

"ATTORNEY-CLIENT PRIVILEGED INFORMATION"

September 19, 1991

To: Walt Stewart
From: Terry Vandell

Subject: Meeting Minutes Of The On-Site Washington Works Meeting (September 11, 1991, 9:00 AM-11:00 AM)
Regarding The September 4, 1991 Proposed C-8 Sampling Program

Present: John Doughty, Tony Eichstadt, Wendell Goin, Penny Mahoney, Mike McClusky, Carl Musca, Dave Ramsey,
Walt Stewart, Terry Vandell

- o Introduction: Walt Stewart, See Attachment 1
- o Chemical Data Results: Penny Mahoney, See Attachment 2

Key Points: Appendix IX constituent levels and presence are inconsistent under the site, whereas the C-8 presence and levels are much more consistent; C-8 found at low ppb level on-site in wells TW27 & TW4, but at much higher levels in wells TW32 and TW33 which are closer to the old supernate ponds (the exact quantitative results from wells 32 & 33 are still pending but are believed to be > 1 ppm).

- o Historical Data Results: Mike McClusky, See Attachment 3

Key Points: In 1984 C-8 found <1.5 ppb .25 to 3 miles downgradient from Washington Works. No C-8 found 12+ miles downstream. C-8 concentration trends on-site at well TW 27 difficult to analyze due to change in analytical technique. However, data do not indicate large increases in C-8 concentration since 1987, (from 2.0 to 5.9 ppb). Off-site water samples from home taps (i.e. from the existing Lubeck wellfield) indicate C-8 from .7 to 1.9 ppb, with the 1.9 ppb measured from a sample taken on 8/8/91. C-8 was detected in a new well in the new Lubeck wellfield (2.7 miles south-southwest of Washington Works), at 2.4 ppb on 6/23/91. No C-8 was found in nearby private water wells, however.

- o C-8 Test Development: Mike McClusky, See Attachment 4

Key Point: CH2M Hill has been authorized to develop a C-8 detection analytical technique to 0.1 ppb.

- o Proposed & "Revised" Sampling Plan: Terry Vandell, See Attachments 5 & 6.

10 Key Points: On-site C-8 travel time from the supernate ponds to the Lubeck wellfield is approximated at 8 yrs.; off-site to the new Lubeck wellfield, the travel time could range from 49 to 117 years, strongly indicating that "IF" C-8 is even present in the new wellfield, that the transport mechanism was not groundwater, but "possibly" the Ohio River. Calculated % of C-8 in the Ohio River is about 1 ppb - 0.5 ppb.

The purpose in conducting the proposed extensive C-8 sampling program is to "verify or dismiss" the presence of C-8 in the new Lubeck Wellfield, and to obtain sufficient river water quality data to address the question of whether the river serves as a transport mechanism for C-8. Such an evaluation of the potential transport mechanisms (by the ground water or river) was discussed and agreed to at the August 14, 1991 meeting in Wilmington (called by Mike Deak).

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The September 4, 1991 proposed C-8 sampling plan was altered as a result of the September 11, 1991 meeting. The following changes were made:

1. The addition of wells TWM4, TW27^{TW33} and water supply well W331 for C-8 analysis, to compare the historic C-8 results from these wells (TWM4 and TW27) to the results we will obtain from CH2M Hill and the Experimental Station. Well W331 should be tested since it never has been and it is an on-site water supply well, *and well TW33 should have relatively elevated C-8 concentrations.*
2. The deletion of all of the riverbank soil samples, since John Doughty informed us during the meeting that the current analytical technique for C-8 in soils is only accurate for large C-8 concentrations (i.e. uses a simple burn/weight technique to determine the volume of C-8 present in the ppm range). This technique must be refined soon for the EPA VI soil sample analyses...
3. The revised Sept. 4, 1991 sampling plan is included as Attachment 5.

NOTE: Sampling was conducted and completed on 9/11, 12 & 13th/91 by Jim Yoak, Penny Mahoney, Nina Mazdai, Terry Vandell (of DuPont), with assistance from Bill Packard (Lubeck City). All samples were collected on 9/11 and 9/12 and shipped out on 9/12/91, with the exception of well TWM4, which was sampled on 9/13/91, with the sample shipped on 9/13/91.

Limited Distribution Only To:

Jim Allen
Mike Deak
Wendell Goin
Carl Musca

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ATTACHMENT 1 WALT STEWART

DU PONT CONFIDENTIAL
ATTORNEY/CLIENT COMMUNICATION

AIM

To review a proposed sampling plan for C-8 and F-113 in surface and groundwater, in a way that reviews all existing data available to-date, so that agreement can be reached on the purpose and procedures for obtaining additional quality information.

AGENDA

- | | | |
|----|--|----------|
| 1) | Introduction | Stewart |
| 2) | Status <ul style="list-style-type: none">● Site Overview● Chemicals Detected | Mahoney |
| 3) | Historical Data <ul style="list-style-type: none">● Off-site Sampling● Current Test Results | McClusky |
| 4) | Test Development <ul style="list-style-type: none">● Limits and Guidelines● Experimental Station● CH₂M Hill | McClusky |
| 5) | Proposed Sampling Plan <ul style="list-style-type: none">● Hydrogeologic Data<ul style="list-style-type: none">- Plant- Off-site● Sampling Locations | Vandell |

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C-8 BACKGROUND INFORMATION

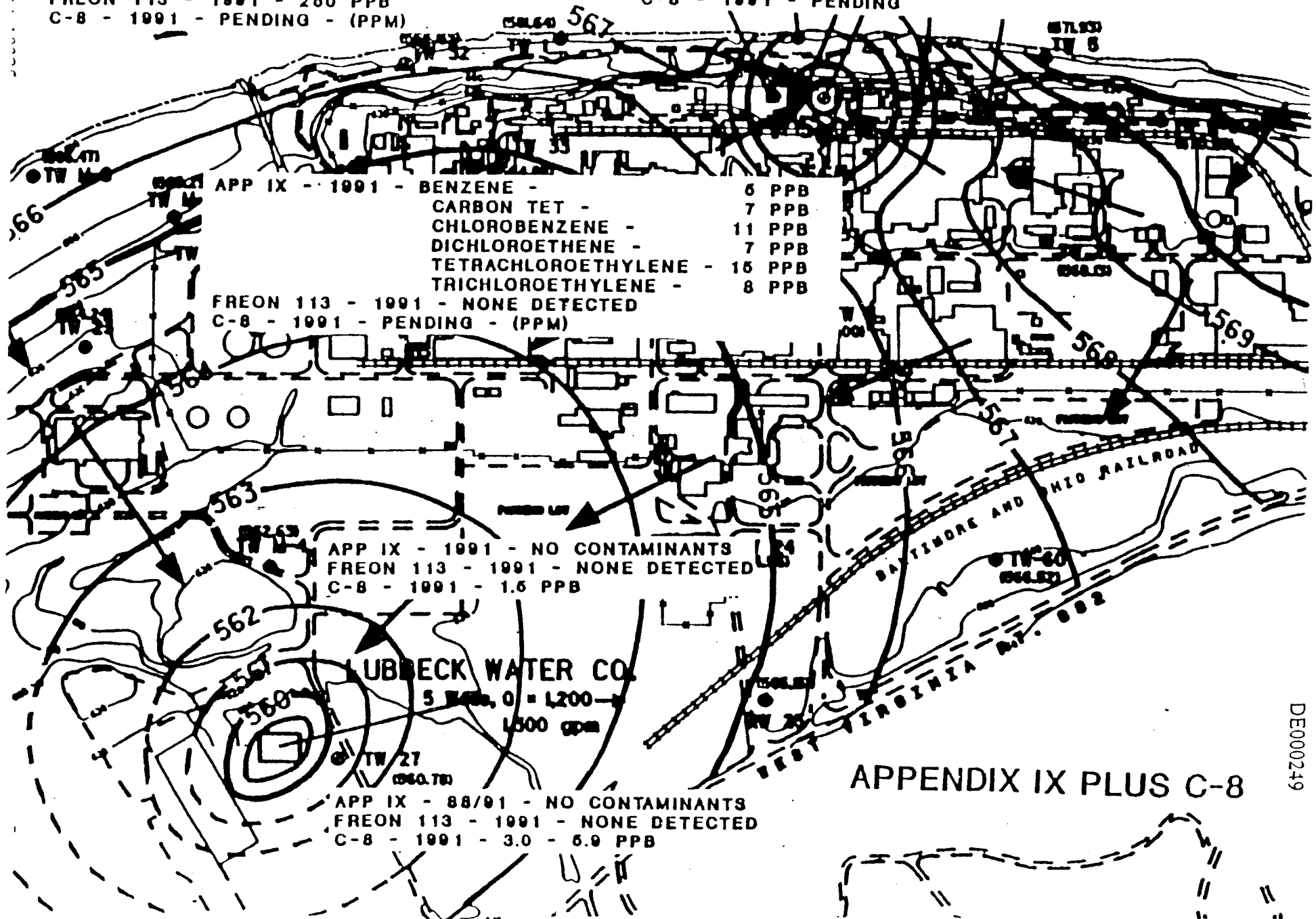
- GROUNDWATER FLOW REVIEW
- OVERVIEW OF HISTORICAL CHEMICAL ANALYSIS
- RECENT CHEMICAL ANALYSIS
- NEW LUBECK WELL RESULTS

R I V E R RIVER LEVEL
(561641)

RAMNEY WELL

APP IX - 1991 - NO CONTAMINANTS
FREON 113 - 1991 - 260 PPB
C-8 - 1991 - PENDING - (PPM)

APP IX - 1988 - CHLOROFORM - 4 PPB
TRANS-DICHLOROETHYLENE - 7 PPB
TRICHLOROETHYLENE - 18 PPB
C-8 - 1991 - PENDING



APP IX - 1991 - BENZENE - 6 PPB
CARBON TET - 7 PPB
CHLOROBENZENE - 11 PPB
DICHLOROETHENE - 7 PPB
TETRACHLOROETHYLENE - 15 PPB
TRICHLOROETHYLENE - 8 PPB
FREON 113 - 1991 - NONE DETECTED
C-8 - 1991 - PENDING - (PPM)

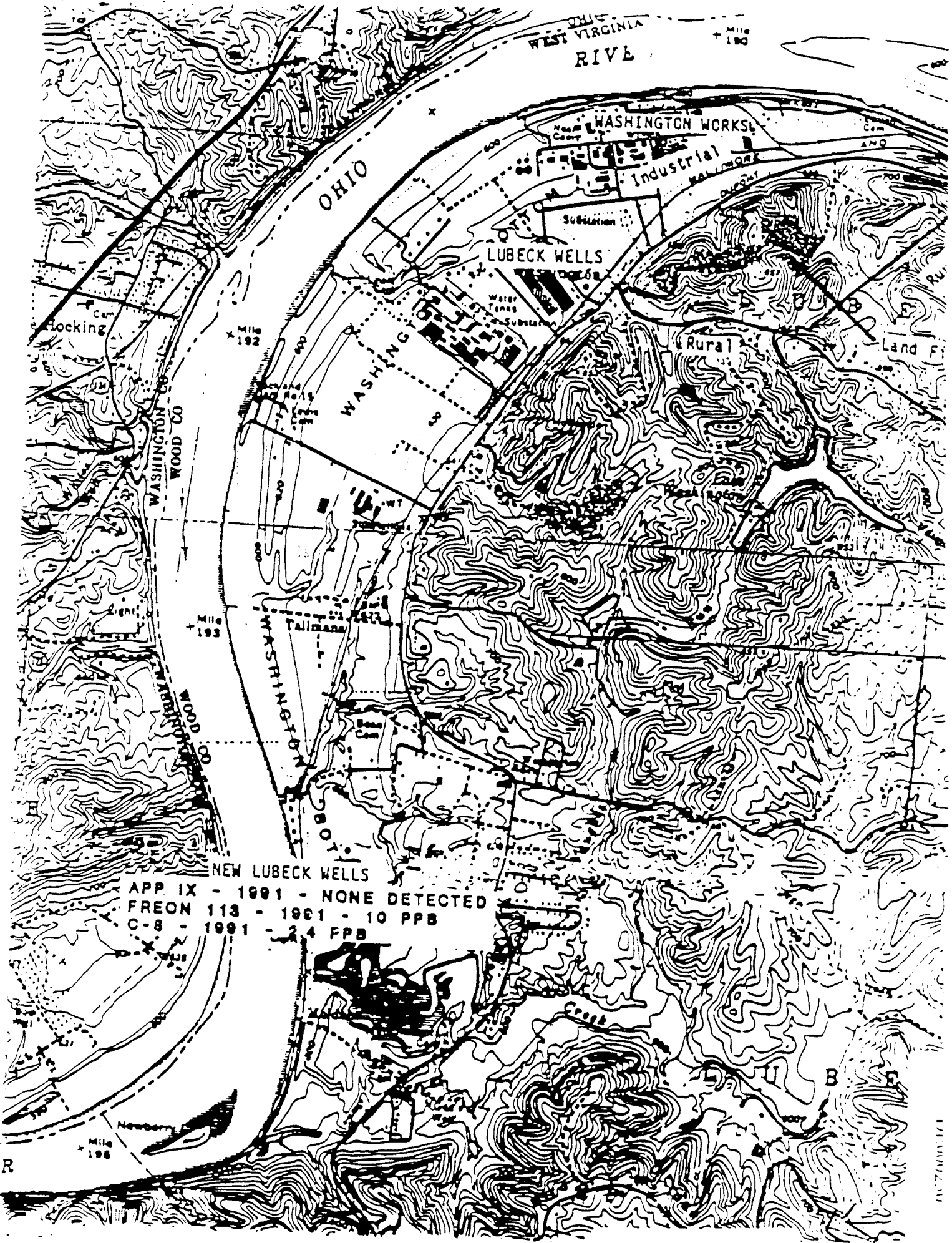
APP IX - 1991 - NO CONTAMINANTS
FREON 113 - 1991 - NONE DETECTED
C-8 - 1991 - 1.6 PPB

LUBBECK WATER CO.
5 1/2" dia. 0 = 1200'
1500' depth

APP IX - 88/91 - NO CONTAMINANTS
FREON 113 - 1991 - NONE DETECTED
C-8 - 1991 - 3.0 - 6.9 PPB

APPENDIX IX PLUS C-8

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NEW LUBECK WELLS
 APP IX - 1991 - NONE DETECTED
 FREON 113 - 1991 - 10 PPB
 C-8 - 1991 - 24 PPB

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ATTACHMENT 3 MIKE MCCCLUSKY

C-8 SAMPLING (MARCH - JUNE 1984)

<u>LOCATION</u>	<u>DISTANCE (MILES)</u>	<u>C-8 PPB(0.6 LIMIT)</u>
PKSBG-HOME TAP	7.5 UPSTREAM	<
WW-DRINK FTN	---	<
DIST. CTR-WELL	0.25 DOWN	<
WASHINGTON-STORE TAP	0.25 DOWN	1.2, 1.0
LUBECK-STORE TAP	0.25 DOWN	1.5
L. HOCKING-STORE TAP	3 DOWN	0.8, 0.6
BELLEVILLE-PRIVATE WELL	12 DOWN	<
REEDSVILLE-STORE TAP	14 DOWN	<
RAVENSWOOD-STORE TAP	29 DOWN	<
RACINE-STORE TAP	50 DOWN	<
POINT PLEASANT-STORE TAP	74 DOWN	<
GALLIPOLIS-STORE TAP(*)	79 DOWN	<

*Injection
Limit*

(*) NEAREST COMMUNITY TO TAKE WATER DIRECTLY FROM OHIO RIVER.

C-8 ON SITE SAMPLING

TEST WELL #27

C-8 PPB

6/ 4/87	2.0	
5/11/88	1.5	
11/ 4/88	1.3	
5/ 4/89	<0.6	
8/ 1/89	1.3	
10/24/89	1.5	
2/27/90	1.5	
4/20/90	1.5	
7/13/90	1.6	
8/ 9/90	<10	(3.0)
10/19/90	<10	(3.0)

REVISED TEST Tw 27

1/15/91	2.9	} increase may be from revised test
4/18/91	3.0	
7/24/91	5.9	
8/ 2/91	5.0	

ADJACENT WELL: MW-4

5/13/91	1.5
8/ 1/91	1.4

W DRINKING WATER

3/13/87	BLDG 3	<0.6
11/ 2/88	BLDG 212	<0.6
5/12/88	BLDG 212	<0.6
5/ 8/89	BLDG 212	<0.6

* Done Review - suggest sampling w331 in East
Well Field for C-8 analysis

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C-8 OFF SITE SAMPLING

C-8 PPM

3/13/87	LUBECK BUSINESS TAP (2)	1.9, 1.9
5/12/88	LPSD HOME TAP -P	2.2
11/ 2/88	LPSD HOME TAP -P	1.4
5/ 7/89	LPSD HOME TAP -P	0.7
5/23/91	LPSD HOME TAP -M	3.8
5/29/91	LPSD HOME TAP -C	3.8
8/ 8/91	LPSD HOME TAP -M	3.9

3/13/87	VIENNA HOME TAP -M	<0.6
3/13/87	LITTLE HOCKING BUSINESS TAP	<0.6
5/12/88	LITTLE HOCKING HOME TAP -R	<0.6

11/28/90	LUBECK PRIVATE WELLS (2)	<0.6, <0.6
8/ 9/91	LUBECK PRIVATE WELLS (2)	<1.0, <1.0

*near new
Lubeck
well field*

6/23/91	NEW LUBECK WELL	2.4 (*)
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(*) CH2MHILL CONFIRMED "PRESENCE" OF C-8

ATTACHMENT 4 MIKE MCCCLUSKY

C-8 HUMAN EXPOSURE

<u>LIMITS</u>	<u>UG/M3</u>
TLV (3M)	100
AEL (DUPONT)	10
CEG (AIR, WATER)	

HASKELL ESTABLISHED: 8 UG C-8 PER 24 HOURS

80% BY AIR 6.4 UG/ 20M3 = 0.32 OR 0.3 UG/M3

20% BY WATER 1.6 UG/ 2 L = 0.80 OR 1 PPB

8.0 ug

OUTSIDE CONTRACT LAB: CH2MHILL

*23M AUTH TO PROVIDE 0.1 PPB C-8 IN WATER ANALYSIS

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ATTACHMENT 5 TERRY VANDELL

1. HYDROGEOLOGY :

SAND & GRAVEL AQUIFER, ON-SITE
65-100 FT DEEP; OFF-SITE AT NEW
LUBECK WELLS, 15-65 FT DEEP,
YIELDS OF SEVERAL HUNDRED GPM.
WELLS DRILLED VIA CABLE TOOL
RIG, DEVELOPED @ SEVERAL HUNDRED
GPM, 6 TO 32 HRS EACH.

2. C-8 TIME OF TRAVEL IN GW:

ON-SITE, TO LUBECK WELLS, 5 YRS.

OFF-SITE TO NEW LUBECK WELLS, 49-
117 YRS.

3. PERCENTAGE OF C-8 IN OHIO
RIVER:

20,000 LBS/YR C-8 / ^{20,000}~~10,000~~ CFS =
.000634 LBS/SEC / 623607 LBS/SEC
= .000000001, OR 1 PPB

4. C-8 & FREON 113 SAMPLING PLAN:
REQUIRED BY MIKE DEAK, CORPORATE
SHEA MANAGER (AUGUST 14, 1991),
TO RESAMPLE NEW LUBECK WELLS, OLD
LUBECK WELLS, & RIVER WATERS.
PURPOSE: TO "VERIFY" THE
PRESENCE, EXTENT AND PATH /OR THE
ABSENCE, OF C-8 OFF-SITE, "ASAP".

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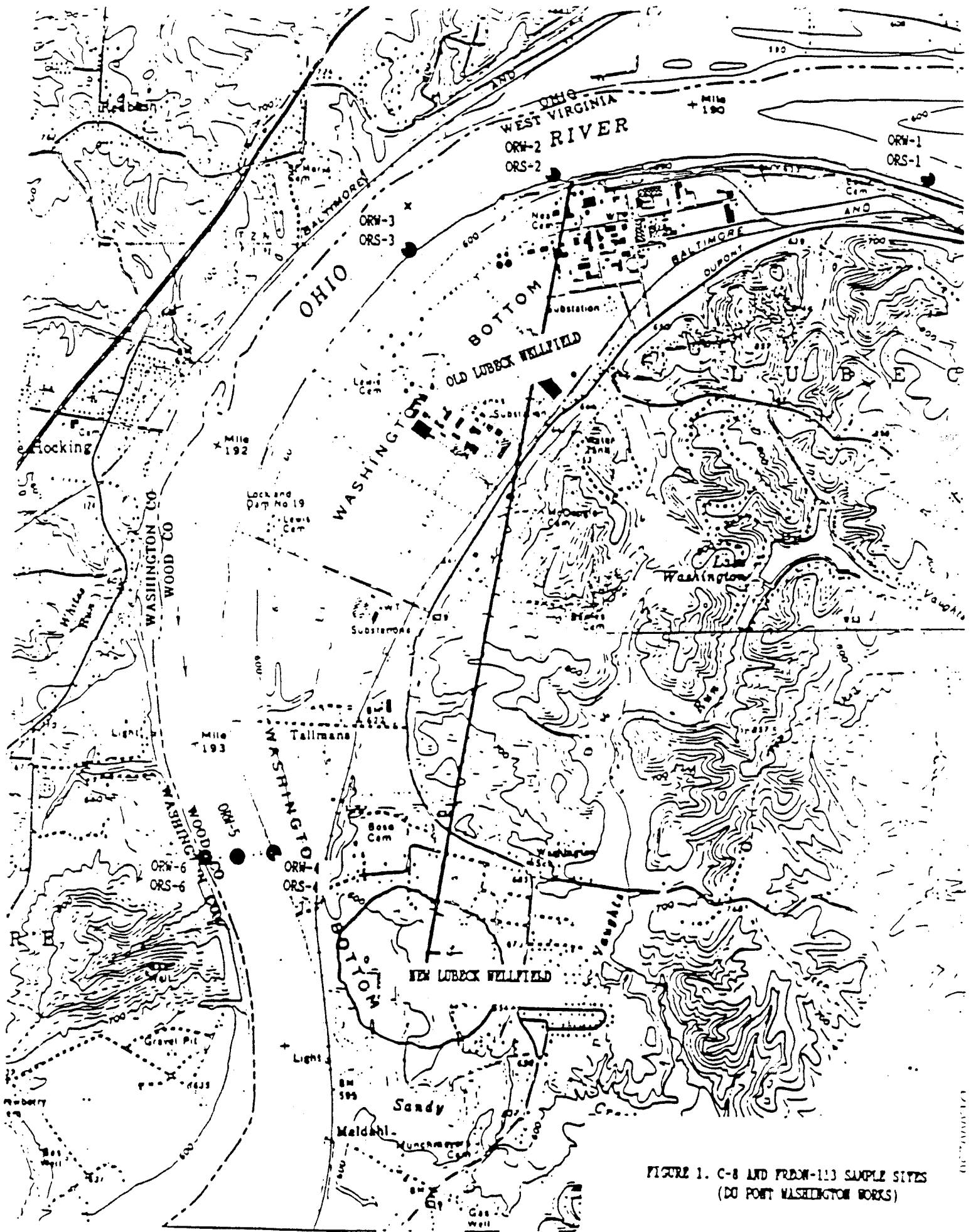


FIGURE 1. C-8 AND PFCm-113 SAMPLE SITES (DO POINT WASHINGTON WORKS)