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S - ROBINSON / MARATHON OIL

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E.P.A. — D.L.P.C.
STATE OF ILLINOIS

Marathon Petroleum Company

EPA Region 5 Records Ctr.
375293

July 29, 1982

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

RECEIVED IN THE OFFICE OF THE DIRECTOR
AUG 04 1982 3

Richard Carlson, Director
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, IL 62706

Dear Mr. Carlson:

In compliance with RCRA regulations, please be advised that the attached measurements were obtained on ground water samples taken from the six ground water monitoring wells at Marathon Petroleum Company's Robinson, Illinois refinery (EPA ID #IL005476882, IEPA State ID #0330250003G). Wells were sampled on March 1, 1982 and May 10, 1982. A map showing the location of the monitoring wells and the ground water flow direction is attached.

The attached information shows the following parameters which exceeded the National Interim Primary Drinking Water Standards:

March 1, 1982 sampling -

A. Selenium in Wells #B-2 and #B-4. The results from this sampling appear to be an anomaly, as the May 1982 samples did not contain high levels of selenium.
B. Mercury in Well #B-2. This also appears to be an anomaly, as the May 1982 samples did not contain high levels of mercury.
C. Nitrates in Well #B-2. This well, which is hydraulically upgradient of our land-based hazardous waste facilities, is adjacent to farmland to which nitrogen fertilizers are applied. This probably accounts for this high nitrate measurement.

May 10, 1982 sampling -

A. Nitrates in Well #B-2. Again, this is probably due to fertilizer application in nearby farm field.

Please note the name change to Marathon Petroleum Company, which became a wholly owned subsidiary of Marathon Oil Company on July 10, 1982.

If you have any questions on data, reporting format, etc., please contact me at 618-544-2121.

Yours truly,

L. M. Echelberger

L. M. Echelberger
Environmental Coordinator

LME:lmw

Attachments

GROUND WATER ANALYSES
MARATHON PETROLEUM COMPANY - ROBINSON REFINERY
DATE OF SAMPLING March 1, 1982

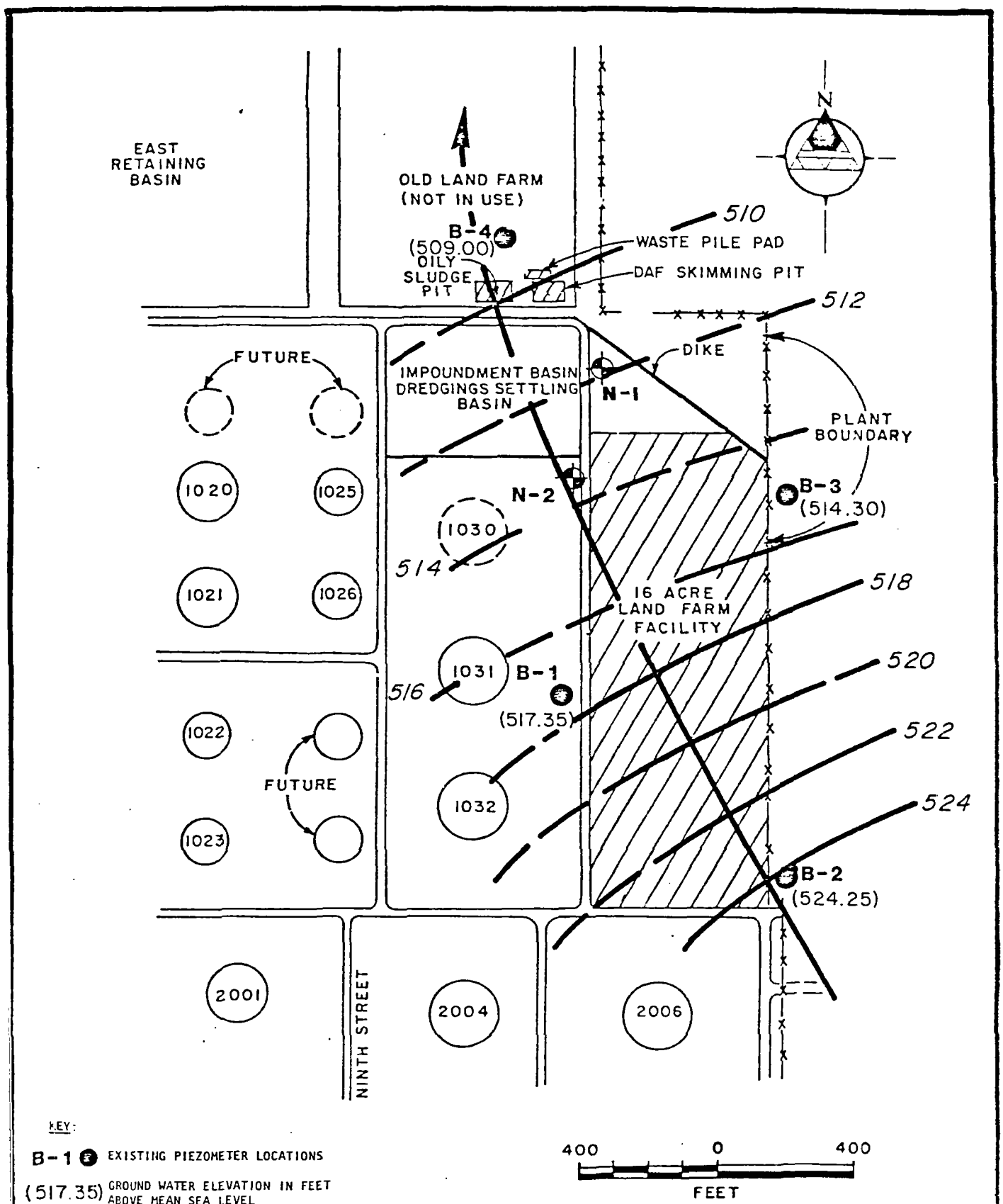
WELL NO. → / PARAMETER ↓	B-1	B-2	B-3	B-4	N-1	N-2
Temperature (°F)	53	52		52	54	52
Arsenic (mg/l)	0	<.001		<.001	0	0
Barium (mg/l)	0.10	0.12		0.12	0.17	0.20
Cadmium (mg/l)	0.0025	<.0088		<0.0044	0.0036	0.0050
Chromium (mg/l)	<0.05	0.05		<0.05	<0.05	<0.05
Fluoride (mg/l)	0.10	0.17		0.16	0.20	0.10
Lead (mg/l)	0.004	0.049		0.016	0.006	0.015
Mercury (mg/l)	<0.0001	0.0021/0.0049[1]		<0.0001/<0.0001[1]	0.0002	<0.0001
Nitrate (as NO_3-N) (mg/l)	3.1	23.6		3.1	5.3	2.0
Selenium (mg/l)	0.004	.0.012/0.010[2]/<0.001[1]		0.015/0.011[2]/<0.001[1]	0.002	0.008
Silver (mg/l)	<0.05	<0.05		<0.05	<0.05	<0.05
Endrin (mg/l)	ND	ND		ND	ND	ND
Lindane (mg/l)	ND	ND		ND	ND	ND
Methoxychlor (mg/l)	ND	ND		ND	ND	ND
Toxaphene (mg/l)	ND	ND		ND	ND	ND
2, 4-D (mg/l)	ND	ND		ND	ND	ND
2, 4, 5-TP Silvex (mg/l)	ND	ND		ND	ND	ND
Gross Alpha (pCi/l)	2.2 (±2.3)	1.0 (±1.6)		2.0 (±2.0)	3.0 (±2.5)	1.2 (±1.9)
Gross Beta (pCi/l)	3.9 (±5.8)	15 (±0.7)		2.9 (±5.7)	1.5 (±5.7)	7.8 (±6.1)
Radium 226 (pCi/l)	0.2 (±0.6)	0.0 (±0.7)		0.4 (±0.7)	0.0 (±0.7)	0.0 (±0.5)
Radium 228 (pCi/l)	0.0 (±5.7)	0.0 (±6.5)		0.0 (±8.5)	0.0 (±7.9)	0.0 (±9.3)
Coliform Bacteria (1/100 ml)	0	0		0	0	0
Chloride (mg/l)	13	33		13	13	6
Iron (mg/l)	<0.05	<0.05		<0.05	<0.05	<0.05
Manganese (mg/l)	0.38	<0.05		0.34	0.30	0.55
Phenols (mg/l)	<0.002	<0.002		0.007	<0.002	0.005
Sodium (mg/l)	40.7	41.0		60.0	26.3	41.7
Sulfate (mg/l)	13	2		26	14	13
pH (pH Units)	7.91/7.95/7.95/7.96	8.19/8.20/8.20/8.1		8.41/8.43/8.46/8.46	8.17/8.20/8.20/8.21	7.92/8.00/8.01/8.02
Specific Conductance(μmhos/cm)	490/ 487/ 500/ 501	356/ 355/ 355/ 356		466/ 466/ 474/ 474	526/ 528/ 525/ 526	464/ 466/ 465/ 471
Total Organic Carbon (mg/l)	10.3/ 9.6/ 9.3/ 9.9	15.2/15.4/13.3/13.5		16.2/12.2/ 12.2/14.2	10.0/8.1/9.0/9.2	17.8/14.2/12.6/11.9
Total Organic Halogen (μg/l)	14/ ND/ ND/ 13	44/ 39/ 55/ 53		22/ 24/ 22/ 25	17/ 19/ 17/ 22	28/ 31/ 21/ 29

[1] Resample run by independent laboratory
[2] Resample run by Marathon Laboratory
ND - Not Detectable

GROUND WATER ANALYSES
MARATHON PETROLEUM COMPANY - ROBINSON REFINERY
DATE OF SAMPLING May 10, 1982

WELL NO. → / PARAMETER ↓	B-1	B-2	B-3	B-4	N-1	N-2
Temperature (°F)	57	55	57	59	55	58
Arsenic (mg/l)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Barium (mg/l)	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Cadmium (mg/l)	.005	<.001	.002	<.001	<.001	.003
Chromium (mg/l)	.0026	.0025	.0023	.0023	.003	.0043
Fluoride (mg/l)	0.26	0.28	0.48	0.45	0.38	0.31
Lead (mg/l)	0.009	0.009	0.009	0.008	0.007	0.008
Mercury (mg/l)	0.0004/<0.0001[1]	0.0007/<0.0001[1]	0.0013/0.0013[1]	<0.0003/<0.0001[1]	<0.0003/<0.0001[1]	<0.0003/<0.0001[1]
Nitrate (as NO_3-N) (mg/l)	1.8	27	8.4	2.2	2.2	2.2
Selenium (mg/l)	<0.003/<0.001[1]	<0.003/<0.001[1]	<0.003/<0.001[1]	<0.003/<0.001[1]	<0.003/<0.001[1]	<0.003/<0.001[1]
Silver (mg/l)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Endrin (mg/l)	ND	ND	ND	ND	ND	ND
Lindane (mg/l)	ND	ND	ND	ND	ND	ND
Methoxychlor (mg/l)	ND	ND	ND	ND	ND	ND
Toxaphene (mg/l)	ND	ND	ND	ND	ND	ND
2, 4-D (mg/l)	ND	ND	ND	ND	ND	ND
2, 4, 5-TP Silvex (mg/l)	ND	ND	ND	ND	ND	ND
Gross Alpha (pCi/l)	4 (±4)	0 (±2)	-1 (±2)	2 (±3)	-6 (±8)	1 (±3)
Gross Beta (pCi/l)	3 (±4)	20 (±4)	1.0 (±3)	-2 (±3)	-13 (±15)	-3 (±4)
Radium 226 (pCi/l)	0.1 (±0.3)	0.1 (±0.7)	0.1 (±0.3)	1.5 (±1.0)	-0.1 (±0.3)	0.2 (±0.4)
Radium 228 (pCi/l)	0.4 (±1.2)	-0.5 (±1.1)	-0.4 (±1.2)	0.0 (±1.2)	0.5 (±1.1)	-0.2 (±1.0)
Coliform Bacteria (1/100 ml)	0	0	0	0	0	0
Chloride (mg/l)	4	15	3	3	12	2
Iron (mg/l)	<.0018	<.0018	<.0018	.0020	.0095	<.0018
Manganese (mg/l)	0.22	<0.01	<0.01	0.66	0.35	0.40
Phenols (mg/l)	<0.002	<0.002	<0.002	0.003	<0.002	<0.002
Sodium (mg/l)	39.2	38.9	45.8	49.0	35.9	39.2
Sulfate (mg/l)	12	5	8	28	32	12
pH (pH Units)	7.90/7.87/7.87/7.86	8.12/8.17/8.15/8.18	8.17/8.23/8.22/8.23	7.74/7.79/7.81/7.82	7.90/7.88/7.96/7.97	8.10/8.09/8.09/8.09
Specific Conductance (μmhos/cm)	407/ 415/ 420/ 421	433/ 434/ 427/ 435	431/ 430/ 432/ 435	533/ 541/ 531/ 542	694/ 690/ 694/ 690	415/ 417/ 412/ 415
Total Organic Carbon (mg/l)	9.6/11.3/9.5/10.6	5.7/6.4/6.4/7.8	9.8/7.1/7.8/5.9	26.0/23.9/27.6/25.3	10.5/10.1/9.9/9.3	7.7/7.6/6.9/6.6
Total Organic Halogen (μg/l)	36/ 28/ 37/ ND	43/ 35/ 31/ 40	25/ 22/ 24/ 15	ND/ ND/ 19/ ND	13/ ND/ ND/ ND	24/ 16/ 15/ 24

[1] Resample run by independent laboratory
[2] Resample run by Marathon Laboratory
ND - Not Detectable



KEY:

B-1 EXISTING PIEZOMETER LOCATIONS

(517.35) GROUND WATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL

N-1 NEW PIEZOMETER LOCATIONS

EQUIPOTENTIAL LINE (CONTOUR OF EQUAL HYDRAULIC HEAD) (DASHED WHERE APPROXIMATE)

FLOW LINE; INDICATES DIRECTION OF GROUND WATER FLOW

LAND BASED HAZARDOUS WASTE MANAGEMENT FACILITY

FIGURE 2

POTENTROMETRIC SURFACE MAP
ROBINSON REFINERY
MARATHON OIL COMPANY

Dames & Moore

0814-024-07

Illinois Refining Division

Marathon Oil Company

Robinson, Illinois 62454
Telephone 618/544-2121

May 28, 1982

Valdas Adamkus, Regional Administrator
U. S. Environmental Protection Agency
Region V
230 S. Dearborn Street
Chicago, IL 60604

Dear Mr. Adamkus:

This is to advise you of the following measurements on ground water samples from Wells #B-2 and #B-4, which were drawn on March 1, 1982, at Marathon Oil Company's Robinson, Illinois Refinery (EPA I.D. #ILD005476882).

	MARATHON LAB RESULTS	AQUA LAB INC. LAB RESULTS
Well #B-2		
Selenium (mg/l)	0.012[1] & 0.010[2]	< 0.001
Mercury (mg/l)	.0021	0.0049
Nitrates (mg/l)	23.6	(Not Analyzed)
Well #B-4		
Selenium (mg/l)	0.015[1] & 0.011[2]	<0.001

1 First Run
2 Second Run

Well B-2 is hydraulically upgradient of our landfarm as shown on the attached map. The above results were obtained using split portions of the same sample.

When the test repeatability and reproducibility limits are considered, the actual results could be as low as 0.0015 mg/l. However, we cannot offer any explanation as to why the mercury concentration would be high in the ground water at this location; and, we are hopeful that further sample analyses will reveal the measurement to be an abberation rather than a representative value.

Well B-2 is immediately adjacent to farmland to which nitrogen fertilizers are applied annually. This probably accounts for the high nitrate measurement.

All measurements on all other ground water monitoring well samples were satisfactory.

Sincerely,

L. H. McGrievy
Environmental Coordinator

LHM:lns Attachment

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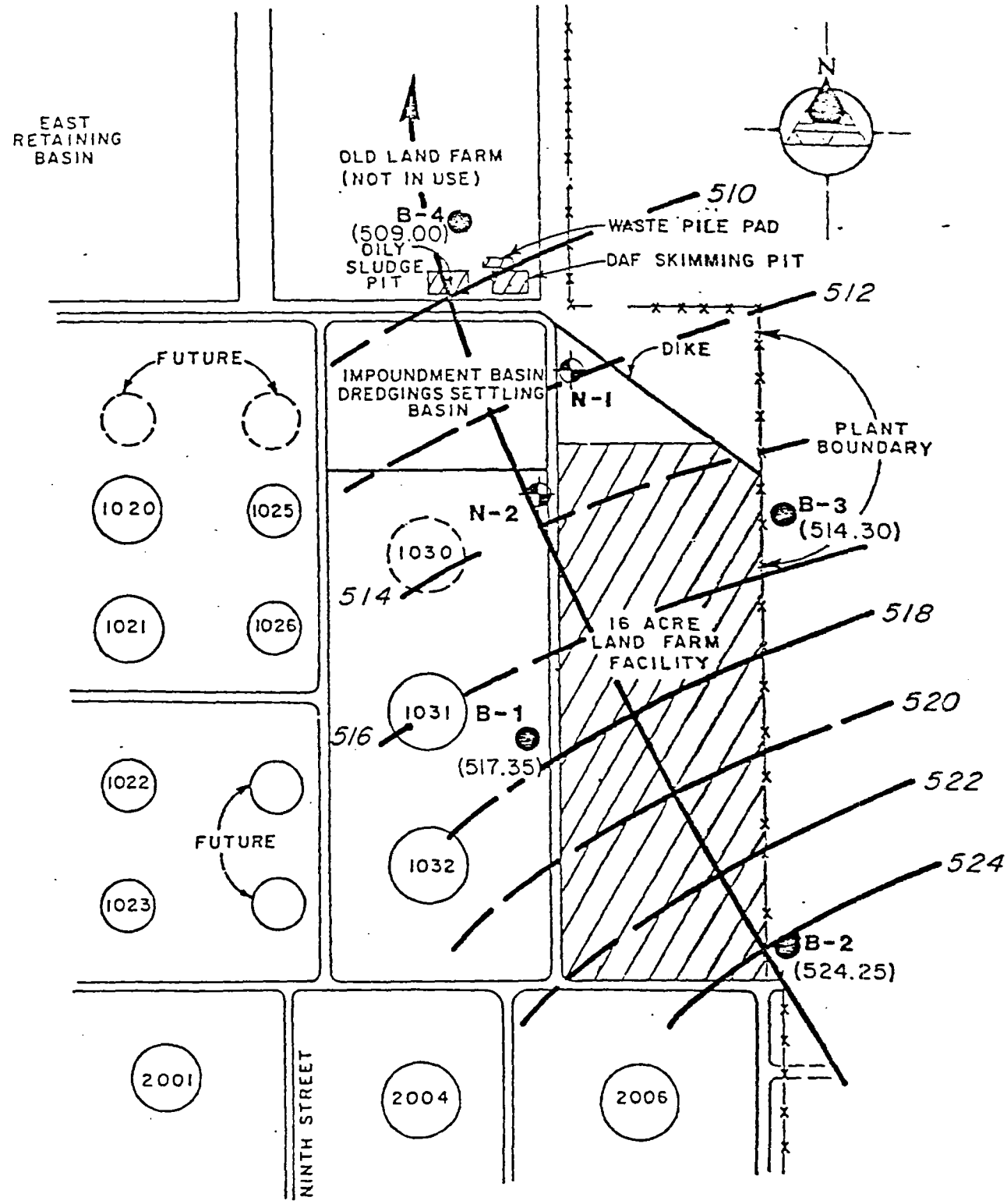
WASTE MANAGEMENT BRANCH
EPA REGION V



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LAND BASED HAZARDOUS WASTE MANAGEMENT FACILITY

400 0 400

FEET

FIGURE 2

POTENTROMETRIC SURFACE MAP
ROBINSON REFINERY
MARATHON OIL COMPANY

Dames & Moor

0814-024-07