ChemRisk Document No. 2666

Oak Ridge Health Studies Document Summary Form

DOCUMENT TITLE: Meteorological Data for X-10 Area - 1949-1951

DOCUMENT NUMBER OR IDENTIFIER: —

AUTHOR(S): N. H. Woodruff, U.S. Weather Bureau; T. H. J. Burnett

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Primary category - circle once; Secondary category (optional) - circle twice. Circle only one in a bracketed group.

DATE ENTERED INTO DATABASE: BY: InMagic No.

KEYWORDS: ~~ma~~ meteorology, wind, air

ABSTRACT:

Two sets of meteorological data compiled for the X-10 Area for the period from 1949-1951. These two sets of data are: 1) "Meteorological Data May 14-18, 1951", including a tabulation (by hour) of wind direction, lapse rate, wind speed, and estimates of the distance and value of the maximum concentration of stack gases for this period; ~~and~~ 2) U.S. Weather Bureau data regarding "Meteorological Estimates for ARE" including frequency distributions of wind speed and direction for 1949-1950, frequency of wind flow from ARE to X-10, concentration estimates from a sudden large release, ground concentration and integrated dose downwind from an instaneous release, concentrations downwind from a continuous source; and 3) "Hazards from Released Activated Sodium" discussing the meteorological factors involved if a cloud of activity is released as a puff.

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REVIEWER: GM Bruce DATE REVIEWED: 3/28/96

Health Physics

UNITED STATES
ATOMIC ENERGY COMMISSION

Oak Ridge, Tennessee
June 12, 1951

Carbide and Carbon Chemicals Company
Post Office Box "P"
Oak Ridge, Tennessee

Attention: Dr. C. E. Larson, Director, Oak Ridge National Laboratory

Subject: METEOROLOGICAL DATA MAY 14-18, 1951

Gentlemen:

Following a telephone conversation with Mr. W. G. Stockdale, ORNL, a resume of meteorological data and estimates of the distance and value of the maximum concentration of stack gases for the above dates were made. This data and representative values of the distance of maximum concentration were discussed in a meeting at the Health Physics Building with H. H. Abee, John Gost, H. J. McAlduff and O. D. Teague June 7. In response to the inquiries at this meeting, we are enclosing the appropriate data in tabular form.

Sincerely yours,

Nathan H. Woodruff

Nathan H. Woodruff
Director, Research & Medicine
Oak Ridge Operations

Encl.:
As stated above.

CC: Mr. C. E. Center
Mr. S. R. Sapirie
Mr. W. G. Stockdale, ORNL, w/Encl.
Mr. H. H. Abee, ORNL, w/Encl.
Mr. John Gost, ORNL, w/Encl.
Mr. H. J. McAlduff, ORNL, w/Encl.
Mr. O. D. Teague, ORNL, w/Encl.
Dr. Harry Wexler, Washington, w/Encl.
Mr. W. J. Larkin, w/Encl.

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This document has been approved for release to the public by:

Daniel R. Hamrin 4/15/96
Technical Information Officer Date
ORNL Site

ChemRisk Document No. 2666

May 14, 1951

Time	Hrly. Prev. Wind Dir. in °	Dir. Dev. in Deg.	Lapse Rate	Hrly Wind speed mph	Meters X max	uc/cc/curie/sec X 10^{-5} χ max/Q
1	045	040	+6	02	5320	4.2
2	060	150	+6	05	2340	1.9
3	060	180	+7	04	10000	2.3
4	045	070	+5	02	3220	4.2
5	040	075	+6	02	2340	4.2
6	025	120	+6	<1	1990	16
7	060	170	+5	<1	1380	16
8	060	120	0	02	970	4.2
9	060	120	0	03	580	3.1
10	065	145	-3	06	800	1.6
11	120	360	+1	02	320	4.2
12	090	315	-3	02	720	4.2
13	250	360	-3	03	160	3.1
14	145	335	-1	04	280	2.3
15	030	360	-3	04	170	2.3
16	145	360	0	04	280	2.3
17	130	210	+1	04	710	2.3
18	115	140	+1	03	1040	3.1
19	050	095	+3	01	1530	9
20	090	170	+6	<1	1410	16
21	155	135	+8	<1	2380	16
22	230	235	+11	<1	2390	16
23	040	165	+7	<1	1770	16
24	075	205	+8	<1	1730	16

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May 15, 1951

Time	Hrly. Prev. Wind Dir. in °	Dir. Dev. in Deg.	Lapse Rate	Hrly Wind Speed mph	Meters X max	uc/cc/curie/sec $\chi \times 10^{-5}$ χ max/Q
1	030	240	+10	01	2030	9
2	220	230	+8	01	1540	9
3	055	285	+6	<1	816	16
4	050	050	+5	02	4400	4.2
5	030	070	+6	01	2850	9
6	060	115	+5	01	1880	9
7	050	065	+3	04	2700	2.3
8	045	290	0	02	370	4.2
9	050	360	+4	01	450	9
10	220	360	-2	02	250	4.2
11	210	360	-1	03	230	3.1
12	210	360	-2	02	190	4.2
13	055	360	-2	03	190	3.1
14	030	360	-2	03	190	3.1
15	055	360	-2	04	200	2.3
16	080	160	-2	07	620	1.3
17	090	270	0	06	500	1.6
18	095	135	0	06	270	1.6
19	095	160	+2	02	970	4.2
20	070	160	+6	<1	370	16
21	060	110	+9	<1	3550	16
22	060	085	+9	01	4330	9
23	015	150	+10	<1	3020	16
24	060	145	+10	02	3740	4.2

May 16, 1951

Time	Hrly. Prev. Wind Dir. in °	Dir. Dev. in Deg.	Lapse Rate	Hrly Wind speed mph	Meters uc/cc/curie/sec X 10^{-5} X max	χ max/Q
0100	050	265	+6	1	3610	9
0200	035	165	+7	<1	1710	16
0300	220	300	+7	1	925	9
0400	240	20	+7	1	1000	9
0500	030	360	+7	<1	723	16
0600	055	65	+7	1	3730	9
0700	050	55	+3	3	3060	3.1
0800	060	100	+3	1	1460	9
0900	055	210	-1	3	516	3.1
1000	060	110	-3	5	744	1.9
1100	060	100	-3	12	870	0.8
1200	055	100	-3	14	903	0.6
1300	050	130	-3	12	691	0.8
1400	030	110	-3	11	814	0.8
1500	050	150	-3	11	602	0.8
1600	055	160	-3	10	561	0.9
1700	050	95	-2	9	1080	1
1800	060	90	-1	9	1370	1
1900	055	75	+1	5	1800	1.9
2000	040	55	+7	4	6110	2.3
2100	350	150	+11	3	4790	3.1
2200	050	210	+9	1	2000	9
2300	050	220	+11	1	2580	9
2400	050	70	+11	1	6340	9

May 17, 1951

Time	Hrly. Prev. Wind Dir. in °	Dir. Dev. in Deg.	Lapse Rate	Hrly Wind speed mph	Meters X max	uc/cc/curie/sec X 10^{-5} χ max/Q
0100	001	140	+11	<1	2900	16
0200	050	280	+7	<1	1010	16
0300	040	155	+11	<1	3560	16
0400	045	45	+10	3	9690	3.1
0500	040	50	+10	1	9330	9
0600	035	90	+10	3	4680	3.2
0700	350	90	+7	1	2890	9
0800	030	290	+2	<1	460	16
0900	160	360	+2	1	310	9
1000	090	360	-3	3	170	3.1
1100	056	70	-2	8	1360	1.2
1200	040	180	-2	7	570	1.3
1300	050	360	-3	8	180	1.2
1400	065	210	-3	7	580	1.3
1500	045	200	-2	7	670	1.3
1600	060	135	-2	6	720	1.6
1700	055	360	-2	3	200	3.1
1800	020	160	-2	5	590	1.9
1900	035	50	+3	5	970	1.9
2000	035	110	+7	1	2500	9
2100	055	110	+10	1	3910	9
2200	045	30	+11	1	11800	9
2300	035	30	+10	1	9690	9
2400	045	145	+10	1	3110	9

May 18, 1951

Time	Hrly. Prev. Wind Dir. in °	Dir Dev. in Deg.	Lapse Rate	Hrly Wind Speed	Meters X_{max}	μc/cc/curie/sec X10⁻⁵ χ_m/Q
1	045	40	+9	<1	1670	16
2	035	165	+9	<1	2500	16
3	255	305	+9	<1	1360	16
4	075	190	+6	<1	1280	16
5	180	255	+7	<1	1130	16
6	030	85	+8	<1	3690	16
7	050	130	+8	<1	2520	16
8	065	310	+4	1	568	9
9	070	360	+2	3	371	3.1
10	065	295	+3	5	249	1.9
11	070	130	-3	5	624	1.9
12	060	170	-3	5	489	1.9
13	045	180	-4	6	379	1.6
14	035	215	-3	5	375	1.9
15	105	225	-1	5	488	1.9
16	105	115	-1	5	1000	1.9
17	100	105	-1	4	1030	2.3
18	135	135	-1	2	748	4.2
19	100	210	+2	2	741	4.2
20	175	205	+4	1	930	9
21	180	110	+2	5	1600	1.9
22	050	295	+5	3	919	3.1
23	060	360	+6	1	590	9
24	055	35	+5	6	7000	1.6