

Richard Catlin & Associates, Inc.

ENVIRONMENTAL ENGINEERS AND HYDROGEOLOGISTS

RC&A

November 5, 1993

Koch Refining Company
ATTN: Mr. Jim Strickland
P. O. Box 3958
Wilmington, NC 28406

RECEIVED
DEC 21 1993

RE: Koch Fuel Oil Terminal North
Wilmington, NC
RC&A Project # 8646-I

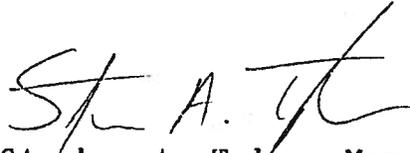
Dear Jim:

Attached is the quarterly monitoring report concerning the recovery systems at the Koch Refining Company North Terminal in Wilmington, North Carolina. In reviewing the attached Figure, note the effects of ground water withdrawal from around recovery wells RW-4 and RW-5. During this past quarter the recovery systems have been operating properly. Upon your review and approval please forward the enclosed additional copies to:

NC Division of Environmental Management
ATTN: Mr. Rick Shiver, P.G.
127 Cardinal Drive Ext.
Wilmington, NC, 28403-3696

If you should have any questions or requests please contact our office at your earliest convenience.

Sincerely,


Stephan A. Tyler, Manager
Monitoring Operations

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GROUND WATER MONITORING REPORT

MONITORING PERIOD: 7/14/93 - 10/18/93

CLIENT: Koch Refining Company
SITE: Koch North Fuel Oil Terminal
LOCATION: Wilmington, North Carolina

RC&A PROJECT #: 8646-I
DATE OF LAST REPORT: 4/20/93 - 7/14/93

MONITORING REQUIREMENTS:

Semi-Monthly: Check site's recovery operations, monitor free product accumulation and recovery.

Quarterly: Measure all monitoring and monitoring/recovery wells.

SITE VISITS THIS MONITORING PERIOD:

<u>DATE</u>	<u>COMMENTS</u>
7/14/93 - 10/18/93	Recovery wells RW-3 and RW-5 have been operating fine during this past quarter.

SYSTEM STATUS

MONITORING PERIOD: 7/14/93 - 10/18/93

A) MONITORING SYSTEM: Forty-two monitoring wells (2" monitoring wells).

B) VOLUME OF FREE PRODUCT RECOVERED THIS PERIOD: 0 Gallons
GRAVITY SEPARATOR(S): 0 Gallons
RECOVERED PRODUCT STORAGE TANKS: 1,259 Gallons
CUMULATIVE TOTAL RECOVERED TO DATE: 8,663 Gallons
CUMULATIVE TOTAL REMOVED FROM SITE: 7,234 Gallons
PRODUCT RECOVERY SYSTEM: Three 2' diameter recovery wells (RW-3, RW-4 & RW-5); one storm drain sump (SD-1)

C) VOLUME OF TREATED GROUND WATER THIS PERIOD: No Data
CUMULATIVE TOTAL TREATED TO DATE: No Data
FLOW: No Data
TREATMENT SYSTEM: All recovery wells discharge into a aeration treatment plant which handles storm water run-off as well.

SAMPLING: Treatment system effluent is sampled as part of the NPDES permit # NC0076732.

D) GROUND WATER QUALITY: No representative ground water samples from the monitoring wells were required during this past monitoring period.

E) FIELD DATA - DATA REDUCTION OF WATER TABLE MEASUREMENTS TAKEN ON 10/18/93 (in feet) (Refer to attached figures):

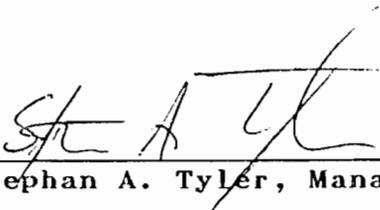
<u>WELL #</u>	<u>TOP OF CASING</u>	<u>WATER TABLE DEPTH</u>	<u>PRODUCT THICKNESS</u>	<u>SPECIFIC GRAVITY ADJUSTMENT</u>	<u>WATER TABLE ELEVATION</u>
<u>NORTHERN END</u>					
101	28.88	2.78	0.00	-	26.10
102	29.88	3.36	0.00	-	26.52
103	38.90	8.68	0.00	-	30.22
103A	38.50	9.21	0.00	-	29.29
104	28.21	2.57	0.00	-	25.64
105	29.61	3.41	0.00	-	26.20
106	28.75	2.85	0.00	-	25.90
107	29.32	4.24	0.00	-	25.08
108	30.89	5.03	0.00	-	25.86
109	30.04	6.22	0.00	-	23.82
113	33.28	7.72	0.00	-	25.56
114	34.80	8.47	0.00	-	26.33
116	28.90	6.95	0.00	-	21.95
117	31.33	8.20	0.00	-	23.13
120	27.64	4.65	0.00	-	22.99
121	29.30	3.73	0.00	-	25.57
122	36.52	7.47	0.00	-	29.05
123	35.29	8.39	-	-	-
<u>RECOVERY LOCATIONS</u>					
RW-3	29.07	7.59	0.00	-	21.48
RW-4	39.43	17.02	0.00	-	22.41
RW-5	44.72	16.24	0.00	-	28.48
SD-1	-	-	0.00	-	-

(continued)

<u>WELL #</u>	<u>TOP OF CASING</u>	<u>WATER TABLE DEPTH</u>	<u>PRODUCT THICKNESS</u>	<u>SPECIFIC GRAVITY ADJUSTMENT</u>	<u>WATER TABLE ELEVATION</u>
<u>TANK #1</u>					
7	43.41	9.08	0.00	-	34.33
9	44.70	11.85	0.00	-	32.85
10	46.85	13.66	0.00	-	33.19
11	44.79	5.23	0.00	-	39.56
12	46.21	12.94	0.00	-	33.27
13	45.79	12.46	0.00	-	33.33
14	45.66	13.28	0.00	-	32.38
15	46.83	13.80	0.00	-	33.03
16	46.29	13.50	0.00	-	32.79
17	45.32	12.37	0.00	-	32.95
18	44.57	11.87	0.00	-	32.70
19	47.31	14.34	0.00	-	32.79

TANK #4

1	37.28	8.72	0.00	-	28.56
2	40.86	11.99	0.00	-	28.87
3	39.61	8.03	0.00	-	31.58
4	40.48	8.25	0.00	-	32.23
5	40.12	8.47	0.00	-	31.65
6	41.53	9.87	0.00	-	31.66
8	40.75	8.00	0.00	-	32.75
20	41.16	10.10	0.00	-	31.06
21	42.25	10.42	0.00	-	31.83
22	41.23	9.91	0.00	-	31.32
23	40.41	9.12	0.00	-	31.29
24	40.90	8.37	0.00	-	32.53



Stephan A. Tyler, Manager, Monitoring Operations



Michael E. Mason, P.E.

