



Shell Oil Company
Interoffice Memorandum

MARCH 8, 1983

FROM: C. F. PHILLIPS

TO: P. F. DEISLER
H. L. KUSNETZ
R. E. JOYNER

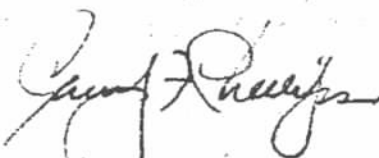
SUBJECT: WRR LEUKEMIA CASES - LOCATION GRID

Fred Grush, IR, WRR; J. D. Ransdell, Operations S&H, and I reviewed the work histories of the leukemia cases reported at WRR and attempted to spot them in specific locations on a plant grid (reference - attached map). A summary by employee number, years of service, type of work and grid location is also attached. The information was reviewed with D. McCraw.

This method of data evaluation has not provided any significant new clues as to a relationship with a specific chemical, operations or site. The majority of the employees work histories do not show specific sites and the type of work was such that they probably worked at all sites for varying periods. It is possible that for some of the time period benzene was used as a clean-up solvent in the field.

There were significant changes in work assignments and the labor pool in the early 60's (strike). In the earlier time period, laborers were likely to stay in a larger skill pool and work all over the plant, often as helpers to the other crafts. Currently laborers more likely to be promoted to craft groups.

If you want any additional evaluations, please let us know.


CFP/kdw

Attachments

cc: J. S. Szymanowski
F. Grush
J. D. Ransdell
D. S. McCraw
HS&ES-IS (2) ✓

SUMMARY
WORK HISTORY/JOB LOCATION - WRR LEUKEMIA CASES

<u>EMPLOYEE NO.</u>	<u>WRR PERIOD</u>	<u>SHELL YRS</u>	<u>BRIEF WORK RECORD</u>	<u>MAP LOCATION</u>
061744	1929-51	22	Engineering Field - carpenter (short service car loader <6 mo.). Worked in shop + entire plant - no specific site located.	1+
061636	1923-63	35*	Engineering Field - boilermaker, all zones; Zone Foreman + shop (periods away from Shell total ~ 5 yrs, no info on work/locations) - all over plant during work periods.	2+
065358	1935-65	30	Major time in main office area - follow shutdowns, PUP emphasis, could have entered vessels after cleaning, some time in plant daily as inspector. 1954-65 Sr. Engr., less time in plant.	3+
063808	1942-61	19	Janitor - wash houses/shop areas or "floating" to various bldgs (restrooms, etc) + yardman - could have been involved in spill clean-ups, general cleaning, tank cleaning (started @ age 42 - no prior work history)	4+
067344	1947-75	28	Electrician (1X) - Engr. Field/office - Draftsman (27) - main office - major time - other time, all over plant.	5+
060902	1940-77	37	Control Lab - bottle washer, tester, could have collected samples from field locations. Labs included analytic, lubricants, antiknock & toluene divisions. (renamed refinery lab in 1957).	6+
063850	1942-74	32	Yardman - worked any location/possible spill clean-up. Short stint as gardener. Could have spent more time in one area but no specific records.	7+

EMPLOYEE NO.	WRR PERIOD	SHELL YRS	BRIEF WORK RECORD	MAP LOCATION
063796	1942-67	25	Engr. Field; yardman, worked anywhere in plant, major time as zone foreman, probably no significant spill involvement.	8+
062242	1956-72	16	Patrolman - at gates/car patrol of refinery check bldgs on plant property, offices, perimeter patrol. (started Shell age 34); truck driver/mechanic - hauled farm products & Shell products.	9+
061036	1926-57	29	Compounding - laborer, keeper, T/C loader, oil blender, gauger, head filler.	10
06-394	1948-74	26	Lab Assistant, Sr. Lab. Asst. - R&D Lab, fuels, Knoch test operator/fuel blending. Could have had benzene exposure.	11
060006	1937-73	36	Compounding - worked in blend area, drum area, etc; various duties, jobs in compound area - Head compounder.	12
065584	1941-70	29	Research - Sr. Research Chemist. R&D Lab, had benzene exposure, (note: used styrene at home, and known to have experimented with DMSO).	13
-----	1948-Current	34+	Compound house (1); alkylation (15), distill (1), > 66 aromatics. Not likely to have worked in BEV. (current KHT, CR, DHT, SGP, cat. reform).	14+

NOTE: There was one additional employee associated with WRR, leukemia possible cause of death. J. Hughes, SIPM, on foreign assignment at WRR as Dept. Manager - Lubes, for ~ 2 years (1972-74). No real exposure at WRR, was from Thorton Research Facility.

RTY
14th ST.

LPG LOADING RACK

LOP

ILLINOIS TERMINAL RAILROAD

T ST.

ACID
HLDG.
PLANT

HEAVY
OIL
PROCESSING

ALKYLATION

DMK
190's

PRECURSOR

Electrical
Machinery
SHOPS
Instrument
Carpenter
Plumbing
Isolator
SHOPS
#2

PIPE
TESTING
GROUNDS

(14)

CDU

B.I.

MAIN OFFICE ROAD

PURCHASING

OTHERS
(all over plant)

(7) (8)

AROMATICS

DHT

KHT-2

KHT-1

CR-3

<1470

CR-2

WASH
HOUSE
NO. 8

(4)

EQUIP. STORAGE

TANK

PARKING
LOT
#4

PARKING

Tank Farms

10th ST.

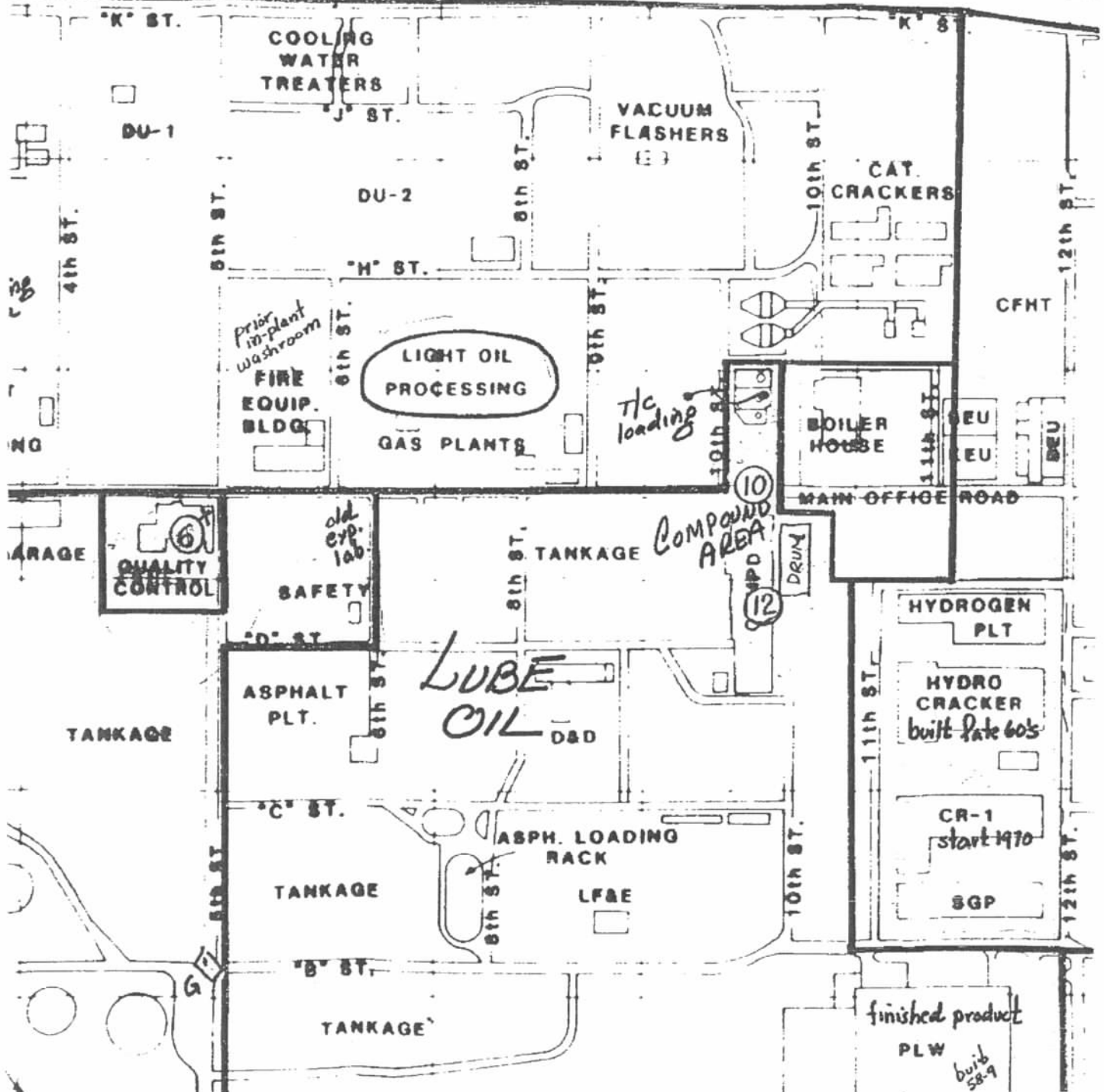
NORTH PROPE

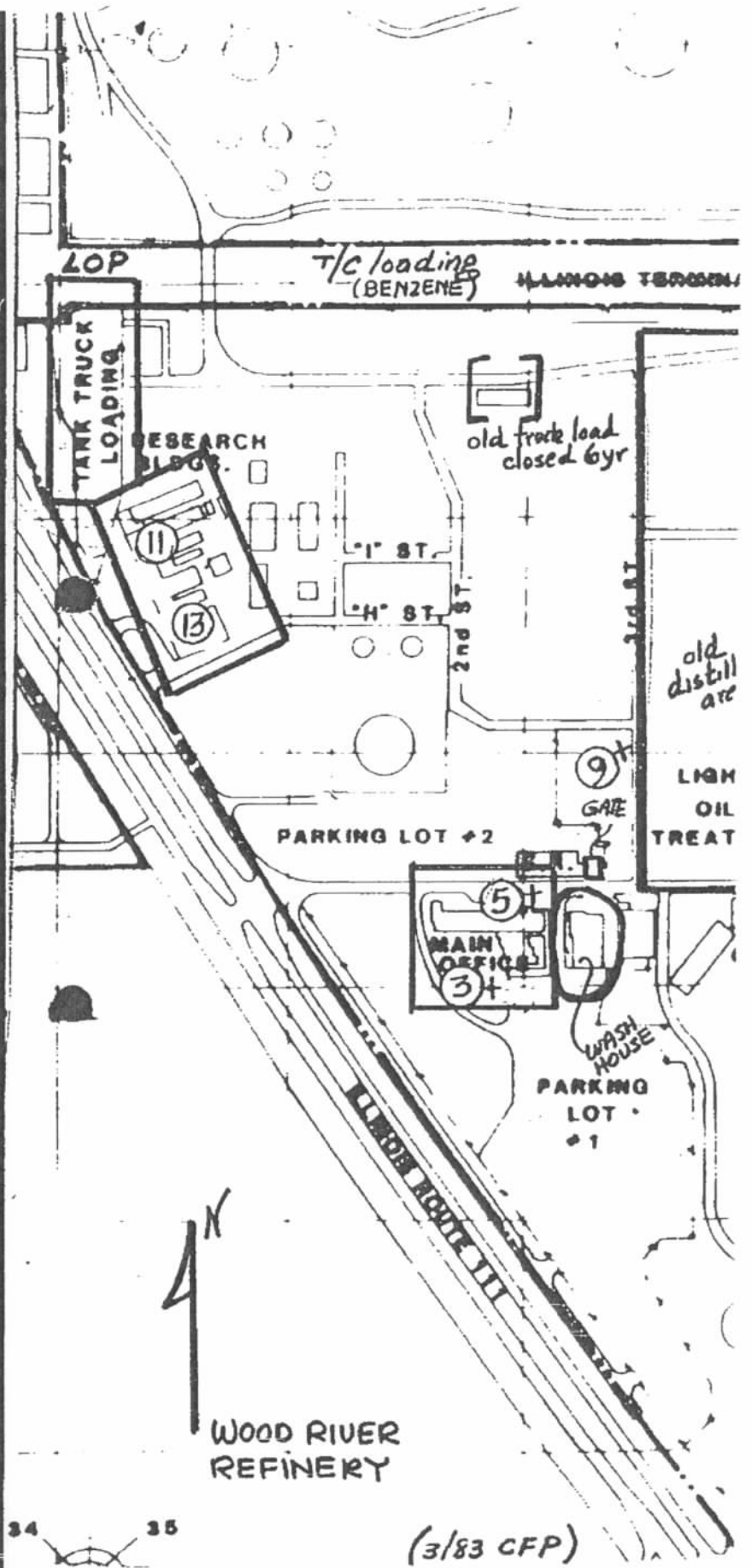
□ guard office < 65

L RAILROAD

old engr services
< 70

CENTER SECTION 35





FROM: C.F. PHILLIPS

TO: A.D. DITMAR / J.D. RANDELL

R.E. JOYNER

H.L. KUSNETZ

J.L. RIVARD

SUBJECT: WOOD RIVER BENZENE EXPOSURE STUDY - WORK HISTORY PLOTS

D.L. Jackett reviewed the work histories of the Wood River Manufacturing Complex and Wood River Research Laboratory leukemia cases and attempted to plot the work locations of the cases on a general area map of the complex. A separate area map was used to plot the work locations of each case. In addition to the work locations, benzene-containing stream locations are identified on a separate area map.

Information on the work locations of the cases was obtained from Part 2D of the Benzene Historical Exposure Study. The work locations, based on department assignments obtained from the work histories, are indicated in yellow on the area maps. The dates of the assignments (month and year) are written next to the color codes. In some cases, assignments, such as Laborer in Engineering Field, resulted in potential work locations over the entire complex. Since the work histories did not provide specific information on work locations for these assignments, the dates of assignment, job title, and department are identified below the area maps.

As part of Part 2D, persons familiar with the cases and their work were interviewed. In some instances, these interviewees provided additional information on the work locations of the cases. This information is shown in orange on the area ~~maps~~ maps.

The cause of death or diagnosis for each of the cases is indicated below the area maps. This information was obtained from the Case History ~~Summaries~~ ^{Summaries} in the Benzene Historical Exposure Study report. The cause of death is shown as ~~acute~~ acute.

myelogenous leukemia (AML) when the leukemia was classified as AML on the case history summary.

The information for plotting the locations of the benzene-containing streams on an area map was taken from the Task 2A report. Streams containing 1-5% benzene are indicated by light blue, 5-50% benzene streams by red, and 50-100% benzene streams by dark blue. The color codes are numbered and the streams identified below the area map. The years the streams were in existence are indicated next to the color codes.

The work location plots do not indicate a relationship between the work locations of the leukemia cases and a specific operation or location within the Wood River complex. There is no relationship indicated between the work locations and the benzene-containing stream locations. Eight of the sixteen cases spent most of their careers ~~not~~ at Wood River at work locations on the west side of the complex, upwind of the benzene-containing streams based on the prevailing winds. Two of these eight cases worked at the Wood River Research Laboratory. Seven of the cases had department assignments in Engineering Field or Security for most of their employment. For these seven cases, specific work locations within the complex are not defined in the work histories and the nature of the jobs most likely resulted in work locations throughout the complex. Only one case spent ~~significant~~ a majority of his employment ~~at~~ at locations within the complex where benzene-containing streams were also located.

Due to the size of the area maps and the color coding, copies of the plots are not provided with this memo. The plots are available for review ~~if requested~~ ^{upon request}. An ~~area~~ overlay of the benzene-containing stream locations is also available for comparing work locations with stream locations.

WOOD RIVER RESEARCH LABORATORY

CASE # 2 EH VOGT

from Task 3

2/48	2/49	gr. Lab Assist. - Shift Engine Operator
3/49	12/55	Knock Engine Operator
1/56	12/59	" " "
1/60	9/73	" " "
10/62	2/63	Strike Duty - Carpenter & Security

Task 2 - Lymphocytic leukemia in acute blastic phase

CASE # 9 C.F. ZIMMER (6/41 to 8/70 - WRL)

6/41	9/43	gr Chemist - Analytical Bench Chemist +
10/43	12/46	Synthesis Chemist
1944		6 wks - Project, 100 Cetane # Diesel Fuel
1947		2 months - Cat Cracker Slurry Fil Process
11/47	12/49	Lacquer Formation Project
1/50	12/51	Rubber Phosphate Isomer / Tricresyl
1/52	12/55	Combustion Chamber
1/56	9/62	Electron Microscopy
9/62	1/63	(Strike Duty) Operator, Distillate Hydrocracker
2/63	12/70	Electron Microscopy

leukemic reticuloendotheliosis

#14 '48-current compound house, 1yr, alkylation, 15yr, distill, 1yr
66 + aromatics. not likely to have worked BEU
(current KHT, CR, DHT, SAP, catrefam)

WRR WORK HISTORY

Period	SHELL YRS	
#1 '29-'51	22	ENGR FIELD - Carpenter, (short service car loader + 6mo) worked in shop + all over plant - no specific location noted
#2 '23-'63	35	ENGR FIELD - boiler maker, all zones, zone foreman + shop (periods of out of service $\approx$ 5 yrs - no info on activity) (layout)
#3 '35-'65	30	major time in main office area - follow shutdowns, PUP emphasis could have entered vessels $\rightarrow$ cleaning, some time in plant daily '54-'65 SE ENGR - reduced plant time from inspector
#4 '42-'61	19	Janitor - wash houses/shop areas or 'floating' to various bldgs (restrooms, etc) + Yardman - could be inv. in spill clean-up general cleaning, truck cleaning, some office assignment. start at 42 YRS (no prior work history available)
#5 '47-'75	28	Electrician ⁽¹⁾ - ENGR Field / Office - DRAFTSMAN ⁽²⁷⁾ , main office major time in office, other all over plant
#6 '40-'77	37	Control Lab - Bottle washer to tester, could have collected samples from field locations
#7 '42-'74		Yardman - worked any location / possible spill clean-up short stint as gardener
#8 '42-'67	25	ENGR Field, Yardman - worked anywhere in plant major time as ^{zone} foreman, probably no significant spill involvement
#9 '56-'72	16	Patrolman - at gates / patrol refinery - car check bldgs on plant property, offices, etc, perimeter cks. (prior to shell re. '45 on truck driver / mechanic - hauled farm products / shell products (various employees + self)
#10 '26-'57	29	Compounding: laborer, helper, Tk loader, blender, gouger
#11 '48-'74	26	Lab Asst, SE Lab Asst, R+O lab + ^{fuels} no details on work type
#12 '37-'73	36	Compounding - worked in band area, drum area, etc various duties / jobs in compound area
#13 '41-'70	29	Research + Ser. Res. Chemist, WE Research had some benzene exposure, styrene at home, known to have exp. with OMSO.