U.S. ENVIRONMENTAL PROTECTION AGENCY

THE ALLEGHENY COUNTY AIR POLLUTION EPISODE

November 16, 1975 - November 20, 1975

AIR PROGRAMS BRANCH

AIR & HAZARDOUS MATERIALS DIVISION

EPA REGION III

APRIL 1976

MIDDLE ATLANTIC REGION-III 6th and Walnut Streets, Philadelphia, Pennsylvania 19106

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TABLE OF CONTENTS

INTRODUCTION

An air pollution episode occurs when adverse weather conditions, usually low winds and a temperature inversion combine with pollutant source emissions and local topography to produce a noticeable deterioration in the ambient air quality. The framework for reacting to an episode is contained in the Clean Air Act of 1970. The state and local agencies have the prime responsibility for controlling the episode. If the local response is not deemed to be effective, or it appears that the air quality presents an "imminent and substantial endangerment" to human health, the Environmental Protection Agency can intervene and take emergency action to control the episode. The Regional Office of the Environmental Protection Agency coordinates all Federal activity relating to a pollution episode and works in coordination with the local and state personnel in the resolution of an episode.

The degree of seriousness of an episode is a function of the concentration of pollutants in the air. The specific concentration criteria often vary somewhat from state to state. Allegheny County has the regulations similar to those suggested by the Federal Government. It should be noted that abatement procedures are designed mainly to prevent the attainment of the "Substantial Endangerment" level. The criteria for all episode stages and the endangerment level are given in the Appendix.

An air stagnation advisory (ASA) for the Pittsburgh area was announced by the Environmental Meteorological Support Unit (EMSU) of the

Pittsburgh Weather Service forecast office at noon on Monday, November 17, 1975. It was precipitated by a stationary high pressure system located in the Eastern third of the country acting in conjunction with the formation of a strong double-layered temperature inversion and very light winds. The area hardest hit by poor air quality was the Liberty Borough - Clairton area, which went on air alert at 9 PM on Nov. 16. The major sources of particulates which contributed to the alert appeared to be the United States Steel (USS) Clairton Coke Works, Elrama generating station of the Duquesne Light Company and the Mitchell generating station of the West Penn Power Company. At 1 PM of Nov. 17, the EPA Region III office was notified about the Pittsburgh area ASA. On Tuesday, November 18, there was no change in the meteorological conditions. Air alerts were declared in the Hazelwood, Downtown and North Braddock sections of the Pittsburgh Metropolitan area. Abatement procedures went into effect under the supervision of the Allegheny County Board of Health air pollution personnel. On Wednesday, the 19th, weather conditions remained the same; the Clairton area reached air warning levels and eventually air emergency concentrations of particulate matter. An EPA team arrived in Pittsburgh prepared to enact section 303 of the Clean Air Act to force further source curtailments if necessary. A seven-man team remained at the Region III offices on 24 hour call. Epidemologists and meteorologists were dispatched from the research labs in North Carolina to help gather information that would be needed for a 303 action.

Meetings between EPA and USS officials resulted in the Clairton Coke Works eventually shifting to a 48 hour coking cycle by midnight of the 19th. Pleadings were also prepared for possible use to force the curtailment of electricity generation by boiler #3 of the Elrama Station, but were not implemented because the most serious problems was due to other sources.

On Thursday, the 20th a cold front combined with a low pressure system was moving towards the Pittsburgh area. It led to an eventual decrease of particulate concentration to normal levels. By 10 PM that night, the air emergency was lifted and the regional EPA personnel returned to Philadelphia. The epidemologists from RTP began to conduct respiratory tests to see if they could observe the effects of the episode. USS began to shorten the coking cycle to return to normal operation.

The remainder of this report will concern itself with a more detailed look at the events of the Pittsburgh air episode including the action of the agencies, industries and individuals involved. From the review of the episode, several recommendations will be advanced and discussed in detail as they relate to the actual events of the November air pollution episode. Implementation of these recommendations would be expected to result in a smoother and better coordinated response to future air pollution episodes.

METEOROLOGY

The first aspect of the Pittsburgh air episode to be examined is the meteorology for the duration of the emergency from November 17 through November 20.

At noon on November 17, the Pittsburgh Environmental Meteorological Support Unit (EMSU), WSFO, issued an Air Stagnation Advisory (ASA) for the counties in the Western half of Pennsylvania. The area was under a high pressure system which covered the eastern third of the country. The Pittsburgh area had very light southwesterly winds, 0-2 mph, in the mixing layer. There was a a strong inversion aloft during the day and a strong inversion at the surface during the evening and early morning hours. This situation was forecast to last the next 24-36 hours.

On Tuesday, November 18, the situation remained the same and was forecast to last for another 24 hours. There was no movement in the high pressure system, the temperature inversion continued and the metropolitan area condition remained constant. Precipitation was not forecast until Thursday or Friday. These conditions continued until Thursday.

At noon on Thursday, November 20, the ASA was terminated. The winds continued from the southwest, but their velocity had picked up to 3-8mph, and there was no upper level inversion. A strong cold front

was moving in from the Midwest accompanied by a low pressure system and a storm resulting in precipitation on Friday.

The meteorology of this episode was similar to that which has caused other episodes in the past. Throughout the episode, there was a stationary high pressure system, light southwesterly winds (0-2 mph) and a strong upper level inversion during the day and a surface inversion at night. The extreme severity of this episode was probably the result of the near-calm wind conditions persisting for an unusually long time. Throughout the episode, the forecasting of the Pittsburgh EMSU was accurate and reliable.

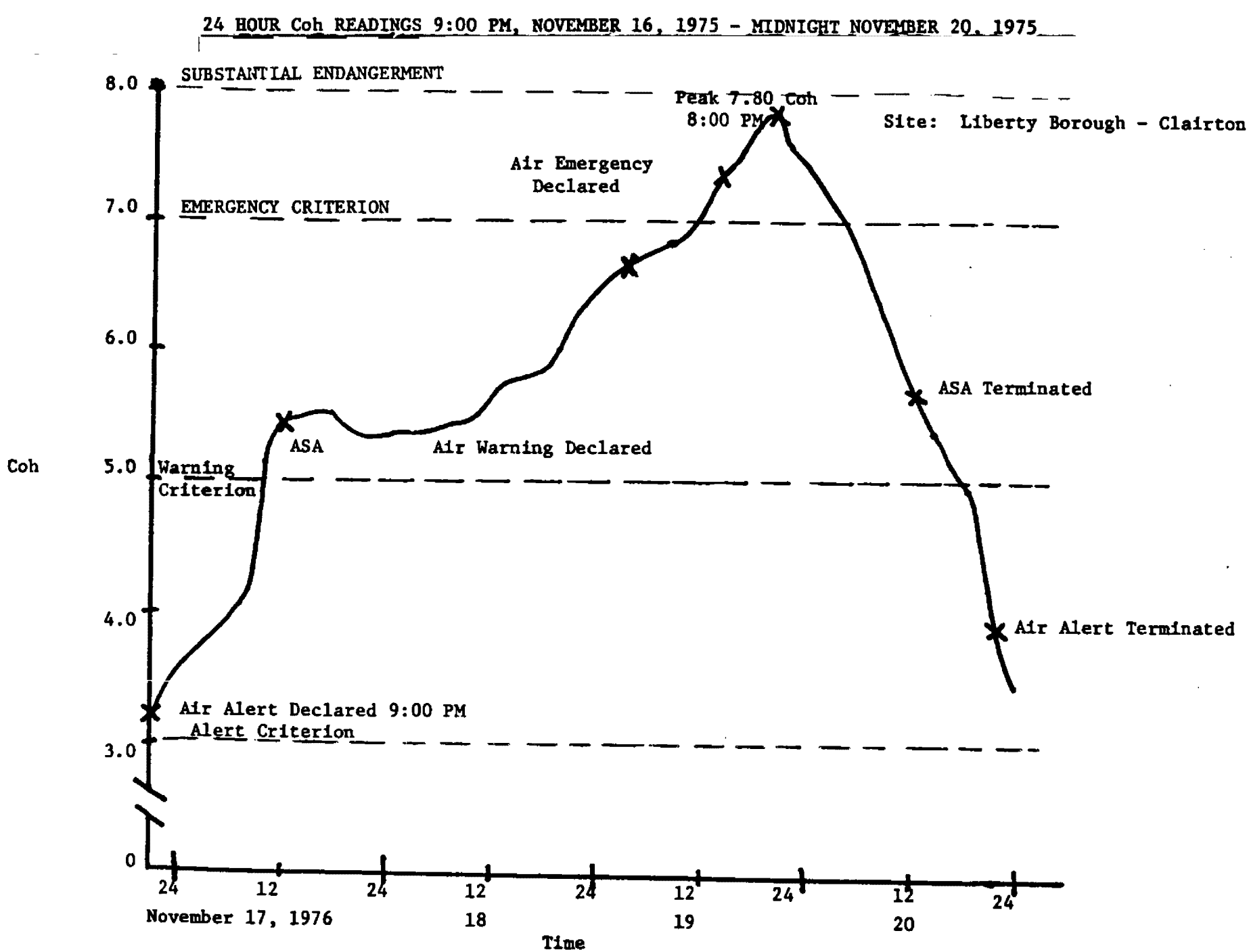
AIR QUALITY

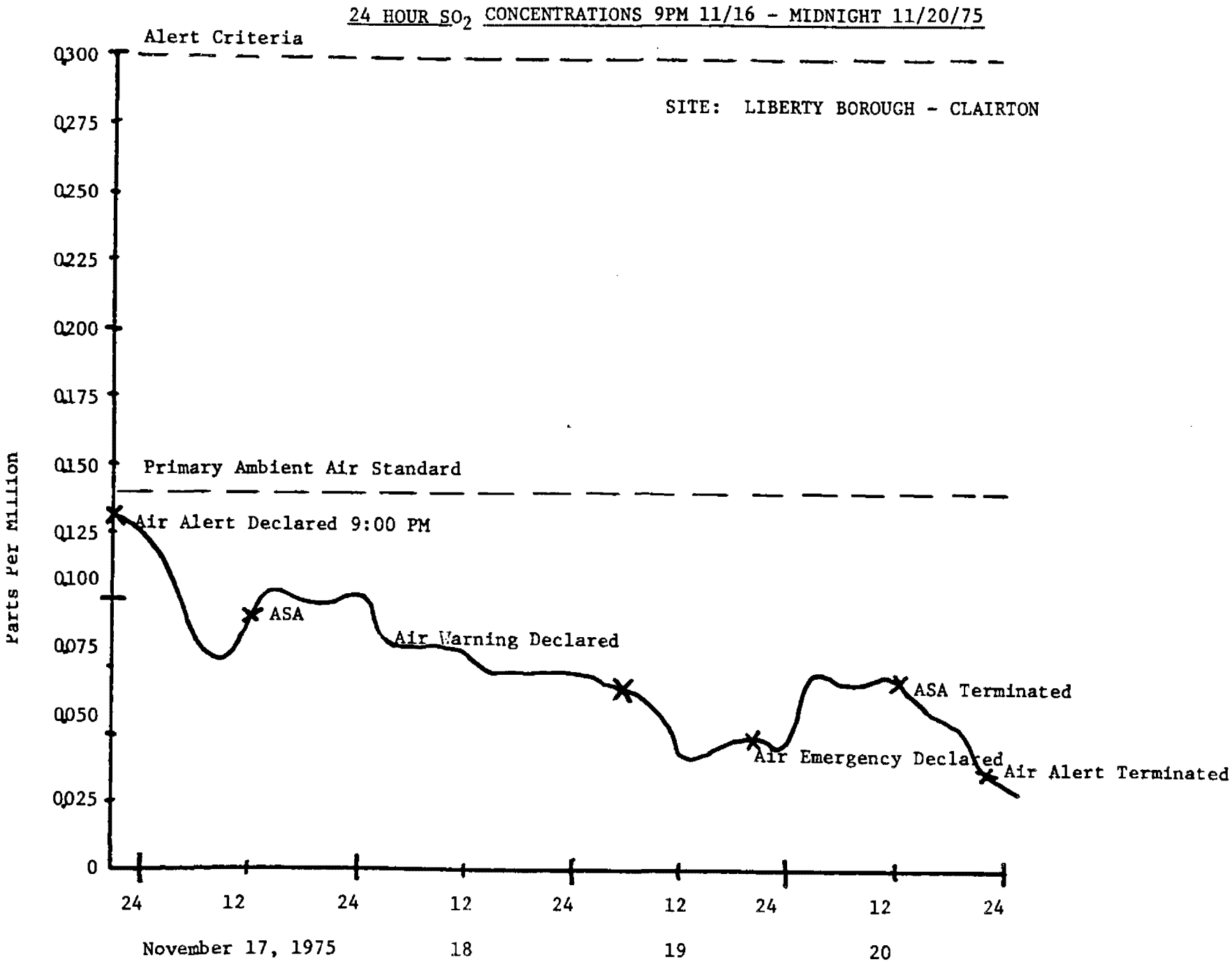
At 9:00 PM on November 16, 1975, an air alert was declared for the Liberty Borough area as the 24 hr. average COH was 3.20, and the forecast was for a stagnating high to arrive and remain for 24-36 hours. At noon of the next day, the ASA was declared. The 24 hour COH readings were as follows: Liberty Borough 5.41; Glassport 1.69; North Braddock 2.03; Hazelwood 1.52; and Downtown 2.68. At 3:00 AM on November 18, an air alert was declared for the Hazelwood area as the 24 hr. COH reading was 1.65 COH with an hourly reading of 5.34. At 10:00 PM on the 18th, and air alert was declared for Downtown Pittsburgh and North Braddock with 24 hour readings of 3.48 and 5.05 COH respectively. At 4:00 AM on November 19, Liberty Borough reached a 24 hour reading of 6.71 COH. At this time, the warning was declared. Data at the Liberty Borough Station had exceeded the warning level for more than a day, and it was obvious that levels were increasing rapidly. At 2:30 PM, an air emergency, the highest level of a deterioration before the attainment of "imminent and substantial danger to health", was declared at Liberty Borough with a 24 hr. reading at 7.43 COH and a high of 7.80 COH recorded at 7:00 PM; the other areas remained on alert. During the 24 hour period of Nov. 19, the air quality was so poor that several hourly COH readings went off the scale. At 4:00 AM on November 20, the emergency values at Liberty Borough were no longer exceeded with a 24 hr reading of 6.89 COH and lower readings for the smaller time increments of 1 hr. and the 12 hr. average indicating an improvement of air quality. At this

time, readings for the other stations were as follows: Glassport-3.81; North Braddock - 3.15; Hazelwood - 2.82 (23 hour average), and Downtown 4.10.

The ASA was terminated at 12 noon on November 20. The readings for the stations follow: Liberty Borough - 5.69; Glassport - 3.23; North Braddock - 2.94; Hazelwood - 2.44; and Downtown - 4.20. Air alerts remained in effect despite termination of the ASA. Finally, at 10:00 PM on Thursday, all air alerts were terminated as the inversion was breaking up and would not last another 12 hours. Liberty Borough - 4.04; Glassport - 2.70; North Braddock - 2.53; Hazelwood - 2.02, and Downtown - 3.08.

Following are two graphs taken from data obtained from the Liberty Borough monitoring station. The first is the 24 hr. COH readings for every 3 hours, i.e., the 24 hr. average of the hourly readings; the midnight readings cover the 24 hr. period from midnight; the 3:00 AM readings are the 24 hr. average from 3:00 AM to 3:00 AM. The second graph is the 24 hr. SO_2 concentration measured in parts per million and averaged in the same manner as the fine particulate values.


24 HOUR Coh READINGS 9:00 PM, NOVEMBER 16, 1975 - MIDNIGHT NOVEMBER 20, 1975
SUBSTANTIAL ENDANGERMENT
8.0
Peak 7.80 Coh
8:00 PM
Site: Liberty Borough - Clairton
Air Emergency
Declared
7.0
EMERGENCY CRITERION
6.0
ASA Terminated
ASA
Air Warning Declared
Coh
5.0
Warning
Criterion
4.0
Air Alert Terminated
Air Alert Declared 9:00 PM
Alert Criterion
3.0
0
24
12
24
12
24
12
24
12
24
November 17, 1976
18
19
20
Time


24 HOUR SO_2 CONCENTRATIONS 9PM 11/16 - MIDNIGHT 11/20/75
Alert Criteria
0.300
0.275
0.250
0.225
0.200
0.175
0.150
Primary Ambient Air Standard
0.125
0.100
0.075
0.050
0.025
0
Parts Per Million
SITE: LIBERTY BOROUGH - CLAIRTON
Air Alert Declared 9:00 PM
ASA
Air Warning Declared
ASA Terminated
Air Emergency Declared
Air Alert Terminated
24
12
24
12
24
12
24
12
24
November 17, 1975
18
19
20

EMERGENCY ACTIONS

At 9:00 PM on November 16, 1975, an air alert was declared for the Liberty Borough - Clairton area of Allegheny County. As a result of the alert, the Allegheny County Health Department ordered the United States Steel Clairton Coke Works (USS), the largest coke oven complex in the world and a major source of particulates in the area, to begin emission abatement plans. The coking time was extended from the normal 18 - hour cycle to a 20 - hour cycle. At midnight of the same day, U. S. Steel was ordered to extend its coking cycle to 24 hours as the air quality was deteriorating rapidly. Hourly readings for fine particulate measurement increased from 7.03 COH to 7.85 COH with a high of 9.93 COH.

The first Air Stagnation Advisory was declared at noon on Monday, November 17 for Western Pennsylvania. At 1:00 PM, the Region III headquarters of the U.S. EPA was informed of the ASA by Allegheny County and that the county had declared an air alert. From 10:30 AM - 4:00 PM on the 17th, R.S. Hoffman and D. Zielinski of the Allegheny County Health Department observed the coke works to confirm that the 24 hour coking cycle had been implemented.

At 3:00 AM on Tuesday, the 18th, an alert was declared for the Hazelwood area. Meanwhile, from 9:00 AM until 4:00 PM, R.L. Hoffman and D. Zielinski again confirmed that Clairton Coke Works was on a 24-hour coking cycle. That afternoon the EPA Region III office was informed by the county that warning levels were being approached. P. Finkelstein, the Regional Meteorologist, informed M. Gold, Attorney; G. Rapier, Director, A&HM Div.; and S. Wassersug, Director, Enforcement

Div., that a serious episode was developing in Allegheny County. N. Spindel of the Division of Stationary Source Enforcement was informed of the episode by M. Gold. At 10:00 PM that evening, alerts were declared in downtown Pittsburgh and North Braddock.

At 1:00 AM on the 19th, it was found that the air quality had deteriorated to such a degree that the COH readings were off the scale of the instrument which was calibrated for a maximum reading of 10.51. Around 2:00 AM, the USS #2 boiler was voluntarily switched to 95% gas and the USS ammonia plant was shut down in order to liberate clean fuel.

At 3:00 AM the same morning, P. Finkelstein was called by Allegheny County and was informed that the Alert II level was reached and that appropriate warning level abatement procedures were put into effect, including a 28 hr. coking cycle at USS and cessation of rolling mill operations. Allegheny County contacted Mr. Finkelstein again at 8:30 AM and informed him that the air quality was rapidly deteriorating and visibility in the Clairton Valley was so poor that driving was impossible. He then informed Mr. Gold that EPA action may be necessary and Gold informed N. Spindel of DSSE. Then he called the U.S. Attorney's office in Pittsburgh about the possibility of implementing section 303 of the Clean Air Act. This would empower the EPA to file suit on behalf of the U.S. to immediately restrain all sources from emitting pollutants if the air quality presents an "imminent and substantial endangerment to the health of persons" and appropriate State and local authorities have not acted to abate such sources.

At 9:30 a.m., the Regional Administrator, D. Snyder, was briefed on the status of the episode. The staff gathered at Mr. Snyder's office and contacted Allegheny County; EPA was informed that the Clairton area had a 24 hour reading of 6.9 COH and that the county had asked USS to reduce emissions by increasing coking time to 28 hours and the county had asked the DER to order reduction of emissions at Elrama (Duquesne Light Co.) and Mitchell (West Penn Power Co.) Power Plants in adjacent Washington County. During a meeting on the morning of the 19th the EPA staff concluded that abatement procedures could be increased including the achievement by USS of a 48 hour coking cycle by midnight and so informed the county.

Anticipating possible legal action, the EPA mobilized the EOCC team, one group consisting of M. Gold, J. Hepola, W. Belanger and B. Bloom were assembled to go to Pittsburgh and another team consisting of P. Finkelstein, G. Rapier, S. Wassersug, L. Felleisen, J. Kunz, J. Rasnic, A. Ferdas, R. Watman, and B. Stonelake were to remain at the Regional Office on 24 hour call. At 11:00 a.m., RTP was called and another five man team was assembled at Research Triangle Park (RTP) in North Carolina including epidemologist, Dr. J. Knelson and meteorologist, P. Humphrey, as well as 3 other epidemologists to go to Pittsburgh and assemble evidence needed for legal action. In accordance with D. Snyder's discussion with County Commissioner Staisey, three of the team from Region III left at 12:30 p.m. with W. Belanger to arrive later. The RTP team left at 2:32 p.m.

In a telephone conversation on the morning of the 19th, EPA advised the County that USS should reduce its coking process to a 48 hour cycle by midnight as well as spraying leaking oven doors with a sealant. However, during this conversation, the County stated that they did not believe USS could achieve such a coking cycle within the proposed time period. Also, the other USS facilities were to stop scarfing operations. Scarfing is the removal of surface defects on the initial steel product by the use of a torch, which causes the emission of particulates. Clairton also had to go to gas firing for all boilers (alert plans allow for 2 boilers to remain on coal).

At 2:30, the county commissioners held a press conference to inform the public that the air emergency level (the last stage before reaching "substantial and imminent health hazard" level) had been reached.

Meanwhile at the Clairton Works, R. Hoffman could make no readings until 1:00 p.m. because of poor visibility; he then observed the quenches from 1 - 4 p.m. and had an average of 43 pushes/hr. indicating that USS was now at a 28-hour coking cycle.

During the afternoon of the 19th, Regional personnel in Philadelphia attempted to convince USS to achieve a 48 hour coking cycle and also discussed the possibility of cutbacks of other processes.

At 4:00 p.m., B. Bloom, M. Gold, and J. Hepola arrived at the U.S. Attorney's Office. They contacted the Regional Office and

learned that Daniel J. Snyder, III, the Regional Administrator, would arrive in the Pittsburgh area to personally coordinate the EPA emergency actions. The Region also supplied the Pittsburgh EPA team with a list of sources to consider for reductions if the episode continued. The Region V personnel of the Pennsylvania DER informed the EPA on the status of Elrama and Mitchell Power Stations, Wheeling-Pittsburgh Steel and J & L Steel, as well as the latest DER COPAMS readings. M. Gold then briefed the U.S. Attorney on the situation; the attorney called a USS lawyer and informed him about the possibility of a Section 303 action.

The people from RTP made contact with M. Gold at 5:00 p.m. As they were flying into Pittsburgh, they noticed a significant reduction in visibility in the form of yellow-brown and grey-brown cloudiness in the air above the Clairton area, but noted the air over the rest of the area looked clear. While driving from Pittsburgh through the Clairton area and eventually farther south, W. Belanger noticed the same pattern observed by the RTP personnel from the air. Thus, during this air episode, the pollution concentration was not evenly concentrated throughout the county but in localized pockets, as indicated by the fact that the Clairton area readings were two to three times higher than the other four stations during much of the episode. Meanwhile the group at EPA Regional Headquarters made numerous contacts with USS, Duquesne Light, Allegheny County, and the State of Pennsylvania. They found that Duquesne's Elrama Station was operating at 18% of load and USS had extended its coking time to 38 hours. By 6:00 p.m.,

it was found that 20 out of 21 USS boilers had been switched from coal to gas or else shut down; Mitchell Power Plant (West Penn Power) was operating at 85% capacity and in full State Implementation Plan (SIP) compliance; the J & L Steel Plant in the Hazelwood area had gone to a 24 hour coking time and had ceased all other operations, and all other Monongahela Valley sources had curtailed operations by 15% - 25%.

At 6:00 p.m., Congressman H. John Heinz, III began a press conference on the emergency situation. EPA personnel were present at this conference for a short time, and then returned to their activities in controlling the emergency.

At 7:00 p.m. the RTP personnel met with M. Gold at the U.S. Attorney's office. They were informed that a Federal judge was standing by to institute 303 proceedings. Mr. Gold explained to the RTP personnel that scientific experts should be prepared to make statements similar to the Birmingham, Ala. case of U.S. vs. USS et al of 11/18/71. Mr. Gold also felt that a statement from the National Weather Service (NWS) would be important. Mr. Gold then joined another meeting in progress which will be described below, while the RTP people retired to their motel.

While Mr. Gold and the RTP personnel met, D. Snyder, B. Bloom, and J. Hepola of the EPA; R. Westman and R. Chleboski of Allegheny County, R. Smith, a Vice President of USS, 2 other USS representatives, K. Pazuchanics and K. Bowman of DER, and C. McKay from the U.S. Attorney's office also left the press conference and had a meeting to discuss further abatement procedures. The focus of the discussion was the rate of coking time extension at Clairton Works: EPA

insisted that by the end of the 4:00 p.m. - midnight shift, the coking cycle should be 48 hours Mr. Smith insisted that USS was already at 38-42 hours (he was not sure) and that they could not achieve 48 hours before 8:00 a.m. He asserted oven brick work damage and coke oven gas pipeline safety were the limiting factors.

Dorothy Servis, a USS attorney, then arrived. She was followed shortly thereafter by Dr. Dean Wilson, the General Superintendent of the Clairton Works at 8:30 p.m. Dr. Wilson informed the group that USS was at a 42 hour coking cycle and would be on a 48 hour cycle at midnight instead of 8:00 a.m. because the flue temperature fell sooner than expected. Dr. Wilson also stated that the 48 hour cycle was the maximum length of the cycle to produce enough coke gas to keep the ovens running. At a longer cycle, natural gas would be needed to fire the ovens, according to U.S. Steel.

The USS personnel left at 9:30 p.m. D. Servis and B. Bloom agreed to set up another meeting the next morning if the situation did not improve. Meanwhile, D. Carrol of DSSE arrived as the meeting adjourned. The Allegheny County personnel left and they had agreed to re-contact the sources to ensure that cutback procedures had been implemented. Also, two county inspectors, D. Janocko and R. Hoffman were sent to monitor the quenches at USS. The remaining EPA personnel and Clark Gaulding of DER discussed the possible effects of Elrama generating station of the Duquesne Light Company on the air quality. The DER personnel provided operational information pertaining to the station. D. Snyder

contacted Duquesne to check the operational status and the remaining personnel left.

While the above meeting was being held, P. Humphrey, the RTP meteorologist was attempting to contact P. Finkelstein at Region III who was monitoring the episode at the Regional Office Control Center. Mr. Humphrey was unsuccessful until he called DeNardo and McFarland Weather Services, Inc., and through the NWS (whose number was unlisted) was able to contact Mrs. Finkelstein from whom he was able to contact W. Belanger and finally Mr. Finkelstein. Mr. Humphrey was favorably impressed by the general cooperation of Mr. Bill Brazal, the DeNardo-McFarland forecaster. During the conversation with the NWS lead forecaster, it was suggested that the meteorologist in charge be alerted to the possible need of a forecast statement to implement a section 303 action.

At 11:30 p.m., Mr. Belanger suggested that he and Mr. Humphrey should inspect the Clairton area automatic monitoring station; after Mr. Humphrey was informed that he would not be needed immediately for a 303 action, he agreed to go with Mr. Belanger. Driving from downtown Pittsburgh to Clairton, Mr. Humphrey noted that the high air pollution was the result of a plume-like dispersion that was unevenly distributed. In some deep valleys, the air quality was remarkably poor while at other areas it was not as bad. At the monitoring station, visibility was about 1/4 mile. At the monitoring station located at the South Allegheny High School, the COH values had been so high, greater than 10.51, that a backup instrument was needed to determine the reading. Humphrey phoned the Regional Office and informed

them of his observations including his feeling that the power plants south of Clairton had little effect on the Clairton air quality Belanger inspected monitoring equipment and felt that they were operating properly. At 2:30 a.m. Mr. Humphrey and Mr. Belanger returned to Pittsburgh.

At the end of the meeting (9:30 p.m.), J. Hepola was preparing to leave to inspect USS when he received a call from R. Westman who informed him that if personnel went inside the plant for inspection, patcher helpers would have to be used as guides and would not be able to assist in the sealing of oven leaks.* Hepola arrived at 12:30 a.m. on Thursday, November 20 and met D. Janocko and R. Hoffman, the county inspectors and P. Morrison of USS. The inspectors informed him that the quenches could be counted from outside but with difficulty and felt it would be preferable to go inside. Mr. Morrison informed Mr. Hepola that if he entered the plant, the guides would be from the Emissions Evaluation Group and not patchers, so Mr. Hepola decided to enter, and the Pittsburgh team and the Regional Office were informed of his pending actions. From 1:00 a.m. to 3:00 a.m., he checked batteries 13-22 of Unit II and noticed some of the doors were sprayed with sealant to prevent leakage. Patchers were called by 2-way radio if a bad leak was spotted. At 3:00 a.m., using the county inspector's data, he determined 30 quenches per hour were being made; he informed P. Finkelstein that USS was on a

*This was as Mr. Hepola understood the conversation. Actually, it was later determined that Mr. Westman was indicating that process observers from the process evaluation group were helping the door patchers by identifying the leaking doors and these people would be used for guides and thus would not be available for spptting leaks if agency personnel entered the plant.

accept the USS proposal and terminate the emergency. Ron Chleboski placed a call to USS and informed them of the acceptance of their proposal.

At 2:00 p.m., the emergency was lifted, although alert status remained. Mr. Humphrey had returned to RTP and the RTP epidemologists, led by Dr. Knelson, began their study of the health effects of the episode. During the afternoon, the EPA regional personnel left. At 10:00 p.m. on the 20th, all alerts were terminated and at midnight of the following day, USS was on a normal coking cycle.

RECOMMENDATIONS

In general, and under the circumstances, the agencies involved in the episode responded to it in an acceptable manner. Nonetheless, problems were encountered. Some were technical problems involving monitoring systems. A second group of problems relate to local and federal agency procedure during an episode. Thirdly, the gathering of evidence to be used in legal proceedings before, during or after the episode could be improved. All recommendations are made in the hope of increasing the speed and effectiveness of responses to future episodes.

1. EPA should develop a procedure to monitor total suspended particulate with the speed of response of the tape sampler.

One of the difficulties of government agencies concerning air pollution episodes is the method for obtaining accurate particulate concentrations. Presently, in Allegheny County, the coefficient of haze (COH) system is used during an episode because of the desirable speed, every hour, with which the results can be obtained. There is no established way to relate COH's to Hi-vol readings and it is desirable to increase the basis for determining imminent and substantial endangerment to health. The reference method for total suspended particulate provides reliable results, but it takes up to 24 hours to take an air sample and at least another 2 - 3 hours to process and analyze the data.

48 hour cycle. Next, J. Hepola toured Unit I, batteries 1-12A; fog began to cover the plant and the tour was concluded at 5:00 a.m. After waiting for Allegheny County personnel, he proceeded to the Elrama Power Plant.

At 8:20 a.m., Mr. Hepola met with a Mr. Mowry at the Elrama Power Station control panel. He found boiler #1 down, #2 operating at 70 MW, #3 at 30 MW, and #4 was down. It was too foggy to see the top of the stacks and he could not tell if the plume was going toward Clairton.

Meanwhile back in Pittsburgh, M. Gold, D. Snyder and C. Gaulding were investigating the Elrama situation. At 1:00 a.m. on November 20, Snyder called and asked for a telegram stating why Duquesne Light could not cutback on the operation of boiler #3 which had non-complying pollution control equipment, and even at the low power rating of 30 MW was emitting 500 lbs. of particulate an hour. The reason given by Duquesne was that it could mean the loss of system reliability. At 1:30 a.m., M. Gold and D. Carroll began to prepare pleadings for a suit against Duquesne if more cutbacks were needed. Throughout the night, frequent communication occurred between Pittsburgh group and the episode unit at the regional office.

During the 19th and the 20th, Hoffman and Janocko observed USS extensively. On the 19th, between 1:00 p.m. and 4:00 p.m., Mr. Hoffman noted that ovens were being charged off the main on batteries 10, 12, and 12A resulting in dense clouds of smoke; thus reducing the effect of extending the coking cycle. U.S. Steel personnel accompanying Mr. Hoffman also noticed this situation so there was no formal notification of the company. From 12:00 a.m. to 8:00 a.m. on Thursday,

he observed the 48 hour cycle. They again observed the plant from Noon to 4:00 p.m.; by that time USS had been allowed to shorten their cycle to 42 hours.* Because of fog the works were observed for only 4 hours. It appeared that the cycle was slightly shorter than 42 hours, but the weather conditions made accurate readings difficult.

At 10:30 a.m., Allegheny County, DER, and EPA held a press conference indicating that the emergency would possibly be lifted that day as the 24 hour average COH readings had gone below the emergency level at 4:00 a.m. Afterwards, J. Hepola and M. Gold went to the Allegheny County Air Pollution offices to wait for USS's proposal to return to normal production.

At 1:00 p.m., Mr. William Fader delivered this proposal: at 9:00 a.m., the coking time was 48 hours,to be decreased to 42 hours by noon, 36 hours at 8:00 p.m. At midnight, the boilers were to resume coal-firing. At 8:00 a.m. on the 21st, the cycle would be decreased to 28 hours and then to 24 hours by 4:00 p.m. At midnight of the 21st, normal coking time was to be obtained. The proposal was reviewed by EPA and Allegheny County. The two agencies agreed on the coking time schedule, but the EPA felt that coal firing of the Clairton boilers should not occur simultaneously with decrease in coking time. The regional office was consulted about the proposal and the latest meteorological report indicated that the stagnation was breaking. Consequently, the agencies agreed to

*At 9:00 a.m., the County, in violation of established procedures for termination of the emergency stage permitted USS to reduce its coking cycle and increase emissions without consulting EPA.

2. The local agency should be sure to report hi-vol readings acquired during an episode in order to assure accurate annual data.

The Allegheny County Board of Health did not report 24-hour high volume sampler data for the duration of the episode, because the filters were clogged before 24 hours elapsed. Data from shorter-term filters should be used to derive 24-hour data and it should be reported to avoid downward bias in annual data.

3. State and Local agencies should develop adequate individual source curtailment plans which should be incorporated into a procedural master plan.

Allegheny County was unable to respond adequately to an episode of this severity because of inadequate or absent source curtailment plans. United States Steel is the major air pollution source in the Monongahela Valley, yet there were no approved curtailment plans for portions of its facilities on file with the county for various stages of air pollution episodes. The lack of curtailment plans necessitated meetings and discussions with U.S.S. and other corporate officials to increase their curtailment efforts during the episode. This delayed the reduction in U.S.S. emissions and diverted personnel from other episode duties. It is essential that detailed source curtailment plans be developed with U.S.S. and other sources and that the plans be filed by the County with EPA as quickly as possible. Curtailment plans should contain specific mandated reductions at each stage of the episode which comply with the requirements of the approved implementation plan.

4. Agency officials should implement the requirements of the episode regulations applicable to termination of the emergency stage.

It should be noted that this was the first episode in the County that reached the emergency stage since the adoption of the regulations. These regulations define the several stages of an episode and establish the criteria for initiation and termination of each stage. County officials did not properly implement the termination procedures. First, the County allowed U.S.S. to decrease its coking time from 48 to 42 hours on the morning of the 20th, before there were sufficient facts to warrant termination of the emergency. Specifically, there are two requirements to terminate the emergency stage of an episode: 1) the ambient air readings must be below the emergency stage values for the time period specified in the regulations; and 2) an official weather forecast must be received which indicates improved dispersion conditions will exist for the next 24 hours. Early in the afternoon of the 20th, the County was about to terminate the emergency stage of the episode without the required weather forecast.

5. EPA should conduct follow-up studies to be used as aids in developing source curtailment capabilities.

The above studies should:

a. determine the impact on emissions of the curtailment measures taken at the Clairton Coke works, and examining the possibility of further and more expeditious reductions in emissions;

b. determine, in view of Duquesne Light Company's contention that it could not shut down boiler #3 at the Elrama station because of system reliability:

(i) the accuracy of the above contention;

(ii) how emission reduction can be achieved in future episodes.

6. Special provisions should be made for closing of all schools in the affected area when emergency levels are reached or are predicted to be reached.

As an example, it was noted that the South Allegheny High School is located in a valley which is often impacted by the plume from the Clairton Coke Works. This school was in the area worst hit by the episode, yet the only curtailment of school activities was because people could not see to get to school. Consequently, the school opened one hour late.

CONCLUSION

If all sources impacting the affected area were in compliance with the applicable emission limitations contained in the approved state implementation plan, air pollution emergency stage levels would have been avoided.

APPENDIX

FEDERAL EPISODE CRITERIA

The following two charts are the episode criteria of the U.S. Government and Allegheny County. The pollutants listed are as follows: SO_2 - Sulfur Dioxide, Part. - Fine Particulate, SO_2 X Part. - product of previous two values, CO - Carbon Monoxide, OX - Oxidants, NO_2 - Nitrogen Dioxide. The time periods indicate the length of the time used in determining the average value. The units are as follows: ug/m^3 - micrograms (10^{-6} grams) per cubic meter, ppm - parts per million, Coh - coefficient of haze. The apparent difference between the federal and county warning level for particulates is the result of the county value being a 12 hour average as opposed to the 24 hour average of the federal criterion.

FEDERAL EPISODE CRITERIA

	SO_2 $\mu g/m^3$ / ppm	PART. $\mu g/m^3$ / COH	SO_2 X PART. $(\mu g/m^3)^2$ / ppm COH	CO $\mu g/m^3$ / ppm	OX $\mu g/m^3$ / ppm	NO_2 $\mu g/m^3$ / ppm
Forecast	NO AIR QUALITY CRITERIA - ONLY AIR STAGNATION ADVISORY FROM N.W.S.					
Alert	800 / 0.3 (24 Hours)	375 / 3.0 (24 Hours)	65 X 10^3 / 0.2 (24 Hours)	17 / 15 (8 Hours)	200 / 0.1 (1 Hour)	1130 / 0.6 (1 Hour); 282 / 0.15 (24 Hours)
Warning	1,600 / 0.6	625 / 5.0	261 X 10^3 / 0.8	34 / 30	800 / 0.4	2260 / 1.2 (1 Hr); 565 / 0.3 (24 Hrs)
Emergency	2,100 / 0.8	875 / 7.0	393 X 10^3 / 1.2	46 / 40	1,200 / 0.6	3000 / 1.6 (1 Hr.); 750 / 0.4 (24 Hrs)
Termination	AIR QUALITY CRITERIA AND METEOROLOGICAL CONDITIONS ARE NO LONGER MET					
Substantial Endanger	2,600 / 1.0	1,000 / 8.0	490 X 10^3 / 1.5	57.5 / 50 (8Hr); 86.3 / 75 (4Hr); 144 / 125 (1Hr)	800 / 0.4 (4Hr); 1200 / 0.6 (2Hr); 1400 / 0.7 (1Hr)	3750 / 2.0 (1 Hr); 938 / 0.5 (24 Hrs)

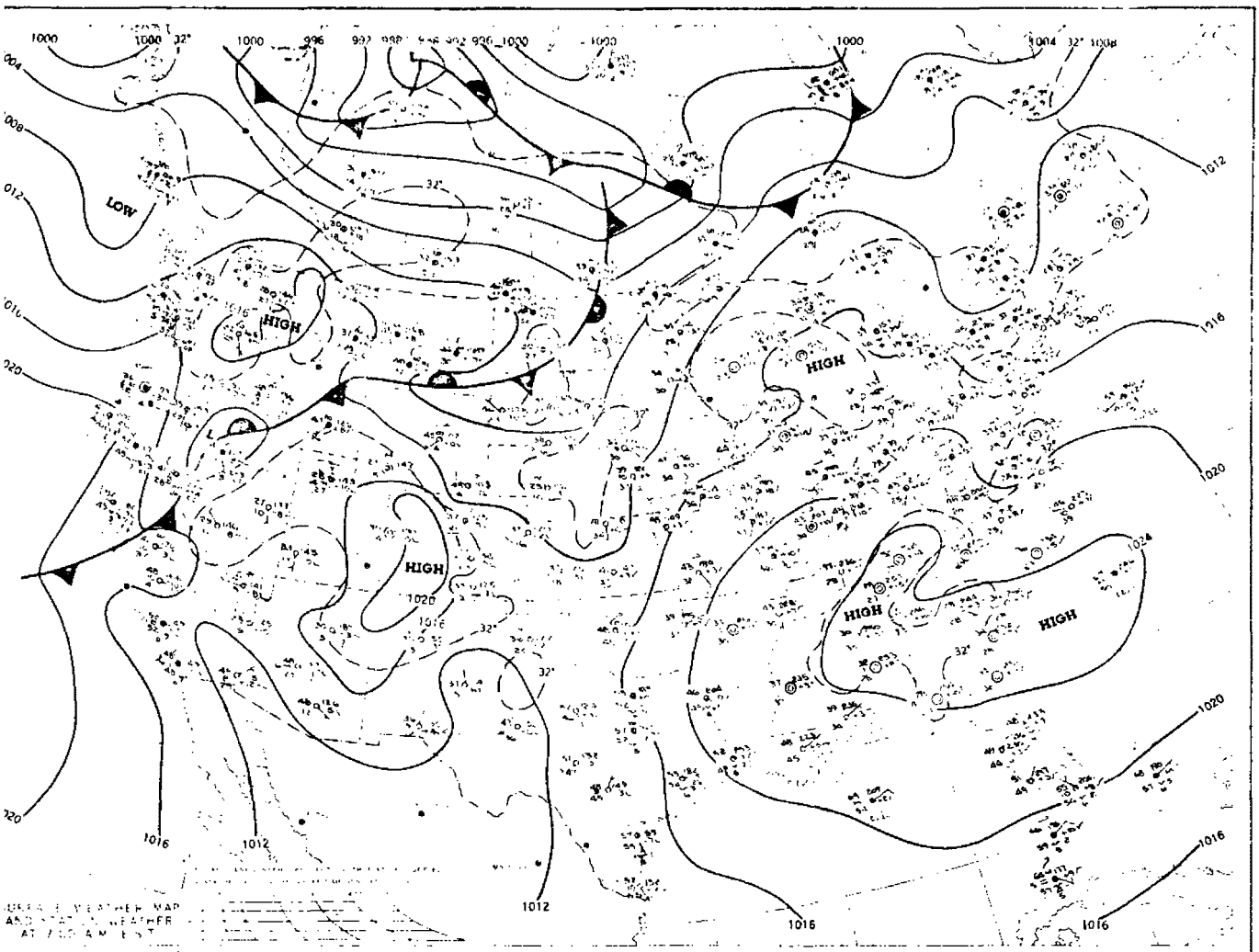
ALLEGHENY COUNTY

EPISODE CRITERIA

POLLUTANT		ALERT	WARNING	EMERGENCY
SO_2		0.30 ppm	0.50 ppm	0.80 ppm
24 hour avg.		0.4 ppm,12hr.	0.60 ppm,12hr.	-
PART.		3.0 COH	6.0 COH	7.0 COH
24 hour avg.		4.0COH,12hr	7.0 COH, 12 hr	-
SO_2 X PART.		0.2	1.0	1.4
24 hr. Product		0.3, 12 hr	1.5, 12 hr	
CO	8 hr.av.	15 ppm	30 ppm	40 ppm
	4 hr. av.			
	1 hr. av.			
OX	4 hr. av.		0.25 ppm	0.35 ppm
	2 hr. av.			
	1 hr. av.			
NO_2	1 hr. av.			
	24 hr. av.		0.30 ppm	0.40 ppm

DAILY WEATHER MAPS

These maps cover the meteorology from November 14, 1975 through November 21, 1975. They were compiled from the U.S. Department of Commerce publication "Daily Weather Maps".


LOW
HIGH
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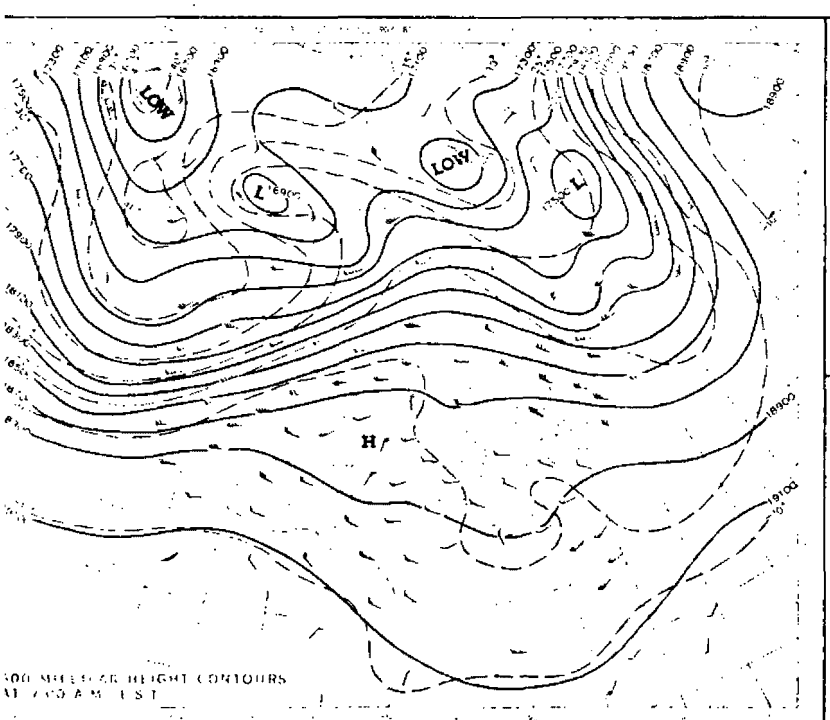
1004
1008
1012
1016
1020
1024
32°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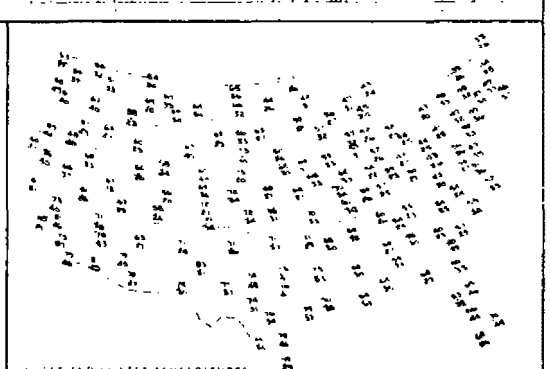

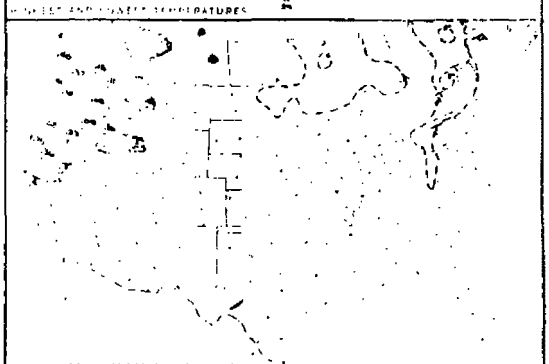

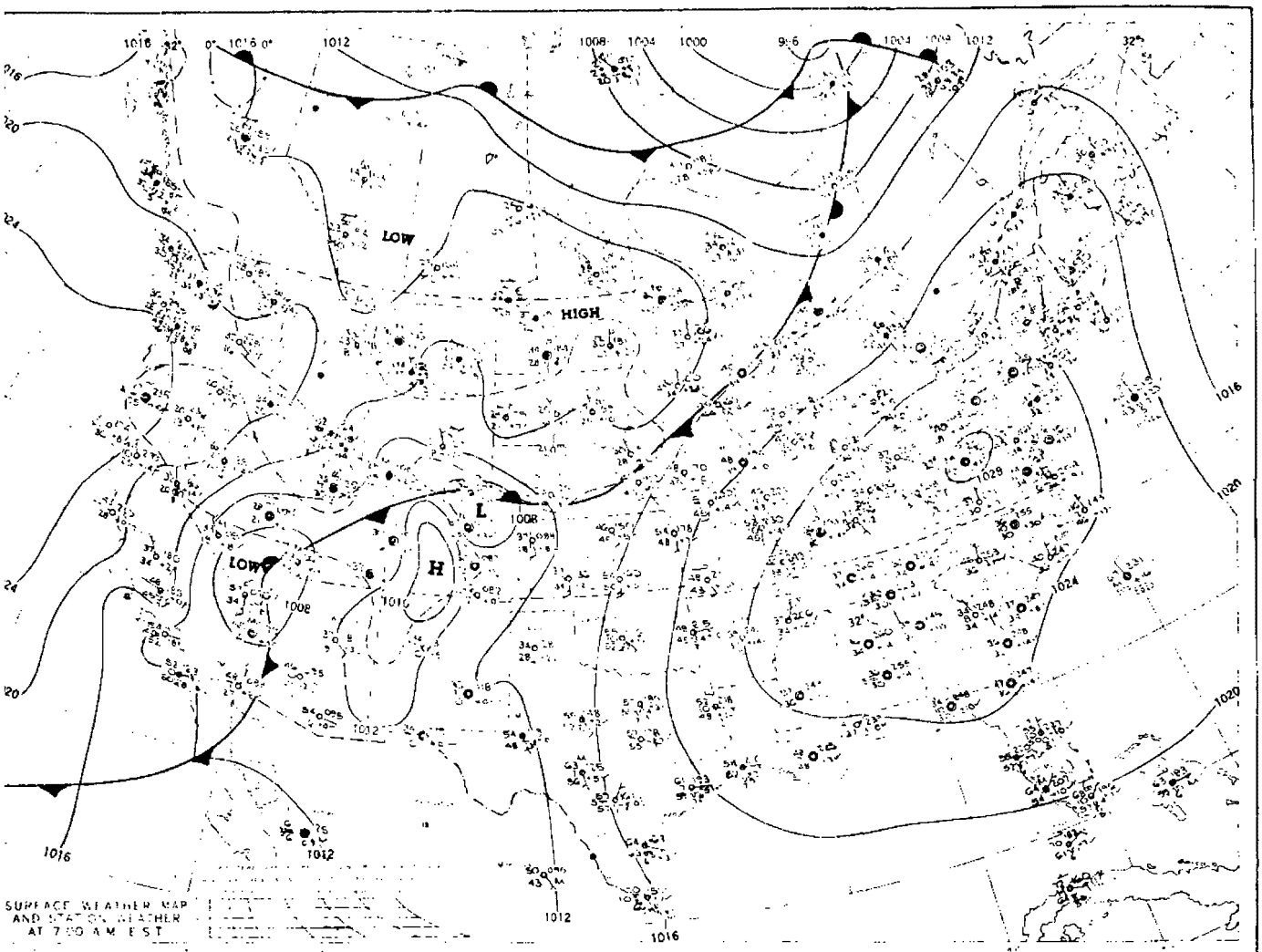
LOW
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1016
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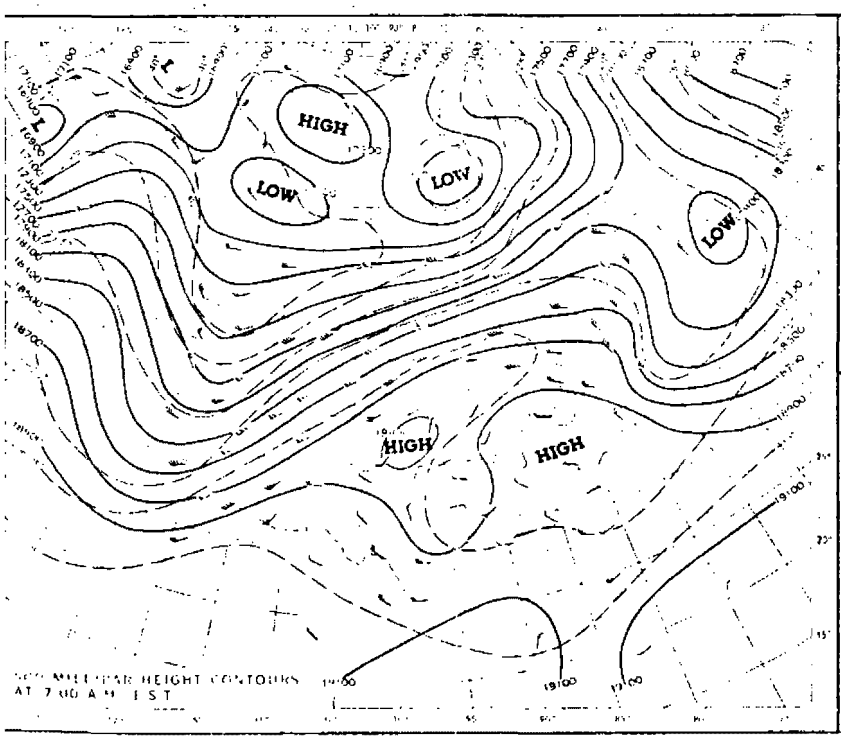
1028
SURFACE WEATHER MAP
AND STATION WEATHER
AT 7:00 A.M. E.S.T.


HIGH
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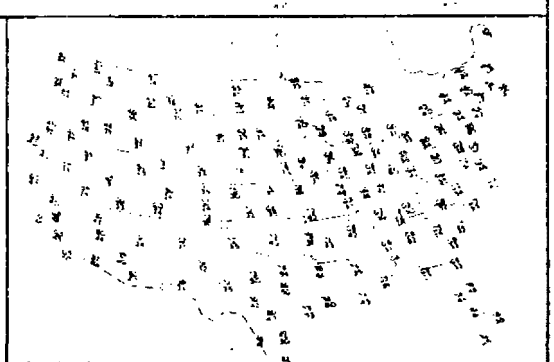
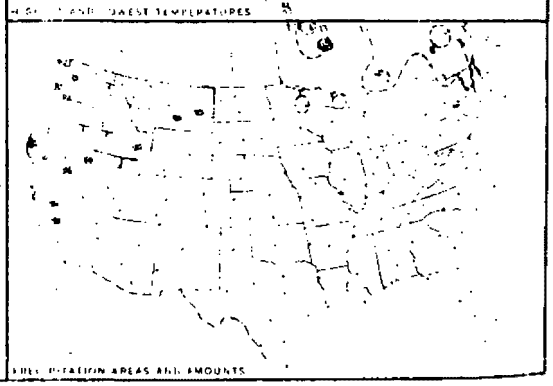
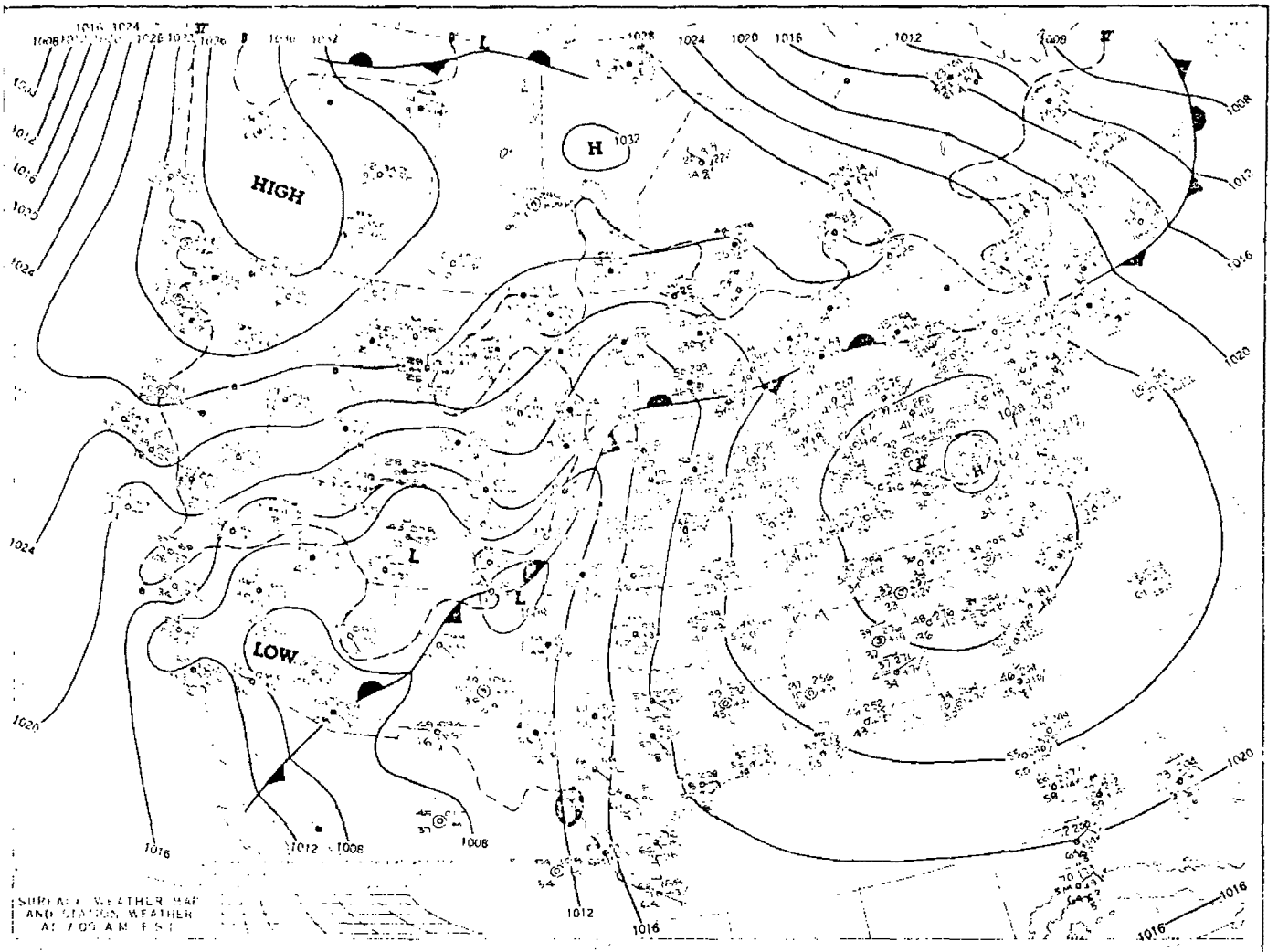
HIGH
AT 7:00 A.M. E.S.T.



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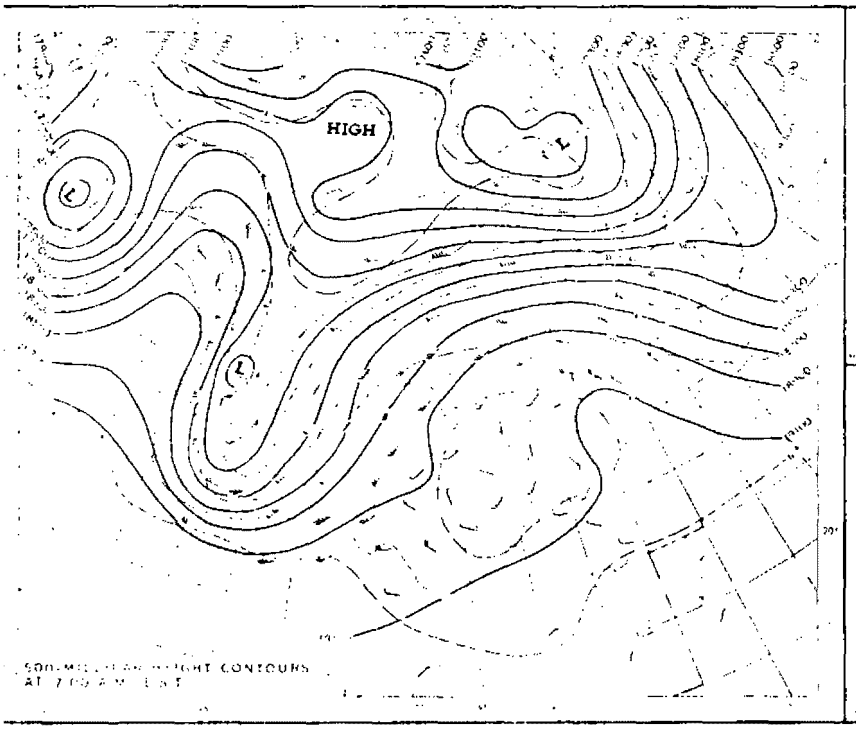
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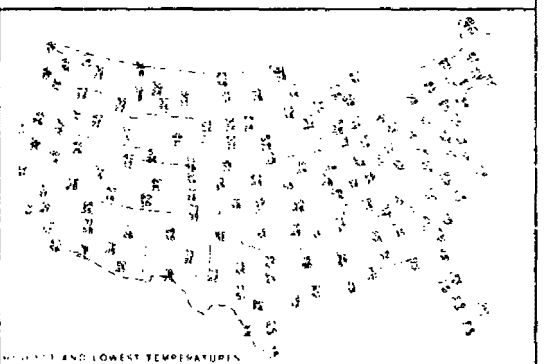
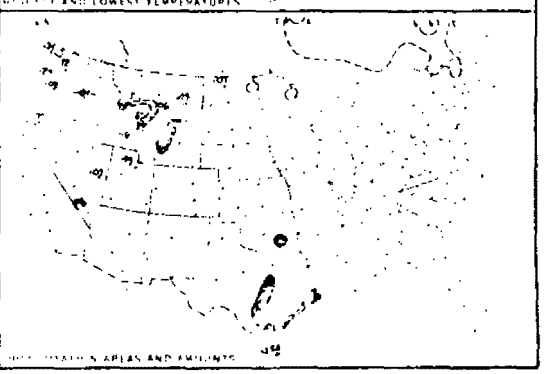
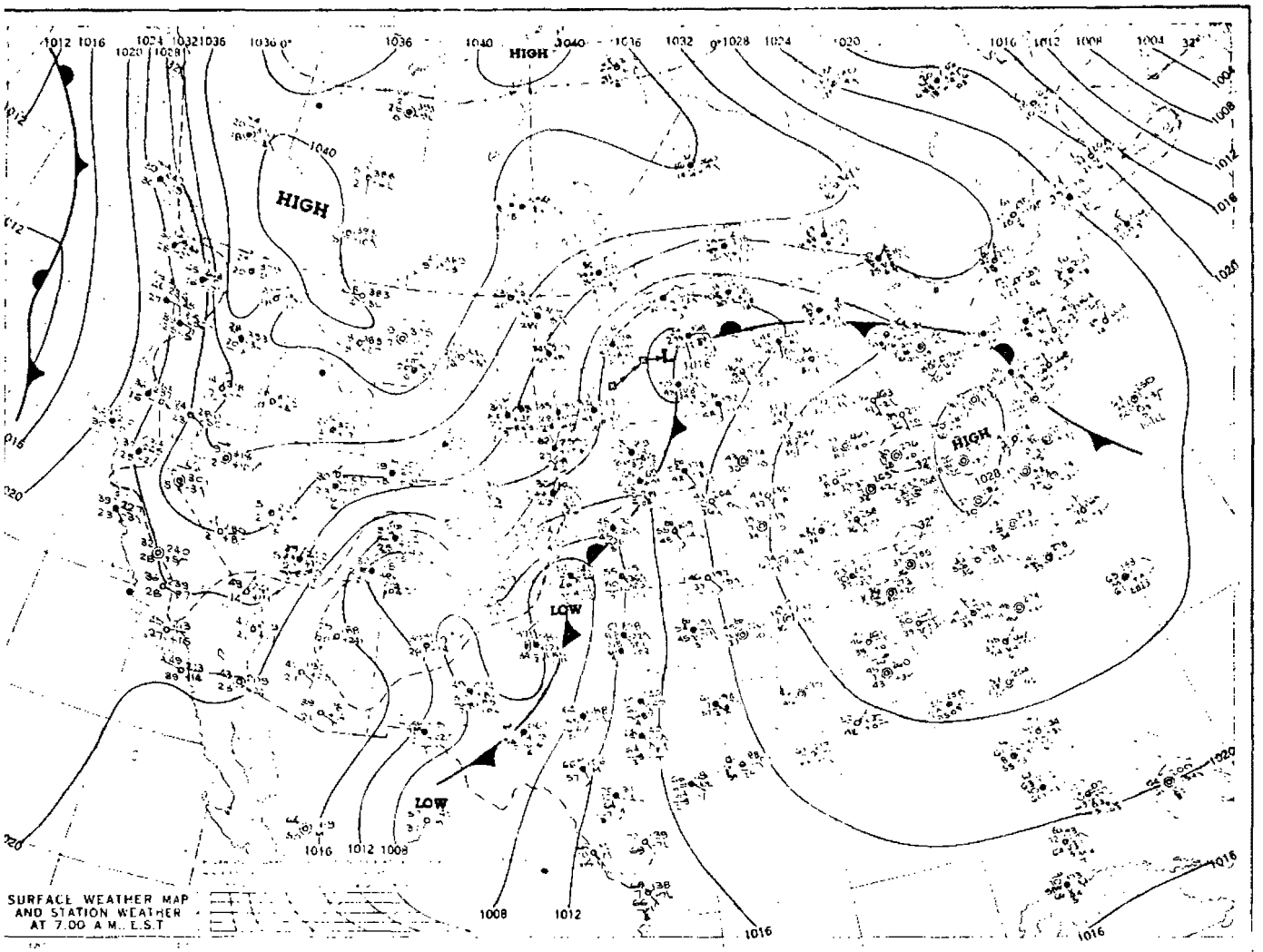
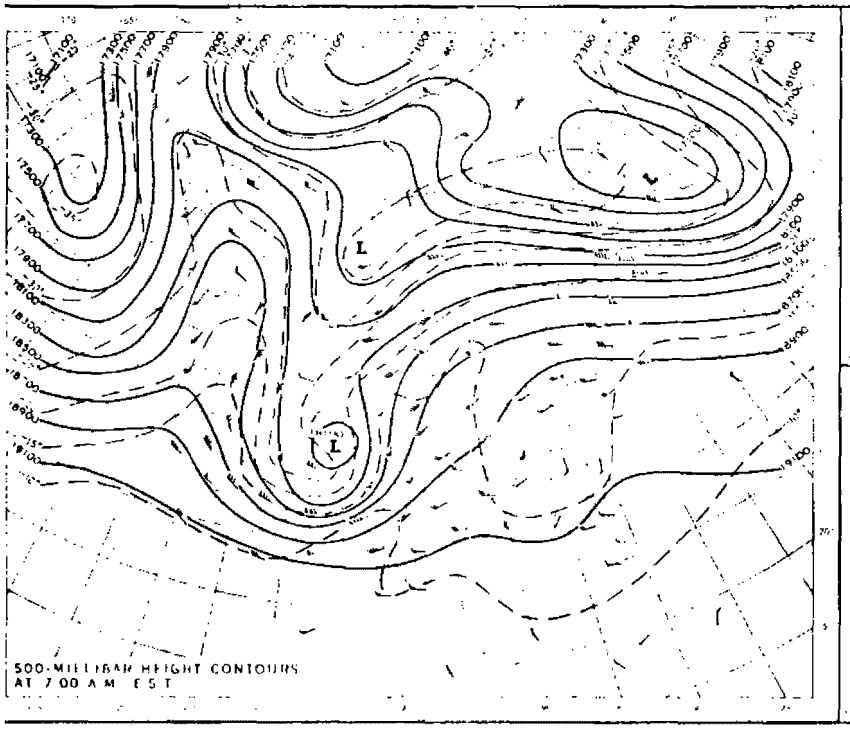
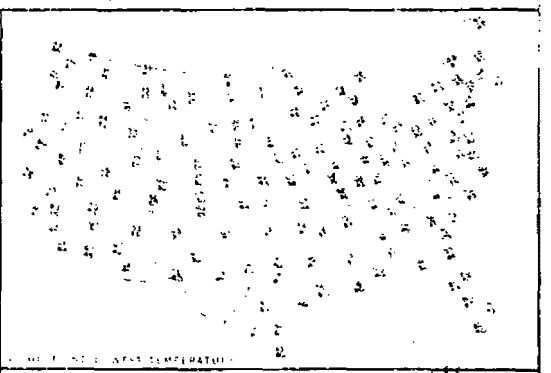
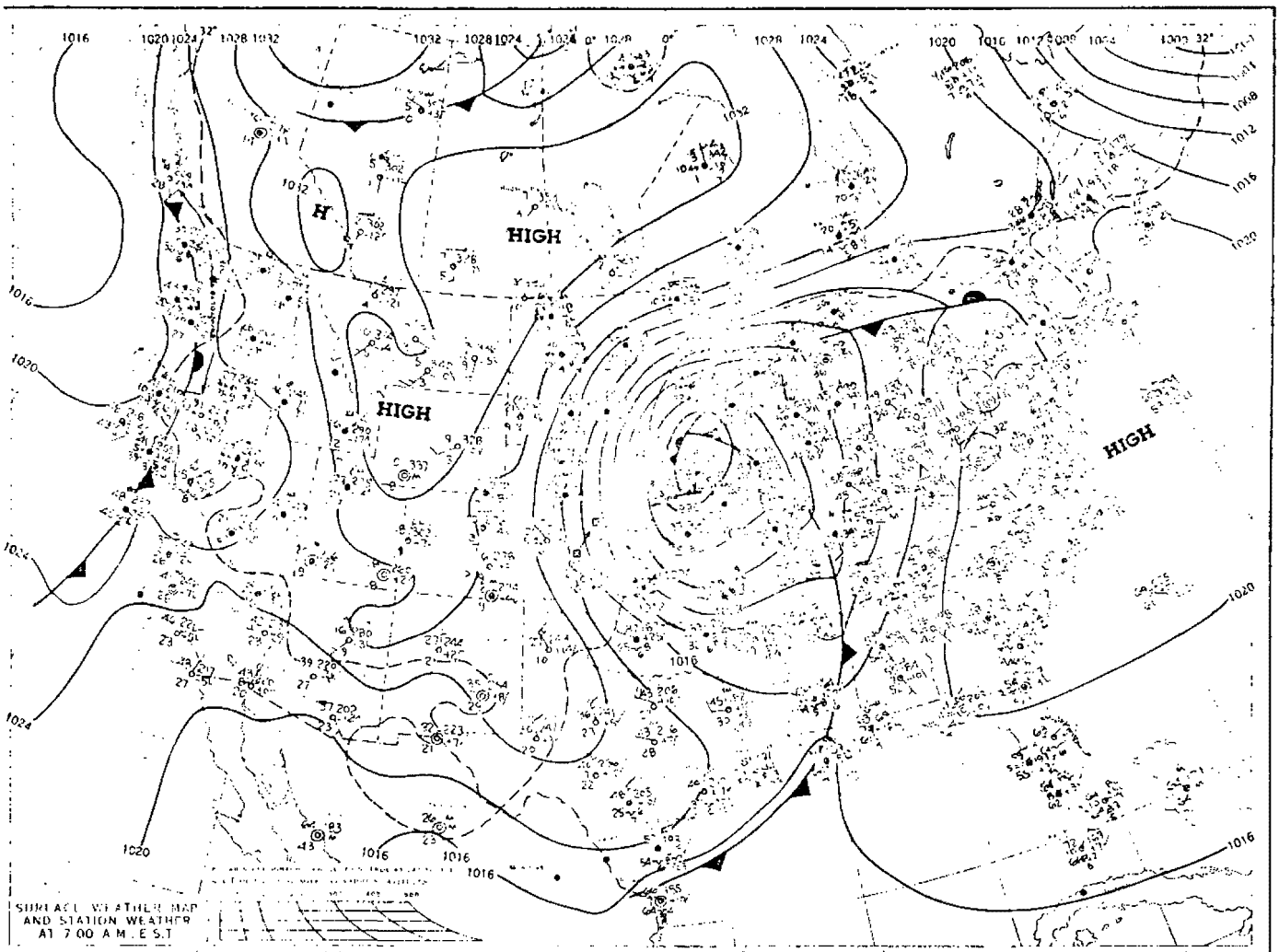


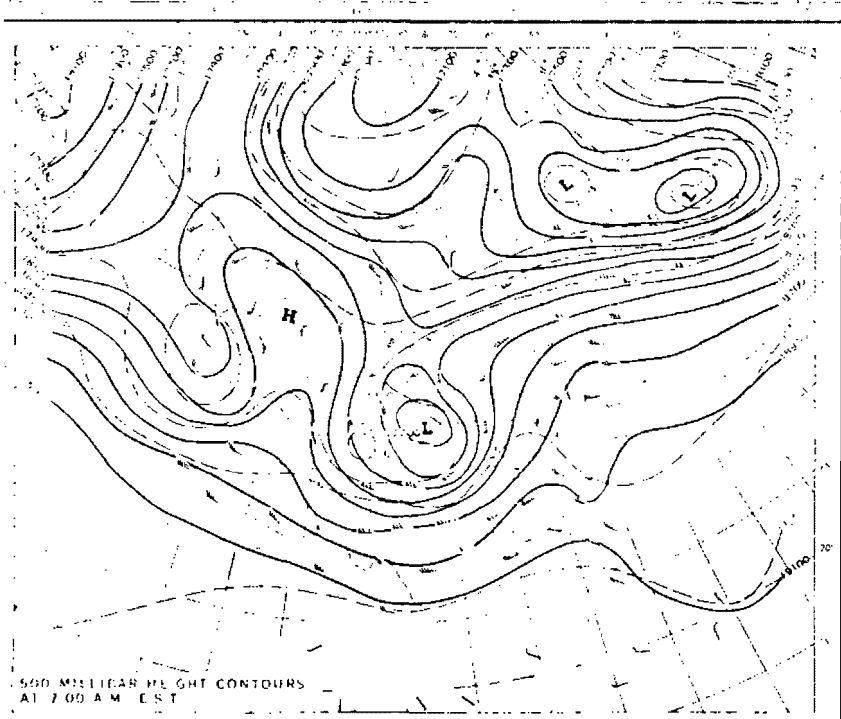


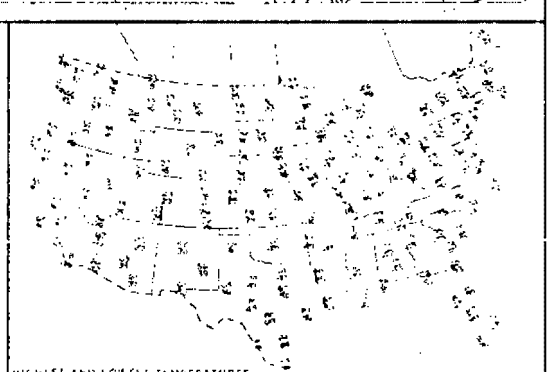

HIGH
HIGH
HIGH
LOW
LOW
SURFACE WEATHER MAP
AND STATION WEATHER
AT 7:00 A.M. E.S.T.

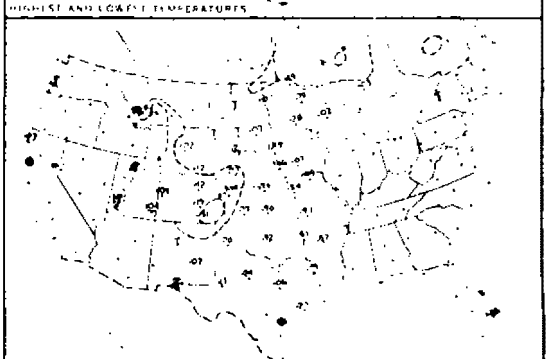

500-MILLIBAR HEIGHT CONTOURS
AT 7:00 A.M. E.S.T.

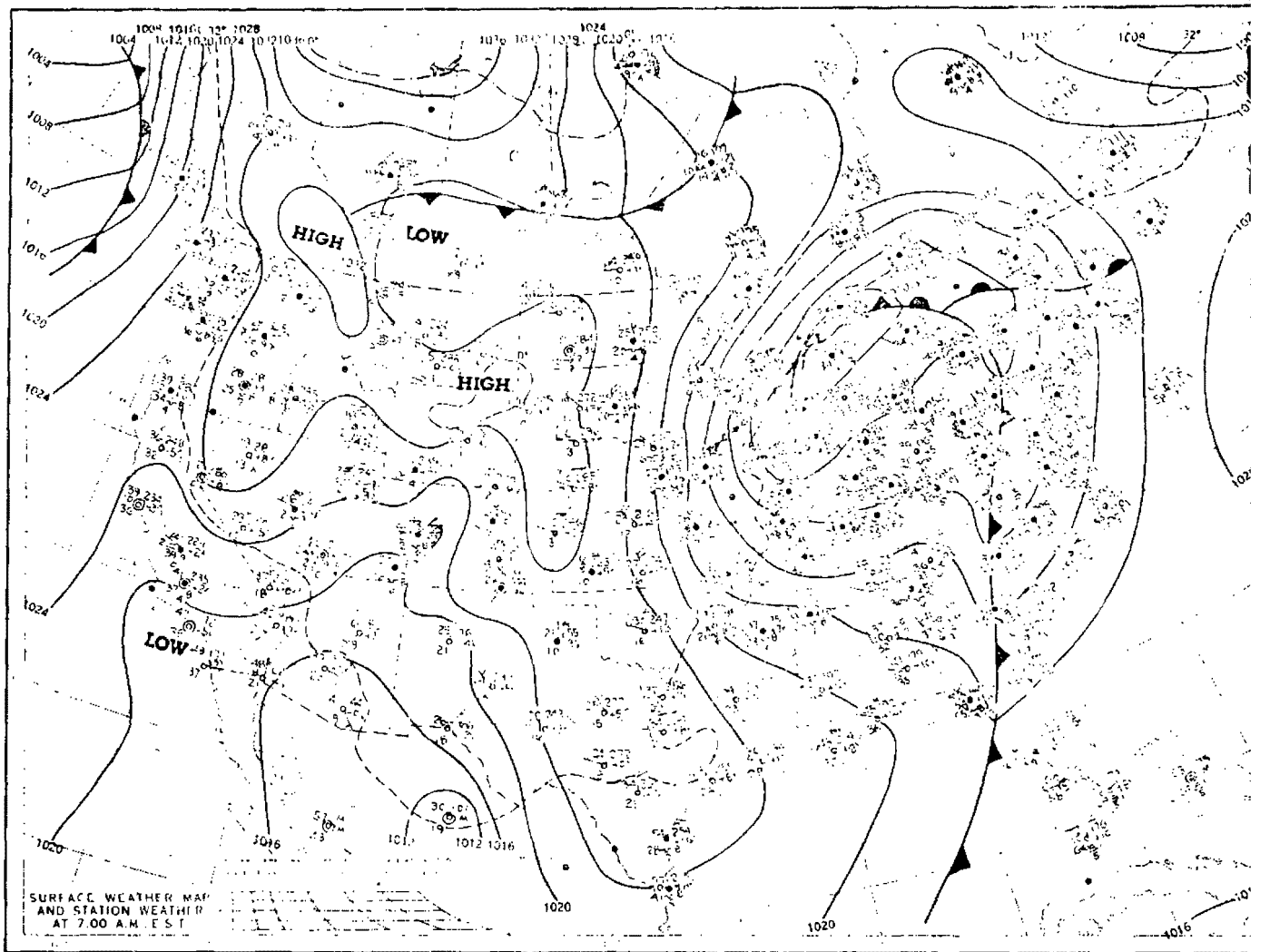



HIGH
HIGH
HIGH
SURFACE WEATHER MAP
AND STATION WEATHER
AT 7:00 A.M. E.S.T.


500 MILLIBAR HEIGHT CONTOURS
AT 7:00 A.M. E.S.T.


HIGHEST AND LOWEST TEMPERATURES


PRECIPITATION AREAS AND AMOUNTS


HIGH
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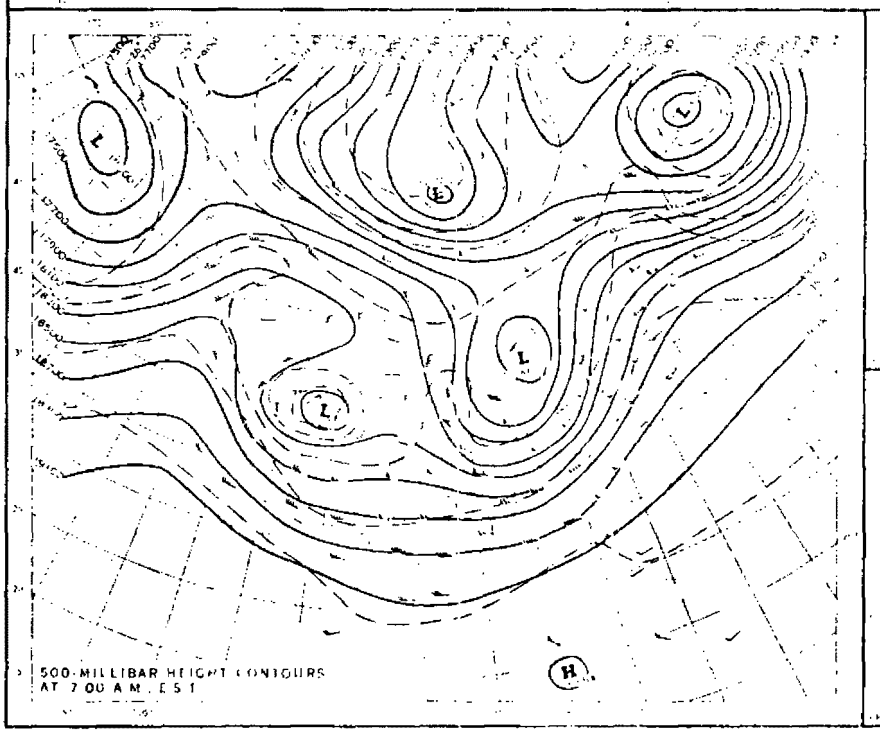
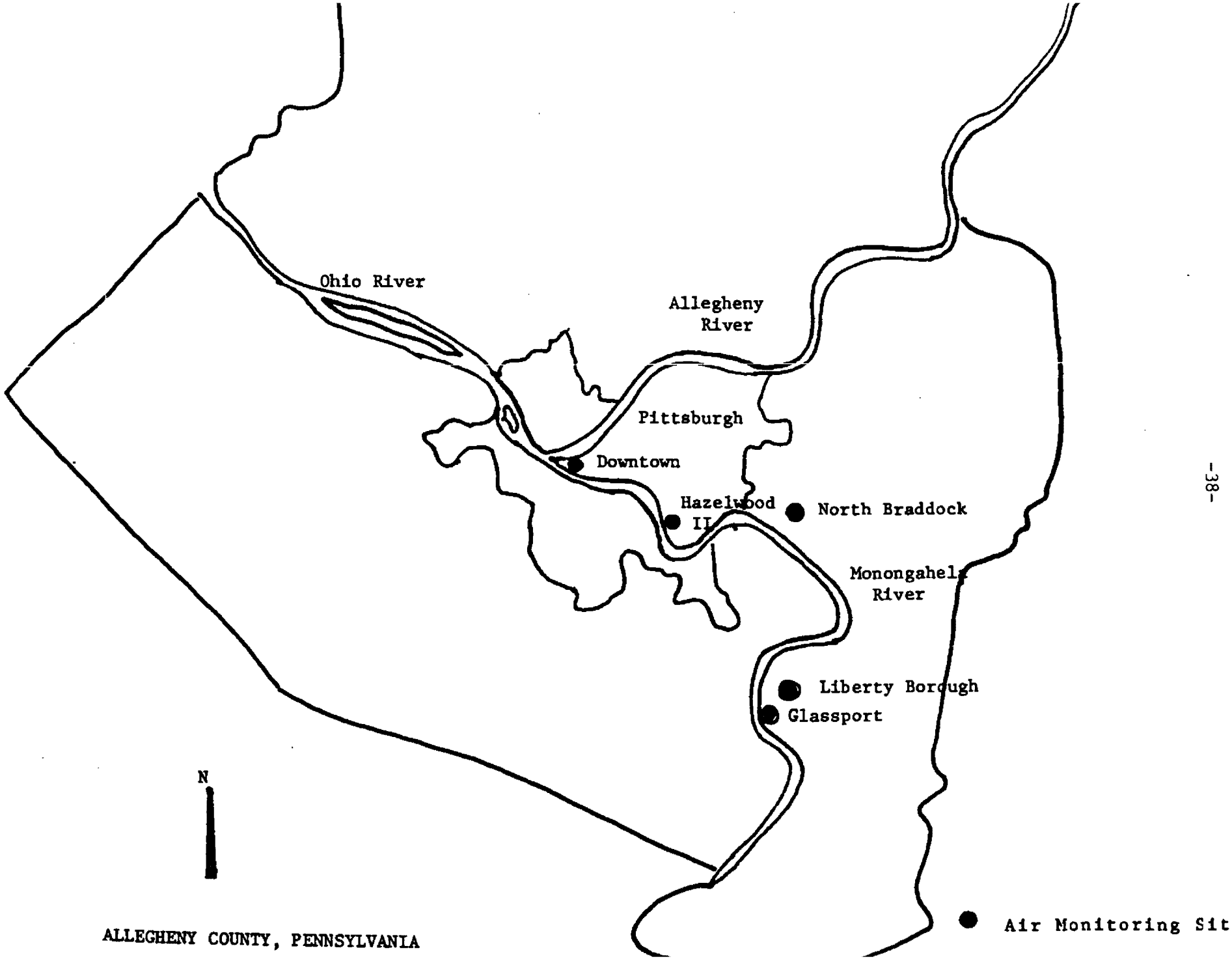
SURFACE WEATHER MAP
AND STATION WEATHER
AT 7:00 A.M. E.S.T.


500-MILLIBAR HEIGHT CONTOURS
AT 7:00 A.M. E.S.T.

MAP OF ALLEGHENY COUNTY SHOWING THE LOCATION
OF THE 5 MONITORING SITES HIGHLIGHTED IN THE REPORT



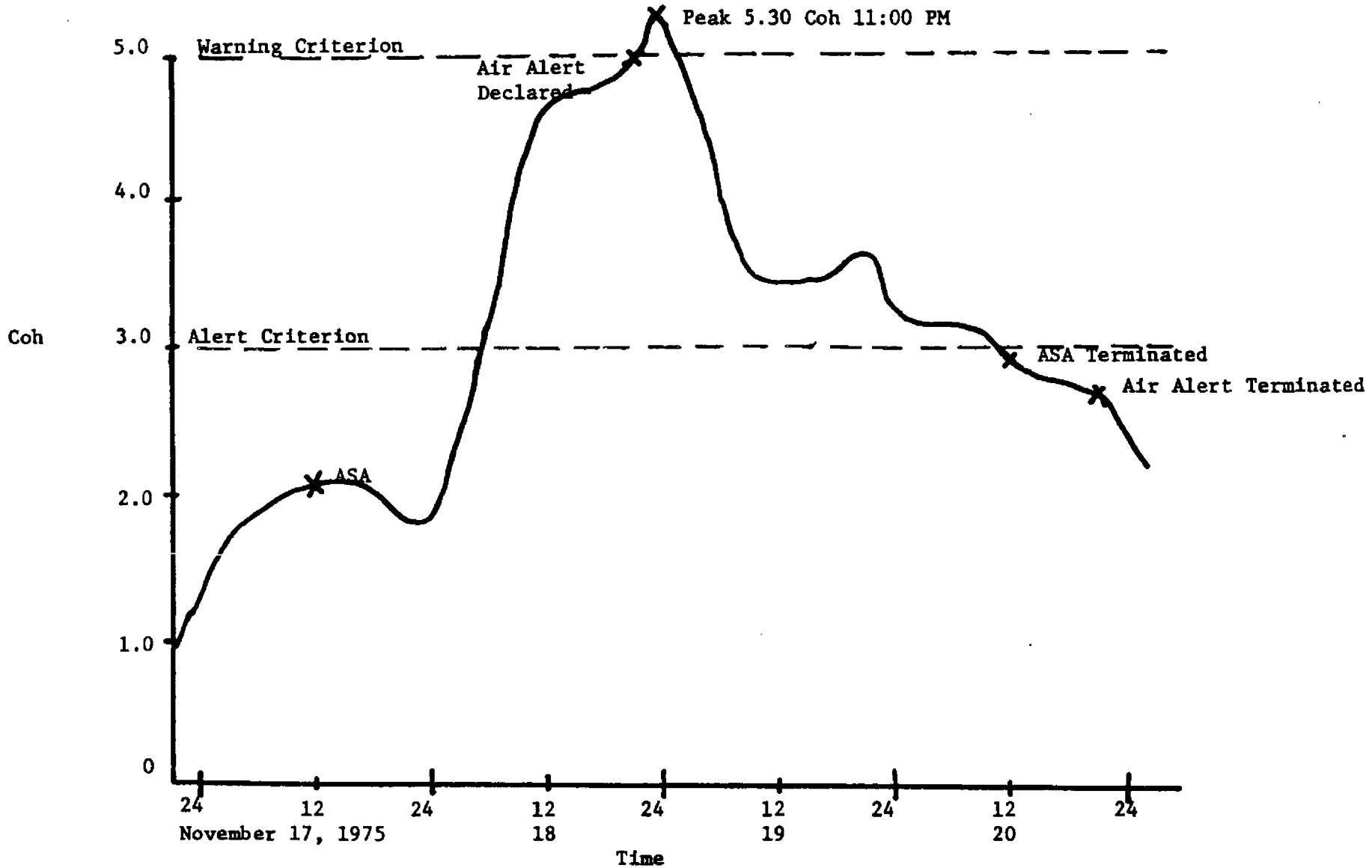
ALLEGHENY COUNTY, PENNSYLVANIA

PARTICULATE CONCENTRATION GRAPHS OF FOUR MONITORING SITES

The next four pages are graphs of Coh concentrations of fine particulate averaged over a 24-hour period versus time. The time axis is divided into 12-hour segments. The crosses located on the plot indicate the time and particulate concentration during the various stages of the emergency. The colored lines are the various federal criteria.

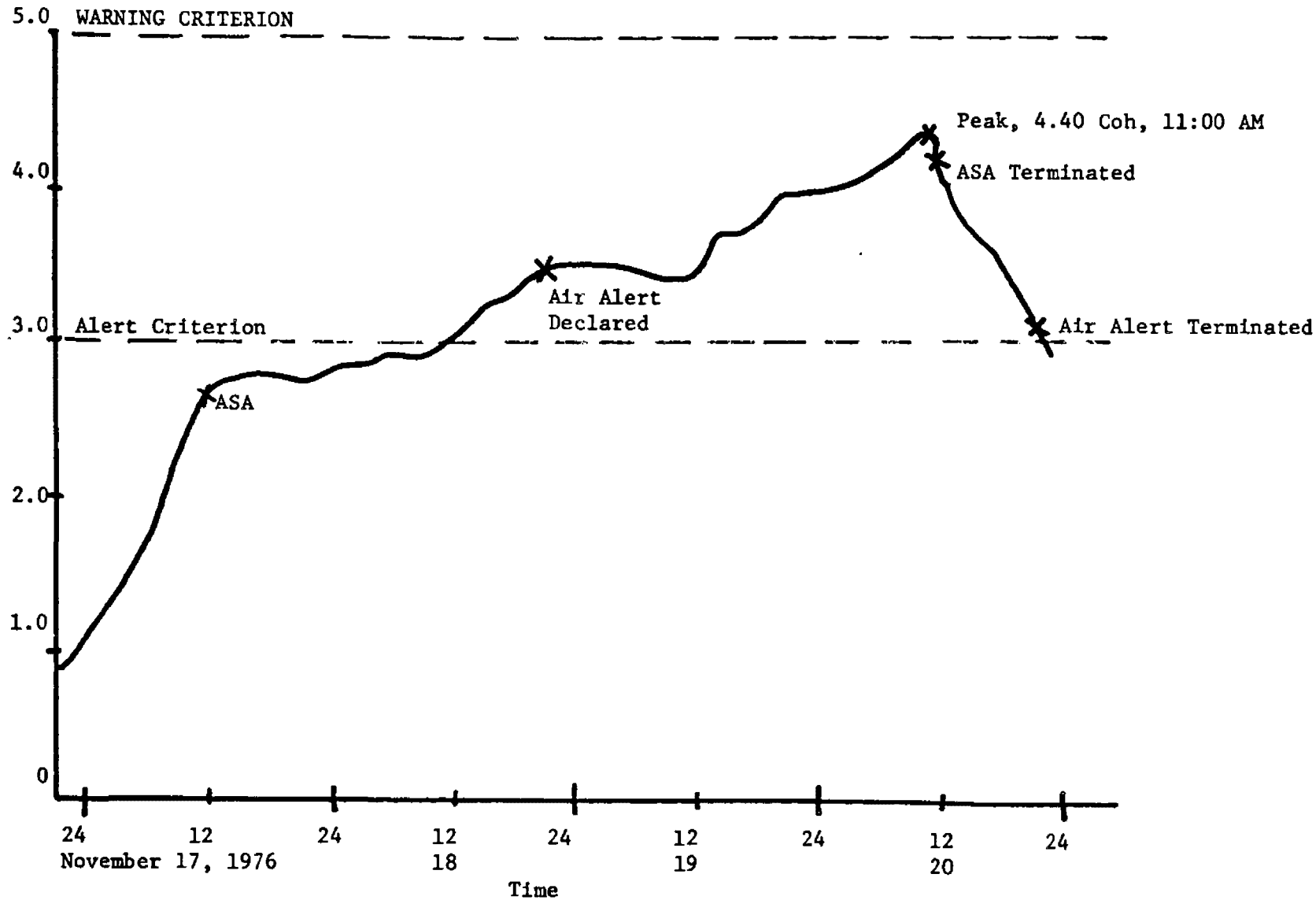
24 HOUR Coh READINGS: 9:00 PM, NOVEMBER 16, 1975

MIDNIGHT, NOVEMBER 20, 1975 - Site: North Braddock



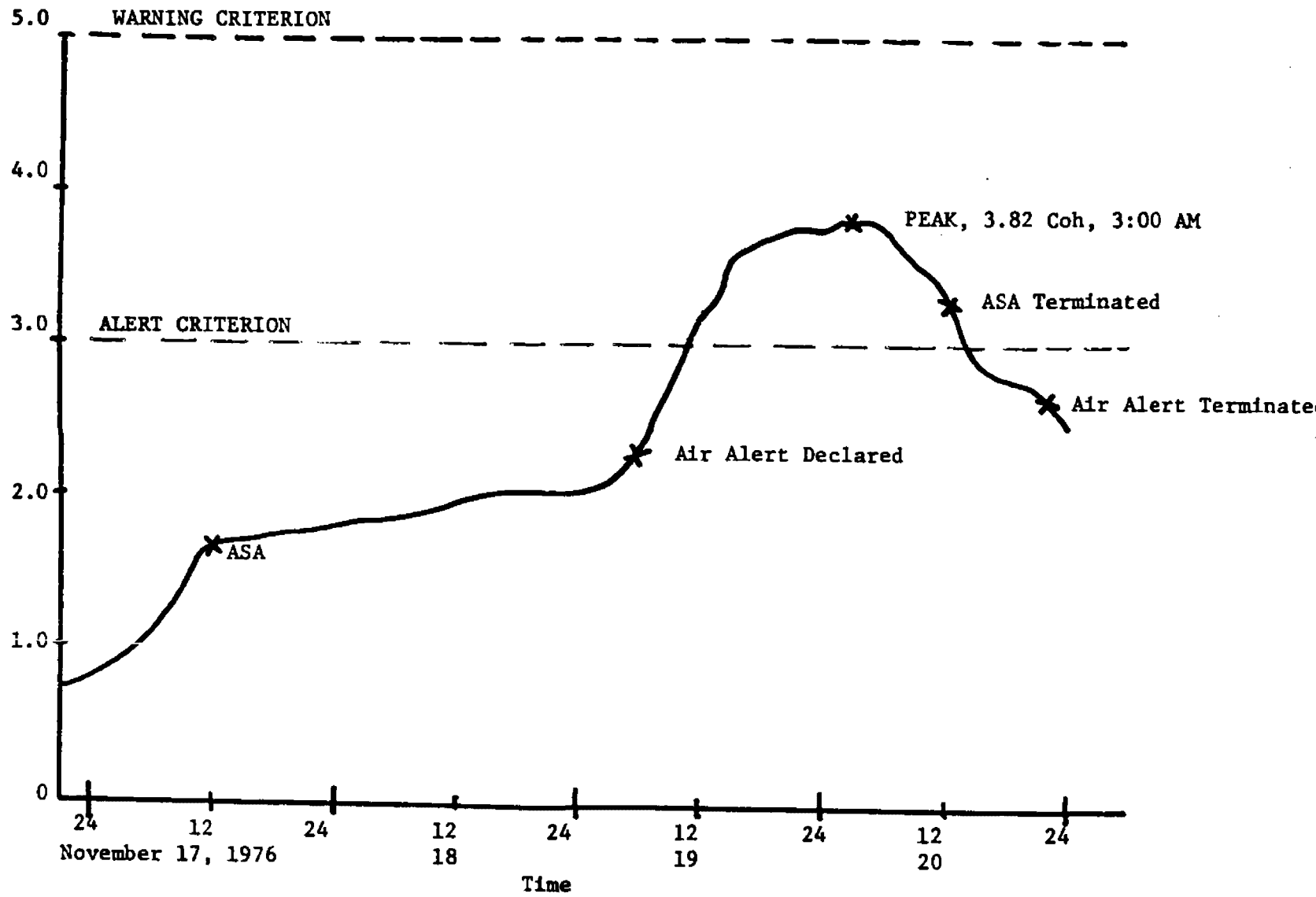
24 HOUR Coh READINGS; 9:00 PM, NOVEMBER 16, 1975

MIDNIGHT NOVEMBER 20, 1975 - SITE: DOWNTOWN PITTSBURGH



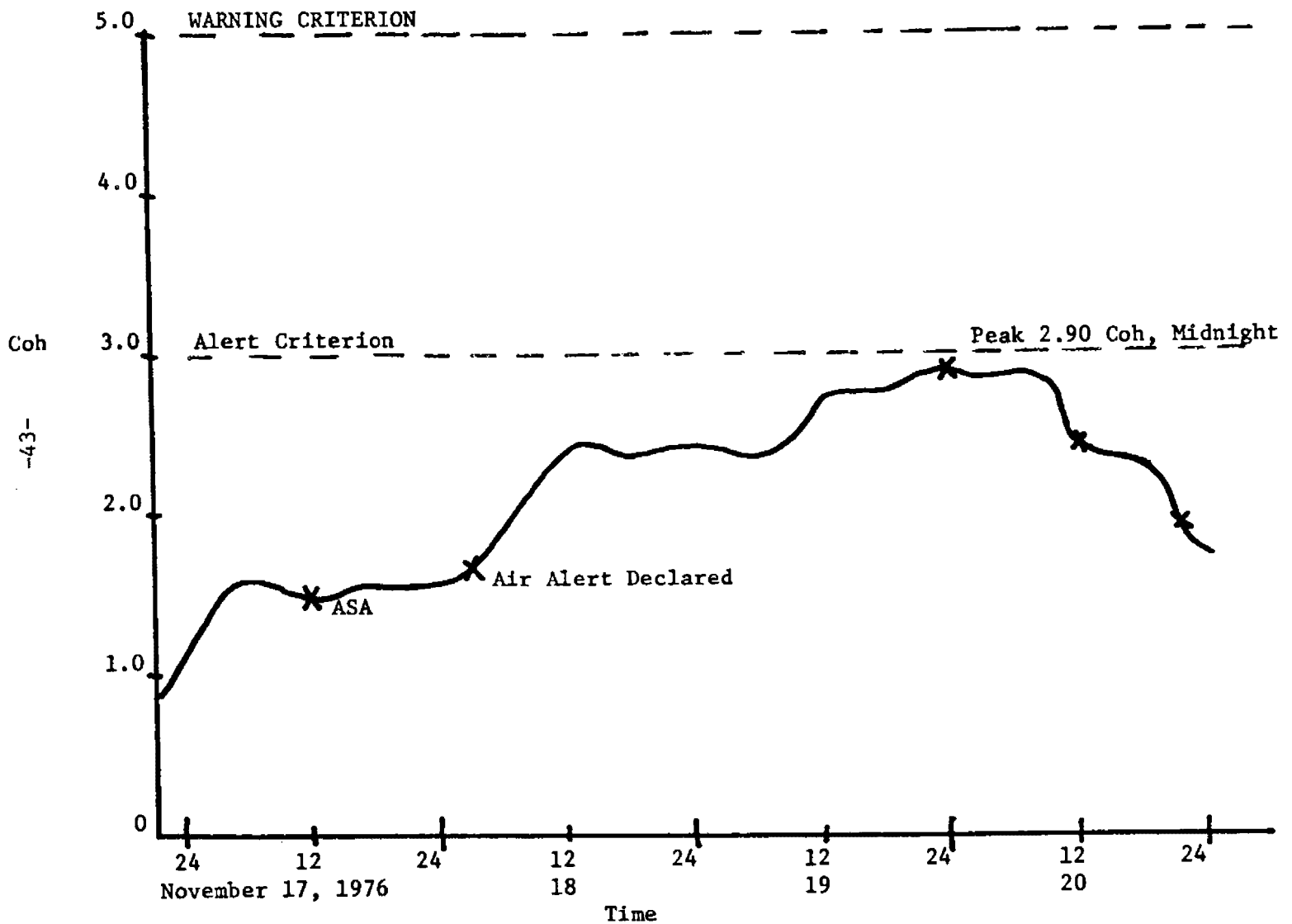
24 HOUR Coh READINGS 9:00 PM, NOVEMBER 16, 1975

MIDNIGHT NOVEMBER 20, 1975 - SITE: GLASSPORT



24 HOUR Coh READINGS 9:00 PM, November 16, 1975

MIDNIGHT NOVEMBER 20, 1975 - SITE: HAZELWOOD II



MONITORING SITE PARTICULATE AND SO_2 DATA

The following are the data obtained from the air monitoring site's tape samplers. The far left column is time. SO_2 values are expressed in parts per million, particulate concentration is measured in Cohs. The product columns give the products of SO_2 and particulate concentrations. The columns marked WD and WS refer to wind direction and wind speed respectively. It should be noted that the Liberty Borough - Clairton SO_2 data are incorrect. The correct values are included directly after the Liberty Borough - Clairton printouts.

SUMMARY FOR THE PAST 48 HOURS

STATION LAPTY BORO CLRTN

	HOURLY				12 HOUR			24 HOUR			
	SO2	FP	WD	WS	SO2	FP	PRODUCT	SO2	FP	PRODUCT	FX
DATE 11/16/1975											
0- 1	0.315*	4.71	SW	8	0.181	3.76	0.684	0.128	2.27	0.294	(0)
1- 2	0.190	7.76	SW	9	0.191	4.29	0.825	0.135	2.57	0.348	(0)
2- 3	0.272	5.57	SW	9	0.207	4.63	0.963	0.145	2.79	0.406	(0)
3- 4	0.300	5.65	SW	9	0.224	5.04	1.129	0.157	3.01	0.473	(0)
4- 5	0.378	3.88	SW	10	0.244	5.24	1.281	0.171	3.15	0.543	(0)
5- 6	0.362	4.76	SW	10	0.258	5.37	1.391	0.185	3.32	0.618	(0)
6- 7	0.219	1.86	SW	9	0.266	5.13	1.366	0.191	3.37	0.646	(0)
7- 8	0.269	3.34	SW	9	0.274	5.02	1.380	0.194	3.45	0.674	(0)
8- 9	0.158	1.25	SW	10	0.271	4.68	1.272	0.194	3.44	0.671	(0)
9-10	0.059	0.67	WSW	9	0.262	4.30	1.128	0.192	3.43	0.661	(0)
10-11	0.072	0.71	WSW	8	0.243	3.81	0.929	0.192	3.44	0.664	(0)
11-12	0.079	0.81	WSW	8	0.223	3.41	0.763	0.191	3.42	0.655	(0)
12-13	0.063	0.64	SW	8	0.202	3.08	0.623	0.191	3.42	0.657	(0)
13-14	0.058	0.66	WSW	9	0.191	2.48	0.476	0.191	3.39	0.650	(0)
14-15	0.064	0.63	W	8	0.173	2.07	0.361	0.190	3.35	0.641	(0)
15-16	0.084	0.72	WSW	6	0.155	1.66	0.260	0.190	3.35	0.637	(0)
16-17	0.090	0.79	W	6	0.131	1.40	0.186	0.188	3.32	0.625	(0)
17-18	0.095	0.77	W	5	0.109	1.07	0.118	0.184	3.22	0.594	(0)
18-19	0.063	0.91	W	5	0.096	0.99	0.096	0.181	3.06	0.556	(0)
19-20	0.183	6.34	SSW	5	0.089	1.24	0.112	0.182	3.13	0.571	(0)
20-21	0.287	7.03	SW	4	0.100	1.72	0.173	0.185	3.20	0.596	(0)
21-22	0.242	7.46	SW	5	0.115	2.29	0.265	0.188	3.29	0.623	(0)
22-23	0.188	9.93	SW	3	0.125	3.06	0.383	0.184	3.43	0.634	(0)
23-24	0.156	7.85	SSW	2	0.131	3.64	0.480	0.177	3.53	0.627	(0)
DATE 11/17/1975											
0- 1	0.135*	8.27	SW	4	0.137	4.28	0.590	0.169	3.68	0.626	(0)
1- 2	0.104	9.02	SW	4	0.141	4.98	0.704	0.166	3.73	0.621	(0)
2- 3	0.066	5.14	SW	2	0.141	5.35	0.759	0.157	3.71	0.586	(0)
3- 4	0.071	6.37	SW	2	0.140	5.82	0.819	0.146	[illegible]	[illegible]	(0)
4- 5	0.073	7.84	SSW	3	0.139	6.41	0.892	0.139	[illegible]	[illegible]	(0)
5- 6	0.076	7.93	SW	3	0.137	7.01	0.964	0.123	[illegible]	[illegible]	[illegible]
6- 7	0.093	10.13	SSW	3	0.139	7.78	1.089	0.118	4.38	[illegible]	[illegible]
7- 8	0.113	7.39	SW	3	0.134	7.86	1.056	0.111	4.55	0.510	(0)
8- 9	0.107	7.04	SSW	5	0.119	7.86	0.938	0.109	4.79	0.526	(0)
9-10	0.220	6.67	S	4	0.117	7.80	0.916	0.116	5.04	0.588	(0)
10-11	0.369	6.30	SSW	6	0.132	7.50	0.993	0.128	5.28	0.680	(0)
11-12	0.327	4.00	SW	6	0.146	7.17	1.053	0.139	5.41	0.753	(0)
12-13	0.227	1.95	WSW	6	0.154	6.65	1.027	0.145	5.46	0.798	(0)
13-14	0.129	1.33	SW	6	0.156	6.01	0.940	0.148	5.49	0.819	(0)
14-15	0.073	0.76	WSW	8	0.157	5.64	0.887	0.149	5.50	0.821	(0)
15-16	0.086	0.85	WSW	9	0.158	5.18	0.821	0.149	5.50	0.823	(0)
16-17	0.038	0.58	WSW	8	0.155	4.58	0.712	0.147	5.49	0.810	(0)
17-18	0.057	0.58	W	7	0.153	3.97	0.610	0.145	5.49	0.800	(0)
18-19	0.099	0.71	W	6	0.154	3.18	0.491	0.147	5.48	0.807	(0)
19-20	0.100	0.71	WSW	6	0.153	2.62	0.403	0.143	5.24	0.754	(0)
20-21	0.229	8.33	SW	6	0.163	2.73	0.447	0.141	5.30	0.749	(0)
21-22	0.243	9.81	SW	6	0.165	2.99	0.495	0.141	5.40	0.763	(0)
22-23	0.204	9.48	SW	5	0.151	3.26	0.494	0.141	5.38	0.764	(0)
23-24	0.217	6.86	SSW	5	0.142	3.50	0.498	0.144	5.34	0.772	(0)

* Needs correction factor for SO_2

SUMMARY FOR THE PAST 48 HOURS

STATION LEETY BORO GERTN

HOURLY

	SO2	FP	WD	WS	12 HOUR SO2	12 HOUR FP	12 HOUR PRODUCT	24 HOUR SO2	24 HOUR FP	24 HOUR PRODUCT	INDEX
DATE 11/18/1975											
0- 1	0.056	6.91	S	3	0.080	3.92	0.316	0.117	5.28	0.621	19 .7 (0)
1- 2	0.093	8.65	SSW	4	0.077	6.54	0.501	0.110	5.27	0.617	19 .1 (0)
2- 3	0.076	6.50	SSW	4	0.078	5.04	0.393	0.117	5.34	0.627	19 .4 (0)
3- 4	0.072	9.65	SSW	4	0.080	5.77	0.466	0.117	5.47	0.646	20 .4 (0)
4- 5	0.061	7.99	SSW	4	0.094	6.37	0.547	0.117	5.48	0.643	20 .3 (0)
5- 6	0.091	6.52	SSW	5	0.098	6.87	0.608	0.117	5.62	0.637	19 .7 (0)
6- 7	0.092	7.77 05/	SSW	5	0.091	7.41	0.681	0.117	5.30	0.623	19 .2 (0)
7- 8	0.091	7.55 05/	SSW	4	0.095	8.01	0.762	0.116	5.32	0.621	19 .5 (0)
8- 9	0.076	10.56	SW	4	0.091	8.22	0.753	0.115	5.48	0.637	19 .8 (0)
9-10	0.210	7.44 05/	SSW	4	0.098	8.02	0.791	0.114	5.51	0.643	3 (0)
10-11	0.462	10.11	SSW	6	0.125	8.07	1.015	0.117	5.67	0.669	.0 (0)
11-12	0.253	6.42	SSW	5	0.137	8.04	1.105	0.114	5.77	0.663	.8 (0)
12-13	0.119	3.25	WSW	5	0.140	7.73	1.083	0.110	5.82	0.643	.8 (0)
13-14	0.058	1.90	WSW	5	0.137	7.16	0.983	0.107	5.86	0.628	4 (0)
14-15	0.024	0.91	NW	6	0.132	6.67	0.886	0.105	5.85	0.617	.9 (0)
15-16	0.022	0.99	W	5	0.127	5.95	0.762	0.104	5.86	0.612	7 (0)
16-17	0.025	0.93	WSW	6	0.124	5.37	0.671	0.104	5.87	0.615	.2 (0)
17-18	0.023	0.92	WSW	7	0.120	4.90	0.589	0.104	5.89	0.616	5 (0)
18-19	0.031	1.16	WSW	6	0.114	4.40	0.506	0.103	5.90	0.611	.7 (0)
19-20	0.078	6.40	SW	6	0.113	4.27	0.487	0.104	6.14	0.642	.0 (0)
20-21	0.112	10.51	SW	4	0.116	4.24	0.497	0.104	6.23	0.650	.5 (0)
21-22	0.120	10.51	SSW	4	0.109	4.50	0.493	0.103	6.26	0.651	2 (0)
22-23	0.127	10.51	SW	5	0.083	4.53	0.378	0.104	6.30	0.659	.6 (0)
23-24	0.114	10.51	S	3	0.071	4.88	0.349	0.104	6.46	0.675	0 (0)
DATE 11/19/1975											
0- 1	0.055	8.32	S	1	0.066	5.30	0.351	0.103	6.51	0.672	2 (0)
1- 2	0.051	8.94	S	1	0.065	5.88	0.387	0.101	6.52	0.662	.9 (0)
2- 3	0.057	10.51	SSW	4	0.068	6.68	0.458	0.100	6.68	0.672	1 (0)
3- 4	0.070	10.51	SSW	4	0.072	7.48	0.542	0.100	6.71	0.673	.9 (0)
4- 5	0.028	6.17	NE	3	0.072	7.91	0.575	0.098	6.64	0.657	6 (0)
5- 6	0.028	9.42	SW	4	0.073	8.62	0.631	0.096	6.76	0.654	.1 (0)
6- 7	0.034	10.47	W	3	0.073	9.40	0.690	0.094	6.90	0.650	1 (0)
7- 8	0.038	9.08	SW	3	0.070	9.62	0.674	0.091	6.95	0.639	7 (0)
8- 9	0.038	8.64	SSW	2	0.063	9.47	0.605	0.090	6.85	0.620	5 (0)
9-10	0.046	10.51	SW	3	0.057	9.47	0.546	0.083	6.98	0.584	.8 (0)
10-11	0.048	10.51	S	2	0.051	9.47	0.486	0.067	7.00	0.470	4 (0)
11-12	0.047	7.63	ESE	5	0.045	9.23	0.420	0.058	7.05	0.413	.8 (0)
12-13	0.084	5.69	SW	4	0.047	8.09	0.431	0.057	7.14	0.408	0 (0)
13-14	0.121	8.41	WSW	5	0.053	8.95	0.481	0.059	7.42	0.443	.8 (0)
14-15	0.096	1.16	W	5	0.057	8.17	0.466	0.062	7.43	0.466	1 (0)
15-16	0.068	1.47	WSW	5	0.056	7.41	0.422	0.064	7.45	0.481	.4 (0)
16-17	0.097	1.73	SSW	4	0.052	7.04	0.441	0.067	7.48	0.506	4 (0)
17-18	0.070	3.94	SSW	4	0.066	6.59	0.436	0.069	7.60	0.530	.8 (0)
18-19	0.074	2.06	SSW	3	0.069	5.89	0.409	0.071	7.64	0.546	5 (0)
19-20	0.102	10.26	SW	6	0.074	5.98	0.448	0.072	7.80	0.565	.5 (0)
20-21	0.103	8.32	S	3	0.080	5.96	0.478	0.072	7.71	0.556	7 (0)
21-22	0.093	7.66	SW	3	0.084	5.72	0.481	0.070	7.59	0.539	.9 (0)
22-23	0.093	8.29	SW	4	0.087	5.54	0.487	0.069	7.50	0.521	.7 (0)
23-24	0.076	7.48	SW	2	0.090	5.52	0.496	0.067	7.37	0.501	.5 (0)

SUMMARY FOR THE PAST 24 HOURS

STATION EMPTY MED CLRTH

	HOURLY SO2	HOURLY PP	HOURLY WD	HOURLY WS	12 HOUR SO2	12 HOUR PP	12 HOUR PRODUCT	24 HOUR SO2	24 HOUR PP	24 HOUR PRODUCT	
DATE 11/20/1975											
0- 1	0.054	7.59	SSW	2	0.087	5.70	0.500	0.067	7.34	0.498	23
1- 2	0.028	4.20	SSW	3	0.080	5.52	0.442	0.066	7.23	0.477	23
2- 3	0.047	7.46	SSE	4	0.075	6.05	0.456	0.066	7.10	0.470	22
3- 4	0.026	5.37	SW	2	0.071	6.17	0.434	0.064	6.89	0.443	22
4- 5	0.024	7.68	S	4	0.065	6.85	0.449	0.064	6.95	0.445	22
5- 6	0.022	4.55	ESE	6	0.061	6.90	0.425	0.063	6.74	0.431	21
6- 7	0.030	5.50	SSW	5	0.057	7.39	0.416	0.063	6.54	0.416	21
7- 8	0.032	6.67	ESE	5	0.052	6.39	0.368	0.063	6.44	0.408	20
8- 9	0.058	4.63	SW	4	0.048	6.58	0.318	0.064	6.27	0.403	204
9-10	0.081	5.30	NE	4	0.047	6.39	0.302	0.065	6.05	0.398	199
10-11	0.066	5.30	SSW	6	0.045	6.14	0.276	0.066	5.84	0.388	193
11-12	0.054	4.14	SSW	7	0.043	5.36	0.253	0.066	5.69	0.380	189
12-13	0.024	2.35	S	8	0.040	5.42	0.221	0.064	5.56	0.367	185
13-14	0.014	1.25	S	9	0.039	5.00	0.198	0.059	5.26	0.315	179
14-15	0.013	0.88	S	9	0.037	4.45	0.167	0.056	5.25	0.296	177
15-16	0.016	0.82	S	8	0.036	4.07	0.150	0.054	5.22	0.283	170
16-17	0.029	1.17	SSE	7	0.037	3.55	0.132	0.051	5.20	0.267	167
17-18	0.023	0.75	SSE	6	0.037	3.23	0.120	0.049	5.07	0.250	167
18-19	0.009	0.75	SSE	7	0.035	2.83	0.101	0.046	5.01	0.234	161
19-20	0.005	0.95	SE	8	0.033	2.36	0.078	0.042	4.62	0.197	169
20-21	0.003	1.26	SSE	9	0.028	2.08	0.060	0.038	4.33	0.167	139
21-22	0.001	0.66	S	11	0.021	1.69	0.037	0.034	4.06	0.138	12
22-23	0.004	0.60	S	14	0.016	1.30	0.022	0.030	3.72	0.115	118
23-24	0.006	0.48	S	12	0.012	0.99	0.013	0.027	3.43	0.096	105

CORRECTED 24 HOUR SO_2 CONCENTRATION IN PARTS PER MILLION (PPM)

SITE: LIBERTY BOROUGH - CLAIRTON

#	11/16	11/17	11/18	11/19	11/20
0-1	.090	.119	.082	.072	.075
1-2	.095	.116	.081	.071	.074
2-3	.102	.110	.082	.070	.074
3-4	.110	.103	.082	.070	.071
4-5	.120	.095	.082	.069	.071
5-6	.130	.086	.082	.067	.071
6-7	.134	.083	.082	.066	.071
7-8	.136	.078	.081	.064	.071
8-9	.136	.077	.081	.063	.071
9-10	.135	.081	.080	.059	.073
10-11	.135	.090	.082	.047	.074
11-12	.134	.098	.080	.041	.074
12-13	.134	.102	.077	.040	.071
13-14	.134	.104	.075	.041	.066
14-15	.133	.105	.073	.044	.063
15-16	.133	.105	.073	.045	.061

#	11/16	11/17	11/18	11/19	11/20
16-17	.131	.103	.073	.047	.057
17-18	.129	.102	.073	.048	.055
18-19	.127	.103	.072	.050	.052
19-20	.128	.100	.073	.051	.047
20-21	.130	.099	.073	.051	.038
21-22	.132	.099	.072	.049	.038
22-23	.130	.099	.073	.048	.034
23-24	.124	.101	.073	.047	.030

SUMMARY FOR THE PAST 48 HOURS

STATION	DOWNTOWN HOURLY					12 HOUR			24 HOUR			8 HOUR	
	SO2	FP	CO	WD	WS	SO2	FP	PRODUCT	SO2	FP	PRODUCT	CO	I AQI
DATE 11/16/1975													
0- 1	0.054	0.52	2.1	N.D.	-9	0.024	0.57	0.014	0.029	0.59	0.018	2.8	24.0 (0)
1- 2	0.048	0.47	1.9	N.D.	-9	0.026	0.54	0.014	0.030	0.58	0.018	2.5	27.4 (0)
2- 3	0.046	0.48	1.5	N.D.	-9	0.026	0.52	0.014	0.040	0.58	0.018	2.3	27.9 (0)
3- 4	0.035	0.30	1.1	N.D.	-9	0.027	0.51	0.014	0.041	0.57	0.018	2.0	28.1 (0)
4- 5	0.046	0.53	1.0	N.D.	-9	0.030	0.51	0.016	0.032	0.57	0.019	1.8	28.4 (0)
5- 6	0.062	0.63	1.0	N.D.	-9	0.034	0.51	0.018	0.033	0.57	0.019	1.6	29.5 (0)
6- 7	0.062	0.56	1.4	N.D.	-9	0.039	0.49	0.020	0.034	0.57	0.020	1.5	29.9 (0)
7- 8	0.061	0.63	1.7	N.D.	-9	0.043	0.50	0.022	0.036	0.58	0.021	1.4	29.9 (0)
8- 9	0.067	0.67	1.5	N.D.	-9	0.047	0.51	0.025	0.038	0.58	0.022	1.3	30.4 (0)
9-10	0.064	0.62	2.1	N.D.	-9	0.051	0.51	0.027	0.039	0.57	0.023	1.4	30.1 (0)
10-11	0.052	0.80	2.0	N.D.	-9	0.053	0.54	0.029	0.040	0.57	0.024	1.4	4 (0)
11-12	0.046	0.60	2.8	N.D.	-9	0.053	0.54	0.029	0.039	0.57	0.023	1.6	2 (0)
12-13	0.037	0.76	2.8	N.D.	-9	0.052	0.56	0.030	0.038	0.57	0.022	1.9	3 (0)
13-14	0.032	0.76	2.5	N.D.	-9	0.050	0.62	0.032	0.038	0.58	0.022	2.1	5 (0)
14-15	0.028	0.71	3.4	N.D.	-9	0.049	0.64	0.032	0.038	0.58	0.022	2.3	3 (0)
15-16	0.028	0.59	2.4	N.D.	-9	0.049	0.66	0.033	0.038	0.58	0.023	2.4	3 (0)
16-17	0.034	0.82	4.7	N.D.	-9	0.048	0.68	0.033	0.039	0.59	0.024	2.8	4 (0)
17-18	0.032	0.95	5.3	N.D.	-9	0.045	0.71	0.033	0.040	0.61	0.025	3.2	1 (0)
18-19	0.039	1.92	13.6	N.D.	-9	0.043	0.82	0.036	0.041	0.66	0.028	4.6	3 (0)
19-20	0.040	1.77	16.3	N.D.	-9	0.042	0.91	0.039	0.042	0.71	0.031	6.3	2 (0)
20-21	0.047	2.40	12.7	N.D.	-9	0.040	1.06	0.043	0.044	0.78	0.035	7.6	5 (0)
21-22	0.046	2.29	12.3	N.D.	-9	0.038	1.20	0.047	0.045	0.86	0.039	8.8	1 (0)
22-23	0.041	2.55	12.0	N.D.	-9	0.038	1.34	0.051	0.045	0.94	0.043	9.9	7 (0)
23-24	0.039	2.84	11.8	N.D.	-9	0.037	1.53	0.057	0.046	1.04	0.047	11.0	3 (0)
DATE 11/17/1975													
0- 1	0.043	3.71	10.5	N.D.	-9	0.037	1.78	0.068	0.045	1.17	0.053	11.8	5 (0)
1- 2	0.033	3.13	8.6	N.D.	-9	0.038	1.97	0.075	0.044	1.30	0.058	12.2	5 (0)
2- 3	0.031	1.86	8.3	N.D.	-9	0.038	2.07	0.079	0.044	1.35	0.060	11.5	5 (0)
3- 4	0.032	2.46	7.3	N.D.	-9	0.038	2.23	0.086	0.043	1.44	0.063	10.4	5 (0)
4- 5	0.030	2.44	7.0	N.D.	-9	0.038	2.36	0.090	0.043	1.52	0.066	9.7	5 (0)
5- 6	0.035	3.02	8.9	N.D.	-9	0.038	2.53	0.098	0.042	1.62	0.068	9.3	6 (0)
6- 7	0.037	4.07	13.7	N.D.	-9	0.038	2.71	0.104	0.041	1.77	0.073	9.5	7 (0)
7- 8	0.053	5.27	21.5	N.D.	-9	0.039	3.00	0.119	0.040	1.96	0.080	10.7	3 (0)
8- 9	0.049	6.08	23.3	N.D.	-9	0.039	3.31	0.131	0.039	2.18	0.088	12.3	5 (0)
9-10	0.053	6.18	27.9	N.D.	-9	0.040	3.63	0.146	0.039	2.42	0.096	14.7	1 (0)
10-11	0.068	5.78	20.8	N.D.	-9	0.042	3.90	0.166	0.040	2.62	0.106	16.3	3 (0)
11-12	0.084	2.02	10.4	N.D.	-9	0.046	3.84	0.177	0.041	2.68	0.112	16.6	6 (0)
12-13	0.081	1.69	8.3	N.D.	-9	0.049	3.67	0.181	0.043	2.72	0.119	16.8	4 (0)
13-14	0.047	0.91	7.5	N.D.	-9	0.050	3.48	0.176	0.044	2.73	0.121	16.6	9 (0)
14-15	0.044	0.98	6.7	N.D.	-9	0.051	3.41	0.176	0.044	2.74	0.123	15.8	3 (0)
15-16	0.032	0.94	5.4	N.D.	-9	0.051	3.28	0.170	0.045	2.75	0.124	13.7	9 (0)
16-17	0.063	1.20	6.5	N.D.	-9	0.054	3.18	0.173	0.046	2.77	0.128	11.6	7 (0)
17-18	0.089	1.18	7.2	N.D.	-9	0.058	3.02	0.178	0.048	2.78	0.135	9.1	8 (0)
18-19	0.091	1.07	5.2	N.D.	-9	0.063	2.77	0.176	0.050	2.74	0.140	7.1	6 (0)
19-20	0.094	1.21	7.7	N.D.	-9	0.066	2.44	0.163	0.053	2.72	0.145	6.8	7 (0)
20-21	0.073	2.48	13.3	N.D.	-9	0.068	2.14	0.147	0.054	2.72	0.148	7.4	2 (0)
21-22	0.063	3.97	17.5	N.D.	-9	0.069	1.95	0.136	0.054	2.79	0.154	8.6	105.5 (0)
22-23	0.052	3.28	14.9	N.D.	-9	0.068	1.74	0.119	0.055	2.62	0.157	9.7	101.5 (0)
23-24	0.043	3.04	15.8	N.D.	-9	0.064	1.83	0.119	0.055	2.83	0.157	11.0	101.8 (0)

SUMMARY FOR THE PAST 48 HOURS

STATION	HOURLY SO2	HOURLY TP	HOURLY CO	HOURLY NO	HOURLY O3	12 HOUR SO2	12 HOUR TP	12 HOUR O3 PRODUCT	24 HOUR SO2	24 HOUR TP	24 HOUR O3 PRODUCT	8 HOUR CO		DEX
DATE 11/18/1975														
0- 1	0.065	3.40	16.6	N.D.	-9	0.061	3.97	0.122	0.055	2.82	0.157	12.0	10	5 (0)
1- 2	0.036	2.32	12.7	N.D.	-9	0.060	2.14	0.121	0.055	2.81	0.157	14.7	10	2 (0)
2- 3	0.036	3.4	16.4	N.D.	-9	0.060	2.14	0.121	0.055	2.81	0.161	13.4	10	1 (0)
3- 4	0.034	3.03	7.7	N.D.	-9	0.060	2.51	0.122	0.055	2.90	0.162	13.4	10	0 (0)
4- 5	0.029	2.85	7.4	N.D.	-9	0.057	2.65	0.153	0.056	2.92	0.163	12.6	10	3 (0)
5- 6	0.029	2.81	9.2	N.D.	-9	0.052	2.79	0.196	0.055	2.91	0.162	11.4	11	0 (0)
6- 7	0.032	4.03	11.7	N.D.	-9	0.047	3.03	0.144	0.055	2.90	0.161	11.0	11	0 (0)
7- 8	0.042	4.55	17.5	N.D.	-9	0.043	3.39	0.166	0.054	2.89	0.159	11.3	11	2 (0)
8- 9	0.056	6.56	23.8	N.D.	-9	0.041	3.68	0.193	0.055	2.91	0.161	12.6	10	0 (0)
9-10	0.056	6.05	24.6	N.D.	-9	0.040	3.85	0.157	0.055	2.90	0.160	13.9	9	7 (0)
10-11	0.062	6.47	24.5	N.D.	-9	0.041	4.14	0.173	0.054	2.96	0.162	15.7	8	8 (0)
11-12	0.079	5.35	23.5	N.D.	-9	0.046	4.33	0.196	0.056	3.08	0.169	17.6	8	8 (0)
12-13	0.065	3.07	13.4	N.D.	-9	0.046	4.31	0.200	0.054	3.14	0.170	18.4	8	2 (0)
13-14	0.046	2.24	8.7	N.D.	-9	0.047	4.25	0.202	0.054	3.19	0.173	18.6	8	8 (0)
14-15	0.034	1.84	7.7	N.D.	-9	0.047	4.13	0.195	0.053	3.23	0.173	17.9	8	7 (0)
15-16	0.038	1.53	9.0	N.D.	-9	0.047	4.00	0.190	0.053	3.26	0.176	16.9	8	5 (0)
16-17	0.051	2.52	14.4	N.D.	-9	0.049	3.97	0.196	0.053	3.31	0.177	15.7	9	9 (0)
17-18	0.062	1.66	10.3	N.D.	-9	0.052	3.87	0.202	0.052	3.33	0.175	13.9	9	0 (0)
18-19	0.041	1.68	10.7	N.D.	-9	0.052	3.68	0.195	0.050	3.36	0.169	12.2	9	0 (0)
19-20	0.051	2.50	21.0	N.D.	-9	0.053	3.48	0.187	0.048	3.41	0.165	11.9	9	0 (0)
20-21	0.043	4.14	20.5	N.D.	-9	0.052	3.28	0.173	0.047	3.48	0.164	12.7	9	5 (0)
21-22	0.041	3.54	19.8	N.D.	-9	0.051	3.07	0.159	0.046	3.46	0.160	14.1	9	7 (0)
22-23	0.038	3.40	19.6	N.D.	-9	0.049	2.79	0.139	0.045	3.47	0.158	15.6	9	4 (0)
23-24	0.029	3.31	16.1	N.D.	-9	0.045	2.62	0.119	0.045	3.48	0.157	16.5	9	7 (0)
DATE 11/19/1975														
0- 1	0.024	3.21	13.3	N.D.	-9	0.042	2.63	0.111	0.044	3.47	0.153	16.4	11	2 (0)
1- 2	0.020	3.63	11.4	N.D.	-9	0.039	2.75	0.110	0.043	3.50	0.153	16.5	11	9 (0)
2- 3	0.022	3.37	9.4	N.D.	-9	0.038	2.87	0.112	0.043	3.50	0.151	16.3	11	6 (0)
3- 4	0.024	3.23	8.1	N.D.	-9	0.037	3.02	0.114	0.042	3.51	0.150	14.7	11	7 (0)
4- 5	0.020	2.97	7.1	N.D.	-9	0.035	3.05	0.107	0.042	3.51	0.148	13.1	11	7 (0)
5- 6	0.034	3.05	8.0	N.D.	-9	0.032	3.17	0.104	0.042	3.52	0.150	11.6	11	1 (0)
6- 7	0.036	3.67	9.4	N.D.	-9	0.032	3.34	0.108	0.042	3.51	0.150	10.3	11	7 (0)
7- 8	0.050	3.87	12.9	N.D.	-9	0.032	3.45	0.111	0.042	3.47	0.149	9.9	11	5 (0)
8- 9	0.048	5.32	17.7	N.D.	-9	0.032	3.55	0.116	0.042	3.41	0.146	10.5	11	3 (0)
9-10	0.052	5.31	25.1	N.D.	-9	0.033	3.70	0.124	0.042	3.38	0.144	12.2	11	1 (0)
10-11	0.070	6.42	32.3	N.D.	-9	0.036	3.95	0.143	0.042	3.37	0.145	15.0	11	8 (0)
11-12	0.104	6.51	28.7	N.D.	-9	0.042	4.21	0.179	0.043	3.42	0.150	17.6	11	5 (0)
12-13	0.169	6.93	24.8	N.D.	-9	0.054	4.52	0.247	0.048	3.58	0.173	19.8	11	8 (0)
13-14	0.121	6.09	18.3	N.D.	-9	0.063	4.73	0.298	0.051	3.74	0.192	21.1	11	5 (0)
14-15	0.081	3.30	11.3	N.D.	-9	0.067	4.72	0.321	0.053	3.80	0.203	21.3	11	0 (0)
15-16	0.113	1.71	10.6	N.D.	-9	0.075	4.60	0.347	0.056	3.81	0.215	21.1	11	3 (0)
16-17	0.114	1.66	9.4	N.D.	-9	0.083	4.49	0.374	0.059	3.77	0.223	20.0	11	2 (0)
17-18	0.119	2.18	16.1	N.D.	-9	0.090	4.41	0.399	0.061	3.79	0.233	18.9	11	7 (0)
18-19	0.102	4.62	29.3	N.D.	-9	0.095	4.49	0.431	0.064	3.91	0.251	18.5	11	4
19-20	0.078	4.02	24.2	N.D.	-9	0.098	4.51	0.442	0.065	3.98	0.2[illegible]	[illegible]	[illegible]	[illegible]
20-21	0.072	4.71	19.8	N.D.	-9	0.100	4.46	0.446	0.066	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21-22	0.065	3.55	19.9	N.D.	-9	0.101	4.31	0.436	0.067	[illegible]	[illegible]	[illegible]	[illegible]	(0)
22-23	0.056	3.33	16.6	N.D.	-9	0.099	4.05	0.405	0.067	[illegible]	0.272	18.2	[illegible]	0 (0)
23-24	0.050	3.11	14.2	N.D.	-9	0.095	[illegible]	0.360	0.068	3.99	0.275	18.6	[illegible]	1 (0)

SUMMARY FOR THE PAST 24 HOURS

STATION	DOWNWIND HOURLY					12 HOUR			24 HOUR			8 HOUR		
	SO2	TP	CO	NO	WS	SO2	TP	PRODUCT	SO2	TP	PRODUCT	CO	T	X
DATE 11/20/1975														
0- 1	0.042	3.46	12.6	N.D.	-9	0.064	3.48	0.295	0.069	4.00	0.279	19.0	16	(0)
1- 2	0.053	4.42	9.2	N.D.	-9	0.070	3.36	0.266	0.071	4.12	0.287	18.2	15	(0)
2- 3	0.055	4.11	9.2	N.D.	-9	0.076	3.41	0.262	0.072	4.06	0.283	15.7	16	(0)
3- 4	0.053	4.14	8.6	N.D.	-9	0.071	3.41	0.260	0.073	4.10	0.302	13.7	16	101
4- 5	0.052	3.70	7.3	N.D.	-9	0.066	3.78	0.293	0.074	4.14	0.310	12.1	16	(0)
5- 6	0.054	3.58	7.5	N.D.	-9	0.061	3.90	0.249	0.076	4.16	0.315	10.6	16	101
6- 7	0.060	4.55	10.9	N.D.	-9	0.057	3.89	0.225	0.076	4.19	0.332	9.8	16	(0)
7- 8	0.056	5.26	17.6	N.D.	-9	0.058	3.99	0.234	0.078	4.25	0.344	10.3	15	101
8- 9	0.062	6.60	22.6	N.D.	-9	0.057	4.15	0.240	0.078	4.30	0.340	11.6	15	(0)
9-10	0.080	7.28	25.0	N.D.	-9	0.058	4.46	0.264	0.080	4.39	0.391	13.5	15	(0)
10-11	0.073	6.76	16.7	N.D.	-9	0.060	4.75	0.288	0.080	4.40	0.353	14.5		(0)
11-12	0.033	1.71	7.6	N.D.	-9	0.059	4.63	0.274	0.077	4.20	0.325	14.4	1	101
12-13	0.024	1.39	5.0	N.D.	-9	0.057	4.46	0.257	0.071	3.97	0.283	14.1	14	(0)
13-14	0.016	1.12	5.0	N.D.	-9	0.056	4.18	0.228	0.066	3.76	0.252	13.7	13	101
14-15	0.012	1.18	4.9	N.D.	-9	0.050	3.94	0.201	0.063	3.67	0.235	13.0	12	(0)
15-16	0.013	1.45	4.7	N.D.	-9	0.047	3.72	0.177	0.059	3.66	0.219	11.4	12	101
16-17	0.025	0.96	6.0	N.D.	-9	0.045	3.49	0.158	0.056	3.63	0.204	9.3	1	(0)
17-18	0.063	1.21	6.6	N.D.	-9	0.046	3.29	0.152	0.053	3.59	0.193	7.0	1	(0)
18-19	0.091	1.31	4.1	N.D.	-9	0.048	3.02	0.147	0.053	3.45	0.184	5.4	11	(0)
19-20	0.045	1.47	4.8	N.D.	-9	0.045	2.70	0.123	0.051	3.35	0.174	5.1	11	101
20-21	0.042	1.08	3.3	N.D.	-9	0.043	2.24	0.098	0.050	3.20	0.162	4.9	11	(0)
21-22	0.041	0.75	1.9	N.D.	-9	0.040	1.70	0.069	0.049	3.08	0.153	4.5	10	101
22-23	0.058	0.70	1.5	N.D.	-9	0.039	1.19	0.047	0.049	2.97	0.148	4.1	10	(0)
23-24	0.029	0.42	1.5	N.D.	-9	0.038	1.09	0.042	0.048	2.86	0.140	3.7	10	101

STATION [illegible] FOSTER HARBOR

SUMMARY FOR THE PAST 48 HOURS

	HOURLY SO2	HOURLY PP	HOURLY SD	HOURLY MS	12 HOUR SO2	12 HOUR PP	12 HOUR PRODUCT	24 HOUR SO2	24 HOUR PP	24 HOUR PRODUCT	INDEX
DATE 11/16/1975											
0- 1	0.068	0.57	SSE	5	0.066	0.56	0.028	0.04[illegible]	0.51	0.021	.5 (0
1- 2	0.064	[illegible]	SE	6	0.067	0.56	0.029	0.065	0.52	0.021	.7 (0
2- 3	[illegible]	[illegible]	SSE	6	0.067	0.56	0.029	0.061	0.52	0.022	.9 (0
3- 4	0.066	0.60	SSE	4	0.062	0.59	0.032	0.062	0.53	0.024	.7 (0
4- 5	0.071	0.66	SSE	4	0.057	0.59	0.035	0.066	0.54	0.024	.3 (0
5- 6	0.068	0.58	SSE	6	0.062	0.57	0.036	0.064	0.53	0.025	.0 (0
6- 7	0.064	0.52	SE	4	0.062	0.55	0.036	0.067	0.52	0.025	.3 (0
7- 8	0.067	0.56	SSE	4	0.061	0.52	0.032	0.065	0.52	0.026	.6 (0
8- 9	0.061	0.[illegible]	SSE	6	0.060	0.51	0.031	0.049	0.52	0.026	.7 (0
9-10	0.067	0.60	WSW	4	0.061	0.52	0.032	0.050	0.52	0.027	.3 (0
10-11	0.073	0.59	W	5	0.061	0.52	0.033	0.052	0.52	0.028	.0 (0
11-12	0.064	0.[illegible]	SSW	6	0.062	0.50	0.032	0.052	0.52	0.029	.5 (0
12-13	0.067	0.[illegible]	WSW	5	0.063	0.50	0.032	0.053	0.53	0.029	0 (0
13-14	0.066	0.67	SSW	6	0.063	0.52	0.033	0.055	0.53	0.031	.9 (0
14-15	0.058	0.[illegible]	SW	5	0.060	0.52	0.034	0.056	0.53	0.032	.4 (0
15-16	0.055	[illegible]	WSW	5	0.063	0.53	0.036	0.058	0.56	0.033	.1 (0
16-17	0.059	[illegible]	SSW	4	0.061	0.56	0.035	0.059	0.58	0.035	.1 (0
17-18	0.062	0.86	SW	2	0.058	0.60	0.035	0.060	0.58	0.036	.6 (0
18-19	0.059	0.83	SSE	2	0.056	0.64	0.036	0.059	0.59	0.035	.5 (0
19-20	0.059	1.54	WSW	1	0.055	0.74	0.041	0.058	0.63	0.037	2 (0
20-21	0.061	2.57	SSW	1	0.056	0.91	0.051	0.058	0.71	0.[illegible]	2 (0
21-22	0.106	5.60	SE	2	0.059	1.32	0.079	0.060	0.92	0.056	4 (0
22-23	0.126	4.22	SSE	3	0.063	1.52	0.104	0.062	1.07	0.068	5 (0
23-24	0.116	4.35	SE	3	0.068	1.92	0.[illegible]	0.065	1.21	0.079	5 (0
DATE 11/17/1975											
0- 1	0.112	4.05	SSE	2	0.072	2.21	0.161	0.067	1.36	0.093	6 (0
1- 2	0.086	4.10	S	3	0.074	2.50	0.187	0.069	1.51	0.105	4 (0
2- 3	0.075	3.18	SE	2	0.076	2.72	0.207	0.070	1.62	0.114	3 (0
3- 4	0.070	3.26	SSW	1	0.077	2.94	0.228	0.070	1.74	0.123	5 (0
4- 5	0.053	2.08	SSE	2	0.077	3.05	0.237	0.069	1.81	0.126	2 (0
5- 6	0.075	1.67	SSE	4	0.080	3.12	0.251	0.069	1.86	0.129	4 (0
6- 7	0.073	1.20	SSE	3	0.083	3.15	0.263	0.069	1.[illegible]	0.132	8 (0
7- 8	0.089	1.30	SSE	4	0.087	3.13	0.274	0.071	1.94	0.139	5 (0
8- 9	0.127	0.92	SSE	4	0.092	3.00	0.279	0.074	1.95	0.146	2 (0
9-10	0.189	0.57	SE	5	0.099	2.58	0.258	0.079	1.95	0.156	9 (0
10-11	0.152	2.10	SSE	4	0.101	2.40	0.245	0.082	2.01	0.167	9 (0
11-12	0.088	1.30	SE	5	0.099	2.15	0.214	0.083	2.03	0.171	9 (0
12-13	0.087	1.30	SE	5	0.097	1.92	0.187	0.085	2.06	0.176	2 (0
13-14	0.067	0.67	SW	5	0.[illegible]	1.63	0.157	0.085	2.06	0.176	2 (0
14-15	0.063	0.51	SSW	6	0.093	1.41	0.132	0.084	2.06	0.175	0 (0
15-16	0.035	0.40	SSW	5	0.090	1.17	0.106	0.083	2.06	0.173	5 (0
16-17	0.061	0.67	SW	5	0.089	1.05	0.094	0.085	2.05	0.172	.3 (0
17-18	0.053	0.81	SW	4	0.087	0.98	0.086	0.083	2.05	0.172	.4 (0
18-19	0.111	0.76	SSW	4	0.090	0.94	0.086	0.086	2.05	0.175	.4 (0
19-20	0.138	0.90	SSW	4	0.094	0.91	0.087	0.091	2.02	0.166	1 (0
20-21	0.116	1.66	NNE	3	0.093	0.97	0.087	0.093	1.96	0.163	1 (0
21-22	0.068	1.79	S	1	0.085	1.02	0.088	0.092	1.80	0.167	2 (0
22-23	0.082	2.29	SSW	1	0.079	1.04	0.083	0.090	1.72	0.156	.2 (0
23-24	0.127	6.01	SE	3	0.082	1.43	0.119	0.091	1.79	0.163	.4 (0

SUMMARY FOR THE PAST 48 HOURS

STATION NORTH BRANCH, MI

HOURLY					12 HOUR			24 HOUR			
	SO2	FP	WD	WS	SO2	FP	PRODUCT	SO2	FP	PRODUCT	
DATE 11/18/1975											
0- 1	0.230	8.45	SE	5	0.094	2.03	0.192	0.096	1.97	0.190	91.
1- 2	0.186	8.13	SE	6	0.104	2.65	0.277	0.100	2.14	0.215	87.
2- 3	0.159	7.44	SE	4	0.114	3.24	0.371	0.103	2.33	0.242	104.
3- 4	0.128	7.93	SE	4	0.121	3.83	0.467	0.106	2.56	0.266	110.
4- 5	0.101	8.56	SE	3	0.126	4.48	0.570	0.108	2.77	0.300	118.
5- 6	0.193	10.26	SE	6	0.131	5.27	0.696	0.109	3.12	0.343	129.
6- 7	0.098	10.24	SE	4	0.130	6.06	0.791	0.110	3.50	0.388	140.
7- 8	0.102	7.71	SE	4	0.127	6.64	0.946	0.111	3.77	0.420	144.
8- 9	0.154	7.70	SE	4	0.130	7.19	0.940	0.112	4.06	0.456	157.
9-10	0.191	7.26	SE	5	0.139	7.65	1.065	0.112	4.33	0.487	165.
10-11	0.184	6.52	SSE	4	0.147	8.09	1.182	0.113	4.52	0.514	171.
11-12	0.124	4.20	SSE	4	0.147	7.88	1.158	0.115	4.64	0.535	175.
12-13	0.109	2.41	S	3	0.137	7.43	1.009	0.116	4.69	0.544	177.
13-14	0.079	2.23	W	4	0.128	6.90	0.888	0.116	4.70	0.557	179.
14-15	0.042	1.11	WSW	5	0.118	6.36	0.756	0.116	4.70	0.560	180.
15-16	0.051	1.02	W	4	0.112	5.84	0.655	0.117	4.83	0.566	181.
16-17	0.052	1.15	SSW	4	0.108	5.21	0.565	0.117	4.86	0.571	182.
17-18	0.062	1.04	WSW	3	0.104	4.44	0.465	0.118	4.86	0.574	182.
18-19	0.064	0.63	ENE	4	0.101	3.64	0.371	0.116	4.85	0.563	181.
19-20	0.053	0.72	SSW	2	0.097	3.01	0.298	0.112	4.64	0.545	184.
20-21	0.059	1.35	WSW	1	0.089	2.57	0.231	0.110	4.58	0.538	180.
21-22	0.079	3.15	S	1	0.080	2.46	0.198	0.109	5.05	0.555	185.
22-23	0.103	6.25	SSE	2	0.073	2.61	0.192	0.110	5.30	0.587	192.
23-24	0.098	4.51	S	1	0.071	2.63	0.188	0.109	5.26	0.574	190.
DATE 11/19/1975											
0- 1	0.069	4.35	NE	0	0.068	2.79	0.190	0.102	5.07	0.521	183.
1- 2	0.079	4.21	SW	0	0.068	2.91	0.198	0.098	4.91	0.483	177.
2- 3	0.099	6.39	SSE	1	0.072	3.18	0.232	0.099	4.77	0.467	177.
3- 4	0.089	3.95	SE	1	0.075	3.43	0.260	0.096	4.63	0.446	167.
4- 5	0.057	2.91	W	1	0.075	3.65	0.279	0.092	4.43	0.403	161.
5- 6	0.031	2.80	W	0	0.073	3.79	0.280	0.089	4.12	0.367	151.
6- 7	0.025	3.34	WSW	1	0.070	4.02	0.284	0.086	3.83	0.330	141.
7- 8	0.027	3.39	SSW	1	0.068	4.24	0.290	0.082	3.65	0.303	135.
8- 9	0.055	6.61	SSW	3	0.068	4.46	0.303	0.076	3.51	0.277	129.
9-10	0.063	3.77	S	4	0.066	4.27	0.285	0.073	3.36	0.248	123.
10-11	0.116	6.10	SSE	4	0.067	4.09	0.276	0.070	3.35	0.236	122.
11-12	0.125	5.70	SSE	4	0.069	4.19	0.294	0.070	3.41	0.241	123.
12-13	0.082	2.90	S	4	0.071	4.04	0.289	0.069	3.43	0.239	124.
13-14	0.073	2.65	S	4	0.070	3.93	0.278	0.069	3.42	0.238	124.
14-15	0.100	2.99	SW	4	0.070	3.74	0.265	0.071	3.56	0.269	128.
15-16	0.118	3.35	SW	4	0.073	3.53	0.258	0.074	3.65	0.270	127.
16-17	0.124	3.61	S	4	0.078	3.34	0.264	0.077	3.69	0.284	128.
17-18	0.112	1.70	SSW	3	0.086	3.24	0.276	0.079	3.51	0.279	128.
18-19	0.102	2.02	SSE	1	0.091	3.17	0.287	0.080	3.57	0.296	132.
19-20	0.098	2.32	SSW	1	0.097	3.04	0.297	0.083	3.63	0.302	134.
20-21	0.093	2.74	SSW	1	0.100	2.89	0.292	0.084	3.67	0.310	136.
21-22	0.102	4.44	SSW	0	0.104	2.96	0.299	0.085	3.66	0.308	134.
22-23	0.091	4.24	SSW	0	0.102	2.76	0.277	0.086	3.60	0.289	123.
23-24	0.063	3.59	SW	0	0.097	2.51	0.245	0.083	3.45	0.276	124.

SUMMARY FOR THE PAST 24 MONTHS

	0.056	2.41		1	0.055	2.50	0.038	0.077	3.39	0.274	124.
1- 2	0.050	2.55	S	1	0.051	2.53	0.037	0.071	3.52	0.261	122.
	0.050	2.55	S	2	0.051	2.52	0.037	0.070	3.51	0.259	120.
	0.051	2.61	S	2	0.052	2.46	0.037	0.071	3.37	0.266	122.
	0.049	2.69	S	2	0.050	2.41	0.036	0.071	3.43	0.272	122.
	0.047	2.72	S	2	0.049	2.42	0.035	0.071	3.43	0.263	118.
7- 8	0.045	2.76	S	2	0.045	2.44	0.035	0.071	3.43	0.266	118.
8- 9	0.043	2.79	S	2	0.041	2.46	0.034	0.070	3.45	0.261	119.
	0.050	2.80	SSE	4	0.048	2.47	0.035	0.070	3.43	0.260	119.
	0.042	2.87	S	4	0.045	2.49	0.034	0.070	3.43	0.261	119.
11-12	0.038	2.95	SSE	5	0.045	2.47	0.034	0.069	3.46	0.261	119.
12- 1	0.105	2.43	S	5	0.050	2.47	0.035	0.070	2.46	0.231	113.
1- 2	0.043	2.50	S	7	0.060	2.34	0.034	0.077	2.52	0.223	112.
2- 3	0.035	1.40	S	6	0.060	2.21	0.035	0.076	2.57	0.219	110.
3- 4	0.041	1.01	S	7	0.059	2.03	0.034	0.075	2.62	0.208	107.
4- 5	0.035	1.03	S	6	0.057	2.06	0.035	0.072	2.61	0.197	106.
5- 6	0.052	1.03	SSE	5	0.058	2.06	0.035	0.066	2.76	0.187	104.
6- 7	0.046	1.10	SSE	4	0.060	2.52	0.037	0.066	2.77	0.[illegible]	103.
7- 8	0.047	1.20	ESE	5	0.059	2.34	0.039	0.062	2.74	0.171	101.
8- 9	0.042	0.72	SE	5	0.057	2.09	0.121	0.059	2.47	0.160	98.
	0.050	1.25	SSE	6	0.056	1.89	0.196	0.057	2.41	0.150	96.
	0.065	1.	SE	7	0.055	1.66	0.092	0.055	2.34	0.141	93.
23-	0.028	1.08	SSE	9	0.050	1.41	0.072	0.053	2.39	0.127	89.
23-24	0.034	0.70	SE	8	0.044	1.18	0.053	0.051	2.28	0.119	84.

SUMMARY FOR THE PAST 48 HOURS

STATION GLASSPORT HOURLY

	SO2	FP	WD	WS	12 HOUR SO2	12 HOUR FP	12 HOUR PRODUCT	24 HOUR SO2	24 HOUR FP	24 HOUR PRODUCT	INDEX	
DATE 11/16/1975												
0- 1	0.019	0.63	N.D.	-9	0.018	0.60	0.011	0.014	0.58	0.008	21.1	(0)
1- 2	0.038	0.93	N.D.	-9	0.021	0.63	0.013	0.015	0.57	0.009	22.0	(0)
2- 3	0.030	0.62	N.D.	-9	0.022	0.65	0.015	0.015	0.56	0.009	22.1	(0)
3- 4	0.019	0.58	N.D.	-9	0.023	0.67	0.016	0.016	0.56	0.009	22.3	(0)
4- 5	0.015	0.50	N.D.	-9	0.023	0.66	0.016	0.016	0.56	0.010	22.4	(0)
5- 6	0.016	0.62	N.D.	-9	0.023	0.69	0.016	0.017	0.57	0.010	22.8	(0)
6- 7	0.013	0.64	N.D.	-9	0.022	0.68	0.016	0.017	0.58	0.010	23.1	(0)
7- 8	0.009	0.92	N.D.	-9	0.021	0.71	0.015	0.017	0.58	0.010	23.3	(0)
8- 9	0.010	0.70	N.D.	-9	0.020	0.71	0.015	0.017	0.60	0.011	23.6	(0)
9-10	0.015	0.64	N.D.	-9	0.018	0.71	0.013	0.017	0.61	0.011		(0)
10-11	0.019	0.65	N.D.	-9	0.018	0.68	0.013	0.018	0.62	0.011		(0)
11-12	0.019	0.68	N.D.	-9	0.019	0.68	0.013	0.018	0.63	0.011		(0)
12-13	0.019	0.60	N.D.	-9	0.019	0.67	0.013	0.018	0.64	0.012		(0)
13-14	0.017	0.61	N.D.	-9	0.017	0.65	0.011	0.019	0.64	0.012		(0)
14-15	0.019	0.52	N.D.	-9	0.016	0.64	0.011	0.019	0.64	0.012		(0)
15-16	0.026	0.70	N.D.	-9	0.016	0.65	0.011	0.020	0.66	0.013		(0)
16-17	0.024	0.63	N.D.	-9	0.017	0.66	0.012	0.020	0.66	0.014		(0)
17-18	0.016	0.79	N.D.	-9	0.017	0.67	0.012	0.020	0.68	0.014		(0)
18-19	0.011	0.88	N.D.	-9	0.017	0.69	0.012	0.020	0.69	0.014		(0)
19-20	0.009	0.96	N.D.	-9	0.017	0.70	0.012	0.019	0.70	0.014		(0)
20-21	0.011	1.23	N.D.	-9	0.017	0.74	0.013	0.019	0.73	0.014		(0)
21-22	0.013	1.49	N.D.	-9	0.017	0.81	0.014	0.018	0.76	0.014		(0)
22-23	0.012	1.32	N.D.	-9	0.016	0.87	0.015	0.017	0.77	0.014		(0)
23-24	0.012	1.42	N.D.	-9	0.016	0.93	0.015	0.017	0.80	0.014		(0)
DATE 11/17/1975												
0- 1	0.012	1.30	N.D.	-9	0.015	0.99	0.016	0.017	0.83	0.014		(0)
1- 2	0.010	1.75	N.D.	-9	0.015	1.08	0.016	0.016	0.86	0.014		(0)
2- 3	0.010	1.47	N.D.	-9	0.014	1.16	0.017	0.015	0.90	0.014		(0)
3- 4	0.010	1.73	N.D.	-9	0.013	1.25	0.016	0.014	0.95	0.013		(0)
4- 5	0.010	2.31	N.D.	-9	0.011	1.39	0.016	0.014	1.03	0.014		(0)
5- 6	0.009	2.63	N.D.	-9	0.011	1.54	0.017	0.014	1.11	0.016		
6- 7	0.010	2.51	N.D.	-9	0.011	1.68	0.019	0.014	1.19	0.017		(0)
7- 8	0.012	3.44	N.D.	-9	0.011	1.88	0.022	0.014	1.29	0.019		(0)
8- 9	0.018	4.21	N.D.	-9	0.012	2.13	0.026	0.014	1.44	0.021		(0)
9-10	0.020	4.30	N.D.	-9	0.012	2.37	0.030	0.015	1.59	0.024		(0)
10-11	0.042	2.49	N.D.	-9	0.015	2.46	0.037	0.015	1.67	0.027		(0)
11-12	0.032	1.35	N.D.	-9	0.016	2.46	0.041	0.016	1.69	0.028		(0)
12-13	0.038	0.76	N.D.	-9	0.018	2.41	0.046	0.017	1.70	0.029		(0)
13-14	0.022	0.76	N.D.	-9	0.019	2.33	0.047	0.017	1.71	0.030		(0)
14-15	0.009	0.43	N.D.	-9	0.019	2.24	0.045	0.017	1.70	0.029		(0)
15-16	0.007	0.47	N.D.	-9	0.019	2.14	0.042	0.016	1.69	0.028		(0)
16-17	0.007	0.62	N.D.	-9	0.019	2.00	0.039	0.015	1.69	0.026		(0)
17-18	0.007	1.38	N.D.	-9	0.019	1.89	0.036	0.015	1.72	0.026		(0)
18-19	0.015	0.95	N.D.	-9	0.019	1.76	0.035	0.015	1.72	0.027		(0)
19-20	0.021	1.07	N.D.	-9	0.020	1.57	0.032	0.015	1.72	0.027		(0)
20-21	0.019	1.45	N.D.	-9	0.020	1.34	0.027	0.016	1.73	0.028		(0)
21-22	0.018	1.83	N.D.	-9	0.020	1.13	0.023	0.016	1.75	0.029		(0)
22-23	0.019	1.93	N.D.	-9	0.018	1.08	0.020	0.016	1.77	0.030		(0)
23-24	0.018	2.29	N.D.	-9	0.017	1.16	0.020	0.016	1.81	0.031		(0)

SUMMARY FOR THE PAST 48 HOURS

STATION GLASSPORT

	SO2	TP			12 HOUR TP	PRECIP	SO2	TP	24 HOUR PRECIPI		
DATE 11/19/1975											
0- 1	0.016	1.70	N.D.	-9	0.015	1.24	0.019	0.017	1.84	0.034	(0)
1- 2	0.012	1.72	N.D.	-9	0.014	1.32	0.019	0.014	1.83	0.032	(0)
2- 3	0.013	1.4	N.D.	-9	0.015	1.41	0.021	0.017	1.84	0.032	(0)
3- 4	0.015	1.59	N.D.	-9	0.015	1.53	0.026	0.017	1.83	0.042	(0)
4- 5	0.017	2.47	N.D.	-9	0.016	1.68	0.029	0.017	1.86	0.034	(0)
5- 6	0.013	3.00	N.D.	-9	0.017	1.82	0.032	0.015	1.86	0.036	(0)
6- 7	0.018	3.32	N.D.	-9	0.017	2.02	0.036	0.015	1.89	0.045	(0)
7- 8	0.017	3.10	N.D.	-9	0.017	2.25	0.039	0.015	1.90	0.036	(0)
8- 9	0.018	4.30	N.D.	-9	0.017	2.69	0.044	0.015	1.91	0.046	(0)
9-10	0.022	3.90	N.D.	-9	0.017	2.66	0.047	0.015	1.89	0.036	(0)
10-11	0.050	3.65	N.D.	-9	0.020	2.88	0.056	0.019	1.94	0.037	(0)
11-12	0.058	2.06	N.D.	-9	0.023	2.78	0.065	0.020	1.97	0.040	(0)
12-13	0.024	1.42	N.D.	-9	0.024	2.76	0.067	0.019	2.00	0.040	(0)
13-14	0.012	0.86	N.D.	-9	0.023	2.68	0.065	0.019	2.00	0.039	(0)
14-15	0.009	0.54	N.D.	-9	0.023	2.61	0.062	0.019	2.01	0.039	(0)
15-16	0.010	0.56	N.D.	-9	0.023	2.69	0.058	0.019	2.01	0.039	(0)
16-17	0.013	1.19	N.D.	-9	0.022	2.39	0.055	0.019	2.03	0.040	(0)
17-18	0.009	1.19	N.D.	-9	0.022	2.24	0.050	0.019	2.03	0.040	(0)
18-19	0.006	1.13	N.D.	-9	0.021	2.05	0.044	0.019	2.03	0.040	(0)
19-20	0.006	0.95	N.D.	-9	0.020	1.82	0.037	0.018	2.03	0.038	(0)
20-21	0.009	1.96	N.D.	-9	0.019	1.61	0.032	0.018	2.05	0.038	(0)
21-22	0.008	1.62	N.D.	-9	0.018	1.42	0.026	0.017	2.04	0.037	(0)
22-23	0.008	1.70	N.D.	-9	0.014	1.26	0.019	0.017	2.03	0.036	(0)
23-24	0.010	2.05	N.D.	-9	0.010	1.26	0.014	0.017	2.02	0.035	(0)
DATE 11/19/1975											
0- 1	0.011	2.37	N.D.	-9	0.009	1.34	0.013	0.016	2.05	0.035	(0)
1- 2	0.014	3.14	N.D.	-9	0.009	1.53	0.015	0.016	2.11	0.036	(0)
2- 3	0.016	3.95	N.D.	-9	0.010	1.82	0.019	0.017	2.21	0.038	(0)
3- 4	0.018	4.20	N.D.	-9	0.011	2.12	0.024	0.017	2.31	0.040	(0)
4- 5	0.020	4.33	N.D.	-9	0.012	2.38	0.030	0.017	2.38	0.042	(0)
5- 6	0.018	4.09	N.D.	-9	0.013	2.62	0.035	0.017	2.43	0.043	(0)
6- 7	0.016	5.46	N.D.	-9	0.014	2.99	0.042	0.017	2.52	0.045	(0)
7- 8	0.022	5.79	N.D.	-9	0.015	3.39	0.053	0.017	2.60	0.047	(0)
8- 9	0.030	7.36	N.D.	-9	0.017	3.84	0.066	0.018	2.72	0.050	(0)
9-10	0.039	6.09	N.D.	-9	0.019	4.21	0.084	0.019	2.82	0.054	(0)
10-11	0.051	6.87	N.D.	-9	0.023	4.64	0.109	0.019	2.95	0.057	(0)
11-12	0.064	7.61	N.D.	-9	0.027	5.10	0.143	0.019	3.18	0.062	(0)
12-13	0.095	5.72	N.D.	-9	0.034	5.63	0.192	0.021	3.49	0.077	(0)
13-14	0.056	2.67	N.D.	-9	0.037	5.59	0.210	0.023	3.56	0.085	(0)
14-15	0.058	1.41	N.D.	-9	0.041	5.38	0.221	0.025	3.60	0.093	(0)
15-16	0.039	1.12	N.D.	-9	0.042	5.13	0.219	0.026	3.62	0.098	(0)
16-17	0.031	1.97	N.D.	-9	0.043	4.93	0.212	0.027	3.66	0.101	(0)
17-18	0.021	1.59	N.D.	-9	0.044	4.72	0.204	0.028	3.67	0.104	(0)
18-19	0.015	1.28	N.D.	-9	0.043	4.37	0.188	0.028	3.68	0.105	(0)
19-20	0.013	1.83	N.D.	-9	0.042	4.04	0.171	0.028	3.72	0.107	(0)
20-21	0.015	2.00	N.D.	-9	0.041	3.60	0.148	0.029	3.72	0.108	(0)
21-22	0.014	1.67	N.D.	-9	0.038	3.23	0.126	0.029	3.72	0.109	(0)
22-23	0.016	1.82	N.D.	-9	0.036	2.81	0.101	0.029	3.72	0.111	(0)
23-24	0.022	2.48	N.D.	-9	0.032	2.38	0.078	0.030	3.74	0.113	(0)

SUMMARY FOR THE PAST 24 HOURS

STATION CLASSIFICATION

HOURLY

	12 HOUR				24 HOUR					
	SO2	PB			SO2	PB	PRODUCT	SO2	PB	PRODUCT	INDEX
DATE 11/20/1975			NO	OS							
0- 1	0.024	3.20	N.D.	-9	0.027	1.72	0.053	0.040	3.78	0.117	12 (0)
1- 2	0.023	4.15	N.D.	-9	0.024	2.04	0.051	0.031	3.12	0.119	12 (0)
2- 3	0.025	3.00	N.D.	-9	0.022	2.25	0.050	0.031	4.12	0.121	12 (0)
3- 4	0.026	3.05	N.D.	-9	0.020	2.49	0.052	0.031	3.81	0.121	12 (0)
4- 5	0.018	3.23	N.D.	-9	0.019	2.59	0.052	0.031	3.76	0.118	12 (0)
5- 6	0.019	3.72	N.D.	-9	0.019	2.77	0.055	0.031	3.74	0.118	11 (0)
6- 7	0.021	3.87	N.D.	-9	0.020	2.89	0.060	0.031	4.08	0.116	11 (0)
7- 8	0.021	4.06	N.D.	-9	0.020	3.17	0.066	0.031	3.61	0.114	11 (0)
8- 9	0.024	4.72	N.D.	-9	0.021	3.40	0.073	0.031	3.50	0.110	11 (0)
9-10	0.026	5.63	N.D.	-9	0.022	3.71	0.086	0.030	3.47	0.107	11 (0)
10-11	0.040	5.23	N.D.	-9	0.024	3.99	0.098	0.030	3.40	0.103	(0)
11-12	0.035	3.62	N.D.	-9	0.025	4.09	0.105	0.029	3.23	0.094	1 (0)
12-13	0.013	1.33	N.D.	-9	0.024	3.93	0.097	0.026	2.93	0.076	9 (0)
13-14	0.009	0.87	N.D.	-9	0.023	3.66	0.086	0.024	2.85	0.069	8 (0)
14-15	0.006	0.72	N.D.	-9	0.021	3.39	0.074	0.021	2.82	0.062	8 (0)
15-16	0.010	0.59	N.D.	-9	0.020	3.11	0.064	0.020	2.80	0.058	(0)
16-17	0.017	1.04	N.D.	-9	0.020	2.93	0.060	0.020	2.76	0.056	(0)
17-18	0.018	2.12	N.D.	-9	0.020	2.80	0.057	0.020	2.78	0.056	(0)
18-19	0.015	1.77	N.D.	-9	0.020	2.62	0.053	0.020	2.80	0.056	(0)
19-20	0.013	1.47	N.D.	-9	0.019	2.61	0.047	0.020	2.79	0.056	(0)
20-21	0.018	0.97	N.D.	-9	0.018	2.10	0.040	0.020	2.75	0.056	(0)
21-22	0.007	0.62	N.D.	-9	0.017	1.70	0.029	0.019	2.70	0.054	(0)
22-23	0.007	0.53	N.D.	-9	0.014	1.30	0.019	0.019	2.65	0.052	(0)
23-24	0.011	0.48	N.D.	-9	0.012	1.04	0.013	0.019	2.57	0.049	(0)

STATION HAZELWOOD 2

HOURLY

SUMMARY FOR THE PAST 48 HOURS

	SO2	FP	WD	WS	12 HOUR SO2	12 HOUR FP	12 HOUR PRODUCT	24 HOUR SO2	24 HOUR FP	24 HOUR PRODUCT		X
DATE 11/16/1975												
0- 1	0.060	0.43	W	3	0.078	0.34	0.010	0.065	0.83	0.055	47.[illegible]	(0)
1- 2	0.072	0.43	W	4	0.082	0.36	0.012	0.059	0.68	0.041	41.[illegible]	(0)
2- 3	0.075	0.37	W	4	0.085	0.37	0.013	0.049	0.58	0.029	36.[illegible]	(0)
3- 4	0.064	0.32	W	3	0.087	0.42	0.012	0.045	0.52	0.024	31.[illegible]	(0)
4- 5	0.085	0.47	WSW	3	0.083	0.35	0.015	0.043	0.46	0.020	2[illegible].1	(0)
5- 6	0.090	0.47	W	3	0.089	0.46	0.018	0.044	0.41	0.018	27.[illegible]	(0)
6- 7	0.110	1.18	WSW	3	0.097	0.44	0.025	0.046	0.41	0.019	28.[illegible]	(0)
7- 8	0.102	0.77	WSW	4	0.064	0.48	0.031	0.050	0.43	0.022	30.7	(0)
8- 9	0.095	0.69	WSW	4	0.070	0.52	0.037	0.054	0.45	0.024	32.0	(0)
9-10	0.226	1.48	WNW	4	0.087	0.62	0.058	0.060	0.49	0.030	[illegible]	(0)
10-11	0.145	1.26	WSW	4	0.097	0.69	0.068	0.064	0.52	0.034		(0)
11-12	0.090	0.98	WSW	4	0.101	0.74	0.075	0.065	0.55	0.036		(0)
12-13	0.088	0.59	WSW	4	0.104	0.75	0.079	0.069	0.55	0.036		(0)
13-14	0.117	0.91	SW	4	0.107	0.79	0.086	0.069	0.57	0.040		(0)
14-15	0.126	1.67	WSW	4	0.111	0.90	0.101	0.073	0.63	0.047	[illegible]	(0)
15-16	0.072	1.13	WSW	4	0.112	0.97	0.109	0.075	0.64	0.049	[illegible]	(0)
16-17	0.047	0.64	SSW	3	0.109	0.98	0.108	0.076	0.66	0.051	[illegible]	(0)
17-18	0.062	0.50	SE	0	0.107	0.98	0.106	0.078	0.67	0.053	[illegible]	(0)
18-19	0.107	1.25	SE	0	0.106	0.99	0.106	0.082	0.71	0.059	[illegible]	(0)
19-20	0.053	0.71	W	0	0.102	0.98	0.102	0.083	0.73	0.061	[illegible]	(0)
20-21	0.180	2.22	W	0	0.109	1.11	0.123	0.090	0.81	0.074	[illegible]	(0)
21-22	0.311	3.93	W	0	0.116	1.32	0.155	0.102	0.97	0.100	[illegible]	(0)
22-23	0.188	2.63	W	0	0.120	1.43	0.173	0.109	1.06	0.116	[illegible]	(0)
23-24	0.133	1.95	NNW	0	0.124	1.51	0.188	0.112	1.12	0.128	[illegible]	(0)
DATE 11/17/1975												
0- 1	0.336	4.48	SW	0	0.144	1.83	0.266	0.124	1.29	0.161	[illegible]	(0)
1- 2	0.095	3.66	ESE	0	0.143	2.08	0.296	0.125	1.43	0.180	[illegible]	(0)
2- 3	0.085	1.58	ESE	0	0.139	2.06	0.288	0.125	1.48	0.187	[illegible]	(0)
3- 4	0.068	1.41	SE	0	0.139	2.08	0.290	0.125	1.52	0.193	[illegible]	(0)
4- 5	0.072	1.29	SE	0	0.141	2.13	0.302	0.125	[illegible]	[illegible]	[illegible]	(0)
5- 6	0.099	0.83	SSE	1	0.144	2.16	0.313	0.125	1.57	[illegible]	[illegible]	[illegible]
6- 7	0.081	0.96	SE	1	0.142	2.14	0.305	0.124	1.56	0.194	[illegible]	[illegible]
7- 8	0.140	0.77	SE	3	0.149	2.14	0.321	0.126	1.56	0.198	[illegible]	(0)
8- 9	0.072	1.05	SE	3	0.140	2.05	0.288	0.125	1.58	0.198	[illegible]	(0)
9-10	0.067	0.79	S	2	0.120	1.78	0.215	0.118	1.55	0.184	[illegible]	(0)
10-11	0.090	0.66	S	2	0.111	1.62	0.182	0.116	1.52	0.178	[illegible]	(0)
11-12	0.101	0.78	WSW	3	0.109	1.52	0.169	0.116	1.52	0.178	[illegible]	(0)
12-13	0.124	0.89	SW	3	0.091	1.22	0.113	0.118	1.53	0.181	[illegible]	(0)
13-14	0.059	0.81	SW	4	0.088	0.99	0.088	0.115	1.52	0.177	[illegible]	(0)
14-15	0.077	0.52	SW	4	0.088	0.90	0.079	0.113	1.48	0.169	[illegible]	(0)
15-16	0.074	0.58	W	4	0.088	0.83	0.074	0.113	1.45	0.166	[illegible]	(0)
16-17	0.150	0.58	WSW	4	0.095	0.77	0.073	0.118	1.45	0.172	[illegible]	(0)
17-18	0.227	2.49	W	3	0.105	0.91	0.096	0.125	1.53	0.192	[illegible]	(0)
18-19	0.149	1.46	W	2	0.111	0.95	0.106	0.126	1.54	0.196	[illegible]	(0)
19-20	0.175	1.10	WSW	1	0.114	0.98	0.112	0.131	1.56	0.206	[illegible]	(0)
20-21	0.288	1.90	WSW	1	0.132	1.05	0.139	0.136	1.55	0.211	[illegible]	(0)
21-22	0.218	1.83	SW	0	0.144	1.13	0.165	0.132	1.46	0.194	[illegible]	(0)
22-23	0.504	3.10	W	0	0.179	1.34	0.241	0.145	1.48	0.216	[illegible]	(0)
23-24	0.393	3.35	W	0	0.203	1.55	0.317	0.156	1.54	0.241	100	(0)

SUMMARY FOR THE PAST 48 HOURS*

STATION: DAYTENDOO 2*

	HOURLY				12 HOUR			24 HOUR			
	SO2	FP	WD	WS	SO2	FP	PRODUCT	SO2	FP	PRODUCT	INDEX
DATE 11/18/1975											
0- 1	0.349	3.04	W	0	0.225	1.73	0.391	0.156	1.48	0.235	[illegible].5 (0)
1- 2	0.760	4.00	W	0	0.256	2.20	0.570	0.176	1.69	0.279	[illegible] (0)
2- 3	0.[illegible]05	5.34	W	0	0.319	2.90	0.771	0.203	1.65	0.338	[illegible].7 (0)
3- 4	0.[illegible]24	4.34	W	0	0.302	2.72	0.986	0.225	1.77	0.401	[illegible] (0)
4- 5	0.309	3.28	W	0	0.375	2.94	1.107	0.235	1.86	0.438	[illegible].8 (0)
5- 6	0.[illegible]60	2.79	W	0	0.371	2.97	1.104	0.239	1.94	0.463	[illegible] (0)
6- 7	0.308	2.06	SW	0	0.384	3.08	1.189	0.248	2.02	0.501	[illegible].0 (0)
7- 8	0.[illegible]68	3.96	WSW	1	0.401	3.32	1.334	0.257	2.15	0.555	[illegible].3 (0)
8- 9	0.163	2.78	[illegible]	1	0.390	3.40	1.328	0.261	2.22	0.582	[illegible].7 (0)
9-10	0.[illegible]18	2.96	WSW	1	0.342	3.49	1.335	0.264	2.31	0.610	[illegible] (0)
10-11	0.099	2.27	WSW	2	0.348	3.42	1.193	0.264	2.38	0.629	[illegible] (0)
11-12	0.104	1.34	[illegible]	2	0.324	3.25	1.056	0.264	2.40	0.635	[illegible] (0)
12-13	0.094	1.24	NNW	3	0.299	3.10	0.931	0.262	2.42	0.636	[illegible] (0)
13-14	0.049	0.96	WNW	3	0.240	2.84	0.685	0.262	2.42	0.637	[illegible] (0)
14-15	0.063	0.48	NW	3	0.203	2.44	0.497	0.261	2.42	0.635	[illegible] (0)
15-16	0.056	0.66	NW	3	0.159	2.13	0.361	0.261	2.42	0.634	[illegible] (0)
16-17	0.055	0.90	NNW	3	0.138	1.93	0.268	0.257	2.44	0.628	[illegible] (0)
17-18	0.069	0.81	SSW	3	0.129	1.77	0.229	0.250	2.37	0.594	[illegible] (0)
18-19	0.079	1.00	S	1	0.110	1.61	0.178	0.247	2.35	0.582	[illegible] (0)
19-20	0.172	1.84	W	0	0.093	1.44	0.135	0.247	2.38	0.590	[illegible] (0)
20-21	0.277	1.96	W	0	0.103	1.37	0.142	0.246	2.38	0.589	[illegible] (0)
21-22	0.265	3.76	NW	0	0.115	1.44	0.167	0.248	2.46	0.614	[illegible] (0)
22-23	0.234	2.50	W	0	0.126	1.45	0.185	0.237	2.44	0.580	[illegible] (0)
23-24	0.246	2.46	W	0	0.138	1.55	0.215	0.231	2.40	0.557	[illegible] (0)
DATE 11/19/1975											
0- 1	0.423	3.29	W	0	0.166	1.72	0.286	0.233	2.41	0.563	[illegible] (0)
1- 2	0.261	5.33	SW	0	0.183	2.08	0.384	0.212	2.46	0.523	[illegible] (0)
2- 3	0.227	3.24	W	0	0.197	2.31	0.458	0.200	2.37	0.477	[illegible] (0)
3- 4	0.225	3.57	W	0	0.211	2.56	0.542	0.185	2.34	0.436	[illegible] (0)
4- 5	0.247	3.66	W	0	0.227	2.79	0.635	0.183	2.36	0.433	[illegible] (0)
5- 6	0.206	-9.00	W	0	0.239	2.96 (11)	0.710	0.184	2.34 (23)	0.432	[illegible] (0)
6- 7	0.145	4.12	W	0	0.244	3.25 (11)	0.795	0.177	2.39 (23)	0.426	[illegible] (0)
7- 8	0.106	3.30	W	0	0.239	3.38 (11)	0.809	0.166	2.37 (23)	0.395	[illegible] (0)
8- 9	0.083	3.53	W	0	0.222	3.52 (11)	0.786	0.161	2.40 (23)	0.392	[illegible] (0)
9-10	0.126	4.45	SSW	1	0.211	3.59 (11)	0.759	0.163	2.46 (23)	0.404	[illegible] (0)
10-11	0.240	5.79	WSW	1	0.211	3.89 (11)	0.824	0.169	2.62 (23)	0.444	[illegible] (0)
11-12	0.169	4.14	W	2	0.205	4.04 (11)	0.830	0.172	2.74 (23)	0.472	[illegible] (0)
12-13	0.[illegible]70	1.86	WSW	2	0.175	3.91 (11)	0.688	0.171	2.77 (23)	0.474	[illegible] (0)
13-14	0.058	1.06	S	3	0.159	3.52 (11)	0.560	0.171	2.77 (23)	0.476	[illegible] (0)
14-15	0.[illegible]03	0.87	SSW	3	0.147	3.30 (11)	0.487	0.172	2.79 (23)	0.481	[illegible] (0)
15-16	0.132	0.72	SSW	3	0.139	3.05 (11)	0.425	0.175	2.79 (23)	0.490	[illegible] (0)
16-17	0.126	0.77	SSW	3	0.129	2.78 (11)	0.360	0.178	2.78 (23)	0.497	[illegible] (0)
17-18	0.091	0.84	SE	1	0.119	2.62	0.316	0.179	2.79 (23)	0.500	[illegible] (0)
18-19	0.[illegible]78	0.50	[illegible]	0	0.114	2.32	0.265	0.179	2.76 (23)	0.496	[illegible] (0)
19-20	0.339	1.37	W	0	0.133	2.16	0.289	0.186	2.74 (23)	0.511	[illegible] (0)
20-21	0.631	4.96	W	0	0.179	2.28	0.409	0.200	[illegible]	[illegible]	[illegible] (0)
21-22	0.551	2.30	W	0	0.214	2.11	0.451	[illegible]	[illegible]	[illegible]	[illegible] (0)
22-23	0.746	3.21	W	0	0.256	[illegible]	0.487	[illegible]	2.84 (23)	0.667	[illegible] (0)
23-24	0.434	3.86	W	0	0.278	[illegible]	0.523	0.242	2.90 (23)	0.704	[illegible] (0)

SUMMARY FOR THE PAST 24 HOURS

STATION HAZELWOOD 2 HOURLY

	SO2	FP	WD	WS	12 HOUR SO2	12 HOUR FP	12 HOUR PRODUCT	24 HOUR SO2	24 HOUR FP	24 HOUR PRODUCT	INDEX
DATE 11/20/1975											
0- 1	0.367	3.29	W	0	0.403	1.99	0.604	0.239	2.90 (23)	0.697	.7 (0)
1- 2	0.245	3.74	SE	0	0.312	2.21	0.704	0.230	2.84 (23)	0.678	.3 (0)
2- 3	0.267	3.10	E	0	0.334	2.39	0.800	0.240	2.84 (23)	0.681	.7 (0)
3- 4	0.210	3.30	ESE	0	0.340	2.62	0.892	0.232	2.82 (23)	0.673	.3 (0)
4- 5	0.510	3.14	SW	0	0.372	2.81	1.049	0.250	2.80 (23)	0.703	.6 (0)
5- 6	0.374	4.15	SE	0	0.395	3.09	1.224	0.257	2.86	0.737	.7 (0)
6- 7	0.207	3.24	SE	0	0.406	3.32	1.350	0.260	2.82	0.745	.5 (0)
7- 8	0.163	3.56	SSE	1	0.391	3.50	1.373	0.262	2.83	0.746	.7 (0)
8- 9	0.169	4.13	SE	1	0.351	3.43	1.208	0.265	2.85	0.759	.4 (0)
9-10	0.139	1.96	SSE	4	0.317	3.40	1.078	0.262	2.75	0.732	.6 (0)
10-11	0.127	1.38	SE	3	0.265	3.24	0.862	0.261	2.57	0.672	.6 (0)
11-12	0.094	1.06	SSW	4	0.237	3.01	0.716	0.258	2.44	0.630	.8 (0)
12-13	0.066	0.79	S	4	0.212	2.80	0.596	0.257	2.39	0.618	.4 (0)
13-14	0.038	0.62	SSW	4	0.195	2.54	0.499	0.256	2.38	0.612	.6 (0)
14-15	0.027	0.15	SW	5	0.175	2.30	0.405	0.254	2.35	0.599	.9 (0)
15-16	0.026	0.48	SSE	4	0.160	2.05	0.330	0.250	2.34	0.586	.0 (0)
16-17	0.041	0.32	SSE	3	0.121	1.82	0.221	0.246	2.32	0.573	.2 (0)
17-18	0.086	0.52	S	3	0.097	1.52	0.148	0.246	2.30	0.569	.0 (0)
18-19	0.072	0.74	SSE	4	0.086	1.31	0.113	0.246	2.31	0.571	.0 (0)
19-20	0.025	0.44	SSE	5	0.074	1.05	0.079	0.233	2.27	0.532	.2 (0)
20-21	0.032	0.85	SSE	6	0.064	0.78	0.051	0.208	2.10	0.439	.3 (0)
21-22	0.042	0.49	S	5	0.056	0.65	0.037	0.187	2.02	0.379	.4 (0)
22-23	0.085	0.37	S	5	0.053	0.57	0.031	0.159	1.91	0.305	.2 (0)
23-24	0.103	0.33	SSW	5	0.054	0.51	0.028	0.145	1.76	0.257	.0 (0)

HIGH VOLUME SAMPLER DATA

These printouts are from hi-volume particulate samplers located at the sites highlighted in the report. The important columns of the hr-min columns which indicate the time period of this sample. Useable data is obtained in 8, 12, or 24 hour samples. The far right column is particulate concentration in micrograms per cubic meter.

BUREAU OF AIR POLLUTION CONTROL

HI VOLUME PARTICULATE
MICRO GRAMS/CU METER
PRIMARY AMBIENT AIR QUALITY STANDARD (AAQS) GEOMETRIC MEAN
ANNUAL-75 UG/M3 24-HOUR MAX*260 UG/M3

NOV 1975

LIBERTY T STATION NO 8702

MO-DY-YR	HR-MIN	MO-DY-YR	HR-MIN	MOTOR NUMBER	LAB NUMBER	FILTER NUMBER	RUN TIME (MIN)	CM AIR	NET WT. GRAMS	AVG. FLOW (CFM)	UG/ CM
11- 2-75	1.00	11- 3-75	1.00	1062	3970	31371	1440	2255	0.4993	55.3	223
11- 5-75	0.00	11- 6-75	0.00	1061	4556	31486	1440	2079	0.4605	51.0	222
11- 7-75	0.15	11- 8-75	0.15	1070	4562	31492	1440	1963	0.3665	48.1	187
11- 8-75	0.00	11- 9-75	0.00	1062	4557	31487	1440	2214	0.4657	54.3	212
11-10-75	0.00	11-11-75	0.10	1061	4561	31491	1450	2114	0.1283	51.5	61
11-11-75	0.00	11-12-75	0.00	1070	4514	31444	1440	2038	0.2112	50.0	104
11-14-75	0.55	11-15-75	1.00	1062	4515	31445	1445	2399	0.1269	58.6	53
11-21-75	0.00	11-22-75	0.00	1061	1079	30144	1440	1990	0.1111	48.8	57
11-21-75	23.10	11-22-75	23.10	1062	1080	30145	1440	2405	0.0981	59.0	41
11-23-75	0.00	11-23-75	23.45	1070	4736	31563	1425	1902	0.5576	47.1	294
11-26-75	0.40	11-27-75	0.35	1062	4707	31534	1435	2444	0.3673	60.1	151
11-29-75	0.30	11-30-75	0.25	1070	4708	31535	1435	2139	0.1580	52.6	75

STATION	ARITH MEAN	MAX 1 HIGH	MAX 2 HIGH	MIN READ	MONTH COUNT	NO.OF SAMPS	NO.GR 260	% GR 260	GEO. MEAN	G.STD DEV.
8702 LIBERTY T	140	294	223	41	1	12	1	8	115	1.98

HI VOLUME PARTICULATE
MICRO GRAMS/CU METER
PRIMARY AMBIENT AIR QUALITY STANDARD (AAQS) GEOMETRIC MEAN
ANNUAL-75 UG/M3 24-HOUR MAX*260 UG/M3

NOV 1975

NORTH BRADDOCK STATION NO 7104

I-DY-YR	HR-MIN	MO-DY-YR	HR-MIN	MOTOR NUMBER	LAB NUMBER	FILTER NUMBER	RUN TIME (MIN)	CM AIR	NET WT. GRANS	AVG. FLOW (CFM)	UG/ CM
- 2-75	0.00	11- 3-75	0.00	1002	3429	31123	1440	2079	0.2014	51.0	97
- 5-75	0.15	11- 6-75	0.30	1004	4522	31452	1455	1949	0.2755	47.3	142
- 8-75	0.00	11- 9-75	0.20	1073	4526	31456	1460	2156	0.1887	52.1	88
-11-75	0.00	11-12-75	0.20	1004	4530	31460	1460	1983	0.2860	48.0	144
-14-75	0.00	11-15-75	0.20	1073	4540	31470	1460	2273	0.1010	55.0	44
-17-75	0.00	11-18-75	0.20	1004	4534	31464	1460	1915	0.6647	46.3	350
-19-75	0.05	11-20-75	0.30	1004	4543	31473	1465	1797	0.8493	43.3	476
-20-75	0.00	11-21-75	0.25	1073	4682	31509	1465	2052	0.5645	49.5	278
-21-75	0.10	11-22-75	0.35	1004	4695	31522	1465	2115	0.1480	51.0	70
-22-75	0.00	11-22-75	23.45	1002	4696	31523	1425	2158	0.1314	53.5	61
-26-75	0.10	11-27-75	0.30	1004	4759	31586	1460	2135	0.2053	51.6	97
-28-75	23.40	11-30-75	0.10	1073	4760	31587	1470	2268	0.2336	54.5	104

ATION	ARITH MEAN	MAX 1 HIGH	MAX 2 HIGH	MIN READ	MONTH COUNT	NO.OF SAMPS	NO.GR 260	% GR 260	GEO. MEAN	G.STD DEV.
04 NORTH BRADDOCK	163	476	350	44	1	12	3	25	126	2.06

ALLEGHENY COUNTY
[redacted] OF [redacted] POLLUTION CONTROL

HI VOLUME PARTICULATE
MICRO GRAMS/CU METER
PRIMARY AMBIENT AIR QUALITY STANDARD (AAQS) GEOMETRIC MEAN
ANNUAL-75 UG/M3 24-HOUR MAX*260 UG/M3

NOV 1975

GLASSPORT T STATION NO 8602

MO-DY-YR	HR-MIN	MO-DY-YR	HR-MIN	MOTOR NUMBER	LAB NUMBER	FILTER NUMBER	RUN TIME (MIN)	CM AIR	NET WT. GRAMS	AVG. FLOW (CFM)	UG/ CM
11- 2-75	0.00	11- 3-75	0.20	1047	3974	31375	1460	2114	0.1388	51.1	6[illegible]
11- 8-75	0.15	11- 9-75	0.35	1047	4475	31405	1460	2107	0.1733	51.0	82
11-14-75	0.15	11-15-75	0.30	1047	4476	31406	1455	2087	0.0818	50.6	40
11-26-75	0.15	11-27-75	0.35	1047	761	30059	1460	2121	0.2289	51.3	109

STATION	ARITH MEAN	MAX 1 HIGH	MAX 2 HIGH	MIN READ	MONTH COUNT	NO.OF SAMPS	NO.GR 260	% GR 260	GEO. MEAN	G.STD DEV.
8602 GLASSPORT T	74	109	82	40	1	4	0	0	70	1.52

ALL
BUREAU OF AIR

HI VOLUME PARTICULATE
MICRO GRAMS/CU METER
PRIMARY AMBIENT AIR QUALITY STANDARD (AAQS) GEOMETRIC MEAN
ANNUAL-75 UG/M3 24-HOUR MAX*260 UG/M3

NOV 1975

COURT HOUSE STATION NO 5802

MO-DY-YR	HR-MIN	MO-DY-YR	HR-MIN	MOTOR NUMBER	LAB NUMBER	FILTER NUMBER	RUN TIME (MIN)	CM AIR	NET WT. GRAMS	AVG. FLOW (CFM)	UG/ CM
11- 2-75	0.15	11- 2-75	23.40	1050	3871	31272	1405	1902	0.1854	47.8	99
11- 5-75	0.15	11- 6-75	0.15	1011	4496	31426	1440	1983	0.3349	48.6	171
11-11-75	0.25	11-12-75	0.35	1011	4508	31438	1450	1936	0.3390	47.1	176
11-14-75	0.00	11-14-75	23.10	1050	4677	31504	1390	1869	0.1810	47.5	98
11-17-75	0.05	11-17-75	23.50	1011	4676	31503	1425	1909	0.6810	47.3	359
11-19-75	0.05	11-20-75	0.10	1011	4685	31512	1445	1827	0.8213	44.6	456
11-21-75	0.05	11-22-75	0.15	1011	4750	31577	1450	2182	0.2083	53.1	96
11-26-75	0.15	11-27-75	0.20	1011	4764	31591	1445	2174	0.4112	53.1	190

STATION	ARITH MEAN	MAX 1 HIGH	MAX 2 HIGH	MIN READ	MONTH COUNT	NO.OF SAMPS	NO.GR 260	% GR 260	GEO. MEAN	G.STD DEV.
5802 COURT HOUSE	206	456	359	96	1	8	2	25	175	1.80

BUREAU OF AIR POLLUTION CONTROL

HI VOLUME PARTICULATE
MICRO GRAMS/CU METER
PRIMARY AMBIENT AIR QUALITY STANDARD (AAQS) GEOMETRIC MEAN
ANNUAL-75 UG/M3 24-HOUR MAX*260 UG/M3

NOV 1975

HAZELWOOD T STATION NO 6903

MO-DY-YR	HR-MIN	MO-DY-YR	HR-MIN	MOTOR NUMBER	LAB NUMBER	FILTER NUMBER	RUN TIME (MIN)	CM AIR	NET WT. GRAMS	AVG. FLOW (CFM)	UG/ CM
11- 2-75	0.00	11- 2-75	23.45	1032	3991	31392	1425	2070	0.1279	51.3	62
11- 5-75	0.00	11- 5-75	23.45	1014	4646	31476	1425	2070	0.2131	51.3	104
11- 8-75	0.00	11- 8-75	23.45	1032	4547	31477	1425	2097	0.1100	52.0	52
11-11-75	0.00	11-11-75	23.40	1014	4564	31494	1420	2123	0.1882	52.8	90
11-14-75	0.00	11-15-75	0.00	1032	4565	31495	1440	2255	0.3357	55.3	150
11-17-75	0.00	11-17-75	23.40	1011	4477	31407	1420	2123	0.2643	52.8	126
11-21-75	0.00	11-22-75	0.00	1025	4489	31419	1440	2058	0.1327	50.5	65
11-22-75	0.00	11-23-75	0.05	1051	4735	31562	1445	2297	0.1507	56.1	66
11-23-75	0.05	11-23-75	23.50	1014	4490	31420	1425	2191	0.2052	54.3	94
11-26-75	0.00	11-26-75	23.45	1032	4487	31417	1425	2198	0.2188	54.5	100
11-29-75	0.00	11-29-75	23.40	1014	4738	31565	1420	2264	0.2450	56.3	109

STATION	ARITH MEAN	MAX 1 HIGH	MAX 2 HIGH	MIN READ	MONTH COUNT	NO.OF SAMPS	NO.GR 260	% GR 260	GEO. MEAN	G.STD DEV.
6903 HAZELWOOD T	93	150	126	52	1	11	0	0	88	1.38

EPA HEALTH EFFECTS STUDY

This section contains the report prepared by the RTP epidemologists concerning the health effects of the Pittsburgh Air Episode.

MORTALITY MODELS: A POLICY TOOL

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To be presented to the Conference on Environmental Modeling and Simulation, Environmental Research Center, Cincinnati, Ohio, April 19-21, 1976

ABSTRACT

The recent Pittsburgh air pollution episode in November 1975 presents a striking need to use daily mortality models as a policy tool. In this preliminary study we found 16 deaths when the episode period was compared to the same four days of the week before, and the same four days of the week following the episode. Estimated excess deaths of 23 were found when the period of the episode was compared to the same month and period in the years 1962 through 1972. However, after fitting the model which accounted for temperature and other covariates, we found only 14 deaths In the preceding comparison, the effect of temperature had been assigned to air pollution.

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*On assignment from the National Oceanic and Atmospheric Administration, U.S. Department of Commerce

Mortality Models: A Policy Tool

With the great improvement in air quality monitoring technology, there is a strong accompanying need to quantify the health impact from environmental pollution. The recent Pittsburgh episode in November 1975 is a striking example of this present need. The Denora, Meuse Valley, New York, and London episodes of previous decades which were handicapped by a lack of pollution exposure data also provide glaring examples of this present need for more air monitoring data which can be related to observed health changes.

An important tool for improving the assessment of the total health effects of pollution is the use of daily mortality models. Although man reacts to pollution through a full spectrum of biological responses ranging from subtle physiologic changes to death, mortality is currently the best documental and defined health indicator available. It is extremely noteworthy to recall that statistically strong effects were not obvious at the time of some of the historic pollution episodes. The adverse health effects in the 1952 London episode, for example, became clear only when mortality records became vital statistics.

This paper will describe the use of daily mortality models based on single forecast equations that can apply to metropolitan areas in the Northeastern United States, and specifically the Pittsburgh pollution episode of November 17-20, 1975, will be discussed, using the model to draw mortality inferences. The models enable epidemiologists to estimate deaths caused by high concentration of air pollution. Mortality models are very useful to prospective pollution control in that they enable authorities to forecast the probable effect of a specific control action and later to assess the effectiveness of controls.

Why use a model rather than the real world? Admittedly, a model is a crude "Alice in Wonderland" simplification of the real world. But, it provides information on relationship between measurable factors which may be adjusted for, or controlled. The model must be scientifically valid in that it must approximate a microcosma of the real world. The validity of various models can be compared by how closely they approximate the actual observation data.

Materials and Methodology

For the recent Pittsburgh episode we have three major sources of mortality data: National Center for Health Statistics, Department of Vital Statistics, the State of Pennsylvania, and Allegheny County Health Department. The National Oceanic and Atmospheric Administration supplied the meteorological data. Aerometric data were supplied by the Allegheny County Air Pollution Control Board.

Background of the Pittsburgh Episode

The National Weather Service Forecast Office at Pittsburgh Airport issued an air stagnation warning at noon, Monday, November 17, 1975. The areas covered included Western Pennsylvania, several eastern Ohio and northern West Virginia counties. A large high pressure system became stationary over the state of West Virginia, causing strong surface temperature inversions which trapped cooler air at the ground, particularly in valleys such as are common around Pittsburgh. Pittsburgh's location also brought very light surface winds causing poor dispersion. Wind speeds at the Pittsburgh Airport averaged 1.9 m s^{-1} on November 17, fell to 1.2 on November 18, 1.1 on November 19, and rose to 3.8 on November 20, the last day of the episode. Table 1 presents daily maximum and minimum temperatures,

departure from normal average temperature, afternoon mixing depths, average wind speed, resultant wind direction and speed, and average relative humidity.

Table 1. Daily Weather Conditions
Nov. 17 to Nov. 20, 1975

	17	18	19	20
Temperature (C)				
Maximum	16.7	17.2	17.2	18.3
Minimum	1.7	2.2	1.7	1.7
Departure from Normal (C)	+4.4	+5.6	+5.6	+6.1
Afternoon Mixing Depth (m)	926	1,061	869	927
Average Windspeed ($m\ s^{-1}$)	1.9	1.2	1.1	3.8
Resultant Wind Direction (deg)	230	270	160	160
Resultant Wind Speed ($m\ s^{-1}$)	1.8	0.9	0.4	3.7
Avg. Relative Humidity (%)	60	63	60	56

Approach

We secured death certificates from Allegheny County Health Department. We compiled mortality figures for the four days of the Pittsburgh pollution episode, and the corresponding four days in the preceding and following weeks. These records were not complete, comprising 85-90 percent of ultimate recorded deaths. This variation is due to a number of residents who died outside the county and will be added to the county records at a later time. Table 2 gives this comparison revealing 16 excess deaths during the episode.

Table 2. Mortality Figures From Allegheny County for the Four Days of the Pittsburgh Air Pollution Episode, and the Corresponding Four Days in the Preceding and Following Week

Deaths during episode	Average deaths of individuals for preceding & following week	Excess deaths during episode
180	163.5	16.5

Discussion

By using the same four days of the preceding week and the following as a control, we have removed the day of week. However, the last day of the corresponding four day period of the following week was Thanksgiving which normally has the higher holiday death rate. This suggests that without the holiday the excess deaths may have been greater than 16.

We adjusted for incomplete mortality records for November 1975 in the following manner. First, we checked for an annual trend and found none. We divided the average daily deaths of the 11 years of November (47.3) by the average daily deaths of November 1975 (40.4). We used this factor of 1.17 to adjust the daily deaths upward for November 1975.

Table 2 compares the average number of deaths for November 17 through 20 for years 1962 through 1972 with the deatns during the Pittsburgh episode of November 17 through 20. This comparison gives an excess of 23 deaths.

Table 3. Comparison of Deaths

Day of Month	1975	Average 1962-1972	Excess Deaths
17	60	49	11
18	52	47	5
19	47	47	0
20	54	47	7
Total			23

Probability = .002

The above comparison has removed the seasonal effect; to be sure the day of week effect has been removed, we selected for each year Monday through Thursday of the week preceding Thanksgiving for comparing with Monday through Friday of the episode.

Table 4. Comparison of Deaths by Day of Week

Day of Week	1975 deaths	Average 1962-1972	Excess Deaths
Monday	60	49	11
Tuesday	52	48	4
Wednesday	47	44	3
Thursday	54	49	5
Total			23

Probability = .008

Hence, the difference is not due to the day of the week, or the annual cycle.

Application of Model

Daily fluctuations in mortality rates are primarily determined by four major factors:

1. Annual cycles;
2. Epidemic influenza pneumonia;
3. Temperature; and
4. Environmental pollution.

Annual cycles of mortality are important in determining mortality rates because the highest death rates are in winter and the lowest in summer. Epidemic influenza-pneumonia is important because during an epidemic death rates rise far above those due to annual cycle. Temperature has an effect as well as the annual cycle, in that a sharp drop in temperature associated with the movement of a weather front reduces mortality in summer. Heat waves also have an extreme effect on mortality. Environmental pollutants increase mortality, but their effects are small compared to the others except in air pollution episodes. Temperature and annual cycle may have 15 to 20 times the effect of air pollution. Environmental pollution has a significant additional effect, assessable only when the other strong effects are adequately measured.

Application

Our first step in developing an empirical forecast model for Allegheny County was to divide the 11 years of mortality data into two periods; 5 years, 1962-66 and 6 years, 1967-72. The first period was used to develop the model and estimate the coefficients while the second period was used to test the model.

First, daily total mortality observations were corrected to eliminate major influenza epidemics. Next, mortality data were checked for population

trend; and adjustable daily mortality ratios were computed as the daily observations divided by the average of the 11 years. We estimated coefficients for the following model:

$$Y_i = a_0 X(1)^{a_1} X(2)^{a_2} X(3)^{a_3} X(4)^{a_4} e^{a_5 t_i + a_6 t_i^2 + a_7 t_i^3}$$

where Y_i = Daily mortality ratio of observed deaths on the i^{th} day multiplied by 100 and divided by the average number of deaths per thousand for the 11 years.

X(1) = Lagged function distributes temperature effect over 3 days (using Y_{i-1} as distributed lagged function).[1]

X(2) = Observed daily maximum temperature minus the average maximum temperature of the preceding seven days.

X(3) = Precipitation during the day in milimeters.

X(4) = Holiday effect - Thanksgiving, Christmas, etc.

$e^{t_i, t_i^2 t_i^3}$ = Exponential polynomial function, third power of observed daily maximum temperature in degrees celsisus.

Mortality is given as "mortality ratio expected".

This standardized ratio allows direct comparison between places and times, and statements about percent change in mortality per unit change in the pollution variable.

We used 1962-66 data to estimate a set of coefficients. We also estimated a set of coefficients using 1962-72 data. Estimated expected deaths for 1962 through 1972 with coefficients generated from the same data gave a sum of exposures of deviation from expected of 98.3. Sum of squares of deviation

from expected deaths for 1967-1972 using coefficients generated from data for 1962-66 was 98.7. Therefore, the relationship found in the first period holds for the second period.

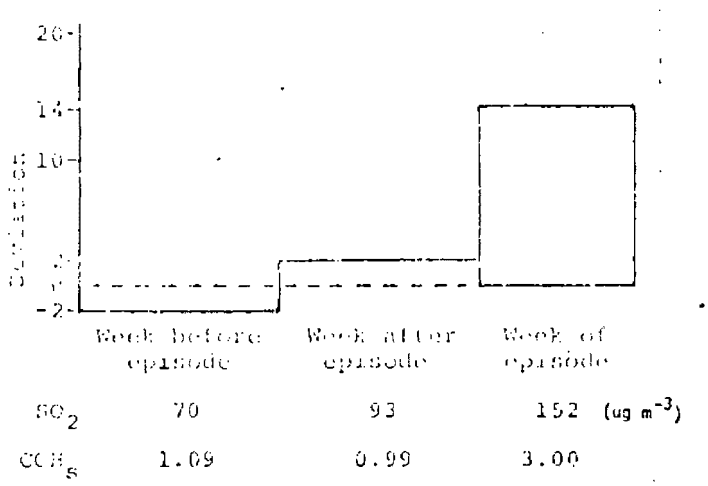
We felt justified in using the coefficients from 1962-66 to calculate the expected mortality ratios for November 1975. The air pollution episode was the only observable unusual condition in November 1975 that could have caused expected mortality to deviate so widely.

After adjusting deaths during the episode and for the same days of the week in the previous and following weeks for temperature, precipitation, annual cycle, and day of week, we still show at least 14 excess deaths during the episode. There seems little possibility that this result could be due to random chance.

Aerometric Data

With aerometric data for only three weeks from seven stations, we have not attempted to estimate coefficients for a dose response function. However, figure 1 presents graphically the results using deviations from expected deaths generated by the model which adjusted for annual cycle, temperature, etc.

Figure 1. Comparison of deviations from expected deaths generated by the model



The preceding results indicate that using deaths without considering temperature and other covariates in the Pittsburgh episode tends to inflate the number of deaths.

Comment and Conclusion

One may ask if the excess deaths would have occurred with in a few days or weeks rather than during the episode. We simply do not know. However, mortality rates were higher the week following the episode than the week preceding. At least there is no evidence that the excess deaths would have occurred during the week following the episode.

This preliminary study also found a need for more timely aerometric data, especially in pollution episodes.

[1]Arthur S. Goldberg, Econometric Theory, John S. Wiley and Sons, Inc., New York, 1964, pp. 274-278.

LETTER FROM RUSSEL TRAIN TO HOUSE SUBCOMMITTEE ON HEALTH AND THE ENVIRONMENT.

This report was retyped from a copy of the original letter.

Dear Mr. Chairman:

Thank you for your letter of November 24, 1975, in which you request that we prepare a full report on the recent air pollution emergency episode in the Pittsburgh, Pennsylvania area. I understand that our response will be used to assist the House Interstate and Foreign Commerce Committee in determining whether changes are needed in the current law (Section 303 of the Clean Air Act, as amended) to help prevent future emergency episodes and/or to respond more efficiently to all future emergency episodes.

Since this matter is currently under consideration by your subcommittee, I will attempt to answer the questions you have raised in as much detail as is possible based on the information presently available to me. In this regard, the Philadelphia Regional Administrator is delegated the prime responsibility for monitoring emergency episode conditions and for initiating appropriate Federal abatement action during an emergency episode. Accordingly, for those areas, identified below, which require some additional information and forward it directly to you as expeditiously as practicable.

The following is a chronology and discussion of the Pittsburgh emergency episode. On Monday, November 17, 1975, at 1:00 p.m., an air stagnation advisory was declared (such meteorological conditions forecast poor pollutant dispersion capabilities for a period ranging from 12 to 35 hours and signals the likelihood of elevated ambient air concentrations). At the same time the Allegheny County Department of Health advised our Philadelphia Regional Office that an alert had been declared (initial stage of an episode where health warnings and preliminary voluntary abatement actions are initiated) for the Clairton-Liberty Borough area, for particulate pollutants only.

On Tuesday morning, November 18, 1975, Allegheny County informed the regional office that the particulate matter levels had come close to the warning level (that level which indicates a serious degradation of the air and requires some abatement actions be initiated). On Tuesday afternoon the regional office advised EPA's Division of Stationary Source Enforcement (DSSE) that a potentially significant episode was developing in Allegheny County and exchanged the home

telephone numbers of the involved individuals in both offices.

At 3:00 a.m. on Wednesday, November 19, 1975, the Philadelphia Regional Office's meteorologist was contacted at home and advised by Allegheny County that the warning levels had been reached and that appropriate warning level reduction plans had been put into effect (a more complete description and evaluation of all warning and emergency level reduction actions will be provided to you by the Philadelphia Regional Office). At 8:30 a.m. on Wednesday morning the regional office contacted Allegheny County and was informed that the levels had rapidly escalated to close to the emergency level (that level at which all appropriate abatement actions must be initiated to prevent reaching the substantial endangerment level). In addition, the regional office was advised that visibility in the Clairton Valley was so poor as to make driving impossible. (As a result, public schools in the area were closed for the duration of the emergency episode.) It should be noted that the emergency episode levels were localized in the Pittsburgh area to the vicinity of the Liberty Borough monitoring station which is located at the high school approximately 1-1/2 miles downwind of United States Steel Corporation's Clairton Coke Works (map attached).

On Wednesday morning the regional office contacted DSSE and the United states Attorney's Office in Pittsburgh to bring them up to date and advised them that Section 303 of the Clean Air Act might have to be implemented in the next 12 to 18 hours. At 9:30 a.m. Regional Administrator Snyder and the emergency episode response team were advised that the levels of particulates had reached a 6.9 Coh/24-hour average (7.0 Coh [coefficient of haze] is the emergency level) and that Allegheny County had asked United States Steel, in particular, to gradually reduce emissions by increasing coking time. In addition, Allegheny County had asked the Pennsylvania Department of Environmental Resources (DER) to order reduction in emissions at Duquesne Light Company's Elrama and West Penn Power's Mitchell Power Plants (sources solely in DER's jurisdiction).

On Wednesday morning the regional office reviewed the actions taken by Allegheny County and concluded that additional reductions were necessary and so advised Allegheny County. After conferring with Assistant Administrator for Enforcement Stanley W. Legro, at which time the regional office advised him that there was a strong possibility of the necessity for Federal legal action, an episode

response team was sent to Pittsburgh. In addition, a second regional team remained in Philadelphia, on 24-hour call, to provide necessary assistance. This assistance included preparation of maximum cutback plans for industries located in the affected area, and provided an independent review capability concerning the course of the eopisode and the abatement actions being implemented to reduce emissions. From EPA's Research Triangle Park Laboratories in North Carolina a team of epidemiologists and meteorologists was sent to Pittsburgh. This team was necessary to provide the medical and meteorological expertise and testimony if Federal legal action became necessary (this team had to hire a private jet since no commercial air space was available). In addition, EPA Headquarters sent two attorneys to assist the regional office if legal action was necessary.

As previously mentioned, at 8:30 a.m., the U.S. Attorney's office was contacted and informed about the developing episode and that there was a likelihood that EPA personnel would travel to Pittsburgh to prepare for an eventual Section 303 action if required. At this time, the U.S. Attorney's office was requested to provide secretarial assistance, office space, and to notify a Federal judge of a potential action to insure his availability.

At 1:00 p.m. the 24-hour particulate matter ambient average was 7.4 Coh which was in excess of the emergency level. At this time, the regional office advised Allegheny County to declare that the episode had reached emergency levels for particulates and to begin implementation of a maximum cutback of production and emissions at the Clairton Coke Works in accordance with a plan developed by the regional office.

At 2:00 p.m., EPA further insured the availability of a judge for the evening.

At 4:30 p.m., a team from the regional office arrived at the U.S. Attorney's office and immediately conferred with the Assistant United States Attorney in anticipation of having to file a Section 303 action.

At 6:00 p.m. the 24-hour average had reached 7.45 Coh (8.0 Coh is the significant harm level). By 6:00 p.m., even though the levels remained elevated, the three environmental agencies had been able to achieve the following particulate matter curtailments:

1. United States Steel had eliminated all coal burning in 20 of its 21 coal boilers in the Monongahela Valley;

2. United States Steel had extended its coking time to 36 hours (usually 18 hours is normal);

3. United States Steel had eliminated all scarfing operations;

4. The Elrama Station of Duquesne, rated at 494 mw, was operating at 50-60 mw with a high efficiency particulate control device and 30-35 mw with a low efficiency control device.

5. West Penn Power's four boilers were operating in full compliance with the particulate matter emission limitation of the State implementation plan and was operating 85% of capacity. The regional office believed these units had minimal impact on the episode levels;

6. Jones and Laughlin Steel had extended its coking cycle to 24 hours (the rest of its plant was not operating at the time the episode began and this plant was thought to have minimal impact on the episode levels in the Liberty Borough area).

7. In accordance with the Allegheny County Episode Plan, other Allegheny County sources curtailed their operations generally 15 to 25 percent.

8. Other Monongahela Valley sources curtailed operations as required by DER in accordance with their curtailment plans due to alert levels outside of Allegheny County.

Between 6:00 and 10:30 p.m. on Wednesday evening, Regional Administrator Snyder met with officials of United States Steel. The episode situation was explained to the Company emphasizing that the most recent levels indicated the imminence of the significant harm concentration (8:00 p.m. reading of 7.8 Coh/24-hour average). Mr. Snyder stressed that it was imperative that the rate of coking time be extended to 48 hours as soon as possible. The plant manager advised after extended discussions that the coking time was, at 8:00 p.m., 42

hours and would reach 48 hours by midnight. The meeting with the United States Steel was recessed at about 10:30 p.m., Wednesday night, with the understanding that the meeting would reconvene at 8:00 a.m. the following morning if the episode did not improve during the night and further abatement actions would be required.

Immediately after the meeting, EPA regional personnel continued to monitor the hourly readings and evaluate the one-hour and 24-hour averages throughout the night. In addition, EPA and Allegheny County personnel went to the Clairton-Liberty Borough area to ensure that the cutbacks, as promised by United States Steel, were being implemented. Personnel also visited the monitoring station to ensure continued reliability of the hourly data and to further determine what, if any, additional sources might be impacting the monitoring. At this time, after reviewing the action taken by United States Steel as well as the reduced hourly levels which began at 11:00 p.m., we believed that the actions that had been taken would result in a lessening of the severe ambient air quality conditions.

As a precautionary measure, EPA Region III and DER considered the possibility of closing the only major source of particulate matter thought to be readily closable and having a great potential impact on the episode levels in the Clairton area, Unit #3 of Duquesne Light Company's Elrama Station (emitting approximately 500 lbs/hour of particulate matter). This facility became the focus of EPA's and the DER's attention for the rest of the night. When Duquesne Light Company was asked to shut down Elrama Unit #3 and to switch to a cleaner unit or increase generation at the Elrama Unit #2 (a substantially cleaner boiler), the Company consistently stated it was not possible for "system reliability" reasons. At midnight, with the DER's air quality chief present, the decision was made to draft pleadings to require the shutdown of Elrama Unit #3. The pleadings would be filed if ambient levels did not continue to decrease through Thursday morning. The regional office felt that the delay was warranted since the curtailments previously achieved appeared to be having a significant impact on ambient air quality. Specifically, the 1:00 a.m. Thursday 24-hour average was down to 7.3 Coh, by 3:00 a.m. the level was 7.1 Coh, and at 7:00 a.m. the ambient level had declined to 6.5 Coh, below the emergency level. It should be noted that the Wednesday night meteorological conditions remained very poor and did not noticeably improve until late Thursday afternoon. On Thursday, based on improved ambient particulate concentrations in the morning,

and a favorable meteorological forecast for the afternoon, it appeared that the episode had been abated.

In addition, on Thursday, Dr. John Knelson's health effects group from EPA's Research Triangle Park went into the Pittsburgh community (especially the Clairton area) to ascertain the health effects on certain categories of persons caused by prolonged exposure to elevated concentrations of partuculate matter. The EPA medical team was assisted by the Allegheny County Department of Health and several other medical and public health schools and associations. A final report on this matter should be available in approximately six weeks. Moreover, the Allegheny County Department of Health is giving thought to initiating a study which would cover most of the health-related questions raised in your inquiry. Upon receipt of such a study, we will, of course, forward a copy for your attention. It should be noted that during the episode the standard health warnings advising susceptible individuals to stay indoors, if at all possible, were broadcast by the media.

At this point, I would like to offer some observations about this specific episode and how it was reacted to and handled by the various public agencies. It is my opinion that the Allegheny County Public Health Department, the State DER, the U.S. Attorney's Office and EPA worked effectively to prevent the reaching of the significant harm to health level by obtaining necessary source curtailment. The EPA teams in Pittsburgh and Philadelphia kept Headquarters personnel informed throughout the episode including hourly telephone contacts to their homes until 1:00 a.m. Thursday morning. These communications were designed for consultation on actions to be taken and to facilitate expedited concurrence in the event that legal action under Section 303 would be required.

Relative to industry's reactions, industry consented to modifying their operations only after lengthy discussions and pressure by the public agencies. For example, it took United States Steel many hours and several discussions with key corporate officials to agree to expeditiously extend their coking time to 48 hours. It appears that industry acquiesced to the public agencies' plans because of the real possibility that EPA and the U.S. Attorney would seek emergency relief in the Federal Court and that such relief would certainly be granted.

While there is some room for disagreement as to whether the initial steps taken by Allegheny County and the State were of sufficient magnitude considering the problems they faced, I am satisfied that all the public agencies acted in the most responsible manner to require the necessary source curtailments to protect the public health. I also believe that the public agencies provided all the practical health precautions to the public that were feasible.

You have asked whether the Agency has performed an economic analysis of the effect of the episode and the resulting curtailment actions. It should be emphasized that all our actions in abating the episode conditions were solely premised on preventing serious health impacts from occurring.

I strongly believe that the prime responsibility for monitoring emergency episode conditions and for initiating appropriate Federal abatement action during an emergency episode should be with the appropriate regional office which is the most familiar with the State and local agencies and the sources in a specific area. I additionally believe, however, that EPA Headquarters components also play a key role in assisting by discussion of strategy and providing requested personnel to the regional office throughout an episode. Finally, current procedures require EPA Headquarters concurrence before any legal action can be taken under Section 303.

One matter the Agency will have to reevaluate concerns what ambient level, lower than the emergency levels, should be equated to imminent and substantial endangerment to public health where concentrations continue for a significant period of time (45 to 72 hours). In this regard, I anticipate that the Agency may have to make some revisions to our regulations in 40 CFR Part 51 and revise and prepare additional guidance to our regional offices. In addition, further clarification would be helpful in providing EPA with direct authority to require emission curtailments prior to the time when concentrations actually reach substantial endangerment levels.

The remaining point I would like to discuss concerns your general request for a nationwide analysis of locations and dates over the last three years where air quality approached or exceeded the emergency action levels. On January 3, 1975, I responded to a similar request from Senator Edmund S. Muskie. In this regard, I am enclosing a copy of that response for your consideration. We will forward to you an

update of this information for the last year as soon as the information can be assembled.

I hope that this report, as well as the supplementary information that will be forwarded to you, will be of value in your Committee's deliberations on the Clean Air Act Amendments. We remain available to provide whatever additional assistance you or your staff may request on this matter.

Sincerely yours,

Russell E. Train

Honorable Paul G. Rogers
Chairman, Subcommittee on Health and the Environment
Committee on Interstate and Foreign Commerce
House of Representatives
Washington, D.C. 20515

Enclosures