— TL77000946 1500403

1500403806102

BURLINGTON NORTHERN RAILROAD

COMPLETE THIS PORTION FOR CHANGE OF NAME OR ADDRESS		
NAME		
STREET		
CITY	STATE	ZIP

DATE	BILL NUMBER	BILL AMOUNT
06/08/88	1500403806A	$1,440.00

KOPPERS COMPANY INC
TAR & CHEMICAL DIVISION
7540 N W ST HELENS ROAD
PORTLAND OREGON 97229

PLEASE RETURN THIS PORTION WITH CHECK PAYABLE TO:

BURLINGTON NORTHERN RAILROAD COMPANY
P. O. BOX 64070
ST. PAUL, MN 55164 - 0070

PLEASE DETACH AT THIS LINE AND RETURN THIS PORTION WITH YOUR PAYMENT

LEASE OR CONTRACT #	DESCRIPTION	BALANCE DUE
TL77000946 1500403	FOR LEASE OF 400 FEET OF TRACK AT GASCO OREGON FOR YEAR ENDING 06/30/89	$1,440.00
**** PAST DUE ****	**** PAST DUE ****	**** PAST DUE ****
XCAT 01 POSN 0		

COPY OF ORIGINAL

TERMS: NET 30 DAYS

**** PAST DUE ****

PLEASE DIRECT INQUIRIES TO:
DIRECTOR ACCOUNTS RECEIVABLE AND CONTRACTS
BURLINGTON NORTHERN RAILROAD COMPANY
P. O. BOX 64952
ST. PAUL, MN 55164 (612)298-7465

1500403806A

PRINTED BY THE STANDARD REGISTER COMPANY U.S.A.

Koppers Company, Inc.
Pittsburgh, Pa. 15219

KOPPERS

8-26
430

Location No. 481/9270 Date 8/10/88 No. 669327

-KOPPERS- COMPANY, INC. $25 and 00 cts

$ 25.00

Pay
to the order of

Not valid over $3500.00

METRO
2000 S.W. FIRST AVENUE
PORTLAND, OR 97201-5398

Keith S. Marshall
John A Offord

Mellon Bank N. A.
Pittsburgh, Pa.

ADS-179 REV. 10

⑈669327⑈ ⑆043000261⑆ 166⑉1468⑈

General Ledger	Detail	Sub Detail	Location or Contract	Dept. or Orig. Loc.	Tax Codes	Emp. No.	Purchase Order No. Rec. Id.	Br.	or P.O. No.	P.O. Add	P.O. Add or Resource	Quantity	Unit Code	Amount Distributed Dollars	Cents
1426	973	X	870	715	0360									25	00

Vendor No.

Description

APPLICATION TO DISPOSE OF SPECIAL WASTES

METRO

2000 S.W. First Avenue
Portland, OR 97201-5398
503/221-1646

Application to Dispose of Special Wastes

INSTRUCTIONS: Please read important information on other side. Type, or print heavily in ink. The person responsible for accuracy of information must sign. Return all copies of completed application and any supporting information to Metro along with a check for the $25 application fee.

Office use only
Permit no. _____
Expires _____

Applicant's Name KOPPERS CO INC.

Address 7540 NW ST HELENS RD. City PORTLAND Zip Code 97210

Contact Person JOHN A OXFORD Phone 286-3681

Description of Special Waste (waste composition and physical, chemical, manufacturing process from which waste originated)
OFF SPEC SODIUM SULFITE - ~~HARDENED~~ HARDENED DUE TO WEATHER EXPOSURE, TORN OR RIPPED BAGS

One time disposal? X yes ____ no Disposal frequency (if more than one time) N/A

Quantity; (gallons, drums, lbs., cubic yards) 35 TONS APROX. Quantity per year ____

Hazardous ____ yes X no How did you determine whether hazardous or not? Material Safety Data Sheet yes

test results ____ other ____ (enclose documents)

Handling and spill cleanup directions CLEAN UP WITH WATER - SEE MSDS.

Transporter METROPOLITAN

Previous permit for this waste, if any. Number NONE

NO SEALED EMPTY CONTAINERS WILL BE ACCEPTED. If empty pesticide containers only: (a) Describe material originally in containers ____

(b) Describe method of cleansing, rinsing and preparation of containers WATER RINSE

Certificate of Accuracy of Description: This is to certify that the above describe materials are properly classified, identified, packaged, marked, labeled, cleansed, rinsed and prepared as indicated above.

X Signature John A Oxford Date 8-10-88

(also type or print name) JOHN A OXFORD PLANT MGR.

DEQ Review: The above described special waste or empty container(s) is approved ____ disapproved ____ for disposal at the St. Johns Landfill.

Signature ____ Date ____

(also type or print name) ____

Special Instructions ____

Metro Action: Disposal of the above described special waste or empty container(s) is approved ____ disapproved ____ for disposal at the St. Johns Landfill at a disposal rate of $ ____ per ton; ____ per trip minimum charge.

Signature ____ Date ____

(also type or print name) ____

GENERAL INSTRUCTIONS: Appointment required 24 HOURS prior to each disposal. Call 286-9614. Cash on disposal (NO CHECKS) or have prior account established. To establish an account, call Accounting at 221-1646.

SPECIAL INSTRUCTIONS: ____

8-86/85355

Beazer000003

Koppers Company, Inc., Pittsburgh, PA 15219
Telephone 412-227-2000

KOPPERS

October 6, 1988

Northwest Natural Gas Co.
220 N.W. Second Avenue
Portland, Oregon 97209

Attention: Billing Dept.

To Whom It May Concern:

Attached, please find Koppers' check #554723 in the amount of $14,452.00 which is for rental payment for the months of September and October, 1988.

Future invoices should be sent as follows:

Koppers Co., Inc.
Northwest Terminal
7540 N.W. Saint Helens Road
Portland, Oregon 97229
Attention: John Oxford - Terminal Manager

Sincerely,

James L. Schaum

James L. Schaum
Division Controller - Tar Operations

JLS/ll

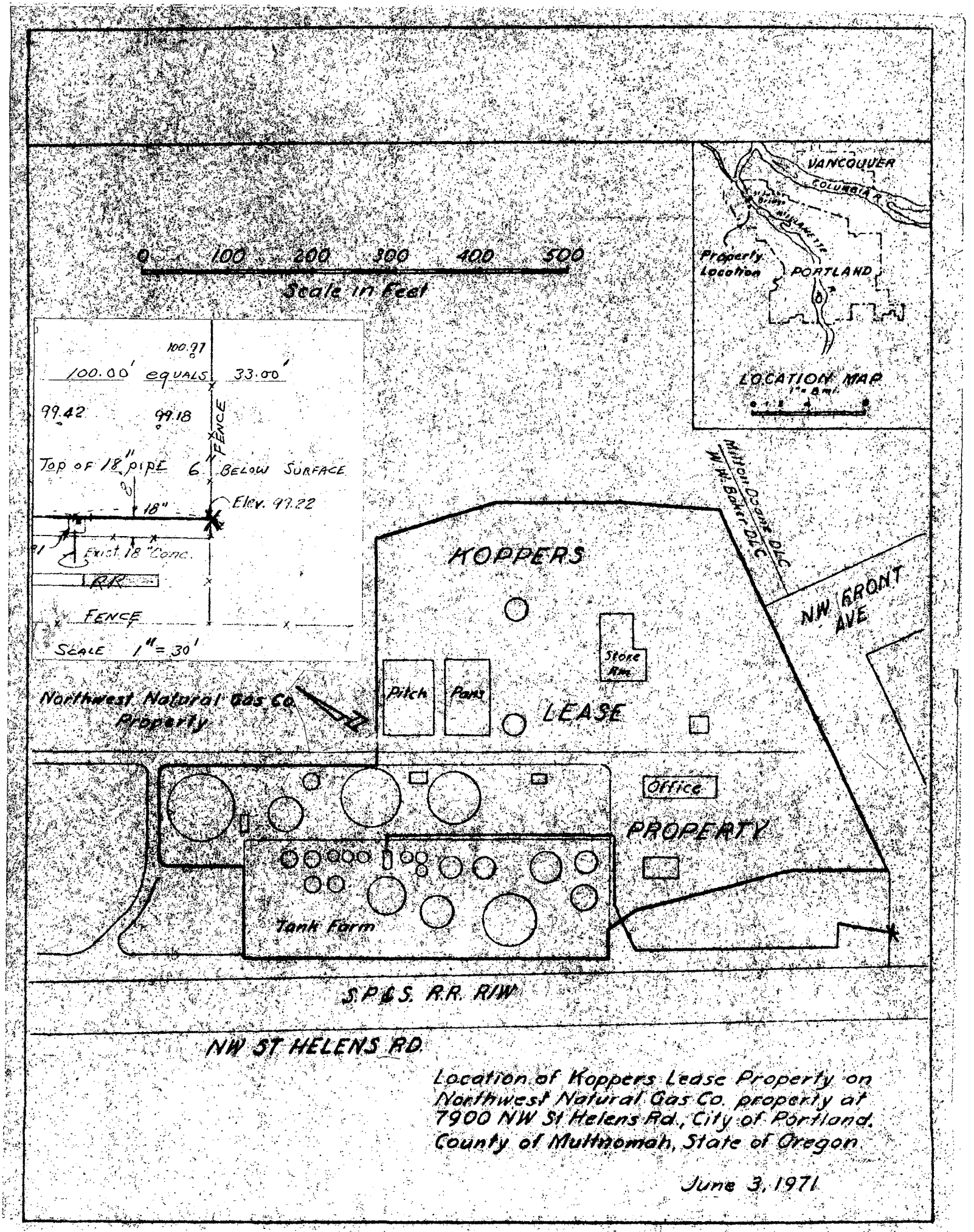
Attachment

cc: John Oxford - PORTLAND

OCT 11 1988

WASTE WATER ANALYSIS 1971

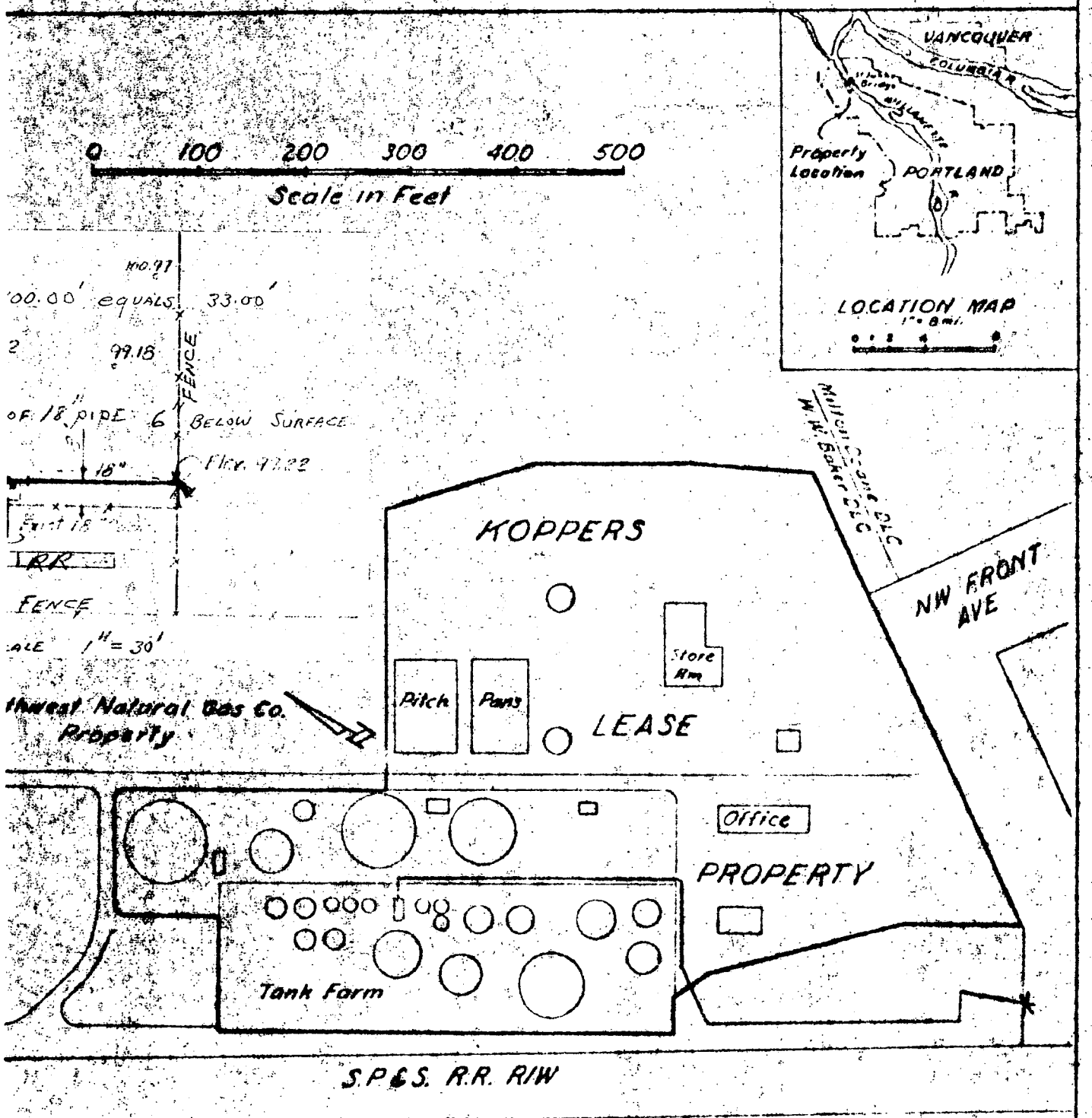
Beazer000005



Location of Koppers Lease Property on Northwest Natural Gas Co. property at 7900 NW St Helens Rd., City of Portland. County of Multnomah, State of Oregon

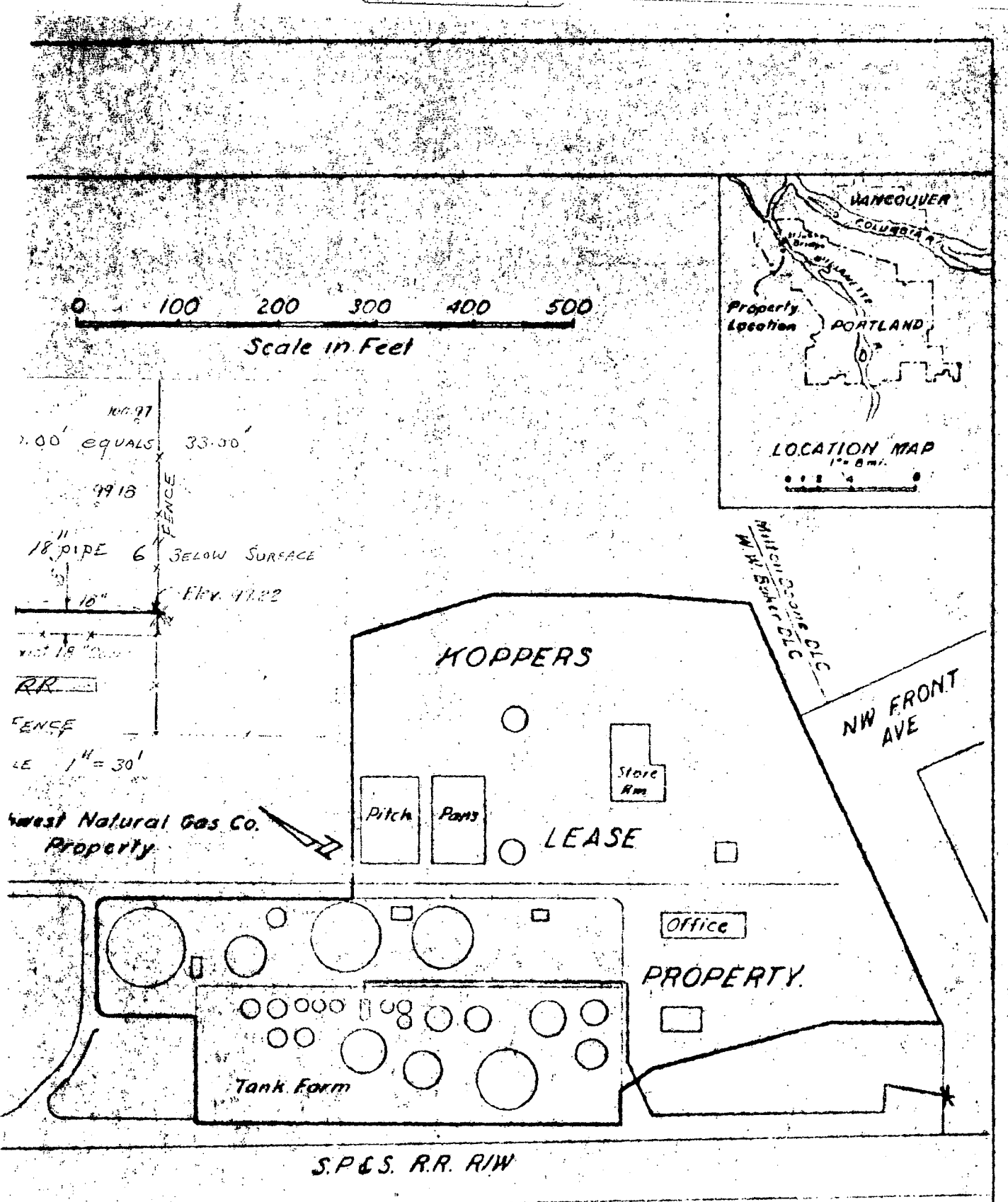
June 3, 1971

RECEIVED
JUL 15 1971
KOPPERS CO., INC.
TAR & CHEMICAL DIV.
PORTLAND, OREGON



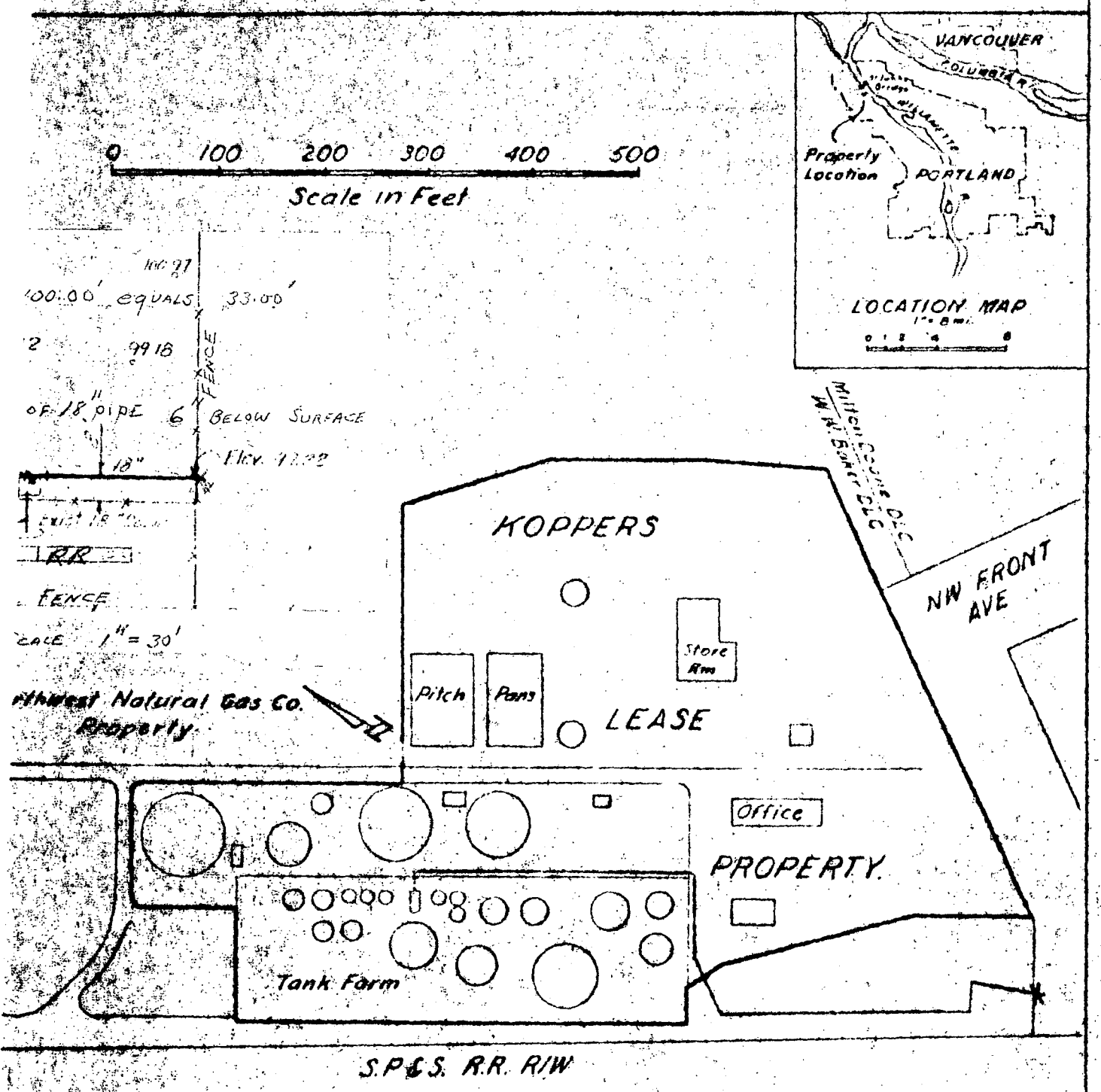
Location of Koppers Lease Property on Northwest Natural Gas Co. property at 7900 NW St Helens Rd., City of Portland, County of Multnomah, State of Oregon.

June 3, 1971



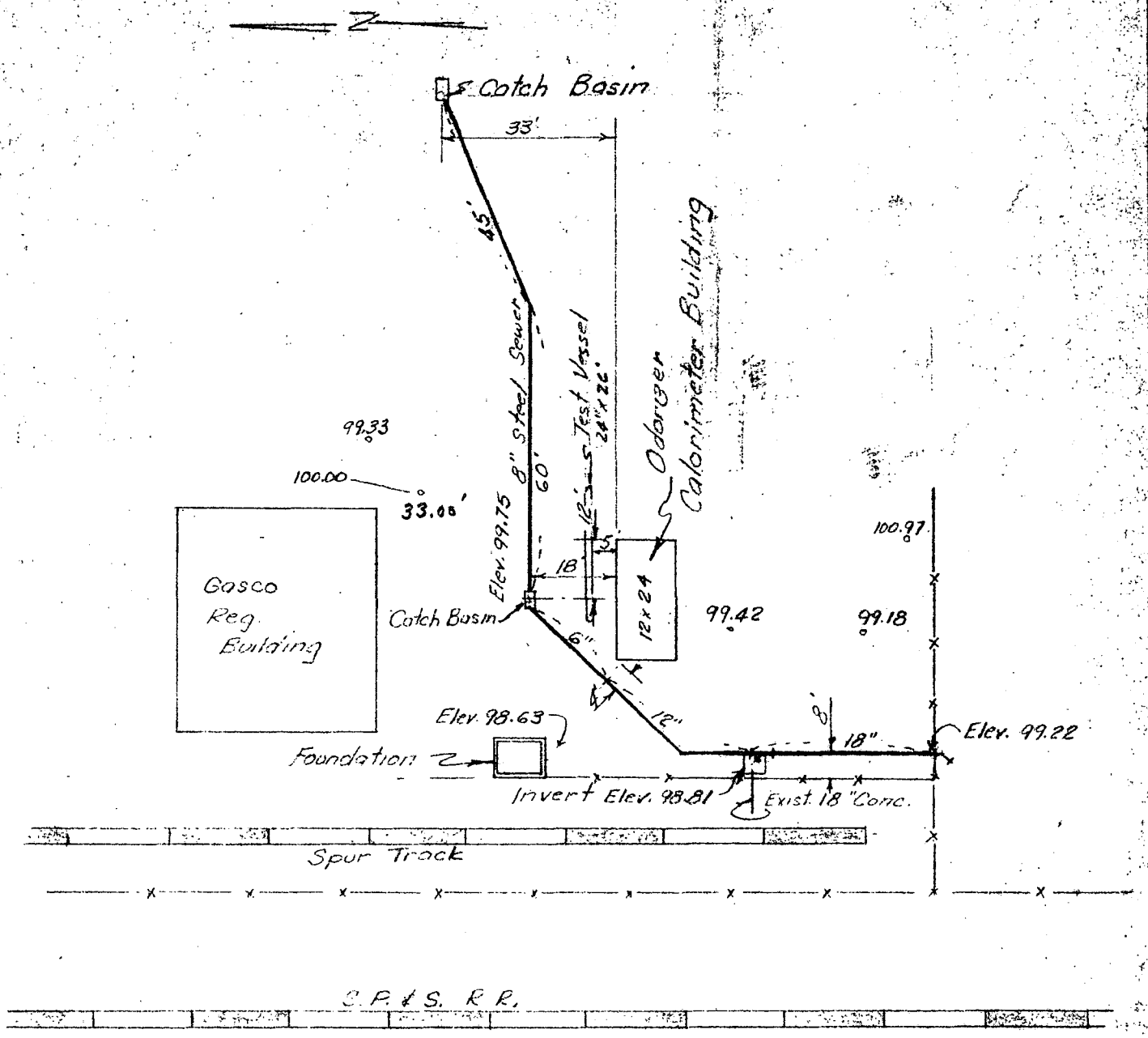
Location of Koppers Lease Property on Northwest Natural Gas Co. property at 7900 NW St Helens Rd., City of Portland, County of Multnomah, State of Oregon.

June 3, 1971



Location of Koppers Lease Property on Northwest Natural Gas Co. property at 7900 NW St Helens Rd., City of Portland, County of Multnomah, State of Oregon.

June 3, 1971



Elev 100.00' equals 33.00' Actual Elev. referred to USGS datum.

N.W. ST. HELENS RD.

"AS BUILT"

SYM	DR	APP	REVISIONS	DATE	SYM	DR.	APP	REVISIONS	DATE

CH.	DATE	NORTHWEST NATURAL GAS COMPANY	DR. E.A. DATE 11-28-67
APP.	DATE	DRAIN SEWER LAYOUT @ GASCO REG. STA.	SCALE 1" = 30'
APP.	DATE		DWG NO 6611-39

Beazer000011

September 29, 1971

U. S. Army Engineer District
P. O. Box 2946
Portland, Oregon 97208

Dear Sir:

Attached is Part B of Application No. 000189 for outfall 001 for our Portland Plant. We have essentially analyzed only for those parameters required by our SIC classification. I certify that I am familiar with the information contained in this application and to the best of my knowledge and belief such information is true, complete and accurate.

If more detailed information is required, please contact Mr. P. W. Guth, Superintendent at our Portland Plant.

Very truly yours,

s/W. B. Jackson

WBJ/KRC:mak

Attachment

cc: P. W. Guth
bcc: K. R. Caldwell
R. S. Dietrick
D. Eynon
D. L. O'Dell (w/attach.)
Templeton Smith

J. Little

PART B DISCHARGE DESCRIPTION

(Note: Submission of Part B is required of all applicants who are also required to submit Part A. Only those parameters specifically indicated in the instructions are to be reported by a particular industry)

(Office use only)

Discharge Serial No. 001

B-1. PHYSICAL AND BIOLOGICAL PARAMETERS OF INTAKE WATER AND DISCHARGE (See Table B-1)

Intake	Discharge						
PARAMETER AND CODE	UNTREATED INTAKE WATER (1)	TREATED INTAKE WATER (2)	AVERAGE (DAILY) (3)	MINIMUM (OPERATING YEAR) (4)	MAXIMUM (OPERATING YEAR) (5)	SAMPLE FREQUENCY (6)	CONTINUOUS MONITORING (7)
COLOR 00080	5		180		252	0	A
SPECIFIC CONDUCTANCE 00095	1		230		322	0	A
TURBIDITY 00070	<1		45		63	0	A
FECAL STREPTOCOCCI BACTERIA 74054							
FECAL COLIFORM BACTERIA 74055							
TOTAL COLIFORM BACTERIA 74056							

Sample frequency was once for those marked "0" in Column 6. These samples were analyzed and reported under average. Maximums were calculated as 1.4 times average values. Intake, average and maximum values are all in the required units.

PART B

(Office use only)

Discharge Serial No. 001

B-2. CHEMICAL PARAMETERS OF INTAKE WATER AND DISCHARGE (See Table B-2)

PARAMETER AND CODE	Intake: UNTREATED INTAKE WATER (1)	Intake: TREATED INTAKE WATER (2)	Discharge: MAXIMUM CONCENTRATION (3)	Discharge: MAXIMUM POUNDS PER DAY PER PROCESS UNIT (4)	Discharge: MAXIMUM POUNDS PER DAY (5)	Discharge: DAILY AVG. CONCENTRATION (6)	Discharge: AVERAGE POUNDS PER DAY (7)	Discharge: SAMPLE TYPE (8)	Discharge: SAMPLE FREQUENCY (9)	Discharge: METHOD OF ANALYSIS (10)	Discharge: CONTINUOUS MONITORING (11)
ACIDITY (as $CaCO_3$) 00435	0.9		24	2.41×10^{-5}	6.74	17	4.81	C	O	S	A
TOTAL ORGANIC CARBON (T.O.C.) 00680											
TOTAL HARDNESS 00900											
NITRITE (as N) 00615											
ORGANIC NITROGEN 00605											
PHOSPHORUS-ORTHO (as P) 70507											
SULFATE 00945	0.45		9.8	9.91×10^{-6}	2.76	7	1.983	G	O	S	A
SULFIDE 00745	0.00045		0.0014	1.4×10^{-9}	0.000040	<0.001	0.00028	G	O	S	A
SULFITE 00740											
BROMIDE 71870											

ENG FORM 4345-1

PART B

(Office use only)

Discharge Serial No. 001

B-2. (cont.) **CHEMICAL PARAMETERS OF INTAKE WATER AND DISCHARGE (See Table B-2)**

Intake	Discharge										
PARAMETER AND CODE	UNTREATED INTAKE WATER (1)	TREATED INTAKE WATER (2)	MAXIMUM CONCENTRATION (3)	MAXIMUM POUNDS PER DAY PER PROCESS UNIT (4)	DAILY AVG. CONCENTRATION (5)	AVERAGE POUNDS PER DAY (6)	MAXIMUM POUNDS PER DAY (7)	SAMPLE TYPE (8)	SAMPLE FREQUENCY (9)	METHOD OF ANALYSIS (10)	CONTINUOUS MONITORING (11)
CHLORIDE 00940	1.349		4.9	4.96×10^{-6}	1.388	3.5	0.991	C	O	S	A
CYANIDE 00720	<0.0045		<.028	3.0×10^{-7}	.0084	<0.02	.006	G	O	S	A
FLUORIDE 00951	0.018		0.35	3.54×10^{-7}	0.0991	0.25	0.0708	G	O	S	A
ALUMINUM-TOTAL 01105	0.054		310	3.12×10^{-7}	0.0872	220	0.0623	G	O	S	A
ANTIMONY-TOTAL 01097											
ARSENIC-TOTAL 01002											
BARIUM-TOTAL 01007											
BERYLLIUM-TOTAL 01012											
BORON-TOTAL 01022											
CADMIUM-TOTAL 01027	0.00045		2.8	2.8×10^{-9}	0.00079	x	0.00057	G	O	S	A

Beazer000015

PART B

(Office use only)

Discharge Serial No. 001

B-2. (cont.) **CHEMICAL PARAMETERS OF INTAKE WATER AND DISCHARGE (See Table B-2)**

PARAMETER AND CODE	Intake: UNTREATED INTAKE WATER (1)	Intake: TREATED INTAKE WATER (2)	Discharge: MAXIMUM CONCENTRATION (3)	Discharge: MAXIMUM POUNDS PER DAY PER PROCESS UNIT (4)	Discharge: DAILY AVG. CONCENTRATION (5)	Discharge: AVERAGE POUNDS PER DAY (6)	Discharge: MAXIMUM POUNDS PER DAY (7)	Discharge: SAMPLE TYPE (8)	Discharge: SAMPLE FREQUENCY (9)	Discharge: METHOD OF ANALYSIS (10)	Discharge: CONTINUOUS MONITORING (11)
CALCIUM-TOTAL 00916	0.765		25	2.53×10^{-5}	7.1	17.9	5.07	G	O	S	A
CHROMIUM-TOTAL 01034	0.0067		74	7.51×10^{-8}	0.021	53	0.015	G	O	S	A
COBALT-TOTAL 01037	<0.00045		49	4.96×10^{-8}	0.0139	35	0.0099	G	O	S	A
COPPER-TOTAL 01042	0.009		133	1.34×10^{-7}	0.0377	95	0.0269	G	O	S	A
IRON-TOTAL 01045	0.099		1400	1.42×10^{-6}	0.396	1000	0.283	G	O	S	A
LEAD-TOTAL 01051	0.0067		2.8	2.8×10^{-9}	0.00079	2	0.00057	G	O	S	A
MAGNESIUM-TOTAL 00927	0.225		8	8.07×10^{-6}	2.26	5.7	1.614	G	O	S	A
MANGANESE-TOTAL 01055	0.081		14000	1.42×10^{-5}	3.96	10000	2.83	G	O	S	A
MERCURY-TOTAL 71900	<0.0022		1.4	1.4×10^{-9}	0.0004	<1	0.0003	C	O	S	A
MOLYBDENUM-TOTAL 01062											

ENG FORM JUN 71 4345-1

Beazer000016

PART B

(Office use only)

Discharge Serial No. 001

B-2. (cont.) **CHEMICAL PARAMETERS OF INTAKE WATER AND DISCHARGE (See Table B-2)**

Intake	Discharge										
PARAMETER AND CODE	UNTREATED INTAKE WATER (1)	TREATED INTAKE WATER (2)	MAXIMUM CONCENTRATION (3)	MAXIMUM POUNDS PER DAY PER PROCESS UNIT (4)	DAILY AVG. CONCENTRATION (5)	AVERAGE POUNDS PER DAY (6)	MAXIMUM POUNDS PER DAY (7)	SAMPLE TYPE (8)	SAMPLE FREQUENCY (9)	METHOD OF ANALYSIS (10)	CONTINUOUS MONITORING (11)
NICKEL-TOTAL 01067											
POTASSIUM-TOTAL 00937	0.1349		3.1	3.12×10^{-6}	0.872	2.2	0.623	G	O	S	A
SELENIUM-TOTAL 01147											
SILVER-TOTAL 01077											
SODIUM-TOTAL 00929	0.72		20	1.98×10^{-5}	5.55	14	3.96	G	O	S	A
THALLIUM-TOTAL 01059											
TIN-TOTAL 01102											
TITANIUM-TOTAL 01152											
ZINC-TOTAL 01092	0.1574		770	7.79×10^{-7}	0.218	550	0.1558	G	O	S	A
OIL AND GREASE 00550	0.135		27	2.72×10^{-5}	7.61	19.2	5.44	C	O	S	A

ENG FORM JUN 71 4345-1

Beazer000017

PART B

(Office use only)

Discharge Serial No. 001

B-2. (cont.) **CHEMICAL PARAMETERS OF INTAKE WATER AND DISCHARGE (See Table B-2)**

PARAMETER AND CODE	Intake: UNTREATED INTAKE WATER (1)	Intake: TREATED INTAKE WATER (2)	Discharge: MAXIMUM CONCENTRATION (3)	Discharge: MAXIMUM POUNDS PER DAY PER PROCESS UNIT (4)	Discharge: MAXIMUM POUNDS PER DAY (5)	Discharge: DAILY AVG. CONCENTRATION (6)	Discharge: AVERAGE POUNDS PER DAY (7)	Discharge: SAMPLE TYPE (8)	Discharge: SAMPLE FREQUENCY (9)	Discharge: METHOD OF ANALYSIS (10)	Discharge: CONTINUOUS MONITORING (11)
PHENOLS 32730	0.00045		4300	4.39×10^{-6}	1.23	3100	0.878	C	O	S	A
SURFACTANTS 38260											
ALGICIDES* 74051											
CHLORINATED HYDROCARBONS* (EXCEPT PESTICIDES) 74052	A					A					
PESTICIDES* 74053											

*Name specific compound(s) and fill in the required data for each. Use extra blanks at the end of the form and the "Remarks" space as necessary.

Sample frequency was once for those marked "0" in Column 9. These samples were analyzed and reported as daily average concentration in Column 6. Maximum values were calculated as 1.4 times average values. Intake values are in lb/day. No TOC analyses are available because the independent laboratory doing the tests was not equipped torun them.

PART B

(Office use only)

Discharge Serial No.

B-3. RADIOACTIVE PARAMETERS OF INTAKE WATER AND DISCHARGE (See Table B-3)

Intake	Discharge						
PARAMETER AND CODE	UNTREATED INTAKE WATER (1)	TREATED INTAKE WATER (2)	AVERAGE (DAILY) (3)	MINIMUM (OPERATING YEAR) (4)	MAXIMUM (OPERATING YEAR) (5)	SAMPLE FREQUENCY (6)	CONTINUOUS MONITORING (7)
ALPHA-TOTAL 01501							
ALPHA COUNTING ERROR 01502							
BETA-TOTAL 03501							
BETA COUNTING ERROR 03502							
GAMMA-TOTAL 05501							
GAMMA COUNTING ERROR 05502							
TRITIUM-TOTAL 07000							
TRITIUM COUNTING ERROR 07001							

B-4. REMARKS

PART B DISCHARGE DESCRIPTION

(Note: Submission of Part B is required of all applicants who are also required to submit Part A. Only those parameters specifically indicated in the instructions are to be reported by a particular industry)

(Office use only)

Discharge Serial No. 001

B-1. PHYSICAL AND BIOLOGICAL PARAMETERS OF INTAKE WATER AND DISCHARGE (See Table B-1)

Intake	Discharge						
PARAMETER AND CODE	UNTREATED INTAKE WATER (1)	TREATED INTAKE WATER (2)	AVERAGE (DAILY) (3)	MINIMUM (OPERATING YEAR) (4)	MAXIMUM (OPERATING YEAR) (5)	SAMPLE FREQUENCY (6)	CONTINUOUS MONITORING (7)
COLOR 00080	5		180		252	0	A
SPECIFIC CONDUCTANCE 00095	1		230		322	0	A
TURBIDITY 00070	<1		45		63	0	A
FECAL STREPTOCOCCI BACTERIA 74054							
FECAL COLIFORM BACTERIA 74055							
TOTAL COLIFORM BACTERIA 74056							

Sample frequency was once for those marked "0" in Column 6. These samples were analyzed and reported under average. Maximums were calculated as 1.4 times average values. Intake, average and maximum values are all in the required units.

PART B

(Office use only)

Discharge Serial No. 001

B-2. CHEMICAL PARAMETERS OF INTAKE WATER AND DISCHARGE (See Table B-2)

Intake	Discharge										
UNTREATED INTAKE WATER	TREATED INTAKE WATER	MAXIMUM CONCENTRATION	MAXIMUM POUNDS PER DAY PER PROCESS UNIT	MAXIMUM POUNDS PER DAY	DAILY AVG. CONCENTRATION	AVERAGE POUNDS PER DAY	SAMPLE TYPE	SAMPLE FREQUENCY	METHOD OF ANALYSIS	CONTINUOUS MONITORING	
PARAMETER AND CODE	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
ACIDITY (as $CaCO_3$) 00435	0.9		24	2.41×10^{-5}	6.74	17	4.81	C	O	S	A
TOTAL ORGANIC CARBON (T.O.C.) 00680											
TOTAL HARDNESS 00900											
NITRITE (as N) 00615											
ORGANIC NITROGEN 00605											
PHOSPHORUS-ORTHO (as P) 70507											
SULFATE 00945	0.45		9.8	9.91×10^{-6}	2.76	7	1.983	G	O	S	A
SULFIDE 00745	0.00045		0.0014	1.4×10^{-9}	0.000040	<0.001	0.00028	G	O	S	A
SULFITE 00740											
BROMIDE 71870											

ENG FORM 4345-1

PART B

(Office use only)

Discharge Serial No. 001

B-2. (cont.) **CHEMICAL PARAMETERS OF INTAKE WATER AND DISCHARGE (See Table B-2)**

PARAMETER AND CODE	Intake: UNTREATED INTAKE WATER (1)	Intake: TREATED INTAKE WATER (2)	Discharge: MAXIMUM CONCENTRATION (3)	Discharge: MAXIMUM POUNDS PER DAY PER PROCESS UNIT (4)	Discharge: DAILY AVG. CONCENTRATION (5)	Discharge: AVERAGE POUNDS PER DAY (6)	Discharge: SAMPLE TYPE (7)	Discharge: SAMPLE FREQUENCY (8)	Discharge: METHOD OF ANALYSIS (9)	Discharge: CONTINUOUS MONITORING (10)	(11)
CHLORIDE 00940	1.349		4.9	4.96×10^{-6}	1.388	3.5	0.991	C	O	S	A
CYANIDE 00720	<0.0045		<.028	3.0×10^{-7}	.0084	<0.02	.006	G	O	S	A
FLUORIDE 00951	0.018		0.35	3.54×10^{-7}	0.0991	0.25	0.0708	G	O	S	A
ALUMINUM-TOTAL 01105	0.054		310	3.12×10^{-7}	0.0872	220	0.0623	G	O	S	A
ANTIMONY-TOTAL 01097											
ARSENIC-TOTAL 01002											
BARIUM-TOTAL 01007											
BERYLLIUM-TOTAL 01012											
BORON-TOTAL 01022											
CADMIUM-TOTAL 01027	0.00045		2.8	2.8×10^{-9}	0.00079	x	0.00057	G	O	S	A

Beazer000022

PART B

(Office use only)

Discharge Serial No. 001

B-2. (cont.) **CHEMICAL PARAMETERS OF INTAKE WATER AND DISCHARGE (See Table B-2)**

Intake	Discharge										
PARAMETER AND CODE	UNTREATED INTAKE WATER (1)	TREATED INTAKE WATER (2)	MAXIMUM CONCENTRATION (3)	MAXIMUM POUNDS PER DAY PER PROCESS UNIT (4)	DAILY AVG. CONCENTRATION (5)	AVERAGE POUNDS PER DAY (6)	SAMPLE TYPE (7)	SAMPLE FREQUENCY (8)	METHOD OF ANALYSIS (9)	CONTINUOUS MONITORING (10)	(11)
CALCIUM-TOTAL 00916	0.765		25	2.53×10^{-5}	7.1	17.9	5.07	G	O	S	A
CHROMIUM-TOTAL 01034	0.0067		74	7.51×10^{-8}	0.021	53	0.015	G	O	S	A
COBALT-TOTAL 01037	<0.00045		49	4.96×10^{-8}	0.0139	35	0.0099	G	O	S	A
COPPER-TOTAL 01042	0.009		133	1.34×10^{-7}	0.0377	95	0.0269	G	O	S	A
IRON-TOTAL 01045	0.099		1400	1.42×10^{-6}	0.396	1000	0.283	G	O	S	A
LEAD-TOTAL 01051	0.0067		2.8	2.8×10^{-9}	0.00079	2	0.00057	G	O	S	A
MAGNESIUM-TOTAL 00927	0.225		8	8.07×10^{-6}	2.26	5.7	1.614	G	O	S	A
MANGANESE-TOTAL 01055	0.081		14000	1.42×10^{-5}	3.96	10000	2.83	G	O	S	A
MERCURY-TOTAL 71900	<0.0022		1.4	1.4×10^{-9}	0.0004	<1	0.0003	C	O	S	A
MOLYBDENUM-TOTAL 01062											

PART B

(Office use only)

Discharge Serial No. 001

B-2. (cont.) **CHEMICAL PARAMETERS OF INTAKE WATER AND DISCHARGE (See Table B-2)**

Intake			Discharge								
PARAMETER AND CODE	UNTREATED INTAKE WATER (1)	TREATED INTAKE WATER (2)	MAXIMUM CONCENTRATION (3)	MAXIMUM POUNDS PER DAY PER PROCESS UNIT (4)	MAXIMUM POUNDS PER DAY (5)	DAILY AVG. CONCENTRATION (6)	AVERAGE POUNDS PER DAY (7)	SAMPLE TYPE (8)	SAMPLE FREQUENCY (9)	METHOD OF ANALYSIS (10)	CONTINUOUS MONITORING (11)
NICKEL-TOTAL 01067											
POTASSIUM-TOTAL 00937	0.1349		3.1	3.12×10^{-6}	0.872	2.2	0.623	G	O	S	A
SELENIUM-TOTAL 01147											
SILVER-TOTAL 01077											
SODIUM-TOTAL 00929	0.72		20	1.98×10^{-5}	5.55	14	3.96	G	O	S	A
THALLIUM-TOTAL 01059											
TIN-TOTAL 01102											
TITANIUM-TOTAL 01152											
ZINC-TOTAL 01092	0.1574		770	7.79×10^{-7}	0.218	550	0.1558	G	O	S	A
OIL AND GREASE 00550	0.135		27	2.72×10^{-5}	7.61	19.2	5.44	C	O	S	A

PART B

(Office use only)

Discharge Serial No. 001

B-2. (cont.) **CHEMICAL PARAMETERS OF INTAKE WATER AND DISCHARGE (See Table B-2)**

Intake	Discharge										
PARAMETER AND CODE	UNTREATED INTAKE WATER (1)	TREATED INTAKE WATER (2)	MAXIMUM CONCENTRATION (3)	MAXIMUM POUNDS PER DAY PER PROCESS UNIT (4)	DAILY AVG. CONCENTRATION (5)	AVERAGE POUNDS PER DAY (6)	SAMPLE TYPE (7)	SAMPLE FREQUENCY (8)	METHOD OF ANALYSIS (9)	CONTINUOUS MONITORING (10)	(11)
PHENOLS 32730	0.00045		4300	4.39×10^{-6}	1.23	3100	0.878	C	O	S	A
SURFACTANTS 38260											
ALGICIDES* 74051											
CHLORINATED HYDROCARBONS* (EXCEPT PESTICIDES) 74052	A					A					
PESTICIDES* 74053											

*Name specific compound(s) and fill in the required data for each. Use extra blanks at the end of the form and the "Remarks" space as necessary.

Sample frequency was once for those marked "O" in Column 9. These samples were analyzed and reported as daily average concentration in Column 6. Maximum values were calculated as 1.4 times average values. Intake values are in lb/day. No TOC analyses are available because the independent laboratory doing the tests was not equipped torun them.

ENG FORM JUN 71 4345-1

Beazer000025

PART B

(Office use only)

Discharge Serial No.

B-3. RADIOACTIVE PARAMETERS OF INTAKE WATER AND DISCHARGE (See Table B-3)

Intake	Discharge						
PARAMETER AND CODE	UNTREATED INTAKE WATER (1)	TREATED INTAKE WATER (2)	AVERAGE (DAILY) (3)	MINIMUM (OPERATING YEAR) (4)	MAXIMUM (OPERATING YEAR) (5)	SAMPLE FREQUENCY (6)	CONTINUOUS MONITORING (7)
ALPHA-TOTAL 01501							
ALPHA COUNTING ERROR 01502							
BETA-TOTAL 03501							
BETA COUNTING ERROR 03502							
GAMMA-TOTAL 05501							
GAMMA COUNTING ERROR 05502							
TRITIUM-TOTAL 07000							
TRITIUM COUNTING ERROR 07001							

B-4. REMARKS

ENG FORM JUN 71 4345-1

Beazer000026

Paul Gatt
Northwest

SPEED LETTER®

FROM K. R. Caldwell
Pittsburgh, Penna.

TO Carl Huth
Northwest Lar
Portland, Ore

SUBJECT Oregon Solid Waste Regulations

No. 9 & 10 FOLD

MESSAGE

DATE 12-6 19 71

We will not be affected by the new regulations. We don't really have any place to get rid of solid waste material other than what the garbage people pick up.

SIGNED Carl Huth

REPLY

DATE 12/13 19 71

Carl,

Thanks

Ray

No. 9 FOLD

No. 10 FOLD

SIGNED

GrayLine "SNAP-A-WAY" FORM 44-902 3 PARTS
WILSON JONES COMPANY • © 1961 • PRINTED IN U.S.A.

RETAIN WHITE COPY, RETURN PINK COPY. TURN OVER FOR USE WITH WINDOW ENVELOPE.

671

Beazer000028

FILL IN NAME AND ADDRESS HERE
FOR RETURN IN WINDOW ENVELOPE

FOLD

FOLD

Beazer000029

add some

Ammonia 0.09 - 0.28 - 0.002

K nitrogen 0.01 - 0.5

Nitrate 0.05 - 0.01 0.07. 0.14

Phosphorus sol otho P

PO_4

1/3

< 0.01 0.02 0.15

Anderson - City Engineer

2295983

BOD - 1 million

COD - < 5 million - Lab man

Allen Hoxie

State Labs

CHARLTON LABORATORIES
unit of METALLURGICAL ENGINEERS, INC.
testing and analyses

2340 S W. CANYON ROAD
P.O. BOX 1048
PORTLAND, OREGON 97207
503/228-9663

working with MATERIALS ECOLOGY INDUSTRIAL PRODUCTS AND PROCESSES

TO: Koppers Company
7540 N. W. ST. Helens Road
Portland, Oregon 97210

CLIENT NO.

REFERENCE NO. 704055-E

DATE: 10-12-71

SUBJECT: ANALYSIS OF WATER: U. S. ARMY CORPS OF ENGINEERS REQUIREMENTS
PER "STANDARD METHODS FOR EXAMINATION OF WATER AND WASTE WATER", 13th Ed.
One Water Sample(s) Received as of September 30, 1971

		N.W. Tar Plant Effluent				N.W. Tar Plant Effluent	
PHYSICAL	SPECIFIED MAXIMUM			MISCELLANEOUS	SPECIFIED MAXIMUM		
TOTAL SOLIDS	500			pH VALUE			
DISSOLVED				ACIDITY as $CaCO_3$			
SUSPENDED				ALKALINITY as $CaCO_3$			
VOLATILE SOLIDS				HYDROXIDE			
DISSOLVED				CARBONATE			
SUSPENDED				BICARBONATE			
HARDNESS AS $CaCO_3$				CHLORINE (Cl), Residual			
TURBIDITY, JACKSON UNITS	5						
COLOR	15						
THRESHOLD ODOR	3						
CONDUCTANCE, MICROMHOS/CM							
CHEMICAL - METALLIC				CHEMICAL - NON-METALLIC			
SODIUM (Na)				SILICA (SiO_2)			
POTASSIUM (K)				CHLORIDE (Cl)	250		
CALCIUM (Ca)				SULFATE (SO_4)	250		
MAGNESIUM (Mg)				FLUORIDE (F)			
ALUMINUM (Al)				NITRATE NITROGEN (N)	10		
IRON (Fe)	0.3			NITRITE NITROGEN (N)			
MANGANESE (Mn)	0.05			AMMONIA NITROGEN (N)			
ARSENIC (As)	0.05			ORGANIC NITROGEN (N)			
BARIUM (Ba)	1.0			KJELDAHL NITROGEN (N)			
CADMIUM (Cd)	0.01			PHOSPHORUS, TOTAL (P)			
CHROMIUM, TOTAL (Cr)				PHOSPHORUS, HYDROLYZABLE (P)			
CHROMIUM, HEXAVALENT (Cr)	0.05			ORTHOPHOSPHATE (P)			
COPPER (Cu)	1.0			SULFIDE (S)			
LEAD (Pb)	0.05			SULFITE (SO_3)			
MERCURY (Hg)				BERYLIUM (Be)			
NICKEL (Ni)				BORON (B)			
SILVER (Ag)	0.05			BROMIDE (Br)			
STRONTIUM (Sr)				CYANIDE (CN)	0.2	0.08	
TIN (Sn)				IODIDE (I)			
ZINC (Zn)	5			SELENIUM (Se)	0.01		

QUANTITIES ARE REPORTED AS MILLIGRAMS PER LITER, UNLESS OTHERWISE INDICATED.

SPECIFICATIONS ARE TAKEN FROM UNITED STATES PUBLIC HEALTH SERVICE DRINKING WATER STANDARDS UNLESS OTHERWISE STATED.

over--

B3/613

TO: Koppers Company

SUBJECT: ANALYSIS OF WATER: U.S. ARMY CORPS OF ENGINEERS REQUIREMENTS

REF. NO.: 704055-E

		N.W. Tar Plant Effluent				N.W. Tar Plant Effluent	
MICROBIOLOGICAL	SPECIFIED MAXIMUM			ORGANIC	SPECIFIED MAXIMUM		
PLATE COUNT, per ml				OXYGEN DEMAND			
COLIFORM, MPN/100 ml				BIOCHEMICAL-BOD-5 day			
TOTAL	2.2			CHEMICAL - COD			
FECAL				CHLORINE DEMAND			
IRON BACTERIA				HRS.			
				PPM RES. Cl.			
				TOTAL ORGANIC CARBON			
				SURFACTANTS - MBAS	0.5		
				OIL AND GREASE			
				PHENOLICS AS PHENOL	0.001	2.9	
BIOLOGICAL				PESTICIDES			
DISSOLVED GASES				RADIOACTIVITY, pc/l			
CARBON DIOXIDE (CO_2)				GROSS BETA	1,000		
OXYGEN (O)				RADIUM 226	3		
				STRONTIUM 90	10		

FIELD DATA

DATE COLLECTED 9-30-71

COLLECTED BY client

SOURCE N.W. Tar Plant Effluent

Sensitivities of tests meet requirements of the Department of the Army, Corps of Engineers, within practical limits of the test methods.

CHARLTON LABORATORIES unit of MEI

Harry Czyzewski for

J. M. Hogl
Project Director

JMH:lr
cc: 2

mei
P.O. BOX 1048
PORTLAND, OREGON 97207

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KOPPERS

Interoffice Correspondence

To Mr. K. R. Caldwell

Location O. M. - K-1201

Subject Corps of Engineers Application Analyses

From Effluent Services Group Environmental Health & Safety Section

Location Monroeville Research Center

Date October 7, 1971

The analyses for parameters requested to complete the Corps of Engineers Application are as follows:

Portland, Oregon Plant

Date Received:	October 4, 1971
Phenols, mg/l	4.8
Cyanides, mg/l	<0.02

Utica, N. Y. Plant

Date Received:	October 1, 1971
pH	6.5
Total Organic Carbon (TOC), mg/l	25
Oils, mg/l	19.6

C. W. Fisher

C. W. Fisher

CWF:jd

cc: Mr. D. L. O'Dell
cc: Mr. R. L. Shannon
cc: Mr. P. W. Guth (Portland, Oregon)
cc: Mr. C. S. Groff (Utica, N. Y.)

ENVIRONMENTAL PROTECTION AGENCY

REGION X

1200 SIXTH AVENUE

SEATTLE, WASHINGTON 98101

September 28, 1971

Application Number
071-OYA-2-000189

Paul W. Guth, Plant Superintendent
7540 N. W. St. Helena Roak
Portland, Oregon 97229

Re: Koppers Company Inc.
Northwest Plant

Dear Mr. Guth:

The Environmental Protection Agency has received from the District Engineer, Corps of Engineers, a copy of your application for a permit to discharge into a navigable water or tributary. To complete your application so that it can be processed, please submit the information requested (see attachment) to the Corps of Engineers, who will forward it to EPA.

A copy of the incomplete portions of your application, with the above marked in red, and a new application form are enclosed. For each page of your application which is incomplete, please submit a new page with all items on the page completed. The completed page will replace your first submission in the application file.

Thank you for your cooperation. If you have questions regarding your application you may contact the reviewer identified on the attachment.

Sincerely yours,

Lloyd A. Reed

Lloyd A. Reed
Acting Chief
Permits Branch

Attachments: ENG Form 4345, 4345-1, May 71

cc: C/E Portland

Application Number:
071-0YA-2-000189

Information Required to Complete Waste Discharge Permit Application

Section I:
Item 25&26: An answer is required for this as you report solids under Section II, Item 23.

Section II: Discharge Serial No. 001.
Item 9: Please explain why its question does not apply.
Item 22: Please supply the required data as it becomes available.
Part A: Please supply the required parameters as they become available.
Part B: Due October 1, 1971.
Maps: Please provide a corss section of your point of discharge and where your discharge line goes.

Reviewer: Nora McGee, telephone 442-1275.

SECTION II. PLANT PROCESS AND DISCHARGE DESCRIPTION

1. Discharge described below is
a. Present [X] b. Proposed new or changed [ ]

2. Implementation schedule [ ]

(Office use only) 000189

Name of corporate boundaries within which the point of discharge is located.

3. State: Oregon
4. County: Multnomah
5. City or Town: Portland

6. Discharge Serial No. 001

State the precise location of the point of discharge.

7. Latitude N 45 Degrees; 3 5 Min; __ __ Sec.

8. Longitude W 122 Degrees; 4 6 Min; __ __ Sec.

9. Name of waterway at the point of discharge.

Not applicable

10. Has application for water quality certification or description of impact been made? If so, give date:

Date: 6 mo 29 day 71 yr

Check if certificate is attached to form [ ]

Name Issuing Agency: Oregon Dept. of Environmental Quality

11. Narrative description of activity (include terms of general 4-digit Standard Industrial Classification, and specific manufacturing process).

Primarily engaged in manufacturing industrial organic chemicals by the distillation of coke oven tar.

12. Standard industrial classification number.

SIC 2818

13. Principal product.

See #15

14. Amount of principal product produced per day.

See #16

15. Principal raw material.

Coke Oven Tar

16. Amount of principal raw material consumed per day.

280,000 lbs.

17. Number of batch discharges per day.

Not Applicable

18. Average gallons per batch discharge.

Not Applicable

19. Date discharge began.

6 mo 1 day 66 yr

20. Date discharge will begin.

__ mo __ day __ yr

21. Describe waste abatement practices.

Water discharged at this outfall is contained in a separate drainage system where pumps with special seals and local separators are employed.

ESEPAR, EPUMPS, LOCALS

Beazer000036

22.

PHYSICAL DESCRIPTION OF INTAKE WATER AND DISCHARGE

Intake	Discharge	(Office use only) 000189

Discharge Serial No. 001

Parameter and (Code)	(1) UNTREATED INTAKE WATER	(2) TREATED INTAKE WATER	(3) AVERAGE (DAILY)	(4) MINIMUM (OPERATING YEAR)	(5) MAXIMUM (OPERATING YEAR)	(6) SAMPLE FREQUENCY	(7) CONTINUOUS MONITORING
Flow (Gallons per day) 00056		54,000	34,000	Data Not Avail.	Data Not Avail.	OTHR	ABS
pH 00400		6.9	8.8	Data Not Avail.	Data Not Avail.	OTHR	ABS
Temperature (Winter) (°F) 74028		45	85	Data Not Avail.	Data Not Avail.	OTHR	ABS
Temperature (Summer) (°F) 74027		52	110	Data Not Avail.	Data Not Avail.	OTHR	ABS

23. DISCHARGE CONTENTS

PARAMETER	PRESENT	ABSENT	PARAMETER	PRESENT	ABSENT	PARAMETER	PRESENT	ABSENT
Color 00080	X		Aluminum 01105		X	Nickel 01067		X
Turbidity 00070	X		Antimony 01097		X	Selenium 01147		X
Radioactivity 74050		X	Arsenic 01002		X	Silver 01077		X
Hardness 00900	X		Beryllium 01012		X	Potassium 00937	X	
Solids 00500	X		Barium 01007		X	Sodium 00929	X	
Ammonia 00610	X		Boron 01022		X	Titanium 01152		X
Organic Nitrogen 00605	X		Cadmium 01027		X	Tin 01102		X
Nitrate 00620	X		Calcium 00916	X		Zinc 01092		X
Nitrite 00615		X	Cobalt 01037		X	Algicides 74061		X
Phosphorus 00535	X		Chromium 01034		X	Oil and Grease 00550	X	
Sulfate 00945	X		Copper 01042		X	Phenols 32730	X	
Sulfide 00745	X		Iron 01045	X		Surfactants 38260		X
Sulfite 00740		X	Lead 01051		X	Chlorinated Hydrocarbons 74052		X
Bromide 71870		X	Magnesium 00927		X	Pesticides 74053		X
Chloride 00940	X		Manganese 01055		X	Fecal Streptococci Bacteria 74054		X
Cyanide 00720	X		Mercury 71900		X	Coliform Bacteria 74056		X
Fluoride 00951		X	Molybdenum 01062		X			

Beazer000037

If structures exist, or dredging, filling or other construction will occur, the precise location of the activity must be described.

(Office use only) 000180

a. Name the corporate boundaries within which the structures exist or the activity will occur.

State	County	City or Town
16. Oregon	17. Multnomah	18. Portland

b. Name of waterway at the location of the activity

19. Willamette River

20. Maps and sketches which show the location and character of each structure or activity, including any and all outfall devices, dispersive devices, and non-structural points of discharge, must be attached to the application.

21. For construction or work in navigable waters for which a separate permit is sought under 33 U.S.C. 403, the character of each structure must be fully shown on detailed plans to be submitted with this application. Note on the drawings those structures for which separate discharge information (Section II of this Form) has been submitted.

22. List all approvals or denials granted by Federal, Interstate, State or local agencies for any structures, construction, discharges or deposits described in this application.

Type of document	Id. No.	Date	Issuing Agency
Letter	1 W 3-0	1-11-66	Oregon State Sanitary Authority

23. Check if facility existed or was lawfully under construction prior to April 3, 1970. [X]

24. If dredging or filling will occur:

State the type of materials involved, their volume in cubic yards, and the proposed method of measurement.

Not Applicable

25. Describe the proposed method of instrumentation which will be used to measure the volume of any solids which may be deposited and to determine its effect upon the waterway.

Not Applicable

26. State rates and periods of deposition described in Item 25.

Not Applicable

Beazer000038

PART A

(Note: Submission of Part A is required of all applicants whose processes are listed on page 3 above.)

(Office use only) 000189

Discharge Serial No. 001

INFORMATION REQUIRED OF SPECIFIED INDUSTRIES

PARAMETER AND CODE	Intake: DAILY AVG. CONCENTRATION UNTREATED INTAKE WATER (1)	Intake: DAILY AVG. CONCENTRATION TREATED INTAKE WATER (2)	Discharge: MAXIMUM CONCENTRATION (3)	Discharge: MAXIMUM POUNDS PER PROCESS UNIT (4)	Discharge: MAXIMUM POUNDS PER DAY (5)	Discharge: DAILY AVG. CONCENTRATION (6)	Discharge: AVERAGE POUNDS PER DAY (7)	Discharge: SAMPLE TYPE (8)	Discharge: SAMPLE FREQUENCY (9)	Discharge: METHOD OF ANALYSIS (10)	Discharge: CONTINUOUS MONITORING (11)
ALKALINITY (as $CaCO_3$) 00410		14	101	10×10^{-5}	28	72	20	COMP	OTHR	AWWA	ABS
B.O.D. 5 DAY 00310		Not Avail	112	11×10^{-5}	32	80	23	COMP	OTHR	AWWA	ABS
CHEMICAL OXYGEN DEMAND (C.O.D.) 00340		Not Avail	344	37×10^{-5}	105	246	75	COMP	OTHR	AWWA	ABS
TOTAL SOLIDS 00500		28	246	25×10^{-5}	70	176	50	COMP	OTHR	AWWA	ABS
TOTAL DISSOLVED SOLIDS 70300		26.8	162	16×10^{-5}	46	116	33	COMP	OTHR	AWWA	ABS
TOTAL SUSPENDED SOLIDS 00530		1.2	84	86×10^{-6}	24	60	17	COMP	OTHR	AWWA	ABS
TOTAL VOLATILE SOLIDS 00505		11.5	106	11×10^{-5}	31	76	22	COMP	OTHR	AWWA	ABS
AMMONIA (as N) 00610		Not Avail	7.98	81×10^{-7}	2.27	5.7	1.62	COMP	OTHR	AWWA	ABS
KJELDAHL NITROGEN 00625		Not Avail				Not Avail					ABS
NITRATE (as N) 00620		Not Avail	.71	75×10^{-8}	.21	.51	0.15	COMP	OTHR	AWWA	ABS
PHOSPHORUS TOTAL (as P) 00665		Not Avail	.42	46×10^{-8}	.13	.30	.09	COMP	OTHR	AWWA	ABS

CHARLTON LABORATORIES
unit of METALLURGICAL ENGINEERS, INC.
testing and analyses

2340 S.W. CANYON ROAD
P.O. BOX 1048
PORTLAND, OREGON 97207
503/228-9663

working with MATERIALS ECOLOGY INDUSTRIAL PRODUCTS AND PROCESSES

TO: Koppers Company
7540 N. W. St. Helens Road
Portland, Oregon 97210

CLIENT NO.

REFERENCE NO. 704176-E

DATE: 10-29-71

SUBJECT: ANALYSIS OF WATER: U.S. Army Corps of Engineers Requirements
PER "STANDARD METHODS FOR EXAMINATION OF WATER AND WASTE WATER", 13th Ed.
One Water Sample(s) Received as of October 20, 1971

PHYSICAL	SPECIFIED MAXIMUM			MISCELLANEOUS	SPECIFIED MAXIMUM		
TOTAL SOLIDS	500			pH VALUE			
DISSOLVED				ACIDITY as $CaCO_3$			
SUSPENDED				ALKALINITY as $CaCO_3$			
VOLATILE SOLIDS				HYDROXIDE			
DISSOLVED				CARBONATE			
SUSPENDED				BICARBONATE			
HARDNESS AS $CaCO_3$				CHLORINE (Cl), Residual			
TURBIDITY, JACKSON UNITS	5						
COLOR	15						
THRESHOLD ODOR	3						
CONDUCTANCE, MICROMHOS/CM							
CHEMICAL - METALLIC				CHEMICAL - NON-METALLIC			
SODIUM (Na)				SILICA (SiO_2)			
POTASSIUM (K)				CHLORIDE (Cl)	250		
CALCIUM (Ca)				SULFATE (SO_4)	250		
MAGNESIUM (Mg)				FLUORIDE (F)			
ALUMINUM (Al)				NITRATE NITROGEN (N)	10		
IRON (Fe)	0.3			NITRITE NITROGEN (N)			
MANGANESE (Mn)	0.05			AMMONIA NITROGEN (N)			
ARSENIC (As)	0.05			ORGANIC NITROGEN (N)			
BARIUM (Ba)	1.0			KJELDAHL NITROGEN (N)			
CADMIUM (Cd)	0.01			PHOSPHORUS, TOTAL (P)			
CHROMIUM, TOTAL (Cr)				PHOSPHORUS, HYDROLYZABLE (P)			
CHROMIUM, HEXAVALENT (Cr)	0.05			ORTHOPHOSPHATE (P)			
COPPER (Cu)	1.0			SULFIDE (S)			
LEAD (Pb)	0.05			SULFITE (SO_3)			
MERCURY (Hg)				BERYLIUM (Be)			
NICKEL (Ni)				BORON (B)			
SILVER (Ag)	0.05			BROMIDE (Br)			
STRONTIUM (Sr)				CYANIDE (CN)	0.2		
TIN (Sn)				IODIDE (I)			
ZINC (Zn)	5			SELENIUM (Se)	0.01		

QUANTITIES ARE REPORTED AS MILLIGRAMS PER LITER, UNLESS OTHERWISE INDICATED.

SPECIFICATIONS ARE TAKEN FROM UNITED STATES PUBLIC HEALTH SERVICE DRINKING WATER STANDARDS UNLESS OTHERWISE STATED.

over--

B3/613

TO: Koppers Company

SUBJECT: ANALYSIS OF WATER: U.S. ARMY CORPS OF ENGINEERS REQUIREMENTS

REF. NO.: 704176-E

MICROBIOLOGICAL	SPECIFIED MAXIMUM			ORGANIC	SPECIFIED MAXIMUM		
PLATE COUNT, per ml				OXYGEN DEMAND			
COLIFORM, MPN/100 ml				BIOCHEMICAL-BOD-5 day			
TOTAL	2.2			CHEMICAL - COD			
FECAL				CHLORINE DEMAND			
IRON BACTERIA				HRS.			
				PPM RES. Cl.			
				TOTAL ORGANIC CARBON			
				SURFACTANTS - MBAS	0.5		
				OIL AND GREASE			
				PHENOLICS AS PHENOL	0.001	0.43	
BIOLOGICAL				PESTICIDES			
DISSOLVED GASES				RADIOACTIVITY, pc/l			
CARBON DIOXIDE (CO_2)				GROSS BETA	1,000		
OXYGEN (O)				RADIUM 226	3		
				STRONTIUM 90	10		

FIELD DATA

DATE COLLECTED	received 10-20-71
COLLECTED BY	Client
SOURCE	not given

Sensitivities of tests meet requirements of the Department of the Army, Corps of Engineers, within practical limits of the test methods.

RECEIVED
NOV 1 1971
KOPPERS CO., INC.
TA & CHEMICAL DIV.
PORTLAND, OREGON

CHARLTON LABORATORIES unit of MEI

J. M. Hogl
Project Director

JMH:lr
cc: 2

mei
P.O. BOX 1048
PORTLAND, OREGON 97207

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December 21, 1987

Mr. E. L. Bolin, Manager 503-226-4211
Land & Claims Department
Northwest Natural Gas Company
220 N. W. Second Avenue
Portland, OR 97209

Re: Lease Extension Agreement
Portland, OR

Dear Ed:

I am returning herewith a fully executed copy of the Lease Extension Agreement covering certain property at 7900 N. W. St. Helens Road, Portland, Oregon, for a further term of five years effective January 1, 1988 at a monthly rental of $7,226 retroactive to July 1, 1987. Please note that we have amended the extension letter to provide for the five-year term from January 1, 1988 rather than December 31, 1987.

Also enclosed per your invoice of November 23 is Koppers Check No. 490889 in the amount of $9,696 covering the rental increase of $1,616 per month from July 1, 1987 through December 31, 1987.

Thank you very much for your help and cooperation in this matter and best wishes for a happy holiday season.

Very truly yours,

Thomas E. Bourne

TEB/sjd

Enclosures

bcc: L. F. Flaherty
J. C. Youts
J. L. Schaum
M. R. Urbassik
J. Oxford

TEB JBS
TFM SMK
NOV 30 1987
SJD FILE
PROJ. DOC.

NORTHWEST NATURAL GAS COMPANY

220 N.W. SECOND AVENUE PORTLAND, OREGON 97209

(503) 226-4211

November 23, 1987

Mr. Thomas E. Bourne
Assistant Secretary
and Manager
Koppers Company, Inc.
Corporate Real Estate
436 Seventh Avenue
Pittsburgh PA 15219

Gentlemen:

This will confirm our agreement with respect to extension of the term and modification of the rental of our lease agreement as dated August 17, 1965, and as subsequently extended and modified, covering certain real and personal property at 7900 NW St. Helens Road, Portland, Oregon.

It is agreed that:

1. The lease is extended for a period of five years from January 1, 1988; provided that after the initial year of the extended period either party may cancel the lease by giving the other one years advance written notice.

2. Effective July 1, 1987 rental is $7,226.00 per month.

If this is consistent with your understanding of our agreement, please indicate your acceptance by signing both copies of this letter and returning one for our records.

Sincerely,

E.L. Bolin, Manager
Land & Claims Department

ACCEPTED

Date Dec. 18, 1987

By [signature]
Title VICE PRESIDENT

KOPPERS COMPANY, INC.		
SECTION	CHECKED By	Date
Real Estate	TEB	12/7
Insurance		

Beazer000043

NORTHWEST NATURAL GAS COMPANY

220 N.W. SECOND AVENUE PORTLAND, OREGON 97209

(503) 226-4211

November 23, 1987

Mr. Thomas E. Bourne
Assistant Secretary
and Manager
Koppers Company, Inc.
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If this is consistent with your understanding of our agreement, please indicate your acceptance by signing both copies of this letter and returning one for our records.

Sincerely,

E.L. Bolin, Manager
Land & Claims Department

ACCEPTED

Date_____

By_____
Title VICE PRESIDENT

TEB CEB
TFM SAF

MAR 8 1982

BAK KMK
SMK FILE

NORTHWEST NATURAL GAS COMPANY

123 N.W. FLANDERS STREET PORTLAND, OREGON 97209

(503) 226-4211

March 4, 1982

Mr. Thomas E. Bourne
Koppers Company, Inc.
Real Estate Section
Pittsburg PA 15219

Dear Tom:

This will confirm our agreement with respect to additional modifications of our lease agreement dated August 17, 1965, as previously extended and modified, covering certain real property and facilities at 7900 NW St. Helens Road, Portland, Oregon.

It is agreed that:

1. The lease is extended for a period of five (5) years from January 1, 1982; provided that after the initial year of the extended period either party may cancell the lease by giving to the other one years advance written notice.

2. Effective January 1, 1982 rental is $5,610.00 per month. = $67,320/yr

3. Rental at this level assumes no use by Koppers of the plant's dock facilities. In the event such use is required, the parties will negotiate the terms of the use and the rental to be paid therefor.

If this is consistent with your understanding of our agreement, please indicate your acceptance by signing both copies of this letter and returning one for our records.

Sincerely,

E.L. Bolin, Manager
Land & Claims Department

Accepted by:

Koppers Company VICE PRESIDENT

ELB/klf
Att.

bcc: P. L. Bost
J. Little— 1/16 - Little advised Bost approved renewal negotiations
P. W. Guth

1/16/79 - Ed Bolin called. asked if we force any changes in plant status. Told him not that I'm aware of. Told him we never got a lease extension on below terms + we are operating on basis that below terms are OK. He said yes and if + when time permits he'll try to confirm. He expects rent to increase in 1981 if we want to stop. Pacific will be said may want one of our tanks to move to another. He'll cut our rent somewhat + make this an deal with Pacific etc. will advise later.

TE:B

January 16, 1976

Mr. E. L. Bolin, Manager
Land Department
Northwest Natural Gas Company
123 N.W. Flanders Street
Portland, Oregon 97209

RE: Gasco-Koppers Plant and
Tank Leases
St. Helens Road
Portland, Oregon

Dear Ed:

Thank you very much for taking time from your busy schedule to meet with us on January 14 in connection with the renewals of both our plant lease and the agreement covering tank No. T-5 at Portland.

Per our discussion, Koppers Company is agreeable to extending each of the aforementioned agreements for a further term of five years commencing as of January 1, 1976. Rental under the plant lease would be at the rate of $51,840 per year payable monthly at the rate of $4,320. Rental on tank T-5 would be at the rate of $12,000 per year payable monthly at the rate of $1,000.

As discussed, each renewal is to contain a provision giving either party the right to cancel either agreement effective on or after July 1, 1977, upon six months' prior written notice to the other party.

We would appreciate your arranging for the preparation of appropriate renewal agreements, after which, kindly forward them to us for review and further handling. Insofar as we are concerned, we do not believe the renewal agreements need to be too formal. It would appear to me that simple letter agreements covering the renewals are all that should be needed.

It was good to see you again. By the time this reaches you, we will know whether the Steelers are still super or like Avis - in second place.

Very truly yours,

Thomas E. Bourne

TEB/sf

SECOND MODIFICATION OF LEASE

December 29, 1972

The parties to this Second Modification of Lease are NORTHWEST NATURAL GAS COMPANY, an Oregon corporation with general offices in Portland, Oregon (Gasco) and KOPPERS COMPANY, INC., a Delaware corporation with general offices in Pittsburgh, Pennsylvania (Koppers), WITNESSETH:

WHEREAS, on the 17th day of August, 1965 the parties hereto entered into a Lease (the Original Lease), wherein Gasco leased to Koppers three parcels of land, being portions of Gasco's oil gas generating plant site at 7900 N. W. St. Helens Road in Portland, Oregon, together with certain buildings, structures and equipment thereon, and granted to Koppers certain additional rights and privileges related to Koppers' use thereof, all as more fully described and set forth in the Original Lease which is by this reference incorporated herein and made a part hereof; and

WHEREAS, on the 19th day of October, 1966, the parties hereto entered into a Modification of Lease wherein there was deleted from the leased premises a strip of land approximately 30 feet in width which extended through the southeasternmost portion of Parcel 1 and there was added to the leased premises a small parcel of land adjacent to the northwest corner of said Parcel 1;

WHEREAS, the parties have mutually agreed to further modify the Original Lease as hereinafter provided;

NOW, THEREFORE, in consideration of the premises it is mutually agreed by and between the parties hereto that the

Original Lease as modified under date of October 19, 1966, shall be further modified, altered and changed in the following respect only:

1. On page 4, in paragraph 5 of the Original Lease dated 17th day of August, 1965, the third, fourth and fifth sentences shall be amended to read as follows:

> In the event that Gasco still owns the premises on December 1, 1973, Koppers shall have the option to extend the term of the Lease for five (5) years on the same terms and conditions contained in this Lease except for the rental which shall be determined by mutual agreement of the parties. In the event the parties fail to so mutually agree within thirty (30) days after the said December 1, 1973, the rental shall be determined by an arbitration board of three (3) persons living in the Portland area, one selected by Koppers, one by Gasco, and the third by the other two. In such event, each party shall notify the other in writing within ninety (90) days of said December 1, 1973, of its selection of arbitrator with a copy of such letter to its arbitrator.

Except as hereinabove provided, the Original Lease as amended under date of October 19, 1966, shall remain in effect in all respects.

IN WITNESS WHEREOF, the parties hereto have caused this Second Modification of Lease to be executed by their duly authorized officers the day and year first above written.

NORTHWEST NATURAL GAS COMPANY

By _____

Vice President

KOPPERS COMPANY, INC.

By _____

Vice President

MODIFICATION OF LEASE

October 19, 1966

The parties to this Modification of Lease are NORTHWEST NATURAL GAS COMPANY, an Oregon corporation with general offices in Portland, Oregon (Gasco) and KOPPERS COMPANY, INC., a Delaware corporation with general offices in Pittsburgh, Pennsylvania (Koppers); WITNESSETH:

WHEREAS, on the 17th day of August, 1965 the parties hereto entered into a Lease (the Original Lease), wherein Gasco leased to Koppers three parcels of land, being portions of Gasco's oil gas generating plant site at 7900 N. W. St. Helens Road in Portland, Oregon, together with certain buildings, structures and equipment thereon, and granted to Koppers certain additional rights and privileges related to Koppers' use thereof, all as more fully described and set forth in the Original Lease which is by this reference incorporated herein and made a part hereof; and

WHEREAS, the parties have mutually agreed to further modify the Original Lease as hereinafter provided;

NOW, THEREFORE, in consideration of the premises it is mutually agreed by and between the parties hereto that the Original Lease shall be and is hereby further modified, altered and changed in the following respects only:

1. That portion of the leased premises designated as Parcel 1 in and bounded in red on Exhibit "A" to the Original Lease shall be changed by:

(a) Deleting therefrom the area shown by slant lines on Exhibit A-1, being a strip of land approximately 30 feet in width and extending through the south-easternmost portion of said Parcel 1; and

L E A S E

THIS LEASE, Entered into as of this 17th day of August, 1965, by and between KOPPERS COMPANY, INC., a Delaware corporation with general offices in the Koppers Building in Pittsburgh, Pennsylvania, (hereinafter called "Koppers"), and NORTHWEST NATURAL GAS COMPANY, an Oregon corporation with general offices in Portland, Oregon, (hereinafter called "Gasco"),

W I T N E S S E T H:

WHEREAS, Koppers desires to lease certain of Gasco's property on the Willamette River, in Portland, Oregon, to construct and operate a plant for the processing and distilling of tar and other products, and to obtain the right to use certain facilities and equipment for receiving, storing, loading and shipping of products such as Coal Tar, Creosote and other products (hereinafter called "Product"); and

WHEREAS, Gasco is willing to lease such property, and provide for the use of such facilities and equipment upon the terms and conditions hereinafter set forth.

NOW, THEREFORE, it is mutually agreed as follows:

1. Gasco hereby leases to Koppers for Koppers' exclusive use, three parcels of land (the premises), being portions of Gasco's oil gas generating plant site at 7900 N. W. St. Helens Road in Portland, Oregon, and designated as Parcel 1 (consisting of approximately 6.4 acres) and Parcel 2 (consisting of approximately 1.25 acres), both bounded in red, and Parcel 3 (consisting of approximately .25 acre), shown in brown on the attached sketch marked Exhibit "A" and hereby made a part hereof, together with all buildings, structures, facilities and equipment thereon. Gasco hereby grants Koppers the right to relocate, modify, dismantle, or replace such buildings, structures, facilities and equipment, save and except the firewalls surrounding the light oil tank farm, and to utilize them in whatever manner Koppers shall desire in connection with Koppers' tar and chemical processing operations on said premises. Koppers shall have the further right to

construct and install on the premises such buildings, structures and equipment as are required for a tar and chemical processing plant, including materials handling facilities appurtenant thereto. All structures, facilities and equipment constructed and installed by Koppers on the premises shall be deemed personalty, shall remain the property of Koppers at all times during the life of this Lease, and shall be subject to removal by Koppers at any time during the life of this Lease and for ninety (90) days thereafter. In the event that structures, facilities and equipment belonging to Gasco are adapted for use with or connected to structures, facilities or equipment constructed or installed by Koppers to form an operating plant, Koppers shall have the right to dismantle such operating plant to the extent necessary to remove its own property. At the termination of this Lease, Koppers shall be obligated to return to Gasco in good condition, reasonable wear and tear excepted, those buildings, structures, facilities and equipment of Gasco which Koppers has been utilizing without any obligation to restore them to their original condition. Koppers shall not be obliged to maintain structures, facilities and equipment of Gasco which are not required in Koppers operations. Any such items which Koppers desires removed from the premises shall, at Gasco's option, be removed by either Gasco or Koppers and, if removed by Koppers, either be delivered to Gasco or at Gasco's option sold for Gasco's account.

2. Koppers shall be fully responsible and hereby accepts the obligation to maintain the premises and to keep the same in a neat and orderly condition, including, but not limited to, cutting the grass and taking all steps which are necessary or desirable for fire protection as well as appearance. In the event Koppers fails to so maintain the premises, Gasco shall have the right, but not the obligation, to take such acts as are necessary to put the premises in a neat and orderly condition and to provide such fire protection, all at the cost and expense of Koppers.

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3. Gasco further grants to Koppers the right to use in common with Gasco and others to whom Gasco may grant similar rights, that certain area designated in green on Exhibit "A" hereto, for purposes of ingress and egress. Gasco shall maintain this area in accordance with standards acceptable to Koppers and Koppers shall reimburse Gasco at reasonable intervals for one half of the expense of such mainenance as evidenced by paid invoices. Gasco also grants to Koppers the right to use in common with Gasco and others to whom Gasco may grant similar rights existing side track facilities to the extent that they may be utilized in connection with the premises.

4. In conjunction with this Lease, Koppers shall have the right to use Gasco's dock facilities on the Willamette River designated in blue on Exhibit "A", 24 hours a day, 7 days a week, in common with Gasco and others to whom Gasco may grant similar rights. Gasco shall control the use of such dock facilities and shall use its best efforts to minimize conflicts in the use thereof. No log rafts shall be moored or tied at said dock facilities. Gasco shall not be responsible for any demurrage accruing to any barge or ship loading or unloading for Koppers' account for failure to provide a berth because of prior occupancy or right to occupy. Koppers shall have the right to install, maintain, replace and remove on such dock facilities, pipes, pumps and such other equipment as may be necessary to load or unload Koppers' materials. Koppers shall also have the exclusive right to use that certain solid loading and unloading equipment designated in purple on Exhibit "A" and shall be responsible for all costs incurred in the operation and maintenance thereof. Gasco agrees to maintain its dock facilities, to maintain water depth of at least 32 feet adjacent thereto, and to keep such facilities insured for their "actual cash value", as this term is commonly used in the insurance industry, against fire and other risks covered by a standard fire insurance policy. It is understood that the use by Koppers of the aforesaid dock facilities is a vital part of this Lease, and that in the event such facilities are destroyed or damaged, Gasco shall, within the physical limits of its ability to do so and at its expense, promptly repair, rebuild or otherwise make available to Koppers dock facilities adequate to enable Koppers to carry out its plant operations.

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5. This Lease and Koppers' right to possession hereunder shall commence on the date first above written and continue for ten (10) Years from January 1, 1966, or from the 1st of the month following the month in which Koppers first distills tar on the leased premises, whichever is sooner. Rental in the amount of $3,625 per month shall be paid by Koppers to Gasco monthly in advance beginning on the first of the month following the month in which Koppers first distills tar on the leased premises, or January 1, 1966, whichever is sooner, except that the first month's rental payment of $3,625, receipt of which is hereby acknowledged, is delivered upon the execution of this Lease. In the event that Gasco still owns the premises seven (7) years from the date hereof, Koppers shall have the option to extend the term of the Lease for five (5) years on the same terms and conditions contained in this Lease except for the rental which shall be determined by mutual agreement of the parties. In the event the parties fail to so mutually agree within thirty (30) days after the end of said seven (7) year period, the rental shall be determined by an arbitration board of three (3) persons living in the Portland area, one selected by Koppers, one by Gasco and the third by the other two. In such event each party shall notify the other in writing within ninety (90) days of the end of such seven (7) year period of its selection of arbitrator with a copy of such letter to its arbitrator. The Board of Arbitrators shall meet, and decide upon the proper rental and render a written opinion to each party within ninety (90) days from the time the second arbitrator was notified of his appointment as above. If the parties mutually agree on the rental for the extended period or if Koppers is satisfied with the decision of the Arbitrators Koppers may exercise its option by giving written notice to Gasco within thirty (30) days of such mutual agreement or of the receipt of the arbitrators opinion.

6. If at any time during the term of this Lease the premises or the premises together with all or part of the property of which they are a part are to be sold, Gasco shall advise Koppers in writing of the name of the prospective purchaser and the price and terms of the proposed sale. Within thirty (30) days after receipt of such written advice Koppers may

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elect to purchase the property proposed to be sold on terms equally or more favorable to Gasco by so advising Gasco in writing. The price must equal the net return to Gasco under the sale after adjustment for the difference, if any, in real estate commission and cost of closing payable in the event of the proposed sale as opposed to sale to Koppers. If Koppers elects to purchase, the sale shall be closed within thirty (30) days after notice of such election, or, at Gasco's election, on the date specified as a condition of the original sale and stated in the written advice of the proposed sale.

7. Gasco hereby grants Koppers the right to install and maintain in, along, upon, or across Gasco's property including the property designated in green on Exhibit "A" and the south substation adjacent to Parcel 1, such facilities as may be required by Koppers to bring utilities, including, but not limited to, gas, electricity and water, to Parcels 1, 2 and 3 from the nearest practical source or sources, and the right to install, maintain, replace and remove one or more pipelines between the dock area designated in blue and Parcel 1. Subject to the provisions of paragraph 16 hereof, Koppers shall have the further right to drain surface water across the premises of Gasco either through Gasco's settling pond or otherwise. All such installations shall be so located as to minimize damage or inconvenience to Gasco, and others having the right to use Gasco's properties in common, and at the same time avoid unreasonable expense to Koppers. Koppers agrees to reimburse Gasco for any damage to its property arising out of Koppers installation, maintenance and use of the facilities set forth in this paragraph 7.

8. Gasco reserves the right to utilize for vehicular traffic, for utility lines and for a portion of its fire loop that portion of Parce 1 which is cross hatched on Exhibit "A". Koppers shall have the right to modify, operate and maintain so much of the existing high pressure river water system on Gasco's property as necessary to serve the premises.

Each party shall have such rights of ingress and egress for personnel, vehicles and other equipment over and to the other's property as are reasonably

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required in any emergency and in the performance of this Lease. In addition, each party shall have the right to drain surface water over and across the premises occupied by the other provided that such drainage does not unreasonably interfere with the operations of said other party.

9. Gasco agrees to give Koppers a fifteen (15) day right of first refusal prior to entering into a lease with a third party for a term of more than one year for any one or more of Tanks T-5, T-6, T-7 and T-54 shown on Exhibit "A". In the event Gasco should desire to remove, dismantle, or demolish such tanks for any reason other than to utilize the space occupied by them for its own purposes, it shall first so notify Koppers and give Koppers an opportunity to lease such tank or tanks upon terms mutually agreeable. Koppers shall also have the right for a period of one (1) year from the date hereof to purchase at Gasco's book value such portions as Koppers shall desire of the facilities, machinery and equipment now located on those premises of Gasco in Portland, Oregon, which were formerly operated as a tar refining plant.

10. (a) Gasco shall defend, indemnify and hold Koppers harmless against all liabilities, losses or claims for death, personal injury or damages resulting from, arising out of or related to any activity of Gasco, its employees, agents and guests, on premises adjacent to the leased premises, premises used in common, and that portion of Parcel 1 cross hatched on Exhibit "A".

(b) Koppers shall defend, indemnify and hold Gasco harmless against all liabilities, losses or claims for death, personal injury or damages resulting from, arising out of or related to any activity of Koppers, its employees and guests, on the premises, premises used in common, and in the exercise of any other rights granted to Koppers herein.

11. Koppers shall comply during the life of this Agreement with the Workmen's Compensation laws of the State of Oregon. Koppers shall also procure and maintain public liability and property damage insurance (including auto) in the amounts of not less than Three Hundred Thousand Dollars ($300,000) for injury or death of any person and Five Hundred Thousand Dollars ($500,000) for injury or death of any two or more persons, and One Million Dollars ($1,000,000) for damage to property, including property in its care, custody or control, sustained or occurring on or in connection with the use of premises described herein, and

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furnish Gasco with a certificate of insurance certifying that coverage as outlined above is in force and that said insurance carrier will give ten (10) days' written notice of cancellation or material change in the policy. Gasco agrees not to use or permit the use of any areas adjacent to the premises in any manner which will result in any increase of Koppers' insurance costs without first consulting Koppers and reaching a mutually satisfactory arrangement.

12. Neither party shall be liable for delays and/or defaults in its performance under this Agreement, other than rental payments, due to causes beyond its control and without its fault or negligence, including, but without limiting the generality of the foregoing, acts of God or of the public enemy, acts or requests of the Federal, State or other Governmental authority, or any Governmental office or agent purporting to act under color of authority, floods, fires, epidemics, quarantine restrictions, riots, rebellion, strikes, lockouts, disputes with workmen or other labor disturbances, appropriation, expropriation or condemnation for public purposes of property.

13. Koppers, as additional rental for the period of this Lease prior to July 1, 1966, shall pay to Gasco in lieu of taxes $1,000 per month for each month in which rental is payable. Beginning July 1, 1966, Koppers shall pay all real and personal property taxes levied and assessed on the premises and on the buildings, structures and other facilities and equipment owned by Gasco thereon (the leased property), and on all property, facilities and equipment wherever constructed, installed or placed on Gasco's property by or on behalf of Koppers. If the leased property is assessed separately from Gasco's entire plant site property at 7900 N. W. St. Helens Road, by the Multnomah County assessor, Koppers shall have the right to negotiate (in Gasco's name if necessary) with the assessor concerning the assessment of the leased property and to take such legal steps (in Gasco's name if necessary) as Koppers shall deem appropriate to contest, appeal or otherwise resist any assessment Koppers considers unfair or improper all at the expense of Koppers. If the taxes on the leased property are not levied separately from Gasco's entire plant site property, taxes to be paid by Koppers on the leased property shall be determined by an allocation of the levy on the entire plant site

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property on the basis of the ratio that Gasco's original cost depreciated of the leased property bears to the original cost depreciated of the entire plant site property.

Koppers shall pay any and all license fees and sales, use, excise and other taxes on the products and operations of Koppers directly to the Governmental body involved.

14. In the event that condemnation by any governmental or non-governmental body having the authority so to do takes (a) all of the premises or a portion sufficient to render the remaining portion reasonably unsuitable for use by Koppers, or (b) all of Gasco's premises used in common or with respect to which Koppers may exercise any other rights granted herein or a portion thereof sufficient to adversely affect Koppers' operations, Koppers shall have the option to terminate this Lease as of the date of taking and shall share in the proceeds of such condemnation to the extent to which it may be entitled by virtue of the effect of such condemnation on its leasehold interest. Sale of all or part of Gasco's property affected by this Lease to a purchaser with the power of eminent domain in the face of a threat or probability of the exercise of such power shall be treated as a taking by condemnation. In such event Koppers shall have ninety (90) days from such date of taking to remove its property from the uncondemned portion of the premises.

15. All notices under this Agreement shall be in writing by registered mail addressed to the proper party at the address shown below unless said address shall have been changed by written notice:

Northwest Natural Gas Company
123 N. W. Flanders Street
Portland, Oregon 97209

Koppers Company, Inc.
Tar & Chemical Division, Koppers Building
Pittsburgh, Pennsylvania 15219

16. In connection with its use of the premises, buildings, structures, facilities and equipment hereunder, Koppers shall conform to all applicable laws and regulations of any public authority affecting the premises and other property of Gasco, and the use thereof, and correct at its own expense any failure of compliance created through Koppers' fault or by reason of Koppers' use.

17. This Agreement shall not be modified or changed except by written instrument executed by the duly authorized officers of the parties hereto.

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18. This Agreement shall be binding upon and shall inure to the benefit of the successors and assigns of the parties hereto; provided, however, that said Agreement and the obligations hereunder shall not be assigned without prior written consent of Gasco, which consent will not be unreasonably withheld.

19. Koppers shall have the right to erect and maintain on Gasco's premises such signs of reasonable size as shall be reasonably necessary to direct persons to Koppers' operations.

20. Failure of Koppers to pay any rent or other charge within thirty (30) days after it is due, or to comply with any term or conditions or fulfill any obligation of this Lease within thirty (30) days after written notice by Gasco specifying the nature of such failure; an assignment by Koppers for the benefit of creditors; the filing by Koppers of a voluntary petition in bankruptcy; an adjudication that Koppers is bankrupt or the appointment of a receiver of the properties of Koppers; the filing of an involuntary petition of bankruptcy and failure of Koppers to secure dismissal of the petition within thirty (30) days after filing; attachment of or the levying of execution on the leasehold interest and failure of Koppers to secure discharge of the attachment or release of the levy of execution within thirty (30) days; shall constitute events of default hereunder.

In the event of a default this Lease may be terminated at the option of Gasco by notice in writing to Koppers and Gasco's right to damages for such default shall survive such termination. If the Lease is so terminated, Koppers shall vacate the premises and remove all structures, facilities and equipment installed by Koppers on the property of Gasco which are subject to such removal within ninety (90) days thereafter, leaving the premises and other property of Gasco in the condition required at the end of the term. If suit or action is instituted in connection with any controversy arising out of this Lease, the prevailing party shall be entitled to recover in addition to costs such sum as the court may adjudge reasonable as attorney fees.

21. Gasco warrants that it is the owner of the leased premises and the buildings, structures, facilities and equipment located thereon at the date hereof, that subject to paragraph 22 hereof, it has the right to lease them, and

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that the same are free of encumbrances, except the lien of its Mortgage and Deed of Trust dated July 1, 1946, as it is or may be in the future supplemented and amended, and except current taxes, zoning or other state or municipal ordinances or regulations; that the same are not subject to any easements, reservations and encumbrances or licenses which would materially adversely affect Koppers' use of the premises for a tar and chemical processing plant; and that none of the items leased, when used in the manner intended, are in violation of any Federal, State or local law or regulation.

22. To the extent that the Public Utility Commissioner of Oregon has jurisdiction thereof, this lease and all obligations of the parties thereto shall be subject to the approval of the Commissioner.

23. The place of performance of this Agreement is the State of Oregon, and the laws of said State shall govern the rights of the parties hereto.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed and delivered by their duly authorized officers and their corporate seals to be hereunto affixed the day and year first above written.

KOPPERS COMPANY, INC.

ATTEST:

By _____
Vice President

_____
Assistant Secretary

NORTHWEST NATURAL GAS COMPANY

ATTEST:

By _____
President

_____
Secretary

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COMMONWEALTH OF PENNSYLVANIA)
COUNTY OF ALLEGHENY) SS: August 17 A.D., 1965

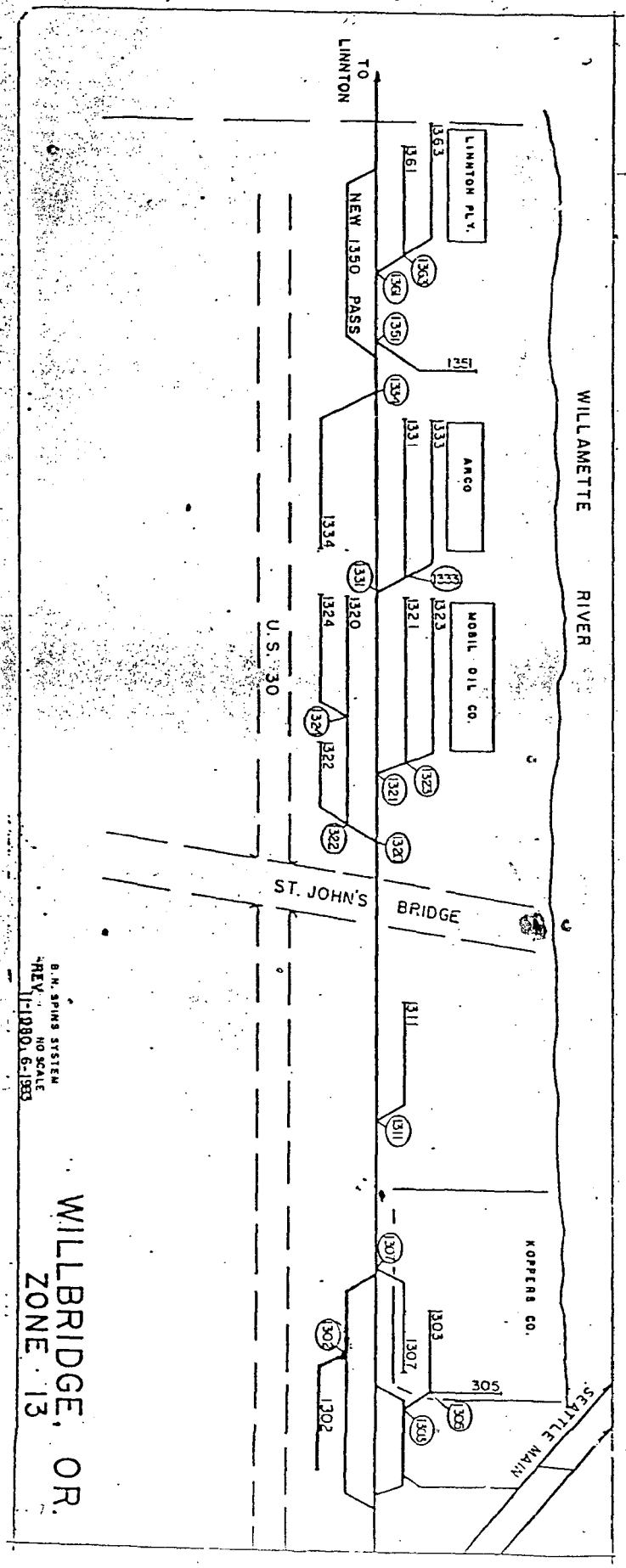
Personally appeared John M. Crimmins, who, being duly sworn, did say that he is the Vice President of KOPPERS COMPANY, INC., and that the seal affixed to the foregoing instrument is the corporate seal of said corporation and that said instrument was signed and sealed in behalf of said corporation by authority of its board of directors; and he acknowledged said instrument to be its voluntary act and deed. Before me:

Anne M Harris
Notary Public

STATE OF OREGON)
COUNTY OF MULTNOMAH) SS: July 30 A.D., 1965

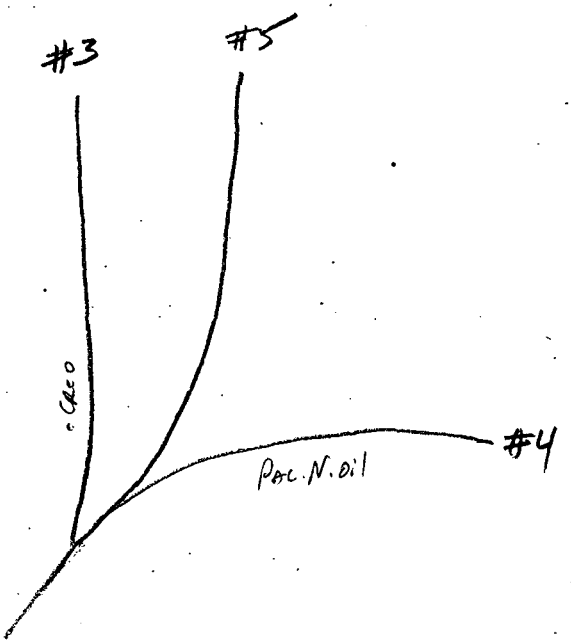
Personally appeared Francis F. Hill, who, being duly sworn, did say that he is the President of NORTHWEST NATURAL GAS COMPANY and that the seal affixed to the foregoing instrument is the corporate seal of said corporation and that said instrument was signed and sealed in behalf of said corporation by authority of its board of directors; and he acknowledged said instrument to be its voluntary act and deed. Before me:

Hew Pickie
Notary Public for Oregon
My Commission Expires: 1-25-66



Willbridge, Oregon
ZONE 13 1983

SPINS NO.	INDUSTRY
130201	W Yard Track #4
130313	Koppers Co. #5 (Tar Unloading)
130501	Pacific Northern Oils (Koppers #4)
130714	Koppers Co. #3 (Creasote Ldg.)
131113	Corps Of Army Engineers
131115	General Construction
132001	Mobil Oil Track #1
132105	Mobil Oil (Stg. Track)
132201	Mobil Oil (Stg. Track)
132304	Mobil Oil (Trk. #2)
132403	Mobil Oil (Hse. Track)
133105	Arco (Track #1)
133303	Arco (Track #3)
133405	Arco (TBA)
135107	Arco (Hse. Track)
136106	Linnton Ply. (Trk. #1)
136304	Linnton Ply. (Trk. #2)



R. P. Vetter

Organic Materials Group

Rental Income - Pacific
Northern Oil Corporation
Northwest Plant
Portland, Oregon

Real Estate Section

Pittsburgh

July 8, 1980

Under agreement dated May 22, 1980 (but effective May 1, 1980), Koppers granted Pacific Northern Oil Corporation a license to use two pipelines and related equipment at the Northwest Plant at a monthly rental of $400. This license runs from month to month, effective May 1, 1980, and is terminable by either party at any time by 30 days' prior written notice.

Paul Guth has just forwarded to us the enclosed check of Pacific Northern Oil Corporation in the amount of $800 covering rental for the months of May and June 1980. Will you kindly handle for deposit and appropriate credit.

Thomas E. Bourne

TEB/tmz

Enclosure

cc: K. Caldwell
P. Guth
J. R. Burns

RECEIVED
JUL 14 1980
KOPPERS CO., INC
TAR & CHEMICAL DIV.
PORTLAND OREGON

Date: May 22, 1980

Mr. Paul W. Guth, Superintendent
Koppers Company, Inc.
7540 N. W. Saint Helens Road
Portland, Oregon 97229

Dear Mr. Guth:

This letter will confirm our agreement to use certain pipelines, pumps and steam line more fully described below at Koppers Company's Portland, Oregon, plant at a monthly rental of $400, payable monthly in advance to Koppers Portland plant office. This license shall run from month to month effective May 1, 1980, and is terminable by either party at any time on 30 days' prior written notice to the other.

The equipment to be used by Pacific Northern Oil hereunder can be divided into two components as follows:

1. An oil pipeline of 8" diameter running from the Northwest Natural Gas dock to Pacific Northern Oil's leased tank No. 5 together with all pumps and appurtenances.

2. A 3" insulated steam line running from Pacific Northern Oil's leased tanks to a rail siding utilized by Koppers Company and Pacific Northern Oil together with an oil pipeline and appurtenant structures and fixtures. Included in this license is permission to use the rail siding mentioned above.

The aforesaid lines are located at Koppers property line on the north side of the Terminal. The lines enter a concrete viaduct and are covered with concrete slab covers. These two lines next appear aboveground near tank No. 5 and then continue to the dock walkway.

Pacific Northern Oil agrees to maintain all facilities licensed hereunder.

Pacific Northern Oil assumes all responsibility and shall be strictly liable for all occurrences whatsoever on or about the licensed premises attributable to Pacific Northern's use of the same.

Pacific Northern Oil shall defend, indemnify and hold harmless Koppers from all losses, claims, liabilities, expenses and costs, including attorneys' fees, arising from damages to property or injury to persons (including death) occurring in connection with Pacific Northern Oil's use of the licensed premises, and Pacific Northern Oil shall defend, indemnify and hold harmless Koppers from all such losses, claims, liabilities, expenses and costs including

attorneys' fees, whether or not caused by Koppers sole negligence.

Pacific Northern Oil is in the process of building a new oil pipeline from the dock facilities to its tanks which will replace Item 1 of this license. This work is scheduled to be completed during the summer of 1980. When said new pipeline is completed, Pacific Northern Oil will no longer use Item 1 above and will give Koppers 30 days' prior written notice of its intention to eliminate Item 1 from this license. At such time as said new pipeline is completed, Pacific Northern Oil will, to the extent Koppers desires to make it available, continue to use the second above-described line and facilities on a monthly basis for those months in which it uses the rail siding and steam line all of which arrangements are subject to cancellation as aforesaid. Koppers and Pacific Northern Oil will renegotiate a rental rate at that time for continued use of the second above-described facility.

If this meets with Koppers approval, will you kindly so indicate by signing and returning to us the attached copy of this letter.

For KOPPERS COMPANY, INC.

For PACIFIC NORTHERN OIL

KOPPERS

Interoffice Correspondence

To Paul W. Guth

Location Portland, Oregon

Subject License of Certain Facilities - Koppers to Pacific Northern Oil

From Real Estate Section

Location Pittsburgh, Pennsylvania

Date June 4, 1980

Returned herewith for your delivery to Pacific Northern Oil is a fully executed copy of our agreement dated May 22 covering their use of certain of our facilities at the Northwest plant. Will you kindly see to it that this executed copy is delivered to Pacific Northern Oil. We have retained the other executed copy in this office. I would suggest that you make yourself a copy for reference purposes.

I assume that you will arrange for collection of the $400 monthly rental which, according to the terms of the agreement, is to be paid monthly in advance to the Northwest plant.

Unless we hear from you to the contrary, we will assume that this agreement will remain active commencing as of May 1, 1980, and that you will advise us if, as, and when Koppers or Pacific Northern desires to make any changes in the agreement pursuant to the terms thereof. As you know, either party may terminate the agreement at any time on 30 days' prior written notice to the other.

Tom

Thomas E. Bourne

TEB/edh
Enclosure

cc: K. Caldwell

Send 6/9/80

RECEIVED
JUN - 9 1980
KOPPERS CO., INC.
TAR & CHEMICAL DIV.
PORTLAND, OREGON

K-5 REV. 2

KOPPERS

Interoffice Correspondence

To P. W. Guth

Location Northwest Terminal

Subject Rental Payments - Pacific Northern

From Controller's Office

Location Organic Materials Group

Date July 9, 1980

It looks like Pacific Northern will be sending their monthly rental payments to you, which is O.K. To save handling in here, will you please send the checks to:

Betty Melcher
Treasury & Acctg. K-5

in the regular mail you send to the Pgh. office.

Attach a note telling her to credit:

1426-980-X-832-X

That should handle the situation easily.

Thanks.

R. P. Vetter

cc: J. R. Burns
T. E. Bourne

RPV/vef

RECEIVED
JUL 14 1980
KOPPERS CO., INC.
TAR & CHEMICAL DIV.
PORTLAND, OREGON

K-5 REV. 2

U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION X

1200 SIXTH AVENUE

SEATTLE, WASHINGTON 98101

March 21, 1972

REPLY TO ATTN OF: 10A (M/S 521)

Enforcement Division

Paul W. Guth
Plant Superintendent
7540 N.W. St. Helena Road
Portland, Oregon 97229

Application Number:
071-OYA-2-000189

Dear Mr. Guth:

The District Engineer, U. S. Army Corps of Engineers, has forwarded to this office a copy of your discharge permit application for processing. Our review of this application has revealed, however, that certain data and information remains to be supplied before the application can be considered complete.

For your convenience, on the attachment to this letter we have identified those items for which additional or confirmed data are needed or for which greater explanation for clarity is requested. Your response may be made either by providing an addendum or errata sheet to your application and/or by submitting a new page or pages for each of those marked. The data and/or information so prepared should be mailed to the District Engineers office to which your original application was sent.

In submitting additional or revised data, we wish to remind you that the statutory provisions under which your original application was submitted still apply. We suggest, therefore, that additional information be transmitted over the signature of the original approving officer.

We are asking that your response to this letter be sent to the District Engineers office within ten (10) days of the date it is received. Should the requested information not be available within this time period, a letter explaining this delay and giving the date by which the information may be available should be sent to the District Engineer with a copy to this office.

Application Number:
071-OYA-2-000189

Information requested to complete Waste Discharge Permit Application:

Discharge Serial Number 001

Provide the following information by letter:

General: Provide a list of principal products.

What is the distance to the Willamette River?

Section I, Item 13 - What is the source of the other 20,000 gallons/day (see Section II, Item 22)?

Part A: Are the intake data provided in column 2 given in mg/l? If not provide the concentrations for each of these parameters.

Part B: What flow are the data in column 1 (lbs/day) based on?

Provide a list of the reported parameters and their corresponding intake concentrations; OR, complete column 1 and/or 2 with the appropriate concentrations.

Check and provide correct data for the following:

√ cadmium - column 6
√ C.O.D. - columns 3 & 5, 4
sulfide - columns 3 & 5, 4
√ cyanide - columns 3 & 5, 4

Reviewer: Bob Stamnes, telephone number 442-1213

If you have any questions or wish to have any of the items in your application clarified, please contact the person whose name appears on the attached sheet. Your cooperation in this matter of completing your discharge permit application will be greatly appreciated.

Sincerely yours,

W. E. Eldridge

W. E. Eldridge
Chief, Administrative Section
Permits Branch

Enclosures:
ENG Form 4345-1, May 71 (1), June 71 (1)

cc: Portland District C/E

5. Date: 6 29 71 (mo day yr)

(Office use only) 000189

6. Check type of application: a. Original [X] b. Revision [ ]

7. Number of original application

8. Name of facility where discharge or construction will occur.

Koppers Company, Inc.
Northwest Plant

9. Full mailing address of facility named in Item 8 above.

Koppers Company, Inc.
7540 N. W. St. Helena Road
Portland, Oregon 97229

10. Names and mailing addresses of all adjoining property owners whose property also adjoins the waterway.

Northwest Natural Gas Co.	Rivergate Rock Products
7900 N.W. St. Helena Road	7881 N.W. St. Helena Road
Portland, Oregon 97229	Portland, Oregon 97229

11. Check to indicate the nature of the proposed activity:

a. Dredging [ ] b. Construction [ ] c. Construction with Discharge [X] b. Discharge only [ ]

12. If activity is temporary in nature, estimate its duration in months.

If application is for a discharge:

13. List intake sources

Source	Estimated Volume in Million Gallons Per day or Fraction Thereof
Municipal or private water supply system	.034
Surface water body	
Ground water	
Other	

14. Describe water usage within the plant

Type	Estimated Volume in Million Gallons Per day or Fraction Thereof
Cooling water	.014
Boiler Feed water	.040
Process water	
Sanitary system*	.001
Other	

15. List volume of discharges or losses other than into navigable waters.

Type	Estimated Volume in Million Gallons Per day or Fraction Thereof
Municipal waste treatment system	
Surface containment	.002
Underground disposal	
Waste Acceptance firms	
Evaporation	.018
Consumption	

* Indicate number employees served per day 12

ENG FORM 4345 MAY 71

Beazer000071

PHYSICAL DESCRIPTION OF INTAKE WATER AND DISCHARGE

Intake | Discharge

(Office use only) 000169

Discharge Serial No. 001

Parameter and (Code)	UNTREATED INTAKE WATER (1)	TREATED INTAKE WATER (2)	AVERAGE (DAILY) (3)	ESTIMATED MINIMUM (OPERATING YEAR) (4)	ESTIMATED MAXIMUM (OPERATING YEAR) (5)	SAMPLE FREQUENCY (6)	CONTINUOUS MONITORING (7)
Flow (Gallons per day) 00056		54,000	34,000	27,200	47,600	OTHR	ABS
pH 00400		6.9	8.8	6.9	9.0	OTHR	ABS
Temperature (Winter) (°F) 74028		45	85	70	100	OTHR	ABS
Temperature (Summer) (°F) 74027		52	110	100	120	OTHR	ABS

23. DISCHARGE CONTENTS

PARAMETER	PRESENT	ABSENT	PARAMETER	PRESENT	ABSENT	PARAMETER	PRESENT	ABSENT
Color 00080	X		Aluminum 01106		X	Nickel 01067		X
Turbidity 00070	X		Antimony 01097		X	Selenium 01147		X
Radioactivity 74050		X	Arsenic 01002		X	Silver 01077		X
Hardness 00900	X		Beryllium 01012		X	Potassium 00937	X	
Solids 00500	X		Barium 01007		X	Sodium 00929	X	
Ammonia 00610	X		Boron 01022		X	Titanium 01152		X
Organic Nitrogen 00605	X		Cadmium 01027		X	Tin 01102		X
Nitrate 00620	X		Calcium 00916	X		Zinc 01092		X
Nitrite 00615		X	Cobalt 01037		X	Algicides 74051		X
Phosphorus 00665	X		Chromium 01034		X	Oil and Grease 00550	X	
Sulfate 00945	X		Copper 01042		X	Phenols 32730	X	
Sulfide 00745	X		Iron 01045	X		Surfactants 38260		X
Sulfite 00740		X	Lead 01051		X	Chlorinated Hydrocarbons 74052		X
Bromide 71870		X	Magnesium 00927		X	Pesticides 74053		X
Chloride 00940	X		Manganese 01055		X	Fecal Streptococci Bacteria 74054		X
Cyanide 00720	X		Mercury 71900		X	Coliform Bacteria 74056		X
Fluoride 00951		X	Molybdenum 01062		X			

ENG FORM 4245-1

Beazer000072

PART A

(Note: Submission of Part A is required of all applicants whose processes are listed on page 3 above.)

(Office use only). 000189

Discharge Serial No. 001

INFORMATION REQUIRED OF SPECIFIED INDUSTRIES

Intake		Discharge									
PARAMETER AND CODE	(1) DAILY AVG. CONCENTRATION UNTREATED INTAKE WATER	(2) DAILY AVG. CONCENTRATION TREATED INTAKE WATER	(3) MAXIMUM CONCENTRATION PER PROCESS UNIT	(4) MAXIMUM POUNDS PER DAY	(5) DAILY AVG. CONCENTRATION	(6) AVERAGE POUNDS PER DAY	(7) SAMPLE TYPE	(8) SAMPLE FREQUENCY	(9) METHOD OF ANALYSIS	(10) CONTINUOUS MONITORING	(11)
ALKALINITY (as $CaCO_3$) 00410		14	101	10×10^{-5}	28	72	20	COMP	OTHR	AWWA	ABS
B.O.D. 5-DAY 00310		1	112	11×10^{-5}	32	80	23	COMP	OTHR	AWWA	ABS
CHEMICAL OXYGEN DEMAND (C.O.D.) 00340		3	344	37×10^{-5}	105	246	75	COMP	OTHR	AWWA	ABS
TOTAL SOLIDS 00500		28	246	25×10^{-5}	70	176	50	COMP	OTHR	AWWA	ABS
TOTAL DISSOLVED SOLIDS 70300		26.8	162	16×10^{-5}	46	116	33	COMP	OTHR	AWWA	ABS
TOTAL SUSPENDED SOLIDS 00530		1.2	84	86×10^{-6}	24	60	17	COMP	OTHR	AWWA	ABS
TOTAL VOLATILE SOLIDS 00505		11.5	106	11×10^{-5}	31	76	22	COMP	OTHR	AWWA	ABS
AMMONIA (as N) 00610		0.2	7.98	81×10^{-7}	2.27	5.7	1.62	COMP	OTHR	AWWA	ABS
KJELDAHL NITROGEN 00625		4.4	36.5	3.69×10^{-5}	10.3	26.1	7.39	GRAB	OTHR	AWWA	ABS
NITRATE (as N) 00620		0.08	.71	75×10^{-8}	.21	.51	0.15	COMP	OTHR	AWWA	ABS
PHOSPHORUS TOTAL (as P) 00665		0.01	.42	46×10^{-8}	.13	.30	.09	COMP	OTHR	AWWA	ABS

PART B

(Office use only) 071-0YA-2-000189

Discharge Serial No. 001

B-2. CHEMICAL PARAMETERS OF INTAKE WATER AND DISCHARGE (See Table B-2)

Intake		Discharge									
PARAMETER AND CODE	UNTREATED INTAKE WATER (1)	TREATED INTAKE WATER (2)	MAXIMUM CONCENTRATION (3)	MAXIMUM POUNDS PER DAY PER PROCESS UNIT (4)	DAILY AVG. CONCENTRATION (5)	AVERAGE POUNDS PER DAY (6)	SAMPLE TYPE (7)	SAMPLE FREQUENCY (8)	METHOD OF ANALYSIS (9)	CONTINUOUS MONITORING (10)	(11)
ACIDITY (as $CaCO_3$) 00435	0.9		24	2.41×10^{-5}	6.74	17	4.81	C	O	S	A
TOTAL ORGANIC CARBON (T.O.C.) 00680											
TOTAL HARDNESS 00900											
NITRITE (as N) 00615											
ORGANIC NITROGEN 00605											
PHOSPHORUS-ORTHO (as P) 70507											
SULFATE 00945	0.45		9.8	9.91×10^{-6}	2.76	7	1.983	G	O	S	A
SULFIDE 00745	0.00045		0.0014	1.4×10^{-9}	0.000040	0.0010	0.00028	G	O	S	A
SULFITE 00740											
BROMIDE 71870											

ENG FORM JUN 71 4345-1

Beazer000074

(Office use only) 071-0YA-2-~~000139~~ 000187

Discharge Serial No. 001

B-2. (cont.) CHEMICAL PARAMETERS OF INTAKE WATER AND DISCHARGE (See Table B-2)

PARAMETER AND CODE	Intake: UNTREATED INTAKE WATER (1)	Intake: TREATED INTAKE WATER (2)	Discharge: MAXIMUM CONCENTRATION (3)	Discharge: MAXIMUM POUNDS PER DAY PER PROCESS UNIT (4)	Discharge: MAXIMUM POUNDS PER DAY (5)	Discharge: DAILY AVG. CONCENTRATION (6)	Discharge: AVERAGE POUNDS PER DAY (7)	Discharge: SAMPLE TYPE (8)	Discharge: SAMPLE FREQUENCY (9)	Discharge: METHOD OF ANALYSIS (10)	Discharge: CONTINUOUS MONITORING (11)
CHLORIDE 00940	1.349		4.9	4.96×10^{-6}	1.388	3.5	0.991	C	O	S	A
CYANIDE 00720	<0.0045		<.028	3.0×10^{-7}	.0084	<0.02	.006	G	O	S	A
FLUORIDE 00951	0.018		0.35	3.54×10^{-7}	0.0991	0.25	0.0708	G	O	S	A
ALUMINUM-TOTAL 01105	0.054		310	3.12×10^{-7}	0.0872	220	0.0623	G	O	S	A
ANTIMONY-TOTAL 01097											
ARSENIC-TOTAL 01002											
BARIUM-TOTAL 01007											
BERYLLIUM-TOTAL 01012											
BORON-TOTAL 01022											
CADMIUM-TOTAL 01027	0.00045		2.8	2.8×10^{-9}	0.00079	x	0.00057	G	O	S	A

ENG FORM JUN 71 4345-1

Beazer000075

November 11, 1971

U. S. Army Engineer District
P. O. Box 2946
Portland, Oregon 97208

Dear Sir:

Attached is a copy of a letter from the Environmental Protection Agency requesting information on the incomplete portions of our application. This information has been completed and is enclosed together with a map of the discharge point.

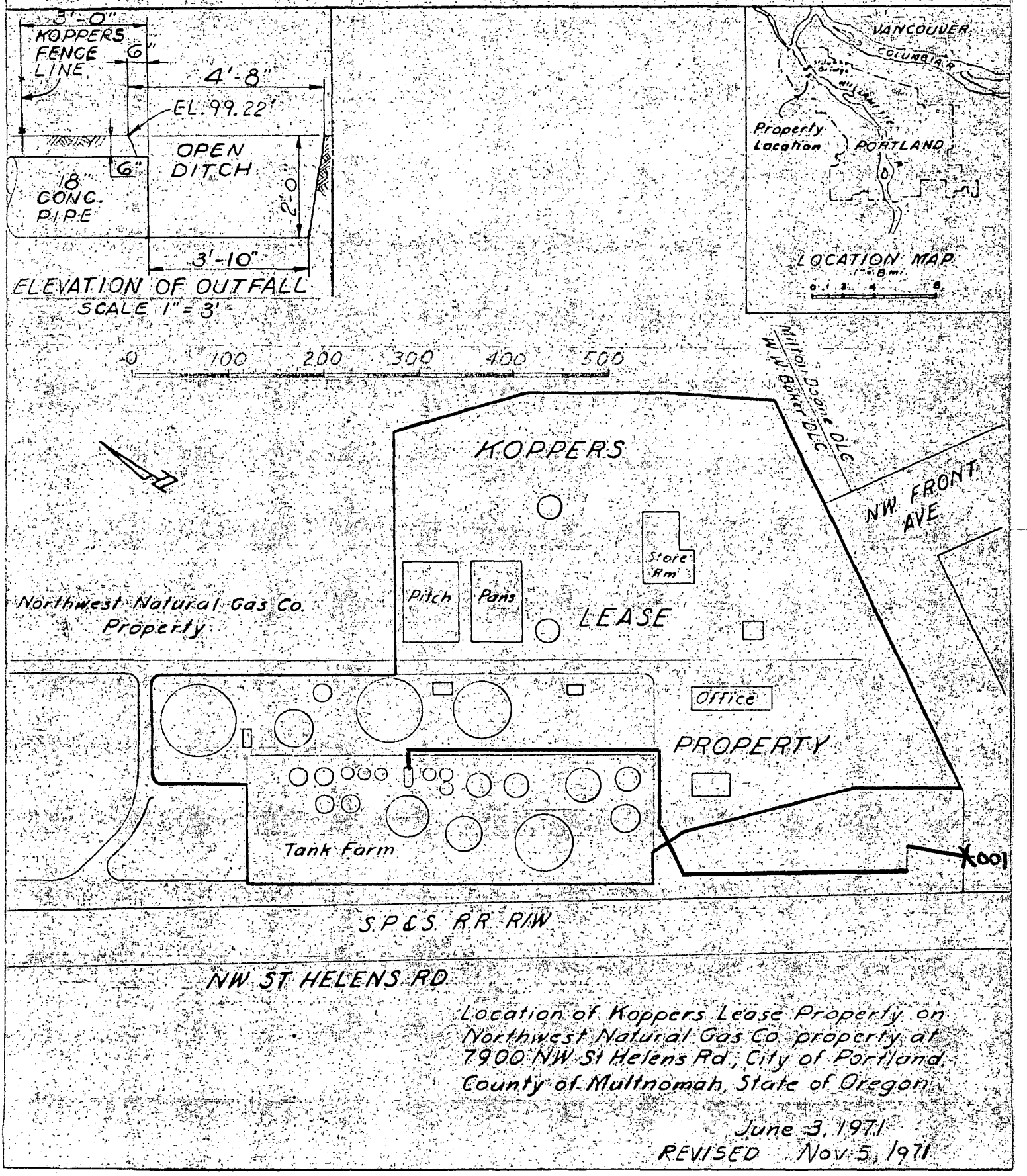
Yours truly,

P. W. Guth, Superintendent
7540 N. W. St. Helens Road
Portland, Oregon 97229

KRC/PWG/mak

Attachments

cc: K. R. Caldwell
D. Eynon
D. L. O'Dell (w/attach.)
B. K. Pospishil
T. Smith



Location of Koppers Lease Property on Northwest Natural Gas Co. property at 7900 NW St Helens Rd, City of Portland, County of Multnomah, State of Oregon.

June 3, 1971
REVISED Nov. 5, 1971

If structures exist, or dredging, filling or other construction will occur, the precise location of the activity must be described.

(Office use only)

a. Name the corporate boundaries within which the structures exist or the activity will occur.

State	County	City or Town
16. Oregon	17. Multnomah	18. Portland

b. Name of waterway at the location of the activity

19. Willamette River

20. Maps and sketches which show the location and character of each structure or activity, including any and all outfall devices, dispersive devices, and non-structural points of discharge, must be attached to this application.

21. For construction or work in navigable waters for which a separate permit is sought under 33 U.S.C. 403, the character of each structure must be fully shown on detailed plans to be submitted with this application. Note on the drawings those structures for which separate discharge information (Section II of this form) has been submitted.

22. List all approvals or denials granted by Federal, interstate, State or local agencies for any structures, construction, discharges or deposits described in this application.

Type of document	Id. No.	Date	Issuing Agency
Letter	1 W 3-0	1-11-66	Oregon State Sanitary Authority

23. Check if facility existed or was lawfully under construction prior to April 3, 1970. [X]

24. If dredging or filling will occur:

State the type of materials involved, their volume in cubic yards, and the proposed method of measurement.

Not Applicable.

25. Describe the proposed method of instrumentation which will be used to measure the volume of any solids which may be deposited and to determine its effect upon the waterway.

None

26. State rates and periods of deposition described in Item 25.

We estimate no deposition in the Willamette River.
(See page 4 of 5, Section II)

Beazer000078

SECTION II. PLANT PROCESS AND DISCHARGE DESCRIPTION

1. Discharge described below is
a. Present [X] b. Proposed new or changed [ ]

2. Implementation schedule [ ]

(Office use only)

Name of corporate boundaries within which the point of discharge is located.

State	County	City or Town
3. Oregon	4. Multnomach	5. Portland

6. Discharge Serial No. 001

State the precise location of the point of discharge.

7. Latitude N 45 Degrees; 3 5 Min; __ __ Sec.

8. Longitude W 122 Degrees; 4 6 Min; __ __ Sec.

9. Name of waterway at the point of discharge.
UNNAMED
~~Unnamed~~ Drainage Ditch.

10. Has application for water quality certification or description of impact been made? If so, give date:

Date	Check if certificate is attached to form	Name Issuing Agency
6 (mo) 29 (day) 71 (yr)	[ ]	Oregon Dept. of Environmental Quality

11. Narrative description of activity (include terms of general 4-digit Standard Industrial Classification, and specific manufacturing process).

Primarily engaged in manufacturing industrial organic chemicals by the distillation of coke oven tar.

12. Standard industrial classification number.	13. Principal product.	14. Amount of principal product produced per day.
SIC 2818	See #15	See #16

15. Principal raw material.	16. Amount of principal raw material consumed per day.	17. Number of batch discharges per day.
Coke Oven Tar	280,000 lbs.	Not Applicable.

18. Average gallons per batch discharge.	19. Date discharge began.	20. Date discharge will begin.
Not Applicable.	6 (mo) 1 (day) 66 (yr)	__ (mo) __ (day) __ (yr)

21. Describe waste abatement practices.

Water discharged at this outfall is contained in a separate drainage system where pumps with special seals and local separators are employed.

ESEPAR, EPUMPS, LOCALS.

PHYSICAL DESCRIPTION OF INTAKE WATER AND DISCHARGE

Intake | Discharge | (Office use only)

Discharge Serial No. 001

Parameter and (Code)	UNTREATED INTAKE WATER (1)	TREATED INTAKE WATER (2)	AVERAGE (DAILY) (3)	ESTIMATED MINIMUM (OPERATING YEAR) (4)	ESTIMATED MAXIMUM (OPERATING YEAR) (5)	SAMPLE FREQUENCY (6)	CONTINUOUS MONITORING (7)
Flow (Gallons per day) 00056		54,000	34,000	27,200	47,600	OTHR	ABS
pH 00400		6.9	8.8	6.9	9.0	OTHR	ABS
Temperature (Winter) (°F) 74028		45	85	70	100	OTHR	ABS
Temperature (Summer) (°F) 74027		52	110	100	120	OTHR	ABS

23. **DISCHARGE CONTENTS**

PARAMETER	PRESENT	ABSENT	PARAMETER	PRESENT	ABSENT	PARAMETER	PRESENT	ABSENT
Color 00080	X		Aluminum 01105		X	Nickel 01067		X
Turbidity 00070	X		Antimony 01097		X	Selenium 01147		X
Radioactivity 74050		X	Arsenic 01002		X	Silver 01077		X
Hardness 00900	X		Beryllium 01012		X	Potassium 00937	X	
Solids 00500	X		Barium 01007		X	Sodium 00929	X	
Ammonia 00610	X		Boron 01022		X	Titanium 01152		X
Organic Nitrogen 00605	X		Cadmium 01027		X	Tin 01102		X
Nitrate 00620	X		Calcium 00916	X		Zinc 01092		X
Nitrite 00615		X	Cobalt 01037		X	Algicides 74051		X
Phosphorus 00665	X		Chromium 01034		X	Oil and Grease 00550	X	
Sulfate 00945	X		Copper 01042		X	Phenols 32730	X	
Sulfide 00745	X		Iron 01045	X		Surfactants 38260		X
Sulfite 00740		X	Lead 01051		X	Chlorinated Hydrocarbons 74052		X
Bromide 71870		X	Magnesium 00927		X	Pesticides 74053		X
Chloride 00940	X		Manganese 01055		X	Fecal Streptococci Bacteria 74054		X
Cyanide 00720	X		Mercury 71900		X	Coliform Bacteria 74056		X
Fluoride 00951		X	Molybdenum 01062		X			

PART A

(Note: Submission of Part A is required of all applicants whose processes are listed on page 3 above.)

(Office use only)

Discharge Serial No. 001

INFORMATION REQUIRED OF SPECIFIED INDUSTRIES

PARAMETER AND CODE	Intake (1) DAILY AVG. CONCENTRATION/ UNTREATED INTAKE WATER	Discharge (2) (DAILY AVG. CONCENTRATION/ TREATED INTAKE WATER	(3) MAXIMUM CONCENTRATION	(4) MAXIMUM POUNDS PER DAY PER PROCESS UNIT	(5) MAXIMUM POUNDS PER DAY	(6) DAILY AVG. CONCENTRATION	(7) AVERAGE POUNDS PER DAY	(8) SAMPLE TYPE	(9) SAMPLE FREQUENCY	(10) METHOD OF ANALYSIS	(11) CONTINUOUS MONITORING
ALKALINITY (as Ca CO_3) 00410		14	101	10×10^{-5}	28	72	20	COMP	OTHR	AWWA	ABS
B.O.D. 5-DAY 00310		1	112	11×10^{-5}	32	80	23	COMP	OTHR	AWWA	ABS
CHEMICAL OXYGEN DEMAND (C.O.D.) 00340		3	344	37×10^{-5}	105	246	75	COMP	OTHR	AWWA	ABS
TOTAL SOLIDS 00500		28	246	25×10^{-5}	70	176	50	COMP	OTHR	AWWA	ABS
TOTAL DISSOLVED SOLIDS 70300		26.8	162	16×10^{-5}	46	116	33	COMP	OTHR	AWWA	ABS
TOTAL SUSPENDED SOLIDS 00530		1.2	84	86×10^{-6}	24	60	17	COMP	OTHR	AWWA	ABS
TOTAL VOLATILE SOLIDS 00505		11.5	106	11×10^{-5}	31	76	22	COMP	OTHR	AWWA	ABS
AMMONIA (as N) 00610		0.2	7.98	81×10^{-7}	2.27	5.7	1.62	COMP	OTHR	AWWA	ABS
KJELDAHL NITROGEN 00625		4.4	36.5	3.69×10^{-5}	10.3	26.1	7.39	GRAB	OTHR	AWWA	ABS
NITRATE (as N) 00620		0.08	.71	75×10^{-8}	.21	.51	0.15	COMP	OTHR	AWWA	ABS
PHOSPHORUS TOTAL (as P) 00665		0.01	.42	46×10^{-8}	.13	.30	.09	COMP	OTHR	AWWA	ABS

November 11, 1971

U. S. Army Engineer District
P. O. Box 2946
Portland, Oregon 97208

Dear Sir:

Attached is a copy of a letter from the Environmental Protection Agency requesting information on the incomplete portions of our application. This information has been completed and is enclosed together with a map of the discharge point.

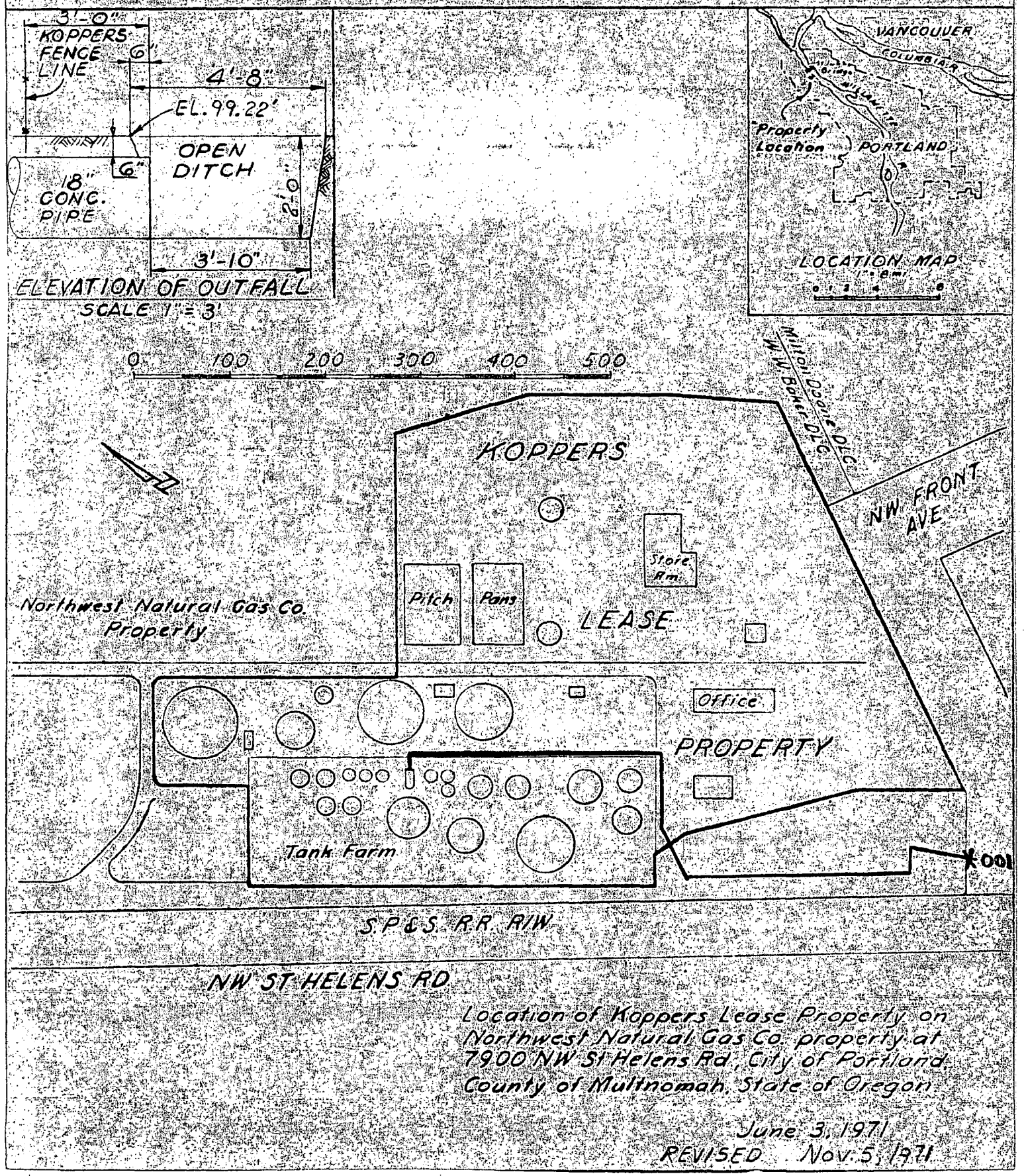
Yours truly,

P. W. Guth, Superintendent
7540 N. W. St. Helens Road
Portland, Oregon 97229

KRC/PWG/mak

Attachments

cc: K. R. Caldwell
D. Eynon
D. L. O'Dell (w/attach.)
B. K. Pospishil
T. Smith



Location of Koppers Lease Property on Northwest Natural Gas Co. property at 7900 NW St Helens Rd., City of Portland, County of Multnomah, State of Oregon

June 3, 1971
REVISED Nov. 5, 1971

If structures exist, or dredging, filling or other construction will occur, the precise location of the activity must be described.

(Office use only)

a. Name the corporate boundaries within which the structures exist or the activity will occur.

State	County	City or Town
16. Oregon	17. Muttnomah	18. Portland

b. Name of waterway at the location of the activity

19. Willamette River

20. Maps and sketches which show the location and character of each structure or activity, including any and all outfall devices, dispersive devices, and non-structural points of discharge, must be attached to this application.

21. For construction or work in navigable waters for which a separate permit is sought under 33 U.S.C. 403, the character of each structure must be fully shown on detailed plans to be submitted with this application. Note on the drawings those structures for which separate discharge information (Section II of this form) has been submitted.

22. List all approvals or denials granted by Federal, interstate, State or local agencies for any structures, construction, discharges or deposits described in this application.

Type of document	Id. No.	Date	Issuing Agency
Letter	1 W 3-0	1-11-66	Oregon State Sanitary Authority

23. Check if facility existed or was lawfully under construction prior to April 3, 1970. [X]

24. If dredging or filling will occur:

State the type of materials involved, their volume in cubic yards, and the proposed method of measurement.

Not Applicable.

25. Describe the proposed method of instrumentation which will be used to measure the volume of any solids which may be deposited and to determine its effect upon the waterway.

None

26. State rates and periods of deposition described in Item 25.

We estimate no deposition in the Willamette River.
(See page 4 of 5, Section II)

Beazer000084

SECTION II. PLANT PROCESS AND DISCHARGE DESCRIPTION

1. Discharge described below is
a. Present [X] b. Proposed new or changed [ ]

2. Implementation schedule [ ]

(Office use only)

Name of corporate boundaries within which the point of discharge is located.

3. State: Oregon
4. County: Muttnomach
5. City or Town: Portland

6. Discharge Serial No.: 001

State the precise location of the point of discharge.

7. Latitude N 45 Degrees; 3 5 Min; __ __ Sec.
8. Longitude W 122 Degrees; 4 6 Min; __ __ Sec.

9. Name of waterway at the point of discharge.
UNNAMED ~~Unnamed~~ Drainage Ditch.

10. Has application for water quality certification or description of impact been made? If so, give date:

Date: 6 (mo) 29 (day) 71 (yr)

Check if certificate is attached to form [ ]

Name Issuing Agency: Oregon Dept. of Environmental Quality

11. Narrative description of activity (include terms of general 4-digit Standard Industrial Classification, and specific manufacturing process).

Primarily engaged in manufacturing industrial organic chemicals by the distillation of coke oven tar.

12. Standard industrial classification number.
SIC 2818

13. Principal product.
See #15

14. Amount of principal product produced per day.
See #16

15. Principal raw material.
Coke Oven Tar

16. Amount of principal raw material consumed per day.
280,000 lbs.

17. Number of batch discharges per day.
Not Applicable.

18. Average gallons per batch discharge.
Not Applicable.

19. Date discharge began.
6 (mo) 1 (day) 66 (yr)

20. Date discharge will begin.
__ (mo) __ (day) __ (yr)

21. Describe waste abatement practices.

Water discharged at this outfall is contained in a separate drainage system where pumps with special seals and local separators are employed.

ESEPAR, EPUMPS, LOCALS.

PHYSICAL DESCRIPTION OF INTAKE WATER AND DISCHARGE

Intake | Discharge | (Office use only)

Discharge Serial No. 001

Parameter and (Code)	UNTREATED INTAKE WATER (1)	TREATED INTAKE WATER (2)	AVERAGE (DAILY) (3)	ESTIMATED MINIMUM (OPERATING YEAR) (4)	ESTIMATED MAXIMUM (OPERATING YEAR) (5)	SAMPLE FREQUENCY (6)	CONTINUOUS MONITORING (7)
Flow (Gallons per day) 00056		54,000	34,000	27,200	47,600	OTHR	ABS
pH 00400		6.9	8.8	6.9	9.0	OTHR	ABS
Temperature (Winter) (°F) 74028		45	85	70	100	OTHR	ABS
Temperature (Summer) (°F) 74027		52	110	100	120	OTHR	ABS

23. **DISCHARGE CONTENTS**

PARAMETER	PRESENT	ABSENT	PARAMETER	PRESENT	ABSENT	PARAMETER	PRESENT	ABSENT
Color 00080	X		Aluminum 01105		X	Nickel 01067		X
Turbidity 00070	X		Antimony 01097		X	Selenium 01147		X
Radioactivity 74050		X	Arsenic 01002		X	Silver 01077		X
Hardness 00900	X		Beryllium 01012		X	Potassium 00937	X	
Solids 00500	X		Barium 01007		X	Sodium 00929	X	
Ammonia 00610	X		Boron 01022		X	Titanium 01152		X
Organic Nitrogen 00605	X		Cadmium 01027		X	Tin 01102		X
Nitrate 00620	X		Calcium 00916	X		Zinc 01092		X
Nitrite 00615		X	Cobalt 01037		X	Algicides 74051		X
Phosphorus 00665	X		Chromium 01034		X	Oil and Grease 00550	X	
Sulfate 00945	X		Copper 01042		X	Phenols 32730	X	
Sulfide 00745	X		Iron 01045	X		Surfactants 38260		X
Sulfite 00740		X	Lead 01051		X	Chlorinated Hydrocarbons 74052		X
Bromide 71870		X	Magnesium 00927		X	Pesticides 74053		X
Chloride 00940	X		Manganese 01055		X	Fecal Streptococci Bacteria 74054		X
Cyanide 00720	X		Mercury 71900		X	Coliform Bacteria 74056		X
Fluoride 00951		X	Molybdenum 01062		X			

PART A

(Note: Submission of Part A is required of all applicants whose processes are listed on page 3 above.)

(Office use only)

Discharge Serial No. 001

INFORMATION REQUIRED OF SPECIFIED INDUSTRIES

PARAMETER AND CODE	Intake: (DAILY AVG. CONCENTRATION) UNTREATED INTAKE WATER (1)	Intake: (DAILY AVG. CONCENTRATION) TREATED INTAKE WATER (2)	Discharge: MAXIMUM CONCENTRATION (3)	Discharge: MAXIMUM POUNDS PER PROCESS UNIT (4)	Discharge: MAXIMUM POUNDS PER DAY (5)	Discharge: DAILY AVG. CONCENTRATION (6)	Discharge: AVERAGE POUNDS PER DAY (7)	Discharge: SAMPLE TYPE (8)	Discharge: SAMPLE FREQUENCY (9)	Discharge: METHOD OF ANALYSIS (10)	Discharge: CONTINUOUS MONITORING (11)
ALKALINITY (as $CaCO_3$) 00410		14	101	10×10^{-5}	28	72	20	COMP	OTHR	AWWA	ABS
B.O.D. 5-DAY 00310		1	112	11×10^{-5}	32	80	23	COMP	OTHR	AWWA	ABS
CHEMICAL OXYGEN DEMAND (C.O.D.) 00340		3	344	37×10^{-5}	105	246	75	COMP	OTHR	AWWA	ABS
TOTAL SOLIDS 00500		28	246	25×10^{-5}	70	176	50	COMP	OTHR	AWWA	ABS
TOTAL DISSOLVED SOLIDS 70300		26.8	162	16×10^{-5}	46	116	33	COMP	OTHR	AWWA	ABS
TOTAL SUSPENDED SOLIDS 00530		1.2	84	86×10^{-6}	24	60	17	COMP	OTHR	AWWA	ABS
TOTAL VOLATILE SOLIDS 00505		11.5	106	11×10^{-5}	31	76	22	COMP	OTHR	AWWA	ABS
AMMONIA (as N) 00610		0.2	7.98	81×10^{-7}	2.27	5.7	1.62	COMP	OTHR	AWWA	ABS
KJELDAHL NITROGEN 00625		4.4	36.5	3.69×10^{-5}	10.3	26.1	7.39	GRAB	OTHR	AWWA	ABS
NITRATE (as N) 00620		0.08	.71	75×10^{-8}	.21	.51	0.15	COMP	OTHR	AWWA	ABS
PHOSPHORUS TOTAL (as P) 00665		0.01	.42	46×10^{-8}	.13	.30	.09	COMP	OTHR	AWWA	ABS

Organic Materials Division, Koppers Company, Inc.
Pittsburgh, Pa. 15219, Telephone 412-391-3300

KOPPERS

May 25, 1972

U. S. Environmental Protection Agency
Region X
1200 Sixth Avenue
Seattle, Washington 98101

ATTN: Mr. W. Eldridge
Chief Administrative Section
Permits Branch

Application No. 071 OYA 2 000189
10A (M/S 521)

Dear Mr. Eldridge:

This is to inform you that we have mailed a reply today to your letter of 21 March to the District Engineer, U.S. Army Corps of Engineers. We regret the delay in answering. We had prepared a reply previously but somehow it got lost after being signed by our Divisional Vice President and was never mailed.

Very truly yours,

Paul W. Guth

Paul W. Guth
Superintendent

PWG:lm

Organic Materials Division, Koppers Company, Inc.
Pittsburgh, Pa. 15219, Telephone 412-391-3300

KOPPERS

May 24, 1972

U.S. Army Corps of Engineers
P. O. Box 2946
Portland, Oregon 97208

ATTN: District Engineer

Application No. 071 OYA 2 000189

Dear Sir:

Attached are the following pages of our permit application 071 OYA 2 000189 revised as requested by the E.P.A.:

Form 4345	page 2 of 3
Form 4345-1	page 4 of 5
Form 4345-1	page 2B of 7, page 3B of 7

In item 13, Part I, page 2 of form 4345 we interpreted the instructions to mean that only that portion of the total intake that went out in our discharge was to be shown. We have increased this number to show the total.

The E.P.A. has asked us to list our principal products. They are electrode pitch and creosote. We do not feel we should show both raw materials and products on the application as that is in contradiction of instructions.

The distance to the Willamette River is 1500 feet direct or 4000 feet by the course of the ditch into which our effluent flows.

The intake data in column 3, Part A, form 4345-1 is in mg/l.

In Part B, the data in column 1 are based on a flow of 54,000 gallons per day. A list of parameters with intake concentrations is attached.

Very truly yours,

E. D. Losch
V. P. & General Manager
Organic Materials Division

EDL:lm

Attachments

5. Date 6 29 71
mo day yr

(Office use only)

6. Check type of application:
a. Original [X] b. Revision [ ]

7. Number of original application

8. Name of facility where discharge or construction will occur.
Koppers Company, Inc.
Northwest Plant

9. Full mailing address of facility named in item 8 above.
Koppers Company, Inc.
7540 N. W. St. Helena Road
Portland, Oregon 97229

10. Names and mailing addresses of all adjoining property owners whose property also adjoins the waterway.

Northwest Natural Gas Co.	Rivergate Rock Products
7900 N. W. St. Helena Road	7881 N. W. St. Helena Road
Portland, Oregon 97229	Portland, Oregon 97229

11. Check to indicate the nature of the proposed activity:
a. Dredging [ ] b. Construction [ ] c. Construction with Discharge [ ] b. Discharge only [X]

12. If activity is temporary in nature, estimate its duration in months.

If application is for a discharge:

13. List intake sources

Source	Estimated Volume in Million Gallons Per day or Fraction Thereof
Municipal or private water supply system	.054
Surface water body	
Ground water	
Other	

14. Describe water usage within the plant

Type	Estimated Volume in Million Gallons Per day or Fraction Thereof
Cooling water	.014
Boiler Feed water	.040
Process water	
Sanitary system*	.001
Other	

15. List volume of discharges or losses other than into navigable waters.

Type	Estimated Volume in Million Gallons Per day or Fraction Thereof
Municipal waste treatment system	
Surface containment	.002
Underground disposal	
Waste Acceptance firms	
Evaporation	.018
Consumption	

* Indicate number employees served per day 12

ENG FORM MAY 71 4345

Beazer000090

PART A

(Note: Submission of Part A is required of all applicants whose processes are listed on page 3 above.)

(Office use only)

Discharge Serial No. 001

INFORMATION REQUIRED OF SPECIFIED INDUSTRIES

Intake	Discharge										
PARAMETER AND CODE	(1) DAILY AVG. CONCENTRATION UNTREATED INTAKE WATER	(2) DAILY AVG. CONCENTRATION TREATED INTAKE WATER	(3) MAXIMUM CONCENTRATION PER PROCESS UNIT	(4) MAXIMUM POUNDS PER DAY	(5) DAILY AVG. CONCENTRATION	(6) AVERAGE POUNDS PER DAY	(7) SAMPLE TYPE	(8) SAMPLE FREQUENCY	(9) METHOD OF ANALYSIS	(10) CONTINUOUS MONITORING	(11)
ALKALINITY (as Ca CO_3) 00410		14	101	10×10^{-5}	28	72	20	COMP	OTHR	AWWA	ABS
B.O.D. 5-DAY 00310		1	112	11×10^{-5}	32	80	23	COMP	OTHR	AWWA	ABS
CHEMICAL OXYGEN DEMAND (C.O.D.) 00340		3	334	35×10^{-5}	98	246	70	COMP	OTHR	AWWA	ABS
TOTAL SOLIDS 00500		28	246	25×10^{-5}	70	176	50	COMP	OTHR	AWWA	ABS
TOTAL DISSOLVED SOLIDS 70300		26.8	162	16×10^{-5}	46	116	33	COMP	OTHR	AWWA	ABS
TOTAL SUSPENDED SOLIDS 00530		1.2	84	86×10^{-6}	24	60	17	COMP	OTHR	AWWA	ABS
TOTAL VOLATILE SOLIDS 00505		11.5	106	11×10^{-5}	31	76	22	COMP	OTHR	AWWA	ABS
AMMONIA (as N) 00610		0.2	7.98	81×10^{-7}	2.27	5.7	1.62	COMP	OTHR	AWWA	ABS
KJELDAHL NITROGEN 00625		4.4	36.5	3.69×10^{-5}	10.3	26.1	7.39	GRAB	OTHR	AWWA	ABS
NITRATE (as N) 00620		0.08	.71	75×10^{-8}	.21	.51	0.15	COMP	OTHR	AWWA	ABS
PHOSPHORUS TOTAL (as P) 00665		0.01	.42	46×10^{-8}	.13	.30	.09	COMP	OTHR	AWWA	ABS

PART B

(Office use only)

Discharge Serial No. 001

B-2. CHEMICAL PARAMETERS OF INTAKE WATER AND DISCHARGE (See Table B-2)

Intake	Discharge										
PARAMETER AND CODE	UNTREATED INTAKE WATER (1)	TREATED INTAKE WATER (2)	MAXIMUM CONCENTRATION (3)	MAXIMUM POUNDS PER DAY PER PROCESS UNIT (4)	MAXIMUM POUNDS PER DAY (5)	DAILY AVG. CONCENTRATION (6)	AVERAGE POUNDS PER DAY (7)	SAMPLE TYPE (8)	SAMPLE FREQUENCY (9)	METHOD OF ANALYSIS (10)	CONTINUOUS MONITORING (11)
ACIDITY (as $CaCO_3$) 00435	0.9		24	2.41×10^{-5}	6.74	17	4.81	C	O	S	A
TOTAL ORGANIC CARBON (T.O.C.) 00680											
TOTAL HARDNESS 00900											
NITRITE (as N) 00615											
ORGANIC NITROGEN 00605											
PHOSPHORUS-ORTHO (as P) 70507											
SULFATE 00945	0.45		9.8	9.91×10^{-6}	2.76	7	1.983	G	O	S	A
SULFIDE 00745	0.00045		0.0014	1.4×10^{-9}	0.00040	<0.001	0.00028	G	O	S	A
SULFITE 00740											
BROMIDE 71870											

ENG FORM JUN 71 4345-1

Beazer000092

PART B

(Office use only)

Discharge Serial No. 001

B-2. (cont.) **CHEMICAL PARAMETERS OF INTAKE WATER AND DISCHARGE** (See Table B-2)

Intake	Discharge										
PARAMETER AND CODE	UNTREATED INTAKE WATER (1)	TREATED INTAKE WATER (2)	MAXIMUM CONCENTRATION (3)	MAXIMUM POUNDS PER DAY PER PROCESS UNIT (4)	DAILY AVG. CONCENTRATION (5)	AVERAGE POUNDS PER DAY (6)	SAMPLE TYPE (7)	SAMPLE FREQUENCY (8)	METHOD OF ANALYSIS (9)	CONTINUOUS MONITORING (10)	(11)
CHLORIDE 00940	1.349		4.9	4.69×10^{-6}	1.388	3.5	0.991	C	O	S	A
CYANIDE 00720	<0.0045		<.028	2.8×10^{-8}	.0079	<0.02	.006	G	O	S	A
FLUORIDE 00951	0.018		0.35	3.54×10^{-7}	0.0991	0.25	0.0708	G	O	S	A
ALUMINUM-TOTAL 01105	0.054		310	3.12×10^{-7}	0.0872	220	0.0623	G	O	S	A
ANTIMONY-TOTAL 01097											
ARSENIC-TOTAL 01002											
BARIUM-TOTAL 01007											
BERYLLIUM-TOTAL 01012											
BORON-TOTAL 01022											
CADMIUM-TOTAL 01027	0.00045		2.8	2.8×10^{-9}	0.00079	2	000057	G	O	S	A

ENG FORM JUN 71 4345-1

Beazer000093

PART B INTAKE CONCENTRATIONS

Parameter	Intake Mg/l	Concentration µg/l	Other
Color			2.25 PCV
Specific Conductance			0.45 µ mhos
Turbidity			<0.45 JTU
Acidity	2		
Sulfate	<1		
Sulfide	<0.001		
Chloride	3		
Cyanide	<0.01		
Fluoride	0.04		
Aluminum		120	
Cadmium		1	
Calcium	1.7		
Chromium		15	
Cobalt		<1	
Copper		20	
Iron		220	
Lead		1	
Magnesium	0.5		
Manganese		180	
Mercury		<5	
Potassium	0.3		
Sodium	1.6		
Zinc		350	
Oil & Grease	0.3		
Phenol		<1	

KOPPERS

Interoffice Correspondence

To P. W. Guth

Location Northwest

Subject COE PERMIT
071 OYA 2 000189

From Organic Materials Div.

Location Engineering Dept.

Date May 23, 1972

Attached are two copies of our COE permit application. Transmit the original to the District Engineer and file the copy. Also attached is a letter to the E.P.A. Please sign, date and send. Return a signed and dated copy to me so that I know everything has gone through.

R. L. Shannon

R. L. Shannon

RLS:lm

Attachments

K43-REV. 5 100M 8-71

KOPPERS

Interoffice Correspondence

To P. W. Guth

Location Northwest

Subject COE PERMIT
071 OYA 2 000189

From Organic Materials Div.

Location Engineering Dept.

Date May 23, 1972

Attached are two copies of our COE permit application. Transmit the original to the District Engineer and file the copy. Also attached is a letter to the E.P.A. Please sign, date and send. Return a signed and dated copy to me so that I know everything has gone through.

R. L. Shannon

RLS:lm

Attachments

K43-REV. 5 100M 8-71

April 3, 1972

Department of Environmental Quality
State Office Building
1400 S. W. 5th Ave.
Portland, Oregon 97201

Dear Sir:

The person that has been obtaining the information for this permit has been on vacation. We are requesting a two weeks delay in filing the information. We will have the information in your office by April 17, 1972.

Thank you,

Yours very truly,

KOPPERS COMPANY, INC.

BY _____
Paul W. Guth, Superintendent

PWG/rf

CC: Bob Stamnes
U. S. Environmental Protection Agency
Region X
1200 6th Ave.
Seattle, Wash. 98101

CHARLTON LABORATORIES
unit of METALLURGICAL ENGINEERS, INC.
testing and analyses

2340 S.W. CANYON ROAD
P.O. BOX 1048
PORTLAND, OREGON 97207
503/228-9663

working with MATERIALS ECOLOGY INDUSTRIAL PRODUCTS AND PROCESSES

TO: Koppers Company
7540 N. W. St. Helens Road
Portland, Oregon 97210

CLIENT NO.

REFERENCE NO. 701165-E

DATE: 8-6-71

SUBJECT: ANALYSIS OF WATER: U.S. ARMY, CORPS OF ENGINEERS REQUIREMENTS
PER "STANDARD METHODS FOR EXAMINATION OF WATER AND WASTE WATER", 13th Ed.
Two Water Sample(s) Received as of July 26, 1971

		Intake	Outfall			Intake	Outfall
PHYSICAL	SPECIFIED MAXIMUM			MISCELLANEOUS	SPECIFIED MAXIMUM		
TOTAL SOLIDS	500	24	200	pH VALUE		7.1	7.2
DISSOLVED		24	145	ACIDITY as $CaCO_3$		2	17
SUSPENDED		< 1 *	55	ALKALINITY as $CaCO_3$		--	--
VOLATILE SOLIDS		10	85	HYDROXIDE		0	0
DISSOLVED		--	--	CARBONATE		0	0
SUSPENDED		--	--	BICARBONATE		10	91
HARDNESS AS $CaCO_3$		--	--	CHLORINE (Cl), Residual		--	--
TURBIDITY, JACKSON UNITS	5	< 1 *	85				
COLOR	15	< 5 *	300				
THRESHOLD ODOR	3	1	2000				
CONDUCTANCE, MICROMHOS/CM		--	--				
CHEMICAL - METALLIC				CHEMICAL - NON-METALLIC			
SODIUM (Na)		1.6	14	SILICA (SiO_2)		--	--
POTASSIUM (K)		0.3	2.2	CHLORIDE (Cl)	250	3	1
CALCIUM (Ca)		1.7	17.9	SULFATE (SO_4)	250	< 1 *	7
MAGNESIUM (Mg)		0.5	5.7	FLUORIDE (F)		0.04	0.25
ALUMINUM (Al)		0.12	0.22	NITRATE NITROGEN (N)	10	0.08	0.14
IRON (Fe)	0.3	0.22	1.0	NITRITE NITROGEN (N)		--	--
MANGANESE (Mn)	0.05	0.18	10	AMMONIA NITROGEN (N)		0.2	22
ARSENIC (As)	0.05	--	--	ORGANIC NITROGEN (N)		--	--
BARIUM (Ba)	1.0	--	--	KJELDAHL NITROGEN (N)		4.4	26.1
CADMIUM (Cd)	0.01	< 0.001 *	0.002	PHOSPHORUS, TOTAL (P)		0.01	0.09
CHROMIUM, TOTAL (Cr)		0.015	0.053	PHOSPHORUS, HYDROLYZABLE (P)		--	--
CHROMIUM, HEXAVALENT (Cr)	0.05	--	--	ORTHOPHOSPHATE (P)		0.01	0.09
COPPER (Cu)	1.0	0.020	0.095	SULFIDE (S)		<0.001 *	<0.001 *
LEAD (Pb)	0.05	0.001	0.002	SULFITE (SO_3)		--	--
MERCURY (Hg)		<0.005 *	< 0.005*	BERYLIUM (Be)		--	--
NICKEL (Ni)		--	--	BORON (B)		--	--
SILVER (Ag)	0.05	--	--	BROMIDE (Br)		--	--
STRONTIUM (Sr)		--	--	CYANIDE (CN)	0.2	<0.01 *	<0.01 *
TIN (Sn)		--	--	IODIDE (I)		--	--
ZINC (Zn)	5	0.35	0.55	SELENIUM (Se)	0.01	--	--
Cobalt		<0.001 *	0.035				

QUANTITIES ARE REPORTED AS MILLIGRAMS PER LITER, UNLESS OTHERWISE INDICATED.

SPECIFICATIONS ARE TAKEN FROM UNITED STATES PUBLIC HEALTH SERVICE DRINKING WATER STANDARDS UNLESS OTHERWISE STATED.

over--

B3/613

* (<) Symbole denotes "less than"

TO: Koppers Company

SUBJECT: ANALYSIS OF WATER: U.S. ARMY, CORPS OF ENGINEERS REQUIREMENTS

REF. NO.: 701165-E

		Intake	Outfall			Intake	Outfall
MICROBIOLOGICAL	SPECIFIED MAXIMUM			ORGANIC	SPECIFIED MAXIMUM		
PLATE COUNT, per ml		---	---	OXYGEN DEMAND		---	---
COLIFORM, MPN/100 ml		---	---	BIOCHEMICAL-BOD-5 day		1	190
TOTAL	2.2	0	0	CHEMICAL - COD		3	195
FECAL		0	0	CHLORINE DEMAND		---	---
IRON BACTERIA		---	---	HRS.		---	---
				PPM RES. Cl.		---	---
				TOTAL ORGANIC CARBON		---	---
				SURFACTANTS - MBAS	0.5	---	---
				OIL AND GREASE		0.3	28
				PHENOLICS AS PHENOL	0.001	<0.001*	2.6
BIOLOGICAL				PESTICIDES			
DISSOLVED GASES				RADIOACTIVITY, pc/l			
CARBON DIOXIDE (CO_2)		---	---	GROSS BETA	1,000	---	---
OXYGEN (O)		---	---	RADIUM 226	3	---	---
				STRONTIUM 90	10		

FIELD DATA

DATE COLLECTED	July 26, 1971
COLLECTED BY	Koppers Company
SOURCE	"N. W. Tar Plant" 1. Intake 2. Outfall

Sensitivities of tests meet requirements of the Department of the Army, Corps of Engineers, within practical limits of the test methods.

* (<) Symbol denotes "less than"

CHARLTON LABORATORIES Unit of MEI

J. M. Hogl
Project Director

JMH:lr
cc: 2

P.O. BOX 1048
PORTLAND, OREGON 97207

AS A MUTUAL PROTECTION TO THE CLIENT, THE PUBLIC AND OURSELVES ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF THE CLIENT. NEITHER REPORTS NOR THE NAME OF THIS LABORATORY NOR ANY MEMBER OF ITS STAFF MAY BE USED IN CONNECTION WITH THE ADVERTISEMENT OR SALE OF ANY PRODUCT WITHOUT WRITTEN AUTHORIZATION.

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

NPPND-MI-P

2-41-
KOPPERS COMPANY INC
NORTHWEST PLANT
7540 NW ST HELENS RD
PORTLAND OR 97229

Application No. 000189

Gentlemen:

According to our files you have made proper application for a Section 13 discharge permit under the River and Harbor Act of 3 March 1899.

Your application was made on form 4345-1 dated May 1971. This form allowed for certain information to be marked either present or absent. This was done in order to allow time in which a company could obtain a more complete analysis of their discharge.

We have now received and are enclosing the final portion of form 4345-1, Part B, dated June 1971. Prior to 1 October 1971, one copy of this form is to be completed, per the inclosed instructions, for each discharge.

Your cooperation in this matter is appreciated.

Sincerely yours,

John Payne

JOHN PAYNE
Chief, Permits Section

Incl
as stated

RECEIVED
AUG 13 1971
KOPPERS CO., INC.
TAR & CHEMICAL DIV.
PORTLAND, OREGON

DEPARTMENT OF THE ARMY, CORPS OF ENGINEERS

APPLICATION FORM FOR DISCHARGES OR WORK IN NAVIGABLE WATERS AND THEIR TRIBUTARIES

SECTION I. GENERAL INFORMATION

1. State: Ore

Application Number (to be assigned by Corps of Engineers): Div. ___ Dist. ___ Type ___ Sequence No. ___

2. Name of applicant and title of signing official: Paul W. Huth Plant Superintendent

3. Mailing address of applicant: Koppers Bld. Pittsburgh, Penna. 15219

4. Name, address, telephone number and title of applicant's authorized agent for permit application coordination and correspondence:
Paul W. Huth Plant Superintendent
7540 N.W. St. Helens Rd
Portland, Oregon 97229
Tele 286-3681

NOTE TO APPLICANT: Refer to the Information Pamphlet before attempting to complete this form.

Signature

a. If a discharge is involved, an application submitted by a corporation must be signed by the principal executive officer of that corporation or by an official of the rank of corporate vice president or above who reports directly to such principal executive officer and who has been designated by the principal executive officer to make such applications on behalf of the corporation. In the case of a partnership or a sole proprietorship, the application must be signed by a general partner or the proprietor.

b. If no discharge is involved, an application may be signed by the applicant or his authorized agent.

Required Information

a. All information contained in this application will, upon request, be made available to the public for inspection and copying. A separate sheet entitled "Confidential Answers" must be used to set out information which is considered by the applicant to constitute trade secrets or commercial or financial information of a confidential nature. The information must clearly indicate the item number to which it applies. Confidential treatment can be considered only for that information for which a specific written request of confidentiality has been made on the attached sheet. However, in no event will identification of the contents of a discharge be recognized as confidential or privileged information.

b. The applicant shall furnish such supplementary information as is required by the District Engineer in order to evaluate fully an application.

c. If additional space is needed for a complete response to any item on this form, attach a sheet entitled "Additional Information." Indicate on that sheet the item numbers to which answers apply.

d. Drawings required by Items 20 and 21 should be attached to this application. Other papers which must be attached to this application include, if applicable, copies of a water quality certification or a written communication which describes water quality impact (see Item 22 and Item 9 of Section II below), the additional information sheet(s) in "c" above, and the confidential information sheet described in "a" above.

Fees

If any discharge or deposit is involved, an application fee of $100 must be submitted with this application. An additional $50 is required for each additional discharge or deposit. This provision does not apply to agencies or instrumentalities of the Federal, State, or local governments.

Application is hereby made for a permit or permits to authorize the activities described herein. I certify that I am familiar with the information provided above, and that to the best of my knowledge and belief such information is true, complete, and accurate.

Signature of Applicant

18 U.S.C. Section 1001 provides that:

Whoever, in any matter within the jurisdiction of any department or agency of the United States knowingly and wilfully falsifies, conceals or covers up by any trick, scheme, or device a material fact, or makes any false, fictitious or fraudulent statements or representations, or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than five years, or both.

FOR CORPS OF ENGINEERS USE ONLY

Acronym name of applicant

Are discharge structures: Major? ☐ Minor? ☐ N/A? ☐

Date received, form not complete ___
Date received, form complete but without certificate ___
Date received, form complete ___
Date of Corr./Ltr. ___ day ___ mo ___ yr.

Date sent to EPA, form not complete ___
Date sent to EPA, NOAA, D/I, AEC, FPC in complete form ___ day ___ mo ___ yr.

ENG FORM APR 71 4345

Beazer000102

5. Date 6 mo 71 yr

(Office use only)

6. Check type of application: a. Original ☑ b. Revision ☐

7. Number of original application

8. Name of facility where discharge or construction will occur.

Koppers Co Inc.
Organic Material Division

9. Full mailing address of facility named in Item 8 above.

7540 N.W. St Helens Rd.
Portland, Oregon 97229

10. Names and mailing addresses of all adjacent property owners whose property adjoins the waterway.

Northwest Natural Gas Co. 7900 N.W. St Helens Rd.
Rivergate Rock Products 7881 N.W St Helens Rd.

11. Check to indicate the nature of the proposed activity:

a. Dredging ☐ b. Construction ☐ c. Construction with Discharge ☐ d. Discharge only ☑

12. If activity is temporary in nature, estimate its duration in months.

If application is for a discharge:

13. List discharges other than into navigable waters.

Location	Volume	
Municipal waste treatment system		mgd (million gallons per day)
Surface containment	10,000 gal per wk	mgd
Underground disposal		mgd
Waste Acceptance firms		mgd

14. List intake sources

Type	Volume	
Municipal or private water supply system	54,000 gal/day	mgd
Surface water body		mgd
Ground water		mgd
Other		mgd

15. Describe water usage within the plant

Type	Volume	
Cooling water	14,000 gal/day	mgd
Boiler Feed water	40,000 gal/day	mgd
Process water		mgd
Sanitary system *	12 Employees	mgd
Other		mgd

* Indicate number employees served per day

ENG FORM APR 71 4345

Beazer000103

If structures exist, or dredging, filling or other construction will occur, the precise location of the activity must be described.

(Office use only)

a. Name the corporate boundaries within which the structures exist or the activity will occur.

State 16. Oregon County 17. Multnomah City or Town 18. Portland

b. Name of waterway at the location of the activity

19. Willamette River

20. Maps which show the location of each structure or activity, including any and all outfall devices, dispersive devices, and non-structural points of discharge, must be attached to this application.

21. The character of each structure must be fully shown on plans to be submitted with this application. Note on the drawings those structures for which separate discharge information (Section II of this form) has been submitted.

22. List all approvals or denials granted by Federal, interstate, State or local agencies for any structures, construction, discharges or deposits described in this application.

Type of document	Id. No.	Date	Issuing Agency

23. Check if facility existed or was lawfully under construction prior to April 3, 1970. ☐

24. If dredging or filling will occur:

State the type of materials involved, their volume in cubic yards, and the proposed method of measurement.

25. Describe the proposed method of instrumentation which will be used to measure the volume of any solids deposited and to determine its effect upon the waterway.

26. State rates and periods of deposition described in Item 25.

Beazer000104

229-5700 tele
State water

ANALYST:

Arthur W. Smith

CITY OF PORTLAND, OREGON
BUREAU OF WATER WORKS

WATER QUALITY LABORATORY

LOCATION: City of Portland, Bureau of Water Works, Water Service Building, Portland, Ore.

DATE: Sept. 15, 1970

RECEIVED:

WATER ANALYSIS

CONTENTS:	mg/L
Total Residue (residue on evaporation at 105°C)	28.0
Filtrable Residue	26.8
Nonfiltrable Residue	1.2
Fixed Residue (ignited to 600°C)	11.5
Alkalinity (as Ca CO_3)	
Carbonate	0.0
Bicarbonate	14.0
Hardness (as Ca CO_3)	11.16
Silica ($Si\ O_2$)	10.8
Calcium (Ca)	3.2
Calcium hardness (as mg/L Ca CO_3)	8.0
Magnesium (Mg)	0.6
Magnesium hardness (as mg/L Ca CO_3)	2.5
Iron (Fe)	0.26
Iron hardness (as mg/L Ca CO_3)	0.47
Aluminum (Al)	0.05
Aluminum hardness (as mg/L Ca CO_3)	0.19
Sodium (Na)	1.10
Potassium (K)	<1.0
Manganese (Mn)	0.03
Chloride (Cl)	3.0
Sulfate (SO_4)	<1.0
Flucride (F)	<0.05
Nitrate (NO_3)	0.012
Phosphate-Ortho (PO_4)	<0.010
Hydroxylated Aromatic Compounds (tannin & lignin)	0.16
Phenols	<0.001
Bicarbonate (HCO_3)	17.0
Free Carbon Dioxide (CO_2)	2.8
Total Carbon Dioxide	51.5
Specific Conductivity (micromhos/cm at 25°C)	31.0
Ph Value	6.95
Turbidity (units)	0.55
Color (units)	5.0

CHARLTON LABORATORIES
unit of METALLURGICAL ENGINEERS, INC.
testing and analyses

2340 S.W. CANYON ROAD
P.O. BOX 1048
PORTLAND, OREGON 97207
503/228-9663

working with MATERIALS ECOLOGY INDUSTRIAL PRODUCTS AND PROCESSES

TO: Koppers Company
Attention: Mr. Paul Guth
7540 N. W. St. Helens Road
Portland, Oregon 97210

CLIENT NO.

REFERENCE NO. 612141

DATE: 6-10-71

SUBJECT: ANALYSIS OF WATER SAMPLE FOR CORPS OF ENGINEERS REQUIREMENTS

PHYSICAL	SPECIFIED PARAMETER			MISCELLANEOUS	SPECIFIED PARAMETER		
TOTAL SOLIDS	500	176		pH VALUE		8.8	
DISSOLVED		116		ACIDITY as $CaCO_3$		--	
SUSPENDED		60		ALKALINITY as $CaCO_3$		72	
VOLATILE SOLIDS		76		HYDROXIDE		0	
DISSOLVED		66		CARBONATE		22	
SUSPENDED		10		BICARBONATE		50	
HARDNESS AS $CaCO_3$		--		CHLORINE (Cl), Residual		0.00	
TURBIDITY, JACKSON UNITS	5	45					
COLOR	15	180					
THRESHOLD ODOR	3	2,000					
CONDUCTANCE, MICROMHOS/CM		230					
CHEMICAL - METALLIC				**CHEMICAL - NON-METALLIC**			
SODIUM (Na)				SILICA (SiO_2)		--	
POTASSIUM (K)				CHLORIDE (Cl)	250	3.5	
CALCIUM (Ca)				SULFATE (SO_4)	250	--	
MAGNESIUM (Mg)				FLUORIDE (F)		--	
ALUMINUM (Al)				NITRATE NITROGEN (N)	10	0.51	
IRON (Fe)	0.3			NITRITE NITROGEN (N)		--	
MANGANESE (Mn)	0.05			AMMONIA NITROGEN (N)		5.7	
ARSENIC (As)	0.05			ORGANIC NITROGEN (N)		--	
BARIUM (Ba)	1.0			ALBUMIN NITROGEN (N)		--	
CADMIUM (Cd)	0.01			PHOSPHORUS, TOTAL (P)		0.3	
CHROMIUM, TOTAL (Cr)				PHOSPHORUS, HYDROLYZABLE (P)		--	
CHROMIUM, HEXAVALENT (Cr)	0.05			ORTHOPHOSPHATE (P)		--	
COPPER (Cu)	1.0	--		SULFIDE (S)			
LEAD (Pb)	0.05	--		SULFITE (SO_3)			
MERCURY (Hg)		<0.001 *		BERYLLIUM (Be)			
NICKEL (Ni)				BORON (B)		--	
SILVER (Ag)	0.05			BROMIDE (Br)		--	
STRONTIUM (Sr)				CYANIDE (CN)	0.2	4.8	
TIN (Sn)				IODIDE (I)			
ZINC (Zn)	5			SELENIUM (Se)	0.01		

QUANTITIES ARE REPORTED AS MILLIGRAMS PER LITER, UNLESS OTHERWISE INDICATED.

SPECIFICATIONS ARE TAKEN FROM UNITED STATES PUBLIC HEALTH SERVICE DRINKING WATER STANDARDS UNLESS OTHERWISE STATED. (*) less than

B3/612

over

TO: Koppers Company

PAGE: 2

SUBJECT: ANALYSIS OF WATER SAMPLE FOR CORPS OF ENGINEERS REQUIREMENTS

REF. NO.: 612141

MICROBIOLOGICAL	SPECIFIED MAXIMUM			ORGANIC	SPECIFIED MAXIMUM		
PLATE COUNT, per ml				OXYGEN DEMAND		--	
COLIFORM, MPN/100 ml				BIOCHEMICAL-COD-5 day		80	
TOTAL	2.2			CHEMICAL - COD		246	
FECAL				CHLORINE DEMAND			
IRON BACTERIA				HRS.			
				PPM RES. Cl.			
				TOTAL ORGANIC CARBON		--	
				SURFACTANTS - MBAS	0.0	--	
				OIL AND GREASE		19.2	
				PHENOLICS AS PHENOL	0.001	3.1	
BIOLOGICAL				PESTICIDES			
DISSOLVED GASES				RADIOACTIVITY, pc/l			
CARBON DIOXIDE (CO_2)		2.2		GROSS BETA	1,000		
OXYGEN (O)		--		RADIUM 226	3		
				STRONTIUM 90	10		

FIELD DATA

DATE COLLECTED

COLLECTED BY

SOURCE

CHARLTON LABORATORIES unit of MEI

RECEIVED
JUN 1 1971
KOPPERS CO. INC.
TAR & CHEMICAL CO.
PORTLAND, OREGON

J. M. Hogl
Project Director

JMH:lr
cc: 2

P O BOX 1048
PORTLAND, OREGON 97207

AS A MUTUAL PROTECTION TO THE CLIENT, THE PUBLIC AND OURSELVES ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF THE CLIENT. NEITHER REPORTS NOR THE NAME OF THIS LABORATORY NOR ANY MEMBER OF ITS STAFF MAY BE USED IN CONNECTION WITH THE ADVERTISEMENT OR SALE OF ANY PRODUCT WITHOUT WRITTEN AUTHORIZATION.

CHARLTON LABORATORIES
unit of METALLURGICAL ENGINEERS, INC.
testing and analyses

2340 S.W. CANYON ROAD
P.O. BOX 1048
PORTLAND, OREGON 97207
503/228-9663

working with MATERIALS ECOLOGY INDUSTRIAL PRODUCTS AND PROCESSES

TO: Koppers Company
Attention: Mr. Paul Guth
7540 N. W. St. Helens Road
Portland, Oregon 97210

CLIENT NO.

REFERENCE NO. 612141

DATE: 6-10-71

SUBJECT: ANALYSIS OF WATER SAMPLE FOR CORPS OF ENGINEERS REQUIREMENTS

PHYSICAL	SPECIFIED MAXIMUM			MISCELLANEOUS	SPECIFIED MAXIMUM		
TOTAL SOLIDS	500	176		pH VALUE		8.8	
DISSOLVED		116		ACIDITY as $CaCO_3$		—	
SUSPENDED		60		ALKALINITY as $CaCO_3$		72	
VOLATILE SOLIDS		76		HYDROXIDE		0	
DISSOLVED		66		CARBONATE		22	
SUSPENDED		10		BICARBONATE		50	
HARDNESS AS $CaCO_3$		—		CHLORINE (Cl), Residual		0.00	
TURBIDITY, JACKSON UNITS	5	45					
COLOR	15	180					
THRESHOLD ODOR	3	2,000					
CONDUCTANCE, MICROMHOS/CM		230					
CHEMICAL - METALLIC				CHEMICAL - NON-METALLIC			
SODIUM (Na)				SILICA (SiO_2)		—	
POTASSIUM (K)				CHLORIDE (Cl)	250	3.5	
CALCIUM (Ca)				SULFATE (SO_4)	250	—	
MAGNESIUM (Mg)				FLUORIDE (F)		—	
ALUMINUM (Al)				NITRATE NITROGEN (N)	10	0.51	
IRON (Fe)	0.3			NITRITE NITROGEN (N)		—	
MANGANESE (Mn)	0.05			AMMONIA NITROGEN (N)		5.7	
ARSENIC (As)	0.05			ORGANIC NITROGEN (N)		—	
BARIUM (Ba)	1.0			ALBUMINOID NITROGEN (N)		— —	
CADMIUM (Cd)	0.01			PHOSPHORUS, TOTAL (P)		0.3	
CHROMIUM, TOTAL (Cr)				PHOSPHORUS, HYDROLYZABLE (P)		— —	
CHROMIUM, HEXAVALENT (Cr)	0.05			ORTHOPHOSPHATE (P)		— —	
COPPER (Cu)	1.0	— —		SULFIDE (S)			
LEAD (Pb)	0.05	— —		SULFITE (SO_3)			
MERCURY (Hg)		<0.001 *		CYANIDE (Cn)			
NICKEL (Ni)				CHLORIDE (Cl)		— —	
SILVER (Ag)	0.05			BROMIDE (Br)		— —	
STRONTIUM (Sr)				CYANIDE (CN)	0.2	4.8	
TIN (Sn)				IODIDE (I)			
ZINC (Zn)	5			SELENIUM (Se)	0.01		

QUANTITIES ARE REPORTED AS MILLIGRAMS PER LITER, UNLESS OTHERWISE INDICATED.

SPECIFICATIONS ARE TAKEN FROM UNITED STATES PUBLIC HEALTH SERVICE DRINKING WATER STANDARDS UNLESS OTHERWISE STATED.

(*) less than

B3/612

over

TO: Koppers Company

PAGE: 2

SUBJECT: ANALYSIS OF WATER SAMPLE FOR CORPS OF ENGINEERS REQUIREMENTS

REF. NO.: 612141

MICROBIOLOGICAL	SPECIFIED CONTENT			**ORGANIC**	SPECIFIED CONTENT		
PLATE COUNT, per ml				OXYGEN DEMAND		--	
COLIFORM, MPN/100 ml				BIOCHEMICAL-COD-5 day		80	
TOTAL	2.2			CHEMICAL - COD		246	
FECAL				CHLORINE DEMAND			
IRON BACTERIA				HRS.			
				PPM RES. Cl.			
				TOTAL ORGANIC CARBON		--	
				SURFACTANTS - MBAS	0.0	--	
				OIL AND GREASE		19.2	
				PHENOLICS AS PHENOL	0.001	3.1	
BIOLOGICAL				**PESTICIDES**			
DISSOLVED GASES				**RADIOACTIVITY**, pc/l			
CARBON DIOXIDE (CO_2)		2.2		GROSS BETA	1,000		
OXYGEN (O)		--		RADIUM 226	3		
				STRONTIUM 90	10		

FIELD DATA

DATE COLLECTED

COLLECTED BY

SOURCE

CHARLTON LABORATORIES unit of MEI

RECEIVED
1971
KOPPERS CO. INC.
TAR & CHEM.
PORTLAND, ORE.

J. M. Hogl
Project Director

JMH:lr
cc: 2

P O BOX 1048
PORTLAND, OREGON 97207

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CHARLTON LABORATORIES
unit of METALLURGICAL ENGINEERS, INC.
testing and analyses

2340 S.W. CANYON ROAD
P.O. BOX 1048
PORTLAND, OREGON 97207
503/228-9663

working with MATERIALS ECOLOGY INDUSTRIAL PRODUCTS AND PROCESSES

TO: Koppers Company
Attention: Mr. Paul Guth
7540 N. W. St. Helens Road
Portland, Oregon 97210

CLIENT NO.:

REFERENCE NO. 612141

DATE: 6-10-71

SUBJECT: ANALYSIS OF WATER SAMPLE PER DEPARTMENT OF THE ARMY, CORPS ENGINEERS REQUIREMENTS

PHYSICAL	SPECIFIED MAXIMUM			MISCELLANEOUS	SPECIFIED MAXIMUM		
TOTAL SOLIDS	500	176		pH VALUE		8.8	
DISSOLVED		116		ACIDITY as $CaCO_3$		--	
SUSPENDED		60		ALKALINITY as $CaCO_3$		72	
VOLATILE SOLIDS		76		HYDROXIDE		0	
DISSOLVED		66		CARBONATE		22	
SUSPENDED		10		BICARBONATE		50	
HARDNESS AS $CaCO_3$		--		CHLORINE (Cl), Residual		0.00	
TURBIDITY, JACKSON UNITS	5	45					
COLOR	15	180					
THRESHOLD ODOR	3	2,000					
CONDUCTANCE, MICROMHOS/CM		230					
CHEMICAL - METALLIC				**CHEMICAL - NON-METALLIC**			
SODIUM (Na)				SILICA (SiO_2)		--	
POTASSIUM (K)				CHLORIDE (Cl)	250	3.5	
CALCIUM (Ca)				SULFATE (SO_4)	250	--	
MAGNESIUM (Mg)				FLUORIDE (F)		--	
ALUMINUM (Al)				NITRATE NITROGEN (N)	10	0.51	
IRON (Fe)	0.3			NITRITE NITROGEN (N)		--	
MANGANESE (Mn)	0.05			AMMONIA NITROGEN (N)		5.7	
ARSENIC (As)	0.05			ORGANIC NITROGEN (N)		--	
BARIUM (Ba)	1.0			KJELDAHL NITROGEN (N)		--	
CADMIUM (Cd)	0.01			PHOSPHORUS, TOTAL (P)		0.3	
CHROMIUM, TOTAL (Cr)				PHOSPHORUS, HYDROLYZABLE (P)		--	
CHROMIUM, HEXAVALENT (Cr)	0.05			ORTHOPHOSPHATE (P)		--	
COPPER (Cu)	1.0	--		SULFIDE (S)			
LEAD (Pb)	0.05	--		SULFITE (SO_3)			
MERCURY (Hg)		<0.001 *		BERYLIUM (Be)			
NICKEL (Ni)				BORON (B)		--	
SILVER (Ag)	0.05			BROMIDE (Br)		--	
STRONTIUM (Sr)				CYANIDE (CN)	0.2	4.8	
TIN (Sn)				IODIDE (I)		--	
ZINC (Zn)	5			SELENIUM (Se)	0.01	--	
				Thiocyanate		10.2	

QUANTITIES ARE REPORTED AS MILLIGRAMS PER LITER, UNLESS OTHERWISE INDICATED.

SPECIFICATIONS ARE TAKEN FROM UNITED STATES PUBLIC HEALTH SERVICE DRINKING WATER STANDARDS UNLESS OTHERWISE STATED.

(*) less than (over)

B3/612

Beazer000110

TO: Koppers Company
SUBJECT: ANALYSIS OF WATER SAMPLE
REF. NO.: 612141

MICROBIOLOGICAL	SPECIFIED MAXIMUM			ORGANIC	SPECIFIED MAXIMUM		
PLATE COUNT, per ml				OXYGEN DEMAND		--	
COLIFORM, MPN/100 ml				BIOCHEMICAL-BOD-5 day		80	
TOTAL	2.2			CHEMICAL - COD		246	
FECAL				CHLORINE DEMAND			
IRON BACTERIA				HRS.			
				PPM RES. Cl.			
				TOTAL ORGANIC CARBON		--	
				SURFACTANTS - MBAS	0.5	--	
				OIL AND GREASE		19.2	
				PHENOLICS AS PHENOL	0.001	3.1	
BIOLOGICAL				PESTICIDES			
DISSOLVED GASES				RADIOACTIVITY, pc/l			
CARBON DIOXIDE (CO_2)		2.2		GROSS BETA	1,000		
OXYGEN (O)		--		RADIUM 226	3		
				STRONTIUM 90	10		

FIELD DATA

DATE COLLECTED

COLLECTED BY

SOURCE

CHARLTON LABORATORIES unit of MEI

J. M. Hogl
Project Director

JMH:lr
cc: 2

P.O. BOX 1048
PORTLAND, OREGON 97207

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CHARLTON LABORATORIES
unit of METALLURGICAL ENGINEERS, INC.
testing and analyses

2340 S.W. CANYON ROAD
P.O. BOX 1048
PORTLAND, OREGON 97207
503/228-9663

working with MATERIALS ECOLOGY INDUSTRIAL PRODUCTS AND PROCESSES

TO: Koppers Company
Attention: Mr. Paul Guth
7540 N. W. St. Helens Road
Portland, Oregon 97210

CLIENT NO.

REFERENCE NO. 612141

DATE: 6-10-71

SUBJECT: ANALYSIS OF WATER SAMPLE PER DEPARTMENT OF THE ARMY, CORPS ENGINEERS REQUIREMENTS

PHYSICAL	SPECIFIED MAXIMUM			MISCELLANEOUS	SPECIFIED MAXIMUM		
TOTAL SOLIDS	500	176		pH VALUE		8.8	
DISSOLVED		116		ACIDITY as $CaCO_3$		—	
SUSPENDED		60		ALKALINITY as $CaCO_3$		72	
VOLATILE SOLIDS		76		HYDROXIDE		0	
DISSOLVED		66		CARBONATE		22	
SUSPENDED		10		BICARBONATE		50	
HARDNESS AS $CaCO_3$		—		CHLORINE (Cl), Residual		0.00	
TURBIDITY, JACKSON UNITS	5	45					
COLOR	15	180					
THRESHOLD ODOR	3	2,000					
CONDUCTANCE, MICROMHOS/CM		230					
CHEMICAL - METALLIC				**CHEMICAL - NON-METALLIC**			
SODIUM (Na)				SILICA (SiO_2)		—	
POTASSIUM (K)				CHLORIDE (Cl)	250	3.5	
CALCIUM (Ca)				SULFATE (SO_4)	250	—	
MAGNESIUM (Mg)				FLUORIDE (F)		—	
ALUMINUM (Al)				NITRATE NITROGEN (N)	10	0.51	
IRON (Fe)	0.3			NITRITE NITROGEN (N)		—	
MANGANESE (Mn)	0.05			AMMONIA NITROGEN (N)		5.7	
ARSENIC (As)	0.05			ORGANIC NITROGEN (N)		—	
BARIUM (Ba)	1.0			KJELDAHL NITROGEN (N)		—	
CADMIUM (Cd)	0.01			PHOSPHORUS, TOTAL (P)		0.3	
CHROMIUM, TOTAL (Cr)				PHOSPHORUS, HYDROLYZABLE (P)		—	
CHROMIUM, HEXAVALENT (Cr)	0.05			ORTHOPHOSPHATE (P)		—	
COPPER (Cu)	1.0	—		SULFIDE (S)			
LEAD (Pb)	0.05	—		SULFITE (SO_3)			
MERCURY (Hg)		< 0.001 *		BERYLIUM (Be)			
NICKEL (Ni)				BORON (B)		—	
SILVER (Ag)	0.05			BROMIDE (Br)		—	
STRONTIUM (Sr)				CYANIDE (CN)	0.2	4.8	
TIN (Sn)				IODIDE (I)		—	
ZINC (Zn)	5			SELENIUM (Se)	0.01	—	
				Thiocyanate		10.2	

QUANTITIES ARE REPORTED AS MILLIGRAMS PER LITER, UNLESS OTHERWISE INDICATED.

SPECIFICATIONS ARE TAKEN FROM UNITED STATES PUBLIC HEALTH SERVICE DRINKING WATER STANDARDS UNLESS OTHERWISE STATED.

(*) less than

(over)

B.3 / 61.2

TO: Koppers Company

SUBJECT: ANALYSIS OF WATER SAMPLE

REF. NO.: 612141

MICROBIOLOGICAL	SPECIFIED MAXIMUM			ORGANIC	SPECIFIED MAXIMUM		
PLATE COUNT, per ml				OXYGEN DEMAND			
COLIFORM, MPN/100 ml				BIOCHEMICAL-BOD-5 day		80	
TOTAL	2.2			CHEMICAL - COD		246	
FECAL				CHLORINE DEMAND			
IRON BACTERIA				HRS.			
				PPM RES. Cl.			
				TOTAL ORGANIC CARBON		--	
				SURFACTANTS - MBAS	0.8	--	
				OIL AND GREASE		19.2	
				PHENOLICS AS PHENOL	0.001	3.1	
BIOLOGICAL				PESTICIDES			
DISSOLVED GASES				RADIOACTIVITY, pc/l			
CARBON DIOXIDE (CO_2)		2.2		GROSS BETA	1,000		
OXYGEN (O)		--		RADIUM 226	3		
				STRONTIUM 90	10		

FIELD DATA	
DATE COLLECTED	
COLLECTED BY	
SOURCE	

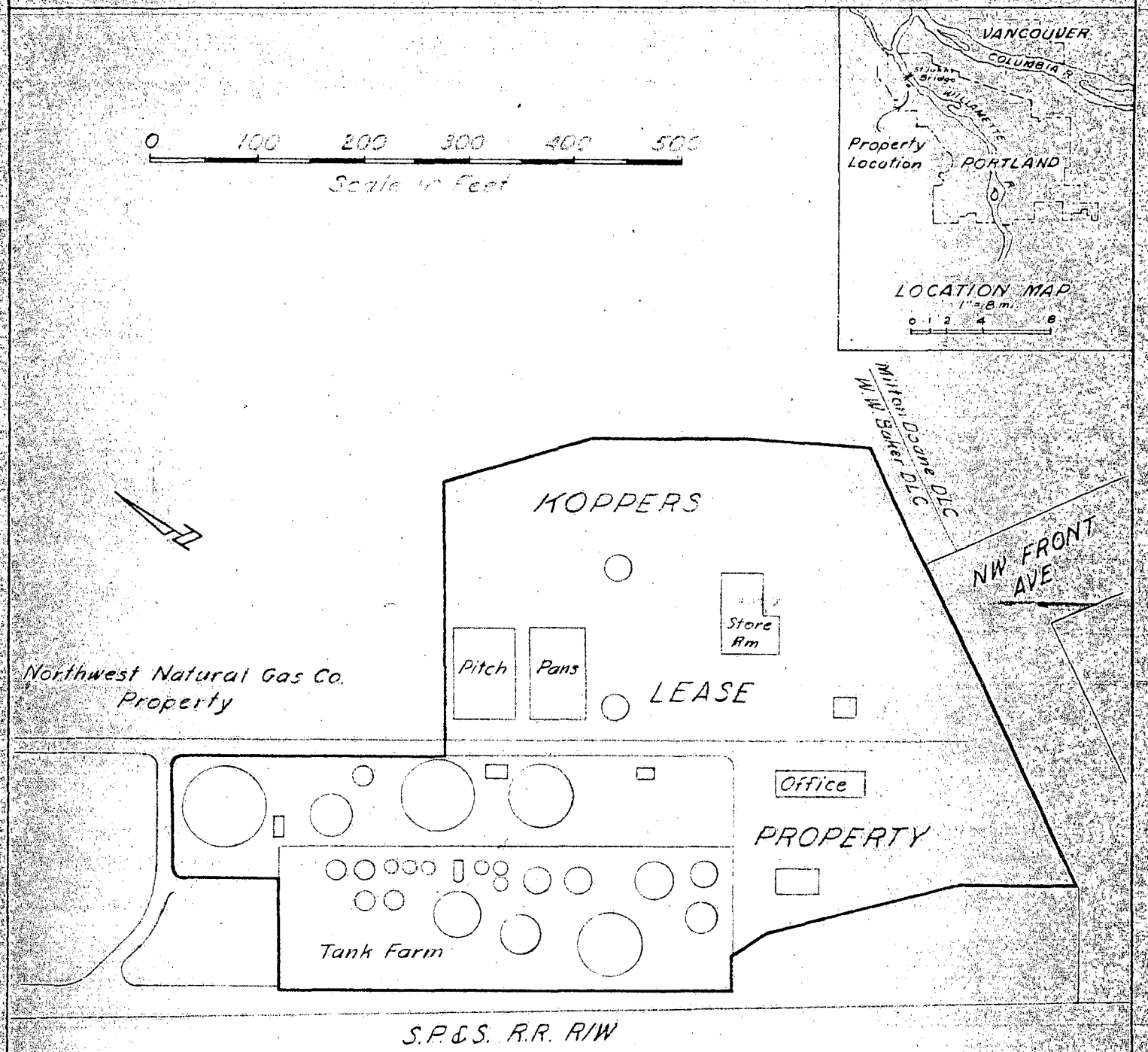
CHARLTON LABORATORIES unit of MEI

J. M. Hogl
Project Director

JMH:lr
cc: 2

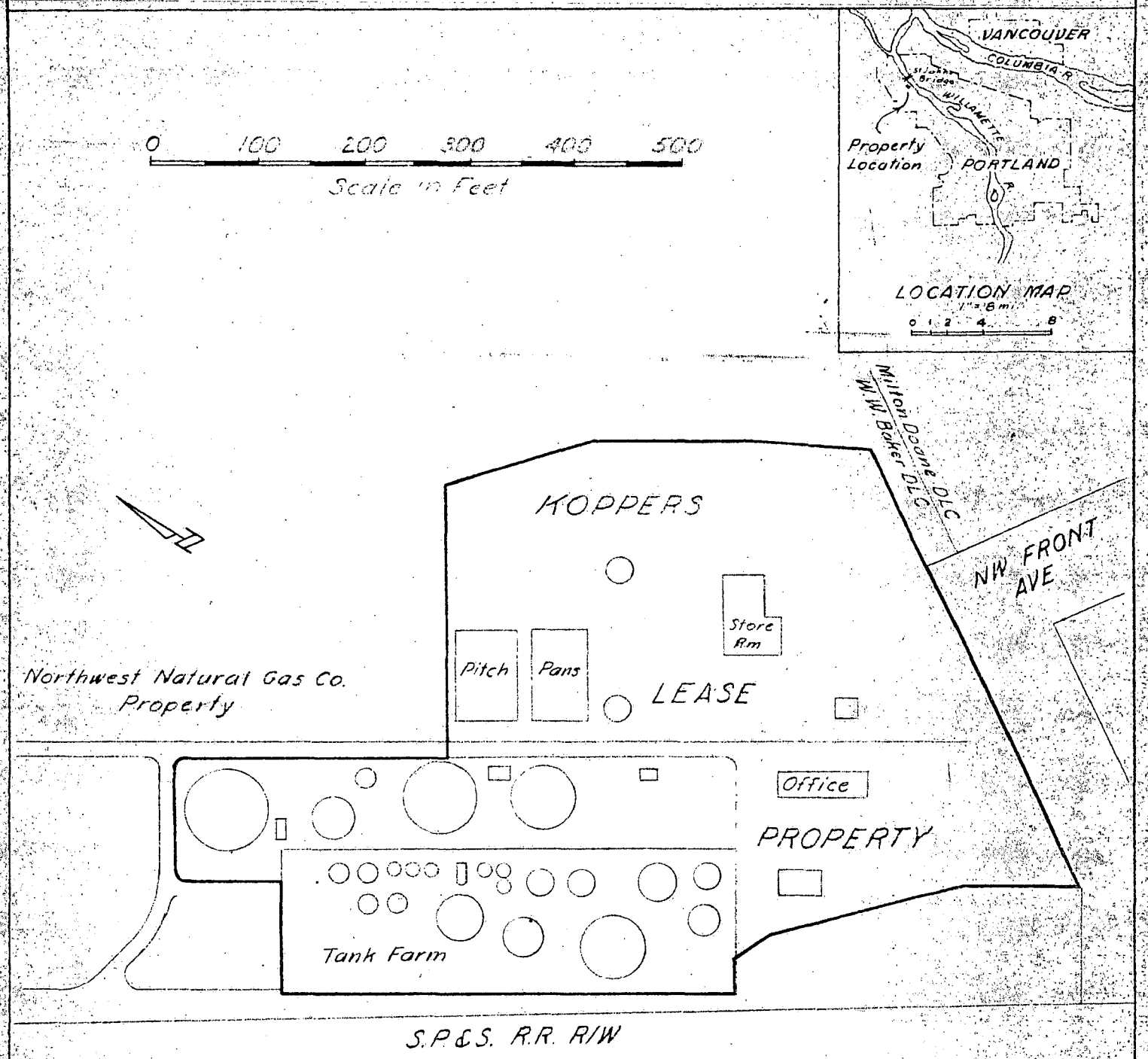
mei
P.O. BOX 1048
PORTLAND, OREGON 97207

AS A MUTUAL PROTECTION TO THE CLIENT, THE PUBLIC AND OURSELVES ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF THE CLIENT. NEITHER REPORTS NOR THE NAME OF THIS LABORATORY NOR ANY MEMBER OF ITS STAFF MAY BE USED IN CONNECTION WITH THE ADVERTISEMENT OR SALE OF ANY PRODUCT WITHOUT WRITTEN AUTHORIZATION.



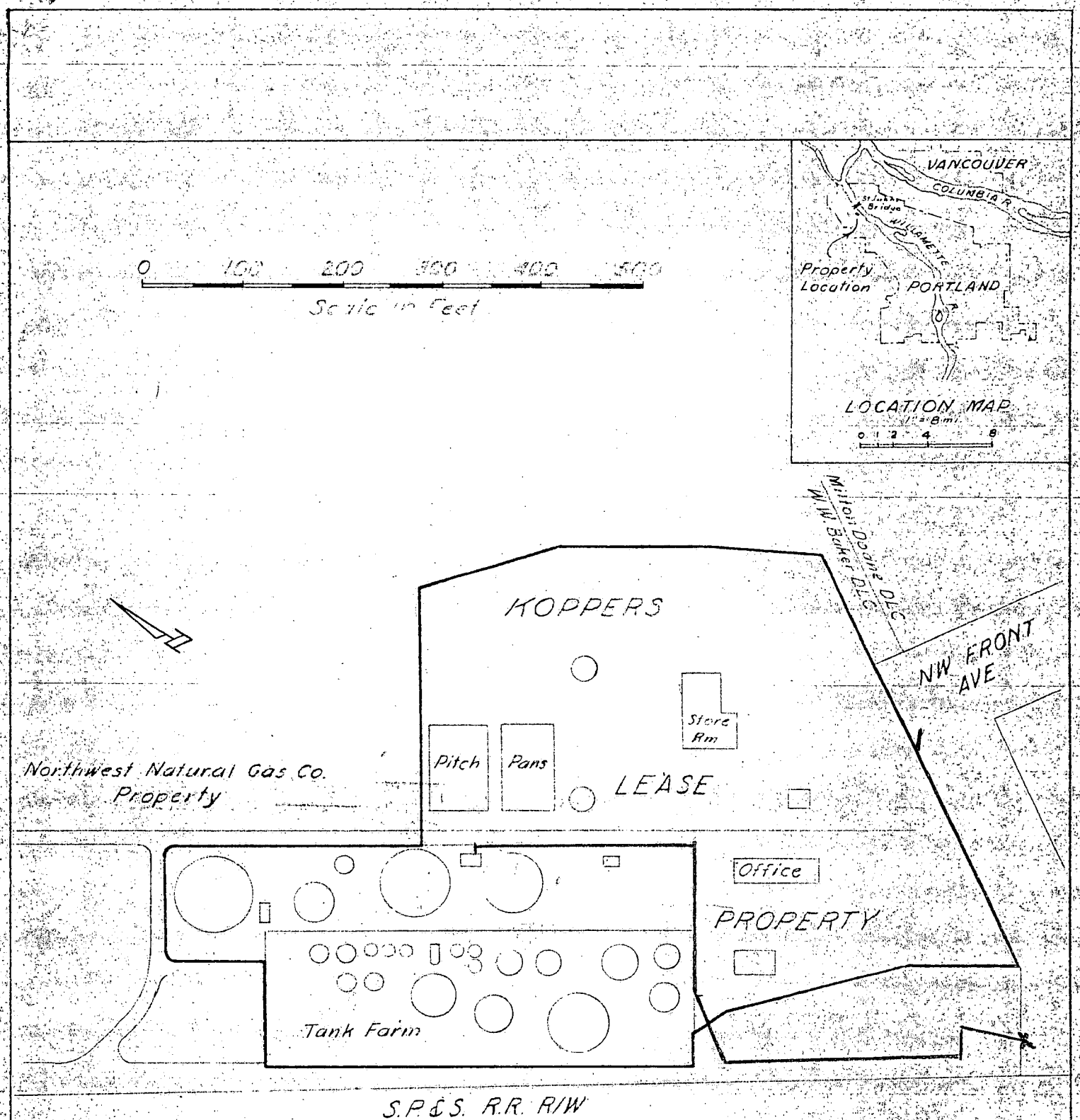
Location of Koppers Lease Property on Northwest Natural Gas Co. property at 7900 NW St Helens Rd., City of Portland, County of Multnomah, State of Oregon.

June 3, 1971



Location of Koppers Lease Property on Northwest Natural Gas Co. property at 7900 NW St Helens Rd, City of Portland, County of Multnomah, State of Oregon.

June 3, 1971



Location of Koppers Lease Property on Northwest Natural Gas Co. property at 7900 NW St Helens Rd., City of Portland, County of Multnomah, State of Oregon.

June 5, 1971

SECTION II. PLANT PROCESS AND DISCHARGE DESCRIPTION

below is
b. Proposed new or changed ☐

2. Implementation schedule ☐

(Office use only)

daries within which the point of discharge is located

State	County	City or Town	6. Discharge Serial No.
3. Oregon	4. Multnomah	5. Portland	001

State the precise location of the point of discharge.

7. Latitude N 45 Degrees; 35 Min; ___ Sec.

8. Longitude W 122 Degrees; 46 Min; ___ Sec.

9. Name of waterway at the point of discharge.

Willamette River
It flows into drainage ditch & reaches the river in approx one mile

10. Has application for water quality certification or description of impact been made? If so, give date:

Date	Check if certificate is attached to form	Name Issuing Agency
mo ___ day ___ yr ___	☐	

11. Narrative description of activity (include terms of general 4-digit Standard Industrial Classification, and specific manufacturing process).

Primarily engaged in manufacturing industrial organic chemicals by the distillation of coal oven tar

12. Standard industrial classification number.	13. Principal product.	14. Amount of principal product produced per day.
	pitches creosote	160,000 lbs 70,000 lbs.

15. Principal raw material.	16. Amount of principal raw material consumed per day.	17. Number of batch discharges per day.
coke oven tar	280,000 lbs.	continous

18. Average gallons per batch discharge.	19. Date discharge began.	20. Date discharge will begin.
	mo 6 day 1 yr 66	mo ~~6~~ day ~~1~~ yr ~~66~~

21. Describe waste abatement practices.

ESEPAR - EMERGE - LOCALS

ENG FORM MAY 71 4345-1

Beazer000117

PHYSICAL DESCRIPTION OF INTAKE WATER AND DISCHARGE

Intake / Discharge

(Office use only)

Discharge Serial No.

Parameter and (Code)	UNTREATED INTAKE WATER (1)	TREATED INTAKE WATER (2)	AVERAGE (DAILY) (3)	MINIMUM (OPERATING YEAR) (4)	MAXIMUM (OPERATING YEAR) (5)	SAMPLE FREQUENCY (6)	CONTINUOUS MONITORING (7)
Flow (Gallons per day) 00056		54000	34,000 gal/day	8 million	10 million	none	ABS
pH 00400		6.9				none	ABS
Temperature (Winter) (°F) 74028		45°F	85°F			none	ABS
Temperature (Summer) (°F) 74027		52°F	110°F			none	ABS

23.

DISCHARGE CONTENTS

PARAMETER	PRESENT	ABSENT	PARAMETER	PRESENT	ABSENT	PARAMETER	PRESENT	ABSENT
Color 00080	✓		Aluminum 01105			Nickel 01067		
Turbidity 00070	✓		Antimony 01097			Selenium 01147		
Radioactivity 74050			Arsenic 01002			Silver 01077		
Hardness 00900			Beryllium 01012			Potassium 00937		
Solids 00500			Barium 01007			Sodium 00929		
Ammonia 00610			Boron 01022			Titanium 01152		
Organic Nitrogen 00605			Cadmium 01027			Tin 01102		
Nitrate 00620			Calcium 00916			Zinc 01092		
Nitrite 00615			Cobalt 01037			Algicides 74051		
Phosphorus 00665			Chromium 01034			Oil and Grease 00550		
Sulfate 00945			Copper 01042			Phenols 32730		
Sulfide 00745			Iron 01045			Surfactants 38260		
Sulfite 00740			Lead 01051			Chlorinated Hydrocarbons 74052		
Bromide 71870			Magnesium 00927			Pesticides 74053		
Chloride 00940			Manganese 01055			Fecal Streptococci Bacteria 74054		
Cyanide 00720			Mercury 71900			Coliform Bacteria 74056		
Fluoride 00951			Molybdenum 01062					

ENG FORM MAY 71 4345-1

24a. Has all known hazardous or potentially hazardous substances in your plant been inventoried?

☑ Yes ☐ No

24b. If yes, have steps been taken to insure that there exists no possibility of any such known hazardous or potentially hazardous substance entering this discharge?

☑ Yes ☐ No

25. Remarks.

The information above completes the basic reporting requirements which are required of all applicants. Those applicants whose discharge results from an activity included within any of the Standard Industrial Classification Code (SIC Code) categories listed below must complete Part A of this form as well.

CRITICAL INDUSTRIAL GROUPS

SIC	098	FISH HATCHERIES, FARMS, AND PRESERVES
SIC	10-14	DIVISION B – MINING
SIC	201	MEAT PRODUCTS
SIC	202	DAIRY PRODUCTS
SIC	203	CANNED PRESERVED FRUITS, VEGETABLES (EXCEPT SEAFOODS, SIC 2031 AND 2036)
SIC	2031, 2036	CANNED AND CURED FISH AND SEAFOODS; FRESH OR FROZEN PACKAGED FISH AND SEAFOODS
SIC	204	GRAIN MILL PRODUCTS
SIC	206	SUGAR
SIC	207	CONFECTIONARY AND RELATED PRODUCTS
SIC	208	BEVERAGES
SIC	209	MISCELLANEOUS FOOD PREPARATIONS AND KINDRED PRODUCTS
SIC	22	TEXTILE MILL PRODUCTS
SIC	23	APPAREL AND OTHER FINISHED PRODUCTS MADE FROM FABRICS AND SIMILAR MATERIALS
SIC	242	SAWMILLS AND PLANING MILLS
SIC	2432	VENEER AND PLYWOOD
SIC	2491	WOOD PRESERVING
SIC	26	PAPER AND ALLIED PRODUCTS
SIC	281	INDUSTRIAL INORGANIC AND ORGANIC CHEMICALS (EXCEPT SIC 2818)
SIC	2818	INDUSTRIAL ORGANIC CHEMICALS
SIC	282	PLASTICS MATERIALS AND SYNTHETIC RESINS, SYNTHETIC RUBBER, SYNTHETIC AND OTHER MAN-MADE FIBERS, EXCEPT GLASS
SIC	283	DRUGS
SIC	284	SOAP, DETERGENTS, AND CLEANING PREPARATIONS, PERFUMES, COSMETICS, AND OTHER TOILET PREPARATIONS
SIC	285	PAINTS, VARNISHES, LACQUERS, ENAMELS, AND ALLIED PRODUCTS
SIC	2871	FERTILIZERS
SIC	2879	AGRICULTURAL PESTICIDES, AND OTHER AGRICULTURAL CHEMICALS, NOT ELSEWHERE CLASSIFIED
SIC	2891	ADHESIVES AND GELATIN
SIC	2892	EXPLOSIVES
SIC	29	PETROLEUM REFINING AND RELATED INDUSTRIES
SIC	3011, 3069	TIRES AND INNER TUBES; FABRICATED RUBBER PRODUCTS, NOT ELSEWHERE CLASSIFIED
SIC	3079	MISCELLANEOUS PLASTICS PRODUCTS
SIC	311	LEATHER TANNING AND FINISHING
SIC	32	STONE, CLAY, GLASS, AND CONCRETE PRODUCTS
SIC	331	BLAST FURNACES, STEEL WORKS, AND ROLLING AND FINISHING MILLS
SIC	332	IRON AND STEEL FOUNDRIES
SIC	333, 334	PRIMARY SMELTING AND REFINING OF NONFERROUS METALS; SECONDARY SMELTING AND REFINING OF NONFERROUS METALS
SIC	336	NONFERROUS FOUNDRIES
SIC	347	COATING, ENGRAVING, AND ALLIED SERVICES
SIC	35	MACHINERY, EXCEPT ELECTRICAL
SIC	36	ELECTRICAL MACHINERY, EQUIPMENT, AND SUPPLIES
SIC	37	TRANSPORTATION EQUIPMENT (EXCEPT SHIP BUILDING AND REPAIRING, SIC 3731)
SIC	3731	SHIP BUILDING AND REPAIRING
SIC	491	ELECTRIC COMPANIES AND SYSTEMS
SIC	493	COMBINATION COMPANIES AND SYSTEMS

PART A

(Note: Submission of Part A is required of all applicants whose processes are listed on page 3 above.)

(Office use only)

Discharge Serial No.

INFORMATION REQUIRED OF SPECIFIED INDUSTRIES

Intake	Discharge										
PARAMETER AND CODE	(DAILY AVG. CONCENTRATION) UNTREATED INTAKE WATER (1)	(DAILY AVG. CONCENTRATION) TREATED INTAKE WATER (2)	MAXIMUM CONCENTRATION PER PROCESS UNIT (3)	MAXIMUM POUNDS PER DAY (4)	MAXIMUM POUNDS PER DAY CONCENTRATION (5)	DAILY AVG. AVERAGE POUNDS PER DAY (6)	SAMPLE TYPE (7)	SAMPLE FREQUENCY (8)	METHOD OF ANALYSIS (9)	CONTINUOUS MONITORING (10)	(11)
ALKALINITY (as Ca CO_3) 00410											
B.O.D. 5-DAY 00310											
CHEMICAL OXYGEN DEMAND (C.O.D.) 00340											
TOTAL SOLIDS 00500											
TOTAL DISSOLVED SOLIDS 70300											
TOTAL SUSPENDED SOLIDS 00530											
TOTAL VOLATILE SOLIDS 00505											
AMMONIA (as N) 00610											
KJELDAHL NITROGEN 00625											
NITRATE (as N) 00620											
PHOSPHORUS TOTAL (as P) 00665											

TABLE A
Guide for Completion of Part A

PARAMETER & UNITS	METHOD	REFERENCES			SIGNIFICANCE IN REPORTING DATA
		STANDARD METHODS 13TH ED. 1971	A.S.T.M. STANDARDS Pt. 23 1970	W.Q.O. METHODS 1971	
ALKALINITY AS $CaCO_3$ Mg/liter	ELECTROMETRIC TITRATION TECHNICON METHYL ORANGE METHOD	p. 370	p. 154	p. 6	X.
B.O.D. 5-DAY Mg/liter	MODIFIED WINKLER METHOD OR PROBE METHOD	p. 489	p. 712	p. 15	X.
CHEMICAL OXYGEN DEMAND (C.O.D.) Mg/liter	DICHROMATE REFLUX METHOD	p. 495	–	p. 17	X.
TOTAL SOLIDS Mg/liter	GRAVIMETRIC, 105°C. METHOD	p. 535	–	p. 280	X.
TOTAL DISSOLVED (FILTERABLE) SOLIDS Mg/liter	GLASS FIBER FILTRATION METHOD, 180°C.	p. 539	–	p. 275	X.
TOTAL SUSPENDED (NON-FILTERABLE) SOLIDS Mg/liter	GLASS FIBER FILTRATION METHOD, 103-105°C.	p. 537	–	p. 278	X.
TOTAL VOLATILE SOLIDS Mg/liter	GRAVIMETRIC METHOD 550°C.	p. 536	–	p. 282	X.
AMMONIA (as N) Mg/liter	DISTILLATION-NESSLERIZATION METHOD OR TECHNICON-DIGESTION & PHENOLATE METHOD	p. 453	–	p. 134	.XX
KJELDAHL NITROGEN Mg/liter	DIGESTION-DISTILLATION METHOD OR TECHNICON-DIGESTION & PHENOLATE METHOD	p. 469	–	p. 149	.XX
NITRATE (as N) Mg/liter	BRUCINE SULFATE METHOD OR TECHNICON-HYDRAZINE REDUCTION METHOD	p. 461	–	p. 170	.XX
TOTAL PHOSPHORUS (as P) Mg/liter	PERSULFATE DIGESTION & SINGLE REAGENT METHOD OR TECHNICON-MANUAL DIGESTION & SINGLE REAGENT OR STANNOUS CHLORIDE	p. 526	–	p. 235	.XX

St Johns Landfill
286-9614
Metropolitan Disposal
Tony - 285-0571

Asbestos disposal 1986-1990

NORTHWEST NATURAL GAS COMPANY

220 N.W. SECOND AVENUE PORTLAND, OREGON 97209

(503) 226-4211

July 19, 1990

Mr. John Oxford
Plant Manager
Koppers Company, Inc.
7540 NW St. Helens Road
Portland, OR 97229

Dear Mr. Oxford:

Pursuant to our conversation of May 25, 1990 concerning the asbestos wrapping on product lines at your plant site, I have examined our records and found no indication that our company ever installed or had installed any such materials at your plant.

If I may be of any further assistance to you, please feel free to call me at 721-2440.

Sincerely,

Ronald K. Opitz, Manager
Risk & Land Management Department

RKO:dg

cc: B. B. Samson
C. U. Kelley
S. K. Hart

CHECK # 65000

METRO

2000 S.W. First Avenue
Portland, OR 97201-5398
503/221-1646

Application to Dispose of Special Wastes

APPROVED

INSTRUCTIONS: Please read important information on other side. Type, or print heavily in ink. The person responsible for accuracy of information must sign. Return all copies of completed application and any supporting information to Metro along with a check for the $25 application fee.

Office use only
Permit no. 838
Expires June 7, 1987

Applicant's Name KOPPERS COMPANY INC.

Address 7540 N.W. ST. HELENS ROAD City PORTLAND Zip Code 97229

Contact Person JOHN A. OXFORD Phone (503) 286-3681

Description of Special Waste (waste composition and physical, chemical, manufacturing process from which waste originated)
UN-USED ASBESTOS PIPE LINE INSULATION

One time disposal? X yes ____ no Disposal frequency (if more than one time) N/A

Quantity; (gallons, drums, lbs., cubic yards) APPROX. 2900 Lbs. Quantity per year N/A

Hazardous ____ yes X no. How did you determine whether hazardous or not? Material Safety Data Sheet ____ test results ____ other NOT HAZARDOUS UNDER RCRA REGULATIONS (enclose results)

Handling and spill cleanup directions WASTE IS DOUBLE BAGGED IN APPROVED IMPRINTED BAGS.

Transporter METROPOLITAN DISPOSAL SERVICE

Previous permit for this waste, if any. Number NONE

NO SEALED EMPTY CONTAINERS WILL BE ACCEPTED. If empty pesticide containers only: (a) Describe material originally in containers N/A

(b) Describe method of cleansing, rinsing and preparation of containers

Certificate of Accuracy of Description: This is to certify that the above describe materials are properly classified, identified, packaged, marked, labeled, cleansed, rinsed and prepared as indicated above.

X – Signature [signature] Date 6-02-86

(also type or print name) JOHN A. OXFORD PLANT MANAGER

DEQ Review: The above described special waste or empty container(s) is approved ____ disapproved ____ for disposal at the St. Johns Landfill.

Signature ____ Date ____

(also type or print name) ____

Special Instructions ____

Metro Action: Disposal of the above described special waste or empty container(s) is approved X disapproved ____ for disposal at the St. Johns Landfill at a disposal rate of $ 18.03 per ton, $ 5.8 per trip minimum charge.

Signature [signature] Date JUNE 7, 1986

(also type or print name) DENNIS O'NEIL

GENERAL INSTRUCTIONS: Appointment required 24 HOURS prior to each disposal. Call 286-9614. Cash on disposal (NO CHECKS) or have prior account established. To establish an account, call Accounting at 221-1646.

SPECIAL INSTRUCTIONS: Double bagged in 7 mil plastic bags (transport to landfill) or metal drums completely sealed and labeled as required. Dispose of as ACS enclosed. Transported not mixed with other waste, in a closed van or covered drop box.

85355

Beazer000124

Instructions for Disposal of Special Waste

I. Special Waste is:

A. Solid Waste which could contain substantial quantities of hazardous waste or waste prohibited in municipal landfills by the Oregon Department of Environmental Quality (DEQ) or by United States Environmental Protection Agency (EPA).

B. Solid Waste which requires extraordinary management.

C. Any unusual component of municipal solid waste.
Examples of Special Waste:
Waste containing asbestos, empty pesticide containers, industrial chemicals, liquids, dusts, sludges (liquid/solid mixtures), clean-up waste from petroleum or chemical spills, waste in drums, tank trucks, or vacuum trucks.

II. Metro will not accept for disposal, any of the following:

A. Waste prohibited from disposal at municipal sanitary landfills by state or federal rules.

B. Waste, which in the judgement of Metro, will cause unreasonable operations problems or unreasonable risk to landfill personnel, the environment, or the public.

C. Waste generated outside of Clackamas, Multnomah or Washington County.

III. Application Information:

A. Applications to dispose of special waste are examined first by Metro and may be sent to DEQ before a permit is issued. This process usually takes one to two weeks after an application is received.

B. Applications to dispose of special waste must be in the name of the generator of the waste. Applications must be signed by a person who can vouch for the accuracy of the information. One exception is waste containing asbestos. For this waste, either a generator or transporter may complete and sign the application.

C. Fill in all required information accurately and legibly by typing or printing with ink. Incomplete applications will not be considered. Submit all copies of the application to Metro.

D. You are encouraged to attach supporting information such as material safety data sheets or laboratory test results. You will be contacted if additional information is required. For large quantities of special waste, Metro requires that an independent laboratory certify that a representative sample has been collected and tested. No test results are ordinarily required for special waste containing asbestos. If you have questions concerning test requirements, call the Solid Waste Department at 221-1646.

E. After you receive a copy of your special waste permit, telephone the St. Johns Landfill gatehouse for an appointment (286-9614). Be prepared to give the following information: disposal date and time, permit number, name and address of waste producer and hauler, waste description and quantity. When arriving at the landfill the vehicle driver must inform the gatehouse attendants by showing them a copy of the special waste permit.

F. Cash is required at the time of disposal unless a prior charge account has been established through the Metro Accounting Department at 221-1646.

G. Remove tops or bungs from all drums (except those with asbestos waste) before dumping the drums from your vehicle.

4-86/85355

KOPPERS

Interoffice Correspondence

To P. W. Guth

Location Northwest Plant

Subject EPA EFFLUENT FORM

From Organic Materials

Location Manufacturing Serv.

Date December 17, 1976

Attached for your file is a copy of the EPA effluent guideline questionnaire. The original has been sent directly to EPA.

Jon M. Anderson

JMA/mak
Attachment
cc: A. W. Lawrence (w/attach.)
R. L.Shannon "

RECEIVED
DEC 28 1976
KOPPERS CO., INC.
TAR & CHEMICAL DIV.
PORTLAND, OREGON

K 43 - REV. 5 100M 5-76

ORGANIC CHEMICALS OR PLASTICS AND SYNTHETICS (Identify Category)

PART I GENERAL INFORMATION

To be returned within 60 days of receipt to:

Robert B. Schaffer, Director
Effluent Guidelines Division
U.S. EPA (WH-552)
Washington, D. C. 20460

1. Name of Corporation
Koppers Company, Inc.

2. Address of Corporation Headquarters

Street: Koppers Building

City: Pittsburgh,

State: Pa. Zip Code 15219

3. Name of Plant
Northwest

4. Address of Plant

Street: 7540 N.W. St. Helens Road

City: Portland

State: Oregon Zip Code 97229

5. Name(s) of corporation personnel to be contacted for information pertaining to this data collection portfolio.

Name	Title	(Area Code) Telephone
Jon M. Anderson	Coordinator-	412 391-3300 - Ext. 2487
	Environmental	
	Control	

6. Plant NPDES Permit Number(s) 2180-J (Non-contact cooling water and surface water runoff only - No process water)

Date of expiration November 30, 1979

If no permit, application number

Date of application

Beazer000127

Corporation Koppers Company, Inc.
Plant Northwest
City Portland, State Oregon

7. Products produced at this plant site.

a. Indicate which of the products in list 1 (Plastics and Synthetics-page 3) or list 2 (Organic Chemicals-page 4) that you produce at this site and the production rate during the period January 1, 1975 to September 30, 1976. If there is more than one process type for a given product, identify and list each separately. The average daily production while operating should match with the waste water data tables in Part II.

Product	Process	Design Capacity lbs/day	Avg. Daily Production While Operating lbs/day	Year Process Installed
Coal Tar Products	Distillation		50,000	1966

Attach additional pages, if necessary.

Beazer000128

LIST 1

PLASTICS & SYNTHETICS

ABS/SAN
Acrylic Resins
Alkyds and Unsaturated Polyester Resins
Cellulose Acetate Fiber/Resin
Cellulose Derivatives
Cellulose Nitrate
Cellophane
Epoxy Resins
Ethylene-Vinyl Acetate Copolymers
Fluorocarbon Polymers
Melamine Resins
Nylon Resins/Fiber
Phenolic Resins
Polyamides
Polyester Resin/Fiber
Polyethylene
Polypropylene Resin/Fiber
Polystyrene
Polyurethane Resins
Polyvinyl Acetate
Polyvinyl Chloride
Rayon
Silicones
Urea Resins

Beazer000129

LIST 2

ORGANIC CHEMICALS

Acetaldehyde
Acetic Acid
Acetone
Acetylene
Acrylates (includes acrylic acid, methacrylic acid, and esters)
Acrylonitrile
Adiponitrile
Aniline
Benzene
Benzoic Acid
Bisphenol A
Caprolactam
Chloromethanes (Methyl Chloride, Dichloromethyl, Chloroform, and Carbon tetrachloride)
Citronellol
Coal Tar
Cumene
Cyclohexane
Dimethyl Terephthalate
Diphynylamine
Ethyl Acetate
Ethyl Benzene
Ethylene
Ethylene Dichloride
Ethylene Glycol
Ethylene Oxide
Formaldehyde
Hexamethylenediamine
Isobutylene
Isopropanol
Maleic Anhdride
Methanol
Meta-Xylene
Methyl Amines (including mono, di, and tri methyl amine)
Methyl Ethyl Ketone
Methyl Salicylate
Ortho-Nitroaniline
Ortho-Xylene
OxoChemicals
Para-Aminophenol
Para-Cresol
Para-Nitroaniline
Para-Xylene
Phenol
Phthalic Anhydride
Plasticizers (esters of phthalic acid)
Propylene
Sec-butyl-alcohol
Styrene
Tannic Acid
Terephthalic Acid
Tetraethyl Lead
Toluene
Vinyl Acetate
Vinyl Chloride

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Corporation Koppers Company, Inc.
Plant Northwest
City Portland, State Oregon

b. Indicate which of the products in list 3 (Organic Chemicals - page 6) that you produce at this site and the production rate during the period January 1, 1975 to September 30, 1976. If there is more than one process type for a given product, identify and list separately. The average daily production while operating should match with the waste water data tables in Part II.

Product	Process	Design Capacity lbs/day	Avg. Daily Production While Operating lbs/day	Year Process Installed
None				

Attach additional pages, if necessary.

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LIST 3

ORGANIC CHEMICALS

Proplyene Oxide
Acetic Anhydride
Ethyl Alcohol, Synthetic
Adipic Acid
Cyclohexanone
Nitrobenzene
Tetrachloroethylene (Perchloroethylene)
Propylene Glycol (1,2-Propanediol)
Diethylene Glycol
Trichloroethylene
N-Butyl Alcohols (N-Propylcarbinol)
Dichlorodifluoromethane
Ethanolamines, Total
Trichlorofluoromethane
4,4-Isopropylidenediphenol (Bisphenol A)
2-Methoxyethanol (Ethylene Glycol Monomethyl Ether)
2-Aminoethanol (Monoethanolamine)
Cresols, Total
Epoxidized Esters, Total
2,2-Iminodiethanol (Diethanolamine)
Triethylene Glycol
Pentaerythritol
Hexamethylenetetramine, Tech.
Ortho-Dichlorobenzene
a-Chlorotoluene (Benzylchloride)
Fumaric Acid
Dipropylene Glycol
Glutamic Acid, Monosodium Salt
Choline Chloride (All Grades)
Para-Nitrophenol and Sodium Salt
Pentachlorophenol (PCP)
Propionic Acid
Xylenesulfonic Acid, Sodium Salt
Aspirin
Acetic Acid Salts, Total
Methyl Bromide
Dodecyl Mercaptans
Salicylic Acid
Benzoic Acid Salts: Sodium Benzoate, tech. and U.S.P.
5-Nitro-Ortho-Toluenesulfonic Acid (SO3H-1)
Benzyl Alcohol
Benzoyl Peroxide
Castor Oil, Ethoxylated
2-Ethylhexanoic Acid (a-Ethylcaproic Acid)
2-Dimethylaminoethanol

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Corporation Koppers Company, Inc.
Plant Northwest
City Portland, State Oregon

c. List below all other products (not appearing on lists 1, 2 or 3) manufactured at this same site that account for at least one percent of the plant's total production. Minor products may be grouped in this listing if the products are similar in nature and made by a similar process. The products should be listed individually with a total production indicated for the group in all instances where grouping is used to report.

Product	Process	Design Capacity lbs/day	Avg. Daily Production While Operating lbs/day
None			

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Corporation Koppers Company, Inc.
Plant Northwest
City Portland, State Oregon

d. List below products not in items 7a, b and c if they account for an inordinate pollution load either in terms of pounds discharged per 1,000 pounds of production (RWL) or difficult treatment problems.

None

8. For each product indicated in response to Questions 7a and 7b of Part I, attach a process flow diagram which identifies the unit operations involved in each product manufacturing process and all sources and quantities of waste waters from the process operations. Show recycle loops for both process water and non-contact cooling water and specify the blowdown control systems. Indicate raw materials used and contact and non-contact water entering each operation. Identify pollution control devices associated with the process that have wastewater streams. Use consistent units throughout; for example, gallons per hour or pounds per hour. Supplement the diagram with a narrative description for clarity or completeness where necessary.

See attachment.

The respondent may use process flow diagrams from EPA Development Documents if representative of the process. The process diagrams should be modified to include all requested information.

On each process flow diagram, clearly state whether the process operational mode is batch, continuous or other. If the answer is "other" the operational mode should be specified. If the process is batch or semi-continuous, describe the length of cycle and frequency.

9. Describe major process modifications made (to each process described in response to Question 8) since January 1, 1972 that significantly affect either the volume of flow, or the amount of waste water pollutants per unit of production originating from that process. Explain the purpose behind each of these modifications. Give your best estimate as to the technological age of each process installation as it now exists.

None

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Corporation Koppers Company, Inc.
Plant Northwest
City Portland, State Oregon

Give an analysis of the effect of making the modification, i.e., describe the load and flow prior to the modification and after the modification. Do you have future modifications for in-plant control of waste water pollutants scheduled, if so, on which processes? Specifically highlight any process changes that would not be made except for pollution control. Include all such changes in the process flow diagram of Item 8 using a separate block wherever feasible.

None

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Corporation Koppers Company, Inc.
Plant Northwest
City Portland, State Oregon

ORGANIC CHEMICALS OR PLASTICS AND SYNTHETICS (Identify Category)

PART II WATER USE, RE-USE, AND DISCHARGE

To be returned within 60 days of receipt to:

Robert Schaffer, Director
Effluent Guidelines Division
U.S. EPA (WH-552)
Washington, D. C. 20460

1. Water Use, Total Plant Needs During the Period January 1, 1975 to September 30, 1976

List below for your plant the sources and quantities of water used and describe the disposition of waste waters. If a time period of less than January 1, 1975 to September 30, 1976 is used, state the reason that the values used are representative of that period.

A. Water Source:

			Time Period of Calculation
Municipal	.01	mgd (average value)	1-1-75 to 9-30-76 throughout
Surface	0	mgd	
Ground	0	mgd	
Other (specify)	0	mgd	

B. Uses:

Non-contact cooling and Boiler House	.005	mgd	
Direct process contact (as diluent, solvent, carrier, reactant, by-product, cooling, etc.)		mgd	
Indirect process contact (pumps, seals, etc.)		mgd	
Non-contact ancillary uses (boilers, utilities, etc.)		mgd	
Maintenance, equipment cleaning and work area washdown		mgd	
Air pollution control		mgd	
Sanitary and potable	.005	mgd	
Other (specify)		mgd	

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Corporation Koppers Company, Inc.
Plant Northwest
City Portland, State Oregon

C. Source of waste water flows:

Non-contact cooling and Boiler House	.005 mgd	
Direct process contact	mgd	
Indirect process contact	mgd	
Non-contact ancillary uses	mgd	
Maintenance, equipment cleaning and work area washdown	mgd	
Air pollution control	mgd	
Sanitary/Potable water	.005 mgd	
Storm water (collected in treatment system)	.005 mgd	
Other (specify)	mgd	

D. Process or Process Contaminated Waste Water Discharged To:
(Do not include cooling water, boiler blowdown, etc.)

Surface water or storm sewer		
Treated	.005 mgd	
Untreated	mgd	
Municipal Sewage Treatment Plant	.005 mgd	
Deep well	mgd	
Other (Specify and describe briefly)	mgd	

2. Quality of Water Discharged:

For the period January 1, 1975 to September 30, 1976, summarize your influent, effluent and raw waste loads in Tables A, B, C, D and E. If data for individual waste streams are not available, information for combined waste streams should be furnished which represents the greatest degree of detail available. The tables are located at the end of this section.

Instructions for Completing Tables A, B, C, D and E:

For Tables A, B, C, D and E, use the following definitions and notes. The period covered should correspond with that used for Part I question 7 to calculate average daily production.

Flow - Do not include rainfall runoff, unless it is collected in the treatment system. If collected, estimate the percent of total flow which is attributed to this source.

Average day - Should represent the average of the data period covered.

Significant parameters - Those potential pollutants not specifically listed, but which are introduced into the waste streams as a result of materials used, product produced, process used and for which you have test data.

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Corporation Koppers Company, Inc.
Plant Northwest
City Portland, State Oregon

Identify all data which results from abnormal operating or other conditions.

If use of a different time period (a portion of the time period January 1, 1975 to September 15, 1976) results in more adequate representation of the pollution loads, you may do so if the time period is not less than six months. You should specify the time period and explain why that period is more representative.

Table A - Complete Table A for the combined influent to each treatment facility.

Table B - Complete Table B for each untreated waste discharge point (to surface waters, deep wells, land application, etc.)

Table C - Complete Table C for the treated effluent from each treatment facility. Not applicable to plants that have not yet installed waste treatment facilities. This section is not restricted by type of treatment.

Table D - Complete Table D for the process wastewaters from each of the product/process lines identified in Part I, items 7a and 7b. Do not include non-contact cooling waters but do include all contact cooling waters. If measured values are not known or not available, supply the best estimate available and specify the basis for the estimate. The production basis should be the same as the average daily production while operating that was given in Part I.

Table E - Complete Table E for the plant intake water.

3. Attach the water analysis data summary sheets showing the daily water analyses that were used to compute Tables A through E, e.g. monthly summary tables. Also include any data for the period January 1, 1975 to September 30, 1976 that was omitted in Tables A through E as not being representative.

4. The method of sample collection for the data supplied in response to Question 2, Tables A, B, C, D and E, should be specified (e.g., daily grab sample, 8 hour flow composited, 24 hour continuous, etc.). Daily grab sample.

5. Indicate all parameters listed in Part II, tables A through E, which were not measured by EPA approved methods.

None

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TABLE A

WASTE LOADS TO TREATMENT FACILITES

Corporation Koppers Company, Inc.

Plant Northwest

City Portland, State Oregon

Treatment Facility Name

Treatment Facility Description

API Separator

Wastewater Source(s) Stormwater Runoff

Time Period Represented

Parameter	Daily Minimum	Daily Long Term Average	Daily Maximum	Calendar Monthly Averages Minimum	Calendar Monthly Averages Maximum	Remarks
Flow (MGD)	0	.001	.010			
pH (pH units)						
Temperature (°C) - Wastewater						
Temperature (°C) - Ambient Air						
BOD_5 (lbs/day)						
COD (lbs/day)						
TOC (lbs/day)						
TSS (lbs/day)						
TDS (lbs/day)						
NH_3 as N (lbs/day)						
TKN as N (lbs/day)						
Phenol (lbs/day)						
Significant Metals (Identify)						
(lbs/day)						
(lbs/day)						
(lbs/day)						
(lbs/day)						
(lbs/day)						
Others (Identify)						
(lbs/day)						
(lbs/day)						
(lbs/day)						
(lbs/day)						

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TABLE B

UNTREATED PROCESS WATER LOAD DISCHARGED

Corporation Koppers Company, Inc.

Plant Northwest

City Portland, State Oregon

Discharge Point

NPDES Discharge No.

Wastewater Source(s)

Time Period Represented

Not Applicable

Parameter	Daily Minimum	Daily Long Term Average	Daily Maximum	Calendar Monthly Averages Minimum	Calendar Monthly Averages Maximum	Remarks
Flow (MGD)						
pH (pH units)						
Temperature (°C) - Wastewater						
Temperature (°C) - Ambient Air						
BOD_5 (lbs/day)						
COD (lbs/day)						
TOC (lbs/day)						
TSS (lbs/day)						
TDS (lbs/day)						
NH_3 as N (lbs/day)						
TKN as N (lbs/day)						
Phenol (lbs/day)						
Significant Metals (Identify)						
_____ (lbs/day)						
_____ (lbs/day)						
_____ (lbs/day)						
_____ (lbs/day)						
_____ (lbs/day)						
Others (Identify)						
_____ (lbs/day)						
_____ (lbs/day)						
_____ (lbs/day)						
_____ (lbs/day)						

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TABLE C

TREATED PROCESS WASTE LOADS DISCHARGED

Corporation Koppers Company, Inc.

Plant Northwest

City Portland, State Oregon

Treatment Facility

Treatment Facility Description

API Separator

Discharge Point Willamette River

NPDES Discharge No. 2180-J

Do you post-chlorinate this effluent? __ Yes x No If yes, do you chlorinate __ (A) Full-Time __ (B) Part-Ttime

Time Period Represented

Parameter	Daily Minimum	Daily Long Term Average	Daily Maximum	Calendar Monthly Averages Minimum	Calendar Monthly Averages Maximum	Remarks
Flow (MGD)	0	.001	.010			
pH (pH units)	6.5	7.0	8.0			
Temperature (°C) - Wastewater °F.	40	60	80			
Temperature (°C) - Ambient Air						
BOD_5 (lbs/day)						
COD (lbs/day)						
TOC (lbs/day)						
TSS (lbs/day)						
TDS (lbs/day)						
NH_3 as N (lbs/day)						
TKN as N (lbs/day)						
Phenol ~~(lbs/day)~~ mg/l	0	0.2	0.6			
Significant Metals (Identify)						
(lbs/day)						
(lbs/day)						
(lbs/day)						
(lbs/day)						
(lbs/day)						
Others (Identify)						
(lbs/day)						
(lbs/day)						
(lbs/day)						
(lbs/day)						

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TABLE D

PRODUCT/PROCESS LINES RAW WASTE LOADS

Corporation Koppers Company, Inc.

Plant Northwest

City Portland, State Oregon

Unknown

Product

Process

Time Period Represented

Parameter	Daily Minimum	Daily Long Term Average	Daily Maximum	Calendar Monthly Averages Minimum	Calendar Monthly Averages Maximum	Remarks
Flow (gal/1,000 lbs)*						
pH (pH units)						
Temperature (°C) - Wastewater						
Temperature (°C) - Ambient Air						
BOD_5 (lbs/1,000 lbs)**						
COD (lbs/1,000 lbs)						
TOC (lbs/1,000 lbs)						
TSS (lbs/1,000 lbs)						
TDS (lbs/1,000 lbs)						
NH_3 as N (lbs/1,000 lbs)						
TKN as N (lbs/1,000 lbs)						
Phenol (lbs/1,000 lbs)						
Significant Metals (Identify)						
_____ (lbs/1,000 lbs)						
_____ (lbs/1,000 lbs)						
_____ (lbs/1,000 lbs)						
_____ (lbs/1,000 lbs)						
_____ (lbs/1,000 lbs)						
Others (Identify)						
_____ (lbs/1,000 lbs)						
_____ (lbs/1,000 lbs)						
_____ (lbs/1,000 lbs)						
_____ (lbs/1,000 lbs)						

*Indicates gallons discharged (per 1000 pounds of production)

**Indicates pounds discharged (per 1000 pounds of production)

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TABLE E

PLANT INTAKE WATER

Corporation Koppers Company, Inc.

Plant Northwest

City Portland, State Oregon Unknown

Product

Process

Time Period Represented

Parameter	Daily Minimum	Daily Long Term Average	Daily Maximum	Calendar Monthly Averages Minimum	Calendar Monthly Averages Maximum	Remarks
Flow (MGD)						
pH (pH units)						
Temperature (°C) - Wastewater						
Temperature (°C) - Ambient Air						
BOD_5 (lbs/day)						
COD (lbs/day)						
TOC (lbs/day)						
TSS (lbs/day)						
TDS (lbs/day)						
NH_3 as N (lbs/day)						
TKN as N (lbs/day)						
Phenol (lbs/day)						
Significant Metals (Identify)						
_____ (lbs/day)						
_____ (lbs/day)						
_____ (lbs/day)						
_____ (lbs/day)						
_____ (lbs/day)						
Others (Identify)						
_____ (lbs/day)						
_____ (lbs/day)						
_____ (lbs/day)						
_____ (lbs/day)						

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Corporation Koppers Company, Inc.
Plant Northwest
City Portland, State Oregon

6. Has the seed used in the BOD_5 test been acclimated to the waste waters that have been tested?

____ Yes ____ No Not Applicable

If yes, what is the source of the seed?

A ____ sewage treatment plant

B ____ plant treatment facility

C ____ laboratory acclimation

D ____ other explain _____

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Corporation Koppers Company, Inc.
Plant Northwest
City Portland, State Oregon

ORGANIC CHEMICALS OR PLASTICS AND SYNTHETICS (Identify Category)

PART III TREATMENT TECHNOLOGY

To be returned within 60 days of receipt to:

Robert B. Schaffer, Director
Effluent Guidelines Division
U.S. EPA (WH-552)
Washington, D. C. 20460

A. Do you have a treatment system(s) at this plant?

Yes x No ____

If yes, complete the following and attach a separate flow sheet for each distinct treatment facility indicating waste streams treated, unit sizes of treatment equipment, detention times, recycle rates, effluent concentration or design criteria and other pertinent engineering information for operation of the treatment facility. Include treatment of storm runoff, where applicable.

Indicate the process lines for which any portion of the waste water flow is diverted to separate treatment, pretreatment or disposal (e.g. deep well, solvent recovery, incineration, etc.). Which portions are so diverted and which portions are combined for joint treatment?

For each treatment facility complete the following:

Name of Facility API Separator

Source(s) of Waste Water Stormwater runoff

		Year	Cost (1976 dollars)
1	a. Original installation (Battery limits of treatment plant only) Unknown	____	____
	b. Other costs (include collection system, piping, pumping, etc.)	____	____
2	Estimated replacement cost	____	____
3	Estimated total capital expenditure for this facility to date	____	____
4	Annual cost of operation and maintenance (exclude depreciation and debt service cost)	____	____

5 List major modifications or additions since original installation and

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Corporation Koppers Company, Inc.
Plant Northwest
City Portland, State Oregon

state the purpose of the modification or addition.

Modification-Addition	Treatment Facility	Year	Cost (1976 Dollars)	Purpose
None				

6 List scheduled modifications or additions and estimated date of completion and state the purpose of the modification or addition.

Modification-Addition	Treatment Facility	Year	Cost (1976 Dollars)	Purpose
None				

7 Is nutrient addition practiced:

____ Yes X No

8 How many employees (equivalent man-years/year) are primarily engaged as operators of the waste water treatment facility? (exclude maintenance)

0

How many employees (equivalent man-years/year) are engaged as support personnel for the waste water treatment facility?

0

9 Is an operator always present?

____ Yes x No

10 Quantity of wastewater treatment facility solid wastes disposed of at present (dry basis)

0 lbs/day

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Corporation Koppers Company, Inc.
Plant Northwest
City Portland, State Oregon

11 Moisture content of waste solids disposed of at present
_____% moisture

12 Present disposition of solids

_____

_____

_____

13 Estimated annual cost of solids handling and disposal (1976 dollars)
_____$/ton dry basis

14 Planned future disposition of solids:

_____

_____

_____

15 What are the total annual energy requirements for the treatment facility?

Electrical _____Kwhr
Other (e.g. Heat) _____Btu

16 For discharges of industrial wastes to municipal treatment plants are there local pretreatment regulations applying to you?
Yes ____ No ____.

If yes, reference those regulations and attach a copy.

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Corporation Koppers Company, Inc.
Plant Northwest
City Portland, State Oregon

B. Carbon Sorption Technology.

	Yes	No
Have you determined carbon sorption isotherms on your waste waters?		x
Have carbon sorption isotherms been determined for waste waters from your plant(s) by a person(s) other than company personnel?		x
Have you or anyone else evaluated carbon columns on waste waters from this plant?		x
Do you have carbon sorption data from your plant(s) on:		
raw wastes		x
biologically treated wastes		x
individual process lines		x
combined process lines		x
pilot plant studies		x
contractor evaluations		x
cost evaluations		x
plant scale evaluations		x
operational units		x

For each question above which was answered affirmatively, give a brief description of the data (source and types of wastes, period of time covered, plant involved, extent of data base and contact personnel suggested) in the space below.

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Corporation Koppers Company, Inc.
Plant Northwest
City Portland, State Oregon

C. Filtration

Have you done filtration studies on your waste waters (sand, multi-media, etc.) beyond what was described in Section A, Part III? ____ Yes __x__ No

If yes, give a brief description of the data (source and types of wastes, period of time covered, process stream involved, extent of data base and contact personnel suggested) in the space below.

D. Biological Treatment

Have biological treatability studies been conducted on your wastewaters beyond what was described in Section A, Part III? ____ Yes __x__ No

If yes, give a brief description of the data and results (source and types of wastes treated, duration of the study, extent of data base, conclusions of study, and contact personnel suggested) in the space below:

E. Have other treatability studies, beyond what was described in Section A, Part III, employing treatment processes such as sedimentation, neutralization, hydrolysis, precipitation, oxidation/reduction, ion exchange, phenol recovery, etc., been run on any of the process wastewater streams from the plant? ____ Yes __x__ No

If yes, list on a separate sheet those product/process streams from which such treatability studies were conducted. Identify the sheet as response to III-E.

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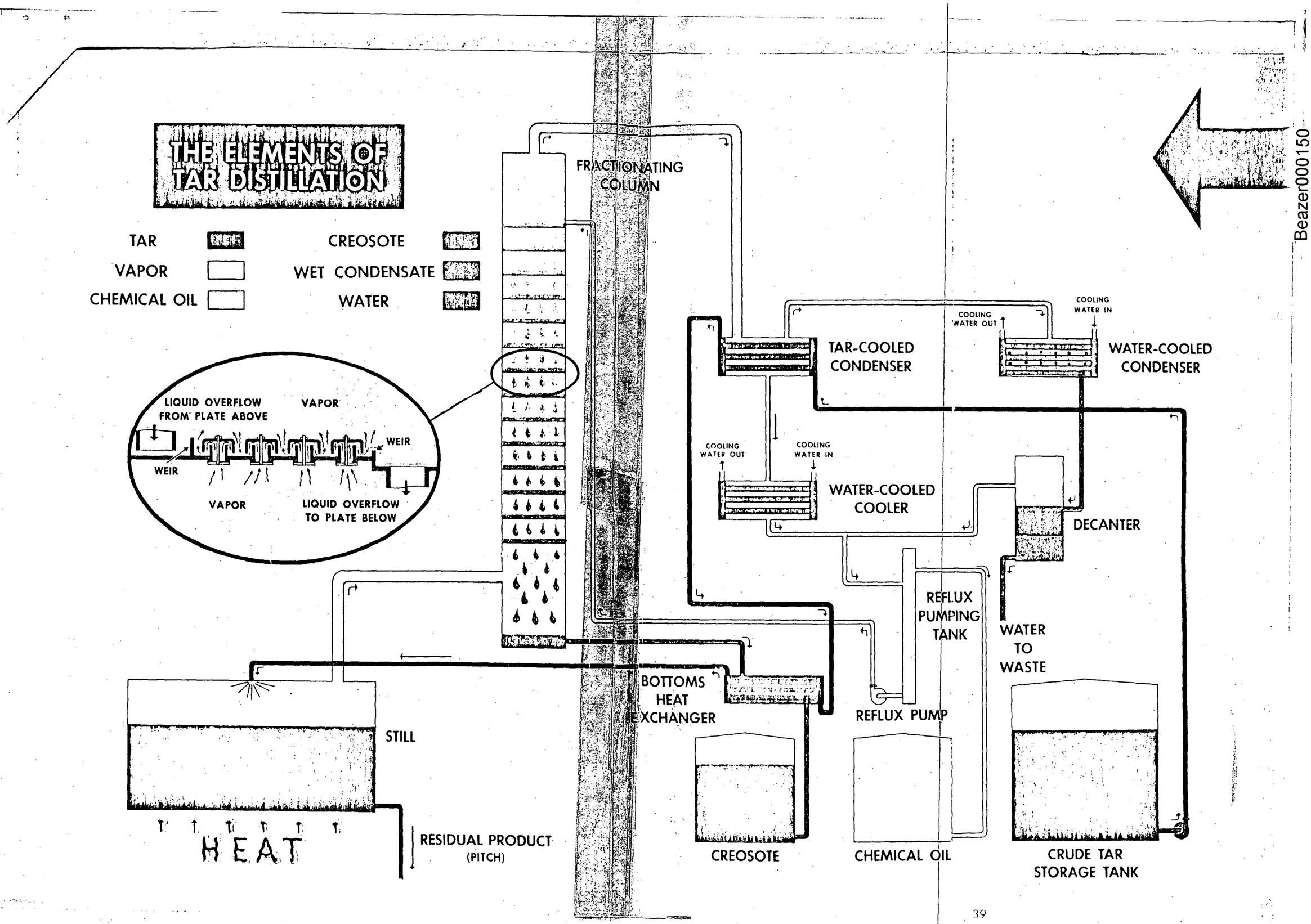


Beazer000150

COLUMBIA-WILLAMETTE AIR POLLUTION AUTHORITY
1010 NE Couch Street, Portland, Oregon 97232

Information Bulletin No. 7 (Revised) 1 October 1970

Emission Standards

A. Rule 7 of this Authority regulates air contaminant release by establishing air contaminant emission standards as follows:

Section 7.1 General

Compliance with a specific emission standard in this Rule does not preclude required compliance with any other applicable emission standard.

Section 7.2 Visible Air Contaminant Standards

(1) Existing Sources*

No person maintaining, owning or operating existing sources shall discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than 3 minutes in any one hour which is:

(a) As dark or darker in shade as that designated as No. 2 on the Ringelmann Chart, or

(b) Equal to or greater than 40% opacity.

(2) New Sources

No person owning, operating or maintaining new sources of emissions shall discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than 3 minutes in any one hour which is:

(a) As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, or

(b) Equal to or greater than 20% opacity.

(3) Exceptions to Section 7.2 (1) and 7.2 (2)

Where the presence of uncombined water is the only reason for failure of an emission to meet the requirements of Section 7.2(1) and 7.2(2), such sections shall not apply.

Section 7.3 Particulate Matter Weight Standards

(1) Process Equipment

The maximum allowable emission of particulate matter for any process equipment shall be a function of process weight and shall be determined from Table 3. Existing sources shall be in compliance with this emission standard not later than 30 December 1971.

* NOTICE: Section 7.2(1) of Rule 7 of this Authority limiting visible emissions from existing sources to Ringelmann No. 2 or 40% opacity has been superceded by Environmental Quality Commission, State of Oregon, regulation limiting such emissions to Ringelmann No. 1 or 20% opacity. This agency is required to enforce Environmental Quality Commission regulations.

(2) Hot Mix Asphalt Plants

The maximum allowable emissions of particulate matter from hot mix asphalt plants shall be determined from Table 3 except that the maximum allowable particulate emissions from processes greater than 60,000 pounds per hour shall be limited to 40 pounds per hour.

(3) Fuel Burning Equipment

The maximum allowable emission of particulate matter from any fuel burning equipment shall be a function of maximum heat input and shall be determined from Figure 2, except from existing fuel burning equipment utilizing wood residue, it shall be 0.2 grain, and from new fuel burning equipment utilizing wood residue, it shall be 0.1 grain, for each standard cubic foot of exhaust gas, adjusted to 50 percent excess air or calculated to 12 percent carbon-dioxide.

(4) Refuse Burning Equipment

The maximum allowable emission of particulate matter from any refuse burning equipment shall be a function of the maximum heat input from the refuse only and shall be determined from Figure 3.

(5) All Air Contaminant Sources

Notwithstanding emission limits of Section 7.3(1), (2), (3) and (4), particulate emission from any existing source shall not exceed 0.2 grain per standard cubic foot (SCF) or 0.1 grain per standard cubic foot for any new source.

Section 7.4 Particulate Matter Size Standard

No person shall cause or permit the emission of any particulate matter which is larger than 250 microns in size provided such particulate matter does or will deposit upon the real property of another person.

Section 7.5 Sulfur Dioxide Emission Standard

No person shall cause or permit emission of sulfur dioxide in excess of 1000 ppm from any air contamination source.

B. Applicable definitions extracted from Section 1.3:

(2) "Air Contaminant" means a dust, fume, gas, mist, odor, smoke, vapor, pollen, soot, carbon, acid or particulate matter or any combination thereof.

(3) "Air Contamination Source" means any source at, from, or by reason of which there is emitted into the atmosphere any air contaminant.

(4) "Air Pollution" means the presence in the outdoor atmosphere of one or more air contaminants or any combination thereof in sufficient quantities and of such characteristics and of a duration as are or are likely to be injurious to the public welfare, to the health of human, plant or animal life or to property, or which unreasonably interfere with enjoyment of life and property throughout the territory or throughout such area of the territory as shall be affected thereby.

(5) "Air Pollution Control Equipment" means any method, process or equipment which removes, reduces or renders less noxious air contaminants discharged into the atmosphere.

(6) "Ambient Air" or "Atmosphere" means the surrounding outside air. (Rev 1 Oct 70)

(7) "Authority" means the Columbia-Willamette Air Pollution Authority.

(10) "Emission" means a release into the outdoor atmosphere of air contaminants.

(11) "Existing Source" means any air contaminant source in existence prior to the date of adoption of these Rules.

(13) "Fuel Burning Equipment" means equipment, other than internal combustion engines and marine installations, the principal purpose of which is to produce heat or power by indirect heat transfer.

(18) "New Source" means any air contaminant source installed, constructed or modified after the date of adoption of these Rules.

(20) "Opacity" means the degree to which an emission reduces transmission of light or obscures the view of an object in the background. (Rev 1 Oct 70)

(23) "Particulate Matter" means any matter, except uncombined water, which exists as a liquid or solid at standard conditions.

(24) "Person" means any individual, public or private corporation, political subdivision, agency, board, department or bureau of the state, municipality, partnership, association, firm, trust, estate, or any other legal entity whatsoever which is recognized by law as the subject of rights and duties.

(25) "p.p.m." (parts per million) means parts of an air contaminant per million parts of air by volume.

(28) "Process Equipment" means any equipment, used in a manufacturing or material handling process, which will or will be likely to emit an air contaminant into the atmosphere.

(29) "Process Weight" means total weight per hour of the materials, including solid fuels but not including liquid and gaseous fuels and combustion air, introduced into any specific process which process may cause any emission into the atmosphere. (Rev 1 Oct 70)

(32) "Refuse Burning Equipment" means a device designed to reduce the volume of solid, liquid or gaseous refuse by combustion.

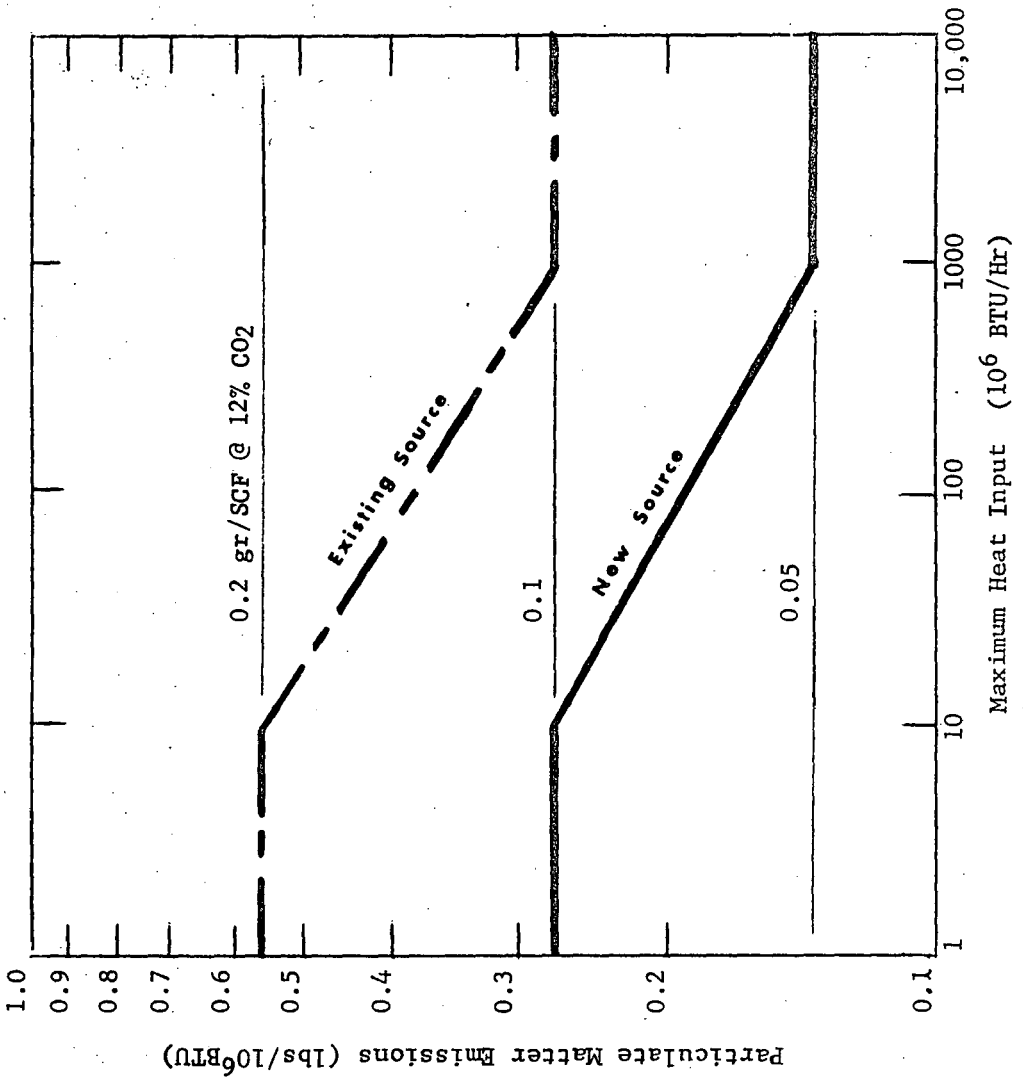
(33) "Refuse" means unwanted matter.

(34) "Ringelmann Chart" means the Ringelmann Smoke Chart as published in May 1967 by the U. S. Bureau of Mines.

(39) "Standard Cubic Foot (SCF) means that amount of a gas which would occupy a cube having dimensions of one foot on each side, if the gas were free of water vapor at standard conditions.

(42) "Uncombined Water" means water which is not chemically bound to a substance.

COLUMBIA-WILLAMETTE AIR POLLUTION AUTHORITY
1010 NE Couch Street, Portland, Oregon 97232



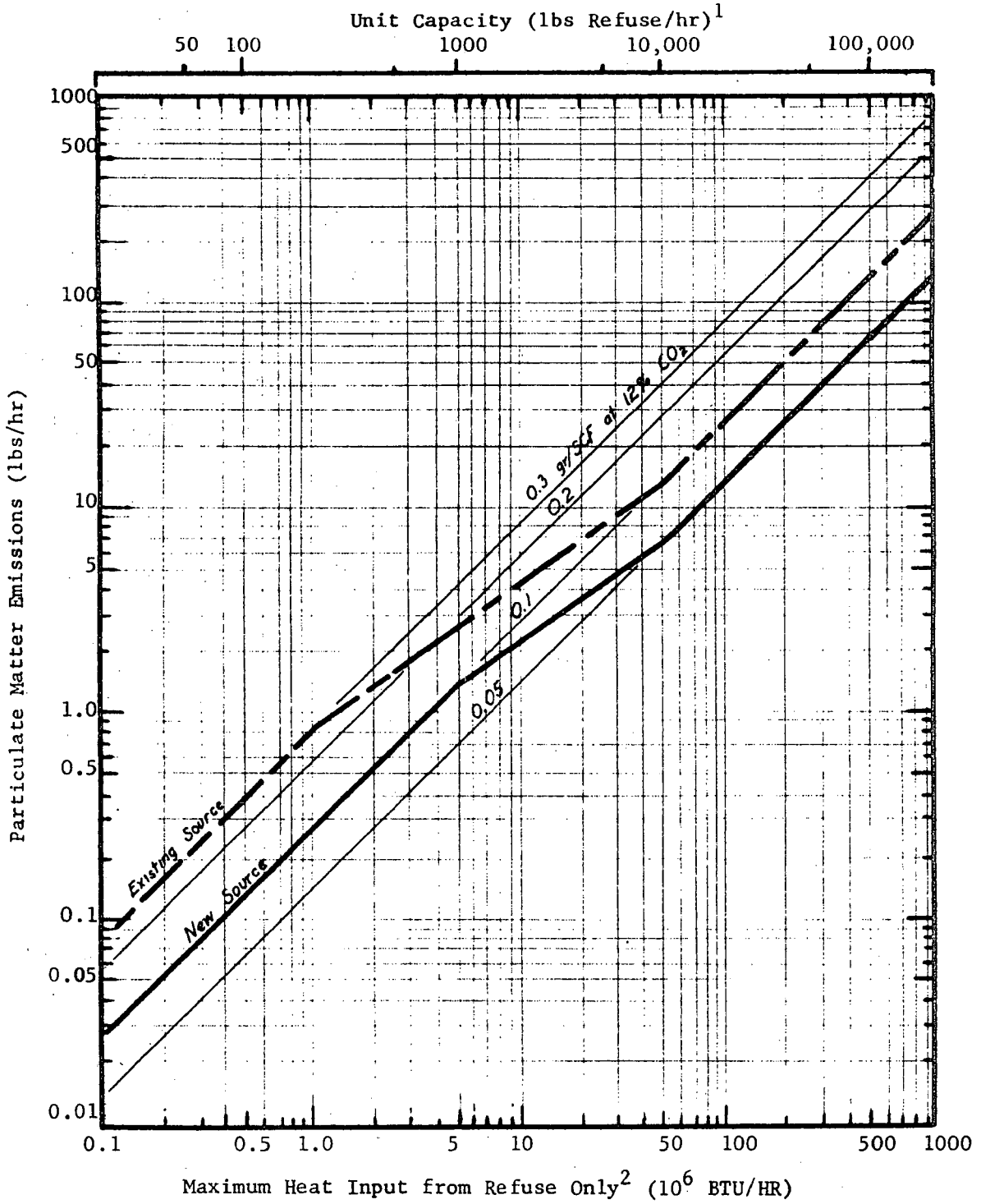
PARTICULATE MATTER EMISSION STANDARDS FOR FUEL BURNING EQUIPMENT

1 Jan 70

Figure 2

COLUMBIA-WILLAMETTE AIR POLLUTION AUTHORITY
1010 NE Couch Street, Portland, Oregon 97232

PARTICULATE MATTER EMISSION STANDARDS FOR REFUSE BURNING EQUIPMENT



[1] For refuse having heat content of 5000 BTU/lb as fired

[2] Excluding any auxiliary heat

Rev. 1 Oct 70

Figure 3

COLUMBIA-WILLAMETTE AIR POLLUTION AUTHORITY
1010 NE Couch Street, Portland, Oregon 97232

TABLE 3

Particulate Matter Emission Standards for Process Equipment

Process Lbs/Hr	Emission Lbs/Hr	Process Lbs/Hr	Emission Lbs/Hr	Process Lbs/Hr	Emission Lbs/Hr
50	0.24	2300	4.44	7500	8.39
100	0.46	2400	4.55	8000	8.71
150	0.66	2500	4.64	8500	9.03
200	0.85	2600	4.74	9000	9.36
250	1.03	2700	4.84	9500	9.67
300	1.20	2800	4.92	10000	10.00
350	1.35	2900	5.02	11000	10.63
400	1.50	3000	5.10	12000	11.28
450	1.63	3100	5.18	13000	11.89
500	1.77	3200	5.27	14000	12.50
550	1.85	3300	5.36	15000	13.13
600	2.01	3400	5.44	16000	13.74
650	2.12	3500	5.52	17000	14.36
700	2.24	3600	5.61	18000	14.97
750	2.34	3700	5.69	19000	15.58
800	2.43	3800	5.77	20000	16.19
850	2.53	3900	5.85	30000	22.22
900	2.62	4000	5.93	40000	28.30
950	2.72	4100	6.01	50000	34.30
1000	2.80	4200	6.08	60000	40.00
1100	2.97	4300	6.15	70000	41.30
1200	3.12	4400	6.22	80000	42.50
1300	3.26	4500	6.30	90000	43.60
1400	3.40	4600	6.37	100000	44.60
1500	3.54	4700	6.45	120000	46.30
1600	3.66	4800	6.52	140000	47.80
1700	3.79	4900	6.60	160000	49.00
1800	3.91	5000	6.67	200000	51.20
1900	4.03	5500	7.03	1000000	69.00
2000	4.14	6000	7.37	2000000	77.60
2100	4.24	6500	7.71	6000000	92.70
2200	4.34	7000	8.05	***	

***Determination of emission standards above a process weight of 6,000,000 pounds per hour shall be made by the equation $E = (55.0 \times P^{0.11}) - 40$, where P = process weight in tons per hour and E = emission rate in pounds per hour.

Beazer000157

COLUMBIA-WILLAMETTE AIR POLLUTION AUTHORITY
1010 NE Couch Street, Portland, Oregon 97232

Information Bulletin No. 8 (Revised) 1 October 1970

Ambient Air Standards

A. Rule 8 of this Authority assists the regulation of air contaminant emission by establishing ambient air standards, as follows:

Section 8.1 General

No person shall cause or permit any emission, which emission by itself or when combined with other emissions that are present in the ambient air, is in excess of the standards enumerated in this section, except that the ambient air standards shall not be enforceable on the property surrounding the emission point if such property is contiguous and is in exclusive possession and control of the person responsible for the emission.

Section 8.2 Particulate Matter

(1) Suspended Particulate. The suspended particulate concentration measured at any Primary Air Mass Station shall not exceed:

(a) Sixty microgram per cubic meter of air (60 ug/m^3) for more than 50% of the samples collected in any calendar year, based on not less than 85 samples with at least 7 samples per month. (Rev 1 Oct 70)

(b) One hundred micrograms per cubic meter of air (100 ug/m^3) for more than 15 percent of the samples collected in any calendar month, based on not less than 7 samples.

(c) Twenty micrograms of calcium oxide per cubic meter of air (20 ug/m^3) at any Primary Air Mass Station, Primary Ground Level Monitoring Station or Special Station.

(2) Particulate Fallout. The Particulate Fallout rate measured at a Primary Air Mass Station or Primary Ground Level Monitoring Station shall not exceed:

(a) Ten grams per square meter per month (28 tons per square mile per month) in an industrial area.

(b) Five grams per square meter per month (14 tons per square mile per month) in an industrial area if visual observation shows the presence of wood waste and/or the volatile fraction of the sample exceeds seventy percent (70%).

(c) Five grams per square meter per month (14 tons per square mile per month) in residential and commercial areas.

(d) Three and one-half grams per square meter per month (10 tons per square mile per month) in residential and commercial areas if visual observation shows the presence of wood waste and/or the volatile fraction of the sample exceeds seventy percent (70%).

(e) Three hundred-fifty milligrams of calcium oxide per square meter per month (1.0 tons per square mile per month) at any Primary Air Mass Station, Primary Ground Level Monitoring Station or Special Station.

Section 8.3 Gases

Sulfur Dioxide. Sulfur dioxide in the ambient air measured at either a Primary Air Mass Station or a Primary Ground Level Monitoring Station shall not exceed the limitations shown in Table 4.

TABLE 4

Ambient Air Standards for Sulfur Dioxide

SO_2 Concentration	Averaging Period	Frequency of Occurrence
0.75 ppm	15 minutes	Once in any 8 consecutive hours
0.50 ppm	1 hour	Once in any 4 consecutive days
0.10 ppm	24 hours	Once in any 30 consecutive days
0.05 ppm	30 days	Any 30 consecutive days

Section 8.4 Odors

(1) No person shall cause or permit the emission of odorous matter in such manner as to contribute to a condition of air pollution, or exceed

(a) A scentometer No. 0 odor strength or equivalent dilution in residential and commercial areas

(b) A scentometer No. 2 odor strength or equivalent dilution in all other land use areas.

Scentometer Readings

Scentometer No.	Concentration Range No. of Thresholds
0	>1 to < 2
1	>2 to < 8
2	>8 to < 32
3	>32 to < 128
4	>128

(2) A violation of Section 8.4 shall have occurred when two measurements made within a period of one hour, separated by at least 15 minutes, off the property surrounding the air contaminant source exceeds the limitations of Subsection (1).

(3) When the source is a manufacturing process no violation of Subsection (1) shall have occurred provided that the highest and best practicable treatment and control currently available shall be provided in order to maintain the lowest possible emission of odorous gases.

B. Applicable definitions, extracted from Section 1.3:

(2) "Air Contaminant" means a dust, fume, gas, mist, odor, smoke, vapor, pollen, soot, carbon, acid or particulate matter or any combination thereof.

(3) "Air Contamination Source" means any source at, from, or by reason of which there is emitted into the atmosphere any air contaminant.

(4) "Air Pollution" means the presence in the outdoor atmosphere of one or more air contaminants or any combination thereof in sufficient quantities and of such characteristics and of a duration as are or are likely to be injurious to the public welfare, to the health of human, plant or animal life and property throughout the territory or throughout such area of the territory as shall be affected thereby.

(6) "Ambient Air" or "Atmosphere" means the surrounding outside air. (Rev 1 Oct 70)

(7) "Authority" means the Columbia-Willamette Air Pollution Authority.

(10) "Emission" means a release into the outdoor atmosphere of air contaminants.

(19) "Odor" means that property of a substance which allows its detection by the sense of smell.

(22) "Particulate Fallout Rate" means the weight of particulate matter which settles out of the air per unit area in a given length of time.

(23) "Particulate Matter" means any matter, except uncombined water, which exists as a liquid or solid at standard conditions.

(24) "Person" means any individual, public or private corporation, political subdivision, agency, board, department or bureau of the state, municipality, partnership, association, firm, trust, estate, or any other legal entity whatsoever which is recognized by law as the subject of rights and duties.

(25) "p.p.m." (parts per million) means parts of an air contaminant per million parts of air by volume.

(26) "Primary Air Mass Station" (PAMS) means a station designed to measure contamination in an air mass, to represent a relatively broad area.

(27) "Primary Ground Level Monitoring Station" (PGLMS) means a station designed to provide information on contaminant concentrations near the ground and provide data valid for the immediate area only.

(37) "Special Station" means any station that does not meet the criteria or purpose of a primary air mass station or a primary ground level monitoring station.

(40) "Suspended Particulate Matter" means particulate matter which normally remains suspended in the atmosphere.

COLUMBIA-WILLAMETTE AIR POLLUTION AUTHORITY
1010 NE Couch Street, Portland, Oregon 97232

Information Bulletin No. 11(Revised) 1 October 1970

Policy Statement and General Provisions of Rules

A. The policy of this Authority to restore and maintain air quality in its territory is consistent with the policy of the State of Oregon and is found in Rule 1, as follows:

Section 1.1 Policy

In the interest of the public health and welfare of the people, it is declared to be the public policy of the Columbia-Willamette Air Pollution Authority to restore and maintain the quality of the air resources of the territory in a condition as free from air pollution as is practicable consistent with the overall public welfare of the territory. The program of this authority for the control of air pollution shall be undertaken in a progressive manner, and each of its objectives shall be sought to be accomplished by cooperation and conciliation among all the parties concerned.

B. Rule 3 of this Authority provides certain general provisions to assist the regulation of air contaminant emission, as follows:

Section 3.1 Inspection or Investigation by the Program Director

The Program Director may enter during operation hours, on to property, into premises or places within the territory for the purpose of investigating either an actual or suspected air contaminant source or to ascertain compliance or noncompliance with these Rules or any issued order.

Section 3.2 Interfering with or Obstructing Authority Personnel

No person shall willfully interfere with or obstruct the actions of Authority personnel in the performance of any lawful duty.

Section 3.3 Confidential Information

Upon written notice to the Authority, any information relating to secret process, devices or methods of manufacturing or production obtained in the course of inspection or investigation shall be kept confidential.

Section 3.4 Display of Order or Other Notice

The Authority may require any order or other notice to be displayed on the premises designated. No person shall mutilate, alter or remove such order or notice unless authorized to do so by the Authority.

Section 3.5 Sealing to Prohibit Use

The Program Director may affix a seal, stating use is prohibited, to any air contaminant source when requested or permitted by the owner or operator.

Section 3.6 Upset Conditions - Report of Breakdown

Emissions in violation of these Rules as a direct result of upset conditions or breakdown of any operating equipment or related air pollution control equipment shall not be deemed to be in violation of these Rules, provided all the following requirements are met:

(1) Such occurrence shall have been reported to the office of the Program Director within one hour of the occurrence. (Rev 1 Oct 70)

(2) The person responsible for such emissions shall, with all practicable speed, initiate and complete appropriate action to correct the conditions causing such emissions to exceed the limits of these Rules and to reduce the frequency of occurrence of such conditions. (Rev 1 Oct 70)

(3) The person responsible does not permit operation of the air contamination source in upset or breakdown conditions beyond 48 hours from the time of the upset or breakdown, provided however, the Program Director may require discontinuance of the operation in a shorter period of time as provided for in Rule 2. (added 1 Oct 70)

(4) The person responsible shall, upon request of the Program Director, submit in writing a full report of such occurrence as to all known causes and the action taken to prevent future similar upset or breakdown conditions. (Rev 1 Oct 70)

Section 3.7 Source Emission Tests

(1) Whenever the Program Director has reason to believe an emission in excess of that allowed by these Rules is occurring or is likely to occur, he may:

(a) Require any person responsible for emission of air contaminants to make or have made tests to determine the emission from any air contamination source.

(b) Specify or approve testing methods to be used and observe the testing.

(c) Require that all tests shall be conducted by qualified personnel.

(d) Require that a copy of the test results be provided in writing and signed by the person responsible for the tests.

(e) Require installation of emission monitoring equipment or make such other provisions so that operators of air contamination sources may know the nature or appearance of emissions.

(2) The Program Director may conduct tests of emissions of any air contamination source, and may request the person responsible for the source to be tested to provide necessary holes in stacks or ducts and such other safe and proper sampling and testing facilities, exclusive of instruments and sensing devices as may be necessary for proper determination of the emission of air contaminants.

(3) The Program Director shall upon request, supply a copy of the test results to the person responsible for the air contamination source.

(4) All sampling methods used will be maintained in a file in the Program Director's office, which are available for review by interested persons during normal working hours.

Section 3.8 Emergency Procedures

The Authority, without necessity of prior administrative procedure or hearing and the entry of an order or at any time during such administrative proceedings, if such proceedings have been commenced, may institute a suit for injunction in its own name to abate or restrain threatened or existing pollution of the air of the territory whenever such pollution or threatened pollution materially contributes to an emergency which requires immediate action to protect the public health, safety or welfare.

Section 3.9 Effective Capture of Air Contaminant Emissions (Added 1 Oct 70)

Air contaminants which are, or may be, emitted to the atmosphere through doors, windows or other openings in a structure shall be captured and transferred to air pollution control equipment using the most efficient and best practicable hooding, shrouding or ducting equipment available.

C. Applicable definitions, extracted from Section 1.3:

(2) "Air Contaminant" means a dust, fume, gas, mist, odor, smoke, vapor, pollen, soot, carbon, acid or particulate matter or any combination thereof.

(3) "Air Contamination Source" means any source at, from, or by reason of which there is emitted into the atmosphere any air contaminant.

(4) "Air Pollution" means the presence in the outdoor atmosphere of one or more air contaminants or any combination thereof in sufficient quantities and of such characteristics and of a duration as are or are likely to be injurious to the public welfare, to the health of human, plant or animal life or to property, or which unreasonable interfere with enjoyment of life and property throughout the territory or throughout such area of the territory as shall be affected thereby.

(7) "Authority" means the Columbia-Willamette Air Pollution Authority.

(10) "Emission" means a release into the outdoor atmosphere of air contaminants.

(24) "Person" means any individual, public or private corporation, political subdivision, agency, board, department or bureau of the state, municipality, partnership, association, firm, trust, estate, or any other legal entity whatsoever which is recognized by law as the subject of rights and duties.

(28) "Process Equipment" means any equipment, used in a manufacturing or material handling process, which will be likely to emit an air contaminant into the atmosphere.

(30) "Program Director" means the Program Director of the Columbia-Willamette Air Pollution Authority, or his deputy acting in his capacity as such deputy or any staff member acting under order of the Program Director.

COLUMBIA-WILLAMETTE AIR POLLUTION AUTHORITY

1010 N. E. COUCH STREET PORTLAND, OREGON 97232 PHONE (503) 233-7176

BOARD OF DIRECTORS

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Program Director

9 March 1971

Koppers Company Inc.
7540 N.W. St. Helens Road
Portland, Oregon 97229

Attention: Mr. Paul Guth

Reference: Violation of Columbia-Willamette Air Pollution Authority Rules

Gentlemen:

This letter is to confirm the Notice of Violation No. 1988 which we issued to Koppers Company Inc., 7540 N.W. St. Helens Road on 4 March 1971. A copy of this notice signed by Mr. Paul Guth is enclosed.

On the above mentioned date between 2:51 p.m. and 3:20 p.m., a representative of this agency observed and recorded a yellow smoke emission from the fan exhaust of the pitch fume scrubber system. This constitutes a violation of Section 7.2(1) of our Rules which prohibits the discharge of any air contaminant into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is equal to or greater than 20% opacity. The emissions we recorded in this instance exceeded 20% opacity for 30 minutes during our thirty minute reading.

Please be aware that this is a condition which we will not tolerate. Any future violations will leave us with no recourse but to take further enforcement action.

If at any time you should anticipate, or there should occur intermittent smoke from sources or from such conditions that are unusual and temporary in nature (gas curtailment, etc.), it is your responsibility to report such an occurrence to this office. In addition, to a bulletin regarding upset conditions left with you on 4 March 1971, we have enclosed further information concerning emission and ambient air standards. We feel this information is pertinent with your operation and will be of assistance to you in evaluating and answering any possible problems or questions.

In closing we are requesting a written reply by 23 March 1971 notifying us what steps will be employed to comply with our Rules, and to avoid any future similar occurrences.

If additional information is needed, please do not hesitate to contact us.

Very truly yours,

Tom Bispham
Air Pollution Specialist

J. Carter Webb

J. Carter Webb
Field Representative

JCW:sm
Enclosures

COLUMBIA-WILLAMETTE AIR POLLUTION AUTHORITY
104 S. W. 5th AVENUE – PORTLAND, OREGON (97204)
TELEPHONE: 228-6141, EXT. 466

NOTICE OF VIOLATION № 1988

1. Name of Facility KOPPERS COMPANY INC.

2. Address 7540 N.W. ST. HELENS ROAD

3. A violation of Rule ~~2~~ 7 of this Authority was observed on:

3 MARCH 1971 at 2 51 am pm

at the above address as follows:

a. ☐ Section ~~2-2-1~~ 7.2 Visible Air Contaminants

Type YELLOW SMOKE

Source SCRUBBER SYSTEM

b. ☐ Article ~~2-3~~ 6.2 Open Burning

Source

Violation of any provision of the rules of this Authority is a misdemeanor and is punishable upon conviction by a fine of not more than $1000 or by imprisonment in the county jail for not more than one year, or by both. Each day of violation constitutes a separate offense.

4. Issued by J. CARTER WEBB

on 4 MARCH 1971 at 11 00 am pm

5. Signature of person receiving notice: Paul Smith

(Signature for receipt is not admission of Rule violation)

6. Confirmation letter mailed _____ by _____

PHD-84

SPEED LETTER®

TO Julius Little
O.M. Div
Pittsburgh, Penna.

FROM Paul Huth
Northwest Plant
Portland Oregon

SUBJECT Air Pollution

MESSAGE

DATE 3-11 19 71

FOLD

I think the enclosed material will be self explanatory. You may want to pass this information on to someone else.

SIGNED Paul Huth

REPLY

DATE 19

FOLD

SIGNED

GrayLine "SNAP-A-WAY" FORM 44-904 4-PARTS
PRODUCT OF WILSON JONES COMPANY © 1961

SNAP-A-WAY AND RETAIN YELLOW COPY. SEND WHITE AND PINK COPIES WITH CARBON INTACT.

Beazer000169

March 11, 1971

Columbia-Willamette Air Pollution
Authority
1010 N.E. Couch Street
Portland, Oregon 97232

Re: Violation of Columbia-Willamette
Air Pollution Authority Rules

Gentlemen:

The problem developed when a line became partially plugged, due to a malfunctioning valve. The valve has been repaired, and the line cleared. The system is now functioning properly.

Very truly yours,

Paul W. Guth

PWG/bw

cc: LHF
JMD 86-119
JMB

NEIL GOLDSCHMIDT
GOVERNOR

Department of Environmental Quality

811 SW SIXTH AVENUE, PORTLAND, OREGON 97204-1390 PHONE (503) 229-5696

JUN 22 1988

June 9, 1988

Mr. James R. Batchelder, Vice President
Technology and Environment
Koppers Company, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219

Re: Portland Storage Facility

Dear Mr. Batchelder:

Your letter to EPA concerning the applicability of federally promulgated effluent guidelines for your Portland terminal has been referred to us for response, since we operate the NPDES permit program in Oregon.

Since your Portland facility is a transfer facility only and does no manufacturing, the federal effluent guidelines promulgated for the Organic Chemicals Manufacturing industry do not apply. The NPDES permit for your Portland terminal is based upon the Best Management Practices we consider appropriate for that site.

If you have any further questions, please contact Mr. Kent Ashbaker, Manager of our Water Quality Division's Industrial Waste Section at (503) 229-5325.

Sincerely,

Fred Hansen

Fred Hansen
Director

FH:CKA:crw
WC3389
cc: Mr. Robie G. Russell
Regional Administrator
EPA, Region 10
EPA - 000

JUN 28 1988

cc: Don Bluedorn
Larry Flaherty
Jordan Dean
John Offord

DEQ-1

J. DEKI
9/22 FAX

NEIL GOLDSCHMIDT
GOVERNOR

Department of Environmental Quality

811 SW SIXTH AVENUE, PORTLAND, OREGON 97204-1390 PHONE (503) 229-5696

September 19, 1988

John Oxford, Manager
KOPPERS COMPANY, INC.
7540 NW St. Helens Road
Portland, OR 97229

RE: WQ - Multnomah County
NPDES Permit No. 100419

Dear Mr. Oxford:

I have enclosed a copy of the water quality compliance report for the inspection conducted on June 29, 1988. Koppers Company, Inc. is considered to be in compliance with all permit conditions.

As you know, we had several problems with the split sample results from the samples collected on June 29, 1988. A second set of samples was collected on July 8, 1988 and analyzed for oil & grease and total phenols (phenolics). Compliance was based on the Department's analysis of the second set of samples as this is considered the most reliable (copies of the results from both dates are enclosed).

It would appear that sampling methodology is the most likely reason for the discrepancies between your contract laboratory and our laboratory. The June 29th samples were separate, consecutive grabs, while the second set was collected in a stainless steel bucket and then split. Although some variation is to be expected with separate grab samples, the actual difference between the two laboratory results was more than would be considered "normal".

I would appreciate it if you would send a copy of <u>all</u> the analysis results (from each sampling effort) that you received from the two laboratories you used. This information will be forwarded to the Department's Quality Assurance Chemist for resolution. This will hopefully confirm whether the discrepancy was due to sampling method or if there are any problems with analytical procedures.

Thanks for your cooperation as we worked together to resolve this issue. If you have any questions, please contact me at 229-5336.

Sincerely,

Laurie J. McCulloch

Laurie J. McCulloch
Senior Environmental Analyst
Northwest Region

enclosures
cc: Water Quality Division, DEQ
B.Gilles, Laboratory Division, DEQ

SEP 21

DEQ-1

DEPARTMENT OF ENVIRONMENTAL QUALITY
SOURCE INSPECTION FORM

☒ WQ ☐ SW ☐ AQ ☐ NC

COUNTY: Multnomah

SOURCE NAME: Koppers

SOURCE ADDRESS: 7540 NW St Helens Rd
Portland, OR 97229

OFFICIAL CONTACTED: John Oxford
286-3681

File # 47430

TABLE A PARA	PREP. TIME	TRANS TIME	INSPECTION TIME	PAPER TIME

PERMIT NUMBER CO.	PERMIT NUMBER SOURCE	POINT	ACTION NO.	ACTION	ACTION TYPE	DATE SCHEDULED MO. DAY YR.	DATE ACHIEVED MO. DAY YR.	RESULT	INSPEC. NO.
	100419			7			06 29 88	X	B27

8|1| In compliance
8|2|
8|3|
8|4|

COMPLIANCE STATUS *(RESULT CODE)*

	IN COMP.	NOT IN COMPLIANCE	ON SCHEDULE
All permit conditions	X		
Permit emission limits	R	A	I
Emission standards	S	B	J
Performance reqts.	T	C	K
Monitoring & Reporting	U	D	L
Open burning limits	V	E	M
Procedural Reqts.	W	F	N
Fugitive emissions	X	G	O
Other	Y	H	P

SOURCES IN VIOLATION & LIMITS VIOLATED

TREATMENT/PROCESS EQUIPMENT – ADDITIONAL REMARKS – OPERATING CONDITIONS

Annual Inspection - Samples collected from storage tanks 3+4 for pH, O+G, phenol, PPDE and PAH. 6/29 results for pH, + PAH attached

* Phenolics #3 = .245 mg/l #4 = .220 mg/l O+G #3 = <.1 mg/l #4 = <.1 mg/l

Facility is a transfer terminal for coal tar/creosote products. NPDES permit for storm-water run off for tank farm. Area bermed with dirt "floor". Runoff is directed to the bermed area. water is channeled to the oil/water separator (sump) via ditches (some are covered cement troughs, others are dug in the earth). Oil/water separator consists of 5 chambers for separation. Water then pumped to storage tanks. 4 45,000 gal tanks used, 2 at a time. When 2 tanks near full, water then diverted to other 2 tanks. Water is tested prior to discharge. When sample results rec'd (and in compliance w/limits) water is batch discharged, usually over a 2 day period during operating hours, depending on volume.

Permit, Schedule B requires daily monitoring of flow, temp. and pH with O+G weekly + phenols monthly. Current procedure of testing prior to discharge appears adequate and appropriate for the source and type of discharge. Examined discharge point – ditch which discharges to Willamette River; No debris or evidence of oil contamination (no flow at time of inspection).

Monitoring and reporting complete and up-to-date (submitted monthly). Discussed inclusion of min + max values as well as averages – source will include data on next report. Contingency plan on file. Schedule D required PAH testing within 1 month of permit issuance (1/8/88). Source collected sample 2/3/88 and results submitted 3/7/88. Review of DMR's for last 12 mo. period - no violations noted.

Overall, plant appears well operated and maintained.

pH + temp performed by source, O+G + Phenols performed by Coffey labs (uses EPA method 420.1 for phenols - equivalent to std Meth 510). Plant decided not to start mfg of CCA at site.

– Discrepancy in split results for samples collected 6/29/88 noted (Source high, DEQ low)

* Follow-up sampling conducted 8/2/88 – these results reported. for Phenolics + O+G. Will refer data to Lab QA Chemist for resolution of problem.

NOTE: Samples had a high buffer capacity and did not respond to acid addition

Laurie McCulloch 9/14/88
SIGNATURE OF INSPECTOR AND DATE

SIGNATURE OF PERSON INTERVIEWED AND DATE

DEQ/RQ—101 (1-88)

DIVISION COPY

Beazer000173

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

WASTE DISCHARGE PERMIT
Department of Environmental Quality
811 S.W. Sixth Avenue, Portland, Oregon 97204
Telephone: (503) 229-5696

Issued pursuant to ORS 468.740 and The Federal Clean Water Act

ISSUED TO:

Koppers Company, Inc.
7540 N.W. St. Helens Rd.
Portland, OR 97229

SOURCES COVERED BY THIS PERMIT:

Type of Waste	Outfall Number	Outfall Location
Tank Farm Runoff and Boiler Blowdown	001	R.M. 6.5

PLANT TYPE AND LOCATION:

Creosote Terminal
7540 N.W. St. Helens Rd.
Portland, Oregon

RECEIVING STREAM INFORMATION:

Major Basin: Willamette
Minor Basin: —
Receiving Stream: Willamette River
County: Multnomah
Applicable Standards: OAR 340-41-445

EPA REFERENCE NO: OR-000077-9

Issued in response to Application No. 200077-9 received July 19, 1984.

This permit is issued based on the land use findings in the permit record.

Fred Hansen
Fred Hansen, Director

JAN 08 1988
Date

PERMITTED ACTIVITIES

Until this permit expires or is modified or revoked, the permittee is authorized to construct, install, modify or operate a waste water collection, treatment, control and disposal system and discharge to public waters adequately treated waste waters only from the authorized discharge point or points established in Schedule A and only in conformance with all the requirements, limitations, and conditions set forth in the attached schedules as follows:

	Page
Schedule A - Waste Discharge Limitations not to be Exceeded..	2
Schedule B - Minimum Monitoring and Reporting Requirements...	3
Schedule C - Compliance Conditions and Schedules.....	-
Schedule D - Special Conditions.....	4
General Conditions.....	Attached

Each other direct and indirect waste discharge to public waters is prohibited.

This permit does not relieve the permittee from responsibility for compliance with any other applicable federal, state, or local law, rule, standard, ordinance, order, judgment, or decree.

SCHEDULE A

1. Waste Discharge Limitations not to be Exceeded After Permit Issuance Date

Outfall Number 001

	Concentrations Monthly Avg. mg/l	Daily Max. mg/l
Oil & Grease	10	15
Phenols	0.5	0.7

Other Parameters	Limitations
pH	Shall be within the range of 6.0-9.0
Temperature	Shall not exceed 110° F

2. Notwithstanding the effluent limitations established by this permit, no wastes shall be discharged and no activities shall be conducted which will violate Water Quality Standards as adopted in OAR 340-41-445 except in the following defined mixing zone:

The allowable mixing zone is defined as that portion of the Willamette River within 200 feet of the point of discharge.

Beazer000174

DEPARTMENT OF ENVIRONMENTAL QUALITY
Request for Analysis

RECEIVED AUG 26 1988 NORTHWEST REGION

Case No. 880543

Location/Site: Koppers

Date Sampled: 6/29/88

Date Received in Lab: 06/29/88

Collected by: W McCulloch

IW Fund Code: 32303

Date Reported: AUG 24 1988

Purpose: Annual NPDES Inspection (not PAH)

Report Data to:

Comments: Split samples — separate grabs collected at same time (consig)
permit specifies Std Meth 510 for phenols + EPA Meth 610 for PAH

Item #	Sampling Point Description (include time)	Sample container according to test(s) requested: Nutrients / Basic	DO / BOD	Metals / Phenol	Organic	PPOE / ~~Misc.~~ / ~~Misc.~~ O&G	Test(s) Required
1	WWTank #3 (1455)	DP924		L63	X872 X638		pH, O&G, ~~PAH~~, PPOE, Std Phenols + Method 510
2	WWTank #4 (1500)	DP513		L112	X585 X784		
3							
4							
5							
6							

Note: water from oil/water separator is split between 2 of 4 storage tanks (tanks 3 & 4 should be similar)

Laboratory Comments:

Contact Sample Tracker for proper sampling containers and preservation procedure. (503) 229-5983

Beazer000175

DEPARTMENT OF ENVIRONMENTAL QUALITY LABORATORIES
ANALYTICAL RECORDS REPORT

FRIDAY AUGUST 19th, 1988

CASE NAME: KOPPERS
SUBMITTER: McCulloch, Laurie J.

CASE: 880543
FUND CODE: 32303

ITEM#	SAMPLE DESCRIPTION	RESULT	UNITS
001	WW TANK #3 @ 14:55		
	pH	7.4	SU
	Phenolics (mg/L)	0.112	mg/L
	Oil and Grease	<0.1	mg/L
	Completion of GC/MS 8270	Attached	
	Completion of GC/MS 8270 Extraction	Complete	
002	WW TANK #4 @ 15:00		
	pH	7.4	SU
	Phenolics (mg/L)	0.138	mg/L
	Completion of GC/MS 8270	Attached	
	Completion of GC/MS 8270 Extraction	Complete	
	Oil and Grease	2.2	mg/L

Department of Environmental Quality
Laboratories and Applied Research
Organic Section

GC/MS TENTATIVE IDENTIFICATION

Date: 11 August 88

Lab #: 88-0543
Sample #: X872
Item #: 1

The sample was extracted with methylene chloride and analyzed by GC/MS. In addition to the specific list of semi-volatile compounds, the sample was scanned for any other semi-volatile compounds above the practical reporting limit of 0.01 Mg/L. Of the 100 compounds detected, the following compounds were tentatively identified with the estimated concentrations shown. Some compounds may have been detected but not reported because of their low concentrations or the uncertainty of proper identification.

Compound	Concentration (Mg/L)
2-Methylpyridine	0.01
3-Methylpyridine	0.01
1,3-Dimethylbenzene	0.01
2,2-Dimethyl-3-decene	0.01
2,3-Dimethylpyridine	0.02
1,2-Dimethylbenzene	0.02
6-Methyl-1-heptanol	0.03
2,4-Dimethylpyridine	0.03
2-Ethyl-6-methylpyridine	0.01
1,2,3-Trimethylbenzene	0.02
1-Phenylethanone	0.01
5-Ethenyl-bicyclo[2.2.1]hept-2-ene	0.01
2-Propylphenol	0.04
Benzo[b]thiophene	0.10
2-Methylbenzofuran	0.13
2,3-Dihydro-1H-indene-1-ol	0.02
2,3-Dihydro-1H-indene-1-one	0.15
4-Methylbenzo[b]thiophene	0.06
2-Methylquinoline	0.03
2,3-Dihydro-1H-indene-1,2-diol	0.03
1,8-naphthalenedimethanol	0.02
Benzo[h]quinoline	0.01

Department of Environmental Quality
Laboratories and Applied Research
Organic Section

GC/MS
Acid-Base/Neutral Extractables
Complies with NPDES method 625
and RCRA SW846 method 8270

Date: 11 August 88

Lab #: 88-0543
Sample: X872
Item #: 1

CONC Mg/L	COMPOUND	CAS #
<0.005	Bis(2-chloroethyl)ether	111444
<0.001	Phenol	108952
<0.005	2-Chlorophenol	95578
<0.002	1,3-Dichlorobenzene	541731
<0.002	1,4-dichlorobenzene	106467
<0.002	1,2-Dichlorobenzene	95501
<0.005	Bis(2-chloroisopropyl)ether	108601
<0.005	2-Methylphenol	95487
<0.005	Hexachloroethane	67721
<0.010	N-Nitroso-di-n-propylamine	621647
<0.005	4-Methylphenol	106445
<0.001	Nitrobenzene	98953
<0.001	Isophorone	78591
<0.005	2-Nitrophenol	88755
0.022	2,4-Dimethylphenol	105679
<0.005	Bis(2-chloroethoxy)methane	111911
<0.005	2,4-Dichlorophenol	120832
<0:001	1,2,4-Trichlorobenzene	120821
<0.001	Naphthalene	91203
<0.005	2,6-Dichlorophenol	87650
<0.001	Hexachlorobutadiene	87683
<0.005	4-Chloro-3-methylphenol	59507
<0.001	1,2,4,5-Tetrachlorobenzene	95943
<0.001	Hexachlorocyclopentadiene	77474
<0.005	2,4,6-Trichlorophenol	88062
<0.005	2,4,5-Trichlorophenol	95954
<0.001	2-Chloronaphthalene	91587
0.004	Acenaphthylene	208968
<0.001	Dimethylphthalate	131113
<0.005	2,6-Dinitrotoluene	606202
0.039	Acenaphthene	83329
<0.010	2,4-Dinitrophenol	51285
0.008	Dibenzofuran	132649
<0.005	2,4-Dinitrotoluene	121142
<0.005	2,3,5,6-Tetrachlorophenol	935955
<0.005	2,3,4,6-Tetrachlorophenol	58902
0.012	Fluorene	86737

CONC Mg/L	COMPOUND	CAS #
<0.001	Diethylphthalate	84662
<0.010	4,6-Dinitro-2-methylphenol	534521
<0.001	N-Nitrosodiphenylamine	86306
<0.001	4-Bromophenyl phenylether	101553
<0.005	alpha-BHC	319846
<0.001	Hexachlorobenzene	118741
<0.005	Pentachlorophenol	87865
<0.005	beta-BHC	319857
<0.005	gamma-BHC (Lindane)	58899
<0.001	Phenanthrene	85018
<0.001	Anthracene	120127
<0.005	delta-BHC	319868
<0.001	Heptachlor	76448
<0.002	di-n-Butylphthalate	84742
<0.003	Aldrin	309002
<0.002	Heptachlor epoxide	1024573
<0.001	Fluoranthene	206440
<0.001	Pyrene	129000
<0.005	Endosulfan I	959988
<0.001	trans-Nonachlor	39765805
<0.002	Dieldrin	60571
<0.005	p,p'-DDE	72551
<0.005	Endrin	72208
<0.005	Endosulfan II	33213659
<0.005	p,p'-DDD	72548
<0.003	Butylbenzylphthalate	85687
<0.005	Endosulfan cyclic sulfate	1031078
<0.005	p,p'-DDT	50293
<0.001	Benzo(a)anthracene	56553
<0.002	Chrysene	218019
<0.002	Bis(2-ethylhexyl)phthalate	117817
<0.002	Di-n-octylphthalate	117840
<0.005	Benzo(b)fluoranthene	205992
<0.003	Benzo(k)fluoranthene	207089
<0.003	Benzo(a)pyrene	50328
<0.005	Benzo(g,h,i)perylene	191242

Department of Environmental Quality
Laboratories and Applied Research
Organic Section

GC/MS TENTATIVE IDENTIFICATION

Date: 11 August 88

Lab #: 88-0543
Sample #: X585
Item #: 2

The sample was extracted with methylene chloride and analyzed by GC/MS. In addition to the specific list of semi-volatile compounds, the sample was scanned for any other semi-volatile compounds above the practical reporting limit of 0.01 Mg/L. Of the 100 compounds detected, the following compounds were tentatively identified with the estimated concentrations shown. Some compounds may have been detected but not reported because of their low concentrations or the uncertainty of proper identification.

Compound	Concentration (Mg/L)
2-Methylpyridine	0.02
3-Methylpyridine	0.02
1,3-Dimethylbenzene	0.06
2,2-Dimethyl-3-decene	0.01
2,3-Dimethylpyridine	0.05
1,2-Dimethylbenzene	0.04
6-Methyl-1-heptanol	0.02
2,4-Dimethylpyridine	0.03
2-Ethyl-6-methylpyridine	0.01
1,2,3-Trimethylbenzene	0.03
1-Ethenyl-3-methylbenzene	0.01
5-Ethenyl-bicyclo[2.2.1]hept-2-ene	0.02
4-Methylbenzaldehyde, oxime	0.01
1-Butynylbenzene	0.01
Benzo[b]thiophene	0.06
2-Methylbenzofuran	0.14
2,3-Dihydro-1H-inden-1-ol	0.19
Methylenebenzeneacetonitrile	0.02
2-Methylquinoline	0.03
2,3-Dihydro-1H-indene-1,2-diol	0.02
1,8-Naphthalenedimethanol	0.02
4,5-Dihydro-3H-naphtho[1,8-bc]thiophen-3-one	0.03
9,10-Anthracenedione	0.01

Department of Environmental Quality
Laboratories and Applied Research
Organic Section

GC/MS
Acid-Base/Neutral Extractables
Complies with NPDES method 625
and RCRA SW846 method 8270

Date: 11 August 88

Lab #: 88-0543
Sample: X585
Item #: 2

CONC Mg/L	COMPOUND	CAS #
<0.005	Bis(2-chloroethyl)ether	111444
<0.001	Phenol	108952
<0.005	2-Chlorophenol	95578
<0.002	1,3-Dichlorobenzene	541731
<0.002	1,4-dichlorobenzene	106467
<0.002	1,2-Dichlorobenzene	95501
<0.005	Bis(2-chloroisopropyl)ether	108601
<0.005	2-Methylphenol	95487
<0.005	Hexachloroethane	67721
<0.010	N-Nitroso-di-n-propylamine	621647
<0.005	4-Methylphenol	106445
<0.001	Nitrobenzene	98953
<0.001	Isophorone	78591
<0.005	2-Nitrophenol	88755
0.019	2,4-Dimethylphenol	105679
<0.005	Bis(2-chloroethoxy)methane	111911
<0.005	2,4-Dichlorophenol	120832
<0.001	1,2,4-Trichlorobenzene	120821
<0.001	Naphthalene	91203
<0.005	2,6-Dichlorophenol	87650
<0.001	Hexachlorobutadiene	87683
<0.005	4-Chloro-3-methylphenol	59507
<0.001	1,2,4,5-Tetrachlorobenzene	95943
<0.001	Hexachlorocyclopentadiene	77474
<0.005	2,4,6-Trichlorophenol	88062
<0.005	2,4,5-Trichlorophenol	95954
<0.001	2-Chloronaphthalene	91587
0.007	Acenaphthylene	208968
<0.001	Dimethylphthalate	131113
0.018	2,6-Dinitrotoluene	606202
0.08	Acenaphthene	83329
<0.010	2,4-Dinitrophenol	51285
0.015	Dibenzofuran	132649
<0.005	2,4-Dinitrotoluene	121142
<0.005	2,3,5,6-Tetrachlorophenol	935955
<0.005	2,3,4,6-Tetrachlorophenol	58902
0.021	Fluorene	86737

CONC Mg/L	COMPOUND	CAS #
<0.001	Diethylphthalate	84662
<0.010	4,6-Dinitro-2-methylphenol	534521
<0.001	N-Nitrosodiphenylamine	86306
<0.001	4-Bromophenyl phenylether	101553
<0.005	alpha-BHC	319846
<0.001	Hexachlorobenzene	118741
<0.005	Pentachlorophenol	87865
<0.005	beta-BHC	319857
<0.005	gamma-BHC (Lindane)	58899
<0.001	Phenanthrene	85018
<0.001	Anthracene	120127
<0.005	delta-BHC	319868
<0.001	Heptachlor	76448
<0.002	di-n-Butylphthalate	84742
<0.003	Aldrin	309002
<0.002	Heptachlor epoxide	1024573
<0.001	Fluoranthene	206440
<0.001	Pyrene	129000
<0.005	Endosulfan I	959988
<0.001	trans-Nonachlor	39765805
<0.002	Dieldrin	60571
<0.005	p,p'-DDE	72551
<0.005	Endrin	72208
<0.005	Endosulfan II	33213659
<0.005	p,p'-DDD	72548
<0.003	Butylbenzylphthalate	85687
<0.005	Endosulfan cyclic sulfate	1031078
<0.005	p,p'-DDT	50293
<0.001	Benzo(a)anthracene	56553
<0.002	Chrysene	218019
<0.002	Bis(2-ethylhexyl)phthalate	117817
<0.002	Di-n-octylphthalate	117840
<0.005	Benzo(b)fluoranthene	205992
<0.003	Benzo(k)fluoranthene	207089
<0.003	Benzo(a)pyrene	50328
<0.005	Benzo(g,h,i)perylene	191242

DEPARTMENT OF ENVIRONMENTAL QUALITY LABORATORIES
ANALYTICAL RECORDS REPORT

TUESDAY AUGUST 23rd, 1988

CASE NAME: KOPPERS
SUBMITTER: McCulloch, Laurie J.

CASE: 880650
FUND CODE: 32303

ITEM#	SAMPLE DESCRIPTION	RESULT	UNITS
001	TANK #3		
@ 14:15	PHENOLICS:1G CuSO4,Me-ORANGE,50 DROPS H3PO4,NO PH CHANGE		
	Oil and Grease	<0.1	mg/L
	Phenolics (mg/L)	0.245	mg/L
002	TANK #4		
@ 14:38	PHENOLICS:1G CuSO4,Me-ORANGE,50 DROPS H3PO4,NO PH CHANGE		
	Phenolics (mg/L)	0.220	mg/L
	Oil and Grease	<0.1	mg/L

Mult. Co.
WQ

DEPARTMENT OF ENVIRONMENTAL QUALITY
Request for Analysis

Case No. 880650

Location/Site: Koppers
Date Sampled: 8/2/88
Date Received in Lab: 8/2/88

Collected by: LJ McCulloch
IW
Fund Code: 32303
Date Reported: AUG 24 1988

Purpose: Verification of previous samples (June '88)
Report Data to:

Comments: Split Samples - collected in SS bucket + tran to bottles - preserved in field *

Item #	Sampling Point Description (include time)	Sample container according to test(s) requested: Nutrients / Basic	DO / BOD	Metals / Organic / Phenolics	Misc. / Misc. / O+G	Test(s) Required
1	Tank #3 (1415)			X799	X488	Phenolics O+G
2	Tank #4 (1438)			X437	X777	↓
3						
4						
5						
6						

Laboratory Comments: *O+G - 50 drops H_2SO_4 - no change in pH (litmus paper)
*Phenolics ~1 g $CuSO_4$, methyl orange 50 drops H_3PO_4 10% - no change in pH 1 g

Contact Sample Tracker for proper sampling containers and preservation procedure. (503) 229-5983

Beazer000182

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

Interoffice Correspondence

To	L. F. Flaherty	From	Jordan M.Dern
Location	K-1750	Location	K-1928
Subject	NWNG Site Investigation	Date	June 1, 1987

The attached drawings indicate the location of soil borings and groundwater monitoring wells. Depending on specific setting, one well and two soil samples may be taken fron the old spray field.

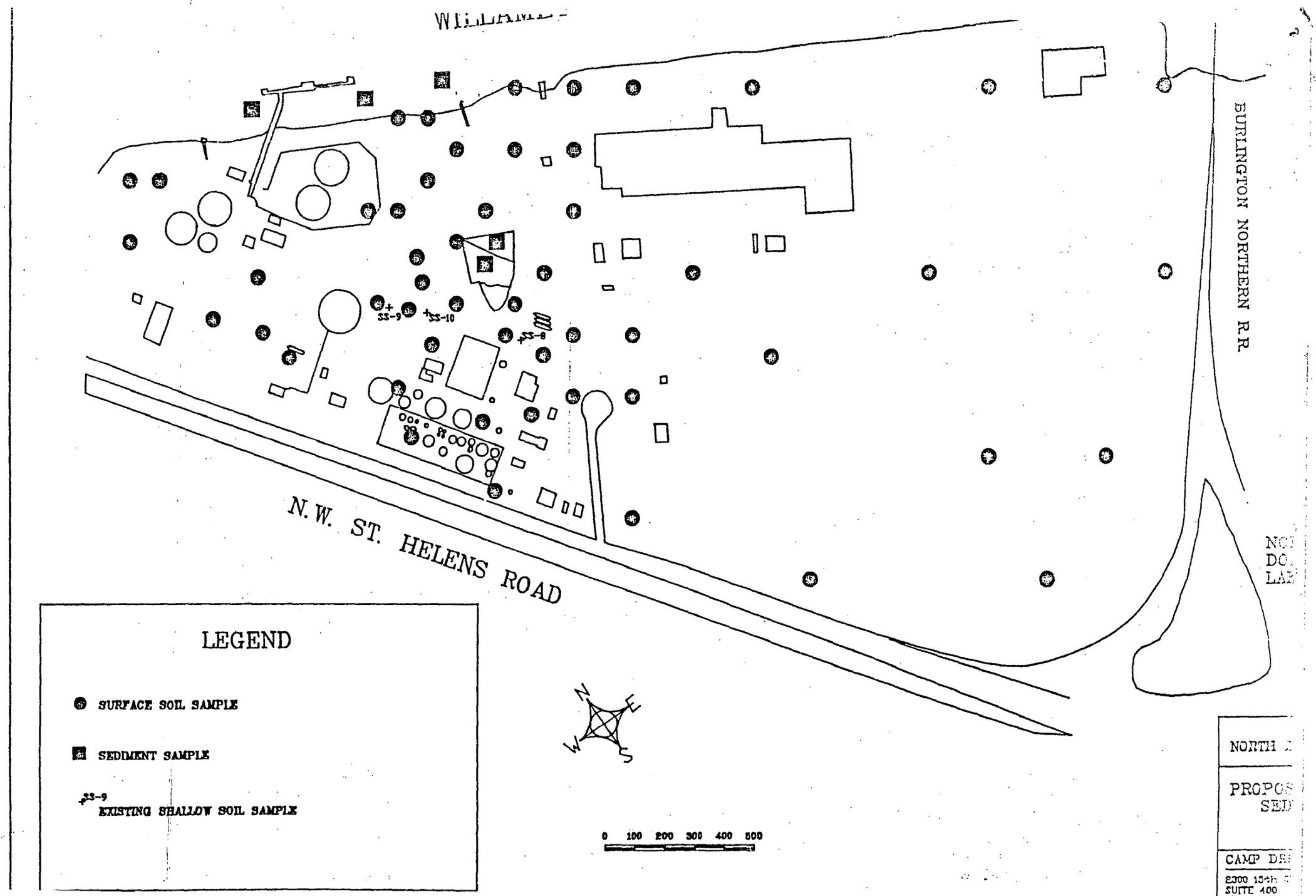
I have spoken with Ed Bolen of NWNG and indicated our overall agreement with the plan.

Jordan M. Dern

Enclosure

cc: J. Oxford Northwest
M. Urbassik
T. Hays - K-1400

JUN 8 1987



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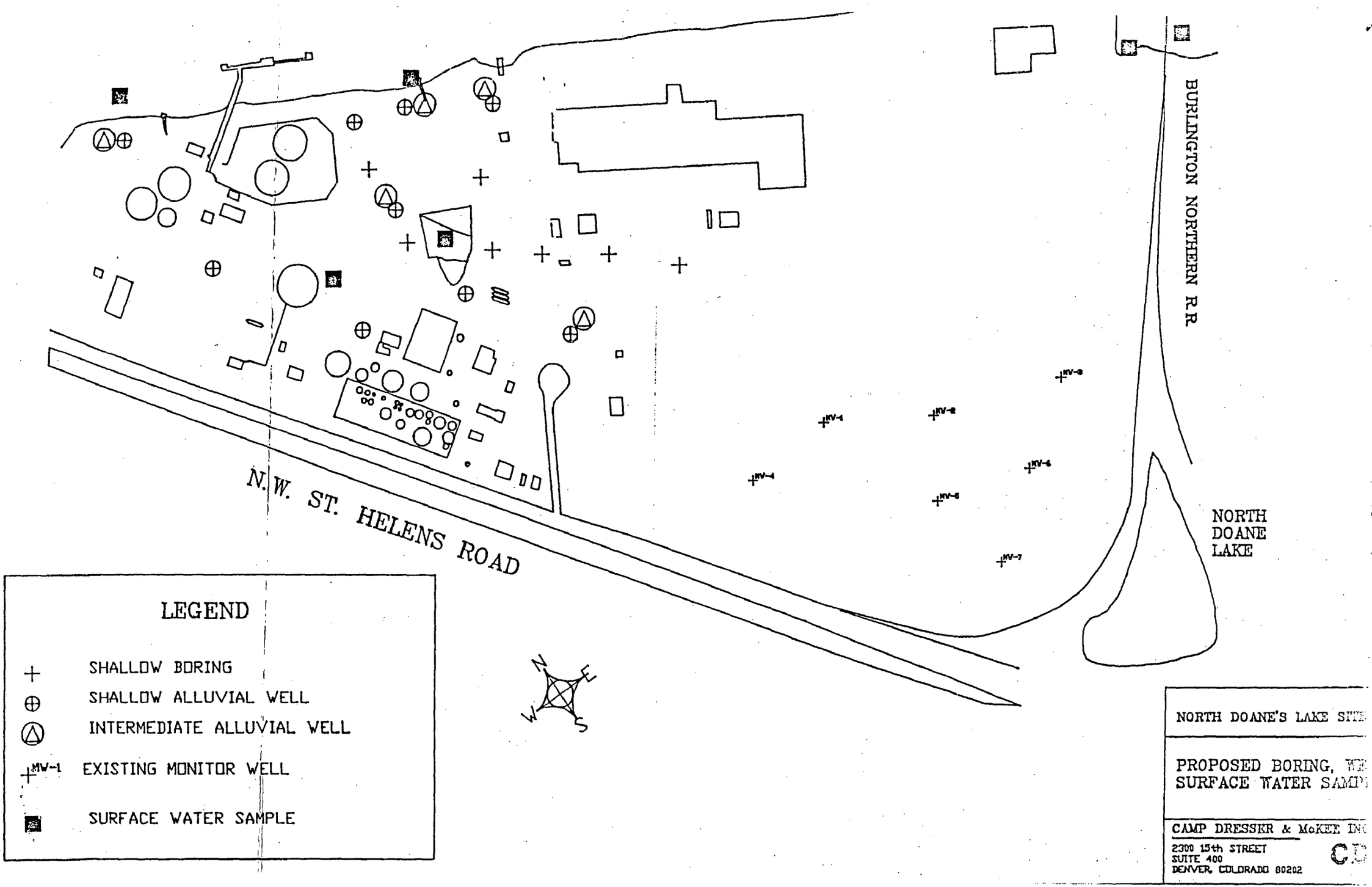

BURLINGTON NORTHERN R.R.
N.W. ST. HELENS ROAD
NORTH DOANE LAKE
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6
MW-7
MW-8
LEGEND
SHALLOW BORING
SHALLOW ALLUVIAL WELL
INTERMEDIATE ALLUVIAL WELL
MW-1 EXISTING MONITOR WELL
SURFACE WATER SAMPLE
N
E
S
W
NORTH DOANE'S LAKE SITE
PROPOSED BORING, WE
SURFACE WATER SAMP
CAMP DRESSER & McKEE INC
2300 15th STREET
SUITE 400
DENVER, COLORADO 80202

A PRELIMINARY REPORT
SOIL INVESTIGATION FOR PROPOSED
POLYSILICON PLANT

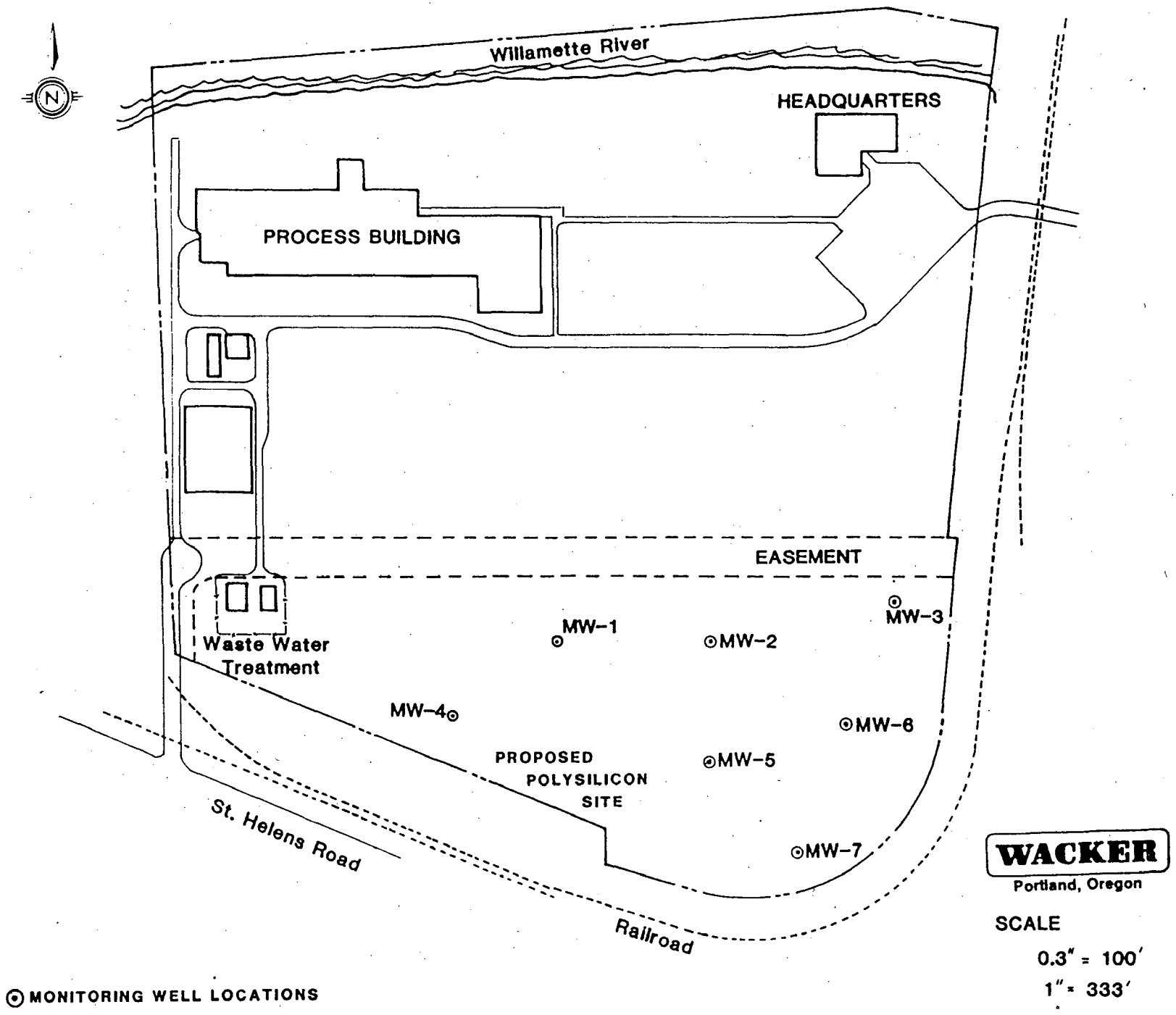
WACKER SILTRONIC CORPORATION
PORTLAND, OREGON

Prepared By

CH2M HILL NORTHWEST, INC.
2020 S.W. Fourth Avenue
Portland, Oregon 97201

JUNE 1985
P19786.A1.00

Figure 2 - MONITORING WELL LOCATIONS ON PROPOSED POLYSILICON SITE



INTRODUCTION

Wacker Siltronic Corporation contracted CH2M HILL to conduct a soil investigation on Wacker's property located in the Northwest Industrial area of Portland, Oregon. The purpose of the investigation was to evaluate subsurface conditions within a section of the vacant portion of the site as part of the preliminary engineering for the design and construction of the proposed polysilicon plant.

The subsurface investigation was initiated based on the presence (both past and current) of industrial manufacturing and processing facilities within the Doane Lake area and recent environmental regulations--the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Resource Conservation and Recovery Act of 1976 (RCRA). Wacker was concerned that past or current management practices of industrial wastes within the Doane Lake area may have resulted in the presence of these materials or subsequent residues on Wacker's property, which would prevent or hinder the construction of the proposed polysilicon plant and future expansions of the existing manufacturing facilities.

This preliminary report describes the soil boring, sampling, and analytical procedures and construction of the groundwater monitoring wells. It also presents the results of the laboratory analyses, which indicate the presence of chemical constituents commonly associated with petroleum products, coal tar, and pesticides. Interpretation of the results presented in this report is beyond the scope of our contract and will be included as part of future work (i.e., site environmental assessment).

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SITE DESCRIPTION

Wacker Siltronic Corporation is located in the northwest section of the City of Portland on the west bank of the Willamette River. The property, consisting of approximately 85 acres, is situated between the St. Johns Bridge and the Burlington Northern Railroad Bridge and is essentially rectangular in shape. Property boundaries are the Willamette River to the northeast; the Burlington Northern Railroad berm, which provides the approach to the railroad bridge, to the southwest; Burlington Northern track and adjacent N.W. St. Helens Road to the southwest; and the property line shared with Northwest Natural Gas and the Koppers Company to the northwest. Figure 1 shows the location of the Wacker property in relation to these landmarks and other industrial companies in the vicinity.

The project site is located in a vacant field about 400 feet south of Wacker's existing facilities, as shown in Figure 2. The site is bounded on the north by the existing Wacker plant, and is bordered on the south and east by Burlington Northern Railroad right-of-way. Underground utilities, consisting of oil, water, gasoline, natural gas, and sewer lines, as well as electric and telephone cables, are located in a 100-foot-wide easement on the north side of the site.

The site is relatively level with elevations ranging from about 40 feet National Geodetic Vertical Datum 1929 (NGVD) in the southern part to about 32 feet in the northern part. The local ground surface is deeply rutted with heavy machinery tracks and ditches. Wood debris, concrete, and other waste materials are present in small amounts across the field.

FIELD INVESTIGATION

The field investigation was performed from April 1 through 5, 8 and 9, 1985. The investigation involved collecting soil

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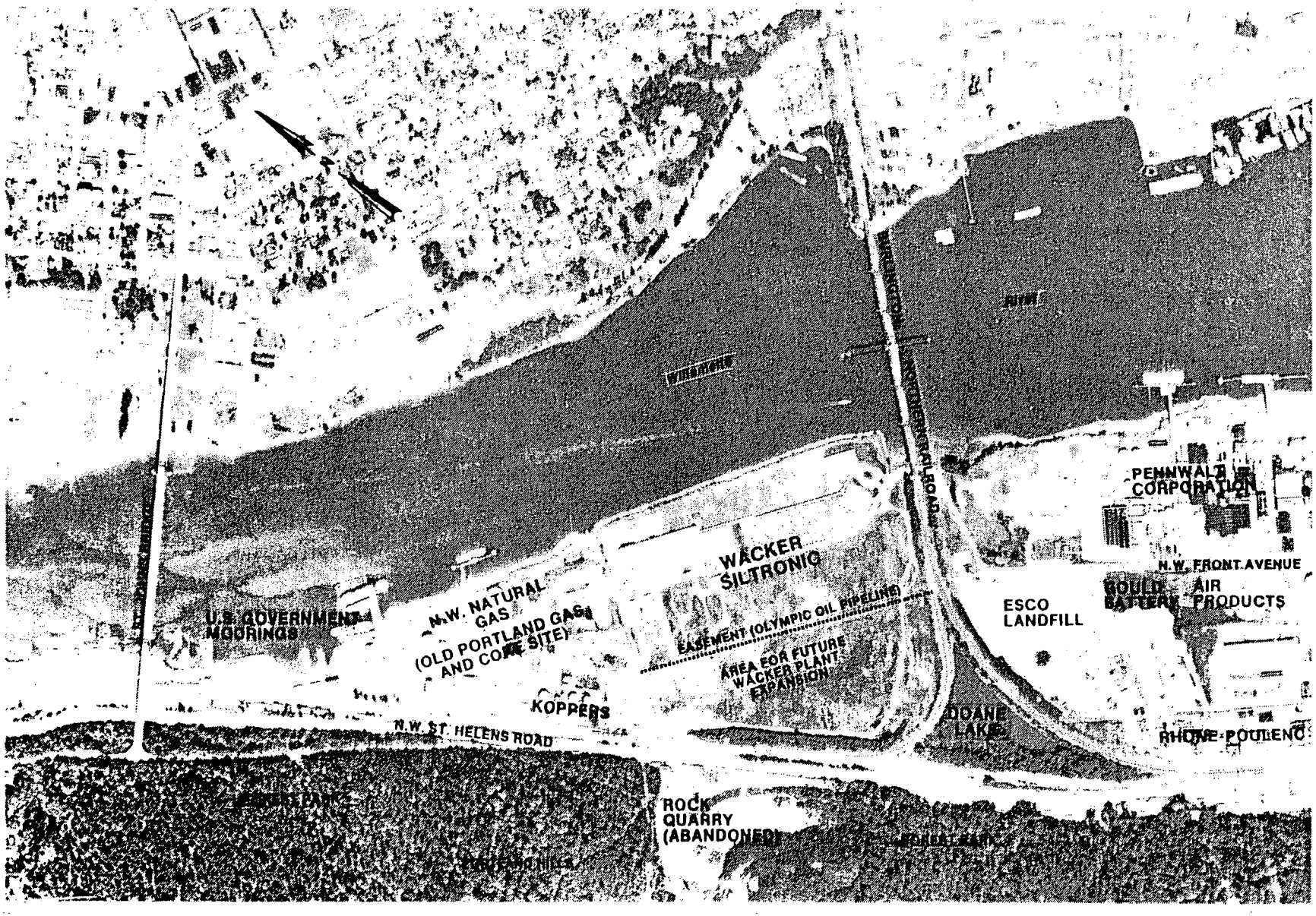

Figure 1 WACKER SILTRONIC PLANT AND SURROUNDING VICINITY (1983)

SCALE: 1" = 940 FEET (1 cm : 110 m)

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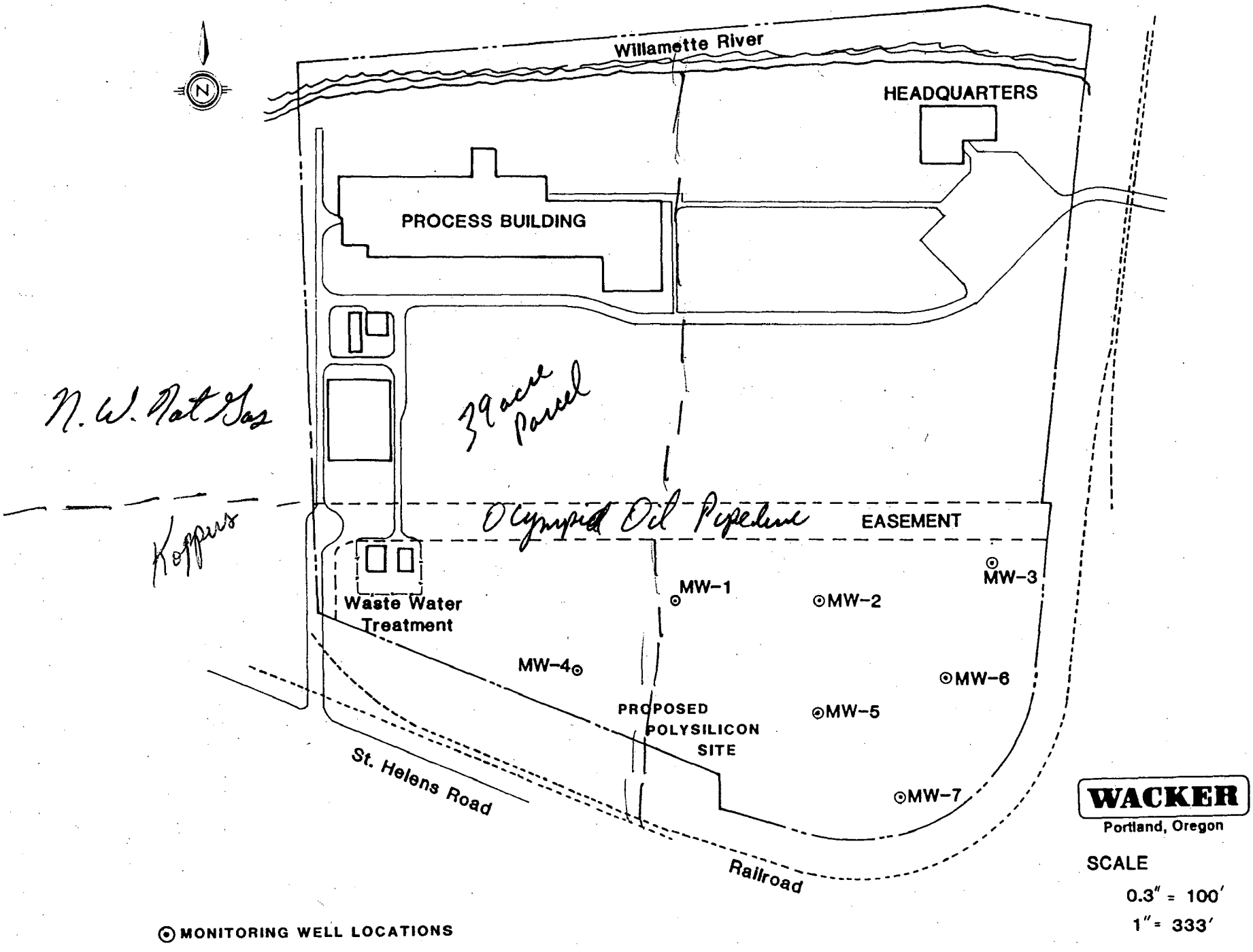
Figure 1 - MONITORING WELL LOCATIONS ON PROPOSED POLYSILICON SITE



samples from seven soil borings, all of which were completed as monitoring wells. The locations of the borings/monitoring wells (designated MW-1 through MW-7) are shown in Figure 3. The soil borings were drilled and monitoring wells constructed by Geotech Explorations, Inc., of Beaverton, Oregon, under the field observation of a CH2M HILL hydrogeologist.

SOIL BORING AND SAMPLING

The seven soil borings were drilled using a CME-55 rotary drill rig and 6¼-inch (OD) hollow-stem augers. Soil samples were recovered at 5-foot intervals. Samples were recovered using a 2-inch split-spoon sampler following the requirements of the standard Penetration Test (ASTM D 1586). The sampler was driven 18 inches ahead of the auger bit to collect an undisturbed soil sample. The depth of soil borings ranged from 31.5 to 41.5 feet, generally between 5 and 20 feet below fill material and into native soils. The CH2M HILL hydrogeologist inspected, classified, and logged each borehole and soil sample in the field in approximate accordance with the Visual-Manual Procedure (ASTM D 2488). The log included a physical description of the soil type and a visual and odor estimate for the presence of contaminants. Sample intervals, soil types, and descriptions of the soil types and soil borings are provided in the soil boring record drawings presented in the appendix.

A composite soil sample from each split-spoon was placed in a clean 8-ounce glass jar. Each jar was filled to the top before it was sealed. The label that had been affixed to the sample container was then filled out. Information on the label included the facility name, the sample identification number, the name of the person collecting the sample, date and time of collection, and the location of the sample. The sample was then placed in a portable cooler until the end of each day when it was transferred via chain-of-custody record

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to a refrigerator located inside the laboratory area of Wacker's wastewater treatment building. Chain-of-custody records were kept for every sample collected. Sample custody was maintained until the samples were relinquished directly to Wacker or an outside laboratory. A sample of the chain-of-custody form used is illustrated in the appendix.

All drilling equipment was thoroughly steam-cleaned before drilling each boring. Oil and grease were not used at drill rod connection fittings to prevent contamination of the soil samples. The split-spoon soil sampler was decontaminated between each use. Decontamination steps included:

- Washing off grass, soil particles, mud smears, etc., in a bucket of tap water
- Washing in a 5 to 10 percent solution of trisodium phosphate (TSP) and tap water
- Two rinses in clean tap water
- One rinse each with distilled water and methanol

The same decontamination procedures were used for the stainless steel utensils used to transfer soil from the sampler to the jars. Utensils were stored in a new plastic bag until they were ready for use.

A number of quality control measures were performed in order to ensure that all data generated was of known precision, and accuracy and conformed to accepted procedures. Soil sample splits were collected at soil boring sites MW-2, -5, and -6. Several transfer blanks were also prepared to check for potential contamination of sample jars. Samples of water poured into the drill holes to hold back heaving sands were also collected.

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GROUNDWATER MONITORING WELL CONSTRUCTION

Seven groundwater monitoring wells were constructed by installing well screen casing assemblies into the completed drill holes.

Each assembly consisted of 2-inch diameter schedule 40 PVC. Well screens consisted of a 15-foot length of PVC with three rows of 0.010-inch machine-slotted openings. A 5-foot solid PVC sump was placed beneath each screen. Solid PVC casing was placed above the screen and extended to the ground surface. Casing lengths were connected by flush-threaded fittings; no solvents were used to connect PVC sections.

Each well screen interval was gravel-packed by pouring a coarse-grained sand into the annular space between the PVC and the hollow stem of the auger. As the auger was pulled up, the sand dropped out of the hollow stem into the well to envelop the well screen. After the sand pack was installed to 2 or 3 feet above the top of the well screen, the annular space between the PVC casing and the hollow stem was filled with 1 to 2 feet of pelletized bentonite followed by cement grout to the ground surface. A summary of the construction of each well is provided in the soil boring record drawings presented in the appendix.

Well heads were completed at approximately 2 feet above the ground surface with locking steel caps that were anchored 2 to 3 feet into the cement grout mixture. The monitoring wells were developed by the drilling contractor by blowing compressed air through an air line into the sump (tail pipe) located below the well screen. Development was considered complete when the return water became visibly less turbid. The PVC monitoring well assembly was thoroughly steam-cleaned before construction of each well. As a measure of additional quality assurance and control, samples of the sand filter

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pack material used for well construction were collected and saved.

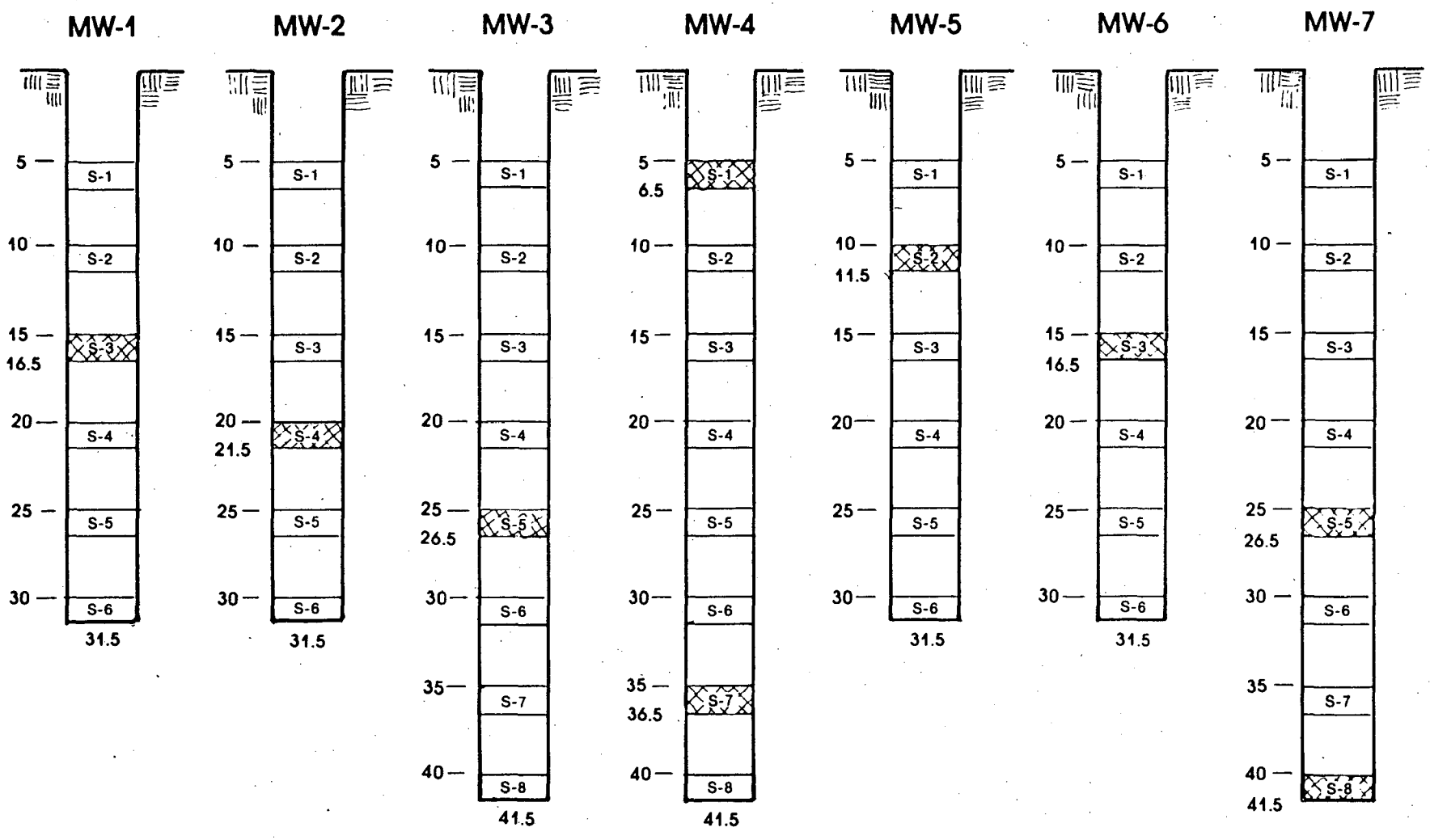
LABORATORY ANALYSIS AND SOIL SAMPLE RESULTS

The field sample description generally provided the basis for selecting samples to be sent to the laboratory for chemical analysis. Samples in which contaminants were most apparent visually and by odor were selected for analysis. Also, at least one soil sample from each soil boring site was analyzed, as was at least one sample at every 5-foot depth (except at 30 feet) from the combination of all soil boring locations. Figure 4 shows the approximate vertical location of the collected soil samples for each monitoring well and identifies which samples were analyzed.

The selection of the chemical analyses to be performed on each soil sample was based on the past and current industrial chemical manufacturing and handling activities within the Doane Lake area (i.e., petroleum products, coal tar, creosote, pesticides, battery recycling, foundry process waste disposal). The following chemical analyses were performed on the selected soil samples by Coffey Laboratories, Inc. (located at 4914 N.E. 122nd Avenue, Portland, Oregon):

- Oil and grease
- Phenols
- Volatiles and polynuclear aromatic hydrocarbons
- E.P. toxicity for:
  - --pesticides
  - --herbicides
  - --arsenic
  - --barium
  - --cadmium
  - --chromium
  - --lead
  - --mercury
  - --selenium
  - --silver

Beazer000195



Analyzed Collected Soil Samples

(NOTE: Parallel lines denote soil samples. These were taken at 1.5 ft intervals starting every five feet)

Figure 4
GENERAL VERTICAL LOCATION COLLECTED SOIL SAMPLES WACKER SILTRONIC CORPORATION PORTLAND, OREGON

CH2M HILL

The results of the laboratory analysis are presented in Table 1. A copy of the Coffey Laboratories, Inc., report is included in the appendix.

The field samples were analyzed for phenols, pesticides, herbicides, metals, volatiles, and aromatic hydrocarbons by EPA methods (SW-846, EPA-602, 4-79-020); the oils and grease were measured by standard methods (method 503 D).

Laboratory quality assurance procedures included method blanks, duplicates for precision measurements, and spikes for accuracy measurements. The frequency of blank, duplicate, and spike measurements was at a minimum of 10 percent per set to meet the standard requirements. The data were evaluated in view of the QC findings and found acceptable.

A review of the laboratory analysis indicates that each soil boring location contained a mixture of substances commonly associated with petroleum products, coal tar, and pesticides. The following list summarizes the principal substances found in each of the seven borings:

- MW-1 PAHs, petroleum products
- MW-2 PAHs, petroleum products
- MW-3 petroleum products
- MW-4 petroleum products
- MW-5 PAHs, petroleum products, 2,4-D
- MW-6 petroleum products, 2,4-D
- MW-7 petroleum products

Interpretation of results presented in Table 1 is beyond the scope of this report and will be included as part of future work (i.e., site environmental assessment).

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Table 1
WACKER SILTRONIC, POLYSILICON PLANT SOILS INVESTIGATION
SOURCE: COFFEY LABORATORIES, INC./APRIL 30, 1985
RESULTS OF SOILS ANALYSIS

Chemical Compounds	MW-1, S-3 (15-16.5 ft)	MW-2, S-4 (20-21.5 ft)	MW-3, S-5 (25-26.5 ft)	MW-4, S-1 (5-6.5 ft)	MW-4, S-7 (35-36.5 ft)	MW-5, S-2 (10-11.5 ft)	MW-6, S-3 (15-16.5 ft)	MW-7, S-5 (25-26.5 ft)	MW-7, S-8 (40-41.5 ft)	Detection Limits	Reference Criteria
Organic Analyses											
o Volatile Compounds											
1,1,1-Trichloroethane	0.01	BD	BD	BD	BD	BD	BD	BD	BD	0.01	pp, PDW (*)
1,2-Dichloroethane	BD	BD	BD	BD	BD	BD	BD	BD	BD	0.01	pp, PDW (*)
1,1,2,2-Tetrachloroethylene	2.2	11	BD	BD	BD	0.14	BD	BD	BD	0.05	
Toluene	1.2	20	0.11	BD	BD	0.20	BD	BD	BD	0.1	pp
Chlorobenzene	0.04	BD	BD	BD	BD	BD	BD	BD	BD	0.04	pp
Ethyl Benzene	17	5.4	BD	BD	BD	BD	BD	BD	0.05	0.04	pp
Xylene	146	116	BD	BD	BD	1.5	BD	2.8	1.2	1.0	
o Acid Extractables											
Phenol	0.35	3.1	0.20	0.30	0.17	0.07	0.05	0.06	0.08	NR	pp, SWQ
2-Chlorophenol	ND	7.8	0.08	0.26	ND	ND	0.13	ND	0.14	NR	pp, SWQ
2-Nitrophenol	ND	0.20	ND	ND	ND	ND	ND	ND	ND	NR	pp, SWQ
2,4-Dimethylphenol	ND	3.1	ND	ND	ND	0.22	0.17	ND	ND	NR	pp, SWQ
2,4-Dichlorophenol	ND	2.7	ND	ND	ND	0.24	ND	ND	ND	NR	pp, SWQ
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	0.22	ND	ND	ND	NR	pp, SWQ
2,4-Dinitrophenol	ND	ND	ND	ND	ND	0.81	ND	ND	ND	NR	pp, SWQ
Pentachlorophenol	ND	ND	ND	ND	0.31	6.9	5.1	ND	ND	NR	pp,SWQ,SHW
o Base Neutral Extractables											
Naphthalene	6.7	360	BD	BD	BD	230	BD	BD	BD	1	pp
Acenaphthalene	5.6	230	BD	BD	BD	24	BD	BD	BD	1	pp
Acenaphthene	8.0	560	BD	BD	BD	28	BD	BD	BD	1	pp
Fluorene	5.0	290	BD	BD	BD	20	BD	BD	BD	1	pp
Phenanthrine-Anthracene (***)	32	1,400	3	BD	BD	150	BD	1.6	BD	1	pp
Fluoranthene	16	530	BD	BD	BD	50	BD	1.1	BD	1	pp
Pyrene	18	550	BD	BD	BD	57	BD	1.2	BD	1	pp
Chrysene	12	92	BD	BD	BD	36	BD	1.7	BD	1	pp
Benzo (b) + Benzo (k) Fluoranthene (***)	8	120	BD	BD	BD	200	BD	BD	BD	1	pp
Benzo (a) pyrene	19	120	BD	BD	BD	100	BD	BD	BD	1	pp
Indeno (1,2,3-CD) Pyrene + Dibenzo (a,b) Anthracene (***)	BD	270	BD	BD	BD	7	BD	BD	BD	1	
Benzo (ghi) Perylene	BD	360	BD	BD	BD	25	BD	BD	BD	1	pp
o Pesticides (EP Toxicity)											
Gamma BHC (Lindane)	BD	BD	BD	BD	BD	BD	BD	BD	BD	0.04	pp, SHW, PDW
Endrin	BD	BD	BD	BD	BD	BD	BD	BD	BD	0.002	pp
Toxaphene	BD	BD	BD	BD	BD	BD	BD	BD	BD	0.05	pp

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Table 1 (Continued)

Chemical Compounds	MW-1, S-3 (15-16.5 ft)	MW-2, S-4 (20-21.5 ft)	MW-3, S-5 (25-26.5 ft)	MW-4, S-1 (5-6.5 ft)	MW-4, S-7 (35-36.5 ft)	MW-5, S-2 (10-11.5 ft)	MW-6, S-3 (15-16.5 ft)	MW-7, S-5 (25-26.5 ft)	MW-7, S-8 (40-41.5 ft)	Detection Limits	Reference Criteria
Inorganic Analyses (EP Toxicity)											
Arsenic	BD	BD	BD	BD	BD	BD	BD	BD	BD	0.05	pp,SHW,SWQ,PDW
barium	0.05	0.11	0.05	0.09	BD	0.05	0.11	0.08	0.15	0.05	SHW, SWQ
Cadmium	BD	BD	BD	BD	BD	BD	BD	BD	BD	0.05	pp,SHW,SWQ,PDW
Chromium	BD	BD	BD	BD	BD	BD	BD	BD	BD	0.05	pp,SHW,SWQ,PDW
Lead	BD	BD	BD	BD	BD	BD	BD	BD	BD	0.05	pp,SHW,SWQ,PDW
Mercury	BD	BD	BD	BD	BD	BD	BD	BD	BD	0.05	pp,SHW,PDW
Selenium	BD	BD	BD	BD	BD	BD	BD	BD	BD	0.05	pp,SHW,PDW
Silver	BD	BD	BD	BD	BD	BD	BD	BD	BD	0.05	pp,SHW,PDW
Miscellaneous Analysis											
o non-PP Phenols/Cresols											
3 & 4-Chlorophenol	0.44	17.5	0.06	ND	ND	1.7	0.32	ND	ND	NR	SHW, SWQ
2,4,5-Trichlorophenol	ND	1.9	ND	ND	ND	ND	ND	ND	ND	NR	SHW, SWQ
2,3,4,5-Tetrachlorophenol	4.9	256	ND	0.40	ND	0.23	4.7	0.06	0.25	NR	SHW, SWQ
2,3,4,6-Tetrachlorophenol	0.24	ND	ND	ND	ND	ND	ND	1.0	ND	NR	SHW, SWQ
2,3,5,6-Tetrachlorophenol	ND	4.0	ND	0.58	0.11	0.33	0.55	ND	0.46	NR	SHW, SWQ
o-Cresol	0.04	3.4	ND	0.02	ND	0.19	0.05	ND	ND	NR	
m- and p-Cresol (***)	0.006	ND	ND	0.08	ND	ND	ND	ND	ND	NR	
o Non-PP Pesticides (EP Toxicity)											
Methoxychlor	BD	BD	BD	BD	BD	BD	BD	BD	BD	0.1	SHW, PDW
2,4-D	BD	BD	BD	BD	BD	10.0	160.0	BD	BD	10	SHW, PDW
2,4,5-TP (Silvex)	BD	BD	BD	BD	BD	BD	BD	BD	BD	1	SHW, PDW
o Misc. Constituents/Parameters											
Oil and Grease	0.340%	0.1498%	0.0587%	0.914%	0.0304%	0.190%	0.0539%	0.0650%	0.0586%		

Unless otherwise specified, all units are mg/kg (mg/L).

pp Priority Pollutant
PDW National Interim Primary Drinking Water Regulations
PDW(*) Proposed N.I.P.D.W.R.
SHW State of Oregon Hazardous Waste Administrative Rules
SWQ State of Oregon Water Quality Administrative Rules
BD Parameter detected, but below analytical quantification limits.
ND Analyzed, but not detected.
NR Not reported.
(***) Reported as sum of two compounds.

PDR956.G31.2

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TABLE 1

Groundwater Analyses
Wacker Siltronic Corp.
Proposed Polysilicon Site
(Concentrations expressed in parts per million)

Inorganics	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7
Antimony	<.005	<.005	<.005	<.005	<.005	<.005	<.005
Arsenic	.005	<.005	.005	<.005	<.005	.010	<.005
Beryllium	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Cadmium	.003	.002	.001	.003	.002	.002	<.001
Chromium	.010	.008	.005	.009	.006	.006	.004
Copper	.002	.007	.001	.002	.002	.001	.004
Lead	.052	.040	.025	.049	.028	.030	.020
Mercury	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Nickel	.010	.007	.005	.011	.006	.006	.008
Selenium	<.005	<.005	<.005	<.005	<.005	<.005	<.005
Silver	<.001	<.001	<.001	<.001	<.001	<.001	.001
Thallium	<.005	<.005	<.005	<.005	<.005	<.005	<.005
Zinc	.026	.016	.017	.050	.011	.011	.047
Total Cyanide	.180	.058	.130	.930	.130	.040	.033
Total Phenol	.072	.013	.006	<.005	<.005	.030	<.005

Beazer000200

TABLE 1

Groundwater Analyses
Wacker Siltronic Corp.
Proposed Polysilicon Site
(Concentrations expressed in parts per million)

Volatile Organics (by GC/MS)	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7
Chloromethane	<.010	<.001	<.001	<.001	<.001	<.001	<.001
Bromomethane	<.010	<.001	<.001	<.001	<.001	<.001	<.001
Vinyl Chloride	<.010	<.001	<.001	<.001	<.001	<.001	<.001
Chloroethane	<.010	<.001	<.001	<.001	<.001	<.001	<.001
Methylene Chloride	.088	T	T	T	.021	T	T
Acrolein	<.100	<.001	<.010	<.010	<.010	<.010	<.010
Acetone	.120	<.001	<.001	.021	.049	<.001	<.001
Acrylonitrile	<.100	<.001	<.010	<.010	<.010	<.010	<.010
Carbon Disulfide	<.010	<.001	<.001	<.001	<.001	<.001	<.001
1,1-Dichloroethylene	<.010	<.001	<.001	<.001	<.001	<.001	<.001
1,1-Dichloroethane	<.010	<.001	<.001	<.001	<.001	<.001	<.001
trans-1,2-Dichloroethylene	<.010	<.001	<.001	<.001	<.001	<.001	<.001
Chloroform	<.010	<.001	<.001	<.001	<.001	<.001	<.001
2-Butanone	<.010	<.001	<.001	<.001	<.001	<.001	<.001
1,2-Dichloroethane	<.010	<.001	<.001	<.001	<.001	<.001	<.001
1,1,1-Trichloroethane	<.010	<.001	<.001	<.001	<.001	<.001	<.001
Vinyl Acetate	<.010	<.001	<.001	<.001	<.001	<.001	<.001
Bromodichloromethane	<.010	<.001	<.001	<.001	<.001	<.001	<.001
Carbon Tetrachloride	<.010	<.001	<.001	<.001	<.001	<.001	<.001
1,2-Dichloropropane	<.010	<.001	<.001	<.001	<.001	<.001	<.001
Trichloroethylene	<.010	<.001	<.001	<.001	<.001	<.001	<.001
Benzene	1.100	.100	.039	<.001	<.001	1.200	<.001
Chlorodibromomethane	<.010	<.001	<.001	<.001	<.001	<.001	<.001
1,1,2-Trichloroethane	<.010	<.001	<.001	<.001	<.001	<.001	<.001
2-Chloroethyl vinyl ether	<.010	<.001	<.001	<.001	<.001	<.001	<.001
Bromoform	<.010	<.001	<.001	<.001	<.001	<.001	<.001
4-Methyl-2-pentanone	<.010	<.001	<.001	<.001	<.001	<.001	<.001
2-Hexanone	<.010	<.001	<.001	<.001	<.001	<.001	<.001
1,1,2,2,-Tetrachloroethane	<.010	<.001	<.001	<.001	<.001	<.001	<.001

Beazer000201

TABLE 1

Groundwater Analyses
Wacker Siltronic Corp.
Proposed Polysilicon Site
(Concentrations expressed in parts per million)

Volatile Organics (Cont.)	MW-1	MW-2	MW-3	MW-4	MW-5	MW-66	MW-7
Tetrachloroethylene	<.010	<.001	<.001	<.001	<.001	<.001	<.001
Toluene	<.010	<.001	<.001	<.001	<.001	<.027	<.001
Chlorobenzene	<.010	<.001	<.001	<.001	<.001	<.001	<.001
trans-1,3-Dichloropropene	<.010	<.001	<.001	<.001	<.001	<.001	<.001
Ethylbenzene	.410	<.036	<.001	T	<.001	.390	<.001
cis1,3-Dichloropropene	<.010	<.001	<.001	<.001	<.001	<.001	<.001
Styrene	<.010	<.001	<.001	<.001	<.001	<.001	<.001
Total Xylenes	1.200	.032	T	.015	<.001	.430	<.001

Beazer000202

TABLE 1

Groundwater Analyses
Wacker Siltronic Corp
Proposed Polysilicon Site
(Concentrations expressed in parts per million)

Extractables (by GC/MS)	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7
N-nitrosodimethylamine	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Bis(2-chloroethyl)ether	<.001	<.001	<.001	<.001	<.001	<.001	<.001
2-Chlorophenol	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Phenol	T	<.001	<.001	<.001	<.001	<.001	<.001
1,3-Dichlorobenzene	<.001	<.001	<.001	<.001	<.001	<.001	<.001
1,4-Dichlorobenzene	<.001	<.001	<.001	<.001	<.001	<.001	<.001
1,2-Dichlorobenzene	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Bis(2-chloroisopropyl)ether	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Hexachloroethane	<.001	<.001	<.001	<.001	<.001	<.001	<.001
N-nitroso-di-n-propylamine	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Nitrobenzene	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Isophorone	<.001	<.001	<.001	<.001	<.001	<.001	<.001
2-Nitrophenol	<.001	<.001	<.001	<.001	<.001	<.001	<.001
2,4-Dimethylphenol	.027	<.001	<.001	<.001	<.001	<.001	<.001
Bis(2-chloroethoxy)methane	<.001	<.001	<.001	<.001	<.001	<.001	<.001
2,4-Dichlorophenol	<.001	<.001	<.001	<.001	<.001	<.001	<.001
1,2,4-Trichlorobenzene	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Naphthalene	<.001	1.900	.600	.350	.058	2.100	T
Hexachlorobutadiene	<.001	<.001	<.001	<.001	<.001	<.001	<.001
4-Chloro-m-cresol	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Hexachlorocyclopentadiene	<.001	<.001	<.001	<.001	<.001	<.001	<.001
2,4,6-Trichlorophenol	<.001	<.001	<.001	<.001	<.001	<.001	<.001
2-Chloronaphthalene	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Acenaphthylene	.088	.200	T	T	.031	.032	<.001
Dimethylphthalate	<.001	<.001	<.001	<.001	<.001	<.001	<.001
2,6-Dinitrotoluene	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Acenaphthene	.270	.940	.086	.350	.054	.200	.019
2,4-Dinitrophenol	<.001	<.001	<.001	<.001	<.001	<.001	<.001

Beazer000203

TABLE 1

Groundwater Analyses
Wacker Siltronic Corp.
Proposed Polysilicon Site
(Concentrations expressed in parts per million)

Extractables, (Cont.)	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7
2,4-Dinitrotoluene	<.001	<.001	<.001	<.001	<.001	<.001	<.001
4-Nitrophenol	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Fluorene	.095	.440	.013	.053	.012	.035	<.001
4-Chlorophenyl phenyl ether	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Diethylphthalate	<.001	<.001	<.001	<.001	<.001	<.001	<.001
4,6-Dinitro-o-cresol	<.001	<.001	<.001	<.001	<.001	<.001	<.001
1,2-diphenylhydrazine	<.001	<.001	<.001	<.001	<.001	<.001	<.001
4-Bromophenyl phenyl ether	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Hexachlorobenzene	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Pentachlorophenol	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Phenanthrene	.180	1.630	.013	.028	.021	.056	T
Anthracene	.039	.630	T	T	T	T	<.001
Dibutylphthalate	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Fluoranthene	.072	1.300	T	.018	T	T	.023
Pyrene	.081	1.430	T	.014	.010	.010	.011
Benzidine	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Butyl benzyl phthalate	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Benzo(a)anthracene	.031	.480	T	T	T	T	.012
Chrysene	.036	.650	T	T	T	T	.015
3,3'-Dichlorobenzidine	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Bis(2-ethylhexyl)phthalate	T	.024	T	.013	T	T	T
N-nitrosodiphenylamine	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Di-n-octyl phthalate	T	<.001	T	T	T	<.001	T
Benzo(b)fluoranthene	.024	.400	<.001	T	T	T	T
Benzo(k)fluoranthene	T	.120	<.001	<.001	<.001	T	T
Benzo(a)pyrene	.040	.760	T	T	T	T	.010
Indeno(1,2,3-cd)pyrene	.020	.300	<.001	T	T	T	T
Dibenzo(ah)anthracene	<.001	T	<.001	<.001	<.001	<.001	<.001

Beazer000204

TABLE 1

Groundwater Analyses
Wacker Siltronic Corp.
Proposed Polysilicon Site
(Concentrations expressed in parts per million)

Extractables, (Cont.)	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7
Benzo(ghi)perylene	.025	.370	<.001	T	T	T	T
Aniline	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Benzoic Acid	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Benzyl Alcohol	<.001	<.001	<.001	<.001	<.001	<.001	<.001
4-Chloroaniline	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Dibenzofuran	.077	.075	T	.088	T	.014	T
2-Methylnaphthalene	<.001	.260	.067	.019	.012	.041	<.001
2-Methylphenol	<.001	<.001	<.001	<.001	<.001	<.001	<.001
4-Methylphenol	<.001	<.001	<.001	<.001	<.001	<.001	<.001
2-Nitroaniline	<.001	<.001	<.001	<.001	<.001	<.001	<.001
3-Nitroaniline	<.001	<.001	<.001	<.001	<.001	<.001	<.001
4-Nitroaniline	<.001	<.001	<.001	<.001	<.001	<.001	<.001
2,4,5-Trichlorophenol	<.001	<.001	<.001	<.001	<.001	<.001	<.001

Beazer000205

TABLE 1

Groundwater Analyses
Wacker Siltronic Corp.
Proposed Polysilicon Site
(Concentrations expressed in parts per million)

Pesticides (by GC/ECD)	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7
alpha-BHC	<.0002	<.0002	<.00002	.00024	<.00002	.00006	<.00002
beta-BHC	<.0002	<.0002	<.00002	<.00002	<.00002	<.00002	<.00002
delta-BHC	<.0002	<.0002	<.00002	<.00002	<.00002	<.00002	<.00002
gamma-BHC (lindane)	<.0002	<.0002	<.00002	<.00002	<.00002	<.00002	<.00002
heptachlor	<.0002	<.0002	<.00002	<.00002	<.00002	<.00002	<.00002
aldrin	<.0002	<.0002	<.00002	<.00002	<.00002	<.00002	<.00002
heptachlor epoxide	<.0002	<.0002	<.00002	<.00002	<.00002	<.00002	<.00002
dieldrin	<.0002	<.0002	<.00002	<.00002	<.00002	<.00002	<.00002
4,4'-DDE	<.0002	<.0002	<.00002	<.00002	<.00002	<.00002	<.00002
4,4'-DDD	<.0004	<.0004	<.00004	<.00004	<.00004	<.00004	<.00004
endosulfan sulfate	<.0004	<.0004	<.00004	<.00004	<.00004	<.00004	<.00004
4,4'-DDT	<.0004	<.0004	<.00004	<.00004	<.00004	.00028	<.00004
chlordane	<.0004	<.0004	<.00004	<.00004	<.00004	<.00004	<.00004
alpha endosulfan	<.0004	<.0004	<.00004	<.00004	<.00004	<.00004	<.00004
beta endosulfan	<.0004	<.0004	<.00004	<.00004	<.00004	<.00004	<.00004
endrin	<.0004	<.0004	<.00004	<.00004	.00002	<.00004	<.00004
endrin aldehyde	<.0004	<.0004	<.00004	<.00004	<.00004	<.00004	<.00004
toxaphene	<.050	<.050	<.004	<.004	<.004	<.004	<.004
PCB 1016	<.010	<.010	<.001	<.001	<.001	<.001	<.001
PCB 1221	<.010	<.010	<.001	<.001	<.001	<.001	<.001
PCB 1232	<.010	<.010	<.001	<.001	<.001	<.001	<.001
PCB 1242	<.010	<.010	<.001	<.001	<.001	<.001	<.001
PCB 1248	<.010	<.010	<.001	<.001	<.001	<.001	<.001
PCB 1254	<.010	<.010	<.001	<.001	<.001	<.001	<.001
PCB 1260	<.010	<.010	<.001	<.001	<.001	<.001	<.001

Key

< indicates "less than"
Trace = 1-10 ug/L

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U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101

FEB 18 1988

REPLY TO
ATTN OF: HW-113

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

John Oxford
Koppers Company, Inc.
7540 N.W. St. Helens Road
Portland, Oregon 97229

Re: NL/Gould Superfund Site, Portland, Oregon

Dear Mr. Oxford:

The United States Environmental Protection Agency (EPA) has documented the release or threatened release of hazardous substances at the above referenced site. As a result, the site is now listed on the National Priorities List pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. Section 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986 (to be herein referenced as CERCLA).

A Remedial Investigation (RI) and Feasibility Study (FS) is currently being undertaken at this site by Gould Inc. and NL Industries, Inc., as required by Administrative Order on Consent No. 1085-05-08106, dated August 29, 1985. RI and FS reports are available in the Administrative Record on this site at the Multnomah County Library. The study covers property currently owned by Gould (previously owned by NL Industries) and adjacent properties owned by others. The results of that investigation indicate groundwater contamination in the study area. In order to better evaluate the nature and extent of groundwater contamination underneath the site (the "groundwater unit"), EPA is considering spending public funds to further investigate the contamination at the site and take corrective action for the control of hazardous substances at the site, unless it is determined that such action will be conducted properly by a responsible party.

Responsible parties under CERCLA include the current and past owners and operators of the site, persons who currently lease property at the site or have leased property in the past, and persons who generated the substances or were involved in the transport, treatment, or disposal of them at the site. The EPA has information indicating that you or your company may be a responsible party for the groundwater unit at the NL/Gould site.

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Based on EPA's preliminary findings, persons and companies to receive this letter have been identified as potentially responsible parties (PRPs). Inclusion on this list indicates that you or your company may be a responsible party. This list does not constitute a final determination concerning the liability of any party for the hazard or contamination at the site in question.

Under CERCLA, responsible parties may be liable for all monies including interest thereon expended by the government to take necessary corrective action at the site including investigation, planning, and cleanup of the site. Note that use of the word 'site' in this letter refers to the term 'facility' as broadly defined in CERCLA.

EPA and the Oregon Department of Environmental Quality (DEQ) encourage PRPs to perform or participate in the investigation and/or clean-up of the site. The PRPs may participate individually or as a group. In the event that PRPs elect not to participate, each PRP may be liable for site investigation, site clean-up, and for damages to natural resources. These liabilities are joint, strict, and several for all PRPs.

At this time, EPA is seeking to obtain certain information from you. Under the provisions of federal law, specifically Section 104 of CERCLA, 42 U.S.C. 9604, and Section 3007 of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6927, as amended by the Solid Waste Disposal Act Amendments of 1980, the Administrator of the Environmental Protection Agency has the authority to require any person who generates, stores, treats, transports, disposes of, or otherwise handles or has handled hazardous wastes and substances to furnish information related to such wastes and substances.

EPA is also seeking information from you pursuant to Section 9005 of RCRA, 42 U.S.C. 6991(d). This section allows EPA to request information from owners or operators of underground storage tanks as that term is defined in Section 9001(1) of RCRA. Under regulations proposed by EPA on April 17, 1987, an underground storage tank means any one or combination of tanks (including underground pipes connected thereto) that is used to contain an accumulation of regulated substances, and the volume of which (including the volume of underground pipes connected thereto) is 10 percent or more beneath the surface of the ground. "Regulated substances" are defined as either petroleum or substances defined as hazardous under CERCLA (see 52 F.R. 12662).

Pursuant to these statutory provisions, you are hereby requested to respond to the following items:

1. What are the generic names and chemical character of the hazardous substances, as defined under Section 101(14) of CERCLA, that you generate, store, treat, transport, dispose or otherwise handle or have handled at the site? Briefly describe the activities and operations that were carried out by you or your company which involved these hazardous substances.

2. If you do not believe hazardous substances were handled at the site, please briefly describe the activities and operations that were carried out by you or your company.

3. For each hazardous substance identified above, please describe how the substance was handled, when, and the total quantity in weight or volume (estimate if quantity not available).

4. Where was this material stored, and where was it disposed of?

5. What arrangements (if any) were made to transport the hazardous substances away from the site? Who was the transporter of the hazardous substances, and what is his current/previous address?

6. Provide all information you have regarding spills of hazardous substances on or around the site. This should include the generic name and chemical constituents of the material(s) spilled, the quantity of material spilled, clean-up measures taken, the cause for the spill and any other related information.

7. Describe all environmental investigations that have taken place on or around your property/facility. This includes investigations of the physical and chemical characteristics of soil, surface water, sediments, air, and groundwater. This also includes historical evaluations of potential/known contamination. Provide all relevant information including, but not limited to, study design, work plans, quality assurance procedures, sampling procedures, well logs, study results, and data analyses. Raw data need not be provided at this time; data summaries will suffice.

8. Provide all information on all wells on site including the number, locations, associated well logs, date of installation, purpose of installation, and whether the well(s) are being used currently and for what purpose.

9. Provide information regarding all underground storage tanks (see definition above) at the properties owned or leased by you or your company. Specifically, provide a list describing the location, age, construction, contents, and leak detection system or other monitoring system for each tank. Provide a map showing the location of each tank and associated pipelines. Indicate if there are any underground storage tanks no longer in use on the properties.

10. Provide copies of all insurance policies that may provide liability coverage for damages resulting from releases of hazardous substances and/or hazardous wastes. This includes policies that are in effect as well as those effective when hazardous substances were released in the past.

11. For responses under items #4, #6, #7, #8, and #9 above, please provide a map which indicates relevant locations and depths.

Your written answers to these questions must be sent to EPA within thirty (30) calendar days of your receipt of this letter. Your response should include all information you have for the site during the time you or your company owned, operated, or leased the property. Please answer all questions to the best of your knowledge.

Under Section 3008 of RCRA, 42 U.S.C. 6928, failure to comply with this request may result in an order requiring compliance or a civil action for appropriate relief. Section 3008 of RCRA also provides for civil penalties. Pursuant to Section 103 of CERCLA, it is unlawful for any person knowingly to destroy, mutilate, erase, dispose of, conceal, or otherwise render unavailable or unreadable, or falsify any of the above records.

EPA recognizes that this information request is broad in scope. If the information you possess is voluminous, you must respond within the 30 day period as to the availability of all related records, and provide a written description of the type of information available. Specifically, describe the types of records that were maintained by you or your company with regard to the above including the date of the records, the author of the records, the current location of the records, and their current custodian. EPA also requests that arrangements be made to allow designated EPA employees, DEQ employees, and their contractors to review all such documents. Be prepared to present a summary of the information you are submitting at a meeting of all Potentially Responsible Parties to be held in July in Portland. EPA will notify you approximately two weeks prior to the date of this meeting as to the exact location and time.

EPA regulations governing confidentiality of business information are set forth in Part 2, Subpart B of Title 40 of the Code of Federal Regulations Federal Register 36902-36924 (September 1, 1976), as amended by 43 FR 3997 (September 8, 1978), 44 FR 17673 (March 23, 1979), 43 FR 11270 (March 17, 1983), and 50 FR 51663 (December 18, 1985). For any portion of the information submitted which is entitled to confidential treatment, please assert a confidentiality claim in accordance with 40 CFR §2.203(b). If EPA determines that the information so designated meets the criteria set forth in 40 CFR §2.200, the information will be disclosed only to the extent, and by means of, the procedures specified in 40 CFR Part 2, Subpart B. EPA will construe the failure to furnish a confidentiality claim with your response to this letter as a waiver of that claim, and information may be made available to the public by EPA without further notice.

Please respond to EPA within the time frame indicated above. Your written response should be sent to David Tetta, U.S. Environmental Protection Agency, Superfund Branch, 1200 Sixth Avenue, HW-113, Seattle, Washington 98101. Please direct EPA policy and technical questions to David Tetta at (206) 442-2138, and legal questions to Bob Goodstein at (206) 442-8311.

I hope you will give this matter your immediate attention.

Sincerely,

Randall F. Smith

For Charles E. Findley, Director
Hazardous Waste Division

EXECUTIVE SUMMARY

This report presents the results of the remedial investigation for Gould Inc. and NL Industries, Inc. as required by Administrative Order on Consent (Consent Order) EPA Docket No. 1085-05-08106, dated August 29, 1985. The study covers property currently owned by Gould (previously owned by NL Industries) and adjacent properties owned by other property owners. The purpose of the remedial investigation was to:

- Characterize the extent of contamination at the site, a former secondary lead smelter;
- Assess the existing and potential threats to human health and environment; and
- Identify potentially applicable remedial technologies.

The remedial investigation included:

- Collection of historical data available for the site;
- A literature review of urban lead contamination (reported elsewhere);
- A characterization of the existing study area with regard to potential contamination of surface and subsurface soils, lake and river sediments, and surface water and ground water;
- Assessment of lead contamination in waste stockpiles;
- Assessment of airborne lead contamination resulting from site activities;
- Assessment of potential pathways for contaminant migration from the site; and
- Preliminary evaluation of potential remedial actions.

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Site Features Investigation Results

The smelter was originally constructed in 1948 upon a site constructed with fill materials placed in an oxbow lake, Doane Lake, formed by the nearby Willamette River. The plant operated several different processes including lead-acid storage battery breaking and grid metal separation, lead smelting and refining, lead oxide manufacturing, zinc alloying, and electrical cable stripping. The plant operated from 1949 through 1972, at which time the smelter was shut down. Battery-breaking operations and lead oxide manufacturing continued at the plant until 1981. Waste materials from the operations were generally deposited on the plant or adjacent properties. In 1983, a company called Alchem Western was unsuccessful in its attempt to operate equipment to separate plastic from hard rubber casings in the mixture remaining on the Gould property.

The site is located in an industrial area with low population density and few residences in the general vicinity. The site is relatively flat, with very little vegetation or wildlife. Two remnants of Doane Lake were included in the study area. No rare, threatened, or endangered species are known to inhabit the area, although the nearby Willamette and Columbia Rivers provide habitat for substantial waterfowl and fish species. A City of Portland park (Forest Park) is located southwest of the study area. The climate of the area is heavily influenced by Pacific Ocean air masses which bring abundant rainfall. Other features affecting the local climate of the site include the coastal mountain range, the Cascade Mountains, and the Columbia River Gorge which allows continental air masses to move into the area occasionally. Airborne baghouse emissions exceeding federal and state air quality standards have been observed during plant operations in previous years.

Surface Debris Investigation Results

Investigations of smelter wastes used as fill material in the study area identified two types of materials: shredded battery casings and a slag-like material referred to as matte. Casing materials consist of

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polyester plastic, hard rubber (ebonite), lead oxide residues, small amounts of lead and non-lead metal, and other scrap materials such as iron, rock and wood. Composition of the shredded casings varies widely, with total lead concentrations (metallic lead and lead oxide) from 3.1 to 14.5 percent. The casing samples tested failed the Resource Conservation and Recovery Act (RCRA) EP Toxicity leachate analysis for lead.

The matte consists primarily of rock-like chunks composed of metallic sulfides, principally iron, and contains 6 to 11 percent lead. This material is the principal waste resulting from the smelting and refining operations, and it is estimated that about 12,000 tons were produced over the years of smelter operation. Matte also fails the RCRA EP Toxicity leachate analysis for lead.

During the years in which the smelter operated (1949 to 1973), about 2,600 tons per year of shredded battery casings were reportedly used as off-site fill material in West Doane Lake, on property belonging to Rhone-Poulenc Inc. (west of the Gould property). As the casings were placed, earthen fill was placed over the top of the casing material to create a level site. Matte was used as fill in the portion of Doane Lake on the northeastern boundary of the Gould property (referred to in the remedial investigation report as the "East" Doane Lake remnant). After shutdown of the smelter in 1973, shredded battery casings were placed on site over the matte and into the East Doane Lake remnant. The reported amount of shredded casings used as fill on the Rhone-Poulenc and Gould properties is estimated from production figures to be approximately 75,000 tons.

A discrepancy between the estimated volume of pre-1973 battery casings reportedly disposed off site on Rhone-Poulenc property and the estimated volume of casings actually found on Rhone-Poulenc property, indicates that approximately 40,000 cubic yards of pre-1973 casing material was unaccounted for. Estimates of the volume of casings used as fill on the Gould property indicate a surplus of approximately 56,000 cubic yards. Aerial photographs indicate that some or all of the 40,000 cubic yards of unaccounted pre-1973 casings have been used as fill on site, contrary to reported disposal practices.

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Waste sulfuric acid solutions from the battery breaking operations were discharged into the east Doane Lake remnant for most of the years the plant was in operation. Volumes of waste acid that were being discharged into Doane Lake during this period are estimated at 274,000 gallons per year. In 1976, treatment of this acid commenced with the treated waste being discharged into the City of Portland sewer system.

Other waste material identified in the study area included: 1) an alkaline hydrated lime waste from the manufacture of acetylene discharged into the east Doane Lake remnant; 2) shredded automobile body interiors placed on the property owned by Schnitzer Investments, to the east of the Gould property; and 3) demolition debris placed on the property owned by Rhone-Poulenc, west of the Gould property. The composition and quantity of these materials were not assessed during the Remedial Investigation.

Hydrogeology Investigation Results

The site is underlain by a variety of volcanic and sedimentary rocks, including the Scappoose and Columbia River Basalt deposits. Holocene age alluvial sands, silts and clays deposited by flooding of the Willamette River underlie the study area to depths of 38 to about 93 feet below the floodplain. A prehistoric channel of the Willamette River cut off by later alluvial deposits formed Doane Lake, which was present over most of the study area at the time of industrial development. Imported fill material placed into Doane Lake created the site for smelter construction.

The geology of the site affects the amount, movement and quality of ground water in the study area. Basalt flows with rubble tops contain most of the ground water and underlie the study area. These flows, numbering 12 to 14, dip to the northeast from the Portland Hills anticline under Forest Park into the Portland Basin containing the Willamette River.

The alluvium (below the fill layer) on site consists of a complex mixture of river channel sands, silts and clays. Chemical analyses of

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the alluvium for metals indicate that the range of concentrations found are for the most part within the range of background concentrations that have been reported for the area. Lead levels observed varied from 23 to 110 parts per million (ppm). The highest lead levels observed in the alluvium were near the contact point with the fill later added to Doane Lake.

A range of fill materials was placed into Doane Lake including metal slag, scrap metal, demolition debris, hydraulic dredge spoils, rock quarry spoils, shredded automobile interiors, and acetylene sludge as well as battery casings and matte. The fill is generally much more permeable than the alluvium. Metal contamination in the fill ranges locally up to several parts per million of chromium, cadmium, zinc, and arsenic. The pattern of contamination appears directly related to the known site history and types of fills placed within Doane Lake. No obvious pattern of contaminant migration is occurring within the fill materials. Lead concentrations of up to 10 percent lead have been observed within the area where battery casing fill has been placed.

Sediment samples taken within the east and west Doane Lake remnants showed the highest concentrations of lead. East Doane Lake remnant sediments had lead values ranging from 160 to 12,000 ppm. West Doane Lake remnant sediments were observed to have between 870 to 1,500 ppm. The Willamette River sediments taken upstream and downstream of the discharge area from the Gould property had observed lead concentrations of 26 to 56 ppm, equivalent to background levels reported for the Willamette River.

Precipitation runoff from the Gould property and from surrounding properties is the only other source of surface water on site. The east Doane Lake remnant discharges at high water levels into a storm sewer that subsequently enters the Willamette River. There is no surface discharge from the west Doane Lake remnant. Water is lost through percolation and evaporation. Tidal influences in the Willamette River were observed to fluctuate as much as 4 feet in a 24-hour period. Part of the Gould property is located within the 100-year floodplain.

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Four water-bearing units were identified beneath the site. These units are the fill, the upper alluvial, the lower alluvial and the basalt. The units are hydraulically connected, but the properties vary widely with material type and permeability. Recharge occurs through precipitation, infiltration from the Doane Lake remnants, and lateral inflow. Horizontal hydraulic gradients varied from about 3 feet in 400 feet to 4 feet in 1,500 feet. The direction of ground-water flow is northward toward the Willamette River.

Dissolved lead concentrations up to approximately 0.21 ppm were found in ground water in the monitoring wells within the casing disposal areas. Elevated sulfate and lead concentrations were found in wells downgradient of the battery casing disposal area. The partitioning illustrated by total lead, total recoverable lead and dissolved lead indicate that dissolved lead concentrations in ground water are relatively low downgradient. The potential for lead migration exists only if pH were to decrease.

Surface soil concentrations of lead were high in only those areas sampled around the old plant site on the Gould property and on the Rhone-Poulenc property above the battery casings disposal area.

Air Investigation Results

Results of airborne lead sampling over the course of remedial investigations (April 1986 through January 1987) demonstrated that airborne lead concentrations at the Gould property boundaries are currently well below both federal and state air quality standards for lead. On several occasions significantly higher concentrations of airborne lead were observed for single days at one monitor. Observations by Dames & Moore personnel on site during those days attributed the higher readings to cleanup operations by a purchaser of the Alchem Western casing separation equipment. The investigation concluded that, with no disturbance of the material on site, airborne lead levels present no imminent public health hazard. However, remedial action will need to take into account that significant airborne lead levels may occur as contaminated materials are disturbed.

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Biota Investigation Results

No data were located for contaminant uptake by plants on the site. However, the area is largely devoid of vegetation. Onsite occurrence of animals is low due to limited habitat. No data were located for contaminant concentrations in onsite fauna. Limited data on metal concentrations in Willamette River fish and invertebrates were available. Concentrations of lead ranged from 0.68 ppm in crayfish tissue to 0.24 ppm in fish tissue (peamouth). Three other fish species analyzed for tissue lead concentrations were all below the detection limit (0.1 ppm).

Bench Scale Studies

A bench scale study of limited scope was performed during the Remedial Investigation. Three types of coatings for battery casings were tested using the RCRA EP Toxicity Method for determining the effectiveness of each coating's ability to reduce leachable lead. The coating formulations were not effective in reducing the leachable lead levels below acceptable levels.

Batch adsorption tests were run to assess the ability of soils in the study area to retard the transport of lead in ground water. Results suggest that the lead adsorptive capacity of the study area soils and sediments is quite high, and thus the soils are effective at inhibiting lead migration.

Leach potential tests were performed to evaluate the potential for lead to leach from battery casings, matte and contaminated soils and sediment under varying ground-water acidity/alkalinity (pH) conditions using actual ground water from the site. Results confirm the amphoteric nature of lead; its solubility increases as acidity or alkalinity changes from a pH of 8 to 9.

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Public Health and Environmental Concerns

Potential human receptors in the study area are primarily workers at surrounding places of employment and those living in the few residences near Forest Park. Except for a part-time caretaker who oversees site activities, the Gould site itself is vacant and has limited access. Potential pathways for human exposure are primarily inhalation of contaminant-laden airborne dust and soil ingestion. Except during periods of heavy site activity, airborne lead levels as noted above are below air quality standards and no known drinking water wells are located on or downgradient from the site.

Potential pathways of contaminant exposure to flora and fauna are primarily through uptake of contaminated water or ingestion of contaminated plant material or pond sediments. Bioaccumulation of heavy metals is possible through the food chain. Transfer to humans is possible through game birds known to be present in the area. In the Doane Lake remnants, there are no aquatic species present that might be consumed by humans.

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NEIL GOLDSCHMIDT
GOVERNOR

Department of Environmental Quality

811 SW SIXTH AVENUE, PORTLAND, OREGON 97204-1334 PHONE (503) 229-5696

February 12, 1988

John Oxford
Kopper's
7540 NW St. Helens Road
Portland, Oregon 97229

SUBJECT: Gould RI Executive Summary
Doane Lake Area-wide Study

Dear Mr. Oxford:

Thank you for attending the February 11,1988, meeting in our offices regarding a Doane Lake area-wide groundwater study. Your support in this study is critical if it is to be accomplished in a timely manner.

As discussed in the meeting, we are sending you a copy of the Executive Summary from the Gould final Remedial Investigation report. We have also enclosed a copy of the Table of Contents from that report so that you can be aware of what other information is included in the report. If you would like a full copy of the report, please let us know.

If you have any questions or need additional information, please call me at (503) 229-6900.

Sincerely,

William T. Renfroe, Jr.
DEQ Site Manager

Enclosures

KOPPERS CO.
PORTLAND, OR.
RECEIVED
FEB 16

DEQ-1

TO: J. Oxford	DATE 10/29
WHILE YOU WERE OUT	TIME

☐ MR.
☐ MS.

OF:

LEVEL	AREA OR CASNET CODE/TIE LINE	TELEPHONE OR STATION NO.

☐ TELEPHONED
☐ CAME TO SEE YOU
☐ WANTS TO SEE YOU
☐ PLEASE CALL
☐ RET'D YOUR CALL
☐ WILL CALL BACK
☐ WANTS YOU TO ATTEND MEETING (SEE MESSAGE BELOW.)

TRANSMITTAL

☑ FOR YOUR INFORMATION
☐ TAKE APPROPRIATE ACTION
☐ PLEASE NOTE AND RETURN
☐ PLEASE SEE ME
☐ PREPARE REPLY FOR MY SIGNATURE
☐ ACTION AND REPLY
☐ NOTE AND FILE
☐ PER YOUR REQUEST
☐ NOTE AND PASS ON
☐ FOR YOUR SIGNATURE

ROGERS CO. PORTLAND, OR. RECEIVED

NOV 3 1986

BY Jordan Dern

FORM 132-J-1 NEW 8-85

LW-5-3

Cc: JOxford-Portland

KOPPERS

Interoffice Correspondence

To	See Below	From	Thomas R. Hays
Location	Various	Location	K-1400
Subject	Northwest Terminal Site	Date	September 8, 1986

To: Key Caldwell
Larry Flaherty
Mark Urbassik
Jorden Dern
Jim Batchelder

Attached is the most recent correspondence from N.W. Natural Gas concerning our Northwest Terminal Site. Key indicates that N.W. Gas will meet with CDM on Thursday.

Tom Hays

Thomas R. Hays

TRH:cjh

Attachment

RECEIVED

SEP 08 1986

Environmental Resources

K-5 REV. 2

VICTOR ATIYEH
Governor

Department of Environmental Quality

522 S.W. FIFTH AVENUE, BOX 1760, PORTLAND, OREGON 97207 PHONE: (503) 229-5696

August 15, 1986

Mr. E.L. Bolin, Manager
Land and Claims Department
Northwest Natural Gas Company
220 N.W. Second Avenue
Portland, OR 97209

Dear Mr. Bolin:

The Department is very encouraged by the activities and interest expressed by the parties involved in the Northern Doane's Lake investigation meeting held on July 28, 1986. There was a very good exchange of views and ideas on what is generally needed in this study and the questions the Department would like to see addressed. The Department looks forward to working with the companies involved in this study and we await the opportunity to review a detailed study outline from your consultant.

Attached for your information are two items; a summary of the July 28th meeting amd a general outline of the key study elements and questions which should be addressed in the detailed workplan.

I hope you will find this useful and that you will pass it on to your consultant. If you have any questions, please give me a call at 229-6242.

Sincerely,

Neil Mullane

Neil Mullane
Hydrologist
Hazardous and Solid Waste Division

NM:b
ZB5929
Enclosures
cc: Dick Bach, Stoel, Rives, Boley, Fraser and Wyse
Jim Ellis, Wacker Siltronics
John Pittman, Wacker Siltronics
Larry Patterson, Water Quality Division, DEQ
Janet Gillaspie, Northwest Region, DEQ
Chuck Clinton, Northwest Region, DEQ
Rick Gates, Laboratory, DEQ

RECEIVED
Stoel, Rives, Boley, Fraser And Wyse
By 8/25/86

1A (2-86)

Attachment A

NORTHERN DOANE'S LAKE INVESTIGATION
General Study Needs

I. Site Characterization

A. Geology

1. Describe site soils and geology

2. Utilize such things as borehole logs, soil cores, soil classification, strategraphic cross sections, etc. when developing and displaying this information.

3. Questions which should be addressed.

a. What type of soils are present on site?

b. What geologic strata are beneath the site?

c. What are the physical characteristics of the soils and geology?

B. Hydrology

1. Describe site groundwater. This should include a determination of groundwater flow rate and direction in both the horizontal and vertical direction for the uppermost aquifer and any aquifers hydraulically interconnected with it beneath the site.

2. Utilize such things as water level measurements, slug tests, pump tests, etc. when developing the necessary information.

3. Questions which should be addressed.

a. What is the uppermost aquifer?

b. How extensive is the uppermost aquifer beneath the site?

c. What are the current uses of the aquifer?

d. Is the uppermost aquifer hydraulically interconnected with other aquifers?

e. If there is interconnection, what are the current uses of the connected aquifers?

f. What are the horizontal and vertical gradients of the uppermost aquifer?

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C. Site History

1. Describe site history, this should include a discussion of what the site has been used for, what were the past waste disposal practices and locations, and any additional past information which may help identify possible contamination sources.

2. Utilize such things as aerial photographs, soil survey maps, employee interviews, etc. when preparing this description.

II. Site Assessment

A. Site Soils and River Sediments

1. Examine site soils and river sediments for possible contamination. If contamination is present, what are the concentrations and how extensive is the problem?

2. Utilize the U.S. Environmental Protection Agency publication "Testing Methods for Evaluating Solid Waste" (SW-846) when designing and conducting these analyses.

3. Questions which should be addressed

a. What specific area(s) is contaminated on Wacker Siltronics, Northwest Natural Gas Company, and Koppers property?

b. What is the source(s) of this contamination?

c. What are the contaminant concentration levels?

d. What volume of soil is contaminated?

e. How widespread is the river sediment contamination?

f. Is water quality at risk in the river?

g. What impact does the sediment contamination have on aquatic organisms in the river?

h. Is river sediment contamination due to groundwater seepage, tar movement in the soil, past overland movement of tar to the river, or past tar disposal in the river?

i. Will there be changes in the sediment contamination levels over time? Will they increase or decrease?

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j. Have the contaminants most likely migrated through the soil, or were they originally spread over the land surface with fill material placed over the contaminants?

k. What is the likely fate of the soil and/or sediment contaminants on each property?

B. Ground and Surface Water

1. Assess the ground and surface water and determine if contamination is present and in what concentrations. If a contaminant plume(s) exists, describe the plume's location flow rate, direction, and contaminant concentration.

2. Utilize such guidance references as the U.S. Environmental Protection Agency publication "Technical Enforcement Guidance Document" August 1985 or similar RCRA or Superfund guidance manuals when designing, installing, and utilizing the groundwater monitoring network.

3. Questions which should be addressed.

a. What contaminants are in the groundwater beneath Wacker Siltronics, Northwest Natural Gas, and Koppers property?

b. How widespread is the contamination?

c. What is the source(s) of the contamination?

d. If the uppermost aquifer is hydraulically interconnected with the Basalt Aquifer, is the Basalt Aquifer at risk?

e. Are the contaminants moving towards the Willamette River?

f. What impact does contaminated groundwater discharging to the Willamette River have on river water quality?

III. Compounds of Interest

A. PAHs (EPA Method 610)

1)	Naphthalene	6)	Anthracene
2)	Acenaphthylene	7)	Fluroanthene
3)	Acenaphthene	8)	Pyrene
4)	Fluorene	9)	1,2 - Benzanthracene/chrysene
5)	Phenanthrene	10)	Benzo pyrene

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B. Lead

C. 2,4-D

D. 2,4 - Dichlorophenol

E. Benzene

F. Toluene

IV. Remedial Action

A. Possible Need for Remedial Action

1. Evaluate the need for remedial action. This should include an examination of contaminant concentrations, direction of movement, rate of movement, exposure routes, etc. and the possible risks to the public and the environment.

2. Questions which should be addressed

a. Is remedial action necessary to protect human health and the environment?

b. What are the possible exposure routes, i.e., dermal, inhalation, oral?

c. What is the potential for site contaminants to enter these exposure routes? Will this potential increase or decrease over time?

B. Alternative Remedial Actions

1. Consider the potential alternative remedial actions for each contaminant. The alternatives should examine among other approaches whether to leave contaminants in place or remove them or a combination of these, or different treatment techniques.

2. Questions which should be addressed.

a. Should contaminated soils be removed or left in place?

b. Should contaminated groundwater be treated?

c. Should the tars be removed or left in place?

d. Should the contaminated sediment be removed or left in place?

e. What treatment techniques are available for the contaminated groundwater?

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f. Should a slurry trench be built around the pit?

g. Should the site be posted to warn of contamination?

h. Should the river sediments be posted to warn of contamination?

C. Remedial Action Selection and Implementation Schedule.

1. Select the most appropriate remedial action.

2. Establish an implementation schedule.

Additional Item:

Although this site is not currently considered either a RCRA or Superfund site, these programs have considerable guidance material for conducting site investigations and developing and selecting remedial actions, therefore, they should be utilized where appropriate.

Beazer000236

STATE OF OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMO

TO: File

DATE: August 8, 1986

FROM: Janet A. Gillaspie

SUBJECT: Meeting, July 28, 1986
Re: Northern Doane's Lake Investigation

Attending for the Department were:

Larry Patterson, Chuck Clinton, Neil Mullane, Dennis Adamczyk, and myself.

Industries in attendance were:

Jim Ellis and John Pitman of Wacker Siltronic, Ed Bolin and Ed Finklea of Northwest Natural Gas and Dick Bach of Stoel, Rives, Boley.

The Department reviewed the four major components of a past practice investigation for the Northern Doane's Lake area. That included:

1. Site characterization, including hydrogeological work to establish the groundwater flow direction and gradient and use of photo recognizance to determine where wastes were historically placed.

2. A site assessment to determine the type and concentration of pollutants in the groundwater, surface sediments, and river sediments.

   The Department asked that six parameters be included in the site assessment phase.

   Polyaromatic hydrocarbons (PAH's);
   2,4-dichlorophenol; 2,4-D; lead; benzene; and toluene;

3. A Remedial Action/Feasibility Study phase for each contaminant; however, remedial action should be evaluated using risk assessment tools for the parameters of possible choice from no action to removal.

4. A Recommended Action Plan from the companies working on this study.

We discussed, using approved sampling techniques, including EPA's publication SW 846 and other approved sampling methods. We asked that the EPA guidance for Preliminary Assessment, Site Investigations and Remedial Inspection/ Feasibility Studies be used as general guidelines in preparing the work. As the consultants or the project managers identify areas where the processes could be shorter this is an option, but they should discuss it with us beforehand.

Ellis of Wacker and Dick Bach questioned including river sediment sampling. Larry Patterson explained the rationale behind that, and the distinguishing features between Bunker C, which might be in the river from other practices, and the creosote ooze which is coming through the river bank. We reviewed the other areas where useful information might be gathered, including the work done on the southern end of Doane's Lake for Gould Battery, Rhone-Poulenc, the ambient sampling data that our Department has gathered, the information CH2M Hill had gathered for Wacker, Army Corps of Engineers information, and Port of Portland information.

Northwest Natural raised the question about what concern there was with Koppers. Larry Patterson explained there had been some information that it might have been a subsurface drain field for creosote wastewater. The gas company said they would be exploring that.

Overall, the meeting concluded by agreeing to the four general principles of the study, and doing the study as quickly as possible. The industries asked that the study be termed the Northern Doane's Lake Investigation. They will hire a consulting firm and return to us once that consulting firm has developed a study plan.

JAG:y
RY3143

STOEL, RIVES, BOLEY, FRASER & WYSE
ATTORNEYS AT LAW

900 S W FIFTH AVENUE, SUITE 2300
PORTLAND, OREGON 97204-1268

TELEPHONE (503) 224-3380
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TELEX 703455

WRITER'S DIRECT DIAL NUMBER

(503) 294-9213

SEP 05 1986

August 28, 1986

Thomas R. Hays, Esq.
Law Department
Koppers Company, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219

Dear Tom:

Re: Northern Doane's Lake Investigation--
Portland, Oregon

Enclosed for your information and review by your Environmental Resources Department is a letter from the Oregon Department of Environmental Quality with their thoughts on elements of the Northern Doane's Lake area site assessment. Also enclosed are copies of the DEQ's and our versions of the meeting at which we discussed these issues.

Once the parties involved, i.e., Northwest Natural Gas Company, Wacker Siltronic Corporation and Koppers Company have reviewed the DEQ materials, we intend to meet with the selected consultant (Camp, Dresser & McKee) to give CDM its marching orders.

DISTRICT OF COLUMBIA OFFICE
1730 M STREET, N W, SUITE 900
WASHINGTON, D.C. 20036-4505
(202) 955-4555

WASHINGTON COUNTY OFFICE
ONE LINCOLN CENTER, SUITE 400
10300 S W GREENBURG ROAD
TIGARD, OREGON 97223-5407
(503) 220-1441

SOUTHWEST WASHINGTON OFFICE
805 BROADWAY, SUITE 725
VANCOUVER, WASHINGTON 98660-3213
(206) 699-5900

We will welcome your participation in the site assessment, and will appreciate any assistance you may give in connection with development of the study plan.

Best regards.

Very truly yours,

Richard D. Bach

RDB:twa
Enclosures
cc: Mr. E. L. Bolin
Mr. John L. Pittman

Minutes

July 28, 1986 Meeting

Between

Northwest Natural Gas Company, Wacker Siltronics

and the Oregon Department of Environmental Quality

Attendees:

Larry Patterson, Chuck Clinton, Neil Mullane, Dennis Adaruczyk, and Janet Gillaspie, all with the Oregon Department of Environmental Quality; Jim Ellis and John Pitman with Wacker Siltronics; Ed Bolin, Ed Finklea, Northwest Natuarl Gas Co.; and Richard Bach, Stoel, Rives, Boley for Northwest Natural Gas Co.

The purpose of the meeting was to discuss the scope of the Oregon Department of Environmental Quality's (DEQ's) investigation of the Northern Doane's Lake property.

Ms. Gillaspie started the meeting by describing the scope of the investigation DEQ envisions. The geographic scope would be from the Railroad Bridge to the northern end of the Gasco property. DEQ requests a four-phased investigation.

The first phase will be a site characteristics study. Phase one will include an analysis of information currently available, including ground water flows, photo recognizance work, review of existing files and other investigative work in the area regarding the past activities of the Northern Doanes Lake properties. The purpose is to narrow the scope of later investigations.

The second phase would be site assessment. The site assessment phase will include analysis of river sediments, surface water and ground water.

The third phase will be a remedial assessment, which would involve sampling and analysis to determine if suspected pollutants are present. Suspected pollutants mentioned by DEQ include PAH's, lead, toluene, benzine, and creosote compounds.

The final phase would be risk assessment, which would focus on our recommendations for what action, if any, to take based on the findings from the first three phases. The recommendations could range from a do-nothing alternative, to action alternatives involving cleanup and removal.

Because the site is not a "superfund" site, strict compliance with EPA assessment criteria is not necessary. DEQ officials stated that the EPA study outline provides "useful guidance" and the investigation should "stay within the parameters" of the EPA criteria. However, lack of superfund designation provides considerable discretion and will avoid considerable expense in conducting this investigation.

Discussion next turned to specific aspects of the study. Among the questions DEQ is seeking answers for are:

1) What is the source of the contamination (tarpits or other sources)?

2) How did the contamination get there?

3) Is the contamination getting into the Willamette River?

4) What is the best way to pattern the study?

5) Is soil sampling necessary?

Larry Patterson of DEQ spoke about some specifics. He stated that DEQ wants the study to assess the quality of the shallow ground water, as well as the basalt aquifer. Patterson contends that DEQ's analyses to date show that nothing is found in the Willamette River itself when samples are taken off the shore of the property. However, contamination is evident on the bank of the river off the property where the old gas plant existed.

The question Patterson is looking for a definitive answer to through the course of the study is: Should any contamination be removed, or if the material is left on site, what impact is it likely to have on aquatic micro organisms.

Discussion next turned to the possible involvement of Koppers in the study and the problem. Gillaspie inquired at the outset about Koppers' absence from the meeting. Bach stated that they were unable to attend due to scheduling problems. Patterson stated that while DEQ has no reason to be concerned that Koppers' current operation is causing contamination on the property, there is a "rumor" that at one time Koppers used an underground pipe to dispose of waste materials. If Koppers had subsurface disposal of creosote from a leech pipe, which is apparently the "rumor" Patterson is acting on, then there is reason to believe that the property is contaminated in areas other than the tarpit or those areas where tarpit materials were spread.

Regarding the tarpit, Patterson's primary concern seems to be the existance of creosote in the tarpit. DEQ uses "creosote" in a generic sense, rather than as a specific product.

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DEQ has data based on sampling, which they are willing to share. The Southern Pacific Bridge is a sampling station that DEQ has compiled information from. The specific issue Patterson wants addressed concerning the tarpits is: Where did the tarpit material get picked up and bulldozed to?

Patterson is also concerned about possible contamination of ground water at the basalt layer, which is about 60 - 90 feet below the surface. Leakage may be from the basalt layer up, but there are no known users of the basalt aquifer or the shallow aquifer.

During the first phase of the study there are several sources of materials that can be relied on. DEQ has files on the Northern Doanes Lake investigation and is willing to share all the information with Northwest Natural, Wacker and Koppers. DEQ urged Northwest Natural to search its files and to talk with employees who are knowledgeable. Wacker has extensive information based on the work done for them by CH2M Hill. The Corps of Engineers may have some data. Photo recognizance work has also been done. Those photos should be instructive in limiting the geographic scope of the latter phases of the investigation.

At the end of the meeting representatives of Northwest Natural and Wacker assured DEQ that we would meet again with DEQ once the consultant has been selected and initial work has been completed. Janet Gillaspie informed the group that DEQ would send a letter outlining the four-step investigation described in the meeting. No specific timetable was mentioned for initiation or completion of the study.

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KOPPERS

Koppers Company, Inc.
7540 N.W. Saint Helens Road
Portland, OR 97229
503-286-3681
FAX: (503) 285-2831

KOPPERS

Koppers Company, Inc.
7540 N.W. St. Helens Road
Portland, OR 97229
503-286-3681
FAX: (503) 285-2831

K O P P E R S N O R T H W E S T P L A N T

FAX SENT TO: COMPANY NAME: KOPPERS COMPANY INC.

TO: ATTENTION : JILL BLUNDON

ROOM # EXT: : K-1400

"HELLO" I'M A 3M FAX MACHINE, I AM SENDING THIS COVER LETTER TO LET YOU KNOW WHERE THIS COMES FROM. AFTER THIS COVER LETTER (1). ONE PAGES WILL FOLLOW. IF YOU DO NOT RECEIVE ALL OF THIS TRANSMISSION, PLEASE CALL US SO WE CAN HELP. PLEASE CALL US AT THE COMPANY PHONE NUMBER AS SOON AS POSSIBLE, SO WE CAN RESEND.

THIS TRANSMISSION WAS SENT BY: JOHN OXFORD TIME: 3:55

DATE: 5-31-88

KOPPERS

Koppers Company, Inc.
7540 N.W. Saint Helens Road
Portland, OR 97229
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KOPPERS

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Portland, OR 97229
503-286-3681

FAX: (503) 285-2831

K O P P E R S N O R T H W E S T P L A N T

FAX SENT TO: COMPANY NAME: KOPPERS COMPANY INC.

TO: ATTENTION : JORDAN DERN

ROOM # EXT: : K-901

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THIS TRANSMISSION WAS SENT BY: JOHN OXFORD TIME: 4:pm

DATE: 5-31-88

Gould Inc.,
40 Gould Center, Rolling Meadows, Illinois 60008
Telephone (312) 640-4000

GOULD
Electronics

FEDERAL EXPRESS

May 27, 1988

Dear Sirs:

On February 29, 1988 the United States Environmental Protection Agency, Region 10, issued a special Notice Letter (42 U.S.C. 9622(e)) to the attached list of potentially responsible parties (PRP's). Pursuant to that letter, Gould Inc. and NL Industries, Inc. have presented a "good faith proposal" to EPA for undertaking Remedial Design and Remedial Action (RD/RA) activities at the Site. To date, EPA has not replied to Gould and NL's proposal but we unofficially have been informed that EPA's response should be forthcoming in the next week.

Inasmuch as you have been identified as a PRP at the Site, Gould and NL would like to schedule a meeting among all PRP's to discuss future negotiations with the EPA. Accordingly, we have scheduled a meeting at 10:00 a.m., June 9, 1988 at Gould's headquarters in Rolling Meadows, Illinois. Rolling Meadows is a suburb of Chicago located approximately ten miles northwest of O'Hare Airport.

As you probably know, EPA's selected remedy includes removing battery casings on and beneath the Site, treating them for proper disposal, performing additional studies of groundwater pollution in the Doane Lake area and deciding what, if any, further cleanup is necessary. Gould and NL's basic position is that removal of battery casings beneath the Site requires massive and unnecessary excavation, handling and off-site disposal and presents a grave risk to public health and environment in the area surrounding the Site. In that any risks would affect your companies directly and present and future clean-up activities may involve your companies, NL and Gould think a PRP meeting is in order.

If you would like to participate in the PRP meeting or have any questions about this letter, please contact the undersigned at 312/640-4716 or Janet Smith from NL Industries at 212/421-7204.

Sincerely,

Michael C. Veysey
Assistant General Counsel

MCV/ddc

white 5183P

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101

SEP 13 1988

REPLY TO ATTN OF: HW-113

OCT 21 1988

Michael J. Downs, Administrator
Environmental Cleanup Division
Department of Environmental Quality
811 S.W. Sixth Avenue
Portland, Oregon 97204

Re: NL/Gould Superfund Site, Portland, Oregon

Dear Mr. Downs:

This letter is to confirm the agreements between the U.S. Environmental Protection Agency (EPA) and the Oregon Department of Environmental Quality (DEQ), on the investigation of groundwater contamination associated with the "groundwater unit" of the NL/Gould Superfund site in Portland.

At DEQ's request, EPA is deferring for now to the State for investigating the groundwater unit. Accordingly, it is EPA's understanding that DEQ will use State authorities and resources to arrange for a Remedial Investigation to supplement the Remedial Investigation/Feasibility Study performed by NL and Gould which partially evaluated the nature and extent of contamination of the groundwater unit at this site. DEQ intends to identify Potentially Responsible Parties (PRPs) for the groundwater unit, provide appropriate notice, define a Scope of Work based on the Scope of Work prepared for this site by Tetra Tech, and require consenting PRPs to properly and promptly conduct the investigation under a negotiated agreement.

EPA will not be involved in the State's negotiations with responsible parties. However, EPA has provided the State with a Preliminary Scope of Work for the groundwater unit investigation. DEQ may require additional work beyond EPA's investigation requirements.

EPA will not be signatory to a negotiated agreement between the State and PRPs for the groundwater investigation. However, EPA is willing to participate in a meeting of the PRPs to inform them of EPA's role in the groundwater unit investigation.

EPA acknowledges that DEQ, as lead agency, will oversee the groundwater unit investigation with only State authorities, under schedules set by the State, using no federal funds, and with no EPA involvement. DEQ agrees to keep EPA informed through the Oregon Operations Office of site activities for informational purposes, to provide pertinent documents to EPA for placement in the Administrative Record, and to perform community relations activities at the site that are consistent with the Community Relations Plan currently being revised by EPA.

EPA and DEQ agree that if the State has not reached an acceptable agreement with the PRPs by March 31, 1989, the agencies will reevaluate options for accomplishing the investigation in a timely manner, including the use of federal funds, if available.

The results of the groundwater unit investigation will be used by DEQ and EPA to decide on the need for remedial actions for the NL/Gould groundwater unit. (The Record of Decision issued by EPA in March 1988 for the NL/Gould soils unit stated that EPA was deferring a decision on groundwater remediation to a later date.)

EPA's primary contact for DEQ on this matter will be Alan Goodman of the Oregon Operations Office.

We apprecfate the State's desire and commitment to take the lead for conducting the NL/Gould groundwater unit investigation. We look forward to its successful and timely completion.

Sincerely,

Randall F. Smith

for Charles E. Findley, Director
Hazardous Waste Division

cc: Oregon Operations Office
Fred Hansen, DEQ

U.S. ENVIRONMENTAL PROTECTION AGENCY
TECHNICAL ENFORCEMENT SUPPORT
AT
HAZARDOUS WASTE SITES

TES IV
CONTRACT #68-01-7351
WORK ASSIGNMENT NO. C10004

FINAL SCOPE OF WORK
HYDROGEOLOGICAL INVESTIGATION
NL/GOULD - DOANE LAKE AREA
PORTLAND, OREGON
U.S. EPA REGION X

TETRA TECH, INC.
FOR
JACOBS ENGINEERING GROUP, INC.
PROJECT NUMBER: 05-B904-00
TC-3621-66

SEPTEMBER 1988

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1.0 EXECUTIVE SUMMARY

The Doane Lake area is located in a heavily industrialized region north of the City of Portland, Oregon, along the Willamette River, approximately 11.2 km (7 ft) upstream of the confluence with the Columbia River. The entire study area is approximately 180 ac, with the 120-ac northern section separated from the 60-ac southern section by a Burlington Northern Railroad right-of-way.

The northern section is bounded on the east by the Willamette River, on the west by NW St. Helens Road, on the south by the railroad, and on the north by a U.S. Corps of Engineers dredging equipment repair facility. Facilities located in the northern area are owned and/or operated by Wacker Siltronics Corporation, Northwest Natural Gas Company (NWNG), Koppers Company, Inc., and Pacific Northern Oil Company.

The southern section of the study area is bounded on the east by the Willamette River, on the west and north by the Burlington Northern Railroad right-of-way, and on the south by 61st Street. Facilities located in the southern area are owned and/or operated by Gould, Inc., American Steel Industries, Inc., ESCO Corporation, Rhône-Poulenc Inc., Northwest Equipment Rentals, Schnitzer Investments Corporation, Liquid Air Corporation, and Pennwalt Corporation.

A wide variety of wastes and products have been disposed of or spilled in the study area over several decades, including heavy metals, pesticides, solvents, creosote, acids, and caustics.

Regulatory investigations in the Doane Lake area began in approximately 1960 at the Kirk and Sons facility. Operations at this facility, located in the central area of the southern portion of the Doane Lake study area, consisted mainly of lead-acid battery recycling and smelting. Kirk and Sons received numerous complaints and violations concerning lead emissions and

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improper wastewater discharges at their facility. The site was purchased in 1971 by NL Industries, who continued lead processing activities. In 1979, the property was sold to Gould, Inc., who stopped receiving lead-acid batteries, but continued to process the existing stockpile. In August 1981, the Gould, Inc. facility closed.

Investigations conducted at the Gould, Inc. site by the U.S. Environmental Protection Agency (EPA), Oregon Department of Environmental Quality (ODEQ), and other agencies revealed widespread lead contamination. Due to the threat posed to human health and the environment by the offsite migration of lead, the Gould site was nominated for inclusion to the National Priorities List (NPL) in 1983. In 1985, Gould, Inc. signed an Administrative Order on Consent, agreeing to conduct a Remedial Investigation/Feasibility Study (RI/FS). The scope of the study includes fully characterizing the nature and extent of contamination on the site and investigating various remedial action alternatives.

In February 1988, the U.S. EPA issued notice and information request letters to Potentially Responsible Parties (PRPs), other than Gould, Inc., under provisions of Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Gould, Inc. was also sent a notice and information request letter at a later date. Six of the previously notified PRPs responded with information concerning the generation and disposal of hazardous wastes. The information received was evaluated for data gaps and ranked as Level A (quantitative) or Level B (qualitative), according to the reliability of the data.

On 31 March 1988, U.S. EPA developed a Record of Decision (ROD) that selected an interim remedial action for the NL/Gould site. The ROD addressed the preferred alternative for remediation of lead contamination of the soils unit at the Gould site. The remedial action selected is comprised of the following activities:

- Removing and recycling lead from battery casings

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- Reducing the mobility of lead in the contaminated soil, sediment, and matter through fixation

- Monitoring surface water and groundwater at the site while additional studies of contamination in these areas are conducted

- Monitoring ambient air around the site to ensure that remedial actions are carried out in a manner that protects public health.

Since the ROD identified the need for additional groundwater and surface water studies, the remedial action will include activities concerning these units. Information obtained from the PRP 104(e) responses, as well as results presented in the NL/Gould RI, and the North Doane Lake Site Characterization Work Plan, revealed data gaps concerning the nature and extent of groundwater and surface water contamination in the Doane Lake study area. Previous studies performed in the northern section of the Doane Lake area have concentrated on polynuclear aromatic hydrocarbon (PAH) contamination, while studies in the southern section have concerned heavy metals. A unified investigation is necessary to determine the full range of contaminants present, transport processes, and effects of various organic and inorganic contaminants on remediation efforts for lead.

To satisfy the need for further studies, U.S. EPA and ODEQ have requested that Tetra Tech, Inc., as a subcontractor to Jacobs Engineering, develop a scope of work. The purpose of this scope of work is to delineate the regulatory and technical requirements of the RI that will be conducted to characterize the nature and extent of groundwater, and surface water, and sediment contamination on and around the Doane Lake area. Information derived from the RI activities will be used to determine what effect remedial activities will have on contaminants that may be present in addition to lead, and what effect these contaminants may have on lead remediation efforts.

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2.0 SITE DESCRIPTION

The following section includes a physical description of the Doane Lake study area. The majority of the information presented here is taken from the RI report prepared by Dames & Moore (1987).

2.1 LOCATION

The Doane Lake study area consists of eight privately owned parcels located in Sections 12 and 13 of Township 1 North, Range 1 West. The approximate 180-ac site lies on the southwest bank of the Willamette River about 7 mi from the confluence with the Columbia River (Figures 1 and 2).

2.2 EXISTING PROPERTY FACILITIES AND ACTIVITIES

The study area is currently occupied by eight industries and one investment firm, three remnants of Doane Lake, and the Burlington Northern Railroad tracks, which bisect the study area.

The discussion of this area will focus on the following two subareas (Figure 3):

- Area A - Includes the NL/Gould site, Rhône-Poulenc Inc., ESCO Corporation, Schnitzer Investments Corporation, Pennwalt Corporation, Liquid Air Corporation, east and west Doane Lake remnants (Figure 2).

- Area B - Includes the Wacker Siltronic Corporation, NWNG, Koppers Company, Inc., and the north Doane Lake remnant (Figure 2).

The contaminants associated with each subarea are different. However, the migration of pollutants in groundwater follows similar patterns.

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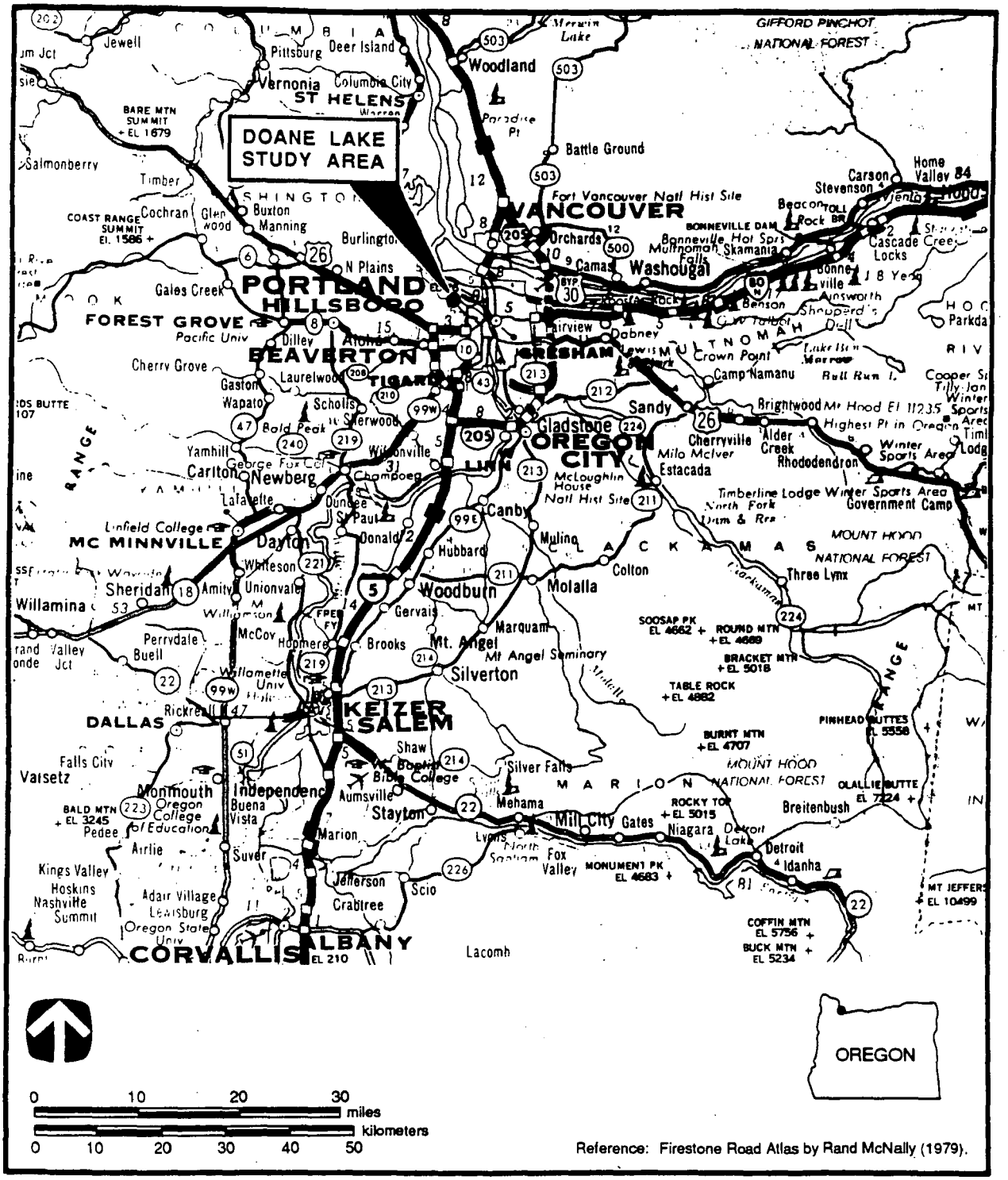

Figure 1. Area map.

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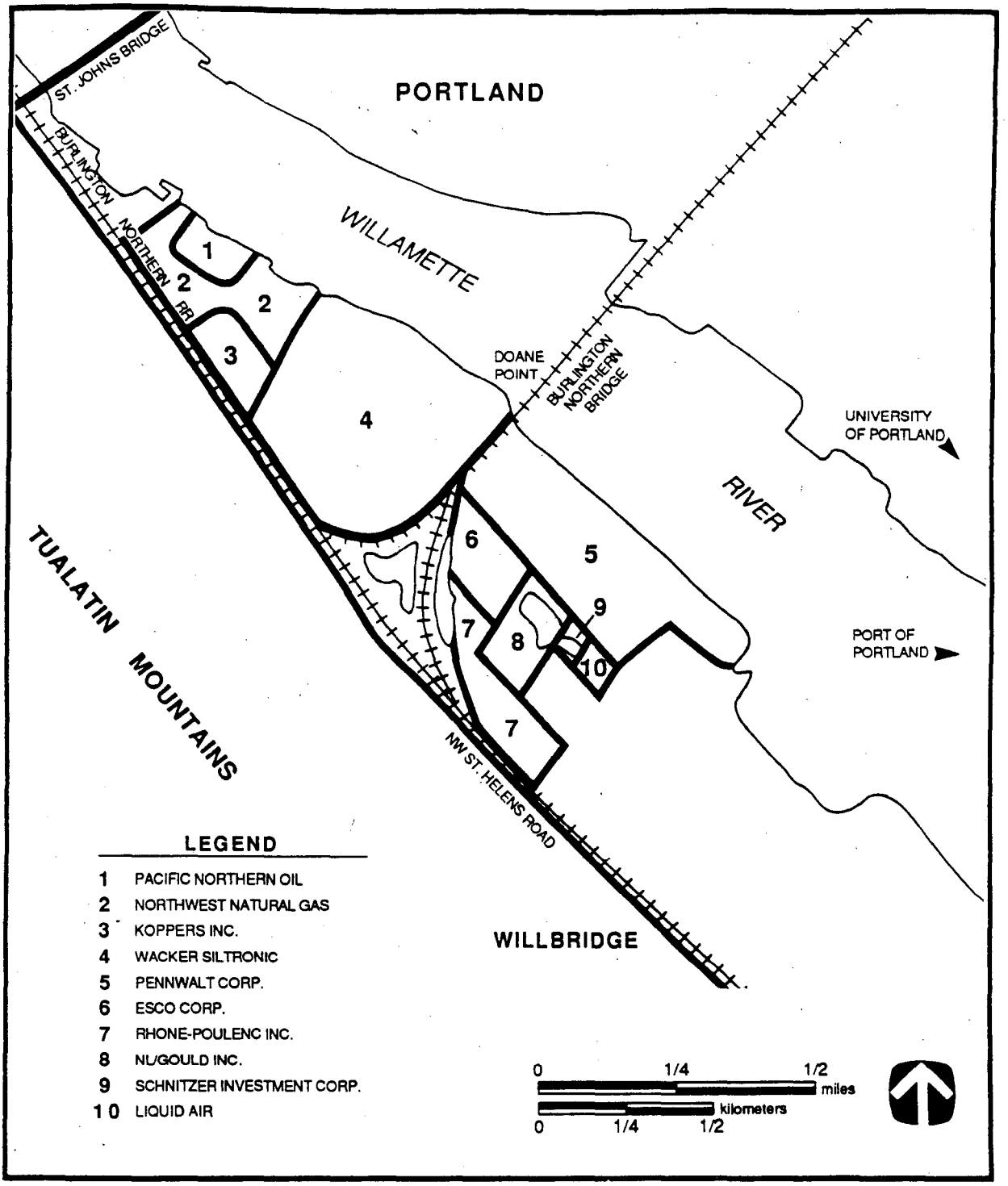

Figure 2. Site description and facility locations.

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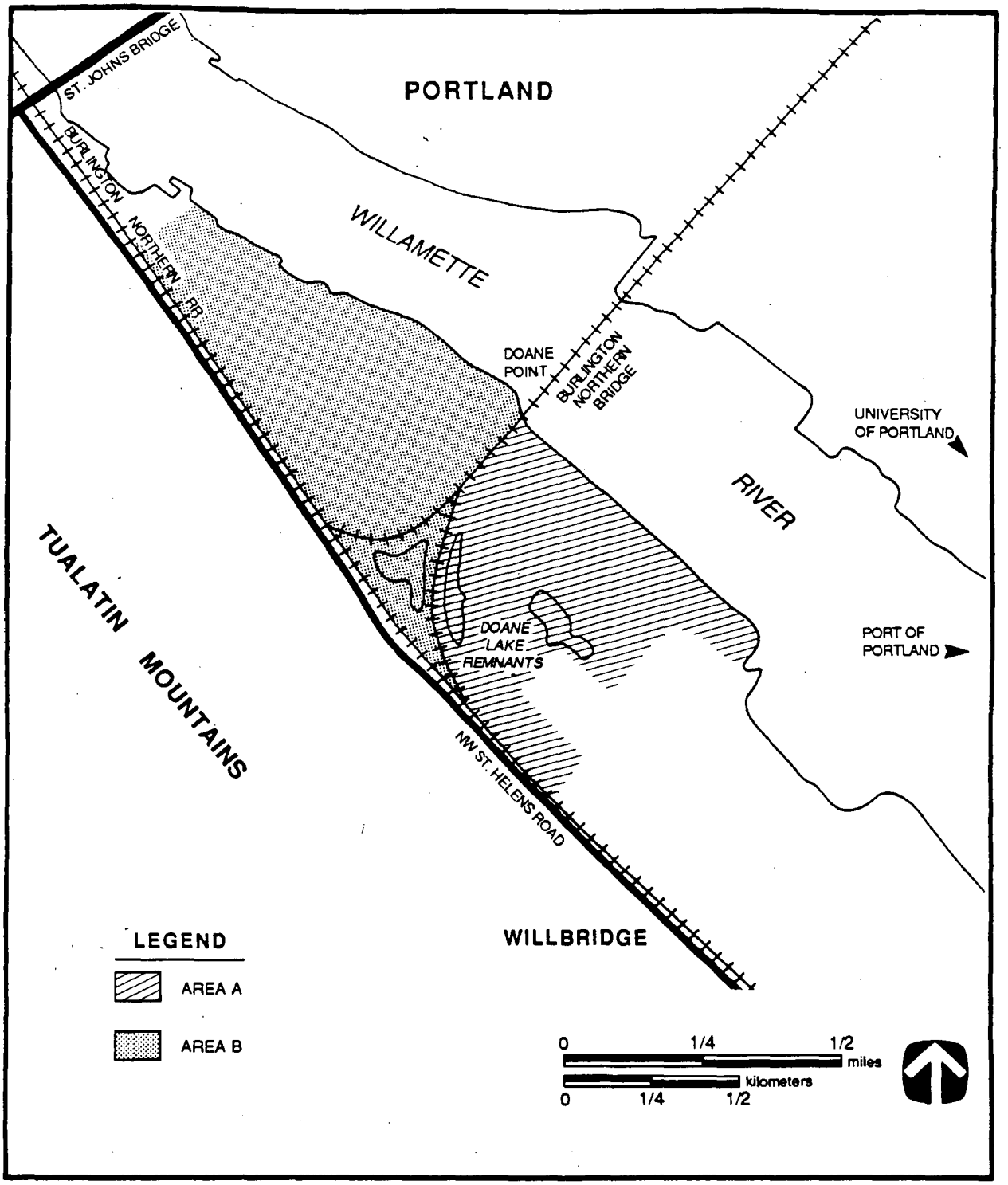

Figure 3. Description of Areas A and B.

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2.3 TOPOGRAPHY

The Doane Lake study site slopes gently from the base of the Tualatin Mountains from 15.2 m (50 ft) to approximately 3 m (10 ft) above sea level along the banks of the Willamette River. The majority of the industries are constructed on fill material, which ranges from 1.5 to 10.6 m (5 to 35 ft) in depth. The site topography consists of three remnants of the original Doane Lake, graded fill, and several settling and storage basins.

2.4 GEOLOGY

The Doane Lake study area is located in the lowest portion of the Willamette Valley. The flood plain, upon which the site is located, is flanked by the Tualatin Hills anticline to the southwest and the Willamette River to the northeast. Various types of fill underlie most of the site, which sits atop two to several tens of feet of alluvial deposits from the Holocene age that are underlain by 12-14 flows of Columbia River basalt.

The fill layer consists of imported rock from a quarry located directly southwest of NWNG, dredged sediments from the Willamette River, and dredged material from various onsite settling basins. Waste products from various operations in the study area were incorporated into the fill material. Specific fill constituents include castings sands, metal slag, scrap metal, demolition debris, silty hydraulic dredge spoils, shredded automobile interiors, shredded battery casings, matte, and carbide sludge. Fill thickness varies from 0.3 to 10.6 m (1 to 35 ft).

Prior to any fill operations, Doane Lake occupied an abandoned channel of the Willamette River. The alluvium beneath the fill layer consists of a mixture of river channel sands, over-the-bank silts and sandy silts, fluvial-lacustrine silts, clayey silts, and silty clay. Disconnected pockets and layers of volcanic ash, mudflow, sandy gravel, peat, organic silt, and woody detritus are also present. The inferred depth of the alluvium layer ranges from 11.6 to 24.4 m (38 ft to 80 ft).

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The Columbia River basalt consists of 12-14 separate flows of basalt dating back to the Miocene age. Each flow typically consists of a rubbly or vesicular top, which contains the majority of the groundwater underlain by a jointed section of basalt. The measured basalt layer thickness exceeds 152 m (500 ft). The basalt found under the Doane Lake study site consists of medium-grained crystals (1-2 mm in diameter) and a porphyritic texture. Fine-to coarse-grained basalt gravel locally overlie the basalt. The upper section of the basalt layer is thought to be fractured and jointed.

The sediments beneath the filled portions of Doane Lake consist generally of clays and silts with mixed lenses of fine-grained sands. Sediments from the existing remnants consist of black "muddy clay" with abundant organic matter, except in the area of the Schnitzer/Liquid Air property, which contains large amounts of lime. The lime forms a white to gray-muddy clay. Grain sizes in Doane Lake consists of clayey silts to fine-grained silty sand.

Sediments samples from the Willamette River, both upstream and downstream from the study area, show grain sizes of predominantly sand with small amounts of gravels and silts present.

2.5 SURFACE WATER AND GROUNDWATER HYDROLOGY

The east Doane Lake remnant receives runoff from Schnitzer/Liquid Air, ESCO, and eastern portion of Rhône-Poulenc scrap yard. Surface drainage from east Doane Lake runs into a stormwater sewer, northward under NW Front Street, and discharges into the Willamette River (Figure 4).

The west Doane Lake remnant receives runoff from the ESCO property and western portion of the Rhône-Poulenc scrap yard. Discharge/drainage processes from this remnant have not been characterized. Tidal influence on the west Doane Lake remnant has been suspected to cause percolation through the Burlington Northern Railroad berm and onto the northern portion of the Doane Lake area.

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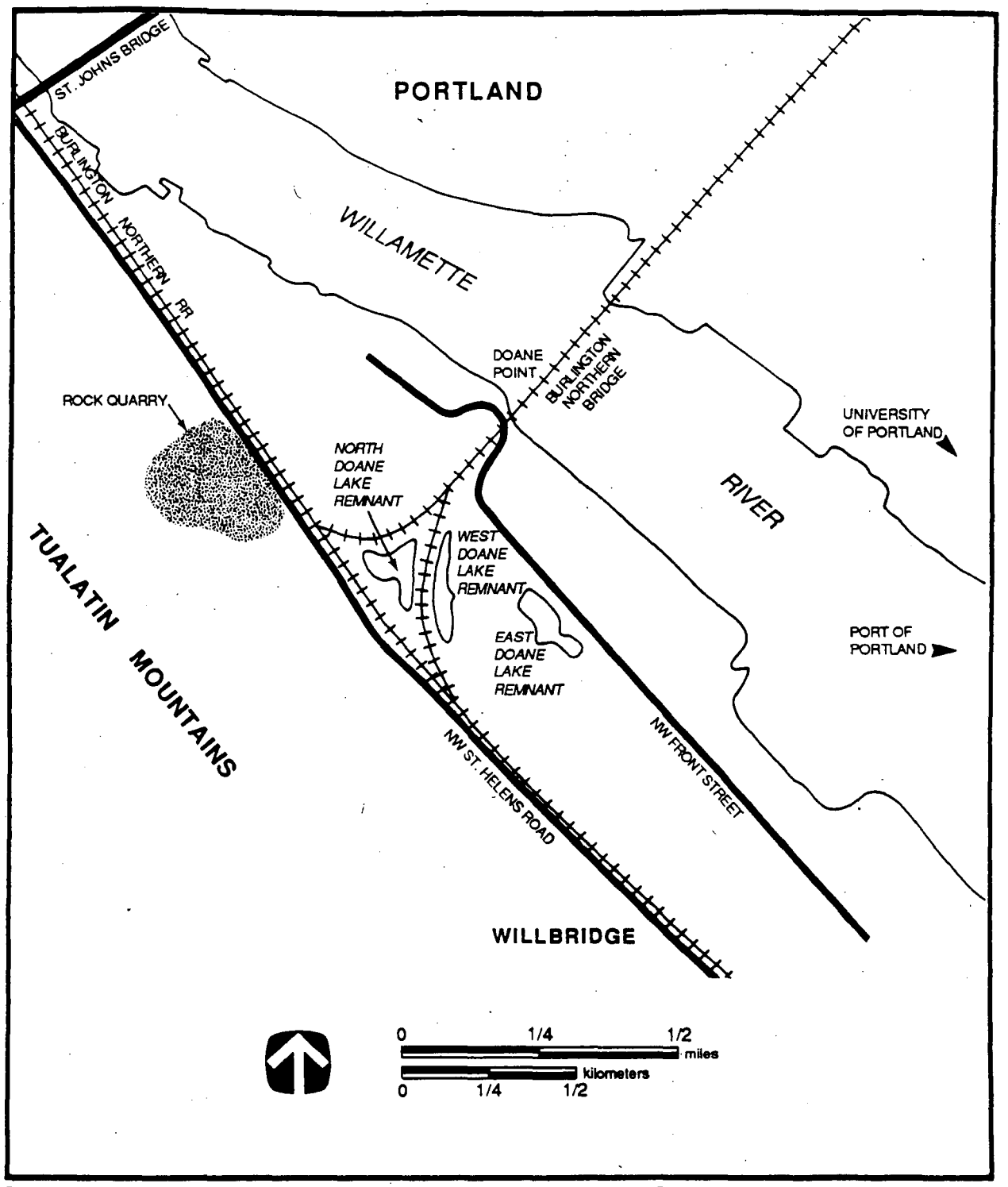

Figure 4. Doane Lake remnants and key landmarks.

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Runoff and drainage patterns for the north Doane Lake remnant within the "y" portion of the BN railroad tracks has not been characterized.

The shallow fill water-bearing unit has been shown to be hydraulically connected to the upper alluvial layer and both east and west Doane Lake remnants. The upper alluvial water-bearing unit is hydraulically connected to the lower alluvium fill aquifer, the Willamette River, and both east and west Doane Lake remnants. The distinction between lower and upper alluvial water-bearing units is somewhat arbitrary since they both comprise a single water-bearing unit. The majority of groundwater beneath the site resides in the upper weathered and fractured portions of the basalt water-bearing layer. The fractured and jointed nature of basalt allows for both horizontal and vertical movement of groundwater, including artesian vertical migration in the northern portion of the study area. Recharge of the basalt water-bearing unit occurs in the southern section of Area A. All water-bearing units appear to be interconnected. Groundwater migration through both the upper and lower alluvial water-bearing units tends to travel northward toward the Willamette River. Groundwater levels and recharge in all four water-bearing units is predominantly affected by precipitation and water levels of the Willamette River. The Willamette River level is affected by both tidal and upstream drainage volumes.

Limited data for Area B indicate that its geological composition and hydrological migration patterns are similar to those described for Area A (i.e., interconnected water-bearing units and general northwest migration of groundwater parallel and towards the Willamette River).

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3.0 EXISTING DATA

Data for the Doane Lake area have been generated from several studies. The NL/Gould RI, North Doane Lake Site Characterization Work Plan, and PRP 104(e) response letters provided the majority of the information known about the site.

3.1 KNOWN PAST DISPOSAL PRACTICES

3.1.1 Area A (Figure 5)

The NL/Gould site, a lead smelting and refining facility, generated several types of waste including sulfuric acid, shredded rubber and plastic battery casings, shredded battery tops, and blast furnace matte. Disposal practices at the NL/Gould site consisted of draining untreated sulfuric acid into east Doane Lake remnant until 1976, when the acid was neutralized and discharged into the City of Portland sewer system. The casings, tops, and electro elements were placed in storage bins. The casings were shredded and used as fill, both on and adjacent to the NL/Gould site. Electrodes were fed directly into a blast furnace. The waste from the furnace consisted of slag, matte, and speiss materials. The matte was used as fill material onsite. The slag and speiss materials were recycled back into the furnace. Automobile interiors and acetylene wastes were also used as fill. By 1963, the stockpiling of battery casing had created a large mound along the plant shoreline to the northeast. This mound was observed to have spilled over into the east Doane Lake remnant as early as 1957 (Dames & Moore 1987).

The ESCO site contains a capped landfill, which was used for the disposal of clay-bonded sands, demolition debris, and sand bonded with foundry resins containing phenolformaldehyde (Sherwood, R., 18 April 1988, personal communication). Arc furnace dust containing chromium was disposed of onsite between 1971 and 1975. Zircon sands with naturally occurring radioactivity were also landfilled onsite until 1976. By 1957, ESCO began

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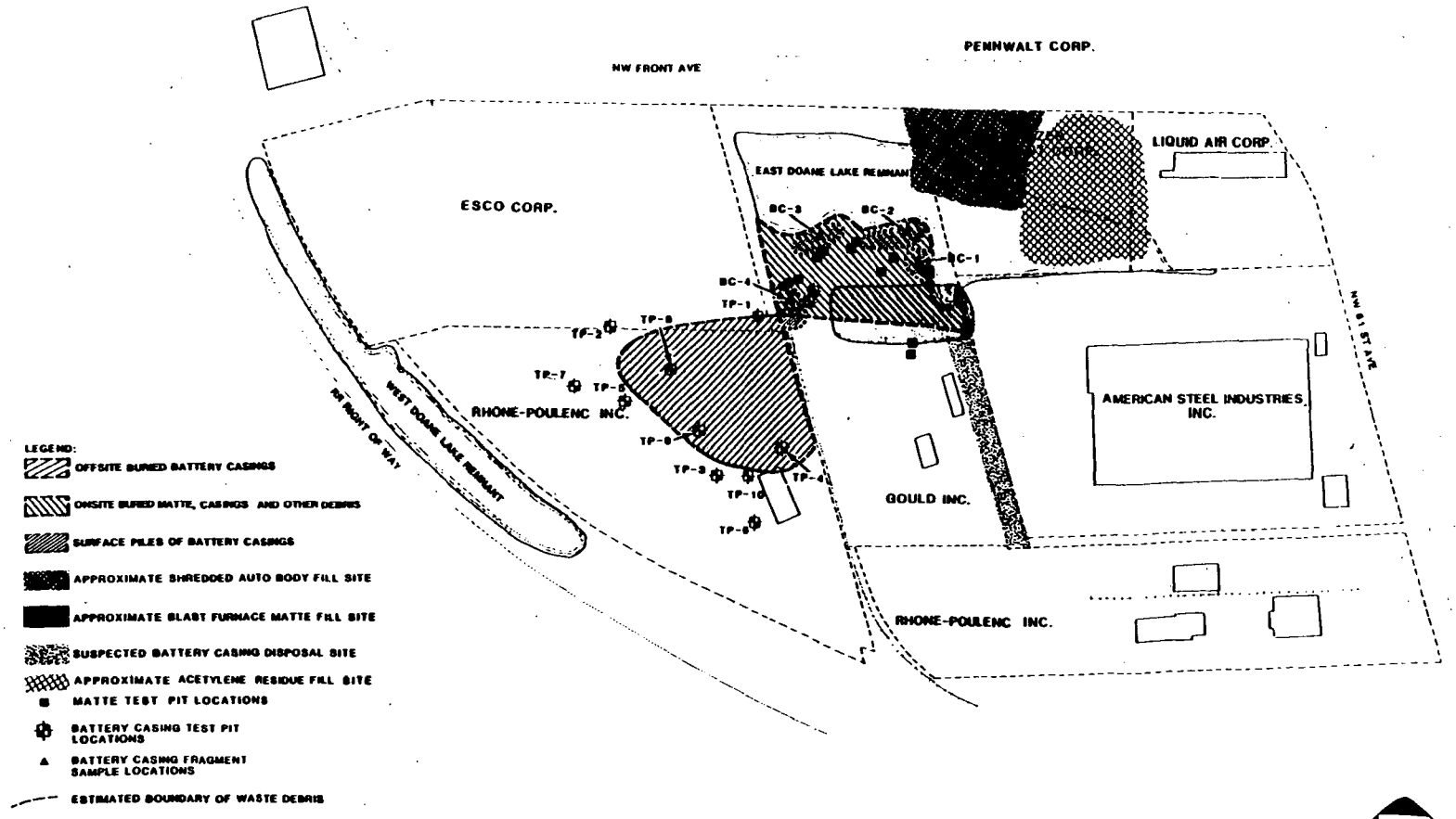

Reference: Remedial Investigation, Gould Site, Portland, OR, Final Report Vol.1, Dames and Moore (1987).

Figure 5. Disposal sites in Area A.

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disposing of foundry sand and slag into the east Doane Lake remnant (Dames & Moore 1987). Landfilling on the ESCO site continued to fill in the west Doane Lake remnant until 1979.

Rhône-Poulenc, an agrochemical facility, provides no specific descriptions of disposal practices onsite (Furguson, R., 13 April 1988, personal communication). The RI (Dames & Moore 1987) refers to aerial photos dating to 1963, which show Rhône-Poulenc contributing to the landfilling operations along the north boundary of their land adjacent to the ESCO site. The constituents of this fill are unknown. By 1979, all landfilling by ESCO and Rhône-Poulenc had ceased in this area.

The Schnitzer Investment/Liquid Air Corporation site (owned by Schnitzer) generated calcium hydroxide slurry (lime) and shredded automobile interiors or "fluff". The lime, produced during acetylene production, was disposed of in the east Doane Lake remnant, where it was allowed to settle and later dredged for reuse and resale. Information on the disposal of other wastes produced by Liquid Air Corporation is not currently available.

The Pennwalt Corporation primarily produces chlorine gas, and 11-12 tons of asbestos are reportedly buried on the Pennwalt site. All other hazardous substances are transported offsite as finished products or as waste to a disposal facility located in Arlington, OR (Schu, M., 12 April 1988, personal communication).

3.1.2 Area B (Figure 6)

From 1913 to 1923 Portland Gas and Coke (now NWNG) produced gas from coal, and discharged wastewaters and unusable petroleum by-products into the Willamette River. The wastewater contained unknown levels of suspended hydrocarbons, tar, and spent oxides. After 1925, this wastewater was pumped into a series of tar ponds. The water from these ponds drained into the Willamette River while the tars settled out on the bottom of the ponds. Periodic flooding of the site would flush the waste from the settling ponds. Spent oxide was stockpiled in the northwest corner of the site. Some of the spent oxide was used as fill in one of the tar settling ponds. Tar residue

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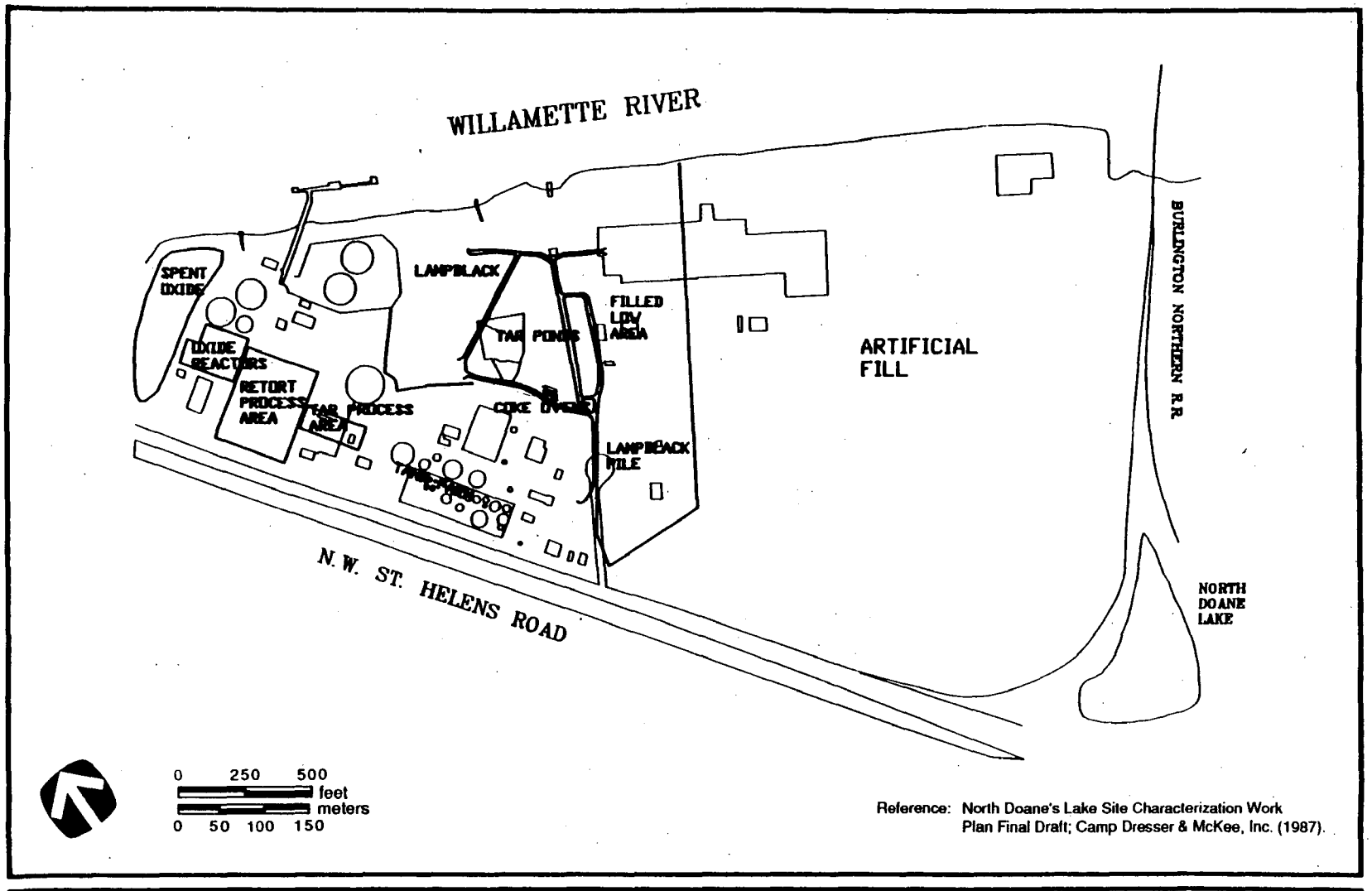

Figure 6. Disposal sites in Area B.

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was periodically dredged from the ponds and incorporated into fill material throughout the site. Some solid waste from the demolition of the GASCO plant is also evident in these ponds.

The Wacker Siltronic Corporation purchased their site in 1978 and began silicon wafer production in 1980. Most of their waste chemicals are disposed of via the onsite wastewater treatment plant that ultimately discharges treated water into the Willamette River. Permitted levels of nitric acid and nitrogen dioxide are discharged into both the water and air. Mercury is recycled onsite.

3.2 EVENTS RELATED TO SITE ASSESSMENT

A chronological log of events relating to site assessment in the Doane Lake study area is presented in Table 1. Analyses of sediments collected from the Willamette River near Doane Lake were performed as early as 1974 by the U.S. Geologic Survey (Rickert et al. 1977). Lead concentrations in river sediments collected at that time ranged from 5 to 35 mg/kg and averaged 18.6 mg/kg (Dames & Moore 1987).

In 1981, the ODEQ initiated the first of two air quality monitoring surveys in the Doane Lake study area. The first survey monitored ambient airborne lead levels around, but not on, the NL/Gould property. Results of that survey showed occasional airborne lead levels in exceedance of the State of Oregon ambient air quality standard and the federal national ambient air quality standard for lead, both of which are 1.5 ug lead/m^3 of air, expressed as an arithmetic mean over a 3-mo period. Quarterly averages in exceedance of the standards ranged from 1.6 to 4.2 ug/m^3 (Dames & Moore 1987).

The second air quality survey was conducted on NL/Gould property during August 1982 by the U.S. EPA Region X and Dames & Moore. Monitoring of ambient airborne lead levels on the NL/Gould property at that time showed elevated lead concentrations (0.26-150 ug/m^3; Dames & Moore 1987) with the highest concentration measured within a few feet of discarded battery casings.

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TABLE 1. CHRONOLOGICAL LOG OF EVENTS IN DOANE LAKE STUDY AREA

Date	Summary
1974	U.S. Geologic Survey conducts sediment pollution survey in Willamette River adjacent to Doane Lake study area.
1979/1981	ODEQ conducts surface water quality survey on west and east Doane Lake remnants.
1981	ODEQ conducts air quality survey around, but not on, NL/Gould site.
1981	Dames & Moore installs 10 groundwater and soil monitoring wells on the Rhône-Poulenc site.
1980-1982	ODEQ conducts sediment pollution survey of Willamette River adjacent to NL/Gould and downstream on east bank of river.
1981	Ecology & Environment begins two-phase study of ambient air quality in and around Rhône-Poulenc plant. Groundwater monitoring for organics and inorganics begins.
1982	U.S. EPA/Dames & Moore conduct air quality survey on the NL/Gould site.
1982	ODEQ conducts water column survey between Burlington Northern bridge and Doane Lake outfall on Willamette River.
1983	Arc furnace dust sampled on ESCO site.
1985	CH2M HILL conducts air/soil/groundwater survey of Wacker Siltronic site.
1985	Water quality survey 65 m offshore, 2-15 m depth.
1986	RI of groundwater on Schnitzer site.
1986	RI at stations up and downstream from east Doane Lake overflow outfall on Willamette River.
1986	Test pits on Rhône-Poulenc and NL/Gould sites to determine location of battery casings.
1986/1987	Surface water quality survey of east and west Doane Lake remnants and Willamette River.
1987	Test pits installed on NL/Gould site to determine location matte fill.

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Between 1980 and 1982, the ODEQ conducted a sediment pollutant survey, as well as a surface-water quality survey, on the Willamette River at locations adjacent to the study area (Dames & Moore 1987). Lead was measured at 2.8 and 3.2 mg/kg in sediments collected from the bank of the river, downstream from the Burlington Northern Railroad bridge and near the Doane Lake area, respectively. Lead concentrations in the water column samples ranged from 1.8 to 14.4 ug/L at a station near the Burlington Northern Railroad bridge and at a storm drain near the Doane Lake area, respectively (Dames & Moore 1987).

3.2.1 Area A

Between 1971 and 1975, arc furnace dust from two ESCO secondary steel foundry plants located outside the Doane Lake study area was disposed of along with other foundry yard debris, on the ESCO property adjacent to the NL/Gould site. In 1983, arc furnace dust samples were collected from one of the ESCO plants and subjected to an EP toxicity test. Results of that test indicated a total chromium concentration of 17.2 mg/L, which exceeded the EP toxicity standard for chromium of 5.0 mg/L. A similar analyses was performed on dust samples collected from the same plant and the second foundry plant in 1986. These analyses showed significantly lower total chromium concentrations (0.19 and 0.45 mg/L, respectively) than concentrations previously measured in 1983.

Five groundwater monitoring wells, two soil borings, and two battery casing test pits were installed on ESCO property by Dames & Moore in 1986 as part of the NL/Gould RI (Dames & Moore 1987). Three of the five monitoring wells are located in a cluster in the northwest corner of the ESCO property. The two remaining wells, plus one of the soil borings, are all centrally located in the southeast portion of the property. The second soil boring was installed in the southern corner of the site, while the two battery casing test pits are situated along the perimeter of the southern property line.

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In addition, an unspecified number of wells were installed on the ESCO property by the Oregon State Health Division in 1983 to monitor radiation in groundwater (Sherwood, R., 18 April 1988, personal communication). To adequately characterize the ESCO site, radionuclide data downgradient from the ESCO property is required. The approximate locations of these wells are not known at this time.

In 1986, surface water and groundwater monitoring was initiated on property owned by the Schnitzer Investment Corporation as part of the NL/Gould RI (Dames & Moore 1987). Two monitoring wells were installed along the northeastern perimeter of the Schnitzer facility during the RI. According to Mr. L. Wakefield (21 March 1988, personal communication), five wells currently exist on Schnitzer property. Water samples collected from the fill aquifer layer of the two monitoring wells installed during the RI had dissolved lead and sulfate concentrations below detection limits (<0.02 and <50 mg/L, respectively; Dames & Moore 1987). Water samples collected from the alluvial groundwater aquifer exhibited higher dissolved lead and sulfate concentrations throughout the Schnitzer site than the fill aquifer layer samples (Dames & Moore 1987).

Groundwater and sediment collected from the Rhône-Poulenc property have been investigated many times over the past 35 yr. During the summer of 1980, Rhône-Poulenc installed 14 shallow piezometers throughout their property to obtain groundwater samples and investigate groundwater levels. Subsequently, five shallow standpipes (wells) were also installed for collection and treatment of the groundwater. Eleven of the 14 piezometers are located along the perimeter of the plant area extending north from the 2,4-D dust plant/warehouse to the railroad tracks. The three remaining piezometers are all located north of the plant area. The five standpipes are located in the northerly portion of the plant area. Rhône-Poulenc periodically collected groundwater samples from the piezometers and standpipes, and analyzed the samples for chlorinated phenolic compounds, xylene, 2,4-D, 2,4-DB, and isoctyl alcohol at their onsite laboratory. The results from the periodic sampling by Rhône-Poulenc were submitted regularly to the ODEQ.

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In 1981, Dames & Moore installed ten groundwater monitoring wells at depths from 40 to 70 ft, four shallower piezometers, and six lysimeters throughout the site as part of a multi-year monitoring program conducted for Rhône-Poulenc (Dames & Moore 1983). Three of the ten monitoring wells, one piezometer, and two lysimeters were installed in the south end of the plant area near the dust plant/warehouse. A fourth well was installed just east of the 2,4-D plant near the Rhône-Poulenc property line. A fifth well and a third lysimeter were located northwest of the 2,4-D plant and west of the railroad tracks that border the facility. The remaining monitoring wells, piezometers, and lysimeters were generally installed along the north perimeter of the property. Groundwater from the wells, piezometers, and lysimeters was collected and analyzed for chemical constituents five times during the monitoring program. The first, third, fourth, and fifth sampling rounds were performed between 1981 and 1983 by Dames & Moore, while the second round of sampling was performed by Ecology & Environment in 1982 in conjunction with a separate sampling program conducted for the U.S. EPA. During their investigation, Ecology & Environment also conducted an ambient air quality survey at the Rhône-Poulenc facility (Ecology & Environment 1982).

The groundwater samples were analyzed for metals, phenols, herbicides, pesticides, and several conventional parameters by AmTest, Inc., Seattle, WA. Results from the five groundwater monitoring periods indicated that 2,4-D and trichlorophenol were present in the greatest concentrations among organic compounds detected, while lead and arsenic were present at the greatest concentrations among inorganics detected. However, the results from the chemical analyses vary significantly (sometimes by several orders of magnitude) between sampling locations, and in some cases, from one sampling period to the next. Therefore, the results from these analyses are considered as gross approximations to indicate the presence or absence of contaminants. Data from any single sampling are not considered reliable for establishing the level of contamination present.

In addition to groundwater, soil samples were collected by Dames & Moore during the installation of the wells, piezometers, and lysimeters at the Rhône-Poulenc site. The soil samples were extracted in accordance with

the EP toxicity protocol and analyzed for heavy metals, herbicides, pesticides, chlorophenol compounds, and o-dichlorobenzene. The U.S. EPA has established allowable concentrations for contaminants in soils. The permissible concentrations are reported in the Resource Conservation and Recovery Act (RCRA) as 100 times the maximum level allowed under the U.S. EPA interim drinking water standards. The EP toxicity tests performed showed concentrations to be present in the soils just below the maximum allowable levels (Dames & Moore 1983).

During the spring of 1983, Rhône-Poulenc, in cooperation with ODEQ, conducted an extensive soil sampling and analyses investigation in the plant area, south of the dust plant/warehouse. This study included drilling 22 borings to depths of up to 3 m (10 ft). The soil samples collected were split and delivered to AmTest and to the onsite laboratory for analyses. At the request of ODEQ, some of the samples were split a second time and submitted to ODEQ for analyses.

Ten test pits on the Rhône-Poulenc and ESCO properties were excavated in 1986 as part of the RI of the Gould site to establish the lateral extent of battery casings that were historically used as fill material in the area. Test pit results verified that battery casings had been disposed of along the northwest edge of the Gould property. The approximate locations of the battery casing test pits are presented in Figure 3.2-3 of the NL/Gould RI (Dames & Moore 1987).

Seventeen similar test pits were excavated on the NL/Gould property to define the area used to dispose of matte material generated from the blast furnace operations conducted at the site. The matte test pits are all located on Gould property in an area adjacent to the west side of the east Doane Lake remnant. The matte test pits verified matte disposal locations along the northeastern edge of the Gould property. The approximate locations are presented in Figure 3.2-4 of the NL/Gould RI (Dames & Moore 1987).

In 1979, and again in 1981, the ODEQ conducted surface-water quality surveys on both the east and west Doane Lake remnants. According to Dames &

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Moore (1987), data from both surveys indicate lead contamination in the lakes.

As part of the RI (Dames & Moore 1987), a survey of the surface water from the Willamette River (at points both upstream and downstream of a storm sewer outfall that serves the east Doane Lake remnant), and the east and west Doane Lake remnants, was conducted during 1986 and 1987. The analyses indicated that dissolved lead concentrations in the Willamette River samples were within the U.S. EPA national drinking water standards as well as ODEQ water quality standards. In addition, the lead concentrations in water samples from the west remnant were generally low. However, relatively high concentrations (0.13-0.28 mg/L) of dissolved lead were measured in water samples from the east Doane Lake remnant.

The organic analyses performed on the groundwater and soil samples collected from the RP property during the investigations summarized above have been the only organic analyses performed on samples collected from sites in Area A of the Doane Lake study area to date. Therefore, analyses are required at locations throughout Area A to accurately characterize the organic compounds present in Area A of the study area.

Because there have been no surveys of groundwater collected from the basalt layer aquifer in the Doane Lake study area, new well installations should include deep wells screened in the basalt aquifer. In addition, there have been no groundwater investigations conducted on Pennwalt property to date and no investigation of the background levels in the study area. Therefore, new wells should be installed to allow for these investigations to be conducted.

3.2.2 Area B

Surface water from the north Doane Lake remnant, located immediately northwest of the west Doane Lake remnant, has not been sampled to date.

In 1985, CH2M HILL surveyed the Wacker-Siltronic site for soil, groundwater, and air contamination. As part of the survey, seven monitoring

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wells were drilled to depths necessary to penetrate the native soils nearly 20 ft below the fill layer. These monitoring wells were all located east and southeast of the onsite wastewater treatment facility and extend within several hundred feet of the railroad tracks which border the southeast portion of the Wacker site.

Several high molecular polynuclear aromatic hydrocarbons (HPAH) were detected at significantly elevated concentrations in sediments collected during installation of the wells. EP toxicity tests conducted on the sediments also show barium contamination from unidentified sources. Groundwater collected from the wells exhibited contamination by similar compounds, excluding barium (CH2M HILL 1985).

Although groundwater sampling has been conducted on Wacker property, there have been no studies to date that have focused on the extent of groundwater contribution to the Willamette River north of the Wacker facility.

3.3 SOURCES AND EXTENT OF CONTAMINATION

3.3.1 Area A

Heavy metals, particularly lead, appear to be the major contamination problem in Area A. However, the extent of organic compound contamination has not been thoroughly investigated. Organic compounds discovered in past assessments have included 2,4-D. Arsenic, zinc, and chromium have also been detected in the local groundwater system. The source of lead has been determined to be the NL/Gould facility. The direct discharge of sulfuric acid from the NL/Gould site into east Doane Lake remnant has increased the mobility of these metals by lowering the pH of the groundwater and surface water (pH <5 generally). The pH levels gradually increase away from the source. At high pH (>11), as is the condition on the Liquid Air Corporation site, lead solubility again increases in the form of hydroxy complexes (Schock and Gardels 1983). To date, no lead has been detected in the lower water-bearing units under the Liquid Air facility. Concentrations of lead

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in the fill water-bearing unit have infiltrated the Liquid Air site, according to plume maps presented in the RI (Dames & Moore 1987).

Radioactive contamination from zircon sands disposed at the ESCO facility has not been adequately characterized.

Lead contamination in the Willamette River sediments adjacent to the NL/Gould site have been documented, as well as in sediments immediately downstream and across the river on the opposite bank.

3.3.2 Area B

The contamination associated with Area B is reflective of the petroleum industries that have operated onsite for more than 65 yr. HPAHs have been detected in both groundwater and soils throughout the Wacker Siltronics and NWNG properties. The sources of most of this contamination appear to be from various petroleum-related operations conducted on the NWNG property. Tar settling ponds on NWNG properties were maintained for about 30-35 yr. Residues were periodically dredged and incorporated into fill material, which was distributed throughout the NWNG site and along the northwest section of the Wacker site. Soil and groundwater contamination by HPAH and other organic compounds has been documented on the southeast portion of the Wacker site. Barium has also been detected in the same area. Discharge of petroleum by-products and tars into the Willamette river has been documented by NWNG. However, the extent of contamination downstream has not been addressed to date.

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4.0 MIGRATION PATHWAYS AND RECEPTORS

Migration pathways and receptors have been evaluated in previous studies. However, further investigations are necessary before the pathways and receptors are fully characterized. By identifying and characterizing all of the contaminants that may be present, remedial activities may be identified and evaluated for use in the various media contaminated with lead.

4.1 GROUNDWATER

One of the primary pathways of concern throughout the study area is the migration of contaminants through the hydraulically connected water-bearing groundwater units to private and public water supplies, and the environment. Groundwater monitoring studies in Area A included samples from the upper three water-bearing units (i.e., fill, upper, and lower alluvium), but no basalt groundwater surveys have been conducted to date. Organic analyses of groundwater have been conducted on the Rhône-Poulenc Site. However, the majority of Area A adjacent to Rhône-Poulenc has not been characterized for organic contamination in the groundwater. Radioactivity surveys on the ESCO site have been conducted, however, the extent of radionuclide migration has not been adequately characterized.

Area B groundwater surveys indicate organic contamination throughout the Wacker site. Tar residues, which were incorporated into fill on both the NWNG and Wacker sites, appear to be migrating offsite. Early operations at NWNG included the addition of surfactants to the wastewaters, thereby increasing solubility and allowing for transport over greater distances via groundwater and surface water (Camp Dresser & McKee 1987). Spent oxide materials are also distributed throughout the NWNG site, but have not been investigated in groundwater.

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4.2 SURFACE WATER

Surface water exposure pathways are of concern in the Doane Lake area. These pathways include the direct ingestion of contaminated waters and the ingestion of game animals that frequent the area (i.e., birds and fish). The inaccessibility of the east and west Doane Lake remnants reduces the chances of direct ingestion and/or contact by the general public. However, the north Doane Lake remnant and the Willamette River are both uncontrolled and readily accessible to the general public.

4.3 AMBIENT AIR

Lead-contaminated airborne particulates, originating from contaminated surface soils and exposed piles of discarded battery casings, are associated with the battery recycling and secondary lead smelter operations conducted by NL/Gould (Dames & Moore 1987). The contaminated soils and exposed piles of casings allow winds to carry fine lead and lead oxide particles, which typically remain in the casings after the recycling process is complete, either offsite or to nearby locations in the study area before they settle out onto surface soil and surface water. Once the contaminated airborne particulates have been deposited, surface water and groundwater become potential migratory pathways. Because surface water and groundwater are the primary pathways of concern in the study area, ambient air should be considered a secondary, or indirect, migratory pathway. Arsenic, cadmium, chromium, and zinc associated with lead refining processes are also of concern when considering ambient air as a migratory pathway.

4.4 SOILS

Soil contamination has been verified in both Area A and Area B. As previously stated, contaminant-laden soil particles may be transported to nearby locations or even offsite by winds before being deposited onto surface soil or surface water. Once contaminated soil particles have been deposited, there is a potential for surface water and groundwater contamination.

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5.0 HYDROGEOLOGY INVESTIGATION SCOPE OF WORK

The following sections describe the purpose and level of effort required for groundwater and surface water investigations to be conducted in the Doane Lake study area.

5.1 PURPOSE

The purpose of this hydrogeological RI is to determine the nature and extent of contamination of the groundwater and surface water units associated with the Doane Lake study area. This information will be used to identify possible contaminant sources and provide information for data gaps identified during reviews of PRP 104(e) responses.

The objectives of this study are to characterize areas of contamination; identify parameters of concern in addition to lead; determine the effect other parameters have on remedial activities chosen for lead; identify pathways of migration and transport processes; and identify potential receptors and potential risks to human health and the environment.

Specific tasks to be performed during the hydrogeologic RI include the preparation of the following plans:

- RI sampling plan
- Quality assurance project plan (QAPP)
- Health and safety plan

These plans and corresponding field activities must be coordinated with, and approved by, the ODEQ and U.S. EPA prior to implementation.

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5.2 PREPARATION OF PLANS

The sampling, QAPP, and health and safety plans will be prepared based on U.S. EPA guidance documents. During the investigation it may be necessary to revise the plans and scope of work to accommodate information obtained through field activities.

5.2.1 RI Sampling and Analysis Plan

The sampling and analysis plan should fully describe the specific procedures to be used to determine the nature and extent of groundwater and surface water contamination in the Doane Lake area. Guidance for this plan can be obtained from the Compendium of Superfund Field Operations Methods, EPA/540/P-87/001a, OSWER 9355.0-14, September 1987. All sample collection and analytical procedures must also comply with requirements of the U.S. EPA Contract Laboratory Program (CLP). Guidance for these procedures can be found in the following documents: U.S. EPA Contract Laboratory Program Statement of Work for Inorganics Analysis, IFB WA87-K025, K026, K027, October 1986, Revised July 1987 and U.S. EPA Contract Laboratory Program Statement of Work for Organics Analysis, WA-87K236, K237, K238, October 1986, Revised July 1987.

The sampling and analysis plan should address the following topics:

- Appropriate sampling locations and depths
- Statistically sufficient number of samples
- Collection of all necessary ancillary data (i.e., pH, temperature, specific conductance, etc.)
- Determining which parameters to be measured
- Data quality objectives (DQOs) (guidance: Data Quality Objectives for Remedial Response Activities OSWER 9335.0-7B, March 1987)

- Schedule of activities
- Documenting sampling activities and procedures including:
  - Collection procedures and forms
  - Field equipment used
  - Calibration of field equipment.
- Sample containers and preservatives used
- Chain-of-custody techniques including:
  - Standardized field tracking forms
  - Laboratory sample custody forms
- Sample analysis procedures
  - Sample storage procedures and storage time
  - Sample preparation methods
  - Analytical procedures
  - Laboratory calibration procedures and frequency
  - Laboratory internal quality control.

5.2.2 Quality Assurance Project Plan

The QAPP should describe methods and rationale to be used to ensure precision, accuracy, completeness, and achievement of the DQOs dictated by the intended use of the data collected. The QAPP should describe the

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policies, organization, objectives, functional activities, and specific QA/QC to be used in conducting the hydrogeologic investigation. The QAPP should include the following items:

- Title page with provisions for approval signatures
- Table of contents
- Project description
- Project organization and responsibility
- QA objectives for measurement data in terms of precision, accuracy, completeness, representativeness, and comparability
- Sampling procedures
- Sample custody
- Calibration procedures and frequency
- Analytical procedures
- Data reduction, validation, reporting
- Internal quality control checks and frequency
- Performance and system audits and frequency
- Preventive maintenance procedures and schedules
- Specific routine procedures used to assess data precision, accuracy, and completeness of specific measurement parameters

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- Corrective action
- Quality assurance reports.

5.2.3 Health and Safety Plan

The health and safety plan will establish protocols to provide a safe working environment for the investigative teams while protecting the general public. Guidance for the health and safety plans is provided by Appendix B, NIOSH/OSHA/USCG/USEPA Guidance Manual 1985 and 29 CFR Part 1910.120. The health and safety plan should include:

- Assessment of site hazards
- Listing of key personnel responsible for site safety
- Description of levels of protection to be worn
- Description of decontamination procedures
- Site emergency procedures
- Procedures for site control
- Emergency medical care procedures for injuries and toxicological problems.

5.3 SITE INVESTIGATION REQUIREMENTS

As stated previously, the ROD required that additional studies will be performed to provide a complete characterization of the nature and extent of contamination, and determine the pathways of migration for the surface water and groundwater units in the Doane Lake study area. Activities necessary to fulfill these data needs are outlined in the following sections. All of the investigative activities will be performed in accordance with the requirements of Section 5.2 above.

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5.3.1 Surface Water Investigations

Drainage and discharge patterns of the Doane Lake remnants have been studied in previous investigations. However, these studies have not fully characterized all of the discharge processes or the offsite transport mechanisms for the dissolved or soluble constituents of contaminants other than lead in the Doane Lake study area. To provide information for this characterization, a surface water characterization study will be conducted on the following units:

- Willamette River - Near-bank samples will be collected upstream of NW 61st Avenue, and downstream at intervals sufficient to determine significant inflow of contaminants. River level elevations will be collected daily to coincide with all other surface water and groundwater studies.

- East, west, and north Doane Lake remnants - Surface water samples will be collected in sufficient numbers to comply with QA/QC requirements. Transport mechanisms and processes, (i.e., drainage ditches, infiltration, and percolation) should be identified.

The locations and the rationale for the sampling locations and methods must be described. Two complete rounds of samples will be conducted to coincide with extremes of the hydrologic cycle.

5.3.1.1 Surface Water Sample Parameters--

Analyses performed on samples collected during previous field studies in the Doane Lake area have been limited in scope. In addition, the study area has received a broad range of contaminants. Therefore, analytical parameters will include full priority pollutant scans on all samples collected. Ancillary field data outlined in Section 5.2.1 (pH, temperature, etc.) should also be obtained at the time of collection.

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5.3.2 Willamette River Sediment Investigation

The National Oceanic and Atmospheric Administration (NOAA) conducted a Preliminary Natural Resource Survey in the vicinity of the Doane Lake study area. NOAA concluded that the nearshore Willamette River may provide nursery habitat for anadromous fish. The sediment samples collected by the U.S. Coast Guard and U.S. Army Corps of Engineers revealed elevated levels of some metals, pesticides and PCBs near the Doane Lake outfall. However, downgradient sediment samples were collected at stations 1 and 2 mi downstream. Additional sampling is necessary to identify the nature and extent of contaminants present in sediments in the immediate vicinity of the site, and to determine their potential threat to wildlife and human health.

Sediment samples will be collected at predetermined stations located upstream and downstream from the east Doane Lake remnant outfall. These stations will assist in identifying tidal influences on particulate dispersion rates in the Willamette River. Dye tests will be conducted to determine the exact location of the outfall. If other sources of discharges to the river are discovered during drainage pattern studies in Section 5.3.1, additional sampling points may be necessary.

Sampling stations will consist of 18 sampling points located on three transects (Figure 7), and will be established as follows:

- A transect cross-channel with stations at 10 m, 50 m, 100 m, and 250 m from the outfall

- A transect upstream from the outfall with stations at 10 m, 50 m, 100 m, 250 m, 500 m, 1,000 m, and 1,500 m

- A transect downstream from the outfall with stations at 10 m, 50 m, 100 m, 250 m, 500 m, 1,000 m, and 1,500 m.

Sediment samples will be collected from the upper 10 cm of sediment at all stations. At the 10-m downstream and three 50-m stations, sediment samples will be collected from the 10-20 cm and 20-30 cm horizons.

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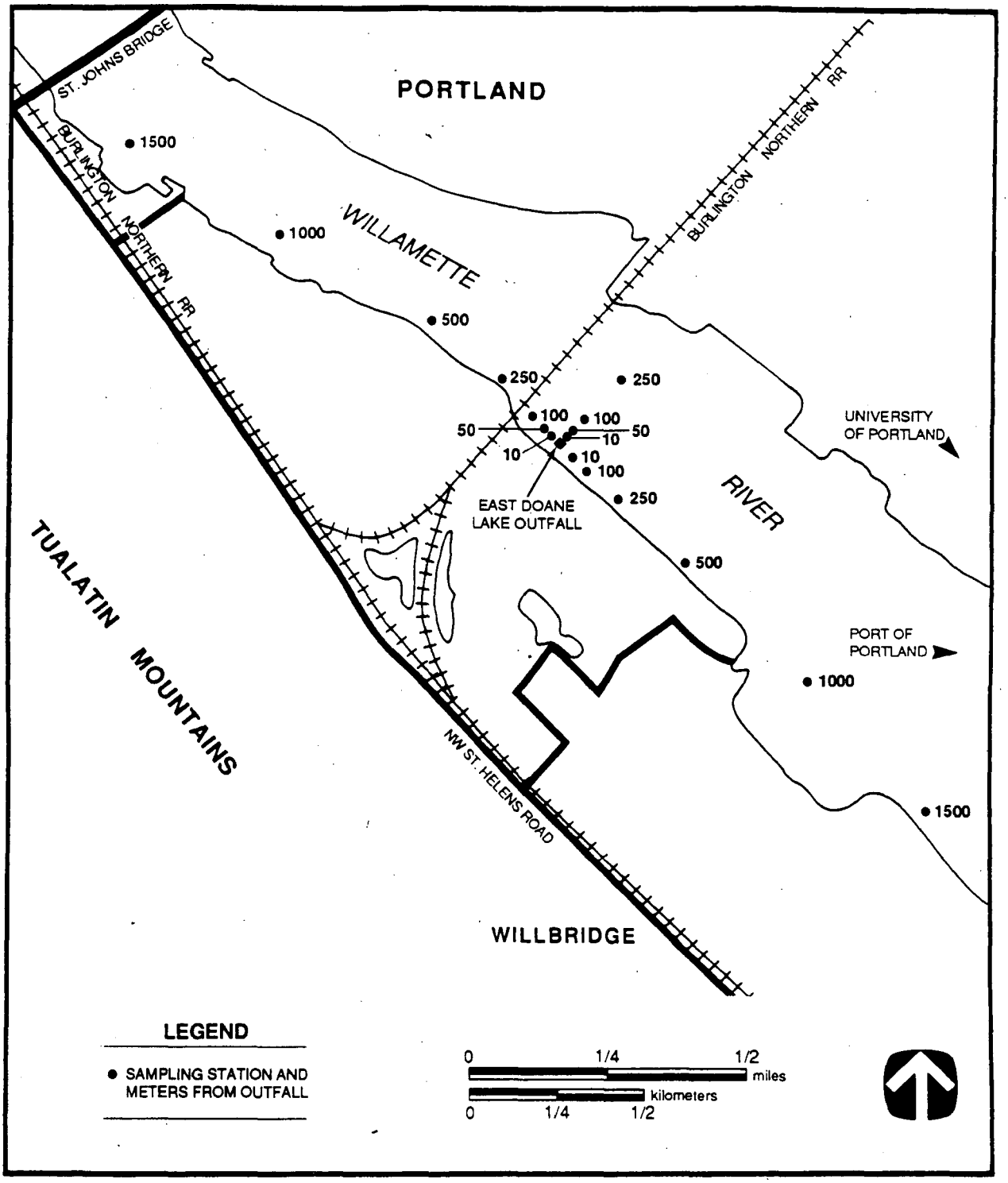

Figure 7. Williamette River sediment sampling stations.

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5.3.2.2 Sediment Sample Parameters--

Sediment samples collected from all of the stations and at all horizons will be analyzed for lead, the primary contaminant of concern for the Doane Lake study area, pesticides on the Hazardous Substance List, pH, conductivity, TOC, and grain size.

Sediment samples collected from the upper 10-cm horizons at the 10-m downstream station, all of the 50-m stations, all of the 100-m stations, and both 1,500 m stations will be analyzed for the full U.S. EPA Toxic Compound List (TCL).

Sediment bioassays will be conducted to determine the effect of contaminants on some of the common organisms used as food by anadromous fish in the Willamette River. Solid phase bioassays using Daphnia magna and Selenastrum should be conducted at sampling stations that coincide with the sediment samples to be analyzed for TCL scans (i.e., the upper 10-cm horizon at the 10-m downstream station, all of the 50-m stations, all of the 100-m stations, and both 1,500-m stations).

5.3.3 Groundwater Investigations

Groundwater appears to be the pathway with the highest potential for contaminant migration. To fully characterize groundwater conditions in the Doane Lake area, additional activities will be performed.

5.3.3.1 Additional Well Installations--

Additional wells will be installed to determine groundwater gradients, presence of contamination, and transport processes. Previous studies have described the presence of three aquifers in the Doane Lake area. Therefore, most new well installations will include well clusters, with each cluster comprised of three wells: one shallow well screened in the upper fill material, one intermediate well screened in the alluvial material, and one

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deep well screened in the basalt aquifer. New wells will be placed in the following locations (Figures 8 and 9):

- Northwest region of the northern Doane Lake study area - to evaluate the quality of groundwater in the northwest portion of the study area, where several oil spills have been recorded.

- Approximately 650 m southeast of the oil dock at the property boundary of Wacker Siltronics Corporation - to evaluate the effect of previous landfilling of coal gasification wastes on properties now owned by Wacker Siltronics Corporation.

- North of the Koppers creosote facility - to determine if creosote bottoms buried in the vicinity have affected groundwater quality.

- North of the Pennwalt Corporation facility - to determine the groundwater quality of this area, not previously characterized.

- Southeast of the American Steel facility - to serve as a background well location.

- Northeast of the Doane Lake pump station - comprised of one deep well screened in the basalt aquifer - to characterize the basalt aquifer, identified in the RI as being hydraulically downgradient and in communication with the upper aquifers.

- Background wells, located in the following areas:

  - Southwest of the Wacker Siltronics facility, composed of one well screened in alluvial material, and one well screened in the basalt aquifer

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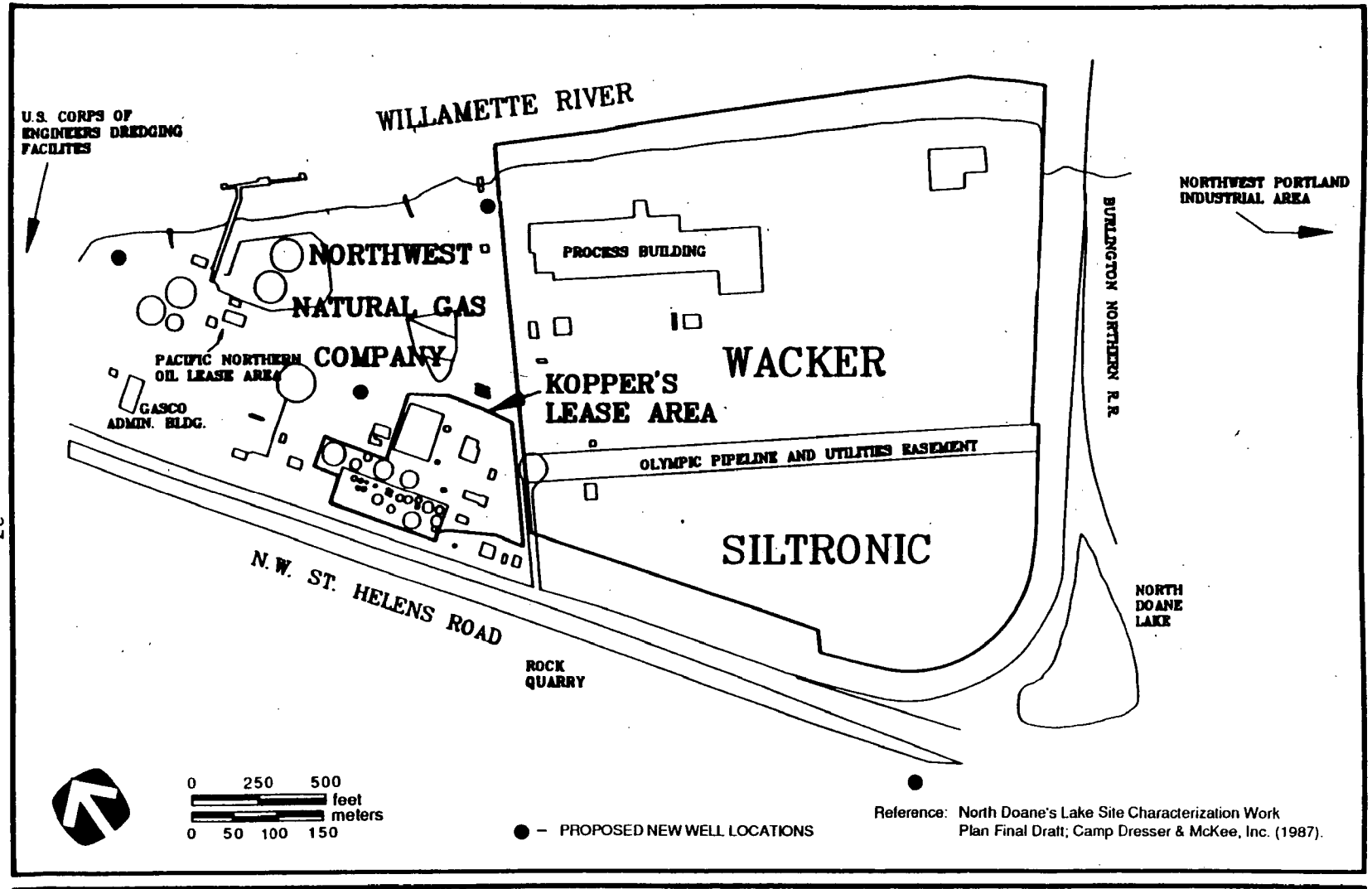

Figure 8. Proposed new well locations, North Doane Lake area.

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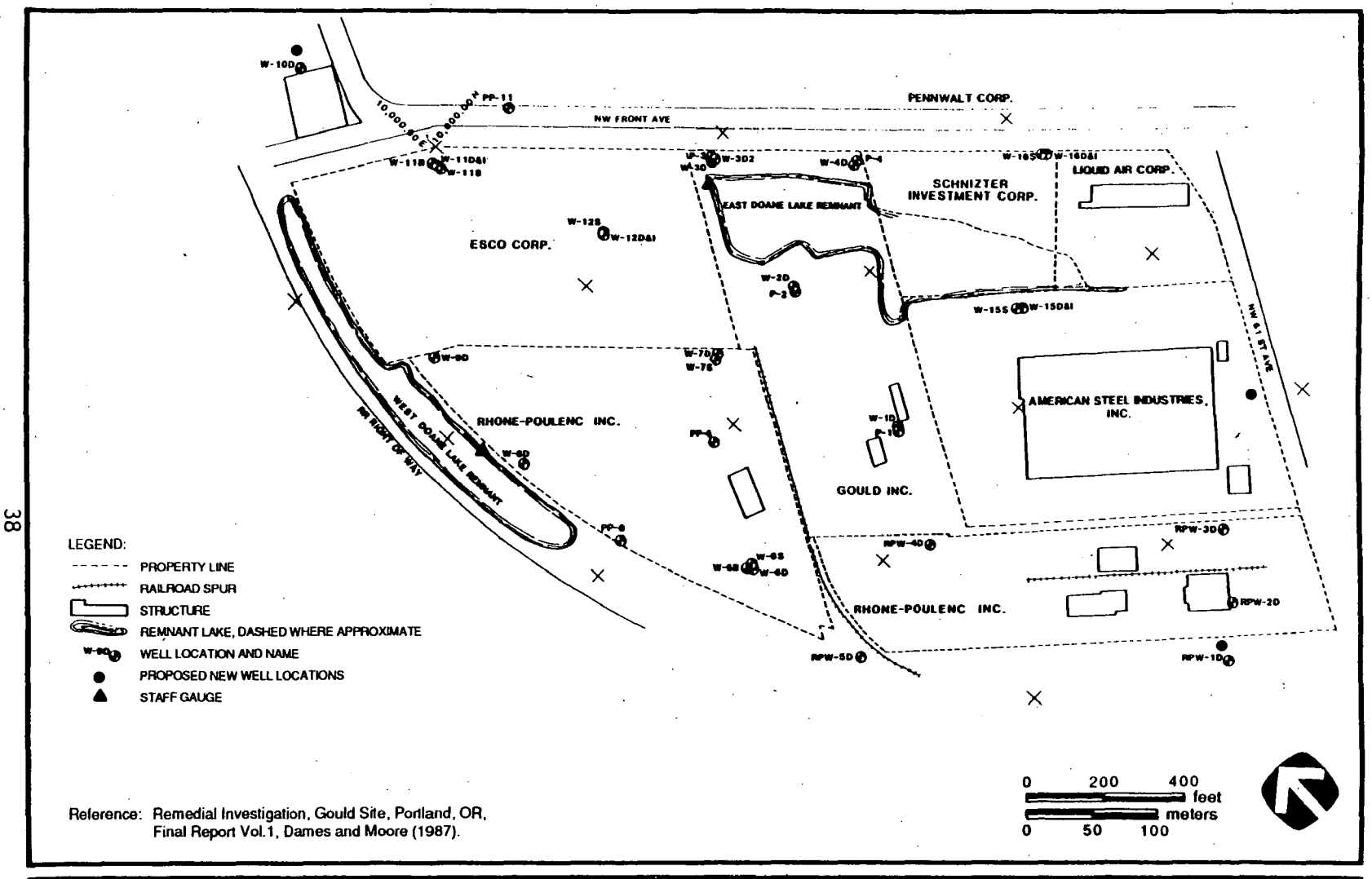

Reference: Remedial Investigation, Gould Site, Portland, OR, Final Report Vol.1, Dames and Moore (1987).

Figure 9. Proposed new well locations, South Doane Lake area.

Beazer000290

- South of the Rhone-Poulenc facility, near Well RPW-1D, composed of one well screened in the basalt aquifer.

The installation of additional wells may be necessary if the new and existing wells do not provide sufficient information to fully characterize the site as a whole, or sub-sites within the study area.

5.3.3.2 Groundwater Sample Parameters--

Groundwater sample analyses conducted to date have been limited in scope. To provide a more complete understanding of groundwater conditions in the Doane Lake area, an expanded investigation is required.

Samples from all new and existing wells will include field-filtered and preserved samples for all major ions to define complete groundwater composition. Analytical parameters will include: sodium, potassium, calcium, magnesium, iron, manganese, aluminum, silicon, chloride, fluoride, sulfate, carbonate, bicarbonate, cyanide, thiocyanate, nitrate, nitrite, ammonium, orthophosphate, and radium-226. Ancillary field data collected at each well will include Eh, pH, EC, and temperature measurements. These measurements are to be collected in a flow-through container.

Information concerning the nature and extent of various organic contaminants is deficient. Additional information on organic compounds will provide an understanding of the groundwater and surface water contamination that exists in the area, and potential impacts on the preferred remedial activities. Therefore, all new wells, and a significant majority of the existing wells will be sampled and analyzed for the TCL contaminants. Samples collected from all of the wells will be analyzed for both filtered and unfiltered metal constituents of the TCL. Two complete rounds of samples will be conducted to coincide with extremes of the hydrologic cycle.

Groundwater levels in all new and existing wells will be monitored to establish the hydraulic gradients in the various sections of the study area. These measurements will be collected by one sampling team using a single

Beazer000291

calibrated measuring tape. Transmissivity values for all newly installed wells will be determined to evaluate the contaminant transport processes. River levels will also be obtained to coincide with groundwater elevations and transmissivity tests to determine recharge effects and hydraulic connections.

5.4 REPORTS

The findings of the surface water and groundwater evaluations will be merged with existing data to provide a complete characterization of the site hydrogeology and contamination.

Beazer000292

6.0 REFERENCES

Camp Dresser & McKee. 1987. North Doane's Lake site characterization work plan final draft. Prepared for Northwest Natural Gas Company Camp Dresser & McKee Inc. Denver, CO.

CH2M HILL. 1985. A report on the investigation of ambient volatile organic levels. CH2M HILL Northwest, Inc., Bellevue, WA. pp 1-10. Not seen, as cited by Dames & Moore 1987.

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Ecology & Environment. 1982. Field investigations of uncontrolleld hazardous waste sites. Final Report. Prepared for the U.S. Environmental Protection Agency. Ecology & Environment, Inc., Seattle, WA.

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Rand McNally. 1979. Road Atlas of the United States, Canada, and Mexico. Rand McNally & Company, Chicago, IL. p. 128.

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Schock, M.R. and M.C. Gardels. 1983. Plumbosolvency reduction by high pH and low carbonate-solubility relationships. Am. Waterwords Asso. 75:87-91.

Schu, M. 12 April 1988. Personal Communication (letter to Mr. Charles E. Findley, U.S. Environmental Protection Agency Region X, Seattle, WA). Pennwalt Corporation, Philadelphia, PA.

Sherwood, R. 18 April 1988. Personal Communication (letter to Mr. David Tetta, U.S. Environmental Protection Agency Region X, Seattle, WA). ESCO Corporation, Portland, OR.

Wakefield, L. 21 March 1988. Personal Communication (letter to Mr. David Tetta, U.S. Environmental Protection Agency Region X, Seattle, WA) Schnitzer Investment Corporation, Portland, OR.

Beazer000293

SCHWABE, WILLIAMSON & WYATT
ATTORNEYS AT LAW

Pacwest Center, Suites 1600-1800
1211 S.W. Fifth Avenue
Portland, Oregon 97204-3795
(503) 222-9981

JAMES E. BENEDICT
(503) 796-2957

CABLE ADDRESS "ROBCAL"
TELEX 4937535 SWK UI
TELECOPIER (503) 796-2900

October 5, 1988

John Oxford
Koppers Company, Inc.
7540 N.W. St. Helens Road
Portland, OR 97229

Re: Doane Lake Area Groundwater Unit Study

Dear Mr. Oxford:

This letter is to confirm that a meeting of the interested parties for the EPA/DEQ Doane Lake study area has been scheduled for 10:00 a.m. October 20. A backup date of 10:00 a.m. October 27, 1988 has also been scheduled. The meeting will be held at:

Schwabe, Williamson & Wyatt
Conference Room #1650
Pacwest Center, Suite 1600
1211 S.W. Fifth Avenue
Portland, OR 97204

The earlier meeting date assumes the receipt from the EPA of the Tetra Tech scope of work and the notice letter from the DEQ on or before the 20th. If either of these documents is not received before the 20th plan to meet on October 27th. When I receive both documents I will call to confirm the meeting date.

Very truly yours,

/S/ JAMES E. BENEDICT

James E. Benedict

JEB:jmd

Seattle, Washington 98171 • Schwabe, Williamson, Wyatt & Lenihan
Peoples National Bank Building, Suite 900 • 1415 Fifth Avenue • (206) 621-9168

Washington, D.C. 20007 • Schwabe, Williamson & Wyatt
The Flour Mill, Suite 302 • 1000 Potomac Street N.W. • (202) 965-6300

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101
OCT 21 1988

Sent to
Bollie Nolan
S. Flaherty
10-26-88

REPLY TO ATTN OF: HW-113

John Oxford
Koppers Company, Inc.
7540 N.W. St. Helens Road
Portland, Oregon 97229

Dear Mr. Oxford:

Re: NL/Gould Superfund Site, Portland, Oregon

On February 18, 1988, the Environmental Protection Agency (EPA) notified you that it had documented the release or threatened release of hazardous substances at the above-referenced site. The EPA also notified you that it has information indicating that you or your company may be a responsible party for the groundwater unit at the NL/Gould site. This letter is to inform you of the agreements between EPA and the Oregon Department of Environmental Quality (DEQ) on the investigation of groundwater contamination associated with the "groundwater unit" of the NL/Gould Superfund site in Portland.

At DEQ's request, EPA has agreed that the state should be the lead agency responsible for the investigations of the groundwater unit. Accordingly, it is EPA's understanding that DEQ will use state authorities and resources to arrange for a Remedial Investigation to supplement the Remedial Investigation/ Feasibility Study performed by NL and Gould, which partially evaluated the nature and extent of contamination of the groundwater unit at this site. Details of this arrangement are included in the enclosed letter from EPA to DEQ dated September 13, 1988.

As part of this agreement, DEQ intends to: identify Potentially Responsible Parties (PRPs) for the groundwater unit; provide appropriate notice, define a Scope of Work based on the Scope of Work prepared for this site by EPA's contractor (included in this letter as an enclosure); and require consenting PRPs to properly and promptly conduct the investigation under a negotiated agreement. EPA will not be signatory to a negotiated agreement between the state and PRPs for the groundwater investigation. However, EPA is willing to provide a letter indicating its intent regarding future EPA action with respect to any order that is signed by DEQ.

OCT 24 1988

EPA and DEQ have agreed that if the state has not reached an acceptable agreement with the PRPs by March 31, 1989, the agencies will reevaluate options for accomplishing the investigation in a timely manner, including the use of federal funds, if available.

The results of the groundwater unit investigation will be used by DEQ and EPA to decide on the need for remedial actions for the NL/Gould groundwater unit. (The Record of Decision issued by EPA in March 1988 for the NL/Gould soils unit stated that EPA was deferring a decision on groundwater remediation to a later date).

We appreciate the cooperation you have shown in responding to our information request. If you have any questions on EPA's future role in this process, EPA's primary contact on this matter will be Alan Goodman of the Oregon Operations Office at (503) 229-5254.

Sincerely,

for George C. Hofer

Chuck Findley, Director
Hazardous Waste DIvision

Enclosures

cc: Al Goodman, Oregon Operations Office
Fred Hansen, DEQ
Bill Renfroe, DEQ

KOPPERS

7540 N.W. ST. HELENS ROAD
PORTLAND, OREGON 97210

TO: Billie Nolan

COMPANY NAME:

FROM: Koppers / Portland

NUMBER OF PAGES TO FOLLOW: (1) One

IF YOU DO NOT RECEIVE ALL MATERIAL TRANSMITTED, PLEASE CALL US AT: (503) 286-3681

OUR FAX NUMBER IS: (503) 285-2831

SENT BY: John. TIME: 3:15 DATE: 11-18-88

NEIL GOLDSCHMIDT
GOVERNOR

Department of Environmental Quality

811 SW SIXTH AVENUE, PORTLAND, OREGON 97204-1334 PHONE (503) 229-5696

November 15, 1988

Mr. John Oxford
Koppers Company, Inc.
7540 N. W. St. Helens Road
Portland, OR 97229

Re: Request to Participate in Consent Order Negotiations for the Doane Lake Study

Dear Mr. ~~Oxford~~ John:

It has been agreed upon with EPA that the Oregon Department of Environmental Quality (DEQ) will act as the lead agency for an investigation of the groundwater unit associated with the Gould/NL site.

You are hereby notified that Koppers Company, Inc. has been identified by the DEQ as an owner/operator, pursuant to ORS 466.540 through 466.590, with regards to the groundwater unit associated with the Gould/NL site. The Department intends to proceed with the groundwater unit investigation, referred to as the Doane Lake Study, using the above referenced authority. At this time DEQ has decided to limit the investigation to the scope of work proposed by the EPA. A copy of this scope of work was mailed to you by EPA on or about October 21, 1988.

You or representatives of your firm are requested to attend a meeting on Thursday, December 1, 1988, at DEQ's offices. The meeting will begin at 10:00 a.m. and will convene in the fourth floor conference room. The intent of the meeting is to initiate discussions that will result in a signed consent order prior to the EPA imposed deadline of March 31, 1989.

If you have any questions or need additional information, please contact Bill Renfroe, Site Response Section, at (503) 229-6900.

Sincerely,

Fred Hansen
Director

WTR:m
SM1752

cc: Chuck Findley-EPA Region X
Al Goodman-EPA 000
Larry Edelman-DOJ
Mike Downs-ECD
Tom Miller-SRS
Tom Bispham-RO

Similar letters sent to:
David Simon - Liquid Air Corp.
Eddmond Bolin - NW Natural Gas Co.
Roger Sherwood - ESCO
David Waldschmidt - Pacific Northern Oil
John Pittman - Wacker-Siltronic
Bob Ferguson - Rhone-Poulenc
Larry Patterson - Pennwalt Chemical Corp.
Michael Veysey - Gould, Inc.
Janet D. Smith - NL Industries, Inc.

Koppers Company, Inc., Pittsburgh, PA 15219
Telephone 412-227-2000

KOPPERS

November 23, 1988

David Tetta
U.S. Environmental Protection
Agency, Superfund Branch
1200 Sixth Avenue, HW-113
Seattle, Washington 98101

Re: NL/Gould Superfund Site
Portland, Oregon

Dear Mr. Tetta:

This letter is in response to the Agency's request for information letter dated October 25, 1988 regarding the above-referenced site.

Upon receipt of this letter, a thorough investigation of corporate records was undertaken. This was supplemented with interviews of Koppers' employees.

Based upon the investigation, and to the best of our information, knowledge and belief, the following are responsive to your inquiry:

1. Koppers Company, Inc. has never generated, stored, treated, transported, disposed or otherwise handled hazardous or non-hazardous substances at the NL/Gould Superfund Site.

2. Koppers Company Inc. has no knowledge, information or belief that hazardous substances were handled at the NL/Gould Superfund Site. Koppers never carried out any activities and /or operations at the NL/Gould Superfund Site.

3. N/A

4. N/A

5. N/A

KOPPERS CO.
PORTLAND OF

DEC 2 1988

6. Koppers Company, Inc. has no knowledge, information or belief of what, if any, spills of hazardous substances occurred on or around the NL/Gould Superfund Site.

7., 8., 9. & 11. The existence of any underground storage tanks and/or activities relating to any environmental investigation of properties and facilities other than the NL/Gould Superfund Site are outside the proper scope of this request made pursuant to Section 104 of CERCLA. This request by the Agency, or any enforcement thereof, is therefore arbitrary and capricious and otherwise contrary to law.

10. Koppers and its wholly-owned subsidiaries have had comprehensive general liability insurance in effect for some or all of the time period addressed in your inquiry, but, to date, the carriers have refused coverage in cases of this nature.

Very truly yours,

Billie S. Nolan

Billie S. Nolan
412-227-2515

cc: L. Flaherty
J. Dern
J. Oxford

NEIL GOLDSCHMIDT
GOVERNOR

Department of Environmental Quality

811 SW SIXTH AVENUE, PORTLAND, OREGON 97204-1390 PHONE (503) 229-5696

November 23, 1988

Mr. John Oxford
Koppers Company, Inc.
7540 N. W. St. Helens Road
Portland, OR 97229

Re: Meeting Date Change for Consent Order Negotiations for the Doane Lake Study

Dear Mr. Oxford:

The meeting originally scheduled for Thursday, December 1, 1988, has been rescheduled.

You or representatives of your firm are requested to attend a meeting on **Thursday, December 8, 1988**, at DEQ's offices. The meeting will begin at 10:00 a.m. and will convene in the fourth floor conference room. The intent of the meeting is to initiate discussions that will result in a signed consent order prior to the EPA imposed deadline of March 31, 1989.

If you have any questions or need additional information, please contact Bill Renfroe, Site Response Section, at (503) 229-6900.

Sincerely,

William T. Renfroe, Jr.
Site Response Section
Environmental Cleanup Division

WTR:m
SM1779
cc: Chuck Findley-EPA Region X
Al Goodman-EPA 000
Larry Edelman-DOJ
Fred Hansen-OD
Mike Downs-ECD
Tom Miller-SRS
Tom Bispham-RO

Similar letters sent to:
David Simon - Liquid Air Corp.
Edmund Bolin - NW Natural Gas Co.
Roger Sherwood - ESCO
David Waldschmidt - Pacific Northern Oil
John Oxford - Koppers Company, Inc.
John Pittman - Wacker-Siltronic
Bob Ferguson - Rhone-Poulenc
Larry Patterson - Pennwalt Chemical Corp.
Michael Veysey - Gould, Inc.
Janet D. Smith - NL Industries, Inc.

NOV 28 1988

DEQ-1

NORTHWEST NATURAL GAS COMPANY

220 N.W. SECOND AVENUE PORTLAND, OREGON 97209

(503) 226-4211

December 2, 1988

John Oxford, Manager
Koppers Company
7540 N. W. St. Helens Rd.
Portland, OR 97210

Dear John:

The enclosed letter was received late yesterday, December 1, 1988.

We have forwarded a copy to counsel and will be looking into the matter as we deem necessary. Please call if you have questions.

Sincerely,

E.L. Bolin, Manager
Land & Claims Department

ELB:b
Enc.

NEIL GOLDSCHMIDT
GOVERNOR

Department of Environmental Quality

811 SW SIXTH AVENUE, PORTLAND, OREGON 97204-1390 PHONE (503) 229-5696

DEC 1988
RECEIVED
LAND AND CLAIMS

November 30, 1988

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Northwest Natural Gas
One Pacific Square
220 N.W. 2nd Ave.
Portland, OR 97209

ATTN: Manager of Environmental Affairs

RE: Listing of Koppers Company (Portland), Inc.
on Inventory of Confirmed Releases
DEQ Site Identification No. 62

This letter is to notify you that the facility located at

7540 N.W. St. Helen's Road, Portland

is hereby proposed for listing on the Department of Environmental Quality (DEQ) Inventory of facilities where a release of hazardous substances has been confirmed. Based on a review of records

Northwest Natural Gas

has been identified as an owner of all or part of the facility. While the Department has identified you as an owner for purposes of the Inventory, this is not a determination as to your responsibility for the release or legal liability.

For the purpose of providing public information, the DEQ is required to develop and maintain an Inventory of all facilities where a release of hazardous substances is confirmed by the Department. The development of the Inventory is directed by Oregon Revised Statutes (ORS) 466.557. The Inventory will be submitted to the Governor, the Legislative Assembly and the Environmental Quality Commission on January 15, 1989 and each year thereafter, as specified in ORS 466.557(5).

Attached to this letter is an order by the Department formally stating our decision to list the facility on the Inventory. The facility will be listed on the Inventory unless you appeal the listing by submitting to me a request for a hearing before the Environmental Quality Commission.

This request for hearing must be submitted within 15 days of receiving this notice letter. Otherwise the facility will be listed on the Inventory. Again, the listing of a facility on the Inventory is not a determination that an owner is responsible for the release nor legally liable. If a timely request for hearing is made, the decision to list the facility on the Inventory will automatically be postponed until final disposition of the appeal.

The Department will attempt to resolve appeals without using a formal contested case hearing. Where this is not possible, a hearing will be scheduled and conducted in accordance with contested case hearing procedures provided for in ORS Chapter 183, as described in the attached order. You may appeal the decision to list the facility on the Inventory if you believe any of the items listed in Section 1. Findings of Fact and Conclusions of Law in the attached order are in error or based on any other factual or legal reasons.

The Inventory is a list of all facilities that have confirmed releases of hazardous substances, regardless of the status of the site. Many sites will need preliminary assessments to determine whether further investigation or cleanup is needed or whether cleanup actions taken previously are adequate. At other sites, investigations or actions have already been taken to address the release. Depending on the status of the site, the Department will determine the appropriate response for each site and schedule follow-up action based on the environmental hazard and available Department resources.

Should you want copies of the state Environmental Cleanup law or Environmental Cleanup rules, please contact Carol Harris at 503-229-6853 or write to:

Environmental Cleanup Division
811 S.W. Sixth Avenue
Portland, Oregon 97204

If you have specific questions about the Inventory or the listing of your facility, please contact the Site Assessment Section of the Environmental Cleanup Division at 503-229-5733.

Sincerely,

Fred Hansen

Fred Hansen
Director

cc: Northwest Region

STATE OF OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY

IN THE MATTER OF:	)	
	)	DEPARTMENT ORDER AND NOTICE
SITE INVENTORY LISTING OF	)	OF OPPORTUNITY FOR CONTESTED
PROPERTY LOCATED IN	)	CASE HEARING
MULTNOMAH COUNTY, OREGON,	)	
	)	NO. SA-891-62
NORTHWEST NATURAL GAS, OWNER	)	
	)	
	)	

Pursuant to ORS 466.557, the Director, Oregon Department of Environmental Quality (DEQ), issues this order placing the property described in this order on the inventory of facilities where a release of a hazardous substance is confirmed (Site Inventory).

I.

FINDINGS OF FACT AND CONCLUSIONS OF LAW

A. Northwest Natural Gas is the owner of the following described property:

7540 N.W. St. Helen's Road, Portland

B. On the basis of laboratory data, DEQ has confirmed that

lead
phenol, total
ethylbenzene
napthalene
acenaphthene
fluorene
anthracene
phenanthrene
fluoranthene
pyrene
dibenzofuran

have been "released" at the property within the meaning of ORS 466.540(14).

C. The substance(s)

lead
phenol, total
ethylbenzene
napthalene
acenaphthene
fluorene
anthracene
phenanthrene
fluoranthene
pyrene
dibenzofuran

are "hazardous substances" within the meaning of ORS 466.540(9).

D. The property is a "facility" within the meaning of ORS 466.540(6).

II.

ORDER

Based upon the above Findings of Fact, Conclusions of Law and supporting documentation in DEQ files, DEQ orders that the above-described property shall be placed on the Site Inventory thirty (30) days from the date of receipt of this order by the owner, except as provided for in Section 3.

III.

OPPORTUNITY FOR HEARING

In accordance with ORS 466.557(4), the owner may request a hearing before the Environmental Quality Commission (EQC) or its hearings officer regarding this order. Any request for a hearing must be made in writing and received by the Director of DEQ within fifteen (15) days from the owner's receipt of this order and notice. Any such request must be accompanied by a written answer admitting or denying all factual matters contained in this order, and must affirmatively allege any and all affirmative claims or defenses the owner might have. Any hearing shall be conducted under ORS Chapter 183 and OAR Chapter 340 Division 11.

If the owner does not request a hearing within fifteen (15) days of receipt of this order and notice, the owner shall waive the right to a hearing under ORS Chapter 183, except as provided under OAR 137-03-075(6) and (7). In the absence of a timely answer and request for hearing, this order shall become effective, based on a prima facie case made on agency files and records. If the owner is an agency, corporation, or unincorporated association, the owner must be represented by an attorney licensed in Oregon, except as provided under OAR 340-11-102.

DATED this 30th day of November, 1988.

DEPARTMENT OF ENVIRONMENTAL
QUALITY OF THE STATE OF OREGON

BY: Fred Hansen
Fred Hansen, Director

Koppers Company, Inc.

MEMO ROUTING SLIP

J. Offard			
Northwest Term.			

☐ NOTE & FORWARD

☐ PREPARE REPLY FOR MY SIGNATURE

☐ NOTE & RETURN

☐ COMMENT & RETURN

☐ NOTE & FILE

☐ TAKE APPROPRIATE ACTION

REMARKS:

PORTLAND OR

MAY 23 1988

FROM PHONE DATE

K-17

cc: LFF
J Blanche
J Oxford
gnd 5/19

N

RECEIVED

MAY 13 1988

ENVIRONMENTAL RESOURCES

CERTIFIED MAIL - RRR

May 3, 1988

Charles E. Findley, Director
Hazardous Waste Division
U. S. Environmental Protection Agency
Region X
1200 Sixth Avenue
Seattle, Washington 98101

Dear Mr. Findley:

We are in receipt of a copy of your letter dated February 18, 1988 concerning the Gould Superfund site in Portland, Oregon which invites a number of Potentially Responsible Parties (PRP's) to carry out a regional groundwater investigation.

Your letter states that the results of the Remedial Investigation/Feasibility Study (RI/FS) conducted by NL Industries and Gould, Inc., under the requirements of Administrative Order on Consent No. 1085-05-08106, "indicate groundwater contamination in the study area". The implication of your letter is that the RI/FS on the Gould site alone suggested the need for further groundwater study.

However, as EPA has known for some time, the groundwater in the general area from the Broadway Bridge southeast of the Gould site to areas one half mile northwest of the Burlington Northern railroad bridge are of questionable integrity as a direct result of the operations of local heavy industry. This is known to both Region X EPA and the Oregon Department of Environmental Quality (DEQ) as well as many private environmental consultants in the Portland area, and the Agencies have so stated this in meetings in the past with NL and Gould.

The fact that the Agencies are aware of the condition of the groundwater in the western Portland area is strongly supported by EPA's desire to conduct a groundwater study of the size indicated by the Agency. EPA had indicated to NL and Gould in a meeting on March 24, 1988 that the groundwater study area would encompass 400 acres. The Gould RI/FS certainly does not support implementing a groundwater study of such magnitude.

NL Industries, Inc.
Environmental Control Department
P.O. Box 1090, Hightstown, N.J. 08520 Tel. (609) 443-2329

NL Industries feels it is inappropriate for the Agencies to imply to companies surrounding the Gould site that the recommended groundwater study is being initiated because of the findings of the Gould RI/FS. Rather, it should be made clear to these companies that their own activities gave rise to the need for a regional groundwater investigation.

Very truly yours,

James E. Tracewski

James E. Tracewski
Regulatory Affairs Specialist

JET/tb

bc: F. Baser
J. Gibbs
J. Smith
S. Tasher
M. Veysey

PORTLAND, OR

MAY 23 1988

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101

April 5, 1988

REPLY TO ATTN OF: HW-113

Koppers Company, Incorporated
7540 N.W. St. Helens Road
Portland, Oregon 97229

Dear Sir:

The U.S. Environmental Protection Agency (EPA), through its contractor, Ecology and Environment (E&E), has completed the preliminary assessment of the Koppers facility. A copy of the report is enclosed.

Based on this assessment and other pertinent information, EPA finds it appropriate to defer to state authority for further consideration as part of the Doane Lake study.

If you have questions regarding report content or planned actions, I may be reached at (206) 442-2722.

Sincerely,

Deborah Flood

Deborah Flood
Environmental Protection Specialist
Superfund Response & Investigations Section

Enclosure

cc: Northwest Natural Gas, Portland
Chip Humphrey, EPA-000
Mary Wahl, DEQ, Portland

KOPPERS CO.
PORTLAND, OR
RECEIVED

APR 7 1988

PRELIMINARY ASSESSMENT REPORT
KOPPERS SITE
PORTLAND, OREGON

TDD F10-8709-09

Report Prepared by: Ecology and Environment, Inc.
Date: October 1987

Submitted to: J.E. Osborn, Regional Project Officer
Field Operations and Technical Support Branch
U.S. Environmental Protection Agency
Region X
Seattle, Washington

KOPPERS CO.
PORTLAND, OR.
RECEIVED
APR 7 1988

ecology and environment, inc.
101 YESLER WAY, SEATTLE, WASHINGTON, 98104, TEL. 206/624-9537
International Specialists in the Environment

recycled paper

ecology and environment, inc.
101 YESLER WAY, SEATTLE, WASHINGTON, 98104, TEL. 206/624-9537
International Specialists in the Environment

MEMORANDUM

DATE: October 28, 1987

TO: John Osborn, FIT-RPO, USEPA, Region X

THRU: for David Buecker, FIT-OM, E&E, Seattle

FROM: Lazar Gorelik, FIT-SM, E&E, Seattle

SUBJ: Preliminary Assessment Report for
Koppers Site
Portland, Oregon

REF: TDD F10-8709-09

CC: Deborah Flood, HWD-SM, USEPA, Region X
Jeffrey Villnow, FIT-PM, E&E, Seattle
Thomas Tobin, E&E, Seattle

1. Introduction and Purpose of the Preliminary Assessment:

Pursuant to U.S. Environmental Protection Agency (EPA) Contract No. 68-01-7347 and Technical Directive Document (TDD) F10-8709-09, Ecology and Environment, Inc. (E&E) conducted a Preliminary Assessment (PA) of Koppers Site in Portland, Oregon. The PA represents the second of a three-step investigative process which begins with Site Discovery and concludes, if necessary, with a Site Inspection. The investigative process, in general, is intended to identify, compare, and rank the potential hazards associated with a particular site relative to other sites across the nation for the purpose of identifying priority sites requiring remedial responses. It does not include extensive or complete site characterization, contaminant fate determination, or quantitative risk assessment.

The Koppers Site PA was conducted to identify potential public health and/or environmental hazards related to the site and, if present, evaluate the need for additional investigative action. The PA is based on data derived from available files and literature pertaining to the site (1-8). Information developed during the PA is summarized in Appendix A on EPA Form 2070-12.

2. Information Obtained During the Preliminary Assessment:

- Site Location and Description - The Koppers Site is located at 7900 N.W. St. Helens Road in the northwest industrial area of the City of Portland, Oregon (Figures 1 and 2). The facility occupies the southwest corner (8 acres) of a former gasification plant that was

recycled paper

operated by Portland Gas and Coke Company from 1913 to 1956 when Northwest Natural Gas Company began distributing natural gas. Northwest Natural Gas currently owns the property and leases it to Koppers Company (1).

- Physical Environment - Several large facilities, including the Rhone-Poulenc Chemical Plant which previously generated dioxin containing wastes, are in the vicinity of the Koppers Site (5, 6). The Wacker-Siltronic Company purchased land from Northwest Natural Gas and constructed a facility near the Koppers Site in the late 1970s (3, 4). Sediments containing coal tar residues were found during the construction of the facility. Between the Siltronic and Koppers sites lies the Northern Doane Lake site. Investigation of this area by Northwest Natural Gas and Wacker-Siltronic resulted in the Oregon Department of Environmental Quality (DEQ) identifying the Koppers Site as a source of suspected contamination (4).

  The Willamette River is approximately 1,800 feet from the Koppers Site. The depth to ground water at the site is probably within five to twenty feet. The Portland area has a mild climate, wet winters and warm dry summers. Total annual precipitation is about 40 inches and the average annual evaporation is about 26 inches. Drinking water in this area is supplied by the City of Portland from the Bullrun Reservoir (7).

- Site History / Potential Problem(s) at Site - In 1965, Koppers Company of Pittsburgh signed a long term lease agreement with Northwest Natural Gas Company to construct a new coal tar distillation plant on the property (1, 2). In 1966, the new $1 million plant started processing coke oven tar, which is produced by the carbonization of coal in ovens.

  The plant consisted of tar processing and pitch cooling facilities, a tank farm, a boiler building, an office building, a machine shop, and an extensive piping system for transferring raw materials and finished products from or to transportation facilities or storage tanks (Figure 2) (1). Coal tar was brought by boat to the Willamette River docks at the plant site.

  In the period between 1966 and 1973, the plant produced chemical oil, creosote, and pitch by distillation of coal tar (8, 9). Preheated coal tar was pumped from storage tanks to a large batch still. Heat was supplied by circulating tar from the still through a gas fired heater. Distillation was carried out under relatively high temperatures and vacuum until the still contents reached a

specific softening point. Oil from the tar was separated in a fractionating column and after condensation was pumped to storage. The pitch was pumped to a cooling tank from which it was loaded into tank cars or sent to cooling pans (50 x 80 feet). The solidified pitch was then dug out and loaded into trucks or hopper cars.

Air pollution problems from the following sources were associated with these operations: vents on the heated storage tanks, seals on pumps handling the hot process steam, an oil seal on the condensing system for the fractionating column, spills, and fumes from pitch cooling tanks (10). An air pollution control system used at the plant (9, 11) consisted of a scrubbing tower in which fumes were contacted and condensed by relatively cool circulating oil. Separation of the water condensate (wastewater) from the circulating oil was accomplished in a water tank and a water dehydration tank.

In 1973, the production facilities at the plant were shut down due to a lack of raw materials (8). In 1974, Koppers received permission to operate the plant on a temporary basis for manufacturing experimental batches of electrode pitch, a new product consisting of both coal and petroleum residuals (12). An Air Contaminant Discharge Permit (No. 26-2930) issued by DEQ in 1975 suggests that the electrode pitch production was probably terminated in 1977 (13). Since this time, the facility has been used only for bulk transfer operations of creosote coal tar and coal tar pitch.

In 1987, Koppers proposed to expand the facility (14). The new facility will be used to mix chromic acid, arsenic acid, and dry copper oxide with water. Vapors and particulates from the mixing process will be controlled by a water powered eductor followed by a packed tower scrubber. Wastewater from the tower will be recycled for dilution of the raw materials.

- <u>Waste Types, Quantities, and Characteristics</u> - Available data suggests that solid wastes disposed of at the site in the past probably consist of wastes produced by the former gasification plant and wastes produced by the Koppers plant. Oregon DEQ has identified abandoned coal tar disposal pits at the site (4). The origin, composition, and volume of the wastes are unknown.

  An EPA hazardous waste inventory document from 1979 (15) indicates that wastes from roofing pitch and electrobinding operations were disposed at the site in an area measuring approximately 100 x 20 feet (15). The wastes consisted of phenols and oil and grease, and were probably generated by the Koppers plant. This document also indicates that Koppers Company did not ship wastes from the site and that the company generated over 200 cubic yards of wastes per year.

In the past, the Koppers plant generated approximately 1,500 gallons per day (gpd) of industrial wastewaters from the following sources: the laboratory, pump room, wet oil, wet oil tank and water dehydration tank (11). In 1966, the company proposed that after oil removal the wastewaters be discharged into a drain field, providing over 90% BOD reduction for compounds consumed by soil bacteria. It is unclear, however, whether Koppers applied this treatment method at the site. The company probably started to discharge industrial wastewaters to the City of Portland sewer system in 1975 (16).

The plant effluent consisting of wastewater runoff from the tank farm and boiler blowdown was discharged to the Willamette River in accordance with NPDES permits. In 1975, the company paved the surface in the tank farm area to reduce infiltration of surface water and installed a rainwater collection and treatment system, which included an oil water separator for oil removal (17). The effluent from the separator was discharged into a storm water ditch leading to the river.

The early NPDES permits specify the following daily maximum parameters for the plant effluent: flow (68,000 gpd), oil and grease (20 mg/l), pH (6-9), and temperature (110°F). The NPDES permit of 1975 also includes phenols (0.7 mg/l). In 1985, DEQ required settling and skimming for Kopper's runoff to reduce the content of polynuclear aromatic hydrocarbons (PAHs) and also required monthly monitoring for PAHs in the effluent (18). However, the NPDES discharge monitoring report of 1987 specified the following parameters: flow (3,000 - 10,000 gpd), temperature (72 - 100°F), pH (6 - 9), oil and grease (10 - 15 mg/l), and phenols (0.5 - 0.7 mg/l).

- Pollutants, Mobilization, Pathways, and Risks - In the past, products recovered by distillation of coal tar at the plant included: chemical oil, creosote, and pitch. Coal tar is a complex mixture of many chemicals. It is a viscous liquid heavier than water. A typical composition of coal tar by distillation may be given as: about 5% tar chemicals (tar acids); 30% distillation oils (creosote and other distillates); and 60% to 65% residuals (road tars, crude and refined tars, pitches and pitch coke) (19).

  Chemical oil produced by the plant consisted mainly of phenols and naphthalene (9). The product was shipped for further processing for recovery of naphthalene, phenol, xylenol, pyridine, picoline, and various solvent oils. Creosote, a well known wood preservative, is primarily composed of PAHs. It is an oily liquid slightly heavier than water. Pitches have a variety of uses. Hard pitches produced by the plant were used in electrodes as binding materials.

A majority of the chemical constituents of these products are characterized by chemical stability, low water solubility, low vapor pressure, and high affinity to soil (19). As a result, they exhibit low mobility in the environment, distributing preferentially to soil. Subsurface contamination by the liquid products may have a long term adverse affect on both the soil and ground water because of a high content of organic compounds and their low solubility.

A limited set of analytical results of ground water samples from on-site monitoring wells, old wastes from one on-site pond, and river sediment samples near the site suggest that soil and ground water contamination by coal tar constituents have occurred at the site (20). The transport of contaminants from the site is likely to be directed toward the river through surface water runoff and ground water flow.

However, the information gathered suggests that the Koppers Site has a low potential to cause human health problems because residual contaminants are unlikely to influence either the local drinking water source or air quality. In contrast, it appears that potential transport of toxic tar constituents from the site may affect water quality in the river and its aquatic population. This is primarily due to the close proximity of the site to the river. This potential environmental impact cannot be accurately assessed because of incomplete data on the extent and magnitude of the contamination.

3. Priority Assessment:

No further action is appropriate under the pre-remedial program. However, the site should continue to be assessed as part of the Doane Lake investigation.

4. Follow-up Recommendations:

Activities at the Koppers Site have been monitored by DEQ since the construction of the coal tar processing plant, which occupies a portion of the old gasification plant. Tar contamination has been found in the area of the old gas plant in a study conducted by Northwest Gas Company and Wacker-Siltronic Company.

Information gathered during the PA suggests that soil and ground water contamination by tar constituents has occurred at the site as a result of past operational and waste disposal practices. Coal tar was produced at the site in the period 1913-1953. The Koppers plant processed coal tar into chemical oil, creosote, and electrode pitches probably in the period 1966-1973. Experimental batches of an electrode pitch consisting of coal and petroleum residuals were produced probably in the period 1973-1977.

The EPA site file indicates that in the past the plant generated approximately 200 cubic yards per year of wastes which were disposed on the Koppers Site. The process sources of waste generation are unknown. Limited data is available on the waste composition. In the past, the tank farm area probably resulted in subsurface contamination by various coal tar products. It is possible that before 1975 industrial wastewaters from the plant were disposed beneath the site.

It appears that the site has a low potential to cause human health problems since residual contaminants at the site are unlikely to influence the local drinking water source or air quality. However, the site has potential to cause environmental damage through surface and subsurface migration of various toxic pollutants to the river. Due to the lack of a target population, no further action is recommended under CERCLA. It is, however, recommended that a study at the Koppers Site be conducted by a state or local agency to evaluate the extent and magnitude of contamination in the area leased by Koppers Company.

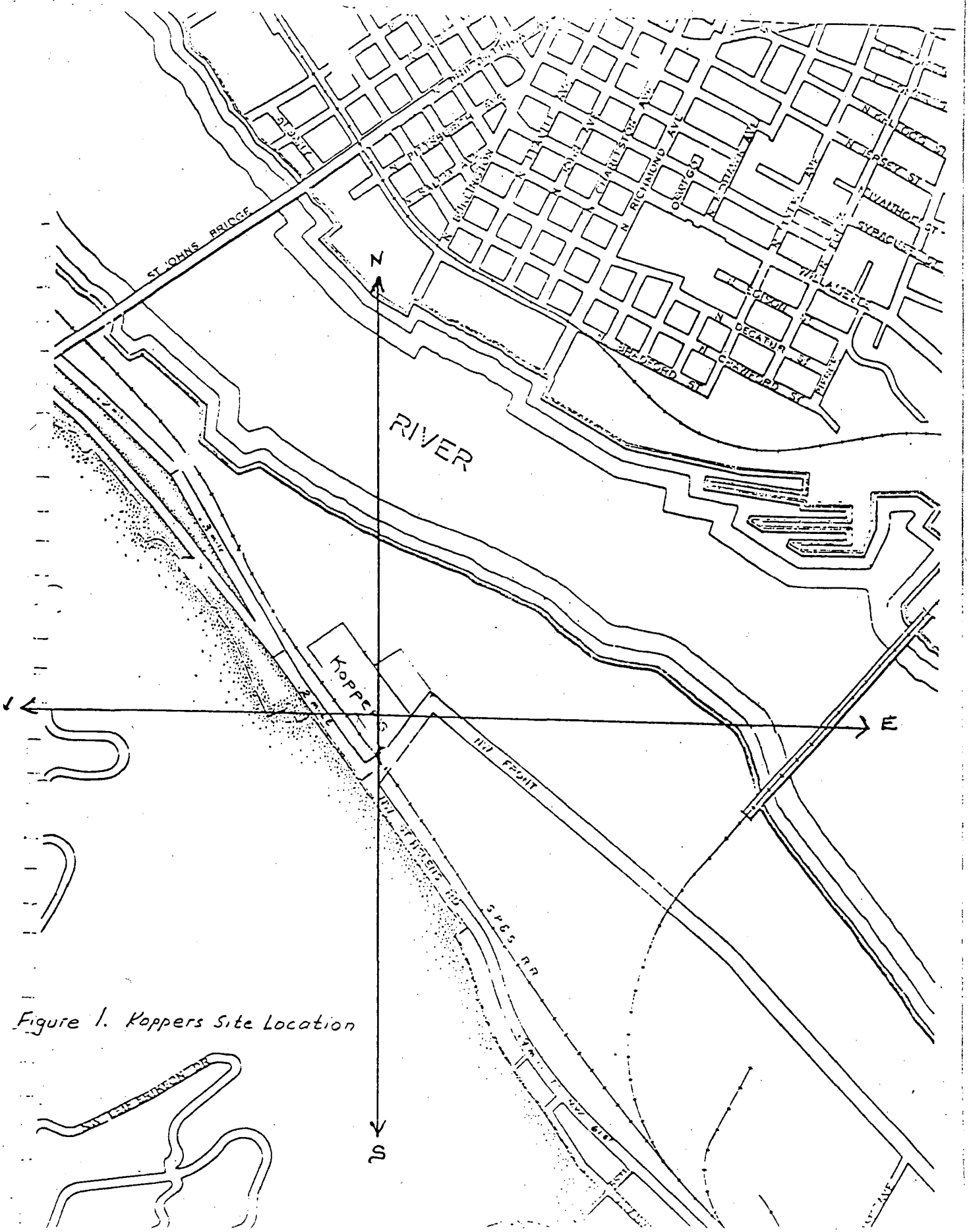

Figure 1. Koppers Site Location

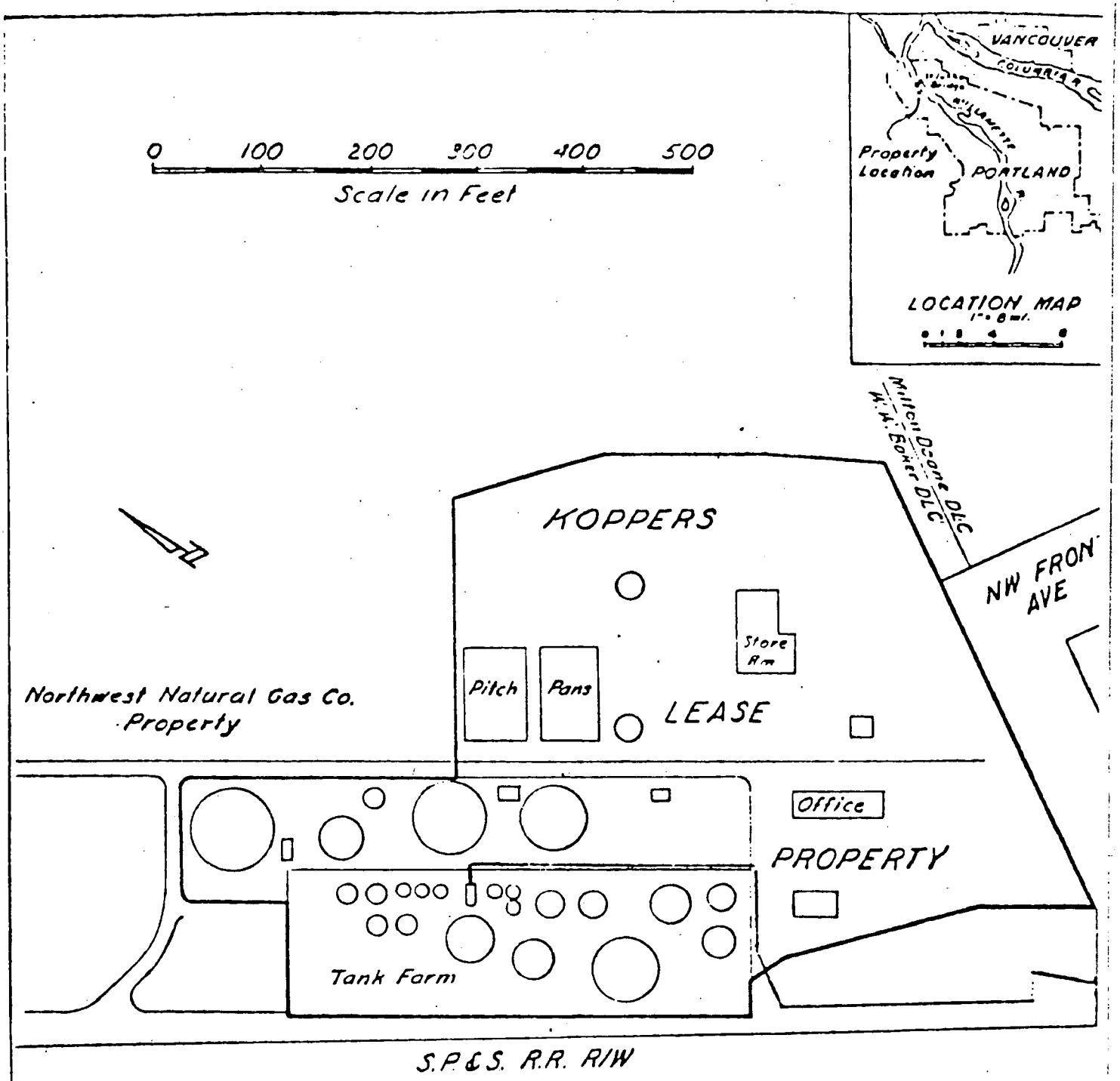

Figure 2. Location of Koppers Lease Property on Northwest Natural Gas Co. property at 7900 NW St Helens Rd., City of Portland, County of Multnomah, State of Oregon.

June 3, 1971

REFERENCES

1. The Oregon Journal, August 25, 1965. The Casco Plant in New Use. ODEQ Site Files.

2. The Oregonian, August 11, 1966. Koppers' Portland Plant Starts Initial Production. ODEQ Site Files.

3. Memo from Dennis Adamczyk to A. Goodman, December 19, 1986. ODEQ Site Files.

4. Dennis Adamczyk, December 26, 1986. Northern Doane Lake - Koppers Company Hazardous Waste Site. ODEQ Site Files.

5. L. Gorelik, 1985. Tier 2 Dioxin Screening, Phone-Poulene Chemical Plant, Portland, Oregon. Ecology and Environment, TDD R10-8405-09.

6. W. Ritthaler and L. Gorelik, 1986. Alkali Lake Disposal Site, Alkali Lake, Oregon, National Dioxin Study. Ecology and Environment, TDD R10-8410-12.

7. Personal Communication, September 15, 1987. Oregon Water Department.

8. AQ-Koppers-Multnomah County, September 25, 1974. ODEQ Site Files.

9. Memo from D. Roach to R. Hatchard, February 11, 1966. ODEQ Site Files.

10. Memo from T. Bispham to W. Hanson, October 14, 1970. ODEQ Site Files.

11. Effluent Treatment Facilities, January 27, 1966. ODEQ Site Files.

12. Memo from L. Shannon to R. Bispham, December 11, 1974, ODEQ Site files.

13. Memo from L. Patterson to Koppers Company, Inc., January 19, 1977. ODEQ Site Files.

14. ODEQ Memo from A. Broad, August 17, 1987. ODEQ Site Files.

15. Inventory - Possible Source of Hazardous Waste, August 21, 1979. EPA Region X, Site Files.

16. Application No. OR-000077-9, date unknown. ODEQ Site Files.

17. Northwest Tank Farm, Rainwater Collection and Treatment System, January 23, 1975. ODEQ Site Files.

18. Memo from L. Patterson to G. Bausler, March 4, 1985. ODEQ Site Files.

19. Handbook on Manufactured Gas Plant Sites, 1984. Environmental Research and Technology, Inc., Pittsburg PA and Koppers Company, Inc. Prepared for Utility Solid Waste Activity Group Superfund Committee, Washington, D.C., Under EPA Project No. P-D125.

REFERENCES (cont.)

20. Memo from C.H. Gray to G. Calaba, August 27, 1984, ODEQ Site Files.

21. Analytical Results of Samples from the Koppers Site, July 19, 1982. ODEQ Site Files.

APPENDIX A

EPA FORM 2070-12

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 State	02 Site Numbe
OR	D027734359

II. SITE NAME AND LOCATION

01 Site Name (Legal, common, or descriptive name of site)	02 Street, Route No., or Specific Location Identifier				
Koppers Co., Inc.	7540 N.W. St. Helens Road				
03 City	04 State	05 Zip Code	06 County	07 County Code	08 Co D: 0
Portland	OR	97229	Multnomah	051	

09 Coordinates Latitude	Longitude
45° 34' 40.0"	122° 45' 31.0"

10 Directions to Site (Starting from nearest public road)

III. RESPONSIBLE PARTIES

01 Owner (if known)	02 Street (Business, mailing, residential)		
Northwest Natural Gas	220 N.W. Second Avenue		
03 City	04 State	05 Zip Code	06 Telephone Number
Portland	OR	97209	(303) 226-4211
07 Operator (if known and different from owner)	08 Street (Business, mailing, residential)		
Koppers Co., Inc.	Environmental Resources		
09 City	10 State	11 Zip Code	12 Telephone Number
Pittsburgh	PA	15219	(412) 227-2000

13 Type of Ownership (Check one)
[X] A. Private [ ] B. Federal _____ (agency name) [ ] C. State [ ] C. County [ ] E. Municipal
[ ] F. Other _____ (specify) [ ] G. Unknown

14 Owner/Operator Notification on File (Check all that apply)
[X] A. RCRA 3001 Date Received: 11 /19 /1980 (Month Day Year) [X] B. Uncontrolled Waste Site (CERCLA 103c) 07 /19 /1982 (Month Day Year) The company was investigated under abandoned HW site inventory. [ ] C. None

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 On-Site Inspection
[X] Yes Date 07 /19 /1982 (Month Day Year)
[ ] No
[ ] A. EPA [ ] B. EPA Contractor [X] C. State [ ] D. Other Contractor
[ ] E. Local Health Official [ ] F. Other _____ (specify)
Contractor Names(s): _____

02 Site Status (Check one)
[X] A. Active [ ] B. Inactive [ ] C. Unknown

03 Years of Operation
1966 (Beginning Year) | Present (Ending Year) [ ] Unknown

04 Description of Substances Possibly Present, Known, or Alleged
Coal gas plant from 1913-1956. Coal tar distillation into oil, creosote, and electrode pitch from 1966 to 1973. Electrode pitches production from coal tar and petroleum residues from 1973 to 1977. Transfer and storage of coal tar products from 1977.

05 Description of Potential Hazard to Environment and/or Population
Solid wastes and industrial wastewater from processing coal tar. Large quantities of solid wastes were disposed the Koppers site. Solid wastes are complex mixtures of phenols and PAHs. Subsurface contamination by coal tar constituents.

V. PRIORITY ASSESSMENT

01 Priority for Inspection (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part Description of Hazardous Conditions and Incidents)
[ ] A. High (Inspection required promptly) [ ] B. Medium (Inspection required) [ ] C. Low (Inspect on time available basis) [X] D. None (No further action needed, complete current disposition fo

VI. INFORMATION AVAILABLE FROM

01 Contact	02 Of (Agency/Organization)	03 Telephone
Deborah Flood	USEPA, Region X, Superfund	(206) 442-272

04 Person Responsible for Assessment	05 Agency	06 Organization	07 Telephone No.	08 Date
Lazar Gorelik	EPA/FIT	E&E	(206)624-9537	09 /23 /8 (Month Day Y

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 State	02 Site Numb
OR	D02773435

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 Physical States (Check all that apply)

- [ ] A. Solid
- [ ] B. Powder, Fines
- [x] C. Sludge
- [ ] D. Other _____ (Specify)
- [ ] E. Slurry
- [ ] F. Liquid
- [ ] G. Gas

02 Waste Quantity at Site (Measure of waste quantities must be independent)

Tons _____

Cubic Yards > 200 cy/yr

No. of Drums _____

03 Waste Characteristics (Check all that apply)

- [ ] A. Toxic
- [ ] B. Corrosive
- [ ] C. Radioactive
- [ ] D. Persistent
- [ ] E. Soluble
- [ ] F. Infectious
- [ ] G. Flammable
- [ ] H. Ignitable
- [ ] I. Highly Volati
- [ ] J. Explos
- [ ] K. Reacti
- [ ] L. Incomp ible
- [ ] M. Not Applic

III. WASTE TYPE

Category	Substance Name	01 Gross Amount	02 Unit of Measure	03 Comments
SLU	Sludge			
OLW	Oily Waste	> 200	cubic yards	Oily waste containing coal tar compounds were generated in the past by Koppers Co., Inc. Waste is in fill on the property leased by Koppers Co., Inc.
SOL	Solvents			
PSD	Pesticides			
OCC	Other Organic Chemicals			
IOC	Inorganic Chemicals			
ACD	Acids			
BAS	Bases			
MES	Heavy Metals			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 Category	02 Substance Name	03 CAS Number	04 Storage/Disposal Method	05 Concentration	06 Measure Concentrat
OLW	Complex mixtures; PAHs and other compounds of coal tar	N/A	On-site	Unknown	N/A
		N/A	Disposed	Uknown	N/A

V. FEEDSTOCKS (See Appendix for CAS Numbers)

Category	01 Feedstock Name	02 CAS Number	Category	01 Feedstock Name	02 CAS Numb
FDS	Coal Tar	N/A	FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Adamczyk, 01/26/86, ODEQ Files; Adamczyk, 12/05/86, ODEQ Files; Adamczyk, 01/19/86, ODEQ Files; T. Berkmeir, 08/21/79, EPA Region X Files; Memo from C. H. Gray to G. Calala, 08/27/84, ODEQ Files; The Oregonian, 08/11/66, ODEQ Files; Memo from Koppers, 02/22/84, ODEQ Files; Memo from B. Smith to Koppers Co., 02/06/1984, EPA Region X ODEQ Files.

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 State	02 Site Numb
OR	D02773435

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. Ground Water Contamination — 02 [X] Observed (Date: 07/19/82) [ ] Potential [ ] Alle
03 Population Potentially Affected: 0 — 04 Narrative Description

Elevated levels of phenols were detected in the ground beneath the site. Other coal tar constituents are probab present in the water.

01 [X] B. Surface Water Contamination — 02 [ ] Observed (Date:) [X] Potential [ ] Alle
03 Population Potentially Affected: — 04 Narrative Description

Potential for migration of contaminants from the site to the Willamette River.

01 [X] C. Contamination of Air — 02 [X] Observed (Date: 07/28/1970) [ ] Potential [ ] Alle
03 Population Potentially Affected: — 04 Narrative Description

In the past, the chemical plant had a number of problems with air contamination.

01 [ ] D. Fire/Explosive Conditions — 02 [ ] Observed (Date:) [ ] Potential [ ] Alle
03 Population Potentially Affected: — 04 Narrative Description

None reported, observed, or suspected.

01 [ ] E. Direct Contact — 02 [ ] Observed (Date:) [ ] Potential [ ] Alle
03 Population Potentially Affected: — 04 Narrative Description

Facility is fenced and access is restricted.

01 [X] F. Contamination of Soil — 02 [ ] Observed (Date:) [X] Potential [ ] Alle
03 Area Potentially Affected (Acres) Unknown — 04 Narrative Description

Soil contamination is likely to occur at the site as a result of past operational and waste disposal practices. Areas of concern are: waste pit, tank farm, and drain field.

01 [ ] G. Drinking Water Contamination — 02 [ ] Observed (Date:) [ ] Potential [ ] Alle
03 Population Potentially Affected: — 04 Narrative Description

Ground water in the industrial area is not used for drinking water supplies. The site is unlikely to influence water quality of the local drinking water supply source.

01 [X] H. Worker Exposure/Injury — 02 [ ] Observed (Date:) [X] Potential [ ] Alle
03 Workers Potentially Affected: 12 — 04 Narrative Description

If safety procedures are violated, potential for worker exposure seems likely because of the toxic nature of products.

01 [ ] I. Population Exposure/Injury — 02 [ ] Observed (Date:) [ ] Potential [ ] Alle
03 Population Potentially Affected: — 04 Narrative Description

Current operations are unlikely to result in population exposure/injury.

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 State: OR
02 Site Num: D0277343

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 [ ] J. Damage to Flora — 02 [ ] Observed (Date: _____) [ ] Potential [ ] All
04 Narrative Description

None reported, observed, or suspected.

01 [X] K. Damage to Fauna — 02 [X] Observed (Date: Unknown) [ ] Potential [ ] All
04 Narrative Description (include name(s) of species)

The Willamette River is about 0.75 miles from the site. The presence of coal tar constituents have been detect in river sediments.

01 [ ] L. Contamination of Food Chain — 02 [ ] Observed (Date: _____) [ ] Potential [ ] All
04 Narrative Description

None reported, observed, or suspected.

01 [X] M. Unstable Containment of Wastes (Spills/runoff/standing liquids, leaking drums) — 02 [ ] Observed (Date: _____) [X] Potential [ ] All
03 Population Potentially Affected: _____ 04 Narrative Description

Potential for leaching of contaminants from disposed waste products into subsurface.

01 [X] N. Damage to Off-site Property — 02 [ ] Observed (Date: _____) [X] Potential [ ] All
04 Narrative Description

Damage to off-site property may result through subsurface migration of contaminants.

01 [ ] O. Contamination of Sewers, Storm Drains, WWTPs — 02 [ ] Observed (Date: _____) [ ] Potential [ ] All
04 Narrative Description

None reported, observed, or suspected.

01 [X] P. Illegal/Unauthorized Dumping — 02 [ ] Observed (Date: _____) [X] Potential [ ] All
04 Narrative Description

Waste products containing phenols and other tar compounds were disposed on site by Koppers Co., Inc. in the pa

05 Description of Any Other Known, Potential, or Alleged Hazards

Potential spills of liquid products as a result of a long operation period of the facility having a large stor capacity and extensive piping system.

III. TOTAL POPULATION POTENTIALLY AFFECTED:

IV. COMMENTS

It is recommended that a study be conducted at the Koppers Co., Inc. Site.

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Memo from Gray to Calala, 08/27/84, ODEQ Files; Analytical Results of Samples from Koppers Co., Inc. Site, 07/ T. Berkmeir, 08/21/79, EPA Region X Files; Memo from C. H. Gray to G. Calala, 08/27/84; Memo, 11/27/87, USGS M Memo, 07/28/1970, ODEQ Files.

K-17

Koppers Company, Inc.

Memo Routing Slip

To	Location	Date Received	Initial
J. Offerd			
Northwest			
Terminal			

- ☐ Note & Forward
- ☐ Prepare Reply for my Signature
- ☐ Note & Return
- ☐ Comment & Return
- ☐ Note & File
- ☐ Take Appropriate Action

Remarks:

From | Phone | Date

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

Interoffice Correspondence

To	Larry Flaherty	From	J. M. Dern
Location	K-1750	Location	K-1928
Subject	Soil and Groundwater Investigation	Date	April 6, 1988

On March 29, 1988, a meeting was held in Portland, Oregon of those companies who received the Section 104 letters from U. S. EPA. Those in attendance were Northwest Natural Gas, ESCO, Wacker Siltronics, Rhone-Poulenc, NL Industries, Schnitzer and Koppers. Absent were Pacific Norther Oil (who seemed to have a sidebar agreement with Northwest Natural Gas and Pennwalt). This memo will summarize the discussions held.

Conversations by various members of the group with U.S. EPA Region X makes it clear that U. S. EPA wants the groundwater study to include about 400 acres along the Willamette River well beyond the boundaries of the NL/Gould 30 acre Superfund site. U. S. EPA feels that there is sufficient information based on other studies to declare the area a superfund site but will forego it if a study is done. The request seems to be limited to an Remedial Investigation. No Feasibility Study has been spoken about yet. The agreement for DEQ to study north of the railroad and EPA, south of the railroad has apparently evaporated. U. S. EPA will issue its findings on the need for an investigation in July after a review of the Sec 104 submission.

For Oregon DEQ's part, their interest seems to be to take the lead in the project from U. S. EPA. DEQ does not want the area to be declared a Superfund Site and they feel they can accomplish this task. Oregon DEQ also indicated a willingness to use existing data, although those who have the data agree that it will not in all likelihood meet existing QA/QC requirements.

The responses to the 104 letters have been as follows:

Northwest Natural Gas - Responded by submitting a copy of the CDM workplan for soil and groundwater investigation of NWNG, Wacker and Koppers site..

KOPPERS CO.
PORTLAND, OR
RECEIVED

Wacker - Responded with available data and asked to be let out.

APR 11 1988

Schnitzer - Responded with available data.

ESCO - Received 30 day extension.

Rhone - Received 30 day extension.

The following companies were identified as potential contributors to the site but were not included among the 104 letter recipients. They will be contacted to invite their participation.

Olympic Pipeline	American Steel
The Railroad	City of Portland
Corp of Engineers	Port of Portland

During the meeting the principle issues among the parties were determined to be 1)that EPA should not declare the area as a superfund site, 2) that the existing data be used, 3) that the existing wells be used and 4) that further investigation should be limited. In the early phases of the meeting the sentiment was that the ball was in U. S. EPA's court and that the participants should wait for a response, which is expected in July. FOr that scenario, the participants would agree in advance to perform the remedial investigation whatever the scope and worry about cost allocation later.

As the discussion continued the feeling of the group changed to the desire to anticipate what U. S. EPA would likely conclude and preplan a study to fill the gaps that may exist in the data base. The decision was made to establish a coordinating committee, which Ed Bolin of Northwest Natural Gas agreed to lead, and for the committee to hire a consultant to review the existing data and create a database of such data and, at the committee's direction, to develop a scope of work to present to U. S. EPA in July. The committee suggested an initial funding level of $5,000 per participant. Those who have joined include Schnitzer, Wacker, ESCO, Rhone and NW Natural Gas. NL Industries and Koppers did not commit, but both agreed to take the request to their respective managements.

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

In summary, the following actions came out of the March 29 meeting:

1. For Dick Bach, the attorney for NWNG, to informally discuss the status of the site with Oregon DEQ and U. S. EPA to find out their current position and to determine what would take place in July.

2. To hire Camp, Dresser, and McKee to review existing data from studies conducted at Rhone, ESCO, Wacker and Schnitzer for the purpose of creating a site-wide database and to meet with the committee for further direction toward the preparation of a scope of work. The committee will meet again once CDM completes its initial task.

Jordan M. Dern

cc: B. Nolan
M. R. Urbassik
J. Oxford

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

MEETING RE EXPANDED GROUNDWATER STUDY
AT NORTH DOANES LAKE
3/29/88

Richard D. Bach	Stoel Rives Boley	(503) 294-9213
JOHN L. PITTMAN	WACKER SILTRONIC	241-7514
Roger Sherwood	ESCO	778-6335
JORDAN DERN	KEYSTONE (KOPPERS)	412-227-2207
E.L. Bolin	Northwest Natural Gas	503-638-6475
WILLIAM N FARRAR, III	Rhone-Poulenc	201-821-3533
Jim Benedict	" " (Schwabe, et al)	503-222-9981
Bob Ferguson	Rhone-Poulenc	222-3571
Tim McGrath	Schnitzer Inv. Corp.	224-9900
Mark Schultheis	Dames & Moore	206 523-0560
Jim Tracewski	NL	609-443-2327

K-17

Koppers Company, Inc.

Memo Routing Slip

To	Location	Date Received	Initial
J. Offard			
Northwest	Terminal		

☐ Note & Forward

☐ Prepare Reply for my Signature

☐ Note & Return

☐ Comment & Return

☐ Note & File

☐ Take Appropriate Action

Remarks:

From

Phone

Date

cc: LFP
J. Ashford

CERTIFIED MAIL - RRR

March 15, 1988

Mr. Robie Russell
U.S. Environmental Protection Agency
Region 10
1200 Sixth Avenue (HW-113)
Seattle, WA 98101

Subject: Gould Inc. CERCLA Site
Comments on RI/FS

Dear Mr. Russell:

This will provide you with NL Industries, Inc.'s comments on the Final Remedial Investigation/Feasibility Study (RI/FS) for the Gould Inc. CERCLA site. The RI/FS was prepared under the requirements of Administrative Consent Order (ACO) No. 1085-05-08-106, signed August 28, 1985. NL Industries, Inc. is providing you with the following comments which we expect EPA and DEQ to address thoroughly in a response. Further, we request this letter and your response to it, be made part of the public record.

Introduction

The Gould Inc. site is located in a heavily industrialized section of Portland, Oregon. Neighbors to the site include Rhone-Poulenc, American Steel Industries, Liquid Air Corporation and others. Although elevated lead levels are present in on-site soils and in the groundwater directly beneath the site, lead is not migrating off site in any media. The groundwater in the area is not a source of drinking water. East Doane Lake, which is on the site, is uninhabited. Elevated lead-in-air emissions from the site are absent unless the site is disturbed. The site, therefore, presents little, if any, threat to public health or the environment at the present time.

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It has been the unwavering position of the Potentially Responsible Parties (PRP's), that a predicate to the study conducted is the fact that Gould's placement on the National Priorities List (NPL) is in error. This was documented in Gould's letter of February 25, 1983 (included in Appendix F of the FS), to Mr. Russell H. Wyer, EPA Regional Director, which indicates the Hazard Ranking System (HRS) scoring for the site was developed improperly from an observed air release, which should never have been measured for inclusion in the score. The observed air release was part of a response action, and in accordance with regulations, releases must be scored on the basis of conditions that existed prior to response actions. Air releases caused by disturbances during response actions or site investigations must not be taken into account in HRS scoring (47 FR 31187 and 47 FR 31189). These and other defects in the scoring have been noted in the 1983 letter, including improper sampling techniques. Indeed, it is doubtful that the Gould site would qualify for inclusion on the National Priorities List if rescored today.

Since Gould's comments on the HRS were to little avail and the site was added to the NPL, the PRP's entered into an agreement with EPA to conduct the Remedial Investigation/Feasibility Study (RI/FS). The RI has been submitted. The FS has been completed and submitted along with the Endangerment Assessment according to EPA's standard protocol identified in the Public Health Evaluation Manual (OSWER Directive 9285.4-1, 1986), and other EPA guidance.

As required by standard EPA guidelines, many assumptions were utilized in the Endangerment Assessment which are clearly inappropriate for this site. These include the on-site residences assumption, worst-case exposure levels, and others. Because of these overly conservative estimates, the Endangerment Assessment showed that the selection of some alternative more stringent than the No-Action Alternative is appropriate for this site. Even with these conservative and inappropriate assumptions, the Endangerment Assessment cannot support selection of any alternative other than that which is being recommended in the FS.

The Recommended Remedial Alternative identified in the FS report, Alternative 2C, consists of removal and treatment/recycling of battery casing surface piles, treatment of the waters of East Doane Lake, soil treatment, capping of a portion of the site with low-permeability clay, and implementation of institutional controls to prevent potential exposure, however unlikely, to the remaining on-site contaminants. This alternative represents a common-sense approach to a complex problem, and has many similarities to EPA selected alternatives at other related sites undergoing remediation. Further, Alternative 2C meets the requirements of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, which requires EPA to select a remedial action which protects human health and the environment, is cost effective, utilizes permanent solutions and treatment/recovery as practicable, and meets relevant and appropriate standards. As indicated in the FS, only Alternative 2C is rated as "High" across-the-board for those screening criteria required by EPA to be addressed in the analysis of the alternatives.

None of the other alternatives meet all of these mandatory criteria, and therefore are not eligible for selection as the preferred alternative.

In their desire for reassurance that the selected alternative is appropriate, the PRP's retained a second independent organization to review the RI and the Draft FS. Clean Sites, Inc., with the assistance of Environmental Standards, Inc., conducted a thorough evaluation of the draft FS with particular attention to the Endangerment Assessment portion. Their report strongly supports Dames & Moore's selection of Alternative 2C.

In anticipation of questions regarding the use of institutional controls at the site, the PRP's have reviewed recent EPA Records of Decisions (ROD's) and found that institutional controls are integrated in 10 out of 75 available ROD's, including the Sapp Battery site in Jackson County, Florida (Region 4), the Western Processing site in Kent, Washington (Region 10), the

Pepper Steel and Alloys site in Dade County, Florida (Region 4), Marathon Battery, Putnam County, New York (Region 2), Arcanum Metal in Arcanum, Ohio (Region 5), as well as others. Moreover, the Oregon Legislature fully supports the creation of institutional controls to restrict land uses of hazardous waste disposal sites. The support is embodies in paragraph 466.360(2) of the Oregon Notice of Environmental Hazards Act, which states:

> "It is hereby declared to be the public policy of this state to give notice to local governments of potential hazardous disposal sites and to impose use-restrictions on those sites."

This statute, as well as other means of applying institutional controls to the Gould site, are discussed fully in Appendix D of the FS.

A draft FS was submitted to EPA in December, 1987. In a meeting on January 26, 1988 with EPA, the Agency indicated that it is EPA's desire to disregard the remedial alternative recommended in the RI/FS which took over 2 years to complete, and implement a full-scale excavation effort at the Gould site. This remedial alternative consists of excavating the entire 80,000 cubic yards of battery material, separation of components, recycling as much as possible and landfilling the remainder. This alternative, known as Alternative 10C in the FS report, will cost in excess of $20 million (probably significantly in excess of that figure), and, ironically, all this will be spent on an effort which recycles an inconsequentially small amount of material, about 3 percent.

Further, implementation of Alternative 10C involves substantial air emissions during remediation, potential health effects to workers and visitors, unproven technologies for the separation step, and a potential increase in hazardous waste volume.

To justify its position that all battery casings must be "addressed" (indicated to the PRP's during the January 26 meeting), EPA focuses on removal of lead from the site, rather than treatment to produce a non-hazardous waste. Alternative 10C does, in fact, assure the removal of a

very small portion of the total lead compounds present, the metallic lead particulates, which have the least potential for environmental damage. In its desire to implement Alternative 10C, EPA chooses to regard with insignificance that, after the considerable processing of these wastes at an estimated expenditure in excess of $20 million, exposing the surrounding community to lead-bearing dust and violating the National Ambient Air Quality Standard for 5 years, 97 percent of the waste at the site remains hazardous, and then must be transported to a hazardous waste landfill. This landfill ultimately will be required to implement all the institutional controls, including long-term monitoring, which are mentioned under Alternative 2C. Thus, the recycling and treatment potentials of Alternative 10C are extremely insignificant and ineffective in carrying out the intent of SARA.

Investigations conducted during the course of the FS demonstrate the history of failure of such efforts. The PRP's have within very restricted time limits conducted bench scale tests and full scale tests to determine the feasibility of battery casing separation and component stream recycling. The number and scope of these tests is much greater than at any other site with similar contaminants, including a site where the RI/FS was conducted under the direct supervision of EPA.

In summary, NL objects to the remedy selected by EPA because the detailed FS indicates: i) Alternative 10C is potentially harmful to public health and the environment, both short term and long term, due to predicted airborne releases of lead during the 5 year implementation and subsequent off-site dust accumulations, ii) Alternative 10C relies on unproven technology and is thus not practicable, iii) Alternative 10C will not significantly reduce toxicity, mobility or volume of the site contaminants. The FS clearly indicates the opposite is true as Alternative 10C increases mobility and volume of site contaminants, iv) Alternative 10C will results in the off-site landfill disposal of approximately 97 percent of the existing waste, v) Alternative 10C is not a cost-effective action to remediate the Gould site.

In contrast, Alternative 2C is fully protective of human health and the environment as evidence by the RI/FS, the Endangerment Assessment, the "second opinion" provided by Clean Sites, and the clear preponderance of data demonstrating insignificant migration of airborne or water soluble lead off-site. When the surface piles of case material is removed, and the site is capped above a layer of lime, the mobility of the remaining contaminants will be effectively curtailed. Alternative 2C involves no sharply increased risks to human health, as does 10C. Thus it is the position of NL Industries, as fully set forth in the FS, that Alternative 2C best satisfies the CERCLA requirements for selection of a remedy.

Improper Administrative Action

NL Industries maintains that EPA and DEQ have failed to follow basic administrative and environmental law principles in selecting their preferred alternative without first reviewing and considering the FS. The RI/FS is supposed to precede the selection of the preferred alternative, but this was not done in this case, as evidence by the following chronology:

DEQ stated in a meeting with the PRP's as early as December 19, 1987, that the casings, including the subsurface casings, will have to be addressed (e.g. treated and/or disposed of). This apparent decision was made by senior DEQ management despite the fact that it was acknowledged they had not read the draft FS. EPA/DEQ further described their Preferred Alternative to the PRP's in great detail in a meeting on January 26, 1988. Such detail was not derived from the Feasability Study report, because it was not yet available to the Agencies. Neither EPA nor DEQ were thoroughly aware of the contents of the FS prior to its date of publication, February 12, 1988.

Moreover, not only did EPA and DEQ select a remedy without taking into account the FS, they also disregarded the recommendations of Clean Sites, Inc. and their subcontractor, Environmental Health, Inc. As previously

indicated, Clean Sites conducted an independent review of the FS and concluded that selection of Alternative 2C over 10C is appropriate for the Gould Inc. CERCLA site.

Clean Sites most recent report, included herein as Attachment 1, strongly supports Alternative 2C, and, like their report on the draft FS, emphasizes several undesirable effects of implementing Alternative 10C. Environmental Standards indicates that risks due to ingestion of lead laden soils and dust off-site caused by large scale excavation have not been reflected in the Hazard Rating scores of the Endangerment Assessment, and should have been. Thus, alternatives such as 10C are now shown to be less acceptable than previously indicated in the long term. Dr. Kenneth Symms of Environmental Standards states on page 6 of Attachment 1:

> "Hazards attributable directly to remedial actions in this case are not "short-term." Rather, those alternatives involving excavation may create a significant off-site reservoir of accessible lead contamination that would persist long after remediation of the site was completed. The EA points out that maximal management controls and practices may be inadequate to prevent this contamination. Risk management decision makers should be aware of this situation."

This is another item which EPA/DEQ has ignored, and did not consider in defining the mobility of the lead while implementing Alternative 10C.

Detailed Criticism of Alternative 10C

The following presents an enumeration of the reasons why Alternative 2C is the best remedy for the site, under CERCLA, and why 10C is unsuitable and raises questions that must be addressed by the Agencies.

1. Air Emissions - Endangerment Assessment

Air emission modeling was conducted during the development of the Endangerment Assessment section of the FS. The modeling was done in

accordance with standard scientific procedures, utilizing an accepted dispersion model and incorporating assumptions, including the fact that, for Alternative 10C in particular, the battery casings would be wet during the excavation process. The model used is a Gaussian type model, and as stated in EPA's Guideline on Air Quality Models (EPA 450/2-78-027), "Gaussian models are considered to be state of the art techniques for estimating concentrations of SO_2 and particulate matter. They are the best choice for most point source evaluations". Results of the dispersion model are provided in Appendix A, Attachment C, and indicate off-site airborne emissions of 10.404 ug/M^3 for Alternative 10C. This is almost 7 times in exceedance of the National Ambient Air Quality Standard of 1.5 ug/M^3, which is the federal standard implemented by the Clean Air Act to protect public health. The aforementioned exceedances would occur continuously over a 5 year period.

In order to reassure the efficacy of this input to the Endangerment Assessment and realizing the significance of this modeling effort, NL re-evaluated the emissions potential of Alternative 10C using the Industrial Source Complex-Short Term (ISCST) model. Like the model used in Appendix A of the FS, the ISCST model is a gaussian distribution model, and is the EPA preferred model for Alternative 10C.

In response to DEQ concerns that moisture/precipitation is expected to significantly reduce emissions indicated in the FS, the Compilation of Air Pollutant Emission Factors (EPA 1975) was utilizied to develop appropriate levels of emissions reduction through moisture/ precipitation, largely because this is EPA's own guideline document for developing the same. The maximum reductions recommended in the publication were utilized, including a 50 percent reduction for excavation, utilization of a precipitation-evaporation index of 153 (which is EPA's own recommendation for the Portland area taken from the aforementioned publication) plus a further 40 percent reduction for materials storage. Further, no emissions from the wet separation process are assumed, and crushing and screening emissions were reduced

by 80 and 60 percent respectively, due to gravity settling which may occur in the plant. All these considerations more than adequately address the emissions reductions which would occur through the presence of moisture/precipitation.

The results from the ISCST model indicated significantly higher levels of airborne lead for Alternative 10C than was indicated previously in the FS. The highest off-site concentrations is now indicated to be 37.34 ug/M^3, which is approximately 25 times the level allowable under the Clean Air Act. Of course, airborne lead would be dispersed wherever winds would carry such particulates, but the ISCST model indicates that the air emissions caused by implementing this alternative would violate the NAAQS standard approximately one-half mile from the site in all directions and at all points in-between. Results of the ISCST model are included herein as Attachment 2.

Preliminary calculations give indication of the potential for accumulations of lead-laden dust off site. Under Alternative 10C, implementation would cause some 20,000-30,000 lbs. of lead dust to be dispersed off-site and accumulate in soils and on various surfaces, only to be absorbed by biological organisms later on, causing health and environmental effects. In contrast, only about 100 lbs. of lead would be dispersed through Alternative 2C. This should convince EPA/DEQ that Alternative 10C has significant long-term effects associated with it.

It is recognized that all air dispersion models have some amount of uncertainty associated with them. Indeed, the reason an air dispersion model is utilized at all is because a very high level of uncertainty must be reduced to a much lower level. The ISCST model and that model already in the FS do that. Even if one were to assume an extremely high level of uncertainty in the ISCST model, for example a 50 percent inaccuracy, the results would still indicate exceedances 13 times what the NAAQS allows. How can EPA/DEQ refute such data?

Air sampling during RI activities at the site corroborate the fact that fugitive emissions can be significant. During the study, air monitoring indicated elevated levels of airborne lead, even during the low level activities occurring at those times. It can be seen from a review of Table 5.3-1 of the RI and Table E-2 of the FS that, as on-site activity becomes increasingly intense, airborne emissions increase. Data in Table 5.3-1 was collected over 9 month period, and includes a variety of weather conditions. Clearly, selection of Alternative 10C is not in the public interest, and is likely to be harmful to public health. This endangerment assessment cannot be ignored, nor can the Agency minimize or rationalize it by discounting the work of the FS as being crude. To do so does a disservice to the local community and the entire environmental movement.

2. Other concerns relative to airborne lead emissions are mentioned in Section 7, page 7 of the FS, including off-site exceedances of the OSHA Permissive Exposure Limit of 50 ug/M^3. Protection of off-site workers, visitors, motorists along Front Street and St. Helens Highway, and other passers-by, from the harmful air emissions generated during the excavation and processing of battery casings for 5 years will clearly be impossible to enforce.

   Additionally, the fugitive emissions from the implementation of Alternative 10C will contaminate surrounding properties with lead bearing dust, creating long-term environmental problems, as indicated in the attached report by Clean Sites.

3. <u>Technical Feasibility</u>

   Alternative 10C is based upon separation equipment designed to process whole batteries, not battery cases mixed with dirt, mud, stone and various debris. Pilot tests, using full scale equipment, were conducted during the FS and were accompanied by numerous equipment and process

malfunctions, caused by the inability of the equipment to properly process the buried casing material. Does EPA/DEQ feel that the pilot tests were not valid or do the Agencies hope someone is capable of solving the equipment problems? Certainly, considerable design and development is the minimum effort necessary and should not this be part of the FS instead of a "wish remedy"?

4. NL Industries is aware that EPA/DEQ is not pursuing implementation of Alternative 10A or 10B because of the inclusion of a hazardous waste incinerator therein. An incinerator reduces the quantities of wastes to be disposed of at a landfill, yet the concern of strong public opposition to operating a hazardous waste unit within the Portland city limits, and the potential for dispersing lead emissions throughout the community has caused the Agencies to reject these alternatives. This is understandable, but how then, can EPA/DEQ support implementing Alternative 10C in view of the air emissions data shown in Appendix A, Attachment C, Table 1, which indicates that Alternative 10C will have an airborne impact greater than or equal to Alternatives 10A or 10B? Certainly, this cannot be done on a real health assessment basis with the concern of public health and the environment, but only by imagery, i.e. incineration is inherently dangerous, while recycling is perceived as good.

Appendix A, Attachment C, Fugitive Dust Generated by Site Remediation, p. 22, further defines the air emissions specifically caused by the operation of the incinerator included under Alternatives 10A and 10B. It can be seen from Table VIII.C and Table IX.C of Appendix E that the incinerator contributes relatively little to the total airborne lead emissions of Alternatives 10A and 10B. DEQ feels community opposition to an incinerator is based upon potential objectionable emissions from an incinerator. How then, can EPA/DEQ support an Alternative which has the same problem as the incinerator, namely air emissions, and quantitatively is orders of magnitude greater on environmental impact?

5. Cost Effectiveness

Section 6.2 of the FS, Evaluation of Recycle Potential, indicates that only an inconsequentially small amount of material (about 3 percent) is potentially recyclable. This is clearly not cost effective since Alternative 10C costs approximately $20 million to implement, would result in potentially 2160 tons of material being returned to commerce, and costs in excess of $11,000 per ton of recyclables! This is at least 2 orders of magnitude higher than standard recycling fees. How does EPA/DEQ justify selection of Alternative 10C on a cost basis, since this is one of the mandatory criteria listed under the cleanup standards of Section 121 of SARA?

6. Reduction in Toxicity, Mobility and Volume

Alternative 10C does not meet EPA's criteria that the selected alternative reduce the toxicity, mobility and volume of the site contaminants. Alternative 10C mobilizes lead during the 5 years of implementation by airborne emissions. Further, the volume of material to be sent to a landfill increases because of the inherent inability of any excavation process to neatly separate battery casings from excavated debris. Literally, tons of soil inseparable from buried case material will no doubt be shipped off site for disposal. As concerns the intent to reduce site contaminant's toxicity, Alternative 10C cannot possibly be supported in this regard. The toxicity of lead is unchanged regardless of the processing effort. In fact, at least one waste stream, the lead oxide/mud stream, will demonstrate increased toxicity due to the high lead content (about 25 percent) compared to the site contaminants as excavated, which contain about 3 percent lead.

7. Institutional Controls

EPA has expressed concern as to the effectiveness of institutional controls, basically legal restrictions on use of land, included in the PRP's preferred alternative, 2C. The Agency's contention has been that institutional controls are not an effective means to prevent public exposure to lead at the Gould site. It is NL's position that: 1) institutional controls can be used effectively to prevent exposure to the site contaminants, 2) institutional controls are as much a part of Alternative 10C as Alternative 2C, and 3) institutional controls are widely accepted by EPA at other sites undergoing CERCLA remediation.

EPA commissioned the Environmental Law Institute to conduct a study on the usefulness of institutional controls at various CERCLA sites. The clear conclusion of that project is that, when properly applied, institutional controls can be used effectively in cleanup remedies.

It is NL Industries further position that institutional controls are as much a part of Alternative 10C as Alternative 2C. This may not obvious from a review of the description of Alternative 10C in the RI/FS, but both EPA and DEQ are well aware that hazardous waste landfills such as the one located in Arlington, Oregon, one possible candidate to accept waste materials from the Gould site, are required by federal and state law to incorporate institutional controls, such as deed restrictions and prohibition against well-drilling in present and future land uses. The waste materials then, are subject to much the same institutional controls whether they remain on-site under Alternative 2C, or are sent to the Arlington landfill for disposal under Alternative 10C. Obviously, the latter carries with it significant issues relating to remediation discussed earlier. Further, institutional controls are required for the Gould site under Alternative 10C. How then can DEQ/EPA maintain that Alternative 2C places heavy reliance on institutional controls, and Alternative 10C does not?

Institutional controls under another name would be used in processing the recyclable waste streams from the operation of any battery casing separation equipment. Institutional controls, such as mandatory use of respirators and gloves to prevent exposure to lead at facilities that may be involved in the recycling of the lead particulates and oxide, and the same at the plastics manufacturers locations, would be required. How then can EPA/DEQ maintain that institutional controls identified in Alternative 2C cannot be effectively applied to the site?

Further, our entire society is based on institutional controls, from the necessity to obtain a license to operate a motor vehicle, to the filing of income taxes, to stopping at a traffic light. Can EPA/DEQ deny that all laws and regulations, as well as the Agencies themselves, are in fact "institutional controls" to prevent certain unwanted actions?

8. Use of a Hazardous Waste Landfill

As indicated in Section 6, Alternative 10C proposes to separate the casings into component streams and landfill those streams that cannot be recycled. Has EPA/DEQ considered the impact of utilizing some 80,000 cubic yards (and possibly greater amounts when one considers the dirt, mud and other debris accompanying the excavation process) of landfill space on the regulated industrial community? The displaced landfill volume which otherwise would have been utilized by industries in the area will ultimately have to be sent to some other landfill at a greater distance. Alternative 10C, thus has significant effects on others using the hazardous waste landfill by misuse of valuable landfill space.

9. ROD - Newport Dump Site

NL Industries has reviewed many Records-of-Decision (ROD) for applicability to the Gould site. Inconsistencies with selection of Alternative 10C have already been noted. Another ROD has since been

reviewed involving the Newport Dump Site located in Campbell County, KY. The Newport Dump Site is a former municipal landfill in the city of Wilder, KY. The principal contaminants at the site are metals, solvents, and PCB's. Table 10 of the ROD clearly states that public health and other concerns involving the excavation and off-site disposal alternative (Alternative 4) include "release of particulates and toxic gases during excavation" and the fact that "SARA Section 121 discourages the use of off-site disposal". This alternative was ultimately found to be unsuitable for the remediation at the site. EPA's evaluation of this alternative on pages 14-15 states "The implementation of this alternative would have the potential to significantly impact public health. During the excavation procedures, the opportunity for off-site migration of contaminants would be greatly increased. Pathways for this migration would include airborne particulates, gas emission, and surface runoff. Receptors in the area of the site would be susceptible to inhalation of gas as well as contaminant-laden particulates, the ingestion of particulates, and direct contact with wastes."

An alternative involving monitoring, leachate collection, regrading and revegetation has been chosen for the Newport Dump Site. The RI/FS estimated the cost of the selected alternative at $914,000. In contrast, the rejected alternative involving excavation and off-site disposal is estimated to cost approximately $17 million.

Comments regarding EPA's remedial selection were submitted by the City of Newport and the Northern Kentucky Port Authority. They include, "The additional remedial measures called for in Alternative 4 simply are not necessary for the protection of the public health or welfare or the environment. This quantum leap in expenditures with no corresponding benefits to human health or the environment are not necessary and therefore not mandated by CERCLA. To choose Alternative 4, 5 or 6 would be inconsistent with criteria of cost-effectiveness of the remedial measures. Considerations of cost-effectiveness therefore support the selection of Alternative 3 as the maximum remedial measures for the Newport Dump Site."

Region IV EPA agrees with this in their reply, stating "EPA concurs with your position that Alternative 3 of the Newport Feasibility Study would be a cost-effective remedy that will attain appropriate, relevant and applicable public health and environment standards. The EPA has selected this alternative as the remedy chosen for remedial design and remedial action at the Newport Dump site. Your comments are in accordance with the EPA findings presented in both the Remedial Investigation and Endangerment Assessment reports."

In view of this ROD which was issued in March 27, 1987, how can Region X EPA take a diametrically opposed position and recommend enormous expenditures to achieve a negative result for the Gould site?

10. Summary of Comparisons of 2C and 10C

Table 7.2-1, Performance of Alternatives Against Requirements for a Remedial Action, is a comparison chart of the candidate alternatives and how each of these compares with the requirements of SARA, contained in Section 121, Cleanup Standards. Alternative 10C is deemed to be not protective to health and environment, primarily because of air emissions during 5 years of remediation which exceed the National Ambient Air Quality Standard and the OSHA Permissible Exposure Limit, as well as the accumulation of lead dust in off-site areas such as gardens, lawns, etc. How can EPA/DEQ maintain Alternative 10C meets the requirement that the selected remedy be protective of health and the environment in view of the inescapable conclusion of the Endangerment Assessment that shows Alternative 10C is unsuitable from a health and environmental standpoint? Further, the Endangerment Assessment showed the quarterly average concentration for 10C to be 10.4 ug/M^3, and the Hazard Index for off-site worker exposure to be 1.65, while the same parameters for Alternative 2C are 1.18 mg/M^3 and 0.187 respectively.

EPA/DEQ's selection of Alternative 10C contradicts all other entries in Table 7.2-1. The alternative has been proven by the Endangerment Assessment to be no more protective of the environment than Alternative 2C, but will cost approximately 4 times as much to undertake. In what sense can selection of Alternative 10C be deemed cost-effective? The uncertain technology on which Alternative 10C is based cannot support any concept of performance. Toxicity reduction is negligible, even if the separation equipment functions as intended, which is extremely doubtful, and volume of site contaminants is increased.

Air emissions greatly increase the mobility of the contaminants into the surrounding environment, and the Applicable, Relevant and Appropriate Standard (ARAR's), the National Ambient Air Quality Standard of 1.5 mg/M^3, is shown to be violated during 5 years of remediation for Alternative 10C. With all this data how can EPA/DEQ possibly maintain Alternative 10C meets the Cleanup Standards of SARA, Section 121?

11. Modification of Alternative 10C

EPA's preferred alternative was described to the PRP's at a meeting on January 26, 1988, and outlined in the Proposed Plan, dated February 5, 1988. NL Industries has noted EPA's description of engineering studies conducted during the FS in the Agency's document entitled Supplement to the Draft Feasibility Study of Cleanup Alternatives for the NL/Gould Superfund Site, published February 1988. Here, EPA describes an additional treatment step for cleaning ebonite after separation, and is apparently considering some as yet undefined treatment after the separation of the battery casing material is complete. Page 6 indicates:

> "Reasonable physical separation of the plastic and ebonite components with some equipment modifications appears to be possible, although the degree of metallic lead contamination of ebonite is high even after separation; therefore, additional work will be required to treat this stream after it leaves the separation

> plant. This is in addition to the rigorous design requirements that will be involved in transferring this technology to the NL/Gould site."

No such additional step is included in the FS. The details of this additional step are unknown. Is it based upon a treatment similar to that described in the laboratory tests conducted by the U.S. Bureau of Mines, in which Ethylene Diamine Tetramine (EDTA) or some other solvent was used to solubilize ebonite-entrapped lead? We remind EPA that this treatment step has not been factored into Dames & Moore's cost calculations for Alternative 10C, nor the environmental evaluation for Alternative 10C.

To present this newly modified Alternative 10C to the public as costing approximately $20 million is grossly incorrect, as an EDTA washing step will add millions (from the Bureau of Mines own estimates) to Alternative 10C. Further, and most importantly, the Bureau of Mines study did not accomplish what it set out to do, namely clean the ebonite material to that level which enabled it to pass the EP Toxicity level of lead, 5 mg/l lead in extract. Their report only indicates further testing is appropriate. How then can EPA include such uncertain results as proof that ebonite can be cleansed of entrained lead? This further adds to NL's position that EPA's preferred alternative, now a modification of Alternative 10C as presented in the FS, has not been adequately evaluated by the Agency.

With this new addition to Alternative 10C, the alternative is open-ended, involves unknown technology and is less cost-effective than the original 10C alternative. Adding to the alternative at this point in time is not only confusing to the PRP's and violates administrative procedures, but it also inhibits any agreement between the PRP's and the Agencies.

12. Review of EPA's FS Supplement

NL Industries has noted several inconsistencies in the Supplement to the Draft Feasibility Study of Cleanup Alternatives for the NL/Gould Superfund Site. These are:

i) On page 3 of the report, under "Cleanup Objectives", it is indicated that one of the objectives of the selected remediation is "To protect human health and the environment from detrimental effects of airborne metals contamination". We agree that this is an important consideration in the selection of a remediation. Based on all the aforementioned data which indicates gross air violations and off-site lead-laden dust accumulations from Alternative 10C, how can EPA/DEQ maintain that the alternative meets this objective? We remind you the ISCST model indicates airborne lead levels will be approximately 25 times acceptable concentrations.

ii) On page 7 of the report, under "EPA's Preferred Alternative", EPA indicates that its preferred Alternative 10C would, among other things, "...cap the exposed fill and contaminants, thereby making them unavailable for human contact by inhalation or ingestion". On the same page, under Differences Between EPA's Proposal and NL and Gould's Preferred Plan, EPA states that Alternative 2C is not adequately protective of human health and the environment" because of the potential for continued inhalation and direct contact exposure to contamination at the site".

Does EPA not realize that the "cap" under 10C is only 4 inches of vegitative cover, while the cap under 2C is 2 and 1/2 foot thick? How does EPA's 4 inch cap prevent inhalation and ingestion from occurring, while the 2 and 1/2 foot thick cap mentioned under 2C is deemed not adequately protective because of the potential for inhalation and direct contact exposure?

iii) On the same page, under the same paragraph, EPA indicates Alternative 2C "does not attain all state and federal regulations". We feel this is incorrect, and request clarification on which regulations are referred to. We remind you that Alternative 10C does not attain the National Ambient Air Quality Standard of 1.5 ug/M^3, so to maintain that 10C meets regulatory requirements and 2C does not, is incorrect.

iv) Page 13, the first paragraph quotes the FS by stating "Future on site activities...could disturb on-site contaminated materials and produce higher air lead concentrations, both on-site and off-site" (here the word "high" means greater than 1.5 ug/M^3, the NAAQS). EPA's response to this and other statements on the No-Action Alternative is "concur with overall rating". Please remember this in your future discussions with the PRP's concerning air emissions which will be caused by large scale recycling efforts such as Alternative 10C.

Conclusion

In summary, NL Industries feels EPA/DEQ's selection of Alternative 10C contradicts logic in that the alternative is less protective of human health and the environment than Alternative 2C. Further, it increases mobility and volume of waste, it is not cost effective and stretches believability when it claims treatment to be practicable. Is there a Contingency plan to the selected alternative if the process fails? It appears the present intent is to construct the processing plant, and conduct research, development and

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(For your info only)
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March 22, 1988

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Re: NL/Gould Superfund Site
Portland, Oregon

Dear Mr. Tetta:

Koppers Company, Inc. (Koppers) is in receipt of U.S. EPA's request for information letter dated February 18, 1988 in which Koppers is named as a potentially responsible party for the above-referenced site. This request for information letter bases the addition of Koppers as a potentially responsible party on results of investigations conducted as part of a Remedial Investigation (RI) and Feasibility Study (FS) undertaken at this site by Gould Inc. and NL Industries, Inc. which, according to U.S. EPA, indicate that Koppers' Northwest Terminal located at 7540 N.W. St. Helens Road, Portland, Oregon is a source of groundwater contamination detected at the NL/Gould Superfund Site. For the following reasons, Koppers does not believe that it is a potentially responsible party under the federal Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

Section 107 (a) of CERCLA defines a potentially responsible party as including current and former owners and operators of facilities and "(a)ny person who by contract, agreement or otherwise has arranged with another party or entity for transport, storage, disposal or treatment of hazardous substances owned, controlled or possessed by such person at a facility owned or operated

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Writer's Direct Dial Number 412-227-2515

by another party." It is without question that Koppers has never had an ownership or operational interest in the NL/Gould Superfund Site. Nor does U.S. EPA contend that Koppers "arranged with another party" for transport, storage, treatment or disposal of hazardous substances from, to or at the NL/Gould Superfund Site. Instead, U.S. EPA relies upon the results of groundwater investigations conducted at the NL/Gould Superfund Site to link Koppers to that site. We are not aware of any precedent under CERCLA for imposing potentially responsible party status upon a company that is not connected with the facility through ownership or operational control or by virtue of having arranged for hazardous substances to be handled at the facility. Indeed, the clear language of the statute requires that a "generator" potentially responsible party must have made arrangements "with another party" for handling of the hazardous substances at the facility. There is no evidence of record that Koppers made any arrangements with anyone to have hazardous substances handled at the NL/Gould Superfund Site.

Accordingly, under both a clear and unambiguous reading of the statute and existing case law, Koppers can not be considered to be a potentially responsible party at the NL/Gould Superfund Site on the grounds that hazardous contituents may have entered the groundwater at the Koppers' Northwest Terminal site and migrated to the NL/Gould Superfund Site. Under these circumstances, we trust that Koppers will not be included as a potentially responsible party for the NL/Gould Site.

Please give me a call if you have any questions or wish to discuss this matter further.

Very truly yours,

Billie S. Nolan

bcc: J. Batchelder
L. Flaherty
J. Dern

SUPPLEMENT

TO THE

DRAFT FEASIBLITY STUDY

OF CLEANUP ALTERNATIVES

FOR THE

NL/GOULD SUPERFUND SITE

FEBRUARY 1988

U.S. Environmental Protection Agency (EPA)

INTRODUCTION

The U.S. Environmental Protection Agency (EPA) has prepared this document to supplement the draft Feasibility Study of cleanup alternatives for the NL/Gould Superfund site in Portland, Oregon. The Feasibility Study was done by contractors for NL Industries, Inc. and Gould, Inc., the potentially responsible parties for the site, in response to an administrative order by EPA.

EPA has accepted the draft FS and report as sufficient to provide the information necessary to make a cleanup decision. However, EPA's evaluation and conclusions about the relative merits of the various choices for cleanup differs considerably from those of the contractors (Dames and Moore) for NL and Gould. The Agency's proposed plan is to select Alternative 10C from the Feasibility Study to clean up soils, sediments, and battery casings while deferring a decision on contaminated groundwater until more extensive studies are complete next year. The companies are taking the position that Alternative 2C is the best alternative.

This document includes:

- EPA's Summary of the Draft Feasibility Study — pages 2-7
- EPA's Proposed Plan and Rationale — page 8
- Excerpts from the draft NL/Gould Feasibility Study with **EPA Comments in boldface** — pages 9-36

This summary and evaluation is adapted from the Feasibility Study reports themselves. The summary describes EPA's interpretation of the Feasibility Study results. The excerpts are the companies evaluation of four key alternatives taken directly from Chapter 7 of the Feasibility Study with EPA comments added in boldface type. The purpose is to help the reader identify key differences between the companies' and EPA's interpretation of the information.

EPA will prepare a more detailed evaluation once the Agency considers all comments from the community received during the public comment period, which is scheduled to last until March 18, 1988. The Feasibility Study and other reports discussed in this document are available for review at the following locations:

Multnomah County Library
St John's Branch
7510 N. Charleston Avenue
Portland, Oregon

Oregon Department of Environmental Quality
Remedial Action Section
811 S.W. Sixth Avenue
Portland, Oregon

Linnton Community Center
10614 N.W. St. Helens Road
Portland, Oregon

EPA Library
1200 Sixth Avenue, 10th Floor
Seattle, Washington

EPA SUMMARY OF NL/GOULD REPORT

Purpose of the Feasibility Study

The purpose of the Feasibility Study (FS) was to develop and evaluate a range of remedial action alternatives for the Gould site based on the extent of contamination found on the site during the Remedial Investigation (RI). The alternatives are screened and evaluated, then compared, according to the Superfund regulations. At the end of this process, one alternative is recommended for implementation.

Cleanup Objectives

The Feasibility Study process began with the identification of preliminary remedial technologies applicable to the site. In order to properly identify applicable technologies, remedial objectives for the site were developed. Those remedial objectives are:

1. To protect human health from the effects of contaminants in public drinking water supplies.

2. To protect human health and the environment from detrimental effects of airborne metals contamination.

3. To protect human health and the environment from detrimental effects of contact with contaminated surface water or soils.

4. To protect the water quality of the Willamette River from degrading.

Evaluation of Possible Remedies for Problems at the Site

Cleanup alternatives for this site were evaluated to see if they meet the federal and state criteria in Superfund and other environmental laws, and to evaluate their effectiveness. An extensive list of 30 potential alternatives was assembled for this site and eleven of these were selected for detailed evaluation. Treatment of contaminated groundwater was also considered in a separate evaluation. Each of the alternatives in the Feasibility Study includes a different combinations of possible remedial actions such as:

Monitoring air and groundwater to determine whether any lead or other contamination is moving (migrating) in the environment.

Capping, importing topsoil, and revegetating the surface.

Soil treatment techniques, such as applying lime to reduce the mobility of the lead in the surface soil. Subsurface soil, matte, and sediment treatment would include techniques that would stabilize the materials in a cement-like complex.

Recycling and treatment of the battery casings, which would involve running them through a separation unit to separate out the lead, plastic, lead oxide, and ebonite. Additional treatment, if necessary, to clean these output streams.

Institutional controls, meaning the use of either zoning measures or restrictions on the title to the Gould property to limit access to this site.

The 12 Final Candidate Alternatives in Brief

Alternative 1--No-action alternative.

Alternative GW--Groundwater extraction and treatment.

Alternative 2A--Removal and disposal of surface piles of battery casings; lime application to contaminated soils.

Alternative 2B--Removal and disposal of surface piles of battery casings; capping of contaminated surface soils; regrading of the site and isolation of East Doane Lake.

Alternative 2C--Excavation and separation of surface piles of battery casings, and subsequent off-site management of casings; lime treatment; capping of contaminated surface soils; treatment of surface water; regrading and revegetation of the site.

Alternative 8A--Removal and disposal of surface piles of battery casings and sediments of East Doane Lake; capping of contaminated surface soils; treatment of surface water; regrading and revegetation of the site.

Alternative 8B--Excavation and separation of surface piles of battery casing components, and subsequent off-site management of casings; capping of contaminated surface soils; treatment of surface water; regrading and revegetation of the site.

Alternative 10A--Excavation and separation of all battery casings, and subsequent recycle of some casing components; on-site incineration of non-recyclable components; fixation or stabilization of surface soils, subsurface soils, sediments, and matte; treatment of surface water.

Alternative 10B--Excavation and separation of all battery casings, and subsequent recycle of some casing components; incineration of non-recyclable battery casing components; lime treatment and on-site placement of sediments; treatment of surface water.

Alternative 10C--Excavation and separation of all battery casings, and subsequent recycle of some casing components; off-site disposal of non-recyclable components that fail EP Toxicity; fixation or stabilization of surface soils, subsurface soils, sediments, and matte.

Alternative 21--Excavation of battery casing components and permanent disposal in an on-site RCRA landfill; fixation or stabilization of surface soils, subsurface soils, sediments, and matte; treatment of surface water.

Alternative 25--Permanent disposal in an on-site RCRA landfill of all site contaminated materials, including battery casing components, surface soils, subsurface soils, sediments, and matte; treatment of surface water.

Note on Groundwater

At present, EPA believes that the information currently available on the surface and groundwater at the site is insufficient to make a decision on how to clean up those areas. EPA's proposed plan is to make a decision at this time on cleanup of contaminated soils, sediments, and battery casings, while doing additional studies of surface and groundwater in the area. The proposed study will help determine whether action needs to be taken to deal with the contamination underneath the site, and how that action should be coordinated with other cleanup efforts that are currently going on. The study will also address organic contamination (such as pesticides) as well as lead contamination. The study would begin later this year. EPA has notified several companies in the Doane Lake area that they may be responsible for this contamination and will be working with them to do the study.

Evaluation Criteria for Selecting a Superfund Cleanup

Nine factors will be considered in evaluating the Final Candidate Alternatives: long-term effectiveness and permanence; reduction in toxicity, mobility, or volume; short-term effectiveness; implementability; cost; overall protection of human health and the environment; compliance with applicable or revelant and appropriate requirements (ARARs); state acceptance; and community acceptance. The first seven factors are included in this summary. The final two factors, state and community acceptance, will be evaluated by EPA after the public comment period is complete.

Engineering Studies During the FS and EPA's Evaluation of the Results

As part of the evaluation of the Final Candidate Alternatives, several engineering studies were performed to determine whether the preference for treatment in the law could be met. The engineering studies represented one category (technical feasibility) of one factor used to evaluate the Final Candidate Alternatives. A bench-scale soil stabilization study was performed by Weston Services, Inc. Weston used several different reagents to determine the applicability of the soil stabilization technique to Gould site soils and lake sediments. The results showed that admixtures of Portland cement, cement kiln dust, and lime kiln dust with the soil and sediment at specific increments improved the consistency and structural stability of the soils and sediments, and also reduced the leachability of the contaminated materials to levels generally below hazardous waste designation levels.

Three battery casing separation tests were performed on site materials. One test was performed on equipment manufactured by MA Industries, Inc. and the other two on equipment manufactured by Poly-Cycle Industries, Inc. To conduct each test, approximately 20 tons of representative material was excavated from the site and shipped to locations where equipment manufactured by the two companies is in use. In the case of MA Industries, the test was run on equipment operated by Ace Battery Company of Indianapolis, Indiana. The tests of Poly-Cycle equipment were run at the Poly-Cycle plant in Jacksonville, Texas. For each firm, the process is designed to apply to spent batteries, not to battery components mixed with dirt and mud.

EPA differs from NL/Gould in its evaluation of the results of these studies. EPA's interpretation is that the studies show that the material is recyclable, but that a lot of design work will be required to ensure that any treatment facility brought to the site will work. The companies' position is that the tests show that the materials generally are not recyclable.

Reasonable physical separation of the plastic and ebonite components with some equipment modifications appears to be possible, although the degree of metallic lead contamination of ebonite is high even after separation; therefore, additional work will be required to treat this stream after it leaves the separation plant. This is in addition to the rigorous design requirements that will be involved in transferring this technology to the NL/Gould site.

During the evaluation of alternatives, similar tests were run independently by researchers working on materials from the United Scrap Lead Superfund site near Troy, Ohio. Researchers there performed bench-scale tests using various solutions and mechanical cleaning steps to determine the amenability of lead to be removed from the ebonite material. Although the results of this test are generally favorable, the researchers have concluded that more work is required before the laboratory results could be applied to any field-scale unit.

How Protective of Human Health and the Environment are the Alternatives?

In order to evaluate the alternatives for overall protection of human health and the environment, an endangerment assessment was done for the site. The endangerment assessment examined each alternative's performance under a number of different human and environmental exposure scenarios. Scenarios examined included on-site and off-site residential exposures, as well as on-site and off-site worker exposures. The contaminants examined were lead, arsenic, and cadmium. The health effects of arsenic and cadmium were examined from the standpoint of the risk of cancer, while the health effects of lead were evaluated in comparison to standards that result in no adverse chronic health effects. Aquatic impacts to the Willamette River were discussed in the endangerment assessment as well.

Results from the Endangerment Assessment indicate that Alternatives 1, 2A, and 2B do not provide adequate protection to the environment because of the possibility of excess air emissions and a potential ingestion hazard. The latter was based on assumptions that residences would be located on site, which is clearly a conservative scenario. However, EPA believes that such scenarios are required in order to ensure that public health and environmental quality are adequately protected in making a cleanup decision at this site. Alternative 10C appears to provide the highest degree of long term protection of public health end the environment. However, there are some potential short term impacts associated with the large amounts of contaminated material which would be handled during treatment. Alternative 2C, by comparison, is not as protective in that most of the contaminated material remains on site under a cap that could conceivably be disturbed in the future. In evaluating 2C, EPA also took into account the range of institutional controls available to be applied to the site. As current owner, Gould Inc. has the unilateral right to restrict future use of the property by imposing institutional controls on the property. In addition, common law and statutes of Oregon constitute other types of institutional controls to restrict access to the site and control site uses. However, EPA has concluded that these institutional controls are of questionable effectiveness when so much of the contaminated material remains on site.

EPA'S Preferred Alternative

EPA prefers Alternative 10C because this alternative most effectively satisfies the requirements of Superfund. This alternative would remove all battery casings from the site, treat the surface soil, subsurface soil, and matte, and cap the exposed fill and contaminants, thereby making them unavailable for human contact by inhalation or ingestion.

EPA recommends Alternative 10C at the site based on its complete satisfaction of the five requirements for a remedy under Superfund:

1. it is adequately protective of human health and the environment;
2. it utilizes treatment as a principal element for the reduction of toxicity, mobility, and volume;
3. it satisfies a preference for treatment and resource recovery to the maximum extent practicable;
4. it attains state and federal regulations; and
5. it is cost effective.

Differences Between EPA'S Proposal and NL and Gould's Preferred Plan

NL Inc. and Gould Inc. are proposing Alternative 2C for cleaning up the site. By contrast to Alternative 10C, EPA believes that Alternative 2C fails most of the cleanup requirements in that: (1) it is not adequately protective of human health and the environment because of the potential for continued inhalation and direct contact exposure to contamination at the site; (2) it treats less than 2% of the battery casings and proposes a treatment process for the soil that has not been adequately evaluated; (3) it therefore does not satisfy a the CERCLA preference for treatment and resource recovery to the maximum extent practicable; and, (4) it does not attain all state and federal regulations.

This alternative differs from EPA's proposed alternative in some key areas. EPA's alternative focuses on treating all of the battery casings (about 80,000 tons) while the companies' proposal focuses on treating only those casings that are in piles above the ground (about 1,000 tons). EPA's proposal emphasizes stabilization of all remaining contaminated soils and sediments while the companies' proposal focuses on applying lime to contaminated areas and then capping them. The cost of EPA's proposed plan is estimated at $15 to 20 million compared to an estimated cost of $5,000,000 for the companies' proposal.

EPA'S PROPOSED PLAN FOR THE SITE

EPA's proposed plan is to select Alternative 10C to deal with soils, sediments, and battery casings while deferring a decision on groundwater at the site until further studies are complete. The proposed plan, in simplified form, is to:

- remove battery casings on and beneath the site and treat them for proper disposal of lead, plastic, and other materials;
- treat lead-contaminated soil and sediments with a chemical additive to bind the lead to the soil and keep the contamination from leaving the site;
- continue to monitor groundwater in case extensive lead contamination begins to move off-site (additional controls may be needed if this happens);
- do additional studies of groundwater pollution in the Doane Lake area; and
- monitor air emissions to ensure that lead contamination does not spread off-site during cleanup.

EPA believes that the recommended alternative described here would best protect public health and the environment and meet relevant federal and state requirements. This plan satisfies the five requirements for a remedy under Superfund: (1) it is adequately protective of human health and the environment; (2) it utilizes treatment as a principal element for the reduction of toxicity, mobility, and volume; (3) it satisfies a preference for treatment and resource recovery to the maximum extent practicable; (4) it attains state and federal regulations; and (5) it is cost effective.

What Happens Next?

The EPA Regional Administrator, Robie G. Russell, will select one or more remedies from the alternatives presented in detail in the draft feasibility study. However, no cleanup decision will be made until all comments have been reviewed and considered.

After a cleanup plan is decided upon, EPA will negotiate with the potentially responsible parties to do the work required. The first step will be design and testing of the selected cleanup. This step will probably take six to nine months.

EVALUATION OF ALTERNATIVES 1, 2C, 10C, AND 21

FROM THE

FEASIBILITY STUDY

WITH EPA RESPONSES

The following evaluation compares the companies' evaluation of alternatives 1, 2C, 10C, and 21 with EPA's evaluation. The companies' evaluation is taken directly from Chapter 7 of the Feasibility Report. EPA's responses to the companies evaluation are included for each alternative and for most of the specific criteria. **EPA's response can be distinguished by its boldface type.**

EVALUATION OF ALTERNATIVE 1 - NO-ACTION ALTERNATIVE

The No-Action Alternative would apply no remediation to the site. The alternative consists of monitoring groundwater, air, and surface water to observe the migration of site contaminants.

Short-Term Effectiveness

Under the No-Action Alternative, the three existing high-volume (HIVOL) air monitors on-site would be supplemented with one more. Safety during installation of monitoring equipment is not considered to be an issue. This alternative is rated high for short-term effectiveness.

EPA Response - The alternative is not effective since there is no reduction in risk to public health or the environment.

Long-Term Effectiveness

Results of the Endangerment Assessment analysis of the No-Action Alternative indicate that the potential for inhalation and ingestion of lead under the high-dose cases are unacceptably high. Unacceptably high dose estimates are the result of calculations that focus on ingestion and inhalation of the lead oxide in the waste piles. Since no site remediation is undertaken, the performance of the No-Action Alternative is judged to be low. On the other hand, the methods of implementing this alternative are very reliable. Therefore, the long-term effectiveness of the No-Action Alternative is considered moderate.

EPA Response - Again, the alternative is not effective in that it is not protective of public health and Environmental Quality.

Reduction in Toxicity, Mobility, or Volume

This alternative does not reduce the toxicity, mobility, or volume of site contaminants. Therefore, the rating of this alternative for reduction of toxicity, mobility, or volume is low.

EPA Response - Agree.

Implementability

Construction under this alternative involves the installation of air monitors and warning signs. There are no physical impediments to these minimal construction plans, and installation will be performed using standard and proven methods. The materials and equipment needed to implement the No-Action Alternative are readily available. Overall, the implementability of the No-Action Alternative is judged to be high.

EPA Response - Agree

Cost

The costs associated with this alternative are divided into two categories: capital and operating and maintenance. Included in capital costs are installation costs associated with monitoring and indirect costs such as permitting, engineering, design, start-up, and contingency. The second category of cost is operating and maintenance costs including site monitoring and reporting. Operating costs are discounted to present worth for comparison of alternatives. Detailed cost breakdown information is provided in Appendix C.

	Capital Cost	O&M @ 12% Present Worth	Total Cost
Alt. 1	$ 10,030	$ 88,784	$ 98,814

Assumptions for this alternative are shown in the detailed cost breakdown provided in Appendix C.

EPA Response - The cost estimates appear reasonable.

Compliance with ARARs*

For Alternative 1, identified ARARs are the following:

Contaminant-Specific ARARs

Surface water (East Doane Lake): Oregon Water Quality Standards (50 ug/l lead)
Soils/Battery Casings: EP Toxicity for metals (5 mg/l lead)
Air: OSHA PELs (during remediation): 50 ug/m3
NAAQS for lead (post-remediation): 1.5 ug/m3

Location-Specific ARARs

Within an area that affects a stream or river, an action must protect fish and wildlife in accordance with the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.) 40 CFR 6.302.

Action-Specific ARARs

No action-specific ARARs have been identified as applicable to this alternative.

The NAAQS for lead would be routinely met under the No-Action Alternative. No other contaminant-specific ARARs would be met.

*ARARs is an acronym for Applicable, Relevant and Appropriate State and Federal Regulations.

Appropriateness of Waiver

Under SARA, EPA is authorized to allow a waiver from meeting ARARs if any of six conditions apply. For Alternative 1, the applicable waiver requirement is that the remedial alternative attain a standard of performance, through another method or approach, that is equivalent to meeting the ARAR. Under Alternative 1, even with the proposed use of institutional controls, the Endangerment Assessment shows that adequate protection of human health and the environment would not be achieved.

There is no plan for groundwater treatment at the site in Alternative 1. Groundwater treatment at the site will not be necessary with the use of institutional controls.

The application of institutional controls to the site is described in Section 4.1 and evaluated in Section 6.3, where it is rated as high. But because of the ineffectiveness of such controls under this alternative, the ability of Alternative 1 to comply with ARARs or satisfy the requirement for a waiver is judged to be low.

EPA Response - Institutional controls under this alternative are of questionable effectiveness since all the contaminants remain available for exposure. EPA concurs with the overall rating.

Overall Protection of Human Health and the Environment

Potential human exposure pathways of concern for the No-Action Alternative are inhalation of contaminated particulates resuspended from surface materials (primarily windblown dusts) and direct ingestion of the contaminated surface materials. Sources include battery casing piles and surface soils, but not subsurface materials, barring significant disturbance of the site. Sediments and surface water in Doane Lake and shallow ground water at the site also have elevated contaminant concentrations. However, there are no completed exposure pathways from ground water and Doane Lake sediments to people, and therefore no human health risks requiring protection. Possible swimming exposures in East Doane Lake and ingestion of fish and shellfish from the Willamette River near the site were screened using available information and determined not to pose significant human health risks.

Long-term exposure scenarios evaluated for human health risks include future on-site residential, on-site worker, and off-site (adjacent) residential populations. Such populations do not currently exist on or near the site but are assumed, absent effect institutional controls, for the purpose of evaluating potential human health risks via the inhalation and direct ingestion exposure pathways.

The ambient air lead concentration ARAR is 1.5 ug/m3 (quarterly). That value is calculated to be exceeded on-site, but not off-site, by wind resuspension of surface materials alone. Future on-site activities, if not effectively precluded by institutional controls, could disturb on-site contaminated materials and produce higher air lead concentrations, both on-site and off-site. Other than a requirement to meet EP Toxicity, there is no ARAR for soil lead concentrations (but see Appendix A, Section 7.6).

The magnitudes of risks from inhalation and ingestion exposures to lead are reflected in hazard indices based on acceptable intake-chronic (AIC) values. AIC values for inhalation and ingestion exposures are derived from the NAAQS ARAR value (1.5 ug/m3) and from the drinking water MCL value (0.05 mg/l), respectively. Hazard indices discussed here and in subsequent sections on overall protectiveness of each remedial alternative include values, where appropriate, based on EPA's AIC values (denoted adult) and more appropriate, age-adjusted AIC values (denoted age-adjusted), as discussed in the Endangerment Assessment (see Appendix A, especially Section 6.3.1).

Any direct contact with concentrated contaminant sources on-site, such as the battery casing piles, could result in excessive lead exposures. Base case evaluations resulted in hazard indices for on-site residents that exceed 1.00 for both inhalation and ingestion exposures and for all age groups (even with age-adjusted AIC values). Maximum hazard indices are 11.2 (AIC, adult) and 1.44 (AIC, age-adjusted) for inhalation exposures (0 to 9 months old infants), and 34.2 (AIC, adult), and 5.67 (AIC, age-adjusted) for ingestion exposures (9 to 18 month old children). These results demonstrate a significant potential for excessive lead exposures on-site under the No-Action Alternative.

Off-site inhalation exposures have a maximum hazard index of 1.71 (AIC, adult), but only 0.22 (AIC, age-adjusted) for 0 to 9-month old infants. The more appropriate age-adjusted value is consistent with the calculated air lead concentration off site being well below the NAAQS ARAR value. These results demonstrate non-significant off-site inhalation exposures to lead, in the absence of significant disturbance of on-site contaminated materials.

Overall, the human health risk evaluations for the No-Action Alternative show that either on-site residential exposures and disturbance of on-site materials should be precluded or on-site surficial lead concentrations must be reduced. The rating for the No-Action Alternative is low.

EPA Response - Concur with overall rating. The text states that there is no on-site worker population. However, workers are on the Rhone Poulenc property immediately adjacent to the site where buried battery casings and contaminated soil are located. The text states that there is no ARAR for lead in soil. In this case the endangerment assessment is used instead of an ARAR to determine the allowable exposure level. The text states that off-site exposures to lead in air are insignificant; however, the EA shows exposure at a level below the AIC. This does not mean the exposure is insignificant.

ALTERNATIVE 2C EVALUATION

Alternative 2C comprises removal of the surface piles of battery casing fragments, followed by component separation and recycling of some components, off-site disposal of others; lime treatment of the exposed surface soils and battery casing material, followed by low permeability capping and revegetation; lime treatment of the East Doane Lake surface water; site grading; and a long-term monitoring program. This alternative differs from Alternatives 2A and 2B primarily in the way that the surface piles of battery casing fragments are disposed of, in the treatment of surface soils and battery casings, and in treatment of East Doane Lake. Rather than disposal in an off-site landfill, this alternative calls for processing of the battery casing fragments in the surface piles and subsequent recycling of some of the constituents. The alternative also employs treatment of surface soils and battery casings remaining on the site by covering those materials with a layer of lime under a low permeability cap. In addition, Alternative 2C calls for lime treatment of the surface water in the East Doane Lake remnant.

Short-Term Effectiveness

Under this alternative, as under Alternatives 2A and 2B, most of the fill material would be left in place, thereby reducing the potential for off-site exposure to site contaminants due to fill excavation and handling. During remediation, worker safety issues similar to those for minor earthmoving projects will arise. Hazards associated with site contaminants will be controlled by appropriate respiratory protection, proper safety attire and the application of dust suppression techniques. Therefore, the short-term risks for workers on-site would be negligible. The Endangerment Assessment clearly shows that the hazard index for inhalation of lead by off-site workers at the fenceline is well within the acceptable chronic intake level. Fencing and other controls would be used to prevent the public from entering the site during remediation.

The surface piles carry the greatest potential for environmental risk because of their availability. Battery casing components contained in the surface piles, which contain the largest of potentially recyclable material, will be transported to an off-site recycler for separation of components. After separation, some components will be recycled, while others may have to be disposed of in a landfill. Risks associated with transport of hazardous wastes from the site to the recycler, and hazardous waste from the recycler to a RCRA landfill will be mitigated by transporting the wastes in accordance with 40 CFR 263 requirements for hazardous waste transportation.

Alternative 2C could be executed in approximately one year, including planning, review, contracting, and completion. The actual timing will depend somewhat on the capacity of the off-site recycler. There are no site conditions or known zoning requirements which might delay execution. Beneficial effects of removing the surface piles, the most environmentally available portion of the site contaminants, will be immediate. Beneficial

effects of treating surface water with lime will also be immediate. Beneficial effects of treating the site surface with lime will accrue gradually, and will depend on the time needed for the lime to leach into the fill from the treated surface layers.

The monitoring program for Alternative 2C will be similar to that discussed under the No-Action Alternative in Section 4.2.1. Implementation of the monitoring program will not raise any identifiable serious safety issues.

The time to completion is similar to that for Alternatives 2A and 2B; therefore, the short-term effectiveness of this alternative is considered to be the same as for those alternatives. This alternative is rated high for short-term effectiveness.

EPA Response - This alternative is not effective because of two main concerns. First, significant quantities of hazardous materials remain at the site and there is potential exposure to these substances if the controls proposed by the company are not effective. Second, the lime treatment proposed by the company has not been fully evaluated during the FS and therefore its effectiveness at this site is not well known.

Long-Term Effectiveness

The intent of this alternative is to mitigate health and environmental effects of site contaminants due to airborne pollution or exposure to contaminated surface water; to reduce the off-site migration of contaminants in the air and in surface water; and to reduce to an acceptable level the potential for adverse human health effects from remaining site contaminants. Removal of the surface piles is expected to substantially reduce the potential for entrainment of dust from the site by wind, and to reduce the potential for human contact with site contaminants. Pumping and lime treatment of the site surface water will reduce the concentrations of dissolved contaminants by raising the pH of the water. Site grading will reduce the amount of runoff in the lake remnant, and eliminate the transport of surface water off-site. The application of lime to the surface areas where soil is exposed or where casings are exposed or buried should reduce the concentration of dissolved contaminants in surface runoff by raising the local pH. Subsequent capping will isolate the remaining contaminants from the environment, thereby reducing their availability for off-site transport by surface water and direct contaminant ingestion with soils.

Under this alternative, health and environmental hazards posed by the site fill are mitigated. Treatment undertaken by this alternative addresses all of the site contaminants that are environmentally available. As shown by the results of the Endangerment Assessment, these treatments adequately address site concerns by reducing risks to acceptable levels. After remediation is complete, contaminated sediments, subsurface casings, and fill remain. However, no significant risks are posed by these media. Lead in sediments will remain insoluble (and therefore unavailable) because of a raised lake pH; lead in subsurface casings buried up to 30 feet beneath the

surface will also remain unavailable because of a gradually, steadily rising subsurface pH; lead in ground water also has a limited solubility (less than 0.05 mg/l) at the present pH. These risks are adequately addressed by institutional controls, rather than by treatment.

Equipment needed for treating the surface waters at the site is practical and reliable. The average lead concentration of East Doane Lake is 0.049 mg/l; however, dissolved lead concentrations as high as 0.28 mg/l were measured during the RI. The degree of dissolved lead removal achievable by lime treatment will be determined by bench-scale testing during remedial design. At a minimum, water treatment by pH adjustment followed by filtration will be effective at reducing some of the dissolved lead, and the majority of the non-dissolved portion of the lake's lead burden. Following water treatment for lead reduction, the water of East Doane Lake will be periodically monitored to determine the need for repetition of the treatment.

Lime treatment of the exposed soil and fill will be used to neutralize any remaining unreacted acid within the area of high sulfate in the soil. As such, soil pH will rise more rapidly than without the addition of lime. Once soil pH is raised, it should stay raised because site operations have been discontinued. Testing will be conducted to ascertain that soil pH is within the required range; lime addition may need to be repeated to achieve the desired results. Surface capping is a proven technology and is considered reliable in preventing human contact with contamination. Monitoring of the cap will be employed to ascertain that the cap maintains minimal functional performance requirements. Site monitoring equipment will require continued maintenance.

Implementation of this alternative is dependent on the availability of an off-site recycler. During the conduct of the FS, pilot-scale studies were performed at two off-site recyclers, either of which may be candidates for receipt of this material. Others may be available. Existing recyclers are generally capable of handling whole batteries, but will likely be able to handle the surface piles because surface piles are similar to whole batteries in terms of material content. However, even this relatively small amount will likely require several months to separate at a typical recycle facility because of capacity limitations. Therefore, it is expected that a suitable separation facility and subsequent recycle and disposal locations can be found for the relatively small volume of material in the surface piles.

Considering all factors, this alternative is rated high for long-term effectiveness.

EPA Response - Since only about 1% of the casings are treated, and since the treatment of soils has not been adequately evaluated at this site, the long term effectiveness of this alternative is questionable. The RI has indicated that lead is migrating off-site, but at a slow rate. The risks from the remaining contaminated materials at the site have been shown by the No-Action Alternative to be significant. Unless these materials are adequately treated it is improper to say that future risks are insignificant. There has not been enough work done to support the statement that lead in subsurface casings will remain unavailable. Once the pH is raised, it is unknown what factors in the soil might affect the stability of that pH and what additional work might be needed to maintain the pH. The text states that surface capping is a proven technology; however, there are still uncertainties involved should the present use of the property change and the cap later be disturbed.

Reduction in Toxicity, Mobility, or Volume

Alternative 2C reduces the volume and toxicity of the site contaminants contained in surface piles, which is the most significant potential source of exposure, and East Doane Lake. In addition, the mobility of contaminants in soil and subsurface casings and into air is reduced by increasing the pH of the soil system through lime treatment and by surface capping. Periodic reapplication of lime as required will provide a permanent reduction in contaminant mobility. Subsurface contaminants are not reduced in volume or toxicity, however. Materials being disposed of off-site in this alternative consist of the ebonite in the surface piles of battery casings (about 800 tons) and any non-recyclable portion of the lead oxide and plastic. In all, the material being disposed of off site will total less than 1 percent of all site contaminants. This alternative is rated moderate to high for reducing contaminant toxicity, mobility, or volume.

EPA Response - The reduction of toxicity, mobility, or volume of the waste must be rated low since it does not address toxicity or volume and only partially addresses mobility.

Implementability

Equipment for separating the battery casing fill at the site is available; however, as discussed in Section 5 of the FS, attempts by NL, Gould, and other entrepreneurs to separate battery casing fill from the Gould site and from other similar sites have not demonstrated the practicability of recycling all component streams. An element of practicability certainly focuses on the material that equipment is designed to process. The separation equipment tested during the FS was designed to work on whole batteries, not on the mix of materials found at the Gould site. In particular, plastic and ebonite streams analyzed after processing through available separation equipment contained sufficient residual lead to fail the TCLP test. Further, lead oxide is combined with much dirt in the separation process, which will serve to reduce the recyclability of this fraction.

Except for the battery component separation process, Alternative 2C would be accomplished using conventional machinery and practicable, proven techniques. Surface capping is a proven technology, and is considered reliable. Regular inspection of the cap will be required to ascertain that the cap maintains minimal functional performance. Because of some concern about the practicability of separation equipment, the technical feasibility of Alternative 2C is judged to be moderate to high.

Alternative 2C involves the removal and treatment of the surface piles of battery casings, surface soil treatment with lime, and surface water treatment by pH adjustment and filtration. Recovered battery casing components will be sent to other facilities for recycling or disposal. Those facilities receiving battery casing components will be required to meet RCRA TSD requirements for processing of hazardous wastes, as required by the EPA Off-Site Policy. Applicable DOT and EPA regulations for the transport of hazardous materials will also have to be followed.

During remediation, a treatment facility will be erected, operated, and demolished; surface treatment equipment will be operated; and air monitors will be relocated. Any off-site portion of these activities (i.e., off-site drainage) will require permits. It is assumed that the on-site portion of these activities will not require permits. The administrative feasibility of Alternative 2C is judged to be high.

EPA has confirmed RCRA regulations regarding the recycling of plastic, metallic lead, and ebonite from the site (see Appendix F). If a recycler is available and willing to accept these materials, EPA will allow recycling of these materials from the site without designating them as hazardous waste. Lead compounds, however, will be required to be transported and handled as a hazardous waste. Thus, any facility interested in accepting the lead compounds for the purposes of recovering the lead would have to be permitted as a TSD facility under 40 CFR Part 264.

Recovered battery casing materials which cannot be recycled will be disposed of in a landfill. Assuming that landfilled materials fail the test of EP Toxicity for lead, the landfill will have to meet the requirements of 40 CFR Part 264. The availability of services and materials to implement Alternative 2C is judged to be high.

Overall, the implementability of Alternative 2C is judged to be high.

EPA Response – The FS studies have shown that these materials can be separated, particularly when this alternative focuses only on the surface piles. In general, EPA concurs with this assessment.

Cost

The costs associated with this alternative are divided into two categories. The first is capital cost which includes direct costs such as transportation, separation, and disposal costs associated with the surface casings; surface water treatment costs; lime addition to soil; site grading; and installation costs associated with monitoring. Also included in capital cost are indirect costs such as permitting, engineering and design, start-up, and contingency. The second category of cost is operating and maintenance costs including site monitoring and reporting. Operating costs are discounted to present worth for comparison of alternatives. Detailed cost breakdown information is provided in Appendix C.

	Capital Cost	O&M @ 12% Present Worth	Total Cost
Alternative 2C	$3,133,760	$1,789,722	$4,923,481

Assumptions for this alternative are shown in the detailed cost breakdown provided in Appendix C.

EPA Response - These cost estimates appear to be reasonable.

Compliance with ARARs

Contaminant-specific ARARs that apply to the Gould site are contained in Table 3.2-1. In addition, some location-specific ARARs and action-specific ARARs would apply to the remediation. For Alternative 2C, identified ARARs are the following:

Contaminant-Specific ARARs

Surface water (East Doane Lake): Oregon Water Quality Standards
Soils/Battery Casings: EP Toxicity for metals
Air: OSHA PELs (during remediation): 50 ug/m3
NAAQS for lead (post-remediation): 1.5 ug/m3

Location-Specific ARARs

Within an area that affects a stream or river, an action must protect fish and wildlife in accordance with the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.) 40 CFR 6.302.

Action-Specific ARARs

Capping and closure standards under 40 CFR 264 would apply to Alternative 2C if RCRA waste units were being built, i.e., if waste was being removed and

replaced. However, such actions are not included in Alternative 2C. Therefore, no action-specific ARARs have been identified as applicable to this alternative.

All contaminant-specific and location-specific ARARs will be met by Alternative 2C, except for the EP Toxicity requirement for lead in soils and battery casing materials.

Appropriateness of Waiver

Under SARA, EPA is authorized to allow a waiver from meeting ARARs if any of six conditions apply. For Alternative 2C, the applicable waiver requirement is that the remedial alternative attain a standard of performance, through another method or approach, that is equivalent to meeting the ARAR. Under Alternative 2C, the proposed use of institutional controls would allow the attainment of a standard of performance equivalent to meeting the ARAR for EP Toxicity in soil. There is no plan for groundwater treatment at the site in Alternative 2C. Groundwater treatment at the site is not necessary with the use of institutional controls. Groundwater treatment as a technical alternative is addressed by Alternative GW, which proposes a method for attaining a groundwater clean-up level of 0.05 mg/l dissolved lead.

The application of institutional controls to the site is described in Section 4.1 and evaluated in Section 6.3, where it is rated as high. Because of the effective employment of institutional controls under Alternative 2C, the ability of Alternative 2C to comply with ARARs or satisfy the requirement for a waiver is judged to be high.

EPA Response - Since most of the contaminated material remains on-site and is untreated, and since the effectiveness of the additional controls proposed is questionable, it will be difficult to make a case for waiving the state and local regulations on the basis that the proposed alternative is equally protective.

Overall Protection of Human Health and the Environment

Surface contamination on site is reduced under Alternative 2C by removal of the above-ground battery casings piles and by paving/capping areas of highest residual soil contamination, with lime applied before paving/capping to further reduce the potential mobility of residual lead in subsurface soils. These measures will provide long-term, effective controls for general inhalation exposures and direct contact ingestion exposures in these areas of the site, barring physical disturbance of the pavement/cap. East Doane Lake surface waters will also be treated under Alternative 2C.

The long-term exposures and risks after completion of Alternative 2C remediation activities are determined to be acceptable. On-site residential exposures by inhalation and ingestion result in hazard indices less than 1.00 for all age groups, even using adult AIC values. Maximum on-site residential hazard indices (age-adjusted) are 0.03 for inhalation and 0.12 for ingestion. On-site worker and off-site residential populations have even lower hazard indices for all exposure pathways evaluated. On-site and off-site air lead concentrations are in compliance with the NAAQS ARAR value.

Under extreme exposure assumptions, the maximum residual surficial soil lead concentrations pose a small risk in a small area of excessive lead exposures, primarily for young children. The assumptions under this scenario, however, are precluded under the alternative and thus do not affect the analysis.

Short-term, off-site worker inhalation exposures from fugitive dusts generated during Alternative 2C remedial activities are determined to be non-significant, with a hazard index of 0.19. Maximum short-term (quarterly) air lead concentrations off site are projected to be in compliance with the NAAQS ARAR value, although shorter duration concentrations could exceed 1.5 ug/m3.

The overall protectiveness offered by Alternative 2C is clearly adequate. Its protectiveness rating is high.

EPA Response - The text states that the cap will be effective as long as it is not disturbed, but it is not known what the likelihood of future disturbance is. The maximum exposure levels that are estimated are based on assumptions about the effectiveness of the cap; these might be higher if there are disturbances in the cap. Finally, the overall protectiveness of this alternative cannot be considered high since it does not provide for treatment of all the contaminated battery casings and soils.

6.12 ALTERNATIVE 10C EVALUATION

Alternative 10C comprises excavation of all of the battery casing fragments and matte from the Gould property and adjacent properties where casings have been identified, followed by on-site separation of the battery casing fragments. Separation is followed by recycling of those components (or portions of components) that can be recycled, and off-site disposal for non-recyclable components that fail the EP Toxicity test, and on-site disposal if non-hazardous. Additional processes under Alternative 10C include excavation, fixation/stabilization and on-site disposal of contaminated soil, sediment, and matter revegetation; isolation of East Doane Lake by site regrading; and a monitoring program to verify that no contaminants remaining on-site are mobile. This alternative differs from Alternatives 10A and 10B in the way non-recyclable materials are handled. No incineration is proposed, and a decision on the need for treatment of East Doane Lake is postponed, pending further study of the ground-water system.

Evaluation criteria under this alternative are all influenced heavily by the summary conclusion that the alternative is technically not feasible due to the magnitude of problems associated with separation and cleaning of subsurface casings to render them recyclable or non-hazardous.

EPA Response - The treatability studies indicate that the materials can be physically separated, so the alternative is feasible. The lead levels in the output streams are a concern based on the treatability studies. However, it is believed that a rigorous design phase can overcome most of these problems. The alternative also calls for disposal at a hazardous waste landfill of any materials that fail EP Tox, which is clearly feasible.

Short-Term Effectiveness

During remediation, worker safety issues similar to those for moderate earthmoving projects will arise. For on-site workers, safety attire will mitigate some safety concerns; however, several activities will be conducted simultaneously in a relatively small area, leading to some concern over worker safety due to the intensive nature of site activity. Therefore, the short-term safety risks for workers on site could be significant.

The results of the Endangerment Assessment modeling show that during remediation, lead concentrations in air emissions at the fenceline of the property will far exceed the NAAQS for lead. Hazard values indicated in the EA are up to 10.404 ug/m3 during remediation. Even with the most aggressive emission control and dust suppression program, the extensive on-site activity over a protracted period of time will lead to emissions above acceptable levels. This will result in violations of the lead NAAQS, which has been promulgated under the Clean Air Act by EPA to protect public health. Because of these emissions, it is likely that off-site workers in adjacent industrial areas may be required to wear respirators during remediation. Such a requirement is seen as being very controversial and difficult to enforce. Additionally, lead-bearing dust will contaminate the surrounding properties, soil, buildings, and roads.

The completion of remedial activities under Alternative 10C would take slightly more than 6 years after remedial design is complete, as follows:

Remedial design, specification, procurement, testing, and contracting	12 months
Facility construction	9 months
Excavation and processing of battery casings, soils, sediments	56 months
Demolition, salvaging, and site renovation	9 months
Total Time	86 months

Site conditions that may delay execution of the alternative include, as with 8A, 8B, 10A, and 10B, logistical difficulties associated with dredging of the lake sediments. Dredging during periods of high rainfall may be precluded by a requirement to avoid discharges of lake water laden with sediment. Requirements related to stabilization of the lake shoreline during deployment of dredging equipment may also serve to extend the time required for dredging. But the most significant constraint on the implementability of Alternative 10C is that source separation technology is unproven, and therefore impractical and unreliable. Through several studies, it has been determined that surface piles of casings can in all likelihood be feasibly separated by the use of existing systems. However, the subsurface casings, with the large amount of dirt and mud they contain, cannot predictably, reliably, or practicably be separated. Moreover, equipment designed for this particular application (i.e., casings and mud) is not available nor has a prototype been tested. The pilot tests during this FS have been conducted on equipment designed to break batteries and separate the various battery components. That application is far removed from the task presented by this alternative. Reports from operators of existing battery breaking equipment indicate that the equipment requires inordinate operator attention and maintenance. Equipment for this application has yet to be designed and tested.

Beneficial effects of removing and successfully separating battery casings, assuming it could be done, and fixing/stabilizing soils, sediments, and matte will be immediate on completion. However, dredging of the lake sediments will severely affect the water quality of the lake. Because no lake water treatment is proposed pending further study, the water quality will remain degraded for an indefinite period.

The monitoring program for Alternative 10C will be conducted as long as site contaminants remain unremediated. Implementation of the monitoring program will not raise any serious safety issues.

It is possible that the casings may be excavated and not separable, which would cause exceedances of NAAQS and require disposal of the whole mass. Because of this, the time to completion is so long, the degree of uncertainty surrounding subsurface battery casing separation is so high, the emissions associated with remediation exceed limits, and because community objections to short-term emissions are expected, the short-term effectiveness of this alternative is considered to be low.

EPA Response - The estimated lead emissions during remediation here are based on crude emission estimates that do not reflect the degree to which fugitive dust can be controlled during materials handling operations. There is a risk that fugitive dust emissions will occur during the remediation, but strict procedures will be used to keep them at a minimum. It should also be noted that buried battery casings are in groundwater. EPA considers the estimate for time to complete the remediation to be conservative. The estimate is based on a variety of factors that include the size of the facility and other items that will be evaluated during the design phase. It is the agency's intent to minimize the time that is required for remediation under this alternative. The text states that equipment for this application has yet to be designed and tested. The units that were evaluated during the treatability studies can be considered pilot scale versions of units that will be constructed at this site once design work is complete. Materials handling will be a major concern in the design of this unit. The text mentions dredging of the lake sediment affecting water quality. EPA believes that technologies are available for dredging the sediments while minimizing the impacts on water quality in the lake.

Long-term Effectiveness

The intent of this alternative is to mitigate health and environmental effects of site contaminants due to airborne pollution, exposure to contaminated surface water, or exposure to primary source material in soils, and to reduce the off-site migration of contaminants in the air or in surface water or ground water. Removal and successful separation of the battery casing fragments would substantially reduce sources of pollution at the site. Without the battery casings, levels of pollution in all media will decrease. Removal and disposal of contaminated sediments without treatment of the site surface water will raise the concentration of dissolved and suspended contaminants. Site capping will isolate the remaining contaminants from the environment, thereby reducing their availability for off-site transport by surface water and direct contaminant ingestion with soils.

Under this alternative, health and environmental hazards posed by the site are intensively addressed by treatment. Potential hazards posed by the site fill are addressed by the removal of the battery casing fragments. Although treatment undertaken by this alternative addresses essentially all of the contaminated material and related risks, the technology on which the alternative is based is unproven. Risks remaining after remediation is completed are posed solely by stabilized soil and groundwater in the study area. These risks are addressed by institutional controls, rather than by treatment.

The removal of the battery casing fragments for separation and recycling, disposal, or destruction will reduce the hazards associated with source material at the site. However, the processes available for separating and cleaning the battery casing fragments have not been shown to be practicable, resulting in subsequent landfilling of the wastes. Surface capping is a proven technology and is considered reliable. Regular inspection of the cap will be required to ascertain that the cap maintains minimal functional performance. Site monitoring equipment will require continued maintenance.

Because of the significant landfill component and hazardous waste transport factors associated with Alternative 10C, and because it cannot be assumed that the remedial processes are technically feasible, nor that they will be successful, the performance of this alternative is judged to be low. Therefore, this alternative is rated low for long-term effectiveness.

EPA Response - The technology to be used in this alternative has been demonstrated in other situations and appears to be feasible based on the studies that have been done at this site, since the tests clearly showed that the materials can be separated. This alternative provides for treatment to either recycle or immobilize all of the battery casings and the contaminated soils, sediment, and matte at the site. Material that can not be recycled will be landfilled at an appropriate facility. EPA therefore considers the long term protectiveness of this alternative to be high. The remaining risks, in particular groundwater quality, will be evaluated during the additional study.

6.12.3 Reduction in Toxicity, Mobility, or Volume

In Section 1 of the FS, the estimated quantities of metallic lead, plastic, lead oxide, ebonite, and other material are calculated. In the Section 6.2 discussion on recycle potential, an estimate of the quantity of metallic lead is shown as 0.6 percent of all primary source materials, plastic is estimated at 3.0 percent of primary source materials, lead oxide/dirt/mud at 10.2 percent, and ebonite at 74.3 percent. Contacts made during the FS indicate that the metallic lead would likely be completely recyclable, the plastic would be recyclable at some locations, depending on lead content, and lead oxide would likely be accepted by some smelters, although a lead content less than about 40 percent may be rejected. By far the largest component of source material, ebonite, is non-recyclable because of lead content. In Section 6.2, an estimate is made that about 2.7 percent of all primary source materials are potentially recyclable. This reduction is more than offset by the increase in volume of excavated soils, stabilized soils and sediments, and of solidified lead oxide prior to off-site RCRA disposal. Volume reduction, then, is not achieved by this alternative. Instead, an actual waste volume increase estimated at 10 percent will result.

The potential for long-term mobility of site contaminants is decreased with Alternative 10C, but at the expense of a significant and detrimental increase in short-term mobility during remediation. The toxicity of contaminants is unchanged by this alternative. Lead is merely moved from one spot to several others.

Recycling offers the benefit of obtaining a product from the waste which may have a higher economic value than the waste itself, and contributes towards achieving the remedial objectives listed in Section 2. But the result of recycling at the Gould site is minimal under this alternative, which represents the maximum recycling effort possible.

Thus, Alternative 10C does not significantly reduce the toxicity or mobility of the site contaminants, and it actually results in an overall volume increase. Further, the technical unfeasibility of the alternative reduces the probability that the objectives can be achieved at all. This alternative is rated low for reducing contaminant toxicity, mobility, or volume.

EPA Response - The text should focus on the reduction in volume of lead that can be recycled, not the total volume of the battery casings, since it is lead that is of concern. The text states that the lead can be recycled and that the lead oxide is likely to be recyclable. These two streams constitute the majority of the lead that is in the casings. With proper attention to design, EPA believes that the ebonite stream can also be cleaned to the point where it can be recycled. In addition, treatment of the contaminated soils, sediment, and matte should reduce the mobility of lead in them. Therefore, EPA rates 10C high on this criteria, particularly compared to the other alternatives evaluated.

Implementability

During the conduct of the FS, several efforts at component separation and cleaning of the battery casing material have been attempted. A review of the efforts of others who attempted separation and recycle was also conducted. These attempts, which are discussed in detail in Section 5, can be generally characterized as demonstrating that separation of surface piles of battery casings is feasible at low feed rates, and separation of buried battery casings is not feasible. The key difference between the two fractions is the large dirt, mud, and miscellaneous debris content of the subsurface casings.

The separation equipment tested during the FS, and earlier by AlChem and others, is designed for the breaking and separation of whole batteries into component parts. The surface piles have a relatively low dirt content, which makes them roughly analogous to whole batteries in terms of the properties that are important to the separation process. Thus, physical separation of the surface pile material should be possible. The buried casings, on the other hand, are comingled with large quantities of dirt, mud, rocks, concrete, and other debris, and contain a low percentage of recyclable material. Because of this comingling, the buried casings bear little resemblance to whole batteries as a feedstock for separation equipment. As a result, significant modifications must be made to the processing of this material. Furthermore, the required modifications are not today wholly known. For instance, labor will be required up front to hand-pick rock, slag, concrete, wood, and other debris out of the feed stream to the separators. It is also known that a solution to foaming problems must be incorporated into the design, and that an increase in the dirt/mud content of the feedstock will, with any set of modifications envisioned, result in a decrease in the efficiency of the physical separation and in the recyclability of the lead compounds. At this time, no manufacturer has designed equipment to do what must be done; i.e., to reliably separate the subsurface battery casing fill at the site into separate components that could potentially be recycled.

Another problem occurs after the separation, regardless of whether the feedstock is surface piles or buried casings. As was pointed out in the evaluation of Alternatives 2C, 8B, 10A, and 10B, plastic and ebonite streams analyzed after processing through available equipment contained enough interstitial lead to fail the TCLP test. Thus, all materials that could not be recycled would need to be landfilled. Therefore, this alternative requires the development of separation equipment, then performing the separation, only to be faced with a requirement that 95 percent of the material be landfilled after enormous expenditure of time and money.

Soil stabilization is a proven technology and was shown to be effective in a bench-scale test during the FS. Transfer of bench-scale data to actual site conditions is always difficult, however. Pilot-testing of the technology under actual site conditions will be required during remedial design to determine the correct ratios of materials and to determine whether the technique can be effective under actual site conditions. Unknown, for example, is whether the stabilized soils can be replaced under the groundwater surface, and what the maximum water content of materials to be stabilized might be.

As was discussed in the evaluation of Alternatives 8A, 8B, 10A, and 10B, sediment dredging is not a simple process. At the Gould site it will involve logistics that cannot be determined until actual field trials are attempted. In addition, sediment dredging will cause severe degradation of East Doane Lake surface water. Its inclusion serves to reduce the alternative's technical feasibility.

Except for the battery component separation process, which has not been demonstrated, Alternative 10C would be accomplished using conventional machinery and techniques. Because of the difficulties listed above, the technical feasibility of Alternative 10C is judged to be low.

Alternative 10C involves the excavation and separation of all battery casings, followed by recycling or RCRA disposal of specific battery casing constituents; the removal, treatment, and on-site disposal of East Doane Lake sediments; soil stabilization for soils failing EP Toxicity; site regrading; and topsoil/revegetation of the surface. Those recycling facilities receiving the lead oxide and soil component will have to meet RCRA TSD requirements for processing of hazardous wastes, as required by the EPA Off-Site Policy. Applicable DOT and EPA regulations for the transport of hazardous materials will also have to be followed. No permit is assumed to be required for any of the wholly on-site portions of the alternative. During remediation, separation and treatment facilities will be erected, operated, and demolished, and excavation equipment will be operated. These activities may require construction permits.

Community objections to short-term emissions will likely reduce the administrative feasibility of this alternative. The administrative feasibility is judged to be moderate.

As already noted, EPA has interpreted RCRA regulations regarding the recycling of plastic, metallic lead, and ebonite from the site (see Appendix F). While EPA will allow recycling of these three materials from the site without designating them as hazardous waste, lead oxide/ dirt will be required to be transported and handled as a hazardous waste. Thus, any facility

interested in accepting the lead oxide/dirt for the purposes of recovering the lead would have to be permitted as a TSD facility under 40 CFR Part 264. This requirement significantly reduces the feasibility of recycling the recovered lead oxide/dirt.

Recovered battery casing materials which cannot be recycled will be disposed of in a landfill. The landfill will have to meet the requirements of 40 CFR Part 264.

Because of considerations concerning the practicability of separation equipment, the availability of services and materials for this alternative is judged to be low. Overall, the implementability of Alternative 10C is judged to be low.

EPA Response - The text implies that the casings contain a low amount of recyclable material because of contamination with dirt. However, the amount of rock/slag on average was only 3.6%. Even assuming that there is substantial dirt mixed with the lead oxide, it still appears that most of this material is recyclable battery casing. The text states that transfer of the soil treatment technology to this site will be difficult. However, EPA believes this level of effort is what is required at any site where treatment is involved and that this type of treatment is feasible at this site based on the soil treatability studies. EPA recognizes that community concerns during remediation are an important consideration. EPA believes that by minimizing fugitive emissions during materials handling we will address those concerns. Recyclers for these materials do appear to be available providing that the output streams meet certain specifications. Since the battery casing separation studies showed that the material is clearly separable, this alternative is considered feasible.

6.12.5 Cost

The costs associated with this alternative are divided into two categories. The first is capital cost, which includes direct costs such as erection of process equipment, excavation, separation, and disposal costs associated with the surface casings; sediment dredging costs, soil stabilization costs; site grading; and installation costs associated with monitoring. Also included in capital cost are indirect costs such as permitting, engineering and design, start-up, and contingency. The second category of cost is operating and maintenance costs that occur throughout the multi-year remedial effort, such as excavation, separation, and disposal costs beyond year one. Operating and maintenance costs are discounted to present worth for comparison of alternatives. Detailed cost breakdown information is provided in Appendix C.

Capital Cost	O&M @ 12% Present Worth	Total Cost
$3,491,603	$17,073,581	$20,565,184

Assumptions for this Alternative are shown in the detailed cost break-down provided in Appendix C.

EPA Response - The costs for this alternative are the most difficult to estimate. The costs presented above appear to be worst case costs assuming little of the material is recyclable.

Compliance with ARARs

Contaminant-specific ARARs that apply to the Gould site are contained in Table 3.2-1. In addition, some location-specific ARARs and action-specific ARARs would apply to the remediation. For Alternative 10C, identified ARARs are as follows:

Contaminant-Specific ARARs

Surface water (East Doane Lake):	Oregon Water Quality Standards
Soils/Battery Casings:	EP Toxicity for metals
Air:	OSHA PELs (on-site workers): 50 ug/m3
	NAAQS for lead: 1.5 ug/m3

Location-Specific ARARs

Within an area that affects a stream or river, an action must protect fish and wildlife in accordance with the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.) 40 CFR 6.302.

Action-Specific ARARs

Since no RCRA unit is being constructed under this alternative, no action-specific ARARs have been identified as applicable.

All contaminant-specific and location-specific ARARs will be met by Alternative 10C, except for meeting the NAAQS during remediation.

Appropriateness of Waiver

Under Alternative 10C, the proposed use of institutional controls would allow the attainment of a standard of performance equivalent to meeting all ARARs. There is no plan for groundwater treatment at the site in Alternative 10C. Groundwater treatment at the site is obviated by the use of institutional controls. Groundwater treatment as a technical alternative is addressed by Alternative GW, which proposes a method for attaining a groundwater cleanup level of 0.05 mg/l dissolved lead. A waiver from meeting the NAAQS during remediation is probably not appropriate.

EPA Response - The text states that the only instance where an ARAR will not be met is the NAAQS standard during remediation. EPA believes that this concern can be addressed by providing stringent controls on materials handling operations to minimize fugitive dust. It should be noted that the buried battery casings are currently situated directly in groundwater and are much wetter than the material that has been assumed in the FS in terms of estimating fugitive emissions.

Overall Protection of Human Health and the Environment

Surficial contamination on site is reduced under Alternative 1OC by on-site treatment of all battery casings (piles and buried), with off-site disposal at a RCRA landfill of materials failing EP Toxicity tests and stabilization/on-site disposal of remaining residual materials (soil, sediment, matte), and pavement/capping of all disposal areas. These measures will provide long-term, effective controls for general inhalation exposures and direct contact ingestion exposures in these areas of the site, barring physical disturbance of the pavement/cap. Stabilization of residual wastes will provide an additional component of protection.

EPA Response - Physical disturbance of the cap is less likely to impact exposure under this alternative since the material that has been capped has been treated to the maximum extent practicable. EPA rates this alternative highest of any in terms of overall protection of health and the environment.

6.13 ALTERNATIVE 21 EVALUATION

Under Alternative 21, as under Alternatives 10A, 10B, and 10C, all of the fill material on the Gould and off-site properties that fails the test of EP Toxicity for lead (assumed to be 3,000 mg/kg total lead) will be excavated for treatment (soil, sediments) or on-site disposal (battery casings). As under Alternative 10A and 10C, contaminated soil, sediment, and matte would be treated by fixation/stabilization treatment, then backfilled into the site excavation. Unlike Alternatives 10A, 10B, and 10C, excavated battery casing materials would be disposed of in an on-site RCRA-approved landfill. The alternative also includes pH adjustment and filtration of the East Doane Lake remnant, site grading, low-permeability surface capping, and a long-term monitoring program.

6.13.1 Short-Term Effectiveness

Under this alternative, the recovered battery casing fill would be stored on an adjacent property while the landfill is constructed. During remediation, worker safety issues similar to those for major earthmoving projects will arise. For on-site workers, hazards associated with site contaminants will be reduced by appropriate respiratory protection, worker safety attire, and the application of dust suppression techniques. Fencing and other controls would be used to prevent the public from entering the site during remediation. However, off-site ambient air lead concentrations during remediation are predicted to periodically exceed the quarterly average standard of 1.5 5g/m3, even with good control measures in place. Workers in adjacent industrial facilities may be required to wear respirators during remediation, a requirement that would be difficult to enforce.

The monitoring program for Alternative 21 will be similar to that discussed under the No-Action Alternative in Section 6.4. The monitoring program will employ existing monitoring wells to look for changes in the groundwater lead levels. Implementation of the monitoring program will not involve any significant safety issues.

Remediation under Alternative 21 might be completed in about four years, including planning, review, contracting, and construction. Beneficial effects of remediation under this alternative will be immediate on completion of construction. Because of the long time required for remediation and the expected significant problems with off-site emissions during site operations, the short-term effectiveness of this alternative is judged to be low to moderate.

EPA Response - In addition to the problems mentioned above, EPA is also concerned about the effectiveness of leaving all of the contaminated battery casings untreated on-site. EPA believes that the concerns about off-site emissions can be handled by following procedures that are designed to minimize fugitive emissions.

Long-Term Effectiveness

The intent of this alternative is to fully mitigate potential health and environmental effects of site contaminants by completely isolating the contaminants from the environment. Enclosure of the battery casing fill in a RCRA-approved landfill will prevent the migration of contaminants in water and air, and will limit their availability for direct ingestion. Fixation/stabilization treatment of soil, sediment, and matte will also prevent contaminant migration and will decrease the mobility of these materials. Site regrading and blocking of the overflow from the East Doane Lake remnant will reduce the accumulation of runoff in the lake remnant, and decrease the movement of contaminated surface water off-site. With appropriate institutional controls, the health and environmental hazards posed by the site fill are mitigated. According to the site Endangerment Assessment, exposures under the Alternative 21 are reduced by 97.9 percent compared to the No-Action Alternative, so that long-term residual exposures and risks for human health are determined to be acceptable.

The removal and on-site disposal of the battery casing fill is considered a reliable means of eliminating contaminant releases from the site. Frequent inspection of the cap will be required to ascertain that an impermeable barrier is maintained between the contaminants and the environment. Site monitoring equipment will require continued maintenance, as well.

Fixation/stabilization of heavy metals in soil has been performed at other sites with some reliability. Field studies will be required, however, to determine the most suitable agent for this particular site, and the correct ratio of reagent to soil.

Overall, the long-term effectiveness of Alternative 21 is judged to be moderate to high.

EPA Response - EPA generally concurs with this assessment; however, there are still concerns because the battery casings are not treated but merely disposed of on-site.

Reduction in Toxicity, Mobility, or Volume

On-site disposal of contaminated material cannot be considered a treatment that permanently or significantly reduces the toxicity or volume of hazardous substances. The mobility is effectively reduced, but only after remediation is complete. During remediation, air emissions are shown to exceed the NAAQS for lead. Fixation/stabilization treatment also reduces contaminant mobility. Both disposal and fixation/stabilization will, in fact, serve to increase the overall volume of waste on-site. Alternative 21 is rated moderate for reduction of toxicity, mobility, or volume.

EPA Response - This alternative attempts to treat less than half of the contaminated material on site. As a result, its rating is low in this category.

Implementability

Soil stabilization is a proven technology and was shown to be effective in a bench-scale test during the FS. Transfer of bench-scale data to actual site conditions is always difficult, however. Pilot testing of the technology under actual site conditions will be required during remedial design to determine the correct ratios of materials and to determine whether the technique can be effective under actual site conditions. Unknown, for example, is whether the stabilized soils can be replaced under the groundwater surface, and what the maximum water content of materials to be stabilized might be.

As was discussed in the evaluation of Alternatives 8A, 8B, 10A, 10B, and 10C, sediment dredging is not a simple process. At the Gould site it will involve logistics that cannot be determined until actual field trials are attempted. In addition, sediment dredging will contribute to the difficulty of subsequent treatment of East Doane Lake surface water. Its inclusion serves to reduce the alternative's technical feasibility. Excavation of the fill on the Gould and off-site properties must also include a consideration of the power lines along the northwest edge of the Gould property, which may need to be relocated because of remediation. Power supply to industrial facilities may be interrupted as a result.

Alternative 21 would be accomplished using conventional machinery and techniques. Surface capping is a proven technology, and is considered reliable. However, failure of a surface cap could require additional remediation, consisting of replacement of the cap.

Because of the difficulties listed above, the technical feasibility of Alternative 21 is judged to be low to moderate.

Alternative 21 involves the excavation of battery casings for disposal in an on-site landfill, and excavation of soil, sediment, and matte for fixation/stabilization treatment and direct landfilling on-site. The landfill will have to meet the requirements of RCRA, and be constructed to 40 CFR Part 264 standards. As specified by 40 CFR Part 264 Subpart G, institutional controls would apply to the site relating to post-closure care and notifications for a RCRA facility closed with waste in place. The institutional controls include requirements for benchmarks to indicate the location of the waste, land use restrictions prohibiting the disturbance of the cap, restrictions on public access to the property, and notices on deeds or other instruments normally examined during a title search. These restrictions would contribute to the protection of human health and the environment.

During construction, monitoring systems will be installed, site drainage systems will be emplaced, and buildings will be demolished. Construction permits will be required for any off-site portion (i.e., drainage) of these activities.

During construction of the landfill, excavated wastes would have to be placed on an adjacent property. Temporary storage of excavated material must comply with 40 CFR 265.253 and 265.254. Off-site storage might also require special arrangements with state and local agencies and authorities, and special agreements with neighboring property holders. Discussions with off-site industrial facility operators will also be required in order to address the issue of off-site lead emissions during remediation. Undoubtedly, such an issue will be very controversial. This alternative is therefore rated low to moderate for administrative feasibility.

The materials and equipment needed to implement Alternative 21 include a dredge for the sediments, common excavation equipment, a plastic geomembrane for the landfill, water treatment equipment, monitoring equipment, and a source of lime and other reagents for fixation/stabilization. All of these materials are readily available.

Because of anticipated technical and administrative difficulties, the implementability of Alternative 21 is judged to be low to moderate overall.

EPA Response - Generally agree with this assessment.

6.13.5 Cost

The costs associated with this alternative are divided into two categories. The first is capital cost, which includes direct costs such as excavation and landfill construction costs associated with the surface casings, sediment dredging costs, surface water treatment costs, soil fixation/stabilization costs, site grading, and installation costs associated with monitoring. Also included in capital cost are indirect costs such as permitting, engineering and design, start-up, and contingency. The second category of cost is operating and maintenance costs that occur throughout the multi-year remedial effort, such as excavation, placement, and monitoring costs beyond year one. Operating and maintenance costs are discounted to present worth for comparison of alternatives. Detailed cost breakdown information is provided in Appendix C.

Capital Cost	O&M @ 12% Present Worth	Total Cost
$9,678,453	$5,983,396	$15,661,848

Assumptions for this Alternative are shown in the detailed cost breakdown provided in Appendix C.

EPA Response - These cost estimates appear to be reasonable.

Compliance with ARARs

Contaminant-specific ARARs that apply to the Gould site are contained in Table 3.2-1. In addition, some location-specific ARARs and action-specific ARARs would apply to the remediation. For Alternative 21, identified ARARs are as follows:

Contaminant-Specific ARARs

Surface water (East Doane Lake):	Oregon Water Quality Standards
Soils/Battery Casings:	EP Toxicity for metals.
Air: OSHA PELs (on-site workers):	50 ug/m3
NAAQS for lead:	1.5 ug/m3

Location-Specific ARARs

Within an area that affects a stream or river, an action must protect fish and wildlife in accordance with the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.) 40 CFR 6.302.

Action-Specific ARARs

Tumulus: must comply with 40 CFR 264 standards for a hazardous waste landfill.

Capping: must comply with 40 CFR 264 Subpart G standards for a cover over hazardous waste at closure.

Closure with waste in place: must comply with 40 CFR 264 Subpart G standards for closure performance and post-closure care and monitoring.

Excavation: hazardous wastes excavated and replaced on-site must be replaced in a waste management unit that complies with RCRA requirements.

All contaminant-specific and location-specific ARARs will be met by Alternative 21, except for meeting the NAAQS during remediation. Action-specific requirements presumably can be met, with details to be worked out during remedial design. The applicability of some of the action-specific ARARs is primarily intended for situations in which a RCRA facility is being constructed, which applies to this alternative.

EPA Response - The NAAQS ARAR can be met with proper attention to control of fugitive dust during materials handling.

Overall Protection of Human Health and the Environment

Surficial contamination on site is reduced under Alternative 21 by on-site treatment of all battery casings (piles and buried), with on-site incineration of ebonite and stabilization/on-site disposal in a constructed vault of residual contaminated materials (soil, sediment, matte). These measures will provide long-term, effective controls for general inhalation exposures and direct contact ingestion exposures in these areas of the site, barring physical disturbance of the vault. Stabilization of residual wastes will provide an additional component of protection.

The long-term exposures and risks after completion of Alternative 21 remediation activities are determined to be acceptable. On-site residential exposures by inhalation and ingestion result in hazard indices less than 1.00 for all age groups, even using adult AIC values. Maximum on-site residential hazard indices (age-adjusted) are 0.03 for inhalation and 0.12 for ingestion.

EPA Response - The overall protectiveness of this alternative can not be considered high due to concerns about effectiveness of the cap. The EPA estimates are based on an effective cap. Actual exposures may be higher if the cap were to be disturbed.

EPA

United States
Environmental Protection
Agency

Region 10
1200 Sixth Avenue, HW-113
Seattle WA 98101

SUPERFUND PROJECT UPDATE--March 1, 1988

NL/GOULD SITE--PORTLAND, OREGON

PROPOSED PLAN

The U. S. Environmental Protection Agency (EPA) has recently accepted a draft feasibility study of cleanup alternatives for the NL/Gould, Inc., Superfund site. EPA has evaluated the study and alternatives and is proposing the following cleanup plan:

- Remove battery casings on and beneath the site and treat them for proper disposal of lead, plastic, and other materials;
- Treat lead-contaminated soil and sediments with a chemical additive to bind the lead to the soil and keep the contamination on-site; and,
- Do additional studies of groundwater pollution in the Doane Lake area and, at a later date, decide if additional cleanup is necessary.

PUBLIC COMMENT PERIOD

February 16 - March 18, 1988

EPA is seeking comments on the NL/Gould site feasibility study and the Agency's proposed plan. The studies and other site records are available for review at locations listed at right.

Send comments to the EPA site manager:

David Tetta
U.S. EPA
1200 Sixth Avenue (HW-113)
Seattle, Washington 98101
(206) 442-2138

In a few weeks, after consideration of your comments, EPA hopes to select a cleanup for the site. Comments should be postmarked by March 18, 1988, to ensure their consideration.

FOLLOW-UP PUBLIC MEETING

March 10, 1988
7:30 PM
Northwest Service Center
1819 NW Everett

EPA held a public meeting on 2/18/88. At that meeting, a number of people requested another opportunity to hear about the studies done at the site and about EPA's proposed plan for cleanup.

Everyone is encouraged to come to the meeting March 10th and/or provide written comments to help EPA decide which cleanup action would be best for the community and the site.

HOW TO OBTAIN FURTHER INFORMATION

Copies of all the documents used to make decisions for the site are available for your review at the following locations:

Multnomah County Library
St John's Branch
7510 N Charleston Avenue
Portland, Oregon

Linnton Community Center
10614 NW St Helens Road
Portland, Oregon

Oregon Dept. of Environmental Quality
Remedial Action Section
811 SW Sixth Avenue
Portland, Oregon

EPA Library
1200 Sixth Avenue, 10th Floor
Seattle, Washington

If you have any questions or would like to receive more information, please call the EPA site manager listed at left. Written comments should also be directed to the same person.

EPA
United States
Environmental Protection
Agency

Region 10
1200 Sixth Avenue
Seattle WA 98101

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FOUNDATION INVESTIGATION

PROPOSED TAR PLANT
NORTHWEST NATURAL GAS CO
SITE
FOR
KOPPERS COMPANY INC

#661-500010
ALLIED ROOFERS SUPPLY INC.
PORTLAND:
RELEASES
1987

FOUNDATION INVESTIGATION

PROPOSED TAR PLANT
NORTHWEST NATURAL GAS COMPANY SITE
PORTLAND, OREGON

FOR

KOPPERS COMPANY, INC.

DAMES & MOORE
CONSULTANTS IN APPLIED EARTH SCIENCES
SOIL MECHANICS · ENGINEERING GEOLOGY · GEOPHYSICS

PORTLAND
SALT LAKE CITY
SAN FRANCISCO
SEATTLE

1220 S.W. MORRISON STREET · PORTLAND 5, OREGON · CAPITAL 8-7589
PARTNER: IRVING E. OLSEN

November 19, 1965

Koppers Company, Inc.
Koppers Building
Pittsburg 19, Pennsylvania

Attention: Mr. Edward M. Bennett

Gentlemen:

Six copies of our report "Foundation Investigation, Proposed Tar Plant, Northwest Natural Gas Company Site, Portland, Oregon for Koppers Company, Inc." are herewith submitted.

This investigation was authorized by your Purchase Order No. 69-300-1-53-15 dated October 26, 1965.

Yours very truly,

DAMES & MOORE

Irving E. Olsen

Irving E. Olsen

IEO:els

CABLE ADDRESS: DAMEMORE

FOUNDATION INVESTIGATION

PROPOSED TAR PLANT

NORTHWEST NATURAL GAS COMPANY SITE

PORTLAND, OREGON

FOR

KOPPERS COMPANY, INC.

SCOPE

This report presents the results of a foundation investigation conducted at the site of a proposed tar plant to be located in the southern portion of the Northwest Natural Gas Company plant in Portland, Oregon. The site is bounded by the Willamette River on the east and on the west by the Spokane, Portland and Seattle Railroad and N. W. Front Avenue. The location, with respect to existing site features, is indicated on the Plot Plan, Plate 1.

The purpose of the investigation was to provide foundation recommendations for support of the proposed units. To accomplish this purpose, the scope of the investigation included (1) exploration borings to evaluate the subsurface soil conditions, (2) laboratory tests to evaluate physical soil characteristics, and (3) engineering analyses to serve as a basis for recommendations for foundation support and site preparation.

DESIGN INFORMATION

We understand that present plans contemplate the construction of the following units:

(1) A pitch tower which will be an elevated structure, about 15 feet in diameter, supported on four piers and will weigh approximately 90 tons.

(2) Distillation tower, approximately 60 feet high, occupying a plan area 18 by 30 feet and imposing a load of approximately 100 tons.

(3) Tube heater, 8 to 9 feet in diameter by approximately 35 feet high, supported on 4 legs, with estimated weight of 30 tons.

(4) Boiler weighing approximately 30 tons.

In addition to the above, there will be some light one-story structures.

It is understood that several of the units are sensitive to differential settlement.

SITE CONDITIONS

Surface Conditions

The site is relatively flat with an elevation of about 31, reported to be on U.S.G.S. Datum. The surface consists of gravel and blacktop. The only structures presently on the site are two light, one-story, wood frame buildings, a storeroom to the east and a building (near Boring 3), and some storage tanks in the west corner of the site. In conversations with long time employees of the gas company, we were informed that the tanks were previously used to store naphthalene, kerosene and benzol.

Subsurface Conditions

Subsurface soils were explored by five borings drilled at the locations indicated on the Plot Plan. A description of the field explorations, including detailed logs of the borings, is presented in Appendix A, Field Explorations.

In general, the soils encountered can be broadly grouped into the following zones:

(1) Sand Fill

A relatively clean medium compact sand, believed to be a hydraulic fill placed around 1913 or so, varies from 14 to 20 feet in thickness except at Boring 5 which has 9 feet of sand and 6 feet of silt.

(2) Compressible Zone

a. Underlying the sand fill is a 15-foot thick layer consisting of

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relatively soft clayey silts and very fine sandy silts.

b. A transition zone consisting of 5 to 15 feet of moderately firm fine sandy clayey silt to silty fine sand underlies the soft layer.

(3) Sandy Zone

A firm to compact silt and sand to fine sand with little silt was encountered below the compressible material. The thickness of this sandy zone varies from 5 to 20 feet. Boring 4 was terminated in a firm silt layer at a depth of 64 feet.

(4) Rock Formation

All borings, except Boring 4, were terminated after encountering a black vesicular basalt rock formation.

The ground water level was encountered at depths varying from 7 feet below ground surface in Boring 5 to 15 feet in Boring 2. The ground water table, at this time, is near its lowest level; it is anticipated that the level will be several feet higher due to winter and spring rains.

RECOMMENDATIONS AND CONCLUSIONS

General

The physical properties of the various soils were evaluated from laboratory tests performed on selected undisturbed samples obtained from the borings. The principal tests included direct shear tests to evaluate strength characteristics, consolidation tests to evaluate the compressibility of the various soils and moisture and density determinations to aid in correlation and comparison of the soils at various depths. The tests are described in Appendix B, Laboratory Tests and the results are presented in the appendices.

Spread Foundations

The field and laboratory findings disclose that it would be feasible to establish conventional column-, wall- and mat-type foundations in the old hydraulic sand fill. As will be discussed subsequently, settlement for such

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foundations may be excessive for some of the proposed units.

Utilizing results of shear tests, we have evaluated allowable bearing values for spread-type foundations established in the sand fill. The results are as follows:

LEAST FOOTING WIDTH IN FEET	ALLOWABLE BEARING VALUES IN LBS/SQ. FT. 2' BELOW FINISHED GRADE	4' BELOW FINISHED GRADE
2	2100	3700
4	2900	4500
6	3700	5000*

* Maximum values are limited to 5,000 pounds per square foot.

The above bearing value information pertains to soil conditions disclosed by Borings 1 through 4. Due to the lesser thickness of sand fill at Boring 5, the maximum bearing value is limited to 3,000 pounds per square foot at this location.

The values apply to the total of all loads, dead, live and seismic or wind. Edge pressures due to overturning should be limited to 80 percent of the values shown.

Settlement studies have been performed to provide estimates of settlements for foundations established in the sand fill at depths of three feet below finished grade and designed in accordance with the bearing value data presented above. The estimated settlement for several types and sizes of foundations subjected to various loadings are summarized below.

SQUARE FOOTINGS SIZE IN FEET	REAL BEARING VALUE* LBS/SQ. FT.	ESTIMATED SETTLEMENT INCHES
2 X 2	2000	1/4
5 X 5	2000	5/8
4 X 4	3000**	3/4
WALL FOOTINGS WIDTH IN FEET		
2	2000	3/8
3	3000	3/4

* Real bearing value applies to the total of dead plus permanently and/or frequently applied live loads.
** Pertains to footings established three feet below finished grade.

MAT FOOTINGS SIZE IN FEET	ESTIMATED SETTLEMENT IN INCHES FOR UNIT LOAD OF 400 LBS/SQ. FT.	800 LBS/SQ. FT.
12 X 12	3/8	5/8
20 X 20	1/2	1 1/4
30 X 30	1	2

The estimated settlements would occur rapidly upon application of loads.

Pile Foundations

To limit total and differential settlement of tower-type structures resulting from lateral loadings and/or variable supporting material, driven piling would be a feasible choice. Several types of piling are feasible; however, in view of the rather light loadings imposed by the proposed units, driven treated wood piles appear to be more economical. Analyses, utilizing results of the shear tests on typical soil samples obtained from the explorations, were performed to indicate pile penetrations required to support various loadings. The analyses also considered probable settlements that would result if piles were stopped in the compressible layer under the fill. Considering these factors, it was our conclusion that piles should be driven to the surface of the rock at depths disclosed by all borings except Boring 4. At Boring 4, where rock was not encountered, the piles should extend approximately ten feet into the lower sand formation. Wood piles, having minimum tip diameter of at least 7 inches, may be designed to support total loads of 30 tons per pile. This value applies to the total of all loads, dead, live and seismic. The total of all permanently applied dead and live loads should be limited to two-thirds of this amount.

Settlement of foundations supported on piles driven to the underlying rock would be due to elastic shortening of the pile. In the vicinity of Boring 4, it is estimated that settlements would be nominal in amount and would occur rapidly as loads were applied.

Particular care must be exercised so as not to damage piles during driving. The driving must stop immediately upon reaching the rock. As a general rule, driving should terminate at resistances of not more than five blows per inch using a Vulcan No. 1 or equivalent pile hammer.

-oOo-

In the event that it is decided to utilize spread-type foundations for support of the proposed units, it is recommended that several probings be made in the bottom of the excavations to evaluate any unusual conditions.

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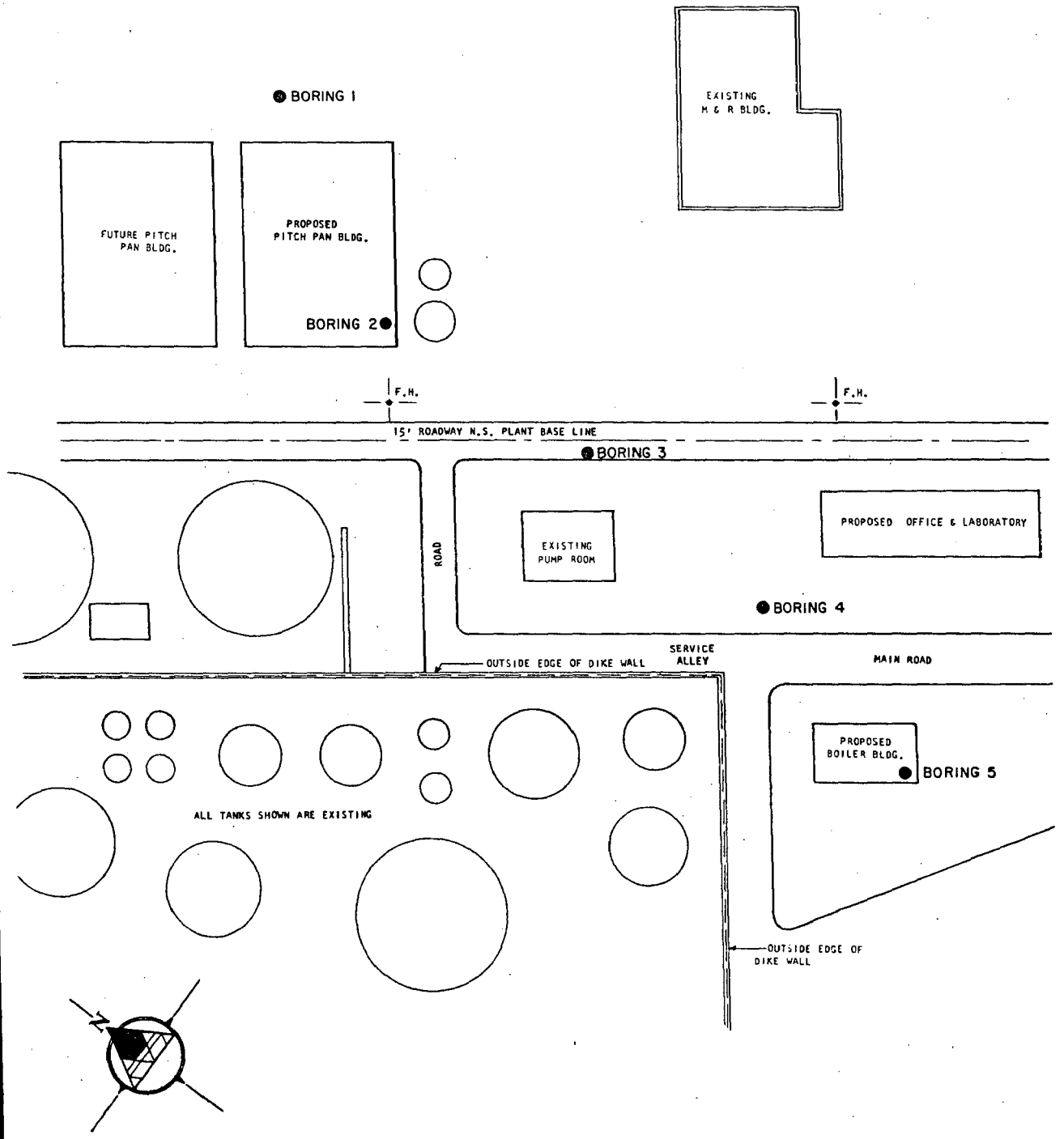

PLOT PLAN

FEET

50 0 50 100

REFERENCE:
DRAWING BY KOPPERS COMPANY, TAR PRODUCTS DIVISION
PITTSBURG, PENNSYLVANIA, ENTITLED "TAR PLANT LAYOUT",
DATED OCTOBER 19, 1965.

DAMES & MOORE

BY _____ DATE _____
PLATE _____ OF _____

BY _____ DATE _____
CHECKED BY _____ DATE _____

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APPENDICES

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APPENDIX A

FIELD EXPLORATIONS

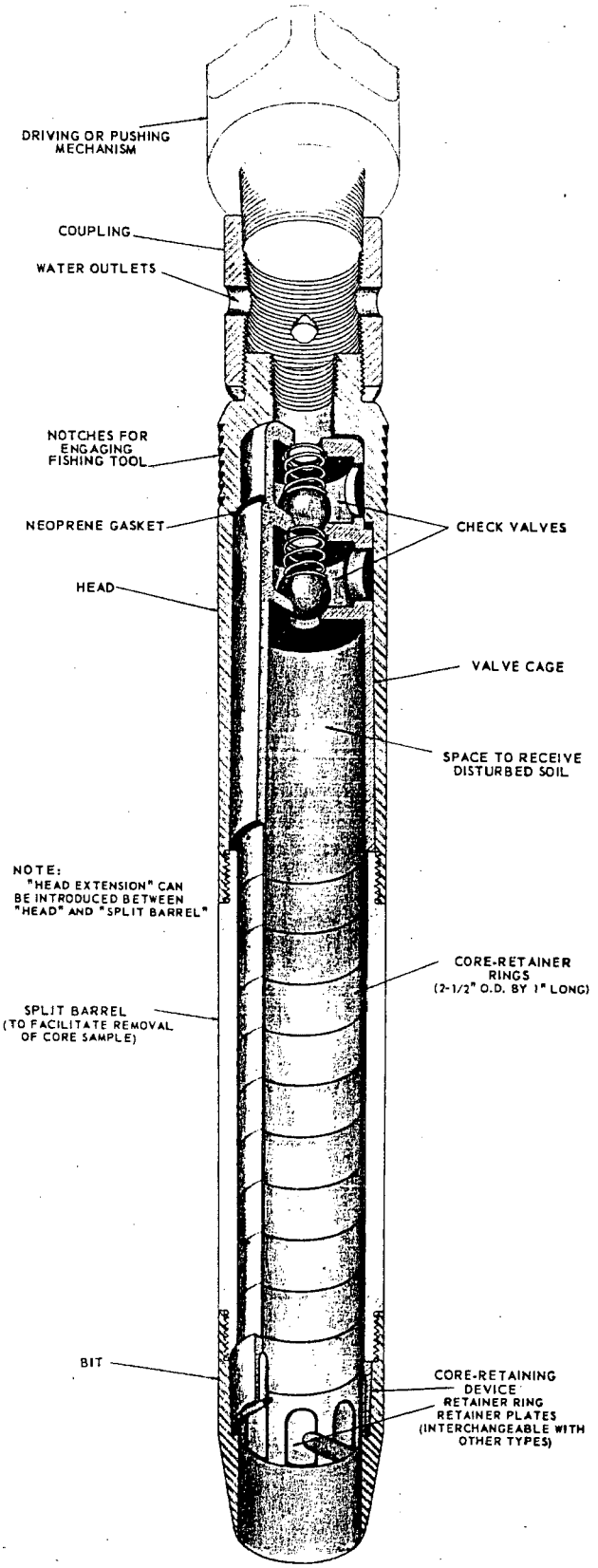
The soils underlying the site were explored by drilling five test borings at the locations shown on the Plot Plan, Plate 1. The borings were drilled with truck-mounted, cable-tool drilling equipment utilizing a core barrel attachment to advance the borings.

All soils were classified in the field by visual and textural examination and a continuous log of the soils encountered in each boring was maintained by our field engineer. Undisturbed samples of the various soils were obtained with a soil sampler of the type illustrated on page A-2. Graphical representations of the soils encountered are presented on the Log of Borings, Plates A-1A through A-1C. The nomenclature used in classifying the soils appears on the Soil Classification Chart on Plate A-2.

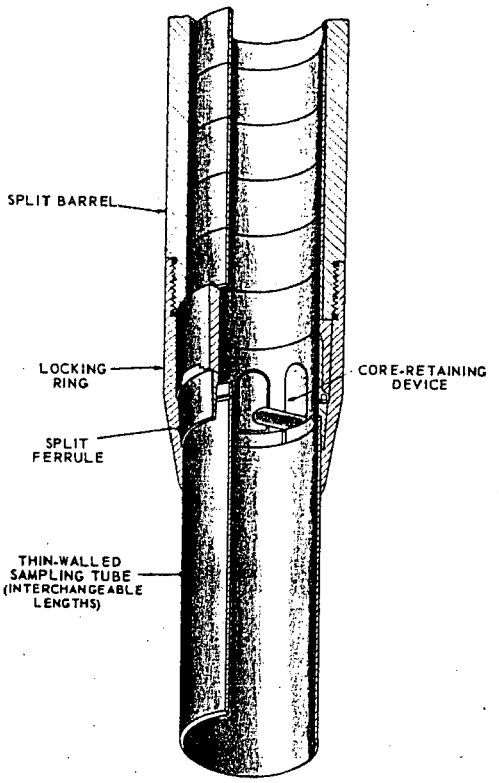
The ground water level readings were obtained during the progress of the field work. The static levels observed are indicated on the Log of Borings.

SOIL SAMPLER TYPE U

FOR SOILS DIFFICULT TO RETAIN IN SAMPLER
U. S. PATENT NO. 2,318,062



ALTERNATE ATTACHMENTS



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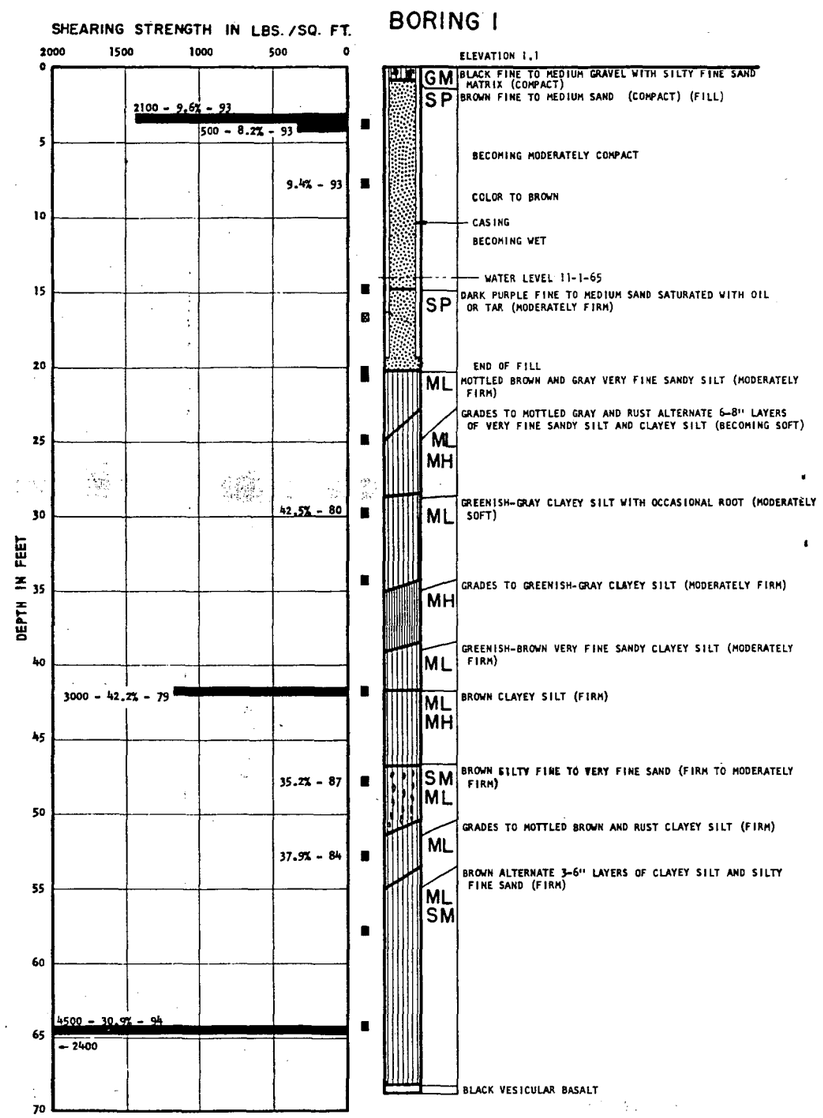

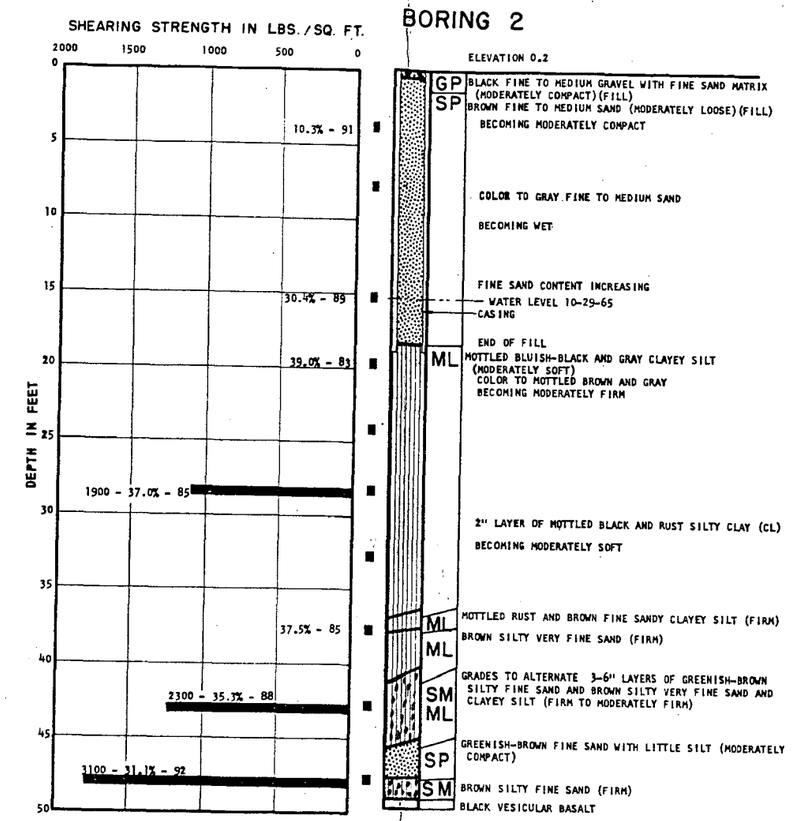

LOG OF BORINGS

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PLATE A-1A

REVISIONS
BY ____ DATE ____
BY ____ DATE ____
PLATE ____ OF ____

FILE Kop Pass 1810.003
BY D.C.C. DATE 11-18-65
CHECKED BY ____ DATE ____

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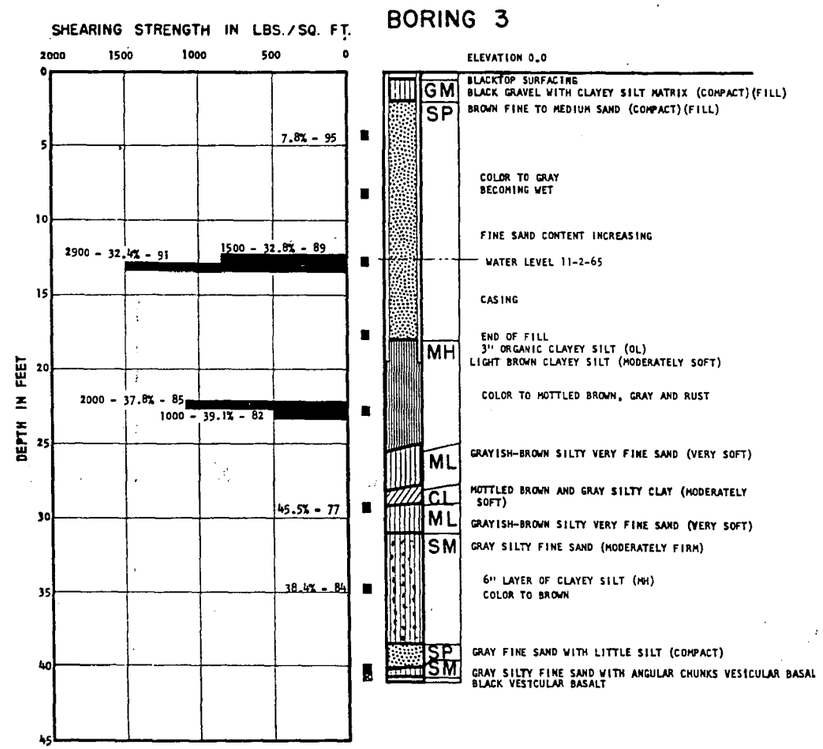

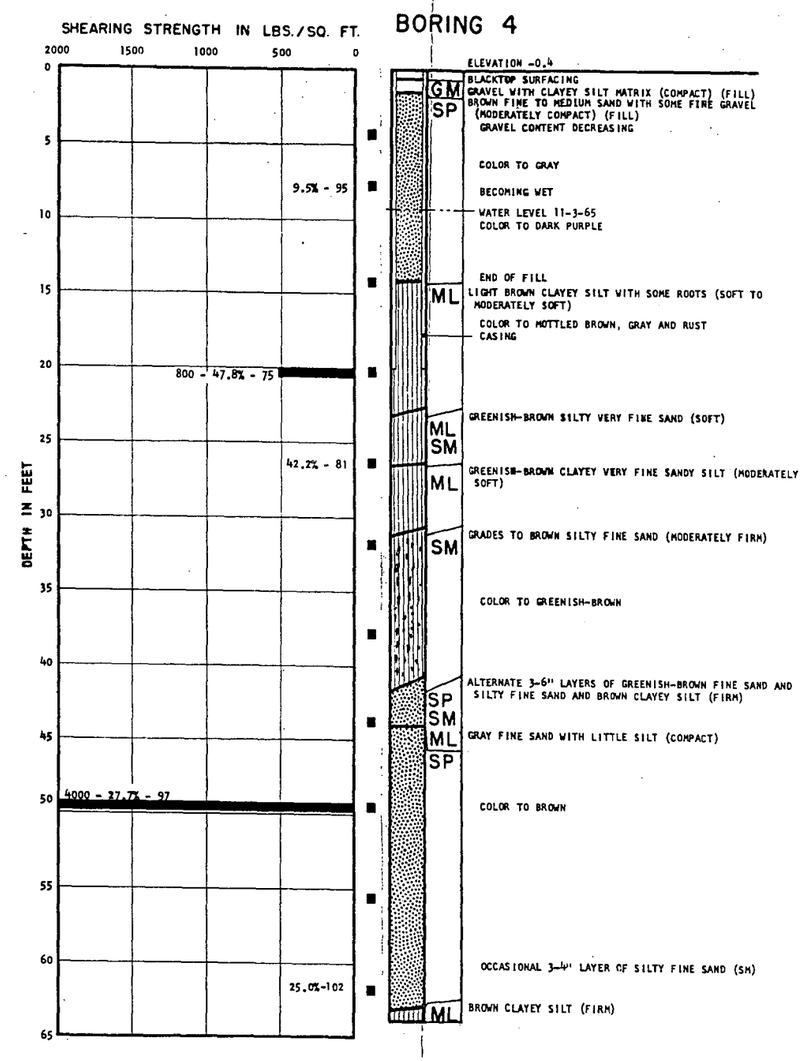

LOG OF BORINGS

REVISIONS
BY ____ DATE ____
BY ____ DATE ____
PLATE ____ OF ____

FILE 1810-003
Kaiser Company
BY D.R.C. DATE 11-18-65
CHECKED BY ____ DATE ____

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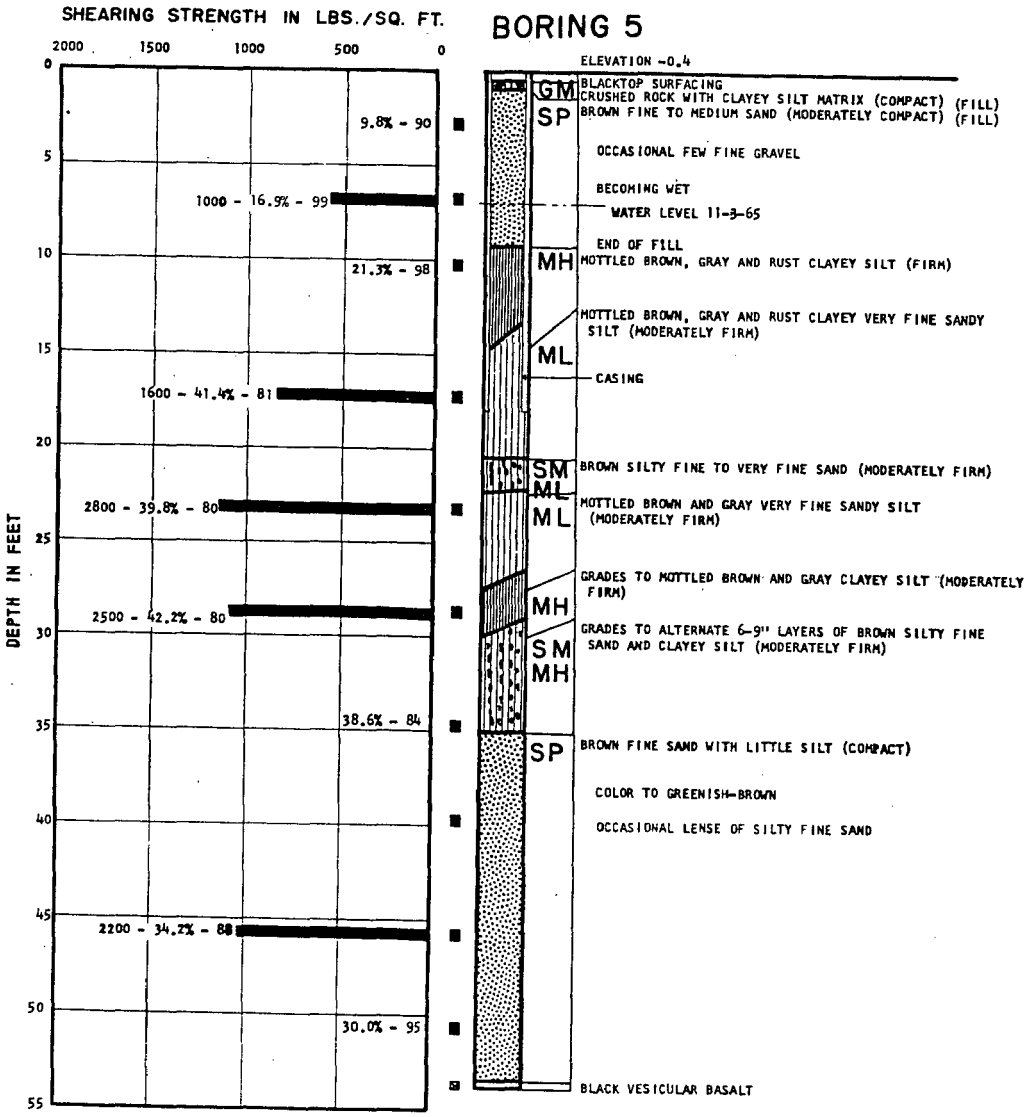

LOG OF BORINGS

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APPLIED EARTH SCIENCES

APPENDIX B

LABORATORY TESTS

The physical properties of the soils encountered were evaluated in a series of laboratory tests performed on selected undisturved samples. The tests performed included direct shear tests, consolidation tests and moisture and density determinations.

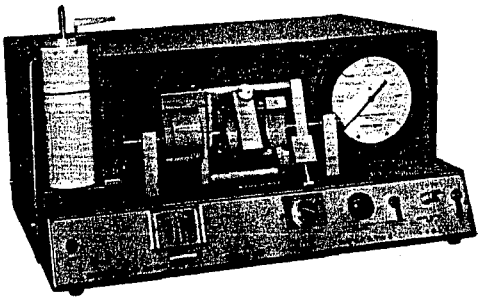
Direct shear tests, performed in the manner described on page B-2, provided the necessary data to evaluate the strength of the soils. Selected representative samples were tested at field moisture contents, at surcharges approximately equal to the weight of the existing overburden and at lesser surcharges. The results of the direct shear tests are presented to the left of the log of borings in accordance with the Key to Test Data appearing on Plate A-2.

Selected undisturbed samples were subjected to consolidation (confined compression) tests to obtain data for use in estimating settlements of foundations. The method used in performing the consolidation test is described on page B-3. The test results are presented on Plate B.

Moisture and density determinations were made to aid in comparison of soils at various locations and depths. The results of these tests are shown in the graph at the left of each boring log.

METHOD OF PERFORMING DIRECT SHEAR AND FRICTION TESTS

DIRECT SHEAR TESTS ARE PERFORMED TO DETERMINE THE SHEARING STRENGTHS OF SOILS. FRICTION TESTS ARE PERFORMED TO DETERMINE THE FRICTIONAL RESISTANCES BETWEEN SOILS AND VARIOUS OTHER MATERIALS SUCH AS WOOD, STEEL, OR CONCRETE. THE TESTS ARE PERFORMED IN THE LABORATORY TO SIMULATE ANTICIPATED FIELD CONDITIONS.



DIRECT SHEAR TESTING
& RECORDING APPARATUS

EACH SAMPLE IS TESTED WITHIN THREE BRASS RINGS, TWO AND ONE-HALF INCHES IN DIAMETER AND ONE INCH IN LENGTH. UNDISTURBED SAMPLES OF IN-PLACE SOILS ARE TESTED IN RINGS TAKEN FROM THE SAMPLING DEVICE IN WHICH THE SAMPLES WERE OBTAINED. LOOSE SAMPLES OF SOILS TO BE USED IN CONSTRUCTING EARTH FILLS ARE COMPACTED IN RINGS TO PREDETERMINED CONDITIONS AND TESTED.

DIRECT SHEAR TESTS

A THREE-INCH LENGTH OF THE SAMPLE IS TESTED IN DIRECT DOUBLE SHEAR. A CONSTANT PRESSURE, APPROPRIATE TO THE CONDITIONS OF THE PROBLEM FOR WHICH THE TEST IS BEING PERFORMED, IS APPLIED NORMAL TO THE ENDS OF THE SAMPLE THROUGH POROUS STONES. A SHEARING FAILURE OF THE SAMPLE IS CAUSED BY MOVING THE CENTER RING IN A DIRECTION PERPENDICULAR TO THE AXIS OF THE SAMPLE. TRANSVERSE MOVEMENT OF THE OUTER RINGS IS PREVENTED.

THE SHEARING FAILURE MAY BE ACCOMPLISHED BY APPLYING TO THE CENTER RING EITHER A CONSTANT RATE OF LOAD, A CONSTANT RATE OF DEFLECTION, OR INCREMENTS OF LOAD OR DEFLECTION. IN EACH CASE, THE SHEARING LOAD AND THE DEFLECTIONS IN BOTH THE AXIAL AND TRANSVERSE DIRECTIONS ARE RECORDED AND PLOTTED. THE SHEARING STRENGTH OF THE SOIL IS DETERMINED FROM THE RESULTING LOAD-DEFLECTION CURVES.

FRICTION TESTS

IN ORDER TO DETERMINE THE FRICTIONAL RESISTANCE BETWEEN SOIL AND THE SURFACES OF VARIOUS MATERIALS, THE CENTER RING OF SOIL IN THE DIRECT SHEAR TEST IS REPLACED BY A DISK OF THE MATERIAL TO BE TESTED. THE TEST IS THEN PERFORMED IN THE SAME MANNER AS THE DIRECT SHEAR TEST BY FORCING THE DISK OF MATERIAL FROM THE SOIL SURFACES.

METHOD OF PERFORMING CONSOLIDATION TESTS

CONSOLIDATION TESTS ARE PERFORMED TO EVALUATE THE VOLUME CHANGES OF SOILS SUBJECTED TO INCREASED LOADS. TIME-CONSOLIDATION AND PRESSURE-CONSOLIDATION CURVES MAY BE PLOTTED FROM THE DATA OBTAINED IN THE TESTS. ENGINEERING ANALYSES BASED ON THESE CURVES PERMIT ESTIMATES TO BE MADE OF THE PROBABLE MAGNITUDE AND RATE OF SETTLEMENT OF THE TESTED SOILS UNDER APPLIED LOADS.

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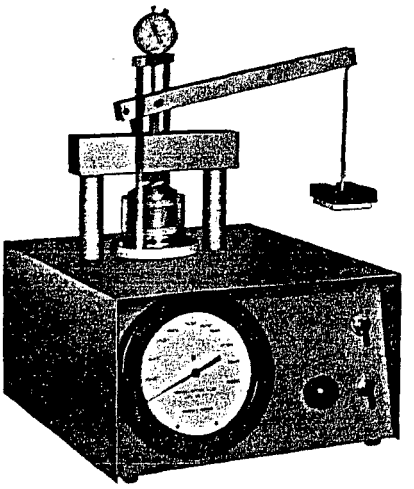
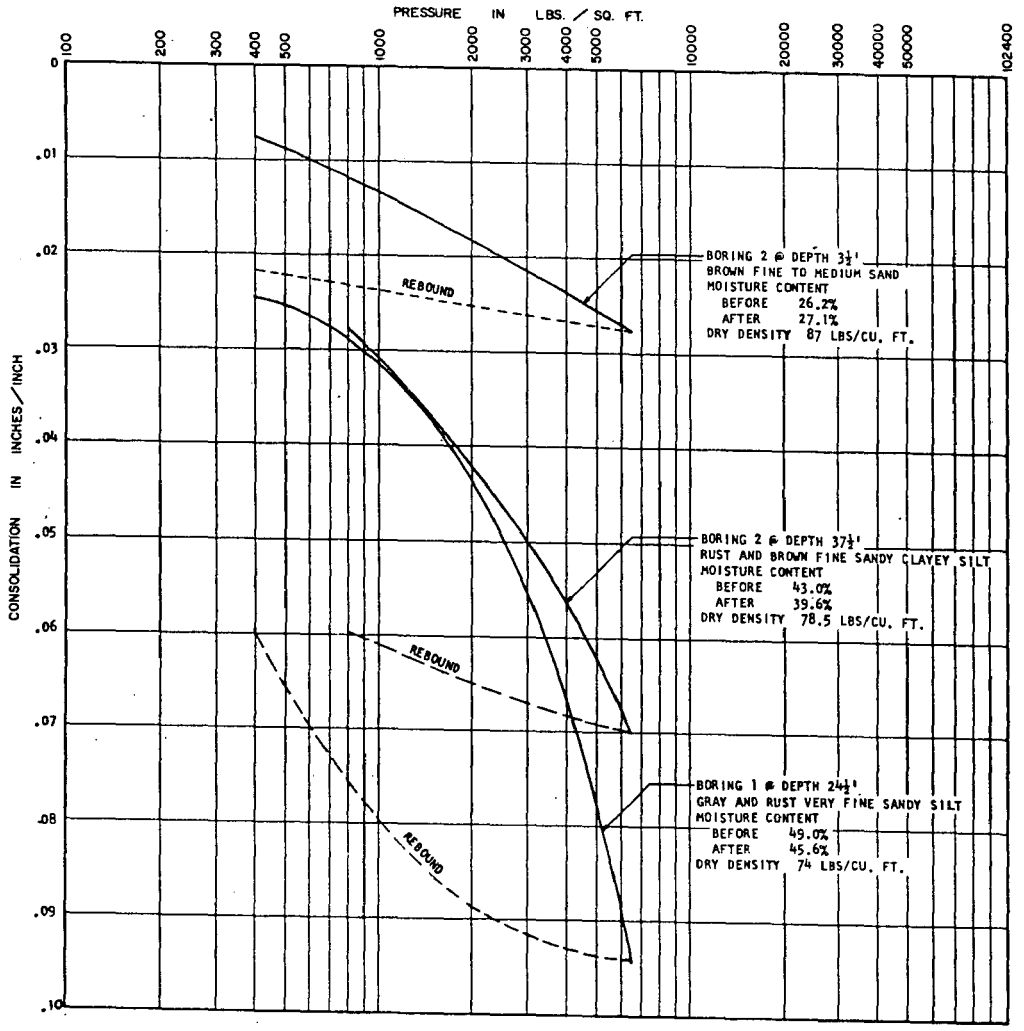


DEAD LOAD-PNEUMATIC CONSOLIDOMETER

IN TESTING, THE SAMPLE IS RIGIDLY CONFINED LATERALLY BY THE BRASS RING. AXIAL LOADS ARE TRANSMITTED TO THE ENDS OF THE SAMPLE BY POROUS DISKS. THE DISKS ALLOW DRAINAGE OF THE LOADED SAMPLE. THE AXIAL COMPRESSION OR EXPANSION OF THE SAMPLE IS MEASURED BY A MICROMETER DIAL INDICATOR AT APPROPRIATE TIME INTERVALS AFTER EACH LOAD INCREMENT IS APPLIED. EACH LOAD IS ORDINARILY TWICE THE PRECEDING LOAD. THE INCREMENTS ARE SELECTED TO OBTAIN CONSOLIDATION DATA REPRESENTING THE FIELD LOADING CONDITIONS FOR WHICH THE TEST IS BEING PERFORMED. EACH LOAD INCREMENT IS ALLOWED TO ACT OVER AN INTERVAL OF TIME DEPENDENT ON THE TYPE AND EXTENT OF THE SOIL IN THE FIELD.



CONSOLIDATION TEST DATA

BY _____ DATE _____
BY _____ DATE _____
PLATE _____ OF _____

Kappers Company
BY D.C.C. DATE 11-18-65
CHECKED BY _____ DATE _____

446.10 (REV. 6-61)

DAMES & MOORE
APPLIED EARTH SCIENCES

PLATE B

Return Postage Guaranteed

1965

FOUNDATION INVESTIGATION

PROPOSED TAR PLANT
NORTHWEST NATURAL GAS CO
SITE PORTLAND OR
FOR
KOPPERS COMPANY INC

FOUNDATION INVESTIGATION

PROPOSED TAR PLANT
NORTHWEST NATURAL GAS COMPANY SITE
PORTLAND, OREGON

FOR

KOPPERS COMPANY, INC.

DAMES & MOORE
CONSULTANTS IN APPLIED EARTH SCIENCES
SOIL MECHANICS · ENGINEERING GEOLOGY · GEOPHYSICS

LOS ANGELES
NEW YORK
PORTLAND
SALT LAKE CITY
SAN FRANCISCO
SEATTLE

1220 S.W. MORRISON STREET · PORTLAND 5, OREGON · CAPITAL 8-7689
PARTNER: IRVING E. OLSEN

November 19, 1965

Koppers Company, Inc.
Koppers Building
Pittsburg 19, Pennsylvania

Attention: Mr. Edward M. Bennett

Gentlemen:

Six copies of our report "Foundation Investigation, Proposed Tar Plant, Northwest Natural Gas Company Site, Portland, Oregon for Koppers Company, Inc." are herewith submitted.

This investigation was authorized by your Purchase Order No. 69-300-1-53-15 dated October 26, 1965.

Yours very truly,

DAMES & MOORE

Irving E. Olsen

Irving E. Olsen

IEO:els

FOUNDATION INVESTIGATION

PROPOSED TAR PLANT

NORTHWEST NATURAL GAS COMPANY SITE

PORTLAND, OREGON

FOR

KOPPERS COMPANY, INC.

SCOPE

This report presents the results of a foundation investigation conducted at the site of a proposed tar plant to be located in the southern portion of the Northwest Natural Gas Company plant in Portland, Oregon. The site is bounded by the Willamette River on the east and on the west by the Spokane, Portland and Seattle Railroad and N. W. Front Avenue. The location, with respect to existing site features, is indicated on the Plot Plan, Plate 1.

The purpose of the investigation was to provide foundation recommendations for support of the proposed units. To accomplish this purpose, the scope of the investigation included (1) exploration borings to evaluate the subsurface soil conditions, (2) laboratory tests to evaluate physical soil characteristics, and (3) engineering analyses to serve as a basis for recommendations for foundation support and site preparation.

DESIGN INFORMATION

We understand that present plans contemplate the construction of the following units:

(1) A pitch tower which will be an elevated structure, about 15 feet in diameter, supported on four piers and will weigh approximately 90 tons.

(2) Distillation tower, approximately 60 feet high, occupying a plan area 18 by 30 feet and imposing a load of approximately 100 tons.

(3) Tube heater, 8 to 9 feet in diameter by approximately 35 feet high, supported on 4 legs, with estimated weight of 30 tons.

(4) Boiler weighing approximately 30 tons.

In addition to the above, there will be some light one-story structures.

It is understood that several of the units are sensitive to differential settlement.

SITE CONDITIONS

Surface Conditions

The site is relatively flat with an elevation of about 31, reported to be on U.S.G.S. Datum. The surface consists of gravel and blacktop. The only structures presently on the site are two light, one-story, wood frame buildings, a storeroom to the east and a building (near Boring 3), and some storage tanks in the west corner of the site. In conversations with long time employees of the gas company, we were informed that the tanks were previously used to store naphthalene, kerosene and benzol.

Subsurface Conditions

Subsurface soils were explored by five borings drilled at the locations indicated on the Plot Plan. A description of the field explorations, including detailed logs of the borings, is presented in Appendix A, Field Explorations.

In general, the soils encountered can be broadly grouped into the following zones:

(1) Sand Fill

A relatively clean medium compact sand, believed to be a hydraulic fill placed around 1913 or so, varies from 14 to 20 feet in thickness except at Boring 5 which has 9 feet of sand and 6 feet of silt.

(2) Compressible Zone

a. Underlying the sand fill is a 15-foot thick layer consisting of

Beazer000418

relatively soft clayey silts and very fine sandy silts.

b. A transition zone consisting of 5 to 15 feet of moderately firm fine sandy clayey silt to silty fine sand underlies the soft layer.

(3) Sandy Zone

A firm to compact silt and sand to fine sand with little silt was encountered below the compressible material. The thickness of this sandy zone varies from 5 to 20 feet. Boring 4 was terminated in a firm silt layer at a depth of 64 feet.

(4) Rock Formation

All borings, except Boring 4, were terminated after encountering a black vesicular basalt rock formation.

The ground water level was encountered at depths varying from 7 feet below ground surface in Boring 5 to 15 feet in Boring 2. The ground water table, at this time, is near its lowest level; it is anticipated that the level will be several feet higher due to winter and spring rains.

RECOMMENDATIONS AND CONCLUSIONS

General

The physical properties of the various soils were evaluated from laboratory tests performed on selected undisturbed samples obtained from the borings. The principal tests included direct shear tests to evaluate strength characteristics, consolidation tests to evaluate the compressibility of the various soils and moisture and density determinations to aid in correlation and comparison of the soils at various depths. The tests are described in Appendix B, Laboratory Tests and the results are presented in the appendices.

Spread Foundations

The field and laboratory findings disclose that it would be feasible to establish conventional column-, wall- and mat-type foundations in the old hydraulic sand fill. As will be discussed subsequently, settlement for such

foundations may be excessive for some of the proposed units.

Utilizing results of shear tests, we have evaluated allowable bearing values for spread-type foundations established in the sand fill. The results are as follows:

LEAST FOOTING WIDTH IN FEET	ALLOWABLE BEARING VALUES IN LBS/SQ. FT. 2' BELOW FINISHED GRADE	4' BELOW FINISHED GRADE
2	2100	3700
4	2900	4500
6	3700	5000*

* Maximum values are limited to 5,000 pounds per square foot.

The above bearing value information pertains to soil conditions disclosed by Borings 1 through 4. Due to the lesser thickness of sand fill at Boring 5, the maximum bearing value is limited to 3,000 pounds per square foot at this location.

The values apply to the total of all loads, dead, live and seismic or wind. Edge pressures due to overturning should be limited to 80 percent of the values shown.

Settlement studies have been performed to provide estimates of settlements for foundations established in the sand fill at depths of three feet below finished grade and designed in accordance with the bearing value data presented above. The estimated settlement for several types and sizes of foundations subjected to various loadings are summarized below.

SQUARE FOOTINGS SIZE IN FEET	REAL BEARING VALUE* LBS/SQ. FT.	ESTIMATED SETTLEMENT INCHES
2 X 2	2000	1/4
5 X 5	2000	5/8
4 X 4	3000**	3/4
WALL FOOTINGS WIDTH IN FEET		
2	2000	3/8
3	3000	3/4

* Real bearing value applies to the total of dead plus permanently and/or frequently applied live loads.
** Pertains to footings established three feet below finished grade.

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MAT FOOTINGS SIZE IN FEET	ESTIMATED SETTLEMENT IN INCHES FOR UNIT LOAD OF 400 LBS/SQ. FT.	800 LBS/SQ. FT.
12 X 12	3/8	5/8
20 X 20	1/2	1 1/4
30 X 30	1	2

The estimated settlements would occur rapidly upon application of loads.

Pile Foundations

To limit total and differential settlement of tower-type structures resulting from lateral loadings and/or variable supporting material, driven piling would be a feasible choice. Several types of piling are feasible; however, in view of the rather light loadings imposed by the proposed units, driven treated wood piles appear to be more economical. Analyses, utilizing results of the shear tests on typical soil samples obtained from the explorations, were performed to indicate pile penetrations required to support various loadings. The analyses also considered probable settlements that would result if piles were stopped in the compressible layer under the fill. Considering these factors, it was our conclusion that piles should be driven to the surface of the rock at depths disclosed by all borings except Boring 4. At Boring 4, where rock was not encountered, the piles should extend approximately ten feet into the lower sand formation. Wood piles, having minimum tip diameter of at least 7 inches, may be designed to support total loads of 30 tons per pile. This value applies to the total of all loads, dead, live and seismic. The total of all permanently applied dead and live loads should be limited to two-thirds of this amount.

Settlement of foundations supported on piles driven to the underlying rock would be due to elastic shortening of the pile. In the vicinity of Boring 4, it is estimated that settlements would be nominal in amount and would occur rapidly as loads were applied.

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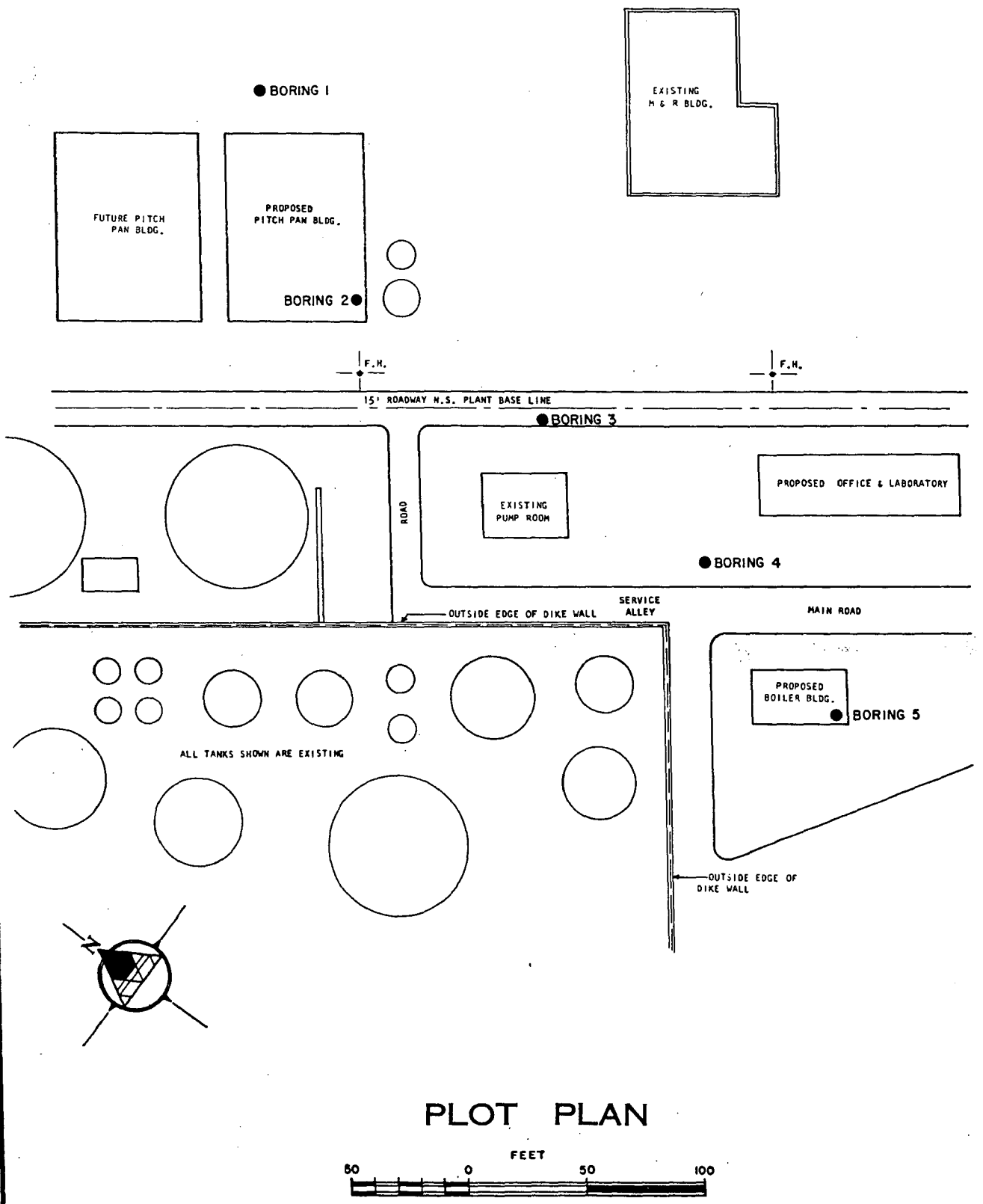
Particular care must be exercised so as not to damage piles during driving. The driving must stop immediately upon reaching the rock. As a general rule, driving should terminate at resistances of not more than five blows per inch using a Vulcan No. 1 or equivalent pile hammer.

-oOo-

In the event that it is decided to utilize spread-type foundations for support of the proposed units, it is recommended that several probings be made in the bottom of the excavations to evaluate any unusal conditions.

Irving B. Olsen

DAMES & MOORE



PLOT PLAN

REFERENCE:
DRAWING BY KOPPERS COMPANY, TAR PRODUCTS DIVISION
PITTSBURG, PENNSYLVANIA, ENTITLED "TAR PLANT LAYOUT",
DATED OCTOBER 19, 1965.

DAMES & MOORE

BY _____ DATE _____
PLATE _____ OF _____

BY _____ DATE _____
CHECKED BY _____ DATE _____

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APPENDICES

Beazer000424

APPENDIX A

FIELD EXPLORATIONS

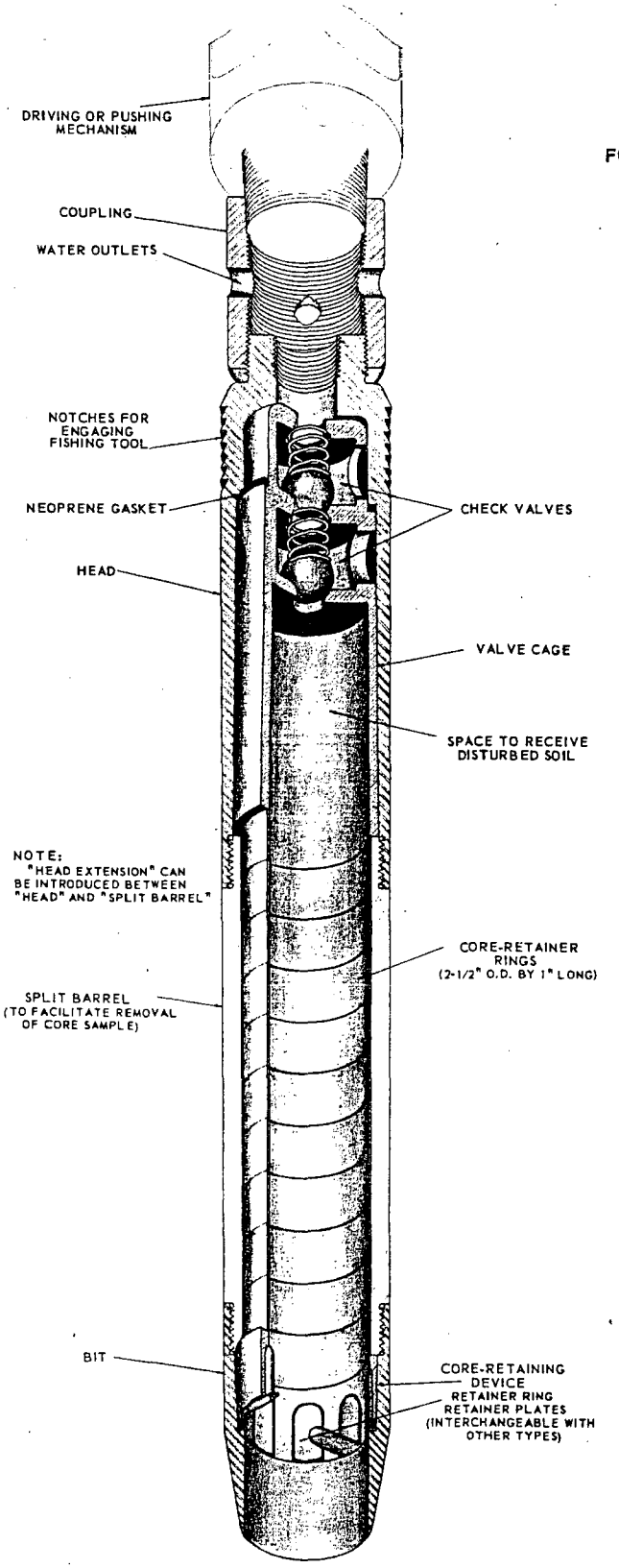
The soils underlying the site were explored by drilling five test borings at the locations shown on the Plot Plan, Plate 1. The borings were drilled with truck-mounted, cable-tool drilling equipment utilizing a core barrel attachment to advance the borings.

All soils were classified in the field by visual and textural examination and a continuous log of the soils encountered in each boring was maintained by our field engineer. Undisturbed samples of the various soils were obtained with a soil sampler of the type illustrated on page A-2. Graphical representations of the soils encountered are presented on the Log of Borings, Plates A-1A through A-1C. The nomenclature used in classifying the soils appears on the Soil Classification Chart on Plate A-2.

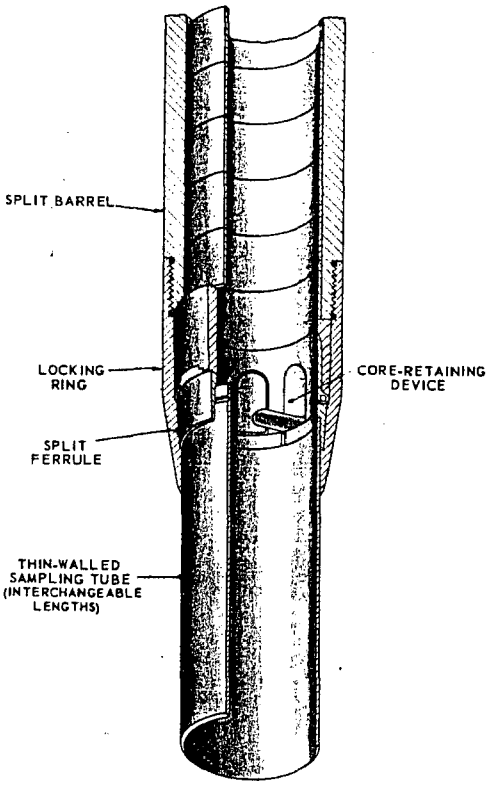
The ground water level readings were obtained during the progress of the field work. The static levels observed are indicated on the Log of Borings.

SOIL SAMPLER TYPE U

FOR SOILS DIFFICULT TO RETAIN IN SAMPLER
U. S. PATENT NO. 2,318,062



ALTERNATE ATTACHMENTS



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DAMES & MOORE

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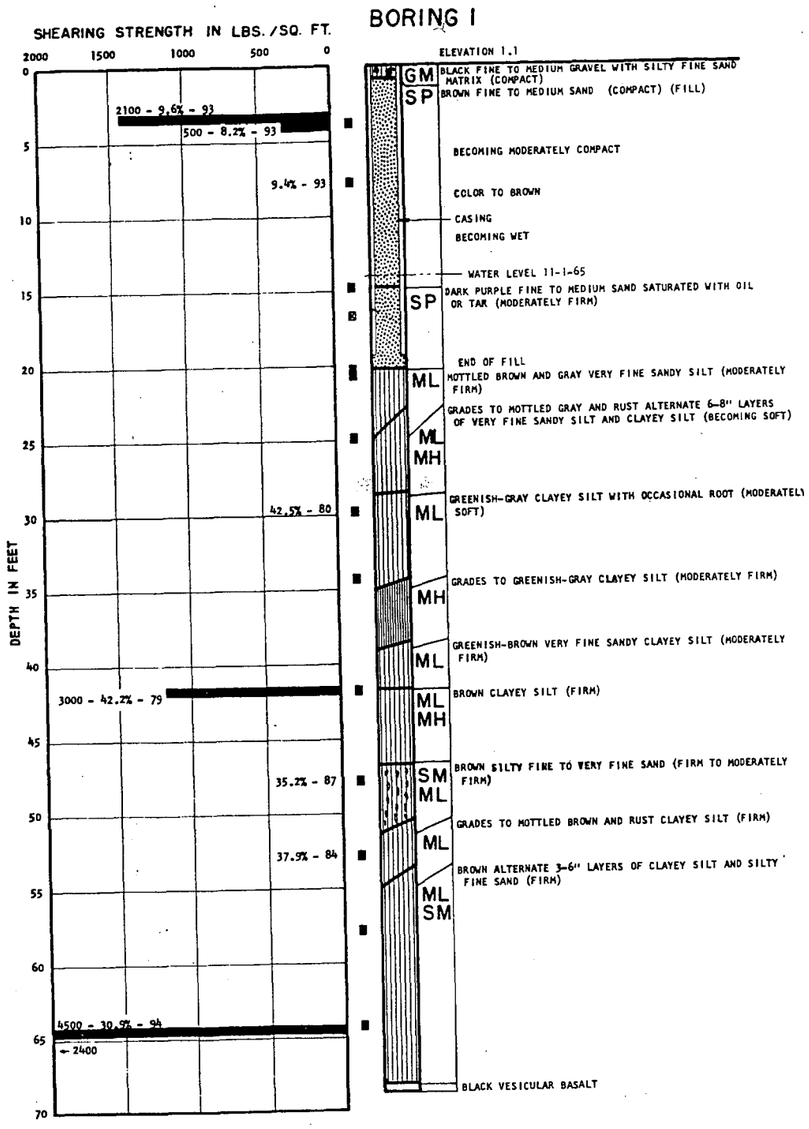

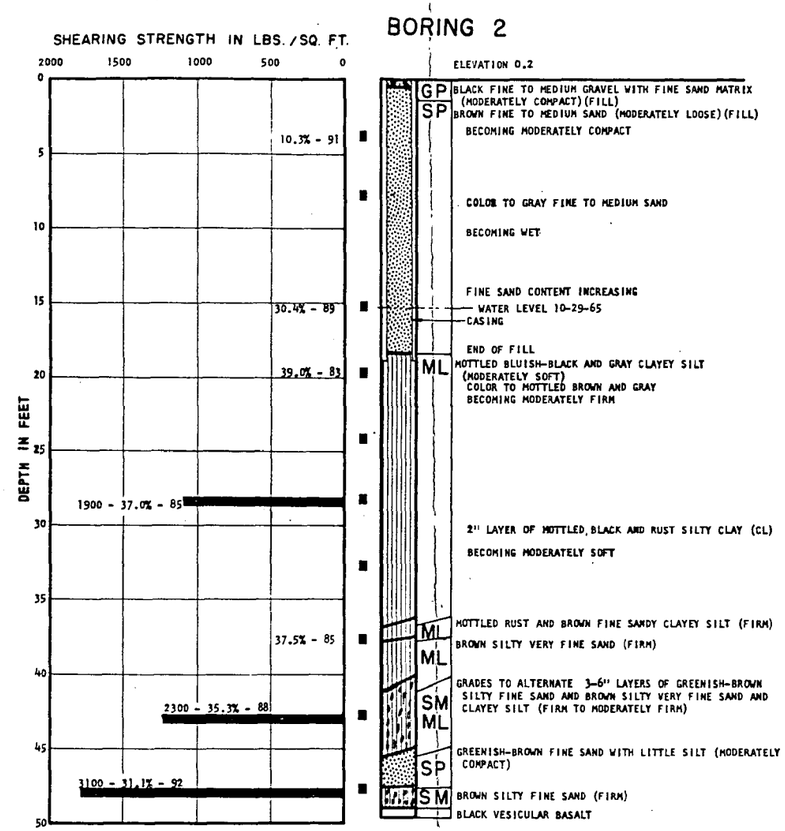

LOG OF BORINGS

DAMES & MOORE

PLATE A-1A

REVISIONS
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BY ____ DATE ____
PLATE ____ OF ____

FILE Kopper 1810.003
BY D.C.C. DATE 11-18-65
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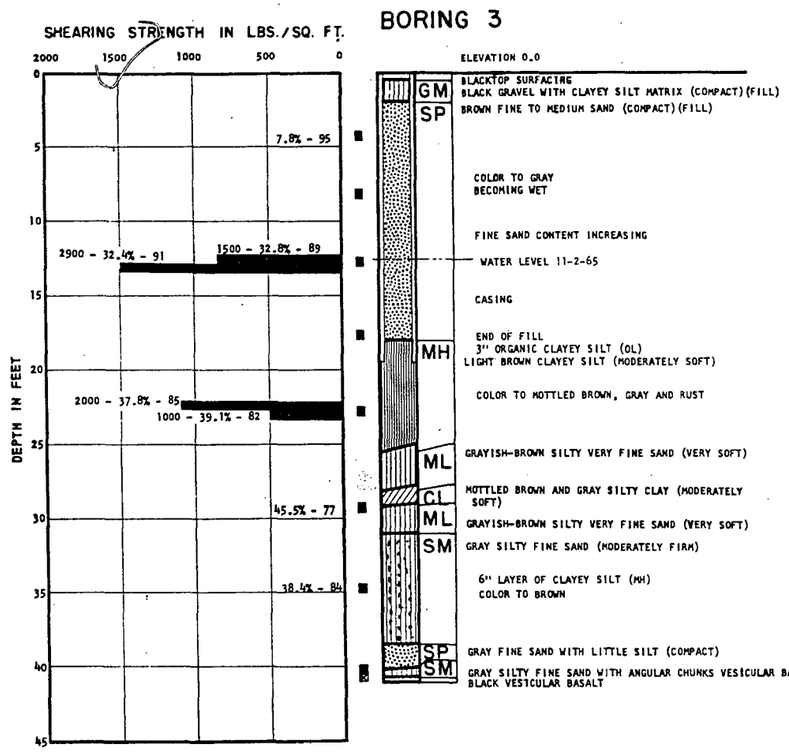

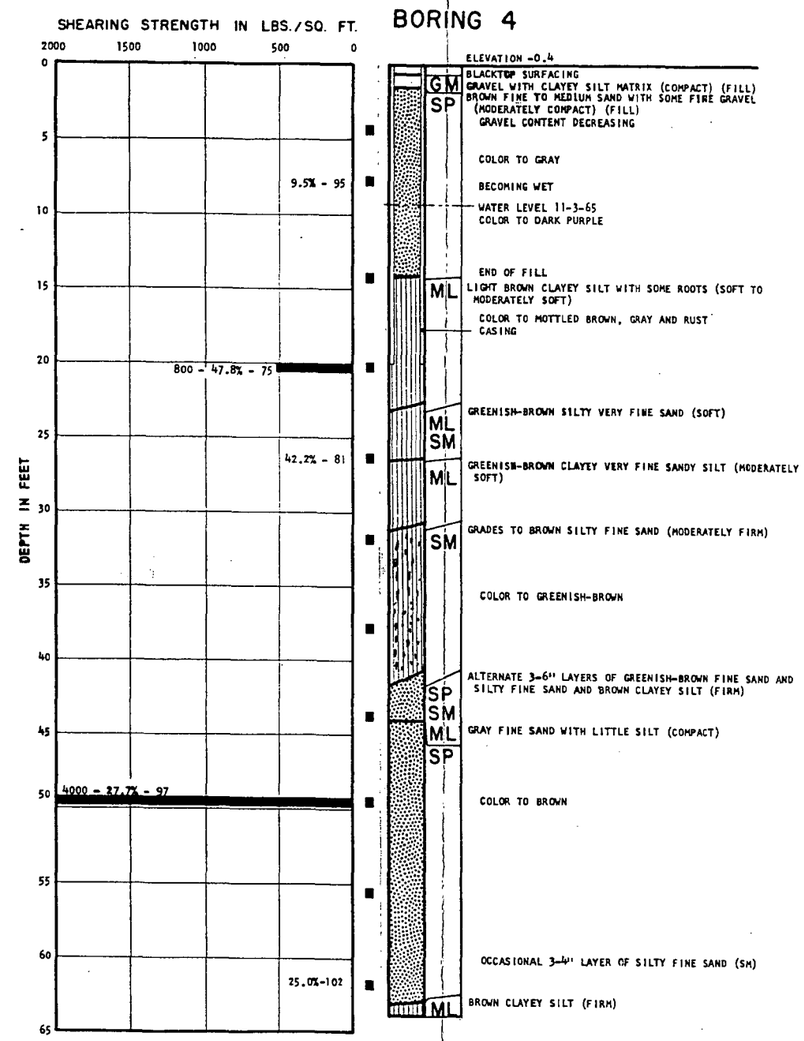

LOG OF BORINGS

REVISIONS
BY DATE
BY DATE
PLATE OF

FILE 1810-003
KOPPERS COMPANY
BY O.R.C. DATE 11-18-65
CHECKED BY DATE

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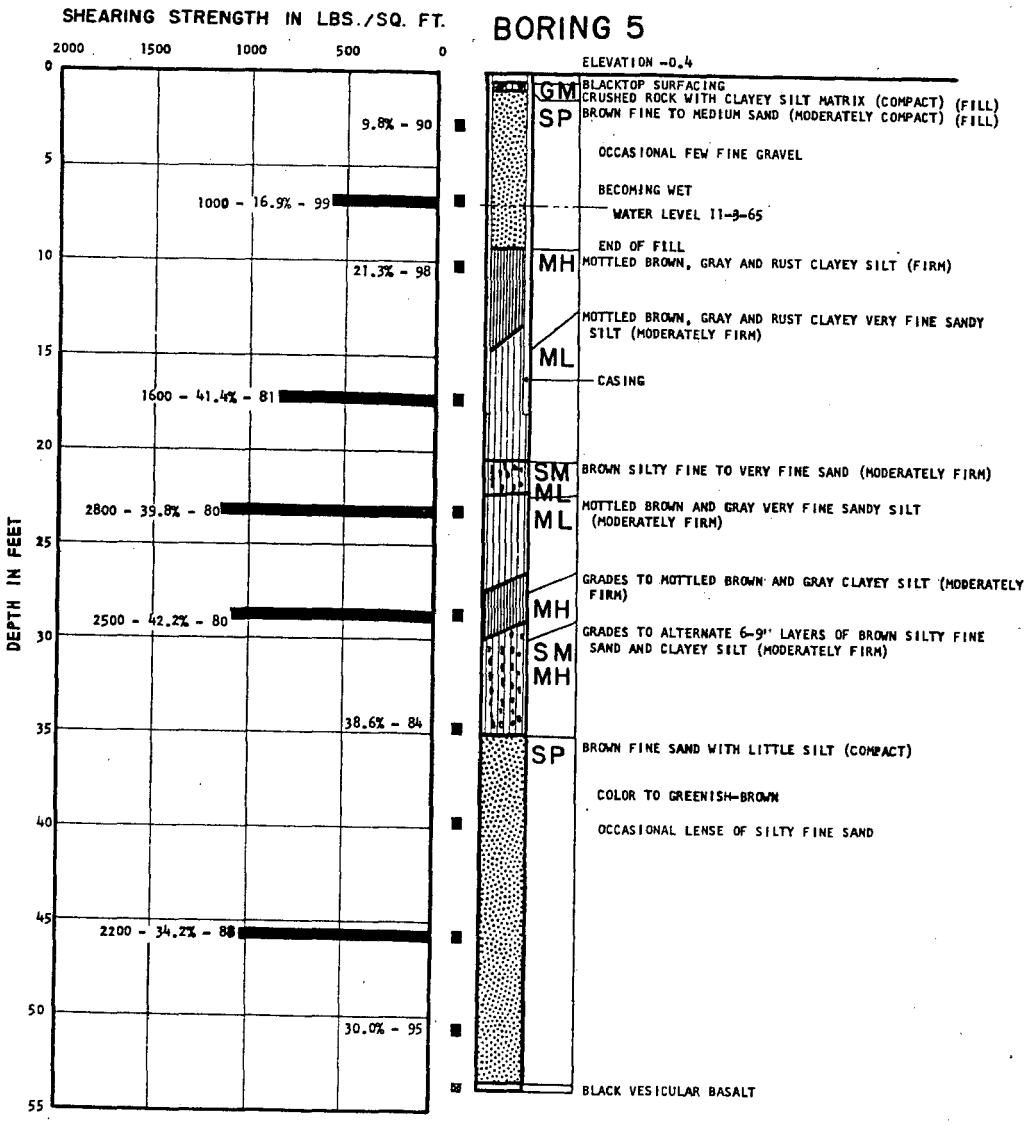


LOG OF BORINGS

DAMES & MOORE
APPLIED EARTH SCIENCES

APPENDIX B

LABORATORY TESTS

The physical properties of the soils encountered were evaluated in a series of laboratory tests performed on selected undisturved samples. The tests performed included direct shear tests, consolidation tests and moisture and density determinations.

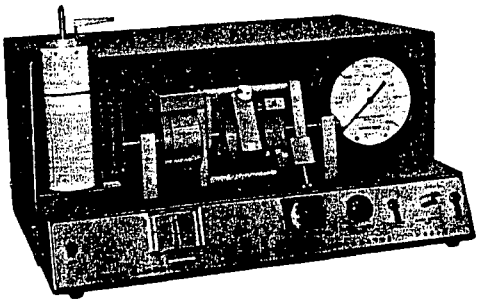
Direct shear tests, performed in the manner described on page B-2, provided the necessary data to evaluate the strength of the soils. Selected representative samples were tested at field moisture contents, at surcharges approximately equal to the weight of the existing overburden and at lesser surcharges. The results of the direct shear tests are presented to the left of the log of borings in accordance with the Key to Test Data appearing on Plate A-2.

Selected undisturbed samples were subjected to consolidation (confined compression) tests to obtain data for use in estimating settlements of foundations. The method used in performing the consolidation test is described on page B-3. The test results are presented on Plate B.

Moisture and density determinations were made to aid in comparison of soils at various locations and depths. The results of these tests are shown in the graph at the left of each boring log.

METHOD OF PERFORMING DIRECT SHEAR AND FRICTION TESTS

DIRECT SHEAR TESTS ARE PERFORMED TO DETERMINE THE SHEARING STRENGTHS OF SOILS. FRICTION TESTS ARE PERFORMED TO DETERMINE THE FRICTIONAL RESISTANCES BETWEEN SOILS AND VARIOUS OTHER MATERIALS SUCH AS WOOD, STEEL, OR CONCRETE. THE TESTS ARE PERFORMED IN THE LABORATORY TO SIMULATE ANTICIPATED FIELD CONDITIONS.



DIRECT SHEAR TESTING
& RECORDING APPARATUS

EACH SAMPLE IS TESTED WITHIN THREE BRASS RINGS, TWO AND ONE-HALF INCHES IN DIAMETER AND ONE INCH IN LENGTH. UNDISTURBED SAMPLES OF IN-PLACE SOILS ARE TESTED IN RINGS TAKEN FROM THE SAMPLING DEVICE IN WHICH THE SAMPLES WERE OBTAINED. LOOSE SAMPLES OF SOILS TO BE USED IN CONSTRUCTING EARTH FILLS ARE COMPACTED IN RINGS TO PREDETERMINED CONDITIONS AND TESTED.

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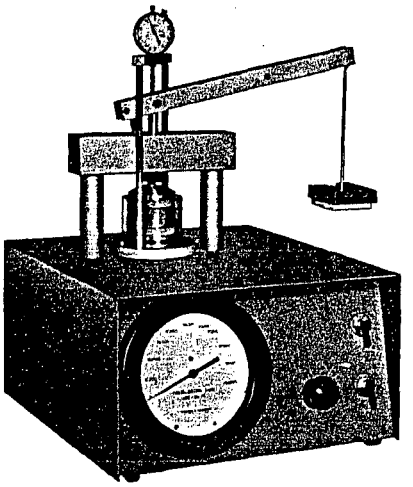

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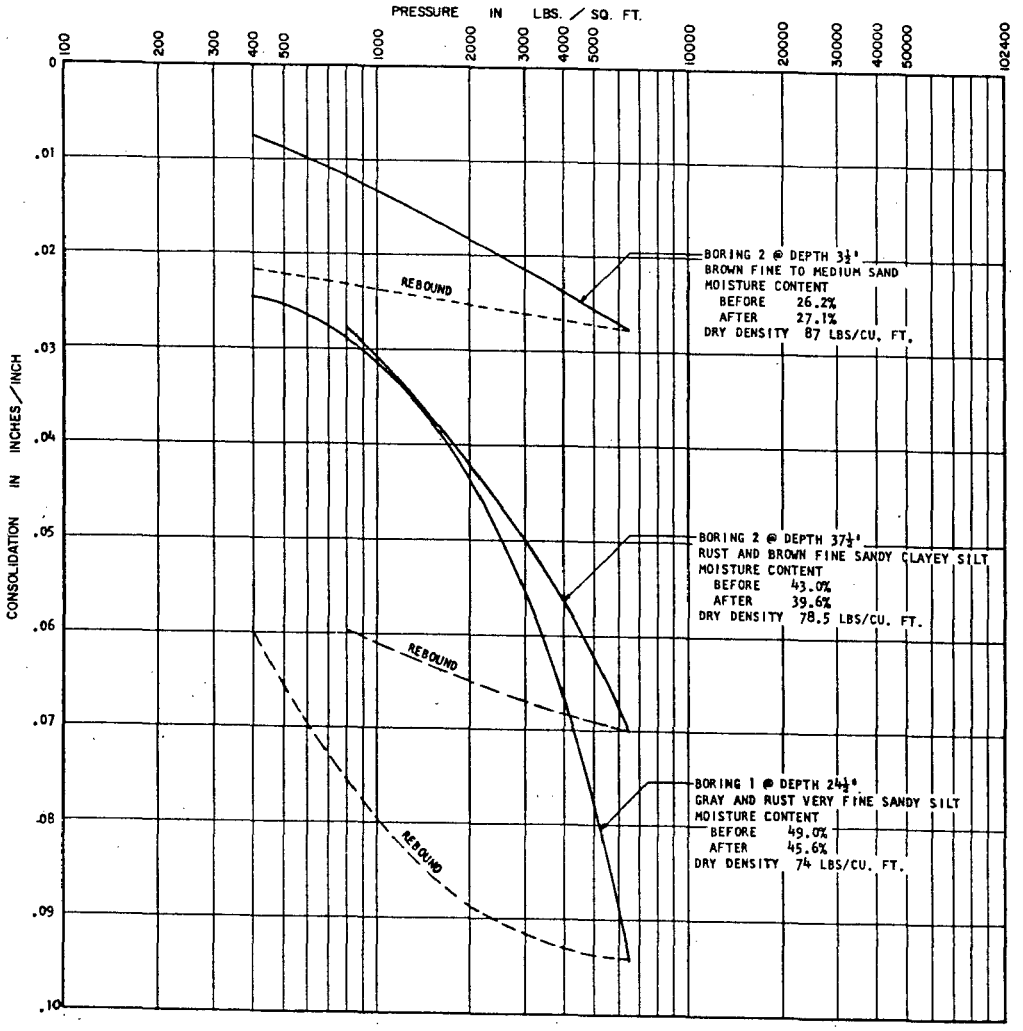


CONSOLIDATION TEST DATA

BY _____ DATE _____
BY _____ DATE _____
PLATE _____ OF _____

KOPPERS COMPANY
BY D.C.C. DATE 11-18-65
CHECKED BY _____ DATE _____

446.10 (REV. 6-61)

DAMES & MOORE
APPLIED EARTH SCIENCES

PLATE B

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

Interoffice Correspondence

To	All Plant Managers	From	Jordan M. Dern
Location		Location	K-1928
Subject	Waste Transportation Regulations	Date	July 13, 1987

On July 1, 1987 the Department of Transportation made certain changes in the requirements for marking of shipping papers to better indicate the hazards of a shipment. The attached memo from Bob Roda of the Transportation Department identifies these requirements for certain waste streams. If you ship a hazardous waste other than these given in this memo, please let me know so the required information can be made available to you.

Jordan M. Dern/mrw

Jordan M. Dern

JMD/mrw

cc:	L. F. Flaherty	W/Attach.
	C. G. Pauli	"
	M. R. Urbassik	W/OAttach.
	J. Blundon	"
	R. Roda	

JUL 17 1987

RECEIVED

JUN 11 1987

Environmental Resources

KOPPERS

Interoffice Correspondence

To	Mark Urbassik	**From**	Traffic & Transportation
Location	K-1940	**Location**	K-850
Subject	Waste Transportation Regulations	**Date**	June 11, 1987

Effective July 1, 1987 the Department of Transportation has proposed some regulatory changes governing the transportation of certain hazardous waste streams. These changes listed all hazardous substances including wastes at the reportable quantities designated by E.P.A. pursuant to Section 102 of CERCLA and incorporated all hazardous substances into the transportation hazardous materials regulations.

The regulations now require that waste stream numbers be identified on the shipping papers or, alternatively, wastes which exhibit an E.P.A. characteristic of ignitability, corosivity, reactivity or E.P.A. toxicity (ICRE) are so described and marked on the containers. Waste streams designated by "F" or "K" numbers are identified with reportability quantities in the regulations. Subsequently, the DOT authorized the use of "D" numbers as alternatives to identifing E.P.A. unlisted hazardous wastes which exhibit "ICRE" characteristics, on both the shipping papers and packages of less than 110 gallons. No reportable quantities are shown for wastes identified by "D" numbers. If the "RQ" is 5,000 pounds only bulk shipments are subject to the shipping paper requirements. On RQ's of 1,000 pounds or less a rule of thumb would be on quantities of 110 gallons or less both marking and shipping paper requirements must be observed.

Sometime ago requests were made to identify specific hazardous waste streams shipped by Koppers to determine if new proper shipping names and package markings had to be developed. Based upon the information received thus far the following decriptions and markings are recommended for use for drum shipments.

1. Phthalic Anhydride Still Residue - K024 - RQ 5,000

   Proper shipping name

   Hazardous Waste, Solid, N.O.S., ORM-E, NA 989 (K024)

   Marking

   Yellow hazardous waste marking label.

2. Waste Phthalic Anhydride - U 190

   The waste contains a "U" designation and not listed in the table providing reportable quantities. The "ICRE" characteristic should be shown with the prefix EPA if applicable in lieu of the waste stream number.

KOPPERS

Interoffice Correspondence

To	Mark Urbassik	**From**	
Location		**Location**	
Subject	2.	**Date**	June 11, 1987

Proper shipping name

Hazardous waste, Solid, N.O.S., ORM-E, NA 9189 (U 190) or (EPA - ICRE characteristic)

Marking

Yellow hazardous waste marking label

3. Waste Creosote U 051 - RQ 1

The waste number is not on the E.P.A. list but Creosote is represented with RQ 1.

Proper shipping name

RQ, Hazardous Waste, Solid, N.O.S., ORM-E, NA 9189, (U 051) or (EPA-ICRE characteristic)

Marking

Yellow marking label with "RQ" after the ORM-E block.

4. Waste Naphthalene - U 165 - RQ 100

Naphthalene is now only considered an ORM-A for air and water shipments. The new requlations make this waste an ORM-E. The "U" numbers are not shown in the table but Naphthalene has an RQ 100.

Proper shipping name

RQ, Hazardous Waste, Solid, N.O.S., ORM-E, NA 9189 (U 165) or (ICRE)

Marking

Yellow hazardous waste marking label with "RQ" after the ORM-E block.

KOPPERS

Interoffice Correspondence

To	Mark Urbassik	From	
Location		Location	
Subject	3.	Date	June 11, 1987

5. Bottom Sediment Sludge - K001 - RQ 1

   Proper shipping name

   RQ Hazardous Waste, Solid, N.O.S., ORM-E, NA 9189 (K001)

   Marking

   Yellow hazardous waste marking label with "RQ" after the ORM-E block.

6. Pentachlorophenol - F021 - RQ 1

   Proper shipping name

   RQ, Hazardous Waste, Solid, N.O.S., ORM-E, NA 9189 (F021)

   Marking

   Yellow hazardous waste label with "RQ" after the ORM-E block.

7. Pentachlorophenol - F027

   Same as (6) above with (F027) identified as the waste stream.

8. Arsenic and Chromium from CCA - D004 & D001

   No change - show stream number on shipping paper after proper shipping name.

9. Liquid Resin - D001

   No change - show stream number after proper shipping name on shipping paper.

10. D005, D007, D008 and D009

    No listing for reportable quantities.

    Proper shipping name

    Hazardous Waste, Solid, N.O.S., ORM-E, NA 9189 (stream number)

KOPPERS

Interoffice Correspondence

To	Mark Urbassik	**From**	
Location		**Location**	
Subject	4.	**Date**	June 11, 1987

Marking

Yellow hazardous Waste marking label.

11. Refractory Core Wash - D001

Proper shipping name

Hazardous Waste, Liquid, N.O.S., ORM-E, NA 9189 (D001)

Marking

Yellow hazardous waste marking label.

As waste streams develop each can be handled as they occure. Kindly arrange for the distribution of this information to all interested parties. If necessary this matter can be discussed further. Please call if there are any questions.

Robert F. Roda

Robert F. Roda

RFR:jlh

cc: David R. Kerschner
Beth Kerschner
Jordan Dern
Cy Markle
John M. Nash
F. Spinola

K-5 REV. 2

RECEIVED

JUN 23 1987

ENVIRONMENTAL RESOURCES

KOPPERS HAZARDOUS MATERIALS NEWSLETTER 87-1

TO: Various Locations

FROM: Traffic & Transportation Department

LOCATION: Various

LOCATION: K-850, Pittsburgh, PA

SUBJECT: Hazardous Materials Transportation

DATE: June 18, 1987

Effective July 1, 1987, new hazardous materials transportation regulations will change the bill of lading description and package marking for certain hazardous substances. This communication deals mainly with bulk shipments. Small lot shipments in packages of 110 gallons or less will be discussed at a later date when product evaluation has been completed.

The following bills of lading numbers and description line items should be changed as follows by typing the new proper shipping name and description in the blank space at the bottom of the description of articles section. This practice should continue until new preprinted bills of lading can be prepared.

T-950

2 RQ, Hazardous substance, liquid, NOS/ORM-E/NA 9188 (Naphthalene)/Crude naphthalene

3 RQ, Hazardous substance, liquid, NOS/ORM-E/NA 9188 (creosote)/creosote coal tar solution

11 RQ, Hazardous substance, liquid, NOS/ORM-E/NA 9188 (Phthalic Anhydride)/Phthalic Anhydride

16 RQ, Hazardous substance, liquid, NOS/ORM-E/NA 9188 (creosote)/creosote oil

T-432-433-434

11 Current description is correct for 50 pound bags and bulk bags up to 5,000 pounds. Tank truck shipments must be described as follows:

RQ, Hazardous substance, liquid, NOS/ORM-E/NA 9188 (Phthalic Anhydride)/Phthalic Anhydride

12 Maleic Anhydride is correct for packages up to 5,000 pounds but the designation ORM-A UN 2215 should be stricken.

21 RQ, Hazardous substance, liquid, NOS/ORM-E/NA 9188 (Phenol-formaldehyde)/Phenol-formaldehyde Resin

2 For bulk or shipments in packages of 100 pounds or more, the following description applies:

RQ, Hazardous substance, liquid, NOS/ORM-E/NA 9188 (Naphthalene)/Naphthalene

For water or air shipments, the present description should be used including the ORM-A hazardous class for all quantities.

3 For bulk or shipments in packages of 100 pounds or more, the following description applies:

RQ, Hazardous substance, liquid, NOS/ORM-E/NA 9188 (Naphthalene)/Crude Naphthalene

For water or air shipments, the present description should be used including the ORM-A hazardous class for all quantities.

The RQ in the descriptions cited above may be shown in the HM Column on the bill of lading or as the prefix to the description. In addition to the above, the following products require an RQ in the HM column on bills of lading 620 and 620C.

1 Arsenic acid.

2 Arsenical compounds, liquid, NOS.

5 Chromic acid in bulk or packages of 1,000 pounds or more

6 Chromic acid solution in bulk or packages of 1,000 pounds or more.

Molten resorcinol in bulk must be described as:

RQ Hazardous substance, liquid, NOS/ORM-E/NA 9188 (resorcinol)/Chemicals NOIBN

Packages of 110 gallons or less must be marked with the proper shipping name (hazardous substance liquid NOS), hazardous class (ORM-E or ORM-A) and the identification number (NA 9188 or UN 1334). The designation "RQ" must also be part of the marking. Labels can be purchased to satisfy the marking requirements. An illustration of this marking label appears below.

RQ1
RQ1P
3" x 5"

Beazer000440

Bulk shipments in both tank truck and tank car must bear the NA identification number "9188" for all ORM-E shipments. This may be accomplished by inserting in the holders blank white placards with the number "9188" in black figures.

Placards and marking labels may be obtained from American Labelmaster through the Koppers blanket purchase order No. 15-7-50038. Questions involving the purchase of these items may be directed to John Wenstrup at Labelmaster, 312-478-0900. Questions involving this matter can be referred to me at 412-227-2831.

Robert F. Roda

Robert F. Roda

RFR:kas

Beazer000441

CHEMICAL WASTE MANAGEMENT, INC.

D.O.T. CHANGE ON SHIPMENTS OF PCB's AND ASBESTOS

Effective July 1, 1987 the DOT shipping description of PCB materials will change to "Hazardous Substance, liquid or solid, n.o.s., ORM-E, NA 9188 (PCB), RQ" and the DOT shipping description for asbestos will change to "Hazardous Substance, liquid or solid, n.o.s., ORM-E, NA 9188 (asbestos), RQ". This information is to be placed on the manifest in Section 11 marked "US DOT Description. A more detailed description of the particular materials can be placed in Section "J" of the manifest (i.e., "PCB Capacitors", "PCB Transformers greater than 500 PPM", "PCB Dirt & Debris", "Waste Asbestos").

If you have any questions regarding the applicability of these changes to your facility, please call the Customer Service Department in Houston, Texas at 1-800-445-3589 or Marietta, Georgia at 1-800-241-7829 (or your Technical Sales Representative). Texas customers should call 1-800-533-3076. Georgia customers should call 1-404-952-0444.

CHEMICAL WASTE MANAGEMENT, INC.

REGULATORY REMINDER

On July 1, 1987, new provisions of the Federal Hazardous Materials Transportation Regulations (49 CFR 100-177) will take effect. The final rule describing these changes was published in the February 17, 1987 Federal Register. The changes impact shippers of hazardous materials and include generators of hazardous waste.

The following is a general synopsis of the changes. We encourage each of you to obtain a copy of the new rules and implement the changes applicable to your waste shipments.

1. A new listing entitled Hazardous Substances and Reportable Quantities is published as an appendix to the Hazardous Materials Table (49 CFR 172.101). This listing contains over 1,100 substances and their reportable quantities. Many of the substances are new. Please note that all the listings in the appendix are not proper shipping names. They may not be used on the manifest as the basic description unless they also appear in the Hazardous Materials Table.

2. The Hazardous Materials Table is modified in several ways:

   a. All entries in the table for materials classed as ORM-E are eliminated except:

      i. Hazardous Substance, Liquid or Solid, n.o.s., ORM-E, NA 9188.

      ii. Hazardous Waste, Liquid or Solid, n.o.s., ORM-E, NA 9189.

      Some proper shipping names used in the past to describe ORM-E materials will no longer be allowed. Some examples of eliminated names are:

      Polychlorinated biphenyl, ORM-E, UN 2315
      Adipic acid, ORM-E, NA 9077
      plus about 40 others

   b. The reference in Column 1 of "E" and the "RQ" values in Column 2 have been eliminated and must now be found in the appendix.

Beazer000443

CHEMICAL WASTE MANAGEMENT, INC.

REGULATORY REMINDER - CON'T

3. New requirements are imposed by these changes that affect preparation of manifests and bills of lading as well as the marking of non-bulk packages (those of 110 gallons or less). These requirements apply to any material which meets the definition of a hazardous substance, i.e., the material in a single package contains a reportable quantity of any substance listed in the appendix.

The two new rules are as follows:

§ 172.203 Additional Description Requirements

(c) Hazardous substances.

(1) If the proper shipping name for a material that is a hazardous substance does not identify the hazardous substance by name, one of the following descriptions shall be entered, in parentheses, in association with the basic description:

(i) The name of the hazardous substance as shown in the appendix to § 172.101; or

(ii) For waste streams, the waste number (F or K); or

(iii) For wastes which exhibit an EPA characteristic of ignitability, corrosivity, reactivity, or EP toxicity, the letters "EPA" followed by the word "ignitability", or "corrosivity", or "reactivity", or "EP toxicity", as appropriate or the corresponding "D" number, as appropriate.

(2) The letters "RQ" shall be entered on the shipping paper either before or after the basic description required by § 172.202 for each hazardous substance. For example: "RQ, Cresol, Corrosive material, UN 2076," or "Hazardous substance, solid, n.o.s. ORM-E, NA 9188, (adipic acid), RQ".

Beazer000444

CHEMICAL WASTE MANAGEMENT, INC.

REGULATORY REMINDER - CON'T

§ 172.324 Hazardous substance

For each package with a capacity of 110 gallons or less that contains a hazardous substance:

(a) If the proper shipping name does not identify the hazardous substance by name, one of the following descriptions shall be marked on the package, in parentheses, in association with the proper shipping name:

(1) The name of the hazardous substance as shown in the appendix to § 172.101; or

(2) For waste streams, the waste stream number (F or K); or

(3) For wastes which exhibit an EPA characteristic of ignitability, corrosivity, reactivity, or EP toxicity, the letters "EPA" followed by the work "ignitability", or "corrosivity", or " reactivity", or "EP toxicity", as appropriate or the corresponding "D" number, as appropriate.

(b) The letters "RQ" shall be marked on the package in association with the proper shipping name.

In summary, the new rule imposes changes on how to properly describe wastes on manifests, bills of lading and packages.

If you have any questions regarding the applicability of these changes to your facility, please call the Customer Service Department in Houston, Texas at 1-800-445-3589 or Marietta, Georgia at 1-800-241-7829 (or your Technical Sales Representative). Texas customers should call 1-800-533-3076. Georgia customers should call 1-404-952-0444.

Beazer000445

Accounts Payable Invoice Sticker

KOPPERS

Transmittal Number _____ Plant Audit No. 11-1

For Plant or Purchasing Dept. Use

Purchase Order No. _____ Requisition Number _____

Terms 10 75

F.O.B. _____ ☐ Prepaid ☐ Collect

Prices Verified By KM Calculations Verified By KM

Date Inv. Rec'd. 10/27 Date Mat'l. Received _____

Receiving Report No. _____ Date Inv. F'W'D. To Pittsburgh 11/1

Used For _____

Commitment Change Approval

Increase $ _____

Decrease $ _____

Commitment Change Approved By _____

Vendor Number	Invoice Number	Invoice Date	Terms Code	Due Date
00996205 ~~05~~ 15	11-10-88	10/10/88		/ /

Account Distribution

General Ledger	Detail	Sub Detail	Location or Contract	Dept. or Orig. Loc.	Tax* Codes	Emp. No.	Purchase Order No. or Rec ID	Br.	P.O. No.	P.O. Add.	P.O. Add. or Resource	Quantity	* Unit Code	Amount Distributed
305	974	X	9270	910	0360									4336 —
305	974	X	1670	910	0360									2890 —
					Note		Address							

O.K. to Pay

For Treasury & Accounting Section Use Only

Invoice Audited By _____ Check Audited By _____

Audit Number					
Division	Send. Loc.	Month	Serial No.	Invoice Amt. (Gross)	
483				Cash Discount	
				Net Amount Payable	7226 00

ADS 270 REV. 0 50M 6/85 *See Reverse Side For Instructions

Beazer000446

Northwest Natural Gas Company
220 N.W. Second Avenue
Portland, Oregon 97209

ACCOUNT NO. RENTAL-KOPPERS CO.			ACCOUNT NO. RENTAL-KOPPERS CO	
DATE OF BILL 10-10-88	DESCRIPTION	TOTAL AMOUNT DUE	DATE OF BILL 10-10-88	TOTAL AMOUNT DUE
APPLIANCE			APPLIANCE	
MISCELLANEOUS	BALANCE FORWARD NOVEMBER 1988 RENT	~~$14,452.00~~ 7,226.00	MISCELLANEOUS	7226.00 ~~$21,678.00~~

SERVICE ADDRESS IF OTHER THAN MAILING:
NW ST. HELENS RD PLANT PROPERTY

PAYMENT DUE DATE 11-10-88

•KOPPERS CO. INC.-NW TERMINAL
7540 NW ST. HELENS RD
PORTLAND OR 97229
ATTN: JOHN OXFORD

PLEASE ENCLOSE THIS STUB
IF YOU REMIT BY MAIL
NORTHWEST NATURAL GAS CO.
220 N.W. Second Avenue
Portland, Oregon 97209

Form 60

NORTHWEST NATURAL GAS COMPANY

220 N.W. SECOND AVENUE PORTLAND, OREGON 97209

(503) 226-4211

RECEIVED
SEP - 9 1986
KOPPERS CO., INC.
INDUSTRIAL PRODUCTS DIV.
PORTLAND, OREGON

September 5, 1986

Mr. John Oxford
Plant Manager
Koppers Company, Inc.
7540 N.W. St. Helens Road
Portland, Oregon 97229

Dear Mr. Oxford:

Enclosed is the initial report on the condition of the roadway and retaining wall, Gasco plant property, plat 22-21B.

The recommendations are in the process of being implemented. Future improvements or recommendations will be based on information from the monitoring and visual inspection.

Sincerely,

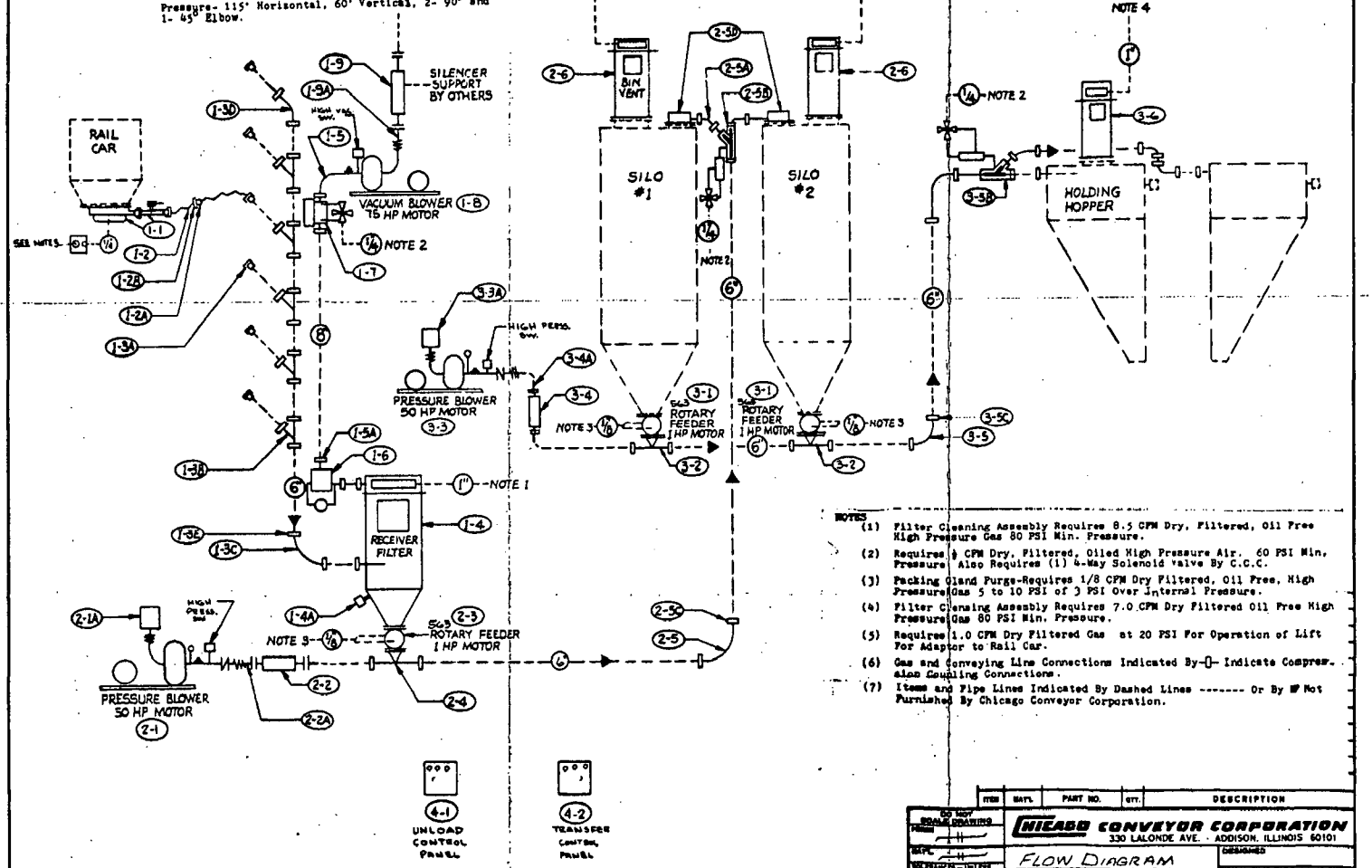
S. K. Hart
Quality Assurance Supervisor

SKH:ok
Enclosure

cc: W. L. Gibbs, Vice President, Operations, w/enclosure
E. L. Bolin, Land & Claims, w/enclosure
N. J. Potts, Gas Supply, w/enclosure

3/skh25

SYSTEM DESCRIPTION: Unload From Rail Car To Storage
MATERIAL: Ground Calcium Carbonate
BULK DENSITY: 65-73#/cu. ft.
PARTICLE SIZE: 75% Minus 325 Mesh
CONVEYING CAPACITY: Vacuum-125' Horizontal, 15' Vertical, 2- 90° and 1- 45° Elbow.
Pressure- 115' Horizontal, 60' Vertical, 2- 90° and 1- 45° Elbow.



NOTES
(1) Filter Cleaning Assembly Requires 8.5 CFM Dry, Filtered, Oil Free High Pressure Gas 80 PSI Min. Pressure.
(2) Requires ½ CFM Dry, Filtered, Oiled High Pressure Air. 60 PSI Min. Pressure Also Requires (1) 4-Way Solenoid Valve By C.C.C.
(3) Packing Gland Purge-Requires 1/8 CFM Dry Filtered, Oil Free, High Pressure Gas 5 to 10 PSI of 3 PSI Over Internal Pressure.
(4) Filter Cleaning Assembly Requires 7.0 CFM Dry Filtered Oil Free High Pressure Gas 80 PSI Min. Pressure.
(5) Requires 1.0 CFM Dry Filtered Gas at 20 PSI For Operation of Lift For Adaptor to Rail Car.
(6) Gas and Conveying Line Connections Indicated By -[]- Indicate Compression Coupling Connections.
(7) Items and Pipe Lines Indicated By Dashed Lines ------- Or By [illegible] Not Furnished By Chicago Conveyor Corporation.

ITEM	MAT'L	PART NO.	QTY.	DESCRIPTION

DO NOT SCALE DRAWING

CHICAGO CONVEYOR CORPORATION
330 LALONDE AVE. · ADDISON, ILLINOIS 60101

FLOW DIAGRAM
CALCIUM CARBONATE CONVEYING SYSTEM.

DESIGNED
DRAWN LMS 1-10-80
CHECKED
DWG. NO. 2771-F1 -C

2771

Beazer000449

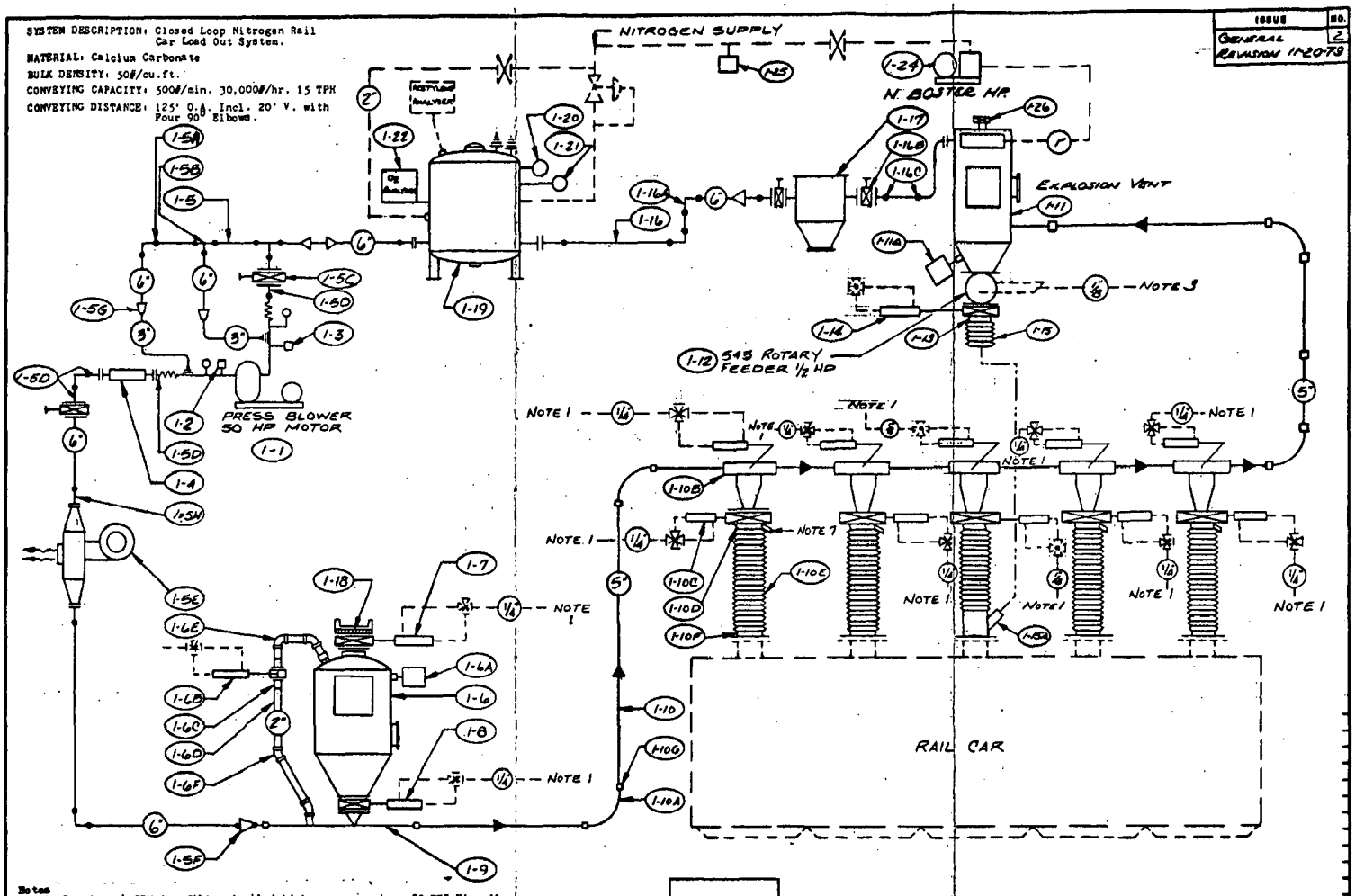
SYSTEM DESCRIPTION: Closed Loop Nitrogen Rail Car Load Out System.

MATERIAL: Calcium Carbonate

BULK DENSITY: 50#/cu.ft.

CONVEYING CAPACITY: 500#/min. 30,000#/hr. 15 TPH

CONVEYING DISTANCE: 125' O.A. Incl. 20' V. with Four 90° Elbows.



Notes

1. Requires ½ CFM dry filtered oiled high pressure air. 80 PSI Min. Also (1) 4-Way solenoid valve by others.
2. Requires 6.7 CFM dry filtered oil free nitrogen gas. 90 PSI min.
3. Requires 1/8 CFM dry filtered oil free nitrogen gas for packing purge 3 to 5 PSI
4. Items shown in dashed lines---indicate items furnished by others.
5. Conveying connections indicated by -⊕- indicate compression coupling.
6. Air line connections indicated by -•- indicate field welded

ISSUE	NO.
GENERAL REVISION 11-20-79	2

ITEM	MAT'L	PART NO.	QTY.	DESCRIPTION

DO NOT SCALE DRAWING

CHICAGO CONVEYOR CORPORATION
330 LALONDE AVE. - ADDISON, ILLINOIS 60101

FLOW DIAGRAM

DRAWN 11/14/79 T. SPERRY

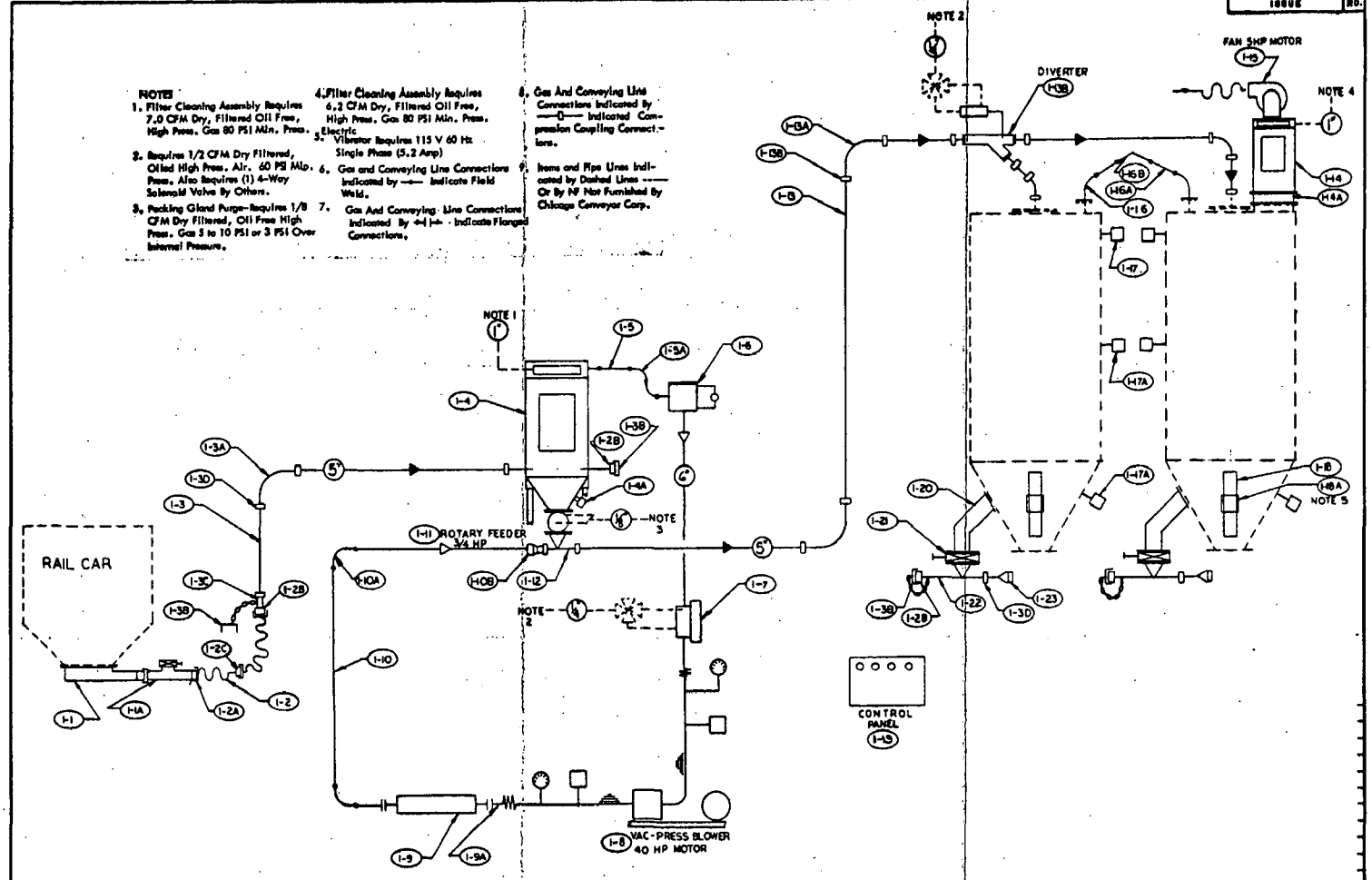
DWG. NO. 2650-F1-C

2650

Beazer000450

NOTES

1. Filter Cleaning Assembly Requires 7.0 CFM Dry, Filtered Oil Free, High Press. Gas 80 PSI Min. Press.
2. Requires 1/2 CFM Dry Filtered, Oiled High Press. Air. 60 PSI Min. Press. Also Requires (1) 4-Way Solenoid Valve By Others.
3. Packing Gland Purge-Requires 1/8 CFM Dry Filtered, Oil Free High Press. Gas 5 to 10 PSI or 3 PSI Over Internal Pressure.
4. Filter Cleaning Assembly Requires 6.2 CFM Dry, Filtered Oil Free, High Press. Gas 80 PSI Min. Press.
5. Electric Vibrator Requires 115 V 60 Hz Single Phase (5.2 Amp)
6. Gas and Conveying Line Connections Indicated by —•— Indicate Field Weld.
7. Gas And Conveying Line Connections Indicated By ⊣⊢ Indicate Flanged Connections.
8. Gas And Conveying Line Connections Indicated By —□— Indicated Compression Coupling Connectors.
9. Items and Pipe Lines Indicated by Dashed Lines ---- Or By NF Not Furnished By Chicago Conveyor Corp.



SYSTEM DESCRIPTION: Pebble Lime Rail Car Unload System
MATERIAL: Pebble Lime
BULK DENSITY: 50#/cu.ft.
CONVEYING CAPACITY: 6000-9000#/hr.
CONVEYING DISTANCE: 60' O.A. Incl. 10' V, With 4 90° Elbows-Vacuum.
180' O.A. Incl. 4 90° Elbows- Pressure.

ITEM	MAT'L	PART NO.	QTY.	DESCRIPTION

CHICAGO CONVEYOR CORPORATION
330 LALONDE AVE. · ADDISON, ILLINOIS 60101

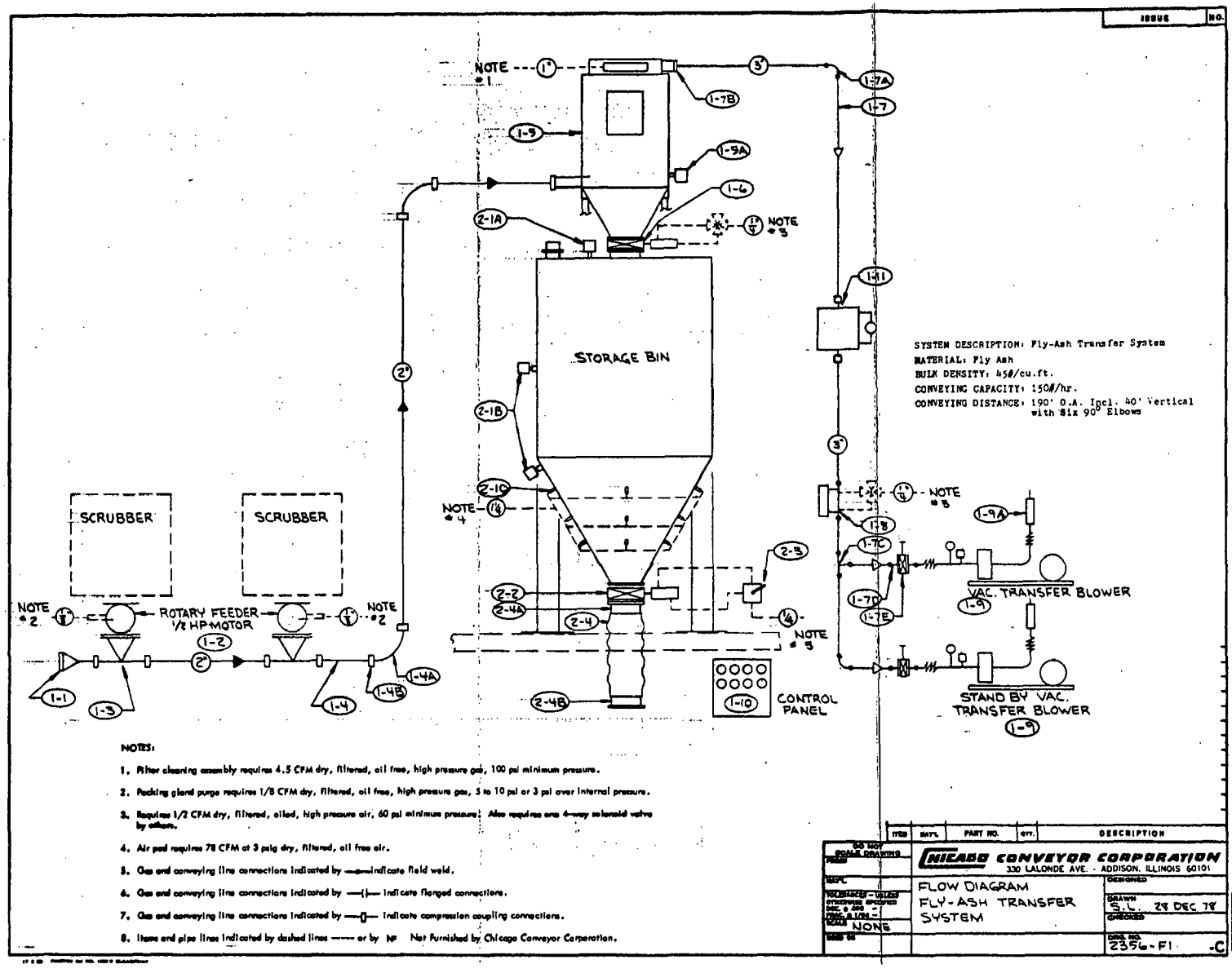
FLOW DIAGRAM

DRAWN R.W.G 5/29/80

2807-F1 -C

125-071

Beazer000451



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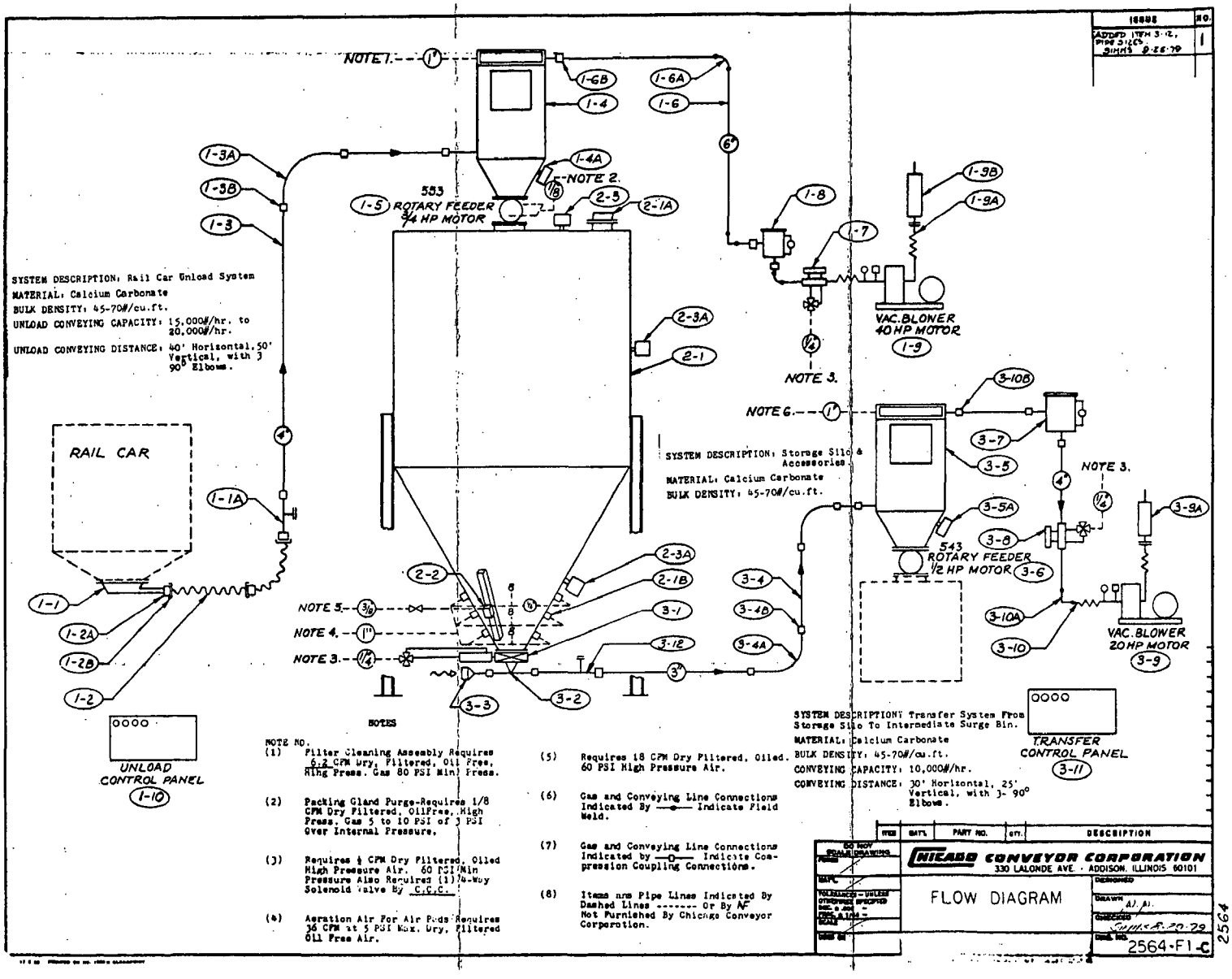

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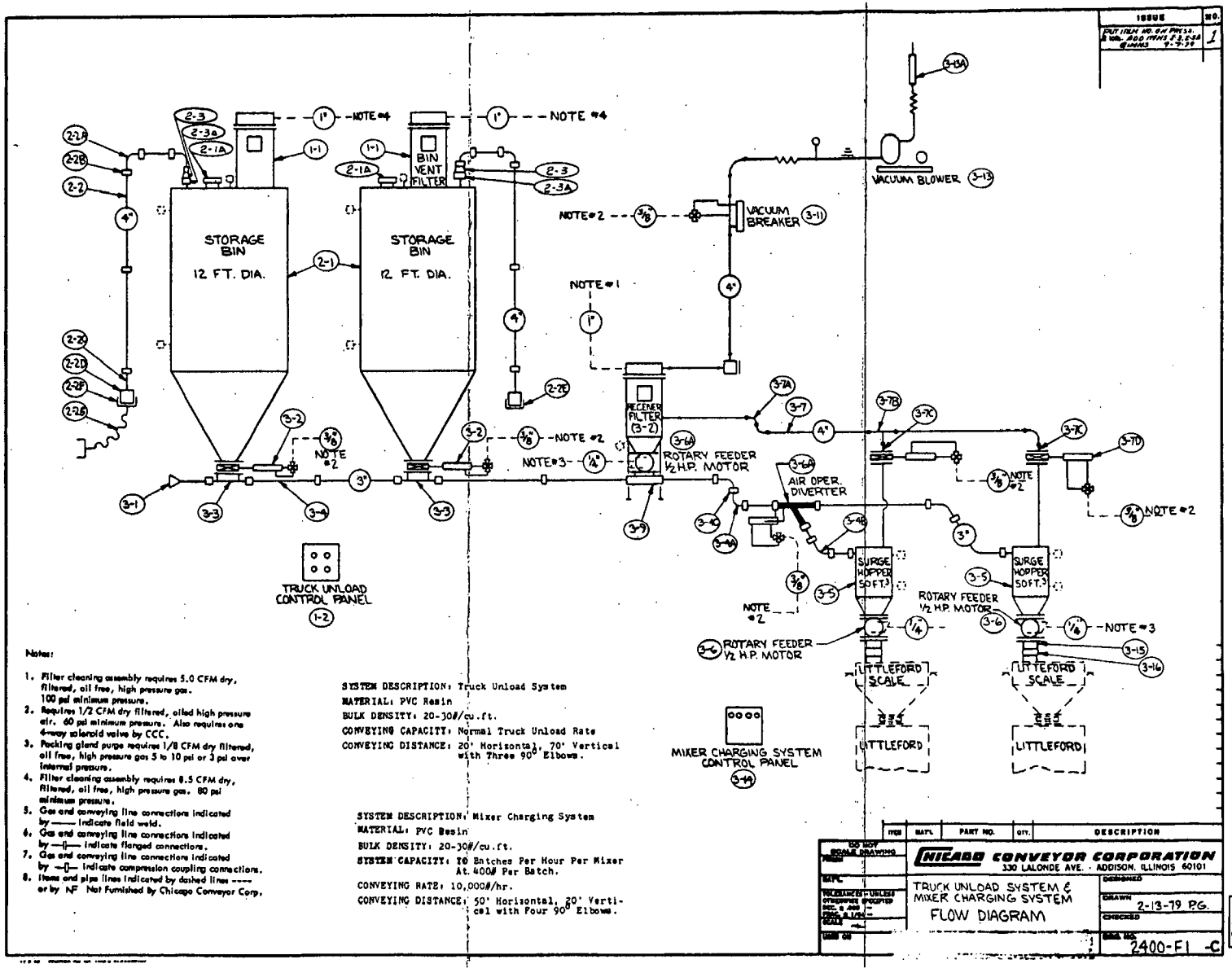


Notes:

1. Filter cleaning assembly requires 5.0 CFM dry, filtered, oil free, high pressure gas. 100 psi minimum pressure.
2. Requires 1/2 CFM dry filtered, oiled high pressure air. 60 psi minimum pressure. Also requires one 4-way solenoid valve by CCC.
3. Packing gland purge requires 1/8 CFM dry filtered, oil free, high pressure gas 5 to 10 psi or 3 psi over internal pressure.
4. Filter cleaning assembly requires 8.5 CFM dry, filtered, oil free, high pressure gas. 80 psi minimum pressure.
5. Gas and conveying line connections indicated by —— indicate field weld.
6. Gas and conveying line connections indicated by —|— indicate flanged connections.
7. Gas and conveying line connections indicated by —[]— indicate compression coupling connections.
8. Items and pipe lines indicated by dashed lines ---- or by NF Not Furnished by Chicago Conveyor Corp.

SYSTEM DESCRIPTION: Truck Unload System
MATERIAL: PVC Resin
BULK DENSITY: 20-30#/cu.ft.
CONVEYING CAPACITY: Normal Truck Unload Rate
CONVEYING DISTANCE: 20' Horizontal, 70' Vertical with Three 90° Elbows.

SYSTEM DESCRIPTION: Mixer Charging System
MATERIAL: PVC Resin
BULK DENSITY: 20-30#/cu.ft.
SYSTEM CAPACITY: 10 Batches Per Hour Per Mixer At 400# Per Batch.
CONVEYING RATE: 10,000#/hr.
CONVEYING DISTANCE: 50' Horizontal, 30' Vertical with Four 90° Elbows.

ITEM	MAT'L	PART NO.	QTY.	DESCRIPTION

CHICAGO CONVEYOR CORPORATION
330 LALONDE AVE. · ADDISON, ILLINOIS 60101

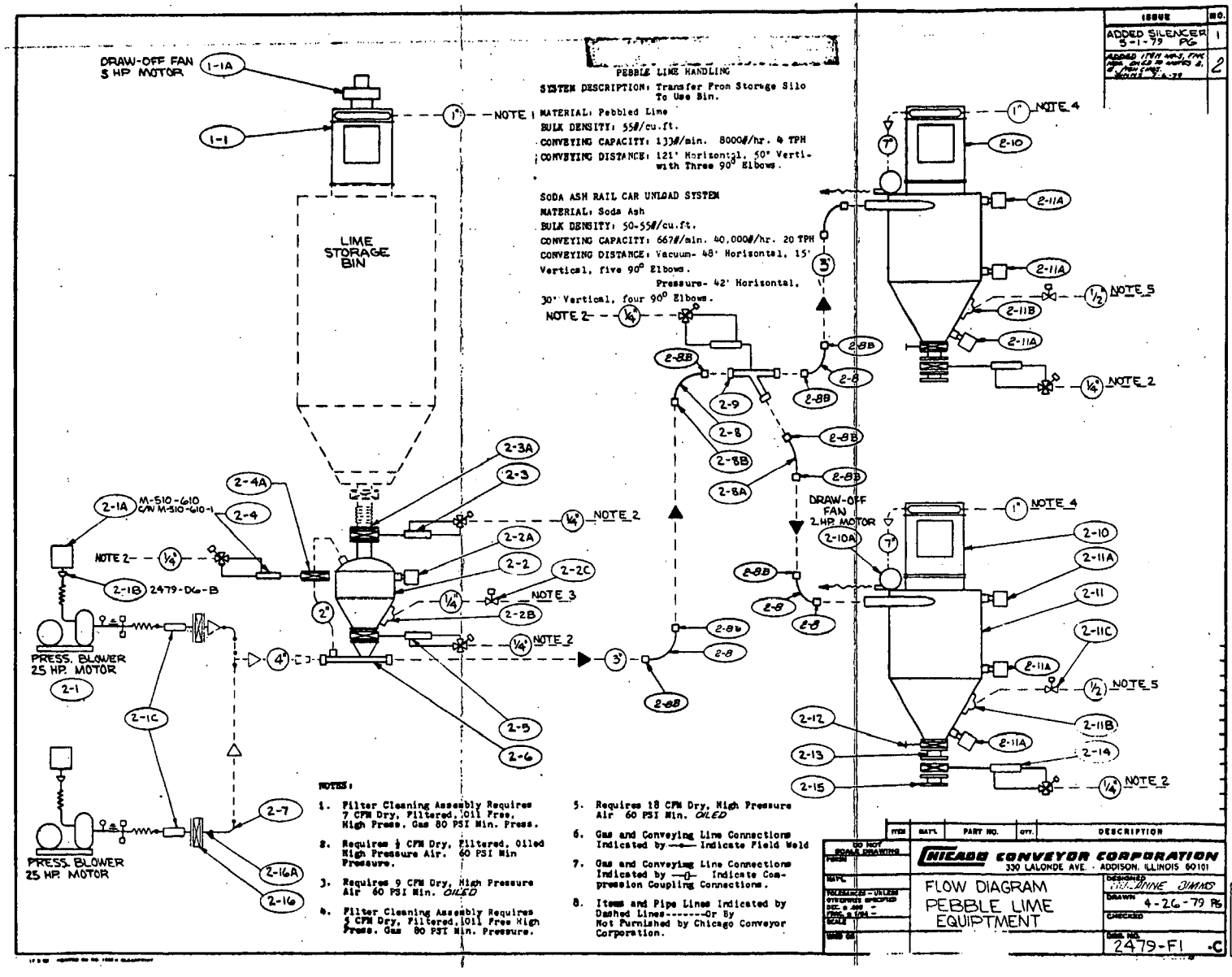
TRUCK UNLOAD SYSTEM & MIXER CHARGING SYSTEM
FLOW DIAGRAM

DRAWN 2-13-79 P.G.

2400-F1 -C

2400

Beazer000454



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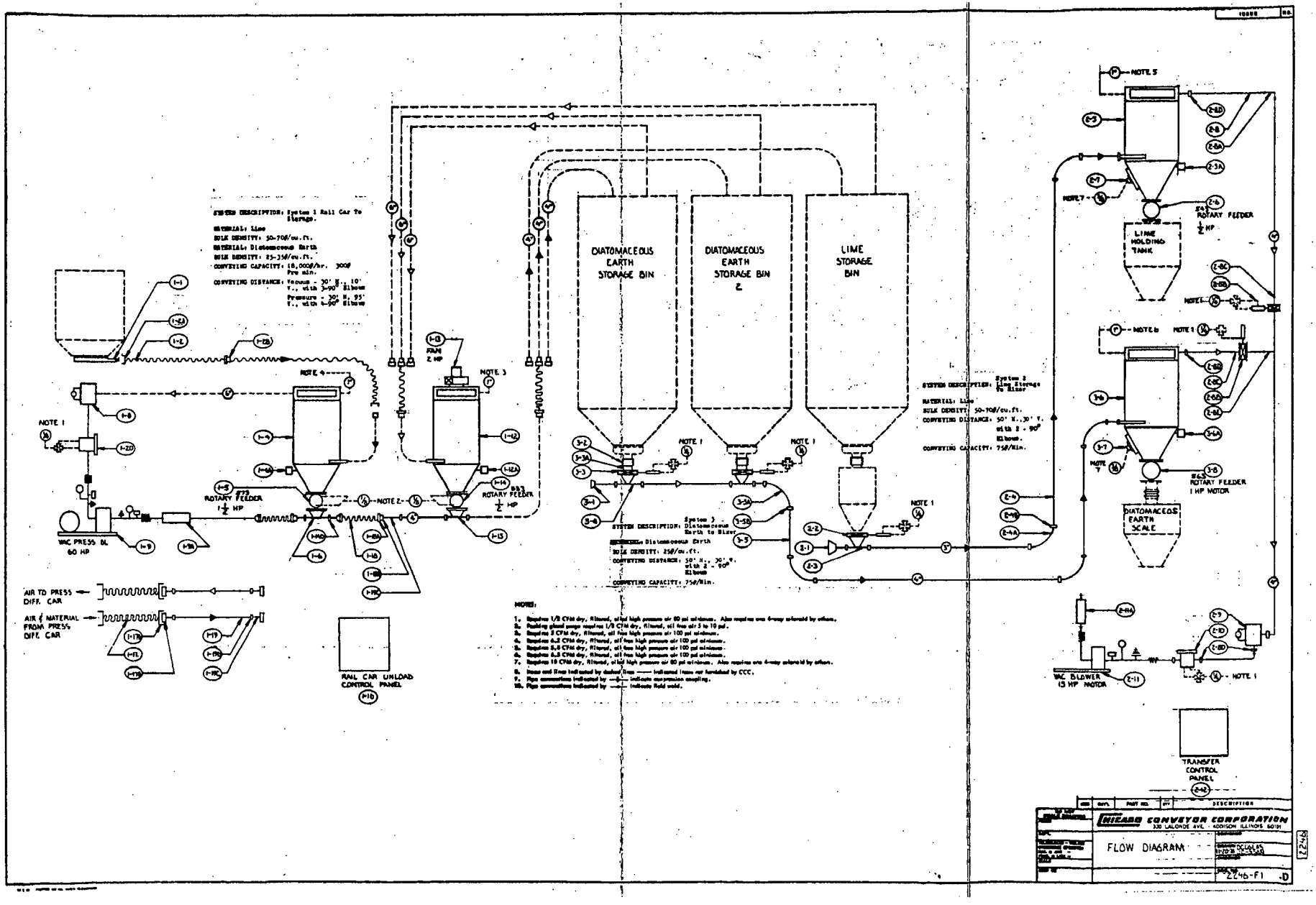

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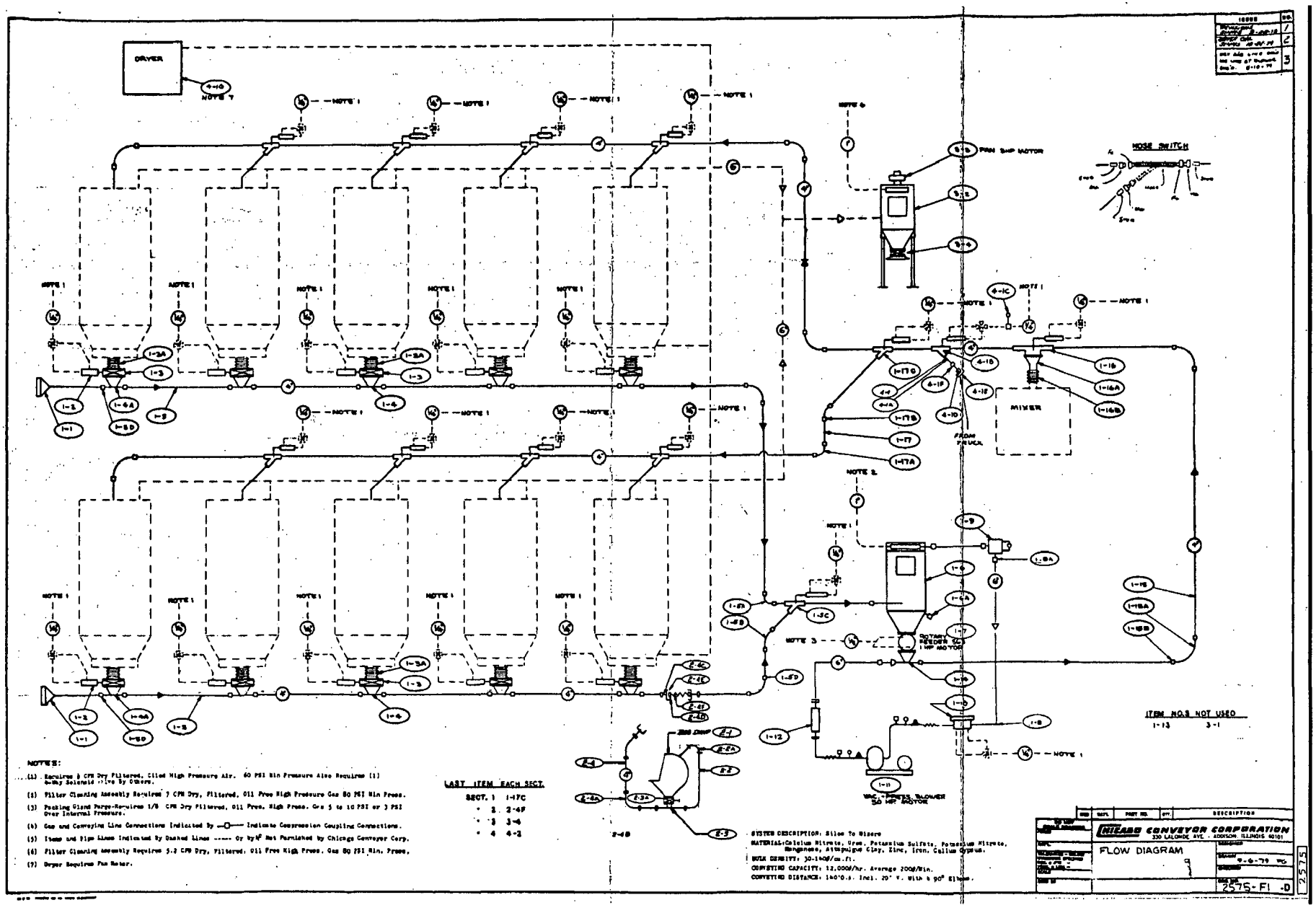

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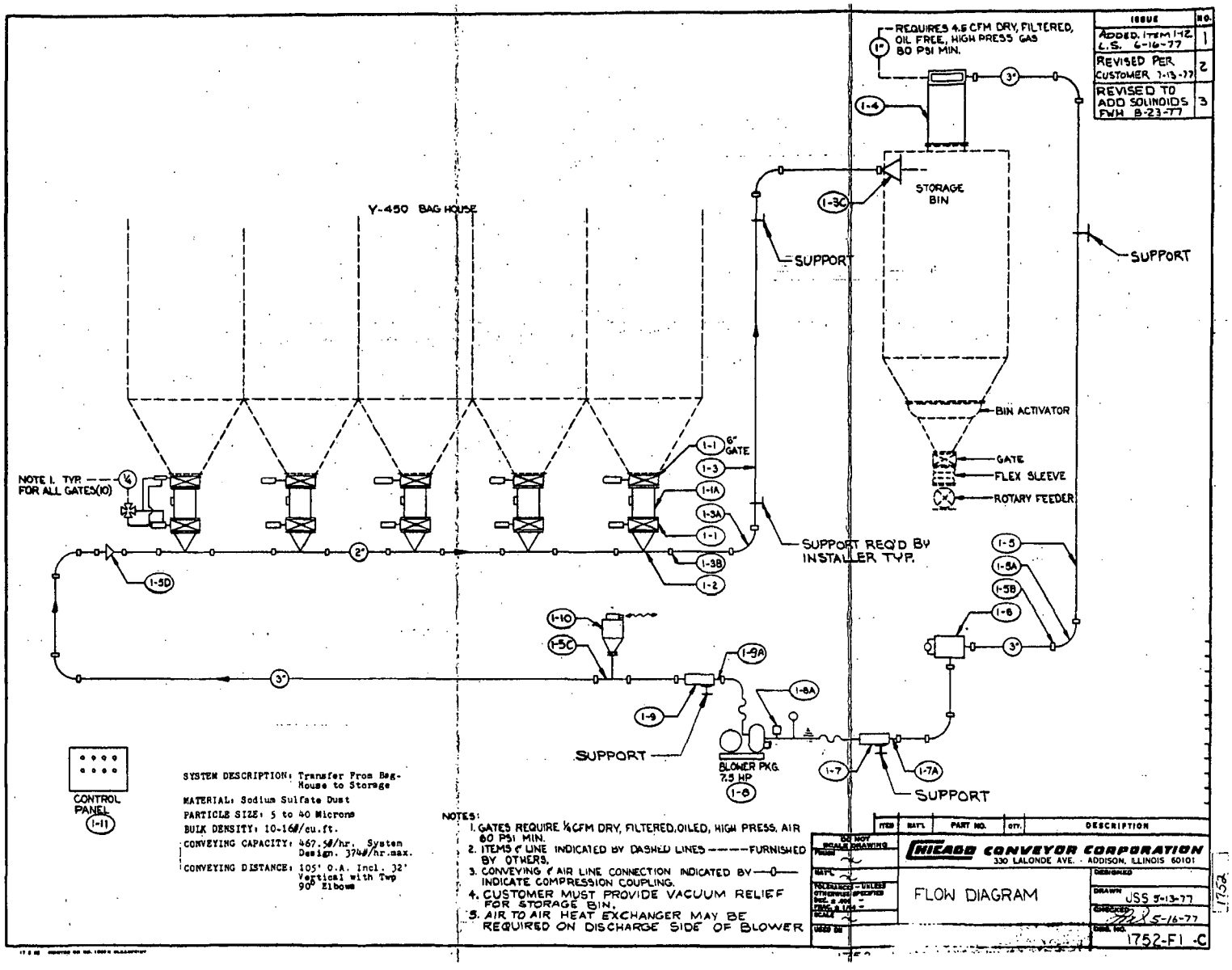

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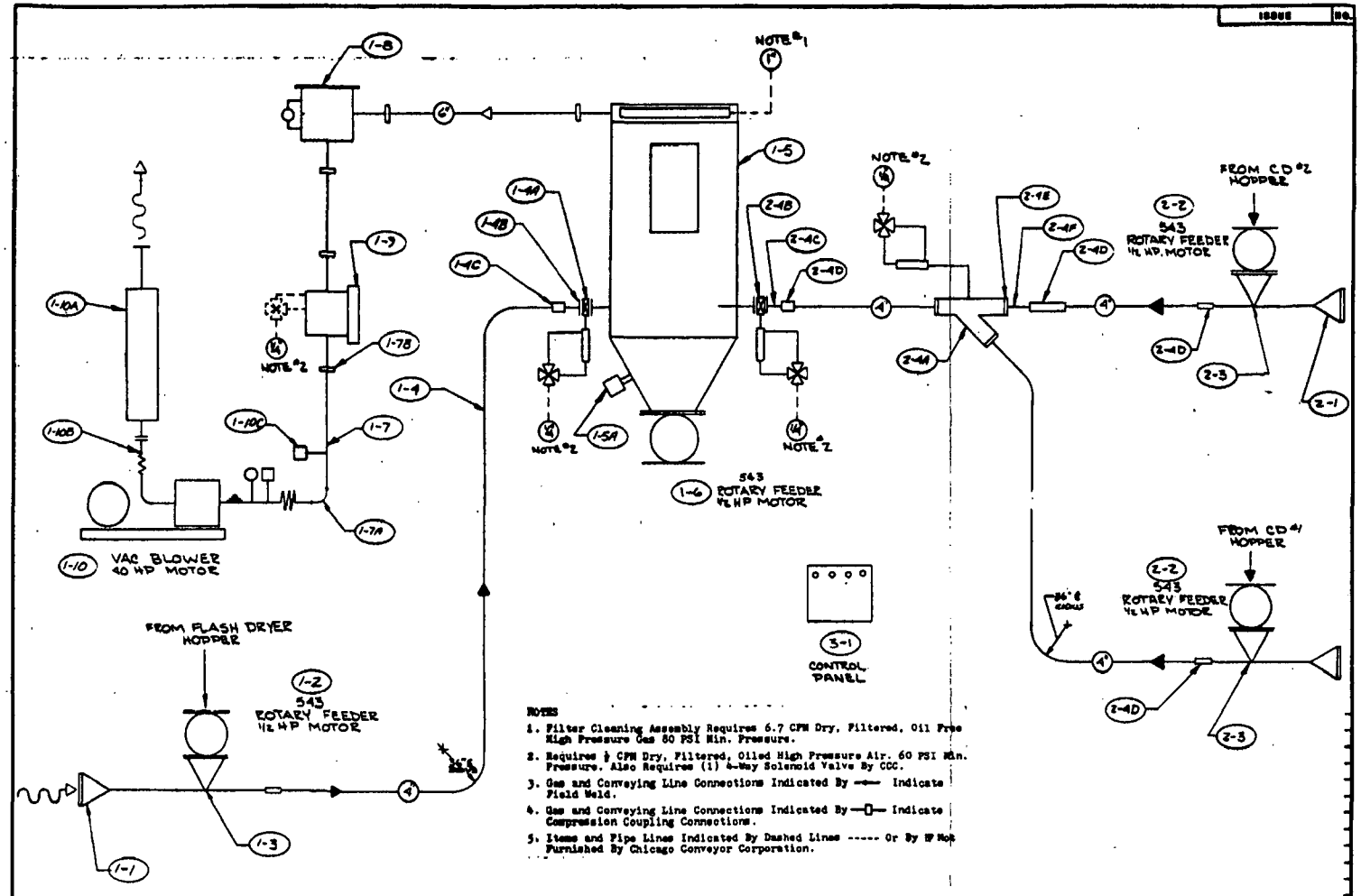


NOTES

1. Filter Cleaning Assembly Requires 6.7 CFM Dry, Filtered, Oil Free High Pressure Gas 80 PSI Min. Pressure.
2. Requires ½ CFM Dry, Filtered, Oiled High Pressure Air. 60 PSI Min. Pressure. Also Requires (1) 4-Way Solenoid Valve By CCC.
3. Gas and Conveying Line Connections Indicated By —•— Indicate Field Weld.
4. Gas and Conveying Line Connections Indicated By —□— Indicate Compression Coupling Connections.
5. Items and Pipe Lines Indicated By Dashed Lines ----- Or By HP Not Furnished By Chicago Conveyor Corporation.

SYSTEM DESCRIPTION: Tribase, Dythal and DS-207 Lead Vacuum Transfer System.

MATERIAL: Tribase Lead, Dythal Lead, DS-207 Lead.

BULK DENSITY: 70#/cu.ft. 30#/cu.ft. 30#/cu.ft.

CONVEYING CAPACITY: 110#/min.-Tribase Lead, 44#/min. Dythal and DS-207 Leads.

CONVEYING DISTANCE: 215' O.A. Incl. 25' V. and 3 90° Elbows (Longest Run)

ITEM	DATE	PART NO.	QTY.	DESCRIPTION

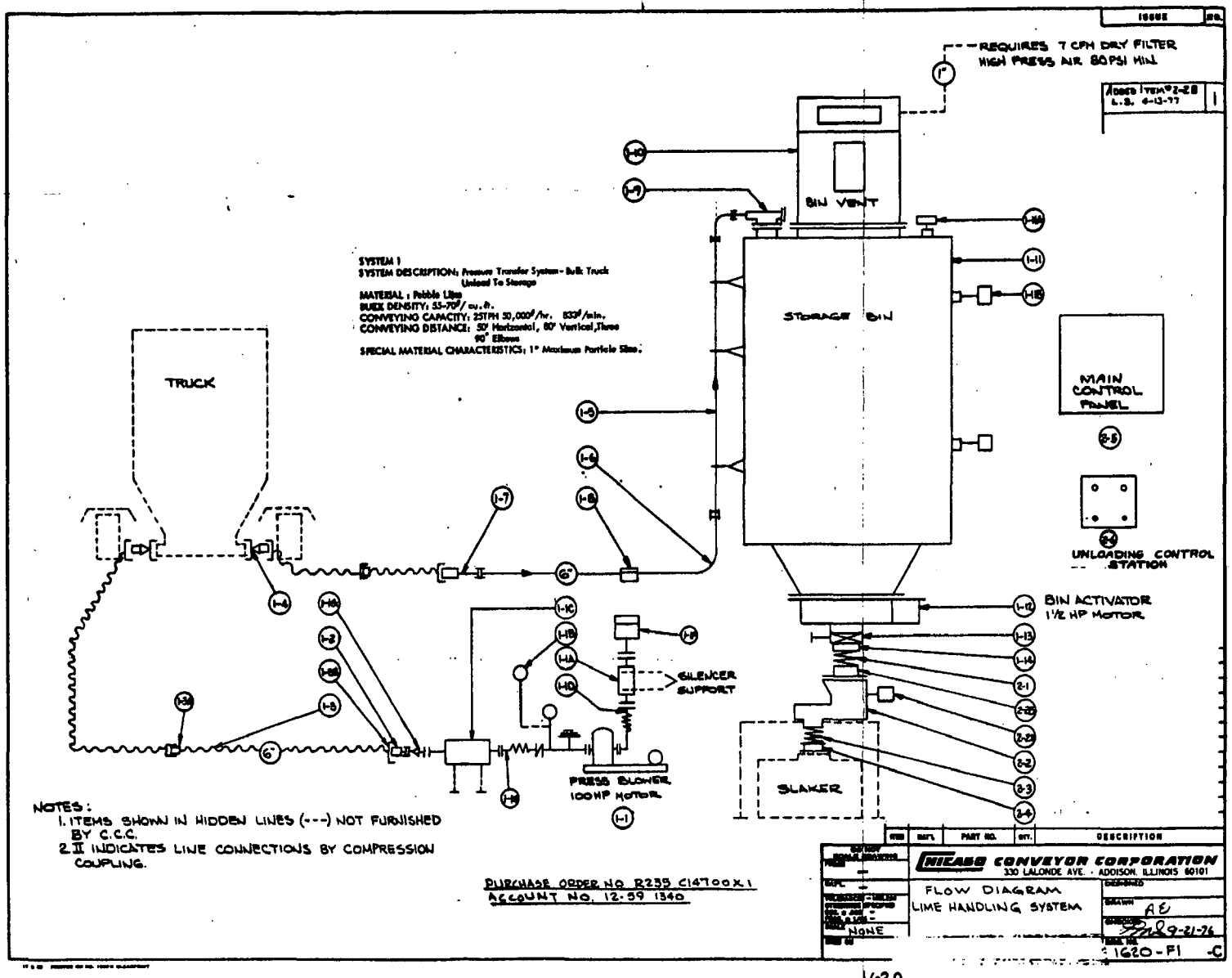
CHICAGO CONVEYOR CORPORATION
330 LALONDE AVE. · ADDISON, ILLINOIS 60101

FLOW DIAGRAM

DRAWN R. WIG 5/14/80

DWG. NO. 2819-F1 C

2819



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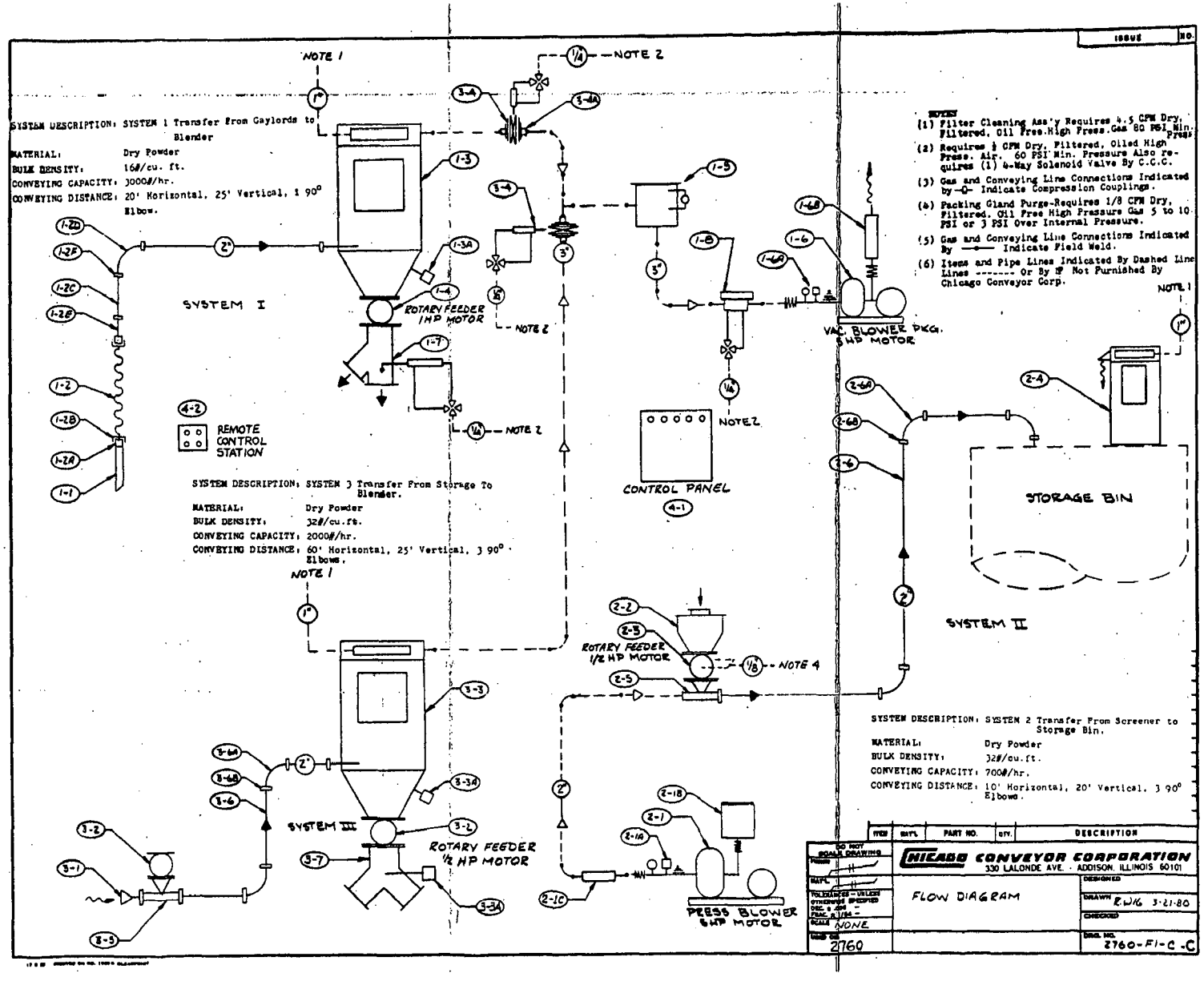

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FOUNDATION INVESTIGATION

PROPOSED TAR PLANT
NORTHWEST NATURAL GAS COMPANY SITE
PORTLAND, OREGON

FOR

KOPPERS COMPANY, INC.

DAMES & MOORE

EARTH SCIENCES

Beazer000462

FOUNDATION INVESTIGATION

PROPOSED TAR PLANT
NORTHWEST NATURAL GAS COMPANY SITE
PORTLAND, OREGON

FOR

KOPPERS COMPANY, INC.

DAMES & MOORE
CONSULTANTS IN APPLIED EARTH SCIENCES
SOIL MECHANICS · ENGINEERING GEOLOGY · GEOPHYSICS

ATLANTA
CHICAGO
HONOLULU
HOUSTON
LOS ANGELES
NEW YORK
PORTLAND
SALT LAKE CITY
SAN FRANCISCO
SEATTLE

1220 S.W. MORRISON STREET · PORTLAND 5, OREGON · CAPITAL 8-7689
PARTNER: IRVING E. OLSEN

November 19, 1965

Koppers Company, Inc.
Koppers Building
Pittsburg 19, Pennsylvania

Attention: Mr. Edward M. Bennett

Gentlemen:

Six copies of our report "Foundation Investigation, Proposed Tar Plant, Northwest Natural Gas Company Site, Portland, Oregon for Koppers Company, Inc." are herewith submitted.

This investigation was authorized by your Purchase Order No. 69-300-1-53-15 dated October 26, 1965.

Yours very truly,

DAMES & MOORE

Irving E. Olsen

Irving E. Olsen

IEO:els

FOUNDATION INVESTIGATION

PROPOSED TAR PLANT

NORTHWEST NATURAL GAS COMPANY SITE

PORTLAND, OREGON

FOR

KOPPERS COMPANY, INC.

SCOPE

This report presents the results of a foundation investigation conducted at the site of a proposed tar plant to be located in the southern portion of the Northwest Natural Gas Company plant in Portland, Oregon. The site is bounded by the Willamette River on the east and on the west by the Spokane, Portland and Seattle Railroad and N. W. Front Avenue. The location, with respect to existing site features, is indicated on the Plot Plan, Plate 1.

The purpose of the investigation was to provide foundation recommendations for support of the proposed units. To accomplish this purpose, the scope of the investigation included (1) exploration borings to evaluate the subsurface soil conditions, (2) laboratory tests to evaluate physical soil characteristics, and (3) engineering analyses to serve as a basis for recommendations for foundation support and site preparation.

DESIGN INFORMATION

We understand that present plans contemplate the construction of the following units:

(1) A pitch tower which will be an elevated structure, about 15 feet in diameter, supported on four piers and will weigh approximately 90 tons.

(2) Distillation tower, approximately 60 feet high, occupying a plan area 18 by 30 feet and imposing a load of approximately 100 tons.

(3) Tube heater, 8 to 9 feet in diameter by approximately 35 feet high, supported on 4 legs, with estimated weight of 30 tons.

(4) Boiler weighing approximately 30 tons.

In addition to the above, there will be some light one-story structures.

It is understood that several of the units are sensitive to differential settlement.

SITE CONDITIONS

Surface Conditions

The site is relatively flat with an elevation of about 31, reported to be on U.S.G.S. Datum. The surface consists of gravel and blacktop. The only structures presently on the site are two light, one-story, wood frame buildings, a storeroom to the east and a building (near Boring 3), and some storage tanks in the west corner of the site. In conversations with long time employees of the gas company, we were informed that the tanks were previously used to store naphthalene, kerosene and benzol.

Subsurface Conditions

Subsurface soils were explored by five borings drilled at the locations indicated on the Plot Plan. A description of the field explorations, including detailed logs of the borings, is presented in Appendix A, Field Explorations.

In general, the soils encountered can be broadly grouped into the following zones:

(1) Sand Fill

A relatively clean medium compact sand, believed to be a hydraulic fill placed around 1913 or so, varies from 14 to 20 feet in thickness except at Boring 5 which has 9 feet of sand and 6 feet of silt.

(2) Compressible Zone

a. Underlying the sand fill is a 15-foot thick layer consisting of

relatively soft clayey silts and very fine sandy silts.

b. A transition zone consisting of 5 to 15 feet of moderately firm fine sandy clayey silt to silty fine sand underlies the soft layer.

(3) Sandy Zone

A firm to compact silt and sand to fine sand with little silt was encountered below the compressible material. The thickness of this sandy zone varies from 5 to 20 feet. Boring 4 was terminated in a firm silt layer at a depth of 64 feet.

(4) Rock Formation

All borings, except Boring 4, were terminated after encountering a black vesicular basalt rock formation.

The ground water level was encountered at depths varying from 7 feet below ground surface in Boring 5 to 15 feet in Boring 2. The ground water table, at this time, is near its lowest level; it is anticipated that the level will be several feet higher due to winter and spring rains.

RECOMMENDATIONS AND CONCLUSIONS

General

The physical properties of the various soils were evaluated from laboratory tests performed on selected undisturbed samples obtained from the borings. The principal tests included direct shear tests to evaluate strength characteristics, consolidation tests to evaluate the compressibility of the various soils and moisture and density determinations to aid in correlation and comparison of the soils at various depths. The tests are described in Appendix B, Laboratory Tests and the results are presented in the appendices.

Spread Foundations

The field and laboratory findings disclose that it would be feasible to establish conventional column-, wall- and mat-type foundations in the old hydraulic sand fill. As will be discussed subsequently, settlement for such

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foundations may be excessive for some of the proposed units.

Utilizing results of shear tests, we have evaluated allowable bearing values for spread-type foundations established in the sand fill. The results are as follows:

LEAST FOOTING WIDTH IN FEET	ALLOWABLE BEARING VALUES IN LBS/SQ. FT. 2' BELOW FINISHED GRADE	4' BELOW FINISHED GRADE
2	2100	3700
4	2900	4500
6	3700	5000*

* Maximum values are limited to 5,000 pounds per square foot.

The above bearing value information pertains to soil conditions disclosed by Borings 1 through 4. Due to the lesser thickness of sand fill at Boring 5, the maximum bearing value is limited to 3,000 pounds per square foot at this location.

The values apply to the total of all loads, dead, live and seismic or wind. Edge pressures due to overturning should be limited to 80 percent of the values shown.

Settlement studies have been performed to provide estimates of settlements for foundations established in the sand fill at depths of three feet below finished grade and designed in accordance with the bearing value data presented above. The estimated settlement for several types and sizes of foundations subjected to various loadings are summarized below.

SQUARE FOOTINGS SIZE IN FEET	REAL BEARING VALUE* LBS/SQ. FT.	ESTIMATED SETTLEMENT INCHES
2 X 2	2000	1/4
5 X 5	2000	5/8
4 X 4	3000**	3/4
WALL FOOTINGS WIDTH IN FEET		
2	2000	3/8
3	3000	3/4

* Real bearing value applies to the total of dead plus permanently and/or frequently applied live loads.
** Pertains to footings established three feet below finished grade.

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MAT FOOTINGS SIZE IN FEET	ESTIMATED SETTLEMENT IN INCHES FOR UNIT LOAD OF 400 LBS/SQ. FT.	800 LBS/SQ. FT.
12 X 12	3/8	5/8
20 X 20	1/2	1 1/4
30 X 30	1	2

The estimated settlements would occur rapidly upon application of loads.

Pile Foundations

To limit total and differential settlement of tower-type structures resulting from lateral loadings and/or variable supporting material, driven piling would be a feasible choice. Several types of piling are feasible; however, in view of the rather light loadings imposed by the proposed units, driven treated wood piles appear to be more economical. Analyses, utilizing results of the shear tests on typical soil samples obtained from the explorations, were performed to indicate pile penetrations required to support various loadings. The analyses also considered probable settlements that would result if piles were stopped in the compressible layer under the fill. Considering these factors, it was our conclusion that piles should be driven to the surface of the rock at depths disclosed by all borings except Boring 4. At Boring 4, where rock was not encountered, the piles should extend approximately ten feet into the lower sand formation. Wood piles, having minimum tip diameter of at least 7 inches, may be designed to support total loads of 30 tons per pile. This value applies to the total of all loads, dead, live and seismic. The total of all permanently applied dead and live loads should be limited to two-thirds of this amount.

Settlement of foundations supported on piles driven to the underlying rock would be due to elastic shortening of the pile. In the vicinity of Boring 4, it is estimated that settlements would be nominal in amount and would occur rapidly as loads were applied.

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Particular care must be exercised so as not to damage piles during driving. The driving must stop immediately upon reaching the rock. As a general rule, driving should terminate at resistances of not more than five blows per inch using a Vulcan No. 1 or equivalent pile hammer.

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In the event that it is decided to utilize spread-type foundations for support of the proposed units, it is recommended that several probings be made in the bottom of the excavations to evaluate any unusal conditions.

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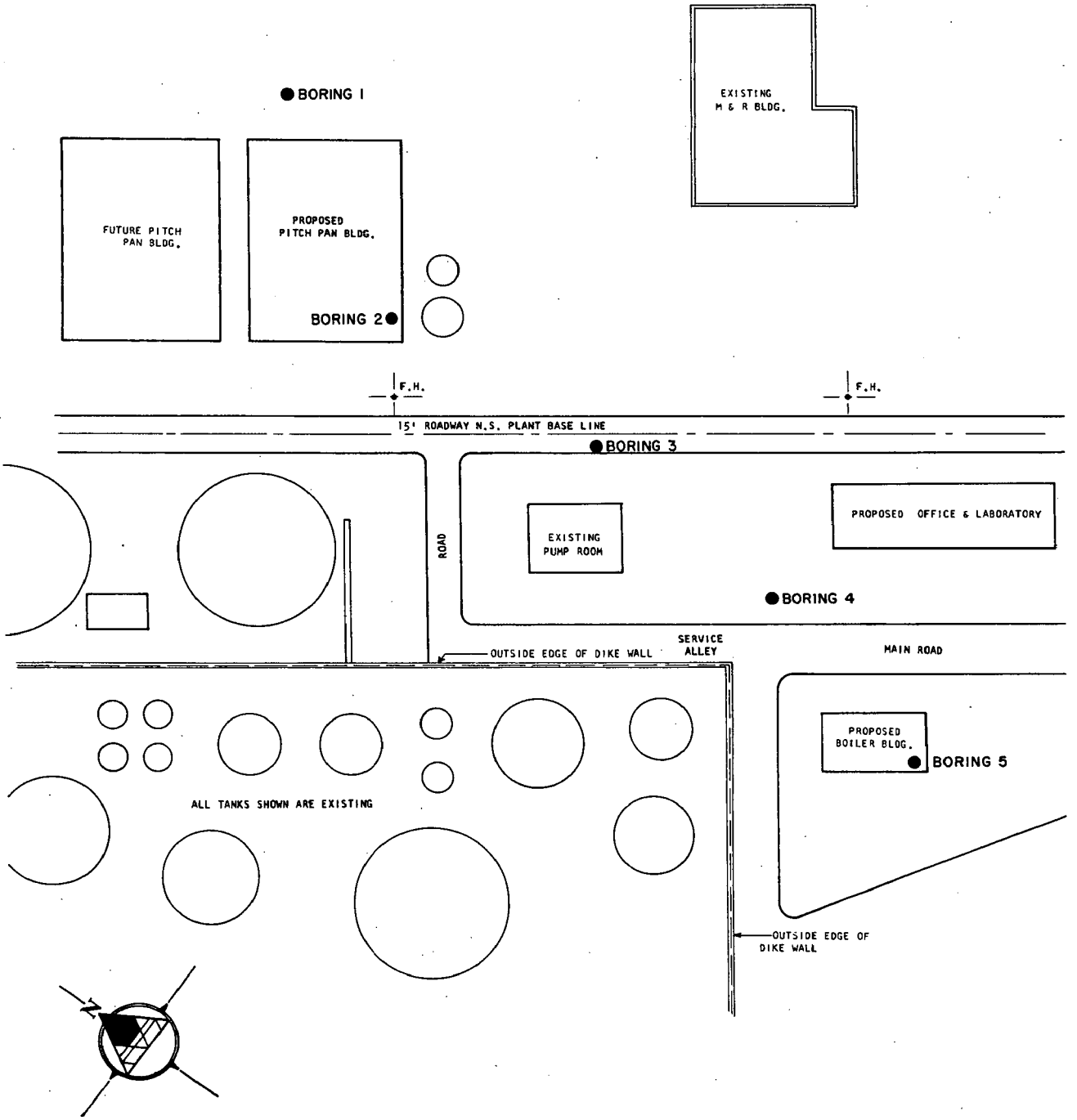

PLOT PLAN

FEET

50 0 50 100

REFERENCE:
DRAWING BY KOPPERS COMPANY, TAR PRODUCTS DIVISION PITTSBURG, PENNSYLVANIA, ENTITLED "TAR PLANT LAYOUT", DATED OCTOBER 19, 1965.

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PLATE 1

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APPENDICES

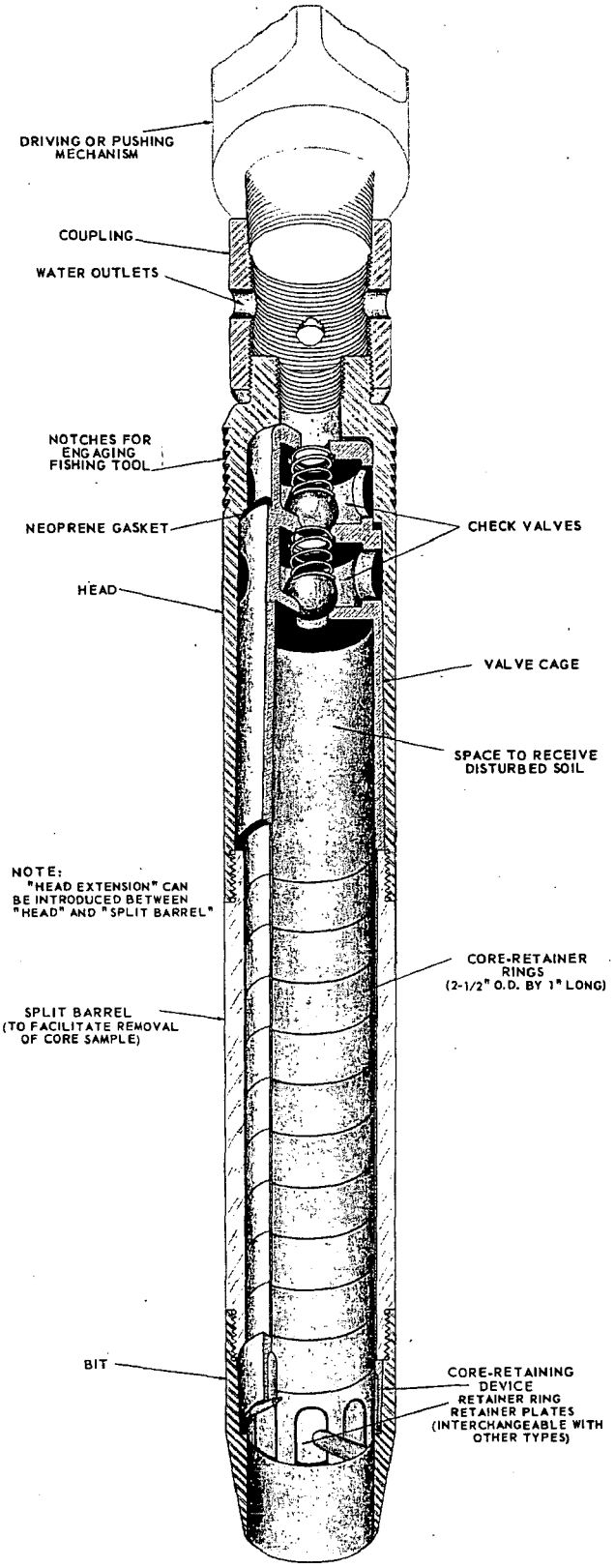
APPENDIX A

FIELD EXPLORATIONS

The soils underlying the site were explored by drilling five test borings at the locations shown on the Plot Plan, Plate 1. The borings were drilled with truck-mounted, cable-tool drilling equipment utilizing a core barrel attachment to advance the borings.

All soils were classified in the field by visual and textural examination and a continuous log of the soils encountered in each boring was maintained by our field engineer. Undisturbed samples of the various soils were obtained with a soil sampler of the type illustrated on page A-2. Graphical representations of the soils encountered are presented on the Log of Borings, Plates A-1A through A-1C. The nomenclature used in classifying the soils appears on the Soil Classification Chart on Plate A-2.

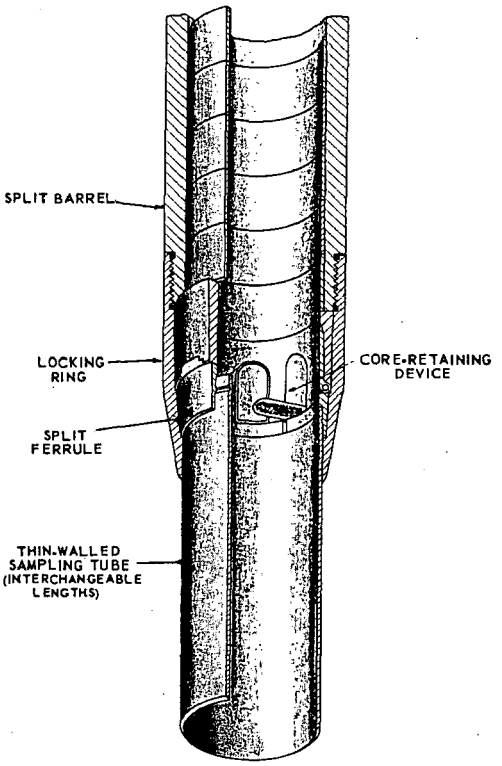
The ground water level readings were obtained during the progress of the field work. The static levels observed are indicated on the Log of Borings.



SOIL SAMPLER TYPE U

FOR SOILS DIFFICULT TO RETAIN IN SAMPLER
U. S. PATENT NO. 2,318,062

ALTERNATE ATTACHMENTS



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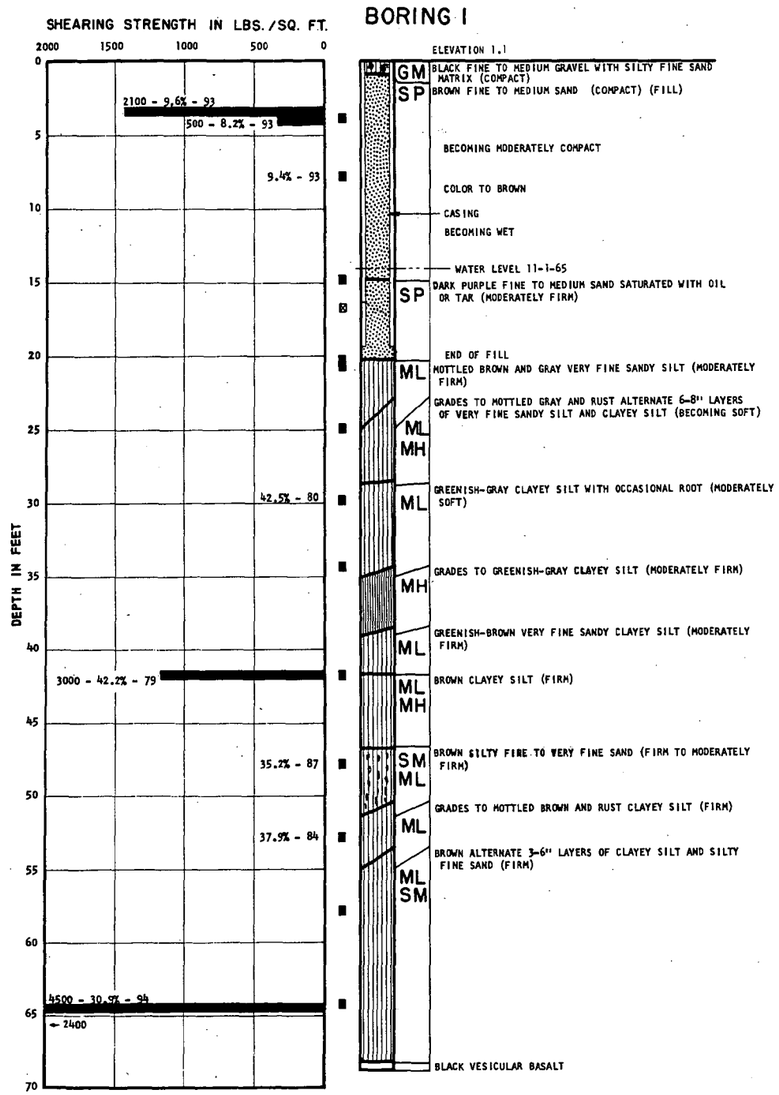
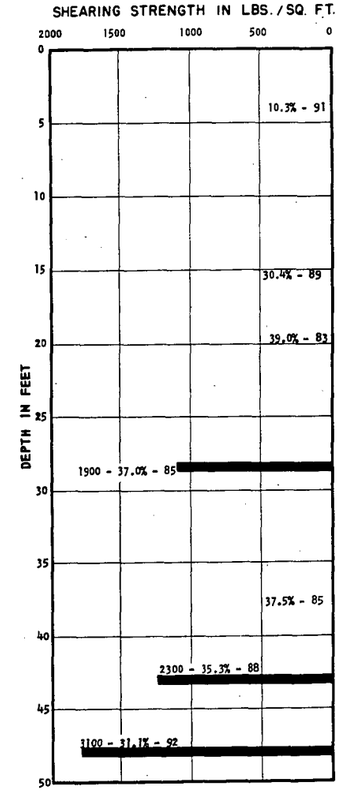


BORING 1

ELEVATION 1.1

- GM — BLACK FINE TO MEDIUM GRAVEL WITH SILTY FINE SAND MATRIX (COMPACT)
- SP — BROWN FINE TO MEDIUM SAND (COMPACT) (FILL)
- BECOMING MODERATELY COMPACT
- COLOR TO BROWN
- CASING
- BECOMING WET
- WATER LEVEL 11-1-65
- SP — DARK PURPLE FINE TO MEDIUM SAND SATURATED WITH OIL OR TAR (MODERATELY FIRM)
- END OF FILL
- ML — MOTTLED BROWN AND GRAY VERY FINE SANDY SILT (MODERATELY FIRM)
- ML, MH — GRADES TO MOTTLED GRAY AND RUST ALTERNATE 6-8" LAYERS OF VERY FINE SANDY SILT AND CLAYEY SILT (BECOMING SOFT)
- ML — GREENISH-GRAY CLAYEY SILT WITH OCCASIONAL ROOT (MODERATELY SOFT)
- MH — GRADES TO GREENISH-GRAY CLAYEY SILT (MODERATELY FIRM)
- ML — GREENISH-BROWN VERY FINE SANDY CLAYEY SILT (MODERATELY FIRM)
- ML, MH — BROWN CLAYEY SILT (FIRM)
- SM, ML — BROWN SILTY FINE TO VERY FINE SAND (FIRM TO MODERATELY FIRM)
- ML — GRADES TO MOTTLED BROWN AND RUST CLAYEY SILT (FIRM)
- ML, SM — BROWN ALTERNATE 3-6" LAYERS OF CLAYEY SILT AND SILTY FINE SAND (FIRM)
- BLACK VESICULAR BASALT



BORING 2

ELEVATION 0.2

- GP — BLACK FINE TO MEDIUM GRAVEL WITH FINE SAND MATRIX (MODERATELY COMPACT) (FILL)
- SP — BROWN FINE TO MEDIUM SAND (MODERATELY LOOSE) (FILL)
- BECOMING MODERATELY COMPACT
- COLOR TO GRAY FINE TO MEDIUM SAND
- BECOMING WET
- FINE SAND CONTENT INCREASING
- WATER LEVEL 10-29-65
- CASING
- END OF FILL
- ML — MOTTLED BLUISH-BLACK AND GRAY CLAYEY SILT (MODERATELY SOFT)
- COLOR TO MOTTLED BROWN AND GRAY
- BECOMING MODERATELY FIRM
- 2" LAYER OF MOTTLED BLACK AND RUST SILTY CLAY (CL)
- BECOMING MODERATELY SOFT
- ML — MOTTLED RUST AND BROWN FINE SANDY CLAYEY SILT (FIRM)
- ML — BROWN SILTY VERY FINE SAND (FIRM)
- SM, ML — GRADES TO ALTERNATE 3-6" LAYERS OF GREENISH-BROWN SILTY FINE SAND AND BROWN SILTY VERY FINE SAND AND CLAYEY SILT (FIRM TO MODERATELY FIRM)
- SP — GREENISH-BROWN FINE SAND WITH LITTLE SILT (MODERATELY COMPACT)
- SM — BROWN SILTY FINE SAND (FIRM)
- BLACK VESICULAR BASALT

LOG OF BORINGS

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PLATE A-1A

REVISIONS BY DATE
BY DATE
PLATE OF

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BY R.R.C. DATE 11-18-65
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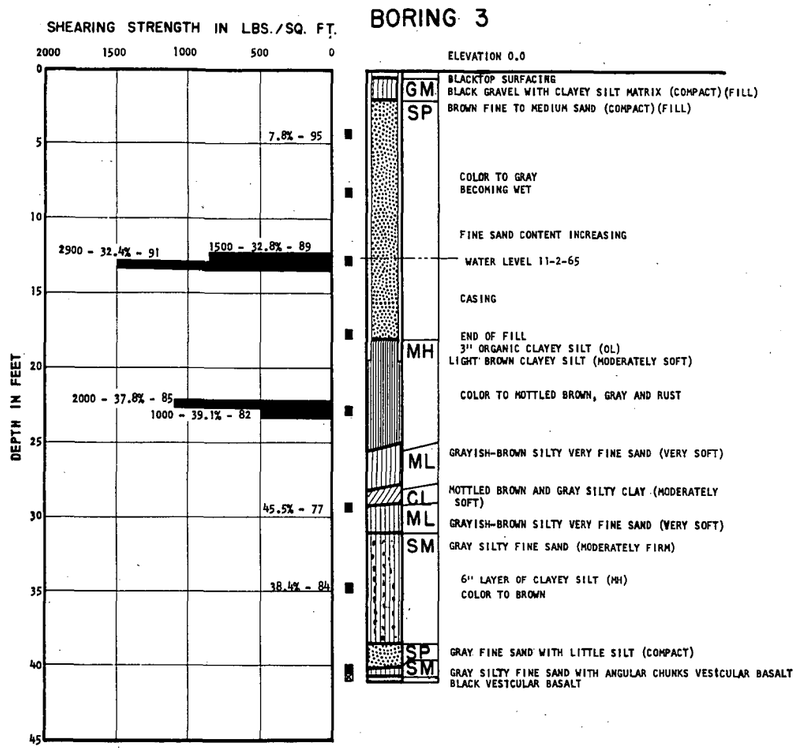
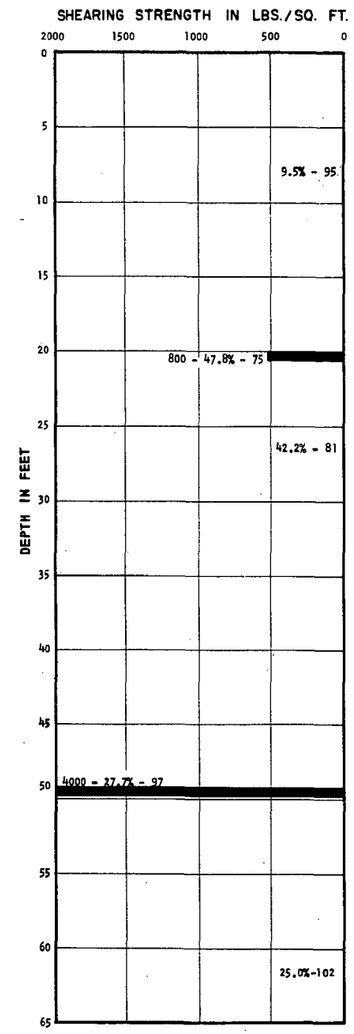


BORING 3

ELEVATION 0.0

- GM — BLACKTOP SURFACING
- BLACK GRAVEL WITH CLAYEY SILT MATRIX (COMPACT) (FILL)
- SP — BROWN FINE TO MEDIUM SAND (COMPACT) (FILL)
- COLOR TO GRAY
- BECOMING WET
- FINE SAND CONTENT INCREASING
- WATER LEVEL 11-2-65
- CASING
- MH — END OF FILL
- 3" ORGANIC CLAYEY SILT (OL)
- LIGHT BROWN CLAYEY SILT (MODERATELY SOFT)
- COLOR TO MOTTLED BROWN, GRAY AND RUST
- ML — GRAYISH-BROWN SILTY VERY FINE SAND (VERY SOFT)
- CL — MOTTLED BROWN AND GRAY SILTY CLAY (MODERATELY SOFT)
- ML — GRAYISH-BROWN SILTY VERY FINE SAND (VERY SOFT)
- SM — GRAY SILTY FINE SAND (MODERATELY FIRM)
- 6" LAYER OF CLAYEY SILT (MH)
- COLOR TO BROWN
- SP — GRAY FINE SAND WITH LITTLE SILT (COMPACT)
- SM — GRAY SILTY FINE SAND WITH ANGULAR CHUNKS VESICULAR BASALT
- BLACK VESICULAR BASALT



BORING 4

ELEVATION -0.4

- GM — BLACKTOP SURFACING
- SP — GRAVEL WITH CLAYEY SILT MATRIX (COMPACT) (FILL)
- BROWN FINE TO MEDIUM SAND WITH SOME FINE GRAVEL (MODERATELY COMPACT) (FILL)
- GRAVEL CONTENT DECREASING
- COLOR TO GRAY
- BECOMING WET
- WATER LEVEL 11-3-65
- COLOR TO DARK PURPLE
- END OF FILL
- ML — LIGHT BROWN CLAYEY SILT WITH SOME ROOTS (SOFT TO MODERATELY SOFT)
- COLOR TO MOTTLED BROWN, GRAY AND RUST
- CASING
- ML, SM — GREENISH-BROWN SILTY VERY FINE SAND (SOFT)
- ML — GREENISH-BROWN CLAYEY VERY FINE SANDY SILT (MODERATELY SOFT)
- SM — GRADES TO BROWN SILTY FINE SAND (MODERATELY FIRM)
- COLOR TO GREENISH-BROWN
- SP, SM, ML — ALTERNATE 3-6" LAYERS OF GREENISH-BROWN FINE SAND AND SILTY FINE SAND AND BROWN CLAYEY SILT (FIRM)
- SP — GRAY FINE SAND WITH LITTLE SILT (COMPACT)
- COLOR TO BROWN
- OCCASIONAL 3-4" LAYER OF SILTY FINE SAND (SM)
- ML — BROWN CLAYEY SILT (FIRM)

LOG OF BORINGS

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PLATE A-1B

REVISIONS BY DATE BY DATE PLATE OF

m.L/810-00.3 Kobless Cross Bluff BY D.B.C. DATE 11-18-65 CHECKED BY DATE

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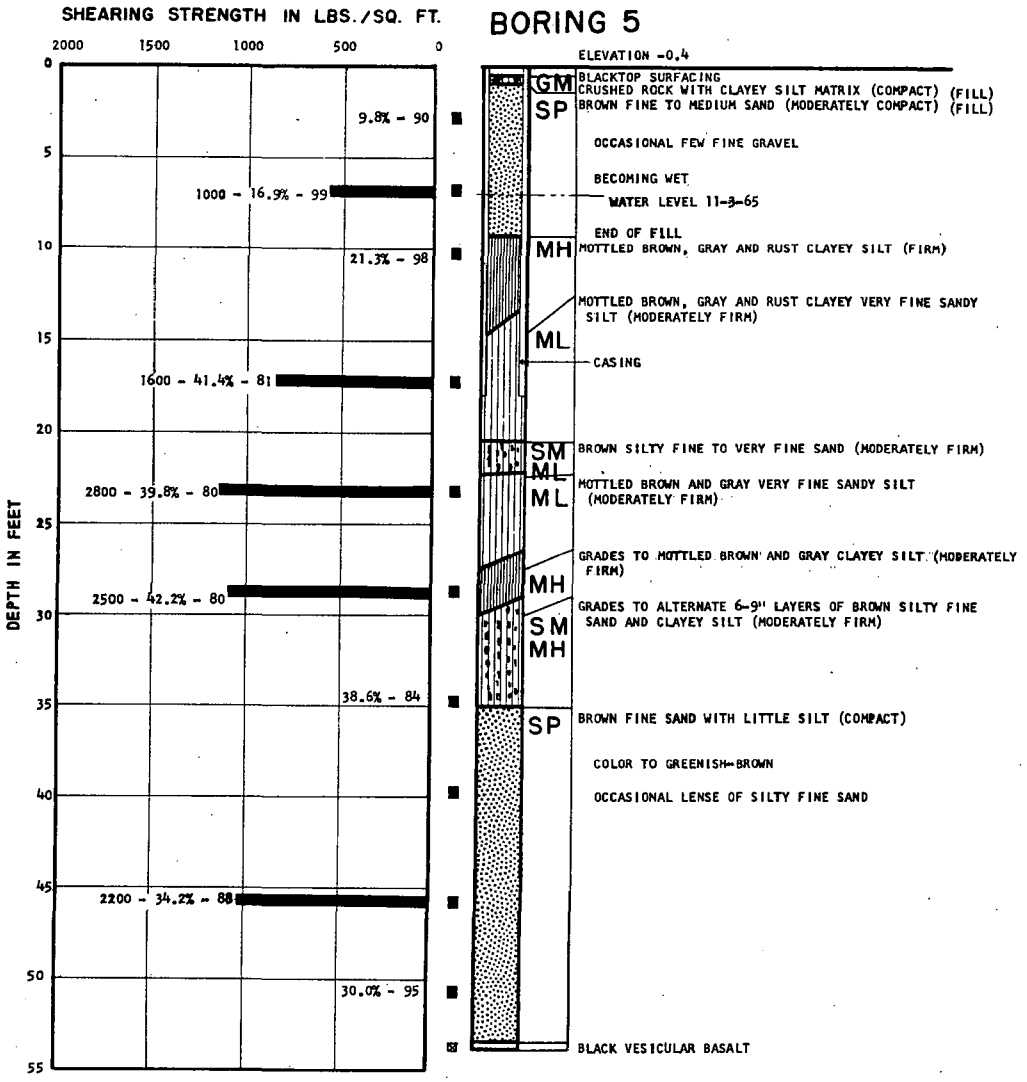

LOG OF BORINGS

DAMES & MOORE
APPLIED EARTH SCIENCES

PLATE A-1C

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APPENDIX B

LABORATORY TESTS

The physical properties of the soils encountered were evaluated in a series of laboratory tests performed on selected undisturved samples. The tests performed included direct shear tests, consolidation tests and moisture and density determinations.

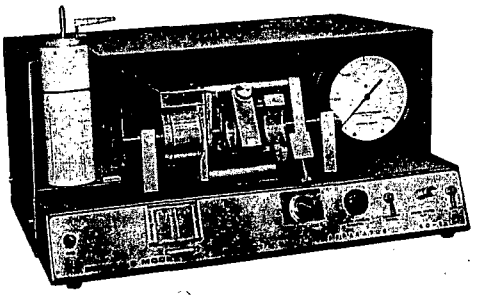
Direct shear tests, performed in the manner described on page B-2, provided the necessary data to evaluate the strength of the soils. Selected representative samples were tested at field moisture contents, at surcharges approximately equal to the weight of the existing overburden and at lesser surcharges. The results of the direct shear tests are presented to the left of the log of borings in accordance with the Key to Test Data appearing on Plate A-2.

Selected undisturbed samples were subjected to consolidation (confined compression) tests to obtain data for use in estimating settlements of foundations. The method used in performing the consolidation test is described on page B-3. The test results are presented on Plate B.

Moisture and density determinations were made to aid in comparison of soils at various locations and depths. The results of these tests are shown in the graph at the left of each boring log.

METHOD OF PERFORMING DIRECT SHEAR AND FRICTION TESTS

DIRECT SHEAR TESTS ARE PERFORMED TO DETERMINE THE SHEARING STRENGTHS OF SOILS. FRICTION TESTS ARE PERFORMED TO DETERMINE THE FRICTIONAL RESISTANCES BETWEEN SOILS AND VARIOUS OTHER MATERIALS SUCH AS WOOD, STEEL, OR CONCRETE. THE TESTS ARE PERFORMED IN THE LABORATORY TO SIMULATE ANTICIPATED FIELD CONDITIONS.



DIRECT SHEAR TESTING
& RECORDING APPARATUS

EACH SAMPLE IS TESTED WITHIN THREE BRASS RINGS, TWO AND ONE-HALF INCHES IN DIAMETER AND ONE INCH IN LENGTH. UNDISTURBED SAMPLES OF IN-PLACE SOILS ARE TESTED IN RINGS TAKEN FROM THE SAMPLING DEVICE IN WHICH THE SAMPLES WERE OBTAINED. LOOSE SAMPLES OF SOILS TO BE USED IN CONSTRUCTING EARTH FILLS ARE COMPACTED IN RINGS TO PREDETERMINED CONDITIONS AND TESTED.

DIRECT SHEAR TESTS

A THREE-INCH LENGTH OF THE SAMPLE IS TESTED IN DIRECT DOUBLE SHEAR. A CONSTANT PRESSURE, APPROPRIATE TO THE CONDITIONS OF THE PROBLEM FOR WHICH THE TEST IS BEING PERFORMED, IS APPLIED NORMAL TO THE ENDS OF THE SAMPLE THROUGH POROUS STONES. A SHEARING FAILURE OF THE SAMPLE IS CAUSED BY MOVING THE CENTER RING IN A DIRECTION PERPENDICULAR TO THE AXIS OF THE SAMPLE. TRANSVERSE MOVEMENT OF THE OUTER RINGS IS PREVENTED.

THE SHEARING FAILURE MAY BE ACCOMPLISHED BY APPLYING TO THE CENTER RING EITHER A CONSTANT RATE OF LOAD, A CONSTANT RATE OF DEFLECTION, OR INCREMENTS OF LOAD OR DEFLECTION. IN EACH CASE, THE SHEARING LOAD AND THE DEFLECTIONS IN BOTH THE AXIAL AND TRANSVERSE DIRECTIONS ARE RECORDED AND PLOTTED. THE SHEARING STRENGTH OF THE SOIL IS DETERMINED FROM THE RESULTING LOAD-DEFLECTION CURVES.

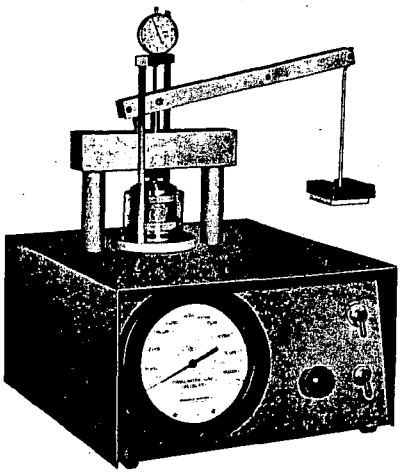
FRICTION TESTS

IN ORDER TO DETERMINE THE FRICTIONAL RESISTANCE BETWEEN SOIL AND THE SURFACES OF VARIOUS MATERIALS, THE CENTER RING OF SOIL IN THE DIRECT SHEAR TEST IS REPLACED BY A DISK OF THE MATERIAL TO BE TESTED. THE TEST IS THEN PERFORMED IN THE SAME MANNER AS THE DIRECT SHEAR TEST BY FORCING THE DISK OF MATERIAL FROM THE SOIL SURFACES.

METHOD OF PERFORMING CONSOLIDATION TESTS

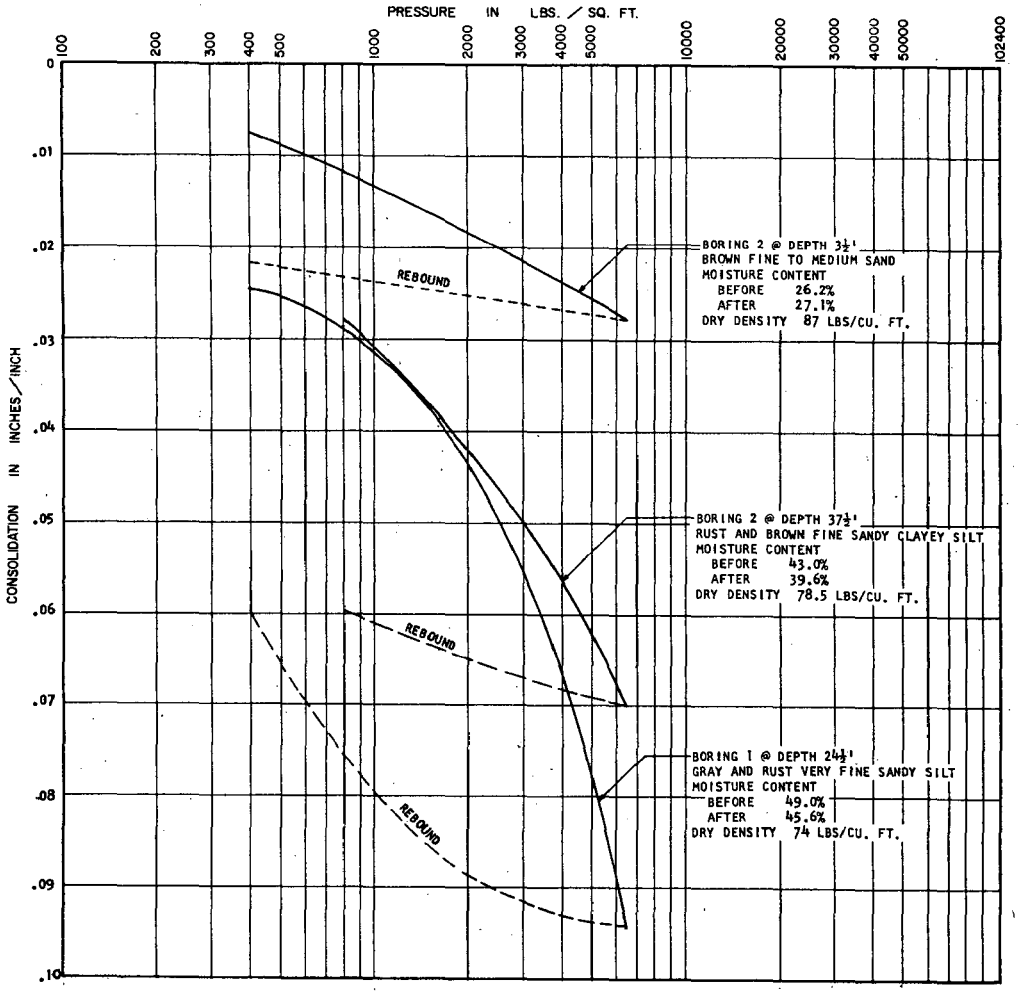
CONSOLIDATION TESTS ARE PERFORMED TO EVALUATE THE VOLUME CHANGES OF SOILS SUBJECTED TO INCREASED LOADS. TIME-CONSOLIDATION AND PRESSURE-CONSOLIDATION CURVES MAY BE PLOTTED FROM THE DATA OBTAINED IN THE TESTS. ENGINEERING ANALYSES BASED ON THESE CURVES PERMIT ESTIMATES TO BE MADE OF THE PROBABLE MAGNITUDE AND RATE OF SETTLEMENT OF THE TESTED SOILS UNDER APPLIED LOADS.

EACH SAMPLE IS TESTED WITHIN BRASS RINGS TWO AND ONE-HALF INCHES IN DIAMETER AND ONE INCH IN LENGTH. UNDISTURBED SAMPLES OF IN-PLACE SOILS ARE TESTED IN RINGS TAKEN FROM THE SAMPLING DEVICE IN WHICH THE SAMPLES WERE OBTAINED. LOOSE SAMPLES OF SOILS TO BE USED IN CONSTRUCTING EARTH FILLS ARE COMPACTED IN RINGS TO PREDETERMINED CONDITIONS AND TESTED.



DEAD LOAD-PNEUMATIC CONSOLIDOMETER

IN TESTING, THE SAMPLE IS RIGIDLY CONFINED LATERALLY BY THE BRASS RING. AXIAL LOADS ARE TRANSMITTED TO THE ENDS OF THE SAMPLE BY POROUS DISKS. THE DISKS ALLOW DRAINAGE OF THE LOADED SAMPLE. THE AXIAL COMPRESSION OR EXPANSION OF THE SAMPLE IS MEASURED BY A MICROMETER DIAL INDICATOR AT APPROPRIATE TIME INTERVALS AFTER EACH LOAD INCREMENT IS APPLIED. EACH LOAD IS ORDINARILY TWICE THE PRECEDING LOAD. THE INCREMENTS ARE SELECTED TO OBTAIN CONSOLIDATION DATA REPRESENTING THE FIELD LOADING CONDITIONS FOR WHICH THE TEST IS BEING PERFORMED. EACH LOAD INCREMENT IS ALLOWED TO ACT OVER AN INTERVAL OF TIME DEPENDENT ON THE TYPE AND EXTENT OF THE SOIL IN THE FIELD.



CONSOLIDATION TEST DATA

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APPLIED EARTH SCIENCES

PLATE B

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375

UP 87546 E X
MP 588843 E X
~~MP 588032 P~~ ours
MP 583071 P X
MP 582644 P X
~~MP 589460 P X~~

D&RGW

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UP

38491

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SENDING REPORT

Dec. 29 2006 01:51PM

YOUR LOGO :KOPPERS
YOUR FAX NO. :5032852831

NO.	OTHER FACSIMILE	START TIME	USAGE TIME	MODE	PAGES	RESULT
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TO TURN OFF REPORT, PRESS 'MENU' #04 SET.
THEN SELECT OFF BY USING 'JOG-DIAL'.

FOR FAX ADVANTAGE ASSISTANCE, PLEASE CALL 1-800-HELP-FAX (435-7329).

BROADCAST REPORT 1

Dec. 29 2006 03:01PM

YOUR LOGO :KOPPERS
YOUR FAX NO. :5032852831

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03	ALCOA STRS	Dec.29 01:56PM	01'02	02	OK
04	PWRR-RL-1	Dec.29 01:57PM	01'15	02	OK
05	PWRR-RL-2	Dec.29 01:59PM	00'57	02	OK
06	ALCOA TRFC	Dec.29 02:00PM	01'24	02	OK
		TOTAL	006'45	012 (000)	

FOR FAX ADVANTAGE ASSISTANCE, PLEASE CALL 1-800-HELP-FAX (435-7329).

STRAIGHT BILL OF LADING – SHORT FORM
ORIGINAL – NOT NEGOTIABLE

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading

FROM: **KOPPERS INC.** AT: **PORTLAND, OR** DATE: **12/29/06**

Bill of Lading Number
9270000011

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all conditions not prohibited by law, whether printed or written, herein contained, including classification bills of lading conditions, which are hereby agreed to be the shipper and accepted for himself and his assigns.

Freight Basis
COLLECT

Ship To: **KOPPERS INC.**
CLAIRTON, PA

Route: **BNSF-(VCOUV)-UP-(CHGO)-NS-(CLAIR)-URR**

Carrier / Vehicle # **UP 38491**
Sold To:

Shippers Order #
9270000011

Customers P.O. Number

Packages No. and Kind	HM	DOT SHIPPING NAME/HAZARD CLASS (IF APPLICABLE)	DESCRIPTION OF ARTICLES, SPECIAL MARKS & EXCEPTIONS	WEIGHT (Subject to Correction)
1 HC	RQ	**RESIDUE LAST CONTAINED:** **OTHER REGULATED SUBSTANCES, SOLID, N.O.S. (CONTAINS BENZO(A)PYRENE, DEBENZ(A,H)ANTHRACENE)** **CLASS 9 NA 3077 PG III** **ELECTRODE BINDER PITCH** **MARKED: 3077** **(CARBON PITCH TYPE A-SOLID - 42150001)**		

EMERGENCY CONTACT: CALL CHEMTREC 1-800-424-9300 OR 1-202-483-7616 FAX 1-800-242-7428

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: **The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.**

Signature Of Consignor } per KOPPERS INC See ★ below

"Note: Where the rate is dependent on value, shipper's are required to state specifically in writing the released or declared value of the property. The agreed or declared value of the property is hereby stated by the shipper to be not exceeding 170 cents per pounds for each distribution package."

PERMANENT POST-OFFICE ADDRESS OF SHIPPER:
Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

PER

♦ Shipper herby certifies that this shipment is correctly described; correct weight is shown and is subject to verification according to agreement with the Weighing and Inspection Bureau having jurisdiction.

PER

_____ Agent

Per

★ Signature of Shipper's agent next above is also intended as execution of Section 7
Signature above must appear in longhand

STRAIGHT BILL OF LADING – SHORT FORM
ORIGINAL – NOT NEGOTIABLE

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading

FROM: **KOPPERS INC.** | AT: **PORTLAND, OR** | DATE: **12/29/06**

Bill of Lading Number
9270000010

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all conditions not prohibited by law, whether printed or written, herein contained, including classification bills of lading conditions, which are hereby agreed to be the shipper and accepted for himself and his assigns.

Freight Basis
COLLECT

Ship To: **KOPPERS INC.**
CLAIRTON, PA

Route: **BNSF-(VCOUV)-UP-(CHGO)-NS-(CLAIR)-URR**

Carrier / Vehicle # **D&RGW 12626**
Sold To:

Shippers Order #
9270000010
Customers P.O. Number

Packages No. and Kind	HM	DOT SHIPPING NAME/HAZARD CLASS (IF APPLICABLE)	DESCRIPTION OF ARTICLES, SPECIAL MARKS & EXCEPTIONS	WEIGHT (Subject to Correction)
1 HC	RQ	**RESIDUE LAST CONTAINED:** **OTHER REGULATED SUBSTANCES, SOLID, N.O.S. (CONTAINS BENZO(A)PYRENE, DEBENZ(A,H)ANTHRACENE)** **CLASS 9 NA 3077 PG III** **ELECTRODE BINDER PITCH** **MARKED: 3077** **(CARBON PITCH TYPE A-SOLID - 42150001)**		

EMERGENCY CONTACT: CALL CHEMTREC 1-800-424-9300 OR 1-202-483-7616 FAX 1-800-242-7428

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: **The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.**

Signature Of Consignor per KOPPERS INC See ★ below

"Note: Where the rate is dependent on value, shipper's are required to state specifically in writing the released or declared value of the property. The agreed or declared value of the property is hereby stated by the shipper to be not exceeding 170 cents per pounds for each distribution package."

PERMANENT POST-OFFICE ADDRESS OF SHIPPER:
Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation

PER

♦ Shipper herby certifies that this shipment is correctly described; correct weight is shown and is subject to verification according to agreement with the Weighing and Inspection Bureau having jurisdiction.

PER

_____ Agent

Per

★ Signature of Shipper's agent next above is also intended as execution of Section 7
Signature above must appear in longhand

STRAIGHT BILL OF LADING – SHORT FORM
ORIGINAL – NOT NEGOTIABLE

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading

FROM: **KOPPERS INC.** AT: **PORTLAND, OR** DATE: **12/27/06**

Bill of Lading Number
9270000009

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all conditions not prohibited by law, whether printed or written, herein contained, including classification bills of lading conditions, which are hereby agreed to be the shipper and accepted for himself and his assigns.

Freight Basis
COLLECT

Ship To: **KOPPERS INC.**
CLAIRTON, PA

Route: **BNSF-(VCOUV)-UP-(CHGO)-NS-(CLAIR)-URR**

Carrier / Vehicle # **MP588032**
Sold To:

Shippers Order #
9270000009
Customers P.O. Number

Packages No. and Kind	HM	DOT SHIPPING NAME/HAZARD CLASS (IF APPLICABLE)	DESCRIPTION OF ARTICLES, SPECIAL MARKS & EXCEPTIONS	WEIGHT (Subject to Correction)
1 HC	RQ	RESIDUE LAST CONTAINED: OTHER REGULATED SUBSTANCES, SOLID, N.O.S. (CONTAINS BENZO(A)PYRENE, DEBENZ(A,H)ANTHRACENE) CLASS 9 NA 3077 PG III ELECTRODE BINDER PITCH MARKED: 3077 (CARBON PITCH TYPE A-SOLID - 42150001)		

EMERGENCY CONTACT: CALL CHEMTREC 1-800-424-9300 OR 1-202-483-7616 FAX 1-800-242-7428

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: **The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.**

Signature Of Consignor per KOPPERS INC. See ★ below

"Note: Where the rate is dependent on value, shipper's are required to state specifically in writing the released or declared value of the property. The agreed or declared value of the property is hereby stated by the shipper to be not exceeding 170 cents per pounds for each distribution package."

PERMANENT POST-OFFICE ADDRESS OF SHIPPER:
Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

PER

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PER

_____ Agent

Per

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Signature above must appear in longhand

STRAIGHT BILL OF LADING – SHORT FORM
ORIGINAL – NOT NEGOTIABLE

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading

FROM: KOPPERS INC. | AT: PORTLAND, OR | DATE: 12/27/06

Bill of Lading Number
9270000008

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all conditions not prohibited by law, whether printed or written, herein contained, including classification bills of lading conditions, which are hereby agreed to be the shipper and accepted for himself and his assigns.

Freight Basis
COLLECT

Ship To: KOPPERS INC.
CLAIRTON, PA

Route: BNSF-(VCOUV)-UP-(CHGO)-NS-(CLAIR)-URR

Carrier / Vehicle # UP38950
Sold To:

Shippers Order #
9270000008

Customers P.O. Number

Packages No. and Kind	HM	DOT SHIPPING NAME/HAZARD CLASS (IF APPLICABLE)	DESCRIPTION OF ARTICLES, SPECIAL MARKS & EXCEPTIONS	WEIGHT (Subject to Correction)
1 HC	RQ	RESIDUE LAST CONTAINED: OTHER REGULATED SUBSTANCES, SOLID, N.O.S. (CONTAINS BENZO(A)PYRENE, DEBENZ(A,H)ANTHRACENE) CLASS 9 NA 3077 PG III ELECTRODE BINDER PITCH MARKED: 3077 (CARBON PITCH TYPE A-SOLID - 42150001)		

EMERGENCY CONTACT: CALL CHEMTREC 1-800-424-9300 OR 1-202-483-7616 FAX 1-800-242-7428

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Signature Of Consignor per KOPPERS INC See ★ below

"Note: Where the rate is dependent on value, shipper's are required to state specifically in writing the released or declared value of the property. The agreed or declared value of the property is hereby stated by the shipper to be not exceeding 170 cents per pounds for each distribution package."

PERMANENT POST-OFFICE ADDRESS OF SHIPPER:
Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

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PER

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PER

Agent

Per

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Signature above must appear in longhand

STRAIGHT BILL OF LADING – SHORT FORM
ORIGINAL – NOT NEGOTIABLE

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading

FROM: **KOPPERS INC.** AT: **PORTLAND, OR** DATE: **12/27/06**

Bill of Lading Number
9270000007

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all conditions not prohibited by law, whether printed or written, herein contained, including classification bills of lading conditions, which are hereby agreed to be the shipper and accepted for himself and his assigns.

Freight Basis
COLLECT

Ship To: **KOPPERS INC.**
CLAIRTON, PA

Route: **BNSF-(VCOUV)-UP-(CHGO)-NS-(CLAIR)-URR**

Carrier / Vehicle # **MP583123**
Sold To:

Shippers Order #
9270000007

Customers P.O. Number

Packages No. and Kind	HM	DOT SHIPPING NAME/HAZARD CLASS (IF APPLICABLE)	DESCRIPTION OF ARTICLES, SPECIAL MARKS & EXCEPTIONS	WEIGHT (Subject to Correction)
1 HC	RQ	RESIDUE LAST CONTAINED: OTHER REGULATED SUBSTANCES, SOLID, N.O.S. (CONTAINS BENZO(A)PYRENE, DEBENZ(A,H)ANTHRACENE) CLASS 9 NA 3077 PG III ELECTRODE BINDER PITCH MARKED: 3077 (CARBON PITCH TYPE A-SOLID - 42150001)		

EMERGENCY CONTACT: CALL CHEMTREC 1-800-424-9300 OR 1-202-483-7616 FAX 1-800-242-7428

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Signature Of Consignor per KOPPERS, INC. See ★ below

"Note: Where the rate is dependent on value, shipper's are required to state specifically in writing the released or declared value of the property. The agreed or declared value of the property is hereby stated by the shipper to be not exceeding 170 cents per pounds for each distribution package."

PERMANENT POST-OFFICE ADDRESS OF SHIPPER:
Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

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PER

♦ Shipper herby certifies that this shipment is correctly described; correct weight is shown and is subject to verification according to agreement with the Weighing and Inspection Bureau having jurisdiction.

PER

Agent

Per

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Signature above must appear in longhand

STRAIGHT BILL OF LADING – SHORT FORM
ORIGINAL – NOT NEGOTIABLE

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading

FROM: **KOPPERS INC.** AT: **PORTLAND, OR** DATE: **12/27/06**

Bill of Lading Number
9270000006

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all conditions not prohibited by law, whether printed or written, herein contained, including classification bills of lading conditions, which are hereby agreed to be the shipper and accepted for himself and his assigns.

Freight Basis
COLLECT

Ship To: **KOPPERS INC.**
CLAIRTON, PA

Route: **BNSF-(VCOUV)-UP-(CHGO)-NS-(CLAIR)-URR**

Carrier / Vehicle # **MP582909**
Sold To:

Shippers Order #
9270000006
Customers P.O. Number

Packages No. and Kind	HM	DOT SHIPPING NAME/HAZARD CLASS (IF APPLICABLE)	DESCRIPTION OF ARTICLES, SPECIAL MARKS & EXCEPTIONS	WEIGHT (Subject to Correction)
1 HC	RQ	RESIDUE LAST CONTAINED: OTHER REGULATED SUBSTANCES, SOLID, N.O.S. (CONTAINS BENZO(A)PYRENE, DEBENZ(A,H)ANTHRACENE) CLASS 9 NA 3077 PG III ELECTRODE BINDER PITCH MARKED: 3077 (CARBON PITCH TYPE A-SOLID - 42150001)		

EMERGENCY CONTACT: CALL CHEMTREC 1-800-424-9300 OR 1-202-483-7616 FAX 1-800-242-7428

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: **The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.**

Signature Of Consignor per KOPPERS INC See★ below

"Note: Where the rate is dependent on value, shipper's are required to state specifically in writing the released or declared value of the property. The agreed or declared value of the property is hereby stated by the shipper to be not exceeding 170 cents per pounds for each distribution package."

PERMANENT POST-OFFICE ADDRESS OF SHIPPER:
Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

PER

★ Shipper herby certifies that this shipment is correctly described; correct weight is shown and is subject to verification according to agreement with the Weighing and Inspection Bureau having jurisdiction.

PER

Agent

Per

★ Signature of Shipper's agent next above is also intended as execution of Section 7
Signature above must appear in longhand

SENDING REPORT

Dec. 29 2006 01:31PM

YOUR LOGO :KOPPERS
YOUR FAX NO. :5033852671

NO.	OTHER FACSIMILE	START TIME	USAGE TIME	MODE	PAGES	RESULT
01	BNSF RR	Dec.29 01:30PM	01'37	SND	04	OK

TO TURN OFF REPORT, PRESS 'MENU' #04 SET.
THEN SELECT OFF BY USING 'JOG-DIAL'.

FOR FAX ADVANTAGE ASSISTANCE, PLEASE CALL 1-800-HELP-FAX (435-7329).

F.2e

Turner Cheryl R

From: Turner TJ
Sent: Friday, December 22, 2006 10:18 AM
To: Turner Cheryl R
Subject: FW: Rockdale Open Hoppers
Importance: High

-----Original Message-----
From: Cafaro Jim
Sent: Friday, December 22, 2006 7:48 AM
To: Turner TJ
Cc: Mancione Mike; Dietz Jim; Plovic Wayne; Javorski Stephanie; Trygar Mike; Baughman, Sara; Sebbens Joseph; Stiller Steven D; Shannon Tim; Basilone Tim; Bell Randi Jo
Subject: Rockdale Open Hoppers
Importance: High

TJ,

I contacted the BNSF Customer Service and Billing Centers this morning. Both told me that, although the BNSF is no longer obligated to accept paper Bills of Lading by fax, since our case is unique, they would. You can use the BOL that Randi prepared (thanks, Randi) and, as you unload and release these cars (ultimately 33 in all although there are still 4 cars at ALCOA that have not yet been returned), fax each BOL to **BNSF Billing Center, 1-800-786-2455**.

I had to change the original routing that Randi supplied, because these are Union Pacific owned cars and, in order to get them into pool assignment at Clairton, they have to travel on the UP.

Currently, there are 2 empties sitting on the BNSF in Portland, **MP 588843** and **UP 37546**, with no billing. Please fax a BOL to the BNSF as soon as possible to avoid them going astray.

Any other questions or difficulties, please contact me.

Merry Christmas!

Jim

CafaroJA@koppers.com
1-412-227-2856 phone
1-412-227-2778 fax

-----Original Message-----
From: Bell Randi Jo
Sent: Friday, December 22, 2006 8:34 AM
To: Turner TJ
Cc: Cafaro Jim; Sebbens Joseph; Shannon Tim
Subject: Rockdale Open Hoppers

TJ

I sent an email and left voice messages to Jay and Jim but have had no reply. Attached is a copy of

a template Bill of Lading. I'm not sure if BNSF will accept this but it's all I can give you. I hope it helps.

Randi Jo Bell

Koppers Inc.
Clairton Plant
Phone: 412 233 2115
Fax: 412 233 2141
bellrjo@koppers.com

BROADCAST REPORT 1

Dec. 27 2006 12:28PM

YOUR LOGO :KOPPERS
YOUR FAX NO. :5032852811

NO.	OTHER FACSIMILE	START TIME	USAGE TIME	PAGES (IQ-FAX)	RESULT
01	PWRR AL	Dec. 27 12:17PM	01'42	04	OK
02	ALCOA BEKY	Dec. 27 12:18PM	01'41	04	OK
03	ALCOA STRS	Dec. 27 12:20PM	01'40	04	OK
04	PWRR-RL-1	Dec. 27 12:22PM	01'54	04	OK
05	PWRR-RL-2	Dec. 27 12:24PM	01'35	04	OK
06	ALCOA TRFC	Dec. 27 12:26PM	02'03	04	OK
		TOTAL	010'35	024 (000)	

FOR FAX ADVANTAGE ASSISTANCE, PLEASE CALL 1-800-HELP-FAX (435-7329).

STRAIGHT BILL OF LADING – SHORT FORM
ORIGINAL – NOT NEGOTIABLE

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading

FROM: KOPPERS INC. | AT: PORTLAND, OR | DATE: 12/22/06

Bill of Lading Number
9270000003

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all conditions not prohibited by law, whether printed or written, herein contained, including classification bills of lading conditions, which are hereby agreed to be the shipper and accepted for himself and his assigns.

Freight Basis
COLLECT

Ship To: KOPPERS INC.
CLAIRTON, PA

Route: BNSF-(VCOUV)-UP-(CHGO)-NS-(CLAIR)-URR

Carrier / Vehicle # MP582644
Sold To:

Shippers Order #
9270000003

Customers P.O. Number

Packages No. and Kind	HM	DOT SHIPPING NAME/HAZARD CLASS (IF APPLICABLE)	DESCRIPTION OF ARTICLES, SPECIAL MARKS & EXCEPTIONS	WEIGHT (Subject to Correction)
1 HC	RQ	RESIDUE LAST CONTAINED: OTHER REGULATED SUBSTANCES, SOLID, N.O.S. (CONTAINS BENZO(A)PYRENE, DEBENZ(A,H)ANTHRACENE) CLASS 9 NA 3077 PG III ELECTRODE BINDER PITCH MARKED: 3077 (CARBON PITCH TYPE A-SOLID - 42150001)		

EMERGENCY CONTACT: CALL CHEMTREC 1-800-424-9300 OR 1-202-483-7616 FAX 1-800-242-7428

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Signature Of Consignor per KOPPERS INC. See★below

"Note: Where the rate is dependent on value, shipper's are required to state specifically in writing the released or declared value of the property. The agreed or declared value of the property is hereby stated by the shipper to be not exceeding 170 cents per pounds for each distribution package."

PERMANENT POST-OFFICE ADDRESS OF SHIPPER:
Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

PER

♦Shipper herby certifies that this shipment is correctly described; correct weight is shown and is subject to verification according to agreement with the Weighing and Inspection Bureau having jurisdiction.

PER

_____ Agent

Per

★ Signature of Shipper's agent next above is also intended as execution of Section 7
Signature above must appear in longhand

STRAIGHT BILL OF LADING – SHORT FORM
ORIGINAL – NOT NEGOTIABLE

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading

FROM: **KOPPERS INC.** AT: **PORTLAND, OR** DATE: **12/22/06**

Bill of Lading Number

9270000004

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all conditions not prohibited by law, whether printed or written, herein contained, including classification bills of lading conditions, which are hereby agreed to be the shipper and accepted for himself and his assigns.

Freight Basis

COLLECT

Ship To: **KOPPERS INC.**
CLAIRTON, PA

Route: **BNSF-(VCOUV)-UP-(CHGO)-NS-(CLAIR)-URR**

Carrier / Vehicle # **MP589460**
Sold To:

Shippers Order #

9270000004

Customers P.O. Number

Packages No. and Kind	HM	DOT SHIPPING NAME/HAZARD CLASS (IF APPLICABLE)	DESCRIPTION OF ARTICLES, SPECIAL MARKS & EXCEPTIONS	WEIGHT (Subject to Correction)
1 HC	RQ	RESIDUE LAST CONTAINED: OTHER REGULATED SUBSTANCES, SOLID, N.O.S. (CONTAINS BENZO(A)PYRENE, DEBENZ(A,H)ANTHRACENE) CLASS 9 NA 3077 PG III ELECTRODE BINDER PITCH MARKED: 3077 (CARBON PITCH TYPE A-SOLID - 42150001)		

EMERGENCY CONTACT: CALL CHEMTREC 1-800-424-9300 OR 1-202-483-7616 FAX 1-800-242-7428

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Signature Of Consignor: KOPPERSDINC **See★ below**

"Note: Where the rate is dependent on value, shipper's are required to state specifically in writing the released or declared value of the property. The agreed or declared value of the property is hereby stated by the shipper to be not exceeding 170 cents per pounds for each distribution package."

PERMANENT POST-OFFICE ADDRESS OF SHIPPER:
Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

PER

♦Shipper herby certifies that this shipment is correctly described; correct weight is shown and is subject to verification according to agreement with the Weighing and Inspection Bureau having jurisdiction.

PER

_____ Agent

Per

★ Signature of Shipper's agent next above is also intended as execution of Section 7
Signature above must appear in longhand

STRAIGHT BILL OF LADING – SHORT FORM
ORIGINAL – NOT NEGOTIABLE

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading

FROM: **KOPPERS INC.** AT: **PORTLAND, OR** DATE: **12/22/06**

Bill of Lading Number
9270000005

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all conditions not prohibited by law, whether printed or written, herein contained, including classification bills of lading conditions, which are hereby agreed to be the shipper and accepted for himself and his assigns.

Freight Basis
COLLECT

Ship To: **KOPPERS INC.**
CLAIRTON, PA

Route: **BNSF-(VCOUV)-UP-(CHGO)-NS-(CLAIR)-URR**

Carrier / Vehicle # **MP583071**
Sold To:

Shippers Order #
9270000005

Customers P.O. Number

Packages No. and Kind	HM	DOT SHIPPING NAME/HAZARD CLASS (IF APPLICABLE)	DESCRIPTION OF ARTICLES, SPECIAL MARKS & EXCEPTIONS	WEIGHT (Subject to Correction)
1 HC	RQ	**RESIDUE LAST CONTAINED:** **OTHER REGULATED SUBSTANCES, SOLID, N.O.S. (CONTAINS BENZO(A)PYRENE, DEBENZ(A,H)ANTHRACENE)** **CLASS 9 NA 3077 PG III** **ELECTRODE BINDER PITCH** **MARKED: 3077** **(CARBON PITCH TYPE A-SOLID - 42150001)**		

EMERGENCY CONTACT: CALL CHEMTREC 1-800-424-9300 OR 1-202-483-7616 FAX 1-800-242-7428

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: **The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.**

Signature Of Consignor per KOPPERS INC. **See★ below**

"Note: Where the rate is dependent on value, shipper's are required to state specifically in writing the released or declared value of the property. The agreed or declared value of the property is hereby stated by the shipper to be not exceeding 170 cents per pounds for each distribution package."

PERMANENT POST-OFFICE ADDRESS OF SHIPPER:
Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

PER

♦ Shipper herby certifies that this shipment is correctly described: correct weight is shown and is subject to verification according to agreement with the Weighing and Inspection Bureau having jurisdiction.

PER

_____ Agent

Per

★ Signature of Shipper's agent next above is also intended as execution of Section 7
Signature above must appear in longhand

STRAIGHT BILL OF LADING – SHORT FORM
ORIGINAL – NOT NEGOTIABLE

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading

FROM: **KOPPERS INC.** AT: **PORTLAND, OR** DATE: **12/22/06**

Bill of Lading Number
9270000001

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all conditions not prohibited by law, whether printed or written, herein contained, including classification bills of lading conditions, which are hereby agreed to be the shipper and accepted for himself and his assigns.

Freight Basis
COLLECT

Ship To: **KOPPERS INC.**
CLAIRTON, PA

Route: **BNSF-(VCOUV)-UP-(CHGO)-NS-(CLAIR)-URR**

Carrier / Vehicle # **UP37546**
Sold To:

Shippers Order #
9270000001

Customers P.O. Number

Packages No. and Kind	HM	DOT SHIPPING NAME/HAZARD CLASS (IF APPLICABLE)	DESCRIPTION OF ARTICLES, SPECIAL MARKS & EXCEPTIONS	WEIGHT (Subject to Correction)
1 HC	RQ		**RESIDUE LAST CONTAINED:** **OTHER REGULATED SUBSTANCES, SOLID, N.O.S. (CONTAINS BENZO(A)PYRENE, DEBENZ(A,H)ANTHRACENE)** **CLASS 9 NA 3077 PG III** **ELECTRODE BINDER PITCH** **MARKED: 3077** **(CARBON PITCH TYPE A-SOLID - 42150001)**	

EMERGENCY CONTACT: CALL CHEMTREC 1-800-424-9300 OR 1-202-483-7616 FAX 1-800-242-7428

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: **The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.**

Signature Of Consignor per KOPPERS INC. **See ★ below**

"Note: Where the rate is dependent on value, shipper's are required to state specifically in writing the released or declared value of the property. The agreed or declared value of the property is hereby stated by the shipper to be not exceeding 170 cents per pounds for each distribution package."

PERMANENT POST-OFFICE ADDRESS OF SHIPPER:
Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation

PER

♦ Shipper herby certifies that this shipment is correctly described; correct weight is shown and is subject to verification according to agreement with the Weighing and Inspection Bureau having jurisdiction.

PER

Agent

Per

★ Signature of Shipper's agent next above is also intended as execution of Section 7
Signature above must appear in longhand

STRAIGHT BILL OF LADING – SHORT FORM
ORIGINAL – NOT NEGOTIABLE

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading

FROM: KOPPERS INC. | AT: PORTLAND, OR | DATE: 12/22/06

Bill of Lading Number
9270000002

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all conditions not prohibited by law, whether printed or written, herein contained, including classification bills of lading conditions, which are hereby agreed to be the shipper and accepted for himself and his assigns.

Freight Basis
COLLECT

Ship To: KOPPERS INC.
CLAIRTON, PA

Route: BNSF-(VCOUV)-UP-(CHGO)-NS-(CLAIR)-URR

Carrier / Vehicle # MP588843
Sold To:

Shippers Order #
9270000002

Customers P.O. Number

Packages No. and Kind	HM	DOT SHIPPING NAME/HAZARD CLASS (IF APPLICABLE)	DESCRIPTION OF ARTICLES, SPECIAL MARKS & EXCEPTIONS	WEIGHT (Subject to Correction)
1 HC.	RQ	RESIDUE LAST CONTAINED: OTHER REGULATED SUBSTANCES, SOLID, N.O.S. (CONTAINS BENZO(A)PYRENE, DEBENZ(A,H)ANTHRACENE) CLASS 9 NA 3077 PG III ELECTRODE BINDER PITCH MARKED: 3077 (CARBON PITCH TYPE A-SOLID - 42150001)		

EMERGENCY CONTACT: CALL CHEMTREC 1-800-424-9300 OR 1-202-483-7616 FAX 1-800-242-7428

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: **The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.**

Signature Of Consignor } per KOPPERS ★ INC See ★ below

"Note: Where the rate is dependent on value, shipper's are required to state specifically in writing the released or declared value of the property. The agreed or declared value of the property is hereby stated by the shipper to be not exceeding 170 cents per pounds for each distribution package."

PERMANENT POST-OFFICE ADDRESS OF SHIPPER:
Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation

PER

♦ Shipper herby certifies that this shipment is correctly described; correct weight is shown and is subject to verification according to agreement with the Weighing and Inspection Bureau having jurisdiction.

PER

_____ Agent

Per

★ Signature of Shipper's agent next above is also intended as execution of Section 7
Signature above must appear in longhand

KOPPERS INC

Beazer000500

10 Digits

STRAIGHT BILL OF LADING – SHORT FORM
ORIGINAL – NOT NEGOTIABLE

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading

FROM: **KOPPERS INC.** | AT: **PORTLAND, OR** | DATE:

Bill of Lading Number 9270000004

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all conditions not prohibited by law, whether printed or written, herein contained, including classification bills of lading conditions, which are hereby agreed to be the shipper and accepted for himself and his assigns.

Freight Basis Collect

Ship To: **KOPPERS INC.**
CLAIRTON, PA

Route: **BNSF-(VCOUV)-UP-(CHGO)-NS-(CLAIR)-URR**

Carrier / Vehicle #
Sold To:

Shippers Order #

Customers P.O. Number

Packages No. and Kind	HM	DOT SHIPPING NAME/HAZARD CLASS (IF APPLICABLE)	DESCRIPTION OF ARTICLES, SPECIAL MARKS & EXCEPTIONS	WEIGHT (Subject to Correction)
1 HC	RQ	RESIDUE LAST CONTAINED: OTHER REGULATED SUBSTANCES, SOLID, N.O.S. (CONTAINS BENZO(A)PYRENE, DEBENZ(A,H)ANTHRACENE) CLASS 9 NA 3077 PG III ELECTRODE BINDER PITCH MARKED: 3077 (CARBON PITCH TYPE A-SOLID - 42150001)		

EMERGENCY CONTACT: CALL CHEMTREC 1-800-424-9300 OR 1-202-483-7616 FAX 1-800-242-7428

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: **The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.**

Signature Of Consignor per **See★below**

"Note: Where the rate is dependent on value, shipper's are required to state specifically in writing the released or declared value of the property. The agreed or declared value of the property is hereby stated by the shipper to be not exceeding 170 cents per pounds for each distribution package."

PERMANENT POST-OFFICE ADDRESS OF SHIPPER:
Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

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♦ Shipper herby certifies that this shipment is correctly described; correct weight is shown and is subject to verification according to agreement with the Weighing and Inspection Bureau having jurisdiction.

PER

Agent

Per

★ Signature of Shipper's agent next above is also intended as execution of Section 7
Signature above must appear in longhand

BROADCAST REPORT 1

Dec. 2[illegible] 2006 [illegible]

YOUR LOGO :KOPPERS
YOUR FAX NO. :5032852[illegible]

NO.	OTHER FACSIMILE	START TIME	USAGE TIME	PAGES (IQ-FAX)	RESULT
01	PWRR AL	Dec. 22 11:48AM	02'01	05	OK
02	ALCOA BEKY	Dec. 22 11:50AM	02'00	05	OK
03	ALCOA STRS	Dec. 22 11:52AM	01'59	05	OK
04	PWRR-RL-1	Dec. 22 11:54AM	02'12	05	OK
05	PWRR-RL-2	Dec. 22 11:56AM	01'54	05	OK
06	ALCOA TRFC	Dec. 22 11:59AM	02'22	05	OK
		TOTAL	012'28	030 (000)	

FOR FAX ADVANTAGE ASSISTANCE, PLEASE CALL 1-800-HELP-FAX (435-7329).

KOPPERS

Interoffice Correspondence

To DARLENE K.SUSA-ANDERSON

Location K-1201

Subject EPA - TSCA CHEMICAL INVENTORY

From JOHN A OXFORD

Location NORTHWEST PLANT

Date 11-04-86

PER OUR TELEPHONE CONVERSATION OF 11-04-86, I AM RETURNING TO YOU THE EPA FORM U FOR FURTHER PROCESSING THROUGH YOUR OFFICE. PER YOUR INSTRUCTIONS THE PORTLAND TERMINAL WILL ONLY REPORT THE 1985 IMPORTATION OF COAL TAR PENCIL PITCH FROM CHINA THROUGH K.A.P. AUSTRALIA LTD. TO THE PORTLAND TERMINAL. IT IS MY UNDERSTANDING THAT ALL CREOSOTE OIL WILL BE REPORTED BY THE SHIPPING PLANTS AS THE MATERIAL WAS MANUFACTURED THERE.

PLEASE NOTE COLUMNS A, B, AND C ON FORM U HAVE BEEN LEFT BLANK PER YOUR INSTRUCTIONS.

THANK YOU,

JOHN A OXFORD
PLANT MANAGER

JAO;mn
CC: L. FLAHERTY k-1750
CC: J.B. BATCHELDER K-1700

Plant copy

K43-REV. 5 100M 9-80

IMPORTANT: Before completing this form, carefully read the accompanying instructions.

Form Approved OMB 2070-0070
Approval expires 11-30-87

EPA

US Environmental Protection Agency

Partial Updating of TSCA Inventory Data Base
Production and Site Report

(Section 8(a) Toxic Substances Control Act 15 USC 2607)

Report Number: 50277721

FORM **U**

I. Certification Statement: I hereby certify to the best of my knowledge and belief that (1) all information entered on this form is complete and accurate, and (2) the confidentiality statements on the back of this form are true as to that information for which I have asserted a confidentiality claim.

Signature: John A Oxford | Date: 11-04-86 | Name/Title (Type or Print): JOHN A. OXFORD PLANT MANAGER

II. Technical Contact (Name, Company, Street address, City, State, ZIP Code)
J.E. MCFADDEN
KOPPERS COMPANY INC.
440 COLLEGE PARK DRIVE
MONROEVILLE, PA 15146

III. Plant Site (Name, Street address, City, State, ZIP Code)
KOPPERS COMPANY INC.
7540 N.W. ST. HELENS RD.
PORTLAND, OREGON 97210

Telephone No. (Include Area Code): 503-286-3681 CBI ☐

Dun & Bradstreet Number: 02-773-4359

IV. Chemical Substance Identity/Activity/Confidentiality

a	b		c	d	e	f	g	h
LINE NO.	CAS Registry and/or Other Identifying Number	Original Inventory Report Line No.	A, B, C, F, P or T Codes A=Accession No. B=Bona Fide No. C=CAS Registry No. F=Original Inventory Report No. P=PMN No. T=TMEA No.	All Chemical Substance Identities on This Form Are Claimed ☐ Confidential ☑ Nonconfidential — Specific Chemical Name	Activity M = Manufacture I = Import	Site Limited	Plant Site CBI Claim	Production Volume (pounds)
1				COAL TAR PENCIL PITCH	I CBI ☐	CBI ☐	CBI ☐	33,733,560 POUNDS CBI ☐
2					CBI ☐	CBI ☐	CBI ☐	CBI ☐
3					CBI ☐	CBI ☐	CBI ☐	CBI ☐
4					CBI ☐	CBI ☐	CBI ☐	CBI ☐
5					CBI ☐	CBI ☐	CBI ☐	CBI ☐
6					CBI ☐	CBI ☐	CBI ☐	CBI ☐
7					CBI ☐	CBI ☐	CBI ☐	CBI ☐
8					CBI ☐	CBI ☐	CBI ☐	CBI ☐
9					CBI ☐	CBI ☐	CBI ☐	CBI ☐
10					CBI ☐	CBI ☐	CBI ☐	CBI ☐

EPA Form 7740-8 (12-85)

FORM

U.S. ENVIRONMENTAL PROTECTION AGENCY
CHEMICAL SUBSTANCE INVENTORY REPORT
(Section 8(a) and (b) Toxic Substances Control Act 15 USC 2607)

I. CERTIFICATION STATEMENT: I hereby certify that, to the best of my knowledge and belief: (1) the chemical substance identified below has been manufactured or imported for a commercial purpose since January 1, 1975, and can be reported for the inventory (40 CFR 710); (2) all information entered on this form is complete and accurate; and (3) the confidentiality statements on the back of this form are true as to that information for which I have asserted a confidentiality claim. I understand that EPA may verify the information reported here, and I agree to permit access to, and the copying of, records by a duly authorized representative of the EPA Administrator, in accordance with the Toxic Substances Control Act. I understand that any information reported here, and any information reported on the back of this form, may be made available to the public unless I have asserted a confidentiality claim for it in accordance with the Toxic Substances Control Act. I understand that false statements made in this document are subject to criminal penalties.

SIGNATURE _____ DATE 4/14/78 NAME TITLE (TYPE OR PRINT) Alonzo Wm. Lawrence, V. Pres.

Foreign Supplier Signature _____ Date _____

EPA USE ONLY

MID

II. CORPORATION Koppers Company, Inc.

III. PLANT SITE NAME/ADDRESS

NAME Koppers Company, Inc.
ADDRESS P.M. Guth, Plant Mgr.
7540 N.W. Saint Helens Road
CITY Portland STATE OR
COUNTY Multnomah ZIP 97229
DUN & BRADSTREET NO. 02-773-4359

IV. PRINCIPAL TECHNICAL CONTACT(S)

H. R. Sulkowski
Koppers Company, Inc.
440 College Park Drive
Monroeville, PA 15146

FORM NO. 31087653

V. CHEMICAL SUBSTANCE WHERE THE IDENTITY IS CONFIDENTIAL (AND OR) THE CAS REGISTRY NUMBER IS UNKNOWN.

NUMBER	CAS REGISTRY NUMBER (IF KNOWN)	SPECIFIC CHEMICAL NAME (SEPARATE MULTIPLE NAMES WITH A SEMI-COLON) ☐ CLASS 1 ☒ CLASS 2	PRODUCTION RANGE	ACTIVITY: MANUFACTURE	IMPORT	SITE LIMITED	CONFIDENTIALITY CLAIMS: (a) MANUFACTURE	(b) IMPORT	(c) SITE LIMIT	(d) PRODUCT	(e) CORPORATE	(f) PLANT SITE	EPA USE ONLY NUMBER
1		Aromatic Pitch (Coal-Petroleum)	3	X			X			X			1
			SUM										EPA USE ONLY

IN THE SPACE PROVIDED BELOW, PROVIDE STRUCTURAL INFORMATION, MOLECULAR FORMULA, AND OTHER SUPPLEMENTAL INFORMATION TO AID IN THE SPECIFIC IDENTIFICATION OF THE CHEMICAL SUBSTANCE:

☐ NO OF SHEETS — SEE ATTACHED SHEETS (WRITE FORM NO. ON ALL ATTACHMENTS)

MOLECULAR FORMULA

(g) ☐ CHEMICAL SUBSTANCE IDENTITY IS CONFIDENTIAL
(1) SUBSTANTIATION:
☐ No. of sheets attached (write form number on all substantiation sheets).
(2) Proposed Generic Name:
☐ (3) I agree to the terms of CONFIDENTIAL CHEMICAL SUBSTANCE IDENTITY STATEMENT on the back of this form.

The residue from the heat treating and distillation of a mixture of coal tar and aromatic petroleum streams such as thermal cracked residium and/or catalytic cracked clarified oil whose softening point can be from 40°C to 180°C. Predominately composed of a complex mixture of 3 or more membered condensed ring aromatic hydrocarbons.

EPA FORM NO. 7710-3C (11-77)

SUBMITTING COMPANY COPY

Beazer000505

substance inventory. That booklet contains instructions for properly completing this form.

U. S. ENVIRONMENTAL PROTECTION AGENCY
CHEMICAL SUBSTANCE INVENTORY REPORT
(Section 8(a) and (b) Toxic Substances Control Act 15 USC 2607)

FORM **C**

I. CERTIFICATION STATEMENT: I hereby certify that, to the best of my knowledge and belief: (1) the chemical substance identified below has been manufactured or imported for a commercial purpose since January 1, 1975, and can be reported for the inventory (40 CFR 710); (2) all information entered on this form is complete and accurate; and (3) the confidentiality statements on the back of this form are true as to that information for which I have asserted a confidentiality claim. I agree to permit access to, and the copying of, records by a duly authorized representative of the EPA Administrator, in accordance with the Toxic Substances Control Act, to document any information reported here.

SIGNATURE _____ DATE 4/14/78 NAME/TITLE (TYPE OR PRINT) Alonzo Wm. Lawrence, V. Pres.

Foreign Supplier Signature _____ Date _____

FORM NO. 31087620

EPA USE ONLY

MID

II. CORPORATION: Koppers Company, Inc.

III. PLANT SITE NAME/ADDRESS

NAME: Koppers Company, Inc.
ADDRESS: P. W. Guth, Plant Mgr.
7540 N.W. Saint Helens Road
CITY: Portland STATE: OR
COUNTY: Mt. Multnomah ZIP: 97229
DUN & BRADSTREET NO. 02-773-4359

IV. PRINCIPAL TECHNICAL CONTACT(S)

H. R. Sulkowski
Koppers Company, Inc.
440 College Park Drive
Monroeville, PA 15146
(412) 227-2000

V. CHEMICAL SUBSTANCE WHERE THE IDENTITY IS CONFIDENTIAL (AND/OR) THE CAS REGISTRY NUMBER IS UNKNOWN.

		EPA USE ONLY
NUMBER	1	
EPA USE ONLY		
CONFIDENTIALITY CLAIMS: (f) PLANT SITE		
(e) CORPORATION		
(d) PRODUCTION	X	
(c) SITE LIMITED		
(b) IMPORT		
(a) MANUFACTURE	X	
ACTIVITY: SITE LIMITED		
IMPORT		
MANUFACTURE	X	
PRODUCTION RANGE	3	

SUM (g) ☐

CHEMICAL SUBSTANCE IDENTITY IS CONFIDENTIAL
(1) SUBSTANTIATION: ☐
No. of sheets attached (write form number on all substantiation sheets).
(2) Proposed Generic Name:
(3) I agree to the terms of CONFIDENTIAL CHEMICAL SUBSTANCE IDENTITY STATEMENT on the back of this form. ☐

SPECIFIC CHEMICAL NAME (SEPARATE MULTIPLE NAMES WITH A SEMI-COLON): Aromatic Distillate (Coal-Petroleum)

☐ CLASS 1 ☒ CLASS 2

CAS REGISTRY NUMBER (IF KNOWN): NUMBER 1

IN THE SPACE PROVIDED BELOW, PROVIDE STRUCTURAL INFORMATION, MOLECULAR FORMULA, AND OTHER SUPPLEMENTAL INFORMATION TO AID IN THE SPECIFIC IDENTIFICATION OF THE CHEMICAL SUBSTANCE:

☐ SEE ATTACHED SHEETS (WRITE FORM NO. ON ALL ATTACHMENTS) NO. OF SHEETS

MOLECULAR FORMULA

The distillate from coal tar-aromatic petroleum mixtures having an approximate distillation range from 260°C to 430°C. Composed predominately of 3 to 4 membered condensed ring aromatic hydrocarbons.

EPA FORM NO. 7710-3C (11-77)

SUBMITTING COMPANY COPY

Beazer000506

KOPPERS

Interoffice Correspondence

To See Below

Location

Subject EPA - TSCA Chemical Inventory

From L. F. Flaherty

Location K-1750

Date October 14, 1986

Al Carnes - Houston
Chuck Kraynik - Youngstown
Jerry Morris - Woodward
John Murray - Follansbee
John Oxford - Northwest
Frank Spinola - Chicago
Bob Stinnett - Fontana

KOPPERS CO. PORTLAND, OR. RECEIVED

OCT 17 1986

As I understand it, we are now required to submit to the EPA our 1985 production of all items listed on the 1978 TSCA Inventory List.

Enclosed are:

1. Summary of the new regulation from Tom Burgunder.
2. Background info on the EPA Chemical Inventory.
3. Copy of EPA Form C - your 1978 TSCA.
4. Copy of EPA Form U - the new submittal required.
5. Detailed instructions on how to complete Form U.

The completed Form U must be returned to D.K. Susa-Anderson, K-12, by 11/1/86. I know the time is short, but it must be completed on time. Copy both myself and J. Batchelder with your transmittal letter.

L. F. Flaherty

LFF:vik

cc: J.R. Batchelder

KOPPERS

Interoffice Correspondence

To	PLANT MANAGERS	From	
Location		Location	
Subject	EPA CHEMICAL INVENTORY	Date	October 6, 1986

SUMMARY

The U.S. Environmental Protection Agency (EPA) published a reporting rule earlier this year which requires companies to report production volume, plant site, and use information as an update to the chemicals listed on the 1977 Toxic Substances Control Act (TSCA) Inventory of Chemicals in Commerce. Exemptions as outlined below exist for this rule. All reporting must be on a plant-by-plant basis and must be completed on the numbered forms (Form U) provided by the EPA. You are being asked to review the 1977 Inventory submissions for your plant and to utilize that information along with current production information to complete the updated inventory Form U. In order to meet the deadline for our corporate submission to the EPA, your plant update and completed Form U sets must be delivered to D. K. Susa Anderson, 1201 Koppers Building, Pittsburgh by November 1, 1986.

SPECIFIC ACTIONS

Except for the exemptions listed below, all substances manufactured at your plant are subject to reporting under this rule. Since this reporting is an update of 1977 submissions (attached) from your plant, your task is essentially one of verification and transfer of information from the old forms to the new. In the process of transfer, you must update on Form U the information sought by EPA in this rule. That information is: chemical/product identity, CAS Registry or other identifying number, production volume, and site-limited status of chemical/product. There is an opportunity to claim as confidential some or all of the information you will be submitting. However, all claims of confidentiality must be justified by checking the appropriate box on Form U and providing the answers to eleven questions prescribed in the Rule (attached). The substantiation must be dated and signed by me. Confidentiality for chemical identity may not be claimed if that claim was not made on the first (1977) Inventory Submission. Conversely, if a previously confidential chemical or product identity is now reported as non-confidential, the EPA will no longer consider the identity of that substance as confidential.

For each plant site under your control you must complete a separate reporting form, and up to ten chemicals or products may be entered on each form. Although chemical products made at the same plant site can be reported (up to ten) on the same form, you must use separate forms to report those products you wish to declare as confidential.

Chemical identity is to be reported as accurately as possible. The EPA has indicated that manufacturers identify substances by giving the Chemical Abstract Service (CAS) registry number and a chemical name that is not a trade name. Where CAS numbers are not available, an alternative identifying number must be used in Column B on Form U. Your 1977 plant inventory submissions, which are attached, were completed on several kinds of forms: A, B, or C. Only submissions on Form A have CAS registry numbers listed and are therefore available for your use on the new Form U. Most of the remainder of the 1977 submissions were made on Form C. This form lists for you the specific chemical product name you are to enter on the new Form U if your plant manufactured that product in fiscal year 1985. Products listed on Form C do not have a CAS Registry number. Instead, the Form Number, appearing vertically on the upper left corner of Form C is to be used in Column B of the current submission. Remember, the object of this reporting rule is to update the 1977 inventory submissions. If you are now manufacturing at your plant a product that for any reason does not appear on the 1977 inventory for your plant, you must include that product in your 1986 submission. No less importantly, if you are no longer manufacturing a product that appears in the original inventory, that product should not be included in your current submission.

Plant site must be reported by giving the specific site name and street address. For importers, a central office or a plant site should file a report depending upon which is responsible for the shipment and payment of import duties. Companies must provide a Dunn and Bradstreet number for each site, and the name, company, address, and telephone number of a person (technical contact) whom the EPA may contact for clarification of the information submitted on Form U. The technical contact should be you or your designee.

Manufacturers are also required to report on the site-limited status of chemicals. For each chemical/product reported from a plant site, you must indicate whether the chemical is distributed for commercial purposes outside of that site, whether as a substance, as part of a mixture, or as an article. Of course, by their nature, imported substances cannot be site-limited.

Line-by-line instructions for completing the current reporting form (Form U) are provided in the attachments accompanying this letter.

EXEMPTIONS FROM REPORTING

There are several classes of substances that are exempt from reporting and several situations where manufacture or import of a substance does not trigger reporting. Four classes of chemical substances are excluded from this rule: polymers, inorganics, microorganisms, and naturally occuring substances. In addition to these, substances excluded from the Toxic

Substances Control Act (TSCA) are exempt: mixtures, nuclear material, pesticides, food additives, and other miscellaneous items unrelated to Koppers business. Mixtures are defined as:

> "Mixture" means any combination of two or more chemical substances if the combination does not occur in nature and is not, in whole or in part, the result of chemical reaction; except that "mixture" does include (1) any combination which occurs, in whole or in part, as a result of a chemical reaction if the combination could have been manufactured for commercial purposes without a chemical reaction at the time the chemical substances comprising the combination were combined and if, after the effective date or premanufacture notification requirements, none of the chemical substances comprising the combination is a new chemical substance, and (2) hydrates of a chemical substance or hydrated ions formed by association of a chemical substance with water.

In addition to the substance exemptions described above, there is also a substance/plant site exemption that is based on production or import volume - substances that are manufactured or imported at less than 10,000 pounds per year at a single site are exempt from reporting for that site.

RECORDKEEPING REQUIREMENTS

Koppers is required to maintain records which document compliance with this rule, including records that show product volume, plant site, and site-limited status of each of the substances reported. If a substance is not reported because its site specific annual production is less than 10,000 pounds, plant records must be maintained to verify this. Because the EPA does not require a specific recordkeeping format, your normal plant inventory and production records will suffice. Records must be retained for at least four years following August 25 of this year.

CORPORATE RESPONSE

A set of blank forms (Form U) is provided with this letter. The forms have been sequentially numbered by the EPA, and only completed original forms can be submitted to the EPA in response to this rule. The forms have a carbon-duplicate. Once you have completed your product inventory on these forms you must submit both copies of the form to D. K. Susa Anderson. Once collected, the submissions will be further processed as required by the Reporting Rule and then returned to me for signature and submission to the EPA. One copy of the form will be retained and entered into a computerized data base established to assist our efforts in providing the EPA with this information, as we are now required to do every four years.

The role you are being asked to assume in completing this task is indispensable and your cooperation, as always, is greatly appreciated. I thank you in advance for the effort I know you will put forth in responding.

List of Attachments:

1. Form U - forms to be completed and returned.
2. 1977 Plant Inventory Submissions to EPA.
3. Eleven questions for claims of confidentiality.
4. Detailed instructions for completing Form U.
5. Background information on EPA Inventory Update Rule.

KOPPERS

Interoffice Correspondence

To	Plant Managers	From	T. J. Burgunder
Location		Location	K-1401
Subject	Summary of the Regulations Regarding Reporting for the Partial Updating of the TSCA Chemical Inventory Data Base	Date	October 1, 1986

The Toxic Substances Control Act was enacted into law in 1976. It mandated among other things the reporting of all chemical substances being manufactured for commercial purposes in this country to the Environmental Protection Agency (hereinafter referred to as "EPA"). In late 1977 regulations were finally issued by the EPA that required each manufacturer to report all of the chemical substances it manufactures. Koppers joined the remainder of American industry to prepare forms listing the chemicals we manufactured. Guidelines were followed in accordance with published regulations. Eventually an inventory of chemicals was published. Information about certain substances was reported as confidential. That information was not included in the inventory. Throughout the years the size of the inventory has grown as manufacturers have completed premanufactured notification statements and were issued a notice to commence manufacture by the EPA.

The information contained in the EPA's inventory of chemicals was largely gathered during the Spring of 1978. Because the Agency has an ongoing responsibility to update its knowledge of chemicals being manufactured, it promulgated regulations to obtain the partial updating of the chemical inventory data base. Information being sought includes chemical identity, production volume, plant site, and site limited status of the chemicals. The regulations appeared in the June 12, 1986 Federal Register. Koppers Company, Inc., as a manufacturer or importer, must report the requested information between August 25 and December 23, 1986.

Certain definitions are included in the regulations. They appear here for your convenience.

"(a) 'Master Inventory File' means EPA's comprehensive list of chemical substances which constitute the Chemical Substances Inventory compiled under section 8(b) of the Act. It includes substances reported under Subpart A of this Part and substances reported under Part 720 of this chapter for which a Notice of Commencement of Manufacture or Import has been received under §720.120 of this chapter.

(b) 'Nonisolated intermediate' means any intermediate that is not intentionally removed from the equipment in which it is manufactured, including the reaction vessel in which it is manufactured, equipment which is ancillary to the reaction vessel, and any equipment through which the substance passes during a continuous flow process, but not including tanks or other vessels in which the substance is stored after its manufacture.

(c) 'Site-limited' means a chemical substance is manufactured and processed only within a site and is not distributed for commercial purposes as a substance or as part of a mixture or article outside the site. Imported substances are never site-limited."

According to the regulations, updated information must be reported for only those chemicals which appear in the master inventory file. The regulations, however, further limit the chemicals for which information is sought under these regulations. No manufacturer must furnish information on (a) inorganic chemical substances, (b) polymers, (c) microorganisms, and (d) naturally occurring chemical substances.

The regulations state individual plant sites must report each chemical manufactured for commercial purposes during the 1985 calendar year as long as that plant site has manufactured at least 10,000 pounds of each chemical substance. Koppers is also subject to similar reporting requirements in 1990 and at four year intervals thereafter. If Koppers has imported at least 10,000 pounds of a chemical substance for use at a particular plant in 1985, then the site responsible for reporting the chemical substance is the operating unit which is directly responsible for importing the substance. It is possible the substance will have to be reported by the headquarters in Pittsburgh if it is responsible for the import transaction. We do not have to report any chemical substance which is imported as part of an article.

Every plant location reporting the commercial manufacturer of a chemical substance to the EPA must maintain records that document all information reported. Plants must also maintain volume records on products manufactured or imported at each plant in 1985 in the amount of less than 10,000 pounds. All records must be kept for four years.

Once each plant site determines a chemical substance must be reported, then a written form (known as Form U) must be completed. Forms have been obtained from the EPA and are available from D. K. Susa Anderson's office. They come in duplicate. The original must ultimately be sent to the EPA. It should be returned to D. K. Susa Anderson's office after it has been completed. The copy must be retained for our records. These forms are individually numbered. This will enable both Koppers and the EPA to keep track of what chemicals were reported on each form. Each form may contain information regarding from one to ten chemical substances provided that all chemicals reported on a particular form are manufactured at the same plant site. Any chemical for which information is claimed confidential must be reported on a form by itself or with other chemicals for which confidential information is being claimed. It should be emphasized that if information about more than one chemical is being claimed as confidential and is being reported on the same form, then those chemicals must be manufactured at the same plant site. A single form cannot contain information about more than one chemical where information concerning one chemical is being claimed confidential and information concerning another chemical is not. The regulations require each plant site to report the quantity of chemicals manufactured at that site to two significant digits. In the alternative, it is satisfactory to report plus or minus ten percent of the manufactured quantity in 1985. Detailed instructions regarding completing reporting form appear in section 4(c) of the "Instructions for Reporting for the Partial Updating of the TSCA Chemical Inventory Data Base" (copy enclosed).

Before completing any of the reporting forms, our plant sites must determine whether any of the chemicals which are subject to the reporting regulations should be reported as confidential. After making this decision, the master inventory should be consulted to determine whether that information has already been claimed confidential. If it has been so claimed, then we can make similar claims at this time. The reader should carefully review section 4(b) of the booklet entitled "Instructions for Reporting for the Partial Updating of the TSCA Chemical Inventory Data Base" (copy enclosed). Confidential business information must be reported on Form U. The reporting plant must also answer detailed questions which appear in Section 4(b) of the Instruction Booklet. The answers to these questions must be sent along with the completed forms to John Butala. Failure to assert a confidential business information claim at this time or failure to comply with all of the related procedures mandated by the EPA will forever forfeit our claim for confidentiality.

In the event you have additional questions, please do not hesitate to telephone Thomas J. Burgunder at (412) 227-2642 or John Butala at (412) 227-2592 or Darlene K. Susa Anderson at (412) 227-2455.

T. J. Burgunder

TJB:em
Enc.

Koppers Company, Inc., Purchasing Department
Pittsburgh, PA 15219, Telephone 412-227-2000

KOPPERS

Glen C. Tenley
Vice President and Manager

Nila A. Vehar
Manager
Raw Materials

October 5, 1979

TO: ALL PLANTS, DIVISIONS, & SUBSIDIARIES

As required by the Toxic Substance Control Act, we are currently in the process of determining if all the chemical substances we purchase have been reported to the EPA and are included on the initial inventory published May 1979.

Attached is a list of the chemical substances we purchase based on the purchase orders on record in our office. The term chemical substance, as defined by Section 710.2 of the TOCA Inventory Reporting regulations, means any organic or inorganic substance of a particular molecular identity, including any combination of such substances occurring in whole or in part as a result of a chemical reaction or occurring in nature, any chemical element or umcombined radical: except that "chemical substance" does not include:

1. Any mixture.
2. Any pesticide when manufactured, processed, or distributed in commerce for use as a pesticide.
3. Tobacco or any tobacco product, but not including any derivative products.
4. Any source material, special nuclear material, or by-product material.
5. Any pistol, firearm, revolver, shells and cartridges, and
6. Any food, food additive, drug, cosmetic, or device, when manufactured, processed or distributed in commerce for use as a food, food additive, drug, cosmetic, or device.

We are requesting that you review the attached list and note any chemical substance or product, as defined above, which is being purchased for use in your plant but does not appear on our listing. We would appreciate a response within two weeks of this letter because of the deadline imposed on us by the EPA.

Very truly yours,

Patty A. Weigel

Patty A. Weigel
Buyer
Raw Materials Group

RECEIVED
OCT 10 1979

PAW/mpj

Attachments

Writer's Direct Dial Number (412) 227-2766

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CHEMICAL SUBSTANCE	CAS #	SUPPLIER	IMPORT DOMESTIC	EST. ANNUAL QUANTITY	EST. ANNUAL $ VALUE	PLANT	KOPPERS #	LISTED
A-69M Resin		Sunbelt Chem.	D		P55,000	Irving	15648001	-
Acetic Acid - Glacial	64-19-7	McKesson Chem.	D		205,500	B,O.C.,F.P.		X
Acetone	67-64-1	Allegheny Solvents	D		P210,000	B,O.C. F,P.		X
		Texas Solvent	D		P357,500	Irving		X
		Fisher Scientic	D	6 Gals	61	Follansbee		X
		McKesson Chem. Co.	D		P205,500	B,O.C.,F,P,M		X
		Ashland Chem. Co.	D		P110,000	Irving		X
		Van Waters & Rodgers	D			Irving	15596341	X
Acetylene	74-86-2	Cumberland Supply	D	14,000 cu.ft.	P2,326	Green Spring		X
		Kreig Distributing	D	15 cylinder	342	Kearny, NJ		X
		Western Air Prod.	D	63 cylinder	1965	Houston		X
		Keystone Metal	D	19,000 cu.ft.	P3,000	Petrolia		X
		Tri State Oxygen	D	14,000 cu.ft.	P2326	Green Spring		X
		Post Welding	D		P8,800	Woodward		X
		R. N. Goss Gas	D	3,360 cu.ft.	27	Oil City		X
		Fuhrman Welding	D	22,000 cu.ft.	407	Erie		X
		Midwest Weld	D	190 cylinder	P5,000	Chicago		X
Acintol FA-3		Arizona Chem.	D	400,000#	138,000	Bridgeville	12800801	X
Acintol FA-1		Arizona Chem.	D	800,000#	260,000	Bridgeville	12800401	X
Acintol D40IR		Arizona Chem.	D	125,000#	28,750	Bridgeville	12801201	X
Acrylamide Monomer		Am. Cyanamid	D	40,000#	406,000	Bridgeville	10900201	X
Acryloid A21LV 30%		Rohm & Haas	D		P55,000	Los Angeles	15645351	X
						Newark		X
						Irving		X
B44 40%	9010-88-2	Rohm & Haas	D		P55,000	Irving	15646001	X
						Los Angeles		X
						Newark		X
Acryloid B66 51%		Rohm & Haas Co.	D		P55,000	Newark		X
						Los Angeles	15466201	X
						Irving		X
B82 51%	9010-88-2	Rohm & Haas Co.	D		P55,000	Newark	15646351	X
						Los Angeles		X
						Irving		X
B99 50%		Rohm & Haas Co.	D		P55,000	Newark	15646801	X
A770 50%		Rohm & Haas Co.	D		P55,000	Newark	1564702	X
Acrylonitrile	107-13-1	Am. Cyanamid Co.	D	24,000#	7,440	Bridgeville		X
Adipic Acid	124-04-9	Monsanto Ind.	D	20,000#	8,300	Richmond	16501501	X
		Monsanto Ind.	D	6,000#	3,120	Chicago		X
Aerosil		Degussa, Ind.	D		171,000	Richmond	04402601	X
Aerosil 200	7631-86-9	Degussa Ind.	D	6 T/L as of 7/11	147,744	Bridgeville	04402001	X
		Dorsett & Jackson	D	5,600#	P30,000	Los Angeles	15392651	X
		Purr Marketing	D	6,480#	12,375	Petrolia		X
		Degussa Ind.	D	30,000#	57,300	Chicago	04402001	X

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Aerosol 07-75	577-11-7	McKesson Chem. Co.	D		205,500	Petrolia		X
Agerite Stalite		Vanderbilt Co.	D	425#	561	Woodward		X
Alc. Anhyd 190°	64-17-5	Ashland Chem.	D		P1,000,000	Los Angeles	15593081	X
		Amsco Div. - Union Oil	D		P500,000	Los Angeles	15593081	X
Albacar 5950		Pfizer, Inc.	D	6,000#	519	Bridgeville		X
Albagos		Pfizer, Inc.	D	10,500	804	Bridgeville		-
Aluminum	7429-90-5	Raven Metal Prod.	D			Salisbury		X
						Houston		
						Gainesville		
						Florence		
						Port Newark		
Aluminum, Embossed		Reynolds Metal Co.	D	10,000#	13,800	Newark		X
		Reynolds Metal Co.	D	500,000#	665,000	Wickliffe		X
						Woodward		
Aluminum, Foil	7429-90-5	Aluminum Co. of Am.	D	1,000,000#	1,342,000	Woodward		X
Aluminum Paste#6240		Texas Solvent	D		P357,500	Irving		X
#6230		Texas Solvent	D		P367,500	Irving		X
MD586		Ribelin	D		P155,000	Irving	15183501	X
MD796		Ribelin	D		P155,000	Irving	15183401	X
Aluminum Powder		Alcan Metal Powder	D		3,600	Newark	15189001	X
Aluminum Isopropylate	555-31-7	Chattem Chem.	D	990#	683	Oil City		X
Amberol 801		D&F Distrub	D			Irving	15872241	-
Amerzine 15%		Drew Chem. Corp.	D	125#	257	Memphis		X
Amino-Eth (Non-Phenol)		Dorsett & Jackson	D	12,800#	P30,000	Los Angeles	15398941	X
Ammonium Sulfate	62-56-6	Hydritchem Corp.	D	900,000#	40,500	Conley, GA		X
AMP-95	61-19-8	IMC Chemical Co.	D	6,200	4,650	Charleston		X
Amyl Acetate	628-63-7	Amsco Div. of Union Oil	D		P125,000	Newark	15594531	X
Anthrafines (Buckwheat #5)		Lehigh-Navigation	D	6,000 Tons	233,600	Toledo		-
		Lehigh Valley	D			Woodward		-
						Erie		-
		Navigation Coal	D			Woodward		-
						Toledo		-
						Erie		-
		Gilberton Coal	D		P35,000	Woodward		-
						Toledo		-
						Erie		-
Anti-Terra P		P&F Distrub	D		P35,000	Irving	15101871	X
Araldite 064		Ciba-Geigy	D		P220,000	Los Angeles	15736001	X
Aradite RDI	296497-0	Ribelin	D		P155,000	Irving	15753601	X
RDI		Ciba-Geigy	D	2000#	2,570	Newark	15733601	X
471-x75		Ciba-Geigy	D	80,000#	58,800	Newark	15730501	X
507		Ciba-Geigy	D		P220,000	Los Angeles	15730901	X
506		Ciba-Geigy	D		P90,000	Marietta	15730901	X
506		Ciba-Geigy	D		P220,000	Los Angeles		X
506DE		Cargill	D	135000#	60,000	Newark		X
506		Ciba-Geigy	D	4,000	3,700	Newark		X
597-EX-55		Ciba-Geigy	D		P90,000	Marietta	15731951	X

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Aradite 597-EX-55		Ribelin	D		P155,000	Irving	15731951	X
Aradite 571-KX75		Ciba-Geigy	D		P220,000	Los Angeles	15731701	X
571-KX-75		Ciba-Geigy	D	20,000#	15,000	Newark	15731701	X
571-KX-75		Ciba-Geigy	D		P90,000	Marietta	15731801	X
571-KX-75		Ribelin	D		P155,000	Irving	15731701	X
540-X90		Ciba-Geigy	D		P90,000	Marietta	15731501	X
540-X-90		Ribelin	D		P155,000	Irving	15731501	X
540-X-90		Ciba-Geigy	D		P220,000	Los Angeles	15731501	X
540-X-90		Ciba-Geigy	D	60,000#	51,000	Newark	15731501	X
6010	25068-38-6	Ciba-Geigy	D		P220,000	Los Angeles	15732501	X
6010		Ribelin	D		P155,000	Irving	15732501	X
6010		Ciba-Geigy	D	4,000#	3580	Newark	15732501	X
6010		Ciba-Geigy	D	27,000 Gal.	P420,000	Westfield		X
6097		Ciba-Geigy	D	4000#	3,480	Newark	15734501	X
6097		Ribelin	D		P155,000	Irving	15734501	X
6097		Ciba-Geigy	D		P90,000	Marietta	15734501	X
ARD 2 1365-6X350-1518-50		McCloskey Varnish	D	135,000#	44,888	Los Angeles	15668641	
Argon	7440-37-1	Keystone Metal		1,500 Cu.Ft.	P3,000	Petrolia		X
Argo	7440-3701	Midwest Weld	D		P5,000	Chicago		X
Armohib-31		Armak Co.	D	6750#	13,085	Orrville, OH		X
Aromatic 150		Exxon Corp.	D	1 T/T	4,980	Bridgeville		X
Aroplaz 1365-X-60		Ashland Chem.	D		P25,000	Irving	15668651	X
Aroplaz 1266		Ashland Chem.	D		P25,000	Irving	15668611	X
Aroplaz X-663-X-50		Ashland Chem.	D		P25,000	Irving	15668591	X
Arquad 2C-75		Armak Chem. Corp.	D	3,900#	4,446	Bridgeville		X
Arsenic Acid 75%	1327-52-2	Penwalt Corp.	D	80,000#	21,910	Newark, CA		X
Arsenic Acid	1327-52-2	Penwalt Corp.	D	40,000#	10,952	Valparaiso		X
Arsenic Acid	1327-52-2	Penwalt Corp.	D	20 T/L as of 8/3	167,352	Newark, CA		X
Arsenic Trioxide	1327-53-3	Leonard J. Buck	D	250MT	914,660	Conley, GA		X
Arsenic Trioxide	1327-53-3	Asarco	D	1,680,000#	97,500	Conley, GA		X
Asbesto Dry Felt	1332-21-4	Nicolet Ind.	D	450 Tons	108,970	Coshocton, OH (Mineral Fiber Manv)		X
Asbesto 7MSI	1332-21-4	Carey Canadian	I	125,000#	7,800/CF	Charleston		X
Ashland KWIK-DRI		Ashland Chem.	D	7,500 Gal.	5662	Woodward		X
Asphalt	8052-42-4	Trumble Asphalt	D	230 Ton	36,381	Woodward		X
AT-70		Rohm & Haas	D		P55,000	Irving	15646801	X
Atomite	471-34-1	Ribelin	D		P155,000	Irving	15290551	X
Azamide 215 x 70		D&F Distrub	D		P35,000	Irving	15937551	X
B-7918AZ Resin		Sunbelt Chem.	D		P55,000	Irving		-
BA-50 Technical		Great Lakes Chem.	D	490#	746	Bridgeville		X
Barytes #1		Pfizer-MPPN Div.	D	5,800#	1044	Los Angeles	15390801	-
#BB660/5060		Cargill	D			Los Angeles	15666531	-
Beaver White 200		Cyprus Ind. Mineral	D	1250#	187	Westfield		

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Bentone 27		N.L. Industries	D	2000#	P155,000	Westfield	15042001	X
Bentone 27		N.L. Industries	D			Irving	15042001	X
Bentone 34		N.L. Industries	D	10,000#	8,625	Fontana		X
Bentone 34		N.L. Industries	D	50,000#	P155,000	Westfield	04601701	X
Bentone 34		N.L. Industries	D		P22,000	Los Angeles	15042001	X
Bentone 38		N.L. Industries	D		P25,000	Marietta	15042601	X
Bentone 38		N.L. Industries	D	12,000#	13,200	Fontana		X
Bentone 38		N.L. Industries	D		P22,000	Los Angeles	15042601	X
Bentone 38		N.L. Industries	D			Irving	15042611	X
Bentone 38		N.L. Industries	D	16,000#	P155,000	Westfield	04601901	X
Bentone 38		N.L. Industries	D	11,000#	13,090	Woodward		X
Bentone SA-38		N.L. Industries	D			Irving	15042601	X
Nitration Grade Benzene	71-43-2	Shell Chemical	D	1,520,000 Gal.	1,250,000	Bridgeville	02101401	X
		Jones & Laughlin	D	53 T/L as of 7/7	418,000	Bridgeville		X
		Bethlehem Steel	D	200,000 Gal.	250,000	Monsanto Co.		X
		Ashland Chem.	D	1,500,000 Gal.		Bridgeville		X
		J&L Steel	D	293 T/L as of 7/31	1,652,000	Petrolia		X
		U.S.S. Chemicals	D	76 T/L as of 7/31	709,333	Petrolia		X
		Sun Petroleum	D	7,500,000 Gal.	2,325,000	Bridgeville		X
		Sun Petroleum	D	23,000 Gal.	35,500	Petrolia		
		U.S.S.Chemicals	D	42 T/T as of 3/27	288,000	Bridgeville		X
Benzoic Acid	65-85-0	Pfizer, Inc.	D	16,000#	6240	Bridgeville		X
Benzobuanamine		Sherwin-Williams	D	1016#	20	Bridgeville		
Ortho-Benzoquinone Dry	2435-53-2	Eastman Chem.	D	200# as of 5/16	688	Chicago		X
Para Benzoquinone	106-51-4	Allegheny Solvent	D		P210,000	B,O.C., P, F,		X
		Eastman Chem.	D	1000#	3,370	Richmond		X
		Central Solvents	D	200#	734	Chicago		X
Betz Slimicide C-30		Betz Chem.	D	150 Gal.	P58,673	Bridgeville		X
Betz Slimicide J-12		Betz Chem.	D	1500#	P58,673	Bridgeville		X
Betz Slimicide J-12		Betz Chem.	D	450#	1184	Bridgeville		X
Betz Slimicide 242		Betz Lab	D	415#	1162	Bridgeville		X
Betz ULC-503		Betz Lab	D	2,020#	1454	Bridgeville		X
Bicarbonate of Soda	144-55-8	PBS Chem.	D	40,000#	5,488	Petrolia		X
		Interstate Chem.	D	296,000#	34,336	Petrolia		X
Hydrogenated Biphenol A	80-04-6	Rhodia, Inc.	D	24,000#	24,000	Bridgeville		X
		Rhodia, Inc.	D	100,000#	115,000	Bridgeville & Oxnard		X
		Mitsui & Co.	D	70 MT	186,500	Oxnard	10505001	X

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Biphenol A	80-05-7	Shell Chem. Co.	D	100,000#	44,000	Bridgeville	10800601	X
BL-282D		E.I. DuPont Pigment	D		P88,000	Los Angeles	15205201	X
Black Copper Oxide	7440-50-8	C.P. Inorganics	D	80,000#	60,400	Valparaiso		X
		Adelaide & Wallaroo	I	875 MT	1,047,644	Conley, GA		X
		S. California Chem.	D	1,500,000	1,095,000	Conley Valparaiso Jones Hamilton (Newark, CA)		X
Black Paste 83321/9907		Tenneco	D		P100,000	Los Angeles	15424231l	X
BLS-2700	9003-35-4	Union Carbide	D		P11,000	Irving	15702001	X
Borax	1303-96-4	ABC Compounding	D	50,000#	6,143	Conley		X
Boiler Coal	68187-59-7	Island Creek Coal	D	780 Tons	23,595	Orville, OH		X
		Chase Eaton Co.	D	620 Tons	16,980	Follansbee		X
		Consolidation Coal	D	38,000 Tons	1,387,000	Follansbee		X
		Peabody Coal	D	4,000 Tons	147,360	Orrville		X
		ArrowHead Products	D	15,200 Tons	532,000	Follansbee		X
Boric Acid	13460-50-9	U.S. Borax & Chem.	D	40,000# as of 4/27	8,100	O,D,P.N,C,O.		X
		Hydrite Corp.	D	14,700#	3895	Port Newark		X
Brown Pigment #5912		Hoover Color Corp.	D	5,600#	3,000	Newark	15213001	
Brown Pigment F6113		Ferro Corp.	D	25#	113	Bridgeville		
Brown Oxide B-01085		Pfizer, Inc.	D			Newark	15292001	
BT-427D		E.I. DuPont	D		P88,000	Los Angeles	15201401	
BT-425D		E.I. DuPont	D		P88,000	Los Angeles	15203101	
BT-425D		E.I. DuPont	D		P20,000	Irving	15203101	
BT-425D		E.I. DuPont	D		P25,000	Marietta	15203101	
BTMAC		Sun Chem.	D	7040#	4,717	Bridgeville		
Burntumber 6613		Tenneco	D		P100,000	Los Angeles	15436311	
Normal Butane	106-97-8	Petrolane Trnasport	D	400,000 Gal.	190,000	Oroville, CA		X
		General Propane of Denver	D	200,000 Gal.	59,400	Denver		X
		National Butane Co.	D	500,000 Gal.	163,165	Montgomery		X
		West Texas Energy	D	500,000 Gal.	160,000	Oroville, CA		X
N. Butyl Alcohol (Butanol)	71-36-3	Allegheny Solvents	D		210,000	Bridgeville		X
		Ashland Chem.	D		P80,000	Westfield	1060601	X
		Ashland Chem.	D		P1,000,000	Los Angeles	15593461	X
		Ashland Chem.	D		P110,000	Irving		X
		Ashland Chem.	D		P220,000	Newark	15593461	X
		Amsco Div. of Union Oil	D		P500,000	Los Angeles	15593461	X
		Amsco Div. of Union Oil	D		P44,000	Marietta		X

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N- Butyl Alcohol (Butanol)		Amsco Div. of Union Oil	D		P125,000	Newark		X
		Amsco Div. of Union Oil	D		P150,000	Westfield		X
		Celanese Chem.	D	9 T/L as of 6/25	P93,600	Bridgeville	1060501	X
		Eastman Chem.	D	3 T/L as of 6/5	26,400	Bridgeville	10600501	X
		Eastman Chem.	D		P22,000	Los Angeles		X
		Shell Chemicals	D	1 T/L as of 3/5	9,600	Bridgeville	10600601	X
		Shell Chemicals	D		P110,000	Los Angeles		X
		Texas Solvent	D		P367,500	Irving		X
		Van Waters & Rogers	D		P35,000	Irving	15593461	X
		Union Carbide	D		P33,000	Los Angeles	15593461	X
Butvar B-90		Monsanto Co.	D	51,200#	81,000	Los Angeles	15851001	X
N-Butyl Acetate	123-86-4	Amsco Div. - Union Oil	D		P500,000	Los Angeles	15594561	X
		Union Carbide	D		P33,000	Los Angeles	15594551	X
		Ashland	D		P220,000	Newark	15594561	X
		Ashland	D		P1,000,000	Los Angeles	15595441	X
		Allegheny Solvents	D		P210,000	B,O.C.,P.F.		X
		Eastman Chem.	D		P22,000	Los Angeles	15594551	X
N-Butyl Acetate	123-86-4	Ashland Chem.	D		P110,000	Irving		X
		Amsco Div. of Union	D		P500,000	Los Angeles		X
		McKesson Chem.	D		P205,500	B,O.C., F,M.P		X
		Ashland Chem.	D		P1,000,000	Los Angeles		X
		Amsco Div. of Union	D		P44,000	Marietta		X
		Atlanta Solvent	D		P20,000	Marietta		X
Butyl Carbitol	112-34-5	Amsco Div. of Union	D		P125,000	Newark	15595851	X
		McKesson Chem.	D		P205,500	B,O.C.F,M,P		X
Butyl Cellosolve	111-76-2	Allegheny Solvents	D		P210,000	B,O.C.F,M,P		X
		Amsco Div. of Union	D		P125,000	Newark		X
		Amsco Div. of Union	D		P44,000	Marietta		X
		McKesson Chem.	D		P205,500	B,O.C., F,M,P		X
B-Butyl Formel		Celanese Chem.	D	34 T/L as of 8/16	306,000	Bridgeville		X
BYK SL		D&F Distrub	D		P35,000	Irving		X
BYK 300		D&F Distrub	D			Irving		X
Bykanol N		D&F Distrub	D		P35,000	Irving		X
Bykumen		D&F Distrub	D			Irving	15101981	X
C-103		Proctor & Gamble	D	35,000#	27,132	Bridgeville		X

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CAB 381-08	3004-36-8	Eastman Chem.	D		P10,000	Marietta		X
CAB-O-SIL M5	7631-86-9	Texas Solvent	D		P357,500	Irving		X
Calcium	62-54-4	McKesson Chem.	D					
C-103		Proctor & Gamble	D	35,000#	27,132	Bridgeville		X
Cab 381-08	3004-36-8	Eastman Chem.	D		P10,000	Marietta		X
Cab-O-Sil M5	7631-86-9	Texas Solvent	D		P357,500	Irving		X
Calcium Acetate	62-54-4	McKesson Chem.	D		P205,500	B,O.C.,F,M,P		X
Calcium Chloride Hi Test Flake	10043-52-4	McKesson Chem.	D		P205,500	B,O.C.F,M,P		X
Calcium Napthanene		Tenneco Chem.	D		P100,000	Los Angeles	15131601	X
5% Calcium Tencem		Mooney Chem.	D	2,400	1608	Bridgeville		X
Calcium Texhem 5%		Mooney Chem.	D	1,200#	834	Chicago		X
Cal Ink Yellow Chrom 2065		Tenneco	D		P100,000	Los Angeles	15424281	X
Cal Ink Moly Orange		Tenneco	D		P100,000	Los Angeles	15424181	X
Cal Ink/Thalo Blue 7214		Tenneco	D		P100,000	Los Angeles	15424261	X
Cal Ink Yellow Oxide 1810		Tenneco	D		P100,000	Los Angeles	15424191	X
Carbon Dioxide	124-38-9	Midwest Weld	D		P5,000	Chicago		X
Powdered Activated Carbon	7440-44-0	Westvaco Corp.	D	90#	52	Woodward		X
Casein Adhesive MB-330KM		National Casein	D		90,000	Magnolia, AR Morrisville, NC		X
Castor Oil No. 1 Grade	8001-79-4	Spencer Kellog	D	100,000#		Bridgeville	12W001	X
		Bunge Corp.	D	100,000#	41,500	Bridgeville	12601001	X
Caustic Potash	1310-58-3	Ashland Chem.	D	30,000#	9525	Charleston		X
		Burris Chem.	D	10,000#	3,200	Charleston		X
Caustic Soda	1310-73-2	Dow Chemical	D	225 Tons	37,000	Fontana	10303501	X
		PPG Industries	D	945 T/C as of 8/10	1,507,275	Petrolia	10303501	X
		McKesson	D		P205,500	B,O.C.,F,M,P		X
		PPG	D	380,000#	30,400	Oil City		X
		Diamond Shamrock	D	800 Tons	128,000	Chicago	10303501	X
Caustic Soda	1310-73-2	PPG Industries	D	2 T/T	3,480	Bridgeville		X
		McKesson Chem.	D	500# as of 3/10	110	Chicago		X
		Ashland Chem.	D	40,000#	7180	Charleston		X
		Interstate Chem.	D	25,400#	900	Oil City		X
		Smith Chem.	D	1 T/T	3,335	Erie		X
		Burris Chem.	D	85,000#	17,637	Charleston		X
		Dow Chem.	D	6 T/C	37,000	Petrolia		X
		Diamond Shamrock	D	225 Ton	37,000	Fontana		X
		Allied Chem.	D	265 T/L as of 8/10	1,774,085	Petrolia		X

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		PB&S Chem.	D	80,000	13,200	Bridgeville		X
		Carmar Chem. Co.	D	4,000#	1000	Orrville, OH		X
CCA Catalyst		C.P. Chemicals	D	143,950#	62,777	Salisbury, MD		X
CDA 19 95%		Allegheny Solvents	D		P210,000	B,O.C.,P,F		X
CDA 19 ANHV		Allegheny Solvents	D		P210,000	B,O.C.,P,F		X
Celite 535		Johns Manville	D	360 Tons	52,200	Petrolia		X
Celite 545	61790-53-2	Johns Manville	D	16,600#	P3,708	Bridgeville		X
Celite 266		Dow Chem.	D	5 Tons	1225	Irving	15394301	X
Cellosolve Solvent	110-80-5	McKesson Chem.	D		P205,500	B,O.C.,F,M,P		X
		Ashland Chem.	D		P110,000	Irving		X
		Union Carbide	D		P33,000	Los Angeles	15595051	X
		Amsco - Div. of Union	D		P500,000	Los Angeles		X
		Ashland Chem.	D			Los Angeles		X
Cellosolve Acetate	111-15-9	Allegheny Solvent	D		P210,000	B,O.C.,P,F		X
		Union Carbide	D		P33,000	Los Angeles	15594871	X
		McKesson Chem.	D		P205,500	B,O.C.,P,F		X
		Amsco Div. of Union	D		P44,000	Marietta		X
Cellosolve Acetate	111-15-9	Amsco Div. of Union	D		P500,000	Los Angeles	15594861	X
		Ashland	D		P220,000	Newark		X
		Ashland	D			Los Angeles		X
		Ashland	D		P110,000	Irving		X
Chelant Liquid Buffer Code 291		Betz Lab	D	2 Qt.	14	Bridgeville		X
Chlorine	7782-50-5	Jones Chem.	D		P15,000	Erie		X
Chevron Sil		Vanwater & Rogers	D		P50,000	Fontana		X
Chemtrol 7		Zimmite Corp.	D			Fontana		X
Chlorinated Rubber Alloprene X20, H40, X125	68649-03-6	ICI Americas	D		40,000	Fontana		X
Parlon	9006-03-5	Hercules	D	45,000#	45,000	Westfield		X
		Hercules	D	40,000#	44,000	Fontana		X
		Hercules	D	25,000#	26,760	Follansbee		X
Grades SN, S20, S40, S125, S300		Hercules	D			Newark		X
Alloprene X5		ICI Americas	D		P110,000	Newark		X
Alloprene X10		Ribelin	D		P155,000	Irving		X
Alloprene X10		ICI Americas	D		P110,000	Newark		X
Alloprene X20		ICI Americas	D		P10,000	Marietta		X
		ICI Americas	D		P110,000	Newark		X
		Ribelin	D		P155,000	Irving		X
Alloprene X40		ICI America	D		P110,000	Newark		X
		Ribelin	D		P155,000	Irving		X
		ICI America	D		P10,000	Marietta		X
Alloprene X125		ICI America	D		P110,000	Newark		X
		ICI America	D		P10,000	Marietta		X

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Carter Milldale Furnace Coal	68525-80-4	Smith Coal Sales	D	10,000 Ton	390,000	Woodward		X
Bluestone Low Volatile Coal	68525-80-4	Eastern Coal	D	8950 Ton	450,252	St. Paul		X
Imperial Mid-Volatile Coal	68525-80-4	General Coal	D	132,000 Ton	6,402,000	Erie		X
		General Coal	D			Woodward		X
High Volatile Metallurgical	68525-80-4	Berwind Coal	D	6,000 Ton	240,000	Toledo		X
		General Coal	D	10,000 Ton	582,000	Toledo		X
		Continental Coal	D	1,930 Ton	78,199	Toledo		X
Hampton Metallurgical Coal	68525-80-4	General Coal	D	46,000 Ton	1,748,000	Woodward		X
Process Coal	68525-80-4	Pgh. & W. Va. Coal	D	7,500 Ton	377,625	Houston		X
		Pgh. & W. Va. Coal	D	1,500 Ton	96,525	Westfield		X
		Pgh. & W. Va. Coal	D	7,530 Ton	436,222	Follansbee		X
		Pgh. & W. Va. Coal	D	1,500 Ton	75,525	Fontana		X
Mid Volatile Coal	68525-80-4	Eastern Assoc. Coal	D			Toledo	13104601	X
Coal Mt. High Volatile Coal	68525-80-4	Island Creek	D			Woodward		X
		Island Creek	D	60,000 Ton	3,330,000	Erie	13103901	X
Beatrice Low Volatile		Island Creek	D			Woodward		X
Beatrice Low Volatile		Island Creek	D	60,000 Ton	2,700,000	Erie	1315101	X
		Island Creek	D	2,000 Ton	111,000	St. Paul		X
Boiler Coal		Acme Coal Co.	D	3,000 Ton	92,250	Youngstown		X
Sewanee Furnace Coal		Chattanooga Coke	D	15,300 Ton	833,850	Woodward		X
Steam Coal		Pickarnds Mather	D	800 Tons	26,400	Erie		X
Stoker Coal		Alley Cassetty Coal	D	2,500 Tons	80,000	Guthrie		X
Splashdam Mid Volatile		National Collaries	D	2,700 Tons	114,507	St. Paul		X
		National Collaries	D	90,000 Tons	3,816,900	Erie		X
		National Collaries	D			Woodward		X
Firecreek Low Volatile		ArrowHead Coal	D			Woodward		X
		ArrowHead Coal	D	120,000 Ton	6,836,400	Erie		X
Mid Volatile Coal		National Collaries	D			Toledo	13103901	X
Low Volatile Coal		Eastern Coal	D			Toledo	13105501	X
Lump Coal		A-B Products	D	4,000 Ton	123,200	Yougnstown		X
Keystone Low Volatile Coal		Eastern Assoc.	D	250,000 Ton	14,332,500	Erie	13105501	X
		Eastern Assoc.	D			Woodward	1315501	X

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Winding Gulf Low Volatile		General Coal	D	1500 Ton	82,500	St. Paul		X
		General Coal	D	120,000 Ton	6,600,000	Erie		X
		General Coal	D			Woodward		X
Kopperston Mid-Volatile		Eastern Assoc.	D	300,000 Tons	12,900,000	Erie	13104601	X
Wells-Lightfoot Coal		Eastern Assoc.	D	19,000 Ton	726,750	Woodward		X
Snowmass-Thompson Creek Co.		Western Assoc.	D	200 Ton	8,000	Kaiser		X
Kopperston Mid Volatile		Eastern Assoc.	D			Woodward		X
Coalcote		Sun Oil Comp.	D	54,000 Gal.	40,500	Erie		X
Cobalt Hed 12%	7440-48-4	Ferro Corp.	D	18,000	75,600	Bridgeville		X
Cobalt 12% Octdate	136-52-7	Monney Chem.	D	8,000#	30,720	Richmond		X
		Tenneco Chem.	D	42,000#	161,280	Richmond		X
Cobalt Napththenate 6% 12% Cobalt		Tenneco Chem.	D		P100,000	Los Angeles	15132001	X
Polycure At		Mooney Chem.	D	18,000	75,600	Bridgeville		X
Co-Dispersion 21R62		Bordon Co.	D	9,000#	4,500	Westfiel-	02512801	X
		Bordon Co.	D	54,000#	28,600	Fontana	03512801	X
		Ashland Chem.	D	50,000#	25,000	Irving		X
Coke Breeze		Moore-McCleary	D	400 Tons	20,460	Erie		X
Algecidal Compounds								
Compound 102		Oxyz Chem. Corp.	D	13,600#	13,056	Newark	15984001	X
Compound 103		Oxyz Chem. Corp.	D	2,700#	4,914	Newark	15984301	X
Copper Nabal 6%		Mooney Chem.	D	500#	313	Chicago		X
Copper Napall 6%		Mooney Chem.	D	2520#	1,732	Bridgeville		X
Copper Naptha 6%		Mooney Chem.	D	665#	477	Chicago		X
Condex 1040 Absorbent Oil		Sun Oil Corp.	D	110,000 Gal.	55,000	Woodward		X
Conductivity S'ds. Sol. Code 245		Betz Lab	D	2 Qt.	20	Bridgeville		X
Conductivity S'ds. Sol. Code 347		Betz Lab	D	2 Qt.	20	Bridgeville		X
Creosote Oil	8001-58-9	L&N Railroad Co.	D	2,000,000 Gal.	1,364,000	Gutherie		X
Para Cresol	106-44-5	E.I. DuPont	D	9,000#	9,405	Oil City		X
		Sherwin Williams	D	1,000,000#	850,000	Oil City		X
		Mobil Oil	D	40,000#	36,000	Oil City		X
		VOP Chem.	D	1 T/L		Oil City		X
		Sherex Chem. Co.	D	160,000#	145,000	Oil City		X

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O-Cresol/Phenol	26354-11-0	Sherwin Williams	D	500,000#	125,000	Follansbee		X
Cumene Hydro Peroxide	80-15-9	McKesson Chem.	D		P205,500	B,O.C.,F,M,P		X
Cumar #LX-509	63393-89-5	Ashland Chem.	D	20,000#	11,300	Woodward		X
Oxchohexanone	108-94-1	Cal Sol, Inc.	D		P6,000	Fontana		X
		Union Oil Co.	D	20 Drums	P50,000	Fontana		X
		Oil & Solvent	D		P20,000	Fontana		X
Cyclosol		Van Water & Rogers	D		P35,000	Irving		X
Chlorothene U.	71-55-6	Van Waters & Rogers	D		P35,000	Irving		X
		McKesson Chem.	D		P205,500	B,O.C.,F,M,P		X
Chlorowax 40	63449-39-8	Dorsett & Jackson	D	70 Drums	15,000	Fontana	12401701	X
		Cron Chem	D	1-4 Drums		Irving	15452701	X
Chlorowax 50	63449-39-8	Allegheny Solvents	D		P210,000	B,OC,F,M,P		X
Chromic Acid Flake	11115-74-5	Thompson-Hayward	D	60,000#	186,600	Conley		X
		Chemway Corp.	D	40,000#	69,200	Conley		X
		Forshaw Chem.	D	40,000#	24,615	Conley		X
		C. P. Chem.	D	30,000#	25,650	Conley		X
		Allied Chem.	D	92 T/L	2,918,400	Conley		X
		Chemical Specialties	D	25,000#	20,625	Conley		X
		Park Trading Co.	D	80,000#	69,200	Conley		X
		Textile Chem. Co.	D	40,000#	33,800	Conley		X
		Diamond Shamrock	D	90 T/L	3,042,000	Conley & St. Louis		X
		Ashland Chem.	D	40,000#	33,800	Conley		X
Chrome Rep. Oxide RO-3097		Pfizer, Inc.	D	50#	107	Bridgeville		X
Cida 506		Ribelin	D		P155,000	Irving	15730901	X
Ciba-825		Ribelin	D		P155,000	Irving	15739301	
Citric Acid-USP Anhydrous Granular	77-92-9	McKesson Chem.	D		P205,500	B,O.C,F,MP		X
CKY-2266		Union Carbide	D		P11,000	Irving	15700801	
CL-37 Deformer		Calgon Industries	D	2310 gal.	40,698	Follansbee		
Cyclohexanone	108-94-1	Van Waters & Rogers	D		P50,000	Fontana	10600501	X
Damolyn 327-B		Hercules, Inc.	D	23,780	13,555	Bridgeville		
Defoamer L880		Drew Chem.	D	800#	288	Petrolia		X
Desmodur N75		Mobay Chem.	D	51,000#	11,700	Los Angeles	15825101	X
Diallyl Phthalate	131-17-9	Allegheny Solvents	D		P210,000	B,O.C.,P.F		X
Diammonium Phosphate Technical Grade	7783-28-0	McKesson Chem.	D		P205,500	B,O.C.,P.F.		X
Dianodia 913		Betz Chem.	D	10 Drums	3285	Bridgeville		X
Dibutyl Phthalate	84-74-2	McKesson Chem.	D		P205,500	B,O.C.,P,F		X
		Allegheny Solvents	D		P210,000	B,O.C.,P.F.		X

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Dibutyl Phthalate		Eastman Chem.	D	9,700# as of 5/16	4899	Chicago	X
Dibutyl Tin Oxide	818-08-6	M & T Chem.	D	00#	1409	Bridgeville	X
Dicyaniamide (Tech) Granular	461-58-5	Philipp Bros.	D	17 T/L as of 7/25	281,280	Oroville, Orrville, Florence	X
		Am. Cyanamid	D	500,000#	281,800	Oroville, Orrville, Florence	X
		American Hoechst Chemical Div.	D	80,000#	36,000	Florence	X
Diesel Fuel	68476-34-6	P & L Wright	D	5,000 Gal.	2413	Chicago	X
#2 Diesel Fuel	68476-34-6	Gulf Oil	D	250,000 Gal.	P107,647	North Little Rock	X
		Penzoil Co.	D	500 Gal.	235	Oil City	X
		Union Oil of Cal.	D	90,000 Gal.	39,015	Woodward	X
		Clopper Oil	D	50,000 Gal.	P29,890	Green Spring	X
		Don White Service	D	84,000 Gal.	P43,586	Galesburg	X
		Belcher Oil	D	60,000 Gal.	24,036	Montgomery, AL	X
		Chevron Oil	D	20,000 Gal.	P8,910	North Bend	X
		John D. Baldwin	D	48,000 Gal.	P33,537	Gainesville	X
		Union of Calif.	D	280,000 Gal.	117,320	Florence	X
		Standard Oil	D	24,000 Gal.	12,240	Toledo	X
#2 Diesel Fuel	68476-34-6	Amoco	D	27,000 Gal.	P116,247	Leed, MI	X
		Standard Oil Co.	D	30,000 Gal.	P17,059	Guthrie	X
		Gulf Oil Corp.	D	1000 Gal.		Port Newark	X
		United Refining	D	25,000 Gal.	10,350	Erie	X
		Chevron, USA	D	1,700 Gal.	697	Fontana	X
		Thurston Oil Co.	D	20,000 Gal.	7258	Richmond	X
		White Oil Head	D	60,000 Gal.	27,480	Nashua	X
		Ferguson Reed	D	21,000 Gal.	10,899	Salem	X
		Wr. Holmes/Holmeson	D	800 Gal.	360	Woodward	X
		Montour Auto Ser.	D	500,000 Gal.	230,000	Montgomery	X
		Universal Oil	D	20,000 Gal.	9980	Bridgeville	X
		Drexel L. Bradley	D	200,000 Gal.	92,600	Salisbury	X
		Exxon Corp.	D	35,000 Gal.	12,548	Houston	X
		Russ Gerber	D	68,000 Gal.	33,932	Orrville	X
		Nicoll Bros. Oil	D	135,000 Gal.	P281,010	Denver	X
		Anderson Fuel	D	22,000 Gal.	10,978	Superior, WI	X
		Cochran Oil Co.	D	30,000 Gal.	P27,520	Carbondale	X
		Gulf Oil	D	30,000 Gal.	12,384	Grenada	X
		Gulf Oil	D	80,000 Gal.	48,720	Woodward	X
#1 Diesel Fuel		Standard Oil	D	24,000 Gal.	12,504	Toledo	X
Diethyamine	109-89-7	Ashland	D		P220,000	Newark	X
		McKesson	D		P205,500	B,O.C.F,M.P.	X

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Diethylanaline	91-66-7	McKesson	D	3,300 lb.	4455	Chicago		X
		McKesson	D		P205,500	Bridgeville		X
Diethylene Glycol	111-46-6	PPG Ind.	D	10 T/T as of 5/25	84,780	Bridgeville	10601501	X
		Union Carbide Corp.	D			Richmond	10604001	X
		Union Carbide	D			Oxnard	10604001	X
		Union Carbide	D			Chicago	10604001	X
		Dow Chem.	D			Richmond	10604001	X
		Dow Chem.	D	22 T/T as of 8/20	220,000	Bridgeville	10601501	X
		Dow Chem.	D	1,000,000# as of 8/20	250,000	Bridgeville	10601501	X
		Union Carbide	D	30 T/T as of 8/20	300,000	Bridgeville	10601501	X
		PPG IND.	D	1 T/T as of 3/2	7,400	Chicago	10601501	X
		Northern Petrochem.	D			Chicago	10601501	X
		Dow Chem.	D			Chicago	10601501	X
		Dow Chem.	D			Oxnard	10604001	X
Dimethyl Acid Phyro Phosphate		Stauffer Chem.	D	2,100#	1,806	Bridgeville		
Dimethyaniline	121-69-7	E.I. DuPont	D	102,000#	74,460	Bridgeville		X
		E. I. DuPont	D	4,200#	3,066	Chicago		X
		McKesson Chem.	D	53,000#	47,700	Chicago		X
Dimethyl Formamide	68-12-2	McKesson Chem.	D		P205,500	O.C.,F,M,B		X
		Allegheny Solvents	D		P210,000	B,O.C.,P,F		X
		McKesson	D	15,000#	7,350	Chicago		X
Dimethyl Methyl Phosphate	756-79-6	Stauffer Chem.	D	55 Gal.	678	Morgan		X
N,N Dimethyl Paratoluidine	99-97-8	RSA Corp.	D	1 Qt.	15	Bridgeville		X
Dimethyl Phthalate	131-11-3	Allegheny Solvents	D	5 Gal.	63	Bridgeville		X
Dipropylene Glycol	25265-71-8	Dow Chemical	D	10 T/c as of 2/21	250,425	Bridgeville	10602501	X
		Dow Chemical	D			Richmond	10602501	X
		Oxirane Corp.	D	10 T/C as of 6/15	490,103	Bridgeville	10602501	X
		Oxirane Corp.	D			Richmond	10602501	X
Disodium Phosphate Anhydrous Granular	7558-79-4	McKesson Chem.	D		P205,500	B,O.C,M,P		X
Disodium Phosphate	7558-79-4	Jones Chem.	D		P15,100	Erie		X
Disperby K		D&F Distrubing	D			Irving	16043201	X

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2,5 Ditertiary Butylhydroquinone	88-58-4	Allegheny Solvent	D		P20,000	B,O.C.,P,F		X
Ditertiary Butyl Hyd.	88-58-4	Eastman Chem.	D	150# as of 5/16	465	Chicago		X
DMP-30	90-72-2	Ciba-Geigy	D	50,000#	P420,000	Westfield	10703001	X
DOP	117-81-7	Texas Solvent	D		P357,500	Irving		X
		Eastman Chem.	D		P10,000	Marietta		X
Dowanol DPM-SG	345-90-94-8	Allegheny Solvents	D		P210,000	Follansbee		X
Dowanol EE		Allegheny Solvents	D		P210,000	B,O.C., P,F		
Dowanol EE		Texas Solvent	D		P357,500	Irving		
Dow Anti-Foam Agent "B"		Texas Solvent	D	5 Gal.	58	Houston Chem. Ser.		X
Dow Anti Foam Agent "B"		Allegheny Solvent	D	5 Gal.	58	H. M. Stauffer		X
Dow Corning DC 200/100		Central Solvent	D	80#	255	Chicago		X
Dow Corning 193		Dow Corning	D	120#	380	Bridgeville		X
Dow Resin 565	116-37-0	Dow Chemical	D	30 Drums	11,044	Bridgeville		X
Dow Therm A		Dow Chemical	D	160 Drums	72,200	Bridgeville		
Dow Therm A		Dow Chemical	D	4,750#	4703	Follansbee		
Drewtrol 9500		Drew Chem.	D	600#	648	Memphis		
Drierite	7778-18-9	WA. Hammond Drierite	D	1280 oz.	42	Whitestone Chem.		X
Dry Ice	124-38-9	Central Window Cleaning	D	3,000# as of 6/29	5,000	Follansbee		X
		Kelly Dry Ice	D	28,000#	3,220	Bridgeville		X
DTE Oil		Mobil Oil	D	2,500 Gal.	3,750	Bridgeville		X
DuPont Tipure White R75-960		E. I. DuPont	D	5,000#	7,600	Charleston		X
E.D. Ta Sol Code 641		Betz Lab	D	2 Qt.	14	Bridgeville		X
Ektasolve EE Acetate		Eastman Chem.	D		P22,000	Los Angeles	15594871	X
Elvax 250	24937-78-8	E. I. DuPont	D	25,000#	13,845	Woodward		X
EMTAX 1205		Emery Co.	D	500,000#	225,000	Bridgeville	10203051	X
Epoxy Resin Epon 828	25068-38-6	Shell Chem.	D		200,000	Westfield	52203201	X
		Shell Chem.	D	140,000#	113,400	Bridgeville	12203101	X
		Shell Chem.	D		81,000	Fontana	52203201	X
Epoxy Resin-DER 331		Dow Chem.	D		200,000	Westfield		X
EPOTUF P372-60		Deeks & Co.	D		P20,000	Marietta		X
EPOTUF 38-406		Deek & Co.	D		P20,000	Marietta		X
Ethyl Acetate 85/88	141-78-6	Amsco Div. - Union	D		P500,000	Los Angeles	15594251	X
Ethyl Acetate 99%	141-78-6	Eastman Chem.	D		P22,000	Los Angeles	15594261	X
		McKesson Chem.	D		P205,500	B,O.C.,F,MP		X
		Ashland Chem.	D		P110,000	Irving		X
		Ashland Chem.	D		P1,000,000	Los Angeles	15594261	X

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Ethyl Acetate 99%		Ashland Chem.	D		P220,000	Newark		X
		Union Carbide	D		P33,000	Los Angeles		X
		Allegheny Solvents	D		P210,000	B,O.C.,P,F		X
		AMSCO Div.-Union Oil	D		P500,000	Los Angeles		X
Ethyl Alcohol	64-17-5	AMSCO Div. of Union Oil	D		P125,000	Newark		X
		AMSCO Div. of Union	D		P44,000	Marietta		X
Ethyl Benzene	100-41-4	Tenneco Oil Co.	D	6,500 Gal.	11,716	Bridgeville		X
Ethyl Benzene	100-41-4	ARCO Chem. Co.		150,000 Gal.	27,750	Bridgeville		X
Ethyl Ether Anhydrous	60-29-7	U.S. Industrial Chem.	D	810,000#	214,650	Petrolia	10603401	X
Ethylene Glycol	107-21-1	McKesson Chem.	D		P205,500	B,O.C.F,M,P		X
		Allegheny Solvents	D		P210,000	B,O.C.P,F		X
		Union Carbide	D			Richmond	10601501	X
		Texas Solvent	D		P357,500	Irving		X
		Dow Chemical	D	2 T/L as of 4/5	19,600	Bridgeville	10604001	X
		Northern Petro Chem.	D	1 T/T as of 5/16	8,000	Chicago	10604001	X
		Dow Chem.	D			Richmond	10601501	X
		Dow Chem.	D			Oxnard	10601501	X
		PPG	D	2 T/T as of 5/1	20,000	Bridgeville	10604001	X
		Union Carbide	D			Oxnard	10601501	X
		Burris Chem.	D	38,600#	12,159	Charleston		X
		Union Carbide	D	3 T/T as of 8/14	30,800	Bridgeville	10604001	X
EXKIN #2		Tenneco Chem.	D		P100,000	Los Angeles	15034201	X
Factowax 133		Boron Oil	D	1040#	396	Bridgeville		X
Fatty Acids - Coconut (Emery 626)		Emery Ind.	D	50,000#	31,500	Bridgeville	12803101	X
Ferric Chloride Anhydrous	7705-08-0	McKesson Chem.	D		P205,500	B,O.C.,F,MP		
Fibreve C-400	14807-96-6	Cyprus Ind.	D	169,500#	8112	Los Angeles	15398101	X
Formaldehyde 37%	50-00-0	Celanese Chem.	D	19 T/L as of 8/13	56,411 as of 8/13	Petrolia	10905401	X
		Celanese Chem.	D	10 T/L as of 8/20	19,375	Bridgeville		X
		E.I. DuPont	D	7 T/T as of 7/19	18,018 as of 7/19	Orrville		X
		E.I. DuPont	D	12 TL	30,000	Florence		X
		Celanese Chem.	D	160,000#	9,440	Bridgeville		X
		E.I. DuPont	D	680,000# as of 8/10	50,456	Petrolia	10905401	X

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Formaldehyde 37%		Celanese Chem.	D			Bridgeville	10905401	X
		Celanese Chem.	D	360,000 as of 8/16	104,400	Petrolia	10905401	X
		Borden Chem.	D	500,000# as of 7/11	70,000	Oroville		X
		McKesson Chem.	D		P205,500	B,O.C, F,MP		X
#1 Fuel Oil		Anderson Fuel	D	3,500 Gal.	1816	Superior		
#2 Fuel Oil	68476-30-2	Andrews Pitzer	D	4,000 Gal.	2116	Salem		X
		Amoco Oil	D	400,000 Gal.	176,120	Green Springs		X
		H. L. Hunt	D	600,000 Gal.	251,250	Woodward		X
		Gulf Oil Corp.	D	900 Gal.		Port Newark		X
		Nicoll Bros. Oil	D	125,000 Gal.	P281,010	Denver		X
		Thurston Oil Co.	D	10,000 Gal.	3424	Richmond		X
		Exxon Corp.	D	20,000 Gal.	7,890	Morrisville		X
		Reserve	D	100,000 Gal.	50,000	Green Srping		X
		Draper Oil	D	250,000 Gal.	110,125	Nashua		X
		Reserve Petro	D	700,000 Gal.	305,970	Follansbee		X
		Cochran Oil	D	20,000 Gal.	P27,520	Carbondale		X
		Boswell Oil	D	150,000 Gal.	62,625	Bridgeville		X
#2 Fuel Oil	68476-30-2	Fairle & Wilson	D	30,000 Gal.	14,000	Newark		X
#4 Fuel Oil	68476-31-3	Belcher Co. of N.Y.	D	1,500,000 Gal.	634,650	Kearny		X
		Van Guard Oil	D	350,000 Gal.	146,045	Kearny		X
		Petroleum Marketers	D	150,000 Gal.	58,065	Salem		X
		Belcher Co.	D	300,000 Gal.	127,680	Westfield, NS		X
		C.H. Sprague & Son	D	400,000 Gal.	P325,280	Nashua		X
		Exxon Corp.	D	355,000 Gal.	128,830	Richmond		X
		Amerada Hess	D	225,000 Gal.	68,670	Westfield		X
#5 Fuel Oil		Murphy Oil Corp.	D	135,000 Gal.	43,875	Superior		X
#5 Fuel Oil		Commercial Oil	D	250,000 Gal.	73,750	Toledo		
#6 Fuel Oil	68553-004	Murphy Oil Corp.	D	275,000 Gal.	82,500	Superior		X
		Sun Oil Corp.	D	60,000 Gal.	22,644	Swedeland		X
		Amerada Hess	D	600,000 Gal.	178,860	Salisbury		X
		B. P. Oil Corp.	D	1,180,000 Gal.	482,040	Muncy		X
		Reserve Petroleum	D	2,000,000 Gal.	609,700	Bridgeville		X
		Boswell Oil	D	4,000,000 Gal.	1,360,000	Bridgeville		X
		Allied Oil	D	300,000 Gal.	107,310	Carbondale		X
		Newman Fuel	D	516,000 Gal.	181,374	North Tonawanda		X
		Exxon	D	600,000 Gal.	P194,760	Florence		X
		Sun Petroleum	D	200,000,000 Gal.	665,000	Toledo		X
		Ohio Liquid Disposable	D	2,000,000 Gal.	640,000	Toledo		X

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#6 Fuel Oil		Reserve Petro	D	500,000 Gal.	175,750	Galesburg		X
		Allied Oil Co.	D	2,560,000	928,000	Follansbee		X
		Exxon Corp.	D	80,000 Gal.	21,712	Morrisville		X
		C. H. Sprague & Son	D	500,000 Gal.	P325,280	Nashua		X
Fuel Solvent FS-20		Betz Lab	D	550 Gal.	2500	Bridgeville		X
Fumaric Acid	110-17-8	Pfizer Chem.	D	260,000#	101,400	Oxnard		X
		Pfizer Chem.	D	24,000#	11,020	Bridgeville		X
Gasoline	68425-29-6	Cochran Oil Co.	D	5,000 Gal.	P27,520	Carbondale		X
		Universal Oil	D	20,000 Gal.	13,580	Bridgeville		X
		W. R. Holmes	D	8,000 Gal.	5,000	Woodward		X
		Amoco	D	2,500 Gal.	P116,247	Leeds		X
		J. H. Herring	D	14,000 Gal.	8,260	Montgomery		X
		Gulf Oil Corp.	D	6,500 Gal.		Port Newark		X
		Exxon Co.	D	30,000 Gal.	17,850	Nashua		X
		Gulf Oil	D	6,000 Gal.	P107,647	North Little Rock		X
		United Refining	D	1,000 Gal.	452	Erie		X
		Atlantic Richfield	D	25,000 Gal.	14,713	Follansbee		X
		H. B. Howell	D	7,000 Gal.	4,298	Grenada		X
		Offen, Inc.	D	3,000 Gal.	1,875	Denver		X
		Montour Auto Service	D	6,000 Gal.	2,838	Montgomery		X
		Drexel L. Bradley	D	29,000 Gal.	17,545	Salisbury		X
		Clopper Oil	D	9,000 Gal.	P29,890	Green Spring		X
		Gulf Oil	D	7,200 Gal.	35,100	Kearny		X
		Standard Oil	D	3,500 Gal.	P17,059	Guthrie		X
		Quaker State	D	25,000 Gal.	15,290	Petrolia		X
		Chevron	D	5,000 Gal.	3,000	Fontana		X
		Penzoil Co.	D	2,000 Gal.	1,321	Oil City		X
		Ferguson Reed Spradlin	D	3,000 Gal.	1,923	Salem		X
		P & L Wright Co.	D	18,800 Gal.	5481	Chicago		X
		Anderson Fuel	D	3,000 Gal.	1827	Superior		X
		Union Oil of CA	D	7,500 Gal.	4,830	Woodward		X
		Don White Oil Service	D	4,800 Gal.	P43,586	Galesburg		X
		John D. Baldwin	D	15,000 Gal.	P33,537	Gainesville		X
Genetron II	75-69-4	PA Ind. Supply Co.	D	16,000#	10,240	Morgan, PA		X
Glomax HE2474		Whittaker, Clark, Daniels	D			Newark		X
Glycerine	56-81-5	Shell Chem. Comp.	D	120,000#	63,000	Bridgeville	10605001	X
		Humko Sheffield	D	40,000#	18,600	Bridgeville		X
		Procter & Gamble	D	600,000#	307,860	Bridgeville	10606001	X
		Allegheny Solvents	D		P210,000	B,O.C,P,F,M		X
		Colgate Palmolive	D	320,000 Gal.	158,016	Bridgeville		X
GT-674D		E. I. DuPont Pigments	D		P88,000	Los Angeles	15236201	X

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Hardness Buffer Reagent Code #291		Betz Lab	D	500 Grams	20	Bridgeville		X
Hastalon GUR 412		Am. Hoechst	D	100#	83	Bridgeville		
HD 30 Oil		Quaker State	D	3,000 Gal.	6360	Petrolia		X
#2 Heating Oil	68476-30-2	Williams Oil	D	30,000#	13,665	Memphis		X
#2 Heating Oil		Southland Oil	D	100,000 Gal.	38,880	Grenada		X
		Chevron	D	236,000 Gal.	P586,110	Montgomery		X
		Exxon	D	60,000 Gal.	P194,760	Florence		X
		Amoco	D	275,000 Gal.	P116,247	Leeds		X
#3 Heating Oil		United Refining	D	300,000 Gal.	134,700	Petrolia		
Helium	7440-59-7	R.N. Goss Gas	D	14,300 cu.ft.	228	Oil City		X
N. Heptane	142-82-5	Phillip Petro	D	80,000 Gal.	40,000	Oil City		X
Hercules Defoamer 6K		Hercules, Inc.	D	5,000#	4,000	Petrolia		
Hercules X-1134		Hercules, Inc.	D	66,500#	99,750	Charleston		
Hercules X-1861		Hercules	D	6,000#	8,400	Charleston		
Hi Sol 10		Ashland	D		P220,000	Newark		
Hi Sol 10		Ashland	D		P100,000	Irving		
						Bridgeville	02103801	
Hi Sol 15		Ashland	D		P220,000	Newark		
Hi Sol 15		Ashland	D		P100,000	Irving		
Hi Sol Mineral Spirits		Ashland	D	3 T/L as of 5/25		Bridgeville		
H-T-H Granular	7778-54-3	McKesson	D		P205,500	B,O.C.,F,M,P.		X
Hydrate Alumina C-331	21645-51-2	Alcoa	D	41,000#	4,777	Bridgeville		X
Hyorazine 35%	302-01-2	McKesson Chem.	D		P205,500	B,O.C,F,M,P		X
Hydrogen	1333-74-0	Midwest Weld.	D		P5,000	Chicago		X
		R.N. Goss Gas	D	1,146 cu.ft.	61	Oil City		X
Hydrogen Peroxide	7722-84-1	Burris Chem.	D	80,000#	25,400	Conley		X
Hydroquinone	123-31-9	McKesson Chem.	D		P205,500	B,O.C.F,M,P		X
		Jones Chem.	D		P15,000	Erie		X
		Eastman Chem.	D	6,000#	9,300	Richmond		X
		Eastman Chem.	D	700# as of 5/16	1204	Chicago		X
IBIB		Amsco Div.-Union Oil	D		P500,000	Los Angeles	15594941	
		Eastman Chem. Prod.	D		P22,000	Los Angeles	15594941	
		Eastman Chem.	D		P10,000	Marietta		
IGEPAL CO-630	9016-45-9	GAF Corp.	D	2000#	900	Charleston		X
Indulin	8004-98-6	Westvaco	D	420,000#	70,000	Charleston		X
Inferno-KAST #28		Nat. Cupola & Foundry	D			Woodward		

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Irganox 1010	6683-19-8	Ciba-Geigy	D	880#	5039	Bridgeville		X
Iron Octoate	6535-20-2	Tenneco Chem.	D	4,800	3,456	Bridgeville		X
Iron Oxide	1309-37-1	Frank Davis Co.	D	10,000#	5,000	Fontana		X
Isobutyl Acetate	110-19-0	Ashland Chem.	D		P1,000,000	Los Angeles	15594631	X
		Ashland Chem.	D		P110,000	Irving		X
		Eastman Chem.	D		P22,000	Los Angeles		X
		ASMCO Div. - Union Oil	D		P500,000	Los Angeles		X
		Union Carbide	D		P33,000	Los Angeles		X
Isobutyl Isob		Ashland Chem.	D			Los Angeles	15594941	
Isobuytlene	115-11-7	Petro-Tex Chem.	D	520,000 Gal.	450,000	Oil City	10906101	
Isophthalic Acid 85	121-91-5	Amoco Chem. Co.	D		P475,000	Oxnard	10506601	X
		Amoco Chem.	D	15 T/L	225,000	Bridgeville	10505601	X
		Amoco Chem.	D		225,000	Richmond		X
		Shell Chem.	D		P110,000	Los Angeles	15593461	X
		Amsco Div. - Union Oil	D		P500,000	Los Angeles	15593131	X
		Amsco Div. - Union Oil	D		P44,000	Marietta, GA		X
		Ashland Chem.	D		P110,000	Irving		X
		Ashland Chem.	D		P1,000,000	Los Angeles	15593131	X
		Amoco Chem.	D	324,000#	144,067	Chicago		X
		Amoco Chem.	D		P475,000	Oxnard	10505501	X
Isophthalic Acid	121-91-5	Amoco Chem.	D	26 T/L as of 8/6	436,800	Bridgeville	10505501	X
		Amoco Chem.	D		P475,000	Oxnard		X
		Amoco Chem.	D	5 T/L as of 8/6	91,000	Bridgeville		X
Isopropanol	67-63-0	Amsco of Union Oil	D		P150,000	Westfield	10606001	X
		Ashland Chem.	D		P80,000	Westfield		X
		Burris Chem.	D	8,000 Gal.	12,640	Charleston		X
		Van Waters & Rogers	D		P35,000	Irving	15593131	X
		McKesson Chem.	D		P205,500	B,O.C.,F,MP		X
		Atlanta Solvent	D		P20,000	Marietta		X
		Union Cabide	D		P33,000	Los Angeles	15593131	X
		Allegheny Solvents	D		P210,000	B,O.C.,P,F.		X
Isopropyl Acetate	108-21-4	Ashland Chem.	D		P110,000	Irving		X
Isopropyl Ether	108-20-3	Shell Chem.	D			Oroville,Denver		X
		Exxon Chem.	D	10 T/L	139,300	Denver, Oroville, Montgomery		X
IT-3X Magnesium		A.S. Lynch & Corp.	D	100 Ton	14,400	Fontana	03100801	X
J-1238 Yellow		Mineral Pigment	D	1200#	P17,000	Charleston	15351401	
J-1238 Med Yellow		Sun Belt Chem.	D		P55,000	Irving	15351401	
J-1310 Zinc Chromate		Sun Belt Chem.	D		P55,000	Irving	15375001	
J-1310 Zinc Yellow		Mineral Pigments	D		P25,000	Marietta	15375001	

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J-1310 Zinc Yellow		Mineral Pigments	D		P80,000	Newark	15275001	
J-1345 Zinc Chromate		Mineral Pigments	D		P80,000	Newark	15373501	
J-1345 Basic Zinc Chromate		Sun Belt Chem.	D		P55,000	Irving	15373501	
J-1345 Zinc Chromate		Mineral Pigments	D		P25,000	Marietta	15373501	
J-3103 Red		Mineral Pigments	D	3,000#	P17,000	Charleston	15232201	
J-3110 Red Iron Oxide		Mineral Pigments	D		P25,000	Marietta	15292501	
J-5351 Dark Green		Mineral Pigments	D	7000#	P17,000	Charleston	15232201	
J-5351 Green		Mineral Pigments	D		P80,000	Newark	15292501	
J-8104 Black		Mineral Pigments	D	7,500#	P17,000	Charleston	15191101	
13100 Red		Mineral Pigments	D		P80,000	Newark	15292501	
Jackson Ball Clay		Kentucky-Tenn Clay	D	1,000,000#	150,000	Charleston		
Jackson Ball Clay		Kentucky-Tenn Clay	D	400 Tons	12,000	Westfield		
Jackson Ball Clay		Kentucky-Tenn Clay	D	54,000# as of 7/3	30,000	Cleveland	03103901	
Jetco		Chemical AX	D		75,000	Charleston		X
Kaolin Clay	1332-58-7	Southeastern Clay	D	1,000,000#	16,000	Charleston		X
Kerosene	8008-20-6	United Refining	D	500 Gal.	222	Erie		X
Kerosene	8008-20-6	Ashland Chem.	D		P100,000	Irving		X
KMM Adhesive		Bordon Chem.	D	162,000 Gal.	552,420	Monroeville		X
Koppers BHT	128-37-0	Middlesex Chem.	D	25,000#	3,500	Oil City		X
Kraton 1101 Rubber		Shell Chem. Co.	D	25,000#	14,500	Woodward		
Krumbhaar K-777		Lawter Chem.	D	6,000#	3,300	Irving		X
KY7870 Yellow		E.I. DuPont Pigments	D		P88,000	Los Angeles	55357411	
KY7900 Primrose		E.I. DuPont Pigments	D			Los Angeles	55357411	
Laolene		Ashland Chem.	D		P100,000	Irving		
Lacquer Dilvent		Atlanta Solvent	D		P20,000	Marietta		
Lamp Black 6607		Tenneco	D		P100,000	Los Angeles	15436701	
Lanasol		Atlanta Solvent	D		P20,000	Marietta		X
Lead Acetate	301-04-2	McKesson Chem.	D		P205,500	B,O.C.,F,MP		X
Lead Napthenate 24%		Tenneco	D		P100,000	Los Angeles	15134501	
		McKesson Chem.	D		P205,500	B,O.C., F,MP		
Hydrated Lime	1305-62-0	Jones Chem.	D		P15,000	Erie		X
Pebble Lime	68514-42-1	Warner Lime	D	800 Ton	27,600	Bridgeville		X
Limeston Chips	1317-65-3	G&C Service	D	1,400 Tons	10,200	Bridgeville		X
Limestone Dust	1317-65-3	Latex Filler & Chem.	D	1,000,000#	2,600	Charleston		X
Raw Linseed	8001-26-1	Cron Chem.	D			Irving	15774501	X
KC-23 Linseed Oil	8001-26-1	Ribelin	D		P155,000	Irving	15772501	X
Linseed Oil	8001-26-1	Cargill	D	420,000#	287,840	Bridgeville		X
		Dorsett & Jackson	D	4,500#	P30,000	Los Angeles	15775201	X
Boiled Linseed Oil	68412-95-3	Cron Chem.	D			Irving	15772201	X
Linseed Fatty Acid	68552-33-0	Proctor & Gamble	D	32,000#	16,320	Bridgeville		X
Lithum Hydroxide Mono Hydrate	1310-65-2	McKesson Chem.	D		P205,500	B,O.C.,F,MP,		X

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Lo Yellow Oxide 51%		Frank Davis	D		P33,000	Los Angeles	15357001	X
Lubricants	68476-77-7	Union Oil of CA	D		5,500	Oroville		X
		Chevron Oil	D	500 Gal.	P8,910	Russell		X
		Carson Petro.	D	440 Gal.	902	Follansbee		X
Lupersol DDM (Methyl Ethyl Ketone Peroxide)	1338-23-4	Lucidol Div.	D	50#	100	Bridgeville		X
Lupersol 231	6731-36-8	Penwalt Corp.	D	245#	869	Bridgeville		X
Maleic Anhydride	108-31-6	Denka Chem.	D	220,000#	78,150	Oxnard		X
		Reichhold Chem.	D	80,000#	25,920	Am. Cyanamid		X
		Reichhold Chem.	D	11 T/T	188,000	Chicago		X
		Denka Chem.	D	130,000#	45,690	Richmond		X
		U.S. Steel Corp.	D	19 T/L as of 6/6	323,190	Bridgeville		X
		Reichhold Chem.	D	24,000#	8,664	Am. Cyanamid		X
		Monsanto Ind.	D	40,500#	192,690	Various		X
		Reichhold Chem.	D	40,500#	12,960	Am. Cyanamid		X
		Reichhold Chem.	D	3 T/L	33,000	Various		X
Manganese Napthanate	1336-93-2	Mooney Chem.	D	420#	281	Chicago		X
McClosk 10032		McCloskey Var.	D	6,800	3,502	Los Angeles	15801301	X
Medium Orange 86678		Tenneco	D		P100,000	Los Angeles	15436001	
Melamine Crystals	108-78-1	Am. Cyanamid	D	250,000#	200,000	Oroville, Florence, Orrville		X
		Melamine Chem.	D	250,000#	82,500	Oroville, Florence Orrville		X
		Am. Cyanamid	D	200,000#	29,000	Bridgeville	10705001	X
MEK	78-93-3	Allegheny Solvents	D	67#	23	Bridgeville		X
		Texas Solvents	D		P357,500	Irving		X
		Atlanta Solvent	D		P20,000	Marietta		X
		Ashland	D		P220,000	Newark	15597181	X
		Shell Chem.	D		P160,000	Los Angeles		
		Amsco Div. of Union	D		P500,000	Los Angeles	15596551	X
		Union Carbide	D		P33,000	Los Angeles		X
		Amsco Div. of Union	D		P44,000	Marietta		X
		Van Water & Rogers	D			Irving	15596551	X
		Ashland	D		P110,000	Irving		X
		Ashland	D			Los Angeles		X
Merbac 35		Merck Co.	D	1,300#	3,600	Charleston		
Mercury	7439-97-6	D. F. Goldsmith	D	30#	196	Bridgeville		X
Methane Sulfonic Acid	75-75-2	Penwalt Corp.	D	55 Gal.	351	Bridgeville		X
		Penwalt Corp.	D	6336#	4,942	Morgan		X

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Methanol	67-56-1	Ashland Chem.	D		P80,000	Westfield	1060501	X
		E. I. DuPont	D	21,000 as of 8/14	10,850	Petrolia		X
		Celanese Chem.	D	3 T/T	11,550	Follansbee		X
		Calsol, Inc.	D		P6,000	Fontana		X
		Allegheny Solvents	D	18,000 Gal.	8,820	Follansbee		X
		Oil & Solvents	D		P20,000	Fontana		X
		Union Oil Co.	D	20 Drums		Fontana		X
		Allegheny Solvents	D		P210,000	B,O.C.,P,F		X
		Van Water & Roger	D		P50,000	Fontana		X
		Hercofina	D	350,000 Gal.	192,500	Follansbee		X
		Amsco Div. of Union	D		P150,000	Westfield		X
Methocel	9004-67-5	Ashland	D	6,100#	9821	Charleston		X
Methyl Cellosolve	109-86-4	American Chem. Sol.	D	10 Gal.	42	Monroeville		X
Methy Ethyl Ketone	78-93-3	Allegheny Solvent	D		P210,000	B,O.C.P,F		
Methyl Isobutyl Kentone	108-10-1	Allegheny Solvents	D		P210,000	B,O.C.,P,F		
Methyl Methacrylate	80-626	Rohm & Haas	D	68,800	33,712	Bridgeville		X
2 Methyl 1,4 Naphtho-Quinone	58-27-5	Ashland Chem.	D	200 Grams	32	Bridgeville		X
Methylene Chloride	75-09-2	Diamond Shamrock	D	100,000#	24,500	Oxnard		X
		Dow Chem.	D	400,000#	98,000	Oxnard		X
MIAK	110-12-3	Ashland	D		P220,000	Newark	15596751	X
		Amsco Div. of Union	D		P550,000	Los Angeles	15597181	X
		Ashland Chem.	D			Los Angeles	1559781	X
		Amsco Div. of Union	D		P125,000	Newark	15597181	X
MIBK	108-10-1	Ashland	D		P220,000	Newark	15592021	X
		Amsco Div. of Union	D		P550,000	Los Angeles	15596751	X
		Shell Chemical	D		P110,000	Los Angeles	15596751	X
		Van Water & Rogers	D		P35,000	Irving	15596751	X
		Atlanta Solvents	D		P20,000	Marietta		X
		Eastman Chem.	D		P22,000	Los Angeles	15596751	X
		Amsco Div. of Union	D		P125,000	Newark	15596751	X
		Texas Solvent	D		P357,500	Irving		X
		Amsco Div. of Union	D		P44,000	Marietta		X
		Ashland Chem.	D			Los Angeles		X
		Ashland Chem.	D		P110,000	Irving		X
Micro Thene FA 520		U.S.I. Chemicals	D	150#	173	Bridgeville		X
Mil. Blue 6608		Tenneco	D		P100,000	Los Angeles		X
Milled Clay		National Cupola	D			Woodward		
Mineral Oil	8012-95-1	Penreco	D	5,000 Gal.	8,100	Petrolia		X
Mineral Seal Oil		Standard Oil	D	96,000 Gal.	64,320	Toledo		X

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Mineral Spirits	8032-32-4	Ashland	D		P80,000	Westfield		X
		Texas Solvent	D		P357,500	Irving		X
		Allegheny Sol.	D		P210,000	Bridgeville		X
		Amsco Div. of Union	D		P150,000	Westfield		X
		Ashland	D	430 M Gal.		Bridgeville		X
Mineral Spirits	8032-32-4	Amsco Div. of Union	D		P125,000	Newark		X
		Atlantic Solvents	D		P20,000	Marietta		X
		Amsco Div. of Union	D		P44,000	Marietta		X
		Texas Solvent	D		P357,500	Irving		X
Mistron H60 75		Cyprus Ind.	D	13,300#	1197	Los Angeles	15398581	
Mistron T-076		Cyprus Ind.	D	17,500#	1269	Los Angeles	15398621	
Mogul 6213, 6211, 6301, SL351, 6162 - A6414		Mogul Corp.	D		4,920	Denver		X
Mondure PF		Mobay Chem.	D	135#	244	Monroeville		X
Mono Ammonium Phosphate	7722-76-1	Hydrite Corp.	D	27,300#	9,664	Port Newark		X
MEEHQ	622-62-8	Eastman Chem.	D	150#	642	Chicago		X
HQMME	150-76-5	Allegheny Solvent	D		P210,000	B,O.C.,P.F.		X
Monotertiary Butyl Hydroquinone	1948-33-0	Eastman Chem.	D	400#	1204	Chicago		X
		Allegheny Solvent	D		P210,000	B,O.C,P.F		X
		Eastman Chem.	D	1,000#	2960	Richmond		X
		Central Solvents	D	1350#	4,131	Chicago		X
MPA 60	71-58-9	N.L. Industries	D		P25,000	Marietta	15044301	X
MPA 60	71-58-9	N.L. Industries	D			Irving	15044401	X
MPA 60	71-58-9	N.L. Industries	D		P22,000	Los Angeles	15044301	X
Muriatic Acid	7647-01-0	McKesson Chem.	D		P205,500	B,O.C.,F,M,P		X
Muriatic Acid	7647-01-0	Burris Chem.	D	120,000#	7260	Charleston		X
Muriatic Soda		Ashland Co.	D	180,000#	10,440	Charleston		
Nacconal		Burris Chem.	D	20,000#	7,950	Charleston		X
NALCO 7319, 7350, 7940, 464, 433, 269, 270, 271, 222, 226, 225, 726, 727		Nalco Chem.	D		P160,000	Follansbee, Woodward Youngstown, Chicago, Erie		X
NALCO 207, 750, 7397, 161, 496, 441, 445, 7132, 7340, 357, 617, 19, 439-L, 7328, 617		Nalco Chem.	D		P160,000	Follansbee, Woodward Youngstown, Chicago Erie		X
Naphalene	91-20-3	Ashland Chem.	D	6 T/T	48,000	Bridgeville		X
Napthol		Texas Solvent	D		P357,500	Irving		X

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Neopentyl Glycol	126-30-7	Dow Badische	D	30,000#	11,100	Bridgeville		X
		Eastman Chem.	D	440,000#	167,200	Oxnard	10607501	X
		Badische	D	39,600#	14,652	Bridgeville		X
Neosol 190		Van Waters & Rogers	D		P35,000	Irving	15593101	
Nitric Acid 42°	7697-37-2	McKesson Chem.	D		P205,500	B,O.C.,P,M,F		X
Nitrocellulose	9004-70-0	Hercules, Inc.	D		P13,800	Irving	15752101	X
Nitrogen	7727-37-9	R.N. Goss Gas	D	1,500 cu.ft.	5	Oil City		X
	7727-37-9	Air Prod. & Chem.	D	48,000,000 cu. ft.	147,600	Chicago		X
	7727-37-9	Kreig Distributing	D	30 cylinders	207	Kearny		X
		Western Air	D	45 cylinders	388	Houston		X
		Airco, Inc.	D	10,000,000 ft.3	28,610	Petrolia		X
		Midwest Weld	D	39	P5,000	Chicago		X
		Keystone Metal	D	6,700 cu.ft.	P3,000	Petrolia		X
2-Nitropropane	79-46-9	Van Water & Rogers	D		P50,000	Fontana	02106701	X
		Union Oil Co.	D	20 Drums		Fontana	0210801	X
Nipar S-20		IMC Chem. Corp.	D	450#	218	Westfield		X
Nipar S-30		Ashland Chem.	D			Los Angeles	15598841	X
Nipar S-30		Amsco Div. - Union Oil	D		P500,000	Los Angeles	15598841	X
Nipar S-30		Ashland Chem.	D		P110,000	Irving		X
Non-Com REC		Hydrite Chem.	D	320,000	108,640	Conley St. Louis		X
NOPCO NXZ	9004-81-3	Diamond Shamrock	D	2,800#	1,700	Charleston		X
NYTAL 400		Deeks & Company			P20,000	Marietta		X
Odorless Base 3204		Amsco Div. of Union	D		P125,000	Newark	15591101	
Oleum 65%		Cities Service	D	22 T/C	203,500	Petrolia	10307001	
Oleum 65%		E.I. DuPont	D	992 T/T	2,058,463	Petrolia	10307001	
Oncor M50		N.L. Industries	D		P25,000	Marietta	15253001	X
Oncor M50		N.L. Industries	D			Irving	15253001	X
Oncor M50		N.L. Industries	D		P22,000	Los Angeles	15253001	X
Orthoxylene	95-47-6	Sun Petroleum	D	21,000,000#	4,410,000	Chicago		X
		Chevron Chem.	D	10,000,000#	2,200,000	Chicago		X
		Phillips Chem.	D	52,000,000#	9,360,000	Chicago		X
		Shell Chem.	D	39,000,000#	8,190,000	Chicago		X
		Sun Chem. Division	D	6,000,000#	475,000	Chicago		X
		Arco Chem. Co.	D	34,000,000#	7,140,000	Chicago		X
Oxygen	7782-44-7	Midwest Weld	D	360	P5000	Chicago		X
		Post Welding	D		P8,800	Woodward		X
		Keystone Metal	D	56,000 cu.ft.	3,000	Petrolia		X
		Tri-State Oxygen	D	30,000 cu.ft.	2,326	Green Spring		X

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		Kreig Distrubing	D	50 Cylinders	275	Kearny		X
		Cumberland Weld.	D	30,000 cu.ft.	P2,326	Green Spring		X
		Western Air	D	75 Cylinder	652	Houston		X
		Air Prod. & Chem.	D	240,000,000 cu.ft.	70,950	Bridgeville		X
		R.N. Goss Gas	D	9,760 cu.ft.	23	Oil City		X
		Fuhrman Welding	D	65,000 cu.ft.	1,105	Erie		X
Oxalic Acid-Crystal	144-62-7	McKesson Chem,	D		P205,500	B,O.C.,F,M,P.		X
PAA Catalyst	1562-94-3	BASF Wyandotte	D	12,500 liter	257,000	Chicago		X
Paroil 142 LV		Dover	D	24,000#	9,060	Follansbee		
Penacolite	24969-11-7	Koppers Co.	D		20,000	Morrisville		X
		Koppers	D		20,000	Montgomery		X
		Koppers	D	18 Drums	5,573	Orville		X
Penta Solvent		Tosco Oil	D	450,000 Gal.	160,050	N. Little Rock		
Penta Solvent		Nicoll Bros. Oil	D	400,000	P281,010	Denver		
Penta Solvent		Tosco Corp.	D	1,200,000 Gal.	474,000	Grenada		
Penta Solvent		Tauber Oil Co.	D	450,000	197,019	Houston		
Pentaerythritol	115-77-5	Hercules	D	400,000#	196,000	Bridgeville	84715001	X
Pentane pione 242-4	123-54-6	Union Carbide	D	430#	925	Bridgeville		X
Perchloroethylene	127-18-4	Ashland Chem.	D	400,000#	68,000	Woodward		X
		Ashland Chem.	D	1	P80,000	Westfield	02106701	X
		Amsco Div. of Union	D		P150,000	Westfield	02106701	X
		Vanwater & Rogers	D		P50,000	Fontana	02108601	X
		Union Oil Co.	D	3,000 Gal.	447	Fontana	02106701	X
Petrolene M2		J.B. Moore	D	108 Gal.	307	Oil City		X
Petroleum Coke		IMC Carbon	D	24,000 Ton	752,880	Woodward		
Petroleum Naptha	8030-30-6	Ashland Chem.	D	55 Gal.	35,000	Leeds		X
Pfizer R-6098 Red		Pfizer, Inc.	D	38,500#	174,000	Charleston		
PHTH Blue 6614		Tenneco	D		P100,000	Los Angeles	15437001	
PHTH Green 6611		Tenneco	D		P100,000	Los Angeles	15437101	
Phenol Resin 007 (RHT 6773)		PPG Ind.	D	104,000#	146,160	Morgan		
Phenol Sulfamic Acid		Jim Walters Resources	D	12,000#	6,360	Morgan		
Phosphoric Acid 85%	7664-38-2	McKesson Chem.	D		P205,500	B,O.C.,F,M,P		X
		Monsanto	D	21 T/L as of 7/24	174,825	Conley, Oroville, Orrville, Florence		X
		Chemical Ply, Inc.	D	400#	150	Petrolia		X
		Mobil Chem.	D	500,000#	92,500	Orrville		X
		United Catalyst	D	1 Gal.	35	Monroeville		X
Piper 2		Dorsett & Jackson	D	5,600#	P30,000	Los Angeles	15735351	X

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Pluracol 355		BASF Wyandotte	D	653	451	Monroeville		X
Pluracol 710		BASF Wyandotte	D	653	386	Monroeville		X
Pluracol 715		BASF Wyandotte	D	653	452	Monroeville		X
Plyophen	9003-35-4	Reichhold Chem.	D	175R04s		Orrville		X
Polyamide Resin Versamid 125		General Mills	D	150,000#	150,000	Westfield	12409501	X
Polyamide Resin Unirex 2125		Union Camp. Co.	D	150,000#	150,000	Westfield		X
Polyamide 815 x 70		Ciba-Geigy Corp.	D		P90,000	Marietta	15737551	X
Polyamide Resine 825		Ciba-Geigy Corp.	D	150,000#	P420,000	Westfield	12409501	X
Polyem-40	9002-88-4	McKesson Chem.	D		P205,500	B,O.C,F,M,P		X
Polyglycol E-200		Ashland Chem.	D	2,800#	1288	Woodward		
Polyvinyl Acetate LP90	9003-20-7	Union Carbide	D	3,000	1,938	Bridgeville		X
Potassium Chloride USP Granular	7447-40-7	McKesson Chem.	D		P205,500	B,O.C.,F,M,P		X
Potassium Hex Chem.		Mooney Chem.	D	440#	537	Bridgeville		X
Potassium Nitrite	7758-09-0	McKesson Chem.	D		P205,500	B,O.C.,F,M,P		X
Potassium Permanganate	7722-64-7	McKesson Chem.	D		P205,500	B,O.C.F,M,P		X
Potassium Sulfate Purified Power #7132	7778-80-5	McKesson Chem.	D		P205,500	B,O.C.,F,M,P		X
Premix Sealing Clay		Nat. V. Pola & Foundry	D			Woodward		
Priamylacetate		Ashland	D		P220,000	Newark	15735201	X
Primrose 6604		Tenneco	D		P100,000	Los Angeles	15436901	
Propane Fuel	74-98-6	Suburban Propane	D	20,500#	2,976	Westfield		X
		Pyrofax Gas Corp.	D	2,600				
		Pyrofax Gas Corp.	D	1,500#	315	Swedeland		X
		Northern Propane	D	7,500 cu.ft.	1,052	Erie		X
		Suburban Gas	D	6000 Gal.	2562	Woodward		X
		Southern Gas	D	8,000 Gal.	3,064	Carbondale		X
		Liquilax Gas Service	D	11,000 Gal.	4,070	Houston		X
		Empire Gas Co.	D	12,000 Gal.	3,654	Denver		X
		Suburban Propane	D	120,000#	24,307	Salisbury		X
		Cal-Gas of Oroville	D	1,800 Gal.	844	Oroville		X
		Pyrofax Gas	D	6,300 Gal.	2,841	Follansbee		X
		Suburban Propane	D	6,000 Gal.	2,943	Kearny		X
		Industrial Propane	D	2,042 Gal.	1115	Newark		X
		R.N. Goss Gas	D	1000#	148	Oil City		X
		Suburban Gas	D	85,000 Gal.	25,648	Montgomery		X
		Williams Energy	D	10,000 Gal.	4,390	Fontana		X

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Propylene Glycol	57-55-6	Dow Chem.	D	8 T/C as of 8/16	460,985	Bridgeville	10608001	X
		Dow Chem.	D			Richmond	10608001	X
		Oxirane Corp.	D	10 T/T as of 8/22	273,840	Chicago	10608001	X
		Dow Chem.	D			Oxnard	10608001	X
Propylene Glycol	57-55-6	Oxirane Corp.	D	8 T/L as of 7/23				
		Oxirane Corp.	D	24 T/L as of 8/16	1,018,275	Bridgeville	10608001	X
		Dow Chem.	D	7 T/T	189,030	Chicago	10608001	X
		Oxirane	D	3000,000#	64,500	Oxnard	10608001	X
Propyl Oxide	75-56-9	Ashland Chem.	D			Los Angeles	1086001	X
Purple 6695		Tenneco	D		P100,000	Los Angeles	15435201	
Purple K	298-14-6	Williams & Co.	D	1,500#	1,022	Follansbee		X
Pyridine	110-86-1	Koppers Co.	D	110 Gal.	605	Ontario		X
Quartz #867		Whittaker, Clark, Daniels	D			Newark	15396201	X
Red Oxide	1314-41-6	Whitaker, Clark, Daniels	D	2,000#	976	Irving		X
		Cron	D	1,000#	520	Irving		X
		Frank Davis	D		P33,000	Los Angeles		X
		Pfizer, Inc.	D			Newark		X
		Pfizer, Inc.	D	18,150#	420	Los Angeles		X
		Cron Chem.	D	10,000#	4,775	Irving		X
		Tenneco	D		P100,000	Los Angeles		X
		Pfizer	D			Newark		X
		Cron Chem.	D	10,000#	4,775	Irving		X
		N.L.Industries	D			Irving	15256001	X
Red Lead 97%	1314-41-6	N.L. Industries	D		P22,000	Los Angeles	15256001	X
		N.L. Industries	D		P25,000	Marietta	15256001	X
		Quenelle Enter	D	500#	325	Irving		X
		Daelco Co.	D	74,600#	36,370	Los Angeles		X
Resin-EPI-TEX199		Celanese	D	50,000#	25,000	Newark	1574401	
Resin #240K/5750		Cargill	D			Los Angeles	15666501	
Resin 32400⁴		Conchem Co.	D	10,000#	4,500	Newark	15669211	
Resin Solvent 3931		Hexcel Corp.	D	110 gal.	816	Bridgeville		X
Rhoplex AC-61		Rohm & Haas Co.	D		P55,000	Irving	15654001	X
VHL-RHO AC61		Rohm & Haas Co.	D		P75,000	Los Angles	1564001	X
Rhoplex AC61		Rohm & Haas Co.	D		P55,000	Newark	15654001	X
Rhoplex AC-234		Rohm & Haas Co.	D		P155,000	Charleston	12208501	X
Rhoplex E330-47%		Rohm & Haas Co.	D		P55,000	Newark	15655701	X

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Rhoplex AC-388	25035-69-2	Rohm & Haas Co.	D		P55,000	Irving	1565501	X
Rhoplex AC 388		Rohm & Haas Co.	D		P55,000	Newark	1565501	X
R1-38		Petrolite Co.	D	165 Gals.	841	Youngstown		
R1-51		Petrolite Co.	D	110 Gals.	550	Youngstown		
RT-7590 Violet		DuPont Pigments	D		P20,000	Irving	15208801	
SAFE Solvent		Z&P Manufacturing	D	55 Gal.	421	Bridgeville		X
Salt Briquettes	7647-14-5	Ashland Chem.	D		9000	Woodward		X
Salt	7647-14-5	King Trucking	D	14,400#	744	Oil City		X
Rock Salt	7647-14-5	International Salt	D	1000 Ton	24,500	Chicago		X
Sand 30-70		Foster - Dixjana Sand	D	485,000#	4,000	Charleston		X
Santicizer 141	1241-94-7	Amsco Div. of Union Oil	D		P125,000	Newark	15457501	X
Santicizer 160	85-68-7	Amsco Div. of Union Oil	D		P125,000	Newark	15458001	X
Santicizer 160	85-68-7	Allegheny Solvent	D		P210,000	B,O.C.P,F		X
Santicizer 160	85-68-7	Texas Solvent	D		P357,500	Irving		X
SF-399-TALC	14807-96-6	Ribelin	D		P155,000	Irving	15398501	X
SF-399	14807-96-6	Whitaker, Clark, Daniels	D	45,000#	5,198	Newark	15398501	X
Shell 1514		Shell Chemicals	D		P110,000	Los Angeles	15591321	X
Silica #219		Whittaker, Clark, Daniels	D	60,000#	3420	Newark	15396681	
Silver Nitrate Code 207		Betz Lab	D	2 Gal.	40	Bridgeville		X
SL-708-NG Resin		Sunbelt Chem.	D		P55,000	Irving		
Snowflake Whiting		Whittaker, Clark, Daniels	D			Newark	15392301	
Soda Ash	497-19-8	Allied Chem. Corp.	D	4,000 Ton	5,000	Petrolia		X
		PB&S Chem. Co.	D	40,000#	3,116	Follansbee		X
		Chemply	D	44,000#	6,820	Bridgeville		X
		PB&S Chem. Co.	D	80,000#	5,900	Petrolia		X
		FMC Corp.	D	4 H/C as of 8/6	41,712	Petrolia		X
		Interstate Chem.	D	70,000	4,130	Petrolia		X
Soda Ash 58% Light	497-19-8	Jones Chem.	D		P15,100	Erie		X
		McKesson Chem.	D			Chicago		X
Sodium Acetate	127-09-3	McKesson Chem.	D		P205,500	B,O.C.F,M,P.		X
Sodium Bichromate Crystals	10588-01-9	Diamond Shamrock	D	40,000#	14,900	Conley		X
Sodium Formate Powder	141-53-7	McKesson Chem.	D		P205,500	B,O.C.,F,M,P		X
Sodium Hypochlorite	7681-52-9	McKesson Chem.	D		P205,500	B,O.C,F,M,P		X
Sodium Hydrosulfite 90%	7775-14-6	McKesson Chem.	D		P205,500	B,O.C,F,M,P		X
Sodium Nitrite USP-Flake	7632-00-0	McKesson Chem.	D		P205,500	B,O.C.,F,M,P		X

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Sodium Sulfite Granular	7757-83-7	McKesson Chem.	D		P205,500	B,O.C.,F,M,P		X
Solvent B		Amsco Div. of Union	D		P125,000	Newark	15591641	X
Solvent D		Amsco Div. of Union	D		P125,000	Newark	15592251	X
Solvent G		Amsco Div. of Union	D		P125,000	Newark	15592601	X
Solvent 250		Amsco Div. of Union	D			Los Angeles	15590221	X
Solvent 265		Ashland Chem.	D		P1,000,000	Los Angeles	15590221	X
		Ashland						
		Amsco Div. of Union	D			Los Angeles	15590921	X
Solvent 350H		Amsco Div. of Union	D			Los Angeles	15590921	X
		Ashland	D		P1,000,000	Los Angeles	15590921	X
Solvent 410H		Amsco Div. of Union	D			Los Angeles	15590921	X
		Ashland	D		P1,000,000	Los Angeles	15590961	X
Solvent 6645		Amsco Div. of Union	D		P500,000	Los Angeles	15591261	X
Soya Fatty Acid	68308-53-2	Procter & Gamble	D	100,000#	86,060	Bridgeville	12808001	X
Soya Fatty Acid	68308-53-2	Humko Corp.	D	100,000#	45,500	Bridgeville	12898001	X
Soya Leithin	8002-43-5	Cron Chem.	D	1-4 Drum		Irving	15107001	X
Soya Oil	68122-64-5	Cargill	D	650,000#		Bridgeville	12605401	X
		Central Soya	D	1,350,000#	446,175	Bridgeville	12605401	X
Sparmite		Pfizer	D			Newark	15391051	X
		Cron Chem.	D	5 Ton	2,370	Irving	15391501	X
		Pfizer-MPM	D	35,000#	6,650	Los Angeles	15391051	X
Stabilizermark XV		Argus Chem.	D	4,500#	6,502	Fontana		
Strontium Chromate	7789-06-2	Hercules, Inc.	D		P13,000	Irving	15358501	X
Styrene Monomer T50	100-42-5	Leidy Chem.	D	40,900#	12,270	Newark		X
		Amoco Chem.	D		380,000	Oxnard	10907601	X
		Arco Chem.	D	240,000 gal. as of 8/10	932,320	Chicago	10907601	X
		El Paso Prod.	D	4.0 MM#		Oxnard		X
		Dow Chem USA	D	3 T/L as of 7/20	195,000	Oxnard	10907601	X
		Arco Chem	D	6 T/L as of 7/17	36,900	Oxnard	10907601	X
		Gulf Oil Chem.	D	990,000 as of 6/26	276,937	Chicago	10907601	X
		Amoco Chem. Co.	D	335,000	97,150	Chicago	10907601	X
		Gulf Oil	D	76 T/L as of 8/17	1,094,400	Bridgeville	10907601	X
		Dow Chemical	D			Chicago	10907601	X
		Arco Polymers	D	7 T/C as of 7/17	795,000	Richmond	10907601	X

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		Gulf Oil	D	6,000 Gal.		U.S. Plastics	10907601	X
		Gulf Oil	D	60,000 Gal.	164,375	Richmond	10907	
		Arco Polymers	D	106 T/L as of 8/10		Bridgeville	10907601	X
		Stinnes Oil	D	510,000	192,100	Richmond		X
Styrene Monomer 50T	100-42-5	Dow Chem.	D	40,000 Gal. as of 3/8	41,075	Richmond	10907601	X
		Amoco Chem.	D	16 T/C as of 7/23	495,400	Richmond	10907601	X
SU-3962		Schenectady Chem.	D		P19,000	Marietta	15704001	X
SU-3962		Schenectady Chem.	D	18,000#	10,980	Newark	15704001	X
Succinic Anhydride	108-30-5	Buffalo Color	D	275#	303	Bridgeville		X
Sulframin TX Acid	27176-87-0	Witco Chem.	D	18,400#	7,728	Morgan, PA		X
Sulfuric Acid	7664-93-9	McKesson	D	8,000 Gal.	10,000	Chicago	10308501	X
Sulfuric Acid	7664-93-9	McKesson	D			Chicago		X
Sulfuric Acid	7664-93-9	McKesson Chem.	D		P205,500	B,O.C.,F,M,P,		X
		E.I. DuPont	D	24,000 Gal. as of 8/14	9,520 as of 8/14	Petrolia	10308501	X
		Smith Chem.	D	132 Tons	6,845	Oil City	10308501	X
		Am. Cyanamid	D	420 Tons	21,777	Follansbee		X
Sun Fleet H.P. Oil		Oil Service	D	1,300 Gal.	2,300	Bridgeville		X
SunFlex 107		Sun Oil	D	42,000 Gal.	26,808	Woodward		X
Sunthene #3125		Oil Service	D	1,700 Gal.	2491	Petrolia		X
Sutter Clay - 200 Mesh		Interpace Corp.	D	150 Ton	7,000	Fontana		X
Svloid ZN-1		Deeks & Comp.	D		P20,000	Marietta		X
Svloid 74		Ribelin	D		P155,000	Irving	15396951	X
Syloid 378		Ribelin	D		P155,000	Irving	15397151	X
T-571-AZ Resin		Sunbelt Chem.	D		P55,000	Irving	15669101	
T-571-AZ Resin		Sunbelt Chem.	D		P55,000	Irving		
Talc	14807-96-6	Pfizer	D	3,000 Ton	97,500	Fontana	D3109801	X
		CE Minerals	D	172 T/L as of 7/30	107,200	Follansbee		X
		Whittaker, Clark, Daniels	D	40,000#	2,280	Newark		X
		CE Minerals	D	3,000 Ton	90,000	Westfield	03109801	X
		CE Minerals	D	500 Ton	13,500	Woodward	03109801	X
		Souther Talc	D	1 C/L as of 1/24	925	Follansbee	03109801	X
		R. T. Vanderbilt	D	600 Tons	34,000	Westfield	03100801	X
		Southern Talc	D	2,500 Ton	46,000	Houston		X

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Talc		Southern Clay Prod.	D	7,500 Ton	358,000	Houston		X
Talc CP 14-35		Dorsett & Jackson	D	14,000#	P30,000	Los Angeles	15398901	X
Talc CP-38-33		Dorsett & Jackson	D	104,000#	P30,000	Los Angeles	15398941	X
Tall Oil Rosin Types	8052-10-6	Arizona Chem.	D	35,000#	6475	Bridgeville		X
Tall Oil Fatty Acid		Hercules	D	1 T/L		Bridgeville		X
Tall Oil Fatty Acid	68648-13-5	Welch, Holmes, & Clark	D	35,000	11,865	Bridgeville		X
Tallex		Westvaco	D	1,690,000#	85,000	Charleston		
Tallex		Westvaco	D	500,000#	25,000	Oak Creek		
Tamol 731	37199-81-8	Rohm & Haas	D		P55,000	Irving	15108201	X
		Rohm & Haas	D		P155,000	Charleston	15108201	X
Tea		McKesson	D	2,000#	1,800	Chicago		
Tecquinol	123-31-9	Eastman	D	6000#	11,220	Richmond		X
		Allegheny Solvents			P210,000	B,O.C.,P,F,M		X
Tecsol #3	64-17-5	Allegheny Solvents	D	2000 Gal.	2,800	Petrolia		X
		Texas Solvent	D		P357,500	Irving		X
Tetrahydro Phthalic Anhydride	85-45-8	Denka Chem.	D	1,700,000E	646,000	Oxnard		X
		Denka Chem.	D	20,000#	9,000	Bridgeville		X
Tetrasodium Pyrophosphate	7722-88-5	Burris Chem.	D	5,000#	1827	Charleston		X
		Ashland Chem.	D	30,000#	9,945	Charleston		X
Texanol	25265-77-4	Texas Solvent	D		P357,500	Irving		X
Thalo Green Unical 6611		Tenneco Chem.	D	120#	398	Bridgeville		
Thiourea	7783-20-2	Van Water & Rogers	D	1,500#	1,635	Ontario		
Thixatrol St		N.L. Industries	D		P25,000	Marietta	1504501	X
		N.L. Industries	D		P22,000	Los Angeles		X
Tinuvin P	2440-22-4	Ciba-Geigy Corp.	D	1980#	14,652	Chicago		X
		Ciba-Geigy Corp.	D	4400#	32,340	Bridgeville		X
Titanium Dioxide	13463-67-7	Gulf & Western	D			Newark		X
Titanium Dioxide 960		E.I. DuPont	D	200,000#	185,000	Newark	15343501	X
Titanium Dioxide 900		E.I. DuPont	D	200,000#	105,000	Newark	15343701	X
Titanium Dioxide 960		DuPont Pigments	D		P25,000	Marietta	15343501	X
Titanium Dioxide 900		DuPont Pigments	D		P25,000	Marietta	15343701	X
Titanium Dioxide 960		DuPont Pigments	D		P20,000	Irving	15343501	X
Titanium Dioxide 900		DuPont Pigments	D		P20,000	Irving	15343701	X
Titanium Dioxide 960		DuPont Pigments	D	266,000#	135,660	Los Angeles	15343501	X
Titanium Dioxide 900		DuPont Pigments	D	258,000#	134,160	Los Angeles	15343701	X
Tol Floc TSL-313		Petrolite Corp.	D	220 Gal.	770	Oil City		X
Toluene	108-88-3	Ashland Chem.	D		1080,000	Westfield	15591501	X

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Toluene		Amsco Div. of Union	D		P150,000	Westfield	D2108601	X
		J&L Steel	D	6,000 Gal.	12,000	Bridgeville		X
		Oil & Solvent	D		P20,000	Fontana		X
		Calsol	D			Fontana		X
		Amsco Div. of Union	D		P44,000	Marietta		X
		Amsco Div. of Union	D		P500,00	Los Angeles	15591501	X
		Van Water & Rogers	D		P35,000	Irving	15591501	X
		Ashland	D		P220,000	Newark		X
		Union Oil	D	2,000 Gal.	1840	Fontana	02109801	X
		Allegheny Solvent	D		P210,000	B,O.C.,PF		X
		Ashland Chem.	D		P110,000	Irving		X
		Van Water & Roger	D		P50,000	Fontana		X
		Shell Chemical	D		P110,000	Los Angeles		X
		Amsco Div. of Union	D		P125,000	Newark		X
		Texas Solvent	D		P357,500	Irving		X
		Ashland	D		P1,000,000	Los Angeles	15591501	X
Toluene Substitute 10660		Oil & Solvent Process	D		P20,000	Fontana		
Para Tolueen Sulfonic Acid	536-57-2	Jim Walter Resources	D	450#	338	Bridgeville		X
Toluhydroquinone	95-71-6	Allegheny Solvents	D		210,000	O.C.,B,P.F		X
Toluol	108-88-3	Atlanta Solvent	D		P20,000	Marietta		X
Tolusol #25		Van Water & Roger	D		P35,000	Irving		X
1,1,1 Trichloroethylene	79-01-6	Ashland	D		P110,000	Irving		X
Triethylamine	121-44-8	McKesson Chem.	D		P205,500	B,O.C.,F,M,P		X
Triethylamine	121-44-8	Allegheny Solvent	D		P210,000	B,O.C.,P,F,M		X
TEP (Triethyl Phosphate)	78-40-0	Eastman Chem.	D	6,435#	5405	Chicago		X
		Eastman Chem.	D	14,000#	11,340	Richmond		X
		Eastman Chem.	D	90,000#	65,700	Oxnard		X
Triginox		McKesson	D		P205,500	B,O.C.F,M,P		
Trimethylol Ethane	77-85-0	IMC Chem. Group	D	24,000#	14,880	Bridgeville		X
Triphenyl Phosphite	101-02-0	Allgheny Solvent	D		P210,000	B,O.C,P,F,M		X
		McKesson	D		P250,500	B,O.C,P,F		X
Triphenyl Sulfonium Chloride	4270-70-6	Ashland	D	500#	890	Bridgeville		X
Trisodium Phosphate Tech Crystal	7601-54-9	McKesson	D		P205,500	B,O.C.,F,M,P		X
Triton CF-10		Rohm & Haas	D		P155,000	Charleston		X
		Rohm & Haas	D		P55,000	Irving		X
Tung Oil	8001-20-5	Industrial Oil	D	60 Drums	17,703	Bridgeville		X

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Unical 66 RD 6687		Union Carbide	D			Los Angeles	15434501	X
Unicon Oil		Union Carbide	D	55 Gal.	363	Bridgeville		
Union Grade LB-170-X		Union Carbide	D	650 Gal.	3,309	Bridgeville		
Unitol AFL		Union Camp Corp.	D	200,000#	56,000	Bridgeville	12800401	X
Unitol DP		Union Camp Corp.	D	2,050,000	72,000	Charleston		X
Univolt "60" Oil		Exxon Corp.	D	7,000 Gal.	8,610	Oil City		X
Urea	57-13-6	Vistron Corp.	D	700,000#	59,850	Bridgeville		X
UV 531 (Cynasor)	1843-05-6	Am. Cyanamid	D	5#	25	Bridgeville		
VAGH	25086-48-0	Union Carbide	D		P11,000	Irving	15855501	X
		Union Carbide	D		P38,000	Los Angeles	15855501	X
		Union Carbide	D		P48,000	Newark	15855501	X
Valtex 1290		R.B. Patterson	D		P22,000	Irving		
Valtex 1032		R.B. Patterson	D		P22,000	Irving		
Valtex 1076		R.B. Patterson	D		P22,000	Irving		
Varn 11425-54		McCloskey Varnish	D	2000	1620	Los Angeles	1580721	X
Varnish 385-001	68855-90-3	Conchem, Inc.	D	32,000#	18,880	Newark	15801201	X
Varnish 385-000	68855-90-3	Conchem, Inc.	D			Newark	15801001	X
Velveteenr		Tammsco	D	120,000#	4,000	Charleston	03109901	
Versamid 125		General Mills Chem.	D	60,000#	60,000	Fontana	2409501	X
Versamid 115x70	37189-83-6	Atlanta Solvent	D		P20,000	Marietta		X
VHL-AC-AT-701BA		Rohm & Haas	D		P75,000	Los Angeles	1564711	X
VHL-AC-B44 40%		Rohm & Haas	D		P75,000	Los Angeles	15646001	X
VHL-AC-A21LV		Rohm & Haas	D		P75,000	Los Angeles	15645351	X
VHL-ACR-B44		Rohm & Haas	D		P75,000	Los Angeles	15640701	X
Vicron 15-15	471-34-11	Dorsett & Jackson	D	40,000#	P30,000	Los Angeles	15392651	X
Vinsol Resin		Hercules	D	260,000#	63,000	Charleston		X
		Hercules	D	120,000#	28,800	Oak Creek, WI		X
Violet 6694		Tenneco	D		P100,000	Los Angeles	15437201	
Vinyl Resin FPC 497		Firestone Plastic	D	9600#	5,232	Los Angeles	15851801	
Vinyl Resin 470		Firestone Plastic	D	34,000#	23,693	Los Angeles	15851501	
Vinyl Toluene	25013-15-4	Cosden Oil & Che.	D	3 T/C	22,000	Bridgeville		X
		Dow Chem.	D	23 T/T	1,242,000	Bridgeville	10909301	X
VMCC	9005-09-8	Union Carbide	D	P	P38,000	Los Angeles	15856001	X
VMCC	9005-09-8	Union Carbide	D		P11,000	Irving	15856001	X
VMCH	9005-09-8	Union Carbide	D		P11,000	Irving	15856501	X
	9005-09-8	Union Carbide	D		P48,000	Newark	15856501	X
	9005-09-8	Union Carbide	D		P38,000	Los Angeles	15856501	X
Super VM&P	8032-32-4	Shell Corp.	D		130,000	Salem		X
		Texas Solvent	D		P357,500	Irving		X
		Van Water & Rogers	D		P35,000	Irving	15590601	X

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		Shell Corp.	D	100,000 Gal.	28,000	Leeds		X
		Atlanta Solvent	D		P20,000	Marietta		X
		Ashland Chem.	D		P100,000	Irving		X
		Ashland Chem.	D	4 T/L as of 5/25		Bridgeville	02106301	X
VRKYD 4685-1		McCloskey Varnish	D	37,000#	15,910	Los Angeles	15669881	X
V KD 606-60AL		McCloskey Varnish	D	105,000#	40,688	Los Angeles	15665101	X
VKP 333-60		McCloskey Varnish	D	10,000#	9,250	Los Angeles	15661501	X
VYHD		Union Carbide			P38,000	Los Angeles	15857001	X
VYHD		Union Carbide			P11,000	Irving	15857001	
VYHH	03-22-0	Union Carbide	D		P11,000	Irving	15857501	X
		Union Carbide	D		P38,000	Los Angeles	15857501	X
		Union Carbide	D		P48,000	Newark	15857501	X
VYLF		Union Carbide	D		P11,000	Irving	15858001	
VYLF		Union Carbide	D		P38,000	Los Angeles	15858001	
White 6618		Tenneco	D		P100,000	Los Angeles	15437501	X
White Protcpet #15	8009-03-8	Witco Chem.	D	4,000#	1,280	Bridgeville		X
W.T. Naptha		Chevron Oil	D	1,875,000 Gal.	778,313	Florence, SC		X
		Amoco Oil	D	339,000 Gal.	152,000	Charleston		X
		Chevron	D	1,300,000 Gal.	P586,110	Montgomery		X
		Young Refining	D	60,000 Gal.	19,800	Charleston		X
		Chevron	D	300,000 Gal.	120,600	Grenada		X
		Chevron	D	400,000 Gal.	151,000	Gainesville		X
WTC #71 Floc Agent		Koppers's Co.	D	515#	469	Gainesville		X
WVTOX #312		Stepan Chem.	D	4,250	3018	Oil City		X
X-1134 Chrome Green Oxide		Hercules	D		P13,000	Irving	15231801	
X-2065 Oswego Orange		Hercules	D		P13,000	Irving	15278101	
X-2777 Yellow		Hercules	D		P13,000	Irving	15351301	
X-3367 Monarch Blue		Hercules	D		P13,000	Irving	15203103	
XRO-1 Fuel Additive		Energy Conservation	D	10 Gal.	200 APEX			
XRG-2 Fuel Additive		Energy Conservations	D	51 Gal.	1020	Conley, Greer, Garden City,		
XRG-2 Fuel Additive		Energy Conservation	D	30 Gal.	600	Paw Creek		
XV-307		Schenectady Chem.	D		P19,000	Marietta		
XV-307		Schenectady Chem.	D	15,000#	17,550	Newark		
XVHL		Union Carbide	D		P11,000	Irving	15851001	
Xylene	1330-20-7	Ashland	D		P1,000,000	Los Angeles	15592101	X
		Amsco Div. of Union	D		P44,000	Marietta		X
		Shell Chem.	D		P110,000	Los Angeles		X
		Allegheny Solvent	D		P210,000	B,O.C.,P,F		X
		Ashland Chem.	D		P110,000	Irving		X
		Amsco Div. of Union	D		P500,000	Los Angeles		X
		Van Water & Rogers	D		P35,000	Irving		X

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Beazer000550

		Texas Solvent	D		P357,500	Irving		X
		Amsco Div. of Union	D		P125,000	Newark		X
		Ashland Chem.	D	280 gal.		Bridgeville		X
Xylene	1330-20-7	Smith Chemical	D	4 T/T as of 6/20	16,830	Montgomery	0210801	X
		Shell Chem.	D	187,500 Gal.		Montgomery, Salem		X
		Ashland	D	187,500 Gal.	240,000	Montgomery, Salem		X
		Neville Chem.	D	60,000 Gal.	53,400	Bridgeville		X
		Ashland Che.	D		P80,000	Westfield	15592101	X
		Mattiace Petro	D			Bridgeville		X
		Charter Chem.	D	100,000 Gal.	82,000	Bridgeville		X
		Amsco Div. of Union	D		P150,000	Westfield		X
		Oil & Solvent	D		P20,000	Fontana		X
		Mattiace Petro	D	7 T/L as of	5,000	Muncy	0210801	X
		Ashland	D	8/3	P220,000	Newark	15592101	X
		Shell Chem.	D	210,000 Gal.	163,800	Bridgeville	02108101	X
Xylene Sub N6602		Oil & Solvent	D		P20,000	Fontana		
Xyol		Atlanta Solvent	D		P20,000	Marietta		
XYSG		Union Carbide	D		P11,000	Irving	15858501	
Y-469		DuPont Pigments	D		P25,000	Marietta	15351501	
Yellow OX 2087		Pfizer MPM Div.	D	6,000#	2805	Los Angeles	15356501	
Y-433 Light Yellow		DuPont Pigments	D		P25,000	Marietta	15351001	
Y434D Light Yellow		DuPont Pigments	D		P88,000	Los Angeles	15351101	
Y-433D Chrome Yellow		DuPont Pigments	D		P20,000	Irving	15351001	
Yellow OX 8087		Pfizer MPM Div.	D	225#	116	Los Angeles	15356601	
Y4690 Medium Yellow		DuPont Pigments	D		P88,000	Los Angeles	15351601	
Yellow Oxide 6610		Tenneco	D		P100,000	Los Angeles	15437301	
Yellow 6665		Tenneco	D		P100,000	Los Angeles	15436101	
YE1698D Orange		E.I. DuPont	D		P88,000	Los Angeles	15278601	
YE-698 Orange		DuPont Pigments	D		P25,000	Marietta	15278601	
YE-698D Ming Orange		DuPont Pigments	D		P20,000	Irving	15278601	
Y-758D Chrome Yellow		DuPont Pigments	D		P20,000	Irving	15350651	
YT 7170 Yellow		E.I. DuPont Pigments	D		P88,000	Los Angeles	15357301	
ZD 208		Zimmite Corp.	D			Fontana		
ZD 215		Zimmite Corp.	D			Fontana		
Zeofree 80		J. M. Huber Corp.	D	9,600#	3,500	Petrolia		X
Zinc Dust #444	7440-66-6	Gulf & Western	D			Newark	15368501	X
Zinc Chromate	13530-65-9	D & F Distrub	D		P35,000	Irving	15375001	X
Zinc Chromate 505WJ		Frank Davis	D		P33,000	Los Angeles	15373501	
Zinc Chromate 533WJ		Frank Davis	D		P33,000	Los Angeles	15375001	
Zinc Dhromate 533W		Frank Davis	D		P33,000	Los Angeles	15375011	

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Beazer000551

8% Zinc Hexchem		Mooney Chem.	D	3,520	1971	Bridgeville		X
Zinc Hexchem		Mooney Chem.	D	360#	212	Chicago		X
Zinc Oxide	1314-13-2	Gulf & Western	D			Newark	15363301	X
Zinc Stearate Type	557-85-1	Synthetic Prod.	D	45#	51	Bridgeville		X
Zirconium 6%	7440-67-7	Tenneco	D		P100,000	Los Angeles	15139501	X
ZM 136		Zimmite Corp.	D			Fontana		
Zonyl FSK		E.I. DuPont	D	100#	1,850	Morgan		X
#10 Tamm's Silica		Cron Chem.	D	5 Tons	530	Irving, TX	15396501	
#26 Dry Felt		J. Ford & Company	I	4,800 Tons	676,800	Youngstown Woodward Chicago	08101001	
80-B Sand		Whitehead	D	340,000#	3,600	Charleston		
LX685-125 Flaked Resin		R.B. Patterson	D		P22,000	Irving		X
140 Solvent		Texas Solvent	D		P357,500	Irving		X
464-50-AL		McCloskey Varnish	D	69,000#	24,840	Los Angeles	1566571	
1185 Rose Maroon		Ribelin	D		P155,000	Irving	15391481	
3060 Process Oil		Exxon Co.	D	1375 Gal.	1238	Heath		
4050 Milori Blue		Ribelin	D		P155,000	Irving	15201301	
47580 Primrose Yellow		E.I. DuPont	D		P88,000	Los Angeles	15350651	
U4834M Plaskon		Ribelin	D		P155,000	Irving	15697301	X
#6606		Cargill	D			Los Angeles	15792011	
#8150-E/5250		Cargill	D			Los Angeles	15669051	
9697-Cohon Solution		Scholle Corp. Chem.	D	28,000	20,000	Marietta		

NOTE: The following abbreviations were used throughout CAS# - Chemical Abstracts Service Registry Number
P - Part of Blanket Order (ex. P125,000).

PLANTS

B - Bridgeville, PA
O.C. - Oil City, PA
F - Follansbee, WV
P - Petrolia, PA
M - Monroeville, PA
O - Oroville, CA & Orrville, OH
D - Denver
P.N. - Port Newark
C - Conley

Also, the final column titled "listed" refers to whether or not the substance was found on the initial TSCA Inventory.

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Beazer000552

KOPPERS

Interoffice Correspondence

To Patty A. Weigel

Location K-326

Subject Chemical Substances Purchased

From Paul W. Guth

Location N.W. Terminal

Date October 15, 1979

CHEMICAL SUBSTANCE	SUPPLIER	EST. ANNUAL QUANTITY	EST. ANNUAL VALUE	PLANT
Acetone	Van Waters & Rogers	15 Gal.	$33.00	N.W. Terminal
Acetylene	Airweld, Inc.	1000 Cu. Ft.	$136.00	N.W. Terminal
Gasoline	Union Oil Co.	200 Gals.	$200.00	N.W. Terminal
Propane	J. K Beck	500 Gals.	$350.00	N.W. Terminal
Sodium Hydroxide	Chemax, Inc.	600 Lbs.	$312.00	N.W. Terminal
SODIUM SULFITE	Chemax, Inc.	300 Lbs.	$138.00	N.W. Terminal
Sodium Lignosulfonate	Chemax, Inc.	600 Lbs.	$324.00	N.W. Terminal

Paul W. Guth

PWG:ip

- REV. 5 100M 1-79

Amos Kamerer
James Martin
Howard Mason
Scott McNair

May 18, 1988

Processed Waste
Removal Agreement

Enclosed please find your supply of Processed Waste Removal Agreement with the following numbers:

Amos Kamerer	111 - 115
Jim Martin	116 - 125
Howard Mason	126 - 130
Scott McNair	131 - 140

Please familiarize yourself with the agreement in its entirety with special reference to the attachments. Try to anticipate what questions you might hear from your customers and let's discuss prior to introducing to the marketplace. The following order must be followed before Grenada can accept processed waste:

1. Sample - Sample must be in approved container and forwarded to Robert Hepner in Monroeville (Note Schedule B) for approval and written acceptance.

2. Chain of Custody - This must be completed and forwarded along with sample to Monroeville.

3. Receipt of Written Approval - You are to contact generator (customer) and coordinate shipment with Dave King of Keystone - Telephone No. 501-945-4581. (Dave will monitor Grenada's volume).

4. Drums - Minimum 15 drums per shipment. Generator is responsible for drums (note schedule 4). Drums are not returnable.

5. Agreement Number - Report (copy) agreement number and customer to Ren Sutherland. We must keep accurate records.

Please also note that testing material for this program is very expensive and will be included as part of the $110.00 per drum fee for approved material. This program is designed for Creosote Processed Waste only; therefore material that is tested and rejected, generator (customer) will be invoiced for testing charges. $265.00 minimum

Processed Waste

We all recognize that competition continues to take back material without charge, however there have been significant changes since the inception of their programs and one can only surmise that future changes will also take place.
Please review the attached and discuss any details that you may be uncomfortable with so we can approach our customers with confidence.

John Kress djk

J. L. Kress

JLK:djk

cc: R. Sutherland - 101 w/attach.
R. S. Ohlis - 102 "
R. D. Clayton - 103 "
R. Anderson - 104 "
B. Nolan - 105 "
J. Blundon - 106 "
R. D. Hepner - 107 "
D. King - 108 "
P. Beswick - 109 "
T. Domanico - 110 "

WASTE TRANSPORTATION AGREEMENT

Schedule A

Acceptance Criteria

The chemical composition and physical characteristics of wastes to be accepted by Koppers must be as described below. All samples being evaluated must be analyzed for these parameters in accordance with the prescribed test methods.

Parameter	Test Method	Acceptance Limits
Arsenic (As)	"Test Methods for Evaluating Solid Waste Physical/Chemical Methods", U.S. EPA SW-846	≤ 420 ppm
Boron (B)		≤ 15,000 ppm
Chromium (Cr)(Total)		≤ 240 ppm
Copper (Cr)		≤ 1,000 ppm
Zinc (Zn)		≤ 20,000 ppm
Pentachlorophenol		0 ppm
Btu/lb.	ASTM D205 (As is basis- not on a dry weight basis.)	at least 5,000
Visual Appearance		No rocks, scrap metal, packing materials, gloves, clothing, cleanup equipment, trash, plastic, excessive mud, etc.

WASTE TRANSPORTATION AGREEMENT
Schedule B
Sampling/Chain of Custody

Generator shall sample each lot of such waste in accordance with the sampling methods outlined in U.S. EPA Document EPA-600/2-80-018, Samples and Sampling Procedures for Hazardous Waste Streams. A summary of this document will be provided upon request.

Generator shall initiate a "Chain of Custody Record" to document proper handling of samples. This "Chain of Custody Record" must accompany each sample from collection to analysis at Keystone Environmental Resources, Inc.'s environmental laboratory located at 440 College Park Drive, Monroeville, Pennsylvania 15146 (Attn: Robert Hepner). Copies of both the initial, as well as the completed, "Chain of Custody Record" must be maintained at Generator's facility. A sample "Chain of Custody Record" form is available upon request.

Schedule C

KOPPERS CO., INC.
GENERATOR'S WASTE MATERIAL PROFILE SHEET

lot no. _____

A. General Information

Generator Name: _____ Transporter: _____
Facility Address: _____ Transporter Phone: _____
_____ Generator USEPA ID: _____
_____

Facility Contact: _____ Title: _____ Phone: _____
Name of Waste: Non-hazardous process waste containing creosote
Process Generating Waste: Name process (i.e., cylinder sludges,; door pit sludges.)

B. Physical Characteristics of Waste

Color:

Physical State @ 70°F		Layers
Solid _____	Semi-Solid _____	Single-Phased _____
Liquid _____	Powder _____	Bi-layered _____
		Multi-layered _____

Free Liquids
Yes _____ No _____
Volume _____ %

BTU/lb. (as-is basis, not dry weight)
_____ BTU/lb.

(NOTE: Obtain information from laboratory results.)

C. Chemical Composition

Arsenic (As) _____ ppm
Boron (B) _____ ppm
Chromium-total (Cr) _____ ppm
Copper (Cu) _____ ppm
Zinc (Zn) _____ ppm
Pentachlorophenol _____ ppm

(NOTE: Obtain information from laboratory results.)

D. Shipping Information

D.O.T. Hazardous Material? Yes X No _____
Proper Shipping Name N05, Solid, (Non-hazardous process waste containing used creosote.)
Hazardous Class ORM-E ID No. NA9188 R.Q.1
Method of Shipment: Bulk Liquid _____ Bulk Solid _____
drum (type/size 17H or 17E 55-gallon
Anticipated Volume _____ gals/cu. yds.

Special Handling Information:
"When handling, wear protective equipment such as impervious gloves and eye protection. NON-HAZARDOUS WASTE - FOR TRACKING PURPOSES ONLY."

Generator's Certification: I hereby declare that the contents of this consignment are fully and accurately described above by chemical composition and proper shipping name, and that all known or suspected hazards have been disclosed.

Authorized signature _____ Title _____ Date: _____

WASTE TRANSPORTATION AGREEMENT
Schedule D
Transportation/Fees

1. All waste must be packaged in new or certified reconditioned D.O.T. approved metal containers which are properly sealed. Such containers must be 55 gallons in size and stamped "STC" or "NRC", D.O.T. 17H or 17E Specification drums.

2. Each drum must have a properly completed Waste Identification Label affixed to its side. (See Attachment 1 attached hereto and made a part hereof.) Blank Waste Identification Labels shall be supplied by Koppers upon execution of this Agreement.

3. The outside of each drum must be clean and free of residue, rust and leaks. Drums cannot be palletized or strapped except for loading purposes. All pallets and strapping must be removed prior to vehicle departure.

4. Generator shall be responsible for arranging transportation of such wastes to Koppers' Grenada, Mississippi facility. Even though such wastes are not considered to be hazardous wastes as that term is defined pursuant to the Resource Conservation & Recovery Act ("RCRA"), such wastes must be transported by an EPA- and/or State-licensed hazardous waste transporter and transported as a "hazardous material" in accordance with D.O.T. regulations. A list of eligible transporters is available upon request.

5. A properly completed Uniform Hazardous Waste Manifest must be prepared by Generator and must accompany each shipment of waste. (See Attachment 2 attached hereto and made a part hereof which contains sample language.) In Section 15 of each manifest, the following must be stated: "Non-hazardous waste - for tracking purposes only." Copies of both the initial, as well as the completed, Uniform Hazardous Waste Manifest must be maintained at Generator's facility.

6. Upon arrival, Koppers shall unload, store and burn such wastes in its Grenada, Mississippi facility's boiler. For these services including analysis by Keystone Environmental Resources, Inc. and the Blank Waste Identification Labels referenced in paragraph 2 above, Koppers shall charge Generator a fee of $110.00 per drum.

15 drum minimum

CHAIN OF CUSTODY RECORD

Environmental Requisition No. _____
Purchasing Inquiry No. _____ Sample I.D.# _____

I. LOCATION OF SAMPLING

_____

City _____ State _____ Zip _____

Contact _____ Telephone _____

II. SHIPPING DESTINATION
Company or Lab Mailing Address:

_____

City _____ State _____ Zip _____

Contact _____ Telephone _____

III. DESCRIPTION OF SAMPLE
Place of Collection/Sample Identification:
(i.e. description which uniquely identifies the sample)

_____

Quantity of Sample _____

IV. COLLECTION DATA
Sample Collector's Name _____
Signature
Collection Date _____ Time _____

Date of Shipment _____

V. CHAIN OF POSSESSION

1. _____ _____ _____
(Signature) (Title) (Date)

2. _____ _____ _____
(Signature) (Title) (Date)

3. _____ _____ _____
(Signature) (Title) (Date)

NOTICE: All persons in possession of the sample must sign this document in the spaces provided. This Sample Chain of Custody Document must be completed upon receipt of the sample by shipping destination personnel and returned to the sampling location for permanent record and file. The minimum signatures required will be of the shipper, transporter, and receiving destination.

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Attachment 2 Form Approved CMB No. 2050-0039. Expires 9-30-88

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. | Manifest Document No.

2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address

4. Generator's Phone ( )

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name | 6. US EPA ID Number

C. State Transporter's ID

D. Transporter's Phone

7. Transporter 2 Company Name | 8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address | 10. US EPA ID Number

Koppers Co., Inc.
Box 160, Tie Plant Road
Tie Plant, MS 38960 601-226-4584 | MSD007027543

G. State Facility's ID

H. Facility's Phone

GENERATOR

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM		12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.		Nonhazardous process waste containing used creosote.	001	DM	001	G	
b.							
c.							
d.							

J. Additional Descriptions for Materials Listed Above

R.Q. Hazardous Substance, Liquid (or solid), N.O.S., ORM-E,
NA 9188
(contains creosote)

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

When handling, wear protective equipment such as impervious gloves and eye protection.
NON-HAZARDOUS WASTE — FOR TRACKING PURPOSES ONLY.

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name - Plant Manager or Designee | Signature | Month 01 Day 01 Year 88

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name - Transporter's Name | Signature | Month 01 Day 15 Year 88

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.

Printed/Typed Name | Signature | Month Day Year

Attachment 1

NON-HAZARDOUS WASTE

OPTIONAL INFORMATION:

SHIPPER_____

ADDRESS_____

CITY, STATE, ZIP_____

CONTENTS_____

_____

NON-HAZARDOUS WASTE

3. PHYSICAL PROPERTIES

3.1

PROPERTY	UNITS	INNER COMPOUND 85P	INTERMEDIATE COMPOUND 50P
Polymethylmethacrylate concentration	% by mass	1	1
Softening point (ring and ball)	°C	37-45	45-50
Water Content	max. % by mass	0.3	0.3
Ash	max. % by mass	0.8	0.8
Distillate below 270°C liquid temperature D-20	max. % by mass	5	4

3.2 The methods of test shall be as laid down in the S.T.P.T.C. publication 'Standard Methods of Testing Tar and its Products' (6th Edition, 1967) and Appendix F of BS.1310 - 1974.

4. PACKING AND SHIPMENT

4.1 The material shall be delivered in bulk by road tanker and discharged into storage tanks.

5. CERTIFICATE OF CONFORMANCE

5.1 Samples shall be selected and tested in accordance with the test plan agreed between the supplier and STC, Southampton and a certificate of conformance and/or a copy of test results shall be supplied to STC, Southampton.

6. ACCEPTANCE TESTING

6.1 STC, Southampton may carry out acceptance testing on receipt of the delivery.

6.2 Should any sample fail to meet the requirements of this specification STC, Southampton reserve the right to reject the delivery or manufacturing batch.

Beazer000563

7-7-84

540 Lb per drum

10.09 Lb per gal

540 ÷ 10.09 = 53.51

54 gals

In Talco pitch

SPECIFICATION

FOR

INTALCO'S COLD RAMMING PASTE

73 S	Method of Test	Specification
Sp. Gr. @ 15.5/15.5°C	ASTM D 3142	1.190 min.
H_2O, % wt.	ASTM D 95	0.5 max.
Engler Sp. Vis. @ 70°C	ASTM D 1665	50-64
Quinoline Insoluble, % wt.	ASTM D 2318	7-12
Toluene Insoluble, % wt.	ASTM D 4072	13 min.
Coking Value (Conradson), % wt.	ASTM D 2416	30 min.
Ash, % wt.	ASTM D 2415	0.3 max.

73 S 20	Method of Test	Specification
Sp. Gr. @ 15.5/15.5°C	ASTM D 3142	1.175 min.
H_2O, % wt.	ASTM D 95	0.5 max.
Engler Sp. Vis. @ 50°C	ASTM D 1665	14-24
Quinoline Insoluble, % wt.	ASTM D 2318	5.5-10
Toluene Insoluble, % wt.	ASTM D 4072	10 min.
Coking Value (Conradson), % wt.	ASTM D 2416	24 min.
Ash, % wt.	ASTM D 2415	0.25 max.

PAGE NO. 2

KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE Jan 82 BY _____

SUBJECT Gallons in

Date	Book	Plant	from	To	by
12-28			ACFX 82526 X		
12-29			ACFX 12511 X		
12-29			TLDX 223003 X		
12-30			UTLX 79808 X		
12-30	Dec. 81		TLDX 223036		
12-30	20384		TLDX 223004 X		
1-4	21056	20[illegible]1	CALX 1011 X	101	[illegible]
1-6		19711	NATX 26027 X	66	GH
1-6		17993	KPCX 2209 X	99	GH
1-6			KPCX 3231 X	99	GH
1-6		14970	NATX 21042 X	67	[illegible]
1-7		19061	TLDX 223040 X	67	[illegible]
1-7		2466	TLDX 223163 X	67	[illegible]
1-7	20508		ACFX 12035 X	99	GH
1-7	20438		NATX 21045 X	99	GH
1-7	21266		TLDX 223182 X	99	GH
1-7	18033		TLDX 223192 X	99	GH
1-7	15890	91,763	ACFX 12516 X	99	GH
1-8	20,232	19294	GATX 17746 X	99	[illegible]
1-11		22157	TLDX 223179 X	20	[illegible]
1-11	19580		TLDX 223045 X	20	GH
1-12	19678	17993	ACFX 21224 X	99	GH
1-13		19959	GATX 82524 X	33	GH
1-13		19959	TLDX 223000 X	33	GH
1-14	19865	19263	UTLX 77448 X	66	GH
1-18	20298		NATX 25552 X	68	GH
1-18	20309	40636	TLDX 223159 X	68	[illegible]
1-20	20578		NATX 25558 X	68	GH
1-20	19861	62355	UTLX 79953 X	68	GH
1-20			NATX 25551 X	68	GH

Organic Materials Group
Koppers Company, Inc.

KOPPERS

PAGE NO. 3

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ YR _____ DATE _____ BY _____

SUBJECT Gallons Out

Date	Plant	from		To	by
12-28		T-4	K	CP	
12-28		T-4	K	TL	
12-28		T-4	PW	—	
12-28		T-4	PW	—	
12-28		T-4	K	DR	
12-29		T-4	K	CP	
12-29		T-4	K	CP	
12-29		T-4	PW	—	
12-29		T-4	PW	—	
12-30		T-4	K	TL	
12-30		T-4	PW	—	
12-30		T-68	PW	—	
1-4		T-68	K	KI	
1-4	19959 gals	T-33	TC 1011	T-L	
1-6	6,031	T-33	K-30	OLY	
1-7	9809 Temp 160°	T-68	K-60	K-Canada	
1-7		T-68	K-30	" "	
1-8	4904 Temp 180°	T-68	K-30	T-L	
1-11	6306 180°	T-68	K-60	K-BC	
1-11	5395 180°	T-33	K-30	Tco.	
1-12	5600	T-68	K-30	Am. Tar	
1-12	5610	T-68	K-60	D.R.	
1-13	5605	T-68	K-30	T-L	
1-13	5606	T-68	P/Wood		
1-13	8,889	T-33	TC 12035	UP	
1-13	7050	T-4	TC 12035	UP	
1-13	16628	T-4	TC 21045		
1-14	4904	T-68	K-60	K-BC	
1-14	4029	T-17	K-30	Am. T.	
1-14	848	T-19	K-30	" "	
1-14	4204	T-68	P/Wood		
1-14	4204	T-69	P/Wood		
1-15	5356	T-3	K-30	DR	
1-15	4792	T-3	P/Wood		
1-15	4792	T-33	P/Wood		

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T-170 REV. 6-80
2000 BKS. 5-80
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KOPPERS

Organic Materials Group
Koppers Company, Inc.

LOCATION _____ DATE _____ BY _____

SUBJECT Gallons received

Date	Book	Plant		From		To	by
1-27-82	19445	19263		UTLX 78489		66	HB
1-27-82	19101	18917		NATX 25327		68	HB
1-29-82	19284	18337		UTLX 78495		3	SH
1-29-82		19784		TLDX 223004		3	HB
2-1-82		18055		" 223007		3	HB
2-2-82		18713		" 223001		67	HB
2-4-82		18917		" 223036		68	HB
2-17-82		18216		" 223039		68	SH
2-17-82		15258		" 223052		67	HB
2-18-82		19508		UTLX 79953		20	SH
2-18-82		19507		TLDX 223179		20	SH
2-18-82		8411		GATX 38601		33	HB
2-18-82		11200		" "		66	HB
2-19-82		20992		TLDX 223192		99	HB
2-26-82		37172		NATX 25327		20	SH
" "				" 255551		20	SH
3-4-82		19961		UTLX 77448		20	HB
"		19014	220°	TLDX 223051	RT-12	KPCX 3178	HB
"				" "	RT-12	19	HB
"		20,868		TLDX 223158	SOL	20	HB
3-5-82		16410		ACFX 12069	H-OIL	67	HB
3-8-82		37833		TLDX 223007	UNC	68	SH
"				NATX 25552	UNC	68	HB
3-9-82		38591		TLDX 223004	UNC	4	HB
" "				GATX 93193	UNC	4	SH
3-10-82	19,136	18,146	85°	ACFX 12030	NSR	20	HB
3-11-82	20,661	20,318	90°	TLDX 223000	NSR 60°	68	HB
"	19764	19834	180	TLDX 223159	UNC	67	SH
3-15-82	19166	55528		TLDX 223036	UNC	3	SH
"	19656			TLDX 223045	UNC	68	SH
3-16-82	19949			TLDX 223001	UNC	3+68	SH
"		18,900	130°	GATX 93208	H-OIL	3	HB
3-22-82		19,182	208°	GATX 25097	H-OIL	3	HB
" " "	20416	20392	120°	NATX 25551	UNC	99	HB

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Koppers Company, Inc.

KOPPERS

T-170 REV. 6-61 T
2000 BKS. 8-60
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LOCATION _____ DATE _____ BY _____

SUBJECT Gallons out

Date	Plant	From	To		by
1-18	5920	4	K-60		GH
1-18	5920	3	K-30		GH
1-18	5665	3	K-30		GH
1-19	5074	4	K-60		GH
1-20	5644	3	K-30	D.R.	GH
1-20	5643	3	K-60	Tac.	GH
1-20	5612	3	K-30	OLy	GH
1-21		3	K-30	OLy	GH
1-21	16,031	3	K-60	OLy	GH
1-21		3	P/wood		GH
1-21	5074	3	P/wood		GH
1-22		4	K-30	T-L	GH
1-22	17596	4	K-60	D.R.	GH
1-22		4	P/wood		GH
1-22	5076	3	P/wood		GH
1-28		4	K-30	T-L	GH
1-28	18055	4	K-60	Tac	GH
1-28		4	P-wood		GH
1-28	5356	4	P/wood		GH
1-28	5920	4	K-30	OLy	GH
1-29	6485	4	K-60	Tac	GH
1-29	5330	4	P/wood		GH
2-1	6485	4	K-60	OLy	MG
2-2	564	3	Gr.6 gar. & Homes		MG
2-4	5356	3	K-60	Wy. E.H.	MG
2-4	5362	4	K-30	T-L	MG
2-4	5360	4	P/wood		MG
2-4	5638	4	P/wood		MG
2-5	5920	3	K-60	Wy. E-H	MG
2-5	5638	4	P/wood		MG
2-5	5638	3	P/wood		MG
2-8	17,569	3	K-30		MA
2-8		3	K-60		MA

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6-80
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LOCATION _____ DATE _____ BY _____

SUBJECT Gallons Received

Date	Book	Plant	From	Tank Temp	To	by
3-23-82		13,195	TLDX 223189		99	MA
"		5638	" "		4	HB
3-24-82		20,117	GATX 13711		33	HB
3-29-82	19656	19,001	GATX 13713	672 sol 332 NSR	67	HB
"	18590	18425	NATX 25327	unc	67	DH
4-1-82		19746	TLDX 223046		4	HB
4-2-82		18210	NATX 25552		67-68	HB
4-5-82		18216	GATX 38601		68	HB
4-7-82		20591	UTLX 78473	140	3	DH
"	20102	19617	TLDX 220061	130	68	HB
"	20147	20318	TLDX 22007	140	68	HB
"	19319	19001	ACFX 12030 NSR	80	67	DH
"	19549	21019	TLDX 223000	140	68	DH
"	19441	18917	TLDX 223179	160	68	DH
4-9-82		19054	TLDX 223001	130	20	HB
4-12-82		19961	TLDX 223045	130	20	HB
4-14-82		15,414	ACFX 12511 Methyl	100	68	DH
4-14-82		18,973	GATX 13710 NSR	90	68-67-66	DH
4-15-82		17,880	NATX 25559 NSR Sol	50	65	DH
4-19-82	19851	19671	ACFX 81224 Methyl	80	68	DH
4-20-82	19614	19054	TLDX 223036 unc	160	20	DH
4-22-82	19656	14,517	TLDX 223057 unc	125	20	DH
4-23-82		Month end				
4-23-82		19053	TCDX 223166 unc		20	GH
4-26-82		19,092 x	ACFX 79692 H-oil	140	99	DH
"		18,900 x	ACFX 79685 H-oil	190	3	DH
"		19,053	NATX 25552 unc		20	DH
4-29-82		20,868 x	GATX 12455 unc	100	20	HB
"		19961 x	" 12451 unc		20	HB
"		19054 x	ACFX 81232 unc	100	20	DH
5-4-82		18953 x	GATX 13713 NSR	70	3-4	HB
"		16790 x	ACFX 12516 Methyl	70	4	HB
5-6-82		20309 x	NATX 25558 unc	200	4	DH
5-10-82		21019 x	TLDX 223041 H-oil	130	68	DH

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4493
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LOCATION _____ DATE _____ BY _____

SUBJECT Gallons - out

Date	Plant gal.	From	To	Customer	by	Temp
2/8-82	11286	3	K-60	Wy EH	HB	
2/9/82			K-30	Am Tar	HB	
2-9-82	5920	3	K-30	Tacoma	GH	
2-10-82	6485	3	K-60	BC	HB	
2-10-82	5356	3	P/Wood		HB	5272 @102
2-11-82	5225	19	K-30	Am Tar	HB	
2-11-82	5920	3	K-60	T.G.	HB	
2-11-82	5638	3	K-60	Mono B	HB	
2-11-82	5920	3	K-60	Mc. B	HB	
2-12-82	11,851	3	K-60	BC	HB	
2-12-82		3	K-30	Am Tar	HB	
2-16-82	11,287	3	K-60	Wy EH	GH	
2-16-82		3	K-30	" "	GH	
2-17-82		3	K-60	" "	GH	150
"	29028	3	K-30	AM Tar	GH	150
"		3	P/wood		GH	150
"		3	K-Lines		GH	150
"		3	K-Lines		GH	150
"	11569	3	P/wood		GH	160
"		3	K-Lines		GH	160
2-18-82	12133	3	K-60	Wy. EM	GH	180
"		3	K-30	D.R.	GH	180
"	5074	3	P/wood		GH	180
"	7050	4	K-30	Tac	GH	170
"	5302	4	P/wood		GH	170
2-18-82	5920	4	K-60	D.R.	HB	188
2-19-82	11191	4	K-30	AM Tar	GH	170
"		4	P/wood		GH	170
"	5638	4	K-60	Tac	GH	185
"	5356	4	P/Wood		HB	185
2-19-82	5920	4	K-30	B.C.	HB	185
2-19-82	5920	4	K-60	B.C.	HB	180
2-22-82	12133	4	K-30	E.H.	HB	150
2-22-82		4	K-60	M.C.	HB	150

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Koppers Company, Inc.

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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Book	Plant	From	To	Temp	By
5-11-82	19373	16927	TLDX 223004 UNC	4	120	GH
5-14-82	19,666	18,593	× " 223000 UNC	99	210	HB
5-17-82		16,899	× GATX 11746	68+99	60	HB
5-17-82		19617	× TLDX 223179 NSR, +Sol	68	60	GH
" "		19617	× " 223036 UNC	68	70	GH
5-19-82	20393	17239	× NATX 25559 NSR+Sol	20	60	GH
" "		16363	× UTLX 85769 H.OIL	4	180	HB
5-20-82	19981	18954	× NATX 25552 UNC	99+68	140	GH
" "	20127	19023	× TLDX 223007 NSR	99+20	70	HB
5-21-82	20058	19132	× TLDX 223057 UNC	20	70	HB
		Month End				
5-24-82		20872	TLDX 223166	3	185	GH
		19054	GATX 13710	20	100	HB

Transfered To
Receiving Book

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Koppers Company, Inc.

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LOCATION _____ DATE _____ BY _____

Gallons Out

SUBJECT _____

Date	Plant gal.	From	To	Customer	by	Temp
2-22-82	5356	4	K-60	MCB	HB	170
2-23-82	5074	4	P/wood		GH	175
2-24-82	6485	3	K-30	T-L	GH	150
"	4792	3	K-30	Tac	GH	160
2-25-82	12318	3	K-60	B.C.	GH	150
"		3	K-30	Tac	GH	150
2-26-82	11287	3	K-60	BC	GH	150
"		3	K-30	BC	GH	150
3-1-82	11569	3	K-30	BC	GH	150
"		3	K-60	T.-L	GH	150
"	5074	3	P/wood		GH	170
"	5624	3	K-60	D-R	GH	185
3-2-82	11,851	3	K-60	BC	HB	150
"		3	K-30	E.H.	HB	150
3-3-82	10,722	4	K-30	BC	HB	140
"		4	K-60	McB	HB	140
"	5920	4	K-60	McB	HB	140
"	6203	4	K-60	D&R.	HB	150
"	5638	4	K-60	Tac	HB	155
3-4-82	11,005	4	K-60	EH	HB	165
"		4	K-30	EH	HB	165
"	5074	4	K-60	TC	MA	200
3-5-82	8463	4	K-30	McB	HB	180
"		4	K-60	Gilsonite	HB	180
"	10722	4	K-60	D&R	HB	155
"		4	K-30	McB	HB	155
"	6203	4	K-30	" "	HB	185
3-8-82	11569	4	K-30	E.H	GH	170
"		4	K-60	Mc-B	GH	170
"	7332	3	P/wood		GH	140
"	5860	3	K-60	McB	GH	150
"	11005	3	K-60	D-R	GH	155
"		3	P/wood		GH	155
3-9-82	11,005	3	K-30	EH	HB	140
"		3	K-60	R-R	HB	140
"	6203	3	P/wood		HB	145

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Organic Materials Group
Koppers Company, Inc.

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PRINTED IN U.S.A.

LOCATION GALLONS OUT DATE BY

SUBJECT

Date	Gals.	From	To	Customer	Temp	By
3-9-82	5356	3	P/Wood		155	HB
3-10-82	5074	3	K-30	B.C.	180	HB
"	5074	3	P/Wood		180	HB
"	5356	3	P/Wood		180	HB
3-11-82	11,569	3	K-60	E.H.	170	HB
"		3	K 30	Am. T.	170	HB
"	5356	3	P/Wood		170	HB
"	5356	3	P/Wood		180	HB
3-12-82	11,287	3	K-60	B.C.	140	HB
"		3	K-30	E H	140	HB
"	5920	4	P/Wood		160	HB
"	5356	4	P/Wood		170	HB
3-15-82	5638	4	K-30	D&R	130	HB
"	5638	4	K-30	D&R	140	HB
3-16-82	1,000	4	K-60	G-Isonite	140	GH
"	6897	4	K-30	T-L	140	GH
3-17-82	11005	4	K-60	INT. paper	150	GH
"		4	K-30	" "	150	GH
"	5330	4	K-60	" "	170	GH
"	5638	4	K-30	" "	170	GH
3-18-82	11781	4	K-30	" "	150	GH
"		4	K-60	B.C	150	GH
"	5330	4	K-30	Seattle	160	GH
3-19-82	12133	4	K 30	Am. Seattle	160	GH
"		4	K-60	Seattle	160	GH
3-22-82	11287	4	K-30	Seattle	175	MA
"		4	K-60	Seattle	175	MA
3-23-82	11005	4	K-60	Seattle	180	MA
"		4	K-30	Seattle	180	MA
"	4792	4	K-30	"	190	HB
"	576	67	K-30	"	150	HB
"	6046	67	K-Line	"	150	HB
"	6621	67	K-Line	"	155	HB
3-24-82	12203	67	K-30	"	150	GH
"		67	K-60	"	150	GH
"	6909	67	K-Lines		160	GH

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GALLONS OUT

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gals.	From Tank	To	Customer	By
3-24-82	6046	67	K-Line	DoR	HB
"	4734	17	K-30	Am Tar	HB
3-25	11803	67	K-60		HR
"		67	K-30		HR
3-26	11005	3	K-30	Tac	GH
"		3	K-60	Sea	GH
"	5638	3	K-30	Sea	HB
3-29	12133	3	K-60	Sea	HB
"		3	K-30	Sea	HB
3-30	11395	99	K-30	Wy Sea	HB
"		99	K-60	Wy Sea	HB
"	5674	99	P/wood		GH
3-31	11395	99	K-30	I.P.	HB
"		99	K-60	D.R	HB
"	5398	99	K-60	Toc.	HB
"		99	P/Wood		HB
"	11,995	99	K-30	I.P.	HB
"	5398	99	K-30	D.R	MA
4-1-82	11,395	99	K-30	I.P	HB
" "		99	K-60	I.P.	HB
"	5398	99	P/wood		HB
"	5398	99	K-30	I.P	HB
"	5998	99	K-60	D.R	HB
"	5398	99	P/Wood		HB
"	10796	99	K-30	D.R	GH
"		99	K-60	D.R	GH
4-2-82	12595	99	K-60	BC	HB
"		99	K-30	BC	HB
4-5-82		99	K-60	I.P.	GH
"		"	K-30	I.P	GH
"	26989	"	P/wood		GH
"		"	P/wood		GH
"		"	K-60	I.P	GH
"		"	K-30	I.P	GH

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T-170 REV. 6-77
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LOCATION Shipments DATE BY

SUBJECT GALLONS OUT

DATE	GALLONS OUT	FROM	TO	CUSTOMER	Temp	BY
4-6-82	11,851	4	K-30	Am.T.	130	[illegible]
"		4	K-60	Wy	135	[illegible]
4-7-82	10722	4	K-30	Jun.City	170	[illegible]
"		4	K-60	DR	170	[illegible]
"	5638	4	K-60	Toc	180	[illegible]
"	5920	4	K-30	DR	180	MA
4-8-82	4310	17+19	K-30	Am.T.	180	[illegible]
"		4	K-60	Wy	175	[illegible]
"	5302	3	K-60	Mc. B	155	DH
4-9-82	7050	4	K-30	" "	160	[illegible]
"	7332	3	K-60	" "	140	[illegible]
"	5920	3	K-30	" "	145	[illegible]
"	5920	3	K-60	" "	145	[illegible]
"	5638	3	K-30	" "	150	[illegible]
"	5920	3	K-60	Dom T	150	[illegible]
"	6203	3	K-30	Dom.T	150	MA
4-12-82	11569	3	K-30	Mc.B.	140	[illegible]
"		3	K-60	Wy	140	[illegible]
" "	5638	3	K-30		155	MA
4-13-82	12697	3	K-60	BC	160	DH
"		3	K-30	Wy	160	DH
4-14-82	11851	3	K-30	BC	150	DH
"		3	K-60	Wy	150	DH
4-15-82	12327	3	K-60	Wy	150	DH
"		3	K-30	Toc	150	DH
"	5074	3	K-30	Mc B	180	DH
"	5920	3	K-30	Mc B	180	[illegible]
4-16-82	11851	3	K-30	Wy	160	DH
"		3	K-60	Wy	160	DH
"	6767	3	K-Lines	DR	170	DH
"	6485	3	K-Lines	DR	170	[illegible]
"	11569	4	K-30	Canda	185	MA
"		4	K-60	Canda	185	MA
4-19-82	11569	4	K-30	BC	160	[illegible]
		4	K-60	Wy	160	[illegible]
4-19-82	6203	4	K-60	Wy	195	MA

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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	by
4-20-82	12697	4	K-60	B.C.	170	GH
"		4	K-30	T-L	170	GH
"	5638	4	K-30	D-R	190	GH
"	5638	4	K-30	Wy	190	HB
4-21-82	5200	Kpcx 500	K-30	B.C	220	GH
"	6172	4	K-60	Sea	180	GH
	5638	4	K-60	Wy	180	Mitch
4-22-82	18337	4	K-60	"	180	GH
"		4	K-30	"	180	GH
"		4	K-Lines		180	GH
"	6485	3	K-Lines	Toc.	170	HB
"	5356	3	K-30	Wy	190	HB
4-23-82	12311	3	K-60	Wy	170	GH
"		3	K-30	Wy	170	GH
"	11,227	Tc 12045	K-60	Do. Inv	180	HB
"		" "	K-30	"	180	HB
4-26-82	11569	3	K-60	Wy	160	HB
"		3	K-30	Wy	160	HB
"	5356	3	P Wood		170	HB
"	5356	4	P/Wood		170	HB
"	5638	4	K-60		180	mA
4-27-82	18618	4	K-30	Toc.	160	HB
"		4	P/wood		160	HB
"		4	K-Lines	D.R	160	HB
"	? 5920	T/ 12045	K-60	B.C	180	HB
"	5074	4	K Lines P/Wood	DR	180	HB
"	5907	4	K-30	Wy	190	GH
4-28-82	23,684	4	K-60	Wy	170	HB
"		4	K-30	BC	170	HB
"		4	P/Wood		170	HB
"		4	K-Lines	Wy	175	HB
"	5898	99	P/Wood		190	HB
"	5638	3	K-60	Wy	150	GH
4-29-82	16,793	99	K-30	Wy	165	HB
			K-60	Wy	165	HB
		99	P/Wood	Wy	165	HB

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KOPPERS

Organic Materials Group
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LOCATION _____ BY _____ DATE _____ BY _____

Date	SUBJECT Gals.	From	To	Customer	Temp	by
4-29-82	4798	99	P Wood		175	HB
"	6597	99	K-30	Wy	190	DH
4-30-82	7197	99	K-60	Gibsonite	190	HB
"		99	K-30	Wy	190	HB
"	5898	99	K-Line	Mc B.	190	HB
"	4798	99	K-60	Toc	190	HB
"	6597	99	K-Line	Mc B	185	HB
"	? TC	12035	K-30	B.C		DH
"	?		K-60	B.C		DH
5-3-82	TC	12035	K-60	B.C	175	DH
"	11996	99	K-30	Sea	165	DH
"		99	P/wood		165	DH
"	5898	99	P/wood		170	DH
5-4-82	10,796	99	K-30	DR	165	HB
"		99	K-60	DR	165	HB
"	4798	99	K-30	Toc	170	HB
"	5898	99	K-60	DR	170	HB
5-5-82	5898	99	K-60	Wy	160	HB
"	500	99	Gibsonrhomes		160	HB
"	1	KPex 500	K-30	Dom Tar	230	HB
~~"~~	~~5898~~	~~99~~	~~K-60~~	~~Wy~~	~~180~~	~~DH~~
"	5898	99	K-60	Wy	180	DH
5-6-82	11395	99	K-60	Dom. Tar	170	HB
"		99	K-30	Wy	170	HB
"	5398	99	K-30	Wy	190	MA
5-7-82		99	K-30	Wy	170	HB
"	19,192	99	K-60	Wy	170	HB
"		99	K-Lines	Mc B	170	HB
"	6597	99	K-Lines	Taylor	190	HB
"	11,995	99	K-60	Dom Tar	170	MA
"		99	K-30	Dom Tar	170	MA
5-10-82	4798	99	K-60	Wy	125	HB
"	4904	68	K-30	Wy	165	HB
5-11-82	11911	68	K-60	Wy	150	DH
" "		68	K-30	Mc B	150	DH
"	5605	68	K-30	Toc	160	DH

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Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT GALT

Date	Gal Out	From	To	Customer	Temp	by	
5-11-82	5605	68	K-60	Wy	185	HB	
5-12-82	11911	68	K-30	Wy	160	BH	
"		68	K-60	Wy	160	BH	
"	17244	39	TC 22	3004	185	BH	
"	4904	68	K-30	Wy	190	HB	
5-13-82	11911	68	K-30	Wy	180	BH	
"		68	K-60	Wy	180	BH	
"	4904	68	K-30	Wy	195	HB	
5-14-82	11911	68	K-30	McB	160	HB	
"		68	K-60	Wy	160	HB	
"	5605	68	K-30	Wy	165	HB	
5-19-82	11,600 gal	65	K-60	Taylor	100	M. Tch	
"		65	P/Wood		100	M. Tch	
5-20-82	6767	4	K-60	Mc. Bax	180	BH	
"	5364	65	P/wood		65	BH	
"	5920	4	K-60	Mc. Bax	180	BH	
"	5364	65	P/wood		65	BH	
"	5891	4	K-60	D-R	190	BH	
"	6203	4	K-60	Toc	180	HB	
5-21-82	11851	4	K-30	Sea	170	BH	75 T/T Creo
"		4	K-60	D-R	170	BH	1 T/T Tar
"	5625	4	K-60	Taylor	180	BH	Month end
"	5920	4	K-30	Dome Tar	185	HB	
"	5356	4	K-60	Dom Tar	185	HB	
5-24-82	5920	4	K60	D&R	195	HB	
"	5364	65	P/Wood		150	HB	
	5356	3	P/Wood		165	HB	
5-25-82	8180	3	K-60	Gilsonite	160	HB	
"		3	K-30	McB	160	HB	
"	5864	3	K-60	Dom Tar	170	HB	
"	6200	3	K-30	Toc	170	HB	
"	5356	3	P/Wood		175	HB	
5-26-82	11851	3	K-30	Dom. Tar	175	HB	
"		3	K-60	McB	175	HB	
"	5638	3	K-60	" "	175	HB	
"	6203	3	K-60	" "	170	HB	

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6-
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gals	From	To	Customer	Temp	By
5-26-82	5356	3	P/Wood		178	[illegible]
5-27-82	8180	3	K-60	McCB	165	[illegible]
"		3	K-30	Don. City	165	[illegible]
"	5356	3	P/Wood		165	[illegible]
"	5356	3	K-60	McCB	160	[illegible]
"	5638	3	K-60	McCB	160	[illegible]
5-27-82	5638	4	K-[illegible]	Ore V.	165	M.A.
5-28-82	5605	68	K-60	Am Tar	165	[illegible]
6-1-82	6306	68	K-30	Toc	130	[illegible]
"	4905	68	P/wood		130	[illegible]
"	4905	68	P/wood		130	[illegible]
6-2-82	6306	68	K-30	K.CALIF.	125	[illegible]
"	5605	68	P/Wood		125	[illegible]
	4904	68	P/Wood		130	[illegible]
6-3-82	4904	68	K-60	D&R	140	[illegible]
"	5605	68	K-60	"	150	[illegible]
6-4-82	8407	68	K-60	G.L.Bonite	135	[illegible]
"		68	K-30	D&R	135	[illegible]
"	4904	68	K-60	Toc	140	[illegible]
"	5605	68	K-30	Talor L.	145	[illegible]
6-7-82	12611	68	K-30	Talor L.	135	[illegible]
"		68	K-60	Toc	135	[illegible]
"		68	Tc	25558		
"	5605	68	K-30	McnBEnlit	155	[illegible]
6-8-82	11210	68	K-60	Sea Wy	150	[illegible]
"		68	P/wood		150	[illegible]
"	5605	68	P/wood		160	[illegible]
"	4904	68	P/Wood		160	[illegible]
"	5605	68	K-60		180	[illegible]
6-9-82	5605	68	P/wood		145	[illegible]
"	5605	68	P/wood		110	[illegible]
"		68	K-Lines		100	[illegible]
"	10509	68	P/wood		100	[illegible]
"	6306	65	K-30	Am. Tar	100	[illegible]
6-10-82	5898	99	K-30	Wy	150	[illegible]
"	6306	65	K-Lines		100	[illegible]

Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6-
200 BKS. 5-60
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gals	From	To	Customer	Temp	Loader
6-10-82	6306	65	K-Lines	Mc Bax	100	GH
"	5898	99	K-Lines	Dlay	150	GH
"	12,515	99	K-Lines	OLY	150	GH
"		99	K-60	OLY	160	MB
6-11-82	Kpcx 500		K-30	B.C.	200	GH
"	5998	99	K-60	Wy	190	GH
6-14-82		99	K-30	Wy	160	MB
"	16,793	99	K-60	DPR	160	MB
"		99	P/Wood		160	MB
"	5364	65	Kc60	Tac	125	MB
6-15-82		99	K-30	OLY	150	GH
"	17993	99	P/wood		150	GH
"		99	K-60	Sea Wy	100	GH
"		99	K-30	OLY	100	GH
6-16-82	4998	99	K-30	D.R.	70	GH
"	14303	65	K-60	B.C.	100	GH
"		65	K-30	Tac	100	GH
6-17-82	4955	Kpcx500	K-30	Sea	220	GH
"	5364	65	K-60	B.C.	110	GH
6-18-82	5364	65	K-30	B.C.	120	MB
6-21-82	11287	4	K-30	Wy	150	GH
"		4	K-60	Mc Bax	150	GH
"	6767	4	K-60	"	170	GH
"		4	G.b. Homes		170	GH
"	11005	4	K-60	Mc Bax	170	MA
"		4	P/Wood		170	MA
6-22-82	5364	65	K-30	Am Tar	110	MB
"	11851	4	K-60	Wy	155	MB
"		4	P/Wood		155	MB
"	7452	4	K-60	Wy	180	GH
6-23-82	10727	65	K-30	Am. Tar	110	MB
"		65	K-60	Dom Tar	110	MB
"	5638	4	P/Wood		170	MB
"	5074	4	P/Wood		185	MB
"	5356	4	P/wood		175	GH

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp.	Loader
6-23-82	5920	4	K-30	Wy	175	MA
6-24-82	5638	4	K-60	Wy	150	HB
"	5638	4	P/Wood		150	HB
"	5920	4	K-Line	Talgor	130	HB
"	5920	4	K-30	Wy	125	HB
"	5364	65	P/Wood		110	HB
"	5364	65	P/wood		110	GH
[illegible]-82	12515	65	K-60	Am. Tar	110	HB
		65	K-30	Jun. City	110	HB
"	5364	65	P/Wood		110	HB
"	5364	65	P/wood		110	GH Month End
"	10727	65	K-30	B.C	125	GH
"		65	K-60	B.C	125	GH
6-28-82		3	K-60	Gilsonite	130	GH
"	12415	3	K-30	Wy	130	GH
"		3	P/wood		130	GH
"	5364	65	K-60	Tac	115	GH
"	4792	3	P/wood		140	GH
"	4792	3	P/wood		160	GH
"	5920	3	K-30	Wy	170	GH
6-29-82		3	K-60	Wy	165	HB
"	18055	3	K-30	Wy	170	HB
"		3	K-Line	Mc & B	170	HB
"	7050	3	K-Line	Mc & B	180	HB
"	5920	3	K-60	Wy	190	GH
6-30-82	10727	65	K-30	Am. Tar	180	HB
"		65	K-60	B.C.	180	HB
"	5638	4	K-30		185	GH
7-1-82	4874	19	K-30	Am Tar	170	HB
"	5364	65	K-60	Tac.	180	HB
"	12415	4	K-Lines	Talgor	185	HB
"		4	P/Wood		185	HB
"	5356	4	P/Wood		185	HB
7-2-82	10727	65	K-60	Dom Tar	145	HB
		65	K-30	" "	145	HB

Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6
200 BKS. 5-60
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

DATE	SUBJECT Gallons	From	To	Customer	Temp.	Loader
7-6-82	12133	4	K-60	W4	170	MA
" "		4	K-30	Am. Tar	170	MA
"	5920	4	K-Lines	Mc+B	175	MA
"	6767	4	K-Lines	Mc+B	195	MA
7-7-82	11,287	4	K-60	Wy	150	HB
"		4	K-30	Wy	160	HB
"	5074	4	P/wood		195	MA
7-8-82	3576	65	K-60	Dam Tar	130	HB
"	3100	4	K-60	Record	160	HB
"	5356	3	K-30	Wy	160	HB
"	5356	3	P/Wood		160	MA
7-9-82	6203	3	K-30	Taylor	160	HB
"	11,287	3	K-60	Wy	160	HB
"		3	P/Wood		160	HB
"	5074	3	P/Wood		165	HB
"	5364	65	K-30	Tac.	150	HB
7-12-82		3	K-60	Wy	180	HB
"	17209	3	K-30	Mc+B	185	HB
"		3	P/Wood		190	HB
"	5638	4	K-30	Tac	180	HB
"	5638	4	P/Wood		180	HB
"	5074	4	P/wood		190	MA
"	5920	4	K-60	W4	190	MA
7-13-	11851	4	K-30	Mc Box	170	BH
"		4	K-60	Wy	170	BH
"	5820	4	K-30	Tac	170	BH
"	5444	20	K-60	Wy	170	HB
7-14	12702	20	K-60	Wy	140	BH
"		20	K-30	BC	140	BH
"	5074	4	P/wood		160	BH
"	5638	4	P/Wood		160	HB
7-15-82	11851	4	K-60	Wy	150	BH
"		4	K-30	Oly	150	BH
"	5920	4	K-30	Wy	150	HB

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6-1-7
200 BKS. 8-80
PRINTED IN U.S.A.

LOCATION YB DATE BY

SUBJECT

Date	Gallons	From	To	Customer	Temp	Loader	
7-16-82		4	K-30	Wy	130	SH	
"	16645	4	K-60	Oly	130	SH	
"		4	P-Wood		130	SH	
"	6767	3	K-Lines	Taylor	110	SH	
"	5638	4	P/Wood		130	SH	
"	10722	4	K-60	Wy	130	HB	
"		4	P/Wood		130	HB	
"	5638	3	K-30	Dom Tar	110	HB	
7-19-82		3	K-60	Am. Tar	130	HB	
"	16645	3	K-30	Dom Tar	135	HB	
"		3	P/Wood		140	HB	
7-20-82	12607	3	K-30	Wy	150	SH	
"		3	K-60	Tac	150	SH	
"	6452	3	K-Lines	Taylor	150	SH	
"	5356	3	K-60	Wy	180	HB	
7-21-82	6203	3	K-60	Wy	160	SH	
"	5364	65	K-30	Am. Tar	130	SH	
"	5356	3	K-60	Wy	190	HB	
"	13,560	18	TJC 223000		100	SH	Tar+Water
7-22-82	19755	3	K-30	Wy	160	SH	
"		3+65	P/Wood		160	SH	
"		65	K-60	Tac	130	SH	
"	5267	3+65	P/Wood		160+130	SH	
"	6676	3+65	P/Wood		150+140	HB	
7-23-82		65	P/Wood		130	SH	
"	14303	65	K-60	Gilsonite	130	SH	
"		65	K-30	Mc. Bax	130	SH	
"	16091	65	K-60	Mc. Bax	130	SH	
"		65	P/Wood		130	SH	
"		65	K-30	Mc. Bax	130	SH	
"	7151	65	K-60	Dante Rus	125	MA	
"	5354	65	P/Wood		125	MA	
7-26-82	5920	3	K-30	Taylor	100	SH	
"	5084	3	K-30	D+R	100	SH	

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Koppers Company, Inc.

KOPPERS

T-170 REV. 6-80
200 BKS. 8-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader
7-27-82	5074	3	K-30	D+R	100	GH
"	7900	3+65	K-30	Tacoma	100	GH
7-29-82	5200	Kpc x 595	K-30	B.C	3.00	GH
"	5638	4	K-60	Oly	190	GH
7-30		4	K-60	Mc. Bax	160	GH
"	17209	4	P/wood		160	GH
"		4	K-30	Mc. Bax	160	GH
"	6485	4	K-60	Oly	160	GH
"	5356	4	P/wood		150	GH
"	4792	4	K-30	Mc. Bax	160	MA
"	5074	4	P/wood		160	MA
8-2-82	5074	4	K-60	Wy	100	GH
8-3-82	5920	3	K-60	Wy	150	GH
"	5638	3	K-30	Mc. Bax	160	GH
"	11851	3	P/wood		160	GH
"		3	K-30	Mc. Bax	160	GH
8-4-82	17209	3	P/wood		150	GH
"		3	K-60	Mc. Bax	150	GH
"		3	K-30	Wy	150	GH
"	5920	3	K-60	Tacoma	160	GH
"	6485	3	K-30	Wy	185	GH
8-5-82	7050	3	K-60	Gilsonite	170	GH
"		3	K-30	Wy	170	GH
"	5074	3	K-60	Taylor	170	GH
"	5356	3	P/wood		190	GH
"	5356	3	K-60	Wy	190	MA
8-6-82		3	K-60	Mc-Bax	160	GH
"	21716	3	K-30	Oly	160	GH
"		3	P/wood		160	GH
"		3	K-Lines	D-R	160	GH
"		3+20	K-60	Wy	190	MA
"		3+20	K-lines	Wy		MA
"		3+20	K-lines	Wy		MA
"		3+20	P/wood			MA

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6-
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader
8-9-82		3	K-30	Am Tar	120	HB
"	22,559	3	K-60	Wy	120	HB
"		3	K-Line	Oly	120	HB
"		3	P/Wood		120	HB
"	6203	4	K-Line	Oly	140	HB
"	5356	4	P/Wood		145	HB
"	5356	4	K-30	Wy	170	GH
8-10-82	12133	4	K-30	Oly	170	HB
"		4	K-60	McB	170	HB
"	6203	4	K-Line	Talyor	170	HB
"	5638	4	K-60	Toc	175	HB
"	5638	4	K-30	Oly	180	HB
"	5074	4	P/wood		180	MA
"	5920	4	K-60	Wy	210	GH
8-11-82	5638	4	P/wood		195	HB
"	11,287	4	K-30	Am. Tar	195	HB
"		4	K-60	Wy	195	HB
"		65	K-Line	McB	225	HB
"		65	"	" "	225	HB
"	5638	4	P/Wood		190	HB
"		65+3	K-Line	McB	225	HB
"	5638	4+20	P/wood		190	HB
"	7332	3	K-Line	McB	190	MA
"	5444	20	K-30	Wy	190	GH
"	6485	3	K-Line	McB	190	MA
8-12-82	5857	19	K-30	Am Tar	190	HB
"		20	K-60	Wy	170	HB
"	18140	20	P/wood		170	HB
"		20	K-Line	Oly	170	HB
"	7258	20	K-Line	Oly	170	HB
"	5444	20	P/wood		165	HB
"	5444	20	K-30	Wy	170	GH
8-13-82		20	K-60	Gilsonite	175	HB
	19961	20	K-30	Toc.	175	HB
		20	P/Wood		175	
		20	K-Line	Talyor	175	

Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader
8-13-82	5441	20	K-60	Oly	175	HB
"	6351	20	P/Wood		170	HB
"	11795	20	K-60	BC	170	MA
"		20	K-30	BC	170	MA
8-16-82	11795	20	K-30	Wy	100	HB
"		20	K-60	Wy	100	HB
"	9980	20	K-30	Wy	160	GH
"		20	K-60	Wy	160	GH
8-17-82		20	K-30	Mc+B	120	HB
"	T-67 7485	20+67	K-Line	" "	120	HB
"	T-20 7258	67	P/Wood		110	HB
"	5920	3	K-30	Mc+B	150	HB
"		3	K-Line	" "	150	HB
"	17,491	3	P/Wood		150	HB
"		3	K-30	Oly	155	HB
"	6485	3	K-lines	Mc+B	155	MA
"	5638	4	K-60	Wy	100	MA
"	5638	3	K-30	Wy	170	GH
8-18-82	6203	3	K-60	Mc+B	170	HB
"	5356	3	P/Wood		170	HB
"	5638	3	K-60	Mc+B	170	HB
"	5638	3	P/Wood		170	HB
"	5920	3	K-60	Oly	170	HB
"	5356	3	P-Wood		160	GH
"	5074	3	K-30	Wy	160	GH
8-19-82	11569	3	K-60	Wy	130	HB
"		3	K-30	Mc+B	130	HB
"	5920	4	P/Wood		130	HB
"	5356	4	K-30	Mc+B	130	HB
"	5356	4	P/Wood		140	HB
"	5638	4	K-30	Oly	140	HB
"	11005	4	P/Wood		160	GH
"		4	K-60	Wy	160	GH
8-20-82		4	K-30	Mc+B	150	HB
"	17,491	4	K-60	Mc+B	150	HB
"		4	P/Wood		160	HB

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6-71-T
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader	
8-20-82	5356	4	K-30	Oly	110	HB	
"	5638	4	K-60	Oly	180	HB	
"	5638	4	P/wood		190	HB	
"	5920	4	K-30	Taylor	190	MA	Month End
8-23-82	18367	67	K-30	Wy	100	GH	see Log 8-23-82
"		67	K-60	Wy	100	GH	
8-24-82	10940	67	K-30	Oly	110	GH	
"		67	K-60	Tacoma	110	GH	
"	5182	67	P/wood		110	GH	
"	5182	67	P/wood		110	GH	
"	5758	67	K-30	Oly	110	GH	
8-25-82		67	K-60	Tacoma	110	GH	
"	17273	67	P/wood		110	GH	
"		67	K-Lines	Oly	110	GH	
"	5182	67	P/wood		110	GH	
"	5470	67	K-60	Toc	110	HB	
8-30-82	5638	4	K-30	Taylor	90	GH	
"	5638	4	K-30	Oly	90	GH	
8-31-82	5074	4	P/wood		90	GH	
"	5638	4	P/wood		120	GH	
9-1-82	5042	Kpc x 500	K-30 RT-12	B.C.	230	GH	
9-2-82	5015	19	K-30	Sea.	170	GH	
"	5638	4	P/wood		150	GH	
"	5638	3	K-30	Taylor	190	HB	
9-3-82		3	K-30	Wy	170	GH	
"	23976	3	K-60	Wy	170	GH	
"		3	P/wood		170	GH	
"		3	K-Lines	Taylor	170	GH	
"	5638	3	P/wood		170	GH	
"	5074	3	P/wood		180	GH	
9-7-82	11287	3	K-30	Wy	180	HB	
"		3	K-60	Toc	180	HB	
"	6485	3	K-Lines	P/wood	170	GH	
"	5638	3	K-60	Wy	170	GH	
9-8-82	11851	4	K-60	Wy	180		
"		4	K-30	Toc	180		

BB

Organic Materials Group
Koppers Company, Inc.

KOPPERS

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T-170 REV. 6-77
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gals.	From	To	Customer	Temp	Loader
9-8-82	5638	3	K-30	Wy	170	BH
"	5638	3	K-60	Wy	170	BH
9-9-82	5000	KPCA 610	K-30	Toc	270	HB
"	6485	3	K-Line	P/wood	180	HB
"	6485	3	K-Line	P/wood	180	MR
"	11851	99	K-60	Wy	240	BH
"		99	K-30	Wy	240	BH
9-10-82		3	K-60	Toc	170	HB
"	19464	3	K-Line	P/wood	170	HB
"		3	K-Line	Taylor	170	HB
"	5998	99	K-Line	P/wood	185	HB
"	5398	99	K-60	Wy	180	BH
9-13-82	12133	3	K-30	Wy	120	HB
		3	K-60	Wy	120	HB
"	5398	99	K-30	Wy	170	BH
9-14-82	11995	99	K-30	Wy	170	HB
"		99	K-60	Wy	170	HB
"	5356	3	P/wood		190	HB
"	5998	99	P/wood		170	HB
"	5920	3	K-30	Wy	180	BH
9-15-82	5398	99	K-30	Wy	120	HB
"	5998	99	P/wood		120	HB
9-16-82	5605	68	K-30	Wy	140	HB
"	5605	68	P/wood		140	HB
"	4904	68	P/wood		150	HB
"		68	P/wood		150	BH
"	16815	68	K-60	Taylor	150	BH
"		68	K-30	Wy	150	BH
9-17-82	11210	68	K-30	Wy	140	HB
"		68	P/wood		140	HB
"	6306	68	K-60	Wy	140	HB
9-20-82		68	K-60	Toc	100	BH
"	17516	68	K-30	Wy	100	BH
"		68	P/wood		100	BH
"	5605	68	P/wood		100	BH
"	5605	68	K-60	Wy	100	HB

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader
9-21-82		68	K-30	Wy	90	BH
"		"	K-60	Wy	"	"
"	16815	"	P/wood		"	"
"		"	Gibson	Homes	"	"
"	4904	"	P/wood		150	"
"	4904	68	K-30	Wy	170	RHB
9-22-82		68	K-30	Am. Tar	170	BH
"		"	K-60	Wy	170	"
"	16815	"	P/wood		170	"
"	4904	"	"		"	"
9-23-82		68	K-60	Gilsonite	120	BH
"		"	K-30	Wy	"	"
"	11210	"	P/wood		"	"
"	4904	"	P/wood		100	"
9-27-82	10,158	4	P/wood		160	RHB
"		4	K-60	Taylor	160	RHB
9-28-82	5074	4	K-60	Oly	170	BH
"	5638	4	P/wood		185	BH
"	5356	4	P/wood		180	RHB
"	5074	3	K-60	Toc	180	RHB
"	6203	4	K-60	Wy	180	BH
9-29-82	4803	19	K-30	Am. Tar	200	BH
"	5638	4	P/wood		180	BH
9-29-82	5920	4	K-60	Taylor	190	RHB
"	5356	3	K-30	Toc	195	RHB
9-30-82	4100	17+19	K-30	Am. Tar	200	BH
"	5920	4	K-60	Oly	180	BH
"	5920	4	K-30	Oly	190	RHB
10-1-82	7615	4	K-30	Oly	160	BH
"		4	K-60	Gilsonite	160	BH
"	5638	4	K-60	Oly	160	BH
10-4-82	11395	99	K-30	Wy	115	RHB
"		99	K-60	Wy	115	RHB
"	5898	99	K-30	Wy	130	MA

Organic Materials Group
Koppers Company, Inc.

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T-170 REV. 6-
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader
10-5-82	6203	3	K-60	Record Com	170	RHB
"	5898	99	K-30	Wy	150	RHB
10-6-82	5998	99	K-60	Taylor	180	RHB
" "	4734	17	K-30	Am Tar	165	RHB
"	5998	99	K-60	Wy	190	BH
10-7-82	5015	17	K-30	Am-Tar	200	HB
"	5998	99	K-60	Wy	180	BH
"	20,000	65	79690	Mc. Bax	210	BH
"	20,000	65	12454	Mc. Bac	210	BH
"	5998	99	K-30	Wy	160	BH
10-8-82	12595	99	K-30	Wy	145	RHB
		99	K-60	Wy	145	RHB
10-11-82	5638	3	K-30	Am. Tar	80	RHB
" "	5998	99	K-60	Taylor	120	RHB
" "	5998	99	K-60	OLy	130	RHB
" "	5998	99	P/wood		150	BH
" "	5998	99	K-30	Wy	150	BH
10-12-82		99	K-60	Wy	140	RHB
" "	17393	99	K-30	OLy	140	"
" "		99	P/wood		140	"
" "	5898	99	P/wood		145	RHB
" "		99	P/wood		170	BH
" "	10796	99	K-3	Wy	170	BH
10-13-82		99	K-60	Tac	195	RHB
" "	17393	99	K-30	Wy	195	RHB
" "		99	P/wood		195	RHB
" "	5898	99	P/wood		195	RHB
" "	5998	99	K-60	Wy	190	RHB
10-14-82	11995	99	K-30	Taylor	150	RHB
" "		99	K-60	Wy	150	RHB
" "	5898	99	K-30	OLy	160	RHB
" "	5998	99	K-60	Wy	170	BH
"	5898	99	K-30	OLy	200	BH
10-15-82	5998	99	K-60	OLy	120	RHB
" "	5998	99	P/wood		120	RHB
" "	5074	4	P/wood		180	RHB
10-18-82	5920	4	K-60	Wy	110	BH

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6-
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp.	Loader
10-19-82	5920	3	K-60	Tacoma	170	GH
"	4792	4	K-30	Wy	180	GH
"	5920	4	K-60	Wy	190	MB
10-20-82	5638	3	K-60	Tacoma	140	GH
"	6485	4	K-30	Wy	170	GH
10-21-82	11569	4	K-30	Wy	185	GH
"		4	K-60	Wy	185	GH
10-25-82	5638	3	K-30	Tacoma	100	GH
10-26-82	5364	65	K-30	Tacoma	170	GH
"	20,000	65	TC 223000		170	GH
"	5605	68	K-60	Wy	140	GH
"	5605	68	K-30	Wy	150	MA
10-27-82	5364	65	K-60	Tacoma	200	GH
"	10509	68	K-30	Wy	170	GH
"		68	P/wood		170	GH
"	5605	68	P/wood		170	GH
10-28-82	10509	68	K-60	Wy	190	GH
"		68	P-Wood		190	GH
10-27-82	5605	68	K-60	Wy	170	MA 10-28-82
10-28-82	11210	68	K-30	Wy	190	GH
"		68	P/wood		190	GH
"	6306	68	K-60	Wy	190	MA
10-29-82		68	K-30	Wy	180	GH
"	16815	68	P/wood		180	GH
"		68	K-Lines	Taylor	180	GH
"	4904	68	P/wood		180	GH
"			P/wood		180	MA
"	10509	68	K-60	Wy	180	MA
"	5605	68	K-30	Wy	180	MB
10-29-82		65	Tc 81225	Dalles	180	MB
11-1-82	100	65	K-60	Toc		MB
" "		99	K-60		110	MB
" "	11995	99	K-30	Wy	120	MB
" "	5398	99	P/Wood		120	MB
" "	5898	99	P/Wood		180	MB

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Organic Materials Group
Koppers Company, Inc.

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T-170 REV. 6-81
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader
11-1-82	5892	99	P/wood		150	SH
11-2-82		99	K-30 Wy		170	SH
"	14394	99	K-60 Oly		170	SH
"		99	P/wood		170	SH
"	5898	99	P/wood		170	SH
"	10196	99	K-30 Oly		200	MB
"		99	P/wood		200	MB
"	5998	99	K-60 Oly		190	MB
11-3-82		99	K-30 Wy		170	MB
" "	17,393	99	K-Line Wy		170	MB
" "		99	P/Wood		170	MB
" "	5998	99	K-Line Wy		170	MB
" "	5398	99	P/wood		170	MB
	5398	99	K-60 Oly		170	MB
"	5398	99	P/wood		170	SH
"	6203	4	K-30 Tax.		180	SH
11-4-84	11287	4	K-60 Wy		180	MB
" "		4	P/wood		180	MB
" "	12979	4	K-Line Wy		180	MB
" "		4	K-Line Wy		180	MB
" "	5356	4	P/wood		185	MB
" "	5638	4	K-30 Oly		185	MB
" "	5638	4	P/wood		185	MB
"	5920	4	K-60 Wy		185	SH
11-5-82		4	K-60 Wy		160	MB
"	17209	4	K-30 Wy		160	MB
" "		4	P/wood		160	MB
"	5998	99	K-60 Wy		150	SH
11-8-82	11005	4	K-30 Wy		100	MB
		4	K-60 Wy		180	MB
11-9-82	11569	4	K-60 Wy		180	MB
		4	K-30 Tax.		180	MB
"	5074	4	K-30 Wy		200	MA
11-10-82	6203	4	K-60 Wy		150	MB
11-11-82	11395	99	K-60 Tax		180	MB
" "		99	K-30 Wy		180	MB

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Organic Materials Group
Koppers Company, Inc.

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200 BKS. 5-80
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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader	
11-17-82	6306	68	K-30	Wy	150	SH	
11-18-82	5605	68	K-30	Tay	160	SH	
11-19-82	5086	17	K-30	RT-8	185	SH	AM. Tar
11-19-82	5605	68	K-30	Wy	180	MB	
11-22-82	14713	68	K-60	Wy	130	SH	
"		68	P/wood		130	SH	
"	5605	68	P/wood		130	SH	
11-23-82	11911	68	K-30	Wy	130	SH	
"		68	K-60	Wy	130	SH	
"	4904	68	P/wood		130	SH	
11-24-82	10,000	68	K-30	Tay	120	SH	
"		68	P/wood		120	SH	
"	1200	68	K-60	Gilsonite	120	SH	
"	5605	68	P/wood		120	SH	
"	5605	68	P/wood		120	MA	
11-30-82	11911	68	K-30		100	MA	
"		68	K-60		100	MA	
"	11287	4	K-30	Wy	155	SH	
"		4	K-60	Wy	155	SH	
12-1-82	18618	3	T/C 93198		180	MA	
"	18900	3	T/C 79686		190	MA	
"	5074	4	K-30		200	MA	
"	6306	68	K-60	Wy	180	SH	
12-2-82	5088	19	K-30	Am. tar	165	MA	RT. 8
"	5605	68	K-60		180	MA	
"	6306	68	K-30	Wy	180	SH	
12-3-82	11911	68	K-30	Wy	160	MA	
"		68	K-60	Wy	160	MA	
"	5605	68	K-30	Wy	165	SH	
12/6/82	12611	68	K-30	Wy	135	ma	
"		68	K-60	Wy	135	ma	
" "	4909	68	K-30	Wy	150	JB	
12-7-82	8407	68	K-60	Gilsonite	140	MA	
"		68	K-30	Wy	140	MA	
"	5605	68	K-60	Wy	140	MA	
"	5605	68	K-30	Wy	150	SH	

Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader
12-8-82	9596	68	K-30	OLY	130	MA
"		68	K-60	WY	130	MA
"	5605	68	K-30	OLY	150	GH
"	5605	68	K-60	WY	150	MA
12-9-82		68	K-30	WY	150	GH
"	16815	68	K-60	Mc-Bax	150	GH
"		68	P/wood		150	GH
"	5605	68	K-60	Mc. Bax	160	GH
"	5605	68	P/wood		160	GH
"	6264	"	K-60	Taler	150	MA
"	4198	68	K-30	WY	185	MA
"	4798	68	K-60	OLY	185	MA
12-10-82	10962	"	K-30	WY	150	JB
		"	P/wood		150	JB
"	5605	68	P/wood		185	MA
"	5605	68	K-60	WY	185	MA
"	5481	"	K-30	WY	160	MA
12-13-82		"	K-30	WY	140	MA
"	12523	"	K-60	WY	140	MA
"		"	P/wood		140	MA
"	5481	"	K-30	WY	150	JB
12-14-82		"	K-60	WY	145	MA
"	17226	"	K-30	WY	145	MA
"		"	P/wood		145	MA
"	4698	"	P/wood		145	MA
"	5481	"	K-30	WY	150	JB
12-15-82	19464	3	T/C-12062	The Dallus	120	MA
"		"	K-30	WY	150	MA
"	17226	"	K-60	WY	150	MA
"		"	P/wood		150	MA
"	783	"	T/C-12062	The Dallus	150	MA
"		"	P/wood		150	MA
"	5481	"	K-30	WY	160	JB
12-16-82	5481	"	K-30	WY	170	MA
"	5481	"	K-60	Taler	170	MA

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	temp		
12-16-82		11	K-30	M-B	180	JB	
12-16-82	21924	11	K-60	WY	180	JB	
12-17-82		11	K-60	WY	180	MA	
12-17-82		11	K-30	WY	180	MA	
12-17-82	5461	11	K-30	WY	150	JB	
12-20-82	9396	11	K-60	WY	140	MA	
"	5481	11	K-60	WY	110	JB	
12-21-82	5155	19	K-30	Seo	170	BH	RT-8
"	5481	11	K-60	Taylor	150	BH	
"	5481	11	K-60	Mc Bax	150	JB	
"	5481	11	K-60	Mc Bax	150	JB	
"	5481	11	K-30	WY	150	JB	
"	5481	11	P/wood		150	BH	
12-22-82	17226	11	K-30	WY	160	BH	
"		11	K-60	WY	160	BH	
"		11	P/wood		160	BH	
"	5481	11	P/wood		160	BH	
"	5481	11	K-30	WY	150	JB	
12-27-82		11	K-30	WY	120	MA	
"	19575	11	K-60	WY	12	MA	
"		11	P/wood		120	MA	
"	5481	11	P/wood		125	MA	
12-28-82		11	K-30	WY	160	BH	
"	16443	11	K-60	WY	160	BH	
"		11	P/wood		160	BH	
"	5481	11	K-30	WY	190	JB	
12-29-82		11	K-30	WY	190	BH	
"	14877	11	P/wood		190	BH	
" "		11	P/wood		190	BH	
" " "	5481	11	K-30	WY	160	JB	
1-3-83		11	K-30	WY	110	BH	
"	16443	11	K-60	WY	110	BH	
"		11	P/wood		110	BH	
"	5481	11	K-30	WY	120	HB	
1-4-83	10962	11	K-30	WY	130	BH	
"		11	K-60	WY	130	BH	

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Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	Form	To	Customer	Temp.	Loader
1-4-83	5481	11	K-30	Wy	140	HB
1-5-83	10962	11	K-30	Wy	150	GH
"		11	K-60	Wy	150	GH
"	10962	11	K-60	Mc+B	170	HB
"		11	K-30	Wy	170	HB
1-6-83	5200	Kpcx 538	K-30	Sea.	200	GH
"	5481	11	K-60	Wy	190	GH
"	5481	11	P/wood		200	GH
1-6-83	App 20,000	65	Tc 78479	Mc+B Dalls	200	HB
1-7-83		11	K-30	Wy	175	GH
"	18009	11	K-60	Taylor	175	GH
"		11	P/wood		175	GH
"	5481	11	P/wood		180	GH
"	1,000 Gals	Gibson homes			180	GH
"	5481	11	K-60	Mc Bax	180	GH
"	5481	11	K-60	" "	190	HB
"	5481	11	K-30	Wy	190	HB
1-10-83	10962	11	K-60	Wy	120	HB
"		11	P/wood		120	HB
"	5364	65	K-30	Am Tar	100	HB
"	5481	11	P/wood		160	HB
"	5364	65	K-60	Wy	150	GH
1-11-83	5481		K-30	Wy	120	HB
"	10727	65	K-60	D.R.	140	"
"		65	P/wood		140	"
"	10727	65	P/wood		140	"
"		65	K-60	D.R.	140	"
"	5364	65	K-60	Mc-Bax	150	GH
"	5481	11	K-30	Wy	170	GH
1-12-83		11	K-30	Wy	180	HB
"	17776	11	K-60	Mc+Bax	180	HB
"		11	P/wood		180	HB
"	5481	11	K-60	Toc	190	HB
"	5481	11	K-30	Wy	180	GH
1-13-83	6264	11	K-60	Gilsonite	160	HB
		11	K-30	Wy	160	HB

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Koppers Company, Inc.

T-170 REV. 6-
200 BKS. 5-60
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

DATE	SUBJECT GALLONS	From	To	Customer	Temp.	Loader
1-13-83	5481	11	K-60	Wy	160	HB
"	5481	"	K-30	Wy	170	GH
1-14-83	10962	"	K-60	Wy	180	HB
"		"	K-30	Am Tar	180	HB
"	5481	"	K-60	Wy	150	GH
1-17-83	10 962	"	K-30	Wy	135	GH
"		"	K-60	Taylor	135	GH
"	5481	"	P/wood		140	GH
"	5481	"	K-60	Mc. Bax	140	GH
"	5481	"	P/wood		140	GH
"	5481	"	K-30	Wy	150	HB
1-18-83	10962	"	K-60	D+R	150	HB
"		"	P/Wood		150	HB
"	5980	3	K-30	Am Tar	130	HB
"	10962	"	P/Wood		150	HB
"		"	K-60	Mc. B.	150	HB
"	5481	"	K-60	Mc. Bax	170	GH
"	10 962	"	K-30	Wy	170	GH
"		"	K-60	Taylor	170	GH
1-19-83	5481	"	K-30	Taylor	180	HB
"	5481	"	P/wood		180	HB
"	5481	"	P/Wood		180	HB
"	5481	"	K-30	Taylor	180	M.Tch
"	5481	"	K-60	Wy	180	GH
1-20-83			K-30	Wy	160	HB
"	17226		K-60	Wy	160	HB
"			P/Wood		160	HB
"	18337	3	Tc 223038	Dallas	160	
"	5481	"	P/Wood		160	HB
"	5481	"	K-30	Wy	160	GH
1-21-83	11395	99	K-60	Wy	160	HB
"		99	K-30	Taylor	160	HB
"	5398	99	P/Wood		160	HB
"	11395		P/Wood		160	HB
"			K-30	Taylor	160	HB
"	5481	"	K-60	Wy	160	GH

Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6-
200 BKS. 5-60
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	To	Temp	Loads
1-24-83	11395	11+99	Wy	K-30	130	GH
"		"	Wy	K-60	130	GH
"	11745	"	Wy	K-30	150	JKB
"		"	B.C.	K-60	150	JKB
1-25-83	5481	"	Wy	K-30	160	GH
"	5481	"	Taylor	K-30	190	JKB
1-26-83	1300 Gals.	"	Gisonite	K-60	170	GH
"	5481	"	Mc. Bax	K-60	170	GH
"	5481	"	Mc. Bax	K-60	170	GH
1-27-83	5426 RT	87+19	AM. Tor	K-30	175	GH
"	10962	"	Wy	K-60	160	GH
"		"	Plywood		160	GH
"	5481	"	Plywood		180	GH
"	5481	"	Mc Bax	K-60	190	JKB
"	5481	"	Dante Rus.	K-60	190	JKB
1-28-83	5481	"	AM. Tor	K-30	175	GH
"	5481	"	Mc Bax	K-60	175	GH
"	5481	"	Plywood		175	GH
"	5481	"	Taylor	K-60	175	GH
"	5481	"	Plywood		175	GH
"	5685	68	Wy	K-60	175	JKB
1-31-83	5481	"	Mc. Bax	K-30	140	GH
"	5481	"	Mc. Bax	K-60	140	GH
"	5481	"	Plywood		140	GH
"	5481	"	Wy	K-30	150	GH
"	5481	"	Wy	K-60	150	GH
"	5481	"	Plywood		150	GH
2-1-83	5356	3	Taylor	K-30	80	GH
"	5481	"	Plywood		150	GH
"	5481	"	Plywood		170	GH
2-2-83	5481	"	Plywood		170	GH
"	5481	"	Mc-Bax	K-60	170	GH
"	5481	"	Mc-Bax	K-60	170	GH
"	5481	"	Plywood		170	GH
	5481	"	Taylor	K-60	170	GH

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 8-81
200 BKS. 8-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader
2-3-83	5296	17	K-30	RT-8 Sea	185	BH
2-4-83	5481	11	K-30	Mc-Bax	170	BH
"	5481	11	K-30	Mc-Bax	170	BH
2-7-83	5481	11	K-60	Toc	115	[illegible]
"	"	11	K-30	Taylor	115	[illegible]
2-9-83	5481	11	P/Wood		145	[illegible]
"	5481	11	P/Wood		145	[illegible]
2-10-83	5481	11	K-60	Mc & Bax	145	[illegible]
"	5481	11	P/Wood		145	[illegible]
"	5481	11	K-60	Taylor	145	[illegible]
"	5481	11	P/Wood		155	[illegible]
2-11-83		11	K-60	Taylor	150	[illegible]
"	10[illegible]	11	P/Wood		150	[illegible]
2-14-83	800	11	K-60	Gilsonite	120	[illegible]
"	5481	11	P/Wood		120	[illegible]
"	5481	11	K-60	Toc	120	[illegible]
"	5481	11	P/Wood		170	[illegible]
2-15-83	5481	11	P/Wood		150	[illegible]
"	5481	11	P/Wood		160	[illegible]
2-16-83	5481	11	K-30	Mc & Bax	160	[illegible]
"	5481	11	K-30	Mc & Bax	160	[illegible]
"	5481	11	K-30	Taylor	170	[illegible]
2-17-83	5605	68	K-60	Am. Tar	150	[illegible]
"	5605	68	K-30	Taylor	150	[illegible]
2-22-83	5481	11	K-60	Tacoma	120	BH
2-23-83	5481	11	P/Wood		140	BH
"	5481	11	K-60	Tacoma	140	BH
"	5481	11	P/Wood		150	BH
2-24-83	5296	Kpcx 538	K-30	Sea	225	BH
"	5481	11	K-60	Tacoma	170	BH
"	5481	11	P/Wood		170	BH
"	5481	11	P/Wood		180	BH
2-25-83	5481	11	K-60	Taylor	180	BH
"	5481	11	P/Wood		180	BH
"	5481	11	P/Wood		180	BH

Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

DATE	GALLONS	From	To	Customer	Temp	Loader
2-28-83	5296	Kpc X 538	K-30	RT-12	320	GH
"	5481	"	K-60	Am Tar	150	GH
"	5481	"	P/wood		150	GH
"	5481	"	P/wood		185	GH
3-1-83	5481	"	K-60	Taylor	180	GH
3-2-83	5481	"	K-60	Mc-Bax	150	GH
"	5481	"	P/wood		150	GH
"	5481	"	K-60	Mc-Bax	150	GH
"	5481	"	K-60	Mc-Bax	150	GH
3-3-83	5481	"	K-30	Tacoma	130	GH
"	1200	"	K-60	Gilsonite	130	GH
"	5481	"	K-60	Oly.	130	GH
"	5481	"	P/wood		130	GH
"	3008	4	K-30	Oly	140	HB
	2508	3				
3-4-83	6485	3	K-60	Am. Tar	140	HB
3-7-83	5481	"	K-60	Oly	120	HB
"	5481	"	K-60	Oly	140	GH
3-8-83	5481	"	K-30	Am Tar	135	HB
"	5481	"	K-60	Oly	135	HB
"	5481	"	K-Lines	D+R	135	HB
"	5481	"	K-60	Wy	190	GH
3-9-83	5481	"	K-60	Am Tar	160	HB
"	5481	"	K-30	Oly	160	HB
"	5481	"	K-30	Oly	150	HB
"	5481	"	K-60	Wy	135	GH
3-10-83	5481	"	K-30	Wy	120	HB
"	5481	"	K-60	Taylor	120	HB
"	5481	"	K-60	Oly	120	HB
3-11-83	11287	4	K-30	Am. Tar	130	GH
"		4	K-60	Oly	130	GH
3-14-83	11,005	4	K-30	Taylor	100	HB
"		4	P Wood		100	HB
"	5074	4	P/Wood		110	HB
"	5074	4	K-30	Oly	130	HB

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE 93 4 9 2 BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader
3-15-83		4	K-60	McB	190	HB
"	17209	4	K-30	Toc	190	HB
"		4	P/Wood		190	HB
"	5638	4	K-60	McB	190	HB
3-16-83		4	P Wood		180	HB
"	17209	4	K-30	Am Tar	180	HB
"		4	K-60	D+R	180	HB
"	11005	4	P/Wood		180	HB
"		4	K-60	OLY	180	HB
3-17-83		KP X 538	K-30	Lang.	270	HB
"	11005	3	K-60	OLY	120	HB
"		3	P/Wood		120	HB
"		4	K-Lines	McB	120	GH
"		4	P/Wood		130	HB
"		4	K-Lines	McB	140	HB
"		4	P/Wood		140	HB
"		4	K-60	OLY	180	HB
"		3+4	K-Lines	McBax	190	GH
3-18-83		4	K-60	Am Tar	160	HB
"	16927	4	K-30	OLY	160	HB
"		4	P/Wood		160	HB
"	5074	4	P/Wood		190	HB
"	5920	4	K-30	OLY	190	HB
3-22-83	5920	3	K-30	Taylor	140	GH
"	1200	11	K-60	Gilsonite	190	GH
"	5074	3	K-60	Tacoma	140	GH
"	5356	3	K-30	OLY	150	GH
"	5638	3	K-60	Taylor	160	HB
3-23-83	5481	11	K-30	Am. Tar	130	GH
"	5638	3	K-60	014	150	MA
"	5356	3	P/Wood		150	HB
"	5356	3	K-30	McBax	150	HB
3-24-83	6767	3	K-60	Mc Bax	160	GH
"	5074	3	P/Wood		160	GH
"	5074	3	P/Wood		160	GH
"	5481	11	K-30	Tacoma	140	GH

Organic Materials Group
Koppers Company, Inc.

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KOPPERS

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T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT

Date	Gallons	From	To	Customer	Temp	Loader	% Water	Gravity @ 38°
3-24-83	5481	11	K-60	Tacoma	140	GH	.2	1.077
"	5074	3	P/wood		170	GH	.2	1.082
3-25-83	5920	3	K-60	Taylor	160	GH	.2	1.082
"	5638	3	K-30	Mc-Bax	160	HB	.2	1.082
"	5481	11	K-30	Tacoma	120	GH	.2	1.077
"	5920	4	K-60	Oly	150	GH	.2	1.082
3-28-83	10158	4	K-30	Taylor	70	GH	.2	1.082
"		4	K-60	Taylor	70	GH	.2	1.082
"	5481	11	K-60	Oly	85	HB	.2	1.077
"	5481	11	K-30	Oly	120	GH	.2	1.077
3-29-83	11424	34	K-30	Taylor	150	GH	.2	1.077
"		34	K-60	Taylor	150	GH	.2	1.077
"	5872	34	K-30	Taylor	170	GH	.2	1.077
"	5713	34	K-60	Taylor	130	HB	.2	1.076
3-30-83	11851	4	K-30	Oly	170	GH	0.3	1.079
"		4	K-60	Mc-Bax	170	GH	0.3	
"	5920	4	K-60	Mc-Bax	180	GH	0.3	
"	5638	4	K-60	Mc-Bax	185	GH	0.3	1.079
"	5638	4	K-30	Oly	185	GH	0.3	1.079
"	5920	4	K-60	Oly	190	HB	0.3	1.079
3-31-83	13,000	4+34	K-30	Am. Tar	170	GH		
"		4	P/wood		170	GH	0.3	1.078
"	11,287	4	P/wood		160	GH		
"		4	K-60	Oly	160	GH	0.3	1.079
"	5920	4	K-30	Taylor	150	HB	0.3	1.079
4-1-83	5357	4	P/wood		130	GH		
"	10473	33	P/wood		140	GH		
"		33	K-30	Oly	150	GH	0.3	1.079
4-4-83	10156	33	K-30	Taylor	100	HB	0.3	1.079
"		33		P/wood	100	HB	0.3	1.079
"	6203	4	K-30	N. Plains	180	HB	0.2	1.083
4-5-83	5638	4	K-30	Toc	190	HB	0.2	1.083
"	5920	4	K-30	Taylor	200	GH		
4-6-83	5074	4	K-60	Toc.	150	HB	0.2	1.083
"	6306	68	P/wood		150	HB	0.3	1.082
"	5920	68	Gibson Homes		150	HB	0.3	1.082

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader	Pounds	Tar Gravity
4-6-83	5605	68		P/Wood	150	HB	.3	1.081
4-7-83		68	K-30	McBax	150	HB	.3	1.082
"	16,815	68	K-60	Taylor N.P.	150	HB	.3	1.082
"		68	P/Wood		150	HB	.3	1.082
"	5605	68	K-30	Oly	150	HB	.3	1.082
"	11210	68	K-60	Taylor N.P.	150	HB	.3	1.082
"		68	P/Wood		150	HB	.3	1.082
4-8-83		68	K-30	Taylor	150	HB		
"	16,815	68	K-60	McBax	150	HB	3	1.082
"		68	P/Wood		150	HB		
"	5605	68	K-60	McBax	150	BH	3	1.082
"	5605	68	P/Wood		150	BH		
"	6306	68	K-60	McBax	150	HB		
4-11-83	5365	69-30	K-60	Toc.	90	HB		
"	12,613	68	K-30	Taylor	110	HB		
"		68	P/Wood		110	HB		
"	4904	68	P/Wood		120	HB		
4-12-83		68	K-30	Wy	130	HB		
"	16114	68	K-60	Toc	130	HB		
"		68	P/Wood		130	HB		
"	4904	68	P/Wood		140	HB		
4-13-83		Tc 538	K-30	Am Tar	200	HB		
"	5398	89	K-60	Toc.	160	HB		
"	4904	68	P/Wood		150	BH		
4-14-83	11911	68	K-30	Wy	140	HB		
		68	K-60	Wy	140	HB		
4-15-83	10509	68	K-30	Wy	130	HB		
"		68	K-60	Wy	130	HB		
"	5605	68	K-30	Calif	140	BH		
4-18-83		68	K-60	Wy	120	BH		
"	18216	68	K-15	Taylor	120	BH		
"		68	P/Wood		120	BH		
"	4204	68	P/Wood		140	BH		
"	5605	68	K-15	Taylor	150	BH		
"	5481	11	K-60	Wy	150	HB		

Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6-
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	By	
4-19-83	5481	11	K-30	Wy	185	SH	
"	5481	11	P/Wood		185	SH	
"	5481	11	K-40	D&R Taylor	185	SH	
4-20-83	1500	11	K-40	Gilson, Te	170	SH	
"	5481	11	K-60	Wy	170	SH	
"	5481	11	P/wood		170	SH	
"	5364	65	K-40	Mc-Bax	180	SH	
"	5481	11	P/wood		195	SH	
"	5364	65	K-40	McBax	190	MA	
4-21-83	5398	99	K-40	Mc. Bax	150	SH	
"	5481	11	P/wood		170	SH	
"	5481	11	P/wood		170	SH	
"	1199	99	Gibson	Holman	150	MA	Work
4-25-83	11,582	33	K-30	McBax Calif	190	SH	
"		33	K-60	Taylor	190	SH	
"	5872	33	K-60	Taylor	185	SH	
4-26-83	5713	33	K-60	Taylor	130	SH	
4-27-83	5364	Kpcx 538	K-60	Am. Tar	220	SH	
"	5074	4	P/wood		165	SH	
"	5638	4	P/wood		165	SH	
4-26-83	5713	33	K-60	Tacoma	190	SH	
4-27-83	6203	4	K-40	Taylor	165	MA	
" "	5920	4	K-30	Wy	165	MA	
4-28-83		4	K-30	Wy	150	SH	
"	16,927	4	P/wood		150	SH	
"		4	K-60	Tacoma	150	SH	
"	5074	4	P/wood		170	SH	
"	5356	4	K-60	Wy	170	MA	
4-29-83	5296	Kpcx 536	K-30	B.C.	250	SH	
"	11,569	4	K-60	Wy	155	SH	
"		4	P/wood		155	SH	
"	11,287	4	P/wood		190	SH	
"		4	K-40	Mc-Bax	190	SH	
"	6203	4	K-40	Mc-Bax	200	SH	
"	5990	4	K-60	Wy	200	SH	

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader
5-2-83	11,005	4	K-60	Wy	120	HB
"		4	P/Wood		120	HB
"	564	"		Gibsonett.	120	HB
"	5074	4	P	Wood	150	HB
"	5356	4	K-30	Wy	185	DH
5-3-83	5000 APP.	KEC X586	K-30	BC.	250	HB
"	11,569	4	K-60	Am Tar	190	HB
"		4	P/Wood		190	HB
"	5356	4	P/Wood		190	HB
5-4-83		4	K-30	Wy	190	HB
"	17,209	4	K-60	Toc	190	HB
"		4	P/Wood		190	HB
5-5-83	12,133	4	K-30	McBax	160	HB
"		4	K-60	Wy	160	HB
"	6203	4	K-30	McBax	160	HB
"	5713	33	K-30	Toc.	130	HB
"	5074	4	K-60	Wy	200	DH
5-6-83	11,569	4	K-30	Wy	195	HB
"		4	P/Wood		195	HB
"	5074	4	P/Wood		185	HB
5-9-83		4	K-30	Wy	120	HB
"	12,491	4	K-60	Wy	120	HB
"		4	P/Wood		120	HB
"	5074	4	P/Wood		135	HB
5-10-83	5713	33	K-30	Am. Tar	170	HB
"	5074	4	K-60	Wy	170	HB
"	5074	4	P/Wood		190	HB
5-11-83		4	K-60	Wy	190	HB
"	17,209	4	K-30	Wy	190	HB
"		4	P/Wood		190	HB
"	5074	4	P/Wood		195	HB
5-12-83	2060	33	K-40	Gibsonite	170	HB
"	4792	4	K-30	Wy	200	HB
"	4949	33	K-40	McBax	195	HB
"	950	33	Fields	Sea.	195	HB
"	6031	33	K-40	McBax	200	HB

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Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6-
200 BKS. 5-60
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader
5-12-83	6190	33	K-40	McBax.	200	HB
5-13-83	11,803	67	K-30	Wy	160	HB
"		67	K-60	Wy	160	HB
5-16-83	11803	67	K-60	Wy	140	GH
"		67	K-30	Taylor	140	GH
"	5182	67	K-30	Taylor	140	MA
5-17-83	12091	67	K-30	Taylor	160	GH
"		67	K-60	Wy	160	GH
"	5398	99	K-30	Tacoma	185	GH
"	5758	67	K-60	Wy	175	HB
5-18-83	6046	67	K-30	Wy	170	GH
"	11228	67	K-30	McBax.	180	HB
"		67	K-60	McBax	180	HB
5-19-83	11803	67	K-30	Wy	180	GH
"		67	K-60	Wy	180	GH
"	11228	67	K-30	Wy	185	HB
"		67	K-60	Wy	185	HB
5-23-83	11210	68	K-30	Wy	150	GH
"		68	K-60	Wy	150	MA
"	5605	68	P/wood		150	MA
"	4204	68	P/wood		155	MA
"	5605	68	K-30	Wy	165	HB
"	5605	68	K-60	Wy	165	HB
5-24-83	5605	68	K-30	Taylor	185	HB
5-25-83	5481	11	K-60	Wy	170	GH
"	5481	11	P-Wood		170	GH
"	5481	11	P-Wood		180	GH
"	5398	99	K-30	B.C.	160	GH
5-26-83	5481	11	K-60	Mc. Bax	190	GH
"	5481	11	P-Wood		190	GH
"	5481	11	K-60	Mc. Bax	190	GH
"	5481	11	P-Wood		190	GH
5-31-83	5481	11	P/Wood		165	HB
"	5481	11	P/Wood		170	HB

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

	GALLONS	From	To	customer	Temp	Loader
6-1-83	5481	11	K-30	Wy	190	HB
"	5920	3	K-60	Toc.	70	HB
"	5481	11	P/Wood		190°	HB
"	5481	11	K-60	Mc-Bax	200	GH
6-2-83	5481	11	K-30	Wy	180	HB
"	5481	11	K-60	Mc. Bax.	180	HB
"	5481	11	K-60	Wy	180	HB
"	5481	11	K-30	Mc-Bax	170	GH
6-3-83	5481	11	K-60	Wy	180	HB
"	5481	11	K-30	Wy	180	HB
6-6-83	5481	11	K-60	Wy	165	HB
"	5481	11	K-30	Wy	165	HB
6-7-83	10962	11	K-60	Bell	175	HB
"		11	K-30	Wy	175	HB
6-8-83	10962	11	K-30	Wy	185	HB
"		11	K-60	Toc	185	HB
6-9-83	RT-12	To 303	K-30	BC	240	HB
"	5481	11	K-60	Am. Tar	200	HB
6-13-83	650 Gals.	20	Gibson	Homes	100	GH
6-14-83	5481	11	K-60	Tacoma	185	GH
"	5481	11	K-30	Oly	200	GH
"	5481	11	K-60	D+R	200	HB
6-15-83		11	K-60	D+R	190	GH
"	14,094	11	K-30	Oly	190	GH
"		11	P/wood		190	GH
"	5481	11	K-60	Tacoma	200	GH
"	5481	11	P/wood		200	GH
6-16-83		11	K-60	Tacoma	200	GH
"	14,094	11	K-30	Oly	200	GH
"		11	P/wood		200	GH
"	5481	11	P/wood		200	GH
6-17-83	5,000	Kpc+303	K-60	Tacoma	250	GH
"	5,000	"	K-30	"	250	GH
"	5481	11	P/wood		200	GH
"	5481	11	P/Wood		210	HB

Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader	
6-20-83	5481	11	K-60	Wy	190	BH	
"	5481	11	K-30	Mc-Box	190	BH	
"	5481	11	K-30	Mc-Box	190	BH	
"	5481	11	K-30	D+R	200	BH	
6-21-83	10962	11	K-30	Mc-Box	200	BH	
"		11	K-60	Wy	200	BH	
"	5481	11	K-30	Wy	200	BH	
6-22-83	5481	11	K-60	Wy	200	BH	
"	5481	11	K-30	Wy	200	BH	
6-23-83	5481	11	K-30	Wy	200	BH	
"	1500	11	K-60	Gilsonite	200	BH	
"	5481	11	K-60	D+R	200	BH	
6-24-83	5481	11	K-60	Wy	180	BH	
"	5481	11	K-30	Wy	180	BH	
6-27-83	5481	11	K-30	Am Tar	160	HB	
"	5481	11	K-60	Tac	160	HB	
6-28-83	5481	11	K-30	McrBax	150	HB	
"	5481	11	K-60	Tac	150	HB	
"	5481	11	K-30	OLy	150	HB	
6-29-83		11	K-30	McrBax	160	HB	
"	17,226	11	K-60	Tac	160	HB	
"		11	P/wood		160	HB	
"	5481	11	K-30	OLy	160	HB	
"	5481	11	P/wood		160	HB	
"	5481	11	P/wood		165	HB	
6-30-83	5,000 gal	Tc 305	K-30	Am Tar	245	HB	PT-8
"	5481	11	P/wood		165	HB	
"	5481	11	P/wood		170	HB	
"	5481	11	P/wood		180	HB	
7-1-83	5481	11	P/wood		180	HB	
"	5481	11	P/wood		185	HB	
"	5481	11	P/wood		185	HB	
7-5-83	5481	11	P/wood		150	HB	
"	5481	11	P/wood		150	HB	

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader
7-6-83	5481	11	K-30	Toc	175	BHB
11	6264	11	P/Wood		175	BHB
11	5481	11	P/Wood		180	BHB
7-10-	1,000	11	Feilds		185	BHB
7-7-83	5481	11	K-30	Am Tar	190	BHB
7-8-83	5481	11	P/Wood		195	BHB
11	5481	11	P/Wood		195	BHB
7-11-83	5481	11	K-30	Oly	165	SH
11	5481	11	K-60	Oly	165	SH
7-12-83	1500	11	K-60	Gibson Te	180	SH
11	5481	11	K-30	Mc-Bax	180	SH
11	5481	11	K-60	Oly	180	SH
11	5481	11	K-30	Mc-Bax	180	SH
7-13-83	5481	11	K-30	Taylor	185	SH
7-14-83	5481	11	K-30	Taylor	190	SH
11	5481	11	K-30	Belingham	185	BHB
7-18-83	5481	11	K-60	Tacoma	150	SH
11	5481	11	K-30	Taylor	150	SH
7-19-83	5481	11	K-30	Taylor	150	SH
7-21-83	5154	Kbex	303 RT-12	BC	250	SH
11	5481	11	K-60	Taylor	180	SH
11	5481	11	K-60	Taylor	190	SH
7-25-83	5481	11	K-60	Tacoma	170	SH
11	5481	11	K-30	Taylor	170	SH
7-26-83	5481	11	K-60	Tacoma	170	SH
7-28-83	5481	11	K-30	Am-Tar	180	SH
11	5481	11	K-60	Taylor	180	SH
11	5481	11	P/wood		180	SH
11	500	11	Gibson	Homes	180	SH
11	5481	11	K-60	Taylor	180	SH
11	5481	11	P/wood		180	SH
11	5481	11	P/wood		150	SH
7-29-83	5481	11	P/wood		150	SH
11	5481	11	P/wood		160	SH
11	5481	20	P/wood		165	SH

Organic Materials Group
Koppers Company, Inc.

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T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader	
8-1-83	5481	11	P/	wood	150	GH	
"	5481	11	P/	wood	160	GH	
8-2-83	5481	11	P/	wood	165	GH	
"	5481	11	P/	wood	165	GH	
8-3-83	5296	Kpcx	538 K-60	Tacoma	260	GH	RT-12
"	5296	Kpcx	538 K30	Tacoma	260	GH	RT-12
"	5481	11	P/	wood	170	GH	
"	5481	11	P/	wood	180	GH	
8-4-83	5481	11	K-60	Taylor	180	GH	
"	5481	11	P/	wood	180	GH	
"	5481	11	P/	wood	180	GH	
8-5-83	5291	Kpcx	538 K60	Tacoma	300	GH	RT-12
"	5481	11	P/	wood	200	GH	
8-8-83	500	11	K-40	Gilsonite	170	HB	
"	5481	11	K-60	Taylor N.P.	175	HB	
"	5481	11	K-60	Taylor N.P.	185	HB	
8-9-83	10962	11	K-60	Bellingham	190	HB	
"		11	P	wood	190	HB	
"	5481	11	P/	Wood	195	HB	
8-10-83	5100 app	Tc 305	K-30	Am. Tar	235	HB	RT-8
8-12-83	5481	11	P/	Wood	180	HB	
"	5481	11	P/	Wood	190	HB	
8-15-83	5481	11	P/	Wood	120	HB	
"	500	11	Gibson	Homes	160	GH	
8-16-83	11,745	11	K-40	Gilsonite	160	HB	
"		11	P/	Wood	160	HB	
"		11	K-30	Tac.	160	HB	
"	5481	11	P/	Wood	170	HB	
8-17-83	5481	11	P/	Wood	170	HB	
"	5444	20	P/	Wood	160	HB	
8-18-83	10727	65	P/	Wood	145	HB	
"		65	K-30	Taylor N.P.	145	HB	
"	10727	65	K-30	" N.P.	150	HB	
"		65	P/	Wood	150	HB	
"		65	K-30	Taylor	150	HB	

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader		
8/19/83	5481	11	P/Wood		170	HB		
"	5481	11	P/wood		175	HB		
8-22-83	5481	11	P/wood		160	SH		
"	5481	11	P/wood		170	SH		
8-24-83	5481	11	P/Wood		180	HB		
"	5481	11	P/Wood		180	HB		
8-25-83	5481	11	P/wood		190	SH		
"	5481	11	P/wood		190	SH		
8-26-83	5200	KPCU	757 K-30		250	SH	RT-12	B.C
"	5481	11	P/wood		180	SH		
"	5481	11	P/wood		180	SH		
8-29-83	5481	11	K-60 Taylor		150	SH		
"	5481	11	P/wood		150	SH		
"	5481	11	P/wood		155	SH		
8-30-83	1200	11	K-40 Gilsonite		160	SH		
"	5481	11	P/wood		160	SH		
"	5481	11	K-60 Taylor		160	SH		
"	5481	11	P/wood		160	SH		
"	5481	65	K-60 Taylor		130	SH		
"	5481	65	P/wood		130	SH		
8-31-83	5200	JC305	K-30 Am. Tar		200	SH	RT-8	
"	5481	11	P/wood		150	SH		
"	5481	11	P/wood		150	SH		
"	5481	11	P/wood		170	SH		
9-1-83	5481	11	P/wood		160	SH		
"	5481	11	P/wood		180	SH		
9-2-83	5481	11	P/wood		185	SH		
"	5481	11	P/wood		195	SH		
"	5481	11	P/wood		200	SH		
9-6-83	10962	11	K-40 Taylor		100	HB		
"		11	P/wood		110	HB		
"	5481	11	P/wood		140	HB		
9-7-83	5481	11	P/wood		120	SH		
"	5481	11	P/wood		140	SH		
9-8-83	5444	20	P/wood		140	HB		
"	5444	20	P/wood		160	HB		

Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6-
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader	
9-8-83	5444	20	P	Wood	150	HB	
9-9-83	10962	11	K-40	Taylor N.P.	150	HB	
"		"	P	Wood	150	HB	
"	6264	"	K-40	Taylor N.P.	155	HB	
"	5481	"	P	Wood	155	HB	
9-12-83	6264	"	K-40	Taylor S.	150	HB	
"	5481	"	P	Wood	150	HB	
"	5481	"	K-30	Taylor N.P.		HB	
"	5481	"	P	Wood	155	HB	
"	5481	"	K-30	Taylor NP	160	HB	
9-15-83	5100	Tc 305	K-30	Am. Tar	210	HB	RT-8
"	5481	"	K-60	Toc.	170	HB	
"	5481	"	P	Wood	170	HB	
"	5481	"	P	Wood	175	HB	
9-16-83	6264	"	K-60	Am. Tar.	180	HB	
"	5481	"	P	Wood	180	HB	
"	5481	"	P	Wood	185	HB	
9-19-83	5481	"	P	Wood	170	HB	
9-20-83	5481	"	P	Wood	185	HB	
9-21-83	RT-12	Tc 645	K-30	Toc.	225	HB	RT-12
"	5481	"	P	Wood	180	HB	
"	6264	"	K-40	Taylor NP	180	HB	
"	5481	"	P	Wood	180	HB	
"	6264	"	K-40	Taylor NP	180	HB	
"	5481	"	P	Wood	185	HB	
9-22-83	5100 app	RT-12	Tc 645	K-30 Toc	240	HB	RT-12
"	5481	"	P	Wood	180	HB	
"	5481	"	K-60	Toc	180	HB	
"	5481	"	P	Wood	180	HB	
"	5481	"	P	Wood	185	HB	
9-23-83	5481	"	K-30	oly	190	HB	
"	6264	"	K-60	oly	190	HB	
"	5481	"	P	Wood	190	HB	
"	5481	"	P	Wood	190	HB	

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6-77
2000 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader	
9-26-83	5481	11		P/wood	140	GH	
"	5481	11	K-30	Taylor	140	GH	
"	5481	11		P-wood	140	GH	
"	5481	11	K-30	Taylor	140	GH	
	5481	11	K-30	Taylor	140	HB	
9-27-83	5481	11	K-30	Taylor	100	GH	
"	5481	11		P/wood	100	GH	
"	5481	11+65	K-30	Oly	100	GH	
"	5481	11+65		P/wood	100	GH	
9-28-83	5481	11	K-30	Tacoma	130	GH	
"	5481	11		P/wood	130	GH	
"	5481	11		P/wood	140	GH	
9-29-83	5200	Kpcx575	K-30	Am. Tar	250	GH	RT-8
"	5481	11	K-60	Taylor	150	GH	
"	5481	11	K-60	Oly.	170	GH	
"	5481	11	K-60	Taylor NP.	190	HB	
9-30-83	5100 app	Tc645	K-30	Tac.	290	HB	RT-12
"	5481	11	K-60	Oly	190	HB	
10-3-83	5481	11	K-60	Taylor	160	GH	
"	5481	11	K-60	Taylor	175	GH	
10-4-83	5481	11	K-60	Oly	180	GH	
"	5481	11	K-30	Oly	180	GH	
10-5-83	5481	11	K-30	Oly	190	GH	
"	5481	11	K-60	Oly	190	GH	
10-6-83	1200	65	K-60	Gilsonite	150	GH	
"	5364	65	K-60	Taylor	150	GH	
10-7-83	5364	65	K-30	Tacoma	150	GH	
10-10-83	5364	65	K-40	Taylor	120	GH	
"	5364	65		P/wood	120	GH	
"	5364	65		P/wood	125	GH	
"	5364	65	K-40	Taylor	130	GH	
10-11-83	6264	11	K-40	Taylor N.P.	180	HB	
"	5481	11		P/wood	180	HB	
"	6264	11	K-40	Taylor NP	180	HB	
"	5481	11		P/wood	180	HB	
	5481	11		P/wood	185	HB	

Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6
200 BKS., 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader	
10-12-83	5481	"	K-30	Toc	185	HB	
"	5481	"	P/Wood		185	HB	
"	5481	"	P/Wood		190	HB	
10-13-83	5481	"	P/Wood		190	HB	
"	5481	"	P/Wood		190	HB	
"	5481	"	P/Wood		195	HB	
10-14-83	5100 app.	Tc 575	K-30	Am Tur	200	HB	RT-8
"	6264	"	K-40	Taylor N.P.	195	HB	
"	6264	"	K-40	" "	195	HB	
10-17-83	6264	"	K-40	Taylor N.P.	180	HB	
"	5481	"	K-30	Oly	180	HB	
"	5481	"	K-60	Oly	180	HB	
10-18-83	5481	"	K-30	Tacoma	170	BH	
"	5481	"	K-60	Taylor NP	170	BH	
"	5481	"	K-60	Taylor S.	170	HB	
10-19-83	5100 app.	Tc 577	K-30	Toc	320	HB	RT-12
"	5481	"	K-60	Oly	180	HB	
10-20-83	5481	"	K-60	Toc	180	HB	
"	5481	"	K-30	Oly	180	HB	
10-21-83	6264	"	K-60	Oly	190	HB	
10-25-83	5481	"	K-60	Tacoma	170	BH	
10-26-83	5481	"	K-60	Taylor	150	BH	
"	5481	"	K-30	Oly	150	BH	
"	5481	"	K-60	Oly	160	BH	
"	5481	"	P/wood		160	BH	
10-27-83	5481	"	K-30	Taylor	160	BH	
"	5481	"	K-60	Tacoma	160	BH	
"	5481	"	P/wood		160	BH	
"	5481	"	K-30	Oly	170	BH	
"	5481	"	P/wood		170	BH	
10-28-83	5481	"	K-30	Taylor	170	BH	
"	5481	"	K-60	Oly	170	BH	
"	5481	"	K-30	Taylor	170	BH	
10-31-83	5481	"	K-60	Tacoma	150	BH	
"	5481	"	K-30	Taylor	150	BH	
"	5481	"	P/wood		150	BH	

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6-80
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader
10-31-83	5481	11	K-30	Taylor	150	SH
"	5481	11		Plwood	155	SH
"	500	11		Gibson Homes	160	SH
11-1-83	5481	11		Plwood	160	SH
"	5481	11		Plwood	150	SH
11-2-83	5481	11	K-30	Tacoma	150	SH
"	5481	11	K-60	Taylor	150	SH
"	5481	11		Plwood	150	SH
"	5481	11	K-60	Taylor	160	SH
"	5481	11		Plwood	160	SH
11-3-83	5481	11	K-30	Taylor	160	SH
11-4-83	5481	11		Plwood	160	SH
11-7-83	5481	11	K-60	Taylor	140	SH
"	5481	11	K-60	Taylor	140	SH
11-8-83	6264	11	K-60	Tocoma	135	RB
11-9-83	5481	11	K-60	Taylor NP	150	RB
"	5481	11	K-30	Tocoma	150	RB
11-10-83	5481	11	K-30	Taylor S.	170	RB
"	5481	11		P Wood	170	RB
"	5481	11		P/Wood	170	RB
11-14-83	5481	11	K-30	Oly	120	SH
"	5481	11	K-60	Oly	120	SH
"	5481	11		Plwood	120	SH
"	5481	11		Plwood	120	SH
11-15-83	5481	11	K-60	Oly	140	SH
"	5481	11	K-30	Oly	140	SH
"	5481	11		Plwood	140	SH
"	5481	11		P/Wood	150	SH
11-16-83	5481	11	K-30	Oly	160	RB
"	5481	11		P/Wood	160	RB
"	5481	11		P/Wood	170	RB
11-17-83	5481	11		P/Wood	165	RB
"	5481	11		P/Wood	165	RB
11-18-83	5481	11		P/Wood	165	RB
"	6264	11		P/Wood	195	RB

Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

DATE	GALLONS	From	To	Customer	Temp	Loader	
11-28-83	5481	11	K-60	Oly	100	SH	
11	5481	11	K-30	Oly	100	SH	
11	5481	11		P/wood	110	SH	
11-29-83	5481	11	K-30	Taylor	150	SH	
11	5481	11	K-60	Wy	150	SH	
11	5481	11	K-30	Oly	150	SH	
11-30-83	5481	11	K-30	Taylor	150	SH	
11	5481	11	K-60	Wy	150	SH	
11	5481	11	K-30	Oly	150	SH	
12-1-83	5481	11		P/wood	190	SH	
11	5481	11	K-30	Wy	190	SH	
11	5481	11	K-60	Wy	190	SH	
12-2-83	5481	11	K-30	Oly	180	SH	
12-5-83	5481	11	K-30	Wy	175	HB	
11	5481	11	K-60	Wy	175	HB	
12-6-83	5481	11	K-30	Wy	180	HB	
11	5481	11	K-60	Toc	180	HB	
11	5481	11		P Wood	180	HB	
11	5481	11		P/Wood	185	HB	
12-7-83	5481	11	K-30	Wy	180	HB	
11	5481	11	K-60	Wy	180	HB	
11	5481	11		P/Wood	180	HB	
11	5481	11		P/Wood	180	HB	
12-8-83	5481	11	K-30	Taylor	185	HB	
11	5481	11	K-60	Wy	185	HB	
11	5481	11	K-30	Toc	180	HB	
12-9-83	5200 app	To 575	K-30	Am Tar	210	HB	RT-8
11	5481	11	K-60	Wy	180	HB	
11	5481	11	K-60	Wy	200	SH	
11	5481	11	K-30	Wy	200	SH	
12-12-83	5481	11	K-60	Wy	170	HB	
11	5481	11	K-30	Wy	170	HB	
12-13-83	5481	11	K-60	Wy	175	HB	
11	5481	11	K-30	Am Tar	175	HB	
11	5481	11	K-60	Oly	160	HB	

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6-71-T
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader
12-14-83	5481	11	K-30	Oly	150	HB
"	5481	11	K-60	Wy	150	HB
"	5481	HP20	P/Wood		150	HB
"	5481	HP20	P Wood		160	HB
"	5481	HP20	K-30	Oly	160	HB
"	5481	11	K-60	Wy	170	GH
12-15-83	5481	11	K-60	rec. Chem	165	HB
"	5481	11	K-30	Taylor	165	HB
"	5481	11	P/Wood		165	HB
"	5481	11	P/Wood		170	HB
"	5481	11	K-30	Oly	170	HB
"	5481	11	K-30	Wy	170	GH
12-16-83	6264	11	K-60	Wy	175	HB
"	5481	11	K-30	Wy	175	HB
"	5481	11	P/Wood		175	HB
"	5481	11	P/Wood		180	HB
"	5481	11	K-60	Wy	180	GH
"	5481	11	K-30	Wy	180	GH
12-19-83	5481	11	K-30	AM. Tar	160	GH
"	5481	11	K-60	Wy	160	GH
"	5481	11	K-60	Wy	170	HB
"	5481	11	K-30	Wy	170	HB
12-20-83	5481	11	K-30	Tacoma	170	GH
"	5481	11	K-60	Tacoma	170	GH
"	5481	11	K-30	Tacoma	180	HB
"	5481	11	K-60	Tacoma	180	HB
12-21-83	5481	11	K-60	Tacoma	170	GH
"	5481	11		P/Wood	170	GH
"	5481	11	K-30	Tacoma	170	GH
"	5481	11		P/Wood	170	GH
"	5481	11	K-60	Tacoma	175	HB
"	5481	11	K-30	Tacoma	175	HB
12-22-83	5200	TIC 575	K-30	Am. Tar	220	GH
"	5481	11	K-60	Wy	170	GH

Organic Materials Group
Koppers Company, Inc.

KOPPERS

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T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader
12-27-83	5481	11	K-60	Wy	140	GH
"	5481	11	K-30	Wy	140	GH
"	5481	11		P/wood	140	GH
"	5481	11		P/wood	140	GH
"	5481	11	K-30	Wy	140	HB
"	5481	11	K-60	Wy	145	HB
12-28-83	5481	11	K-60	Wy	150	GH
"	5481	11	K-30	Wy	150	GH
"	5481	11		P/wood	150	GH
"	5481	11		P/wood	155	GH
"	5481	11	K-60	Wy	160	HB
1-3-84	5481	11	K-30	Toc	140	HB
"	5481	11	K-60	Toc	140	HB
"	500	11		Gibson & Homer	145	HB
1-4-84	5481	11		P/wood	150	HB
"	5481	11		P/Wood	160	HB
1-5-84	6264	11	K-60	Oly	175	HB
"	5481	11	K-30	Oly	175	HB
1-6-84	5481	11		P/wood	190	HB
"	5481	11	K-60	Oly	200	HB
"	KP5160 App	KPCX600	K-30	Am. Tar	210	HB
1-9-84	5481	11	K-30	Am Tar	170	HB
	5481	11		P/Wood	170	HB
	5481	11	K-60	Oly	170	HB
1-10-84	6264	11	K-60	Taylor	185	HB
"	5481	11	K-60	"	185	HB
1-11-84	5481	11		P/Wood	180	HB
	5481	11		P/Wood	180	HB
1-13-84	6264	11	K-60	Bellingham	190	HB
1-16-84	5481	11	K-30	Oly	160	GH
"	5481	11	K-60	Oly	160	GH
1-17-84	5481	11	K-30	Oly	190	GH
"	5481	11	K-60	Tacoma	190	GH
"	5481	11		P/wood	190	GH
"	5481	11		P/wood	190	GH

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 8071-F
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp	Loader
1-18-84	5481	"	K-60	Tacoma	180	SH
"	5481	"	K-30	Oly	180	SH
1-19-84	5481	"	P/wood		190	SH
"	5481	"	K-40	Taylor	190	SH
"	8200	Kpcx 600	K-30	AM. Tar	200	SH
"	5481	"	P/wood		190	SH
1-20-84	5481	"	P/wood		175	SH
"	18,000	20	T/C	78471 Mc.Box	180	SH + HB
1-23-84	5481	"	K-40	Taylor	150	SH
"	5481	"	P/wood		150	SH
"	5481	"	P/wood		150	SH
"	1500	"	K-40	Gilson Tc	150	SH
1-24-84	5481	"	K-30	Am. Tar	150	SH
"	5481	"	P/wood		150	SH
"	5481	"	P/wood		150	SH
1-25-84	5481	"	P/wood		160	SH
"	5481	"	P/wood		160	SH
"	18,792	"	T/C	223163	170	SH + HB
"	5481	"	K-60	Mc-Box Calif	170	SH
1-26-84	5481	"	P/wood		170	SH
"	5481	"	P/wood		170	HB
1-30-84	5481	"	K-30	Am. Tar	170	HB
"	5481	"	P/Wood		170	HB
"	6264	"	K-60	Wy	170	HB
"	5481	"	P/Wood		175	HB
1-31-84	5481	"	K-60	Wy	180	HB
"	5481	"	K-30	Wy	180	HB
"	5481	"	P/Wood		190	HB
2-1-84	5481	"	K-30	Wy	190	HB
"	5481	"	P/Wood		190	HB
2-2-84	4698	"	K-60	Wy	180	HB
	5481	"	P/Wood		180	HB
	5481	"	K-30	Am. Tar	180	HB
	5481	"	P/Wood		180	HB

Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	To	Customer	Temp.	Loader
2-3-84	5481	11	K-30	Wy	180	HB
"	5481	"	P/Wood		180	HB
"	5481	"	K-60	Wy	180	HB
"	5481	"	P/Wood		190	HB
"	19,575	"	Tc 79686	McBax Cons	190	HB
2-6-84	5481	"	K-60	Wy	160	HB
"	5481	"	K-30	Wy	160	HB
2-7-84	5481	"	K-30	Wy	180	HB
"	5481	"	P/Wood		180	HB
"	5481	"	K-60	Taylor	180	HB
"	5481	"	P/Wood		160	HB
2-8-84	5481	"	K-60	Wy	170	HB
"	5481	"	K-30	Wy	170	HB
"	5481	"	P/Wood		170	HB
"	5481	"	P/Wood		175	HB
"	5481	"	P/wood		190	GH
2-9-84	6264	"	K-60	Wy	180	HB
"	5481	"	P/Wood		180	HB
"	5481	"	P/Wood		180	HB
2-10-84	5481	"	K-30	Wy	185	HB
"	6264	"	K-40	Wy	185	HB
"	5481	"	P/Wood		185	HB
"	5481	"	P/Wood		170	HB
2-13-84	6203	3	K-30	Am. Tar	100	GH
"	5481	"	K-60	Wy	160	GH
"	5481	"	P/wood		160	GH
"	5481	"	P/wood		175	GH
2-14-84	5364	65	K-30	Wy	160	GH
"	5364	65	K-60	Wy	160	GH
"	5364	65	P/wood		160	GH
"	1,000	3		Fields	140	GH
"	5364	65	P/wood		180	GH
2-15-84	5364	65	K-60	Wy	190	GH
"	5364	65	K-30	Wy	190	GH
"	5364	65	P/wood		190	GH

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6-
200 BKS. 5-60
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	From	Gallons	Customer	Truck	Temp	Loader
2-15-84	65	5364	P/wood		190	S H
"	65	5364	P/wood		185	HB
2-16-84	65	5364	Wy	K-60	170	HB
"	65	5364	Wy	K-30	170	HB
"	65	543	Gibson & Howes		175	S H
2-17-84	65	5364	Wy	K-30	185	S H
2-21-84	65	5364	Oly	K-60	160	S H
"	65	5364	P/wood		160	S H
"	65	5364	Oly	K-30	160	S H
"	65	5364	P/wood		170	S H
2-22-84	65	5364	P/wood		180	S H
"	65	5364	Oly	K-60	180	S H
"	65	5364	Oly	K-30	180	S H
"	65	5364	P/wood		195	S H
"	65	5364	P/wood		200	HB
2-23-84	65	5364	Am. Tar	K-30	200	S H
"	65	5364	P/wood		200	S H
"	65	5364	P/wood		200	S H
"	65	5364	P/wood		210	S H
2-24-84	65	5364	P/wood		190	S H
"	65	5364	P/wood		190	S H
"	65	5364	P/wood		190	S H
2-27-84	65	5364	P/wood		170	S H
"	65	5364	P/wood		180	S H
2-29-84	65	5364	Am. Tar	K-30	180	S H
"	65	1,000	Gilson. Te	K-60	180	S H
"	65	5364	P/wood		180	S H
"	65	5364	P/wood		180	S H
"	65	5364	Wy	K-60	195	S H
3-1-84	65	5364	P/wood		190	S H
"	65	5364	P/wood		195	S H
"	65	5364	P/wood		195	HB
3-2-84	65	5364	Wy	K-60	195	S H
"	65	5364	P/wood		195	S H

Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170-REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	From	Gallons	Customer	Truck	Temp	Loader
3-5-84	65	5364	WY	K-60	170	HB
"	"	5364	P/Wood		170	"
"	65	5364	Am. Tar	K-30	170	HB
"	65	5364	P/Wood		175	HB
"	65	5364	P/Wood		175	HB
3-6-84	65	5364	WY	K-60	170	HB
"	65	5364	WY	K-30	170	HB
3-7-84	65	5364	Am Tar	K-30	165	HB
"	65	5364	WY	K-60	165	HB
3-8-84	65	5364	WY	K-60	170	HB
"	Tc 600	app 5100	Am Tar	K-30	200	HB RT 8
"	65	5364	O/W	K-60	200	HB
3-9-84	65	5364	WY	K-30	190	HB
"	65	5364	O/W	K-60	200	HB
3-12-84	65	5364	WY	K-60	190	HB
"	65	5364	WY	K-30	190	HB
"	65	5364	P/Wood		190	HB
"	65	5364	P/Wood		190	HB
"	65	5364	P/Wood		190	HB
"	65	5364	O/W	K-60	190	HB
3-13-84	65	5364	WY	K-30	200	HB
"	65	5364	O/W	K-60	200	HB
3-14-84	65	5364	WY	K-60	200	HB
"	65	5364	WY	K-30	200	HB
"	65	5364	WY	K-60	200	HB
3-15-84	T/C 77435	5200	B/C RT-12	K-30	230	HB 84
3-16-84	65	5364	WY	K-60	200	HB
"	65	5364	P/Wood		200	HB
3-19-84	65	5364	WY	K-60	200	HB
"	65	5364	Am. Tar	K-30	200	HB
"	65	5364	P/Wood		200	HB
"	65	3576		K-60	210	HB
3-20-84	65	1200	Gilsonite	K-60	210	HB
"	65	5364	WY	K-30	210	HB
"	65	1788	WY	K-60	210	HB

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6-
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	From	Gallons	Customer	Truck	Temp	Loader
3-21-84	65	5364	Wy	K-60	210	BH
"	65	5364	Wy	K-30	210	BH
3-22-84	65	5364	Wy	K-40	210	BH
"	65	5364	Am. Tar	K-30	210	BH
"	65	5364	Wy	K-60	210	BH 56625
3-23-84	65	5364	Am. Tar	K-30	210	BH
"	65	5364	P/wood		210	BH
3-26-84	65	5364	Wy	K-30	200	BH
"	65	5364	Oly	K-60	200	BH
"	65	5364	P/wood		200	BH
"	65	5364	P/wood		200	BH
"	65	5364	Oly	K-60	210	[illegible]
3-27-84	65	5364	Wy	K-30	210	BH
"	65	5364	Oly	K-60	210	BH
"	65	5364	P/wood		220	[illegible]
3-28-84	65	5364	Wy	K-60	210	BH
"	65	5364	Oly	K-30	210	BH
3-29-84	65	5364	Wy	K-60	200	BH
"	65	5364	Wy	K-30	200	BH
3-30-84	65	5364	Wy	K-60	200	BH
"	65	5364	Wy	K-30	200	BH
4-2-84	65	5364	Wy	K-60	180	[illegible]
"	65	5364	Wy	K-30	180	[illegible]
4-3-84	65	7151	Wy	K-40	180	[illegible]
"	65	5364	Wy	K-30	180	[illegible]
4-4-84	65	5364	Wy	K-40	190	[illegible]
"	65	5364	Wy	K-30	190	[illegible]
"	65	5364	P/wood		190	[illegible]
4-5-84	65	7151	Wy	K-40	185	[illegible]
	65	5364	Wy	K-30	185	[illegible]
4-6-84	65	5364	Wy	K-40	180	[illegible]
"	65	5364	Wy	K-60	180	[illegible]
"	65	5364	P/wood		180	[illegible]

Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6-
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	From	GALLONS	Customer	Truck	Temp	Loader	
4-9-84	65	3576	Gilsonite	K-40	170	HB	
"	65	5364	Am. Tar	K-30	170	HB	
"	65	5364	P/wood		170	HB	
"	65	5364	P/wood		170	HB	
"	65	5364	Wy	K-40	175	HB	
"	65	5364	P/wood		175	DH	
4-10-84	65	5364	Wy	K-60	175	HB	
"	65	5364	P/wood		180	DH	
"	65	5364	Oly	K-40	190	DH	
4-11-84	65	5364	Wy	K-60	185	HB	
"	65	5364	P/wood		190	HB	
"	65	5364	Oly	K-40	190	HB	
"	65	5364	P/wood		190	HB	
"	65	5364	Wy	K-40	190	DH	
4-12-84	Tc77475	App 5200	BC	K-30	250	HB	RT-12 on K-34
"	65	5364	P/wood		190	HB	
"	65	5364	P/wood		190	HB	
"	65	5364	P/wood		190	DH	
"	65	5364	Oly	K-40	190	DH	
4-13-84	65	5364	Wy	K-30	185	HB	
"	65	5364	P/wood		185	HB	
"	65	5364	P/wood		185	DH	
"	65	5364	Oly	K-40	185	DH	
"	65	5364	Wy	K-60	185	HB	
4-16-84	65	5364	Wy	K-40	180	DH	
"	65	5364	Wy	K-60	180	DH	
"	65	5364	P/wood		180	DH	
4-17-84	65	5364	Wy	K-30	180	DH	
"	65	5364	Wy	K-40	180	DH	
"	65	5364	P/wood		180	DH	
"	65	5364	P/wood		180	DH	
4-18-84	65	5364	Wy	K-30	190	DH	
"	65	5364	Wy	K-40	190	DH	
4-19-84	65	5364	Wy	K-30	190	DH	
"	65	5364	Wy	K-40	190	DH	
"	65	5364	P/wood		190	DH	

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 60 1-7
200 BKS. 5-80
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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	From	Gallons	Customer	Truck	Temp	Loader
4-19-84	65	5364	P/wood		190	BH
4-23-84	65	5364	Wy	K-40	170	BH
"	65	5364	Wy	K-30	170	BH
"	65	5364	P/wood		170	BH
"	65	5364	P/wood		180	BH
4-24-84	65	5364	Oly	K-60	180	BH
"	65	5364	Wy	K-40	180	BH
"	65	5364	P/wood		180	BH
"	65	5364	Oly	K-60	180	BH
4-25-84	65	5364	Taylor	K-40	180	BH
"	65	5364	Wy	K-60	180	BH
"	65	5364	P/wood		180	BH
"	65	5364	Taylor	K-40	180	BH
4-26-84	65	5364	Oly	K-60	180	BH
"	65	5364	Wy	K-40	180	BH
"	65	5364	P/wood		180	BH
"	65	5364	P/wood		185	BH
"	65	5364	Oly	K-60	185	[illegible]
"	65	5364	P/wood		185	[illegible]
4-27-84	65	5364	Wy	K-40	180	BH
"	65	5364	Wy	K-60	180	BH
"	65	5364	P/wood		180	BH
"	65	5364	P/wood		180	BH
"	65	5364	P/wood		185	[illegible]
"	65	5364	Wy	K-40	180	[illegible]
"	65	5364	Wy	K-60	180	[illegible]
4-30-84	65	5364	Wy	K-40	170	[illegible]
"	65	5364	Wy	K-60	170	[illegible]
"	65	5364	P/wood		175	[illegible]
"	65	5364	P/wood		180	BH
5-1-84	34	5872	Am. Tar	K-30	140	[illegible]
5-3-84	TC 600	5200 [illegible]	Am. Tar	K-30	240	[illegible]
5-4-84	65	5364	Wy	K-30	190	[illegible]
"	65	5364	Wy	K-40	190	[illegible]
"	65	5364	Wy P/wood		190	[illegible]

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Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6-
200 BKS. 5-60
PRINTED IN U.S.A.

LOCATION _____ STARTDATE _____ BY _____

SUBJECT _____

Date	From	Gallons	Customer	Truck	Temp	Loader
5-7-84	65	6257	Wy	K-40	180	[illegible]
"	65	6257	Wy	K-60	180	[illegible]
"	65	5364	P/Wood		180	[illegible]
"	65	5364	Wy	K-40	180	BH
"	65	5364	Wy	K-60	180	BH
5-8-84	65	5364	Wy	K-40	175	BH
"	65	5364	Taylor	K-60	175	BH
5-9-84	65	5364	Taylor	K-60	185	[illegible]
5-10-84	65	7151	Wy	K-40	185	[illegible]
"	65	5364	Wy	K-60	185	[illegible]
"	65	5364	P/Wood		190	BH
"	65	5364	Wy	K-40	190	BH
5-11-84	65	5364	Wy	K-60	190	[illegible]
5-14-84	65	5364	Wy	K-40	180	BH
"	65	5364	Wy	K-60	180	BH
"	65	5364	P/Wood		180	BH
5-15-84	65	5364	Wy	K-40	180	BH
"	65	5364	Wy	K-60	180	BH
5-16-84	65	5364	Wy	K-40	180	BH
"	65	5364	Wy	K-60	180	BH
5-17-84	65	5364	E.H	K-40	180	BH
"	65	5364	E.H	K-60	180	BH
5-18-84	65	5364	E.H	K-60	180	BH
"	34	1743	Gilsonite	K-40	140	BH
"	65	5364	Taylor	K-40	180	BH
5-21-84	65	5364	E.H	K-60	175	BH
"	65	5364	E.H	K-40	175	BH
"	65	5364	P/Wood		175	BH
5-22-84	65	5364	E.H	K-60	180	BH
"	65	5364	E.H	K-40	180	BH
"	65	5364	P/Wood		180	BH
5-23-84	65	5364	Wy	K-60	175	BH
"	65	5364	Wy	K-40	175	BH
5-24-84	T/C 586	5200	B.C.	K-30	250	BH + H.B.
"	65	5364	P/Wood		180	BH

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Koppers Company, Inc.

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	From	Gallons	Customer	Truck	Temp	Loader
5-25-84	65	5364	Taylor	60	190	BH
"	65	5364	P/wood		190	BH
5-29-84	65	5364	P/wood		170	NB
5-30-84	65	7151	Taylor	60	180	NB
6-1-84	65	5364	Wy	K-40	175	NB
"	65	5364	Wy	K-60	175	NB
"	33	5554	P/wood		50	BH
6-5-84	65	5364	Wy E.H.	K-60	180	NB
"	65	7151	Wy EH	K-40	180	NB
6-6-84	65	5364	Wy	K-40	185	NB
"	65	5364	Wy	K-60	185	NB
"	65	5364	P/wood		185	BH
6-7-84	65	5364	Wy E.H.	K-60	190	NB
"	65	7151	Wy E.H	K-40	190	NB
"	65	5364	P/wood		190	BH
6-8-84	65	5364	Wy	K-60	190	BH
"	65	5364	Wy E.H	K-40	190	BH
"	65	5364	P/wood		190	BH
"	65	5364	Wy	K-30	200	NB
"	65	5364	Wy	K-60	200	NB
6-11-84	65	5364	Wy	K-60	190	BH
"	65	5364	Wy	K-40	190	BH
"	65	5364	P/wood		200	BH
6-12-84	20	16332	Mc-Bax	K-40	200	BH
"	20		Wy	K-60	200	BH
"	20		Mc Bax	K-40	200	BH
"	65	5364	Mc Bax	K-40	200	BH
"	20	6351	Wy	K-40	200	NB
6-13-84	20	5444	Wy	K-60	190	BH
6-14-84	20	5444	Wy	K-60	180	BH
"	20	5444	Wy	K-30	180	BH
"	20	5444	P/wood		180	BH
6-15-84	65	5364	Wy	K-30	180	NB
"	65	5364	Wy	K-60	180	NB
"	65	5364	P/wood		180	BH

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Koppers Company, Inc.

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T-170 REV. 6-
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	From	Gallons	Customer	Truck	Temp	Loader
6-18-84	20	5444	Wy	K-30	170	SH
"	20	5444	Wy	K-60	170	SH
"	20	5444	P/wood		170	SH
"	65	5364	P/wood		180	SH
6-19-84	65	5364	Wy	K-60	180	SH
"	65	5364	Wy	K-30	180	SH
"	65	5364	P/wood		180	SH
"	65	5364	P/wood		180	SH
6-20-84	65	5364	Wy	K-30	190	SH
"	65	5364	Wy	K-60	190	SH
"	65	5364	P/wood		190	SH
"	65	5364	P/wood		190	SH
6-21-84	TC 600	5400	Am. Tar	K-30	210	TJ + HB
"	65	5364	P/wood		190	SH
"	34	1000	Gibson homes	K-60	150	SH
"	65	5364	Mc-Bax	K-60	190	SH
"	65	5364	P/wood		190	SH
"	65	5364	Mc Bax	K-60	190	HB
"	65	5364	Mc Bax	K-60	190	HB
6-22-84	65	5364	Wy E.H.	K-60	185	"
"	65	5364	Wy	K-30	185	"
"	65	5364	P/Wood		185	"
"	65	5364	P/Wood		185	"
"	65	5364	Wy	K-30	180	"
"	65	5364	Wy	K-60	180	"
6-25-84	65	5364	Wy EH	K-30	170	"
"	65	5364	Wy EH	K-60	170	"
	65	5364	P/Wood		175	SH
6-26-84	34	5872	Am Tar	K-30	130	HB
"	65	5364	Wy	K-60	180	HB
6-27-84	34	5236	Rec. Com.	K-60	170	HB
"	65	5364	Wy	K-30	190	HB
"	65	5364	Wy	K-40	190	HB
6-28-84	65	5364	Wy	K-40	190	HB
"	65	5364	Wy	K-60	190	HB
"	TC 586	5[illegible]	BC	K-30	[illegible]	[illegible]

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6-71-7
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

Date	SUBJECT From	GALLONS	Customer	Truck	Temp	Loader
6-28-84	65	5364	P/Wood		190	BH
6-29-84	34	1426	Gibsinito	K-40	140	HB
"	65	5364	Wy	K-60	180	HB
"	65	5364	Taylor	K-40	180	BH
"	65	5364	P/Wood		180	BH
7-3-84	65	5364	Wy	K-40	150	HB
"	65	5364	Mc Bax	K-30	150	HB
"	65	5364	Mc Bax	K-60	150	HB
"	20	5444	Mc Bax	K-60	160	HB
"	20	5444	P/Wood		160	HB
"	20	5444	Wy	K-60	160	HB
7-4-84	20	5444	Wy	K-40	175	HB
7-5-84	65	5364	Wy EH	K-60	160	HB
"	65	5364	Wy	K-40	160	HB
"	65	5364	P/Wood		165	HB
7-6-84	65	5364	Wy EH	K-40	170	HB
"	65	5364	Wy	K-60	170	HB
7-9-84	65	5364	Wy EH	K-60	170	BH
"	65	5364	Wy	K-40	170	BH
"	65	5364	P/Wood		170	BH
7-10-84	65	5364	Mc-Bax	K-60	170	BH
"	65	5364	Taylor	K-40	170	BH
"	65	5364	Wy	K-60	170	BH
"	65	5364	Mc-Bax	K-30	170	BH
"	65	5364	Mc-Bax	K-40	170	BH
"	65	5364	Oly	K-40	170	HB
7-11-84	65	5364	Wy	K-60	165	BH
"	TC 586	App. 5200	Tacoma	K-30	310	BH + HB + TJ
"	65	5364	Wy EH	K-40	165	BH
7-12-84	65	5364	Wy	K-60	160	BH
"	TC 600	App. 5200	Am. Tar	K-30	220	BH + HB + TJ
"	65	5364	P/Wood		160	BH
"	65	5364	Wy EH	K-60	160	HB
7-13-84	65	5364	Wy	K-40	160	BH
"	65	5364	P/Wood		160	BH
"	65	5364	P/Wood		160	BH

Organic Materials Group
Koppers Company, Inc.

KOPPERS

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T-170 REV. 6-
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	From	Gallons	Customer	Truck	Temp	Loader
7-13-84	TC 587	App 5200 gal	Cascade Ass.	K-30	285	[illegible]-TJ
"	"	"	"	K-60	285	[illegible]+TJ
7-16-84	65	5364	Wy	K-40	150	GH
"	65	5364	Wy	K-60	150	GH
"	65	5364	Oly	K-30	150	GH
"	65	5364	P/wood		150	GH
"	65	5364	P/wood		150	GH
"	65	5364	Mc+Bax.	K-30	150	[illegible]
7-17-84	65	5364	Wy EH	K-60	150	GH
"	65	5364	Wy	K-40	150	GH
"	65	5364	P/wood		150	GH
"	65	5364	Mc-Bax	K-30	150	GH
"	65	5364	P/wood		150	GH
"	65	5364	Taylor	K-30	150	GH
7-18-84	65	5364	Wy EH	K-60	160	GH
"	65	5364	Wy	K-40	160	GH
"	65	5364	P/wood		160	GH
"	T/C 587	App. 5200	Tacoma	K-30	350	RT[illegible]
"	65	5364	P/wood		160	GH
"	65	5364	Mc+Bax.	K-30	165	[illegible]
7-19-84	65	5364	Wy EH	K-40	170	GH
"	65	5364	Wy	K-60	170	GH
"	65	5364	P/wood		170	GH
"	65	5364	Tacoma	K-30	170	GH
7-20-84	65	5364	Wy	K-60	180	GH
"	65	5364	Wy	K-30	180	GH
"	65	5364	Oly	K-40	180	GH
7-23-84	65	5364	Wy	K-30	185	[illegible]
"	34	2060	Gibson+Hunter	K-60	110	[illegible]
"	65	5364	Wy	K-40	185	[illegible]
"	65	5364	Oly	K-60	185	[illegible]
7-24-84	65	5364	Wy	K-40	190	[illegible]
"	65	5364	Tac.	K-30	190	[illegible]
"	65	5364	Taylor	K-60	190	[illegible]
"	65	5364	Oly	K-60	190	[illegible]

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6-80
2000 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

DATE	From	GALLONS	Customer	T-T	Temp	Loader
7-25-84	65	5364	W/y	K-30	195	RB
"	65	5364	W/y	K-40	195	RB
"	65	5364	Toc	K-60	195	RB
"	65	5364	W/y	K-60	195	SH
"	65	5364	W/y	K-30	195	SH
7-26-84	65	5364	W/y	K-40	195	RB
"	11	36,801	Dalles	Tc 25560	160	RB
"	11		Dalles	Tc 23901		SH
"	65	5364	W/y	K-60	195	SH
"	65	5364	W/y	K-30	195	SH
7-27-84	65	5364	W/y	K-40	190	RB
	65	5364	W/y	K-60	190	TJ
7-30-84	65	5364	W/y	K-60	175	RB
"	65	5364	W/y	K-40	175	RB
" Tc	303	App 5100	Toc	K-30	325	TJ + SH RP-12
"	65	5364	P/wood		175	RB
"	65	5364	P/wood		175	SH
"	65	5364	W/y	K-60	175	SH
7-31-84	65	5364	W/y	K-30	180	HB
"	65	7151	W/y	K-40	180	HB
"	65	5364	Mc Bax	K-60	180	SH
8-1-84	65	7151	W/y	K-40	175	RB
" Tc	303	5200	Toc		260	TJ + SH
"	65	5364	P/wood		175	RB
"	65	5364	Mc-Bax	K-60	175	SH
"	65	5364	Mc-Bax	K-60	175	SH
"	65	5364	P/wood		175	SH
"	20	5440		K-60	175	RB
8-2-84	65	5364	W/y	K-40	170	RB
"	65	5364	P/wood		170	RB
" Tc	303	App 5200	Toc	K-30	210	TJ + SH
"	65	5364	W/y	K-60	170	SH
8-3-84	65	7151	Mc Bax	K-40	170	RB
"	65	5364	W/y	K-30	170	SH
"	65	5364	Mc Bax	K-40	170	RB
"	65	5364	P/wood		170	SH

Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	From	Gallons	Customer	Truck	Temp	Loader
8-6-84	65	5364	Wy EH	30	170	BH
"	65	5364	Wy	K-60	170	BH
"	65	5364	Wy	40	170	BH
8-7-84	65	5364	Wy EH	60	170	BH
"	65	5364	Wy EH	30	170	BH
"	65	5364	Wy	40	170	BH
8-8-84	65	5364	Wy EH	K-60	170	BH
"	65	5364	Wy	K-30	170	BH
"	65	5364	Mc-Bax	K-40	170	BH
"	65	5364	Taylor	K-40	170	BH
"	65	5364	P/wood		170	BH
"	65	5364	Wy	K-40	165	MB
8-9-84	65	5364	Wy EH	K-30	160	BH
"	65	1200	Gilsonite	K-60	160	BH
"	65	5364	Mc-Bax	K-60	160	BH
"	65	5364	Mc-Bax	K-60	160	BH
"	65	5364	McrBax	K-60	180	MB
"	65	5364	Wy EH	K-40	180	MB
8-10-84	65	5364	Wy EH	K-30	180	BH
"	65	5364	Wy	K-60	180	BH
8-13-84	65	5364	Wy EH.	K-30	165	MB
	65	5364	Wy EH.	K-60	165	MB
	65	5364	Wy	K-40	165	MB
8-14-84	65	5364	Wy	K-60	185	MB
"	65	5364	McrBax	K-30	185	MB
"	65	5364	McrBax	K-30	195	MB
"	65	5364	Taylor	K-30	200	MB
"	65	5364	P/wood		200	MB
8-15-84	65	5364	Mc Bax	K-30	195	MB
"	65	5364	Mc Bax	K-60	195	MB
"	65	5364	Wy	K-30	195	MB
"	65	5364	Wy	K-60	195	MB
8-16-84	65	5364	Wy	K-30	195	MB
	65	5364	Wy	K-60	195	MB

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6-
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	From	Gallons	Customer	T-T	Temp	By
8-17-84	65	5364	Wy	K-60	195	[illegible]
8-20-84	65	5364	Taylor	K-60	180	SH
"	T/C 603	App. 5200	Tacoma	K-30	200	H.B. + T.J
"	65	5364	P/wood		180	SH
"	65	5364	P/wood		180	SH
8-21-84	T/C 603	App. 5200	Tacoma	K-30	250	SH + HB
"	65	5364	P/wood		180	SH
"	65	5364	P/wood		200	SH
8-23-84	T/C 586	App. 5200	Am. Tar	K-30	240	SH + HB
"	65	5364	Taylor	K-40	180	SH
"	20	5444	Taylor	K-40	190	[illegible]
"	20	5444	Wy	K-60	190	[illegible]
8-24-84	20	5444	Wy	K-30	190	SH
8-27-84	20	5444	Wy	K-60	170	SH
"	20	5444	Wy	K-30	170	SH
"	20	5444	Wy	K-40	170	SH
"	20	5444	P/wood		170	SH
8-28-84	T/C 208	App. 5200	Tacoma	K-30	240	TJ
"	20	5444	Wy	K-60	170	SH
"	20	5444	Wy	K-40	170	SH
"	20	5444	P/wood		180	SH
"	20	5444	Wy	K-60	190	[illegible]
8-29-84	T/C 208	App. 5200	Tacoma	K-30	265	TJ
"	20	5444	Wy	K-40	185	SH
"	20	5444	P/wood		185	SH
"	20	5444	P/wood		190	SH
"	65	16,091	Dalles	T/C 78863		SH
"	20	5444	Wy	K-60	195	SH
"	20	5444	Wy	K-40	195	[illegible]
"	20	5444	Wy	K-30	195	[illegible]
8-30-84	20	5444	P/wood		200	SH
"	20	5444	P/wood		200	SH
"	20	5444	Wy	K-40	200	SH
"	20	5444	P/wood		200	SH
"	20	5444	Wy	K-60	200	[illegible]
"	20	5444	Wy	K-30	200	[illegible]

Organic Materials Group
Koppers Company, Inc.

KOPPERS

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T-170 REV. 8
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	From	Gallons	Customer	Truck	Temp	By
8-31-84	20	5444	P/wood		195	BH
"	20	5444	P/wood		195	BH
"	20	5444	P/wood		200	BH
9-4-84	20	5444	Wy	K-60	170	MB
"	20	5444	Wy EH.	K-30	170	MB
"	20	5444	Wy	K-40	170	MB
"	20	5444	Wy EH	K-60	170	BH
9-5-84	20	5444	Wy EH	K-40	160	MB
"	20	5444	Wy EH.	K-30	160	MB
"	65	5364	P/wood		150	BH
"	65	19,669	McBax Dalles	Tc 79683	150	MB
9-6-84	20	5444	Wy EH	K-40	180	MB
"	20	5444	Wy EH	K-60	180	MB
"	20	5444	Mc Bax	K-30	180	BH
"	65	16091	1/c 223045T	Dalles	150	BH
"	20	5444	Mc Bax	K-30	150	BH
"	20	5444	Taylor	K-30	150	BH
9-7-84	20	5444	Wy	K-40	170	MB
"	20	5444	McBax	K-60	170	MB
"	Tc 208	mp 5200	Am Tar	K-30	230	BH
"	20	5444	Mc Bax	K-60	170	HB
"	20	5444	Taylor	K-60	170	BH
9-10-84	20	5444	Wy EH	K-40	130	BH
"	20	5444	Wy EH	K-60	130	[illegible]
9-11-84	99	5398	Wy EH	K-60	150	[illegible]
"	99	5398	Taylor	K-40	150	[illegible]
"	99	5398	P/wood		150	[illegible]
"	20	5444	P/wood		180	BH
"	20	5444	Wy EH	K-40	180	BH
"	20	5444	P/wood		185	BH
9-12-84	20	5444	Wy EH	K-60	190	BH
"	20	5444	Wy EH	K-30	190	[illegible]
"	65	5364	P/wood		170	BH
9-13-84	20	5444	Wy EH	K-40	180	MB
"	20	5444	Wy EH	K-60	180	MB
"	20	5444	P/wood		180	MB

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 8
200 BKS. 3-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	T-T	Temp	By
9-13-84	App 6200	Tc 603	Am Tar	K-30	230	BH
"	5444	20	P/wood		180	HB
"	18792	"	McBax Dallas	Tc 79964	170	HB
"	5444	20	P/wood		180	BH
9-14-84	App 4900	Tc 603	Am Tar	K-30	210	BH
"	5481	"	P/wood		160	BH
"	19575	"	Mc-Bax	Tc 35847	160	H.B.+TJ
9-17-84	5444	20	Taylor	K-60	160	BH
"	5481	"	P/wood		150	HB
9-18-84	5481	"	P/wood		150	BH
9-19-84	5444	20	Taylor	K-30	190	BH
9-20-84	18,018	"	Mc Bax Dallas	Tc 79951	160	BH
"	18,000	"	" "	Tc 223191	160	BH+HB
9-21-84	5444	20	P/wood		180	BH
"	5444	20	P/wood		180	BH
9-24-84	5444	20	P/wood		170	BH
"	5444	20	P/wood		185	BH
9-25-84	5444	20	Taylor	K-60	185	BH
"	5444	20	Taylor	K-40	185	BH
"	5444	20	P/wood		185	BH
"	5444	20	P/wood		185	BH
"	5444	20	P/wood		185	T.J.
9-26-84	5444	20	P/wood		175	BH
"	5444	20	P/wood		180	HB
9-27-84	5444	20	P/wood		160	BH
"	5444	20	P/wood		160	BH
9-28-84	5444	20	Mc Bax	K-40	150	HB
"	5444	20	P/wood		150	HB
"	5200 App	Tc 303	Tco	K-60	240	T.J.
"	5444	20	P/wood		150	HB
10-1-84	5444	20	Wy EH	K-40	140	HB
"	5444	20	Wy EH	K 60	140	HB
"	5444	20	Taylor	K-30	140	HB
"	5444	20	P/wood		140	HB
"	5444	20	P/wood		180	HB

Organic Materials Group
Koppers Company, Inc.

KOPPERS

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T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	T-T	Temp	By
10-2-84	5444	20	Wy EH	K-60	150	NB
"	5364	65	Wy EH	K-40	150	NB
10-3-84	5364	65	Wy EH	K-40	160	NB
"	5364	65	Wy EH	K-60	160	NB
"	5364	65	Taylor	K-30	160	NB
"	5364	65	P/Wood		160	NB
"	5364	65	McBax	K-30	175	NB
"	5364	65	P/Wood		175	EH
10-4-84	5364	65	Wy EH	K-60	180	NB
"	5364	65	Wy EH	K-40	180	NB
"	App 5200	6303	Am. Tar	K-30	220	EH RT-8
10-5-84	5364	65	Wy EH	K-60	190	NB
"	5364	65	Wy EH	K-40	190	NB
"	5364	65	McBax	K-30	190	NB
"	5364	65	P/Wood		190	NB
	5364	65	P/Wood		190	NB
10-8-84	5364	65	Wy EH	K-60	170	NB
"	5364	65	Wy EH	K-40	190	NB
"	5364	65	Taylor	K-30	170	NB
"	5364	65	P/Wood		170	NB
"	5364	65	P/Wood		175	NB
"	5364	65	McBax	K-30	175	EH
"	5364	65	McBax	K-30	175	EH
10-9-84	5364	65	Wy EH	K-60	175	NB
"	5364	65	Taylor	K-30	175	NB
"	5364	65	P/Wood		175	NB
"	5364	65	P/Wood		195	EH
10-10-84	5364	65	Wy EH	K-60	190	NB
"	5364	65	P/Wood		190	NB
"	5364	65	P/Wood		190	NB
10-11-84	5364	65	Wy EH	K-60	185	NB
"	5364	65	P/Wood		185	NB
10-15-84	5364	65	P/Wood		170	EH
"	5364	65	P/Wood		175	NB
10-16-84	5364	65	Taylor	K-60	170	EH
"	5364	65	P/Wood		170	EH

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6-80
200 BKS.-5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	T/T	Temp	By	
10-16-84	5364	65	P/wood		180	SH	
"	5364	65	P/wood		180	SH	
"	5364	65	P/wood		190	HB	
"	5364	65	P/wood		190	HB	
10-17-84	5364	65	P/wood		180	SH	
"	5364	65	P/wood		180	SH	
	5364	65	P/wood		180	HB	
	5364	65	P/wood		180	HB	
10-18-84	5364	65	P/wood		175	SH	
"	5364	65	P/wood		175	SH	
"	5364	65	P/wood		175	SH	
"	5364	65	P/wood		175	HB	
10-19-84	5364	65	P/wood		170	SH	
"	5364	65	P/wood		170	SH	
"	5364	65	P/wood		175	HB	
10-23-84	5605	68	Tacoma	K-40	110	SH	
"	5364	65	Taylor	K-60	180	SH	
10-24-84	5605	68	Tacoma	K-40	130	SH	
"	5364	65	Mc-Bax	K-60	180	SH	
"	5364	65	Taylor	K-60	180	SH	
10-25-84	5364	65	Taylor	K-40	170	SH	
"	5364	65	Mc-Bax	K-60	170	SH	
"	5364	65	Mc-Bax	K-60	170	SH	
"	5364	65	Mc-Bax	K-60	170	SH	
10-29-84	5364	65	Tacoma	K-40	160	HB	
10-30-84	5364	65	Tacoma	K-60	175	HB	
11-2-84	5364	65	Tacoma	K-40	165	HB	
"	5364	65	Tacoma	K-60	165	HB	
11-5-84	5364	65	Tacoma	K-40	160	HB	
11-7-84	app 5200	16303	Am Tar	K-30	200	HB	RT-8
11-8-84	5364	65	Mc. Bax	K-40	160	HB	
11-9-84	5364	65	Mc Bax	K-60	170	HB	
"	5364	65	Mc Bax	K-60	180	HB	
"	5364	65	Mc Bax	K-60	180	HB	

Organic Materials Group
Koppers Company, Inc.

KOPPERS

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T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	TH	Temp.	By
11-13-84	5364	65	Wy E-H	K-40	160	GH
"	5364	65	Wy E-H	K-60	160	GH
11-14-84	5364	65	Wy EH	K-60	170	GH
"	5364	65	Wy E-H	K-40	170	GH
"	5364	65	P/wood		170	GH
11-15-84	5364	65	Wy E-H	K-40	170	GH
"	5364	65	Wy E-H	K-60	170	GH
"	5364	65	P/wood		170	GH
"	5364	65	P/wood		170	GH
11-16-84	5364	65	Wy E-H	K-60	175	GH
"	5364	65	Taylor	K-40	175	GH
"	5364	65	P/wood		175	GH
"	5364	65	P/wood		180	GH
"	5364	65	P/wood		185	HB
11-19-84	5364	65	Wy E-H	K-60	175	GH
"	5364	65	Wy E-H	K-40	175	GH
"	5364	65	P/wood		175	GH
"	5364	65	P/wood		180	GH
11-20-84	5364	65	Wy E-H	K-60	180	GH
"	5364	65	Oly	K-40	180	GH
"	5364	65	P/wood		180	GH
"	5364	65	P/wood		180	GH
"	5364	65	Oly	K-40	185	HB
11-21-84	5364	65	Taylor	K-60	180	GH
11-27-84	5364	65	Taylor	K-40	160	HB
11-30-84	5364	65	Taylor	K-40	170	HB
12-3-84	5364	65	P/wood		160	HB
"	5364	65	P/wood		160	HB
12-4-84	5364	65	Wy E.H.	K-40	170	HB
"	5364	65	P/wood		170	HB
"	5260 App	Tc303	Am Tar	K-60	210	HB
"	5364	65	P/wood		170	HB
12-5-84	5364	65	Wy EH	K-40	175	
"	5364	65	Wy EH	K-60	175	
	~~5364~~	~~65~~				

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6-81
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

DATE	GALLONS	From	Customer	T-T	Temp	By
12-6-84	5364	65	Wy EH	K-40	180	MB
"	5364	65	Wy EH	K-60	180	MB
"	5364	65	P/Wood		180	MB
"	6508	33	P/Wood		60	MB
12-7-84	6508	33	P/Wood		60	MB
"	5364	20	P/Wood		180	SH
12-10-84	5364	20	Taylor	K-40	170	SH
"	5364	20	P/Wood		170	H.B
12-11-84	5364	20	P/Wood		170	SH
"	5364	20	P/Wood		170	SH
12-12-84	5364	20	Taylor	K-40	160	SH
12-13-84	5200	TK586	Am. Tar	K-60	200	SH-HB RT-8
"	5364	65	P/Wood		170	SH
"	5364	65	P/Wood		170	SH
12-18-84	5364	65	Oly	K-40	170	SH
"	5364	65	Oly	K-60	170	SH
12-19-84	5364	65	Oly	K-40	170	SH
12-20-84	5364	65	Taylor	K-40	160	SH
12-28-84	5364	65	P/Wood		170	SH
1-2-85	5364	65	P/Wood		160	MB
"	5364	65	P/Wood		160	HB
1-3-85	5364	65	P/Wood		165	MB
"	5364	65	P/Wood		165	MB
1-4-85	5364	65	P/Wood		170	SH
"	"	65	P/Wood		170	MB
1-7-85	5364	65	Wy EH	K-40	165	MB
"	5364	65	Wy EH	K-60	165	MB
"	5364	65	P/Wood		165	MB
"	5364	65	P/Wood		170	MB
1-8-85	5364	65	Wy EH	K-40	170	MB
"	5364	65	Wy EH	K-60	170	MB
"	5364	65	P/Wood		170	MB
1-9-85	5364	65	Wy EH	K-40	180	MB
"	5364	65	Wy EH	K-60	180	MB
1-10-85	5364	65	Wy EH	K-40	180	MB
"	5364	65	Wy EH	K-60	180	MB

Organic Materials Group
Koppers Company, Inc.

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T-170 REV. 6-
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	T-T	Temp	By
1-11-85	5364	65	Oly	K-40	185	[illegible]
"	7151	65	Oly	K-60	185	[illegible]
1-14-85	5364	65	Wy EH	K-40	180	BH
"	5364	65	Wy EH	K-60	180	BH
1-15-85	5364	65	Oly	K-40	180	BH
"	5364	65	Oly	K-60	180	BH
1-16-85	5364	65	Taylor	K-60	180	BH
1-21-85	5364	65	Plywood		180	BH
"	5364	65	Plywood		180	BH
1-22-85	5364	65	Plywood		180	BH
"	5364	65	Plywood		180	BH
1-23-85	5364	65	Oly	K-40	180	BH
"	5364	65	Plywood		180	BH
"	5364	65	Oly	K-60	180	BH
"	5364	65	Plywood		180	BH
"	5364	65	Oly	K-40	180	BH
1-24-85	5364	65	Oly	K-60	180	BH
"	5364	65	Plywood		180	BH
"	5364	65	Plywood		180	BH
"	5364	65	Oly	K-40	180	BH
"	5364	65	Oly	K-60	180	BH
1-25-85	5364	65	Plywood		180	BH
1-30-85	5364	65	Oly	K-40	180	HB
"	5364	65	Oly	K-60	180	HB
"	5364	65	Plywood		180	HB
"	5364	65	Oly	K-40	180	HB
"	5364	65	Oly	K-60	180	HB
1-31-85	5364	65	Taylor	K-60	175	HB
2-1-85	5364	65	Taylor	K-60	170	HB
2-6-85	5364	65	Mo Box Calif	K-30	170	BH
"	5364	65	Plywood		170	HB
2-7-85	5364	65	Wy	K-40	165	HB
2-8-85	7151	65	Taylor	K-40	160	HB
"	5364	65	Wy	K-40	165	HB
"	5364	65	Taylor	K-60	165	BH

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 8-80
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp.	Loader
2-11-85	5364	65	Wy	K-40	150	BH
"	5364	65	Wy	K-60	150	BH
2-12-85	5364	65	Wy	K-40	160	BH
"	5364	65	Wy	K-60	160	BH
"	5364	65	P/wood		160	BH
"	5364	65	P/wood		160	BH
2-13-85	5364	65	Wy	K-40	170	BH
"	5364	65	E.H. Wy	K-60	170	BH
"	5364	65	P/wood		170	BH
"	5364	65	P/wood		170	BH
2-14-85	5364	65	Wy	K-40	175	BH
"	5364	65	E.H. Wy	K-60	175	BH
"	5364	65	P/wood		175	BH
"	5364	65	P/wood		175	BH
"	5364	65	Tacoma	K-40	170	[illegible]
2-15-85	5364	65	Tacoma	K-60	170	BH
"	5364	65	Wy	K-40	170	BH
"	5364	65	Wy	K-60	170	HB
2-19-85	5364	65	Oly	K-40	160	BH
"	5364	65	Canada	K-60	164	[illegible]
"	5364	65	Oly	K-40	170	[illegible]
"	5364	65	Wy Elk	K-40	180	[illegible]
2-20-85	5364	65	Wy Sek.	K-60	185	[illegible]
"	5364	65	Mc Bax	K-40	170	[illegible]
"	5364	65	Taylor	K-60	170	[illegible]
2-21-85	5364	65	P/wood		180	[illegible]
"	5364	65	Taylor	K-60	180	BH
"	5364	65	Mc-Bax	K-40	180	BH
"	5364	65	P/wood		180	BH
"	5364	65	Mc-Bax	K-40	180	BH
"	5364	65	Oly	K-40	180	BH
"	5364	65	Wy	K-60	180	BH
2-22-85	5444	20	Oly	K-60	175	BH
"	5444	20	P/wood		175	BH
"	4798	99	P/wood		160	BH

Organic Materials Group
Koppers Company, Inc.

KOPPERS

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T-170 REV. 6-
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	Loader
2-22-85	4798	99	Wy	K-40	140	GH
"	5398	99	Wy	K-60	140	RB
2-23-85	5444	20	Wy	K-60	170	GH
2-25-85	5444	20	Wy	K-40	160	RB
"	5444	20	Wy EH	K-60	160	RB
"	5444	20	Wy EH	K-40	170	GH
2-26-85	5444	20	Wy EH	K-60	165	RB
2-27-85	6351	20	Wy EH	K-40	160	RB
"	6351	20	Wy EH	K-60	160	RB
2-28-85	5444	20	Wy EH	K-40	170	RB
"	5444	20	Wy EH	K-60	170	RB
3-1-85	5364	65	Oly	K-40	180	RB
"	5364	65	Oly	K-60	180	RB
3-4-85	5364	65	Oly	K-40	170	RB
"	5364	65	Oly	K-60	170	RB
"	5364	65	Mc Bax	K-60	170	GH
"	5364	65	Taylor	K-40	170	GH
3-5-85	5364	65	Taylor	K-60	170	RB
"	5364	65	McBax	K-40	170	RB
"	5364	65	McBax	K-40	170	RB
"	5364	65	Wy EH	K-60	170	RB
"	5364	65	Oly	K-40	170	GH
3-6-85	5364	65	P/wood		170	RB
"	7151	65	Wy EH	K-40	170	RB
"	5364	65	P/wood		170	RB
3-7-85	5280 app	Tc 686	Am Tar	K-60	225	RB & GH
"	5364	65	P/wood		170	RB
3-8-85	7151	65	Wy EH	K-40	175	RB
"	5364	65	Mc Bax	K-60	175	RB
"	5364	65	P/wood		175	RB
"	5364	65	Mc Bax	K-60	175	GH
"	5364	65	P/wood		175	GH
"	5364	65	Mc Bax	K-60	175	GH

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6-80
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	Loader
3-11-85	5364	65	Taylor	K-40	165	BH
" "	5364	65	E.H. Wy	K-60	165	BH
" "	5364	65	P/wood		165	BH
" "	5364	65	P/wood		165	BH
" "	5364	65	E.H. Wy	K-40	165	BH
3-12-85	5364	65	E.H. Wy	K-60	170	BH
"	5364	65	E.H. Wy	K-40	170	MB
3-13-85	5364	65	Taylor	K-60	170	BH
"	5364	65	P/wood		170	BH
"	5364	65	P/wood		170	BH
"	5364	65	E.H. Wy	K-40	175	MB
3-14-85	5364	65	E.H. Wy	K-60	175	BH
" "	5364	65	P/wood		175	BH
"	5364	65	Oly	K-40	165	MB
3-15-85	5364	65	Oly	K-60	180	BH
3-18-85	5364	65	Oly	K-40	180	BH
"	5364	65	Oly	K-60	180	BH
"	5364	65	P/wood		180	BH
"	5364	65	P/wood		180	BH
"	5364	65	E.H. Wy	K-60	180	MB
3-20-85	5364	65	Mc-Bax	K-60	180	BH
"	5364	65	P/wood		180	BH
"	5364	65	Mc-Bax	K-60	180	BH
"	5364	65	P/wood		180	BH
"	5364	65	Mc-Bax	K-60	185	BH
3-21-85	App 5200	Kpc x 586	Am. Tar	K-60	220	BH & NB
"	5364	65	P/wood		190	BH
"	5364	65	P/wood		190	BH
"	5364	65	Oly	K-40	190	BH
Month end 3-22-85	5364	65	Oly	K-60	190	BH
3-25-85	5364	65	Taylor	K-60	175	MB
"	5364	65	P/wood		175	BH
"	5364	65	Oly	K-60	180	BH
"	5364	65	P/wood		180	BH

Organic Materials Group
Koppers Company, Inc.

KOPPERS

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T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT

Date	Gallons	From	Customer	Truck	Temp	Loader
3-26-85	5364	65	P/Wood		180	AB
"	5364	65	P/wood		180	AB + BH
"	5364	65	OLY	K-60	180	BH
3-28-85	app 5200	Tc 586	Am. Tar	K-60	230	AB + BH
"	5364	65	P/wood		185	BH
3-29-85	5364	65	Taylor	K-60	180	AB
4-1-85	5364	65	OLY	K-60	170	AB
4-2-85	5364	65	Taylor	K-60	170	BH
4-3-85	5364	65	McPBax	K-40	170	BH
"	"	65	Mc-Box	K-40	170	BH
4-4-85	7151	65	McPBax	K-40	168	AB
"	7151	65	McPBax	K-40	168	AB
"	7151	65	Taylor	K-60	170	AB + BH
4-8-85	5364	65	Wy	K-40	170	BH
"	5364	65	Taylor	K-60	170	BH
"	5364	65	P/wood		170	BH
"	5364	65	P/wood		170	BH
"	5364	65	Wy	K-60	170	BH
"	5364	65	Wy	K-40	170	HB
4-9-85	5364	65	P/wood		170	BH
"	5364	65	P/wood		170	BH
"	5364	65	Wy	K-40	180	AB + BH
	5364	65	Wy	K-60	185	AB
4-10-85	5364	65	P/wood		185	BH
"	5364	65	Wy	K-40	170	BH
"	5364	65	Mc Box	K-60	170	AB
4-11-85	5364	65	P/wood		170	BH
"	5364	65	Mc Box	K-60	170	BH
"	5364	65	Mc Box	K-60	175	BH
"	5364	65	P/wood		175	BH
"	5364	65	Mc Box	K-60	175	JJ
"	5364	65	Wy	K-40	180	BH
"	5364	65	P/wood		180	BH
4-12-85	App 5100	Kpox 511	Tacoma	K-60	300	HB + BH K-364
"	5364	65	P/wood		180	BH
"	5364	65	P/wood		180	BH

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6-[illegible]
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	Loader
4-12-85	5364	65	[illegible]	K-60	180	[illegible]
"	5364	65	[illegible]	K-60	180	[illegible]
"	5364	65	[illegible]	K-60	[illegible]	[illegible]
4-15-85	5364	65	Tacoma	K-40	175	[illegible]
"	[illegible]	65	W/Y	K-60	175	[illegible]
"	[illegible]	65	Tacoma	K-40	175	[illegible]
4-16-85	[illegible]	[illegible]	[illegible]	K-60	175	[illegible]
"	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4-17-85	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
"	[illegible]	[illegible]	[illegible]	K-40	[illegible]	[illegible]
4-18-85	5364	65	[illegible]	[illegible]	[illegible]	[illegible]
"	5364	65	[illegible]	[illegible]	[illegible]	[illegible]
"	5364	65	[illegible]	K-60	[illegible]	[illegible]
4-22-85	[illegible]	[illegible]	Tac	K-60	230	[illegible]
"	[illegible]	65	Taylor	K-60	185	[illegible]
4-23-85	[illegible]	[illegible]	TBC	K-60	220	[illegible]
"	[illegible]	[illegible]	[illegible]	K-60	185	[illegible]
"	[illegible]	65	CR/Wood	[illegible]	185	[illegible]
"	[illegible]	65	McBAK	K-60	185	[illegible]
4-24-85	[illegible]	65	P/Wood	[illegible]	185	[illegible]
"	[illegible]	65	McBAK	K-60	185	[illegible]
	5364	65	McBAK	K-60	185	[illegible]
	5364	65	P/Wood		185	[illegible]
4-25-85	5364	65	Taylor	K-60	190	[illegible]
	5364	65	P/Wood		190	[illegible]
	5364	65	P/Wood		190	[illegible]
4-26-85	5364	65	P/Wood		190	[illegible]
4-29-85	5364	65	BC	K-60	180	[illegible]
"	5364	65	P/Wood		180	[illegible]
"	5364	65	P/Wood		[illegible]	[illegible]
4-30-85	5364	65	P/Wood		[illegible]	[illegible]
"	5364	65	P/Wood		[illegible]	[illegible]
5-1-85	5364	65	BC	K-60	[illegible]	[illegible]
"	[illegible]	65	P/Wood		[illegible]	[illegible]
"	5364	65	P/Wood		185	[illegible]

Organic Materials Group
Koppers Company, Inc.

KOPPERS

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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	Loader
5-7-85	5364	65	P/wood		180	[illegible]
"	5364	65	P/wood		180	[illegible]
"	5364	65	E.H. Wy	K-40	180	BH
5-13-85	5364	65	E H Wy	K-60	185	[illegible]
"	5364	65	P/wood		185	[illegible]
"	5364	65	P/wood		185	[illegible]
5-14-85	5364	65	E H Wy	K-40	175	BH
"	5364	65	B. C	K-60	175	BH
"	5364	65	P/wood		175	BH
"	21455	65	TC 79667		175	BH
"	5364	65	P/wood		175	BH
5-7-85	5364	65	Taylor	K-40	180	BH
"	5364	65	P/wood		180	BH
"	5364	65	P/wood		180	BH & HB
5-8-85	5364	65	Mc Bax	K-60	185	BH
"	5364	65	P/wood		185	BH
"	5364	65	McBax	K-60	185	BH
"	5364	65	Mc Bax	K-60	170	BH
"	5364	65	P/wood		170	BH
"	5364	65	Mc Bax	K-60	170	[illegible]
5-9-85	5364	65	E H Wy	K-40	170	BH
"	5364	65	Tacoma	K-60	170	BH
"	5364	65	Taylor	K-60	170	[illegible]
5-10-85	5364	65	E H Wy	K-40	170	BH
"	5364	65	Tacoma	K-60	170	BH
5-12-85	5364	65	E H Wy	K-40	165	BH
"	5364	65	E H Wy	K-60	165	BH
5-14-85	5364	65	E H Wy	K-40	170	BH
"	5364	65	E H Wy	K-60	170	BH
5-15-85	5364	65	E H Wy	K-40	180	BH
"	5364	65	Mc Bax	K-60	180	BH
"	5364	65	Mc Bax	K-60	180	BH
"	5364	65	Mc Bax	K-60	180	BH
"	5364	65	Mc Bax	K-60	[illegible]	[illegible]

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6-[illegible]
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	Loader
5-16-85	App 5200	T/C 201	Am. Tar	K-60	210	HB
"	5364	65	EH Wy	K-40	180	SH
5-17-85	5364	65	EH Wy	K-40	180	SH
"	5364	65	Taylor	K-60	180	SH
"	5364	65	P/wood		180	SH
5-20-85	7151	65	Oly	K-40	170	HB
"	7151	65	Taylor	K-60	170	HB
"	5364	65	Oly	K-60	178	HB
"	5364	65	Oly	K-40	178	HB
5-21-85	5364	65	Oly	K-60	180	HB
"	5365	65	Oly	K-40	180	SH
"	21,058	65	McBax Calx	to 223589	180	HB
5-22-85	5364	65	McBax	K-40	180	HB
5-23-85	5364	65	McBax	K-40	190	SH
"	5364	65	McBax	K-40	190	SH
"	5364	65	McBax	K-40	190	HB
5-24-85	4450	Tc 530	Toc.	K-40	290	HB + SH
5-28-85	4950	Tc 530	Toc.	K-40	325	HB + TJ
5-29-85	5000 App	Tc 530	Toc	K-40	290	TJ
"	7151	65	McBax	K-60	180	HB
"	5364	65	McBax	K-60	180	HB
"	5364	65	McBax	K-60	180	HB
"	5364	65	McBax	K-40	180	TJ
5-31-85	5364	65	P/wood		180	SH
6-3-85	5364	65	Oly	K-40	170	SH
"	5364	65	Oly	K-60	170	SH
6-4-85	5481	11	Wy	K-40	170	SH
"	5400	T/C 25551	Cal. F.	K-60	175	SH + T.J.
6-5-85	5364	65	P/wood		190	SH
"	5481	11	Wy	K-40	180	SH
"	5364	65	P/wood		190	SH
6-6-85	5364	65	Mc Bax	K-60	180	SH
"	5364	65	Mc Bax	K-40	180	SH
"	5364	65	Mc Bax	K-60	180	SH
"	5364	65	Oly	K-40	180	SH

Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	Loader
6-6-85	5364	65	P/wood		180	SH
"	5364	65	Mc Bax	K-60	184	SH
"	5364	65	Mc Bax	K-60	184	NB
6-7-85	5364	65	Oly	K-40	180	SH
"	5364	65	Oly	K-60	180	SH
"	5364	65	P/wood		180	SH
"	5364	65	P/wood		180	SH
"	5481	"	Wy	K-40	180	SH + NB
"	5481	"	Wy	K-60	180	NB
6-10-85	5481	"	Wy	K-40	170	SH
"	5481	"	Taylor	K-60	170	SH
"	5364	65	P/wood		170	SH
"	App 5300	Jc25551	Koppers Cal	K-60	185	SH + NB
"	5364	65	Toc	K-40	170	NB
6-11-85	5364	65	P/wood		170	SH
"	5364	65	P/wood		180	SH
"	5364	65	Oly	K-40	180	SH
6-12-85	5364	65	P/wood		185	SH
"	App 5500	Jc25551	Koppers Cal.	K-60	180	SH + NB
"	5364	65	P/wood		185	SH
"	5364	65	Oly	K-40	185	SH
6-13-85	5481	"	Wy	K-40	170	SH
"	5364	65	Toc	K-40	190	NB
6-14-85	5364	65	Tacoma	K-60	194	SH
"	5481	"	Wy	K-40	180	NB
	5481	"	Wy	K-60	170	NB
6-17-85	5481	"	Wy EH	K-40	150	NB
"	5481	"	Wy EH	K-40	150	SH
6-18-85	5364	65	Oly	K-60	190	SH
"	5481	"	Wy EH	K-40	160	SH
6-19-85	5364	65	P/wood		190	NB
"	5364	65	P/wood		190	NB
"	5364	65	Oly	K-60	190	NB
"	5481	"	Wy	K-40	175	SH
"	5364	65	P/wood		180	SH

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6
200 BKS. 5-80
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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	Loader
6-20-85	5481	11	Wy	K-60	162	[illegible]
"	5364	65	P/wood		190	[illegible]
"	5364	65	P/wood		190	[illegible]
"	5364	65	P/wood		190	SH
"	5481	11	Wy	K-40	162	SH
"	5481	11	Wy	K-60	162	SH
6-21-85	5364	65	P/wood		182	[illegible]
"	5364	65	P/wood		182	[illegible]
"	16927	4	TG 201		96	[illegible]
"	5481	11	Wy		160	[illegible]
"	5481	11	Wy		160	[illegible]
"	5364	65	P/wood		180	[illegible]
6-24-85	5481	11	Wy. E.H.	K-40	140	[illegible]
"	5364	65	McBax	K-60	160	[illegible]
"	5364	65	McBax	K-60	160	[illegible]
"	5364	65	Mc Bax	K-60	160	SH
"	5364	65	Mc Bax	K-60	175	SH
"	5364	65	Tacoma	K-40	175	SH
"	5364	65	Tacoma	K-60	175	SH
6-25-85	5481	11	Wy	K-40	170	HB
"	5481	11	Wy	K-60	170	HB
6-26-85	5364	65	P/wood		185	[illegible]
"	5364	65	P/wood		185	[illegible]
"	5364	65	P/wood		185	SH
"	5481	11	Wy EH	K-40	160	SH
"	5481	11	Wy EH	K-60	160	SH
6-27-85	5364	65	P/wood		180	SH
"	5364	65	P/wood		180	SH
"	5364	65	Tacoma	K-40	180	TJ
6-28-85	5364	65	Tacoma	K-60	175	SH
"	5364	65	P/wood		175	SH
"	5364	65	P/wood		175	SH
"	5481	11	Wy	K-40	160	SH
"	5481	11	Wy	K-60	160	SH

Organic Materials Group
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PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	Loader
7-1-85	5364	65	Oly	K-40	156	BH
"	5364	65	Mc Bax	K-60	156	BH
"	5364	65	P/wood	156		BH
"	5364	65	Mc Bax	K-60	156	BH
"	5364	65	Tacoma	K-60	160	BH
"	5364	65	P/wood	160		BH
"	5364	65	Mc Bax	K-40	160	BH
"	5364	65	Mc Bax	K-40	175	BH
7-2-85	5481	11	Wy	K-40	160	BH
"	5481	11	Wy EH	K-60	160	BH
"	5364	65	P/wood	180		BH
"	5364	65	P/wood	180		BH
"	5481	11	Wy EH	K-40	160	BH
7-3-85	5481	11	Wy	K-60	150	BH
7-5-85	5364	65	Mc Bax	K-40	170	TJ
"	5364	65	Mc Bax	K-60	170	BH
"	5364	65	Mc Bax	K-40	170	BH
"	5364	65	Mc Bax	K-60	175	BH
7-8-85	5481	11	Wy EH	K-40	155	BH
"	5481	11	Wy	K-60	155	BH
7-9-85	5364	65	Wy EH	K-60	180	BH
"	5364	65	Wy	K-40	180	BH
7-10-85	5364	65	Wy EH	K-40	175	BH
"	5364	65	Wy EH	K-60	175	BH
7-11-85	5364	65	Wy EH	K-60	170	BH
"	5364	65	Wy	K-40	170	BH
"	5364	65	Wy	K-40	180	[illegible]
"	5364	65	Wy	K-60	180	[illegible]
7-15-85	5364	65	Wy EH	K-40	160	[illegible]
"	5364	65	Tayler	K-60	160	[illegible]
"	5364	65	BC	K-60	174	[illegible]
7-16-85	5364	65	Wy	K-40	180	[illegible]
7-17-85	5364	65	Wy EH	K-40	170	[illegible]
"	5364	65	Wy	K-60	170	[illegible]

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200 BKS. 5-80
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LOCATION _____ DATE _____ BY _____

Date	Subject Gallon	From	To Customer	Truck	Temp	Loader
7-18-85	5364	65	Wy	K-40	170	AB
"	5364	65	Wy	K-60	170	TC
"	5364	65	Wy	K-40	170	[illegible]
7-22-85	5364	65	Wy EH	K-40	180	HB
7-" "	5364	65	Wy EH	K-60	180	HB
7-23-85	5364	65	Wy EH	K-40	170	HB
"	5364	65	Tay Lor	K-60	170	HB
"	5364	65	Wy EH	K-60	178	HB
7-24-85	5364	65	Wy EH	K-40	180	HB
7-25-85	5364	65	Wy EH	K-40	190	HB
"	5364	65	Wy EH	K-60	190	HB
7-26-85	5364	65	Wy EH	K-40	180	SH
"	5364	65	Wy EH	K-60	180	SH
7-29-85	5364	65	Wy EH	K-60	160	SH
8-1-85	App. 5100	TC537	Tacoma	K-40	260	SH + TJ. K-364
8-5-85	App. 5100	TC537	Tacoma	K-40	290	SH + TJ. K-364
"	5364	65	B.C.	K-60	185	SH + TJ.
8-6-85	App. 5300	TC537	Tacoma	K-40	270	SH + TJ. K-364
8-7-85	5364	65	Taylor	K-40	180	SH
"	5364	65	Taylor	K-40	180	SH
8-8-85	5364	65	B-C.	K-60	185	SH
8-16-85	App 5300	TC89029	Cal.F	K-60	190	SH + HB
8-22-85	5481	"	Taylor	K-40	138	HB
8-28-85	App 5300	TC537	Am. Tar	K-40	210	SH + HB RT-8
8-29-85	5481	"	Taylor	K-40	150	SH
9-4-85	App 20,000	65	Dallas	TC79678	172	SH
9-12-85	App 20000	65	Dallas	TC76587	150	SH
"	3900	TC586	Cal.F.	Cal.F	260	SH + HB
"	App 5481	"	Taylor	K-60	165	HB
"	App 20,000	65	Dallas	TC77475	160	SH
9-16-85	5481	"	Wy EH	K-40	150	HB
"	5481	"	Wy EH	K-60	150	HB
"	16081	4	S. dy	TC801	80	HB
9-12-85	5481	"	Wy EH	K-40	160	HB
"	5481	"	BC	K-60	160	HB
"	5481	"	Wy EH	K-40	162	HB

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Koppers Company, Inc.

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LOCATION _____ DATE _____ BY _____

SUBJECT

Date	Gallons	From	To Customer	T-T	Temp	Loader
9-19-85	5481	11	Wy EH	K-40	170	HB
"	5364	65	BC	K-60	180	SH
9-20-85	5481	11	Wy EH	K-40	170	HB
9-24-85	5508	17	Am Tar	K-40	180	SH+HB RT-8
9-25-85	App. 4000	TC 586	Calif	Calif	250	SH+HB K-364
10-2-85	5444	20	BC	K-60	160	HB
10-3-85	5444	20	BC	K-60	165	HB
10-10-85	5296	17	Am Tar	K-40	175	HB + SH
10-14-85	5481	11	Wy EH	K-40	170	SH
10-15-85	5481	11	Wy EH	K-40	160	SH
10-16-85	5481	11	Wy EH	K-40	170	SH
10-17-85	5481	11	Wy EH	K-40	160	SH
10-18-85	5481	11	Wy EH	K-40	160	SH
"	5481	11	Wy EH	K-40	180	HB
10-21-85	5481	11	Wy EH	K-40	155	HB
"	5481	11	Wy EH	K-60	155	HB
10-22-85	6264	11	Wy EH	K-40	150	HB
"	5481	11	Wy EH	K-60	150	HB
"	6264	11	P/Wood		150	HB
"	5481	11	P/Wood		165	HB
10-23-85	5481	11	OLY	K-40	165	HB
"	5481	11	P/Wood		165	"
"	6264	11	OLY	K-60	165	"
"	5481	11	P/Wood		170	HB
"	6264	11	OLY	K-40	180	HB
"	5481	11	P/Wood		180	HB
10-24-85	5481	11	OLY	K-60	175	HB
"	5481	11	P/Wood		175	HB
"	6264	11	P/Wood		170	"
"	5481	11	P/Wood		170	"
"	5481	11	OLY	K-60	170	"
10-25-85	5481	11	P/Wood		170	HB
10-28-85	6203	4	Calif	K-60	68	SH+HB
10-29-85	5364	65	Taylor	K-40	160	SH
11-1-85	5364	65	Wy EH	K-40	150	SH
"	5364	65	Wy EH	K-60	150	SH

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200 BKS. 5-80
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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	Loader
11-4-85	5364	65	Wy EH	K-40	160	SH
11-4-85	5364	65	Wy EH	K-60	160	SH
11-4-85	5364	65	Wy EH	K-40	165	HB
11-4-85	16363	4	T/C 201		85	SH
11-5-85	5364	65	Wy EH	K-40	170	SH
11-6-85	5364	65	Wy EH	K-40	180	HB
11-7-85	5364	65	Wy EH	K-40	160	SH
11-12-85	5364	65	Wy EH	K-40	188	HB
11-14-85	7258	20	B/C	P/Moters	165	HB
"	5444	20	Oly	K-40	185	HB
11-15-85	5364	65	Wy EH	K-40	185	SH
11-18-85	5444	20	Oly	K-40	176	SH
"	5444	20	Oly	K-40	176	HB
11-19-85	5444	20	Oly	K-40	176	HB
11-20-85	5444	20	Oly	K-40	186	HB
12-3-85	5364	65	Taylor	K-40	130	SH
"	5444	20	Oly	K-40	150	SH
12-4-85	19669	65	T/C 12030		150	SH+HB
12-6-85	5481	11	Oly	K-40	172	SH
12-8-85	App. 3200	T/C 511	Calif.	K-40	420	SH+HB
12-11-85	App. 5000	T/C 511	K-15-35	T-side	220	SH+HB
12-12-85	5481	11	Oly	K-40	180	SH+HB
12-13-85	5481	11	Oly	K-40	174	SH
12-16-85	5481	11	Oly	K-40	150	HB
"	5481	11	Oly	K-40	150	SH
12-17-85	5481	11	Oly	K-40	150	HB
12-18-85	5481	11	Oly	K-40	145	HB
12-19-85	5481	11	Oly	K-40	140	HB
12-20-85	5364	65	Taylor	K-40	145	HB
"	5481	11	Oly	K-40	148	HB
12-23-85	5481	11	Oly	K-40	150	HB
"	5364	65	Taylor	K-40	170	SH
		Year	end			
1-6-86	5364	65	Taylor	K-40	150	SH
1-7-86	App 5200	T/C 500 RT-8	Am. Tar	K-40	220	SH+HB

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200 BKS. 5-80
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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	Loader
1-8-86	App. 5200	TC500	Am. Tar RT-8	K-40	280	SH+HB
"	5364	65	Wy EH	K-40	180	H+B
1-9-86	5364	65	Wy EH	K-40	180	HB+SH
1-10-86	5364	65	Wy EH	K-40	180	SH+HB
1-11-86	App 5200	TC81747	K-364 Calif	Truck	310	SH+TJ
1-13-86	5364	65	Wy EH	K-40	170	HB
1-14-86	5364	65	Wy EH	K-40	180	HB
1-15-86	5364	65	Wy EH	K-40	190	HB
1-16-86	5638	61	Am Tar	K-40	170	HB
1-17-86	5364	65	Wy EH	K-40	180	HB
1-20-86	5364	65	Wy EH	K-40	150	SHC
1-21-86	5364	65	Wy EH	K-40	170	HB
1-22-86	App. 5100	TC500	Am Tar	K-40	250	HB+SH
1-24-86	5364	65	Wy EH	K-40	170	HB
1-26-86	App 5500	TC89029	Oroville Calif	K-40	170	[illegible]
1-27-86	7151	65	Taylor	Portland Motors	176	HB
"	7151	65	Wy EH	" "	176	SH
1-28-86	App 5500	TC89029	Oroville. Calif	K-40	170	SH+HB
"	7151	65	Wy EH	Portland Motors	180	SH
1-29-86	7151	65	Wy EH	Portland Motors	180	SH
1-30-86	7151	65	Wy EH	Portland Motors	190	SH
1-31-86	App 5500	TC88686	Oroville Calif	K-40	170	SH+HB
2-3-86	App 5200	TC571	Calif	Out-side	500	SH+HB BS
"	5920	4	Calif	K-40	70	SH
2-6-86	5364	65	Wy EH	K-40	176	SH
2-10-86	5964	4-11	Calif	K-40	55	SH
2-12-86	5364	65	Wy EH	K-60	180	[illegible]
2-13-86	5364	65	Wy EH	K-40	180	[illegible]
"	5364	65	Wy EH	K-60	180	[illegible]
2-17-86	5364	65	B/C	K-60	170	SH
"	5364	65	B/C	K-40	170	SH
2-18-86	7151	65	Rec. Chem.	P/Motors	160	[illegible]
2-20-86	5364	65	Wy EH	K-40		[illegible]
"	5364	65	Wy EH	K-60		[illegible]

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Koppers Company, Inc.

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200 BKS. 5-80
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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	Loader
2-24-86	5364	65	Wy EH	K-40	170	HB
"	5364	65	Wy EH	K-60	170	HB
"	5000 App	TC 511	Western Colaide		200	HB K-15-35
"	5364	65	Wy EH	K-60	186	GH
2-25-86	5364	65	Wy EH	K-60	190	GH
2-27-86	5160	17	Am Tar	K-40	180	HB
"	5364	65	Wy EH	K-60	182	GH
"	7151	65	Wy EH	K-40	183	GH
3-2-86	5364	65	BC	K-60	175	HB
3-3-86	5481	11	Oly	K-40	170	GH
3-4-86	App. 5000	T/C 571	Calif Bitumen Truck		540	GH + HB
3-5-86	5364	65	Wy EH	K-60	185	GH
3-6-86	App. 5000	17	Am Tar	K-60	224	GH RT-8
3-7-86	5364	65	Wy EH	K-60	180	GH
3-10-86	5481	11	Oly	K-40	170	HB
"	5481	11	Oly	K-60	170	HB
"	5364	65	Wy EH	K-60	190	GH
3-12-86	5364	65	Wy EH	K-60	186	HB
3-13-86	5638	4	Calif Gr-3	K-60	84	HB
"	5481	11	Oly	K-40	165	HB
"	18,618	4	Calif T/C	12030	84	GH
3-14-86	5364	65	Wy EH	K-40	170	HB
3-17-86	5364	65	Wy EH	K-40	160	HB
"	5364	65	Wy EH	K-60	160	HB
3-18-86	5364	65	Wy EH	K-60	170	HB
"	5481	11	Oly	K-40	164	HB
4-2-86	App. 2500	T/C 586	Calif	K-40	400	GH + HB K-364
4-7-86	5364	65	Taylor	K-60	178	HB
4-10-86	App 5800	TC 87800	P/Wood	K-40	150	HB + GH
"	"	"	P/Wood	K-40	150	HB + GH
4-11-86	App 5800	TC 87800	P/Wood	K-40	130	HB + GH
"	"	TC 79663	P/Wood	K-40	170	"
4-14-86	5364	65	Taylor	K-40	174	HB
4-16-86	5481	11	Oly	K-40	166	HB
4-17-86	5481	11	Oly	K-40	152	HB
4-18-86	5364	65	Taylor	K-40	162	HB

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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	Loade	
4-21-86	5481	11	Oly	K-40	164	HB	
4-22-86	App 5200	Tc 586	Calif.	K-40	330	HB, PL	K-15-35
4-28-86	5481	11	Oly	K-40	140	HB	Gr-1
4-29-86	5481	11	Oly	K-40	170	HB	Gr-1
"	5364	65	Wy EH	K-40	174	HB	Gr-3
4-30-86	5481	11	P/wood	K-60	180	HB	Gr-1
"	5481	11	P/wood	K-60	195	HB	Gr-1
"	5364	65	Wy EH	K-40	184	HB	Gr-3
5-1-86	5481	11	P/wood	K-60	186	HB	Gr-1
"	5481	11	P/wood	K-60	182	GH	Gr-1
"	5364	65	Wy EH	K-40	200	GN	Gr-3
5-5-86	5364	65	Wy EH	K-40	170	JJ	Gr-3
"	6743	34	P/wood Port. Motor		60	GH	Solvent
5-6-86	5364	65	Wy EH	K-40	170	GH	Gr-3
5-7-86	App 5200	Tc 87745	Am Tar	K-40	220	GH	RT-8
"	7151	65	Wy EH	P/Motors	155	HB	Gr-3
"	7151	65	Wy EH	P/Motors	155	HB	Gr-3
5-8-86	5364	65	Wy EH	K-40	150	GH	Gr-3
"	7151	65	Wy EH	P. Motors	150	GH	Gr-3
"	5364	65	Wy EH	K-60	150	GH	Gr-3
5-9-86	5364	65	Wy EH	K-40	150	GN	Gr-3
5-12-86	5364	65	Wy EH	K-60	130	GH	Gr-3
5-13-86	5920	4	Calif	K-40	60	GH	Gr-1
5-14-86	5364	65	BC	K-60	156	GH	Gr-3
5-18-86	3900 App	Tc 586	W. Collide		400	HB, JS	K-364
5-19-86	11,620	65	BC	K-40	176	HB	Gr-3
"				K-60	176	HB	
5-23-86	App 5300 gal	Tc 586	Calif.	K-60	380	HB, GH	K-364
5-28-86	App 5300 gal	Tc 87745	Am Tar	K-40	200	HB, GH	RT-8
6-2-86	5364	65	Wy EH	K-60	175	HB	
"	6258	65	Wy EH	K-40	175	HB	
6-3-86	5364	65	Wy EH	K-60	180	GH	Gr-3
"	5364	65	Wy EH	K-40	180	GH	Gr-3
6-4-86	6258	65	Wy EH	K-40	176	GH	Gr-3
"	5364	65	Wy EH	K-60	176	GH	Gr-3

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	Loader
6-5-86	5364	65	Wy EH	60	180	GH
"	5364	65	Wy EH	40	180	GH
6-9-86	App 5000	T/C 586	Seattle	40	290	GH K-364
"	5364	65	B.C.	60	170	T.J.
"	5364	65	Wy EH	40	170	TJ
6-10-86	5364	65	B.C	60	170	GH
"	5364	65	B.C.	40	170	GH
6-16-86	5364	65	B.C.	60	160	GH
6-20-86	App 5200	T/C 87744	Tacoma	60	300	GH K-364
6-23-86	App. 3000	T/C 87744	Calif	40	400	GH K-364
6-27-86	App 18,000	4	T/C 12030	Stay + Day	92	GH
6-30-86	5364	65	Wy EH	40	174	GH
"	5364	65	Wy EH	60	174	GH
7-1-86	5364	65	Wy EH	40	170	GH
"	5364	65	Wy EH	60	170	GH
7-2-86	5364	65	Wy EH	40	164	GH
"	5364	65	Wy EH	60	164	GH
7-8-86	5364	65	Wy EH	40	170	HB
"	5364	65	Wy EH	60	170	HB
"	3800 App	T/C 87744	W. Colloide	[illegible]	400	HB + GH K-3[illegible]
7-9-86	6257	65	Wy EH	40	180	HB
"	5364	65	Wy EH	60	180	HB
7-10-86	5364	65	P/wood	40	174	HB
"	5364	65	Wy EH	60	174	HB
"	5364	65	P/wood	40	174	GH
7-11-86	5364	65	Wy EH	60	180	HB
7-14-86	3800 App	T/C 87744	W Colloid		400	HB + GH
7-15-86	750 App	T/C 98663	Mc + Bar	40	[illegible]	HB + GH
"	6258	65	B.C.	40	186	GH
"	5364	65	B.C.	60	190	HB
7-21-86	5364	65	BC	60	174	GH
8-4-86	5364	65	Wy. EH.	60	160	HB
"	5364	65	Wy EH	40	160	HB
8-5-86	5364	65	Wy EH	40	186	HB
"	5364	65	Wy EH	60	18[illegible]	HB

Organic Materials Group
Koppers Company, Inc.

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T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

DATE	GALLONS	From	Customer	Truck	Temp.	Loader
8-6-86	5364	65	Wy EH	K-40	186	NB
"	5364	65	Wy EH	K-60	186	NB
8-7-86	5364	65	Wy EH	K-40	180	NB
"	5364	65	Taylor	K-60	180	HB
"	5364	65	Taylor	K-60	180	SH
8-8-86	5364	65	Wy EH	K-40	170	NB
"	5364	65	Bakersfield Ca	K-60	180	NB
8-11-86	5364	65	Wy Seattle	K-60	196	SH
8-12-86	5481	11	Wy. Sea.	K-40	194	NB SK-1
"	5481	11	Wy Sea	K-60	194	NB "
8-13-86	5481	11	Wy Sea	K-40	192	NB "
	5481	11	Wy Sea.	K-60	192	NB "
8-14-86	5638	4	Fasco, Ca	K-40	75	NB
"	3800 App	Tc 564	W Colaide		340	NB + SH K-364
8-15-86	5200 App.	Tc 87744	Tacoma	K-60	340	NB + SH K-364
8-16-86	5364	65	Taylor	K-60	178	HB
8-18-86	5364	65	Wy EH	K-60	180	SH
"	5364	65	Wy EH	K-40	180	SH
"	5200 App	Tc 87744	West Colo. As		330	SH + TJ K-364
"	5481	11	Wy Sea.	K-40	190	NB
"	5481	11	Wy Sea.	K-60	190	NB
8-19-86	5481	11	Wy Sea	K-60	188	SH
"	5481	11	Wy Sea	K-40	188	SH
"	5481	11	Wy Sea.	K-40	186	NB
"	5481	11	Wy Sea.	K-60	186	NB
8-20-86	5481	11	Wy Sea	K-60	184	SH
"	5481	11	Wy Sea	K-40	180	NB
"	5481	11	Wy Sea	K-60	180	NB
8-21-86	5481	11	Wy Sea	K-40	174	SH
"	5364	65	Taylor	K-60	180	SH
"	5481	11	Wy Sea	K-60	170	NB
"	5481	11	Wy Sea	K-40	170	NB
8-22-86	5481	11	Wy Sea	K-60	162	SH
"	5481	11	Wy Sea	K-40	162	SH
"	5481	11	Wy Sea	K-40	200	NB
"	5481	11	Wy Sea	K-60	200	NB

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6-71-T
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	Loader
8-23-86	App. 5400	T/C 79664 79663 +	P/wood	K-40	180	HB + GH
"	" 5400		P/wood	K-60	180	HB + GH
"	" 5400		P/wood	K-40	180	HB + GH
"	" 5400		P/wood	K-60	180	HB + GH
"	" 5400		P/wood	K-40	180	HB + GH
"	" 5400		P/wood	K-60	180	HB
8-25-86	5481	11	Wy sea	K-40	150	GH
"	5481	11	Wy sea	K-60	150	GH
"	App 3800	T/C 87745	Western	Collod	330	GH + HB
"	5481	11	Wy sea	K-60	150	HB
"	5481	11	Wy sea	K-40	150	HB
8-26-86	5481	11	Wy sea	K-40	130	GH
"	5364	65	P/wood	K-60	180	GH
"	5364	65	P/wood	K-60	180	GH
8-27-86	5364	65	P/wood	K-60	176	GH
"	5364	65	P/wood	K-40	176	GH
"	5364	65	P/wood	K-60	176	GH
"	5364	65	P/wood	K-40	176	GH
9-2-86	5364	65	Wy sea	K-60	150	HB
"	5364	65	Wy sea	K-60	160	GH
9-3-86	5364	65	Wy sea	K-60	160	HB
"	5698	99	McBax	K-40	166	HB
"	5364	65	Wy EH	K-40	176	HB
"	5364	65	Wy EH	K-60	178	HB
9-5-86	5364	65	Wy sea	K-60	178	HB
"	5364	65	Wy sea	K-40	178	HB
9-8-86	5364	65	McBax	K-60	155	HB
"	5364	65	Wy sea	K-40	155	HB
"	5364	65	Wy sea	K-60	156	HB
9-9-86	5364	65	Wy sea	K-40	180	HB
"	5364	65	Wy sea	K-60	180	HB
9-16-86	5481	11	Wy EH	K-60	165	GH + HB
"	5481	11	Wy EH	K-40	165	GH + HB
9-17-86	5481	11	Wy EH	K-60	170	GH

Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	Loader
9-18-86	5481	11	Mc Bax	40	170	SH
"	5481	11	Mc Bax	40	175	SH
"	5481	11	Wy EH	40	180	SH
"	5481	11	Wy EH	60	185	SH
9-22-86	5481	11	Wy EH	40	164	SH
"	App. 5200	586	West Coloide	60	240	SH+HB 15-35
9-23-86	5036	TC 586	" "	P-Motors	240	HB TJ
"	5324	TC 87047	" "	P Motors	225	HB+TJ
9-26-86	5481	11	Taylor	40	178	SH
9-29	4800 app	TC 87345	W Coloide		315	HB+SH
10-1-86	5481	11	Taylor	40	180	HB
10-2-86	5481	11	Oly	40	182	SH
10-6-86	5120	TC 56368	Mc Bax	40	150	HB
"	5481	11	Wy EH	40	176	HB
10-8-86	5208 app	TC 586	Am Tar	40	300	HB+TJ RTS
10-9-86	5481	11	Wy EH	40	180	HB
10-10-86	5481	11	P. Wood Calif	40	190	HB
"	7047	11	Mc Bax	P Motors	190	HB
"	7047	11	Mc Bax	P Motors	190	HB
"	7047	11	Mc Bax	P Motor	190	TJ
10-13-86	5481	11	Wy EH	K-40	170	SH
10-14-86	5481	11	Wy EH	40	160	SH
10-15-86	5481	11	Wy EH	40	170	SH
10-16-86	App. 5400	TC 586	Am. Tar	40	220	SH+HB RTS
10-17-86	5481	11	Wy EH	40	178	SH
10-20-86	5481	TC 223145	P/wood	40	120	SH+TJ Clean
"	5481	223145	P/wood	40	165	SH+TJ Clean
10-21-86	5481	11	Wy EH	40	188	SH
"	5481	11	Wy EH	40	184	HB
10-22-86	5481	11	Wy EH	40	176	HB
10-23-86	5481	11	Wy EH	40	170	SH
10-27-86	5481	11	Wy EH	40	146	HB
10-28-86	5481	11	Wy EH	40	156	HB
11-3-86	2450 app	TC 586	Calif	40	325	HB+TJ

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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallon	From	Customer	Truck	Temp	Loader
11-4-86	7047	11	Wy EH	P/Motors	174	HB
"	7047	11	Wy EH	P/Motors	176	HB
11-7-86	5481	11	Wy EH	K-40	174	HB
11-11-86	5481	11	Wy EH	K-40	160	GH
11-12-86	5481	11	Wy EH	K-40	170	GH
11-13-86	5481	11	Wy EH	K-40	182	GH
11-14-86	5481	11	Wy EH	K-40	192	GH
11-17-86	5481	11	Wy EH	K-40	160	GH
11-18-86	5481	11	Wy EH	K-40	178	GH
11-19-86	5481	11	B.C.	K-40	188	GH
12-3-86	App 800	67	Mc+Bax	K-40	150	GH+HB
12-4-86	5481	11	Wy EH	K-40	155	HB
"	6264	11	Wy EH	P/Motors	160	HB
12-5-86		Tc 93732	Calif.	K-40	190	HB+GH
"		Tc 93732	"	P/Motors	190	GH
"		Tc 93732	"	P/Motors	190	GH
12-8-86	5481	11	Wy EH	K-40	150	GH
12-9-86	5481	11	Wy EH	K-40	174	GH
12-10-86	5481	11	Wy EH	K-40	180	GH
12-16-86	5481	11	Wy EH	K-40	168	GH
12-17-86	5481	11	Wy EH	K-40	170	GH
12-18-86	6351	20	Wy EH	K-40	174	GH
12-19-86	5444	20	Wy EH	K-40	168	GH
12-22-86	5444	20	Wy EH	K-40	150	GH
12-30-86	5758	67	P/wood	K-40	100	GH
"	5758	67	P/wood	K-40	135	GH
12-31-86	5758	67	P/wood	K-40	120	GH
"	6046	67	P/wood	K-40	130	GH
"	6046	67	P/wood	K-40	145	TJ
"	6046	67	P/wood	K-40	150	TJ
"	6046	67	P/wood	K-40	155	TJ
1-6-87	4606	67	P/wood	K-40	95	HB
1-7-87	5758	67	P/wood	K-40	150	[illegible]
"	5758	67	P/wood	K-40	150	[illegible]
1-8-87	App 5300	17	Am. Tar	K-40	170	[illegible]

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Koppers Company, Inc.

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T-170 REV. 6
200 BKS. 8-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From Tank	Customer	Truck	Temp	Loader
1-9-87	7258	T-20	Dome Inv	P/Moter	194	HB
1-12-87	5444	T-20	Wy EH	K-40	170	HB
"	7258	20	Wy EH	P/Moter	170	HB
"	7258	20	Dome Inv	P/Moters	175	HB
1-13-87	5444	20	Wy EH	K-40	175	HB
"	7258	20	Wy EH	P/Moters	175	HB
1-14-87	5444	20	Wy EH	K-40	185	HB
1-15-87	5444	20	Wy EH	K-40	188	HB
1-16-87	5444	20	Wy EH	K-40	180	HB
"	5934	67	Plwood	K-40	150	GH Mon End
1-19-87	5444	20	Wy EH	K-40	176	GH
1-20-87	5444	20	Wy EH	K-40	184	GH
1-21-87	5444	20	Wy EH	K-40	190	HB
1-22-87	6046	67	Calif.	K-40	40	HB Gr-1
1-26-87	5934	67 + TC 706	Tacoma	K-40	100	GH + HB
1-27-87	5444	20	Taylor	K-40	164	GH
"	App 5200	Tc 87745	Calif.	K-40	230	HB + GH K-15-35
2-4-87	App 5200	TC 511	Am Tar	K-40	200	HB RT-8
2-5-87	5898	T-20	Wy EH	K-40	195	HB
"	5898	T-20	Taylor	K-40	186	GH
2-6-87	5898	T-20	Wy EH	K-40	182	HB
"	5898	T-20	Wy EH	K-40	182	GH
2-9-87	5898	T-20	Wy EH	K-40	170	HB
2-10-87	5898	T-20	Wy EH	K-40	165	HB
2-11-87	5898	T-20	Wy EH	K-40	160	HB
2-12-87	5898	T-20	Wy EH	K-40	175	HB
2-13-87	5898	T-20	Wy EH	K-40	170	HB
2-17-87	5890	T-20	Wy EH	K-40	164	GH
2-18-87	5890	T-20	Wy EH	K-40	174	GH
2-19-87	5890	T-20	Wy EH	K-40	188	GH
2-20-87	5891	T-20	Wy EH	K-40	186	GH
2-24-87	5891	T-20	Taylor	K-40	166	GH
"	App 5700	Kpcx 706	Tacoma	K-40	140	GH + HB
2-25-87	App 5700	Kpcx 706	Tacoma	K-40	160	GH
2-26-87	App 5700	Tc 88674	Plwood	K-40	170	GH + HB
2-27-87	App 5700	Tc 88674	Plwood	K-40	164	GH

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6-77-T
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	Loader
2-27-87	App. 5700	T/C 88674	Plywood	K-40	190	EH
3-6-87	5898	T-20	Taylor	K-40	180	HB
3-9-87	5898	T-20	Wy EH	K-40	175	HB
3-10-87	5898	T-20	Taylor	K-40	184	HB
"	5898	T-20	Wy EH	K-40	184	EH
3-11-87	5898	T-20	Wy EH	K-40	178	EH
3-12-87	5898	T-20	Wy EH	K-40	177	[illegible]
3-13-87	5898	T-20	Taylor	K-40	178	[illegible]
3-15-87	5900	T/C 873191	Calif	P/Motor	175	[illegible]
3-16-87	5898	T-20	Wy EH	K-40	182	[illegible]
3-16-87	5898	T-20	Wy EH	K-40	182	EH
3-17-87	5898	T-20	Wy EH	K-40	178	EH
3-18-87	5898	T-20	Wy EH	K-40	182	[illegible]
3-19-87	5898	T-20	Calif	Outside	180	EH
"	5898	T-20	Wy EH	K-40	180	EH
3-20-87	5898	T-20	Calif	K-40	188	[illegible]
3-24-87	5898	T-20	Wy EH	K-40	195	EH
3-25-87	5898	T-20	Wy EH	K-40	195	EH
3-26-87	5444	T-20	Calif	Dump truck	184	HB
"	5898	T-20	Wy EH	K-40	184	EH
4-6-87	6371	T-20	Wy EH	P/Motors	170	EH
"	2500 K-364	T/C 87744	Calif	K-40	410	HB
4-7-87	7618	T-33	Wy EH	P/T Motor	150	EH
4-8-87	3896 K-364	T/C 87744	West Coast		350	EH+HB
4-9-87	5554	T-33	Wy EH	K-40	200	EH
4-13-87	5898	T-20	Wy EH	K-40	160	EH
"	3893 K-364	T/C 87744	Calif	West Coast	375	EH+HB
4-14-87	5898	T-20	Wy EH	K-40	178	EH
"	App. 5000 K-364	T/C 87744	Calif	K-50	400	HB
4-15-87	5165 RT-8	T/C 511	Am. Tar	K-40	150	EH+HB
"	5898	T-20	Wy EH	K-40	200	HB
4-16-87	5898	T-20	Wy EH	K-40	194	EH
"	5758	T-67	Plywood	K-30	150	TJ
4-20-87	5898	T-20	Wy EH	K-40	184	HB
"	5038	T-67	Plywood	K-30	160	EH

Month End

Organic Materials Group
Koppers Company, Inc.

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T-170 REV. 6-77
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	By
4-21-87	5444	20	Wy. EH.	K-30	180	[illegible]
"	5898	20	Wy EH	K-40	180	[illegible]
5-6-87	App. 5800	223145	P/wood	K-40	165	G H
"	App 5800	223145	P/wood	K-40	170	G H
5-11-87	5898	20	Wy EH	K-40	182	G H
5-12-87	5898	20	Wy EH	K-40	180	G H
"	App 5000	T/C 87749	Tacoma	K-30	230 K-364	G H
5-13-87	5898	20	Wy EH	K-40	174	G H
"	App 5000	T/C 87749	Tacoma	K-30	230	G H K-364
"	5898	20	Wy EH	K-40	174	H B
5-14-87	App 5000	T/C 87749	Tacoma	K-30	244	G H K-364
"	5444	20	Wy EH	K-30	190	[illegible]
5-26-87	5326	67	P/wood	K-30	140	G H
"	5758	67	P/wood	K-30	160	[illegible]
6-4-87	5444	20	Wy EH	K-40	180	G H
6-5-87	5444	20	Taylor	P/Moters	184	[illegible]
6-8-87	5444	20	Wy EH	K-40	180	G H
"	5444	20	Wy EH	K-40	184	[illegible]
6-9-87	5444	20	Wy EH	K-40	180	[illegible]
6-10-87	5444	20	Wy EH	K-40	174	[illegible]
6-15-87	5444	20	Taylor	K-30	180	[illegible]
"	5444	20	Taylor	K-30	176	[illegible]
6-17-87	App 5000	Tc 586	Tacoma	K-30	235	[illegible]
"	5444	20	Wy EH	K-30	185	[illegible]
6-18-87	5444	20	Wy EH	K-30	192	G H
6-22-87	App 3800	Tc 586	W. Cobside		375 K-364	[illegible]
6-25-87	App 3800	Tc 586	Tacoma	K-30	220	[illegible]
7-6-87	5444	20	Taylor	K-40	170	[illegible]
7-10-87	5444	20	Taylor	K-40	185	[illegible]
7-16-87	5444	20	Taylor	K-40	170	[illegible]
7-28-87	5444	20	B C	K-40	170	G H
7-29-87	App. 5000	17	Am. Tar.	K-30	170 RT-8	G H
7-30-87	App. 5000	17	Am. Tar	K-30	175 RT-8	G H
"	5472	67	Calif	K-40	172	[illegible]
8-3-87	5444	20	Wy Sea	K-30	190	G H
"	5444	20	Wy Sea	K-40	190	G H

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Koppers Company, Inc.

T-170 REV 6-81
200 BKS 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	Loader
8-4-87	5444	20	Wy Sea	40	190	GH
"	5444	20	Wy Sea	30	190	GH
8-5-87	5444	20	Wy Sea	40	184	GH
"	5444	20	Wy Sea	30	184	GH
"	5444	20	Wy E.H.	40	182	HB
"	5444	20	Wy Sea	30	182	HB
8-6-87	5470	67	Cal. F.	30	160	GH
"	5444	20	Wy EH	40	170	GH
8-7-87	5444	20	Wy Sea	40	184	GH
8-10-87	5444	20	Wy EH	30	180	GH
"	5444	20	Wy Sea	40	180	GH
8-11-87	5444	20	Wy EH	40	184	GH
"	5444	20	Wy Sea	30	184	GH
8-12-87	5444	20	Wy EH	40	180	GH
"	5444	20	Wy Sea	30	180	GH
8-13-87	5444	20	Wy EH	40	178	GH
"	5444	20	Wy Sea	30	178	GH
8-14-87	5444	20	Wy Sea	40	172	GH
"	5444	20	Wy Sea	30	172	GH
8-17-87	5444	20	Wy Sea	40	178	HB
8-24-87	5444	20	Wy Sea	30	200	HB
8-26-87	5444	20	Taylor	40	195	HB
8-27-87	5444	20	Wy Sea	40	192	HB
"	5444	20	Wy Sea	30	192	
8-28-87				K30	185	
"	[illegible]	TC 93/93	Pacific Wood	40	186	HB
"	20,191			30	210	
"				4	210	
9-1-87	5444	20	Wy Sea	30	180	GH
"	5444	20	Taylor	40	180	GH
9-2-87	5444	20	Wy Sea	30	165	GH
"	App. 5000	223145	P/wood	40	170	HB
"	App. 5000	223145	P/wood	40	200	GH
9-3-87	App. 5000	223145	P/wood	40	180	HB
"	App. 5000	TC 547	Am. Tar.	30	240	GH K-34

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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	Loader
9-3-87	App 2500	223145	P/wood	40	215	SH
"	5444	20	Wy Sea	40	180	SH
9-4-87	5444	20	Wy Sea	30	180	SH
9-7-87	App 5444	TC 88674	Calif	40	200	TJ
"	App 5444		Calif	30	200	TJ
9-9-87	6500	67	P/wood	P/M	170	SH
9-10-87	5444	67	P/wood	40	170	SH
"	5444	20	Wy Sea	K-30	190	SH
"	5729	223039	P/wood	K40	200	SH
"	5444	20	Wy Sea	K-40	200	SH
9-11-87	5444	20	Wy Sea	K-30	200	SH
"	5444	20	B.C.	K-30	200	SH
9-14-87	5444	20	Wy Sea	K-40	160	SH
9-15-87	5444	20	Wy Sea	K-30	172	HB
"	5444	20	Wy Sea	K-40	168	HB
9-16-87	5444	20	Wy Sea	K-30	190	[illegible]
"	5444	20	" "	K-40	190	[illegible]
9-17-87	5444	20	" "	K-30	180	[illegible]
"	5444	20	" "	K-40	180	[illegible]
9-21-87	2500	TC 547	W. Colloid		280	[illegible]
9-24-87	5500 App	TC 223159	P Wood	K-30	180	[illegible]
"	5500 App	"	"	"	210	[illegible]
9-28-87	5269	TC 704	Calif	K-30	180	[illegible]
"	5691	TC 704	Calif	K-40	180	[illegible]
9-29-87	7392	20	Wy EH P	Motors	190	[illegible]
"	6870	20	Wy EH P	Motors	190	[illegible]
9-30-87	5444	20	Wy EH	30	215	[illegible]
"	5444	20	Wy EH	40	215	[illegible]
10-2-87	5444	20	Wy EH	30	200	[illegible]
"	5444	20	Wy EH	40	200	[illegible]
10-5-87	2480	TC 540	Calif	40	310	[illegible]
10-6-87	App 4900	17	Am. Tar	30	200	[illegible]
10-7-87	" 4800	17	" "	30	190	[illegible]
10-8-87	" 4700	TC 540	Cascad As.	30	250	[illegible]
10-9-87	5444	20	Wy Sea	30	180	[illegible]

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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	Loader
10-13-87	5444	20	Wy Sea	30	185	HB
"	5444	20	"	40	185	HB
10-14-87	5444	20	"	30	190	HB
"	5444	20	"	40	190	HB
10-15-87	5444	20	Wy Sea	40	190	HB
"	5444	20	"	30	190	HB
10-16-87	5444	20	Wy Sea	40	180	HB
"	5444	20	" "	30	180	HB
10-19-87	5444	20	Wy Sea	40	160	GH
"	5256	223007	P/wood	30	170	HB
"	5277		P/wood	30	175	GH
10-20-87	5444	20	Wy Sea	30	160	GH
10-21-87	5444	20	Wy Sea	40	170	GH
"	5444	20	Wy Sea	30	170	GH
10-22-87	5715	Tc 88674	Oreville	40	180	GH + HB
"	5273	"	"	30	180	GH + HB
10-26-87	5444	20	Wy Sea	40	160	GH
"	5258	88674	Mc Bax	30	135	GH
"	5219	"	Mc Bax	30	180	GH
"	5444	20	Wy Sea	30	160	GH
10-27-87	5444	20	Wy Sea	40	160	GH
"	5444	20	Wy Sea	30	196	HB
10-28-87	5444	20	Wy Sea	40	192	GH
10-29-87	5444	20	Wy Sea	40	190	GH
"		223191	Mc Bax	30	170	GH
"		223191	Mc Bax	30	205	GH
"	5444	20	Wy Sea	30	200	GH
10-30-87	5444	20	Wy Sea	40	170	GH
11-2-87	5444	20	Wy Sea	40	170	[illegible]
	5444	20	Wy Sea	30	170	[illegible]
11-3-87	5444	20	Wy Sea	40	180	[illegible]
	5444	20	Wy Sea	30	180	[illegible]
11-4-87	5444	20	Wy Sea	30	190	[illegible]
"	HP 5138	Tc 586	Cklif	40	220	[illegible]
11-5-87	5444	20	Wy Sea	30	[illegible]	[illegible]
11-6-87	5444	20	Wy Sea	30	[illegible]	[illegible]

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LOCATION _____ DATE _____ BY _____

SUBJECT _____

DATE	GALLONS	FROM	CUSTOMER	TRUCK	TEMP	LOADER
11-9-87	5444	20	Wy Sea	K-40	170	HB
"	5200	Tc 223191	Mc-BAX	K-30	120	HB
"	5200	Tc 706	" "	K-30	170	HB
11-10-87	5444	20	Wy Sea	K-40	175	HB
"	5100	Tc 586	CALIF	K-30	290	HB
11-11-87	5444	20	Wy Sea	K-40	182	HB
11-12-87	5444	20	Wy Sea	K-40	186	HB
11-16-87	5444	20	Wy Sea	K-30	170	GH
"	5444	20	Wy Sea	K-40	170	GH
11-17-87	5444	20	Wy Sea	K-30	170	GH
11-19-87	5292	Kebx	Mc Bax	K-30	185	GH
"	5295	108	P/wood	K-40	185	GH
"	5721		Mc Bax	K-30	185	GH
"	5736	Kpex 706	P/wood	K-40	175	GH
11-24-87	5444	20	Wy Sea	K-30	180	GH
11-25-87	5308		Mc Bax	K-30	180	GH
"	5738	Tc 706	P/wood	K-40	180	GH + HB
"	5336	103	Mc Bax	K-30	180	GH + HB
"	5717		P/wood	K-40	180	GH + HB
"	6361	20	Wy Sea	P. Motor	200	GH + HB
"	6361	20	Wy Sea	P. Motor	200	GH + HB
11-30-87	5444	20	Wy EH	K-40	180	HB
"	5444	20	Wy EH	K-30	180	HB
12-1-87	5444	20	Wy EH	K-40	190	HB
"	5444	20	Wy EH	K-30	190	HB
12-2-87	5444	20	Wy EH	K-40	200	HB
"	App 5200	Tc 899[illegible]4	Mc Bax	K-30	150	HB + GH
"	5200	"	Mc Bax	K-30	170	HB
"	5200	"	Mc Bax	K-30	170	HB
12-3-87	5444	20	Wy EH	K-40	200	HB
"	5444	20	Wy EH	K-30	200	HB
12-4-87	5444	20	Wy Sea	K-40	195	HB
"	5444	20	Wy Sea	K-30	195	HB
12-7-87	5444	20	Wy Sea	K-40	180	HB
"	5444	20	Wy Sea	K-30	180	HB

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LOCATION _____ DATE _____ BY _____

SUBJECT

Date	Gallon	From	Customer	T-T	Temp	Loader
12-8-87	5444	20	Wy Sea	K-40	175	[illegible]
"	5444	20	Wy Sea	K-30	175	[illegible]
12-9-87	5444	20	Wy Sea	K-40	180	[illegible]
	5444	20	Wy Sea	K-30	180	[illegible]
12-10-87	5444	20	Wy Sea	K-40	180	[illegible]
"	5444	20	Wy Sea	K-30	180	[illegible]
12-15-87	5600 app	Tc 93193	Mc Bax	K-40	140	[illegible]
"	5640 App	Tc 93193	Mc Bax	K-40	160	[illegible]
12-16-87	5444	20	Taylor	K-40	200	[illegible]
12-21-87	5444	20	Wy Sea	K-40	175	[illegible]
"	5444	20	Taylor	K-30	175	[illegible]
12-22-87	5444	20	Wy Sea	K-40	180	[illegible]
"	App 5600	93193	Mc Bax	K-30	155	[illegible]
"	App 5600	93193	Mc Bax	K-30	180	[illegible]
"	App 5600	223190	Mc Bax	K-30	180	[illegible]
"	5444	20	Wy Sea	K-30	190	[illegible]
12-23-87	5444	20	Wy Sea	K-40	185	[illegible]
12-28-87	5444	20	Wy Sea	K-40	160	[illegible]
12-29	App 5400	Tc 89029	Mc Bax	K-40	185	[illegible]
1-4-88	5444	20	Wy EH	K-30	155	[illegible]
"	5444	20	Mc Bax	K-40	160	[illegible]
"	5444	20	Mc Bax	K-40	165	[illegible]
1-5-88	5444	20	Wy EH	K-30	192	[illegible]
"	5444	20	Mc Bax	K-40	192	[illegible]
"	App 5560	Tc 89029	Mc Bax	K-40	180	[illegible]
1-5-88	App 5100	Tc 89029	Mc Bax	K-40	190	[illegible]
12-28-87	5687	Tc 88601	Mc Bax	K-30	160	[illegible]
"	5742	88601	Mc Bax	K-30	170	[illegible]
"	5641	88601	Mc Bax	K-30	190	[illegible]
1-6-88	5444	20	Wy EH	K-40	195	[illegible]
"	Tc 4900	Tc 586	W. Colorado	K-30	250	[illegible]
1-7-88	5310.100°	Tc 542	Am Tar	K-40	200	[illegible]
1-8-88	5444	20	Wy EH	K-40	180	[illegible]
1-11-88	5444	20	Wy Sea	K-40	160	[illegible]
"	5444	20	Wy Sea	K-30	160	[illegible]

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LOCATION _____ DATE _____ BY _____

SUBJECT

Date	Gallons From	Temp	Customer	T-T	Loader
1-12-88	5444	20	178 Wy Sea	K-40	D H
1-12-88	App 5600	T/C 108	180 Mc Bax	K-30	D H
"	App 5600	T/C 108	190 Mc Bax	K-30	D H
1-13-88	5444	20	192 Wy Sea	K-40	D H
" RT-8	App 5000	T/C 547	190 Am. Tar	K-30	D H HB
1-14-88	5444	20	190 Wy Sea	K-40	D H
"	5444	20	190 Wy Sea	K-30	D H
1-15-88	5444	20	186 Wy Sea	K-40	D H
"	5444	20	186 Wy Sea	K-30	D H
1-18-88	5444	20	165 Wy Sea	K-40	D H
"	5444	20	165 Wy Sea	K-30	D H
1-19-88	5444	20	180 Wy Sea	K-40	D H
"	5444	20	180 Wy Sea	K-30	D H
1-20-88	5444	20	178 Wy Sea	K-40	D H
"	5444	20	178 Wy Sea	K-30	D H
1-21-88	5444	20	170 Wy EH	K-40	D H
"	5444	20	170 Wy Sea	K-30	D H
1-22-88	5444	20	176 Wy EH	K-40	D H
"	5444	20	176 Wy EH	K-30	D H
1-25-88	5444	20	174 Wy EH	K-40	[illegible]
"	5444	20	174 Wy EH	K-30	[illegible]
1-26-88	5444	20	190 Wy EH	K-30	[illegible]
"	5444	20	190 Wy EH	K-40	[illegible]
1-27-88	5444	20	180 Wy EH	K-30	[illegible]
"	5444	20	180 Wy EH	K-40	[illegible]
1-28-88	5444	20	170 Wy EH	K-40	HB
2-1-88	5444	20	148 Wy Sea	K-30	[illegible]
"	5444	20	150 Wy Sea	K-40	D H
2-2-88	5444	20	166 Wy Sea	K-40	HB
"	5444	20	166 Wy Sea	K-30	HB
2-3-88	5609	67/68	160 Wy Sea	K-40	[illegible]
"	5609	67/68	160 Wy Sea	K-30	[illegible]
2-4-88	5609	68	170 Taylor	K-40	[illegible]
"	5609	68	170 Wy Sea	K-30	[illegible]
2-5-88	5609	68	180 Wy Sea	K-40	[illegible]
"	4904	68	180 Wy Sea	K-30	[illegible]

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Koppers Company, Inc.

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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	Loader
2-8-88	5605	68	Wy EH	40	170	SH
"	5605	68	Wy Sea	30	170	SH
2-9-88	5605	68	Wy EH	40	170	SH
"	5605	68	Wy EH	30	170	SH
2-10-88	5605	68	Wy EH	40	176	SH
"	5605	68	Wy EH	30	176	SH
2-11-88	5605	68	Wy EH	40	180	SH
"	5605	68	Wy EH	30	180	SH
2-12-88	5605	68	Wy EH	40	174	SH
"	5605	68	Wy EH	30	174	SH
2-16-88	5605	68	Wy Sea	30	150	SH
"	6306	68	Wy EH	P Motors	150	SH
"	6306	68	Wy EH	P Motors	150	SH
2-17-88	5605	68	Wy Sea	40	170	HB
"	5605	68	Wy Sea	30	170	HB
2-18-88	5605	68	Wy Sea	30	170	HH
2-19-88	App 5000	Tc 87745	Am Tar	30	205	MC
2-22-88	5605	68	Mc Bax	40	150	SH
2-24-88	App 5000	Tc 87745	Am Tar	30	220	HB
"	App 5600	Tc 108	Mc Bax	40	180	SH
"	App 5600	Tc 223145	Mc Bax	40	200	SH
"	App 5600	223145	Mc Bax	40	205	SH
"	App 4000	223145	Mc Bax	40	205	TJ
2-29-88	5605	68	Taylor	30	175	MB
"	5605	68	Wy Sea	30	195	[illegible]
3-1-88	5605	68	Mc Bax	40	180	SH
"	5605	68	Mc Bax	40	180	SH
"	5605	68	Mc Bax	40	180	SH
"	5605	68	Wy Sea	30	180	SH
"	5605	68	Wy Sea	40	180	SH
3-2-88	5605	68	Wy Sea	30	190	SH
3-3-88	5470	67	Mc Bax	40	170	SH
"	5470	67	Mc Bax	40	170	SH
"	5605	68	Wy Sea	40	190	SH
"	5605	68	Wy Sea	30	190	SH

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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	Gallons	From	Customer	Truck	Temp	Loader
3-7-88	5605	68	Wy Sea	40	160	GH
"	5605	68	Wy Sea	30	160	GH
3-8-88	5605	68	Wy Sea	40	180	GH
"	5605	68	Wy Sea	30	180	GH
3-9-88	6046	67	Mc Bax	30	130	GH
"	5605	68	Mc Bax	30	165	GH
"	5605	68	Mc Bax	40	165	GH
3-14-88	5605	68	Wy EH	40	150	GH
"	5605	68	Wy Sea	30	150	GH
3-15-88	5605	68	Wy EH	40	170	GH
"	5605	68	Wy Sea	30	170	GH
3-16-88	5605	68	Wy EH	40	176	GH
"	5605	68	Wy EH	30	176	GH
3-17-88	5605	68	Wy EH	30	150	GH
3-25-88	5758	67	Mc Bax	30	180	HB
"	5758	67	Mc Bax	30	180	HB
"	5758	67	Mc Bax	30	180	HB
3-28-88	5307	7075164	Taylor	30	150	HB
3-29-88	5605	68	Dome Tar	30	190	[illegible]
"	5605	68	" "	40	180	[illegible]
4-1-88	5470	67	Mc Bax	30	185	TL
"	5470	67	Mc Bax	30	200	TL
"	5470	67	Mc Bax	30	195	TL
4-4-88	5605	68	Wy EH	40	176	GH
"	5605	68	Wy Sea	30	176	GH
4-5-88	5955	68	Wy EH	40	185	GH
"	5955	68	Wy Sea	30	185	GH
4-6-88	5955	68	Wy EH	40	188	GH
"	5,955	68	Wy EH	30	188	GH
4-7-88	5955	68	Wy Sea	30	184	GH
"	5470	67	Mc Bax	40	174	GH
"	5470	67	Mc Bax	40	170	GH
"	5470	67	Mc Bax	40	170	GH
"	5955	68	Wy Sea	40	180	GH
4-8-88	5955	68	Wy Sea	30	170	GH

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SUBJECT

Date	Gallons	From	Customer	Truck	Temp	By
4-11-88	5605	68	Wy Sea	30	150	GH
4-12-88	5605	68	Wy Sea	30	180	GH
4-13-88	5605	68	Wy Sea	30	165	GH
4-14-88	5605	68	Wy Sea	30	150	GH
4-15-88	5605	68	Wy Sea	30	170	GH
4-18-88	5605	68	Wy Sea	30	160	HB
"	5605	68	Taylor	40	160	HB
4-21-88	5605	68	Wy Sea	40	180	HB
"	5605	68	Wy Sea	30	180	HB
4-22-88	5470	67	McBax	40	150	GH
"	5470	67	McBax	30	150	GH
4-25-88	5605	68	Wy Sea	40	160	HB
"	5605	68	Wy Sea	30	160	HB
4-26-88	5470	67	McBax	40	160	HB
"	5605	68	Wy Sea	30	175	HB
"	5470	67	McBax	40	165	HB
"	5470	67	McBax	40	175	HB
4-27-88	5605	68	Wy Sea	30	180	HB
"	2300 Truck	Tc 536 K-364	Cal'is	40	320	GH
4-28-88	5605	68	Wy. Sea.	30	190	HB
4-29-88	5605	68	Wy Sea	30	170	HB
5-2-88	5605	68	Wy Sea	40	150	GH
"	5605	68	Wy Sea	30	150	GH
5-3-88	5605	68	Wy Sea	30	168	GH
"	5605	68	Wy EH	40	168	GH
5-4-88	5605	68	Wy EH	40	1[illegible]	GH
"	5605	68	Wy Sea	30	18[illegible]	GH
5-5-88	5605	68	Wy EH	30	180	GH
"	5605	68	Taylor	40	180	GH
5-6-88	5605	68	Wy Sea	30	180	GH
"	5470	67	Mc Bax	40	160	GH
"	5470	67	Mc Bax	40	165	GH
"	5470	67	Mc Bax	40	165	GH
5-9-88	5605	68	Wy EH	40	150	GH
"	5605	68	Wy Sea	30	150	GH

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LOCATION _____ DATE _____ BY _____

SUBJECT

Date	Gallons	From	Customer	Truck	Temp	By
5-10-88	5605	68	Wy EH	K-40	180	GH
"	5605	68	Wy Sea	K-30	180	GH
5-11-88	5605	68	Wy EH	K-40	180	SH
"	5605	68	Wy Sea	K-30	180	SH
5-12-88	5605	68	Wy Sea	K-40	188	SH
"	5605	68	Wy Sea	K-30	188	SH
5-13-88	5605	68	Wy Sea	K-40	180	GH
"	5605	68	Wy Sea	K-30	180	GH
5-16-88	5605	68	Wy Sea	K-40	160	[illegible]
"	5605	68	Wy Sea	K-30	160	[illegible]
5-17-88	5605	68	Wy Sea	K-40	180	[illegible]
"	HY 5000	Tc 536 K-364	Tacoma	K-30	230	[illegible]
5-18-88	5605	68	Wy Sea	K-30	160	[illegible]
5-19-88	App 5,000	Tc 536 K-364	Tacoma	K-30	250	[illegible]
"	5605	68	Wy Sea	K-40	180	SH
5-23-88	5605	68	Wy EH	K-30	175	[illegible]
"	5605	68	Taylor	K-40	175	[illegible]
"	5605	68	McGee	K-40	188	[illegible]
5-24-88	5605	68	McGee	K-30	192	[illegible]
"	5605	68	Wy EH	K-30	198	[illegible]
5-25-88	5605	68	Wy EH	K-30	185	[illegible]
5-26-88	5706	Tc 108	McBax	K-40	150	[illegible]
"	5682	Tc 108	McBax	K-40	180	[illegible]
"	5605	68	Wy EH	K-30	180	[illegible]
5-31-88	5605	68	Wy EH	K-30	180	SH
6-1-88	5605	68	Wy Sea	K-40	174	SH
"	5605	68	Wy Sea	K-30	174	SH
6-2-88	5605	68	Wy Sea	K-40	180	SH
"	5605	68	Wy Sea	K-30	180	SH
6-3-88	5605	68	Wy Sea	K-30	190	SH
"	5758	Tc 108	Mc Bax	K-40	180	SH
"	5758	Tc 79978	Mc Bax	K-40	190	SH
"	5682	Tc 79978	Mc Bax	K-40	190	SH
6-6-88	5605	68	Taylor	K-30	180	SH
"	5605	68	Wy Sea	K-30	172	[illegible]

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LOCATION _____ DATE _____ BY _____

SUBJECT

Date	Gallons	From	Customer	Truck	Temp	Loader
6-7-88	5605	68	Wy Sea	30	176	SH
6-8-88	5605	68	Wy Sea	40	172	SH
"	5605	68	Wy Sea	30	180	[illegible]
6-9-88	5703	TC 79778	Mc Bax	40	190	SH
"	5605	" + 68	Mc Bax	40	180	SH
"	5605	68	Wy Sea	30	180	SH
6-13-88	5605	68	Wy Sea	30	165	[illegible]
"	App 4900	TC 511	W. Colloid		225	[illegible]
6-14-88	5605	68	Wy Sea	30	175	[illegible]
6-20-88	5605	68	Taylor	30	180	[illegible]
"	5605	68	BC	40	192	[illegible]
6-21-88	App 5600	TC 706	Mc Bax	30	200	[illegible]
"	App 5600	TC 706	Mc Bax	30	220	[illegible]
"	App 5600	TC 706	Mc Bax	30	218	[illegible]
6-27-88	5605	68	Taylor	40	175	SH
"	App 4000	TC 511	K-364 W. Colloid	40	310	SH + [illegible]
6-29-88	App 4000	TC 511	K-364 W. Colloid	260	SH + [illegible]	
6-30-88	5605	68	Mc Bax	40	160	SH
7-11-88	5605	68	Sea Wy	30	160	SH
7-12-88	5605	68	Wy Sea	30	185	SH
7-13-88	App 5200	TC 25097	Mc Bax	40	200	SH Cl [illegible]
"	App 5200	TC 25097	Mc Bax	40	195	SH Cl [illegible]
"	App 2500	TC 25097	Mc Bax	40	195	SH Cl [illegible]
7-14-88	5605	68	Wy Sea	40	180	SH
7-15-88	5605	68	Wy Sea	40	178	SH
7-18-88	5605	68	Wy Sea	30	180	[illegible]
"	5605	68	Taylor	40	180	[illegible]
7-19-88	5605	68	Wy Sea	30	192	[illegible]
7-20-88	5605	68	Wy Sea	30	190	[illegible]
7-21-88	5605	68	Wy Sea	30	188	[illegible]
7-22-88	5605	68	Wy Sea	30	186	[illegible]
7-25-88	5605	68	Wy Sea	30	179	[illegible]
[illegible]	5605	68	Wy Sea	30	175	[illegible]
[illegible]	5605	68	Wy Sea	30	170	[illegible]

Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6
200 BKS. 5-60
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LOCATION _____ DATE _____ BY _____

SUBJECT

Date	Gallons	From	Customer	Truck	Temp	Loader
7-29-88	App. 5600	TC 76029	Mc. Bax	K-40	200	Clean Gr.3 SH
"	App. 5600	TC 76029	Mc. Bax	K-40	200	Cl. Gr.3 SH
7-30-88	App. 5600	TC 76029	Mc Bax	K-40	180	Cl. Gr.3 SH
"	App. 2000	TC 76029	Mc Bax	K-40	170	Cl. Gr.3 SH
8-1-88	5605	68	Wy Sea	K-30	180	SH
8-2-88	5605	68	Wy Sea	K-30	184	SH
8-3-88	5605	68	Taylor	K-30	180	SH
8-4-88	5605	68	Wy Sea	K-30	178	SH
8-5-88	5605	68	Wy Sea	K-30	175	SH
8-8-88	5605	68	Wy Sea	K-30	180	[illegible]
8-9-88	5605	68	Wy Sea	K-40	188	SH
8-10-88	5605	68	Mc Bax	K-40	188	SH
"	App 5000	TC 571	Tacoma	K-30	230	HB & GH K-364
"	5605	68	Mc Bax	K-40	188	SH
"	5605	68	Mc Bax	K-40	188	SH
8-11-88	App 5000	TC 571	Tacoma	K-30	230	SH K-364
8-12-88	App. 5400	TC 81225	Mc Bax	K-40	200	Clean Gr.3 GH
"	" 5400	81225	Mc Bax	K-40	200	Clean Gr.3 GH
"	" 5400	81225	Mc Bax	K-40	200	Clean Gr.3 GH
8-15-88	5605	68	Taylor	K-40	186	[illegible]
8-16-88	5605	68	Wy Sea	K-40	180	[illegible]
8-17-88	5605	68	Wy Sea	K-40	180	[illegible]
8-19-88	5605	68	Dome Tar BC	K-40	178	[illegible]
8-22-88	5605	68	" " "	K-40	176	[illegible]
"	5648 App	TC 79692	Mc Bax	K-30	174	[illegible]
"	3378 App	TC 79692	Mc Bax	K-30	175	[illegible]
8-29-88	5605	68	Dome Tar BC	K-40	176	SH
8-31-88	App. 5400	TC 79692	Mc Bax	K-40	120	SH
"	"	"	Mc Bax	K-40	175	SH
9-1-88	"	TC 76295	Mc Bax	K-40	175	SH
"	5605	68	Mc Bax	K-40	170	SH
9-8-88	5605	68	Wy Sea	K-40	165	[illegible]
"	5605	68	Wy Sea	K-30	165	[illegible]
9-9-88	5600	TC 76295	Mc Bax	K-40	190	[illegible]
"	App 5200	TC 87745	Hm Tar	K-30	230	[illegible]
"	5400	[illegible]	Mc Bax	K-40	190	[illegible]

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Date	Gallons	From	Customer	Truck	Temp	Loader
9-9-88	App 5600	Tc 79954	Mc Bax	40	180	HB
9-12-88	5605	T-68	Wy Sea	40	165	HB
9-13-88	App 5200	RT-Tc 87745	Am. Tar	30	230	HB
9-14-88	5605	T-68	Wy Sea	40	188	HB
9-15-88	5605	T-68	Wy Sea	40	186	HB
9-16-88	5605	T-68	Taylor	40	196	HB
9-16-88	5758	T-67	Mc Bax	40	168	HB
"	5758	67	Mc Bax	40	164	HB
9-19-88	5605	68	Wy Sea	30	188	SH
9-20-88	5605	68	Wy Sea	30	180	SH
9-21-88	5605	68	Wy Sea	30	182	SH
9-22-88	5605	68	Wy Sea	30	180	SH
10-3-88	5605	68	Taylor	40	170	HB
"	App 2500	Tc 586	Calif.	30	290	HB
"	5605	68	Wy Sea	40	175	HB
10-4-88	5758	67	Kopper Calif	40	180	HB
10-6-88	5605	68	Wy Sea	40	180	HB
10-10-88	5605	68	Wy Sea	40	176	HB
"	5758	67	Koppers Calif	30	160	HB
10-11-88	5605	68	Wy Sea	40	180	HB
10-12-88	5605	68	Wy Sea	40	180	HB
"	5605	68	Wy Sea	30	180	HB
"	5605	68	Mc Bax	40	184	SH
10-13-88	5605	68	Wy Sea	30	186	HB
"	5605	68	Mc Bax	40	186	SH
"	5758	67	Mc Bax	40	170	SH
"	5758	67	Mc Bax	40	170	SH
10-14-88	5600	68	Wy Sea	40	182	HB
	5605	68	Wy Sea	30	182	HB
10-17-88	5605	68	Wy Sea	40	178	SH
"	5758	67	Koppers Calif	30	140	SH
10-18-88	5605	68	Wy Sea	40	180	SH
10-19-88	5605	68	Wy Sea	40	184	SH
"	5605	68	Taylor	30	184	SH
10-20-88	5605	68	Wy Sea	40	180	SH
"	5605	68	Wy Sea	30	180	SH

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SUBJECT

Date	Gallons	From	Customer	Truck	Temp	Loader
10-21-88	5605	68	Wy Sea	40	180	GH
"	5605	68	Wy Sea	30	180	GH
"	5605	68	McBAX	40	180	HB
10-24-88	5605	68	Wy Sea	30	180	GH
"	5605	68	Wy SEA	40	180	GH
10-25-88	5605	68	Wy Sea	40	180	GH
"	5605	68	Wy Sea	30	180	GH
10-26-88	5605	68	Wy Sea	30	176	GH
"	5758	67	Mc Bax	40	164	GH
"	5758	67	Mc Bax	40	160	GH
10-27-88	5605	68	Wy Sea	40	176	GH
"	5605	68	Wy Sea	30	176	GH
10-28-88	5605	68	Wy Sea	30	185	GH
11-1-88	5605	68	Wy SEA	40	190	HB
"	5605	68	Wy SEA	30	190	HB
11-2-88	5605	68	Wy SEA	40	194	HB
"	5605	68	Wy SEA	30	194	HB
11-3-88	5605	68	Wy SEA	40	182	HB
	5605	68	Wy SEA	30	182	HB
11-4-88	App 5700	Tc 79674	McBAX	40	190	HB
"	5605	68	TAY ~~[illegible]~~	30	165	HB
"	App 5700	Tc 79674	McBAX	40	190	GH
"	Hy 2901 2807	Tc 79674 68	McBAX	40	192	GH
11-7-88	5605	68	Wy SEA	30	160	HB
"	5605	68	Wy SEA	40	160	HB
"	2,060	33	out-side Truck	Kolineum	60	HB & GH
11-10-88	4,075	33	P.C. Truck	Kolineum	60	HB & GH
11-14-88	5605	68	Wy Sea	30	170	GH
"	5605	68	Wy Sea	40	170	GH
11-15-88	App. 5100	Tc 87745	Am. Tar. RT-8	40	230	GH
11-17-88	App. 5100	Tc 87745	AM. Tar. RT-8	40	270	GH
11-18-88	5605	68	Wy Sea	40	191	GH
11-21-88	5605	68	Wy Sea	40	174	GH
"	5605	68	Wy Sea	30	174	GH

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SUBJECT _____

	Gallons	From	Customer	Truck	Temp	Loader	
11-28-88	5605	68	Wy Sea	K-40	145	[illegible]	
"	5605	68	Wy Sea	K-30	145	[illegible]	
"	8407	68	Taylor	P. Motors	146	[illegible]	
12-7-88	5605	68	Wy Sea	K-40	170	[illegible]	
12-7-88	2497	T-823044	CALIF	K-40	390	[illegible]	
12-12-88	5605	68	Wy Sea	K-40	172	[illegible]	
"	5605	68	Wy Sea	K-30	172	[illegible]	
12-13-88	5605	68	Wy Sea	K-40	180	[illegible]	
"	5605	68	Wy Sea	K-30	180	[illegible]	
12-14-88	5605	68	Wy Sea	K-40	185	[illegible]	
	5605	68	Wy Sea	K-30	185	[illegible]	
12-15-88	5605	68	Wy Sea	K-40	185	[illegible]	
	5605	68	Wy Sea	K-30	185	[illegible]	
12-16-88	5605	68	Wy Sea	K-40	189	[illegible]	
	5605	68	Taylor	K-30	189	[illegible]	
12-19-88	5605	68	Wy Sea	K-40	180	S H	
12-19-88	5605	68	Wy Sea	K-30	180	S H	
12-20-88	5605	68	Wy Sea	K-40	180	S H	
"	5605	68	Wy Sea	K-30	180	S H	
12-21-88	5605	68	Wy Sea	K-40	184	S H	
"	5605	68	Taylor	K-30	184	S H	
12-22-88	5605	68	Wy Sea	K-40	190	S H	
"	5605	68	Wy Sea	K-30	190	S H	
12-27-88	5605	68	Wy Sea	K-40	160	S H	
"	5605	68	Wy Sea	K-30	160	S H	
12-28-88	5605	68	Wy Sea	K-40	174	S H	
"	5605	68	Wy Sea	K-30	174	S H	
1-2-89	5605	68	Dome Tar	K-40	162	S H	B.C.
"	5605	68	Dome Tar	K-30	162	S H	B.C.
1-3-89	7703	68	Taylor	P. Motors	160	[illegible]	
1-4-89	7356	68	Dome Tar	P. Motors	190	H B	B.C.
"	7356	68	Dome Tar	P. Motors	190	H B	B.C.
"		T-223038	Calif	K-40	190	[illegible]	
"		T-223038		K-30	190	[illegible]	

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SUBJECT June 82

Date	Card gallons	Plant gallons	From	To	Temp.	Residue	
5-24		20872	TLDX 223166	HO 3	185	5 in	GH
5-25		19054	GATX 13710	NSR 20	100	7 in	HB
"		19054	TLDX 223001	UNC 20	100	4 in	GH
5-26		20318	GATX 13711	H-oil 68	100	3 in	GH
5-27		19192	ACFX 81233	H-oil 99	70	4 in	[illegible]
6-4-82		19054	NATX 25558	NSR-20	80	3 in	[illegible]
6-8-82		19054	GAXX 12455 Solv	NSR-20	80	3 in	[illegible]
6-14-82		18319	TLDX 223045	NSR 66	60	5 in	[illegible]
6-16-82		14713	TLDX 223179	UNC 68	60	8 in	[illegible]
6-17-82		7190	KPCX 500	RT-8 19	220	3 in	[illegible]
"		19617	TLDX 223001	UNC 68	190	7 in	[illegible]
6-18-82	15,399	15414	TLDX 223036	UNC 68	150	6 in	[illegible]
6-21-82		21153	TLDX 223041	H-oil 4	170	8 in	[illegible]
"	20099	21719	NATX 25552	68	140	6 in	[illegible]
"		21,223	GATX 12454	Methyl 34	60	2 in	[illegible]
6-22-82	19710	21019	TLDX 223000	UNC 68	170	3 in	[illegible]
"		20433	ACFX 81224	Meth 34	60	1 in	[illegible]
6-25-82	17862	20309	TLDX 223007	H-oil 3	80	4 in	[illegible]
6-30-82		16645	ACFX 81233	Gr-3 4	150	8 in	[illegible]
"		19745	ACFX 79670	Gr-3 4 & 3	150	5 in	[illegible]
"	20255	20992	TLDX 223159	NSR 99	70	4 in	[illegible]
7-6-82		19468	ACFX 82521	Gr-4	150	7 in	[illegible]
7-7-82		21716	GATX 38613	H-oil 3 H.oil	190	4 in	[illegible]
7-8-82		18917	TLDX 223045	UNC 68	100	6 in	[illegible]
7-9-82		18146	ACFX 79688	H-oil 20	80	8 in	[illegible]
7-12-82		20591	TLDX 223179	UNC 3	200	4 in	[illegible]
7-14-82		19474	GATX 12451	H-oil 3	170	[illegible]	[illegible]
7-19-82		16815	TLDX 223000	UNC 68	100	5 in	[illegible]
7-28-82		14953	UTLX 85775	H-oil 4	120	3 in	[illegible]
7-29-82		16815	KPCX 595	RT-12 17	300	3 in	[illegible]
8-2-82		20872	NATX 25553	H-oil 3	125	4 in	[illegible]
8-5-82	3'11" 130°F	18618	TLDX 223191	H-oil 4	170	5 in	[illegible]
8-9-82	24½" 127°F	14519	UTLX 78489	H-oil 20 + 67	170	4 in	[illegible]
"		6046		67	170		
8-10-82	No start gauge	23313	TLDX 223179	[illegible]	200	8 in	[illegible]

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SUBJECT _____

Date	Gallons	Gallons	Tank Car	Pro.	To	Temp	Residue	Loader		
8-11-82		16000	UTLX 78479	H-oil	67	240		HS	10'6"	9747 125°
"		[illegible]	"	H-oil	33	175		HB	"	"
8-12-82		18937	TLDX 223045	H-oil	4	200	3 in	GH	2-8	9805 110°
8-16-82		12862	NATX 21045	Fuel oil	39	60	2 in	HB	4'6½ @	60°
"	19111	21470	TLDX 223001	UNC	68	210	3 in	GH	3-5	9863 95°
"		19402	TLDX 223036	NSR	66	100	4 in	GH	3-3	60°
8-17-82	No	17671	ACFX 79686	NSR	3-4-34	60	1 in	HB	No gage	
"		20907	TLDX 223159	NSR	34	80	3 in	HB	2'8" @	9744 100°
		18949	TLDX 223000	UNC	4-68	60	5 in	GH	2 11½	9785 115
8-26-82	19959	19973	GATX 13713	MethyL	34	70	2 in	GH	1 ft. 6 in	70°
8-27-82		5356	K-30	H. oil	3	100	2 in	GH		
8-30-82		19168	ACFX 79692	MeThyl	33	70	2 in	GH	2 ft. 2 in	70
9-9-82		9600 app	KPCX 500	RT-12	K-30	240	4 in	HB	2 ft. 10½ in	
9-1-82		18364	UTLX 25552	UNC	68	160	16 in	GH	2 ft 9" in.	135
		20318	NATX 25558	UNC	68	180	4 in	GH	2 ft. 11 in	115°

Date	from	T/C number	Material	T/C outage	T/C Temp	T/C Res	By
9-2-82	FON	GATX 35847	H-oil	3 ft. ½	100	8 in.	HB
9-3-82	Chi	ACFX 79667	H-oil	1'10½"	110	8 in	HB
9-8-82		TLDX 223036	UNC	3'7"	80°	5 in	HB
9-7-82	HOUSTON	TLDX 223037	H-oil	3'4"	85°	4 in	GH
9-10-82		TLDX 223179	H-oil	2'10	80°	4 in	GH
9-9-82	Chicago	GATX 25097	H-oil	2'4	95°	4 in	GH
9-8-82	FON	KPCX 3194	H-oil	2'11"	85°	8 in	GH
9-8-82	FON	UTLX 79969	Sol.	1'3"	20°	3 in	GH
9-10-82		UTLX 85768	MethyL			3 in	GH
	FON	TLDX 223001	UNC	3'7"	150	5 in	GH
9-13-82	Chi	ACFX 82524	H-oil	1'10"	155	5 in	GH
9-14-82	Chi	TLDX 223041	H-oil	2'2½"	145°	8 in	HB
		"	"	"	"		
9-14-82	FON	TLDX 223159	NSR	2'11½"	60°	3 in	GH
		"	"				
9-16-82	Hus.	NATX 25327	Gr-1	3'3½"	80°	6 in	HB
9-17-82	FON	GATX 94541	NSR	2'8"	80°	1 in	HB
9-23-82	FON	ACFX 81234	Sol + NSR	1-6	70°	5 in	GH

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Tank Receiving	Tank Start	Tank Stop	Tank Temp	Tank gal @ Temp	Tank gal @ 60	T/C received gal @ 60	Invoiced gal @ 60
			125°	17671			

Receiving Tank	Tank Start	Tank Stop	Tank Temp	Tank gal @ Temp	Tank gal @ 60°F	T/C received gal @ 60	Invoiced gal @ 60°F
3	12-2	17'-11"	170	19464	18679		19328
4	0-9	6'-8"	200	20028	18936		
3	10-3	15'11"	150	19183	18509		
3	4-5	10-3	80	19746	19592		
67	1-6	7-3	80	19864	19709		
68+67	6-1	7-10	170	19606	18765		
68	4-11	6-1	150	9809	9464		
68+33	4-0	4-11	180	21027	20645		
68+34	T-68 10-0 T-34 18-1	T-68 11-0 T-34 10-2	150	18400	17954		
4	0-4	5-9	210	18337	17266		
67	7-3	12-6	150	18137	17500		
4	5-9	9-10	220	13825	20548		
67	12-6	14-9	150	7773			
4	9-10	12-10	150	10158	19260		
65	18-3	20-0	[illegible]	9408			
99	0-3	2-5	80	17383	17257	18180	
66	20-0	23-10	60	21667	20607		
33	1-1	20-11	70	18694	18618		

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DATE	SUBJECT from	TC No.	Pro.	T/C outage	Tk Temp.	Tc residue	By	Dome Height
9-26-82	FoN	TLDX 223000	UNC	3'½"	75°	6 in	HB	1' 3¼
	"	"	"	"	"			
9-27-82	Houston	TLDX 223190	Gr-1	2'7½"	65°	4 in.	DH	1' 3½ in
9-27-82	FoN	UTLX 78495	NSR	2'8"	60°	3 in	HB	1' 3"
9-28-82	Houston	TLDX 223046	Gr-1	2'11"	60°	5 in	DH	1' 3½ in
9-27-82	"	ACFX 79682	Gr-1	1'9"	60°	5 in	HB	13 in
9-28-82	Chi	ACFX 12516	H-oil	1'7½	95°	4 in	DH	11 in
9-30-82	Houston	" 79665	Gr-1	7'7½"	85°	8 in	HB	13 in
9-28-82	FoN	" 12062	NSR	1-4	60°	7 in	HB	9¾ in
9-28-82	Foll.	GATX 13710	SOL	1-2	60°	1 in	HB	8¾ in
9-29-82	Chi	TLDX 223045	H-oil	2-8	70°	8 in	HB	15 in
9-29-82	FoN	NATX 21045	UNC	2-4	90°	7 in	HB	25¼
9-30-82	FoN	GATX 13713	UNC	1-9	95°	6 in	HB	9½ in
9-30-82	FoN	ACFX 81225	UNC	22½ in	95°		MA	11 in
		TLDX 223051	RT-12	45½ in	80°	3 in	DH	14½ in
9-30-82	FoN	" "	"	"	"	3 in	DH	"
10-6-82	FoN	NATX 25558	UNC	35¾	60°	2 in	HB	11¾
" "	"	" "	"	"	"	"	"	"
	Foll.	ACFX 79690	Methyl	1'7"	60	2 in	HB	13 in
10-6-82		GATX 12454	Methyl	13" in	60	2 in	DH	10 in
		KEBX 302	H-oil	24 in	60°	12 in	HB	16 in
10-8-82		" "	H-oil	"	"			"
10-12-82	Hou.	TLDX 223057	Gr-1	33 in	60°	6 in	DH	13½ in
10-12-82	Hou	UTLX 75167	Gr-1	39¼ in	60°	4 in	DH	13¼ in
10-13-82		UTLX 78484	NSR	31 in	70°	3 in	DH	15 in
10-14-82		GATX 12455	UNC	19 in	95°	5 in	HB	8½ in
" " "		TLDX 223036	UNC	36 in	90°	8 in	HB	15 in
10-19-82		" 223001	UNC	37½	90°	5 in	DH	15½ in
10-14-82		UTLX 78473	H-oil	39 in	70	4 in	DH	15 in
10-14-82		GATX 94541	NSR	35 in	65	3 in	DH	12¼
10-19-82		ACFX 79686	Methyl	19 in	60	1 in	HB	13½ in
10-20-82	FoN	TLDX 223038	UNC	38 in	75	4 in	DH	15 in
10-19-82	FoN	TLDX 223159	NSR	31½	60	2 in	HB	13 in
10-22-82		GATX 13713	UNC+soil	18 in	85	5 in	DH	10 in
10-22-82		TLDX 223000	Solvent	29	60	4 in	DH	15½
10-27-82	FoN	NATX 21045	H-oil	39	70	6 in	MA	23½

Organic Materials Group
Koppers Company, Inc.

KOPPERS

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T-170 REV. 6
200 BKS. 5-80
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LOCATION _____ DATE _____ BY _____

Rec SUBJECT _____

TANK	START	STOP	TANK Temp	TANK GALLONS rec.	TANK GALLONS @60°	STK @60°F received GALS	INVOICES GAL. @60°F	Done
4	23-8	26-11	110	11,005	10790			
17	14-1	15-4	190	1059	1005			
99	2-5	3-6	100	7797	7675			
3	0-6	2-9	60°	18917	18917			
66	22-4	26-1	60°	20159	20159			
68	2'7"	4-11	150	19618	18929			
68	0-3	2'7"	150	19617	18928			
67	10-8	15-0	160	14970	14386			
68	4-11	7-1	130	18216	17719			
99	3-6	6-5	80°	19792	19637			
33	10-11	12-6	70°	3012	3000			
99	0-0	2-5	80°	17393	17257			
99	6-5	9-0	100	18593	18303			
99	9-0		150	37185	17940			
99		14-2			17939			
99	14-2	16-8	155	17993	17377			
19	0-4	19-3	200	15995	.9537 15254			
17	12-3	14-4	200	1765	.9537 1683			
4	0-4	6-4	230	20309	.9377 19044			
17	14-1	14-3	145	143	.9669 138			
4	8-8	11-3	150	11,000	10614			
34	10-7	16-7	70	11424	11378			
34	0-3	10-7	60	19,642	19563			
4	12-5	15-1	130	9,028	8782			
67	9-8	14-10	120	7,485	7310			
65	1-10		160	39346	37812			
65		3-8	160					
68	0-6	2-6	90	18917	18696			
68	2-6		~~90~~	39935	38378			
68		7-3	160					
99	0-0	3-7	130	19790	19250			
68	7-3	9-6	180	18917	18034			
66	22-0	25-9	70	20159	20078			
99	6-5	7-2	130	5898	5737			
34	13-10	21-1	70	13794	13739			
99	6-0	10-6	130	21994	21394			
99	3-7	6-5	130	20392 .9723	19835			
4	0-3	6-10	110	19745	19360			
4-33	7-9	17-2	60	19904	19904			
4	6-10	12-1	120	17773	17357			

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6
200 BKS. 5-80
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LOCATION _____ DATE _____ BY _____

SUBJECT _____ TJC TJC TC

Date	From	TJC No	Pro	outage	Temp	residue	By	Dome Height
10-20-82	Houston	NATX 24042	Gr/		Ship	TJC	24042	Gr.1 To Dallas
	~~Chi.~~	~~NATX 76566~~	~~H-oil~~					
10-27-82	FON	ACFX 12062	NSR		60	3in	MB	"
10-28-82	Chicago	NATX 76566	H-oil	18½"	70	9in	MA	14½
"	Fontana	UTLX 85779	H-oil	8"	100	8 in	MA	18"
10-29-82	Fontana	ACFX 81225	UNC	15½	50	8 in	MA	10"
11-1-82	FON	TLDX 223184	H-oil	34in	85	5 in	DH	13"
11-1-82	FON	GATX 93198	NSR	34 in	60	4 in	MB	12½"
11-1-82	Chi	TLDX 223041	H-oil	31 in	60	12 in	DH	15 in
11-2-82	Chi	ACFX 79675	H-oil	26½in	80	8 in	MB	13½
11-9-82	FON	KERX 201	UNC	46½in	70	10in	MB	5in
11-3-82	Foll. x	ACFX 79663	Methyl	23in	60	3in	DH	13¼
" "		" "	"	"	"		"	
" "		" "	"	"	"		"	
11-5-82	FON x	UTLX 75167	UNC	33½	90	9in	MB	15 in
11-9-82	FON x	TLDX 223001	UNIversal	37	90	8 in	DH	14½
11-8-82	FON x	TLDX 223036	UNIV NSR	36½	70	5 in	DH	14½
11-11-82		TLDX 223179	H-oil	29½	60	9in	MB	12½
1-26-83		KPCX 538	RT-12	31in	100	4 in	DH	14 in
11-15-82	Foll. x	UTLX 79969	Methyl	21½	60	3 in	DH	11½
11-17-82	x	ACFX 12516	H-oil	23	70	5 in	DH	11½
11-17-82		GATX 12455	H-oil	27½	100	10in	MB	8½
11-17-82		TLDX 223038	UNC	38½	80	8 in	MB	14½
11-16-82		ACFX 81228	Sol+UNC	22	75	9in	MB	10
11-17-82		GATX 12451	NSR	19in	60	6 in	MB	8½
11-18-82	FON	ACFX 79665	8in NSR UNC	24½	70	5in	MB	13½
11-18-82	FON	GATX 11745	5in NSR+UNC	21	75	3in	MB	9
								Month End
11-23-82		UTLX 78454	Sol+UNC	27½	90	3 in	DH	14½
11-19-82		UTLX 85779	H-oil	26	100	6in	MA	18
11-23-82		GATX 13713	UNC	22	110	4 in	DH	8½
11-23-82	Now →	KPCX 531	pitch	31	125	5 in	DH	14
11-30-82		GATX 93198	UNC	36	70	8 in	MA	12½
11-30-82		ACFX 79656	UNC	25	60	4 in	DH	13½
11-30-82		TLDX 223159	UNC	41	60	3 in	DH	12½
		ACFX 79690	H-oil	27½				13½

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LOCATION _____ DATE _____ BY _____

SUBJECT Rec

Tank	Start	Stop	Tank Temp	Tank Gallons	Tank Gal @ 60°			
4	12-1	17-5	120	18055	17633			
67	6-1	11-8	140	19289	18687			
67	11-8	16-3	155	15834	15248			
4	17-5	23-0	170	18900	18089			
68	2-2	4-7	70	20318	20237			
68	0-0	2-2	70	18216	18143			
67	15-2	20-8	120	19,900	19434			
67	20-8	25-11	118	18425	19149			
4	21-0	24-4	160	1122				
68	6-3	8-1	110	15,414	15113			
68	4-7	4-10	100	2102	2069			
34	18-3	21-7	70	6349	6324			
20	0-0	1-3	70	10888	10844			
99	0-0	2-7	130	18573	18085			
68	6-3	8-10	130	18217	17720			
99	0-0	2-8	120	19192	18743			
4	0-4	6-6	190	20872	19816			
17	1-9	16-9	250	12653				
20	1-3	3-3½	50	21776	21776			
3+99	0-3	2-0	50	6,000	T-3 14397		8397 T-99 56	
3+99	T-32 ft.	4-1	150	7,000	17749		11395 T-99 150°	
4	11-10	17-4	160	18618	9.16 19429		+1600 gal T-1	
4	6-4	11-10	140	18843	18255			
4	12-4	23-3	160	20028	19247			
3	2-9	13-16	190	20872	9.194 19816			
3	4-7	15-10	180	19230	9.533 18332			
4	10-7	16-7	130	20309	9.27 19754			
4	4-2	9-0	180	16363	9.33 15599			
4	0-4	10-7	140	18335	9.45 17763			
99	2-9	5-2	50	17393	—			
99	5-2	10-4	50	18500	—			
99	5-2	10-4	50	18500	—			
20	7-0		80		99 18770			

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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	From	T/C No.	Pro	T/C outage	T/C Temp	T/C residue	By	Dome Height
12-1-82	Fontana	NATX 21045	60% sol 40% unc	30½	80	3 in	GH	23½
"	Chicago	GATX 93222	H-oil	29	100	2 in	MA	13½
"	Chicago	ACFX 79667	H-oil	31½	90	3 in	MA	13½
"	Chicago	KEBX 306	H-oil	28	100	1 in	JB	15½
"	Houston	TLDX 223190	H-oil	41	60	2 in	MA	13
12-3-82	Houston	GATX 38612	H-oil	22	60	2 in	MA	13
12-3-82	Fallansbee	KPCX 646	H-oil	28	50	1 in	JB	17½
12-6-82	Fallansbee	ACFX 84010	Methyl	17	50	2 in	GH	12
12-7-82	Fallansbee	ACFX 79684	Methyl	16½	60	3 in	GH	13½
12-9-82	Chicago	UTLX 85775	H-oil	35½	60	2 in	GH	14½
	Youngstown	GATX 13711	H-oil	35	60	3 in	MA	[illegible]
12-13-82	Fontana	TLDX 223184	60% NSR unc	38	40	8 in	MA	13
12-13-82	Fontana	GATX 38601	60% NSR 40% unc	33¾	50	2 in	MA	12½
12-13-82	Fontana	ACFX 12062	60% NSR 40% unc	22½	40	2 in	JB	10
12-13-82	Chicago	ACFX 81232	H-oil	24½	40	4 in	MA	10
12-21-82	Fontana	TLDX 223036	Ucreo	38	60	6 in	GH	15½
12-21-82	Fontana	ACFX 79665	Ucreo	24½	60	4 in	GH	13
12-27-82		KEBX 302	H-oil	33 in	60	5 in	HB	16½
12-21-82		KEBX 303	H-oil	31 in	75	4 in	GH	16½
12-21-82	Fontana	ACFX 12516	50% sol + NSR	20½ in	60	8"	JB	11½
12-22-82	Fallansbee	NATX 25327	methyl	34 in	60	0	MA	14½
"	Chicago	GATX 25097	H-oil	23½ in	60	7"	HB	13½
"		ACFX 81228	UNC	25½ in	40	6 in	GH	10½
12-28-82	Fontana	GATX 13713	UNC	22 in	60	5 in	GH	9
12-28-82	"	GATX 12451	NSR	18 in	70	6 in	HB	9
"	"	TLDX 223159	NSR			4 in	GH	
"	"	GATX 11745	NSR	17½ in	65	8 in	HB	9 in
"	"	UTLX 75161	50% sol + unc	33¾	70	9 in	HB	15 in
12-4-83	FON	GATX 12455	H-oil	20 in	65	3 in	HB	9 in
12-4-83	FON	ULTX 78484	UNC	31 in	70	6 in	HB	15 in
12-4-83	FON	TLDX 223036	UNC	37 in	70	7 in	HB	14½
12-4-83		NATX 21045	H-oil	29 in	100	3 in	GH	23½
12-6-83	Fall-Bee	TLDX 223165	Solvent	24 in	50	1 in	MA	13
12-6-83	FON	UTLX 78479	UNC	35¼ in	65	4 in	HB	14½

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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Rec Tank	Tank Start	Tank Stop	Tank Temp	Tank Gallons	Tank 60 Gallons	
99	10-4	12-7	150	16194	9649 15626	
20	0-3	3-11½	150	18600	17947	
20	0-3	3-11½	150	18600	17947	
68	6-0	8-3	120	18917	9766 18474	
67	20-7	26-0	140	18713	9688 18129	
20	3-11½	5-10	150	19961	9649 19340	
67+99	16-8	20'7"	140	17130	T-99 with	about 3599 - 16,760
4	6-8	12-10	50	20872	—	
4	12-10	19-0	50	20872	—	
20	5-10	7-0	80	12702	9922 12679	
99	0-4	2-3	60	16194	—	
68	3-10	6-0	120	18216	9766 17790	
68	0-2	3-10	100	16465	9844 16208	
68	0-2	3-10"	100	16464	16208	
20	9-1	10-8	200	17239	9457 16299	
99	0-3	5-3	210	35986	9416 16942	33884
99	0-3	5-3	210		16942	
99	9-8	11-11	180	16194		
99	5-3	7-6	210	16194	9416 15248	
99	7-6	9-8	190	15994	9491 15180	
4	16-10	22-3	80	18337	18304	
68	0-2	2-7	180	20318	9535 19369	Month End
99	14-7	17-8	170	22191	9591 21239	✓ Aug 83
65	2-3	3-0	90	16091	9883 15903	✓
99	11-11	14-7	70	19192	9960 19115	✓
65	3-0	4-0	90	19669	9883 19439	✓
66	7-7	11-2	70	19263	9960 19186	✓
65	4-0	4-11	95	19669	9863 19399	✓
99	0-3	2-10	90	18593	9883 18375	✓
65	5-9	6-8	160	19669	9610 18902	✓
68	2-7	4-9	100	18216	9844 17932	✓
65	4-11	5-9	60	17880	17880	✓
33	8-11	20-8	50	22329	22329	✓
99	2-10	5-8	160	20392	9610 19597	

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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	From	T/C No.	Pro.	T/C outage	T/C Temp	T/C residue	By	Dome Height
1-6-83	FON	ACFX 12030	UNC.	24½	60	5in	[illegible]	10
1-6-83		GATX 94541	NSR	33	60	4 in.	[illegible]	13
1-11-83		UTLX 78489	UNC	33½	65	8 in	[illegible]	14½
1-10-83		ACFX 79690	UNC	26	60	4 in	[illegible]	13½
1-13-83		TLDX 223179	Sol + NSR	32½	60	7in	[illegible]	12¼
1-11-83		UTLX 78495	NSR	34	60	3 in	[illegible]	15
1-13-83	FON.	TLDX 223184	H-oil	39	70	4 in	[illegible]	13
1-12-83	FON.	NATX 25559	UNC or NSR	30	70	5 in	[illegible]	12
1-12-83	FOLL.	TLDX 223040	SOL	23	65	3 in	[illegible]	15½
1-11-83		" "	"	"	"	"	"	"
1-19-83	FON	TLDX 223038	UNC	41 in	70	3 in	[illegible]	15½
1-19-83	FON	GATX 93222	UNC	29	100	4 in	[illegible]	13
1-18-83	FON	GATX 38601	H-oil	32	65	5 in	[illegible]	12
1-27-83	FON	GATX 93198	60-50 NSR+UNC	37¼	80	8 in	[illegible]	12½
1-25-83	FON	KPCX 647	UNC	30	75	6 in	[illegible]	18
1-25-83	Houston	TLDX 223052	UNC	38	60	7 in	[illegible]	15
1-25-83	Folk.	TLDX 223158	Methyl	39	60	3 in	[illegible]	13
1-28-83	FON	ACFX 79680	UNC	19	160	5 in	[illegible]	13½
2-2-83	FOLL.	ACFX 79668	Solvent	18	60	2 in	[illegible]	13
2-3-83		TLDX 223051	RT-12	46	60	8	[illegible]	14½
2-2-83		ACFX 12035	Solvent	14½	60	1 in	[illegible]	10½
2-8-83		NATX 25327	Methyl	32	60	2 in	[illegible]	14½
2-9-83	FOLL	ACFX 79684	Methyl	18	60	1 in	[illegible]	13½
2-14-83	FOLL	TLDX 223034	Methyl	33½	60	2 in	[illegible]	10½
	"	" "	"	"	"			
2-16-83	Ch.	ACFX 81233	UNC	21	70	6 in	[illegible]	9½
2-15-83	Ch.	ACFX 79663	UNC	27	90	5 in	[illegible]	13½
2-16-83	Ch.	KEBX 302	UNC	23	70	4 in	[illegible]	16½
2-23-83	Chi	ACFX 84010	UNC	30½	80	6 in	[illegible]	11½
2-24-83	Ch.	ACFX 79670	UNC	21½	70	5 in	[illegible]	13½
2-24-83	Chi	ACFX 12517	UNC	20½	80	7 in	[illegible]	11½
2-25-83	FOLL	UTLX 85775	NSR	25½	60	5 in	[illegible]	13½
2-26-83	Chi	ACFX 81228	UNC	21	75	6 in	[illegible]	9½
2-26-83	Chi	GATX 38605	UNC	28	70	5 in	[illegible]	12½
	Chi	TLDX 223039	UNC	24	60	9 in	[illegible]	15½

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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Rec Tank	Tank Start	Tank Stop	Tank Temp	Tank Gallons	Tank 60° Gallons	Book Inventory
68	4-9	6-11	110	18216	9805 17861	x
68	6-11	9-3	100	19617	9844 19311	x
3	0-9	6-8	100	20028	9844 19,715	x
99	5-8	8-3	180	21719	9503 20705	x
65	1-9	2-10	60	19669	19669	x
99	8-3	11-1	160	20392	9610 19597	x
3	12-10	15-7	200	9310	9455 8803	✓?
20	10-8	10-11	55	2722	2722	
3	6-8	12-10	160	20872	9610 20058	✓
33	12-0	21-6	60	18062	22854	✓
4	19-1	20-6	60	4792		
99	0-6		160	20392	9610 19597	✓
99	0-6	6-1	160	19792	9610 19020	✓
99	3-7	6-0	140	17393	16850	Month End
68	4-5	6-9	160	19617	9610 18852	19771 x
68	0-3	2-4	125	16246 +	1270 Gals.	17072 x
68	2-4	4-6	140	18216	9488 17647	19947 x
4	19-9	25-4	70	18900	9960 18,824	18584 x
99	0-2	2-7	190	18593	9494 17652	19592 x
66	4-11	8-4	60	17,471	17471	20727 x
17+19	0-3	16-4	240	19487	9469 18452	17698
66	8-4	11-10	60	18815	18815	20740 x
33	0-3	10-7	60	19642	19642	19950 x
33	10-7	21-7	60	20,772	20772	20290 x
34	16-1	22-1	60	11424	11424	20873 x
3	24-3	26-8	60	8180	8180	
68		15-3	160	16815	9610 16159	19420 x
68		6-0	150	18916	9630 18231	19868 x
68	1-0	14-8"	170	17515	9571 16763	18,319 Mo. End
68+3	0-2	T-3 6'4"	85	14610	9903 14469	x 19804
68+3	6-4	8-0	150	18137	9649 17500	x 19374
3	T-68 1'11"	T-3 8-7 T-68 2-4	150	15770	15216	x 15294
3	8'7"	22-4	150	16643	16058	x 16423
68	2-4	5-10	130	18716	9477 18205	x 17261 gain
68	2-4	6-9	130	18917	18400	x 17402 gain
68	6-9	11-4	130	21018	20,444	x 19819 gain

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LOCATION _____ DATE _____ BY _____

DATE	SUBJECT From	TK No.	Pro.	TC Outage	TC Temp	TC Residue	By	Dome	Rec. TK
3-2-83	Chi	GATX 13713	UNC	21 3/4	80	7 in	SH	8 1/2	68
3-7-83	Hou.	TLDX 223052	UNC	36"	60	8 in	HB	14 1/2	4 134
3-7-83	Hou.	TLDX 223158	UNC	33	60	9 in	HB	12 1/2	4 [illegible]
3-8-83	Foll.	ACFX 12030	NSR	23 1/2	60	6	SH	9 1/2	3
3-19-83	Foll.	GATX 35847	NSR	34	60	9 in	HB	12	3
		"	"	"	"			"	
3-21-83	Chi	TLDX 223123	UNC	29	80	2 in	HB	12 1/2	68 + 3
3-21-83	Chi	TLDX 223037	UNC	31 1/2	70	4 in	HB	14 1/2	68 + 3
3-24-83	Chi.	GATX 38613	UNC	21 1/4	60	9 in	HB	12 1/2	68
3-24-83	Chi	ACFX 12515	UNC	20	60	12 in	SH	13	68
3-29-83		TLDX 223040	NSR	36 1/2	70	2 in	HB	15	3
3-29-83		UTLX 85775	NSR	23	60	1 in	HB	18	3
3-29-83	Chi	TLDX 223007	UNC	32	60	8 in	HB	15	3 3
3-30-83		TLDX 223190	NSR	33	60	5 in	HB	13	3
4-1-83		Kebx 303	UNC	16	70	6 in	HB	16 1/2	4
		"	"	"	"			"	4
4-5-83	Y.T.	UTLX 78473	H-oil	53	60	3 in	HB	14 1/2	68
4-6-83	Chi	ACFX 79684	UNC	17"	70	4 in	SH	13 1/2	68
4-6-83	Foll	UTLX 79681	H-oil	33"	60	2 in	HB	13 1/2	68
4-6-83	Foll	KPCX 6616	H-oil	29 1/2	60°	5 in	SH	17 1/2	67
4-6-83	Chi	ACFX 12062	UNC	15	70°	6 in	SH	10 1/2	4
4-12-83		ACFX 79686	Gr-1	16 1/2	70°	6 in	SH	13 1/2	68
"		"	"	"	"	"	"	"	99
4-18-83	Chi	GATX 11747	Gr-1	14	70	3 in	HB	9 1/2	65
4-19-83	Chi	GATX 11748	Gr 1	15	65	4 in	HB	9	65
4-19-83	Hou.	TLDX 223052	H-oil	44	70	9 in	HB	15	67
4-19-83	Chi	UTLX 85775	Med. Creo	28	80	7 in	SH	18 1/2	68
4-21-83	Chi	TLDX 223041	Med. Creo	31	70	3 in	HB	15	68
4-21-83	Hou	GATX 93213	H-oil	39	85	7 in	HB	12	67
4-25-83		ACFX 81236	Med. Creo	21	75	7 in	HB	10	68
5-3-83		KPCX 536	RT-12	25 1/2	240	4 in	HB	14 1/2	17 + K-30
4-21-83		GATX 35847	Methyl	28	60	6 in	SH	13	3+4
4-25-83		TLDX 223165	Methyl	27	60	2 in	HB	12 3/4	4
4-25-83		ACFX 96749	H-oil	25	70	2 in	HB	18	4
4-25-83	Chi	Kebx 300	L-oil	18 1/2	90	15 in	HB	15 1/2	34

Organic Materials Group
Koppers Company, Inc.

KOPPERS

T-170 REV. 6
200 BKS. 5-80
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LOCATION _____ DATE _____ BY _____

SUBJECT _____

START	STOP	Temp	GALLONS	Factor	GALLONS @ 60°	Invoice	
9-4	10-1	100	17516	.9844	17243	x 17752	
		120	19096	.9766	18649	x 19244	
17-2	26-8	110	18619	.9805	18256	x 20125	
0-3	5-4	100	17209		16940	x 18736	
0-3	5-7	140	18055	.9805	17492	x 20654	
5-10	7-1	120	21,514	Total	21010	x 19,490	
7-1	8-5	140	21,650		20974	x 18869	
10-3	12-5	160	18216	.9610	17505	x 20300	
8-5"	10-3	150	15414	.9844	14873	x 16496	Month End
0-3	3-3	70	10155		20313	x 20546	
8-1	11-2	180	19440				
3-3	6-1	70	16363		16297	x 16,776	
0-2	11-7	180	22013		20985	x 20,228	
3-10	9-9	90	20078		19793	20,497 ✓	
6-6	10-6	100	13543		13332	18,424	
22-11	24-5	150	5074		4896		
	23-5	180	19618		16809	15,670 ?	
2-9	4-0	150	19617		18928	20,043 ✓	
4-0	5-3	150	18,916		18252	18,276	
10,11	5-10	160	17,273		16599	17,504 ✓	
0-3	6-0	170	19,464		18629	18,641	
11-4	13-6	140	18,216		17,648	20406 ✓	
0-2	0-5	160	1636		1,572		
1-6	2-5	110	19,669		19285	19,572	
2-5	3-5	180	21458		20456	19,981	Rec. Total
2-3	7-4	100	17561	.9844	17287	16,692	Invoice Total 318,314
0-0	1-10	100	15414	.9844	15174	16,637 ✓	
1-10	4-3	160	20318	.9610	19525	20,270 ✓	
5-0	10-0	100	17273	.9844	17003	18,151 ✓	Month End
14-3	6-5	130	18216	.9727	17719		
4-10	13-7	190	7,402		T.T. Loads		
0-3	5-11	50	20,309		20,309		
13-5	19-10	120	21,716	.9766	21,208		
20-2	23-8	170	10,713	.9791	10,253		
0-4	9-5	150	17273	.9844	16,666		

Beazer000693

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6
200 BKS. 5-80
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LOCATION _____ DATE _____ BY _____

DATE	SUBJECT From	Tc Number	Pro	Tc Outage	Tc Temp	Tc residue	By	Dome	Rec Tank	START	STOP
5-2-83		ACFX 81283	Gr 3	16¾	80	8 in	SH	10	4	3-11	7-10
5-2-83		NATX 25327	Gr-3	30½	80	3 in	SH	14½	4	7-10	11-7
5-2-83		ACFX 82514	M. UNC	16	70	5 in	SH	12½	99	2-3	5-3
5-3-83		GATX 93222	L. UNC	29	100	2 in	HB	12½	34	0-4	11-7
" "	Foll	UTLX 78473	NSR	32	60	3 in	SH	14½	99	7-9	9-2
" "	Foll	GATX 30601	NSR	18	60	4 in	SH	12½	99	9-2	12-3
5-4-83		TLDX 223003	M. UNC	31	70	6 in	SH	14½	68	6-8	8-0
" "	Chi	Kebx 308	Gr 3	17	80	10 in	HB	16	4	13-4	18-10
" "	Chi	Kebx 302	Gr 3	20	75	14 in	HB	17	4	8-10	13-4
" "		TLDX 223038	Methyl	29½	60°	3 in	HB	14¾	3	1-5	7-8
5-6-83		GATX 11746	NSR	13¾	60°	6 in	SH	9½	34	0-4	10-10
5-9-83		UTLX 77427	Methyl	31	60	2 in	SH	14½	3	1-11	7-8
" "		TLDX 223051	NSR	36½	60°	4 in	SH	15	34	10-9	20-9
" "		GATX 11745	NSR	14	80	7	SH	8	34	0-4	10-9
5-11-83	Chi	ACFX 79686	Gr-1	17¼	100	3	SH	13½	67	3-4	6-10
5-12-83	Chi	GATX 13706	Gr-1	24½	80	8	HB	9	67	0-5	3-4
" "	Chi	ACFX 79665	M. UNC	15¾	70	11 in	HB	13½	68	4-8	5-7
" "	Chi	GATX 13713	Gr-1	16	100	8 in	HB	8	99	13-9	16-3
5-16-83		ACFX 79669	NSR.	25¼	70	5 in	SH	18½	3	0-3	6-1
5-13-83		GATX 93193	L. UNC	34	90	5 in	SH	14½	4	0-4	6-0
5-16-83		UTLX 85779	L. UNC	21	100	6 in	SH	13½	4	6-0	10-7
5-17-83	Chi	KEBX 303	M. UNC	19	80	4 in	HB	16½	68	1-8	3-10
5-17-83	Chi	ACFX 79685	Gr-1	17½	85	6 in	SH	13½	34	5-7	15-7
5-17-83	Chi	ACFX 82514	Gr-3.	19	100	5 in	HB	12½	34	0-2	5-7
5-18-83	Chi	REBX 305	RT-12	36½	150	2 in	HB	16¾			
5-18-83	Foll	ACFX 12516	NSR	19	85	5 in	HB	11	68	8-0	9-8
5-19-83	Chi	TLDX 223037	Mod UNC	32	90	4 in	SH	15	4	0-4	3-10
5-19-83	Chi	ACFX 81235	Mod UNC	21	80	10 in	HB	10	4	3-10	7-9
5-20-83	Chi	ACFX 81236	H-OIL	24	70	4 in	SH	10	33	5-9	15-2
5-20-83	Chi	ACFX 12515	H-OIL	21	80	10 in	HB	14½	33	0-2	5-9
5-23-83	Foll	TLDX 223190	Methyl	31	65	4 in	SH	13	20-67	0-2	2-9
5-23-83	Foll	UTLX 85773	NSR	22½	80	7 in	HB	16	20	6-2	7-10
5-23-83	Foll	NATX 76566	NSR	37	60	3 in	HB	14½	20	4-3	6-2
5-24-83	Chi	ACFX 12062	H-OIL	25½	70	6 in	HB	13½	20	7-10	9-7
5-24-83	Foll	GATX 93199	NSR	33	80	5 in	SH	13	3	7-7	13-6
[illegible]	Chi	UTLX 77065	H-OIL	30¾	110	6 in	SH	15	20	10-11	12-7

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KOPPERS

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T-170 REV. 6
200 BKS. 5-60
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LOCATION _____ DATE _____ BY _____

SUBJECT Rec.

Start	Stop	Temp.	Gallons	Factor	Gallon 60°	Invoice gal.
12-0	13-10	210	19,464	.9398	18259	
10-0	12-0	220	24,820 ?	.9377	18251	
		172	21,766	.9564	20,817	
		170	21,381	.9571	20464	
12-3	13-4	210	18993	.9418	17870	
		212	21191	.9409	19,941	
5-7	6-6	190	18,917	.9494	17,960	
		195	18,618	.9474	17,639	
18-10	19-6	195	17489	.9474	16,569	
		60	21,153	1.	21,153	
		100	19,959	.9844	19,647	
?		60	19,464 ?	1.	19464	
		60	19,010	1.	19,010	
		60	19,800	1.	19,800	
22-9	24-11	180	19577	.9538	18,663	
T-99 12-7	13-9	170	18473	.9571	17,680	
1-6	2-9	190	18104	.9494	17188	
		160	17993	.9610	17291	
		80	20028		19,872	
		100	19182		18,887	
		120	15517		15,154	
		150	18216	.9649	17576	
		140	19010	.9688	18417	
15-7	21-6	185	21580	.9514	20531	
+ 1152 gal To T-67		140	= 15,164	.9688	14691	
7-9	10-6	180	21161	.9533	20173	
10-6	11-11	190	18053		17,210	
		160	17904	.9610	17206	
15-2	17-5	160	14914		14332	
		70	19,577	.9960	19498	10,000 Gals. T-20
		170	18146	.9577	17367	
		170	20868	.9571	19973	
		180	19054	.9538	18164	
		80	20028	.9422	19871	
		200	18146	.9455	17157	

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6
200 BKS. 5-80
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LOCATION _____ DATE _____ BY _____

Date	Subject From	Tc Number	Pro	Tc Outage	Tc Dome	Temp	residue	By	Rec. Tank	Start	Stop
5-25-83	Chi	TLDX 223007	L.UNC	28½	14½	85°	32in	MB	67	3-5	7-11
5-26-83	Chi	TLDX 223189	L.UNC	21½	12½	110	22½	SH	67	0-2	3-5
5-26-83	Foll	Kebx 307	Methyl	16	16	70	2in	SH	68	0-2	2-2
5-31-83	Foll	UTLX 85768	Methyl	16½	16	80°	12½	SH	20	14-6	16-1
5-31-83	Foll	GATX 11746	Methyl	11	9½	90	10in	MB	20	11-10	13-7
5-31-83	Chi	ACFX 12513	L.UNC	19	11½	90	6in	SA	20	13-7	14-6
6-2-83	Chi	GATX 11748	Chi Gr-3	16½	9	80°	8in	MA	11	9-1	9-2
6-1-83	Chi	UTLX 85775	Chi Gr-3	25½	17½	70	7in	SH	11	8-0	9-6
6-2-83	Chi	ACFX 84010	L.oil	19½	11½	100°	5in	SH	67	0-2	3-7
6-1-83	Chi	Kebx 308	H-oil	24	17	90	8in	SH	20	16-4	17-11
6-1-83	Chi	Kebx 302	H-oil	28	15	80	9in	MB	20	17-11	
6-1-83	Foll	GATX-11745	NSR	15	8½	80	5in	SN	20	21-11	
6-2-83	Foll	TLDX-223051	NSR	36½	14½	90	8in	MB	3	10-7	16-10
6-3-83	Chi	TLDX 223040	Gr-3	23	14½	90	14in	MB	11	9-2	9-8
6-3-83		ACFX-79681	Methyl	16½	13½	70	2in	MB	68	0-10	3-3
6-7-83		ACFX 79669	NSR	16	12½	85	6in	MB	3	15-10	21-9
6-7-83	Fon	KPCX 536	Bitchem	27½	14	270	5in	SH	Drums		
6-16-83		ACFX 81225	NSR	22	10	70	6in	SH	3	15-8	21-0
6-17-83		GATX 12451	NSR	11	8½	70	8in	SH	3	9-9	15-8
6-17-83		ACFX 12516	NSR	15	12	65	7in	MB	101	4-8	5-3
6-17-83		UTLX 85779	Marine Q	23	17½	90°	2in	HB	34	0-3	9-7
6-20-83	Foll	KEBX 307	Methyl	18	15½	70	2in	SH	68	2-2	4-3
6-21-83		ACFX 12511	NSR	20	15	70	1in	SH	3	21-0	23-10
6-21-83	Chi	ACFX 93213	NSR	30	15	75	2in	SH	101	5-3	6-4
6-23-83	Chi	ACFX 13706	Marine Creo	16	8	70	3in	SH	34	9-9	20-6
6-28-83	Foll	GATX 94541	NSR	33	12	85	1in	MB	101	6-4	7-3
"	Foll	TLDX 223190	Methyl	32	13	70	2in	MB	68	4-3	6-9
7-8-83	Chi	UTLX 75167	L.UNC	29	15	90	6in	MB	67	0-4	3-8
7-8-83	Chi	TLDX 223037	L.UNC	23	15	80	9in	MB	67	3-8	6-6
7-7-83	Chi	ACFX 81235	L.UNC	23	10	70	12in	MB	67	6-6	10-10
7-13-83	Chi	ACFX 12513	Gr-3	22	11	110	4in	SH	20	0-5	1-5
7-12-83	Chi	ACFX 12515	Gr-3	18½	15	95	6in	MB	20	1-5	2-5
7-13-83	Chi	ACFX 81236	Gr-3	15½	11	70	3in	SH	20	2-5	3-10
7-14-83	Chi	GATX 12452	Gr-3	18	9	100	5in	SH	20	4-10	6-9

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Koppers Company, Inc.

KOPPERS

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200 BKS. 5-80
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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Start	stop	Temp.	GALLONS	Factor	GALLON @60	Invoice Gal.
		120	15546	.9766	15,182	
7-11	10-0	130	18,202	.9727	17,705	
		80	18,216	.9922	18,074	
		80	17239	"	17,104	
		80	19054	"	18905	
16-1	16-4	170	12702	.9571	12157	
+3TT loads		180	17126	.9533	16,326	
		200	14094	.9455	13,326	
		240	18850	.9076	17,674	
		165	17239	.9591	16,534	
		165	16332	"	15,664	
Tue 7-7	10-7	80	22046	.9922	21,874	
		80	17773	"	17,634	
+2TT		188	16660 app	.9533	15,882	
		75	20,318	.9941	20,198	
		85	19746	.9903	19,554	
		75	18,055	.9945	17,956	
		80	20,028	.9922	19,872	
		80°	17,333 app	.9922	17,237	
		120	17,746	.9766	17,330	
		70	17516	.9960	17,446	
		70	16363	"	17298	
		75	22907	.9941	22,772	
		70	19959	.9960	19,879	
		85	19,382	.9903	19194	
		75	20318	.9941	20198	
11-8	14-0	125	19577	.9747	19082	
14-0	17-1	140	20440	.9688	19802	
10-10	11-8	115	17,849	.9785	17465	
4-4	4-10	120	14230	.9766	13,897	
3-10	4-1	125	15430	.9747	15040	
4-1	4-4	185	18430	.9514	17,534	
		120	20868	.9766	20,380	

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200 BKS. 5-60
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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	From	T/C No	T/C Pro.	T/C Ullage	T/C Dome	T/C Temp	T/C Residue	By
7-19-83	Chi	GATX 11747	Gr 3	14½	8	85	6 in	SH
7-19-83	Chi	TLDX 223163	Gr 3	31	13½	75	1 in	MB
7-19-83	Chi	ACFX 12517	Gr 3	15	12	80	5 in	SH
7-19-83	Chi	NATX 21045	Gr 3	18¾	22	90	8 in	SH
7-21-83	Chi	ACFX 79686	Gr 3	17	13½	80	6 in	SH
8-5-83	Fou	KPCX 538	RT-12	28	14	90	3 in	SH
7-28-83	Chi	GATX 13706	Gr 3	18	9	85	7 in	MB
7-25-83	Chi	ACFX 12067	Gr-3	23	10½	90	6 in	SH
7-22-83	Chi	UTLX 78865	Gr-3	18	15	90	5 in	SH
7-20-83	Chi	ACFX 84010	Gr-3	15½	12½	75	4 in	MB
7-26-83	Chi	ACFX 82524	Gr 3	24	12	80	8 in	SH
7-27-83	Fou	ACFX 81225	H-oil	31½	11	90	6 in	SH
8-1-83	Chi	UTLX 77423	Gr 3	30	15	85	7 in	SH
8-4-83	Chi	KEBX 308	Gr 3	15	15	90	7 in	SH
8-4-83	Chi	KEBX 302	Gr 3	15	15	80	6 in	SH
8-3-83	Chi	UTLX 75167	Gr-3 M	30½	15½	100	6 in	MB
8-3-83	Fou	TLDX 223190	Methyl	31¾	13	80	1 in	MB
8-12-83	Chi	KPCX 536	Bitumen	31½	14½	160	5 in	T.J. M.A.
8-10-83	Chi	KPCX 600	Bitumen	31	10½	150	1 in	MC-BH
8-9-83	Chi	UTLX 78473	Gr-3 M	31	15	105	7 in	MB
8-11-83	Chi	UTLX 77427	Gr-3	26	15	100	4 in	MB
8-15-83	Chi	UTLX 85769	Gr-3	23½	15¾	120	10 in	MB
8-11-83	Chi	NATX 25560	Gr-3	23	11	110	6 in	MB
8-16-83	Chi	ACFX 17513	Gr 3	18	10½	90	8 in	MB
8-18-83	Chi	UTLX 95779	Gr-3	28½	18	100	5 in	MB
8-21-83	Chi	TLDX 223040	Gr-3	29½	15	80	5 in	SH
8-22-83	Chi	GATX 13706	Gr 3	15½	8½	95	10 in	SH
8-22-83	Chi	ACFX 79686	Gr 3	19	13	90	8 in	MB
8-24-83	Chi	ACFX 12515	Gr 3	17	14½	90	7 in	MB
8-30-83	Chi	KPCX 575	RT-12	30	18	200	3 in	SH
8-31-83	Chi	TLDX 223163	Gr-3	31	13	90	8 in	SH
8-31-83	Fou	TLDX 223037	UNC	34	15½	70	7 in	SH
9-1-83	Chi	NATX 21045	Gr-3	22	23½	80	5 in	SH
9-3-83	Chi	KPCX 609	Bitumen	46	9½	70	3 in	[illegible]

Organic Materials Group
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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Rec

Tank	Start	Stop	Start	Stop	Tank Temp	Gallons	Factor	Gallons 60°
99	0-1	2-0	5-9	6-6½	90	19792	.9883	19,560
99	2-0	3-7	6-6½	7-5½	110	17992	.9805	17,641
99	3-7	5-9			90	15994	.9883	15,807
4	0-3	5-10			115	19480	.9785	19,061
4	11-8	17-8			120	19182	.9766	18,733
Koppers Trucks								
4	5-10	11-8			120	19746	.9766	19,284
20	4-2	5-11			100	19054	.9844	18,757
20	2-2	4-2			160	21776	.9610	20,929
20	0-5	2-2			90	19054	.9883	18,831
20	5-11	7-7			130	18146	.9727	17,651
33	0-3	9-1			145	16956	.9649	16,395
20	0-4	2-0			100	19054	.9766	19,284
20	2-0	3-8			110	18146	.9805	17,792
20	3-8	5-8			115	18146	.9785	17,756
20	5-3	7-1			150	19961	.9649	19,260
68	6-9	9-2			85	20318	.9903	20,124
321 drums					280			
291 drums					260			
20	7-1	9-0			140	20,868	.9687	20,217
20	9-0	11-0			155	21776	.9530	20,758
20	14-4	15-9			145	16,332	.9648	15,761
20	11-0	12-10			150	19,961	.9649	19,260
20	12-10	14-4			140	15,484	.9688	14,993
20	0-2	1-7			110	15,484	.9805	15,178
20	1-7	3-6			150	19961	.9649	19,260
20	3-6	5-3			150	19054	.9687	18,845
20	6-8	8-6			140	19981	.9688	19,358
20	5-3	6-8			140	15424	.9688	14,943
Koppers Trucks								
20	8-6	9-9	11-8	12-3	180	19961	.9533	19,028
20	0-2	9-11			120	18852	.9766	18,408
20	9-9	11-4	11-4	11-8	180	20868	.9533	19,884
20	Change							

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	From	T/C No.	Tc Pro.	Tc Outage	Tc Dome	Tc Temp	Tc Residue	By	Rec. Tank
8-31-83	Chi	ACFX 12517	Gr-3	20	12	85	8 in	SH	20
9-1-83	Chi	UTLX 77423	Gr 3	29½	14½	80	5 in	SH	20
9-2-83	Chi	UTLX 75167	Gr 3	29½	14½	90	5 in	SH	20
9-6-83	Chi	UTLX 78473	Gr 3	33	15	85	6 in	HB	20
9-9-83	Foll	ACFX 79689	Methyl	14½	13	70	2 in	HB	68
9-12-83	Fon	ACFX 81235	UNC	23	9½	70	10 in	HB	4
9-12-83	Fon	GATX 11745	UNC	20½	9	80	7 in	HB	4
9-16-83	Chi	KEBX 308	Gr-3	22½	16	95	10 in	HB	20
9-16-83	Chi	KEBX 302	Gr-3	22	16½	80	8 in	HB	20
9-19-83	Chi	ACFX 12513	Gr-3	18	12	70	8 in	HB	20
10-4-83	Chi	KPCX 645	K-364	32	17	70			
10-7-83	Chi	TLDX 223040	Gr-3	37 in	14½	70	5 in	SH	11
10-5-83	Chi	ACFX 84010	Gr-3	33½	12	70	7 in	SH	11
10-6-83	Chi	ACFX 12062	Gr-3	17½	10½	80	6 in	SH	11
10-11-83	Chi	UTLX 77427	Gr-3	27	14	90	9 in	HB	20
10-13-83	Chi	TLDX 223184	Gr-3	29½	13½	90	7 in	HB	20
10-13-83	Chi	KEBX 308	Gr-3	14	15	90	6 in	HB	20
10-17-83	Chi	TLDX 223041	Gr-3	32	15	70	10 in	HB	20
10-19-83	Chi	Kpcx 517	K-364	33	20	140	5 in		Tc 575 X
10-21-83		KEBX 302	Gr-3	20	16	70	8 in	HB	20
10-21-83		ACFX 12513	Gr-3	15½	12	70	9 in	HB	20
10-27-83	Chi	ACFX 79685	Gr 3	15½	13½	70	22	SH	20
10-27-83	"	TLDX 223187	Gr 3	29	13	65	18	SH	20
10-27-83	"	TLDX 223039	Gr 3	32½	15½	70	15	SH	20
10-31-83	"	NATX 25327	Gr 3	35	14½	70	8	SH	20
10-31-83	"	Kebx 303	Gr 3	23	16½	60	8	SH	20
11-1-83	"	ACFX 82514	Gr 3	16½	12	65	12	SH	20
11-3-83	Fon	TLDX 223004	UNC	37	15	75	9	SH	4
7-26-84		Kpcx 600	RT-12	31	9	90			
11-16-83	Chi	GATX 93222	H-oil	38½	21	110	6	SH	67
11-16-83	Chi	NATX 21045	H-oil	35	24	115	6	HB	67
11-21-83	"	TLDX 223184	Gr-3	29	13	80	9	SH	99
11-22-83	"	UTLX 77423	Gr-3	29	15	90	8	TJ	99
11-21-83	"	UTLX 85768	Gr-3	25	16	100	7	SH	99
[illegible]	Fon	GATX 12455	UNC	17	12	100	12	HB	4
[illegible]	Fon	GATX 94541	UNC	18	10	100	8	SH	4

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SUBJECT _____

START	STOP	START	STOP	TANK TEMP	GALLONS	FACTOR	GALLONS AT 60°
12-3	13-8			150	15424	.9649	14,883
13-8	15-5			150	19961	"	19,260
15-5	17-2			150	19054	"	18,385
17-2	18-10			130	18146	.9727	17,650
2-1	11-6			75	20,318	.9941	20,198
0-8	3-3	8-9	11-1	135	18900	.9707	18,346
3-3	8-9			140	18,618	.9688	18,037
0-3	1-3	3-3	3-10	120	17239	.9766	16,834
1-3	2-3	3-10	4-5	130	17239	9727	16,768
2-3	3-3	4-5	4-10	130	15424	9727	15003
11-5	13-5			170	18792	.9571	17986
7-7	9-6			200	18009	.9455	17027
9-6	11-5			170	18009	.9571	17236
0-3	1-11			90	18146	.9883	17934
1-11	3-2	4-9	5-5	100	20868	9844	20542
3-2	4-9			90	17239	.9883	17037
5-5	7-3			100	19961	9844	19650
K-30							
8-6	9-11	10-3	10-7	170	17239	.9571	16499
7-3	8-6	9-11	10-3	165	17239	.9591	16,534
							Mat end
0-2½	0-10	4-4	5-2	155	17239	.9630	16,601
0-10	2-5	3-12	4-4	155	19961	"	19,222
2-5	3-12			150	17239	.9649	16634
5-2	6-9			100	17239	9844	16970
6-9	8-5			100	18146	"	17863
8-5	10-1			100	18146	"	17863
0-5	6-1			140	19464	.9688	18857
0-6	2-10	7-8	11-0	140	19577	.9688	18966
2-10	7-8			100	16698	.9844	16437
2-9	5-5			120	19192	.9766	18743
5-5	8-1			130	19192	.9727	18668
0-8	2-9			110	14994	.9805	14702
5-11	13-0			130	20591	.9727	20,029
12-0	17-4			150	18055	.9649	17,421

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6
200 BKS. 5-80
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LOCATION _____ DATE _____ BY _____

SUBJECT

Date	From	Tc No	Prod	Solids	Viscosity	Temp	Mesh	By	Rec Tank
11-22-83	Chi	ACFX 12513	GR3	20	10½	100	6in	HB	99
11-22-83	Chi	TLDX 223163	GR3	33	12½	100	8in	HB	99
12-1-83	FoN	TLDX 223187	UNC	36	13	80	3	SH	20
12-1-83	FoN	TLDX 223004	UNC	36½	15	70	5	SH	20
12-1-83	FoN	ACFX 79685	UNC	22½	13½	70	4	SH	20
12-5-83	FoN	TLDX 223039	UNC	36	14	60	3	[illegible]	20
12-5-83	FoN	UTLX 78473	UNC	29	15	60	3	HB	20
12-5-83	Chi	KPCX 536	CT Bit.	40	14	60	2	SH	Drums
12-15-83	Chi	UTLX [illegible]	Gr-3	25	[illegible]	[illegible]	4	HB	20
12-21-83	FoN	UTLX 77423	UNC	40	14½	100	8	SH	67
12-21-83	FoN	TLDX 223184	UNC	37	13	95	10in	SH	67
1-12-84	FoN	ACFX 79691	UNC	23	13½	100	6in	SH	67
1-5-84	Chi	ACFX 82524	Gr3	28	12½	90	5in	SH	99
1-5-84	Chi	ACFX 79673	Gr3	23	13½	85	7in	HB	99
1-19-84		KPCX 600	Kr-34½	32½	10	60°	5in	SH	17
1-10-84	Chi	UTLX 85779	Gr-3	29	13	60	5in	SH	20
1-10-84	Chi	[illegible] 79956	Gr-3	27	12½	[illegible]	3in	SH	20
1-9-84	Chi	GATX 11049	H-oil	28½	8	60	4in	SH	3
1-12-84	Fall	UTLX 78479	NSR	33	14½	70	9in	HB	34
1-11-84	Chi	UTLX 78845	Gr3	29	15½	85	8in	SH	99
1-12-84	Chi	ACFX 81233	Gr3	23½	10	80	5in	SH	99
1-12-84	Chi	TLDX 223004	Gr-3	36½	15	60	3in	HB	20
1-16-84	Chi	TLDX 223167	Gr-3	33½	12½	60	5in	HB	20
1-12-84	Chi	GATX 13708	H-oil	29	8½	70	6in	HB	3
1-18-84	Chi	UTLX 78471	Gr3	27	15	75	5in	HB	99
1-19-84	Chi	TLDX 223036	Gr3	25½	15	70	13in	HB	99
1-12-84	Chi	TLDX 223040	Gr3	31	15	70	20	HB	99
1-24-84	Chi	UTLX 78498	Gr-3	29½	14	60	5in	SH	20
[illegible]	Chi	GATX 12452	Gr-3	14½	9	60	14in	HB	20
1-31-84	Chi	TLDX 223163	Gr-3	25½	12½	60	7in	HB	20
2-3-84	FoN	TLDX 223039	UNC	39½	15	80	13in	HB	[illegible]
[illegible]	FoN	UTLX 78473	UNC	32½	14½	80	6in	HB	[illegible]
2-[illegible]-84	FoN	TLDX 223184	UNC	34½	12½	95	4in	SH	67
[illegible]	Fall	GATX 94541	NSR	34	12½	70	7in	HB	34
[illegible]	Chi	ACFX 99186	Gr-3	21½	13½	70	21in	HB	99

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SUBJECT _____

Start	Stop	Start	Stop	Tank Temp	Gallons	Factor	Gallons @ 60°	
11-2	13-3			150	14994	[illegible]	14220	
8-1	11-2			160	22191	.9610	21325	
0-0	1-0	3-8	4-6	110	19,961	[illegible]	[illegible]	
2-6	3-8	4-6	5-1	130	19,054	[illegible]	18534	
1-0	2-6	5-1	5-4	130	19,054		18534	
5-4	6-0	7-10	8-11	120	19054	.9766	[illegible]	
6-0	6-6	6-6	7-10	100	19961	[illegible]	19449	
12-9	14-5			180	16332	.9533	15569	
0-7	4-0	9-3	11-5	120	19289	.9766	18838	
4-0	6-6	11-5	13-9	120	16698	"	16,307	Year end
6-6	9-3	13-0	16-3	120	18137	"	17712	
0-0	0-10	3-5	5-2	[illegible]	18593	.9610	17868	
0-10	2-10	2-10	3-5	150°	18593	.9649	17940	
Trucks					[illegible]			RT-8
0-2	1-0	2-10	3-5	115	17240 ?	.9786		
1-0	2-10			115	19961	"	19532	
5-6	8-10	20-2	23-0	175	19182	.9552	18323	
0-3	11-3			150	20907	.9649	20173	
0-0	2-8			90	19192	.9883	19066	
2-8	5-4			190	19192	.9494	18221	
3-4	4-0	10-3	11-6	180	20868	.9533	19,893	
4-0	4-10	9-1	10-3	150	21775	.9649	21011	
0-2	5-10			130	19182	.9727	18658	
5-4	8-4			175	21591	.9552	20624	
8-4	9-10	11-5	12-10	170	20992		20,091	
9-10	11-5	12-10	13-10	175	18593		17,760	
2-4	4-3			150	20868		20,135	
0-5	1-2	5-2	6-0	190	17239	.9494	16,367	
1-2	2-4	4-3	5-2	170	22683		21,755	
5-10	8-9	14-1	16-8	150	18618		17964	
2-8	5-10	8-9	11-9	175	20872		19,937	
0-4	7-8	11-9	14-3	180	19464		18555	3500 [illegible]
6-0	16-3			140	19484	.9688	18876	
0-0	2-8			100	19192	.9852	18893	

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6
200 BKS. 5-60
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

DATE	From	Tc. No.	Tc Pro.	Tc outage	Tc Dome	Tc Temp	Tc received	By	rec. TANK
2-8-84	Chi	UTLX 79964	Gr-3	25	10	70	5 in	HB	3
2-10-84	Chi	KERX 302	Gr-3	19½	16½	60	11 in	HB	20
2-9-84	Chi	UTLX 78492	Gr-3	32½	15	60	7 in	SH	3
2-14-84	Chi	UTLX 85769	Gr-3	29	15½	70	11 in	SH	3
2-13-84	Folk	NATX 21443	NSR	31	23½	60	6 in	HB	33+34
2-15-84	Chi	ACFX 12069	H-oil	22	10	75	6 in	SH	20
2-17-84	Chi	NATX 25560	Gr-3	31½	11½	60	13 in	SH	65
2-28-84	Chi	GATX 13710	Gr-3	21	9	60	13 in	SH	99
2-27-84	Chi	UTLX 85768	Gr-3	25	15¾	80	10 in	SH	99
2-29-84	Chi	ACFX 12062	H-oil	26	10	75	5 in	SH	4
2-29-84	Chi	UTLX 77474	Gr 3	32	14¾	80	14 in	SH	99
3-2-84	Chi	UTLX 79956	Gr 3	27	10	70	11 in	HB	99
3-2-84	Chi	UTLX 79987	Gr 3	26	10	70	9 in	SH	99
3-6-84	Chi	GATX 93213	Gr 3	29½	13½	75	12 in	HB	65
3-26-84	Chi	UTLX 78484	Gr-3	38½	14¾	70	5 in	SH	65
3-8-84	Chi	ACFX 12030	Gr-3	18½	10	60	9 in	HB	20
3-8-84	Chi	GATX 93222	Gr-3	31½	12½	60	11 in	HB	20
3-19-84	Chi	KPCX 632	bitumen	35	17½	75	9 in	TJ+HHB	
3-8-84	Chi	UTLX 77475	RT-12	48	14½	60°	3 in	SH	KPCX 600
3-12-84	Chi	TLDX 223036	Gr-3	32½	14½	60°	8 in	SH	20
3-12-84	Chi	ACFX 82524	Gr-3	30	12½	60°	3 in	SH	65
3-9-84	Chi	" 79665	Gr-3	30	14	60°	10 in	HB	20
3-13-84	Folk	TLDX 223190	Methyl	28	12½	60°	3 in	HB	68
3-13-84	Chi	UTLX 79964	Gr-3	27	11	65	10 in	SH	65
3-13-84	Chi	UTLX 78492	Gr-3	33	14½	70	8 in	SH	65
3-14-84	Chi	ACFX 12516	Gr-3	21½	15	70	3 in	HB	65
3-14-84	Chi	UTLX 78845	Gr-3	32	15	70	12 in	HB	20
3-19-84	Chi	UTLX 79954	Gr-3	26½	10	60	6 in	SH	65
3-14-84	Chi	ACFX 12517	Gr 3	21	8	70	4 in	SH	65
3-15-84	Chi	GATX 11749	Gr 3	22	8	70	9 in	HB	65
3-19-84	Folk	TLDX 223634	Methyl	35	15	65	34 in	SH	68
3-16-84	Folk	TLDX [illegible]	solvent	31	16	60	2 in	HB	33
3-19-84	Folk	TLDX 223[illegible]38	NSR	37	15½	60	8 in	HB	65
3-23-84	Chi	TANX 23[illegible]00	Gr-3	26	13½	80	5 in	SH	65
3-[illegible]-84	Chi	TANX 23[illegible]06	Gr-3	28	[illegible]	80	6 in	HB	65

Organic Materials Group
Koppers Company, Inc.

KOPPERS

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200 BKS. 5-80
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LOCATION _____ DATE _____ BY _____

SUBJECT _____

START	STOP	START	STOP	TANK Temp	GALLONS	FACTOR	GALLONS @ 60°
							Wet
0-2	1-4			155	20,872	.9549	19 931
0-3	1-10			130	17 239	.9727	16 768
3-4	12-3			140	20,028	.9688	19,403
10-4	15-0			150	17,209	.9549	16 433
16-0	21-0	0-4		90	17,456	.9883	17 252
0-3	1-9			100	17,239	.9844	16970
9-10	10-5			190	16091	.9494	15277
4-10	7-7			160	19 792	.9610	19020
2-8	4-10			100	15994		15944
0-4	6-6			210	20028	.9416	18858
7-7	10-3			150	19192		18326
13-1	15-6			100	17393		17122
10-3	13-1			130	19792	.9727	19252
5-8	6-7			170	19669	.9571	18125
21-9	22-4	22-5	22-8	200	17880	.9455	16905
0-1	1-1	2-10	3-6	130	18146		17651
1-1	2-10			120	19054	.9766	18608
		373 drums		165 - 158			
3-6	4-0	5-8	6-10	230	18146	.9377	17015
13-1	13-7	11-10	12-1	200	16091	.9455	15214
4-0	5-8			160	18146	.9610	17438
4-4	6-10			70	21019 ✓	.9960	20935
12-11	13-10			190	19669	.9494	18674
11-7	12-4			190	16091	"	15277
12-4	12-11	13-10	14-1	200	17880	.9455	16905
6-10	8-8			190	18146	.9494	17228
14-11	15-4	19-3	19-7	200	16091		15214
13-7	14-0			190	16091		15277
14-0	14-11			19[illegible]	19669	.9474	18634
6-10	8-10			90	16815 ✓	.9883	16618
0-7	11-8			60	21[illegible]5 ✓		21665
19-4	20-3			100	19669 ✓		18597
19-10	20-9			210	19669	.9416	18520
20-9	21-[illegible]			220	23347		21798

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Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6
200 BKS. 5-60
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	From	T/C No	Pro	Outage	T/C Dome	T/C Temp	T/C residue
3-23-84	Chi.	ACFX 12069	Gr 3	20	10	65	4 in
3-22-84	Chi.	UTLX 75167	Gr 3	28	15	80	8 in
3-30-84	Chi.	UTLX 85773	Gr 3	23½	17	70	3 in
3-27-84	Folk.	TLDX 223165	Methyl	28	13	60°	2 in
3-28-84	Chi	Kebx 308	H-oil	23	17	70	7 in
3-30-84	Chi.	GATX 13710	Gr 3	20½	9	65	2 in
3-30-84	Chi.	UTLX 78498	Gr 3	33½	15	70	4 in
4-2-84	Chi	UTLX 78462	Gr-3	32½	14½	80	8 in
4-3-84	Chi	UTLX 77474	Gr-3	30	14½	70	9 in
4-3-84	Chi	NATX 25560	Gr-3	34	12½	60	9 in
4-4-84	Chi	ACFX 12516	Gr-3	21	14½	90	8 in
4-5-84	Chi	UTLX 79987	Gr-3	34	10½	100	10 in
4-5-84	Chi	TLDX 223002	Gr-3	34	11	80	13 in
4-9-84	Chi	UTLX 78492	Gr-3	30½	14	80	8 in
4-10-84	Chi	UTLX 78845	Gr-3	31	15	70	10 in
4-13-84	Chi	GATX 93272	Gr-3	32	12½	90	2 in
4-12-84	Chi	UTLX 79904	Gr-3	23	10½	90	8 in
4-11-84	Fon	TLDX 223184	UNC	38	12½	100	4 in
4-11-84	Chi	ACFX 79686	Gr-3	20	14	70	9 in
4-12-84	Chi	GATX 11749	Gr-3	13	7	70	3 in
4-13-84	Fon	UTLX 78473	UNC	37	15	100	7 in
4-18-84	Chi	GATX 93199	Gr 3	26½	12½	80	3 in
4-15-84	Chi	UTLX 79954	Gr 3	24	11	70	5 in
4-23-84	Chi	TLDX 223158	Gr 3	31½	13	65	5 in
4-24-84	Chi	ACFX 12515	Gr 3	20½	14	60	3 in
4-25-84	Chi	TLDX 223159	Gr 3	36	13	75	14 in
4-24-84	Chi	ACFX 09689	Gr 3	20	13½	80	3 in
4-30-84	Chi	GATX 13708	Gr 3	21½	8	70	8 in
4-30-84	Chi	GATX 93193	Gr 3	30	13	65	5 in
4-30-84	Chi	ACFX 12069	Gr 3	21	10	80	6 in
5-1-84	Chi	KEBX 307	Gr-3	25	16	80	7 in
5-1-84	Chi	GATX 13710	Gr-3	16	85	80	3 in
5-1-84	Chi	UTLX 78462	Gr-3	27	95	70	8 in
[illegible]-84	Chi	ACFX 12516	Gr-3	17	12	70	4 in
[illegible]-84	Chi	ACFX 12062	Gr-3	17	10	70	3 in

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200 BKS. 5-60
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

By Rec

	Tank	Start	Stop	Start	Stop	Tank Temp	Gallons	Factor	Gallons
SH	65	21-5	22-0	22-1	22-5	210	19669	.9416	18520
SH	65	20-6	21-5			210	19669		18520
SH	65	20-7	21-0	20-11	21-3	200	16091	.9465	15214
SH	68	8-10	11-3			65	20318	.9980	20277
HB	4	0-9	6-3			160	18618	.9610	17892
SH	65	21-0	21-7	21-3	21-5	200	16091	.9453	15214
SH	65	21-1	21-5	21-5	22-0	200	19669		18592
HB	65	21-6	22-4			175	17880	.9552	17079
HB	65	22-4	22-7	22-6	23-1	180	17880	.9533	17045
HB	65	22-7	23-1	23-1	23-7	185	21458	.9514	20415
HB	65	22-10	23-6			180	14303		13635
HB	65	23-6	24-2	24-3	24-6	180	19669		18750
HB	65	23-7	24-3	24-6	24-8	180	17880		17045
HB	65	23-10	24-3	22-6	23-0	175	19669	.9552	18788
HB	65	24-3	24-5	22-3	22-10	175	17880		17079
HB	20	7-6	8-7	8-7	9-4	130	19961		19468
SH	20	5-8	7-6			110	19961		19572
SH	3	0-3	6-0			180	19464	.9533	18555
HB	20	3-1	4-11			100	19961	.9844	19649
SH	20	2-0	3-1	4-11	5-8	110	19961	.9805	19572
SH	3	6-10	11-5			170	18900	.9571	18089
SH	65	21-2	22-2			190	21458	.9496	20372
SH	65	18-1	19-0	21-1	21-2	190	21458	"	20372
SH	65	21-1	21-11	21-5	21-6	170	21458	.9571	20530
SH	65	21-1	21-10			180	16091	.9533	15339
SH	65	21-7	21-10	21-14	21-11	180	17880	"	17045
SH	65	20-2	21-1			180	19969	"	19036
HB	65	19-0	19-8	19-7	19-10	175	19669	.9552	18788
HB	65	19-9	19-11	19-1	19-7	170	17880	.9571	17113
HB	65	19-11	20-0	18-5	19-1	170	17880	"	17113
HB	65	19-7	20-5			175	17880	.9552	17079
SH	65	20-5	21-4			180	19669	.9533	18750
SH	65	21-4	22-4			180	21458	"	20446
SH	65	24-1	24-10			180	16091		
SH	65	23-2	24-1			180	19669		

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LOCATION _____ DATE _____ BY _____

SUBJECT _____

DATE	From	Tk No.	Pro	Tk Outage	Tc Dome	Tk Temp	residue	By
5-2-84	chi	KEBX 308	Gr-3	17½	16	70	14 in	SH
5-3-84	chi	GATX 12706	Gr-3	22½	9	70	10 in	SH
5-3-84	chi	UTLX 78498	Gr-3	31	14	70	6 in	SH
5-3-84	chi	UTLX 77474	Gr-3	32½	14	70	8 in	SH
5-4-84	Foll	TLDX 223191	NSR	35½	14	70	3 in	SH
5-4-84	chi	ACFX 79668	Gr-3	26	14	70	8 in	SH
5-4-84	chi	ACFX 79669	Gr-3	23½	13.5	70	6 in	SH
5-7-84	chi	UTLX 85768	Gr-3	23½	15½	80	5 in	SH
5-8-84	Fon	TLDX 223004	U.N.C.	35½	15½	70	3 in	SH
5-8-84	Fon	TLDX 223039	U.N.C.	39	15	70	6 in	MP
5-11-84	Chi.	KPCX 603	Bitumen	38	10	65	3 in	SH
5-9-84	chi	ACFX 12517	Gr 3	17½	12	70	6 in	SH
5-10-84	chi	TLDX 223036	Gr-3	36	15	70	14 in	MB
5-11-84	chi	UTLX 78865	Gr-3	28	15	100	8 in	MB
5-17-84	Chi	GATX 11749	Gr 3	16½	8	85	9 in	SH
5-21-84	Chi	GATX 13708	Gr 3	22	8	80	11 in	SH
5-23-84	Chi	KPCX 586	K-364	33	17	95	2 in	SH
5-24-84	Chi	UTLX 77474	Gr 3	30	14	80	7 in	SH
5-24-84	Chi	UTLX 78462	Gr 3	31½	14½	75	6 in	SH
5-23-84	Chi	GATX 13710	Gr 3	13½	8	85	8	MB
5-30-84	chi	GATX 12452	Gr-3	13	8	78	2 in	MB
5-30-84	chi	UTLX 85769	Gr-3	19	16	70	7	MB
5-31-84	Chi	" 78863	Gr-3	29	15	70	6	MB
6-1-84	Foll	ACFX 81233	NSR	23	10	70	3 in	SH
6-5-84	Chi	UTLX 78498	Gr 3	30	14	70	10 in	MB
" "	Chi	GATX 93222	Gr-3	31	12½	70	13 in	SH
" "	Chi	GATX 94541	Gr-3	33	12½	70	6 in	SH
6-7-84	Chi	UTLX 79966	Gr-3	23½	10½	100	10 in	SH
6-8-84	Fon	TLDX 223032	U.N.C	37	14½	70	8 in	MB
6-8-84	chi	ACFX 12515	Gr-3	19	15	70	8 in	MB
6-13-84	chi	TLDX 223179	Gr-3	31	12½	70	10 in	SH
6-13-84	chi	TLDX 223038	Gr-3	34	15	70	8 in	SH
6-13-84	chi	TLDX 223158	Gr-3	21	12½	70	3 in	MB
6-15-84	chi	KPCX 501	Bit	38	25½	60	4 in	SH
6-15-84	Chi	GATX 11745	Gr 3	19	8	70	8 in	SH
6-15-84	Chi	GATX 13706	Gr 3	16	9	65	2 in	SH

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Rec TANK	START	STOP	START	STOP	TANK Temp	Rec GALLONS	Factor	GALLON @ 60°
65	22-4	23-2			180	17880		
65	24-10	25-3	27-1	27-7	190	21458		
65	25-3	26-3			190	21458		
65	26-3	27-1			190	17880		
67	0-3	6-6			140	21592		
65	27-7	28-5			190	17880		
65	26-9	27-7			190	17880		
65	27-7	27-11	27-5	27-9	180	14303		
3	13-6	15-2	18-1	22-5	160	20309		
3	11-3	13-6	15-2	18-1	80	17491		
Drums								
65	27-0	27-9			180	16091		
65	26-11	27-10			185	19669		
65	27-10	28-3	28-9	28-3	190	19669		
65	31-8	32-7			180	19669		
65	30-10	31-9			175	19669		
Trucks								
20	3-9	5-6			150	19054		
20	1-11	3-9			130	19961		
20	0-3	1-11			85	18146		
20	5-6	6-4	9-9	10-8	130	19054		
20	6-4	7-11			100	17239		
20	7-11	8-11	8-11	9-9	120	19961		
67	6-3	11-9			80	18137		
20	10-8	12-8			150	21776		
20	12-8	16-4			160	19961		
20					160	19962		
99	0-5	2-8			100	19192		
4	0-8	6-10			180	20,872		
99	2-8	4-9			110	14994		
99								
99	4-9	13-2			120	60,576		
99								
Drums								
99	15-9	17-6			110	18993		
99	13-2	15-9			110	18595		

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Date	From	T/C No.	Pro.	T/C outage	T/C Dome	T/C Temp	T/C residue	By
6-18-84	Chi	ACFX 82528	Gr 3	23	13	70	7	HB
6-19-84	Foll	TDPX 223190	Methyl	31	13	60	2 in	BH
6-20-84	Chi	ACFX 82514	Gr-3	32	12	60	17 in	HB
6-21-84	Chi	ACFX 81229	Gr-3	16	9½	60	8 in	BH
6-22-84	Chi	UTLX 79964	Gr. 3	23½	10½	65	5 in	HB
6-27-84	FoN	NATX 21042	UNC	24	42	80	2 in	BH
6-26-84	chi	GATX 11749	H-oil	25	8	65	7 in	HB
7-19-84	Chi	TLDX 223158	Gr. 3	32	13	70	8 in	BH
"	Chi	UTLX 79966	Gr. 3	17	10	65	11 in	BH
"	Chi	ACFX 12515	Gr. 3	25½	14½	70	10 in	BH
7-18-84	Chi	KPCX 587	RT-12	38	12½	100	9½	BH+HB
7-20-84	FoN	GATX 11748	UNC	23	5	120	8 in	BH
7-20-84	FoN	UTLX 72484	UNC	32	16	115	9 in	BH
7-24-84	Chi	NATX 38560	Gr-3	29	11½	70	4 in	HB
7-24-84	Chi	TLDX 223036	Gr-3	34	19	70	24 in	BH
8-2-84	Chi	KPCX 303	K-364	41½	11½	70	5 in	BH
7-26-84	FoN	TANX 23901	UNC	34½	13½	80	5 in	HB
7-27-84	FoN	NATX 21042	UNC	36½	23½	80	7 in	HB
7-31-84	Foll	GATX 11746	N.S.R.	15	8	80	2 in	HB
7-31-84	Foll	TLDX 223184	Solvent	24	12½	70	2 in	BH
7-31-84	Foll	TLDX 223190	Methyl	27	12½	70	4 in	BH
8-1-84	chi	KPCX 603	K-364	37½	10	80		
8-6-84	Foll.	TLDX 223039	N.S.R.	36	15½	70	3 in	BH
8-8-84	Chi	ACFX 79672	Gr 3	30½	13½	75	10 in	BH
8-9-84	Chi	UTLX 78473	Gr 3	30	15	80	5 in	BH
8-13-84	Foll.	TLDX 223034	Methyl	32	14½	70	2 in	HB
"	Chi	GATX 35847	Gr-3	28½	13	100	8 in	HB
8-14-84	chi	TLDX 223163	Gr-3	37½	14½	80	9 in	HB
8-14-84	chi	ACFX 79670	Gr-3	22	13½	80	9 in	HB
8-14-84	chi	UTLX 78483	Gr-3	24½	14½	100	6 in	HB
8-14-84	chi	UTLX 79964	Gr-3	22	10	120	7 in	HB
8-16-84	Hou	ACFX 12513	H-oil	17	11	80	8 in	BH+HB
8-16-84	Chi	ACFX 79685	Gr-3	23	13½	100	9 in	BH
8-17-84	Chi	TANX 23900	Gr-3	34	13½	100	4 in	BH+HB
8-18-84	chi	ACFX 12515	Gr-3	28	14	120	5 in	BH+HB
8-24-84	chi	UTLX 82528	Gr-3	22½	11	120	7 in	BH HB

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SUBJECT

Rec Tank	Start	Stop	Start	Stop	Tank Temp	Rec. Gallons	Factory	Gallons °60
99	15-9	21-0			110	18891		
68	3-8	6-1			80	20,318		
99	21-0	25-10			100	34,786		
99								
20	15-10	5-11	Shiped		To Mc+Bax Calif.		6-25-84 AT 130°	
4	6-8	11-4			170	15,799		
20	13-11	15-6			110	17,239		
20								
20	0-1	5-0			130	53,533		
20								
Trucks					350			
3	0-9	12-1			110	38,360		
3								
20	5-0	8-8			170	39,923		
20								
Trucks 3 Loads To K-30 For Tocoma								
3	12-3	18-1			160	19,746		
3	18-0	22-9			160	16,081		
67	0	6-5			100	22,168		
33	6-5	18-1			70	22,171		
68	1-5	4-0			90	21,719		
65	14-3	15-1			100	17,713		
20	0-0	1-7			90	17,239		
20	1-7	3-7			90	21,776		
68	0-11	3-5			85°	21,019		
20	3-7	5-4			110	19054		
20	5-4							
20			8-8		120	36,293		
34	0-0	11-8			200	22117		
20	8-8	10-6			100	19961		
4	6-5	5-4			150	16645		
20	10-6	12-2			110	18146		
20	12-2	17-0				52,626		

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SUBJECT _____

Date	From	T/C No	Pro	T/C outage	T/C Dome	T/C Temp	T/C Residue	Pumped By
8-21-84	FoN	UTLX 78484	UNC	32	15	90	8 in	[illegible]
8-21-84	FoN	GATX 11748	UNC	24	8	80	4 in	[illegible]
8-21-84	Chi	UTLX 79981	Gr 3	27½	10½	75	9 in	[illegible]
8-23-84	Chi	ACFX 84010	Gr 3	19	11½	70	11 in.	[illegible]
8-28-84	FoN	TLDX 223165	UNC	36	12½	80	6 in.	[illegible]
11-10-84	Chi	KPCX 208	K-364	38½	6	90		
8-28-84	Chi	ACFX 79680	Gr 3	17½	13½	80	4 in.	[illegible]
8-27-84	Chi	UTLX 78495	Gr 3	37	15	90	5 in	[illegible]
8-29-84	Chi	UTLX 78863	Gr 3	32½	14½	85	16 in	[illegible]
8-30-84	Chi	GATX 12455	Gr 3	16	9	75	4 in	[illegible]
8-30-84	Chi	UTLX 85768	Gr 3	24½	16	80	5 in	[illegible]
9-4-84	Chi	GATX 94541	Gr 3	34	12½	70	9 in	[illegible]
9-5-84	Chi	TLDX 223045	Gr 3	34	15½	65	14 in	[illegible]
9-5-84	Chi	ACFX 79683	Gr 3	18	14	70	10 in	[illegible]
9-12-84	P Town	ACFX 79667	H-oil	34	18	80	7 in	[illegible]
9-13-84	Chi	TLDX 223036	Gr 3	29	14½	65	16 in	[illegible]
9-12-84	Chi	UTLX 78483	Gr-1	30½	15	80	8 in	[illegible]
9-13-84	Chi	UTLX 79964	Gr-3	33	10	75	9 in	[illegible]
9-14-84	Chi	GATX 35847	Gr-3	29½	13½	60	6 in	[illegible]
9-17-84	Chi	UTCX 70474	Gr-1	28½	14½	80	7 in	[illegible]
9-17-84	Chi	ACFX 79688	Gr-1	16	13½	75	11 in	[illegible]
9-18-84	Chi	ACFX 79670	Gr-3	26	13½	80	8 in	[illegible]
9-18-84	Chi	UTLX 77448	Gr 3	31½	15	80	8 in	[illegible]
9-18-84	Chi	GATX 93222	Gr 3	35	13	75	8 in	[illegible]
9-20-84	FoN	TLDX 223191	UNC	34	13	80	8 in	[illegible]
9-20-84	Chi	UTLX 79951	Gr 3	26½	11	60	7 in	[illegible]
9-21-84	Chi	ACFX 82524	Gr-3	19½	13	60	9 in.	[illegible]
9-25-84	FoN	GATX 11748	UNC	21½	8	70	5 in	[illegible]
9-2[illegible]-84	Chi	ACFX 12063	Gr-3	20	10½	60	16 in	[illegible]
9-23-84	Chi	UTLX 78478	Gr-3	32	14½	70	10 in	[illegible]
9-2[illegible]-84	Chi	KEBX 303	K-364	40	16	60		
9-26-84	F Bee	TILX 260017	NSR	35	14½	70	7	[illegible]
9-26-84	F Bee	NATX 21042	NSR	37	24	65	5	[illegible]
[illegible]	Chi	ACFX 79672	Gr-1	16	13½	70	10	[illegible]
[illegible]	Chi	NATX 81045	Gr-3	29	23½	60	10	[illegible]
[illegible]	F Bee	TLDX 223034	N-Tol-1	32½	14½	70	2	[illegible]

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Rec Tank	Start	Stop	Start	Stop	Tank Temp	Rec Gallons	Factory	60 Gallons
20	20-8	22-7			175	20,868		
20	19-0	20-8			160	18,146		
20	17-0	19-0			160	21,776		
99	0-0	2-8			120	19,192		
3	0-2	6-2			200	20,309		
99	5-1	7-9			90	19,192		
99	2-8	5-1			90	17,393		
99					100			
99	7-9	15-5			100	55,178		
99					100			
99								
99	15-5	23-5			120	52,572		
99								
4	0-11	6-2	160			17,772		
99	0-0	2-8			120	19,192		
68	0-0	2-2			130	18,216		
99	2-8	5-5			120	19,792		
34	0-0	10-4			110	19642		
68	2-2	6-8			120	37833		
68								
34	10-4	20-4			200	19010		
99	5-5	10-7			90	37185		
99								
3	6-0	11-4			80	18055		
99	10-7	13-5			140	20392		
99	13-5	16-0			160	18593		
3	10-11	16-6			80	18900		
99	16-0	20-10			150	34,786		
99								
67	6-1	15-10			80	33,683		
67								
68	6-7	9-0			90	20,318		
20	2-7	4-3			150	18,1[illegible]		
34	0-0	11-4			80	21,5[illegible]		

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Date	From	TC No.	RRO	T/C Outage	T/C Dome	T/C Temp	T/C Residue	Pump By
10-2-84	Chi	ACFX 79680	Gr-3	25"	13½	80	8	HB
10-2-84	Chi	TANX 23900	Gr-3	29½	11½	80	3	HB
10-4-84	chi	UTLX 79981	Gr-3	29	11	60	10 in	HB
10-4-84	chi	ACFX 79668	Gr-3	28	13	60	9 in	HB
10-4-84	Chi	UTLX 78495	Gr-3	31½	15½	70	7 in	HB
10-8-84	chi	ACFX 12035	Gr-3	25	10½	80	6 in	HB
10-9-84	chi	GATX 11749	Gr-3	28½	7½	80	9 in	HB
10-9-84	chi	TLDX 223003	H-oil	35½	14½	60	4 in	HB
3-26-85	chi	RPCX 586	K-364	38	17	70	2 in	SH
10-9-84	chi	GATX 93199	Gr-3	32	12½	80	9 in	HB
10-10-84	FOLL	UTLX 78484	Methyl	23	13	60	2 in	HB
10-11-84	chi	ACFX 79665	Gr-3	18½	12½	90	7 in	HB+SH
10-11-84	Foll	TLDX 223039	NSR	34	15	70	12 in	SH HB
10-11-84	Foll	GATX 12452	NSR	17	8	80	5 in	SH
10-12-84	Foll	GATX 25560	H-oil	32	11½	100	8 in	HB+SH
10-15-84	Fon	GATX 25097	UNC	26	13	70	7 in	SH
10-16-84	Chi	ACFX 12517	Gr-3	21½	11½	70	8 in	SH
10-16-84	Chi	GATX 38605	Gr-3	21	13	70	7 in	SH
10-18-84	Fon	GATX 12454	UNC	20	8	85	2 in	HB
10-17-84	Foll	ACFX 12513	Methyl	18	11	70	3 in	HB
10-18-84	Chi	UTLX 78492	Gr-3	31	19	80	11 in	HB
10-22-84	chi	ACFX 84010	Gr-3	22	11½	80	13 in	JJ
10-22-84	chi	ACFX 79689	Gr-3	17	13½	80	5 in	SH
10-23-84	chi	UTLX 77448	Gr-3	28	14½	80	5 in	SH
10-26-84	Chi	ACFX 79674	Gr-3	17½	13½	85	10 in	SH
10-26-84	Chi	TLDX 223037	Gr-3	35	14½	70	14 in	SH
10-26-84	Fon	TTLX 260027	UNC	38	14	80	3 in	SH
10-31-84	chi	GATX 11747	Gr-3	19	8	80	6 in	HB
10-30-84	chi	UTLX 75167	Gr-3	21	14½	100	10 in	HB
10-31-84	chi	ACFX 12515	H-oil	36	14½	70	8 in	HB
11-1-84	chi	ACFX 79670	Gr-3	16½	13½	70	10 in	HB
[illegible]	chi	UTLX 77475	Gr-3	30	15	70	10 in	HB
11-5-84	chi	ACFX 79668	Gr-3	16½	13½	70	11 in	HB
[illegible]	chi	UTLX 77474	Gr-3	31	15	70	9 in	HB
[illegible]	chi	GATX 93222	Gr-3	33½	13	60	4 in	HB
[illegible]	chi	NATX 76039	Gr-3	30	10½	70	7 in	HB

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Rec Tank	Start	Stop	Start	Stop	Tank Temp	Rec Gallons	Factory	@ 60° Gallons
99	0-0	5-3			100	32,785		
99								
20								
20	1-2	6-5			150	57,157		
20								
20	6-5	9-5			110	32664		
20								
4	0-5	6-8			130	21153		
RT-8 Trucks								
20	9-5	11-1			110	18146		
34	6-4	18-0			80	22171		
20	11-1	13-1			110	21776		
67	6-0	11-5			80	18713		
67	0-0	6-0			90	20728		
4	6-8	12-5			140	19464		
3	5-8	11-4			100	19182		
99	5-3	9-6			90	30588		
99								
3	0-5	6-8			170	21153		
34	13-0	20-10			70	14,901		
99	9-6	12-6			160	21591		
20								
20	0-3	5-4			130	56252		
20								
20	5-4	8-10			100	38108		
20								
3	6-8	12-0			130	18055		
20	10-8	12-6			90	19961		
20	8-10	10-8			90	19961		
4	7-1	10-11			100	12979		
20	14-2	16-1			100	19264		
20	12-6	14-3			90	19054		
20	16-1	17-11			100	19962		
99								
99	0-2	8-7			120	60576		
99								

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KOPPERS

Organic Materials Group
Koppers Company, Inc.

T-170 REV. 6
200 BKS. 5-80
PRINTED IN U.S.A.

LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	From	T/C No	PRO	T/C outage	T/C Dome	T/C Temp	T/C Residue	Pump By
11-9-84	Chi	KPCX 603	Bitumen	32	10	100	2 in	SH
11-15-84	Chi	ACFX 12035	Gr 3	20½	11	80	10 in	SH
11-15-84	Chi	NATX 76035	Gr 3	33	12½	85	12 in	SH
11-14-84	Chi	ACFX 12062	Gr 3	23	10	80	13 in	SH
11-20-84	Chi	UTLX 79964	Gr 3	31	11	70	10 in	SH
11-20-84	Chi	TANK 23901	Gr 3	29	13½	80	8 in	SH
11-20-84	Chi	TLDX 223000	Gr 3	35½	14½	75	14 in	SH
11-26-84	Chi	TLDX 223003	Gr 3	34	15	65	14 in	SH
11-26-84	Chi	TLDX 223002	Gr 3	29	15	80	13 in	HB
11-26-84	Chi	UTLX 78865	Gr 3	32	15	70	10 in	HB
11-27-84	chi	NATX 25560	Gr-3	30	11½	60	13 in	SH
11-27-84	Chi	UTLX 78492	Gr-3	32	13½	60	8 in	SH
11-27-84	Chi	UTLX 77448	Gr-3	31½	14	60	10 in	SH
11-28-84	chi	TLDX 223158	Gr-3	36	14	60	14 in	SH
11-28-84	chi	NATX 25327	Gr-3	35	14	60	9 in	SH
11-28-84	chi	ACFX 79688	Gr-3	18	13½	80	13 in	SH
11-29-84	chi	GATX 93199	Gr-3	34	12½	80	8 in	SH
11-29-84	chi	ACFX 79689	Gr-3	19	13	70	13 in	HB
11-29-84	chi	ACFX 74810	Gr-3	22½	11½	70	10 in	SH
12-4-84	FON	GATX 11748	UNC	21½	8	80	6 in	HB
12-4-84	FON	GATX 25097	UNC	27	12½	80	1 in	HB
12-4-84	chi	ACFX 79680	Gr-3	18	13	70	10 in	HB
12-4-84	chi	UTLX 79951	Gr-3	17½	10½	70	7 in	HB
12-3-84	chi	ACFX 79676	Gr-3	24½	13½	70	13 in	HB
12-[illegible]	chi	TLDX 223163	Gr-3	26	13	70	12 in	HB
[illegible]	chi	NATX 76029	Gr-3	33	12½	75	10 in	HB
[illegible]	chi	ACFX 79670	Gr 3	19½	13½	80	8 in	HB
12-5-84	Fotl	TILX 260046	NSR	35½	14	70	5 in	SH
12-5-84	chi	ACFX 81233	Gr-3	20	10	80	12 in	HB
12-[illegible]-84	chi	ACFX 81225	Gr-3	23	10	80	7 in	SH
12-7-84	chi	GATX 12455	Gr-3	15	9	90	3 in	SH
12-[illegible]-84	chi	ACFX 81224	Gr-3	18	10	70	5 in	SH
12-[illegible]-84	Chi	GATX 12452	H-oil	25	9	100	3 in	SH
[illegible]-84	Chi	NATX 21645	H-oil	29	23	100	4 in	SH

Organic Materials Group
Koppers Company, Inc.

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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Rec Tank	Start	Stop	Start	Stop	Tank Temp	Tank Gallons	Factory	@ 60° Gallons
Drums								
20								
20	0-2	5-0			150	54,440		
20								
20								
20	5-0	10-0			100	54,440		
20								
20								
20	10-0	14-10			90	52,626		
20								
20								
20	14-10	19-8			90	52,676		
20								
20								
20	19-8	24-9			90	55,347		
20								
68								
68	50-6	4-7			90	38,534		
20	24-9	26-10			110	22,683		
3	0-4	11-6			90	37747		
3								
68								
68	4-7	11-4			110	60,954		
68								
68								
68	13-6	20-2			100	56,050		
68								
67	2-9	8-6			80	19864		
68	11-4	13-6			100	18216		
68								
68								
68	20-2	26-6			100	53,247		
68								
4	0-4	6-1			110	19464		
17	6-1	11-6			120	18337		

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Organic Materials Group
Koppers Company, Inc.

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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	From	T/C No	Prod	T/C outage	T/C Dome	T/C Temp	T/C Residue	pump By
12-13-84	Chi	ACFX 81229	Gr 3	18	10	75	10 in	SH
12-12-84	Chi	UTLX 78484	Gr 3	31	15	80	12 in	SH
12-12-84	Chi	NATX 76599	Gr 3	36	14½	70	8 in	HB
12-12-84	Chi	NATX 76035	Gr 3	32	13	80	10 in	HB
12-13-84	Chi	UTLX 75167	Gr 3	32	15	75	8 in	SH
12-19-84	Chi	ACFX 79674	Gr 3	23	13½	70	8 in	SH
12-19-84	Chi	ACFX 79666	Gr 3	20½	13½	75	5 in	SH
12-19-84	Chi	Kebx 302	Gr 3	17	16½	70	14 in	SH
12-19-84	Chi	ACFX 12035	Gr 3	24	10	75	10 in	SH
12-19-84	Foll	TLDX 223045	NSR	39	15	70	27 in	HB
12-28-84	Chi	TLDX 223037	H-oil	42	15½	75	4 in	SH
12-27-84	Chi	ACFX 12065	Gr 3	27	10	70	16 in	SH
12-27-84	Chi	TLDX 223036	Gr 3	35	15½	80	28 in	SH
1-4-85	Chi	TLDX 223003	Gr 3	32	15½	70	24 in	HB
1-4-85	Chi	TLDX 223002	Gr-3	35	15	60	28 in	HB
1-4-85	Chi	ACFX 89624	Gr-3	23	12	60	30 in	HB
1-3-84	Chi	NATX 25322	Gr-3	32½	14½	60	18	HB
1-4-85	Chi	TLDX 223158	Gr-3	36	13	60	22 in	HB
1-4-85	Chi	ACFX 79189	Gr-3	21	13½	60	14 in	SH
1-4-85	Chi	UTLX 78865	Gr-3	35	14½	70	19 in	HB
1-4-85	Chi	ACFX 79188	Gr-3	26½	13½	60	2 in	HB
1-4-85	Chi	UTLX 78863	Gr-3	30	15	60	27 in	SH
1-4-85	Foll	UTLX 78498	NSR	35½	15	70	13 in	HB
1-10-85	F	UTLX 79433	Methyl	27	14½	60	2 in	HB
1-11-85	Foll	GATX 56378	NSR	31	9	70	14 in	HB
1-14-85	Chi	ACFX 84010	Gr-3	28	12	60	19 in	SH
1-14-85	Chi	ACFX 79680	Gr-3	25	13	60	14 in	SH
1-14-85	Chi	GATX 38665	Gr-3	27	12	60	20 in	SH
1-15-85	Foll	TLDX 223189	Methyl	28½	12½	65	3 in	SH
1-18-85	Chi	UTLX 79448	Gr 3	30	14½	70	22 in	SH
1-17-85	Chi	TLDX 223004	Gr 3	35½	15½	65	8 in	SH
1-17-85	Chi	NATX 25560	Gr 3	31	11½	70	17 in	SH
1-17-85	Chi	UTLX 78492	Gr 3	36	15½	70	6 in	SH
1-17-85	Chi	ACFX 12575	Gr 3	21	14	65	10 in	SH
[illegible]	Chi	GATX 93193	Gr 3	33	12½	65	13 in	SH

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LOCATION _____ DATE _____ BY _____

SUBJECT Rec Tank

Tank	Start	Stop	Start	Stop	Temp	Gallons	
99							
99	0-4	7-9			100	55,778	
99							
20	0-2	3-6			140	38,108	
20							
20							
20	3-6	9-9			80	68,018	
20							
20							
67	8-5	3-9			80	13819	30,000 To Tank
4	9-3	15-0			140	19,464	
20	9-9	12-8			80	31,757	
20							
20							
20							
20	17-8	20-6			70	85,213	
20							
20							
20	20-6	25-10			90	58062	
68	19-0	21-0			80	16815	
67	1-8	7-0			70	18425	
34	6-0	11-8			60	21697	
67	7-0	12-0			70	18137	
68	21-0	23-1			90	17516	
99	7-7	12-1			60	32,387	
99							
34	9-6	20-6			60	20,907	
99							
99	12-1	20-1			60	57577	
99							
68	23-1	25-0			100	18917	
99	20-1	25-2			70	36585	
99							

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LOCATION _____ DATE _____ BY _____

SUBJECT _____

DATE	From	T/C No.	Pro.	T/C outage	T/C Dome	T/C Temp	T/C Residue	T/C pumped By
1-25-85	Chi	KPCX 587	B.Tumen	39	17	60	4 in	BN
2-19-85	FON	ACFX 12030	UNC	25	10	65	5 in	BH
5-1-85	Chi	KPCX 511	K-364	38½	19½	60	2 in	H.B BH
3-15-85	FON	GATX 13710	UNC	17	8	65	7 in	BH
3-15-85	FON	TLDX 223191	UNC	28	13½	70	3 in	BH
3-20-85	FON	GATX 12030	UNC	23	10	80	5 in	BH
3-27-85	Foll	GATX 38605	NSR	22½	12½	80	16 in	HB
3-27-85	Foll	ACFX 38666	NSR	21	13½	100	4 in	HB
4-1-85	Chi	NATX 21042	Gr-3	20	19½	70	8 in	BB
4-2-85	Chi	PTLX 223593	Gr-3	21	13	85	9 in	BN
4-2-85	Chi	NATX 76364	Gr-3	33½	13½	80	8 in	BH
4-8-85	FON	TLDX 223159	UNC	34½	12½	80	14 in	BH
4-11-85	Chi	TLDX 223126	Gr 3	34	13	75	7 in	BH
4-11-85	Chi	TLDX 223129	Gr 3	33	12½	80	5 in	BH
4-12-85	Chi	TLDX 223124	Gr 3	31	12½	80	6 in	BH
4-12-85	Chi	NATX 76426	Gr 3	33	14½	75	7 in	BH
4-22-85	FON	ACFX 12030	UNC	23½	10	80	5 in	HB
4-22-85	FON	TLDX 223191	UNC	34	12½	80	9 in	HB
	Chi	Kebx 201	K-364	41	6			
4-26-85	FON	ACFX 79627	H-016	40	12	70	10 in	BH
5-22-85	Chi	TLDX 223187	Gr 3	30½	12½	75	6 in	BB
5-21-85	Chi	PTLX 223589	Gr-3	32	12½	90	8 in	NB
5-23-85	Chi	PTLX 223593	Gr-3	33	13	100	6 in	HB
5-30-85	Chi	UTLX 78495	Gr-3	32½	15	100	2 in	HB
	Chi	KPCX 530	K-364	35	14½	60		
6-27-85	Foll	NATX 25551	Gr 3	39½	11½	70	5 in	BH
6-7-85	Chi	TLDX 223184	Gr 3	33	12½	65	11 in	BH
6-7-85	Chi	TLDX 223135	Gr 3	38	12½	70	15 in	BH
6-14-85	FON	ACFX 12069	UNC	24	10	65	10	BH
6-13-85	FON	ACFX 12515	UNC	28	15	70	3 in	BH
6-13-85	Chi	NATX 76694	Gr 3	38	14½	65	9½	BH
6-18-85	FON	UTLX 75167	UNC	29	15	70	10 in	[illegible]
6-24-85	FON	ACFX 79672	UNC	34	13½	70	3 in	HB
6-25-85	FON	UTLX 78865	UNC	29	14½	65	9 in	[illegible]

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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Rec Tank	Start	Stop	Start	Stop	Tank Temp	Tank Gallons	
299 Drums						166,244 LBS	
3	0-8	6-3			90	18900	
Trucks							
3	6-2	17-4				37747	
3							
3	17-4	23-9			110	21716	
67	1-0				112	38026	
67		12-2					
20	0-½	1-8½			90	18,146	
20	1-8½	5-4			80	39,468	
20							
3	23-9	27-10			140	21,976	
4	0-5½	6-3½			80	21,153	
20							
20	0-½	5-8			100	61,682	
20							
3	2.0	12-10			124	36,622	
3							
33	0-7	8-10			160°	16797	
65	22-0	22-6	23-9	24-2	180	19669	
65	22-6	23-6			180	21458	reloaded for [illegible]
65	23-9	24-9				21458	
65	22-9	23-9			164	21458	
Koppers Truck							
65	13-7	15-2			180	33,979	
65							
68	2-6					21,018	
68	0-6	2-6			90	16815	
65	11-7	12-6			180	19669	
68	2-6					21,018	
3	3-0	8-2				17491	
68	2-6					21,018	

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LOCATION _____ DATE _____ BY _____

SUBJECT _____

Date	From	Tc No.	Pro	Tc Voltage	Tc Dome	Tc Temp	Residue	By
6-18-85	FON	ACFX 88941	UNC	26	11½	70	8in	HB
6-19-85	Chi	TLDX 223004	Gr-3	35	14½	70	5in	HB
6-18-85	Chi	TLDX 223123	Gr-3	33½	12½	70	9in	HB
6-19-85	FON	ACFX 12035	UNC	23	10	70	10in	HB
6-19-85	FON	ACFX 8[illegible]29	UNC	20	9½	70	18in	HB
6-24-85	Chi	UTLX 78484	Gr-3	26½	14½	100	3in	GH+HB
6-25-85	Chi	NATX 21042	Gr-3	32	19½	100	9in	HB
6-25-85	Chi	ACFX 79674	Gr-3	19	13½	70	10in	HB
6-25-85	FON	TLDX 223140	UNC	32	13	70	9in	GH+HB
6-27-85	Foll	TLDX 223163	Solvent	28	12½	65	3in	GH
7-1-85	Chi	Kpcx 587	Bit	37½	17½	70	5in	HB+GH+TJ
6-27-85	Foll	ACFX 88794	Gr 1	29	12	70	3in	GH
7-8-85	Chi	GATX 12450	Gr-3	25½	7½	80	7in	GH
7-5-85	Chi	NATX 76085	Gr-3	33½	12½	65	9in	GH+HB
7-3-85	FON	NATX 25307	UNC	32	15	70	7in	GH
7-3-85	Foll	ACFX 88945	Methyl	27½	12	65	3in	GH
7-8-85	Chi	PTLX 223585	Gr-3	35	13	80	5in	GH HB
7-8-85	Chi	ACFX 79689	Gr-3	17	13½	85	2in	GH HB
7-11-85	FON	ACFX 12080	UNC	27	10	70	5in	GH
7-10-85	Chi	NATX 76029	Gr 3	33	12½	65	9in	GH
7-11-85	Chi	TLDX 223191	Gr 3	33½	12½	70	8in	GH
7-11-85	Chi	UTXL 78498	Gr 3	30	14½	65	6in	GH
7-12-85	Foll	TLDX 223041	Solvent	27½	14½	65	10in	GH
7-19-85	FON X	TLDX 223187	UNC	34½	12½	80	10in	HB
7-19-85	FON	NATX 76[illegible]	UNC	28½	14½	70	5in	HB
7-25-85	FON X	ACFX 88941	UNC	30	11	100	9in	HB
7-25-85	FON X	TLDX 223140	UNC	36	12½	80	10in	HB
7-24-85	Chi	Kpcx 530	Bitumen	33	14½	125	3in	GH+HB
8-28-85	Chi	Kpcx 537	K-364	34	14½	65	3in	GH+HB
8-1-85	Chi X	UTLX 79964	Gr 3	29	10	75	10in	GH
8-2-85	Chi X	ACFX 79668	Gr 3	24	13½	80	8in	GH
8-2-85	Chi X	TLDX 223165	Gr 3	34	12½	70	15in	GH
8-2-85	Chi X	TLDX 223158	Gr 3	34	12½	75	15in	GH
[illegible]	Chi X	NATX 21045	Gr 3	32	23½	65	4in	GH
[illegible]	Chi X	NATX 76424	Gr 3	35	14½	70	4in	GH TJ
[illegible]	Chi X	ACFX 79674	Gr 3	20	13½	60	8in	GH

7-19-85

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SUBJECT _____

Rec. Tank	Start	Stop	Start	Stop	Rec Temp	Gallons		
65	10-6	11-10	11-10	12-4	190	39346	.9494	
68	10-9				108°	56050	.9813	
68	10-0	10-9						
65		7-11	10-5		180°	53661	.9533	
68	17-5	19-8			100°	18917	.9844	
34	0-2	11-4			78	21223	.9930	
314 Drums								
20	0-½	1-11			94	20868	.9867	
65	6-3	9-0			180	19676	.9533	
65	6-6	7-3			175	16091	.9552	
68	19-8	21-9			100	17516	.9844	
3	0-4	6-4			100	20309	.9844	19438
65	6-3	9-0			180	19676	.9533	
65	6-3	9-0			180	19676	.9533	
68	21-9	24-0½			118	19267	.9779	
33	3-5	13-7			190	19326	.9494	
65	9-8	11-4			180	35768	.9533	
65								
34	7-5	17-0			100	18220	~~[illegible]~~ .9844	17936
99	3-1	5-8			160	18593	.9616	17868
99	0-2½ in	3-1	Month end		116	20692	.9721	20239 60°
99	5-8	8-2			94	17993	.9867	17754
99	8-2	10-8			94	17993	.9867	17754
300 Drums #556								
Trucks								
11	0-9½	2-6			80	17226	.9922	17091
11	2-6	4-5			100	18009	.9844	17728
11	4-5	6-3			110	17226	.9805	16890
11	6-3	8-4			130	19575	.9727	19040
11	10-3	11-6			164	39993	.9595	38373
11	10-3							
11	8-4	10-3			110	18009	.9805	17657

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Date	SUBJECT From	T/C No	Pro	T/C outage	T/C Dome	T/C Temp	T/C Residue	By	Wagon
8-7-85	Chix	NATX 76384	Gr 3	31½	14½	70	7 in	BH	
8-8-85	Chix	NATX 76352	Gr 3	35	14½	65	5 in	BH	
8-8-85	Chix	UTLX 77407	Med C	35½	14½	70	19 in	HB & BH	
8-16-85	Chix	NATX 76371	Med C	21	14½	65	8 in	HB & BH	
8-13-85	Chix	UTLX 77475	Gr 3	31	14½	60	10 in	BH	
8-13-85	Chix	ACFX 79665	Gr 3	22	13½	70	9 in	BH	
8-13-85	Young	ACFX 79667	H-oil	47	13½	65	15 in	BH	
8-14-85	Chix	PTLX 223589	Gr 3	37	12½	60	8 in	BH	
1-31-86	Folix	ACFX 89029	Clean Stock	31½	11½	115	3 in	BH	8-4
8-16-85	Chi	TLDX 223113	Gr 3	35½	15½	110	10 in	HB & BH	8-4
8-20-85	Chi	TLDX 223135	Gr 3	40½	11½	114	10 in	BH	6-11
8-21-85	Chi	TLDX 223112	Gr 3	39½	14½	128	10 in	BH	7-0
8-21-85	Chi	ACFX 81233	Gr 3	27	10	120	12 in	BH	6-7
8-23-85	Chi	TLDX 223183	Gr 3	26	12½	116	10 in	BH	7-11
8-29-85	Chi	TLDX 223126	Gr 3	33	13	102	20	BH	7-5½
8-29-85	Chi	NATX 21042	Gr 3	24	27	110	8 in	BH	7-4
8-29-85	Chi	TLDX 223145	Gr 3	32½	13	122	18 in	BH	7-7
8-30-85	Chi	ACFX 76587	Gr 3	43	12	80	10½ in	BH	7-3
9-3-85	Chi	NATX 76599	Gr 3	38½	14½	105	10½ in	BH	6-11½
9-3-85	Chi	ACFX 79678	Gr 3	28	13½	110	6½	BH	7-2
9-6-85	Fon	NATX 76587	H-oil	37	14½	110	6	BH	6-9
	Fon	TLDX 223140	H-oil	34½	13	140	To Chi		7-3
	Fon	ACFX 88941	H-oil	33	12	140			7-3
9-20-85	Chi	KPCX 506	K-364	35	17½	250	8 in	BH	6-9½
9-25-85	Chi	NATX 25560	Gr 3	32½	12	142	10 in	BH	7-7
9-26-85	Chi	ACFX 88948	Gr 3	24½	11½	170	15 in	BH	8-0
9-27-85	Chi	TLDX 223123	Gr 3	33½	13	170	12 in	BH	7-3
[illegible]	Chi	TLDX 223124	Gr 3	30	12½	156	14	BH	[illegible]
10-1-85	Chi	ACFX 12517	H-oil	22	14½	130	6 in		7-6½
[illegible]	[illegible]	UTLX 78425	[illegible]	35½	15	100	2 in	[illegible]	7-5½
10-4-85	Chi	TLDX 223165	Gr 3	23	12½	120	14	[illegible]	[illegible]
[illegible]	Chi	PTLX 223580	Gr 3	32	12½	110	12 in	[illegible]	7-5½
[illegible]	Chi	NATX 23583	Gr 3	32½	12½	110	8 in	[illegible]	[illegible]
[illegible]	Chi	KPCX 511	K 364	36	14	180			8-10
[illegible]	Chi	[illegible]	[illegible]	34½	18	20			[illegible]