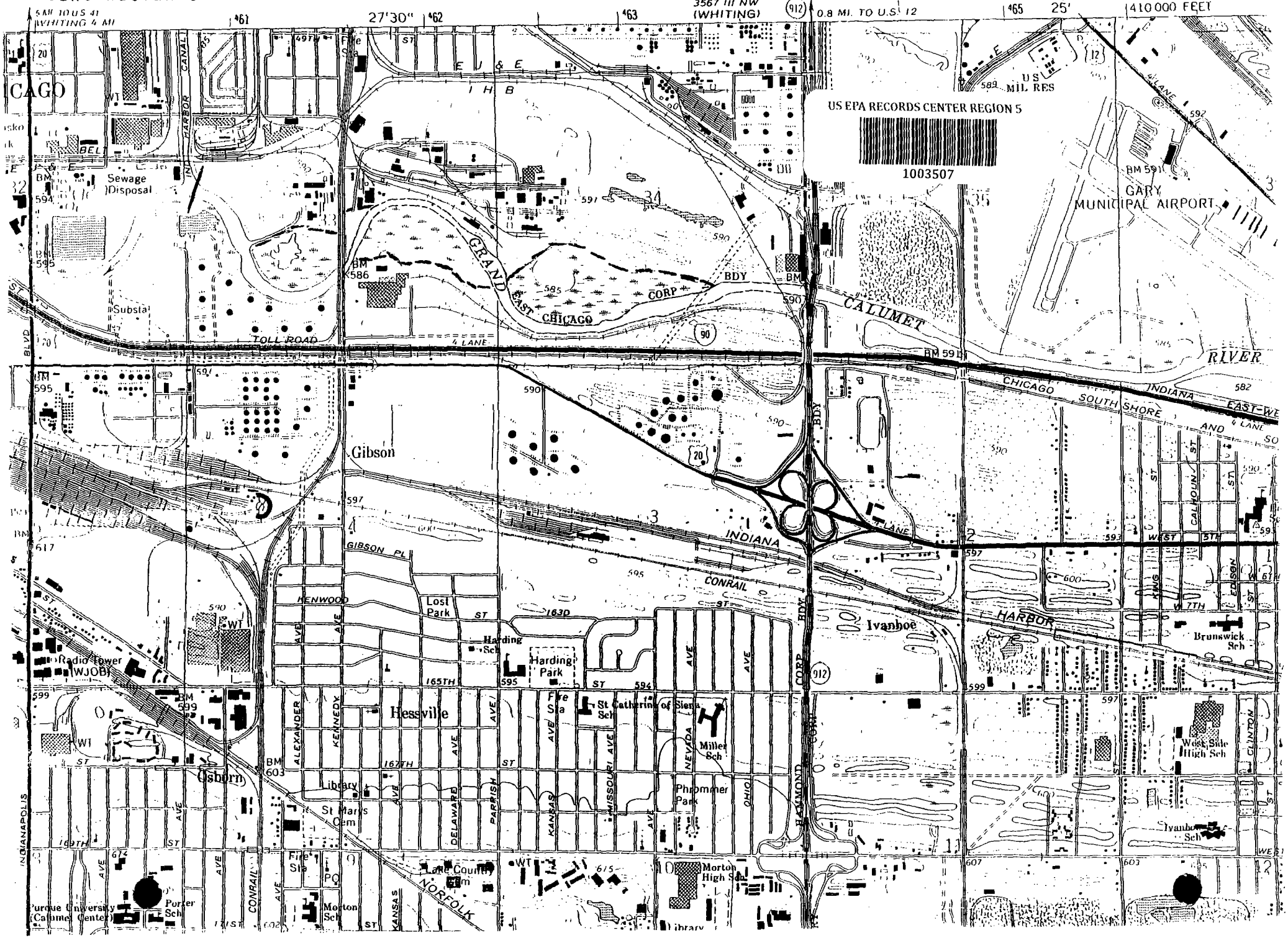
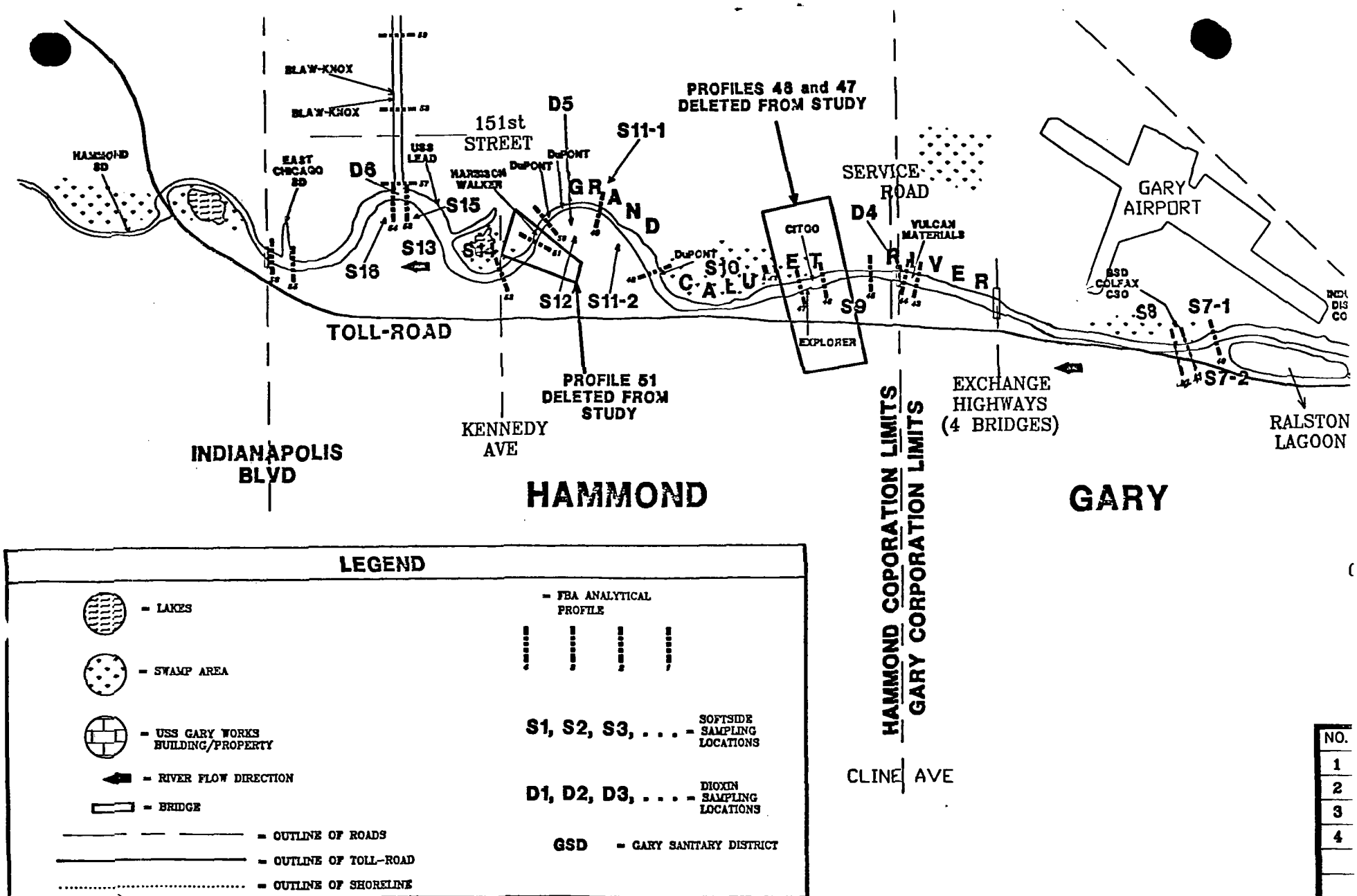
Figure 1 --Sediment Characterization Study Area Boundary and Map of Adjacent Wetlands

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES
INDIANAPOLIS, INDIANA




BLAW-KNOX
BLAW-KNOX
HAMMOND SD
EAST CHICAGO SD
D6
USS LEAD
S15
S16
S13
S14
HARRISON WALKER
DuPONT
DuPONT
D5
S11-1
GRAND
S12
S11-2
151st STREET
PROFILES 48 and 47 DELETED FROM STUDY
DuPONT
S10
CALUMET
CITGO
EXPLORER
S9
D4
VULCAN MATERIALS
RIVER
SERVICE ROAD
GARY AIRPORT
GSD COLFAX CSO
S8
S7-1
S7-2
RALSTON LAGOON
EXCHANGE HIGHWAYS (4 BRIDGES)
TOLL-ROAD
PROFILE 51 DELETED FROM STUDY
KENNEDY AVE
INDIANAPOLIS BLVD
HAMMOND
HAMMOND COPORATION LIMITS
GARY CORPORATION LIMITS
GARY
CLINE AVE
LEGEND
- LAKES
- SWAMP AREA
- USS GARY WORKS BUILDING/PROPERTY
- RIVER FLOW DIRECTION
- BRIDGE
- OUTLINE OF ROADS
- OUTLINE OF TOLL-ROAD
- OUTLINE OF SHORELINE
- FBA ANALYTICAL PROFILE
S1, S2, S3, . . . - SOFTSIDE SAMPLING LOCATIONS
D1, D2, D3, . . . - DIOXIN SAMPLING LOCATIONS
GSD - GARY SANITARY DISTRICT

NO.
1
2
3
4

HER DISCHARGES

DISCHARGE 001
DISCHARGE 002 (GW-1)
DISCHARGE 003
DISCHARGE 004
E OVEN GAS VALVE PIT OVERFLOW (2")
DISCHARGE 005 (GW-1A)
DISCHARGE 007 (GW-2)
E OVEN GAS VALVE PIT OVERFLOW (2")
ES COMPLEX DISCHARGE (24")
) DISCHARGE GW-2A (MASON BASINS)-SEALED
) DISCHARGE (6") 3' EAST OF GW-3
DISCHARGE 010 (GW-3)
ER BARREL OVERFLOW-ABANDONED
) DISCHARGE GW-3A (MASON-BASINS)-SEALED
) DISCHARGE (12") BELOW GW-3A
) MASON BASINS DISTRIBUTION BOX DRAIN-SEALED
E COMPLEX DISCHARGE (3")
E COMPLEX DISCHARGE (24")
ST. STORM DRAIN SURP DISCHARGE (SS-1)
DISCHARGE 015 (GW-4)
LOW
LOW
DISCHARGE 017 (GW-5)

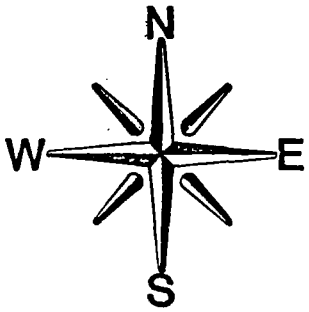
23. PERMITTED DISCHARGE 018 (GW-6)
24. VOID
25. STORM WATER RUN-OFF
26. STORM WATER RUN-OFF
27. ABANDONED DISCHARGE (6")
28. GSD OVERFLOW
29. STORM WATER DRAIN (6")
30. STORM WATER RUN-OFF
31. PERMITTED DISCHARGE 019 (GW-7)
32. STORM WATER RUN-OFF
33. STORM WATER RUN-OFF
34. STORM WATER RUN-OFF
35. STORM WATER RUN-OFF
36. STORM WATER RUN-OFF
37. STORM WATER RUN-OFF
38. STORM WATER RUN-OFF
39. STORM WATER RUN-OFF
40. STORM WATER RUN-OFF
41. STORM WATER RUN-OFF
42. PERMITTED DISCHARGE 020 (GW-7A)
43. STORM WATER RUN-OFF
44. ABANDONED DISCHARGE GW-8 -SEALED
45. PERMITTED DISCHARGE 021 (GW-9)

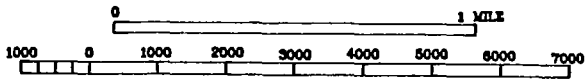
46. GW-10 PUMPING STATION OVERFLOW (PDF-1)
47. STORM WATER RUN-OFF
48. PERMITTED DISCHARGE 023
49. STORM WATER RUN-OFF (24")
50. NO. 1 SANITARY LIFT STATION OVERFLOW (SDF-1) -BROADW
51. SERVICE WATER DRAIN (2") -LAWN SPRINKLER DRAIN
52. STORM WATER DRAIN (6")
53. STRAM TRAP DISCHARGE (1 1/4")
54. 36" CONCRETE DISCHARGE
55. PERMITTED DISCHARGE 026 (3")
56. STORM WATER RUN-OFF (6")
57. STORM WATER RUN-OFF
58. STORM WATER DRAIN (6")
59. PERMITTED DISCHARGE 028 (GW-10A)
60. GW-11 PUMPING STATION OVERFLOW (PDF-2)
61. GW-12 RIVER OIL SKIMMER INLET
62. PERMITTED DISCHARGE 030 (GW-13)
63. STORM WATER DRAIN (8")
64. PERMITTED DISCHARGE 032 (GW-13)
65. PERMITTED DISCHARGE 033 (ST-14)
66. PERMITTED DISCHARGE 034 (ST-17)
80. GRAND CALUMET RIVER HEADWATERS (CULVERT)
83. GSD OVERFLOW

OTHER DISCHARGES
JLAR INTREST

PLANT OUTFALL
R PLANT OUTFALL
PRODUCING PLANT OUTFALL
PRODUCING OUTFALL
HING MILL PLANT OUTFALL

LAKE MICHIGAN





NOTE:

ALL PROFILE LOCATIONS AR APPROXIMATE.

A N
S

××× TRANSMISSION REPORT ×××

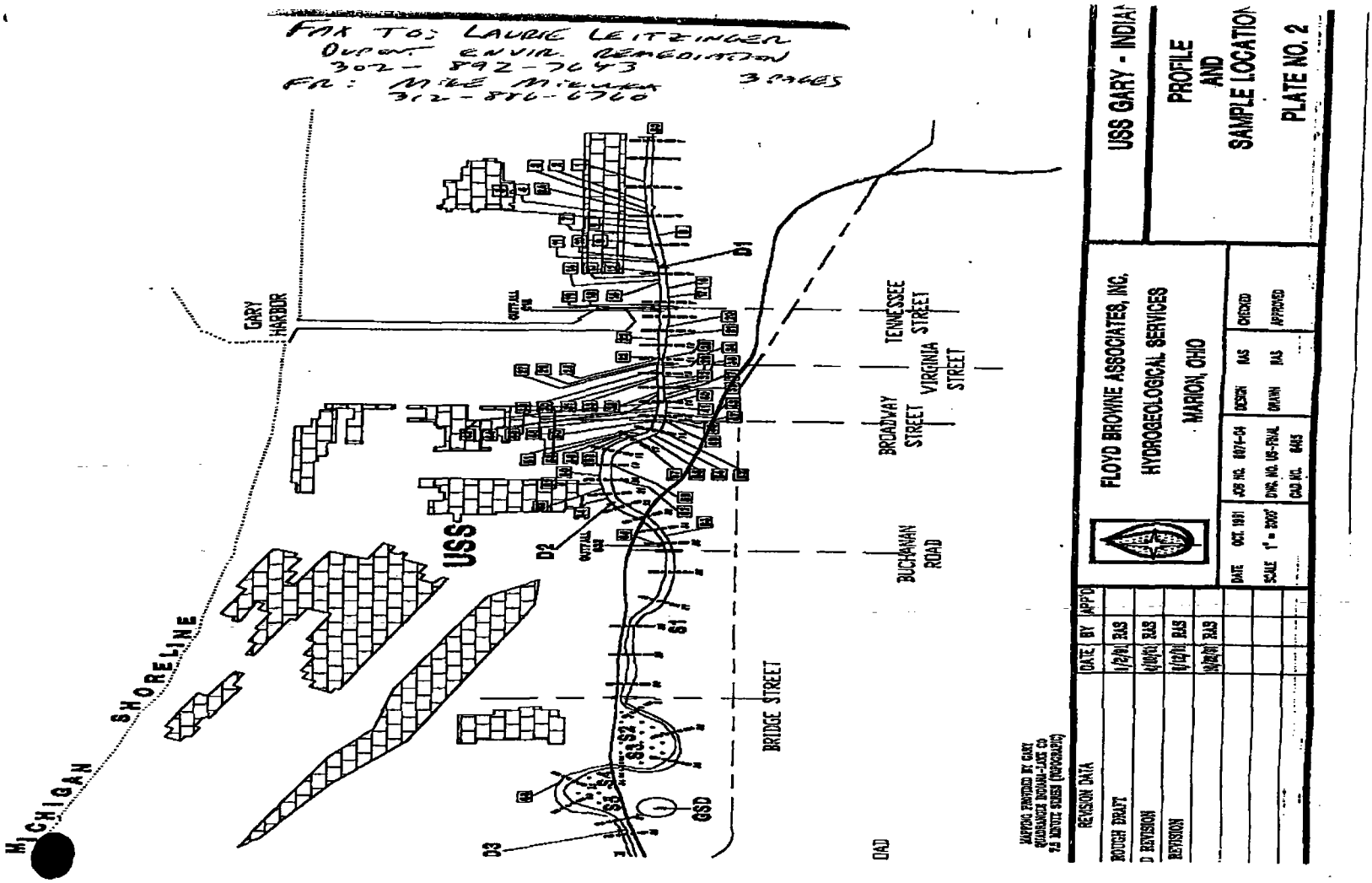
SEP-30-97 09:33 ID:312 353 4342 USEPA REGION 5

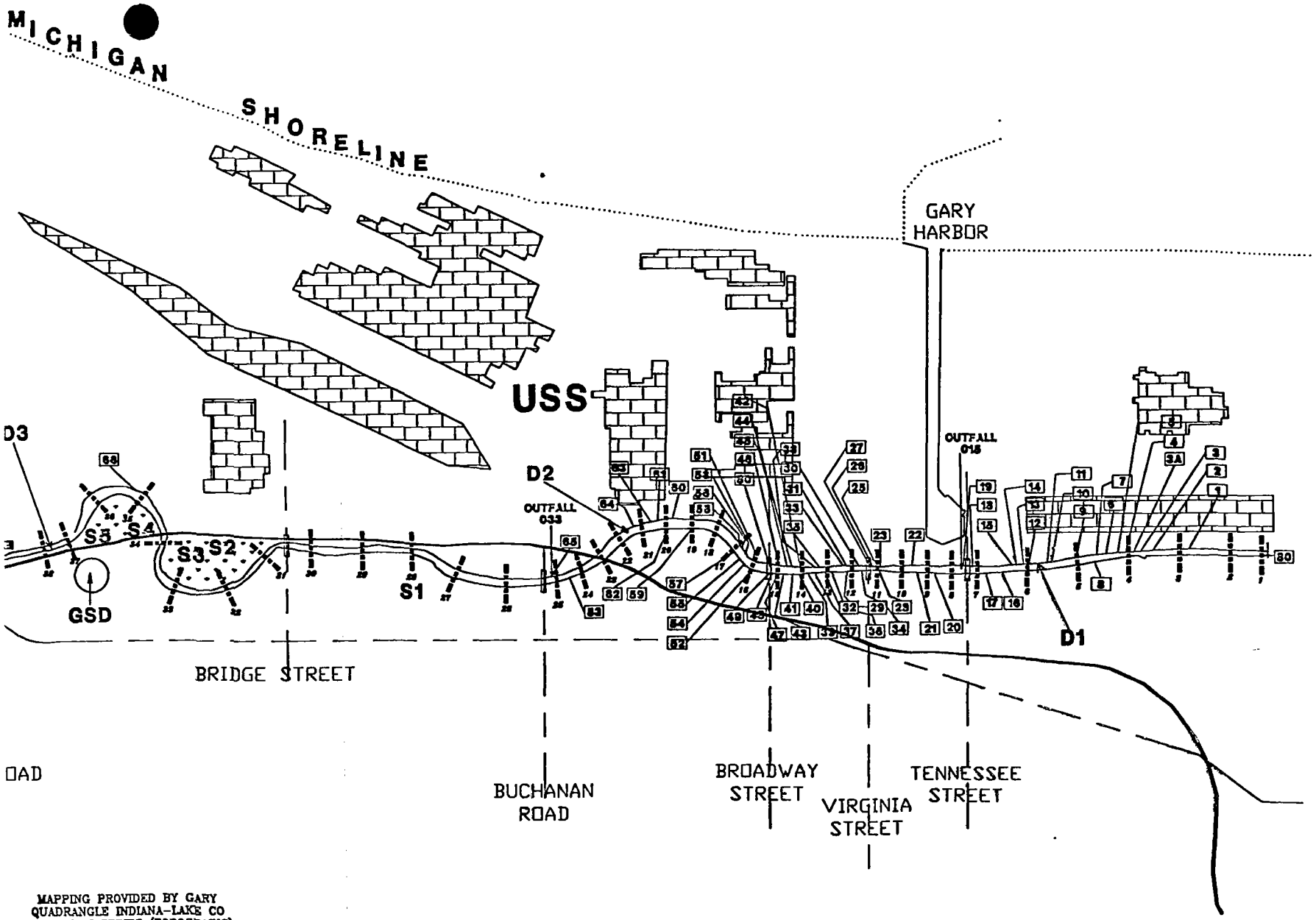
JOB NUMBER	022		
INFORMATION CODE	OK		
TELEPHONE NUMBER	913028927643		
NAME(ID NUMBER)	302 892 7643		
START TIME	SEP-30-97 09:32		
PAGES TRANSMITTED	003	TRANSMISSION MODE	EMMR
RESOLUTION	STD	REDIALING TIMES	00
SECURITY	OFF	MAILBOX	OFF
MACHINE ENGAGED	01'04		

THIS TRANSMISSION IS COMPLETED.

LAST SUCCESSFUL PAGE 003

FAX TO: LAURIE LEITZINGER
DUPONT ENVIR. REMEDIATION
302-892-7643
FR: MIKE MIENER
312-886-6760
3 PAGES





FAX TO: LAURIE LEITZINGER
DUPONT ENVIR. REMEDIATION
302-892-7643
FR: MIKE MEYER
312-886-6760
3 PAGES

MAPPING PROVIDED BY GARY
QUADRANGLE INDIANA-LAKE CO
7.5 MINUTE SERIES (TOPOGRAPIC)

REVISION DATA	DATE	BY	APP'D
ROUGH DRAFT	1/2/91	RAS	
D REVISION	4/10/91	RAS	
REVISION	8/12/91	RAS	
	10/28/91	RAS	

FLOYD BROWNE ASSOCIATES, INC.
HYDROGEOLOGICAL SERVICES
MARION, OHIO

DATE OCT. 1991	JOB NO. 9074-04	DESIGN RAS	CHECKED
SCALE 1" = 2000'	DWG. NO. US-FINAL	DRAWN RAS	APPROVED
	CAD NO. 8465		

USS GARY - INDIAN

PROFILE AND SAMPLE LOCATION

PLATE NO. 2

××× TRANSMISSION REPORT ×××

OCT-02-97 09:42 ID:312 353 4342 USEPA REGION 5

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INFORMATION CODE	OK		
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NAME(ID NUMBER)	317 232 8406		
START TIME	OCT-02-97 09:41		
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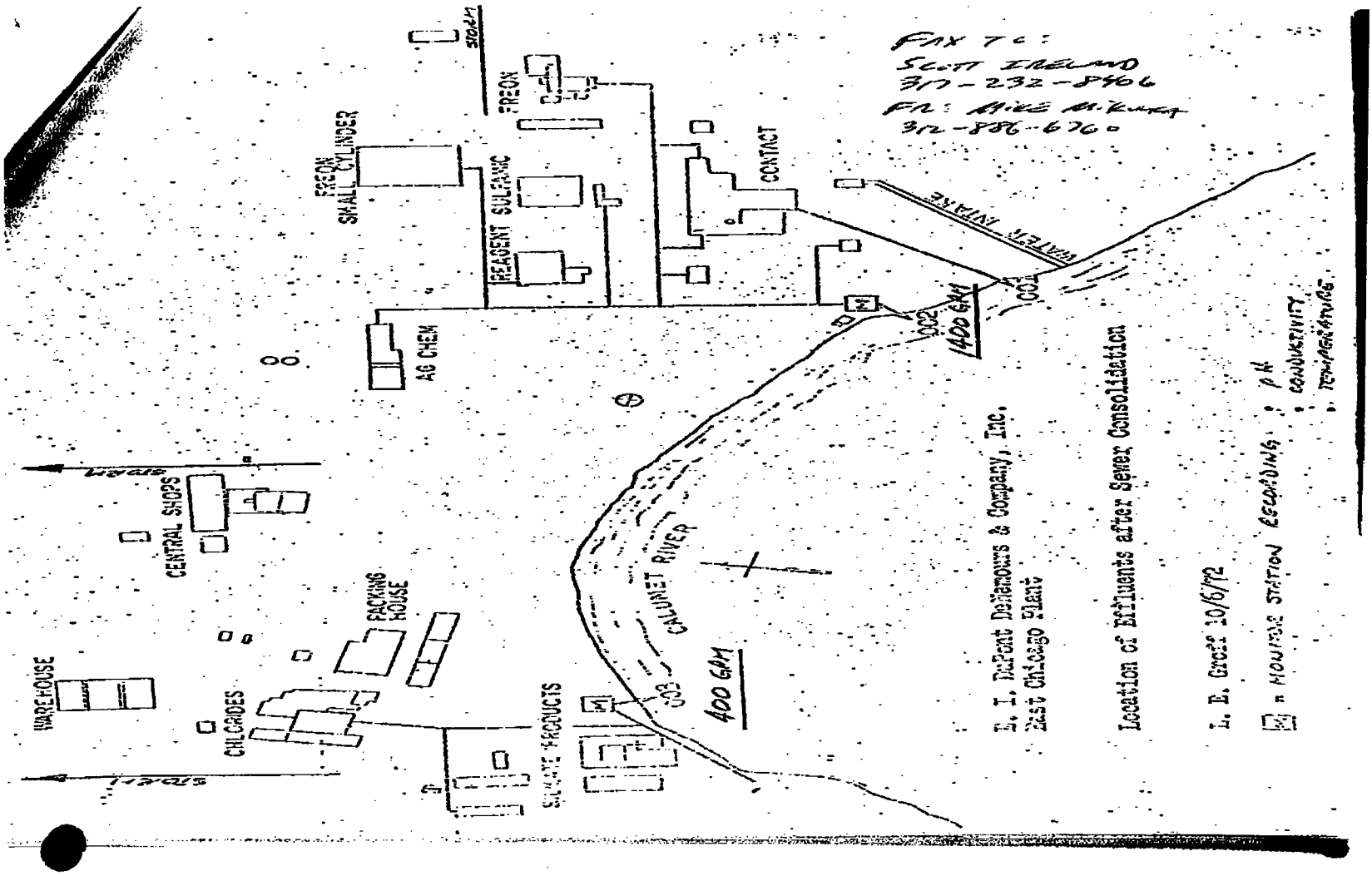
RESOLUTION	STD	REDIALING TIMES	00
SECURITY	OFF	MAILBOX	OFF
MACHINE ENGAGED	00'28		

THIS TRANSMISSION IS COMPLETED.

LAST SUCCESSFUL PAGE 001



SEPT
'88

CRITERION
CATALYSTS
MICHIGAN CITY PLANT
SEPT
'88

SEPT
'88

SEPT
'88

FRC

DuPont East Chicago
Phase II RFI Work Plan
IND 005 174 254
DUPONT
CORPORATE REMEDIATION GROUP
An Alliance between
DuPont and URS Diamond
Barley Mill Plaza, Building 27
Wilmington, Delaware 19805

DuPont East Chicago
Phase I RFI Report
DUPONT
CORPORATE REMEDIATION GROUP
An Alliance between
DuPont and URS Diamond
Barley Mill Plaza, Building 27
Wilmington, Delaware 19805

DuPont E.
CHICAGO
IN 0 005 174 254

RECORD
OF
SAMPLING
RILEY PARK

7530-00-286-6207
FEDERAL SUPPLY SERVICE
(GPO)

11/04

GRAND CAL
RIVER
6/4/05

11/4/04 FREEMAN

WENT TO CRL / RCRA FIELD EQ ROOM,
ACQUIRED 12 1L WATER SAMPLE BOTTLES AND 12 8 OZ GLASS SOIL WIDE MOUTH BOTTLES.

EAGLE PITCHER BRAND LOT C7314020 FOR WATER (LOW LEVEL METALS) QA Sheet Attached

Pre Preserved Water Bottles W/ EAGLE PICHER CONC HNO_3 AMPULES FOR 1 (L) PRESERVATION PH 2.

PRE LABELED ALL BOTTLES + FILLED IN INFO TO EXTENT POSSIBLE.
ACQUIRED GLOVES, TAPE, WIPES, SEALS, BAGS, COOLER

11/4/04 [illegible]

CERTIFICATE OF ANALYSIS
LOW LEVEL WATER
SAMPLE BOTTLES.

EAST CHICAGO ZIPS

MR VENTURA	4935 Grasselli	46312-3722
	4928 IVY	46312-3745
MR WATKINS	4942 IVY	46312-3745
	4907 EUCLID	46312-3747
MS. MATUSIAK	4903 EUCLID	46312-3742
BRENDA UPSHAW	4938 EUCLID	46312-3743

11/9/04 DuPont - Riley Park
John Norkin Brian Gleeson EPA
Mr. Philip Chen Mr. Unter Todd URS
Temp 35°C SUNNY
4935 Grasselli - Mr Ventura 8AM
Sump Pump in SE Corner of Basement
SAMPLE taken w/ Battery B/CUP
Peristaltic Pump. PICTURE)

8:35 AM
Really Sampled at 4928 IVY
NOT EUCLID AS IN SAMPLING
PLAN. BRIAN WROTE DOWN
Wrong Street on 10/28/04
on Recon Visit

PICTURE 2 - SOIL 4928 IVY

Sump Hr coming from plastic
pipe in front

8:50 AM 4928 IVY
Soil Samples from Sump
Brisbane
+ MS PMSD

PICTURE 3

3 - BULK 5 SOIL 6
4 - WATER 6 RESTORATION

4903 EUCLID 9:15 AM
MS MATUSIAK
NOT HOME AS SAID SHE
WOULD BE ON 10/28/07,
BUT SHE DID GIVE PERMISSION
TO SAMPLE SOIL.
PICTURE 7 - BLDG 7
8 - SOIL REST.

4907 EUCLID - NOT HOME
NO DIRECT PERMISSION
GIVEN. ON 24 THRU 4903
NEIGHBOR.

4903 EUCLID - MS MATUSIAK
ARRIVED 9:30 AM
WILL BE GIVEN EMPTY
PICTURE 9 - SUMP

SAMPLE 4903EUCLDW
PICTURE 10 - SAMPLING
PICTURE 11 SUMP

9:45 4903 EUCLIDS
BKAG
BACKGROUND SOIL
SAMPLE
PICTURE 12

10:05 AM 4907 EUCLIDS
(Got Permission from MS MATUSIAK)
SUMP DISCHARGE SOIL

PICTURE 13 - SAMPLE
PICTURE 14 - SAMPLE
PICTURE 15 - HOUSE EXT.

10:15 AM KNOCKED AGAIN
@ 4907 - FOR INDOOR SUMP
WATER SAMPLE - NOT HOME

10:30 AM 4942 IVY W
MR WATKINS

SUMP SAMPLE IN
BASEMENT
PICTURE 16 - SUMP WATER
PICTURE 17 - HOUSE
PICTURE 18 - SOIL

10:50 AM 4942 IVY S
SOIL SUMP DISCHARGE

4938 EUCLID
MS BRENDA UPSAHN
11:10 AM

PICTURE 19 - HOUSE
NO ONE HOME YET

LUNCH

BACK TO
4938 EUCLID 12:25PM
NO ONE HOME YET

FILLED OUT CHAIN
OF CUSTODY FORMS
WHILE WAITING

4938 EUCLIDS - 18:45PM
NO ONE STILL HOME
LEFT AT 1:45 PM
PICTURE 20 - OPEN COOLER
PICTURE 21 - SEALED COOLER

SAMPLES DELIVERED TO CRL
BILL SARGENT @ ~~3~~ PM.
2:30 BMT
11/9/04

CUSTODY FORM - SAMPLER COPY

Citizen Calls related to sampling

PAT DARDEN (219) 391 8298
ECHCAGO Health Dept

RAHARRE BUTTS - SON of BRENDA
UPSTAIRS @ 4938 EUCLID
(312) 744 3029
Assured Health person that sampling was just for confirmation of Remedy.

PICTURES FROM SAMPLING EVENT

11/9/04

Inside of sump pump at Address 4928 Euclid

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 5
77 West Jackson Boulevard
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO.

PROJECT NAME: DuPONT EAST CHICAGO

Activity Code: 302099C

SAMPLERS: *(Print Name and Sign)* BRIAN P. FREEMAN, JOHN A. NORDINE
BP Freeman John Nordine

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CON-TAINERS	Analyte: As, Pb, Cd, Cr						TAG NUMBERS
1	11/9/04	8 AM		X	4935 GRASELLI W	1	✓						PER DISCUSSION W/BILL
2	11/9/04	8:35A		X	4928 IVY W*	2	✓	MS+	MSD				SARGENT ON 11/4/04, NO
3	11/9/04	8:50A		X	4928 IVY S*	3	✓	MS+	MSD				SAMPLE TAGS WILL BE
4	11/9/04	9:15A		X	4903 EUCLID S	1	✓						USED, SINCE CRL LIMS
5	11/9/04	9:30A		X	4903 EUCLID W	1	✓						SYSTEM + ITS LABELS SERVE
6	11/9/04	9:45A		X	4903 EUCLID S-BKGD	1	✓						AS ADEQUATE BACKUP.
7	11/9/04	10:05A		X	4907 EUCLID S	1	✓						
8	11/9/04	10:30A		X	4942 IVY W	1	✓						
9	11/9/04	10:50		X	4942 IVY S	1	✓						

* WAS NOT 4928 EUCLID AS ORIGINALLY IDENTIFIED IN FSAP, ADDRESS WAS MISTAKEN BY 11/9/04

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Brian P. Freeman	11/9/04 2:50 pm	William Sargent
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)* / Date / Time
		William Sargent 11/9/04 14:51

Ship To: HAND CARRY TO:
USEPA, CENTRAL REGIONAL LAB
536 S. CLARK ML-10C
CHICAGO, IL 60605
ATTN: WILLIAM SARGENT X39083

Airbill Number

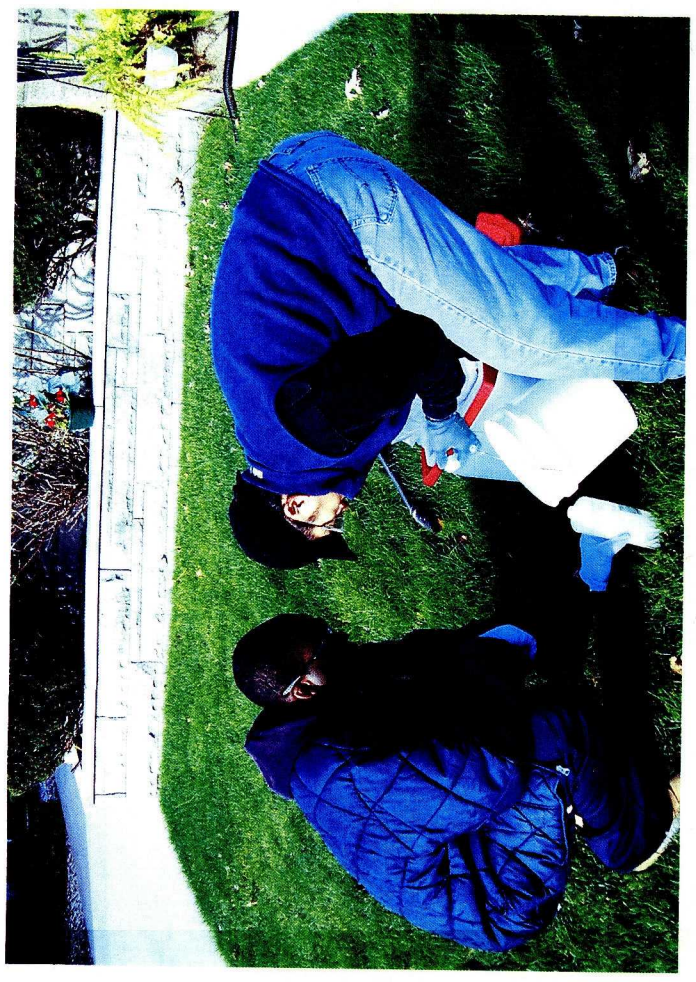
Chain of Custody Seal Numbers
130613, 130700

Distribution: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File

Printed on Recycled Paper/Printed with Soy-Based Ink

5-43667

11/9/04 4928 IVY Sample water
Phillip Chen (R) + Unita Todd (L) - Dupont URS



4928 IVY - W

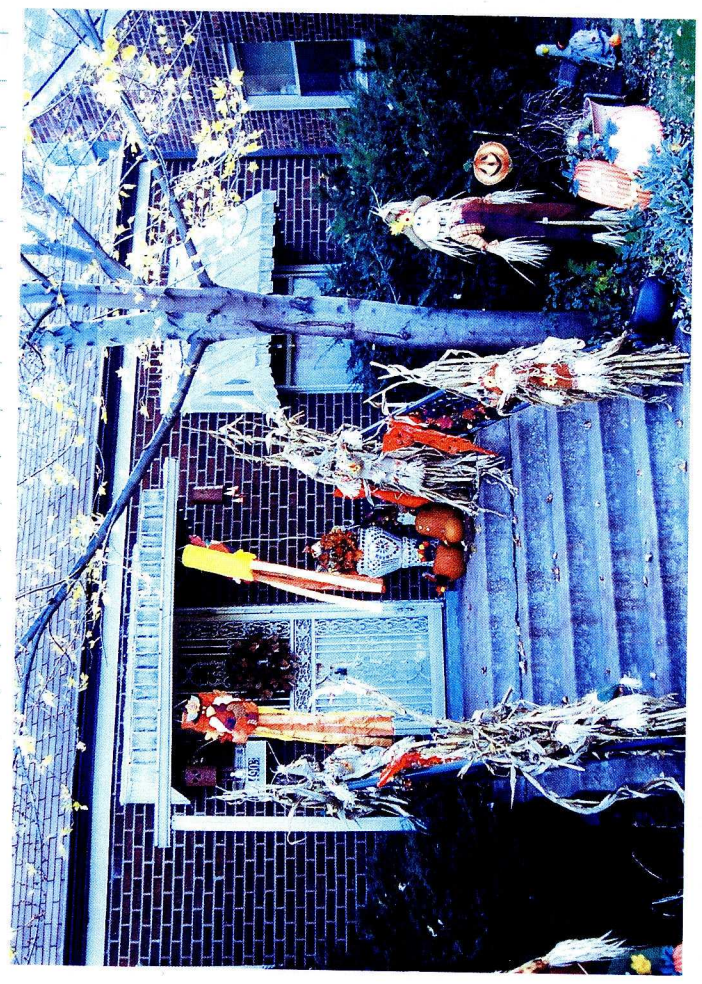
11/9/04 4928 IVY SOIL SAMPLING
UNITAS TODD (L) PHILLIP CHEN (R), BRIAN FREEMAN EBA (TOP)
DUPONT - URS

4928 IVY - S

11/9/04 4928 IVY SOIL Restoration
Phillip Chen - A Pond HRS

11/9/04 4935 Grasselli Sump Water
(No Pump to Outside) Uriah Todd(C), Phillip Chen(R),
DuPont/HRS
4935 GRASSELLI - 4

4903 EUCLID - SOIL & WATER
11/9/04



11/9/04
4903 EUCLID SUMP CRACK

11/9/04 4903 EUCLID
Insertion of Pump tube into Sump Crock.
4903 EUCLID-W

11/9/04 4903 EUCLID
SUMP DISCHARGE SOIL SAMPLE Phillip Cho
URS DuPont
4903 EUCLID-S

11/9/04 4903 EUCLID SOIL BKG. SAMPLE - UNITAS TODD DUPONT/URS

(4903 EUCLID-5 BKGD)

11/9/04 4907 EUCLID - NO ONE HOME FOR WATER SAMP. GOT PERMISSION FROM MS. MATUSIAK OF 4903 (THEIR FRIEND + NEIGHBOR)

SOILS TAKEN - SUMP DISCHARGE

11/9/04 4907 EUCLID SUMP DISCHG. SOILS
BP FREEMAN, US EPA (L), UNITAS TODD HRS (R)

(4907 EUCLID -5)

11/9/04 4907 EUCLID SUMP DISCHG. SOIL.

DIGGING 4907 EUCLID-5

11/9/04 4942 EUCLID - SUMP WTR
MNTAS TODD, DUPONT HRS

4942 EUCLID W

11/9/04
4942 EUCLID - SUMP + SUMP DISCHG SMS.

11/9/04 4942 EUCLID SOIL - SUMP DISCHG

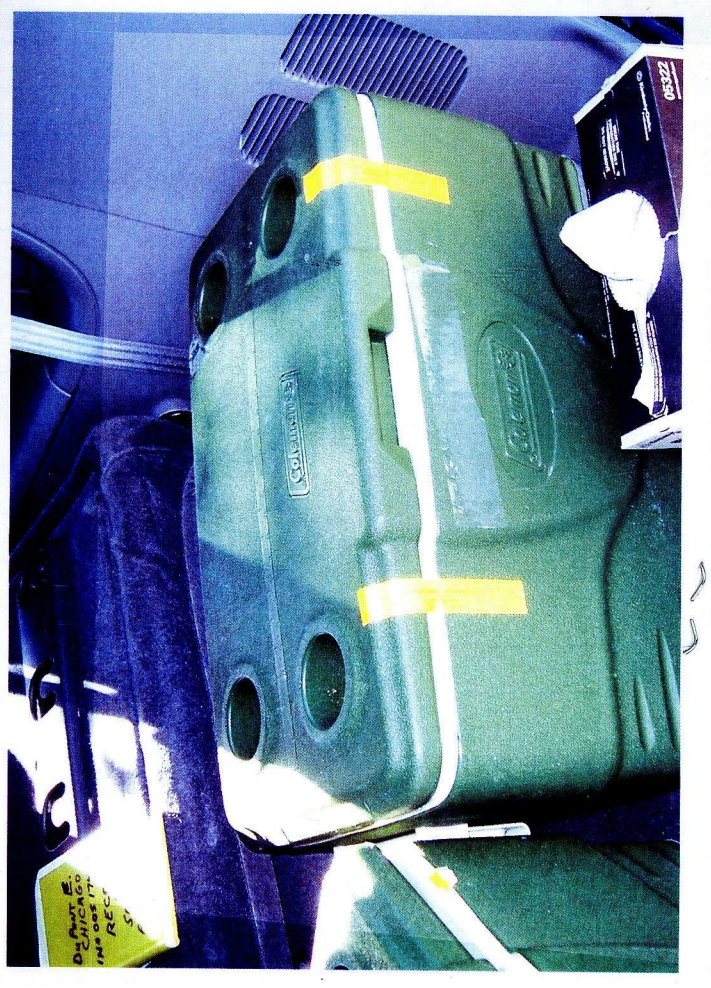
UNITAS TODD (DUPONT/URS) (L), BP FREEMAN USEPA (R)

4942 EUCLID S

11/9/04 4938 EUCLID - NOT HOME
NO SAMPLING DONE

11/9/04 ALL SAMPLES PACKED IN COOLER ON ICE WITH CUSTODY FORM ENCASED IN PLASTIC BAG.

11/9/04 COOLER + CONTENTS SEALED W/ OFFICIAL EPA CUSTODY SEALS.



WELLS

VS.

STREETS

EXTERNAL SUMP DISCHGS ON STREETS NEAR DuPONT

MAP OF PROXIMITY OF STREETS SAMPLED TO MWs @ DuPONT

MAP OF STREETS W/ NUMBER OF SUMP EXTERNAL DISCHGS FROM 1990 CH2M HILL/ DuPont Study.

LETTER
FAXED +
RECEIVED BY
E. CHICAGO, IND
POLICE CHIEF
MALDONADO,
NOTIFYING OF
EPA SAMPLING.

FAXED LETTER, + RECEIPT
OF NOTIFICATION OF E.
CHGO POLICE CHIEF MALDONADO
OF EPA UPCOMING SAMPLING.

PRELIMINARY METALS RESULTS
FROM CRL & DUPONT 12/04

12/2005 - CRL FULL FINAL SAMPLEREPORT SPREADSHEET

AS CONCENTRATION [illegible] COMMON

PART II

GRAND CAL.

RIVER SAMPLING

6/9/05

6/9/05 GRAND CALUMET RIVER
SAMPLING @ DUPONT
BRIAN FREEMAN + JOHN NORDINE
SR CHEMIST 9 CA PM PG, GEOLOGIST

ARRIVED @ DUPONT E. CHGO
KENNEDY AVE BRIDGE
@ 10:10 AM
TEMP. (RADIO)
75°C, WIND NE 5-8 MPH
CLOUDY

WATER (SURFACE) SAMPLES
(INSIDE) W of KENNEDY AVE BRIDGE ON SHORE
2005 RC09-S01 10:20 AM

2005 RC09-S01 DUP 10:25 AM

2005 RC09-S01 MS 10:30 AM

2005 RC09-S01-MSD 10:35 AM

W OF, AND UNDERNEATH CLINE
AVE BRIDGE, N SIDE ON PORTAGE
2005 RC09 S02 10:50
2005 RC09 S02-DUP 10:50

6/9/05 BM

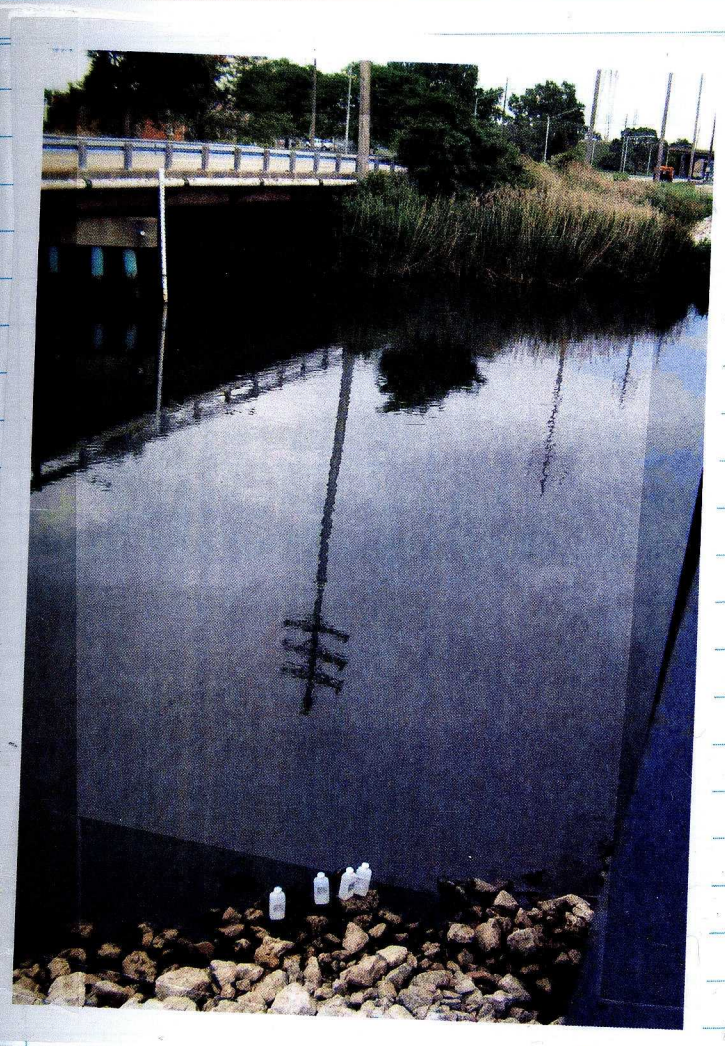
PRESERVED ALL SAMPLES
W/ HNO_3 AMPULES
@ 10:50 AM

PUT ON ICE in COOLER
@ 10:55 AM

Left Site @ 11:15 AM

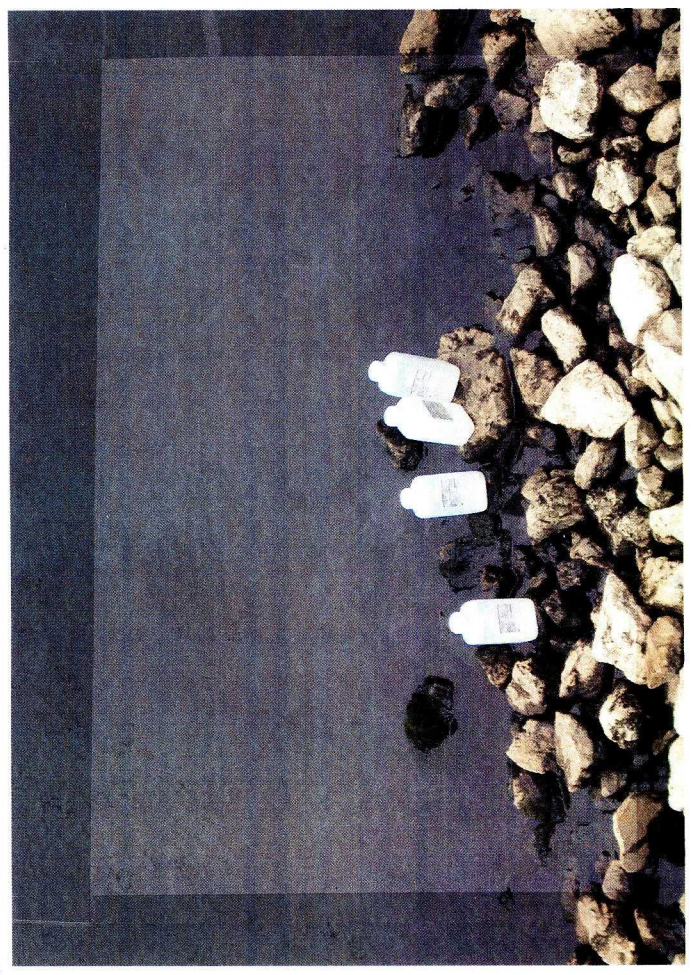
DELIVERED TO LAB
@ ~~2:00~~ 1:25 PM BM 6/9/05
BILL SARGENT, CRL.

BM Falcia
6/9/05



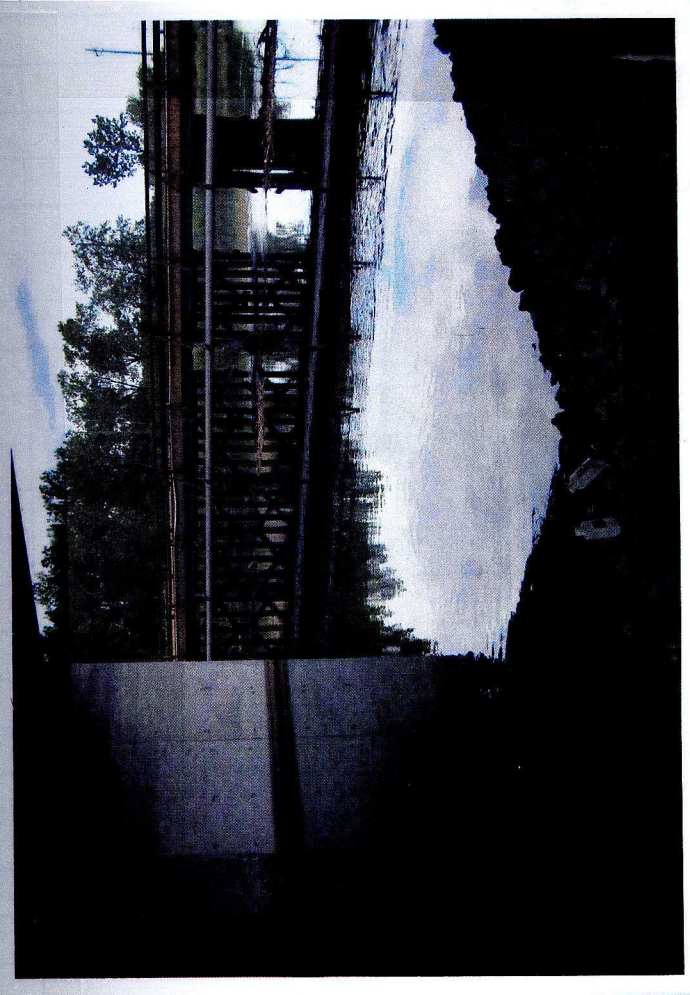
Kennedy Ave BRIDGE SAMPLING LOCATION, FACING SSE, with SAMPLES (LOWER center)

6/9/05



CLOSE UP OF KENNEDY AVENUE GCR WATER SAMPLES

6/9/05



CUNE AVE BRIDGE SAMPLING LOCATION, FACING S.W.

6/9/05

CLINE AVENUE LOCATION
GCR SAMPLES - CLOSE UP

6/9/05

SAMPLE PRESERVATION WITH
HNO_3 TO ph < 2

6/9/05

SAMPLES ICED, PRESERVED, CUSTODY FORMS COMPLETED, IN COOLER, READY FOR TRANSPORT TO CRL.

6/9/05

SAMPLES IN COOLER, READY FOR SEALING + TRANSPORT TO CRL

6/9/05

CRL / SAMPLE CUSTODY FORM.

SAMPLES SIGNED OVER TO DENNIS WESOLOWSKI OF CRL @ 1:25 pm.

DuPont - East Chicago

ARSENIC CONCENTRATIONS (mg/kg) - Preliminary

Riley Park	November-2004		EPA Region IX PRG	
Soil Sample Location	DuPont	EPA	Resident	Industrial
4928 Ivy	69.500	77.800	0.390	1.600
4928 Ivy (Dup)	61.400	NA	0.390	1.600
4928 Ivy (Bckgnd)	9.500	NA	0.390	1.600
4942 Ivy	9.290	9.610	0.390	1.600
4942 Ivy (Bckgnd)	11.800	NA	0.390	1.600
4903 Euclid	48.200	52.100	0.390	1.600
4903 Euclid (Bckgnd)	75.000	84.900	0.390	1.600
4907 Euclid	54.800	64.300	0.390	1.600
4907 Euclid (Bckgnd)	30.000	NA	0.390	1.600

0 El s

1

DuPont - East Chicago

ARSENIC CONCENTRATIONS (ug/l) - Preliminary

Sump Location	November-2004		1990 Concentrations	
	Total	Dissolved	Avg (Tot)	Range (Tot)
Riley Park Sumps	NA	NA	< 6.000*	ND-28.000
4928 Ivy	27.000	NA	NA	NA
4928 Ivy (EPA)	18.666	NA	NA	NA
4942 Ivy	8.4J	NA	NA	NA
4942 Ivy (EPA)	7.715	NA	NA	NA
4903 Euclid	39.000	NA	NA	NA
4903 Euclid (EPA)	34.543	NA	NA	NA
4935 Grasselli	5.3J	NA	NA	NA
4935 Grasselli (EPA)	4.044	NA	NA	NA

* Average concentration of 8 sump water samples associated with the southern half of the 4900 block of Riley Park

RECORD

7530-00-222-3325

FEDERAL SUPPLY SERVICE

MTG WITH DUPONT 6/25/96

DUPONT

BILL LAWRENCE, BUSINESS MANAGER
LYNN FLAIM, PLANT MANAGER
CHET CIECKO, SHEA MANAGER
STEVE EHRLICH, PROJECT MGR
BERNARD REILLY, LEGAL

— LUDOX = COMM OF SOD SILICATE TO COLLOIDAL SILICA. 4 PARTICLE SIZES MADE.

— SODIUM SILICATE → SOME SHIPPED TO JOHNSBURG VIA RAIL

— COLLOIDAL SILICA IS USED FOR METAL CASTING WHERE VERY SMOOTH SURFACE IS REQ'D.

— PAPER FLUIDIZER — TO KEEP BAGS FROM SLIDING

FURNACE — GAS FIRED — NOT SUBJ TO TITLE 5. (AIR)
TANK BOTTOMS FROM STORAGE OF SILICATE IS SPECIAL WASTE.

HAZ WASTES PRODUCED
FLUORESCENT LIGHTS
BATTERIES
SOLVENT
MERCURY (THERMOMETERS IN LABS)
LAB WASTE ≅ 10 gal / month

SPENT (WASTE) ACIDS GENERATED FROM ION EXCHANGE (BROUGHT INTO FROM RAYON & GLASS.

USED TO NEUTRALIZE WASTE IN EVC.

BILL REILLY — BUSINESS MGR
DERS — DUPONT ENV. REMEDIATION SERVICES
CORE GROUP — EARTH SCIENTISTS, GEOLOGISTS, ET.
PROVIDE TECH SUPPORT
BUSINESS MANAGERS — CORPORATE REMEDIATION GROUP
BILL HAS MANHEIM & W VA.

PROVIDES CENTRAL COORDINATION FOR REMEDIATION. ALLOWS PLANT MGR & PERSONNEL TO FOCUS ON CORE BUSINESS @ SPECIFIC PLANT

STEVE EHRLICH —

SKID-MOUNTED PILOT TEST UNIT TESTED — 25 gpm
VARIOUS SYSTEM — ION CO-PRECIPITATION

FINAL — 90 gpm — 100 gpm — 450 T/YR SLUDGE — SPECIAL WASTE

OTHER OPTIONS — 2000' ZONE
AIR SPARGING → PUMP AIR INTO GW TO CONVERT ARSENIC TO LESS MOBILE FORM

REACTIVE WALL → LIKE SLURRY WALL, BUT REACTIVE TO ADSORB CONTAMINANTS
ISSUE → MUST MAINTAIN CONDUCTIVITY

SCHEDULE → PERMIT DEPENDENT
WANT TO BE IN CONSTRUCTION BY THIS TIME NEXT YEAR

BERNIE =

- DON'T PUT A LOT OF FINDINGS IN THERE THAT THEY WANT TO GET OUT

- NO BIG PENALTY — IT WILL BE A STICKING POINT

- 3008(h) — PREFER 3013, BUT WILLING TO DO 3008(h)

- STATEMENT OF WORK S/B AS SPECIFIC AS POSSIBLE.

9/26/96

GARY DEVELOPMENT LANDFILL

BOB BEARLING

BOB LANDRECHT, BILL BURNS — IDEM

LARRY OSTERFELD — IDNR

MIKE KUSS, BILL BAYLISS — IDEM

LARRY HAGEN, GARY DEV. LANDFILL — ON-SITE REPRESENTATIVE

MR HAGEN REQ. THAT ANY WRITTEN REPORT OR PHOTOS BE SENT TO HIS ATTY. STEVE CHERRY. 317-684-5105

COMPANY STILL CONTENDS THAT IT IS NOT A HAZ WASTE LANDFILL. HAVE FILED APPEAL TO DIST CT.

MONITORS FROM ITS LANDFILL QUARTERLY → SENDS TO IDEM.

13 WELLS WERE PUT INTO LANDFILL IN 1996. INTENT TO RECOVER LANDFILL GAS FOR ~~PURCHASE~~ SALE TO NIPSCO. PLANT WAS TO BE SET UP TO CLEAN THE GAS. RESOURCE TECHNOLOGIES OUT OF CHI, IL WAS THE CO THAT DID THE WELL INSTALLATION.

WILL GARY DEV. COMPLY WITH ANY PORTION OF EPA ORDER → REFER TO HIS ATTY. HE IS JUST AN EMPLOYEE OF GDC.

GLAESINER → ANY ACTIVITY RE: LEACHATE? NO! IT ALL DRAINS TO A POND. HE DOES NOT GO OVER THERE TO SEE WHAT BECOMES OF IT.

OWNED TO 50%. 5 STOCKHOLDERS INCL. HAGEN'S FATHER & WILLIAM MANNONI

HAGEN CLAIMED 90% OF BUSINESS WAS FROM MUNICIPAL WASTE. HARMONY WAS BIGGEST CUSTOMER.

WALKED A PORTION OF THE SITE WITH BOB GLAESINER. FACILITY APPEARS TO HAVE BEEN CAPPED WITH CLAY, BUT NO SOIL COVER, OR SOIL COVER WAS ERODED. A PORTION OF SIDE SLOPES AND TOP ARE VEGETATED WITH WEEDS. MOST OF THE SIDE & SLOPES HAVE NO VEGETATION & ARE HEAVILY ERODED, WITH GULLEYS 6" – 1' DEEP, WITH OCCASIONAL GULLEYS OF 2' OR MORE.

WAS A RECOVERY WELLS WERE OBSERVED IN LANDFILL. INSTALLED IN 1996 SPRING, PER HAGEN. CHICAGO COMPANY. PULLED OUT FOR SOME UNKNOWN REASON. DRILLING MUD TAKEN OFF-SITE FOR DISPOSAL BY CONTRACTOR. HE DOESN'T KNOW WHERE.

GARY DEVELOPMENT – 1 PM 11/19/96

LARRY HAGEN, SR, GDC
LISA McILWAY, ATTYS, BOE, McILWAY & EVANS
Steve Cherry
RON KWASNIK, HOWARD DUCKMAN, GERRY GOLUBSKI
MIKE MILLER, GREG CARLSON
KIRK MARRAVALO, MATT KLEIN

11/8/96 LETTER – REPORT NOT ATTACHED (SEND TO HAGEN & ATTYS)
LARRY HAGEN IS NOT PRESIDENT, HE IS V.P.

ANY PHOTOS TAKEN → THEY WOULD LIKE COPIES OF, & COPY OF ANY WRITTEN REPORT.

LARRY IS ~~C~~ ON SITE FOR MONITORING, GRADING & SEEDING. HE IS IN PROCESS OF INSTALLING A STORMWATER RETENTION POND.

RON WAS THERE IN 1990 & SAW THEM INSTALLING A PIPE. LARRY H. SAID THAT THEY STOPPED THAT IN 1990. HE SAID IT WAS PART OF ORIGINAL PLAN IN 1973 TO DIVERT RUNOFF TO GRAND CAL. THEY WERE JUST IMPLEMENTING THAT PLAN.

WE PROCEEDED OUTSIDE TO TOUR THE SITE.

PHOTOS WERE TAKEN BY MIKE MILLER WITH A RENTAL 35mm CAMERA. KODAK FILM 200 ASA – 24 SHOTS –

DUCKMAN ALSO HAD A VIDEO CAM & CARLSON & GOLUBSKI HAD CAMERAS.

11/19/96 GARY DEVELOPMENT

JUST OUTSIDE & EAST OF BUILDINGS, AREA OF EARTHMOVING GOING ON. HAGEN INDICATED THEY WERE IN PROCESS OF MOVING EARTH TO CREATE DETENTION POND FOR SITE DRAINAGE IN ORDER TO TRY TO PREVENT SOME OF THE CDC SOIL FROM LEAVING THE SITE. HE CLAIMED HE WAS TOLD BY IDEM INSPECTOR BAYLISS OR KUSS TO DO THIS AT THE LAST INSPECTION. HE WAS JUST FOLLOWING THROUGH. (PHOTOS 4-5)

THERE IS SOME OLD EQUIPMENT ON SITE WHICH LOOKS TO BE ABANDONED. HAGEN INDICATED THAT AT LEAST ONE OLD ENGINE IS NOT ABANDONED. IT IS ~~BEING~~ VALUABLE. PHOTOS 5-8

WE WALKED THE ROAD AREA ADJACENT TO THE RIVER. IT IS EVIDENCE OF SHEET RUNOFF TO THE RIVER IS CLEAR. MUCH OF WHAT APPEARS TO BE CLAY HAS MIGRATED FROM CAP & ROAD TOWARDS THE RIVER. SOME APPEARS TO HAVE BEEN BULLDOZED THERE OR DEPOSITED BY FRONT-END LOADER (SHG) GREG CARLSON WAS TO DO A DETAILED EVALUATION OF THESE AREAS TO DETERMINE IF THEY WERE WETLANDS & HOW IMPACTED. NEED FOR EROSION CONTROL @ SITE IS EVIDENT. ROAD AREA QUITE WET & CAUSED OUR SHOES WITH MUD. COULD SMELL LF GAS AS WE WALKED.

WENT TO EAST SIDE OF SITE TO DELEATION DRAINAGE PATTERN. THERE IS A DRAINAGE DITCH THAT RETURNS FROM FACILITY & WHICH DRAINS BOTH. IT IS HEAVILY BRUSHED & OVERGROWN. AT ATTEMPT TO FOLLOW IT WAS THWARTED BY HEAVY VEGETATION. ⇨

PHOTOS 11/19/96

1. ~~FRONT~~ BULLDOZER IN USE @ SITE
2. ~~BARREL ROLLER~~ COMPACTER
3. SITE AS VIEWED FROM WEST/SW. STEVE CHERRY et. al.
4. LOCATION OF POSSIBLE SEDIMENTATION BASIN (POND) EAST/EQUIP.
5. " " " " " "
6. ALSO NOTE LF IN BKGD, ABANDONED EQUIP & DUMPING IN FOREGROUND.
7. ~~DEA~~ OLD CONCRETE/TIRES DUMPED ALONG ACCESS ROAD @ GDC
8. TRAILER @ GDC ON S. SIDE OF ROAD. (RIVER BEYOND)
9. KURT MARAVICH, IAEM @ GDC. NOTE CONCRETE & DIRT DUMPED NEAR RIVER.
7. OLD ENGINE & TIRES @ GDC. EQUIP SAME AS # 4
10. VIEW FROM ROAD @ GDC LOOKING TOWARDS GDC BERM/DIRT HAS BEEN GRADED INTO ADJACENT TRANSIT AREA.
11. VIEW OF GRADED AREA @ GDC S. OF ROAD WHERE IT RUNS TO TOP OF LF. GRADED AREA ACTS AS SED BASIN.
12. AREA WHERE ROAD GRADED DOWN TOWARDS SED BASIN.
13. DEEP GULLEY ON S. SIDE OF LF FLOWING TOWARDS WETLAND
14. VIEW OF DITCH ON E. SIDE OF GDC. GRADED
15. VIEW OF PATH OF DITCH AS IT MEANDERS WEST/SW TOWARDS WETLAND AREA NEAR GCR
16. ~~ACCESS~~ GAS RECOV. WELL ON E. SIDE OF GDC. NOTE LACK OF VEG
17. LEACHATE/SW POND ON N. SIDE OF GDC AS VIEWED FROM NORTH (TOWARDS SE)
18. LEACHATE/SW POND W/ VIEW OF N. SIDE OF GDC LANDFILL. (TOWARDS S)
19. " " " " VIEW OF PAVE RESURFACE TO WEST.
20. VIEW OF GDC SW/LEACHATE POND FROM WEST OF POND.
21. VIEW OF RILL EROSION ALONG WESTERN FACE OF GDC LF
22. VIEW OF WESTERN FACE OF GDC LF AS SEEN FROM N-75 - OFFICE IN BKGD.
23A VIEW OF SOLID WASTE @ GDC

11/19/96 GARY DEVELOPMENT

PHOTOS 14 & 15 INDICATE HOW THICK. CAN BARELY SEE DITCH, WHICH APPEARS TO GO TOWARDS WETLAND AREA ON SE SIDE OF SITE.

WENT TO NE SIDE OF SITE. DRAINAGE PATTERN CHANGES HERE. SITE SLOPES GENERALLY DOWN TO N. SLAB AREA OBSERVED. THIS IS OLD MIXING AREA FOR FLYASH WHICH WAS USED TO BUILD UP SITE. TURNS CONCRETE-LIKE, REACTIVE, WHEN MIXED W/ WATER & WAS USED TO BUILD UP BERMS. NO LONGER IN USE. KNAUF & I WALKED ALONG AR GROVE ALONG N SIDE OF SITE. LARGE DRAINAGE/LEACHATE COLLECTION POND OBSERVED & PHOTOGRAPHED. EST 1A IN SIZE. VERY STEEP SLOPES TO POND FROM N. SIDE. AR SPUR GOES TO AMG RESOURCES PROPERTY. FOLLOWED THAT TO NWEST SIDE OF SITE, THEN WALKED BACK UP LANDFILL. ONLY EXIT FROM POND APPEARS TO BE ~~FROM~~ TO GW DISCHARGE & EVAPORATION. (HAGEN LATER CLAIMED POND DRIES UP IN SUMMER.) PHOTOS TAKEN. #17-20

WENT DOWN SLOPE OF LANDFILL TO POND. CRANE/SHOVEL AT BOTTOM OF SLOPE. SOME LEACHATE OBSERVED TO BE EMERGING FROM LF & MIGRATING INTO POND. BROWNISH/BLACK IN COLOR & MACROBIOTIC. MARAVARO PHOTOS.

ON TOP OF LF, APPEARS TO BE A LOT OF CONSTRUCTION DEMOLITION DEBRIS. HAGEN SAID GAC WANTS APPROVAL TO PUSH N SIDE OF LF WITH DEMOLITION DEBRIS. THEN THEY CAN BUILD COAL LINER ON N. SIDE TO FINISH LANDFILL. PHOTO 24 A

11/19/96 GARY DEVELOPMENT

WALKED W SIDE ADJACENT TO AMG RESOURCES. ONE LARGE GULLY (4+ FT) OBSERVED. BREAKOUT OF LF MATERIAL EVIDENT. ASKED HAGEN WHERE DRAINAGE GOES. HE SAID IT JUST BUILDS UP IN THAT AREA & EVENTUALLY SEEPS IN OR EVAPORATES. SEE PHOTOS 21, 22, 23, 24.

RETURNED TO OFFICE TO AWAIT COMPLETION OF INSPECTION BY G. CARLSON. S. CHERRY INDICATED GAC HAD LIMITED CASH & WOULD LIKE TO SPEND IT ON ENV. IMPROVEMENTS, NOT LEGAL. HE SUGGESTED WE MEET TO DISCUSS. REFERRED HIM TO A. (MAA), ORC.

WENT OUT & ASSISTED G. CARLSON COMPLETE WETLANDS INSPECTION.

LEFT SITE @ 3:45 PM.

(PHOTOS, CONT)

#22 - VIEW OF AMG RESOURCES FACILITY IND 005 444 732, 456 N. CLINE AVE AS VIEWED FROM W. SIDE OF GAC LF. LOW AREA → SEEPAGE, W MONIT WELL

#23 - ANOTHER VIEW OF AMG

2/6/97

MTG RE: GCR FIELD WORK (ABE PASSED OUT)

SCOTT IRELAND → USA COE WILL BE ON RIVER THIS SUMMER. WILL NOT DO ANYTHING ON US STEEL REACH, UNLESS TO SUPPORT RESTORATION OF WETLANDS IN THAT BRANCH.

MICHAEL STEWART — NAT'L BIOLOGICAL SURVEY. THIS SUMMER WILL BE DOING SOME WORK ON LAGOONS (GLNPO). FISH TISSUE, SED TOXICITY.
10/3/97 - SUST DEV FORUM - NOTE PARK PROPOSAL
FUNDED BY NPS TO LOOK @ IMPACT OF LANDFILL, ETC ON PARK RESOURCES. PRELIMINARY REP'T SUBMITTED TO ACOE. FINAL DUE 12/97?
ALSO HAS PROPOSAL IN TO DO SED TOXICITY IN IHC. (SEA GRANT)

GENE RHODES — PURDUE UNIV. — HAS 3 PROPOSALS IN UNDER SEA GRANT. ① BULL HEAD CATFISH STUDY — PUT CATFISH IN LAGOONS BOTH CAGED & FREE RANGING & ANALYZE GENETIC PROBLEMS.
② IMPACT OF PAHS
③

TOM ANDERSON — SAVE THE DUNES — SUBWATERSHED PLAN FOR GOC LAGOONS. WILL REC. BEST MGMT PRACTICES TO PREVENT POLLUTION. THROUGH SAVE THE DUNES EDUCATION FUND.

RICK MENDZEL — USS Pittsburg —
ADM'L STUDIES TO SUPPORT REMEDIAL DESIGN. PHYSICAL CHARACTERISTICS, SHEAR STRENGTH. LAGOONS MAY BE IMPACTED BY DREDGING → PROPOSE TO INSTALL A WEIR ON INLET SIDE OF 36" + 36" CULVERTS TO MAINTAIN CURRENT (NORMAL POOL) WATER LEVEL.

2/6/97

KATHY BYRNES - IDEM - TOUL ROAD EROSION CONTROL PROJECT.
1200' DOWNSTREAM FROM 455 OUTFALL 033. (HANDOUT)

STEVE EHRLICH - RUPORT → NEGOTIATING REPA ORDER FOR CHARACTERIZATION. NO FIELD WORK 1997

PAUL LAMMS → NATURE CONSERVANCY → WORKING W/ ~~EDA~~ NIPSCO FOR WORK NEAR REXANA SUBSTATION.

DAN BANASZEK → WOODWARD-CLYDE → IN-AND CHARACTERIZATION STUDIES IN ROXANA MARSH. TOXICITY, MACROBIO & CHEMICAL SAMPLING. 3/97 OR 3/98, IF QAPP IS NOT APPROVED. (DUCKMAN / IRELAND).

SCOTT CHAPIN - ENTRIX - CHARACTERIZATION & REMOVAL ACTION IN USS LEAD OUTFALL CANAL UPPER 1/2

HOWARD DUCKMAN - QAPP TO BE APPVD ASAP TO ALLOW GSD TO DO CHARACTERIZATION OF 6 TRANSECTS + 2 SOFT SHORES THIS SUMMER.

DOORREEN CAREY - CITY OF EC HAS PROPOSAL IN TO ESTABLISH VEGETATIVE STRIP ALONG IHC TO REDUCE EROSION.

BANASZEK - IHC SAMPLING TO DET IF MATL NEAR CANAL IS REPA WASTE. COULD OCCUR IN FALL 1997 IF WKPLN APPROVED.

2/6/97

ANDERSON ASKED ABOUT SLAG REVEGETATION PROJECT @ INLAND (BOONE CONSULTING)

HOWARD DUCKMAN - GSD RALSTON ST LAGOON. RECS SUBMITTED - ONCE QA APPVD, ALTERNATIVES CAN BE DEVELOPED FOR CONTROL.

IDEM - RALPH McCULLERS — 219-881-6707
CALL IF ANY EMERGENCIES RELATED TO SPILLS

BETH POWNE - IDEM, IDNR, USFWS -
PREASSESSMENT SCREEN ISSUED. DEVELOPING ASSESSMENT PLAN & BUDGET. SOME POTENTIAL THAT FIELD WORK MAY BEGIN IN 1997.

MICHAEL STEWART → SHOULD FISH ADVISORY SIGNS BE POSTED ALONG GCR?

TOM ANDERSON - ASKED ABOUT FISH CONSUMPTION STUDY FOR LAKE MI BASIN.

DOORREEN C → SUGGESTED THAT AN INFO PACKET BE DEV & RELEASED TO PUBLIC ON ACTIVITIES THAT WILL BE GOING.

W. FAATZ - IDNR FISH ADVISORY ISSUE IS AN ISBH CALL - ISBH CONFERS W/ IDNR & IDEM ON THIS.

2/6/97

Jim Smith - IDEM - Fish Cons. Advisory Committee is chaired by IDH, w/ reps from IDH, IDNR, & IDEM.
PCBs in Mute Dame Lagoons for Lake Michigan Bass - Level 2 or 3
Level 3 Cons. Advisory in GCR (All parts) for all fish. (Do not eat any fish at any time.)

Scott Ireland - Initial contact Army COE & GVRC
Include ACOE info in packet.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

GRAND CALUMET RIVER/INDIANA HARBOR SHIP CANAL FIELD WORK COORDINATION MEETING

10:00 AM - 1:00 PM CST, FEBRUARY 6TH, 1997

I. **INTRODUCTION/RATIONALE FOR MEETING** - KAY NELSON

II. **OVERVIEW OF PROJECTS/NECESSITY TO COORDINATE** - SCOTT IRWIN

III. **FACILITATED DISCUSSION OF PROJECTS WITH RESPECT TO TIME FRAME AND LOCATION**

IV. **PUBLIC PERCEPTION OF A CLEAN RIVER**

STEVE EHRLICH - DUPONT
MAIKE UNGER - HSD
RICK MENOZZI - USSTEEL - GLEN TOPPING
DAN BANACZEK, INLAND
SCOTT CHASIN - CNTALK

Grand Calumet River/Indiana Harbor Ship Canal
1997 Field Work Coordination Meeting

February 6, 1997
IDEM NWRO

Scott Ireland- IDEM Contaminated Sediments Remediation Coordinator
phone- (317) 233-1432 fax- (317) 232-8406 e-mail-SIREL@opn.dem.state.in.us

Please sign in. Copies of this sign-in sheet will be distributed at the close of the meeting.

Name	Organization	Phone /Fax/Email
1. DORREEN CAREY	GRAND CAL TASK FORCE	219/473-4246 473-4288
2. PAUL LABUS	THE NATURE CONSERVANCY	473-4312 PHONE & FAX
3. Gene Rhodes	Purdue University	Ph (317) 494-3601 / Fx (317) 496-21
4. WENDY MALAMUT	DESIGN WORKSHOP	(505) 890-1815 / 505-890-1817 FAX
5. Mike Unger	Hammond Sanitary District	
6. ALLEN WOJTAS	USEPA - RCRA	(312) 886-6194
7. Dan Banaszek	for Inland Steel	312.939.1000
8 Mike Mikulka	USEPA	312-886-6760
9. Jody Harney	IDEM	317-233-1430
10 IAN ENWUSI-WILSON	IDEM/OER	(317) 308-3139
11. Wayne C. FAATZ	IDNR/FWW	317-232-4080
12. Jim Smith	IDEM/OER	317-308-3003 (FAX 3063)
13. Moza L. W. Lewis	IDEM/OER	(317) 308-3094
14 LORI K. SLOAN FOR DONALD SMALES	GARY SANITARY DISTRICT	(219) 944-0595
15. Glenn TOPPING	U.S. STEEL - GARY WORKS	219-888-4500
16 RICK MENOZZI	U.S. Steel - PITTSBURGH	412.433.6191
17 Scott Chafin	ENTACT - Chicago	773 281-2455
18 Tony Biasi	Entact - Chicago	(219) 397-8577
19 STEPHEN EHRLICH	DUPONT	302-992-6575 / FAX 302-892-151
20 Beth Admire	IDEM	(317) 233-5946

Grand Calumet River/Indiana Harbor Ship Canal
1997 Field Work Coordination Meeting

February 6, 1997
IDEM NWRO

21 Mary Fulghum IDEM/NWRO 219 881-6708 6745 fx
MFULG@UPN.DEM.STATE.IN.US

22. KAY NELSON IDEM NWRO Director 219-881-6712
fx 6745

23 Howard Dickman ~~IDEM~~ USEPA Region V Engineer (312) 886 6716

24 Tom Anderson 219/879-3937
Save the Dunes Council
Save the Dunes Conservation Fund

25. Michael Stewart BRD/USGS Ecologist (219) 926-8336 (4
FAX 929-5792

Toll Road Stormwater Runoff Demonstration Project

Purpose: A project to Design and Construct a demonstration stormwater detention pond to control nonpoint source pollution impact from the Indiana Toll Road Buchanan Street Interchange.

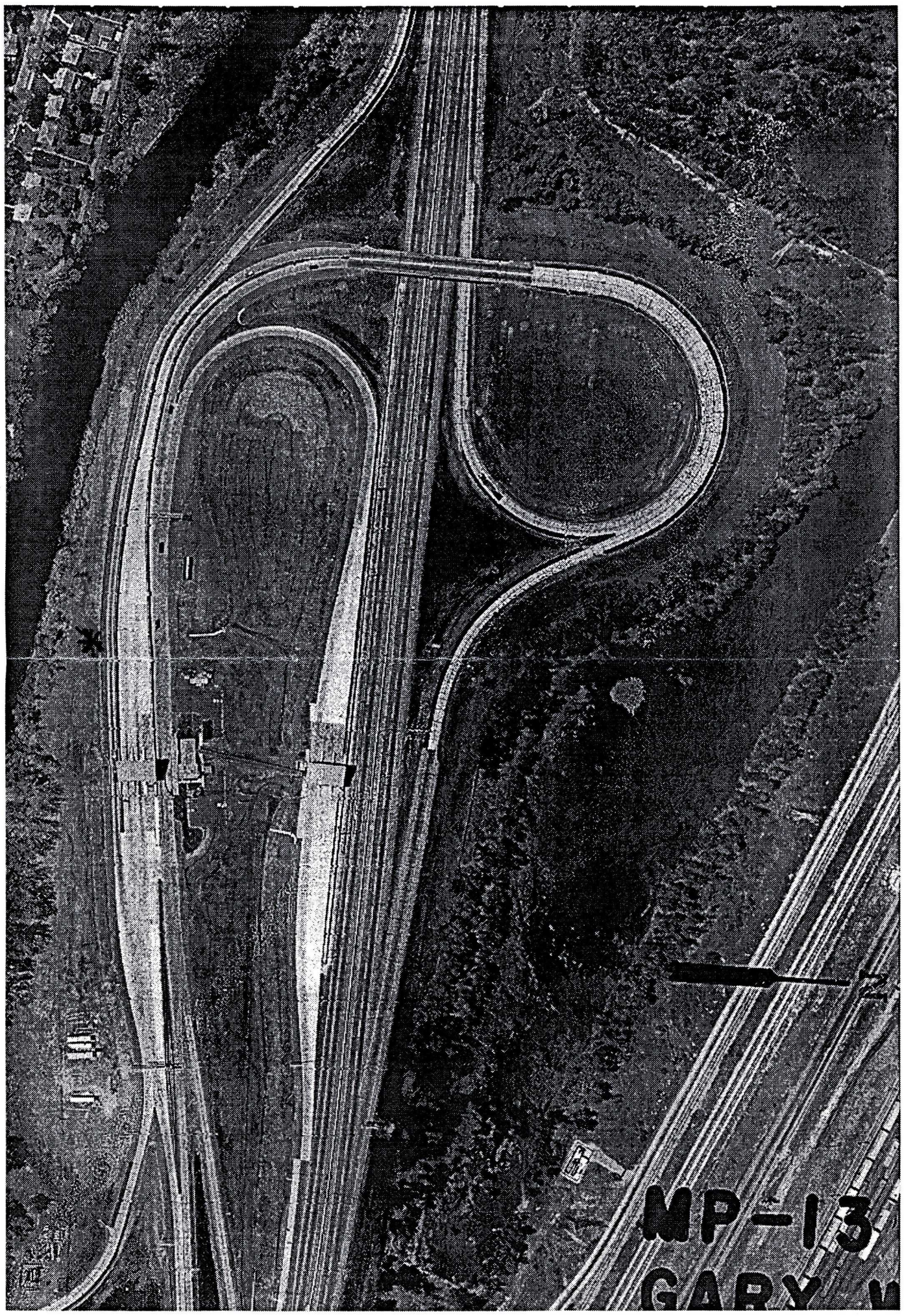
Participants: Indiana Department of Environmental Management, Purdue University, Environmental Engineering, INDOT Toll Road Division.

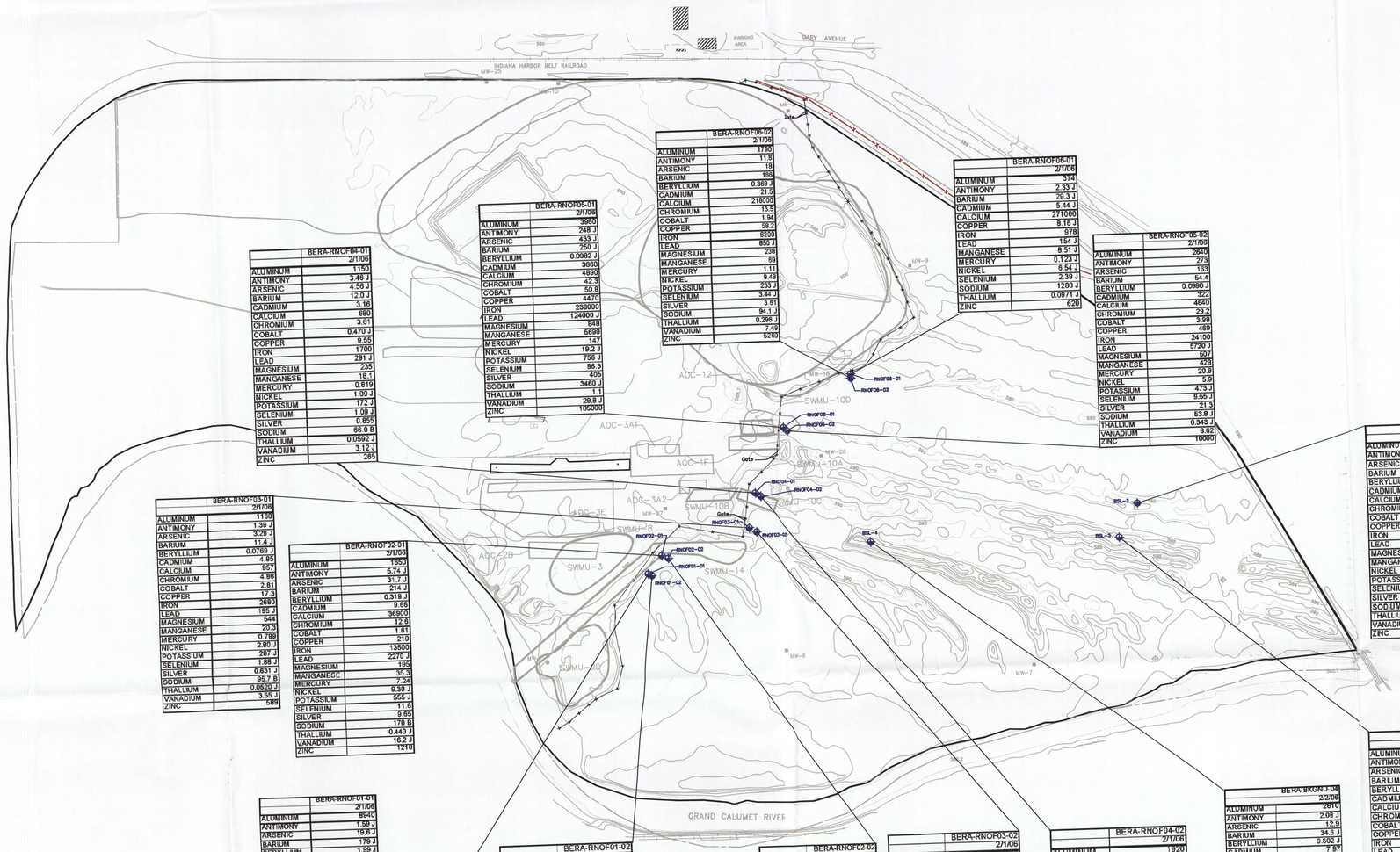
Field Work Component: Purdue University will collect runoff samples at the outfall of a stormwater pipe at the Toll Road Buchanan Street Interchange.

Location and Schedule of Sampling: The pipe to be sampled discharges on the north of the Grand Calumet River approximately 15 feet from the river's edge, approximatley 1000 feet downstream from USX outfall 33. Intitial samples to be collected in Spring of 1997. Further sampling in the same location will be undertaken after construction of the demonstration project to evaluate its effectiveness.

Construction Project: Data gathered by Purdue will be used by them to create an optimum design for a stormwater treatment pond. The designs will be given to the Toll Road Division, which will let contracts to construct the pond in Late Summer, early fall of 1997. The construction will include erosion control measures to minimize negative impacts on the Grand Calumet River, however, the project may cause small temporary increases in sediment loading from the site.

IDEM Contact: Kathy Baird, Toll Road Project Coordinator, (219) 881-6730.


MP-13
GARY



	BERA-RNOF04-01 2/1/06
ALUMINUM	1150
ANTIMONY	3.46 J
ARSENIC	4.56 J
BARIUM	12.0 J
CADMIUM	3.16
CALCIUM	680
CHROMIUM	3.61
COBALT	0.470 J
COPPER	9.55
IRON	1700
LEAD	291 J
MAGNESIUM	235
MANGANESE	18.1
MERCURY	0.819
NICKEL	1.09 J
POTASSIUM	172 J
SELENIUM	1.09 J
SILVER	0.855
SODIUM	66.0 B
THALLIUM	0.0592 J
VANADIUM	3.12 J
ZINC	265

	BERA-RNOF05-01 2/1/06
ALUMINUM	3980
ANTIMONY	248 J
ARSENIC	433 J
BARIUM	250 J
BERYLLIUM	0.0982 J
CADMIUM	3660
CALCIUM	4890
CHROMIUM	42.3
COBALT	50.8
COPPER	4470
IRON	238000
LEAD	124000 J
MAGNESIUM	848
MANGANESE	5690
MERCURY	147
NICKEL	19.2 J
POTASSIUM	758 J
SELENIUM	86.3
SILVER	405
SODIUM	3460 J
THALLIUM	1.1
VANADIUM	29.8 J
ZINC	105000

	BERA-RNOF06-02 2/1/06
ALUMINUM	1790
ANTIMONY	11.6
ARSENIC	19
BARIUM	195
BERYLLIUM	0.369 J
CADMIUM	21.5
CALCIUM	218000
CHROMIUM	13.5
COBALT	1.94
COPPER	58.2
IRON	8200
LEAD	869 J
MAGNESIUM	239
MANGANESE	69
MERCURY	1.11
NICKEL	9.48
POTASSIUM	233 J
SELENIUM	3.44 J
SILVER	3.51
SODIUM	94.1 J
THALLIUM	0.296 J
VANADIUM	7.49
ZINC	5280

	BERA-RNOF06-01 2/1/06
ALUMINUM	374
ANTIMONY	2.33 J
BARIUM	29.3 J
CADMIUM	5.44 J
CALCIUM	271000
COPPER	8.16 J
IRON	978
LEAD	154 J
MANGANESE	8.51 J
MERCURY	0.123 J
NICKEL	9.54 J
SELENIUM	2.39 J
SODIUM	1280 J
THALLIUM	0.0971 J
ZINC	620

	BERA-RNOF05-02 2/1/06
ALUMINUM	2840
ANTIMONY	273
ARSENIC	163
BARIUM	54.4
BERYLLIUM	0.0990 J
CADMIUM	322
CALCIUM	4640
CHROMIUM	29.2
COBALT	3.98
COPPER	469
IRON	24100
LEAD	5720 J
MAGNESIUM	507
MANGANESE	428
MERCURY	20.8
NICKEL	5.9
POTASSIUM	473 J
SELENIUM	9.55 J
SILVER	21.3
SODIUM	53.8 J
THALLIUM	0.343 J
VANADIUM	8.62
ZINC	10000

	BERA-RNOF03-01 2/1/06
ALUMINUM	1160
ANTIMONY	1.39 J
ARSENIC	3.29 J
BARIUM	11.4 J
BERYLLIUM	0.0769 J
CADMIUM	4.85
CALCIUM	957
CHROMIUM	4.86
COBALT	2.81
COPPER	17.3
IRON	2680
LEAD	195 J
MAGNESIUM	544
MANGANESE	20.3
MERCURY	0.799
NICKEL	2.80 J
POTASSIUM	207 J
SELENIUM	1.88 J
SILVER	0.631 J
SODIUM	95.7 B
THALLIUM	0.0620 J
VANADIUM	3.55
ZINC	589

	BERA-RNOF02-01 2/1/06
ALUMINUM	1850
ANTIMONY	5.74 J
ARSENIC	31.7 J
BARIUM	214 J
BERYLLIUM	0.319 J
CADMIUM	9.66
CALCIUM	36900
CHROMIUM	12.6
COBALT	1.61
COPPER	210
IRON	13500
LEAD	2270 J
MAGNESIUM	195
MANGANESE	35.3
MERCURY	7.34
NICKEL	9.30 J
POTASSIUM	555 J
SELENIUM	11.8
SILVER	9.85
SODIUM	170 B
THALLIUM	0.440 J
VANADIUM	16.2 J
ZINC	1210

	BERA-RNOF01-01 2/1/06
ALUMINUM	8940
ANTIMONY	1.59 J
ARSENIC	19.8 J
BARIUM	179 J
BERYLLIUM	1.99 J
CADMIUM	38.7
CALCIUM	118000
CHROMIUM	17.9
COBALT	5.8
COPPER	250
IRON	19100
LEAD	1100 J
MAGNESIUM	49500
MANGANESE	447
MERCURY	4.15
NICKEL	26.7 J
POTASSIUM	951 J
SELENIUM	6.25
SILVER	5.13
SODIUM	1190 J
THALLIUM	0.236 J
VANADIUM	23.9 J
ZINC	10400

	BERA-RNOF01-02 2/1/06
ALUMINUM	7200
ANTIMONY	0.285 J
ARSENIC	2.08 J
BARIUM	3.15
BERYLLIUM	0.0614 J
CADMIUM	0.395 J
CALCIUM	316
CHROMIUM	2.42
COBALT	1.08
COPPER	1.8
IRON	2610
LEAD	7.23 J
MAGNESIUM	309
MANGANESE	17.4
MERCURY	0.0271 J
NICKEL	2.04
POTASSIUM	234 J
THALLIUM	0.0365 J
VANADIUM	3.13
ZINC	242

	BERA-RNOF02-02 2/1/06
ALUMINUM	1370
ANTIMONY	1.07 J
ARSENIC	13.4
BARIUM	7.7
BERYLLIUM	0.0844 J
CADMIUM	2.79
CALCIUM	1580
CHROMIUM	3.27
COBALT	0.831
COPPER	11.6
IRON	3390
LEAD	91.9 J
MAGNESIUM	349
MANGANESE	17.1
MERCURY	0.667
NICKEL	1.92
POTASSIUM	183 J
SELENIUM	0.881 J
SODIUM	50.1 J
THALLIUM	0.0508 J
VANADIUM	3.18
ZINC	949

	BERA-RNOF03-02 2/1/06
ALUMINUM	1040
ANTIMONY	0.455 J
ARSENIC	2.10 J
BARIUM	4.8
CADMIUM	3.84
CALCIUM	398
CHROMIUM	2.42
COBALT	1.28
COPPER	3.45
IRON	3040
LEAD	5.49 J
MAGNESIUM	315
MANGANESE	16.4
MERCURY	0.0268 J
NICKEL	1.92
POTASSIUM	165 J
SODIUM	49.7 J
THALLIUM	0.0217 J
VANADIUM	3.3
ZINC	327

	BERA-RNOF04-02 2/1/06
ALUMINUM	1920
ANTIMONY	3.65
ARSENIC	5.51
BARIUM	10.2
CADMIUM	2.3
CALCIUM	719
CHROMIUM	8.52
COBALT	0.851
COPPER	15.2
IRON	2770
LEAD	236 J
MAGNESIUM	437
MANGANESE	19.6
MERCURY	1.03
NICKEL	2.05
POTASSIUM	209 J
SODIUM	53.5 J
THALLIUM	0.0878 J
VANADIUM	4.14
ZINC	383

	BERA-BKGND-04 2/2/06
ALUMINUM	2810
ANTIMONY	2.08 J
ARSENIC	12.9
BARIUM	34.5 J
BERYLLIUM	0.300 J
CADMIUM	7.97
CALCIUM	3070
CHROMIUM	8.98 J
COBALT	2.09 J
COPPER	34.2 J
IRON	8200 J
LEAD	198 J
MAGNESIUM	584
MANGANESE	304
MERCURY	0.0626 J
NICKEL	4.67
POTASSIUM	277 J
SELENIUM	0.727 J
SILVER	0.8
SODIUM	139 B
THALLIUM	0.168 J
VANADIUM	8.76 J
ZINC	1660

	BERA-BKGND-02 2/2/06
ALUMINUM	2850
ANTIMONY	0.744 J
ARSENIC	5.2
BARIUM	22.1 J
BERYLLIUM	0.203 J
CADMIUM	0.789
CALCIUM	1970
CHROMIUM	4.15 J
COBALT	1.89 J
COPPER	6.94 J
IRON	4510 J
LEAD	31.0 J
MAGNESIUM	597
MANGANESE	146
NICKEL	3
POTASSIUM	268 J
SELENIUM	0.606 J
SILVER	0.259 J
SODIUM	74.0 B
THALLIUM	0.109 J
VANADIUM	7.40 J
ZINC	170

	BERA-BKGND-03 2/2/06
ALUMINUM	2950
ANTIMONY	1.08 J
ARSENIC	6.46
BARIUM	34.2 J
BERYLLIUM	0.278 J
CADMIUM	1.98
CALCIUM	2820
CHROMIUM	6.03 J
COBALT	1.98 J
COPPER	14.7 J
IRON	5780 J
LEAD	72.3 J
MAGNESIUM	660
MANGANESE	280
MERCURY	0.0252 J
NICKEL	4.05
POTASSIUM	332 J
SELENIUM	0.554 J
SILVER	0.384 J
SODIUM	105 B
THALLIUM	0.158 J
VANADIUM	8.68 J

LEGEND:

RNOF01-01 SAMPLE LOCATION

SCALE

100 0 100' 200'

MAP IS IN UTM ZONE 16 N.A. DATUM 1983

	INITIALS
DESIGNED P.J. CHEN	
DRAWN D.H. ENGLISH	
CHECKED P.J. CHEN	
APPROVED(DESIGN)	
APPROVED(CONSTRUCTION)	

DUPONT

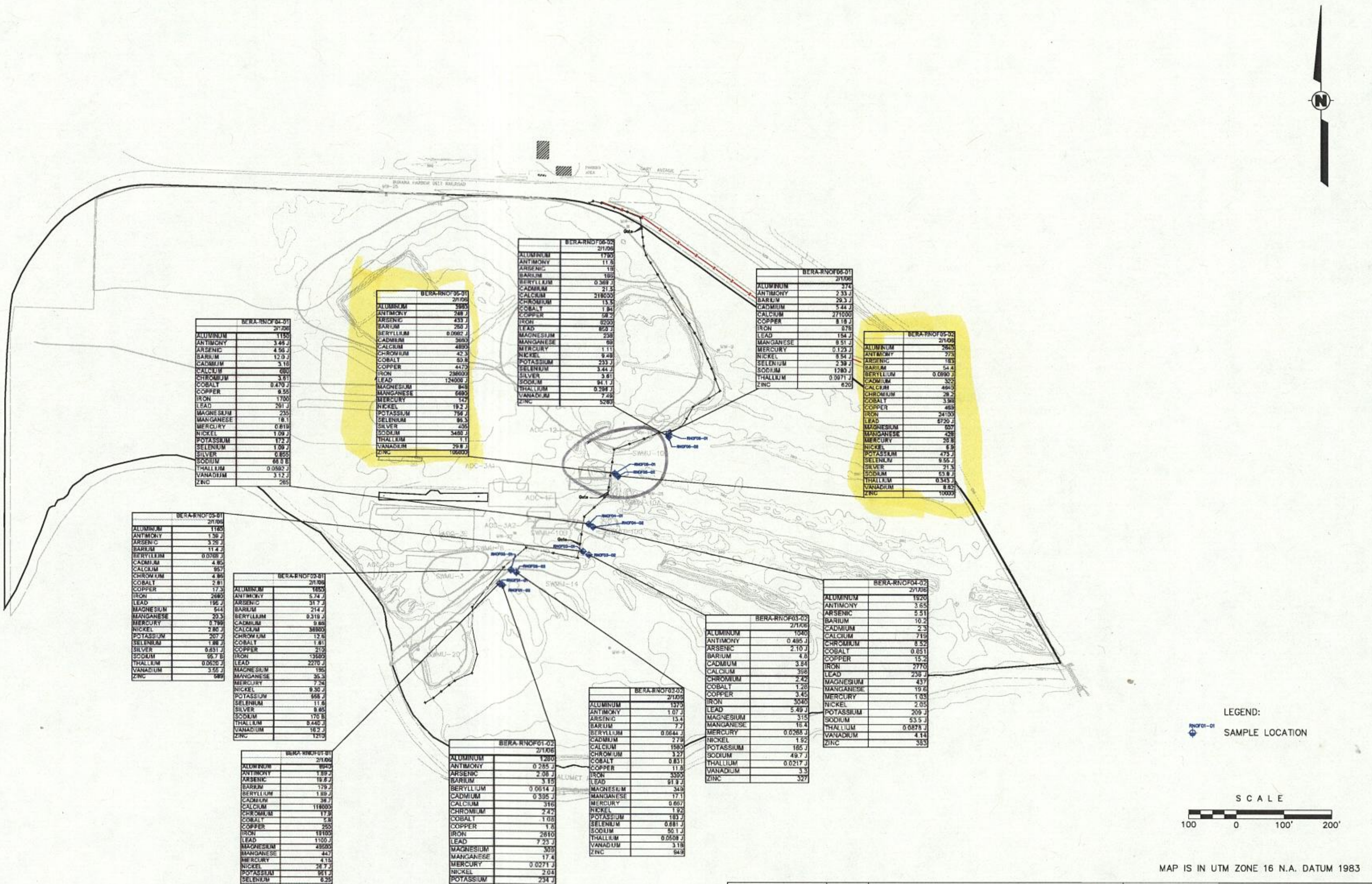
Corporate Remediation Group
An Alliance between DuPont and URS Diamond

Barley Mill Plaza, Building 19
Wilmington, Delaware 19805

BERA 2006 RUN-OFF SAMPLES 0.0-1.0 FT.

East Chicago Phase II RFI
East Chicago, Indiana

SCALE	DATE	CAD FILE NO.	FIGURE
As Shown	07/21/2006	3761D001C	1



	BERA-RNOF04-01 2/1/06
ALUMINUM	1150
ANTIMONY	3.46 J
ARSENIC	4.56 J
BARIUM	12.0 J
CADMIUM	3.16
CALCIUM	680
CHROMIUM	3.61
COBALT	0.470 J
COPPER	9.55
IRON	1700
LEAD	291 J
MAGNESIUM	235
MANGANESE	18.1
MERCURY	0.819
NICKEL	1.09 J
POTASSIUM	172 J
SELENIUM	1.09 J
SILVER	0.855
SODIUM	68.0 B
THALLIUM	0.0582 J
VANADIUM	3.12 J
ZINC	265

	BERA-RNOF05-01 2/1/06
ALUMINUM	5980
ANTIMONY	248 J
ARSENIC	433 J
BARIUM	250 J
BERYLLIUM	0.0982 J
CADMIUM	3680
CALCIUM	4890
CHROMIUM	42.3
COBALT	50.8
COPPER	4470
IRON	238000
LEAD	124000 J
MAGNESIUM	848
MANGANESE	6490
MERCURY	147
NICKEL	19.2 J
POTASSIUM	756 J
SELENIUM	86.3
SILVER	405
SODIUM	3480 J
THALLIUM	1.1
VANADIUM	29.8 J
ZINC	106000

	BERA-RNOF06-02 2/1/06
ALUMINUM	1790
ANTIMONY	11.8
ARSENIC	18
BARIUM	166
BERYLLIUM	0.369 J
CADMIUM	21.5
CALCIUM	218000
CHROMIUM	13.5
COBALT	1.94
COPPER	58.2
IRON	8200
LEAD	850 J
MAGNESIUM	238
MANGANESE	69
MERCURY	1.11
NICKEL	9.48
POTASSIUM	233 J
SELENIUM	3.44 J
SILVER	3.61
SODIUM	94.1 J
THALLIUM	0.298 J
VANADIUM	7.49
ZINC	5280

	BERA-RNOF06-01 2/1/06
ALUMINUM	374
ANTIMONY	2.33 J
BARIUM	29.3 J
CADMIUM	5.44 J
CALCIUM	271000
COPPER	8.18 J
IRON	878
LEAD	154 J
MANGANESE	8.51 J
MERCURY	0.123 J
NICKEL	8.54 J
SELENIUM	2.39 J
SODIUM	1280 J
THALLIUM	0.0971 J
ZINC	620

	BERA-RNOF05-02 2/1/06
ALUMINUM	2600
ANTIMONY	273
ARSENIC	183
BARIUM	54.4
BERYLLIUM	0.0990 J
CADMIUM	322
CALCIUM	4640
CHROMIUM	28.2
COBALT	3.98
COPPER	469
IRON	24100
LEAD	5720 J
MAGNESIUM	507
MANGANESE	428
MERCURY	28.8
NICKEL	6.9
POTASSIUM	473 J
SELENIUM	9.55 J
SILVER	21.3
SODIUM	53.8 J
THALLIUM	0.343 J
VANADIUM	8.62
ZINC	10000

	BERA-RNOF03-01 2/1/06
ALUMINUM	1160
ANTIMONY	1.39 J
ARSENIC	3.29 J
BARIUM	11.4 J
BERYLLIUM	0.0769 J
CADMIUM	4.85
CALCIUM	957
CHROMIUM	4.86
COBALT	2.81
COPPER	17.3
IRON	2680
LEAD	195 J
MAGNESIUM	544
MANGANESE	20.3
MERCURY	0.799
NICKEL	2.80 J
POTASSIUM	207 J
SELENIUM	1.86 J
SILVER	0.831 J
SODIUM	95.7 B
THALLIUM	0.0620 J
VANADIUM	3.56 J
ZINC	589

	BERA-RNOF02-01 2/1/06
ALUMINUM	1850
ANTIMONY	5.74 J
ARSENIC	31.7 J
BARIUM	214 J
BERYLLIUM	0.319 J
CADMIUM	9.88
CALCIUM	36900
CHROMIUM	12.6
COBALT	1.81
COPPER	210
IRON	13500
LEAD	2270 J
MAGNESIUM	195
MANGANESE	35.3
MERCURY	7.24
NICKEL	9.30 J
POTASSIUM	555 J
SELENIUM	11.6
SILVER	9.65
SODIUM	170 B
THALLIUM	0.440 J
VANADIUM	16.2 J
ZINC	1210

	BERA-RNOF01-01 2/1/06
ALUMINUM	6940
ANTIMONY	1.89 J
ARSENIC	19.8 J
BARIUM	179 J
BERYLLIUM	1.89 J
CADMIUM	38.7
CALCIUM	118000
CHROMIUM	17.9
COBALT	5.8
COPPER	250
IRON	19100
LEAD	1100 J
MAGNESIUM	49500
MANGANESE	447
MERCURY	4.15
NICKEL	26.7 J
POTASSIUM	961 J
SELENIUM	6.25
SILVER	5.13
SODIUM	1180 J
THALLIUM	0.239 J
VANADIUM	23.9 J
ZINC	10400

	BERA-RNOF01-02 2/1/06
ALUMINUM	1280
ANTIMONY	0.285 J
ARSENIC	2.08 J
BARIUM	3.15
BERYLLIUM	0.0614 J
CADMIUM	0.305 J
CALCIUM	316
CHROMIUM	2.42
COBALT	1.08
COPPER	1.8
IRON	2610
LEAD	7.23 J
MAGNESIUM	309
MANGANESE	17.4
MERCURY	0.0271 J
NICKEL	2.04
POTASSIUM	234 J
THALLIUM	0.0365 J
VANADIUM	3.13
ZINC	242

	BERA-RNOF02-02 2/1/05
ALUMINUM	1370
ANTIMONY	1.07 J
ARSENIC	13.4
BARIUM	7.7
BERYLLIUM	0.0644 J
CADMIUM	2.79
CALCIUM	1580
CHROMIUM	3.27
COBALT	0.831
COPPER	11.8
IRON	3390
LEAD	91.9 J
MAGNESIUM	349
MANGANESE	17.1
MERCURY	0.667
NICKEL	1.92
POTASSIUM	183 J
SELENIUM	0.881 J
SODIUM	50.1 J
THALLIUM	0.0508 J
VANADIUM	3.18
ZINC	949

	BERA-RNOF03-02 2/1/06
ALUMINUM	1040
ANTIMONY	0.495 J
ARSENIC	2.10 J
BARIUM	4.8
CADMIUM	3.84
CALCIUM	398
CHROMIUM	2.42
COBALT	1.28
COPPER	3.45
IRON	3040
LEAD	5.49 J
MAGNESIUM	315
MANGANESE	16.4
MERCURY	0.0288 J
NICKEL	1.92
POTASSIUM	165 J
SODIUM	49.7 J
THALLIUM	0.0217 J
VANADIUM	3.3
ZINC	327

	BERA-RNOF04-02 2/1/06
ALUMINUM	1920
ANTIMONY	3.65
ARSENIC	5.51
BARIUM	10.2
CADMIUM	2.3
CALCIUM	719
CHROMIUM	8.52
COBALT	0.851
COPPER	15.2
IRON	2770
LEAD	238 J
MAGNESIUM	437
MANGANESE	19.6
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SODIUM	53.5 J
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VANADIUM	4.14
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East Chicago Phase II RFI
East Chicago, Indiana

SCALE	DATE	CAD FILE NO.	FIGURE
As Shown	07/21/2006	3761D0001C	1