

EFFLUENT AND WASTE DISPOSAL  
SEMI-ANNUAL ENVIRONMENTAL REPORT

JANUARY TO JUNE 1979

RANCHO SECO UNIT 1  
CLAY STATION, CALIFORNIA

LICENSE NUMBER DPR-54

345059

7909130 042

## EFFLUENT AND WASTE DISPOSAL REPORT

### A SUPPLEMENTAL INFORMATION

Supplemental information as outlined in Regulatory Guide 1.21 is presented in Table I.

### B GASEOUS EFFLUENTS

Gaseous effluents at ground level release are summarized in Table IA (Summation of All Gaseous Effluents) and Table IC (Continuous Mode and Batch Mode Releases). No credit is taken for elevated releases and, therefore, Table IB is not applicable.

### C LIQUID EFFLUENTS

There were no batch or continuous releases of radioactive liquids during this report period.

### D SOLID AND LIQUID WASTE TRUCKED OFFSITE

One truckload of solid waste materials and ten truckloads of liquid wastes were shipped to waste receiving and disposal sites during this report period. Liquid wastes were transported to Todd Shipyards at Galveston, Texas, for processing and storage. Solids were sent to NECo's Beatty, Nevada, burial grounds. No irradiated fuel was shipped.

### E RADIOLOGICAL IMPACT ON MAN

Potential annual doses to individuals and populations were calculated using measured plant effluent and meteorological data. The following doses were calculated:

1. Total body and skin doses to individuals exposed at the point of maximum offsite ground-level concentrations of radioactive materials in gaseous effluents.
2. Organ doses to individuals in unrestricted areas from radioactive iodine and radioactive material in particulate form from all pathways of exposure.
3. Total body doses to the population and average dose to individuals in the population from gaseous effluents to a distance of 50 miles from the site.

Measured plant gaseous effluent data was used to calculate estimates of doses to individuals and populations. Included in the annual source term were eight (8) waste gas batch releases, twelve (12) containment purges, and two (2) quarterly continuous plant releases. The total curies released are presented in Section B. Doses were computed for airborne noble gas, iodine, and particulate releases only. (The plant made no liquid releases to the environment.)

The dispersion of the airborne radioactive effluents was calculated on the basis of measured plant meteorological data consistent with the time period over which a given release was conducted. Measured meteorological data is presented and discussed in Section F. The dispersion model was based on the "straight-line airflow model" of NRC Regulatory Guide 1.111, "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors", including appropriate corrections for terrain factor, plume depletion and deposition. All releases were assumed to be conducted at ground level from a single release point. (The meteorological model is discussed in detail in the "Appendix I Evaluation Report - Rancho Seco Nuclear Generating Station".)

Annual "Maximum individual" and population doses were calculated for a variety of gaseous effluent exposure pathways representative of actual or potential usage conditions within a five (5) mile radius of the plant. These pathways included plume, ground and inhalation exposures as well as meat, vegetable and milk consumption.

Whenever possible, calculations were based on existing data for the plant and its regional environmental characteristics. Where insufficient data existed to substantiate plant/site dependent assumptions, parameters and models recommended in Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR 50, Appendix I", were used. Specific data and models for these calculations are presented in the "Appendix I Evaluation Report", as are the locations of the maximum exposed individuals.

Table 5B presents the calculated annual total body and organ doses to maximum exposed individuals due to measured plant gaseous effluent releases. The maximum total body dose was 1.41 millirem to an individual residing 990 meters from the plant in the south sector. The maximum skin dose was 3.18 millirem to an individual residing 1150 meters from the plant in the south-southwest sector. (All doses were calculated for the nearest existing residents in each sector within 5 miles of the plant.) Due to the relatively large magnitude of the noble gas source term in comparison to the airborne iodine and particulate source terms, the total body and organ doses were dominated by the plume pathway. Approximately 74% of each calculated dose resulted from continuous releases. Waste gas batch releases contributed a negligible component to the calculated total doses.

It is apparent that the calculated total body and organ doses continue to be below the guideline values of 10 CFR 50, Appendix I.

The calculated annual total body dose for the (interpolated) 1979 population within 50 miles of the plant is 0.97 manrem. The total body dose to the average exposed individual within 50 miles of the plant is  $4.21 \times 10^{-4}$  millirem.

## E RADIOLOGICAL IMPACT ON MAN (continued)

The calculated population doses are based on the ALARA procedure of the GASPARD dose factor code. This procedure assumes that the 50-mile population is eating the maximum amount of food produced within 50 miles of the plant and that no food is exported out of the 50-mile area.

These doses are based on straight line projections of the actual 1970 U.S. census population data and the 1985 estimated population as given in the Rancho Seco Unit 1 FSAR.

## F METEOROLOGY

The meteorological data acquisition system for Rancho Seco consists of a permanent meteorological tower installed at the site, instrumentation and on-line computer. The main purpose of the system is to measure and compile the meteorological data necessary to define the atmospheric diffusion at the site. The system is designed to continue in operation indefinitely so that a broad statistical base for meteorological conditions at the site can be assembled.

The 200-foot meteorological tower is located on a hill approximately 3000 feet east of the Reactor Building. The location is unobstructed by trees, buildings, or topographical features. A Rohn SSV tower, open lattice construction, is used to support the instrumentation. The tower has sufficient rigidity so that measurement errors are not introduced by tower vibrations. Also the open lattice design of the tower does not significantly obstruct the air flow near the tower.

After the hourly and monthly tables for each month are compiled, the reduced data is added to a history tape which contains the hourly and monthly data from the months previously reduced. This tape is then used to compile seasonal and yearly tables and plots similar to those described in this report.

The hourly data for a period of six months was compiled into a joint frequency distribution of stability index, wind speed, and wind direction which is used for atmospheric dispersion at the Rancho Seco site.

The tower instrumentation consists of:

1. Wind speed measurements - 3 WeatherMeasure W103 anemometers (1 sensor at the 200' level and 2 sensors at the 33' level)

Starting threshold	.9 mph
Distance constant	14.3 ft
Accuracy	+1% or .15 mph whichever is greater

2. Wind direction measurements - 3 WeatherMeasure W104 light weight vanes (1 sensor at the 200' level and 2 sensors at the 33' level)

F METEOROLOGY (continued)

Threshold	.75 mph
Damping ratio	.4
Distance constant	3.5 ft
Accuracy	.5% of full scale

3. Temperature measurements - 3 Litton Model ESL-310 with Climet Model 016-2 motor aspirated shield (temperature at 200', 33' and 6' levels)

Range	-20 C to 45 C
Accuracy	+0.25 C
Resolution	0.01 C
Time Constant	10 seconds

4. Temperature difference measurements 200' to 33' (3 measurements) - one Litton Thermistor system described in 3 above and two Rosemount RTD systems with Model 442A temperature transmitter and Model 414L linear bridge mounted in WeatherMeasure Model IS-6 motor aspirated temperature shields.

Range	-5 F to +5 F
Accuracy	+ .1 F

5. Relative Humidity Measurement - Beckman Model 5412 (Sensor at the 6' level)

Range	10 to 100% r.h.
Accuracy	+ 2% r.h.

Beginning in 1974 and continuing through the first half of 1979, data recovery has been in excess of 97%. The meteorological data is summarized in Table 4A, which shows the joint frequency distributions of wind direction and wind speed by atmospheric stability class for the first two quarters of 1979. Table 4A also provides this same information for those hours during each quarter in which batch gaseous releases were occurring.

Table 4B presents the bases for Pasquill classification of atmospheric stability indexes.

TABLE I

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
1ST AND 2ND QUARTERS, 1979  
SUPPLEMENTAL INFORMATION

Facility: Rancho Seco Unit #1 Licensee: Sacramento Municipal Utility District

## 1. Regulatory Limits

## a. Noble Gases

$$\text{Limit} \quad \sum_{i \rightarrow n} Q_{iv} (62 \bar{E}_{iY} + 110 \bar{E}_{iB}) \leq 1$$

$$\text{Qrtly Avg. Limit} \quad \sum_{i \rightarrow n} Q_{iv} (390 \bar{E}_{iY} + 350 \bar{E}_{iB}) \leq 1$$

$$\text{12 Month Avg. Limit} \quad \sum_{i \rightarrow n} Q_{iv} (780 \bar{E}_{iY} + 700 \bar{E}_{iB}) \leq 1$$

## b. Iodines and Particulates with Half Lives &gt; 8 days

$$\text{Limit} \quad 1.7 \times 10^5 Qv \leq 1$$

$$\text{Qrtly Avg. Limit} \quad 2.14 \times 10^6 Qv \leq 1$$

$$\text{12 month Avg. Limit} \quad 4.28 \times 10^6 Qv \leq 1$$

## c. Iodine - 131

$$\text{Qrtly Limit} \quad 2 \text{ Ci}$$

$$\text{12 Month Limit} \quad 4 \text{ Ci}$$

## d. Liquid Effluents

Limits: Meet 10 CFR 20 App. B Table 11 Column 2

<10 Ci/reactor/Qtr

<20 Ci/reactor/12 months

## 2. Maximum Permissible Concentrations

- a. Fission and Activation Gases: Defined by 1a. above.
- b. Iodines: Defined by 1b. above.
- c. Particulates, half lives >8 days: Defined by 1b. above.
- d. Liquid Effluents: Defined by 1d. above.

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TABLE 1 - (Continued)

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
1ST AND 2ND QUARTERS, 1979  
SUPPLEMENTAL INFORMATION

## 3. Average Energy:

The following list of average gamma and beta energies per disintegration have been used to calculate isotopic release rate limitations for fission and activation gases.

<u>AVERAGE ENERGY PER DISINTEGRATION</u>		
Isotope	$\bar{E}_\gamma$ , mev/dis	$\bar{E}_\beta$ , mev/dis
Kr-83m	0.00248	0.0371
Kr-85	0.0022	0.250
Kr-85m	0.159	0.253
Kr-87	0.793	1.32
Kr-88	1.95	0.377
Kr-89	2.22	1.37
Kr-90	2.10	1.01
Xe-131m	0.0201	0.143
Xe-133	0.0454	0.135
Xe-133m	0.042	0.19
Xe-135	0.247	0.317
Xe-135m	0.432	0.095
Xe-137	0.194	1.64
Xe-138	1.18	0.611

## 4. Measurements and Approximations of Total Radioactivity

- a. Fission and Activation Gases: Gamma spectrometry (GeLi) and liquid scintillation (for H-3).
- b. Iodines: Gamma spectrometry (GeLi).
- c. Particulates: Gamma spectrometry (GeLi) and beta proportional counting (for Sr-89 and 90) and alpha proportional counting (for gross alpha).
- d. Liquid Effluents: Gamma spectrometry (GeLi) and liquid scintillation (for H-3) and beta proportional counting (for Sr-89 and 90 and gross beta) and alpha proportional counting (for gross alpha).

TABLE 1 - (Continued)

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
1ST AND 2ND QUARTERS, 1979  
SUPPLEMENTAL INFORMATION

5. Batch Releases

a. Liquid

1. Number of batch releases: None
2. Total time period for batch releases: Not Applicable
3. Maximum time period for a batch release: Not Applicable
4. Average time period for a batch release: Not Applicable
5. Minimum time period for a batch release: Not Applicable
6. Average stream flow during period of release of effluent into a flowing stream: Not Applicable

b. Gaseous

1. Number of batch releases: 20
2. Total time period for batch releases: 2628.8 hours
3. Maximum time period for a batch release: 338.5 hours
4. Average time period for a batch release: 131 hours
5. Minimum time period for a batch release: 18.65 hours

6. Abnormal Releases

a. Liquid

1. Number of releases: None
2. Total activity released: None

b. Gaseous

1. Number of releases: None
2. Total activity released: None



TABLE 1A

## EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT, 1979

GASEOUS EFFLUENTS SUMMATION OF ALL RELEASES REPORTING PERIOD: 1ST AND 2ND QUARTER

	<u>UNITS</u>	<u>1ST QTR SUMMARY</u>	<u>2ND QTR SUMMARY</u>	<u>EST. TOTAL % ERROR</u>
<b>A. <u>FISSION &amp; ACTIVATION GASES</u></b>				
1. Total Release	Ci	3.69E+03	4.35E+02	+2.44E00
2. Average Release Rate	$\mu$ Ci/sec	4.68E+02	5.52E+01	
3. % of Technical Specification Limit	%	1.38E+01	1.56E00	
<b>B. <u>IODINES</u></b>				
1. Total I-131	Ci	5.84E-04	9.97E-04	+4.31E+01
2. Average Release Rate	$\mu$ Ci/sec	7.40E-05	1.26E-04	
3. % of Technical Specification Limit	%	1.17E-01	1.99E-01	
<b>C. <u>PARTICULATES</u></b>				
1. Particulates ( $\tau > 8$ days)	Ci	3.3E-05	1.06E-4	+9.10E+01
2. Average Release Rate	$\mu$ Ci/sec	4.18E-06	1.34E-05	
3. % of Technical Specification Limit	%	3.58E-03	1.15E-02	
4. Gross Alpha Radioactivity (3)	Ci	0.00E00	3.86E-06	+3.11E+02
<b>D. <u>TRITIUM</u></b>				
1. Total Release	Ci	5.05E+01	4.25E+01	+5.00E00
2. Average Release Rate	$\mu$ Ci/sec	6.40E00	5.39E+00	
3. % of Technical Specification Limit	%	(1)	(1)	

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TABLE 1B

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1979

REPORTING PERIOD: 1ST AND 2ND QUARTER

GASEOUE EFFLUENTS - ELEVATED RELEASE

NOT APPLICABLE

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TABLE 1C

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT, 1979  
 REPORTING PERIOD: 1ST AND 2ND QUARTER

GASEOUS EFFLUENTS - GROUND-LEVEL RELEASES  
 CONTINUOUS MODE

	<u>UNITS</u>	<u>1ST QTR SUMMARY</u>	<u>2ND QTR SUMMARY</u>
<b>1. <u>FISSION GASES</u></b>			
Krypton-85	Ci	0.00E00(2)*	0.00E00(2)*
Krypton-85m	Ci	0.00E00(2)*	0.00E00
Krypton-87	Ci	0.00E00(2)*	0.00E00(2)*
Krypton-88	Ci	0.00E00(2)*	0.00E00(2)*
Xenon-133	Ci	2.38E+03	1.52E+02
Xenon-135	Ci	1.74E+02	9.64E00
Xenon-135m	Ci	0.00E00(2)*	0.00E00(2)*
Xenon-138	Ci	0.00E00(2)*	0.00E00(2)*
Unidentified	Ci	0.00E00	0.00E00
Total for Period	Ci	2.55E+03	1.62E+02
<b>2. <u>IODINE</u></b>			
Iodine-131	Ci	3.71E-04	1.04E-04
Iodine-133	Ci	8.52E-05	0.00E00(2)*
Iodine-135	Ci	0.00E00(2)*	0.00E00(2)*
Total for Period	Ci	4.56E-04	1.04E-04
<b>3. <u>PARTICULATES</u></b>			
Strontium-89	Ci	0.00E00	0.00E00
Strontium-90	Ci	0.00E00	0.00E00
Cesium-134	Ci	1.05E-05	0.00E00
Cesium-137	Ci	1.80E-05	0.00E00
Barium-Lanthium-140	Ci	0.00E00	0.00E00
Cobalt-58	Ci	4.53E-06	6.36E-06
Co-60	Ci	0.00E00	5.66E-06
Unidentified	Ci	0.00E00	0.00E00

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TABLE 1C (Continued)

## EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT, 1979

REPORTING PERIOD: 1ST AND 2ND QUARTER

## GASEOUS EFFLUENTS - GROUND-LEVEL RELEASES

BATCH MODE

	<u>UNITS</u>	<u>1ST QTR SUMMARY</u>	<u>2ND QTR SUMMARY</u>
1. <u>FISSION GASES</u>			
Krypton-85	Ci	3.02E00	1.66E00
Krypton-85m	Ci	2.79E-01	1.14E-01
Krypton-87	Ci	0.00E00(2)*	0.00E00(2)*
Krypton-88	Ci	0.00E00	0.00E00
Xenon-133	Ci	1.09E+03	2.63E+02
Xenon-135	Ci	4.28E+01	5.66E00
Xenon-135m	Ci	0.00E00(2)*	0.00E00(2)*
Xenon-138	Ci	0.00E00(2)*	0.00E00(2)*
Xenon-133m	Ci	9.39E00	2.30E00
Argon-41	Ci	3.72E-01	2.13E-01
Xenon-131m	Ci	7.44E-01	5.46E-01
Unidentified	Ci	0.00E00	0.00E00
Total for Period	Ci	1.15E+03	2.73E+02
2. <u>IODINE</u>			
Iodine-131	Ci	2.12E-04	8.93E-04
Iodine-133	Ci	1.58E-04	3.40E-05
Iodine-135	Ci	0.00E00(2)*	0.00E00(2)*
Total for period	Ci	3.70E-04	9.27E-04
3. <u>PARTICULATES</u>			
Strontium-89	Ci	0.00E00	0.00E00
Strontium-90	Ci	0.00E00	0.00E00
Cesium-134	Ci	0.00E00	0.00E00
Cesium-137	Ci	0.00E00	6.47E-06
Co-58	Ci	0.00E00	5.51E-05
Co-60	Ci	0.00E00	3.29E-05

TABLE 1C (Continued)

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT, 1979  
 REPORTING PERIOD: 1ST AND 2ND QUARTER

GASEOUS EFFLUENTS - GROUND-LEVEL RELEASES  
 BATCH MODE

	<u>UNITS</u>	<u>1ST QTR SUMMARY</u>	<u>2ND QTR SUMMARY</u>
3. <u>PARTICULATES</u> (Continued)			
Barium-Lanthium-140	Ci	0.00E00	0.00E00
Unidentified	Ci	0.00E00	0.00E00

\*Parentheses numbers indicate the respective footnotes in Table 5A rather than exponentials.

TABLE 2A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT, 1979  
 REPORTING PERIOD: 1ST AND 2ND QUARTERS

## LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

	<u>UNITS</u>	<u>1ST QTR SUMMARY</u>	<u>2ND QTR SUMMARY</u>	<u>EST. TOTAL ERROR, %</u>
<u>A. FISSION &amp; ACTIVATION PRODUCTS</u>				
1. Total Release (not including tritium gases, alpha)	Ci	0.00E00	0.00E00	
2. Average diluted concentration during period	μCi/ml	0.00E00	0.00E00	
3. Percent of applicable limit	%	0.00E00	0.00E00	
<u>B. TRITIUM</u>				
1. Total Release	Ci	0.00E00	0.00E00	
2. Average diluted concentration during period	μCi/ml	0.00E00	0.00E00	
3. Percent of applicable limit	%	0.00E00	0.00E00	
<u>C. DISSOLVED &amp; ENTRAINED GASES</u>				
1. Total Release	Ci	0.00E00	0.00E00	
2. Average diluted concentration during period	μCi/ml	0.00E00	0.00E00	
3. Percent of applicable limit	%	0.00E00	0.00E00	
<u>D. GROSS ALPHA RADIOACTIVITY</u>				
1. Total Release	Ci	0.00E00	0.00E00	
<u>E. VOLUME OF WASTE RELEASED (prior to dilution)</u>				
	liters	0.00E00	0.00E00	
<u>F. VOLUME OF DILUTION WATER USED DURING PERIOD OF RADIOACTIVE LIQUID RELEASES</u>				
	liters	0.00E00	0.00E00	

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TABLE 2B

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT, 1979  
 QUARTERLY RESULTS REPORTING PERIOD: 1ST AND 2ND QUARTER

## LIQUID EFFLUENTS BATCH MODE

<u>NUCLIDES RELEASED</u>	<u>UNIT</u>	<u>1ST QUARTER</u>	<u>2ND QUARTER</u>
Strontium-89	Ci	0.00E00	0.00E00
Strontium-90	Ci	0.00E00	0.00E00
Cesium-134	Ci	0.00E00	0.00E00
Cesium-137	Ci	0.00E00	0.00E00
Iodine-131	Ci	0.00E00	0.00E00
Cobalt-58	Ci	0.00E00	0.00E00
Cobalt-60	Ci	0.00E00	0.00E00
Iron-59	Ci	0.00Epp	0.00E00
Zinc-65	Ci	0.00E00	0.00E00
Manganese-54	Ci	0.00E00	0.00E00
Chromium-51	Ci	0.00E00	0.00E00
Zirconium-Niobium-95	Ci	0.00E00	0.00E00
Molybdenum-99	Ci	0.00E00	0.00E00
Technetium-99m	Ci	0.00E00	0.00E00
Barium-Lanthanum-140	Ci	0.00E00	0.00E00
Cerium-141	Ci	0.00E00	0.00E00
Other (Specify)			
Unidentified	Ci	0.00E00	0.00E00
Total for Period	Ci	0.00E00	0.00E00
Xenon-133	Ci	0.00E00	0.00E00
Xenon-135	Ci	0.00E00	0.00E00

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TABLE 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
1ST AND 2ND QUARTERS, 1979

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not irradiated fuel)

1. Type of Waste	Unit	6-Month Period	Est. Total Error. %
a. Spent resins, filter sludges, evaporator bottoms, etc.	m <sup>3</sup> Ci	0.00E00 0.00E00	0.00E00
b. Dry compressible waste, contaminated equip., etc.	m <sup>3</sup> Ci	3.06E+01 2.02E00	3.75E+01
c. Irradiated components, control rods, etc.	m <sup>3</sup> Ci	0.00E00 0.00E00	0.00E00
d. Other (describe) Noncompressible piping components	m <sup>3</sup> Ci	8.38E-01 5.30E-04	1.00E+02

2. Estimate of major nuclide composition (by type of waste)

a. Not Applicable		
b. Co-58	%	6.30E+01
Co-60	%	2.00E+01
Mn-54	%	1.60E+01
Cr-51 + Ag-110m	%	1.00E00
c. Not applicable		
d. Co-58	%	6.30E+01
Co-60	%	2.00E+01
Mn-54	%	1.60E+01
Cr-51 + AG-110m	%	1.00E+01

3. Solid Waste Disposition

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
1	Truck (sole use)	Beatty, Nevada

B. IRRADIATED FUEL SHIPMENTS (Disposition)

None

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TABLE 3 (Continued)

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

REPORTING PERIOD: 1ST AND 2ND QUARTERS, 1979

C. LIQUID WASTE TRUCKED OFFSITE FOR DISPOSAL TO: Galveston, Texas

DATE	VOL. (GAL)	TOTAL ACTIVITY (Ci)	H-3 (Ci)	Co-58 (Ci)	Co-60 (Ci)	Mn-54 (Ci)	Cs-137 (Ci)	Cs-134 (Ci)	I-131 (Ci)	Cr-51 (Ci)	Nb-95 (Ci)	Others (<E-02)
1-4-79	3300	2.76E00	2.10E00	4.50E-01	4.11E-02	1.80E-02	3.33E-02	3.12E-02	0.00E00	2.65E-02	0.00E00	Nb-95
1-9-79	3300	3.95E00	2.69E00	8.06E-01	5.18E-02	2.29E-02	7.23E-02	6.45E-02	0.00E00	4.60E-02	0.00E00	Co-57, Ag110m
1-13-79	3100	4.39E00	2.60E00	1.43E00	8.75E-02	3.44E-02	3.64E-02	6.20E-02	0.00E00	1.08E-01	1.10E-02	Co57, Zr95, Fe59, Ag110m
1-15-79	3200	3.22E00	2.41E00	6.13E-01	4.12E-02	1.26E-02	3.36E-02	3.51E-02	1.17E-02	4.88E-02	4.72E-03	Co57, Fe59, Ag110m
1-22-79	3200	3.40E00	2.48E00	7.50E-01	4.72E-02	1.65E-02	5.00E-02	0.00E00	4.92E-03	4.17E-02	5.26E-03	Ag110m, Fe59
1-23-79	3200	4.08E00	2.66E00	8.02E-01	5.32E-02	1.57E-02	9.05E-02	1.04E-01	3.20E-02	2.68E-01	4.34E-02	Co57, Ag110m, Fe59
1-31-79	3300	4.06E00	2.70E00	9.23E-01	8.07E-02	2.59E-02	1.26E-01	1.25E-01	3.31E-02	3.77E-02	0.00E00	Co57, Ag110m, Fe59
2-22-79	3300	2.85E00	2.20E00	3.93E-01	5.00E-02	1.82E-02	8.78E-02	7.57E-02	6.15E-03	1.14E-02	3.85E-03	Co57, Ag110m Fe59
3-1-79	3300	2.15E00	1.82E00	1.31E-01	2.05E-02	8.21E-03	7.88E-02	6.45E-02	1.20E-02	0.00E00	1.65E-03	Co57, Ag110m, Cs136
1ST QTR TOTAL	29200	3.09E+01	2.17E+01	6.30E00	4.73E-01	1.72E-01	6.09E-01	5.62E-01	9.98E-02	5.88E-01	7.00E-02	
4-19-79	3300	2.66E00	2.12E00	1.07E-01	2.17E-02	7.57E-03	2.24E-01	1.64E-01	6.43E-03	0.00E00	0.00E00	Ag110m
2ND QTR TOTAL	3300	2.66E00	2.12E00	1.07E-01	2.17E-02	7.57E-03	2.24E-01	1.64E-01	6.43E-03	0.00E00	0.00E00	

TABLE 4A  
QUARTERLY SUMMARIES METEOROLOGICAL DATA  
1979

345076

TABLE 4A  
FIRST QUARTER  
CONTINUOUS RELEASE METEOROLOGY

DELTA-T STD SECTOR	STABILITY INDEX & AVERAGE HOURS AT EACH WIND SPEED AND DIRECTION						TOTAL
	1-3	4-7	8-12	13-18	19-24	24	
N	0	0	0	0	0	0	0
NW	1	0	0	0	0	0	1
NW	0	0	0	0	0	0	0
nNW	0	0	0	0	0	0	0
W	1	1	0	0	0	0	2
WSW	1	0	0	0	0	0	1
SW	2	4	0	0	0	0	6
SSW	5	11	3	0	0	0	23
S	5	4	1	1	0	0	11
SSE	4	17	2	0	0	0	23
SE	2	8	3	0	0	0	13
ESE	2	12	2	0	0	2	18
E	1	5	1	0	0	0	7
ENE	3	1	0	0	0	0	4
NE	1	0	0	0	0	0	1
NNE	0	0	0	0	0	0	0
TOTAL	32	63	12	1	0	2	110
CALM	0						

DELTA-T STD SECTOR	STABILITY INDEX & AVERAGE HOURS AT EACH WIND SPEED AND DIRECTION						TOTAL
	1-3	4-7	8-12	13-18	19-24	24	
N	0	0	0	0	0	0	0
NNW	1	0	0	0	0	0	1
NW	0	2	0	0	0	0	2
WNW	0	1	4	0	0	0	5
W	3	3	0	0	0	0	6
WSW	3	2	0	0	0	0	5
SW	3	6	0	0	0	0	9
SSW	1	5	1	0	0	0	7
S	5	4	0	1	0	0	10
SSE	2	7	1	0	0	0	10
SE	0	4	1	0	0	0	5
ESE	1	1	1	1	0	0	4
E	1	0	0	0	0	0	1
ENE	0	1	0	0	0	0	1
NE	1	0	0	0	0	0	1
NNE	0	0	0	0	0	0	0
TOTAL	21	36	8	2	0	0	67
CALM	1						

DELTA-T STD SECTOR	STABILITY INDEX & AVERAGE HOURS AT EACH WIND SPEED AND DIRECTION						TOTAL
	1-3	4-7	8-12	13-18	19-24	24	
N	0	0	0	0	0	0	0
NNW	0	1	0	0	0	0	1
NW	0	0	1	0	0	0	1
WNW	2	2	1	5	0	0	8
W	0	7	1	0	0	0	8
WSW	2	0	0	0	0	0	2
SW	0	6	1	0	0	0	7
SSW	3	5	0	0	0	0	8
S	2	1	3	0	1	0	7
SSE	1	5	2	0	0	0	8
SE	3	4	7	1	0	0	15
ESE	0	3	2	2	0	0	7
E	0	1	0	0	0	0	1
ENE	1	0	2	0	0	0	3
NE	3	0	0	0	0	0	3
NNE	2	0	0	0	0	0	2
TOTAL	19	35	20	6	1	0	51
CALM	1						

POOR ORIGINAL

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DELTA-T STD STABILITY INDEX C AVERAGE HOURS AT EACH WIND SPEED AND DIRECTION

SECTOR	1-3	4-7	8-12	13-18	19-24	24	TOTAL
N	5	2	1	0	0	0	3
NNW	10	6	4	0	0	0	20
NW	10	15	6	0	0	0	29
WNW	6	10	11	6	3	0	42
W	9	21	11	0	0	0	51
WSW	5	23	1	1	0	0	30
SW	10	22	9	0	0	0	40
SSW	13	19	12	1	1	0	47
S	15	13	10	5	1	0	44
SSF	12	15	11	4	0	1	43
SE	10	21	29	18	4	3	85
ESE	11	27	32	29	16	27	142
E	5	13	9	7	4	8	46
ENE	3	7	4	0	0	0	14
NE	3	4	0	0	0	0	7
NNE	4	3	0	0	0	0	7
TOTAL	131	235	150	71	29	29	655
CALM	10						

DELTA-T STD STABILITY INDEX E AVERAGE HOURS AT EACH WIND SPEED AND DIRECTION

SECTOR	1-3	4-7	8-12	13-18	19-24	24	TOTAL
N	9	8	1	0	0	0	18
NNW	13	7	1	0	0	0	21
NW	7	17	1	1	0	0	26
WNW	15	10	8	4	1	0	38
W	9	16	6	0	1	0	32
WSW	13	11	0	0	0	0	24
SW	14	11	1	0	0	0	26
SSW	11	15	6	0	0	0	34
S	5	16	5	1	0	0	27
SSE	12	15	3	2	0	0	32
SE	8	22	12	7	7	2	53
ESE	8	25	41	23	18	21	146
E	9	28	25	10	1	8	61
ENE	7	14	2	0	0	0	24
NE	6	11	0	0	0	0	17
NNE	11	4	2	0	0	0	17
TOTAL	157	240	117	48	28	31	621
CALM	10						

DELTA-T STD STABILITY INDEX F AVERAGE HOURS AT EACH WIND SPEED AND DIRECTION

SECTOR	1-3	4-7	8-12	13-18	19-24	24	TOTAL
N	8	9	2	0	0	0	19
NNW	9	7	3	0	0	0	19
NW	5	10	1	0	0	0	16
WNW	3	3	5	0	0	0	11
W	3	4	0	0	0	0	7
WSW	1	3	0	0	0	0	4
SW	0	1	0	0	0	1	2
SSW	2	2	1	0	0	0	5
S	1	9	0	0	0	0	10
SSF	7	8	0	0	0	0	15
SE	5	15	2	0	0	0	20
ESE	4	20	13	4	1	0	42
E	12	28	50	1	0	0	97
ENE	8	22	19	0	0	0	49
NE	11	18	1	0	0	0	30
NNE	16	13	0	0	0	0	29
TOTAL	95	170	103	5	1	1	375
CALM	5						

POOR ORIGINAL

DELTA-1 STD STABILITY INDEX & AVERAGE HOURS AT EACH WIND SPEED AND DIRECTION

SECTOR	1-3	4-7	8-12	13-16	17-24	24	TOTAL
N	4	13	1	0	0	0	18
NW	2	4	0	0	0	0	6
NE	4	4	0	0	1	0	9
WSW	0	0	0	0	0	0	0
W	1	0	0	0	0	0	1
WSW	0	0	0	0	0	0	0
SW	0	2	0	0	0	0	2
SSW	0	0	1	0	0	0	1
S	0	0	0	0	0	2	2
SSE	1	1	0	0	0	0	2
SE	1	1	0	0	0	1	3
ESE	3	8	3	1	0	0	15
E	5	12	23	2	0	0	42
ESE	9	21	12	0	0	0	42
NE	11	15	3	0	0	0	29
NNE	8	32	0	0	0	0	40
TOTAL	49	113	43	3	1	3	212
CALM	1						

POOR ORIGINAL

TABLE 4A  
SECOND QUARTER  
CONTINUOUS RELEASE METEOROLOGY

DELTA-T STD STABILITY INDEX A AVERAGE HOURS AT EACH WIND SPEED AND DIRECTION

SECTOR	1-3	4-7	8-12	13-18	19-24	24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	2	0	0	0	0	0	2
NNE	0	2	2	7	0	7	18
N	0	2	13	7	0	0	22
NNE	0	21	9	3	1	0	34
SE	4	73	33	8	0	0	118
SSW	6	37	21	7	1	0	72
S	10	20	15	3	0	0	48
SSE	5	14	7	1	2	0	29
SE	1	3	0	0	0	0	4
ESE	1	1	0	0	0	0	2
E	1	1	0	0	0	0	2
ESE	1	0	0	0	0	0	1
NE	0	0	0	0	0	0	0
NNE	2	1	0	0	0	0	3
TOTAL	33	175	100	36	4	7	355
CALM	0						

DELTA-T STD STABILITY INDEX B AVERAGE HOURS AT EACH WIND SPEED AND DIRECTION

SECTOR	1-3	4-7	8-12	13-18	19-24	24	TOTAL
N	3	0	0	0	0	0	3
NNE	1	0	0	0	0	0	1
NE	2	0	0	0	0	0	2
NNE	0	0	4	4	0	0	8
N	1	7	10	8	0	0	26
WSW	2	8	4	1	0	0	15
SE	4	27	16	3	1	0	51
SSW	4	9	11	2	0	0	26
S	5	5	5	1	0	0	16
SSE	1	2	3	1	0	0	7
SE	1	4	0	0	0	0	5
ESE	0	0	0	0	0	0	0
E	2	0	1	0	0	0	3
ESE	0	1	0	0	0	0	1
NE	0	0	0	0	0	0	0
NNE	0	1	0	0	0	0	1
TOTAL	26	64	54	20	1	0	165
CALM	0						

DELTA-T STD STABILITY INDEX C AVERAGE HOURS AT EACH WIND SPEED AND DIRECTION

SECTOR	1-3	4-7	8-12	13-18	19-24	24	TOTAL
N	1	0	0	0	0	0	1
NNE	2	0	0	0	0	0	2
NE	0	0	0	0	0	0	0
NNE	2	1	3	2	0	2	10
N	3	9	10	5	2	1	30
WSW	7	7	5	0	0	0	19
SE	5	12	25	2	0	0	45
SSW	1	5	10	4	0	0	20
S	1	3	2	1	1	0	8
SSE	1	2	2	2	0	0	7
SE	1	2	0	2	0	0	5
ESE	0	1	1	0	0	0	2
E	0	0	0	0	0	0	0
ESE	0	0	1	0	0	0	1
NE	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
TOTAL	24	42	60	18	3	3	150
CALM	0						

POOR ORIGINAL



DELTA-T STD STABILITY INDEX D AVERAGE HOURS AT EACH WIND SPEED AND DIRECTION

SECTOR	1-3	4-7	8-12	13-18	19-24	24	TOTAL
N	1	2	0	0	0	0	3
NNW	5	3	0	0	0	0	8
NW	8	3	1	0	0	0	12
NNW	3	13	8	14	0	0	38
W	5	21	37	14	2	2	84
WSW	4	15	14	6	0	0	39
SW	4	24	56	10	1	0	95
SSW	1	16	23	12	0	0	52
S	6	6	13	3	0	0	28
SSE	6	14	11	3	0	0	34
SE	4	12	10	2	1	0	29
ESE	3	8	6	3	0	0	20
E	2	6	2	0	0	0	10
ENE	1	2	1	0	0	0	4
NE	1	0	0	0	0	0	1
NNE	2	1	0	0	0	0	3
TOTAL	56	149	182	67	4	2	460
CALM	6						

DELTA-T STD STABILITY INDEX E AVERAGE HOURS AT EACH WIND SPEED AND DIRECTION

SECTOR	1-3	4-7	8-12	13-18	19-24	24	TOTAL
N	9	6	0	0	0	0	15
NNW	8	2	0	0	0	0	10
NW	9	4	0	0	0	0	13
WNW	10	6	5	7	0	0	28
W	8	11	5	3	0	0	27
WSW	6	6	3	0	0	0	15
SW	7	21	12	0	0	0	40
SSW	8	30	22	2	0	0	62
S	14	25	20	1	0	0	60
SSE	16	39	15	0	0	0	70
SE	17	50	5	0	0	0	72
ESE	14	42	10	1	0	0	67
E	6	35	8	0	0	0	49
ENE	13	9	0	0	0	0	22
NE	6	7	0	0	0	0	13
NNE	6	2	0	0	0	0	8
TOTAL	157	295	105	14	0	0	571
CALM	15						

DELTA-T STD STABILITY INDEX F AVERAGE HOURS AT EACH WIND SPEED AND DIRECTION

SECTOR	1-3	4-7	8-12	13-18	19-24	24	TOTAL
N	6	9	0	0	0	0	15
NNW	5	8	0	0	0	0	13
NW	7	4	1	1	0	0	13
WNW	5	12	3	1	0	0	21
W	2	12	4	0	0	0	18
WSW	3	5	3	0	0	0	11
SW	1	8	5	0	0	0	14
SSW	5	12	16	0	0	1	34
S	2	6	1	0	0	0	9
SSE	6	11	2	0	0	1	22
SE	4	13	0	0	0	0	17
ESE	7	14	2	0	0	0	23
E	8	17	3	0	0	0	28
ENE	2	9	0	0	0	0	11
NE	5	3	1	0	0	0	9
NNE	5	3	0	0	0	0	12
TOTAL	79	146	41	2	0	2	270
CALM	13						

POOR ORIGINAL

DELTA-T STD STABILITY INDEX & AVERAGE HOURS AT EACH WIND SPEED AND DIRECTION							
SECTOR	1-3	4-7	8-12	13-18	19-24	24	TOTAL
N	7	14	0	0	0	0	21
NW	4	7	3	0	0	0	14
N..	4	4	2	1	0	0	11
WNW	5	7	1	0	0	0	13
W	3	2	2	0	0	0	7
WSW	0	5	1	0	0	0	6
SW	1	2	1	0	0	0	4
SSW	1	8	0	0	0	0	9
S	1	2	2	0	0	1	6
SSE	0	1	0	0	0	0	1
SE	1	1	0	0	0	0	2
ESE	1	2	1	0	0	0	4
E	1	4	0	0	0	0	5
ENE	5	5	1	0	0	0	11
NE	15	10	0	0	0	0	25
NNE	9	8	0	0	0	0	17
TOTAL	58	82	14	1	0	1	156
CALM	2						

POOR  
ORIGINAL

345084

TABLE 4A  
FIRST QUARTER  
BATCH RELEASE METEOROLOGY

DELTA-T STD STABILITY INDEX 6 HOURS AT EACH WIND SPEED AND DIRECTION

1979 COMBINED FIRST QUARTER MATCH RELEASES  
RELEASE NUMBER 1

1 RELEASES THIS QUARTER

WIND SPEED AT 33 FT (MILES/HOUR)

SECTOR	1-3	4-7	8-12	13-18	19-24	24+	TOTAL
N	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
SW	0	1	0	0	0	0	1
SSW	1	0	1	0	0	0	2
S	0	1	0	1	0	0	2
SSE	0	0	0	0	0	0	0
SE	1	1	1	0	0	0	3
ESE	0	5	2	0	0	0	7
E	0	4	0	0	0	0	4
ENE	0	1	0	0	0	0	1
NE	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
TOTAL CALM	2	13	4	1	0	0	20

DELTA-T STD STABILITY INDEX 6 HOURS AT EACH WIND SPEED AND DIRECTION

1979 COMBINED FIRST QUARTER MATCH RELEASES  
RELEASE NUMBER 1

1 RELEASES THIS QUARTER

WIND SPEED AT 33 FT (MILES/HOUR)

SECTOR	1-3	4-7	8-12	13-18	19-24	24+	TOTAL
N	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WSW	1	0	0	0	0	0	1
SW	1	1	0	0	0	0	2
SSW	0	0	0	0	0	0	0
S	2	0	0	1	0	0	3
SSE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
ESE	1	0	0	0	0	0	1
E	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
TOTAL CALM	5	1	0	1	0	0	7

DELTA-T STD STABILITY INDEX 6 HOURS AT EACH WIND SPEED AND DIRECTION

1979 COMBINED FIRST QUARTER MATCH RELEASES  
RELEASE NUMBER 1

1 RELEASES THIS QUARTER

WIND SPEED AT 33 FT (MILES/HOUR)

SECTOR	1-3	4-7	8-12	13-18	19-24	24+	TOTAL
N	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
SW	0	2	0	0	0	0	2
SSW	0	1	0	0	0	0	1
S	1	0	0	0	0	0	1
SSE	0	1	0	0	0	0	1
SE	1	0	1	0	0	0	2
ESE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
NE	1	0	0	0	0	0	1
NNE	1	0	0	0	0	0	1
TOTAL CALM	4	4	4	0	0	0	12

POOR ORIGINAL

945086

DELTA-T STD STABILITY INDEX D HOURS AT EACH WIND SPEED AND DIRECTION

1975 COMBINED FIRST QUARTER WATCH RELEASES  
RELEASE NUMBER 1

1 RELEASES THIS QUARTER

SECTOR	WIND SPEED AT 33 FT (MILES/HOUR)						TOTAL
	1-3	4-7	8-12	13-16	19-24	24+	
N	1	0	1	0	0	0	2
NW	1	2	0	0	0	0	3
W	0	1	0	0	0	0	1
WNW	2	2	0	0	0	0	4
W	0	1	2	0	0	0	3
WSW	2	0	0	0	0	0	2
SW	0	6	0	0	0	0	6
SSW	0	2	0	0	1	0	3
S	0	0	3	1	1	0	5
SSF	1	1	0	1	0	1	4
SE	0	2	7	8	0	0	17
ESE	2	2	5	9	1	9	32
E	0	2	1	0	0	0	3
ENE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
NNE	0	1	0	0	0	0	1
TOTAL	9	22	23	19	3	10	66
CALM	5						

DELTA-T STD STABILITY INDEX E HOURS AT EACH WIND SPEED AND DIRECTION

1975 COMBINED FIRST QUARTER WATCH RELEASES  
RELEASE NUMBER 1

1 RELEASES THIS QUARTER

SECTOR	WIND SPEED AT 33 FT (MILES/HOUR)						TOTAL
	1-3	4-7	8-12	13-16	19-24	24+	
N	0	3	0	0	0	0	3
NW	1	0	0	0	0	0	1
NW	2	1	0	0	0	0	3
WNW	2	2	1	0	0	0	5
W	1	0	0	0	0	0	1
WSW	1	2	0	0	0	0	3
SW	2	0	0	0	0	0	2
SSW	5	2	0	0	0	0	7
S	2	2	1	0	0	0	5
SSE	2	0	2	1	0	0	5
SE	0	1	0	2	0	0	3
ESE	4	10	7	6	0	1	28
E	1	6	6	6	1	1	23
ENE	2	2	3	0	0	0	7
NE	0	2	0	0	0	0	2
NNE	2	0	0	0	0	0	2
TOTAL	27	33	22	15	1	2	100
CALM	0						

DELTA-T STD STABILITY INDEX F HOURS AT EACH WIND SPEED AND DIRECTION

1975 COMBINED FIRST QUARTER WATCH RELEASES  
RELEASE NUMBER 1

1 RELEASES THIS QUARTER

SECTOR	WIND SPEED AT 33 FT (MILES/HOUR)						TOTAL
	1-3	4-7	8-12	13-16	19-24	24+	
N	0	2	1	0	0	0	3
NW	1	1	0	0	0	0	2
NW	0	1	0	0	0	0	1
WNW	1	0	0	0	0	0	1
W	0	1	0	0	0	0	1
WSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	1	1
SSW	0	0	0	0	0	0	0
S	0	1	0	0	0	0	1
SSE	1	1	0	0	0	0	2
SE	2	4	0	0	0	0	6
ESE	1	7	6	0	0	0	14
E	3	10	10	0	0	0	32
ENE	3	6	4	0	0	0	13
NE	2	2	0	0	0	0	4
NNE	4	0	0	0	0	0	10
TOTAL	18	45	27	0	0	1	91
CALM	1						

POOR ORIGINAL

345087

DELTA-T STD STABILITY INDEX WINDS AT EACH WIND SPEED AND DIRECTION

1975 COMBINED FIRST QUARTER WATCH RELEASES  
RELEASE NUMBER 1

1 RELEASES THIS QUARTER

SECTION	WIND SPEED AT 33 FT (MILES/HOUR)						TOTAL
	1-3	4-7	8-12	13-16	19-24	24+	
N	0	0	0	0	0	0	0
NW	1	1	0	0	0	0	2
NW	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
W	1	0	0	0	0	0	1
WSW	0	0	0	0	0	0	0
SW	0	1	0	0	0	0	1
SSW	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSE	0	1	0	0	0	0	1
SE	1	0	0	0	0	0	1
SEF	0	1	2	0	0	0	3
E	0	1	6	2	0	0	9
ESE	1	5	2	0	0	0	8
NE	2	2	1	0	0	0	5
NNE	2	6	0	0	0	0	8
TOTAL	10	10	11	2	0	0	33
CALM	0	0	0	0	0	0	0

POOR  
ORIGINAL

TABLE 4A  
SECOND QUARTER  
BATCH RELEASE METEOROLOGY

1975 COMBINED SECOND QUARTER BATCH RELEASES  
RELEASE NUMBER 1

1 RELEASES THIS QUARTER

WIND SPEED AT 33 FT (MILES/HOUR)

SECTOR	1-3	4-7	8-12	13-19	19-24	24+	TOTAL
N	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
N	2	0	0	0	0	0	2
WNW	0	2	7	0	0	7	10
W	0	2	12	6	0	0	21
WSW	0	21	5	3	1	0	30
S	2	72	13	8	0	0	116
SW	4	16	15	7	1	0	43
SSE	5	17	13	3	0	0	40
SE	4	11	5	1	2	0	23
ESE	1	0	0	0	0	0	4
E	1	1	0	0	0	0	2
E	1	0	0	0	0	0	1
ESE	1	0	0	0	0	0	1
NE	0	0	0	0	0	0	0
NNE	2	1	0	0	0	0	3
TOTAL	24	116	54	35	4	7	330
CALC	0						

DELTA-T STABILITY INDEX 6 HOURS AT EACH WIND SPEED AND DIRECTION

1975 COMBINED SECOND QUARTER BATCH RELEASES  
RELEASE NUMBER 1

1 RELEASES THIS QUARTER

WIND SPEED AT 33 FT (MILES/HOUR)

SECTOR	1-3	4-7	8-12	13-19	19-24	24+	TOTAL
N	1	0	0	0	0	0	1
NW	1	0	0	0	0	0	1
N	2	0	0	0	0	0	2
WNW	0	0	4	4	0	0	8
W	1	0	10	6	0	0	24
WSW	1	5	4	1	0	0	12
S	3	22	15	3	0	0	43
SW	3	7	10	2	0	0	22
SSE	4	3	3	0	0	0	10
SE	1	2	2	1	0	0	6
ESE	1	3	0	0	0	0	4
E	0	0	0	0	0	0	0
E	1	0	0	0	0	0	1
ESE	0	1	0	0	0	0	1
NE	0	0	0	0	0	0	0
NNE	0	1	0	0	0	0	1
TOTAL	19	52	48	17	0	0	136
CALC	0						

DELTA-T STABILITY INDEX 6 HOURS AT EACH WIND SPEED AND DIRECTION

1975 COMBINED SECOND QUARTER BATCH RELEASES  
RELEASE NUMBER 1

1 RELEASES THIS QUARTER

WIND SPEED AT 33 FT (MILES/HOUR)

SECTOR	1-3	4-7	8-12	13-19	19-24	24+	TOTAL
N	1	0	0	0	0	0	1
NW	2	0	0	0	0	0	2
N	0	0	0	0	0	0	0
WNW	2	1	2	1	0	0	8
W	1	3	8	4	0	1	17
WSW	4	0	5	0	0	0	15
S	5	10	24	2	0	0	40
SW	0	4	5	4	0	0	17
SSE	1	1	1	1	1	0	6
SE	1	1	2	2	0	0	6
ESE	1	2	0	0	0	0	3
E	0	0	1	0	0	0	1
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
TOTAL	17	26	53	14	1	3	116
CALC	0						

POOR ORIGINAL

345090



DELTA-T 502 STABILITY INDEX E HOURS AT EACH WIND SPEED AND DIRECTION

1979 COMBINED SECOND QUARTER BATCH RELEASES  
RELEASE NUMBER 1

1 RELEASES THIS QUART.

SECTOR	WIND SPEED AT 33 FT (MILES/HOUR)						TOTAL
	1-3	4-7	8-12	13-16	17-19	20+	
N	1	0	0	0	0	0	1
NW	2	7	0	0	0	0	9
W	3	2	0	0	0	0	5
WNW	1	5	2	8	0	0	16
W	4	11	10	9	2	4	40
WSW	2	12	11	4	0	0	30
SW	3	21	15	6	1	0	56
SSW	0	9	14	5	0	0	28
S	2	5	6	1	0	0	14
SSE	3	3	3	2	0	0	11
SE	2	5	4	1	0	0	12
ESE	0	5	3	0	0	0	8
E	1	3	2	0	0	0	6
ENE	1	1	0	0	0	0	2
NE	1	0	0	0	0	0	1
NNE	0	0	0	0	0	0	0
TOTAL	27	64	112	36	3	2	204
CALM	2						

DELTA-T 502 STABILITY INDEX E HOURS AT EACH WIND SPEED AND DIRECTION

1979 COMBINED SECOND QUARTER BATCH RELEASES  
RELEASE NUMBER 1

1 RELEASES THIS QUART.

SECTOR	WIND SPEED AT 33 FT (MILES/HOUR)						TOTAL
	1-3	4-7	8-12	13-16	17-24	24+	
N	6	4	0	0	0	0	10
NW	4	2	0	0	0	0	6
W	4	3	0	0	0	0	7
WNW	8	2	4	4	0	0	18
W	6	7	4	1	0	0	18
WSW	5	5	2	0	0	0	12
SW	5	13	11	0	0	0	34
SSW	8	26	14	1	0	0	49
S	14	22	10	1	0	0	53
SSE	14	30	12	0	0	0	56
SE	13	42	2	0	0	0	57
ESE	11	25	6	0	0	0	42
E	5	23	2	0	0	0	30
EVE	8	7	0	0	0	0	15
NE	2	3	0	0	0	0	5
ENE	6	0	0	0	0	0	6
TOTAL	121	219	73	7	0	0	420
CALM	9						

DELTA-T 502 STABILITY INDEX F HOURS AT EACH WIND SPEED AND DIRECTION

1979 COMBINED SECOND QUARTER BATCH RELEASES  
RELEASE NUMBER 1

1 RELEASES THIS QUART.

SECTOR	WIND SPEED AT 33 FT (MILES/HOUR)						TOTAL
	1-3	4-7	8-12	13-16	17-24	24+	
N	5	2	0	0	0	0	7
NW	5	7	0	0	0	0	12
W	7	3	0	0	0	0	10
WNW	5	3	2	0	0	0	10
W	1	9	2	0	0	0	12
WSW	3	4	1	0	0	0	8
SW	0	7	0	0	0	0	7
SSW	1	9	1	0	0	1	12
S	1	5	0	0	0	0	6
SSE	6	11	1	0	0	1	19
SE	2	10	0	0	0	0	12
ESE	5	10	2	0	0	0	17
E	4	13	2	0	0	0	19
ENE	1	6	0	0	0	0	7
NE	3	0	0	0	0	0	3
NNE	6	1	0	0	0	0	7
TOTAL	59	100	24	0	0	2	185
CALM	5						

POOR ORIGINAL

345031

1979 CURRENT WIND DIRECTION DATA RELEASE  
 RELEASE NUMBER 4

WIND SPEED AT 33 FT (10.33 M)

SECTOR	1-3	4-7	8-12	13-17	18-24	25+	TOTAL
N	5	10	0	0	0	0	15
NW	3	5	3	0	0	0	11
W	4	4	2	1	0	0	11
WNW	4	6	1	0	0	0	11
W	2	2	2	0	0	0	6
WSW	0	3	1	0	0	0	4
SW	1	2	1	0	0	0	4
SSW	1	8	0	0	0	0	9
S	1	2	2	0	0	1	6
SSE	0	1	0	0	0	0	1
SE	1	0	0	0	0	0	1
ESE	1	2	1	0	0	0	4
E	1	4	0	0	0	0	5
ENE	4	3	1	0	0	0	8
NE	13	5	0	0	0	0	18
NNE	9	4	0	0	0	0	13
TOTAL	50	61	14	1	0	1	127
CALC	0						

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TABLE 4B

## CLASSIFICATION OF ATMOSPHERIC STABILITY

Stability Classification	Pasquill Categories	$c\theta^a$ (degrees)	Temperature Change with height ( $^{\circ}\text{C}/100\text{m}$ )
Extremely unstable	A	25.0	$<-1.9$
Moderately unstable	B	20.0	-1.9 to -1.7
Slightly unstable	C	15.0	-1.7 to -1.5
Neutral	D	10.0	-1.5 to -0.5
Slightly stable	E	5.0	-0.5 to 1.5
Moderately stable	F	2.5	1.5 to 4.0
Extremely stable	G	1.7	$>4.0$

<sup>a</sup>Standard deviation of horizontal wind direction fluctuation over a period of 15 minutes to 1 hour. The values shown are average for each stability classification.

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945093

TABLE 5A

## EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

REPORTING PERIOD: 1ST AND 2ND QUARTER, 1979

NOTES

- (1) No Technical Specification limit for release of Tritium in gaseous effluents.
- (2) No measurable activity in samples collected during this period. Measurement sensitivity and volumes of air released during the reporting period are as follows:

<u>ISOTOPE</u>	<u>MINIMUM DETECTABLE ACTIVITY (<math>\mu\text{Ci}/\text{m}^3</math>)</u>	<u>BATCH RELEASE VOLUME (cc)</u>	<u>CONTINUOUS RELEASE VOLUME (cc)</u>
Kr-85	6.42E-06		
Kr-85m	2.23E-08	Gaseous 5.17E+13	3.13E+14
Kr-87	4.80E-08	Particulate 2.12E+14	
Kr-88	5.93E-08		
Xe-135	3.27E-08		
Xe-135m	4.85E-08		
Xe-138	1.76E-07		
Xe-133	9.59E-08		
Xe-133m	1.26E-07		
Xe-131m	8.53E-07		
Ar-41	2.96E-08		
I-131	2.31E-13		
I-133	2.31E-12		
I-135(4)	1.71E-11		
H-3	3.89E-10		

(3) Particulate gross alpha due to naturally occurring Radon daughters.

(4) Based on a 24-hour sample.

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TABLE 5B  
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

REPORTING PERIOD: 1ST AND 2ND QUARTERS, 1979

TOTAL BODY AND ORGAN DOSES TO MAXIMUM EXPOSED INDIVIDUALS (1) (2) (3) (4)  
(BY SECTOR) DUE TO GASEOUS EFFLUENT RELEASES

Sector <sup>(5)</sup> (Distance, Meters)	Total Body	GI Tract	Bone	Liver	Kidney	Thyroid	Lung	Skin
N (-)	--	--	--	--	--	--	--	--
NNE (-)	--	--	--	--	--	--	--	--
NE (1770)	1.46E-01	1.46E-01	9.52E-02	1.47E-01	1.47E-01	3.15E-01	1.50E-01	3.14E-01
ENE (1220)	3.89E-01	3.88E-01	2.62E-01	3.90E-01	3.89E-01	5.44E-01	3.99E-01	8.54E-01
E (-)	--	--	--	--	--	--	--	--
ESE (4820)	1.80E-02	1.80E-02	1.09E-02	1.80E-02	1.80E-02	2.22E-02	1.85E-02	3.73E-02
SE (6550)	1.04E-02	1.04E-02	6.57E-03	1.04E-02	1.04E-02	1.14E-02	1.07E-02	2.21E-02
SSE (5490)	1.44E-02	1.44E-02	8.92E-03	1.44E-02	1.44E-02	1.61E-02	1.48E-02	3.03E-02
S (990)	1.41E 00	1.41E 00	8.76E-01	1.41E 00	1.41E 00	1.54E 00	1.44E 00	2.96E 00
SSW (1150)	1.40E 00	1.40E 00	9.94E-01	1.40E 00	1.40E 00	1.59E 00	1.45E 00	3.18E 00
SW (2130)	2.11E-01	2.11E-01	1.47E-01	2.11E-01	2.11E-01	2.32E-01	2.17E-01	4.73E-01
WSW (1980)	3.00E-01	3.00E-01	2.21E-01	3.00E-01	3.00E-01	3.52E-01	3.09E-01	6.94E-01
W (3050)	9.78E-02	9.76E-02	7.17E-02	9.79E-02	9.78E-02	1.23E-01	1.01E-01	2.26E-01
WNW (1340)	5.22E-01	5.21E-01	3.69E-01	5.22E-01	5.22E-01	7.32E-01	5.36E-01	1.18E 00
NW (6070)	1.30E-02	1.30E-02	8.15E-03	1.30E-02	1.30E-02	1.89E-02	1.33E-02	2.74E-02
NNW (6710)	7.80E-03	7.79E-03	4.49E-03	7.81E-03	7.81E-03	1.14E-02	7.98E-03	1.58E-02
Average Percent of Total for Continuous Release = 73.717560								
Average Percent of Total for Purges = 21.162567								
Average Percent of Total for Waste Gas Releases = 0.119736								

- NOTES:
- (1) All doses calculated in millirem.
  - (2) Includes waste gas, containment purge and continuous releases.
  - (3) Total body and organ doses are similar due to dominance of noble gas source term.
  - (4) Source terms include noble gases, iodines and airborne particulates.
  - (5) Distance to nearest residence within 5 miles; (-) indicates no residence within 5 miles.

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