MLM-MU-74-72-0001

MOUND LABORATORY PLUTONIUM-238 STUDY

OFF-SITE ANALYTICAL DATA

MAY - DECEMBER 1974

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Miamisburg, Ohio
operated by

MONSANTO RESEARCH CORPORATION
a subsidiary of Monsanto Company
for the

U. S. ATOMIC ENERGY COMMISSION
U. S. Government Contract No. AT-33-1-GEN-53

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MOUND PLUTONIUM-238 STUDY

Preliminary samples collected from off-site sediment in the Miami-Erie Canal Area near Mound Laboratory indicated that plutonium-238 concentrations are substantially above baseline levels. As a result an extensive sampling and analysis program was performed to determine the plutonium-238 concentrations as a function of depth and location in a drainage ditch, the canal, two ponds, a run-off hollow, a canal overflow creek and the Great Miami River. The plutonium-238 concentration data was used to estimate the total inventory of ^{238}Pu deposited in these waterways, to determine the extent of the contamination, and to evaluate the potential health hazards to the general population of the area.

The general sampling plan and techniques have been described previously.[1] Additional sampling locations were added later to more fully evaluate the distribution of the plutonium in the waterways and adjacent areas. The type and number of samples taken were also modified as deemed appropriate from the available data.

The scope of this report is to present the data collected during this study. Detailed interpretation of the data will be presented in subsequent reports.

[1] H. F. Anderson, T. M. Flanagan, USAEC Report MLM-MU-74-65-0001 (May, 1974).

OVERFLOW CREEK
SOUTH CANAL
RIVER
DRAINAGE DITCH
NORTH CANAL
PONDS

ANALYTICAL RELIABILITY

ANALYTICAL RELIABILITY

Analytical Procedure

The soil and sedimen samples were dried, ground to less than 20 mesh and homogenized. The aliquot taken for analysis was riffled from the homogenized sample, weighed, and analyzed for plutonium-238 by a technique similar to the method developed by N. Y. Chu[2] of the AEC Health and Safety Laboratory.

In order to facilitate the analysis of a large number of samples in a short period of time, it was judged adequate to use approximately 10-gram aliquots of soil or sediment for analysis. This sample size is appropriate for detection of plutonium concentrations at or above the Mound Laboratory baseline concentration in the canal area (~0.0004 nc/g, based on 12-inch cores). It is, however, not appropriate for the reliable determination of worldwide ^{238}Pu fallout background (0.0000002 nc/g, based on 12-inch cores).[3]

Quality Control

An operation sheet which describes the sampling and analytical technique in step-by-step detail was used on each sample to insure strict adherence to procedure and to record data. The analysts were required to verify adherence to the operation sheets by initialing the portion of the operations performed. In addition, a quality control inspector routinely performed unannounced audits and reported violations of procedure.

Analytical Blanks

A blank sediment sample (collected 50 miles upwind from Mound Laboratory) was processed with each group of samples to determine the level of laboratory contamination. The blank sample results shown in Table 1 averaged 0.00008 ± 0.00008 nc/g. Based on these

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[2] N. Y. Chu, "Plutonium Determination in Soil by Leaching and Ion Exchange Separation", Analytical Chemistry, Vol. 43, pp. 449-452 (1971).

[3] Private communication, Edward P. Harly, AEC Health & Safety Laboratory, New York, NY (1974).

results and on the replication analysis to be discussed later, it was decided that concentrations measured to be less than 0.0001 nc/g are not reliable. Blank concentrations ranged as high as 0.0008 nc/g so it is possible to observe spurious results up in this concentration range. The blank values <u>were not</u> subtracted from the sample analytical values.

Table I

ANALYTICAL SEDIMENT BLANKS

Code	^{238}Pu (nc/g)	Code	^{238}Pu (nc/g)
S-6-12	0.000142	S-7-17	0.000178
S-6-13	0.000164	S-7-18	0.000033
S-6-13	0.000004	S-7-20	0.000065
S-6-13	0.000137	S-7-21	0.000065
S-6-13	0.000024	S-7-22	0.000045
S-6-14	0.000010	S-7-23	0.000052
S-6-17	0.000071	S-7-24	0.000057
S-6-21	0.000026	S-7-25	0.000033
S-6-23	0.000000	S-7-27	0.000027
S-6-29	0.000027	S-7-27	0.000008
S-6-30	0.000019	S-7-28	0.000011
S-7-01	0.000060	S-7-29	0.000078
S-7-02	0.000022	S-7-30	0.000009
S-7-03	0.000002	S-7-31	0.000050
S-7-04	0.000000	S-8-01	0.000008
S-7-05	0.000090	S-8-02	0.000225
S-7-07	0.000048	S-8-03	0.000161
S-7-08	0.000003	S-8-04	0.000765
S-7-09	0.000031	S-8-05	0.000076
S-7-10	0.000021	S-8-06	0.000021
S-7-11	0.000011	S-8-07	0.000000
S-7-11	0.000014	S-8-08	0.000043
S-7-14	0.000016	S-8-09	0.000207
S-7-15	0.000343	S-8-12	0.000218
S-7-16	0.000058	S-8-14	0.000070

Actual Value (World Fallout) = 0.0000002 nc/g
Grand Mean = 0.000077 nc/g
Standard Deviation (Single Observation) = 0.000040 nc/g

Replicate Analyses

Confidence limits (95%) on the data were established from three sets of replicate analyses using the analysis of variance techniques. These data are listed in Table II. The thirteen concentration levels used for each replicate set were chosen with consideration for the best definition of an error curve. However, the individual sample selection for a given concentration was performed randomly. The analyses of the replicate sets were performed at widely spaced time intervals during the program using all of the analysts. The computed F-ratios for the replicate sets do not exceed critical values at any concentration levels. This indicates that the analytical work was under control throughout the program.

The plutonium-238 concentration and standard deviation data were fitted by least squares to the following equation:

$$\sigma = 0.2401\ [Pu]^{.7588}$$

where [Pu] is the ^{238}Pu concentration in picocuries/gram, and σ is the single observation standard deviation in picocuries/gram. This error curve is shown in Figure 1.

The confidence limits reported with the data are 2σ values computed from this equation. When the mean value of replicates is reported, the confidence limits are divided by the square root of the number of analysis performed on the sample.

Table II

REPLICATE SOIL AND SEDIMENT RESULTS

Code	Replicate Analysis nc/g 1	2	3	4	Mean	SD*	Grand Mean	Grand* SD
DE5-2	3.29	2.81	3.20	- -	3.10	0.26	-	-
DE5-3	3.02	3.20	2.87	-	3.03	0.17	3.07	0.20
EF1-1	1.04	1.02	1.04	-	1.03	0.01	-	-
PD1-2	0.886	0.903	0.891	0.863	0.881	0.018	-	-
PD1-3	0.960	0.882	0.972	-	0.938	0.049	0.908	0.036
EE1-1	0.373	0.400	0.466	0.459	0.425	0.045	-	-
QE2-2	0.262	0.251	0.214	0.223	0.238	0.023	-	-
QE2-3	0.238	0.195	0.245	-	0.226	0.027	0.232	0.023
RC1-3	0.119	0.182	0.112	0.132	0.136	0.032	-	-
RE1-2	0.0896	0.0916	0.0719	-	0.0844	0.0108	-	-
RE1-3	0.0972	0.0957	0.0939	-	0.0956	0.0017	0.0900	0.0093
EF2-1	0.0456	0.0402	0.0432	-	0.0430	0.0027	-	-
EE2-1	0.0416	0.0364	0.0400	0.0439	0.0405	0.0032	-	-
RG1-2	0.0288	0.0272	0.0265	0.0302	0.0282	0.0017	-	-
EF3-1	0.0136	0.0147	0.0150	0.0133	0.0142	0.0008	-	-
SE1-2	0.0133	0.0135	0.0136	0.0158	0.0141	0.0012	-	-
SE1-3	0.0130	0.0123	0.0144	-	0.0132	0.0011	0.0137	0.0012
EF4-1	0.0084	0.0091	0.0078	-	0.0084	0.0007	-	-
EF3-1	0.0056	0.0050	0.0046	0.0130	0.0071	0.0040	-	-
PJ5-2	0.0040	0.0038	0.0036	0.0034	0.0037	0.0003	0.0036	-
PJ5-3	0.0037	0.0033	0.0032	-	0.0034	0.0003	0.0036	0.0003
TJ1-2	0.0026	0.0013	0.0016	0.0014	0.0017	0.0002	-	-
TJ1-3	0.0031	0.0022	0.0021	-	0.0025	0.0006	0.0021	0.0007
KB2-2	0.0003	0.0002	0.0004	0.0005	0.0004	0.0001	-	-
KB2-3	0.0009	0.0023	0.0011	-	0.0014	0.0008	0.0011	0.0008
EE4-1	0.0005	0.0009	0.0008	0.0008	0.0008	0.0002	-	-
BC3-2	0.0008	0.0006	0.0004	0.0001	0.0005	0.0003	-	-
EA5-1	0.0003	0.0002	0.0003	0.0003	0.0003	0.0001	-	-

*Standard Deviation for single observation

Table II
Cont.

Code	1	2	3	4	Mean	SD*	Grand Mean	SD*
LB2-2	0.0002	0.0002	0.0001	-	0.0002	0.0001	-	-
LB2-3	0.0008	0.0002	0.0003	-	0.0004	0.0003	0.0003	0.0003
NA3-2	0.0003	0.0002	0.0002	0.0003	0.0003	0.0001	-	-
NA3-3	0.0006	0.0003	0.0003	-	0.0004	0.0002	0.0003	0.0001
LA3-2	0.0007	<0.0001	<0.0001	0.0001	0.0002	0.0002	-	-
LB5-1	0.0002	0.0002	0.0002	-	0.0002	0.0000	-	-
LB3-3	0.0001	0.0002	0.0004	0.0001	0.0002	0.0001	-	-
EA1-1	0.0002	0.0001	0.0001	<0.0001	0.0001	0.0001	-	-
EA4-1	0.0001	0.0001	<0.0001	0.0001	0.0001	0.0001	-	-
EB1-1	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	-	-

*Standard deviation for single observation

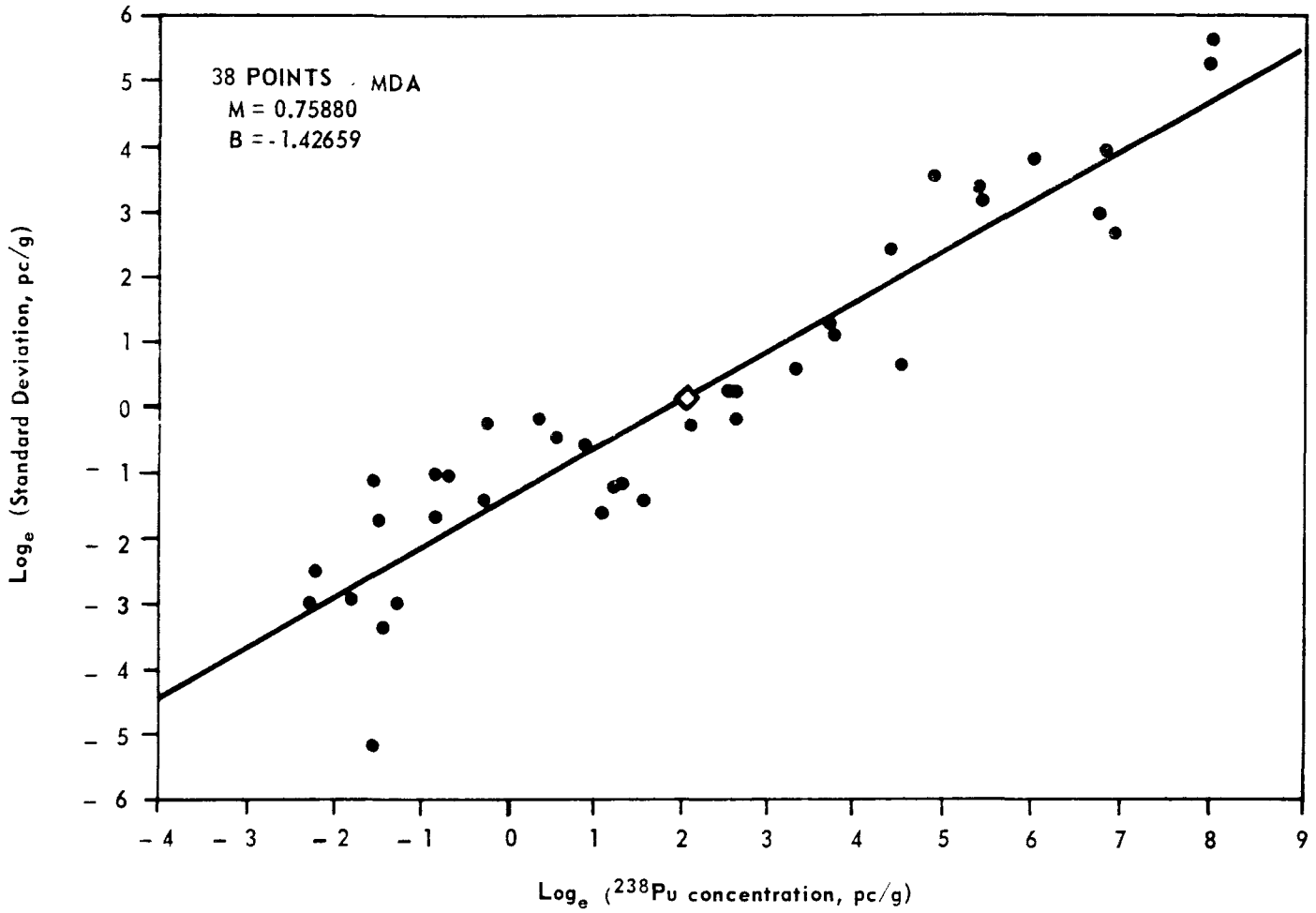


Figure 1 - Standard Deviation as a function of the plutonium-238 concentration in soil and sediment samples.

Data Rejection

After exhaustive evaluation, several data rejection criteria were established to remove data which have a high potential of systematic error. These criteria were applied systematically to all data without regard for plutonium concentration or sample location. As rejection criteria were set during the course of the program, data previously reported were withdrawn on several occasions. These samples were generally re-analyzed and valid data reported.

Interlaboratory Verification

In order to verify that the measured plutonium concentrations were valid, many samples were sent to independent laboratories for analyses. The independent laboratories used were: the USAEC Health and Safety Laboratory in New York, N.Y. (HASL), the U.S. Environmental Protection Agency Laboratory in Atlanta, Georgia (EPA), and the LFE Environmental Analysis Laboratory in Richmond, California.

The samples were collected by Mound Laboratory, Bowser Morner Testing Laboratory, and USEPA, dried and ground to less than 20 mesh particle size. The samples were homogenized and aliquots from these samples were riffled and sent to the independent laboratories for analyses.

The analytical values obtained by Mound and the independent laboratories are compared in Tables III, IV and V. Agreement was generally good at all concentration levels. EPA results tended to be slightly higher than the Mound values while LFE results tended to be slightly lower. Mound/HASL results were almost identical except at very low concentrations where HASL values tended to be lower.

Table III

INTERLABORATORY COMPARISON OF MOUND AND EPA ^{238}Pu RESULTS ON SOIL AND SEDIMENT

Code	Mound (nc/g)	EPA (nc/g)
EA1	*** 0.0001 ± 0.0001	*0.00011
EB1	***<0.0001	*0.00012
EC1	0.0029 0.0011	0.0048
ED1	0.0009 ± 0.0004	0.0011
EE1	*** 0.425 ± 0.024	0.440
EF1	** 1.03 ± 0.05	*1.13
EG1	0.0098 ± 0.0027	0.0108
EH1	0.0238 ± 0.0053	0.026
EI1	<0.0001	0.00098
EJ1	0.0010 ± 0.0005	*0.0011
FA1	0.0094 ± 0.0026	**0.0085
FE1	* 0.0138 ± 0.0025	0.0181
GA1	0.0004 ± 0.0002	0.00048
HA1	0.0047 ± 0.0016	0.0051
IA1	0.0020 ± 0.0008	0.0025
JA1	0.0007 ± 0.0004	0.0007
KA1	0.0309 ± 0.0065	0.0027
LA1	0.0096 ± 0.0027	0.0109
CE1	0.0302 ± 0.0064	0.024
QE1	1.00 ± 0.09	0.920

*Mean of duplicates
**Mean of triplicates
***Mean of quadruplicates

Table IV

INTERLABORATORY COMPARISON OF MOUND AND LFE ^{238}Pu RESULTS ON SOIL AND SEDIMENT

Code	Mound nc/g	LFE nc/g
PS6	0.207 ± 0.016*	0.178
PS7	0.362 ± 0.042	0.368
PS8	0.0963 ± 0.009*	0.0923
PS11	0.545 ± 0.057	0.550
PS12	3.21 ± 0.13	2.96
PS13	0.591 ± 0.061	0.536
PS14	0.289 ± 0.035	0.310
PS26	0.176 ± 0.024	0.114
PS29	0.618 ± 0.036*	0.554

*Average of triplicate analysis.
All others are single analysis.

Table V

INTERLABORATORY COMPARISON OF MOUND AND HASL ^{238}Pu RESULTS ON SOIL AND SEDIMENT

Code	Mound nc/g **	HASL nc/g*
RG1	0.0282 ± 0.0030	0.027
SE1	0.0137 ± 0.0013	0.014
PJ5	0.0036 ± 0.0013	0.0036
TJ1	0.0021 ± 0.0003	0.0014
KB2	0.0011 ± 0.0002	0.00031
BC3	0.0005 ± 0.0001	0.000090

*Mean value of duplicates
**Mean value of quadruplicates

USEPA also collected samples in the areas adjacent to Mound Laboratory and these samples were split in the field without sample homogenization. Comparison of these results between Mound and EPA is shown in Table VI.

The agreement between the two laboratories on these field-split samples appears to be poor in many cases. Considering the previous good agreement between Mound and EPA on homogenized samples, it is believed that sample inhomogeneities resulted in the poor agreement.

Table VI

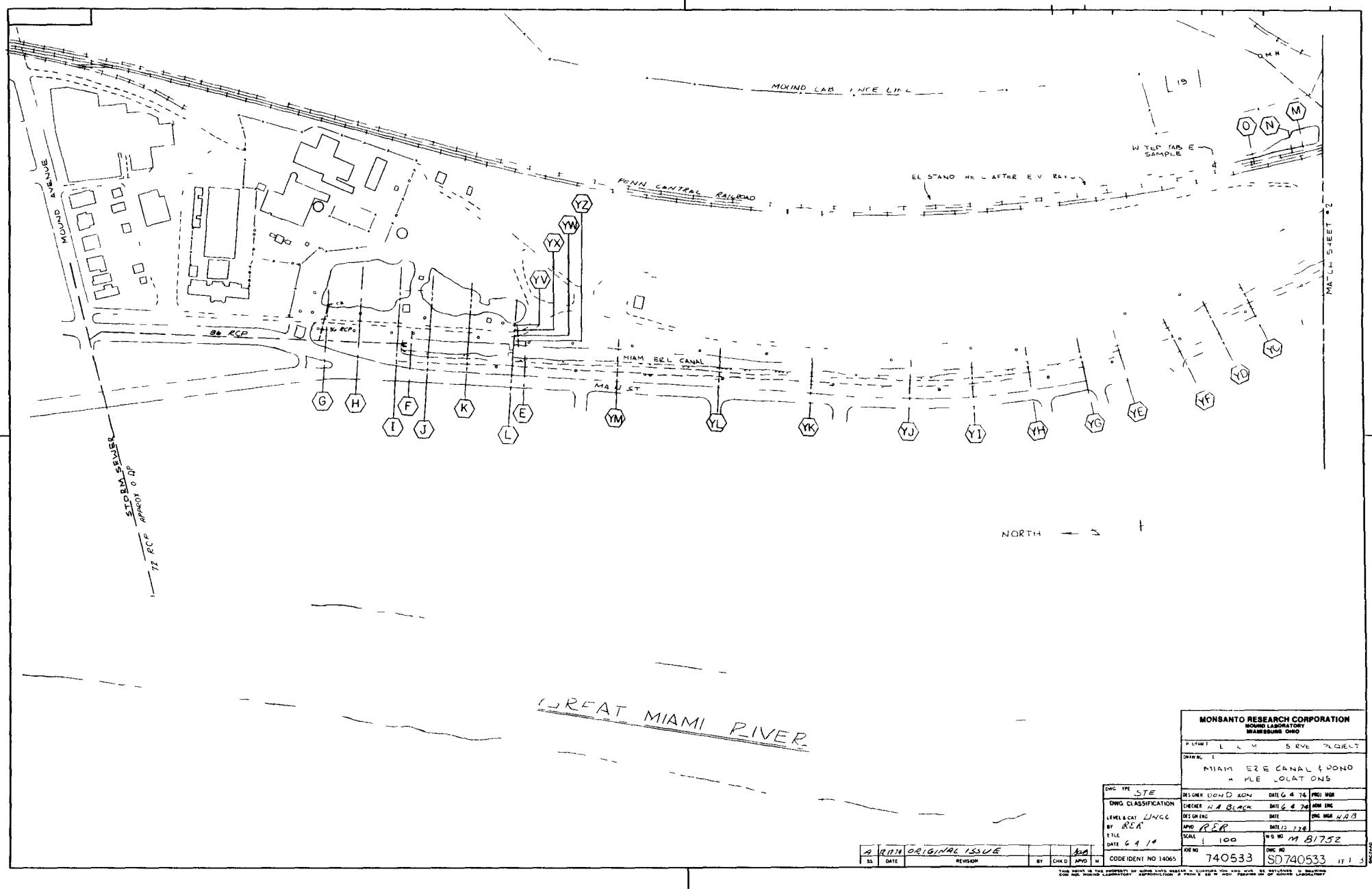
INTERLABORATORY COMPARISON OF MOUND AND EPA RESULTS ON FIELD-SPLIT SAMPLES*

Code	Mound (nc/g)	EPA (nc/g)
EPA-17	0.284 ± 0.035	0.047
EPA-18	0.280 ± 0.035	0.060
EPA-1	0.165 ± 0.023	0.230
EPA-6	0.0052 ± 0.0017	0.0038
EPA-20	0.0011 ± 0.0005	0.0019
EPA-14	0.0009 ± 0.0004	0.00044
EPA-15	0.0009 ± 0.0004	0.00096
EPA-3	0.0001 ± 0.0001	0.00039
EPA-13	0.0001 ± 0.0001	0.00010
EPA-7	<0.0001	0.00044
EPA-12	<0.0001	0.00019
EPA-2	<0.0001	0.00012
ALGAE SAMPLES		
EPA-9	0.111	0.079
EPA-21	0.0024	0.0024

*These samples were collected by USEPA near Mound Laboratory. The samples were split between EPA and Mound in the field without homogenization.

PLUTONIUM-238 CONCENTRATION OF SOIL, SEDIMENT AND WATER SAMPLES

COLLECTED BY MOUND LABORATORY IN THE MIAMI-ERIE CANAL AND ADJACENT WATERWAYS



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MOUND LABORATORY
MIAMISBURG OHIO

DRAWING	MIAMI ERIE CANAL & POND SAMPLE LOCATIONS		
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CHECKER	H A BLACK	DATE 6 4 74	ADM ENG
DESIGN ENG		DATE	ENG MGR H A B
APVD	RER	DATE 12 7 74	
SCALE	1 100	W O NO M 81752	
JOB NO	740533	DWG NO SD740533	1 1 3

DWG TYPE STE
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BY RER
TITLE
DATE 6 4 74
CODE IDENT NO 14065

SS	DATE	REVISION	BY	CHK'D	APVD	M
A	12 17 74	ORIGINAL ISSUE				

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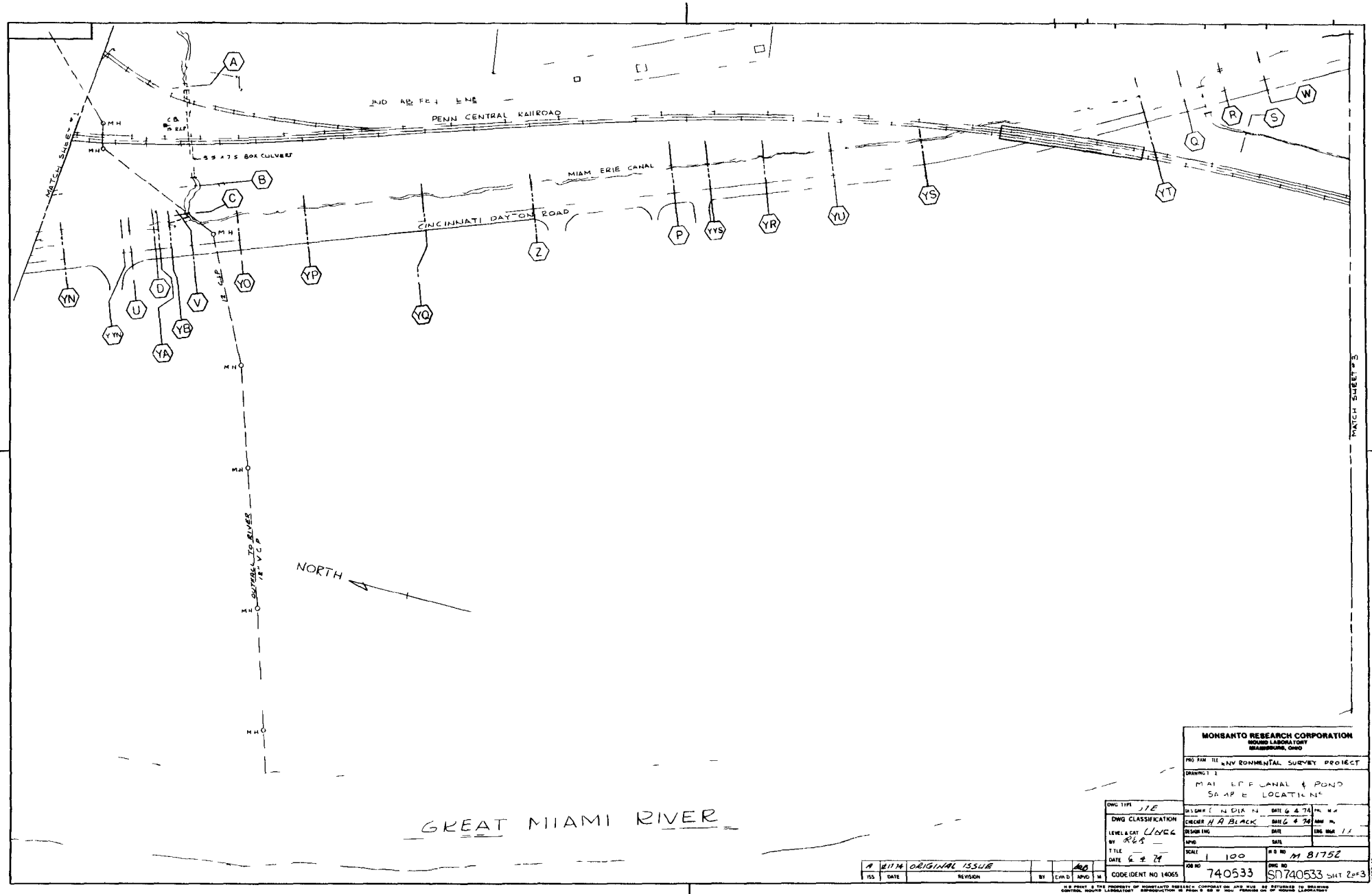

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MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE MIAMI ERIE CANAL & POND SAMPLE LOCATIONS

DESIGNER [illegible] DATE 6 4 74
CHECKER H A BLACK DATE 6 4 74
DESIGN ENG DATE
APVD DATE
SCALE 1 100
JOB NO 740533
DWG NO M 81752
DWG NO SD740533 SHT 2 OF 3

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DWG CLASSIFICATION
LEVEL & CAT UNCL
BY RLB
TITLE
DATE 6 4 74
CODE IDENT NO 14065

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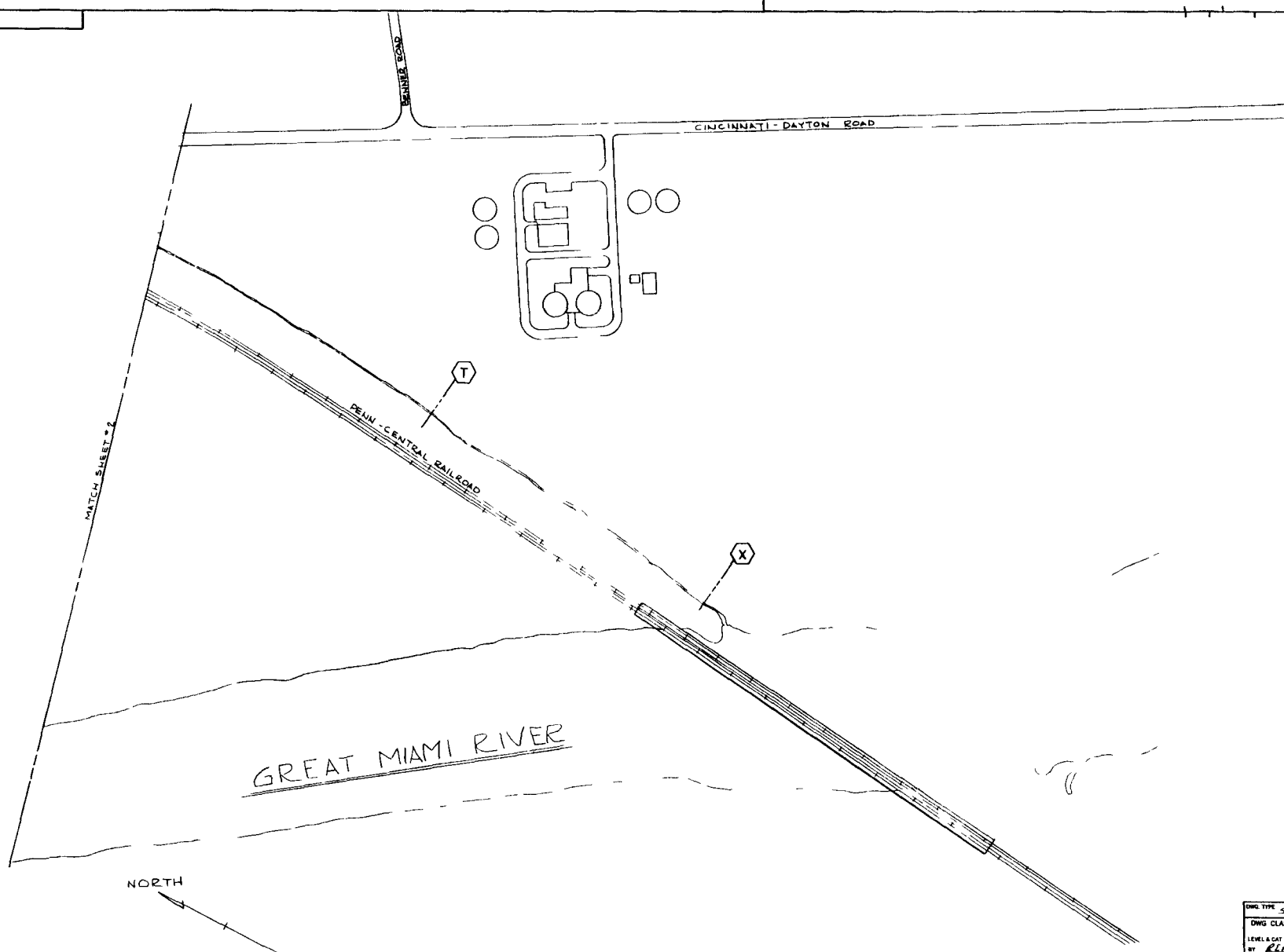

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MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: MIAMI ERIE CANAL & POND SAMPLE LOCATIONS

DWG. TYPE: STE

DWG CLASSIFICATION
LEVEL & CAT: UNCL
BY: RER
TITLE
DATE: 6 4-74

CODE IDENT NO 14065

DESIGNER: DON D XON	DATE: 6 4 74	PROJ. ENGR.	
CHECKER: H A BLACK	DATE: 6 4 74	ADM. ENG.	
DESIGN ENG	DATE	ENG. MGR. H A B	
APVD	DATE		
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JOB NO: 740533	DWG NO: SD740533 SHT 3 OF 3		

ISS	DATE	REVISION	BY	CHK'D	APVD	M
A	12-17-74	ORIGINAL ISSUE				

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SC740534

CORE SAMPLE RESULTS

AA1	0.194 ± 0.026
AA2	0.0486 ± 0.0091
AA3	
AA4	0.0005 ± 0.0003
AA5	<0.0001
CMPST	0.0455 ± 0.0087

AF1	0.216 ± 0.028
AF2	0.108 ± 0.0029
AF3	0.0025 ± 0.0010
AF4	0.0001 ± 0.0001
AF5	0.0002 ± 0.0001
CMPST	0.0621 ± 0.0110

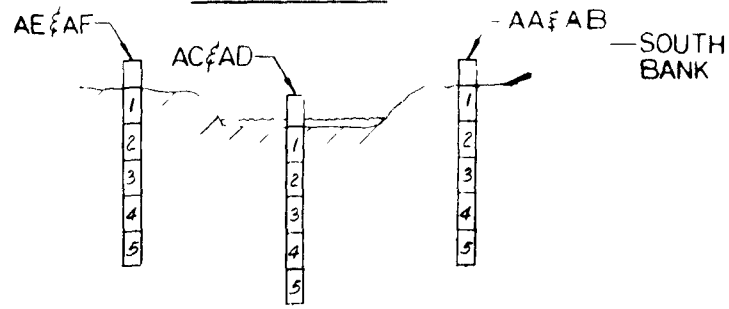
AB1	0.749 ± 0.0127
AB2	
AB3	0.0004 ± 0.0002
AB4	0.0002 ± 0.0001
AB5	0.0004 ± 0.0002
CMPST	0.0126 ± 0.0033

WATER ✱	0.0000063 (LFE)
SILT	0.450 (LFE)
AC1	0.0498 ± 0.0093
AC2	0.0009 ± 0.0004
AC3	0.0001 ± 0.0001
AC4	<0.0001
AC5	<0.0001
CMPST	0.0075 ± 0.0022

WATER ✱	0.0000021 (LFE)
SILT	0.106 (LFE)
AD1	0.0694 ± 0.0120
AD2	0.287 ± 0.035
AD3	0.0010 ± 0.0005
AD4	0.0007 ± 0.0004
AD5	<0.0001
CMPST	0.0729 ± 0.0124

AE1	0.596 ± 0.061
AE2	0.221 ± 0.029
AE3	0.0075 ± 0.0022
AE4	0.0004 ± 0.0002
AE5	0.0039 ± 0.0013
CMPST	0.188 ± 0.025

PLAN VIEW



CORE SECTIONS

NOTES

1. FIRST LETTER INDICATES THE SAMPLE LOCATION REFER TO MRC DRAWING NO SC740533.
2. SECOND LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THAT STATION
3. EACH NUMBER REPRESENTS A ONE FOOT SECTION OF THE CORE AT THE INDICATED DEPTH.
4. ALL VALUES ARE IN NANOCURIES GRAMS (nCi/g) NANOCURIE = 10^{-9} CURIE = 2220 DISINTEGRATIONS/MIN
5. CMPST - COMPOSITE
6. ✱ RESULTS ARE IN NANOCURIES/MILLILITER
7. LFE ANALYSES PERFORMED BY LFE ENVIRONMENTAL ANALYSIS LABORATORY RICHMOND CALIFORNIA

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: OFF-SITE DITCH SAMPLE LOCATION "A"

DWG TYPE STE	DESIGNER	DATE	PROJ MGR
DWG CLASSIFICATION	CHECKER H. M. BLACK	DATE 9 74	ADM ENG
	DESIGN ENG	DATE	ENG MGR
	APVD		
	SCALE NO SCALE		
JOB NO 740533		DWG NO SC740534	HT OF
CODE IDENT NO 14065			

DATE | REV | BY | APV

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SC740534

CORE SAMPLE RESULTS

BA1	0.0070 ± 0.0021
BA2	0.0008 ± 0.0004
BA3	0.0006 ± 0.0003
BA4	0.0009 ± 0.0004
BA5	0.0011 ± 0.0005
CMPST	0.0015 ± 0.0007

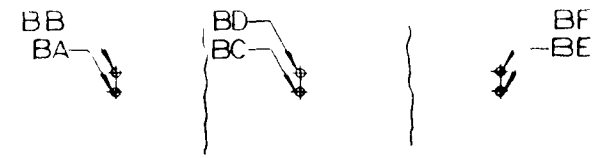
BF1	0.147 ± 0.021
BF2	0.0014 ± 0.0006
BF3	0.0019 ± 0.0008
BF4	0.0037 ± 0.0013
BF5	0.0019 ± 0.0006
CMPST	0.0349 ± 0.0017

BB1	0.0005 ± 0.0003
BB2	0.0004 ± 0.0002
BB3	0.0007 ± 0.0004
BB4	0.0006 ± 0.0003
BB5	0.0005 ± 0.0003
CMPST	0.0005 ± 0.0003

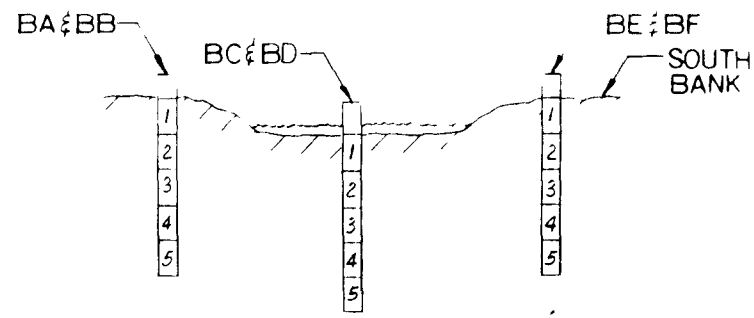
WATER ✱	0.0000045 (LFE)
SILT	0.262 (LFE)
BC1	0.0433 ± 0.0084
BC2	0.0049 ± 0.0016
BC3	0.0005 ± 0.0001
BC4	0.0003 ± 0.0002
BC5	0.0003 ± 0.0002
CMPST	0.0117 ± 0.0031

SILT	0.267 (LFE
BD1	0.0388 ± 0.0077
BD2	0.0012 ± 0.0006
BD3	0.0451 ± 0.0086
BD4	0.0006 ± 0.0003
BD5	0.0003 ± 0.0002
CMPST	0.0089 ± 0.0025

BE1	0.0335 ± 0.0069
BE2	0.0025 ± 0.0017
BE3	0.0024 ± 0.0003
BE4	0.0036 ± 0.0013
BE5	0.0059 ± 0.0018
CMPST	0.0080 ± 0.0023



PLAN VIEW



CORE SECTIONS

NOTE

1. FIRST LETTER INDICATES THE SAMPLE LOCATION REFER TO MRC DRAWING NO 50740533
2. SECOND LETTER INDICATES WHERE SAMPLE WAS OBTAINED AT THAT STATION
3. EACH NUMBER REPRESENTS A FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES GRAMS (n g NANOCURIE LFE INTEGRATIONS MIN
5. CMPST COMPOSITE
6. ✱ RESULTS ARE IN NANOCURIES MILLILITER
7. LFE ANALYSES PERFORMED BY LFE ENVIRONMENTAL ANALYSIS LABOPATORY RICHMOND CALIFORNIA

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG OHIO

PROGRAM: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: OFF-SITE DITCH SAMPLE LOCATION B

DWG TYPE STE	DESIGNER	DATE	PROJ MGR
DWG CLASSIFICATION	CHECKER	DATE	ADM ENG
LEVEL & LAT	DESIGN ENG	DATE	ENG MGR
	APVD	DATE	
DATE 6 9 74	SCALE NO SCALE		
CODE ENT NO 14	JOB NO 740533	DWG NO SC740534	HT OF

SC740534

CORE SAMPLE RESULTS

CA1	0.619 ±0.063
CA2	0.238 ±0.031
CA3	0.152 ±0.022
CA4	0.0385 ±0.0077
CA5	0.0198 ±0.0046
CMPST	0.136 ±0.020

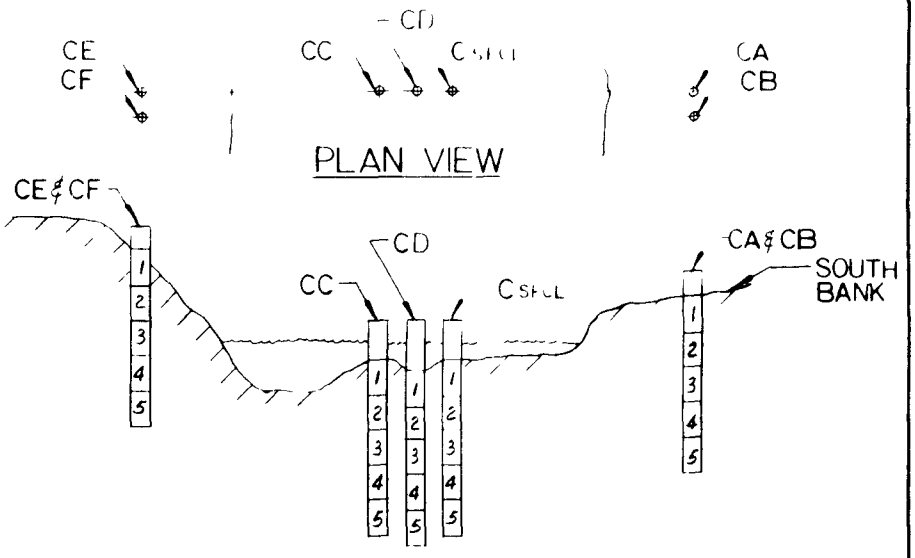
CE1	0.0302 ±0.0064
CE2	0.0004 ±0.0002
CE3	0.0004 ±0.0002
CE4	0.0185 ±0.0044
CE5	0.0261 ±0.0057
CMPST	0.0090 ±0.0025

CB1	0.251 ±0.032
CB2	0.150 ±0.022
CB3	0.0137 ±0.0035
CB4	0.0070 ±0.0021
CB5	0.0222 ±0.0050
CMPST	0.0799 ±0.013[illegible]

CF1	0.0446 ±0.0086
CF2	0.0012 ±0.0005
CF3	0.0003 ±0.0002
CF4	0.0421 ±0.0082
CF5	0.0497 ±0.0093
CMPST	0.0260 ±0.0057

WATER ✱	0.0000027 (LFE)
SILT	0.253 (LFE)
CC1	0.157 ±0.022
CC2	
CC3	
CC4	0.0016 ±0.0007
CC5	0.0184 ±0.0044
CMPST	0.0466 ±0.0[illegible]8

WATER ✱	0.0000004 (LFE)
SILT	0.301 (LFE)
CD1	0.146 ±0.021
CD2	0.129 ±0.019
CD3	0.0026 ±0.0007
CD4	0.0008 ±0.0004
CD5	0.0004 ±0.0002
CMPST	0.0[illegible] ±[illegible] 71



CORE SECTIONS

NOTES

1. FIRST LETTER INDICATES THE SAMPLE LOCATION REFER TO MRC DRAWING NO SC740533
2. SECOND LETTER INDICATES WHERE SAMPLE WAS OBTAINED AT THAT STATION
3. EACH NUMBER REPRESENTS A ONE FOOT SECTION OF THE CORE AT THE INDICATED DEPTH.
4. ALL VALUES ARE IN NANOCURIES GRAMS (nC/g), NANOCURIES = 10^9 CURIES = 2.220 DISINTEGRATIONS MIN
5. CMPST = COMPOSITE
6. ✱ RESULTS ARE IN NANOCURIES/MILLILITER
7. LFE ANALYSES PERFORMED BY LFE ENVIRONMENTAL ANALYSIS LABORATORY RICHMOND CALIFORNIA

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG OHIO

PROGRAM: ENVIRONMENTAL SURVEY PROJECT

TITLE: OFF-SITE DITCH SAMPLE LOCATION "C"

DWG TYPE: STE

DWG CLASSIFICATION

DESIGNER: [illegible] DATE: [illegible]74 PROJ MGR: [illegible]

DRAWER: [illegible] DATE: [illegible]74 ADM ENG

DESIGN ENG DATE ENG MGR

APVD DATE

SCALE: [illegible] W.O. NO. [illegible]

JOB NO. 74 F 37 DRAWING NO. SC740534 REV [illegible]

CORE SAMPLE RESULTS

DA1	0.0036 ± 0.0013
DA2	0.0001 ± 0.0001
DA3	0.0002 ± 0.0001
DA4	0.0001 ± 0.0001
DA5	<0.0001
CMPST	0.0007 ± 0.0004

DF1	0.276 ± 0.034
DF2	
DF3	4.56 ± 0.29
DF4	3.58 ± 0.24
DF5	0.300 ± 0.36
CMPST	1.83 ± 0.14

DB1	0.0064 ± 0.0020
DB2	<0.0001
DB3	0.0002 ± 0.0001
DB4	0.0001 ± 0.0001
DB5	0.0002 ± 0.0001
CMPST	0.0013 ± 0.0006

DG1	0.0450 ± 0.0086
DG2	0.0023 ± 0.0009
DG3	0.0018 ± 0.0008
DG4	0.0011 ± 0.0005
DG5	0.0006 ± 0.0002
CMPST	0.0079 ± 0.0023

DC1	0.130 ± 0.019
DC2	0.0109 ± 0.0029
DC3	0.0017 ± 0.0007
DC4	0.0004 ± 0.0002
DC5	0.0005 ± 0.0003
CMPST	0.0353 ± 0.0072

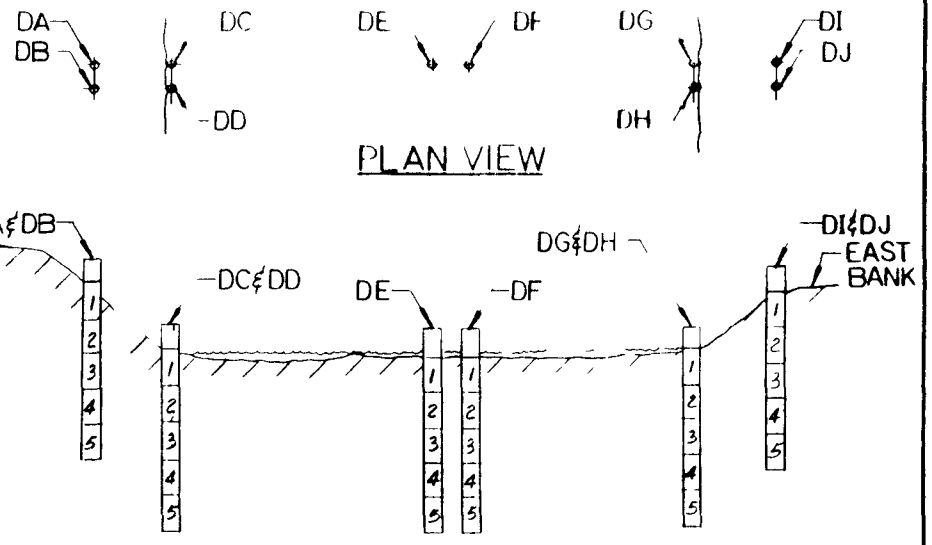
DH1	0.0665 ± 0.0116
DH2	0.0010 ± 0.0005
DH3	0.0010 ± 0.0005
DH4	0.0004 ± 0.0002
DH5	0.0017 ± 0.0007
CMPST	0.0097 ± 0.0027

WATER ✱	0.00000054 (LFE)
SILT	0.267 (LFE)
DD1	0.324 ± 0.030
DD2	
DD3	0.0057 ± 0.0018
DD4	0.0008 ± 0.0004
DD5	0.0007 ± 0.0004
CMPST	0.0293 ± 0.0062

DI1	0.0054 ± 0.0038
DI2	0.0004 ± 0.0003
DI3	0.0002 ± 0.0001
DI4	<0.0001
DI5	0.0002 ± 0.0001
CMPST	0.0032 ± 0.0012

DE1	
DE2	0.462 ± [illegible]
DE3	2.38 ± 0.17
DE4	
DE5	3.07 ± 0.09
CMPST	2.05 ± 0.16

DJ1	0.0038 ± 0.0018
DJ2	[illegible]0003 ± 0.0002
DJ3	0.0001 ± 0.0001
DJ4	0.0003 ± 0.0002
DJ5	0.0001 ± 0.0001
MPST	[illegible]8 ± 0.0004



NOTES

1. FIRST LETTER INDICATES THE SAMPLE LOCATION REFER TO MR DRAWING NO S0740533.
2. SECOND LETTER INDICATES WHERE SAMPLE WAS OBTAINED AT THAT STATION
3. EACH NUMBER REPRESENTS A [illegible] FOOT SECTION OF THE CORE AT THE INDICATED DEPTH.
4. ALL VALUES ARE IN NANOCURIES GRAMS [illegible] NANOCURIES [illegible] 2.20 DISINTEGRATIONS MIN
5. CMPST COMPOSITE
6. ✱ RESULTS ARE IN NANOCURIES MILLILITER
7. LFE ANALYSES PERFORMED BY LFE ENVIRONMENTAL ANALYSIS LABORATORY RICHMOND CALIFORNIA

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING: CANAL SAMPLE LOCATION D'

DWG TYPE: STE

DWG CLASSIFICATION

DESIGNER | DATE | PROJ MGR
CHECKER | DATE | ADM ENG
DRAWN | DATE | ENG MGR
APVD | DATE
SCALE
DWG NO

SC 740534

CORE SAMPLE RESULTS

WATER * 0.5 0003 (LFE)
SILT 20 15 (LFE)

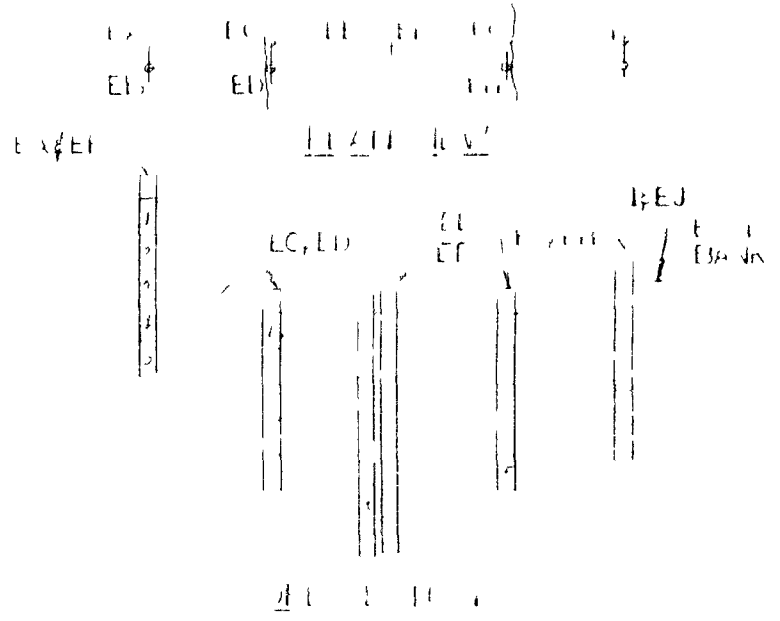
EA1	0.0001 ± 0.0001	EF1	1 C3 ± 0 05
EA2	<0 0001	EF2	0 04 ± 0 0048
EA3	<0.0001	EF3	0 0141 ± 0.0018
EA4	0.0001 ± 0.0001	EF4	0 0084 ± 0 0014
EA5	0.0003 ± 0 0001	EF5	0 0030 ± 0 0008
CMPST	0 0002 (LFE)	CMPST	0.09324 (LFE)

EB1	< 0001	EG1	98 ± 0 0027
EB2	<0.0001	EG2	
EB3	<0 0001	EG3	
EB4	<0 0001	EG4	83 ± 0 0024
EB5	0 002 ± 0 0001	EG5	04 ± 0 0002
CMPST	0 0002 (LFE)	CMPST	0 257 (LFE)

EC1	0.0029 ± 0 0011	EH1	38 ± 0 0053
EC2	0.0012 ± 0 0006	EH2	0 36 ± 0 0013
EC3	0 0010 ± 0 0005	EH3	0 10 ± 0 0005
EC4	0 0012 ± 0 0006	EH4	0 06 ± 0 0003
EC5	0 0002 ± 0.0001	EH5	0 02 ± 0 0002
CMPST	0 00089 (LFE)	CMPST	0 2283 (LFE)

EI1	004		
EI2	0 0023 ± 0 0011	EI2	
EI3	0.0029 ± 0.0011	EI3	<
EI4	0 0029 ± 0 0011	EI4	<0 0
EI5	0 0008 ± 0 0004	EI5	<0 01
CMPST	0 0030 (LFE)	CMPST	<

EJ2	40	EJ1	
EJ3	0 0071 ± 0 0011	EJ3	<0 0001
EJ4	0. 008 ± 0 0006	EJ4	<0 01
EJ5	0 0008 ± 0 0003	EJ5	<0 0001
CMPST	0 072 7 (LFE)	CMPST	0 3364 (L



SC740534

CORE SAMPLE RESULTS

FA1	0.0094 ± 0.0026
FA2	0.0094 ± 0.0015
FA3	0.0065 ± 0.0020
FA4	0.0020 ± 0.0008
FA5	0.0066 ± 0.0020
CMPST	0.0048 ± 0.0016

FB1	0.0042 ± 0.0010
FB2	0.0045 ± 0.0011
FB3	0.0111 ± 0.0030
FB4	0.0024 ± 0.0009
FB5	0.0122 ± 0.0032
CMPST	0.0070 ± 0.0021

FC1	0.0187 ± 0.0031
FC2	0.0891 ± 0.0102
FC3	0.0002 ± 0.0002
FC4	0.0018 ± 0.0007
FC5	0.0092 ± 0.0026
CMPST	0.0255 ± 0.0056

WATER *	0.0000003 (LFE)
SILT	0.0189 (LFE)
FD1	0.0169 ± 0.0029
FD2	0.0349 ± 0.0050
FD3	0.0094 ± 0.0019
FD4	0.0008 ± 0.0004
FD5	0.0002 ± 0.0001
CMPST	0.0117 ± 0.0031

WATER *	0.0000001 (LFE)
SILT	0.0491 (LFE)
FE1	0.0138 ± 0.0025
FE2	0.0004 ± 0.0002
FE3	0.0001 ± 0.0001
FE4	0.0001 ± 0.0001
FE5	<0.0001
CMPST	0.0011 ± 0.0005

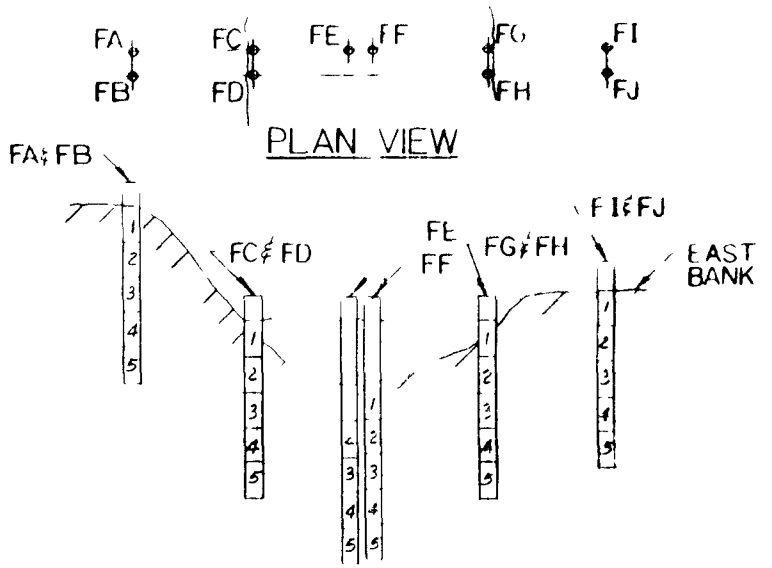
FF1	0.0071 ± 0.0021
FF2	0.0010 ± 0.0003
FF3	0.0001 ± 0.0001
FF4	0.0002 ± 0.0001
FF5	0.0004 ± 0.0003
CMPST	0.0019 ± 0.0008

WATER *	0.0000002 (LFE)
SILT	0.0114 (LFE)
FG1	0.0018 ± 0.0008
FG2	<0.0001
FG3	0.0001 ± 0.0001
FG4	
FG5	0.0002 ± 0.0002
CMPST	0.0007 ± 0.0004

WATER *	0.0000003 (LFE)
SILT	0.00573 (LFE)
FH1	0.0031 ± 0.0011
FH2	0.0005 ± 0.0003
FH3	0.0002 ± 0.0002
FH4	0.0001
FH5	0.0002 ± 0.0001
CMPST	0.0024 ± 0.0009

FI1	0.0030 ± 0.0039
FI2	0.0015 ± 0.0007
FI3	0.0007 ± 0.0004
FI4	0.0009 ± 0.0004
FI5	0.0018 ± 0.0007
CMPST	0.0026 ± 0.0010

FJ1	0.0103 ± 0.0020
FJ2	0.0012 ± 0.0005
FJ3	0.0003 ± 0.0002
FJ4	0.0001 ± 0.0001
FJ5	0.0002 ± 0.0002
CMPST	0.0012 ± 0.0006



CORE SECTIONS

NOTE

1. FIRST LETTER INDICATES THE SAMPLE LOCATION ON MONSANTO DWG NO SC740533
2. SECOND LETTER INDICATES WHICH SAMPLE (1, 2, 3, 4, 5) AT THAT LOCATION
3. EACH NUMBER REPRESENTS A FOOT OF CORE AT THE INDICATED LOCATION
4. ALL SAMPLES ARE IN NANOCURIES/GRAM OF SOIL EXCEPT WATER SAMPLES IN NANOCURIES/LITER
5. COMPOSITE
6. * REPORTED IN NANOCURIES/LITER
7. LFE ANALYSES PERFORMED BY LFE ENVIRONMENTAL ANALYSIS LABORATORY RICHMOND, CALIFORNIA

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

ENVIRONMENTAL SURVEY PROJECT

CANAL SAMPLE LOCATIONS "F"

DWG TYPE STE	DESIGNER	DATE	PROJ MGR
DWG CLASSIFICATION	DRAWN		ADM ENG
	DESIGNED		ENG MGR
	APVD		
CODE IDENT NO 14	SCALE	W NO M 81752	
	G NO M0[illegible]23	DWG NO SC740534 HT/1	

DRAWING NO

SC740534

CORE SAMPLE RESULTS

WATER	0.00000004 (LFE)
SILT	0.0116 (LFE)
GA1	0.0004 ± 0.0002
GA2	<0.0001
GA3	<0.0001
GA4	NOT DETECTABLE (LFE)

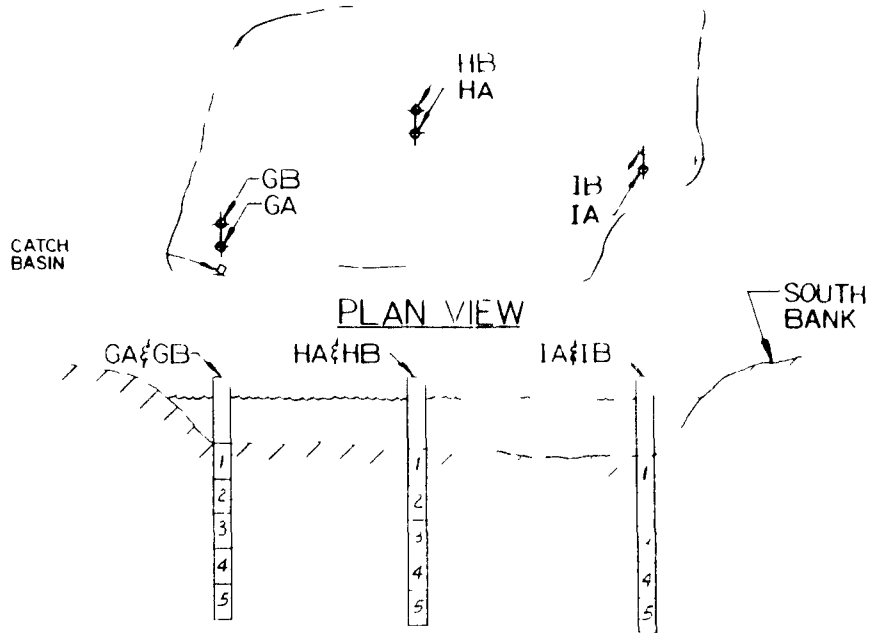
WATER ✱	0.0000004 (LFE)
SILT	0.0188 (LFE)
IB1	0.0021 ± 0.0008
IB2	<0.0001
IB3	<0.0001
IB4	<0.0001
IB5	0.0001 ± 0.0001

WATER ✱	0.0000001 (LFE)
SILT	0.0178 (LFE)
GB1	0.0005 ± 0.0003
GB2	<0.0001
GB3	0.0002 ± 0.0001
GB4	0.0003 ± 0.0002
CMPST	0.0002 ± 0.0002

WATER ✱	0.0000001 (LFE)
SILT	0.0205 (LFE)
HA1	0.0047 ± 0.0016
HA2	<0.0001
HA3	<0.0001
HA4	<0.0001
HA5	0.0006 ± 0.0003
CMPST	0.000366 (LFE)

WATER ✱	0.0000002 (LFE)
SILT	0.0222 (LFE)
HB1	0.0062 ± 0.0019
HB2	0.0001 ± 0.0001
HB3	<0.0001
HB4	0.0003 ± 0.0002
HB5	<0.0001
CMPST	0.000626 (LFE)

WATER ✱	0.018829 (LFE)
SILT	0.0223 (LFE)
IA1	0.0020 ± 0.0008
IA2	<0.0001
IA3	<0.0001
IA4	0.0013 ± 0.0006
IA5	<0.0001
CMPST	0.0005 ± 0.0003



CORE SECTIONS

NOTES

1. FIRST LETTER INDICATES THE SAMPLE LOCATION REFER TO MRC DRAWING NO SD740533
2. SECOND LETTER INDICATES WHERE SAMPLE [illegible] WAS OBTAINED AT THAT STATION
3. EACH NUMBER REPRESENTS A [illegible] FOOT [illegible] CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES GRAM [illegible] 2220 DISINTEGRATIONS MIN
5. CMPST [illegible] COMPOSITE
6. ✱ RESULTS ARE IN NANOCURIES MILLILITER
7. LFE ANALYSES PERFORMED BY LFE ENVIRONMENTAL ANALYSIS LABORATORY RICHMOND CALIFORNIA

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG OHIO

PROJECT: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: NORTH POND SAMPLE LOCATIONS "G"-H&I

DWG TYPE STE	DESIGNER [illegible]	DATE 6-19-74	PROJ MGR [illegible]
DWG CLASSIFICATION	CHECKER H A Black	DATE 6 19 74	ADM ENG
LEVEL & CAT [illegible]	DESIGN ENG	DATE	ENG MGR H A P
BY RER	APVD	DATE	
TITLE	SCALE NO SCALE	W O NO M 81752	
DATE 6 19 74	JOB NO 740533	DWG NO SC740534	
CODE IDENT NO 14065			

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SC740534

CORE SAMPLE RESULTS

WATER ✱	0.0000001 (LFE)
SILT	0.0398 (LFE)
JA1	0.0007 ± 0.0004
JA2	0.0002 ± 0.0001
JA3	<0.0001
JA4	0.0001 ± 0.0001
JA5	0.0005 ± 0.0003
CMPST	0.0001 ± 0.0001

WATER ✱	0.0000002 (LFE)
SILT	0.208 (LFE)
LB1	0.0053 ± 0.0017
LB2	0.0003 ± 0.0001
LB3	0.0002 ± 0.0001
LB4	0.0001 ± 0.0001
LB5	0.0001 ± 0.0001
CMPST	0.0013 ± 0.0006

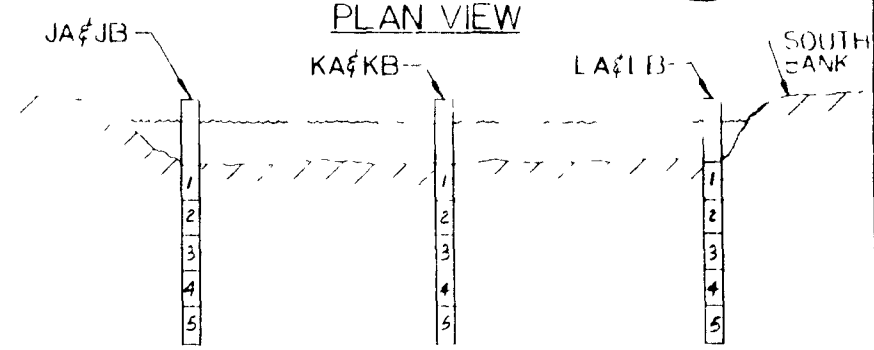
WATER ✱	0.0000001 (LFE)
SILT	0.0427 (LFE)
JB1	0.0243 ± 0.0054
JB2	0.0012 ± 0.0006
JB3	<0.0001
JB4	<0.0001
JB5	<0.0001
CMPST	0.0016 ± 0.0007

WATER ✱	0.0000003 (LFE)
SILT	0.0608 (LFE)
KA1	0.0309 ± 0.0065
KA2	0.0007 ± 0.0004
KA3	0.0006 ± 0.0003
KA4	<0.0001
KA5	0.0051 ± 0.0017
CMPST	0.0028 ± 0.0011

WATER ✱	0.0000003 (LFE)
SILT	0.0653 (LFE)
KB1	0.0271 ± 0.0059
KB2	0.0011 ± 0.0002
KB3	0.0001 ± 0.0001
KB4	
KB5	0.0006 ± 0.0003
CMPST	0.0063 ± 0.0019

WATER ✱	0.0000003 (LFE)
SILT	0.0373 (LFE)
LA1	0.0096 ± 0.0027
LA2	0.0005 ± 0.0003
LA3	0.0002 ± 0.0001
LA4	<0.0001
LA5	0.0004 ± 0.0002
CMPST	0.0020 ± 0.0008

PLAN VIEW



CORE SECTIONS

NOTES

1. FIRST LETTER INDICATES THE SAMPLE LOCATION [illegible] TO [illegible] NO. SD740533.
2. SECOND LETTER INDICATES WHERE SAMPLE [illegible] AT THAT STATION.
3. EACH NUMBER REPRESENTS A ONE [illegible] CORE AT THE INDICATE DEPTH.
4. ALL VALUES ARE IN NANOCURIES GRAMS [illegible] = [illegible] DISINTEGRATIONS MIN.
5. CMPST COMPOSITE
6. ✱ RESULTS ARE IN NANOCURIES MILLILITER
7. LFE ANALYSES PERFORMED BY LFE ENVIRONMENTAL ANALYSIS LABORATORY RICHMOND CALIFORNIA

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: SOUTH POND SAMPLE LOCATIONS "J"-"K"&"L"

DWG TYPE: STE	DESIGNER: [illegible]	DATE: 6 19 74	PROJ MGR: [illegible]
DWG CLASSIFICATION	CHECKER: H AL BLACK	DATE: 6 19 74	ADM ENG
LEVEL & CAT: [illegible]	DESIGN ENG	DATE	ENG MGR: H A B
BY: ALR	APVD	DATE	
TITLE	SCALE: NO SCALE	W.O. NO: M 81752	
DATE: 6 19 74	JOB NO: 740533	DWG NO: SC740534 HT/90F	
CODE IDENT NO 14065			

DATE	REV	BY	APVD
2/17/74	ORIGINAL ISSUE		

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SC740534

CORE SAMPLE RESULTS

WATER ✱	0.0000002 (LFE)
SILT	0.0245 (LFE)
MA1	0.0314 ± 0.0066
MA2	0.0058 ± 0.0018
MA3	0.0007 ± 0.0004
MA4	0.000248 (LFE)
MA5	0.000250 (LFE)
CMPST	0.0246 (LFE)

WATER ✱	0.0000002 (LFE)
SILT	0.022928 (LFE)
OB1	0.0097 ± 0.0027
OB2	0.0002 ± 0.0002
OB3	<0.0001
OB4	0.000067 (LFE)
OB5	0.000064 (LFE)

WATER	0.0000004 (LFE)
SILT	0.0244 (LFE)
MB1	0.0123 ± 0.0032
MB2	0.0027 ± 0.0010
MB3	0.0005 ± 0.0003
MB4	0.0002 ± 0.0001
MB5	0.0002 ± 0.0002
CMPST	0.0030 ± 0.0011

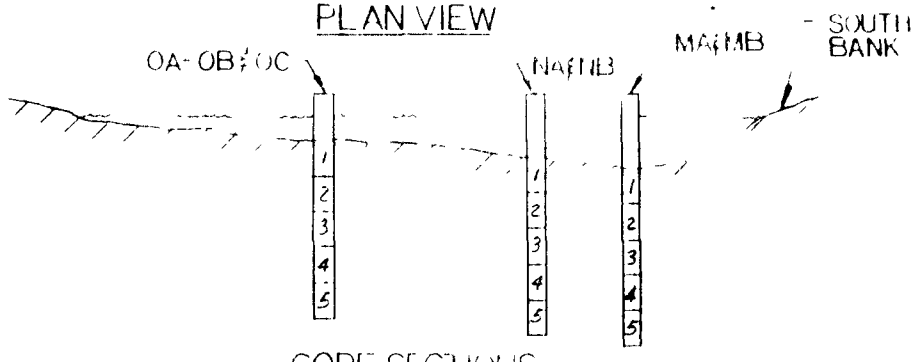
WATER ✱	0.0000004 (LFE)
SILT	0.01982 (LFE)
OC1	0.0028 ± 0.0010
OC2	<0.0001
OC3	<0.0001
OC4	0.000042 (LFE)
OC5	0.000043 (LFE)

WATER ✱	0.0000005 (LFE)
SILT	0.0245 (LFE)
NA1	0.0149 ± 0.0037
NA2	0.0006 ± 0.0003
NA3	0.0003 ± 0.0001
NA4	0.0002 ± 0.0002
NA5	<0.0001
CMPST	0.00245 (LFE)

WATER ✱	0.0000003 (LFE)
SILT	0.0286 (LFE)
NB1	0.0173 ± 0.0042
NB2	0.0007 ± 0.0003
NB3	0.0003 ± 0.0001
NB4	NOT DETECTABLE (LFE)
NB5	NOT DETECTABLE (LFE)

WATER ✱	0.0000003 (LFE)
SILT	0.0266 (LFE)
OA1	<0.0001
OA2	0.0051 ± 0.0016

PLAN VIEW



CORE SECTIONS

NOTES

1. FIRST LETTER INDICATES THE SAMPLE LOCATION [illegible] TO MRC DRAWING NO. SC740533.
2. SECOND LETTER INDICATES WHERE [illegible] AT THAT STATION
3. EACH NUMBER REPRESENTS A [illegible] CORE AT THE INDICATED DEPTH.
4. ALL VALUES ARE IN NANOCURIES [illegible] - 10^{-9} CURIES [illegible] 2.20 DISINTEGRATIONS/MIN
5. CMPST [illegible] COMPOSITE
6. ✱ RESULTS ARE IN NANOCURIES [illegible]
7. LFE - ANALYSES PERFORMED BY LFE ENVIRONMENTAL ANALYSIS LABORATORY RICHMOND, CALIFORNIA

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: RUNOFF HOLLOW SAMPLE LOCATIONS M-N & O

DWG TYPE: STE

DWG CLASSIFICATION

LEVEL & CAT: ONE

BY: [illegible]

TITLE

DATE: 6 19 74

CODE IDENT NO 14065

DESIGNER [illegible]	DATE 6 19 74	PROJ MGR [illegible]	
CHECKER H A BLACK	DATE 6 19 74	ADM ENG	
DESIGN ENG	DATE	ENG MGR H A B	
APVD	DATE		
SCALE NO SCALE	W O NO M-81752		
JOB NO 740533	DWG NO SC740534 SHT 200F		

ISS	DATE	REVISION	BY	CHK'D	APVD	M
4	2 7 74	ORIGINAL ISSUE			[illegible]	

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SC740534

CORE SAMPLE RESULTS

PA1	0.245 ±0.031
PA2	0.0184 ±0.0044
PA3	0.0320 ±0.0067
PA4	0.01622 (LFE)
PA5	0.00847 (LFE)

PF1	1.24 ±0.11
PF2	1.39 ±0.12
PF3	0.0345 ±0.0070
PF4	0.0132 ±0.0034
PF5	0.0071 ±0.0021
CMPST	0.456 ±0.050

PB1	0.226 ±0.029
PB2	0.0528 ±0.0097
PB3	0.0005 ±0.0003
PB4	0.0168 ±0.0041
PB5	0.0044 ±0.0015
CMPST	0.0896 ±0.0146

PG1	1.59 ±0.13
PG2	0.691 ±0.069
PG3	0.0231 ±0.0052
PG4	0.0062 ±0.0019
PG5	0.0060 ±0.0019
CMPST	0.522 ±0.055

PC1	1.50 ±0.12
PC2	0.183 ±0.025
PC3	0.0239 ±0.0053
PC4	0.0018 ±0.0008
PC5	0.0068 ±0.0021
CMPST	0.314 ±0.038

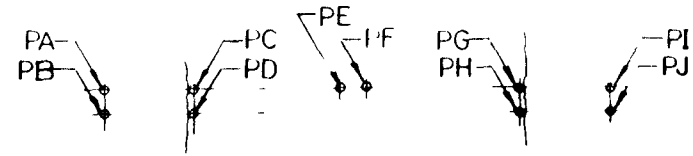
PH1	1.36 ±0.11
PH2	1.28 ±0.11
PH3	0.0611 ±0.0109
PH4	0.0112 ±0.0030
PH5	0.0058 ±0.0018
CMPST	0.400 ±0.045

PL1	0.908 ±0.032
PL2	0.194 ±0.026
PL3	0.0149 ±0.0037
PL4	0.0050 ±0.0016
PL5	0.0083 ±0.0024
CMPST	0.309 ±0.037

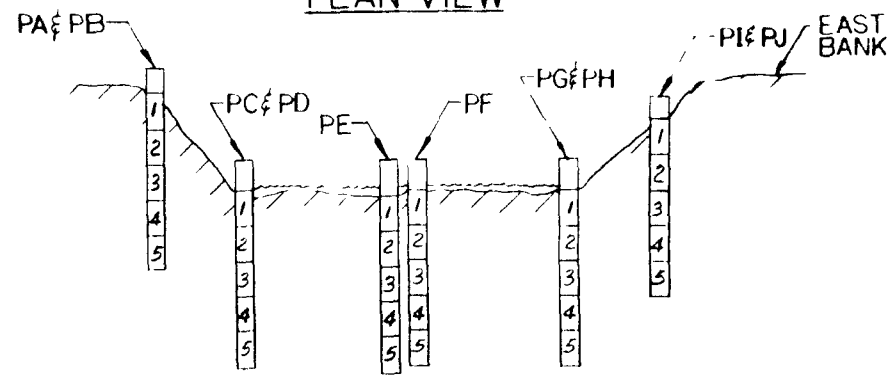
PI1	1.28 ±0.11
PI2	0.847 ±0.057
PI3	0.0136 ±0.0035
PI4	0.0131 ±0.0034
PI5	0.0031 ±0.0011
CMPST	0.501 ±0.054

PE1	0.480 ±0.052
PE2	1.48 ±0.12
PE3	0.0297 ±0.0063
PE4	0.0084 ±0.0024
PE5	0.0019 ±0.0008
CMPST	0.382 ±0.044

PJ1	0.888 ±0.083
PJ2	0.376 ±0.043
PJ3	0.0167 ±0.0041
PJ4	0.0251 ±0.0055
PJ5	0.0036 ±0.0005
CMPST	0.295 ±0.036



PLAN VIEW



CORE SECTIONS

NOTES

1. FIRST LETTER INDICATES THE SAMPLE LOCATION. REFER TO MRC DRAWING NO. SD740533.
2. SECOND LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THAT STATION.
3. EACH NUMBER REPRESENTS A ONE [illegible] FOOT SECTION OF THE CORE AT THE INDICATED DEPTH.
4. ALL VALUES ARE IN NANOCURIES GRAMS (in [illegible]). NANOCURIES = 1 [illegible] CURIES = 2.20 DISINTEGRATIONS/MIN.
5. CMPST - COMPOSITE

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: CANAL SAMPLE LOCATION "P"

DWG TYPE: STE
DWG CLASSIFICATION
LEVEL & CAT: [illegible]
BY: KBK
TITLE
DATE: 6-19-74
CODE IDENT NO 14065

DESIGNER: [illegible]	DATE: 6 19 74	PROJ MGR: DES	
CHECKER: H. AL. BLACK	DATE: 6 19 74	ADM ENG	
DESIGN ENG	DATE	ENG MGR: H. A. B.	
APVD	DATE		
SCALE: NO SCALE	W.O. NO: M 81752		
JOB NO: 740533	DWG NO: SC740534 HT2/OF		

SS	DATE	REVISION	BY	HKD	APVD	M
4	12/17/74	ORIGINAL ISSUE			HAB	

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SC 740534

CORE SAMPLE RESULTS

WATER ✱	0.00000698 (LFE)
SILT	0.327928 (LFE)
QF1	0.369 ±0.043
QF2	0.0925 ±0.0149
QF3	0.0117 ±0.0031
QF4	0.0010 ±0.0005
QF5	0.0014 ±0.0006

QA1	0.154 ±0.022
QA2	0.0214 ±0.0049
QA3	0.0068 ±0.0021
QA4	0.0026 ±0.0010
QA5	0.0139 ±0.0025
CMPST	0.0226 ±0.0051

QB1	0.0728 ±0.0124
QB2	0.0144 ±0.0036
QB3	0.0126 ±0.0033
QB4	0.003797 (LFE)
QB5	0.002703 (LFE)

QG1	0.729 ±0.071
QG2	0.424 ±0.047
QG3	0.0517 ±0.0096
QG4	0.0043 ±0.0014
QG5	0.0034 ±0.0012
CMPST	0.214 ±0.028

QC1	0.486 ±0.053
QC2	0.0337 ±0.0069
QC3	0.0030 ±0.0011
QC4	0.0005 ±0.0003
QC5	0.0014 ±0.0004
CMPST	0.101 ±0.016

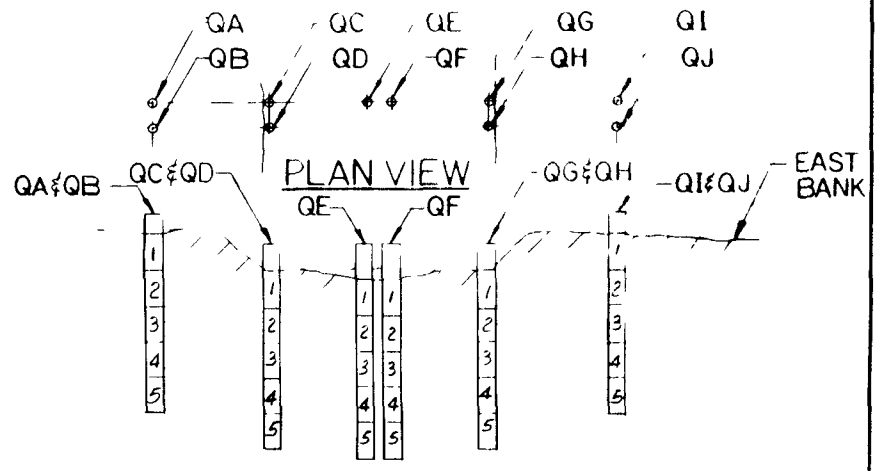
QH1	0.783 ±0.075
QH2	0.241 ±0.031
QH3	0.0210 ±0.0048
QH4	0.0028 ±0.0010
QH5	0.0015 ±0.0005
CMPST	0.222 ±0.029

QD1	0.850 ±0.080
QD2	0.627 ±0.064
QD3	0.0218 ±0.0050
QD4	0.0007 ±0.0004
QD5	0.0029 ±0.0011
CMPST	0.261 ±0.033

QI1	0.491 ±0.053
QI2	0.0178 ±0.0043
QI3	0.0065 ±0.0020
QI4	0.00743 (LFE)
QI5	0.00739 (LFE)

WATER ✱	0.0000135 (LFE)
SILT	0.395 (LFE)
QE1	1.00 ±0.09
QE2	0.232 ±0.011
QE3	0.0155 ±0.0038
QE4	0.0012 ±0.0006
QE5	0.0008 ±0.0004
CMPST	0.190 ±0.026

QJ1	0.468 ±0.051
QJ2	0.0050 ±0.0016
QJ3	0.0020 ±0.0008
QJ4	0.00392 (LFE)
QJ5	0.00321 (LFE)



CORE SECTIONS

NOTES

1. FIRST LETTER INDICATES THE SAMPLE LOCATION REFER TO MRC DRAWING NO SD740533
2. SECOND LETTER INDICATES WHERE SAMPLE ONE WAS OBTAINED AT THAT STATION
3. EACH NUMBER REPRESENTS A ONE 1 FOOT SECTION OF THE CORE AT THE INDICATED DEPTH.
4. ALL VALUES ARE IN NANOCURIES GRAMS (DRY) . NANOCURIES = 10^{-9} CURIES 2220 DISINTEGRATIONS MIN
5. CMPST - COMPOSITE
6. ✱ RESULTS ARE IN NANOCURIES/MILLILITER
7. LFE ANALYSES PERFORMED BY LFE ENVIRONMENTAL ANALYSIS LABORATORY RICHMOND CALIFORNIA

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE CANAL SAMPLE LOCATION Q

DWG TYPE STE	DESIGNER JUNKAF	DATE 6 19 74	PROJ MGR DEF
DWG CLASSIFICATION	CHECKER H. A. BLACK	DATE 6 19 74	ADM ENG
LEVEL & CAT ONE	DESIGN ENG	DATE	ENG MGR HAB
BY RCR	APVD	DATE	
TITLE	SCALE NO SCALE	W O NO M 81752	
DATE 6-9-74	JOB NO 740533	DWG NO SC740534-HT220F	
CODE IDENT NO 14065			

SS	DATE	REVISION	BY	HRE	APVD	M
A	12-17-74	ORIGINAL ISSUE			HAB	

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SC740534

CORE SAMPLE RESULTS

WATER ✱	0.0000065 (LFE)
SILT	0.347 (LFE)

RA1	0.0659 ± 0.0115
RA2	0.0028 ± 0.0010
RA3	0.0024 ± 0.0009
RA4	0.000604 (LFE)
RA5	0.00032 (LFE)

RF1	0.279 ± 0.034
RF2	0.0094 ± 0.0026
RF3	0.0006 ± 0.0003
RF4	0.000277 (LFE)
RF5	0.000326 (LFE)

RB1	0.0565 ± 0.0103
RB2	0.0025 ± 0.0010
RB3	0.0031 ± 0.0011
RB4	0.000554 (LFE)
RB5	0.000586 (LFE)

RG1	0.0282 ± 0.0030
RG2	0.0124 ± 0.0032
RG3	0.0067 ± 0.0020
RG4	0.0039 ± 0.0014
RG5	0.0086 ± 0.0025
CMPST	0.0108 ± 0.0029

RC1	0.136 ± 0.010
RC2	0.0097 ± 0.0027
RC3	0.0015 ± 0.0006
RC4	0.0007 ± 0.0004
RC5	0.0006 ± 0.0003
CMPST	0.0242 ± 0.0054

RH1	0.0254 ± 0.0056
RH2	0.0411 ± 0.0081
RH3	0.0128 ± 0.0033
RH4	0.0109 ± 0.0029
RH5	0.0058 ± 0.0018
CMPST	0.0225 ± 0.0051

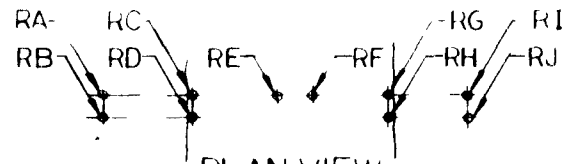
RD1	0.0410 ± 0.0080
RD2	0.0021 ± 0.0009

RI1	0.0062 ± 0.0019
RI2	0.0001 ± 0.0001
RI3	0.0001 ± 0.0001
RI4	0.01117 (LFE)
RI5	0.000793 (LFE)

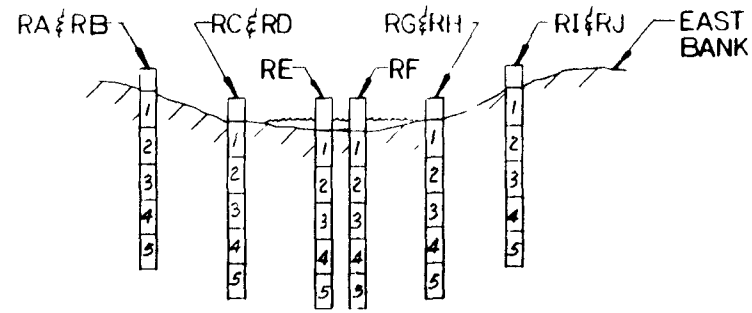
WATER ✱	0.0000034 (LFE)
SILT	0.341 (LFE)

RE1	0.0500 ± 0.0060
RE2	0.113 ± 0.017
RE3	0.0007 ± 0.0004
RE4	0.0002 ± 0.0002
RE5	0.0004 ± 0.0002
CMPST	0.0330 ± 0.0068

RJ1	0.0060 ± 0.0019
RJ2	0.0001 ± 0.0001
RJ3	0.0001 ± 0.0001
RJ4	0.000523 (LFE)
RJ5	0.000446 (LFE)



PLAN VIEW



CORE SECTIONS

NOTES

1. FIRST LETTER INDICATES THE SAMPLE LOCATION. REFER TO MRC DRAWING NO. SD740533.
2. SECOND LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THAT STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH.
4. ALL VALUES ARE IN NANOCURIE GRAMS (nc/g). NANOCURIE = 10^{-9} CURIES = 2220 DISINTEGRATIONS/MIN
5. CMPST = COMPOSITE
6. ✱ DATA WITHDRAWN
7. ✱ RESULTS ARE IN NANOCURIES/MILLILITER
8. LFE - ANALYSES PERFORMED BY LFE ENVIRONMENTAL ANALYSIS LABORATORY RICHMOND, CALIFORNIA

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: CANAL SAMPLE LOCATION "R"

DWG TYPE STE	DESIGNER I. INLAW	DATE 6-19-74	PROJ MGR D.R.S.
DWG CLASSIFICATION	CHECKER H A BLACK	DATE 6-19-74	ADM ENG
LEVEL & CAT N/A	DESIGN ENG	DATE	ENG MGR HAB
BY SER	APVD	DATE	
TITLE	SCALE NO SCALE	W O NO M 81 152	
DATE 6 20 74	JOB NO 740533	DWG NO SC740534 SHT 2 OF	
CODEIDENT NO 14065			

ISS	DATE	REVISION	BY	CHK'D	APVD	M
4	12-11-74	ORIGINAL ISSUE			MB	

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SC740534

CORE SAMPLE RESULTS

WATER ✱	0.000002 (LFE)
SILT	0.122523 (LFE)
SF1	0.0055 ± 0.0017
SF2	0.0005 ± 0.0003
SF3	<0.0001
SF4	0.00012 (LFE)
SF5	0.00023 (LFE)

SA1	0.0188 ± 0.0044
SA2	0.0005 ± 0.0003
SA3	0.0005 ± 0.0003
SA4	0.000241 (LFE)
SA5	0.000077 (LFE)

SB1	0.0185 ± 0.0044
SB2	0.0002 ± 0.0001
SB3	0.0001 ± 0.0001
SB4	0.000095 (LFE)
SB5	0.000137 (LFE)

SG1	0.0003 ± 0.0002
SG2	0.0001 ± 0.0001
SG3	0.0001 ± 0.0001
SG4	0.005360 (LFE)
SG5	0.000143 (LFE)

SC1	0.0034 ± 0.0012
SC2	0.0019 ± 0.0008
SC3	0.0024 ± 0.0009
SC4	0.0018 ± 0.0008
SC5	0.000604 (LFE)

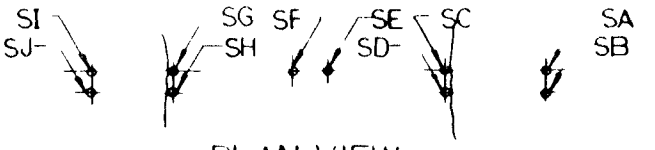
SH1	0.0005 ± 0.0003
SH2	0.0002 ± 0.0001
SH3	0.0012 ± 0.0005
SH4	0.000392 (LFE)
SH5	0.000319 (LFE)

SD1	0.0146 ± 0.0037
SD2	0.0036 ± 0.0013
SD3	0.0010 ± 0.0005
SD4	0.001063 (LFE)
SD5	0.003176 (LFE)

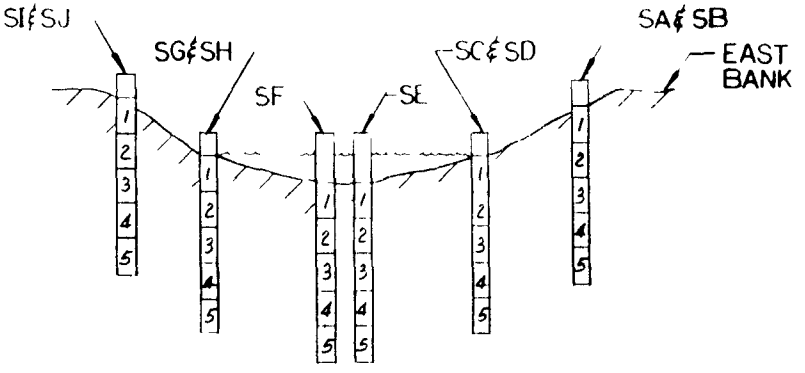
SI1	0.0021 ± 0.0008
SI2	<0.0001
SI3	<0.0001
SI4	0.000069 (LFE)
SI5	NOT DETECTABLE (LFE)

WATER ✱	0.0000014 (LFE)
SILT	0.270 (LFE)
SE1	0.0137 ± 0.0013
SE2	0.0005 ± 0.0003
SE3	0.0001 ± 0.0001
SE4	0.000359 (LFE)
SE5	0.000658 (LFE)

SJ1	0.0018 ± 0.0007
SJ2	<0.0001
SJ3	<0.0001
SJ4	0.000108 (LFE)
SJ5	0.000044 (LFE)



PLAN VIEW



CORE SECTIONS

NOTES

1. FIRST LETTER INDICATES THE SAMPLE LOCATION REFER TO MRC DRAWING NO SD740533.
2. SECOND LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THAT STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES GRAMS (nCi/g) NANOCURIE = 10^{-9} CURIES 2220 DISINTEGRATIONS/MIN
5. CMPST - COMPOSITE
6. ✱ RESULT ARE IN NANOCURIES MILLILITER
7. LFE ANALYSES PERFORMED BY LFE ENVIRONMENTAL ANALYSIS LABORATORY RICHMOND CALIFORNIA

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE
CANAL DRAINAGE DITCH SAMPLE LOCATION 'S'

DWG TYPE STE	DESIGNER JUNKAR	DATE 6 19 74	PROJ MGR DES
DWG CLASSIFICATION	CHECKER H A L BLACK	DATE 6 19 74	ADM ENG
LEVEL & CAT UNCL	DESIGN ENG	DATE	ENG MGR HAB
BY RCS	APVD	DATE	
TITLE	SCALE NO SCALE	W O NO M 81752	
DATE 6-19-74	JOB NO 740533	DWG NO SC740534 SHT 2 OF	
CODE IDENT NO 14065			

ISS	DATE	REVISION	BY	CHK'D	APV'D	M
A	21 74	ORIGINAL ISSUE			MAB	

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SC740534

CORE SAMPLE RESULTS

TA1	0.0116 ± 0.0031
TA2	0.0007 ± 0.0004
TA3	0.0006 ± 0.0003
TA4	0.000766 (LFE)
TA5	0.000595 (LFE)

WATER ✱	0.0000025 (LFE)
SILT	0.189 (LFE)
TF1	0.0099 ± 0.0027
TF2	0.0006 ± 0.0003
TF3	0.0003 ± 0.0002
TF4	0.000113 (LFE)
TF5	0.000906 (LFE)

TB1	0.0096 ± 0.0027
TB2	0.0009 ± 0.0002
TB3	0.0006 ± 0.0003
TB4	0.000295 (LFE)
TB5	0.002378 (LFE)

TG1	0.0008 ± 0.0004
TG2	0.0004 ± 0.0002
TG3	0.0004 ± 0.0002
TG4	0.000455 (LFE)
TG5	0.000403 (LFE)

TC1	0.0270 ± 0.0058
TC2	0.0010 ± 0.0005
TC3	0.0008 ± 0.0004
TC4	0.000698 (LFE)
TC5	0.000167 (LFE)

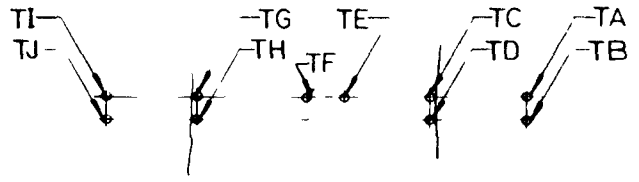
TH1	0.0002 ± 0.0001
TH2	< 0.0001
TH3	0.0005 ± 0.0003
TH4	0.000310 (LFE)
TH5	0.000924 (LFE)

TD1	0.0435 ± 0.0084
TD2	0.0036 ± 0.0013
TD3	0.0012 ± 0.0006
TD4	0.000367 (LFE)
TD5	0.000148 (LFE)

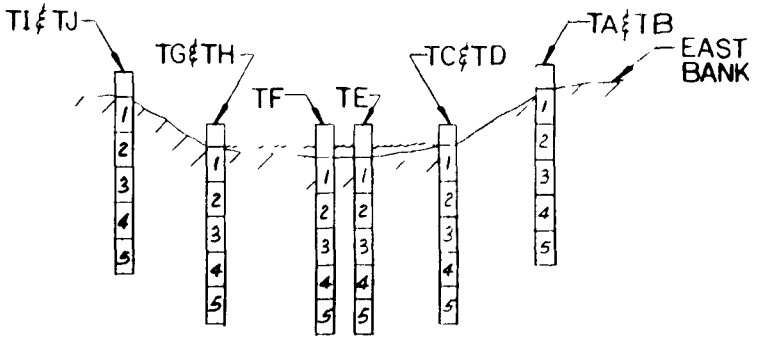
TI1	0.0011 ± 0.0005
TI2	< 0.0001
TI3	< 0.0001
TI4	0.000046 (LFE)
TI5	0.000182 (LFE)

WATER ✱	0.0000022 (LFE)
SILT	0.168919 (LFE)
TE1	0.0066 ± 0.0020
TE2	0.0011 ± 0.0005
TE3	0.0007 ± 0.0004
TE4	0.00028 (LFE)
TE5	0.000103 (LFE)

TJ1	0.0021 ± 0.0003
TJ2	< 0.0001
TJ3	< 0.0001
TJ4	0.000091 (LFE)
TJ5	0.000091 (LFE)



PLAN VIEW



CORE SECTIONS

NOTES

1. FIRST LETTER INDICATES THE SAMPLE LOCATION REFER TO MRC DRAWING NO SD740533.
2. SECOND LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THAT STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES GRAMS (nCi/g) NANOCURIES = 10^{-9} CURIES - 2220 DISINTEGRATIONS/MIN
5. CMPST - COMPOSITE
6. ✱ RESULTS ARE IN NANOCURIES/MILLILITER
7. LFE ANALYSES PERFORMED BY LFE ENVIRONMENTAL ANALYSIS LABORATORY, RICHMOND, CALIFORNIA

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE CANAL DRAINAGE DITCH SAMPLE LOCATION "T"

DWG TYPE STE	DESIGNER JUNKAR	DATE 6-19-74	PROJ MGR D.R.S
DWG CLASSIFICATION	CHECKER H A BLACK	DATE 6-19-74	ADM ENG
LEVEL & CAT UNCL	DESIGN ENG	DATE	ENG MGR H.A.B
BY PRR	APVD	DATE	
TITLE	SCALE NO SCALE	W O NO M-81752	
DATE 6-19-74	JOB NO 740533	DWG NO SC740534 SH 1 OF 2	
CODE IDENT NO 14065			

SS	DATE	REVISION	BY	CHK'D	APVD	M
4	12-11-74	ORIGINAL ISSUE			HA	

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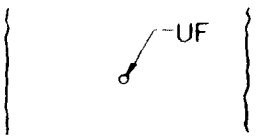
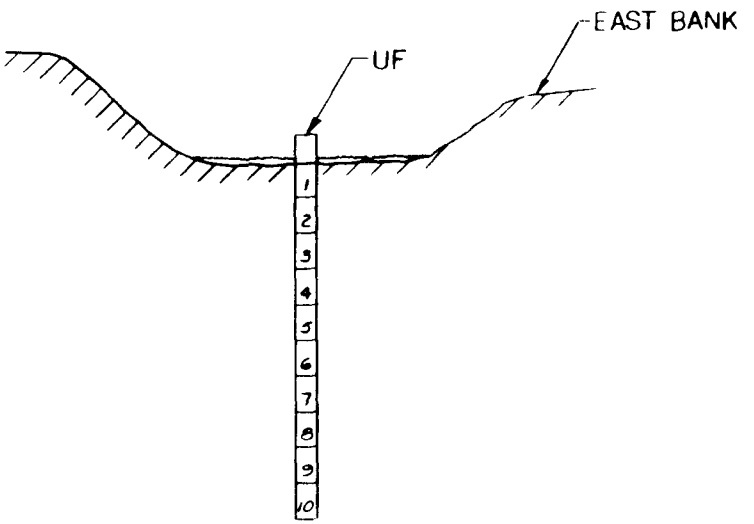
SC740534

CORE SAMPLE RESULTS

UF1	0.157 ±0.022
UF2	0.344 ±0.040
UF3	0.381 ±0.044
UF4	
UF5	0.295 ±0.036
UF6	
UF7	0.0034 ±0.0012
UF8	0.0001 ±0.0001
UF9	0.0001 ±0.0001
UF10	0.0093 ±0.0026



PLAN VIEW



CORE SECTION

NOTES:

1. FIRST LETTER INDICATES THE SAMPLE LOCATION REFER TO MRC DRAWING NO SD740533
2. SECOND LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THAT STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES/GRAMS (nCi/g) NANOCURIES = 10^{-9} CURIES = 2220 DISINTEGRATIONS/MIN

ISS	DATE	REVISION	BY	CHK'D	APV'D	M
A	12-11-74	ORIGINAL ISSUE			MB	

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: CANAL SAMPLE LOCATION "U"

DWG. TYPE: STE

DWG. CLASSIFICATION
LEVEL & CAT. UNCL
BY
TITLE
DATE 7-23-74

CODE IDENT NO 14065

DESIGNER R WILKINSON	DATE 7-23-74	PROJ MGR.	
CHECKER H A. BLACK	DATE 7 24 74	ADM ENG.	
DESIGN ENG.	DATE	ENG. MGR.	
APVD D R ROGERS	DATE		
SCALE NO SCALE		W O NO M-81752	
JOB NO 740533		DWG. NO. SC740534 SHT 2 OF 2	

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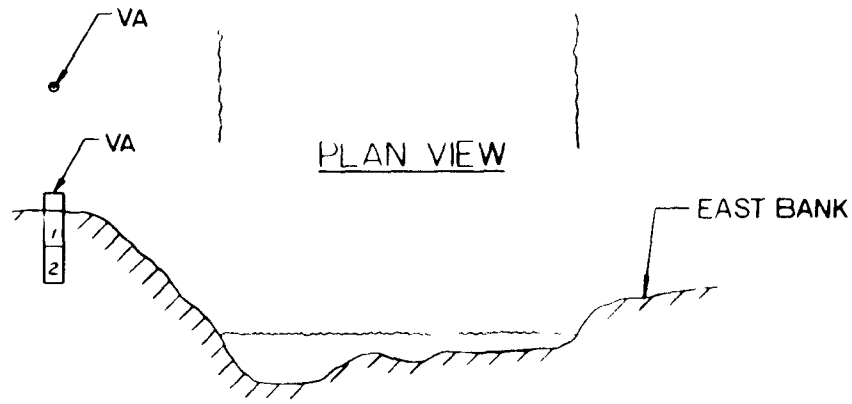
SC740534

CORE SAMPLE RESULTS

VA1	0.0542 ± 0.0099
VA2	0.0076 ± 0.0022



CORE SECTION

NOTES

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ISS	DATE	REVISION	BY	CHK'D	APVD	M
A	12-17-74	ORIGINAL ISSUE			MAB	

DWG TYPE STE
DWG CLASSIFICATION
LEVEL & CAT UNCL
BY R E R
TITLE
DATE 7-26-74
CODE IDENT NO 14065

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT
DRAWING TITLE OFF-SITE DITCH SAMPLE LOCATION "V"

DESIGNER A WILKINSON	DATE 7-26-74	PROJ MGR. D R S	
CHECKER H A. BLACK	DATE 7-26-74	ADM ENG.	
DESIGN ENG.	DATE	ENG. MGR. H A B	
APVD D R ROGERS	DATE		
SCALE NO SCALE	W O NO M-81752		
JOB NO 740533	DWG NO SC740534 SHT 2 OF		

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SC740534

CORE SAMPLE RESULTS

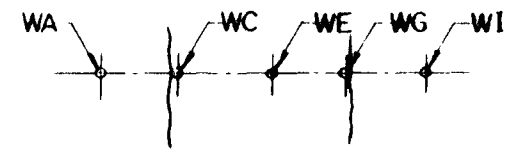
WA1	0.0006 ± 0.0003
WA2	
WA3	0.0001 ± 0.0001
WA4	0.0003 ± 0.0002
WA5	0.0003 ± 0.0002

WC1	0.0004 ± 0.0003
WC2	0.0006 ± 0.0003
WC3	0.0007 ± 0.0004
WC4	0.0006 ± 0.0003
WC5	0.0006 ± 0.0003

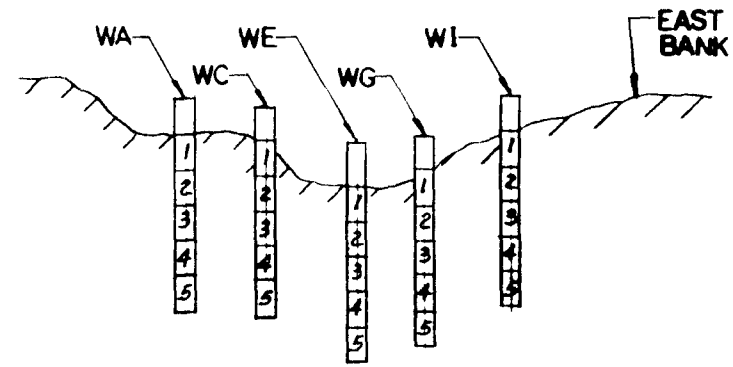
WE1	0.0735 ± 0.0125
WE2	0.0079 ± 0.0023
WE3	0.0006 ± 0.0003
WE4	
WE5	0.0006 ± 0.0003

WG1	0.0078 ± 0.0023
WG2	0.0013 ± 0.0006
WG3	0.0022 ± 0.0009
WG4	0.0032 ± 0.0012
WG5	0.0015 ± 0.0007

WI1	0.0015 ± 0.0006
WI2	0.0012 ± 0.0005
WI3	0.0003 ± 0.0002
WI4	0.0110 ± 0.0030
WI5	0.0008 ± 0.0004



PLAN VIEW



CORE SECTIONS

NOTES:

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ISS	DATE	REVISION	BY	CHK'D	APV'D	M
A	8-1-74	ORIGINAL ISSUE			MB	

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE CANAL SAMPLE LOCATION "W"

DWG. TYPE: STE

DWG. CLASSIFICATION

LEVEL & CAT. UNCL

BY RPR

TITLE

DATE 8-1-74

CODE IDENT NO. 14066

DESIGNER JUNKAP	DATE 8 1 74	PROJ. MGR. D.R.S.	
CHECKER H. A. BLACK	DATE 8 1 74	ADM. ENG.	
DESIGN ENG.	DATE	ENG. MGR. H.A.B.	
APVD	DATE		
SCALE NO SCALE	W.O. NO M-81752		
JOB NO. 740533	DWG. NO. SC740534 SHT 2 OF 2		

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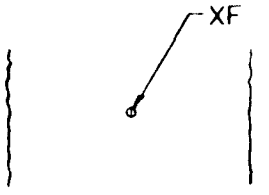
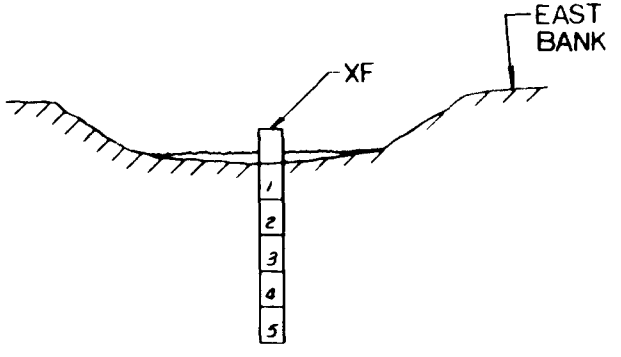
SC740534

CORE SAMPLE RESULTS

XF1	0.0744 ± 0.0126
XF2	0.0711 ± 0.0122
XF3	
XF4	
XF5	



PLAN VIEW



CORE SECTION

NOTES

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ISS	DATE	REVISION	BY	CHK D	APVD	M
A	12-17-74	ORIGINAL ISSUE			MAB	

DWG. TYPE STE

DWG CLASSIFICATION

LEVEL & CAT UNCL

BY RLR

TITLE

DATE 7 26 74

CODE IDENT NO 14065

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE CANAL DRAINAGE DITCH SAMPLE LOCATION "X"

DESIGNER A WILKINSON DATE 7-26-74 PROJ. MGR. D. R. S

CHECKER H AL BLACK DATE 7-26-74 ADM ENG.

DESIGN ENG. DATE ENG. MGR. H A B

APVD D R ROGERS DATE

SCALE NO SCALE W O NO M-81752

JOB NO 740533 DWG. NO SC740534 SHT 2 OF

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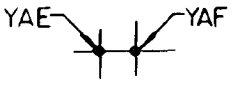
SC740534

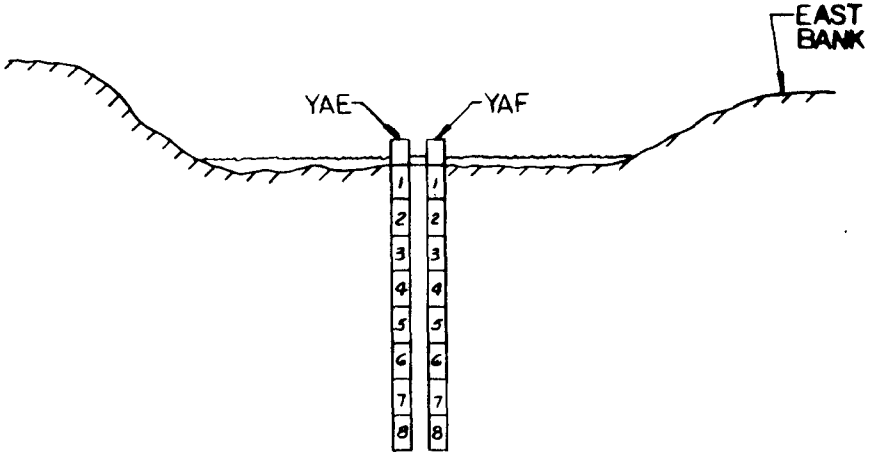
CORE SAMPLE RESULTS

YAE 1	0.187	± 0.025
YAE 2		
YAE 3	0.331	± 0.039
YAE 4	0.014	± 0.0030
YAE 5		
YAE 6	0.104	± 0.016
YAE 7	0.0087	± 0.0025
YAE 8	0.0015	± 0.0007

YAF 1	0.132	± 0.020
YAF 2	0.364	± 0.042
YAF 3	0.0276	± 0.0039
YAF 4	0.0038	± 0.0014
YAF 5	0.0006	± 0.0003
YAF 6		
YAF 7	0.0017	± 0.0007
YAF 8	0.0029	± 0.0011



PLAN VIEW



CORE SECTIONS

NOTES:

1. FIRST TWO LETTERS INDICATE ADDITIONAL SAMPLING LOCATION REFER TO MRC DRAWING NO SD740533
2. THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THAT STATION.
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH.
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ISS	DATE	REVISION	BY	CHK D	APVD	M
A	12-17-74	ORIGINAL ISSUE			MB	

DWG. TYPE: STE
DWG. CLASSIFICATION
LEVEL & CAT. UNCL
BY
TITLE
DATE 7-29-74
CODE IDENT. NO 14065

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE CANAL SAMPLE LOCATION "YA"

DESIGNER R WILKINSON	DATE 7-29-74	PROJ. MGR. D R C	
CHECKER H A. BLACK	DATE 7 24 74	ADM. ENG.	
DESIGN ENG.	DATE	ENG. MGR. H A	
APVD. D. R ROGERS	DATE		
SCALE NO SCALE		W O NO. M-81752	
JOB NO. 740533		DWG. NO. SC740534 SHT 3 OF 3	

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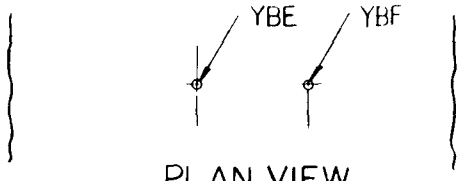
SC740534

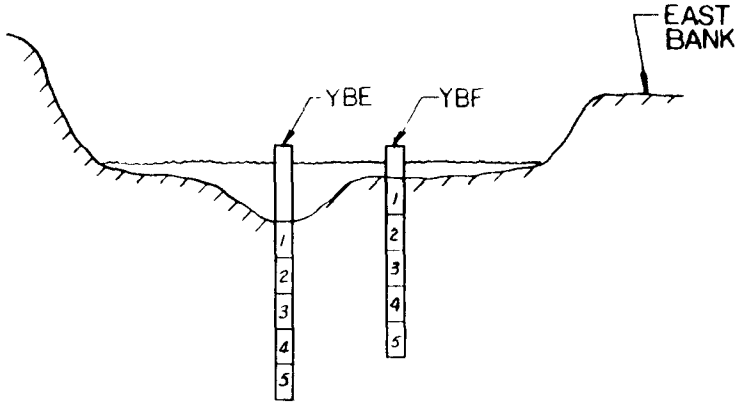
CORE SAMPLE RESULTS

YBE 1	0.134	± 0.020
YBE 2	0.121	± 0.018
YBE 3	0.0047	± 0.0016
YBE 4		
YBE 5	0.0011	± 0.0005

YBF 1	0.358	± 0.042
YBF 2	0.0042	± 0.0014
YBF 3	0.0011	± 0.0005
YBF 4	0.0009	± 0.0004
YBF 5	0.0004	± 0.0002



PLAN VIEW



CORE SECTIONS

NOTES

1. FIRST TWO LETTERS INDICATE ADDITIONAL SAMPLING LOCATION REFER TO MRC DRAWING NO SD740533
2. THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THAT STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES/GRAMS (nCi/g) NANOCURIES $= 10^{9}$ CURIES = 2220 DISINTEGRATIONS/MIN

ISS	DATE	REVISION	BY	CHK'D	APVD	M
A	11-7-74	ORIGINAL ISSUE				

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: CANAL SAMPLE LOCATION 'YB'

DWG TYPE: STE

DWG CLASSIFICATION
LEVEL & CAT: UNCL
BY:
TITLE:
DATE: 7-23-74

CODE IDENT NO 14065

DESIGNER R WILKINSON	DATE 7-23-74	PROJ MGR.
CHECKER	DATE 7-24-74	ADM ENG.
DESIGN ENG.	DATE	ENG MGR.
APVD D R Rogers	DATE	
SCALE NO SCALE	W O NO M-81752	
JOB NO 740533	DWG NO. SC740534 SHT 3/ OF	

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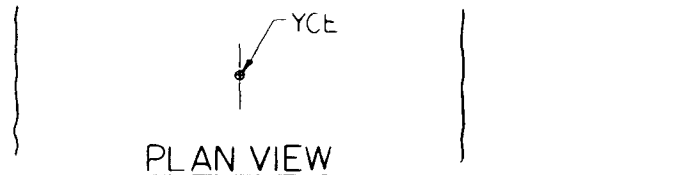
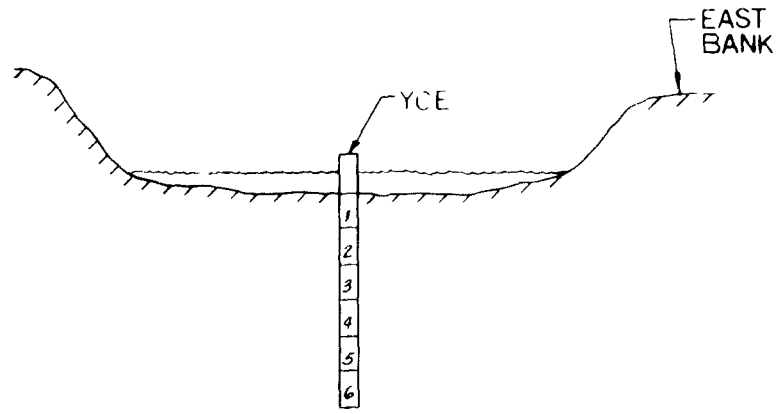


PLAN VIEW



CORE SECTION

CORE SAMPLE RESULTS

YCE 1	0.613 ± 0.063
YCE 2	0.695 ± 0.069
YCE 3	0.0118 ± 0.0031
YCE 4	0.0017 ± 0.0007
YCE 5	0.0004 ± 0.0002
YCE 6	0.0004 ± 0.0003

NOTES

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ISS	DATE	REVISION	BY	CHK'D	APVD	M
A	7-17-74	ORIGINAL ISSUE			MJ	

DWG TYPE STE

DWG CLASSIFICATION

LEVEL & CAT UNCL

BY

TITLE

DATE 7-23-74

CODE IDENT NO 14065

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE CANAL SAMPLE LOCATION "YC"

DESIGNER R WILKINSON	DATE 7-23-74	PROJ MGR.	
CHECKER	DATE	ADM. ENG.	
DESIGN ENG.	DATE	ENG. MGR.	
APVD	DATE		
SCALE NO SCALE	W O NO M-81752		
JOB NO 740533	DWG NO SC740534 SH 1 OF		

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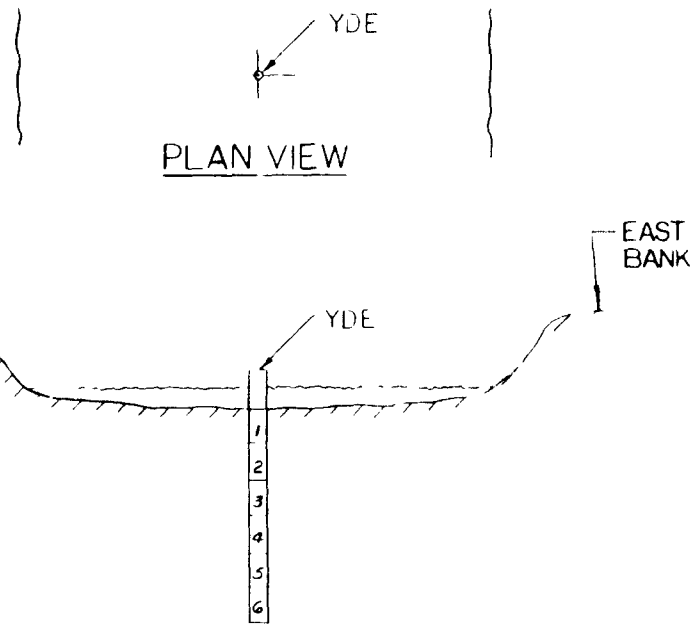
SC740534

CORE SAMPLE RESULTS

YDE 1	0.758 ± 0.074
YDE 2	0.213 ± 0.028
YDE 3	0.0270 ± 0.0059
YDE 4	
YDE 5	0.0008 ± 0.0004
YDE 6	0.0013 ± 0.0006



NOTES

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SS	DATE	REVISION	BY	CHK'D	APV'D	M
A	12 17 74	ORIGINAL ISSUE				

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: CANAL SAMPLE LOCATION YD'

DWG TYPE STE	DESIGNER R WILKINSON	DATE 7-23 74	PROJ MGR
DWG CLASSIFICATION	CHECKER	DATE	ADM ENG
LEVEL & CAT UNCL	DESIGN ENG	DATE	ENG MGR
BY	APV'D	DATE	
TITLE	SCALE NO SCALE	W O NO M 81752	
DATE 7 23 74	JOB NO 740533	DWG NO SC740534 SH 1 OF	
CODE IDENT NO 14065			

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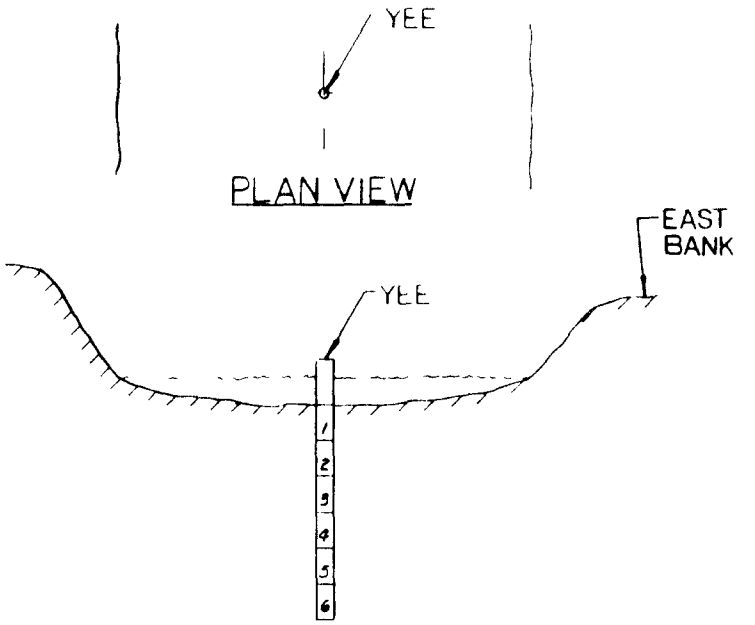
SC740534

CORE SAMPLE RESULTS

YEE 1	0.818	± 0.114
YEE 2		
YEE 3	0.216	± 0.044
YEE 4	0.0062	± 0.0019
YEE 5	0.0009	± 0.0004
YEE 6	0.0004	± 0.0003



NOTES

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ISS	DATE	REVISION	BY	CHK'D	APV'D	M
A	11-17-74	ORIGINAL ISSUE			MB	

DWG TYPE STE
DWG CLASSIFICATION
LEVEL & CAT UNCL
BY
TITLE
DATE 7-29-74
CODE IDENT NO 14065

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE CANAL SAMPLE LOCATION "YE"

DESIGNER R WILKINSON	DATE 7-29-74	PROJ MGR	
CHECKER	DATE 7-24-74	ADM ENG	
DESIGN ENG.	DATE	ENG MGR	
APVD	DATE		
SCALE NO SCALE		W O NO M 81752	
JOB NO 740533		DWG NO SC740534 SH 1 OF 1	

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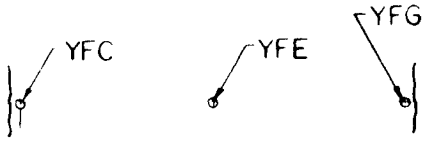
SC740534

CORE SAMPLE RESULTS

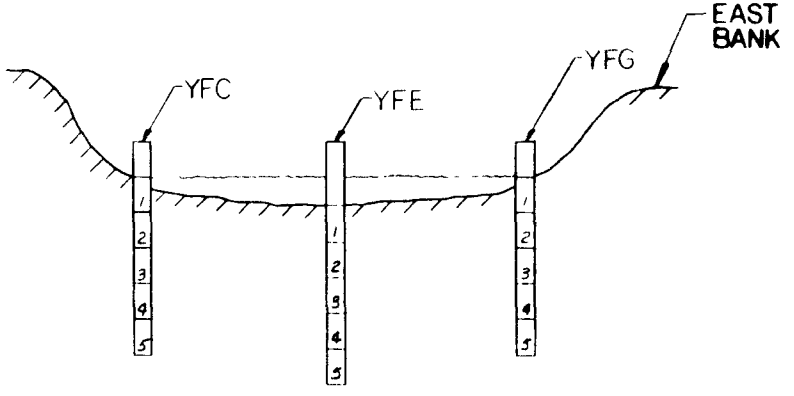
YFC1	0.0113 ± 0.0030
YFC2	0.176 ± 0.024
YFC3	0.0187 ± 0.0044
YFC4	0.0275 ± 0.0059
YFC5	0.0120 ± 0.0032

YFE1	
YFE2	0.0338 ± 0.0078
YFE3	0.0198 ± 0.0046
YFE4	0.0019 ± 0.0008
YFE5	0.0204 ± 0.0047

YFG1	0.0921 ± 0.0149
YFG2	0.135 ± 0.020
YFG3	0.0230 ± 0.0062
YFG4	0.0082 ± 0.0024
YFG5	0.0012 ± 0.0006



PLAN VIEW



CORE SECTIONS

NOTES.

1. FIRST TWO LETTERS INDICATE ADDITIONAL SAMPLING LOCATION. REFER TO MRC DRAWING NO. SD740533
2. THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THAT STATION
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ISS	DATE	REVISION	BY	CHK'D	APV'D	M
A	7-11-74	ORIGINAL ISSUE			HAB	

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: CANAL SAMPLE LOCATION "YF"

DWG. TYPE: STE

DWG. CLASSIFICATION
LEVEL & CAT. UNCL
BY RBR
TITLE
DATE 8-1-74

CODE IDENT. NO 14065

DESIGNER R WILKINSON	DATE 8-6-74	PROJ. MGR. D.R.S.	
CHECKER H. AL BLACK	DATE 8-6-74	ADM. ENG.	
DESIGN ENG.	DATE	ENG. MGR. H.A.B.	
APV'D	DATE		
SCALE NO SCALE	W O NO M-81752		
JOB NO. 740533	DWG. NO. SC740534 SHT 3 OF		

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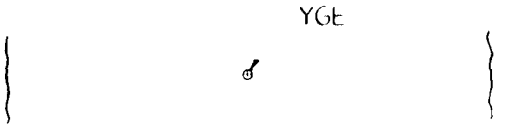
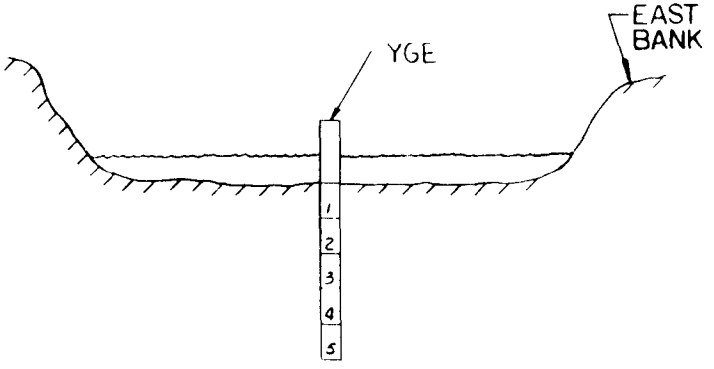
SC740534



PLAN VIEW



CORE SECTION

CORE SAMPLE RESULTS

YGE 1	0.655	±	0.066
YGE 2	0.762	±	0.074
YGE 3	0.0154	±	0.0038
YGE 4	0.0023	±	0.0009
YGE 5	0.0223	±	0.0051

NOTES

1. FIRST TWO LETTERS INDICATE ADDITIONAL SAMPLING LOCATION REFER TO MRC DRAWING NO SD740533
2. THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THAT STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES/GRAMS (nCi g) NANOCURIES = 10^9 CURIES = 2220 DISINTEGRATIONS MIN

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: CANAL SAMPLE LOCATION "YG"

DESIGNER R WILKINSON	DATE 8-6-74	PROJ MGR. D R S	
CHECKER H AL BLACK	DATE 8-6-74	ADM ENG.	
DESIGN ENG.	DATE	ENG. MGR. H A B	
APVD D R ROGERS	DATE		
SCALE NO SCALE		W O NO M-81752	
JOB NO 740533		DWG NO SC740534 SHT360F	

DWG TYPE STE

DWG CLASSIFICATION
LEVEL & CAT UNCL
BY R E R
TITLE
DATE 7-26-74

CODE IDENT NO 14065

SS	DATE	REVISION	BY	CHK'D	APVD	M
A		ORIGINAL ISSUE				

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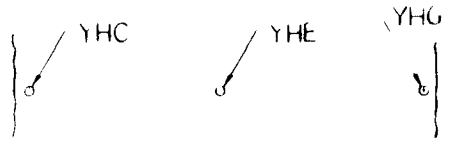
SC740534

CORE SAMPLE RESULTS

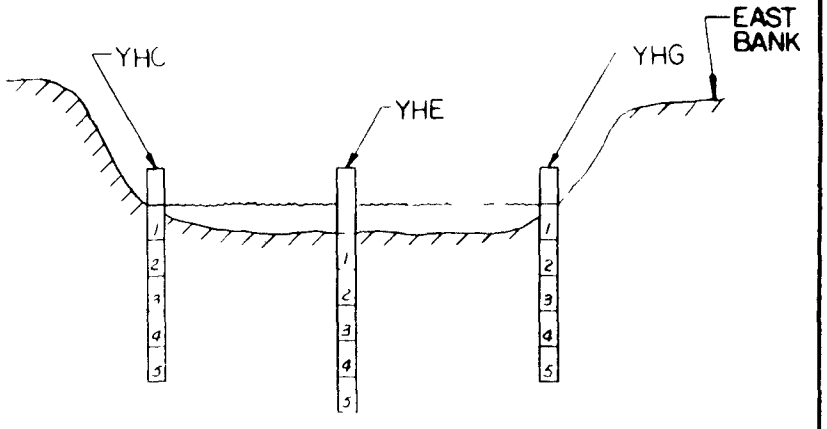
YHC1	(1640)	± 0.0114
YHC2	0.160	± 0.023
YHC3	0.0183	± 0.0044
YHC4	0.0044	± 0.0015
YHC5	0.0025	± 0.0010

YHE1	0.430	± 0.048
YHE2	0.0142	± 0.0036
YHE3	0.0053	± 0.0017
YHE4	0.0010	± 0.0005
YHE5	0.0022	± 0.0009

YHG1	0.0006	± 0.0003
YHG2	0.0005	± 0.0003
YHG3	0.0005	± 0.0003
YHG4		
YHG5	0.0007	± 0.0004



PLAN VIEW



CORE SECTIONS

NOTES

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3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
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MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: CANAL SAMPLE LOCATION "YH"

DESIGNER R WILKINSON	DATE 8 6 74	PROJ MGR. DRS	
CHECKER H. A. BLACK	DATE 8 6 74	ADM. ENG.	
DESIGN ENG.	DATE	ENG. MGR. H A B.	
APVD	DATE		
SCALE NO SCALE	W O NO M-81752		
JOB NO 740533	DWG. NO. SC740534 SHT 3 OF		

DWG. TYPE STE

DWG CLASSIFICATION
LEVEL & CAT UNCL
BY RPR
TITLE
DATE 8 1 74

CODE IDENT NO 14065

ISS	DATE	REVISION	BY	CHK'D	APV'D	M
A	12 17 74	ORIGINAL 13346			HB	

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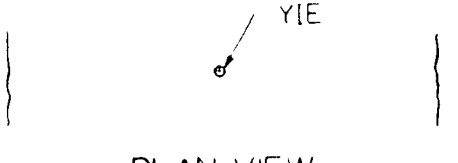
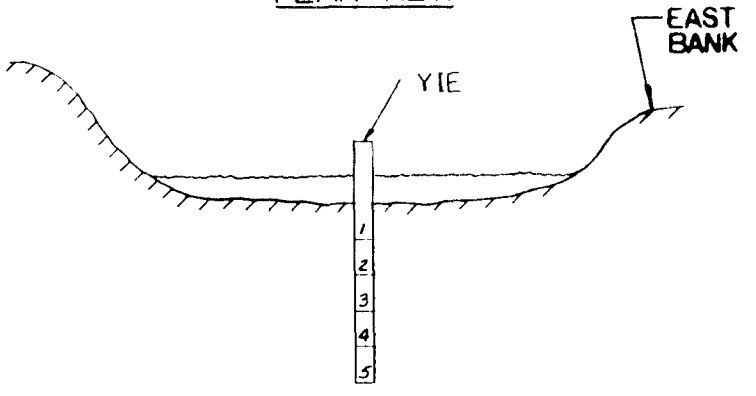


PLAN VIEW



CORE SECTION

CORE SAMPLE RESULTS

YIE 1	1 14	± 0 10
YIE 2	0 828	± 0 079
YIE 3	0 0189	± 0 0045
YIE 4	0.0029	± 0 0011
YIE 5	0 0029	± 0.0011

NOTES

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ISS	DATE	REVISION	BY	CHK'D	APV'D	M
A	12 17 74	ORIGINAL ISSUE			bAB	

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: CANAL SAMPLE LOCATION "YI"

DWG TYPE: STE

DWG CLASSIFICATION: LEVEL & CAT UNCL; BY R E R; TITLE; DATE 7-26-74

CODE IDENT NO 14065

DESIGNER R WILKINSON DATE 8-6 74 | PROJ MGR. D E S

CHECKER H AL BLACK DATE 8-6 74 | ADM ENG

DESIGN ENG DATE | ENG MGR H F E

APVD D F ROGERS DATE

SCALE NO SCALE | W O NO M-81752

JOB NO 740533 | DWG NO SC740534 SHT 2 OF 8

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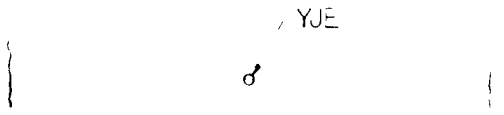
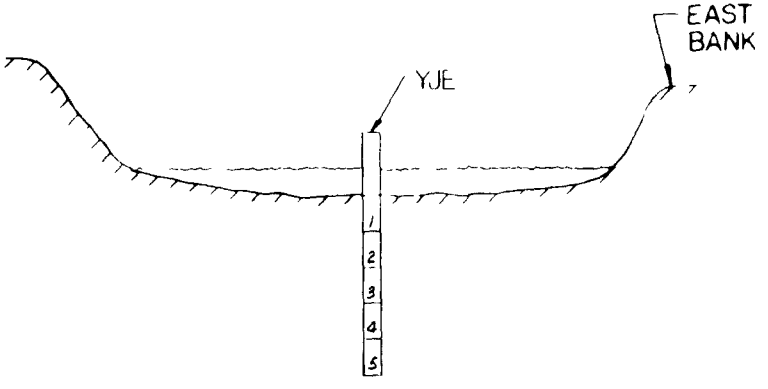
SC740534



PLAN VIEW



CORE SECTION

CORE SAMPLE RESULTS

YJE 1	
YJE 2	0.0366 ± 0.0074
YJE 3	0.0022 ± 0.0009
YJE 4	0.393 ± 0.045
YJE 5	0.0029 ± 0.0011

NOTES

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SS	DATE	REVISION	BY	CHK'D	APVD	M
A	12-17-74	ORIGINAL ISSUE				

DWG TYPE STE

DWG CLASSIFICATION

LEVEL & CAT UNCL

BY R E R

TITLE

DATE 7 26 74

CODE IDENT NO 14065

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE CANAL SAMPLE LOCATION 'YJ'

DESIGNER R WILKINSON	DATE 8-6 74	PROJ MGR D R S	
CHECKER H A. BLACK	DATE 8-6 74	ADM ENG	
DESIGN ENG	DATE	ENG MGR H A B	
APVD D R ROGERS	DATE		
SCALE NO SCALE		W O NO M-81752	
JOB NO 740533		DWG NO SC740534 SHT 3 OF	

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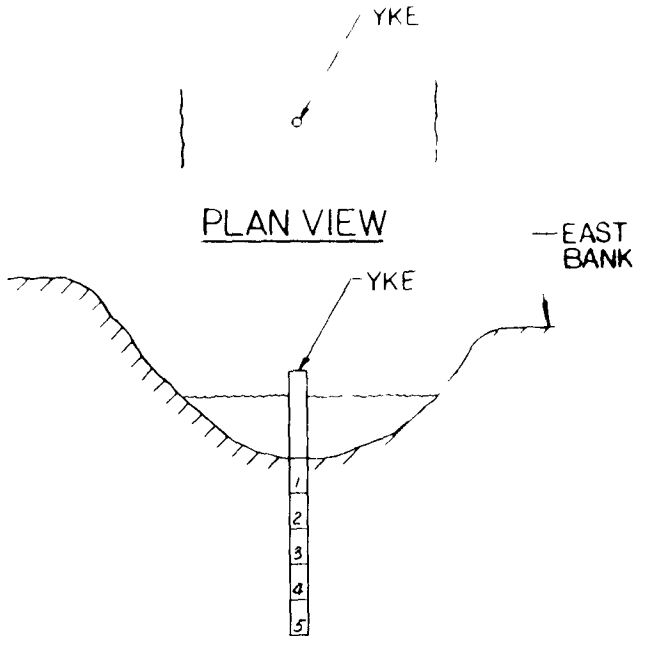
SC740534

CORE SAMPLE RESULTS

YKE 1	0.419	± 0.047
YKE 2	0.838	± 0.079
YKE 3	0.472	± 0.051
YKE 4	0.0110	± 0.0030
YKE 5	0.0099	± 0.0027



NOTES

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4. ALL VALUES ARE IN NANOCURIES GRAMS (nC g) NANOCURIES = 10^9 CURIES = 2220 DISINTEGRATIONS/MIN

SS	DATE	REVISION	BY	HK D	APVD	M
A	8 7 74	ORIGINAL ISSUE				

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: CANAL SAMPLE LOCATION "YK"

DWG TYPE: STE

DWG CLASSIFICATION: LEVEL & CAT UNCL; BY R E R; TITLE; DATE 7 26 74

CODE IDENT NO 14065

DESIGNER R WILKINSON	DATE 8 6 74	PROJ MGR	
CHECKER H A BLACK	DATE 8 6 74	ADM ENG	
DESIGN ENG	DATE	ENG MGR	
APVD	DATE		
SCALE NO SCALE		W O NO M-81752	
JOB NO 740533		DWG NO SC740534	

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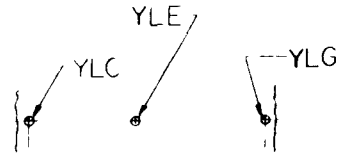
SC740534

CORE SAMPLE RESULTS

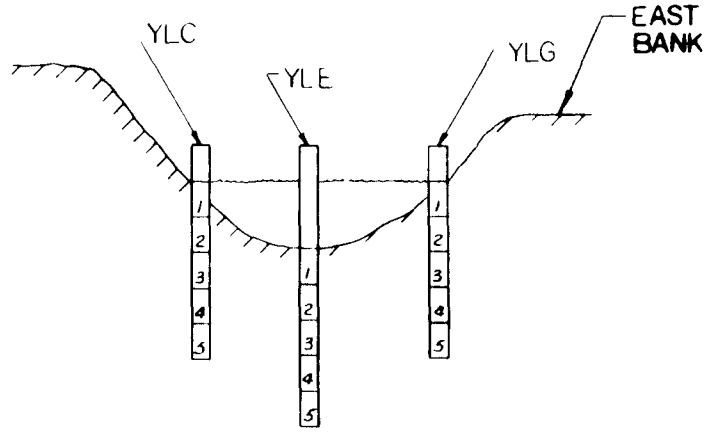
YLC1	0.0152 ± 0.0038
YLC2	0.0087 ± 0.0025
YLC3	0.0032 ± 0.0012
YLC4	0.0019 ± 0.0008
YLC5	0.0019 ± 0.0008

YLE1	0.679 ± 0.068
YLE2	2.54 ± 0.18
YLE3	0.166 ± 0.023
YLE4	0.0097 ± 0.0027
YLE5	0.0044 ± 0.0015

YLG1	0.0035 ± 0.0012
YLG2	0.0055 ± 0.0018
YLG3	0.0170 ± 0.0041
YLG4	0.0139 ± 0.0035
YLG5	0.0820 ± 0.0136



PLAN VIEW



CORE SECTIONS

NOTES

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SS	DATE	REVISION	BY	CHK'D	APV'D	M
A	2-17-74	ORIGINAL ISSUE			MB	

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE CANAL SAMPLE LOCATION YL'

DWG. TYPE STE

DWG CLASSIFICATION

LEVEL & CAT UNCL

BY RPR

TITLE

DATE 8 1 74

CODE IDENT NO 14065

DESIGNER R WILKINSON	DATE 8 6 74	PROJ MGR. DRS	
CHECKER H AL BLACK	DATE 8 6 74	ADM. ENG.	
DESIGN ENG.	DATE	ENG. MGR. H A B.	
APV'D	DATE		
SCALE NO SCALE	W O NO M-81752		
JOB NO 740533	DWG NO SC740534 SHT 4 OF		

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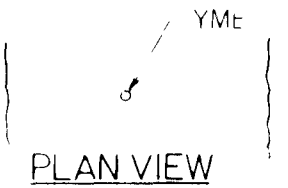
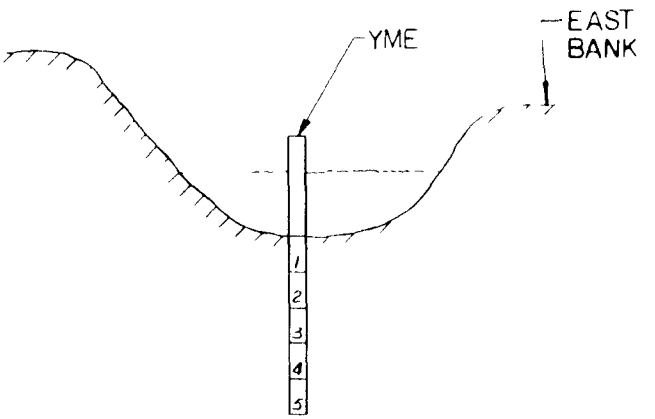
SC740534

CORE SAMPLE RESULTS

YME 1	0 899	± 0 084
YME 2	0 0340	± 0.0070
YME 3	0 0074	± 0.0022
YME 4	0 0021	± 0.0008
YME 5	0.0028	± 0 0010



PLAN VIEW



CORE SECTION

NOTES

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S	DATE	REVISION	BY	CHK'D	APVD	M
A	12-11-74	ORIGINAL ISSUE			MB	

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: CANAL SAMPLE LOCATION "YM"

DWG TYPE: STE

DWG CLASSIFICATION: LEVEL & CAT UNCL; BY R E R; TITLE; DATE 7 26 74

CODE IDENT NO 14065

DESIGNER R WILKINSON	DATE 8 6 74	PROJ MGR	
CHECKER H AL BLACK	DATE 8-6 74	ADM ENG	
DESIGN ENG	DATE	ENG MGR	
APVD D K ROGERS	DATE		
SCALE NO SCALE		W O NO M-81752	
JOB NO 740533		DWG NO SC740534	

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SC740534

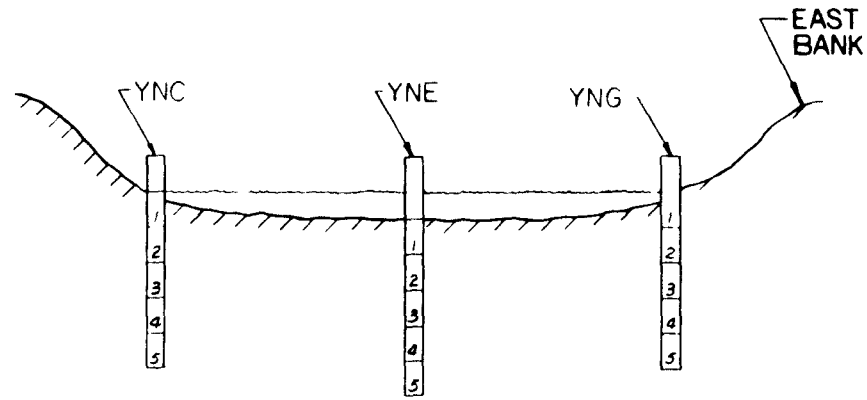
CORE SAMPLE RESULTS

YNC 1	0 0579	±	0 0104
YNC 2	0 0241	±	0 0054
YNC 3	0 0492	±	0 0092
YNC 4	0 0316	±	0 0066
YNC 5	0 0064	±	0 0020

YNE 1	0 559	±	0 058
YNE 2	2 03	±	0 16
YNE 3	0 590	±	0 061
YNE 4	0 0088	±	0 0025
YNE 5	0 0024	±	0 0009

YNG 1	0 172	±	0 024
YNG 2	0 184	±	0 025
YNG 3	0 0057	±	0 0018
YNG 4	0 0032	±	0 0012
YNG 5	0 0052	±	0 0017

PLAN VIEW



CORE SECTIONS

NOTES

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ISS	DATE	REVISION	BY	CHK'D	APV'D	M
A	12/17/74	ORIGINAL 13346			HAB	

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: CANAL SAMPLE LOCATION "YN"

DWG. TYPE: STE

DWG CLASSIFICATION

LEVEL & CAT: UNCL

BY: RPR

TITLE

DATE: 8 1 74

CODE IDENT NO 14065

DESIGNER R WILKINSON	DATE 8 6 74	PROJ. MGR. DRS	
CHECKER H AL BLACK	DATE 8 6 74	ADM. ENG.	
DESIGN ENG.	DATE	ENG. MGR. H A B.	
APV'D	DATE		
SCALE NO SCALE	W O NO M-81752		
JOB NO 740533	DWG NO SC740534 SHT 43 OF		

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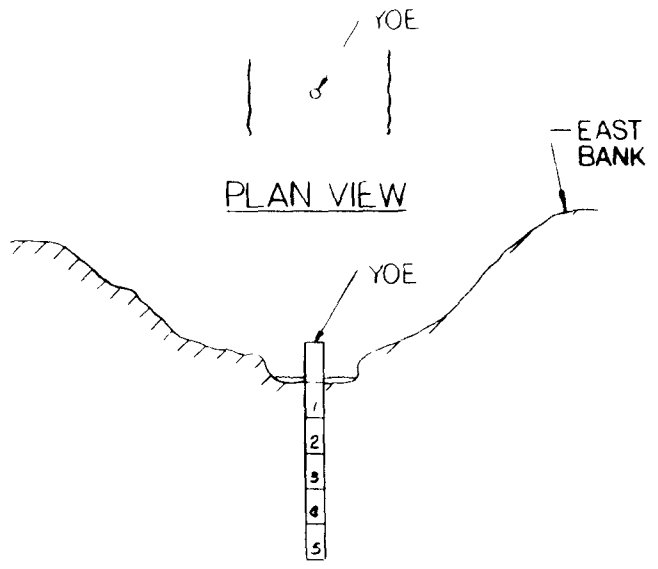
SC740534

CORE SAMPLE RESULTS

YOE 1	0.815 ± 0.078
YOE 2	0.439 ± 0.049
YOE 3	0.0038 ± 0.0027
YOE 4	0.0015 ± 0.0006
YOE 5	0.0016 ± 0.0007



NOTES

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ISS	DATE	REVISION	BY	CHK'D	APVD	M
A	12/1/74	ORIGINAL ISSUE			MLB	

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: CANAL SAMPLE LOCATION "YO"

DWG TYPE: STE

DWG CLASSIFICATION
LEVEL & CAT: UNCL
BY: R E R
TITLE
DATE: 7 26 74

CODE IDENT NO 14065

DESIGNER R WILKINSON	DATE 8-6 74	PROJ MGR D E S	
CHECKER H AL BLACK	DATE 8-6 74	ADM ENG	
DESIGN ENG	DATE	ENG MGR H P B	
APVD D E ROGERS	DATE		
SCALE NO SCALE		W O NO M-81752	
JOB NO 740533		DWG NO SC740534 SHT 4 OF 4	

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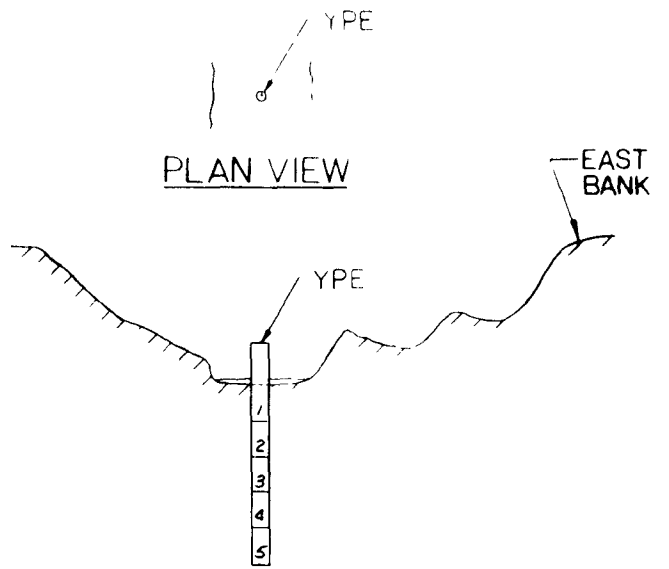
BAC7AC

SC740534

CORE SAMPLE RESULTS

YPE 1	0.791 ± 0.076
YPE 2	0.100 ± 0.016
YPE 3	0.0060 ± 0.0019
YPE 4	0.0035 ± 0.0012
YPE 5	0.0021 ± 0.0008



NOTES

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ISS	DATE	REVISION	BY	CHKD	APVD	M
A	12-11-74	ORIGINAL ISSUE				

DWG TYPE STE
DWG CLASSIFICATION
LEVEL & CAT UNCL
BY R E R
TITLE
DATE 7-26-74
CODE IDENT NO 14065

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT
DRAWING TITLE CANAL SAMPLE LOCATION "YP"

DESIGNER R WILKINSON	DATE 8-6-74	PROJ MGR D R S	
CHECKER H AL BLACK	DATE 8-6-74	ADM ENG	
DESIGN ENG	DATE	ENG MGR H A B	
APVD D S [illegible]	DATE		
SCALE NO SCALE	W O NO M-81752		
JOB NO 740533	DWG NO SC740534 SHT 4 OF		

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SC740534

CORE SAMPLE RESULTS

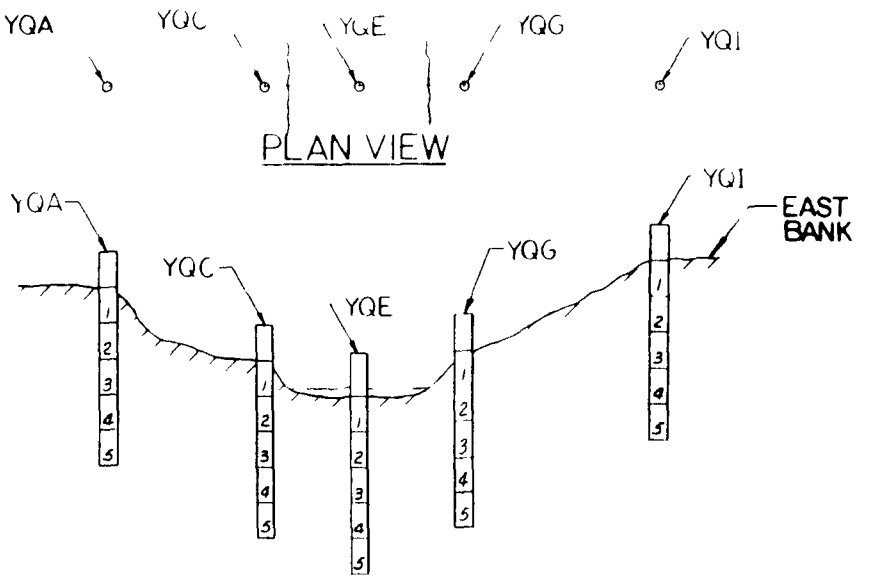
YQA1	0.540	± 0.057
YQA2	0.0842	± 0.0139
YQA3	0.0254	± 0.0063
YQA4	0.0132	± 0.0034
YQA5	0.0201	± 0.0047

YQC1	0.420	± 0.047
YQC2	1.38	± 0.12
YQC3	0.121	± 0.18
YQC4	0.230	± 0.0052
YQC5	0.0036	± 0.0013

YQE1		
YQE2	0.453	± 0.050
YQE3		
YQE4	0.0094	± 0.0026
YQE5		

YQG1	2.15	± 0.16
YQG2	0.915	± 0.085
YQG3	0.0640	± 0.0113
YQG4	0.0066	± 0.0020
YQG5	0.0018	± 0.0007

YQI1	0.336	± 0.040
YQI2	0.895	± 0.083
YQI3	0.0175	± 0.0042
YQI4	0.0077	± 0.0023
YQI5	0.0028	± 0.0010



NOTES

1. FIRST TWO LETTERS INDICATE ADDITIONAL SAMPLING LOCATION REFER TO MRC DRAWING NO SD740533
2. THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THAT STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES GRAMS (nC /g) NANOCURIES 10^{9} CURIES 2220 DISINTEGRATIONS/MIN

SS	DATE	REVISION	BY	CHK'D	APV'D	M
A	7/74	ORIGINAL ISSUE			MB	

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: CANAL SAMPLE LOCATION YQ*

DWG TYPE: STE

DWG CLASSIFICATION

LEVEL & CAT: UNCL

BY: RER

TITLE

DATE: 8 / 74

CODE IDENT NO 14065

DESIGNER R WILKINSON	DATE 8 6 74	PROJ MGR. DRS	
CHECKER H AL BLACK	DATE 8 6 74	ADM. ENG.	
DESIGN ENG.	DATE	ENG. MGR. H A B	
APV'D	DATE		
SCALE NO SCALE	W O NO M 81752		
JOB NO 740533	DWG NO. SC740534 SHT 4 OF		

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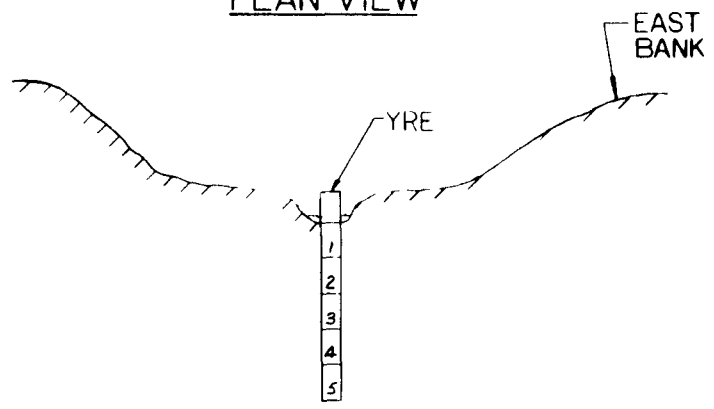
SC740534

PLAN VIEW



CORE SECTION

CORE SAMPLE RESULTS

YRE 1	0.969 ± 0.089
YRE 2	
YRE 3	0.0182 ± 0.0043
YRE 4	0.0068 ± 0.0021
YRE 5	0.0018 ± 0.0008

NOTES

1. FIRST TWO LETTERS INDICATE ADDITIONAL SAMPLING LOCATION REFER TO MRC DRAWING NO SD740533
2. THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THAT STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES/GRAMS (nCi/g) NANOCURIES = 10^{-9} CURIES = 2220 DISINTEGRATIONS/MIN

ISS	DATE	REVISION	BY	CHK'D	APVD	M
A	2-17-74	ORIGINAL ISSUE				

DWG TYPE STE

DWG CLASSIFICATION

LEVEL & CAT UNCL

BY R E R

TITLE

DATE 7-26-74

CODE IDENT NO 14065

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE CANAL SAMPLE LOCATION "YR"

DESIGNER R WILKINSON	DATE 8-6-74	PROJ MGR. D R S	
CHECKER H AL BLACK	DATE 8-6-74	ADM ENG	
DESIGN ENG	DATE	ENG MGR H A B	
APVD D F ROGERS	DATE		
SCALE NO SCALE		W O NO M-81752	
JOB NO 740533		DWG NO SC740534 SHT 4 OF	

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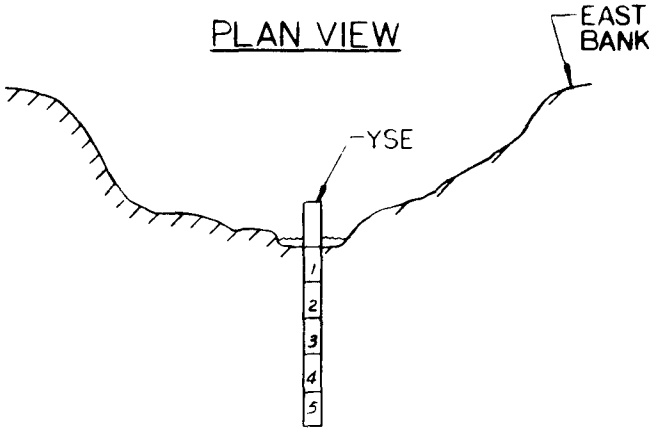
SC740534

PLAN VIEW



CORE SECTION

CORE SAMPLE RESULTS

YSE 1	0.836 ± 0.079
YSE 2	0.828 ± 0.079
YSE 3	0.0170 ± 0.0041
YSE4	0.0016 ± 0.0007
YSE5	0.0054 ± 0.0017

NOTES:

1. FIRST TWO LETTERS INDICATE ADDITIONAL SAMPLING LOCATION. REFER TO MRC DRAWING NO. SD740533
2. THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THAT STATION
3. EACH NUMBER REPRESENTS A SEVEN (7) INCH SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES/GRAMS (nCi/g) NANOCURIES = 10^{-9} CURIES = 2220 DISINTEGRATIONS/MIN

ISS	DATE	REVISION	BY	CHK'D	APVD	M
A	12-17-74	ORIGINAL ISSUE			RLB	

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: CANAL SAMPLE LOCATION "YS"

DWG. TYPE: STE

DWG. CLASSIFICATION
LEVEL & CAT: UNCL
BY: R E R
TITLE:
DATE: 7-26-74

CODE IDENT NO 14065

DESIGNER R WILKINSON	DATE 8-6-74	PROJ. MGR. D R S	
CHECKER H AL BLACK	DATE 8-6-74	ADM. ENG.	
DESIGN ENG.	DATE	ENG. MGR. H A B	
APVD D R ROGERS	DATE		
SCALE NO SCALE	W O NO M-81752		
JOB NO 740533	DWG. NO. SC740534 SHT 4 OF 8		

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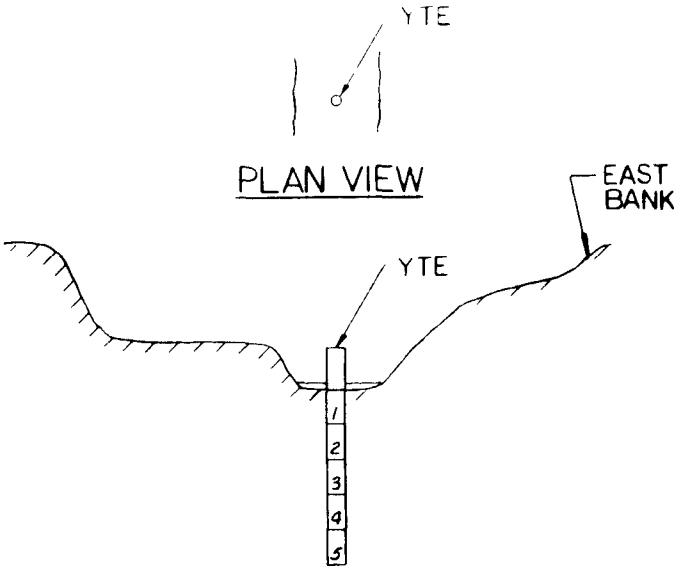
SC740534



CORE SECTION

CORE SAMPLE RESULTS

YTE 1	0.433	± 0.048
YTE 2	0.0105	± 0.0029
YTE 3	0.0019	± 0.0008
YTE 4	0.0013	± 0.0006
YTE 5	0.0024	± 0.0009

NOTES

1. FIRST TWO LETTERS INDICATE ADDITIONAL SAMPLING LOCATION REFER TO MRC DRAWING NO. SD740533
2. THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THAT STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES/GRAMS (nCi/g) NANOCURIES = 10^{-9} CURIES = 2220 DISINTEGRATIONS/MIN

ISS	DATE	REVISION	BY	CHK'D	APVD	M
A	12-17-74	ORIGINAL ISSUE			MB	

DWG TYPE: STE
DWG CLASSIFICATION
LEVEL & CAT UNCL
BY R E R
TITLE
DATE 7-26-74
CODE IDENT NO 14065

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE CANAL SAMPLE LOCATION "YT"

DESIGNER R WILKINSON	DATE 8-6-74	PROJ MGR. D E S	
CHECKER H A BLACK	DATE 8-6-74	ADM ENG.	
DESIGN ENG.	DATE	ENG MGR H A B	
APVD D R ROGERS	DATE		
SCALE NO SCALE	W O NO M-81752		
JOB NO 740533	DWG NO SC740534 SHT 1 OF 1		

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DAC-2-AC

SC740534

CORE SAMPLE RESULTS

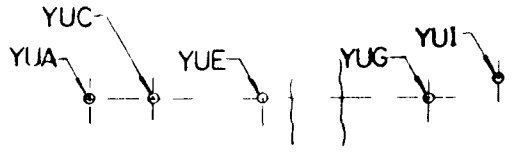
YUA1	0.111	±0.017
YUA2	0.0222	±0.0051
YUA3	0.0144	±0.0036
YUA4	0.0202	±0.0047
YUA5	0.0024	±0.0009

YUC1	0.699	±0.069
YUC2	0.0131	±0.0034
YUC3	0.0064	±0.0020
YUC4	0.0042	±0.0014
YUC5	0.0056	±0.0018

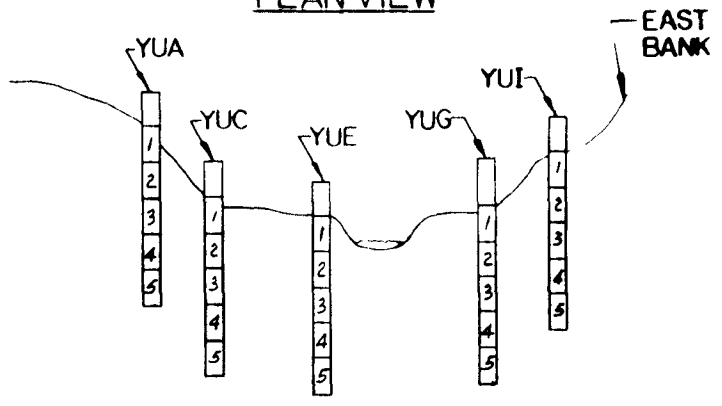
YUE1	1.61	±0.13
YUE2	0.444	±0.049
YUE3	0.0472	±0.0089
YUE4	0.0535	±0.0098
YUE5	0.0268	±0.0058

YUG1	0.521	±0.055
YUG2	0.0112	±0.0030
YUG3	0.0141	±0.0036
YUG4	0.0093	±0.0026
YUG5	0.0238	±0.0053

YUI1	0.220	±0.029
YUI2		
YUI3		
YUI4	0.0039	±0.0013
YUI5	0.0125	±0.0033



PLAN VIEW



CORE SECTIONS

NOTES

1. FIRST TWO LETTERS INDICATE ADDITIONAL SAMPLING LOCATION REFER TO MRC DRAWING NO SD740533
2. THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THAT STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES/GRAMS (nCi/g) NANOCURIES = 10^{-9} CURIES - 2220 DISINTEGRATIONS/MIN

4	2-7-74	ORIGINAL ISSUE				
SS	DATE	REVISION	BY	HKD	APVD	M

DWG TYPE STE

DWG CLASSIFICATION

LEVEL & CAT UNCL

BY KER

TITLE

DATE 8/1/74

CODE IDENT NO 14065

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE CANAL SAMPLE LOCATION "YU"

DESIGNER DUNLAP	DATE 8-27-74	PROJ MGR. D.R.S	
CHECKER H AL BLACK	DATE 8-27-74	ADM ENG.	
DESIGN ENG.	DATE	ENG MGR H A B.	
APVD	DATE		
SCALE NO SCALE	W O NO M-81752		
JOB NO 740533	DWG NO SC740534 SHT 500F		

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SC740534

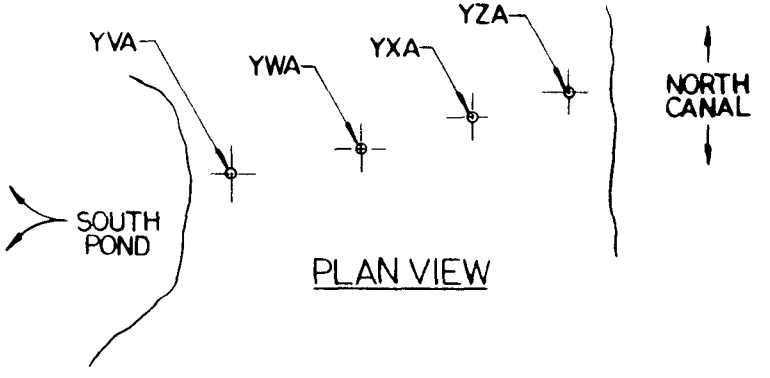
CORE SAMPLE RESULTS

YVA1	<0.0001	
YVA2	<0.0001	
YVA3	0.0002	±0.0001
YVA4	0.0001	±0.0001
YVA5	0.0001	±0.0001

YWA1	0.0003	±0.0002
YWA2	<0.0001	
YWA3	0.0001	±0.0001
YWA4	0.0002	±0.0001
YWA5	0.0010	±0.0005

YXA1	0.0003	±0.0002
YXA2	<0.0001	
YXA3	0.0001	±0.0001
YXA4	<0.0001	
YXA5	0.0001	±0.0001

YZA1	<0.0001	
YZA2	<0.0001	
YZA3	0.0001	±0.0001
YZA4	0.0002	±0.0002
YZA5	0.0004	±0.0002



NOTES

1. FIRST TWO LETTERS INDICATE ADDITIONAL SAMPLING LOCATION REFER TO MRC DRAWING NO SD740533
2. THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THAT STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES/GRAMS (nCi/g) NANOCURIES = 10^{9} CURIES = 2220 DISINTEGRATIONS/MIN

ISS	DATE	REVISION	BY	CHK'D	APV'D	M
A	2/17/74	ORIGINAL ISSUE			NAB	

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: FLOW PIPE CONNECTING NORTH CANAL & SOUTH POND SAMPLE LOCATIONS YV-YW-YX & YZ

DWG. TYPE: STE

DWG CLASSIFICATION
LEVEL & CAT: UNCL
BY: RPR
TITLE:
DATE: 8/1/74

CODE IDENT NO 14065

DESIGNER: DUNLAP	DATE: 8-28-74	PROJ MGR: DRS	
CHECKER: H. A. BLACK	DATE: 8-28-74	ADM ENG.	
DESIGN ENG.	DATE	ENG. MGR: H A B.	
APVD	DATE		
SCALE: NO SCALE		W.O. NO: M-81752	
JOB NO: 740533		DWG. NO: SC740534 SHT 5 OF 10	

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SC740534

CORE SAMPLE RESULTS

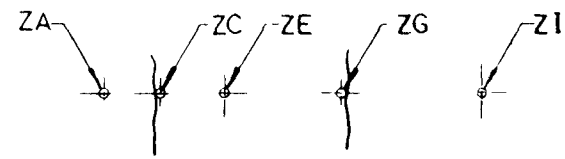
ZA1	0.332 ± 0.039
ZA2	0.0207 ± 0.0048
ZA3	0.0375 ± 0.0075
ZA4	0.0178 ± 0.0043
ZA5	0.0033 ± 0.0012

ZC1	0.546 ± 0.057
ZC2	0.646 ± 0.065
ZC3	0.0153 ± 0.0038
ZC4	0.0027 ± 0.0010
ZC5	0.0022 ± 0.0009

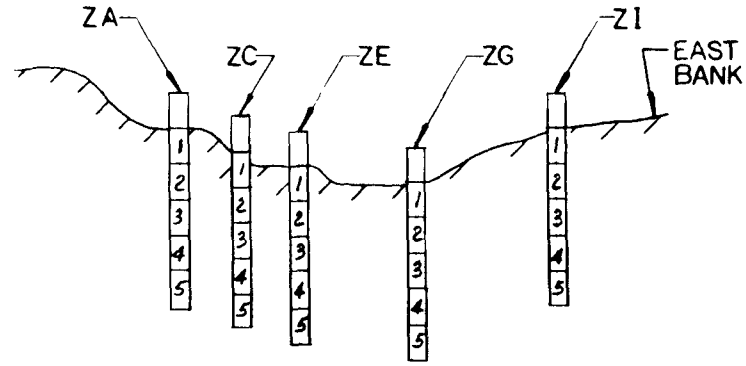
ZE1	0.677 ± 0.067
ZE2	3.37 ± 0.23
ZE3	0.348 ± 0.041
ZE4	0.0274 ± 0.0059
ZE5	0.0026 ± 0.0010

ZG1	0.519 ± 0.055
ZG2	0.555 ± 0.058
ZG3	0.0440 ± 0.0085
ZG4	0.0168 ± 0.0041
ZG5	0.0162 ± 0.0040

ZI1	
ZI2	
ZI3	0.0096 ± 0.0027
ZI4	
ZI5	



PLAN VIEW



CORE SECTIONS

NOTES

1. FIRST LETTER INDICATES THE SAMPLE LOCATION REFER TO MRC DRAWING NO SD740533
2. SECOND LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THAT STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES/GRAMS (nCi/g) NANOCURIES = 10^9 CURIES - 2220 DISINTEGRATIONS

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE CANAL SAMPLE LOCATION "Z"

DWG TYPE STE

DWG CLASSIFICATION

LEVEL & CAT UNCL

BY RER

TITLE

DATE 8 1 74

CODE IDENT NO 14065

DESIGNER DUNLAP	DATE 8 1 74	PROJ MGR. DRS	
CHECKER H AL BLACK	DATE 8 1 74	ADM ENG.	
DESIGN ENG.	DATE	ENG. MGR. H A B.	
APVD	DATE		
SCALE NO SCALE	W O NO M-81752		
JOB NO 740533	DWG NO. SC740534 SHT 540F		

ISS	DATE	REVISION	BY	CHK'D	APVD	M
4	2 17 74	ORIGINAL ISSUE				

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PLUTONIUM-238 CONCENTRATION OF SEDIMENT SAMPLES

COLLECTED BY MOUND LABORATORY ACROSS THE MIAMI-ERIE CANAL TO DEFINE THE CONCENTRATION PROFILE

SC740534

CORE SAMPLE RESULTS

YYNA1	0.0298	± 0.0063
YYNA2	0.0025	± 0.0010
YYNA3	0.0009	± 0.0004
YYNA4	0.0006	± 0.0003
YYNA5	0.0012	± 0.0006

YYNF1	0.242	± 0.031
YYNF2	0.0031	± 0.0011
YYNF3	0.0009	± 0.0004
YYNF4	0.0011	± 0.0005
YYNF5	0.0018	± 0.0008

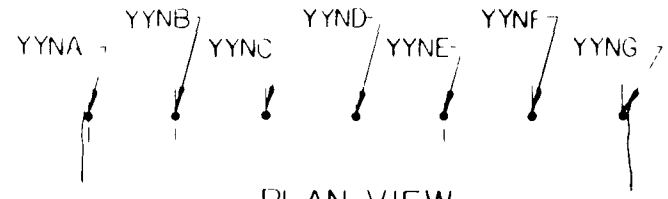
YYNB1	0.726	± 0.071
YYNB2	0.0323	± 0.0067
YYNB3	0.0097	± 0.0027
YYNB4	0.0023	± 0.0009
YYNB5	0.0015	± 0.0007

YYNG1	0.0530	± 0.0098
YYNG2	0.0026	± 0.0010
YYNG3	0.0026	± 0.0010
YYNG4	0.0024	± 0.0009
YYNG5	0.0016	± 0.0007

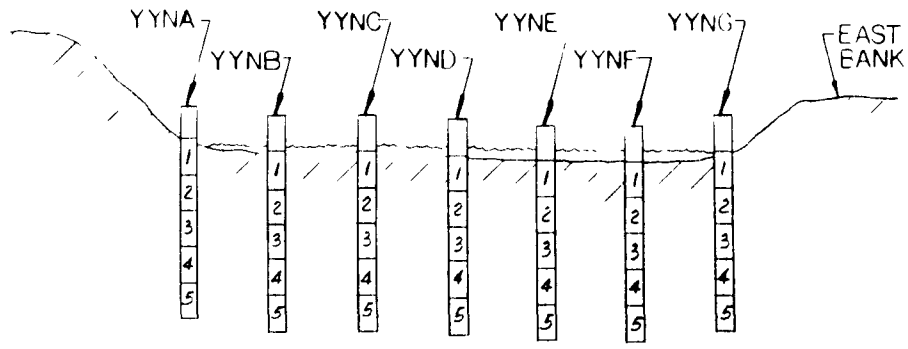
YYNC1	0.641	± 0.065
YYNC2	3.33	± 0.23
YYNC3	3.09	± 0.21
YYNC4	0.0178	± 0.0043
YYNC5	0.0167	± 0.0041

YYND1	0.420	± 0.047
YYND2	1.68	± 0.13
YYND3	2.68	± 0.19
YYND4	0.0202	± 0.0047
YYND5	0.0027	± 0.0010

YYNE1	0.562	± 0.059
YYNE2	0.105	± 0.016
YYNE3	0.0033	± 0.0012
YYNE4	0.0009	± 0.0004
YYNE5	0.0011	± 0.0005



PLAN VIEW



CORE SECTION

NOTES

1. FIRST THREE LETTERS INDICATE ADDITIONAL SAMPLING LOCATION REFER TO MRC DRAWING NO SD740533
2. FOURTH LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THAT STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES GRAMS (nCi/g) NANOCURIES = 10^{-9} CURIES 2220 DISINTEGRATIONS/MIN

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE CANAL SAMPLE LOCATION "YYN"

DWG TYPE STE

DWG CLASSIFICATION

LEVEL & CAT UNCL

BY KER

TITLE

DATE 5/1/74

CODE IDENT NO 14065

DESIGNER DUNLAP	DATE 10-21-74	PROJ MGR DRS	
CHECKER H AL BLACK	DATE 10-21-74	ADM ENG	
DESIGN ENG	DATE	ENG MGR H A B	
APVD	DATE		
SCALE NO SCALE	W O NO M 81752		
JOB NO 740533	DWG NO SC740534 SHT 2 OF		

DATE	REVISION	BY	CHK'D	APVD	M
5/21/74	ORIGINAL ISSUE			HAB	

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SC740534

CORE SAMPLE RESULTS

YYSA1	0.622	± 0.063
YYSA2	0.636	± 0.064
YYSA3	0.0101	± 0.0028
YYSA4	0.0032	± 0.0012
YYSA5	0.0004	± 0.0002

YYSF1	2.03	± 0.16
YYSF2	0.794	± 0.076
YYSF3	0.0386	± 0.0077
YYSF4	0.0107	± 0.0029
YYSF5	0.0284	± 0.0061

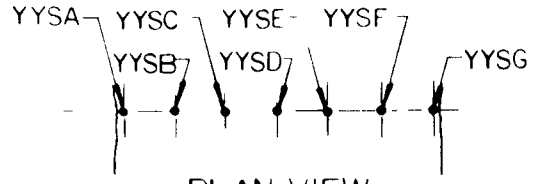
YYSB1	0.839	± 0.079
YYSB2	2.74	± 0.20
YYSB3	0.499	± 0.054
YYSB4	0.0129	± 0.0033
YYSB5	0.0078	± 0.0023

YYSG1	0.617	± 0.0629
YYSG2	0.752	± 0.0731
YYSG3	0.0397	± 0.0078
YYSG4	0.0133	± 0.0034
YYSG5	0.0054	± 0.0017

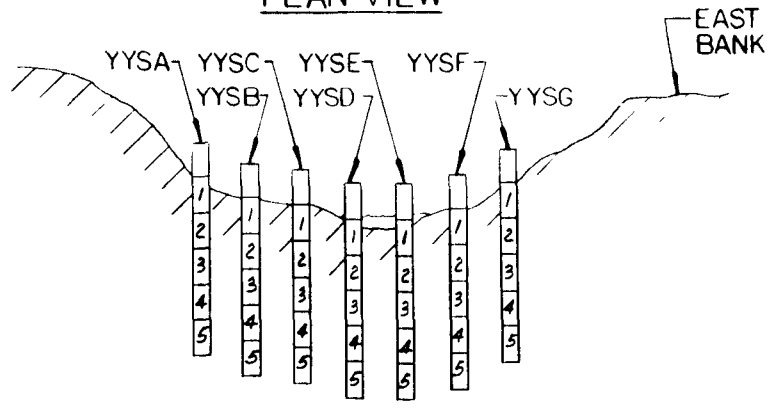
YYSC1	3.80	± 0.25
YYSC2	2.11	± 0.16
YYSC3	0.576	± 0.060
YYSC4	0.0084	± 0.0024
YYSC5	0.0053	± 0.0017

YYSD1	2.04	± 0.16
YYSD2	0.558	± 0.058
YYSD3	0.0153	± 0.0038
YYSD4	0.0061	± 0.0019
YYSD5	0.0072	± 0.0021

YYSE1	2.06	± 0.16
YYSE2	1.32	± 0.11
YYSE3	0.0308	± 0.0064
YYSE4	0.0070	± 0.0021
YYSE5	0.0032	± 0.0012



PLAN VIEW



CORE SECTIONS

NOTES

1. FIRST THREE LETTERS INDICATE ADDITIONAL SAMPLING LOCATION REFER TO MRC DRAWING NO SD740533
2. FOURTH LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THAT STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES GRAMS (nCi/g) NANOCURIES = 10^9 CURIES = 2220 DISINTEGRATIONS MIN

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE CANAL SAMPLE LOCATION "YYS"

DESIGNER DUNLAP	DATE 10 22 74	PROJ MGR DRS	
CHECKER H. A. PLACK	DATE 10 22 74	ADM ENG	
DESIGN ENG	DATE	ENG MGR H A B	
APVD	DATE		
SCALE NO SCALE		W O NO	
JOB NO 740533		DWG NO SC740534 SHT 3 OF	

DWG TYPE STE
DWG CLASSIFICATION
LEVEL & CAT UNCL
BY RJR
TITLE
DATE 9 / 74
CODE IDENT NO 14065

DATE	REVISION	BY	CKD	APVD	M
9 17 74	ORIGINAL ISSUE			HB	

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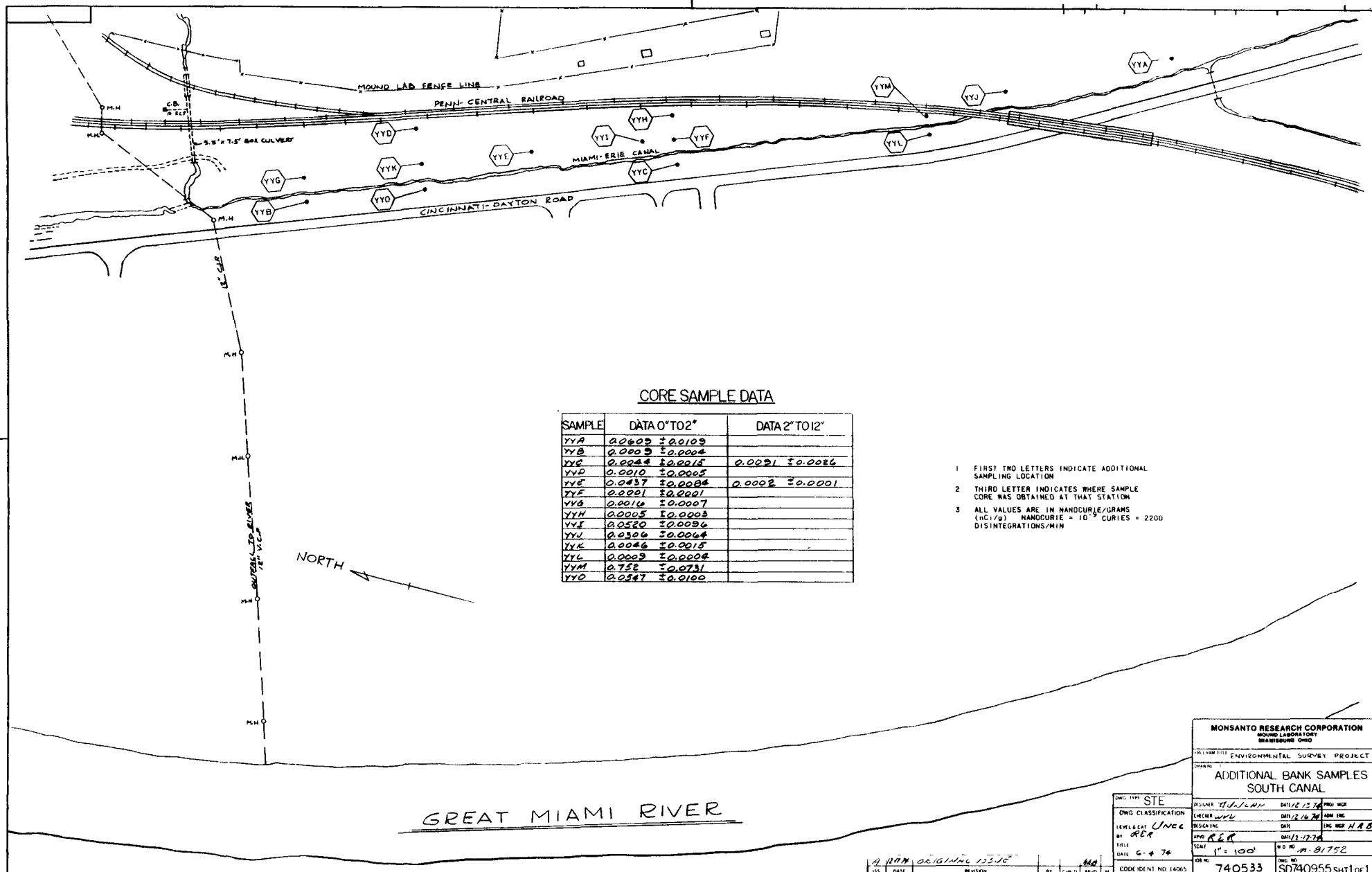
PLUTONIUM-238 CONCENTRATION OF ADDITIONAL SOIL SAMPLES

COLLECTED BY MOUND LABORATORY NEAR THE MIAMI-ERIE CANAL



CORE SAMPLE DATA

SAMPLE	DATA 0" TO 2"	DATA 2" TO 12"
YYA	0.0609 ±0.0109	
YYB	0.0009 ±0.0004	
YYC	0.0044 ±0.0015	0.0091 ±0.0026
YYD	0.0010 ±0.0005	
YYE	0.0437 ±0.0084	0.0002 ±0.0001
YYF	0.0001 ±0.0001	
YYG	0.0016 ±0.0007	
YYH	0.0005 ±0.0003	
YYI	0.0520 ±0.0096	
YYJ	0.0306 ±0.0064	
YYK	0.0046 ±0.0015	
YYL	0.0009 ±0.0004	
YYM	0.752 ±0.0731	
YYO	0.0547 ±0.0100	

1 FIRST TWO LETTERS INDICATE ADDITIONAL SAMPLING LOCATION

2 THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THAT STATION

3 ALL VALUES ARE IN NANOCURIE/GRAMS (nCi/g) NANOCURIE = 10^{-9} CURIES = 2200 DISINTEGRATIONS/MIN

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING: ADDITIONAL BANK SAMPLES SOUTH CANAL

DWG TYPE: STE
DWG CLASSIFICATION
LEVEL & CAT: UNCL
BY: RER
TITLE
DATE: 6-4-74
CODE IDENT NO 14065

DESIGNER: TJ JLAN DATE: 12 13 74 PROJ MGR
CHECKER: WVL DATE: 12 16 74 ADM ENG
DESIGN ENG DATE ENG MGR: HAB
APVD: RER DATE: 12-17-74
SCALE: 1" = 100'
W O NO: M-81752
JOB NO: 740533
DWG NO: SD740955 SHT 1 OF 1

ISS	DATE	REVISION	BY	CHK'D	APV'D	M
A	12 17 74	ORIGINAL ISSUE				

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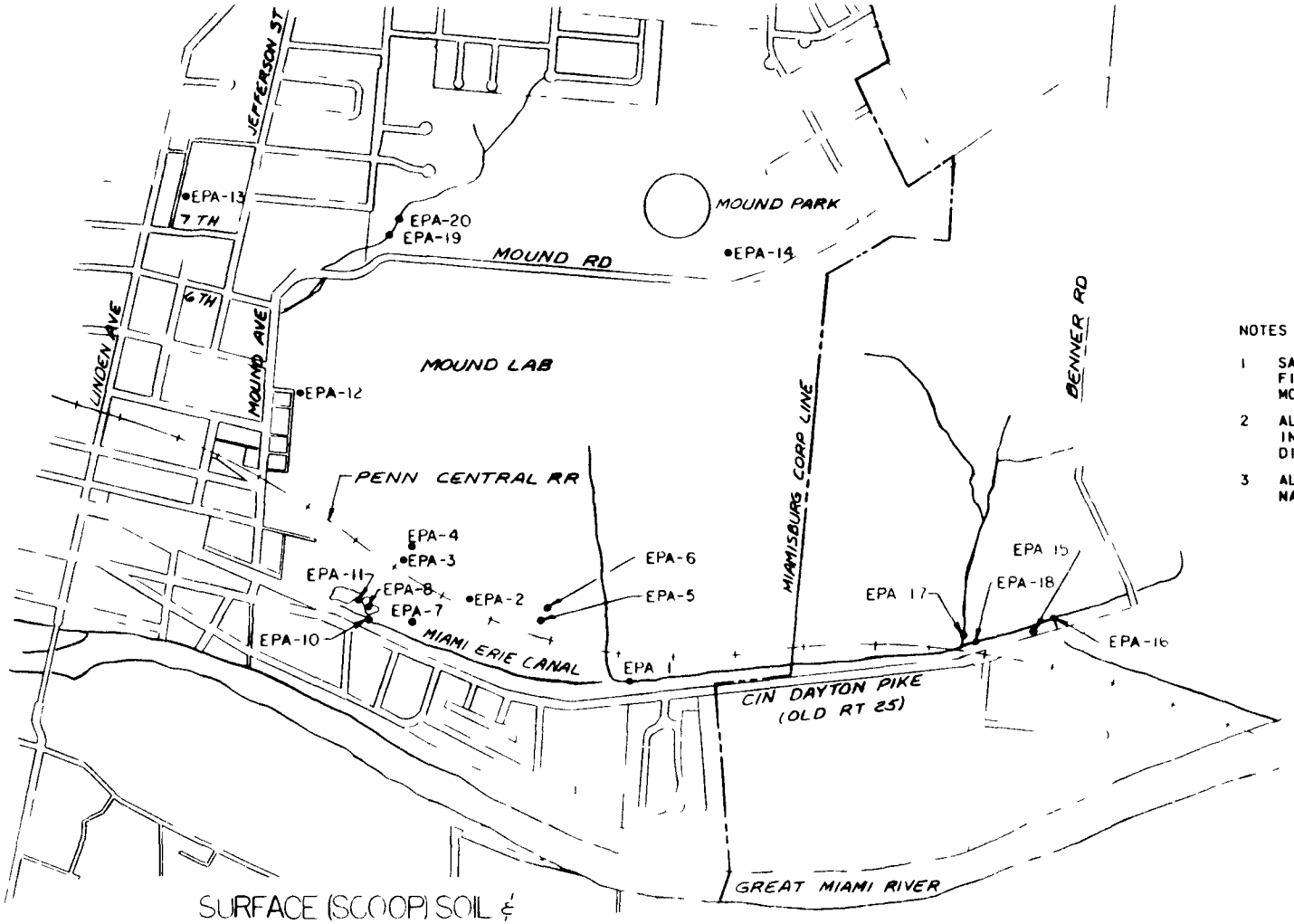
PLUTONIUM-238 CONCENTRATION OF SURFACE SOIL AND SEDIMENT SAMPLES

COLLECTED BY OEPA AND USEPA IN THE AREAS ADJACENT TO MOUND LABORATORY



NOTES

1. SAMPLES COLLECTED BY U S E P A SPLIT IN FIELD AND ANALYZED BY MOUND LABORATORY, MONSANTO RESEARCH CORP , MIAMISBURG, OHIO
2. ALL SURFACE AND SEDIMENT SAMPLES VALUES ARE IN NANOCURIE/GRAMS (nCi/g) NANOCURIE = 2200 DISINTEGRATIONS
3. ALL WATER SAMPLES RESULTS ARE IN NANOCURIE/MILLILITER

SURFACE (SCOOP) SOIL & SEDIMENT SAMPLES

SAMPLE	DATA 0" TO 1"	
EPA 1	0.165	± 0.023
EPA 2	<0.0001	
EPA 3	0.0001	± 0.0001
EPA 6	0.0052	± 0.0017
EPA 7	<0.0001	
EPA-12	<0.0001	
EPA-13	0.0001	± 0.0001
EPA 14	0.0009	± 0.0004
EPA 15	0.0009	± 0.0004
EPA 17	0.284	± 0.035
EPA-18	0.280	± 0.035
EPA 20	0.0011	± 0.0005

WATER TREATMENT (FILTERED)

SAMPLE	DATA
EPA-4	0.0000001
EPA 5	0.0000003
EPA 8	0.0000003
EPA-10	0.0000003
EPA 11	0.0000002
EPA 16	0.0000020
EPA 19	0.0000002

N

ISS	DATE	REVISION	BY	CHK'D	APVD	M
A	12 18 74	ORIGINAL ISSUE				

CODE IDENT NO 14065

DWG TYPE STE
DWG CLASSIFICATION
LEVEL & CAT UNCL
BY
TITLE
DATE 12 18 74

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE US ENVIRONMENTAL PROTECTION AGENCY SAMPLING SITES

DESIGNER R WILKINSON DATE 12 17 74 PROJ MGR.
CHECKER J UNCLAP DATE 12 18 74 ADM ENG.
DESIGN ENG D R ROGERS DATE 12 18 74 ENG. MGR.
APVD RER DATE 12 18 74

SCALE NO SCALE
W O NO M81752
JOB NO 740533
DWG NO SC740971 SHT 1 OF 1

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PLUTONIUM-238 CONCENTRATION OF VEGETATION AND FISH SAMPLES

COLLECTED BY MOUND LABORATORY

IN OR NEAR THE DRAINAGE DITCH
MIAMI ERIE CANAL
MIAMISBURG POND
GREAT MIAMI RIVER

VEGETATION AND FISH SAMPLES

Vegetation (Grass)*

Location***	^{238}Pu Concentration (nc/g)
A	0.000874
B	0.000015
C	0.000002
D	0.000028
E	0.000002
F	0.000031
G	0.000012
H	0.000012
I	0.000005
J	0.000004
K	0.000003
L	0.000035
M	0.000005
N	0.000018
O	0.000052
P	0.000074
Q	0.000004
R	0.003045
S	0.000030
T	0.000005

Vegetation (Algae)**

Location	^{238}Pu Concentration (nc/g)
L	0.111
F	0.00239

Fish (Edible Portion)

Location	^{238}Pu Concentration (nc/g)
Pond (Blue Gill)	0.00000079
Canal (Carp)	0.00000512
River (Carp)	0.00000531

*Analyses performed by LFE.
**Analyses performed by Mound Laboratory.
***Samples taken on banks near locations of sediment samples.

PLUTONIUM-238 CONCENTRATION OF AIR SAMPLES

COLLECTED BY MOUND LABORATORY IN THE MIAMISBURG PARK NEAR THE MIAMI-ERIE CANAL

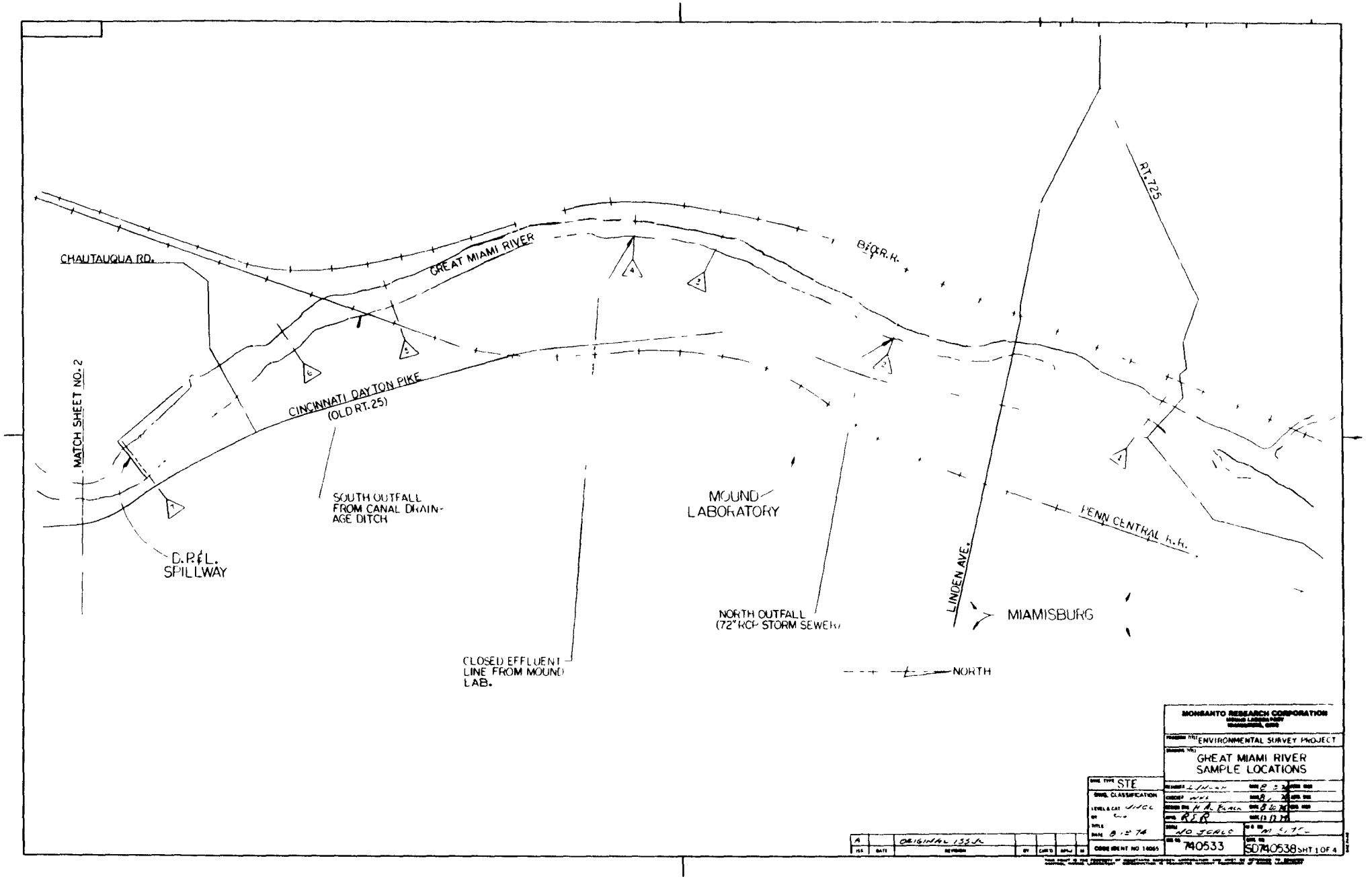
AIR SAMPLING DATA COLLECTED
ONE FOOT ABOVE THE GROUND
IN THE MIAMISBURG PARK AREA

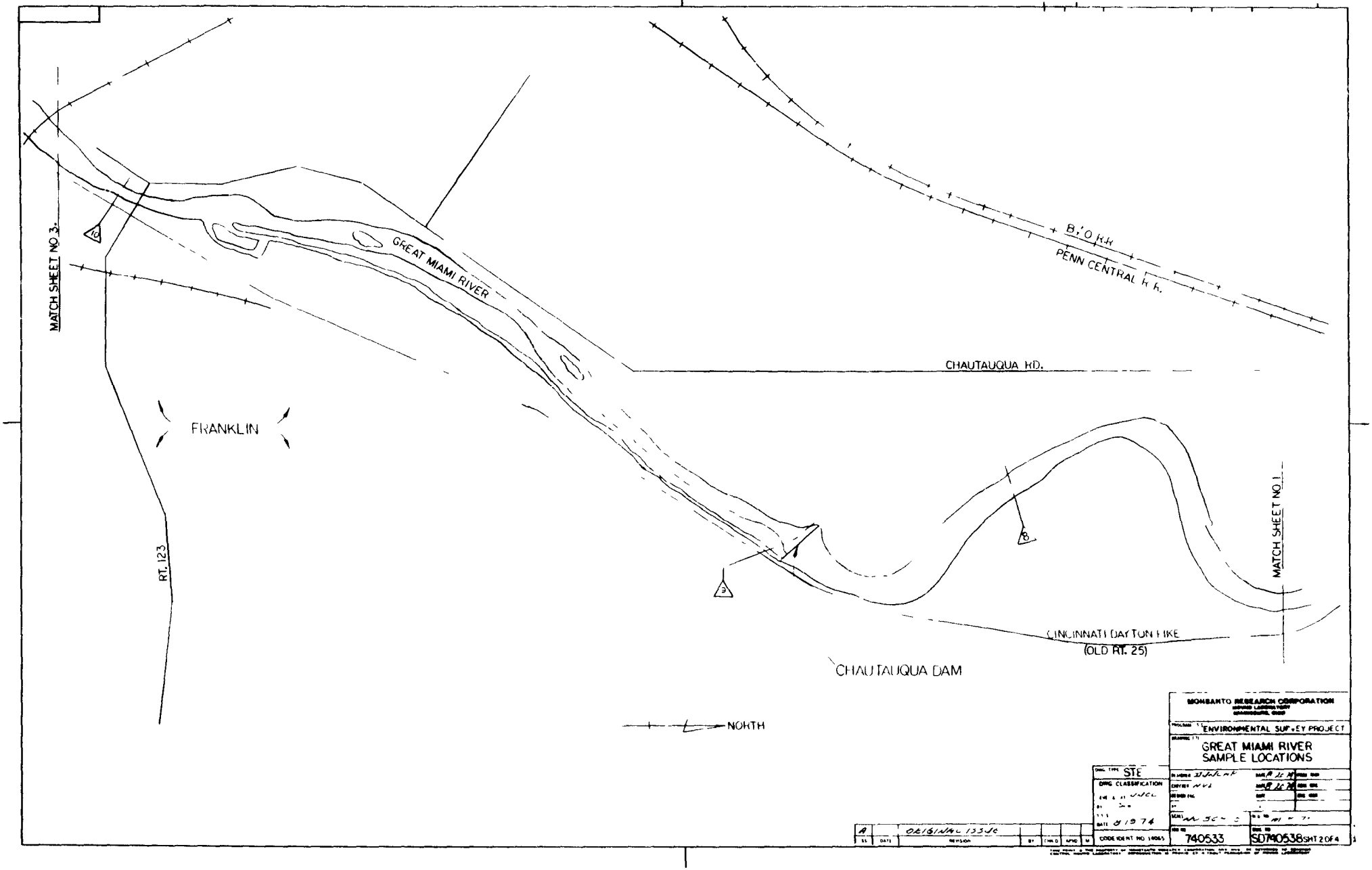
	^{239}Pu ($\mu c/cc$)	^{238}Pu ($\mu c/cc$)
	3.5×10^{-17}	5.6×10^{-16}
	9.2×10^{-17}	7.2×10^{-15}
	3.7×10^{-17}	1.9×10^{-15}
Average	5.5×10^{-17}	3.2×10^{-15}

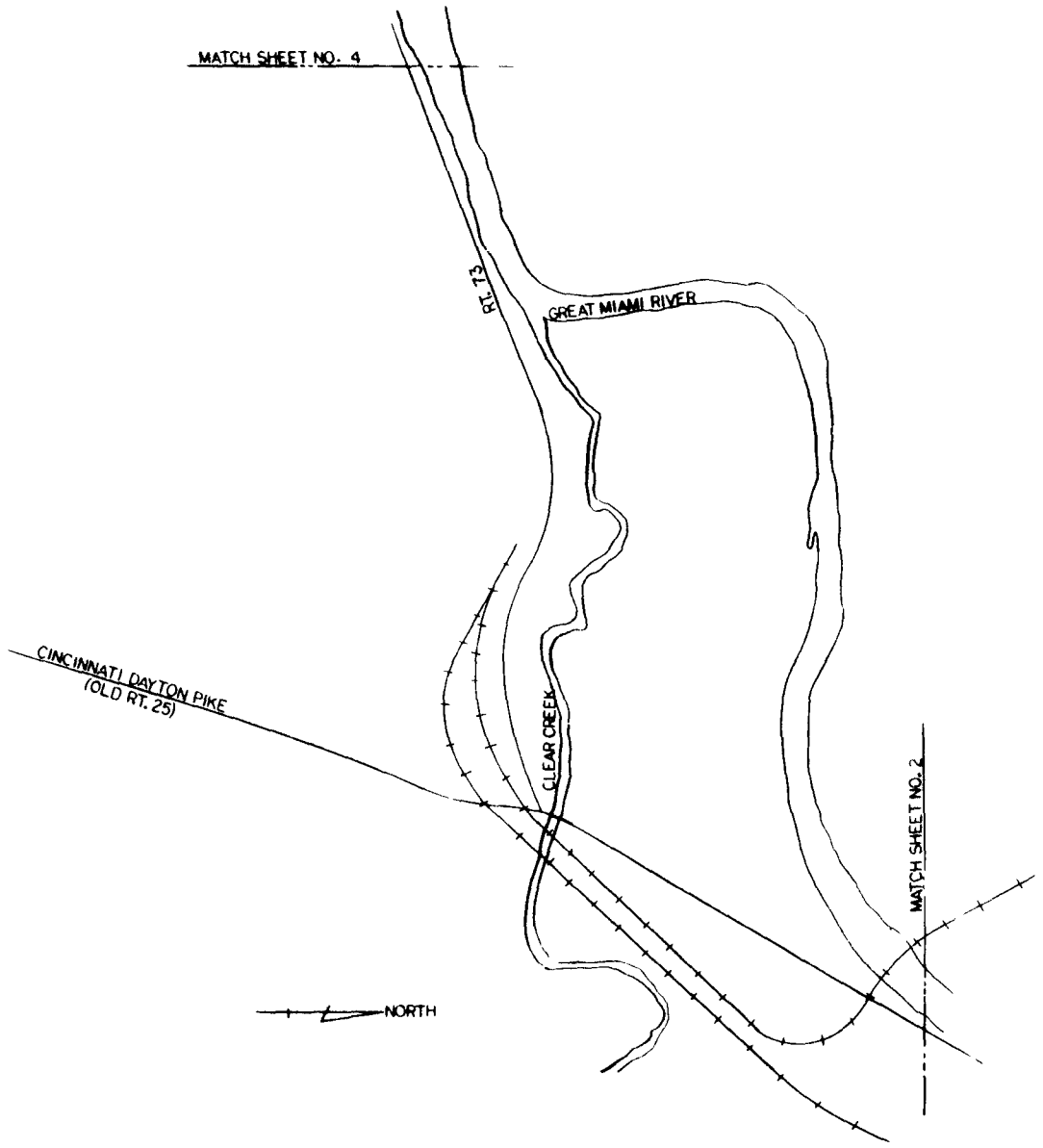
PLUTONIUM-238 CONCENTRATION OF SEDIMENT SAMPLES

COLLECTED BY BOWSER MORNER TESTING LABORATORY MIAMISBURG, OHIO

IN THE GREAT MIAMI RIVER


CHAUTAUQUA RD.
GREAT MIAMI RIVER
B&O R.R.
RT. 725
MATCH SHEET NO. 2
CINCINNATI DAYTON PIKE
(OLD RT. 25)
SOUTH OUTFALL
FROM CANAL DRAIN-
AGE DITCH
MOUND
LABORATORY
PENN CENTRAL R.R.
D.P.&L.
SPILLWAY
LINDEN AVE.
MIAMISBURG
NORTH OUTFALL
(72" RCP STORM SEWER)
CLOSED EFFLUENT
LINE FROM MOUND
LAB.
NORTH
MONSANTO RESEARCH CORPORATION
ENVIRONMENTAL SURVEY PROJECT
GREAT MIAMI RIVER
SAMPLE LOCATIONS
STE
CODE IDENT NO 14065
NO SCALE
740533
SD740538 SHT 1 OF 4
A
ORIGINAL ISSUE


MATCH SHEET NO 3.
GREAT MIAMI RIVER
B.&O. R.R.
PENN CENTRAL R.R.
CHAUTAUQUA RD.
FRANKLIN
RT. 123
MATCH SHEET NO 1
CINCINNATI DAYTON PIKE
(OLD RT. 25)
CHAUTAUQUA DAM
NORTH
MONSANTO RESEARCH CORPORATION
ENVIRONMENTAL SURVEY PROJECT
GREAT MIAMI RIVER
SAMPLE LOCATIONS
STE
DWG CLASSIFICATION
DATE 8 19 74
CODE IDENT NO 14065
740533
SD740538 SHT 2 OF 4
A
ORIGINAL ISSUE
REVISION



MONSANTO RESEARCH CORPORATION

ENVIRONMENTAL SURVEY PROJECT

GREAT MIAMI RIVER
SAMPLE LOCATIONS

STE

DWG. CLASSIFICATION

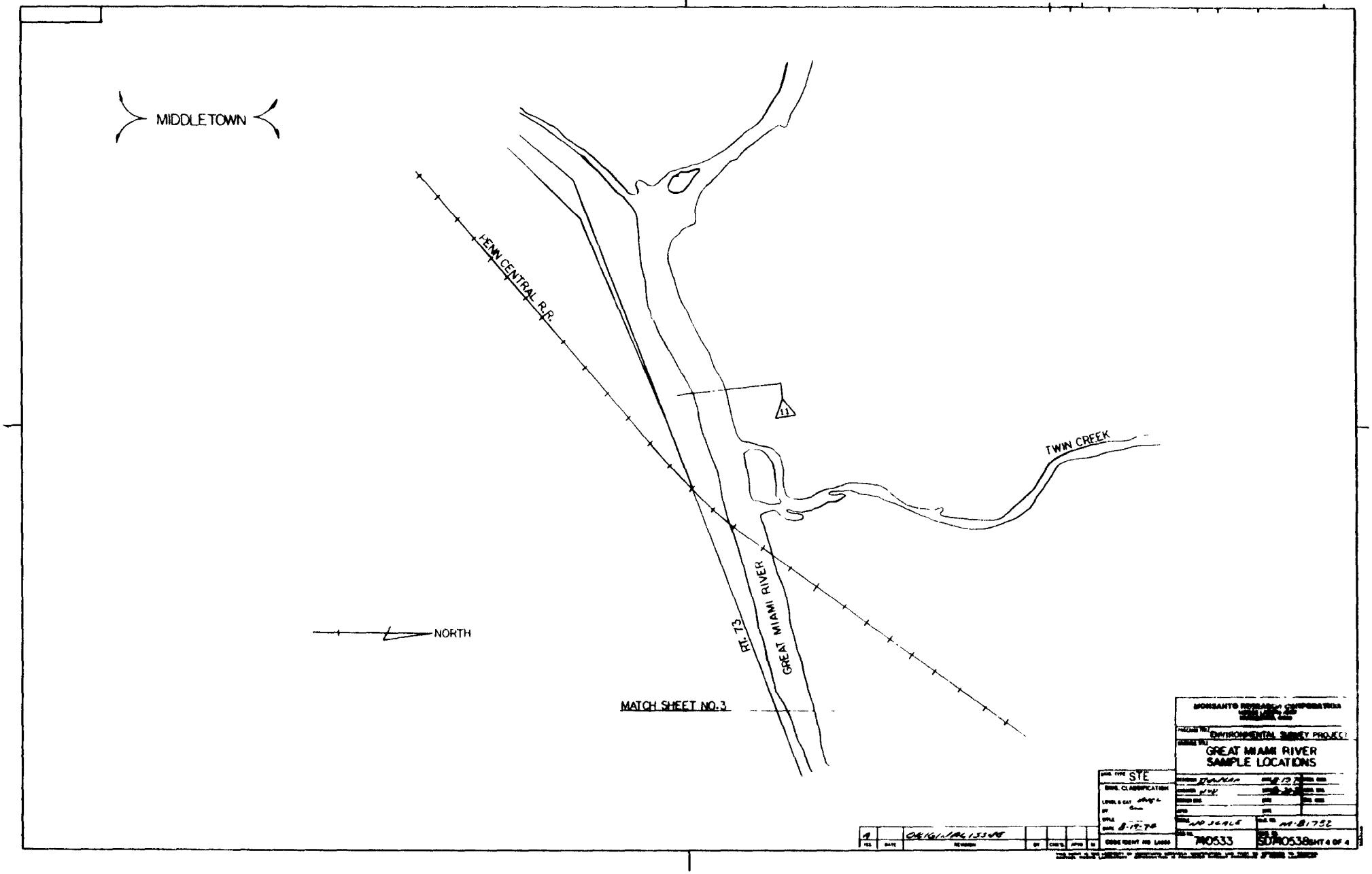
DATE 3 15 74

CODE IDENT NO 14066

740533

SDP40538 SHT 3 OF 4

ISS	DATE	REVISION	BY	CHK'D	APPD	M
A		ORIGINAL ISSUE				


MIDDLETOWN
PENN CENTRAL R.R.
11
TWIN CREEK
GREAT MIAMI RIVER
RT. 73
NORTH
MATCH SHEET NO. 3
MONSANTO RESEARCH CORPORATION
ENVIRONMENTAL SURVEY PROJECT
GREAT MIAMI RIVER
SAMPLE LOCATIONS
STE
NO SCALE
M-81752
740533
SD740538
SHT 4 OF 4
A
ORIGINAL ISSUE
8-19-78

SC740534

CORE SAMPLE RESULTS

MRIA1	<0.0001
MRIA2	<0.0001
MRIA3	<0.0001
MRIA4	<0.0001
MRIA5	
CMPST	<0.0001

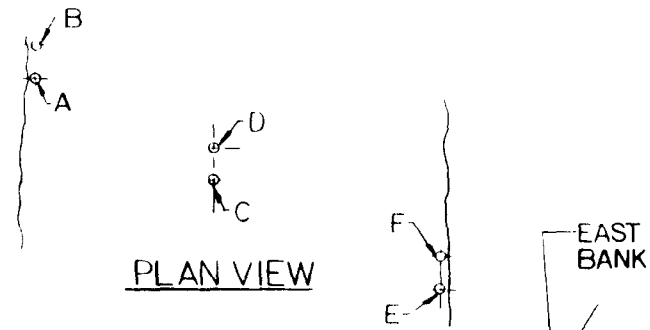
MRIF1	<0.0001
MRIF2	<0.0001
MRIF3	<0.0001
MRIF4	<0.0001
MRIF5	<0.0001
CMPST	<0.0001

MRIB1	<0.0001
MRIB2	<0.0001
MRIB3	0.0004 ± 0.0002
MRIB4	<0.0001
CMPST	<0.0001

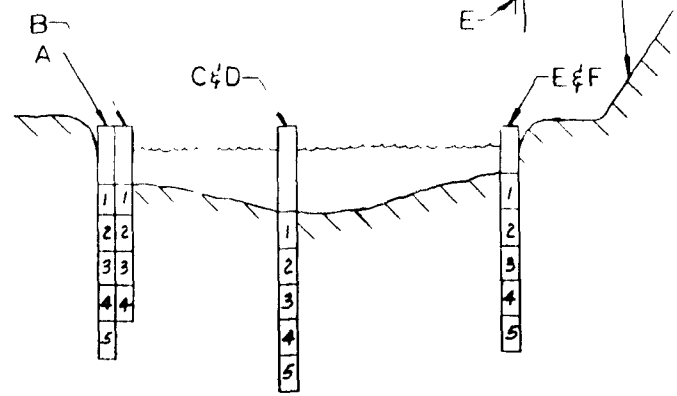
MRIC1	0.0001 ± 0.0001
MRIC2	
MRIC3	<0.0001
MRIC4	0.0002 ± 0.0001
MRIC5	
CMPST	<0.0001

MRID1	<0.0001
MRID2	
MRID3	<0.0001
MRID4	<0.0001
MRID5	<0.0001
CMPST	<0.0001

MRIE1	<0.0001
MRIE2	
MRIE3	0.0002 ± 0.0001
MRIE4	<0.0001
MRIE5	<0.0001
CMPST	<0.0001



PLAN VIEW



CORE SECTIONS

NOTES:

1. FIRST TWO LETTERS AND FIRST NUMBER INDICATE THE SAMPLE LOCATION. REFER TO MRC DRAWING NO SD740538
2. THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THE STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES/GRAM (nCi/g) NANOCURIES = 10-9 CURIES = 2220 DISINTEGRATIONS/MIN
5. CMPST = COMPOSITE

ISS	DATE	REVISION	BY	CHK'D	APVD	M
A	12/17/74	ORIGINAL ISSUE			[illegible]	

DWG. TYPE. STE

DWG. CLASSIFICATION

LEVEL & CAT. UNCL

BY [illegible]

TITLE

DATE 8-7-74

CODE IDENT. NO. 14065

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE GREAT MIAMI RIVER SAMPLE LOCTION "MR1"

DESIGNER JUNLAP	DATE 8-7-74	PROJ. MGR.	
CHECKER H. AL BLACK	DATE 8-9-74	ADM. ENG.	
DESIGN ENG. H. AL BLACK	DATE	ENG. MGR.	
APVD RER	DATE 12-17-74		
SCALE NO SCALE	W.O. NO. NA 81752		
JOB NO. 740533	DWG. NO. SC740534 SHT 1 OF		

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SC740534

CORE SAMPLE RESULTS

MR2A1	<0.0001
MR2A2	<0.0001
MR2A3	<0.0001
MR2A4	<0.0001
CMPST	<0.0001

MR2B1	0.0002 ± 0.0001
MR2B2	0.0001 ± 0.0001
MR2B3	<0.0001
MR2B4	<0.0001
MR2B5	<0.0001
CMPST	<0.0001

MR2C1	<0.0001
MR2C2	<0.0001
MR2C3	<0.0001
MR2C4	<0.0001
MR2C5	<0.0001
CMPST	<0.0001

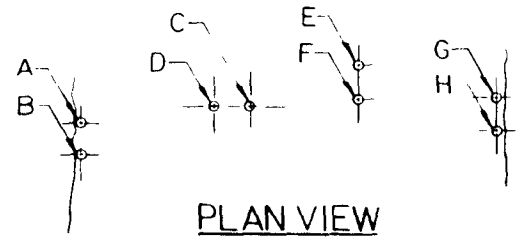
MR2D1	<0.0001
MR2D2	<0.0001
MR2D3	<0.0001
MR2D4	0.0001 ± 0.0001
MR2D5	<0.0001
CMPST	<0.0001

MR2E1	0.0003 ± 0.0002
MR2E2	<0.0001
MR2E3	<0.0001
MR2E4	<0.0001
MR2E5	<0.0001
CMPST	<0.0001

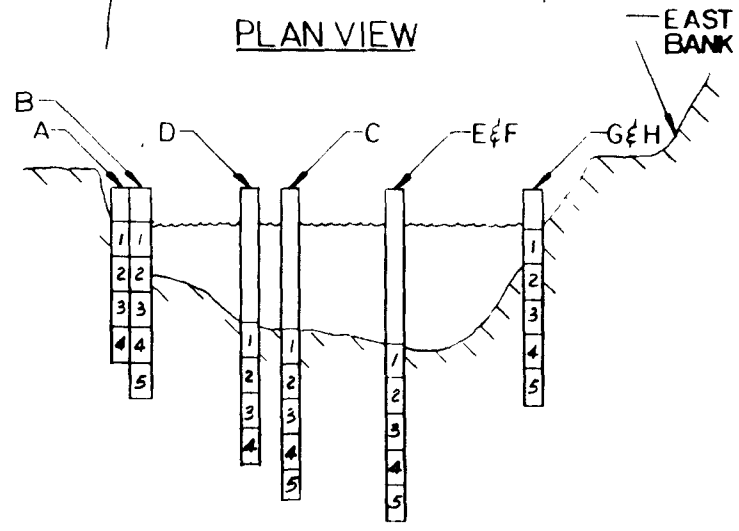
MR2F1	0.0002 ± 0.0001
MR2F2	<0.0001
MR2F3	<0.0001
MR2F4	<0.0001
MR2F5	<0.0001
CMPST	<0.0001

MR2G1	<0.0001
MR2G2	<0.0001
MR2G3	<0.0001
MR2G4	<0.0001
MR2G5	<0.0001
CMPST	<0.0001

MR2H1	0.0001 ± 0.0001
MR2H2	0.0001 ± 0.0001
MR2H3	
MR2H4	<0.0001
MR2H5	<0.0001
CMPST	<0.0001



PLAN VIEW



CORE SECTIONS

NOTES:

1. FIRST TWO LETTERS AND FIRST NUMBER INDICATE THE SAMPLE LOCATION REFER TO MRC DRAWING NO SD740538
2. THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THE STATION.
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES-GRAM (nCi/g) NANOCURIES = 10-9 CURIES = 2220 DISINTEGRATIONS/MIN
5. CMPST = COMPOSITE

ISS	DATE	REVISION	BY	CHK'D	APVD	M
A	12/17/74	ORIGINAL ISSUE			[illegible]	

DWG. TYPE: STE

DWG. CLASSIFICATION

LEVEL & CAT. UNCL

BY [illegible]

TITLE

DATE 8-8-74

CODE IDENT. NO 14065

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE GREAT MIAMI RIVER SAMPLE LOCATION 'MR2'

DESIGNER JUNLAP	DATE 8-8-74	PROJ. MGR.	
CHECKER H. AL BLACK	DATE 8-9-74	ADM. ENG.	
DESIGN ENG.	DATE	ENG. MGR.	
APVD. D.R. ROGERS	DATE 8-9-74		
SCALE NO SCALE	W.O. NO. M-81752		
JOB NO. 740533	DWG. NO. SC740534 SHT 2 OF		

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SC740534

CORE SAMPLE RESULTS

MR3A1	<0.0001
MR3A2	<0.0001
MR3A3	<0.0001
MR3A4	<0.0001
MR3A5	0.0001 ± 0.0001
CMPST	0.0002 ± 0.0001

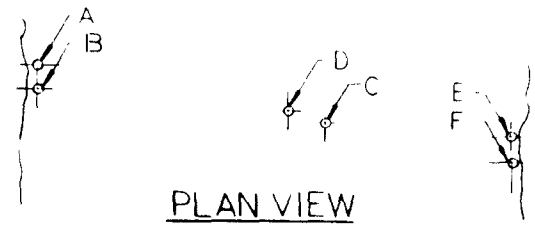
MR3E1	<0.0001
MR3E2	<0.0001
MR3E3	<0.0001
MR3E4	<0.0001
MR3E5	<0.0001
CMPST	<0.0001

MR3B1	<0.0001
MR3B2	0.0003 ± 0.0002
MR3B3	<0.0001
MR3B4	<0.0001
MR3B5	<0.0001
MR3B6	<0.0001
CMPST	<0.0001

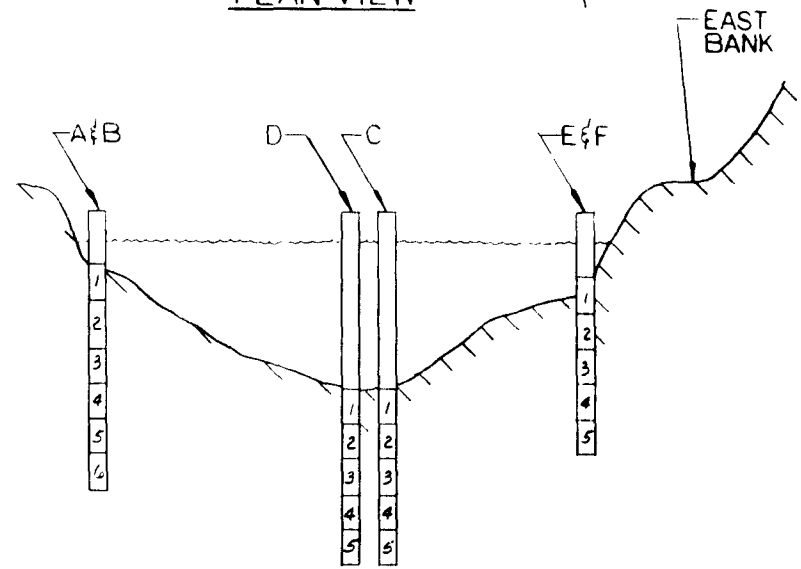
MR3F1	0.0003 ± 0.0002
MR3F2	
MR3F3	<0.0001
MR3F4	<0.0001
MR3F5	<0.0001
CMPST	<0.0001

MR3C1	<0.0001
MR3C2	<0.0001
MR3C3	<0.0001
MR3C4	<0.0001
MR3C5	<0.0001
CMPST	<0.0001

MR3D1	<0.0001
MR3D2	<0.0001
MR3D3	<0.0001
MR3D4	0.0003 ± 0.0002
MR3D5	<0.0001
CMPST	<0.0001



PLAN VIEW



CORE SECTIONS

NOTES:

1. FIRST TWO LETTERS AND FIRST NUMBER INDICATE THE SAMPLE LOCATION REFER TO MRC DRAWING NO SD740538
2. THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THE STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES/GRAM (nCi/g) NANOCURIES = 10^{-9} CURIES = 2220 DISINTEGRATIONS/MIN
5. CMPST = COMPOSITE

ISS	DATE	REVISION	BY	CHK'D	APVD	M
A	12/11/74	ORIGINAL ISSUE			JAB	

DWG. TYPE: STE

DWG. CLASSIFICATION

LEVEL & CAT. UNCL

BY

TITLE

DATE 8-8-74

CODE IDENT. NO. 14065

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE GREAT MIAMI RIVER SAMPLE LOCATION "MR3"

DESIGNER JUNLAP	DATE 8-8-74	PROJ MGR.	
CHECKER H. AL BLACK	DATE 8-9-74	ADM. ENG.	
DESIGN ENG	DATE	ENG. MGR.	
APVD D. P. PRIDE	DATE 8-9-74		
SCALE NO SCALE	W O NO. M-81752		
JOB NO 740533	DWG NO. SC740534 SHT 3 OF		

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SC740534

CORE SAMPLE RESULTS

MR4A1	<0.0001
MR4A2	0.0001 ± 0.0001
MR4A3	
MR4A4	<0.0001
MR4A5	<0.0001
CMPST	<0.0001

MR4B1	<0.0001
MR4B2	<0.0001
MR4B3	<0.0001
MR4B4	0.0002 ± 0.0002
MR4B5	
CMPST	<0.0001

MR4C1	<0.0001
MR4C2	0.0001 ± 0.0001
MR4C3	<0.0001
MR4C4	<0.0001
MR4C5	
CMPST	<0.0001

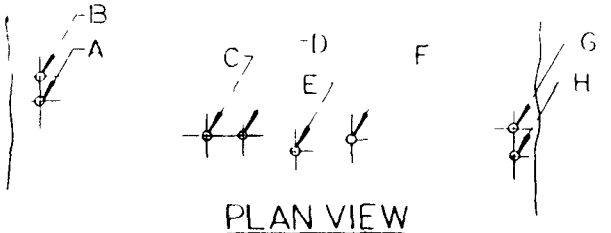
MR4D1	<0.0001
MR4D2	<0.0001
MR4D3	<0.0001
MR4D4	<0.0001
MR4D5	<0.0001
CMPST	<0.0001

MR4E1	<0.0001
MR4E2	<0.0001
MR4E3	<0.0001
MR4E4	<0.0001
MR4E5	0.0001 ± 0.0001
CMPST	0.0003 ± 0.0002

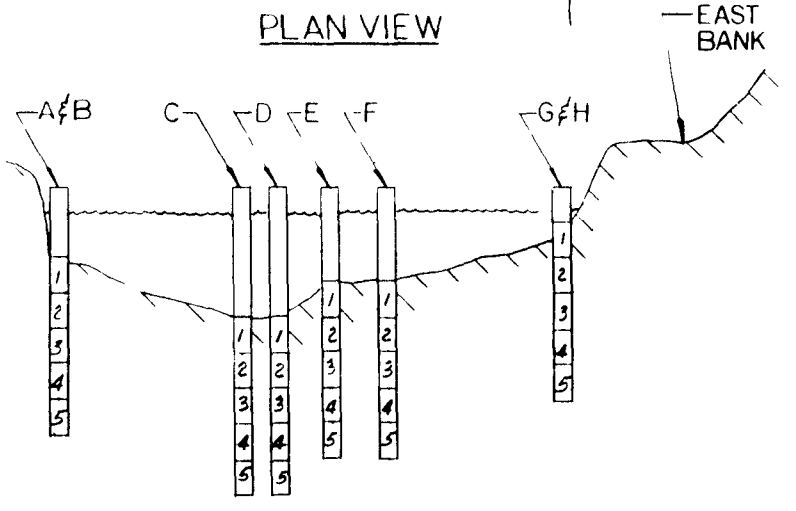
MR4F1	0.0001 ± 0.0001
MR4F2	<0.0001
MR4F3	<0.0001
MR4F4	0.0001 ± 0.0001
MR4F5	0.0013 ± 0.0006
CMPST	<0.0001

MR4G1	0.0016 ± 0.0007
MR4G2	0.0052 ± 0.0017
MR4G3	0.0005 ± 0.0003
MR4G4	<0.0001
MR4G5	<0.0001
CMPST	0.0011 ± 0.0006

MR4H1	0.0017 ± 0.0007
MR4H2	0.0030 ± 0.0011
MR4H3	0.0018 ± 0.0005
MR4H4	0.0001 ± 0.0001
MR4H5	<0.0001
CMPST	0.0013 ± 0.0006



PLAN VIEW



CORE SECTIONS

NOTES

1. FIRST TWO LETTERS AND FIRST NUMBER INDICATE THE SAMPLE LOCATION REFER TO MRC DRAWING NO SD740538.
2. THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THE STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES/GRAM (nCi/g) NANOCURIES = 10-9 CURIES = 2220 DISINTEGRATIONS/MIN
5. CMPST = COMPOSITE

ISS	DATE	REVISION	BY	CHK D	APVD	M
A	12 11 74	ORIGINAL ISSUE			MAB	

DWG TYPE STE

DWG CLASSIFICATION

LEVEL & CAT UNCL

BY Cmg

TITLE

DATE 8 8 74

CODE IDENT NO 14065

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE GREAT MIAMI RIVER SAMPLE LOCATION "MR4"

DESIGNER Duncan	DATE 8 8 74	PROJ MGR	
CHECKER H. A. Black	DATE 8 9 74	ADM ENG	
DESIGN ENG	DATE	ENG MGR	
APVD K. Rogers	DATE 8 9-74		
SCALE NO SCALE	W O NO M-81752		
JOB NO 740533	DWG NO SC740534 SHT 4 OF		

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SC740534

CORE SAMPLE RESULTS

MR5A1	<0.0001
MR5A2	<0.0001
MR5A3	<0.0001
MR5A4	<0.0001
MR5A5	0.0002 ± 0.0001
CMPST	<0.0001

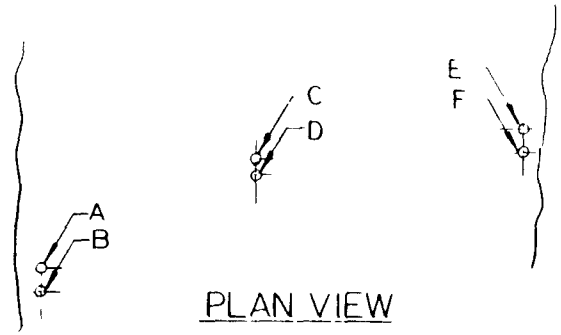
MR5F1	<0.0001
MR5F2	<0.0001
MR5F3	<0.0001
MR5F4	<0.0001
MR5F5	<0.0001
CMPST	<0.0001

MR5B1	0.0003 ± 0.0002
MR5B2	<0.0001
MR5B3	<0.0001
MR5B4	<0.0001
MR5B5	<0.0001
CMPST	<0.0001

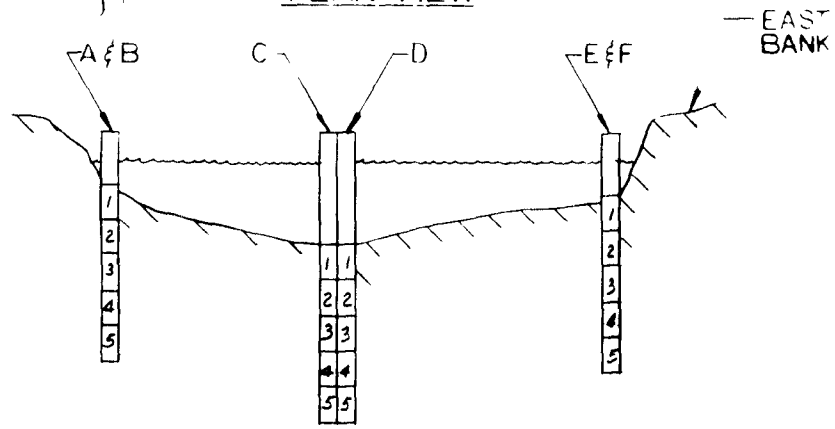
MR5C1	<0.0001
MR5C2	<0.0001
MR5C3	<0.0001
MR5C4	0.0001 ± 0.0001
MR5C5	<0.0001
CMPST	<0.0001

MR5D1	<0.0001
MR5D2	<0.0001
MR5D3	<0.0001
MR5D4	<0.0001
MR5D5	0.0002 ± 0.0001
CMPST	<0.0001

MR5E1	<0.0001
MR5E2	<0.0001
MR5E3	<0.0001
MR5E4	<0.0001
MR5E5	<0.0001
CMPST	<0.0001



PLAN VIEW



CORE SECTIONS

NOTES

1 FIRST TWO LETTERS AND FIRST NUMBER INDICATE THE SAMPLE LOCATION REFER TO MRC DRAWING NO SD740538

2 THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THE STATION

3 EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH

4 ALL VALUES ARE IN NANOCURIES/GRAM (nCi/g) NANOCURIES = 10^9 CURIES = 2220 DISINTEGRATIONS/MIN

5 CMPST = COMPOSITE

ISS	DATE	REVISION	BY	CHK'D	APVD	M
A	12 17 74	ORIGINAL ISSUE			MB	

DWG TYPE STE

DWG CLASSIFICATION

LEVEL & CAT UNCL

BY Cro

TITLE

DATE 8 8 74

CODE IDENT NO 14065

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE GREAT MIAMI RIVER SAMPLE LOCATION "MR5"

DESIGNER JUNLAP	DATE 8 8 74	PROJ. MGR.	
CHECKER H AL BLACK	DATE 8 9 74	ADM. ENG.	
DESIGN ENG	DATE	ENG. MGR.	
APVD D RIGGS	DATE 8 9 74		
SCALE NO SCALE	W O NO M 81752		
JOB NO 740533	DWG. NO SC740534 SHT 5 OF		

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CORE SAMPLE RESULTS

MR6A1	<0.0001
MR6A2	<0.0001
MR6A3	<0.0001
MR6A4	0.0002 ± 0.0002
MR6A5	0.0002 ± 0.0001
CMPST	<0.0001

MR6E1	<0.0001
MR6E2	<0.0001
MR6E3	<0.0001
MR6E4	<0.0001
MR6E5	<0.0001
MR6E6	0.0001 ± 0.0001
CMPST	<0.0001

MR6B1	<0.0001
MR6B2	<0.0001
MR6B3	<0.0001
MR6B4	0.0006 ± 0.0003
MR6B5	<0.0001
CMPST	<0.0001

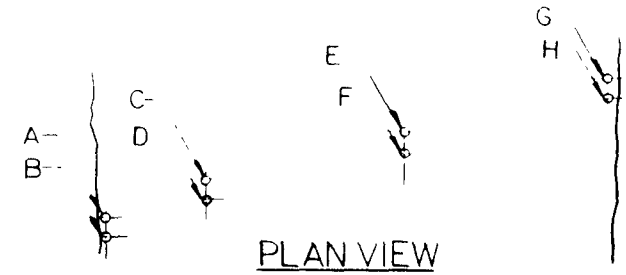
MR6F1	<0.0001
MR6F2	0.0002 ± 0.0001
MR6F3	<0.0001
MR6F4	<0.0001
MR6F5	<0.0001
MR6F6	<0.0001
CMPST	<0.0001

MR6C1	<0.0001
MR6C2	<0.0001
MR6C3	<0.0001
MR6C4	<0.0001
MR6C5	<0.0001
MR6C6	<0.0001
MR6C7	<0.0001
CMPST	

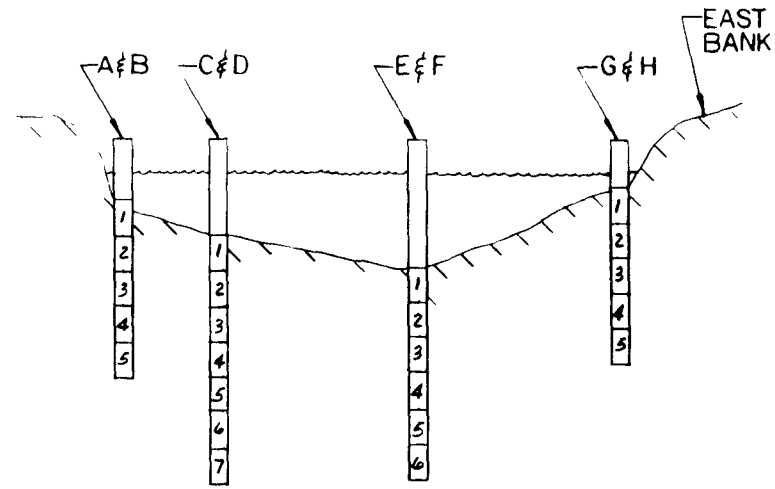
MR6G1	0.0351 ± 0.0071
MR6G2	0.0415 ± 0.0081
MR6G3	0.0006 ± 0.0003
MR6G4	<0.0001
MR6G5	<0.0001
CMPST	0.0189 ± 0.0045

MR6D1	<0.0001
MR6D2	<0.0001
MR6D3	0.0002 ± 0.0001
MR6D4	<0.0001
MR6D5	<0.0001
MR6D6	<0.0001
MR6D7	0.0004 ± 0.0002
CMPST	<0.0001

MR6H1	0.0367 ± 0.0074
MR6H2	0.0016 ± 0.0007
MR6H3	0.0002 ± 0.0002
MR6H4	<0.0001
MR6H5	0.0005 ± 0.0003
CMPST	0.0064 ± 0.0020



PLAN VIEW



CORE SECTION

NOTES:

1. FIRST TWO LETTERS AND FIRST NUMBER INDICATE THE SAMPLE LOCATION. REFER TO MRC DRAWING NO. SD740538
2. THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THE STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES/GRAM (nCi/g) NANOCURIES = 10-9 CURIES = 2220 DISINTEGRATIONS/MIN
5. CMPST = COMPOSITE

ISS	DATE	REVISION	BY	CHK'D	APVD	M
A	12-17-74	ORIGINAL ISSUE			MB	

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: GREAT MIAMI RIVER SAMPLE LOCATION "MR6"

DWG. TYPE: STE

DWG. CLASSIFICATION

LEVEL & CAT. UNCL

BY C

TITLE

DATE 8-8-74

CODE IDENT. NO. 14065

DESIGNER JUNCAP	DATE 8-8-74	PROJ. MGR.	
CHECKER H. AL BLACK	DATE 8-9-74	ADM. ENG.	
DESIGN ENG.	DATE	ENG. MGR.	
APVD. D.R. RUGFIN	DATE 8-9-74		
SCALE NO SCALE		W.O. NO. M-81752	
JOB NO. 740533		DWG. NO. SC740534 SHT 6 OF	

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CORE SAMPLE RESULTS

MR7A1	<0.0001
MR7A2	<0.0001
CMPST	<0.0001

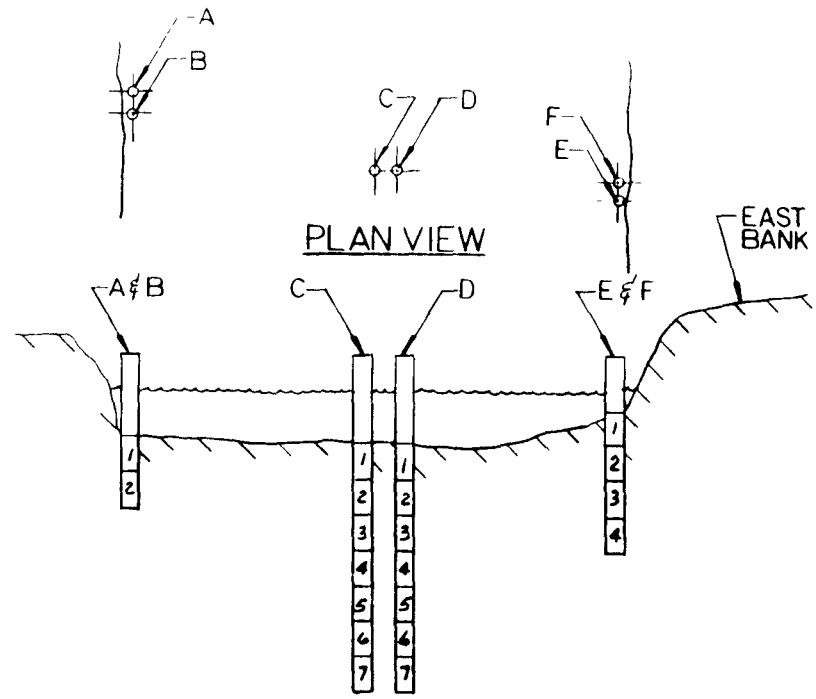
MR7B1	<0.0001
MR7B2	<0.0001
CMPST	<0.0001

MR7C1	<0.0001
MR7C2	<0.0001
MR7C3	<0.0001
MR7C4	<0.0001
MR7C5	<0.0001
MR7C6	<0.0001
MR7C7	<0.0001
CMPST	<0.0001

MR7D1	<0.0001
MR7D2	<0.0001
MR7D3	0.0001 ± 0.0001
MR7D4	0.0002 ± 0.0001
MR7D5	<0.0001
MR7D6	<0.0001
MR7D7	<0.0001
CMPST	<0.0001

MR7E1	0.0001 ± 0.0001
MR7E2	<0.0001
MR7E3	<0.0001
MR7E4	0.0001 ± 0.0001
CMPST	<0.0001

MR7F1	0.0001 ± 0.0001
MR7F2	<0.0001
MR7F3	<0.0001
MR7F4	<0.0001
CMPST	



CORE SECTIONS

NOTES:

1. FIRST TWO LETTERS AND FIRST NUMBER INDICATE THE SAMPLE LOCATION REFER TO MRC DRAWING NO. SD740538
2. THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THE STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES/GRAM (nCi/g) NANOCURIES = 10-9 CURIES = 2220 DISINTEGRATIONS/MIN
5. CMPST = COMPOSITE

ISS	DATE	REVISION	BY	CHK'D	APVD	M
A	12-11-74	ORIGINAL ISSUE			MB	

DWG. TYPE: STE

DWG. CLASSIFICATION

LEVEL & CAT. UNCL

BY

TITLE

DATE 8 8 74

CODE IDENT. NO. 14065

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE GREAT MIAMI RIVER SAMPLE LOCATION "MR7"

DESIGNER J. UNCLAP	DATE 8-8-74	PROJ. MGR.	
CHECKER H. A. BLACK	DATE 8-9-74	ADM. ENG.	
DESIGN ENG.	DATE	ENG. MGR.	
APVD. D.R. ROGERS	DATE 8-9-74		
SCALE NO SCALE		W.O. NO. M-81752	
JOB NO. 740533		DWG. NO. SC740534 SHT 7 OF	

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CORE SAMPLE RESULTS

MR8A1	0.0002 ± 0.0001
MR8A2	<0.0001
MR8A3	<0.0001
MR8A4	<0.0001
MR8A5	<0.0001
CMPST	<0.0001

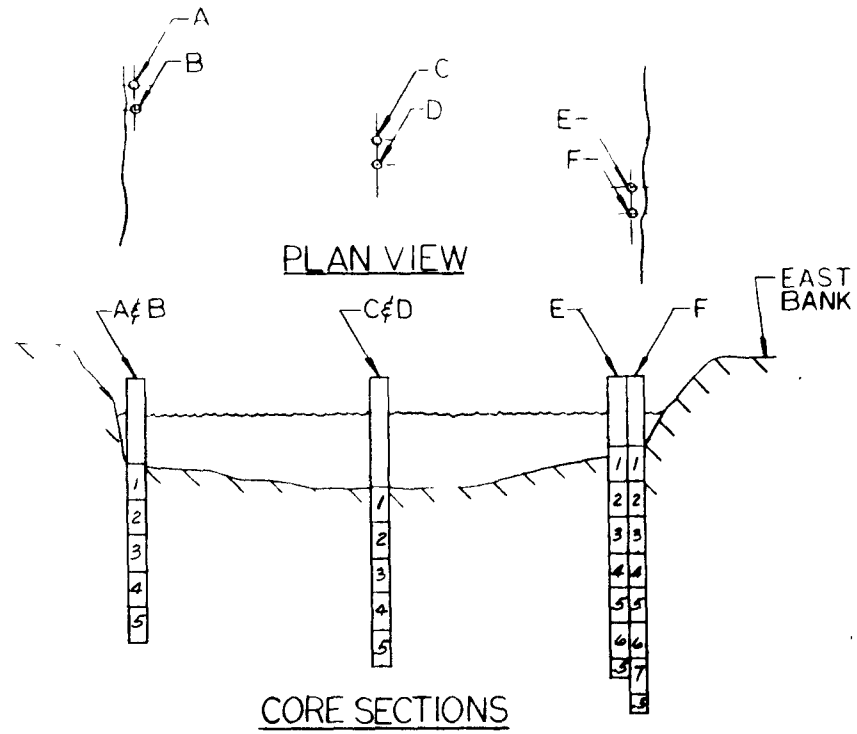
MR8B1	<0.0001
MR8B2	<0.0001
MR8B3	<0.0001
MR8B4	0.0001 ± 0.0001
MR8B5	0.0001 ± 0.0001
CMPST	<0.0001

MR8C1	0.0002 ± 0.0002
MR8C2	<0.0001
MR8C3	<0.0001
MR8C4	<0.0001
MR8C5	0.0002 ± 0.0001
CMPST	<0.0001

MR8D1	<0.0001
MR8D2	<0.0001
MR8D3	<0.0001
MR8D4	<0.0001
MR8D5	<0.0001
CMPST	<0.0001

MR8E1	<0.0001
MR8E2	0.0010 ± 0.0005
MR8E3	0.0009 ± 0.0004
MR8E4	0.0012 ± 0.0006
MR8E5	<0.0001
MR8E6	0.0005 ± 0.0003
MR8E6.5	<0.0001
CMPST	0.0005 ± 0.0003

MR8F1	0.0005 ± 0.0003
MR8F2	0.0007 ± 0.0004
MR8F3	0.0006 ± 0.0003
MR8F4	0.0007 ± 0.0004
MR8F5	0.0013 ± 0.0006
MR8F6	0.0006 ± 0.0003
MR8F7	0.0019 ± 0.0003
MR8F7.5	0.0021 ± 0.0008
CMPST	0.0008 ± 0.0004



NOTES:

1. FIRST TWO LETTERS AND FIRST NUMBER INDICATE THE SAMPLE LOCATION REFER TO MRC DRAWING NO. SD740538
2. THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THE STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH, EXCEPT CORE SAMPLE STATION "E" & "F"
4. ALL VALUES ARE IN NANOCURIES/GRAM (nCi/g) NANOCURIES = 10^{-9} CURIES = 2220 DISINTEGRATIONS/MIN
5. CMPST = COMPOSITE

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: GREAT MIAMI RIVER SAMPLE LOCATION "MR8"

DWG. TYPE: STE

DWG. CLASSIFICATION
LEVEL & CAT: UNCL
BY: [illegible]
TITLE:
DATE: 8 8 74

DESIGNER: [illegible]	DATE: 8-8-74	PROJ MGR.	
CHECKER: H. AL BLACK	DATE: 8-9-74	ADM ENG.	
DESIGN ENG	DATE	ENG. MGR.	
APVD: D. P. [illegible]	DATE: 8-9-74		
SCALE: NO SCALE	W O NO. M-81752		
JOB NO. 740533	DWG. NO. SC740534 SHT 8 OF		

CODE IDENT. NO. 14065

ISS	DATE	REVISION	BY	CHK'D	APVD	M
A	12-17-74	ORIGINAL ISSUE			[illegible]	

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SC740534

CORE SAMPLE RESULTS

MR9A1	0.0002 ± 0.0001
MR9A2	<0.0001
MR9A3	<0.0001
MR9A4	<0.0001
MR9A5	
CMPST	0.0003 ± 0.0002

MR9B1	<0.0001
MR9B2	<0.0001
MR9B3	<0.0001
MR9B4	<0.0001
MR9B5	<0.0001
CMPST	0.0001 ± 0.0001

MR9C1	<0.0001
MR9C2	<0.0001
MR9C3	<0.0001
CMPST	<0.0001

MR9D1	<0.0001
MR9D2	<0.0001
MR9D3	<0.0001
CMPST	<0.0001

MR9E1	0.0004 ± 0.0002
MR9E2	<0.0001
MR9E3	<0.0001
CMPST	0.0001 ± 0.0001

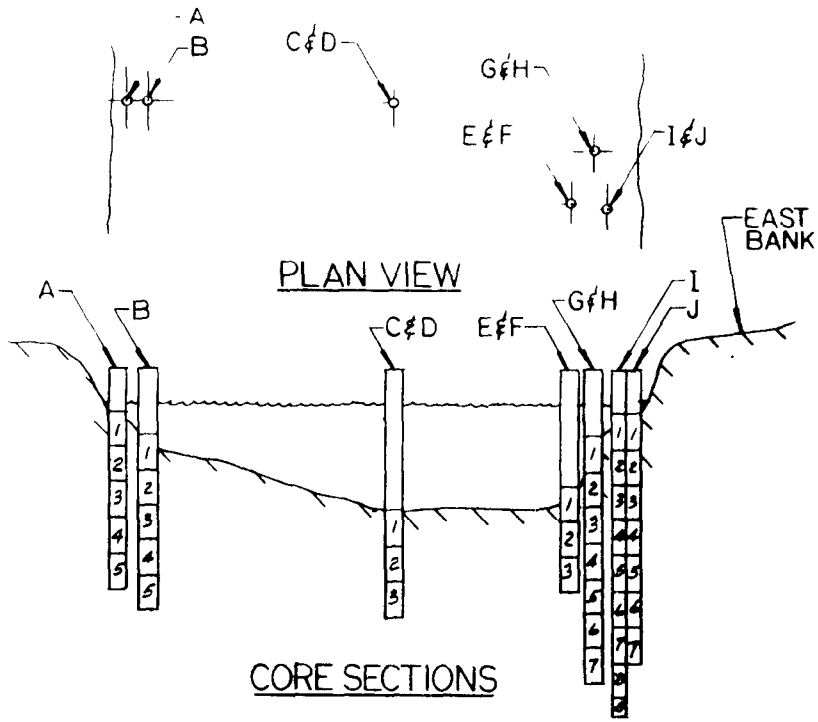
MR9F1	0.0004 ± 0.0002
MR9F2	0.0003 ± 0.0002
MR9F3	<0.0001
CMPST	0.0002 ± 0.0001

MR9G1	0.0009 ± 0.0005
MR9G2	0.0021 ± 0.0009
MR9G3	0.0032 ± 0.0009
MR9G4	0.0007 ± 0.0004
MR9G5	<0.0001
MR9G6	<0.0001
MR9G7	
CMPST	0.0008 ± 0.0004

MR9H1	0.0004 ± 0.0003
MR9H2	0.0005 ± 0.0003
MR9H3	0.0012 ± 0.0005
MR9H4	0.0019 ± 0.0008
MR9H5	0.0008 ± 0.0004
MR9H6	0.0002 ± 0.0001
CMPST	0.0010 ± 0.0005

MR9I1	0.0016 ± 0.0007
MR9I2	0.0002 ± 0.0002
MR9I3	0.0007 ± 0.0004
MR9I4	0.0018 ± 0.0008
MR9I5	0.0021 ± 0.0009
MR9I6	0.0030 ± 0.0011
MR9I7	<0.0001
MR9I8	<0.0001
MR9I8.5	<0.0001
CMPST	0.0008 ± 0.0004

MR9J1	0.0004 ± 0.0002
MR9J2	0.0003 ± 0.0002
MR9J3	
MR9J4	0.0006 ± 0.0003
MR9J5	0.0010 ± 0.0005
MR9J6	0.0016 ± 0.0007
MR9J7	0.0037 ± 0.0013
CMPST	0.0014 ± 0.0006



NOTES

1. FIRST TWO LETTERS AND FIRST NUMBER INDICATE THE SAMPLE LOCATION REFER TO MRC DRAWING NO SD740538
2. THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THE STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH, EXCEPT CORE SAMPLE STATION " 1"
4. ALL VALUES ARE IN NANOCURIES/GRAM (nCi/g) NANOCURIES = 10^{-9} CURIES = 2220 DISINTEGRATIONS/MIN
5. CMPST = COMPOSITE

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE GREAT MIAMI RIVER SAMPLE LOCATION "MR9"

DWG TYPE STE
DWG CLASSIFICATION
LEVEL & CAT UNCL
BY
TITLE
DATE 8-7-74
CODE IDENT NO 14065

DESIGNER DUNCAN	DATE 8-7-74	PROJ MGR.	
CHECKER H. AL BLACK	DATE 8-9-74	ADM ENG.	
DESIGN ENG.	DATE	ENG. MGR.	
APVD D. R. REGENS	DATE 8-9-74		
SCALE NO SCALE		W O NO M-81752	
JOB NO 740533		DWG NO SC740534 SHT 9 OF	

ISS	DATE	REVISION	BY	CHK D	APVD	M
A	12-17-74	ORIGINAL ISSUE				

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CORE SAMPLE RESULTS

MR10A1	<0.0001
MR10A2	0.0002 ± 0.0001
MR10A3	<0.0001
MR10A4	<0.0001
MR10A5	<0.0001
CMPST	0.0001 ± 0.0001

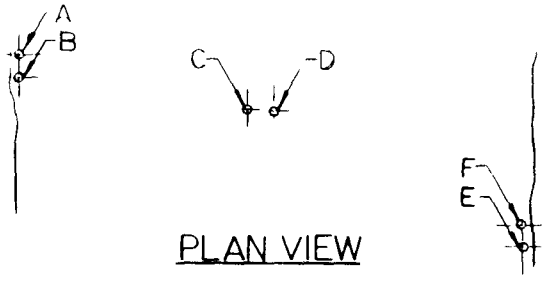
MR10B1	0.0001 ± 0.0001
MR10B2	<0.0001
MR10B3	<0.0001
MR10B4	<0.0001
MR10B5	<0.0001
CMPST	<0.0001

MR10C1	<0.0001
MR10C2	<0.0001
CMPST	0.0002 ± 0.0001

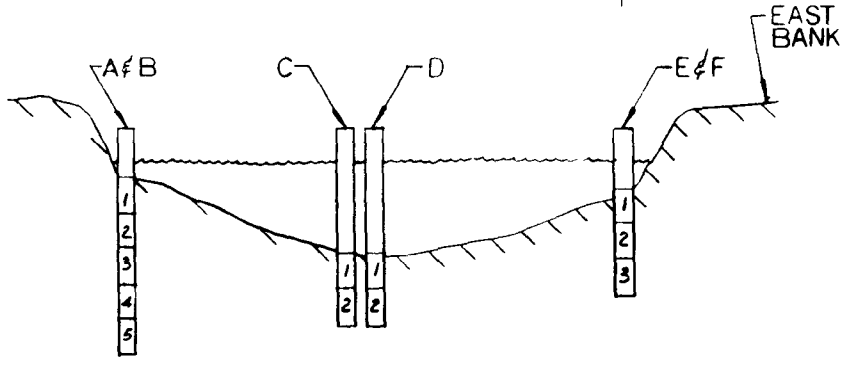
MR10D1	<0.0001
MR10D2	<0.0001
CMPST	<0.0001

MR10E1	<0.0001
MR10E2	<0.0001
MR10E3	<0.0001
CMPST	<0.0001

MR10F1	<0.0001
MR10F2	
MR10F3	<0.0001
CMPST	<0.0001



PLAN VIEW



CORE SECTIONS

NOTES:

1. FIRST TWO LETTERS AND FIRST NUMBER INDICATE THE SAMPLE LOCATION REFER TO MRC DRAWING NO SD740538
2. THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THE STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES/GRAM (nCi/g) NANOCURIES = 10^{-9} CURIES = 2220 DISINTEGRATIONS/MIN.
5. CMPST = COMPOSITE

ISS	DATE	REVISION	BY	CHK'D	APVD	M
A	12-17-74	ORIGINAL ISSUE			HAB	

DWG. TYPE: STE

DWG. CLASSIFICATION

LEVEL & CAT. UNCL

BY

TITLE

DATE 8 8 74

CODE IDENT. NO. 14065

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE GREAT MIAMI RIVER SAMPLE LOCATIONS "MR 10"

DESIGNER J UNCAN	DATE 8 8 74	PROJ MGR.	
CHECKER H A. BLACK	DATE 8 9 74	ADM ENG.	
DESIGN ENG	DATE	ENG. MGR	
APVD D R Rogers	DATE		
SCALE NO SCALE		W O NO. M-81752	
JOB NO. 740533		DWG NO. SC740534 SHT 1 OF	

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CORE SAMPLE RESULTS

MR11A1	<0.0001
MR11A2	<0.0001
MR11A3	<0.0001
MR11A4	0.0002 ± 0.0002
MR11A5	0.0003 ± 0.0002
MR11A6	<0.0001
MR11A7	<0.0001
MR11A8	<0.0001
CMPST	<0.0001

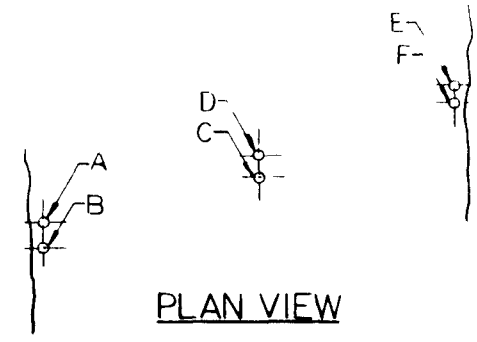
MR11B1	<0.0001
MR11B2	<0.0001
MR11B3	<0.0001
MR11B4	<0.0001
MR11B5	<0.0001
MR11B6	<0.0001
MR11B7	0.0006 ± 0.0002
MR11B8	0.0004 ± 0.0002
CMPST	<0.0001

MR11C1	0.0003 ± 0.0002
MR11C2	0.0001 ± 0.0001
MR11C3	0.0001 ± 0.0001
MR11C4	<0.0001
MR11C5	0.0004 ± 0.0002
CMPST	<0.0001

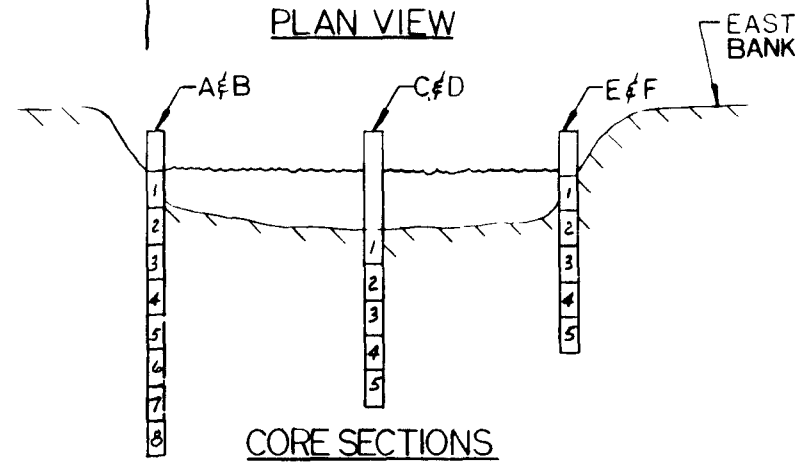
MR11D1	<0.0001
MR11D2	
MR11D3	0.0001 ± 0.0001
MR11D4	0.0001 ± 0.0001
MR11D5	<0.0001
CMPST	<0.0001

MR11E1	<0.0001
MR11E2	0.0003 ± 0.0002
MR11E3	0.0004 ± 0.0002
MR11E4	<0.0001
MR11E5	0.0002 ± 0.0001
CMPST	<0.0001

MR11F1	0.0002 ± 0.0001
MR11F2	<0.0001
MR11F3	<0.0001
MR11F4	<0.0001
MR11F5	<0.0001
CMPST	<0.0001



PLAN VIEW



CORE SECTIONS

NOTES

1. FIRST TWO LETTERS AND FIRST NUMBER INDICATE THE SAMPLE LOCATION REFER TO MRC DRAWING NO SD740538
2. THIRD LETTER INDICATES WHERE SAMPLE CORE WAS OBTAINED AT THE STATION
3. EACH NUMBER REPRESENTS A ONE (1) FOOT SECTION OF THE CORE AT THE INDICATED DEPTH
4. ALL VALUES ARE IN NANOCURIES/GRAM (nCi/g) NANOCURIES = 10-9 CURIES = 2220 DISINTEGRATIONS/MIN
5. CMPST = COMPOSITE

ISS	DATE	REVISION	BY	CHK D	APVD	M
A		ORIGINAL ISSUE			LAB	

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

PROGRAM TITLE: ENVIRONMENTAL SURVEY PROJECT

DRAWING TITLE: GREAT MIAMI RIVER SAMPLE LOCATION "MR11"

DWG. TYPE: STE

DWG. CLASSIFICATION
LEVEL & CAT: UNCL
BY:
TITLE:
DATE: 8-8-74

CODE IDENT NO 14065

DESIGNER: JUNCAP	DATE: 8-8-74	PROJ MGR.	
CHECKER: H. A. BLACK	DATE: 8-9-74	ADM ENG.	
DESIGN ENG.	DATE	ENG. MGR.	
APVD: D. R. ROGERS	DATE		
SCALE: NO SCALE	W O NO: M-81752		
JOB NO: 740533	DWG. NO.: SC740534 SHT 11 OF		

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