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ChemRisk/Shonka Research Associates, Inc., Document Request Form

Box 5

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J. Lamb / 1034A

Requestor — Document Center (is requested to provide the following document)

Date of request ~~[illegible]~~ 6/28/96 Expected receipt of document 1/8/95

Document number none Date of document 1970's

Title and author (if document is unnumbered) RUSH

Air Monitoring/Ni; Urinalysis Ni

→ Please copy the marked documents (4)

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4 documents

Date request received 6/28/96

Date submitted to ADC 7/8/96

Date submitted to HSA Coordinator 6/28/96

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Date submitted to CICO 7/8/96

Date received from CICO 7/9/96

Date submitted to ChemRisk/Shonka and DOE 7/10/96

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Date document received

Signature

#2924

Hi-Volume Air Sampling for the 1976 Calendar Year

From TK

This is our data for our routine Hi-Volume air sampling for the 1976 calendar year.

Cardinal Pints (4 sites) sampling at the plant periphery (24-hr samples)

#2924

This document has been approved for release to the public by: TW Selby 7/9/96
for AS Quist
Technical Information Officer Date
Oak Ridge K-25 Site

Prepared by Union Carbide Corporation-Nuclear Division, operating contractor for the U.S. Department of Energy under U.S. Government Contract No. W-7405-eng-26.

SUSPENDED PARTICULATES

Date	1/17/76	1/17	1/17	1/17	1/25/76	1/25	1/25	1/25
Location	S	N	E	W	S	N	E	W
Total Vol. (m^3)	2695	2446	2752	2676	2829	2561	2676	2848
Total mg	7.4	4.3	9.8	13.3	36.6	21.0	25.7	33.0
$\mu g/m^3$	2.7	1.8	3.6	5.0	12.9	8.2	9.6	11.6

Spectrographic Analysis of Deposit

(Results in $\mu g/m^3$)

Ag	—	—	—	—	—	—	—	—
Al	.3681	.4056	.5422	.3707	.3506	.3873	.7444	.6994
Ca	.3525	.3884	.3452	.3550	.6893	.7614	.3550	.6847
Cr	.0167	.0184	.0182	.0168	.0018	.0020	.0019	.0018
Cu	.3711	.0409	.0727	—	.1060	.0781	.1121	.0176
Fe	.1818	.2003	.1780	.1831	.0672	.0742	.0710	.0667
Mg	.0371	.0409	.0727	.0374	.0707	.0390	.0374	.0351
Mn	.0134	.0106	.0131	.0060	.0056	.0062	.0060	.0056
Mo	—	—	—	—	—	—	—	—
Na	.0712	.0785	.0698	.0717	.1032	.1140	.1091	.1025
Ni	.0341	.0376	.1788	.0717	.1032	.0359	.2960	.1728
Pb	.0186	.0204	.0182	.0187	.0353	.0781	.0747	.0351
Ti	.0241	.0184	.0164	.0168	.0053	.0059	.0056	—
V	.0148	.0164	.0145	.0149	.0028	.0039	.0037	.0035
Zn	—	—	—	—	—	—	—	—
Si	.7050	.7768	1.417	1.084	.3181	.7419	.7100	1.018
Residue After Ignition (%)	—	—	—	—	8.2	9.4	8.2	15.0

SUSPENDED PARTICULATES

Date		2/2/76	2/2	2/2	2/2	2/10	2/10	2/10
Location		S	N	E	W	S	N	W
Total Vol. (m^3)		5	4	1	2	5	4	2
Total mg		136	108.9	67.7	139.5	147.4	141.4	137.9
$\mu g/m^3$		45.0	40.4	24.9	49.3	53.9	51.0	48.7
			Spectrographic Analysis of Deposit					
			(Results in $\mu g/m^3$)					
Ag	—	—	—	—	—	—	—	—
Al		5.295	3.708	2.576	5.653	3.656	3.605	3.532
Ca		2.632	2.208	1.824	2.810	2.177	2.146	2.103
Cr		.0248	.0167	.0055	.0265	.0165	.1786	.0159
Cu		.2318	.1855	1.105	.2474	.1829	.1804	.1767
Fe		.9901	.7384	.3648	1.057	.7281	.7179	.7034
Mg		.0993	.0742	.0368	.1060	.0732	.1082	.1060
Mn		.0218	.0171	.0059	.0233	.0168	.0166	.0163
Mo		—	—	.0015	—	—	—	—
Na		.3285	.2568	.1076	.3506	.2532	.3579	.3153
Ni		.1298	.0712	.0339	.1386	.0702	.0693	.0679
Pb		.0662	.0371	.0184	.0707	.0366	.0722	.0707
Ti		.0083	.0056	.0018	.0088	.0055	.0054	.0053
V		.0099	.0074	.0037	.0106	.0073	.0072	.0071
Zn		.0033	.0026	.0011	.0035	.0022	.0022	.0018
Si		3.940	3.673	2.174	4.206	3.622	3.211	2.792
Residue After Ignition (%)		77.1	50.5	33.5	71.7	63.5	59.9	53.7

SUSPENDED PARTICULATES

Date	3/16/76	3/16	3/16	3/16	3/26/76	3/26	3/26	3/26
Location	S	N	E	W	S	N	E	W
Total Vol. (m^3)	2630	2886	2542	2905	2600	2791	2466	2714
Total mg	185.8	117.4	122.8	177.7	85.8	87.2	72.6	108.8
$\mu g/m^3$	70.6	40.7	48.3	61.2	33.0	31.2	29.4	40.1

Spectrographic Analysis of Deposit

(Results in $\mu g/m^3$)

Ag	—	—	—	—	—	—	—	—
Al	1.137	.3437	.6124	.3415	1.151	.7137	.8078	1.102
Ca	1.502	1.022	1.013	1.015	1.135	1.057	1.196	1.455
Cr Cr	.0171	.0052	.0092	.0103	.0096	.0040 ~~.1075~~	.1176 ~~.1216~~	.1824 ~~.1842~~
Cu	.1901	.0693	.1023	.0086	.1154	.1075	.1216	.1842
Fe	.1863	.0658	.1003	.1033	.1115	.1039	.1176	.1805
Mg	.7604	.1732	.1637	.2375	.2308	.2150	.2433	.7369
Mn	.0365	.0125	.0156	.0172	.0215	.0201	.0227	.0354
Mo	—	—	—	—	—	—	—	—
Na	.1110	.0319	.0502	.0344	.0354	.0330	.0373	.0707
Ni	.1110	.0319	.6124	.0661	.1123	.1046	.1184	.1076
Pb	.1141	.0346	.1023	.0688	.0769	—	—	.1105
Ti	.0741	.0260	.0194	.0327	.0288	.0287	.0304	.0718
V	.0076	.0031	.0102	.0034	.0038	.0018	.0040	.0074
Zn	—	—	—	—	—	—	—	—
Si	4.144	1.351	1.208	1.687	1.885	1.791	1.987	3.648
Residue After Ignition (%)	51.4	23.0	29.6	24.7	28.7	26.3	25.3	51.0
Sn	—	—	—	.0069	.0077	.0287	.0081	—

4/28

SUSPENDED PARTICULATES

Date	4/3/76	4/3	4/3	4/3	4/11/76	4/11	4/11	4/11
Location	S	N	E	W	S	N	E	W
Total Vol. (m^3)	2733	2886	2542	2810	2829	2676	2600	2752
Total mg	94.2	97.3	119.6	89.9	139.4	94.1	140.1	140.6
$\mu g/m^3$	34.5	33.7	47.0	35.2	49.3	35.2	53.9	51.1

Spectrographic Analysis of Deposit
(Results in $\mu g/m^3$)

Ag	—	—	—	—	—	—	—	—
Al	.7289	.6902	1.964	.7089	1.058	.7444	1.535	1.087
Ca	.7135	1.022	1.947	1.050	1.043	.7287	1.514	1.435
Cr Cr	.0055	.0156	.0177	.0053	.0088	.0056	.0135	.1799
Cu	.4391	.3465	1.574	.1779	.2828	.2242	.7692	.0727
Fe	.3622	.3430	1.176	.3523	.3499	.7436	.7654	.7231
Mg	.3659	.3465	1.180	.3559	.3535	.7474	.7692	.7267
Mn	.0351	.0333	.0771	.0271	.1753	.0359	.0369	.0349
Mo	.0146	.0035	.0079	—	—	—	.0038	—
Na	.0337	.0665	.1149	.1751	.0679	.0344	.0738	.0698
Ni	.1434	.1705	1.964	.1039	.1032	.2586	1.535	.1788
Pb	—	—	—	—	—	—	—	—
Ti	.0348	.0676	.1947	.0338	.0336	.0355	.0750	.0345
V	.0366	.0346	.0157	.0071	.0071	.0149	.0154	.0073
Zn	.0732	.0693	.1967	.0712	.1060	.0747	.0385	.0073
Si	3.622	3.777	9.402	4.591	3.853	2.952	5.731	4.688
Residue After Ignition (%)	44.1	46.0	94.5	41.4	54.8	40.7	71.9	60.2
Sn	.0011	.0035	—	—	—	—	—	—

SUSPENDED PARTICULATES

Date	4/26/76	4/26/76	4/26/76	4/26/76	5/11/76	5/11/76	5/11/76	5/11/76
Location	S	N	E	W	S	N	E	W
Total Vol. (m^3)	2580	2370	2515	2368	2542	2447	2523	2963
Total mg	66.4	69.8	73.0	69.8	118.7	128.4	138.3	140.0
$\mu g/m^3$	25.7	29.5	29.0	29.5	46.7	52.5	54.8	47.2

Spectrographic Analysis of Deposit
(Results in $\mu g/m^3$)

Ag	.0001	.0001	.0001	—	.0001	—	—	—
Al	.3845	.4186	.3944	.8412	.7836	.8141	.3932	.6723
Ca	.3682	.4008	.3777	.8235	.1770	.1839	.0991	.2531
Cr	.0058	.0063	.0775	.0063	.0059	.0061	.0377	.0084
Cu	.0775	.0844	.1988	.0422	.0787	.1226	.1189	.0675
Fe	.0736	.0802	.1153	.1225	.0747	.1185	.1149	.1316
Mg	.3876	.8439	.7952	.8446	.7868	.8173	.3964	1.0125
Mn	—	.0068	—	—	.0063	.0065	.0103	.0088
Mo	.0001	.0002	.0002	.0002	.0002	.0001	.0001	.0001
Na	.0163	.0051	.1161	.0177	.0165	.0172	.0087	.0074
Ni	.0357	.0388	.7920	.1233	.1935	.0090	.3932	.6723
Pb	.0775	.0211	.0199	.0211	.0787	.0204	.0277	.1350
Ti	.0058	.0063	.0060	.0063	.0059	.0061	.0099	.0084
V	.0003	.0003	.0004	.0004	.0016	.0016	.0002	.0020
Zn	.3488	.3797	.3579	.4223	.3541	.4087	.1585	.3375
Si	1.5116	.8017	1.1531	1.2247	1.5342	1.5938	1.1494	1.9912
Residue After Ignition (%)	16.9	14.6	21.1	22.0	19.0	22.2	28.2	31.9
Sn	—	—	—	—	—	—	—	—
	.0004	.0004	.0012	.0004	.0004	.0008	.0008	.0007

SUSPENDED PARTICULATES

Date	5/19/76	5/19/76	5/19/76	5/19/76
Location	S	N	E	W
Total Vol. (m^3)	2676	2512	2714	2752
Total mg	95.1	93.1	113.2	163.1
$\mu g/m^3$	35.5	37.1	41.7	59.3

Spectrographic Analysis of Deposit
(Results in $\mu g/m^3$)

Ag	—	—	—	—
Al	1.1180	1.5892	2.2078	3.2674
Ca	1.1024	1.1744	2.1923	3.2522
Cr	—	.0020	.0055	.0164
Cu	.1868	.3981	.7349	.2907
Fe	.1457	.3941	.3648	.7231
Mg	.0747	.0796	.1842	.2180
Mn	.0060	.0064	.0133	.0203
Mo	—	—	.0074	—
Na	.0157	.0167	.0339	.0698
Ni	.1091	.1959	.3655	.1061
Pb	.0747	.0796	.0368	.0727
Ti	.0056	.0060	.0129	.0200
V	.0030	.0024	.0029	.0073
Zn	.0075	.0080	.0147	.0727
Si	.7100	1.1545	1.8055	2.5706
Residue After Ignition (%)	22.5	24.1	42.0	62.5
Sn	—	—	—	—
	.0004	.0012	.0029	.0033

SUSPENDED PARTICULATES

Date	6/29/76	6/29/76	6/29	6/29	7/16/76	7/16/76	7/16/76	7/16/76
Location	SOUTH	NORTH	EAST	WEST	SOUTH	WEST	NORTH	EAST
Total Vol. (m^3)	2672	2351	2756	2676	2695	2638	LOSS OF POWER	
Total mg	59.7	111.9	104.1	78.7	128.7	145.1	SAMPLERS DID	
$\mu g/m^3$	22.3	47.6	37.8	29.4	47.8	55.0	NOT RUN.	

Spectrographic Analysis of Deposit

(Results in $\mu g/m^3$)

Ag	.0001	—	.0002	.0001	.0001	.0002		
Al	.1849	.8960	.1212	.3714	.7399	.8696		
Ca	.3735	3.592	.7229	.7468	1.484	1.895		
Cr	.0260	.0896	.0721	.0372	.0740	.0756		
Cu	.1860	.2234	.3606	.0923	.3329	.2263		
Fe	.1838	.4457	.1776	.1835	.3307	.3757		
Mg	.0340	.2212	.0695	.0341	.0710	.2242		
Mn	.0013	.0037	.0028	.0074	.0111	.0190		
Mo	.0007	.0003	.0003	.0007	.0002	.0003		
Na	.0180	.0442	.0356	.0366	.0735	.0371		
Ni	.1868	.2242	1.451	.0744	.7418	1.895		
Pb	.0748	—	.1814	.1121	.1484	.2274		
Ti	.0258	.0632	.0504	.0258	.0367	.0754		
V	.0015	.0037	.0072	.0015	.0026	.0026		
Zn	.3368	.8234	.6531	.3363	.3710	.7582		
Si	1.492	1.792	2.898	1.490	1.257	1.512		
Residue After Ignition (mg)	—	—	—	—				
Sn	.0187	.0074	.0725	.0192	.0338	.0384		
Cd	.0011	.0026	.0108	.0011	.0018	.0003		

SUSPENDED PARTICULATES

Date	7/24/76	7/24	7/24	7/24	8/1/76	8/1	8/1	8/1
Location	SOUTH	NORTH	EAST	WEST	SOUTH	NORTH	EAST	WEST
Total Vol. (m^3)		2370		2810	2274	2504		2638
Total mg	SAMPLER	306.8	POWER OFF	230.4	98.5	100.9	POWER OFF	99.7
$\mu g/m^3$	MOTOR	129.4	NO SAMPLE	90.0	43.3	40.3	NO SAMPLE	37.8
	WOULD NOT							
	RUN.							

Spectrographic Analysis of Deposit

(Results in $\mu g/m^3$)

Ag		.0001		—	.0001	.0001		0
Al		.6093		.5459	.1073	.0974		.0925
Ca		.0606		.0539	>.0084	.0092		>.0087
Cr		.3668		.2204	.0437	.0397		.0566
Cu		.0354		.0318	.0097	.0088		>.0084
Fe		1.220		.9932	.1500	.1761		.1861
Mg		.0579		.0520	>.0071	>.0064		>.0072
Mn		.0244		.0089	.0017	.0016		.0015
Mo		—		—	—	—		—
Na		—		—	—	—		—
Ni		—		—	.0128	.0056		.0224
Pb		—		—	—	—		—
Ti		—		—	—	—		—
V		—		—	—	—		.0003
Zn		—		—	—	—		—
Si		.4844		.4334	>.0827	.0751		>.0713
Residue After Ignition (MF)-		—		—	—	—		—
Sn		.0255		.0213	.0045	.0040		.0038
Co		—		—	—	—		—

SUSPENDED PARTICULATES

Date	8/9/76	8/9/76	8/9/76	8/9/76	8/18/76	8/18	8/18	8/18
Location	SOUTH	NORTH	EAST	WEST	SOUTH	NORTH	EAST	WEST
Total Vol. (m^3)	2324	2485	2466	2638	SAMPLERS DID NOT START AT RIGHT TIME. DUE TO TIMERS BEING SET WRONG.			
Total mg	79.9	97.2	61.6	97.9				
$\mu g/m^3$	34.4	39.1	25.0	37.1				

Spectrographic Analysis of Deposit

(Results in $\mu g/m^3$)

Ag	.0002	0	0	0
Al	.4277	.9473	.4295	.7938
Ca	.8599	.9654	1.138	2.122
Cr	.0040	.0046	.0025	.0104
Cu	.8593	.9243	.2462	.5296
Fe	.2116	.2342	.1379	.2620
Mg	.2116	.2379	.1379	.2620
Mn	.0018	.0097	.0055	.0023
Mo	.0009	.0010	.0001	.0011
Na	.0426	.0721	.0821	.0157
Ni	.0426	.0721	.0821	.0157
Pb	.1076	.0966	.0141	.1327
Ti	.0297	.0720	.0192	.0375
V	.0017	.0036	.0012	.0023
Zn	.0064	.0072	.0027	.0076
Si	1.716	1.886	1.134	2.118
Residue After Ignition (%)	—	—	—	—
Co	.0009	.0008	.0004	.0008
Sn	.0222	.0245	.0032	.0273

SUSPENDED PARTICULATES

Date	8/26/76	8/26/76	8/26	8/26
Location	SOUTH	NORTH	EAST	WEST
Total Vol. (m^3)		2370	2408	2791
Total mg		49.8	61.1	77.3
$\mu g/m^3$	SAMPLERS 4 & 5 BOTH BEING REPAIRED NOT AVAILABLE AT THIS TIME	21.0	25.4	27.7

Spectrographic Analysis of Deposit

(Results in $\mu g/m^3$)

Ag	0	.0001	.0002
Al	.9257	.5789	.9294
Ca	1.898	1.660	1.218
Cr	.0082	.0114	.0059
Cu	.2308	1.245	1.790
Fe	.4689	.2875	.2977
Mg	.4605	.2875	.3013
Mn	.0039	.0117	.0025
Mo	.0017	.0025	.0011
Na	.1890	.1445	.1498
Ni	.0925	.1741	.0606
Pb	.0464	.1163	.0301
Ti	.0671	.0411	.0426
V	.0038	.0025	.0025
Zn	.0143	.0017	.0018
Si	3.792	2.321	2.396
Residue After Ignition (mg)	—	—	—
	~~.0003~~	~~.0017~~	~~.0011~~
Co	.0003	.0017	.0011
Sn	.0108	.0058	.0286

SUSPENDED PARTICULATES

Date	9/10/76	9/10	9/10	9/18	9/18	9/18
Location	NORTH	EAST	WEST	SOUTH	NORTH	EAST
Total Vol. (m^3)	2401	2458	2752	2619	2328	2557
Total mg	68.1	62.8	66.3	142.2	128.4	114.4
$\mu g/m^3$	28.4	25.5	24.1	54.3	55.2	44.7

Spectrographic Analysis of Deposit

(Results in $\mu g/m^3$)

Ag	.0001	.0001	0	.0002	.0002	.0002
Al	.6830	.3271	.2703	.9064	.9854	1.014
Ca	.6822	.3287	.2718	.7247	.9871	1.016
Cr Cr	.1912	.0933	.1088	.2518	.2746	.2892
Cu Cu	1.640	.5288	.4350	1.450	1.579	.2882
Fe	.1212	.0370	.0403	.1035	.1164	.1138
Mg	.2711	.1306	.1057	.3402	.3913	.3876
Mn	.0125	.0264	.0218	.0152	.0158	.0078
Mo	—	.0053	—	.0153	.0773	.0156
Na	.1366	.0643	.0719	.1787	.9871	.2065
Ni	.2745	.1990	.1087	.3433	.3862	.3907
Pb	.0125	.0651	.2180	.7255	.3866	.3911
Ti	.0537	.0240	.0432	.0722	.0769	.0778
V	.0022	.0012	.0011	.0145	.0160	.0156
Zn	.0833	.0407	—	.1069	.0601	.0626
Si	1.369	1.317	1.086	3.623	3.861	2.068
Residue After Ignition (%)	—	—	—	—	—	—

SUSPENDED PARTICULATES

Date	9/26/76	9/26/76	9/26	9/26	10/4	10/4	10/4	10/4
Location	SOUTH	NORTH	EAST	WEST	SOUTH	NORTH	EAST	WEST
Total Vol. (m^3)	2542	2370	2515	2905	2504	2401	2485	2905
Total mg	99.0	127.2	127.4	98.6	156.1	116.7	136.1	142.4
$\mu g/m^3$	38.9	53.7	50.6	33.9	62.3	48.6	54.8	49.0
			Spectrographic Analysis of Deposit					
			(Results in $\mu g/m^3$)					
Ag	C	.0001	.0001	.0002	.0004	.0004	—	.0002
Al	.1943	.4194	.2561	.1115	.9561	1.155	.4241	.4902
Ca	.2943	.4211	.5161	.1714	.6222	.7738	.8483	.9838
~~Cr~~ Cr	.0017	.0040	.0049	.0022	.0245	.0152	.0336	.0194
Cu	.0460	.1675	.5157	.0437	.3103	.0737	1.701	.2468
Fe	.0114	.0595	.0223	.0072	.6194	.3836	.8455	.4892
Mg	.0212	.0384	.0095	.0255	.1202	.1878	.1654	.0967
Mn	.0039	.0016	.0010	.0024	.0048	.0154	.0068	.0075
Mo	.0004	.0008	.0052	.0002	—	.0031	.0034	.0004
Na	.0464	.1046	.0628	.0544	.0631	.1908	.0877	.2472
Ni	.0095	.0418	.5165	.0052	4.952	.1162	5.070	1.972
Pb	.0248	.1055	.0636	.0227	.0312	.0387	.1690	.0998
Ti	~~.3887~~ .0067	~~1.261~~ .0080	.0048	.0052	.0244	.0383	.0334	.0478
V	.0039	.0084	.0103	.0045	.0048	.0062	.0068	.0041
Zn	—	—	.0039	.0034	.0124	.0117	.0048	.0062
Si	.3887	1.261	.5121	.4503	2.479	1.540	3.134	1.968
Residue After	—	—	—	—	—	—	—	—
Ignition (~~H~~ Mn)								
CO	.0003	.0025	.0039	.0003	—	—	—	—
Sn	.0005	—	—	.0005	.0639	.0075	.0885	.0413

SUSPENDED PARTICULATES

Date	10/12/76	10/12	10/12	10/12	10/20	10/20	10/20	10/20
Location	S	N	E	W	N	E	W	SOUTH
Total Vol. (m^3)	2600	2351	2466	2676	2401	2485	2905	TROUBLE
Total mg	144.5	166.9	123.4	145.9	134.7	123.8	119.8	WITH
$\mu g/m^3$	49.7	71.0	50.0	54.5	56.1	49.8	41.2	SAMPLER

Spectrographic Analysis of Deposit

(Results in $\mu g/m^3$)

Ag	0	0	0	0	0	0	0
Al	.9708	1.142	.6139	1.343	.5181	.3598	.2354
Ca	.9723	1.718	.3114	.9148	.7072	1.078	.4744
~~Cr~~ Cr	.0194	.0227	.0444	.0633	.0068	.0142	.0046
Cu	.4873	.1136	.3110	.2194	.0337	.3610	.1160
Fe	.4850	.5661	.3086	.4451	.0504	.0487	.0313
Mg	.2388	.2812	.1180	.0863	.3461	.3586	.3549
Mn	.0196	.0046	.0121	.0179	.0070	.0072	.0048
Mo	.0019	.0004	.0012	.0018	.0012	.0014	.0010
Na	.2415	.0544	.1533	.2197	.0866	.0877	.0578
Ni	.2420	.1698	.3038	.4481	.1037	.0358	.0234
Pb	.2423	.0553	.1541	.0934	.0541	.0724	.0482
Ti	.0496	.0225	.0239	.0176	.0171	.0177	.0162
V	.0058	.0047	.0049	.0052	.0035	.0029	.0019
Zn	.0146	.0068	.0093	.0093	.0104	.0109	.0072
Si	1.953	1.139	1.224	.7780	1.386	1.074	.9460
Residue After Ignition (~~HF~~ mg)	—	—	—	—	—	—	—
Co	—	.0034	.0018	.0027	.0012	.0052	.0007
Sn	.0292	.0114	.0182	.0448	.0208	.0281	.0137

SUSPENDED PARTICULATES

Date	10/28/76	10/28	10/28	10/28
Location	S	N	E	W
Total Vol. (m^3)	3998	2619	2619	SAMPLER
Total mg	101.9	59.9	48.9	WOULD
$\mu g/m^3$	25.5	22.9	18.7	NOT
				RUN.

Spectrographic Analysis of Deposit
(Results in $\mu g/m^3$)

Ag	.0012	.0003	0
Al	1.274	1.067	1.258
Ca	.3247	1.068	.6483
Cr	.0126	.0105	.0124
Cu	.1593	.1325	.1554
Fe	.3154	.2638	1.256
Mg	.3229	.2638	.3135
Mn	.0250	.0106	.0190
Mo	.0128	.0023	.0027
Na	.0320	.1329	.0603
Ni	.0498	.0531	.0607
Pb	.1601	.0802	1.260
Ti	.0448	.0263	.0454
V	.0050	.0053	.0126
Zn	.0200	.0080	.0126
Si	2.548	2.134	2.515
Residue After Ignition (mg)-	—	—	—
Co	.0062	—	.0019
Sn	.0325	.0267	.0316

SUSPENDED PARTICULATES

Date	11/5/76	11/5	11/5	11/5	11/13	11/13	11/13	11/13
Location	S	N	E	W	S	N	E	W
Total Vol. (m^3)	2726	2561	2523	2638	2748	2542	2561	2676
Total mg	91.9	100.1	102.6	103.4	89.2	43.7	76.4	94.2
$\mu g/m^3$	33.7	39.1	40.7	39.2	32.4	17.2	29.8	35.2

Spectrographic Analysis of Deposit

(Results in $\mu g/m^3$)

Ag	—	—	—	—	—	—	—	—
Al	.8437	1.013	1.028	.9454	.6892	.0763	.4662	.6330
Ca	1.687	1.991	2.100	1.895	1.054	.1566	.7021	1.270
Cr Cr	.0073	.0115	.0275	.0074	.0071	.0025	.0076	.0147
Cu	.1823	.2331	.5141	.0368	.3628	.0382	.2331	.1110
Fe	.2168	.1136	.2739	.2240	.3606	.0358	.2308	.2956
Mg	.2168	.2308	.2739	.2240	.1786	.0161	.1136	.1461
Mn	.0073	.0117	.0118	.0075	.0145	.0007	.0078	.0074
Mo	.0007	.0012	.0016	.0008	.0036	.0008	.0078	.0112
Na	.1093	.1175	.1181	.1130	.0720	.0110	.0773	.0740
Ni	.0730	.0387	.1582	.0376	.0361	.0075	.0231	.0296
Pb	.1100	.1171	.1189	.0227	.0728	.0118	.0781	.0747
Ti	.0363	.0386	.0353	.0337	.0360	.0035	.0230	.0220
V	.0257	.0234	.0317	.0303	.0291	.0024	.0078	.0112
Zn	—	—	—	.0152	.0109	.0012	.0078	.0075
Si	1.683	1.987	2.096	1.891	1.415	.1526	.9324	1.266
Residue After Ignition (mg)	—	—	—	—	—	—	—	—
Cd	.0011	.0016	.0079	.0008	.0011	—	.0008	.0007
Sn	.0220	.0390	.0396	.0379	.0182	.0027	.0234	.0298

SUSPENDED PARTICULATES

Date	11/21/76	11/21	11/21	11/21	11/29	11/29	11/29	11/29
Location	S	N	E	W	S	N	E	W
Total Vol. (m^3)			2485	2638		2752	2485	2619
Total mg	POWER	SAMPLER	58.4	49.9	POWER	11.7	39.5	7.8
$\mu g/m^3$	NOT	WOULD NOT	23.5	18.9	NOT	4.2	15.9	3.0
	AVAILABLE	RUN			AVAILABLE			
	(C. STAIR)				(C. STAIR)			

Spectrographic Analysis of Deposit
(Results in $\mu g/m^3$)

Ag			—	—		—	—	—
Al			1.642	1.590		.5065	1.084	.5404
Ca			.8214	8332		.9804	1.730	1.068
~~Cr~~ Cr			.0222	.0225		.0034	.0279	.0051
Cu			.8210	.8328		.0243	.4414	.0256
Fe			.4077	.4136		.2438	.4390	.0233
Mg			.8188	.8306		.0585	.2096	.2638
Mn			.4110	.3790		.0109	.0080	.0114
Mo			.0112	.0114		.0011	.4426	.0011
Na			.1861	.1888		—	—	—
Ni			.2239	.0755		.0178	.1284	.0264
Pb			.1495	.1516		.0109	.0644	.0611
Ti			.0744	.0754		.0505	.0841	.0263
V			.0075	.0227		.0109	.0121	.0114
Zn			.1495	.1516		.0763	.1288	.0114
Si			2.424	2.346		.9767	1.726	1.064
Residue After Ignition (~~14%~~)			—	—		2	18.2	6.1
Co			.0022	.0023		.0004	.0080	—
Sn			.0373	.0379		.0254	.0201	.0267

UCN-3889 (125 11-62) DATA SHEET

SUSPENDED PARTICULATES

Date	12/17/76	12/17	12/17	12/17	12/25/76	12/25	12/25	12/25
Location	N	E	S	W	E	N	S	W
Total Vol. (m^3)	2676	2351	2561	2748	2512	2676	2561	2867
Total mg	77.3	114.7	48.3	118.1	59.1	78.8	62.5	80.1
$\mu g/m^3$	28.9	48.8	18.8	43.0	23.5	29.4	24.4	27.8

Spectrographic Analysis of Deposit

(Results in $\mu g/m^3$)

Ag	—	—	—	—	—	—	—	—
Al	1.455	2.890	1.403	3.200	.1982	.8199	.5834	.5211
Ca	3.736	4.253	.2335	7.278	.5305	2.615	1.170	.6969
Co	.0075	.0042	.0020	.0025	.0004	.0011	.0008	.0007
Cu	.9331	.1263	.0379	.0717	.1323	.2605	.1160	.1036
Fe	.2208	.4215	.4650	.7245	.0652	.2956	.1917	.1712
Mg	.0900	.7618	.2698	.7245	.0386	.2582	.1917	.1712
Mn	.0186	.0425	—	.0327	.0010	.0074	.0046	.0069
Mo	.0019	—	.0156	—	.0003	.0011	—	—
Na	.1861	.3394	.0773	.1630	.0263	.1114	.0773	.0691
Ni	.2986	.2123	.0777	.0360	.1191	.0370	.0387	.0276
Pb	.0224	.0340	.0195	—	.0020	.0037	.0020	.0087
Ti	.0744	.1697	.0777	.1270	.0278	.0034	.0273	.0241
V	.0075	.0128	.0078	.0146	.0032	.0037	.0031	.0025
Zn	—	—	—	—	—	—	—	—
Si	3.732	5.950	3.900	5.818	1.588	2.238	1.557	1.341
Residue After Ignition (mg)	57.6	68.5	48.0	88.4	23.4	30.0	20.4	22.7
Cr	.0072	.0125	.0076	.0030	.0007	.0031	.0021	.0019

Community Environmental Services

CES Program

(All results reported as μg/M³)

From TH

24-hr Sampling Periods

Location	Clayton	N. Knox	St. Knox	Townsend	Sugar Grove
Date 12/6/76 to 12/7/76					
Ni	0.004	<0.004	0.02	0.004	0.007
Date 12/7/76 to 12/8/76					
Ni	<0.004	<0.004	0.026[1]	<0.004	<0.004
Date 12/8/76 to 12/9/76					
Ni	<0.005	<0.004	<0.005	.0040	.0017
Date 12/9/76 to 12/10/76					
Ni	<0.005	<0.004	.0418	.1320	.0018
Date 12/10/76 to 12/11/76					
Ni	0.01	<0.005	.0344	.0133	.0348
Date 12/11/76 to 12/12/76					
Ni	<0.005	0.02	.0122	.0010	
Date 12/12/76 to 12/13/76	.0077	.0032	no sample[2]	.0074	
Ni					
Date 12/13/76 to 12/14/76					.0121
Ni					

Note 1 Sampler was knocked over during the sampling period.

Note 2 Sampler would not run.

This document has been approved for release to the public by: for A. J. West 7/9/96
Technical Information Officer Date
Oak Ridge K-25 Site

Prepared by Union Carbide Corporation-Nuclear Division, operating contractor for the U.S. Department of Energy under U.S. Government Contract No. W-7405-eng-26.

MONDAY DEC. 6, 1976
TO
TUESDAY DEC 7, 1976
(Metal values in $\mu g/M^3$ of air)

LOCATION	BAXTON	NORTH KNOX	WEST KNOX	TOWNSEND	SUGAR GROVE
SHEET NO.	1	8	15	22	29
WEIGHT 1	4.4521	4.3232	4.3721	4.4351	4.3813
WEIGHT 2	4.4840	4.3530	4.4303	4.4791	4.4288
TOTAL MG	31.9	29.8	58.2	44.0	47.5
TIME (MIN)	1445	1475	1447	1440	1527
SAMPLE RATE (CFM)	55.7	61.1	62.2	54.8	62.8
VOLUME (M^3)	2279	2552	2549	2235	2715
$\mu g/M^3$ Total particulate	14.0	11.7	22.8	19.7	17.5
Ag	—	—	—	—	—
Al	0.22	0.22	0.20	0.15	0.11
As	—	—	—	—	—
Be	—	—	—	—	—
Bi	—	—	0.001	0.001	—
Ca	0.29	—	0.04	0.05	0.07
Cd	—	—	—	—	—
Co	0.002	—	0.002	0.001	0.001
✓ Cr	—	—	—	0.002	0.001
Cu	0.03	0.08	0.03	0.08	0.04
Fe	0.01	—	0.07	—	0.04
Li	—	0.01	—	—	—
Mg	0.02	0.004	0.01	0.02	0.004
Mn	0.004	0.002	0.003	0.002	0.002
Mo	—	—	0.003	0.002	0.001
Na	—	0.04	—	—	—
Ni	0.004	<0.004	0.02	0.004	0.004
Pb	0.06	0.02	0.02	0.05	0.02
Sb	0.36	—	0.29	0.22	0.21
Si	0.43	0.11	0.39	0.12	0.21
Sn	0.01	0.003	0.02	0.01	0.01
Ti	0.004	—	0.01	0.004	0.003
V	0.01	0.01	0.01	0.01	0.01
Zn	0.01	—	0.02	0.01	0.01
TOTAL RESIDUE (mg)	4.6	3.3	4.7	2.9	3.4

UCN-3889A (125 11-62) DATA SHEET

TUES DEC 7, 1976
TO
WED DEC 8, 1976

Location	Clarion	North Knox	West Knox	Townsend	Sugar Grove
Sheet No	2	9	16	23	30
Weight 1	4.4421	4.3898	4.3138	4.4507	4.4476
Weight 2	4.4825	4.4217	4.3851	4.4787	4.4814
Total mg	40.4	31.9	71.3	28.0	33.8
Time (min)	1423	1460	1710 ①	1440	1425
Sample Rate (cfm)	65.5	66.1	65.8	62.0	69.6
Volume (m^3)	2639	2733	3186	2528	2808
mg/m^3 Total particulate	15.3	11.7	22.4	11.1	12.0
Ag	—	—	—	—	—
Al	.2160	.2452	.7753	.1068	.1674
As	—	—	—	—	—
Be	—	—	<.0001	—	—
Bi	—	—	—	—	—
Ca	<.1705	.0915	.6434	<.1780	.0178
Cd	—	—	—	—	—
Co	—	.0004	.0012	—	—
Cr	.0015	<.0585	.0012	<.0063	<.0057
Cu	.0114	.0366	.0942	.0198	.0214
Fe	<.0417	.0329	.0596	<.0435	<.0392
Li	.0076	.0110	.0282	.0079	.0071
Mg	.0076	.0073	.0596	.0040	.0035
Mn	.0030	.0029	.0182	.0024	.0028
Mo	.0004	.0018	.0016	—	.0018
Na	.0758	.0732	.0942	.0198	.0356
Ni	<0.004	<0.004	0.026	<0.004	<0.004
Pb	.0303	.0366	.0942	.0158	.0214
Sb	<.0265	—	—	—	—
Si	.4130	.3256	1.535	.3125	.1389
Sn	.0068	.0102	.0308	.0032	.0064
Ti	.0038	.0073	.0282	<.0040	.0036
V	.0038	.0036	.0126	.0016	.0018
Zn	.0114	.0256	.1161	<.0119	.0071
Total Residue (mg)	5.4	6.0	23.7	3.3	4.0

Note ① Sampler was found on its side

WED DEC 8, 1976
TO
THUR DEC 9, 1976

LOCATION	Clayton	N. Knox	W. Knox	Townsend	Sugar Grove
SHEET NO.	3	10	17	24	31
WEIGHT 1	4.2102	4.4110	4.3610	4.4301	4.4080
WEIGHT 2	4.2941	4.4931	4.4576	4.4841	4.4688
TOTAL MG	83.9	82.1	96.6	54.0	60.8
TIME (MIN)	1440	1385	1248	1440	1365
SAMPLE RATE (CFM)	53.0	61.0	57.8	61.6	60.8
VOLUME (M^3)	2161	2392	2043	2512	2350
$\mu g/m^3$ Total particulate	38.8	34.3	47.3	21.5	25.9
Ag	—	—	—	—	—
Al	.9116	.6982	—	.2468	.4128
As	—	—	—	—	—
Be	—	—	—	—	—
Bi	—	—	—	—	—
Ca	.7173	.5226	1.738	.2189	.4042
Cd	—	—	—	—	—
Co	—	—	.0020	.0004	.0038
Cr	.0018	.0058	.0068	<.0064	<.0068
Cu	.0092	.2926	.0343	.0119	.0200
Fe	.1805	.1212	.2888	.0199	.0826
Li	.0046	—	.0489	—	—
Mg	.2267	.0794	.6314	.0279	.0464
Mn	.0176	.0117	.0235	<.0008	.0042
Mo	.0046	.0033	.0024	—	—
Na	.0925	.1672	.1468	—	—
Ni	<.005	<.004	<.005	.0040	.0017
Pb	.0925	.1672	.3426	.0159	.0970
Sb	—	—	.0636	—	—
Si	1.800	1.375	2.589	.2150	.1974
Sn	.0453	.0368	.0005	—	—
Ti	.0278	.0209	.0440	.0199	.0204
V	.0155	.0125	.0049	.0016	.0021
Zn	.0787	.1129	.1811	—	—
TOTAL RESIDUE (mg)	18.8	16.3	26.0	5.7	8.6

UCN-3889A DATA SHEET

THUR DEC. 9, 1976
FRI DEC. 10, 1976

LOCATION	CLAXTON	NORTH KNOX	WEST KNOX	TOWNSEND	SUGAR GROVE
SHEET No.	4	11	18	25	32
WEIGHT 1	4.4026	4.2436	4.3986	4.3887	4.4294
WEIGHT 2	4.4957	4.3632	4.5207	4.5431	4.5031
TOTAL mg	93.1	119.6	122.1	154.4	73.7
TIME (MIN)	1455	1467	1498	1440	1473
SAMPLE RATE (CFM)	52.4	55.5	55.8	63.0	54.5
VOLUME (M^3)	2159	2306	2367	2569	2273
µg/m3 Total particulate	43.1	51.9	51.6	60.1	32.4
Ag	—	.0013	—	—	—
Al	1.341	1.169	2.153	3.307	.4382
As	—	—	—	—	—
Be	—	—	—	—	—
Bi	—	—	—	—	—
Ca	1.340	1.558	2.152	4.941	.6573
Cd	—	—	—	—	—
Co	—	.0021	.0021	.0050	.0044
Cr	.0138	.0172	.0083	.0154	.0021
Cu	.0171	.2155	.0832	.0806	.0207
Fe	.3214	.3877	.3777	.8151	.0194
Li	.0093	.0434	—	—	—
Mg	.1848	.3898	.1770	.3889	.0128
Mn	.0324	.0867	.0126	.0077	.0044
Mo	.0028	.0030	—	—	—
Na	.2316	.3903	—	—	—
Ni	<.005	<.004	.0418	.1320	.0018
Pb	.2770	.3894	.4216	.8167	.0915
Sb	—	.0867	—	—	—
Si	2.730	3.120	1.434	3.306	.2173
Sn	.0463	.0017	—	—	—
Ti	.0454	.0425	.0710	.1627	.0211
V	.0278	.0217	.0042	.0156	.0022
Zn	.1853	.0217	—	—	—
TOTAL RESIDUE (mg)	28.5	35.4	33.2	84.2	11.1

FRI DEC. 10, 1976
SAT DEC. 11, 1976

LOCATION	CLAXTON	NORTH KNOX	WEST KNOX.	TOWNSEND	SUGAR GROVE
SHEET No.	5	12	19	26	33
WEIGHT 1	4.4060	4.3261	4.4997	4.4000	4.3665
WEIGHT 2	4.5310	4.4620	4.5967	4.4752	4.4626
TOTAL mg	125.0	135.9	97.0	75.2	96.1
TIME (MIN)	1405	1342	1248	1425	1350
SAMPLE RATE (CFM)	49.0	54.8	48.5	54.0	67.0
VOLUME (M^3)	1949	2082	1714	2179	2561
$\mu g/m^3$ Total particulate	64.1	65.3	56.6	34.5	37.5
Ag	—	—	—	—	—
Al	2.909	—	1.281	.4892	.7013
As	—	—	—	—	—
Be	<.005	—	—	—	—
Bi	—	—	—	—	—
Ca	1.113	2.206	1.805	.7315	.3491
Cd	—	—	—	—	.0008
Co	—	.0024	.0017	.0009	—
Cr	.0123	.0143	.0057	.0022	.0077
Cu	.0308	.0946	.0566	.0170	.0194
Fe	1.072	.7176	.2882	.1166	.0076
Li	—	.0961	—	—	—
Mg	.0975	.7200	.1453	.0592	.0348
Mn	.0195	.0960	.0116	.0009	.0078
Mo	.0046	.0029	—	—	.0008
Na	.3078	1.105	—	—	.1562
Ni	0.01	<.005	.0344	.0133	.0348
Pb	.3078	.1912	.5823	.1184	.0383
Sb	—	.0961	—	—	—
Si	4.510	2.206	1.163	.4883	1.403
Sn	.1016	.0019	—	—	.0035
Ti	.0975	.0951	.0572	.0220	.0344
V	.0462	.1249	.0117	.0046	.0156
Zn	.3438	.2402	—	—	.0781
TOTAL RESIDUE (mg)	43.9	29.4	22.2	9.9	17.3

UCN-3669A (125 11-62) DATA SHEET

SAT DEC. 11, 1976
SUN DEC. 12 1976

LOCATION	CLAXTON	NORTH KNOX	WEST KNOX	TOWNSEND	SUGAR GROVE
SHEET No.	6	13	20	27	34
WEIGHT 1	4.4250	4.4617	4.3584	4.4632	4.3977
WEIGHT 2	4.4829	4.5721	4.4287	4.5230	4.4800
TOTAL Mg	57.7	110.4	70.3	59.8	82.3
TIME (MIN)	1445	1527	1470	1440	1450
SAMPLE RATE (CFM)	52.6	54.6	57.0	50.6	58.2
VOLUME (m^3)	2152	2361	2373	2063	2390
$\mu g/m^3$ Total particulate	26.8	46.8	29.6	29.0	34.4
Ag	—	—	—	—	—
Al	.4164	—	.2343	.0465	.5422
As	—	—	—	—	—
Be	—	—	—	—	—
Bi	—	—	—	—	—
Ca	.0437	1.268	.3523	.0698	.3322
Cd	—	—	—	—	.0008
Co	—	.0084	.0033	<.0001	—
Cr	.0092	.0338	.0024	.0001	.0082
Cu	.0032	.3376	.0577	.0034	.0250
Fe	.0901	.6328	.0565	.0092	.0812
Li	—	.0424	—	—	—
Mg	.0181	.5078	.0291	.0044	.0330
Mn	.0027	.0847	.0042	<.0001	.0083
Mo	.0009	.0127	—	—	.0008
Na	.0929	1.609	—	—	.0836
Ni	<.005	0.02	.0122	.0010	.0121
Pb	.0920	.3380	.0834	<.0001	.0410
Sb	—	.2118	—	—	—
Si	.8336	.6328	.2334	.0456	1.420
Sn	.0186	.0025	—	—	.0033
Ti	.0130	.0415	.0118	.0014	.0326
V	.0093	.0254	.0034	<.0001	.0084
Zn	.0465	.2118	—	—	.0418
TOTAL RESIDUE (mg)	8.2	10.2	4.8	0.2	16.3

This sample was collected from mon. Dec. to Tues., Dec. 14. No sample was taken sat or Sun at Sugar Grove!

UCN-3809A DATA SHEET

SUN DEC. 12, 1976
TO
MON DEC. 13, 1976

LOCATION	CLAXTON	NORTH KNOX	WEST KNOX	TOWNSEND	SUGAR GROVE
SHEET NO.	7	14	21	28	
WEIGHT 1	4.2000	4.3921		4.3782	
WEIGHT 2	4.2691	4.4790	NO	4.4438	
TOTAL MG	69.1	86.9	SAMPLE	65.6	
TIME (MIN)	1445	1440	SAMPLER	1440	
SAMPLE RATE (CFM)	66.0	68.9	WOULD NOT	63.0	
VOLUME (m^3)	2455	2809	RUN	2569	
µg/m^3 Total particulate	28.1	30.9		25.5	
Ag	—	—		—	
Al	.3242	.2122		.0763	
As	—	—		—	
Be	—	—		—	
Bi	—	—		—	
Ca	.3234	.1047		.1144	
Cd	.0008	—		—	
Co	—	—		—	
Cr	.0031	.0027		.0014	
Cu	.0069	.0345		.0066	
Fe	.0790	.0335		.0132	
Li	—	—		—	
Mg	.0322	.0139		.0074	
Mn	.0081	.0028		.0015	
Mo	.0008	—		—	
Na	.0815	.0356		.0389	
Ni	.0077	.0032		.0074	
Pb	.0806	.0064		.0031	
Sb	—	—		—	
Si	1.301	.6031		.1534	
Sn	.0032	.0014		.0008	
Ti	.0318	.0135		.0070	
V	.0016	.0011		.0004	
Zn	.0407	.0214		.0078	
TOTAL RESIDUE (mg)	15.4	7.6		3.7	

UCN-3889A (125-11-62) DATA SHEET

INTERNAL CORRESPONDENCE

NUCLEAR DIVISION

POST OFFICE BOX P, OAK RIDGE, TENNESSEE 37830

To (Name) C. E. Daugherty

Division

Location K-1004-C, MS 443

Date September 6, 1977

Originating Dept.

Answering letter date

Copy to T. G. Fortney
Industrial Hygiene - RC

Subject Airborne Nickel in K-1004-C, Room 223

At your request, air samples have been collected during the utilization of the nickel plating process equipment in room 223 of building K-1004-C. Two area samples were collected to determine the levels of airborne nickel resulting from the electro and electroless nickel plating operations. Analysis of the samples indicated nickel concentrations of 0.002 and 0.011 milligrams per cubic meter for the respective operations. Both samples are well below the current ACGIH threshold limit value of 0.1 milligram per cubic meter for soluble nickel compounds. The samples are also within the limit of 15 micrograms per cubic meter recently recommended by NIOSH.

From a health protection standpoint, the existing mechanical ventilation systems and operating controls utilized during the nickel plating processes are adequate. However, should modifications affecting either process be made, please assure that this department is notified and a re-evaluation will be scheduled.

Please feel free to contact me at 3-9721 should you have any questions concerning these samples.

H. F. Higdon

H. F. Higdon

HFH:cyw

This document has been approved for release to the public by
Technical Information Officer
Oak Ridge K-25 Site
7/9/96
Date

Prepared by Union Carbide Corporation-Nuclear Division, operating contractor for the U.S. Department of Energy under U.S. Government Contract No. W-7405-eng-26.

ENVIRONMENTAL CONCENTRATIONS OF NICKEL AROUND THE ORGDP

Environmental levels of nickel within and adjacent to the ORGDP are monitored through the analysis of samples collected from the ambient air, terrestrial soil and vegetation, surface water streams, and surface water and holding pond bottom sediments. There are no existing standards for nickel levels in any of these media or for any of the ORGDP effluents.

Ambient Air

The ambient air monitoring system consists of four high volume particulate air samplers located at sites which are approximately north, east, south, and west of the center of the plant. Specific site locations are: 1) about 300 feet east of the K-1037 building; 2) about 200 feet north of the K-1007 building; 3) about 500 feet west of the K-31 building; and 4) about 300 feet north of the K-25 building. All of these samplers are operated for a period of 22.5 hours each eight days, with the collected particulates being analyzed for several materials, including nickel. Since the beginning of this program in 1972, the average and maximum concentrations of nickel found at each sampler can be summarized as follows:

Location	Avg. Ni, $\mu g/m^3$	Max. Ni, $\mu g/m^3$
K-1037	0.30	5.07
K-1007	0.14	4.95
K-31	0.20	6.00
K-25	0.09	1.50

The minimum value recorded at each site was 0.0004 $\mu g/m^3$.

This document has been approved for release to the public by:
for W. Quist 7/9/96
Technical Information Officer Date
Oak Ridge K-25 Site

Prepared by Union Carbide Corporation-Nuclear Division, operating contractor for the U.S. Department of Energy under U.S. Government Contract No. W-7405-eng-26.

Terrestrial Soil and Vegetation

Terrestrial soil and vegetation samples are collected semiannually from several locations, both near and distant to the K-1037 facility. During the five-year period that this program has existed, the sampling sites within a 3,000 ft. radius of K-1037 have yielded nickel concentrations in soil ranging from 20 to nearly 9,400 ppm, with the average concentration being about 1,100 ppm. Those sites remote to the K-1037 facility, such as Melton Hill dam, have been found to contain soil concentrations of about 45 ppm of nickel. The vegetation within 3,000 ft. of the K-1037 facility has been determined to contain an average of about 172 ppm of nickel, with the range being from 3 to 1,040 ppm. Melton Hill dam vegetation contains about 6 ppm of nickel .

Surface Runoff

The surface runoff from the K-1037 area enters Poplar Creek at discharge point K-1700, which is sampled for nickel and several other materials once a week. Since this effluent also contains discharges from the K-1420 and K-1401 facilities, it is greatly influenced by metals cleaning, equipment decontamination, and small nickel plating operations. The samples collected from this effluent during the last six years have revealed nickel concentrations ranging from 0.05 mg/l to 1.80 mg/l, with the average being about 0.38 mg/l. Nickel concentrations downstream in Poplar Creek average about 0.03 mg/l, which is the same value determined for the Clinch River above the ORGDP.

Surface Water Bottom Sediments

Sediment samples are collected semiannually from several locations, including Poplar Creek and the K-1407-B holding pond. As explained previously, several liquid effluents contribute significantly to these sediment concentrations so that the existing concentrations do not necessarily reflect "fall-out" and runoff levels resulting from releases to the atmosphere. The nickel levels found in Poplar Creek downstream of the ORGDP average about 140 ppm, as compared to about 45 ppm in the Clinch River above the ORGDP. The K-1407-B holding pond sediments, which receive significant deposits from the K-1401 and K-1420 operations, contain about 2,000 ppm of nickel.

MEM:jc
November 24, 1976

~~(3)~~ ~~(2)~~ ~~K-25~~ ~~(1)~~ ~~(4)~~

(3)

(5) K-25 (1) (4)