



## HANFORD ENVIRONMENTAL HEALTH FOUNDATION

CO 9855

December 2, 1985

UNC Nuclear Industries  
1114N Building, 100-N Area

Attn: E. M. Greagor

### PARTICULATE, METAL AND ANION ANALYSIS - 183-H BASIN

Results of the particulate, copper and anion analysis of 74 membrane filter samples and blanks, reportedly collected August 12 through September 11, 1985, during sludge removal from the 183-H Basin, are shown in the attached tables. Reported concentrations are based on air volumes provided. As agreed in our discussion of July 24, 1985, only the two highest samples from each week were analyzed for copper and anions respectively. Also included are the results of the analysis of 23 environmental samples collected August 15 through September 5, 1985, by S. R. Somers of Environmental Health Sciences. All samples were analyzed for copper or anions. Sampling locations are shown on the attached maps.

Four samples reportedly collected July 30 and four from September 5 were not analyzed as they were sampled incorrectly (material on backup pad instead of filter).

This completes the analysis of all samples received by Environmental Health Sciences in conjunction with the 183-H Basin sludge removal.

If there are questions concerning this report, please contact us.

*Maurice K. Hamilton*

M. K. Hamilton, CIH  
Laboratory Director  
Environmental Health Sciences

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Enc.



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2  
1  
2  
5  
0  
1  
1  
5  
6  
3

9 2 1 2 0 1 1 5 6 4

ANALYTICAL RESULTS - 183H BASIN  
 MEMBRANE FILTERS RECEIVED AUGUST 16 THROUGH SEPTEMBER 5, 1985

<u>Date</u>	<u>Time</u>	<u>Description</u>	<u>m<sup>3</sup> Air Volume</u>	<u>mg/m<sup>3</sup> Particulate</u>	<u>mg/m<sup>3</sup> F</u>	<u>mg/m<sup>3</sup> NO<sub>3</sub></u>	<u>mg/m<sup>3</sup> SO<sub>4</sub></u>	<u>mg/m<sup>3</sup> Cu</u>
8-12-85	1725-2315	H1090	9.91	0.05	*	*	*	*
	1725-2315	H535	9.91	0.06	*	*	*	*
	1720-2315	H1094	10.05	0.06	*	*	*	*
	1720-2315	N9635	10.05	<0.01	*	*	*	*
	Blank	H562	--	--	*	*	*	--
	Blank	H1139	--	--	--	--	--	*
8-13-85	1820-2335	10	8.92	0.05	*	*	*	*
	1820-2335	N2624	8.92	0.02	*	*	*	*
	1815-2330	N797	8.92	0.11	*	*	*	0.0006
	1815-2330	H632	8.92	0.10	*	*	*	*
8-14-85	1845-0015	H762	9.35	0.11	<0.001	<0.002	0.004	*
	1845-0015	N9999	9.35	<0.01	*	*	*	*
	1845-0015	H494	9.35	0.03	*	*	*	*
	1845-0015	H551	9.35	0.03	*	*	*	*
8-15-85	1700-2400	H772	11.89	0.02	*	*	*	*
	1700-2400	N9671	11.89	<0.01	*	*	*	*
	1700-2400	H496	11.89	<0.01	*	*	*	*
8-16-85	1700-2400	H623	11.89	0.14	*	*	*	0.0013
	1700-2400	N10020	11.89	0.13	<0.001	0.001	0.009	*
	1700-2400	N876	11.89	0.04	*	*	*	*
	1700-2400	H1114	11.89	0.02	*	*	*	*
8-19-85	2100-0000	N139	5.10	0.30	<0.001	0.003	0.021	*
	2100-0000	N9786	5.10	0.14	0.001	0.003	0.010	*
	2100-0000	N967	5.10	0.13	*	*	*	0.0003
	2100-0000	E470	5.10	0.02	*	*	*	*
8-20-85	1735-0030	H684	11.75	0.03	*	*	*	*
	1735-0030	N9221	11.75	0.04	*	*	*	*
	1735-0030	H570	11.75	0.02	*	*	*	*
	1735-0030	H1888	11.75	0.05	*	*	*	*

## ANALYTICAL RESULTS - 183H BASIN - MEMBRANE FILTERS RECEIVED AUGUST 16 THROUGH SEPTEMBER 5, 1985

Date	Time	Description	m <sup>3</sup> Air Volume	mg/m <sup>3</sup> Particulate	mg/m <sup>3</sup> F	mg/m <sup>3</sup> NO <sub>3</sub>	mg/m <sup>3</sup> SO <sub>4</sub>	mg/m <sup>3</sup> Cu
8-21-85	1730-2300	H1165	9.34	0.08	*	*	*	0.0001
	1730-2300	H1211	9.34	0.06	*	*	*	*
	1730-2300	N9138	9.34	0.04	*	*	*	*
	1730-2300	N9494	9.34	0.07	*	*	*	*
8-22-85	1710-2300	H722	9.91	0.05	*	*	*	*
	1710-2300	N957	9.91	0.05	*	*	*	*
	1710-2300	H1153	9.91	<0.02	*	*	*	*
	1710-2300	H1218	9.91	0.02	*	*	*	*
	Blank	N9345	--	--	*	*	*	--
No date	1645-2400	H1217	11.50	0.10	<0.001	0.005	0.007	*
	1645-2400	H1164	11.50	0.22	<0.001	0.001	0.013	*
	1645-2400	H1232	11.50	0.04	*	*	*	*
	1645-2400	N9519	11.50	0.25	*	*	*	0.0006
8-26-85	1630-2300	N967	11.00	0.06	*	*	*	*
	1630-2300	H177	11.00	0.05	*	*	*	*
	1630-2300	H1180	11.00	0.06	*	*	*	*
	1630-2300	H1199	11.00	0.05	*	*	*	*
8-27-85	1630-2300	N9190	11.00	0.07	*	*	*	*
	1630-2300	H1185	11.00	0.04	*	*	*	*
	1630-2300	11X	11.00	0.02	*	*	*	*
	1630-2300	N515	11.00	0.02	*	*	*	*
8-28-85	1700-2310	H468	8.77	0.05	*	*	*	*
	1700-2310	H1227	8.77	0.08	*	*	*	0.0019
	1700-2310	N490	8.77	0.04	*	*	*	*
	1700-2310	14	8.77	0.04	*	*	*	*
	Blank	N168	--	--	*	*	*	--
8-29-85	1700-2355	N277	11.70	0.07	*	*	*	*
	1700-0000	N988	11.90	0.07	*	*	*	*
	1700-0005	H1187	12.00	0.03	*	*	*	*
	1700-0005	E282	12.00	0.03	*	*	*	*

## ANALYTICAL RESULTS - 183H BASIN - MEMBRANE FILTERS RECEIVED AUGUST 16 THROUGH SEPTEMBER 5, 1985

-3-

Date	Time	Description	m <sup>3</sup> Air Volume	mg/m <sup>3</sup> Particulate	mg/m <sup>3</sup> F	mg/m <sup>3</sup> NO <sub>2</sub>	mg/m <sup>3</sup> SO <sub>4</sub>	mg/m <sup>3</sup> Cu
9-3-85	1700-0025	H1188	12.00	0.05	*	*	*	*
	1700-0025	N810	12.00	0.06	*	*	*	*
	1700-0025	H1178	12.00	0.11	*	*	*	0.0008
	1700-0025	H431	12.00	0.10	<0.001	0.001	0.004	*
9-4-85	1730-0020	H1120	11.60	0.04	*	*	*	*
	1730-0020	N72	11.60	0.02	*	*	*	*
	1730-0020	H1184	11.60	0.09	<0.001	0.001	0.006	*
	1730-0020	H1160	11.60	0.08	*	*	*	0.0024
9-9-85	Not given (assume 7.5 hrs)	N9748 H1202 AA2 N138	12.7 (assumed) (assumed) (assumed)	0.01 0.05 0.01 0.06	*	*	*	*
					<0.001	0.001	0.005	0.0005
9-10-85	Not given (assume 7.5 hrs)	N9690 E565 H1125 N9560	12.7 (assumed) (assumed) (assumed)	0.02 <0.01 No analysis - assembled incorrectly 0.01	*	*	*	*
					*	*	*	*
9-11-85	Not given (assume 7.5 hrs)	H1189 H1196 H737 N9443	12.7 (assumed) (assumed) (assumed)	0.03 0.02 0.01 0.01	*	*	*	*
					<0.001	0.004	0.002	0.0029
					*	*	*	*
	Blank	H1222	---	--	--	--	--	*
	Blank	N213	---	--	*	*	*	--
Allowable 8 hour time-weighted average				10.0	2.5	**	**	1.0

\* Not analyzed.

\*\*None established.

9 2 1 2 5 0 1 1 5 6 7

## ANALYTICAL RESULTS - 183H BASIN - MEMBRANE FILTERS RECEIVED AUGUST 16 THROUGH SEPTEMBER 5, 1985

## ENVIRONMENTAL - (See attached map for sample locations.)

Date	Time	Description	m <sup>3</sup> Air Volume	mg/m <sup>3</sup> Particulate	mg/m <sup>3</sup> F	mg/m <sup>3</sup> NO <sub>3</sub>	mg/m <sup>3</sup> SO <sub>4</sub>	mg/m <sup>3</sup> Cu
8-15-85	1633-0008	H1229-1	0.974	0.02	*	*	*	<0.0006
	1633-0008	H1221-1	0.946	0.04	<0.003	<0.006	<0.02	*
	1652-0012	H1224-2	0.915	0.05	*	*	*	<0.0006
	1652-0012	H1215-2	0.942	0.03	<0.003	<0.006	<0.02	*
	1638-2356	H1208-3	0.924	0.06	*	*	*	<0.0006
	1638-2356	H573-3	0.924	0.02	<0.003	<0.006	<0.02	*
	Blank	H1220	--	--	--	--	--	*
8-21-85	1640-2358	N9115-1	0.898	<0.01	<0.003	<0.007	<0.02	*
	1630-0005	N197-2	0.933	<0.01	<0.003	<0.006	<0.02	*
	1625-0010	N9740-3	0.916	<0.01	<0.003	<0.006	<0.02	*
	Blank	H1159	--	--	--	--	--	*
	1640-2358	H502-1	0.898	0.10	*	*	*	<0.0006
	1630-0005	N9570-2	0.924	0.01	*	*	*	<0.0006
	1625-0000	N9713-3	0.944	<0.01	*	*	*	<0.0006
8-29-85	1807-2350	N9310-1	0.703	<0.01	<0.004	0.012	0.034	*
	1807-2350	H134-1	0.703	0.01	*	*	*	<0.0007
	1815-2354	H575-2	0.695	0.14	<0.004	0.009	<0.02	*
	1825-2358	N2800-3	0.650	<0.01	<0.004	0.010	<0.02	*
	1825-2358	N647	0.670	0.01	*	*	*	<0.0007
	Blank	H521	--	--	--	--	--	*
9-5-85	1623-2350	H157-1	0.957	0.13	<0.004	0.006	<0.01	*
	1623-2350	H712-1	0.916	0.11	*	*	*	<0.0006
	1630-2345	N9608-2	0.870	0.09	<0.003	<0.007	<0.01	*
	1630-2345	2124-2	0.883	0.14	*	*	*	<0.0006
	1615-2338	H1233-3	0.908	0.13	<0.003	<0.007	<0.01	*
	1615-2338	H355-3	0.886	0.03	*	*	*	<0.0006
	Blank	--	--	--	--	--	--	*

\*Not analyzed.

REACTOR AREA  
100-H

9 2 1 2 , 0 1 1 5 6 8

SCALE IN FEET  
0 200 400 600



SOLAR EVAPORATION PONDS  
(RES)

Columbia River

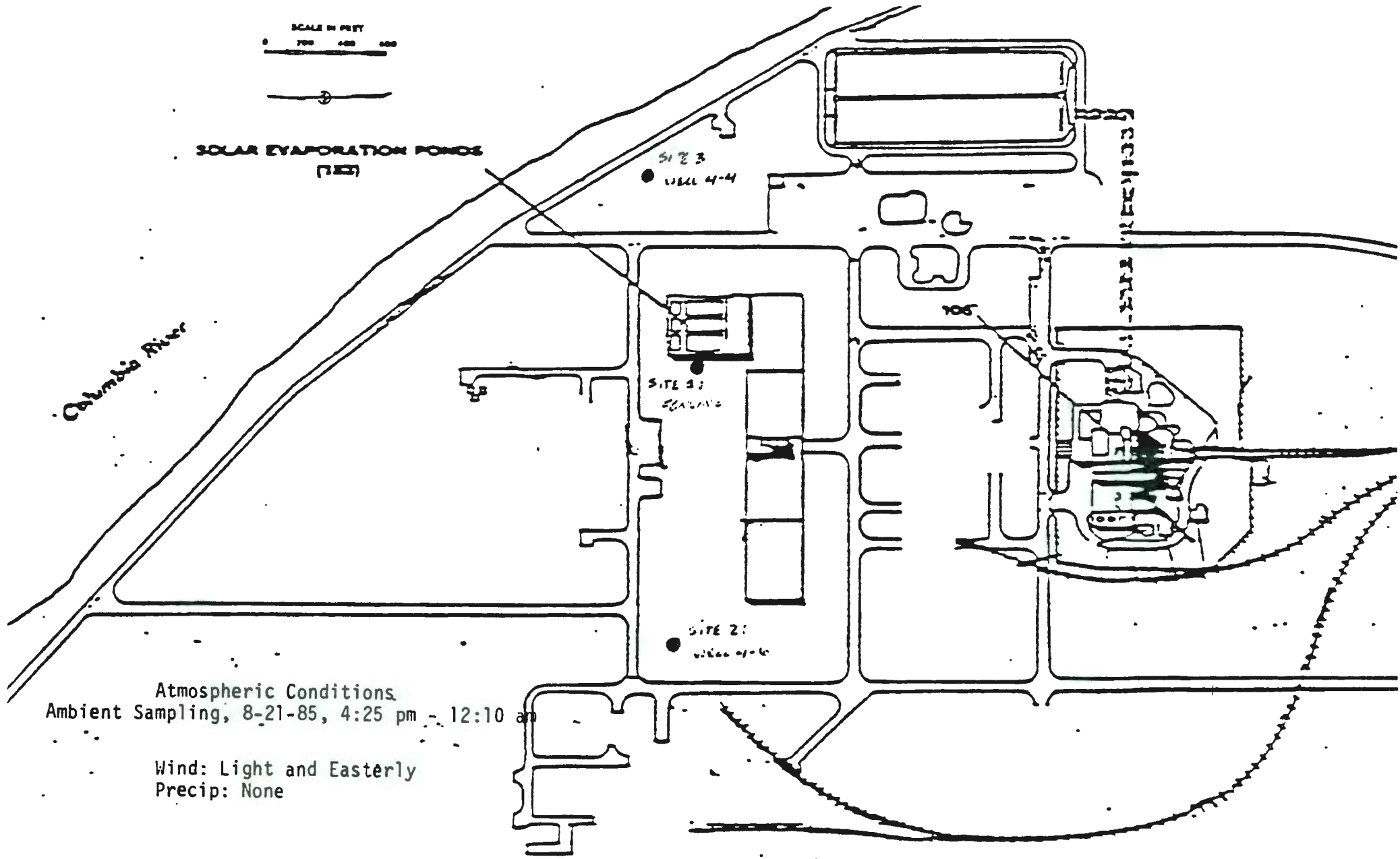
SITE 3  
WELL 4-4

SITE 2:  
SCAVING

SITE 2:  
WELL 4-6

Atmospheric Conditions  
Ambient Sampling, 8-21-85, 4:25 pm - 12:10 am

Wind: Light and Easterly  
Precip: None



REACTOR AREA

9 2 1 2 0 1 1 5 6 9

100-H

SCALE IN FEET



SOLAR EVAPORATION PONDS  
(113)

Columbia River

site 3  
well 4-5

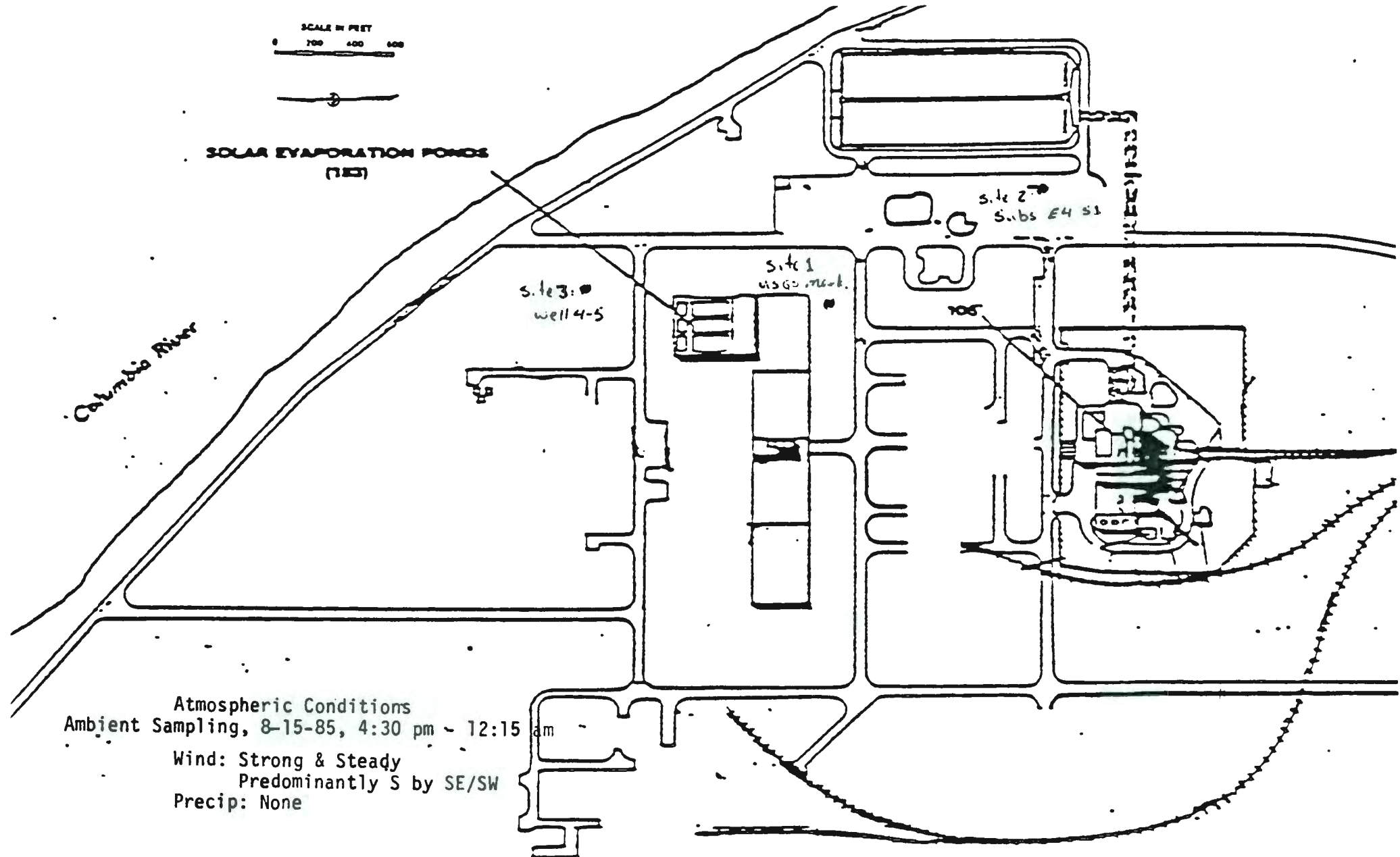
site 1  
USGO mont.

site 2  
S. bs E4 S1

100

REACTOR AREA

Atmospheric Conditions  
Ambient Sampling, 8-15-85, 4:30 pm ~ 12:15 am  
Wind: Strong & Steady  
Predominantly S by SE/SW  
Precip: None





REACTOR AREA  
100-H

9 2 1 2 5 0 1 1 5 7 0

SCALE IN FEET  
0 200 400 600



SOLAR EVAPORATION PONDS  
(125)

Columbia River

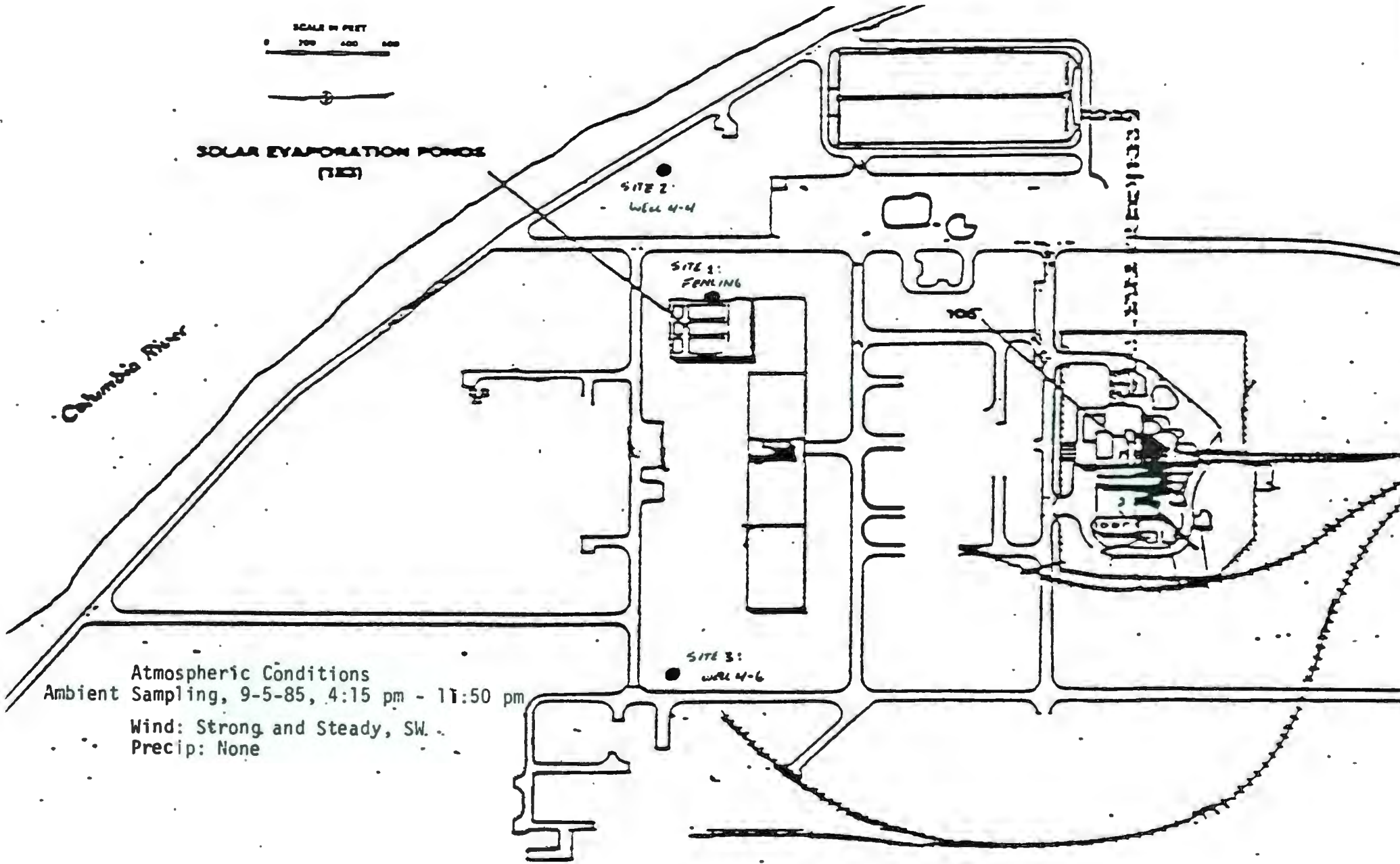
SITE 2:  
Well 4-4

SITE 1:  
FANLING

SITE 3:  
Well 4-6

REACTOR AREA  
100-H

Atmospheric Conditions  
Ambient Sampling, 9-5-85, 4:15 pm - 11:50 pm  
Wind: Strong and Steady, SW.  
Precip: None





REACTOR AREA

9 2 | 2 5 0 | 1 5 7 |

100-H

SCALE IN FEET

0 200 400 600



SOLAR EVAPORATION PONDS

(SEE)

SITE 2:

WELL N-4

SITE 3:

LESS MARK

SITE 2:

HYDRANT

Columbia River

Atmospheric Conditions

Ambient Sampling, 8-29-85, 6:07 pm - 11:58 pm

Wind: Light and Fluctuating

Precip: None

