

LIMERICK GENERATING STATION UNITS 1 & 2
ENVIRONMENTAL REPORT - OPERATING LICENSE STAGE
REVISION 16 PAGE CHANGES

The attached pages, tables, and figures are considered part of a controlled copy of the Limerick Generating Station EROL. This material should be incorporated into the EROL by following the instructions below.

After the revised pages have been inserted, place the page that follows these instructions in the front of Volume 1.

REMOVE

INSERT

VOLUME 1

Table 2.1-2
Table 2.1-9
Figure 2.1-4

Table 2.1-2
Table 2.1-9
Figure 2.1-4

VOLUME 2

Figure 2.4-12
Table 3.6-3

Figure 2.4-12
Table 3.6-3

VOLUME 3

Figure 6.1-19

Figure 6.1-19

VOLUME 5

Page E451.8-1

Page E451.8-1

THIS EROL SET HAS BEEN UPDATED TO
INCLUDE REVISIONS THROUGH 16
DATED 12-83.

Sector

N
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW

Total

LGS EROL

TABLE 2.1-2

POPULATION DISTRIBUTION 0-10 MILES
1980
DISTANCE (MILES)

<u>0-1</u>	<u>1-2</u>	<u>2-3</u>	<u>3-4</u>	<u>4-5</u>	<u>5-10</u>	<u>10-Mile Total</u>
58	682	894	397	753	3,158	5,942
46	1,088	244	478	204	2,428	4,488
46	40	202	334	276	3,732	4,630
12	58	199	380	228	5,139	6,016
20	150	271	389	418	5,120	6,368
29	179	297	268	579	9,223	10,575
6	369	141	4,844	4,055	6,830	16,245
0	190	285	2,664	1,587	20,992	25,718
3	343	331	164	340	3,864	5,045
12	611	308	513	268	1,848	3,560
69	181	204	311	300	1,783	2,848
46	179	533	458	1,596	1,899	4,711
35	118	1,754	1,515	1,054	2,239	6,715
40	320	2,992	11,076	3,545	9,791	27,764
20	288	1,872	6,667	1,309	4,004	14,160
35	711	1,727	1,237	1,304	6,555	11,569
477	5,507	12,254	31,695	17,816	88,605	156,354

Also Available On
Aperture Card

PRC
APERTURE
CARD

Rev. 16, 12/83

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Sector

N
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW

Total

LGS EROL

Also Available On
Aperture Card

TABLE 2.1-9

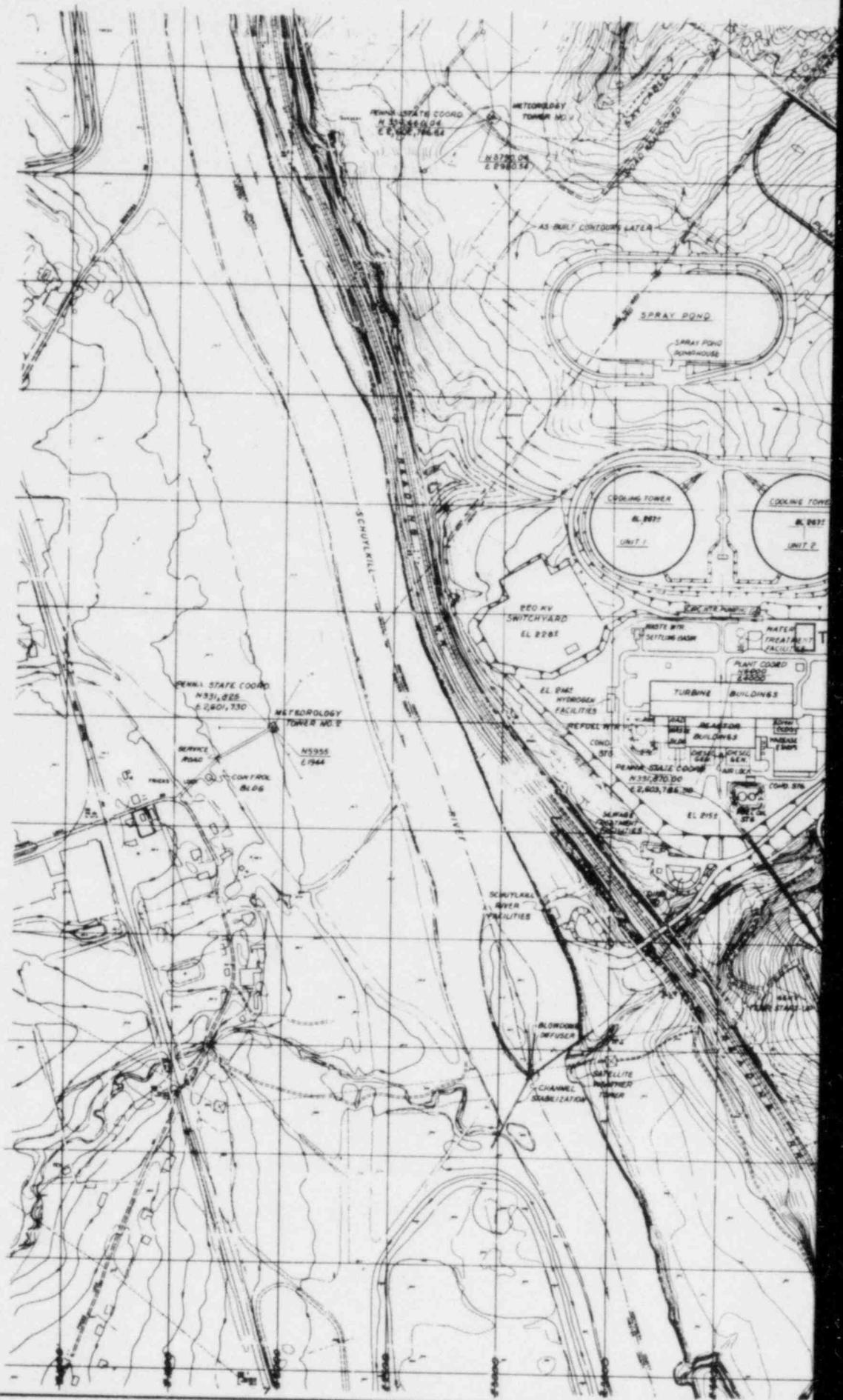
POPULATION DISTRIBUTION 10-50 MILES
1980
DISTANCE (MILES)

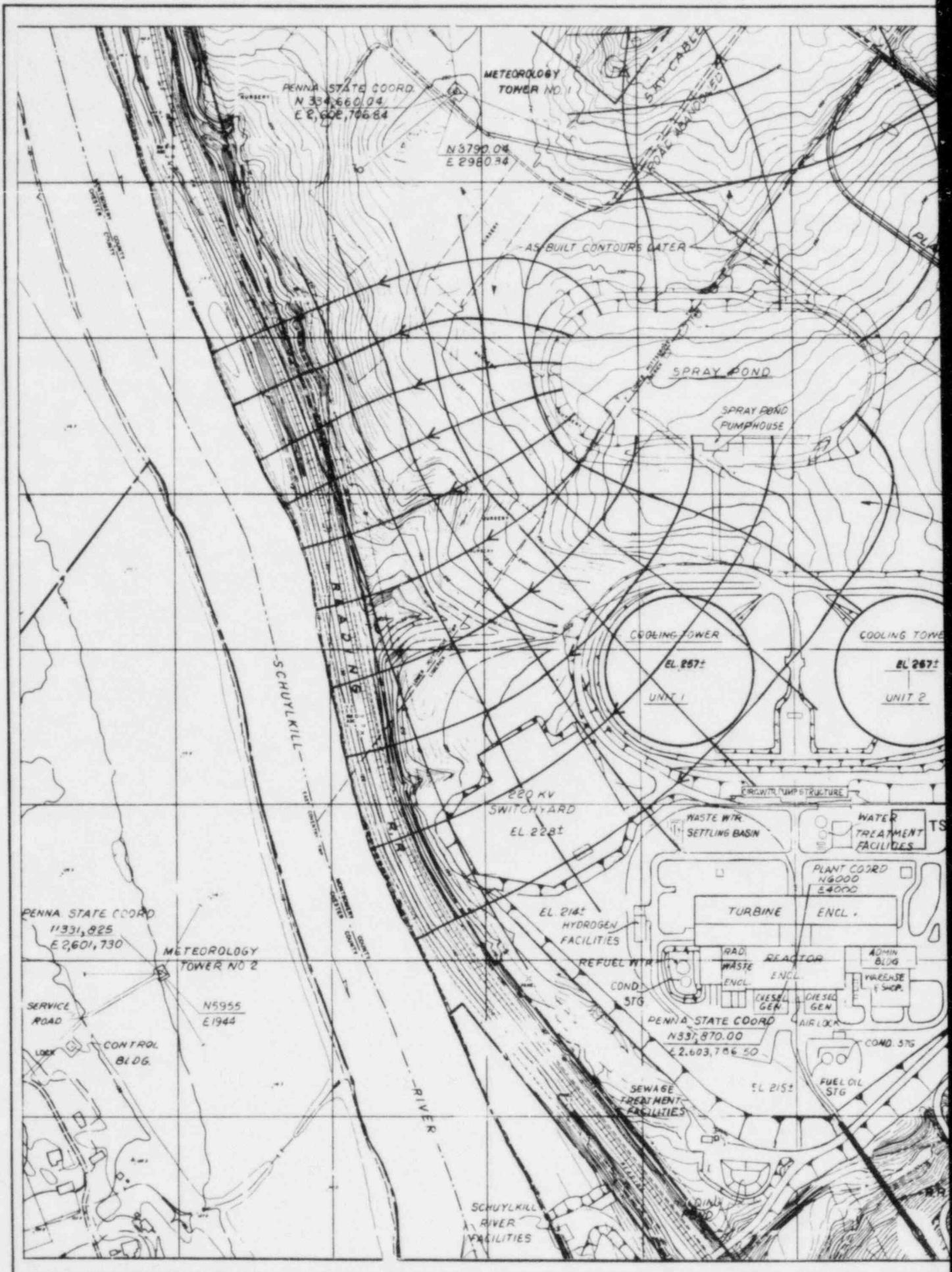
<u>0-10</u>	<u>10-20</u>	<u>20-30</u>	<u>30-40</u>	<u>40-50</u>	<u>50-Mile Total</u>
5,942	7,884	53,061	55,728	24,830	147,445
4,488	24,323	185,370	175,555	38,751	428,487
4,630	18,810	19,791	25,253	49,483	117,967
6,016	54,025	52,445	19,874	36,108	168,468
6,368	60,790	88,479	178,907	331,487	666,031
10,575	124,311	654,399	609,017	105,734	1,504,036
16,245	84,571	1,042,915	509,968	182,225	1,835,924
25,718	24,010	260,063	31,240	22,748	363,779
5,045	71,662	37,832	329,479	23,712	467,730
3,560	41,678	25,473	47,226	48,771	166,708
2,848	7,171	34,583	11,577	18,878	75,057
4,711	9,298	24,662	72,930	133,537	245,138
6,715	4,729	17,437	49,786	74,846	153,513
27,784	120,554	72,875	25,831	29,043	276,087
14,140	9,026	17,164	17,026	63,480	120,836
11,534	12,706	16,031	7,502	34,491	82,264
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156,319	675,548	2,602,580	2,166,899	1,218,124	6,819,470

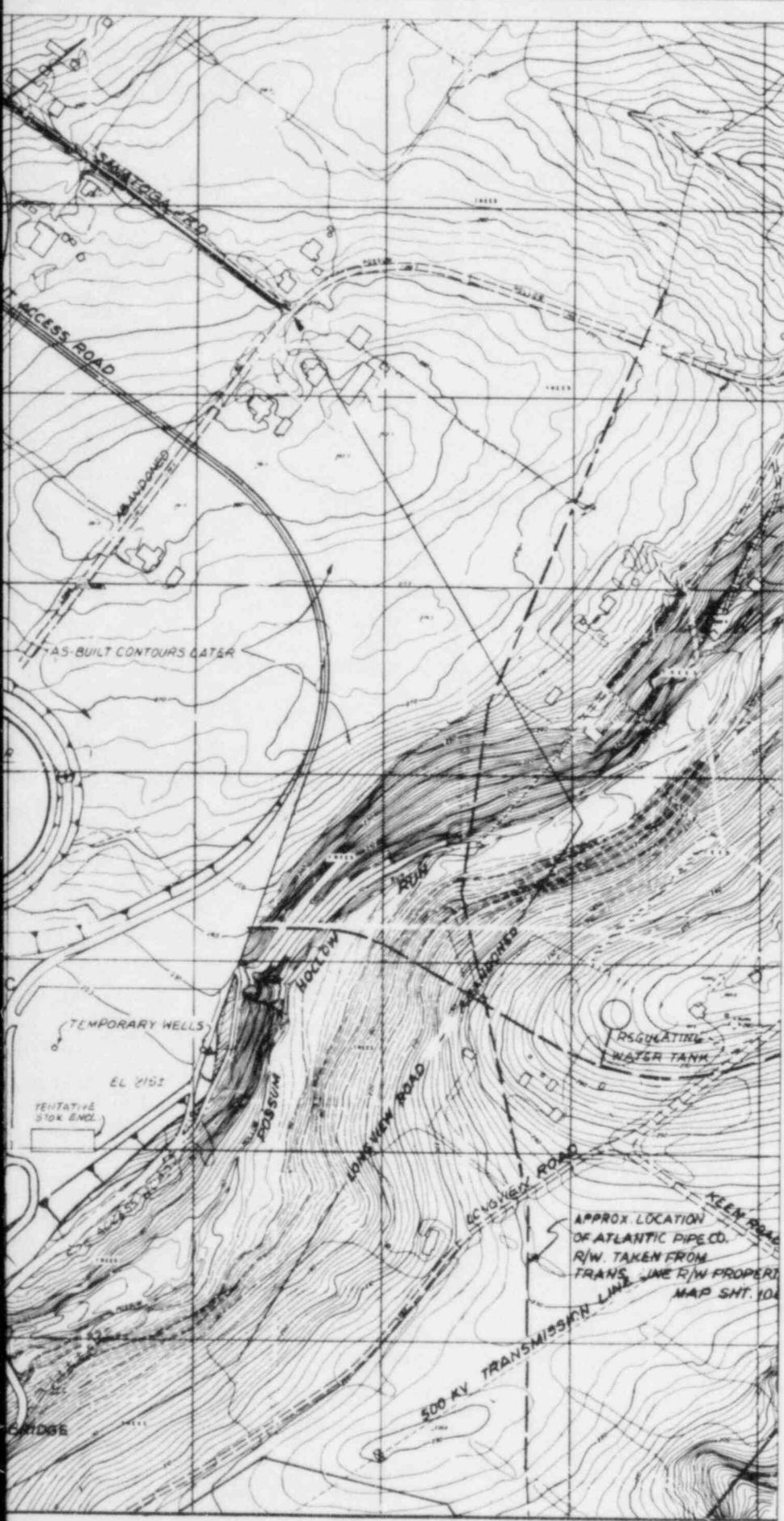
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APERTURE
CARD

Rev. 16, 12/83

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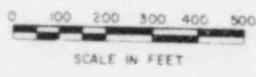


EXPLANATION

- EQUIPOTENTIAL LINES
- > FLOW LINES

Also Available On
Aperture Card

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APERTURE
CARD



LIMERICK GENERATING STATION
UNITS 1 AND 2
ENVIRONMENTAL REPORT

FLOWNET FOR SPRAY POND
WITH SEMI-IMPERVIOUS LINING

FIGURE 2.4-12 REV. 16, 12/83

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LGS EROL
Table 3.6-3

SIMULATED BLOWDOWN WATER QUALITY FROM LIMERICK GENERATING STATION 1975 THROUGH 1978

PARAMETER	DEC, JAN, FEB			MAR, APR, MAY			JUN, JUL, AUG			SEP, OCT, NOV		
	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
TEMPERATURE (C)	12.2	14.6	18.9	13.9	20.3	26.7	25.4	28.1	31.1	15.4	23.7	28.2
DISSOLVED OXYGEN (mg/l)	8.9	9.6	10.3	6.7	8.2	10.1	4.4	6.4	7.3	6.5	7.5	10.2
BIOCHEMICAL OXYGEN DEMAND (mg/l)	0.6	7.3	9.8	3.3	5.4	13.0	2.5	6.8	12.9	0.0	4.4	11.6
TOTAL ORGANIC CARBON (mg/l)	0.0	4.7	70.3	0.0	27.2	66.3	6.4	29.8	82.2	0.0	8.6	44.4
pH	7.05	7.25	7.71	7.14	7.37	7.90	7.00	7.24	7.78	6.91	7.25	7.72
TOTAL INORGANIC CARBON (mg/l)	142.1	219.9	329.8	98.6	195.1	304.9	72.8	234.1	278.9	136.4	232.8	373.6
TOTAL ALKALINITY (mg/l)	136.5	211.5	279.4	95.6	182.0	263.3	71.9	210.3	256.1	131.7	222.0	291.3
FREE CARBON DIOXIDE (mg/l)	3.7	8.5	17.0	2.0	7.4	12.9	0.4	4.4	20.0	2.3	8.8	22.4
TOTAL HARDNESS (mg/l)	278.3	431.4	721.4	246.5	390.3	609.9	277.7	379.6	491.9	201.6	438.8	782.6
SPECIFIC CONDUCTANCE (µsm/cm)	734	1087	1605	583	942	1533	706	1014	1228	709	1096	1717
TURBIDITY (JTU)	11.9	27.2	71.4	10.2	23.8	578.0	7.3	24.8	806.3	2.9	22.1	80.8
TOTAL SUSPENDED SOLIDS (mg/l)	3	34	126	3	30	1282	9	44	770	1	24	160
TOTAL DISSOLVED SOLIDS (mg/l)	58	731	1017	109	598	1057	565	752	898	468	758	1136
CHLORIDE (mg/l)	38.42	70.38	127.63	27.57	58.10	135.32	50.65	72.28	151.17	35.02	89.35	134.98
FLUORIDE (mg/l)	0.30	0.51	1.05	0.00	0.47	1.47	0.12	0.82	1.53	0.20	0.81	1.14
SULFATE (mg/l)	149.00	281.5	478.8	118.3	196.4	367.2	150.1	187.6	262.4	107.5	228.6	616.7
SODIUM (mg/l)	25.70	42.16	86.32	23.49	41.10	66.23	28.43	50.09	73.10	25.98	42.92	68.79
POTASSIUM (mg/l)	6.25	7.99	11.49	4.55	7.14	15.73	7.20	13.57	34.50	5.91	13.70	32.05
CALCIUM (mg/l)	71.57	102.81	167.55	71.12	94.52	152.01	68.78	95.35	185.64	62.22	101.25	211.82
MAGNESIUM (mg/l)	24.20	45.08	72.93	25.63	38.65	60.55	25.75	37.84	49.50	25.65	42.43	92.82
AMMONIA-NITROGEN (mg/l)	1.20	2.78	9.52	0.37	2.14	9.32	0.00	1.38	4.57	0.11	1.63	7.23
NITRITE NITROGEN (mg/l)	0.06	0.17	0.34	0.06	0.17	0.54	0.05	0.13	0.44	0.07	0.13	0.78
NITRATE NITROGEN (mg/l)	4.25	8.21	9.84	1.78	6.38	10.21	0.92	3.74	7.62	0.41	5.23	9.62
TOTAL PHOSPHATE PHOSPHORUS (mg/l)	0.44	0.59	0.93	0.38	0.52	2.07	0.55	0.78	2.81	0.41	0.61	1.47
ORTHO PHOSPHATE PHOSPHORUS (mg/l)	0.25	0.59	0.89	0.15	0.48	0.78	0.41	0.64	2.15	0.25	0.57	1.19
ARSENIC (mg/l)	0.000	0.000	0.000	0.000	0.000	0.014	0.000	0.000	0.000	0.000	0.000	0.003
BERYLLIUM (mg/l)	0.000	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BORON (mg/l)	0.00	0.47	0.81	0.17	0.47	0.71	0.00	0.34	1.15	0.05	0.51	1.01
CADIUM (mg/l)	0.000	0.000	0.041	0.000	0.000	0.007	0.000	0.000	0.014	0.000	0.000	0.024
CHROMIUM (mg/l)	0.007	0.017	0.054	0.003	0.014	0.048	0.000	0.010	0.054	0.003	0.010	0.034
COPPER (mg/l)	0.014	0.037	0.156	0.014	0.044	0.092	0.014	0.034	0.316	0.003	0.034	0.058
IRON (mg/l)	0.418	1.010	3.332	0.411	1.428	22.712	0.534	1.425	46.104	0.476	0.864	4.233
LEAD (mg/l)	0.000	0.007	0.024	0.000	0.010	0.092	0.000	0.010	0.377	0.000	0.003	0.041
MANGANESE (mg/l)	0.646	1.153	2.295	0.235	0.959	2.176	0.170	0.262	1.686	0.051	0.388	1.561
NICKEL (mg/l)	0.00	0.00	0.20	0.00	0.00	0.06	0.00	0.00	0.30	0.00	0.00	0.10
SELENIUM (mg/l)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ZINC (mg/l)	0.000	0.129	0.544	0.024	0.146	0.496	0.014	0.065	0.275	0.000	0.061	0.214
MERCURY (µg/l)	0.000	0.000	1.360	0.000	0.000	1.360	0.000	0.000	1.856	0.000	0.000	1.516
COBALT (mg/l)	0.003	0.003	0.020	0.003	0.007	0.017	0.000	0.000	0.044	0.000	0.000	0.000

QUESTION E451.8 (Section 2.3)

Five years (1972-1976) of data record have been submitted in joint frequency distribution form. Regulatory Guide 4.2 (Revision-2) states that the data set should include the most recent one year period for an operating license application. Provide the joint frequency distributions of wind direction and wind speed by atmospheric stability class (as defined by vertical temperature difference) for the most recent annual cycle of meteorological data (1980 or later) for all levels of wind and vertical temperature difference measurements based on data from tower 1 and, if available, from the other towers. The data year selected should represent conditions which were unobstructed by temporary terrain modifications. Provide the frequency (hours and percent) of calms (as defined in Question E451.7 from Regulatory Guide 1.111) by stability class and do not include calms in the joint frequency distribution tables by wind direction.

RESPONSE

The requested information was transmitted to the NRC by letter from J. S. Kemper to A. Schwencer dated September 1, 1982. One copy of a magnetic tape of hourly data and five copies of joint frequency distributions were included with the letter. As required by Regulatory Guide 1.70, section 2.3.3, this material represents the most recent one-year period of record for 1980 currently available.

The magnetic tape was resubmitted on October 13, 1983, by letter from J. S. Kemper to A. Schwencer, to correct a deficiency in the original tape.

The joint frequency distributions submitted with the September 1, 1982 letter are unaffected.

In addition, one copy of a magnetic tape containing hour-by-hour data and five copies of the joint frequency distributions for the 1980 year on a composite system basis were included with the October 13, 1983 letter. The composite system includes all of the primary tower (Tower No. 1) data, but uses secondary tower (Tower No. 2) wind speed and direction data from the same MSL elevation where Tower No. 1 data are missing. The justification for this substitution has been established by the Applicant and is presented in FSAR Section 2.3.2.1.1.2 and Table 2.3.2-30.