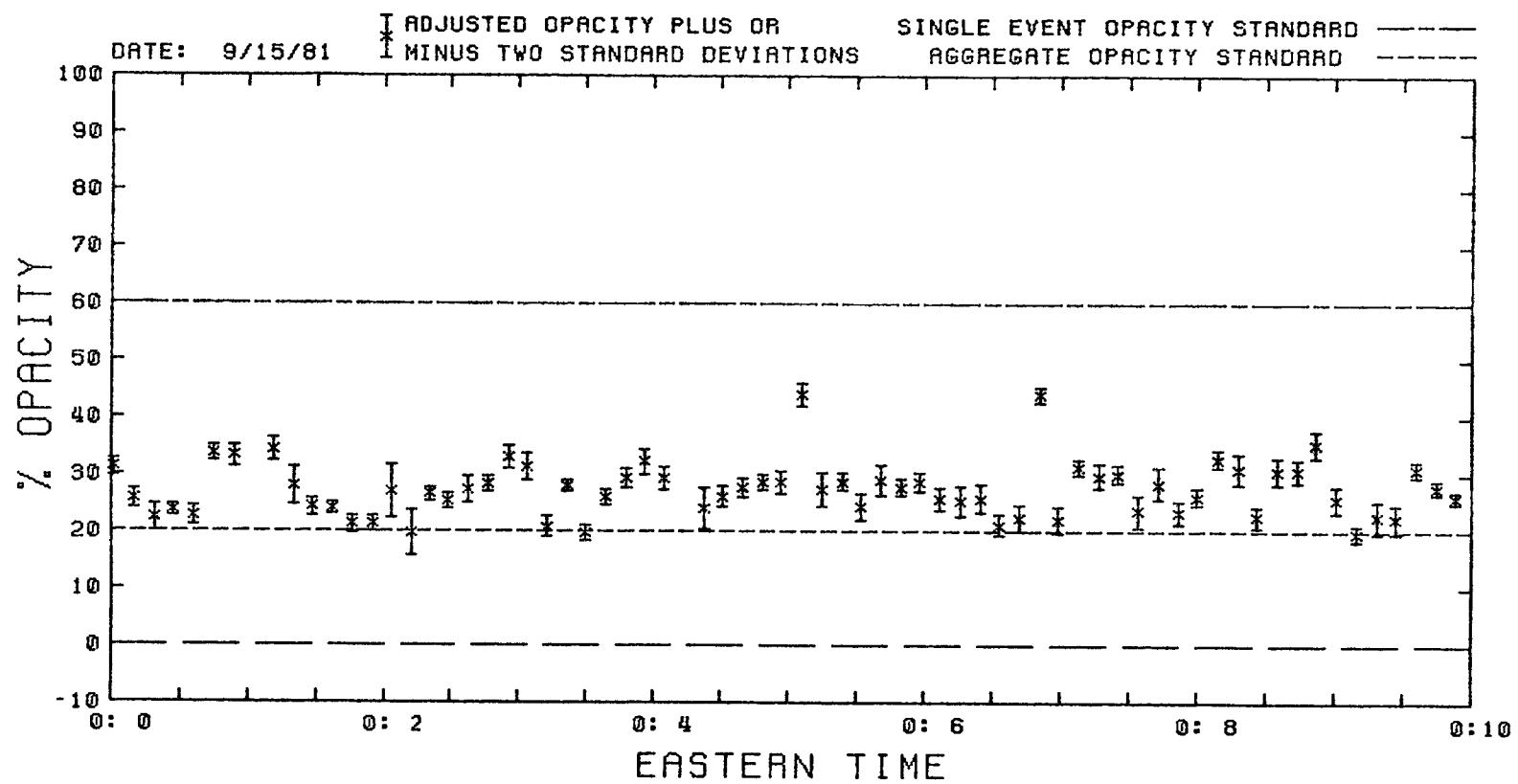
FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



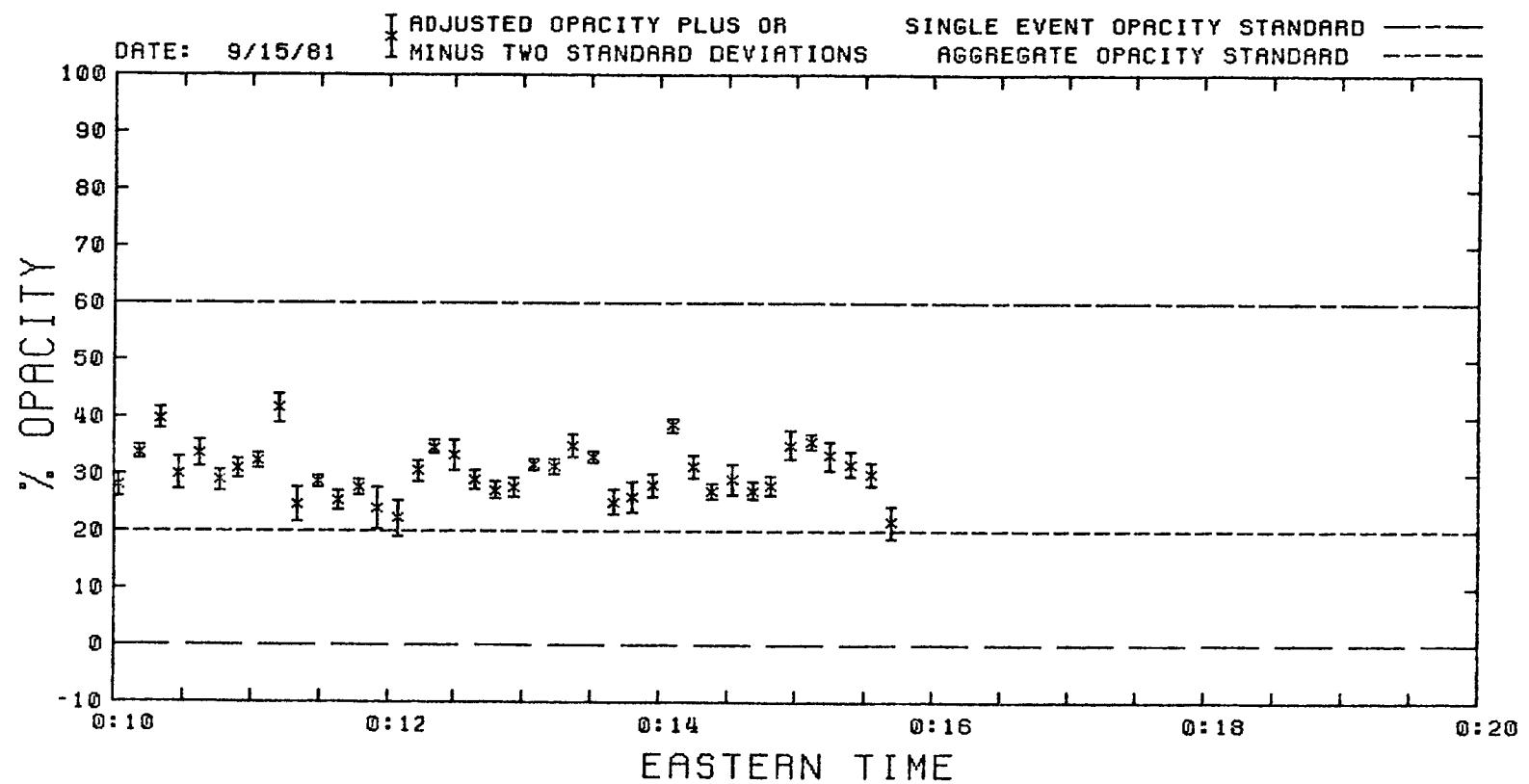
FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OMEGA-0085, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.

DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/14/81	23: 15: 34	37	5	****		0. 00 MINUTES
9/14/81	23: 15: 42	36	1	****		0. 13 MINUTES
9/14/81	23: 15: 51	22	1	****		0. 28 MINUTES
9/14/81	23: 16: 0	40	1	****		0. 43 MINUTES
9/14/81	23: 16: 9	26	1	****		0. 58 MINUTES
9/14/81	23: 16: 17	40	1	****		0. 72 MINUTES
9/14/81	23: 16: 26	21	1	****		0. 87 MINUTES
9/14/81	23: 16: 35	18	0			0. 87 MINUTES
9/14/81	23: 16: 44	32	1	****		0. 87 MINUTES
9/14/81	23: 16: 52	20	1			0. 87 MINUTES
9/14/81	23: 17: 1	21	1	****		0. 87 MINUTES
9/14/81	23: 17: 10	31	1	****		1. 02 MINUTES
9/14/81	23: 17: 18	38	1	****		1. 15 MINUTES
9/14/81	23: 17: 27	29	1	****		1. 30 MINUTES
9/14/81	23: 17: 36	19	1			1. 30 MINUTES
9/14/81	23: 17: 45	17	1			1. 30 MINUTES
9/14/81	23: 17: 53	22	1	****		1. 30 MINUTES
9/14/81	23: 18: 2	16	1			1. 30 MINUTES
9/14/81	23: 18: 11	22	1	****		1. 30 MINUTES
9/14/81	23: 18: 20	20	1	****		1. 45 MINUTES
9/14/81	23: 18: 28	21	1	****		1. 58 MINUTES
9/14/81	23: 18: 37	24	1	****		1. 73 MINUTES
9/14/81	23: 18: 46	32	1	****		1. 88 MINUTES
9/14/81	23: 18: 55	25	1	****		2. 03 MINUTES
9/14/81	23: 19: 3	19	1			2. 03 MINUTES
9/14/81	23: 19: 12	16	1			2. 03 MINUTES
9/14/81	23: 19: 21	14	1			2. 03 MINUTES
9/14/81	23: 19: 30	29	1	****		2. 03 MINUTES
9/14/81	23: 19: 38	37	1	****		2. 17 MINUTES
9/14/81	23: 19: 47	32	1	****		2. 32 MINUTES
9/14/81	23: 19: 56	25	1	****		2. 47 MINUTES
9/14/81	23: 20: 4	30	1	****		2. 60 MINUTES
9/14/81	23: 20: 13	26	1	****		2. 75 MINUTES
9/14/81	23: 20: 22	34	2	****		2. 90 MINUTES
9/14/81	23: 20: 31	24	2	****		3. 05 MINUTES
9/14/81	23: 20: 39	31	1	****		3. 18 MINUTES
9/14/81	23: 20: 48	24	1	****		3. 33 MINUTES
9/14/81	23: 20: 57	36	1	****		3. 48 MINUTES
9/14/81	23: 21: 6	26	1	****		3. 63 MINUTES
9/14/81	23: 21: 14	29	1	****		3. 77 MINUTES
9/14/81	23: 21: 23	22	1	****		3. 92 MINUTES
9/14/81	23: 21: 32	16	1			3. 92 MINUTES
9/14/81	23: 21: 41	25	1	****		3. 92 MINUTES
9/14/81	23: 21: 49	28	1	****		4. 05 MINUTES
9/14/81	23: 21: 58	19	1			4. 05 MINUTES
9/14/81	23: 22: 7	25	1	****		4. 05 MINUTES
9/14/81	23: 22: 15	32	1	****		4. 18 MINUTES
9/14/81	23: 22: 24	26	1	****		4. 33 MINUTES
9/14/81	23: 22: 33	31	2	****		4. 48 MINUTES
9/14/81	23: 22: 42	29	1	****		4. 63 MINUTES

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DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/14/81	23: 22: 50	34	1		****	4.77 MINUTES
9/14/81	23: 22: 59	45	1		****	4.92 MINUTES
9/14/81	23: 23: 8	26	1		****	5.07 MINUTES
9/14/81	23: 23: 17	25	1		****	5.22 MINUTES
9/14/81	23: 23: 25	15	1		****	5.22 MINUTES
9/14/81	23: 23: 34	24	1		****	5.22 MINUTES
9/14/81	23: 23: 43	24	1		****	5.37 MINUTES
9/14/81	23: 23: 51	26	1		****	5.50 MINUTES
9/14/81	23: 24: 0	22	1		****	5.65 MINUTES
9/14/81	23: 24: 9	18	1		****	5.65 MINUTES
9/14/81	23: 24: 18	20	2		****	5.65 MINUTES
9/14/81	23: 24: 26	27	1		****	5.65 MINUTES
9/14/81	23: 24: 35	26	1		****	5.80 MINUTES
9/14/81	23: 24: 44	32	1		****	5.95 MINUTES
9/14/81	23: 24: 52	22	1		****	6.08 MINUTES
9/14/81	23: 25: 1	37	1		****	6.23 MINUTES
9/14/81	23: 25: 10	28	1		****	6.38 MINUTES
9/14/81	23: 25: 19	39	1		****	6.53 MINUTES
9/14/81	23: 25: 27	34	1		****	6.67 MINUTES
9/14/81	23: 25: 36	20	1		****	6.67 MINUTES
9/14/81	23: 25: 45	19	2		****	6.67 MINUTES
9/14/81	23: 25: 53	17	1		****	6.67 MINUTES
9/14/81	23: 26: 2	17	1		****	6.67 MINUTES
9/14/81	23: 26: 11	22	1		****	6.67 MINUTES
9/14/81	23: 26: 20	30	1		****	6.82 MINUTES
9/14/81	23: 26: 28	20	1		****	6.95 MINUTES
9/14/81	23: 26: 37	22	1		****	7.10 MINUTES
9/14/81	23: 26: 46	23	1		****	7.25 MINUTES
9/14/81	23: 26: 54	17	1		****	7.25 MINUTES
9/14/81	23: 27: 3	20	2		****	7.25 MINUTES
9/14/81	23: 27: 12	23	1		****	7.25 MINUTES
9/14/81	23: 27: 21	23	1		****	7.40 MINUTES
9/14/81	23: 27: 29	19	1		****	7.40 MINUTES
9/14/81	23: 27: 38	24	1		****	7.40 MINUTES
9/14/81	23: 27: 47	26	1		****	7.55 MINUTES
9/14/81	23: 27: 56	28	1		****	7.70 MINUTES
9/14/81	23: 28: 4	14	1		****	7.70 MINUTES
9/14/81	23: 28: 13	35	1		****	7.70 MINUTES
9/14/81	23: 28: 22	35	1		****	7.85 MINUTES
9/14/81	23: 28: 30	37	1		****	7.98 MINUTES
9/14/81	23: 28: 39	32	1		****	8.13 MINUTES
9/14/81	23: 28: 48	24	1		****	8.28 MINUTES
9/14/81	23: 28: 57	18	1		****	8.28 MINUTES
9/14/81	23: 29: 5	29	1		****	8.28 MINUTES
9/14/81	23: 29: 14	25	1		****	8.43 MINUTES
9/14/81	23: 29: 23	27	1		****	8.58 MINUTES
9/14/81	23: 29: 31	28	1		****	8.72 MINUTES
9/14/81	23: 29: 40	36	1		****	8.87 MINUTES
9/14/81	23: 29: 49	36	1		****	9.02 MINUTES
9/14/81	23: 29: 58	38	1		****	9.17 MINUTES

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DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/14/81	23: 30: 6	28	1		****	9. 30 MINUTES
9/14/81	23: 30: 15	25	1		****	9. 45 MINUTES
9/14/81	23: 30: 24	23	1		****	9. 60 MINUTES
9/14/81	23: 30: 32	21	1		****	9. 73 MINUTES
9/14/81	23: 30: 41	25	1		****	9. 88 MINUTES
9/14/81	23: 30: 50	31	1		****	10. 03 MINUTES
9/14/81	23: 30: 59	24	2		****	10. 18 MINUTES
9/14/81	23: 31: 7	33	1		****	10. 32 MINUTES
9/14/81	23: 31: 16	31	0		****	10. 47 MINUTES
9/14/81	23: 31: 25	34	1		****	10. 62 MINUTES
9/14/81	23: 31: 33	27	1		****	10. 75 MINUTES
9/14/81	23: 31: 42	25	1		****	10. 90 MINUTES
9/14/81	23: 31: 51	38	1		****	11. 05 MINUTES
9/14/81	23: 32: 0	29	1		****	11. 20 MINUTES
9/14/81	23: 32: 8	23	1		****	11. 33 MINUTES
9/14/81	23: 32: 17	21	1		****	11. 48 MINUTES
9/14/81	23: 32: 26	66	0	****	****	11. 63 MINUTES
9/14/81	23: 32: 34	32	1		****	11. 77 MINUTES
9/14/81	23: 32: 43	30	1		****	11. 92 MINUTES
9/14/81	23: 32: 52	22	1		****	12. 07 MINUTES
9/14/81	23: 33: 1	23	1		****	12. 22 MINUTES
9/14/81	23: 33: 9	30	1		****	12. 35 MINUTES
9/14/81	23: 33: 18	35	1		****	12. 50 MINUTES
9/14/81	23: 33: 27	34	0		****	12. 65 MINUTES
9/14/81	23: 33: 35	44	1		****	12. 78 MINUTES
9/14/81	23: 33: 44	34	1		****	12. 93 MINUTES
9/14/81	23: 33: 53	18	1			12. 93 MINUTES
9/14/81	23: 34: 2	13	2			12. 93 MINUTES
9/14/81	23: 34: 10	23	1		****	12. 93 MINUTES
9/14/81	23: 34: 19	29	1		****	13. 08 MINUTES
9/14/81	23: 34: 28	33	1		****	13. 23 MINUTES
9/14/81	23: 34: 36	25	1		****	13. 37 MINUTES
9/14/81	23: 34: 45	26	1		****	13. 52 MINUTES
9/14/81	23: 34: 54	32	1		****	13. 67 MINUTES
9/14/81	23: 35: 3	38	1		****	13. 82 MINUTES
9/14/81	23: 35: 11	28	1		****	13. 95 MINUTES
9/14/81	23: 35: 20	32	1		****	14. 10 MINUTES
9/14/81	23: 35: 29	25	1		****	14. 25 MINUTES
9/14/81	23: 35: 37	22	1		****	14. 38 MINUTES
9/14/81	23: 35: 46	23	1		****	14. 53 MINUTES
9/14/81	23: 35: 55	18	2			14. 53 MINUTES
9/14/81	23: 36: 4	32	1		****	14. 53 MINUTES
9/14/81	23: 36: 12	39	0		****	14. 67 MINUTES
9/14/81	23: 36: 21	32	1		****	14. 82 MINUTES
9/14/81	23: 36: 30	24	1		****	14. 97 MINUTES
9/14/81	23: 36: 38	31	1		****	15. 10 MINUTES
9/14/81	23: 36: 47	28	1		****	15. 25 MINUTES
9/14/81	23: 36: 56	36	1		****	15. 40 MINUTES
9/14/81	23: 37: 5	29	1		****	15. 55 MINUTES
9/14/81	23: 37: 13	20	1			15. 55 MINUTES

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DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/14/81	23: 37: 22	33	1	****		15. 55 MINUTES
9/14/81	23: 37: 31	27	1	****		15. 70 MINUTES
9/14/81	23: 37: 40	32	1	****		15. 85 MINUTES
9/14/81	23: 37: 48	30	1	****		15. 98 MINUTES
9/14/81	23: 37: 57	33	0	****		16. 13 MINUTES
9/14/81	23: 38: 6	38	1	****		16. 28 MINUTES
9/14/81	23: 38: 14	23	1	****		16. 42 MINUTES
9/14/81	23: 38: 23	24	1	****		16. 57 MINUTES
9/14/81	23: 38: 32	37	1	****		16. 72 MINUTES
9/14/81	23: 38: 41	28	1	****		16. 87 MINUTES
9/14/81	23: 38: 49	39	0	****		17. 00 MINUTES
9/14/81	23: 38: 58	39	1	****		17. 15 MINUTES
9/14/81	23: 39: 7	29	1	****		17. 30 MINUTES
9/14/81	23: 39: 15	28	1	****		17. 43 MINUTES
9/14/81	23: 39: 24	19	1			17. 43 MINUTES
9/14/81	23: 39: 33	22	1	****		17. 43 MINUTES
9/14/81	23: 39: 42	27	1	****		17. 58 MINUTES
9/14/81	23: 39: 50	32	1	****		17. 72 MINUTES
9/14/81	23: 39: 59	30	1	****		17. 87 MINUTES
9/14/81	23: 40: 8	33	1	****		18. 02 MINUTES
9/14/81	23: 40: 16	33	1	****		18. 15 MINUTES
9/14/81	23: 40: 25	33	1	****		18. 30 MINUTES
9/14/81	23: 40: 34	19	1			18. 30 MINUTES
9/14/81	23: 40: 43	41	1	****		18. 30 MINUTES
9/14/81	23: 40: 51	17	1			18. 30 MINUTES
9/14/81	23: 41: 0	23	1	****		18. 30 MINUTES
9/14/81	23: 41: 9	30	1	****		18. 45 MINUTES
9/14/81	23: 41: 17	35	1	****		18. 58 MINUTES
9/14/81	23: 41: 26	24	1	****		18. 73 MINUTES
9/14/81	23: 41: 35	25	1	****		18. 88 MINUTES
9/14/81	23: 41: 44	23	1	****		19. 03 MINUTES
9/14/81	23: 41: 52	27	1	****		19. 17 MINUTES
9/14/81	23: 42: 1	29	1	****		19. 32 MINUTES
9/14/81	23: 42: 10	33	1	****		19. 47 MINUTES
9/14/81	23: 42: 18	40	1	****		19. 60 MINUTES
9/14/81	23: 42: 27	35	1	****		19. 75 MINUTES
9/14/81	23: 42: 36	37	0	****		19. 90 MINUTES
9/14/81	23: 42: 45	39	0	****		20. 05 MINUTES
9/14/81	23: 42: 53	26	1	****		20. 18 MINUTES
9/14/81	23: 43: 2	15	1			20. 18 MINUTES
9/14/81	23: 43: 11	22	1	****		20. 18 MINUTES
9/14/81	23: 43: 19	36	0	****		20. 32 MINUTES
9/14/81	23: 43: 28	35	0	****		20. 47 MINUTES
9/14/81	23: 43: 37	25	1	****		20. 62 MINUTES
9/14/81	23: 43: 46	26	1	****		20. 77 MINUTES
9/14/81	23: 43: 54	16	1			20. 77 MINUTES
9/14/81	23: 44: 3	36	1	****		20. 77 MINUTES
9/14/81	23: 44: 12	41	1	****		20. 92 MINUTES
9/14/81	23: 44: 20	24	1	****		21. 05 MINUTES
9/14/81	23: 44: 29	21	1	****		21. 20 MINUTES

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DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/14/81	23: 44: 38	40	1		****	21. 35 MINUTES
9/14/81	23: 44: 47	32	1		****	21. 50 MINUTES
9/14/81	23: 44: 55	22	1		****	21. 63 MINUTES
9/14/81	23: 45: 4	25	1		****	21. 78 MINUTES
9/14/81	23: 45: 13	27	1		****	21. 93 MINUTES
9/14/81	23: 45: 21	16	2			21. 93 MINUTES
9/14/81	23: 45: 30	22	1		****	21. 93 MINUTES
9/14/81	23: 45: 39	32	1		****	22. 08 MINUTES
9/14/81	23: 45: 48	20	1		****	22. 23 MINUTES
9/14/81	23: 45: 56	37	1		****	22. 37 MINUTES
9/14/81	23: 46: 5	34	1		****	22. 52 MINUTES
9/14/81	23: 46: 14	19	2			22. 52 MINUTES
9/14/81	23: 46: 22	23	1		****	22. 52 MINUTES
9/14/81	23: 46: 31	48	0		****	22. 67 MINUTES
9/14/81	23: 46: 40	30	1		****	22. 82 MINUTES
9/14/81	23: 46: 49	19	1			22. 82 MINUTES
9/14/81	23: 46: 57	37	1		****	22. 82 MINUTES
9/14/81	23: 47: 6	29	1		****	22. 97 MINUTES
9/14/81	23: 47: 15	23	1		****	23. 12 MINUTES
9/14/81	23: 47: 23	21	1		****	23. 25 MINUTES
9/14/81	23: 47: 32	27	1		****	23. 40 MINUTES
9/14/81	23: 47: 41	25	0		****	23. 55 MINUTES
9/14/81	23: 47: 50	19	1			23. 55 MINUTES
9/14/81	23: 47: 58	19	1			23. 55 MINUTES
9/14/81	23: 48: 7	17	1			23. 55 MINUTES
9/14/81	23: 48: 16	74	0	****	****	23. 55 MINUTES
9/14/81	23: 48: 24	36	1		****	23. 68 MINUTES
9/14/81	23: 48: 33	39	1		****	23. 83 MINUTES
9/14/81	23: 48: 42	27	1		****	23. 98 MINUTES
9/14/81	23: 48: 51	28	1		****	24. 13 MINUTES
9/14/81	23: 48: 59	24	2		****	24. 27 MINUTES
9/14/81	23: 49: 8	25	1		****	24. 42 MINUTES
9/14/81	23: 49: 17	30	1		****	24. 57 MINUTES
9/14/81	23: 49: 25	25	1		****	24. 70 MINUTES
9/14/81	23: 49: 34	18	1			24. 70 MINUTES
9/14/81	23: 49: 43	25	1		****	24. 70 MINUTES
9/14/81	23: 49: 52	24	1		****	24. 85 MINUTES
9/14/81	23: 50: 0	25	1		****	24. 98 MINUTES
9/14/81	23: 50: 9	29	1		****	25. 13 MINUTES
9/14/81	23: 50: 18	44	1		****	25. 28 MINUTES
9/14/81	23: 50: 26	31	1		****	25. 42 MINUTES
9/14/81	23: 50: 35	32	1		****	25. 57 MINUTES
9/14/81	23: 50: 44	37	0		****	25. 72 MINUTES
9/14/81	23: 50: 53	20	1			25. 72 MINUTES
9/14/81	23: 51: 1	26	1		****	25. 72 MINUTES
9/14/81	23: 51: 10	25	1		****	25. 87 MINUTES
9/14/81	23: 51: 19	22	1		****	26. 02 MINUTES
9/14/81	23: 51: 27	23	1		****	26. 15 MINUTES
9/14/81	23: 51: 36	28	1		****	26. 30 MINUTES
9/14/81	23: 51: 45	27	1		****	26. 45 MINUTES

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DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/14/81	23: 51: 54	22	1		****	26. 60 MINUTES
9/14/81	23: 52: 2	30	1		****	26. 73 MINUTES
9/14/81	23: 52: 11	28	1		****	26. 88 MINUTES
9/14/81	23: 52: 20	27	1		****	27. 03 MINUTES
9/14/81	23: 52: 28	25	1		****	27. 17 MINUTES
9/14/81	23: 52: 37	23	1		****	27. 32 MINUTES
9/14/81	23: 52: 46	18	1		****	27. 32 MINUTES
9/14/81	23: 52: 54	21	0		****	27. 32 MINUTES
9/14/81	23: 53: 3	22	1		****	27. 47 MINUTES
9/14/81	23: 53: 12	21	1		****	27. 62 MINUTES
9/14/81	23: 53: 21	27	1		****	27. 77 MINUTES
9/14/81	23: 53: 29	24	1		****	27. 90 MINUTES
9/14/81	23: 53: 38	31	1		****	28. 05 MINUTES
9/14/81	23: 53: 47	21	1		****	28. 20 MINUTES
9/14/81	23: 54: 4	19	1		****	28. 20 MINUTES
9/14/81	23: 54: 13	30	1		****	28. 20 MINUTES
9/14/81	23: 54: 22	29	1		****	28. 35 MINUTES
9/14/81	23: 54: 30	28	1		****	28. 48 MINUTES
9/14/81	23: 54: 39	28	1		****	28. 63 MINUTES
9/14/81	23: 54: 48	22	1		****	28. 78 MINUTES
9/14/81	23: 54: 56	20	1		****	28. 78 MINUTES
9/14/81	23: 55: 5	22	1		****	28. 78 MINUTES
9/14/81	23: 55: 14	26	1		****	28. 93 MINUTES
9/14/81	23: 55: 23	29	1		****	29. 08 MINUTES
9/14/81	23: 55: 31	24	1		****	29. 22 MINUTES
9/14/81	23: 55: 40	31	1		****	29. 37 MINUTES
9/14/81	23: 55: 49	19	3		****	29. 37 MINUTES
9/14/81	23: 55: 57	55	0		****	29. 37 MINUTES
9/14/81	23: 56: 6	31	1		****	29. 52 MINUTES
9/14/81	23: 56: 15	29	2		****	29. 67 MINUTES
9/14/81	23: 56: 24	13	2		****	29. 67 MINUTES
9/14/81	23: 56: 32	23	1		****	29. 67 MINUTES
9/14/81	23: 56: 41	27	1		****	29. 82 MINUTES
9/14/81	23: 56: 50	24	1		****	29. 97 MINUTES
9/14/81	23: 56: 58	21	1		****	30. 10 MINUTES
9/14/81	23: 57: 7	27	1		****	30. 25 MINUTES
9/14/81	23: 57: 16	29	1		****	30. 40 MINUTES
9/14/81	23: 57: 25	25	1		****	30. 55 MINUTES
9/14/81	23: 57: 33	25	1		****	30. 68 MINUTES
9/14/81	23: 57: 42	28	1		****	30. 83 MINUTES
9/14/81	23: 57: 59	26	1		****	31. 12 MINUTES
9/14/81	23: 58: 8	29	1		****	31. 27 MINUTES
9/14/81	23: 58: 17	25	1		****	31. 42 MINUTES
9/14/81	23: 58: 26	18	1		****	31. 42 MINUTES
9/14/81	23: 58: 34	28	1		****	31. 42 MINUTES
9/14/81	23: 58: 43	29	1		****	31. 57 MINUTES
9/14/81	23: 58: 52	37	1		****	31. 72 MINUTES
9/14/81	23: 59: 0	32	1		****	31. 85 MINUTES
9/14/81	23: 59: 9	35	1		****	32. 00 MINUTES
9/14/81	23: 59: 18	32	1		****	32. 15 MINUTES

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 NATIONAL ENFORCEMENT INVESTIGATIONS CENTER
 DENVER, COLORADO 80225

OMEGA-0085, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.
 DATE TIME OPACITY SO EXCEEDS 60% EXCEEDS 20% AGGREGATE TIME EXCEEDING 20%

9/14/81	23: 59: 27	27	1	****	32. 30 MINUTES
9/14/81	23: 59: 35	21	0	****	32. 43 MINUTES
9/14/81	23: 59: 44	22	1	****	32. 58 MINUTES
9/14/81	23: 59: 53	26	2	****	32. 73 MINUTES
9/15/81	0: 0: 1	30	1	****	32. 87 MINUTES
9/15/81	0: 0: 10	24	1	****	33. 02 MINUTES
9/15/81	0: 0: 19	20	1	****	33. 02 MINUTES
9/15/81	0: 0: 27	23	0	****	33. 02 MINUTES
9/15/81	0: 0: 36	21	1	****	33. 17 MINUTES
9/15/81	0: 0: 45	32	1	****	33. 32 MINUTES
9/15/81	0: 0: 54	31	1	****	33. 47 MINUTES
9/15/81	0: 1: 11	32	1	****	33. 75 MINUTES
9/15/81	0: 1: 20	25	2	****	33. 90 MINUTES
9/15/81	0: 1: 28	23	1	****	34. 03 MINUTES
9/15/81	0: 1: 37	23	0	****	34. 18 MINUTES
9/15/81	0: 1: 46	20	1	****	34. 18 MINUTES
9/15/81	0: 1: 55	20	1	****	34. 18 MINUTES
9/15/81	0: 2: 3	22	2	****	34. 32 MINUTES
9/15/81	0: 2: 12	16	2	****	34. 32 MINUTES
9/15/81	0: 2: 21	25	1	****	34. 32 MINUTES
9/15/81	0: 2: 29	24	1	****	34. 45 MINUTES
9/15/81	0: 2: 38	25	1	****	34. 60 MINUTES
9/15/81	0: 2: 47	27	1	****	34. 75 MINUTES
9/15/81	0: 2: 56	31	1	****	34. 90 MINUTES
9/15/81	0: 3: 4	29	1	****	35. 03 MINUTES
9/15/81	0: 3: 13	19	1	****	35. 03 MINUTES
9/15/81	0: 3: 22	27	0	****	35. 03 MINUTES
9/15/81	0: 3: 30	18	1	****	35. 03 MINUTES
9/15/81	0: 3: 39	25	1	****	35. 03 MINUTES
9/15/81	0: 3: 48	28	1	****	35. 18 MINUTES
9/15/81	0: 3: 56	30	1	****	35. 32 MINUTES
9/15/81	0: 4: 5	27	1	****	35. 47 MINUTES
9/15/81	0: 4: 23	20	2	****	35. 77 MINUTES
9/15/81	0: 4: 31	24	1	****	35. 90 MINUTES
9/15/81	0: 4: 40	26	1	****	36. 05 MINUTES
9/15/81	0: 4: 49	27	1	****	36. 20 MINUTES
9/15/81	0: 4: 57	27	1	****	36. 33 MINUTES
9/15/81	0: 5: 6	42	1	****	36. 48 MINUTES
9/15/81	0: 5: 15	24	2	****	36. 63 MINUTES
9/15/81	0: 5: 24	27	1	****	36. 78 MINUTES
9/15/81	0: 5: 32	22	1	****	36. 92 MINUTES
9/15/81	0: 5: 41	26	1	****	37. 07 MINUTES
9/15/81	0: 5: 50	26	1	****	37. 22 MINUTES
9/15/81	0: 5: 58	27	1	****	37. 35 MINUTES
9/15/81	0: 6: 7	24	1	****	37. 50 MINUTES
9/15/81	0: 6: 16	23	1	****	37. 65 MINUTES
9/15/81	0: 6: 25	23	1	****	37. 80 MINUTES
9/15/81	0: 6: 33	19	1	****	37. 80 MINUTES
9/15/81	0: 6: 42	20	1	****	37. 80 MINUTES
9/15/81	0: 6: 51	43	1	****	37. 80 MINUTES

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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 DENVER, COLORADO 80225

OMEGA-0085, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.

DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/15/81	0: 6: 59	20	1			37. 80 MINUTES
9/15/81	0: 7: 8	30	1	****		37. 80 MINUTES
9/15/81	0: 7: 17	28	1	****		37. 95 MINUTES
9/15/81	0: 7: 25	29	1	****		38. 08 MINUTES
9/15/81	0: 7: 34	21	1	****		38. 23 MINUTES
9/15/81	0: 7: 43	26	1	****		38. 38 MINUTES
9/15/81	0: 7: 52	21	1	****		38. 53 MINUTES
9/15/81	0: 8: 0	25	1	****		38. 67 MINUTES
9/15/81	0: 8: 9	31	1	****		38. 82 MINUTES
9/15/81	0: 8: 18	28	1	****		38. 97 MINUTES
9/15/81	0: 8: 26	21	1	****		39. 10 MINUTES
9/15/81	0: 8: 35	28	1	****		39. 25 MINUTES
9/15/81	0: 8: 44	29	1	****		39. 40 MINUTES
9/15/81	0: 8: 52	33	1	****		39. 53 MINUTES
9/15/81	0: 9: 1	23	1	****		39. 68 MINUTES
9/15/81	0: 9: 10	18	1			39. 68 MINUTES
9/15/81	0: 9: 19	20	1			39. 68 MINUTES
9/15/81	0: 9: 27	20	1			39. 68 MINUTES
9/15/81	0: 9: 36	30	1	****		39. 68 MINUTES
9/15/81	0: 9: 45	27	1	****		39. 83 MINUTES
9/15/81	0: 9: 53	25	0	****		39. 97 MINUTES
9/15/81	0: 10: 2	26	1	****		40. 12 MINUTES
9/15/81	0: 10: 11	33	1	****		40. 27 MINUTES
9/15/81	0: 10: 20	38	1	****		40. 42 MINUTES
9/15/81	0: 10: 28	27	1	****		40. 55 MINUTES
9/15/81	0: 10: 37	31	1	****		40. 70 MINUTES
9/15/81	0: 10: 46	27	1	****		40. 85 MINUTES
9/15/81	0: 10: 54	29	1	****		40. 98 MINUTES
9/15/81	0: 11: 3	31	1	****		41. 13 MINUTES
9/15/81	0: 11: 12	39	1	****		41. 28 MINUTES
9/15/81	0: 11: 20	22	2	****		41. 42 MINUTES
9/15/81	0: 11: 29	28	0	****		41. 57 MINUTES
9/15/81	0: 11: 38	24	1	****		41. 72 MINUTES
9/15/81	0: 11: 47	26	1	****		41. 87 MINUTES
9/15/81	0: 11: 55	20	2	****		42. 00 MINUTES
9/15/81	0: 12: 4	19	2			42. 00 MINUTES
9/15/81	0: 12: 13	29	1	****		42. 00 MINUTES
9/15/81	0: 12: 21	34	1	****		42. 13 MINUTES
9/15/81	0: 12: 30	31	1	****		42. 28 MINUTES
9/15/81	0: 12: 39	27	1	****		42. 43 MINUTES
9/15/81	0: 12: 48	26	1	****		42. 58 MINUTES
9/15/81	0: 12: 56	26	1	****		42. 72 MINUTES
9/15/81	0: 13: 5	31	0	****		42. 87 MINUTES
9/15/81	0: 13: 14	30	1	****		43. 02 MINUTES
9/15/81	0: 13: 22	33	1	****		43. 15 MINUTES
9/15/81	0: 13: 31	32	0	****		43. 30 MINUTES
9/15/81	0: 13: 40	23	1	****		43. 45 MINUTES
9/15/81	0: 13: 48	23	1	****		43. 58 MINUTES
9/15/81	0: 13: 57	26	1	****		43. 73 MINUTES
9/15/81	0: 14: 6	37	1	****		43. 88 MINUTES

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DATE TIME OPACITY SO EXCEEDS 60% EXCEEDS 20% AGGREGATE TIME EXCEEDING 20%

9/15/81	0: 14: 15	29	1	****	44. 03 MINUTES
9/15/81	0: 14: 23	26	1	****	44. 17 MINUTES
9/15/81	0: 14: 32	26	1	****	44. 32 MINUTES
9/15/81	0: 14: 41	26	1	****	44. 47 MINUTES
9/15/81	0: 14: 49	26	1	****	44. 60 MINUTES
9/15/81	0: 14: 58	33	1	****	44. 75 MINUTES
9/15/81	0: 15: 7	34	1	****	44. 90 MINUTES
9/15/81	0: 15: 15	31	1	****	45. 03 MINUTES
9/15/81	0: 15: 24	30	1	****	45. 18 MINUTES
9/15/81	0: 15: 33	28	1	****	45. 33 MINUTES
9/15/81	0: 15: 42	19	1		45. 33 MINUTES

OMEGA - 0086

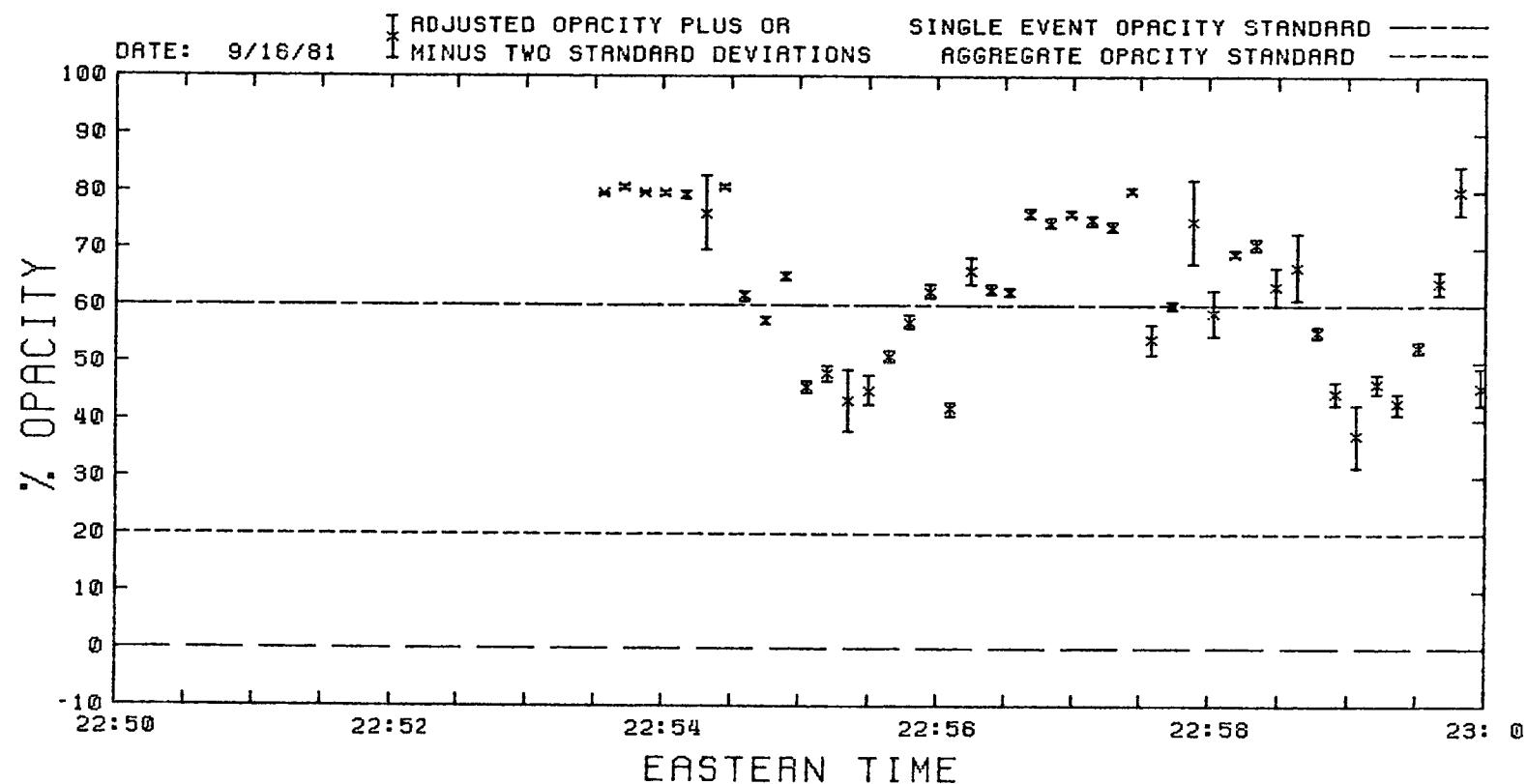
BRITISH PETROLEUM REFINERY

FLUIDIZED CATALYTIC CRACKER

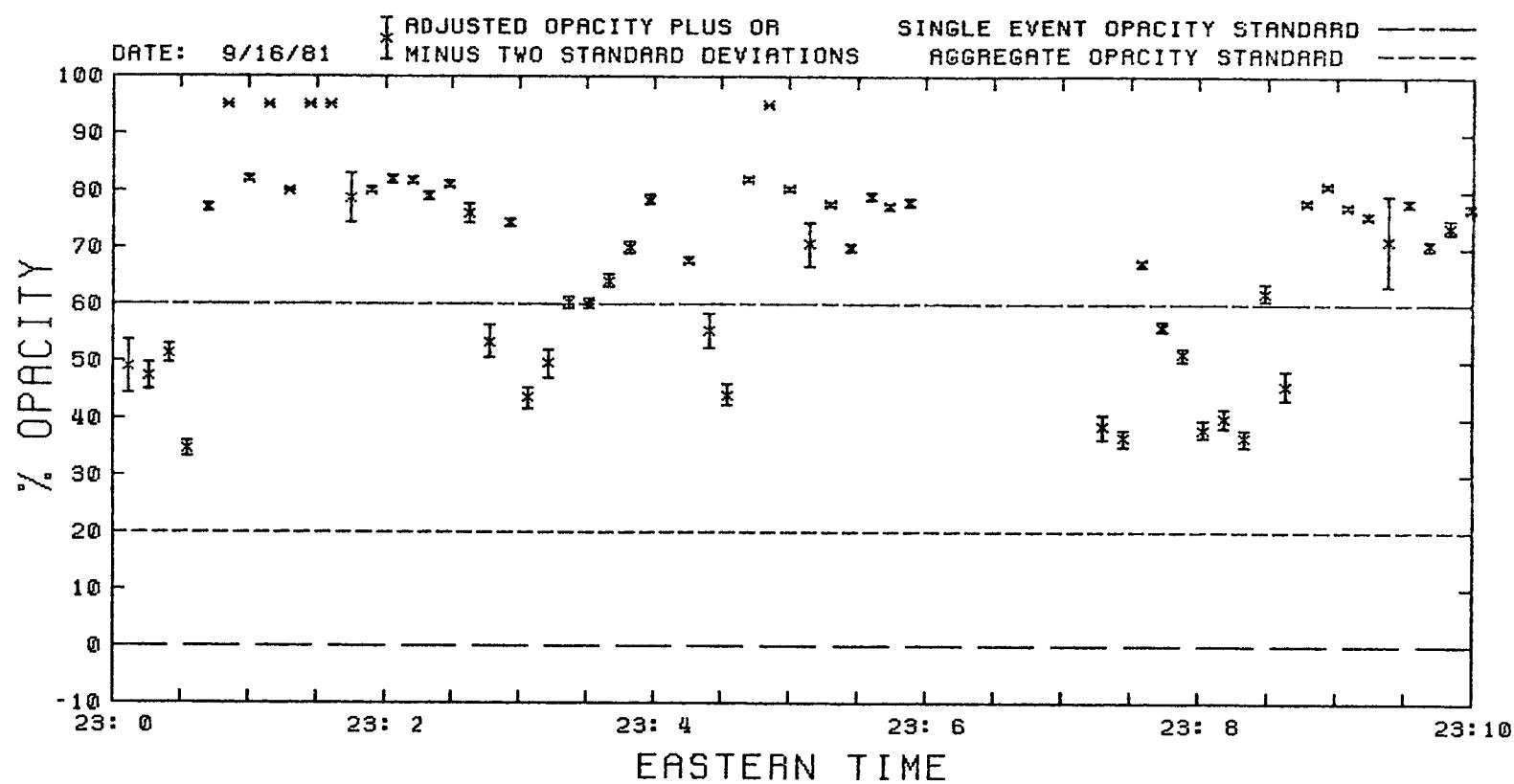
Marcus Hook, Pennsylvania

September 16, 1981

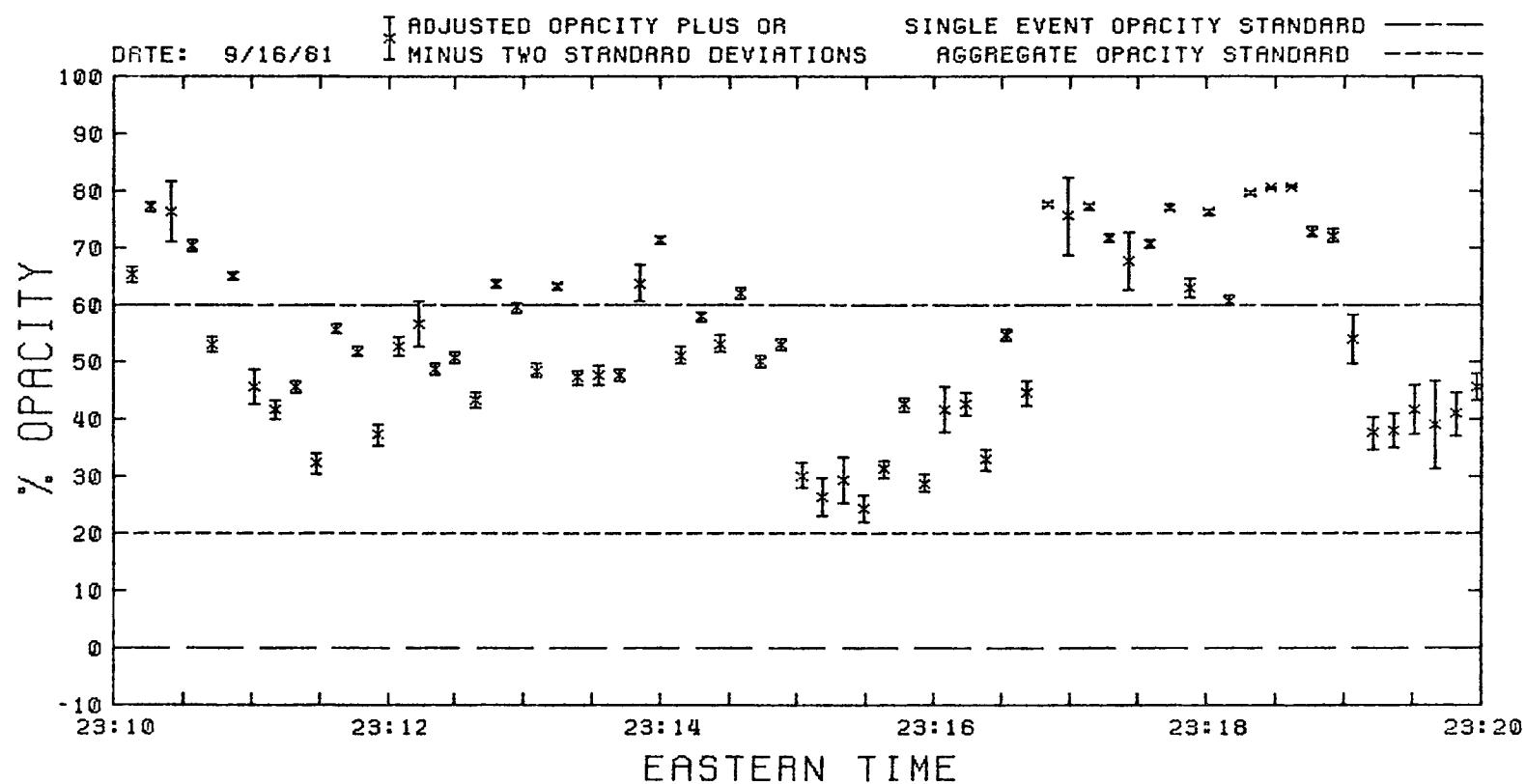
22:53:34 to 23:53:57

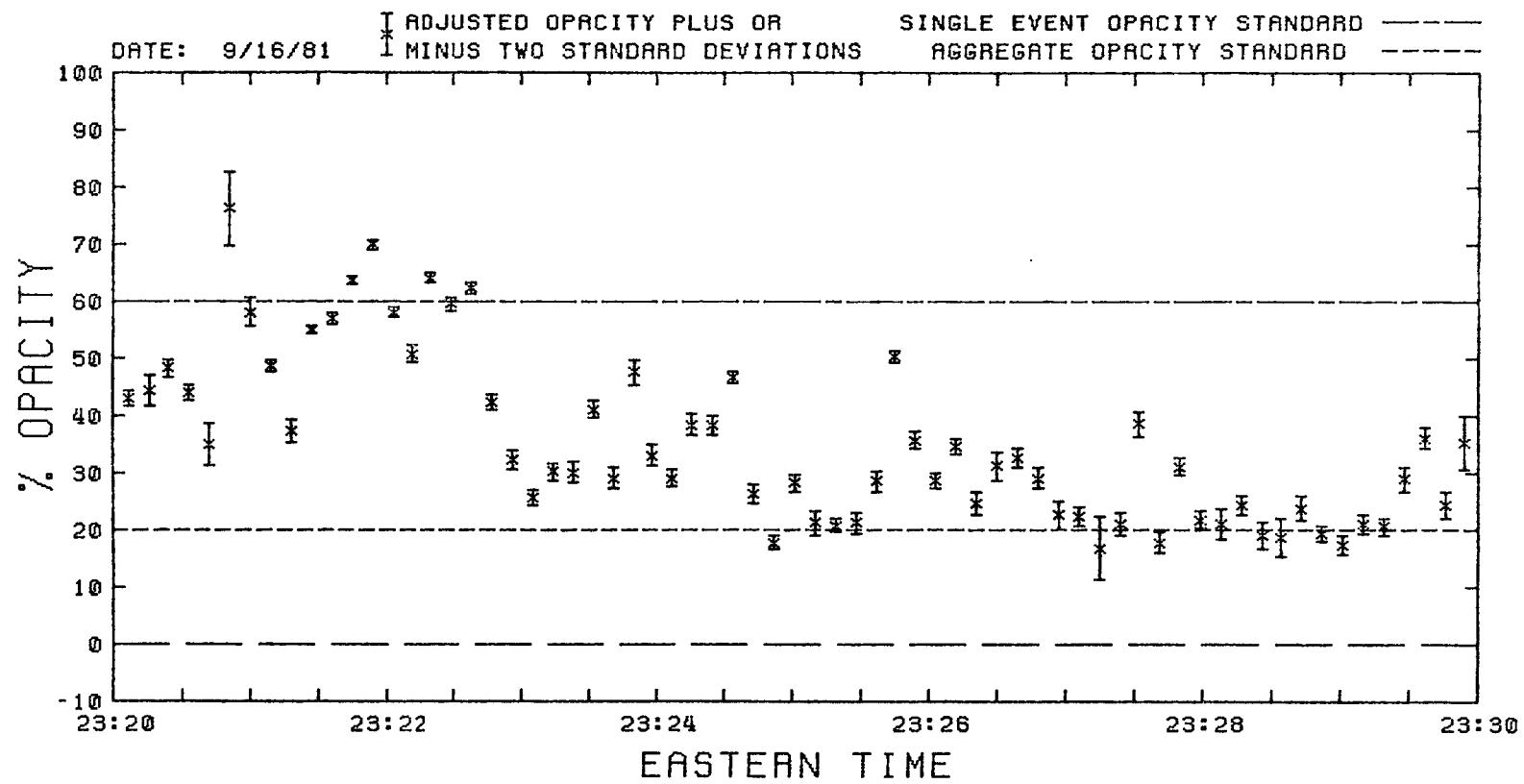


FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.

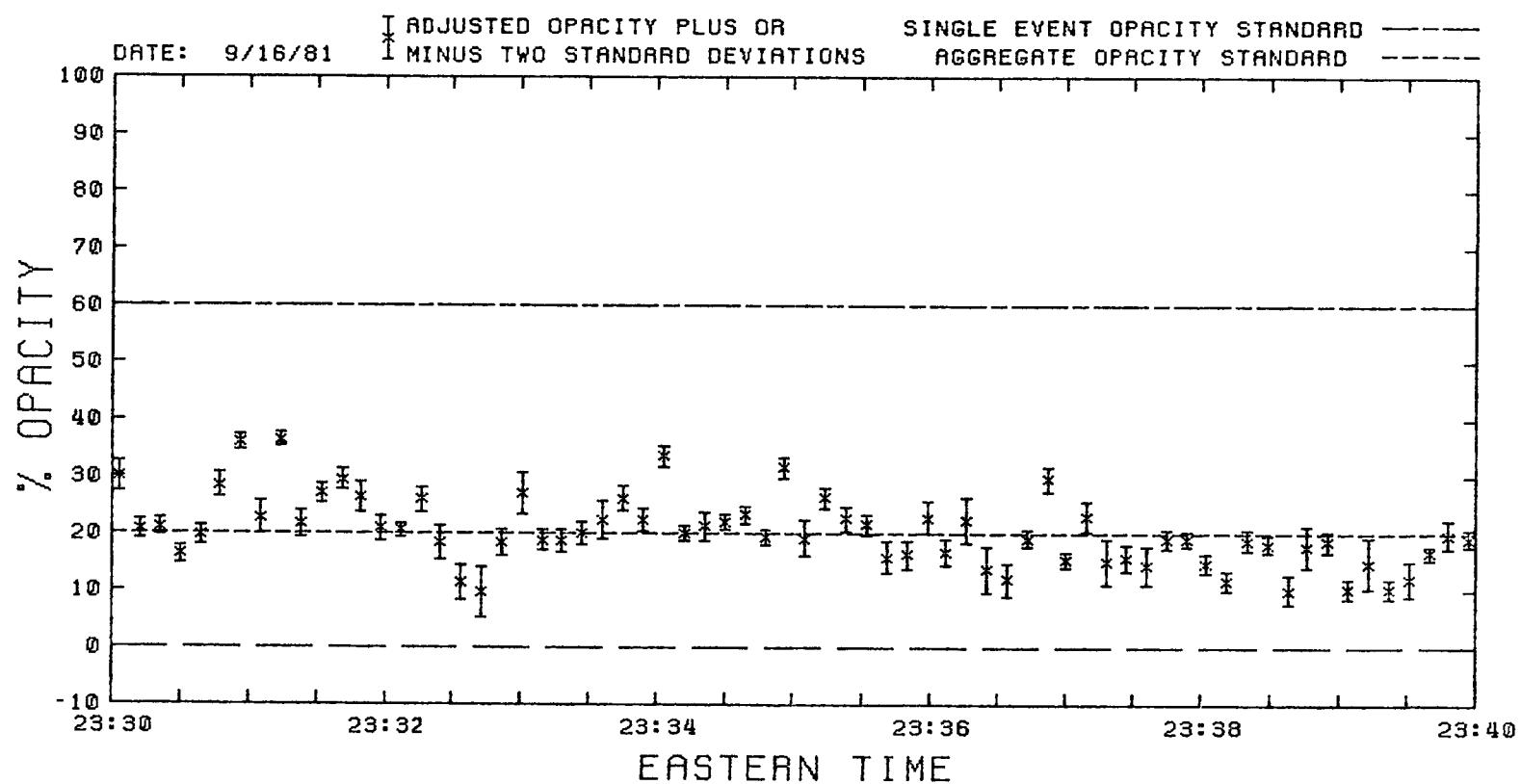


FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.

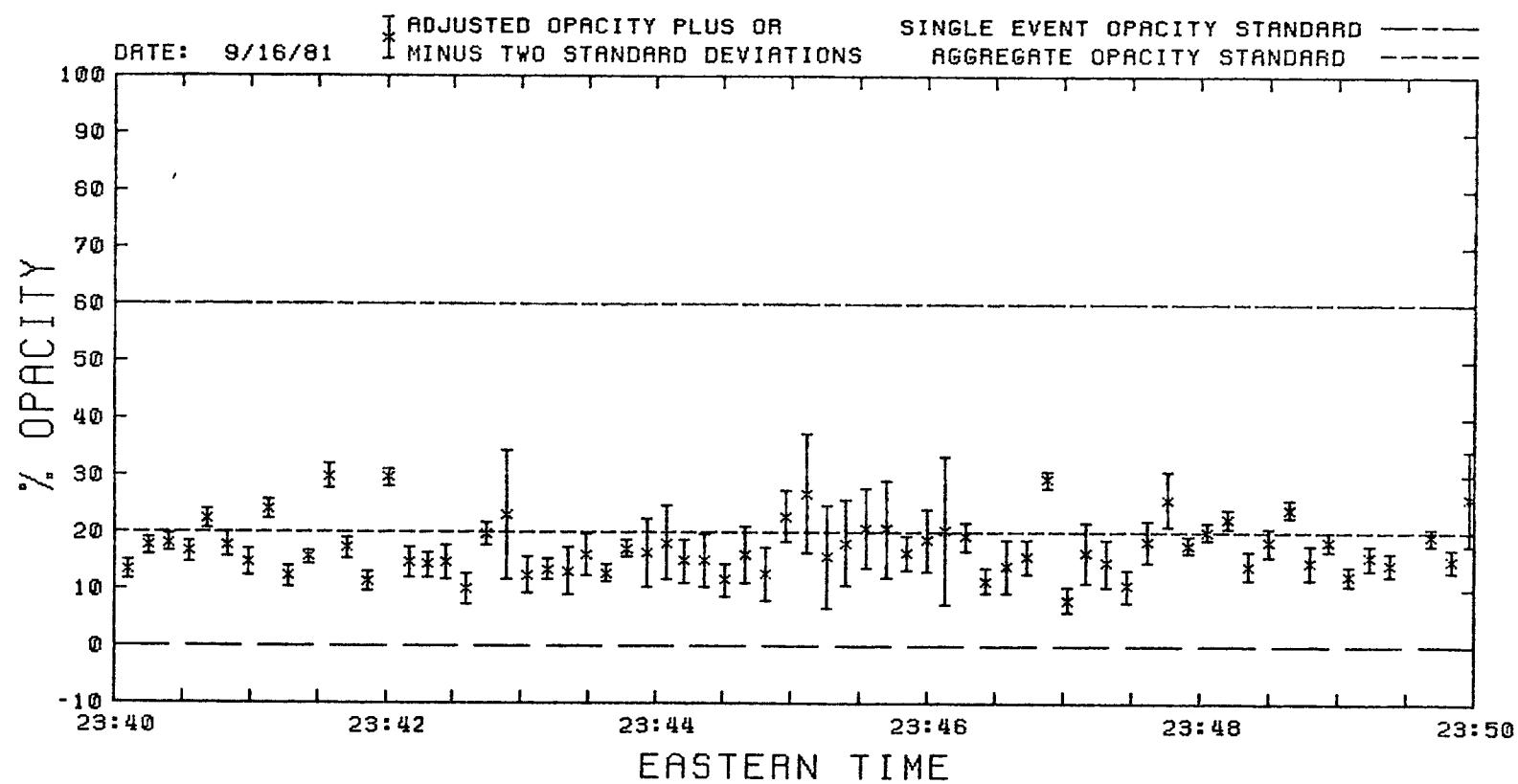




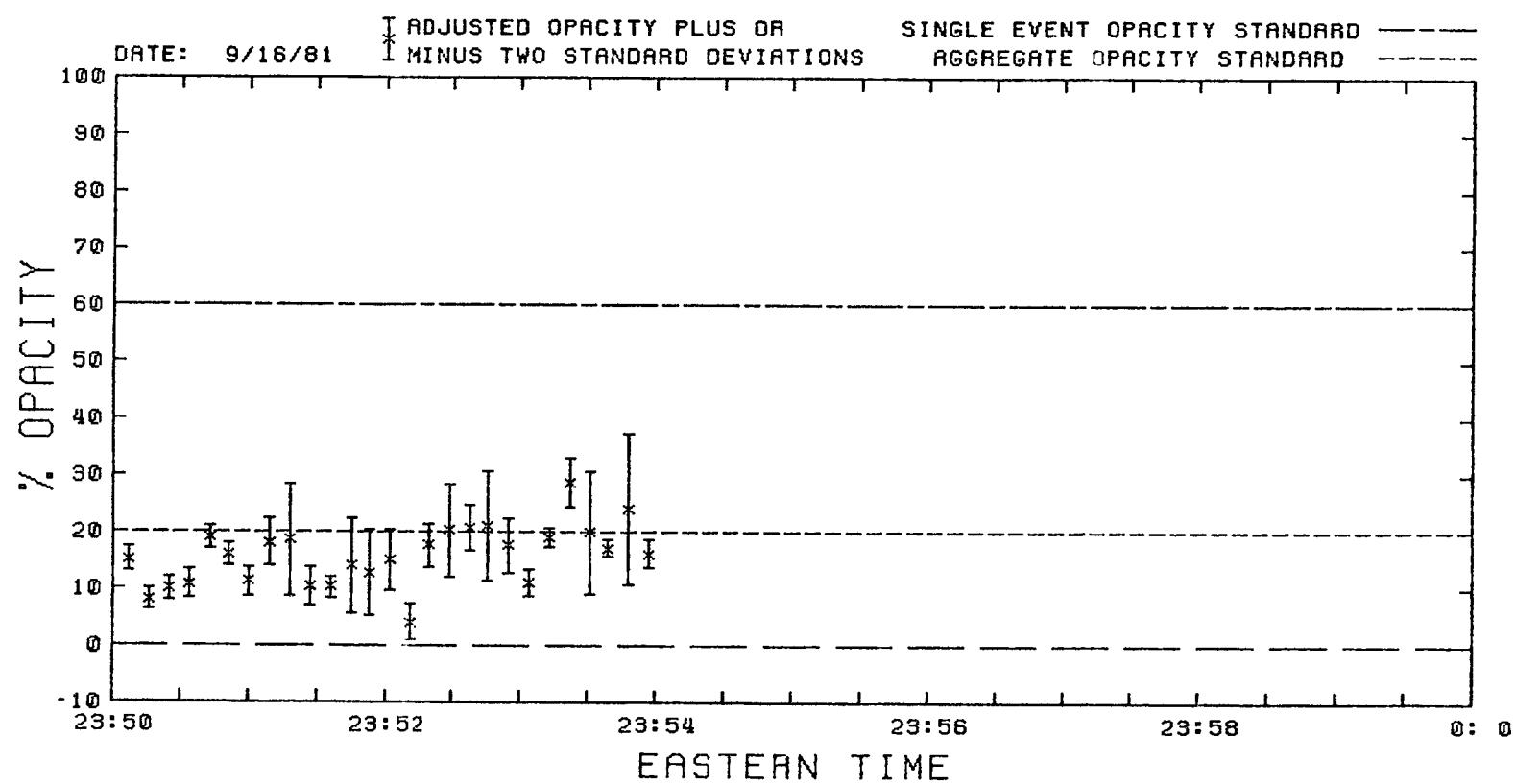
FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.

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OMEGA-0086, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.
 DATE TIME OPACITY SO EXCEEDS 60% EXCEEDS 20% AGGREGATE TIME EXCEEDING 20%

9/16/81	22: 53: 34	79	0	****	****	0. 00 MINUTES
9/16/81	22: 53: 43	80	0	****	****	0. 15 MINUTES
9/16/81	22: 53: 52	80	0	****	****	0. 30 MINUTES
9/16/81	22: 54: 1	79	0	****	****	0. 45 MINUTES
9/16/81	22: 54: 10	79	0	****	****	0. 60 MINUTES
9/16/81	22: 54: 19	70	3	****	****	0. 75 MINUTES
9/16/81	22: 54: 27	80	0	****	****	0. 88 MINUTES
9/16/81	22: 54: 36	61	0	****	****	1. 03 MINUTES
9/16/81	22: 54: 45	57	0	****	****	1. 18 MINUTES
9/16/81	22: 54: 54	64	0	****	****	1. 33 MINUTES
9/16/81	22: 55: 3	45	0		****	1. 48 MINUTES
9/16/81	22: 55: 12	47	1		****	1. 63 MINUTES
9/16/81	22: 55: 21	38	3		****	1. 78 MINUTES
9/16/81	22: 55: 30	43	1		****	1. 93 MINUTES
9/16/81	22: 55: 39	50	0		****	2. 08 MINUTES
9/16/81	22: 55: 48	56	1		****	2. 23 MINUTES
9/16/81	22: 55: 57	61	1	****	****	2. 38 MINUTES
9/16/81	22: 56: 6	41	1		****	2. 53 MINUTES
9/16/81	22: 56: 15	64	1	****	****	2. 68 MINUTES
9/16/81	22: 56: 24	62	0	****	****	2. 83 MINUTES
9/16/81	22: 56: 32	62	0	****	****	2. 97 MINUTES
9/16/81	22: 56: 41	75	0	****	****	3. 12 MINUTES
9/16/81	22: 56: 50	74	0	****	****	3. 27 MINUTES
9/16/81	22: 56: 59	76	0	****	****	3. 42 MINUTES
9/16/81	22: 57: 8	74	0	****	****	3. 57 MINUTES
9/16/81	22: 57: 17	73	0	****	****	3. 72 MINUTES
9/16/81	22: 57: 26	80	0	****	****	3. 87 MINUTES
9/16/81	22: 57: 35	51	1		****	4. 02 MINUTES
9/16/81	22: 57: 44	59	0		****	4. 17 MINUTES
9/16/81	22: 57: 53	67	4	****	****	4. 32 MINUTES
9/16/81	22: 58: 2	55	2		****	4. 47 MINUTES
9/16/81	22: 58: 11	69	0	****	****	4. 62 MINUTES
9/16/81	22: 58: 20	70	0	****	****	4. 77 MINUTES
9/16/81	22: 58: 29	60	2		****	4. 92 MINUTES
9/16/81	22: 58: 38	61	3	****	****	5. 07 MINUTES
9/16/81	22: 58: 47	54	0		****	5. 22 MINUTES
9/16/81	22: 58: 55	43	1		****	5. 35 MINUTES
9/16/81	22: 59: 4	32	3		****	5. 50 MINUTES
9/16/81	22: 59: 13	45	1		****	5. 65 MINUTES
9/16/81	22: 59: 22	41	1		****	5. 80 MINUTES
9/16/81	22: 59: 31	52	0		****	5. 95 MINUTES
9/16/81	22: 59: 40	62	1	****	****	6. 10 MINUTES
9/16/81	22: 59: 49	76	2	****	****	6. 25 MINUTES
9/16/81	22: 59: 58	43	2		****	6. 40 MINUTES
9/16/81	23: 0: 7	44	2		****	6. 55 MINUTES
9/16/81	23: 0: 16	45	1		****	6. 70 MINUTES
9/16/81	23: 0: 25	50	1		****	6. 85 MINUTES
9/16/81	23: 0: 33	33	1		****	6. 98 MINUTES
9/16/81	23: 0: 42	76	0	****	****	7. 13 MINUTES
9/16/81	23: 0: 51	95	0	****	****	7. 28 MINUTES

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OMEGA-0086, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.
 DATE TIME OPACITY SO EXCEEDS 60% EXCEEDS 20% AGGREGATE TIME EXCEEDING 20%

9/16/81	23: 1: 0	82	0	****	****	7. 43 MINUTES
9/16/81	23: 1: 9	95	0	****	****	7. 58 MINUTES
9/16/81	23: 1:18	80	0	****	****	7. 73 MINUTES
9/16/81	23: 1:27	95	0	****	****	7. 88 MINUTES
9/16/81	23: 1:36	95	0	****	****	8. 03 MINUTES
9/16/81	23: 1:45	74	2	****	****	8. 18 MINUTES
9/16/81	23: 1:54	80	0	****	****	8. 33 MINUTES
9/16/81	23: 2: 3	81	0	****	****	8. 48 MINUTES
9/16/81	23: 2:12	81	0	****	****	8. 63 MINUTES
9/16/81	23: 2:20	78	0	****	****	8. 77 MINUTES
9/16/81	23: 2:29	81	0	****	****	8. 92 MINUTES
9/16/81	23: 2:38	74	1	****	****	9. 07 MINUTES
9/16/81	23: 2:47	51	1	****	****	9. 22 MINUTES
9/16/81	23: 2:56	74	0	****	****	9. 37 MINUTES
9/16/81	23: 3: 4	42	1	****	****	9. 50 MINUTES
9/16/81	23: 3:13	47	1	****	****	9. 65 MINUTES
9/16/81	23: 3:22	59	0	****	****	9. 80 MINUTES
9/16/81	23: 3:31	59	0	****	****	9. 95 MINUTES
9/16/81	23: 3:40	63	1	****	****	10. 10 MINUTES
9/16/81	23: 3:49	69	0	****	****	10. 25 MINUTES
9/16/81	23: 3:58	78	0	****	****	10. 40 MINUTES
9/16/81	23: 4:16	67	0	****	****	10. 70 MINUTES
9/16/81	23: 4:25	52	2	****	****	10. 85 MINUTES
9/16/81	23: 4:33	42	1	****	****	10. 98 MINUTES
9/16/81	23: 4:42	82	0	****	****	11. 13 MINUTES
9/16/81	23: 4:51	95	0	****	****	11. 28 MINUTES
9/16/81	23: 5: 0	80	0	****	****	11. 43 MINUTES
9/16/81	23: 5: 9	67	2	****	****	11. 58 MINUTES
9/16/81	23: 5:18	77	0	****	****	11. 73 MINUTES
9/16/81	23: 5:27	69	0	****	****	11. 88 MINUTES
9/16/81	23: 5:36	78	0	****	****	12. 03 MINUTES
9/16/81	23: 5:44	77	0	****	****	12. 17 MINUTES
9/16/81	23: 5:53	77	0	****	****	12. 32 MINUTES
9/16/81	23: 7:18	36	1	****	****	12. 32 MINUTES
9/16/81	23: 7:27	35	1	****	****	12. 47 MINUTES
9/16/81	23: 7:35	67	0	****	****	12. 60 MINUTES
9/16/81	23: 7:44	55	0	****	****	12. 75 MINUTES
9/16/81	23: 7:53	50	1	****	****	12. 90 MINUTES
9/16/81	23: 8: 2	37	1	****	****	13. 05 MINUTES
9/16/81	23: 8:11	38	1	****	****	13. 20 MINUTES
9/16/81	23: 8:20	35	1	****	****	13. 35 MINUTES
9/16/81	23: 8:29	61	1	****	****	13. 50 MINUTES
9/16/81	23: 8:38	43	1	****	****	13. 65 MINUTES
9/16/81	23: 8:47	78	0	****	****	13. 80 MINUTES
9/16/81	23: 8:56	81	0	****	****	13. 95 MINUTES
9/16/81	23: 9: 5	77	0	****	****	14. 10 MINUTES
9/16/81	23: 9:14	75	0	****	****	14. 25 MINUTES
9/16/81	23: 9:23	63	4	****	****	14. 40 MINUTES
9/16/81	23: 9:32	77	0	****	****	14. 55 MINUTES
9/16/81	23: 9:41	70	0	****	****	14. 70 MINUTES

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DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/16/81	23: 9: 50	73	1	****	****	14. 85 MINUTES
9/16/81	23: 9: 59	77	0	****	****	15. 00 MINUTES
9/16/81	23: 10: 8	64	1	****	****	15. 15 MINUTES
9/16/81	23: 10: 16	76	0	****	****	15. 28 MINUTES
9/16/81	23: 10: 25	71	3	****	****	15. 43 MINUTES
9/16/81	23: 10: 34	69	0	****	****	15. 58 MINUTES
9/16/81	23: 10: 43	52	1		****	15. 73 MINUTES
9/16/81	23: 10: 52	64	0	****	****	15. 88 MINUTES
9/16/81	23: 11: 1	43	2		****	16. 03 MINUTES
9/16/81	23: 11: 10	40	1		****	16. 18 MINUTES
9/16/81	23: 11: 19	45	0		****	16. 33 MINUTES
9/16/81	23: 11: 28	30	1		****	16. 48 MINUTES
9/16/81	23: 11: 37	55	0		****	16. 63 MINUTES
9/16/81	23: 11: 46	51	0		****	16. 78 MINUTES
9/16/81	23: 11: 55	35	1		****	16. 93 MINUTES
9/16/81	23: 12: 4	51	1		****	17. 08 MINUTES
9/16/81	23: 12: 13	53	2		****	17. 23 MINUTES
9/16/81	23: 12: 21	48	0		****	17. 37 MINUTES
9/16/81	23: 12: 30	50	0		****	17. 52 MINUTES
9/16/81	23: 12: 39	42	1		****	17. 67 MINUTES
9/16/81	23: 12: 48	63	0	****	****	17. 82 MINUTES
9/16/81	23: 12: 57	59	0		****	17. 97 MINUTES
9/16/81	23: 13: 6	47	1		****	18. 12 MINUTES
9/16/81	23: 13: 15	63	0	****	****	18. 27 MINUTES
9/16/81	23: 13: 24	46	1		****	18. 42 MINUTES
9/16/81	23: 13: 33	46	1		****	18. 57 MINUTES
9/16/81	23: 13: 42	47	0		****	18. 72 MINUTES
9/16/81	23: 13: 51	61	2	****	****	18. 87 MINUTES
9/16/81	23: 14: 0	71	0	****	****	19. 02 MINUTES
9/16/81	23: 14: 9	50	1		****	19. 17 MINUTES
9/16/81	23: 14: 18	57	0		****	19. 32 MINUTES
9/16/81	23: 14: 26	52	1		****	19. 45 MINUTES
9/16/81	23: 14: 35	61	0	****	****	19. 60 MINUTES
9/16/81	23: 14: 44	49	0		****	19. 75 MINUTES
9/16/81	23: 14: 53	52	0		****	19. 90 MINUTES
9/16/81	23: 15: 2	28	1		****	20. 05 MINUTES
9/16/81	23: 15: 11	23	2		****	20. 20 MINUTES
9/16/81	23: 15: 20	25	2		****	20. 35 MINUTES
9/16/81	23: 15: 29	22	1		****	20. 50 MINUTES
9/16/81	23: 15: 38	30	1		****	20. 65 MINUTES
9/16/81	23: 15: 47	41	1		****	20. 80 MINUTES
9/16/81	23: 15: 56	27	1		****	20. 95 MINUTES
9/16/81	23: 16: 5	38	2		****	21. 10 MINUTES
9/16/81	23: 16: 14	41	1		****	21. 25 MINUTES
9/16/81	23: 16: 23	31	1		****	21. 40 MINUTES
9/16/81	23: 16: 32	54	0		****	21. 55 MINUTES
9/16/81	23: 16: 41	42	1		****	21. 70 MINUTES
9/16/81	23: 16: 50	77	0	****	****	21. 85 MINUTES
9/16/81	23: 16: 59	69	3	****	****	22. 00 MINUTES
9/16/81	23: 17: 8	77	0	****	****	22. 15 MINUTES

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OMEGA-0086, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.

DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/16/81	23: 17: 17	71	0	****	****	22. 30 MINUTES
9/16/81	23: 17: 26	63	2	****	****	22. 45 MINUTES
9/16/81	23: 17: 35	70	0	****	****	22. 60 MINUTES
9/16/81	23: 17: 44	77	0	****	****	22. 75 MINUTES
9/16/81	23: 17: 53	61	1	****	****	22. 90 MINUTES
9/16/81	23: 18: 1	76	0	****	****	23. 03 MINUTES
9/16/81	23: 18: 10	60	0	****	****	23. 18 MINUTES
9/16/81	23: 18: 19	79	0	****	****	23. 33 MINUTES
9/16/81	23: 18: 28	80	0	****	****	23. 48 MINUTES
9/16/81	23: 18: 37	81	0	****	****	23. 63 MINUTES
9/16/81	23: 18: 46	72	0	****	****	23. 78 MINUTES
9/16/81	23: 18: 55	71	1	****	****	23. 93 MINUTES
9/16/81	23: 19: 4	50	2		****	24. 08 MINUTES
9/16/81	23: 19: 13	35	1		****	24. 23 MINUTES
9/16/81	23: 19: 22	35	2		****	24. 38 MINUTES
9/16/81	23: 19: 31	37	2		****	24. 53 MINUTES
9/16/81	23: 19: 40	31	4		****	24. 68 MINUTES
9/16/81	23: 19: 49	37	2		****	24. 83 MINUTES
9/16/81	23: 19: 58	43	1		****	24. 98 MINUTES
9/16/81	23: 20: 7	42	1		****	25. 13 MINUTES
9/16/81	23: 20: 16	42	1		****	25. 28 MINUTES
9/16/81	23: 20: 24	47	1		****	25. 42 MINUTES
9/16/81	23: 20: 33	43	1		****	25. 57 MINUTES
9/16/81	23: 20: 42	31	2		****	25. 72 MINUTES
9/16/81	23: 20: 51	70	3	****	****	25. 87 MINUTES
9/16/81	23: 21: 0	56	1		****	26. 02 MINUTES
9/16/81	23: 21: 9	48	0		****	26. 17 MINUTES
9/16/81	23: 21: 18	35	1		****	26. 32 MINUTES
9/16/81	23: 21: 27	54	0		****	26. 47 MINUTES
9/16/81	23: 21: 36	56	0		****	26. 62 MINUTES
9/16/81	23: 21: 45	63	0	****	****	26. 77 MINUTES
9/16/81	23: 21: 54	69	0	****	****	26. 92 MINUTES
9/16/81	23: 22: 3	57	0		****	27. 07 MINUTES
9/16/81	23: 22: 11	49	1		****	27. 20 MINUTES
9/16/81	23: 22: 20	63	0	****	****	27. 35 MINUTES
9/16/81	23: 22: 29	58	1		****	27. 50 MINUTES
9/16/81	23: 22: 38	61	0	****	****	27. 65 MINUTES
9/16/81	23: 22: 47	41	1		****	27. 80 MINUTES
9/16/81	23: 22: 56	31	1		****	27. 95 MINUTES
9/16/81	23: 23: 5	24	1		****	28. 10 MINUTES
9/16/81	23: 23: 14	29	1		****	28. 25 MINUTES
9/16/81	23: 23: 23	28	1		****	28. 40 MINUTES
9/16/81	23: 23: 32	40	1		****	28. 55 MINUTES
9/16/81	23: 23: 41	27	1		****	28. 70 MINUTES
9/16/81	23: 23: 50	45	1		****	28. 85 MINUTES
9/16/81	23: 23: 58	31	1		****	28. 98 MINUTES
9/16/81	23: 24: 7	28	1		****	29. 13 MINUTES
9/16/81	23: 24: 16	37	1		****	29. 28 MINUTES
9/16/81	23: 24: 25	37	1		****	29. 43 MINUTES
9/16/81	23: 24: 34	46	0		****	29. 58 MINUTES

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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 DENVER, COLORADO 80225

OMEGA-0086, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.
 DATE TIME OPACITY SO EXCEEDS 60% EXCEEDS 20% AGGREGATE TIME EXCEEDING 20%

9/16/81	23: 24: 43	25	1	****	29. 73 MINUTES
9/16/81	23: 24: 52	17	1		29. 73 MINUTES
9/16/81	23: 25: 1	27	1	****	29. 73 MINUTES
9/16/81	23: 25: 10	19	1		29. 73 MINUTES
9/16/81	23: 25: 19	20	1		29. 73 MINUTES
9/16/81	23: 25: 28	19	1		29. 73 MINUTES
9/16/81	23: 25: 37	27	1	****	29. 73 MINUTES
9/16/81	23: 25: 45	49	0	****	29. 87 MINUTES
9/16/81	23: 25: 54	34	1	****	30. 02 MINUTES
9/16/81	23: 26: 3	27	1	****	30. 17 MINUTES
9/16/81	23: 26: 12	33	1	****	30. 32 MINUTES
9/16/81	23: 26: 21	23	1	****	30. 47 MINUTES
9/16/81	23: 26: 30	29	1	****	30. 62 MINUTES
9/16/81	23: 26: 39	31	1	****	30. 77 MINUTES
9/16/81	23: 26: 48	27	1	****	30. 92 MINUTES
9/16/81	23: 26: 57	20	1		30. 92 MINUTES
9/16/81	23: 27: 6	21	1	****	30. 92 MINUTES
9/16/81	23: 27: 15	11	3		30. 92 MINUTES
9/16/81	23: 27: 24	19	1		30. 92 MINUTES
9/16/81	23: 27: 32	36	1	****	30. 92 MINUTES
9/16/81	23: 27: 41	16	1		30. 92 MINUTES
9/16/81	23: 27: 50	30	1	****	30. 92 MINUTES
9/16/81	23: 27: 59	20	1	****	31. 07 MINUTES
9/16/81	23: 28: 8	18	1		31. 07 MINUTES
9/16/81	23: 28: 17	23	1	****	31. 07 MINUTES
9/16/81	23: 28: 26	17	1		31. 07 MINUTES
9/16/81	23: 28: 34	15	2		31. 07 MINUTES
9/16/81	23: 28: 43	22	1	****	31. 07 MINUTES
9/16/81	23: 28: 52	18	1		31. 07 MINUTES
9/16/81	23: 29: 1	16	1		31. 07 MINUTES
9/16/81	23: 29: 10	19	1		31. 07 MINUTES
9/16/81	23: 29: 19	19	1		31. 07 MINUTES
9/16/81	23: 29: 28	27	1	****	31. 07 MINUTES
9/16/81	23: 29: 37	34	1	****	31. 22 MINUTES
9/16/81	23: 29: 46	22	1	****	31. 37 MINUTES
9/16/81	23: 29: 54	31	2	****	31. 50 MINUTES
9/16/81	23: 30: 3	27	1	****	31. 65 MINUTES
9/16/81	23: 30: 12	19	1		31. 65 MINUTES
9/16/81	23: 30: 21	20	1		31. 65 MINUTES
9/16/81	23: 30: 30	15	1		31. 65 MINUTES
9/16/81	23: 30: 39	18	1		31. 65 MINUTES
9/16/81	23: 30: 47	26	1	****	31. 65 MINUTES
9/16/81	23: 30: 56	35	1	****	31. 80 MINUTES
9/16/81	23: 31: 5	20	1	****	31. 95 MINUTES
9/16/81	23: 31: 14	35	1	****	32. 10 MINUTES
9/16/81	23: 31: 23	19	1		32. 10 MINUTES
9/16/81	23: 31: 32	25	1	****	32. 10 MINUTES
9/16/81	23: 31: 41	28	1	****	32. 25 MINUTES
9/16/81	23: 31: 49	24	1	****	32. 38 MINUTES
9/16/81	23: 31: 58	19	1		32. 38 MINUTES

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 DATE TIME OPACITY SO EXCEEDS 60% EXCEEDS 20% AGGREGATE TIME EXCEEDING 20%

9/16/81	23: 32: 7	19	1		32. 38 MINUTES
9/16/81	23: 32: 16	24	1	****	32. 38 MINUTES
9/16/81	23: 32: 25	15	2		32. 38 MINUTES
9/16/81	23: 32: 34	8	2		32. 38 MINUTES
9/16/81	23: 32: 43	5	2		32. 38 MINUTES
9/16/81	23: 32: 52	16	1		32. 38 MINUTES
9/16/81	23: 33: 1	23	2	****	32. 38 MINUTES
9/16/81	23: 33: 10	17	1		32. 38 MINUTES
9/16/81	23: 33: 18	17	1		32. 38 MINUTES
9/16/81	23: 33: 27	18	1		32. 38 MINUTES
9/16/81	23: 33: 36	19	2		32. 38 MINUTES
9/16/81	23: 33: 45	24	1	****	32. 38 MINUTES
9/16/81	23: 33: 54	20	1	****	32. 53 MINUTES
9/16/81	23: 34: 3	32	1	****	32. 68 MINUTES
9/16/81	23: 34: 12	19	1		32. 68 MINUTES
9/16/81	23: 34: 21	19	1		32. 68 MINUTES
9/16/81	23: 34: 30	21	1	****	32. 68 MINUTES
9/16/81	23: 34: 39	22	1	****	32. 83 MINUTES
9/16/81	23: 34: 48	18	1		32. 83 MINUTES
9/16/81	23: 34: 56	30	1	****	32. 83 MINUTES
9/16/81	23: 35: 5	16	2		32. 83 MINUTES
9/16/81	23: 35: 14	24	1	****	32. 83 MINUTES
9/16/81	23: 35: 23	20	1	****	32. 98 MINUTES
9/16/81	23: 35: 32	20	1		32. 98 MINUTES
9/16/81	23: 35: 41	13	1		32. 98 MINUTES
9/16/81	23: 35: 50	14	1		32. 98 MINUTES
9/16/81	23: 35: 59	20	1		32. 98 MINUTES
9/16/81	23: 36: 7	14	1		32. 98 MINUTES
9/16/81	23: 36: 16	18	2		32. 98 MINUTES
9/16/81	23: 36: 25	10	2		32. 98 MINUTES
9/16/81	23: 36: 34	9	1		32. 98 MINUTES
9/16/81	23: 36: 43	18	1		32. 98 MINUTES
9/16/81	23: 36: 52	27	1	****	32. 98 MINUTES
9/16/81	23: 37: 0	14	1		32. 98 MINUTES
9/16/81	23: 37: 9	20	1	****	32. 98 MINUTES
9/16/81	23: 37: 18	11	2		32. 98 MINUTES
9/16/81	23: 37: 27	13	1		32. 98 MINUTES
9/16/81	23: 37: 36	11	2		32. 98 MINUTES
9/16/81	23: 37: 45	17	1		32. 98 MINUTES
9/16/81	23: 37: 54	18	1		32. 98 MINUTES
9/16/81	23: 38: 2	13	1		32. 98 MINUTES
9/16/81	23: 38: 11	10	1		32. 98 MINUTES
9/16/81	23: 38: 20	17	1		32. 98 MINUTES
9/16/81	23: 38: 29	17	1		32. 98 MINUTES
9/16/81	23: 38: 38	8	1		32. 98 MINUTES
9/16/81	23: 38: 46	14	2		32. 98 MINUTES
9/16/81	23: 38: 55	17	1		32. 98 MINUTES
9/16/81	23: 39: 4	9	1		32. 98 MINUTES
9/16/81	23: 39: 13	10	2		32. 98 MINUTES
9/16/81	23: 39: 22	9	1		32. 98 MINUTES

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OMEGA-0086, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.
 DATE TIME OPACITY SO EXCEEDS 60% EXCEEDS 20% AGGREGATE TIME EXCEEDING 20%

9/16/81	23: 39: 31	9	2	32. 98 MINUTES
9/16/81	23: 39: 40	15	1	32. 98 MINUTES
9/16/81	23: 39: 48	17	1	32. 98 MINUTES
9/16/81	23: 39: 57	18	1	32. 98 MINUTES
9/16/81	23: 40: 6	12	1	32. 98 MINUTES
9/16/81	23: 40: 15	16	1	32. 98 MINUTES
9/16/81	23: 40: 24	17	1	32. 98 MINUTES
9/16/81	23: 40: 33	15	1	32. 98 MINUTES
9/16/81	23: 40: 41	21	1	32. 98 MINUTES
9/16/81	23: 40: 50	16	1	32. 98 MINUTES
9/16/81	23: 40: 59	12	1	32. 98 MINUTES
9/16/81	23: 41: 8	22	1	32. 98 MINUTES
9/16/81	23: 41: 17	10	1	32. 98 MINUTES
9/16/81	23: 41: 26	14	1	32. 98 MINUTES
9/16/81	23: 41: 35	28	1	32. 98 MINUTES
9/16/81	23: 41: 43	15	1	32. 98 MINUTES
9/16/81	23: 41: 52	10	1	32. 98 MINUTES
9/16/81	23: 42: 1	28	1	32. 98 MINUTES
9/16/81	23: 42: 10	12	1	32. 98 MINUTES
9/16/81	23: 42: 19	12	1	32. 98 MINUTES
9/16/81	23: 42: 27	12	2	32. 98 MINUTES
9/16/81	23: 42: 36	7	1	32. 98 MINUTES
9/16/81	23: 42: 45	18	1	32. 98 MINUTES
9/16/81	23: 42: 54	12	6	32. 98 MINUTES
9/16/81	23: 43: 3	9	2	32. 98 MINUTES
9/16/81	23: 43: 12	12	1	32. 98 MINUTES
9/16/81	23: 43: 21	9	2	32. 98 MINUTES
9/16/81	23: 43: 29	12	2	32. 98 MINUTES
9/16/81	23: 43: 38	11	1	32. 98 MINUTES
9/16/81	23: 43: 47	16	1	32. 98 MINUTES
9/16/81	23: 43: 56	10	3	32. 98 MINUTES
9/16/81	23: 44: 5	12	3	32. 98 MINUTES
9/16/81	23: 44: 13	11	2	32. 98 MINUTES
9/16/81	23: 44: 22	10	2	32. 98 MINUTES
9/16/81	23: 44: 31	9	1	32. 98 MINUTES
9/16/81	23: 44: 40	11	2	32. 98 MINUTES
9/16/81	23: 44: 49	8	2	32. 98 MINUTES
9/16/81	23: 44: 58	18	2	32. 98 MINUTES
9/16/81	23: 45: 7	16	5	32. 98 MINUTES
9/16/81	23: 45: 16	7	5	32. 98 MINUTES
9/16/81	23: 45: 24	11	4	32. 98 MINUTES
9/16/81	23: 45: 33	14	4	32. 98 MINUTES
9/16/81	23: 45: 42	12	4	32. 98 MINUTES
9/16/81	23: 45: 51	13	2	32. 98 MINUTES
9/16/81	23: 46: 0	13	3	32. 98 MINUTES
9/16/81	23: 46: 8	7	7	32. 98 MINUTES
9/16/81	23: 46: 17	17	1	32. 98 MINUTES
9/16/81	23: 46: 26	9	1	32. 98 MINUTES
9/16/81	23: 46: 35	9	2	32. 98 MINUTES
9/16/81	23: 46: 44	13	2	32. 98 MINUTES

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OMEGA-0086, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.

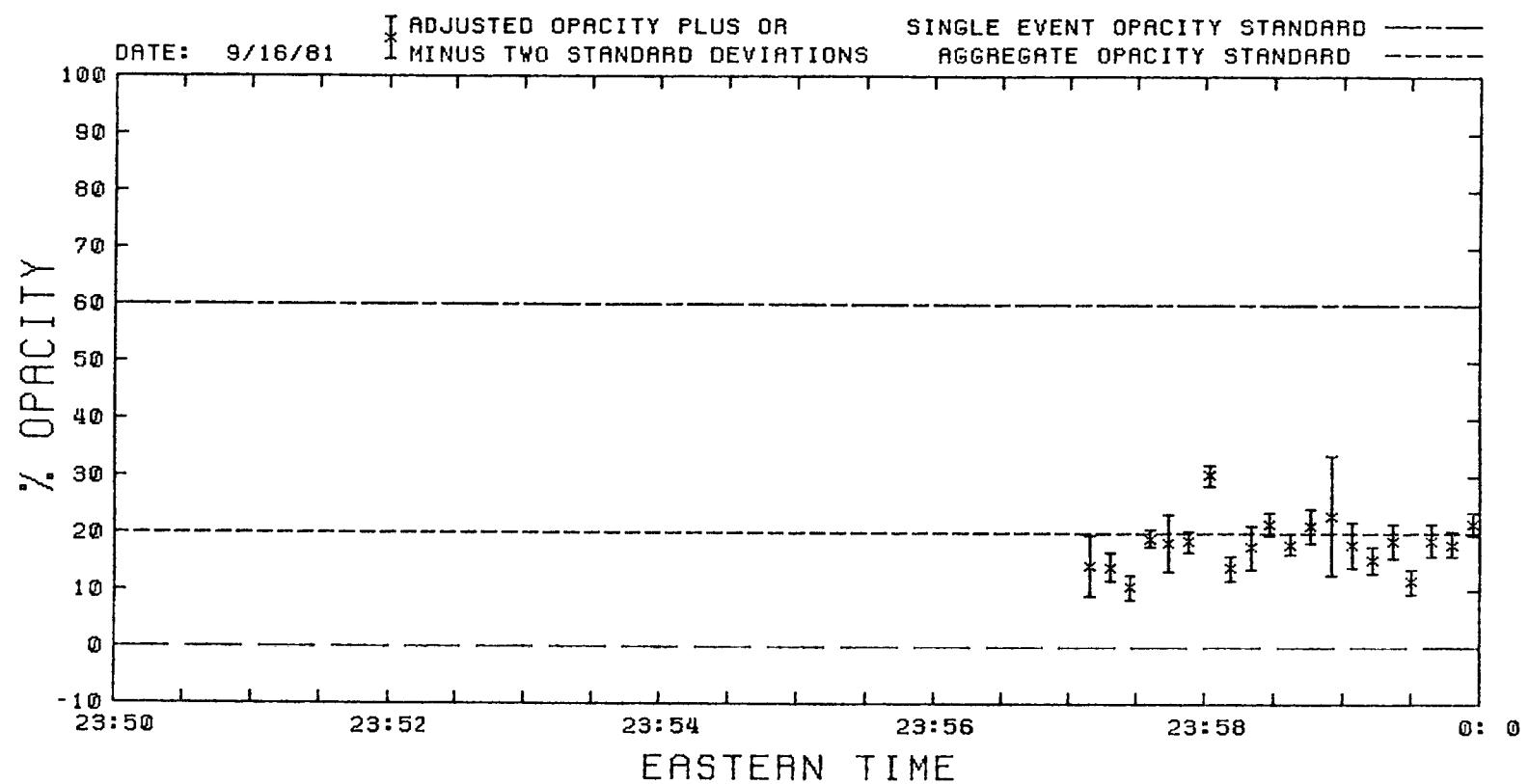
DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/16/81	23: 46: 53	28	1		****	32. 98 MINUTES
9/16/81	23: 47: 2	6	1			32. 98 MINUTES
9/16/81	23: 47: 10	11	3			32. 98 MINUTES
9/16/81	23: 47: 19	10	2			32. 98 MINUTES
9/16/81	23: 47: 28	8	1			32. 98 MINUTES
9/16/81	23: 47: 37	15	2			32. 98 MINUTES
9/16/81	23: 47: 46	21	2		****	32. 98 MINUTES
9/16/81	23: 47: 55	16	1			32. 98 MINUTES
9/16/81	23: 48: 3	19	1			32. 98 MINUTES
9/16/81	23: 48: 12	21	1		****	32. 98 MINUTES
9/16/81	23: 48: 21	12	1			32. 98 MINUTES
9/16/81	23: 48: 30	16	1			32. 98 MINUTES
9/16/81	23: 48: 39	23	1		****	32. 98 MINUTES
9/16/81	23: 48: 48	12	2			32. 98 MINUTES
9/16/81	23: 48: 56	17	1			32. 98 MINUTES
9/16/81	23: 49: 5	11	1			32. 98 MINUTES
9/16/81	23: 49: 14	13	1			32. 98 MINUTES
9/16/81	23: 49: 23	12	1			32. 98 MINUTES
9/16/81	23: 49: 41	18	1			32. 98 MINUTES
9/16/81	23: 49: 50	13	1			32. 98 MINUTES
9/16/81	23: 49: 58	18	4			32. 98 MINUTES
9/16/81	23: 50: 7	13	1			32. 98 MINUTES
9/16/81	23: 50: 16	6	1			32. 98 MINUTES
9/16/81	23: 50: 25	8	1			32. 98 MINUTES
9/16/81	23: 50: 34	8	1			32. 98 MINUTES
9/16/81	23: 50: 43	17	1			32. 98 MINUTES
9/16/81	23: 50: 51	14	1			32. 98 MINUTES
9/16/81	23: 51: 0	9	1			32. 98 MINUTES
9/16/81	23: 51: 9	14	2			32. 98 MINUTES
9/16/81	23: 51: 18	9	5			32. 98 MINUTES
9/16/81	23: 51: 27	7	2			32. 98 MINUTES
9/16/81	23: 51: 36	8	1			32. 98 MINUTES
9/16/81	23: 51: 45	6	4			32. 98 MINUTES
9/16/81	23: 51: 53	5	4			32. 98 MINUTES
9/16/81	23: 52: 2	10	3			32. 98 MINUTES
9/16/81	23: 52: 11	1	2			32. 98 MINUTES
9/16/81	23: 52: 20	14	2			32. 98 MINUTES
9/16/81	23: 52: 29	12	4			32. 98 MINUTES
9/16/81	23: 52: 38	17	2			32. 98 MINUTES
9/16/81	23: 52: 46	11	5			32. 98 MINUTES
9/16/81	23: 52: 55	13	2			32. 98 MINUTES
9/16/81	23: 53: 4	9	1			32. 98 MINUTES
9/16/81	23: 53: 13	17	1			32. 98 MINUTES
9/16/81	23: 53: 22	24	2		****	32. 98 MINUTES
9/16/81	23: 53: 31	9	5			32. 98 MINUTES
9/16/81	23: 53: 39	16	1			32. 98 MINUTES
9/16/81	23: 53: 48	11	7			32. 98 MINUTES
9/16/81	23: 53: 57	14	1			32. 98 MINUTES

OMEGA - 0086

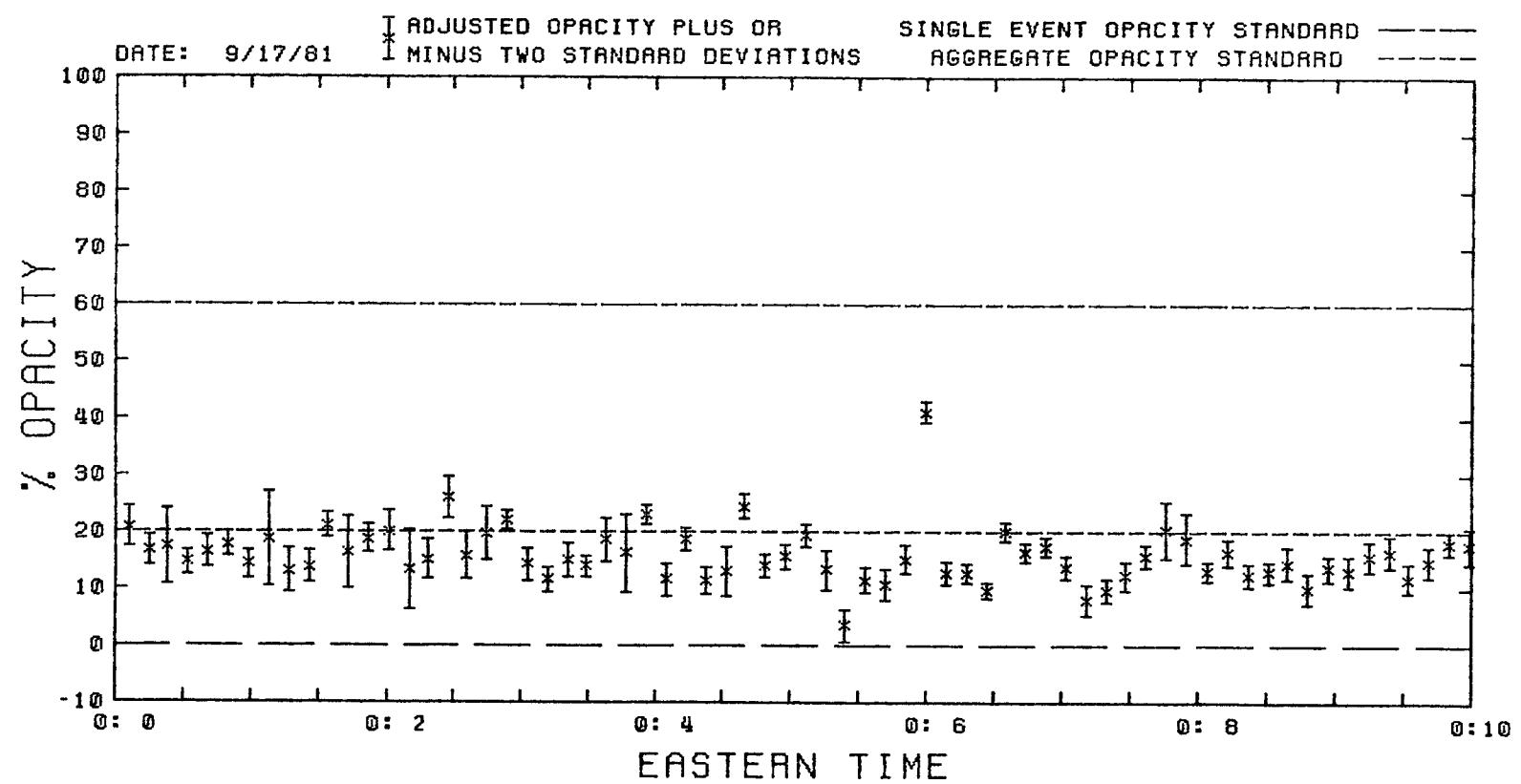
BRITISH PETROLEUM REFINERY
FLUIDIZED CATALYTIC CRACKER
Marcus Hook, Pennsylvania

September 16-17, 1981

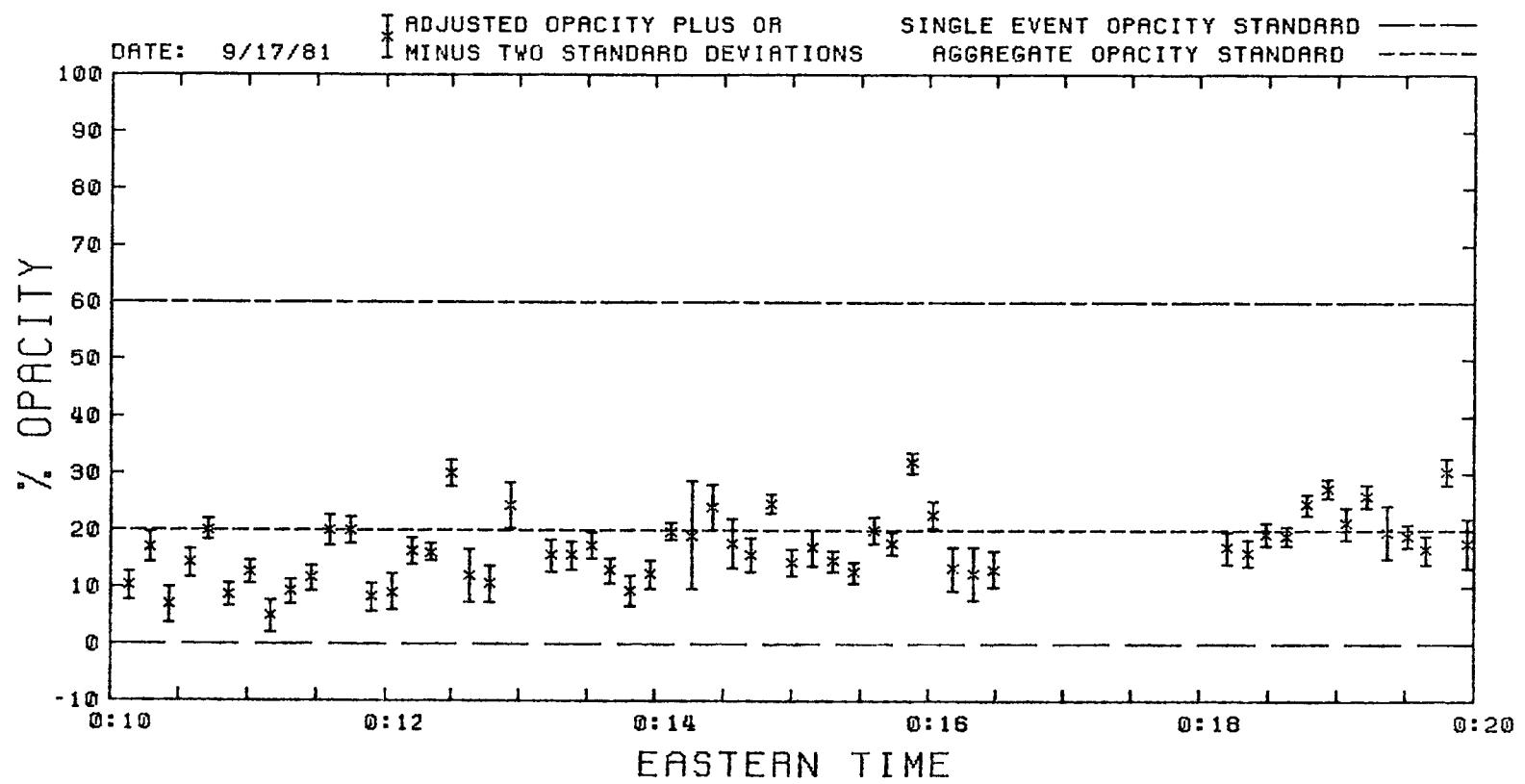
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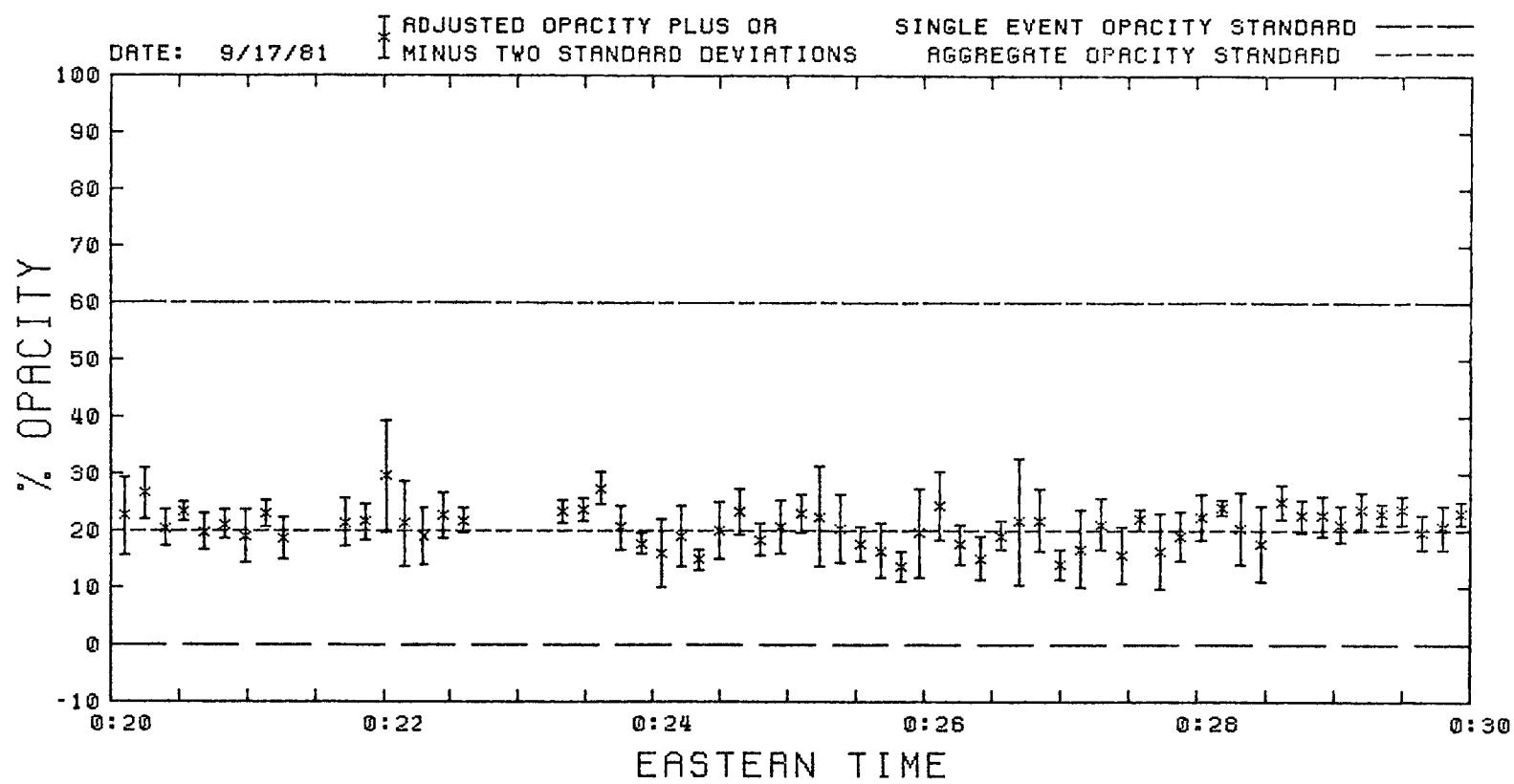
FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



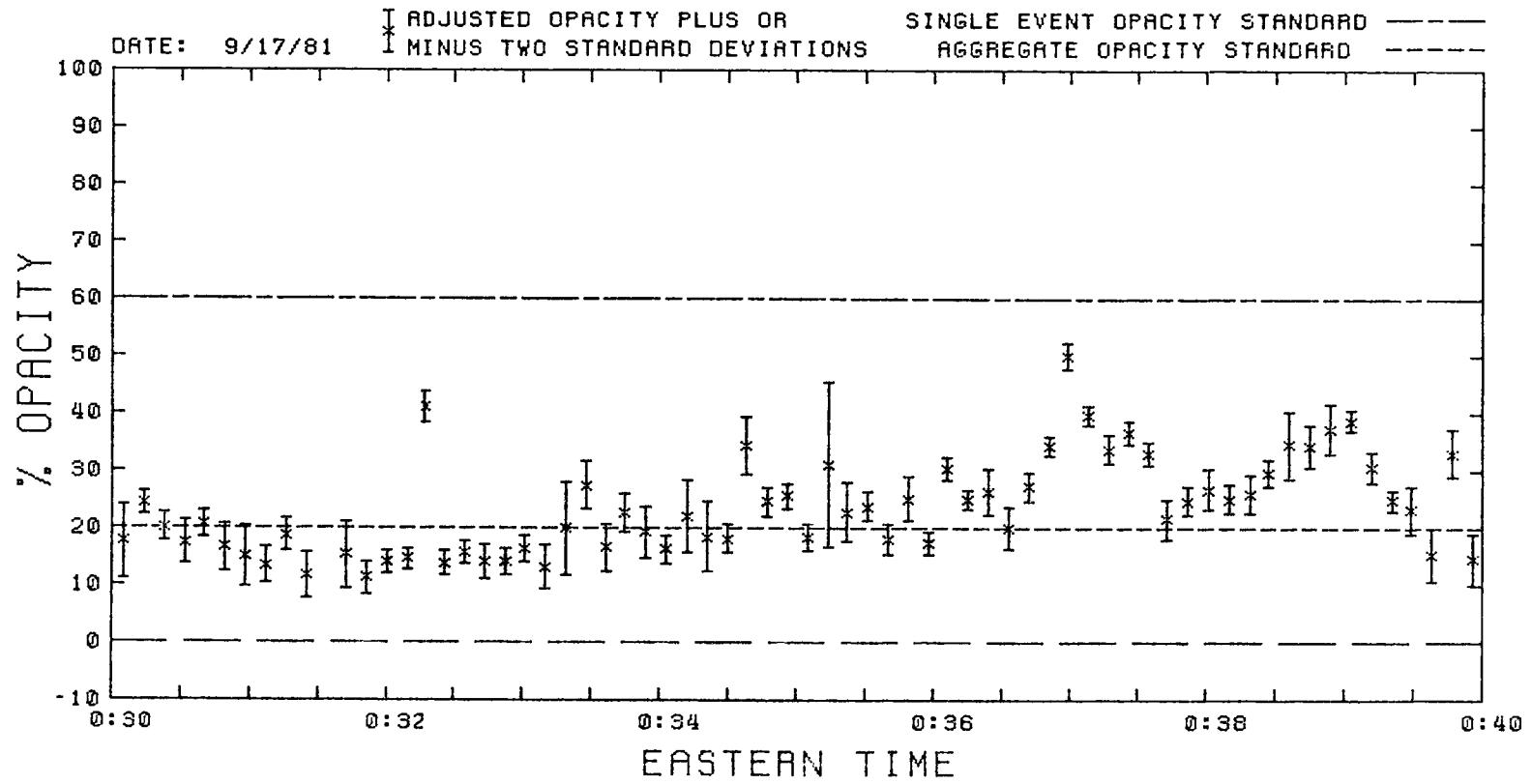
FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



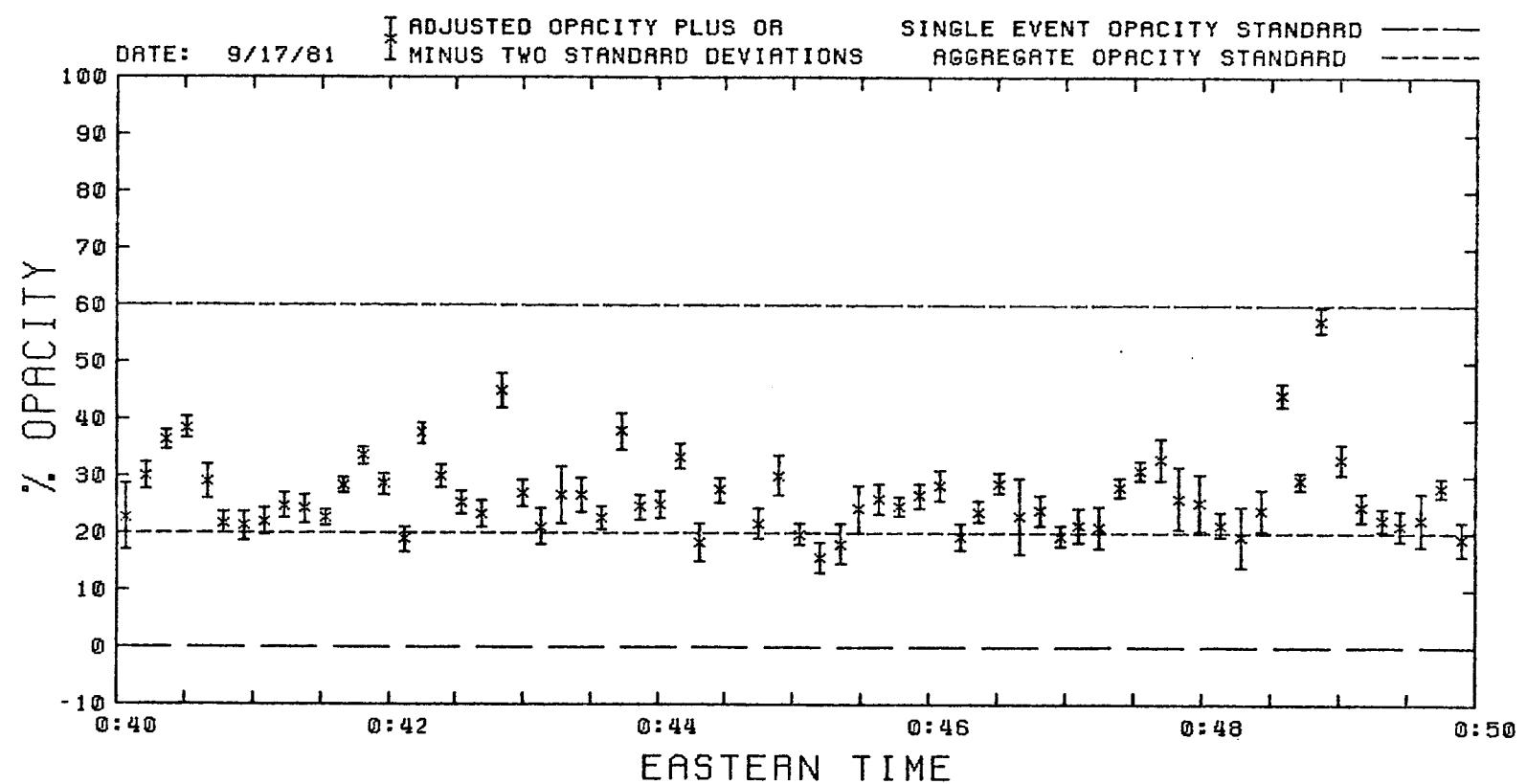
FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



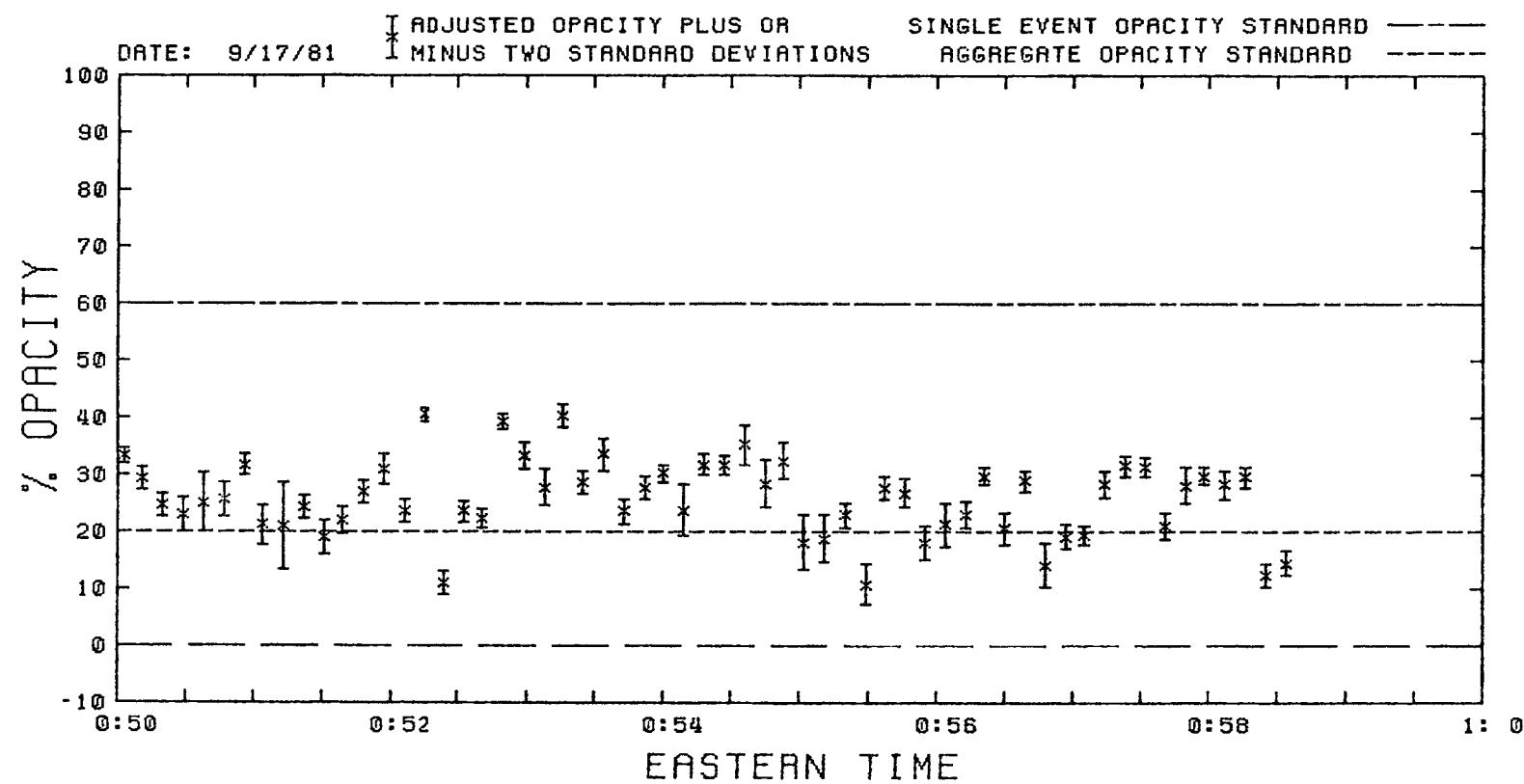
FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 NATIONAL ENFORCEMENT INVESTIGATIONS CENTER
 DENVER, COLORADO 80225

OMEGA-0086, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.
 DATE TIME OPACITY SO EXCEEDS 60% EXCEEDS 20% AGGREGATE TIME EXCEEDING 20%

9/16/81	23: 57: 9	9	3		0. 00 MINUTES
9/16/81	23: 57: 18	12	1		0. 00 MINUTES
9/16/81	23: 57: 27	8	1		0. 00 MINUTES
9/16/81	23: 57: 36	18	1		0. 00 MINUTES
9/16/81	23: 57: 44	13	2		0. 00 MINUTES
9/16/81	23: 57: 53	17	1		0. 00 MINUTES
9/16/81	23: 58: 2	28	1	****	0. 00 MINUTES
9/16/81	23: 58: 11	12	1		0. 00 MINUTES
9/16/81	23: 58: 20	14	2		0. 00 MINUTES
9/16/81	23: 58: 28	20	1		0. 00 MINUTES
9/16/81	23: 58: 37	16	1		0. 00 MINUTES
9/16/81	23: 58: 46	18	2		0. 00 MINUTES
9/16/81	23: 58: 55	13	5		0. 00 MINUTES
9/16/81	23: 59: 4	14	2		0. 00 MINUTES
9/16/81	23: 59: 13	13	1		0. 00 MINUTES
9/16/81	23: 59: 22	16	2		0. 00 MINUTES
9/16/81	23: 59: 30	9	1		0. 00 MINUTES
9/16/81	23: 59: 39	16	1		0. 00 MINUTES
9/16/81	23: 59: 48	16	1		0. 00 MINUTES
9/16/81	23: 59: 57	20	1		0. 00 MINUTES
9/17/81	0: 0: 6	17	2		0. 00 MINUTES
9/17/81	0: 0: 15	14	1		0. 00 MINUTES
9/17/81	0: 0: 23	11	3		0. 00 MINUTES
9/17/81	0: 0: 32	12	1		0. 00 MINUTES
9/17/81	0: 0: 41	14	1		0. 00 MINUTES
9/17/81	0: 0: 50	16	1		0. 00 MINUTES
9/17/81	0: 0: 59	12	1		0. 00 MINUTES
9/17/81	0: 1: 8	10	4		0. 00 MINUTES
9/17/81	0: 1: 17	9	2		0. 00 MINUTES
9/17/81	0: 1: 26	11	1		0. 00 MINUTES
9/17/81	0: 1: 34	19	1		0. 00 MINUTES
9/17/81	0: 1: 43	10	3		0. 00 MINUTES
9/17/81	0: 1: 52	16	1		0. 00 MINUTES
9/17/81	0: 2: 1	17	2		0. 00 MINUTES
9/17/81	0: 2: 10	6	4		0. 00 MINUTES
9/17/81	0: 2: 19	12	2		0. 00 MINUTES
9/17/81	0: 2: 28	22	2	****	0. 00 MINUTES
9/17/81	0: 2: 36	12	2		0. 00 MINUTES
9/17/81	0: 2: 45	15	2		0. 00 MINUTES
9/17/81	0: 2: 54	20	1	****	0. 00 MINUTES
9/17/81	0: 3: 3	11	1		0. 00 MINUTES
9/17/81	0: 3: 12	9	1		0. 00 MINUTES
9/17/81	0: 3: 21	12	2		0. 00 MINUTES
9/17/81	0: 3: 29	12	1		0. 00 MINUTES
9/17/81	0: 3: 38	15	2		0. 00 MINUTES
9/17/81	0: 3: 47	9	3		0. 00 MINUTES
9/17/81	0: 3: 56	21	1	****	0. 00 MINUTES
9/17/81	0: 4: 5	9	1		0. 00 MINUTES
9/17/81	0: 4: 14	17	1		0. 00 MINUTES
9/17/81	0: 4: 23	9	1		0. 00 MINUTES

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OMEGA-0086, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.

DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/17/81	0: 4: 32	9	2			0.00 MINUTES
9/17/81	0: 4: 40	22	1			0.00 MINUTES
9/17/81	0: 4: 49	12	1			0.00 MINUTES
9/17/81	0: 4: 58	13	1			0.00 MINUTES
9/17/81	0: 5: 7	17	1			0.00 MINUTES
9/17/81	0: 5: 16	10	2			0.00 MINUTES
9/17/81	0: 5: 24	1	1			0.00 MINUTES
9/17/81	0: 5: 33	9	1			0.00 MINUTES
9/17/81	0: 5: 42	8	1			0.00 MINUTES
9/17/81	0: 5: 51	13	1			0.00 MINUTES
9/17/81	0: 6: 0	39	1			0.00 MINUTES
9/17/81	0: 6: 9	11	1	****		0.00 MINUTES
9/17/81	0: 6: 18	11	1			0.00 MINUTES
9/17/81	0: 6: 27	8	1			0.00 MINUTES
9/17/81	0: 6: 35	18	1			0.00 MINUTES
9/17/81	0: 6: 44	15	1			0.00 MINUTES
9/17/81	0: 6: 53	16	1			0.00 MINUTES
9/17/81	0: 7: 2	12	1			0.00 MINUTES
9/17/81	0: 7: 11	5	1			0.00 MINUTES
9/17/81	0: 7: 20	8	1			0.00 MINUTES
9/17/81	0: 7: 28	10	1			0.00 MINUTES
9/17/81	0: 7: 37	14	1			0.00 MINUTES
9/17/81	0: 7: 46	15	2			0.00 MINUTES
9/17/81	0: 7: 55	14	2			0.00 MINUTES
9/17/81	0: 8: 4	11	1			0.00 MINUTES
9/17/81	0: 8: 13	14	1			0.00 MINUTES
9/17/81	0: 8: 22	10	1			0.00 MINUTES
9/17/81	0: 8: 31	11	1			0.00 MINUTES
9/17/81	0: 8: 39	12	1			0.00 MINUTES
9/17/81	0: 8: 48	7	1			0.00 MINUTES
9/17/81	0: 8: 57	11	1			0.00 MINUTES
9/17/81	0: 9: 6	10	1			0.00 MINUTES
9/17/81	0: 9: 15	13	1			0.00 MINUTES
9/17/81	0: 9: 24	14	1			0.00 MINUTES
9/17/81	0: 9: 32	9	1			0.00 MINUTES
9/17/81	0: 9: 41	12	1			0.00 MINUTES
9/17/81	0: 9: 50	16	1			0.00 MINUTES
9/17/81	0: 9: 59	14	2			0.00 MINUTES
9/17/81	0: 10: 8	8	1			0.00 MINUTES
9/17/81	0: 10: 17	14	1			0.00 MINUTES
9/17/81	0: 10: 26	4	2			0.00 MINUTES
9/17/81	0: 10: 35	12	1			0.00 MINUTES
9/17/81	0: 10: 43	18	1			0.00 MINUTES
9/17/81	0: 10: 52	7	1			0.00 MINUTES
9/17/81	0: 11: 1	11	1			0.00 MINUTES
9/17/81	0: 11: 10	2	1			0.00 MINUTES
9/17/81	0: 11: 19	7	1			0.00 MINUTES
9/17/81	0: 11: 28	9	1			0.00 MINUTES
9/17/81	0: 11: 36	17	1			0.00 MINUTES
9/17/81	0: 11: 45	18	1			0.00 MINUTES

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OMEGA-0086, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.
 DATE TIME OPACITY SO EXCEEDS 60% EXCEEDS 20% AGGREGATE TIME EXCEEDING 20%

9/17/81	0:11: 54	6	1		0.00 MINUTES
9/17/81	0:12: 3	6	2		0.00 MINUTES
9/17/81	0:12:12	14	1		0.00 MINUTES
9/17/81	0:12:21	15	1		0.00 MINUTES
9/17/81	0:12:30	28	1	****	0.00 MINUTES
9/17/81	0:12:38	7	2		0.00 MINUTES
9/17/81	0:12:47	7	2		0.00 MINUTES
9/17/81	0:12:56	20	2	****	0.00 MINUTES
9/17/81	0:13:14	13	1		0.00 MINUTES
9/17/81	0:13:23	13	1		0.00 MINUTES
9/17/81	0:13:32	15	1		0.00 MINUTES
9/17/81	0:13:40	11	1		0.00 MINUTES
9/17/81	0:13:49	7	1		0.00 MINUTES
9/17/81	0:13:58	10	1		0.00 MINUTES
9/17/81	0:14: 7	18	1		0.00 MINUTES
9/17/81	0:14:16	10	5		0.00 MINUTES
9/17/81	0:14:25	20	2		0.00 MINUTES
9/17/81	0:14:34	13	2		0.00 MINUTES
9/17/81	0:14:42	13	2		0.00 MINUTES
9/17/81	0:14:51	23	1	****	0.00 MINUTES
9/17/81	0:15: 0	12	1		0.00 MINUTES
9/17/81	0:15: 9	14	2		0.00 MINUTES
9/17/81	0:15:18	13	1		0.00 MINUTES
9/17/81	0:15:27	11	1		0.00 MINUTES
9/17/81	0:15:36	18	1		0.00 MINUTES
9/17/81	0:15:44	16	1		0.00 MINUTES
9/17/81	0:15:53	30	1	****	0.00 MINUTES
9/17/81	0:16: 2	20	1	****	0.15 MINUTES
9/17/81	0:16:11	9	2		0.15 MINUTES
9/17/81	0:16:20	8	2		0.15 MINUTES
9/17/81	0:16:29	10	2		0.15 MINUTES
9/17/81	0:18:12	14	1		0.15 MINUTES
9/17/81	0:18:21	14	1		0.15 MINUTES
9/17/81	0:18:29	17	1		0.15 MINUTES
9/17/81	0:18:38	17	1		0.15 MINUTES
9/17/81	0:18:47	23	1	****	0.15 MINUTES
9/17/81	0:18:56	26	1	****	0.30 MINUTES
9/17/81	0:19: 4	18	1		0.30 MINUTES
9/17/81	0:19:13	24	1	****	0.30 MINUTES
9/17/81	0:19:22	15	2		0.30 MINUTES
9/17/81	0:19:31	17	1		0.30 MINUTES
9/17/81	0:19:39	14	1		0.30 MINUTES
9/17/81	0:19:48	28	1	****	0.30 MINUTES
9/17/81	0:19:57	13	2		0.30 MINUTES
9/17/81	0:20: 6	16	3		0.30 MINUTES
9/17/81	0:20:15	22	2	****	0.30 MINUTES
9/17/81	0:20:24	17	2		0.30 MINUTES
9/17/81	0:20:32	22	1	****	0.30 MINUTES
9/17/81	0:20:41	17	2		0.30 MINUTES
9/17/81	0:20:50	19	1		0.30 MINUTES

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 DATE TIME OPACITY SO EXCEEDS 60% EXCEEDS 20% AGGREGATE TIME EXCEEDING 20%

9/17/81	0:20: 59	14	2		0.30 MINUTES
9/17/81	0:21: 8	21	1	****	0.30 MINUTES
9/17/81	0:21:16	15	2		0.30 MINUTES
9/17/81	0:21:43	17	2		0.30 MINUTES
9/17/81	0:21:52	18	2		0.30 MINUTES
9/17/81	0:22: 1	20	5		0.30 MINUTES
9/17/81	0:22: 9	14	4		0.30 MINUTES
9/17/81	0:22:18	14	2		0.30 MINUTES
9/17/81	0:22:27	19	2		0.30 MINUTES
9/17/81	0:22:36	20	1		0.30 MINUTES
9/17/81	0:23:20	21	1	****	0.30 MINUTES
9/17/81	0:23:29	22	1	****	0.45 MINUTES
9/17/81	0:23:37	25	1	****	0.58 MINUTES
9/17/81	0:23:46	17	2		0.58 MINUTES
9/17/81	0:23:55	16	1		0.58 MINUTES
9/17/81	0:24: 4	10	3		0.58 MINUTES
9/17/81	0:24:13	14	3		0.58 MINUTES
9/17/81	0:24:21	13	1		0.58 MINUTES
9/17/81	0:24:30	15	2		0.58 MINUTES
9/17/81	0:24:39	19	2		0.58 MINUTES
9/17/81	0:24:48	16	1		0.58 MINUTES
9/17/81	0:24:57	16	2		0.58 MINUTES
9/17/81	0:25: 6	20	2		0.58 MINUTES
9/17/81	0:25:14	14	4		0.58 MINUTES
9/17/81	0:25:23	14	3		0.58 MINUTES
9/17/81	0:25:32	15	2		0.58 MINUTES
9/17/81	0:25:41	12	2		0.58 MINUTES
9/17/81	0:25:50	11	1		0.58 MINUTES
9/17/81	0:25:58	12	4		0.58 MINUTES
9/17/81	0:26: 7	18	3		0.58 MINUTES
9/17/81	0:26:16	14	2		0.58 MINUTES
9/17/81	0:26:25	11	2		0.58 MINUTES
9/17/81	0:26:34	17	1		0.58 MINUTES
9/17/81	0:26:42	10	6		0.58 MINUTES
9/17/81	0:26:51	16	3		0.58 MINUTES
9/17/81	0:27: 0	11	1		0.58 MINUTES
9/17/81	0:27: 9	10	3		0.58 MINUTES
9/17/81	0:27:18	17	2		0.58 MINUTES
9/17/81	0:27:27	11	2		0.58 MINUTES
9/17/81	0:27:35	20	1	****	0.58 MINUTES
9/17/81	0:27:44	10	3		0.58 MINUTES
9/17/81	0:27:53	15	2		0.58 MINUTES
9/17/81	0:28: 2	18	2		0.58 MINUTES
9/17/81	0:28:11	23	1	****	0.58 MINUTES
9/17/81	0:28:19	14	3		0.58 MINUTES
9/17/81	0:28:28	11	3		0.58 MINUTES
9/17/81	0:28:37	22	2	****	0.58 MINUTES
9/17/81	0:28:46	20	1		0.58 MINUTES
9/17/81	0:28:55	19	2		0.58 MINUTES
9/17/81	0:29: 3	18	2		0.58 MINUTES

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 DATE TIME OPACITY SO EXCEEDS 60% EXCEEDS 20% AGGREGATE TIME EXCEEDING 20%

9/17/81	0:29: 12	20	2		****	0. 58 MINUTES
9/17/81	0:29: 21	21	1		****	0. 73 MINUTES
9/17/81	0:29: 30	21	1		****	0. 88 MINUTES
9/17/81	0:29: 39	17	2			0. 88 MINUTES
9/17/81	0:29: 48	17	2			0. 88 MINUTES
9/17/81	0:29: 56	21	1		****	0. 88 MINUTES
9/17/81	0:30: 5	11	3			0. 88 MINUTES
9/17/81	0:30: 14	22	1		****	0. 88 MINUTES
9/17/81	0:30: 23	18	1			0. 88 MINUTES
9/17/81	0:30: 32	14	2			0. 88 MINUTES
9/17/81	0:30: 40	18	1			0. 88 MINUTES
9/17/81	0:30: 49	12	2			0. 88 MINUTES
9/17/81	0:30: 58	10	3			0. 88 MINUTES
9/17/81	0:31: 7	10	2			0. 88 MINUTES
9/17/81	0:31: 16	16	1			0. 88 MINUTES
9/17/81	0:31: 25	8	2			0. 88 MINUTES
9/17/81	0:31: 42	9	3			0. 88 MINUTES
9/17/81	0:31: 51	8	1			0. 88 MINUTES
9/17/81	0:32: 0	12	1			0. 88 MINUTES
9/17/81	0:32: 9	13	1			0. 88 MINUTES
9/17/81	0:32: 17	38	1		****	0. 88 MINUTES
9/17/81	0:32: 26	12	1			0. 88 MINUTES
9/17/81	0:32: 35	14	1			0. 88 MINUTES
9/17/81	0:32: 44	11	2			0. 88 MINUTES
9/17/81	0:32: 53	12	1			0. 88 MINUTES
9/17/81	0:33: 1	14	1			0. 88 MINUTES
9/17/81	0:33: 10	9	2			0. 88 MINUTES
9/17/81	0:33: 19	12	4			0. 88 MINUTES
9/17/81	0:33: 28	23	2		****	0. 88 MINUTES
9/17/81	0:33: 37	12	2			0. 88 MINUTES
9/17/81	0:33: 45	19	2			0. 88 MINUTES
9/17/81	0:33: 54	15	2			0. 88 MINUTES
9/17/81	0:34: 3	14	1			0. 88 MINUTES
9/17/81	0:34: 12	16	3			0. 88 MINUTES
9/17/81	0:34: 21	12	3			0. 88 MINUTES
9/17/81	0:34: 30	16	1			0. 88 MINUTES
9/17/81	0:34: 38	29	2		****	0. 88 MINUTES
9/17/81	0:34: 47	22	1		****	1. 03 MINUTES
9/17/81	0:34: 56	23	1		****	1. 18 MINUTES
9/17/81	0:35: 5	16	1			1. 18 MINUTES
9/17/81	0:35: 14	17	7			1. 18 MINUTES
9/17/81	0:35: 22	18	3			1. 18 MINUTES
9/17/81	0:35: 31	21	1		****	1. 18 MINUTES
9/17/81	0:35: 40	15	1			1. 18 MINUTES
9/17/81	0:35: 49	21	2		****	1. 18 MINUTES
9/17/81	0:35: 58	15	1			1. 18 MINUTES
9/17/81	0:36: 6	28	1		****	1. 18 MINUTES
9/17/81	0:36: 15	23	1		****	1. 33 MINUTES
9/17/81	0:36: 24	22	2		****	1. 48 MINUTES
9/17/81	0:36: 33	16	2			1. 48 MINUTES

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DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/17/81	0:36:42	25	1		****	1.48 MINUTES
9/17/81	0:36:51	33	1		****	1.63 MINUTES
9/17/81	0:36:59	48	1		****	1.77 MINUTES
9/17/81	0:37: 8	38	1		****	1.92 MINUTES
9/17/81	0:37:17	31	1		****	2.07 MINUTES
9/17/81	0:37:26	35	1		****	2.22 MINUTES
9/17/81	0:37:35	31	1		****	2.37 MINUTES
9/17/81	0:37:43	18	2			2.37 MINUTES
9/17/81	0:37:52	22	1		****	2.37 MINUTES
9/17/81	0:38: 1	23	2		****	2.52 MINUTES
9/17/81	0:38:10	23	1		****	2.67 MINUTES
9/17/81	0:38:19	23	2		****	2.82 MINUTES
9/17/81	0:38:27	27	1		****	2.95 MINUTES
9/17/81	0:38:36	29	3		****	3.10 MINUTES
9/17/81	0:38:45	31	2		****	3.25 MINUTES
9/17/81	0:38:54	33	2		****	3.40 MINUTES
9/17/81	0:39: 3	37	1		****	3.55 MINUTES
9/17/81	0:39:12	28	1		****	3.70 MINUTES
9/17/81	0:39:21	23	1		****	3.85 MINUTES
9/17/81	0:39:29	19	2			3.85 MINUTES
9/17/81	0:39:38	11	2			3.85 MINUTES
9/17/81	0:39:47	29	2		****	3.85 MINUTES
9/17/81	0:39:56	10	2			3.85 MINUTES
9/17/81	0:40: 4	17	3			3.85 MINUTES
9/17/81	0:40:13	28	1		****	3.85 MINUTES
9/17/81	0:40:22	35	1		****	4.00 MINUTES
9/17/81	0:40:31	37	1		****	4.15 MINUTES
9/17/81	0:40:40	26	2		****	4.30 MINUTES
9/17/81	0:40:47	20	1		****	4.42 MINUTES
9/17/81	0:40:56	19	1			4.42 MINUTES
9/17/81	0:41: 5	20	1			4.42 MINUTES
9/17/81	0:41:14	23	1		****	4.42 MINUTES
9/17/81	0:41:23	22	1		****	4.57 MINUTES
9/17/81	0:41:32	21	1		****	4.72 MINUTES
9/17/81	0:41:40	27	1		****	4.85 MINUTES
9/17/81	0:41:49	32	1		****	5.00 MINUTES
9/17/81	0:41:58	27	1		****	5.15 MINUTES
9/17/81	0:42: 7	17	1			5.15 MINUTES
9/17/81	0:42:15	36	1		****	5.15 MINUTES
9/17/81	0:42:24	28	1		****	5.30 MINUTES
9/17/81	0:42:33	23	1		****	5.45 MINUTES
9/17/81	0:42:42	21	1		****	5.60 MINUTES
9/17/81	0:42:51	42	2		****	5.75 MINUTES
9/17/81	0:43: 0	25	1		****	5.90 MINUTES
9/17/81	0:43: 8	18	2			5.90 MINUTES
9/17/81	0:43:17	22	2		****	5.90 MINUTES
9/17/81	0:43:26	24	2		****	6.05 MINUTES
9/17/81	0:43:35	21	1		****	6.20 MINUTES
9/17/81	0:43:44	35	2		****	6.35 MINUTES
9/17/81	0:43:52	22	1		****	6.48 MINUTES

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 NATIONAL ENFORCEMENT INVESTIGATIONS CENTER
 DENVER, COLORADO 80225

DMEGA-0086, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.

DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/17/81	0: 44: 1	23	1		****	6. 63 MINUTES
9/17/81	0: 44: 10	31	1		****	6. 78 MINUTES
9/17/81	0: 44: 19	15	2		****	6. 78 MINUTES
9/17/81	0: 44: 28	25	1		****	6. 78 MINUTES
9/17/81	0: 44: 45	19	1		****	6. 78 MINUTES
9/17/81	0: 44: 54	26	2		****	6. 78 MINUTES
9/17/81	0: 45: 3	18	1		****	6. 78 MINUTES
9/17/81	0: 45: 12	13	1		****	6. 78 MINUTES
9/17/81	0: 45: 21	15	2		****	6. 78 MINUTES
9/17/81	0: 45: 29	20	2		****	6. 78 MINUTES
9/17/81	0: 45: 38	23	1		****	6. 93 MINUTES
9/17/81	0: 45: 47	23	1		****	7. 08 MINUTES
9/17/81	0: 45: 56	24	1		****	7. 23 MINUTES
9/17/81	0: 46: 5	26	1		****	7. 38 MINUTES
9/17/81	0: 46: 14	17	1		****	7. 38 MINUTES
9/17/81	0: 46: 22	22	1		****	7. 38 MINUTES
9/17/81	0: 46: 31	27	1		****	7. 53 MINUTES
9/17/81	0: 46: 40	16	3		****	7. 53 MINUTES
9/17/81	0: 46: 49	21	1		****	7. 53 MINUTES
9/17/81	0: 46: 58	18	1		****	7. 53 MINUTES
9/17/81	0: 47: 6	18	2		****	7. 53 MINUTES
9/17/81	0: 47: 15	17	2		****	7. 53 MINUTES
9/17/81	0: 47: 24	26	1		****	7. 53 MINUTES
9/17/81	0: 47: 33	29	1		****	7. 68 MINUTES
9/17/81	0: 47: 42	29	2		****	7. 83 MINUTES
9/17/81	0: 47: 50	21	3		****	7. 97 MINUTES
9/17/81	0: 47: 59	20	2		****	8. 12 MINUTES
9/17/81	0: 48: 8	19	1		****	8. 12 MINUTES
9/17/81	0: 48: 17	14	3		****	8. 12 MINUTES
9/17/81	0: 48: 26	20	2		****	8. 12 MINUTES
9/17/81	0: 48: 35	42	1		****	8. 27 MINUTES
9/17/81	0: 48: 43	28	1		****	8. 40 MINUTES
9/17/81	0: 48: 52	55	1		****	8. 55 MINUTES
9/17/81	0: 49: 1	30	1		****	8. 70 MINUTES
9/17/81	0: 49: 10	22	1		****	8. 85 MINUTES
9/17/81	0: 49: 19	20	1		****	9. 00 MINUTES
9/17/81	0: 49: 27	19	1		****	9. 00 MINUTES
9/17/81	0: 49: 36	18	2		****	9. 00 MINUTES
9/17/81	0: 49: 45	26	1		****	9. 00 MINUTES
9/17/81	0: 49: 54	16	2		****	9. 00 MINUTES
9/17/81	0: 50: 3	32	1		****	9. 00 MINUTES
9/17/81	0: 50: 11	27	1		****	9. 13 MINUTES
9/17/81	0: 50: 20	23	1		****	9. 28 MINUTES
9/17/81	0: 50: 29	20	2		****	9. 43 MINUTES
9/17/81	0: 50: 38	20	3		****	9. 43 MINUTES
9/17/81	0: 50: 47	23	2		****	9. 43 MINUTES
9/17/81	0: 50: 56	30	1		****	9. 58 MINUTES
9/17/81	0: 51: 4	18	2		****	9. 58 MINUTES
9/17/81	0: 51: 13	13	4		****	9. 58 MINUTES
9/17/81	0: 51: 22	22	1		****	9. 58 MINUTES

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 NATIONAL ENFORCEMENT INVESTIGATIONS CENTER
 DENVER, COLORADO 80225

OMEGA-0086, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.

DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/17/81	0: 51: 31	16	2			9. 58 MINUTES
9/17/81	0: 51: 39	20	1			9. 58 MINUTES
9/17/81	0: 51: 48	25	1	****		9. 58 MINUTES
9/17/81	0: 51: 57	28	1	****		9. 73 MINUTES
9/17/81	0: 52: 6	22	1	****		9. 88 MINUTES
9/17/81	0: 52: 15	39	1	****		10. 03 MINUTES
9/17/81	0: 52: 24	9	1			10. 03 MINUTES
9/17/81	0: 52: 33	22	1	****		10. 03 MINUTES
9/17/81	0: 52: 41	21	1	****		10. 17 MINUTES
9/17/81	0: 52: 50	38	1	****		10. 32 MINUTES
9/17/81	0: 52: 59	31	1	****		10. 47 MINUTES
9/17/81	0: 53: 8	25	2	****		10. 62 MINUTES
9/17/81	0: 53: 16	38	1	****		10. 75 MINUTES
9/17/81	0: 53: 25	27	1	****		10. 90 MINUTES
9/17/81	0: 53: 34	31	1	****		11. 05 MINUTES
9/17/81	0: 53: 43	21	1	****		11. 20 MINUTES
9/17/81	0: 53: 52	26	1	****		11. 35 MINUTES
9/17/81	0: 54: 0	29	1	****		11. 48 MINUTES
9/17/81	0: 54: 9	19	2			11. 48 MINUTES
9/17/81	0: 54: 18	30	1	****		11. 48 MINUTES
9/17/81	0: 54: 27	30	1	****		11. 63 MINUTES
9/17/81	0: 54: 36	32	2	****		11. 78 MINUTES
9/17/81	0: 54: 45	24	2	****		11. 93 MINUTES
9/17/81	0: 54: 53	29	2	****		12. 07 MINUTES
9/17/81	0: 55: 2	13	2			12. 07 MINUTES
9/17/81	0: 55: 11	15	2			12. 07 MINUTES
9/17/81	0: 55: 20	21	1	****		12. 07 MINUTES
9/17/81	0: 55: 29	7	2			12. 07 MINUTES
9/17/81	0: 55: 37	26	1	****		12. 07 MINUTES
9/17/81	0: 55: 46	24	1	****		12. 22 MINUTES
9/17/81	0: 55: 55	15	2			12. 22 MINUTES
9/17/81	0: 56: 4	17	2			12. 22 MINUTES
9/17/81	0: 56: 13	21	1	****		12. 22 MINUTES
9/17/81	0: 56: 21	28	1	****		12. 35 MINUTES
9/17/81	0: 56: 30	18	1			12. 35 MINUTES
9/17/81	0: 56: 39	27	1	****		12. 35 MINUTES
9/17/81	0: 56: 48	10	2			12. 35 MINUTES
9/17/81	0: 56: 57	17	1			12. 35 MINUTES
9/17/81	0: 57: 5	18	1			12. 35 MINUTES
9/17/81	0: 57: 14	26	1	****		12. 35 MINUTES
9/17/81	0: 57: 23	30	1	****		12. 50 MINUTES
9/17/81	0: 57: 32	30	1	****		12. 65 MINUTES
9/17/81	0: 57: 41	19	1			12. 65 MINUTES
9/17/81	0: 57: 50	25	2	****		12. 65 MINUTES
9/17/81	0: 57: 58	28	1	****		12. 78 MINUTES
9/17/81	0: 58: 7	26	1	****		12. 93 MINUTES
9/17/81	0: 58: 16	28	1	****		13. 08 MINUTES
9/17/81	0: 58: 25	10	1			13. 08 MINUTES
9/17/81	0: 58: 34	12	1			13. 08 MINUTES

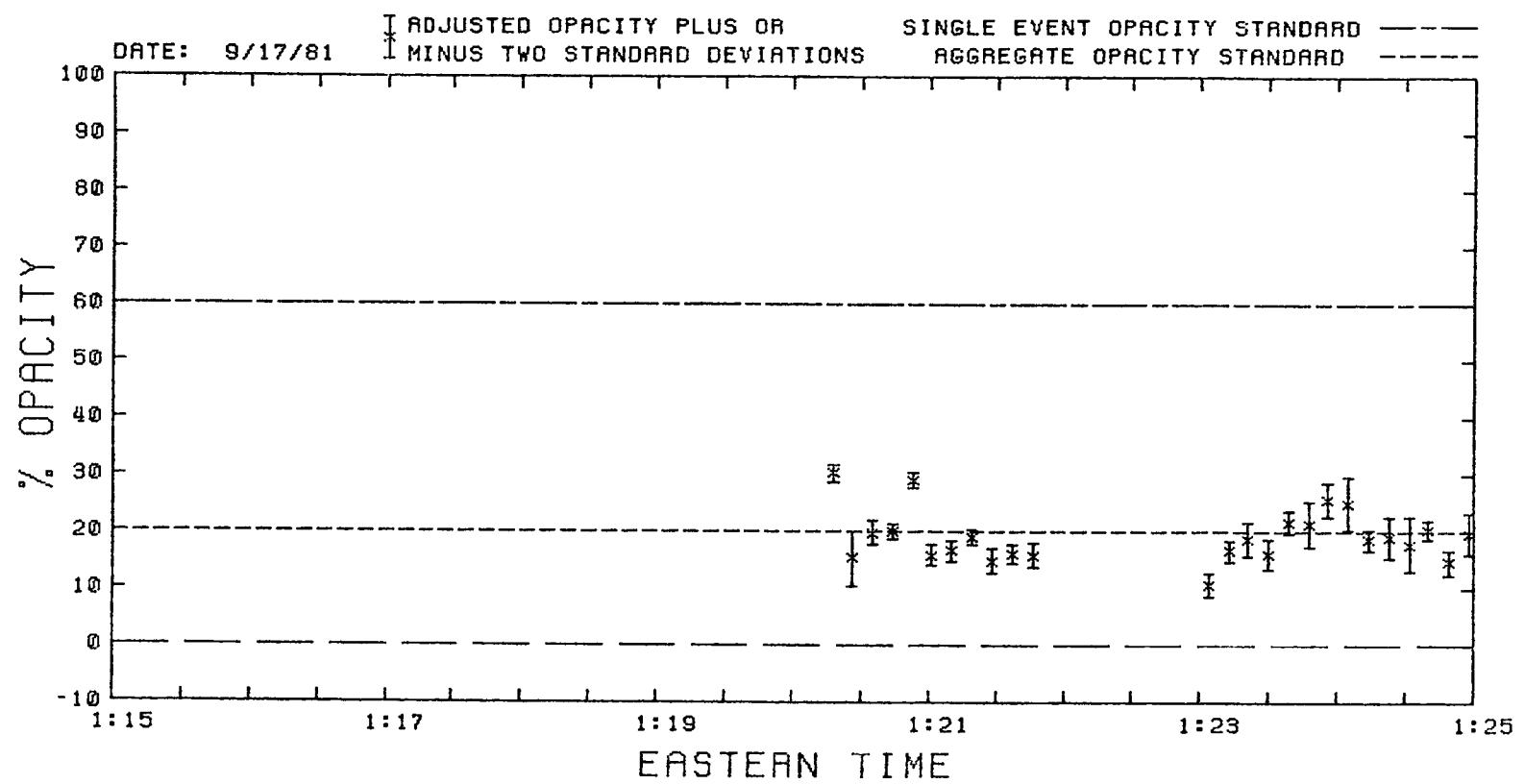
OMEGA - 0086

BRITISH PETROLEUM REFINERY
FLUIDIZED CATALYTIC CRACKER

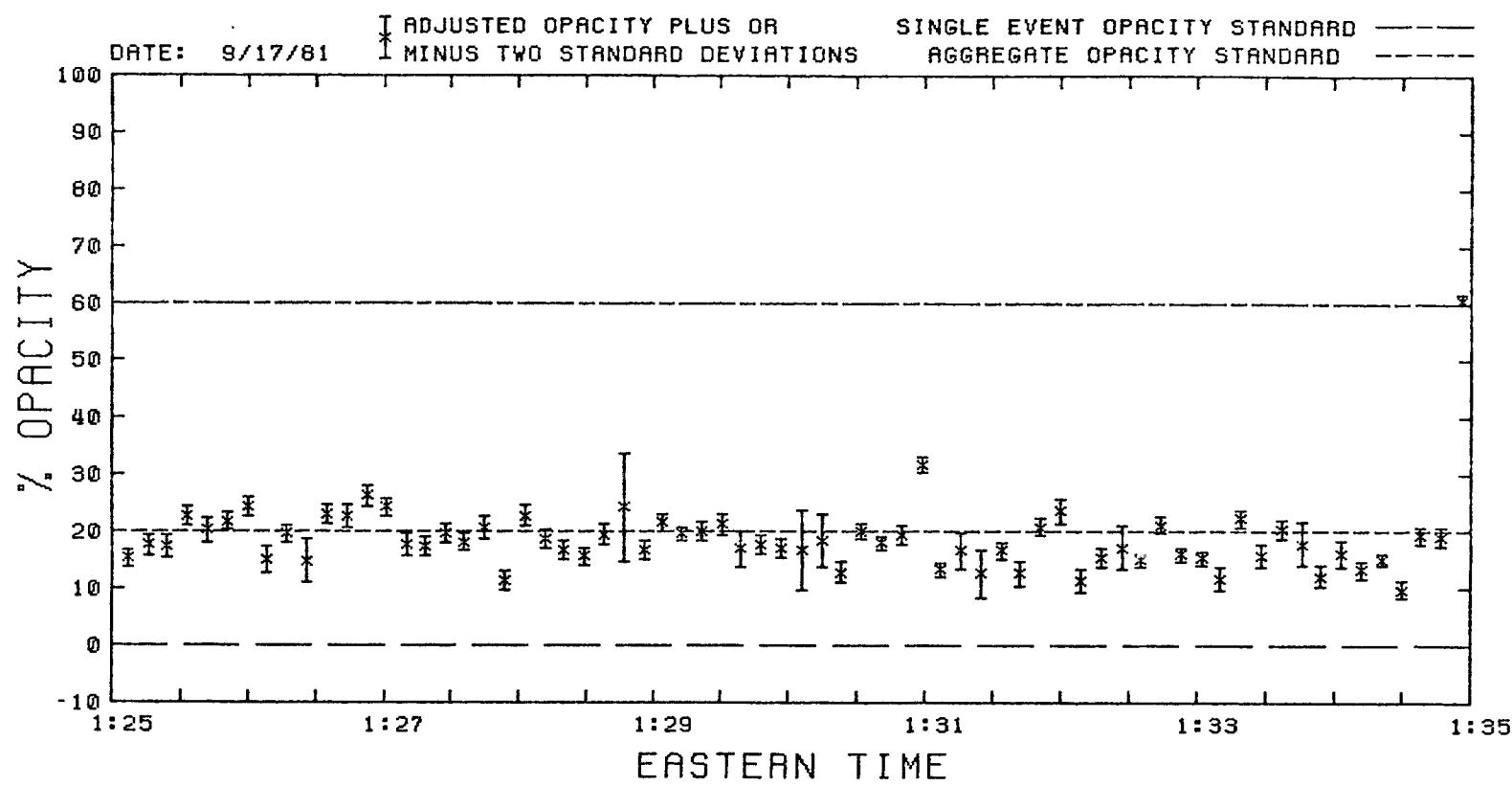
Marcus Hook, Pennsylvania

September 17, 1981

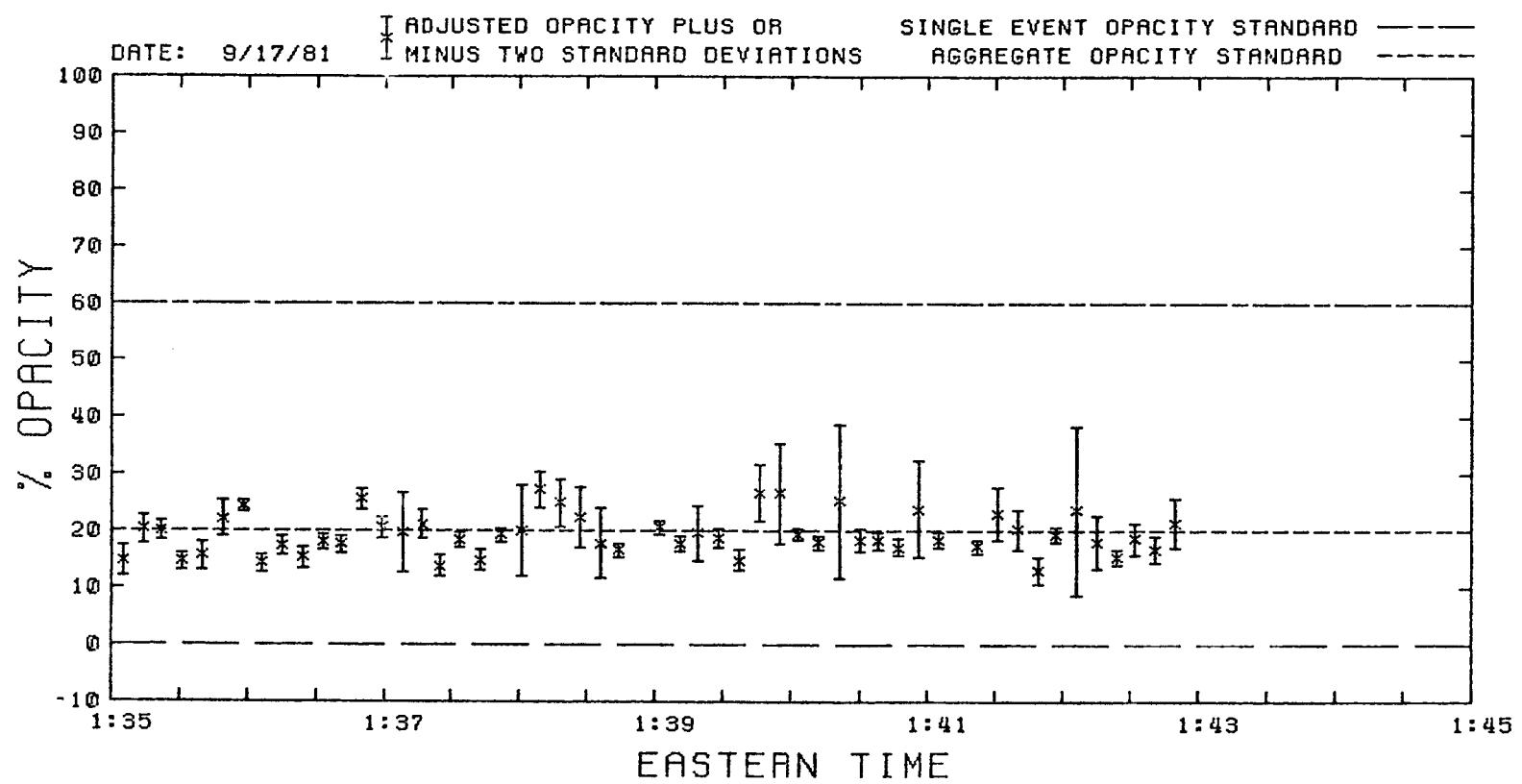
1:20:18 to 1:42:50



FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 NATIONAL ENFORCEMENT INVESTIGATIONS CENTER
 DENVER, COLORADO 80225

OMEGA-0086, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.
 DATE TIME OPACITY SO EXCEEDS 60% EXCEEDS 20% AGGREGATE TIME EXCEEDING 20%

9/17/81	1:20:18	29	1		****	0.00 MINUTES
9/17/81	1:20:26	10	2			0.00 MINUTES
9/17/81	1:20:35	18	1			0.00 MINUTES
9/17/81	1:20:44	19	1			0.00 MINUTES
9/17/81	1:20:53	28	1		****	0.00 MINUTES
9/17/81	1:21: 1	14	1			0.00 MINUTES
9/17/81	1:21:10	15	1			0.00 MINUTES
9/17/81	1:21:19	18	1			0.00 MINUTES
9/17/81	1:21:28	12	1			0.00 MINUTES
9/17/81	1:21:37	14	1			0.00 MINUTES
9/17/81	1:21:46	14	1			0.00 MINUTES
9/17/81	1:23: 4	9	1			0.00 MINUTES
9/17/81	1:23:13	15	1			0.00 MINUTES
9/17/81	1:23:21	16	2			0.00 MINUTES
9/17/81	1:23:30	13	1			0.00 MINUTES
9/17/81	1:23:39	20	1			0.00 MINUTES
9/17/81	1:23:48	17	2			0.00 MINUTES
9/17/81	1:23:56	23	2		****	0.00 MINUTES
9/17/81	1:24: 5	20	2		****	0.15 MINUTES
9/17/81	1:24:14	17	1			0.15 MINUTES
9/17/81	1:24:23	15	2			0.15 MINUTES
9/17/81	1:24:32	13	2			0.15 MINUTES
9/17/81	1:24:40	19	1			0.15 MINUTES
9/17/81	1:24:49	12	1			0.15 MINUTES
9/17/81	1:24:58	16	2			0.15 MINUTES
9/17/81	1:25: 7	14	1			0.15 MINUTES
9/17/81	1:25:16	16	1			0.15 MINUTES
9/17/81	1:25:24	15	1			0.15 MINUTES
9/17/81	1:25:33	21	1		****	0.15 MINUTES
9/17/81	1:25:42	18	1			0.15 MINUTES
9/17/81	1:25:51	20	1		****	0.15 MINUTES
9/17/81	1:26: 0	23	1		****	0.30 MINUTES
9/17/81	1:26: 8	13	1			0.30 MINUTES
9/17/81	1:26:17	18	1			0.30 MINUTES
9/17/81	1:26:26	11	2			0.30 MINUTES
9/17/81	1:26:35	21	1		****	0.30 MINUTES
9/17/81	1:26:44	21	1		****	0.45 MINUTES
9/17/81	1:26:53	24	1		****	0.60 MINUTES
9/17/81	1:27: 1	23	1		****	0.73 MINUTES
9/17/81	1:27:10	16	1			0.73 MINUTES
9/17/81	1:27:19	16	1			0.73 MINUTES
9/17/81	1:27:28	18	1			0.73 MINUTES
9/17/81	1:27:36	17	1			0.73 MINUTES
9/17/81	1:27:45	19	1			0.73 MINUTES
9/17/81	1:27:54	10	1			0.73 MINUTES
9/17/81	1:28: 3	21	1		****	0.73 MINUTES
9/17/81	1:28:12	17	1			0.73 MINUTES
9/17/81	1:28:20	15	1			0.73 MINUTES
9/17/81	1:28:29	14	1			0.73 MINUTES
9/17/81	1:28:38	18	1			0.73 MINUTES

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 NATIONAL ENFORCEMENT INVESTIGATIONS CENTER
 DENVER, COLORADO 80225

OMEGA-0086, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.
 DATE TIME OPACITY SO EXCEEDS 60% EXCEEDS 20% AGGREGATE TIME EXCEEDING 20%

9/17/81	1:28:47	15	5		0.73 MINUTES
9/17/81	1:28:56	15	1		0.73 MINUTES
9/17/81	1:29: 4	20	1		0.73 MINUTES
9/17/81	1:29:13	18	1		0.73 MINUTES
9/17/81	1:29:22	18	1		0.73 MINUTES
9/17/81	1:29:31	19	1		0.73 MINUTES
9/17/81	1:29:39	14	2		0.73 MINUTES
9/17/81	1:29:48	16	1		0.73 MINUTES
9/17/81	1:29:57	15	1		0.73 MINUTES
9/17/81	1:30: 6	10	4		0.73 MINUTES
9/17/81	1:30:15	14	2		0.73 MINUTES
9/17/81	1:30:23	11	1		0.73 MINUTES
9/17/81	1:30:32	19	1		0.73 MINUTES
9/17/81	1:30:41	17	1		0.73 MINUTES
9/17/81	1:30:50	18	1		0.73 MINUTES
9/17/81	1:30:59	30	1	****	0.73 MINUTES
9/17/81	1:31: 7	12	1		0.73 MINUTES
9/17/81	1:31:16	13	2		0.73 MINUTES
9/17/81	1:31:25	8	2		0.73 MINUTES
9/17/81	1:31:34	15	1		0.73 MINUTES
9/17/81	1:31:42	10	1		0.73 MINUTES
9/17/81	1:31:51	19	1		0.73 MINUTES
9/17/81	1:32: 0	21	1	****	0.73 MINUTES
9/17/81	1:32: 9	9	1		0.73 MINUTES
9/17/81	1:32:18	14	1		0.73 MINUTES
9/17/81	1:32:27	13	2		0.73 MINUTES
9/17/81	1:32:35	14	1		0.73 MINUTES
9/17/81	1:32:44	20	1		0.73 MINUTES
9/17/81	1:32:53	15	1		0.73 MINUTES
9/17/81	1:33: 2	14	1		0.73 MINUTES
9/17/81	1:33:10	10	1		0.73 MINUTES
9/17/81	1:33:19	21	1	****	0.73 MINUTES
9/17/81	1:33:28	14	1		0.73 MINUTES
9/17/81	1:33:37	19	1		0.73 MINUTES
9/17/81	1:33:46	14	2		0.73 MINUTES
9/17/81	1:33:54	10	1		0.73 MINUTES
9/17/81	1:34: 3	14	1		0.73 MINUTES
9/17/81	1:34:12	12	1		0.73 MINUTES
9/17/81	1:34:21	14	0		0.73 MINUTES
9/17/81	1:34:30	8	1		0.73 MINUTES
9/17/81	1:34:38	18	1		0.73 MINUTES
9/17/81	1:34:47	17	1		0.73 MINUTES
9/17/81	1:34:56	60	0	****	0.73 MINUTES
9/17/81	1:35: 5	12	1		0.73 MINUTES
9/17/81	1:35:14	18	1		0.73 MINUTES
9/17/81	1:35:22	18	1		0.73 MINUTES
9/17/81	1:35:31	13	1		0.73 MINUTES
9/17/81	1:35:40	13	1		0.73 MINUTES
9/17/81	1:35:49	19	2		0.73 MINUTES
9/17/81	1:35:58	23	0	****	0.73 MINUTES

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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 DENVER, COLORADO 80225

OMEGA-0086, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.

DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/17/81	1:36: 6	13	1			0.73 MINUTES
9/17/81	1:36: 15	16	1			0.73 MINUTES
9/17/81	1:36: 24	13	1			0.73 MINUTES
9/17/81	1:36: 33	17	1			0.73 MINUTES
9/17/81	1:36: 41	16	1			0.73 MINUTES
9/17/81	1:36: 50	24	1	****		0.73 MINUTES
9/17/81	1:36: 59	19	1			0.73 MINUTES
9/17/81	1:37: 8	13	4			0.73 MINUTES
9/17/81	1:37: 17	19	1			0.73 MINUTES
9/17/81	1:37: 25	12	1			0.73 MINUTES
9/17/81	1:37: 34	17	1			0.73 MINUTES
9/17/81	1:37: 43	13	1			0.73 MINUTES
9/17/81	1:37: 52	18	1			0.73 MINUTES
9/17/81	1:38: 1	12	4			0.73 MINUTES
9/17/81	1:38: 9	24	2	****		0.73 MINUTES
9/17/81	1:38: 18	21	2	****		0.88 MINUTES
9/17/81	1:38: 27	17	3			0.88 MINUTES
9/17/81	1:38: 36	12	3			0.88 MINUTES
9/17/81	1:38: 44	15	1			0.88 MINUTES
9/17/81	1:39: 2	19	1			0.88 MINUTES
9/17/81	1:39: 11	16	1			0.88 MINUTES
9/17/81	1:39: 19	15	2			0.88 MINUTES
9/17/81	1:39: 28	17	1			0.88 MINUTES
9/17/81	1:39: 37	13	1			0.88 MINUTES
9/17/81	1:39: 46	22	2	****		0.88 MINUTES
9/17/81	1:39: 55	18	4			0.88 MINUTES
9/17/81	1:40: 3	18	0			0.88 MINUTES
9/17/81	1:40: 12	17	1			0.88 MINUTES
9/17/81	1:40: 21	12	7			0.88 MINUTES
9/17/81	1:40: 30	16	1			0.88 MINUTES
9/17/81	1:40: 38	17	1			0.88 MINUTES
9/17/81	1:40: 47	16	1			0.88 MINUTES
9/17/81	1:40: 56	15	4			0.88 MINUTES
9/17/81	1:41: 5	17	1			0.88 MINUTES
9/17/81	1:41: 22	16	1			0.88 MINUTES
9/17/81	1:41: 31	18	2			0.88 MINUTES
9/17/81	1:41: 40	17	2			0.88 MINUTES
9/17/81	1:41: 49	11	1			0.88 MINUTES
9/17/81	1:41: 57	18	1			0.88 MINUTES
9/17/81	1:42: 6	9	7			0.88 MINUTES
9/17/81	1:42: 15	13	2			0.88 MINUTES
9/17/81	1:42: 24	14	1			0.88 MINUTES
9/17/81	1:42: 32	16	1			0.88 MINUTES
9/17/81	1:42: 41	14	1			0.88 MINUTES
9/17/81	1:42: 50	17	2			0.88 MINUTES

OMEGA - 0086

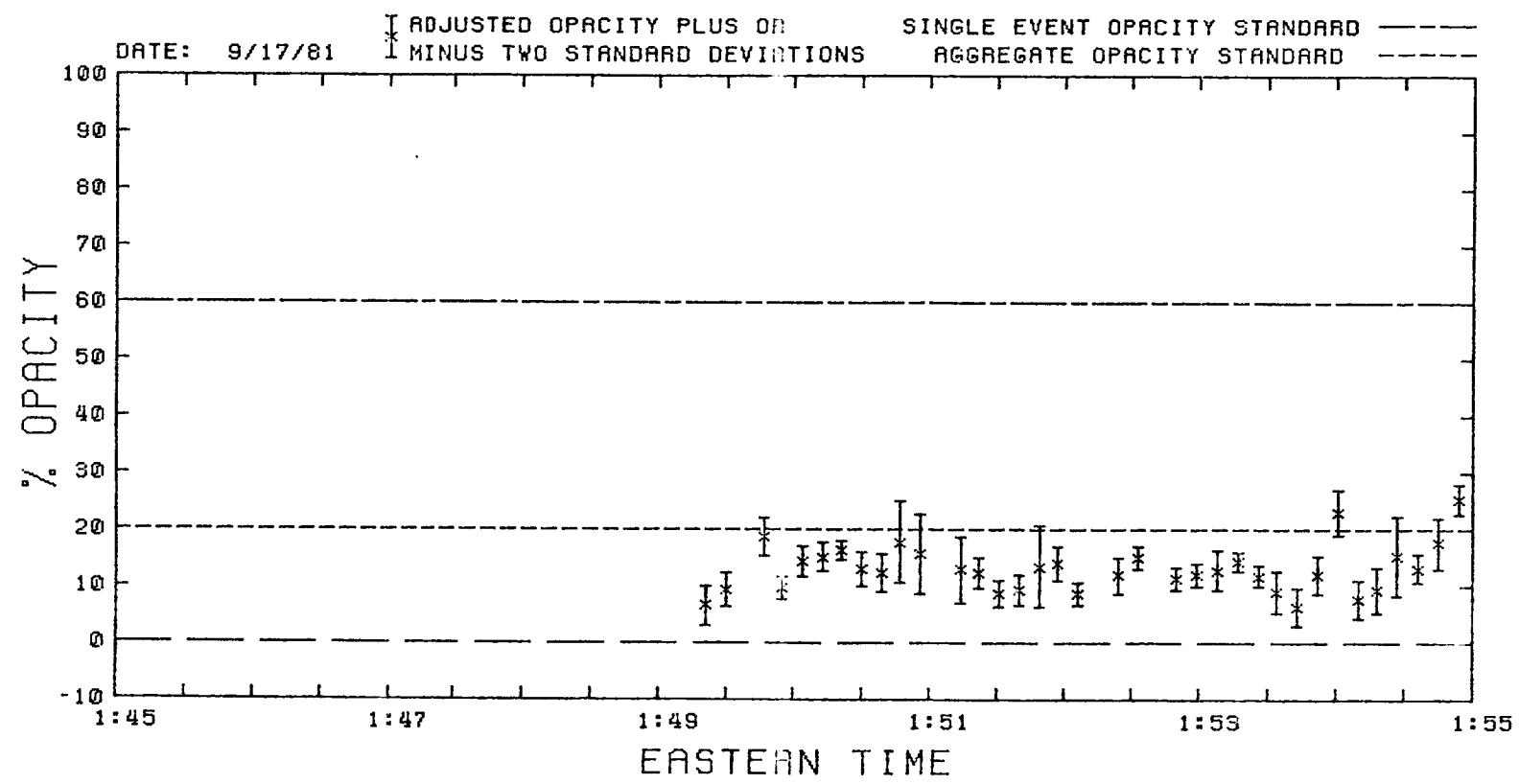
BRITISH PETROLEUM REFINERY

FLUIDIZED CATALYTIC CRACKER

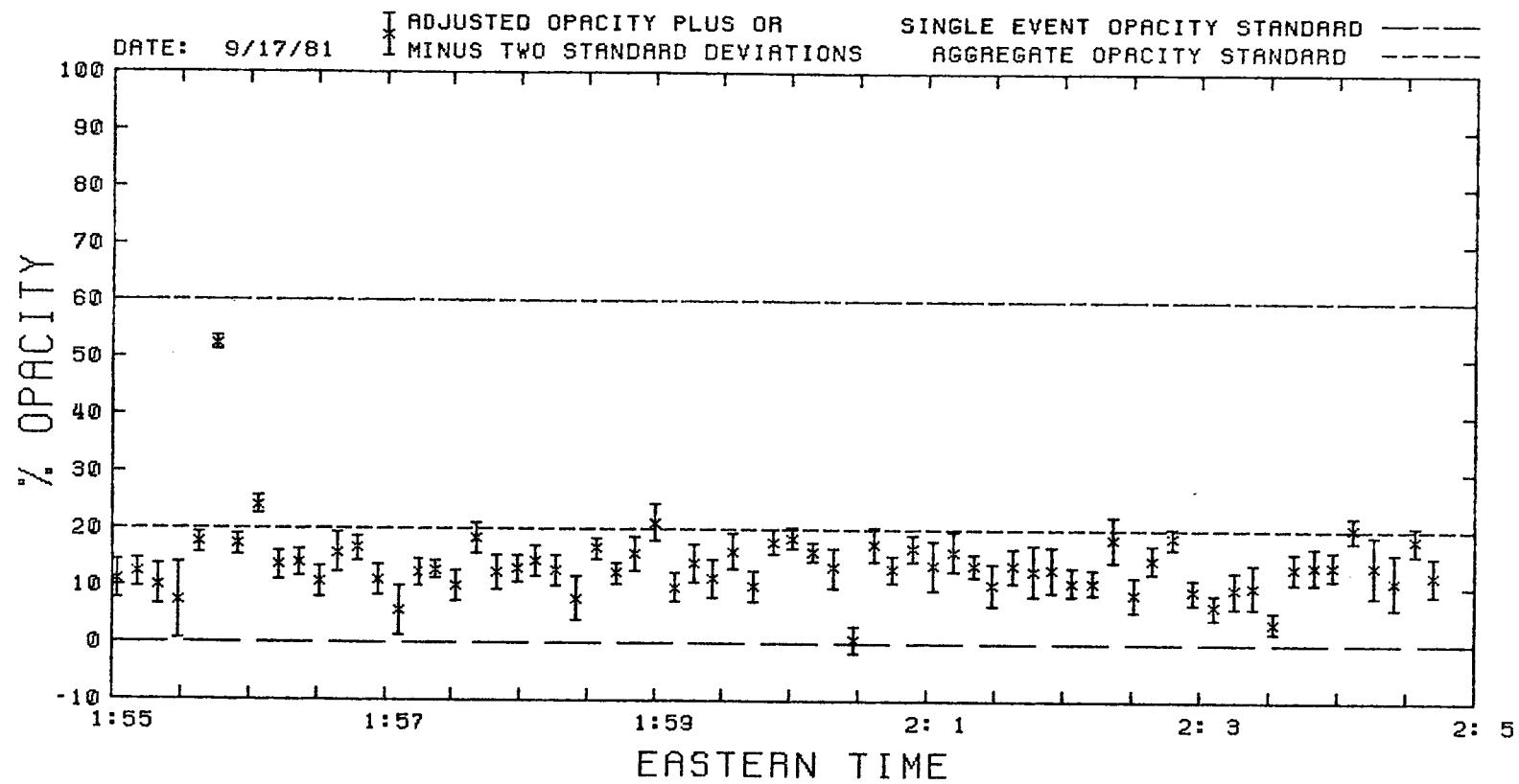
Marcus Hook, Pennsylvania

September 17, 1981

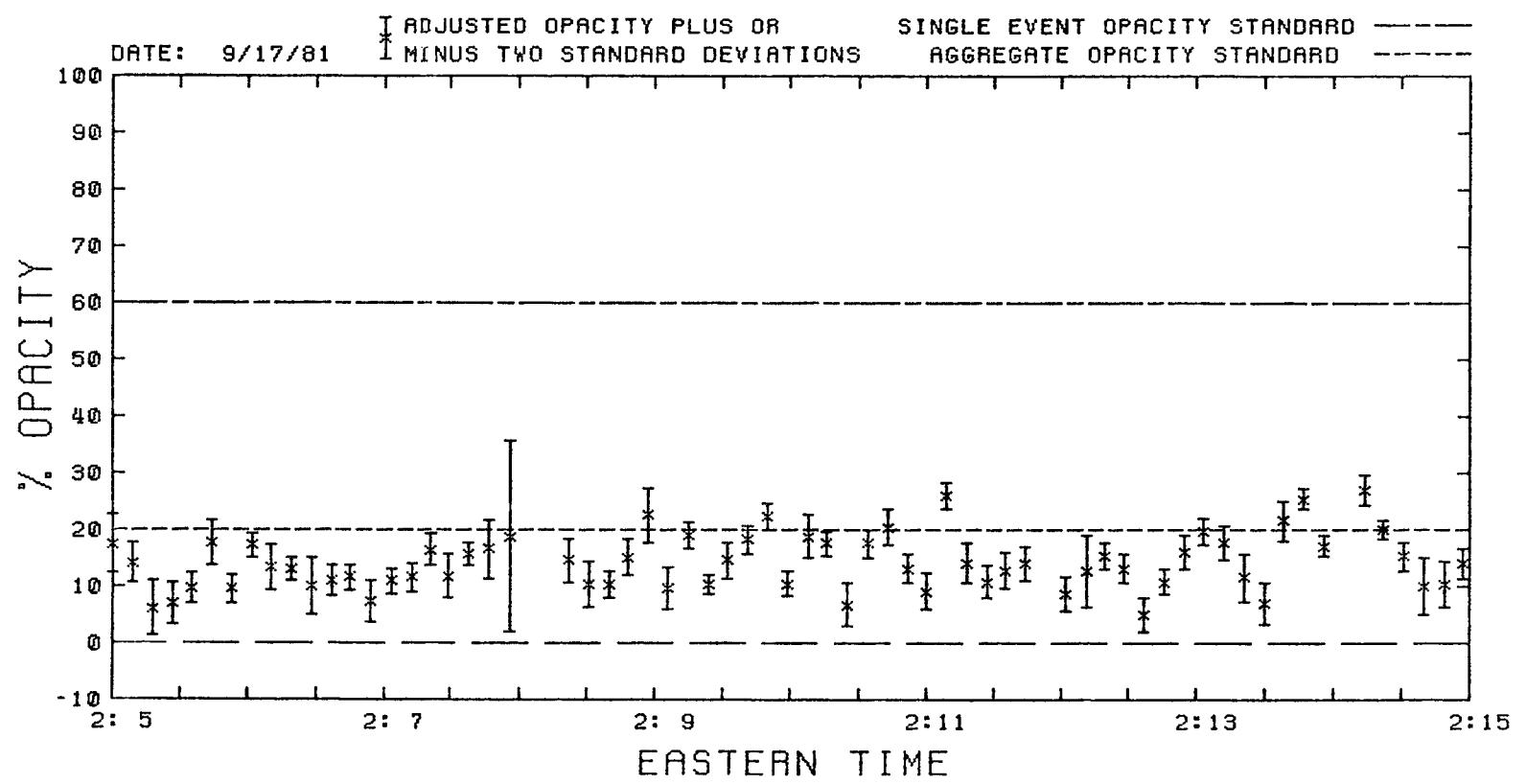
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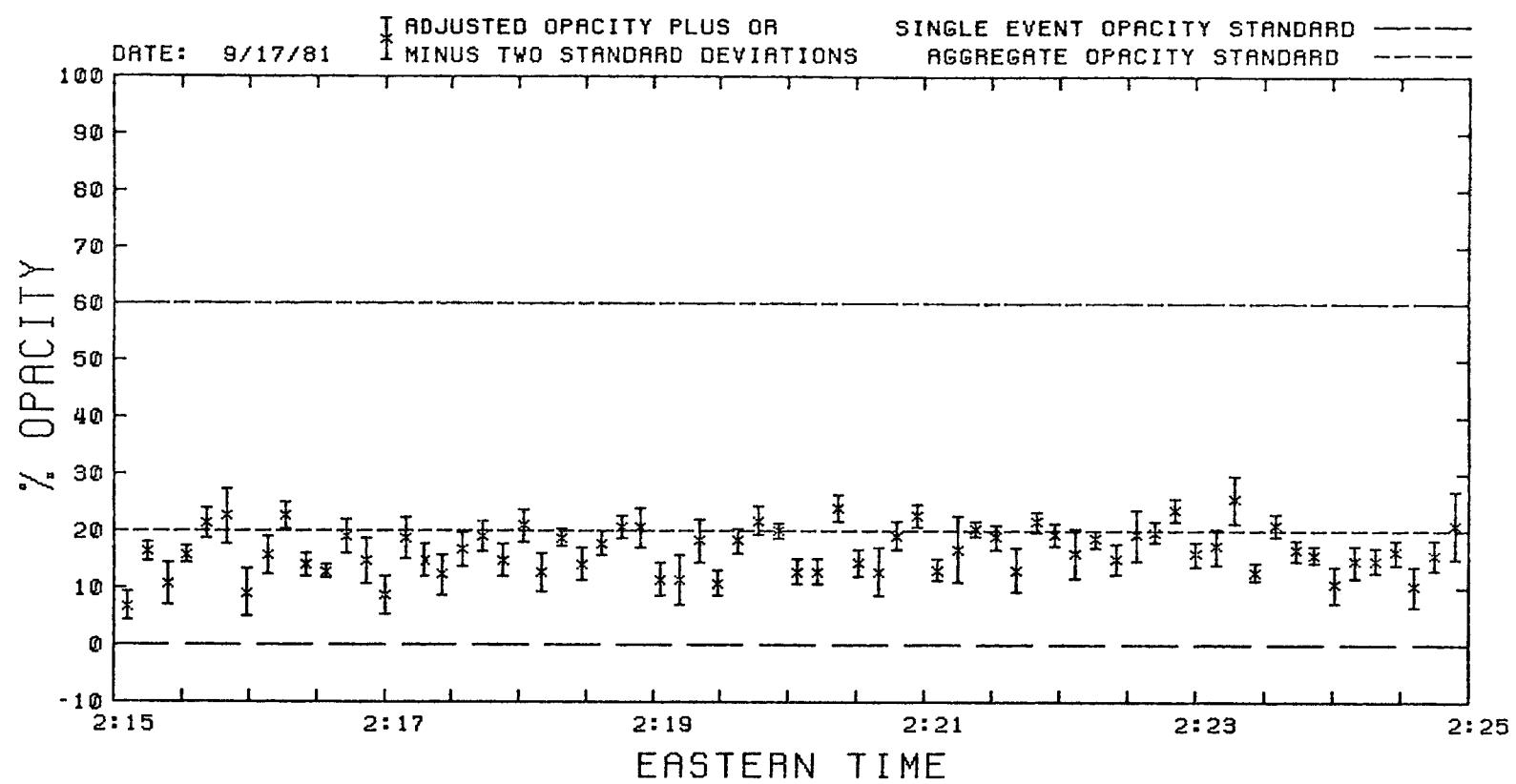
FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



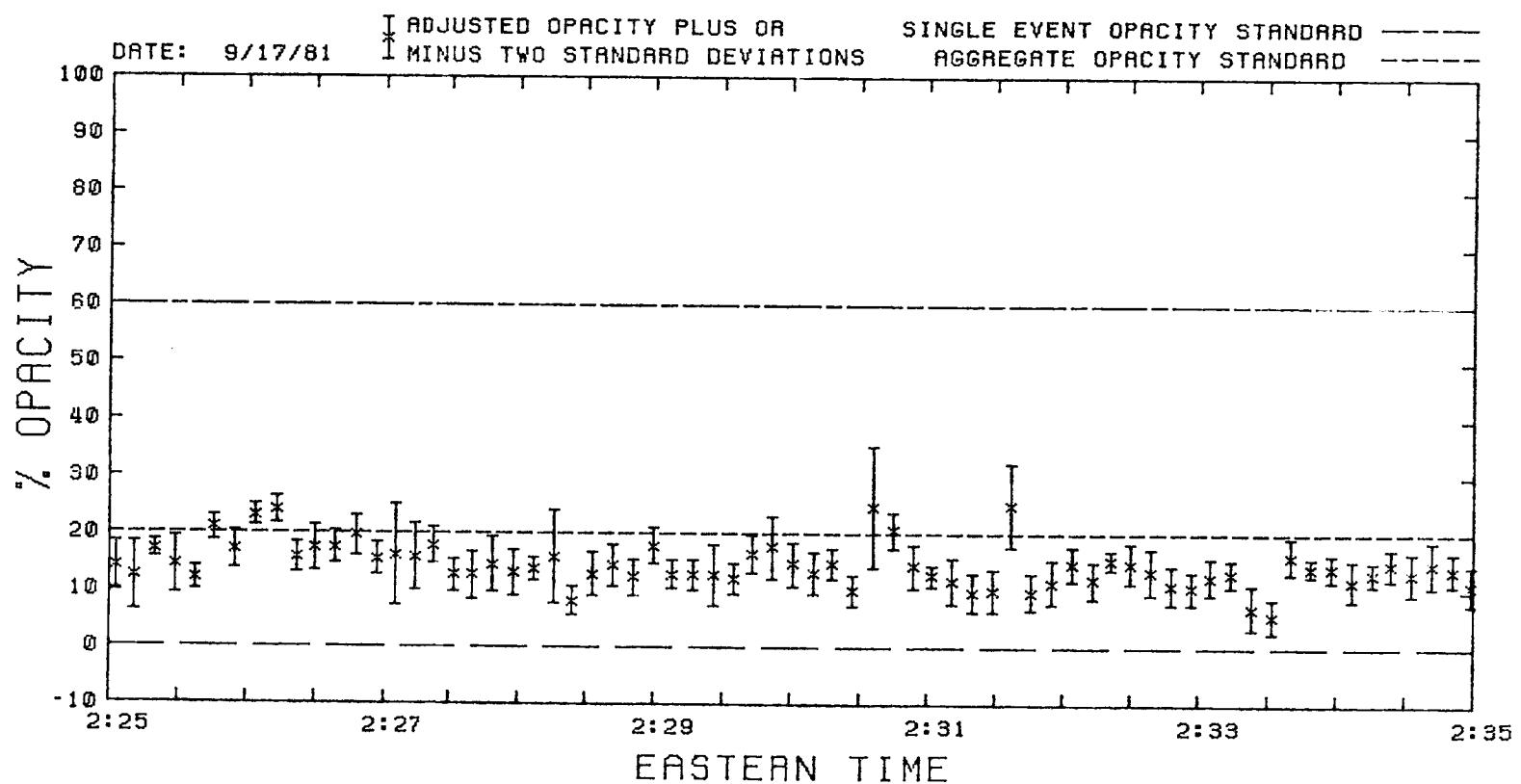
FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



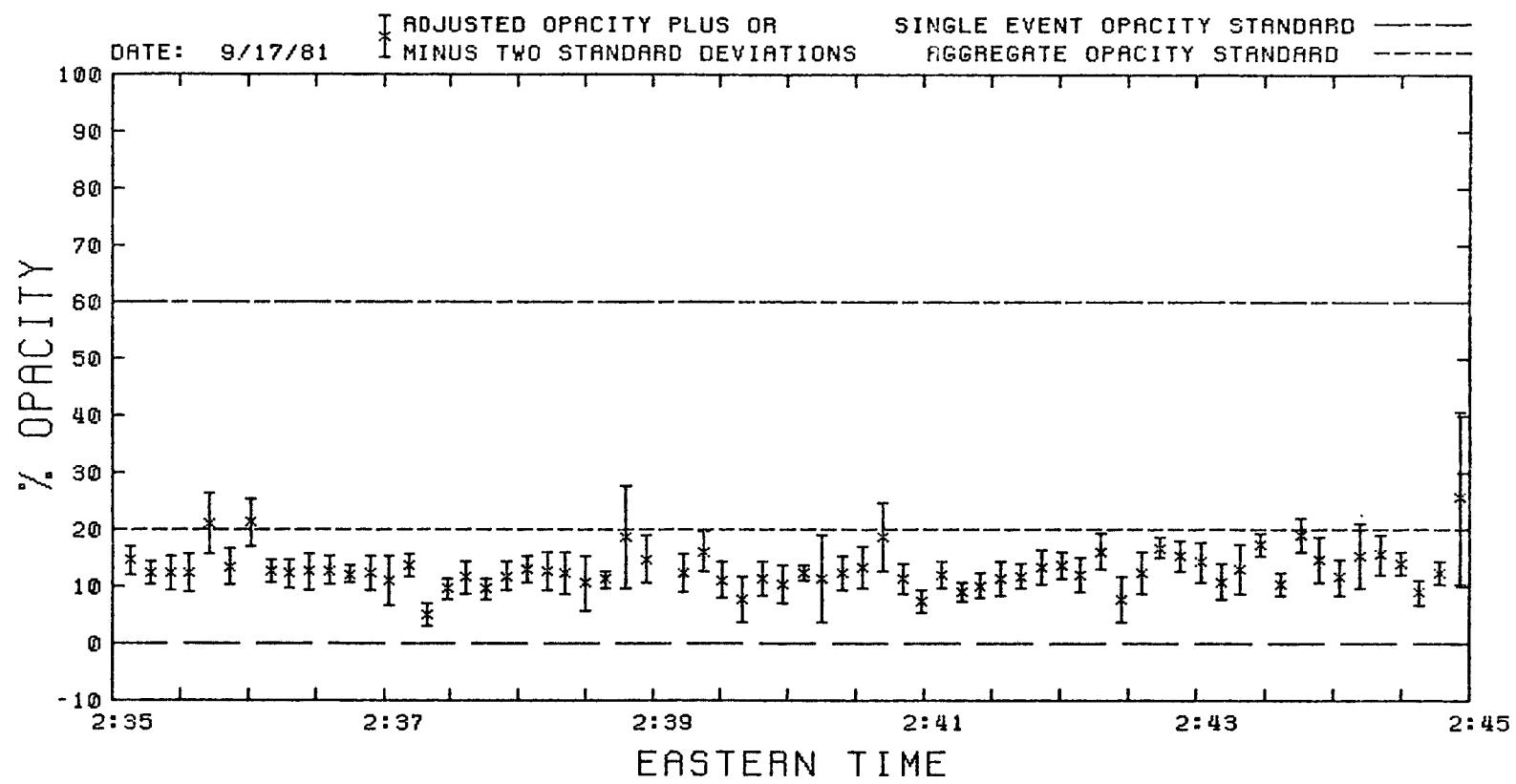
FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



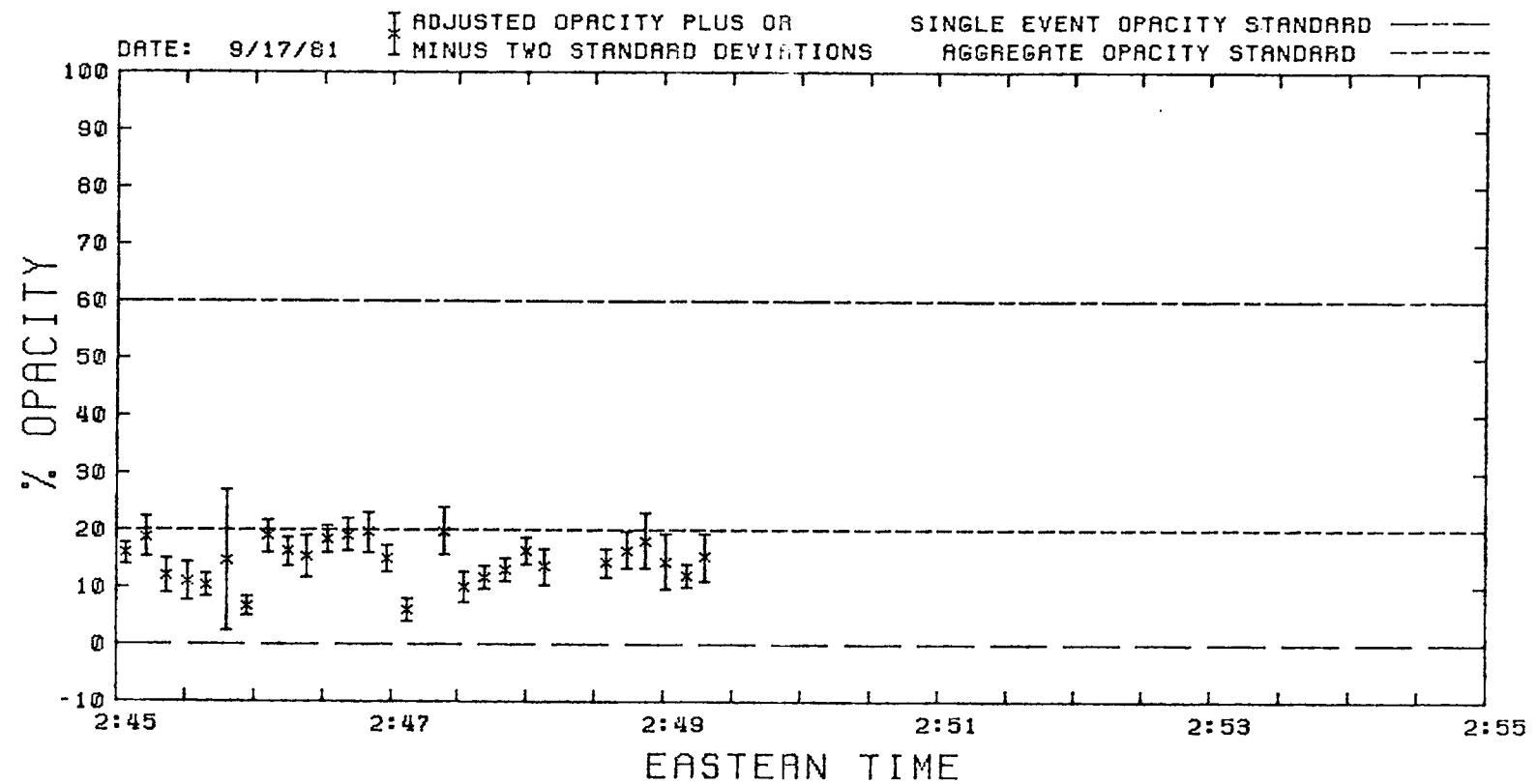
FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.



FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PA.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OMEGA-0086, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.

DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/17/81	1: 49: 21	3	2			0.00 MINUTES
9/17/81	1: 49: 30	6	2			0.00 MINUTES
9/17/81	1: 49: 47	15	2			0.00 MINUTES
9/17/81	1: 49: 55	8	1			0.00 MINUTES
9/17/81	1: 50: 4	12	1			0.00 MINUTES
9/17/81	1: 50: 13	12	1			0.00 MINUTES
9/17/81	1: 50: 21	15	1			0.00 MINUTES
9/17/81	1: 50: 30	10	2			0.00 MINUTES
9/17/81	1: 50: 39	9	2			0.00 MINUTES
9/17/81	1: 50: 47	11	4			0.00 MINUTES
9/17/81	1: 50: 56	9	4			0.00 MINUTES
9/17/81	1: 51: 14	7	3			0.00 MINUTES
9/17/81	1: 51: 22	10	1			0.00 MINUTES
9/17/81	1: 51: 31	6	1			0.00 MINUTES
9/17/81	1: 51: 40	7	1			0.00 MINUTES
9/17/81	1: 51: 49	6	4			0.00 MINUTES
9/17/81	1: 51: 57	11	2			0.00 MINUTES
9/17/81	1: 52: 6	7	1			0.00 MINUTES
9/17/81	1: 52: 24	9	2			0.00 MINUTES
9/17/81	1: 52: 33	13	1			0.00 MINUTES
9/17/81	1: 52: 50	9	1			0.00 MINUTES
9/17/81	1: 52: 59	10	1			0.00 MINUTES
9/17/81	1: 53: 8	9	2			0.00 MINUTES
9/17/81	1: 53: 17	13	1			0.00 MINUTES
9/17/81	1: 53: 26	10	1			0.00 MINUTES
9/17/81	1: 53: 34	5	2			0.00 MINUTES
9/17/81	1: 53: 43	3	2			0.00 MINUTES
9/17/81	1: 53: 52	9	2			0.00 MINUTES
9/17/81	1: 54: 1	19	2			0.00 MINUTES
9/17/81	1: 54: 10	4	2			0.00 MINUTES
9/17/81	1: 54: 18	5	2			0.00 MINUTES
9/17/81	1: 54: 27	8	4			0.00 MINUTES
9/17/81	1: 54: 36	11	1			0.00 MINUTES
9/17/81	1: 54: 45	13	2			0.00 MINUTES
9/17/81	1: 54: 54	23	1		****	0.00 MINUTES
9/17/81	1: 55: 2	8	2			0.00 MINUTES
9/17/81	1: 55: 11	10	1			0.00 MINUTES
9/17/81	1: 55: 20	7	2			0.00 MINUTES
9/17/81	1: 55: 29	1	3			0.00 MINUTES
9/17/81	1: 55: 38	16	1			0.00 MINUTES
9/17/81	1: 55: 46	51	1		****	0.00 MINUTES
9/17/81	1: 55: 55	15	1			0.00 MINUTES
9/17/81	1: 56: 4	23	1		****	0.00 MINUTES
9/17/81	1: 56: 13	11	1			0.00 MINUTES
9/17/81	1: 56: 22	12	1			0.00 MINUTES
9/17/81	1: 56: 31	8	1			0.00 MINUTES
9/17/81	1: 56: 39	12	2			0.00 MINUTES
9/17/81	1: 56: 48	14	1			0.00 MINUTES
9/17/81	1: 56: 57	8	1			0.00 MINUTES
9/17/81	1: 57: 6	1	2			0.00 MINUTES

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 DATE TIME OPACITY SO EXCEEDS 60% EXCEEDS 20% AGGREGATE TIME EXCEEDING 20%

9/17/81	1: 57: 15	10	1	0.00 MINUTES
9/17/81	1: 57: 23	11	1	0.00 MINUTES
9/17/81	1: 57: 32	7	1	0.00 MINUTES
9/17/81	1: 57: 41	16	1	0.00 MINUTES
9/17/81	1: 57: 50	9	2	0.00 MINUTES
9/17/81	1: 57: 59	11	1	0.00 MINUTES
9/17/81	1: 58: 7	12	1	0.00 MINUTES
9/17/81	1: 58: 16	10	1	0.00 MINUTES
9/17/81	1: 58: 25	4	2	0.00 MINUTES
9/17/81	1: 58: 34	15	1	0.00 MINUTES
9/17/81	1: 58: 43	10	1	0.00 MINUTES
9/17/81	1: 58: 51	13	2	0.00 MINUTES
9/17/81	1: 59: 0	18	2	0.00 MINUTES
9/17/81	1: 59: 9	7	1	0.00 MINUTES
9/17/81	1: 59: 18	11	2	0.00 MINUTES
9/17/81	1: 59: 26	8	2	0.00 MINUTES
9/17/81	1: 59: 35	13	2	0.00 MINUTES
9/17/81	1: 59: 44	7	1	0.00 MINUTES
9/17/81	1: 59: 53	16	1	0.00 MINUTES
9/17/81	2: 0: 1	17	1	0.00 MINUTES
9/17/81	2: 0: 10	14	1	0.00 MINUTES
9/17/81	2: 0: 19	10	2	0.00 MINUTES
9/17/81	2: 0: 28	0	1	0.00 MINUTES
9/17/81	2: 0: 37	14	2	0.00 MINUTES
9/17/81	2: 0: 45	11	1	0.00 MINUTES
9/17/81	2: 0: 54	14	1	0.00 MINUTES
9/17/81	2: 1: 3	9	2	0.00 MINUTES
9/17/81	2: 1: 12	13	2	0.00 MINUTES
9/17/81	2: 1: 21	12	1	0.00 MINUTES
9/17/81	2: 1: 29	7	2	0.00 MINUTES
9/17/81	2: 1: 38	11	2	0.00 MINUTES
9/17/81	2: 1: 47	8	2	0.00 MINUTES
9/17/81	2: 1: 55	9	2	0.00 MINUTES
9/17/81	2: 2: 4	8	1	0.00 MINUTES
9/17/81	2: 2: 13	9	1	0.00 MINUTES
9/17/81	2: 2: 22	14	2	0.00 MINUTES
9/17/81	2: 2: 31	6	2	0.00 MINUTES
9/17/81	2: 2: 39	12	1	0.00 MINUTES
9/17/81	2: 2: 48	17	1	0.00 MINUTES
9/17/81	2: 2: 57	7	1	0.00 MINUTES
9/17/81	2: 3: 6	4	1	0.00 MINUTES
9/17/81	2: 3: 15	6	2	0.00 MINUTES
9/17/81	2: 3: 23	6	2	0.00 MINUTES
9/17/81	2: 3: 32	2	1	0.00 MINUTES
9/17/81	2: 3: 41	11	1	0.00 MINUTES
9/17/81	2: 3: 50	11	2	0.00 MINUTES
9/17/81	2: 3: 58	11	1	0.00 MINUTES
9/17/81	2: 4: 7	18	1	0.00 MINUTES
9/17/81	2: 4: 16	8	3	0.00 MINUTES
9/17/81	2: 4: 25	6	2	0.00 MINUTES

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 DATE TIME OPACITY SO EXCEEDS 60% EXCEEDS 20% AGGREGATE TIME EXCEEDING 20%

9/17/81	2: 4: 34	16	1		0.00 MINUTES
9/17/81	2: 4: 42	9	2		0.00 MINUTES
9/17/81	2: 5: 0	12	3		0.00 MINUTES
9/17/81	2: 5: 9	11	2		0.00 MINUTES
9/17/81	2: 5: 18	1	2		0.00 MINUTES
9/17/81	2: 5: 27	3	2		0.00 MINUTES
9/17/81	2: 5: 35	7	1		0.00 MINUTES
9/17/81	2: 5: 44	14	2		0.00 MINUTES
9/17/81	2: 5: 53	7	1		0.00 MINUTES
9/17/81	2: 6: 2	15	1		0.00 MINUTES
9/17/81	2: 6: 10	9	2		0.00 MINUTES
9/17/81	2: 6: 19	11	1		0.00 MINUTES
9/17/81	2: 6: 28	5	2		0.00 MINUTES
9/17/81	2: 6: 37	8	1		0.00 MINUTES
9/17/81	2: 6: 45	9	1		0.00 MINUTES
9/17/81	2: 6: 54	4	2		0.00 MINUTES
9/17/81	2: 7: 3	9	1		0.00 MINUTES
9/17/81	2: 7: 12	9	1		0.00 MINUTES
9/17/81	2: 7: 21	14	1		0.00 MINUTES
9/17/81	2: 7: 29	8	2		0.00 MINUTES
9/17/81	2: 7: 38	14	1		0.00 MINUTES
9/17/81	2: 7: 47	11	3		0.00 MINUTES
9/17/81	2: 7: 56	2	8		0.00 MINUTES
9/17/81	2: 8: 22	11	2		0.00 MINUTES
9/17/81	2: 8: 31	6	2		0.00 MINUTES
9/17/81	2: 8: 40	8	1		0.00 MINUTES
9/17/81	2: 8: 48	12	2		0.00 MINUTES
9/17/81	2: 8: 57	18	2		0.00 MINUTES
9/17/81	2: 9: 6	6	2		0.00 MINUTES
9/17/81	2: 9: 15	17	1		0.00 MINUTES
9/17/81	2: 9: 24	9	1		0.00 MINUTES
9/17/81	2: 9: 32	11	2		0.00 MINUTES
9/17/81	2: 9: 41	16	1		0.00 MINUTES
9/17/81	2: 9: 50	20	1		0.00 MINUTES
9/17/81	2: 9: 59	8	1		0.00 MINUTES
9/17/81	2: 10: 8	15	2		0.00 MINUTES
9/17/81	2: 10: 16	15	1		0.00 MINUTES
9/17/81	2: 10: 25	3	2		0.00 MINUTES
9/17/81	2: 10: 34	15	1		0.00 MINUTES
9/17/81	2: 10: 43	17	2		0.00 MINUTES
9/17/81	2: 10: 52	11	1		0.00 MINUTES
9/17/81	2: 11: 0	6	2		0.00 MINUTES
9/17/81	2: 11: 9	24	1	****	0.00 MINUTES
9/17/81	2: 11: 18	11	2		0.00 MINUTES
9/17/81	2: 11: 27	8	1		0.00 MINUTES
9/17/81	2: 11: 35	10	2		0.00 MINUTES
9/17/81	2: 11: 44	11	2		0.00 MINUTES
9/17/81	2: 12: 2	6	2		0.00 MINUTES
9/17/81	2: 12: 11	6	3		0.00 MINUTES
9/17/81	2: 12: 19	13	1		0.00 MINUTES

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DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/17/81	2: 12: 28	11	1			0.00 MINUTES
9/17/81	2: 12: 37	2	2			0.00 MINUTES
9/17/81	2: 12: 46	9	1			0.00 MINUTES
9/17/81	2: 12: 55	13	2			0.00 MINUTES
9/17/81	2: 13: 3	17	1			0.00 MINUTES
9/17/81	2: 13: 12	15	2			0.00 MINUTES
9/17/81	2: 13: 21	7	2			0.00 MINUTES
9/17/81	2: 13: 30	3	2			0.00 MINUTES
9/17/81	2: 13: 38	18	2			0.00 MINUTES
9/17/81	2: 13: 47	24	1		*****	0.00 MINUTES
9/17/81	2: 13: 56	15	1			0.00 MINUTES
9/17/81	2: 14: 14	24	1		*****	0.00 MINUTES
9/17/81	2: 14: 22	18	1			0.00 MINUTES
9/17/81	2: 14: 31	13	1			0.00 MINUTES
9/17/81	2: 14: 40	5	2			0.00 MINUTES
9/17/81	2: 14: 49	6	2			0.00 MINUTES
9/17/81	2: 14: 57	11	1			0.00 MINUTES
9/17/81	2: 15: 6	4	1			0.00 MINUTES
9/17/81	2: 15: 15	15	1			0.00 MINUTES
9/17/81	2: 15: 24	7	2			0.00 MINUTES
9/17/81	2: 15: 32	14	1			0.00 MINUTES
9/17/81	2: 15: 41	19	1			0.00 MINUTES
9/17/81	2: 15: 50	18	2			0.00 MINUTES
9/17/81	2: 15: 59	5	2			0.00 MINUTES
9/17/81	2: 16: 8	12	2			0.00 MINUTES
9/17/81	2: 16: 16	20	1		*****	0.00 MINUTES
9/17/81	2: 16: 25	12	1			0.00 MINUTES
9/17/81	2: 16: 34	12	1			0.00 MINUTES
9/17/81	2: 16: 43	16	2			0.00 MINUTES
9/17/81	2: 16: 52	11	2			0.00 MINUTES
9/17/81	2: 17: 0	5	2			0.00 MINUTES
9/17/81	2: 17: 9	15	2			0.00 MINUTES
9/17/81	2: 17: 18	12	1			0.00 MINUTES
9/17/81	2: 17: 26	9	2			0.00 MINUTES
9/17/81	2: 17: 35	14	2			0.00 MINUTES
9/17/81	2: 17: 44	16	1			0.00 MINUTES
9/17/81	2: 17: 53	12	1			0.00 MINUTES
9/17/81	2: 18: 2	18	1			0.00 MINUTES
9/17/81	2: 18: 10	9	2			0.00 MINUTES
9/17/81	2: 18: 19	17	1			0.00 MINUTES
9/17/81	2: 18: 28	11	1			0.00 MINUTES
9/17/81	2: 18: 37	16	1			0.00 MINUTES
9/17/81	2: 18: 46	19	1			0.00 MINUTES
9/17/81	2: 18: 54	17	2			0.00 MINUTES
9/17/81	2: 19: 3	9	1			0.00 MINUTES
9/17/81	2: 19: 12	7	2			0.00 MINUTES
9/17/81	2: 19: 21	14	2			0.00 MINUTES
9/17/81	2: 19: 29	9	1			0.00 MINUTES
9/17/81	2: 19: 38	16	1			0.00 MINUTES
9/17/81	2: 19: 47	19	1			0.00 MINUTES

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DATE	TIME	OPACITY	SO	EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/17/81	2: 19: 56	19	1			0.00 MINUTES
9/17/81	2: 20: 4	11	1			0.00 MINUTES
9/17/81	2: 20: 13	11	1			0.00 MINUTES
9/17/81	2: 20: 22	22	1		****	0.00 MINUTES
9/17/81	2: 20: 31	12	1			0.00 MINUTES
9/17/81	2: 20: 40	9	2			0.00 MINUTES
9/17/81	2: 20: 48	17	1			0.00 MINUTES
9/17/81	2: 20: 57	21	1		****	0.00 MINUTES
9/17/81	2: 21: 6	11	1			0.00 MINUTES
9/17/81	2: 21: 15	11	3			0.00 MINUTES
9/17/81	2: 21: 23	19	1			0.00 MINUTES
9/17/81	2: 21: 32	17	1			0.00 MINUTES
9/17/81	2: 21: 41	9	2			0.00 MINUTES
9/17/81	2: 21: 50	20	1			0.00 MINUTES
9/17/81	2: 21: 58	17	1			0.00 MINUTES
9/17/81	2: 22: 7	12	2			0.00 MINUTES
9/17/81	2: 22: 16	17	1			0.00 MINUTES
9/17/81	2: 22: 25	12	1			0.00 MINUTES
9/17/81	2: 22: 34	15	2			0.00 MINUTES
9/17/81	2: 22: 42	18	1			0.00 MINUTES
9/17/81	2: 22: 51	22	1		****	0.00 MINUTES
9/17/81	2: 23: 0	14	1			0.00 MINUTES
9/17/81	2: 23: 9	14	2			0.00 MINUTES
9/17/81	2: 23: 17	21	2		****	0.00 MINUTES
9/17/81	2: 23: 26	11	1			0.00 MINUTES
9/17/81	2: 23: 35	19	1			0.00 MINUTES
9/17/81	2: 23: 44	15	1			0.00 MINUTES
9/17/81	2: 23: 52	14	1			0.00 MINUTES
9/17/81	2: 24: 1	7	2			0.00 MINUTES
9/17/81	2: 24: 10	12	1			0.00 MINUTES
9/17/81	2: 24: 19	12	1			0.00 MINUTES
9/17/81	2: 24: 28	14	1			0.00 MINUTES
9/17/81	2: 24: 36	7	2			0.00 MINUTES
9/17/81	2: 24: 45	13	1			0.00 MINUTES
9/17/81	2: 24: 54	15	3			0.00 MINUTES
9/17/81	2: 25: 3	10	2			0.00 MINUTES
9/17/81	2: 25: 11	6	3			0.00 MINUTES
9/17/81	2: 25: 20	16	1			0.00 MINUTES
9/17/81	2: 25: 29	9	2			0.00 MINUTES
9/17/81	2: 25: 38	10	1			0.00 MINUTES
9/17/81	2: 25: 46	19	1			0.00 MINUTES
9/17/81	2: 25: 55	14	2			0.00 MINUTES
9/17/81	2: 26: 4	21	1		****	0.00 MINUTES
9/17/81	2: 26: 13	22	1		****	0.15 MINUTES
9/17/81	2: 26: 22	13	1			0.15 MINUTES
9/17/81	2: 26: 30	13	2			0.15 MINUTES
9/17/81	2: 26: 39	15	1			0.15 MINUTES
9/17/81	2: 26: 48	16	2			0.15 MINUTES
9/17/81	2: 26: 57	13	1			0.15 MINUTES
9/17/81	2: 27: 5	7	4			0.15 MINUTES

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DATE	TIME	OPACITY	SO EXCEEDS 60%	EXCEEDS 20%	AGGREGATE TIME EXCEEDING 20%
9/17/81	2:27:14	10	3		0.15 MINUTES
9/17/81	2:27:23	15	2		0.15 MINUTES
9/17/81	2:27:32	10	1		0.15 MINUTES
9/17/81	2:27:40	8	2		0.15 MINUTES
9/17/81	2:27:49	10	2		0.15 MINUTES
9/17/81	2:27:58	9	2		0.15 MINUTES
9/17/81	2:28: 7	12	1		0.15 MINUTES
9/17/81	2:28:16	8	4		0.15 MINUTES
9/17/81	2:28:24	6	1		0.15 MINUTES
9/17/81	2:28:33	9	2		0.15 MINUTES
9/17/81	2:28:42	11	2		0.15 MINUTES
9/17/81	2:28:51	9	2		0.15 MINUTES
9/17/81	2:29: 0	15	2		0.15 MINUTES
9/17/81	2:29: 8	10	1		0.15 MINUTES
9/17/81	2:29:17	10	1		0.15 MINUTES
9/17/81	2:29:26	7	3		0.15 MINUTES
9/17/81	2:29:35	9	1		0.15 MINUTES
9/17/81	2:29:43	13	2		0.15 MINUTES
9/17/81	2:29:52	12	3		0.15 MINUTES
9/17/81	2:30: 1	11	2		0.15 MINUTES
9/17/81	2:30:10	9	2		0.15 MINUTES
9/17/81	2:30:18	12	1		0.15 MINUTES
9/17/81	2:30:27	7	1		0.15 MINUTES
9/17/81	2:30:36	14	5		0.15 MINUTES
9/17/81	2:30:45	17	2		0.15 MINUTES
9/17/81	2:30:54	10	2		0.15 MINUTES
9/17/81	2:31: 2	11	1		0.15 MINUTES
9/17/81	2:31:11	8	2		0.15 MINUTES
9/17/81	2:31:20	6	2		0.15 MINUTES
9/17/81	2:31:29	6	2		0.15 MINUTES
9/17/81	2:31:37	18	4		0.15 MINUTES
9/17/81	2:31:46	7	2		0.15 MINUTES
9/17/81	2:31:55	8	2		0.15 MINUTES
9/17/81	2:32: 4	12	2		0.15 MINUTES
9/17/81	2:32:13	9	2		0.15 MINUTES
9/17/81	2:32:21	14	1		0.15 MINUTES
9/17/81	2:32:30	11	2		0.15 MINUTES
9/17/81	2:32:39	9	2		0.15 MINUTES
9/17/81	2:32:48	8	2		0.15 MINUTES
9/17/81	2:32:57	8	1		0.15 MINUTES
9/17/81	2:33: 5	9	2		0.15 MINUTES
9/17/81	2:33:14	11	1		0.15 MINUTES
9/17/81	2:33:23	3	2		0.15 MINUTES
9/17/81	2:33:32	3	2		0.15 MINUTES
9/17/81	2:33:40	13	2		0.15 MINUTES
9/17/81	2:33:49	13	1		0.15 MINUTES
9/17/81	2:33:58	12	1		0.15 MINUTES
9/17/81	2:34: 7	8	2		0.15 MINUTES
9/17/81	2:34:16	11	1		0.15 MINUTES
9/17/81	2:34:24	12	1		0.15 MINUTES

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 NATIONAL ENFORCEMENT INVESTIGATIONS CENTER
 DENVER, COLORADO 80225

OMEGA-0086, FCC STACK, BRITISH PETROLEUM, MARCUS HOOK, PENNSYLVANIA. FROM THE EAST.
 DATE TIME OPACITY SO EXCEEDS 60% EXCEEDS 20% AGGREGATE TIME EXCEEDING 20%

9/17/81	2:34:33	9	2	0.15 MINUTES
9/17/81	2:34:42	11	2	0.15 MINUTES
9/17/81	2:34:51	11	1	0.15 MINUTES
9/17/81	2:34:59	8	2	0.15 MINUTES
9/17/81	2:35: 8	12	1	0.15 MINUTES
9/17/81	2:35:17	10	1	0.15 MINUTES
9/17/81	2:35:26	9	2	0.15 MINUTES
9/17/81	2:35:34	9	2	0.15 MINUTES
9/17/81	2:35:43	16	3	0.15 MINUTES
9/17/81	2:35:52	10	2	0.15 MINUTES
9/17/81	2:36: 1	17	2	0.15 MINUTES
9/17/81	2:36:10	11	1	0.15 MINUTES
9/17/81	2:36:18	10	1	0.15 MINUTES
9/17/81	2:36:27	9	2	0.15 MINUTES
9/17/81	2:36:36	10	1	0.15 MINUTES
9/17/81	2:36:45	11	1	0.15 MINUTES
9/17/81	2:36:54	9	2	0.15 MINUTES
9/17/81	2:37: 2	7	2	0.15 MINUTES
9/17/81	2:37:11	12	1	0.15 MINUTES
9/17/81	2:37:20	3	1	0.15 MINUTES
9/17/81	2:37:29	8	1	0.15 MINUTES
9/17/81	2:37:37	9	1	0.15 MINUTES
9/17/81	2:37:46	8	1	0.15 MINUTES
9/17/81	2:37:55	9	1	0.15 MINUTES
9/17/81	2:38: 4	11	1	0.15 MINUTES
9/17/81	2:38:13	9	2	0.15 MINUTES
9/17/81	2:38:21	8	2	0.15 MINUTES
9/17/81	2:38:30	6	2	0.15 MINUTES
9/17/81	2:38:39	10	1	0.15 MINUTES
9/17/81	2:38:48	10	5	0.15 MINUTES
9/17/81	2:38:57	11	2	0.15 MINUTES
9/17/81	2:39:14	9	2	0.15 MINUTES
9/17/81	2:39:23	13	2	0.15 MINUTES
9/17/81	2:39:31	8	2	0.15 MINUTES
9/17/81	2:39:40	4	2	0.15 MINUTES
9/17/81	2:39:49	8	2	0.15 MINUTES
9/17/81	2:39:58	7	2	0.15 MINUTES
9/17/81	2:40: 7	11	1	0.15 MINUTES
9/17/81	2:40:15	4	4	0.15 MINUTES
9/17/81	2:40:24	9	2	0.15 MINUTES
9/17/81	2:40:33	10	2	0.15 MINUTES
9/17/81	2:40:42	12	3	0.15 MINUTES
9/17/81	2:40:51	9	1	0.15 MINUTES
9/17/81	2:40:59	5	1	0.15 MINUTES
9/17/81	2:41: 8	10	1	0.15 MINUTES
9/17/81	2:41:17	7	1	0.15 MINUTES
9/17/81	2:41:25	8	1	0.15 MINUTES
9/17/81	2:41:34	8	2	0.15 MINUTES
9/17/81	2:41:43	10	1	0.15 MINUTES
9/17/81	2:41:52	10	2	0.15 MINUTES

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 DATE TIME OPACITY SO EXCEEDS 60% EXCEEDS 20% AGGREGATE TIME EXCEEDING 20%

9/17/81	2:42: 1	11	1	O. 15 MINUTES
9/17/81	2:42: 9	9	2	O. 15 MINUTES
9/17/81	2:42:18	13	2	O. 15 MINUTES
9/17/81	2:42:27	4	2	O. 15 MINUTES
9/17/81	2:42:36	8	2	O. 15 MINUTES
9/17/81	2:42:44	15	1	O. 15 MINUTES
9/17/81	2:42:53	13	1	O. 15 MINUTES
9/17/81	2:43: 2	11	2	O. 15 MINUTES
9/17/81	2:43:11	7	2	O. 15 MINUTES
9/17/81	2:43:19	9	2	O. 15 MINUTES
9/17/81	2:43:28	15	1	O. 15 MINUTES
9/17/81	2:43:37	8	1	O. 15 MINUTES
9/17/81	2:43:46	16	2	O. 15 MINUTES
9/17/81	2:43:54	11	2	O. 15 MINUTES
9/17/81	2:44: 3	8	2	O. 15 MINUTES
9/17/81	2:44:12	9	3	O. 15 MINUTES
9/17/81	2:44:21	12	2	O. 15 MINUTES
9/17/81	2:44:30	12	1	O. 15 MINUTES
9/17/81	2:44:38	7	1	O. 15 MINUTES
9/17/81	2:44:47	10	1	O. 15 MINUTES
9/17/81	2:44:56	10	8	O. 15 MINUTES
9/17/81	2:45: 4	14	1	O. 15 MINUTES
9/17/81	2:45:13	15	2	O. 15 MINUTES
9/17/81	2:45:22	9	2	O. 15 MINUTES
9/17/81	2:45:31	8	2	O. 15 MINUTES
9/17/81	2:45:39	8	1	O. 15 MINUTES
9/17/81	2:45:48	2	6	O. 15 MINUTES
9/17/81	2:45:57	5	1	O. 15 MINUTES
9/17/81	2:46: 6	16	1	O. 15 MINUTES
9/17/81	2:46:15	14	1	O. 15 MINUTES
9/17/81	2:46:23	12	2	O. 15 MINUTES
9/17/81	2:46:32	16	1	O. 15 MINUTES
9/17/81	2:46:41	16	1	O. 15 MINUTES
9/17/81	2:46:50	16	2	O. 15 MINUTES
9/17/81	2:46:58	13	1	O. 15 MINUTES
9/17/81	2:47: 7	4	1	O. 15 MINUTES
9/17/81	2:47:24	16	2	O. 15 MINUTES
9/17/81	2:47:33	7	1	O. 15 MINUTES
9/17/81	2:47:42	10	1	O. 15 MINUTES
9/17/81	2:47:51	11	1	O. 15 MINUTES
9/17/81	2:48: 0	14	1	O. 15 MINUTES
9/17/81	2:48: 8	10	2	O. 15 MINUTES
9/17/81	2:48:35	12	1	O. 15 MINUTES
9/17/81	2:48:44	13	2	O. 15 MINUTES
9/17/81	2:48:52	13	2	O. 15 MINUTES
9/17/81	2:49: 1	10	2	O. 15 MINUTES
9/17/81	2:49:10	10	1	O. 15 MINUTES
9/17/81	2:49:18	11	2	O. 15 MINUTES