
Radon and Aerosol Release from Open Pit Uranium Mining

Prepared by V. W. Thomas, K. K. Nielson, M. L. Mauch

Pacific Northwest Laboratory
Operated by
Battelle Memorial Institute

Prepared for
U.S. Nuclear Regulatory
Commission

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Manuscript Completed: March 1982
Date Published: August 1982

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Prepared for
Division of Health, Siting and Waste Management
Office of Nuclear Regulatory Research
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
NRC FIN B2279

TABLE OF CONTENTS

ABSTRACT	1
EXECUTIVE SUMMARY.	3
1.0 INTRODUCTION.	8
1.1 Purpose and Scope.	8
1.2 Description of Morton Ranch Study Site	9
1.2.1 Geographical.	9
1.2.2 Meteorological.	9
1.2.3 Recent Mining Activity.	9
1.2.4 Groundwater	13
1.3 Experimental Design.	13
1.3.1 Radon Flux and ^{222}Ra Concentration.	13
1.3.2 Atmospheric Radon Concentrations.	17
1.3.3 Atmospheric Aerosol Measurements.	17
1.3.4 Meteorology Measurements.	18
1.3.5 Reporting of Results.	18
2.0 RADON FLUX.	24
2.1 Measurement Techniques	24
2.2 Radon Flux from Morton Ranch Mine.	32
2.3 Radon Flux, U_3O_8 Concentration and Calculated Specific Flux at Other Wyoming Mines	36
2.4 Temporal Flux Variations	42
2.5 Meteorological Parameters and Radon Flux	44
2.5.1 Soil Moisture	44
2.5.2 Barometric Pressure and Atmospheric Temperature	52

TABLE OF CONTENTS (continued)

3.0	ESTIMATION OF RADON RELEASE FROM MINING . . . . .	.53
3.1	Redefinition of the Model Mine . . . . .	.53
3.2	Radon Release from the Active Model Mine . . . . .	.56
3.3	Radon Release from Morton Ranch Open Pit Mining. . . . .	.60
3.4	Radon Release from the Inactive Abandoned Model Mine . . . . .	.65
3.5	Radon Release per Unit U_3O_8 Produced . . . . .	.65
3.6	Comparison of Radon Emission with Background Levels. . . . .	.67
3.7	Comparison with St. Anthony Mine Emissions Reported by Argonne National Laboratory . . . . .	.68
4.0	ATMOSPHERIC CONCENTRATIONS OF RADON . . . . .	.71
4.1	Yearly and Monthly Mean Concentration Upwind, Downwind, and at the 1704 Pit. . . . .	.71
4.2	Dependence of Radon Concentration on Wind Direction and Speed. . . . .	.76
5.0	ATMOSPHERIC AEROSOLS. . . . .	.81
5.1	Dust Load and Particle Size Distribution . . . . .	.81
5.1.1	Andersen Impactor Samples . . . . .	.81
5.1.2	Sierra Impactor Samples . . . . .	.83
5.1.3	Dichotomous Filter Samples. . . . .	.85
5.1.4	PIXE Impactor Samples . . . . .	.92
5.2	Elemental Composition of Aerosols. . . . .	.92
5.2.1	Elemental Analyses of Impactor Samples. . . . .	.94
5.2.2	Elemental Analyses of Dichotomous Samples	107
5.3	Radiochemical Composition of Aerosols.	117
5.3.1	Andersen Impactor Samples	117
5.3.2	Sierra Impactor Samples	119

TABLE OF CONTENTS (continued)

6.0 SUMMARY AND CONCLUSIONS.	123
7.0 ACKNOWLEDGEMENTS	128
REFERENCES.	129
APPENDIX A - STATISTICAL APPROXIMATIONS AND SAMPLE CALCULATIONS	A-1
APPENDIX B - ATMOSPHERIC RADON CONCENTRATION.	B-1
RA.DAT Radon Concentration, Site A - Upwind	
RB.DAT Radon Concentration, Site B - Pit Edge	
RC.DAT Radon Concentration, Site C - Downwind	
APPENDIX C - METEOROLOGICAL PARAMETERS.	C-1
AP.DAT Barometric Pressure, Dave Johnston Power Plant	
AT.DAT Air Temperature, Site A	
WD.DAT Wind Direction, Site A	
WS.DAT Wind Speed, Site A	
RF.DAT Approximate Rainfall, Site A	
APPENDIX D - GRAPHICAL PLOTS OF APPENDICES B AND C.	D-1
APPENDIX E - RADON FLUX, U ₃ O ₈ CONCENTRATION, SOIL MOISTURE, SPECIFIC FLUX.E-1	
Morton Ranch Mine	
Mine A	
Mine B	
Mine C	
Mine D	
Casper Area	

TABLES

1	Arithmetic Mean Radon Flux Measured by Several Sampling Devices on Morton Ranch Mine Surfaces	25
2	Arithmetic Mean Radon Flux, U_3O_8 and Specific Radon Flux, Morton Ranch.	35
3	Arithmetic Mean Radon Fluxes Measured at Five Mines	37
4	Geometric Mean Radon Fluxes Measured at Five Mines.	38
5	Arithmetic Mean U_3O_8 Concentrations Measured at Five Mines.	39
6	Geometric Mean U_3O_8 Concentrations Measured at Five Mines	40
7	Arithmetic Mean Specific Radon Flux Calculated for Mine Vicinity Surfaces of Five Mines	41
8	Arithmetic Mean Specific Radon Flux Comparison with Other Studies	43
9	Model Mine Parameters Averaged from Owner/Operator Estimates for Eight Open Pit Uranium Mines.	54
10	Net Radon Emissions from the Active Model Mine at Midlife (8.5 yr) Using Overall Arithmetic Mean Specific Radon Flux Calculated from Field Measurements at Five Mines and 1981 Survey of Mine Parameters	57
11	Net Radon Emissions from the Active Model Mine at Midlife (8.5 yr) Using Arithmetic Mean Specific Radon Flux Calculated from Field Measurements at Five Mines for Each Surface Type and 1981 Survey of Mine Parameters.	59
12	Net Radon Emissions from the Active Model Mine at Midlife (8.5 yr) Using Arithmetic Mean Specific Radon Flux and U_3O_8 Concentrations from Field Measurements at Five Mines and Areas Calculated from 1981 Survey of Mine Parameters.	61
13	Net Radon Emissions from Morton Ranch Mine Estimated from Field Measurements of Radon Flux and Surface Areas Estimated from Topographic Maps and Field Measurements.	63
14	Net Radon Emissions from Morton Ranch Open Pit Mining after 8.5 Years Using Specific Fluxes and U_3O_8 Concentrations from Field Measurements at Morton Ranch, and All Other Parameters from the 1981 Model.	64

TABLES (continued)

15	Net Radon Emissions from the Inactive or Abandoned Model Mine after 16.6 Years Using Arithmetic Mean Specific Radon Flux and U_3O_8 Concentrations Measured at Five Mines for Each Surface Type with Surface Areas Calculated from 1981 Survey of Mine Parameters	66
16	Geometric Mean Monthly and Annual Atmospheric Radon Concentration.	72
17	Atmospheric Radon Concentration Near the Ground Measured by Charcoal Adsorption from Pumped Air	75
18	Sample Volumes and Total Aerosol Masses Obtained with Andersen Cascade Impactors	82
19	Major and Trace Elements in Air Particulates Collected During Light Winds	95
20	Major and Trace Elements in Air Particulates Collected During Moderate Winds.	96
21	Average Elemental Constituents of Morton Ranch Soils used for Interpreting Element Ratios in Windblown Dust	99
22	Elemental Constituents of Morton Ranch Ore, Overburden and Topsoil.	104
23	Elemental Analysis of Dichotomous Air Samples Collected at Site A, Morton Ranch.	108
24	Elemental Analysis of Dichotomous Air Samples Collected at Site B, Morton Ranch.	109
25	Elemental Analysis of Dichotomous Air Samples Collected at Site R-7, Morton Ranch.	110
26	Elemental Analysis of Dichotomous Air Samples Collected at Site D, Morton Ranch.	111
27	Uranium-Related Radionuclides in Particulates at Sites A and D.	118
28	Radionuclide Analysis of Particulates in the June, 1979 Sierra Impactor Samples Collected Near the Ore Stockpile	120

FIGURES

1	Morton Ranch Mine Sampling Sites	10
2	Study Pit Close-in Sampling Sites.	11
3	Composite Photograph of 1704 Pit, Morton Ranch Operations.	12
4	New Mining Activity Begun During Study	14
5	The Uranium Series	15
6	Radon Flux, Morton Ranch Overburden Pile Measurements vs. Cumulative Frequency	20
7	Radon Flux, Morton Ranch Lower Grade Stockpile vs. Cumulative Frequency	21
8	Specific Radon Flux from All Surfaces at Five Mines vs. Cumulative Frequency	22
9	Diagram of Radon Flux Tent Sampler	26
10	Flow-Through Tent and Passive Radon Monitors	28
11	Passive Radon Flux Devices Tested August 1978.	29
12	PVC Charcoal Canister used as Collector.	30
13	"PVC" Passive Radon Flux Monitors Tested in December 1978.	31
14	Steps in the Assembly of the GMA Radon Flux Canister	33
15	Disassembly and Canning of GMA Canister.	34
16	Monthly Geometric Mean Radon Flux Measured on the Morton Ranch Mine Ore Pile.	45
17	Monthly Geometric Mean Radon Flux Measured on the Morton Ranch Mine Lower Grade Ore Pile.	46
18	Monthly Geometric Mean Radon Flux Measured on the Morton Ranch Mine Overburden Pile	47
19	Monthly Geometric Mean Radon Flux Measured on Morton Ranch Mine Topsoil	48
20	Monthly Geometric Mean Radon Flux Measured on the Morton Ranch Mine 1704 Pit Floor	49

FIGURES (continued)

21	Monthly Geometric Mean Radon Flux Measured on Several Morton Ranch Mine Surfaces	50
22	Radon Flux at Surface of Overburden Piles Versus Percent Soil Moisture.	51
23	Schematic Illustration of the Model Mine Near the Middle of its Active Lifetime, and in its Inactive or Abandoned Status.	55
24	Geometric Mean Monthly Atmospheric Radon Concentration	73
25	Geometric Mean Atmospheric Radon Concentration at Site A	77
26	Geometric Mean Atmospheric Radon Concentration at Site B	78
27	Geometric Mean Atmospheric Radon Concentration at Site C	79
28	Particle Size Distributions using 20 cfm Andersen Impactor Samplers.	84
29	Aerosol Particle Size Distributions using 40 cfm Sierra Cascade Impactor	86
30	Schematic of Dichotomous Aerosol Samplers.	88
31	Variation in Cut Point Size with Flow Rate for an 8.0 μm Nuclepore [®] Filter.	90
32	Monthly Aerosol Mass Loadings Determined from Dichotomous Samples.	91
33	Aerosol Particle Size Distribution using the Low-Volume PIXE Impactor.	93
34	Silicon, Titanium, Potassium, Calcium, Manganese and Nickel Enrichment Factors for Sierra Hi-Vol Samples.	100
35	Selenium, Sulfur, Zinc, Uranium and Lead Enrichment Factors for Sierra Hi-Vol Samples.	101
36	Copper, Bromine, Vanadium and Arsenic Enrichment Factors for Sierra Hi-Vol Samples.	102
37	Correlation of Vanadium and Uranium Concentrations in Morton Ranch Soils and Ores	105
38	Correlation of Selenium and Uranium Concentrations in Morton Ranch Soils and Ores.	106

FIGURES (continued)

39	Monthly Integrated Elemental Concentrations of Dichotomous Air Samples at Four Sites (Si, K, Ca, Fe) . . . . .	.112
40	Monthly Integrated Elemental Concentrations of Dichotomous Air Samples at Four Sites (S, Pb) . . . . .	.113
41	Monthly Integrated Elemental Concentrations of Dichotomous Air Samples at Four Sites (Ti, Br). . . . .	.114
42	Monthly Integrated Elemental Concentrations of Dichotomous Air Samples at Four Sites (Cu, Zn, Mn). . . . .	.115
43	Average Elemental Enrichment Factors in Site A Aerosols Collected with Dichotomous Samplers . . . . .	.116
44	Estimated Airborne Particulate Uranium Activity Versus Distance from the Ore Pile122

RADON AND AEROSOL RELEASE FROM
OPEN PIT URANIUM MINING

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ABSTRACT

The model open pit uranium mine reported in NUREG/CR-0628 has been re-defined based on a 1981 survey of estimated mining parameters. The new active model mine is estimated to cause net radon releases of 3300 Ci/yr compared to 2000 Ci/yr from the original model. This equals 840 Ci/RRY [201 tonnes U_3O_8 /Reference Reactor Year (RRY)] compared to 700 Ci/RRY from the original model. After mining, radon releases continue at the elevated rate of 2700 Ci/yr (43 Ci/yr/RRY) compared to the earlier model estimate of 1380 Ci/yr (29 Ci/yr/RRY). The net increase over the background radon emission rate during preparatory open pit mining at Morton Ranch 1704 pit was estimated from a one-year field study to be 150 Ci/yr. The estimated radon releases just from the 1704 pit (60 Ci/yr) are discussed in relationship to the 11 Ci/yr radon releases from the inactive pit at the St. Anthony Mine, New Mexico estimated by Argonne National Laboratory (ANL). The projected release rate from the St. Anthony pit of approximately 50 Ci/yr at its mid-life (8.5 years) was a factor of 17 lower than the estimated release from the active pit of the model mine (830 Ci/yr) at its mid-life (also 8.5 years).

Due to the large variations found in measurements made in the natural environment, large uncertainty estimates were associated with most measurements. The log-normal distribution was used to describe some data sets. However, arithmetic means were used to calculate radon emissions from the mine surfaces which were used to determine net radon releases from mining activities.

The overall arithmetic mean specific radon flux measured on all surfaces at five mines was $0.133 \text{ Ci/m}^2\text{-yr-}\% \text{ U}_3\text{O}_8$ compared to $0.092 \text{ Ci/m}^2\text{-yr-}\% \text{ U}_3\text{O}_8$ used in NUREG/CR-0628. The range of arithmetic mean estimates of specific flux measured on undisturbed topsoil, topsoil piles, overburden piles, and recovered overburden piles (i.e., covered with 15-20 cm topsoil and usually planted with natural grasses) was from 1900 to 5700 $\text{pCi/m}^2\text{-sec-}\% \text{ U}_3\text{O}_8$. Literature values for soil ranged from 620 to 2500 $\text{pCi/m}^2\text{-sec-}\% \text{ U}_3\text{O}_8$. Specific flux calculated from measurements made on mine floors, including ore surfaces, by Pacific Northwest Laboratory (PNL) and averaged over five mines was 3200 $\text{pCi/m}^2\text{-sec-}\% \text{ U}_3\text{O}_8$. Average specific fluxes from ore piles and lower grade ore piles were calculated by PNL to be 6200 and 5400 $\text{pCi/m}^2\text{-sec-}\% \text{ U}_3\text{O}_8$, respectively. Comparative specific fluxes from ANL data on ripped and undisturbed ore in an open pit were 48 and 204 $\text{pCi/m}^2\text{-sec-}\% \text{ U}_3\text{O}_8$.

This study has shown that the data collected in the field are so highly variable among different mines, different surface types, and even within each surface type, that the typical values presented must be considered very approximate if used for extrapolation to other mines or to the uranium mining industry in general.

The field data indicated that soil moisture content above 10 to 12% limits the release of radon. Atmospheric radon concentrations in the near vicinity (less than about 4 km) of radon sources were dependent upon wind speed and wind direction. However, a large operating open pit uranium mine-mill complex located about 8 km from the radon monitors did not result in elevated levels of airborne radon at the monitors.

The study of atmospheric aerosols at Morton Ranch showed the particle size distributions to be bi-modal with minimums occurring at a particle size of about $2 \mu\text{m}$. Total mass loadings ranged from 5 to $166 \mu\text{g/m}^3$, compared with average values of $21 \mu\text{g/m}^3$ reported in the literature for 10 remote stations to $102 \mu\text{g/m}^3$ for 25 urban stations. Chemical analyses of the particulates indicated possible sources to be primarily local soil and a local fossil-fueled power plant. Vehicular traffic and other minor sources were also suggested. The only significant impact on aerosol composition which was attributed to the mining operation was the enrichment of uranium over that in natural ambient soil by a factor of about 50. However, this single measurement was made only 19 m downwind from an ore pile during windy conditions.

EXECUTIVE SUMMARY

In order to assist the Nuclear Regulatory Commission in establishing the radon and aerosol releases from existing open pit uranium mines, and to supplement their update of Table S3 of 10 CFR 51, estimates were made of the quantities of ^{222}Rn and aerosols released from open pit uranium mining. The estimates were based on extensive field measurements of radon fluxes and concentrations, aerosol properties, and surveys of characteristic mine parameters.

Many of the field measurements yielded data which were log-normally distributed. The summaries of much of the radon flux and concentration data are therefore reported as geometric means and geometric standard deviations. However, arithmetic means were used whenever subsequent additive calculations were required with the data. The use of the arithmetic mean was necessary to avoid a negative bias in estimating the total radon releases from several sources, each comprising a separate distribution.

Annual radon releases were estimated as the product of a surface area, its uranium or radium content, and its specific flux. Specific radon fluxes were calculated from monthly radon flux and radium concentration measurements made on characteristic surfaces common to open pit uranium mines (i.e., ore, overburden, etc.). The measurements were made over a period of about one year at the Morton Ranch Mine. Corroborative measurements were also made at four other Wyoming mines in the fall and spring. The arithmetic means of the calculated specific fluxes varied from 750 $\text{pCi/m}^2\text{-sec-}\% \text{U}_3\text{O}_8$ on the pit overburden at Mine C to 11,600 $\text{pCi/m}^2\text{-sec-}\% \text{U}_3\text{O}_8$ on the lower grade ore piles of Mine A. The geometric means of the specific flux values varied from about 350 $\text{pCi/m}^2\text{-sec-}\% \text{U}_3\text{O}_8$ on a topsoil pile and on the pit floor at Morton Ranch to 7000 $\text{pCi/m}^2\text{-sec-}\% \text{U}_3\text{O}_8$ on a high grade ore pile at Mine D. The overall arithmetic means of the arithmetic means of specific fluxes measured on all surfaces at all five mines was 4200 $\text{pCi/m}^2\text{-sec-}\% \text{U}_3\text{O}_8$ (0.133 $\text{Ci/m}^2\text{-yr-}\% \text{U}_3\text{O}_8$). The estimated specific flux reported in the first document from this study (NUREG/CR-0628) was 0.092 $\text{Ci/m}^2\text{-yr-}\% \text{U}_3\text{O}_8$.

Arithmetic mean specific fluxes varied from 1900 $\text{pCi/m}^2\text{-sec-}\% \text{U}_3\text{O}_8$ on undisturbed topsoil outside the mining environs to 6200 $\text{pCi/m}^2\text{-sec-}\% \text{U}_3\text{O}_8$

on ore piles at five mines. For comparison, estimated specific radon fluxes on soil from three other studies were 620, 2400, and 2500 pCi/m²-sec-% U₃O₈. The current study measured values from 1900 to 5700 pCi/m²-sec-% U₃O₈ on undisturbed topsoil near Casper, undisturbed topsoil on mining properties, topsoil storage piles at mines, overburden piles, and recovered overburden piles. (Recovered overburden piles have been covered with 15 to 20 cm of local topsoil and then replanted with native grasses.) Specific radon fluxes calculated from measurements made by Pacific Northwest Laboratory (PNL) at five Wyoming mines averaged 3,200 pCi/m²-sec-% U₃O₈ on pit floor surfaces including areas of ore. Specific fluxes estimated from measurements on ore piles and lower grade ore piles by PNL averaged 6200 and 5400 pCi/m²-sec-% U₃O₈, respectively. Argonne National Laboratory (ANL) reported specific radon flux for undisturbed and ripped ore in a pit at the St. Anthony Mine to be 204 and 48 pCi/m²-sec-% U₃O₈, much lower than the present corresponding estimates.

Arithmetic mean measurements of radon flux on topsoil at the mine (1.2 pCi/m²-sec) and U₃O₈ concentration (5.6 ppm) compare favorably with measurements made on topsoil taken within a 100 km radius of Casper, Wyoming. The arithmetic means of these latter measurements were 1.1 pCi/m²-sec and 5.7 ppm, respectively.

Attempts to determine the effects on radon flux of seasonal change, soil moisture, barometric pressure, and atmospheric temperature were for the most part masked by the nonhomogeneity of the mine surfaces. Moisture, however, above 10 to 12% did appear to lower the upper limit of radon flux. The most marked effect was on overburden pile fluxes which were in the range of 4 to 100 pCi/m²-sec for 40 out of 120 measurements from soils below 11.5% moisture. However, none of the 28 measurements from soils above 11.5% moisture fell into this range. Nine to 10 of the measurements at moisture contents higher than 11.5% should have been above 4 pCi/m²-sec if moisture had no effect.

Atmospheric radon concentrations near the ground were continuously measured throughout the year of study at locations 1.6 km upwind, at the pit edge, and at 1.6 km downwind from the 1704 pit. The respective annual geometric mean radon concentrations were 0.36 pCi/l with geometric standard

deviation (GSD) of 3.3, 0.73 pCi/l with GSD = 2.2 and 0.40 pCi/l with GSD = 1.8. An unexplained drop in radon concentration was observed in October and November 1979 at two of the sites to new levels which remained relatively constant throughout the remaining six months of the study. The upwind site dropped from a monthly geometric mean of 1.7 pCi/l to about 0.2 pCi/l, and the pit edge site dropped from a monthly mean of 2.0 pCi/l to about 0.5 pCi/l.

Correlation of radon concentration with wind speed and wind direction indicated a dependence on these two parameters. When the winds were from the direction of local sources of radon, the radon concentrations were higher than when the winds were from areas with no known local radon sources. The highest yearly geometric mean radon concentration (1.5 pCi/l) from any one of the eighteen 20° arcs of the magnetic compass was measured at the pit edge when the wind was blowing from 180 to 190°, from the ore storage area at ≥ 5 m/sec. When the wind was blowing from a remote large source of radon (Exxon Highlands mining and milling operation at approximately 8 km distance), some of the lowest mean concentrations of radon were measured (0.2 to 0.4 pCi/l) at the downwind site.

Estimates of radon release from a model open pit uranium mine reported earlier from this project (NUREG/CR-0628) were based on parameters estimated by mining personnel at eight Wyoming uranium mines and from a limited number of measurements of radon flux and ^{226}Ra concentrations at Morton Ranch Mine. A second survey was made in 1981 of the model mine parameters and, based on them, the model mine was re-defined as having 19 pits rather than 7 pits. The pit wall slope was modified to 39° from the vertical rather than 45°. The ore production rate was lowered from 1560 tonnes per day to 1460 tonnes per day. The overburden-to-ore ratio was reduced from 77 tonnes/tonne to 65 tonnes/tonne. Other minor adjustments were also made.

Active mining in the 1981 model open pit uranium mine causes estimated net radon releases of 3300 Ci/yr compared to 2000 Ci/yr from the original model. In terms of annual reactor fuel requirements, this is equivalent to 840 Ci/RRY (201 tonnes U_3O_8 /RRY) compared to 700 Ci/RRY from the original model. Radon releases continue at the reduced rate of 2700 Ci/yr after

the 16.6 year lifetime of the mine, which is equivalent to 43 Ci/yr/RRY produced by the mine during its lifetime. The earlier inactive model estimates were 1380 Ci/yr (29 Ci/yr/RRY).

Net increases over background radon emissions due to open pit mining at Morton Ranch Mine 1704 pit during the year of the study were estimated to be 150 Ci/yr. The 1704 pit was newly developed and inactive during the year, however, so an estimate of the net radon emissions from the mine also was made for the midpoint of its lifetime, eight and one-half years later. This estimate assumed that mining procedures, surface areas, and mining parameters other than the specific flux and U_3O_8 concentrations (which were measured) were the same as used in the 1981 model mine. The estimate of future net radon emissions from the active mine was 940 Ci/yr.

The inactive pit at the St. Anthony Mine in New Mexico and the Morton Ranch 1704 pit are of similar size and were both relatively inactive when radon flux measurements were made. The St. Anthony pit had been mined through the ore zones while the 1704 pit had been excavated just down to or near the top of the first ore zone. ANL estimated radon releases of 11 Ci/yr from the St. Anthony pit, while PNL estimated 60 Ci/yr from the Morton Ranch 1704 pit.

The projected release rate from the St. Anthony pit of approximately 50 Ci/yr at mid-life (8.5 years) was a factor of 17 lower than the arithmetic mean value of the model mine active pit (830 Ci/yr) at its mid-life (also 8.5 years). This difference was primarily due to the specific flux values calculated for each of the pits.

Estimates of radon released from the model mine presented in this report are based on parameters estimated by mine personnel during the 1981 survey, assumptions and definitions given in NUREG/CR-0628, which are reasonable. However, since field data were highly variable among different mines, different surface types, and even within each surface type, the estimates must be considered very approximate if used for extrapolation to other mines or to the uranium mining industry in general.

The one-year study of atmospheric aerosols at Morton Ranch operations has permitted chemical and radiochemical analyses as a function of particle

size. Particle size distributions were bi-modal, with distribution minimums occurring at a particle size of about 2 μm . Total mass loading varied from 24 to 166 $\mu\text{g}/\text{m}^3$ for grab samples, but monthly average mass loadings determined from continuous samplers ranged from 5 to 65 $\mu\text{g}/\text{m}^3$. These are compared to literature values of 21 $\mu\text{g}/\text{m}^3$ for 10 remote stations, 40 $\mu\text{g}/\text{m}^3$ for 40 non-urban stations, and 102 $\mu\text{g}/\text{m}^3$ for 25 urban stations.

Chemical analyses of particulates indicated several possible sources. The major source of particulates, particularly in the coarse size range, was local soil. Enrichments of certain elements could generally be attributed to a fossil-fueled power plant located in the prevailing up-wind direction from the study mine. Indications of aerosol material from vehicular traffic and possibly copper smelting were also noted. The only measured element directly associated with uranium mining activity was uranium, which was detected only on occasion and at concentrations near ambient.

The uranium content of aerosols collected 1.6 km from the mine and ore stockpile areas were about two to four times higher than ambient soil in the same area. However, there are evidences of old mining activity in the immediate area which could explain the elevated uranium concentrations.

Additional radionuclide measurements in aerosols collected only 19 m downwind from the ore stockpile during high winds indicated a 50-fold enrichment of uranium relative to topsoils from that area. Using a gaseous dispersion model, it was estimated that the uranium content of the aerosols would fall to within twice the background level at a distance of about 3 km from the mine. The only significant impact on aerosol composition attributed to the mining operation was the enrichment of uranium.

1.0 INTRODUCTION

1.1 Purpose and Scope

This investigation had the principal objective of determining the quantity of ^{222}Rn (hereafter called radon) released per unit of uranium produced from open pit mining. A secondary objective was to determine the nature and quantity of airborne particles resulting from mine operations. The information gained from this study is required by the Nuclear Regulatory Commission (NRC) for characterizing radioactive and aerosol releases from existing open pit uranium mines and will be used to supplement the update of Table S3 of 10 CFR 51. To accomplish these objectives, a comprehensive study of the release rates of radon and aerosol material to the atmosphere was made over a one-year period from April 1979 to May 1980 at the Morton Ranch Mine which was operated by United Nuclear Corporation (UNC) in partnership with Tennessee Valley Authority (TVA). The mine is now operated for TVA by Silver King Mines. Morton Ranch Mine was one of five open pit uranium mines studied in central Wyoming. Corroborative measurements were made of radon flux and ^{226}Ra (hereafter called radium) concentrations of various surfaces at three of the other mines in October 1980 and again at these three mines plus a fourth in April of 1981. Three of these mines are located in the Powder River Basin, about 80 kilometers east by northeast of Casper. One is located in the Shirley Basin, about 60 km south of Casper, and the remaining one is located in the Gas Hills, approximately 100 km west of Casper.

The one-year intensive study included simultaneous measurement of several parameters: Continuous measurement of atmospheric radon concentration near the ground at three locations, monthly 24-hour radon flux measurements from various surfaces, radium analyses of soil samples collected under each of the flux monitoring devices, monthly integrations of aerosols on dichotomous aerosol samplers, analysis of aerosol samplers for total dust loading, aerosol elemental and radiochemical composition, aerosol elemental composition by particle size, wind speed, wind direction, temperature, barometric pressure, and rainfall.

1.2 Description of Morton Ranch Study Site

1.2.1 Geographical

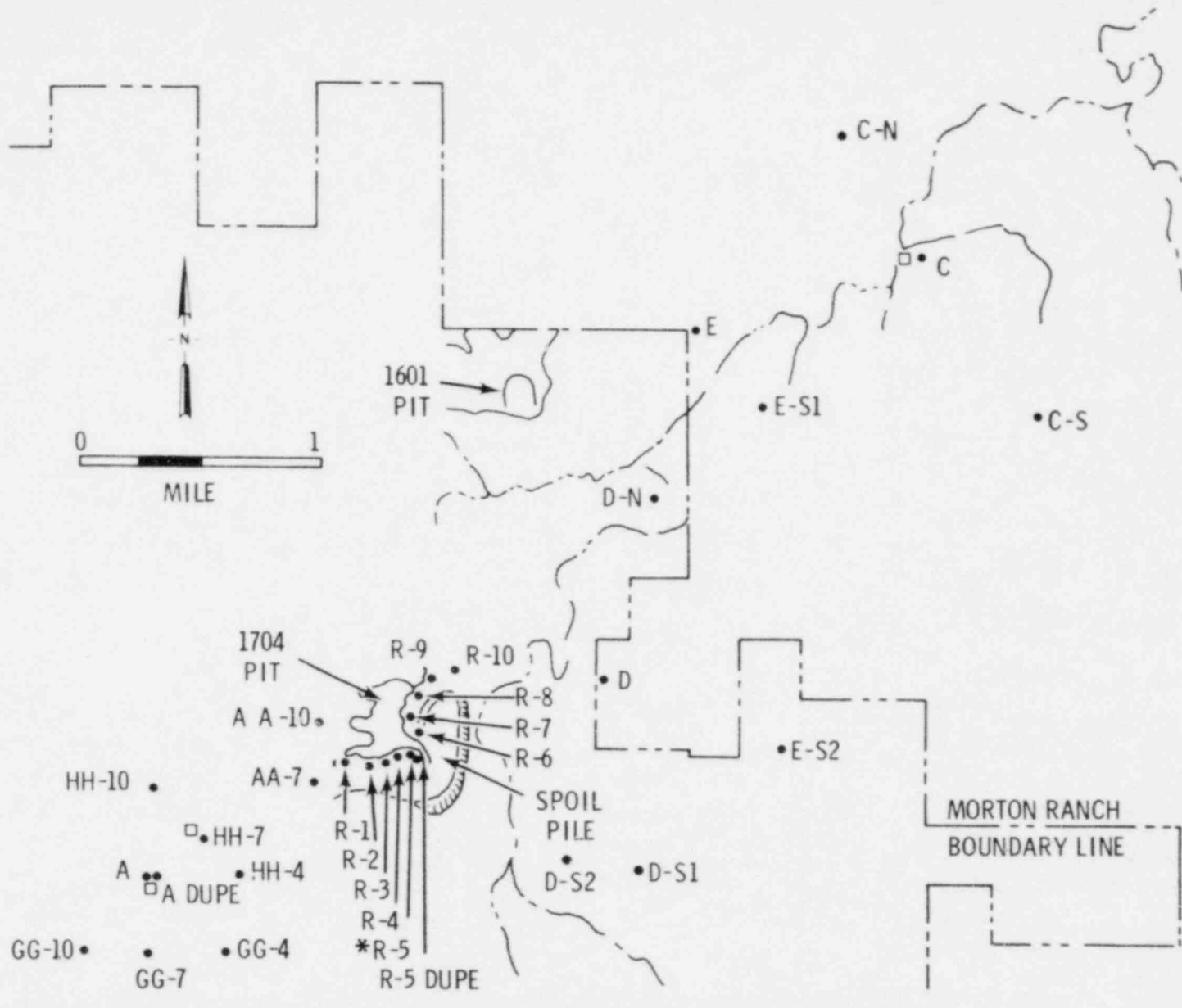
The mine is located in the southern portion of the Powder River Basin on an 8700 ha (21,500 acre) tract of leased land in Converse County, which is about 29 air km north-northwest of Douglas, about 37 air km northeast of Glenrock,¹ and about 97 km east by northeast of Casper, Wyoming. It is also situated on the west slope of the drainage served by the south fork of Box Creek (Figure 1).

1.2.2 Meteorological

Central Wyoming is a semi-arid region with a normal annual precipitation (reported at Casper by the National Weather Service in 1980) of 11 inches (28 cm), normal annual temperature of 7.4°C (ranging from -40°C to +40°C), normal yearly wind speed of 5.85 m/sec (13.1 miles/hr), and prevailing southwest wind direction. At Morton Ranch Mine, PNL measured respectively 5.2 inches precipitation (13.2 cm, probably low due to instrument maintenance problems), 8.1°C (-29°C to +38°C), and 4.3 m/sec. Elevation is about 1600 m at Morton Ranch.

1.2.3 Recent Mining Activity

At the beginning of this study in 1978, there were two major open pits on the property. One of these pits (1601 pit) is inactive and is located roughly 2 km northeast of the active study pit (Figure 1). Four large ore or subore piles are stored on the rim of the inactive pit for possible future use. The study pit (1704 pit) was in recent years excavated to near the top surface of the ore deposits. During the period of our study, very little mining activity was accomplished in the study pit other than leveling the bottom and clearing it of loose debris. The pit dimensions were estimated to be 500 m by about 240 m in length and breadth. It was surrounded on the east and south by a large overburden pile, and there was an ore stockpile and a mineral (subgrade ore) pile stored on the southern rim of the pit (Figure 2). Figure 3 is a composite photograph of the southwest quadrant of 1704 pit showing the



* ALSO REFERRED TO AS B-SITE

FIGURE 1. Morton Ranch Mine Sampling Sites

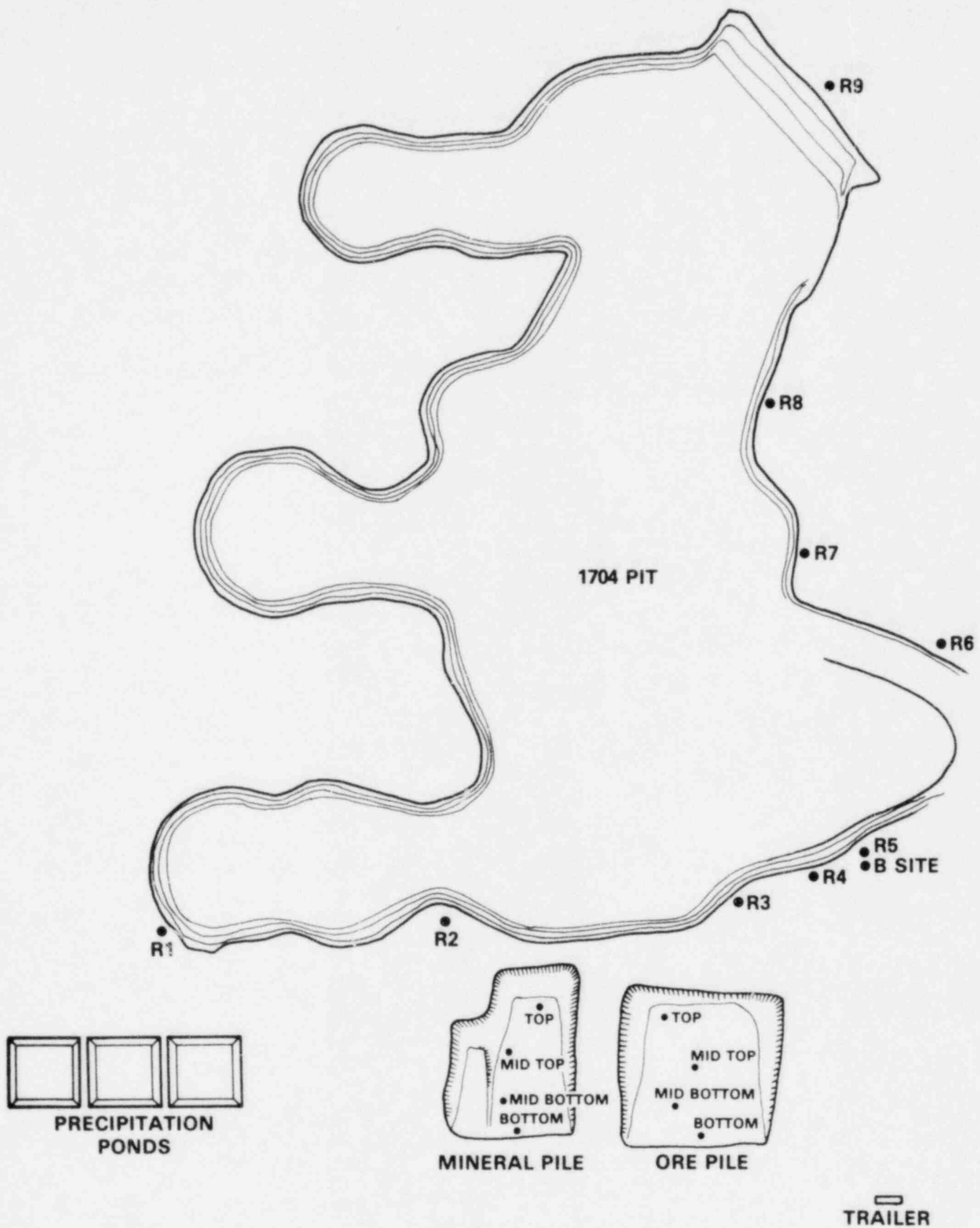


FIGURE 2. Study Pit Close-in Sampling Sites

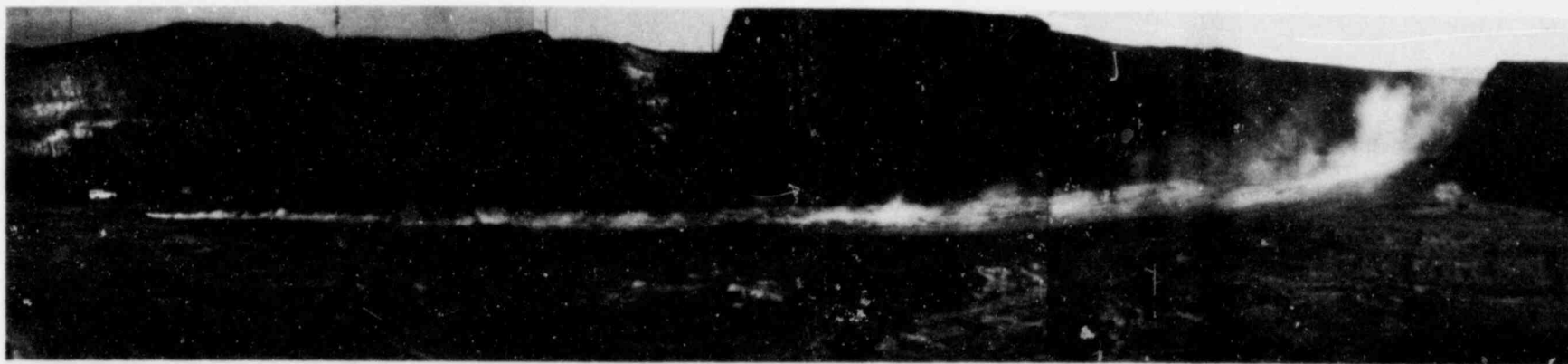


FIGURE 3. Composite Photograph of 1704 Pit, Morton Ranch Operations, taken looking Southwest in April 1979

proximity of the ore pile (on far left rim) and the mineral pile (just to right of ore pile) to the pit. The wind, as indicated by the smoke bomb, is blowing from the southeast by east. A rough estimate of the material removed from the study pit is 3.6 million m³.

In October of 1979, active excavation was begun immediately south of the study pit to prepare an effluent basin and tailings dam (Figure 4). This activity expanded to include the removal of overburden from portions of the area marked "New Excavation"; and, except for winter inactivity, continued through the end of the one-year study period.

1.2.4 Groundwater

Groundwater must be pumped from the bottom of the study pit to keep the area clear of water for mining. During the first two visits to the mine in the fall of 1978, approximately 80% of the mine floor was free of water. By the beginning of the one-year sampling period in April 1979, about 70% of the earthen surface was still exposed (Figure 3). The exposed surface was down to about 60% by February of 1980. Apparently, pumping was discontinued sometime during the winter months. When spring thaws began, the pit bottom filled rapidly. By March, only 30% of the bottom was not submerged; and by April, the open area was estimated to be less than 10% of the total pit floor.

1.3 Experimental Design

1.3.1 Radon Flux and ²²⁶Ra Concentration

Radon is one of the naturally occurring radioactive progeny of ²³⁸U and has a 3.825 day half-life (Figure 5). It is one of the chemically inert gases and is formed by the radioactive decay of radium (1622 years half-life). Being chemically inert, it readily diffuses through porous media such as earth and cracked or fractured rock. Since even natural soil has a U₃O₈ concentration of about 4 ppm,² substantial amounts of radon are continually released to the atmosphere from the surface of the earth. Assuming all other parameters remain constant, the amount of radon released from a

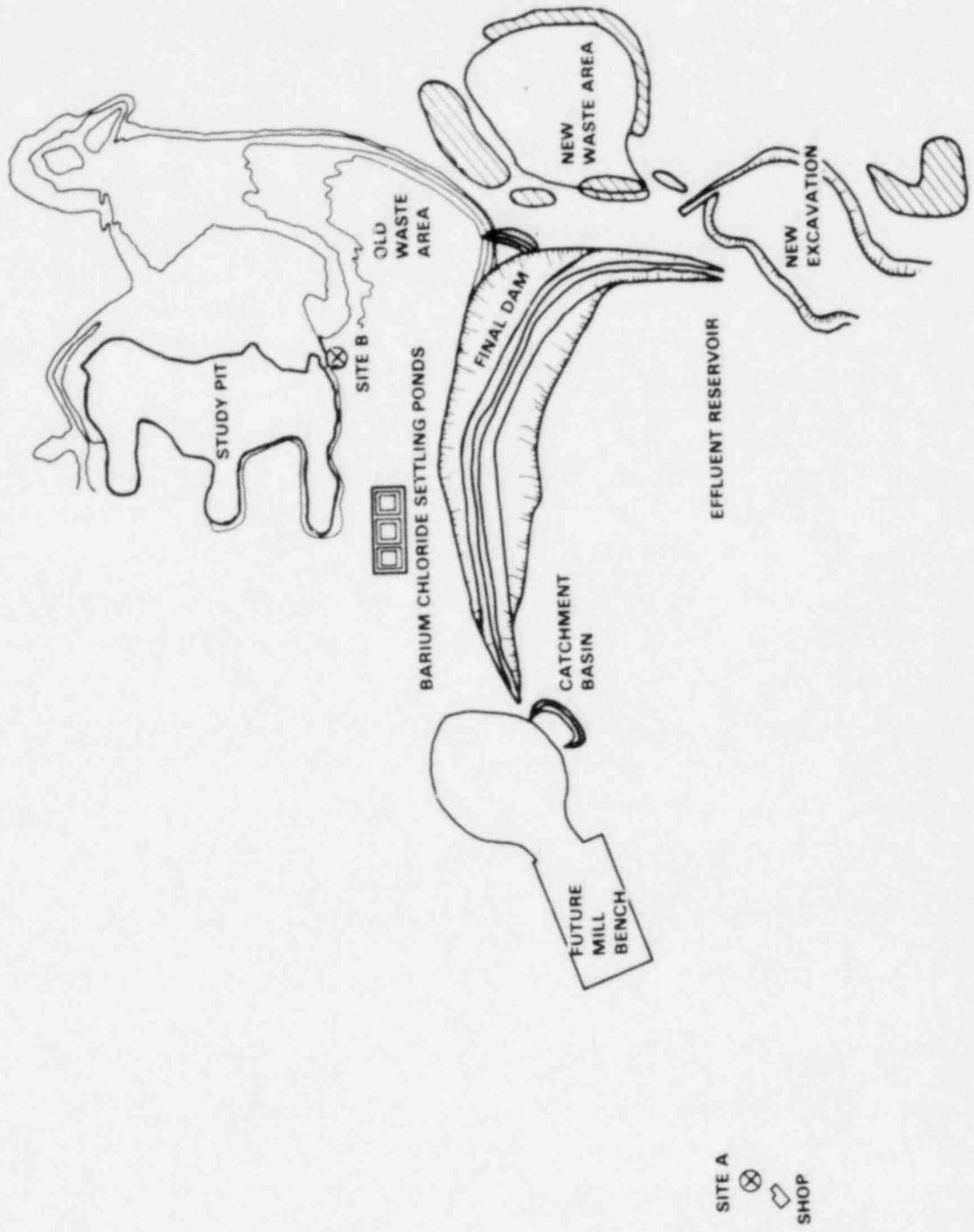


FIGURE 4. New Mining Activity Begun During Study

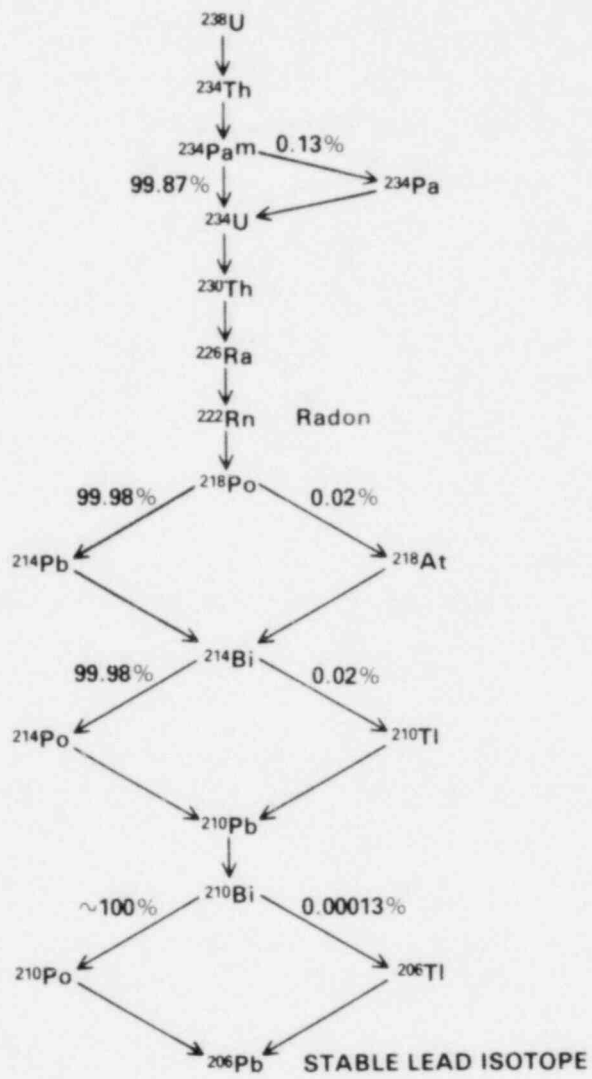


FIGURE 5. The Uranium Series

surface (exhalation flux) is proportional to the concentration of radium. It was noted in NUREG/CR-0628,³ the first report to be generated from this investigation, that ^{238}U and its daughter radium can be assumed to be in equilibrium over the size scale of a large open pit uranium mine. Therefore, radon gas leaving soil or rock surfaces should on the average be in proportion to their uranium concentration as well as their radium concentration. This allowed (in NUREG/CR-0628) total radon exhalation from a given surface to be estimated as the product of the uranium concentration, the surface area, and a standard value of radon release rate per unit area and per unit ore grade (specific flux).

The standard value for specific flux used in NUREG/CR-0628 was recalculated following the one-year study from specific fluxes determined in the mining vicinity. Radium concentrations were measured in the soil immediately beneath flux sampling devices to calculate the specific fluxes. The revised specific flux was used to estimate the total quantity of radon released to the atmosphere per unit time by the mining operations.

Monthly 24-hour radon flux measurements were made at about 35 locations at the study mine during the year-long sampling period. Generally, the surfaces measured included the ore pile, lower grade ore stockpile, overburden pile, pit rim, pit floor, topsoil upwind, and topsoil downwind (Figures 1, 2). Approximately 300 gram soil samples were removed from directly beneath each of the flux measuring devices. These were sealed and analyzed by multidimensional NaI(Tl) gamma-ray spectrometry to determine their radium content from the measured concentrations of the gamma-ray emitting daughters ^{214}Bi and ^{214}Pb after they had been allowed to grow to secular equilibrium with the radium parent. Radon fluxes measured on different surfaces of the study mine were compared with measurements at the other four mines. Flux variations were examined for dependence on measurement technique, mine, month of year, soil moisture, atmospheric temperature, and barometric pressure changes.

1.3.2 Atmospheric Radon Concentrations

Atmospheric radon concentrations near the ground were continuously measured about 1.6 km prevailing upwind from the pit (Site A, Figures 1,4), on the southern pit rim (Site B), and about 4 km prevailing downwind from the pit (Site C) during a one-year period. Eberline (RGM-1) continuous radon gas monitors (Eberline Instrument Corporation, Santa Fe, New Mexico) were used to make hourly integrations. Since the instruments required 115 V ac power, they suffered some lapses of operation due to power outages and there was a two-month period (October and November 1979) when the combination of power outages and the time involved to return the instruments to PNL for modifications resulted in the loss of most data from Sites B and C.

1.3.3 Atmospheric Aerosol Measurements

The dust load and its particle size distribution at the Morton Ranch site were determined by four separate devices over various time intervals during the course of this study. Several sets of grab samples were collected, using high-volume Andersen impaction samplers (model 65-100, Andersen 2000 Inc., Atlanta, Georgia) at Sites A and D, each located about 1.6 km from the open pit and ore stockpile areas in the prevailing upwind and downwind directions. These samples were collected on glass-fiber filter surfaces and were used for radiochemical analysis. A high-volume Sierra cascade impactor (model 235, Sierra Instruments, Carmel Valley, California) was later used near Site B by the ore stockpile to collect two more sets of size fractionated samples on a substrate suitable also for trace element analysis.

Two types of low-volume samplers also were used to collect samples continuously over one-month intervals. A dichotomous sampler (described in Section 5.1.3), using two membrane filters for sample size fractionation and collection, was used at Sites A, B, R-7, and D. These samplers provided continuous sampling, operating on either 110 V ac or 12 V dc battery power. A 7-stage mini-impaction sampler (PIXE International, Inc., Tallahassee, Florida) was also operated at Site B for several months to provide continuous sampling over a wider range of particle sizes.

1.3.4 Meteorology Measurements

Meteorological parameters were measured at Site A, in the parking enclosure of the maintenance shops at an elevation of about 3 meters. Parameters measured and used were wind speed, wind direction, air temperature, and rainfall. An electronic weather station (Climatronics Corporation, Model EWS, Bohemia, New York) was used to measure the parameters.

Due to the infrequency with which the instrument could be serviced (once per month), the rainfall data were confused by blowing sand filling the collection cups, and so rainfall indications are not calibrated. Barometric data were obtained from hourly readings made at the Dave Johnston Power Plant just 30 km southwest of Morton Ranch Mine. Some few days of data missing from the power plant records were obtained from the National Weather Service at Casper.

1.3.5 Reporting of Results

Simple statistics involving some approximations were employed to estimate uncertainties in the results reported. Because the variability of measured and inferred variables was so great, sophisticated, rigorous analysis of uncertainties was determined to be of limited value. Propagation of error^{4,5} and sample calculations are discussed in Appendix A. Listings of data are presented in Appendices B through E.

A brief review of terminology is presented here since, in general, logically grouped distributions of data from this study were found to be represented better by the log-normal distribution than the Gaussian, or normal distribution.* A random variable whose logarithm obeys the normal law of errors is said to be distributed according to the log-normal distribution.⁶ Therefore, the logarithms of the observed values are normally distributed, and the normal theory of estimation and regression analysis⁷ may be applied to logarithms

*Discussions of the theory and application of the log-normal distribution may be found in References 6 through 11.

of the observed values.⁸ The counterparts of the mean (\bar{x}) and standard deviation (S.D.) from a normal distribution are for a log-normal distribution, the geometric mean (\bar{x}_g) and the geometric standard deviation (G.S.D.). The G.S.D., which is the antilog of the S.D. of the logarithms of the values, is then multiplied by or divided into \bar{x}_g (which is the antilog of the \bar{x} of the logarithms of the observed data) to find the upper and lower bounds of the values which fall within 1 G.S.D. of the \bar{x}_g (i.e., 68.3% of the data).

The data were grouped into associated populations (e.g., ore pile flux, topsoil flux) and tested for fit to the log-normal by ranking the data, taking the logarithm of each point, and plotting these versus cumulative frequency expressed in number of G.S.D. units above or below the fiftieth percentile. In similar fashion, the data are treated for fit to the normal distribution by plotting the ranked, untransformed data versus S.D. units. If the data are normally distributed (Gaussian), the untransformed data should fit a straight line on the cumulative frequency plot. However, if the logarithms of the data fit a straight line on the cumulative frequency plot, the data are probably log-normally distributed.⁹ Figures 6 through 8 present plots of selected data by both methods. Figure 6 shows measurements of radon flux made on the overburden pile at Morton Ranch 1704 pit during the period April 17, 1979 to April 30, 1980. The data are distributed over a range of over four orders of magnitude. Imagining a straight line fit through the data of each plot immediately shows that the data fit the log-normal distribution (logarithmic plot) better than the normal distribution (linear plot). Figure 7, however, which shows similar plots of radon flux for the same time period measured on the lower grade storage piles, does not present such an easy choice. Figure 8 presents similar plots for all specific flux values calculated during the study at all five mines. They also fit the log-normal distribution more closely than the normal distribution. Since most data tested appeared to fit the log-normal distribution at least as well as the normal and usually better, the normal distribution was used to represent most of the measurements in this report. Although selected

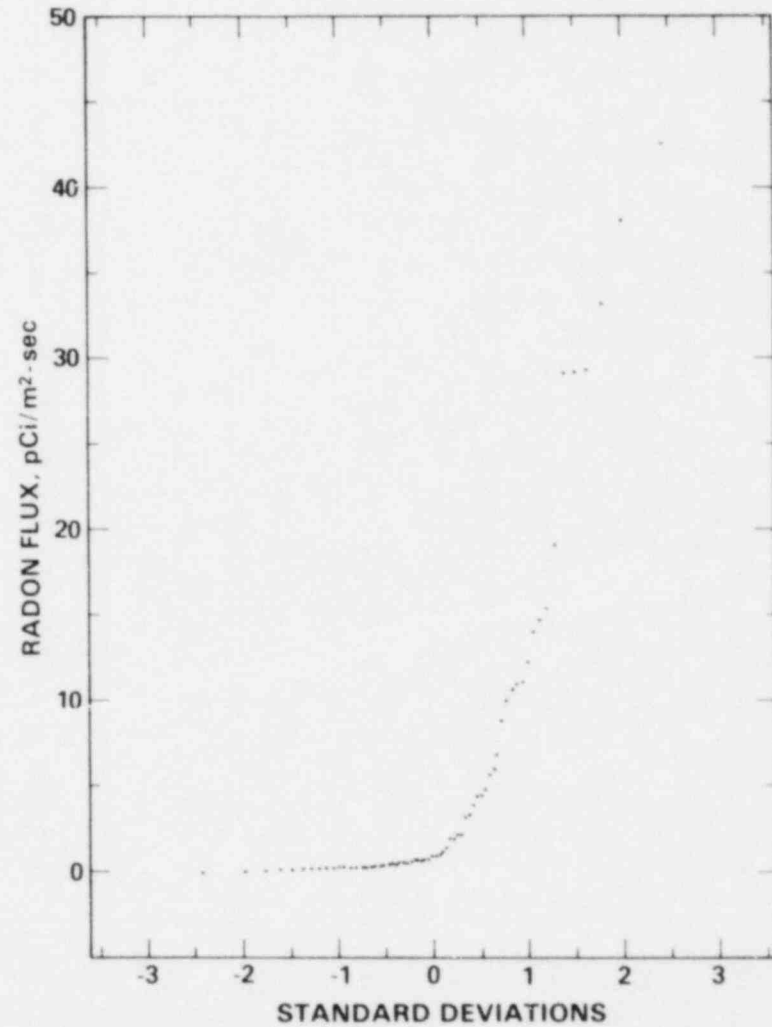
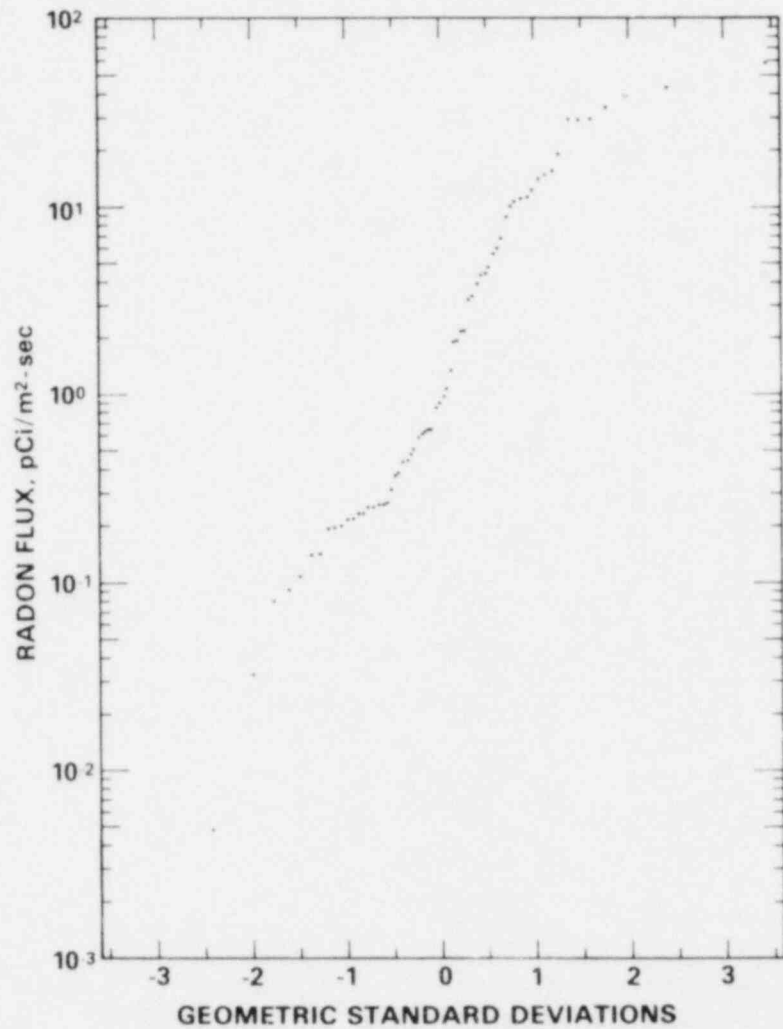


FIGURE 6. Radon Flux, Morton Ranch Overburden Pile Measurements vs. Cumulative Frequency Expressed in Geometric Standard Deviations and Standard Deviations

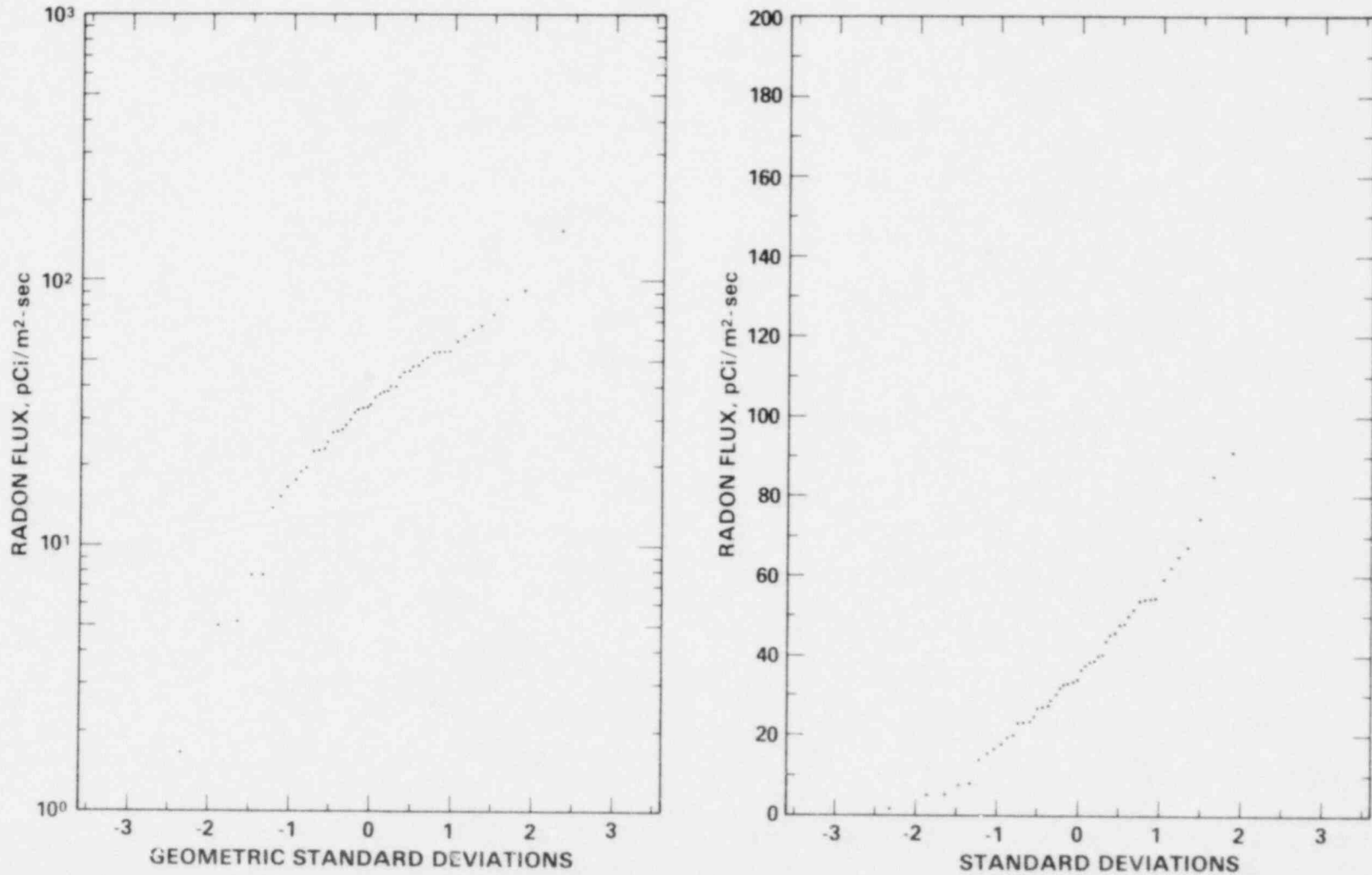


FIGURE 7. Radon Flux, Morton Ranch Lower Grade Stockpile vs. Cumulative Frequency Expressed in Geometric Standard Deviations and Standard Deviations

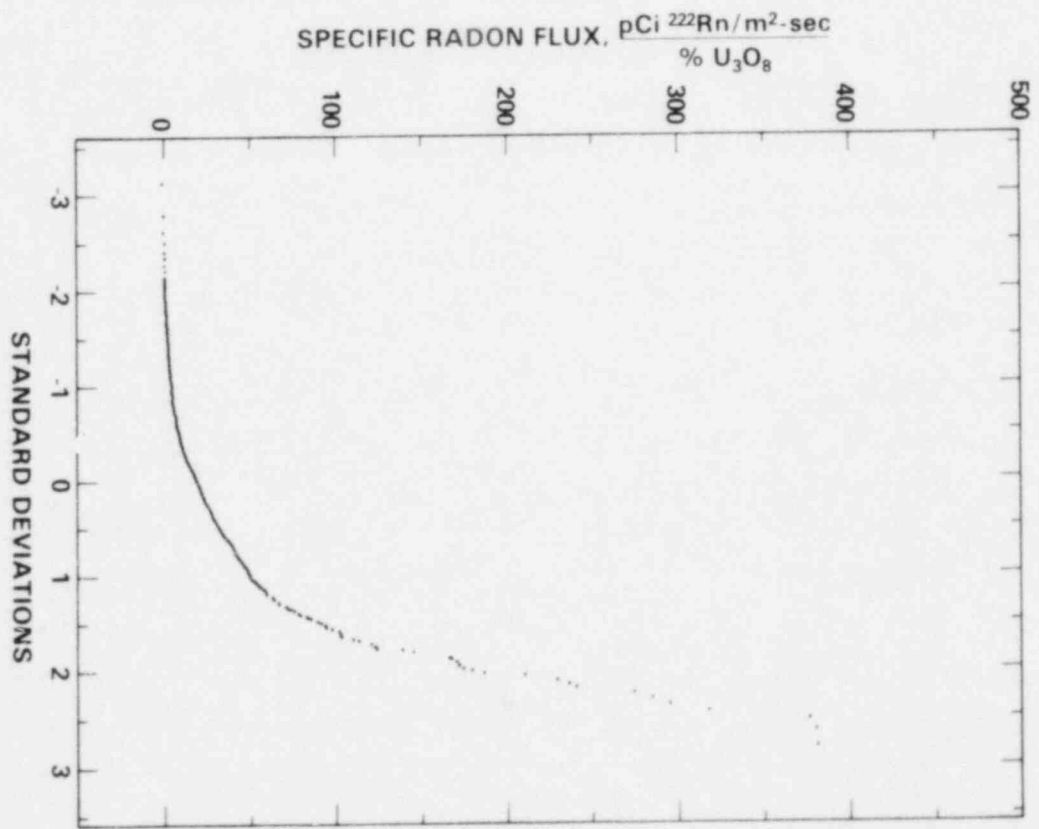
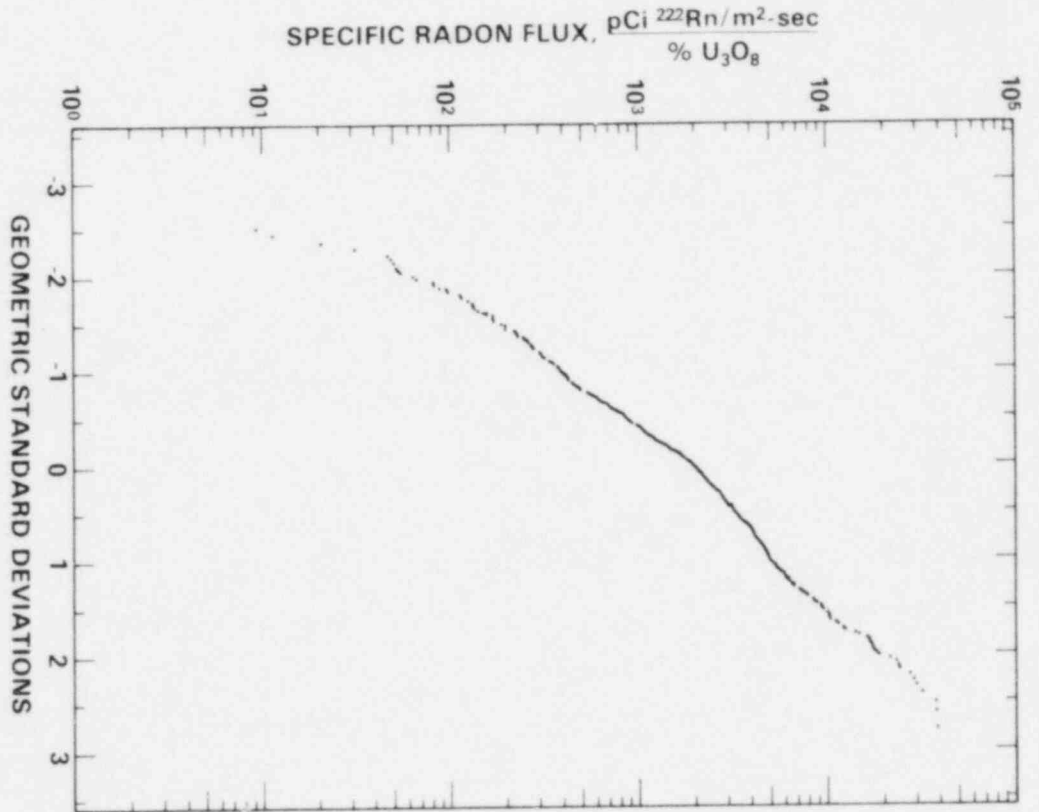


FIGURE 8. Specific Radon Flux from All Surfaces at Five Mines vs. Cumulative Frequency Expressed in Geometric Standard Deviations and Standard Deviations

data may more closely fit some other distribution, or could potentially be separated into two or more populations, these second order interpretations were not pursued in detail. It should be noted that although geometric means represented most individual distributions in this study, the corresponding arithmetic means were required to avoid a low bias in estimating total radon releases from the combined groups of data.

2.0 RADON FLUX

2.1 Measurement Techniques

Radon flux at a surface is affected by many parameters, including physical characteristics of the material through which emanated radon must diffuse to exhale from the surface. Among these are porosity, moisture content, temperature, atmospheric pressure, stability of ground air, rainfall, snow cover, and barometric pressure changes.¹² To allow these various influences to be reflected in the measurements made during this study, 24-hour samples were taken during each month of the year under all meteorological conditions on surfaces common to mining vicinities.

Table 1 contains arithmetic mean radon flux data measured by several techniques based on activated charcoal adsorption of radon.¹³⁻¹⁵ Measurements presented in columns 2 through 5 of Table 1 were made in August of 1978 at the study mine to test various methods and instruments and to plan the measurement program to be used during the one-year sampling period. Also presented are the number of measurements made (n). Column 6 presents data measured during a winter trip for similar purposes.

The flow-through tent system (Figure 9) consisted of a carbon vane pump which had a no-load capacity of 5 to 10 cfm followed in the train by a calibrated rotometer and then the sampling tent. The tent frame was constructed of thin sheet metal end pieces to adapt from the hose connections to the tent area and back to other hose connections. Aluminum angle irons were used to support a mylar "space blanket" which was sealed to the ground by piling dirt on the excess mylar at the sides (the mylar covering is not shown for clarity). The pumped air flowed through the tent area (0.3 m X 2.1 m), sweeping exhaled radon with it through a cold finger moisture condenser to the two cooled (dry ice-ethanol) activated charcoal traps which were in series. The radon remained in the charcoal traps and the air returned to the pump intake to complete the closed loop. The space blanket served several functions. It contained the radon being exhaled. It reflected sunlight, thereby not allowing the temperature inside the tent to unduly increase. It allowed the barometric fluctuations to be transmitted to the inside of the tent. The system was allowed to operate

TABLE 1. Arithmetic Mean Radon Flux Measured by Several Sampling Devices on Morton Ranch Mine Surfaces

SURFACE MEASURED	pCi/m ² -sec					December, 1978	April, 1979- May, 1980
	August, 1978				FLEXIBLE CAN		
	FLOW-THRU TENT	M-11	PAINT CAN	FLEXIBLE CAN			
Ore Pile n ⁽²⁾	270 1	68 1	120 1	100 1	110 ± 5 ⁽¹⁾ 2	120 ± 160 54	
Lower Grade Pile ⁽³⁾ n	28 1	89 1	92 1	52 1	24 ± 15 2	39 ± 26 50	
Overburden Pile n	—	—	—	4.6 1	8.4 ± 4.6 2	5.9 ± 10.0 66	
Pit Floor n	25 ± 24 11	38 ± 27 3	36 ± 41 2	14 ± 20 18	4.8 ± 8.5 31	7.6 ± 21.5 63	
Topsoil Pile n	—	—	—	—	0.38 1	8.8 ± 14.3 4	
Topsoil n	2.0 ± 1.5 2	4.5 ± 1.5 2	2.3 ± 2.1 2	3.3 ± 2.0 2	1.0 ± 0.4 4	1.9 ± 2.7 86	

Footnotes:

- (1) Uncertainty estimates are one standard deviation.
 (2) n = number of measurements used in mean.
 (3) Subore, Mineral, Waste, Resource.

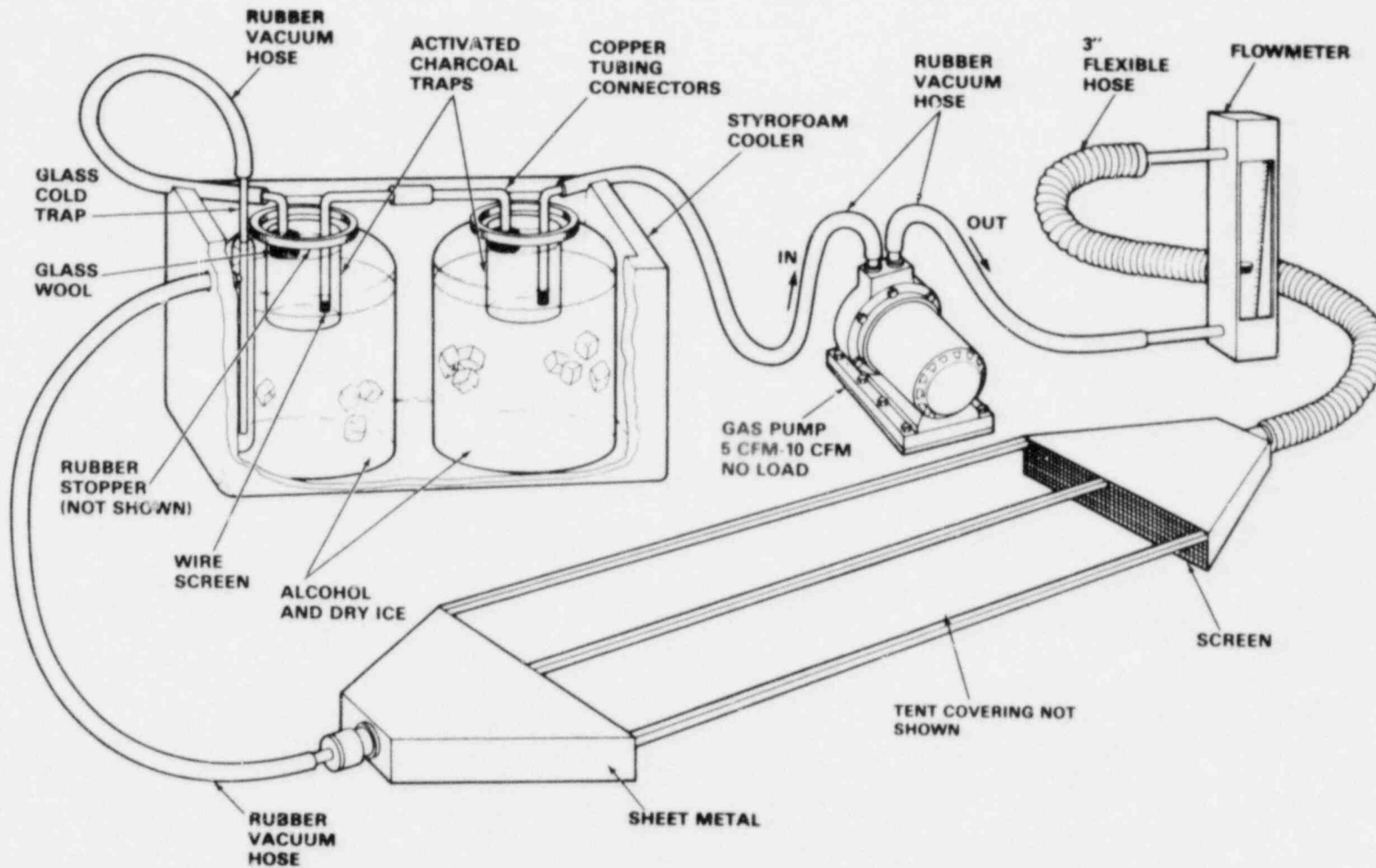


FIGURE 9. Diagram of Radon Flux Tent Sampler

for ten minutes to allow any radon build-up in the tent during set-up to be swept out on a charcoal canister before sampling began. The sampling period was thirty minutes with an average flow rate of about 2 cfm through two fresh canisters. Figure 10 shows the tent sampler in use, and in the background, two passive flux samplers.

Passive radon samplers were set immediately on or adjacent to the same area sampled by the tent and were exposed to the surface for twenty-four hours (Figures 11 and 12). In Figure 11, the U. S. Army M-11 military gas mask canister evaluated by Countess¹³ is to the left of an inverted five-gallon paint can and a cylindrical wire-mesh frame (flexible can). Both were covered by space blankets for temperature control and, in the case of the flexible can, to contain the radon and allow barometric changes to act on the surface being sampled. The radon collector shown in Figure 12 was suspended inside each of these latter two containers to collect the radon.

After sampling, the charcoal containers were sealed and returned to PNL for analysis by multi-dimensional NaI(Tl) gamma-ray spectrometers for the ^{214}Bi - ^{214}Pb daughters which, by then, were in secular equilibrium with radon.

Even these measurements, taken in very close proximity to each other on the various surfaces tested, began to show the wide variation in flux values which, as will become apparent, was characteristic of the measurements made during this study at all five mines. Since the variability in the data appeared to be due more to the inhomogeneity of the areas being sampled or to the effects of other parameters influencing radon exhalation than to differences between sampling methods, a flux measuring device composed of just the PVC canister (Figure 12) attached to the smaller end of a 19 cm diameter plastic funnel (to increase surface area sampled) was constructed (Figure 13). This sampler was field tested in December of 1978 on the winter testing trip to the study mine. The arithmetic mean data from flux measurements made on this trip are presented in column 6 of Table 1 under the heading PVC. Mean differences between the two sampling periods are not significant based on standard deviation estimates. In



FIGURE 10. Flow-Through Tent and Passive Radon Monitors



FIGURE 11. Passive Radon Flux Devices Tested August 1978: Left, U.S. Army M-11 Gas Canisters; Middle, Inverted Paint Can with Heat Shield; Right, Flexible Can

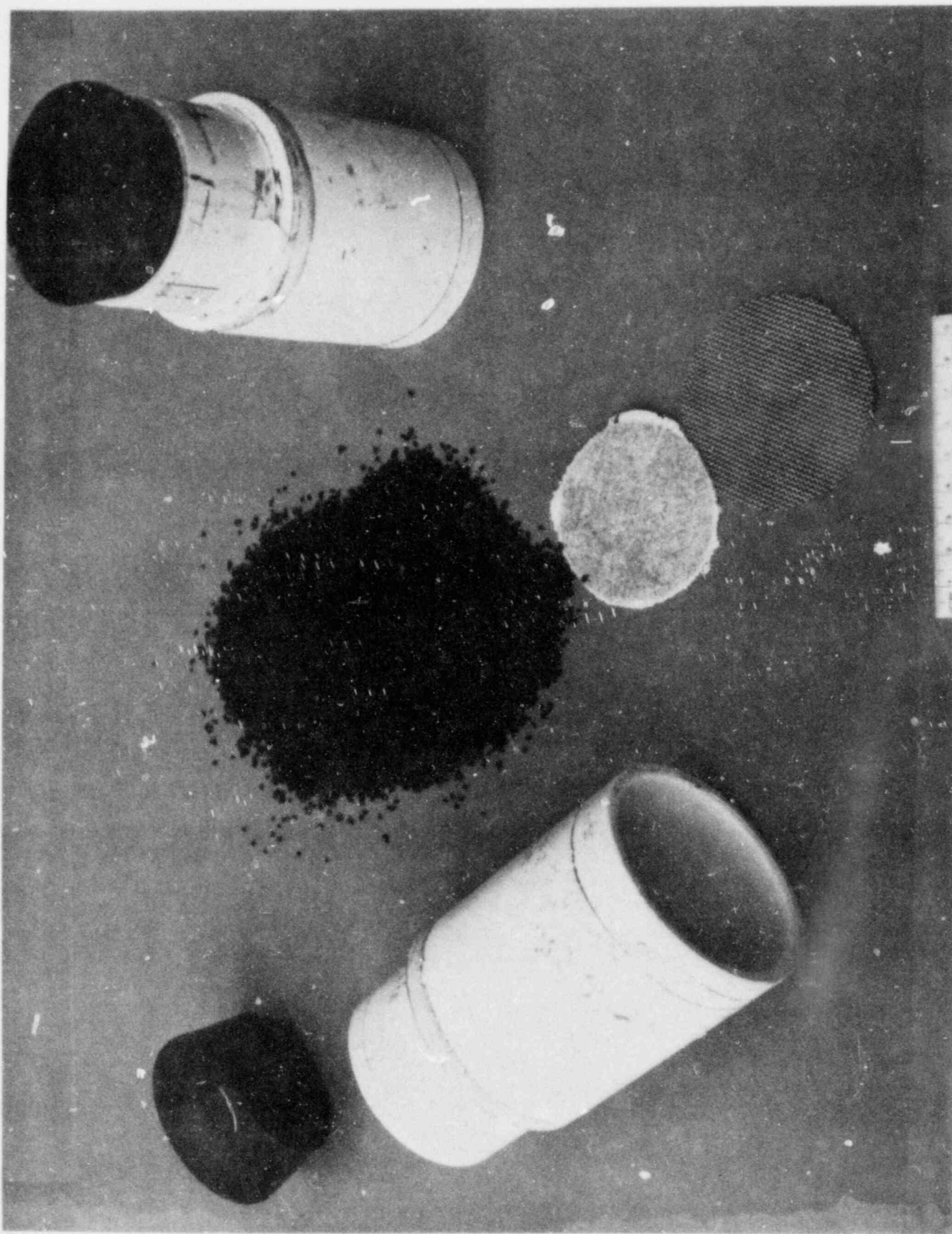


FIGURE 12. PVC Charcoal Canister used as Collector inside Paint Can and Flexible Can (August 1978) and used alone with Funnel to Increase Sampling Area (December 1978)

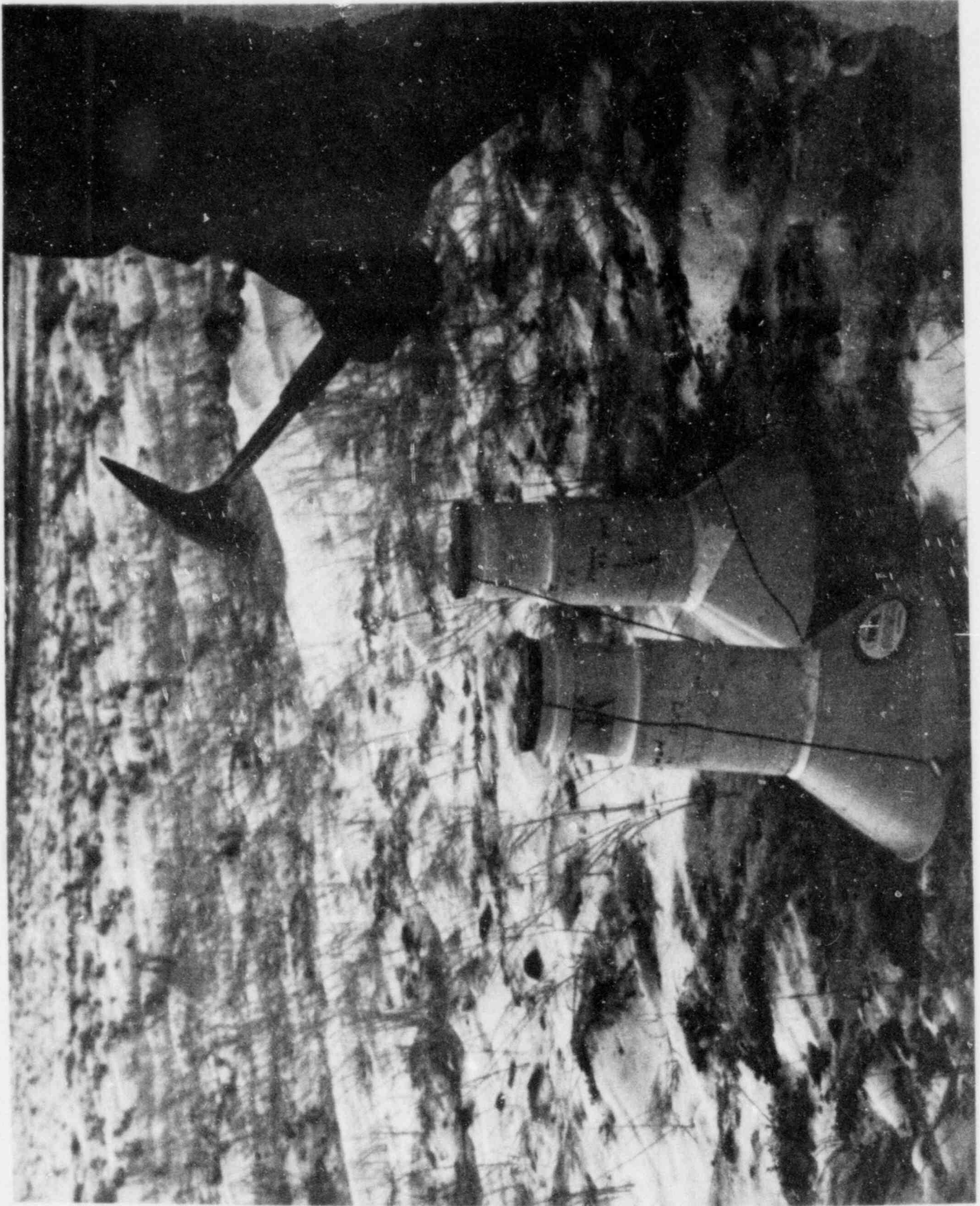


FIGURE 13. "PVC" Passive Radon Flux Monitors Tested in December 1978

addition, these means fall within the expected ranges predicted by the large variations in the August data.

To eliminate the problems associated with handling loose, granular charcoal in the field, a flux sampler based on a charcoal gas mask canister (Mine Safety Appliances Company type GMA-459315) reported by Countess¹³ to be equally effective as the M-11 canister for sampling periods of up to one week was constructed. Figure 14 shows the various stages of assembly. Tedlar film (.0008 cm thick), which is impervious to radon gas diffusion, was attached to cover the openings in the larger end of the canister to contain radon. This served a second purpose in allowing barometric fluctuations to be transmitted to the surface under the sampler. The smaller end of the canister was then pressed into a 7.6 cm diameter by 5.1 cm long plexiglass cylinder and sealed with pressure-sensitive tape. In use, the samplers were forced into the ground about a centimeter, if possible, and left for about 24 hours. Soil was packed around the lower outside rim if the cylinder-to-earth seal was not good. At the end of the sampling period, the device was immediately disassembled at the sampling site and the charcoal was sealed for transport to PNL in an aluminum can using a portable, hand-operated canner (No. 225 All-American Automatic Master Can Sealer, Wisconsin Aluminum Foundry Co., Inc., Manitowoc, Wisconsin) (Figure 15).

The last column of Table 1 presents arithmetic mean flux data collected at Morton Ranch during the one-year sampling period, using the GMA radon flux sampler. The differences between arithmetic means of the data from the three sampling periods presented in Table 1 are surprisingly small in view of the large range of values measured on each type of surface.

2.2 Radon Flux from Morton Ranch Mine

Arithmetic mean specific flux ratios are presented in Table 2 with the arithmetic mean flux and U_3O_8 concentrations for the various surfaces measured at the study mine. Identification of the various surface types within the pit was done verbally by mine personnel and also by colored flags used to mark areas of differing ore concentration. The large differences between mean specific fluxes calculated for each surface type and the large variation of the measurements within each surface type indicate that

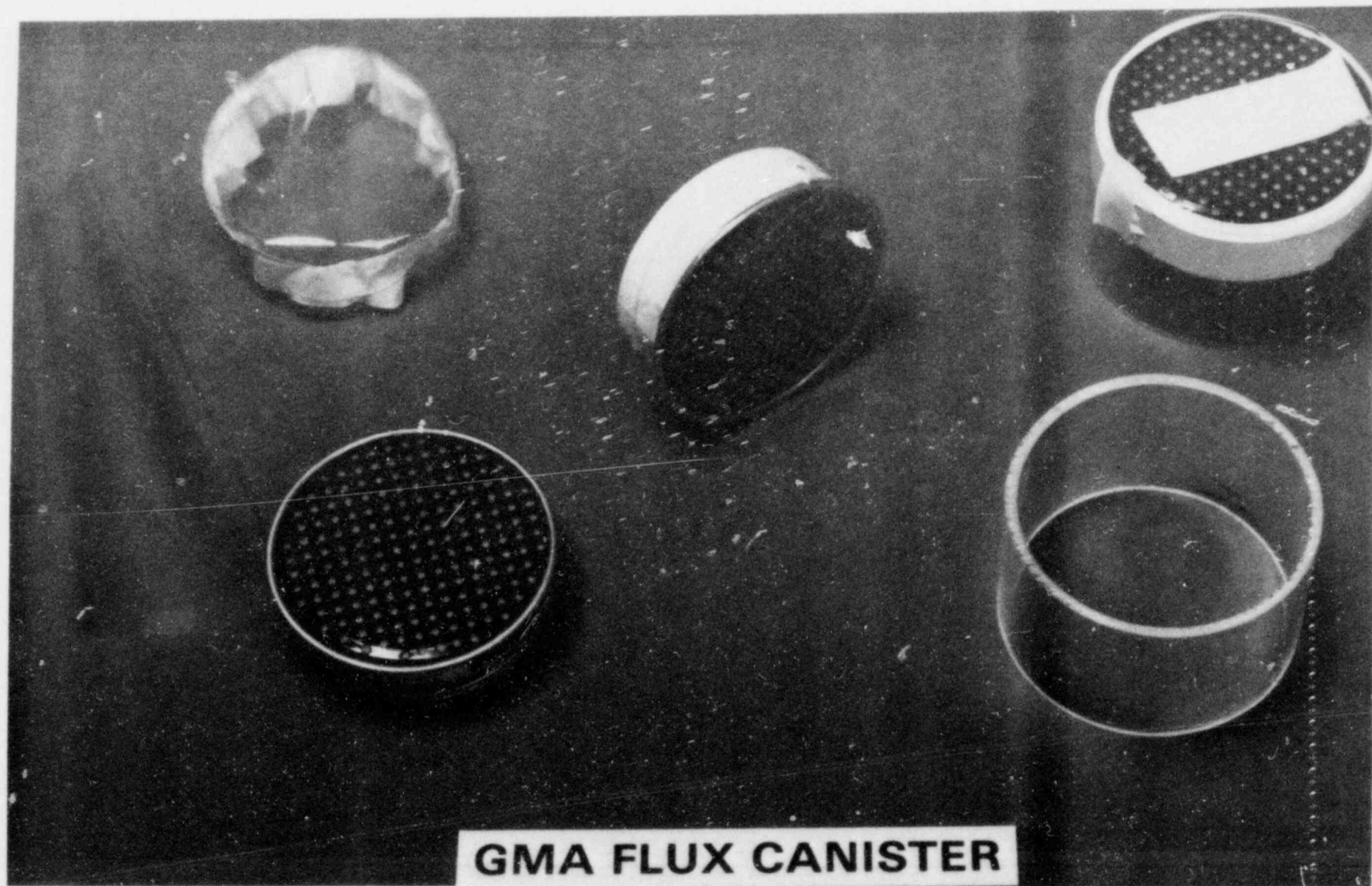
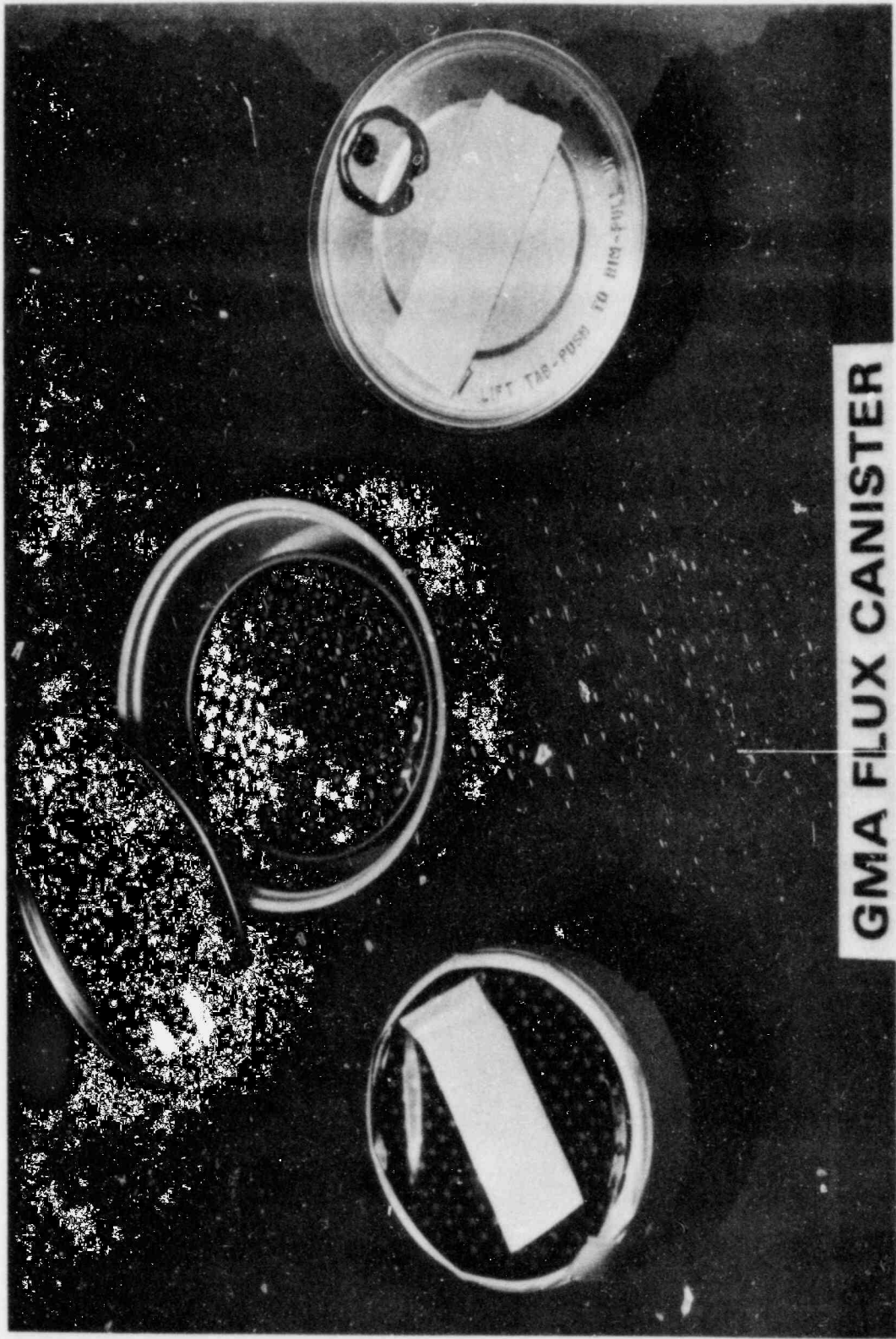


Figure 14. Steps in the Assembly of the GMA Radon Flux Canister



GMA FLUX CANISTER

Figure 15. Disassembly and Canning of GMA Canister

TABLE 2. Arithmetic Mean Radon Flux, U_3O_8 and Specific Radon Flux, Morton Ranch

<u>SURFACE</u>	<u>RADON FLUX</u> <u>pCi/m²-sec</u>	<u>U₃O₈</u> <u>ppm</u>	<u>SPECIFIC RADON FLUX</u> <u>pCi/m²-sec-% U₃O₈</u>
Ore Pile n ⁽²⁾	120 ± 160 ⁽¹⁾ 60	360 ± 180 49	2,800 ± 2,600 49
Lower Grade Pile n	40 ± 27 56	100 ± 50 50	4,800 ± 3,800 50
Overburden Pile n	6.0 ± 9.8 69	36 ± 110 66	2,200 ± 4,400 61
Pit Floor n	11 ± 20 130	60 ± 110 52	1,200 ± 3,400 50
Topsoil Pile n	7.1 ± 12.9 5	6.4 ± 0.4 2	2,800 ± 3,500 2
Topsoil n	2.0 ± 2.6 98	5.8 ± 4.1 85	3,100 ± 3,200 83
Recovered Overburden Pile n	4.5 ± 3.0 9	29 ± 24 9	1,800 ± 1,400 9

Footnotes:

- (1) Uncertainty estimates are one standard deviation.
 (2) n = number of measurements used in mean.

parameters influencing radon flux were not constant from site to site on a particular surface or from surface type to surface type. This is not surprising considering the nonhomogeneous radium distribution in the surfaces and the differences in physical characteristics and make-up of the surfaces themselves. Since the ranges of specific flux values defined by 1 standard deviation all overlap to some extent, it appears that the best measure of the specific flux is the mean of all data on hand.

2.3 Radon Flux, U_3O_8 Concentration and Calculated Specific Flux at Other Wyoming Mines

Arithmetic and geometric mean flux measurements by surface type for each of five mines are presented in Tables 3 and 4. Likewise, mean measurements of U_3O_8 concentrations are presented in Tables 5 and 6 and calculated specific flux values are shown in Table 7. Corresponding measurements are included in the tables for topsoil samples taken within a 100 km radius of Casper, Wyoming, which is centrally located with respect to the five mines.

As would be expected, the mean fluxes and uranium concentrations of the ore piles, lower grade ore piles, and pit floors vary from mine to mine, and also vary with time and with the physical characteristics of the surface materials. Because of this, the measurements at Mines A through D may be considered typical but not necessarily representative of measurements at other times at the same mines. The geometric mean fluxes and ore grades are higher for the ore piles than for the lower grade ore piles which, in turn, are higher than those for the overburden and topsoil piles. The measurements made on the latter two surfaces compare favorably from mine to mine, and the mine topsoil measurements are essentially equal to measurements made in the vicinity of Casper, out of the immediate mining environment. Recovered overburden piles have been covered with about 15 cm of topsoil and planted with native grasses.

Inspection of Table 7 discloses that the mean specific flux values are generally equivalent due to the high variability within measurements on each surface. A few possible exceptions among these are the total pit floor values at Morton Ranch and Mine C, the topsoil measurements of Mine B

TABLE 3. Arithmetic Mean Radon Fluxes Measured at Five Mines

	<u>pCi/m²-sec</u>					AVERAGE OF FIVE MINES
<u>SURFACE</u>	<u>MORTON RANCH</u>	<u>MINE A</u>	<u>MINE B</u>	<u>MINE C</u>	<u>MINE D</u>	
Ore Pile n ⁽²⁾	120 ± 160 ⁽¹⁾ 60	240 ± 160 8	910 ± 410 8	230 ± 70 6	3,200 ± 2,900 4	950 5
Lower Grade Pile n	40 ± 27 56	86 ± 52 8	230 ± 100 8	150 ± 90 7	140 ± 250 7	130 5
Overburden Pile n	6.0 ± 9.8 69	7.6 ± 15.9 28	5.3 ± 12.4 33	5.4 ± 8.2 27	12 ± 28 13	7.2 5
Total Pit Floor n	11 ± 20 130	47 ± 148 31	490 ± 1270 30	26 ± 80 26	530 ± 1120 10	220 5
Pit Ore n	—	210 ± 300 6	1,100 ± 2,000 11	180 ± 190 3	2,600 ± 500 2	1,000 4
Pit Lower Grade n	—	26 ± 9 2	160 ± 150 6	21 ± 21 4	—	68 3
Pit Overburden n	—	6.7 ± 16.7 23	98 ± 190 13	1.8 ± 2.2 19	2.6 ± 1.5 8	27 4
Pit Undesignated n	11 ± 20 130	—	—	—	—	11 1
Topsoil Pile n	7.1 ± 12.9 5	7.2 1	8.9 ± 2.7 2	—	—	7.7 3
Topsoil n	2.0 ± 2.6 98	0.76 1	0.72 ± 0.31 2	—	—	1.2 3
Recovered Overburden n	4.5 ± 3.0 9	0.46 ± 0.09 3	—	5.9 ± 4.0 4	—	3.6 3
Topsoil Within 100 kilometer radius of Casper, WY, n						1.1 ± 1.0 7

Footnotes:

(1) Uncertainty estimates are one standard deviation.

(2) n = number of measurements used in mean.

TABLE 4. Geometric Mean Radon Fluxes
Measured at Five Mines

	<u>pCi/m²-sec</u>				
<u>SURFACE</u>	<u>MORTON RANCH</u>	<u>MINE A</u>	<u>MINE B</u>	<u>MINE C</u>	<u>MINE D</u>
Ore Pile n ⁽²⁾	72 (3.3) ⁽¹⁾ 60	190 (2.2) 8	840 (1.5) 8	220 (1.3) 6	2400 (2.5) 4
Lower Grade Pile n	32 (2.2) 56	74 (1.8) 8	200 (1.6) 8	130 (2.0) 7	27 (8.1) 7
Overburden Pile n	1.4 (7.2) 68	1.8 (5.3) 28	1.5 (4.1) 33	2.4 (3.4) 27	2.0 (6.0) 13
Total Pit Floor n	2.2 (6.8) 130	4.2 (9.2) 31	81 (8.3) 30	2.3 (7.9) 26	9.2 (20.4) 10
Pit Ore n	—	94 (4.1) 6	390 (5.4) 11	110 (3.9) 3	2600 (1.2) 2
Pit Lower Grade n	—	25 (1.5) 2	73 (4.9) 6	11 (4.7) 4	—
Pit Overburden n	—	1.6 (4.6) 23	22 (6.2) 12	0.90 (3.3) 19	2.2 (1.7) 8
Pit Undesignated n	2.2 (6.8) 130	—	—	—	—
Topsoil Pile n	1.7 (6.9) 5	7.2 (—) 1	8.7 (1.4) 2	—	—
Topsoil n	1.1 (3.5) 96	0.76 (—) 1	0.69 (1.5) 2	—	—
Recovered Overburden n	2.6 (4.4) 9	0.46 (1.2) 3	—	4.8 (2.2) 4	—
Topsoil Within 100 kilometer radius of Casper, WY, n					0.89 7

Footnotes:

- (1) The number in parentheses is the geometric standard deviation.
 (2) n = number of measurements used in the geometric mean.

TABLE 5. Arithmetic Mean U_3O_8 Concentrations Measured at Five Mines

	ppm						
SURFACE	MORTON RANCH	MINE A	MINE B	MINE C	MINE D	AVERAGE OF FIVE MINES	
Ore Pile n ⁽²⁾	360 ± 180 ⁽¹⁾ 49	430 ± 560 8	2,500 ± 3,000 8	1,000 ± 300 6	3,700 ± 1,900 4	1,600 5	
Lower Grade Pile n	100 ± 50 50	160 ± 130 8	620 ± 540 8	410 ± 160 9	990 ± 2,120 7	460 5	
Overburden Pile n	36 ± 110 66	27 ± 50 28	21 ± 42 33	26 ± 39 27	46 ± 80 13	31 5	
Total Pit Floor n	60 ± 110 51	120 ± 210 31	1,500 ± 5,200 30	270 ± 680 24	2,800 ± 6,300 10	950 5	
Pit Ore n	—	430 ± 320 6	3,800 ± 8,300 11	1,900 ± 900 3	14,000 ± 7,000 ⁽³⁾ 2	5,000 4	
Pit Lower Grade n	—	100 ± 50 2	370 ± 260 6	62 ± 21 2	—	180 3	
Pit Overburden n	—	35 ± 43 23	110 ± 160 13	34 ± 50 19	11 ± 10 8	47 4	
Pit Undesignated n	60 ± 110 51	—	—	—	—	60 1	
Topsoil Pile n	6.4 ± 0.4 2	7.8 1	45 ± 47 2	—	—	20 3	
Topsoil n	5.8 ± 4.1 85	2.8 1	8.2 ± 1.1 2	—	—	5.6 3	
Recovered Overburden n	29 ± 24 9	4.9 ± 2.6 3	—	16 ± 1 4	—	17 3	
Topsoil Within 100 kilometers radius of Casper, WY	5.7 ± 4.6						
n	7						

Footnotes:

- (1) Uncertainty estimates are one standard deviation.
- (2) n = number of measurements used in mean.
- (3) This ore concentration based on two samples is much higher than expected for this mine. However, it does demonstrate the wide range in ore concentrations encountered. It undoubtedly biases the average pit ore concentration and radon flux measurements higher than would be obtained with more extensive sampling.

TABLE 6. Geometric Mean U_3O_8 Concentrations
Measured at Five Mines

SURFACE	ppm				
	MORTON RANCH	MINE A	MINE B	MINE C	MINE D
Ore Pile n ⁽²⁾	330 (1.5) ⁽¹⁾ 49	340 (2.3) 8	1600 (2.7) 8	980 (1.3) 6	3400 (1.7) 4
Lower Grade Pile n	88 (1.7) 50	110 (2.8) 8	480 (2.0) 8	380 (1.6) 9	220 (59) 7
Overburden Pile n	16 (2.7) 66	13 (2.8) 28	9 (2.8) 33	13 (3.0) 27	17 (3.9) 13
Total Pit Floor n	26 (3.5) 51	34 (5.1) 31	250 (5.6) 30	32 (6.6) 24	36 (24) 10
Pit Ore n	—	330 (2.3) 6	1200 (4.3) 11	1700 (1.8) 3	13,000 (1.7) 2
Pit Lower Grade n	—	97 (1.6) 2	300 (2.1) 6	61 (1.4) 2	—
Pit Overburden n	—	17 (3.3) 23	62 (2.6) 13	16 (3.2) 19	8 (2.3) 8
Pit Undesignated n	26 (3.5) 51	—	—	—	—
Topsoil Pile n	6 (1.1) 2	8 (—) 1	30 (3.8) 2	—	—
Topsoil n	5 (1.6) 85	2.8 (—) 1	8.3 (1.1) 2	—	—
Recovered Overburden n	23 (2.1) 9	5 (1.6) 3	—	16 (1.04) 4	—
Topsoil Within 100 kilometer radius of Casper, WY n	5.6 (1.2), n = 7. 7				

Footnotes:

- (1) The number in parentheses is the geometric standard deviation.
(2) n = number of measurements used in the geometric mean.

TABLE 7. Arithmetic Mean Specific Radon Flux Calculated for Mine Vicinity Surfaces of Five Mines

SURFACE	$\mu\text{Ci }^{222}\text{Rn}/\text{m}^2\text{-sec} \pm 1 \text{ U}_{308}$					AVERAGE OF FIVE MINES
	MORTON RANCH	MINE A	MINE B	MINE C	MINE D	
Ore Pile n ⁽²⁾	*2,800 ± 2,600 ⁽¹⁾ 49	* 8,300 ± 7,300 8	*7,400 ± 7,200 8	*2,400 ± 700 6	*9,900 ± 7,800 4	6,200 5
Lower Grade Pile n	*4,800 ± 3,800 50	*12,000 ± 12,000 8	*5,000 ± 2,700 8	*4,000 ± 2,100 7	*1,500 ± 1,300 7	5,400 5
Overburden Pile n	*2,200 ± 4,400 61	* 2,200 ± 2,400 28	*3,700 ± 8,200 32	*2,300 ± 14,000 27	*1,800 ± 2,100 13	2,500 5
Total Pit Floor n	*1,200 ± 3,400 50	* 2,100 ± 3,100 30	*8,500 ± 12,000 30	* 810 ± 820 24	*3,200 ± 2,000 10	3,200 5
Pit Ore n	—	5,300 ± 6,400 5	4,500 ± 7,200 11	790 ± 600 3	2,100 ± 800 2	3,200 4
Pit Lower Grade n	—	2,600 ± 200 2	4,800 ± 4,400 6	1,400 ± 1,500 2	—	2,900 3
Pit Overburden n	—	1,300 ± 1,300 23	14,000 ± 16,000 13	750 ± 810 19	3,500 ± 2,200 8	4,800 4
Pit Undesignated n	1,200 ± 3,400 50	—	—	—	—	1,200 1
Topsail Pile n	*2,800 ± 3,500 2	* 9,200 1	*5,100 ± 5,900 2	—	—	5,700 3
Topsail n	*3,100 ± 3,200 83	* 2,700 1	* 860 ± 260 2	—	—	2,200 3
Recovered Overburden n	1,800 ± 1,400 9	1,100 ± 300 3	—	3,800 ± 2,600 4	—	2,200 3
Topsail Within 100 kilometers radius of Casper, WY	= 1,900 ± 600 7					

Footnotes:

(1) Uncertainty estimates are one standard deviation.

(2) n = number of measurements used in mean.

(*) Overall arithmetic mean of means asterisked = 4,200, n = 26

and the lower grade pile at Mine A. The pit floor measurements were made when water tables were high enough that the pit floors of these two mines were very damp during most of the sampling periods. High moisture content (over about 10%) is associated with suppressed radon exhalation (see also Section 2.5.1). The pit floor samples at Morton Ranch averaged 13% moisture* and Mine C averaged 8% (4% in the fall and 12% in the spring). The pit floors of the other three mines also averaged 8% (6% in the fall and only 9% in the spring). Even so, the standard deviations associated with these measurements indicate that they may not be significantly different from values measured at other mines. No explanation is obvious for the low mean specific flux measurements for topsoil at Mine B other than the small number of measurements made (two). The high mean value for the lower grade pile at Mine A also remains unexplained.

The large variation among measurements made at each mine and between mean measurements made at all mines, once again, points to the mean of all data as the best estimate of specific flux. The arithmetic mean of the arithmetic means of all data asterisked in Table 7 was therefore calculated to be $4200 \text{ pCi/m}^2\text{-sec-}\% \text{ U}_3\text{O}_8$ ($0.133 \text{ Ci/m}^2\text{-yr-}\% \text{ U}_3\text{O}_8$).

The mean of the asterisked means of only the Morton Ranch data in Table 7 was calculated to be $2800 \text{ pCi/m}^2\text{-sec-}\% \text{ U}_3\text{O}_8$. The mean of the asterisked means from the other four mines in Table 7 is $4600 \text{ pCi/m}^2\text{-sec-}\% \text{ U}_3\text{O}_8$.

Table 8 presents specific flux estimates from several other studies. The above results are within a factor of 2 or 3 of the higher literature estimates, but the large range of specific flux values reported by other investigators, as well as the present study, is indicative of the variations to be expected when making these measurements in the field.

2.4 Temporal Flux Variations

One of the purposes for measuring radon flux throughout a full year was to assure that all seasonal and meteorological conditions were included

*Percent moisture calculations in this report refer to weight percent of the moist sample before drying.

TABLE 8. Arithmetic Mean Specific Radon Flux
Comparison with Other Studies

<u>SURFACE</u>	<u>AVERAGE SPECIFIC FLUX</u> <u>pCi/m²-sec-% U₃O₈</u>	<u>REFERENCES</u>
Soil	2,500	Wilkening, 1960 - Ref. 16
Soil	2,400	Junge, 1963 - Ref. 17
Soil	620	Clements, 1974 - Ref. 18
Undisturbed Topsoil Near Casper, WY	1,900	Thomas, 1982 - This Work
Undisturbed Topsoil on Mine Properties	2,200	"
Topsoil Piles at Mines	5,700	"
Overburden Piles	2,500	"
Recovered Overburden Piles	2,200	"
Undisturbed Ore in Mine Pit	204	Carson, 1980 - Ref. 19
Ripped Ore in Mine Pit	48	"
Mine Pit Floors	3,200	Thomas, 1982 - This Work
Ore in Mine Pits	3,200	"
Ore Piles at Mines	6,200	"
Lower Grade Ore Piles	5,400	"
Aged Tailings Piles ⁽¹⁾	~ 1,000	Carson, 1980 - Ref. 19
Tailings Piles ⁽¹⁾	3,300	Silker, 1979 - Ref. 20

Footnote:

(1) These values were calculated from results reported as if the ²²⁶Ra present was in equilibrium with ²³⁸U.

in the emission estimates. Figures 16 through 20 present 24-hour geometric mean radon flux measurements made on the Morton Ranch 1704 pit ore pile, lower grade stockpile, overburden pile, topsoil, and pit floor, respectively, in thirteen consecutive months. The results from the two measurement periods in the fall and winter of 1978 are also illustrated. The range of values bounded by the 1 G.S.D. are also shown. Although variations with time do exist, as shown by the composite graph in Figure 21, no pattern appears to be common to all surfaces except the low values in December of 1979, for which no explanation has been found.

2.5 Meteorological Parameters and Radon Flux

2.5.1 Soil Moisture

It is well known that many parameters affect radon flux. The correlation of radon flux with percent soil moisture was examined using soil samples taken from just beneath the flux measurement canisters. Scatter plots were made of radon flux measured on each surface throughout the study period versus moisture. Visual inspection indicated that significant correlations did not exist between the two parameters, and so statistical correlation methods were not employed. However, one effect was common to all surfaces. This was a noticeable, sudden decrease in the range of flux values when the soil moisture was above 10 to 12%. This effect was least noticeable in undisturbed topsoil measurements and most noticeable in measurements made on the overburden pile. Figure 22 shows radon flux versus percent moisture [i.e., (grams water/grams wet soil) X 100] for measurements made on the overburden at the five mines during the entire study.

Most effects attributable to moisture are undoubtedly hidden by large variations due to other parameters, most notably, the non-homogeneity of the surfaces measured. It is also expected that a possibly better flux-moisture correlation was masked by the representation of radon flux from 200-300 cm deep sources by radium analyses of the top 10-15 cm of soil.

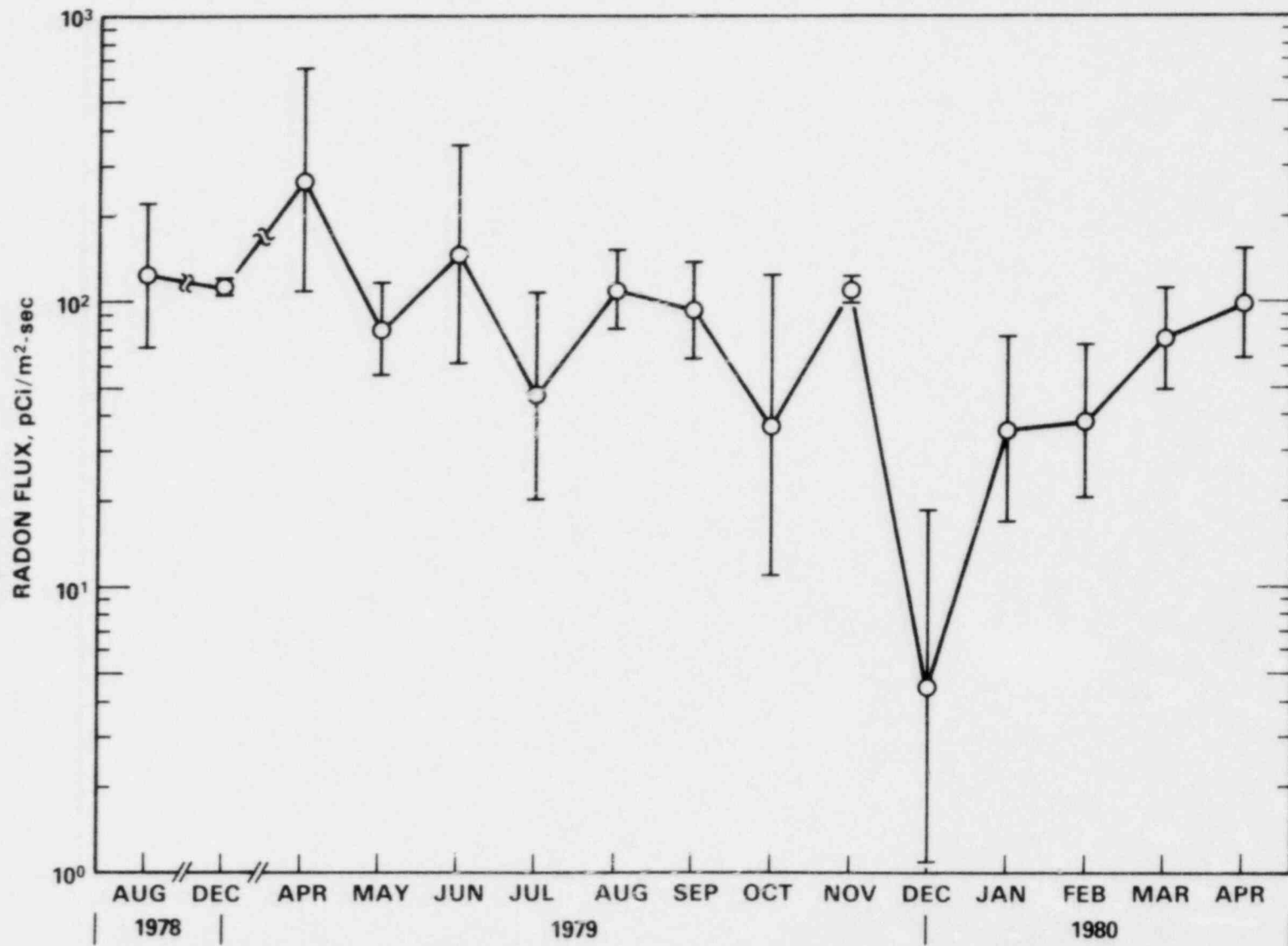


FIGURE 16. Monthly Geometric Mean Radon Flux Measured on the Morton Ranch Mine Ore Pile. Ranges shown are the one geometric standard deviation limits.

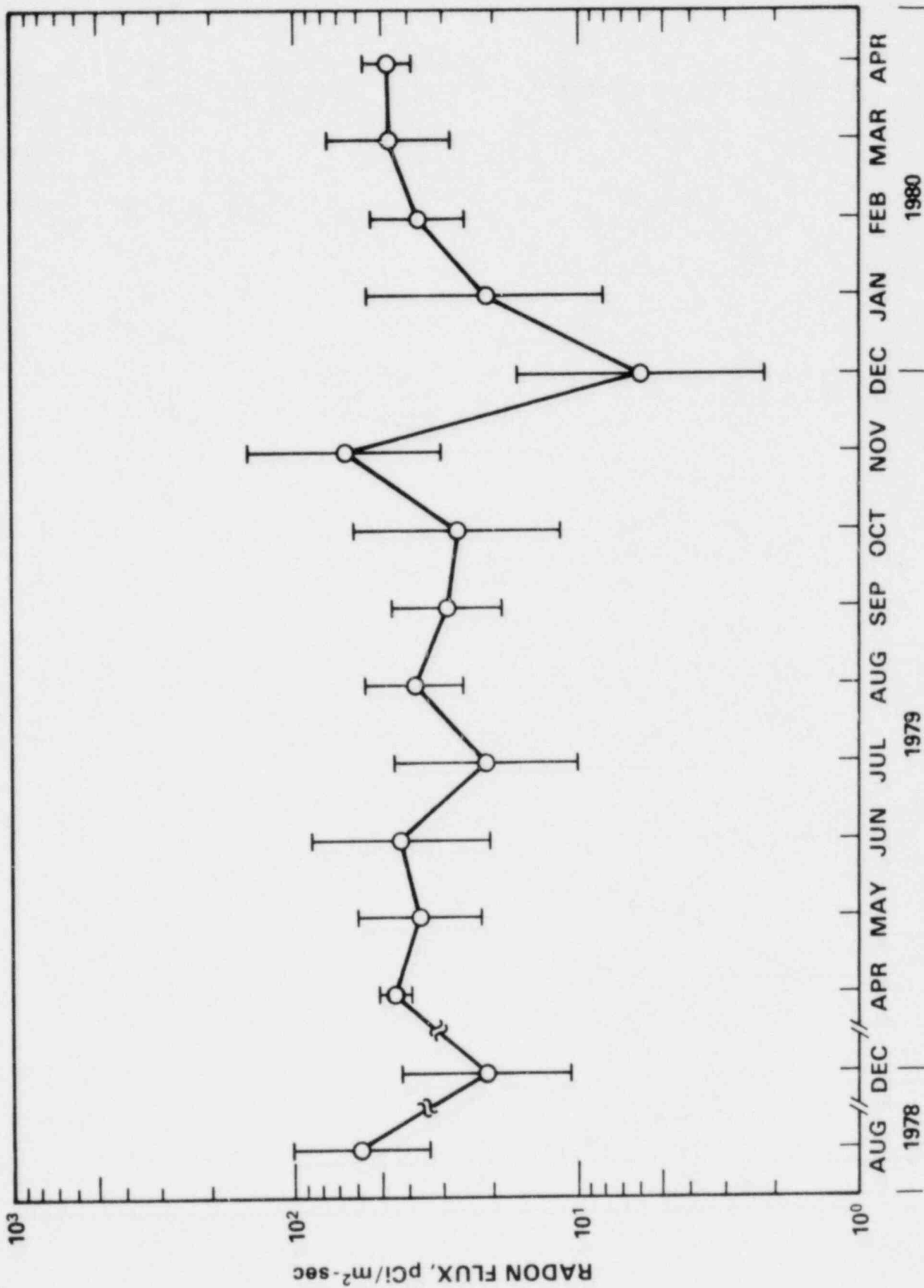


FIGURE 17. Monthly Geometric Mean Radon Flux Measured on the Morton Ranch Mine Lower Grade Ore Pile. Ranges shown are the one geometric standard deviation limits.

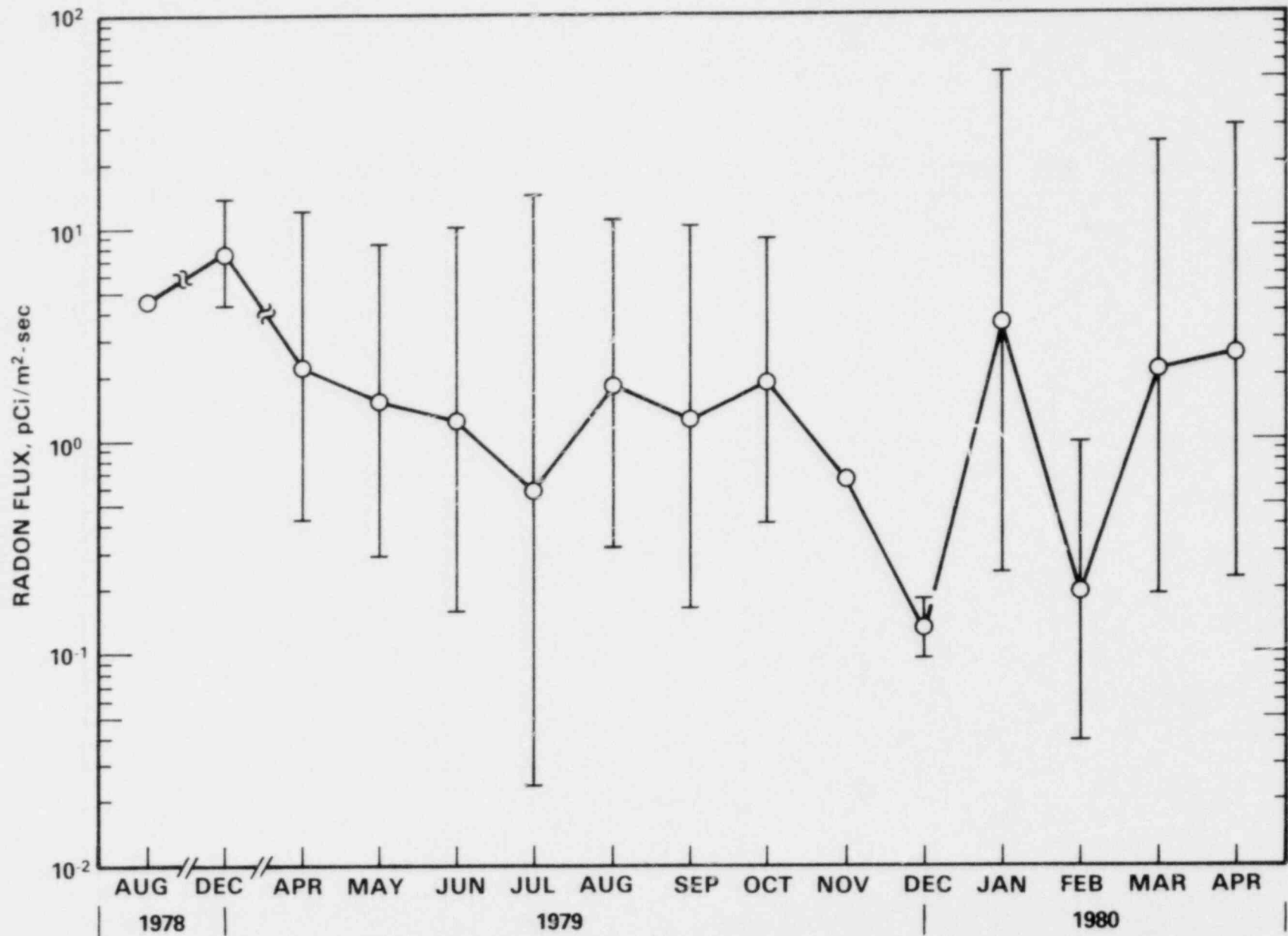


FIGURE 18. Monthly Geometric Mean Radon Flux Measured on the Morton Ranch Mine Overburden Pile. Ranges shown are the one geometric standard deviation limits.

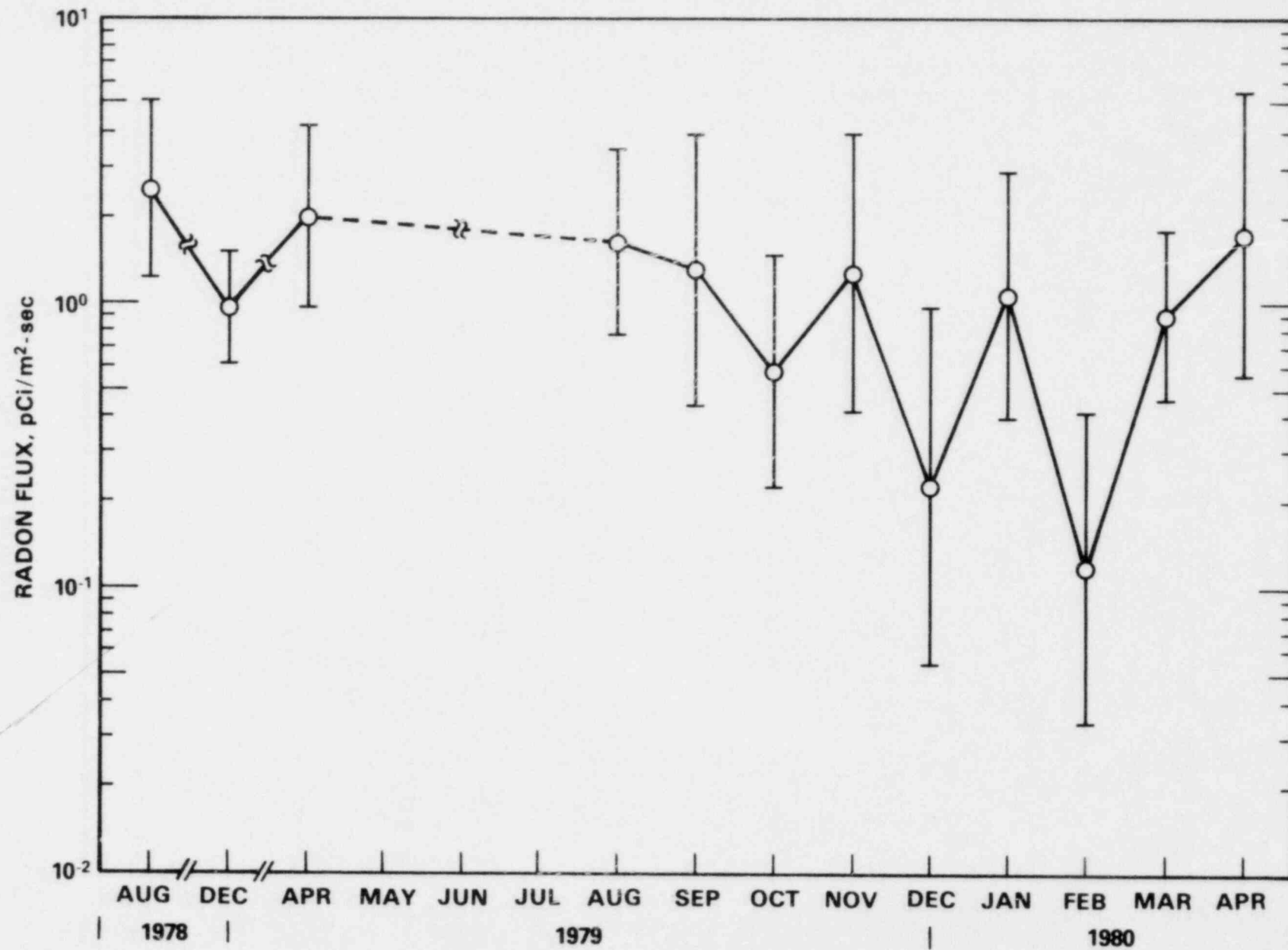


FIGURE 19. Monthly Geometric Mean Radon Flux Measured on Morton Ranch Mine Topsoil. Ranges shown are the one geometric standard deviation limits.

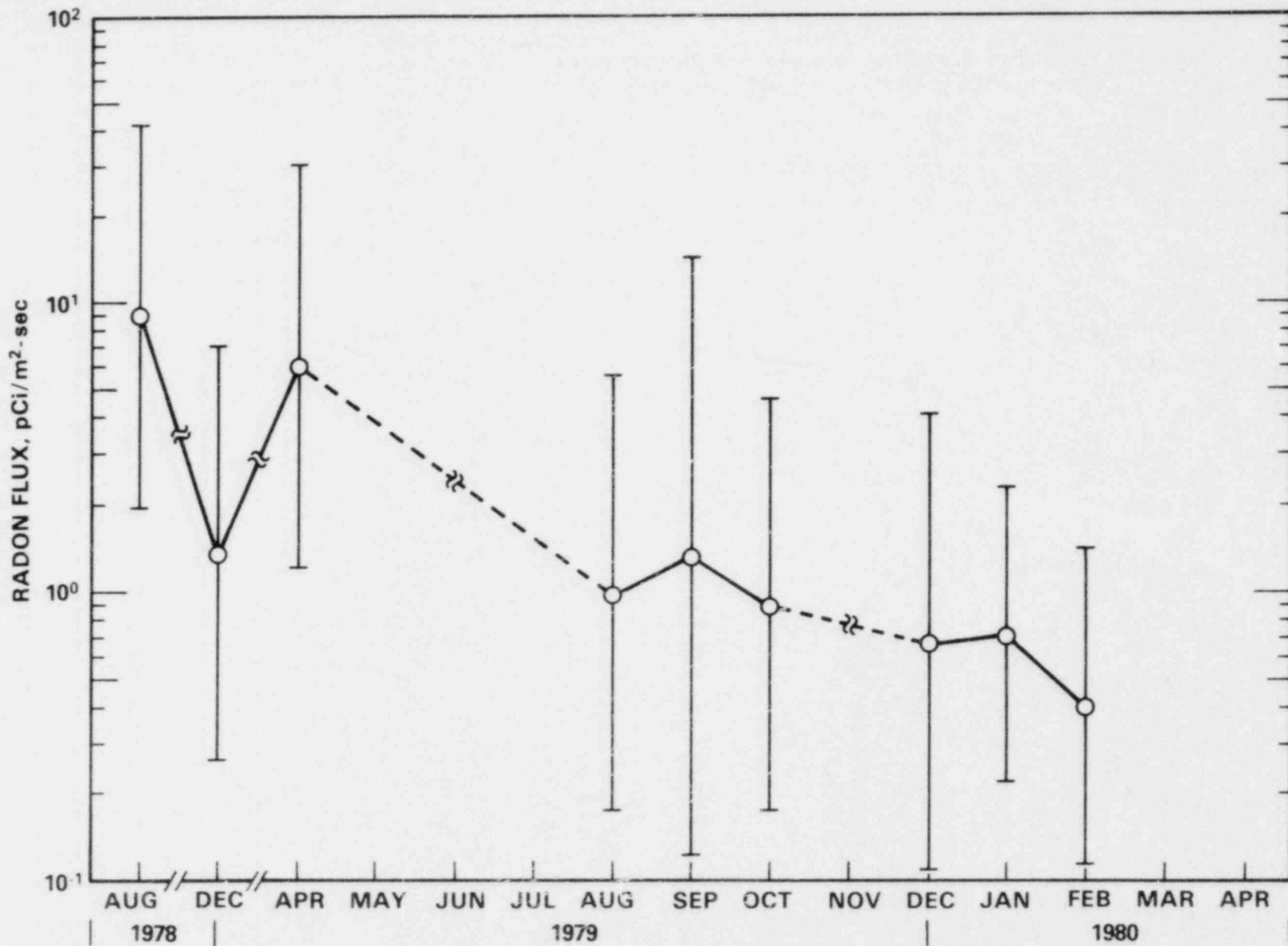


FIGURE 20. Monthly Geometric Mean Radon Flux Measured on the Morton Ranch Mine 1704 Pit Floor. Ranges shown are the one geometric standard deviation limits.

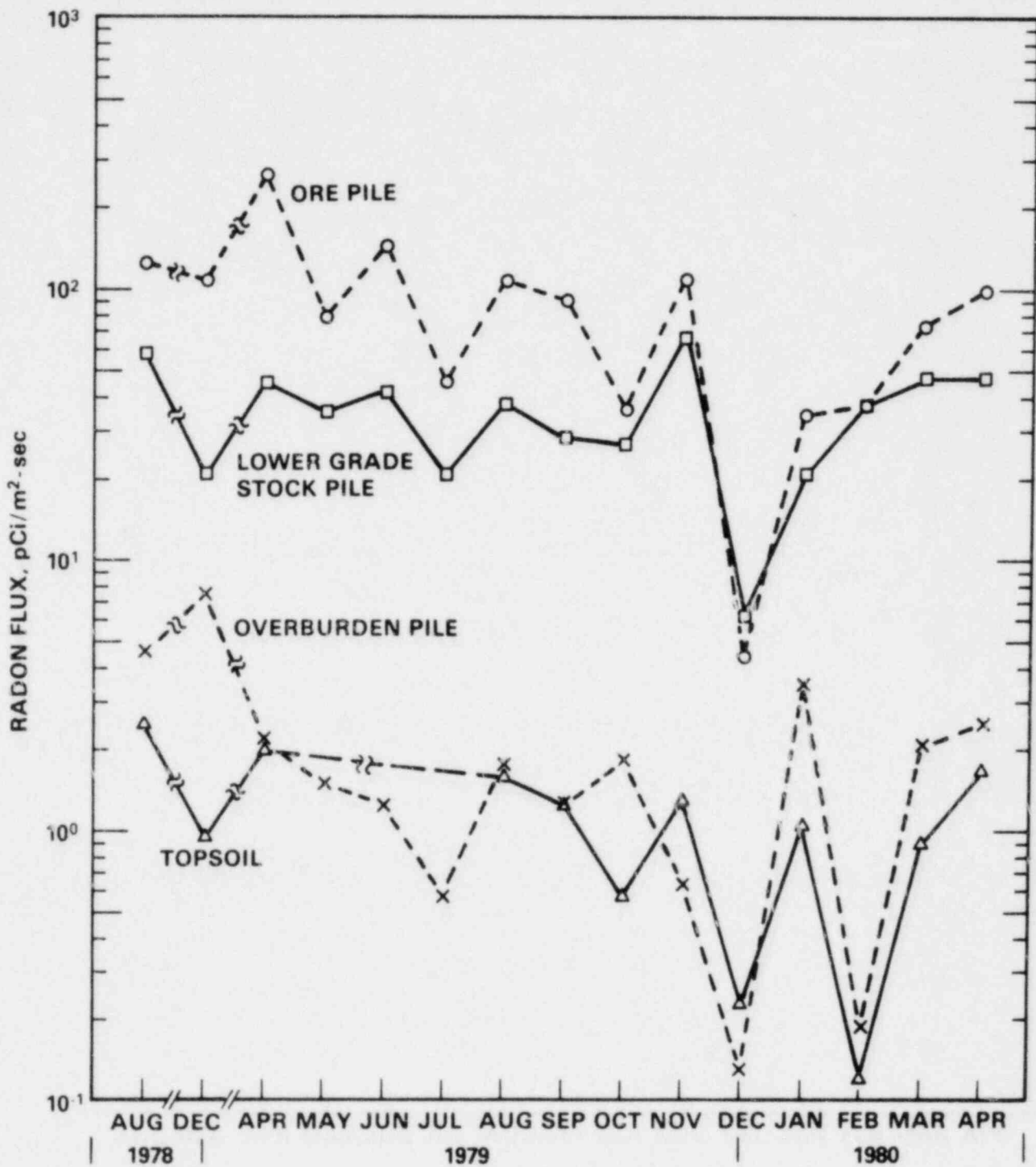


FIGURE 21. Monthly Geometric Mean Radon Flux Measured on Several Morton Ranch Mine Surfaces

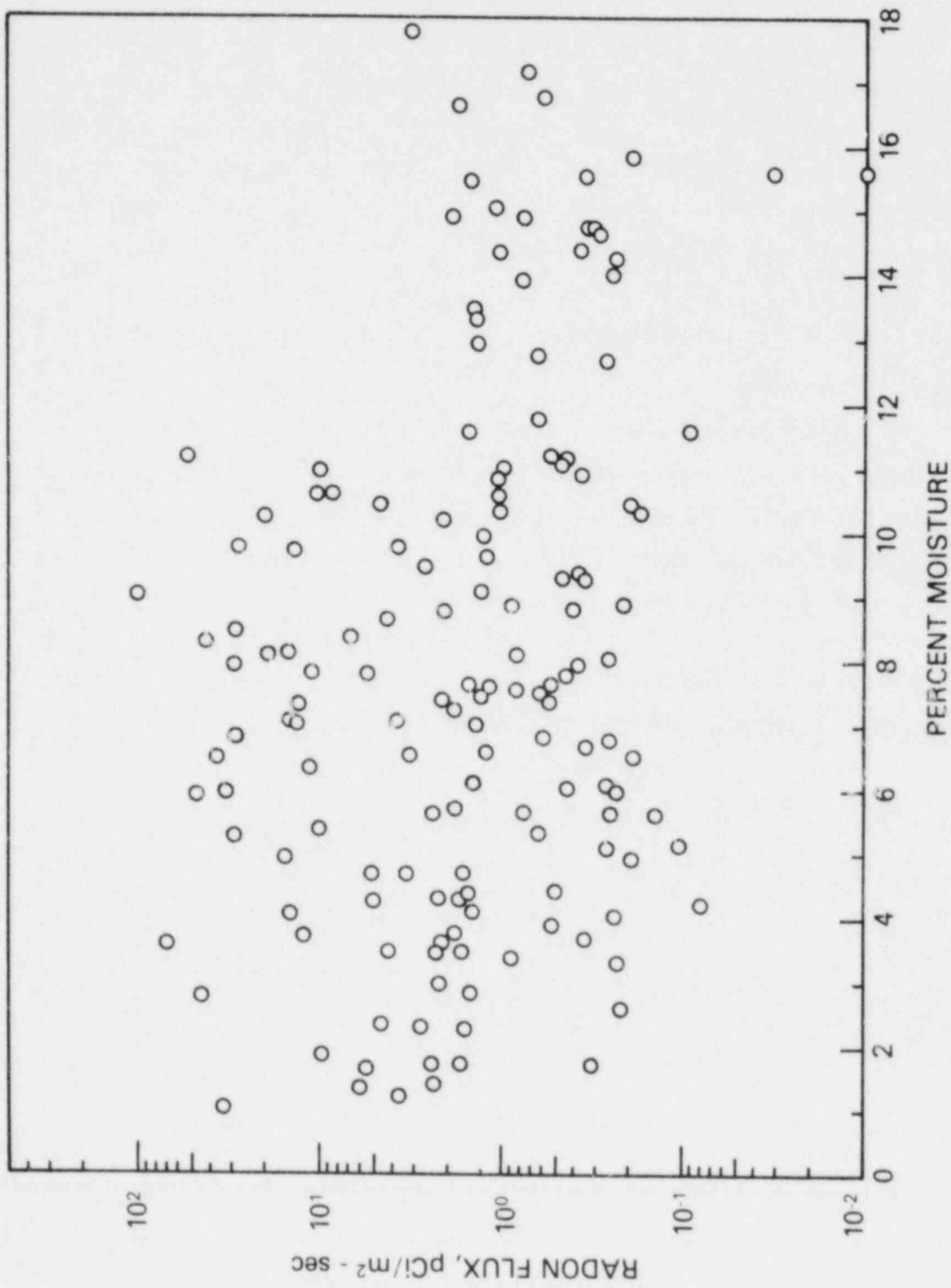


FIGURE 22. Radon Flux at Surface of Overburden Piles Versus Percent Soil Moisture

2.5.2 Barometric Pressure and Atmospheric Temperature

Radon flux measurements made on the ore pile at 1704 pit were plotted versus the positive changes in rising barometric pressure during the 24-hour flux sampling periods. They were also plotted versus the negative changes in (falling) barometric pressure, positive changes per unit time, and negative changes per unit time during the sampling periods. The scatter plots showed no indication of meaningful correlation, so further analysis of the data was abandoned. The same types of plots were made for radon flux versus air temperature changes and air temperature rates of change during the same periods. Again, visual inspection of the scatter plots suggested no correlation.

Flux measurements were made over 24-hour periods. Thus, if the effects of rising pressure (or temperature) were offset by equal falling pressure (or temperature), one would expect to see small or no net effect from the changes during fairly stable weather conditions. Inspection of the data points, however, shows that, during many of the sampling periods, the net rise in pressure (or temperature) was significantly greater than the fall in pressure (or temperature) or vice versa. Therefore, any effects from these two parameters must have been small compared to the variability in the flux measurements.

3.0 ESTIMATION OF RADON RELEASE FROM MINING

3.1 Redefinition of the Model Mine

A model mine was defined in NUREG/CR-0628 by the average of selected parameters estimated by mine owners during a verbal survey taken during visits to eight major open pit uranium mines in the Casper, Wyoming area in 1978.³ At that time, six of the eight mines were less than two years old. In the spring of 1981, three years later, a second survey of these mine parameters was conducted by mail to see if the experience gained in the meantime would have a significant effect on the averages of the parameters used for the model.

These data, collected in 1981, are summarized in Table 9 by the indicated means and ranges. The means reported are arithmetic means unless marked by an asterisk. Uncertainties reported with arithmetic means are the standard deviations (S.D.) and reported in parentheses are the standard deviations of the means (i.e., $\frac{S.D.}{\sqrt{n}}$). Uncertainties reported with the geometric means are the geometric standard deviations (G.S.D.) converted to plus and minus values.

The data collected in 1978 are also included in Table 9 for comparison. The majority of the parameters are not significantly different between the two surveys. However, the range of estimates for the number of pits is significantly different, now ranging from a low of three pits to a high of 71, as compared to the original estimated range of from five to nine pits. The model mine, then, must be modified from the estimated average seven pits to nineteen pits (Figure 23). This would change the view of the model mine near the middle of the mine's lifetime from that presented on page 9 of NUREG/CR-0628 to the following:

- The first seven pits have been completely refilled.
- The eighth pit has been filled with the overburden from Pit 10 except for that from the ore zone.
- The ninth pit is open and has been mined nearly to the bottom of the ore zone.

TABLE 9. Model Mine Parameters Averaged from Owner/Operator Estimates for Eight Open Pit Uranium Mines

Parameter	1978 Survey ⁽¹⁾			1981 Survey		
	Mean ⁽²⁾ + S.D., (+ $\frac{S.D.}{\sqrt{n}}$)		Range	Mean + S.D., (+ $\frac{S.D.}{\sqrt{n}}$)		Range
Expected Mine Life (years)	17 ± 4, (+2)		10-20 ⁽³⁾	17 ± 8, (+3)		4-30 ⁽⁴⁾
Ore Production (tonnes/day)	1560 ± 560, (+196)		910-2700	1460 ± 700, (+250)		730-2700 ⁽⁵⁾
Average Ore Grade (W ₀)	0.11 ± 0.04, (+0.02)		0.065-0.19	0.11 ± 0.04 (+0.02)		0.063-0.19 ⁽⁴⁾
Average Cutoff Grade (W ₀)	0.03 ± 0.01, (+0.01)		0.02-0.05	0.03 ± 0.02 (+0.01)		0.015-0.05 ⁽⁴⁾
Average Subore Grade (W ₀)	0.015 ⁽¹⁰⁾		0.01-0.025	0.023 ± 0.012 (+0.004)		0.0075-0.042 ⁽⁴⁾
Average Overburden Grade (W ₀)	*0.0020 + .0026 ⁽¹¹⁾ - .0011		0.00066-0.015	0.0028 ± 0.0033 (+0.0007)		0.00066-0.015 ⁽¹⁾
Average Topsoil Grade (W ₀)	0.0004 ⁽¹⁰⁾			(6)		
Thickness of Overburden (meters)	64 ± 27, (+10)		0-110	63 ± 18, (+6)		18-84 ⁽⁴⁾
Thickness of Ore Zone (meters)	*12 + 25 - 8		0.3-61	20 ± 20 (+7)		0.3-61 ⁽¹⁾
Average Ore Stockpile Residence Time (days)	*41 + 78 - 27		4-180	87 ± 72 (+27)		4-180 ⁽⁷⁾
Overburden to Ore Ratio (tonne/tonne)	77 ± 36, (+18)		30-110 ⁽⁸⁾	65 ± 44, (+18)		25-131 ⁽⁹⁾
Subore to Ore Ratio (tonne/tonne)	1 ⁽¹⁰⁾			1.1 ± 1.3, (+0.65)		0.175-3 ⁽⁸⁾
Density of Ore (tonnes/m ³)	1.78 ⁽¹⁰⁾			(6)		
Number of Pits	7 ± 1, (+0.6)		5-9 ⁽⁸⁾	19 ± 24 (+9)		3-71 ⁽¹²⁾
Pit Wall Slope from Vertical (degrees)	45 ⁽¹⁰⁾			39 ± 14, (+5)		14-57 ⁽⁷⁾
Radon Emanation Fraction	0.2 ⁽¹⁰⁾			(6)		

*Geometric Mean

Footnotes:

- (1) Data used in NUREG/CR-0628.
 (2) Arithmetic means and geometric means (marked by *) are used.
 (3) Data from six mines.
 (4) 1981 data from six mines plus 1978 data from two mines.
 (5) 1981 data from seven mines plus 1978 data from one mine.
 (6) 1978 data used.
 (7) Data from seven mines.
 (8) Data from four mines.
 (9) 1981 data from 5 mines plus 1978 data from one mine. (Estimate of 25 $\frac{\text{tonnes}}{\text{tonne}}$ excludes topsoil.)
 (10) Assumed value-see Reference 3.
 (11) Value chosen from range of handbook values for dry sand as reasonably representative in NUREG/CR-0628.
 (12) 1981 data from six mines plus 1978 data from one mine.
 (13) Geometric mean of 22 measurements of ²²⁶Ra in overburden at Morton Ranch - assumed ²³⁸U-²²⁶Ra equilibrium.

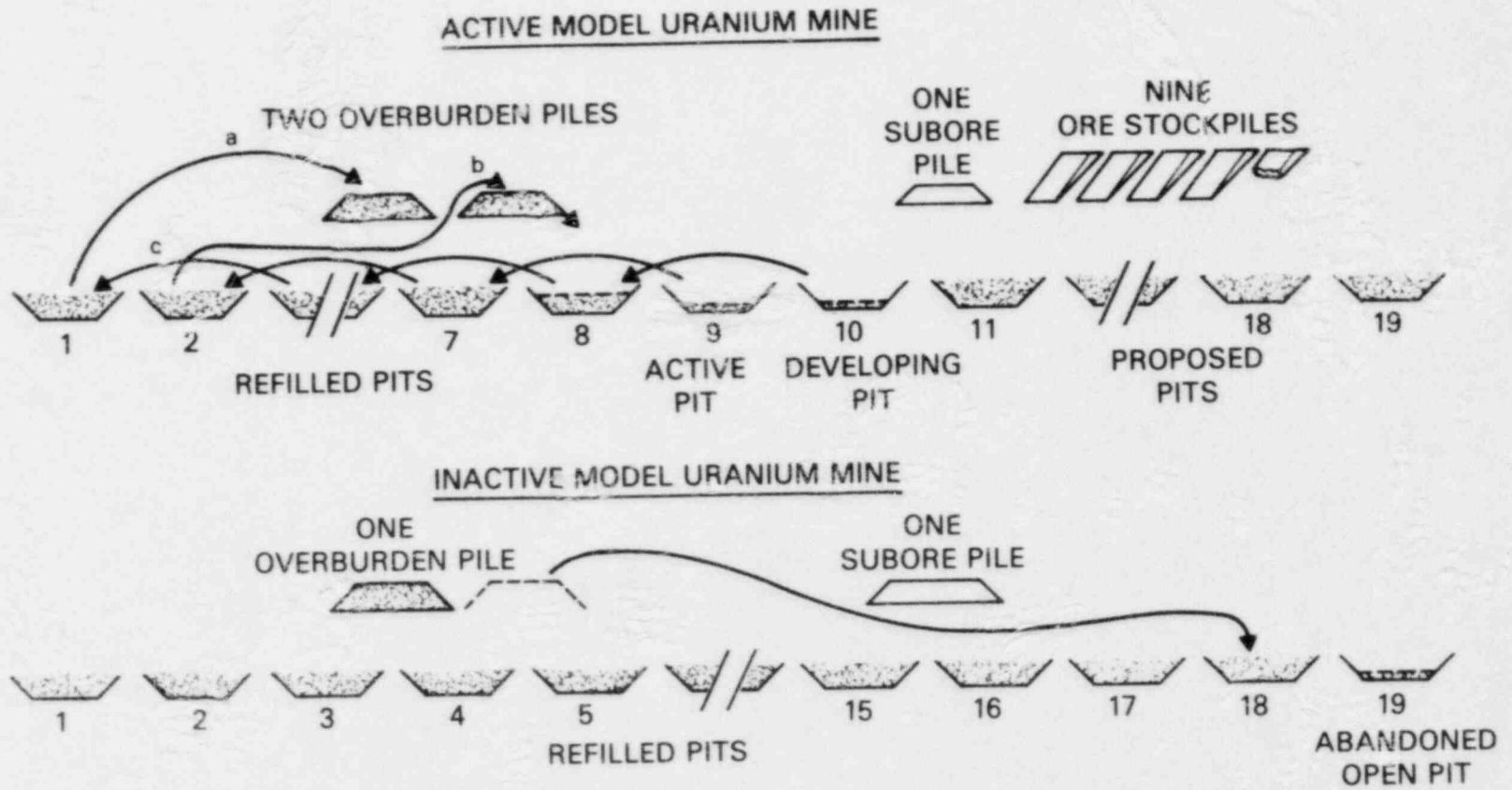


FIGURE 23. Schematic Illustration of the Model Mine Near the Middle of its Active Lifetime, and in its Inactive or Abandoned Status

- The tenth pit has just been developed or excavated to near the top of the ore zone with no ore nor subore yet exposed.
- The proposed eleventh through nineteenth pits are not yet disturbed and therefore need not be considered.

There would still be two overburden piles, 8.9 ore piles, and one sub-ore pile.

The second view of the mine after the active mining period had ceased was presented on page 10 of NUREG/CR-0628. It remains the same except nineteen pits are involved rather than seven (Figure 23). Volumes, surface areas, ore grades, and other parameters vary depending upon whether new or old survey data or field measurement data are being considered.

A new parameter which was changed was the pit wall slope from the vertical. The original model assumed 45°, but the 1981 survey indicated an average of 39°. As indicated in Table 9, some of the data used in the original model have been used in the calculations in this report (for example, density of ore, radon emanation fraction, and thickness of ore zone). In addition, parameter estimates were received in 1981 from only seven of the original eight mines and therefore the original estimates from the eighth mine were used in the averages of the 1981 survey.

To preserve continuity, and because there were no apparent reasons to change, the basic calculations of volumes, surface areas, and release rates for the model were performed as described in NUREG/CR-0528 using the 1981 survey parameters from Table 9 (see also Appendix A). Revised specific fluxes and ore grades were used, based on field measurements at Morton Ranch and at the four comparison mines. Comparative calculations were also performed using ore grade estimates from the 1981 mine survey instead of measured values.

3.2 Radon Release from the Active Model Mine

The data in Table 9 were used to estimate the areas of the various surfaces represented in the model. These are shown in Table 10. Surface areas in the 1981 model are somewhat smaller as a result of the reduced ore production estimate, from 1,560 to 1,450 tonnes/day, the greater number of

TABLE 10. Net Radon Emissions from the Active Model Mine at Midlife (8.5 yr) Using Overall Arithmetic Mean Specific Radon Flux Calculated from Field Measurements at Five Mines and 1981 Survey of Mine Parameters

SOURCE	SPECIFIC FLUX ⁽¹⁾ Ci/m ² - yr - %U ₃ O ₈	SURFACE AREA m ²	U ₃ O ₈ %	RADON EMISSION Ci/yr
Active Pit #9				
Ore	0.133	1.2 x 10 ⁴	0.108	174
Lower Grade	"	1.3 x 10 ⁴	0.023	41
Overburden	"	2.8 x 10 ⁵	0.0028	106
Developing Pit #10				
Overburden	"	3.0 x 10 ⁵	0.0028	110
Refilled Pits #1-7				
Overburden (7 pits)	"	1.7 x 10 ⁶	0.0028	646
Partially Filled Pit #8				
Overburden	"	2.6 x 10 ⁵	0.0028	95
Dump piles				
Lower Grade	"	1.1 x 10 ⁵	0.023	343
Overburden (2 piles)	"	6.3 x 10 ⁵	0.0028	234
Stock piles				
Ore (9 piles)	"	2.2 x 10 ⁴	0.108	314
Truck Dumping				
Ore			0.108	59
Lower Grade			0.023	7
Overburden			0.0028	50
Total Radon Emissions				2179
Natural Background Emissions from Surfaces Affected by Mining	"	3.1 x 10 ⁶	0.0004	- 166
Net Increase in Radon Emissions Due to Mining				2013
			Rounded to	2000

Footnote:

(1) The arithmetic mean of the arithmetic mean specific radon fluxes (Table 7) was used to correspond to the single average specific radon flux used in NUREG/CR-0628. Units were converted from PCi/cm²-sec-% U₃O₈ to Ci/m²-yr-% U₃O₈.

estimated pits (nineteen instead of seven pits), the steeper pit side slope (39°, not 45° from the vertical), and other adjustments between survey parameters.

The specific radon flux used in Table 10 was calculated as the mean of the means from Table 7 (after conversion of units to Ci/m²-yr-% U₃O₈). The total pit floor values from Table 7 were used in preference to the subdivided pit floor data. This overall arithmetic mean is not weighted for the number of measurements taken on each surface at each mine. The U₃O₈ concentrations used in Table 10 were taken from Table 9. The three factors for each surface (surface area, specific flux, and U₃O₈ concentration), when multiplied together, give Ci/yr of released radon, and this calculation parallels the calculation of radon emission in Table 4 of NUREG/CR-0628.

Due to the difference between the specific flux used in NUREG/CR-0628 (0.092 Ci/m²-yr-% U₃O₈) and that used here (0.133 Ci/m²-yr-% U₃O₈), and the differences in surface areas and U₃O₈ concentrations caused by the modified parameters in Table 9, the relative radon released from each surface area was changed from the earlier report. For example, the largest single contribution now comes from the seven refilled pits instead of the ore in the active pit, which now ranks fifth. However, the total net radon released by the model mine at its mid-life did not change from 2,000 Ci/yr.

Differences in estimated U₃O₈ concentrations were small, with the greatest change being from 0.015% to 0.023% U₃O₈ in the subore or lower grade ore. The 0.015% value was an assumed value calculated as 50% of the average cutoff grade of 0.03% U₃O₈, while the 0.023% is an average of mine estimates.

A second calculation of the radon emissions was made using all the same parameters shown in columns 3 and 4 of Table 10, but substituting the individual specific fluxes calculated for each surface type from the far right-hand column in Table 7. The results of these calculations are shown in Table 11. The net radon release from the mine was essentially the same as in the first calculation (1900 Ci/yr), but the fractions contributed from the various surfaces were different.

TABLE 11. Net Radon Emissions from the Active Model Mine at Midlife (8.5 yr) Using Arithmetic Mean Specific Radon Flux Calculated from Field Measurements at Five Mines for Each Surface Type and 1981 Survey of Mine Parameters

SOURCE	SPECIFIC FLUX ⁽¹⁾ Ci/m ² - yr - %U ₃ O ₈	SURFACE AREA m ²	U ₃ O ₈ %	RADON EMISSION Ci/yr
Active Pit #9				
Ore	0.100	1.2 x 10 ⁴	0.108	131
Lower Grade	0.091	1.3 x 10 ⁴	0.023	28
Overburden	0.151	2.8 x 10 ⁵	0.0028	120
Developing Pit #10				
Overburden	0.151	3.0 x 10 ⁵	0.0028	126
Refilled Pits #1-7				
Overburden (7 pits)	0.078	1.7 x 10 ⁶	0.0028	377
Partially Filled Pit #8				
Overburden	0.078	2.6 x 10 ⁵	0.0028	56
Dump piles				
Lower Grade	0.170	1.1 x 10 ⁵	0.023	437
Overburden (2 piles)	0.078	6.3 x 10 ⁵	0.0028	137
Stock piles				
Ore (9 piles)	0.194	2.2 x 10 ⁴	0.108	459
Truck Dumping				
Ore			0.108	59
Lower Grade			0.023	7
Overburden			0.0028	50
Total Radon Emissions				1887
Natural Background Emissions from Surfaces Affected by Mining	0.070	3.1 x 10 ⁶	0.0004	- 88
Net Increase in Radon Emissions Due to Mining				1899
				Rounded to 1900

Footnote:

(1) Individual specific radon fluxes calculated for each surface (i.e., last column in Table 7) were used. Units have been converted to Ci/m²-yr-%U₃O₈ from pCi/cm²-sec-%U₃O₈.

Finally, the same calculations were repeated using the U_3O_8 concentrations measured at the five mines in the various surfaces, and retaining the specific flux values and surface areas previously used in Table 11. These results are presented in Table 12. The net radon emission in this case increased to 3300 Ci/yr from the earlier calculation (Table 10) of 2,000 Ci/yr.

The specific flux values and U_3O_8 concentrations used in Table 12 are based on actual measurements at five of the eight mines surveyed. The corresponding U_3O_8 concentrations estimated from the averages of the survey estimates for these five mines were essentially the same as those from the eight mine survey averages. There were differences, however, between U_3O_8 concentrations measured and those estimated in the mine survey. Therefore, it appears that Table 12 presents the best available estimate of radon release for the model open pit uranium mine. Table 12 is therefore defined to represent the "1981 model mine" or the "current model mine" to distinguish between it and the model mine presented in NUREG/CR-0628.

Caution should be used when using these radon release estimates to extrapolate to radon releases from other mines or to the open pit uranium mining industry in general. The estimates are based on measurements made at only five mines which is a small sampling from the total number of open pit uranium mines in the U.S. In addition, each mine changes with time and changes with modified mining procedures. Calculation of the model mine surface areas included reasonable assumptions, but the uncertainties in these assumptions are not known. Finally, the measurements made at the five mines were so highly variable not just from mine to mine nor surface to surface, but even within each surface type that the estimates of radon release must be considered very approximate.

3.3 Radon Release from Morton Ranch Open Pit Mining

The radon released from the Morton Ranch open pit mine under the relatively inactive conditions during the study year was calculated from the radon flux measurements in Table 1 and estimates of mine surface areas

TABLE 12. Net Radon Emissions from the Active Model Mine at Midlife (8.5 yr) Using Arithmetic Mean Specific Radon Flux and U₃O₈ Concentrations from Field Measurements at Five Mines and Areas Calculated from 1981 Survey of Mine Parameters

<u>SOURCE</u>	<u>SPECIFIC FLUX⁽¹⁾</u> <u>Ci/m² - yr - %U₃O₈</u>	<u>SURFACE AREA</u> <u>m²</u>	<u>U₃O₈⁽²⁾</u> <u>%</u>	<u>RADON EMISSION</u> <u>Ci/yr</u>
Active Pit #9				
Ore	0.100	1.2 X 10 ⁴	0.50	606
Lower Grade	0.091	1.3 X 10 ⁴	0.018	22
Overburden	0.151	2.8 X 10 ⁵	0.0047	202
Developing Pit #10				
Overburden	0.151	3.0 X 10 ⁵	0.0047	211
Refilled Pits #1-7				
Overburden (7 pits)	0.078	1.7 X 10 ⁶	0.0031	417
Partially Filled Pit #8				
Overburden	0.078	2.6 X 10 ⁵	0.0031	62
Dump piles				
Lower Grade	0.170	1.1 X 10 ⁵	0.046	865
Overburden (2 piles)	0.078	6.3 X 10 ⁵	0.0031	151
Stock piles				
Ore (9 piles)	0.194	2.2 X 10 ⁴	0.161	685
Truck Dumping				
Ore			0.161	88
Lower Grade			0.046	14
Overburden			0.0031	55
Total Radon Emissions				3378
Natural Background Emissions from Surfaces Affected by Mining	0.070	3.1 X 10 ⁶	0.00057	- 125
Net Increase in Radon Emissions Due to Mining				3253
				Rounded to 3300

Footnote:

- (1) Individual specific radon fluxes calculated for each surface (i.e., last column in Table 7) were used. Units have been converted from pCi/cm²-sec-%U₃O₈ to Ci/m²-yr-%U₃O₈.
- (2) Individual U₃O₈ concentrations measured in each surface (i.e., last column in Table 5) were used. Units have been converted from ppm U₃O₈ to % U₃O₈.

from field measurements, photographs, and topographical maps. Radon flux in units of Ci/m²-yr from each surface times the surface area in m² yielded Ci/yr radon released from the surface. The sum of these estimates, then, was the total yearly release from the mine. These data are shown in Table 13.

The total radon emissions were about 180 Ci/yr, of which 30 Ci/yr were attributed to the natural background emissions which would have been released had the mine not been excavated. This leaves 150 Ci/yr due to mining operations, which is lower than predicted by the model (Table 12) for an operating mine. The main contribution was from the overburden pile, which accounted for 44% of the total radon released.

A number of factors must be kept in mind when considering these data. They are as follows:

- The study pit (1704 pit) was not in production during the study.
- The main ore bodies may not yet have been exposed on the pit floor.
- Expected ore grades from the Morton Ranch 1704 pit were lower than those in the model mine.
- A developing pit was not present until the latter part of the study and was not included in the estimate.
- There were no refilled nor partially refilled pits.
- There was only one ore pile, one lower grade ore pile, and one overburden pile associated with 1704 pit.
- With no major activity underway in the study pit, no truck dumping was estimated.

To estimate the release rate of the Morton Ranch open pit mine during future active mining, the arithmetic mean specific radon fluxes and U₃O₈ concentrations for Morton Ranch from Table 2 were used with parameters obtained in the 1981 mine survey and the model mine assumptions. These data are presented in Table 14.

When compared to the data in Table 12, the most obvious difference is that the estimate of net radon release from the Morton Ranch mine was much smaller than that from the model mine (940 compared to 3300 Ci/yr).

TABLE 13. Net Radon Emissions from Morton Ranch Mine
 Estimated from Field Measurements of Radon
 Flux and Surface Areas Estimated from
 Topographic Maps and Field Measurements

<u>SOURCE</u>	<u>RADON FLUX</u> <u>Ci/m²-yr</u>	<u>SURFACE AREA</u> <u>m²</u>	<u>RADON EMISSION</u> <u>Ci/yr</u>
Overburden Pile	1.9×10^{-4}	4.3×10^5	82
Ore Pile	3.9×10^{-3}	8.9×10^3	35
Mineral (Subore) Pile	1.3×10^{-3}	5.3×10^3	7
Pit Floor	3.3×10^{-4}	1.2×10^5	41
Pit Walls	$2.6 \times 10^{-4}^{(1)}$	7.5×10^4	20
Total Radon Emissions			<u>185</u>
Natural Background Emissions from Surfaces Affected by Mining	6.3×10^{-5}	5.2×10^5	- 33
Net Increase in Radon Emissions due to Mining			<u>152</u> Rounded to 150

Footnote:

(1) Estimated as the arithmetic mean of the pit floor and overburden pile fluxes.

TABLE 14. Net Radon Emissions from Morton Ranch Open Pit Mining after 8.5 Years Using Specific Fluxes and U_3O_8 Concentrations from Field Measurements at Morton Ranch, and All Other Parameters from the 1981 Model

SOURCE	SPECIFIC FLUX ⁽¹⁾ Ci/m ² - yr - %U ₃ O ₈	SURFACE AREA m ²	U ₃ O ₈ ⁽²⁾ %	RADON EMISSIONS Ci/yr
Active Pit #9				
Ore	0.038 ⁽³⁾	1.2 X 10 ⁴	0.036	16
Lower Grade	0.038 ⁽³⁾	1.3 X 10 ⁴	0.010	5
Overburden	0.038 ⁽³⁾	2.8 X 10 ⁵	0.0036	39
Developing Pit #10				
Overburden	0.038 ⁽³⁾	3.0 X 10 ⁵	0.0060	68
Refilled Pits #1-7				
Overburden (7 pits)	0.070	1.7 X 10 ⁶	0.0036	441
Partially Filled Pit #8				
Overburden	0.070	2.6 X 10 ⁵	0.0036	65
Dump piles				
Lower Grade	0.150	1.1 X 10 ⁵	0.010	168
Overburden (2 piles)	0.070	6.3 X 10 ⁵	0.0036	160
Stock piles				
Ore (9 piles)	0.087	2.2 X 10 ⁴	0.036	68
Truck Dumping				
Ore			0.036	20
Lower Grade			0.010	3
Overburden			0.0036	64
Total Radon Emissions				1117
Natural Background Emissions from Surfaces Affected by Mining	0.098	3.1 X 10 ⁶	0.00058	- 178
Net Increase in Radon Emissions Due to Mining				939

Rounded to 940

Footnotes:

- (1) From column 4, Table 2. Units have been converted from pCi/m²-sec-%U₃O₈ to Ci/m²-yr-%U₃O₈.
- (2) From column 3, Table 2. Units have been converted from ppm U₃O₈ to % U₃O₈.
- (3) Pit floor specific flux was used as being more representative of specific flux determined for in situ material.

Upon closer inspection, the largest differences are in the releases from the active pit ore and the ore stockpile. These differences are partly due to the lower U_3O_8 concentrations at Morton Ranch than those in Table 12 and also to the lower specific fluxes calculated from the Morton Ranch data. In the pit area especially, the specific flux for the ore was 62% lower than the mean used in Table 12. This is probably due to the high moisture levels in the bottom of the pit at Morton Ranch compared to the other mines. In addition, the U_3O_8 concentration was 93% lower in the pit ore at Morton Ranch than used in the model. The specific flux measured on the ore pile was also less by 55%, while the ore concentration was less by about 78%.

These results indicate that, although the model mine may be used to estimate approximate average radon releases expected from the open pit uranium mining industry in general, parameters specific to a particular mine are needed to estimate radon releases from that mine. One must also keep in mind the wide variability of the data collected during this study (and others) which often covered more than an order of magnitude over an annual cycle, even for measurements taken on the same surface.

3.4 Radon Release from the Inactive Abandoned Model Mine

In the same manner used to estimate radon releases from the active model mine in Table 12, radon releases were calculated for the inactive or abandoned model mine after 16.6 years of mining, as illustrated in Figure 23. These results are presented in Table 15. The net release is estimated to be 2700 curies during each year after cessation of mining. This is only 18% less than expected to be released yearly at mid-life of the model mine (Table 12). The predicted radon emissions from the original model inactive mine were 1377 Ci/yr.

As pointed out in NUREG/CR-0628, the abandoned mine status was intended to be a compromise between the completely reclaimed mines anticipated in the future and the large abandoned open pits left from past mining operations.

3.5 Radon Release per Unit U_3O_8 Produced

The mined uranium requirement for an operating 1000 MW electric power plant using a light water reactor and assuming a 90.5% milling recovery of

TABLE 15. Net Radon Emissions from the Inactive or Abandoned Model Mine after 16.6 Years Using Arithmetic Mean Specific Radon Flux and U_3O_8 Concentrations Measured at Five Mines for Each Surface Type with Surface Areas Calculated from 1981 Survey of Mine Parameters

<u>SOURCE</u>	<u>SPECIFIC FLUX⁽¹⁾</u> <u>Ci/m² - yr - %U₃O₈</u>	<u>SURFACE AREA</u> <u>m²</u>	<u>U₃O₈⁽²⁾</u> <u>%</u>	<u>RADON EMISSION</u> <u>Ci/yr</u>
Abandoned Pit #19				
Lower Grade	0.091	1.3 X 10 ⁴	0.018	22
Overburden	0.151	3.0 X 10 ⁵	0.0047	210
Refilled Pits #1-18				
Overburden (18 piles)	0.078	4.5 X 10 ⁶	0.0031	1072
Dump Piles				
Lower Grade	0.170	2.0 X 10 ⁵	0.046	1564
Overburden	0.078	3.1 X 10 ⁵	0.0031	76
Total Radon Emissions				<u>2944</u>
Natural Background Emissions from Surfaces Affected by Mining	0.070	5.2 X 10 ⁶	0.00057	- 207
Net Increase in Radon Emissions Due to Mining				<u>2737</u>
				Rounded to 2700

Footnotes:

- (1) Arithmetic mean of arithmetic means of specific radon flux calculated for each surface measured at five mines (i.e., last column, Table 7) was used for each respective surface. Units have been converted from pCi/cm²-sec-%U₃O₈ to Ci/m²-yr-%U₃O₈.
- (2) Arithmetic mean of arithmetic means of U₃O₈ concentration measured in each surface at five mines (i.e., last column in Table 5) was used for each respective surface. Units have been converted from ppm U₃O₈ to %U₃O₈.

the uranium from uranium ore has been estimated to be 201 tonnes U_3O_8 yearly.²¹ A "Reference Reactor Year" (RRY) is thus 201 tonnes U_3O_8 mined to produce 182 tonnes U_3O_8 for reactor use. Since the active model mine (Table 12) produces 1,460 tonnes/day of 0.16% U_3O_8 ore during 330 days/year, its equivalent U_3O_8 production is about 780 tonnes U_3O_8 /year. This corresponds to 4.2 Ci radon released/tonne U_3O_8 produced using the 3300 Ci/yr radon released. Using the definition of RRY above, the estimate of 840 Ci/RRY is obtained. Although the "best estimate" (i.e., 840 Ci/RRY) of the radon released per unit ore production is slightly larger than the ~700 Ci/RRY estimated in NUREG/CR-0628, the large uncertainty range in the present estimate encompasses the earlier reported value.

The model mine at the end of its active life will have produced 13,000 tonnes of U_3O_8 during its active 17 years. The emission of 2700 Ci/yr from Table 15 is equivalent to 43 Ci/yr/RRY. This may be compared to the 29 Ci/yr/RRY estimated in NUREG/CR-0628.

3.6 Comparison of Radon Emission with Background Levels

As in NUREG/CR-0628, the above net radon emissions from the model open pit uranium mine were compared to the normal background radon emission rate of the affected land areas.

For the active mining period which disturbs an area of about 3.1 km², the originally undisturbed land would have emitted radon at the rate of 125 Ci/yr. The model mine (Table 12) has thus increased the background radon emission rate of the affected area by a factor of

$$\frac{3378 \text{ Ci/yr (active mine)}}{125 \text{ Ci/yr (no mine)}} = 27 \quad (1)$$

at the midlife of the active mining period.

The land disturbed by the abandoned or inactive mine (Table 15), on the other hand, would have released 207 Ci/yr from 5.2 km² had the land been left undisturbed. The complete open pit mining operation, then, has raised the radon emission rate of the affected area by a factor of

$$\frac{2944 \text{ Ci/yr (inactive mine)}}{207 \text{ Ci/yr (no mine)}} = 14 \quad (2)$$

for the post-mining period.

All eight of the open pit uranium mines used in the model mine averages lie within a 129 km radius of Casper, Wyoming. This is equivalent to a circular area of 52,000 km². The impact of the model mine on an area this size may be calculated by assuming the area to have a background radon emission rate equivalent to that from the 5.7 ppm U₃O₈ measured in samples of topsoil collected within a 100 km radius of Casper and the estimate of the increase in background radon emission rate from above. During active mining, the model mine would increase the radon emission of the "Casper vicinity" by a factor of

$$1 + \frac{(3.1 \text{ km}^2)(27)}{52,000 \text{ km}^2} = 1.0016 \quad (3)$$

The radon emission rate of this area would remain increased by a factor of

$$1 + \frac{(5.2 \text{ km}^2)(14.2)}{52,000 \text{ km}^2} = 1.0014 \quad (4)$$

after the mining activities were halted and the mine was abandoned.

3.7 Comparison with St. Anthony Emissions Reported by Argonne National Laboratory

Argonne National Laboratory (ANL) reported the radon release from an open pit uranium mine in NUREG/CR-1583 in 1980.¹⁹ The estimates were limited to the radon released from the St. Anthony inactive open pit, using calculations based on the average radon flux of each section of the pit and the area of each section determined from enlarged aerial photographs. The yearly release rate from the inactive pit was reported to be 11 Ci/yr. Estimates of radon release rates were also made for ripping, removal, and crushing of ore. The annual release rate from these dynamic mining procedures was estimated to be 10 Ci/yr.

Estimates of projected radon release rates from the ore zones (which represented 93.4% of the total release) of the pit were calculated for yearly increments of mine age. The development of the pit assumed a constant ore zone working surface area with a continuously expanding mine bottom or base surface area throughout the life of the mine. These release estimates range from 8.4 Ci/yr for the first year to approximately 47 Ci/yr at 8.5 years (mid-life) to 91 Ci/yr at 17 years (last production year).

To compare these estimates with the current work presented in this paper, one must keep in mind the real differences between mines, mining procedures, emanation rates, and a multitude of other factors which affect radon release. Some of the more obvious differences in these parameters used by ANL in NUREG/CR-1583 and PNL in this study are the following:

	<u>ANL</u>	<u>PNL</u>
Ore production, tonnes/day	1800	1460
Pit ore grade, % U ₃ O ₈	0.07	0.5
Ore density, tonnes/m ³	1.9	1.78
Emanation fraction	0.07	0.2
$\frac{\text{Ore} + \text{subore} + (\text{waste inclusion})}{\text{ore}}$, ratio 4/1		2.1/1
Overburden/ore, ratio	12/1	65/1
Working days/year, days	285	330

Most of these differences would result in lower radon release estimates for the ANL study than the current study. Two other differences are in the measured radon flux and calculated specific flux values. ANL reported an average flux for ore in the pit as 14 pCi/m²-sec with a range of 4.8 to 36 pCi/m²-sec. PNL measured at five mines an arithmetic mean of the pit floor measurements of 220 pCi/m²-sec (range, 11 to 7,000 pCi/m²-sec, Table 3), a factor of over 15 difference between best estimates of the central tendency of the measurements. PNL measured 1000 pCi/m²-sec (range, 12 to 7000 pCi/m²-sec, Table 3) from the pit ore at four of the mines, a factor of 70 difference. Data from a control point in the ANL mine pit were used to normalize measurements at other locations for variations in radon release rates caused by changing meteorological and climatic conditions. PNL measurements were not normalized. Specific flux estimates for ripped pit ore were reported by ANL to average (0.017 pCi ²²²Rn/m²-sec)/(pCi ²²⁶Ra/g) [i.e., 48 pCi/m²-sec-% U₃O₈ with a range of 11 to 76 pCi/m²-sec-% U₃O₈]. A "more representative" estimate was reported to be (0.072 pCi ²²²Rn/m²-sec)/(pCi ²²⁶Ra/g) [i.e.,

204 pCi/m²-sec-% U₃O₈] using the average flux from undisturbed ore divided by the average ²²⁶Ra concentration in the ripped area. PNL has estimated (Table 7) the arithmetic mean specific flux for pit ore in four mines to be 3200 pCi/m²-sec-% U₃O₈. This is a difference of a factor of almost 16 between best estimates of central tendency. Once again, these values for flux and specific flux would result in lower estimates of radon release for the ANL study.

Comparison of the radon release from the Morton Ranch 1704 pit at the beginning of mining to the radon release from the St. Anthony pit which has been mined through the ore zones may not be meaningful. However, physical dimensions of the pits are very similar, both pits were relatively inactive, and thus it may be of interest to note the estimated radon emissions from each of the pits. As reported in Table 13, the estimated arithmetic mean radon emissions from the 1704 pit at Morton Ranch are 41 Ci/yr from the 1.2 X 10⁵m² pit floor and 20 Ci/yr from the 7.5 X 10⁴m² pit walls. Corresponding releases from the St. Anthony pit were reported to be (after conversion to Ci/yr) 8.7 Ci/yr from the 1.0 X 10⁵m² pit floor and 2.3 Ci/yr from the 5.3 X 10⁴m² vertical surfaces. Emissions from the two pits are different by a factor of over 5.

A comparison of the radon release from just the active pit of the 1981 model mine at its mid-life (8.5 years) to the projected release from the St. Anthony pit at its mid-life (8.5 years) was also made. The release rate from the model mine active pit was (Table 12) 830 Ci/yr, while the St. Anthony pit projection was ~47 Ci/yr divided by 0.934 (fraction of radon release from ore zone) equals 50 Ci/yr, a factor of about 17 lower than the arithmetic mean value of the model mine. This disparity is undoubtedly due mostly to the large difference between specific flux calculated for the two pits. This, in turn, is directly dependent upon the parameters discussed at the beginning of this section and, in addition, due to the bias (if any) between the two measurement techniques used by the two laboratories to measure radon flux. Comparison studies of techniques for measuring radon flux are currently being conducted by both ANL and PNL.

4.0 ATMOSPHERIC CONCENTRATIONS OF RADON

4.1 Yearly and Monthly Mean Concentration Upwind, Downwind, and at the 1704 Pit

Radon concentrations in air near the ground are presented in Table 16 and are plotted in Figure 24. The data represent geometric mean values of hourly integrations for approximately one-month periods of time at Sites A (1.6 km upwind from the pit), B (at the pit edge) and C (4 km downwind from the pit). The geometric means (\bar{x}_g) of all hourly data collected during the one-year sampling period are also given. Site A had a yearly geometric mean of 0.36 pCi/l (G.S.D. = 3.3) with a monthly \bar{x}_g low of 0.095 pCi/l and a \bar{x}_g high of 1.7 pCi/l. Site C averaged 0.40 pCi/l (\bar{x}_g) with a monthly low \bar{x}_g of 0.32 pCi/l and a monthly high \bar{x}_g of 0.74 pCi/l. Site B measured 0.73 pCi/l (\bar{x}_g) with a monthly low \bar{x}_g of 0.42 and a high \bar{x}_g of 2.0. These may be compared to estimates of outdoor atmospheric radon concentrations presented by Jacobi²² of 0.03 to 3.0 pCi/l with a mean of about 1 pCi/l.

Both Sites A and B showed lower monthly mean concentrations during the second half of the year, and Site C concentrations were also lower, but to a smaller degree. The sudden large drop in radon concentration at the upwind and the pit edge sampling sites is not understood, as no logical explanations are evident. The only physical change in common to the three sites other than the meteorological or climatic conditions is that near the end of September the three Eberline monitors were put into large, weather-tight boxes to protect them from the inclement Wyoming winter. The inlet sampling line was extended 1.5 to 3 meters with 6 mm Tygon tubing. The end of the Tygon tubing was inserted into an overturned one-gallon metal can as a weather head. This did not decrease the sampling rate significantly. Plateout of the daughters in the Tygon tubing is inconsequential since they are filtered before entry into the counting chamber. Sampling of radon would not be expected to be inhibited by the extended piece of Tygon tubing. Site B results prior to 9/27/79 could also contain some contribution from spurious counts which were suspected of being introduced by a relay actuated recorder using the same power source. On 9/27/79, an isolation transformer was

TABLE 16. Geometric Mean Monthly and Annual Atmospheric Radon Concentration

pCi/l

	SITE A		SITE B		SITE C	
	(1.6 km UPWIND)	n ⁽¹⁾	(PIT EDGE)	n	(4 km DOWNWIND)	n
1979 MAY	0.81 (2.0) ⁽²⁾	642	0.98 (1.7)	714	0.50 (1.8)	524
JUNE	0.87 (1.8)	621	1.3 (1.7)	708	0.41 (1.7)	311
JULY	0.74 (1.6)	586	1.6 (1.6)	226	0.40 (1.7)	512
AUGUST	0.30 (2.4)	652	1.8 (1.5)	53	0.44 (1.8)	510
SEPTEMBER	1.7 (1.5)	671	2.0 (1.6)	618	0.59 (1.8)	483
OCTOBER	0.58 (1.4)	809	0.53 (1.5)	16	-	-
NOVEMBER	0.23 (1.6)	433	-	-	-	-
DECEMBER	0.28 (1.5)	696	0.43 (1.6)	67	0.37 (1.2)	6
1980 JANUARY	0.25 (2.5)	579	0.56 (2.1)	548	0.74 (1.8)	121
FEBRUARY	0.095 (2.6)	735	0.46 (1.8)	176	0.37 (1.6)	52
MARCH	0.10 (2.6)	626	0.46 (1.5)	761	0.33 (1.5)	759
APRIL	0.13 (2.9)	707	0.46 (1.9)	817	0.32 (1.8)	519
MAY	0.14 (2.8)	493	0.42 (1.9)	792	0.32 (1.7)	676
TOTAL TIME PERIOD	0.36 (3.3)	8,250	0.73 (2.2)	5,496	0.40 (1.8)	4,473

(1)n = NUMBER OF HOURLY MEASUREMENTS INCLUDED IN MEAN

(2)PARENTHESES = GEOMETRIC STANDARD DEVIATION

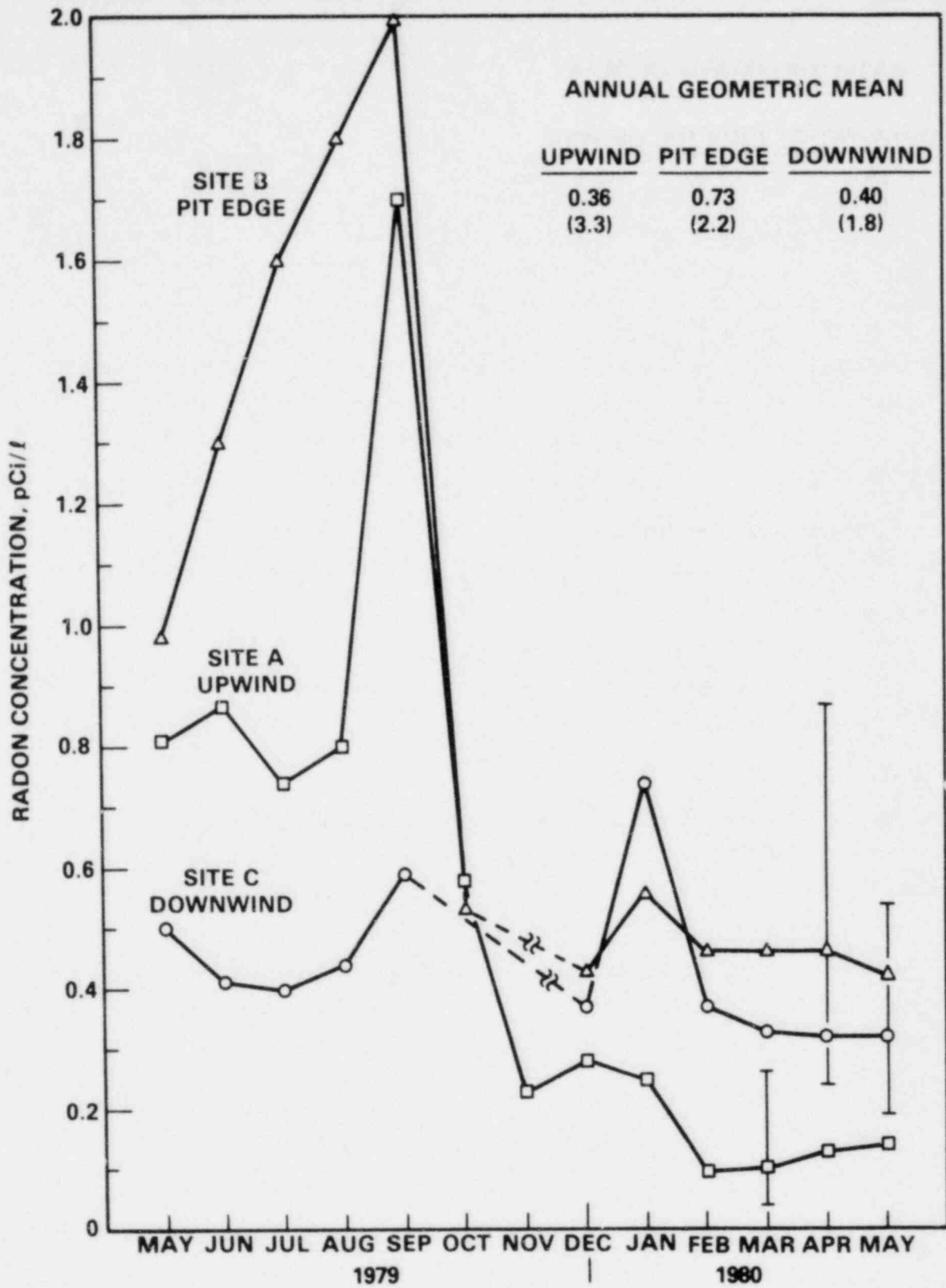


FIGURE 24. Geometric Mean Monthly Atmospheric Radon Concentration

installed between the power source and the Eberline unit to correct this. Since the data were entered manually from the strip tapes printed by the Eberline units into computer storage, any large excursions in count rate due to spurious events were edited out of the data, and so this source of error is considered to be minimal.

Average wind speed during the period prior to September 27, 1979 was very similar to that after September 27, 1979 (i.e., 3.8 ± 2.7 m/s and 4.0 ± 3.5 m/s, respectively). Wind directions during the two periods were on the average very similar. During both periods the wind was most often from 220° to 280° with respect to the magnetic north pole.

Examples of the variability of the data are shown by the uncertainty bars in Figure 24 for the upwind site in March, the pit edge site in April, and the downwind site in May of 1980. These are the 1 geometric standard deviation ranges. The respective yearly geometric means for the three sites are not significantly different from each other when viewed in light of their associated uncertainties.

A few grab sample measurements of atmospheric radon concentration were made during the November-December 1978 trip. These were collected by pumping air through a charcoal adsorption trap at 2 ℓ /m for several hours. More than one charcoal collector was used at some sites to increase the sampling period to about 24 hours. These data are presented in Table 17 and are similar to the measurements obtained with the Eberline units and also fall within the ranges reported by Jacobi. Even those concentrations measured on the ore pile are not higher than Jacobi's reported range of measurements.

The measurements in Tables 16 and 17 may also be compared to average monthly radon concentrations measured during June and July 1979 by ANL at three locations in the St. Anthony Mine vicinity. They reported in NUREG/CR-1583 for June and July, respectively, the following concentrations: 0.880 ± 0.200 pCi/ ℓ and 0.975 ± 0.210 pCi/ ℓ at a background station about 11 km north of the mine; 0.750 ± 0.170 pCi/ ℓ and 1.03 ± 0.200 pCi/ ℓ about 100 m west of the mine entrance in the valley; and 0.150 ± 0.140 pCi/ ℓ about 600 m due west of the mine entrance sampler, on top of a mesa.

TABLE 17. Atmospheric Radon Concentration Near the Ground Measured by Charcoal Adsorption from Pumped Air

Sample Site	Sampling Periods	Sampling Hours	Radon Concentration, pCi/ℓ
Ore Pile	11/30/78 1057-1318	2.4	2.0 ± 0.3 ⁽¹⁾
	1324-1526	2.0	1.9 ± 0.3
	12/01/78 1110-1322	2.2	2.0 ± 0.1
0.5km Upwind (Southwest of 1704 Pit)	11/30/78 1103-1338	2.5	0.22 ± 0.07
	1342-1534	1.9	0.47 ± 0.18
	1540-12/1/78 0747	16.1	0.85 ± 0.02
	12/1/78 1103-1314	2.2	0.77 ± 0.24
1 km Downwind (North X Northeast of 1704 Pit)	11/30/78 1109-1351	2.7	0.10 ± 0.03
	1355-1547	1.9	0.45 ± 0.13
	1550-12/1/78 0738	15.8	0.86 ± 0.04
	12/1/78 1112-1321	2.2	1.3 ± 0.2
0.7 km South East by East of ore pile	12/1/78 1443-12/2/78 0922	18.6	0.28 ± 0.02
	12/2/78 0936-12/3/78 1054	25.3	0.33 ± 0.03
	12/3/78 1150-12/4/78 0814	20.4	0.12 ± 0.01
Overburden Pile (East of 1704 Pit)	11/30/78 1120-1406	2.8	0.72 ± 0.32
	1409-1558	1.8	0.97 ± 0.36
	1600-12/1/78 0745	15.8	2.60 ± 0.06
	12/1/78 1103-1317	2.2	1.36 ± 0.15
1704 Pit Bottom Extreme Southwest End	12/1/78 1442-12/2/78 0857	18.2	0.46 ± 0.02
	12/2/78 0859-12/3/78 1105	26.1	1.13 ± 0.04
	12/3/78 1105-12/4/78 0754	20.8	0.26 ± 0.01
1704 Pit Bottom South Center	12/1/78 1438-12/2/78 0845	18.1	0.31 ± 0.02

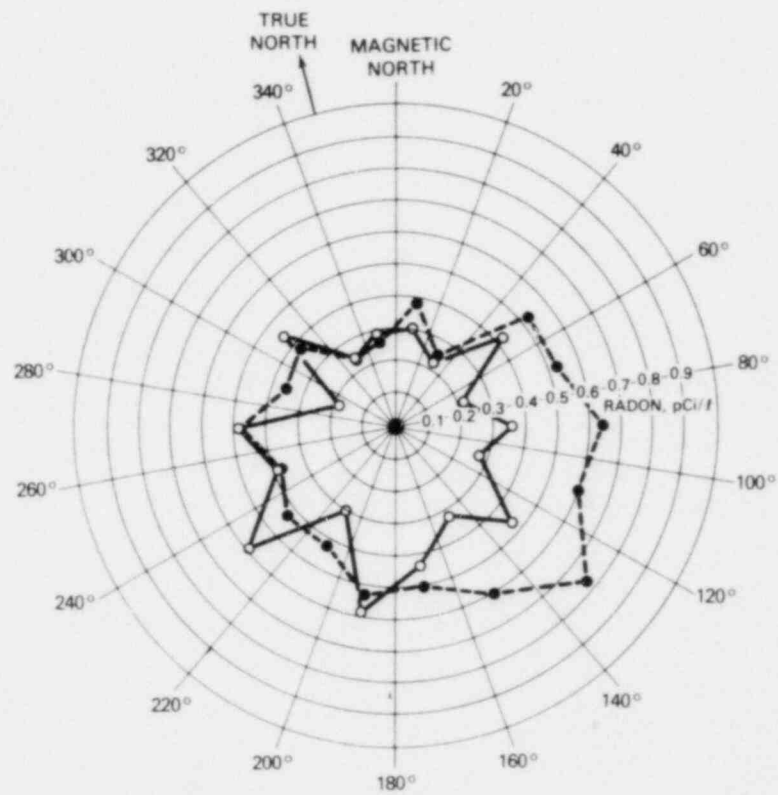
(1) Uncertainty estimates are one standard deviation of counting statistics only.

Jackson^{2,3} measured daily average outdoor atmospheric radon concentrations in Edgemont, S.D. (just 100 km east of the Morton Ranch) from September through December of 1980. The data reported showed large day-to-day variations in concentration between near zero and 2 pCi/l.

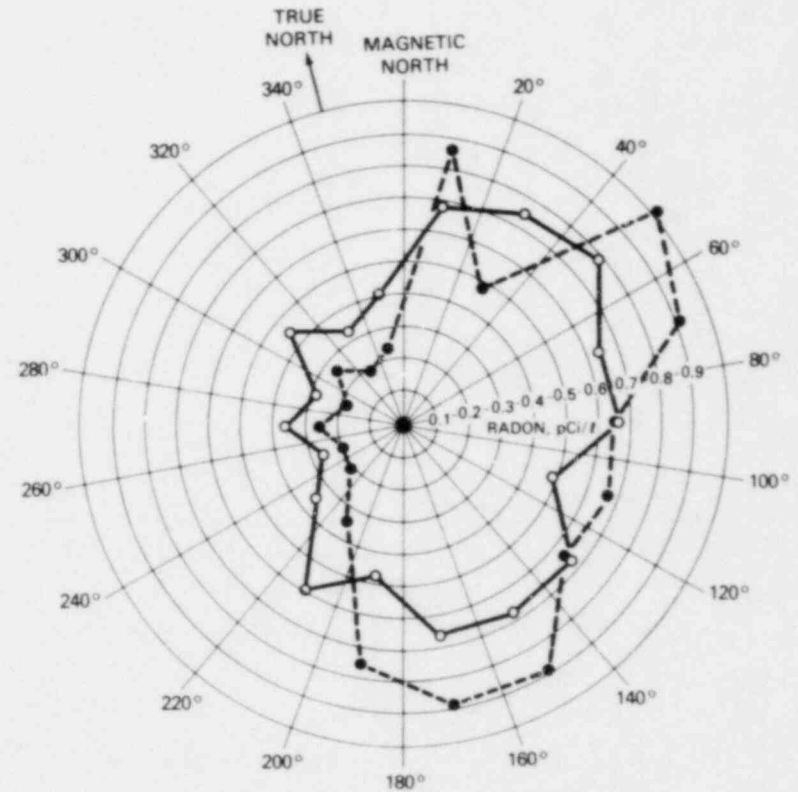
4.2 Dependence of Radon Concentration on Wind Direction and Speed at Sites A, B, and C

Figures 25 through 27 present geometric means of hourly measurements of atmospheric radon concentrations upwind (Site A), at the pit edge (Site B), and downwind (Site C) for the period 4/17/79 to 5/1/80. The data are presented as a function of wind direction. Data collected when wind speeds were less than five meters per second were plotted on a separate graph from those collected when the wind speeds were greater than or equal to five meters per second. In addition, in each figure, the data were separated into graphs of data collected during the period from sunset to sunrise and that collected from sunrise to sunset. Finally, each point plotted represents the geometric mean of the radon concentration collected when the wind was from one of the eighteen 20° arcs of the magnetic compass. Magnetic north at Morton Ranch is 14.5° east of true north. True north is indicated in the figures. Atmospheric radon concentrations are reported in units of pCi/l.

Radon concentrations were higher at night than they were during the day time, which would be expected due to the increased air stability during the cooler night hours. From Figure 25 it appears that when the wind speed was less than 5 m/sec at Site A the highest concentrations of radon were measured when the wind was from the southeast to northeast, which was from the general direction of the mining activity. However, when wind speeds were greater than or equal to 5 m/sec there were at least two lobes of higher concentration in the figure, one from the northeast by east, which is directly from the 1704 pit area and the storage area for the ore and the subore, and the second lobe from the south. The origin of the radon coming from the south is not known for sure, however it is speculated that the source may have been a gravel pit about three-quarters to one km south by southeast of Site A. This gravel pit, although not excavated deep enough to be near the ore zone, was situated directly over the edge of known ore deposits. The radon concentration when the wind was from the west at the

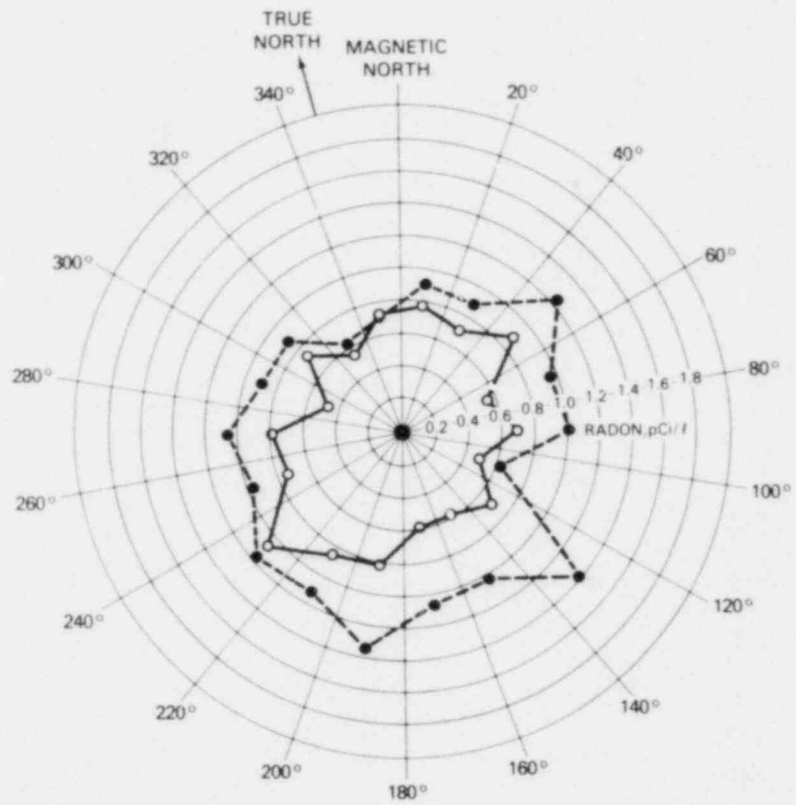


4-17-79 - 5-1-80
WIND SPEED < 5 m/s
DAYTIME DATA ———
NIGHTTIME DATA - - - -

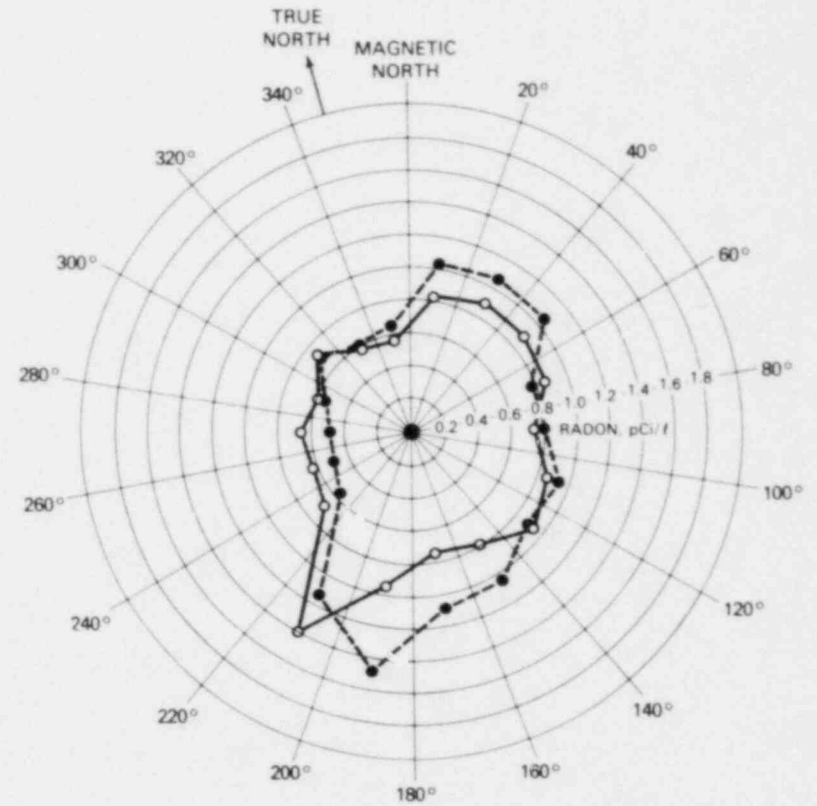


4-17-79 - 5-1-80
WIND SPEED ≥ 5 m/s
DAYTIME DATA ———
NIGHTTIME DATA - - - -

FIGURE 25. Geometric Mean Atmospheric Radon Concentration at Site A in pCi/l as a Function of Wind Speed and Direction

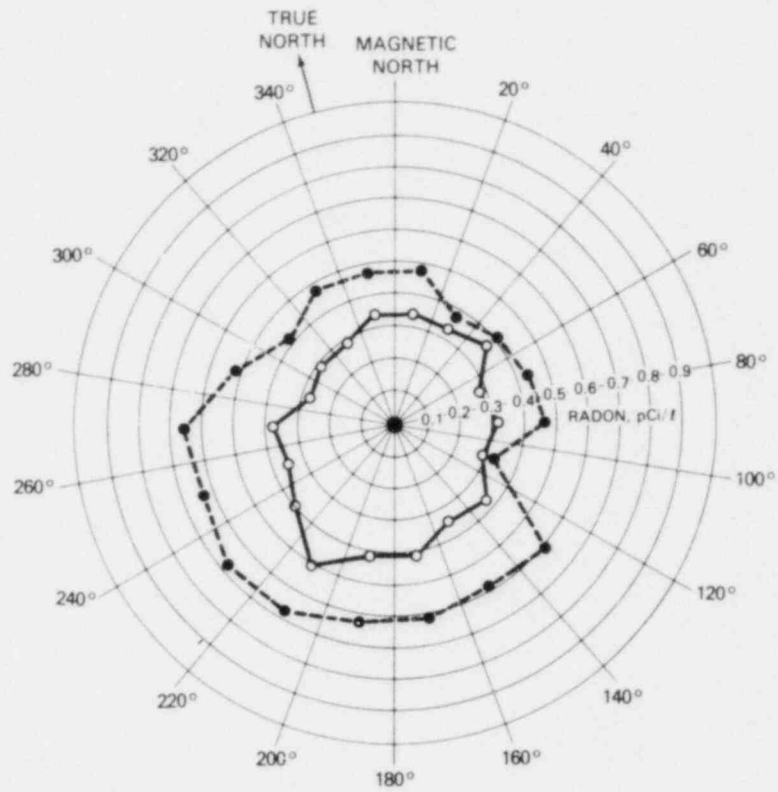


4-17-79 - 5-1-80
WIND SPEED < 5 m/s
DAYTIME DATA ———
NIGHTTIME DATA - - - -

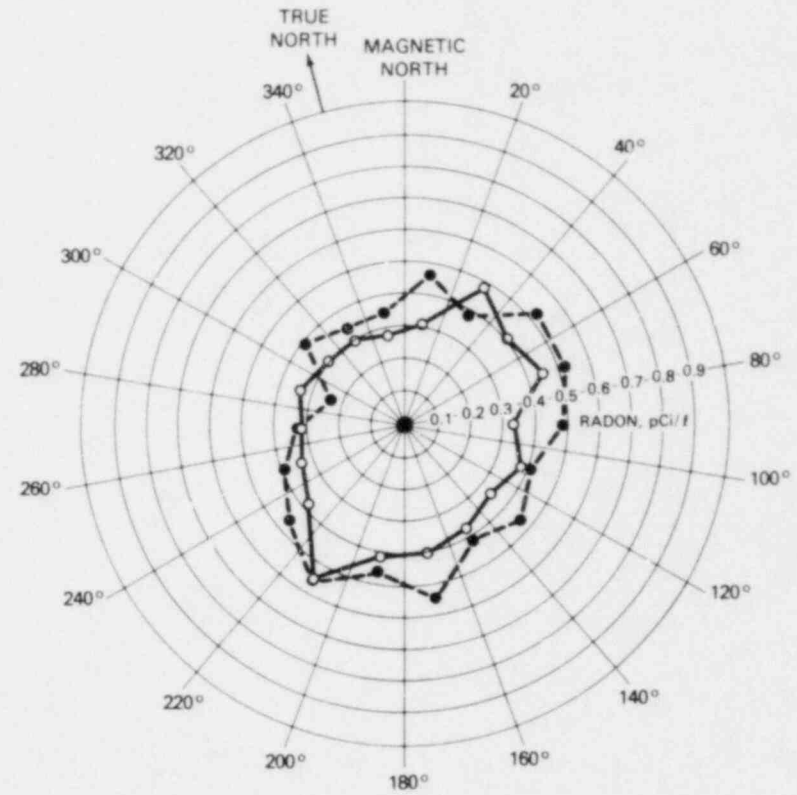


4-17-79 - 5-1-80
WIND SPEED ≥ 5 m/s
DAYTIME DATA ———
NIGHTTIME DATA - - - -

FIGURE 26. Geometric Mean Atmospheric Radon Concentration at Site B in pCi/l as a Function of Wind Speed and Direction



4-17-79 - 5-1-80
WIND SPEED < 5 m/s
DAYTIME DATA ———
NIGHTTIME DATA - - - -



4-17-79 - 5-1-80
WIND SPEED ≥ 5 m/s
DAYTIME DATA ———
NIGHTTIME DATA - - - -

FIGURE 27. Geometric Mean Atmospheric Radon Concentration at Site C in pCi/l as a Function of Wind Speed and Direction

same speed was a factor of four to five less than that coming from the direction of the two lobes of higher concentration.

Geometric mean radon concentrations plotted in the same manner for Site B, in Figure 26, show the elevated radon concentration expected at the pit edge near the ore pile in the prevailing downwind direction. At Site B, the prevalent high concentration lobes appear to be from the southwest, which was from the direction of the ore and subore piles. The lobes seem to be more prominent when the wind speed was less than 5 m/sec.

The higher concentration lobe in Figure 26 when the wind was from the northeast could be due to the overburden area just east of the 1704 pit. Analysis of surface soils from that region indicated the presence of levels of U_3O_8 (Appendix E) of the magnitude found in the ore pile. The extreme southeast end of 1704 pit is also in that direction from Site B.

Although the higher concentration lobes in Figure 27 measured at Site C are less well defined, there are indications that the night time concentrations of radon, when the wind speed was less than 5 m/sec, were higher when the wind was from the southwest, which was from the direction of the mining operations at 1704 pit and also from the direction of the inactive 1601 pit, about 2.5 km west by southwest of Site C. It is also interesting to note that, although Exxon Mineral Company was operating a very large open pit mine and mill complex just 8.5 km west by northwest of Site C, there was no indication of elevated radon concentrations when the wind was from that quadrant.

The highest geometric mean radon concentration from any of the 20° arc directions was 1.5 pCi/l at Site B when the wind was greater than or equal to 5 m/sec from 180 to 199° magnetic. Even this concentration is well within the range of 0.03 to 3.0 pCi/l mentioned earlier as being reported by Jacobi.

5.0 ATMOSPHERIC AEROSOLS

5.1 Dust Load and Particle Size Distribution

5.1.1 Andersen Impactor Samples

An experiment was conducted during the period April 20 to April 24, 1979 to determine the size distribution and radionuclide constituents of aerosols in the environment of the 1704 pit. The aerosols were collected using four high-volume (20 cfm) Andersen cascade impactor samplers, two of which were located 1.6 km in the prevailing upwind direction from the 1704 pit at Site A, and two of which were located 1.6 km in the prevailing downwind direction from the 1704 pit at Site D. One sampler at each site was operated during day time working hours, and the other was operated during the remaining night time intervals. Aerosol masses on each stage of the impactors were determined by weighing the fiberglass collection media before and after sample collection. In both cases, filters were allowed to equilibrate to laboratory humidity before weighing.

The total volumes of air samples and the total dust loads obtained during this experiment are given in Table 18. As indicated by the sample volumes, the intervals over which the day time samplers were operated varied by a factor of two, primarily due to power outages. The actual operation time of each sampler was recorded, however, permitting accurate air volume measurement. Flow rates for each sampler were checked with a manometer and adjusted twice daily to maintain a 20 cfm flow rate.

The total dust loading of the air was nearly twice as high during the day as at night, presumably due to vehicular traffic and related mine activities. Although active mining or stripping was not occurring during the sampling period, maintenance and other personnel were working, causing what would probably be a small fraction of the dust enhancement that would occur due to active mining. The mean day time wind speed was about 6 m/sec, and that during the night sampling was 5 m/sec. This small difference in wind speed is not sufficient to account for the increased day time aerosol load.²⁴

TABLE 18. Sample Volumes and Total Aerosol Masses Obtained with Andersen Cascade Impactors

Sample Location	Upwind (SW)	Upwind (SW)	Downwind (NE)	Downwind (NE)
Time of Sampling	Day	Night	Day	Night
Volume (m ³)	1451	2118	754	2295
Total Aerosol Mass (μg/m ³)	83	43	106	64

The slightly elevated aerosol load at the downwind site may have been in part due to winds passing over the 1704 pit area; however, winds shifted during the sampling periods such that both the day and night intervals contained significant wind contributions from an opposite-to-prevailing wind direction (northeast). Instead, much of the aerosol mass reported in Table 18 could have been due to more localized activity such as the maintenance shop with its associated local traffic and the dirt access road to the main administration buildings located near Site A and also the dirt road located near Site D.

The particle-size distributions obtained from these four sets of aerosol samples are illustrated in Figure 28. The bi-modal distribution is typical of the particle-size distributions usually observed for both urban²⁵ and remote²⁶ aerosols, having a minimum in the region of 2 μ m particle size. The smallest size fractions appear to have occurred in nearly equal masses during day and at night, indicating that the increased particulate mass load during day time hours consisted primarily of large particles. This is reasonable and suggests that the additional day time particulates were primarily of local origin due to their greater mass and more rapid settling time. The night time aerosol size distributions can be considered to have resulted from wind disturbance of local soil and transport of fine particles from greater distances.

5.1.2 Sierra Impactor Samples

Two additional sets of high-volume, size-fractionated particulate samples were collected in May and June, 1979. These samples were obtained using a 40 cfm Sierra cascade impactor located about 19 m downwind from an ore stockpile. A cellulose filter matrix was used for particle collection with this sampler to permit trace element measurements as well as radiochemical analyses of the particulate material. Again, the filters were weighed before and after to determine the sample masses. The airflow rates were regulated by the sampling device and total sampling times were determined with the

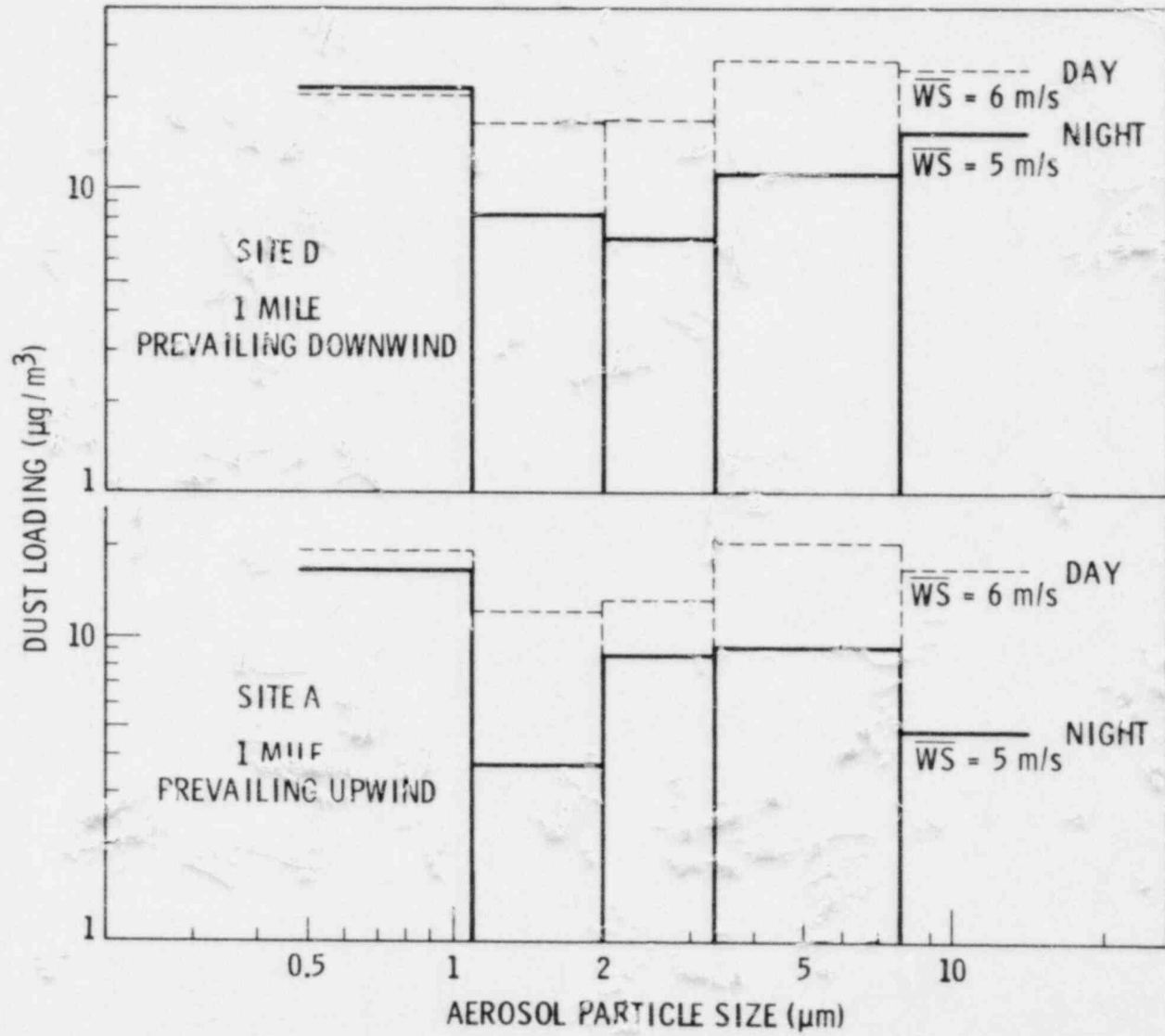


FIGURE 28. Particle Size Distributions using 20 cfm Andersen Impactor Samplers

aid of an electric timer powered by the same generator as the sampler. Sampling was conducted over a period of several days, with stoppages generally occurring in the 2 o'clock to 7 o'clock a.m. interval when the generator fuel supply was exhausted.

The particle size distributions obtained from these samples are illustrated in Figure 29. The May distribution illustrates even more strongly its bi-modal nature with a strong minimum occurring in the 2 μm size range. The total aerosol load of 24 $\mu\text{g}/\text{m}^3$ is lower than that for the April samples described in Table 18 and can be at least qualitatively explained by the lower average wind speed (2.8 m/sec) during the May sampling period.

The June size distribution shown in Figure 29 was collected during a period of intermittent high winds (average equals 4.6 m/sec) as reflected by both the total aerosol load of 166 $\mu\text{g}/\text{m}^3$ and the higher and more uniform distribution with respect to particle size. As indicated in Figure 29, periodic high winds occurred, having a maximum one-hour average velocity of 16 m/sec and individual gusts of much greater magnitude. The sampler was blown over at one point, possibly causing bounce-down of dust to the lower stages or the back-up filter. However, the elemental analyses suggest that the bounce-down or possible additional dust entry did not grossly contaminate the samples.

5.1.3 Dichotomous Filter Samples

In order to continuously monitor the air particulates near the Morton Ranch mine, four low-volume (1 ℓ /min) dichotomous samplers were installed during April 1979 at Sites A, B, R-7, and D, as shown in Figure 1. These samplers consist of two Nuclepore[®] membrane filters (Nuclepore Corporation, Pleasanton, California) placed in series such that the first filter, having larger pores, collects the coarse particles and determines the particle size cut-point, and the second filter, having small pores, collects nearly all of the remaining fine particles.

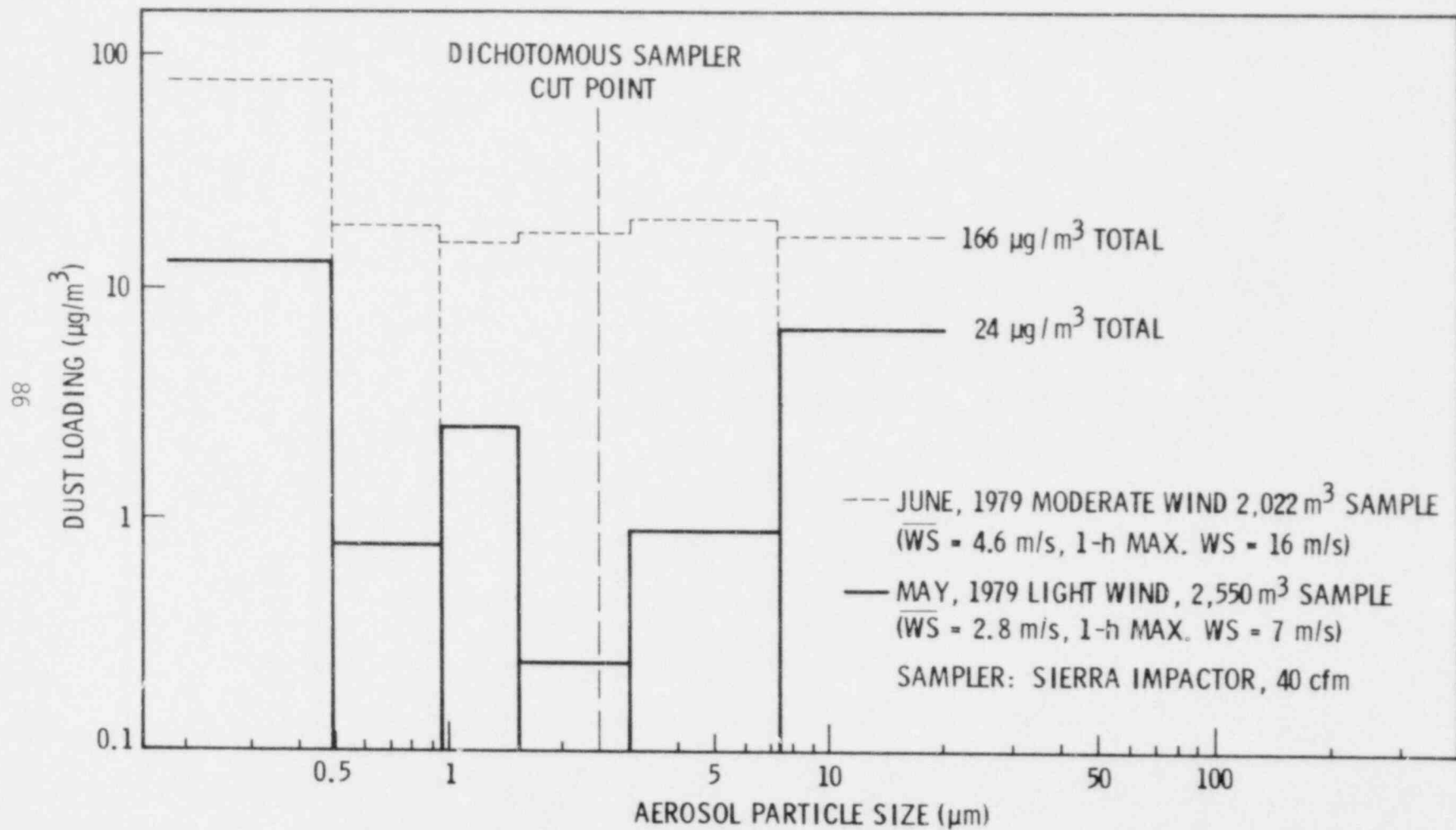


FIGURE 29. Aerosol Particle Size Distributions using 40 cfm Sierra Cascade Impactor

The dichotomous samplers were operated using 2 l/min diaphragm pumps (Brailsford, Inc., Rye, New York) which required 12 V dc power at the rate of 100 mA. They were thus operated continuously over one-month intervals using two 12 V marine batteries which were recharged monthly when samples were changed. At Sites A and B, where 110 V ac power was available, the pumps were powered by an appropriate ac to dc converted power supply. The sampling train, including a dry gas meter for integrating the volume of air being sampled, is illustrated in Figure 30. A weather shield was used to avoid alteration of the sample by precipitation or direct wind currents.

It has been shown²⁷ that a Nuclepore® membrane with 8 µm pores has approximately the same particle collection efficiency as a function of particle size as the human nasopharynx (at 5 cm/sec filter face velocity and 20 l/min flow in the nasopharynx). The use of an 8 µm membrane filter to separate the coarse and fine particle fractions thus approximately divides the particulates into "non-respirable" and "respirable" fractions. Because the minimum in the bi-modal particle-size distributions noted in Figures 28 and 29 occurred at approximately the same particle size (~2 µm) as the cut point (50% efficiency) for the 8 µm filter, the filter also served to divide the particulates into the two naturally occurring size-distribution modes.

The dichotomous samplers used effective filter surface areas of 13.8 cm² resulting in a nominal face velocity of 2.4 cm/sec. The expected particle-size cut points for an 8 µm membrane filter at this face velocity and its variation with flow rate were estimated from the data of Liu, et al²⁷ and Spurny, et al²⁸ in the following manner. Cut points (particle sizes for which the collection efficiency is 50%) for a membrane with 4 µm pores were reported by Spurny as a function of face velocity (V), and were fitted by least-squares to the function

$$\text{C.P.} = a + b \ln(V), \quad (5)$$

with a correlation coefficient of $r = -0.99$ and coefficients $a = 0.734$ and $b = -0.175$. The corresponding function for a filter with 8 µm pores was then estimated from Liu's data (C.P. = 2.5 µm at

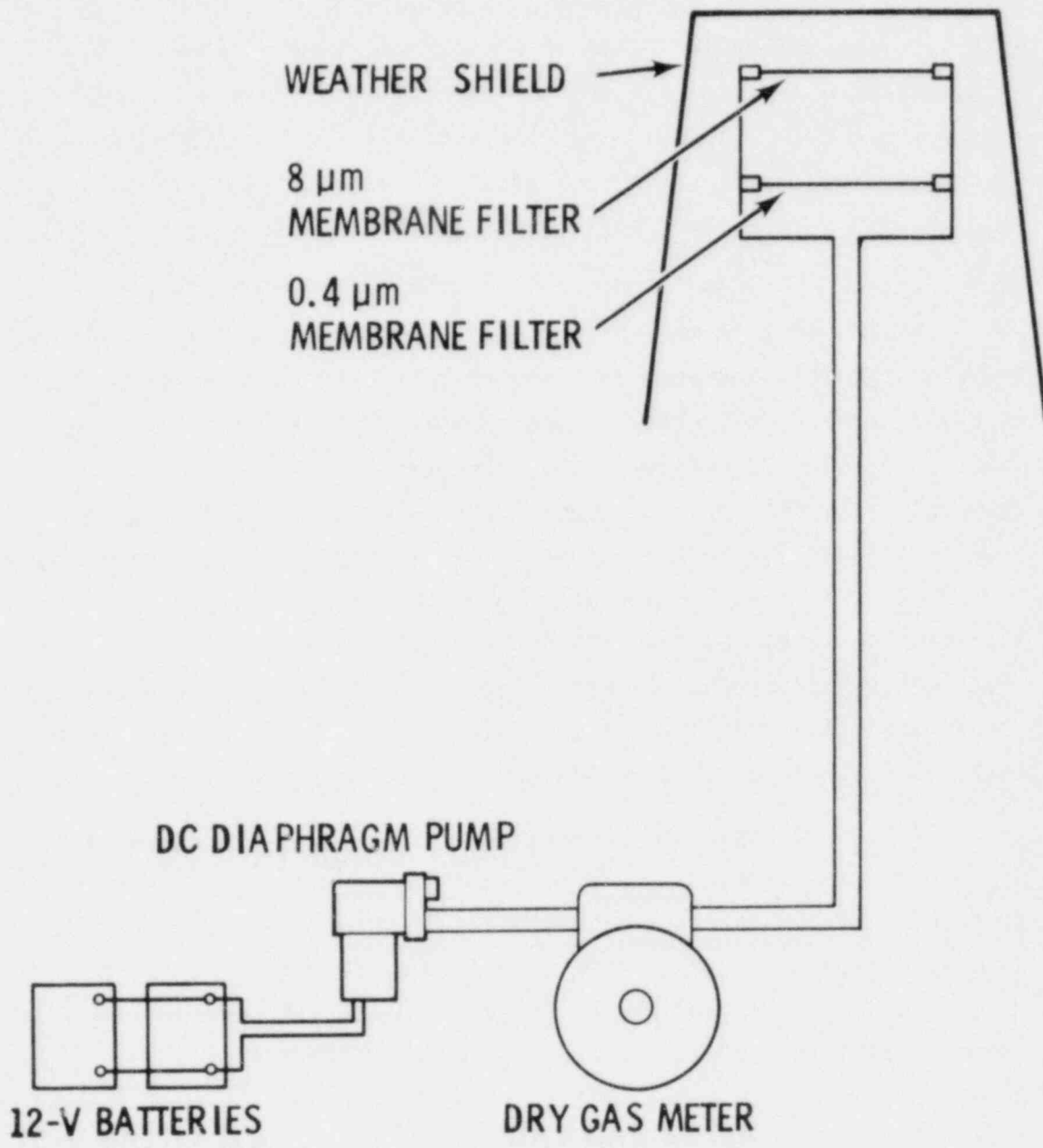


FIGURE 30. Schematic of Dichotomous Aerosol Samplers

V = 5 cm/sec for an 8 μm filter) by assuming the same rate of change in cut point with velocity (b) as determined for the 4 μm filters. Using Liu's data in equation (5), a new value of \underline{a} was determined to be +2.78 for the 8 μm filters. A plot of the resulting function is illustrated in terms of the volumetric flow rate in Figure 31 and shows that a wide variation in flow can occur with minimal impact on the particle size cut point. As illustrated, the 3.5-fold maximum variation which occurred in the sampler flow rates is only estimated to have caused an 8% variation in the cut point particle sizes.

The aerosol mass loadings determined from dichotomous samples as a function of time are illustrated in Figure 32. These masses were determined from the aerosol potassium, calcium, and iron concentrations normalized to their concentrations in local soils and averaged. As illustrated, the coarse particulates varied widely, but tended to be higher by a factor of 2-4 during the late summer months when the ground was drier than during the more moist months of the year. The fine particles showed less of a seasonal trend, probably due to their sources of origin. Although no site-dependent relationship is observed in the aerosol masses, the Site A fine particulates tended to be about two-fold lower than those at other sites, and were collected in the prevailing upwind direction from the mine. Considering the variations in all of the estimated particulate masses, the difference in the Site A samples is not highly significant.

The geometric mean mass-loading of coarse particulates was 9 $\mu\text{g}/\text{m}^3$ with a geometric standard deviation of 2. The fine particulates, similarly, had a geometric mean mass loading of 1.9 $\mu\text{g}/\text{m}^3$ with a geometric standard deviation of 2. The geometric mean ratio of coarse-to-fine masses was 4.9, also with a geometric standard deviation of 2. The nearly five times higher mass of coarse particulates than fine ones may have been due to occasional high wind episodes which greatly increase the coarse particle content. It is also possible that fine particles were significantly retained on the first filter as it became loaded. However, this latter possibility is not supported by the data of Parker, et al²⁹ which indicate that filter loadings

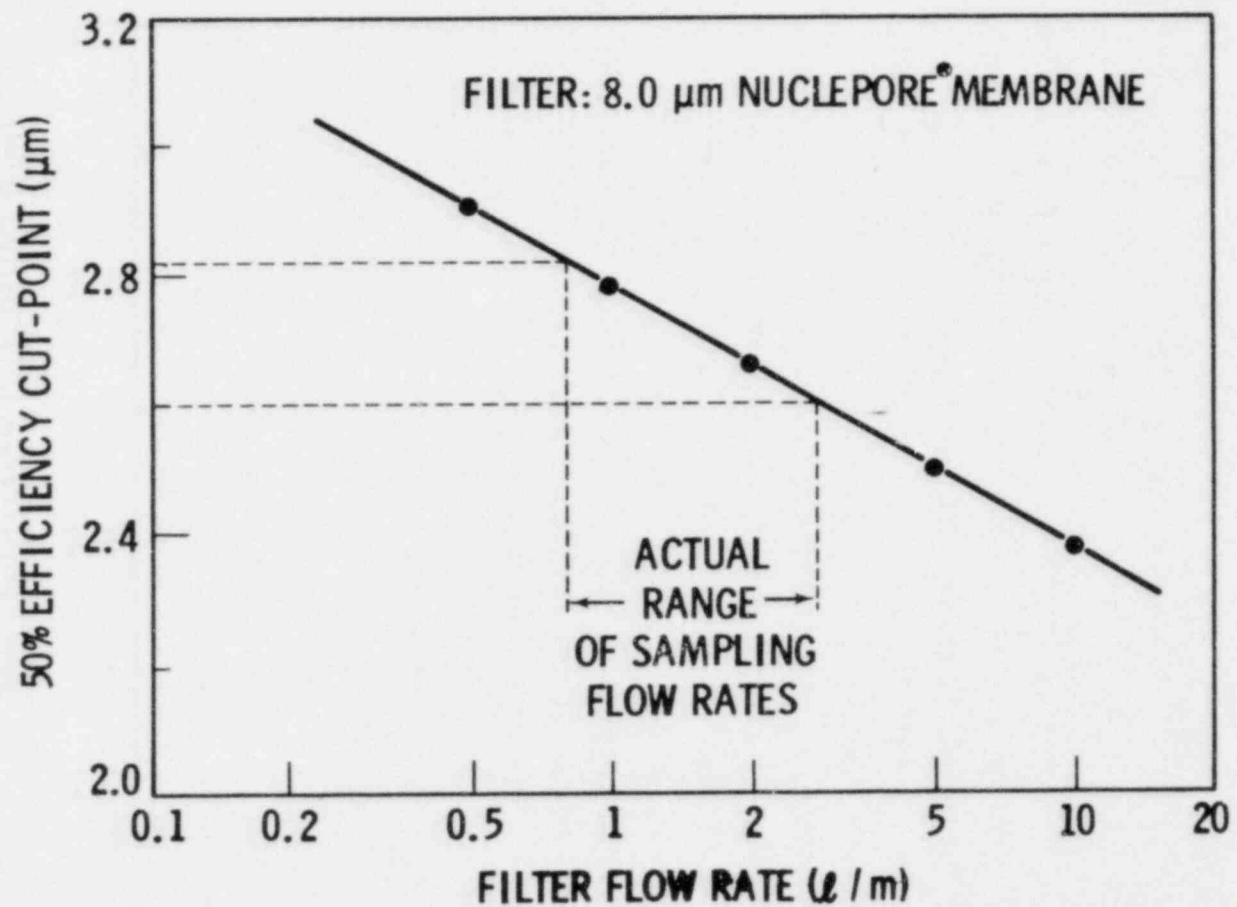


FIGURE 31. Variation in Cut Point Size with Flow Rate for an 8.0 μm Nuclepore[®] Filter

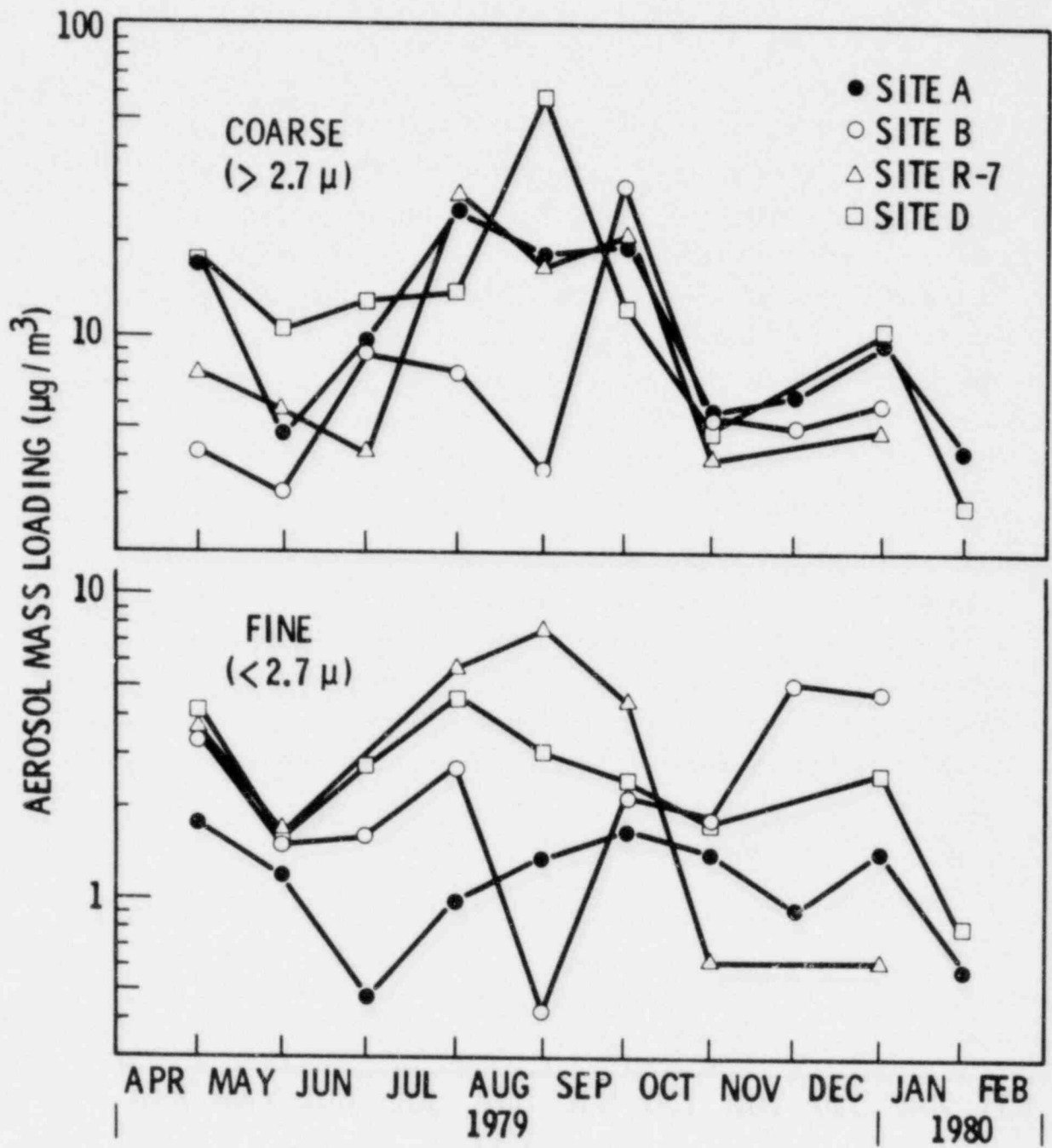


FIGURE 32. Monthly Aerosol Mass Loadings Determined from Dichotomous Samples

of up to 90 mg/cm² do not significantly change the cut point. The typical filter loadings in these studies were about 0.4 mg/cm².

5.1.4 PIXE Impactor Samples

A seven-stage, low volume cascade impactor sampler was operated at Site B during the initial months of this study. The sampler was designed to operate at 1-2 l/min and was therefore used with the same types of pump and gas meter as the dichotomous samplers. The impaction surfaces were covered with a 0.003 mm mylar film coated with vegetable shortening from a saturated ethanol solution. Due to the narrow orifices in this sampler, however, it was generally not capable of one month sustained operating periods without becoming clogged. A cyclone pre-separator would have perhaps remedied this problem which resulted from the occasional high, gusty winds and the surrounding nonvegetated soil.

A plot of the aerosol mass distribution collected by this sampler as a function of particle size is illustrated in Figure 33. The aerosol masses were estimated from the iron content on each stage relative to the iron concentration in the local soil. Total aerosol masses were significantly above those observed for the same period with a dichotomous sampler, probably due to the different designs of the weather shields used on the two samplers, which eliminated coarse particles to different extents.

5.2 Elemental Composition of Aerosols

Aerosol samples collected with the Sierra cascade impactor, dichotomous samplers, and the PIXE cascade impactor were analyzed by x-ray fluorescence to determine their elemental constituents. The x-ray fluorescence analyses were accomplished using secondary excitation sources with a tungsten-anode x-ray tube (model 810, Kevex, Inc., Foster City, California). X-rays were detected with a Si(Li) semi-conductor spectrometer having 195 eV (FWHM) resolution at 6.4 keV. Two separate analyses were usually performed to achieve optimum sensitivity for two groups of elements. A zirconium secondary source was used for determination of Si, P, S, Cl, K, Ca, Ti, V, Cr, Mn, Fe, Co, Ni,

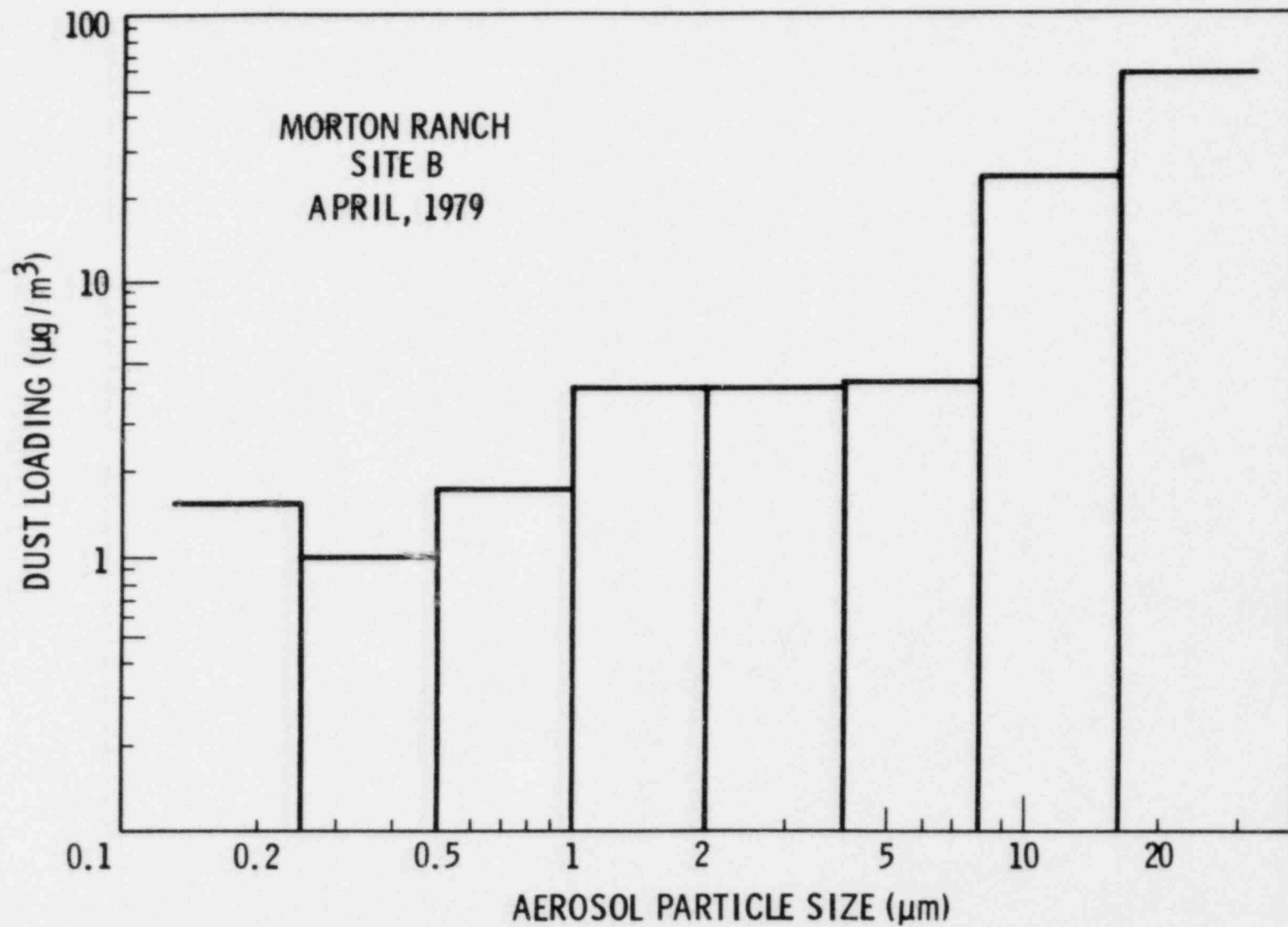


FIGURE 33. Aerosol Particle Size Distribution using the Low-Volume PIXE Impactor

Cu, Zn, Ga, As, Se, Br, Pb, and Hg, and a silver secondary source was used for determination of Rb, Sr, Y, Zr, Nb, Mo, and U. Concentrations of P, Cl, Cr, Co, Ga, Hg, Sr, Y, Zr, Nb, and Mo were usually below the detection limits of the instrument and were therefore not tabulated.

Samples were prepared by mounting the appropriate filter or section of a filter in a 5 cm X 5 cm frame and analyzing it as a thin film, as described by Giaque, et al.³⁰ Since the Whatman filter substrates and heavy mass loadings caused significant x-ray absorption, corrections were applied as described by Nielson and Garcia.³¹ Calibrations were based on thin vapor-deposited elemental standards (Micromatter, Inc., Seattle, Washington). Corrections for the elemental composition of filter substrate were used to obtain the net composition of the aerosol. The corrections were generally small and were only detectable for Cr, Fe, Ni, Cu, Zn, and Br. Because of tremendously high element concentrations in the glass-fiber substrates used with the Andersen sampler, these samples were not analyzed for elemental content by x-ray fluorescence.

The elemental compositions of the aerosols were defined as a function of particle size by the Sierra impactor samples and as a function of time by the dichotomous samples. The following sections give details of these analyses.

5.2.1 Elemental Analyses of Impactor Samples

Elemental analyses of the particulates collected just downwind of the ore pile on each stage of the Sierra impactor and on the backup filter are reported in Table 19 for the May 1979 sample set and in Table 20 for the June 1979 sample set. The results were converted to units of nanograms (ng) of the given elements per cubic meter of air from the measured x-ray fluorescence units (ng/cm² of filter area) by multiplying by the area of the aerosol deposits and dividing by the total volume of air sampled. An empirical geometry calibration factor was also used to convert the narrow linear deposit from the Sierra sampler to an equivalent mass spread uniformly over an area as wide as the x-ray beam. Three separate strips of each sampler stage were analyzed and the results averaged to obtain the values reported in Table 20. Following the x-ray analysis, the filters were combined with the larger filters from which they were cut for gamma-ray analysis.

TABLE 19. Major and Trace Elements in Air Particulates Collected During Light Winds(1) (ng/m³)

	Si	P	S	Cl	K	Ca	Ti	V	Cr	Mn	Fe	Ni	Cu	Zn	Ga	As	Se	Br	Rb	Sr	Zr	Mo	Hg	Pb	U
Stage 1 ⁽²⁾	940	<70	<60	30	43	61	7	<1	<0.7	1.6	82	0.38	3.9	1.0	<0.3	<0.4	<0.3	7.6	<0.5	<0.8	<0.9	<1	<1	4.3	2.6
± ⁽³⁾	110			10	3	3	1			.3	1	.16	.2	.2				.2						.6	1.1
Stage 2	590	<70	<60	30	40	87	8	<1	<0.7	1.3	81	<0.3	13.7	1.3	<0.3	1.4	<0.3	9.9	<0.5	<0.7	<0.9	<1	<1	8.6	<2.0
±	90			10	3	3	1			.3	1		.4	.2		.3		.2						.6	
Stage 3	500	<60	<60	<30	31	57	8	<1	<0.6	0.9	77	<0.2	13.5	1.1	<0.3	0.8	<0.3	10.0	<0.4	<0.7	<0.9	<1	<1	10.5	<2.2
±	80				3	3	1			.3	1		.4	.2		.2		.2						.6	
Stage 4	520	<70	<70	<30	33	62	7	<1	<0.6	1.2	85	<0.3	40	1.8	<0.4	1.9	<0.3	12.4	<0.5	<0.7	<0.9	<1	<1	18.3	<1.5
±	90				3	3	1			.3	1		1	.2		.3		.3						.7	
Stage 5	320	<70	270	<30	32	40	5	<1	1.4	1.0	70	0.8	48	2.0	<0.4	2.7	0.3	13.0	<0.4	<0.7	<0.8	<1	<1	20.4	<2.2
±	70		40		3	2	1		0.3	.3	1	.1	1	.2		.3	.1	.3						.7	
Backup	2900	<300	<400	<170	230	300	51	6	<3	9.0	559	2.9	91	10.0	<1.7	30	1.4	151	<2	3.3	<3	4.3	<4	273	<7
±	400				10	10	4	2		1.0	6	.6	2	1.0		2	6	2		1.4		1.9		4	

(1) 17h from North at 3 m/s, 13h from Southwest at 1 m/s and 16h from Southeast at 2 m/s in May, 1979.

(2) Stage 1, >7.2 μm; Stage 2, 3.0-7.2 μm; Stage 3, 1.5-3.0 μm; Stage 4, 0.95-1.5 μm; Stage 5, 0.49-0.95 μm; Backup, <0.49 μm.

(3) ± values are one standard deviation.

TABLE 20. Major and Trace Elements in Air Particulates Collected During Moderate Winds⁽¹⁾ (ng/m³)

	Si	P	S	Cl	K	Ca	Ti	V	Cr	Mn	Fe	Ni	Cu	Zn	Ga	As	Se	Br	Rb	Sr	Zr	Mo	Hg	Pb	U
Stage 1 ⁽²⁾	1680	<110	<78	<33	56	62	8	<2	<1.3	1.9	130	0.6	1.9	1.0	<0.3	<0.5	0.6	1.2	0.7				<1	<1.4	
± ⁽³⁾	110				7	11	3			.7	30	.1	.5	.4			.2	.3	.3						
Stage 2	1180	<100	<75	30	56	76	6	<2	<1.1	1.9	120	0.5	7.8	1.1	<0.3	<0.5	0.7	1.2	<0.6				<1	<1.5	
±	280			10	6	7	1			.3	20	.1	1.3	.3			.2	.2							
Stage 3	970	<100	<82	<31	44	49	9	2	<1.3	1.6	100	0.7	5.8	0.9	<0.3	<0.5	0.8	1.3	<0.6				<1	<1.5	
±	40				6	6	3	1		.5	20	.1	1.6	.3			.1	.2							
Stage 4	1290	<100	<77	<32	56	62	7	2	<1.1	2.2	140	0.8	20	0.7	<0.3	<0.5	0.6	1.6	<0.6	<0.7	1.3	<1.1	<1	2.3	2.3
±	190				16	6	2	1		.4	30	.2	3	.3			.3	.3			.5			.3	.4
Stage 5	780	<110	136	<34	52	54	3	2	<1.1	1.7	110	1.4	38	1.5	<0.4	<0.5	0.5	2.4	<0.6	0.7		<1.1	<1	4.2	2.9
±	60		24		6	9	1	1		.6	30	.2	2	.4			.2	.2		.4				.5	.8
Backup	7450	<430	310	<130	280	360	58	10	3.3	11.8	690	7.2	118	7.9	<1.1	<1.9	2.6	13	<1.9				<4	21	
±	870		160		30	40	5	4	2.1	2.1	50	1.2	9	1.3			.7	1						3	

(1) 32h from Southwest at 1.5 m/s, 10h from East at 7.5 m/s, 4h from West at 10 m/s, and 2h from Southeast at 13 m/s, in June, 1979.

(2) Stage 1, >7.2 μm; Stage 2, 3.0-7.2 μm; Stage 3, 1.5-3.0 μm; Stage 4, 0.95-1.5 μm; Stage 5, 0.49-0.95 μm; Backup, <0.49 μm.

(3) ± values are one standard deviation.

The element masses reflect the greater dust loading in the June samples (Table 20) than on the May samples (Table 19) and the greater mass of fine particles as collected in the back-up filter than coarse particles on the early stages. Although the bulk constituents were generally similar, several of the trace elements were significantly different between the two sample sets. These included the notably high arsenic, bromine, and lead levels in the May samples (Table 19).

As already noted, winds during the June sampling period were stronger than during the May sampling. The additional directional information given in Table 19 shows that approximately equal fractions of the May sampling period consisted of air moving from the open pit (north), the ore pile (southwest), and overburden dump (east) areas. The winds during the June sampling, however, were predominantly from over the ore stockpile (southwest and west) with only about one-fifth of the period including winds from the overburden (east) direction.

A more comprehensive interpretation of the elemental constituents can be made by analyzing them in terms of enrichment factors relative to the local soil. This approach has been commonly used.^{32, 33, 34} to remove the strong dependence of absolute concentrations on time, location, and meteorological conditions. Since most of the atmospheric particulate matter is derived from crustal material, crustal abundances of the elements are frequently used as the basis for this normalization. Additional normalization to a major or non-volatile element such as Fe, Al, Si, or Sc also helps to remove the effects of varying absolute concentrations. Since analyses of local soils were conducted in the course of this study, these were used as a more site-specific reference material than crustal abundances. Iron was chosen as the normalizing element since it was measured with the highest precision in the x-ray fluorescence analyses and fits the major element non-volatile criteria. Accordingly, enrichment factors were defined here as

$$F_i = \left(\frac{C_i}{C_{Fe}} \right)_{\text{aerosol}} \div \left(\frac{C_i}{C_{Fe}} \right)_{\text{soil}} \quad (6)$$

where C_i = concentration of the element of interest and C_{Fe} = the concentration of iron.

Using the average soil concentrations defined in Table 21, enrichment factors were calculated for the elements on each stage for the May and June sample sets. These are plotted in Figures 34, 35, and 36, and indicate the degree to which a given element was enriched over its expected concentration if the airborne dust had consisted entirely of local soil. As is usually observed,³²⁻³⁴ the major elements such as Si, Ti, K, Ca, and Mn (Figure 34) are near unity, within the uncertainty one might expect from representing regional soils by a limited number of samples. These elements also exhibit little particle-size dependence, and are considered to have resulted primarily from crustal sources (wind erosion or mechanical abrasion of soils and rocks, and flyash from coal combustion).

Elements whose enrichment factors depend on particle size, or greatly exceed unity are considered to have originated from non-soil sources, and can usually be explained by other environmental causes including major pollution sources. The notably enriched and size-dependent elements in this study are mostly illustrated in Figure 35 and 36 and can largely be attributed to the fossil-fueled generating station located in the proximity of the Morton Ranch mine. Sulfur, As, Cu, Pb, Se, Zn, Br, and to a lesser extent, Ni, V, and U are all commonly associated with emissions from coal-fired power plants.^{32, 35-37} The relative quantities of these elements normally emitted, however, suggest other sources for several of these elements.

Uranium, despite its incomplete analysis and marginal detectability, is enriched in the present analyses far in excess of reported uranium enrichments in coal-fired power plants.³⁶ This suggests that the local mining activity, probably the ore stockpile located 19 m upwind, caused the enrichment of uranium illustrated in Figure 35.

TABLE 21. Average Elemental Constituents of Morton Ranch Soils* Used for Interpreting Element Ratios in Windblown Dust (in parts per million except as noted)

Si(%)	11	Ni	16
S	200	Cu	8
K (%)	2.1	Zn	20
Ca(%)	1.7	As	0.64
Ti(%)	0.11	Se	0.4
V	48	Br	1.2
Mn	120	Pb	20
Fe(%)	2.0	U	3.0

*Based on X-Ray fluorescence analysis of selected soils, overburden and rock samples from the South Morton Ranch area.

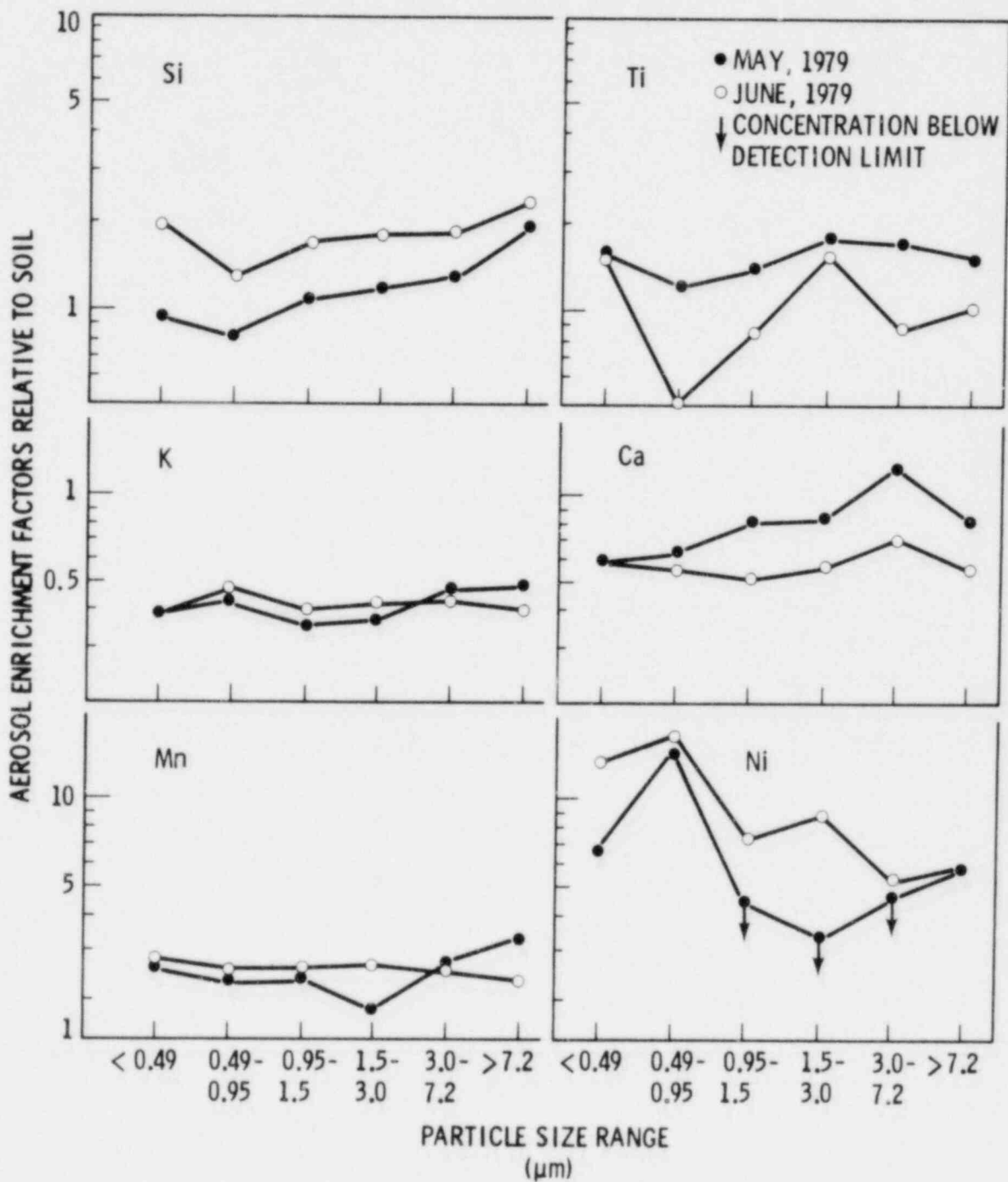


FIGURE 34. Silicon, Titanium, Potassium, Calcium, Manganese and Nickel Enrichment Factors for Sierra Hi-Vol Samples

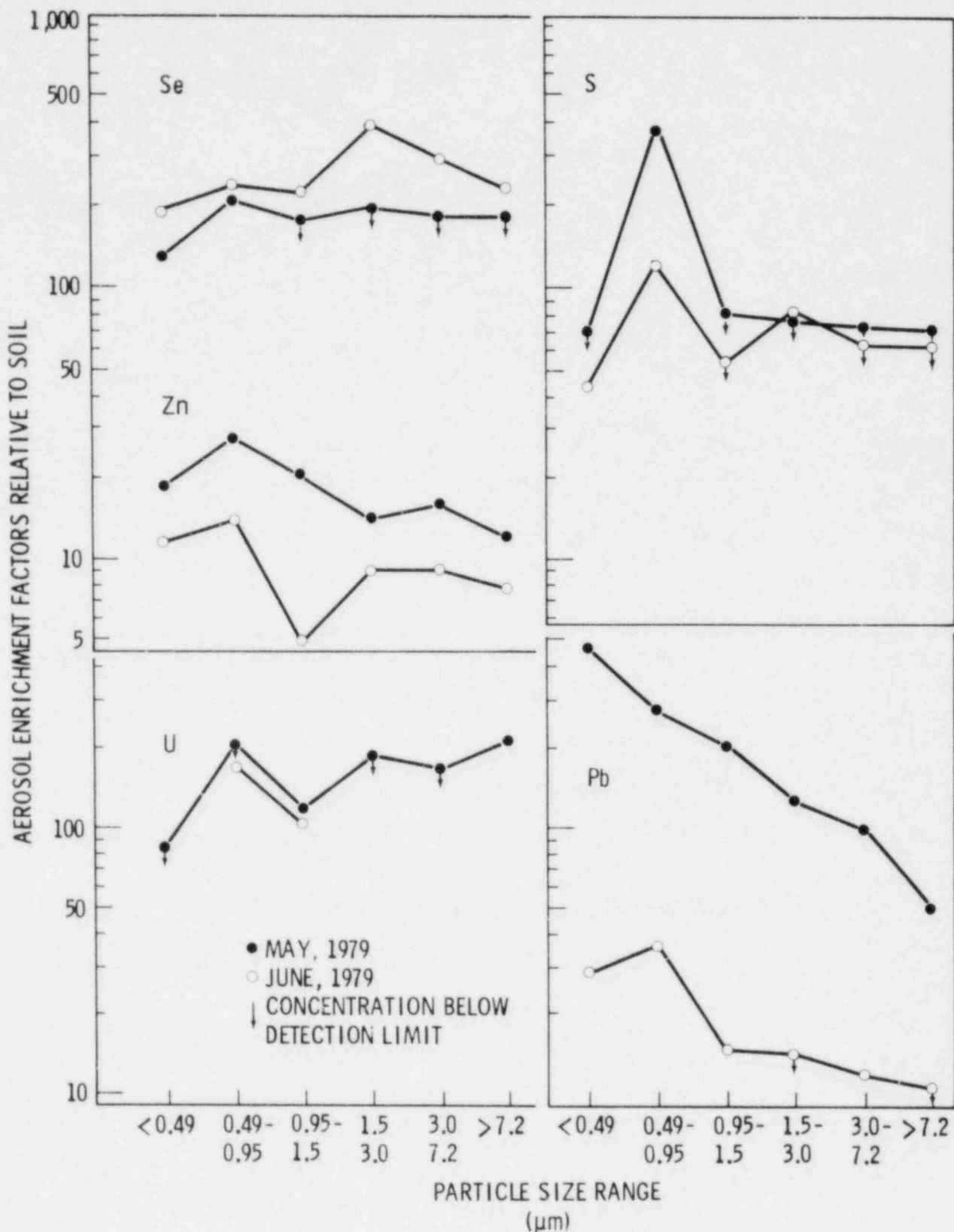


FIGURE 35. Selenium, Sulfur, Zinc, Uranium and Lead Enrichment Factors for Sierra Hi-Vol Samples

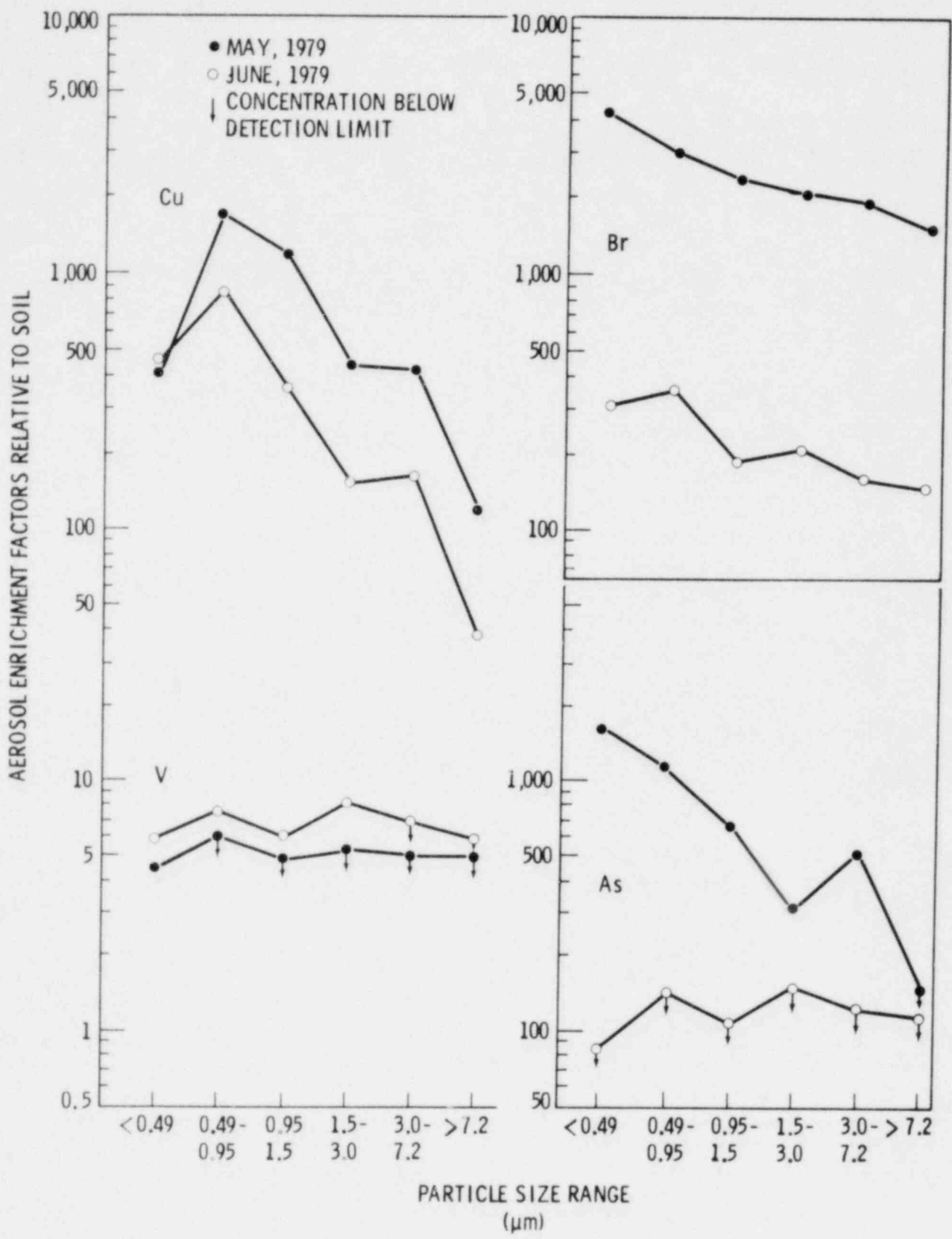


FIGURE 36. Copper, Bromine, Vanadium and Arsenic Enrichment Factors for Sierra Hi-Vol Samples

Bromine, Cu, As, and Pb were also enriched in the Morton Ranch aerosols to a degree beyond that which can be readily explained by the power plant effluents.^{36,37} Examination of Figures 35 and 36 shows that these four elements all had a strong particle-size dependence, with about three to ten-fold higher enrichment occurring in the fine size fractions. Although power plant effluents frequently show such size-dependence,³⁷ the high enrichment of these four elements suggests the possibility of separate particulate sources.

The frequent observance of lead and bromine from automobile exhausts could readily explain the observed concentrations of these elements. They were only about one-hundredth as concentrated (Tables 19 and 20) as in urban air³⁸ as might be expected from the reduced traffic in this remote region. However, the observed Br/Pb ratio of about 0.63 is not typical of the reported ratios near 0.386, the stoichiometric ratio in tetraethyl fluid. An additional source of atmospheric bromine may thus have been present. The high Cu and As concentrations, which correlate to a lesser extent with the Pb and Br, may have come from long-range transport from copper smelting operations (Anaconda, Montana and Salt Lake City, Utah), or from unknown local sources.

None of the anomalous elements noted here except uranium are strongly associated with the uranium ore or were otherwise caused by the mining operations. The data presented in Table 22 illustrate typical analyses of ore, overburden, and topsoil samples, and illustrate the absence of high Br, Cu, As, and Pb. The possible correlation of vanadium or selenium with uranium, as noted in other studies, is examined in Figures 37 and 38, where uranium concentrations observed in a wide variety of Morton Ranch ores are compared with the respective vanadium and selenium concentrations. Although these elements appear to have been more concentrated when uranium was high, the correlations are not sufficient to merit their use as atmospheric tracers or indicators of uranium ore.

TABLE 22. Elemental Constituents of Morton Ranch Ore,
Overburden and Topsoil (in ppm except where noted)

	<u>Uranium Ore</u> ⁽¹⁾	<u>Overburden</u> ⁽¹⁾	<u>Topsoil</u> ⁽¹⁾
K (%)	2.0 ± 0.3	1.6 ± 0.1	1.7 ± 0.4
Ca (%)	0.78 ± 0.44	0.8 (2.5) ⁽²⁾	0.38 ± 0.07
Ti (%)	0.14 ± 0.06	0.20 ± 0.02	0.04 ± 0.04
V	200 ± 140	40 ± 5	50 ± 11
Mn	190 ± 60	200 ± 150	170 ± 40
Fe (%)	1.3 ± 0.4	1.4 ± 0.2	1.3 ± 0.4
Ni	19 (2.5) ⁽²⁾	< 6	< 6
Cu	< 5	13 ± 2	14 ± 4
Zn	< 7	43 ± 7	47 ± 18
As	14 (3.0)	5.3 ± 1.9	7.0 ± 1.7
Se	38 ± 28	< 2	1.4 ± 0.4
Br	< 3	< 1.2	1.9 ± 0.5
Mo	13 (2.9)	3.3 ± 2.0	4.3 ± 1.4
Pb	17 ± 8	10 ± 3	11 ± 2
U	88 (4.5)	< 6	< 4

Footnotes:

- (1) Means and standard deviations for 19 ore samples, 4 overburden samples, and 10 topsoil samples.
- (2) Geometric mean and geometric standard deviation were used when the standard deviation was greater than the arithmetic mean.

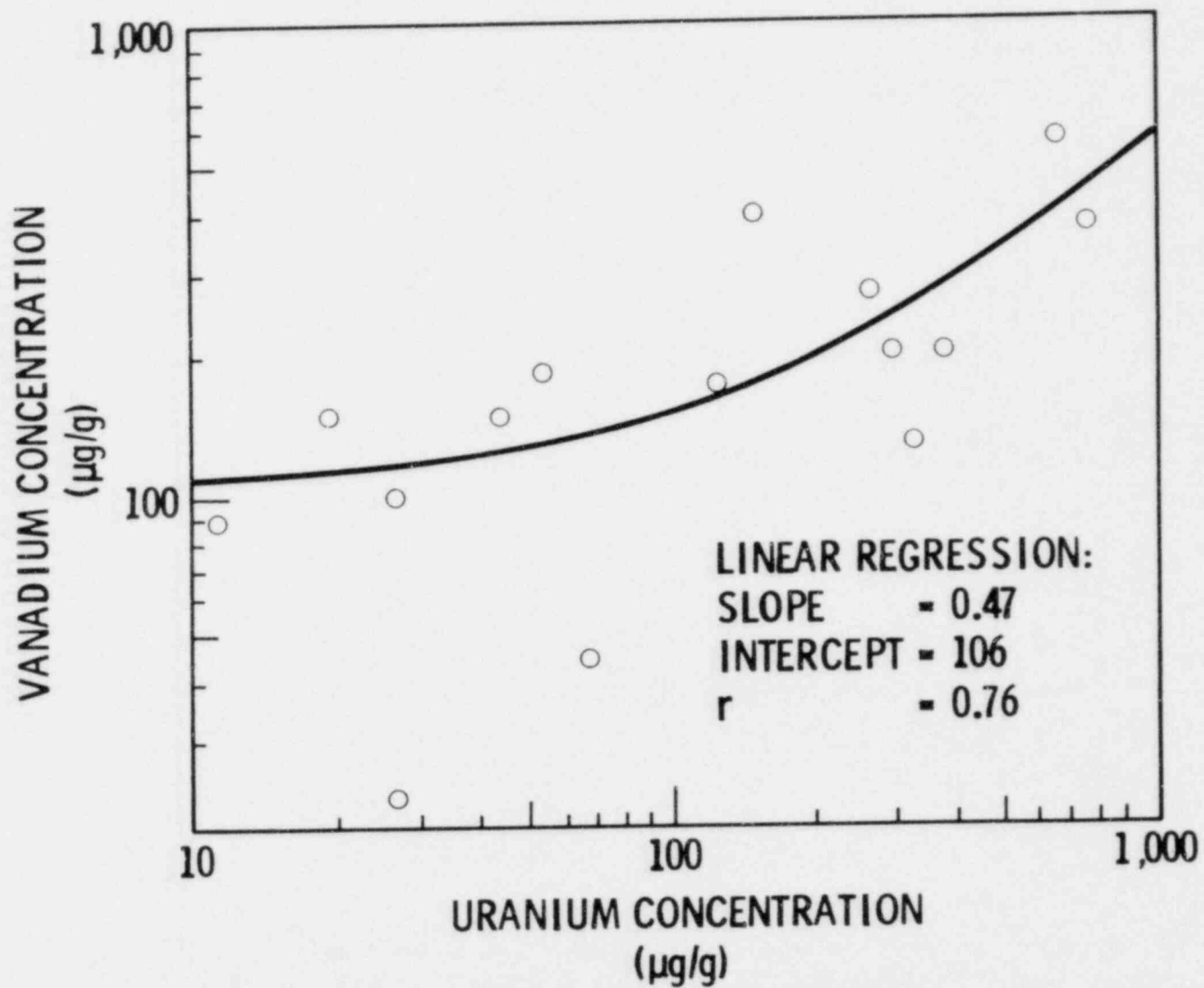


FIGURE 37. Correlation of Vanadium and Uranium Concentrations in Morton Ranch Soils and Ores

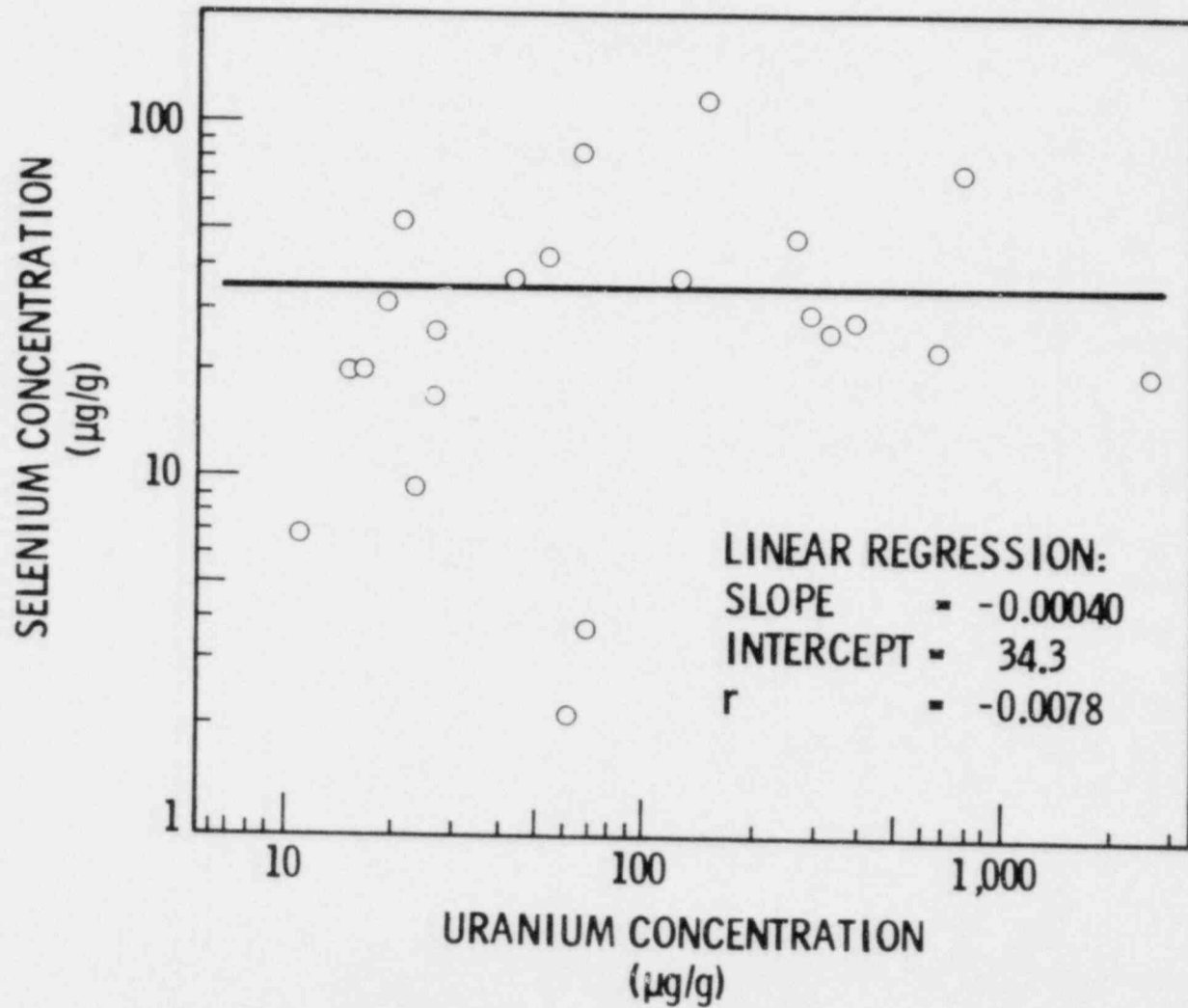


FIGURE 38. Correlation of Selenium and Uranium Concentrations in Morton Ranch Soils and Ores

5.2.2 Elemental Analyses of Dichotomous Samples

Elemental analyses of the integrated monthly dichotomous samples are reported in Tables 23-26 in units of nanograms of an element per cubic meter of air sampled. Some of these analyses converted to weight percent or micrograms per gram of an element in the particulate material are also plotted as a function of time in Figures 39 through 42. These plots generally show similar time trends for major and minor elements (Si, K, Ca, Ti, Fe, and Mn) at a given site, but show somewhat greater variations from site to site, as expected from the large mass variations shown in Figure 32. The elements showing high enrichment in the Sierra impactor samples (Cu, Br, Se, S, and Pb in Figures 35 and 36) also show time-variations differing from those of the major soil constituents, again suggesting their different course of origin. Their variation with time tended to be greater than the less-enriched elements, and their time-variations were less similar to each other at the various sites.

Since the particulates at Sites B and R-7 (adjacent to the pit) were not appreciably different in composition from those at Site A and D (1.6 km from the mine), there is no evidence suggesting significant alteration of aerosol composition by the mining operation except for the uranium enrichments noted in the impactor samples collected by the ore storage pile. Uranium was generally below the detection limit in the dichotomous samples.

Average enrichment factors computed for the Site A aerosols are illustrated in Figure 43. Again, K, Si, Ca, Ti, and Mn were typical of the surrounding soil, and the other elements are shown to have been significantly enriched. Nickel, Zn, Pb, and S enrichments are nominally in agreement with those observed in the Sierra impactor grab samples; however, the copper enrichments are somewhat lower. The most enriched elements, Pb, Se, and Br, are reported with similar high enrichments in both urban³²⁻³⁸ and remote³³ areas and are usually attributed to fossil fuel burning and automotive exhausts.

TABLE 23. Elemental Analysis of Dichotomous Air Samples Collected at Site A, Morton Ranch
(ng/m³ in >2.5 μm particles, upper numbers; and <2.5 μm particles, lower numbers)

	Si	S	K	Ca	Ti	V	Mn	Fe	Ni	Cu	Zn	As	Se	Br	Mo	Pb	U
May 1979	2080	190	160	280	39	<2	4.3	390	0.6	0.9	4.9	<.4	0.2	0.8		8.5	
	1 260	150	13	42	4	<1	0.7	36	0.2	0.3	0.9	<.4	<.1	0.9		5.7	
Jun	810	<43	69	96	18	<2	2.5	148	<.5	1.2	1.3	<.4	<.2	4.2	<1	<1.0	<1
	<320	160	12	29	2	<1	1.0	19	<.3	1.1	1.0	<.4	<.2	2.7	<1	2.2	<1
Jul	1600	<60	110	100	32	<3	3.9	240	0.8	1.6	2.4	<.5	<.3	4.4	<1	1.7	<2
	<110	<70	<7	<5	160	<5	<.9	9	<.5	1.3	9.8	<.5	<.4	2.8	<2	<1.5	<2
Aug	3500	<70	260	280	60	<4	6.1	540	<.6	1.8	4.7	<.6	<.3	6.2	<1	4.4	<2
	140	96	12	11	3	<1	<.8	19	<.4	0.9	0.7	<.6	<.3	3.8	<1	3.3	<3
Sep	2800	84	200	260	42	<3	5.6	400	1.2	1.8	2.3	0.7	<.4	6.2	<1	1.8	<2
	<130	290	13	32	3	<2	<1.1	23	<.4	1.3	1.8	<.8	<.4	4.9	<1	6.2	<2
Oct	3350	82	210	250	49	<4	7.5	450	<.6	1.3	4.7	1.3	<.3	5.7	<1	2.0	<3
	220	320	15	37	3	<1	1.2	33	<.5	1.6	1.7	<.8	.3	4.8	<1	8.0	<3
Nov	840	<90	56	94	15	<3	<2	110	<.6	1.2	1.9	<.8	<.5	8.5		<2.3	
	210	290	<12	25	4	<2	<1	31	.7	1.8	2.9	<1	<.5	6.2		9.5	
Dec	750	<70	60	110	17	<2	2.1	125	<.6	0.7	5.3	<.6	<.4	6.5	<1	3.0	<2
	<100	220	<9	20	6	<2	1.5	15	<.4	1.6	2.0	<.8	<.3	2.3	<1	6.1	<2
Jan 1980	1280	<80	99	150	23	<3	2.5	200	.9	1.5	4.7	<.7	<.4	7.1	<1	3.8	<3
	<110	340	13	34	5	<2	1.2	23	.6	1.5	2.3	<.9	<.4	2.8	<1	7.8	<2
Feb	560	82	38	92	26	<3	<1	80	<.4	1.2	3.9	<.6	<.4	6.0		3.2	
	<100	440	<7	20	9	<2	<1	14	<.4	1.7	2.7	<.8	<.4	2.7		9.9	
Mar	5100	340	340	880	100	<6	8	1040	1.2	4.3	47	<1	0.5	9.8	<2	3.5	<4
	<140	340	21	31	<3	<2	<1	27	<.5	1.9	4.0	<1	<.4	5.2	<2	8.7	<2

TABLE 24. Elemental Analysis of Dichotomous Air Samples Collected at Site B, Morton Ranch
(ng/m³ in >2.5 μm particles, upper numbers; and <2.5 μm particles, lower numbers)

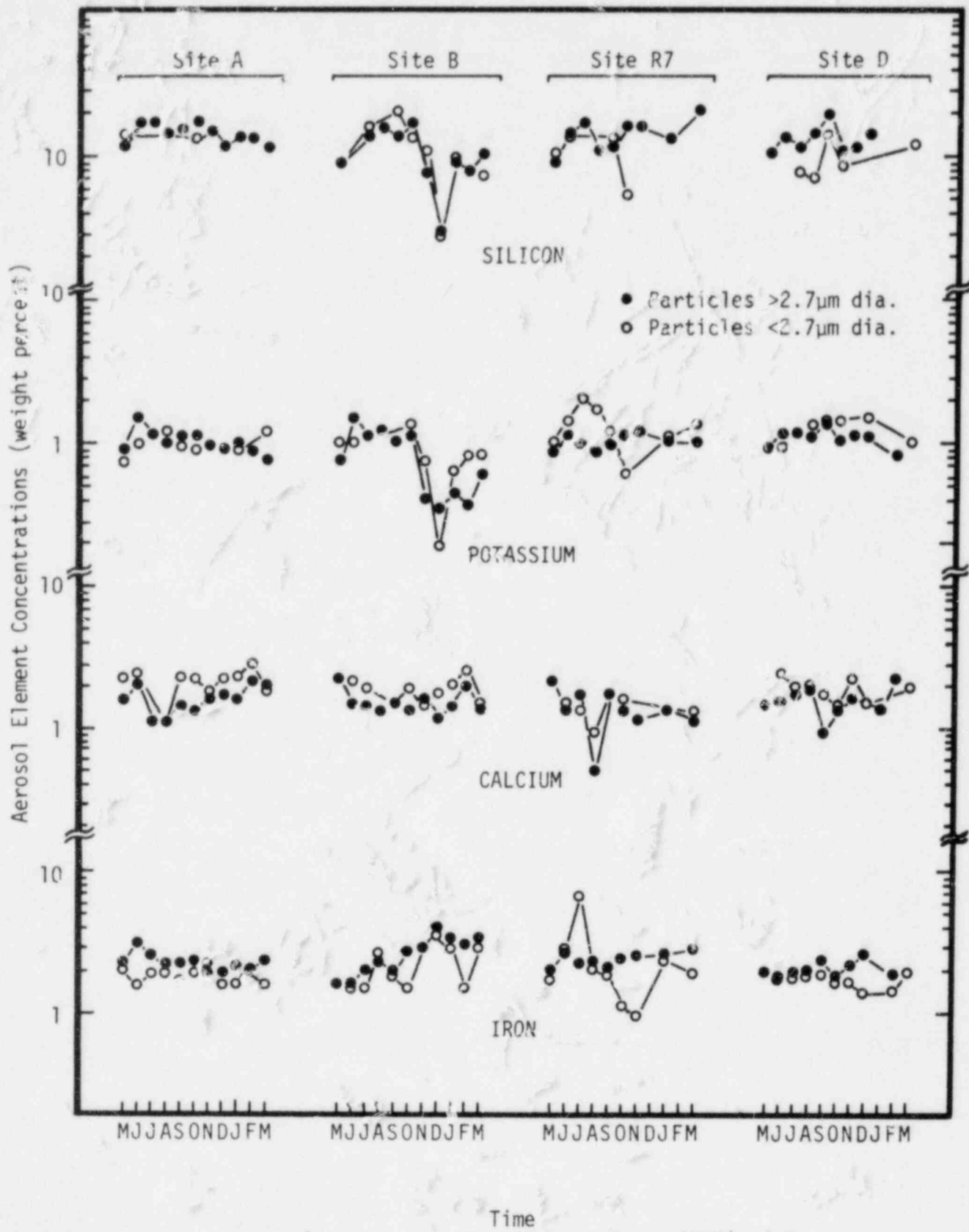
	<u>Si</u>	<u>S</u>	<u>K</u>	<u>Ca</u>	<u>Ti</u>	<u>V</u>	<u>Mn</u>	<u>Fe</u>	<u>Ni</u>	<u>Cu</u>	<u>Zn</u>	<u>As</u>	<u>Se</u>	<u>Br</u>	<u>Mo</u>	<u>Pb</u>	<u>U</u>
May 1979	380	39	32	93	6	<1	1.2	67	0.2	0.6	0.7	<.2	0.1	0.3		0.9	
	300	270	35	76	5	<1	1.0	56	<.2	0.6	2.1	<.3	0.2	1.0		3.4	
Jun	<380	<47	45	44	5	<1	<.9	47	0.4	1.1	0.9	<.4	<.3	5.0	<1	1.4	<1
	<340	180	15	31	<2	<1	<.8	22	<.3	1.3	1.5	<.4	<.2	3.0	<1	1.8	<2
Jul	1200	<60	102	130	25	<3	2.4	177	<.5	1.6	1.2	<.5	.5	6.1	<3	<1.4	<6
	260	180	18	30	3	<1	<.9	24	0.6	1.1	0.8	<.6	<.4	3.8	<2	2.3	<5
Aug	1200	<60	90	98	27	<3	2.3	180	<.5	1.3	1.1	<.5	<.3	5.7	<40	<1.4	<80
	<80	<30	<6	<4	<2	<1	<.7	7	<.4	0.9	1.0	<.2	<.3	2.7	<40	<1.2	<80
Sep	500	<50	38	56	12	<2	1.2	74	<.5	1.4	1.4	<.5	<.3	5.3	<30	1.3	<40
	95	<50	<6	7	<2	<2	<.7	8	<.4	1.2	0.7	<.4	<.3	2.5	<27	<1.1	<40
Oct	5100	<70	330	390	84	<4	.8	830	1.3	1.3	3.5	<.6	0.5	4.8	<2	3.1	<3
	300	220	28	42	4	<1	.1	34	<.4	1.5	2.0	<.6	<.3	3.1	<1	5.4	<2
Nov	410	<70	22	87	6	<2	3.3	160	<.5	1.5	0.7	<.6	<.4	7.4		<1.7	
	210	240	14	28	3	<2	1.5	53	<.6	1.4	2.9	<.9	<.4	1.9		5.9	
Dec	150	62	17	57	7	<1	2.7	200	<.6	1.1	0.9	<.6	<.3	5.0	<1	3.4	<2
	150	220	10	97	4	<1	2.0	200	<.4	1.6	1.7	<.7	<.3	1.5	<1	10.0	<2
Jan 1980	550	<50	27	85	11	<2	1.7	200	<.4	1.3	1.1	<.5	<.3	5.4	<1	3.2	<2
	420	270	27	86	6	<2	1.3	120	<.5	1.1	2.5	<.7	<.3	2.1	<1	7.6	<1
Feb	530	<80	24	130	11	<2	<2	200	<.6	1.3	1.5	<.7	<.4	7.5		3.7	
	<130	480	14	45	17	<2	<1	27	<.6	1.4	2.9	<.8	<.4	1.7		6.8	
Mar	1300	<60	77	170	27	<2	4	420	<0.8	1.5	1.7	<.5	<.3	4.6	<1	3.5	<2
	100	380	11	21	3	<1	<1	39	0.4	1.4	3.1	1.1	<.3	3.0	<1	4.3	<1

TABLE 25. Elemental Analysis of Dichotomous Air Samples Collected at Site R-7, Morton Ranch (ng/m³ in >2.5 μm particles, upper numbers; and <2.5 μm particles, lower numbers)

	<u>Si</u>	<u>S</u>	<u>K</u>	<u>Ca</u>	<u>Ti</u>	<u>V</u>	<u>Mn</u>	<u>Fe</u>	<u>Ni</u>	<u>Cu</u>	<u>Zn</u>	<u>As</u>	<u>Se</u>	<u>Br</u>	<u>Mo</u>	<u>Pb</u>	<u>U</u>
May 1979	650	120	63	160	13	<1	2.6	150	<.3	0.8	11.0	<.3	0.3	0.7		2.1	
	380	260	36	78	7	<1	1.5	62	0.2	0.7	6.5	<.3	0.3	0.9		3.1	
Jun	790	<50	63	72	14	<2	2.7	143	<.6	1.3	1.6	<.4	<.3	5.4	<2	1.6	<1
	230	140	24	25	3	<1	1.4	47	<.5	1.6	1.0	<.5	<.3	3.9	<2	2.3	<2
Jul	650	<40	38	66	12	<2	1.0	84	<.4	1.2	1.4	<.3	<.4	2.2	<1	1.1	<1
	170	<40	9	6	5	<1	0.7	30	<.4	0.7	0.6	<.3	<.2	4.1	<1	<.9	<2
Aug	3000	<30	230	130	82	5	6.6	650	0.8	1.6	3.3	0.5	<.3	4.8	8	<1.4	<10
	<100	340	95	530	<2	<1	4.4	8	0.7	2.1	11.4	<.4	0.5	5.4	<8	<1.1	<20
Sep	2000	<100	170	310	47	<4	4.9	370	<1.1	2.4	3.1	<.8	1.2	8.1	<1	<2.1	<3
	1000	300	90	130	15	<3	2.0	140	<.6	3.1	3.0	<.9	0.7	6.0	<1	7.8	<2
Oct	3300	<120	240	270	59	<5	6.8	500	1.4	3.0	3.2	<1.0	<.6	9.6	<3	<2.7	<5
	240	470	26	70	8	<3	1.8	48	<.8	2.2	3.4	<1.2	<.6	7.8	<2	6.8	<3
Nov	640	<100	47	46	19	<3	<2	100	<.9	1.8	1.0	<.8	<.6	10		<2.4	
	<160	<90	<11	<8	<4	<2	1.7	6	<.8	3.2	1.9	<.7	<.6	.6		<2.1	
Dec																	
Jan 1980	640	<60	52	64	16	<3	<1	130	<.6	1.5	1.0	<.6	<.3	5.0	<1	3.4	<2
	<110	<60	7	<7	58	<3	1.1	15	<.5	1.7	5.2	<.7	<.3	1.5	<1	10.0	<2
Feb																	
Mar	15000	330	750	770	240	15	24	2000	2.3	2.7	7.4	<.8	4.2	6.9	<2	4.4	<3
	<100	340	17	17	10	<2	1	25	<.4	1.3	2.6	.9	<.4	1.7	<1	3.4	<2

TABLE 26. Elemental Analysis of Dichotomous Air Samples Collected at Site D, Morton Ranch (ng/m³ in >2.5 μm particles, upper numbers; and <2.5 μm particles, lower numbers)

	Si	S	K	Ca	Ti	V	Mn	Fe	Ni	Cu	Zn	As	Se	Br	Mo	Pb	U
May 1979	1900	110	170	270	39	<2	5.4	360	0.6	1.0	4.9	<.3	0.3	0.9		2.3	
Jun	1400 710	<100 180	120 15	160 40	23 4	<3 <2	3.0 1.8	187 28	<.7 <.6	2.1 2.4	2.6 2.2	0.8 <.9	<.5 <.5	9.4 5.4		2.4 4.4	
Jul	1470 220	<110 460	148 34	220 52	30 10	<4 <3	5.7 2.6	250 47	<1.1 0.7	3.0 2.8	4.0 2.8	<.9 <1.1	<.6 <.7	11.3 7.5	<2 <2	<2.6 7.4	<4 <4
Aug	1970 330	110 390	150 63	250 95	39 9	<5 <3	4.4 2.9	280 89	<.8 <.9	3.4 3.1	3.0 4.2	1.0 1.6	<.8 1.3	12.4 8.4	<2 <2	<3.1 8.5	<4 <5
Sep	11800 440	<140 370	810 44	540 54	200 7	<10 <3	2.6 <2	1420 58	<1.6 <.8	4.9 2.8	6.1 2.5	<1.2 <1.2	0.7 <.6	11.9 7.5	<2 <2	4.2 6.7	<4 <3
Oct	1260 210	<90 330	120 35	150 36	22 5	<3 <2	3 <1	210 41	<.6 <.6	2.6 1.8	1.9 2.5	<.8 <1.1	<.4 .6	8 6	<2 <2	2.0 5.4	<4 <4
Nov	590 <240	<140 420	57 <17	81 40	13 <6	<4 <4	<3 <2	110 29	<1.0 <1.1	3.2 3.0	2.9 3.1	<1.1 <1.5	<.8 <.9	15 8		<3.4 7.5	
Dec	1400 <170	<120 380	110 40	130 37	26 3	<4 <2	4.1 2.5	250 37	<.8 <.7	2.8 2.5	2.4 11.6	<1.2 <1.1	<.6 0.5	10.9 2.0	<2 <2	7.7 8.1	<4 <3
Jan 1980																	
Feb	<160 <140	<90 440	22 <11	61 22	33 10	<3 <2	<1 1	51 14	<.7 <.6	1.9 2.7	2.6 3.3	<.8 1.2	<.5 <.5	8.3 2.4		<2.2 4.5	
Mar	670	510	54	100	13	<3	2	104	.6	2.8	5.3	<1.1	<.5	6.0	<2	9.0	<3



Time
 (months, from May 1979 to March 1980)
FIGURE 39. Monthly Integrated Elemental Concentrations of Dichotomous Air Samples at Four Sites (Si, K, Ca, Fe)

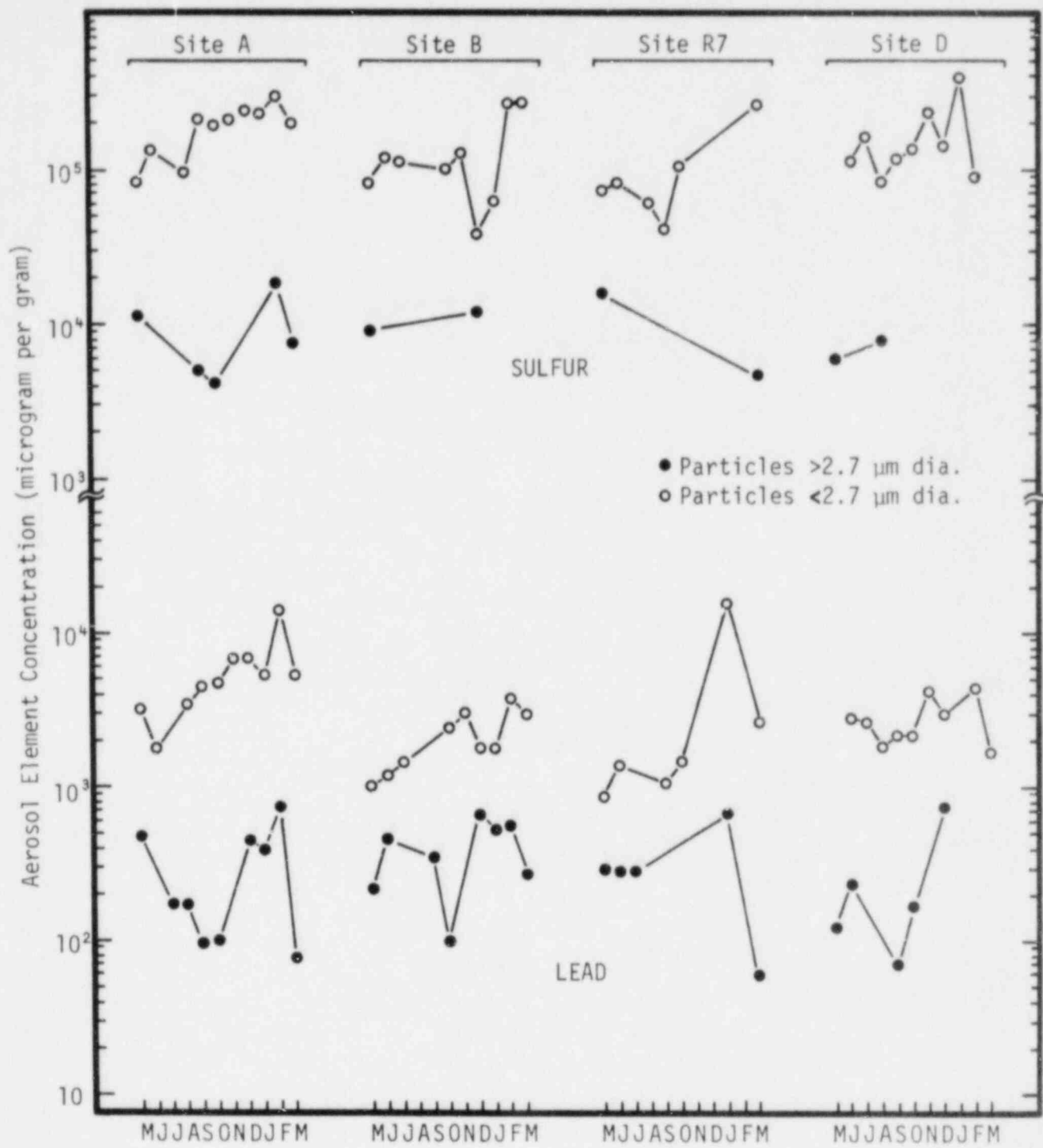


FIGURE 40. Monthly Integrated Elemental Concentrations of Dichotomous Air Samples at Four Sites (S, Pb)

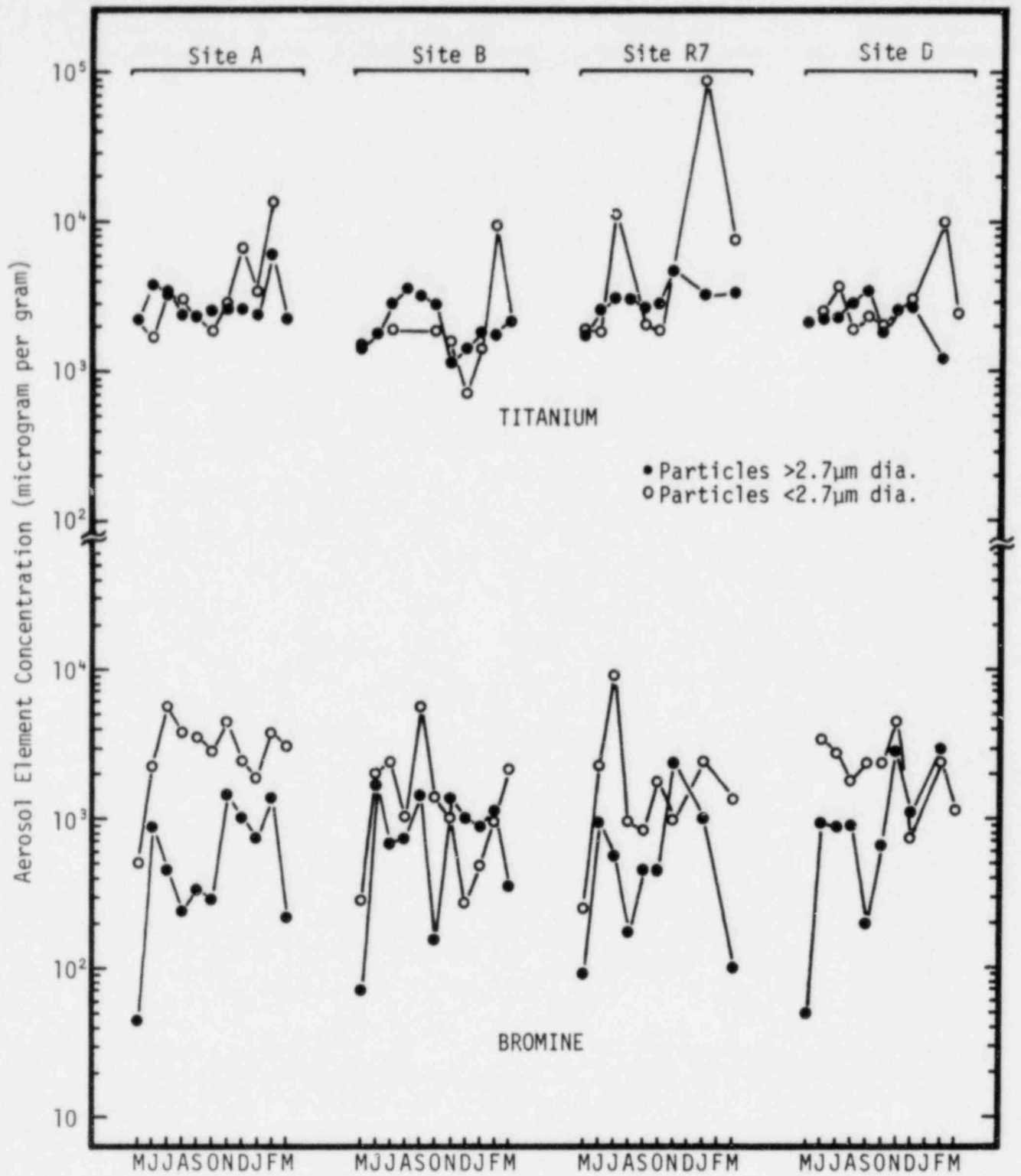


FIGURE 41. Monthly Integrated Elemental Concentrations of Dichotomous Air Samples at Four Sites (Ti, Br)

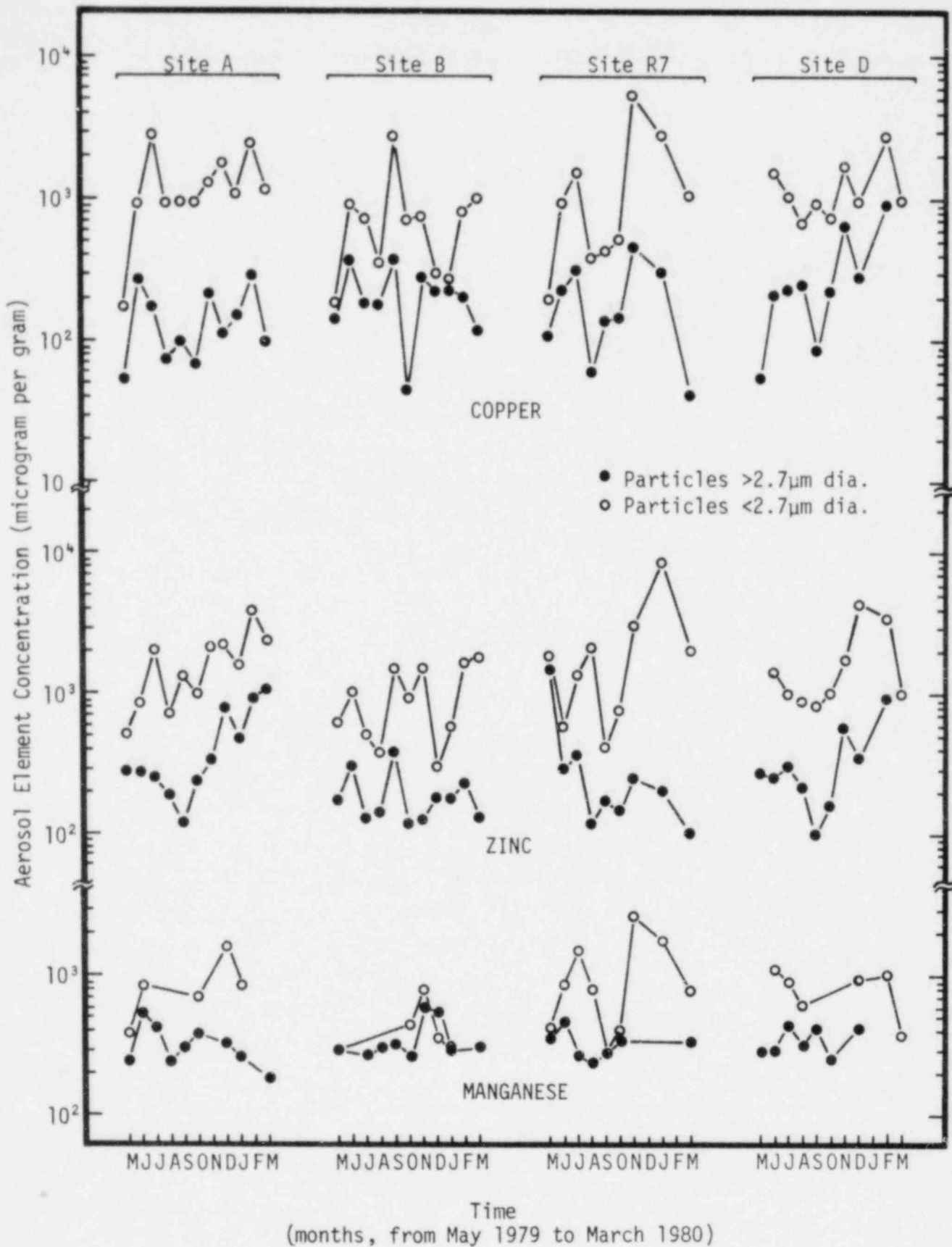


FIGURE 42. Monthly Integrated Elemental Concentrations of Dichotomous Air Samples at Four Sites (Cu, Zn, Mn)

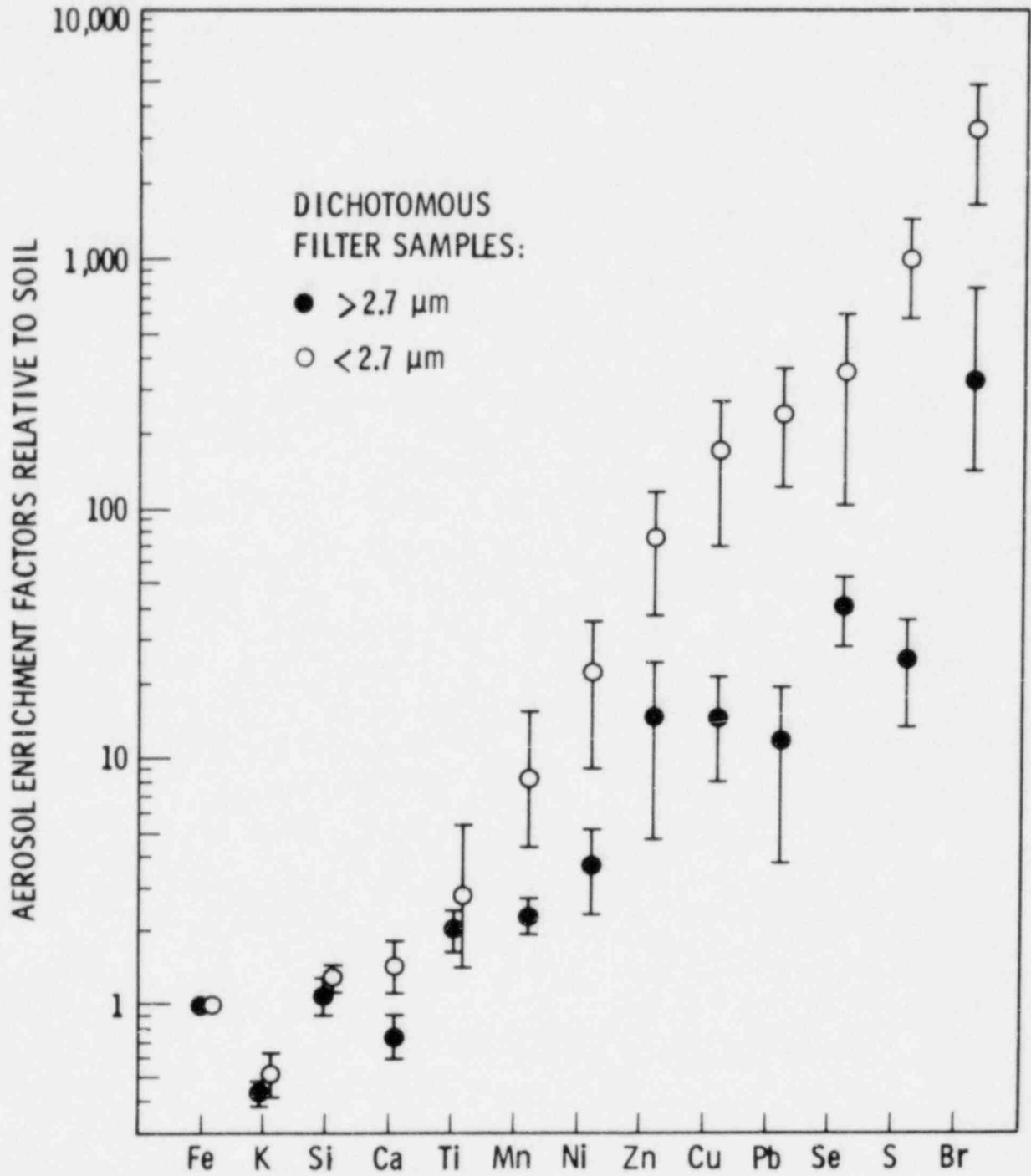


FIGURE 43. Average Elemental Enrichment Factors in Site A Aerosols Collected with Dichotomous Samplers

5.3 Radiochemical Composition of Aerosols

Radiochemical analysis of the aerosols was conducted on the high-volume impactor samples, but not on the dichotomous filter samples due to the small aerosol mass typically collected. The small masses collected required that even the size separated material collected by the impactors be composited to provide enough activity for radionuclide analysis. Because direct gamma counting proved to have inadequate sensitivity for the Andersen samples, they were digested and subjected to radiochemical separations, followed by alpha energy spectrometry to achieve the required sensitivities and precisions for the nuclides of interest. Direct gamma counting was adequate for the analysis of the composited Sierra impactor samples.

5.3.1 Andersen Impactor Samples

Radionuclides on the glass-fiber filter media used to collect the four sets of samples in April 1979 were radiochemically separated after appropriate compositing of the size fractions, and plated onto metal disks for alpha energy spectrometry using surface-barrier silicon diode detectors in vacuum alpha-counting chambers. The results of these alpha-energy analyses are presented in Table 27. As indicated, the uranium decay chain (^{238}U , ^{234}U , ^{230}Th , and ^{226}Ra) and the thorium decay chain (^{232}Th and ^{228}Th) both showed considerable variation in activity, due to analytical uncertainty and also to actual disequilibrium.

In order to examine the relative magnitudes of the equilibrium concentrations of uranium, the first four nuclides listed in Table 27 were averaged and converted to units of nanograms uranium per cubic meter of air. The respective results for the day and night samples, for each of the Sites A and D, were 0.45, 0.36, 0.59, and 0.27 ng U/m^3 , or on an aerosol concentration basis, 8.4, 10.8, 8.1, and 5.6 parts per million uranium. Assuming the aerosol to contain 2% iron (Table 21), the resulting enrichment factors for uranium as calculated earlier for the trace element analyses are 2.8, 3.6, 2.7, and 1.9. These indicate the uranium was an average of 2.7 times higher than would be expected if local soil containing 3 ppm U were the only particulate source. If the local ore is assumed to contain 330 ppm

TABLE 27. Uranium-Related Radionuclides in Particulates at Sites A and D (pCi/gram)

	Site A ⁽¹⁾		Site D ⁽¹⁾	
	1.6 km, prevailing upwind Day (1451 m ³)	Night (2118 m ³)	1.6 km, prevailing downwind Day (754 m ³)	Night (2295 m ³)
²³⁸ U	2.0 ± 0.3	2.3 ± 0.3	2.0 ± 0.3	1.55 ± 0.21
²³⁴ U	3.2 ± 0.4	3.1 ± 0.4	2.0 ± 0.4	1.80 ± 0.27
²³⁰ Th	4.7 ± 0.7	4.6 ± 0.4	4.7 ± 1.2	1.93 ± 0.48
²²⁶ Ra	1.39 ± 0.81	4.4 ± 0.9	2.1 ± 0.5	2.2 ± 0.3
²³² Th	3.3 ± 0.6	3.9 ± 0.4	3.9 ± 0.4	2.5 ± 0.6
²²⁸ Th	5.9 ± 0.8	5.3 ± 0.5	1.2 ± 0.35	1.08 ± 0.27

Footnote:

(1) ± values are one standard deviation.

U₃O₈ (Table 4), the enrichment factor of 2.7 for uranium would indicate that 1.8% of the blowing particle mass was comprised of ore-grade material.

The nearly equal activity of thorium is averaged between the measured nuclides ²³²Th and ²²⁸Th to estimate the thorium concentration to be 41 ppm in both Site A samples and 23 and 16 ppm in the day and night particulates, respectively, collected at Site D.

5.3.2 Sierra Impactor Samples

The Sierra impactor samples collected in June 1979 near the ore stockpile were composited into two fractions consisting of the backup filter (particles less than 0.49 μm) and the impactor stages (particles greater than 0.49 μm). The composite fractions were counted with a high-resolution Ge(Li) gamma spectrometer to determine the radionuclide activities given in Table 28.

As might be expected, the uranium and radium species showed no fractionation between the coarse and fine particles. The ²¹⁰Pb, however, was enhanced in the small particle fraction because of contributions from both the equilibrium activity of uranium ore and the decay of airborne radon. The detection limit for ²²⁸Ra precluded its detection in this sample. The natural ⁴⁰K activity was similarly close to detection limits. The activity of ¹³⁷Cs was a result of atmospheric fallout, and is not related to the mine activity.

Using the mean activity of the ²³⁸U series nuclides of 50 pCi/g (Table 28), airborne activities of 0.0044 pCi/m³ and 0.0039 pCi/m³ are estimated for the coarse and fine particle fractions, respectively. These correspond to 150 ppm uranium concentrations, which in turn correspond to aerosol enrichment factors of 50 for uranium, again assuming 2% iron in the soil and aerosol (Table 21), and 3 ppm uranium in the local soil. Higher enrichment factors were obtained from the x-ray fluorescence determinations from the same samples presented in Table 20; however, these Table 20 determinations are less reliable due to poorer statistical precision. The 50-fold enrichment of uranium at 19 m from the ore pile can be compared with the enrichment factor of 2.7 observed at a one-mile distance from the ore pile and open pit.

TABLE 28. Radionuclide Analysis of Particulates in the June, 1979 Sierra Impactor Samples Collected Near the Ore Stockpile (pCi/gram)

	Coarse ⁽¹⁾ (Stages 1-5, 0.179 g dust)	Fine ⁽¹⁾ (Backup Filter, 0.157 g dust)
²³⁸ U	54 ± 16	57 ± 16
²²⁶ Ra	48 ± 19	53 ± 21
²¹⁰ Pb	40 ± 21	105 ± 28
²²⁸ Ra	<6	<7
⁴⁰ K	<40	97 ± 46
¹³⁷ Cs	5.0 ± 1.2	7.2 ± 1.8

Footnotes:

(1) ± values are one standard deviation.

Using the determinations of enrichment factors for the Andersen samples (at 1.6 km from the source) and the Sierra sample (at ~19 m from the source), estimates can be made for wind dispersion of particulate uranium ore. These estimates are based on a Gaussian plume dispersion model using a power curve function to fit Pasquill-Gifford dispersion parameters.³⁹ They also assume the vertical and horizontal dispersion function parameters at the 19 m horizontal distance from the source to equal those from the 1.6 km samples. Average wind velocities and directions during the sampling periods (5 m/s) are assumed to be typical of the average mean wind velocity.

The resulting estimated airborne uranium activity is illustrated in Figure 44 as a function of distance from the mine. Since this estimate assumes the wind to be blowing at its assumed average velocity (5 m/s) in the direction from the mine to the sampling site, the data in Figure 44 can be expressed as an activity or concentration isopleth by multiplying the curve by the appropriate directional wind frequencies. The settling rate of the various size particles as a function of wind velocity could also be included in this model as used by Horton, et al³⁵ to make the estimates more accurate. Actual wind roses from the meteorological data for the Morton Ranch site or from the literature¹ could be used to obtain the directional wind frequencies.

Extrapolation of the data in Figure 44 suggests a maximum distance of 3 km is required before the airborne uranium particulates may be sufficiently diluted to reach the 6 ppm U level, which is twice the background level. Throughout these discussions, we have assumed the background level of uranium to be 3 ppm, as determined by the x-ray fluorescence method. As was reported earlier in Tables 5 and 6, the background U_3O_8 concentration measured in a larger number of top-soil samples at Morton Ranch was about five parts per million, which when converted to uranium was about four parts per million. This would suggest a distance of less than 2 km would be sufficient to reduce airborne uranium concentrations to the level of twice the background concentration.

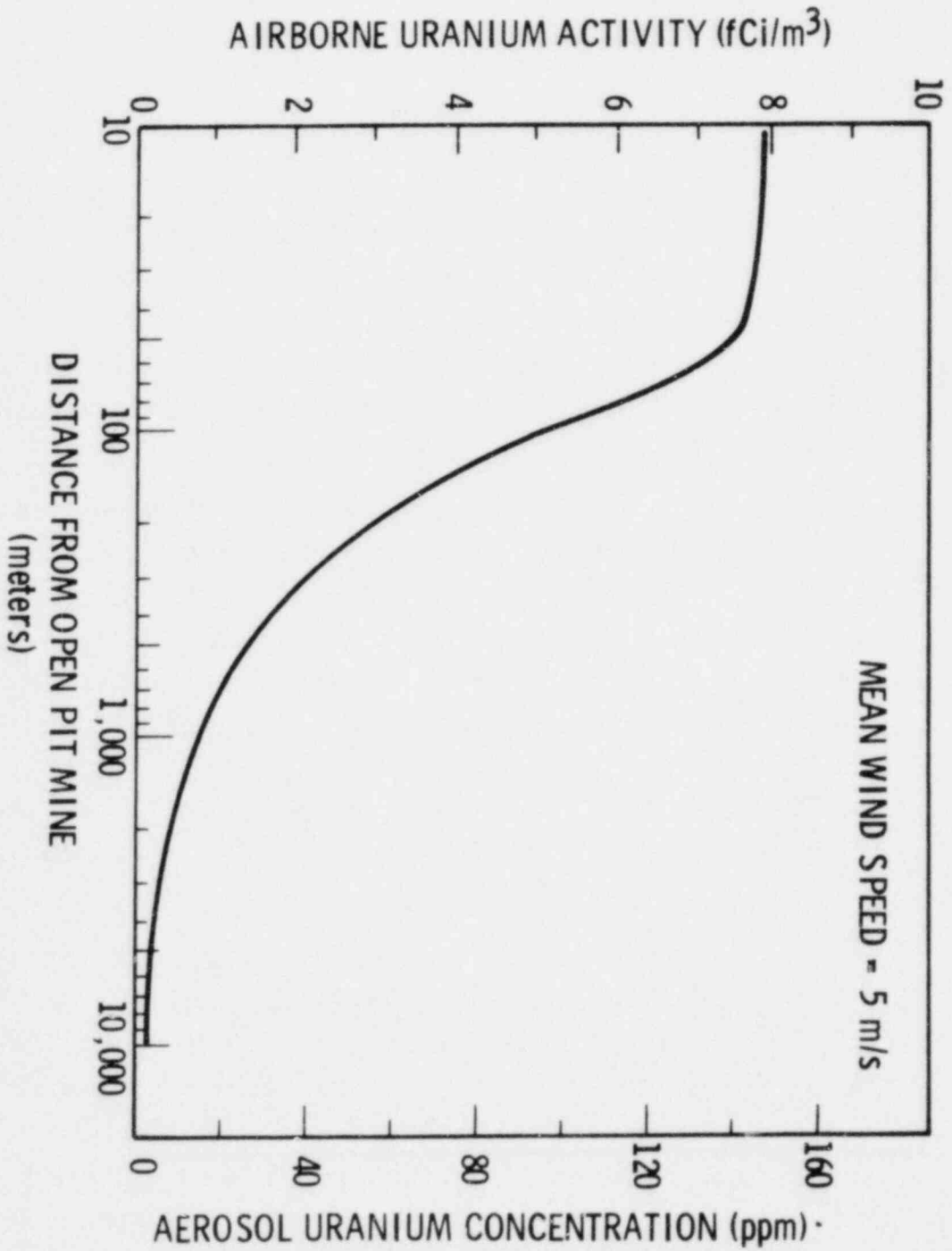


FIGURE 44. Estimated Airborne Particulate Uranium Activity Versus Distance from the Ore Pile

6.0 SUMMARY AND CONCLUSIONS

A one-year comprehensive study of the release rates of radon and aerosol material to the atmosphere from an active open pit uranium mining area has been made under a range of meteorological conditions. This work was performed to evaluate potential radiological and aerosol problems associated with open pit uranium mining, to determine the quantity of ^{222}Rn released per unit of uranium produced from open pit mining, to evaluate the prediction of the net radon emission from a model open pit uranium mine presented in NUREG/CR-0628, and to make these data available to the NRC to be used to supplement the update of Table S-3 of 10 CFR 51.

A number of techniques were compared for measurement of radon flux based on the collection of radon on activated charcoal under both static and dynamic air flow conditions. Based on these comparisons, a static charcoal radon flux sampler was devised which was used monthly throughout the one-year sampling period at the study mine. Soil samples were also collected under each flux monitor during this period and were analyzed for radium concentration. Arithmetic mean specific fluxes calculated for various surface types from the ratios of radon flux to radium concentration (expressed as equivalent % U_3O_8) showed similar variability to those reported in the literature by most other investigators.

Testing of groupings of measurements made during this study indicates that generally the data fit the log-normal distribution more closely than the normal or Gaussian distribution. Therefore, the geometric means of some measured parameters, which are somewhat lower than the arithmetic means, are also presented as measures of central tendency.

Measurements of radon flux and radium concentrations made at five operating Wyoming mines indicate that means of radon flux and U_3O_8 concentrations vary from surface to surface, from mine to mine, and with time. Even so, the relative ranking of mean radon flux, or mean U_3O_8 concentration by surface type, was relatively constant from mine to mine. Similar measurements made in undisturbed topsoil on mine properties compared favorably with topsoil measurements taken from within a 100 km radius of Casper, which is centrally located with respect to the mines studied.

The mean specific radon flux, although highly variable, tended to be more consistent from mine to mine and from surface to surface than either radon flux or U_3O_8 concentration. Temporal effect on mean radon flux appeared to be random with the exception of low flux measurements in December 1979. The measurement variations within each surface made significances of the monthly variations questionable.

The effects on radon flux of moisture, barometric pressure, atmospheric temperature, changes in barometric pressure and atmospheric temperature, and changes in pressure and temperature per unit time were not generally found to be significant. This was due to the large variation in the measurements caused by nonuniform radium concentrations, compactions, and other physical parameters which affect the release of radon. The moisture content of the soil, however, above the range of 10 to 12% appeared to limit the radon flux distribution to a lower range than was measured at lower moistures. This effect was most pronounced on overburden piles.

Atmospheric radon concentrations measured near the ground by continuous radon monitors upwind of the pit area and at the pit edge were higher during the first half of the study than during the last. The sudden large drop in radon concentrations at these two sites has not been explained. Although the annual geometric mean of the radon concentration at the upwind site was lower than that at the downwind site, which in turn was lower than at the pit edge, the large uncertainty in these means was such that the differences between sites were not significant.

Analysis of the radon concentrations for the one-year period at the three sites indicated that airborne radon concentrations were dependent upon wind direction and wind speed. In general, when the wind was from the direction of a known source of radon such as the ore pile or the pit area, the radon concentration was higher. However, a remote large source of radon (approximately 8 km) did not influence the radon concentrations measured at these three sites. In fact, the lowest mean concentrations of radon were measured when wind was from that direction. The highest annual mean concentration measured at Site B when the wind was from any one of the 20 degree segments of the magnetic compass was 1.5 pCi/l when the wind was from 180 to 190° (from the ore storage area) at greater than or equal to 5 m/sec.

The model mine, which was defined in NUREG/CR-0628, has been redefined based upon a second survey of mine parameters estimated by mine operators. The initial survey was based on less than two years experience for most of the mines, while the second survey is based on three years additional experience. Changes were small in most parameters. However, the average number of pits was increased to 19 from 7 and the pit wall slope has been changed from an assumed value of 45° to a survey average of 39° from the vertical. These estimates both change the results of the calculated surface areas and therefore the calculated release rates for radon.

Active mining in the 1981 model open pit uranium mine would cause net radon releases of 3300 Ci/yr compared to 125 Ci/yr naturally exhaled radon from the 3 km^2 mine area. In terms of annual reactor fuel requirements, this is equivalent to 840 Ci/RRY (201 tonnes U_3O_8 /RRY). Radon releases would continue at the reduced rate of 2700 Ci/yr after the 16.6 yr lifetime of the mine, assuming no changes in the physical environment with time. This may be compared with 207 Ci/yr naturally exhaled radon from an equivalent undisturbed 5 km^2 area. The continuing radon releases due to the abandoned 1981 model mine are equivalent to 43 Ci/yr/RRY (201 tonnes U_3O_8 /RRY) produced by the mine during its lifetime. These estimates of increases due to mining are somewhat larger than those originally estimated by the 1979 model mine.

Despite some physical and operational differences between the inactive pit at the St. Anthony mine in New Mexico and the 1704 pit at the Morton Ranch Operations in Wyoming, the respective radon release rates estimated by Argonne National Laboratory and Pacific Northwest Laboratory were compared. ANL estimated the releases from the $1.5 \times 10^5 \text{ m}^2$ St. Anthony pit to be 11 Ci/yr. PNL estimated the releases from the $2 \times 10^5 \text{ m}^2$ 1704 pit to be 60 Ci/yr. The projected release rate from the St. Anthony pit of approximately 50 Ci/yr at its mid-life (8.5 yrs) was a factor of about 17 lower than the arithmetic mean value (830 Ci/yr) of the model mine active pit at its mid-life (8.5 yrs).

The one-year study of atmospheric aerosols in the vicinity of the Morton Ranch open pit uranium mine included definition of the particle

size distributions and both chemical and radiochemical analyses as a function of particle size. Continuous sampling over monthly integration periods also provided a continuous record of the average aerosol mass distributions and their chemical constituents.

Particle size distributions were bi-modal as sampled by the high volume impactors with a minimum occurring at a particle size of about 2 μm . Total mass loadings varied from 24 to 166 $\mu\text{g}/\text{m}^3$ for the grab samples, but the monthly average mass loadings determined from the continuous samplers varied over the lower range from 5 to 65 $\mu\text{g}/\text{m}^3$. These have been compared to mean total mass loadings reported in the literature⁴⁰ in 1966 and 1967 of 21 $\mu\text{g}/\text{m}^3$ for remote stations, 40 $\mu\text{g}/\text{m}^3$ for non-urban stations, and 102 $\mu\text{g}/\text{m}^3$ for urban stations. The fine particles (<2.7 μm) collected at the study mine had a geometric mean mass loading which was consistently smaller than that of the coarse material (>2.7 μm) by an average factor of nearly 5. Dust loading during the late summer-early fall was elevated a factor of 2 to 4 over the levels during other parts of the year, presumably due to the drier ground conditions during that time.

Chemical analyses of particulates indicated several possible sources. The major source of particulates, particularly in the coarse size range, was local soil, as indicated by major element patterns. Enrichments of sulfur, arsenic, copper, lead, selenium, zinc, bromine, nickel, and vanadium were noted and could generally be attributed to a fossil-fueled power plant located in a prevailing upwind direction from the study mine. However, the very large enrichment of lead, bromine, copper, and arsenic may be excessive for the power plant effluent and may originate from other sources such as vehicular traffic (Pb, Br in gasoline) and copper smelting (Cu, As, and Pb). The only measured element directly associated with uranium mining activity was uranium, which was detected only on occasion and at concentrations near the detection limit. Possible correlations of other elements, such as vanadium or selenium, with the uranium concentrations were examined, but found to be insignificant. The resuspended ore dusts are, therefore, not detectable except by uranium determination or, alternatively, by radiochemical analysis.

Radionuclide determinations indicated an equivalent of about 0.3-0.6 nanograms U/m³ (6-11 ppm U) under relatively neutral conditions (5 m/sec winds) at locations 1.6 km from the mine and ore stockpile area. These airborne uranium levels are about two to four times higher than would be expected from the x-ray fluorescence analysis of ambient soil (3 ppm U) if it were blowing in the same area. However, there are evidences of old mining activities in that immediate area which could also explain elevated uranium concentrations. An approximately equal activity of thorium was determined in the aerosols corresponding to 16-40 ppm Th. This appeared to originate from local soil rather than from the uranium ore due to its absence in the more uranium rich aerosols.

Additional radionuclide measurements in aerosols collected only 19 m downwind from the ore stockpile during high winds indicated a 50-fold enrichment of uranium. Nearly equal activities were observed in the coarse and fine fractions. By fitting these activities and those observed at a 1.6 km distance to a function used for atmospheric dispersion, an estimate was made of the uranium content of the aerosols as a function of distance from the mine. It was estimated by extrapolation that the uranium content of the aerosols would fall to within twice the background level at a distance of about 3 km from the mine. Further modeling is needed to include particle deposition rates and varying wind velocities in this interpretation. This analysis of atmospheric aerosols indicated that the only significant impact which could be attributed to the mining operation on aerosol composition was the enrichment of uranium which was enhanced over that in natural ambient soil by a factor of about 50 during high winds near the ore pile.

7.0 ACKNOWLEDGEMENTS

We would like to thank the following mining companies which were very helpful and cooperative and allowed us to perform the necessary sampling procedures on their properties and especially the study mine for the continuing assistance and cooperation throughout the study.

United Nuclear Corporation, Morton Ranch Operation (currently operated by Silver King Mines for TVA)

Exxon Minerals Company, Highlands Uranium Operations

Federal American Partners, Gas Hills

Getty Petrotomics, Shirley Basin

Rocky Mountain Energy Company, Bear Creek

Special thanks also go to the following people for their assistance in this project:

N. A. Wogman, who helped direct the first two field trips and has continued to contribute guidance and assistance.

W. L. Nichol森, D. B. Carr and R. R. Kinnison for statistical consultations.

J. H. Reeves and J. D. Forsythe for gamma-ray spectrometric analysis.

R. W. Sanders for assistance in x-ray fluorescence analysis.

S. G. McNeece and K. A. Ekblaw for computer programming and ADP processing.

C. W. Thomas and J. G. Pratt for radiochemical analysis.

P. O. Jackson and W. B. Silker for their many consultations and helpful suggestions.

D. T. Harless, N. L. Abbey, and B. K. Hayden for the many field trip preparations required.

D. P. Brown, R. T. Brodaczynski and J. W. Gideon for instrument modification, repair and maintenance.

M. F. Moss and D. C. Campeau for the many secretarial chores required.

R. W. Perkins, who acted as program manager early in the study and as coordinator between PNL and NRC.

L. C. Schwendiman also acted as coordinator between PNL and NRC.

The project was monitored by the following NRC personnel: Harry Landon, John LeRohl, Laura Santos, and presently by George Birchard.

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APPENDIX A

STATISTICAL APPROXIMATIONS AND SAMPLE CALCULATIONS

APPENDIX A

STATISTICAL APPROXIMATIONS AND SAMPLE CALCULATIONS

It was reported in Section 1.3.5 that the geometric mean of the log-normal distribution was used to describe the central tendency of much of the data. The geometric mean is calculated by the equation

$$\text{Geometric Mean} = \bar{x}_g = e^{\frac{\sum \ln x}{n}} \quad (\text{A.1})$$

where $\sum \ln x / n$ is the arithmetic mean (\bar{x}) of the logarithms of the data. The uncertainties in the data were estimated by the geometric standard deviation using the equation

$$\text{Geometric Standard Deviation} = \text{GSD} = e^{\sqrt{\frac{\sum (\ln x)^2 - \frac{(\sum \ln x)^2}{n}}{n-1}}} \quad (\text{A.2})$$

where $\frac{\sum (\ln x)^2 - \frac{(\sum \ln x)^2}{n}}{n-1}$ is the variance of the logarithms of the data.

The geometric standard deviation was used in this report to allow the reader to be aware of the large variations present in the measurements and to describe the distribution of the measurements around the geometric mean. The numbers of measurements (n) used to calculate the means were also reported.

Due to the characteristics of logarithms, to calculate the range of one geometric standard deviation above and below the geometric mean, the geometric mean must be multiplied and divided by the geometric standard deviation. This results in a nonsymmetrical distribution about the mean

$$\text{(e.g., } \bar{x}_g = 15, \text{ GSD} = 3.0, \text{ then } \bar{x}_{g-1\text{GSD}} = \bar{x}_g \frac{+[(\bar{x}_g)(\text{GSD}) - \bar{x}_g]}{-[\bar{x}_g - (\bar{x}_g/\text{GSD})]} = 15_{-10}^{+30} \text{).}$$

More complete and sophisticated discussions of the log-normal distribution have been referenced in the report.⁶⁻¹¹

If the data are log-normally distributed then $\bar{x}_g \pm 1$ GSD has a confidence interval interpretation with specific confidence determined by the sample size. An arithmetic mean generated interval $\bar{x} \pm SD$ does not have such a confidence interval interpretation. However, arithmetic means must be used to calculate unbiased estimates of total radon release rates as sums over all species release rates. Here, geometric mean estimates \bar{x}_g are biased low.

To allow the propagation (addition) of uncertainties in several independent variables (which have been combined by some mathematical process), the law of propagation or addition of errors (uncertainties) is usually employed and was referenced in the report.^{4,5} This law is usually applied to data represented by the normal or Gaussian distribution, which is symmetrical about the arithmetic mean. This allows the standard deviation to be treated as one number (i.e., $\pm S.D.$) and the fractional uncertainty can be represented as $\pm S.D./\bar{x}$. It is obvious that a problem is encountered when attempting to propagate the uncertainties represented by $\bar{x}_g \begin{matrix} +[(\bar{x}_g)(GSD)-\bar{x}_g] \\ -[\bar{x}_g-(\bar{x}_g/GSD)] \end{matrix}$ from a log-normal distribution. Propagation of geometric uncertainties was not attempted.

A deviation from the specific formulae presented in Reference 5 used in our calculation, is presented here. Sill reported that the formula to be used for propagation of uncertainties through multiplication or division expressed in terms used in this report was

$$(X \pm S.D._x)(Y \pm S.D._y) = XY \pm XY \left(\frac{S.D._{xy}}{XY} \right) = XY \pm XY \left[\left(\frac{S.D._x}{X} \right)^2 + \left(\frac{S.D._y}{Y} \right)^2 \right]^{1/2} \quad (A.3)$$

where X and Y are the factors to be multiplied together and S.D._x, S.D._y and S.D._{xy} are the uncertainties of the two factors and their product, respectively.

A more accurate equation to propagate large uncertainties such as encountered in this study through multiplication (and to a lesser degree of accuracy through division) is

$$(X \pm S.D._x)(Y \pm S.D._y) = XY \pm XY \left[\sum_i (1 + V_i) - 1 \right]^{1/2} \quad (A.4)$$

where $i = x, y$ and

$$V_i = \left(\frac{S.D._x}{\bar{x}} \right)^2, \left(\frac{S.D._y}{\bar{y}} \right)^2$$

This is an equation for the relative variance of a product (or quotient) in terms of the relative variance of each of the factors.

SAMPLE CALCULATIONS

Examples of a few of the calculations used in the report are presented below. Calculation parameters are from Table 9 and from assumptions and definitions given in NUREG/CR-0628. More significant digits are carried through the calculations than are warranted by the data. Rounding off is done on final results.

Radon Flux, ${}^{222}\text{Rn}$ and Specific Radon Flux Reported in Tables 3, 5 and 7 of Section 2.3

In order to equally weight the effects of the five mines, the arithmetic mean of the five arithmetic means reported for each surface was calculated. In calculating the overall arithmetic mean specific flux, the mean for each surface of each mine was included in the average with equal weight. The uncertainty estimates were included in the tables to indicate the highly variable nature of the measurements made due to the nonhomogeneity of the surfaces being sampled. They were not, however, propagated through the calculations of the mean of means for several reasons:

- Five mines are a small sampling of the population of all open pit uranium mines.
- Each mine is unique and even the same mine changes with time and operating procedures.

- Many assumptions were included in the model mine which are reasonable, but assigning uncertainty estimates to them is not meaningful.

This study has shown that the data collected in the field is so highly variable among different mines, different surface types, and even within each surface type, that the typical values presented must be considered very approximate when used for extrapolation to other mines or to the uranium mining industry in general.

Effective Surface Area of the Ore Piles

$$\begin{aligned} \text{Number of Ore Piles} &= \frac{(87.1 \text{ days})(1464 \text{ tonnes ore/day})}{\left(\frac{1.78 \text{ tonnes ore}}{\text{m}^3}\right)\left(\frac{8032 \text{ m}^3}{\text{stockpile}}\right)} & (\text{A.5}) \\ &= 8.92 \text{ stockpiles} \end{aligned}$$

$$\begin{aligned} \text{Total Surface Area} &= (8.92 \text{ stockpiles})(2456 \text{ m}^2/\text{stockpile}) & (\text{A.6}) \\ &= 21,900 \text{ m}^2 \text{ rounded to } 2.2 \times 10^4 \text{ m}^2 \end{aligned}$$

Dimensions of the Active Pit

$$\begin{aligned} \text{Volume of Pit} &= \frac{(1464 \text{ tonnes/day})(330 \text{ days/yr})(16.6 \text{ yr})\left(\frac{1 \text{ ore} + 1.1 \text{ subore} + 65 \text{ overburden}}{1 \text{ ore} \quad 1 \text{ ore} \quad 1 \text{ ore}}\right)}{(1.78 \text{ tonnes/m}^3)(18.8 \text{ pits})} & (\text{A.7}) \end{aligned}$$

$$V_{\text{pit}} = 1.6081 \times 10^7 \text{ m}^3/\text{pit}$$

The pit is assumed to be the inverted frustum of a circular cone having sides sloping 38.6° from the vertical, an upper zone of depth h_1 composed entirely of overburden, and a lower zone of depth h_2 containing ore, sub-ore and overburden similar to that shown in Figure 2 of NUREG/CR-0628. The bottom of the pit has a radius r_2 , the top of the pit has a radius r_1 , and the interface between the overburden and ore zones has a radius, r_3 . The pit radii may be calculated from

$$V_{\text{pit}} = \frac{\pi}{3} (h_1 + h_2)(r_1^2 + r_1 r_2 + r_2^2) \quad (\text{A.8})$$

where $r_1 = r_2 + (h_1 + h_2) \tan 38.6^\circ$,

$$r_3 = r_2 + h_2 \tan 38.6^\circ,$$

$$h_1 = 63 \text{ m},$$

$$h_2 = 19.8 \text{ m},$$

and from Equation (A.7)

$$V_{\text{pit}} = 1.6081 \times 10^7 \text{ m}^3$$

By substitution into Equation (A.8)

$$1.6081 \times 10^7 = \frac{\pi}{3} (82.8) \left\{ \left[r_2 + (82.8)(0.7983) \right]^2 + r_2 [r_2 + (82.8)(0.7983)] + r_2^2 \right\}.$$

Followed by rearrangement and simplification, one arrives at the quadratic equation

$$0 = (260.13) r_2^2 + (17194) r_2 - (1.570 \times 10^7)$$

$$r_2 = 214.85 \text{ m}$$

and by substitution

$$r_1 = 280.95 \text{ m}$$

$$r_3 = 230.66 \text{ m}$$

Maximum Surface Area of the Active Pit

The maximum surface area of the active pit No. 9 may be calculated from the equation

$$S.A._{\text{max}} = \pi r_2^2 + \pi (r_1 + r_2) \sqrt{h^2 + (r_1 - r_2)^2} \quad (\text{A.9})$$

where $h = h_1 + h_2$

$$S.A._{\max} = \pi(214.85)^2 + \pi(280.95 + 214.85) \left[(82.8)^2 + (280.95 - 214.85)^2 \right]^{1/2}$$

$$S.A._{\max} = 3.1004 \times 10^5 \text{ m}^2 \text{ rounded to } 3.1 \times 10^5 \text{ m}^2$$

Similar calculation procedures were used for other estimates presented in the report.

APPENDIX B

ATMOSPHERIC RADON CONCENTRATION

- RA.DAT Radon Concentration, Site A - Upwind
- RB.DAT Radon Concentration, Site B - Pit Edge
- RC.DAT Radon Concentration, Site C - Downwind

NOTES OF EXPLANATION FOR APPENDIX B

Appendix B is separated into three subsections. The first subsection contains computer printouts of radon concentration in pCi/l at site A, which is 1.6 km upwind of the study pit area. The second contains radon concentrations for site B, which is on the south rim of the study pit just prevailing downwind of an ore pile and mineral pile. The third contains data for site C, which is about 4 km prevailing downwind from the study pit area. The data are arranged chronologically by date, and within date by hour. Column 1 is an arbitrary sequential day number. Column 2 is the month, day, and year. Columns 3 through 14, which are labeled 0 through 11, contain the measurements from midnight to 11 o'clock in the morning on the first line; and on the second line, from 12 o'clock noon until 2300 hours in the evening. A data entry of -9999.00 means that there were no data available for that particular hour. Large blocks of no data indicate equipment failure and/or power failure.

RA.DAT

RADON CONCENTRATION, SITE A - UPWIND (PCI/L)

23-SEP-81 11:02:47

	0	1	2	3	4	5	6	7	8	9	10	11
53 5-23-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
54 5-24-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
55 5-25-79	0.82	1.03	1.08	1.38	1.19	1.09	1.09	1.27	1.32	1.18	1.21	1.08
56 5-26-79	1.81	1.53	1.55	1.58	1.61	1.53	1.64	1.46	1.68	1.41	1.22	1.07
57 5-27-79	1.56	1.83	1.16	0.95	1.10	1.01	1.12	1.11	1.10	1.09	0.99	0.99
58 5-28-79	1.59	1.58	1.45	1.38	1.14	1.18	1.33	1.27	1.29	1.38	1.27	1.06
59 5-29-79	1.66	1.46	1.53	1.29	1.25	1.17	1.40	1.58	1.49	1.40	1.25	1.31
60 5-30-79	1.21	1.32	1.34	1.37	1.62	1.12	1.22	1.25	1.46	1.41	2.21	0.41
61 5-31-79	2.23	1.62	1.88	0.86	0.77	0.90	0.87	0.64	0.58	0.68	0.78	0.73
62 6- 1-79	0.56	0.50	0.50	0.48	0.37	0.44	0.56	0.59	0.48	0.52	0.47	0.67
63 6- 2-79	0.68	0.41	0.42	0.37	0.35	0.44	0.38	0.36	0.45	0.41	0.34	0.34
64 6- 3-79	0.42	0.39	0.39	0.29	0.38	0.24	0.14	0.30	0.17	0.23	0.47	0.41
65 6- 4-79	0.49	0.40	0.42	0.51	0.46	0.66	0.84	0.71	0.66	0.47	0.36	0.48
66 6- 5-79	0.31	0.23	0.31	0.34	0.45	0.38	0.31	0.38	0.23	0.24	0.29	0.34
67 6- 6-79	0.35	0.36	0.38	0.44	0.42	0.51	0.65	0.46	0.50	0.49	0.38	0.43
68 6- 7-79	0.26	0.26	0.24	0.15	0.27	0.18	0.12	0.11	0.05	0.23	0.48	0.41
69 6- 8-79	0.55	0.71	0.53	0.48	0.58	0.58	0.75	0.88	0.71	-9999.00	-9999.00	-9999.00
70 6- 9-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	2.29	0.14	0.44
71 6-10-79	0.41	0.47	0.33	0.45	0.55	0.68	0.58	0.79	0.68	0.65	0.58	0.42
72 6-11-79	0.44	0.47	0.44	0.35	0.39	0.48	0.43	0.45	0.45	0.74	1.08	1.37
73 6-12-79	0.78	0.88	1.01	0.86	0.73	0.79	0.91	0.91	0.91	0.57	0.52	0.32
74 6-13-79	0.40	0.38	0.35	0.36	0.45	0.32	0.41	0.51	0.49	0.89	1.21	0.93
75 6-14-79	0.98	0.78	0.98	0.77	0.66	0.79	1.11	1.28	1.02	1.22	1.05	1.04
76 6-15-79	1.45	1.42	1.43	1.52	1.44	1.49	1.66	1.64	3.06	7.13	4.85	3.07
77 6-16-79	2.85	2.33	1.97	1.87	1.66	1.66	1.57	1.53	1.55	1.48	1.47	1.33
78 6-17-79	1.46	1.66	1.52	1.49	1.76	1.44	1.62	1.61	1.47	1.95	1.78	1.55
79 6-18-79	1.34	1.32	1.34	1.07	1.88	1.12	0.98	1.29	1.27	1.13	1.18	1.06
80 6-19-79	1.28	1.23	1.23	1.11	1.18	1.18	1.25	1.37	1.17	1.21	1.13	1.29
81 6-20-79	0.98	1.28	1.37	1.23	1.22	1.17	1.07	0.91	1.03	0.81	0.86	0.79
82 6-21-79	0.73	0.66	0.48	0.58	0.55	0.68	0.47	0.47	0.45	0.54	0.38	0.58
83 6-22-79	0.58	0.51	0.48	0.41	0.49	0.51	0.38	0.34	0.38	0.32	0.21	0.21
84 6-23-79	0.22	0.17	0.24	0.32	0.35	0.35	0.34	0.52	0.39	0.53	0.75	0.76
85 6-24-79	0.86	0.83	0.81	0.77	0.68	0.69	0.69	0.64	0.55	0.58	0.65	0.58
86 6-25-79	0.51	0.43	0.45	0.39	0.53	0.66	0.67	0.53	0.79	0.88	0.77	0.78
87 6-26-79	0.89	0.86	0.82	0.75	0.85	0.96	1.06	1.08	0.86	1.18	0.98	0.99
88 6-27-79	0.83	1.16	1.11	0.94	1.42	1.54	1.34	1.62	3.22	2.67	1.58	1.31
89 6-28-79	1.44	1.83	1.32	1.43	1.68	1.34	1.34	1.34	1.14	1.08	1.49	1.45
90 6-29-79	1.42	1.42	1.68	1.47	1.94	1.98	2.78	2.28	2.84	1.81	1.78	2.16
91 6-30-79	1.95	2.86	2.46	2.12	1.97	1.52	1.39	1.42	1.33	1.49	1.75	1.58
92 6-31-79	1.43	1.31	1.51	1.51	1.68	1.37	1.57	1.86	1.75	1.85	1.58	1.82
93 6-32-79	2.18	2.24	2.14	1.67	1.62	2.74	2.39	2.68	1.55	1.58	1.28	1.36
94 6-33-79	1.42	1.51	1.36	1.47	0.57	0.71	0.76	1.01	0.87	0.87	0.91	0.94
95 6-34-79	0.76	0.79	0.76	0.76	1.01	1.18	1.09	1.08	1.13	1.08	1.28	1.32
96 6-35-79	1.12	1.88	0.94	1.22	1.11	1.16	1.21	1.44	2.88	1.82	1.92	1.48
97 6-36-79	1.28	1.28	1.35	1.38	1.72	1.89	1.93	1.53	1.38	1.06	0.84	0.76
98 6-37-79	0.99	1.31	0.68	0.65	0.62	0.62	0.44	0.88	0.86	0.95	1.13	0.81
99 6-38-79	0.84	0.73	0.78	0.76	0.69	0.58	0.67	0.68	0.65	0.78	0.73	0.92
100 6-39-79	0.85	0.89	0.85	0.89	0.97	1.08	0.99	1.16	1.05	0.96	0.63	0.73

RA.DAT

RADON CONCENTRATION, SITE A - UPWIND (PCI/L)

23-SEP-81 11:02:47

		0	1	2	3	4	5	6	7	8	9	10	11
79	6-18-79	0.78	0.82	0.86	0.87	0.75	0.58	0.87	0.86	1.03	1.00	1.21	0.49
		0.33	0.28	0.37	0.76	0.55	0.48	0.50	0.42	0.55	-9999.00	-9999.00	-9999.00
80	6-19-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
81	6-20-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
82	6-21-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
83	6-22-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
84	6-23-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
85	6-24-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
86	6-25-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	0.81	0.77	0.69	0.68	0.61	0.99	1.27
87	6-26-79	1.01	1.19	1.17	1.53	1.66	1.02	1.04	1.18	1.08	0.89	0.87	0.81
		0.58	0.60	0.60	0.64	1.02	0.88	0.61	0.98	0.90	0.87	0.95	0.96
88	6-27-79	1.15	1.05	1.01	0.84	0.92	0.72	0.66	0.69	0.68	1.30	0.66	1.43
		1.93	1.92	1.74	1.97	1.70	1.38	0.65	0.72	0.76	0.84	0.93	1.27
89	6-28-79	1.36	1.03	1.19	0.86	0.61	0.65	0.69	0.69	0.75	0.65	0.47	0.54
		0.55	0.49	0.53	0.52	0.55	0.46	0.54	0.40	0.49	0.74	1.21	1.40
90	6-29-79	1.83	2.00	2.36	1.56	1.29	1.18	1.14	1.36	1.34	0.90	0.59	0.55
		0.56	0.53	0.46	0.47	0.52	0.51	0.51	0.50	0.56	0.61	0.63	0.62
91	6-30-79	0.61	0.72	0.67	0.60	0.91	0.79	0.68	0.66	0.67	0.68	0.73	0.62
		0.65	0.57	0.61	0.51	0.42	0.49	0.47	0.46	0.58	0.49	0.66	0.62
92	7- 1-79	-9999.00	0.84	0.86	0.84	0.70	0.60	0.69	0.69	0.64	0.47	0.49	0.60
		0.53	0.61	0.53	0.52	0.48	0.51	0.44	0.46	0.51	0.57	0.49	0.53
93	7- 2-79	0.56	0.48	0.43	0.56	0.61	0.71	0.82	0.75	0.91	0.68	0.74	0.56
		0.44	0.42	0.42	0.32	0.39	0.38	0.53	0.48	0.52	0.59	0.68	0.74
94	7- 3-79	0.73	0.81	0.77	0.78	0.88	0.88	1.06	0.87	0.89	0.73	0.52	0.54
		0.45	0.41	0.51	0.48	0.47	0.36	0.44	0.52	0.58	-9999.00	-9999.00	-9999.00
95	7- 4-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
96	7- 5-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
97	7- 6-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
98	7- 7-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
99	7- 8-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
100	7- 9-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	0.54	0.51	0.54	0.51	0.86	0.67	0.92	1.23	1.17
101	7-10-79	0.87	0.85	0.77	0.72	0.94	0.86	0.91	0.88	0.85	0.85	0.96	0.86
		0.83	0.86	0.75	0.75	0.72	0.58	0.66	0.64	0.76	1.10	1.33	1.55
102	7-11-79	1.41	1.56	1.58	1.45	-9999.00	-9999.00	1.52	1.63	1.31	1.25	1.11	1.11
		0.96	0.91	0.81	0.75	0.81	0.79	0.93	0.86	0.91	1.25	1.92	1.89
103	7-12-79	2.00	2.27	2.85	2.13	2.99	3.21	2.98	2.18	2.42	1.77	1.46	1.49
		1.33	1.25	0.85	1.00	0.88	1.10	0.98	0.95	0.91	1.13	1.27	1.44
104	7-13-79	1.58	1.45	1.45	1.56	1.38	1.56	1.62	1.57	1.41	1.32	1.16	1.14
		1.18	0.94	0.94	0.79	0.75	0.69	0.84	0.78	0.87	1.12	1.40	1.53

RA.DAT

RADON CONCENTRATION, SITE A - UPWIND (PCI/L)

23-SEP-81 11:02:47

	0	1	2	3	4	5	6	7	8	9	10	11
105 7-14-79	1.40	1.02	1.01	1.27	1.03	0.91	0.77	0.86	0.98	1.16	1.12	1.12
	1.04	0.96	0.89	0.88	0.75	0.69	0.66	0.81	0.77	0.76	1.03	1.32
106 7-15-79	1.23	1.03	0.84	0.79	0.73	0.81	1.02	1.04	1.09	1.01	0.69	0.72
	0.67	0.61	0.67	0.58	0.57	0.60	0.65	0.60	0.65	0.74	0.73	0.64
107 7-16-79	0.63	0.61	0.68	0.64	0.86	1.00	1.04	1.08	1.25	0.75	0.52	0.62
	0.68	0.91	0.63	0.65	0.52	0.61	0.57	0.69	0.64	0.49	0.71	0.85
108 7-17-79	0.79	0.57	0.81	1.07	1.14	1.39	1.19	0.84	0.61	0.53	0.52	0.42
	0.44	0.51	0.53	0.59	0.54	0.58	0.55	0.69	0.64	0.73	0.91	1.08
109 7-18-79	0.86	0.95	0.97	1.07	1.36	0.71	0.73	0.79	0.82	0.70	0.60	0.30
	0.46	0.47	0.40	0.54	0.66	0.93	1.09	0.85	0.88	0.89	2.16	1.62
110 7-19-79	0.74	0.80	1.25	1.13	-9999.00	0.74	0.77	0.73	-9999.00	-9999.00	-9999.00	0.77
	0.80	0.84	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
111 7-20-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
	-9999.00	-9999.00	-9999.00	-9999.00	0.84	1.28	0.74	1.06	2.38	2.53	-9999.00	-9999.00
112 7-21-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
113 7-22-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
114 7-23-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
	-9999.00	2.08	2.38	2.25	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
115 7-24-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	0.64
	0.61	0.61	0.62	0.73	0.70	0.67	0.74	0.92	0.86	0.80	1.34	1.19
116 7-25-79	0.74	0.85	0.75	0.59	0.58	0.55	0.62	0.65	0.74	0.81	0.59	0.55
	0.54	1.36	1.40	1.30	1.07	0.94	1.13	0.92	0.92	0.65	0.49	0.38
117 7-26-79	0.59	0.64	0.56	0.67	0.62	0.53	0.49	0.54	0.58	0.37	0.37	0.35
	0.26	0.49	0.49	0.56	0.55	0.88	0.85	0.51	0.30	0.34	0.30	0.31
118 7-27-79	0.43	0.29	0.36	0.58	0.67	0.63	0.64	0.32	0.34	0.39	0.38	0.51
	0.62	0.67	0.70	0.77	0.92	0.86	0.79	1.01	0.86	0.95	0.99	0.68
119 7-28-79	-9999.00	0.36	0.27	0.16	0.16	0.21	0.31	0.32	0.24	0.23	0.22	0.20
	0.37	0.27	0.27	0.31	0.44	0.36	0.41	0.54	0.44	0.47	0.57	0.51
120 7-29-79	0.48	0.56	0.51	0.66	0.96	1.28	1.26	1.00	0.63	0.45	0.54	0.48
	0.30	0.64	0.73	0.78	0.63	0.67	0.59	0.69	0.71	0.91	0.81	1.34
121 7-30-79	1.20	1.21	0.60	0.49	0.61	0.77	0.84	0.94	0.81	0.74	0.47	0.67
	0.59	0.73	0.73	0.75	0.77	0.69	0.25	0.30	0.25	0.28	0.21	0.30
122 7-31-79	0.33	0.43	0.58	0.60	0.62	0.60	0.66	0.71	0.49	0.41	0.29	0.36
	0.53	0.45	0.45	0.57	0.60	0.75	0.70	0.75	0.74	1.09	0.98	0.77
123 8- 1-79	0.94	0.70	0.88	0.99	0.63	0.58	0.69	0.70	0.66	0.62	1.23	1.47
	1.31	1.14	1.27	1.53	1.42	1.27	2.30	1.97	1.16	2.02	3.35	3.67
124 8- 2-79	4.26	3.19	3.15	1.33	1.04	1.01	0.88	0.83	1.16	1.06	1.45	1.42
	1.27	1.22	1.66	1.40	1.24	1.20	1.37	1.48	1.62	1.29	1.23	1.02
125 8- 3-79	1.22	0.95	1.10	1.14	1.13	1.33	1.01	1.13	1.15	1.11	0.99	1.22
	1.28	1.42	1.54	1.49	1.56	1.55	1.55	1.97	3.11	2.97	2.79	2.21
126 8- 4-79	2.55	2.50	1.57	2.01	2.20	1.99	2.17	1.55	1.25	1.11	1.54	1.77
	1.17	1.32	1.58	1.25	1.34	1.47	1.25	1.44	1.59	1.87	1.73	1.59
127 8- 5-79	1.92	1.59	1.64	1.37	1.44	1.53	1.75	1.98	1.90	1.75	1.89	1.68
	1.63	1.99	1.57	1.99	1.78	2.34	1.76	1.73	1.51	1.81	1.60	1.46
128 8- 6-79	1.73	1.84	1.63	1.61	1.43	1.91	2.76	3.76	4.20	2.53	1.69	1.67
	1.87	1.69	1.68	1.62	1.42	1.50	1.81	1.61	2.27	1.27	1.44	1.59
129 8- 7-79	1.63	1.66	1.78	1.04	2.34	2.36	1.68	1.63	1.45	1.29	1.43	1.39
	1.49	1.42	1.55	1.69	1.46	1.51	1.56	1.77	1.56	1.33	1.40	1.72
130 8- 8-79	2.36	2.23	2.78	2.55	2.55	2.81	3.35	3.29	3.06	2.19	1.83	1.52
	1.83	2.14	2.35	1.86	1.70	1.01	0.93	0.97	0.87	0.79	0.95	1.34

RA.DAT	RADON CONCENTRATION, SITE A - UFWIND (PCI/L)											23-SEP-81 11:02:47	
	0	1	2	3	4	5	6	7	8	9	10	11	
131 8- 9-79	1.16	1.14	1.22	0.84	0.83	0.77	0.87	0.75	0.67	0.60	0.55	0.45	
	0.56	0.77	0.84	0.69	0.60	0.80	1.03	1.16	1.58	2.09	2.75	2.23	
132 8-10-79	2.81	2.77	2.55	1.67	1.02	0.65	0.80	0.71	0.59	0.54	0.85	1.13	
	1.19	1.16	1.01	-9999.00	1.09	1.05	1.15	1.34	1.15	1.33	1.44	1.48	
133 8-11-79	1.31	1.43	0.96	0.82	0.92	0.90	1.06	1.01	1.42	1.03	1.58	1.94	
	2.05	1.62	1.41	1.36	1.92	1.27	1.45	1.62	2.04	2.05	1.59	1.43	
134 8-12-79	1.60	1.70	1.65	1.63	1.81	2.60	3.24	2.94	1.90	1.62	1.55	1.17	
	1.24	1.21	1.00	1.19	0.97	0.98	1.13	1.13	1.15	1.03	0.95	1.12	
135 8-13-79	1.12	1.20	1.19	1.27	1.50	1.16	1.26	1.05	0.74	0.70	0.86	0.69	
	0.75	0.83	0.77	0.80	0.86	0.79	0.69	0.68	0.70	0.62	0.54	0.51	
136 8-14-79	0.74	0.93	0.73	0.70	0.71	0.57	0.63	0.43	0.41	0.39	0.35	0.39	
	0.38	0.37	0.31	0.35	0.44	0.38	0.36	0.44	0.47	0.39	0.31	0.36	
137 8-15-79	0.47	0.53	0.37	0.50	0.42	0.60	0.54	0.50	0.47	0.46	0.32	0.34	
	0.99	0.88	0.80	1.02	1.11	1.00	1.04	0.83	0.80	1.03	1.01	1.12	
138 8-16-79	1.34	1.29	1.70	2.29	2.03	1.86	1.69	1.60	1.97	1.68	1.60	1.56	
	1.54	1.49	1.39	1.68	1.81	1.93	2.05	2.00	1.73	1.54	1.06	0.70	
139 8-17-79	0.58	0.64	0.61	0.85	0.74	0.74	0.68	0.81	0.75	0.65	0.60	0.63	
	0.73	0.66	0.79	0.73	0.88	0.82	0.78	0.78	1.03	0.68	0.40	0.38	
140 8-18-79	0.35	0.24	0.23	0.34	0.29	0.38	0.71	0.69	0.48	0.21	0.19	0.13	
	0.14	0.12	0.12	0.06	0.08	0.11	0.03	1.06	0.03	0.16	0.08	0.37	
141 8-19-79	0.32	0.36	0.41	0.55	0.71	0.52	0.55	0.53	0.40	0.41	0.26	0.31	
	0.24	0.11	0.16	0.06	0.07	0.04	0.07	0.06	0.10	0.12	0.12	0.13	
142 8-20-79	0.08	0.12	0.15	0.12	0.14	0.21	0.20	0.31	0.19	0.22	0.19	0.11	
	0.11	0.10	0.02	0.07	0.04	0.07	-0.02	0.03	0.03	0.09	0.37	0.33	
143 8-21-79	0.25	0.34	0.36	0.50	0.30	0.35	0.19	0.31	0.27	0.38	0.36	0.13	
	0.09	0.07	0.03	0.03	-0.02	0.03	-0.01	0.09	0.12	0.20	0.36	0.60	
144 8-22-79	0.38	0.40	0.30	0.32	0.34	0.45	0.45	0.45	0.47	0.22	0.34	0.21	
	0.17	0.35	0.42	0.34	0.47	0.55	0.55	0.58	0.62	1.16	0.61	0.62	
145 8-23-79	0.73	0.54	0.51	0.62	0.61	0.34	0.36	0.49	0.56	0.54	0.49	0.78	
	0.76	0.76	0.79	0.68	0.64	0.79	0.82	1.09	0.50	-9999.00	-9999.00	-9999.00	
146 8-24-79	0.59	0.61	0.58	0.68	0.79	0.65	0.85	0.81	0.57	0.50	0.38	0.74	
	0.97	1.03	1.25	0.63	0.66	0.61	0.66	0.56	0.32	0.38	0.60	0.72	
147 8-25-79	0.66	0.60	0.82	1.02	1.37	1.32	1.19	1.10	1.07	0.86	0.66	0.44	
	0.67	0.62	0.71	0.61	0.86	0.91	0.64	0.79	0.85	0.42	0.32	0.50	
148 8-26-79	0.49	0.53	0.49	0.33	0.30	0.61	0.80	0.84	0.98	0.82	0.75	0.63	
	0.71	0.71	0.72	0.79	0.70	0.93	1.04	1.06	1.03	1.37	0.71	0.77	
149 8-27-79	0.68	0.35	0.68	0.58	0.74	0.55	0.63	0.71	0.66	0.56	0.54	0.68	
	1.09	1.05	1.09	1.31	1.87	1.65	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	
150 8-28-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	
	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	
151 8-29-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	0.56	1.17	0.90	0.98	1.00	
	2.03	1.84	1.37	1.56	1.33	1.43	1.47	1.48	1.97	1.76	1.55	1.35	
152 8-30-79	1.47	1.47	1.72	1.73	1.75	1.44	1.00	1.01	0.95	1.06	1.01	1.46	
	2.28	1.91	1.77	1.63	2.33	2.98	1.90	1.74	1.79	1.86	2.11	1.50	
153 8-31-79	1.12	1.31	1.25	1.30	1.22	1.37	1.33	1.32	1.23	1.08	1.05	0.90	
	0.87	0.81	0.86	0.80	0.75	0.79	0.87	0.99	0.93	0.93	1.10	1.05	
154 9- 1-79	1.18	1.38	1.22	1.59	1.15	1.50	1.47	1.20	1.29	0.96	1.01	0.82	
	0.97	2.42	2.31	2.43	2.31	2.74	3.06	4.00	5.09	4.29	2.23	1.86	
155 9- 2-79	2.12	1.43	1.27	1.24	1.29	1.19	1.29	1.16	1.35	1.18	1.38	1.48	
	2.74	2.75	2.58	2.47	2.49	2.38	2.59	3.44	4.48	4.80	3.09	2.41	
156 9- 3-79	2.27	2.56	2.54	2.12	2.27	1.68	1.91	1.65	1.75	1.53	1.35	1.66	
	2.62	2.54	2.51	2.59	2.46	2.22	2.84	3.51	2.62	3.02	2.86	2.29	

RA.DAT

RADON CONCENTRATION, SITE A - UPWIND (PCI/L)

23-SEP-81 11:02:47

	0	1	2	3	4	5	6	7	8	9	10	11
157 9- 4-79	2.42	2.51	2.54	2.42	2.22	1.71	1.54	1.48	1.54	1.43	1.68	1.92
	2.14	1.89	1.78	1.88	1.74	1.98	1.89	1.95	2.93	2.74	2.43	2.12
158 9- 5-79	2.82	3.33	2.88	2.88	1.69	2.69	3.45	1.87	1.78	1.97	1.71	1.75
	2.83	2.21	1.75	1.64	1.55	1.54	1.78	1.57	2.88	2.38	2.34	2.53
159 9- 6-79	2.23	1.82	2.17	1.86	1.57	1.34	1.45	1.32	1.14	1.43	1.89	1.27
	1.85	2.18	2.48	2.58	2.59	2.48	2.14	1.98	3.15	3.62	2.84	1.95
160 9- 7-79	1.83	1.64	2.14	1.67	1.68	2.87	1.61	1.21	1.29	1.12	1.18	1.24
	2.61	2.81	1.71	2.23	2.23	1.72	1.98	2.68	5.18	4.27	3.76	2.66
161 9- 8-79	2.68	2.61	3.95	3.32	1.63	1.45	1.62	1.74	1.86	3.44	2.52	1.92
	2.59	2.72	2.49	2.35	2.34	2.36	2.48	3.58	3.85	2.54	3.48	3.32
162 9- 9-79	2.92	2.91	3.31	3.18	2.83	2.82	3.31	2.58	2.65	2.78	2.55	2.68
	2.64	2.18	2.21	2.49	2.39	2.51	2.34	1.92	2.43	2.34	2.77	2.53
163 9-10-79	3.42	4.48	3.57	3.34	2.51	2.19	2.46	2.39	2.37	2.45	2.41	2.37
	2.11	-0.82	1.76	1.76	1.51	1.47	1.49	1.58	1.47	1.34	1.46	2.82
164 9-11-79	2.36	2.88	3.44	2.99	3.14	1.27	1.26	2.32	2.18	1.71	1.58	1.48
	1.51	1.28	1.42	1.49	1.42	1.44	1.55	1.93	1.63	1.98	1.66	1.55
165 9-12-79	1.56	8.72	1.28	8.73	8.86	1.83	1.17	1.28	8.93	1.15	1.14	1.14
	8.97	1.13	8.93	1.25	1.87	1.18	1.88	1.81	1.42	2.86	2.89	2.58
166 9-13-79	2.16	3.72	3.75	4.28	3.84	2.84	1.32	1.43	3.37	2.54	2.28	1.87
	1.85	1.77	1.51	1.28	1.14	1.83	8.88	8.98	1.63	2.23	2.97	2.71
167 9-14-79	3.38	2.34	1.44	1.18	1.18	8.84	1.88	1.21	1.21	1.32	1.17	1.21
	8.38	8.84	8.88	8.88	8.68	8.82	8.82	8.84	8.87	8.93	8.99	1.88
168 9-15-79	1.88	1.28	1.87	1.85	1.28	1.38	1.27	1.85	1.18	1.17	1.12	1.14
	1.18	1.35	1.83	1.98	2.16	1.98	2.13	3.84	2.42	1.79	1.32	1.85
169 9-16-79	8.99	1.18	1.83	1.16	1.89	1.83	1.87	8.95	1.18	8.97	1.35	1.42
	1.38	2.39	2.66	2.67	2.71	2.94	3.56	4.18	3.89	3.36	2.59	1.55
178 9-17-79	1.51	1.61	1.51	1.61	1.43	1.78	1.59	1.74	1.95	1.77	1.62	1.58
	1.45	1.31	1.29	1.52	1.52	1.38	1.44	1.77	2.75	2.53	3.73	3.76
171 9-18-79	3.77	2.52	3.19	4.79	3.97	3.87	2.92	2.24	1.68	1.36	1.29	1.29
	1.28	1.27	1.58	1.47	1.33	1.39	1.23	1.41	1.48	1.27	1.32	1.31
172 9-19-79	1.11	1.16	1.16	1.88	8.98	1.89	8.99	1.28	1.15	1.23	1.26	1.23
	1.67	2.31	2.18	1.48	1.34	1.52	1.51	1.47	1.88	1.99	2.82	1.78
173 9-28-79	2.85	2.28	2.12	2.45	1.99	1.86	1.89	1.54	1.65	2.37	2.23	1.93
	1.78	1.56	1.58	1.52	1.46	1.38	1.53	1.47	1.35	1.47	1.52	1.41
174 9-21-79	1.31	1.28	8.99	1.87	1.14	1.38	1.89	1.16	1.14	1.14	1.18	1.83
	1.85	1.14	2.25	2.46	2.55	2.58	3.38	4.44	4.69	2.41	1.78	1.28
175 9-22-79	1.41	1.12	1.22	1.15	1.27	1.51	1.39	1.44	1.53	1.48	1.95	1.88
	1.93	1.75	2.23	2.31	1.77	1.72	1.71	1.99	2.88	2.81	3.44	2.93
176 9-23-79	2.81	2.38	3.55	3.31	3.88	2.32	2.38	2.18	2.36	1.57	1.68	1.58
	1.55	2.29	2.65	2.84	1.88	1.44	1.76	1.62	2.43	2.12	2.45	3.16
177 9-24-79	2.75	2.18	1.99	1.84	1.92	1.59	1.87	2.46	3.32	2.42	1.51	1.58
	1.84	1.82	1.86	2.18	1.93	1.76	2.38	2.15	1.95	1.63	1.28	1.22
178 9-25-79	1.13	1.31	1.88	1.21	1.26	1.26	1.18	1.36	1.94	1.58	1.89	8.81
	8.58	8.68	8.68	8.64	1.82	8.88	8.61	8.86	8.92	8.88	8.81	1.28
179 9-26-79	1.18	1.23	1.11	1.15	1.84	1.24	1.19	1.39	1.49	1.48	1.81	1.81
	8.75	8.95	1.27	1.84	1.83	1.86	1.63	1.46	1.81	1.11	1.75	1.59
188 9-27-79	1.26	1.14	1.88	1.27	1.86	8.98	1.18	1.13	1.13	1.17	8.29	8.31
	8.58	8.58	8.49	8.59	8.49	8.54	8.49	8.44	8.64	8.67	8.69	1.88
181 9-28-79	8.89	8.86	8.77	8.98	8.79	8.81	8.67	8.82	8.98	1.83	8.93	8.68
	8.62	8.62	8.49	8.52	8.45	8.38	8.45	8.51	8.62	8.69	8.72	8.74
182 9-29-79	8.67	8.66	8.79	8.85	8.98	8.81	8.68	8.97	1.83	8.78	8.74	8.77
	8.55	8.45	8.43	8.42	8.35	8.48	8.48	8.53	8.72	8.69	8.71	1.85

	0	1	2	3	4	5	6	7	8	9	10	11
183 9-30-79	0.08	0.75	0.72	0.72	0.50	0.64	0.96	0.88	0.96	0.88	0.71	0.64
184 10- 1-79	0.58	0.50	0.60	0.49	0.43	0.52	0.32	0.46	0.58	0.56	0.59	0.54
185 10- 2-79	-9999.00	0.65	0.74	0.71	0.61	0.56	0.53	0.49	0.55	0.57	0.45	0.31
186 10- 3-79	0.33	0.46	0.40	0.68	0.34	0.41	0.50	0.58	0.57	0.52	0.40	0.46
187 10- 4-79	0.35	0.63	0.82	0.68	0.73	0.62	0.66	0.73	0.69	0.85	0.61	0.59
188 10- 5-79	0.44	0.43	0.47	0.53	0.44	0.38	0.38	0.34	0.42	0.49	0.43	0.36
189 10- 6-79	0.34	0.37	0.40	0.49	0.59	0.72	0.60	0.64	0.46	0.51	0.42	0.47
190 10- 7-79	0.46	0.38	0.41	0.36	0.44	0.40	0.43	0.55	0.73	0.83	0.77	0.75
191 10- 8-79	0.78	0.67	0.80	0.75	0.68	0.72	0.67	0.81	0.54	0.71	0.61	0.57
192 10- 9-79	0.53	0.49	0.49	0.44	0.53	0.57	0.48	0.65	0.62	0.69	0.71	0.59
193 10-10-79	0.73	0.80	0.83	0.76	0.81	0.81	0.81	1.06	0.93	0.88	0.78	0.81
194 10-11-79	0.68	0.58	0.49	0.53	0.46	0.48	0.46	0.58	0.56	0.99	1.03	0.82
195 10-12-79	0.75	0.68	0.75	0.80	0.94	0.73	0.81	0.89	0.97	0.90	0.64	0.51
196 10-13-79	0.46	0.36	0.40	0.43	0.45	0.38	0.50	0.60	0.64	0.93	0.71	0.74
197 10-14-79	1.02	0.85	0.96	0.80	0.88	0.79	1.10	1.14	1.16	1.05	0.86	0.79
198 10-15-79	0.76	0.65	0.53	0.39	0.41	0.49	0.39	0.64	0.66	0.88	0.96	0.97
199 10-16-79	0.84	0.79	0.62	0.62	0.54	0.52	0.57	1.05	0.75	1.06	0.64	0.66
200 10-17-79	0.72	0.47	0.56	0.40	0.33	0.34	0.34	0.45	0.45	0.39	0.45	0.34
201 10-18-79	0.29	0.39	0.38	0.58	0.38	0.66	0.47	0.62	0.68	0.72	0.40	0.34
202 10-19-79	0.20	0.25	0.29	0.32	0.43	0.30	0.44	0.41	0.55	0.54	0.54	0.65
203 10-20-79	0.78	0.75	0.82	0.69	0.78	0.72	0.80	0.83	0.67	0.66	0.77	0.61
204 10-21-79	0.60	0.50	0.44	0.49	0.59	0.53	0.53	0.66	0.68	0.77	0.93	0.95
205 10-22-79	0.90	0.95	0.74	0.73	0.78	0.64	0.83	0.89	0.91	0.91	0.76	0.54
206 10-23-79	0.61	0.47	0.47	0.45	0.58	0.57	0.55	0.51	0.67	0.79	0.92	0.84
207 10-24-79	0.82	0.63	0.66	0.90	1.14	1.27	1.53	1.56	1.33	1.10	0.77	0.52
208 10-25-79	0.46	0.48	0.48	0.38	0.31	0.38	0.39	0.46	0.68	0.70	0.82	0.70
	-9999.00	-9999.00	-9999.00	-9999.00	0.46	0.40	0.49	0.69	0.49	0.50	0.62	-9999.00
	0.75	0.64	0.75	0.74	0.79	1.01	0.95	1.05	0.74	0.58	0.62	0.59
	0.66	0.60	0.61	0.57	0.58	0.62	0.64	0.59	0.73	0.65	0.72	0.58
	0.82	0.64	0.59	0.64	0.67	0.67	0.68	0.72	0.67	0.61	0.71	0.58
	0.52	0.67	0.64	0.50	0.67	0.61	0.62	0.54	0.71	0.94	0.62	0.55
	0.38	0.47	0.66	0.67	1.04	0.92	0.73	0.67	0.72	0.73	0.66	0.55
	0.56	0.50	0.51	0.41	0.42	0.50	0.42	0.49	0.51	0.69	0.78	0.71
	0.39	0.66	0.59	0.67	0.71	0.59	0.68	0.65	0.58	0.54	0.61	0.56
	0.63	0.59	0.50	0.54	0.47	0.43	0.49	0.55	0.50	0.77	0.73	0.76
	0.80	0.97	1.14	0.84	0.67	0.69	0.74	0.62	0.50	0.48	0.48	0.39
	0.30	0.42	0.33	0.41	0.40	0.32	0.35	0.38	0.75	0.83	0.79	0.73
	0.70	0.67	0.49	0.55	0.59	0.65	0.56	0.54	0.54	0.43	0.44	0.40
	0.45	0.48	0.36	0.43	0.51	0.46	0.51	0.53	0.52	0.64	0.58	0.45
	0.39	0.42	0.32	0.40	0.43	0.45	0.50	0.44	0.49	0.30	0.38	0.44
	0.39	0.41	0.54	0.39	0.29	0.19	0.24	0.42	0.50	0.37	0.64	0.66
	0.51	0.64	0.73	0.59	0.62	0.53	0.53	0.46	0.50	0.51	0.47	0.49
	0.51	0.50	0.39	0.62	0.39	0.42	0.39	0.51	0.94	1.03	0.74	0.69
	0.51	0.66	0.53	0.55	0.56	0.53	0.75	0.82	0.86	0.76	0.73	0.56
	0.48	0.52	0.48	0.51	0.50	0.55	0.40	0.52	0.56	0.53	0.56	0.50
	0.47	0.53	0.50	0.54	0.50	0.48	0.56	0.53	0.63	0.62	0.56	0.56
	0.55	0.38	0.38	0.48	0.34	0.35	0.35	0.60	1.05	0.62	0.52	0.65
	0.63	0.66	0.57	0.63	0.62	0.81	0.63	0.86	1.85	0.84	0.61	0.48
	0.31	0.31	0.34	0.32	0.37	0.48	0.46	0.58	0.95	1.12	0.72	0.78
	0.61	0.68	0.64	0.64	0.64	0.60	0.74	0.57	0.61	0.65	0.67	0.53
	0.54	0.54	0.40	0.51	0.42	0.47	0.35	0.52	0.36	0.69	0.52	0.53

RA.DAT

RADON CONCENTRATION, SITE A - UPWIND (PCIAL)

23-SEP-81 11:02:47

	0	1	2	3	4	5	6	7	8	9	10	11
209 10-26-79	0.48	0.53	0.51	0.59	0.60	0.62	0.58	0.51	0.53	0.53	0.50	0.57
210 10-27-79	0.49	0.43	0.45	0.61	0.49	0.46	0.46	0.53	0.47	0.45	0.59	0.79
211 10-28-79	1.02	0.86	1.05	0.80	0.72	0.73	0.79	0.69	0.54	0.59	0.52	0.47
212 10-29-79	0.40	0.40	0.37	0.35	0.32	-9999.00	0.51	0.62	0.45	0.59	0.51	0.46
213 10-30-79	0.56	0.65	0.64	0.64	0.65	0.69	0.78	0.77	0.75	0.55	0.72	0.56
214 10-31-79	0.55	0.44	0.40	0.27	0.24	0.42	0.51	0.85	0.55	1.07	1.01	0.95
215 11-1-79	1.11	1.02	0.99	0.75	0.75	0.70	0.71	0.66	0.60	0.51	0.54	0.55
216 11-2-79	0.43	0.48	0.44	0.41	0.43	0.34	0.34	0.27	0.36	0.45	0.34	0.31
217 11-3-79	0.20	0.21	0.17	0.36	0.36	0.42	0.49	0.49	0.52	0.54	0.40	0.46
218 11-4-79	0.47	0.50	0.39	0.49	0.41	0.47	0.43	0.62	0.55	0.35	0.77	0.74
219 11-5-79	0.88	0.78	0.64	0.59	0.47	0.59	0.40	0.49	0.49	0.53	0.39	0.47
220 11-6-79	0.34	0.35	0.34	0.22	0.18	0.26	0.34	0.26	0.35	0.41	0.36	0.39
221 11-7-79	0.40	0.32	0.24	0.27	0.34	0.31	0.30	0.25	0.27	0.41	0.32	0.31
222 11-8-79	0.33	0.34	0.31	0.26	0.35	0.28	0.46	0.49	0.54	0.51	0.50	0.37
223 11-9-79	0.36	0.33	0.32	0.23	0.22	0.27	0.40	0.33	0.31	0.32	0.28	0.31
224 11-10-79	0.19	0.19	0.19	0.21	0.24	0.22	0.22	0.27	0.23	0.25	0.23	0.19
225 11-11-79	0.16	0.25	0.21	0.17	0.17	0.18	0.18	0.11	0.12	0.12	0.10	0.17
226 11-12-79	0.14	0.19	0.23	0.20	0.18	0.26	0.28	0.34	0.35	0.45	0.31	0.36
227 11-13-79	0.48	0.41	0.34	0.42	0.30	0.34	0.30	0.35	0.46	0.43	0.57	0.57
228 11-14-79	0.65	0.59	0.64	0.65	0.55	0.48	0.46	0.47	0.44	0.49	0.50	0.49
229 11-15-79	0.35	0.40	0.30	0.34	0.34	0.38	0.20	0.22	0.46	0.30	0.18	0.19
230 11-16-79	0.24	0.10	0.19	0.19	0.18	0.18	0.14	0.19	0.28	0.13	0.19	0.18
231 11-17-79	0.17	0.23	0.21	0.28	0.31	0.21	0.21	0.22	0.28	0.26	0.31	0.33
232 11-18-79	0.31	0.31	0.28	0.25	0.27	0.21	0.32	0.40	0.33	0.35	0.35	0.34
233 11-19-79	0.27	0.26	0.31	0.24	0.29	0.33	0.22	0.26	0.27	0.28	0.28	0.23
234 11-20-79	0.21	0.29	0.34	0.30	0.27	0.25	0.32	0.29	0.27	0.38	0.36	0.37
	0.32	0.23	0.32	0.21	0.24	0.22	0.23	0.27	0.24	0.20	0.22	0.26
	0.29	0.21	0.32	0.28	0.34	0.27	0.27	0.19	0.33	0.19	0.19	0.18
	0.23	0.31	-0.22	0.30	0.30	0.19	0.25	0.35	0.24	0.27	0.24	0.19
	0.26	0.29	0.28	0.24	0.37	0.29	0.26	0.27	0.23	0.22	0.17	0.24
	0.21	0.21	0.15	0.13	0.25	0.17	0.19	0.25	0.21	0.24	0.26	0.25
	0.19	0.22	0.18	0.19	0.16	0.17	0.17	0.18	0.19	0.25	0.21	0.23
	0.17	0.14	0.16	0.20	0.22	0.14	0.17	0.13	0.16	0.23	0.23	0.20
	0.14	0.13	0.17	0.14	0.17	0.15	0.17	0.11	0.21	0.20	0.19	0.14
	0.23	0.14	0.17	0.19	0.16	0.19	0.20	0.15	0.14	0.13	0.23	0.19
	0.09	0.16	0.25	0.19	0.15	0.13	0.17	0.21	0.20	0.15	0.16	0.17
	0.11	0.10	0.11	0.11	0.12	0.14	0.17	0.20	0.10	0.20	0.16	0.19
	0.14	0.12	0.18	0.14	0.19	0.16	0.20	0.18	0.14	0.24	0.21	0.12
	0.19	0.14	0.16	0.22	0.13	0.07	0.16	0.21	0.16	0.23	0.13	0.12
	0.20	0.09	0.14	0.19	0.12	0.19	0.08	0.17	0.15	0.10	0.17	0.12
	0.19	0.20	0.13	0.13	0.25	0.16	0.11	0.13	0.18	0.09	0.11	0.10
	0.24	0.16	0.17	0.18	0.19	0.15	0.15	0.11	0.21	0.10	0.14	0.21
	0.14	0.09	0.11	0.11	0.12	0.14	0.16	0.13	0.13	0.14	0.17	0.13
	0.09	0.13	0.11	0.15	0.12	0.14	0.14	0.12	0.15	0.11	0.19	0.14
	0.11	0.18	0.17	0.15	0.12	0.14	0.14	0.12	0.15	0.11	0.19	0.14
232 11-18-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
233 11-19-79	1.07	0.95	0.90	0.51	0.49	0.58	0.81	0.91	0.79	0.81	0.96	1.08
234 11-20-79	0.35	0.53	0.49	0.43	0.56	0.58	0.64	0.85	0.73	0.58	0.56	0.44
	0.38	0.35	0.39	0.40	0.40	0.26	0.26	0.31	0.32	0.42	0.31	0.28
	0.27	0.23	0.10	0.26	0.23	0.21	0.26	0.29	0.29	0.18	0.28	0.30

RA.DAT

RADON CONCENTRATION, SITE A - UPWIND (PCI/L)

23-SEP-81 11:02:47

	0	1	2	3	4	5	6	7	8	9	10	11
235 11-21-79	0.23	0.29	0.23	0.25	0.24	0.21	0.16	0.15	0.10	0.15	0.23	0.20
	0.22	0.19	0.21	0.28	0.24	0.41	0.28	0.28	0.21	0.29	0.30	0.25
236 11-22-79	0.32	0.35	0.29	0.25	0.31	0.36	0.19	0.30	0.22	0.29	0.30	0.24
	0.30	0.34	0.42	0.36	0.51	0.53	0.48	0.33	0.46	0.51	0.49	0.40
237 11-23-79	0.32	0.42	0.29	0.36	0.34	0.32	0.34	0.32	0.42	0.40	0.34	0.30
	0.38	0.39	0.40	0.49	0.53	0.47	0.55	0.52	0.48	0.67	0.54	0.60
238 11-24-79	0.66	0.60	0.54	0.51	0.50	0.52	0.52	0.51	0.40	0.38	0.46	0.36
	0.31	0.40	0.36	0.25	0.32	0.27	0.26	0.23	0.21	0.31	0.40	0.41
239 11-25-79	0.31	0.40	0.41	0.53	0.44	0.42	0.33	0.39	0.33	0.24	0.29	0.29
	0.24	0.21	0.31	0.25	0.36	0.31	0.46	0.36	0.48	0.45	0.54	0.54
240 11-26-79	0.56	0.44	0.46	0.30	0.35	0.38	0.45	0.46	0.54	0.73	0.68	0.55
	0.46	0.24	0.21	0.27	0.29	0.36	0.35	0.38	0.44	0.49	0.55	0.56
241 11-27-79	0.49	0.36	0.46	0.32	0.57	0.48	0.65	0.49	0.47	0.56	0.46	0.62
	0.43	0.37	0.51	0.37	0.33	0.39	0.32	0.26	0.28	0.25	0.19	0.24
242 11-28-79	0.34	0.30	0.25	0.25	0.30	0.24	0.31	0.36	0.29	0.22	0.35	0.31
	0.23	0.28	0.32	0.28	0.40	0.26	0.36	0.31	0.29	0.38	0.29	0.39
243 11-29-79	0.31	0.38	0.33	0.38	0.35	0.36	0.38	0.37	0.47	0.31	0.31	0.23
	0.31	0.31	0.27	0.23	0.31	0.33	0.36	0.29	0.38	0.26	0.26	0.27
244 11-30-79	0.39	0.36	0.38	0.32	0.30	0.26	0.31	0.29	0.33	0.33	0.29	0.25
	0.30	0.31	0.29	0.45	0.27	0.36	0.30	0.39	0.39	0.44	0.40	0.44
245 12- 1-79	0.34	0.41	0.32	0.39	0.39	0.37	0.32	0.39	0.47	0.49	0.41	0.28
	0.27	0.40	0.48	0.38	0.44	0.46	0.43	0.48	0.44	0.49	0.42	0.44
246 12- 2-79	0.36	0.34	0.32	0.34	0.44	0.28	0.29	0.27	0.24	0.24	0.21	0.19
	0.12	0.24	0.22	0.23	0.17	0.26	0.31	0.32	0.32	0.31	0.31	0.39
247 12- 3-79	0.34	0.27	0.26	0.29	0.29	0.27	0.31	0.32	0.32	0.25	0.32	0.28
	0.29	0.27	0.24	0.34	0.27	0.22	0.34	0.33	0.28	0.24	0.36	0.21
248 12- 4-79	0.31	0.25	0.27	0.23	0.28	0.13	0.24	0.15	0.22	0.08	0.26	0.16
	0.21	0.23	0.23	0.19	0.19	0.01	0.20	0.24	0.27	0.32	0.24	0.17
249 12- 5-79	0.19	0.26	0.22	0.11	0.14	0.17	0.14	0.18	0.21	0.23	0.21	0.18
	0.17	0.20	0.14	0.19	0.20	0.26	0.21	0.20	0.15	0.22	0.36	0.27
250 12- 6-79	0.35	0.26	0.22	0.28	0.36	0.31	0.31	0.23	0.25	0.26	0.27	0.19
	0.19	0.19	0.21	0.21	0.17	0.23	0.28	0.31	0.24	0.25	0.20	0.23
251 12- 7-79	0.26	0.17	0.18	0.08	0.11	0.10	0.12	0.18	0.21	0.16	0.20	0.14
	0.05	0.05	0.10	0.10	0.17	0.20	0.12	0.19	0.10	0.21	0.13	0.15
252 12- 8-79	0.19	0.19	0.14	0.16	0.18	0.21	0.27	0.32	0.31	0.35	0.25	0.31
	0.20	0.25	0.29	0.26	0.18	0.27	0.21	0.25	0.41	0.31	0.35	0.29
253 12- 9-79	0.31	0.30	0.32	0.29	0.30	0.22	0.27	0.32	0.31	0.24	0.28	0.26
	0.26	0.18	0.18	0.25	0.19	0.16	0.19	0.23	0.18	0.18	0.18	0.11
254 12-10-79	0.10	0.26	0.24	0.17	0.21	0.31	0.16	0.27	0.16	0.26	0.26	0.18
	0.25	0.23	0.21	0.31	0.41	0.30	0.37	0.25	0.09	0.12	0.15	0.12
255 12-11-79	0.14	0.09	0.20	0.24	0.31	0.30	0.29	0.25	0.26	0.29	0.32	0.34
	0.36	0.36	0.31	0.25	0.28	0.15	0.20	0.33	0.32	0.32	0.32	0.25
256 12-12-79	0.24	0.14	0.19	0.22	0.18	0.10	0.24	0.18	0.25	0.24	0.13	0.16
	0.17	0.24	0.18	0.27	0.21	0.24	0.25	0.24	0.24	0.23	0.25	0.26
257 12-13-79	0.33	0.30	0.45	0.32	0.33	0.35	0.37	0.27	0.26	0.29	0.24	0.21
	0.18	0.27	0.23	0.29	0.28	0.22	0.18	0.23	0.19	0.22	0.20	0.23
258 12-14-79	0.21	0.28	0.29	0.19	0.19	0.22	0.20	0.26	0.23	0.20	0.18	0.19
	0.23	0.16	0.23	0.19	0.18	0.21	0.21	0.27	0.21	0.26	0.27	0.31
259 12-15-79	0.27	0.29	0.12	0.25	0.27	0.22	0.25	0.24	0.26	0.18	0.19	0.18
	0.24	0.37	0.42	0.46	0.40	0.28	0.24	0.24	0.33	0.28	0.27	0.31
260 12-16-79	0.27	0.27	0.16	0.25	0.19	0.26	0.27	0.19	0.25	0.28	0.36	0.33
	0.31	0.27	0.24	0.30	0.26	0.23	0.24	0.32	0.27	0.32	0.35	0.40

RADON CONCENTRATION, SITE A - UPWIND (PC/L)

23-SEP-81 11:02:47

RA.DAT

	0	1	2	3	4	5	6	7	8	9	10	11
261 12-17-79	0.37	0.47	0.40	0.39	0.29	0.25	0.25	0.37	0.35	0.27	0.26	0.21
262 12-18-79	0.25	0.22	0.26	0.30	0.27	0.25	0.31	0.28	0.21	0.20	0.24	0.33
263 12-19-79	0.24	0.28	0.33	0.27	0.26	0.25	0.27	0.23	0.26	0.29	0.31	0.31
264 12-20-79	0.27	0.09	0.25	0.18	0.20	0.27	0.28	0.31	0.35	0.25	0.34	0.31
265 12-21-79	0.28	0.36	0.36	0.38	0.29	0.33	0.33	0.28	0.27	0.28	0.35	0.34
266 12-22-79	0.28	0.19	0.26	0.31	0.23	0.32	0.34	0.45	0.36	0.42	0.28	0.35
267 12-23-79	0.29	0.38	0.32	0.36	0.32	0.36	0.36	0.42	0.41	0.36	0.42	0.27
268 12-24-79	0.25	0.33	0.39	0.35	0.37	0.34	0.35	0.47	0.44	0.42	0.44	0.49
269 12-25-79	0.51	0.51	0.49	0.50	0.47	0.56	0.53	0.50	0.44	0.51	0.60	0.50
270 12-26-79	0.40	0.31	0.31	0.34	0.35	0.55	0.36	0.43	0.37	0.31	0.44	0.39
271 12-27-79	0.56	0.68	0.91	0.79	1.23	1.43	1.44	1.27	1.54	1.39	0.90	1.19
272 12-28-79	0.94	1.05	0.89	0.72	0.63	0.68	0.61	0.67	0.70	0.69	0.62	0.67
273 12-29-79	0.69	0.53	0.59	0.40	0.47	0.53	0.46	0.49	0.53	0.38	0.51	0.43
274 12-30-79	0.48	0.45	0.36	0.33	0.30	0.37	0.35	0.44	0.46	0.44	0.49	0.66
275 12-31-79	0.64	0.55	0.56	0.58	0.43	0.34	0.43	0.44	0.39	0.38	0.37	0.19
276 1-1-80	0.26	0.25	0.25	0.20	0.32	0.21	0.27	0.23	0.37	0.25	0.28	0.35
277 1-2-80	0.14	0.22	0.17	0.24	0.31	0.29	0.19	0.28	0.31	0.27	0.27	0.33
278 1-3-80	0.21	0.36	0.32	0.34	0.31	0.35	0.36	0.30	0.30	0.25	0.35	0.24
279 1-4-80	0.13	0.19	0.22	0.18	0.31	0.43	0.56	0.49	0.56	0.46	0.44	0.49
280 1-5-80	0.54	0.53	0.56	0.72	0.80	0.99	0.86	0.98	0.79	0.74	0.79	0.43
281 1-6-80	0.21	0.20	0.23	0.23	0.24	0.18	0.42	0.36	0.40	0.37	0.17	0.15
282 1-7-80	0.24	0.22	0.18	0.22	0.24	0.38	0.37	0.32	0.37	0.34	0.35	0.40
283 1-8-80	0.31	0.38	0.38	0.44	0.62	0.56	0.65	0.44	0.45	0.33	0.29	0.35
284 1-9-80	0.35	0.46	0.66	0.78	0.90	0.68	0.57	0.60	0.45	0.46	0.43	0.47
285 1-10-80	0.48	0.30	0.44	0.47	0.51	0.42	0.35	0.42	0.48	0.35	0.31	0.43
286 1-11-80	0.43	0.34	0.41	0.42	0.49	0.41	0.44	0.42	0.39	0.39	0.40	0.40
	0.45	0.49	0.43	0.42	0.29	0.29	0.29	0.37	0.35	0.34	0.37	0.36
	0.36	0.38	0.36	0.28	0.32	0.31	0.40	0.35	0.36	0.40	0.34	0.39
	-9999.00	0.25	0.18	0.23	0.19	0.13	0.10	0.25	0.30	0.24	0.19	0.34
	0.27	0.32	0.43	0.23	0.14	0.19	0.15	0.12	0.27	0.25	0.33	0.49
	0.49	0.59	0.52	0.36	0.51	0.53	0.51	0.42	0.43	0.56	0.28	0.42
	0.37	0.26	0.12	0.17	0.11	0.11	0.14	0.11	0.05	0.10	0.15	0.21
	0.13	0.41	0.26	0.21	0.27	0.25	0.27	0.21	0.28	0.22	0.19	0.14
	0.34	0.10	0.11	0.16	0.08	0.13	0.11	0.18	0.17	0.16	0.29	0.24
	0.17	0.06	0.07	0.14	0.08	0.05	0.09	0.17	0.21	0.14	0.22	0.12
	0.20	0.25	0.29	0.16	0.20	0.21	0.19	0.28	0.36	0.47	0.43	0.37
	0.08	0.06	0.11	0.13	0.03	0.08	0.10	0.06	0.21	0.26	0.27	0.24
	0.08	-0.01	0.09	0.14	0.27	0.31	0.21	0.16	0.05	0.00	0.02	0.09
	0.14	0.15	0.15	0.11	0.08	0.13	0.14	0.05	0.10	0.04	0.12	0.10
	0.22	0.12	0.28	0.19	0.25	0.23	0.35	0.25	0.19	0.16	0.32	0.20
	0.25	0.14	0.16	0.18	0.17	0.36	0.23	0.27	0.18	0.19	0.40	0.48
	0.35	0.55	0.45	0.29	0.25	0.21	0.20	0.37	0.60	0.45	0.37	0.38
	0.37	0.23	0.21	0.12	0.14	0.14	0.03	0.09	0.17	0.22	0.34	0.16
	0.38	0.32	0.35	0.23	0.18	0.23	0.39	0.63	0.36	0.24	0.16	0.16
	0.25	0.13	0.24	0.09	0.06	0.05	0.06	0.13	0.09	-0.02	0.11	0.02
	0.02	-0.04	-0.01	-0.06	-0.05	-0.07	-0.07	-0.02	-0.04	0.02	0.00	0.00
	0.02	-0.00	0.05	0.00	0.02	0.01	0.01	0.05	0.02	0.00	0.05	0.01
	-0.05	-0.07	-0.04	-0.01	-0.03	0.00	-0.04	-0.01	-0.03	-0.02	0.00	-0.00
	-0.01	-0.09	0.01	-0.09	-0.06	-0.10	-0.01	0.01	-0.05	-0.03	-0.10	0.08

23-SEP-81 11:02:47

RADON CONCENTRATION, SITE A - UPWIND (PCI/L)

RA.DAT

	0	1	2	3	4	5	6	7	8	9	10	11
287 1-12-80	0.06	0.00	-0.02	-0.04	0.01	0.01	-0.01	0.02	0.00	-0.00	-0.01	0.03
	-9999.00	-0.03	-0.03	-0.01	-0.03	-0.01	-0.05	-0.07	-0.03	-0.11	-0.11	-0.01
288 1-13-80	0.06	0.06	0.06	0.02	0.02	0.07	0.02	0.08	-0.05	-0.01	-0.10	-0.06
	-0.04	0.02	-0.06	-0.03	-0.05	-0.05	-0.06	-0.09	-0.09	-0.02	-0.09	-0.02
289 1-14-80	-0.01	-0.03	0.00	-0.08	-0.11	-0.06	-0.04	-0.04	-0.02	-0.06	-0.01	-0.03
	-0.05	-0.08	-0.01	0.00	0.06	0.06	-0.01	0.08	-9999.00	-9999.00	-9999.00	-9999.00
290 1-15-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
291 1-16-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
	-9999.00	-9999.00	-9999.00	-0.03	0.11	0.07	0.02	0.12	0.05	0.09	0.06	0.07
292 1-17-80	0.10	0.16	0.04	-0.02	0.06	0.08	0.08	-0.04	0.01	0.03	-0.01	-0.01
	0.04	-0.07	-0.06	0.03	0.05	0.09	0.12	0.04	0.12	0.23	0.26	0.21
293 1-18-80	0.28	0.23	0.24	0.23	0.20	0.21	0.18	0.11	0.06	0.13	0.06	0.00
	-0.02	-0.01	0.02	-0.01	0.01	-0.03	0.03	-0.03	-0.06	-0.08	0.00	0.01
294 1-19-80	-0.02	0.06	0.02	-0.00	0.00	-0.01	0.17	0.15	0.27	0.25	0.22	0.01
	-0.01	-0.11	-0.07	-0.06	-0.12	-0.08	-0.06	-0.04	-0.09	0.03	-0.01	-0.04
295 1-20-80	0.08	0.04	0.07	0.09	0.23	0.16	0.30	0.32	0.18	0.10	0.09	0.02
	0.10	0.11	0.12	0.04	0.16	0.10	0.11	0.11	0.13	0.14	0.16	0.12
296 1-21-80	0.08	0.12	0.08	0.12	0.08	0.14	0.10	0.15	0.19	0.18	0.20	0.09
	0.06	-0.02	-0.03	0.05	0.06	0.08	0.06	0.03	0.07	0.14	0.05	0.10
297 1-22-80	-0.08	0.04	0.06	0.10	0.07	0.05	0.14	0.13	0.08	0.06	0.04	0.11
	0.02	0.16	0.06	0.06	0.11	0.15	0.16	0.14	0.08	0.07	0.05	0.07
298 1-23-80	0.10	0.16	0.10	0.18	0.09	0.16	0.16	0.13	0.08	0.07	0.16	0.05
	0.02	0.12	0.08	-0.01	0.00	0.03	0.09	0.12	0.14	0.11	0.17	0.16
299 1-24-80	0.15	0.11	0.08	0.09	0.13	0.04	0.08	0.04	0.11	0.12	0.07	0.13
	0.04	0.12	0.13	0.09	0.09	0.06	0.02	0.09	0.08	-0.01	0.01	-0.08
300 1-25-80	-0.03	-0.06	-0.02	0.03	0.05	0.05	0.06	0.05	-9999.00	-0.01	-0.01	0.10
	-0.00	0.00	0.01	0.01	0.12	0.12	-0.03	0.03	0.01	0.01	0.00	0.04
301 1-26-80	0.14	0.32	0.19	0.18	0.24	0.31	0.23	0.13	0.11	0.10	0.33	0.05
	0.01	0.00	0.08	0.08	0.13	0.10	0.11	0.24	0.25	0.24	0.17	0.19
302 1-27-80	0.19	0.45	0.21	0.19	0.16	0.07	0.27	0.18	0.25	0.10	0.07	0.19
	0.14	0.13	0.11	0.16	0.08	0.15	0.19	0.16	0.25	0.35	0.41	0.13
303 1-28-80	0.33	0.31	0.41	0.34	0.35	0.22	0.23	0.19	0.25	0.21	0.40	0.27
	0.16	0.12	0.22	0.26	0.23	0.14	0.20	0.27	0.27	0.35	0.43	0.38
304 1-29-80	0.44	0.51	0.67	0.58	0.53	1.27	1.20	1.06	0.59	0.54	0.58	0.44
	0.30	0.33	0.36	0.28	0.34	0.26	0.32	0.45	0.22	0.26	0.20	0.29
305 1-30-80	0.38	0.39	0.39	0.48	0.31	0.24	0.22	0.18	0.14	0.12	0.10	0.05
	0.10	0.07	0.08	0.14	0.09	0.07	0.07	0.06	0.09	0.14	0.01	0.00
306 1-31-80	0.09	0.06	0.07	0.17	0.09	0.11	0.05	0.06	0.09	0.03	0.05	0.13
	0.10	0.16	0.17	0.15	0.14	0.08	0.04	0.08	0.16	0.07	0.07	0.08
307 2- 1-80	0.06	0.16	0.07	0.06	0.02	0.06	0.10	0.03	0.14	0.02	0.08	0.18
	0.16	0.12	0.05	0.08	0.04	0.09	0.04	0.14	0.05	0.03	0.08	0.08
308 2- 2-80	0.02	0.09	0.12	0.16	0.14	0.17	0.12	0.16	0.00	0.14	0.09	0.13
	0.12	0.08	0.09	0.07	0.12	0.14	0.12	0.08	0.09	-0.01	0.03	0.00
309 2- 3-80	0.02	0.06	0.03	0.08	0.03	0.14	0.06	0.08	0.07	-0.04	0.04	0.02
	0.05	0.01	-0.02	-0.02	0.05	0.05	0.09	0.01	0.09	0.09	0.07	0.04
310 2- 4-80	0.15	0.09	0.05	0.20	0.04	0.01	0.00	0.01	-0.08	-0.05	-0.04	-0.04
	0.01	0.00	-0.02	-0.00	-0.01	0.02	0.03	0.08	0.02	0.05	0.05	0.10
311 2- 5-80	0.08	0.01	0.02	0.03	0.11	0.03	0.15	0.21	0.01	0.05	0.04	0.01
	0.08	0.05	0.09	0.06	0.10	0.03	0.00	0.21	0.07	0.18	0.20	0.06
312 2- 6-80	0.08	0.07	0.09	0.12	0.14	-0.01	0.06	0.06	0.06	0.12	0.13	0.06
	0.08	0.10	0.39	0.19	0.27	0.18	0.21	0.19	0.29	0.45	0.36	0.23

RA.DAT

RADON CONCENTRATION, SITE A - UPUIND (PCI/L)

23-SEP-81 11:02:47

	0	1	2	3	4	5	6	7	8	9	10	11
313 2-7-80	0.10	0.05	0.10	0.12	0.20	0.16	0.13	0.10	0.18	0.05	0.13	0.02
314 2-8-80	0.01	0.00	0.02	0.06	0.05	0.02	0.06	0.02	0.01	0.10	0.08	0.05
315 2-9-80	0.16	0.04	0.19	0.03	0.05	-0.03	0.20	0.15	0.18	0.07	0.03	0.12
316 2-10-80	0.11	0.11	0.11	0.10	0.01	0.02	0.01	-0.00	0.03	0.10	0.01	0.05
317 2-11-80	0.02	0.03	0.04	0.05	0.02	-0.01	0.09	0.09	0.03	0.04	0.07	-0.01
318 2-12-80	-0.01	0.12	0.15	0.11	0.08	0.16	0.21	0.18	0.08	0.16	0.10	0.07
319 2-13-80	0.23	0.03	0.04	0.05	0.11	0.13	0.10	0.17	0.20	0.23	0.21	0.16
320 2-14-80	0.12	0.02	0.10	0.10	0.11	0.11	0.15	0.10	-0.02	0.04	0.05	0.03
321 2-15-80	0.06	0.08	0.06	0.09	0.02	0.08	0.08	0.20	0.13	0.12	0.09	0.09
322 2-16-80	0.18	0.09	0.21	0.25	0.10	0.10	0.20	0.16	0.07	0.08	0.08	0.27
323 2-17-80	0.05	0.08	0.04	0.03	0.15	0.17	0.19	0.17	0.12	0.15	0.17	0.27
324 2-18-80	0.35	0.54	0.54	0.58	0.52	0.51	0.43	0.24	0.19	0.06	0.08	0.06
325 2-19-80	0.09	0.14	0.06	0.10	0.10	0.10	0.03	0.08	0.04	0.06	0.11	0.04
326 2-20-80	0.06	0.08	0.10	0.06	0.06	0.20	0.05	0.04	0.03	0.03	0.05	0.08
327 2-21-80	0.06	0.10	0.04	0.07	0.08	0.08	0.06	0.06	0.08	0.04	0.05	0.08
328 2-22-80	0.19	0.25	0.20	0.20	0.06	0.19	0.00	0.18	0.18	0.16	-0.25	0.12
329 2-23-80	0.15	0.12	0.09	0.13	0.09	0.07	0.13	0.09	0.05	-0.02	0.13	0.15
330 2-24-80	0.07	0.14	0.20	0.17	0.14	0.21	0.14	0.14	0.20	0.10	0.11	0.15
331 2-25-80	0.18	0.26	0.34	0.31	0.41	0.37	0.33	0.39	0.42	0.32	0.20	0.27
332 2-26-80	0.15	0.18	0.14	0.23	0.15	0.22	0.15	0.16	0.12	0.11	0.06	0.12
333 2-27-80	0.12	0.29	0.45	0.44	0.13	0.05	0.03	0.02	0.18	0.08	0.18	0.11
334 2-28-80	0.13	0.05	0.08	0.04	-0.01	0.01	-0.02	0.02	-0.05	0.01	-0.06	-0.03
335 2-29-80	-0.02	-0.16	-0.04	-0.09	-0.06	-0.10	-0.02	-0.06	-0.08	-0.06	0.01	-0.02
336 3-1-80	0.00	-0.04	-0.03	-0.04	-0.12	-0.08	-0.06	-0.06	-0.05	-0.08	-0.04	-0.07
337 3-2-80	-0.04	-0.09	-0.10	-0.08	-0.08	-0.10	-0.22	-0.14	-0.12	-0.09	-0.11	-0.09
338 3-3-80	0.07	0.03	0.03	0.08	0.03	0.01	0.02	0.04	0.10	0.06	0.05	0.18
	0.17	0.08	0.00	0.04	0.02	0.04	0.08	0.06	0.08	0.07	0.01	0.14
	0.22	0.13	0.21	0.18	0.09	0.25	0.17	0.07	0.07	0.09	0.15	0.20
	0.05	0.06	0.10	0.11	0.08	0.20	0.16	0.02	0.12	0.16	0.22	0.02
	0.17	0.13	0.07	0.08	0.11	0.22	0.19	0.23	0.19	0.21	0.22	0.21
	0.09	0.11	0.10	0.00	0.06	0.30	0.41	0.47	0.41	0.11	0.11	0.15
	0.13	0.28	0.21	0.22	0.20	0.13	0.15	0.23	0.19	0.02	0.10	0.13
	0.14	0.07	0.05	0.13	0.01	0.05	0.10	0.05	0.10	0.17	0.17	0.10
	0.37	0.08	0.29	0.22	0.17	0.14	0.14	0.12	0.14	0.18	0.14	0.19
	0.09	0.08	0.08	0.14	0.22	0.31	0.26	0.28	0.23	0.13	0.19	0.23
	0.17	0.17	0.14	0.17	0.10	0.15	0.18	0.14	0.15	0.05	0.08	0.03
	-0.04	-0.01	0.12	0.02	-0.01	0.04	0.03	0.12	0.12	0.15	0.13	0.19
	0.14	0.10	0.16	0.27	0.27	0.32	0.35	0.37	0.48	0.41	0.27	0.18
	0.34	0.39	0.24	0.29	0.23	0.20	0.29	0.29	0.29	0.29	0.29	0.29
	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
	0.16	0.17	0.04	0.05	0.03	0.05	0.06	0.06	0.06	0.06	0.06	0.06
	0.43	0.29	0.20	0.20	0.16	0.16	0.14	0.24	0.21	0.50	0.52	0.29
	0.10	-0.02	0.04	-0.07	-0.07	-0.08	-0.02	-0.02	-0.01	0.05	0.02	0.04
	-0.02	0.05	0.14	0.16	0.11	0.02	0.03	0.22	0.04	0.09	0.08	0.11
	0.06	0.04	0.00	-0.04	0.02	0.01	0.04	0.10	0.06	0.06	0.04	0.23
	0.16	0.19	0.19	0.27	0.20	0.15	0.15	0.07	0.05	0.05	-0.10	0.07
	-0.00	-0.05	-0.08	-0.04	-0.04	0.05	0.05	0.06	0.06	0.14	0.17	0.15
	0.17	0.12	0.10	0.04	0.10	0.04	0.08	0.06	0.08	0.07	0.01	0.14
	0.17	0.08	0.03	0.14	0.08	0.25	0.17	0.07	0.07	0.09	0.15	0.20
	0.22	0.13	0.21	0.18	0.09	0.27	0.16	0.02	0.12	0.16	0.22	0.02
	0.05	0.06	0.10	0.11	0.08	0.20	0.19	0.23	0.19	0.21	0.22	0.21
	0.17	0.13	0.07	0.08	0.11	0.22	0.10	0.16	0.12	0.11	0.11	0.15
	0.09	0.11	0.10	0.00	0.06	0.30	0.41	0.47	0.41	0.27	0.10	0.22
	0.13	0.28	0.21	0.22	0.20	0.13	0.15	0.23	0.19	0.02	0.10	0.13
	0.14	0.07	0.05	0.13	0.01	0.05	0.10	0.05	0.10	0.17	0.17	0.10
	0.37	0.08	0.29	0.22	0.17	0.14	0.14	0.12	0.14	0.18	0.14	0.19
	0.09	0.08	0.08	0.14	0.22	0.31	0.26	0.28	0.23	0.13	0.19	0.23
	0.17	0.17	0.14	0.17	0.10	0.15	0.18	0.14	0.15	0.05	0.08	0.03
	-0.04	-0.01	0.12	0.02	-0.01	0.04	0.03	0.12	0.12	0.15	0.13	0.19
	0.14	0.10	0.16	0.27	0.27	0.32	0.35	0.37	0.48	0.41	0.27	0.18
	0.34	0.39	0.24	0.29	0.23	0.20	0.29	0.29	0.29	0.29	0.29	0.29
	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
	0.16	0.17	0.04	0.05	0.03	0.05	0.06	0.06	0.06	0.06	0.06	0.06
	0.43	0.29	0.20	0.20	0.16	0.16	0.14	0.24	0.21	0.50	0.52	0.29
	0.10	-0.02	0.04	-0.07	-0.07	-0.08	-0.02	-0.02	-0.01	0.05	0.02	0.04
	-0.02	0.05	0.14	0.16	0.11	0.02	0.03	0.22	0.04	0.09	0.08	0.11
	0.06	0.04	0.00	-0.04	0.02	0.01	0.04	0.10	0.06	0.06	0.04	0.23
	0.16	0.19	0.19	0.27	0.20	0.15	0.15	0.07	0.05	0.05	-0.10	0.07
	-0.00	-0.05	-0.08	-0.04	-0.04	0.05	0.05	0.06	0.06	0.14	0.17	0.15
	0.17	0.12	0.10	0.04	0.10	0.04	0.08	0.06	0.08	0.07	0.01	0.14
	0.17	0.08	0.03	0.14	0.08	0.25	0.17	0.07	0.07	0.09	0.15	0.20
	0.22	0.13	0.21	0.18	0.09	0.27	0.16	0.02	0.12	0.16	0.22	0.02
	0.05	0.06	0.10	0.11	0.08	0.20	0.19	0.23	0.19	0.21	0.22	0.21
	0.17	0.13	0.07	0.08	0.11	0.22	0.10	0.16	0.12	0.11	0.11	0.15
	0.09	0.11	0.10	0.00	0.06	0.30	0.41	0.47	0.41	0.27	0.10	0.22
	0.13	0.28	0.21	0.22	0.20	0.13	0.15	0.23	0.19	0.02	0.10	0.13
	0.14	0.07	0.05	0.13	0.01	0.05	0.10	0.05	0.10	0.17	0.17	0.10
	0.37	0.08	0.29	0.22	0.17	0.14	0.14	0.12	0.14	0.18	0.14	0.19
	0.09	0.08	0.08	0.14	0.22	0.31	0.26	0.28	0.23	0.13	0.19	0.23
	0.17	0.17	0.14	0.17	0.10	0.15	0.18	0.14	0.15	0.05	0.08	0.03
	-0.04	-0.01	0.12	0.02	-0.01	0.04	0.03	0.12	0.12	0.15	0.13	0.19
	0.14	0.10	0.16	0.27	0.27	0.32	0.35	0.37	0.48	0.41	0.27	0.18
	0.34	0.39	0.24	0.29	0.23	0.20	0.29	0.29	0.29	0.29	0.29	0.29
	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
	0.16	0.17	0.04	0.05	0.03	0.05	0.06	0.06	0.06	0.06	0.06	0.06
	0.43	0.29	0.20	0.20	0.16	0.16	0.14	0.24	0.21	0.50	0.52	0.29
	0.10	-0.02	0.04	-0.07	-0.07	-0.08	-0.02	-0.02	-0.01	0.05	0.02	0.04
	-0.02	0.05	0.14	0.16	0.11	0.02	0.03	0.22	0.04	0.09	0.08	0.11
	0.06	0.04	0.00	-0.04	0.02	0.01	0.04	0.10	0.06	0.06	0.04	0.23
	0.16	0.19	0.19	0.27								

23-SEP-81 11:02:47

RADON CONCENTRATION, SITE A - UPWIND (PCI/L)

RA.DAT

	0	1	2	3	4	5	6	7	8	9	10	11
339 3-4-80	0.24	0.26	0.24	0.12	0.19	0.17	0.19	0.19	0.14	0.16	0.15	0.21
340 3-5-80	0.19	0.14	0.07	0.05	0.16	0.04	0.10	0.10	0.04	-0.02	0.13	0.07
341 3-6-80	0.08	0.08	0.15	0.21	0.15	0.15	0.08	0.08	0.06	0.14	0.14	0.04
342 3-7-80	0.10	0.01	0.01	0.06	0.12	0.20	0.10	0.10	0.06	0.18	0.18	0.08
343 3-8-80	0.03	-0.00	-0.06	0.14	0.40	0.30	0.26	0.26	0.26	0.22	0.14	0.15
344 3-9-80	0.12	0.11	0.09	0.04	-0.03	-0.04	0.00	0.00	0.04	0.01	-0.05	0.07
345 3-10-80	0.01	0.08	0.14	0.10	0.09	0.08	0.12	0.12	0.15	0.18	0.21	0.23
346 3-11-80	0.26	0.21	0.06	0.10	0.10	0.10	0.24	0.24	0.26	0.09	0.04	0.12
347 3-12-80	0.03	-0.01	-0.08	0.03	0.05	0.06	0.09	0.09	0.04	0.09	0.04	0.12
348 3-13-80	-0.04	-0.05	-0.04	0.03	0.02	-0.03	0.01	0.01	-0.05	-0.05	-0.04	-0.05
349 3-14-80	0.01	-0.02	-0.03	-0.07	0.01	0.00	-0.02	-0.02	0.05	0.01	0.07	-0.01
350 3-15-80	0.01	0.03	0.01	0.00	0.01	-0.01	0.06	0.06	-0.01	0.02	-0.05	0.00
351 3-16-80	-0.01	-0.09	-0.06	-0.06	-0.09	-0.01	0.01	0.01	0.15	0.15	0.06	0.03
352 3-17-80	0.08	0.06	0.05	0.13	0.10	0.19	0.20	0.20	0.28	0.18	0.03	0.03
353 3-18-80	0.05	0.02	0.02	0.10	0.16	0.22	0.15	0.15	0.03	0.01	-0.02	-0.11
354 3-19-80	-0.06	-0.07	-0.08	-0.03	-0.01	-0.02	-0.09	-0.09	0.05	-0.00	0.02	0.04
355 3-20-80	0.12	0.10	0.15	0.02	-0.03	-0.02	0.04	0.04	-0.06	-0.06	-0.05	-0.02
356 3-21-80	-0.05	-0.04	-0.03	-0.01	0.08	0.08	-0.04	-0.04	0.06	0.03	0.06	0.01
357 3-22-80	0.04	0.12	0.06	0.12	0.13	0.14	0.17	0.17	0.01	-0.01	0.01	0.01
358 3-23-80	0.02	-0.03	-0.09	-0.07	-0.06	-0.04	-0.12	-0.12	-0.08	0.03	0.01	-0.06
359 3-24-80	0.05	0.08	0.14	0.06	0.13	0.14	0.14	0.14	0.04	-0.01	0.01	-0.06
360 3-25-80	0.01	0.03	0.00	0.01	-0.03	-0.05	0.05	0.05	0.05	-0.05	0.01	-0.05
361 3-26-80	-0.01	-0.02	-0.02	-0.02	-0.06	-0.08	-0.02	-0.02	0.06	0.08	0.01	0.15
362 3-27-80	0.18	0.16	0.11	0.13	0.10	0.08	0.12	0.12	0.27	0.19	0.19	0.02
363 3-28-80	0.13	0.10	0.07	0.13	0.06	0.03	0.09	0.09	0.06	0.08	0.09	0.15
364 3-29-80	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
	0.58	0.41	0.19	0.28	0.18	0.27	0.18	0.14	0.19	0.23	0.30	0.14
	0.16	0.18	0.19	0.16	0.36	0.35	0.31	0.31	0.34	0.23	0.30	0.30
	0.32	0.18	0.25	0.16	0.32	0.26	0.16	0.16	0.12	0.20	0.05	0.01
	0.05	0.04	0.04	0.06	0.03	0.06	0.13	0.13	0.08	0.26	0.27	0.19
	0.24	0.15	0.22	0.12	0.06	0.17	0.15	0.15	0.23	0.12	0.16	0.07
	0.00	0.07	-0.01	0.04	0.14	0.17	0.24	0.24	0.31	0.21	0.20	0.11
	0.16	0.11	0.10	0.25	0.53	0.59	0.54	0.54	0.31	0.24	0.22	0.12
	0.06	0.11	0.11	0.14	0.13	0.20	0.25	0.25	0.32	0.25	0.18	0.03
	0.17	0.10	0.17	0.23	0.27	0.20	0.16	0.16	0.21	0.19	0.20	0.23
	0.15	0.14	-0.12	0.21	0.21	0.18	0.16	0.16	0.09	0.14	0.23	0.27
	0.23	0.25	0.14	0.12	0.25	0.31	0.29	0.29	0.31	0.35	0.28	0.21
	0.17	0.19	0.21	0.20	0.28	0.18	0.11	0.11	0.18	0.19	0.29	0.18
	0.18	0.13	0.25	0.31	0.26	0.24	0.21	0.21	0.14	0.14	0.05	-0.01
	-0.05	0.02	0.07	0.11	0.13	0.07	0.12	0.12	0.07	0.13	0.21	0.23
	0.28	0.17	0.26	0.20	0.14	0.20	0.21	0.21	0.23	0.28	0.17	0.26
	0.09	0.06	0.04	0.06	0.08	0.05	0.04	0.04	0.05	-0.02	0.05	0.18
	0.30	0.25	0.12	0.09	0.13	0.15	0.15	0.15	0.05	0.06	0.22	0.12
	0.06	0.09	0.10	0.06	0.06	0.03	0.11	0.11	0.07	0.09	0.16	0.19

23-SEP-81 11:02:47

RADON CONCENTRATION, SITE A - UPWIND (PCI/L)

RA.DAT	0	1	2	3	4	5	6	7	8	9	10	11
365 3-30-80	0.14	0.28	0.19	0.27	0.25	0.24	0.19	0.18	0.18	0.15	0.11	0.10
366 3-31-80	0.14	0.11	0.11	-0.01	0.02	0.05	0.11	0.19	0.23	0.34	0.40	0.32
367 4-1-80	0.40	0.32	0.27	0.24	0.19	0.21	0.25	0.16	0.14	0.05	0.05	0.04
368 4-2-80	0.01	-0.01	-0.01	0.01	0.01	0.01	0.01	-0.05	0.02	0.00	0.03	-0.01
369 4-3-80	-9999.00	-0.00	0.00	-0.02	-0.01	-0.07	-0.11	-0.06	-0.10	-0.03	-0.10	-0.05
370 4-4-80	-0.03	-0.01	0.07	0.02	0.03	-0.01	0.05	0.09	0.08	0.05	-0.08	0.06
371 4-5-80	0.03	-0.02	-0.04	-0.03	0.03	-0.06	-0.02	0.06	-0.01	-0.04	0.01	0.04
372 4-6-80	0.06	0.07	0.11	0.17	0.12	0.09	0.02	0.04	0.11	0.02	0.12	0.07
373 4-7-80	0.06	-0.01	-0.08	-0.03	0.11	0.07	-0.03	0.04	0.06	0.04	0.05	0.02
374 4-8-80	0.12	0.08	0.12	-0.02	-0.06	-0.05	-0.06	0.00	0.03	0.12	0.03	0.10
375 4-9-80	-0.06	-0.02	-0.04	0.10	0.07	0.11	0.02	0.04	-0.01	-0.01	0.05	0.02
376 4-10-80	0.07	0.06	0.12	-0.01	0.01	-0.01	-0.01	-0.03	0.02	0.00	0.03	0.03
377 4-11-80	-0.01	0.03	0.01	0.00	0.00	0.00	-0.06	-0.05	-0.01	0.01	0.01	-0.03
378 4-12-80	0.10	0.14	0.11	0.04	0.02	0.04	0.11	0.06	-0.00	0.00	0.03	0.03
379 4-13-80	0.01	-0.05	-0.04	-0.00	-0.04	0.02	-0.06	0.02	0.03	0.25	0.12	0.16
380 4-14-80	0.13	0.15	0.08	0.16	0.14	0.02	0.16	0.08	0.03	0.07	0.01	-0.06
381 4-15-80	-0.02	-0.04	-0.02	0.07	-0.01	-0.01	-0.01	0.14	0.20	0.29	0.16	0.06
382 4-16-80	0.12	0.07	0.12	0.17	0.24	0.18	0.25	0.15	0.13	0.00	0.02	0.01
383 4-17-80	-0.03	0.05	-0.01	-0.04	0.04	0.08	-0.02	0.00	0.15	0.17	0.18	0.04
384 4-18-80	0.57	0.32	0.33	0.31	0.19	0.18	0.21	0.19	0.05	0.04	0.05	0.03
385 4-19-80	0.08	0.17	0.02	-0.06	0.38	0.36	0.17	0.19	0.05	0.03	-0.03	-0.06
386 4-20-80	-0.03	-0.01	-0.05	0.02	-0.06	-0.03	-0.01	0.01	0.16	0.10	0.03	0.03
387 4-21-80	0.34	0.29	0.29	0.22	0.20	0.12	0.18	0.12	0.10	0.28	0.10	0.04
388 4-22-80	-0.02	0.05	-0.01	0.08	0.01	0.07	0.09	0.17	0.26	0.09	0.09	0.12
389 4-23-80	0.12	0.10	0.14	0.08	0.01	0.07	0.35	0.28	0.29	0.27	0.29	0.23
390 4-24-80	0.16	0.12	0.06	0.08	0.01	0.07	0.06	0.23	0.31	0.34	0.43	0.38
	0.25	0.12	0.21	0.38	0.52	0.45	0.56	0.44	0.36	0.29	0.33	0.27
	0.12	0.07	0.14	0.12	0.08	0.13	0.12	0.16	0.13	0.16	0.23	0.23
	0.09	0.21	0.27	0.14	0.13	0.09	0.18	0.15	0.13	0.10	0.10	0.06
	0.16	0.09	0.06	0.10	0.06	0.02	0.08	0.19	0.31	0.41	0.56	0.32
	0.23	0.25	0.30	0.23	0.25	0.23	0.14	0.12	0.16	0.25	0.13	0.12
	0.09	0.08	0.04	0.11	0.05	-0.01	0.10	0.03	0.09	0.15	0.25	0.25
	0.25	0.24	0.29	0.23	0.40	0.32	0.38	0.37	0.31	0.21	0.24	0.23
	0.04	0.10	0.14	0.06	0.13	0.14	0.30	0.34	0.45	0.40	0.28	0.41
	0.43	0.42	0.60	0.48	0.56	0.53	0.53	0.47	0.31	0.32	0.25	0.21
	0.29	0.15	0.06	0.08	0.06	0.04	0.04	-0.02	0.16	0.29	0.26	0.25
	0.33	0.23	0.22	0.16	0.25	0.27	0.20	0.27	0.28	0.20	0.17	0.21
	0.13	0.00	0.07	0.08	0.05	0.00	-0.06	0.06	0.10	0.29	0.26	0.32
	0.34	0.31	0.40	0.37	0.21	0.26	0.28	0.27	0.25	0.29	0.06	0.17
	0.09	0.11	0.08	0.17	0.03	0.08	0.19	0.19	0.14	0.14	0.15	0.34
	0.34	0.36	0.32	0.46	0.64	0.49	0.42	0.29	0.29	0.32	0.25	0.20
	0.18	0.29	0.36	0.25	0.21	0.31	0.18	0.20	0.36	0.10	0.37	0.45
	0.31	0.38	0.35	0.23	0.29	0.27	0.42	0.36	0.38	0.36	0.41	0.31
	0.35	0.24	0.32	0.29	0.31	0.30	0.29	0.24	0.26	0.20	0.36	0.40
	0.58	0.62	0.52	0.69	0.81	0.72	0.62	1.04	0.60	0.38	0.32	0.23
	0.16	0.18	0.21	0.19	0.16	0.16	0.51	0.28	0.39	0.52	0.44	0.42

RR.DAT

RADON CONCENTRATION, SITE A - UPWIND (PCI/L)

23-SEP-81 11:02:47

	0	1	2	3	4	5	6	7	8	9	10	11
391 4-25-80	0.25	0.34	0.20	0.47	0.60	0.52	0.44	0.63	0.57	0.37	0.36	0.22
392 4-26-80	0.20	0.16	0.27	0.13	0.22	0.13	0.14	0.39	0.37	0.40	0.50	0.38
393 4-27-80	0.35	0.31	0.36	0.32	0.33	0.39	0.31	0.24	0.11	0.13	0.05	0.08
394 4-28-80	0.09	0.14	0.18	0.21	0.21	0.22	0.20	0.32	0.41	0.40	0.36	0.44
395 4-29-80	0.42	0.38	0.46	0.40	0.76	0.75	0.62	0.38	0.31	0.28	0.30	0.21
396 4-30-80	0.12	0.19	0.16	0.22	0.11	0.15	0.14	0.19	0.40	0.36	0.51	0.25
397 5-1-80	0.31	0.28	0.23	0.36	0.71	0.36	0.28	0.22	0.17	0.21	0.09	0.10
398 5-2-80	0.22	0.05	0.15	0.01	0.12	0.13	0.28	0.99	0.00	0.00	0.00	0.00
399 5-3-80	0.15	0.16	0.07	-0.09	0.21	0.12	0.18	0.05	0.51	0.42	0.48	0.45
400 5-4-80	0.40	0.42	0.37	0.27	0.32	0.22	0.39	0.32	0.27	0.29	0.39	0.34
401 5-5-80	0.29	0.22	0.24	0.24	0.22	0.21	0.16	0.21	0.19	0.11	0.21	0.19
402 5-6-80	0.14	0.30	0.60	0.53	0.40	0.32	0.25	0.49	0.29	0.17	0.12	0.04
403 5-7-80	0.17	0.15	0.13	0.10	0.17	0.05	0.05	0.11	0.20	0.32	0.27	0.24
404 5-8-80	0.28	0.25	0.30	0.39	0.27	0.32	0.24	0.33	0.30	0.23	0.27	0.22
405 5-9-80	0.18	0.27	0.09	0.12	0.16	0.12	0.14	0.13	0.08	0.14	0.21	0.26
406 5-10-80	0.29	0.33	0.28	0.14	0.28	0.33	0.29	0.34	0.39	0.31	0.16	0.18
407 5-11-80	0.19	0.11	0.14	0.08	0.11	0.09	0.11	0.26	0.32	0.29	0.32	0.17
408 5-12-80	0.36	0.32	0.38	0.47	0.50	0.83	0.93	0.82	0.52	0.34	0.20	0.18
409 5-13-80	0.16	0.14	0.24	0.21	0.27	0.19	0.19	0.24	0.13	0.21	0.20	0.25
410 5-14-80	0.40	0.49	0.46	0.44	0.41	0.37	0.42	0.47	0.49	0.32	0.21	0.15
411 5-15-80	0.14	0.11	0.14	0.11	0.18	0.16	0.04	0.14	0.24	0.58	0.49	0.29
412 5-16-80	0.36	0.18	0.15	0.20	0.25	0.29	0.25	0.29	0.38	0.32	0.21	0.25
413 5-17-80	0.13	0.07	0.00	0.05	0.06	0.03	0.05	0.07	0.21	0.20	0.32	0.56
414 5-18-80	0.56	0.42	0.49	0.53	0.66	0.75	0.71	0.56	0.49	0.41	0.39	0.24
415 5-19-80	0.19	0.13	0.22	0.19	0.27	0.14	0.21	0.14	0.30	0.42	0.44	0.69
416 5-20-80	0.40	0.38	0.44	0.53	0.52	0.67	0.61	0.80	0.51	0.38	0.30	0.23
	0.27	0.23	0.22	0.16	0.25	0.22	0.31	0.34	0.20	0.18	0.09	0.31
	0.27	0.40	0.42	0.39	0.31	0.24	0.31	0.18	0.22	0.19	0.18	0.21
	0.26	0.18	0.24	0.14	0.20	0.26	0.18	0.14	0.18	0.17	0.22	0.23
	0.29	0.29	0.38	0.33	0.41	0.41	0.40	0.50	0.44	0.38	0.32	0.22
	0.36	0.40	0.41	0.35	0.38	0.27	0.10	0.17	0.07	0.08	0.07	0.07
	0.04	0.15	0.17	0.03	0.07	0.08	0.09	0.09	0.03	-0.01	0.09	0.05
	-0.01	0.07	-0.02	-0.02	-0.07	-0.02	-0.06	0.01	0.02	0.08	-0.01	0.03
	0.03	-0.01	0.02	0.01	0.00	-0.06	-0.07	-0.07	-0.07	-0.06	0.04	-0.07
	-0.07	-0.03	0.04	0.05	-0.03	-0.01	-0.08	0.02	-0.04	0.05	0.03	0.08
	0.03	-0.01	-0.04	-0.03	0.04	0.03	-0.01	0.03	0.01	-0.05	-0.07	-0.01
	-0.07	-0.01	-0.04	-0.04	-0.03	-0.01	0.01	-0.10	-0.08	-0.02	-0.14	-0.09
	-0.05	0.09	0.05	0.08	0.08	0.04	0.14	0.12	0.08	0.05	0.02	0.02
	0.01	-0.06	-0.03	-0.09	-0.09	-0.12	-0.11	-0.06	-0.05	0.05	0.08	0.11
	0.10	0.11	0.02	0.12	0.15	0.34	0.42	0.47	0.33	0.19	0.18	0.10
	0.02	-0.06	-0.13	0.10	-0.08	-0.06	-0.03	0.07	-0.06	-0.11	-0.03	-0.07
	-0.01	0.05	0.00	-0.03	-0.03	-0.05	-0.04	-0.03	-0.02	-0.09	-0.05	-0.01
	-0.12	-0.08	-0.00	-0.09	-0.03	-0.01	-0.05	-0.06	0.05	-0.05	-0.03	-0.04
	0.03	0.02	-0.06	-0.08	-0.03	0.09	0.07	-0.03	-0.02	-0.07	-0.12	-0.07
	0.06	-0.08	-0.11	-0.14	-0.13	-0.07	-0.06	-0.10	-0.11	-0.06	0.01	0.13
	0.08	0.01	0.04	-0.04	0.03	-0.04	0.01	0.04	0.09	0.01	-0.06	-0.07
	-0.09	-0.09	-0.04	0.03	-0.05	-0.10	-0.08	-0.03	0.03	0.16	-0.06	0.10
	0.08	0.05	0.08	0.07	0.08	0.29	0.22	0.30	0.30	0.26	0.11	0.11
	-0.02	0.08	0.09	0.00	-0.00	0.01	0.03	0.00	0.04	0.18	0.13	0.19
	0.18	0.22	0.25	0.33	0.45	0.36	0.25	0.21	0.24	0.25	0.20	0.08
	0.06	0.12	0.05	0.03	0.03	0.07	0.11	0.14	0.15	0.31	0.18	0.21

RADON CONCENTRATION, SITE B - PIT EDGE (PCI/L)

23-SEP-81 11:05:32

	0	1	2	3	4	5	6	7	8	9	10	11
27 4-27-79	0.81	0.63	0.78	0.81	0.80	1.00	1.04	0.91	0.77	0.67	0.65	0.73
28 4-28-79	0.83	1.00	1.57	2.47	3.42	2.32	0.88	0.91	1.47	1.72	1.64	1.72
29 4-29-79	1.54	2.97	4.22	3.52	2.39	1.44	1.05	0.93	0.72	0.67	0.59	0.66
30 4-30-79	0.68	0.56	0.61	0.55	0.58	0.60	0.40	0.70	0.69	0.89	1.15	1.31
31 5- 1-79	1.31	1.08	2.39	2.55	2.14	1.52	1.42	0.92	0.80	0.66	0.47	0.50
32 5- 2-79	1.35	1.58	1.49	1.07	1.83	0.55	0.56	0.63	0.80	1.00	1.71	1.85
33 5- 3-79	1.98	1.28	1.40	1.11	1.11	1.24	1.17	1.12	0.95	1.06	0.96	0.96
34 5- 4-79	0.93	4.73	1.01	0.99	0.93	0.78	0.75	1.09	1.31	1.63	1.99	3.48
35 5- 5-79	4.73	4.13	2.17	1.57	1.21	1.12	1.10	1.09	1.09	0.89	0.80	0.90
36 5- 6-79	0.60	0.65	0.72	0.55	0.58	0.58	0.55	0.62	0.74	0.62	0.68	0.83
37 5- 7-79	0.89	0.86	0.76	0.60	0.87	0.85	0.92	0.66	0.00	0.69	0.76	0.65
38 5- 8-79	0.57	0.68	0.02	0.60	0.61	0.64	0.58	0.77	0.75	0.71	0.65	0.80
39 5- 9-79	0.68	0.62	0.75	0.81	0.64	0.68	0.61	0.50	0.60	0.50	0.54	0.62
40 5-10-79	0.47	0.60	0.55	0.48	0.49	0.53	0.57	0.61	0.81	0.93	0.96	0.95
41 5-11-79	1.21	1.18	1.23	1.24	1.32	1.36	1.27	1.17	1.15	1.03	0.79	0.77
42 5-12-79	0.84	0.67	0.58	0.61	0.56	0.49	0.73	0.70	0.83	1.22	1.39	1.00
43 5-13-79	0.91	0.73	0.64	0.78	0.84	0.66	0.85	0.72	0.90	0.85	0.84	0.61
44 5-14-79	0.67	0.93	0.89	0.94	0.95	0.90	0.95	0.95	1.21	1.42	-9999.00	0.61
45 5-15-79	1.71	3.59	5.78	6.59	7.01	6.77	4.21	2.43	1.29	1.02	0.90	0.75
46 5-16-79	0.80	0.75	0.70	0.70	0.59	0.55	0.66	0.55	0.71	0.54	0.70	0.78
47 5-17-79	0.72	0.85	0.90	0.81	0.80	0.83	0.77	0.79	0.75	0.61	0.57	0.86
48 5-18-79	1.00	0.76	0.93	1.25	1.09	0.79	0.85	0.84	0.79	0.69	0.92	1.18
49 5-19-79	0.62	0.51	0.55	0.68	0.67	0.69	0.60	0.60	0.75	0.89	0.65	0.65
50 5-20-79	1.29	1.29	1.31	0.96	0.92	1.09	1.52	0.93	0.83	0.68	0.65	0.68
51 5-21-79	0.58	0.55	0.39	0.76	0.78	0.51	0.46	0.61	0.64	0.49	0.52	0.42
52 5-22-79	0.42	0.54	0.40	0.43	0.43	0.47	0.42	0.53	0.52	0.56	0.44	0.42
	0.61	0.56	0.63	0.56	0.75	0.67	0.54	0.61	0.69	0.56	0.64	0.60
	1.23	1.14	0.58	0.44	0.83	0.58	0.39	0.43	0.65	0.71	0.58	0.60
	0.77	0.54	0.46	0.61	0.57	0.57	0.63	0.46	0.67	0.49	0.54	0.52
	0.45	0.41	0.42	0.42	0.76	0.57	0.46	0.85	1.61	1.55	1.54	1.31
	1.04	1.10	1.15	1.22	1.40	1.17	0.76	0.83	0.59	0.77	0.61	0.52
	1.08	0.79	0.70	0.49	0.42	0.40	0.42	0.64	1.42	3.64	3.88	4.54
	5.47	5.42	6.80	4.96	5.83	5.38	5.41	2.26	1.14	0.71	0.54	0.71
	0.44	0.62	0.50	0.84	0.98	0.65	0.75	0.96	1.07	1.26	1.23	1.42
	1.46	1.53	1.13	1.18	1.15	1.04	1.24	1.01	0.90	0.70	1.01	0.89
	0.92	0.83	1.51	0.79	0.79	0.88	1.05	1.34	1.74	1.16	1.05	1.09
	0.93	1.07	0.53	0.93	1.01	1.17	1.39	1.26	1.12	0.97	0.82	0.68
	1.10	0.87	1.05	0.67	0.63	0.73	0.94	0.97	1.15	1.00	0.85	0.89
	1.04	1.08	1.00	1.63	1.15	1.34	1.09	0.93	0.91	0.84	0.79	0.67
	0.60	0.84	0.64	0.92	1.34	2.33	1.21	1.33	1.89	1.93	1.76	1.37
	1.18	1.26	1.42	1.06	1.06	1.56	1.50	1.07	1.10	0.96	1.12	1.03
	1.44	1.96	1.04	0.91	0.71	0.83	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
43 3-15-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
50 5-20-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
51 5-21-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
52 5-22-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
	4.71	4.24	4.47	3.72	4.42	3.32	0.74	0.94	1.94	3.29	4.91	5.23
	1.00	0.71	0.91	0.92	1.17	0.81	0.88	0.85	0.87	1.42	1.48	2.03

RADON CONCENTRATION, SITE B - PIT EDGE (PCI/L)

RB.DAT

	0	1	2	3	4	5	6	7	8	9	10	11
53 5-23-79	2.77	3.44	5.63	6.06	5.14	4.43	4.41	3.67	2.22	1.33	0.97	1.32
54 5-24-79	1.63	1.74	1.13	1.02	2.33	2.73	0.87	0.97	1.56	1.77	0.97	0.93
55 5-25-79	1.03	1.06	1.15	1.18	1.59	3.08	1.93	1.56	1.20	0.99	0.67	1.16
56 5-26-79	1.07	1.18	0.81	0.89	-9999.00	4.61	6.35	7.27	3.33	3.03	1.31	1.23
57 5-27-79	1.19	1.00	3.78	1.83	1.48	1.26	1.27	1.26	1.03	1.07	1.13	1.03
58 5-28-79	1.00	0.96	1.54	1.06	1.05	1.12	1.01	1.12	1.10	1.41	2.11	1.95
59 5-29-79	2.62	2.04	2.45	2.85	2.66	2.37	2.21	1.84	1.76	1.61	1.41	1.50
60 5-30-79	1.80	2.72	1.51	1.55	2.35	3.31	1.86	1.89	2.34	2.16	2.68	2.73
61 5-31-79	2.65	1.86	1.54	1.50	1.58	1.63	2.48	2.35	2.57	2.12	1.46	1.56
62 6-1-79	1.50	1.51	3.85	2.36	1.26	1.66	2.32	1.20	0.98	0.94	0.94	1.00
63 6-2-79	1.81	1.41	1.35	1.36	1.97	2.42	1.90	1.52	1.51	1.74	1.14	1.17
64 6-3-79	1.12	1.61	1.15	1.30	0.93	1.07	1.09	1.21	1.33	1.23	1.09	2.29
65 6-4-79	3.64	1.03	1.42	1.18	1.10	0.87	1.06	0.82	0.82	0.79	0.72	0.79
66 6-5-79	0.95	0.74	0.67	0.85	0.78	0.92	0.91	0.98	0.82	0.71	0.69	0.66
67 6-6-79	0.89	0.73	0.67	0.69	0.69	0.81	0.80	0.65	0.72	0.76	0.63	0.58
68 6-7-79	0.61	0.61	0.74	0.66	0.87	0.81	0.82	0.81	0.99	1.31	1.72	3.06
69 6-8-79	3.13	2.44	2.87	1.78	1.60	1.68	1.99	1.69	1.44	1.12	1.09	0.85
70 6-9-79	0.76	0.79	0.70	0.54	0.55	0.70	0.63	0.46	0.52	0.62	1.01	1.10
71 6-10-79	1.12	0.92	0.94	0.98	0.85	1.04	0.85	0.92	0.90	0.74	0.67	0.62
72 6-11-79	0.50	0.59	1.01	1.32	0.96	1.53	0.67	0.87	1.27	2.54	2.30	1.84
73 6-12-79	1.41	1.77	1.72	1.60	1.44	1.55	1.31	1.19	1.13	1.09	-9999.00	-9999.00
74 6-13-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	0.74	2.46	3.50
75 6-14-79	3.84	4.82	6.15	4.42	3.12	2.70	2.28	1.96	1.55	1.14	1.01	0.90
76 6-15-79	0.89	0.79	1.80	0.72	0.67	0.69	0.69	0.69	0.85	1.32	3.14	5.41
77 6-16-79	5.84	3.98	3.48	5.36	7.18	6.09	3.21	2.35	1.87	1.55	1.39	1.45
78 6-17-79	1.30	1.25	1.11	1.18	1.01	1.31	1.19	1.83	3.26	4.71	3.06	2.05
79 6-18-79	1.71	1.74	2.88	2.86	2.81	1.77	1.42	1.42	1.20	1.04	1.24	1.20
80 6-19-79	1.82	0.85	0.92	0.90	0.78	0.99	1.53	3.98	6.59	5.64	3.39	2.65
81 6-20-79	2.04	1.72	1.39	1.16	1.16	1.25	1.12	0.91	1.00	1.01	1.06	1.10
82 6-21-79	0.98	1.06	1.23	1.86	0.89	0.98	0.86	1.02	1.48	1.15	1.19	0.98
83 6-22-79	0.86	0.86	0.95	0.78	0.91	0.76	0.89	0.94	0.84	0.69	0.96	0.92
84 6-23-79	0.80	0.62	0.75	0.77	0.77	0.83	0.79	0.89	0.84	1.11	0.94	0.93
85 6-24-79	1.13	1.05	1.19	1.39	1.05	0.84	0.90	0.96	0.88	0.76	0.82	0.63
86 6-25-79	0.62	0.53	0.60	0.73	0.72	0.71	0.61	0.68	0.61	0.68	0.70	0.65
87 6-26-79	0.50	0.77	-9999.00	-9999.00	-9999.00	-0.16	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
88 6-27-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
89 6-28-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
90 6-29-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
91 6-30-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
92 6-31-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
93 6-32-79	2.82	2.26	2.10	2.84	1.13	0.92	0.83	1.05	1.57	3.11	2.62	2.50
94 6-33-79	0.81	0.79	0.84	0.67	0.95	0.92	1.39	1.21	1.10	1.02	0.71	0.71
95 6-34-79	1.99	1.82	1.43	1.40	1.67	1.74	1.73	1.46	2.20	1.55	1.71	1.81
96 6-35-79	0.67	0.76	0.76	0.95	0.94	0.99	1.79	2.63	1.20	1.11	0.86	0.81
97 6-36-79	2.58	1.96	2.20	2.18	1.95	1.92	2.40	2.19	2.87	2.65	2.41	2.85
98 6-37-79	0.79	0.70	0.72	0.96	0.73	0.79	0.91	1.15	1.32	1.30	1.03	0.77
99 6-38-79	0.84	0.82	0.77	1.05	1.44	1.46	1.41	1.55	1.02	1.34	1.00	0.86
100 6-39-79	1.07	1.07	1.84	1.09	1.56	0.90	2.23	1.84	1.25	1.19	1.83	1.01
101 6-40-79	1.23	1.06	1.25	1.88	1.55	1.95	1.74	1.43	1.57	1.00	1.71	1.29
102 6-41-79	1.02	1.65	0.78	0.67	0.74	1.20	1.39	1.79	1.24	0.92	0.78	0.78
103 6-42-79	1.25	1.00	0.95	0.75	0.75	0.68	0.76	0.82	2.81	2.39	1.76	1.30
104 6-43-79	0.77	0.80	0.77	0.76	0.67	0.75	0.82	0.96	0.75	0.78	0.76	0.81
105 6-44-79	0.77	0.80	0.77	0.76	0.67	0.75	0.82	0.96	0.75	0.78	0.76	0.81

RB.DAT

RADON CONCENTRATION, SITE B - PIT EDGE (PCI/L)

23-SEP-81 11:05:32

	0	1	2	3	4	5	6	7	8	9	10	11
79 6-18-79	1.82	0.96	0.97	1.02	0.99	1.00	1.04	1.06	0.92	1.09	0.80	0.62
80 6-19-79	0.59	0.62	0.81	0.91	0.67	0.76	0.62	0.77	1.07	1.02	1.19	1.13
81 6-20-79	0.99	0.75	0.80	0.69	0.62	0.72	0.52	0.60	0.53	0.63	0.57	0.57
82 6-21-79	0.53	0.53	0.47	0.47	0.59	0.63	0.63	0.77	0.75	0.69	0.78	0.81
83 6-22-79	0.73	0.71	0.77	0.58	0.999.00	0.60	0.50	0.64	0.57	0.62	0.57	0.75
84 6-23-79	0.61	0.91	1.34	1.64	2.31	3.30	4.07	2.57	4.58	2.44	1.69	1.50
85 6-24-79	1.64	1.42	1.31	1.19	0.96	1.04	0.97	0.81	0.92	0.96	1.04	1.18
86 6-25-79	1.25	1.50	1.73	1.17	1.06	1.19	1.32	1.74	1.73	1.66	3.19	3.56
87 6-26-79	4.49	2.90	2.10	1.56	1.42	1.57	1.22	1.24	1.18	1.04	1.21	1.03
88 6-27-79	1.17	1.24	1.44	1.80	1.94	2.35	2.33	1.45	1.02	0.99	0.85	1.01
89 6-28-79	1.06	0.93	0.89	1.07	1.06	1.17	1.11	1.01	1.01	0.99	0.999.00	0.999.00
90 6-29-79	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00
91 6-30-79	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00
92 7-1-79	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00
93 7-2-79	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00
94 7-3-79	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00
95 7-4-79	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00
96 7-5-79	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00
97 7-6-79	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00
98 7-7-79	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00
99 7-8-79	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00
100 7-9-79	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00
101 7-10-79	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00	0.999.00
102 7-11-79	0.999.00	1.33	2.21	2.01	1.95	1.83	2.12	2.95	4.11	6.52	6.30	6.61
103 7-12-79	4.31	3.92	4.93	5.62	6.84	5.89	4.58	2.86	2.25	2.40	2.11	1.77
104 7-13-79	1.78	2.03	1.94	1.96	1.96	1.67	1.45	1.81	1.36	1.29	1.46	1.91
	1.55	1.50	1.32	1.24	1.46	1.23	1.52	2.07	2.07	2.12	1.96	1.50
	1.57	1.61	1.59	1.38	1.56	1.52	1.69	1.74	1.50	1.97	1.66	1.32
	1.21	1.13	0.87	1.14	1.26	0.98	0.94	1.29	1.75	2.05	1.93	1.78
	1.77	1.50	1.49	1.42	1.19	1.37	1.14	0.84	0.75	0.78	0.89	1.47

	0	1	2	3	4	5	6	7	8	9	10	11
131 8- 9-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
132 8-10-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
133 8-11-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
134 8-12-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
135 8-13-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
136 8-14-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
137 8-15-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
138 8-16-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
139 8-17-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
140 8-18-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
141 8-19-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
142 8-20-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
143 8-21-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
144 8-22-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
145 8-23-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
146 8-24-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
147 8-25-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
148 8-26-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
149 8-27-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
150 8-28-79	1.26	1.73	1.91	1.93	1.80	1.67	0.74	1.17	1.74	1.43	1.04	1.02
151 8-29-79	1.01	1.17	1.06	1.20	1.13	1.37	1.48	1.90	2.30	1.83	1.46	1.13
152 8-30-79	2.49	1.57	2.14	1.83	2.85	4.07	7.37	1.68	2.63	2.71	2.30	1.85
153 8-31-79	1.51	1.57	1.90	2.00	1.45	1.49	1.35	1.68	8.45	2.78	1.94	2.16
154 9- 1-79	2.11	1.83	1.74	1.86	1.77	1.87	2.72	2.63	2.03	2.21	1.84	1.66
155 9- 2-79	2.59	3.76	3.21	2.76	1.72	2.24	1.45	1.38	2.63	2.68	2.15	2.15
156 9- 3-79	1.50	1.32	1.27	1.15	2.94	2.62	2.17	1.93	1.50	1.67	2.38	2.38
	2.01	3.16	3.37	3.02	0.97	1.13	1.17	1.25	1.52	1.77	1.89	1.81
	1.92	1.81	1.88	2.89	2.94	2.89	2.93	4.15	3.10	1.58	1.69	2.00
	2.07	2.01	1.80	1.89	1.76	2.08	2.41	2.80	7.30	2.75	2.73	2.39
	3.05	2.22	1.89	2.00	1.83	1.92	2.63	2.80	2.26	6.29	3.89	2.44
	4.44	4.08	3.80	3.43	1.78	1.83	1.63	1.83	2.37	2.47	2.48	2.98
	2.21	1.89	1.95	1.85	3.39	3.08	2.89	2.38	2.25	2.51	4.68	4.64
					1.98	1.91	2.17	2.54	4.51	2.21	2.18	2.14
										4.53	4.88	3.68

RADON CONCENTRATION, SITE B - PIT EDGE (P.C./L)

RB.DAT

	0	1	2	3	4	5	6	7	8	9	10	11
209 10-26-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
210 10-27-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
211 10-28-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
212 10-29-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
213 10-30-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
214 10-31-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
215 11-1-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
216 11-2-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
217 11-3-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
218 11-4-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
219 11-5-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
220 11-6-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
221 11-7-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
222 11-8-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
223 11-9-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
224 11-10-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
225 11-11-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
226 11-12-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
227 11-13-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
228 11-14-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
229 11-15-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
230 11-16-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
231 11-17-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
232 11-18-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
233 11-19-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
234 11-20-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
	0.64	0.76	0.72	0.67	0.56	0.55	0.59	0.56	0.61	0.75	0.35	0.54
	0.67	0.70	0.54	0.64	0.57	0.70	0.59	0.56	0.54	0.45	0.35	0.62

RADON CONCENTRATION, SITE B - PIT EDGE (PCIAL)

RB.DAT

	0	1	2	3	4	5	6	7	8	9	10	11
313 2-7-80	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
314 2-8-80	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
315 2-9-80	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
316 2-10-80	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
317 2-11-80	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
318 2-12-80	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
319 2-13-80	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
320 2-14-80	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
321 2-15-80	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
322 2-16-80	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
323 2-17-80	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
324 2-18-80	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
325 2-19-80	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
326 2-20-80	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
327 2-21-80	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
328 2-22-80	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
329 2-23-80	0.72	0.64	0.47	0.47	0.40	0.48	0.60	0.76	1.12	1.16	1.48	1.57
330 2-24-80	2.84	1.48	1.05	0.96	0.90	0.74	0.76	0.96	1.17	1.35	1.18	0.95
331 2-25-80	0.54	0.38	0.35	0.30	0.41	0.36	0.51	0.64	0.55	0.45	0.38	0.33
332 2-26-80	0.52	0.59	0.56	0.48	0.50	0.45	0.37	0.53	0.49	0.64	0.41	0.38
333 2-27-80	0.27	0.32	0.35	0.30	0.38	0.28	0.37	0.39	0.42	0.42	0.51	0.64
334 2-28-80	0.57	0.60	1.04	2.40	1.64	1.08	0.61	1.06	1.10	0.74	0.58	0.46
335 2-29-80	0.51	0.46	0.29	0.37	0.38	0.37	0.33	0.35	0.49	0.53	0.45	0.41
336 3-1-80	0.35	0.42	0.42	0.50	0.39	0.37	0.42	0.40	0.47	0.44	0.33	0.39
337 3-2-80	0.56	0.54	0.57	0.58	0.58	0.50	0.62	0.42	0.56	0.55	0.59	0.58
338 3-3-80	0.36	0.42	0.41	0.36	0.50	0.50	0.49	0.48	0.58	0.49	0.50	0.48
	0.52	0.65	0.59	0.60	0.61	0.56	0.51	0.66	0.64	0.57	0.62	0.46
	0.32	0.40	0.46	0.52	0.57	0.72	0.76	0.77	0.86	0.79	0.63	0.56
	0.61	0.49	0.45	0.35	0.51	0.48	0.54	0.51	0.55	0.46	0.36	0.35
	0.36	0.47	0.36	0.47	0.39	0.41	0.43	0.55	0.52	0.59	0.67	0.88
	1.23	0.99	1.15	0.73	0.66	0.66	0.54	0.84	0.87	0.74	0.62	0.74
	0.44	0.53	0.56	0.60	0.67	0.77	0.77	0.80	0.60	0.52	0.50	0.41
	0.76	0.55	0.51	0.53	0.51	0.47	0.41	0.41	0.49	0.55	0.53	0.43
	0.37	0.41	0.41	0.46	0.42	0.47	0.41	0.41	0.49	0.67	0.68	0.61
	0.50	0.62	0.54	0.46	0.62	0.50	0.54	0.82	0.91	0.67	0.68	0.61
	0.66	0.59	0.59	0.56	0.61	0.72	0.72	0.58	0.67	0.58	0.55	0.55

RADON CONCENTRATION, SITE B - PIT EDGE (PCI/L)

23-SEP-81 11:05:32

RB.DAT

	0	1	2	3	4	5	6	7	8	9	10	11
339 3-4-80	0.64	0.60	0.68	0.66	0.52	0.58	0.47	0.47	0.59	0.40	0.47	0.43
340 3-5-80	0.44	0.51	0.50	0.56	0.50	0.60	0.57	0.55	0.50	0.51	0.53	0.59
341 3-6-80	0.57	0.63	0.64	0.71	0.94	0.62	0.53	0.51	0.51	0.44	0.41	0.24
342 3-7-80	0.31	0.39	0.37	0.31	0.42	0.53	0.52	0.52	0.56	0.69	0.55	0.39
343 3-8-80	0.48	0.42	0.26	0.43	0.55	0.65	0.76	0.66	0.67	0.53	0.56	0.54
344 3-9-80	0.47	0.52	0.48	0.52	0.53	0.54	0.59	0.63	0.57	0.32	0.33	0.33
345 3-10-80	0.35	0.51	0.42	0.67	0.69	0.71	0.94	0.97	0.82	0.58	0.50	0.62
346 3-11-80	0.75	0.59	0.46	0.46	0.53	0.44	0.49	1.06	0.71	0.74	0.61	0.62
347 3-12-80	0.34	0.41	0.39	0.39	0.48	0.73	0.79	0.83	0.70	0.68	0.53	0.58
348 3-13-80	0.48	0.38	0.48	0.34	0.37	0.28	0.29	0.34	0.26	0.35	0.29	0.29
349 3-14-80	0.22	0.32	0.30	0.44	0.35	0.29	0.38	0.42	0.44	0.34	0.28	0.27
350 3-15-80	0.31	0.29	0.38	0.31	0.23	0.32	0.33	0.30	0.30	0.33	0.36	0.24
351 3-16-80	0.29	0.23	0.30	0.29	0.34	0.30	0.35	0.33	0.55	0.61	0.39	0.26
352 3-17-80	0.22	0.22	0.20	0.20	0.10	0.14	0.21	0.32	0.36	0.48	0.56	0.65
353 3-18-80	0.60	0.62	0.75	1.18	1.13	1.27	1.18	1.35	0.90	0.85	0.53	0.32
354 3-19-80	0.38	0.29	0.33	0.33	0.29	0.40	0.32	0.46	0.43	0.47	0.38	0.41
355 3-20-80	0.62	0.39	0.42	0.39	0.66	0.58	0.51	0.41	0.41	0.42	0.21	0.37
356 3-21-80	0.35	0.28	0.31	0.22	0.21	0.17	0.25	0.29	0.29	0.34	0.42	0.44
357 3-22-80	0.41	0.41	0.43	0.37	0.38	0.38	0.40	0.32	0.38	0.32	0.35	0.38
358 3-23-80	0.26	0.27	0.19	0.31	0.22	0.30	0.32	0.29	0.24	0.29	0.27	0.23
359 3-24-80	0.32	0.33	0.36	0.32	0.38	0.32	0.34	0.49	0.39	0.38	0.37	0.32
360 3-25-80	0.35	0.28	0.28	0.28	0.25	0.32	0.39	0.45	0.40	0.47	0.55	0.54
361 3-26-80	0.84	0.70	0.65	0.56	0.56	0.42	0.57	1.10	1.29	0.75	0.60	0.44
362 3-27-80	0.38	0.35	0.43	0.31	0.19	0.34	0.42	0.39	0.30	0.26	0.32	0.32
363 3-28-80	0.28	0.25	0.31	0.31	0.32	0.37	0.39	0.38	0.32	0.32	0.23	0.27
364 3-29-80	0.22	0.25	0.26	0.24	0.21	0.29	0.22	0.25	0.33	0.49	0.56	0.48
	0.52	0.52	0.52	0.46	0.34	0.45	0.42	0.49	0.35	0.38	0.27	0.36
	0.22	0.21	0.25	0.34	0.36	0.31	0.26	0.28	0.39	0.36	0.54	0.41
	0.32	0.33	0.42	0.35	0.33	0.42	0.35	0.28	0.44	0.43	0.34	0.27
	0.32	0.31	0.36	0.31	0.25	0.29	0.41	0.39	0.48	0.47	0.50	0.48
	0.50	0.50	0.53	0.48	0.66	0.59	0.56	0.51	0.62	0.56	0.38	0.38
	0.30	0.42	0.33	0.42	0.38	0.30	0.45	0.39	0.34	0.37	0.35	0.36
	0.41	0.39	0.32	0.44	0.36	0.34	0.54	0.55	0.53	0.33	0.31	0.21
	0.24	0.25	0.24	0.26	0.33	0.27	0.30	1.28	2.38	1.97	1.54	1.16
	1.45	0.75	0.58	0.35	0.30	0.49	0.58	0.42	0.35	0.44	0.49	0.40
	0.55	0.47	0.40	0.46	0.70	0.66	1.03	0.70	0.54	0.64	0.61	0.60
	0.52	0.52	0.50	0.55	0.43	0.34	0.38	0.46	0.45	0.34	0.31	0.32
	0.26	0.21	0.26	0.26	0.18	0.21	0.26	0.51	0.94	1.03	1.22	0.98
	0.90	1.10	0.82	0.77	0.98	0.92	1.12	1.00	0.79	0.57	0.34	0.29
	0.22	0.24	0.30	0.31	0.34	0.29	0.47	1.00	0.71	0.65	0.58	0.37
	0.39	0.39	0.49	0.68	0.84	0.92	0.77	0.68	0.54	0.41	0.39	0.33
	0.41	0.46	0.37	0.36	0.33	0.40	0.42	0.43	0.54	0.40	0.49	0.34
	0.39	0.49	0.38	0.32	0.33	0.43	0.52	0.45	0.30	0.33	0.32	0.38
	0.28	0.29	0.30	0.37	0.35	0.43	0.52	0.45	0.30	0.33	0.32	0.38
361 3-26-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
362 3-27-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
363 3-28-80	0.68	0.76	0.81	0.77	0.72	0.53	0.43	0.47	0.52	0.55	0.73	0.63
364 3-29-80	0.34	0.21	0.31	0.29	0.34	0.39	0.33	0.34	0.24	0.32	0.41	0.37
	0.54	0.53	0.67	0.44	0.67	0.66	0.63	0.52	0.52	0.52	0.57	0.60
	0.40	0.35	0.38	0.33	0.38	0.32	0.33	0.32	0.35	0.35	0.55	0.65
	0.64	0.64	0.71	0.57	0.47	0.39	0.36	0.36	0.33	0.38	0.41	0.49
	0.40	0.37	0.34	0.32	0.18	0.22	0.19	0.38	2.38	1.81	1.14	0.81

RB.DAT

RADON CONCENTRATION, SITE B - PIT EDGE (PCI/L)

23-SEP-81 11:05:32

	0	1	2	3	4	5	6	7	8	9	10	11
365 3-30-80	0.78 0.42	0.75 0.30	0.74 0.28	0.60 0.17	0.72 0.33	0.95 0.33	0.84 0.29	0.89 0.47	0.78 0.75	0.62 0.72	0.66 0.68	0.47 0.73
366 3-31-80	0.80 0.24	0.70 0.27	0.60 0.24	0.49 0.25	0.52 0.17	0.49 0.20	0.42 0.17	0.44 0.19	0.49 0.38	0.38 0.24	0.33 0.27	0.32 0.21
367 4- 1-80	-9999.00 0.35	0.35 0.25	0.99 0.21	1.91 0.19	2.66 0.27	1.94 0.22	1.47 0.13	1.06 0.14	0.97 0.19	0.79 0.18	0.54 0.15	0.46 0.18
368 4- 2-80	0.26 0.24	0.26 0.16	0.38 0.24	0.43 0.20	0.30 0.30	0.20 0.25	0.49 0.26	0.38 0.21	0.39 0.30	0.32 0.43	0.24 0.42	0.19 0.49
369 4- 3-80	0.30 0.17	0.22 0.20	0.31 0.13	0.45 0.18	0.55 0.21	0.35 0.26	0.31 0.19	0.38 0.29	0.41 0.32	0.35 0.71	0.32 0.63	0.29 0.58
370 4- 4-80	0.42 0.25	0.50 0.14	0.41 0.21	0.38 0.31	0.36 0.31	0.26 0.18	0.33 0.29	0.33 0.26	0.39 0.75	0.44 0.84	0.30 0.94	0.38 0.81
371 4- 5-80	0.78 0.41	0.66 0.41	0.50 0.30	0.69 0.30	0.77 0.29	0.62 0.34	0.64 0.29	0.57 0.22	0.39 0.34	0.44 0.36	0.55 0.33	0.49 0.40
372 4- 6-80	0.61 0.30	0.76 0.21	0.68 0.24	1.15 0.24	1.17 0.24	0.71 0.32	0.44 0.31	0.47 0.29	0.36 0.29	0.35 0.26	0.30 0.33	0.26 0.58
373 4- 7-80	0.54 0.24	0.42 0.28	0.42 0.15	0.36 0.18	0.27 0.26	0.31 0.20	0.27 0.23	0.32 0.19	0.24 0.22	0.32 0.18	0.25 0.19	0.33 0.30
374 4- 8-80	0.28 0.17	0.28 0.19	0.31 0.13	0.26 0.09	0.22 0.13	0.26 0.27	0.33 0.12	0.33 0.25	0.32 0.36	0.30 0.44	0.26 0.39	0.24 0.91
375 4- 9-80	0.59 0.35	0.50 0.30	0.33 0.17	0.31 0.30	0.52 0.27	0.58 0.40	0.52 0.32	0.42 0.40	0.36 0.82	0.35 0.54	0.33 0.53	0.24 0.52
376 4-10-80	0.58 0.22	0.42 0.29	0.50 0.22	0.49 0.25	0.56 0.29	0.44 0.26	0.45 0.23	0.52 0.40	0.41 0.65	0.25 1.55	0.29 1.88	0.27 1.48
377 4-11-80	1.18 0.33	0.85 0.21	0.53 0.21	0.58 0.22	0.48 0.19	0.49 0.23	0.39 0.32	0.34 0.33	0.34 0.34	0.28 0.47	0.33 1.21	0.33 1.98
378 4-12-80	1.48 0.20	0.91 0.14	0.79 0.19	0.74 0.29	0.64 0.28	0.45 0.35	0.53 0.36	0.43 1.47	0.24 2.35	0.22 3.25	0.18 3.05	0.16 1.62
379 4-13-80	0.93 0.23	0.55 0.23	0.49 0.22	0.44 0.29	0.32 0.19	0.53 0.31	0.51 0.53	0.47 0.61	0.30 0.84	0.28 0.98	0.25 0.98	0.26 0.91
380 4-14-80	1.08 0.28	0.96 0.30	0.67 0.23	0.58 0.27	0.65 0.36	0.52 0.35	0.58 0.40	0.55 0.52	0.52 0.93	0.27 2.57	0.27 2.06	0.27 3.72
381 4-15-80	5.27 0.36	4.06 0.30	2.32 0.30	1.29 0.37	0.85 0.31	1.00 0.27	0.86 0.26	0.79 0.26	0.64 0.29	0.62 0.42	0.41 0.34	0.33 0.32
382 4-16-80	0.29 0.24	0.36 0.26	0.34 0.17	0.37 0.24	0.31 0.33	0.27 0.25	0.26 0.32	0.26 0.40	0.29 0.47	0.42 0.61	0.34 0.50	0.32 0.84
383 4-17-80	1.34 0.27	1.17 0.28	1.13 0.31	0.99 0.44	1.14 0.43	0.90 0.45	0.86 0.67	0.86 0.98	0.60 1.04	0.60 1.03	0.50 0.91	0.43 0.72
384 4-18-80	0.72 0.35	0.84 0.24	0.72 0.28	0.83 0.35	0.62 0.31	0.56 0.44	0.68 0.33	0.58 0.36	0.50 0.76	0.43 0.67	0.33 1.11	0.40 1.31
385 4-19-80	1.01 0.48	0.87 0.43	0.79 0.32	0.74 0.39	0.97 0.42	0.97 0.39	0.90 0.39	1.07 0.87	0.70 1.04	0.46 0.93	0.42 1.38	0.42 1.82
386 4-20-80	0.88 0.42	1.03 0.46	1.01 0.48	0.97 0.40	1.10 0.44	1.05 0.53	0.98 0.56	0.94 0.73	0.73 0.91	0.77 0.94	0.63 0.93	0.52 0.88
387 4-21-80	0.92 0.34	1.05 0.41	1.01 0.37	0.91 0.37	0.96 0.46	0.98 0.56	1.00 0.65	0.91 1.64	0.73 2.27	0.53 1.67	0.41 1.34	0.45 1.86
388 4-22-80	1.30 0.38	1.21 0.35	1.67 0.24	1.43 0.39	0.97 0.31	0.73 0.26	0.59 0.29	0.46 0.35	0.48 0.44	0.42 0.39	0.41 0.47	0.43 0.51
389 4-23-80	0.40 0.33	0.54 0.31	0.45 0.38	0.40 0.39	0.35 0.35	0.38 0.39	0.43 0.30	0.41 0.35	0.43 0.47	0.41 0.50	0.45 0.44	0.36 0.51
390 4-24-80	0.61 0.29	0.72 0.19	0.78 0.26	1.13 0.28	1.51 0.28	1.84 0.25	2.58 0.33	1.91 0.42	0.90 0.59	0.52 0.66	0.38 0.68	0.27 0.76

	0	1	2	3	4	5	6	7	8	9	10	11
391 4-25-80	1.59	1.55	2.40	3.80	4.14	3.23	3.09	2.12	1.18	0.58	0.40	0.42
392 4-26-80	0.33	0.23	0.19	0.29	0.35	0.22	0.27	0.51	0.72	0.86	0.73	0.75
393 4-27-80	0.64	1.04	1.05	1.00	0.73	0.95	0.98	0.71	0.60	0.51	0.32	0.29
394 4-28-80	0.27	0.27	0.30	0.35	0.30	0.30	0.30	0.41	0.56	0.46	0.54	0.52
395 4-29-80	0.48	0.53	0.50	1.09	1.18	1.73	1.24	0.95	0.50	0.35	0.38	0.31
396 4-30-80	0.33	0.22	0.27	0.28	0.28	0.29	0.29	0.40	0.88	0.87	1.14	0.62
397 5-1-80	0.49	0.55	0.54	0.69	0.68	0.82	0.94	0.81	0.80	0.58	0.49	0.40
398 5-2-80	0.40	0.32	0.29	0.34	0.36	0.39	0.40	0.59	0.86	0.47	0.49	0.55
399 5-3-80	0.62	0.56	0.67	0.76	0.98	2.71	3.63	1.78	1.12	0.73	0.46	0.46
400 5-4-80	0.38	0.41	0.15	0.47	0.39	0.48	0.99	0.00	0.00	0.00	0.00	0.00
401 5-5-80	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
402 5-6-80	0.72	1.69	3.42	4.03	5.76	4.11	3.82	1.99	0.42	0.41	0.41	0.38
403 5-7-80	0.19	0.00	0.37	0.22	0.24	0.36	0.28	0.33	1.15	0.60	0.48	0.32
404 5-8-80	0.61	0.70	0.86	1.02	0.91	0.93	0.93	0.99	0.30	0.31	0.42	0.46
405 5-9-80	0.35	0.25	0.25	0.25	0.27	0.28	0.25	0.25	0.80	0.59	0.46	0.35
406 5-10-80	0.64	0.54	0.67	0.72	1.08	1.34	0.84	0.98	0.26	0.43	0.40	0.65
407 5-11-80	0.58	0.33	0.27	0.49	0.34	0.32	0.27	0.37	1.02	0.69	0.55	0.42
408 5-12-80	1.48	2.63	1.32	0.99	2.07	2.20	1.84	0.91	0.36	0.78	1.70	1.63
409 5-13-80	0.34	0.36	0.31	0.32	0.25	0.34	-0.02	0.36	0.44	0.52	0.47	0.42
410 5-14-80	0.55	0.69	0.48	0.54	0.43	0.62	0.69	0.73	0.84	0.32	0.35	0.32
411 5-15-80	0.36	0.30	0.38	0.29	0.24	0.29	0.27	0.30	0.67	0.67	0.50	0.35
412 5-16-80	0.50	1.13	1.20	1.24	1.29	1.23	1.45	2.67	2.22	0.98	1.35	0.90
413 5-17-80	0.32	0.33	0.29	0.29	0.27	0.23	0.19	0.30	2.22	1.22	0.70	0.48
414 5-18-80	0.62	0.55	0.66	1.25	1.23	1.30	1.26	0.92	0.36	0.60	0.74	0.85
415 5-19-80	0.31	0.25	0.30	0.22	0.27	0.29	0.22	0.29	0.81	0.50	0.33	0.20
416 5-20-80	0.46	0.52	0.59	0.93	1.24	0.91	0.92	1.29	0.32	0.48	0.41	0.39
	0.36	0.36	0.46	0.29	0.20	0.30	0.35	0.38	1.01	0.53	0.35	0.33
	0.66	0.75	0.75	0.71	0.60	0.68	0.87	0.64	0.50	0.61	0.47	0.49
	0.33	0.35	0.36	0.27	0.35	0.35	0.29	0.40	0.49	0.37	0.37	0.41
	0.43	0.48	0.55	0.51	0.41	0.51	0.45	0.48	0.72	0.70	0.49	0.45
	0.41	0.30	0.37	0.41	0.44	0.41	0.35	0.30	0.28	0.27	0.27	0.35
	0.21	0.33	0.40	0.41	0.28	0.32	0.22	0.42	0.39	0.35	0.37	0.30
	0.35	0.19	0.22	0.21	0.17	0.24	0.22	0.22	0.23	0.23	0.49	0.33
	0.30	0.29	0.28	0.40	0.38	0.30	0.31	0.33	0.34	0.31	0.37	0.35
	0.34	0.41	0.35	0.38	0.39	0.30	0.24	0.36	0.30	0.42	0.56	0.48
	0.37	0.30	0.34	0.33	0.32	0.32	0.32	0.36	0.25	0.21	0.24	0.23
	0.24	0.16	0.20	0.18	0.16	0.23	0.24	0.12	0.21	2.03	1.63	1.28
	0.79	0.70	0.76	1.24	1.49	1.91	1.30	1.16	0.75	0.65	0.50	0.39
	0.50	0.22	0.12	0.15	0.13	0.13	0.15	0.22	0.16	0.35	0.35	0.34
	0.46	0.57	0.65	0.47	0.56	1.05	1.55	2.91	1.75	0.83	0.54	0.32
	0.21	0.17	0.21	0.07	0.18	0.15	0.23	0.14	0.08	0.10	0.10	0.18
	0.12	0.19	0.16	0.18	0.22	0.32	0.27	0.11	0.19	0.19	0.19	0.16
	0.09	0.14	0.13	0.14	0.12	0.08	0.18	0.17	0.13	0.16	0.22	0.17
	0.15	0.21	0.16	0.24	0.16	0.30	0.19	0.24	0.23	0.20	0.17	0.27
	0.22	0.14	0.13	0.19	0.20	0.20	0.19	0.24	0.16	0.24	0.31	0.16
	0.29	0.38	0.53	0.71	0.68	0.78	0.70	0.67	0.47	0.42	0.36	0.27
	0.25	0.19	0.19	0.15	0.16	0.15	0.12	0.09	0.16	0.48	0.52	0.56
	0.49	0.43	0.65	0.70	0.83	0.90	1.25	0.95	0.91	0.75	0.57	0.42
	0.27	0.24	0.29	0.18	0.22	0.30	0.35	0.39	0.53	0.56	0.89	0.66
	0.52	0.42	0.39	0.62	0.51	0.54	0.53	0.46	0.42	0.31	0.42	0.35
	0.20	0.16	0.21	0.23	0.30	0.21	0.18	0.37	0.29	1.30	2.72	2.43

RADON CONCENTRATION, SITE C - DOWNWIND (PCI/L)

RC.DAT

	0	1	2	3	4	5	6	7	8	9	10	11
1 4-1-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
2 4-2-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
3 4-3-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
4 4-4-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
5 4-5-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
6 4-6-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
7 4-7-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
8 4-8-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
9 4-9-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
10 4-10-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
11 4-11-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
12 4-12-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
13 4-13-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
14 4-14-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
15 4-15-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
16 4-16-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
17 4-17-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
18 4-18-79	-0.01	0.04	0.13	0.24	-0.03	-0.04	0.02	-0.02	-0.02	-0.01	0.02	0.03
19 4-19-79	0.44	0.38	0.36	0.35	0.32	0.25	0.27	0.28	0.25	0.13	0.34	0.34
20 4-20-79	0.10	0.09	0.14	0.26	0.22	0.17	0.20	0.26	0.36	0.20	0.28	0.25
21 4-21-79	0.17	0.28	0.29	0.35	0.42	0.41	0.35	0.39	0.42	0.39	0.52	0.59
22 4-22-79	0.73	0.69	0.52	0.32	0.21	0.21	0.21	0.27	0.32	0.28	0.26	0.31
23 4-23-79	0.29	0.30	0.34	0.64	1.01	1.13	1.09	1.24	1.08	1.27	0.98	1.04
24 4-24-79	1.06	1.04	1.12	0.95	0.81	0.60	0.44	0.31	0.24	0.24	0.15	0.19
25 4-25-79	0.72	0.14	0.25	0.38	0.35	0.39	0.50	0.64	0.53	0.71	0.56	0.68
26 4-26-79	0.41	0.76	0.81	0.99	2.09	3.15	2.16	1.17	0.60	0.59	-9999.00	0.50
27 4-27-79	0.64	0.44	0.50	0.50	0.50	0.54	0.55	0.48	0.63	0.71	0.74	0.66
28 4-28-79	0.69	0.65	0.69	1.02	0.88	0.85	0.95	1.18	1.06	0.75	0.66	0.65
29 4-29-79	0.95	0.92	0.92	0.89	0.65	0.58	0.63	0.60	0.75	0.83	0.91	0.94
30 4-30-79	0.37	0.44	0.31	0.31	0.30	0.30	0.30	0.30	0.36	0.37	0.49	0.45
31 4-31-79	0.48	0.54	0.50	0.64	0.62	0.57	0.62	0.41	0.48	0.54	0.55	0.40
32 4-32-79	0.40	0.40	0.40	0.45	0.45	0.50	0.50	0.50	0.86	1.23	1.41	1.29
33 4-33-79	1.32	2.36	2.73	2.57	1.82	1.12	0.80	0.53	0.49	0.45	0.32	0.45
34 4-34-79	0.49	0.41	0.39	0.39	0.48	0.46	0.48	0.47	0.48	0.53	0.50	0.47

	0	1	2	3	4	5	6	7	8	9	10	11
79 6-18-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
80 6-19-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
81 6-20-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
82 6-21-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
83 6-22-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
84 6-23-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
85 6-24-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
86 6-25-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
87 6-26-79	0.86	0.93	1.01	0.95	0.40	0.21	0.16	0.33	0.19	0.41	0.39	0.55
88 6-27-79	0.25	0.23	0.23	0.14	0.13	0.22	0.31	2.06	1.04	0.77	0.57	0.44
89 6-28-79	0.38	0.49	0.47	0.60	1.50	1.71	1.61	1.87	1.82	1.01	0.88	0.48
90 6-29-79	0.48	0.31	0.32	0.33	0.45	0.42	0.35	0.45	0.42	0.43	0.50	0.69
91 6-30-79	0.00	0.57	0.42	0.70	0.80	1.32	1.18	1.00	0.72	0.44	0.34	0.31
92 7- 1-79	0.27	0.32	0.25	-9999.00	0.41	0.25	0.35	0.24	0.27	0.42	0.54	0.58
93 7- 2-79	0.60	1.00	1.02	1.01	0.76	0.67	0.67	0.92	0.75	0.66	0.43	0.30
94 7- 3-79	0.30	0.26	0.35	0.24	0.27	0.31	0.35	0.28	0.43	0.43	0.58	0.50
95 7- 4-79	0.54	0.43	0.47	0.48	0.41	0.52	0.53	0.57	0.56	0.48	0.59	0.44
96 7- 5-79	0.33	0.37	0.51	0.32	0.30	0.24	0.32	0.34	0.32	0.47	0.44	0.51
97 7- 6-79	-9999.00	0.66	0.66	0.56	0.62	0.36	0.39	0.32	0.30	0.49	0.34	0.30
98 7- 7-79	0.37	0.29	0.32	0.47	0.35	0.41	0.34	0.45	0.44	0.44	0.42	0.42
99 7- 8-79	0.12	0.48	0.46	0.39	0.49	0.45	0.70	0.72	0.57	0.51	0.44	0.31
100 7- 9-79	0.22	0.26	0.24	0.27	0.23	0.21	0.25	0.26	0.51	0.53	0.53	0.64
101 7-10-79	0.59	0.70	0.54	0.50	0.55	0.64	0.48	0.67	0.48	0.45	0.45	0.35
102 7-11-79	0.24	0.36	0.29	0.29	0.28	0.37	0.29	0.34	0.35	0.39	0.17	0.21
103 7-12-79	0.18	0.10	0.10	0.47	0.27	0.27	0.24	0.29	0.29	0.41	0.25	0.16
104 7-13-79	0.20	0.20	0.26	0.27	0.24	0.34	0.35	0.32	0.31	0.32	0.38	0.27
	0.25	0.28	0.36	0.33	0.28	0.39	0.46	0.63	0.62	0.42	0.38	0.39
	0.37	0.23	0.27	0.30	0.25	0.24	0.30	0.42	0.34	0.57	0.60	0.61
	0.49	0.47	0.43	0.47	0.61	0.40	0.57	0.50	0.53	0.53	0.44	0.46
	0.39	0.36	0.41	0.40	0.31	0.29	0.24	0.22	0.36	0.37	0.39	0.37
	0.47	0.54	0.94	1.05	0.60	0.56	0.52	0.49	0.48	0.37	0.34	0.24
	0.28	0.22	0.17	0.18	0.25	0.19	0.25	0.22	0.26	0.42	0.60	0.61
	0.68	0.71	0.71	0.58	0.59	0.61	0.70	0.62	0.55	0.45	0.35	0.35
	0.87	0.25	0.23	0.38	0.35	0.32	0.24	0.26	0.31	0.43	0.75	0.75
	0.86	1.00	0.97	0.70	0.47	0.40	0.53	0.53	0.34	0.32	0.38	0.22
	0.14	0.15	0.13	0.36	0.15	0.15	0.17	0.17	0.20	0.25	0.44	0.55
	0.57	0.62	0.62	0.62	0.61	0.63	0.53	0.55	0.45	0.51	0.59	0.33
	0.32	0.15	0.19	0.15	0.20	0.19	0.12	0.29	0.29	0.28	0.40	0.40
	0.40	0.71	0.77	0.96	0.83	0.84	0.60	0.44	0.51	0.53	0.48	0.49
	0.42	0.42	0.33	0.35	0.26	0.20	0.15	0.13	0.20	0.15	0.21	0.26
	0.29	0.28	0.38	0.53	0.79	0.68	0.68	0.69	0.99	0.99	0.99	0.99
	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
	1.63	0.97	0.52	0.38	0.19	0.19	0.13	0.25	0.13	0.19	0.21	2.44
	0.19	0.10	0.12	0.21	0.23	0.29	0.49	0.46	0.62	0.52	0.54	0.66

	0	1	2	3	4	5	6	7	8	9	10	11
105 7-14-79	0.51	0.39	0.44	0.38	0.28	0.38	0.28	0.31	0.27	0.36	0.35	0.20
	0.22	0.17	0.19	0.13	0.11	0.13	0.11	0.14	0.14	0.22	0.31	0.44
106 7-15-79	0.38	0.57	0.61	0.42	0.43	0.48	0.58	0.15	0.50	0.50	0.50	0.40
	0.54	0.47	0.39	0.27	0.23	0.45	0.46	0.53	0.33	0.38	0.78	1.19
107 7-16-79	1.30	1.16	1.05	1.14	0.88	0.56	0.29	0.17	0.12	0.19	0.25	0.16
	0.18	0.99	0.15	0.17	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
108 7-17-79	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	0.99	0.99	0.99	0.18	0.99	0.99	0.99	0.26	0.37	0.42	0.63	0.74
109 7-18-79	0.83	0.66	0.66	1.07	1.22	1.17	0.93	0.48	0.99	0.99	0.99	0.99
	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
110 7-19-79	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
111 7-20-79	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
112 7-21-79	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
113 7-22-79	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
114 7-23-79	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.42
	0.27	0.17	0.17	0.20	0.17	0.29	0.31	0.32	0.48	0.54	0.54	0.74
115 7-24-79	0.88	0.73	0.95	1.18	1.28	1.15	0.64	0.30	0.46	0.36	0.30	0.26
	0.30	0.25	0.27	0.31	0.47	0.58	0.53	0.53	0.56	0.51	0.58	0.83
116 7-25-79	0.59	0.63	0.74	0.59	0.60	0.48	0.37	0.99	0.99	0.99	0.99	0.99
	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
117 7-26-79	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
118 7-27-79	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
119 7-28-79	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
120 7-29-79	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
121 7-30-79	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
122 7-31-79	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
123 8-1-79	0.99	0.35	0.29	0.23	0.24	0.32	0.22	0.45	0.62	0.50	0.58	0.53
	0.60	0.96	1.29	1.55	1.60	1.48	1.60	1.58	1.52	1.26	0.97	0.72
124 8-2-79	0.46	0.23	0.19	0.13	0.33	0.32	0.27	0.25	0.25	0.27	0.25	0.99
	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
125 8-3-79	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
126 8-4-79	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
127 8-5-79	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
128 8-6-79	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
129 8-7-79	0.46	0.40	0.43	0.32	0.22	0.28	0.43	0.27	0.32	0.34	0.39	0.46
	0.42	0.28	0.33	0.32	0.58	0.68	0.61	0.60	0.49	0.39	0.40	0.37
130 8-8-79	0.74	0.75	0.83	1.09	0.90	0.73	1.07	0.99	0.89	0.64	0.49	0.45
	0.42	0.45	0.40	0.40	0.38	0.32	0.35	0.31	0.21	0.21	0.21	0.24

RC.DAT

RADON CONCENTRATION, SITE C - DOWNWIND (PCI/L)

23-SEP-81 11:08:54

	0	1	2	3	4	5	6	7	8	9	10	11
391 4-25-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
392 4-26-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
393 4-27-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
394 4-28-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
395 4-29-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
396 4-30-80	0.37	0.31	0.38	0.41	0.26	0.45	0.38	0.44	0.42	0.44	0.34	0.28
397 5- 1-80	0.47	0.60	1.17	1.26	1.60	1.92	2.01	1.46	0.97	0.59	0.40	0.22
398 5- 2-80	0.26	0.28	0.30	0.22	0.28	0.30	0.33	0.28	0.29	0.33	0.47	0.46
399 5- 3-80	0.47	0.63	0.58	0.49	0.55	0.58	0.71	0.58	0.40	0.52	0.34	0.31
400 5- 4-80	0.32	0.32	0.24	0.24	0.29	0.26	0.23	0.33	0.28	0.29	0.41	0.36
401 5- 5-80	0.32	0.32	0.33	0.30	0.32	0.35	0.36	0.24	0.37	0.34	0.77	1.19
402 5- 6-80	1.28	1.89	1.72	1.10	1.24	1.34	1.17	0.80	0.53	0.38	0.43	0.35
403 5- 7-80	0.31	0.30	0.29	0.31	0.21	0.27	0.32	0.32	0.35	0.28	0.42	0.40
404 5- 8-80	0.41	0.44	0.47	0.68	0.51	0.59	0.88	0.79	0.36	0.41	0.28	0.24
405 5- 9-80	0.24	0.19	0.28	0.27	0.27	0.22	0.28	0.28	0.24	0.44	0.56	0.54
406 5-10-80	0.53	0.74	0.90	1.08	0.80	1.32	1.57	1.82	1.47	0.76	0.48	0.27
407 5-11-80	0.24	0.33	0.22	0.23	0.31	0.22	0.28	0.24	0.38	0.43	0.60	0.51
408 5-12-80	0.43	0.43	0.52	0.73	0.49	0.55	0.57	0.47	0.47	0.43	0.31	0.28
409 5-13-80	0.26	0.21	0.19	0.24	0.24	0.24	0.36	0.28	0.40	0.46	0.38	0.33
410 5-14-80	0.39	0.51	0.45	0.68	0.65	0.72	0.57	0.62	0.46	0.29	0.29	0.30
411 5-15-80	0.30	0.28	0.27	0.24	0.24	0.21	0.28	0.35	0.35	0.31	0.38	0.45
412 5-16-80	0.49	0.49	0.53	0.46	0.56	0.58	0.55	0.48	0.41	0.34	0.33	0.26
413 5-17-80	0.25	0.31	0.23	0.24	0.24	0.32	0.29	0.34	0.31	0.29	0.37	0.41
414 5-18-80	0.41	0.40	0.40	0.43	0.37	0.45	0.49	0.56	0.51	0.32	0.27	0.25
415 5-19-80	0.26	0.36	0.36	0.38	0.34	0.31	0.27	0.23	0.27	0.15	0.17	0.19
416 5-20-80	0.11	0.18	0.15	0.17	0.23	0.15	0.22	0.14	0.19	0.30	0.22	0.20
	0.11	0.21	0.16	0.18	0.15	0.17	0.18	0.14	0.19	0.30	0.22	0.20
	0.23	0.16	0.29	0.38	0.22	0.13	0.14	0.22	0.14	0.21	0.22	0.28
	0.13	0.15	0.14	0.17	0.15	0.17	0.13	0.16	0.35	0.29	0.36	0.24
	0.25	0.28	0.28	0.27	0.16	0.28	0.22	0.28	0.22	0.24	0.31	0.17
	0.18	0.28	0.16	0.13	0.17	0.21	0.15	0.21	0.19	0.43	0.54	0.55
	0.51	0.48	0.48	0.74	0.94	0.99	0.86	0.59	0.46	0.31	0.32	0.18
	0.28	0.19	0.14	0.18	0.17	0.11	0.28	0.15	0.18	0.24	0.23	0.26
	0.36	0.45	0.42	0.44	0.58	0.67	0.97	1.56	0.98	0.52	0.36	0.28
	0.17	0.25	0.21	0.15	0.12	0.12	0.11	0.19	0.13	0.11	0.28	0.11
	0.16	0.23	0.25	0.28	0.19	0.17	0.21	0.15	0.23	0.14	0.11	0.11
	0.16	0.17	0.14	0.13	0.11	0.12	0.18	0.14	0.21	0.22	0.18	0.17
	0.21	0.14	0.18	0.25	0.19	0.27	0.18	0.24	0.23	0.17	0.19	0.18
	0.13	0.87	0.11	0.11	0.12	0.16	0.18	0.13	0.17	0.27	0.25	0.18
	0.22	0.21	0.37	0.47	0.52	0.57	0.48	0.44	0.34	0.27	0.18	0.87
	0.11	0.11	0.15	0.14	0.15	0.21	0.18	0.15	0.28	0.36	0.47	0.49
	0.34	0.28	0.48	0.41	0.55	0.70	0.68	0.85	0.58	0.51	0.34	0.29
	0.23	0.23	0.24	0.28	0.14	0.22	0.22	0.19	0.26	0.42	0.62	0.66
	0.79	0.75	0.78	0.71	0.75	0.65	0.48	0.43	0.39	0.45	0.32	0.23
	0.25	0.18	0.19	0.18	0.25	0.19	0.21	0.22	0.34	0.62	0.82	0.61

APPENDIX C

METEOROLOGICAL PARAMETERS

AP.DAT Barometric Pressure, Dave Johnston Power Plan
AT.DAT Air Temperature, Site A
WD.DAT Wind Direction, Site A
WS.DAT Wind Speed, Site A
RF.DAT Approximate Rainfall, Site A

NOTES OF EXPLANATION FOR APPENDIX C

Appendix C is divided into five subsections -- barometric pressure measured at the Dave Johnston Power Plant by plant personnel, air temperature at site A, wind direction at site A, wind speed at site A, and approximate rainfall at site A. The data are arranged chronologically by date and within date by hour. Column 1 is an arbitrary sequential day number. Column 2 is the month, day, and year. Columns 3 through 14, which are labeled 0 through 11, contain the measurements from midnight to 11 o'clock in the morning on the first line; and on the second line, from 12 o'clock noon until 2300 hours in the evening. A data entry of -9999.00 means that there were no data available for that particular hour. Large blocks of no data indicate equipment failure and/or power failure.

AP.DAT		BAROMETRIC PRESSURE, DAVE JOHNSTON POWER PLANT (IN OF HG)											
		0	1	2	3	4	5	6	7	8	9	10	11
1	4- 1-79	-9999.00	24.93	24.92	24.90	24.90	24.90	24.91	24.91	24.90	24.90	24.88	24.86
		24.86	24.86	24.81	24.83	24.82	24.84	24.83	24.85	24.86	24.87	24.87	24.87
2	4- 2-79	24.87	24.86	24.85	24.85	24.85	24.85	24.86	24.87	24.86	24.87	24.86	24.86
		24.85	24.82	24.81	24.80	24.80	24.80	24.82	24.84	24.86	24.87	24.87	24.87
3	4- 3-79	24.87	24.87	24.87	24.87	24.88	24.89	24.89	24.89	24.89	24.89	24.88	24.89
		24.85	24.82	24.80	24.80	24.82	24.82	24.82	24.81	24.84	24.85	24.85	24.84
4	4- 4-79	24.82	24.82	24.82	24.82	24.82	24.81	24.81	24.81	24.81	24.80	24.81	24.82
		24.75	24.75	24.73	24.74	24.73	24.72	24.73	24.74	24.76	24.80	24.81	24.82
5	4- 5-79	24.80	24.82	24.82	24.82	24.82	24.83	24.85	24.86	24.89	24.90	24.90	24.90
		24.90	24.90	24.90	24.90	24.90	24.90	24.91	24.92	24.93	24.94	24.94	24.94
6	4- 6-79	24.92	24.92	24.91	24.91	24.89	24.89	24.89	24.88	24.87	24.87	24.86	24.74
		24.82	24.80	24.80	24.78	24.78	24.78	24.76	24.76	24.76	24.75	24.74	24.72
7	4- 7-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
8	4- 8-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
9	4- 9-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
10	4-10-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
11	4-11-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
12	4-12-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
13	4-13-79	-9999.00	24.84	24.80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
14	4-14-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
15	4-15-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
16	4-16-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
		-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
17	4-17-79	-9999.00	24.91	24.90	24.90	24.90	24.90	24.90	24.90	24.88	24.88	24.88	24.87
		24.35	24.81	24.80	24.80	24.79	24.79	24.79	24.79	24.80	24.80	24.80	24.79
18	4-18-79	24.79	24.78	24.78	24.78	24.78	24.79	24.79	24.79	24.80	24.80	24.78	24.77
		24.76	24.75	24.74	24.73	24.72	24.72	24.73	24.74	24.75	24.77	24.79	24.79
19	4-19-79	24.82	24.85	24.87	24.88	24.89	24.88	24.91	24.92	24.94	24.94	24.94	24.93
		24.92	24.94	24.95	24.95	24.95	25.00	25.03	25.04	25.09	25.12	25.14	25.14
20	4-20-79	25.17	25.18	25.20	25.21	25.20	25.21	25.21	25.22	25.20	25.20	25.23	25.19
		25.19	25.17	25.18	25.14	25.12	25.12	25.12	25.12	25.14	25.15	25.15	25.15
21	4-21-79	25.15	25.15	25.15	25.16	25.16	25.16	25.16	25.17	25.17	25.18	25.18	25.17
		25.15	25.14	25.10	25.08	25.09	25.08	25.09	25.09	25.09	25.10	25.10	25.11
22	4-22-79	25.10	25.10	25.10	25.10	25.10	25.10	25.12	25.12	25.11	25.11	25.09	25.09
		25.05	25.02	25.00	24.98	24.96	24.94	24.93	24.94	24.95	24.95	24.95	24.95
23	4-23-79	24.95	24.94	24.92	24.93	24.92	24.92	24.92	24.94	24.93	24.93	24.93	24.92
		24.90	24.89	24.87	24.86	24.86	24.85	24.85	24.84	24.85	24.87	24.87	24.87
24	4-24-79	24.88	24.88	24.88	24.89	24.89	24.90	24.90	24.90	24.89	24.88	24.88	24.88
		24.87	24.87	24.85	24.85	24.85	24.87	24.90	24.91	24.95	24.98	25.02	25.02
25	4-25-79	25.05	25.04	25.04	25.04	25.04	25.05	25.07	25.07	25.07	25.08	25.08	25.05
		25.02	25.02	25.02	25.00	25.00	25.00	25.00	25.00	25.01	25.03	25.04	25.04
26	4-26-79	25.05	25.05	25.05	25.04	25.04	25.04	25.05	25.04	25.00	25.00	25.05	25.03
		25.04	25.05	25.05	25.05	25.05	25.06	25.08	25.10	25.12	25.14	25.15	25.16

AP.DAT

BAROMETRIC PRESSURE, DAVE JOHNSTON POWER PLANT (IN OF HG)

23-SEP-81 11:12:04

		0	1	2	3	4	5	6	7	8	9	10	11
27	4-27-79	25.15	25.15	25.15	25.15	25.15	25.14	25.15	25.15	25.14	25.13	25.12	25.10
		25.07	25.05	25.03	25.00	24.98	24.98	24.97	24.96	24.98	24.97	24.98	24.98
28	4-28-79	24.95	24.94	24.95	24.95	24.95	24.98	25.01	25.05	25.07	25.09	25.09	25.09
		25.09	25.07	25.07	25.05	25.06	25.06	25.07	25.09	25.11	25.14	25.13	25.13
29	4-29-79	25.13	25.10	25.10	25.10	25.10	25.09	25.09	25.08	25.08	25.08	25.05	25.05
		25.04	25.03	25.02	25.01	25.00	25.00	25.00	25.01	25.03	25.08	25.09	25.09
30	4-30-79	25.10	25.10	25.09	25.08	25.07	25.07	25.06	25.07	25.04	25.02	25.00	24.98
		24.95	24.93	24.91	24.88	24.86	24.83	24.85	24.84	24.84	24.82	24.81	25.00
31	5- 1-79	24.80	24.83	24.82	24.64	24.85	24.85	24.86	24.89	24.89	24.89	24.88	24.88
		24.87	24.84	24.83	24.84	24.83	24.83	24.85	24.86	24.90	24.93	24.93	24.94
32	5- 2-79	24.95	24.96	24.98	24.98	24.98	24.98	24.98	24.98	25.00	25.02	25.02	25.03
		25.05	25.05	25.06	25.06	25.08	25.08	25.09	25.10	25.10	25.12	25.14	25.14
33	5- 3-79	25.14	25.13	25.13	25.14	25.14	25.14	25.12	25.15	25.15	25.15	25.13	25.13
		25.14	25.13	25.13	25.11	25.12	25.12	25.13	25.14	25.15	25.17	25.18	25.18
34	5- 4-79	25.18	25.18	25.18	25.18	25.17	25.17	25.17	25.17	25.18	25.15	25.15	25.12
		25.10	25.10	25.06	25.06	25.01	25.01	24.99	24.98	24.97	24.97	24.96	24.95
35	5- 5-79	24.94	24.95	24.93	24.92	24.92	24.91	24.91	24.92	24.93	24.92	24.92	24.92
		24.88	24.85	24.82	24.79	24.75	24.71	24.69	24.66	24.65	24.65	24.64	24.62
36	5- 6-79	24.50	24.51	24.52	24.52	24.51	24.52	24.53	24.53	24.52	24.53	24.53	24.57
		24.63	24.60	24.60	24.60	24.60	24.60	24.60	24.60	24.64	24.64	24.64	24.64
37	5- 7-79	24.65	24.68	24.66	24.66	24.67	24.67	24.60	24.57	24.57	24.56	24.53	24.52
		24.52	24.55	24.55	24.55	24.55	24.55	24.56	24.56	24.60	24.60	24.63	24.63
38	5- 8-79	24.61	24.62	24.64	24.61	24.62	24.63	24.62	24.63	24.68	24.67	24.67	24.68
		24.68	24.70	24.70	24.70	24.70	24.70	24.70	24.70	24.74	24.74	24.75	24.75
39	5- 9-79	24.79	24.79	24.79	24.79	24.82	24.79	24.80	24.82	24.82	24.84	24.86	24.87
		24.80	24.88	24.69	24.91	24.89	24.98	24.91	24.93	24.94	24.94	24.94	24.94
40	5-10-79	24.98	24.97	24.97	24.98	24.99	24.98	24.97	24.97	24.99	24.99	25.00	25.01
		25.02	25.02	25.02	25.02	24.98	24.99	24.97	24.97	24.95	24.97	24.98	24.97
41	5-11-79	25.03	25.03	25.02	25.03	25.03	25.03	25.03	25.04	25.05	25.05	25.06	25.05
		25.07	25.07	25.08	25.08	25.04	25.06	25.07	25.09	25.10	25.14	25.18	25.16
42	5-12-79	25.19	25.20	25.24	25.22	25.21	25.20	25.19	25.20	25.23	25.23	25.23	25.23
		25.22	25.21	25.21	25.16	25.18	25.11	25.10	25.10	25.08	25.09	25.07	25.13
43	5-13-79	25.13	25.12	25.12	25.11	25.11	25.11	25.11	25.10	25.11	25.11	25.10	25.11
		25.11	25.11	25.10	25.10	25.08	25.07	25.06	25.07	25.09	25.12	25.13	25.15
44	5-14-79	25.10	25.16	25.18	25.17	25.19	25.20	25.21	25.22	25.22	25.22	25.22	25.21
		25.21	25.20	25.18	25.17	25.15	25.14	25.13	25.12	25.13	25.14	25.16	25.15
45	5-15-79	25.15	25.14	25.14	25.12	25.12	25.14	25.12	25.12	25.13	25.14	25.16	25.15
		25.11	25.10	25.09	25.09	25.05	25.04	25.05	25.03	25.01	24.92	24.93	24.96
46	5-16-79	24.95	24.95	24.93	24.92	24.91	24.92	24.92	24.92	24.93	24.93	24.92	24.91
		24.90	24.90	24.88	24.87	24.87	24.85	24.85	24.84	24.84	24.83	24.84	24.83
47	5-17-79	24.84	24.85	24.87	24.87	24.90	24.91	24.91	24.95	24.98	25.02	25.01	25.03
		25.05	25.05	25.05	25.04	25.05	25.03	25.03	25.01	25.00	25.02	25.04	25.04
48	5-18-79	25.04	25.02	25.00	24.99	24.98	24.98	24.98	24.99	25.02	25.03	25.03	25.03
		25.02	25.01	25.01	25.00	24.99	24.99	24.97	24.97	24.96	24.99	25.00	25.00
49	5-19-79	25.00	25.00	25.00	25.02	25.02	25.03	25.05	25.07	25.08	25.10	25.10	25.10
		25.11	25.10	25.09	25.08	25.07	25.05	25.05	25.05	25.06	25.07	25.09	25.10
50	5-20-79	25.13	25.17	25.19	25.20	25.23	25.23	25.24	25.24	25.25	25.25	25.25	25.23
		25.22	25.20	25.18	25.16	25.13	25.10	25.09	25.09	25.09	25.10	25.09	25.07
51	5-21-79	25.09	25.09	25.07	25.07	25.06	25.05	25.05	25.06	25.05	25.05	25.05	25.03
		25.03	25.02	25.02	25.01	25.01	25.02	25.02	25.02	25.02	25.02	25.07	25.10
52	5-22-79	25.12	25.12	25.14	25.15	25.15	25.17	25.19	25.21	25.23	25.24	25.25	25.25
		25.26	25.25	25.24	25.25	25.23	25.24	25.24	25.25	25.25	25.28	25.29	25.32

AP. DAT		BAROMETRIC PRESSURE, DAVE JOHNSTON POWER PLANT (IN OF HG)										23-SEP-81 11:12:04	
		0	1	2	3	4	5	6	7	8	9	10	11
53	5-23-79	25.33	25.33	25.33	25.32	25.32	25.32	25.33	25.33	25.33	25.34	25.33	25.33
		25.31	25.30	25.29	25.28	25.28	25.27	25.26	25.24	25.24	25.24	25.25	25.24
54	5-24-79	25.24	25.22	25.22	25.21	25.20	25.20	25.19	25.19	25.10	25.10	25.09	25.09
		25.08	25.07	24.97	24.97	24.96	24.95	24.95	24.95	24.97	24.96	25.00	25.03
55	5-25-79	25.03	25.03	25.03	25.04	25.05	25.05	25.07	25.10	25.10	25.10	25.11	25.11
		25.12	25.14	25.14	25.12	25.10	25.10	25.10	25.09	25.10	25.10	25.10	25.10
56	5-26-79	25.10	25.10	25.10	25.09	25.08	25.09	25.09	25.09	25.08	25.07	25.05	25.04
		25.02	25.01	25.06	24.99	24.96	24.95	24.95	24.93	24.93	24.93	24.94	24.94
57	5-27-79	24.94	24.92	24.92	24.92	24.90	24.90	24.89	24.88	24.86	24.86	24.85	24.84
		24.83	24.82	24.81	24.79	24.78	24.77	24.76	24.76	24.77	24.76	24.79	24.80
58	5-28-79	24.80	24.80	24.80	24.79	24.79	24.78	24.80	24.80	24.79	24.79	24.80	24.81
		24.81	24.82	24.83	24.82	24.82	24.81	24.80	24.78	24.80	24.81	24.81	24.83
59	5-29-79	24.83	24.83	24.85	24.89	24.89	24.89	24.92	24.94	24.95	24.96	24.98	24.97
		24.98	24.99	24.94	24.94	24.93	24.92	24.92	24.94	24.98	25.00	25.01	25.02
60	5-30-79	25.03	25.04	25.05	25.06	25.07	25.07	25.09	25.10	25.10	25.11	25.11	25.09
		25.09	25.09	25.08	25.08	25.08	25.08	25.08	25.08	25.07	25.08	25.10	25.10
61	5-31-79	25.10	25.10	25.10	25.10	25.10	25.11	25.13	25.13	25.13	25.14	25.12	25.12
		25.12	25.11	25.10	25.06	25.06	25.10	25.10	25.12	25.13	25.16	25.23	25.23
62	6- 1-79	25.25	25.26	25.24	25.24	25.24	25.24	25.24	25.25	25.26	25.27	25.28	25.30
		25.28	25.30	25.28	25.29	25.26	25.25	25.24	25.23	25.23	25.25	25.25	25.25
63	6- 2-79	25.22	25.22	25.22	25.21	25.21	25.20	25.22	25.25	25.24	25.23	25.23	25.23
		25.22	25.20	25.18	25.18	25.16	25.15	25.14	25.13	25.13	25.14	25.15	25.15
64	6- 3-79	25.14	25.13	25.11	25.11	25.11	25.02	25.11	25.10	25.10	25.09	25.09	25.06
		25.06	25.05	25.02	25.02	25.02	25.01	25.00	24.99	24.99	25.01	25.02	25.02
65	6- 4-79	25.02	25.03	25.03	25.06	25.06	25.07	25.07	25.07	25.07	25.07	25.06	25.05
		25.04	25.03	25.00	25.00	24.99	25.00	24.98	24.97	24.98	24.98	25.00	25.00
66	6- 5-79	24.96	24.95	24.95	24.94	24.94	24.95	24.95	24.95	24.96	24.96	24.95	24.98
		24.92	24.83	24.83	24.81	24.80	24.77	24.76	24.76	24.76	24.75	24.76	24.76
67	6- 6-79	24.73	24.72	24.72	24.73	24.75	24.81	24.82	24.63	24.85	24.83	24.80	24.80
		24.78	24.77	24.73	24.70	24.67	24.65	24.65	24.63	24.62	24.65	24.70	24.76
68	6- 7-79	24.78	24.78	24.81	24.82	24.85	24.87	24.90	24.91	24.90	24.94	24.94	24.94
		24.93	24.92	24.92	24.94	24.94	24.96	24.97	25.00	25.04	25.06	25.09	25.10
69	6- 8-79	25.11	25.12	25.12	25.11	25.12	25.12	25.13	25.14	25.16	25.17	25.17	25.17
		25.15	25.15	25.14	25.16	25.14	25.14	25.14	25.14	25.14	25.13	25.15	25.17
70	6- 9-79	25.18	25.18	25.16	25.16	25.19	25.19	25.16	25.16	25.18	25.19	25.19	25.19
		25.19	25.19	25.19	25.19	25.18	25.17	25.17	25.18	25.20	25.21	25.23	25.24
71	6-10-79	25.27	25.27	25.26	25.26	25.26	25.27	25.28	25.29	25.29	25.30	25.30	25.29
		25.29	25.28	25.26	25.25	25.23	25.21	25.20	25.19	25.19	25.19	25.21	25.21
72	6-11-79	25.22	25.20	25.20	25.21	25.21	25.21	25.21	25.20	25.20	25.20	25.20	25.19
		25.19	25.18	25.17	25.17	25.13	25.15	25.12	25.11	25.10	25.11	25.11	25.11
73	6-12-79	25.11	25.10	25.09	25.10	25.10	25.09	25.10	25.12	25.12	25.12	25.12	25.11
		25.11	25.11	25.10	25.10	25.09	25.07	25.08	25.07	25.07	25.08	25.08	25.05
74	6-13-79	25.04	25.05	25.01	25.03	25.02	25.06	25.01	25.04	25.04	25.04	25.05	25.04
		25.03	25.03	25.03	25.03	24.95	24.97	24.92	24.92	24.92	24.91	24.91	24.92
75	6-14-79	24.92	24.96	24.89	24.88	24.87	24.87	24.86	24.87	24.88	24.89	24.89	24.87
		24.87	24.85	24.84	24.83	24.81	25.00	25.02	25.01	25.09	25.01	25.02	25.05
76	6-15-79	25.05	25.12	25.14	25.12	25.13	25.12	25.12	25.15	25.15	25.14	25.12	25.10
		25.08	25.06	25.04	25.03	25.00	24.97	24.98	24.97	24.97	24.97	24.98	24.98
77	6-16-79	24.95	25.03	25.02	25.04	25.06	25.06	25.06	25.07	25.05	25.05	25.03	25.02
		25.01	25.00	24.99	24.99	24.98	24.99	24.95	24.97	24.92	25.00	25.03	25.02
78	6-17-79	25.02	24.99	24.98	24.98	25.00	25.00	25.00	24.99	24.98	24.96	24.96	24.95
		24.94	24.90	24.91	24.90	24.90	24.88	24.87	24.87	24.88	24.88	24.92	24.94

AP.DAT

BAROMETRIC PRESSURE, DAVE JOHNSTON POWER PLANT (IN OF HG)

23-SEP-81 11:12:04

	0	1	2	3	4	5	6	7	8	9	10	11
79 6-18-79	24.92	24.92	24.87	24.91	24.90	24.90	24.91	24.91	24.90	24.91	24.90	24.89
	24.88	24.88	24.87	24.88	24.84	24.87	24.88	24.88	24.91	24.90	24.91	24.93
80 6-19-79	24.96	24.95	24.90	24.90	24.90	24.90	24.90	24.89	24.87	24.87	24.86	24.84
	24.84	24.84	24.85	24.87	24.90	24.91	24.94	24.95	25.00	25.02	25.09	25.11
81 6-20-79	25.11	25.10	25.12	25.12	25.12	25.12	25.14	25.15	25.16	25.18	25.16	25.16
	25.16	25.14	25.14	25.13	25.12	25.11	25.11	25.11	25.13	25.14	25.17	25.18
82 6-21-79	25.18	25.20	25.20	25.20	25.20	25.20	25.20	25.21	25.21	25.21	25.21	25.21
	25.20	25.18	25.15	25.15	25.10	25.11	25.11	25.10	25.09	25.11	25.13	25.20
83 6-22-79	25.22	25.22	25.24	25.25	25.23	25.23	25.25	25.25	25.26	25.25	25.20	25.17
	25.16	25.13	25.11	25.11	25.09	25.09	25.11	25.11	25.11	25.12	25.13	25.19
84 6-23-79	25.10	25.19	25.21	25.24	25.22	25.23	25.23	25.22	25.22	25.23	25.23	25.21
	25.21	25.20	25.19	25.18	25.17	25.19	25.19	25.19	25.19	25.20	25.22	25.23
85 6-24-79	25.23	25.22	25.20	25.20	25.20	25.20	25.23	25.23	25.20	25.21	25.22	25.22
	25.22	25.21	25.21	25.19	25.20	25.19	25.19	25.17	25.18	25.19	25.22	25.24
86 6-25-79	25.24	25.24	25.24	25.24	25.23	25.23	25.22	25.21	25.12	25.13	25.15	25.15
	25.15	25.14	25.11	25.10	25.09	25.08	25.10	25.15	25.16	25.16	25.16	25.19
87 6-26-79	25.17	25.17	25.18	25.18	25.19	25.19	25.20	25.21	25.22	25.22	25.21	25.22
	25.20	25.19	25.17	25.16	25.16	25.14	25.14	25.13	25.18	25.23	25.36	25.26
88 6-27-79	25.26	25.24	25.24	25.21	25.22	25.22	25.23	25.24	25.25	25.25	25.23	25.23
	25.22	25.20	25.18	25.17	25.18	25.21	25.22	25.24	25.24	25.24	25.26	25.28
89 6-28-79	25.31	25.30	25.30	25.30	25.30	25.29	25.30	25.31	25.31	25.31	25.31	25.31
	25.30	25.28	25.28	25.28	25.25	25.23	25.23	25.23	25.23	25.25	25.28	25.28
90 6-29-79	25.27	25.27	25.25	25.25	25.25	25.25	25.25	25.27	25.25	25.27	25.29	25.28
	25.27	25.27	25.25	25.23	25.20	25.18	25.17	25.18	25.15	25.14	25.14	25.14
91 6-30-79	25.13	25.11	25.11	25.11	25.10	25.09	25.09	25.09	25.10	25.10	25.09	25.06
	25.05	25.03	25.02	25.01	25.01	25.00	24.99	24.99	24.99	24.99	24.98	24.97
92 7- 1-79	24.97	24.98	25.00	25.03	25.00	25.11	25.11	25.10	25.11	25.10	25.09	25.08
	25.06	25.02	25.00	25.00	25.02	24.98	24.97	24.97	24.98	24.98	24.99	25.00
93 7- 2-79	25.00	25.00	25.00	25.00	25.00	25.02	25.02	25.03	25.05	25.07	25.06	25.06
	25.08	25.06	25.07	25.04	25.05	25.05	25.05	25.07	25.07	25.10	25.09	25.08
94 7- 3-79	25.08	25.10	25.12	25.12	25.14	25.15	25.16	25.17	25.19	25.20	25.19	25.20
	25.20	25.19	25.19	25.18	25.16	25.14	25.13	25.13	25.13	25.14	25.16	25.22
95 7- 4-79	25.24	25.19	25.20	25.24	25.24	25.24	25.25	25.24	25.25	25.25	25.26	25.25
	25.25	25.23	25.22	25.23	25.23	25.22	25.21	25.20	25.21	25.21	25.20	25.30
96 7- 5-79	25.17	25.17	25.13	25.20	25.19	25.19	25.17	25.16	25.16	25.17	25.18	25.18
	25.17	25.16	25.16	25.15	25.15	25.14	25.13	25.16	25.18	25.18	25.20	25.19
97 7- 6-79	25.19	25.19	25.18	25.17	25.20	25.20	25.22	25.22	25.24	25.23	25.23	25.22
	25.21	25.24	25.25	25.24	25.19	25.15	25.16	25.17	25.16	25.22	25.22	25.22
98 7- 7-79	25.20	25.19	25.19	25.19	25.18	25.19	25.22	25.22	25.23	25.24	25.25	25.24
	25.25	25.25	25.24	25.23	25.22	25.21	25.20	25.20	25.20	25.21	25.24	25.24
99 7- 8-79	25.24	25.23	25.23	25.21	25.21	25.21	25.21	25.21	25.21	25.21	25.21	25.21
	25.20	25.18	25.17	25.17	25.14	25.13	25.12	25.10	25.11	25.12	25.13	25.14
100 7- 9-79	25.18	25.18	25.20	25.25	25.20	25.30	25.29	25.31	25.32	25.30	25.30	25.30
	25.28	25.27	25.25	25.23	25.22	25.21	25.20	25.19	25.19	25.19	25.20	25.20
101 7-10-79	25.20	25.19	25.19	25.17	25.15	25.15	25.14	25.14	25.15	25.15	25.15	25.11
	25.10	25.09	25.08	25.07	25.05	25.04	25.04	25.03	25.03	25.04	25.05	25.04
102 7-11-79	25.04	25.05	25.06	25.07	25.07	25.09	25.10	25.12	25.14	25.14	25.14	25.12
	25.12	25.12	25.11	25.11	25.10	25.09	25.08	25.08	25.10	25.12	25.13	25.13
103 7-12-79	25.14	25.14	25.14	25.13	25.12	25.11	25.11	25.14	25.15	25.15	25.14	25.14
	25.14	25.12	25.12	25.11	25.08	25.08	25.05	25.05	25.06	25.06	25.09	25.10
104 7-13-79	25.10	25.11	25.12	25.12	25.12	25.14	25.16	25.16	25.15	25.17	25.17	25.17
	25.17	25.16	25.14	25.14	25.06	25.06	25.06	25.07	25.07	25.05	25.07	25.08

AP.DAT		BAROMETRIC PRESSURE, DAVE JOHNSTON POWER PLANT (IN OF HG)										23-SEP-81 11:12:04	
		0	1	2	3	4	5	6	7	8	9	10	11
105	7-14-79	25.09	25.07	25.08	25.06	25.07	25.07	25.07	25.07	25.09	25.09	25.08	25.07
		25.07	25.07	25.06	25.05	25.05	25.07	25.09	25.10	25.14	25.17	25.21	25.23
106	7-15-79	25.25	25.27	25.27	25.27	25.29	25.29	25.30	25.30	25.31	25.30	25.30	25.31
		25.31	25.31	25.30	25.28	25.27	25.26	25.25	25.25	25.26	25.28	25.33	25.33
107	7-16-79	25.35	25.35	25.35	25.34	25.33	25.34	25.35	25.36	25.38	25.39	25.39	25.40
		25.42	25.42	25.41	25.41	25.38	25.36	25.37	25.36	25.36	25.38	25.38	25.39
108	7-17-79	25.40	25.40	25.39	25.40	25.40	25.39	25.39	25.39	25.38	25.38	25.37	25.37
		25.34	25.32	25.33	25.30	25.30	25.30	25.28	25.28	25.27	25.28	25.32	25.33
109	7-18-79	25.33	25.34	25.34	25.34	25.35	25.35	25.35	25.35	25.33	25.35	25.34	25.32
		25.32	25.31	25.32	25.31	25.29	25.27	25.28	25.28	25.29	25.29	25.31	25.32
110	7-19-79	25.32	25.32	25.32	25.32	25.32	25.31	25.31	25.32	25.21	25.21	25.21	25.22
		25.21	25.20	25.19	25.19	25.18	25.15	25.16	25.15	25.16	25.17	25.18	25.18
111	7-20-79	25.12	25.12	25.16	25.15	25.15	25.17	25.18	25.18	25.18	25.16	25.15	25.14
		25.12	25.11	25.10	25.10	25.10	25.10	25.09	25.10	25.10	25.10	25.12	25.07
112	7-21-79	25.11	25.10	25.10	25.09	25.09	25.09	25.10	25.11	25.11	25.12	25.11	25.11
		25.10	25.09	25.08	25.06	25.05	25.05	25.04	25.03	25.05	25.06	25.07	25.07
113	7-22-79	25.07	25.07	25.06	25.06	25.06	25.06	25.06	25.05	25.05	25.05	25.08	25.04
		25.04	25.02	25.01	25.00	24.98	24.98	24.98	25.00	25.00	25.03	25.02	25.03
114	7-23-79	25.03	25.02	25.02	25.05	25.04	25.05	25.04	25.05	25.05	25.06	25.06	25.06
		25.03	25.02	25.03	25.05	25.09	25.09	25.09	25.09	25.10	25.10	25.11	25.12
115	7-24-79	25.11	25.11	25.11	25.11	25.11	25.12	25.13	25.14	25.14	25.14	25.13	25.13
		25.13	25.11	25.11	25.10	25.09	25.08	25.08	25.07	25.07	25.08	25.09	25.10
116	7-25-79	25.08	25.09	25.09	25.09	25.09	25.10	25.11	25.12	25.12	25.12	25.10	25.09
		25.10	25.09	25.09	25.08	25.06	25.05	25.04	25.10	25.12	25.10	25.11	25.12
117	7-26-79	25.08	25.08	25.13	25.14	25.16	25.17	25.17	25.17	25.17	25.18	25.18	25.17
		25.15	25.14	25.11	25.11	25.10	25.08	25.11	25.11	25.10	25.10	25.14	25.13
118	7-27-79	25.16	25.13	25.12	25.12	25.11	25.12	25.12	25.13	25.16	25.18	25.17	25.17
		25.15	25.15	25.12	25.12	25.10	25.10	25.09	25.10	25.11	25.11	25.19	25.21
119	7-28-79	25.16	25.15	25.14	25.13	25.12	25.13	25.13	25.13	25.15	25.15	25.15	25.13
		25.12	25.13	25.11	25.10	25.10	25.08	25.05	25.05	25.05	25.05	25.05	25.02
120	7-29-79	25.02	25.02	25.05	25.09	25.08	25.10	25.11	25.12	25.10	25.10	25.11	25.12
		25.12	25.11	25.11	25.10	25.10	25.10	25.11	25.12	25.14	25.17	25.20	25.21
121	7-30-79	25.22	25.22	25.23	25.22	25.22	25.22	25.22	25.20	25.22	25.22	25.22	25.22
		25.22	25.21	25.19	25.18	25.16	25.20	25.13	25.24	25.25	25.25	25.27	25.29
122	7-31-79	25.31	25.29	25.24	25.24	25.24	25.24	25.24	25.25	25.25	25.25	25.28	25.28
		25.28	25.28	25.26	25.25	25.23	25.21	25.20	25.20	25.20	25.20	25.20	25.20
123	8- 1-79	25.20	25.18	25.17	25.15	25.16	25.15	25.15	25.15	25.15	25.20	25.20	25.20
		25.20	25.16	25.16	25.15	25.12	25.13	25.13	25.13	25.13	25.15	25.17	25.18
124	8- 2-79	25.17	25.18	25.17	25.17	25.17	25.17	25.16	25.18	25.18	25.18	25.16	25.16
		25.15	25.14	25.12	25.11	25.10	25.10	25.09	25.08	25.08	25.07	25.08	25.06
125	8- 3-79	25.06	25.06	25.04	25.04	25.06	25.07	25.08	25.09	25.09	25.10	25.10	25.10
		25.10	25.10	25.08	25.08	25.08	25.06	25.06	25.05	25.05	25.06	25.08	25.08
126	8- 4-79	25.09	25.09	25.10	25.10	25.10	25.12	25.12	25.12	25.18	25.18	25.19	25.19
		25.20	25.20	25.20	25.20	25.19	25.19	25.19	25.19	25.19	25.20	25.21	25.22
127	8- 5-79	25.22	25.21	25.20	25.20	25.20	25.20	25.20	25.20	25.23	25.25	25.24	25.24
		25.23	25.21	25.20	25.20	25.19	25.18	25.17	25.16	25.15	25.16	25.17	25.15
128	8- 6-79	25.18	25.19	25.19	25.19	25.20	25.21	25.22	25.21	25.22	25.24	25.25	25.24
		25.25	25.24	25.24	25.22	25.21	25.20	25.20	25.19	25.20	25.23	25.24	25.26
129	8- 7-79	25.26	25.25	25.25	25.22	25.21	25.22	25.21	25.21	25.22	25.22	25.22	25.22
		25.22	25.21	25.20	25.20	25.20	25.16	25.16	25.16	25.17	25.20	25.24	25.24
130	8- 8-79	25.26	25.23	25.22	25.24	25.25	25.25	25.22	25.22	25.26	25.26	25.26	25.26
		25.26	25.26	25.23	25.22	25.19	25.20	25.19	25.20	25.20	25.19	25.21	25.22

AP.DAT

BAROMETRIC PRESSURE, DAVE JOHNSTON POWER PLANT (IN OF HG)

23-SEP-81 11:12:04

	0	1	2	3	4	5	6	7	8	9	10	11
131 8- 9-79	25.23 25.40	25.20 25.40	25.21 25.40	25.24 25.38	25.26 25.37	25.26 25.36	25.28 25.37	25.29 25.37	25.32 25.39	25.35 25.41	25.37 25.42	25.39 25.41
132 8-10-79	25.41 25.42	25.41 25.42	25.40 25.40	25.41 25.39	25.41 25.32	25.41 25.30	25.42 25.28	25.42 25.26	25.43 25.25	25.44 25.25	25.44 25.27	25.43 25.26
133 8-11-79	25.26 25.16	25.26 25.15	25.26 25.13	25.26 25.11	25.26 25.09	25.23 25.07	25.23 25.05	25.21 25.05	25.21 25.05	25.20 25.05	25.19 25.04	25.18 25.03
134 8-12-79	25.03 25.09	25.01 25.09	25.00 25.00	25.00 25.09	25.00 25.07	25.00 25.06	25.02 25.07	25.04 25.07	25.06 25.10	25.07 25.14	25.09 25.16	25.09 25.15
135 8-13-79	25.17 25.20	25.19 25.18	25.17 25.18	25.18 25.18	25.18 25.21	25.19 25.21	25.21 25.21	25.21 25.22	25.21 25.22	25.21 25.21	25.20 25.23	25.20 25.23
136 8-14-79	25.26 25.30	25.26 25.30	25.25 25.29	25.27 25.30	25.27 25.28	25.28 25.28	25.29 25.30	25.30 25.30	25.31 25.30	25.31 25.31	25.30 25.32	25.30 25.30
137 8-15-79	25.30 25.25	25.29 25.24	25.28 25.23	25.28 25.19	25.28 25.18	25.27 25.17	25.28 25.17	25.28 25.15	25.28 25.16	25.28 25.17	25.27 25.18	25.26 25.18
138 8-16-79	25.19 25.20	25.19 25.19	25.19 25.16	25.17 25.16	25.18 25.19	25.19 25.18	25.19 25.19	25.19 25.22	25.19 25.26	25.20 25.26	25.20 25.26	25.17 25.25
139 8-17-79	25.26 25.26	25.27 25.26	25.27 25.25	25.27 25.23	25.26 25.23	25.25 25.20	25.25 25.22	25.25 25.22	25.27 25.26	25.28 25.28	25.27 25.26	25.27 25.23
140 8-18-79	25.25 25.23	25.23 25.21	25.22 25.21	25.21 25.20	25.21 25.20	25.20 25.18	25.20 25.20	25.20 25.20	25.19 25.18	25.20 25.18	25.20 25.18	25.21 25.18
141 8-19-79	25.19 25.18	25.18 25.18	25.17 25.17	25.16 25.19	25.16 25.19	25.17 25.19	25.17 25.19	25.18 25.19	25.18 25.19	25.18 25.20	25.18 25.20	25.18 25.20
142 8-20-79	25.20 25.19	25.20 25.19	25.20 25.19	25.19 25.16	25.19 25.16	25.19 25.15	25.20 25.15	25.19 25.15	25.19 25.15	25.19 25.16	25.19 25.18	25.19 25.17
143 8-21-79	25.17 25.21	25.17 25.20	25.16 25.19	25.16 25.19	25.16 25.20	25.16 25.20	25.17 25.19	25.18 25.20	25.19 25.21	25.21 25.22	25.20 25.25	25.20 25.26
144 8-22-79	25.26 25.30	25.26 25.29	25.27 25.28	25.26 25.28	25.27 25.28	25.27 25.28	25.28 25.28	25.29 25.28	25.29 25.29	25.28 25.31	25.30 25.33	25.34 25.34
145 8-23-79	25.32 25.27	25.32 25.24	25.31 25.20	25.32 25.19	25.32 25.19	25.30 25.17	25.30 25.16	25.30 25.15	25.30 25.18	25.29 25.18	25.31 25.18	25.33 25.18
146 8-24-79	25.16 25.18	25.19 25.19	25.19 25.19	25.18 25.19	25.14 25.20	25.13 25.20	25.15 25.20	25.15 25.26	25.15 25.26	25.18 25.22	25.18 25.24	25.18 25.23
147 8-25-79	25.22 25.19	25.22 25.17	25.22 25.17	25.20 25.16	25.21 25.16	25.20 25.14	25.19 25.13	25.21 25.12	25.20 25.14	25.20 25.17	25.20 25.18	25.19 25.19
148 8-26-79	25.20 25.22	25.21 25.22	25.20 25.21	25.20 25.21	25.20 25.21	25.20 25.17	25.20 25.19	25.21 25.19	25.21 25.19	25.24 25.19	25.21 25.20	25.22 25.20
149 8-27-79	25.19 25.09	25.18 25.07	25.18 25.07	25.21 25.04	25.19 25.00	25.18 24.99	25.16 24.97	25.16 24.96	25.19 24.97	25.16 25.00	25.13 25.04	25.10 25.06
150 8-28-79	25.05 25.06	25.05 25.06	25.05 25.07	25.05 25.07	25.05 25.05	25.05 25.05	25.05 25.04	25.05 25.04	25.04 25.07	25.05 25.05	25.06 25.06	25.08 25.08
151 8-29-79	25.08 25.11	25.07 25.10	25.07 25.09	25.07 25.09	25.07 25.08	25.07 25.08	25.09 25.08	25.10 25.08	25.10 25.08	25.11 25.10	25.12 25.10	25.12 25.10
152 8-30-79	25.09 25.10	25.08 25.08	25.08 25.06	25.07 25.05	25.09 25.03	25.10 25.03	25.10 25.05	25.10 25.06	25.12 25.06	25.12 25.07	25.12 25.05	25.12 25.03
153 8-31-79	25.01 25.00	25.00 24.99	25.00 24.99	24.99 24.99	24.99 25.00	25.10 25.00	24.99 25.00	25.02 25.00	25.03 25.05	25.03 25.07	25.02 25.08	25.02 25.10
154 9- 1-79	25.10 25.16	25.10 25.15	25.10 25.15	25.10 25.14	25.12 25.12	25.12 25.11	25.12 25.11	25.13 25.11	25.17 25.11	25.17 25.12	25.17 25.12	25.17 25.12
155 9- 2-79	25.12 25.12	25.12 25.12	25.13 25.11	25.13 25.11	25.14 25.11	25.13 25.10	25.13 25.10	25.13 25.11	25.12 25.11	25.12 25.12	25.13 25.13	25.12 25.12
156 9- 3-79	25.12 25.15	25.15 25.13	25.15 25.11	25.15 25.10	25.15 25.07	25.15 25.05	25.14 25.03	25.16 25.03	25.17 25.03	25.16 25.03	25.17 25.03	25.16 25.02

AP.DAT

BAROMETRIC PRESSURE, DAVE JOHNSTON POWER PLANT (IN OF HG)

23-SEP-81 11:12:04

	0	1	2	3	4	5	6	7	8	9	10	11
183 9-30-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
184 10- 1-79	-9999.00	25.42	25.42	25.43	25.42	25.42	25.42	25.42	25.42	25.43	25.43	25.39
	25.37	25.34	25.30	25.40	25.14	25.21	25.20	25.18	25.18	25.18	25.18	25.17
185 10- 2-79	25.16	25.16	25.15	25.14	25.13	25.12	25.11	25.10	25.11	25.12	25.14	25.16
	25.15	25.15	25.14	25.13	25.12	25.16	25.21	25.26	25.30	25.33	25.37	25.39
186 10- 3-79	25.41	25.40	25.40	25.40	25.37	25.37	25.39	25.39	25.41	25.42	25.43	25.42
	25.41	25.40	25.39	25.38	25.38	25.37	25.25	25.27	25.27	25.39	25.40	25.40
187 10- 4-79	25.40	25.40	25.38	25.38	25.36	25.35	25.35	25.35	25.35	25.35	25.34	25.38
	25.27	25.26	25.24	25.22	25.20	25.18	25.17	25.18	25.17	25.18	25.17	25.17
188 10- 5-79	25.18	25.20	25.19	25.19	25.20	25.20	25.20	25.20	25.24	25.25	25.25	25.27
	25.27	25.25	25.24	25.22	25.19	25.19	25.20	25.20	25.21	25.20	25.20	25.20
189 10- 6-79	25.21	25.20	25.20	25.20	25.20	25.20	25.19	25.20	25.20	25.20	25.20	25.19
	25.17	25.16	25.15	25.13	25.13	25.14	25.15	25.16	25.16	25.17	25.16	25.16
190 10- 7-79	25.16	25.15	25.14	25.14	25.14	25.14	25.14	25.13	25.13	25.13	25.14	25.14
	25.12	25.11	25.12	25.10	25.09	25.08	25.08	25.07	25.08	25.08	25.07	25.08
191 10- 8-79	25.08	25.07	25.07	25.07	25.07	25.09	25.08	25.09	25.11	25.10	25.22	25.25
	25.27	25.27	25.27	25.29	25.31	25.31	25.32	25.35	25.41	25.44	25.47	25.49
192 10- 9-79	25.50	25.50	25.50	25.50	25.50	25.49	25.49	25.50	25.49	25.48	25.48	25.46
	25.44	25.42	25.38	25.36	25.34	25.30	25.28	25.28	25.25	25.24	25.24	25.23
193 10-10-79	25.21	25.21	25.22	25.22	25.21	25.21	25.21	25.20	25.20	25.20	25.18	25.18
	25.18	25.17	25.17	25.16	25.16	25.14	25.14	25.14	25.14	25.15	25.15	25.15
194 10-11-79	25.17	25.16	25.16	25.16	25.15	25.15	25.14	25.14	25.13	25.13	25.14	25.14
	25.13	25.12	25.09	25.07	25.08	25.08	25.08	25.09	25.10	25.10	25.11	25.11
195 10-12-79	25.13	25.14	25.14	25.14	25.13	25.14	25.14	25.15	25.16	25.18	25.17	25.16
	25.15	25.15	25.14	25.15	25.15	25.16	25.17	25.19	25.21	25.22	25.21	25.22
196 10-13-79	25.23	25.22	25.21	25.20	25.19	25.19	25.19	25.19	25.18	25.19	25.18	25.19
	25.15	25.12	25.09	25.08	25.07	25.06	25.06	25.06	25.06	25.06	25.06	25.06
197 10-14-79	25.04	25.04	25.04	25.04	25.04	25.04	25.04	25.03	25.02	25.02	25.02	25.01
	25.01	25.01	25.00	24.99	24.99	25.00	25.00	25.00	25.02	25.02	25.02	25.01
198 10-15-79	25.06	25.05	25.05	25.05	25.06	25.07	25.09	25.10	25.11	25.12	25.11	25.10
	25.08	25.07	25.06	25.06	25.07	25.06	25.06	25.10	25.12	25.15	25.14	25.12
199 10-16-79	25.12	25.13	25.14	25.15	25.18	25.20	25.23	25.24	25.27	25.29	25.32	25.33
	25.35	25.35	25.34	25.33	25.35	25.35	25.34	25.33	25.33	25.32	25.31	25.30
200 10-17-79	25.27	25.25	25.24	25.22	25.20	25.19	25.18	25.18	25.18	25.17	25.18	25.18
	25.13	25.10	25.10	25.10	25.07	25.06	25.05	25.05	25.05	25.05	25.03	25.02
201 10-18-79	25.00	25.02	25.02	25.04	25.00	25.04	25.07	25.09	25.09	25.10	25.10	25.07
	25.05	25.03	25.00	24.99	24.97	24.94	24.92	24.90	24.89	24.87	24.85	24.82
202 10-19-79	24.00	24.75	24.73	24.71	24.69	24.66	24.61	24.60	24.59	24.60	24.58	24.58
	24.55	24.55	24.55	24.53	24.56	24.57	24.58	24.60	24.62	24.64	24.70	24.72
203 10-20-79	24.72	24.70	24.71	24.70	24.68	24.68	24.69	24.70	24.69	24.66	24.69	24.70
	24.72	24.74	24.75	24.75	24.78	24.77	24.79	24.80	24.79	24.80	24.82	24.83
204 10-21-79	24.85	24.88	24.92	24.94	24.97	24.98	25.02	25.01	25.04	25.06	25.09	25.09
	25.10	25.09	25.09	25.09	25.10	25.10	25.12	25.16	25.19	25.20	25.21	25.20
205 10-22-79	25.21	25.21	25.21	25.23	25.22	25.23	25.23	25.23	25.23	25.23	25.23	25.23
	25.22	25.20	25.20	25.20	25.17	25.17	25.17	25.17	25.18	25.18	25.17	25.16
206 10-23-79	25.16	25.16	25.15	25.15	25.15	25.15	25.16	25.16	25.17	25.21	25.22	25.21
	25.22	25.22	25.20	25.20	25.19	25.18	25.18	25.19	25.19	25.19	25.16	25.17
207 10-24-79	25.19	25.18	25.18	25.20	25.20	25.21	25.22	25.22	25.24	25.26	25.26	25.25
	25.25	25.23	25.22	25.20	25.19	25.19	25.19	25.19	25.19	25.19	25.19	25.19
208 10-25-79	25.17	25.17	25.16	25.15	25.14	25.13	25.12	25.12	25.12	25.12	25.10	25.07
	25.03	25.00	25.00	24.98	24.98	24.98	24.98	24.98	24.98	24.96	24.96	24.95

AP.DAT	BAROMETRIC PRESSURE, DAVE JOHNSTON POWER PLANT (IN OF HG)											23-SEP-81 11:12:04	
	0	1	2	3	4	5	6	7	8	9	10	11	
209 10-26-79	24.94	24.93	24.91	24.92	24.90	24.91	24.93	24.93	24.96	24.99	25.00	25.02	
	25.03	25.02	25.02	25.02	25.05	25.06	25.10	25.14	25.16	25.18	25.20	25.15	
210 10-27-79	25.10	25.21	25.21	25.23	25.24	25.24	25.24	25.27	25.26	25.27	25.27	25.27	
	25.27	25.22	25.19	25.17	25.16	25.15	25.15	25.16	25.15	25.14	25.15	25.15	
211 10-28-79	25.11	25.11	25.10	25.10	25.08	25.08	25.06	25.06	25.08	25.07	25.06	25.05	
	25.04	25.03	25.00	24.99	24.97	24.96	24.96	24.98	24.99	24.99	25.00	24.99	
212 10-29-79	24.97	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.02	25.02	25.02	25.02	
	25.01	25.01	25.02	25.03	25.06	25.08	25.11	25.13	25.15	25.16	25.18	25.17	
213 10-30-79	25.16	25.15	25.17	25.14	25.18	25.19	25.19	25.20	25.22	25.24	25.20	25.20	
	25.10	25.17	25.17	25.16	25.15	25.15	25.16	25.15	25.15	25.14	25.13	25.13	
214 10-31-79	25.13	25.12	25.08	25.10	25.08	25.08	25.09	25.09	25.10	25.11	25.12	25.12	
	25.10	25.09	25.09	25.08	25.08	25.08	25.10	25.11	25.12	25.12	25.13	25.13	
215 11- 1-79	25.13	25.14	25.15	25.15	25.15	25.15	25.13	25.15	25.15	25.15	25.15	25.14	
	25.12	25.11	25.10	25.10	25.10	25.10	25.11	25.14	25.15	25.15	25.15	25.15	
216 11- 2-79	25.16	25.16	25.16	25.16	25.16	25.18	25.17	25.17	25.18	25.18	25.18	25.17	
	25.17	25.15	25.13	25.12	25.10	25.10	25.10	25.10	25.10	25.11	25.11	25.10	
217 11- 3-79	25.10	25.08	25.07	25.05	25.04	25.04	25.04	25.05	25.06	25.06	25.07	25.07	
	25.06	25.05	25.04	25.04	25.04	25.04	25.06	25.06	25.05	25.03	25.03	25.02	
218 11- 4-79	25.01	25.00	25.00	24.99	24.98	24.98	24.98	24.98	25.00	24.99	25.00	25.00	
	24.99	24.99	24.99	25.00	25.02	25.04	25.07	25.08	25.10	25.13	25.14	25.15	
219 11- 5-79	25.17	25.18	25.19	25.20	25.21	25.23	25.24	25.25	25.27	25.29	25.30	25.30	
	25.30	25.29	25.30	25.31	25.31	25.31	25.32	25.33	25.31	25.35	25.36	25.38	
220 11- 6-79	25.39	25.39	25.39	25.39	25.39	25.38	25.38	25.38	25.37	25.36	25.35	25.34	
	25.31	25.28	25.25	25.25	25.25	25.24	25.24	25.24	25.24	25.24	25.23	25.22	
221 11- 7-79	25.20	25.19	25.18	25.16	25.15	25.14	25.14	25.14	25.14	25.14	25.13	25.11	
	25.08	25.06	25.03	25.03	25.02	25.01	25.02	25.02	25.02	25.00	24.99	24.98	
222 11- 8-79	24.96	24.93	24.91	24.88	24.87	24.86	24.84	24.83	24.84	24.85	24.83	24.84	
	24.83	24.81	24.81	24.81	24.82	24.82	24.84	24.86	24.90	24.91	24.91	24.91	
223 11- 9-79	24.94	24.90	24.97	24.97	24.96	24.98	24.97	24.98	25.00	25.00	25.00	25.00	
	25.00	24.98	24.97	24.97	24.96	24.98	24.98	24.99	24.99	24.99	24.97	24.98	
224 11-10-79	24.98	24.98	24.99	24.98	24.97	24.97	24.95	24.96	24.95	24.95	24.94	24.94	
	24.92	24.90	24.89	24.90	24.90	24.90	24.90	24.90	24.91	24.92	24.95	24.96	
225 11-11-79	24.98	24.99	25.00	25.02	25.04	25.05	25.07	25.09	25.11	25.12	25.14	25.15	
	25.16	25.17	25.18	25.20	25.22	25.24	25.25	25.26	25.26	25.27	25.28	25.28	
226 11-12-79	25.27	25.26	25.24	25.26	25.25	25.27	25.28	25.28	25.29	25.30	25.31	25.31	
	25.30	25.28	25.26	25.25	25.23	25.22	25.22	25.22	25.22	25.22	25.22	25.22	
227 11-13-79	25.25	25.25	25.28	25.28	25.28	25.29	25.30	25.30	25.31	25.32	25.34	25.34	
	25.32	25.30	25.29	25.28	25.30	25.30	25.30	25.31	25.32	25.34	25.34	25.34	
228 11-14-79	25.34	25.34	25.33	25.33	25.32	25.32	25.32	25.32	25.34	25.34	25.35	25.35	
	25.31	25.30	25.29	25.27	25.28	25.29	25.29	25.30	25.30	25.30	25.31	25.30	
229 11-15-79	25.30	25.29	25.30	25.30	25.30	25.32	25.32	25.34	25.34	25.35	25.36	25.35	
	25.35	25.34	25.32	25.32	25.32	25.33	25.34	25.34	25.34	25.34	25.34	25.32	
230 11-16-79	25.31	25.29	25.28	25.26	25.25	25.24	25.24	25.22	25.22	25.22	25.21	25.22	
	25.19	25.18	25.17	25.17	25.15	25.15	25.14	25.14	25.12	25.11	25.10	25.09	
231 11-17-79	25.07	25.04	25.03	25.01	24.98	24.94	24.94	24.93	24.93	24.94	24.92	24.92	
	24.93	24.92	24.89	24.88	24.88	24.86	24.86	24.87	24.86	24.85	24.84	24.84	
232 11-18-79	24.79	24.82	24.80	24.82	24.81	24.81	24.82	24.82	24.81	24.79	24.81	24.81	
	24.81	24.80	24.80	24.82	24.86	24.87	24.89	24.90	24.92	24.96	24.98	24.99	
233 11-19-79	25.01	25.01	25.03	25.05	25.06	25.07	25.09	25.10	25.11	25.13	25.15	25.15	
	25.14	25.14	25.15	25.16	25.20	25.22	25.24	25.25	25.27	25.28	25.29	25.29	
234 11-20-79	25.27	25.26	25.26	25.25	25.24	25.24	25.24	25.25	25.28	25.27	25.28	25.29	
	25.28	25.29	25.29	25.28	25.27	25.27	25.28	25.29	25.29	25.30	25.31	25.31	

AP.DAT

BAROMETRIC PRESSURE, DAVE JOHNSTON POWER PLANT (IN OF HG)

23-SEP-81 11:12:04

	0	1	2	3	4	5	6	7	8	9	10	11
235 11-21-79	25.32	25.33	25.31	25.37	25.38	25.38	25.39	25.40	25.40	25.41	25.41	25.43
	25.43	25.41	25.40	25.40	25.38	25.40	25.40	25.38	25.39	25.38	25.37	25.33
236 11-22-79	25.33	25.32	25.30	25.28	25.27	25.24	25.22	25.22	25.21	25.20	25.20	25.20
	25.18	25.17	25.15	25.14	25.12	25.10	25.10	25.09	25.07	25.06	25.05	25.03
237 11-23-79	25.01	24.99	24.96	24.94	24.92	24.91	24.90	24.90	24.91	24.90	24.88	24.88
	24.87	24.88	24.03	24.90	24.90	24.92	24.93	24.93	24.93	24.96	24.97	24.97
238 11-24-79	24.96	24.98	24.98	24.98	24.95	24.95	24.95	24.95	24.95	24.95	24.96	24.96
	24.94	24.91	24.89	24.87	24.81	24.80	24.78	24.75	24.74	24.76	24.77	24.79
239 11-25-79	24.79	24.81	24.84	24.84	24.85	24.87	24.89	24.91	24.93	24.94	24.95	24.95
	24.93	24.92	24.90	24.89	24.89	24.89	24.88	24.87	24.87	24.86	24.82	24.82
240 11-26-79	24.80	24.78	24.78	24.78	24.75	24.75	24.78	24.78	24.80	24.82	24.82	24.82
	24.81	24.81	24.82	24.82	24.82	24.85	24.88	24.90	24.93	24.95	24.98	25.00
241 11-27-79	25.02	25.02	25.03	25.08	25.08	25.09	25.10	25.13	25.18	25.20	25.21	25.23
	25.22	25.21	25.21	25.24	25.26	25.30	25.34	25.37	25.39	25.41	25.43	25.44
242 11-28-79	25.50	25.50	25.51	25.52	25.53	25.54	25.54	25.55	25.56	25.58	25.58	25.58
	25.58	25.57	25.56	25.58	25.59	25.60	25.62	25.63	25.63	25.64	25.63	25.60
243 11-29-79	25.62	25.60	25.60	25.58	25.55	25.54	25.54	25.54	25.54	25.53	25.51	25.48
	25.45	25.43	25.42	25.40	25.39	25.39	25.39	25.39	25.35	25.34	25.33	25.31
244 11-30-79	25.31	25.28	25.28	25.28	25.27	25.25	25.24	25.26	25.26	25.26	25.27	25.25
	25.25	25.25	25.24	25.24	25.24	25.24	25.25	25.26	25.27	25.29	25.30	25.31
245 12- 1-79	25.32	25.31	25.31	25.32	25.31	25.31	25.31	25.30	25.30	25.31	25.33	25.33
	25.32	25.30	25.29	25.28	25.28	25.28	25.28	25.28	25.28	25.27	25.26	25.26
246 12- 2-79	25.26	25.24	25.20	25.21	25.19	25.16	25.15	25.14	25.11	25.07	25.08	25.04
	25.04	24.99	24.98	24.97	24.99	24.98	25.00	25.03	25.04	25.07	25.09	25.10
247 12- 3-79	25.12	25.14	25.17	25.20	25.21	25.22	25.26	25.28	25.30	25.32	25.34	25.34
	25.34	25.33	25.32	25.34	25.37	25.39	25.39	25.42	25.39	25.39	25.38	25.38
248 12- 4-79	25.38	25.34	25.30	25.29	25.26	25.23	25.20	25.21	25.16	25.14	25.15	25.10
	25.04	25.02	25.00	24.97	24.99	24.96	24.98	24.93	24.92	24.94	24.93	24.98
249 12- 5-79	24.96	24.96	25.00	25.00	25.01	25.03	25.04	25.04	25.04	25.05	25.07	25.07
	25.06	25.05	25.04	25.03	25.04	25.03	25.01	25.00	25.00	24.98	24.96	24.95
250 12- 6-79	24.94	24.88	24.89	24.88	24.83	24.82	24.80	24.80	24.76	24.76	24.75	24.73
	24.73	24.73	24.74	24.76	24.80	24.83	24.87	24.98	24.98	24.90	24.95	24.97
251 12- 7-79	25.00	25.01	25.06	25.09	25.12	25.13	25.14	25.14	25.14	25.20	25.21	25.21
	25.20	25.20	25.19	25.20	25.20	25.20	25.22	25.22	25.21	25.23	25.23	25.25
252 12- 8-79	25.23	25.22	25.22	25.22	25.21	25.19	25.19	25.19	25.19	25.20	25.21	25.21
	25.19	25.18	25.19	25.19	25.21	25.20	25.21	25.21	25.23	25.24	25.25	25.24
253 12- 9-79	25.24	25.24	25.25	25.26	25.26	25.25	25.25	25.24	25.26	25.25	25.24	25.23
	25.20	25.19	25.18	25.16	25.15	25.14	25.11	25.09	25.05	25.03	25.00	24.98
254 12-10-79	24.93	24.92	24.93	24.93	24.92	24.91	24.90	24.87	24.83	24.82	24.81	24.82
	24.78	24.77	24.76	24.76	24.80	24.80	24.95	25.02	25.16	25.18	25.09	25.09
255 12-11-79	25.12	25.13	25.15	25.15	25.15	25.15	25.16	25.17	25.19	25.22	25.22	25.21
	25.23	25.20	25.18	25.17	25.18	25.17	25.17	25.16	25.14	25.11	25.12	25.11
256 12-12-79	25.06	25.07	25.06	25.07	25.05	25.05	25.03	25.02	25.05	25.07	25.09	25.10
	25.07	25.05	25.05	25.07	25.07	25.09	25.13	25.14	25.14	25.16	25.19	25.22
257 12-13-79	25.27	25.29	25.32	25.34	25.34	25.36	25.38	25.38	25.38	25.40	25.40	25.39
	25.36	25.33	25.33	25.33	25.30	25.30	25.27	25.25	25.20	25.18	25.18	25.21
258 12-14-79	25.19	25.18	25.18	25.18	25.18	25.18	25.18	25.17	25.18	25.18	25.20	25.19
	25.15	25.10	25.11	25.11	25.10	25.10	25.10	25.08	25.07	25.06	25.06	25.06
259 12-15-79	25.02	25.02	25.02	25.02	25.03	25.02	25.02	25.00	25.00	25.00	25.01	25.02
	25.01	25.02	25.04	25.04	25.09	25.13	25.17	25.21	25.20	25.33	25.37	25.40
260 12-16-79	25.42	25.44	25.44	25.44	25.44	25.44	25.43	25.44	25.43	25.45	25.45	25.46
	25.41	25.43	25.40	25.40	25.39	25.37	25.38	25.37	25.36	25.35	25.35	25.35

AP.DAT

BAROMETRIC PRESSURE, DAVE JOHNSTON POWER PLANT (IN OF HG)

23-SEP-81 11:12:04

	0	1	2	3	4	5	6	7	8	9	10	11
261 12-17-79	25.34	25.30	25.30	25.28	25.27	25.25	25.25	25.25	25.25	25.26	25.26	25.26
	25.25	25.24	25.21	25.21	25.23	25.23	25.22	25.22	25.24	25.24	25.23	25.22
262 12-18-79	25.21	25.22	25.23	25.23	25.21	25.22	25.22	25.20	25.21	25.23	25.23	25.26
	25.22	25.20	25.18	25.18	25.18	25.16	25.18	25.18	25.18	25.18	25.17	25.17
263 12-19-79	25.16	25.16	25.15	25.14	25.14	25.14	25.14	25.14	25.14	25.12	25.13	25.12
	25.10	25.10	25.10	25.10	25.10	25.10	25.10	25.11	25.11	25.10	25.10	25.10
264 12-20-79	25.10	25.05	25.03	25.03	25.04	25.04	25.05	25.05	25.05	25.07	25.10	25.10
	25.08	25.07	25.06	25.05	25.05	25.05	25.05	25.05	25.05	25.06	25.06	25.06
265 12-21-79	25.06	25.06	25.05	25.05	25.04	25.00	25.01	25.01	25.01	25.01	25.00	24.99
	24.95	24.91	24.90	24.88	24.88	24.87	24.86	24.86	24.86	24.85	24.85	24.82
266 12-22-79	24.82	24.80	24.80	24.80	24.77	24.78	24.79	24.81	24.82	24.82	24.82	24.81
	24.81	24.82	24.82	24.85	24.87	24.89	24.90	24.92	24.94	24.96	24.97	24.99
267 12-23-79	24.99	24.99	24.99	24.99	25.04	25.07	25.08	25.10	25.12	25.14	25.15	25.16
	25.16	25.15	25.15	25.15	25.14	25.15	25.16	25.16	25.16	25.16	25.15	25.15
268 12-24-79	25.15	25.14	25.14	25.14	25.11	25.10	25.09	25.08	25.07	25.07	25.07	25.03
	25.03	25.03	25.03	25.03	25.01	25.03	25.05	25.05	25.07	25.04	25.06	25.06
269 12-25-79	25.07	25.07	24.99	24.96	24.97	24.97	25.00	25.02	25.04	25.07	25.10	25.11
	25.10	25.11	25.11	25.10	25.12	25.14	25.15	25.16	25.16	25.17	25.18	25.18
270 12-26-79	25.18	25.18	25.19	25.20	25.20	25.21	25.21	25.25	25.29	25.29	25.31	25.32
	25.30	25.28	25.27	25.25	25.27	25.28	25.29	25.30	25.32	25.32	25.33	25.34
271 12-27-79	25.34	25.33	25.33	25.34	25.34	25.33	25.34	25.34	25.36	25.37	25.37	25.37
	25.37	25.30	25.39	25.40	25.41	25.42	25.42	25.43	25.43	25.44	25.44	25.44
272 12-28-79	25.43	25.43	25.44	25.45	25.45	25.45	25.46	25.48	25.47	25.48	25.48	25.48
	25.46	25.43	25.40	25.40	25.37	25.37	25.36	25.37	25.37	25.35	25.35	25.34
273 12-29-79	25.33	25.30	25.29	25.28	25.28	25.25	25.25	25.24	25.24	25.24	25.24	25.23
	25.21	25.18	25.17	25.16	25.16	25.16	25.15	25.16	25.16	25.15	25.15	25.17
274 12-30-79	25.16	25.16	25.16	25.17	25.17	25.17	25.20	25.20	25.20	25.22	25.23	25.23
	25.20	25.20	25.19	25.19	25.18	25.19	25.20	25.22	25.21	25.21	25.20	25.20
275 12-31-79	25.20	25.18	25.18	25.17	25.14	25.13	25.11	25.13	25.15	25.15	25.16	25.18
	25.15	25.14	25.14	25.13	25.14	25.12	25.13	25.12	25.12	25.12	25.12	25.12
276 1- 1-80	25.11	25.11	25.10	25.10	25.10	25.10	25.11	25.11	25.15	25.17	25.17	25.16
	25.16	25.14	25.13	25.12	25.16	25.16	25.16	25.16	25.16	25.16	25.17	25.18
277 1- 2-80	25.16	25.16	25.10	25.17	25.18	25.18	25.19	25.20	25.21	25.23	25.23	25.25
	25.25	25.24	25.23	25.23	25.24	25.24	25.24	25.23	25.23	25.21	25.19	25.18
278 1- 3-80	25.18	25.16	25.14	25.13	25.10	25.08	25.05	25.03	24.98	24.98	24.98	24.98
	24.97	24.96	24.96	24.96	24.98	25.00	25.00	25.01	25.03	25.04	25.07	25.08
279 1- 4-80	25.06	25.06	25.06	25.06	25.06	25.05	25.07	25.07	25.08	25.08	25.09	25.10
	25.08	25.05	25.05	25.05	25.05	25.05	25.05	25.06	25.06	25.06	25.07	25.06
280 1- 5-80	25.06	25.00	24.99	24.98	24.96	24.93	24.89	24.88	24.88	24.87	24.86	24.82
	24.84	24.78	24.75	24.73	24.73	24.72	24.69	24.63	24.62	24.60	24.58	24.57
281 1- 6-80	24.68	24.76	24.78	24.83	24.87	24.92	24.96	24.98	25.02	25.03	25.03	25.03
	25.03	25.02	25.01	25.00	25.00	25.00	24.99	24.99	24.98	24.94	24.94	24.94
282 1- 7-80	24.94	24.92	24.92	24.92	24.91	24.90	24.89	24.89	24.91	24.93	24.92	24.91
	24.89	24.89	24.90	24.94	24.94	24.94	24.94	24.92	24.91	24.91	24.89	24.89
283 1- 8-80	24.88	24.87	24.85	24.86	24.84	24.84	24.87	24.90	24.91	24.97	25.00	25.02
	25.03	25.02	25.00	25.02	25.03	25.03	25.05	25.05	25.04	25.02	25.01	24.98
284 1- 9-80	24.96	24.94	24.93	24.92	24.90	24.89	24.86	24.85	24.82	24.80	24.80	24.79
	24.78	24.78	24.72	24.71	24.71	24.71	24.68	24.68	24.62	24.61	24.57	24.55
285 1-10-80	24.50	24.48	24.47	24.45	24.38	24.35	24.33	24.33	24.33	24.34	24.28	24.27
	24.27	24.29	24.30	24.37	24.41	24.50	24.54	24.65	24.74	24.79	24.82	24.84
286 1-11-80	24.87	24.89	24.93	24.94	25.03	25.05	25.05	25.05	25.05	25.08	25.10	25.10
	25.09	25.04	25.00	25.00	25.00	25.00	24.98	24.97	24.97	24.92	24.85	24.84

AP.DAT

BAROMETRIC PRESSURE, DAVE JOHNSTON POWER PLANT (IN OF HG)

23-SEP-81 11:12:04

	0	1	2	3	4	5	6	7	8	9	10	11
287 1-12-80	24.82	24.82	24.80	24.77	24.74	24.75	24.75	24.75	24.77	24.73	24.72	24.70
	24.69	24.68	24.64	24.67	24.66	24.64	24.61	24.64	24.64	24.68	24.68	24.69
288 1-13-80	24.70	24.71	24.73	24.77	24.79	24.79	24.81	24.92	24.87	24.89	24.90	24.91
	24.90	24.90	24.89	24.87	24.87	24.85	24.87	24.83	24.86	24.86	24.86	24.82
289 1-14-80	24.79	24.79	24.80	24.78	24.75	24.72	24.73	24.73	24.73	24.77	24.78	24.80
	24.85	24.87	24.89	24.91	24.93	24.95	24.98	24.99	25.00	25.00	25.01	25.00
290 1-15-80	25.00	25.00	25.00	25.00	24.98	24.99	25.00	25.01	25.00	25.00	25.04	25.04
	25.03	25.02	25.04	25.06	25.08	25.10	25.11	25.11	25.11	25.11	25.11	25.11
291 1-16-80	25.10	25.10	25.10	25.10	25.12	25.12	25.12	25.12	25.13	25.13	25.13	25.13
	25.09	25.06	25.05	25.05	25.07	25.07	25.07	25.07	25.08	25.07	25.06	25.05
292 1-17-80	25.05	25.03	25.02	25.02	25.01	24.98	24.96	24.95	24.95	24.96	24.96	24.97
	24.96	24.94	24.92	24.94	24.94	24.96	24.96	24.99	24.99	25.00	25.02	25.02
293 1-18-80	25.02	25.03	25.05	25.07	25.08	25.09	25.10	25.12	25.15	25.19	25.21	25.23
	25.23	25.22	25.24	25.25	25.28	25.31	25.34	25.37	25.37	25.40	25.41	25.43
294 1-19-80	25.41	25.40	25.37	25.37	25.39	25.38	25.38	25.37	25.46	25.48	25.49	25.48
	25.45	25.42	25.40	25.42	25.40	25.40	25.42	25.41	25.40	25.40	25.40	25.40
295 1-20-80	25.40	25.39	25.40	25.39	25.37	25.37	25.37	25.37	25.36	25.36	25.37	25.36
	25.35	25.31	25.30	25.28	25.27	25.25	25.24	25.22	25.21	25.20	25.19	25.17
296 1-21-80	25.18	25.18	25.18	25.18	25.18	25.18	25.18	25.18	25.18	25.20	25.23	25.24
	25.24	25.21	25.21	25.21	25.24	25.26	25.27	25.28	25.28	25.30	25.31	25.31
297 1-22-80	25.30	25.28	25.30	25.30	25.31	25.28	25.27	25.27	25.28	25.28	25.29	25.27
	25.26	25.23	25.23	25.22	25.21	25.21	25.21	25.23	25.23	25.22	25.21	25.20
298 1-23-80	25.21	25.20	25.20	25.20	25.20	25.21	25.20	25.20	25.21	25.22	25.20	25.22
	25.20	25.20	25.15	25.15	25.15	25.16	25.11	25.10	25.08	25.03	25.04	25.03
299 1-24-80	24.99	24.99	24.95	24.90	24.90	24.90	24.88	24.87	24.85	24.85	24.86	24.86
	24.87	24.86	24.84	24.84	24.85	24.87	24.89	24.94	24.95	24.97	24.97	24.98
300 1-25-80	24.98	24.96	24.94	24.92	24.91	24.90	24.89	24.90	24.90	24.92	24.96	24.99
	24.99	25.00	25.01	25.02	25.05	25.08	25.10	25.14	25.15	25.15	25.15	25.16
301 1-26-80	25.16	25.15	25.15	25.15	25.15	25.14	25.13	25.12	25.12	25.12	25.12	25.13
	25.12	25.10	25.10	25.10	25.11	25.12	25.13	25.13	25.14	25.14	25.13	25.13
302 1-27-80	25.12	25.10	25.08	25.05	25.00	25.02	25.02	25.01	25.00	24.99	24.98	24.98
	24.96	24.94	24.95	24.94	24.96	24.96	25.00	25.00	25.00	25.02	25.04	25.04
303 1-28-80	25.06	25.07	25.08	25.10	25.11	25.10	25.11	25.12	25.13	25.14	25.15	25.14
	25.12	25.10	25.08	25.08	25.08	25.09	25.09	25.09	25.08	25.05	25.05	25.04
304 1-29-80	25.05	25.04	25.03	25.01	24.99	24.96	24.95	24.96	24.95	24.94	24.93	24.92
	24.90	24.85	24.84	24.83	24.89	24.91	24.92	24.94	24.98	25.00	25.00	25.01
305 1-30-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
306 1-31-80	25.37	25.36	25.37	25.37	25.37	25.37	25.37	25.37	25.37	25.37	25.37	25.35
	25.33	25.32	25.30	25.31	25.31	25.31	25.31	25.30	25.29	25.28	25.28	25.26
307 2- 1-80	25.24	25.23	25.21	25.18	25.17	25.17	25.16	25.19	25.18	25.15	25.17	25.16
	25.16	25.17	25.16	25.16	25.16	25.20	25.20	25.20	25.19	25.19	25.19	25.19
308 2- 2-80	25.19	25.19	25.20	25.21	25.22	25.22	25.22	25.23	25.26	25.28	25.30	25.30
	25.30	25.28	25.28	25.28	25.28	25.28	25.28	25.29	25.29	25.29	25.29	25.29
309 2- 3-80	25.27	25.26	25.24	25.23	25.22	25.20	25.19	25.19	25.19	25.21	25.22	25.22
	25.20	25.18	25.15	25.14	25.16	25.15	25.13	25.14	25.12	25.12	25.11	25.13
310 2- 4-80	25.11	25.13	25.13	25.14	25.17	25.21	25.23	25.24	25.27	25.28	25.28	25.28
	25.26	25.24	25.24	25.26	25.28	25.29	25.30	25.31	25.32	25.33	25.35	25.35
311 2- 5-80	25.35	25.35	25.36	25.37	25.37	25.37	25.37	25.37	25.38	25.38	25.39	25.39
	25.37	25.34	25.31	25.31	25.31	25.30	25.30	25.30	25.30	25.29	25.28	25.28
312 2- 6-80	25.24	25.22	25.20	25.18	25.16	25.15	25.14	25.13	25.14	25.11	25.10	25.29
	25.09	25.08	25.01	25.00	25.00	25.00	25.01	25.00	25.02	25.03	25.05	25.06

23-SEP-81 11:12:04

AP.DAT		BAROMETRIC PRESSURE, DAVE JOHNSTON POWER PLANT (IN OF HG)										23-SEP-81 11:12:04	
		0	1	2	3	4	5	6	7	8	9	10	11
313	2- 7-80	25.06	25.05	25.07	25.09	25.10	25.11	25.14	25.16	25.19	25.20	25.23	25.25
		25.26	25.26	25.28	25.28	25.30	25.32	25.34	25.37	25.37	25.38	25.38	25.32
314	2- 8-80	25.37	25.36	25.37	25.36	25.36	25.37	25.35	25.35	25.36	25.34	25.35	25.38
		25.32	25.30	25.29	25.28	25.28	25.28	25.28	25.28	25.29	25.27	25.28	25.28
315	2- 9-80	25.26	25.27	25.24	25.23	25.22	25.22	25.22	25.22	25.22	25.22	25.21	25.21
		25.20	25.19	25.19	25.20	25.22	25.23	25.25	25.26	25.25	25.25	25.24	25.22
316	2-10-80	25.19	25.15	25.15	25.10	25.09	25.07	25.07	25.06	25.06	25.06	25.04	25.04
		25.02	25.01	25.02	25.02	25.03	25.03	25.05	25.07	25.07	25.10	25.10	25.10
317	2-11-80	25.10	25.10	25.10	25.08	25.07	25.09	25.08	25.08	25.08	25.10	25.10	25.09
		25.07	25.05	25.04	25.04	25.04	25.04	25.05	25.05	25.05	25.04	25.03	25.02
318	2-12-80	25.00	25.00	24.99	24.96	24.94	24.92	24.93	24.90	24.90	24.92	24.90	24.90
		24.89	24.89	24.83	24.81	24.81	24.81	24.83	24.86	24.87	24.88	24.88	24.88
319	2-13-80	24.95	24.85	24.84	24.84	24.84	24.83	24.83	24.83	24.87	24.89	24.90	24.91
		24.91	24.91	24.91	24.94	24.96	24.98	25.00	25.02	25.06	25.06	25.06	25.06
320	2-14-80	25.06	25.05	25.04	25.04	25.03	25.05	25.02	25.03	25.03	25.03	25.02	25.01
		25.00	24.98	24.97	24.98	24.97	24.98	25.00	25.02	25.03	25.04	25.06	25.07
321	2-15-80	25.07	25.08	25.09	25.10	25.11	25.12	25.13	25.14	25.18	25.20	25.20	25.21
		25.21	25.20	25.18	25.18	25.19	25.19	25.20	25.21	25.23	25.24	25.25	25.25
322	2-16-80	25.25	25.25	25.25	25.22	25.22	25.23	25.21	25.21	25.22	25.21	25.20	25.19
		25.17	25.14	25.11	25.09	25.07	25.06	25.06	25.05	25.04	25.04	25.02	25.00
323	2-17-80	25.00	24.97	24.95	24.94	24.90	24.91	24.89	24.88	24.87	24.85	24.84	24.83
		24.80	24.76	24.74	24.73	24.71	24.70	24.70	24.70	24.70	24.70	24.70	24.69
324	2-18-80	24.68	24.68	24.69	24.58	24.67	24.67	24.63	24.62	24.62	24.60	24.58	24.58
		24.56	24.54	24.54	24.54	24.54	24.56	24.57	24.58	24.60	24.63	24.66	24.66
325	2-19-80	24.67	24.66	24.66	24.66	24.66	24.65	24.65	24.69	24.72	24.70	24.70	24.70
		24.70	24.65	24.65	24.65	24.75	24.75	24.74	24.75	24.76	24.74	24.75	24.75
326	2-20-80	24.74	24.70	24.70	24.68	24.65	24.64	24.64	24.62	24.65	24.65	24.64	24.64
		24.64	24.62	24.60	24.60	24.63	24.65	24.67	24.70	24.72	24.74	24.76	24.78
327	2-21-80	24.78	24.82	24.82	24.82	24.83	24.84	24.84	24.84	24.85	24.85	24.85	24.85
		24.85	24.82	24.82	24.81	24.81	24.82	24.82	24.83	24.84	24.84	24.84	24.84
328	2-22-80	24.84	24.85	24.85	24.85	24.85	24.83	24.87	24.87	24.90	24.92	24.94	24.97
		24.98	24.95	25.00	25.01	25.02	25.01	25.01	25.02	25.05	25.05	25.06	25.06
329	2-23-80	25.06	25.07	25.05	25.04	25.05	25.06	25.07	25.07	25.09	25.10	25.12	25.13
		25.14	25.14	25.14	25.15	25.15	25.18	25.20	25.23	25.24	25.25	25.26	25.25
330	2-24-80	25.27	25.27	25.27	25.27	25.25	25.25	25.25	25.26	25.27	25.27	25.27	25.27
		25.27	25.26	25.26	25.25	25.30	25.32	25.36	25.37	25.39	25.38	25.40	25.39
331	2-25-80	25.39	25.39	25.39	25.38	25.38	25.37	25.36	25.36	25.37	25.35	25.34	25.34
		25.32	25.29	25.26	25.24	25.24	25.23	25.24	25.23	25.24	25.24	25.24	25.23
332	2-26-80	25.25	25.25	25.24	25.24	25.24	25.27	25.27	25.28	25.28	25.28	25.28	25.27
		25.25	25.24	25.23	25.22	25.22	25.25	25.25	25.21	25.22	25.22	25.22	25.24
333	2-27-80	25.24	25.27	25.21	25.19	25.18	25.17	25.17	25.17	25.16	25.15	25.13	25.12
		25.11	25.10	25.10	25.09	25.09	25.10	25.10	25.12	25.12	25.13	25.12	25.12
334	2-28-80	25.13	25.14	25.11	25.10	25.10	25.08	25.09	25.08	25.07	25.06	25.07	25.06
		25.04	25.01	24.99	24.98	24.96	24.96	24.98	24.99	24.98	24.98	24.98	24.98
335	2-29-80	24.98	24.97	24.97	24.99	25.00	25.00	25.02	25.04	25.06	25.10	25.17	25.20
		25.23	25.25	25.26	25.27	25.28	25.31	25.32	25.39	25.39	25.40	25.48	25.40
336	3- 1-80	25.40	25.40	25.40	25.40	25.40	25.40	25.40	25.35	25.45	25.45	25.35	25.38
		25.30	25.25	25.25	25.25	25.22	25.19	25.19	25.15	25.14	25.13	25.10	25.10
337	3- 2-80	25.10	25.10	25.10	25.10	25.10	25.05	25.05	25.03	24.90	24.90	24.90	24.90
		24.85	24.90	24.85	24.85	24.91	24.87	24.87	24.87	24.87	24.85	24.85	24.83
338	3- 3-80	24.83	24.83	24.83	24.84	24.83	24.89	24.85	24.86	24.86	24.86	24.87	24.85
		24.84	24.83	24.80	24.78	24.79	24.78	24.78	24.78	24.78	24.80	24.81	24.83

HP.DHI

BAROMETRIC PRESSURE, DAVE JOHNSTON POWER PLANT (IN OF HG)

23-SEP-81 11:12:04

	0	1	2	3	4	5	6	7	8	9	10	11
339 3- 4-80	24.84	24.85	24.87	24.88	24.89	24.90	24.92	24.95	24.97	24.98	25.00	25.00
	24.99	24.98	25.00	24.99	25.00	25.00	25.01	25.02	25.03	25.06	25.05	25.04
340 3- 5-80	25.05	25.05	25.07	25.06	25.07	25.08	25.09	25.08	25.08	25.08	25.04	24.99
	24.95	24.92	24.89	24.87	24.86	24.85	24.81	24.79	24.77	24.74	24.72	24.72
341 3- 6-80	24.70	24.72	24.73	24.72	24.73	24.76	24.84	24.86	24.89	24.90	24.90	24.90
	24.90	24.90	24.90	24.88	24.88	24.88	24.88	24.87	24.89	24.89	24.89	24.88
342 3- 7-80	24.87	24.87	24.85	24.84	24.83	24.83	24.82	24.84	24.87	24.88	24.88	24.85
	24.92	24.89	24.90	24.90	24.92	24.92	24.94	24.96	24.98	25.00	25.00	25.02
343 3- 8-80	25.03	25.02	25.03	25.03	25.04	25.03	25.03	25.03	25.06	25.07	25.06	25.05
	25.03	25.02	25.00	24.98	24.98	24.98	24.98	24.98	24.98	25.00	25.00	25.00
344 3- 9-80	24.98	24.97	24.96	24.95	24.95	24.94	24.94	24.94	24.95	24.95	24.94	24.94
	24.93	24.90	24.89	24.86	24.86	24.86	24.86	24.86	24.86	24.88	24.87	24.88
345 3-10-80	24.85	24.87	24.89	24.89	24.90	24.92	24.96	24.98	25.00	25.04	25.04	25.04
	25.03	25.02	25.03	25.00	25.00	24.99	24.99	24.99	24.99	24.98	24.99	24.92
346 3-11-80	24.90	24.89	24.86	24.82	24.80	24.80	24.78	24.78	24.75	24.72	24.69	24.66
	24.65	24.65	24.66	24.67	24.66	24.66	24.67	24.67	24.67	24.67	24.66	24.66
347 3-12-80	24.66	24.66	24.66	24.65	24.65	24.67	24.70	24.72	24.77	24.82	24.88	24.89
	24.92	24.94	24.96	24.96	24.97	24.98	25.00	25.02	25.04	25.05	25.05	25.05
348 3-13-80	25.06	25.06	25.05	25.02	25.01	25.00	24.98	24.97	24.97	24.97	24.97	24.96
	24.94	24.93	24.94	24.95	24.94	24.93	24.94	24.94	24.96	24.98	25.00	25.00
349 3-14-80	24.99	25.00	25.03	25.02	25.00	25.00	25.00	25.02	25.03	25.02	25.00	24.99
	24.98	24.95	24.93	24.93	24.92	24.90	24.93	24.92	24.91	24.90	24.90	24.89
350 3-15-80	24.86	24.86	24.80	24.80	24.81	24.81	24.81	24.84	24.85	24.83	24.80	24.79
	24.77	24.77	24.76	24.76	24.77	24.78	24.79	24.87	24.91	24.93	24.97	24.97
351 3-16-80	24.97	24.98	24.99	25.00	25.00	25.01	25.01	25.05	25.07	25.10	25.12	25.14
	25.15	25.15	25.15	25.17	25.18	25.19	25.20	25.20	25.20	25.21	25.21	25.23
352 3-17-80	25.22	25.27	25.22	25.20	25.19	25.19	25.18	25.19	25.19	25.17	25.17	25.17
	25.14	25.11	25.10	25.09	25.06	25.06	25.03	25.02	25.03	25.00	24.95	24.94
353 3-18-80	24.92	24.91	24.91	24.91	24.93	24.92	24.91	24.92	24.93	24.92	24.91	24.90
	24.90	24.89	24.87	24.89	24.94	24.85	24.85	24.85	24.85	24.86	24.85	24.83
354 3-19-80	24.83	24.83	24.83	24.83	24.87	24.87	24.87	24.87	24.87	24.85	24.90	24.91
	24.92	24.91	24.90	24.96	24.97	24.98	25.00	25.03	25.05	25.07	25.10	25.11
355 3-20-80	25.11	25.12	25.14	25.13	25.12	25.13	25.14	25.15	25.16	25.16	25.16	25.15
	25.14	25.13	25.12	25.12	25.10	25.09	25.09	25.09	25.09	25.10	25.09	25.08
356 3-21-80	25.08	25.05	25.04	25.02	25.03	24.98	24.97	24.97	24.96	24.96	24.93	24.91
	24.90	24.89	24.87	24.86	24.86	24.87	24.92	24.95	24.95	24.97	24.98	25.00
357 3-22-80	25.01	25.03	25.05	25.05	25.06	25.09	25.10	25.10	25.10	25.10	25.08	25.06
	25.04	25.02	25.01	25.01	25.00	25.03	25.03	25.04	25.04	25.05	25.03	25.03
358 3-23-80	25.03	25.02	25.00	25.00	24.98	24.98	24.98	24.98	24.98	24.97	24.96	24.95
	24.94	24.92	24.91	24.91	24.92	24.93	24.95	24.95	24.97	24.97	24.99	24.98
359 3-24-80	24.99	25.00	25.01	25.02	25.04	25.06	25.08	25.10	25.09	25.09	25.08	25.07
	25.05	25.04	25.00	25.00	24.98	24.97	24.95	24.95	24.95	24.95	24.93	24.92
360 3-25-80	24.90	24.89	24.87	24.87	24.87	24.86	24.86	24.86	24.86	24.85	24.84	24.84
	24.83	24.82	24.83	24.83	24.85	24.86	24.88	24.90	24.92	24.95	24.97	24.96
361 3-26-80	24.98	24.98	24.97	24.99	24.99	25.00	25.00	25.01	25.01	25.01	25.00	25.00
	24.99	24.97	24.95	24.94	24.93	24.94	24.93	24.97	24.98	24.97	24.97	24.97
362 3-27-80	24.96	24.96	24.95	24.95	24.96	24.96	24.96	24.95	24.95	24.95	24.94	24.94
	24.92	24.92	24.93	24.94	24.94	24.96	24.97	24.98	25.00	25.00	25.02	25.02
363 3-28-80	25.05	25.05	25.05	25.06	25.00	25.09	25.10	25.11	25.10	25.10	25.10	25.13
	25.11	25.10	25.11	25.13	25.19	25.20	25.20	25.20	25.21	25.21	25.20	25.15
364 3-29-80	25.16	25.10	25.10	25.15	25.15	25.15	25.15	25.18	25.18	25.17	25.17	25.15
	25.15	25.11	25.10	25.09	25.08	25.08	25.08	25.06	25.05	25.04	25.03	25.00

AP.DAT

BAROMETRIC PRESSURE, DAVE JOHNSTON POWER PLANT (IN OF HG)

23-SEP-81 11:12:84

	0	1	2	3	4	5	6	7	8	9	10	11
365 3-30-80	24.99	24.95	24.93	24.91	24.90	24.88	24.87	24.87	24.87	24.85	24.84	24.82
	24.81	24.82	24.80	24.80	24.82	24.85	24.86	24.89	24.90	24.90	24.89	24.91
366 3-31-80	24.91	24.91	24.91	24.91	24.92	24.94	24.94	24.94	24.94	24.94	24.92	24.93
	24.92	24.91	24.90	24.93	24.92	24.96	24.98	24.99	25.01	25.01	25.01	25.02
367 4- 1-80	25.02	25.03	25.02	25.02	25.03	25.04	25.05	25.07	25.08	25.07	25.09	25.08
	25.08	25.07	25.07	25.08	25.09	25.09	25.09	25.11	25.13	25.13	25.13	25.09
368 4- 2-80	25.09	25.07	25.07	25.06	25.06	25.06	25.07	25.06	25.06	25.07	25.07	25.06
	25.06	25.06	25.08	25.08	25.05	25.06	25.06	25.07	25.09	25.09	25.10	25.12
369 4- 3-80	25.14	25.14	25.15	25.17	25.19	25.21	25.22	25.24	25.25	25.25	25.32	25.35
	25.32	25.35	25.32	25.20	25.20	25.20	25.20	25.20	25.20	25.20	25.20	25.15
370 4- 4-80	25.15	25.15	25.15	25.16	25.16	25.16	25.15	25.20	25.22	25.22	25.22	25.18
	25.18	25.20	25.19	25.15	25.10	25.10	25.10	25.10	25.10	25.10	25.10	25.02
371 4- 5-80	25.05	25.03	25.00	25.00	24.98	24.97	24.95	24.94	24.95	24.92	24.90	24.88
	24.87	24.86	24.85	24.82	24.82	24.83	24.83	24.82	24.82	24.83	24.81	24.81
372 4- 6-80	24.77	24.77	24.73	24.73	24.73	24.75	24.76	24.80	24.79	24.80	24.80	24.80
	24.80	24.78	24.79	24.82	24.82	24.82	24.87	24.86	24.88	24.87	24.87	24.85
373 4- 7-80	24.84	24.83	24.83	24.85	24.87	24.88	24.88	24.88	24.93	24.97	25.00	25.04
	25.07	25.09	25.12	25.16	25.17	25.17	25.20	25.20	25.23	25.22	25.27	25.27
374 4- 8-80	25.27	25.27	25.28	25.28	25.29	25.30	25.30	25.30	25.30	25.31	25.32	25.30
	25.30	25.29	25.28	25.27	25.27	25.27	25.28	25.29	25.29	25.29	25.29	25.28
375 4- 9-80	25.28	25.25	25.28	25.24	25.22	25.22	25.22	25.20	25.18	25.16	25.12	25.16
	25.07	25.05	25.03	25.02	25.00	24.97	24.97	24.97	24.97	24.95	24.93	24.91
376 4-10-80	24.91	24.90	24.89	24.88	24.89	24.91	24.93	24.98	25.00	24.99	25.00	24.99
	25.00	24.99	24.99	24.99	24.99	25.01	25.03	25.06	25.08	25.10	25.10	25.11
377 4-11-80	25.10	25.10	25.12	25.13	25.16	25.20	25.20	25.23	25.25	25.27	25.29	25.32
	25.36	25.36	25.38	25.38	25.38	25.38	25.37	25.37	25.37	25.37	25.38	25.42
378 4-12-80	25.39	25.39	25.39	25.39	25.39	25.37	25.39	25.42	25.42	25.42	25.42	25.40
	25.40	25.40	25.40	25.40	25.34	25.34	25.34	25.34	25.40	25.41	25.42	25.41
379 4-13-80	25.42	25.39	25.39	25.39	25.39	25.38	25.38	25.38	25.38	25.25	25.20	25.20
	25.16	25.12	25.10	25.07	25.07	25.07	25.07	25.07	25.06	25.10	25.11	25.10
380 4-14-80	25.10	25.09	25.09	25.03	25.03	25.03	25.02	25.00	25.05	25.05	25.05	25.05
	25.05	25.05	25.05	25.05	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.05
381 4-15-80	25.03	25.04	25.04	25.04	25.04	25.06	25.07	25.08	25.09	25.09	25.08	25.07
	25.06	25.04	25.03	25.02	25.00	25.02	25.11	25.19	25.21	25.23	25.23	25.23
382 4-16-80	25.23	25.24	25.27	25.29	25.29	25.32	25.32	25.34	25.35	25.35	25.35	25.35
	25.34	25.33	25.33	25.34	25.35	25.36	25.38	25.39	25.40	25.40	25.40	25.40
383 4-17-80	25.40	25.40	25.40	25.40	25.40	25.40	25.40	25.40	25.40	25.39	25.37	25.33
	25.33	25.30	25.30	25.28	25.28	25.28	25.28	25.27	25.26	25.26	25.25	25.25
384 4-18-80	25.24	25.23	25.22	25.22	25.23	25.23	25.25	25.24	25.24	25.24	25.24	25.23
	25.22	25.21	25.19	25.15	25.16	25.15	25.16	25.16	25.20	25.20	25.20	25.21
385 4-19-80	25.21	25.20	25.20	25.21	25.21	25.24	25.26	25.25	25.25	25.23	25.24	25.19
	25.19	25.20	25.20	25.19	25.18	25.18	25.18	25.19	25.20	25.20	25.20	25.20
386 4-20-80	25.20	25.19	25.18	25.17	25.17	25.17	25.17	25.16	25.14	25.13	25.11	25.10
	25.09	25.08	25.06	25.04	25.03	25.02	25.03	25.02	25.02	25.02	25.03	25.03
387 4-21-80	25.04	25.03	25.05	25.06	25.06	25.06	25.08	25.05	25.05	25.05	25.05	25.05
	25.05	25.05	25.05	25.04	25.03	25.03	25.03	25.05	25.06	25.05	25.07	25.06
388 4-22-80	25.06	25.00	25.00	25.10	25.12	25.15	25.26	25.17	25.19	25.19	25.18	25.15
	25.13	25.13	25.12	25.11	25.12	25.12	25.13	25.17	25.18	25.17	25.18	25.18
389 4-23-80	25.18	25.18	25.17	25.18	25.17	25.18	25.18	25.16	25.15	25.15	25.13	25.11
	25.10	25.09	25.08	25.10	25.11	25.10	25.12	25.12	25.12	25.12	25.11	25.12
390 4-24-80	25.11	25.10	25.10	25.10	25.10	25.10	25.10	25.10	25.10	25.10	25.10	25.08
	25.07	25.07	25.07	25.06	25.08	25.09	25.10	25.10	25.10	25.12	25.12	25.13

AP.DAT

BAROMETRIC PRESSURE, DAVE JOHNSTON POWER PLANT (IN OF HG)

23-SEP-81 11:12:04

	0	1	2	3	4	5	6	7	8	9	10	11
391 4-25-80	25.13	25.13	25.13	25.13	25.15	25.16	25.15	25.17	25.17	25.17	25.18	25.18
	25.18	25.17	25.17	25.18	25.19	25.19	25.19	25.21	25.21	25.24	25.24	25.25
392 4-26-80	25.25	25.24	25.24	25.24	25.24	25.26	25.27	25.27	25.28	25.28	25.28	25.27
	25.27	25.26	25.25	25.26	25.27	25.28	25.28	25.29	25.30	25.30	25.30	25.31
393 4-27-80	25.30	25.30	25.30	25.30	25.31	25.32	25.32	25.32	25.32	25.32	25.31	25.29
	25.28	25.27	25.27	25.25	25.25	25.25	25.25	25.25	25.25	25.25	25.25	25.25
394 4-28-80	25.25	25.24	25.22	25.22	25.21	25.21	25.21	25.23	25.22	25.20	25.19	25.17
	25.15	25.15	25.12	25.10	25.09	25.08	25.07	25.06	25.08	25.08	25.08	25.07
395 4-29-80	25.06	25.05	25.04	25.03	25.02	25.01	25.01	25.01	25.00	25.00	24.98	24.96
	24.95	24.93	24.93	24.92	24.91	24.91	24.91	24.95	24.92	24.94	24.93	24.91
396 4-30-80	24.91	24.90	24.90	24.90	24.90	24.92	24.93	24.93	24.96	24.98	25.00	25.00
	25.03	25.05	25.05	25.03	25.05	25.06	25.07	25.10	25.11	25.11	25.11	25.12
397 5- 1-80	25.13	25.13	25.14	25.15	25.16	25.17	25.17	25.20	25.20	25.19	25.20	25.20
	25.20	25.20	25.15	25.20	25.20	25.20	25.20	25.20	25.20	25.20	25.19	25.19
398 5- 2-80	25.16	25.16	25.16	25.20	25.18	25.20	25.20	25.22	25.25	25.25	25.23	25.20
	25.21	25.18	25.16	25.10	25.14	25.14	25.14	25.20	25.20	25.25	25.20	25.15
399 5- 3-80	25.15	25.15	25.15	25.15	25.15	25.20	25.15	25.20	25.24	25.23	25.22	25.21
	25.22	25.22	25.21	25.20	25.23	25.24	25.20	25.23	25.22	25.24	25.24	25.25
400 5- 4-80	25.20	25.25	25.20	25.20	25.20	25.25	25.25	25.32	25.43	25.25	25.25	25.25
	25.25	25.25	25.25	25.25	25.20	25.20	25.24	25.24	25.26	25.27	25.26	25.27
401 5- 5-80	25.28	25.28	25.28	25.28	25.29	25.28	25.29	25.30	25.30	25.30	25.30	25.30
	25.30	25.30	25.29	25.25	25.25	25.25	25.25	25.25	25.25	25.25	25.25	25.20
402 5- 6-80	25.15	25.18	25.15	25.12	25.12	25.12	25.12	25.18	25.15	25.15	25.13	25.12
	25.11	25.12	25.11	25.08	25.08	25.08	25.07	25.08	25.09	25.11	25.11	25.12
403 5- 7-80	25.13	25.13	25.13	25.12	25.13	25.14	25.15	25.16	25.16	25.16	25.15	25.15
	25.15	25.14	25.10	25.11	25.10	25.10	25.10	25.11	25.12	25.13	25.14	25.13
404 5- 8-80	25.13	25.13	25.10	25.10	25.10	25.05	25.05	25.05	25.05	25.05	25.01	25.00
	25.00	25.00	24.95	24.90	24.95	24.95	24.95	24.95	24.98	24.85	24.85	24.84
405 5- 9-80	24.80	24.80	24.80	24.80	24.80	24.75	24.75	24.75	24.70	24.75	24.75	24.75
	24.75	24.70	24.70	24.70	24.69	24.67	24.67	24.67	24.67	24.67	24.68	24.67
406 5-10-80	24.66	24.66	24.70	24.70	24.70	24.70	24.70	24.77	24.78	24.75	24.75	24.76
	24.76	24.77	24.82	24.82	24.83	24.85	24.87	24.89	24.90	24.94	24.94	24.90
407 5-11-80	24.93	24.94	24.96	24.95	24.96	24.96	24.96	24.98	24.99	24.98	24.99	24.98
	24.98	24.96	24.96	24.94	24.94	24.95	24.96	24.95	24.94	24.95	24.94	24.92
408 5-12-80	24.92	24.92	24.91	24.90	24.89	24.90	24.88	24.88	24.88	24.90	24.92	24.93
	24.94	24.95	24.97	24.98	25.01	25.04	25.05	25.07	25.09	25.11	25.11	25.10
409 5-13-80	25.11	25.10	25.10	25.10	25.10	25.14	25.14	25.14	25.13	25.14	25.13	25.13
	25.12	25.12	25.12	25.10	25.09	25.08	25.08	25.08	25.09	25.10	25.10	25.09
410 5-14-80	25.09	25.09	25.08	25.07	25.08	25.08	25.06	25.07	25.09	25.08	25.07	25.05
	25.04	25.03	25.03	25.02	25.02	25.02	25.02	25.00	25.02	25.03	25.02	25.02
411 5-15-80	25.04	25.04	25.02	25.02	25.02	25.03	25.03	25.03	25.03	25.03	25.03	25.05
	25.04	25.04	25.04	25.03	25.02	25.03	25.04	25.07	25.06	25.06	25.08	25.06
412 5-16-80	25.06	25.05	25.03	25.02	25.02	25.01	25.02	25.04	25.05	25.05	25.05	25.05
	25.06	25.04	25.05	25.04	25.02	25.01	25.00	25.00	25.00	25.03	25.05	25.05
413 5-17-80	25.04	25.04	25.04	25.04	25.04	25.04	25.03	25.06	25.05	25.05	25.10	25.12
	25.13	25.13	25.14	25.15	25.15	25.15	25.15	25.14	25.14	25.16	25.17	25.20
414 5-18-80	25.20	25.20	25.20	25.20	25.20	25.20	25.20	25.20	25.20	25.20	25.20	25.20
	25.20	25.20	25.20	25.20	25.20	25.20	25.20	25.20	25.20	25.20	25.20	25.20
415 5-19-80	25.15	25.15	25.15	25.15	25.15	25.15	25.15	25.15	25.15	25.15	25.15	25.13
	25.14	25.12	25.11	25.10	25.10	25.12	25.10	25.10	25.10	25.10	25.11	25.10
416 5-20-80	25.10	25.10	25.10	25.10	25.10	25.10	25.10	25.10	25.12	25.12	25.15	25.13
	25.12	25.12	25.11	25.11	25.11	25.10	25.11	25.12	25.12	25.13	25.13	25.13

AP.DAT

BAROMETRIC PRESSURE, DAVE JOHNSTON POWER PLANT (IN OF HG)

23-SEP-81 11:12:04

	0	1	2	3	4	5	6	7	8	9	10	11
443 6-16-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
444 6-17-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
445 6-18-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
446 6-19-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
447 6-20-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
448 6-21-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
449 6-22-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
450 6-23-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
451 6-24-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
452 6-25-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
453 6-26-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
454 6-27-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
455 6-28-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
456 6-29-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
457 6-30-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
542 9-23-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
543 9-24-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
544 9-25-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
545 9-26-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
546 9-27-80	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
547 9-28-80	24.78	24.76	24.74	24.81	24.81	24.81	24.81	24.81	24.81	24.82	24.82	24.81
548 9-29-80	24.72	24.72	24.72	24.73	24.73	24.72	24.71	24.71	24.72	24.72	24.72	24.72
549 9-30-80	24.68	24.66	24.65	24.64	24.64	24.64	24.64	24.64	24.64	24.64	24.64	24.64
550 10-1-80	24.75	24.78	24.80	24.81	24.82	24.84	24.84	24.84	24.84	24.84	24.84	24.84
551 10-2-80	24.68	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66	24.66
552 10-3-80	24.87	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
	24.99	24.85	24.89	24.89	24.89	24.91	24.91	24.93	24.95	24.97	24.98	24.99
	25.08	25.09	25.10	25.10	25.09	25.10	25.11	25.11	25.11	25.12	25.12	25.11
	25.08	25.84	25.81	25.80	24.99	24.98	25.00	24.98	24.96	24.97	24.98	24.97
	24.97	24.97	24.96	24.95	24.95	24.95	24.96	24.96	24.96	24.97	24.97	24.96
	24.92	24.89	24.87	24.85	24.85	24.85	24.85	24.85	24.84	24.84	24.84	24.83

AT.DAT

AIR TEMPERATURE (DEGREES CELCIUS)

23-SEP-81 11:15:18

	0	1	2	3	4	5	6	7	8	9	10	11
1 4-1-79	-9999.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 4-2-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 4-3-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4 4-4-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5 4-5-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6 4-6-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7 4-7-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8 4-8-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 4-9-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 4-10-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11 4-11-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12 4-12-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13 4-13-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14 4-14-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15 4-15-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16 4-16-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17 4-17-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18 4-18-79	21.00	22.00	23.00	24.00	23.00	23.00	20.00	15.00	15.00	14.00	13.00	14.00
19 4-19-79	14.00	22.00	23.00	11.00	10.00	10.00	10.00	13.00	14.00	15.00	17.00	21.00
20 4-20-79	22.00	8.00	7.00	6.00	6.00	6.00	5.00	5.00	6.00	8.00	11.00	13.00
21 4-21-79	12.00	11.00	12.00	13.00	11.00	9.00	7.00	6.00	4.00	-9999.00	-9999.00	-9999.00
22 4-22-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
23 4-23-79	-9999.00	7.00	4.00	2.00	1.00	1.00	1.00	6.00	9.00	9.00	8.00	8.00
24 4-24-79	-9999.00	5.00	3.00	2.00	2.00	5.00	7.00	11.00	10.00	10.00	8.00	6.00
25 4-25-79	16.00	18.00	17.00	17.00	18.00	17.00	15.00	14.00	13.00	12.00	14.00	15.00
26 4-26-79	12.00	11.00	11.00	10.00	10.00	10.00	13.00	14.00	17.00	18.00	20.00	16.00
	17.00	17.00	17.00	17.00	18.00	17.00	16.00	13.00	9.00	8.00	7.00	6.00
	5.00	6.00	6.00	5.00	5.00	5.00	6.00	7.00	10.00	13.00	15.00	15.00
	16.00	16.00	16.00	15.00	15.00	14.00	12.00	11.00	6.00	5.00	5.00	4.00
	4.00	4.00	3.00	2.00	2.00	1.00	1.00	2.00	2.00	3.00	5.00	7.00
	9.00	10.00	10.00	12.00	11.00	10.00	10.00	9.00	6.00	5.00	6.00	5.00
	6.00	5.00	4.00	4.00	4.00	5.00	4.00	6.00	7.00	7.00	7.00	7.00
	6.00	5.00	7.00	7.00	6.00	5.00	3.00	2.00	2.00	2.00	1.00	1.00

AIR TEMPERATURE (DEGREES CELCIUS)

AT.DAT	0	1	2	3	4	5	6	7	8	9	10	11
27 4-27-79	1.00	0.00	0.00	1.00	-1.00	0.00	0.00	2.00	4.00	6.00	7.00	8.00
28 4-28-79	10.00	11.00	12.00	13.00	14.00	12.00	6.00	13.00	6.00	6.00	4.00	6.00
29 4-29-79	5.00	2.00	2.00	5.00	3.00	6.00	7.00	7.00	7.00	2.00	9.00	10.00
30 4-30-79	10.00	11.00	12.00	12.00	11.00	9.00	3.00	7.00	4.00	9.00	1.00	8.00
31 5-1-79	1.00	1.00	1.00	1.00	0.00	0.00	13.00	3.00	7.00	6.00	6.00	7.00
32 5-2-79	14.00	15.00	15.00	15.00	15.00	13.00	7.00	4.00	5.00	7.00	9.00	11.00
33 5-3-79	6.00	5.00	4.00	4.00	5.00	4.00	10.00	1.00	10.00	10.00	10.00	7.00
34 5-4-79	3.00	4.00	4.00	4.00	3.00	2.00	14.00	0.00	5.00	6.00	8.00	11.00
35 5-5-79	0.00	0.00	0.00	0.00	0.00	0.00	16.00	0.00	16.00	16.00	16.00	11.00
36 5-6-79	4.00	5.00	5.00	5.00	5.00	5.00	13.00	0.00	5.00	6.00	9.00	7.00
37 5-7-79	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.00	11.00	10.00	9.00	4.00
38 5-8-79	0.00	-1.00	-1.00	-1.00	-1.00	9.00	8.00	7.00	6.00	4.00	4.00	4.00
39 5-9-79	4.00	4.00	3.00	2.00	3.00	4.00	19.00	4.00	6.00	9.00	12.00	15.00
40 5-10-79	16.00	17.00	17.00	18.00	19.00	19.00	12.00	12.00	14.00	14.00	13.00	13.00
41 5-11-79	12.00	11.00	13.00	12.00	12.00	12.00	15.00	19.00	14.00	15.00	18.00	19.00
42 5-12-79	19.00	19.00	21.00	24.00	23.00	22.00	21.00	21.00	19.00	17.00	15.00	14.00
43 5-13-79	12.00	12.00	10.00	8.00	9.00	9.00	11.00	11.00	12.00	14.00	14.00	11.00
44 5-14-79	10.00	11.00	13.00	11.00	11.00	10.00	9.00	9.00	8.00	7.00	6.00	4.00
45 5-15-79	4.00	4.00	3.00	2.00	3.00	2.00	11.00	0.00	0.00	0.00	0.00	0.00
46 5-16-79	0.00	0.00	0.00	0.00	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00
47 5-17-79	4.00	4.00	3.00	2.00	3.00	2.00	7.00	7.00	6.00	4.00	3.00	3.00
48 5-18-79	0.00	0.00	0.00	0.00	0.00	0.00	15.00	4.00	6.00	6.00	4.00	4.00
49 5-19-79	0.00	-1.00	-1.00	-1.00	-1.00	8.00	16.00	4.00	2.00	2.00	9.00	7.00
50 5-20-79	4.00	4.00	3.00	2.00	3.00	4.00	9.00	7.00	4.00	2.00	2.00	2.00
51 5-21-79	16.00	17.00	17.00	18.00	19.00	19.00	12.00	12.00	14.00	14.00	13.00	13.00
52 5-22-79	12.00	11.00	13.00	12.00	12.00	12.00	15.00	19.00	14.00	15.00	18.00	19.00

HT.DAT

H1K TEMPERATURE (DEGREES CELCIUS)

23-SEP-81 11:15:10

	0	1	2	3	4	5	6	7	8	9	10	11
53 5-23-79	10.00	10.00	9.00	8.00	5.00	4.00	5.00	8.00	10.00	12.00	13.00	15.00
54 5-24-79	15.00	18.00	19.00	18.00	20.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
55 5-25-79	12.00	10.00	9.00	9.00	8.00	10.00	9.00	13.00	17.00	0.00	18.00	20.00
56 5-26-79	22.00	22.00	24.00	26.00	24.00	26.00	24.00	24.00	24.00	20.00	18.00	16.00
57 5-27-79	14.00	16.00	16.00	16.00	16.00	16.00	14.00	12.00	12.00	12.00	16.00	16.00
58 5-28-79	14.00	14.00	14.00	14.00	16.00	12.00	10.00	18.00	19.00	16.00	18.00	10.00
59 5-29-79	12.00	12.00	12.00	12.00	22.00	22.00	22.00	10.00	10.00	16.00	16.00	14.00
60 5-30-79	20.00	22.00	22.00	16.00	16.00	14.00	14.00	22.00	20.00	18.00	20.00	22.00
61 5-31-79	18.00	24.00	26.00	28.00	28.00	28.00	29.00	26.00	22.00	20.00	20.00	18.00
62 6-1-79	20.00	22.00	20.00	20.00	20.00	20.00	16.00	16.00	18.00	16.00	22.00	22.00
63 6-2-79	14.00	12.00	10.00	8.00	8.00	8.00	6.00	6.00	5.00	6.00	6.00	6.00
64 6-3-79	6.00	8.00	6.00	6.00	8.00	8.00	8.00	10.00	12.00	8.00	6.00	4.00
65 6-4-79	2.00	4.00	4.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	4.00	4.00
66 6-5-79	6.00	6.00	6.00	6.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
67 6-6-79	6.00	10.00	12.00	12.00	12.00	12.00	12.00	4.00	4.00	6.00	8.00	10.00
68 6-7-79	6.00	4.00	4.00	4.00	4.00	4.00	4.00	12.00	12.00	10.00	8.00	6.00
69 6-8-79	12.00	14.00	16.00	16.00	18.00	18.00	16.00	4.00	4.00	6.00	10.00	12.00
70 6-9-79	10.00	10.00	10.00	10.00	10.00	10.00	10.00	18.00	18.00	18.00	14.00	14.00
71 6-10-79	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	8.00	8.00	12.00	14.00	16.00
72 6-11-79	16.00	14.00	14.00	14.00	14.00	12.00	12.00	12.00	12.00	14.00	16.00	18.00
73 6-12-79	22.00	22.00	22.00	22.00	24.00	24.00	24.00	24.00	24.00	24.00	20.00	20.00
74 6-13-79	18.00	18.00	18.00	18.00	18.00	18.00	18.00	14.00	12.00	14.00	18.00	20.00
75 6-14-79	22.00	22.00	24.00	24.00	26.00	26.00	26.00	26.00	26.00	26.00	24.00	22.00
76 6-15-79	20.00	20.00	26.00	26.00	28.00	28.00	28.00	16.00	16.00	16.00	24.00	24.00
77 6-16-79	18.00	18.00	18.00	18.00	16.00	16.00	18.00	30.00	30.00	26.00	30.00	30.00
78 6-17-79	30.00	30.00	32.00	34.00	30.00	32.00	30.00	22.00	26.00	24.00	34.00	36.00
	22.00	18.00	18.00	18.00	19.00	22.00	22.00	28.00	32.00	26.00	28.00	28.00
	38.00	38.00	38.00	38.00	36.00	36.00	38.00	32.00	30.00	30.00	30.00	30.00
	24.00	24.00	24.00	24.00	26.00	26.00	26.00	22.00	22.00	22.00	28.00	28.00
	28.00	30.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	30.00	30.00
	15.00	15.00	13.00	12.00	11.00	11.00	11.00	12.00	13.00	14.00	15.00	18.00
	18.00	20.00	22.00	22.00	23.00	23.00	22.00	21.00	20.00	16.00	15.00	15.00
	14.00	13.00	13.00	10.00	11.00	11.00	11.00	11.00	12.00	13.00	17.00	18.00
	18.00	20.00	20.00	15.00	12.00	11.00	10.00	8.00	9.00	10.00	8.00	8.00
	9.00	10.00	11.00	11.00	13.00	13.00	15.00	17.00	18.00	20.00	20.00	20.00
	20.00	18.00	18.00	16.00	14.00	14.00	13.00	12.00	12.00	11.00	11.00	11.00

23-SEP-81 11:15:18

AIR TEMPERATURE (DEGREES CELCIUS)

AT.DAT	0	1	2	3	4	5	6	7	8	9	10	11
131 8-9-79	20.00	19.00	18.00	18.00	17.00	17.00	17.00	16.00	16.00	17.00	18.00	19.00
132 8-10-79	18.00	18.00	17.00	16.00	16.00	16.00	15.00	15.00	14.00	14.00	15.00	16.00
133 8-11-79	18.00	19.00	21.00	22.00	23.00	24.00	25.00	25.00	25.00	19.00	17.00	22.00
134 8-12-79	21.00	18.00	17.00	18.00	17.00	17.00	14.00	13.00	14.00	15.00	15.00	17.00
135 8-13-79	20.00	23.00	25.00	27.00	28.00	29.00	27.00	29.00	29.00	29.00	28.00	22.00
136 8-14-79	23.00	24.00	27.00	26.00	27.00	28.00	28.00	27.00	26.00	25.00	24.00	23.00
137 8-15-79	22.00	18.00	17.00	16.00	16.00	15.00	15.00	15.00	14.00	14.00	13.00	13.00
138 8-16-79	19.00	14.00	15.00	16.00	11.00	11.00	10.00	10.00	11.00	12.00	12.00	13.00
139 8-17-79	12.00	13.00	15.00	16.00	16.00	16.00	17.00	16.00	15.00	15.00	14.00	11.00
140 8-18-79	12.00	11.00	11.00	11.00	11.00	10.00	10.00	10.00	10.00	10.00	10.00	11.00
141 8-19-79	13.00	16.00	18.00	20.00	23.00	25.00	25.00	26.00	18.00	18.00	19.00	24.00
142 8-20-79	21.00	17.00	16.00	15.00	15.00	15.00	15.00	15.00	27.00	27.00	26.00	24.00
143 8-21-79	23.00	20.00	23.00	23.00	24.00	25.00	24.00	24.00	15.00	15.00	15.00	17.00
144 8-22-79	18.00	15.00	15.00	15.00	15.00	15.00	16.00	16.00	21.00	21.00	17.00	16.00
145 8-23-79	15.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	16.00	15.00	15.00	15.00
146 8-24-79	14.00	14.00	13.00	13.00	13.00	13.00	12.00	13.00	14.00	14.00	14.00	14.00
147 8-25-79	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00
148 8-26-79	15.00	14.00	14.00	14.00	14.00	14.00	14.00	16.00	16.00	16.00	16.00	16.00
149 8-27-79	17.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
150 8-28-79	18.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00
151 8-29-79	22.00	22.00	22.00	22.00	23.00	19.00	16.00	16.00	15.00	14.00	13.00	13.00
152 8-30-79	13.00	13.00	13.00	13.00	12.00	12.00	12.00	12.00	13.00	13.00	13.00	13.00
153 8-31-79	18.00	20.00	21.00	22.00	22.00	23.00	22.00	20.00	18.00	18.00	14.00	14.00
154 9-1-79	12.00	12.00	12.00	13.00	13.00	13.00	11.00	11.00	13.00	14.00	15.00	16.00
155 9-2-79	17.00	19.00	20.00	20.00	20.00	20.00	21.00	21.00	20.00	17.00	16.00	16.00
156 9-3-79	14.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
	28.00	29.00	30.00	31.00	31.00	31.00	31.00	30.00	29.00	27.00	24.00	23.00

AIR TEMPERATURE (DEGREES CELCIUS)

AT.DAT	0	1	2	3	4	5	6	7	8	9	10	11
235 11-21-79	-8.00	-8.00	-8.00	-8.00	-8.00	-8.00	-8.00	-9.00	-9.00	-3.00	-8.00	-8.00
236 11-22-79	-7.00	-7.00	-7.00	-8.00	-9.00	-10.00	-10.00	-10.00	-8.00	-6.00	-10.00	-11.00
237 11-23-79	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-9.00	-8.00	-4.00	-4.00	-5.00	-5.00
238 11-24-79	-4.00	-4.00	-4.00	-4.00	-5.00	-5.00	-4.00	-4.00	-5.00	-3.00	-2.00	-2.00
239 11-25-79	-5.00	-5.00	-5.00	-5.00	-3.00	-4.00	-3.00	-3.00	-3.00	-3.00	-3.00	-3.00
240 11-26-79	-2.00	-2.00	-2.00	-2.00	-4.00	-4.00	-5.00	-6.00	-6.00	-5.00	-4.00	-2.00
241 11-27-79	-3.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-1.00	-1.00	-1.00	-1.00	-3.00
242 11-28-79	-1.00	-4.00	-4.00	-4.00	-3.00	-4.00	-5.00	-6.00	-6.00	-5.00	-7.00	-7.00
243 11-29-79	-3.00	-2.00	-2.00	-3.00	-6.00	-6.00	-6.00	-6.00	-6.00	-5.00	-5.00	-5.00
244 11-30-79	-8.00	-3.00	-4.00	-6.00	-7.00	-7.00	-9.00	-7.00	-7.00	-11.00	-10.00	-10.00
245 12- 1-79	-11.00	-8.00	-12.00	-13.00	-13.00	-14.00	-14.00	-11.00	-11.00	-10.00	-9.00	-9.00
246 12- 2-79	-8.00	-9.00	-9.00	-9.00	-10.00	-10.00	-10.00	-11.00	-13.00	-13.00	-13.00	-14.00
247 12- 3-79	-14.00	-15.00	-15.00	-15.00	-16.00	-16.00	-13.00	-13.00	-12.00	-12.00	-12.00	-11.00
248 12- 4-79	-10.00	-10.00	-11.00	-12.00	-12.00	-12.00	-12.00	-13.00	-13.00	-13.00	-13.00	-13.00
249 12- 5-79	-13.00	-13.00	-12.00	-12.00	-12.00	-11.00	-11.00	-10.00	-9.00	-9.00	-8.00	-7.00
250 12- 6-79	-6.00	-6.00	-6.00	-7.00	-7.00	-8.00	-8.00	-8.00	-6.00	-5.00	-4.00	-4.00
251 12- 7-79	-8.00	-6.00	-6.00	-6.00	-6.00	-6.00	-6.00	-6.00	-6.00	-5.00	-4.00	-5.00
252 12- 8-79	-4.00	-3.00	-4.00	-5.00	-5.00	-7.00	-7.00	-7.00	-7.00	-6.00	-5.00	-4.00
253 12- 9-79	-4.00	-1.00	-2.00	-2.00	-4.00	-4.00	-4.00	-2.00	-2.00	-2.00	-2.00	-2.00
254 12-10-79	-3.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	4.00	5.00	5.00
255 12-11-79	9.00	16.00	9.00	6.00	6.00	7.00	7.00	7.00	7.00	7.00	8.00	9.00
256 12-12-79	0.00	0.00	-2.00	-2.00	-2.00	-3.00	-3.00	-4.00	-4.00	-3.00	-2.00	-2.00
257 12-13-79	-1.00	-1.00	-1.00	-3.00	-4.00	-4.00	-3.00	-2.00	-2.00	-2.00	-2.00	-2.00
258 12-14-79	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
259 12-15-79	-4.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
260 12-16-79	0.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
	-12.00	-13.00	-14.00	-15.00	-16.00	-17.00	-18.00	-17.00	-17.00	-15.00	-11.00	-10.00
	-9.00	-9.00	-9.00	-9.00	-10.00	-10.00	-12.00	-12.00	-12.00	-11.00	-11.00	-10.00
	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-8.00	-7.00	-7.00	-6.00	-6.00	-5.00
	-4.00	-3.00	-3.00	-3.00	-4.00	-4.00	-5.00	-5.00	-5.00	-5.00	-5.00	-3.00
	-4.00	-0.00	-8.00	-9.00	-8.00	-9.00	-10.00	-9.00	-9.00	-6.00	-5.00	-3.00
	-2.00	-1.00	0.00	0.00	-1.00	-1.00	-2.00	-1.00	-1.00	0.00	0.00	0.00
	0.00	8.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	2.00	4.00	5.00
	6.00	7.00	5.00	4.00	4.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	3.00	4.00	4.00	4.00	2.00	2.00	2.00	2.00	2.00	4.00	4.00	4.00
	-6.00	-6.00	-6.00	-11.00	-14.00	-17.00	-17.00	-16.00	-16.00	-18.00	-18.00	-16.00
	-19.00	-18.00	-17.00	-16.00	-16.00	-17.00	-17.00	-16.00	-15.00	-15.00	-12.00	-10.00
	-7.00	-5.00	-4.00	-5.00	-5.00	-5.00	-6.00	-6.00	-6.00	-6.00	-3.00	-3.00

23-SEP-81 11:15:18

AIR TEMPERATURE (DEGREES CELCIUS)

AT.DAT

	0	1	2	3	4	5	6	7	8	9	10	11
287 1-12-80	0.00	0.00	1.00	2.00	2.00	3.00	3.00	3.00	3.00	4.00	3.00	4.00
288 1-13-80	6.00	7.00	7.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	5.00
289 1-14-80	4.00	4.00	5.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	5.00
289 1-14-80	7.00	8.00	8.00	8.00	6.00	6.00	6.00	7.00	6.00	7.00	7.00	7.00
290 1-15-80	6.00	7.00	7.00	5.00	4.00	4.00	4.00	3.00	2.00	3.00	4.00	5.00
290 1-15-80	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
291 1-16-80	5.00	7.00	6.00	5.00	3.00	0.00	0.00	0.00	0.00	1.00	1.00	2.00
291 1-16-80	-1.00	0.00	0.00	-1.00	-2.00	-2.00	-2.00	-1.00	0.00	0.00	0.00	2.00
292 1-17-80	4.00	4.00	5.00	4.00	1.00	1.00	0.00	0.00	0.00	1.00	4.00	4.00
292 1-17-80	-2.00	-2.00	-2.00	-3.00	-3.00	-3.00	-2.00	0.00	0.00	2.00	4.00	4.00
293 1-18-80	4.00	5.00	4.00	3.00	2.00	2.00	1.00	1.00	1.00	-1.00	0.00	0.00
293 1-18-80	0.00	-1.00	-2.00	-3.00	-4.00	-4.00	-5.00	-7.00	-7.00	-7.00	-7.00	-7.00
294 1-19-80	-7.00	-6.00	-8.00	-8.00	-9.00	-10.00	-11.00	-11.00	-11.00	-11.00	-11.00	-11.00
294 1-19-80	-12.00	-12.00	-13.00	-13.00	-13.00	-13.00	-13.00	-12.00	-11.00	-11.00	-11.00	-11.00
295 1-20-80	-11.00	-11.00	-12.00	-12.00	-13.00	-13.00	-13.00	-13.00	-15.00	-15.00	-15.00	-15.00
295 1-20-80	-15.00	-17.00	-16.00	-16.00	-16.00	-17.00	-17.00	-15.00	-12.00	-11.00	-10.00	-9.00
296 1-21-80	-8.00	-7.00	-6.00	-5.00	-4.00	-4.00	-6.00	-6.00	-6.00	-6.00	-6.00	-6.00
296 1-21-80	-5.00	-4.00	-4.00	-3.00	-3.00	-3.00	-3.00	-4.00	-3.00	-3.00	-3.00	-3.00
297 1-22-80	-2.00	-2.00	-2.00	-3.00	-3.00	-4.00	-4.00	-6.00	-6.00	-7.00	-7.00	-7.00
297 1-22-80	-7.00	-8.00	-8.00	-8.00	-9.00	-9.00	-7.00	-10.00	-8.00	-7.00	-6.00	-5.00
298 1-23-80	-4.00	-3.00	-2.00	-2.00	-2.00	-3.00	-3.00	-4.00	-4.00	-5.00	-3.00	-3.00
298 1-23-80	-4.00	-3.00	-3.00	-3.00	-2.00	-2.00	-3.00	-3.00	-3.00	-2.00	-1.00	0.00
299 1-24-80	0.00	1.00	1.00	2.00	2.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00
299 1-24-80	0.00	0.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	3.00	3.00
300 1-25-80	4.00	4.00	4.00	5.00	4.00	0.00	-1.00	-2.00	-3.00	-3.00	-4.00	-4.00
300 1-25-80	-5.00	-5.00	-6.00	-6.00	-6.00	-7.00	-6.00	-8.00	-8.00	-8.00	-10.00	-10.00
301 1-26-80	-14.00	-16.00	-16.00	-17.00	-17.00	-18.00	-18.00	-19.00	-19.00	-19.00	-19.00	-19.00
301 1-26-80	-21.00	-23.00	-23.00	-23.00	-21.00	-21.00	-21.00	-21.00	-21.00	-21.00	-21.00	-21.00
302 1-27-80	-20.00	-20.00	-20.00	-20.00	-21.00	-23.00	-24.00	-25.00	-25.00	-25.00	-25.00	-25.00
302 1-27-80	-25.00	-25.00	-25.00	-24.00	-24.00	-24.00	-24.00	-24.00	-24.00	-23.00	-23.00	-23.00
303 1-28-80	-23.00	-23.00	-22.00	-22.00	-22.00	-23.00	-23.00	-23.00	-23.00	-23.00	-23.00	-23.00
303 1-28-80	-27.00	-26.00	-26.00	-26.00	-26.00	-26.00	-28.00	-28.00	-28.00	-25.00	-25.00	-25.00
304 1-29-80	-23.00	-22.00	-21.00	-21.00	-21.00	-23.00	-24.00	-26.00	-27.00	-27.00	-28.00	-28.00
304 1-29-80	-28.00	-28.00	-28.00	-28.00	-26.00	-26.00	-26.00	-26.00	-24.00	-23.00	-22.00	-21.00
305 1-30-80	-18.00	-18.00	-18.00	-18.00	-18.00	-19.00	-18.00	-18.00	-18.00	-17.00	-17.00	-18.00
305 1-30-80	-11.00	-10.00	-9.00	-9.00	-9.00	-10.00	-12.00	-12.00	-14.00	-16.00	-15.00	-12.00
306 1-31-80	-13.00	-13.00	-12.00	-11.00	-12.00	-13.00	-15.00	-15.00	-13.00	-11.00	-11.00	-7.00
306 1-31-80	-6.00	-5.00	-4.00	-5.00	-7.00	-6.00	-5.00	-5.00	-8.00	-8.00	-7.00	-6.00
307 2-1-80	-7.00	-5.00	-5.00	-3.00	-2.00	-3.00	-3.00	-3.00	-3.00	-3.00	-3.00	-2.00
307 2-1-80	-1.00	0.00	0.00	0.00	-1.00	-1.00	-1.00	-2.00	-2.00	-2.00	-3.00	-2.00
308 2-2-80	0.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.00	-1.00	-1.00	-1.00	0.00	0.00
308 2-2-80	2.00	3.00	3.00	3.00	2.00	1.00	1.00	1.00	1.00	0.00	0.00	2.00
309 2-3-80	0.00	-1.00	-2.00	-2.00	-2.00	-1.00	-1.00	-1.00	0.00	0.00	0.00	4.00
310 2-4-80	5.00	6.00	5.00	5.00	4.00	4.00	3.00	4.00	3.00	3.00	3.00	3.00
311 2-5-80	3.00	3.00	2.00	2.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
311 2-5-80	3.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
312 2-6-80	-3.00	-4.00	-4.00	-4.00	-4.00	-6.00	-7.00	-7.00	-5.00	-3.00	-3.00	-1.00
312 2-6-80	0.00	0.00	0.00	0.00	0.00	-2.00	-2.00	-2.00	-3.00	-3.00	-3.00	-4.00
312 2-6-80	-4.00	-4.00	-4.00	-3.00	-3.00	-3.00	-3.00	-4.00	-4.00	-3.00	-2.00	0.00
312 2-6-80	3.00	3.00	2.00	2.00	2.00	-1.00	-1.00	-2.00	-2.00	-2.00	-3.00	-3.00

	0	1	2	3	4	5	6	7	8	9	10	11
53	5-23-79	45.00	150.00	290.00	90.00	125.00	70.00	90.00	135.00	125.00	150.00	150.00
54	5-24-79	135.00	340.00	90.00	360.00	45.00	60.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00
55	5-25-79	170.00	160.00	190.00	200.00	220.00	240.00	235.00	200.00	220.00	140.00	150.00
56	5-26-79	170.00	145.00	130.00	120.00	110.00	130.00	120.00	130.00	140.00	150.00	160.00
57	5-27-79	170.00	180.00	210.00	240.00	310.00	310.00	330.00	340.00	340.00	340.00	330.00
58	5-28-79	330.00	350.00	330.00	310.00	300.00	325.00	300.00	290.00	280.00	250.00	260.00
59	5-29-79	260.00	250.00	240.00	230.00	230.00	220.00	225.00	230.00	240.00	240.00	250.00
60	5-30-79	260.00	300.00	320.00	300.00	330.00	20.00	45.00	360.00	120.00	155.00	160.00
61	5-31-79	140.00	135.00	150.00	160.00	160.00	190.00	170.00	180.00	180.00	170.00	180.00
62	6-1-79	180.00	180.00	225.00	140.00	135.00	150.00	150.00	160.00	180.00	170.00	160.00
63	6-2-79	170.00	200.00	190.00	180.00	190.00	210.00	220.00	230.00	220.00	240.00	240.00
64	6-3-79	315.00	315.00	330.00	330.00	330.00	45.00	80.00	90.00	80.00	70.00	70.00
65	6-4-79	80.00	80.00	355.00	360.00	335.00	335.00	335.00	320.00	315.00	300.00	315.00
66	6-5-79	320.00	325.00	315.00	315.00	310.00	300.00	300.00	280.00	335.00	300.00	300.00
67	6-6-79	300.00	315.00	290.00	300.00	315.00	315.00	315.00	315.00	320.00	320.00	320.00
68	6-7-79	320.00	335.00	320.00	335.00	340.00	340.00	335.00	340.00	360.00	360.00	28.00
69	6-8-79	180.00	210.00	200.00	190.00	225.00	225.00	200.00	200.00	200.00	200.00	193.00
70	6-9-79	270.00	290.00	270.00	290.00	290.00	270.00	270.00	270.00	270.00	335.00	360.00
71	6-10-79	35.00	270.00	245.00	235.00	225.00	225.00	235.00	245.00	245.00	245.00	245.00
72	6-11-79	270.00	270.00	270.00	270.00	280.00	245.00	245.00	235.00	235.00	225.00	150.00
73	6-12-79	180.00	180.00	170.00	180.00	210.00	210.00	200.00	200.00	225.00	245.00	270.00
74	6-13-79	270.00	250.00	260.00	260.00	270.00	290.00	300.00	290.00	335.00	335.00	160.00
75	6-14-79	180.00	215.00	235.00	260.00	315.00	315.00	350.00	350.00	350.00	350.00	350.00
76	6-15-79	360.00	360.00	360.00	360.00	360.00	340.00	335.00	360.00	360.00	360.00	345.00
77	6-16-79	10.00	45.00	30.00	335.00	10.00	20.00	45.00	20.00	20.00	30.00	10.00
78	6-17-79	45.00	10.00	20.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	30.00
79	6-18-79	315.00	315.00	315.00	315.00	315.00	300.00	300.00	315.00	315.00	315.00	315.00
80	6-19-79	245.00	245.00	245.00	230.00	245.00	245.00	360.00	360.00	350.00	360.00	345.00
81	6-20-79	235.00	260.00	235.00	235.00	235.00	245.00	35.00	45.00	20.00	30.00	10.00
82	6-21-79	160.00	160.00	180.00	200.00	200.00	210.00	20.00	45.00	45.00	45.00	30.00
83	6-22-79	225.00	235.00	290.00	290.00	270.00	270.00	35.00	45.00	45.00	45.00	30.00
84	6-23-79	160.00	210.00	200.00	225.00	210.00	225.00	45.00	45.00	45.00	45.00	30.00
85	6-24-79	245.00	270.00	270.00	270.00	270.00	270.00	45.00	45.00	45.00	45.00	30.00
86	6-25-79	150.00	160.00	160.00	160.00	160.00	160.00	45.00	45.00	45.00	45.00	30.00
87	6-26-79	210.00	225.00	210.00	210.00	210.00	210.00	45.00	45.00	45.00	45.00	30.00
88	6-27-79	200.00	200.00	200.00	200.00	200.00	200.00	45.00	45.00	45.00	45.00	30.00
89	6-28-79	210.00	225.00	225.00	235.00	225.00	225.00	45.00	45.00	45.00	45.00	30.00
90	6-29-79	320.00	340.00	310.00	310.00	300.00	300.00	45.00	45.00	45.00	45.00	30.00
91	6-30-79	140.00	130.00	150.00	160.00	160.00	160.00	45.00	45.00	45.00	45.00	30.00
92	7-1-79	110.00	110.00	110.00	110.00	110.00	110.00	45.00	45.00	45.00	45.00	30.00
93	7-2-79	160.00	190.00	170.00	180.00	180.00	180.00	45.00	45.00	45.00	45.00	30.00
94	7-3-79	110.00	120.00	140.00	140.00	140.00	140.00	45.00	45.00	45.00	45.00	30.00
95	7-4-79	145.00	150.00	140.00	130.00	130.00	130.00	45.00	45.00	45.00	45.00	30.00
96	7-5-79	150.00	150.00	150.00	150.00	150.00	150.00	45.00	45.00	45.00	45.00	30.00
97	7-6-79	150.00	150.00	150.00	150.00	150.00	150.00	45.00	45.00	45.00	45.00	30.00
98	7-7-79	150.00	150.00	150.00	150.00	150.00	150.00	45.00	45.00	45.00	45.00	30.00
99	7-8-79	150.00	150.00	150.00	150.00	150.00	150.00	45.00	45.00	45.00	45.00	30.00
100	7-9-79	150.00	150.00	150.00	150.00	150.00	150.00	45.00	45.00	45.00	45.00	30.00

WD.DAT

WIND DIRECTION (DEGREES MAGNETIC)

23-SEP-81 11:17:52

	0	1	2	3	4	5	6	7	8	9	10	11
105 7-14-79	90.00	135.00	135.00	135.00	135.00	180.00	225.00	225.00	225.00	225.00	225.00	270.00
	270.00	270.00	270.00	270.00	315.00	315.00	315.00	350.00	350.00	360.00	360.00	45.00
106 7-15-79	25.00	45.00	45.00	225.00	270.00	225.00	270.00	270.00	270.00	45.00	90.00	90.00
	90.00	120.00	120.00	120.00	135.00	135.00	135.00	120.00	120.00	90.00	90.00	90.00
107 7-16-79	90.00	90.00	90.00	75.00	270.00	270.00	225.00	315.00	315.00	315.00	360.00	360.00
	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
108 7-17-79	90.00	180.00	135.00	225.00	100.00	90.00	135.00	135.00	135.00	135.00	135.00	135.00
	180.00	270.00	270.00	270.00	45.00	45.00	45.00	60.00	60.00	60.00	80.00	90.00
109 7-18-79	135.00	150.00	180.00	180.00	225.00	225.00	250.00	225.00	225.00	315.00	315.00	315.00
	315.00	315.00	315.00	340.00	340.00	340.00	340.00	360.00	360.00	45.00	60.00	45.00
110 7-19-79	270.00	270.00	270.00	250.00	250.00	270.00	270.00	250.00	250.00	45.00	270.00	270.00
	270.00	270.00	270.00	270.00	270.00	270.00	270.00	90.00	90.00	90.00	100.00	100.00
111 7-20-79	180.00	180.00	180.00	135.00	135.00	135.00	225.00	225.00	225.00	180.00	180.00	180.00
	180.00	170.00	170.00	180.00	170.00	225.00	315.00	135.00	135.00	225.00	90.00	135.00
112 7-21-79	150.00	150.00	150.00	150.00	150.00	180.00	200.00	200.00	200.00	225.00	225.00	315.00
	135.00	225.00	225.00	225.00	225.00	225.00	90.00	225.00	225.00	225.00	225.00	180.00
113 7-22-79	170.00	180.00	180.00	225.00	200.00	180.00	225.00	225.00	225.00	225.00	225.00	225.00
	225.00	225.00	225.00	225.00	225.00	225.00	225.00	225.00	225.00	180.00	360.00	270.00
114 7-23-79	315.00	315.00	250.00	315.00	315.00	270.00	270.00	315.00	315.00	315.00	315.00	315.00
	250.00	225.00	260.00	260.00	260.00	360.00	225.00	225.00	225.00	270.00	270.00	250.00
115 7-24-79	270.00	270.00	270.00	270.00	270.00	270.00	270.00	250.00	250.00	360.00	315.00	270.00
	135.00	135.00	135.00	135.00	135.00	90.00	90.00	90.00	90.00	180.00	135.00	135.00
116 7-25-79	135.00	180.00	180.00	360.00	45.00	60.00	80.00	90.00	90.00	180.00	90.00	135.00
	45.00	270.00	270.00	270.00	270.00	270.00	45.00	180.00	180.00	180.00	270.00	360.00
117 7-26-79	45.00	45.00	45.00	45.00	45.00	45.00	90.00	180.00	180.00	180.00	180.00	180.00
	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
118 7-27-79	315.00	360.00	360.00	225.00	360.00	45.00	45.00	45.00	45.00	45.00	60.00	135.00
	150.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	150.00	180.00
119 7-28-79	135.00	45.00	45.00	45.00	225.00	225.00	225.00	200.00	200.00	360.00	300.00	315.00
	135.00	150.00	150.00	150.00	135.00	135.00	135.00	135.00	135.00	135.00	135.00	135.00
120 7-29-79	315.00	315.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	45.00	25.00	360.00
	360.00	360.00	315.00	315.00	225.00	225.00	225.00	225.00	225.00	225.00	225.00	45.00
121 7-30-79	45.00	45.00	60.00	90.00	90.00	90.00	360.00	45.00	45.00	360.00	225.00	225.00
	250.00	225.00	225.00	225.00	225.00	200.00	200.00	270.00	270.00	270.00	270.00	270.00
122 7-31-79	270.00	270.00	270.00	270.00	270.00	270.00	270.00	270.00	270.00	315.00	315.00	270.00
	135.00	150.00	150.00	180.00	180.00	200.00	200.00	225.00	225.00	225.00	225.00	225.00
123 8-1-79	250.00	270.00	270.00	225.00	270.00	315.00	270.00	270.00	270.00	45.00	360.00	192.00
	225.00	225.00	225.00	225.00	225.00	225.00	225.00	225.00	225.00	225.00	225.00	60.00
124 8-2-79	90.00	135.00	170.00	270.00	180.00	150.00	170.00	170.00	170.00	160.00	170.00	170.00
	170.00	160.00	170.00	170.00	190.00	210.00	250.00	260.00	260.00	260.00	260.00	270.00
125 8-3-79	270.00	270.00	270.00	270.00	270.00	300.00	300.00	310.00	310.00	109.00	150.00	145.00
	150.00	180.00	225.00	225.00	225.00	225.00	225.00	225.00	225.00	225.00	235.00	260.00
126 8-4-79	380.00	325.00	325.00	315.00	325.00	270.00	45.00	45.00	45.00	70.00	120.00	100.00
	180.00	120.00	145.00	145.00	145.00	145.00	150.00	170.00	170.00	170.00	170.00	225.00
127 8-5-79	75.00	75.00	180.00	180.00	180.00	180.00	270.00	180.00	180.00	135.00	135.00	135.00
	160.00	170.00	170.00	170.00	160.00	160.00	210.00	210.00	210.00	250.00	270.00	300.00
128 8-6-79	330.00	325.00	330.00	330.00	350.00	360.00	45.00	45.00	45.00	100.00	125.00	225.00
	25.00	90.00	180.00	225.00	360.00	180.00	180.00	170.00	170.00	170.00	160.00	170.00
129 8-7-79	170.00	160.00	145.00	160.00	135.00	125.00	360.00	225.00	315.00	145.00	225.00	180.00
	25.00	360.00	70.00	325.00	225.00	225.00	180.00	180.00	180.00	270.00	270.00	315.00
130 8-8-79	135.00	125.00	135.00	180.00	260.00	200.00	135.00	190.00	190.00	45.00	135.00	145.00

WD. DAT

WIND DIRECTION (DEGREES MAGNETIC)

23-SEP-81 11:17:52

	0	1	2	3	4	5	6	7	8	9	10	11
131 8-9-79	170.00	180.00	180.00	270.00	190.00	225.00	270.00	270.00	270.00	270.00	270.00	315.00
	315.00	315.00	315.00	340.00	350.00	325.00	325.00	360.00	45.00	45.00	45.00	45.00
132 8-10-79	60.00	45.00	125.00	80.00	90.00	180.00	180.00	170.00	145.00	145.00	145.00	145.00
	170.00	170.00	170.00	150.00	170.00	270.00	180.00	270.00	135.00	145.00	145.00	145.00
133 8-11-79	170.00	135.00	170.00	170.00	170.00	180.00	315.00	235.00	225.00	270.00	270.00	150.00
	235.00	235.00	225.00	300.00	245.00	270.00	60.00	360.00	60.00	60.00	100.00	150.00
134 8-12-79	145.00	145.00	150.00	170.00	170.00	180.00	190.00	200.00	215.00	250.00	270.00	315.00
	345.00	345.00	360.00	360.00	360.00	360.00	360.00	35.00	45.00	45.00	45.00	45.00
135 8-13-79	45.00	45.00	45.00	100.00	45.00	45.00	45.00	45.00	90.00	80.00	90.00	90.00
	90.00	90.00	90.00	100.00	270.00	315.00	80.00	60.00	90.00	90.00	90.00	90.00
136 8-14-79	80.00	80.00	80.00	70.00	80.00	80.00	70.00	80.00	70.00	100.00	120.00	110.00
	140.00	140.00	150.00	140.00	140.00	140.00	140.00	140.00	135.00	140.00	135.00	135.00
137 8-15-79	150.00	150.00	150.00	150.00	160.00	160.00	170.00	170.00	100.00	270.00	150.00	160.00
	160.00	160.00	150.00	150.00	270.00	270.00	270.00	150.00	150.00	140.00	160.00	150.00
138 8-16-79	160.00	170.00	170.00	170.00	180.00	200.00	240.00	225.00	230.00	240.00	230.00	240.00
	250.00	260.00	250.00	320.00	360.00	270.00	270.00	250.00	250.00	240.00	240.00	360.00
139 8-17-79	360.00	315.00	320.00	320.00	360.00	270.00	240.00	240.00	240.00	225.00	230.00	250.00
	250.00	260.00	320.00	360.00	360.00	360.00	30.00	45.00	45.00	30.00	340.00	225.00
140 8-16-79	180.00	180.00	200.00	200.00	215.00	200.00	170.00	200.00	240.00	270.00	135.00	100.00
	100.00	150.00	225.00	315.00	30.00	45.00	60.00	60.00	70.00	45.00	45.00	45.00
141 8-19-79	45.00	60.00	50.00	180.00	240.00	180.00	45.00	50.00	50.00	60.00	60.00	45.00
	60.00	60.00	60.00	60.00	70.00	70.00	70.00	70.00	80.00	70.00	70.00	80.00
142 8-20-79	80.00	90.00	90.00	90.00	100.00	90.00	90.00	90.00	90.00	100.00	90.00	90.00
	90.00	90.00	50.00	60.00	50.00	70.00	80.00	80.00	225.00	135.00	180.00	225.00
143 8-21-79	315.00	250.00	225.00	240.00	250.00	270.00	260.00	250.00	250.00	240.00	240.00	250.00
	260.00	260.00	270.00	280.00	250.00	280.00	270.00	300.00	300.00	300.00	325.00	360.00
144 8-22-79	315.00	270.00	270.00	270.00	250.00	280.00	270.00	270.00	270.00	270.00	270.00	270.00
	300.00	315.00	315.00	315.00	315.00	315.00	315.00	315.00	315.00	315.00	330.00	360.00
145 8-23-79	360.00	180.00	160.00	225.00	225.00	225.00	180.00	180.00	210.00	210.00	225.00	225.00
	225.00	135.00	180.00	225.00	260.00	225.00	240.00	50.00	135.00	225.00	150.00	150.00
146 8-24-79	180.00	225.00	225.00	225.00	250.00	240.00	240.00	230.00	270.00	270.00	270.00	360.00
	45.00	180.00	180.00	250.00	360.00	315.00	315.00	360.00	270.00	225.00	135.00	225.00
147 8-25-79	225.00	270.00	270.00	225.00	225.00	240.00	250.00	250.00	225.00	45.00	270.00	270.00
	135.00	135.00	45.00	135.00	90.00	90.00	125.00	100.00	90.00	70.00	125.00	90.00
148 8-26-79	45.00	225.00	225.00	210.00	210.00	180.00	315.00	315.00	135.00	60.00	30.00	30.00
	360.00	45.00	45.00	45.00	45.00	70.00	60.00	60.00	70.00	100.00	100.00	90.00
149 8-27-79	135.00	150.00	135.00	270.00	315.00	90.00	160.00	200.00	225.00	180.00	180.00	180.00
	180.00	180.00	150.00	150.00	135.00	250.00	225.00	250.00	270.00	320.00	320.00	320.00
150 8-28-79	315.00	225.00	225.00	225.00	270.00	270.00	270.00	250.00	225.00	225.00	270.00	290.00
	315.00	315.00	315.00	340.00	360.00	360.00	45.00	150.00	120.00	170.00	170.00	170.00
151 8-29-79	180.00	180.00	190.00	180.00	220.00	225.00	135.00	180.00	225.00	225.00	250.00	180.00
	270.00	315.00	225.00	270.00	135.00	90.00	90.00	90.00	90.00	135.00	150.00	150.00
152 8-30-79	150.00	150.00	150.00	160.00	180.00	190.00	200.00	200.00	220.00	220.00	190.00	200.00
	180.00	150.00	135.00	270.00	160.00	250.00	250.00	230.00	225.00	215.00	225.00	225.00
153 8-31-79	225.00	215.00	200.00	225.00	225.00	250.00	230.00	225.00	225.00	225.00	225.00	225.00
	225.00	225.00	225.00	250.00	260.00	260.00	270.00	270.00	270.00	270.00	270.00	270.00
154 9-1-79	270.00	315.00	315.00	225.00	225.00	225.00	225.00	250.00	270.00	250.00	250.00	250.00
	250.00	250.00	250.00	270.00	270.00	270.00	225.00	250.00	180.00	135.00	135.00	135.00
155 9-2-79	135.00	150.00	180.00	180.00	180.00	180.00	180.00	190.00	190.00	200.00	210.00	210.00
	225.00	250.00	250.00	270.00	260.00	260.00	250.00	270.00	260.00	260.00	225.00	200.00
156 9-3-79	190.00	200.00	200.00	200.00	200.00	225.00	225.00	225.00	225.00	250.00	250.00	250.00
	250.00	250.00	250.00	250.00	225.00	225.00	250.00	225.00	200.00	200.00	180.00	180.00

	0	1	2	3	4	5	6	7	8	9	10	11
209 10-26-79	230.00	230.00	230.00	220.00	230.00	230.00	236.00	230.00	230.00	260.00	250.00	260.00
210 10-27-79	250.00	250.00	260.00	310.00	330.00	320.00	330.00	340.00	340.00	320.00	320.00	230.00
211 10-28-79	240.00	240.00	250.00	260.00	260.00	260.00	240.00	220.00	230.00	230.00	250.00	260.00
212 10-29-79	210.00	210.00	210.00	220.00	240.00	250.00	250.00	250.00	260.00	240.00	240.00	200.00
213 10-30-79	310.00	310.00	310.00	350.00	360.00	360.00	18.00	45.00	60.00	60.00	50.00	70.00
214 10-31-79	340.00	340.00	340.00	360.00	360.00	360.00	340.00	340.00	340.00	320.00	330.00	320.00
215 11- 1-79	360.00	360.00	360.00	28.00	340.00	320.00	320.00	320.00	330.00	340.00	340.00	340.00
216 11- 2-79	320.00	310.00	300.00	220.00	200.00	200.00	200.00	310.00	280.00	280.00	290.00	270.00
217 11- 3-79	270.00	270.00	270.00	280.00	290.00	290.00	290.00	9999.00	9999.00	9999.00	9999.00	9999.00
218 11- 4-79	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
219 11- 5-79	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
220 11- 6-79	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
221 11- 7-79	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
222 11- 8-79	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
223 11- 9-79	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
224 11-10-79	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
225 11-11-79	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
226 11-12-79	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
227 11-13-79	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
228 11-14-79	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
229 11-15-79	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
230 11-16-79	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
231 11-17-79	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
232 11-18-79	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
233 11-19-79	315.00	315.00	315.00	300.00	300.00	250.00	270.00	315.00	270.00	250.00	280.00	270.00
234 11-20-79	250.00	250.00	230.00	225.00	220.00	200.00	210.00	210.00	225.00	250.00	250.00	250.00
	260.00	280.00	300.00	315.00	340.00	315.00	340.00	325.00	350.00	340.00	340.00	350.00
	20.00	20.00	20.00	10.00	360.00	360.00	350.00	360.00	10.00	20.00	50.00	50.00
	40.00	20.00	10.00	10.00	360.00	350.00	350.00	350.00	340.00	340.00	340.00	330.00

WD.DAT

WIND DIRECTION (DEGREES MAGNETIC)

23-SEP-81 11:17:52

	0	1	2	3	4	5	6	7	8	9	10	11
235 11-21-79	330.00	320.00	320.00	320.00	320.00	320.00	320.00	330.00	330.00	320.00	310.00	310.00
236 11-22-79	300.00	300.00	290.00	280.00	270.00	250.00	250.00	270.00	270.00	260.00	260.00	260.00
237 11-23-79	260.00	260.00	260.00	260.00	260.00	250.00	250.00	250.00	250.00	250.00	260.00	260.00
238 11-24-79	270.00	260.00	260.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	230.00
239 11-25-79	250.00	270.00	290.00	310.00	320.00	310.00	310.00	310.00	300.00	290.00	290.00	290.00
240 11-26-79	300.00	290.00	270.00	250.00	250.00	250.00	250.00	240.00	350.00	240.00	230.00	250.00
241 11-27-79	230.00	240.00	240.00	230.00	230.00	230.00	240.00	270.00	290.00	230.00	230.00	250.00
242 11-28-79	220.00	220.00	220.00	270.00	280.00	280.00	300.00	270.00	240.00	220.00	230.00	250.00
243 11-29-79	260.00	320.00	300.00	330.00	330.00	270.00	320.00	320.00	310.00	300.00	290.00	300.00
244 11-30-79	290.00	290.00	280.00	280.00	270.00	260.00	270.00	270.00	290.00	300.00	310.00	260.00
245 12- 1-79	310.00	300.00	310.00	300.00	290.00	280.00	260.00	270.00	260.00	260.00	230.00	240.00
246 12- 2-79	260.00	270.00	260.00	260.00	260.00	260.00	270.00	260.00	260.00	250.00	240.00	250.00
247 12- 3-79	240.00	250.00	240.00	240.00	250.00	250.00	260.00	260.00	250.00	250.00	250.00	250.00
248 12- 4-79	260.00	260.00	250.00	250.00	250.00	240.00	240.00	240.00	240.00	240.00	230.00	230.00
249 12- 5-79	230.00	240.00	240.00	240.00	240.00	240.00	230.00	240.00	230.00	240.00	250.00	250.00
250 12- 6-79	240.00	240.00	230.00	230.00	230.00	230.00	270.00	260.00	260.00	250.00	240.00	250.00
251 12- 7-79	340.00	330.00	350.00	340.00	340.00	270.00	320.00	280.00	340.00	330.00	320.00	320.00
252 12- 8-79	360.00	45.00	90.00	110.00	110.00	110.00	130.00	160.00	160.00	160.00	160.00	170.00
253 12- 9-79	170.00	180.00	180.00	200.00	200.00	200.00	210.00	220.00	220.00	230.00	240.00	240.00
254 12-10-79	250.00	240.00	240.00	240.00	240.00	230.00	230.00	220.00	220.00	220.00	230.00	230.00
255 12-11-79	230.00	230.00	230.00	230.00	230.00	230.00	220.00	220.00	230.00	230.00	230.00	220.00
256 12-12-79	230.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	250.00	240.00
257 12-13-79	300.00	270.00	250.00	230.00	180.00	180.00	190.00	200.00	170.00	160.00	200.00	200.00
258 12-14-79	210.00	220.00	200.00	220.00	220.00	220.00	230.00	240.00	240.00	240.00	230.00	230.00
259 12-15-79	220.00	220.00	230.00	240.00	240.00	240.00	230.00	230.00	230.00	230.00	260.00	240.00
260 12-16-79	240.00	340.00	360.00	20.00	20.00	10.00	360.00	350.00	340.00	330.00	320.00	320.00
	200.00	200.00	180.00	200.00	200.00	200.00	200.00	200.00	200.00	210.00	210.00	230.00

WD.DAT

WIND DIRECTION (DEGREES MAGNETIC)

23-SEP-81 11:17:52

	0	1	2	3	4	5	6	7	8	9	10	11
313	2-7-80	30.00	20.00	20.00	20.00	10.00	350.00	340.00	360.00	360.00	360.00	350.00
314	2-8-80	20.00	360.00	350.00	330.00	360.00	330.00	330.00	360.00	360.00	380.00	350.00
315	2-9-80	210.00	240.00	220.00	220.00	220.00	270.00	200.00	200.00	200.00	210.00	240.00
316	2-9-80	240.00	250.00	250.00	240.00	240.00	240.00	240.00	260.00	260.00	250.00	250.00
317	2-10-80	240.00	240.00	260.00	250.00	260.00	270.00	290.00	270.00	280.00	270.00	260.00
318	2-11-80	270.00	240.00	210.00	250.00	260.00	310.00	260.00	260.00	270.00	300.00	200.00
319	2-12-80	320.00	320.00	320.00	300.00	270.00	270.00	260.00	270.00	260.00	300.00	220.00
320	2-13-80	360.00	290.00	280.00	360.00	160.00	170.00	180.00	190.00	200.00	210.00	220.00
321	2-14-80	330.00	300.00	320.00	220.00	230.00	230.00	220.00	220.00	220.00	220.00	230.00
322	2-15-80	210.00	220.00	240.00	270.00	260.00	260.00	340.00	340.00	360.00	110.00	120.00
323	2-16-80	260.00	210.00	270.00	240.00	20.00	20.00	30.00	20.00	20.00	45.00	30.00
324	2-17-80	10.00	20.00	10.00	340.00	340.00	350.00	350.00	350.00	350.00	350.00	350.00
325	2-18-80	360.00	20.00	10.00	360.00	60.00	60.00	60.00	70.00	90.00	90.00	80.00
326	2-19-80	50.00	80.00	80.00	60.00	50.00	50.00	50.00	50.00	50.00	40.00	40.00
327	2-20-80	40.00	350.00	350.00	350.00	350.00	10.00	360.00	340.00	340.00	340.00	340.00
328	2-21-80	330.00	340.00	350.00	350.00	360.00	360.00	350.00	340.00	330.00	330.00	320.00
329	2-22-80	310.00	250.00	240.00	240.00	250.00	210.00	200.00	200.00	200.00	200.00	200.00
330	2-23-80	200.00	200.00	200.00	200.00	210.00	210.00	220.00	220.00	220.00	220.00	220.00
331	2-24-80	220.00	210.00	210.00	210.00	210.00	210.00	210.00	210.00	210.00	210.00	210.00
332	2-25-80	250.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00
333	2-26-80	260.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00
334	2-27-80	230.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00
335	2-28-80	200.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00
336	2-29-80	200.00	70.00	70.00	70.00	80.00	100.00	100.00	110.00	110.00	120.00	120.00
337	3-1-80	120.00	110.00	70.00	70.00	30.00	40.00	60.00	70.00	70.00	70.00	50.00
338	3-2-80	60.00	70.00	70.00	80.00	90.00	260.00	200.00	270.00	340.00	200.00	200.00
339	3-3-80	180.00	200.00	200.00	200.00	200.00	200.00	130.00	180.00	180.00	170.00	160.00
340	3-4-80	150.00	190.00	200.00	200.00	210.00	220.00	230.00	240.00	240.00	240.00	220.00
341	3-5-80	220.00	240.00	230.00	230.00	230.00	230.00	240.00	240.00	240.00	230.00	230.00
342	3-6-80	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00
343	3-7-80	290.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	260.00
344	3-8-80	270.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00
345	3-9-80	330.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00
346	3-10-80	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00
347	3-11-80	280.00	280.00	290.00	290.00	300.00	320.00	320.00	320.00	320.00	320.00	320.00
348	3-12-80	300.00	280.00	280.00	280.00	270.00	270.00	260.00	260.00	260.00	260.00	260.00
349	3-13-80	330.00	300.00	320.00	360.00	160.00	170.00	180.00	190.00	200.00	210.00	220.00
350	3-14-80	210.00	220.00	220.00	220.00	230.00	230.00	220.00	220.00	220.00	220.00	220.00
351	3-15-80	260.00	240.00	240.00	240.00	260.00	260.00	340.00	340.00	360.00	110.00	120.00
352	3-16-80	110.00	240.00	210.00	270.00	50.00	20.00	20.00	20.00	30.00	45.00	30.00
353	3-17-80	10.00	20.00	10.00	340.00	340.00	350.00	350.00	350.00	350.00	350.00	350.00
354	3-18-80	360.00	20.00	10.00	360.00	60.00	60.00	60.00	70.00	90.00	90.00	80.00
355	3-19-80	50.00	80.00	80.00	60.00	50.00	50.00	50.00	50.00	50.00	40.00	40.00
356	3-20-80	40.00	350.00	350.00	350.00	350.00	10.00	360.00	340.00	340.00	340.00	340.00
357	3-21-80	330.00	340.00	350.00	350.00	360.00	360.00	350.00	340.00	330.00	330.00	320.00
358	3-22-80	310.00	250.00	240.00	240.00	250.00	210.00	200.00	200.00	200.00	200.00	200.00
359	3-23-80	200.00	200.00	200.00	200.00	210.00	210.00	220.00	220.00	220.00	220.00	220.00
360	3-24-80	220.00	210.00	210.00	210.00	210.00	210.00	210.00	210.00	210.00	210.00	210.00
361	3-25-80	250.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00
362	3-26-80	260.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00
363	3-27-80	230.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00
364	3-28-80	200.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00
365	3-29-80	200.00	70.00	70.00	70.00	80.00	100.00	100.00	110.00	110.00	120.00	120.00
366	3-30-80	120.00	110.00	70.00	70.00	30.00	40.00	60.00	70.00	70.00	70.00	50.00
367	3-31-80	60.00	70.00	70.00	80.00	90.00	260.00	200.00	270.00	340.00	200.00	200.00
368	3-32-80	180.00	200.00	200.00	200.00	200.00	200.00	130.00	180.00	180.00	170.00	160.00
369	3-33-80	150.00	190.00	200.00	200.00	210.00	220.00	230.00	240.00	240.00	240.00	220.00
370	3-34-80	220.00	240.00	230.00	230.00	230.00	230.00	240.00	240.00	240.00	230.00	230.00
371	3-35-80	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00
372	3-36-80	290.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	260.00
373	3-37-80	270.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00
374	3-38-80	330.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00
375	3-39-80	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00
376	3-40-80	280.00	280.00	290.00	290.00	300.00	320.00	320.00	320.00	320.00	320.00	320.00
377	3-41-80	300.00	280.00	280.00	280.00	270.00	270.00	260.00	260.00	260.00	260.00	260.00
378	3-42-80	330.00	300.00	320.00	360.00	160.00	170.00	180.00	190.00	200.00	210.00	220.00
379	3-43-80	210.00	220.00	220.00	220.00	230.00	230.00	220.00	220.00	220.00	220.00	220.00
380	3-44-80	260.00	240.00	240.00	240.00	260.00	260.00	340.00	340.00	360.00	110.00	120.00
381	3-45-80	110.00	240.00	210.00	270.00	50.00	20.00	20.00	20.00	30.00	45.00	30.00
382	3-46-80	10.00	20.00	10.00	340.00	340.00	350.00	350.00	350.00	350.00	350.00	350.00
383	3-47-80	360.00	20.00	10.00	360.00	60.00	60.00	60.00	70.00	90.00	90.00	80.00
384	3-48-80	50.00	80.00	80.00	60.00	50.00	50.00	50.00	50.00	50.00	40.00	40.00
385	3-49-80	40.00	350.00	350.00	350.00	350.00	10.00	360.00	340.00	340.00	340.00	340.00
386	3-50-80	330.00	340.00	350.00	350.00	360.00	360.00	350.00	340.00	330.00	330.00	320.00
387	3-51-80	310.00	250.00	240.00	240.00	250.00	210.00	200.00	200.00	200.00	200.00	200.00
388	3-52-80	200.00	200.00	200.00	200.00	210.00	210.00	220.00	220.00	220.00	220.00	220.00
389	3-53-80	220.00	210.00	210.00	210.00	210.00	210.00	210.00	210.00	210.00	210.00	210.00
390	3-54-80	250.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00
391	3-55-80	260.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00
392	3-56-80	230.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00
393	3-57-80	200.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00
394	3-58-80	200.00	70.00	70.00	70.00	80.00	100.00	100.00	110.00	110.00	120.00	120.00
395	3-59-80	120.00	110.00	70.00	70.00	30.00	40.00	60.00	70.00	70.00	70.00	50.00
396	3-60-80	60.00	70.00	70.00	80.00	90.00	260.00	200.00	270.00	340.00	200.00	200.00
397	3-61-80	180.00										

WD.DAT

WIND DIRECTION (DEGREES MAGNETIC)

23-SEP-81 11:17:52

	0	1	2	3	4	5	6	7	8	9	10	11
365	3-30-80	210.00	220.00	220.00	220.00	220.00	220.00	220.00	210.00	210.00	210.00	210.00
366	3-31-80	170.00	130.00	130.00	120.00	180.00	180.00	230.00	40.00	40.00	30.00	70.00
367	4-1-80	60.00	80.00	70.00	70.00	70.00	70.00	80.00	70.00	60.00	60.00	60.00
368	4-2-80	60.00	70.00	60.00	70.00	100.00	110.00	120.00	100.00	80.00	80.00	100.00
369	4-3-80	310.00	330.00	330.00	310.00	300.00	290.00	290.00	300.00	300.00	260.00	260.00
370	4-4-80	270.00	260.00	240.00	220.00	220.00	210.00	210.00	210.00	220.00	210.00	220.00
371	4-5-80	230.00	250.00	240.00	240.00	230.00	230.00	260.00	260.00	270.00	270.00	290.00
372	4-6-80	290.00	290.00	280.00	280.00	240.00	230.00	200.00	210.00	200.00	190.00	100.00
373	4-7-80	190.00	190.00	160.00	160.00	180.00	200.00	210.00	210.00	210.00	230.00	210.00
374	4-8-80	240.00	240.00	240.00	250.00	250.00	240.00	240.00	240.00	250.00	250.00	210.00
375	4-9-80	250.00	250.00	210.00	210.00	240.00	240.00	240.00	270.00	270.00	260.00	260.00
376	4-10-80	250.00	270.00	260.00	270.00	270.00	250.00	240.00	270.00	270.00	260.00	260.00
377	4-11-80	310.00	310.00	310.00	310.00	300.00	280.00	270.00	270.00	270.00	260.00	300.00
378	4-12-80	270.00	270.00	270.00	270.00	240.00	240.00	250.00	210.00	230.00	230.00	230.00
379	4-13-80	260.00	230.00	230.00	240.00	250.00	250.00	250.00	230.00	240.00	240.00	240.00
380	4-14-80	240.00	230.00	230.00	240.00	240.00	240.00	240.00	240.00	250.00	240.00	250.00
381	4-15-80	320.00	320.00	320.00	330.00	330.00	340.00	360.00	360.00	330.00	330.00	330.00
382	4-16-80	20.00	60.00	270.00	290.00	320.00	350.00	350.00	310.00	310.00	360.00	360.00
383	4-17-80	330.00	340.00	340.00	20.00	240.00	240.00	270.00	270.00	270.00	320.00	320.00
384	4-18-80	360.00	360.00	300.00	230.00	250.00	260.00	260.00	320.00	320.00	320.00	320.00
385	4-19-80	220.00	220.00	220.00	240.00	240.00	220.00	200.00	200.00	210.00	210.00	210.00
386	4-20-80	210.00	210.00	210.00	210.00	210.00	220.00	230.00	240.00	240.00	250.00	250.00
387	4-21-80	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00
388	4-22-80	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00
389	4-23-80	190.00	190.00	190.00	190.00	180.00	170.00	180.00	140.00	140.00	150.00	150.00
390	4-24-80	200.00	200.00	200.00	200.00	200.00	200.00	210.00	230.00	230.00	220.00	210.00
		250.00	260.00	260.00	260.00	160.00	160.00	180.00	220.00	220.00	210.00	190.00
		280.00	280.00	280.00	280.00	230.00	240.00	240.00	240.00	230.00	220.00	210.00
		310.00	310.00	310.00	310.00	190.00	200.00	200.00	210.00	200.00	200.00	200.00
		320.00	320.00	320.00	340.00	20.00	50.00	70.00	210.00	240.00	240.00	240.00
		80.00	70.00	60.00	90.00	90.00	90.00	90.00	80.00	80.00	80.00	80.00
		90.00	90.00	90.00	100.00	100.00	110.00	100.00	90.00	90.00	90.00	90.00
		130.00	140.00	130.00	120.00	110.00	110.00	100.00	100.00	110.00	110.00	120.00
		60.00	50.00	50.00	50.00	70.00	70.00	50.00	50.00	50.00	60.00	60.00
		100.00	120.00	110.00	120.00	120.00	150.00	130.00	110.00	120.00	120.00	100.00
		100.00	100.00	100.00	100.00	110.00	110.00	130.00	130.00	110.00	110.00	70.00

WIND SPEED (METERS/SEC)

US DAT	0	1	2	3	4	5	6	7	8	9	10
131 8- 9-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
132 8-10-79	0.00	7.00	6.00	6.00	6.00	6.00	5.00	5.00	5.00	5.00	4.00
133 8-11-79	1.00	1.00	1.00	1.00	2.00	4.00	4.00	4.00	4.00	4.00	4.00
134 8-12-79	4.00	4.00	4.00	6.00	6.00	4.00	4.00	3.00	4.00	4.00	4.00
135 8-13-79	2.00	3.00	5.00	5.00	5.00	5.00	6.00	6.00	6.00	6.00	6.00
136 8-14-79	3.00	5.00	5.00	6.00	6.00	7.00	7.00	6.00	6.00	6.00	6.00
137 8-15-79	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
138 8-16-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
139 8-17-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140 8-19-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
141 8-19-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
142 8-20-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
143 8-21-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
144 8-22-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
145 8-23-79	1.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
146 8-24-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
147 8-25-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
148 8-26-79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
149 8-27-79	4.00	4.00	4.00	3.00	3.00	3.00	4.00	4.00	4.00	4.00	4.00
150 8-28-79	4.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
151 8-29-79	4.00	3.00	3.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
152 8-30-79	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
153 8-31-79	3.00	3.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
154 9- 1-79	4.00	12.00	12.00	15.00	15.00	13.00	12.00	9.00	8.00	6.00	4.00
155 9- 2-79	5.00	3.00	3.00	4.00	4.00	4.00	4.00	3.00	3.00	3.00	3.00
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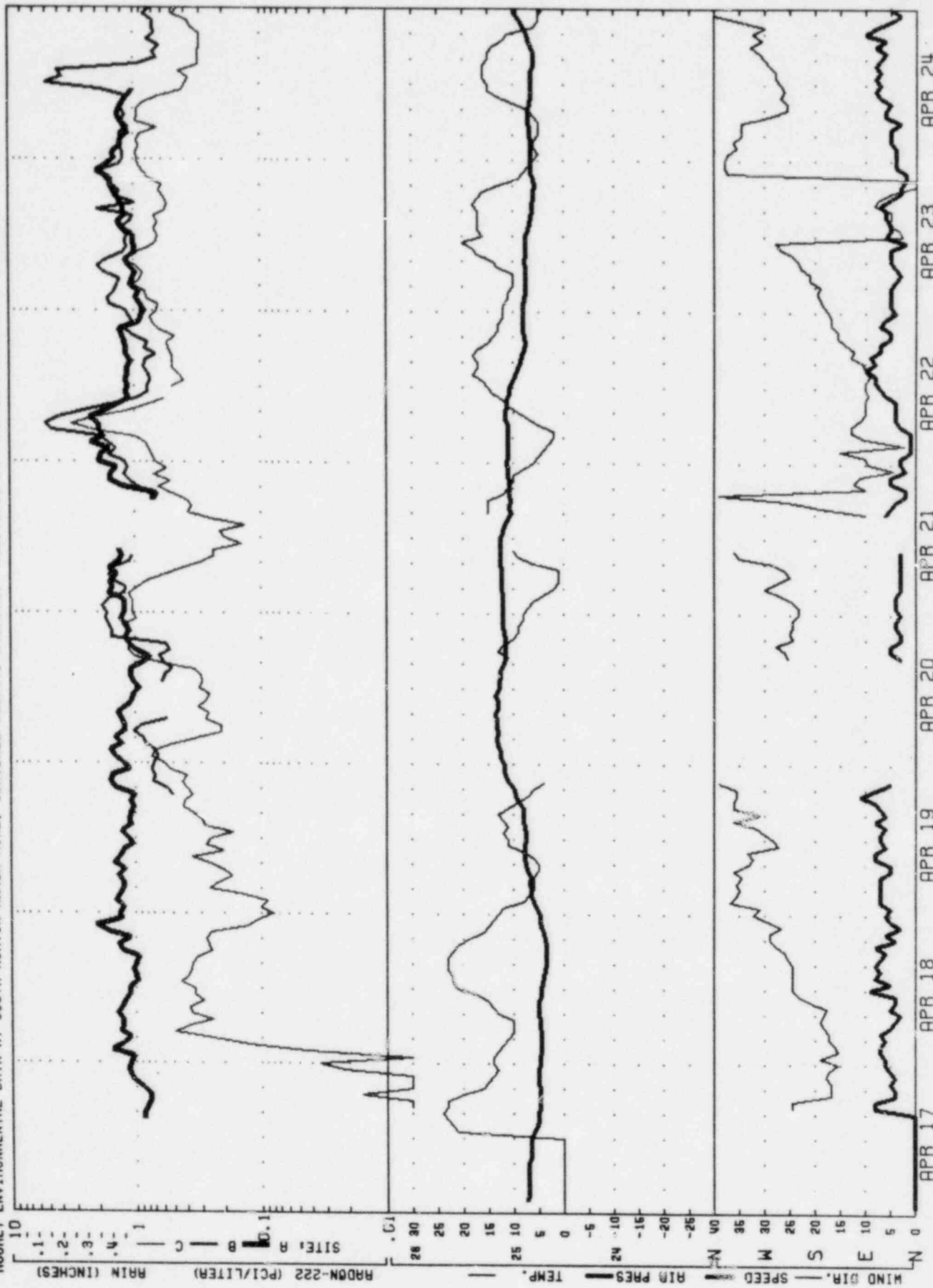
APPENDIX D

GRAPHICAL PLOTS OF APPENDICES B AND C

NOTES OF EXPLANATION FOR APPENDIX D

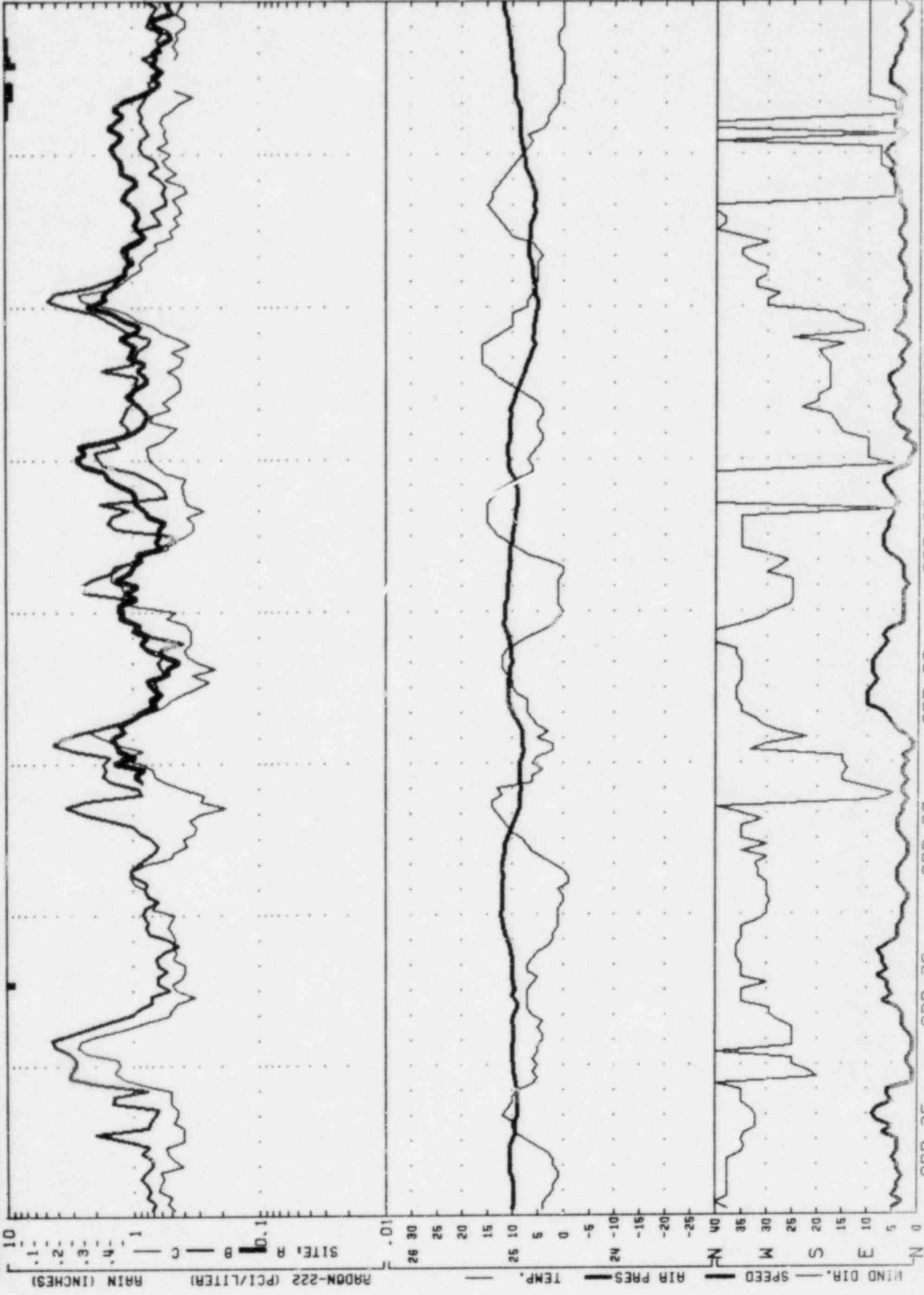
In Appendix D are presented graphical plots of the data listed in Appendices B and C. The rainfall data as mentioned are approximate and should only be used as indications that there was measurable rainfall at a particular time. When radon concentrations dip below .01 pCi/l to the 30° temperature line, it is indicative of a negative value. Other data points plotted below the .01 pCi/l line are very small numbers. Breaks or spaces in the data, of course, are indicative that no data was available.

HOURLY ENVIRONMENTAL DATA AT SOUTH MORTON RANCH MINE, CONVERSE COUNTY, WYOMING. MONITORED BY PACIFIC NORTHWEST LABORATORY, 1979



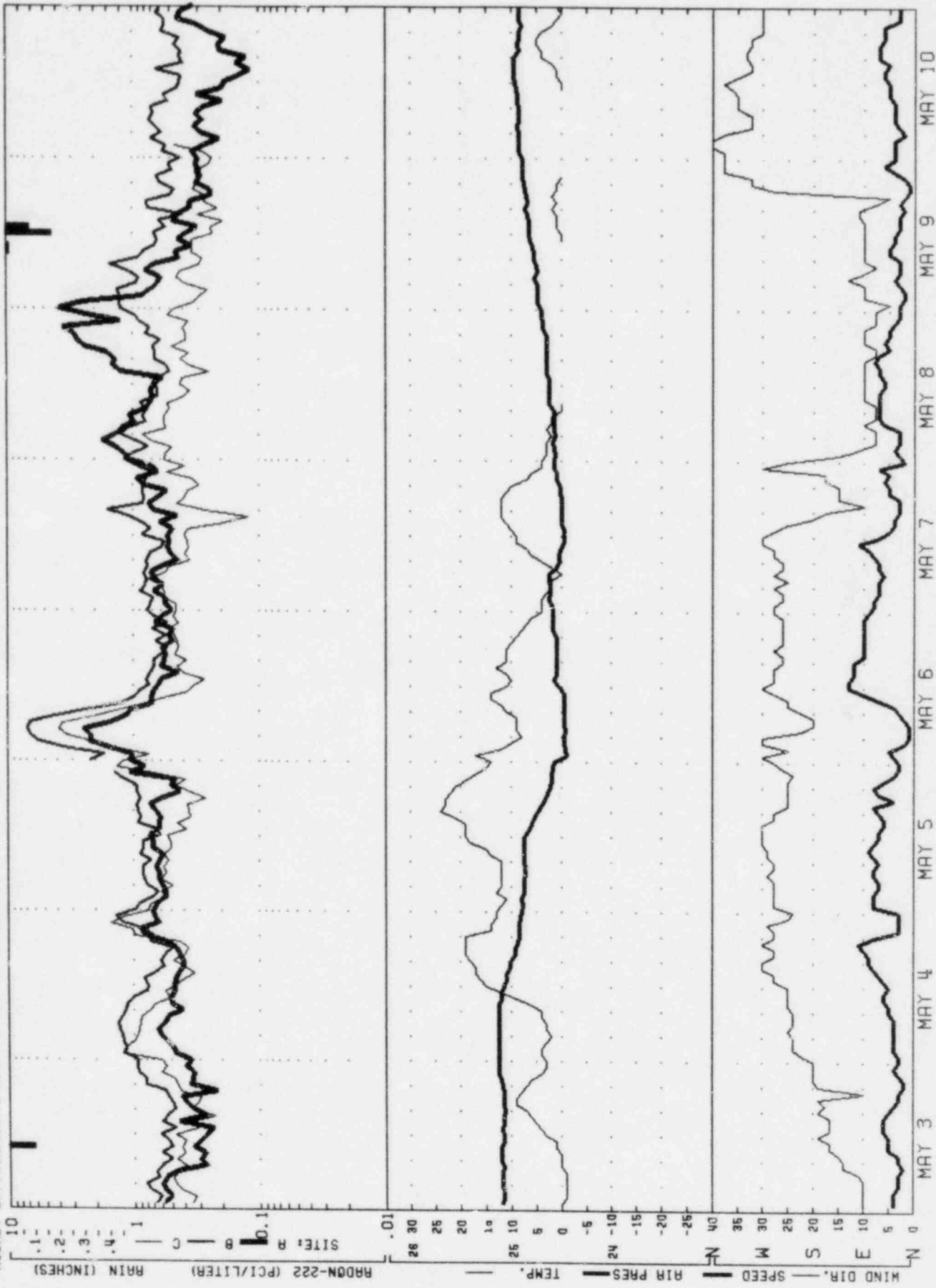
TEMPERATURE IN DEGREES CELCIUS STATION PRESSURE IN INCHES OF HG MET. STATION IS AT SITE A INCHES OF RAIN ARE APPROXIMATE
 WIND SPEED IN METERS/SEC PROVIDED BY DAVE JOHNSTON POWER PLANT MAINTENANCE SHOPS PARKING AREA 28-SEP-81

HOURLY ENVIRONMENTAL DATA AT SOUTH HORTON RANCH MINE, CONVERSE COUNTY, WYOMING. MONITORED BY PACIFIC NORTHWEST LABORATORY, 1979



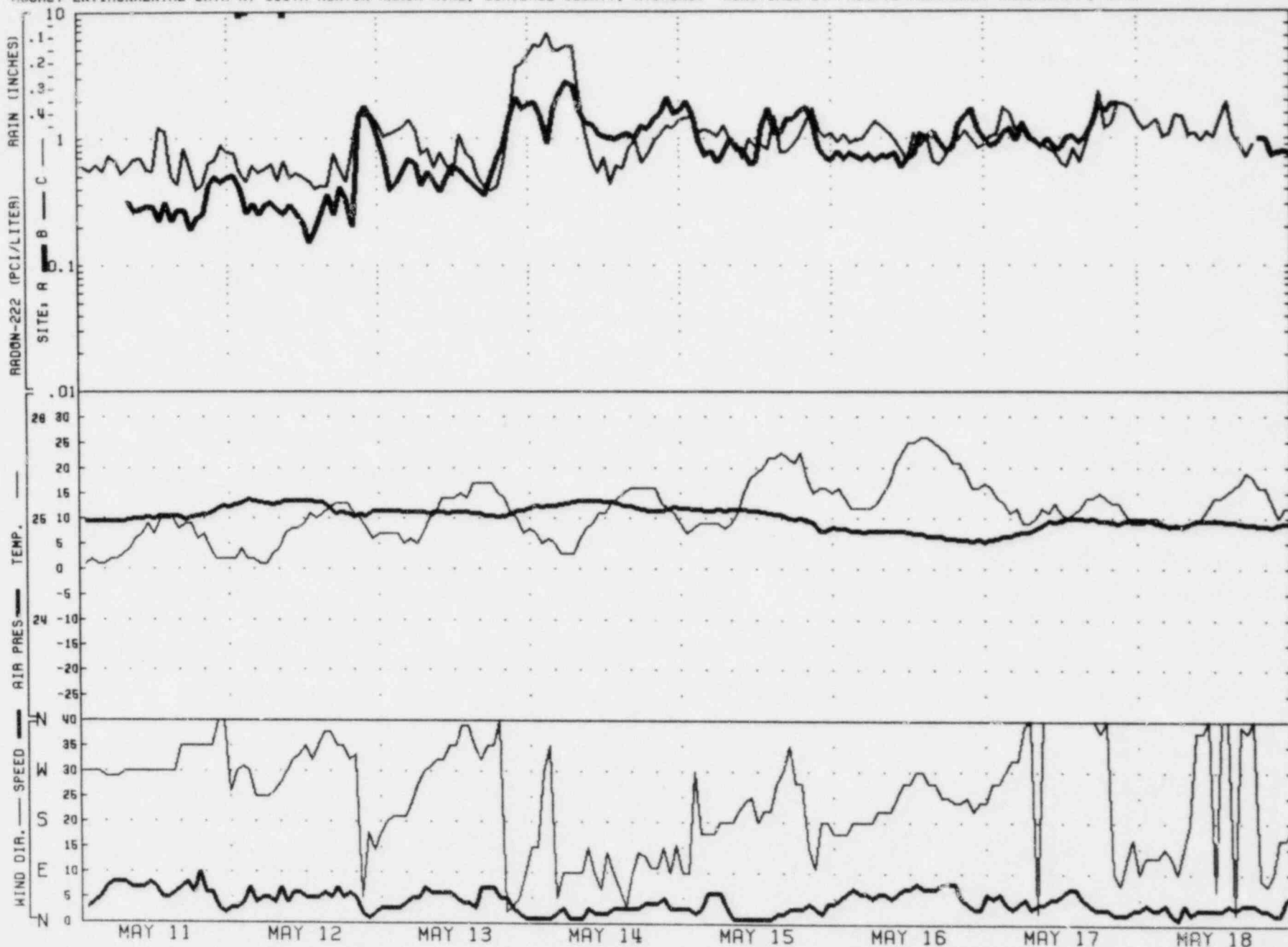
TEMPERATURE IN DEGREES CELSIUS STATION PRESSURE IN INCHES OF HG MET. STATION IS AT SITE A INCHES OF RAIN ARE APPROXIMATE
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HOURLY ENVIRONMENTAL DATA AT SOUTH MORTON RANCH MINE, CONVERSE COUNTY, WYOMING. MONITORED BY PACIFIC NORTHWEST LABORATORY, 1979



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 WIND SPEED IN METERS/SEC PROVIDED BY DAVE JOHNSTON POWER PLANT MAINTENANCE SHOPS PARKING AREA 28-SEP-81

HOURLY ENVIRONMENTAL DATA AT SOUTH MORTON RANCH MINE, CONVERSE COUNTY, WYOMING. MONITORED BY PACIFIC NORTHWEST LABORATORY, 1979



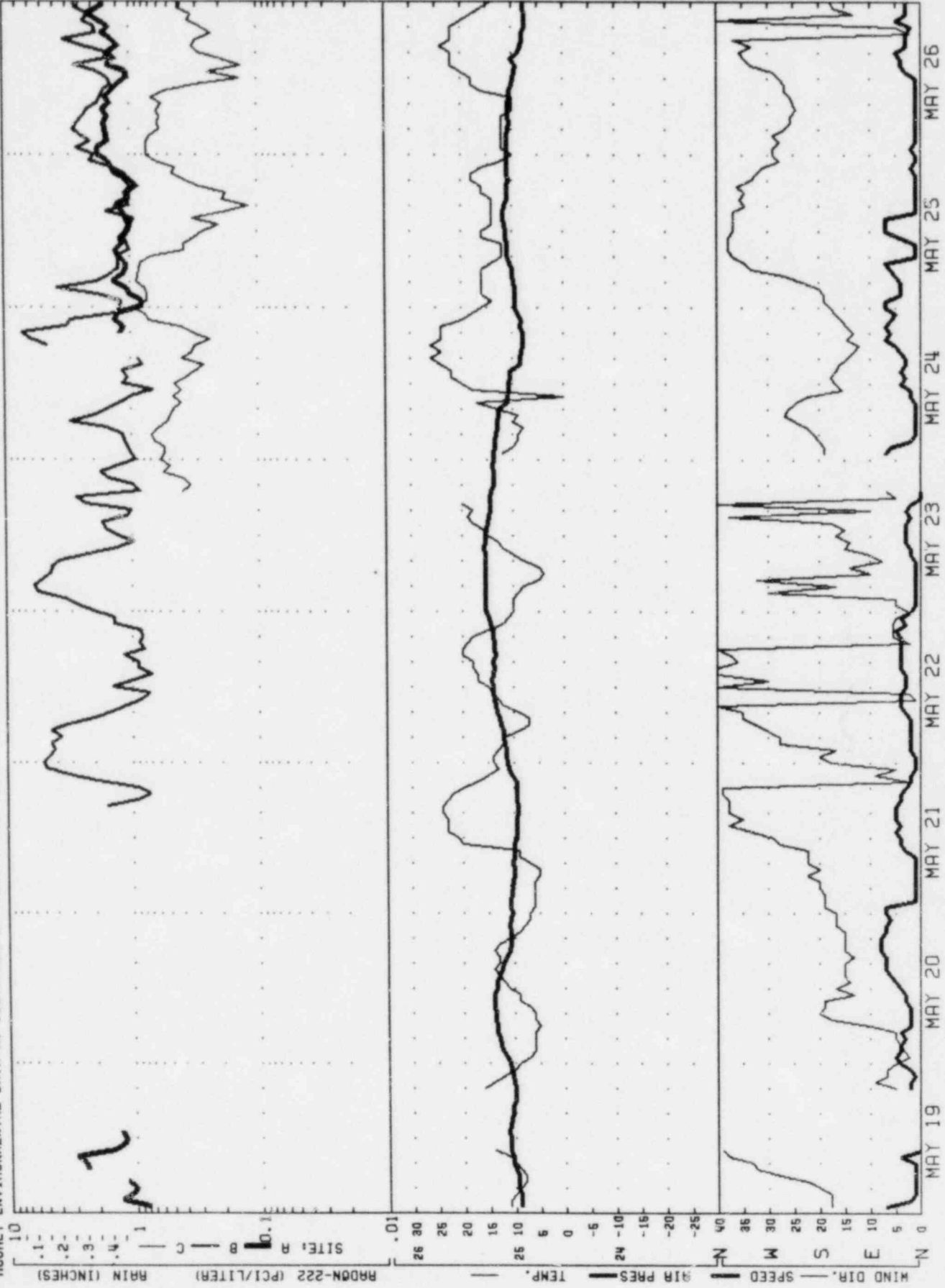
TEMPERATURE IN DEGREES CELCIUS
WIND SPEED IN METERS/SEC

STATION PRESSURE IN INCHES OF HG
PROVIDED BY DAVE JOHNSTON POWER PLANT

MET. STATION IS AT SITE A
MAINTENANCE SHOPS PARKING AREA

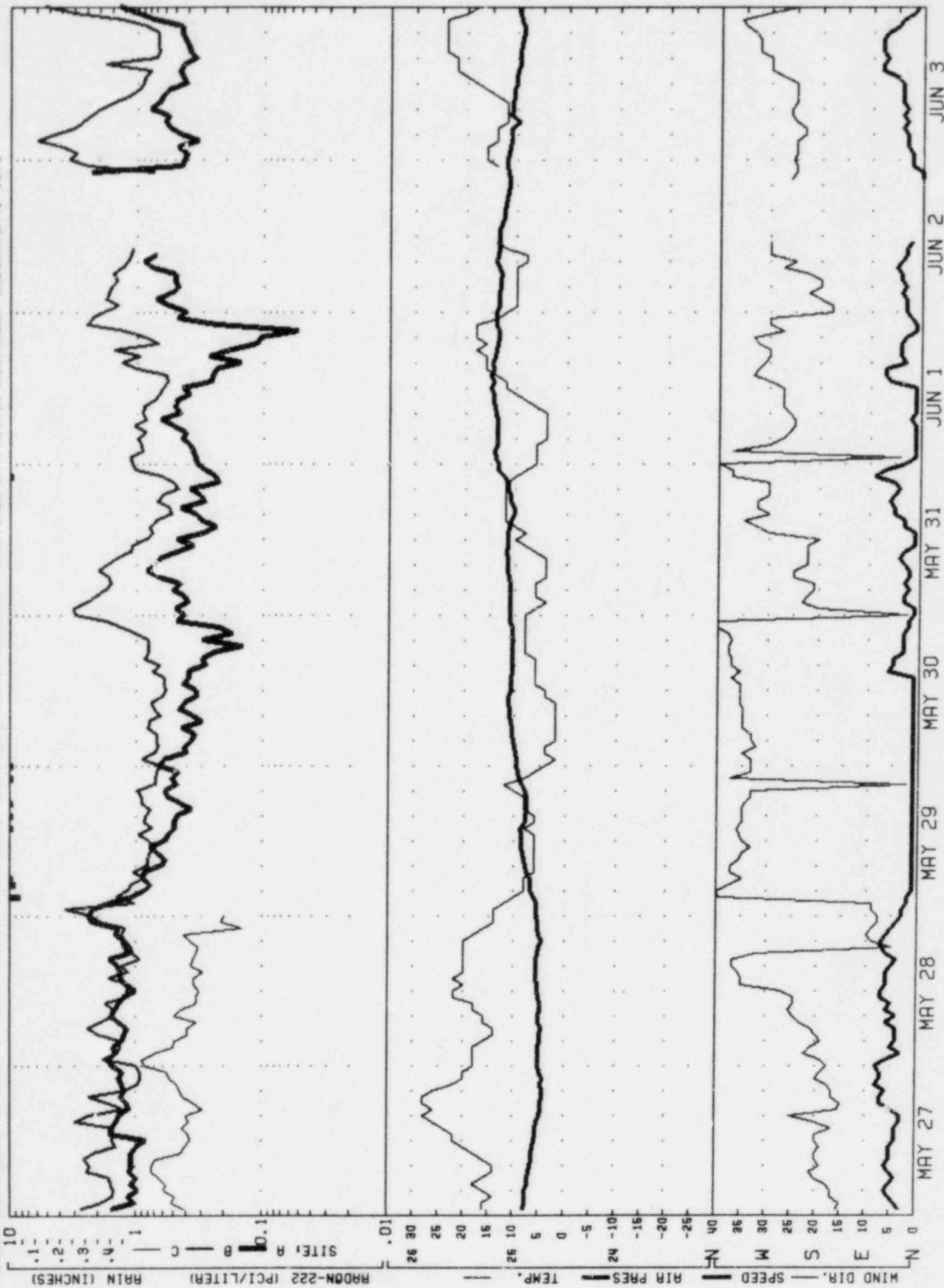
INCHES OF RAIN ARE APPROXIMATE
28-SEP-81

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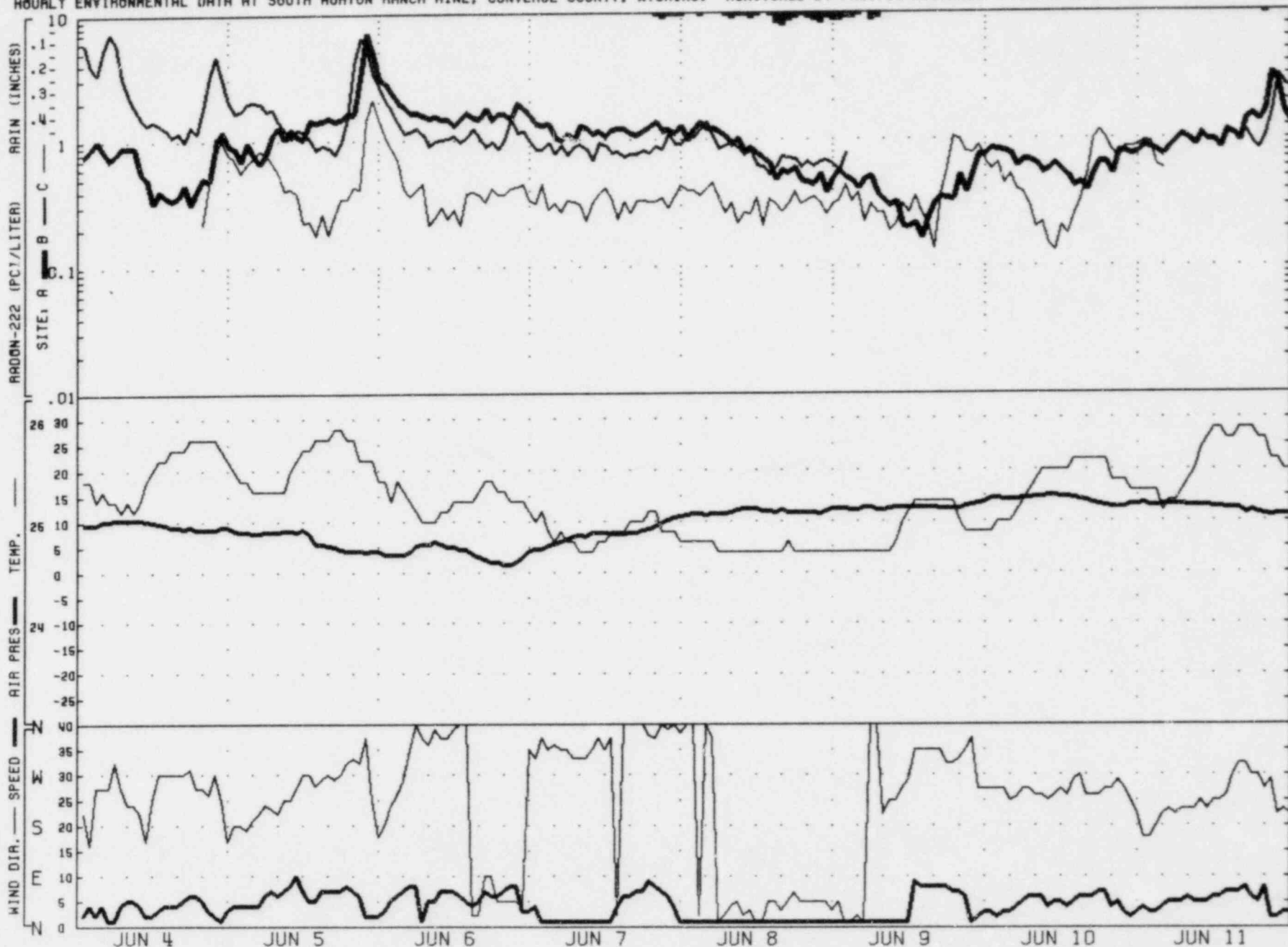
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 WIND SPEED IN METERS/SEC PROVIDED BY DAVE JOHNSTON POWER PLANT MAINTENANCE SHOPS PARKING AREA 28-SEP-81

HOURLY ENVIRONMENTAL DATA AT SOUTH MORTON RANCH MINE, CONVERSE COUNTY, WYOMING. MONITORED BY PACIFIC NORTHWEST LABORATORY, 1979



TEMPERATURE IN DEGREES CELCIUS STATION PRESSURE IN INCHES OF HG MET. STATION IS AT SITE A
 WIND SPEED IN METERS/SEC PROVIDED BY DAVE JOHNSTON POWER PLANT MAINTENANCE SHOPS PARKING AREA
 INCHES OF RAIN ARE APPROXIMATE 28-SEP-81

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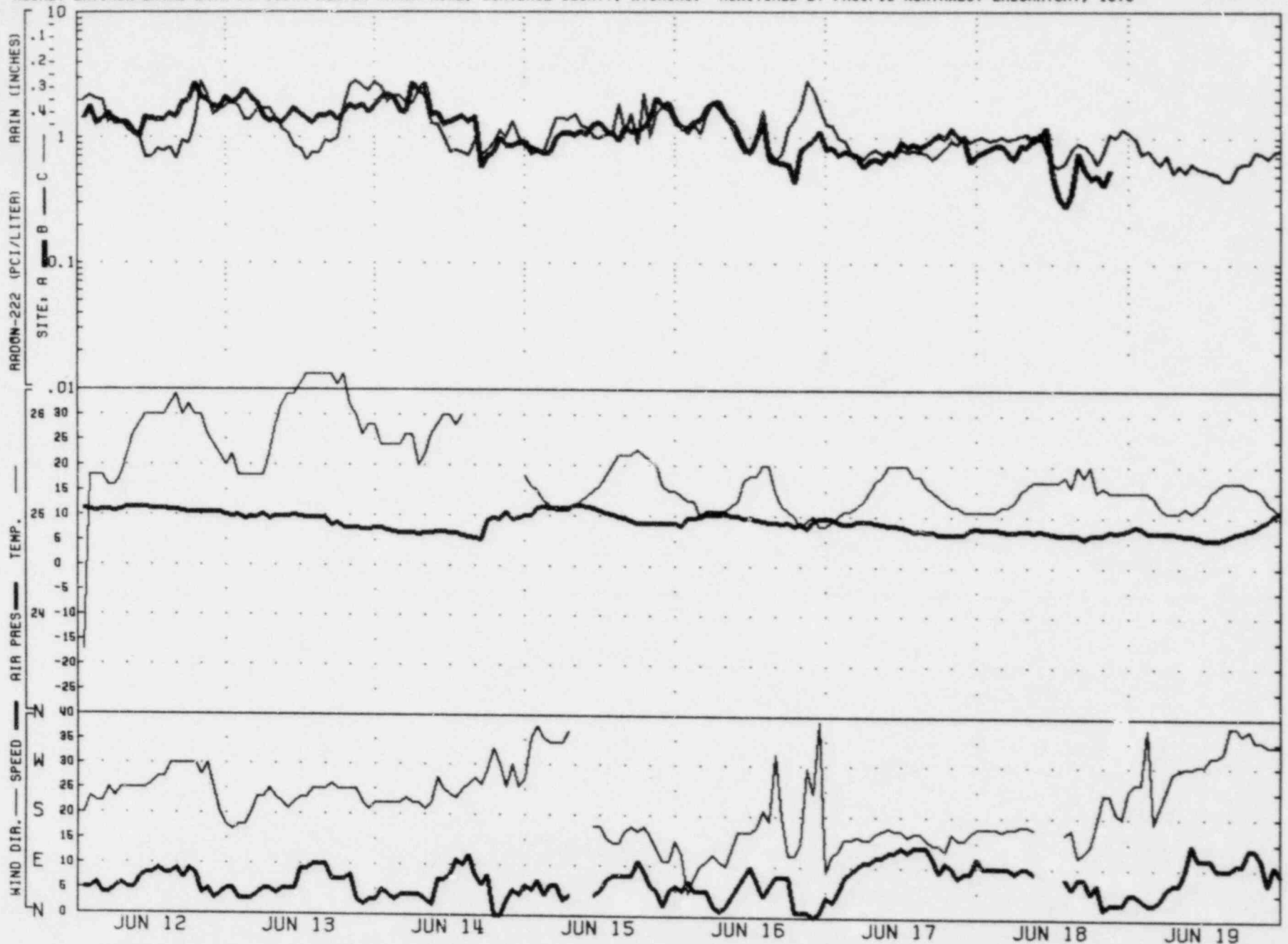
TEMPERATURE IN DEGREES CELCIUS
WIND SPEED IN METERS/SEC

STATION PRESSURE IN INCHES OF HG
PROVIDED BY DAVE JOHNSTON POWER PLANT

MET. STATION IS AT SITE A
MAINTENANCE SHOPS PARKING AREA

INCHES OF RAIN ARE APPROXIMATE
28-SEP-81

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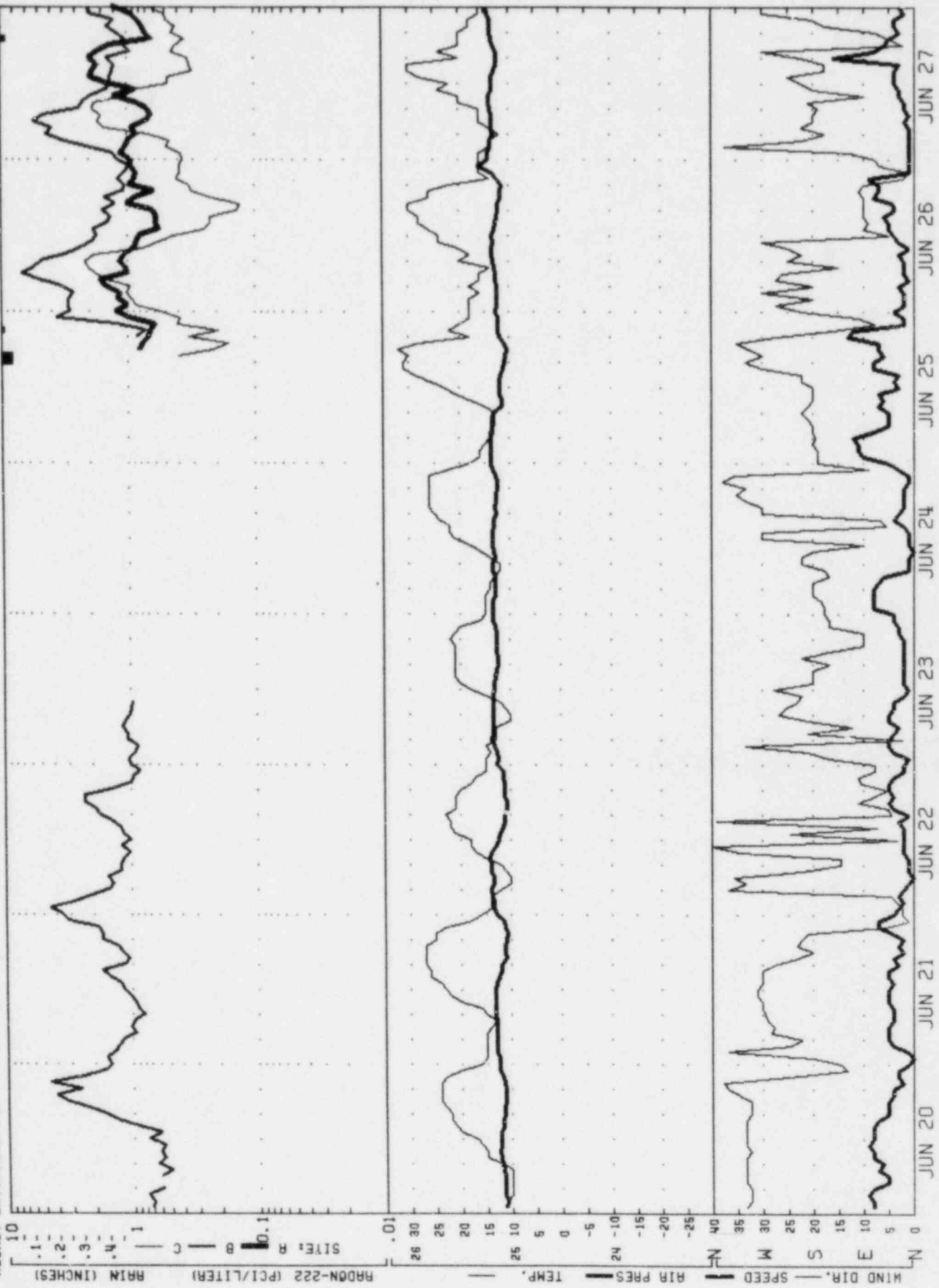
TEMPERATURE IN DEGREES CELSIUS
WIND SPEED IN METERS/SEC

STATION PRESSURE IN INCHES OF HG
PROVIDED BY DAVE JOHNSTON POWER PLANT

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MAINTENANCE SHOPS PARKING AREA

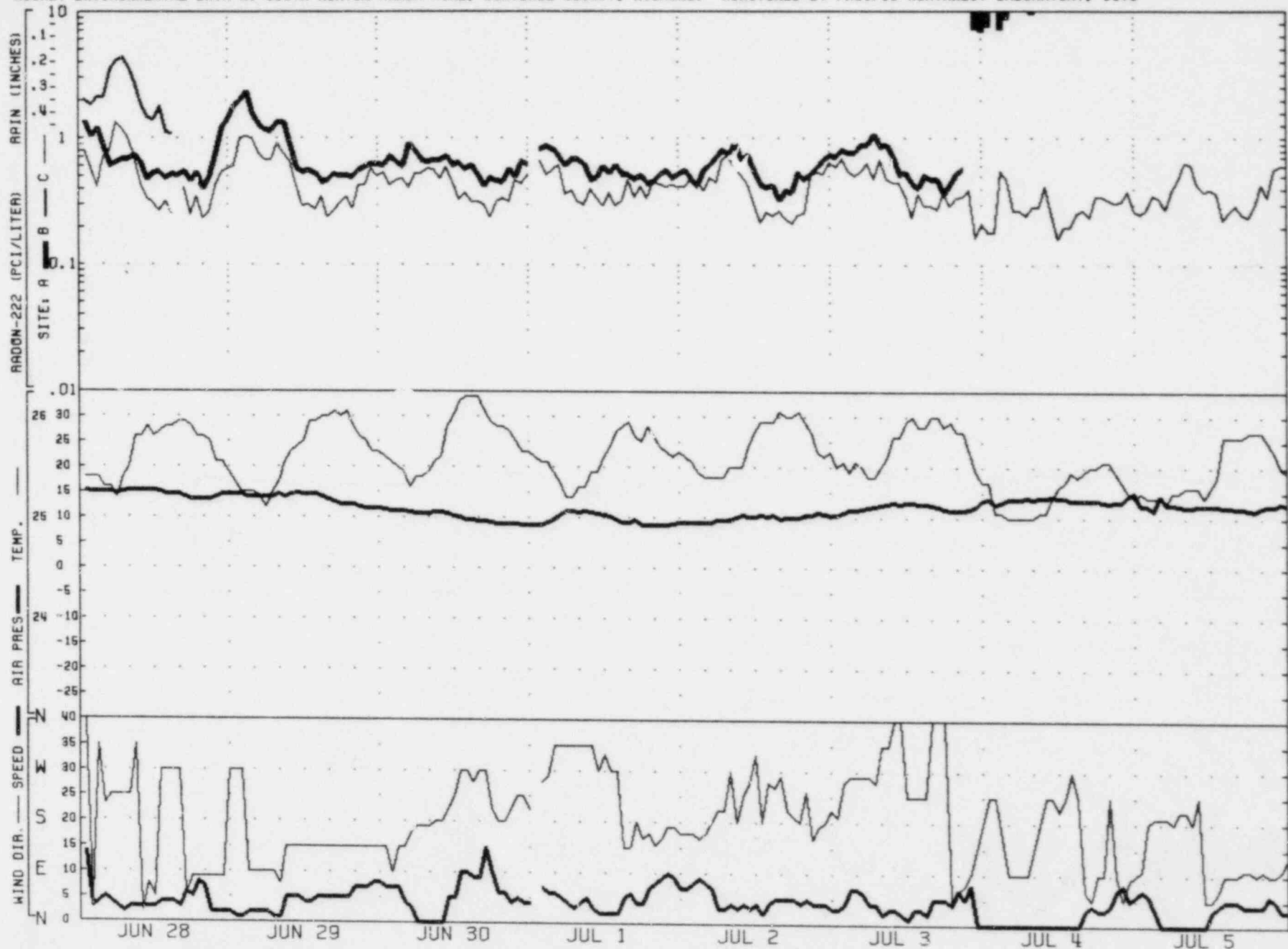
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26-SEP-81

HOURLY ENVIRONMENTAL DATA AT SOUTH MORTON RANCH MINE, CONVERSE COUNTY, WYOMING. MONITORED BY PACIFIC NORTHWEST LABORATORY, 1979



TEMPERATURE IN DEGREES CELCIUS STATION PRESSURE IN INCHES OF HG MET. STATION IS AT SITE A INCHES OF RAIN ARE APPROXIMATE
 WIND SPEED IN METERS/SEC PROVIDED BY DAVE JOHNSTON POWER PLANT MAINTENANCE SHOPS PARKING AREA 28-SEP-81

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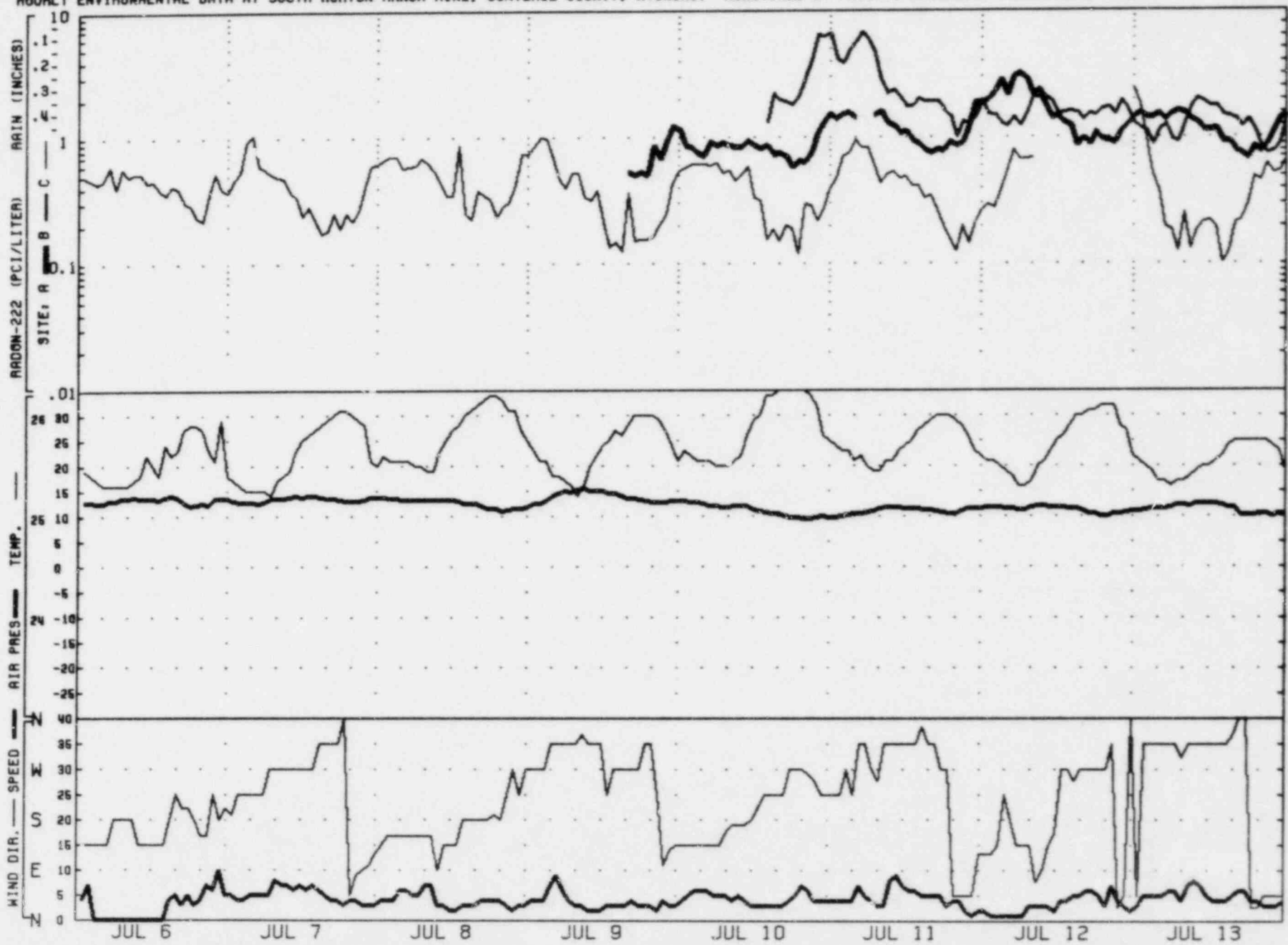
TEMPERATURE IN DEGREES CELCIUS
WIND SPEED IN METERS/SEC

STATION PRESSURE IN INCHES OF HG
PROVIDED BY DAVE JOHNSTON POWER PLANT

MET. STATION IS AT SITE A
MAINTENANCE SHOPS PARKING AREA

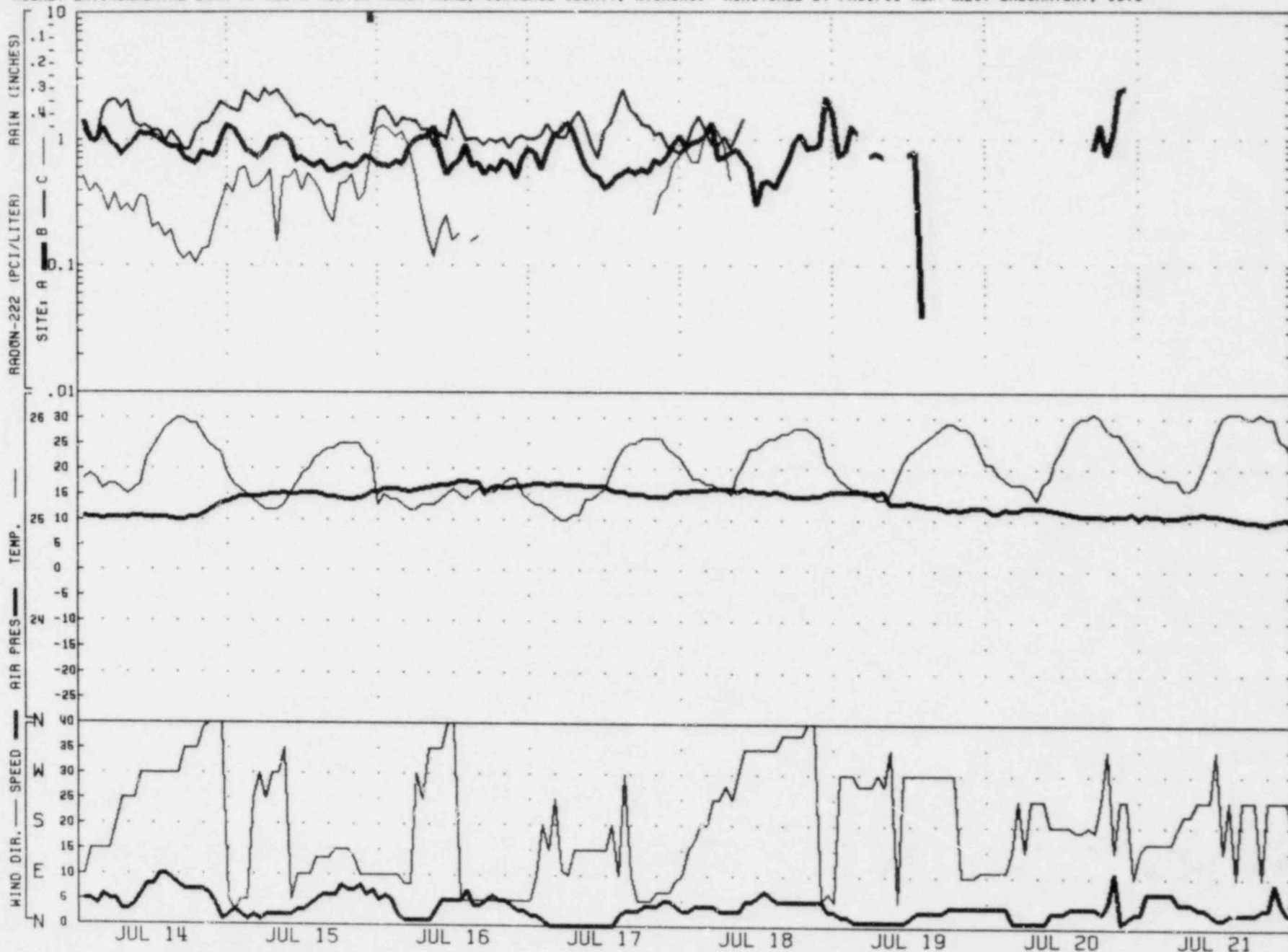
INCHES OF RAIN ARE APPROXIMATE
28-SEP-81

HOURLY ENVIRONMENTAL DATA AT SOUTH MORTON RANCH MINE, CONVERSE COUNTY, WYOMING. MONITORED BY PACIFIC NORTHWEST LABORATORY, 1979



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HOURLY ENVIRONMENTAL DATA AT SOUTH MORTON RANCH MINE, CONVERSE COUNTY, WYOMING. MONITORED BY PACIFIC NORTHWEST LABORATORY, 1979



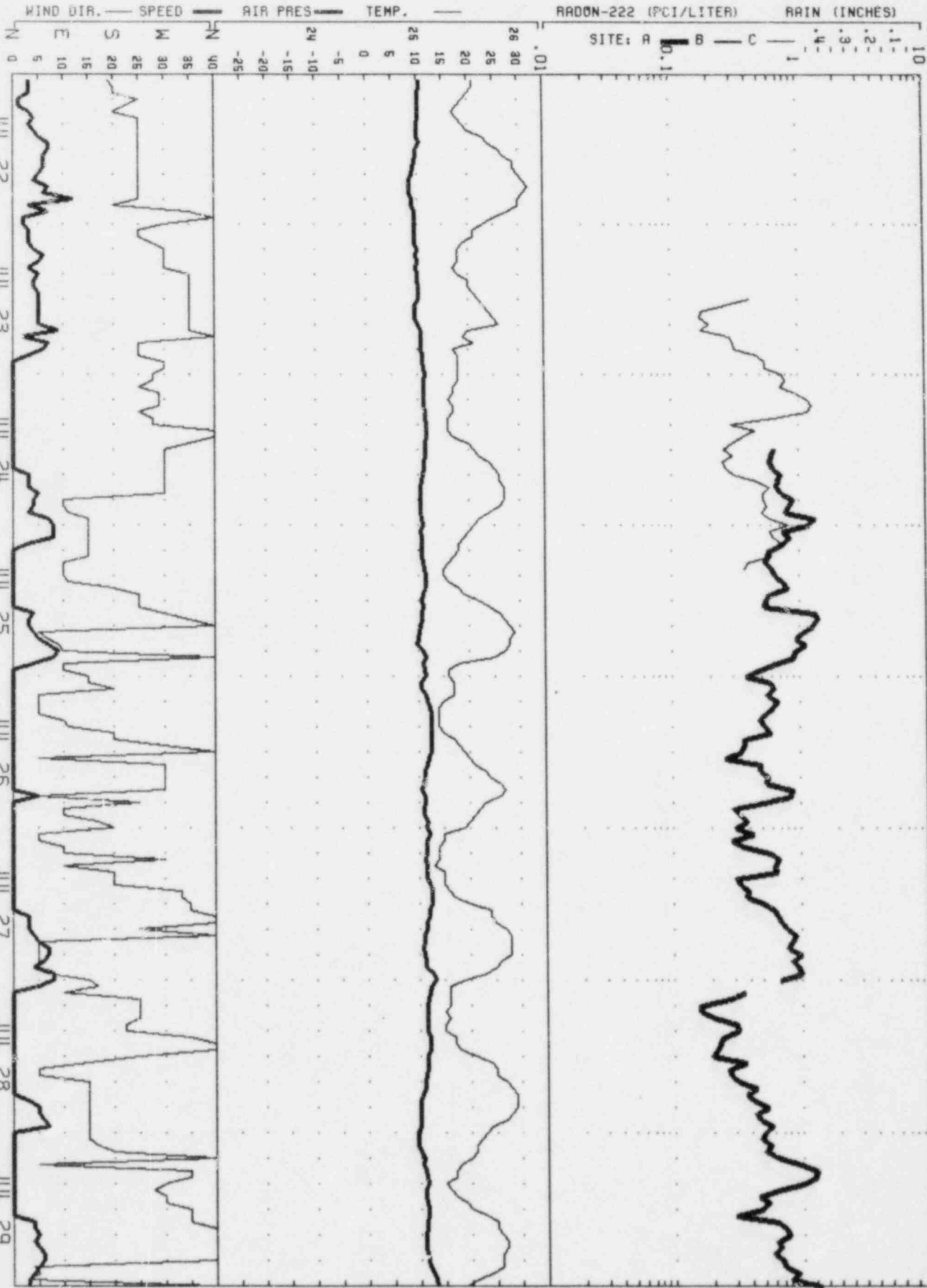
TEMPERATURE IN DEGREES CELCIUS
WIND SPEED IN METERS/SEC

STATION PRESSURE IN INCHES OF HG
PROVIDED BY DAVE JOHNSTON POWER PLANT

MET. STATION IS AT SITE A
MAINTENANCE SHOPS PARKING AREA

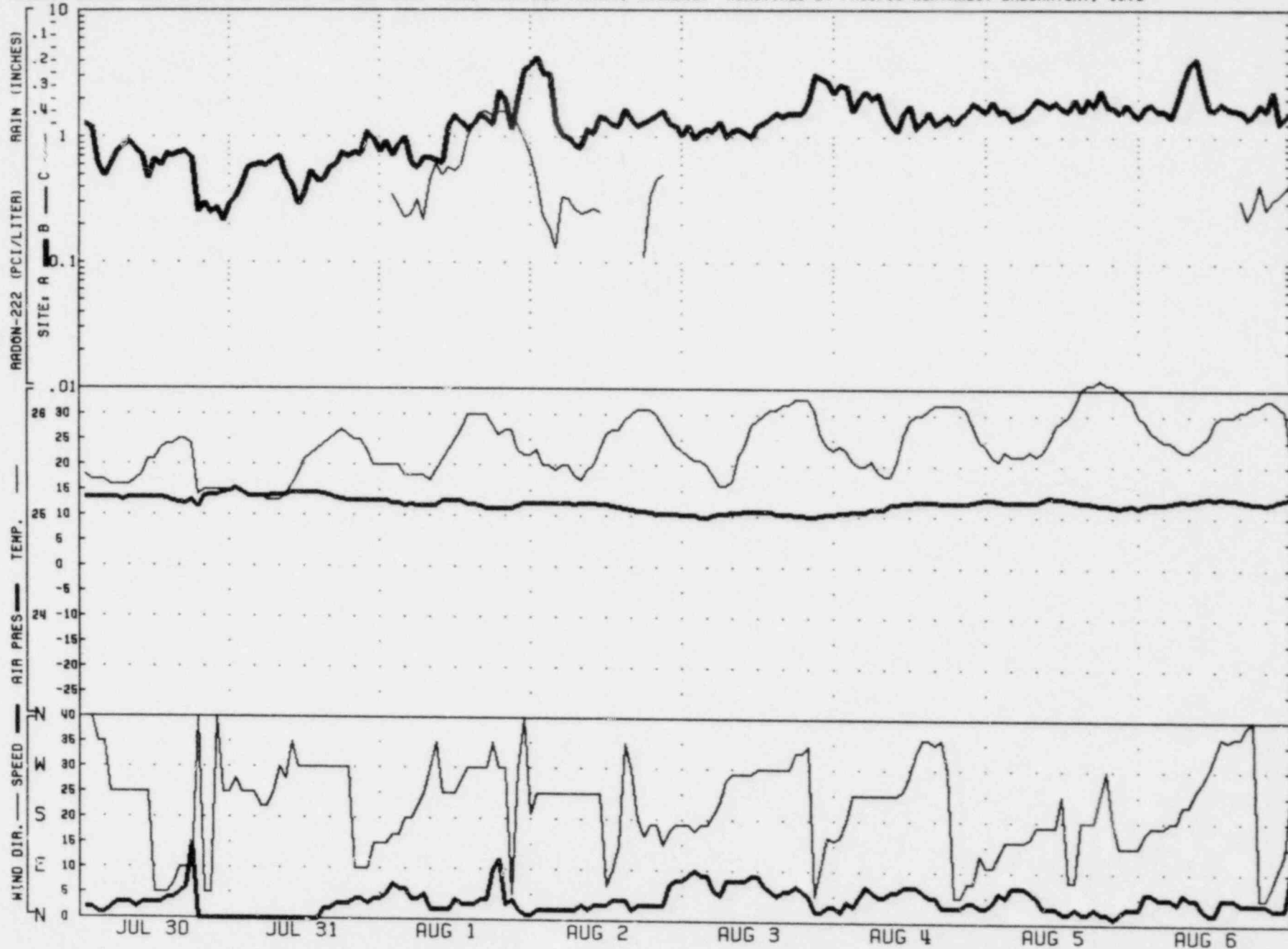
INCHES OF RAIN ARE APPROXIMATE
28-SEP-81

HOURLY ENVIRONMENTAL DATA AT SOUTH MORTON RANCH MINE, CONVERSE COUNTY, WYOMING. MONITORED BY PACIFIC NORTHWEST LABORATORY, 1979



TEMPERATURE IN DEGREES CELCIUS STATION PRESSURE IN INCHES OF HG HET. STATION IS AT SITE R
 WIND SPEED IN METERS/SEC PROVIDED BY DAVE JOHNSTON POWER PLANT MAIN ENTRANCE SHOPS PARKING AREA INCHES OF RAIN ARE APPROXIMATE
 28-SEP-81

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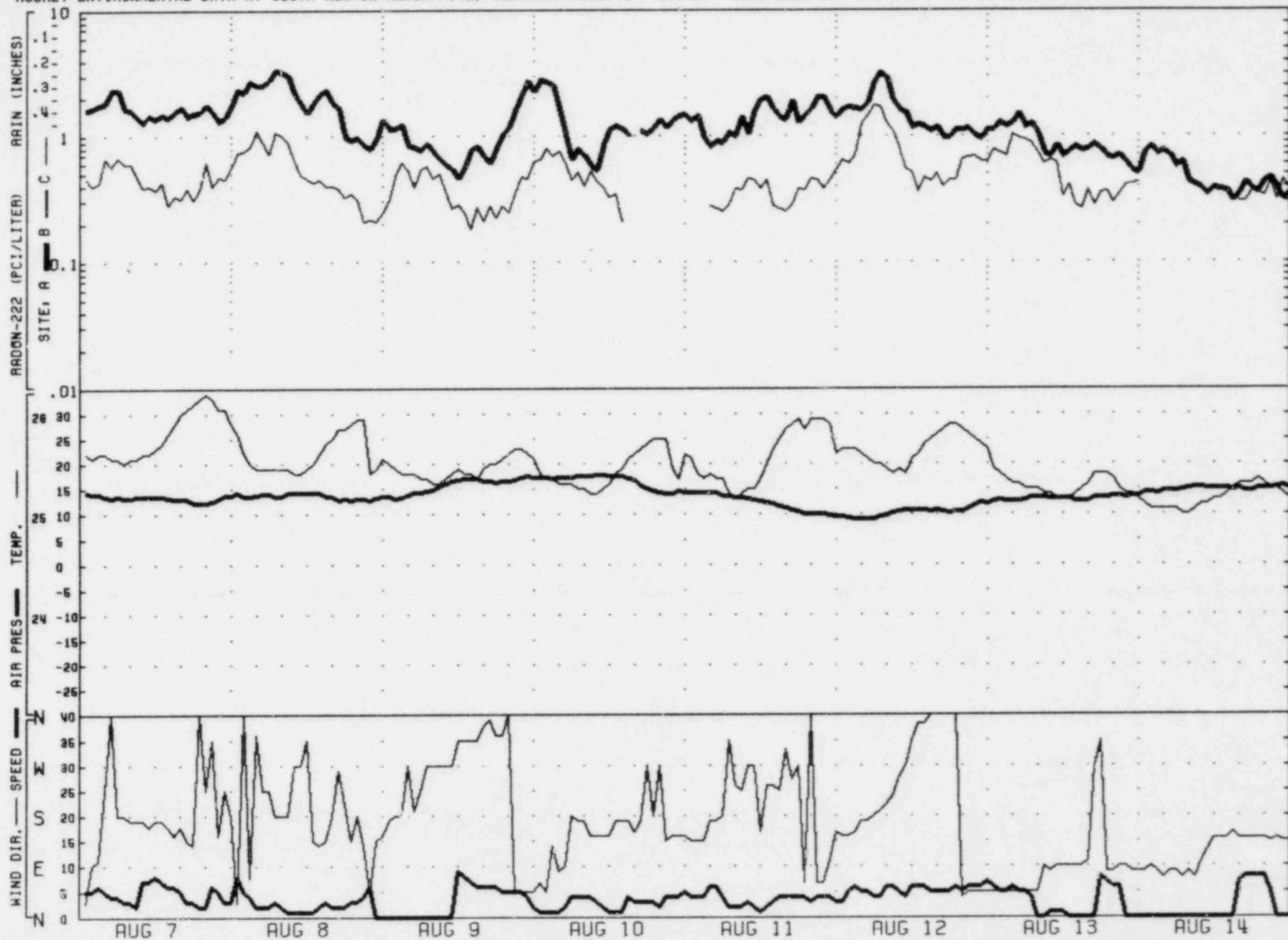
TEMPERATURE IN DEGREES CELCIUS
WIND SPEED IN METERS/SEC

STATION PRESSURE IN INCHES OF HG
PROVIDED BY DAVE JOHNSTON POWER PLANT

MET. STATION IS AT SITE A
MAINTENANCE SHOPS PARKING AREA

INCHES OF RAIN ARE APPROXIMATE
28-SEP-81

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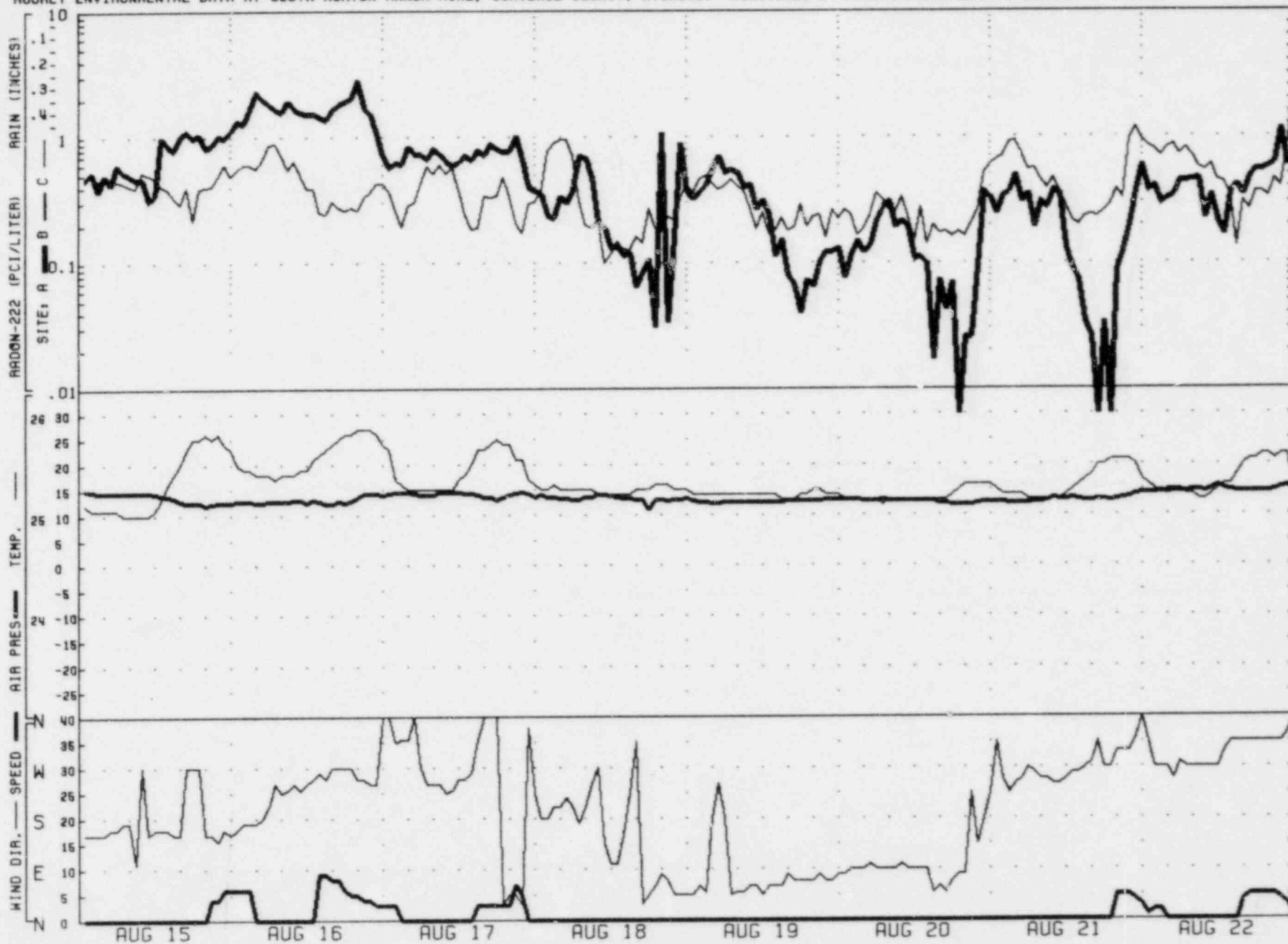
TEMPERATURE IN DEGREES CELSIUS
WIND SPEED IN METERS/SEC

STATION PRESSURE IN INCHES OF HG
PROVIDED BY DAVE JOHNSTON POWER PLANT

MET. STATION IS AT SITE A
MAINTENANCE SHC'S PARKING AREA

INCHES OF RAIN ARE APPROXIMATE
28-SEP-81

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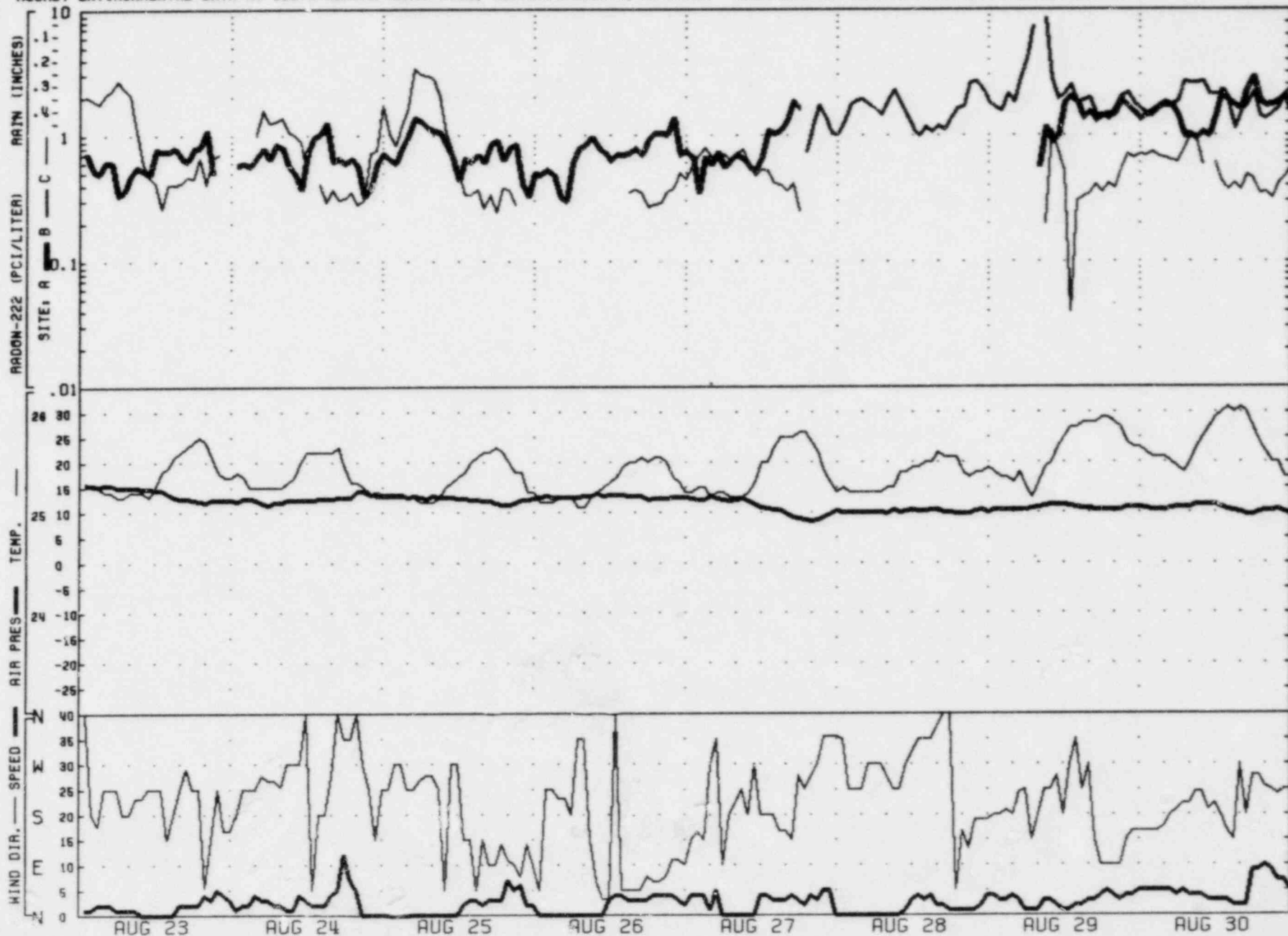
TEMPERATURE IN DEGREES CELCIUS
WIND SPEED IN METERS/SEC

STATION PRESSURE IN INCHES JF HG
PROVIDED BY DAVE JOHNSTON POWER PLANT

MET. STATION IS AT SITE A
MAINTENANCE SHOPS PARKING AREA

INCHES OF RAIN ARE APPROXIMATE
28-SEP-81

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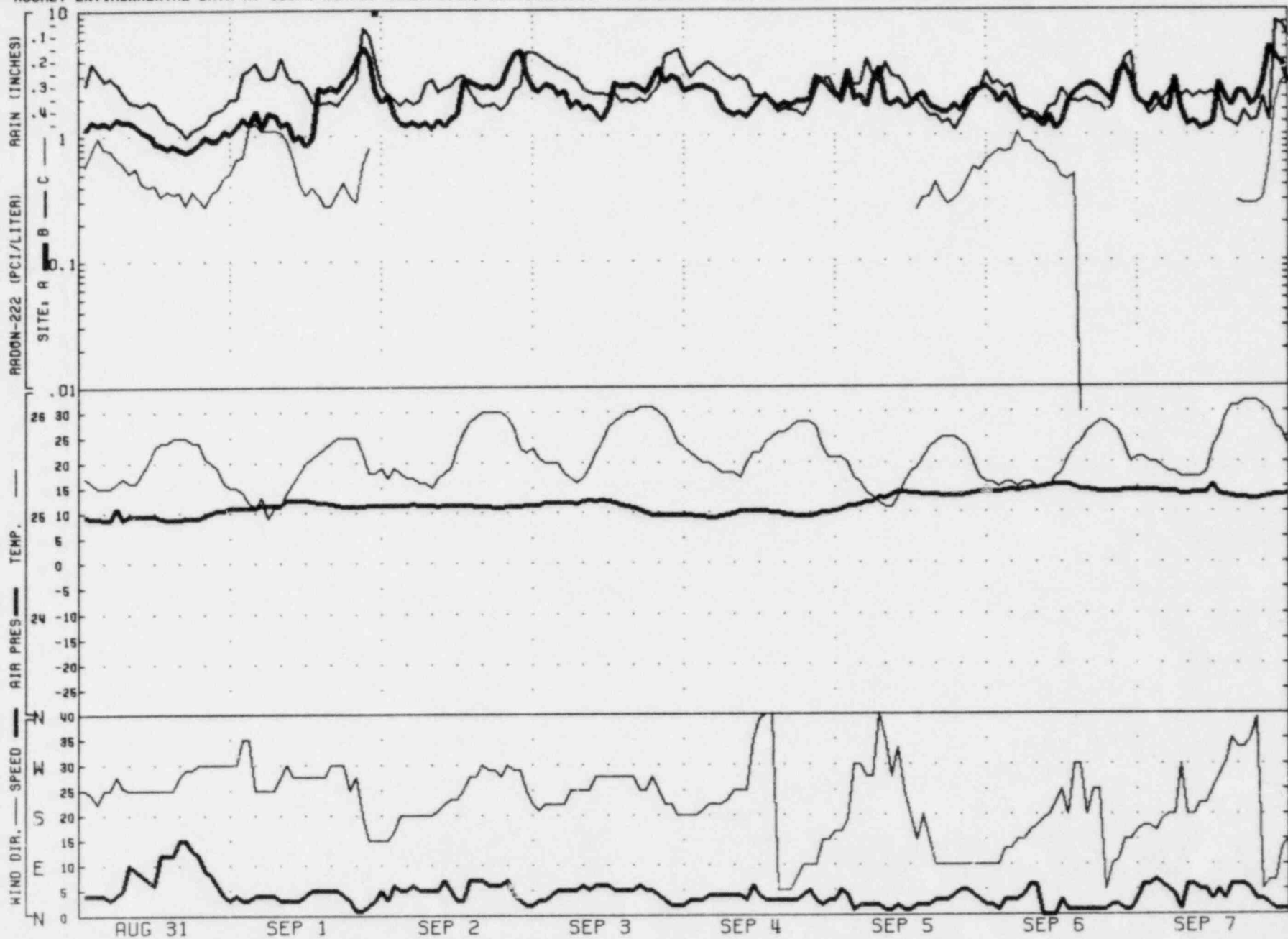
TEMPERATURE IN DEGREES CELCIUS
WIND SPEED IN METERS/SEC

STATION PRESSURE IN INCHES OF HG
PROVIDED BY DAVE JOHNSTON POWER PLANT

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28-SEP-81

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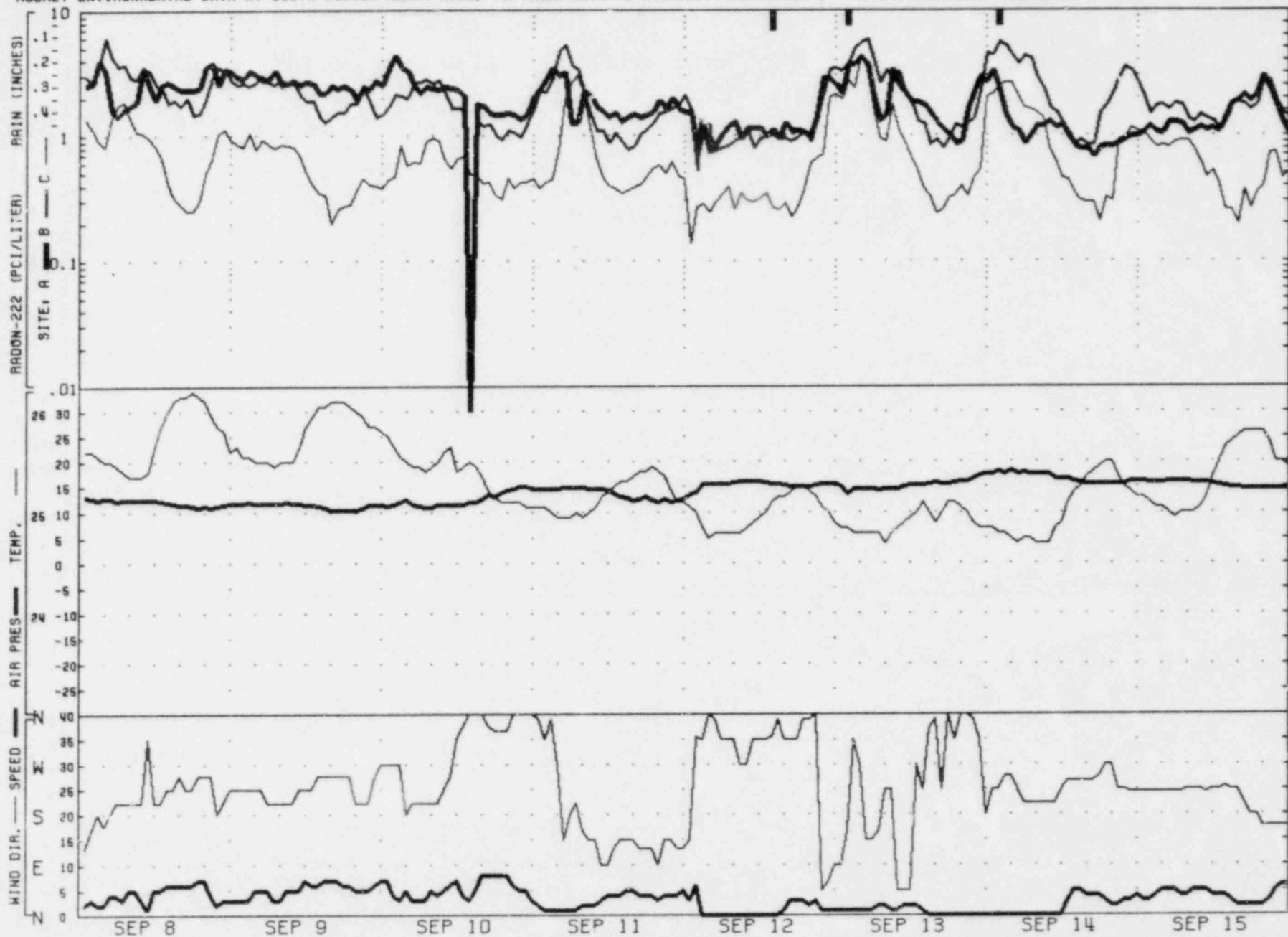
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WIND SPEED IN METERS/SEC

STATION PRESSURE IN INCHES OF HG
PROVIDED BY DAVE JOHNSTON POWER PLANT

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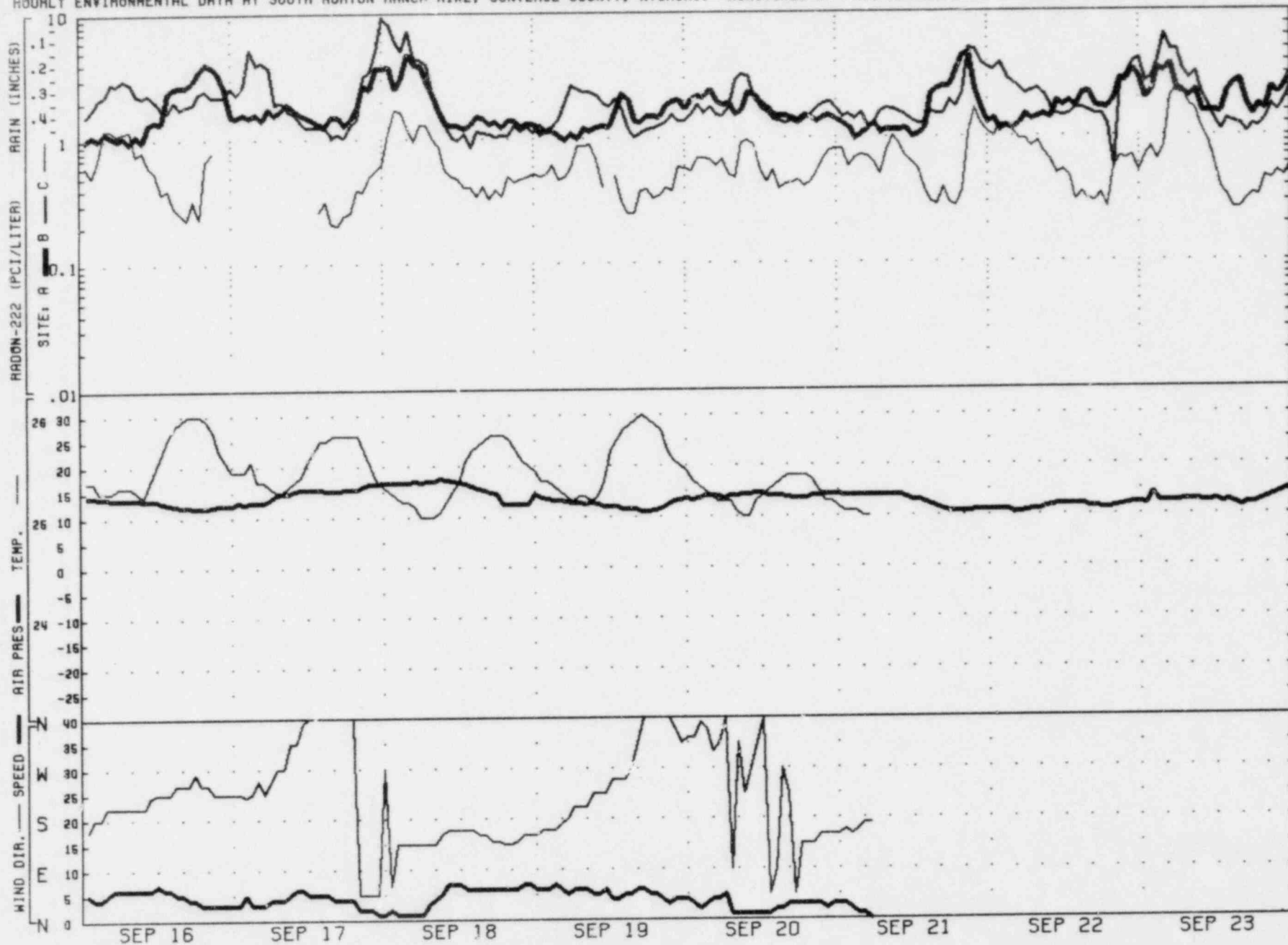
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WIND SPEED IN METERS/SEC

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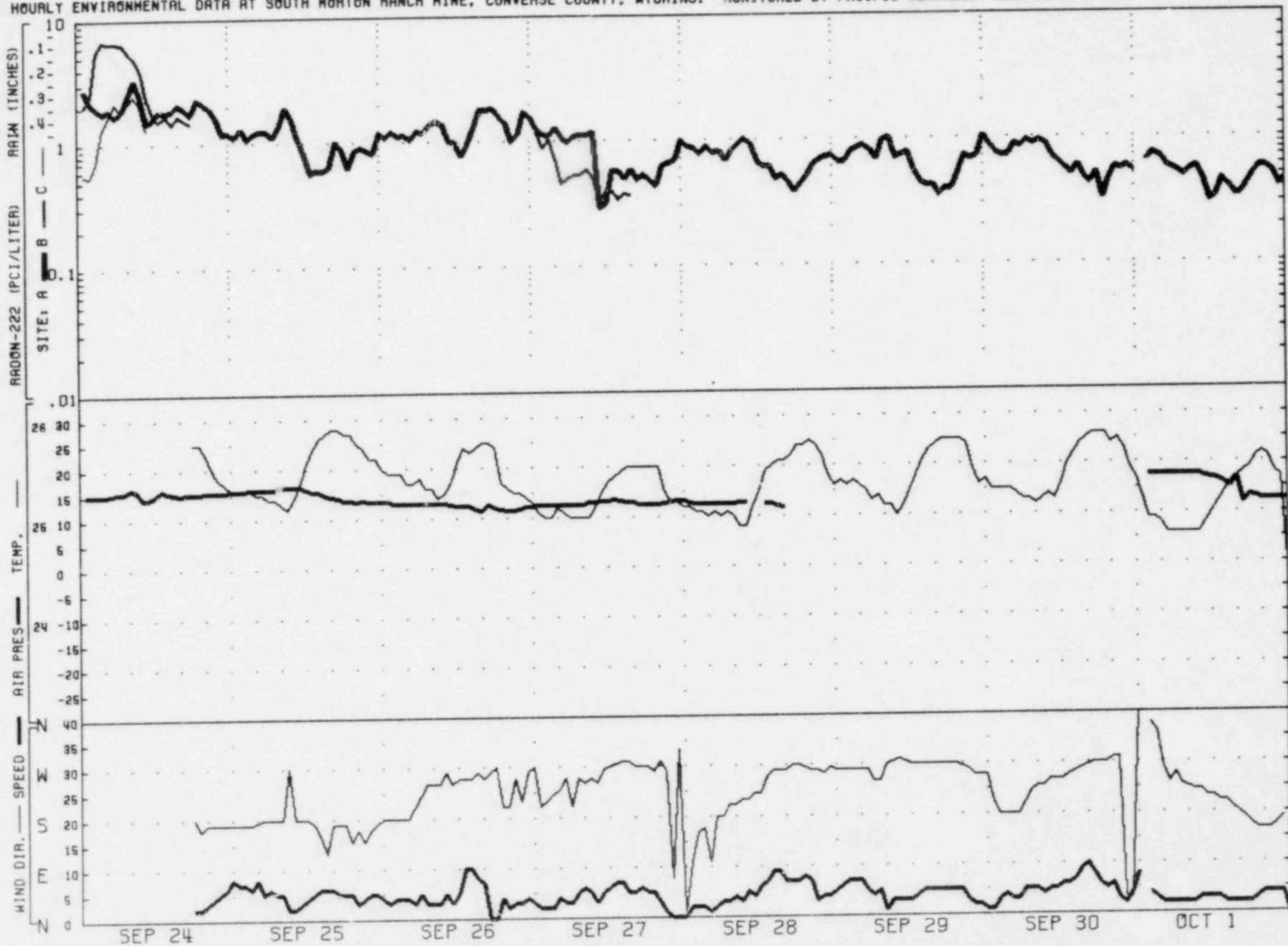
TEMPERATURE IN DEGREES CELSIUS
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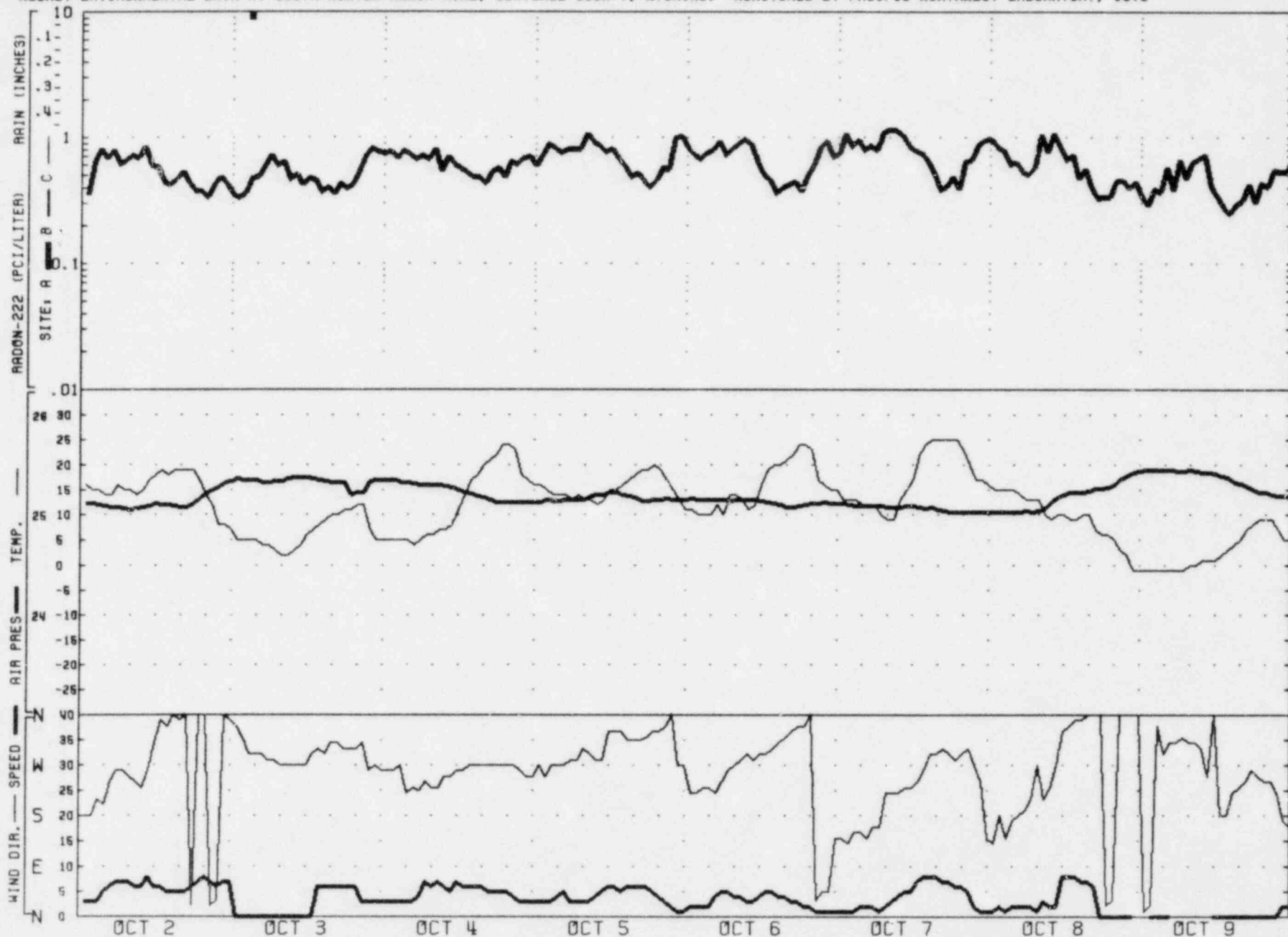
TEMPERATURE IN DEGREES CELCIUS
WIND SPEED IN METERS/SEC

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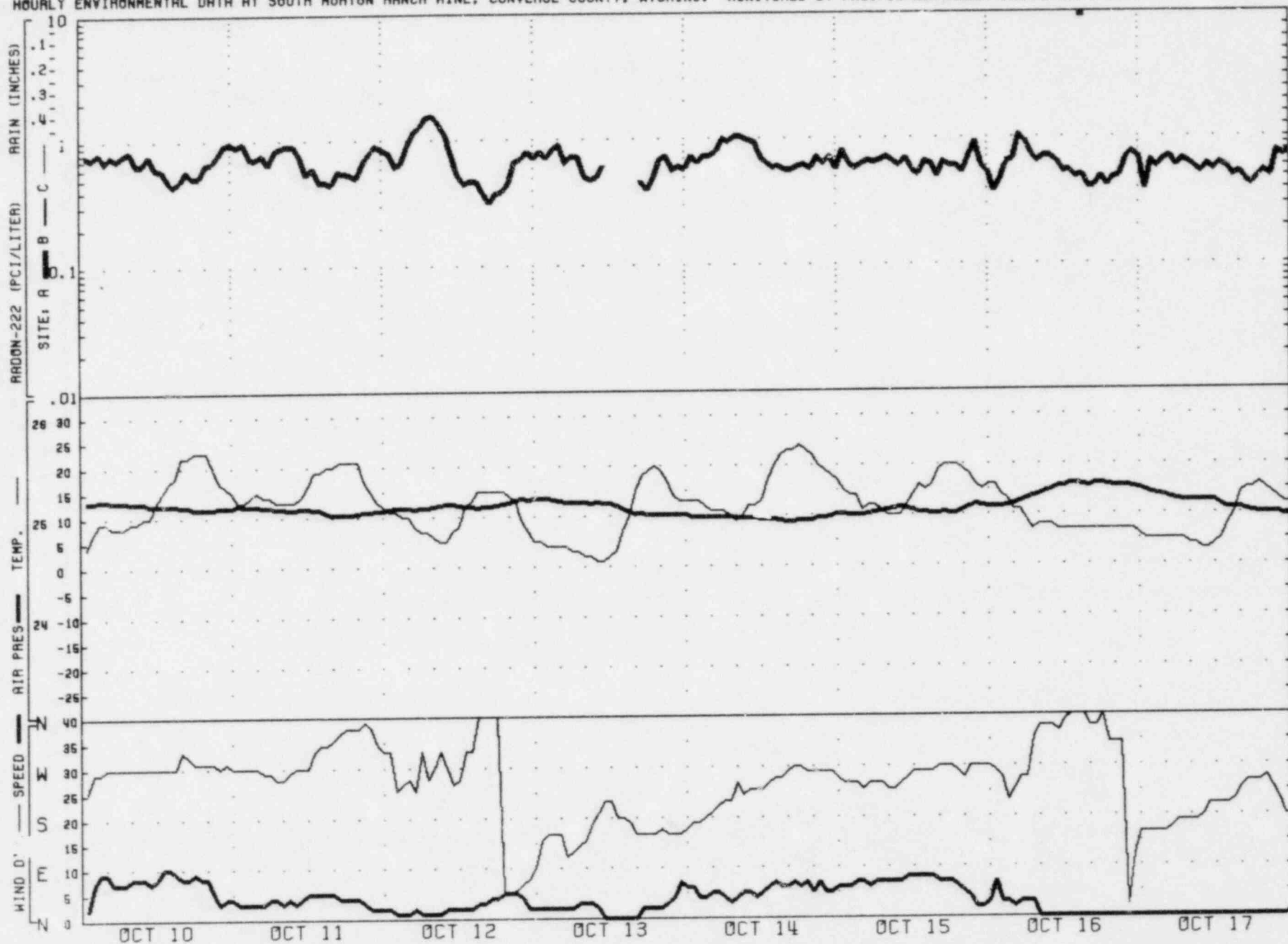
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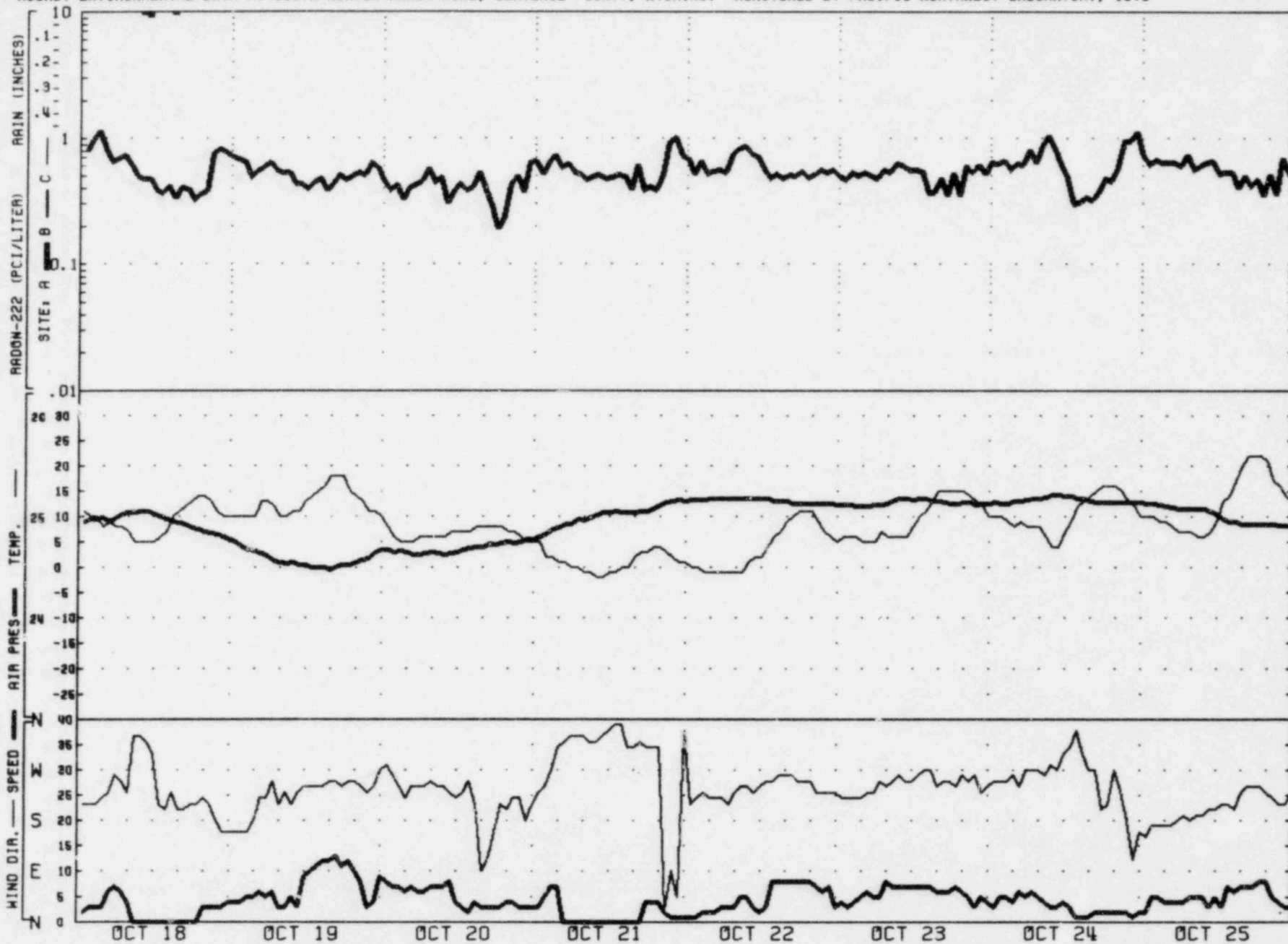
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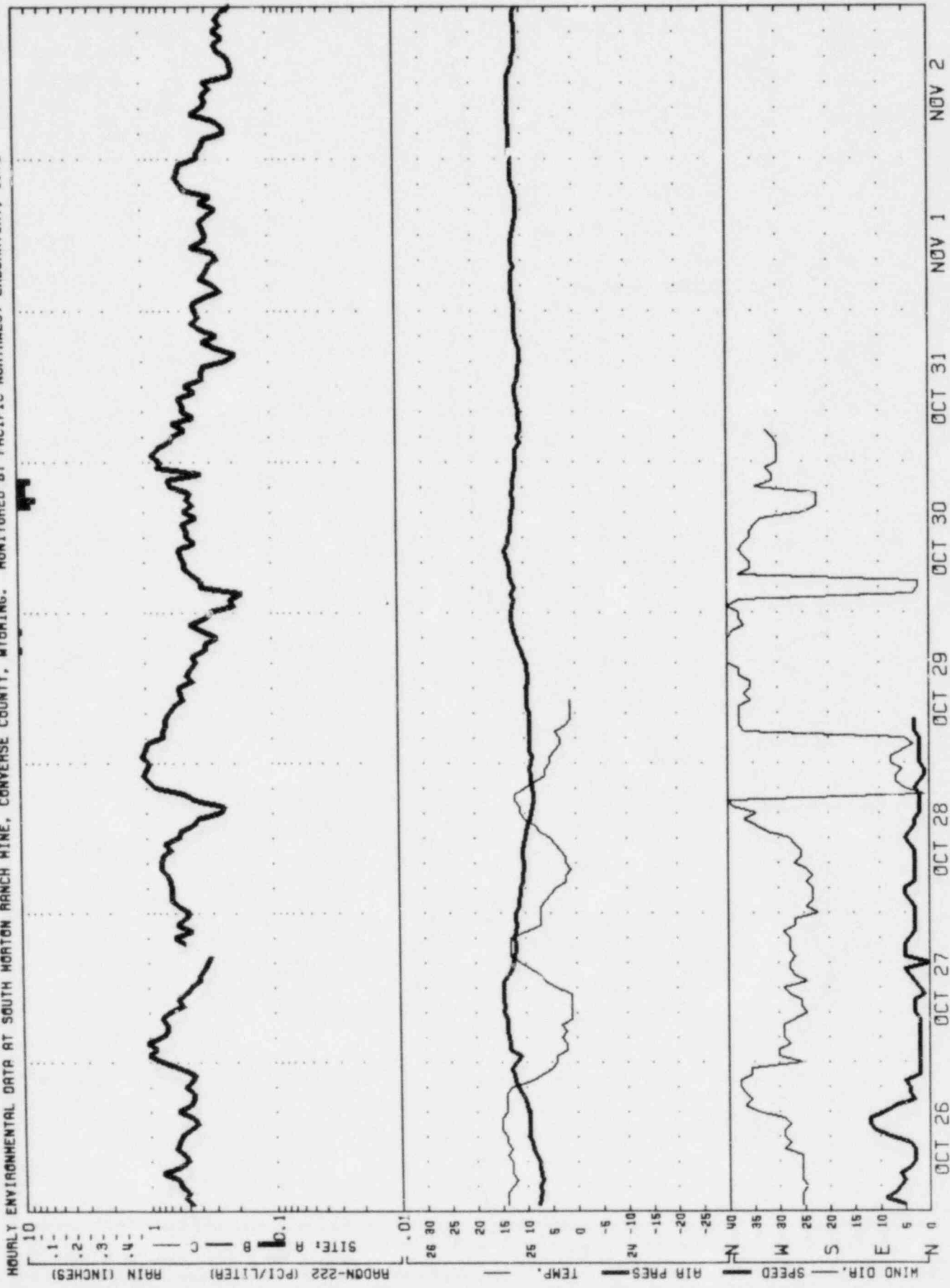
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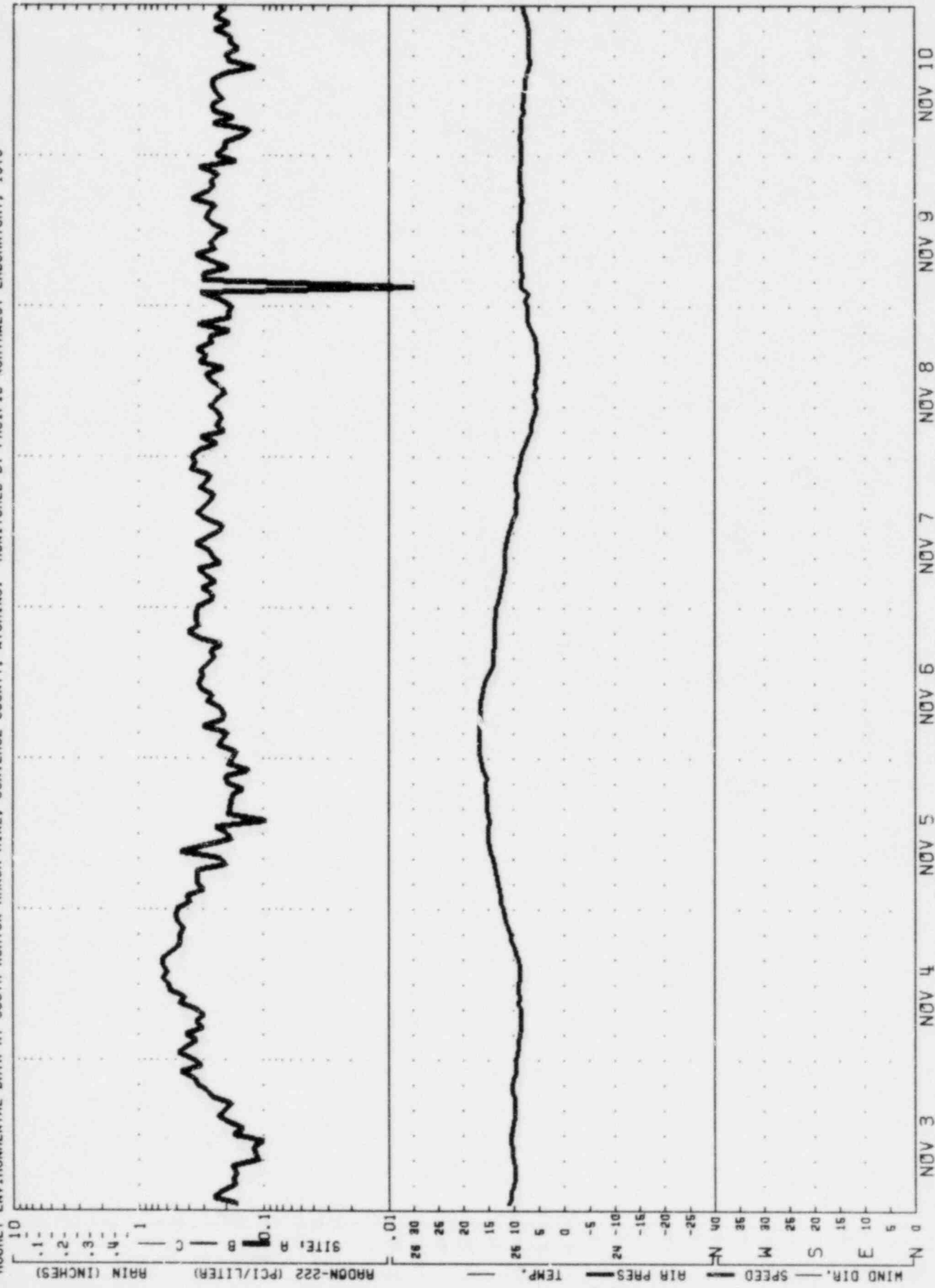
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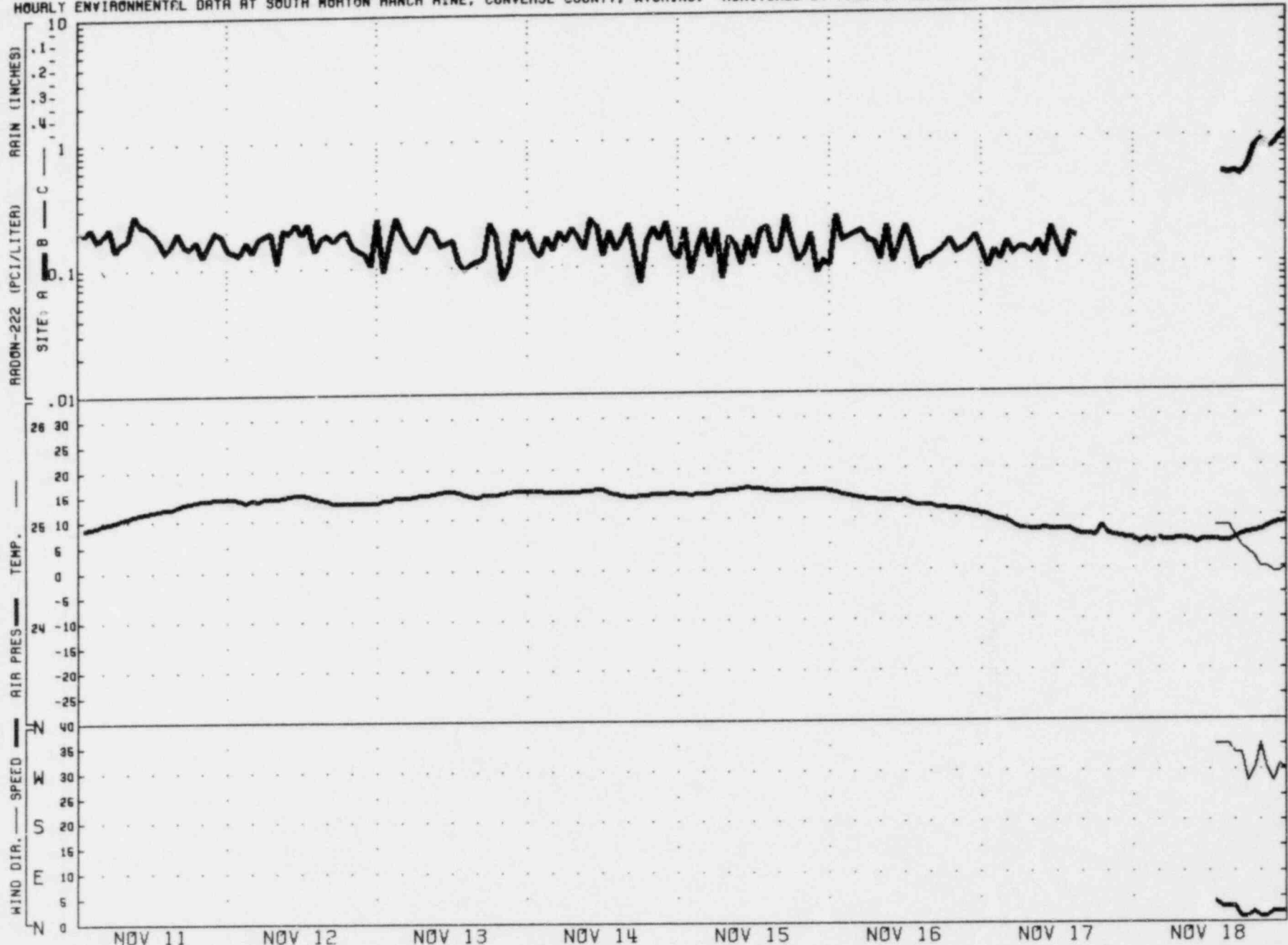
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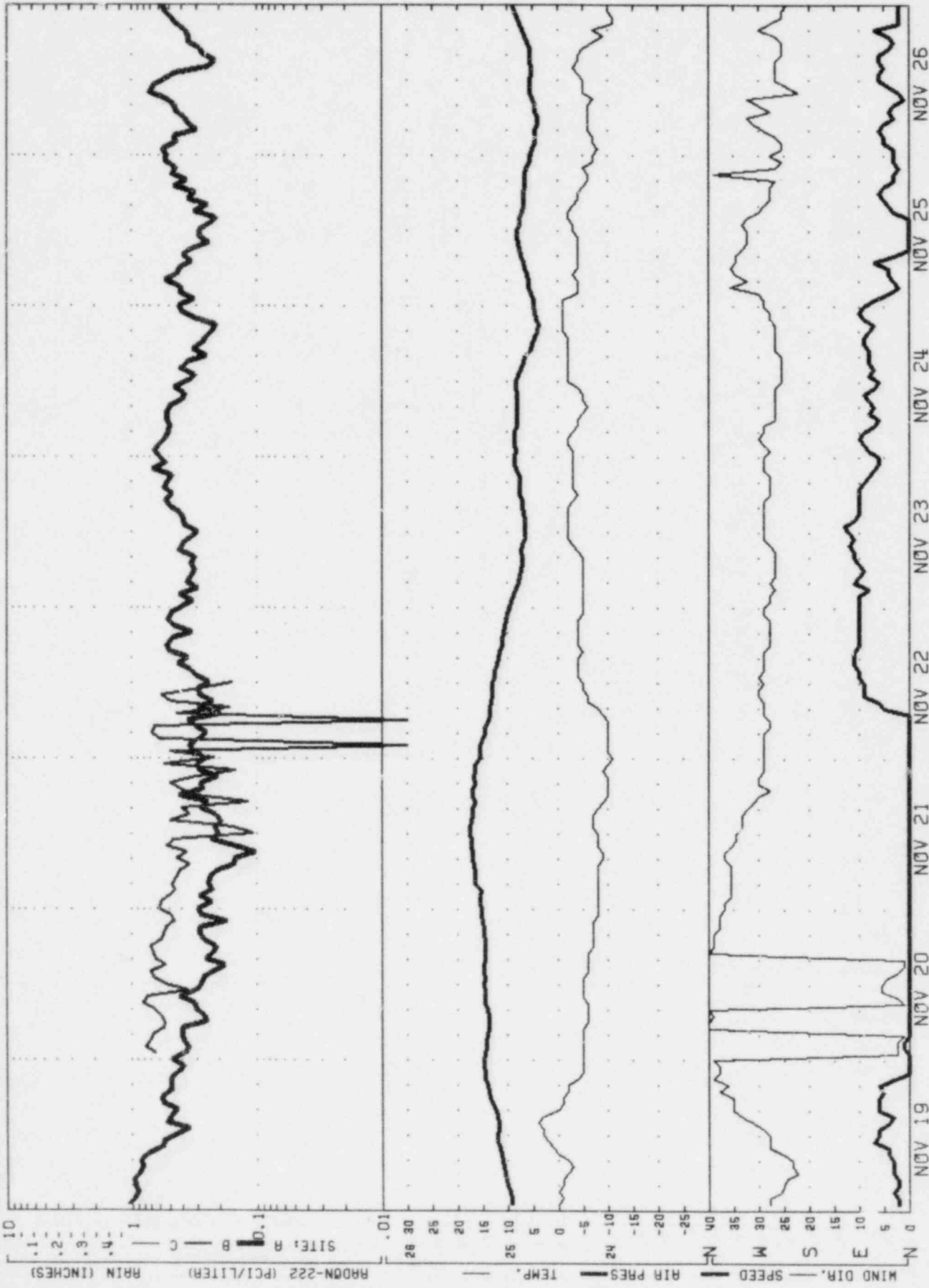
TEMPERATURE IN DEGREES CELCIUS
WIND SPEED IN METERS/SEC

STATION PRESSURE IN INCHES OF HG
PROVIDED BY DAVE JOHNSTON POWER PLANT

MET. STATION IS AT SITE A
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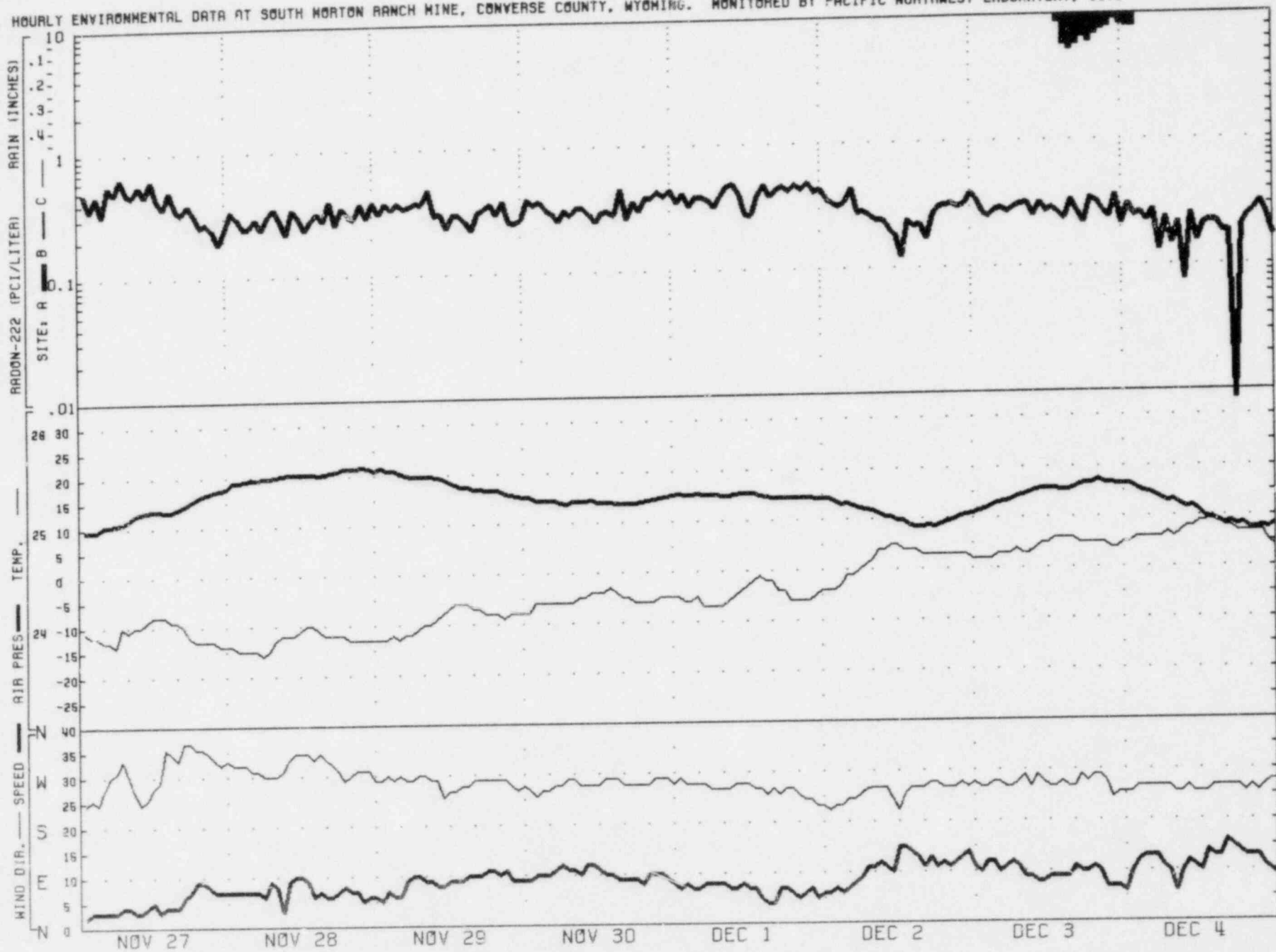
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28-SEP-81

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TEMPERATURE IN DEGREES CELCIUS
 WIND SPEED IN METERS/SEC
 STATION PRESSURE IN INCHES OF HG
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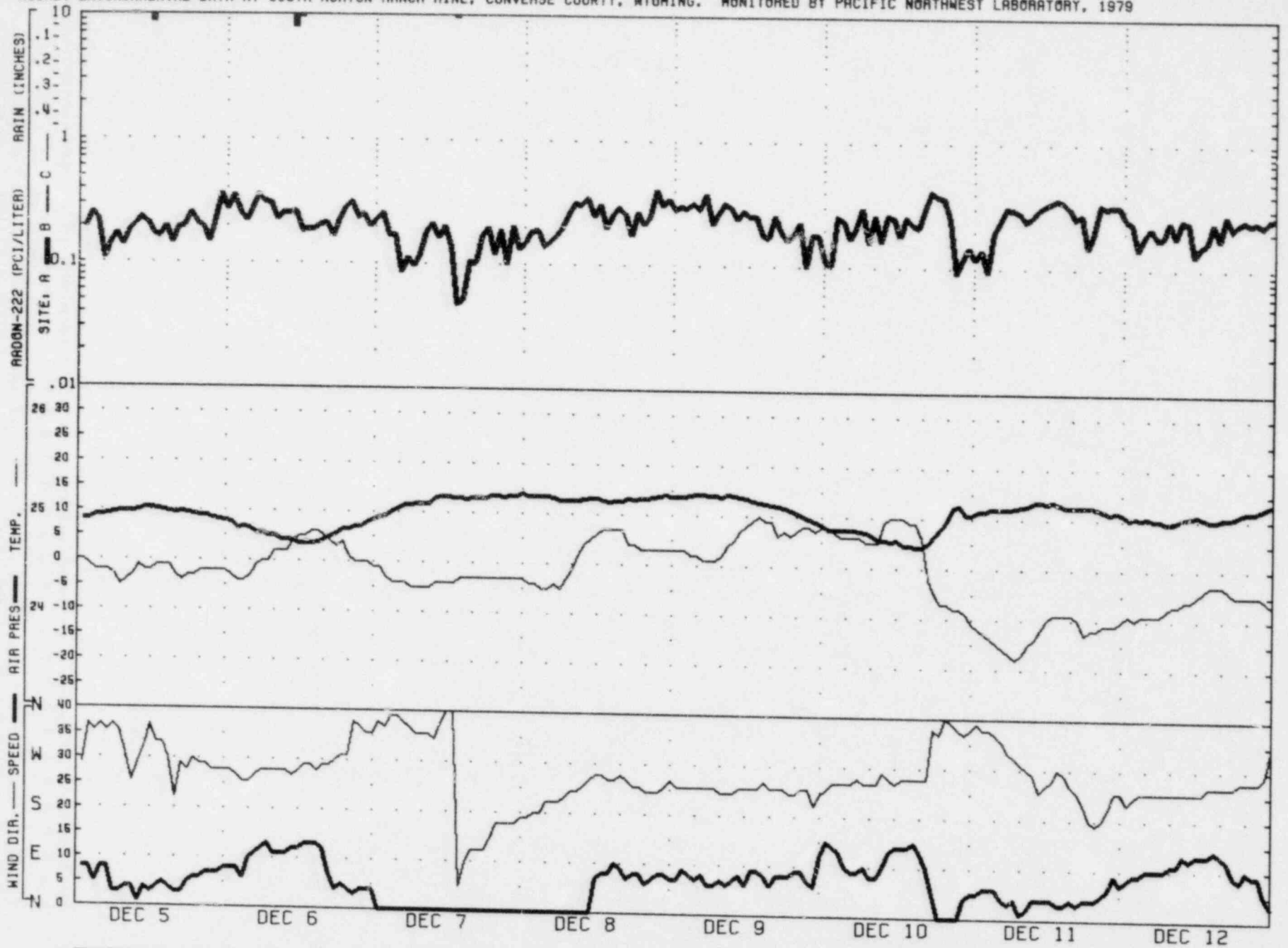
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WIND SPEED IN METERS/SEC

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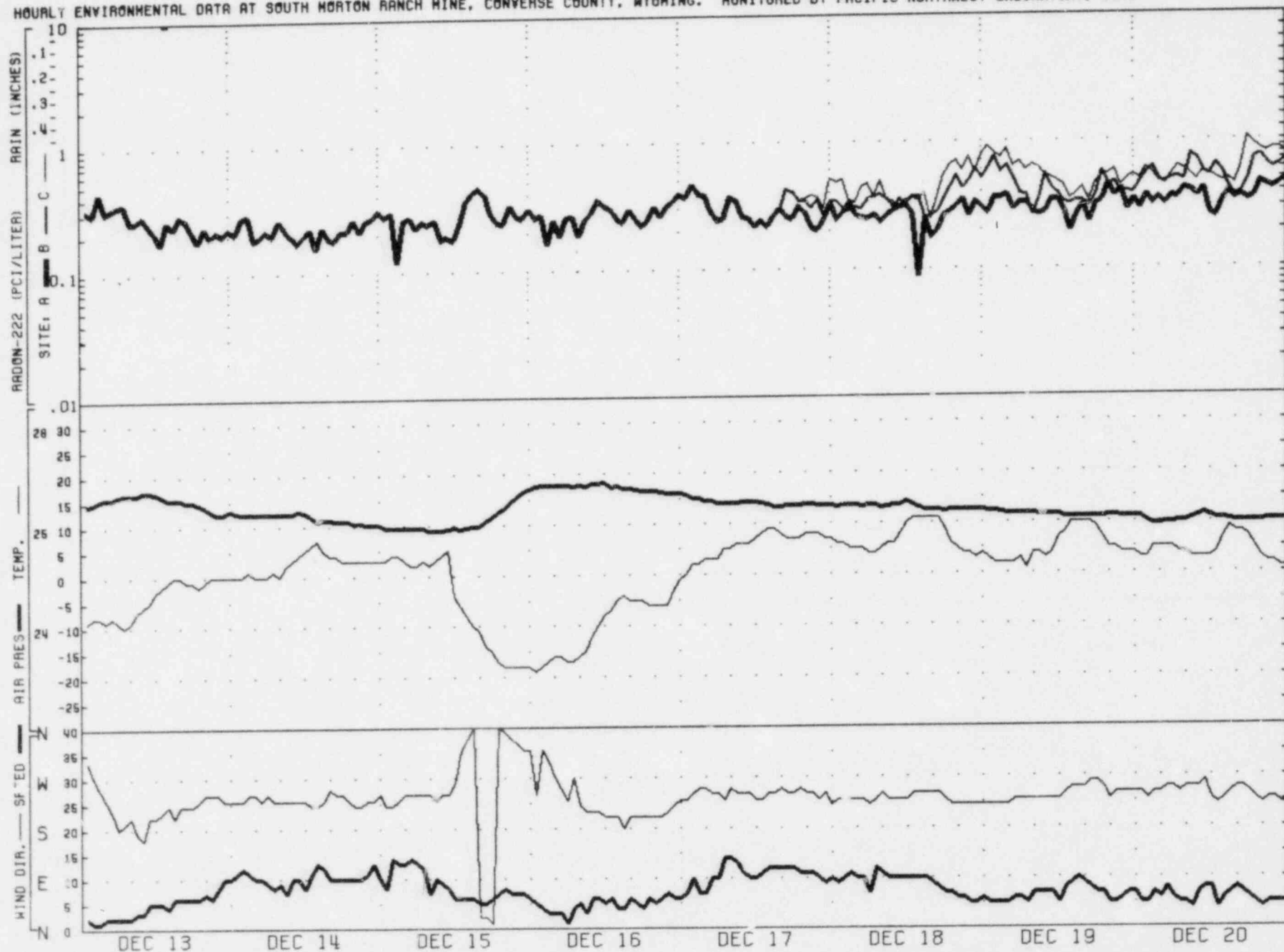
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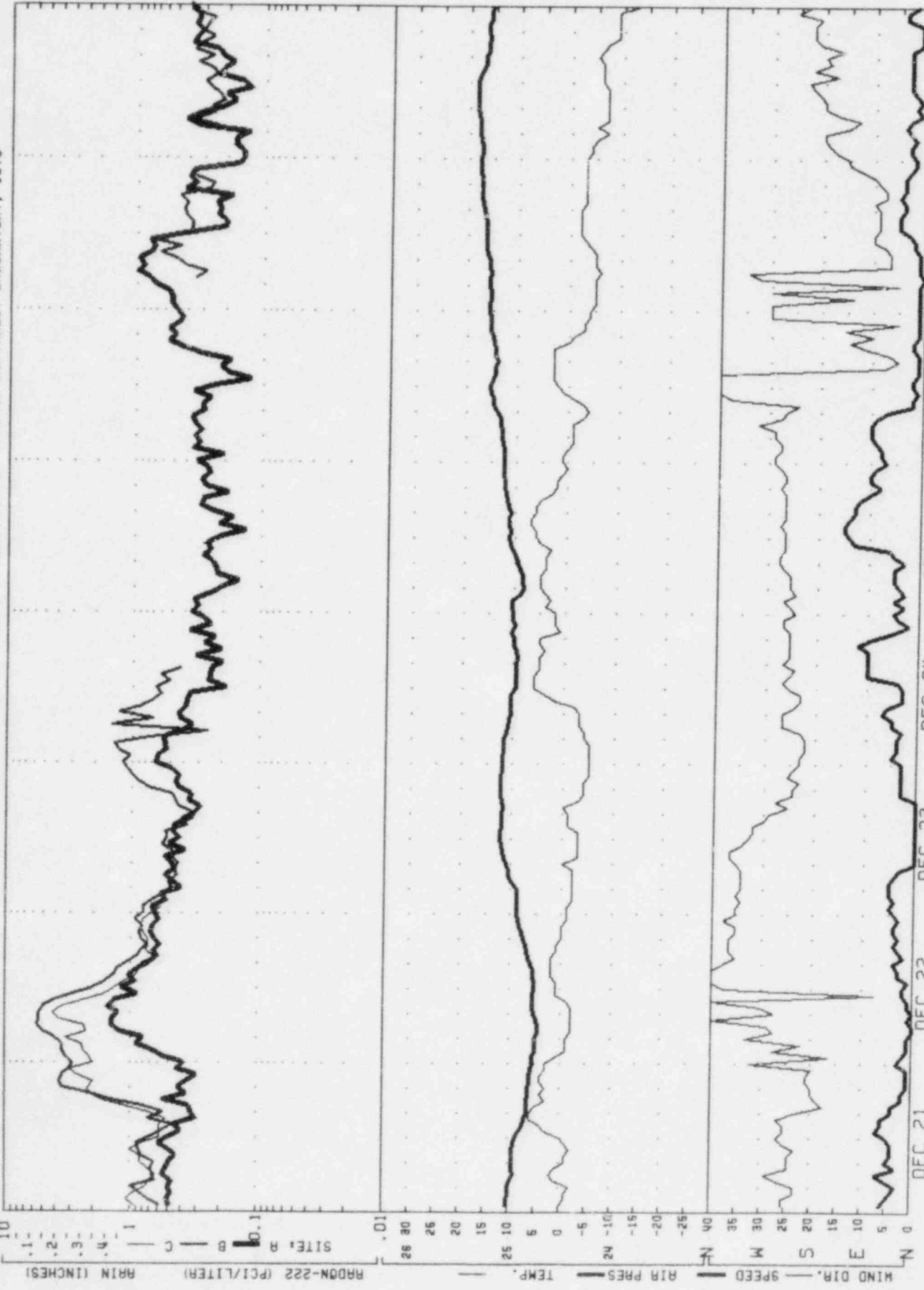
TEMPERATURE IN DEGREES CELCIUS
WIND SPEED IN METERS/SEC

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PROVIDED BY DAVE JOHNSTON POWER PLANT

MET. STATION IS AT SITE A
MAINTENANCE SHOPS PARKING AREA

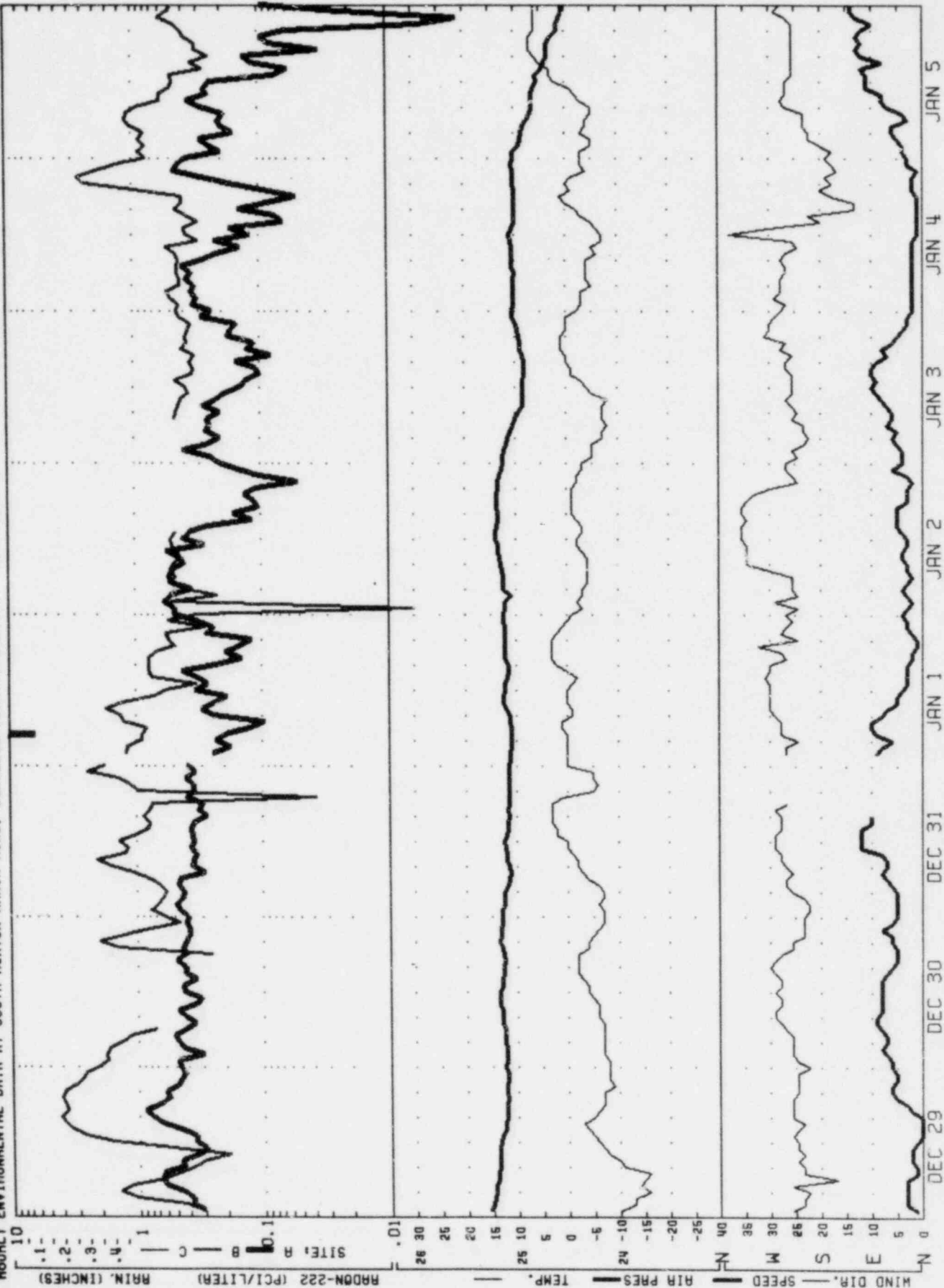
INCHES OF RAIN ARE APPROXIMATE
28-SEP-81

HOURLY ENVIRONMENTAL DATA AT SOUTH MORTON RANCH MINE, CONVERSE COUNTY, WYOMING. MONITORED BY PACIFIC NORTHWEST LABORATORY, 1979



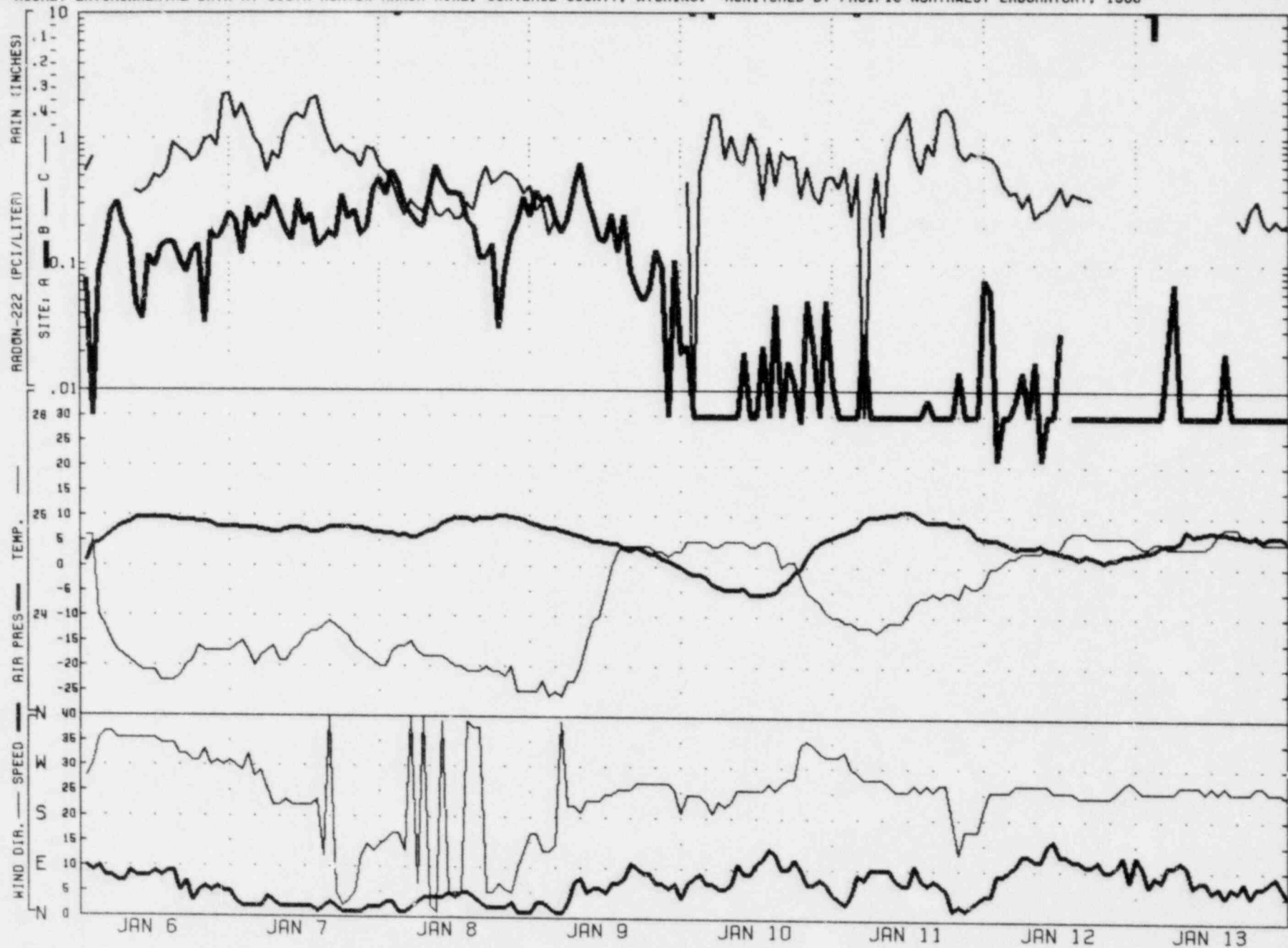
TEMPERATURE IN DEGREES CELCIUS
 WIND SPEED IN METERS/SEC
 STATION PRESSURE IN INCHES OF HG
 PROVIDED BY DAVE JOHNSTON POWER PLANT
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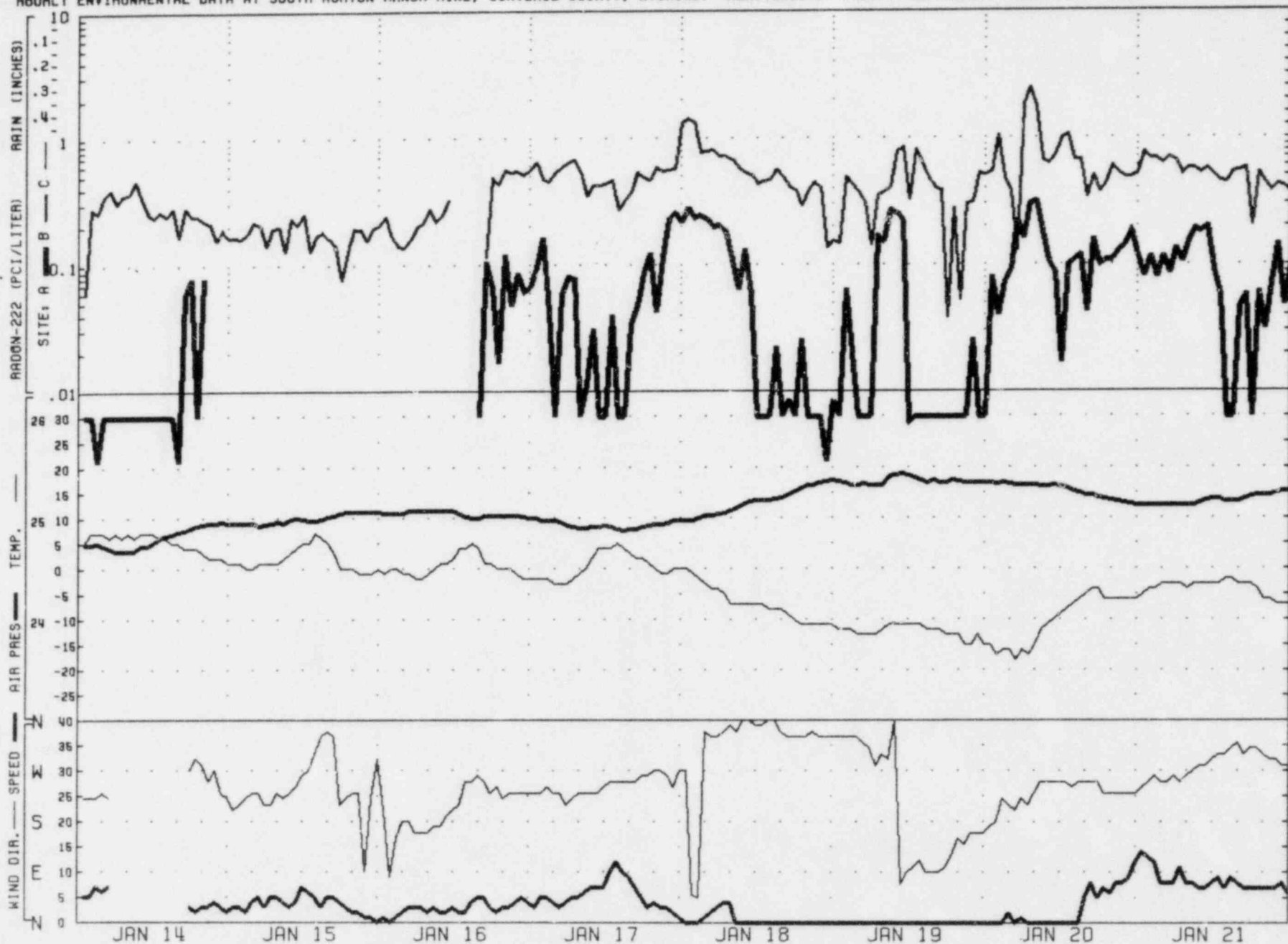
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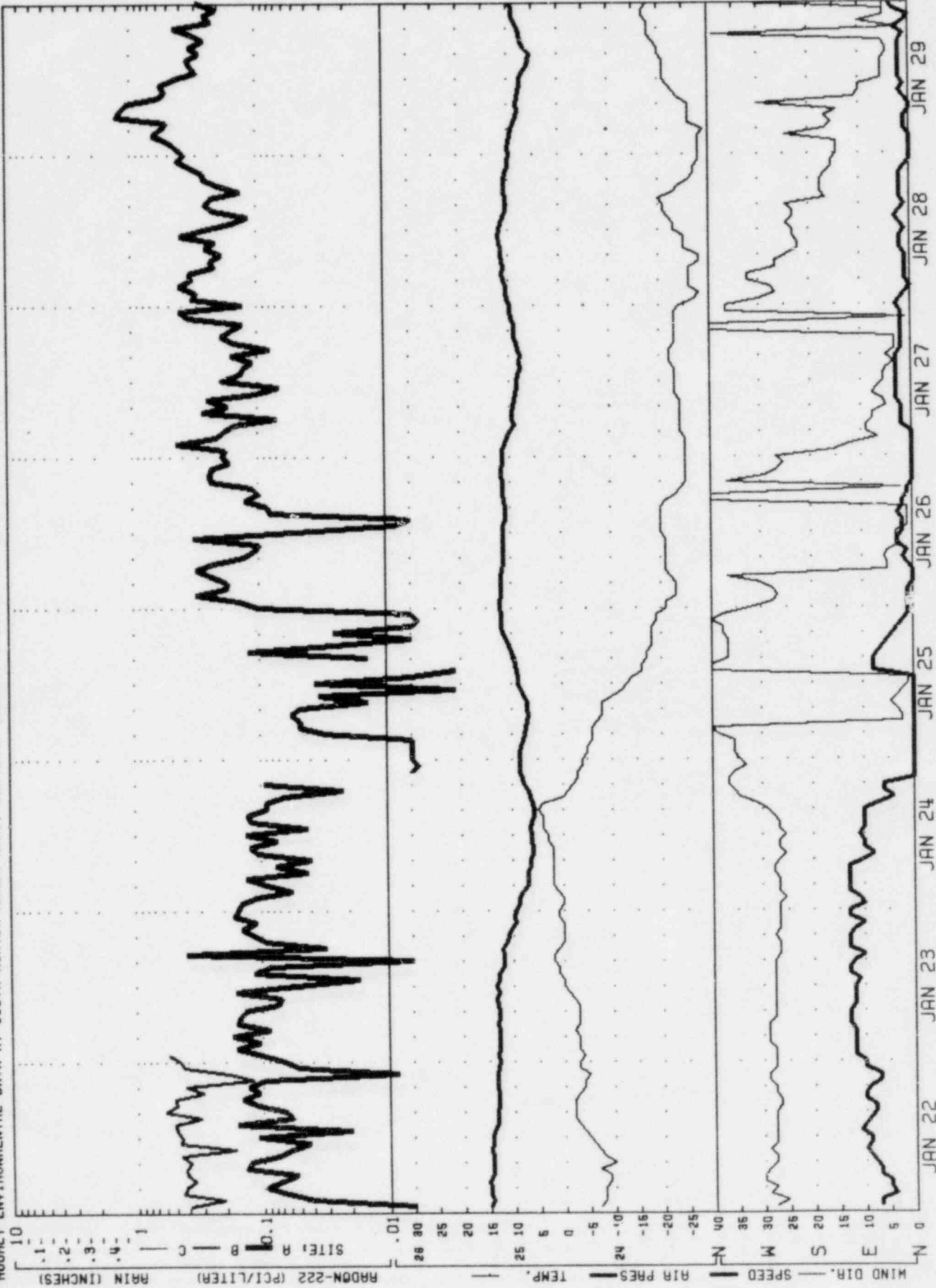
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WIND SPEED IN METERS/SEC

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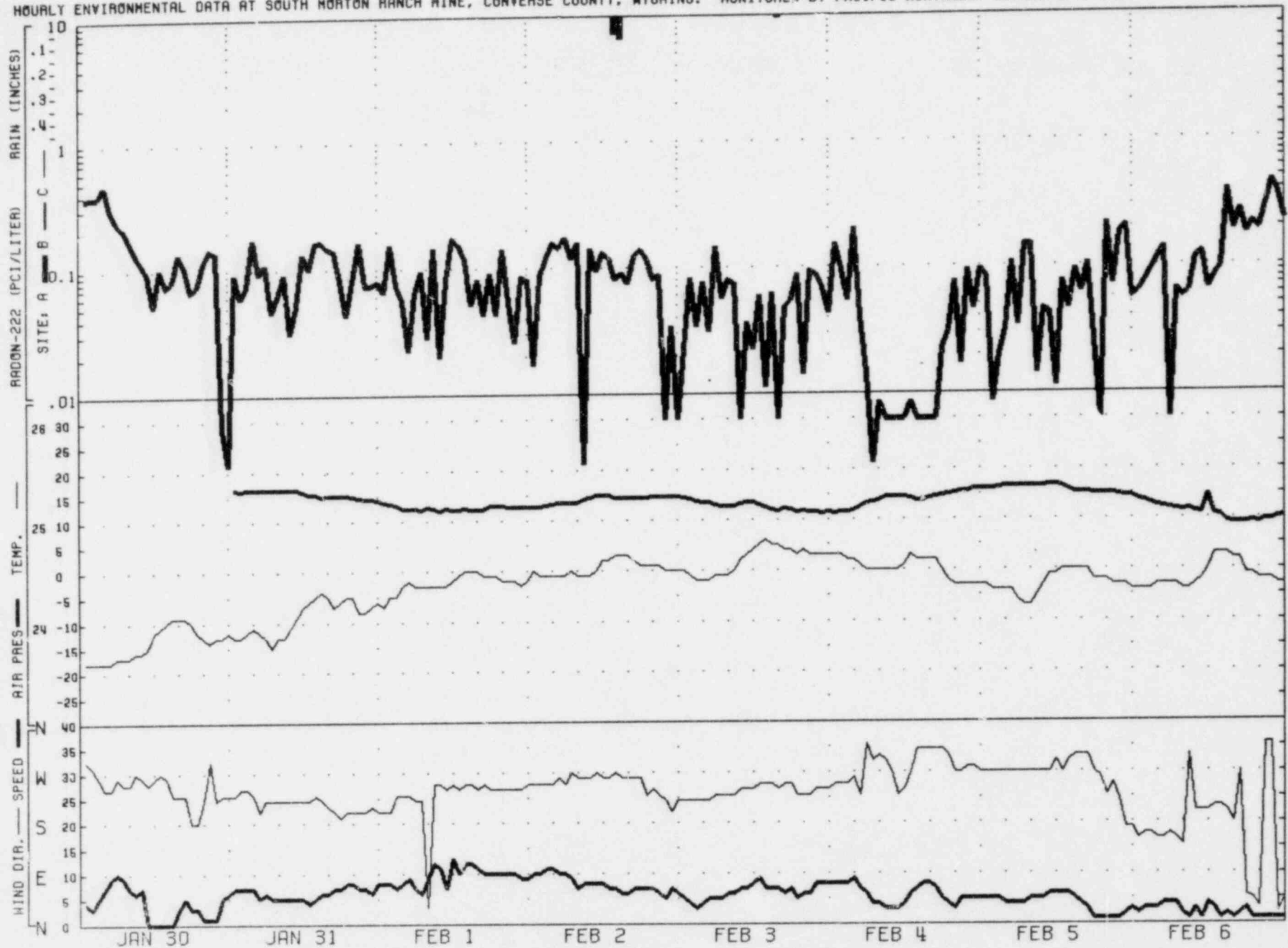
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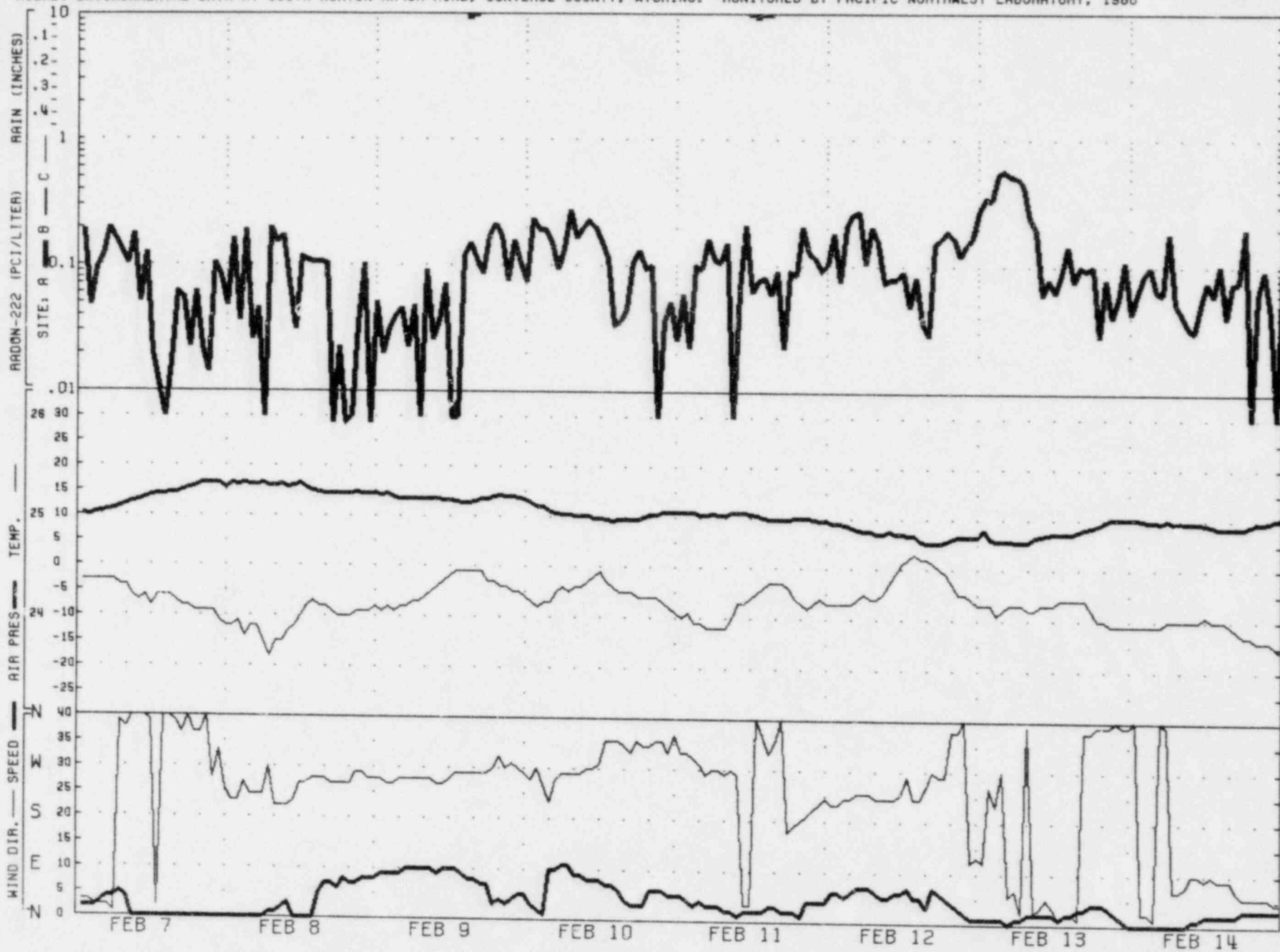
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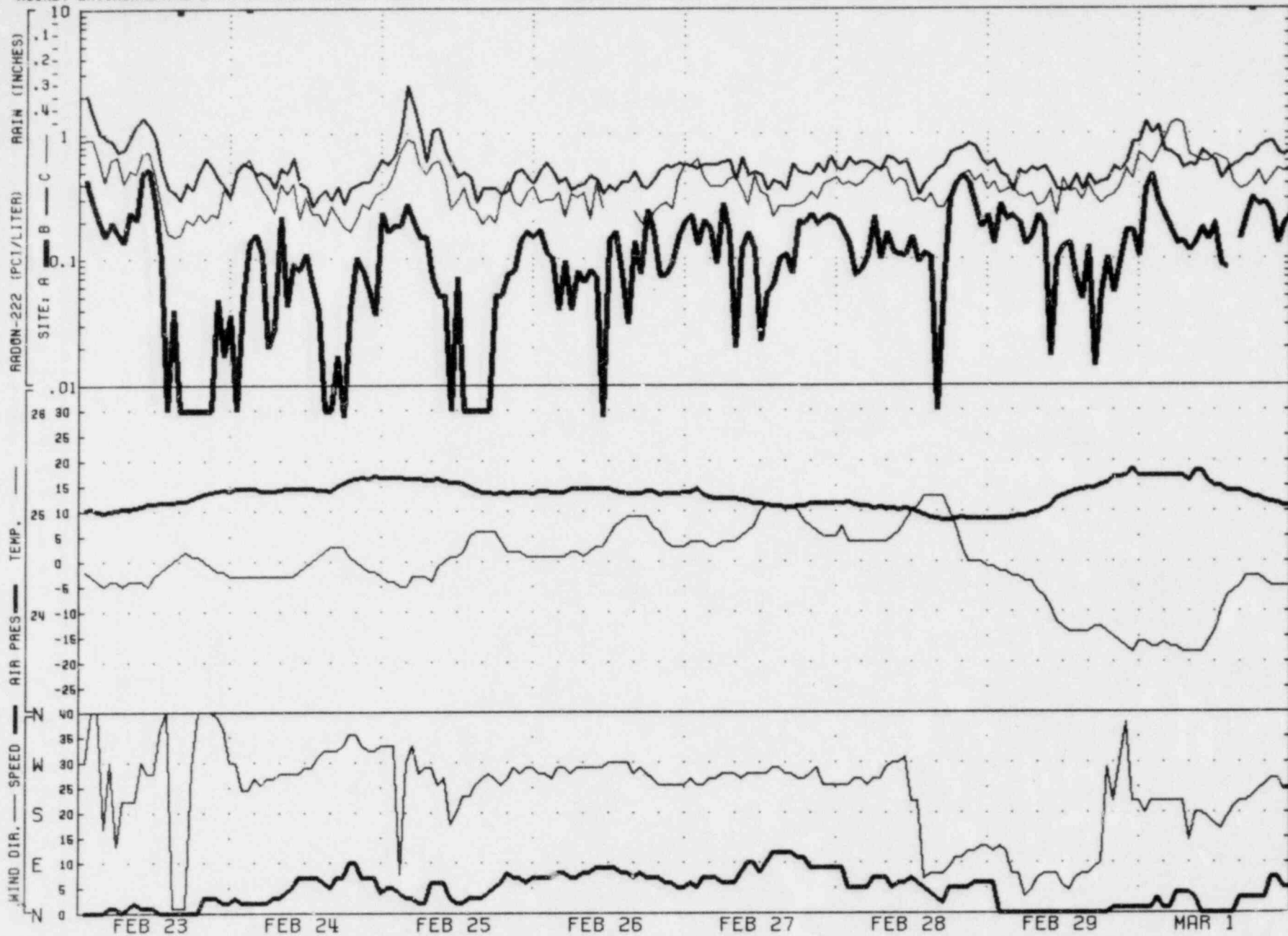
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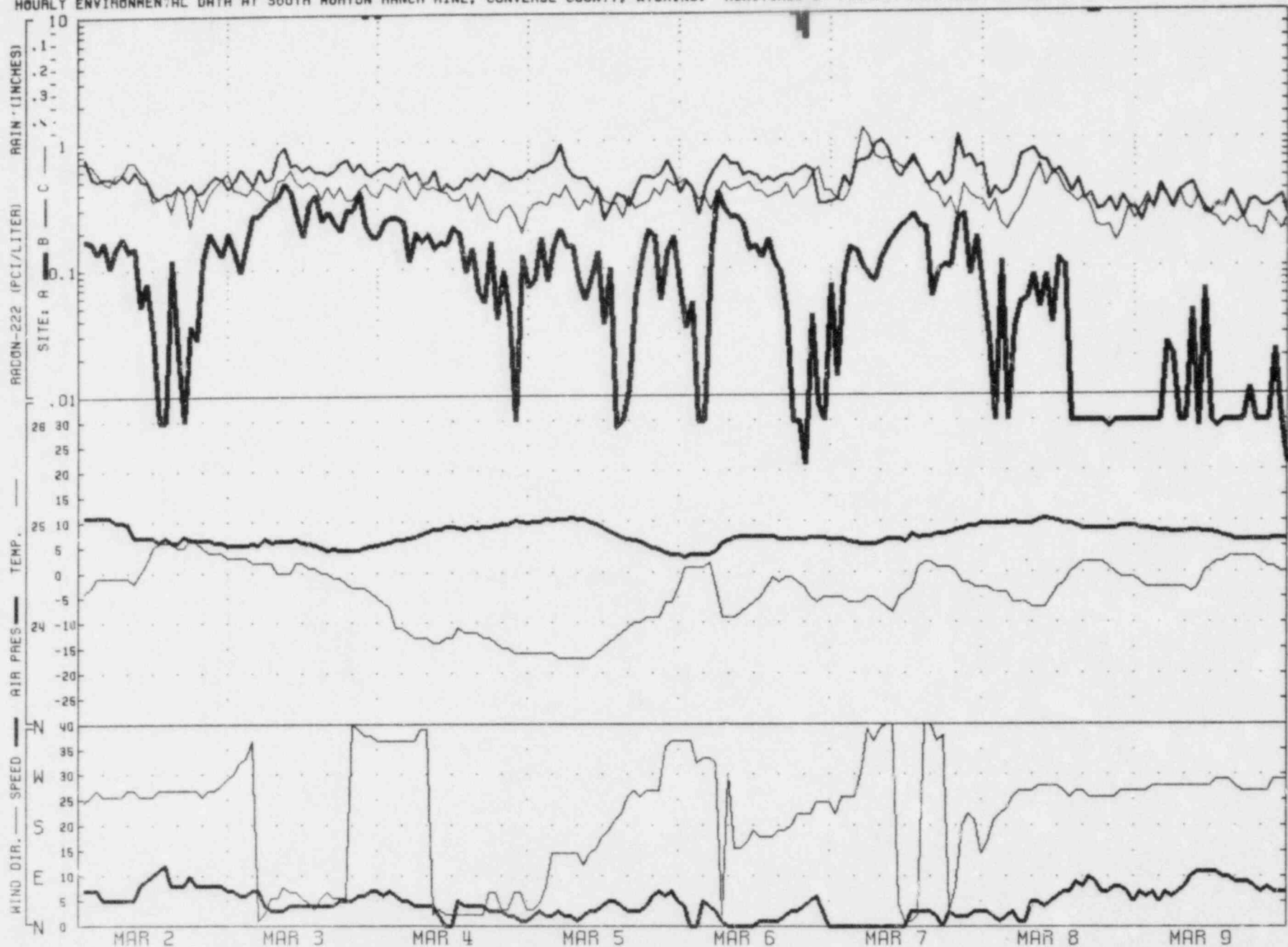
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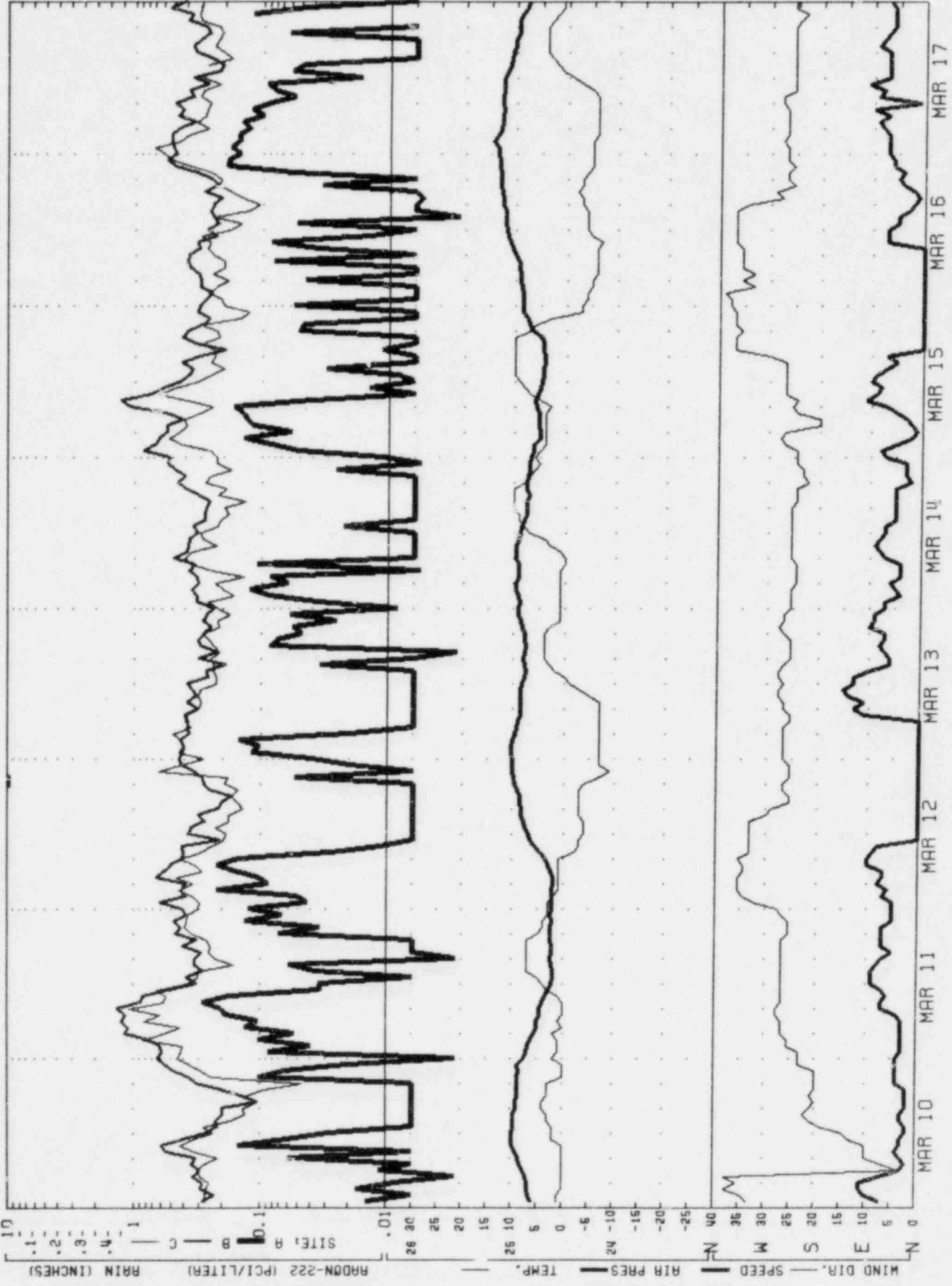
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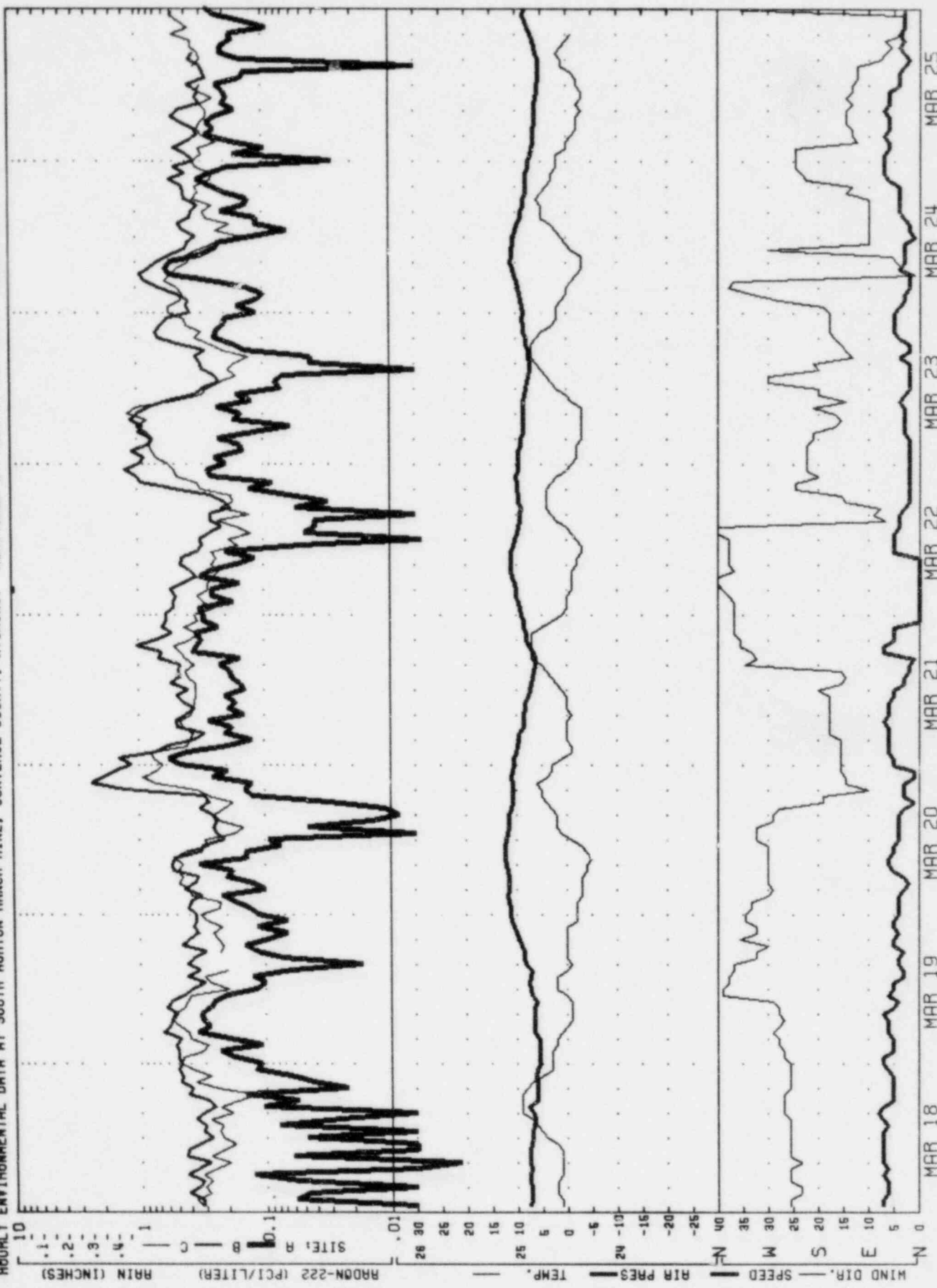
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28-SEP-81

HOURLY ENVIRONMENTAL DATA AT SOUTH MORTON RANCH MINE, CONVERSE COUNTY, WYOMING. MONITORED BY PACIFIC NORTHWEST LABORATORY, 1980



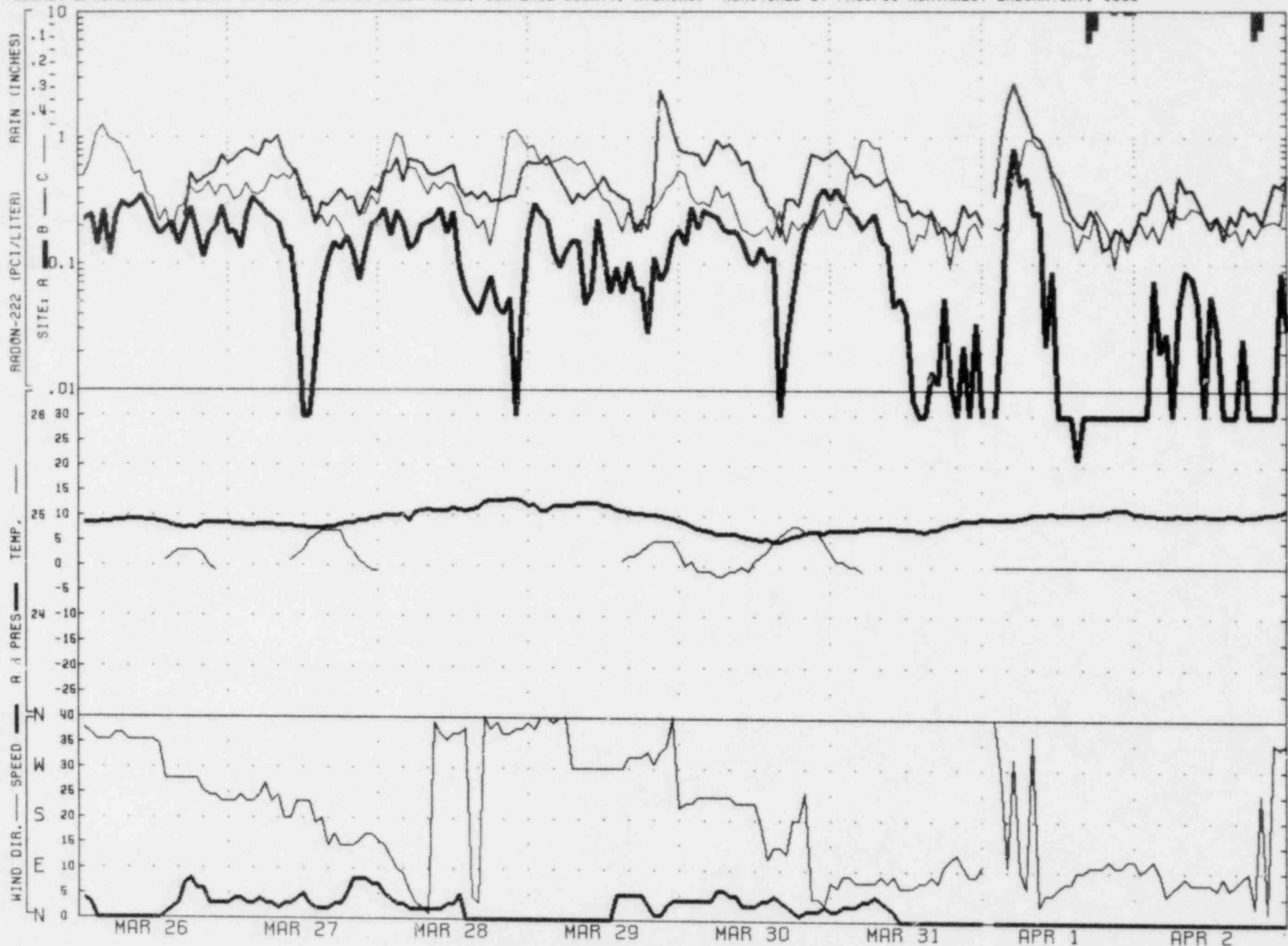
TEMPERATURE IN DEGREES CELSIUS
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 STATION PRESSURE IN INCHES OF HG
 PROVIDED BY DAVE JOHNSTON POWER PLANT
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 INCHES OF RAIN ARE APPROXIMATE
 26-SEP-81

HOURLY ENVIRONMENTAL DATA AT SOUTH WORTON RANCH MINE, CONVERSE COUNTY, WYOMING. MONITORED BY PACIFIC NORTHWEST LABORATORY, 1980



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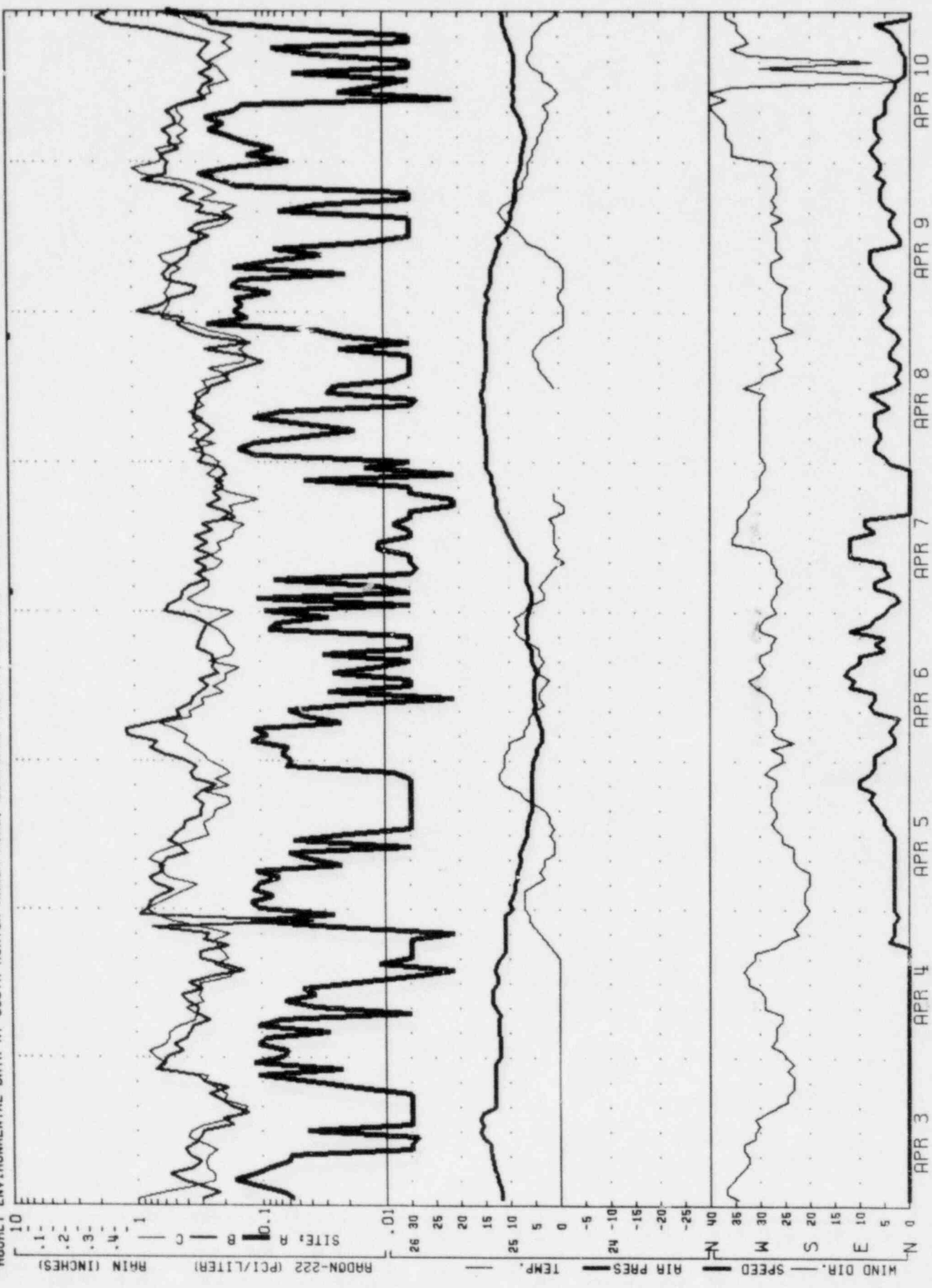
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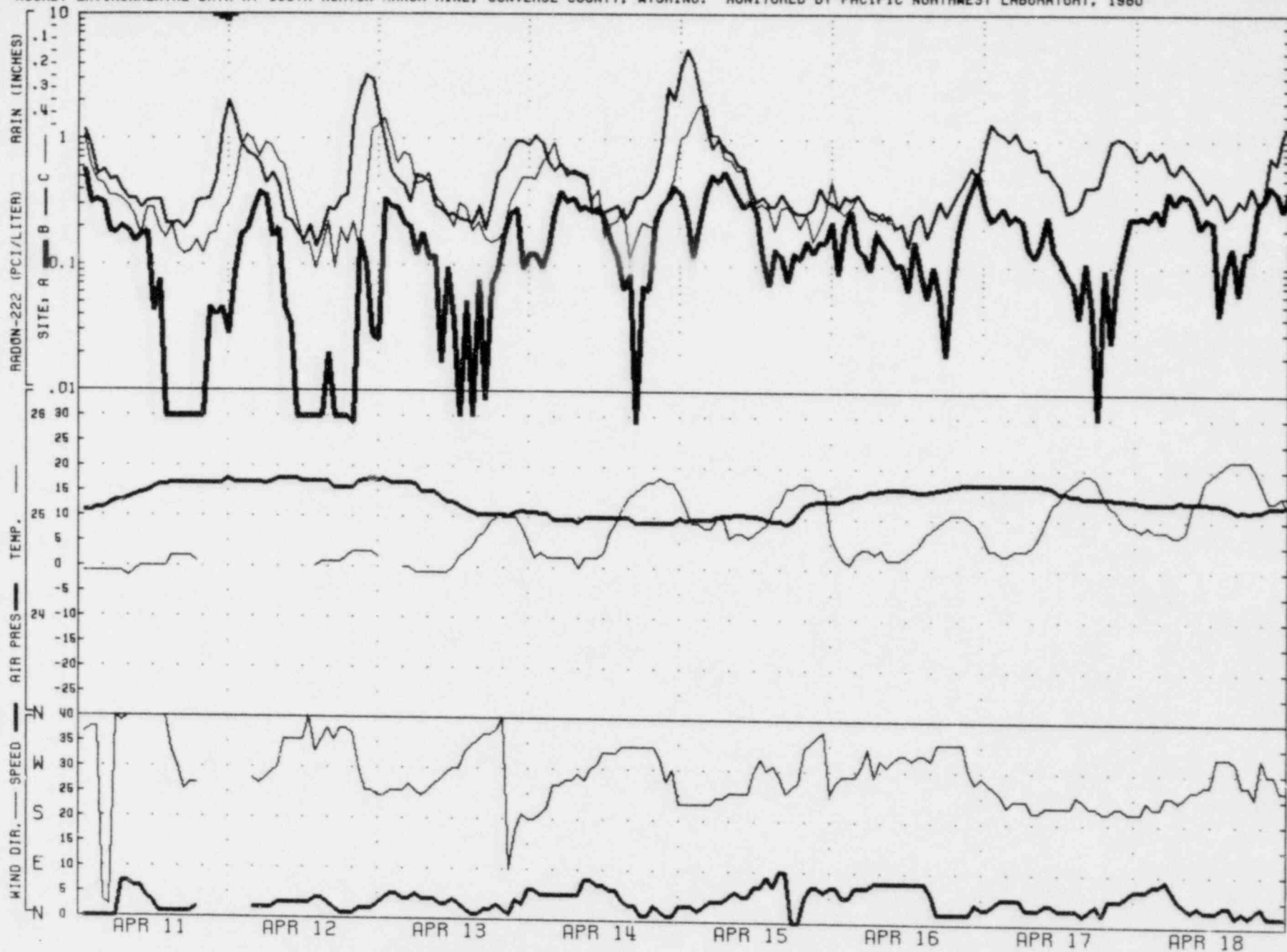
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WIND SPEED IN METERS/SEC

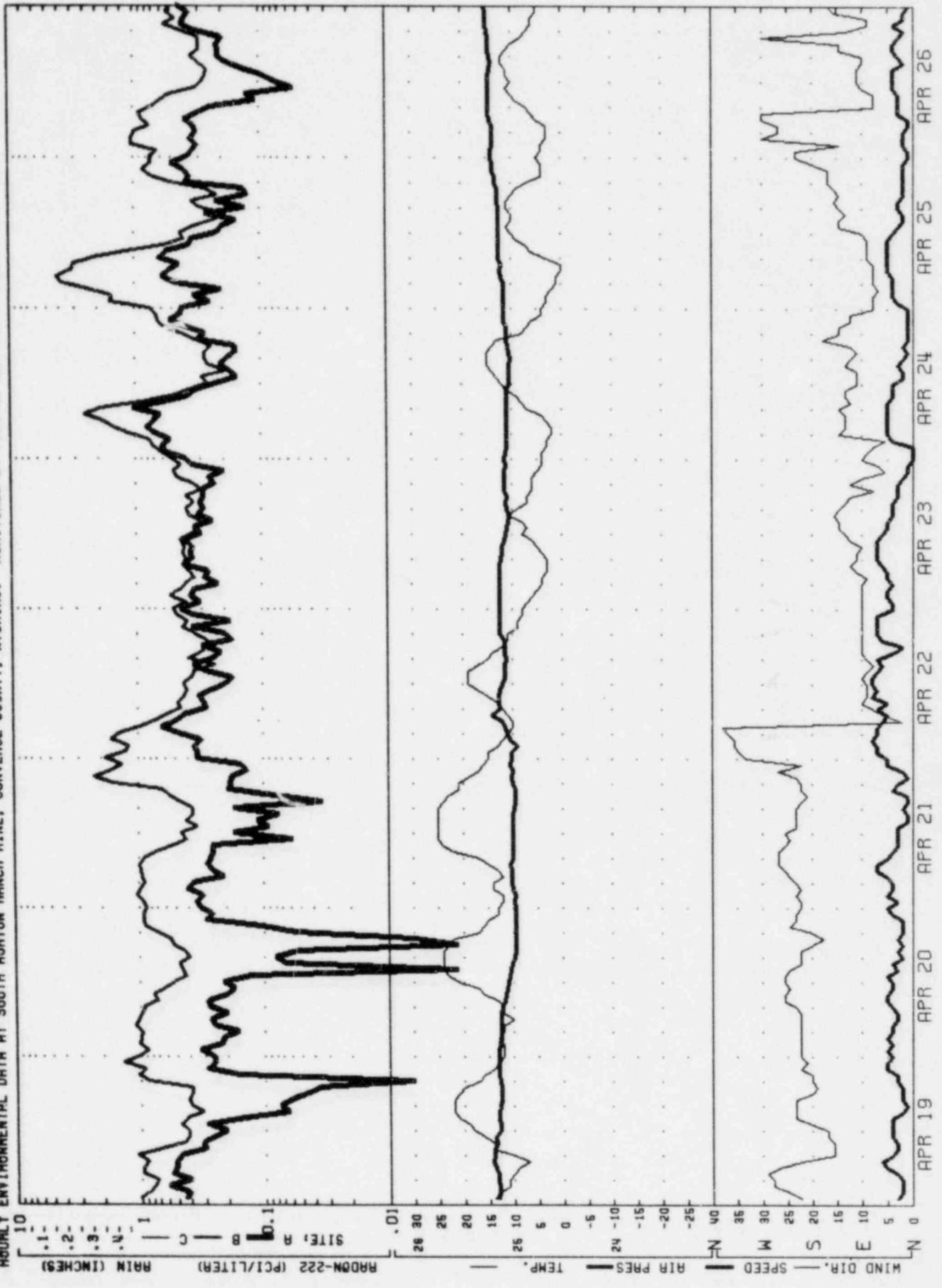
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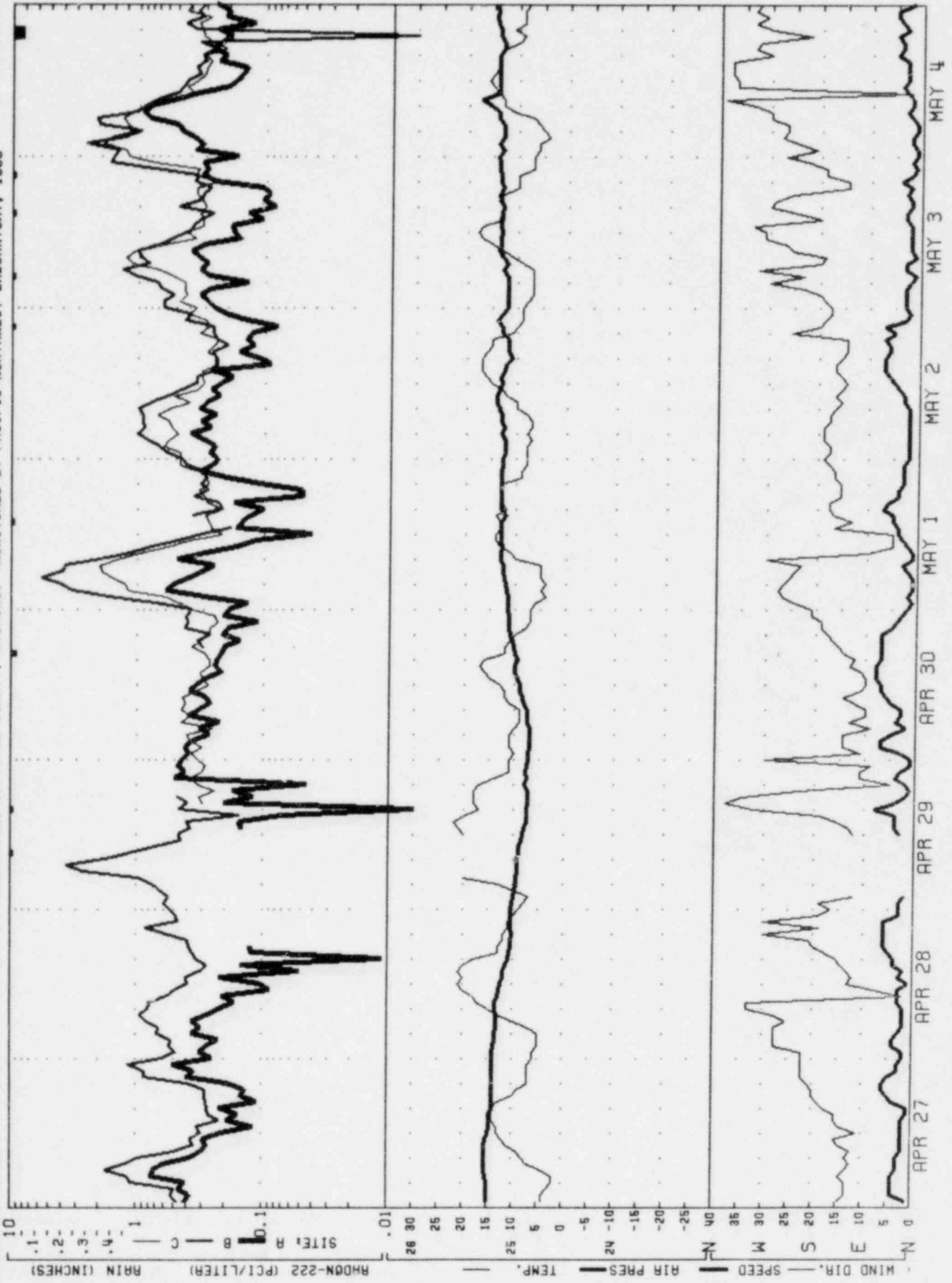
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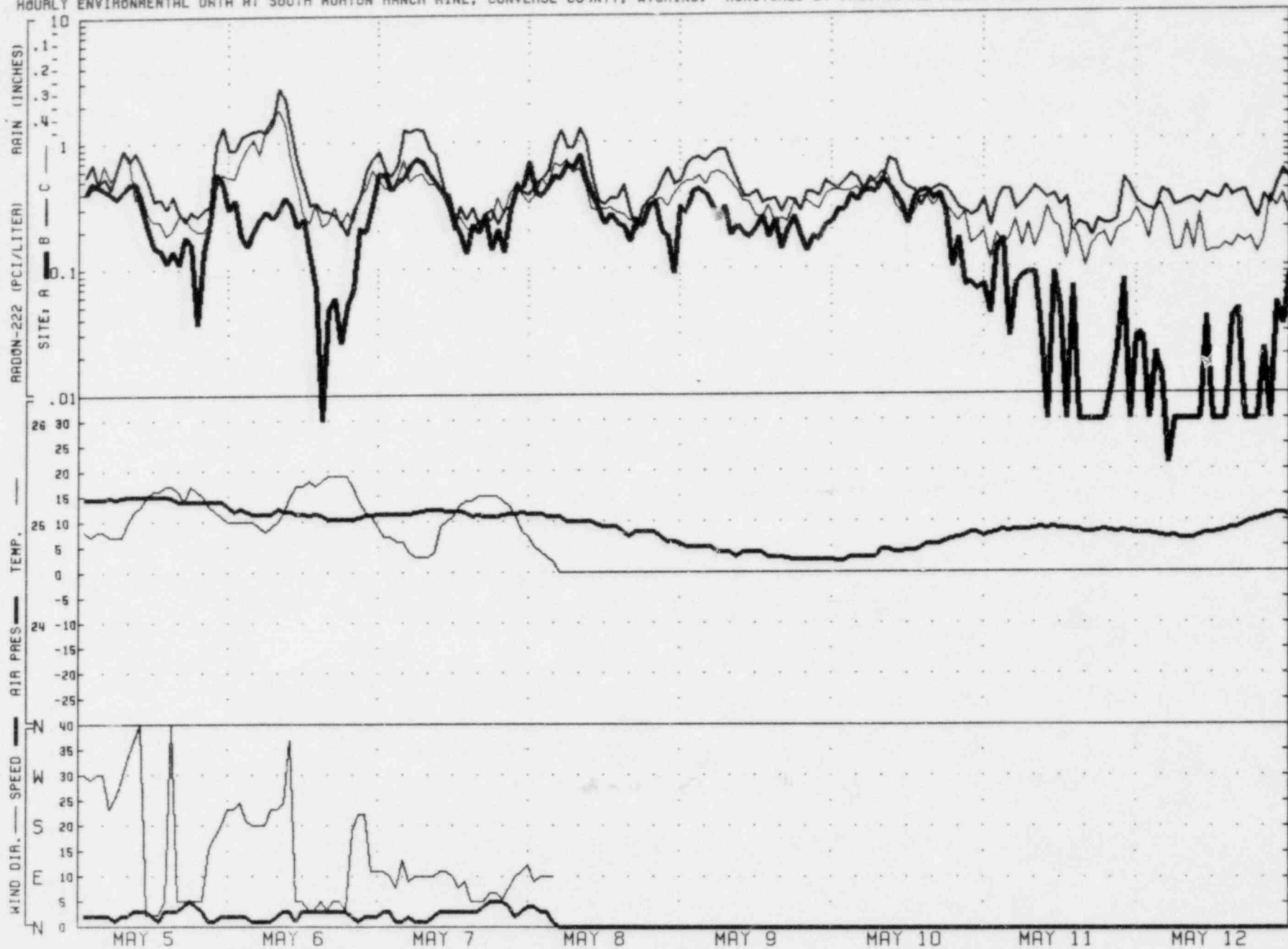
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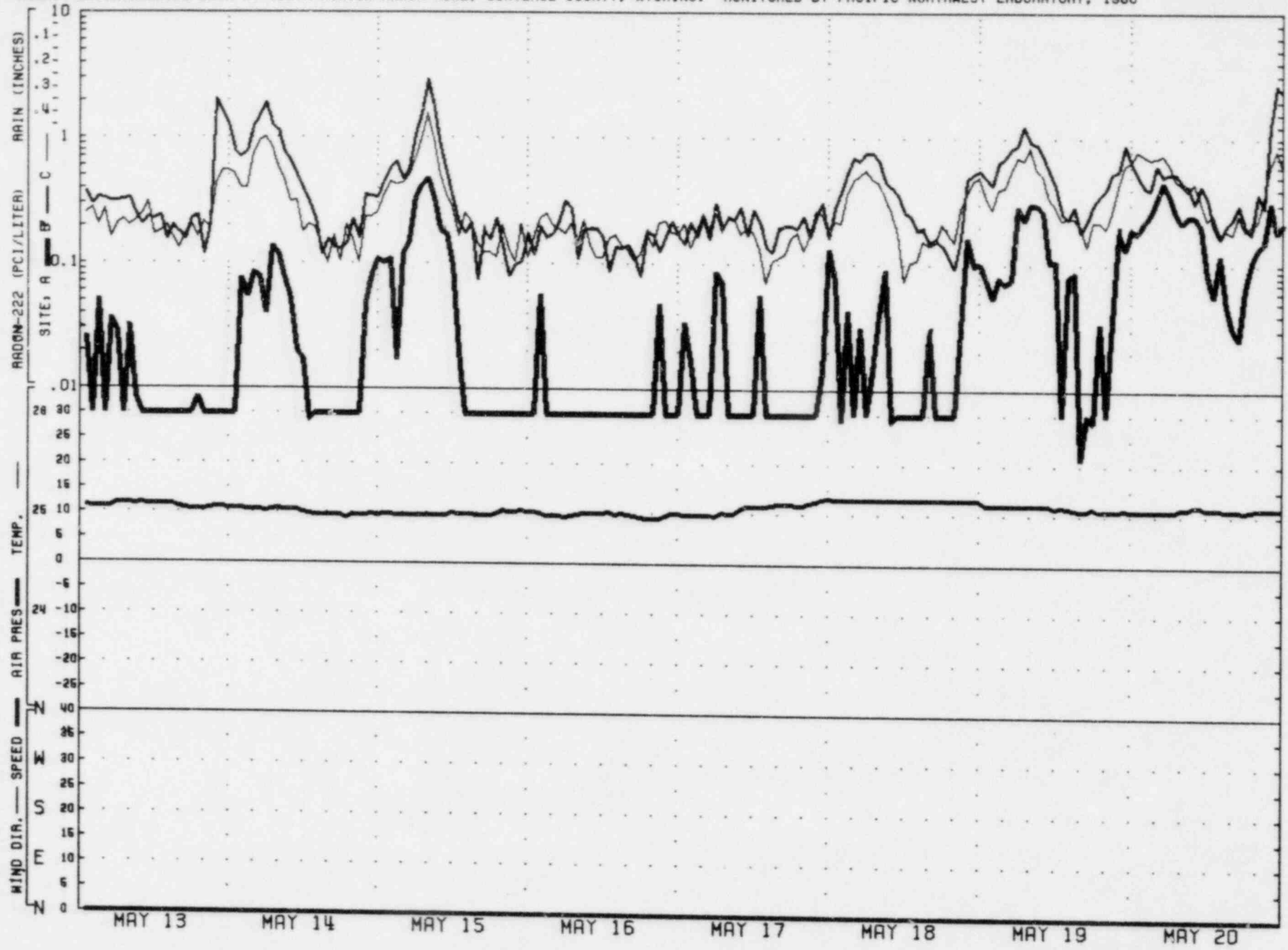
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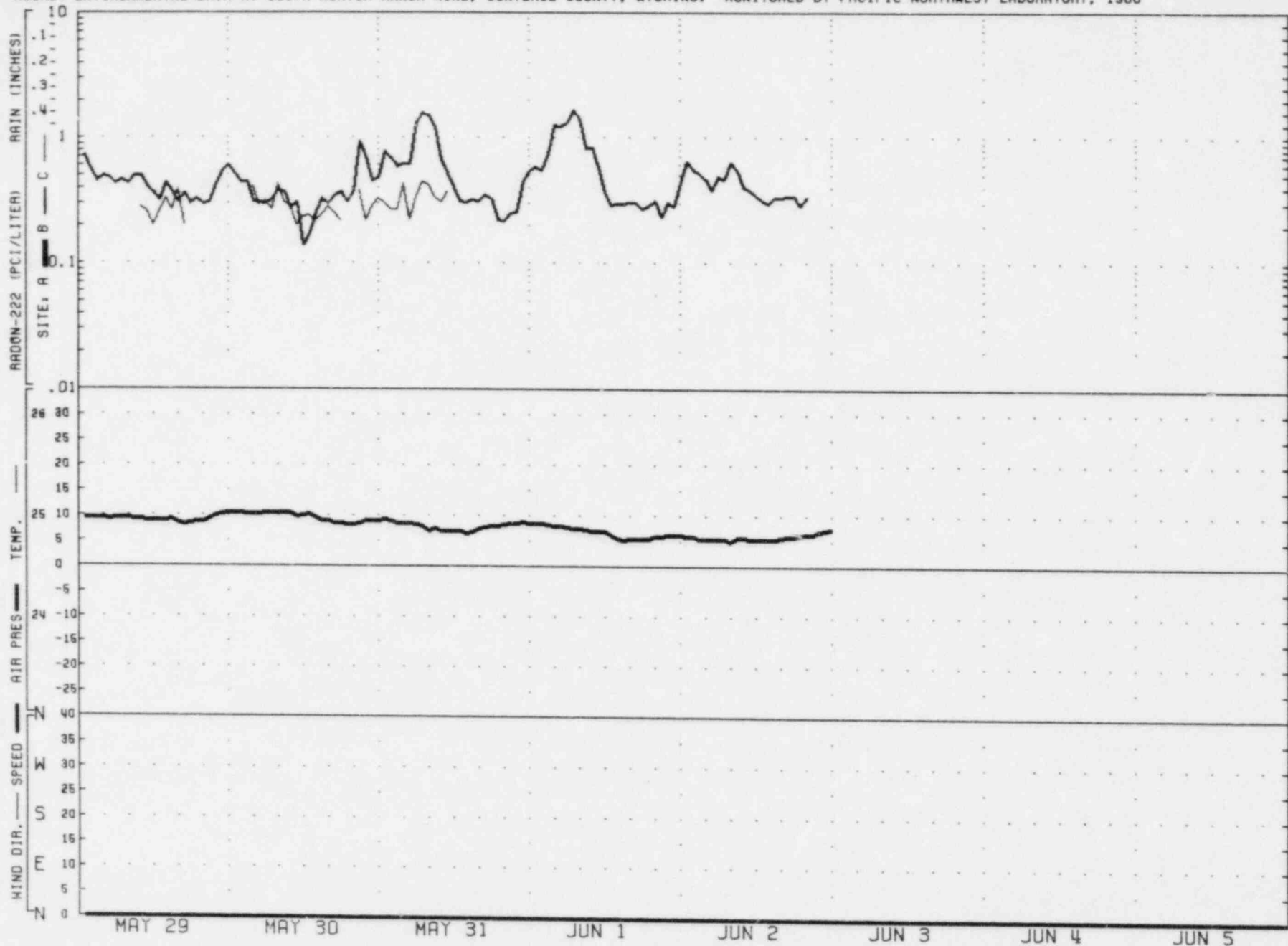
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PROVIDED BY DAVE JOHNSTON POWER PLANT

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INCHES OF RAIN ARE APPROXIMATE

28-SEP-81

APPENDIX E

RADON FLUX, U_3O_8 CONCENTRATION, SOIL MOISTURE, SPECIFIC FLUX

Morton Ranch Mine

Mine A

Mine B

Mine C

Mine D

Casper Area

NOTES OF EXPLANATION FOR APPENDIX E

Appendix E is separated into five subsections which correspond to the mine being sampled and one subsection which contains data from topsoil samples taken within a 100 km radius of Casper, Wyoming. Within the subsection for each mine, the data are listed chronologically for each surface type sampled. The undisturbed topsoil is further subdivided by sampling site for Morton Ranch data only. Data from the sampling site furthest prevailing upwind of the pit area are listed first, followed by the sites that are closer to the pit area, and ending with the data from the sampling site which is furthest prevailing downwind from the pit area. Data from four pit rim sites are listed chronologically by sample site.

The format of the printout is as follows. The first and second columns have been mentioned (i.e., date-time, and sampling site). Column 3 contains identifying characters to allow one to distinguish between the types of radon flux monitor used. These types of samplers were discussed in Section 2.1. M-11 refers to the military type gas mask canister. PAINT CAN refers to the inverted five gallon paint can. FLEX CAN refers to the space blanket covered wire mesh, or flexible can. FLO TENT refers to the flow-through dynamic tent system. PVC refers to the PVC plastic charcoal container with the funnel attached. GMA refers to the Mine Safety Appliances, Inc. gas mask canister. Column 4 presents radon flux in $\text{pCi/m}^2\text{-sec}$. Column 5 presents U_3O_8 in parts per million. Column 6 presents percent moisture on a wet basis. The last column presents specific radon flux in $\text{pCi/m}^2\text{-sec-\%U}_3\text{O}_8$. The plus or minus uncertainties reported with columns 4 and 5 are counting statistics only, and if they were less than 5% they are assumed to be 5% of the measured value. In column 7, the plus or minus values are the counting uncertainties of the radon flux and U_3O_8 concentration propagated through the division by the rules of propagation of uncertainties discussed in Appendix A.

SURFACE SAMPLED		RADON FLUX		MORTON RANCH MINE		U308		MOISTURE		SPECIFIC FLUX	
DATE-TIME	SAMP SITE	RADON FLUX MONITOR	PCI/M**2-SEC	U308 PPM		% (WET BASIS)		PCI/M**2-SEC	U308		
ORE PILE(S)											
8-27-78	1202	M-11	68.000 +/-	3.400							
8-27-78	1204	PAINT CAN	123.000 +/-	6.150							
8-27-78	1206	FLEX CAN	102.000 +/-	5.100							
8-27-78	1643	FLO TENT	269.000 +/-	13.450							
12- 1-78	750	PVC	105.700 +/-	5.285							
12- 1-78	751	PVC	113.100 +/-	5.655							
4-20-79	1339	GMA	160.200 +/-	8.010	607.00 +/-	30.35				2639. +/-	187.
4-20-79	1342	GMA	126.800 +/-	6.340	343.00 +/-	17.15	1.22			3697. +/-	262.
4-23-79	958	GMA	542.000 +/-	27.140							
4-23-79	959	GMA	354.300 +/-	17.715							
4-23-79	1000	GMA	755.800 +/-	37.790							
4-23-79	1001	GMA	794.000 +/-	39.740							
4-23-79	1313	GMA	90.690 +/-	4.935	335.00 +/-	16.75	6.72			2946. +/-	208.
4-23-79	1314	GMA	99.650 +/-	4.983	248.00 +/-	12.40	6.98			4010. +/-	284.
5-24-79	1126	GMA	124.500 +/-	6.225	599.00 +/-	29.95	7.04			2078. +/-	147.
5-24-79	1127	GMA	81.540 +/-	4.077	294.00 +/-	14.70	5.09			2773. +/-	196.
5-24-79	1128	GMA	77.450 +/-	3.872	401.00 +/-	20.05	5.96			1931. +/-	137.
5-24-79	1129	GMA	50.100 +/-	2.509	196.00 +/-	9.90	7.41			2534. +/-	179.
6-28-79	1220	GMA	120.200 +/-	6.410	336.00 +/-	16.80	3.91			3815. +/-	270.
6-28-79	1229	GMA	100.200 +/-	5.410	508.00 +/-	25.40	5.62			2130. +/-	151.
6-28-79	1230	GMA	505.900 +/-	25.290	296.00 +/-	14.80	3.31			17088. +/-	1209.
6-28-79	1231	GMA	63.940 +/-	3.197	1090.00 +/-	54.50	7.01			587. +/-	42.
8- 1-79	1041	GMA	36.410 +/-	1.821	270.00 +/-	13.50				1349. +/-	95.
8- 1-79	1042	GMA	126.200 +/-	6.310	339.00 +/-	16.95				3727. +/-	263.
8- 1-79	1043	GMA	50.190 +/-	2.909	300.00 +/-	19.00				1531. +/-	108.
8- 1-79	1044	GMA	17.310 +/-	0.865	300.00 +/-	19.00				456. +/-	32.
8-30-79	1454	GMA	105.400 +/-	5.270	300.00 +/-	15.40	4.88			3422. +/-	242.
8-30-79	1455	GMA	107.000 +/-	5.350	455.00 +/-	22.75	3.61			2352. +/-	166.
8-30-79	1456	GMA	75.700 +/-	3.785	350.00 +/-	17.50	4.57			2163. +/-	153.
8-30-79	1457	GMA	164.700 +/-	8.235	315.00 +/-	15.75	5.68			5229. +/-	370.
9-27-79	1332	GMA	127.200 +/-	6.360	304.00 +/-	15.20	3.80			4184. +/-	296.
9-27-79	1333	GMA	128.000 +/-	6.440	242.00 +/-	12.10	3.95			5322. +/-	377.
9-27-79	1334	GMA	59.200 +/-	2.960	479.00 +/-	23.95	5.43			1236. +/-	87.
9-27-79	1335	GMA	75.100 +/-	3.755	277.00 +/-	13.85	3.39			2711. +/-	192.
10-31-79	1540	GMA	100.100 +/-	5.405	200.00 +/-	14.00	7.44			3861. +/-	273.
10-31-79	1541	GMA	35.610 +/-	1.781	571.00 +/-	28.55	7.98			624. +/-	44.
10-31-79	1542	GMA	67.030 +/-	3.391	261.00 +/-	13.05	7.47			2599. +/-	184.
10-31-79	1543	GMA	6.754 +/-	0.330	305.00 +/-	15.25	7.35			221. +/-	16.
11-20-79	1230	GMA	100.300 +/-	5.015	307.00 +/-	15.35	7.04			3267. +/-	231.
11-20-79	1234	GMA	117.500 +/-	5.875	356.00 +/-	17.80	4.74			3301. +/-	234.
12-18-79	1230	GMA	3.347 +/-	0.167	240.00 +/-	12.00	3.80			139. +/-	10.
12-18-79	1239	GMA	1.208 +/-	0.060	1065.00 +/-	53.25	2.81			11. +/-	1.
12-18-79	1240	GMA	2.094 +/-	0.145	334.00 +/-	16.70	5.14			87. +/-	6.

ORE PILE(S)

(CONT.)

12-18-79 1242	GMA	33.200 +/-	1.664	251.00 +/-	12.55	3.13		
1-16-80 1508	GMA	13.300 +/-	0.665	311.00 +/-	15.55	7.69	1326. +/-	94.
1-16-80 1511	GMA	46.300 +/-	2.315	210.00 +/-	10.50	6.06	428. +/-	30.
1-16-80 1512	GMA	78.200 +/-	3.910	248.00 +/-	12.40	19.54	2205. +/-	156.
1-16-80 1514	GMA	32.600 +/-	1.630	323.00 +/-	16.15	4.83	3153. +/-	223.
2-21-80 1353	GMA	64.600 +/-	3.230	320.00 +/-	16.00	3.13	1009. +/-	71.
2-21-80 1355	GMA	39.300 +/-	1.965	450.00 +/-	22.50	5.59	2019. +/-	143.
2-21-80 1357	GMA	50.500 +/-	2.525	206.00 +/-	14.30	5.19	873. +/-	62.
2-21-80 1359	GMA	15.700 +/-	0.785	366.00 +/-	10.30	12.55	1766. +/-	125.
3-26-80 1422	GMA	83.400 +/-	4.170	244.40 +/-	12.22	6.22	429. +/-	30.
3-26-80 1424	GMA	113.000 +/-	5.650	170.40 +/-	8.52	4.38	3412. +/-	241.
3-26-80 1425	GMA	70.500 +/-	3.525	163.30 +/-	8.16	4.17	6631. +/-	469.
3-26-80 1426	GMA	42.500 +/-	2.125	270.50 +/-	13.53	6.70	4317. +/-	305.
4-30-80 1439	GMA	104.000 +/-	5.200	369.20 +/-	10.46	5.98	1571. +/-	111.
4-30-80 1449	GMA	97.600 +/-	4.800	349.00 +/-	17.45	5.02	2817. +/-	199.
4-30-80 1459	GMA	163.000 +/-	8.150	348.50 +/-	17.43	4.14	2797. +/-	198.
4-30-80 1506	GMA	55.200 +/-	2.760	265.50 +/-	13.28	7.01	4677. +/-	331.
							2079. +/-	147.

PIT ORE

NO DATA, SEE PIT UNDESIGNATED

LOWER GRADE ORE PILE(S)

8-27-78 1145	M-11	89.100 +/-	4.455					
8-27-78 1148	PAINT CAN	91.800 +/-	4.590					
8-27-78 1152	FLEX CAN	51.900 +/-	2.595					
8-27-78 1521	FLO TENT	27.800 +/-	1.390					
12- 1-78 753	PVC	12.900 +/-	0.649					
12- 1-78 754	PVC	34.330 +/-	1.717					
4-20-79 1330	GMA	37.450 +/-	1.872	81.00 +/-	4.05	0.28	4623. +/-	327.
4-20-79 1331	GMA	43.520 +/-	2.176	99.00 +/-	4.95		4396. +/-	311.
4-23-79 1305	GMA	51.390 +/-	2.569	72.00 +/-	3.60	6.27	7138. +/-	505.
4-23-79 1306	GMA	47.590 +/-	2.379	106.00 +/-	5.30	7.38	4490. +/-	318.
5-24-79 1143	GMA	33.870 +/-	1.694	115.00 +/-	5.75	6.33	2945. +/-	208.
5-24-79 1144	GMA	38.430 +/-	1.921	65.70 +/-	3.29	5.71	5849. +/-	414.
5-24-79 1145	GMA	67.190 +/-	3.359	245.00 +/-	12.25	6.85	2742. +/-	194.
5-24-79 1146	GMA	19.730 +/-	0.987	217.00 +/-	10.85	7.69	909. +/-	64.
6-28-79 1208	GMA	84.860 +/-	4.243	160.00 +/-	8.00	4.01	5304. +/-	375.
6-28-79 1209	GMA	15.350 +/-	0.767	69.00 +/-	3.45	15.96	2225. +/-	157.
6-28-79 1210	GMA	54.230 +/-	2.711	159.00 +/-	7.95	7.57	3411. +/-	241.
6-28-79 1211	GMA	45.530 +/-	2.276	88.60 +/-	4.43	5.13	5139. +/-	364.
8- 1-79 1032	GMA	47.700 +/-	2.385	119.00 +/-	5.95		4008. +/-	284.

MORTON RANCH MINE
 SURFACE SAMPLED RADON FLUX RADON FLUX U308 MOISTURE SPECIFIC FLUX
 DATE-TIME SAMP SITE MONITOR PCI/11**2-SEC PPM X(WET BASIS) PCI/11**2-SEC-XU308

LOWER GRADE ORE PILE(S)

(CONT.)

8- 1-79 1033	GMA	23.160 +/-	1.158	79.50 +/-	3.98		2913. +/-	206.
8- 1-79 1034	GMA	22.900 +/-	1.145	59.30 +/-	2.97		3862. +/-	273.
8- 1-79 1035	GMA	7.744 +/-	0.387	250.00 +/-	12.50		310. +/-	22.
8-30-79 1443	GMA	53.410 +/-	2.671	115.00 +/-	5.75	3.70	4644. +/-	329.
8-30-79 1444	GMA	53.930 +/-	2.697	71.70 +/-	3.59	4.81	7522. +/-	533.
8-30-79 1445	GMA	26.570 +/-	1.329	44.50 +/-	2.22	0.00	5971. +/-	422.
8-30-79 1446	GMA	26.910 +/-	1.345	110.00 +/-	5.50	3.00	2446. +/-	173.
9-27-79 1306	GMA	16.660 +/-	0.833	130.00 +/-	6.50	5.24	1282. +/-	91.
9-27-79 1308	GMA	24.600 +/-	1.234	42.90 +/-	2.15	8.04	5753. +/-	408.
9-27-79 1311	GMA	38.160 +/-	1.908	97.00 +/-	4.85	2.40	3934. +/-	278.
9-27-79 1313	GMA	45.030 +/-	2.251	140.00 +/-	7.00	5.20	3216. +/-	228.
10-31-79 1526	GMA	13.810 +/-	0.691	91.00 +/-	4.55	6.76	1518. +/-	107.
10-31-79 1527	GMA	22.900 +/-	1.145	57.20 +/-	2.86	5.97	4003. +/-	283.
10-31-79 1528	GMA	17.670 +/-	0.803	63.80 +/-	3.19	10.53	2770. +/-	196.
10-31-79 1529	GMA	90.790 +/-	4.540	106.00 +/-	5.30	0.76	8565. +/-	606.
11-20-79 1215	GMA	31.560 +/-	1.578	39.80 +/-	1.99	4.54	7930. +/-	561.
11-20-79 1217	GMA	152.400 +/-	7.620	63.60 +/-	3.18	5.73	23962. +/-	1695.
11-20-79 1219	GMA	61.700 +/-	3.009	60.90 +/-	3.04	6.32	10144. +/-	717.
12-18-79 1159	GMA	1.659 +/-	0.083	75.50 +/-	3.78	3.35	220. +/-	16.
12-18-79 1201	GMA	5.201 +/-	0.260	54.20 +/-	2.71	1.42	960. +/-	68.
12-18-79 1202	GMA	7.600 +/-	0.384	73.30 +/-	3.66	2.80	1048. +/-	74.
12-18-79 1203	GMA	19.120 +/-	0.956	135.00 +/-	6.75	1.01	1416. +/-	100.
1-16-80 1450	GMA	5.000 +/-	0.250	90.50 +/-	4.53	5.63	552. +/-	39.
1-16-80 1452	GMA	36.300 +/-	1.815	57.90 +/-	2.89	4.64	6269. +/-	443.
1-16-80 1454	GMA	33.000 +/-	1.650	26.70 +/-	1.34	3.89	12360. +/-	876.
1-16-80 1455	GMA	33.200 +/-	1.660	35.10 +/-	1.75	7.50	9459. +/-	660.
2-21-80 1332	GMA	20.500 +/-	1.425	149.00 +/-	7.45	5.20	1913. +/-	135.
2-21-80 1333	GMA	29.900 +/-	1.495	52.50 +/-	2.62	5.55	5695. +/-	403.
2-21-80 1334	GMA	32.500 +/-	1.625	53.00 +/-	3.19	7.07	5094. +/-	360.
2-21-80 1335	GMA	64.000 +/-	3.240	29.00 +/-	11.45	6.47	2830. +/-	200.
3-26-80 1401	GMA	74.100 +/-	3.705	10.70 +/-	5.54	5.16	6694. +/-	474.
3-26-80 1403	GMA	27.300 +/-	1.365	45.00 +/-	2.29	5.10	5961. +/-	422.
3-26-80 1404	GMA	49.000 +/-	2.490	70.90 +/-	3.54	4.81	7024. +/-	497.
4-30-80 1401	GMA	53.700 +/-	2.685	111.00 +/-	5.55	5.96	4838. +/-	342.
4-30-80 1405	GMA	39.700 +/-	1.985	62.70 +/-	4.14	5.46	4800. +/-	340.
4-30-80 1406	GMA	40.000 +/-	2.000	156.00 +/-	7.80	6.91	2564. +/-	181.
4-30-80 1408	GMA	58.900 +/-	2.945	137.00 +/-	6.85	5.53	4299. +/-	304.

PIT LOWER GRADE ORE

NO DATA, SEE PIT UNDESIGNATED

SURFACE SAMPLED		RADON FLUX		MORTON RANCH MINE		U308		MOISTURE		SPECIFIC FLUX	
DATE-TIME	SAMP SITE	RADON FLUX MONITOR	PCI/11**2-SEC	PCI/11**2-SEC	PPM	% (WET BASIS)	PCI/11**2-SEC	U308 PPM	% (WET BASIS)	PCI/11**2-SEC	XU308
OVERBURDEN PILE(S)											
8-27-78	1219	FLEX CAN	4.590 +/-	0.229							
12- 1-78	745	PVC	11.610 +/-	0.581							
12- 1-78	746	PVC	5.090 +/-	0.255							
4-28-79	1347	GMA	0.587 +/-	0.025	16.50 +/-	0.83	4.43			307. +/-	22.
4-28-79	1350	GMA	0.252 +/-	0.013	7.70 +/-	0.38	1.71			327. +/-	23.
4-28-79	1413	GMA	10.050 +/-	0.543	36.30 +/-	1.81	2.45			2989. +/-	211.
4-28-79	1416	GMA	1.329 +/-	0.066	7.10 +/-	0.36	9.09			1872. +/-	133.
4-28-79	1421	GMA	14.660 +/-	0.733	14.50 +/-	0.72	4.06			10110. +/-	713.
4-28-79	1424	GMA	5.947 +/-	0.297	30.10 +/-	1.90	1.36			1561. +/-	110.
4-28-79	1431	GMA	0.139 +/-	0.007	6.10 +/-	0.30	2.81			228. +/-	16.
4-28-79	1443	GMA	3.327 +/-	0.166	48.70 +/-	2.43	4.50			683. +/-	48.
4-23-79	1015	GMA	38.000 +/-	1.900							
4-23-79	1322	GMA	0.300 +/-	0.019	12.50 +/-	0.63	9.38			304. +/-	22.
4-23-79	1328	GMA	0.643 +/-	0.032	6.20 +/-	0.31	11.76			1037. +/-	73.
4-23-79	1334	GMA	0.965 +/-	0.048	12.60 +/-	0.63				766. +/-	54.
4-23-79	1341	GMA	6.779 +/-	0.339	22.60 +/-	1.13	8.36			3000. +/-	212.
4-23-79	1350	GMA	0.733 +/-	0.437	39.60 +/-	1.98				2205. +/-	156.
4-23-79	1407	GMA	4.375 +/-	0.219	21.90 +/-	1.09				1998. +/-	141.
5-24-79	1119	GMA	1.899 +/-	0.095	10.10 +/-	0.51	14.89			1880. +/-	134.
5-24-79	1200	GMA	0.613 +/-	0.031	7.20 +/-	0.36	7.50			851. +/-	60.
5-24-79	1201	GMA	0.837 +/-	0.042	10.40 +/-	0.52	7.55			805. +/-	57.
5-24-79	1206	GMA	0.251 +/-	0.013	7.90 +/-	0.40	5.64			317. +/-	23.
5-24-79	1213	GMA	0.199 +/-	0.010	7.70 +/-	0.38	10.44			258. +/-	18.
5-24-79	1217	GMA	0.583 +/-	0.029	13.00 +/-	0.30				448. +/-	25.
5-24-79	1221	GMA	15.370 +/-	0.760	33.30 +/-	1.67	8.11			4616. +/-	327.
5-24-79	1227	GMA	11.030 +/-	0.552	175.00 +/-	8.75	7.80			630. +/-	45.
5-24-79	1231	GMA	10.570 +/-	0.529	850.00 +/-	42.90	10.59			123. +/-	9.
6-28-79	1241	GMA	0.260 +/-	0.013	8.50 +/-	0.42	8.03			305. +/-	21.
6-28-79	1244	GMA	0.234 +/-	0.012	6.00 +/-	0.30	5.98			391. +/-	28.
6-28-79	1248	GMA	2.148 +/-	0.107	18.40 +/-	0.92	8.76			1167. +/-	83.
6-28-79	1251	GMA	19.030 +/-	0.951	6.70 +/-	0.34	8.07			28403. +/-	2025.
8- 1-79	1048	GMA	3.841 +/-	0.192	20.00 +/-	1.00				1921. +/-	136.
8- 1-79	1051	GMA	0.005 +/-	0.047	5.30 +/-	0.27				9. +/-	90.
8- 1-79	1053	GMA	1.893 +/-	0.095	49.00 +/-	2.49				380. +/-	27.
8- 1-79	1056	GMA	3.146 +/-	0.157	17.20 +/-	0.86				1029. +/-	129.
8-30-79	1403	GMA			5.50 +/-	0.28	14.44				
8-30-79	1414	GMA	12.220 +/-	0.611	19.20 +/-	0.96	3.74			6365. +/-	450.
8-30-79	1426	GMA	5.549 +/-	0.277	17.50 +/-	0.88	7.79			3171. +/-	225.
8-30-79	1429	GMA	0.367 +/-	0.018	6.20 +/-	0.31	10.92			592. +/-	42.
8-30-79	1437	GMA	0.438 +/-	0.022	10.20 +/-	0.51	7.78			429. +/-	30.
9-27-79	1224	GMA	33.100 +/-	1.655	32.30 +/-	1.61	1.04			10248. +/-	724.
9-27-79	1232	GMA	2.161 +/-	0.108	10.70 +/-	0.53	2.99			2020. +/-	142.
9-27-79	1238	GMA	0.216 +/-	0.132	10.90 +/-	0.55	2.62			198. +/-	122.

MORTON RANCH MINE

PAGE E- 5

SURFACE SAMPLED		RADON FLUX		RADON FLUX		U308		MOISTURE		SPECIFIC FLUX	
DATE-TIME	SAMP SITE	MONITOR	PCI/11112-SEC	PCI/11112-SEC	PPM	PPM	% (WET BASIS)	PCI/11112-SEC	xU308	PCI/11112-SEC	xU308
OVERBURDEN PILE(S) (CONT.)											
9-27-79	1243	GMA	0.231 +/-	0.135	13.80 +/-	0.69	3.31	167. +/-	98.		
9-27-79	1557	GMA	0.887 +/-	0.044	9.70 +/-	0.49	3.38	914. +/-	65.		
10-31-79	1432	GMA	-0.030 +/-	0.044	5.60 +/-	0.28	15.60	-54. +/-	-79.		
10-31-79	1439	GMA	4.323 +/-	0.216	48.80 +/-	2.44	8.65	886. +/-	63.		
10-31-79	1552	GMA	0.313 +/-	0.016	8.80 +/-	0.44	14.75	355. +/-	25.		
10-31-79	1555	GMA	4.741 +/-	0.237	38.60 +/-	1.93	10.41	1228. +/-	87.		
11-20-79	1253	GMA	0.643 +/-	0.032	48.80 +/-	2.44	12.74	132. +/-	9.		
12-18-79	1328	GMA	0.092 +/-	0.029	8.10 +/-	0.40	11.59	113. +/-	37.		
12-18-79	1332	GMA	0.141 +/-	0.029	27.40 +/-	1.37	5.62	51. +/-	11.		
12-18-79	1334	GMA	0.192 +/-	0.037	39.30 +/-	1.97	4.94	49. +/-	10.		
12-18-79	1345	GMA	0.187 +/-	0.038	5.50 +/-	0.28	5.13	195. +/-	70.		
1-16-80	1557	GMA	0.194 +/-	0.045	7.50 +/-	0.38	15.83	259. +/-	62.		
1-16-80	1602	GMA	29.100 +/-	1.455	73.90 +/-	3.69	8.45	3938. +/-	278.		
1-16-80	1611	GMA	42.400 +/-	2.120	38.40 +/-	1.52	9.28	13947. +/-	987.		
1-16-80	1619	GMA	0.628 +/-	0.031	5.90 +/-	0.30	5.32	1064. +/-	76.		
2-21-80	1434	GMA	0.032 +/-	0.022	6.30 +/-	0.32	15.60	51. +/-	36.		
2-21-80	1438	GMA	0.472 +/-	0.031	38.50 +/-	1.52	11.07	155. +/-	13.		
2-21-80	1445	GMA	1.070 +/-	0.054	14.80 +/-	0.74	10.58	723. +/-	51.		
2-21-80	1500	GMA	0.880 +/-	0.022	6.10 +/-	0.30	4.24	130. +/-	37.		
3-26-80	1434	GMA	0.267 +/-	0.033	6.50 +/-	0.33	12.67	411. +/-	56.		
3-26-80	1437	GMA	9.960 +/-	0.498	28.40 +/-	1.02	5.38	4832. +/-	345.		
3-26-80	1443	GMA	29.200 +/-	1.460	28.30 +/-	1.42	5.26	10318. +/-	731.		
3-26-80	1453	GMA	0.261 +/-	0.032	6.40 +/-	0.32	5.09	408. +/-	54.		
4-30-80	1247	GMA	0.444 +/-	0.042	6.00 +/-	0.30	11.16	740. +/-	79.		
4-30-80	1312	GMA	29.100 +/-	1.455	135.60 +/-	6.78	6.84	2146. +/-	152.		
4-30-80	1321	GMA	14.000 +/-	0.700	61.10 +/-	3.05	9.71	2291. +/-	162.		
4-30-80	1339	GMA	0.216 +/-	0.029	6.80 +/-	0.34	8.88	318. +/-	46.		

PIT OVERBURDEN

NO DATA. SEE PIT UNDESIGNATED

PIT UNDESIGNATED

8-23-78	1200							3000. +/-	0.		
8-23-78	1205	FLO TENT	47.300 +/-	2.365							
8-23-78	1412	FLO TENT	35.200 +/-	1.760							
8-23-78	1610	FLO TENT	25.200 +/-	1.260							
8-24-78	935	FLO TENT	13.000 +/-	0.650							
8-24-78	1200							3300. +/-	0.		
8-24-78	1209	FLO TENT	3.610 +/-	0.181							
8-24-78	1520	FLO TENT	5.480 +/-	0.274							
8-24-78	1731	FLO TENT	32.700 +/-	1.635							

MORTON RANCH MINE

SURFACE SAMPLED DATE-TIME	RADON FLUX SAMP SITE MONITOR	RADON FLUX PCI/M**2-SEC	U308 PPM	MOISTURE %(WET BASIS)	PAGE E- 6 SPECIFIC FLUX PCI/M**2-SEC-XU308
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PIT UNDESIGNATED

(CONT.)

8-25-78 959	FLO TENT	29.100 +/-	1.455		
8-25-78 1200					4800. +/- 0.
8-25-78 1210	FLO TENT	1.420 +/-	0.071		
8-25-78 1620	FLO TENT	81.300 +/-	4.065		
8-25-78 1812	FLO TENT	3.210 +/-	0.161		
8-26-78 1200					1700. +/- 0.
8-27-78 845	M-11	60.900 +/-	3.045		
8-27-78 847	PAINT CAN	64.900 +/-	3.245		
8-27-78 852	FLEX CAN	29.600 +/-	1.400		
8-27-78 905	M-11	46.200 +/-	2.310		
8-27-78 907	FLEX CAN	21.500 +/-	1.075		
8-27-78 920	FLEX CAN	3.810 +/-	0.191		
8-27-78 925	FLEX CAN	36.000 +/-	1.800		
8-27-78 933	FLEX CAN	2.060 +/-	0.103		
8-27-78 939	FLEX CAN	6.180 +/-	0.309		
8-27-78 947	FLEX CAN	79.000 +/-	3.950		
8-27-76 953	M-11	7.990 +/-	0.400		
8-27-78 954	PAINT CAN	7.220 +/-	0.361		
8-27-78 957	FLEX CAN	9.960 +/-	0.498		
8-27-78 1000	FLEX CAN	2.660 +/-	0.133		
8-27-78 1016	FLEX CAN	1.860 +/-	0.093		
8-27-78 1024	FLEX CAN	1.240 +/-	0.062		
8-27-78 1030	FLEX CAN	1.100 +/-	0.055		
8-27-78 1034	FLEX CAN	1.010 +/-	0.051		
8-27-78 1038	FLEX CAN	0.470 +/-	0.023		
8-27-78 1044	FLEX CAN	0.500 +/-	0.090		
8-27-78 1200					2500. +/- 0.
8-28-78 1012	FLEX CAN	27.700 +/-	1.385		
8-28-78 1019	FLEX CAN	22.600 +/-	1.130		
8-28-78 1026	FLEX CAN	9.790 +/-	0.489		
12- 1-78 810	PVC	0.219 +/-	0.011		
12- 1-78 811	PVC	1.036 +/-	0.052		
12- 1-78 812	PVC	18.950 +/-	0.947		
12- 1-78 813	PVC	0.754 +/-	0.038		
12- 1-78 815	PVC	1.044 +/-	0.092		
12- 1-78 816	PVC	9.742 +/-	0.487		
12- 1-78 817	PVC	0.110 +/-	0.005		
12- 1-78 818	PVC	0.473 +/-	0.024		
12- 1-78 820	PVC	1.070 +/-	0.094		
12- 1-78 822	PVC	1.739 +/-	0.087		
12- 1-78 823	PVC	34.480 +/-	1.724		
12- 1-78 824	PVC	0.601 +/-	0.030		
12- 1-78 825	PVC	5.327 +/-	0.266		

MORTON RANCH MINE

PAGE E- 7

SURFACE SAMPLED		RADON FLUX		RADON FLUX		U308		MOISTURE		SPECIFIC FLUX	
DATE-TIME	SAMP SITE	MONITOR	PCI/11**2-SEC	PCI/11**2-SEC	PPM	PPM	(WET BASIS)	PCI/11**2-SEC	PCI/11**2-SEC	XU308	XU308
PIT UNDESIGNATED (CONT.)											
12- 1-78	826	PVC	0.819 +/-	0.041							
12- 1-78	827	PVC	0.195 +/-	0.010							
12- 1-78	828	PVC	3.924 +/-	0.196							
12- 1-78	829	PVC	0.392 +/-	0.020							
12- 1-78	830	PVC	25.690 +/-	1.285							
12- 1-78	831	PVC	0.392 +/-	0.020							
12- 1-78	833	PVC	10.740 +/-	0.537							
12- 1-78	834	PVC	0.775 +/-	0.039							
12- 1-78	836	PVC	20.300 +/-	1.015							
12- 1-78	837	PVC	0.410 +/-	0.021							
12- 1-78	840	PVC	2.842 +/-	0.142							
12- 1-78	850	PVC	0.545 +/-	0.027							
12- 1-78	852	PVC	0.832 +/-	0.042							
12- 1-78	854	PVC	0.041 +/-	0.002							
12- 1-78	855	PVC	2.644 +/-	0.132							
12- 2-78	852	PVC	0.799 +/-	0.040							
12- 3-78	1059	PVC	1.324 +/-	0.066							
12- 4-78	742	PVC	0.409 +/-	0.020							
4-23-79	908	GMA	3.016 +/-	0.151							
4-23-79	912	GMA	7.195 +/-	0.360							
4-23-79	913	GMA	148.300 +/-	7.415							
4-23-79	916	GMA	63.570 +/-	3.178							
4-23-79	918	GMA	47.670 +/-	2.384							
4-23-79	921	GMA	3.374 +/-	0.169							
4-23-79	923	GMA	0.903 +/-	0.045							
4-23-79	927	GMA	1.449 +/-	0.072							
4-23-79	928	GMA	13.930 +/-	0.697							
4-23-79	929	GMA	1.036 +/-	0.092							
4-23-79	930	GMA	1.045 +/-	0.052							
4-23-79	931	GMA	0.961 +/-	0.048							
4-23-79	932	GMA	3.494 +/-	0.175							
4-23-79	933	GMA	10.520 +/-	0.526							
4-23-79	951	GMA	11.360 +/-	0.568							
4-23-79	1354	GMA	11.470 +/-	0.573	22.00 +/-	1.14	4.75	5031. +/-	356.		
4-23-79	1356	GMA	13.740 +/-	0.687	362.00 +/-	10.10	15.14	300. +/-	27.		
4-23-79	1400	GMA			150.00 +/-	7.50	24.78				
8-30-79	1523	GMA	0.564 +/-	0.028	16.70 +/-	0.84	12.50	338. +/-	24.		
8-30-79	1526	GMA	0.192 +/-	0.010	3.00 +/-	0.19	11.11	507. +/-	36.		
8-30-79	1527	GMA	21.060 +/-	1.053	9.20 +/-	0.46	7.86	22891. +/-	1620.		
8-30-79	1529	GMA	0.392 +/-	0.049	0.00 +/-	0.40	9.38	1227. +/-	87.		
8-30-79	1532	GMA	0.116 +/-	0.006	36.70 +/-	1.84	14.75	32. +/-	2.		
8-30-79	1535	GMA	1.075 +/-	0.054	17.60 +/-	0.88	14.04	611. +/-	43.		
8-30-79	1537	GMA	6.602 +/-	0.330	59.90 +/-	3.00	19.47	1102. +/-	78.		

MORTON RANCH MINE

PAGE E- 8

SURFACE SAMPLED DATE-TIME	RADON FLUX SAMP SITE MONITOR	RADON FLUX PCI/M**2-SEC	U308 PPM	MOISTURE %(WET BASIS)	SPECIFIC FLUX PCI/M**2-SEC-U308			
PIT UNDESIGNATED		(CONT.)						
8-30-79 1539	GMA	0.458 +/-	0.023	68.30 +/-	3.44	14.89	67. +/-	5.
9-27-79 1359	GMA	3.214 +/-	0.161	46.90 +/-	2.34	10.88	685. +/-	48.
9-27-79 1401	GMA	0.491 +/-	0.025	8.90 +/-	0.45	11.36	552. +/-	39.
9-27-79 1402	GMA	0.119 +/-	0.006	14.50 +/-	0.73	8.18	81. +/-	6.
9-27-79 1404	GMA	0.057 +/-	0.059	4.30 +/-	0.22	9.60	133. +/-	136.
9-27-79 1421	GMA	0.722 +/-	0.036	29.60 +/-	1.48	11.65	244. +/-	17.
9-27-79 1423	GMA	0.865 +/-	0.043	9.80 +/-	0.49	4.35	883. +/-	62.
9-27-79 1425	GMA	32.320 +/-	1.616	64.20 +/-	3.21	5.56	5834. +/-	356.
9-27-79 1428	GMA	41.200 +/-	2.060	80.00 +/-	4.30	7.69	4791. +/-	339.
10-31-79 1604	GMA	0.208 +/-	0.040	5.50 +/-	0.28	16.41	377. +/-	76.
10-31-79 1606	GMA	1.386 +/-	0.069	3.70 +/-	0.19	17.10	3746. +/-	269.
10-31-79 1608	GMA	3.652 +/-	0.183	52.60 +/-	2.63	17.56	694. +/-	49.
10-31-79 1610	GMA	2.581 +/-	0.129	556.00 +/-	27.00	13.33	46. +/-	3.
10-31-79 1615	GMA	0.070 +/-	0.054	33.70 +/-	1.69	19.67	21. +/-	16.
10-31-79 1618	GMA	0.254 +/-	0.031	15.30 +/-	0.77	15.44	166. +/-	22.
10-31-79 1624	GMA	0.927 +/-	0.046	35.90 +/-	1.80	17.62	258. +/-	18.
10-31-79 1626	GMA	9.078 +/-	0.454	58.20 +/-	2.91	16.99	1560. +/-	110.
12-18-79 1400	GMA	7.832 +/-	0.392	64.40 +/-	3.22	10.33	1216. +/-	86.
12-18-79 1409	GMA	0.064 +/-	0.034	5.80 +/-	0.29	5.36	110. +/-	59.
12-18-79 1410	GMA	0.123 +/-	0.034	3.00 +/-	0.15	4.80	410. +/-	115.
12-18-79 1413	GMA	0.198 +/-	0.040	5.80 +/-	0.29	7.64	342. +/-	71.
12-18-79 1415	GMA	1.122 +/-	0.056	72.20 +/-	3.61	6.92	155. +/-	11.
12-18-79 1417	GMA	2.960 +/-	0.148	30.80 +/-	1.54	16.35	961. +/-	68.
12-18-79 1419	GMA	0.216 +/-	0.036	12.70 +/-	0.64	15.07	170. +/-	30.
12-18-79 1420	GMA	4.324 +/-	0.216	235.00 +/-	11.75	4.93	184. +/-	13.
1-16-80 1656	GMA	0.157 +/-	0.038	4.40 +/-	0.22	8.45	357. +/-	87.
1-16-80 1658	GMA	0.805 +/-	0.047	22.60 +/-	1.13	15.57	356. +/-	27.
1-16-80 1700	GMA	0.400 +/-	0.043	14.80 +/-	0.74	14.43	270. +/-	32.
1-16-80 1703	GMA	0.267 +/-	0.038	9.70 +/-	0.49	20.42	275. +/-	42.
1-16-80 1704	GMA	0.281 +/-	0.041	16.70 +/-	0.84	10.76	168. +/-	26.
1-16-80 1706	GMA	2.980 +/-	0.149	28.00 +/-	1.40	14.44	1064. +/-	75.
1-16-80 1712	GMA	1.540 +/-	0.077	58.80 +/-	2.94	15.93	262. +/-	19.
1-16-80 1713	GMA	3.520 +/-	0.176	190.00 +/-	9.50	17.39	185. +/-	13.
2-21-80 1530	GMA	3.960 +/-	0.190	57.10 +/-	2.86	18.89	634. +/-	49.
2-21-80 1535	GMA	1.000 +/-	0.050	68.10 +/-	3.41	17.01	147. +/-	10.
2-21-80 1615	GMA	0.403 +/-	0.025	9.90 +/-	0.49	20.58	407. +/-	32.
2-21-80 1616	GMA	0.117 +/-	0.023	12.20 +/-	0.61	18.58	96. +/-	19.
2-21-80 1620	GMA	0.076 +/-	0.021	13.70 +/-	0.68	19.59	55. +/-	16.
2-21-80 1621	GMA	0.717 +/-	0.036	15.00 +/-	0.75	18.71	478. +/-	34.
2-21-80 1621	GMA	0.233 +/-	0.025	28.30 +/-	1.42	15.92	82. +/-	10.
2-21-80 1626	GMA	0.280 +/-	0.028	20.80 +/-	1.04	15.19	135. +/-	15.

SURFACE SAMPLED		RADON FLUX		MORTON RANCH MINE		U308		MOISTURE		SPECIFIC FLUX	
DATE-TIME	SAMP SITE	MONITOR	PCI/M**2-SEC	PCI/M**2-SEC	PPM	PPM	% (WET BASIS)	PCI/M**2-SEC	XU308	PCI/M**2-SEC	XU308
TOPSOIL PILE(S)											
12- 1-78	752	PVC	0.384 +/-	0.019							
4-20-79	1436	GMA	3.265 +/-	0.163	6.10 +/-	0.30	5.22	5352. +/-	375.		
4-23-79	959	GMA	30.190 +/-	1.510							
4-23-79	1013	GMA	1.667 +/-	0.083							
4-23-79	1212	GMA	0.224 +/-	0.011	6.70 +/-	0.34		334. +/-	24.		
UNDISTURBED TOPSOIL											
3-26-80	1530	ASW	GMA	0.265 +/-	0.030	3.10 +/-	0.15	13.55	855. +/-	184.	
4-20-79	1203	GG10	GMA	1.425 +/-	0.071	4.60 +/-	0.23	2.30	3098. +/-	219.	
4-23-79	1146	GG10	GMA	1.154 +/-	0.058	4.00 +/-	0.24	13.10	2404. +/-	170.	
8-30-79	1221	GG10	GMA	1.439 +/-	0.072	5.00 +/-	0.25	4.09	2878. +/-	204.	
9-27-79	904	GG10	GMA	0.212 +/-	0.012	5.70 +/-	0.28	4.83	372. +/-	1075.	
10-31-79	1241	GG10	GMA	-0.020 +/-	0.052	5.60 +/-	0.28	18.29	-35. +/-	-94.	
11-20-79	1111	GG10	GMA	0.943 +/-	0.081	5.20 +/-	0.26	14.54	1813. +/-	181.	
12-18-79	1249	GG10	GMA	0.093 +/-	0.035	4.70 +/-	0.24	14.60	198. +/-	75.	
1-16-80	1730	GG10	GMA	0.312 +/-	0.044	8.50 +/-	0.42	21.33	367. +/-	55.	
2-21-80	1650	GG10	GMA	0.035 +/-	0.016	5.60 +/-	0.28	22.50	63. +/-	29.	
3-26-80	1307	GG10	GMA	0.946 +/-	0.047	4.00 +/-	0.24	13.87	1971. +/-	139.	
4-30-80	828	GG10	GMA	1.220 +/-	0.061	5.90 +/-	0.30	12.91	2068. +/-	148.	
4-30-80	846	GG7	GMA	0.653 +/-	0.037	3.60 +/-	0.18	9.04	1814. +/-	137.	
8-30-79	1237	A	GMA	0.676 +/-	0.034	1.80 +/-	0.09	2.24	3756. +/-	266.	
9-27-79	952	A	GMA	1.121 +/-	0.081	4.30 +/-	0.32	2.94	2607. +/-	271.	
10-31-79	1329	A	GMA	0.335 +/-	0.056	3.90 +/-	0.20	12.50	858. +/-	150.	
11-20-79	1121	A	GMA	0.299 +/-	0.080	3.90 +/-	0.20	13.33	767. +/-	210.	
12-18-79	1135	A	GMA	0.117 +/-	0.030	3.90 +/-	0.20	14.72	299. +/-	80.	
1-16-80	1314	A	GMA	0.312 +/-	0.043	4.00 +/-	0.24	20.90	650. +/-	95.	
2-21-80	1240	A	GMA	0.079 +/-	0.020	3.40 +/-	0.17	14.47	231. +/-	59.	
3-26-80	1254	A	GMA	0.755 +/-	0.038	3.20 +/-	0.16	9.76	2359. +/-	167.	
4-30-80	1614	A	GMA	0.393 +/-	0.024	3.60 +/-	0.18	8.21	1092. +/-	86.	
4-23-79	1201	NEAR A	GMA	2.618 +/-	0.131	5.50 +/-	0.28	11.44	4760. +/-	340.	

SURFACE SAMPLED		RADON FLUX		RADON FLUX		U308		MOISTURE		PAGE E-10	
DATE-TIME	SAMP SITE	MONITOR	PCI/M**2-SEC	PCI/M**2-SEC	PPM	PPM	% (WET BASIS)	PCI/M**2-SEC	PCI/M**2-SEC	U308	SPECIFIC FLUX

UNDISTURBED TOPSOIL		(CONT.)									
4-20-79	1220	GG4	GMA	0.688 +/-	0.034	4.20 +/-	0.21	8.62	1639. +/-	116.	
4-23-79	1156	GG4	GMA	1.751 +/-	0.088	4.10 +/-	0.21		4271. +/-	306.	
4-30-80	902	GG4	GMA	7.440 +/-	0.372	4.00 +/-	0.20	7.66	18600. +/-	1316.	
4-20-79	1145	HH10	GMA	1.253 +/-	0.063	3.70 +/-	0.19	4.35	3386. +/-	243.	
4-23-79	1138	HH10	GMA	1.535 +/-	0.077	3.90 +/-	0.20		3936. +/-	282.	
4-30-80	928	HH10	GMA	0.969 +/-	0.048	4.30 +/-	0.22	9.03	2253. +/-	161.	
4-20-79	1234	HH4	GMA	3.409 +/-	0.170	3.00 +/-	0.15		11363. +/-	804.	
4-23-79	1217	HH4	GMA	4.836 +/-	0.242	3.30 +/-	0.17		14655. +/-	1053.	
4-30-80	919	HH7	GMA	0.959 +/-	0.065	5.30 +/-	0.27	8.58	1809. +/-	154.	
8-30-79	1134	AA7	GMA	1.516 +/-	0.076	5.30 +/-	0.27	5.68	2860. +/-	204.	
9-27-79	845	AA7	GMA	1.072 +/-	0.054	4.20 +/-	0.21	0.95	2552. +/-	181.	
10-31-79	1345	AA7	GMA	0.280 +/-	0.035	4.00 +/-	0.20	16.33	701. +/-	94.	
11-20-79	1138	AA7	GMA	3.870 +/-	0.193	4.90 +/-	0.25	11.18	7898. +/-	565.	
8-26-78	1542	NEAR AA7	FLO TENT	0.921 +/-	0.046						
8-27-78	1350	NEAR AA7	M-11	3.460 +/-	0.630						
8-27-78	1352	NEAR AA7	PAINT CAN	0.850 +/-	0.043						
8-27-78	1356	NEAR AA7	FLEX CAN	1.900 +/-	0.095						
12- 1-78	748	NEAR AA7	PVC	0.930 +/-	0.047						
12- 1-78	749	NEAR AA7	PVC	0.507 +/-	0.025						
4-20-79	1130	AA10	GMA	1.575 +/-	0.079	3.90 +/-	0.20		4030. +/-	289.	
4-23-79	1130	AA10	GMA	1.743 +/-	0.087	3.60 +/-	0.18	6.05	4842. +/-	343.	
8-30-79	1127	AA10	GMA	1.330 +/-	0.067	3.90 +/-	0.20	4.15	3410. +/-	244.	

SURFACE SAMPLED		RADON FLUX		MORTON RANCH MINE		U308		MOISTURE		SPECIFIC FLUX	
DATE-TIME	SAMP SITE	MONITOR	PCI/M**2-SEC	PCI/M**2-SEC	PPM	PPM	PPM	%(WET BASIS)	PPM	PCI/M**2-SEC-XU308	PPM
UNDISTURBED TOPSOIL (CONT.)											
9-27-79	837 AA10	GMA	1.897 +/-	0.095	3.40 +/-	0.17	0.00	5579. +/-	395.		
10-31-79	1352 AA10	GMA	-0.046 +/-	0.042	3.60 +/-	0.18	15.11	-128. +/-	-116.		
11-20-79	1145 AA10	GMA	2.348 +/-	0.117	3.20 +/-	0.16	6.40	7338. +/-	519.		
12-18-79	1149 AA10	GMA	0.056 +/-	0.031	3.40 +/-	0.17	7.38	166. +/-	93.		
1-16-80	1255 AA10	GMA	1.210 +/-	0.060	3.50 +/-	0.18	11.12	3457. +/-	248.		
2-21-80	1200 AA10	GMA	0.030 +/-	0.024	3.10 +/-	0.15	16.38	98. +/-	76.		
3-26-80	1107 AA10	GMA	2.200 +/-	0.110	3.00 +/-	0.19	8.82	5789. +/-	410.		
4-30-80	944 AA10	GMA	1.860 +/-	0.093	4.30 +/-	0.22	5.71	4326. +/-	310.		
8-26-78	1759 NEAR R10	FLO TENT	3.010 +/-	0.150							
8-27-78	1330 NEAR R10	M-11	5.610 +/-	0.730							
8-27-78	1332 NEAR R10	PAINT CAN	3.010 +/-	0.191							
8-27-78	1336 NEAR R10	FLEX CAN	4.780 +/-	0.239							
12- 1-78	739 NEAR R10	PVC	1.350 +/-	0.068							
12- 1-78	740 NEAR R10	PVC	1.310 +/-	0.065							
4-20-79	918 D	GMA	9.966 +/-	0.498	18.40 +/-	0.92	1.12	5416. +/-	383.		
4-23-79	1045 D	GMA	10.860 +/-	0.543	18.50 +/-	0.92	4.93	5070. +/-	414.		
8-30-79	1034 D	GMA	7.271 +/-	0.364	16.40 +/-	0.82	6.87	4434. +/-	314.		
9-27-79	815 D	GMA	10.860 +/-	0.543	18.30 +/-	0.91	2.33	5934. +/-	419.		
10-31-79	1417 D	GMA	2.006 +/-	0.144	15.10 +/-	0.76	16.96	1911. +/-	136.		
12-18-79	1026 D	GMA	3.517 +/-	0.166	14.00 +/-	0.74	5.63	2241. +/-	159.		
1-16-80	1141 D	GMA	5.310 +/-	0.266	15.30 +/-	0.77	8.49	3471. +/-	246.		
2-21-80	1035 D	GMA	0.530 +/-	0.035	19.20 +/-	0.96	15.31	276. +/-	23.		
3-26-80	1237 D	GMA	0.494 +/-	0.030	16.40 +/-	0.82	6.46	301. +/-	27.		
4-30-80	1040 D	GMA	15.400 +/-	0.770	12.00 +/-	0.64	4.04	12031. +/-	851.		
4-20-79	934 ES2	GMA	0.711 +/-	0.036	5.00 +/-	0.29	3.21	1225. +/-	87.		
4-23-79	1055 ES2	GMA	1.333 +/-	0.067	6.10 +/-	0.30	5.21	2185. +/-	153.		
4-23-79	1020 NEAR E	GMA	3.200 +/-	0.160							
4-23-79	1028 NEAR E	GMA	1.774 +/-	0.089							
8-30-79	1049 DN	GMA			6.10 +/-	0.30	8.00				

MORTON RANCH MINE

PAGE E-12

SURFACE SAMPLED		RADON FLUX		RADON FLUX		U308		MOISTURE		SPECIFIC FLUX	
DATE-TIME	SAMP SITE	MONITOR	PCI/M**2-SEC	PCI/M**2-SEC	PPM	X(WET BASIS)	PCI/M**2-SEC	XU308	PCI/M**2-SEC	XU308	
UNDISTURBED TOPSOIL (CONT.)											
9-27-79	824 DN	GMA	0.995 +/-	0.050	4.70 +/-	0.24	2.51	2117. +/-	151.		
10-31-79	1210 DN	GMA	0.558 +/-	0.044	5.50 +/-	0.28	17.46	1015. +/-	96.		
12-10-79	1035 DN	GMA	0.220 +/-	0.050	3.70 +/-	0.19	4.75	595. +/-	140.		
1-16-80	1230 DN	GMA	1.910 +/-	0.095	6.20 +/-	0.31	12.40	3061. +/-	210.		
2-21-80	1140 DN	GMA	0.740 +/-	0.037	6.00 +/-	0.30	17.32	1233. +/-	87.		
3-26-80	1123 DN	GMA	1.910 +/-	0.095	6.20 +/-	0.31	12.40	3061. +/-	210.		
4-20-79	1111 E	GMA	2.577 +/-	0.129	7.70 +/-	0.38		3347. +/-	235.		
4-30-80	1103 ES1	GMA	6.150 +/-	0.300	7.90 +/-	0.40	2.62	7785. +/-	554.		
4-20-79	1003 C	GMA	1.200 +/-	0.060	4.80 +/-	0.24		2500. +/-	177.		
4-23-79	1106 C	GMA	1.320 +/-	0.066	3.70 +/-	0.19	7.54	3568. +/-	256.		
8-30-79	957 C	GMA	2.114 +/-	0.106	3.50 +/-	0.18	7.47	6040. +/-	434.		
9-27-79	731 C	GMA	0.835 +/-	0.042	4.80 +/-	0.24	2.07	1739. +/-	123.		
10-31-79	1038 C	GMA	0.405 +/-	0.063	4.40 +/-	0.22	12.50	920. +/-	151.		
12-10-79	945 C	GMA	0.706 +/-	0.035	3.80 +/-	0.19	6.97	1859. +/-	132.		
1-16-80	1049 C	GMA	1.200 +/-	0.064	4.00 +/-	0.20	13.04	3200. +/-	226.		
2-21-80	925 C	GMA	0.067 +/-	0.027	3.40 +/-	0.17	10.52	197. +/-	79.		
3-26-80	1157 C	GMA	1.050 +/-	0.052	3.30 +/-	0.17	0.78	3182. +/-	229.		
4-30-80	1154 C	GMA	1.320 +/-	0.066	4.20 +/-	0.21	6.76	3143. +/-	222.		
8-30-79	1014 CN	GMA	0.985 +/-	0.049	3.40 +/-	0.17	2.52	2898. +/-	205.		
9-27-79	747 CN	GMA	1.897 +/-	0.095	3.00 +/-	0.19	2.50	4992. +/-	353.		
12-10-79	1000 CN	GMA	0.096 +/-	0.056	3.90 +/-	0.20	7.04	247. +/-	144.		
1-16-80	1041 CN	GMA	0.942 +/-	0.047	3.90 +/-	0.20	14.42	2415. +/-	173.		
2-21-80	915 CN	GMA	0.133 +/-	0.027	3.50 +/-	0.18	16.99	300. +/-	79.		
3-26-80	1145 CN	GMA	1.030 +/-	0.052	3.70 +/-	0.19	11.24	2784. +/-	200.		
4-30-80	1124 CN	GMA	0.797 +/-	0.040	3.50 +/-	0.18	4.82	2277. +/-	163.		
PIT RIM											
4-20-79	1315 R1	GMA	0.400 +/-	0.024	5.90 +/-	0.30	0.44	826. +/-	59.		

SURFACE SAMPLED		RADON FLUX MONITOR	MORTON RANCH MINE		U308 PPM	MOISTURE % (WET BASIS)	SPECIFIC FLUX		
DATE-TIME	SAMP SITE		RADON FLUX PCI/M**2-SEC				PCI/M**2-SEC-xU308		
PIT RIM (CONT.)									
8-30-79	1251 R1	GMA	0.527 +/-	0.026	4.58 +/-	0.20	4.28	1151. +/-	77.
9-27-79	1000 R1	GMA	0.700 +/-	0.128	5.25 +/-	0.26	1.09	1348. +/-	253.
10-31-79	1514 R1	GMA	-0.025 +/-	0.025	8.71 +/-	0.44	11.34	-29. +/-	-28.
11-20-79	1159 R1	GMA	2.400 +/-	0.120	4.39 +/-	0.22	8.28	5467. +/-	387.
12-18-79	1153 R1	GMA	0.049 +/-	0.038	6.79 +/-	0.34	3.73	72. +/-	56.
1-16-80	1437 R1	GMA	1.350 +/-	0.069	6.12 +/-	0.31	10.11	2206. +/-	158.
2-21-80	1320 R1	GMA	0.136 +/-	0.020	5.25 +/-	0.26	15.54	259. +/-	40.
3-26-80	1355 R1	GMA	0.053 +/-	0.043	6.52 +/-	0.33	8.07	1308. +/-	93.
4-30-80	956 R1	GMA	0.061 +/-	0.049	4.07 +/-	0.20	7.63	2115. +/-	159.
4-20-79	1354 R3	GMA	14.260 +/-	0.710	67.70 +/-	3.40	1.37	2106. +/-	149.
8-30-79	1301 R3	GMA	0.585 +/-	0.429	30.50 +/-	1.50	3.16	2815. +/-	197.
9-27-79	1019 R3	GMA	2.200 +/-	0.110	26.00 +/-	1.30	0.62	846. +/-	60.
10-31-79	1643 R3	GMA	13.000 +/-	0.690	8.22 +/-	0.41	4.69	16788. +/-	1186.
11-20-79	1300 R3	GMA	91.500 +/-	4.500	77.30 +/-	3.07	5.84	11837. +/-	839.
12-18-79	1429 R3	GMA	0.076 +/-	0.041	56.00 +/-	2.80	2.44	14. +/-	7.
1-16-80	1421 R3	GMA	10.700 +/-	0.935	86.00 +/-	4.34	8.53	2154. +/-	152.
2-21-80	1416 R3	GMA	5.340 +/-	0.267	72.50 +/-	3.63	12.60	737. +/-	52.
3-26-80	1511 R3	GMA	7.710 +/-	0.386	44.70 +/-	2.24	7.20	1725. +/-	122.
4-30-80	1434 R3	GMA	11.500 +/-	0.575	81.09 +/-	4.09	5.53	1404. +/-	99.
4-20-79	1401 R5	GMA	7.103 +/-	0.355	31.70 +/-	1.60	3.68	2241. +/-	159.
8-30-79	1327 R5	GMA	4.235 +/-	0.212	8.05 +/-	0.40	4.50	5261. +/-	371.
9-27-79	1035 R5	GMA	7.975 +/-	0.399	6.46 +/-	0.32	1.09	12345. +/-	870.
10-31-79	1630 R5	GMA	5.451 +/-	0.273	19.90 +/-	1.00	6.49	2739. +/-	194.
11-20-79	1314 R5	GMA	7.763 +/-	0.300	19.20 +/-	0.96	14.82	4043. +/-	286.
12-18-79	1440 R5	GMA	0.206 +/-	0.039	7.35 +/-	0.37	1.22	281. +/-	55.
1-16-80	1539 R5	GMA	4.220 +/-	0.211	35.50 +/-	1.70	10.26	1109. +/-	84.
2-21-80	1423 R5	GMA	3.900 +/-	0.199	6.49 +/-	0.32	7.34	6133. +/-	431.
3-26-80	1517 R5	GMA	4.900 +/-	0.249	6.22 +/-	0.31	3.40	8006. +/-	566.
4-30-80	1529 R5	GMA	7.510 +/-	0.376	4.13 +/-	0.21	4.00	18104. +/-	1298.
4-20-79	1410 R7	GMA	1.773 +/-	0.009	25.30 +/-	1.30	1.30	701. +/-	50.
8-30-79	1353 R7	GMA	2.034 +/-	0.102	7.06 +/-	0.36	6.71	2801. +/-	206.
9-27-79	1054 R7	GMA	1.156 +/-	0.058	23.10 +/-	1.16	0.92	500. +/-	35.
10-31-79	1452 R7	GMA	1.228 +/-	0.061	15.90 +/-	0.80	7.62	772. +/-	55.
11-20-79	1240 R7	GMA	1.615 +/-	0.081	32.30 +/-	1.62	5.44	500. +/-	35.

MORTON RANCH MINE

PAGE E-14

SURFACE SAMPLED		RADON FLUX		RADON FLUX		U308		MOISTURE		SPECIFIC FLUX	
DATE-TIME	SAMP SITE	MONITOR	PCI/M**2-SEC		PPM		%(WET BASIS)		PCI/M**2-SEC-XU308		

PIT RIM		(CONT.)									
12-18-79	1400	R7	GMA	0.165 +/-	0.042	7.73 +/-	0.39	5.32	214. +/-	56.	
1-16-80	1627	R7	GMA	3.440 +/-	0.172	9.99 +/-	0.50	10.28	3443. +/-	244.	
2-21-80	1505	R7	GMA	4.540 +/-	0.227	17.00 +/-	0.85	9.04	2671. +/-	189.	
3-26-80	1501	R7	GMA	2.630 +/-	0.132	9.75 +/-	0.49	4.89	2697. +/-	192.	
4-30-80	1259	R7	GMA	2.240 +/-	0.112	10.60 +/-	0.93	6.12	1204. +/-	85.	

SURFACE SAMPLED		RADON FLUX		MINE A		U308		MOISTURE		SPECIFIC FLUX	
DATE-TIME	SAMP SITE	MONITOR	PCI/MM ² -SEC			PPM		(WET BASIS)		PCI/MM ² -SEC-U308	
ORE PILE(S)											
10- 5-80	749	GMA	292.900 +/-	14.645	286.00 +/-	14.30	2.94	10241. +/-	725.		
10- 5-80	753	GMA	153.400 +/-	7.670	485.00 +/-	24.25	2.84	3163. +/-	224.		
10- 5-80	804	GMA	41.840 +/-	2.892	175.00 +/-	8.75	6.97	2391. +/-	169.		
10- 5-80	808	GMA	154.300 +/-	7.715	170.00 +/-	8.50	2.92	9076. +/-	642.		
4-26-81	846	GMA	531.400 +/-	26.570	322.00 +/-	16.10	8.20	16503. +/-	1168.		
4-26-81	849	GMA	341.500 +/-	17.875	1836.00 +/-	91.80	5.36	1860. +/-	132.		
4-26-81	855	GMA	103.800 +/-	5.190	444.00 +/-	22.20	5.38	2338. +/-	165.		
4-26-81	859	GMA	307.300 +/-	15.365	146.00 +/-	7.30	4.75	21043. +/-	1489.		
PIT ORE											
10- 5-80	853	GMA	84.760 +/-	4.238	218.00 +/-	10.90	5.85	3888. +/-	275.		
10- 5-80	922	GMA	192.700 +/-	9.635	591.00 +/-	29.55	3.54	3261. +/-	231.		
4-26-81	1323	GMA			488.00 +/-	24.40	5.68	16672. +/-	1180.		
4-26-81	1330	GMA	12.670 +/-	8.633	100.00 +/-	5.80	7.51	1267. +/-	90.		
4-26-81	1323	GMA	913.600 +/-	40.680							
4-26-81	1335	GMA	107.800 +/-	5.390	973.00 +/-	48.65	7.39	1108. +/-	78.		
4-26-81	1339	GMA	38.640 +/-	1.932	216.00 +/-	10.80	8.17	1789. +/-	127.		
LOWER GRADE ORE PILE(S)											
10- 5-80	820	GMA	122.000 +/-	6.100	139.00 +/-	6.90	5.78	8841. +/-	626.		
10- 5-80	824	GMA	165.400 +/-	8.270	44.00 +/-	2.20	3.23	37591. +/-	2660.		
10- 5-80	829	GMA	73.390 +/-	3.670	40.90 +/-	2.05	6.81	17944. +/-	1271.		
10- 5-80	832	GMA	39.420 +/-	1.971	22.70 +/-	1.14	3.71	17366. +/-	1231.		
4-26-81	908	GMA	150.800 +/-	7.540	414.00 +/-	20.70	4.98	3643. +/-	258.		
4-26-81	911	GMA	47.510 +/-	2.375	216.00 +/-	10.80	6.31	2200. +/-	156.		
4-26-81	918	GMA	40.460 +/-	2.023	136.00 +/-	6.80	5.32	2975. +/-	210.		
4-26-81	921	GMA	51.160 +/-	2.558	265.00 +/-	13.25	8.89	1931. +/-	137.		
PIT LOWER GRADE ORE											
10- 5-80	907	GMA	19.840 +/-	0.952	69.50 +/-	3.47	5.80	2740. +/-	194.		
10- 5-80	942	GMA	32.220 +/-	1.611	134.00 +/-	6.70	3.84	2404. +/-	170.		
OVERBURDEN PILE(S)											
10- 5-80	1004	GMA	4.447 +/-	0.222	41.20 +/-	2.86	2.33	1079. +/-	76.		
10- 5-80	1013	GMA	5.562 +/-	0.278	26.20 +/-	1.31	1.63	2123. +/-	150.		
10- 5-80	1021	GMA	9.764 +/-	0.488	8.60 +/-	0.43	1.88	11353. +/-	803.		
10- 5-80	1025	GMA	1.604 +/-	0.080	25.10 +/-	1.26	2.27	639. +/-	45.		
10- 5-80	1032	GMA	44.100 +/-	2.205	69.50 +/-	3.47	2.75	6345. +/-	449.		
10- 5-80	1038	GMA	68.850 +/-	3.443	192.00 +/-	9.60	3.60	3586. +/-	254.		

OVERBURDEN PILE(S)

(CONT.)

10- 5-80 1053	GMA	0.175 +/-	0.026	7.70 +/-	0.38	10.32	227. +/-	36.
10- 5-80 1107	GMA	2.004 +/-	0.140	7.00 +/-	0.35	2.29	4006. +/-	283.
10- 5-80 1116	GMA	0.253 +/-	0.029	4.50 +/-	0.23	6.77	563. +/-	71.
10- 5-80 1124	GMA	1.458 +/-	0.073	7.50 +/-	0.38	6.09	1944. +/-	138.
10- 5-80 1131	GMA	1.674 +/-	0.094	5.40 +/-	0.27	3.47	3100. +/-	219.
10- 5-80 1141	GMA	0.539 +/-	0.034	0.70 +/-	0.44	3.90	619. +/-	50.
10- 5-80 1147	GMA	2.366 +/-	0.118	8.30 +/-	0.41	5.63	2051. +/-	200.
10- 5-80 1153	GMA	1.224 +/-	0.061	7.90 +/-	0.40	6.57	1549. +/-	110.
10- 5-80 1201	GMA	0.604 +/-	0.036	7.60 +/-	0.38	6.01	795. +/-	61.
10- 5-80 1208	GMA	0.237 +/-	0.029	7.40 +/-	0.37	4.06	320. +/-	42.
4-26-81 1104	GMA	3.700 +/-	0.199	9.60 +/-	0.48	7.06	3938. +/-	279.
4-26-81 1109	GMA	11.430 +/-	0.572	28.70 +/-	1.44	6.34	3983. +/-	282.
4-26-81 1115	GMA	1.472 +/-	0.074	20.60 +/-	1.03	4.10	715. +/-	51.
4-26-81 1121	GMA	36.430 +/-	1.821	206.00 +/-	10.30	6.48	1768. +/-	125.
4-26-81 1126	GMA	0.668 +/-	0.433	20.50 +/-	1.03	10.60	4228. +/-	300.
4-26-81 1145	GMA	1.457 +/-	0.073	7.60 +/-	0.38	13.47	1917. +/-	136.
4-26-81 1152	GMA	1.000 +/-	0.054	7.60 +/-	0.38	15.04	1421. +/-	101.
4-26-81 1200	GMA	0.246 +/-	0.015	5.50 +/-	0.28	14.00	448. +/-	35.
4-26-81 1209	GMA	0.236 +/-	0.014	5.00 +/-	0.25	14.25	471. +/-	36.
4-26-81 1216	GMA	0.335 +/-	0.016	6.00 +/-	0.34	14.77	493. +/-	34.
4-26-81 1224	GMA	1.025 +/-	0.051	8.60 +/-	0.43	14.36	1192. +/-	84.
4-26-81 1231	GMA	0.294 +/-	0.027	5.40 +/-	0.27	14.65	544. +/-	57.

PIT OVERBURDEN

10- 5-80 859	GMA	1.155 +/-	0.058	43.90 +/-	2.19	8.47	263. +/-	19.
10- 5-80 916	GMA	76.090 +/-	3.805	169.00 +/-	8.45	5.21	4502. +/-	319.
10- 5-80 932	GMA	33.690 +/-	1.684	71.90 +/-	3.60	5.41	4606. +/-	332.
10- 5-80 949	GMA	2.617 +/-	0.131	95.10 +/-	4.76	9.28	275. +/-	19.
10- 5-80 1220	GMA	0.705 +/-	0.035	7.90 +/-	0.40	13.10	892. +/-	63.
10- 5-80 1226	GMA	0.627 +/-	0.031	7.50 +/-	0.38	0.89	835. +/-	59.
10- 5-80 1235	GMA	7.742 +/-	0.387	38.60 +/-	1.93	6.89	2006. +/-	142.
10- 5-80 1243	GMA	0.294 +/-	0.032	6.90 +/-	0.35	7.40	427. +/-	51.
10- 5-80 1246	GMA	0.942 +/-	0.051	9.20 +/-	0.46	2.16	1024. +/-	76.
10- 5-80 1257	GMA	1.106 +/-	0.055	6.00 +/-	0.34	3.55	1626. +/-	115.
10- 5-80 1304	GMA	4.010 +/-	0.200	105.00 +/-	5.25	5.75	382. +/-	27.
10- 5-80 1312	GMA	0.740 +/-	0.037	8.90 +/-	0.45	5.19	832. +/-	59.
4-26-81 949	GMA	7.223 +/-	0.361	55.70 +/-	2.78	6.77	1297. +/-	92.
4-26-81 956	GMA	6.579 +/-	0.329	58.20 +/-	2.91	7.41	1130. +/-	80.
4-26-81 1002	GMA	3.545 +/-	0.177	57.30 +/-	2.86	9.04	619. +/-	44.
4-26-81 1012	GMA	0.245 +/-	0.024	5.30 +/-	0.27	14.12	463. +/-	51.
4-26-81 1019	GMA	0.345 +/-	0.028	6.00 +/-	0.30	14.86	575. +/-	54.
4-26-81 1026	GMA	0.714 +/-	0.038	5.90 +/-	0.30	15.79	1211. +/-	89.

SURFACE SAMPLED		RADON FLUX		MINE A		MOISTURE		SPECIFIC FLUX	
DATE-TIME	SAMP SITE	MONITOR	PCI/M**2-SEC	U308 PPM		%(WET BASIS)	PCI/M**2-SEC	XU308	
PIT OVERBURDEN		(CONT.)							
4-26-81 1033		GMA	0.436 +/-	0.037	6.40 +/-	0.32	14.49	682. +/-	68.
4-26-81 1258		GMA	4.158 +/-	0.200	10.00 +/-	0.50	12.73	4158. +/-	294.
4-26-81 1303		GMA	0.463 +/-	0.032	4.50 +/-	0.23	8.90	1029. +/-	89.
4-26-81 1309		GMA	0.437 +/-	0.037	19.50 +/-	0.90	13.02	224. +/-	22.
4-26-81 1315		GMA	0.576 +/-	0.034	3.90 +/-	0.20	8.55	1478. +/-	116.
PIT UNDESIGNATED									
NO DATA									
TOPSOIL PILE(S)									
4-26-81 1354		GMA	7.201 +/-	0.360	7.00 +/-	0.39	13.05	9232. +/-	653.
UNDISTURBED TOPSOIL									
4-26-81 830		GMA	0.759 +/-	0.054	2.00 +/-	0.15	6.88	2711. +/-	241.
PIT RIM									
NO DATA									

SURFACE SAMPLED		RADON FLUX		MINE B		U308		PAGE E-18	
DATE-TIME	SAMP SITE	MONITOR	PCI/M**2-SEC	PCI/M**2-SEC	PPM	MOISTURE	SPECIFIC FLUX		
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								PCI/M**2-SEC-XU308	
ORE PILE(S)									
10- 2-80 1131		GMA	673.000 +/-	33.650	1375.00 +/-	68.75	4.63	4895. +/-	346.
10- 2-80 1134		GMA	736.000 +/-	36.800	1727.00 +/-	86.35	5.18	4262. +/-	302.
10- 2-80 1137		GMA	1767.000 +/-	88.350	2329.00 +/-	116.45	3.81	7587. +/-	537.
10- 2-80 1140		GMA	511.600 +/-	25.500	1617.00 +/-	80.85	7.38	3164. +/-	224.
5- 2-81 1132		GMA	1293.000 +/-	64.650	9607.00 +/-	480.35	7.10	1346. +/-	95.
5- 2-81 1134		GMA	739.700 +/-	36.985	2000.20 +/-	100.01	6.89	3698. +/-	262.
5- 2-81 1137		GMA	837.400 +/-	41.870	761.90 +/-	38.10	7.35	10991. +/-	778.
5- 2-81 1142		GMA	700.100 +/-	35.005	296.40 +/-	14.82	4.87	23620. +/-	1671.
PIT ORE									
10- 2-80 1000		GMA	1032.000 +/-	51.600	2540.00 +/-	127.00	4.91	4063. +/-	287.
10- 2-80 1003		GMA	100.000 +/-	5.000	202.00 +/-	10.10	8.77	4950. +/-	350.
10- 2-80 1008		GMA	6916.000 +/-	345.800	28760.00 +/-	1438.00	3.56	2405. +/-	170.
10- 2-80 1033		GMA	699.300 +/-	34.965	1660.00 +/-	83.00	5.60	4213. +/-	298.
10- 2-80 1036		GMA	1366.000 +/-	68.300	2520.00 +/-	126.00	6.12	5421. +/-	384.
10- 2-80 1044		GMA	703.100 +/-	35.155	2120.00 +/-	106.00	5.80	3317. +/-	235.
10- 2-80 1048		GMA	1000.000 +/-	54.000	1630.00 +/-	81.50	4.39	6626. +/-	469.
5- 2-81 731		GMA	11.710 +/-	0.586	1015.00 +/-	50.75	9.33	115. +/-	8.
5- 2-81 744		GMA	151.300 +/-	7.565	305.90 +/-	15.30	7.23	4946. +/-	350.
5- 2-81 749		GMA	163.100 +/-	8.155	191.80 +/-	9.59	7.29	8504. +/-	602.
5- 2-81 859		GMA	222.300 +/-	11.115	457.30 +/-	22.87	8.06	4861. +/-	344.
LOWER GRADE ORE PILE(S)									
10- 2-80 1150		GMA	153.800 +/-	7.690	396.00 +/-	19.50	2.98	3944. +/-	279.
10- 2-80 1154		GMA	222.600 +/-	11.130	270.00 +/-	13.50	2.96	8244. +/-	583.
10- 2-80 1156		GMA	150.000 +/-	7.500	463.00 +/-	23.15	2.27	3240. +/-	229.
10- 2-80 1200		GMA	87.890 +/-	4.394	210.00 +/-	10.50	7.16	4185. +/-	296.
5- 2-81 1150		GMA	200.000 +/-	14.000	623.00 +/-	31.15	3.74	4494. +/-	318.
5- 2-81 1201		GMA	409.900 +/-	20.495	745.40 +/-	37.27	4.76	5499. +/-	389.
5- 2-81 1209		GMA	323.300 +/-	16.165	344.40 +/-	17.22	5.08	9307. +/-	664.
5- 2-81 1211		GMA	106.200 +/-	9.310	1884.00 +/-	94.20	5.14	908. +/-	70.
PIT LOWER GRADE ORE									
10- 2-80 1012		GMA	228.000 +/-	11.440	234.00 +/-	11.70	6.24	9778. +/-	692.
10- 2-80 1015		GMA	282.000 +/-	14.100	273.00 +/-	13.65	3.25	10330. +/-	731.
10- 2-80 1021		GMA	362.200 +/-	18.110	736.00 +/-	36.80	5.82	4921. +/-	348.
10- 2-80 1025		GMA	33.060 +/-	1.653	122.00 +/-	6.10	4.43	2710. +/-	192.
10- 2-80 1028		GMA	7.159 +/-	0.358	176.00 +/-	8.00	14.16	407. +/-	29.
10- 2-80 1039		GMA	27.690 +/-	1.385	663.00 +/-	33.15	7.16	418. +/-	30.

PIT OVERBURDEN (CONT.)

5- 2-01 817	GMA	11.950 +/-	0.598	21.68 +/-	1.80	4.78	5532. +/-	391.
5- 2-01 828	GMA	61.828 +/-	3.891	19.58 +/-	8.98	6.38	31783. +/-	2249.
5- 2-01 823	GMA	133.488 +/-	6.678	35.18 +/-	1.75	7.09	38086. +/-	2685.
5- 2-01 837	GMA	692.888 +/-	34.648	253.48 +/-	12.67	5.58	27348. +/-	1934.
5- 2-01 841	GMA	214.888 +/-	10.748	56.68 +/-	2.83	5.67	37951. +/-	2685.
5- 2-01 915	GMA	118.188 +/-	5.585	37.48 +/-	1.87	5.12	29439. +/-	2883.

PIT UNDESIGNATED

NO DATA

TOPSOIL PILE(S)

5- 2-81 1115	GMA	18.898 +/-	0.544	11.88 +/-	0.59	5.18	9229. +/-	653.
5- 2-81 1119	GMA	7.887 +/-	0.358	78.48 +/-	3.92	11.24	894. +/-	63.

UNDISTURBED TOPSOIL

5- 2-81 1248	GMA	8.948 +/-	0.847	9.88 +/-	0.45	3.66	1844. +/-	74.
5- 2-81 1248	GMA	8.587 +/-	0.838	7.58 +/-	0.38	11.93	675. +/-	53.

PIT RIM

NO DATA

SURFACE SAMPLED		RADON FLUX	MINE C		U308	MOISTURE	PAGE E-21		
DATE-TIME	SAMP SITE	MONITOR	RADON FLUX		PPM	x(WET BASIS)	SPECIFIC FLUX		
			PCI/11**2-SEC				PCI/11**2-SEC-xU308		
ORE PILE(S)									
9-30-80	1019	GMA	217.000 +/-	10.890	1330.00 +/-	66.50	6.31	1638. +/-	116.
9-30-80	1050	GMA	191.000 +/-	9.550	688.00 +/-	34.40	4.42	2776. +/-	196.
4-30-81	1112	GMA	178.900 +/-	8.945	801.00 +/-	40.09	6.78	2231. +/-	158.
4-30-81	1119	GMA	328.800 +/-	16.440	1265.00 +/-	63.25	7.87	2599. +/-	184.
4-30-81	1124	GMA	308.700 +/-	15.435	911.20 +/-	45.56	3.77	3308. +/-	240.
4-30-81	1127	GMA	165.800 +/-	8.290	1032.00 +/-	51.60	9.82	1687. +/-	114.
PIT ORE									
9-30-80	909	GMA	26.460 +/-	1.323	870.00 +/-	43.50	3.65	304. +/-	22.
4-30-81	915	GMA	125.100 +/-	6.255	2063.00 +/-	103.15	9.72	606. +/-	43.
4-30-81	931	GMA	397.500 +/-	19.875	2718.00 +/-	135.90	4.80	1462. +/-	103.
LOWER GRADE ORE PILE(S)									
9-30-80	1256	GMA	250.400 +/-	12.520	547.00 +/-	27.35	2.21	4578. +/-	324.
9-30-80	1259	GMA	249.600 +/-	12.480	469.00 +/-	23.45	1.34	5322. +/-	377.
9-30-80	1302	GMA	248.700 +/-	12.435	340.00 +/-	17.00	3.70	7315. +/-	518.
4-30-81	1138	GMA	56.410 +/-	2.820	137.00 +/-	6.89	4.80	4094. +/-	290.
4-30-81	1144	GMA	80.380 +/-	4.019	222.90 +/-	11.15	6.49	3606. +/-	355.
4-30-81	1150	GMA	124.800 +/-	6.240	595.90 +/-	29.79	7.19	2094. +/-	148.
4-30-81	1154	GMA	60.610 +/-	3.030	564.90 +/-	28.24	4.27	1073. +/-	76.
PIT LOWER GRADE ORE									
9-30-80	902	GMA	18.960 +/-	0.948	77.40 +/-	3.87	2.51	2450. +/-	173.
9-30-80	913	GMA	1.308 +/-	0.065	47.40 +/-	2.37	4.35	276. +/-	20.
4-30-81	921	GMA	50.640 +/-	2.532	413.70 +/-	20.69	9.69	1224. +/-	87.
4-30-81	953	GMA	12.260 +/-	0.613	431.00 +/-	21.55	7.00	284. +/-	20.
OVERBURDEN PILE(S)									
9-30-80	1034	GMA	1.750 +/-	0.087	5.90 +/-	0.30	4.29	2966. +/-	212.
9-30-80	1038	GMA	1.570 +/-	0.079	15.40 +/-	0.77	4.38	1019. +/-	72.
9-30-80	1049	GMA	1.343 +/-	0.067	10.30 +/-	0.52	7.45	1304. +/-	93.
9-30-80	1053	GMA	2.207 +/-	0.110	7.90 +/-	0.40	3.64	2794. +/-	199.
9-30-80	1058	GMA	1.030 +/-	0.052	6.10 +/-	0.30	10.33	1689. +/-	118.
9-30-80	1103	GMA	0.348 +/-	0.025	7.90 +/-	0.40	3.67	441. +/-	39.
9-30-80	1100	GMA	2.254 +/-	0.113	8.30 +/-	0.41	4.31	2716. +/-	191.
9-30-80	1113	GMA	3.616 +/-	0.181	7.80 +/-	0.39	1.23	4636. +/-	328.
9-30-80	1120	GMA	1.042 +/-	0.092	6.50 +/-	0.33	3.78	2834. +/-	202.
9-30-80	1124	GMA	1.690 +/-	0.084	8.40 +/-	0.42	1.73	2012. +/-	142.
9-30-80	1129	GMA	0.317 +/-	0.032	6.50 +/-	0.33	1.74	488. +/-	56.

SURFACE SAMPLED		RADON FLUX	RADON FLUX		MINE C		U308	MOISTURE		SPECIFIC FLUX	
DATE-TIME	SAMP SITE	MONITOR	PCI/M**2-SEC	PCI/M**2-SEC			PPM	X(WET BASIS)		PCI/M**2-SEC-XU308	
OVERBURDEN PILE(S) (CONT.)											
9-30-80	1133	GMA	1.497 +/-	0.075			5.50 +/-	0.28	2.83	2722. +/-	194.
9-30-80	1139	GMA	2.367 +/-	0.118			5.80 +/-	0.29	1.40	4081. +/-	289.
9-30-80	1144	GMA	4.170 +/-	0.200			12.30 +/-	0.62	3.50	3390. +/-	241.
9-30-80	1150	GMA	2.296 +/-	0.115			5.20 +/-	0.26	3.40	4415. +/-	312.
4-30-81	1004	GMA	15.310 +/-	0.766			62.50 +/-	3.13	4.93	2450. +/-	173.
4-30-81	1008	GMA	13.180 +/-	0.659			98.20 +/-	4.91	7.33	1342. +/-	95.
4-30-81	1012	GMA	14.900 +/-	0.745			63.00 +/-	3.15	7.07	2365. +/-	167.
4-30-81	1017	GMA	5.204 +/-	0.260			63.90 +/-	3.20	4.25	814. +/-	58.
4-30-81	1021	GMA	27.580 +/-	1.379			120.70 +/-	6.03	9.76	2285. +/-	162.
4-30-81	1024	GMA	32.010 +/-	1.600			145.00 +/-	7.25	5.96	2200. +/-	156.
4-30-81	1034	GMA	1.063 +/-	0.053			6.00 +/-	0.30	10.84	1772. +/-	125.
4-30-81	1038	GMA	0.533 +/-	0.036			5.10 +/-	0.25	7.64	1044. +/-	87.
4-30-81	1042	GMA	0.540 +/-	0.035			14.10 +/-	0.71	11.20	383. +/-	31.
4-30-81	1049	GMA	1.504 +/-	0.075			5.70 +/-	0.28	7.62	2639. +/-	185.
4-30-81	1055	GMA	3.112 +/-	0.156			5.00 +/-	0.25	6.53	6224. +/-	440.
4-30-81	1050	GMA	1.216 +/-	0.061			5.80 +/-	0.29	9.62	2097. +/-	148.

PIT OVERBURDEN

9-30-80	916	GMA	1.414 +/-	0.071			30.00 +/-	1.54	4.23	459. +/-	32.
9-30-80	924	GMA	0.440 +/-	0.036			10.40 +/-	0.52	3.78	423. +/-	41.
9-30-80	927	GMA	0.304 +/-	0.034			9.70 +/-	0.49	1.72	396. +/-	40.
9-30-80	931	GMA	0.315 +/-	0.031			7.50 +/-	0.38	4.34	419. +/-	47.
9-30-80	933	GMA	0.271 +/-	0.029			6.30 +/-	0.32	4.40	430. +/-	51.
9-30-80	936	GMA	0.448 +/-	0.022			5.40 +/-	0.27	4.14	830. +/-	59.
9-30-80	939	GMA	0.389 +/-	0.019			6.00 +/-	0.30	3.64	649. +/-	46.
9-30-80	943	GMA	0.241 +/-	0.024			5.20 +/-	0.26	4.23	464. +/-	52.
9-30-80	946	GMA	0.408 +/-	0.030			7.70 +/-	0.38	1.68	530. +/-	47.
9-30-80	952	GMA	1.742 +/-	0.087			6.40 +/-	0.32	4.66	2722. +/-	193.
9-30-80	955	GMA	2.437 +/-	0.122			7.50 +/-	0.38	2.98	3249. +/-	231.
4-30-81	847	GMA	0.418 +/-	0.031			14.30 +/-	0.71	11.25	293. +/-	26.
4-30-81	855	GMA	0.190 +/-	0.022			14.40 +/-	0.72	11.55	132. +/-	16.
4-30-81	901	GMA	1.339 +/-	0.067			17.10 +/-	0.86	14.27	783. +/-	56.
4-30-81	906	GMA	1.151 +/-	0.058			16.20 +/-	0.81	10.37	710. +/-	50.
4-30-81	924	GMA	5.472 +/-	0.274			91.90 +/-	4.59	19.14	595. +/-	42.
4-30-81	939	GMA	6.692 +/-	0.335			134.90 +/-	6.75	8.50	496. +/-	35.
4-30-81	943	GMA	6.675 +/-	0.334			175.00 +/-	8.79	16.98	390. +/-	27.
4-30-81	949	GMA	3.196 +/-	0.159			85.30 +/-	4.27	10.37	374. +/-	26.

PIT UNDESIGNATED

NO DATA

MOISTURE
X (WET BASIS)

U308
PPM

MINE C

RADON FLUX
PCI/M**2-SEC

RADON FLUX
MONITOR

SURFACE SAMPLED
DATE-TIME SAMP SITE

TOPSOIL PILE(S)

NO DATA

UNDISTURBED TOPSOIL

NO DATA

PIT RIM

NO DATA

SURFACE SAMPLED DATE-TIME	SAMP SITE	RADON FLUX MONITOR	RADON FLUX PCI/M**2-SEC	MINE D	U308 PPM	MOISTURE %(WET BASIS)	SPECIFIC FLUX	
							PCI/M**2-SEC	XU308
ORE PILE(S)								
4-28-81 900		GMA	975.000 +/-	48.750	2390.00 +/-	119.50	4079. +/-	289.
4-28-81 903		GMA	3352.000 +/-	167.600	1980.00 +/-	99.00	16929. +/-	1198.
4-28-81 908		GMA	7339.000 +/-	366.950	4500.00 +/-	225.00	16309. +/-	1154.
4-28-81 912		GMA	1330.000 +/-	66.500	6120.00 +/-	306.00	2173. +/-	154.
PIT ORE								
4-28-81 749		GMA	2309.000 +/-	115.450	8683.00 +/-	434.15	2659. +/-	188.
4-28-81 755		GMA	2963.000 +/-	148.150	19079.00 +/-	953.95	1553. +/-	110.
LOWER GRADE ORE PILE(S)								
4-28-81 918		GMA	676.200 +/-	33.810	5778.00 +/-	288.90	1170. +/-	83.
4-28-91 923		GMA	197.400 +/-	9.870	450.00 +/-	22.50	4387. +/-	310.
4-28-81 1053		GMA	12.270 +/-	0.613	164.00 +/-	8.20	748. +/-	53.
4-28-81 1056		GMA	26.400 +/-	1.320	149.90 +/-	7.50	1761. +/-	125.
4-28-81 1100		GMA	6.511 +/-	0.326	153.40 +/-	7.67	424. +/-	30.
4-28-81 1104		GMA	1.260 +/-	0.063	14.50 +/-	0.72	869. +/-	61.
4-28-81 1109		GMA	28.670 +/-	1.434	200.00 +/-	10.00	1434. +/-	101.
PIT LOWER GRADE ORE								
NO DATA								
OVERBURDEN PILE(S)								
4-28-81 943		GMA	1.538 +/-	0.077	4.90 +/-	0.25	3139. +/-	224.
4-28-81 949		GMA	1.384 +/-	0.069	6.10 +/-	0.30	2269. +/-	159.
4-28-81 954		GMA	0.592 +/-	0.036	5.60 +/-	0.28	1057. +/-	83.
4-28-81 959		GMA	29.670 +/-	1.484	284.00 +/-	14.20	1045. +/-	74.
4-28-81 1004		GMA	3.743 +/-	0.187	18.40 +/-	0.92	2034. +/-	144.
4-28-81 1008		GMA	0.345 +/-	0.029	5.80 +/-	0.29	596. +/-	58.
4-28-81 1014		GMA	9.953 +/-	0.498	79.20 +/-	3.96	1257. +/-	89.
4-28-81 1019		GMA	2.694 +/-	0.135	22.80 +/-	1.14	1182. +/-	84.
4-29-81 1024		GMA	0.409 +/-	0.030	3.30 +/-	0.17	1238. +/-	112.
4-28-81 1028		GMA	0.354 +/-	0.029	13.20 +/-	0.66	268. +/-	26.
4-28-81 1034		GMA	0.470 +/-	0.033	21.70 +/-	1.09	217. +/-	19.
4-28-81 1039		GMA	1.010 +/-	0.051	11.70 +/-	0.58	863. +/-	61.
4-28-81 1043		GMA	101.400 +/-	5.070	121.00 +/-	6.05	8300. +/-	593.
PIT OVERBURDEN								
4-28-81 808		GMA	1.029 +/-	0.051	13.80 +/-	0.69	746. +/-	53.

SURFACE SAMPLED		RADON FLUX		RADON FLUX		MINE D		U308		MOISTURE		SPECIFIC FLUX	
DATE-TIME	SAMP SITE	MONITOR	PCI/M**2-SEC	PCI/M**2-SEC				PPM		X(WET BASIS)	PCI/M**2-SEC	XU308	

PIT OVERBURDEN

(CONT.)

4-28-81	814	GMA	4.594 +/-	0.230	7.70 +/-	0.38	6.96	5966. +/-	419.
4-28-81	820	GMA	2.025 +/-	0.101	4.30 +/-	0.22	10.50	4709. +/-	337.
4-28-81	825	GMA	1.356 +/-	0.068	3.00 +/-	0.19	7.18	3568. +/-	252.
4-28-81	831	GMA	1.817 +/-	0.091	4.50 +/-	0.23	8.92	4038. +/-	289.
4-28-81	837	GMA	2.249 +/-	0.112	20.90 +/-	1.05	12.08	1876. +/-	76.
4-28-81	842	GMA	5.030 +/-	0.252	30.00 +/-	1.54	12.03	1633. +/-	116.
4-28-81	848	GMA	2.487 +/-	0.124	3.90 +/-	0.20	7.36	6377. +/-	457.

PIT UNDESIGNATED

NO DATA

TOPSOIL PILE(S)

NO DATA

UNDISTURBED TOPSOIL

NO DATA

PIT RIM

NO DATA

CASPER AREA

PAGE E-26

SURFACE SAMPLED DATE-TIME	RADON FLUX SAMP SITE MONITOR	RADON FLUX PCI/M**2-SEC	CASPER AREA		U308 PPM	MOISTURE %(WET BASIS)	SPECIFIC FLUX PCI/M**2-SEC-U308	
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ORE PILE(S)

NO DATA

PIT ORE

NO DATA

LOWER GRADE ORE PILE(S)

NO DATA

PIT LOWER GRADE ORE

NO DATA

OVERBURDEN PILE(S)

NO DATA

PIT OVERBURDEN

NO DATA

PIT UNDESIGNATED

NO DATA

TOPSOIL PILE(S)

NO DATA

UNDISTURBED TOPSOIL

4-26-81 718	GMA	0.658 +/-	0.043	4.00 +/-	0.20	10.87	1644. +/-	134.
4-26-81 728	GMA	0.633 +/-	0.036	3.90 +/-	0.20	9.96	1622. +/-	124.
4-26-81 757	GMA	1.170 +/-	0.058	3.80 +/-	0.19	6.00	3079. +/-	218.
5- 2-81 1300	GMA	3.428 +/-	0.171	16.00 +/-	0.80	12.66	2143. +/-	152.
5- 2-81 1316	GMA	0.816 +/-	0.041	4.90 +/-	0.25	12.33	1666. +/-	119.
5- 2-81 1349	GMA	0.701 +/-	0.039	4.70 +/-	0.24	4.83	1663. +/-	119.
5- 2-81 1424	GMA	0.405 +/-	0.027	2.90 +/-	0.15	3.32	1398. +/-	117.

PIT RIM

NO DATA

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NRC FORM 335 <small>(11-81)</small>		U.S. NUCLEAR REGULATORY COMMISSION BIBLIOGRAPHIC DATA SHEET		1. REPORT NUMBER (Assigned by DDC) NUREG/CR-2407 PNL-4071	
4. TITLE AND SUBTITLE (Add Volume No., if appropriate) RADON AND AEROSOL RELEASE FROM OPEN PIT URANIUM MINING				2. (Leave blank)	
7. AUTHOR(S) V. W. Thomas, K. K. Nielson and M. L. Mauch				3. RECIPIENT'S ACCESSION NO.	
9. PERFORMING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code) Pacific Northwest Laboratory Richland, WA 99352				5. DATE REPORT COMPLETED MONTH: March | YEAR: 1982	
12. SPONSORING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code) Division of Health, Siting, and Waste Management Office of Nuclear Regulatory Research U.S. Nuclear Regulatory Commission Washington, DC 20555				6. (Leave blank)	
				8. (Leave blank)	
				10. PROJECT/TASK/WORK UNIT NO.	
				11. FIN NO. B2279	
13. TYPE OF REPORT Technical			PERIOD COVERED (Inclusive dates)		
15. SUPPLEMENTARY NOTES				14. (Leave blank)	
16. ABSTRACT (200 words or less) <p>The model open pit uranium mine reported in NUREG/CR-0628 has been redefined based on a 1981 survey of estimated mining parameters to cause net radon releases of 3300 Ci/yr compared to 2000 Ci/yr from the original model. This equals 840 Ci/RRY (201 tonnes U₃O₈/Reference Reactor Year (RRY)) compared to 700 Ci/RRY from the original model. After mining, radon releases continue at the elevated rate of 2700 Ci/yr (43 Ci/yr/RRY) compared to the earlier model estimate of 1380 Ci/yr (29 Ci/yr/RRY). The net increase over the background radon emission rate during preparatory open pit mining at Morton Ranch 1704 pit was estimated from a one-year field study to be 150 Ci/yr. The release rate projected by Argonne National Laboratory (ANL) from the St. Anthony mine pit, New Mexico, of approximately 50 Ci/yr at its midlife (8.5 years) was a factor of 17 lower than the estimated release from the active pit of the model mine (830 Ci/yr) at its mid-life (also 8.5 years). Due to the large variations found in measurements made in the natural environment, large uncertainty estimates were associated with most measurements.</p>					
17. KEY WORDS AND DOCUMENT ANALYSIS			17a. DESCRIPTORS		
17b. IDENTIFIERS/OPEN ENDED TERMS					
18. AVAILABILITY STATEMENT Unlimited			19. SECURITY CLASS (This report) Unclassified		21. NO. OF PAGES
			20. SECURITY CLASS (This page) Unclassified		22. PRICE S

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NUCLEAR REGULATORY COMMISSION
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