MAD3N10W-24.4d

US EPA RECORDS CENTER REGION 5
491584

SE 1/4 sec 24
T3N R10W

April 18, 1944

SHORT PARTIAL ANALYSIS

Sample of water collected February 23, 1944 from well owned by the City Ice & Fuel Co., Granite City, Illinois. Depth of well: 84'. Rate of pumping: 750 g.p.m. after 24 hours. Location of well: Well No. 1 in yard.

D

LABORATORY NO. 99359

Determinations Made

		Pts.per Million
Turbidity		100
Color		0
Odor		Tr.
Iron (unfiltered)	Fe	8.8
Chloride	Cl	38.0
Alkalinity (as $CaCO_3$)		
Phenolphthalein		0.
Methyl Orange		334.
Total Hardness (as $CaCO_3$)		712.
Total Mineral Content		825.

Temperature 56° F.

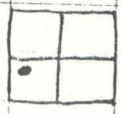
STATE WATER SURVEY DIVISION

T. E. Larson, Chemist

TEL:AB

Barber asphalt

sand and clay	0-4
sand, silt	4-25
clay	25-27
Quicksand	27-45
sand, very fine	45-70
sand, coarse	70-75
sand, fine	75-85
sand, very fine	85-95
sand, coarse	95-96
gravel	96-109



SW COR Sec. 25
25.8b
T.3N, R.10W

aquifer thickness 19
to bedrock

gal.

This well furnishes water for watering the Athletic Field and grounds around High School.

City Madison Illinois County Madison, County

Section 30 Twp. No. 3 N. Range 9 W.

Located on East Side of Farish Street between 5th & 6th Streets, Madison, Ill.

Location (in feet from section corner) Approx. 1000 ft East & 2000 ft. South of N.W. Corner of Sec.30 T.3 N., R.9 W.

Owner Madison High School. Authority

Contractor Luhr Bros., Inc. Address Columbia, Illinois

Date drilled May 6, 1958 Elev. above sea level top of well 415 ± MSL (from Map).

Depth 101 ft.

Log See reverse side of this sheet for log.

Were drill cuttings saved No. Where filed

Size hole If reduced, where and how much

Casing record 8" id Treated wood. Gravel Packed. Screen 37.0 ft Wood. Riser 62.6 ft " 1.5 ft Steel.

Distance to water when not pumping 25.1 Distance to water Not measured.

feet after pumping at G. P. M. for hours.

Reference point for above measurements

Type of pump Peerless Distance to cylinder

Length of cylinder Length of suction pipe below cylinder

Length stroke Speed

Hours used per day Type of power U.S.Motor.

Rating of motor 15 HP. Rating of pump in G. P. M.

Can following be measured: (1) Static water level No.

(2) Pumping level No. (3) Discharge No.

(4) Influence on other wells

Temperature of water 57 F. Was water sample collected

Date June 9, 1958 Effect of water on meters, hot water coils, etc.

Date of Analysis Analysis No. 146826

Please send copy of analysis to
Board of Education
1707, 4th Street, Madison, Illinois

Recorder

Date

2807-22617 12

C. H. Jones

Log of well by driller.

0 to 2 ft.	Clay.
2 - 27 ft.	Fine brown sand.
27 - 32 ft.	Clay
32 - 35 ft.	Fine gray sand.
35 - 45 ft.	Medium gray sand.
45 - 52 ft.	Medium coarse sand.
52 - 55 ft	Coarse sand.
55 - 60 ft.	Very coarse sand.
60 - 64 ft.	Medium Coarse sand.
64 - 67 ft.	Coarse sand with gravel.
67 - 73 ft.	Medium coarse sand.
73 - 90 ft.	Coarse sand.
90 - 101 ft.	Very coarse sand with gravel

Master List

T3N R10W

SEC 13 **Section 13**

UNION STARCH + REFINING CO. COMPOSITE OF 5 WELLS DEPTH 117 110' 115' TESTED 1943 TESTED JUNE '5

ADM CORN SWEETNERS
~~CACIADE POWER~~ CO. WELL #1 DEPTH 113' LIGHT BROWN FINE TO MED-COARSE SAND

WELL #2 117' " " " " " " "

THE NESTLE COMPANY WELL #5 83-113' DRILLED 1977
MARSHALL DIVISION
MILES LABORATORY WELL #10 115' SAND + GRAVEL TESTED 1971

WELL #11 115' " " " "

WELL #14 116.8' SAND + GRAVEL

WELL #16 115' " " TESTED 1971

WELL #17 117' SAND + GRAVEL DRILLED MAY 1961

WELL #18 117.5' DRILLED NOV 1962

WELL #19 119' SAND + GRAVEL " DEC 1962

WELL #20 116' " " " 1963

WELL #22 116' SAND + GRAVEL DRILLED 1967

WELL #23 90-117' COARSE SAND + GRAVEL DRILLED 4/72

WAGNER BROWNING CO. WELL #1 100' COARSE GRAVEL DRILLED JULY 1933

GENERAL STEEL CASTING CO. WELL #3 114' DRILLED 1939

WELL #4 117' " 1942

WELL #5 116' 1930

? WELL #5 114' TESTED? 1946

THE NESTLE COMPANY (SEE ABOVE) WELL #3 115' SAND

~~WELL #4 114' SAND + GRAVEL~~

APEX OIL G.C. 60'

T3N R10W

SEC 19

			PLACED IN OPERATION
GRANITE CITY STEEL	RANNEY COLLECTORS	#1	1948
		#2	1951
		#3	1952
		#4	1954

LACLEDE STEEL CO. WELL #9 100'

WELL #10 103'

SEC 23 U.S. ENGINEERING LOCK 27

SEWAGE TREATEMENT PLANT DEPTH 72' FINE SAND DRILLED 1974

SEC 24 WASHINGTON THEATER WELL #1 DEPTH 130' TESTED 1943

DRESSEL DAIRY CO. WELL #1 DEPTH 110' " "

GRANITE CITY ICE + FUEL WELL #1 84'

HOYT METAL CO. ~115' DRILLED 3/17 (ADDRESS 16TH ST. 5 BLOCKS WEST OF MAIN)

~111' " 1936

COMMONWEALTH STEEL WELL #1 83', #2 87', #6 113', #8 116' SAND-COARSE GRAVEL

SEC 25 DOW CHEMICAL CO. "RANNEY" WELL USED FOR FIRE PROTECTION 95' DEPTH

AIR REDUCTION SALES WELL #1 119' DEPTH

BARBER ASPHALT 6 WELLS (5 ABANDONED + A 109' SAND + GRAVEL

SEC 35 UNION ELECTRICAL

T3N R10W

SEC. 19 EURBA CLINE RESTAURANT DEPTH 109' 1342 NEIDRINGHAUS AVE

LACLEDE STEEL CO. WELL #10 DEPTH 103' TESTED 1946

SEC 20 COPPERS KOKE DEPTH 105' SAND + GRAVEL DRILLED 1947

LACLEDE POWER CO. 116' TESTED 1943

ST LOUIS GAS + COKE WELL 107A 114', 107B 114', 107C 105'

BEST - CLYMER CO. WELL 1 109' DRILLED 1920, WELL 2 105' " "

T3N R9W

SEC 26 RT 1 GRANITE CITY 95' DEEP THROUGH CLAY + SAND

SEC 27 RT 2 " " 92' " CLAY SAND + GRAVEL

SEC 28 FARM WELL 111' LIMESTONE + SHALE

SEC 29 28' CLAY + SAND

SEC 30 MADISON HIGH SCHOOL 101' SAND + GRAVEL USED TO WATER ATHLETIC FIELDS + GROUNDS

SEC 32 NW 1/4 HORSESHOE LAKE AREA 25' DEEP

AUFDERHEID 30'

SEC 35

PUMP HOUSE AT STATE PARK, MONKS MOUND 80' WELL

RAMEY BROS. FARM 45' DRILLED 1930 LOCATED 1400' EAST OF CAHOKIA MOUNDS STATE PARK

KOMM THEATERS 92' DRILLED 1949 LOCATED 500' WEST OF PARK

GEORGE POWELL JR. 100' NORTH OF PARK DRILLED SEPT 1955

HUBERT S. MERRILL 1552' PLUGGED AT 65' SAMPLED JULY '53

CAHOKIA MOUNDS STATE PARK WELL A 28' LOCATED 35' N. OF MUSEUM DRILLED 1928

WELL B 50' " 800' N OF MUSEUM

3RD WELL 86-100' DRILLED 1934

- AROUND 1957 PARK GETS WATER FROM COLLINSVILLE

T2N R9W

SEC 2 MONKS MOUND 2100' (SCATE AT 205')

KOMM THEATRES (BY US. 40 + CAHOKIA MOUNDS)

SEC 3 F.S. SERVICE 100' SAND + GRAVEL

ALLIED CHEMICAL CORP 115'

QUICKSHEET OIL CO. 82' 6001 COLLINSVILLE RD.

VIRGINIA CAROLINE CHEM. CO.

ILL FARM SUPPLY 110' SAND

SEC 3 GENERAL CHEMICAL 5 WELLS 98' → 120' SAND + GRAVEL KINGSHIGHWAY + LANDALIA RR TRACKS

SEC 3 AMERICAN ZINC WELL #1 115' #9 125'

SEC 4 FAIRMONT CITY UNITED ENGINES 123' SAND

SWIFT AGRI CHEMICALS 100' SAND + GRAVEL

T2N R9W

SEC 6

GATEWAY TRUCK STOP 85' SAND + GRAVEL

FARMERS ENERGY CORP 70' " " + CLAY

SEC 7 E. SIDE PACKING CO. 100' SAND + GRAVEL

CIRCLE PACKING CO WELL #2 120' SAND + GRAVEL 319 WINSTONLY AVE

WELL #3 112' " "

SEC 8 C.K. WILLIAMS + CO. 116'S PLEISTOCENE

(CHARLES) PFIZER INC. 115' WELL SAND

SEC 9 NIEDERER DAIRY 96' SAND 401 S CASEYVILLE AVE.

PENNSYLVANIA RR 115' PLEISTOCENE

AMERICAN ZINC (LEAD + SMELTING) 135'
112' (SEC 4)
110'

SEC 7 CONT 115' SAND + GRAVEL

HUNTER PACKING CO. WELL #2 → 110'
106' SAND + GRAVEL

1214 N. 2ND ST.

SEC 15 ASSUMPTION HIGH SCHOOL

SEC 16 HAROLD WATSON 1350 N. 41ST ST

WATERLOO ICE CREAM CO. 58.5' PLEISTOCENE (37TH + BUNKUM RD. ?SP.

EAST ST. LOUIS CASTING CO. 116' WELL 420 ST CLAIR

WALWORTH CO. WELL #1 122'
WELL #2 124'

RUST ENGINEERING (NAVY) WASH PARK WELL #1 100-124' SAND + GRAVEL DRILLED 1942
#2 105-123'

SEC 17 E ST. LOUIS PARK DISTRICT WELL #1 110' AT BATH HOUSE JONES PARK

PFIZER INC 114' SAND + GRAVEL

C.K. WILLIAMS CO. (FORMERLY MEPHAN PAINT CO.) WELL #2 114'
21ST + LYNCH AVE.

AMERICAN ASPHALT ROOFING CO. WELL #1 115'
ST CLAIR + 31ST 105'

#5 114.5' VARIOUS SANDS
#8 114' " "
#? 112.5' " "

DRUG STORE AT 27TH + STATE 83.5'

SEC 18 ROXY THEATER 91' CENTER OF SW 1/4

BANNER ICE CO. WELL #1 116' AKA CITY ICE + FUEL

T 2N R 9W (cont.)

SEC 19 O'BEAR WESTER CO. WELL #1 104' 20TH + BROADWAY

WELL #2 104'

LEMP BREWING CO. WELL #1 720' DEPTH

HOME ICE CREAM CO. 115' · 20TH + RIDGE

SEC 20 ESQUIRE THEATER

ALTON + SOUTHERN RAILWAY 3105 MISSOURI AVE AIR COND. WELL

SEC 29 CHEMTECH PROD. INC. WELL #3 98' SAND + GRAVEL

MR. THEO TAYCOSKI WELL 90' 3703 WALNUT ST.

CASPAR PIEKMANN 30' RFD 4

SEC 30 ALTON + SOUTHERN RAILWAY 26TH + TRENDLEY

KEY CO. 100'
117' 27TH + McCAUSLAND AVE

T2N R10W

SEC 1

EAST ST. LOUIS RENDERING WELL #1 107' NOV 1972

USS AGRICHEMICAL WELL #1 110' SAND + GRAVEL

ST LOUIS NATIONAL STOCKYARD CO. WELL #2 111' COARSE SAND + PEA GRAVEL

WELLS 5, 6 PLUGGED 3/23/83 WELL 4 108'

WELL #7 108'

SEC 2 EAST ST. LOUIS RENDERING CO., NATIONAL STOCKYARDS

SEC 11 MISSOURI - ILLINOIS MATERIALS CO. 115' SAND + GRAVEL

T 2 10N

SEC 12

				TESTED
SWIFT + COMPANY	WELL #3	108'		5/43
	WELL #4	108'		"
	WELL #5	108'		
	WELL #3	115-118'		9/43
	WELL #1	110'		10/43
	WELL #2	110'		10/43
	WELL #17	108'		DEC 1973 NOV 1972
	WELL #18	111'	VERY COARSE GRAY SAND + GRAVEL	

EMPIRE CARBON WORKS 100' DRILLED 1901

AMERICAN AGRICULT. + CHEM CO. 100-102' DRILLED MAY 1948

ROYAL PACKING CO. OF NATIONAL CITY 100' SAND + GRAVEL
94' " "
97' ALLUVIUM

CITY ICE + FUEL CO - NATIONAL CITY 106'

CHICAGO CURLED HAIR CO. 106' SAND + GRAVEL 70 LYONS ST. NATIONAL, CITY

BALL ICE MACHINE CO. 109' PLEISTOCENE
107' SAND

SEC 13 EAST SIDE LIVE BAIT CO. 38.5', 31'

CARBON DIOXIDE CO. 80' SAND

KRESGE STORE 110' COLLINSVILLE AVE

SEC 14 MERCHANT ICE + FUEL CO. 106' SAND

SEC 23 A+P GROCERY 80' SAND + GRAVEL MISSISSIPPI AVE

~~SEC 24 CERTAIN-TEED PRODUCTS CORP. WELL #1 110' DEEP~~
1700 BROADWAY 122' SAND + GRAVEL

T2-N R10W

SEC 25 SOCONY MOBIL OIL CO. (AKA SOCONY-VACUUM OIL CO)

20TH + I.C. RR TRACKS

~~0~~ 112'

WELL #9 114'

WELL #17 109'

WELL #18 112.5' NORTH FARM TUNNEL

107'

WELL #12 107' SAND-GRAVEL (USED FOR COOLING WATER)

SEC 26 MIDWEST RUBBER RECLAIMING

WELL #1 106' SAND+GRAVEL

WELL #2 114' " "

WELL #3 112' SAND

WELL #4 110' SAND

WELL #10 115' SAND+GRAVEL

WELL #11 115 " "

WELL #7 110' " "

WELL 115' ON LOT 209 CAHOKIA COMMONFIELDS

AMERICAN ZINC (AKA AMCX) WELL #6, 2 105'

WELL #3 105'

~~WELL #13 97.2'~~

LEWIN-MATHES CO. WELL #1 95'

WELL #2 110'

104'

C.W.S. PLANT, U.S. ARMY #701 100'

#702 106'

#703 105'

STERLING STEELCASTING CO. WELL #1 95' UNKNOWN DEPTH

MAIN OFFICE WELL

T2N R10W

SEC 26 CONT

DARLING CO. WELL #1 70'

CLAYTON CHEMICAL CO. 78' SAND + GRAVEL

90' SAND

CERRO COPPER + BRASS 111' SAND + GRAVEL (FORMERLY LEWIN METALS)

110.5' SAND + GRAVEL

SEC 33 MOBIL OIL CO. 96' SAND.

T. 1N., R. 10W.

Section 2 Illinois Bell Telephone 63' deep sand + gravel

T. 1N., R. 9W.

Most of Township has no sections

- Eddy Lee Nelson 205' well in limestone located by Cahokia Downs

- residence at 307 W. 3rd St., Cahokia 125' well in limestone, water is taken from sand, which extends to 120'

- residence at 14 Judith Lane in Cahokia has 177' well in sandstone + limestone

- W.L.W. Leasing Co. 2626 Camp Jackson Rd. Cahokia 95' well in sandy clay

Also Alcoa & Monsanto

Wells - unspecified locations (No section #'s)

Armour & Co. E. St. Louis 5 wells all ~100-115'
some may be abandoned

Corn Belt Laboratories, 215 Winstanley Ave. 101'7" total depth
sand, gravel rock

? Sec 13 T. 2N., R. 10W.

Brickler & Co. 2216 State St. 86'6" well - sand

Open Air Theatre St. Clair Ave. 82'6" well shal? mud, sand & gravel

Valley Terminal Railroad Co., Valley Jct. 100' well - sand

Wurth's Dairy Bunkum Rd. 95' well sand & gravel

* T. 1N., R. 9W. - most of Township has no section #'s

Eddy Lee Nelson residence 205' into limestone - located by Cahokia Downs racetrack

Residence at 307 W. 3rd, Cahokia - well 125' in limestone
water from sand to 120'

Residence at 14 Judith Lane, Cahokia 177' in sandstone & limestone

W.L.W. Leasing Co. 2626 Camp Jackson Rd. Cahokia
95' well in sandy clay

Army Engineers Pressure Relief Well #39

NP SD 1

414
345
69

City Granite City County Madison

Section 14 Twp. No. 3N Range 10 W

Location (in feet from section corner) Approx. 500'W & 1500'S of N.E. Cor.

Owner U.S. Army Authority

Contractor Address

Date drilled 1955 Elev. above sea level top of well

Depth 69'

Log

Were drill cuttings saved yes Where filed U.S. Army Eng - Vicksburg

Additional information to be submitted with test data.

Size hole If reduced, where and how much

Casing record

Distance to water when not pumping Distance to water is

feet after pumping at G. P. M. for hours.

Reference point for above measurements

Type of pump Distance to cylinder

Length of cylinder Length of suction pipe below cylinder

Length stroke Speed

Hours used per day Type of power

Rating of motor Rating of pump in G. P. M.

Can following be measured: (1) Static water level

(2) Pumping level (3) Discharge

(4) Influence on other wells

Temperature of water Was water sample collected

Date May 4, 1955 Effect of water on meters, hot water coils, etc.

Date of Analysis Analysis No. 137648

Recorder Jack Brien

Date May 14, 1955

2807-22617 12

MAD3N10W-14.1F

May 19, 1955

PARTIAL CHEMICAL ANALYSIS

Sample of water collected May 4, 1955 from Army Engineers Pressure Relief Well #39 owned by U. S. Army, Granite City, Madison County, Illinois. Location: approximately 500' W and 1500' S of NE corner, Section 14, T. 3 N., R. 10 W. Depth: 69 feet

D

LABORATORY NO. 137648

		ppm.	epm.			ppm.	epm.
Iron(total)	Fe	27.		Chloride	Cl	37.	1.04
				Sulfate	SO_4	100.8	2.10
				Alkalinity(as $CaCO_3$)		584	11.68
Turbidity		363		Hardness(as $CaCO_3$)		688	13.76
Color		0					
Odor		0		Total Mineral Content		752	

ppm = parts per million
epm = equivalents per million
ppm x .0583 = grains per gallon

STATE WATER SURVEY DIVISION

Laurel M. Henley
Assistant Chemist

LMH:ic

G07D

D015288

Time Collected: _____ Lab #

SPECIAL ANALYSIS FORM

Date Collected: 10/12/79 Date Received DEC 16 1979

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF LAND/NOISE POLLUTION CONTROL

COUNTY:	FILE HEADING:	FILE NUMBER:
St. Clair	Sauget/Toxic Dump	16312103

SOURCE OF SAMPLE: (Exact Location)

G09D well located near SW corner of site; well is 70' deep

PHYSICAL OBSERVATIONS, REMARKS: dark gray color; very strong organic chemical odor

TESTS REQUESTED: CHECK FOR PRESENCE OF CHEMICALS LISTED IN THE 8-16-68 AND 11-27-77 LETTERS FROM MONSANTO.

COLLECTED BY: P.C. Mann + K. Mensing DLPC. TRANSPORTED BY: KEN MENSING - DLPC

LABORATORY

RECEIVED BY: GP DATE COMPLETED: DATE FORWARDED: 8/11/80 [illegible]

Chlorotoluene and chlorophenol are present in this sample.

Chlorotoluene = 40,000. ug/l

RECEIVED
AUG 12 1980
E.P.A. — D.L.P.C.
STATE OF ILLINOIS

LPC-8A 4/77 (NOT FOR DATA PROCESSING) D015288

6095

Time Collected: _____ Lab # D015287 GP

SPECIAL ANALYSIS FORM

Date Collected: 10/12/79 Date Received OCT 16 [illegible]

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF LAND/NOISE POLLUTION CONTROL

COUNTY:	FILE HEADING:	FILE NUMBER:
St. Clair	Sauget/Toxic Dump	16312103

SOURCE OF SAMPLE: (Exact Location)

6095 w ocated s S [illegible]
is 35' deep

PHYSICAL OBSERVATIONS, REMARKS: light gray color strong organic chemical odor

TESTS REQUESTED: CHECK FOR PRESENCE OF CHEMICALS LISTED IN THE 8-16-68 AND 11-27-72 LETTERS FROM MONSANTO.

P.C. Mann + K. Mensing DLPC. KEN MENSING - DLPC

COLLECTED BY: TRANSPORTED BY:

LABORATORY

RECEIVED BY: GP DATE COMPLETED: DATE FORWARDED: 8/1/80 [illegible]

Chlorophenol and chlorotoluene are present in this sample

Chlorotoluene = 70,000 ug/l (PPb)

RECEIVED
AUG 12 1980
E.P.A. — D.L.P.C.
STATE OF ILLINOIS

LPC-8A 4/77 (NOT FOR DATA PROCESSING) D015287

G13D

D015286

GP

Time Collected: _____ Lab # 0C1 16 ...

SPECIAL ANALYSIS FORM

Date Collected: 10/12/79 Date Received _____

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF LAND/NOISE POLLUTION CONTROL

COUNTY:	FILE HEADING:	FILE NUMBER:
St. Clair	Sauget/Toxic Dump	16312103

SOURCE OF SAMPLE: (Exact Location)

G13D near northeast corner of site well is 60' deep

PHYSICAL OBSERVATIONS, REMARKS: dark gray in color; strong organic chemical odor.

TESTS REQUESTED: CHECK FOR PRESENCE OF CHEMICALS LISTED IN THE 8-16-68 AND 11-27-77 LETTERS FROM MONSANTO.

COLLECTED BY: P.C. MANN & KEN MENSING DLPC TRANSPORTED BY: KEN MENSING DLPC

LABORATORY

RECEIVED BY: GP DATE COMPLETED: DATE FORWARDED: 8/11/80 J Hurley

chlorotoluene is present in this sample

Chlorotoluene = 10,000. ug/l

RECEIVED
AUG 12 1980
E.P.A. — D.L.P.C.
STATE OF ILLINOIS

LPC-8A 4/77 (NOT FOR DATA PROCESSING) 0015286

G15S

D013285 GP

Time Collected: _____ Lab # 001 16

SPECIAL ANALYSIS FORM

Date Collected: 10/12/79 Date Received _____

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF LAND/NOISE POLLUTION CONTROL

COUNTY:	FILE HEADING:	FILE NUMBER:
St. Clair	Sauget / Toxic Dump	163 12103

SOURCE OF SAMPLE: (Exact Location)

G15S well located near NW ~~corner~~ side of site
well 35' deep

PHYSICAL OBSERVATIONS, REMARKS: dark gray color slight odor
(no inorganics ie metals + phenols taken)

TESTS REQUESTED: CHECK FOR PRESENCE OF CHEMICALS LISTED IN THE 8-16-68 AND 11-27-72 LETTERS FROM MONSANTO.

COLLECTED BY: P.C. Mann + K. Mensing DLPC. TRANSPORTED BY: KEN MENSING - DLPC

LABORATORY

RECEIVED BY: GP DATE COMPLETED: DATE FORWARDED: 8/11/80 J. Hurley

Chlorotoluene and hydrocarbons are present in this sample.

Chlorotoluene = 340 ug/l

RECEIVED
AUG 12 1980
E.P.A. — D.L.P.C.
STATE OF ILLINOIS

LPC-8A 4/77 (NOT FOR DATA PROCESSING) D013285

G175

DO13284

GP

Time Collected: _____ Lab #

SPECIAL ANALYSIS FORM

Date Collected: 10/12/79 Date Received _____

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF LAND/NOISE POLLUTION CONTROL

COUNTY:	FILE HEADING:	FILE NUMBER:
St. Clair	Sauget/Toxic Dump	16312103

SOURCE OF SAMPLE: (Exact Location)

G175 well located within the site itself well 35' deep.

PHYSICAL OBSERVATIONS, REMARKS: dark gray color; strong organic chemical odor.

TESTS REQUESTED: CHECK FOR PRESENCE OF CHEMICALS LISTED IN THE 8-16-68 AND 11-27-72 LETTERS FROM MONSANTO.

COLLECTED BY: P.C. Mann + K. Mensing DLPC. TRANSPORTED BY: KEN MENSING - DLPC

LABORATORY

RECEIVED BY: GP DATE COMPLETED: DATE FORWARDED: 8/11/80 J. Hunley

Chlorotoluene, diphenylether, and aliphatic hydrocarbons are present in this sample.

Chlorotoluene = 11,000 ug/l (ppb)
Diphenylether = 320 ug/l

RECEIVED
AUG 12 1980
E.P.A. — D.L.P.C.
STATE OF ILLINOIS

LPC-8A 4/77 (NOT FOR DATA PROCESSING) DO13284

G195 COPY Reported

cc: Jeff Stern 2-6760

Check on quantitation

D013283

run by D.W. GP

Time Collected: _____ Lab # 0[illegible]

SPECIAL ANALYSIS FORM

Date Collected: 10/13/79 Date Received _____

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF LAND/NOISE POLLUTION CONTROL

COUNTY:	FILE HEADING:	FILE NUMBER:
St. Clair	Sauget/Toxic Dump	16312103

SOURCE OF SAMPLE: (Exact Location)

G195 well located on east boundary at the center of the site. well is 35' deep

PHYSICAL OBSERVATIONS, REMARKS: dark gray color strong organic chemical odor.

TESTS REQUESTED: CHECK FOR PRESENCE OF CHEMICALS LISTED IN THE 8-16-69 AND 11-27-72 LETTERS FROM MONSANTO

COLLECTED BY: R.C. Mann + K. Mensing ~~DLPC~~ DLPC TRANSPORTED BY: KEN MENSING DLPC

LABORATORY

RECEIVED BY: GP DATE COMPLETED: DATE FORWARDED: 8/11/80 J Hurley

chlorophenol, dichlorobenzene, diphenylether, chlorotoluene, alkylphenols and aliphatic hydrocarbons are present in this sample.

Chlorophenol = 810 ug/l (PPb)
Dichlorobenzene = 1600 ug/l
Chlorotoluene = 18,000 ug/l
Diphenylether = 2100. ug/l

RECEIVED
AUG 12 1980
E.P.A. — D.L.P.C.
STATE OF ILLINOIS

LPC-8A 4/77 (NOT FOR DATA PROCESSING) D013283

KM
PCM

PA Land - Spri Field

CLAREY BUCKLEY

WAGNER, CONNER, FERGUSON, BERTRAND & BAKER
ATTORNEYS AT LAW
BELLEVILLE, ILLINOIS

cc: Messrs.
G. L. Bratsch
D. C. Otto
C. F. Buckley
P. B. Hodges - G.O.
D. W. Jackson
J. W. Molloy - G.O.
R. A. Stohr - G.O.
L. W. Sprandel

June 11, 1971

The Honorable Regina E. Ryan, Clerk
Illinois Pollution Control Board
Suite 900
189 West Madison Street
Chicago, Illinois 60602

Re: EPA v. Sauget & Company
(PCB 71-29)

Dear Madam Clerk:

In compliance with the provisions of paragraph 8 of the Order entered on May 26, 1971, we enclose herewith the original and nine (9) copies of the letter of The Monsanto Company dated June 3, 1971.

We are also sending a copy hereof and three (3) copies of the enclosure to the Director of EPA.

We are also sending a copy hereof and of the enclosure to Legal Bureau Chief Scheuneman of EPA and to Environmental Control Division Chief Keehner of the Attorney General's office and to Special Assistant General Kaucher.

Respectfully yours,

HGBjr/bb

HAROLD G. BAKER, JR.

cc: Paul Sauget
P. E. Heisler
Director - EPA
Thomas Scheuneman
James Keehner
Robert F. Kaucher

Monsanto

Monsanto Company
Sauget, Illinois 62201
Phone: (618) 271-5835

June 3, 1971

Illinois Pollution Control Board
189 West Madison Street
Chicago, Illinois

Re: Environmental Protection Agency vs.
Sauget & Company - #71-29

Dear Sir:

Order number 8 of the reference Opinion and Order of the Board states in part, "On or before June 15, 1971, Sauget & Company and Paul Sauget shall file with the Agency and the Board a list of chemical compounds being deposited in the liquid waste disposal facility, or an affidavit of Monsanto Company that the chemicals do not pose a threat of pollution of the Mississippi River by underground seepage."

In the body of the reference memo we note in Page 4, Paragraph 5 the statement, "The Agency complains that Sauget & Company had disposed of liquids and hazardous materials without prior approval." Also, reading the total paragraph indicates the Agency witnesses had limited information about the nature of the chemical wastes.

We recognize that with the recent re-organization of the Agency and usual change in personnel in recent years much correspondence is probably not readily available to the Agency people. We submit copies (attached) of the August 7, 1968 correspondence from C. W. Klassen of the Sanitary Water Board and our reply of August 16, 1968 which lists the chemical compounds being deposited in the liquid waste disposal facility. It is my understanding that this listing satisfactorily answered all questions the State had about the compounds involved.

At present we continue to deposit wastes of the same general composition as described in our August 16, 1968 letter. There has been a significant reduction of about 48% in the total quantity involved. In 1968 we deposited at the appropriate rate of about 35,470 cubic yards per year. In the year 1971 we estimate this will be about 18,400 cubic yards. Most of this reduction reflects the termination of certain major production operations at our Plant; such as, our Phenol Plant, the Alkyl Benzene Department and the sale of our "North Area Plant" - the oil additive production facilities - to Edwin Cooper, Incorporated.

We also note that the liquid waste disposal area has five operational test wells at strategic perimeter locations. These are periodically sampled and analyzed for phenol and COD. In the past, samples from these monitoring wells have been picked up by the Illinois Sanitary Water Board upon their request. Our most recent sampling analysis of April 29, 1971 indicated no measurable COD in any of the five test wells and no measurable phenol in four of the wells. One test well analyzed 2 ppm phenol. The previous sample in that well was 1 ppm of phenol. We interpret these data to indicate that no environmental problem exists.

Please advise if we can be of any further service in this matter.

Sincerely yours,

P E Heisler

P. E. Heisler, Director of
Environmental Control

/jhe

Att.

28 JUNE – 7 JULY 1979

TABLE 3. SUMMARY OF NO_x-NO DATA FROM THE CONTINUOUS ANALYZER

range - ppm[1]		Average - ppm		
NO_x	NO	NO_x	NO	Time
				7/3 ESP Run #1
50-70		58		17:26
				7/4 ESP Run #2
70-86.5		74		9:47-10:04
	65-68		66	10:08-10:15
70-75		73		10:15-10:33
	64-67		66	10:33-10:46
69-73		71		10:55-11:00
				7/4 ESP Run #3
75-81		78		11:55-12:18
60-83		65		12:30-12:39
86-88		87		12:40-12:41
	74-78		76	12:51-13:02
				7/4 ESP Run #4
	46-53		50	14:55-15:23
49-64		56		15:26-15:30
72-74		73		15:50-16:00
				7/4 ESP Run #5
62-105		85		16:53-17:23
	46-51		50	17:23-17:32
52-76		68		17:32-17:53
	56-59		58	18:00-18:05
58-68		63		18:05-18:20
				7/4 ESP Run #6
53-108		59		19:05-19:34
	55-63		57	18:36-18:39
	70-117.5		83	18:46-18:58
100-113		107		19:00-19:18

Particulate studies without NO_x data

all tests without nitrated wastes

waste was DOW's normal composition profile.

[1] Ignored peak drops caused by incinerator machinery, i.e., nozzle clean out.

THERMO ELECTRON CHEMILUMINESCENT NO/NO_x ANALYZER.

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TABLE 3 (continued)

range - ppm[1]		Average - ppm		
NO_x	NO	NO_x	NO	Time
				7/5 ESP Run #7
107.5-123		115		9:16-9:33
	33-55		48	9:33-9:50
90-130		103		9:50-10:33
				7/5 ESP Run #8
113-145		130		12:37-12:54
				7/5 DE #1 ← Nitrated wates, Waste data
280-330		300		18:08-18:30
270-330		310		19:07-19:43
		310		19:25 - Method 7 taken (DE-1)
	280-320		300	19:43-19:52
250-360		310		19:52-20:07
290-320		305		20:07-20:17
				7/6 DE #2
410-900		490		9:54-10:49
450-580		550		10:56-11:40 (10 min. after drum drop, average at 480 ppm NO_x)
	540-580		560	11:40-11:50
230-330		290		11:50-12:05
		310		11:59 - Method 7 taken (DE-2)
				7/7 DE #3
140-190		160		12:55-13:00
	140-150		145	13:00-13:08
150-160		150		13:08-13:10
				7/7 DE #4
450-600		550		13:18-13:59
570-600		580		14:06-14:12
	570-600		590	14:12-14:25

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TABLE 3 (continued)

range - ppm[1]		Average - ppm		
NO_x	NO	NO_x	NO	Time
				7/7 DE #5
	65-75		70	14:54-14:59
60-80		70		14:59-15:04
				7/7 DE #6
560-640		600		15:44-16:04
	530-630		575	16:04-16:11
465-600		520		16:11-16:28
		520		16:25 - Method 7 taken (DE-6)
360-400		370		16:40-16:47
				7/7 DE #7
670-700		675*		17:35-17:57 design case
		530		17:46 - Method 7 taken (DE-7)
				7/7 DE #8
150-280		200		18:40-19:22
				19:15 - Method 7 taken (DE-8)

Natural gas was being used for heated burns - Natural gas tends to reduce NO_x emissions because flame is rocker

therefore 0.2685 % destruction in DE-7 was scaled to .30%

No natural gas incon unit - make it uneconomical.

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SUMMARY

DOW CHEMICAL

NCB'S / FUEL OIL + NATURAL GAS / DRUMS MISC SOLIDS

DESIGN

	DE-1	DE-2	2	3	4	6	7	
DATE/TIME	7/5/79 645	7/5/79 705	7/6/79 1054	7/6/79 1204	7/6/79 255	7/6/79 345	7/6/79 500	7/6/79 633
DESCRIP.	LIQUID 1800°F 1 sec	LIQUID+DRUMS 1800°F 1 sec	LIQUID/DRUMS 2200°F 2 sec	LIQUID 2200°F 2 sec	LIQUID (NO NCB) 2200°F 2 sec	LIQUID/DRUMS 1800°F 2 sec	LIQUID (NCB ONLY 2200 °F 2 sec	LIQUID/DRUMS 2200°F 1 sec
FIRING	PRIMARY + SECONDAR			SECONDARY ONLY	PRIMARY ONLY	PRIMARY/SECONDARY		
NOx PPM	300	320	550	200	600	570	680	200
mole NOx / mole NCB	0.1619	0.1728	0.2134	0.0911	0.1857	0.2557	0.2685	0.0748
FUEL OIL / NCB	1.51	1.63	2.49	1.14		1.386	2.44	1.374

TRANE

NCB / NATURAL GAS / FUEL OIL

	T-1	T3	T4	T5	T6	T7
DESCRIPTION	2000°F 1 sec H_2O INJECTION 180% EXCESS AIR →	2200°F 1 sec H_2O INJECTION	1800°F 2 sec 200% EXCESS AIR	2200°F 2 sec 175% EXCESS	1800°F 1 sec 200% EXCESS	2200°F 2 sec 50% EXCESS AIR
			← REDUCING BURNER			→

	T1	T3	T4	T5	T6	T7
NOx ppm	1750	1650	6600	6000	3800	4800
mole NOx/mole CO	0.094	0.082	0.44	0.303	0.237	0.138
TEMP. PRIMARY (REDUCTIVE BURNER)	2400°F	2400°F	2200°F	2400°F	2400°F	2400°F

↑ DESIGN CASE

THE TRANE BURNER INVESTIGATED REDUCTIVE BURNER/H_2O INJECTION BOTH FOUND ONLY SLIGHTLY BENEFICIAL.

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TRANE THERMAL CO INCINERATOR TEST BURN
23 JULY – 27 JULY 1979

TRANE NO_x/NO and O_2 DATA

THERMO ELECTRON CHEMILUMINESCENT NO/NO_x ANALYZER USED
BECKMAN OXYGEN ANALYZER USED

← Pure Nitrated compounds

Range - ppm	Average ppm NO_x	Average ppm NO	O_2	Time
				7/24 Background natural gas only
24-26 NO_x	25		7-7 3/4	9:25 - 9:37 S[1]
22-20 NO_x	21		10-10 3/4	9:45 - 9:50 P[2]
26-31 NO_x	29		2-1 1/2	9:50 - 9:57 P
27-21 NO		24	3	10:00 - 10:05 P
				End natural gas background
---	4000		---	11:25 - 11:32 P
3800-3600 NO_x	3700		4 1/2	11:32 - 11:37 P
	2900		4 3/4 - 4 1/4	11:37 - 11:41 S
		2900	4	11:41 - 11:54 S
3800-3600 NO_x	3700		1	11:54 - 11:58 P
5000-3600 NO_x	4850		1	12:00 - 12:04 P
3700-3500 NO_x	3600		1	12:06 - 12:13 P
2900-2700 NO_x	2800		4	12:13 - 12:24 S
4400-4000 NO_x	4200		1/2	12:25 - 12:30 S
	2900		5	12:30 - 12:35 S
	2350		5	12:35 - 12:40 S
2000-1675 NO_x	1800		4 1/2	12:45 - 13:38 S
				7/24 Test T-1 ←
1900-1500 NO_x	1700		4 1/2	13:45 - 15:00 S
				7/25 Test T-2
3900-3000 NO_x	3500		1 3/4	8:13 - 8:30 P
2900-2700 NO		2800	1 1/4	8:30 - 8:34 P
	2600		1	8:34 - 8:41 P
	2600		1	8:41 - 8:45 S
2300-3500 NO		2600	1 1/4	8:45 - 8:52 S
3900-3100 NO_x	3400		2 1/4	8:52 - 9:32 S
		3200	2 1/4	9:32 - 9:35 S
	3150		2 1/4	9:35 - 9:44 S

exploratory runs to understand system
Inject natural gas, inject steam etc

(1) S - Sampling in secondary zone

(2) P - Sampling in primary zone

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SHOULD BE 0-2500 RANGE NOT 0-10,000 RANGE

Range - ppm	Average ppm NO_x	Average ppm NO	O_2	Time
				7/25 Test T-3
7900-6000 NO_x	(1600) 6400		4 1/4	10:23 - 10:53 S
6800-6200 NO		(1600) 6400	4	10:53 - 10:58 S
6600-6100 NO_x	(1625) 6500		4	10:58 - 11:18 S
---	(1600) 6400		---	11:07 S - Method 7 taken
6600-5200 NO_x	(1475) 5900		2	11:49 - 12:06 P
				7/25 Test T-3A
	1775		5	12:18 P
	1375		4 1/4	12:11 P
				7/25 Test 3B
	1200		0	13:07 P
				7/26 Test A-4
	7400		---	8:00 P
		6400	12 1/2	8:01 P
	6900		12	8:02 P
	6700		11 1/2	8:06 P
				7/26 Test B-4
	6600		11 1/2	8:13 P
	6800		11	8:15 P
				7/26 Test C-4
	7400		10	8:18 P
				7/26 Test D-4
	6400		11	8:22 P
				7/26 Test E-4
	6700		10	8:26 P
				7/26 Test F-4
	6800		9 1/4	8:33 P
				7/26 Test G-4
	6600		9 1/4	8:41 P
	6100		10	8:45 P
				7/26 Test H-4
	4500		4 1/2	9:07 P

Wrong actual values: 1/4 Based on wrong range

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Range - ppm	Average ppm NO_x	Average ppm NO	O_2	Time
				7/26 Test I-4
	5000		9 1/4	10:08 P
				7/26 Test J-4
	7000		1/2	10:13 P
	7700		1/4	10:15 P
	4000		8	10:18
				7/26 Test T-4 *
	6800		8 3/4	11:13 S
	6500		7 1/2	11:21 S - Method 7 taken 11:20 a.m.
		6200	7 1/2	11:24 S
	2900		4 1/2	11:30 P
		2200	10	11:37 P
	2200		10	11:40 P
				Method 7 taken 11:49 P
				7/26 Test A-5
	590		1 1/2	14:09 P
	260		1/4	14:12 S
				7/26 Test T-5 *
	5250		5	14:58 S
		6500	4	15:06 S
	6300		4	15:08 S
	6900		4	15:11 S - Method 7 taken 15:15 S
	6500		5 3/4	15:51 S
		6600	5 3/4	15:53 S
	5600		7 1/2	16:12 P
	5700		7 1/2	16:15 P - Method 7 taken 16:15 P
		5500	7 1/2	16:17 P

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Range - ppm	Average ppm NO_x	Average ppm NO	O_2	Time
				7/26 Test T-6 *
	3900		10 1/4	17:17 S
		3800	10	17:20 S
	3800		10	17:22 S
				Method 7 taken 18:15 S
	5100		6 3/4	18:30 P
		5100	6 1/4	18:35 P - Method 7 taken 18:36 P
	5200		6 1/4	18:40 P
				7/27 Test A-7
	9500		1 3/4	9:01 S
				7/27 Test 7-B
	10000		0	10:22 S
				7/27 Test 7-C
	10000+		0	10:35 S
				7/27 Test 7-D
	6500		0	10:42 S
				7/27 Test 7-E
	7700		0	10:48 S
	8000		0	10:50 S
				7/27 Test 7-F
	10000+		0	10:52 S
				7/27 Test 7-G
	5900		0	11:00 S
				7/27 Test 7-H
	4800		0	11:03 S
				7/27 Test 7-I
	10000+		0	11:06 S
				7/27 Test 7-J
	5200		0	11:10

inconclusive data - sometimes high/sometimes low
could not consistantly demonstrate a
lower NO_x rate.

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12PM(18Z)	1	25	2615	30	15		C	15	OVC			
1PM(19Z)	1	24	2720	30	15		C	15	OVC			
2PM(20Z)	1	23	2720	30	15		C	15	OVC			
3PM(21Z)	1	23	2720	25	15		C	20	BKN			
4PM(22Z)	1	22	2720	30	15		C	20	BKN			
5PM(23Z)	1	21	2717	26	8		C	20	BKN	30	OVC	
6PM(00Z)	1	20	2719	31	8		C	24	BKN	30	OVC	
7PM(01Z)	1	20	2420	30	8		C	30	OVC			
8PM(02Z)	1	18	2720	30	5	S-	C	30	OVC			
9PM(03Z)	1	17	2720	30	8		C	30	OVC			
10PM(04Z)	1											

+USDTAATAAATA STL 12PYY-12PY

STATION: STL TODAY'S DATE: 2-DEC-85

TIME	DATE	PRS	TMP	DEW	WIND	G	VIS	WX	SKY					
12PM(18Z)	30	175	45	42	1208		3	F	C	11	BKN	32	OVC	
1PM(19Z)	30	165	47	43	1209		4	F	C	11	BKN	32	OVC	
2PM(20Z)	30	154	47	43	1110		4	F		11	SCT	C 28	OVC	
3PM(21Z)	30	154	47	43	1211		5	F	C	13	BKN	28	OVC	
4PM(22Z)	30	152	46	43	1109		5	F	C	12	BKN	28	OVC	
5PM(23Z)	30	145	46	44	1010		4	RW-F		7	SCT	C 10	OVC	
6PM(00Z)	30	135	45	45	0910		4	R-F	C	7	OVC			
7PM(01Z)	30	130	46	45	1112		4	R-F	C	6	OVC			
8PM(02Z)	30	127	46	45	0908		6	F	C	7	OVC			
9PM(03Z)	30	117	47	45	1111		6	F	C	7	OVC			
0PM(04Z)	30	120	47	45	0000		6	F	C	7	OVC			
1PM(05Z)	30	103	47	46	0806		6	F	C	7	OVC			
2AM(06Z)	1	083	47	46	0910		5	F		-	X	C 7	OVC	
1AM(07Z)	1	059	47	46	1010		3	F		-	X	6	SCT	C 10 OVC
2AM(08Z)	1	052	47	46	1006		2 1/2	R-F		-	X	C 8	OVC	
3AM(09Z)	1	044	48	48	1304		2	RF		-	X	C 7	OVC	
4AM(10Z)	1	001	48	48	0920		1 3/4	R-F		-	X	3	SCT	C 13 OVC
5AM(11Z)	1	003	51	50	1511		2 1/2	F		3	SCT	C 7	OVC	
6AM(12Z)	1	997	52	51	1910		3	F		7	SCT	C 19	BKN	35 OVC
7AM(13Z)	1	997	53	52	2520		3	R-F	C	7	OVC			
8AM(14Z)	1	029	39	38	2524	29	10		C	5	OVC			
9AM(15Z)	1	044	31	30	2720	28	10		C	OVC				
0AM(16Z)	1	064	27	23	2626	33	10		C	13	OVC			
1AM(17Z)	1	074	24	19	2625	34	10		C	22	OVC			
2PM(18Z)	1	079	23	17	2728	34	10	S-	C	18	OVC			

snow east 8-11 knots

CONFIDENTIAL

3N 10W - 13.8g

January 5, 1979

MINERAL ANALYSIS

Sample of water collected November 7, 1978, from a well owned by Apex Oil, Granite City, Illinois, in Madison County. Location of well: Section 13.8g, T3N, R10W. Depth of well: 60 feet. water temp. 63°

LABORATORY NO. 209545

		mg/l	me/l			mg/l	me/l
Iron(total)	Fe	0.0		Phosphate(filt)	P	0.0	
Manganese	Mn	.03		(unfilt)	P	0.0	
Calcium	Ca	53.6	2.67	Silica	SiO_2	7.5	
Magnesium	Mg	20.1	1.65	Fluoride	F	0.9	
Strontium	Sr	.20	.00	Boron	B	0.2	
Sodium	Na	27.0	1.17	Nitrate	NO_3	11.0	.18
Potassium	K	3.5	.09	Nitrite	NO_2	.03	.00
Ammonium	NH_4	0.1	.01	Chloride	Cl	27	.76
Barium	Ba	<0.1		Sulfate	SO_4	77.1	1.60
Cadmium	Cd	.00		Alkalinity (as $CaCO_3$)		150	3.00
Chromium	Cr	.00					
Copper	Cu	.08					
Lead	Pb	<.05					
Lithium	Li	.01					
Nickel	Ni	<.05					
Zinc	Zn	.17	.01				
Silver	Ag	.00					

Turbidity	8	Hardness (as $CaCO_3$)	216	4.32
Color	0			
Odor	0			
Temp.(reported)	63°	Total Dissolved Minerals	310	

mg/l = milligrams per liter
me/l = milliequivalents per liter

mg/l x .0583 = grains per gallon

ILLINOIS STATE WATER SURVEY

James C. Whitney
Head, Analytical Laboratory
217/333-0802

JCW/pcb

March 18, 1955

Mr. G. N. Mills: (2)

DEEPWELL CAISSON 2
VENICE-2 PLANT

Attached are curve and results of level measurements of the deepwell in Caisson 2 as per your request.

On March 17, 1955 the well level was measured with Deepwell Pump-2 in normal operation. The pump was shut off and well level measurements were taken over a 30 minute period. The total rise in well level during this period was 9 ft. 7 in. The data taken is as follows:

Time P.M.	Well Level Grade-Ft.
3:05	-21.75
3:16	-17.00
3:20	-16.00
3:25	-14.67
3:30	-13.42
3:35	-12.17

River Stage: 14.0 ft.

If we can be of further service, do not hesitate to call on us.

WELL LEVEL WAS:
- 24.8 GR. ON 2/18/55
- 27.7 GR. ON 2/21/55
- 41.0 GR. ON 2/22/55

Original signed by
Paul R. Brendel

Paul R. Brendel

Approved:

Original signed by
Wm. A. Vornholt, Jr.

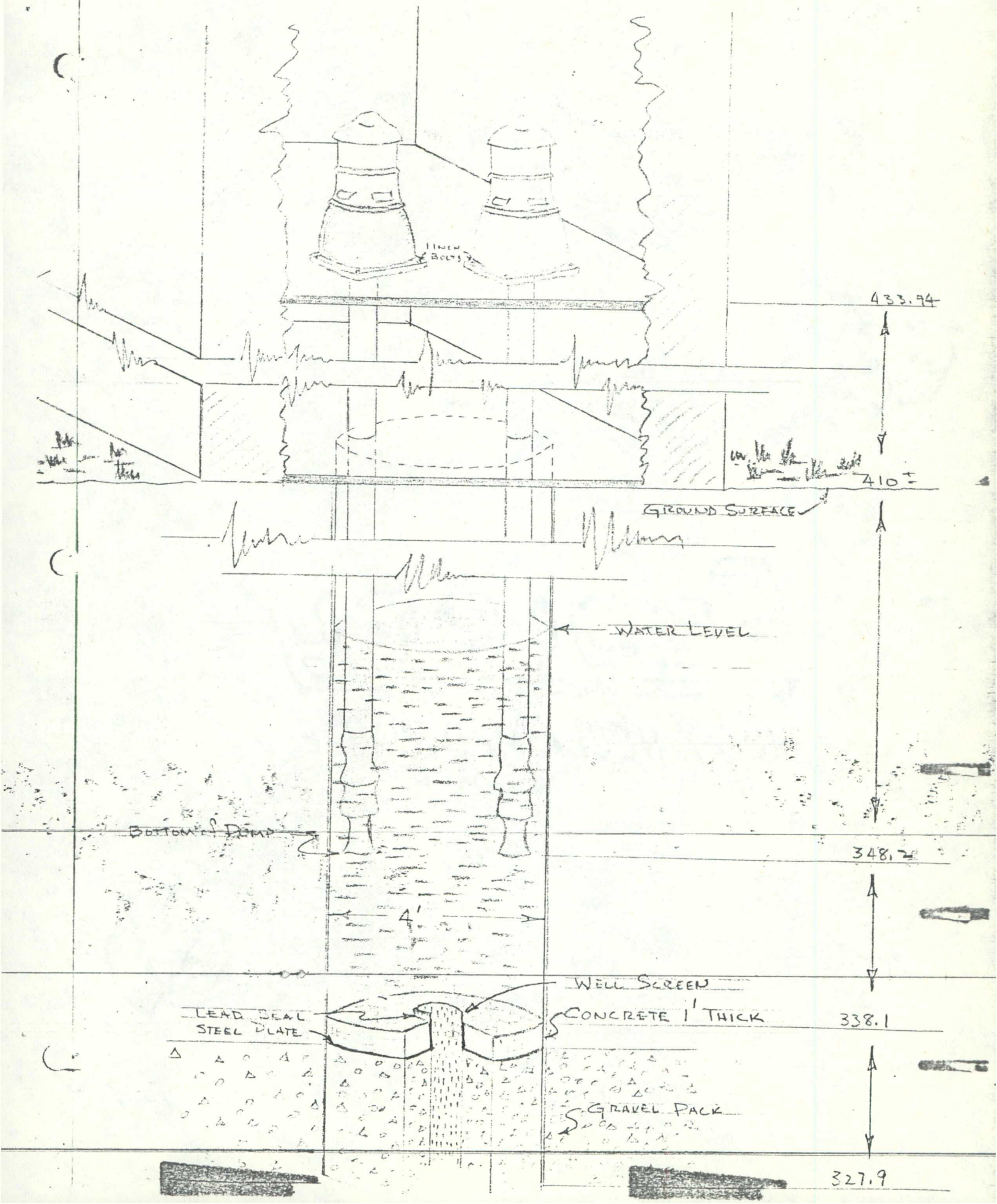
Wm. A. Vornholt, Jr.

cc: Engr. File

REF. 44.3 GR.
0.0 GR. = 379.94 FT. ABOVE M.S.L.
FR PUMP RATING CURVE EST 100GPM RATE

PRB/jg

UNION ELECT CO
MADISON PLANT



STATE OF ILLINOIS
DEPARTMENT OF
REGISTRATION AND EDUCATION
~~FRANK G. THOMPSON~~*, DIRECTOR
SPRINGFIELD

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AND CONSERVATION
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Ex Officio - PRES. G. D. STODDARD
* Noble J. Puffer

File

Adlai E. Stevenson
STATE OF ILLINOIS
~~DWIGHT H. GREEN~~, GOVERNOR
STATE WATER SURVEY DIVISION
ARTHUR M. BUSWELL, CHIEF
URBANA, ILL.

August 26, 1949

MONSANTO CHEMICAL CO.

East St. Louis, Illinois

Subject: Conference on industrial use of water
Date: August 18, 1949
Personnel: Mr. J. F. Stickley - M.C.C. Assistant Plant Manager
Mr. J. P. Bufe - M.C.C. Utility Engineer for power plant and water supply
Mr. H. E. Hudson - S.W.S. Civil Engineer
Mr. T. E. Larson - S.W.S. Chemist
Mr. R. P. Strout - S.W.S. Mechanical Engineer

Products: Chlorine and caustic soda ($NaOH$)
Sulfuric acid (Numerous other minor products)

Chlorine is produced by a gas by passing an electric current through a solution of common salt in a Nelson Cell. The resulting caustic soda remains in solution.

Sulfuric acid is produced by the contact or catalytic process in which burning sulfur forms SO_3 in the presence of vanadium catalyst combining with 98% sulfuric acid H_2SO_4, to form 99% sulfuric acid.

The municipal water company supplies approximately 2,000,000 gpd of soft water (130 ppm) to the plant.

Munidipal water is drawn from the Mississippi River.

City water is used for fire supply as insurance Co. considers it most reliable.

City water used in plant for sanitary purposes, as solvent in process water (dissolves salts), as make-up in evaporative cooling units.

The plant draws about 10 Mgd. of water from its own wells.

The water level is reported not to have changed materially over a period of 40 years.

Well water is highly mineralized (13000 ppm) containing much iron (15-20 ppm.) which tends to clog heat exchangers particularly if exposed to air.

Water from 2 wells is treated with sulfur dioxide to delay precipitation of iron sludge.

Concentration of SO_2 is maintained at 7 ppm.

Well water is used only for heat transfer cooling. In the cooling process the water is limited to a 25° F. temperature rise as a greater temperature increase would result in precipitation of the iron and $CaCO_3$ sludge, within equipment.

Both municipal and well supply are metered but plant desires a greater number of meters at points of use.

The temperature range of chemical processes is from -10° C. to 250° C.

The water system represents 2 to 4 percent of the total plant investment.

It is estimated that well water costs between 4 and 5 cents per 1000 gallons.

Major water equipment used for cooling consisted of:

Cell forced draft cooling towers for
1 spray pond for caustic separation
1 cascade evaporative condenser for SO_3 cooling.

R. P. Strout

Monsanto Chem. Co. Well No. 3

Drilled by H. L. Watson (Waly) July 1941

Formations passed through	Thickness	Depth of bottom
Fill	10	
Mud	8	18
Yellow sand	10	28
Gray sand (getting coarser)	35	63
#30 sand	15	78
#40 gravel	5	83
#50 "	5	88
#60 "	17	105 TD

Static level from surf 30'
Screen Johnson
Slot 40
Diam. 16
Length 30'

Monsanto ChemCo. (Plant "B") Well No. 12

Drilled by H. L. Watson

Formations passed through	Thickness	Depth of bottom
No log	70	
Fine sand	5	75
Coarse sand and gravel	5	80
" " " "	5	85
" " " "	5	90
" " " "	5	95
" " " "	5	100
Sand and gravel	5	105
" " "	5	110
Few boulders	2	112

Static level from surf. 39'6"
~~Tested capacity 1250 gpm~~
Screen Johnson
Slot 60-80-100
Diam. 16
Length 27 1/2

STC 2N/10W-25.7b

August 4, 1943

SHORT PARTIAL ANALYSIS

Sample of water collected April 1, 1943 from well owned by Moss Tie Co. Monsanto, Well No. 1, Centerville, Illinois. Depth of well: 100'. Rate of pumping: 75 gpm. after 2 hours.
SW 1/4, Sec. 25, T. 2 N., R. 10 W.

25.7b

LABORATORY NO. 95770

Determinations Made

		Pts. per Million
Turbidity		Tr.
Color		0
Odor		0
Iron (unfiltered)	Fe	1.7
Chloride	Cl	32.0
Alkalinity (as $CaCO_3$)		
Phenolphthalein		0.
Methyl Orange		396.
Total Hardness (as $CaCO_3$)		322.
Total Mineral Content		469.

Temperature 64° F.

STATE WATER SURVEY DIVISION

T. E. Larson, Chemist

TEL:AB

STC 2N10W-26.49

June 29, 1943

SHORT PARTIAL ANALYSIS

Sample of water collected April 16, 1943 from well owned by Monsanto Chemical Co., Monsanto, Illinois. Well No. 7. Depth of well: 104 feet. Rate of pumping: 575 gpm. after 24 hours. NE 1/4 Sec. 26, T. 2 N., R. 10 W.

LABORATORY NO. 96003

Determinations Made

		Parts per Million
Turbidity		100
Color		20
Odor		Medicinal
Iron	Fe	
(unfiltered)		37.2
Chloride	Cl	148.0
Alkalinity	(as $CaCO_3$)	
Phenolphthalein		0.0
Methyl Orange		350.0
Total Hardness (as $CaCO_3$)		770.
Residue		1856.
Temperature 60° F.		

STATE WATER SURVEY DIVISION

T. E. Larson, Chemist

TEL:AB

STC 2N10W-26.3J

June 29, 1943

SHORT PARTIAL ANALYSIS

Sample of water collected June 8, 1943 from well owned by Monsanto Chemical Co., Monsanto, Illinois. Well No. 8. Depth of well: 105 ft. Rate of pumping: 580 gpm. after 24 hours.

NE 1/4 Sec. 26, T. 2 N., R. 10 W.

LABORATORY NO. 98461

Determinations Made

		Parts Per Million
Turbidity		100 (+)
Color		0
Odor		0
Iron (unfiltered)	Fe	6.8
Chloride	Cl	82.0
Alkalinity (as $CaCO_3$)		
Phenolphthalein		0.0
Methyl Orange		465.0
Total Hardness (as $CaCO_3$)		807.8
Total Mineral Content		1465.0
Temperature 62° F.		

STATE WATER SURVEY DIVISION

T. E. Larson, Chemist

TEL:AB

T 2N
R 10W

D. Plant

ILLINOIS STATE WATER SURVEY

Collection of Water Samples

Sample should be taken from a point as close to the well pump as possible and after the pump has been in operation for a sufficient length of time to remove the stagnant water.

Data needed for each sample:

City MONSANTO County ST. CLAIR

Name of owner MONSANTO Chemical Co

Exact identification of well #8 (Sample tap fin)

Exact location of well

Sample collected on (date) 4-16-43 at (time) 10:30 AM

after 24 hours pumping at 570 gal. per min.

Tap used for sample*: (at well) storage tank, distribution system

Depth of well 105 feet. Diameter 16 inches,

Cased to 75 feet. Screen from 75 feet to 105 feet

Where possible report also:

Log of well

Date drilled 10-39 Well driller H. L. WATSON

Major repairs

Type of pump POMONA 4 STAGE CENT.

Hours or days in use per week 7 days

Non-pumping level 37 feet. Pumping level 70 feet

expressed as:* Mean Sea level. (Feet below top). Gage reading.

Sea level elevation of top of well TOP OF BASE PL. ELEV. 99.27.

Temperature of water 60° Sample collected by J. G. McElligott

For office use: Analysis No. 95988

*circle the correct designation.

X

STC 2N 10W-26.4

June 29, 1943

SHORT PARTIAL ANALYSIS

Sample of water collected April 16, 1943 from well owned by Monsanto Chemical Co., Monsanto, Illinois. Well No. 9. Depth of well: 105'. Rate of pumping: 860 gpm after 24 hours. NE 1/4 Sec. 26, T. 2 N., R. 10 W.

LABORATORY NO. 95989

Determinations Made

		Parts per Million
Turbidity		100
Color		0
Odor		0
Iron (unfiltered)	Fe	14.8
Chloride	Cl	18.0
Alkalinity (as $CaCO_3$)		
Phenolphthalein		0.0
Methyl Orange		392.0
Total Hardness (as $CaCO_3$)		480.
Total Mineral Content		854.1
Temperature, 60° F.		

STATE WATER SURVEY DIVISION

T. E. Larson, Chemist

TEL:AB

June 29, 1943

STC 2N10W-26.39

SHORT PARTIAL ANALYSIS

Sample of water collected April 15, 1943 from well owned by Monsanto Chemical Co., Monsanto, Illinois, Well No. 10. Depth of well: 110 ft. Rate of pumping: 700 gpm. after 24 hours.

NE 1/4 Sec. 26, T. 2 N., R. 10 W.

LABORATORY NO. 95990

Determinations Made

		Parts per Million
Turbidity		100
Color		0
Odor		tr.
Iron (unfiltered)	Fe	43.2
Chloride	Cl	60.0
Alkalinity (as $CaCO_3$)		
Phenolphthalein		0.0
Methyl Orange		416.0
Total Hardness (as $CaCO_3$)		480
Total Mineral Content		636
Temperature 60° F.		

STATE WATER SURVEY DIVISION

T. E. Larson, Chemist

TEL:AB

St. Clair

STC 2N10W-26.1e2

December 29, 1947

CHEMICAL ANALYSIS

Sample of water collected December 12, 1947 from well owned by the Monsanto Chemical Co., Monsanto, Illinois. Location of well: 2160' S. & 340' W. of NE. corner, Section 26, T. 2 N., R. 10 W. Depth: 105'. Well No. 11.

26.1e

LABORATORY NO. 112,885

		ppm.	epm.			ppm.	epm.
Iron (total)	Fe	12.8		Silica	SiO_2	37.0	
Manganese	Mn	0.3		Fluoride	F	0.3	
Calcium	Ca	130.2	6.51	Chloride	Cl	18.0	0.51
Magnesium	Mg	40.6	3.34	Nitrate	NO_3	0.1	Tr.
Ammonium	NH_4	0.5	0.03	Sulfate	SO_4	137.0	2.85
Sodium	Na	15.6	0.68	Alkalinity (as $CaCO_3$)		360.	7.20
Turbidity		100±		Hardness (as $CaCO_3$)		493.	9.85
Color		0		Residue		603.	
Odor		Chemical					

ppm. = parts per million
epm. = equivalents per million
ppm. x .0583 = grains per gallon

STATE WATER SURVEY DIVISION

Irene Van Meter, Asst. Chemist

IV:AB

STC 2N10W-26.2e1

26.2e

December 29, 1947

PARTIAL CHEMICAL ANALYSIS

Sample of water collected December 12, 1947 from Well No. 12 owned by the Monsanto Chemical Co., Monsanto, Illinois. Location of well: 2540' S. & 1090' W. of NE. corner, Section 26, T. 2 N., R. 10 W. Depth: 105'.

LABORATORY NO. 112,886

	ppm.	epm.			ppm.	epm.
Iron (total) Fe	16.8		Chloride	Cl	52.0	1.47
			Sulfate	SO_4	145.4	3.03
Turbidity	100-		Alkalinity (as $CaCO_3$)		416.	8.32
Color	0		Hardness (as $CaCO_3$)		514.	10.28
Odor	Chemical		Total Mineral Content		680.	

ppm. = parts per million
epm. = equivalents per million
ppm. x .0583 = grains per gallon

STATE WATER SURVEY DIVISION

Irene Van Meter, Asst. Chemist

IV:AB

STC 2N10W-26.2e

June 29, 1943

SHORT PARTIAL ANALYSIS

Sample of water collected April 16, 1943 from well owned by Monsanto Chemical Co., Monsanto. Well No. 12. Depth of well: 110'. Rate of pumping: 400 gpm. after 24 hours.
NE 1/4 Sec. 26, T. 2 N., R. 10 W.

LABORATORY NO. 95991

Determinations Made

		Parts per Million
Turbidity		100
Color		0
Odor		0
Iron (unfiltered)	Fe	17.6
Chloride	Cl	35.0
Alkalinity (as $CaCO_3$)		
Phenolphthalein		0.0
Methyl Orange		412.0
Total Hardness (as $CaCO_3$)		508
Total Mineral Content		911
Temperature 60° F.		

STATE WATER SURVEY DIVISION

T. E. Larson, Chemist

TEL:AB

June 29, 1943

SHORT PARTIAL ANALYSIS STC 2N10W-26.2f

Sample of water collected April 16, 1943 from well owned by Monsanto Chemical Co., Monsanto, Illinois. Well No. 13. Depth of well: 105'. Rate of pumping: 660 gpm. after 24 hours. NE 1/4, Sec. 26, T. 2 N., R. 10 W.

LABORATORY NO. 95932

Determinations Made

		Parts per Million
Turbidity		100
Color		0
Odor		Sweetish
Iron (unfiltered)	Fe	13.6
Chloride	Cl	27.0
Alkalinity (as $CaCO_3$)		
Phenolphthalein		0.0
Methyl Orange		326.0
Total Hardness (as $CaCO_3$)		530
Total Mineral Content		626
Temperature 60° F.		

STATE WATER SURVEY DIVISION

T. E. Larson, Chemist

TEL:AB

June 29, 1943

SHORT PARTIAL ANALYSIS

STC 2N10W-26.39

Sample of water collected April 16, 1943 from well owned by Monsanto Chemical Co., Monsanto, Illinois. Well No. 14. Depth of well: 105'. Rate of pumping: 540 gpm. after 24 hours. NE 1/4, Sec. 26, T. 2 N., R. 10 W.

LABORATORY NO. 95993

26.39

Determinations Made

		Parts per Million
Turbidity		100
Color		0
Odor		Disagreeable
Iron (unfiltered)	Fe	47.2
Chloride	Cl	56.0
Alkalinity (as $CaCO_3$)		
Phenolphthalein		0.0
Methyl Orange		270.0
Total Hardness (as $CaCO_3$)		726.
Total Mineral Content		1056.
Temperature 60° F.		

STATE WATER SURVEY DIVISION

T. E. Larson, Chemist

TEL;AB

STC 2N10W-26.2e-2

June 29, 1943

SHORT PARTIAL ANALYSIS

Sample of water collected April 16, 1943 from well owned by Monsanto Chemical Co., Monsanto, Illinois. Well No. 15. Depth of well: 106 1/2 feet. Rate of pumpage: 625 gpm. after 24 hours. NE 1/4 Sec. 26, T. 2 N., R. 10 W.

26 2e

LABORATORY NO. 95994

Determinations Made

		Parts per Million
Turbidity		100
Color		0
Odor		Disagreeable
Iron (unfiltered)	Fe	21.6
Chloride	Cl	61.0
Alkalinity (as $CaCO_3$)		
Phenolphthalein		0.0
Methyl Orange		462.0
Total Hardness (as $CaCO_3$)		776.6
Total Mineral Content		1108.
Temperature 60° F.		

STATE WATER SURVEY DIVISION

T. E. Larson, Chemist

TEL;AB

STC 2N10W-26.4e

26.4e

December 29, 1947

CHEMICAL ANALYSIS

Sample of water collected December 12, 1947 from Well No. 16 owned by the Monsanto Chemical Co., Monsanto, Illinois. Location of well: 2240' S. & 2200' W. of NE. corner, Section 26, T. 2 N., R. 10 W. Depth: 109'.

LABORATORY NO. 112,888

		ppm.	epm.			ppm.	epm.
Iron (total)	Fe	15.2		Silica	SiO_2	45.2	
Manganese	Mn	0.5		Fluoride	F	0.4	
Calcium	Ca	141.7	7.09	Chloride	Cl	34.0	0.96
Magnesium	Mg	37.2	3.06	Nitrate	NO_3	Tr.	Tr.
Ammonium	NH_4	0.6	0.03	Sulfate	SO_4	163.7	3.41
Sodium	Na	30.1	1.31	Alkalinity (as $CaCO_3$)		356.	7.12
Turbidity		100±		Hardness (as $CaCO_3$)		508.	10.15
Color		35		Residue		662.	
Odor		Chemical					
Temperature 58° F.							

ppm. = parts per million
epm. = equivalents per million
ppm. x .0583 = grains per gallon

STATE WATER SURVEY DIVISION

Irene Van Meter, Asst. Chemist

IV:AB

ILLINOIS STATE WATER SURVEY

Collection of Water Samples

T 2N
R 9W

Sample should be taken from a point as close to the well pump as possible and after the pump has been in operation for a sufficient length of time to remove the stagnant water.

Data needed for each sample:

City Centerville Tw County St Clair

Name of owner Mass. Tie Co. Monsanto

Exact identification of well Well No. Two. Power house connected.

Exact location of well ✓

Sample collected on (date) April 1 1943 at (time) 1:15

after 2 hours pumping at 75 gal. per min.

Tap used for sample*: at well storage tank, distribution system

Depth of well 100 feet. Diameter 6 inches,

Cased to 100 feet. Screen from 96 feet to 100 feet

Where possible report also:

Log of well

Date drilled 1920 Well driller Bates

Major repairs ✓ none

Type of pump Electric Pomona

Hours or days in use per week 8 hrs weekly

Non-pumping level 20.4 feet. Pumping level 40 feet

expressed as:* Mean Sea level. Feet below top. Gage reading.

Sea level elevation of top of well

Temperature of water 54 Sample collected by W C Davis

For office use: Analysis No. 95770

*circle the correct designation.

GRANITE CITY STEEL COMPANY WELLS

WATER TABLE ELEVATION DATA FEBRUARY 27, 1946

WELL NO.	C/L OF DISCHARGE PIPE TO WATER LEVEL	ELEVATION ABOVE SEA LEVEL	REMARKS
*4	33 Ft.	386.51 Ft.	
5	29 Ft.	384.61 Ft.	
*6	29 Ft.	384.74 Ft.	
7	33 Ft.	383.30 Ft.	
8	28 Ft.	387.07 Ft.	
9	-	-	Down for repairs
10	29 Ft.	383.49 Ft.	
11	34 Ft.	384.04 Ft.	
12	25 Ft.	386.81 Ft.	
13	27 Ft.	384.86 Ft.	
14	-	-	Pump shut down no drawdown pump
*15	32 Ft.	385.21 Ft.	
16	33 Ft.	382.27 Ft.	
17	30 Ft.	382.83 Ft.	
18	29 Ft.	385.76 Ft.	

* All wells except #4, 6 and 15 were shut down from January 21 to March 1, 1946, and these wells were shut down one half hour prior to measurement.

John J. Huck

March 21, 1946

Mr. Al Stoever
Granite City Steel Co.
Granite City, Illinois

Dear Mr. Stoever:

On May 9, 1945, we sent to Mr. Lawrence R. Hawkins, Scout Executive, 1904 Delmar Ave., Granite City, Ill., a short report and a geological memorandum prepared by the State Geological Survey on the ground water possibilities at the Old Chautauqua Park, Montgomery County. I could not add anything to this without new evidence furnished by well records or field study.

The best thing to do, therefore, would be to drill one or two test holes, have the driller collect good soil samples every 5 ft. or more if more rapid changes occur in the type of material encountered. If a pump is installed we will then make a production test to determine the water-bearing capacity of the aquifer.

Mr. George Brainard is with the Calhoun Drilling Company and does much rock well drilling. Other drillers working in Montgomery County are Earl C. Baker, Sigel, Illinois, and L. R. Burt, Decatur.

Very truly yours,

STATE WATER SURVEY DIVISION

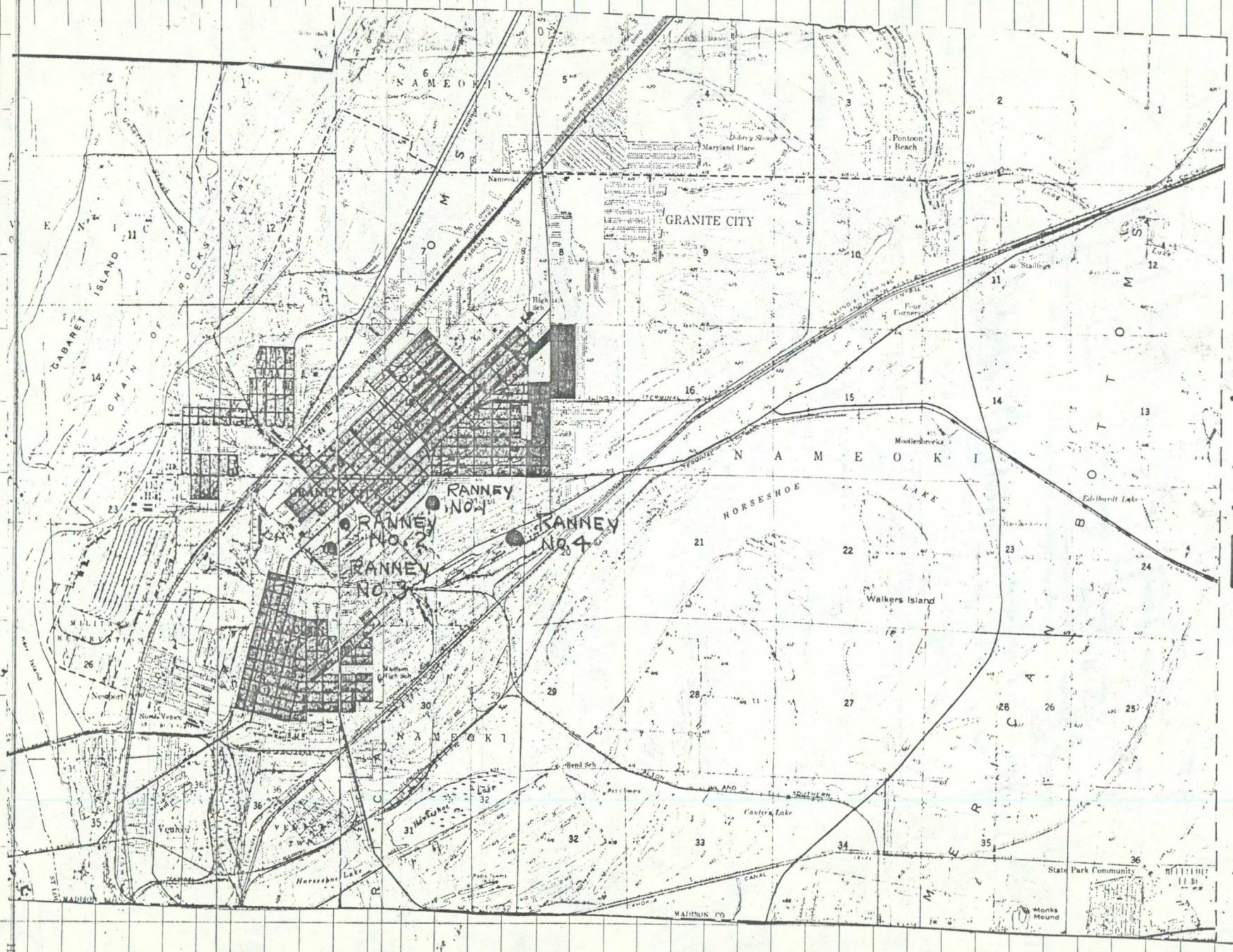
Max Suter, Engineer

MS:MSA

cc: State Geological Survey

Granite City Steel Sh. . Down Ranney Wells
10:30 A.M. Sept. 9, 1957

Location	Owner	Elevation	1957 Sept. 9	1957 Oct. 31	Change
3N9W-19.3g1	G.C.S. Ranney No. 1		353.48	373.84	20.36
3N9W-19.3g2	Obs.		353.76	373.65	19.89
3N10W-24.1c1	G.C.S. Ranney No. 2		352.47	369.29	16.82
3N10W-24.1c2	Obs.		348.89	368.90	20.01
3N9W-19.8f2	G.C.S. Ranney No. 3		347.29	367.66	20.37
-19.8f1	Obs.		73.94	57.41	16.53
3N9W-19.7b	G.C.S. No. 11		356.16	369.20	13.04
	BFD Ranney No. 4		361.02	383.23	22.21
	BFD Well No. 2		52.00	34.09	17.91
	BFD Well No. 3		51.93	36.17	15.76
-20.8e1	BFD Well No. 4	415.38	51.21	35.93	15.28
	BFD Well No. 5				
3N9W-20.8d1	BFD Well No. 6	415.38	50.26	35.97	14.29
	BFD Well No. 7		48.77	36.17	12.60
	BFD Well No. 9	416.58	56.22	34.08	22.14
-20.8d2	BFD Well No. 12	415.38	46.09	35.00	11.09
-20.8e2	BFD Well No. 13	414.68	49.77	36.86	12.91
	BFD Well No. 14		53.05	35.73	17.32
3N9W-16.8a	E-1		395.3	396.6	1.3
3N9W-20.2h	E-2		392.24	393.84	1.6
3N9W-17.2a	U. Bishoff		390.39	391.71	1.32
	S.W.S. #3		no change		
3N9W-18.1f	Stoever		380.83	382.35	1.52
	Dressel Young	Assumed 426.0	63.34	58.47	4.87
	Massey (pumping 24 hrs)	425	70.88	60.09	10.79
	City Ice and Fuel	415	56.82	47.64	9.18
3N10W-24.6c	Gen. Steel Casting No. 11	427	56.90	54.81	2.09
3N10W-24.5e	Gen. Steel Casting No. 13	427	60.31	operating	
	Gen. Steel Casting No. 14	427	62.39	57.46	4.93
	Gen. Steel Casting No. 15	424	61.31	61.06	0.25
	Laclede Steel		no change		
	Armour Fert	413	31.65	32.33	0.68
	Celotex		no change		



NAMEOKI
GRANITE CITY
Maryland Place
Pontoon Beach
Dobrey Slough
Nameoki
High Sch
Stallings
Four Corners
Moellenbrocks
Edelhardt Lake
HORSESHOE LAKE
Walkers Island
GABARET ISLAND
CHAIN OF ROCKS CANAL
RANNEY NO. 1
RANNEY NO. 2
RANNEY NO. 3
RANNEY NO. 4
Madison High Sch
Newport
North Venice
Venice
Bend Sch
Cantera Lake
Horseshoe Lake
State Park Community
Monks Mound
MADISON CO
T3N

DATE: 5/17/82 Notice Holosk. Lab requested 6 Copies ASAP

SUBJECT: Review of Region V Contractor Data; Received for Review on 5/6/82

FROM: Curtis Ross, Director
Central Regional Laboratory CR

Sauget/Totie

TO: Data User: TAT, CDO, Holoska

We have reviewed the data for the following Case(s):

Site Name: Sauget SMO Case No: Y905

EPA Data Set No: SF 1401 Decision Unit:

CRL No's: 82WT06S01 thru 82WT06S07

SMO Traffic No.'s:

Contractor Lab: Wright State U. Person-hours required for review: 1

Following are our findings:

Note: Samples were preserved correctly, but detection limits for this study were higher than the previous study - accounting for the differences in compounds seen/not seen.

MAK

(X) Data are acceptable for use but fails to meet program objectives

( ) Data are unacceptable for use.

( ) Data are preliminary - this case has been forwarded to Dr. Alfred Haeberer, EPA Support Services, for review - pending reply.

cc: Dr. Alfred Haeberer, EPA Support Services

EPA FORM 1320-6 (REV. 3-76)

WRIGHT STATE

Wright State University
Dayton, Ohio 45435

Brehm Laboratory
513/873-2202

May 3, 1982

RECEIVED
MAY 06 1982
US EPA CENTRAL REGIONAL LAB.
536 S. CLARK STREET
CHICAGO, ILLINOIS 60605

Mr. Curtis Ross
United States Environmental Protection Agency
Region V
230 S. Dearborn
Chicago, Illinois 60604

RE: EPA Order No. 56606 NAEX

Dear Mr. Ross:

All analyses specified under Tasks 1 and 2 of the subject EPA Purchase Order No. 56606 NAEX have now been completed by our laboratory. As you know, each of the five water/sediment samples were analyzed for CDDs/CDFs as required under Task 1 and these data, as well as a complete description of the analytical methodology employed, were formally transmitted to you in an interim report dated March 16, 1982. Regarding our telephone conversation of March 30, 1982 in which you inquired about precursors of chlorinated dibenzo-p-dioxins (CDDs) which could possibly be present in the Sauget Landfill, it should be emphasized that various compounds are known which are precursors for the CDDs. For example, chlorinated phenoxyphenols, chlorinated phenols, chlorinated benzenes and possibly even polyvinyl chloride polymers have, under certain conditions, been found to give rise to CDDs. In addition, CDDs have been detected in stack effluents arising from municipal waste incineration. Regarding the question of whether or not precursors such as the chlorophenoxyphenols, if present in the environmental sample, could, under conditions of analysis undergo dehydrohalogenation and give rise to CDDs, we feel that if phenoxyphenols were present at concentrations comparable to the concentrations of CDDs which were found in the samples, that the sample clean-up methodology would effectively remove these prior to gas chromatographic-mass spectrometric analysis. The presence of large concentrations of phenoxyphenols (perhaps 100X concentration of CDDs in the sample) could conceivably overwhelm the sample clean-up procedure, but, no specific evidence exists which indicates that large concentrations of phenoxyphenols do indeed generate CDDs during analysis. The phenoxyphenol question should be studied further, but this is difficult at present since well-characterized standards are not readily available. If environmental samples do contain chlorinated phenoxyphenols, it is possible that, under certain conditions which could exist in a chemical landfill, cyclization of these compounds could occur and give rise to CDDs. Here again experimentation is required in order to substantiate this possibility.

The purpose of the present report is to summarize the methodology employed and the results obtained in assaying the five water/sediment samples for the various compounds specified by EPA under Task 2 of the subject purchase order. The samples received for analysis at the beginning of the project are listed in Table 1 and the descriptions listed therein are based upon observations made in this laboratory at the time of receipt of samples. Table 2 lists the organic compounds which were to be determined under Task 2 of the EPA order.

Obviously, several different isomers are possible for some of the compounds listed by EPA, and in these cases, calibrations were accomplished using representative isomers of these compounds, but not all possible isomers. The representative compounds used for calibration and quality assurance purposes are also listed in Table 2. High Performance Liquid Chromatography (HPLC) was employed to detect and quantitate the compounds of interest which were present in extracts of each of the water/sediment samples. The details of the analytical methodology employed are given in the Analytical Protocol appended to this report. The analytical results obtained are discussed below.

Initially, the methodology was verified by accomplishing analyses of standard solutions and when satisfactory results were obtained, actual samples were analyzed along with actual samples which had been spiked with the compounds of interest. Copies of representative chromatograms are attached as Figures 1-7. The data obtained are also listed in tabular form in Table 3. As seen in Table 3, recoveries of the compounds from actual samples prepared to contain known concentrations of the compounds of interest were satisfactory. However, the water/sediment samples themselves were found to contain no detectable levels of the pertinent compounds. These data are not in agreement with the results obtained previously by EPA, which were appended to the EPA order received by Wright State. The concentrations of the pollutants listed by EPA as being detected in similar samples are on the order of 5-10 times the minimum detectable concentrations achieved in the present analyses. The results obtained in the present analyses, therefore, may indicate that the water samples were not adequately preserved at the time of sampling. If appropriate reagents were not added to the water samples at the time of sampling (see, for example, the attached recommendations from Standard Methods For Water and Wastewater Analysis) then microbial degradation of some, if not all, of the compounds of interest could have occurred prior to analysis. The apparent absence of appreciable concentrations of both the pollutants of interest and of any similar compounds tends to further suggest that some degradation of the organic compounds may have occurred. Further analyses of fresh samples (with added preservatives) would indicate whether or not the lack of preservation was a problem with the present samples.

This completes this work called for under EPA Order No. 56606 NAEX. Our invoice is being submitted under separate cover. If you have any questions or comments regarding these data, please don't hesitate to call us. We appreciate this opportunity to work with USEPA on this important project.

Sincerely,

Thomas O. Tiernan

Thomas O. Tiernan, Ph.D.
Professor of Chemistry and
Director of Brehm Laboratory

Michael L. Taylor

Michael L. Taylor, Ph.D.
Associate Professor of
Pharmacology/Toxicology and
Associate Director of
Brehm Laboratory

TOT/gdg

TABLE 1

BREHM LABORATORY, WRIGHT STATE UNIVERSITY, DAYTON, OHIO 45435

LISTING OF SAMPLES RECEIVED FROM USEPA (CHICAGO, REGION V)[1].

EPA I.D. No.	WSU Sample No.	Description
E1205 82WT06S01	CWS-1	1 gallon of water/sediment
E1206 82WT06S03	CWS-2	3/4 gallon of water/sediment
E1208 82WT06S05	CWS-3	1 gallon of water/sediment
E1207 82WT06S07	CWS-4	3/4 gallon of water/sediment
82WT06R01	CWS-5	3/4 gallon of water/sediment

1. Samples were received on January 14, 1982. Samples were packed in styrofoam beads, and ice water was present in shipping containers. Samples CWS-2 and CWS-5 were shipped together in one container and samples CWS-1,-3 and -4 were shipped together in a second container. Caps on bottles were taped.

TABLE 2

BREHM LABORATORY, WRIGHT STATE UNIVERSITY, DAYTON, OHIO 45435

SUSPECTED POLLUTANTS AND REPRESENTATIVE COMPOUNDS ANALYZED UNDER TASK #2, EPA ORDER 56606 NAEX

Compounds Listed in Task #2	Representative Compounds Employed in Calibration/QC Studies
1. Chloroaniline	3-Chloroaniline
2. Chloronitrobenzene	1-Chloro-2-nitrobenzene
3. Dichlorophenol	2,4-dichlorophenol
4. 2,4-D	2,4-dichlorophenoxyacetic acid
5. Phenol	phenol
6. Methylbenzosulfaamide	p-toluenesulfonamide
7. Benzoic Acid	benzoic acid
8. Benzene carboxylic acid	benzoic acid
9. Dichloraniline	3,5-dichloroaniline

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ANALYTICAL RESULTS OBTAINED FOR SUSPECTED POLLUTANTS AND REPRESENTATIVE COMPOUNDS

Suspected Pollutant	WSU Sample No.[1] CWS-1	CWS-2	CWS-3	CWS-4	CWS-5	Spiked CWS-2 Found (added) ng/ml	Spiked CWS- Found (add ng/ml
Chloroaniline	ND	ND	ND	ND	ND	--	903(1000)
Chloronitrobenzene	ND.	ND	ND	ND	ND	--	3,500(5,09
Dichlorophenol	ND	ND	ND	ND	ND	900(1030)	--
2,4-D	ND	ND	ND	ND	ND	10,000(11,000)	--
Phenol	ND	ND	ND	ND	ND	900(780)	--
Methylbenzosulfaamide (p-toluenesulfonamide)	ND	ND	ND	ND	ND	1000(640)	--
Benzoic Acid Benzene Carboxylic acid	ND	ND	ND	ND	ND	1000(1050)	--
Dichloroaniline	ND	ND	ND	ND	ND	--	1,290(1000

1. See Table 1 for the corresponding EPA sample numbers. ND means none detected, the following limits of detection apply:

chloroaniline, dichloroaniline, chloronitrobenzene	250 ng/mL ppb
2,4-D	3000 ng/mL
phenol	500 ng/mL
p-toluenesulfonamide	600 ng/mL
Benzoic acid	500 ng/mL
Dichlorophenol	250 ng/mL

1104 Y

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SAUGET
S.F. 1401
82WT0650 1 → Water

Sample No.
ME-8527

INORGANICS ANALYSIS DATA SHEET

transfer 12/28/81 Sampling point #1

LABORATORY NAME CHEMTECH CASE NO. 725

LAB SAMPLE ID. NO. 3-01 QC REPORT NO. 002

TASK 1 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Aluminum	<100	11.	Manganese	20
2.	Chromium	.040	12.	Zinc	48
3.	Barium	<100	13.	Boron	19,700
4.	Beryllium	<5	14.	Vanadium	<200
5.	Cadmium	<1			
6.	Cobalt	<50			mg/l or mg/kg (circle one)
7.	Copper	<50			
8.	Iron	60	15.	Calcium	
9.	Lead	5.	16.	Magnesium	
10.	Nickel	40	17.	Sodium	

TASK 2 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Arsenic	34.	5.	Mercury	0.2
2.	Antimony	<20	6.	Tin	<20
3.	Selenium	38.	7.	Silver	<10
4.	Thallium	<10			

TASK 3 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)
1.	Ammonia	
2.	Cyanide	71.
3.	Sulfide	

COMMENTS:

17/82 WF

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82WT06 (502)
Sediment

Sample No. ME-8528

INORGANICS ANALYSIS DATA SHEET

LABORATORY NAME CHEMTECH CASE NO. 725
LAB SAMPLE ID. NO. 3-02 QC REPORT NO. 002

TASK 1 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Aluminum	150	11.	Manganese	76
2.	Chromium	<1	12.	Zinc	9.5
3.	Barium	<10	13.	Boron	<10
4.	Beryllium	<0.5	14.	Vanadium	<20
5.	Cadmium	<0.1			
6.	Cobalt	<5			mg/l or mg/kg (circle one)
7.	Copper	<5			
8.	Iron	580	15.	Calcium	
9.	Lead	2.4	16.	Magnesium	
10.	Nickel	<4	17.	Sodium	

TASK 2 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Arsenic	1.1	5.	Mercury	<0.02
2.	Antimony	<2	6.	Tin	<2
3.	Selenium	1.1	7.	Silver	<1
4.	Thallium	<1			

TASK 3 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)
1.	Ammonia	
2.	Cyanide	28.
3.	Sulfide	

COMMENTS:

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S.F. 1401
82WT06503
Water

Sample No.
ME-8529

INORGANICS ANALYSIS DATA SHEET

LABORATORY NAME CHEMTECH CASE NO. 725
LAB SAMPLE ID. NO. 3-03 QC REPORT NO. 002

TASK 1 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Aluminum	<100	11.	Manganese	1990
2.	Chromium	15	12.	Zinc	10
3.	Barium	<100	13.	Boron	15,350
4.	Beryllium	<5	14.	Vanadium	<200
5.	Cadmium	<1			
6.	Cobalt	<50			mg/l or mg/kg (circle one)
7.	Copper	<50			
8.	Iron	<50	15.	Calcium	
9.	Lead	<5	16.	Magnesium	
10.	Nickel	<40	17.	Sodium	

TASK 2 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Arsenic	16.	5.	Mercury	0.2
2.	Antimony	<20	6.	Tin	<20
3.	Selenium	26.	7.	Silver	<10
4.	Thallium	<10			

TASK 3 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)
1.	Ammonia	
2.	Cyanide	INSUFFICIENT SAMPLE
3.	Sulfide	

COMMENTS: AVERAGE OF DUPLICATES REPORTED

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S.F. 14C1
82WT06504

Sample No.
ME-8530

INORGANICS ANALYSIS DATA SHEET Sediment

LABORATORY NAME CHEMTECH CASE NO. 725
LAB SAMPLE ID. NO. 3-04 QC REPORT NO. 002

TASK 1 (Elements to be identified and measured.)

	ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
Aluminum	155	11.	Manganese	42
Chromium	<1	12.	Zinc	6.8
Barium	<10	13.	Boron	17
Beryllium	<0.5	14.	Vanadium	<20
Cadmium	0.61			
Cobalt	<5			
Copper	<5			mg/l or mg/kg (circle one)
Iron	425	15.	Calcium	
Lead	2.45	16.	Magnesium	
Nickel	<4	17.	Sodium	

TASK 2 (Elements to be identified and measured.)

	ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
Arsenic	1.25	5.	Mercury	<0.02
Antimony	4.0	6.	Tin	<2
Selenium	1.5	7.	Silver	<1
Thallium	<1			

TASK 3 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)
1.	Ammonia	
2.	Cyanide	6.8
3.	Sulfide	

COMMENTS: AVERAGE OF DUPLICATES REPORTED (except cyanide)

1/4/8 [illegible]

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8 2WT06 505

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Sample No. ME-8531

INORGANICS ANALYSIS DATA SHEET

↳ Water

LABORATORY NAME CHEMTECH CASE NO. 725

LAB SAMPLE ID. NO. 3-05 QC REPORT NO. 002

TASK 1 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Aluminum	<100	11.	Manganese	5,400
2.	Chromium	20	12.	Zinc	49
3.	Barium	<100	13.	Boron	21,600
4.	Beryllium	<5	14.	Vanadium	<200
5.	Cadmium	<1			
6.	Cobalt	<50			
7.	Copper	<50			mg/l or mg/kg (circle one)
8.	Iron	630	15.	Calcium	
9.	Lead	<5	16.	Magnesium	
10.	Nickel	<40	17.	Sodium	

TASK 2 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Arsenic	29.	5.	Mercury	0.8
2.	Antimony	<20	6.	Tin	20.
3.	Selenium	31.	7.	Silver	10
4.	Thallium	<10			

TASK 3 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)
1.	Ammonia	
2.	Cyanide	INSUFFICIENT SAMPLE
3.	Sulfide	

COMMENTS:

14

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SAUGET
S.F. 1401
82WT06S06
Sediment

Sample No.
ME-8532

INORGANICS ANALYSIS DATA SHEET

LABORATORY NAME CHEMTECH CASE NO. 725
LAB SAMPLE ID. NO. 3-06 QC REPORT NO. 002

TASK 1 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Aluminum	170	11.	Manganese	47
2.	Chromium	<1	12.	Zinc	9.2
3.	Barium	20	13.	Boron	26
4.	Beryllium	<0.5	14.	Vanadium	<20
5.	Cadmium	<0.1			
6.	Cobalt	<5			mg/l or mg/kg (circle one)
7.	Copper	<5			
8.	Iron	580	15.	Calcium	
9.	Lead	1.7	16.	Magnesium	
10.	Nickel	<4	17.	Sodium	

TASK 2 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Arsenic	1.8	5.	Mercury	<0.02
2.	Antimony	<2	6.	Tin	<2
3.	Selenium	1.6	7.	Silver	<1
4.	Thallium	<1			

TASK 3 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)
1.	Ammonia	
2.	Cyanide	9.0
3.	Sulfide	

COMMENTS:

1/4/11 2 [illegible]

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82 WT06 D01

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Sample No. ME-8533

Duplicate Water from Sampling pt. #1

INORGANICS ANALYSIS DATA SHEET

LABORATORY NAME CHEMTECH CASE NO. 725

LAB SAMPLE ID. NO. 3-07 QC REPORT NO. 002

TASK 1 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Aluminum	<100	11.	Manganese	320
2.	Chromium	20	12.	Zinc	24
3.	Barium	<100	13.	Boron	17,100
4.	Beryllium	<5	14.	Vanadium	<200
5.	Cadmium	<1			
6.	Cobalt	<50			mg/l or mg/kg (circle one)
7.	Copper	<50			
8.	Iron	60	15.	Calcium	
9.	Lead	8.	16.	Magnesium	
10.	Nickel	<40	17.	Sodium	

TASK 2 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Arsenic	31.	5.	Mercury	0.2
2.	Antimony	<20	6.	Tin	<20
3.	Selenium	32.	7.	Silver	<10
4.	Thallium	<10			

TASK 3 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)
1.	Ammonia	
2.	Cyanide	57
3.	Sulfide	

COMMENTS:

11/4/82 [illegible]

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82 WT 06 D02

Sample No. ME-8534

INORGANICS ANALYSIS DATA SHEET

Duplicate Sediment Sampling point #1

LABORATORY NAME CHEMTECH CASE NO. 725

LAB SAMPLE ID. NO. 3-08 QC REPORT NO. 002

TASK 1 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Aluminum	190	11.	Manganese	46
2.	Chromium	1	12.	Zinc	10
3.	Barium	10	13.	Boron	25
4.	Beryllium	<0.5	14.	Vanadium	<20
5.	Cadmium	<0.1			
6.	Cobalt	<5			mg/l or mg/kg (circle one)
7.	Copper	<5			
8.	Iron	660	15.	Calcium	
9.	Lead	2.9	16.	Magnesium	
10.	Nickel	<4	17.	Sodium	

TASK 2 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Arsenic	2.9	5.	Mercury	<0.02
2.	Antimony	<2	6.	Tin	<2.
3.	Selenium	1.8	7.	Silver	<1
4.	Thallium	<1			

TASK 3 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)
1.	Ammonia	
2.	Cyanide	13.
3.	Sulfide	

COMMENTS: Average of duplicate cyanide results reported

1/4/82 [illegible]

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S.F. 1401
82 WT 06 RO 1

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Sample No. ME-8535

INORGANICS ANALYSIS DATA SHEET

→ ~~[illegible]~~ blank

LABORATORY NAME CHEMTECH CASE NO. 725

LAB SAMPLE ID. NO. 3-09 QC REPORT NO. 002

TASK 1 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Aluminum	<100	11.	Manganese	30
2.	Chromium	10	12.	Zinc	310
3.	Barium	<100	13.	Boron	<100
4.	Beryllium	<5	14.	Vanadium	<200
5.	Cadmium	<1			
6.	Cobalt	<50			mg/l or mg/kg (circle one)
7.	Copper	<50			
8.	Iron	<50	15.	Calcium	
9.	Lead	<5	16.	Magnesium	
10.	Nickel	<40	17.	Sodium	

TASK 2 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Arsenic	<10	5.	Mercury	<0.2
2.	Antimony	<20	6.	Tin	<20
3.	Selenium	<2	7.	Silver	<10
4.	Thallium	<10			

TASK 3 (Elements to be identified and measured.)

		ug/l or mg/kg (circle one)
1.	Ammonia	
2.	Cyanide	130.
3.	Sulfide	

COMMENTS:

EMTECH
CONSULTING GROUP LTD. 360 West 11th Street / New York, New York 10014 (212) 255-2100

Notes to Q.A. Report

NOTES: 1. For the initial calibration verification, an asterisk is noted, meaning the following:

*New analytical curve prepared for each batch by running a minimum of 3 working standards.

2. For the blank value, two asterisks appear:

**Zero calibrating point set at distilled water blank

3. All reagent blanks were below one-half the detection limit

Alan Schoffman, Ph.D.
Director, Analytical Services