SD-32 (REV. 5-78)

J M Rollins
QA file 419
Sampled 10-3-83
10-4
10-24
10-25

NPDES # 1000205

Shell Development Company
Interoffice Memorandum

NOVEMBER 8, 1983

FROM: M. J. O'NEAL, MANAGER, ANALYTICAL
WESTHOLLOW RESEARCH CENTER, SHELL DEVELOPMENT COMPANY

TO: C. G. WALLS, MANAGER, QUALITY ASSURANCE-ENVIRONMENTAL CONSERVATION, WOOD RIVER MANUFACTURING COMPLEX, SHELL OIL COMPANY

SUBJECT: ANALYTICAL RESULTS FOR ORGANIC PRIORITY POLLUTANTS (81384.04)

Analytical results for organic priority pollutants for a sample of Wood River NPDES effluent and a site blank were received from Jordan Laboratories. The computer-generated report from Jordan is included as an attachment.

The site blank and effluent sample were prepared and collected by J. M. Rollins of Wood River using prepared containers and material provided from Westhollow Research Center. The samples were shipped by air directly to Jordan Laboratories in late October. EPA Methods 624 and 625 (GC/MS) were used to analyze these samples. Deuterated surrogate compounds were spiked into each sample to establish the methods were under analytical control. This is part of Jordan's quality assurance program. No particular analytical problems were reported by Jordan for this set of samples. Review of the GC/MS data from Jordan revealed that no EPA organic priority pollutants were found above EPA detection limits in the Wood River NPDES effluent, nor in the site blank. Methylene chloride was detected in both samples, but below the limit of quantification of 10 $\mu g/l$ (ppb). The presence of methylene chloride at low concentrations in environmental water samples is not unusual, and is recognized as a laboratory contamination problem. Recovery of the spiked deuterated surrogate compounds in all samples and fractions was considered normal and indicated the analytical methods were under control.

Please contact us if we can be of further assistance in meeting compliance monitoring requirements.

M. J. O'Neal

M. J. O'Neal

GHS/bl

Attachments

cc: (with Attachments)

A. W. Shaw
C. L. Oubre
D. G. Engelstad
B. N. Bastian (OSP)
T. R. Williams (OSP)
M. A. Muhs
R. Szentirmay
J. C. Raia

EPA Region 5 Records Ctr.
379837

TEL. 512-884-0371 PO BOX 2552 7840

JORDAN LABORATORIES, INC.
CHEMISTS AND ENGINEERS
CORPUS CHRISTI, TEXAS
OCTOBER 27, 1983

SHELL DEVELOPMENT COMPANY
P.O. BOX 1380
HOUSTON, TEXAS 77001

REPORT OF GC/MS PRIORITY
POLLUTANT ANALYSIS: PURGEABLES

IDENTIFICATION: OHL 02948-2 SITE BLANK

NPDES NUMBER	MDL UG/L	COMPOUND	UG/L
1V	100	ACROLEIN	ND
2V	100	ACRYLONITRILE	ND
3V	10	BENZENE	ND
4V	--	BIS(CHLOROMETHYL)ETHER	ND
5V	10	BROMOFORM	ND
6V	10	CARBON TETRACHLORIDE	ND
7V	10	CHLOROBENZENE	ND
8V	10	CHLORODIBROMOMETHANE	ND
9V	10	CHLOROETHANE	ND
10V	10	2-CHLOROETHYLVINYL ETHER	ND
11V	10	CHLOROFORM	ND
12V	10	DICHLOROBROMOMETHANE	ND
13V	--	DICHLORODIFLUOROMETHANE	ND
14V	10	1,1-DICHLOROETHANE	ND
15V	10	1,2-DICHLOROETHANE	ND
16V	10	1,1-DICHLOROETHYLENE	ND
17V	10	1,2-DICHLOROPROPANE	ND
18V	10	1,3-DICHLOROPROPYLENE	ND
19V	10	ETHYL BENZENE	ND
20V	10	METHYL BROMIDE	ND
21V	10	METHYL CHLORIDE	ND
22V	10	METHYLENE CHLORIDE	DETECTED <10
23V	10	1,1,2,2-TETRACHLOROETHANE	ND
24V	10	TETRACHLOROETHYLENE	ND
25V	10	TOLUENE	ND
26V	10	1,2-TRANS-DICHLOROETHYLENE	ND
27V	10	1,1,1-TRICHLOROETHANE	ND
28V	10	1,1,2-TRICHLOROETHANE	ND
29V	10	TRICHLOROETHYLENE	ND
30V	10	TRICHLOROFLUOROMETHANE	ND
31V	10	VINYL CHLORIDE	ND

MDL = EPA PUBLISHED METHOD DETECTION LIMIT
ND = NOT DETECTED AT EPA METHOD 624 DETECTION LIMIT
SURROGATE STANDARDS FOR RECOVERY CHECK:
DICHLOROETHANE-D4 ---------- 94
BENZENE-D6 ---------- 104

DATE RECEIVED 10-21-83
DATE INJECTED 10-27-83
LAB. NO. M21-5995

SIGNED: Carl Thomson
CARL E. CRUNSNER

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JORDAN LABORATORIES, INC.
CHEMISTS AND ENGINEERS
CORPUS CHRISTI, TEXAS
OCTOBER 27, 1983

SHELL DEVELOPMENT COMPANY
P.O. BOX 1380
HOUSTON, TEXAS 77001

REPORT OF GC/MS PRIORITY
POLLUTANT ANALYSIS: BASE/NEUTRAL EXTRACTABLES

IDENTIFICATION: OHL 02948-2 SITE BLANK

NPDES NUMBER	MDL UG/L	COMPOUND	UG/L
1B	10	ACENAPHTHENE	ND
2B	10	ACENAPHTHYLENE	ND
3B	10	ANTHRACENE	ND
4B	10	BENZIDINE	ND
5B	10	BENZO(A)ANTHRACENE	ND
6B	10	BENZO(A)PYRENE	ND
7B	10	3,4-BENZOFLUORANTHENE	ND
8B	25	BENZO(GHI)PERYLENE	ND
9B	10	BENZO(K)FLUORANTHENE	ND
10B	10	BIS(2-CHLOROETHOXY)METHANE	ND
11B	10	BIS(2-CHLOROETHYL)ETHER	ND
12B	10	BIS(2-CHLOROISOPROPYL)ETHER	ND
13B	10	BIS(2-ETHYLHEXYL)PHTHALATE	ND
14B	10	4-BROMOPHENYL PHENYL ETHER	ND
15B	10	BUTYL BENZYL PHTHALATE	ND
16B	10	2-CHLORONAPHTHALENE	ND
17B	10	4-CHLOROPHENYL PHENYL ETHER	ND
18B	10	CHRYSENE	ND
19B	25	DIBENZO(A,H)ANTHRACENE	ND
20B	10	1,2-DICHLOROBENZENE	ND
21B	10	1,3-DICHLOROBENZENE	ND
22B	10	1,4-DICHLOROBENZENE	ND
23B	10	3,3'-DICHLOROBENZIDINE	ND
24B	10	DIETHYL PHTHALATE	ND
25B	10	DIMETHYL PHTHALATE	ND
26B	10	DI-N-BUTYL PHTHALATE	ND
27B	10	2,4-DINITROTOLUENE	ND
28B	10	2,6-DINITROTOLUENE	ND
29B	10	DI-N-OCTYL PHTHALATE	ND
30B	10	1,2-DIPHENYLHYDRAZINE	ND
31B	10	FLUORANTHENE	ND
32B	10	FLUORENE	ND
33B	10	HEXACHLOROBENZENE	ND
34B	10	HEXACHLOROBUTADIENE	ND

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JORDAN LABORATORIES, INC.
CHEMISTS AND ENGINEERS
CORPUS CHRISTI, TEXAS
OCTOBER 27, 1983

POLLUTANT ANALYSIS: BASE/NEUTRAL EXTRACTABLES - PAGE 2

NPDES NUMBER	MDL UG/L	COMPOUND	UG/L
35B	10	HEXACHLOROCYCLOPENTADIENE	ND
36B	10	HEXACHLOROETHANE	ND
37B	25	INDENO(1,2,3-C,D)PYRENE	ND
38B	10	ISOPHORONE	ND
39B	10	NAPHTHALENE	ND
40B	10	NITROBENZENE	ND
41B	10	N-NITROSODIMETHYLAMINE	ND
42B	10	N-NITROSODI-N-PROPYLAMINE	ND
43B	10	N-NITROSODIPHENYLAMINE	ND
44B	10	PHENANTHRENE	ND
45B	10	PYRENE	ND
46B	10	1,2,4-TRICHLOROBENZENE	ND
---	--	2,3,7,8-TCDD	ND

MDL = EPA PUBLISHED METHOD DETECTION LIMIT
ND = NOT DETECTED AT EPA METHOD 625 DETECTION LIMIT

SURROGATE STANDARDS FOR RECOVERY CHECK:

NITROBENZENE-D5	101
2-FLUORONAPHTHALENE	93
BIPHENYL-D10	102

DATE RECEIVED 10-21-83
DATE EXTRACTED 10-23-83
DATE INJECTED 10-26-83
LAB. NO. M21-5995
FILE NO. 14020

RESPECTFULLY SUBMITTED,

CARL F. CROWNOVER

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JORDAN LABORATORIES, INC.
CHEMISTS AND ENGINEERS
CORPUS CHRISTI, TEXAS
OCTOBER 27, 1983

SHELL DEVELOPMENT COMPANY
P.O. BOX 1380
HOUSTON, TEXAS 77001

REPORT OF GC/MS PRIORITY
POLLUTANT ANALYSIS: PESTICIDES

IDENTIFICATION: OHL 02948-2 SITE BLANK

NPDES NUMBER	MDL UG/L	COMPOUND	UG/L
1P	10	ALDRIN	ND
2P	10	ALPHA-BHC	ND
3P	10	BETA-BHC	ND
4P	10	GAMMA-BHC	ND
5P	10	DELTA-BHC	ND
6P	--	CHLORDANE	ND
7P	10	4,4'-DDT	ND
8P	10	4,4'-DDE	ND
9P	10	4,4'-DDD	ND
10P	10	DIELDRIN	ND
11P	10	ENDOSULFAN I	ND
12P	10	ENDOSULFAN II	ND
13P	10	ENDOSULFAN SULFATE	ND
14P	10	ENDRIN	ND
15P	10	ENDRIN ALDEHYDE	ND
16P	10	HEPTACHLOR	ND
17P	10	HEPTACHLOR EPOXIDE	ND
18P	--	PCB-1242	ND
19P	--	PCB-1254	ND
20P	--	PCB-1221	ND
21P	--	PCB-1232	ND
22P	--	PCB-1248	ND
23P	--	PCB-1260	ND
24P	--	PCB-1016	ND
25P	--	TOXAPHENE	ND

MDL = EPA PUBLISHED METHOD DETECTION LIMIT
ND = NOT DETECTED AT EPA METHOD 625 DETECTION LIMIT

DATE RECEIVED 10-21-83
DATE EXTRACTED 10-23-83
DATE INJECTED 10-26-83
LAB. NO. M21-5995
FILE NO. 14020

SIGNED: Carl Crownover
CARL F. CROWNOVER

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JORDAN LABORATORIES, INC.
CHEMISTS AND ENGINEERS
CORPUS CHRISTI, TEXAS
OCTOBER 27, 1983

SHELL DEVELOPMENT COMPANY
P.O. BOX 1380
HOUSTON, TEXAS 77001

REPORT OF GC/MS PRIORITY
POLLUTANT ANALYSIS: ACID EXTRACTABLES

IDENTIFICATION: OHL 02948-2 SITE BLANK

NPDES NUMBER	MDL UG/L	COMPOUND	UG/L
1A	25	2-CHLOROPHENOL	ND
2A	25	2,4-DICHLOROPHENOL	ND
3A	25	2,4-DIMETHYLPHENOL	ND
4A	250	4,6-DINITRO-O-CRESOL	ND
5A	250	2,4-DINITROPHENOL	ND
6A	25	2-NITROPHENOL	ND
7A	25	4-NITROPHENOL	ND
8A	25	P-CHLORO-M-CRESOL	ND
9A	25	PENTACHLOROPHENOL	ND
10A	25	PHENOL	ND
11A	25	2,4,6-TRICHLOROPHENOL	ND

MDL = EPA PUBLISHED METHOD DETECTION LIMIT
ND = NOT DETECTED AT EPA METHOD 625 DETECTION LIMIT

SURROGATE STANDARDS FOR RECOVERY CHECK:

2-FLUOROPHENOL	52%
2-NITROPHENOL-D5	80%

DATE RECEIVED 10-21-83
DATE EXTRACTED 10-23-83
DATE INJECTED 10-25-83
LAB. NO. M21-5995
FILE NO. 14015

RESPECTFULLY SUBMITTED,

CARL F. CROWNOVER

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CHEMISTS AND ENGINEERS
CORPUS CHRISTI, TEXAS
OCTOBER 27, 1983

SHELL DEVELOPMENT COMPANY
P.O. BOX 1380
HOUSTON, TEXAS 77001

REPORT OF GC/MS PRIORITY
POLLUTANT ANALYSIS: PURGEABLES

IDENTIFICATION: OHL 02948-1 WOOD RIVER NPDES EFFLUENT

NPDES NUMBER	MDL UG/L	COMPOUND	UG/L
1V	100	ACROLEIN	ND
2V	100	ACRYLONITRILE	ND
3V	10	BENZENE	ND
4V	--	BIS(CHLOROMETHYL)ETHER	ND
5V	10	BROMOFORM	ND
6V	10	CARBON TETRACHLORIDE	ND
7V	10	CHLOROBENZENE	ND
8V	10	CHLORODIBROMOMETHANE	ND
9V	10	CHLOROETHANE	ND
10V	10	2-CHLOROETHYLVINYL ETHER	ND
11V	10	CHLOROFORM	ND
12V	10	DICHLOROBROMOMETHANE	ND
13V	--	DICHLORODIFLUOROMETHANE	ND
14V	10	1,1-DICHLOROETHANE	ND
15V	10	1,2-DICHLOROETHANE	ND
16V	10	1,1-DICHLOROETHYLENE	ND
17V	10	1,2-DICHLOROPROPANE	ND
18V	10	1,3-DICHLOROPROPYLENE	ND
19V	10	ETHYL BENZENE	ND
20V	10	METHYL BROMIDE	ND
21V	10	METHYL CHLORIDE	ND
22V	10	METHYLENE CHLORIDE	DETECTED <10
23V	10	1,1,2,2-TETRACHLOROETHANE	ND
24V	10	TETRACHLOROETHYLENE	ND
25V	10	TOLUENE	ND
26V	10	1,2-TRANS-DICHLOROETHYLENE	ND
27V	10	1,1,1-TRICHLOROETHANE	ND
28V	10	1,1,2-TRICHLOROETHANE	ND
29V	10	TRICHLOROETHYLENE	ND
30V	10	TRICHLOROFLUOROMETHANE	ND
31V	10	VINYL CHLORIDE	ND

MDL = EPA PUBLISHED METHOD DETECTION LIMIT
ND = NOT DETECTED AT EPA METHOD 624 DETECTION LIMIT
SURROGATE STANDARDS FOR RECOVERY CHECK:
DICHLOROETHANE-D4 ---------- 98
BENZENE-D6 ---------- 108

DATE RECEIVED 10-21-83
DATE INJECTED 10-27-83
LAB. NO. M21-5994
FILE NO. 14033

SIGNED: Carl Mounour
CARL E. GROUNDVER

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JORDAN LABORATORIES, INC.
CHEMISTS AND ENGINEERS
CORPUS CHRISTI, TEXAS
OCTOBER 27, 1983

SHELL DEVELOPMENT COMPANY
P.O. BOX 1380
HOUSTON, TEXAS 77001

REPORT OF GC/MS PRIORITY
POLLUTANT ANALYSIS: BASE/NEUTRAL EXTRACTABLES

IDENTIFICATION: OHL 02948-1 WOOD RIVER NPDES EFFLUENT

NPDES NUMBER	MDL UG/L	COMPOUND	UG/L
1B	10	ACENAPHTHENE	ND
2B	10	ACENAPHTHYLENE	ND
3B	10	ANTHRACENE	ND
4B	10	BENZIDINE	ND
5B	10	BENZO(A)ANTHRACENE	ND
6B	10	BENZO(A)PYRENE	ND
7B	10	3,4-BENZOFLUORANTHENE	ND
8B	25	BENZO(GHI)PERYLENE	ND
9B	10	BENZO(K)FLUORANTHENE	ND
10B	10	BIS(2-CHLOROETHOXY)METHANE	ND
11B	10	BIS(2-CHLOROETHYL)ETHER	ND
12B	10	BIS(2-CHLOROISOPROPYL)ETHER	ND
13B	10	BIS(2-ETHYLHEXYL)PHTHALATE	ND
14B	10	4-BROMOPHENYL PHENYL ETHER	ND
15B	10	BUTYL BENZYL PHTHALATE	ND
16B	10	2-CHLORONAPHTHALENE	ND
17B	10	4-CHLOROPHENYL PHENYL ETHER	ND
18B	10	CHRYSENE	ND
19B	25	DIBENZO(A,H)ANTHRACENE	ND
20B	10	1,2-DICHLOROBENZENE	ND
21B	10	1,3-DICHLOROBENZENE	ND
22B	10	1,4-DICHLOROBENZENE	ND
23B	10	3,3'-DICHLOROBENZIDINE	ND
24B	10	DIETHYL PHTHALATE	ND
25B	10	DIMETHYL PHTHALATE	ND
26B	10	DI-N-BUTYL PHTHALATE	ND
27B	10	2,4-DINITROTOLUENE	ND
28B	10	2,6-DINITROTOLUENE	ND
29B	10	DI-N-OCTYL PHTHALATE	ND
30B	10	1,2-DIPHENYLHYDRAZINE	ND
31B	10	FLUORANTHENE	ND
32B	10	FLUORENE	ND
33B	10	HEXACHLOROBENZENE	ND
34B	10	HEXACHLOROBUTADIENE	ND

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JORDAN LABORATORIES, INC.
CHEMISTS AND ENGINEERS
CORPUS CHRISTI, TEXAS
OCTOBER 27, 1983

POLLUTANT ANALYSIS: BASE/NEUTRAL EXTRACTABLES - PAGE 2

NPDES NUMBER	MDL UG/L	COMPOUND	UG/L
35B	10	HEXACHLOROCYCLOPENTADIENE	ND
36B	10	HEXACHLOROETHANE	ND
37B	25	INDENO(1,2,3-C,D)PYRENE	ND
38B	10	ISOPHORONE	ND
39B	10	NAPHTHALENE	ND
40B	10	NITROBENZENE	ND
41B	10	N-NITROSODIMETHYLAMINE	ND
42B	10	N-NITROSODI-N-PROPYLAMINE	ND
43B	10	N-NITROSODIPHENYLAMINE	ND
44B	10	PHENANTHRENE	ND
45B	10	PYRENE	ND
46B	10	1,2,4-TRICHLOROBENZENE	ND
---	--	2,3,7,8-TCDD	ND

MDL = EPA PUBLISHED METHOD DETECTION LIMIT
ND = NOT DETECTED AT EPA METHOD 625 DETECTION LIMIT

SURROGATE STANDARDS FOR RECOVERY CHECK:

NITROBENZENE-D5	88
2-FLUORONAPHTHALENE	84
BIPHENYL-D10	110

DATE RECEIVED 10-21-83
DATE EXTRACTED 10-23-83
DATE INJECTED 10-25-83
LAB. NO. M21-5994
FILE NO. 14018

RESPECTFULLY SUBMITTED,

CARL F. CROWNOVER

TEL. 512-884-0371 PO BOX 2552 7840

JORDAN LABORATORIES, INC.
CHEMISTS AND ENGINEERS
CORPUS CHRISTI, TEXAS
OCTOBER 27, 1983

SHELL DEVELOPMENT COMPANY
P.O. BOX 1380
HOUSTON, TEXAS 77001

REPORT OF GC/MS PRIORITY
POLLUTANT ANALYSIS: PESTICIDES

IDENTIFICATION: OHL 02948-1 WOOD RIVER NPDES EFFLUENT

NPDES NUMBER	MDL UG/L	COMPOUND	UG/L
1P	10	ALDRIN	ND
2P	10	ALPHA-BHC	ND
3P	10	BETA-BHC	ND
4P	10	GAMMA-BHC	ND
5P	10	DELTA-BHC	ND
6P	--	CHLORDANE	ND
7P	10	4,4'-DDT	ND
8P	10	4,4'-DDE	ND
9P	10	4,4'-DDD	ND
10P	10	DIELDRIN	ND
11P	10	ENDOSULFAN I	ND
12P	10	ENDOSULFAN II	ND
13P	10	ENDOSULFAN SULFATE	ND
14P	10	ENDRIN	ND
15P	10	ENDRIN ALDEHYDE	ND
16P	10	HEPTACHLOR	ND
17P	10	HEPTACHLOR EPOXIDE	ND
18P	--	PCB-1242	ND
19P	--	PCB-1254	ND
20P	--	PCB-1221	ND
21P	--	PCB-1232	ND
22P	--	PCB-1248	ND
23P	--	PCB-1260	ND
24P	--	PCB-1016	ND
25P	--	TOXAPHENE	ND

MDL = EPA PUBLISHED METHOD DETECTION LIMIT
ND = NOT DETECTED AT EPA METHOD 625 DETECTION LIMIT

DATE RECEIVED 10-21-83
DATE EXTRACTED 10-23-83
DATE INJECTED 10-25-83
LAB. NO. M21-5994
FILE NO. 14018

SIGNED: Carl Crownover
CARL F. CROWNOVER

TEL. 512-884-0371 PO BOX 2552 7840

JORDAN LABORATORIES, INC.
CHEMISTS AND ENGINEERS
CORPUS CHRISTI, TEXAS
OCTOBER 27, 1983

SHELL DEVELOPMENT COMPANY
P.O. BOX 1380
HOUSTON, TEXAS 77001

REPORT OF GC/MS PRIORITY
POLLUTANT ANALYSIS: ACID EXTRACTABLES

IDENTIFICATION: OHL 02948-1 WOOD RIVER NPDES EFFLUENT

NPDES NUMBER	MDL UG/L	COMPOUND	UG/L
1A	25	2-CHLOROPHENOL	ND
2A	25	2,4-DICHLOROPHENOL	ND
3A	25	2,4-DIMETHYLPHENOL	ND
4A	250	4,6-DINITRO-O-CRESOL	ND
5A	250	2,4-DINITROPHENOL	ND
6A	25	2-NITROPHENOL	ND
7A	25	4-NITROPHENOL	ND
8A	25	P-CHLORO-M-CRESOL	ND
9A	25	PENTACHLOROPHENOL	ND
10A	25	PHENOL	ND
11A	25	2,4,6-TRICHLOROPHENOL	ND

MDL = EPA PUBLISHED METHOD DETECTION LIMIT
ND = NOT DETECTED AT EPA METHOD 625 DETECTION LIMIT

SURROGATE STANDARDS FOR RECOVERY CHECK:
2-FLUOROPHENOL ---------- 38%
2-NITROPHENOL-D5 ---------- 82%

DATE RECEIVED 10-21-83
DATE EXTRACTED 10-23-83
DATE INJECTED 10-25-83
LAB. NO. M21-5994
FILE NO. 14017

RESPECTFULLY SUBMITTED,

CARL F. CROWNOVER