

1 SUPERIOR COURT OF THE STATE OF CALIFORNIA

2 FOR THE COUNTY OF LOS ANGELES

3 DEPARTMENT 323 HON. CAROLYN B. KUHL, JUDGE

4 WILLIAM MOLINA AND)
ANGELINA MOLINA,)

5)
PLAINTIFF,)

6)
)

7) CASE NO. BC367800

VS.)

8)
SHELL OIL COMPANY, ET AL.,)

9)
DEFENDANTS.)

10 _____)

11 REPORTER'S DAILY TRANSCRIPT OF PROCEEDINGS

12 MONDAY, OCTOBER 27TH, 2008

13 P.M. SESSION

14 APPEARANCES:

15 (FOR PLAINTIFFS) PAUL, HANLEY & HARLEY

BY: KELLY A. MCMEEKIN

16 WES W. WAGNON

1608 FOURTH STREET

17 SUITE 300

BERKLEY, CA 94710-1709

18

19 (FOR DEFENDANTS) STEPTOE & JOHNSON, LLP

BY: LAWRENCE P. RIFF

20 RUTH D. KAHN
633 W. FIFTH STREET
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LOS ANGELES, CA 90071

22

23

24 LISA C. RIDLEY
OFFICIAL REPORTER
25 600 S. COMMONWEALTH AVE.
ROOM 308
26 LOS ANGELES, CA 90005

27 VOLUME OF

28 PAGES 4001-4150, INCL.

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1

2 I N D E X FOR OCTOBER 27, 2008

3

4 VOLUME

5

6 DAY DATE TIME PAGE VOL.

7 MONDAY, OCTOBER 27, 2008 1:30 P.M. 4001

8

9

10 CHRONOLOGICAL AND ALPHABETICAL INDEX OF WITNESSES

11

12 WITNESS DIRECT CROSS REDIRECT RECROSS VOL.

13 WHYSNER, 4001-R 4022-W
JOHN (RESUMED)

14

15

16

17 EXHIBITS

18

19 EXHIBITS I.D. IN EVD. VOL.

20 132-20 - LYMPH NODE 4010
STRUCTURE

21

22 133 - DOCUMENT

23

3 -

24

25 4 -

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27

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4001

1 LOS ANGELES, CALIFORNIA; MONDAY, OCTOBER 27TH, 2008

2 1:30 P.M.

3 DEPARTMENT 323 HON. CAROLYN B. KUHL, JUDGE

4

5

6 (THE FOLLOWING PROCEEDINGS

7 WERE HELD IN OPEN COURT IN

8 THE PRESENCE OF THE JURY:)

9

10

11 THE COURT: ALL RIGHT. THE JURORS AND

12 ALTERNATES ARE AGAIN PRESENT.

13 MR. RIFF, YOU MAY PROCEED.

14

15 JOHN WHYSNER,

16 HAVING BEEN PREVIOUSLY DULY SWORN, RESUMED THE

17 WITNESS STAND AND TESTIFIED AS FOLLOWS:

18

19 DIRECT EXAMINATION (RESUMED)

20

21 BY MR. RIFF:

22 Q. DR. WHYSNER, PERTAINING TO THE

23 TOPICS I WANT TO TALK WITH YOU, I GUESS, ABOUT THE

24 TOXICOLOGY OF CANCER GENERALLY AND AS IT RELATES TO

25 BOTH A.M.L. AND THEN THE DISEASE IN THIS CASE,

26 N.H.L.

27 FIRST OF ALL, YOU AGREE, DO YOU NOT,

28 THAT BENZENE, C6, H6, IS AN ESTABLISHED HUMAN

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4002

1 CARCINOGEN?

2 A. YES.

3

4 (INTERRUPTION IN

5 PROCEEDINGS.)

6

7 Q. BY MR. RIFF: AND IN YOUR OPINION, TO A

8 REASONABLE DEGREE OF MEDICAL AND SCIENTIFIC PROBABILITY,

9 WHAT IS THE HUMAN CANCER ASSOCIATED WITH BENZENE?

10 A. ACUTE MYELOGENOUS LEUKEMIA.

11 Q. OKAY, NOW, IN OUR, OUR DAILY LIVES,

12 ARE WE CUSTOMARILY EXPOSED TO OTHER KNOWN

13 ESTABLISHED HUMAN CARCINOGENS?

14 A. YES.

15 Q. CAN YOU GIVE US JUST EXAMPLES FOR

16 CONTEXT?

17 A. WELL, WE TALKED ABOUT ALCOHOL, I

18 MEAN, IN WHICH YOU, SOME PEOPLE AT LEAST ARE EXPOSED

19 TO A SMALL AMOUNT OF ALCOHOL FREQUENTLY AND THEY

20 DON'T, THEY DON'T GET CANCER IN ALCOHOL UNLESS THEY
21 REALLY GET SOMETHING CALLED CIRRHOSIS OF THE LIVER
22 WHICH IS A FIBROSIS OF THE LIVER.

23 IN OTHER WORDS, THEY DRUNK ENOUGH
24 ALCOHOL SO THAT THEIR LIVER ACTUALLY CHANGES ITS
25 FORM FROM ITS WAY IT IS NOT REALLY TO BE ABLE TO
26 PROCESS TOXINS AND SO FORTH. AND IT, ALL THIS
27 FIBROUS TISSUE FORMS BECAUSE OF CONSTANT INJURY.

28 AND THEN EVENTUALLY THAT CIRRHOTIC

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4003

1 LIVER CAN BE CANCEROUS.

2 Q. OKAY, SO THAT'S ALCOHOL AND LIVER.

3 ARE THERE ANY OTHER -- ARE THERE A

4 COUPLE MORE EXAMPLES, AGAIN, FOR CONTEXT OF

5 CARCINOGENS THAT WE ARE FREQUENTLY AND CUSTOMARILY

6 EXPOSED TO?

7 A. WELL, ONE -- ANOTHER ONE IS, BELIEVE

8 IT OR NOT, WHEN WE CHARBROIL STEAKS AND SO FORTH,

9 THERE ARE COMPOUNDS PRODUCED ON THE SURFACE THAT ARE

10 TASTY BUT ACTUALLY HAVE BEEN FOUND TO BE

11 CARCINOGENIC. AND THAT'S THE POLY-AROMATICS,

12 HYDROCARBONS AND THINGS LIKE HETEROCYCLIC AMINES.

13 SO THESE ARE COMPLEX COMPOUNDS BUT

14 THEY ARE, AT LEAST FROM AN EXPERIMENTAL STANDPOINT,

15 RELATIVELY POTENT CARCINOGENS AND THERE IS A FAIR

16 AMOUNT OF EVIDENCE THAT THEY ARE, THAT THEY COULD BE

17 CARCINOGENIC IN HUMANS AS WELL.

18 Q. ANYTHING ELSE?

19 WHAT ABOUT THAT BIG BRIGHT THING

20 THAT SHINES IN THE SKY SOMETIMES?

21 A. WELL, THE SUN, OF COURSE, IF YOU GET

22 TOO MUCH SUN EXPOSURE YOU CAN GET SKIN CANCER OR

23 EVEN A WORSE FORM OF -- I MEAN, SKIN CANCER, BASAL

24 CELL OR SQUAMOUS CELL WHICH IS NOT VERY SERIOUS BUT

25 YOU CAN ALSO GET AN INCREASE INCIDENCE OF CANCER

26 THAT'S CALLED MALIGNANT MELANOMA WHICH CAN BE FATAL.

27 Q. OKAY. SO, OKAY, SO THOSE ARE

28 CARCINOGENS.

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4004

1 NOW, LET'S TALK A LITTLE BIT
2 ABOUT -- I WANT TO TALK ABOUT WHAT GOES ON IN THE
3 LIVER IN HUMANS, RELATIVE TO THE SUBSTANCE BENZENE.

4 AND IT'S METABOLISM IN THE LIVER.

5 AND THEN AFTER AWHILE WE WILL TALK ABOUT HOW THAT
6 RELATES TO NON-HODGKIN'S LYMPHOMA. OKAY? THAT'S
7 THE TOPIC. ARE YOU WITH ME?

8 A. YES.

9 Q. SO A LIVER?

10 A. SORT OF.

11 Q. ALL RIGHT.

12 I WANT YOU TO ASSUME THAT SOMEBODY
13 BREACHES OR GETS SOME BENZENE IN THEIR SYSTEM
14 THROUGH DERMAL ABSORPTION. DOES THE BENZENE
15 EVENTUALLY FIND ITS WAY TO THE BLOOD STREAM INTO THE
16 LIVER?

17 A. EVENTUALLY, YES.

18 Q. AND IN THE LIVER, DOES IT -- WHAT
19 HAPPENS THERE?

20 A. WELL, THAT'S WHERE IT IS TRANSFORMED
21 INTO METABOLITES. AND WE TALKED ABOUT THE FACT THAT
22 THESE METABOLITES ARE WHAT WE BELIEVE ARE
23 RESPONSIBLE FOR ACUTE MYELOGENOUS LEUKEMIA. ONE OF
24 THEM IS CALLED PHENOL WHICH IS A BENZENE WITH A
25 HYDROXIDE GROUP ADDED TO IT. IT IS BASICALLY AN
26 ALCOHOL OF BENZENE.

27 ANOTHER ONE IS HYDROQUINONE WHICH IS
28 A DYE ALCOHOL OF BENZENE. SO IT HAS TWO ALCOHOL

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4005

1 GROUPS ON IT.

2 WHAT THE LIVER DOES IS JUST ATTACHES

3 THESE ALCOHOL GROUPS ON THERE IN AN ATTEMPT TO MAKE

4 IT MORE SOLUBLE AND ALSO THESE ALCOHOL GROUPS CAN

5 THEN BE ATTACHED TO SOMETHING ELSE THAT MAKES IT

6 MUCH MORE SOLUBLE SO THAT THE MOLECULE CAN BE

7 EXCRETED IN THE URINE.

8 Q. OKAY.

9 DID YOU TELL US THIS MORNING THAT IT

10 IS A METABOLITE OF BENZENE AND NOT THE BENZENE

11 ITSELF THAT IS THE HUMAN CARCINOGEN?

12 A. YES.

13 Q. IN THE LIVER, WHAT'S THE NAME OF THE

14 ENZYME, IF THAT'S THE RIGHT BIOLOGICAL CONCEPT,

15 WHAT'S THE NAME OF THE ENZYME RESPONSIBLE FOR THIS

16 BENZENE METABOLISM?

17 A. WELL, THE ENZYME GROUP IS A GROUP

18 CALLED CYTOCHROME P-450 AND THERE ARE MANY OF THEM.

19 AS A MATTER OF FACT, THAT'S WHAT I DID MY PH.D.

20 THESIS WORK ON. BECAUSE IN THE ADRENAL GLAND IT
21 ATTACHES HYDROXYL GROUPS TO STEROIDS THAT FORM THE
22 VARIOUS STEROIDS THAT THE ADRENAL GLAND PRODUCES.

23 SO THE FAMILY NAME IS P-450 AND THE
24 ONE THAT IS RESPONSIBLE FOR THIS PARTICULAR
25 METABOLISM IS P-4502 E1.

26 Q. OKAY. AND I SAID ENZYME AND YOU
27 SAID CYTOCHROME?

28 A. CYTOCHROME. THAT'S JUST THE NAME OF

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4006

1 IT, CYTOCHROME P-450.

2 Q. OKAY. WHAT'S ANOTHER -- WHAT'S A

3 RELATIVELY SIMPLE DEFINITION OF ENZYME?

4 A. ENZYME IS A PROTEIN THAT SPEEDS UP

5 REACTIONS IN THE BODY. IT'S A CATALYST. IT'S ON

6 THE -- IT'S A -- IT'S A PROTEIN CATALYST.

7 Q. NOW, HERE'S WHAT I WANT TO KNOW.

8 I WANT YOU TO ASSUME FOR THE SAKE OF

9 ARGUMENT THAT YOU HAVE A HUMAN BEING WHO'S EXPOSED

10 TO A LITTLE BENZENE BUT A LOT OF TOLUENE. OKAY.

11 SOME BENZENE BUT CONSIDERABLY MORE TOLUENE.

12 DO YOU UNDERSTAND WHAT I AM SAYING?

13 A. YES.

14 Q. WHAT HAPPENS IN THE HUMAN BODY WHEN

15 A PERSON IS EXPOSED TO A HYDROCARBON SOLVENT MIXTURE

16 THAT HAS A LITTLE BENZENE AND A LOT OF TOLUENE WITH

17 RESPECT TO THIS MECHANISM OF METABOLISM IN THE

18 LIVER?

19 A. WELL, WHAT'S BEEN OBSERVED IN

20 EXPERIMENTAL ANIMALS IS THAT THE METABOLISM IS
21 INHIBITED.

22 A TOLUENE TAKES UP THE, TAKES UP THE
23 SITES OF THE ENZYME SO IT IS NOT AVAILABLE FOR
24 BENZENE TO BE METABOLIZED.

25 SO ACTUALLY TOLUENE HAS BEEN SHOWN
26 TO INHIBIT THE FORMATION OF THE METABOLITES OF
27 BENZENE AND IT HAS ALSO BEEN SHOWN TO INHIBIT --
28 REMEMBER, I TALKED ABOUT THESE GENOTOXICITY STUDIES

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4007

1 THAT WE LOOKED AT, IT ALSO INHIBITS THE FORMATION OF
2 GENOTOXIC COMPOUNDS.

3 Q. THIS IS A CORRECT STATEMENT IN YOUR
4 OPINION, TO A REASONABLE DEGREE OF MEDICAL OR
5 SCIENTIFIC PROBABILITY, THAT BENZENE IN HUMANS IS
6 LESS TOXIC FROM A CARCINOGENIC POINT OF VIEW WHEN
7 PRESENT CONCURRENTLY HIGH CONCENTRATIONS OF TOLUENE?

8 A. WELL, WE HAVE NOT DONE THE DIRECT
9 OBSERVATION OF THIS IN HUMANS, BUT THAT IS, THAT WAS
10 WHAT ONE WOULD PREDICT BASED UPON THE ANIMAL
11 TOXICITY STUDIES.

12 Q. OKAY. ALL RIGHT. NOW, I HAVE NOT
13 ASKED YOU IN THIS CASE TO COMPLETELY UNDERSTAND THE
14 RELATIVE BENZENE AND TOLUENE CONCENTRATIONS OF THIS,
15 OF THE VARIOUS SOLVENT MIXTURES FROM SHELL, CHEVRON
16 AND UNOCAL IN THIS CASE, HAVE I?

17 A. NO.

18 Q. NOW WHAT I WANT TO TALK ABOUT, WE
19 WERE JUST TALKING ABOUT ACUTE MYELOGENOUS LEUKEMIA

20 AND BENZENE METABOLITES IN THE LIVER.

21 THAT'S WHAT WE WERE JUST TALKING

22 ABOUT. DO YOU AGREE?

23 A. YES.

24 Q. NOW I WANT TO TALK ABOUT A DIFFERENT

25 DISEASE. I WANT TO TALK ABOUT NON-HODGKIN'S

26 LYMPHOMA.

27 IN YOUR OPINION, AS A PHYSICIAN,

28 DR. WHYSNER, TO A REASONABLE DEGREE OF MEDICAL

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4008

1 PROBABILITY. WHAT PART OF THE BODY, WHAT ORGAN
2 SYSTEM IN THE BODY, ARE WE TALKING ABOUT WHEN WE
3 TALK ABOUT NON-HODGKIN'S LYMPHOMA?

4 A. THE LYMPHATIC SYSTEM, AND ESPECIALLY
5 THE LYMPH NODES.

6 Q. HOW IS THE LYMPH -- LYMPHATIC SYSTEM
7 AND ESPECIALLY THE LYMPH NODES, DIFFERENT FROM OR
8 NOT DIFFERENT FROM THE BONE MARROW -- WITHDRAWN.
9 SORRY.

10 ONE MORE QUESTION FIRST.

11 WITH LEUKEMIA, ACUTE MYELOGENOUS
12 LEUKEMIA, IN YOUR OPINION, AS A PHYSICIAN,
13 DR. WHYSNER, TO A REASONABLE DEGREE OF MEDICAL
14 PROBABILITY, WHAT ORGAN SYSTEM IN THE BODY IS
15 INVOLVED?

16 A. THE BONE MARROW.

17 Q. OKAY. SO WITH LEUKEMIA INVOLVING
18 BONE MARROW AND NON-HODGKIN'S LYMPHOMA INVOLVING THE
19 LYMPHATIC SYSTEM, ESPECIALLY THE LYMPH NODES, ARE

20 THOSE THE SAME SYSTEMS OR DIFFERENT ORGAN SYSTEM IN
21 THE BODY, IN YOUR OPINION AS A PHYSICIAN TO A
22 REASONABLE DEGREE OF MEDICAL PROBABILITY?

23 A. THEY ARE DIFFERENT ORGAN SYSTEMS.

24 Q. REMEMBER OUR DISCUSSION THIS MORNING
25 ABOUT DR. BRADFORD HILL AND HIS VARIOUS TENANTS OR
26 ELEMENTS THAT HE DESCRIBED TO HELP UNDERSTAND
27 CAUSATION IN, CAUSALITY, THAT'S WHAT WE WERE TALKING
28 ABOUT?

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4009

1 A. YES.

2 Q. HOW DOES THIS DISCUSSION THAT WE ARE
3 NOW HAVING ABOUT LEUKEMIA AND BONE MARROW AND
4 NON-HODGKIN'S LYMPHOMA AND THE LYMPHATIC SYSTEM, HOW
5 DOES THAT RELATE TO DR. BRADFORD HILL'S CAUSATION
6 ANALYSIS, IF AT ALL?

7 A. WELL, ANOTHER ONE OF THE -- THE ONE
8 THAT WE DIDN'T TALK ABOUT IS ELEMENTS OF HIS WAY OF
9 LOOKING AT STUDIES.

10 ALSO HAS TO DO WITH WHAT HE CALLED
11 COHERENCE OR BIOLOGICAL PLAUSIBILITY.

12 IN OTHER WORDS, IN THIS CASE, I
13 GUESS THE QUESTION IS, COULD YOU LOOK AT STUDIES OF
14 ACUTE MYELOGENOUS LEUKEMIA AND FROM THEN CONCLUDE
15 SOMETHING ABOUT NON-HODGKIN'S LYMPHOMA? AND KNOWING
16 ABOUT THE DEVELOPMENT OF THESE TWO DISEASES, YOU
17 KNOW, THAT WOULD BE AN IMPORTANT ELEMENT THAT ONE
18 COULD LOOK AT TO SEE IF ONE COULD USE THOSE OTHER
19 TYPES OF STUDIES?

20 Q. DID YOU PREPARE A SLIDE WHICH
21 DEPICTS IN A SCHEMATIC KIND OF WAY THE STRUCTURE OF
22 THE LYMPH NODE WITH A FEW WORDS OF DESCRIPTION ABOUT
23 HOW THE LYMPH NODE WORKS?

24 A. YES.

25 Q. AND, YOUR HONOR, MAY WE MARK AS
26 EXHIBIT 132-20 A PLATE CALLED "STRUCTURE OF THE
27 LYMPH NODE"?

28 THE COURT: YES, IT MAY BE SO MARKED.

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1 (EXHIBIT 132-20, LYMPH NODE
2 STRUCTURE, MARKED FOR I.D.)

3

4 Q. BY MR. RIFF: DID YOU PREPARE THIS?

5 A. ACTUALLY I TOOK IT IN ONE OF MY
6 LECTURES, MY COURSE. YES.

7 MR. RIFF: I PROPOSE TO DISPLAY 132-20.

8 MR. WAGNON: NO OBJECTION.

9 THE COURT: IT MAY BE DISPLAYED.

10 MR. RIFF: THANK YOU, YOUR HONOR.

11 Q. BY MR. RIFF: PLEASE DESCRIBE WHAT WE
12 ARE LOOKING AT IN THIS SCHEMATIC. KEEP YOUR VOICE UP,
13 PLEASE.

14 A. WELL, THIS IS ONE OF ABOUT 500,
15 THERE ARE ABOUT 5- TO 600 LYMPH NODES IN THE HUMAN
16 BODY. AND I THINK THE, FOR US, THE LYMPH ENTERS
17 FROM THE LYMPH VESSELS INTO THE LYMPH NODE AT
18 VARIOUS POINTS AND THEN THIS IS WHERE IT EXITS FROM.

19 NOW, THE PURPOSE OF THIS LYMPH GLAND

20 IS TO COMBAT INFECTIOUS DISEASE, PRIMARILY.

21 AND SO IT IS FILTERING THE BODY'S

22 TISSUE FLUIDS THAT ARE DRAINING BACK FROM THE

23 TISSUES BEFORE THEY GO INTO THE BLOOD SUPPLY THROUGH

24 THIS LYMPHATIC SYSTEM. AND IT GOES ALL OVER THE

25 BODY, THE LYMPHATIC SYSTEM DOES.

26 AND THIS, THIS SHOWS THAT THERE ARE

27 DIFFERENT PARTS OF THE LYMPH NODE. OKAY.

28 SO HERE'S THE MEDULLA AND THESE

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4011

1 CONTAIN PRIMARILY T-CELLS.

2 AND THESE ARE WHAT ARE CALLED THE

3 GERMINAL CENTERS AND THESE ARE WHERE THE B-CELLS

4 RESIDE THAT ARE INVOLVED IN TRYING TO DETECT

5 ANTIGENS SO THAT THEY CAN PRODUCE ANTIBODIES.

6 NOW, WE ARE TALKING ABOUT

7 NON-HODGKIN'S LYMPHOMA. AS A MATTER OF FACT, WE ARE

8 TALKING ABOUT FOLLICULAR NON-HODGKIN'S LYMPHOMA.

9 AND THAT DISEASE ARISES IN THE FOLLICLES OF THE

10 LYMPH NODE. SO THAT'S WHERE THE DISEASE BEGINS.

11 Q. SO LET'S TALK ABOUT THE RISK FACTORS

12 FOR NON-HODGKIN'S LYMPHOMA, AS YOU APPRECIATE THEM,

13 AND THEN IN DUE COURSE WE WILL COMPARE THAT WITH

14 MR. MOLINA'S MEDICAL RECORD.

15 OKAY?

16 A. OKAY.

17 Q. SO IN YOUR OPINION, AS A PHYSICIAN,

18 AND HAVING DONE THE WORK YOU HAVE DONE IN THIS CASE,

19 DR. WHYSNER, WHAT ARE THE RISK FACTORS FOR

20 NON-HODGKIN'S LYMPHOMA IN HUMANS AND HOW WOULD YOU,

21 HOW WOULD YOU CATEGORIZE THEM OR LIST THEM?

22 A. OKAY. THE ONES THAT WE REALLY KNOW

23 ABOUT IN HUMANS ARE THOSE THAT ARE ASSOCIATED WITH

24 THINGS THAT PRODUCE SOME KIND OF IMMUNE DEFICIENCY.

25 ONE OF THEM IS AIDS OR H.I.V. VIRUS

26 INFECTION.

27 REMEMBER, WE TALKED ABOUT S.M.R.'S

28 AND WHAT IS A LARGE S.M.R. AND WHAT IS A SMALL

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4012

1 S.M.R.

2 WELL, THE S.M.R. FOR HAVING AIDS AND
3 GETTING NON-HODGKIN'S LYMPHOMA IS APPROXIMATELY 100.
4 IN OTHER WORDS, THERE'S A HUNDRED FOLD INCREASED
5 RISK OF GETTING NON-HODGKIN'S LYMPHOMA IF YOU HAVE
6 H.I.V. VIRUS INFECTION AND HAVE DEVELOPED AIDS.

7 ANOTHER ONE ARE CERTAIN CONGENITAL
8 IMMUNO-DEFICIENCY SYNDROMES. UNFORTUNATELY, SOME
9 PEOPLE ARE BORN WITH DEFECTS IN THEIR IMMUNE SYSTEM.

10 ANOTHER ARE PEOPLE WHO ARE TREATED
11 WITH IMMUNO-SUPPRESSANT DRUGS. FOR EXAMPLE, FOR
12 ORGAN TRANSPLANTATION.

13 NOW, THESE S.M.R.'S ARE NOT AS GREAT
14 HAS THOSE FOR H.I.V. BUT THEY ARE CLEARLY GREATER
15 THAN THE GENERAL POPULATION.

16 AND I BELIEVE THOSE ARE THE MAJOR
17 ONES THAT HAVE BEEN ESTABLISHED AS RISK FACTORS OR
18 CAUSALLY ASSOCIATED WITH NON-HODGKIN'S LYMPHOMA.

19 Q. WELL, IN THE, IN THIS WORLD OF

20 EPIDEMIOLOGICAL LITERATURE AND TOXICOLOGICAL
21 LITERATURE THAT YOU HAVE REVIEWED, ARE THERE, IS
22 THERE ANOTHER CATEGORY OF RISK FACTORS ASSOCIATED
23 WITH NON-HODGKIN'S LYMPHOMA THAT ARE LESS WELL
24 ESTABLISHED BUT STILL WARRANT A DISCUSSION AS A
25 POSSIBLE RISK FACTOR?

26 A. YES.

27 Q. AND WHAT WOULD YOU INCLUDE IN THAT
28 LIST?

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1 A. OH, PROBABLY THE ONES THAT ARE AT
2 THE TOP OF THAT -- I WILL REALLY MENTION ONE OTHER
3 ONE THAT IS A PROVEN RISK FACTOR AND THAT IS
4 APPARENTLY PEOPLE WHO HAVE A FAMILY HISTORY OF
5 LYMPHOMAS AND OTHER TYPES OF LYMPHOPOIETIC DISEASES
6 ALSO MAY HAVE AN INCREASED RISK OF NON-HODGKIN'S
7 LYMPHOMA.

8 BUT AT THE TOP OF THE LIST OF THOSE
9 THAT HAVEN'T REALLY BEEN PROVEN BUT THERE SEEMS TO
10 BE A LOT OF EPIDEMIOLOGY STUDIES THAT SUPPORT IT ARE
11 OTHER TYPES OF INFECTIONS.

12 ONE OF THEM -- ONE TYPE OF LYMPHOMA
13 IS ACTUALLY A LYMPHOMA THAT IS INSIDE THE INTESTINE.
14 IT IS A SPECIFIC TYPE OF LYMPHOMA.

15 AND THAT ONE SEEMS TO BE CAUSALLY
16 RELATED TO A BACTERIAL INFECTION, THE SAME ONE
17 THAT'S THOUGHT TO BE ASSOCIATED WITH STOMACH CANCERS
18 AND THAT'S HYLICOBACTORPYLORI.

19 HEPATITIS C. INFECTION, MAY BE

20 ASSOCIATED WITH AN INCREASED RISK OF NON-HODGKIN'S
21 LYMPHOMA.

22 THERE IS ONE TYPE OF LYMPHOMA THAT
23 IS ESPECIALLY PREDOMINANT IN AFRICA CALLED BURKETT'S
24 LYMPHOMA THAT IS ASSOCIATED WITH EPSTEIN BAR VIRUS
25 INFECTION.

26 SO THERE'S A LOT OF EVIDENCE
27 POINTING TO THE INTERPLAY OF NON-HODGKIN'S LYMPHOMA
28 BETWEEN VIRAL INFECTIONS AND IMMUNE PROBLEMS. IN

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4014

1 OTHER WORDS, THE IMMUNE SYSTEM IS SOMEHOW ALTERED SO
2 IT CANNOT DEAL WITH THESE VIRAL INFECTIONS.

3 Q. WHAT ABOUT THE SUBSTANCE AGENT
4 ORANGE THAT DEFOLIANT THAT WAS USED IN VIETNAM?

5 A. WELL, AGAIN, THIS IS ONE THAT -- I
6 AM NOT SURE THAT THIS ACTUALLY RISES TO THE LEVEL
7 THAT IT IS SIMULTANEOUSLY CAUSALLY RELATED AND I
8 THINK DIFFERENT PEOPLE DEAL WITH IT DIFFERENTLY.

9 IT IS A COMPENSABLE DISEASE FOR
10 VETERAN'S. AGENT ORANGE EXPOSURE IS FOR PEOPLE WHO
11 HAVE NON-HODGKIN'S LYMPHOMA. SO THE NATIONAL
12 ACADEMY OF SCIENCES LOOKED AT THIS AND THEY
13 CONCLUDED THAT AGENT ORANGE EXPOSURE WAS ASSOCIATED
14 WITH AN INCREASED RISK FOR NON-HODGKIN'S LYMPHOMA.

15 Q. DR. WHYSNER, WHAT ABOUT OBESITY,
16 BODY MASS INDEX, WHERE DOES THAT FIT IN?

17 A. THAT'S ANOTHER ONE THAT HAS BEEN
18 STUDIED AND STUDIES ARE KIND OF MIXED ON THAT ONE.

19 SOME STUDIES SHOW AN ASSOCIATION,

20 AND OTHER STUDIES HAVE NOT SHOWN AN ASSOCIATION.

21 Q. WHAT ABOUT CERTAIN DRUGS LIKE, WELL,
22 ANTIINFLAMMATORY MEDICATIONS, THAT KIND OF THING?

23 A. CHRONIC USE OF SOME
24 ANTI-INFLAMMATORY MEDICATIONS HAVE ALSO BEEN LINKED,
25 FOR EXAMPLE, PEOPLE WHO HAVE ARTHRITIS FOR A LONG
26 TIME AND HAVE TO TAKE A LOT OF NONSTEROIDAL
27 ANTIINFLAMMATORY DRUGS.

28 BUT AGAIN, IN THIS CASE, THE STUDIES

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4015

1 ARE MIXED.

2 SO SOME EPIDEMIOLOGY STUDIES SHOW
3 THAT THERE IS AN ASSOCIATION AND OTHERS HAVE NOT
4 SHOWN SUCH AN ASSOCIATION.

5 Q. ALL RIGHT. WELL, LET'S TALK ABOUT A
6 THIRD CATEGORY THEN OF THINGS WHICH, IN YOUR
7 OPINION, TO A REASONABLE DEGREE OF MEDICAL
8 PROBABILITY, WELL, THINGS FOR WHICH THERE IS NO
9 CONSISTENT EVIDENCE ONE WAY OR THE OTHER.

10 OKAY?

11 WHAT, THAT IS TO SAY, AGENTS OR
12 LIFESTYLE ISSUES THAT, FOR WHICH THERE IS NO
13 CONSISTENT EVIDENCE ONE WAY OR THE OTHER FOR
14 NON-HODGKIN'S LYMPHOMA. WHAT GOES ON THAT LIST, IN
15 YOUR OPINION?

16 A. WELL, THERE'S ANOTHER ANTI-EPILEPTIC
17 DRUG CALLED DILANTIN WHICH IS KIND OF AN INTERESTING
18 STORY WHICH IS WHEN WE WERE STUDYING PHENOBARBITAL
19 AND I WAS DOING AN EPIDEMIOLOGY STUDY WITH A FOLLOW

20 NAMED JORGEN OLSEN FROM THE DANISH CANCER REGISTRY,
21 WE WERE LOOKING AT PHENOBARBITAL AND LIVER CANCER.
22 AND IT TURNED OUT THAT WE DID SEE AN INCREASED RISK
23 FOR NON-HODGKIN'S LYMPHOMA WITH DILANTIN THAT HAS
24 NEVER BEEN REPLICATED.

25 BUT I HAVE SEEN IT REPORTED IN
26 TEXTBOOKS AND SO ON AND SO FORTH BUT THAT WAS ONLY
27 BASED UPON ONE STUDY AND IT WAS SOMETHING WE WEREN'T
28 EVEN LOOKING FOR. IT JUST CAME, CAME OUT IN THAT

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4016

1 PARTICULAR STUDY.

2 SO THAT'S ONE I WOULD NOT CONSIDER

3 TO BE ASSOCIATED WITH NON-HODGKIN'S LYMPHOMA.

4 Q. WHAT ABOUT HAIR DYE?

5 A. I DON'T THINK THAT THE -- I THINK

6 THAT MORE RECENT PEOPLE WHO HAVE LOOKED AT THIS AND

7 MY REVIEW OF THE LITERATURE DOESN'T REALLY FIND THAT

8 HAIR DYES ARE ASSOCIATED WITH N.H.L. EITHER.

9 Q. WHAT ABOUT CIGARETTE SMOKE?

10 A. NO. THE SURGEON GENERAL KEEPS A

11 PRETTY CLOSE TAB ON THE DISEASES THAT HAVE BEEN

12 ASSOCIATED WITH CIGARETTE SMOKE. AND ONE OF THEM,

13 BY THE WAY, IS ACUTE MYELOGENOUS LEUKEMIA. BUT NOT

14 NON-HODGKIN'S LYMPHOMA.

15 Q. WHAT ABOUT ALCOHOL, THE STUFF IN

16 BEER AND WINE?

17 A. VERY LITTLE EVIDENCE. BUT AGAIN,

18 THERE ARE A FEW STUDIES WHERE THERE IS A SHOWN

19 INCREASE IN THE S.M.R. AND THEN THERE ARE OTHER

20 STUDIES THAT DON'T SHOW IT.

21 Q. OKAY. NOW, WE SPENT A LONG TIME

22 THIS MORNING TALKING ABOUT BENZENE IN THESE

23 HYDROCARBON SOLVENTS.

24 IN THESE THREE CATEGORIES THAT YOU

25 HAVE BEEN TELLING ME ABOUT, THE PROVEN AND POSSIBLE

26 AND NO CONSISTENT EVIDENCE, IN YOUR OPINION, TO A

27 REASONABLE DEGREE OF MEDICAL AND SCIENTIFIC

28 PROBABILITY, WHERE WOULD YOU PUT THE BENZENE AND

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1 SOLVENT LITERATURE?

2 A. INTO THAT THIRD CATEGORY, WHERE,

3 AGAIN, THERE MAY BE ONE OR TWO STUDIES OR THREE

4 STUDIES THAT SHOW SOME INCREASED ASSOCIATION BUT THE

5 VAST MAJORITY OF OTHER STUDIES DON'T SUPPORT THOSE

6 STUDIES.

7 Q. OKAY. NOW, LET'S TALK ABOUT

8 MR. MOLINA. DR. WHYSNER, DID YOU HAVE AN OPINION,

9 TO A REASONABLE DEGREE OF MEDICAL PROBABILITY, WHY

10 MR. MOLINA GOT NON-HODGKIN'S LYMPHOMA?

11 A. YES.

12 Q. WHAT'S YOUR OPINION?

13 A. IT'S NOT KNOWN.

14 Q. ARE YOU FAMILIAR WITH THE TERM

15 IDIOPATHIC?

16 A. THAT'S ANOTHER WAY OF PUTTING IT.

17 MEDICALLY WE SAY IT IS AN IDIOPATHIC -- WELL,

18 USUALLY WE REFER TO A DISEASE AS BEING IDIOPATHIC.

19 YOU DON'T KNOW WHAT CAUSES THAT DISEASE. BUT IN THE

20 SPECIFIC CASE, I WOULD SAY HIS CAUSE IS IDIOPATHIC;

21 WE JUST DON'T KNOW.

22 Q. YOU HAVE REVIEWED ALL OF HIS MEDICAL

23 RECORDS?

24 A. YES.

25 Q. HAVE YOU NOTED IN HIS MEDICAL RECORD

26 CERTAIN THINGS, AT LEAST, THAT ARE ON THIS LIST OF

27 RISK FACTORS SOMEWHERE, EITHER PROVEN OR POSSIBLE OR

28 NO CONSISTENT EVIDENCE?

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1 A. YES.

2 Q. LIKE WHAT?

3 A. WELL, OBESITY, MR. MOLINA HAS A
4 HISTORY OF OBESITY DATING BACK TO THE EARLY 1990'S,
5 AT LEAST. AND WITH AN INCREASED BODY MASS INDEX
6 WHICH WOULD PUT HIM IN THE OBESE CATEGORY.

7 THAT'S ONE.

8 HE HAS --

9 Q. LET ME JUST STOP YOU. JUST SO WE
10 ARE COMPLETELY CLEAR ON THIS, YOU ARE NOT TELLING
11 THE JURY, ARE YOU, THAT IN YOUR OPINION HIS OBESITY
12 WAS, TO A REASONABLE DEGREE OF MEDICAL PROBABILITY,
13 THE CAUSE OF HIS NON-HODGKIN'S LYMPHOMA?

14 A. NO.

15 Q. OKAY.

16 YOU ARE JUST NOTING IT AS, WHAT, A
17 RISK FACTOR OUT THERE?

18 A. WELL, THAT IT IS ONE OF THESE OTHER
19 THINGS THAT HAS BEEN ASSOCIATED WITH NON-HODGKIN'S

20 LYMPHOMA IN SOME STUDIES BUT I WOULD SAY THAT IT
21 DOESN'T REACH THE LEVEL OF BEING CAUSALLY RELATED.

22 Q. OKAY. WHAT ELSE?

23 A. WELL, HIS USE OF NONSTEROIDAL
24 INFLAMMATORY DRUGS.

25 THE HISTORY IS A LITTLE BIT SPORADIC
26 ON THAT BUT HE HAS A LONG-STANDING ORTHOPEDIC
27 PROBLEM AND ALSO INDICATIONS THAT HE WAS TAKING
28 NONSTEROIDAL AND ANTIINFLAMMATORY DRUGS.

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1 Q. LIKE WHAT?

2 A. WELL, YOU KNOW --

3 Q. WHAT IS N.S.A.I.D, A NONSTEROIDAL
4 ANTI-INFLAMMATORY DRUG?

5 A. I THINK THERE WAS A NOTATION OF
6 ASPIRIN FOR ONE, THAT'S ONE TYPE.

7 AND I CAN'T REMEMBER THE OTHERS. I
8 THINK, I THINK SOME OF THE CELEBREX OR SOMETHING
9 LIKE THAT WAS ALSO NOTED IN HIS -- BUT NOT THE
10 STEROIDAL TYPE, THESE ARE NONSTEROIDAL TYPES.

11 Q. AND ARE THERE OTHER THINGS IN HIS
12 MEDICAL RECORD THAT YOU HAVE NOTED THAT IMPLICATE,
13 IN SOME FASHION, AT LEAST, ONE OR MORE OF THESE RISK
14 FACTORS?

15 A. WELL, WE TALKED ABOUT OBESITY AND WE
16 TALKED ABOUT NONSTEROIDAL ANTIINFLAMMATORY DRUGS AND
17 WE HAVE TALKED ABOUT CIGARETTE SMOKING AND THOSE ARE
18 THE, THOSE ARE THE THREE.

19 Q. OKAY, AND WHAT DID YOU, WHAT DID YOU

20 CONCLUDE BASED ON YOUR REVIEW OF THE MEDICAL RECORD

21 AS TO MR. MOLINA'S PAST SMOKING HISTORY?

22 A. WELL, THERE'S A NOTATION AND SOME

23 INDICATION HE HAD SMOKED FOR A NUMBER OF YEARS, ONE

24 SAYING 35 YEARS.

25 I THINK THERE'S SOME CONTROVERSY

26 ABOUT HOW MUCH HE ACTUALLY SMOKED.

27 BUT AGAIN, EVEN THOUGH I NOTED IT I

28 DIDN'T PAY TOO MUCH ATTENTION TO IT BECAUSE IT IS

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1 NOT ONE OF THE -- IT IS NOT A PROVEN RISK FACTOR FOR
2 NON-HODGKIN'S LYMPHOMA. OKAY.

3 Q. SO, LET ME SEE IF I CAN SUMMARIZE
4 SOME OF YOUR BOTTOM LINES HERE AND THEN I WILL SIT
5 DOWN.

6 IN YOUR OPINION, TO A REASONABLE
7 DEGREE OF MEDICAL PROBABILITY, THE SOLVENTS TO WHICH
8 MR. MOLINA WAS EXPOSED, AT FIRESTONE DID NOT CAUSE
9 AND DID NOT INCREASE HIS RISK OF CONTRACTING
10 NON-HODGKIN'S LYMPHOMA. IS THAT TRUE?

11 A. YES.

12 Q. IN YOUR OPINION, TO A REASONABLE
13 DEGREE OF MEDICAL PROBABILITY, HIS EXPOSURE TO
14 BENZENE AT FIRESTONE DID NOT CAUSE NOR INCREASE HIS
15 RISK OF CONTRACTING NON-HODGKIN'S LYMPHOMA; IS THAT
16 TRUE?

17 A. YES.

18 Q. IF THIS WERE NOT A NON-HODGKIN'S
19 LYMPHOMA BUT A LEUKEMIA CASE INVOLVING ACUTE

20 MYELOGENOUS LEUKEMIA, IN OPINION, TO A REASONABLE
21 DEGREE OF MEDICAL PROBABILITY, MR. MOLINA'S BENZENE
22 EXPOSURE, AS EXPRESSED IN PART PER MILLION WAS TOO
23 LOW TO HAVE BEEN A CAUSAL FACTOR INCREASING HIS RISK
24 OF CONTRACTING LEUKEMIA, A.M.L., IS THAT TRUE?

25 A. YES.

26 Q. OKAY, THOSE ARE ALL THE QUESTIONS I
27 HAVE FOR YOU.

28 THANK YOU.

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1 THE COURT: MR. WAGNON WHENEVER YOU ARE READY.

2 MR. WAGNON: YOUR HONOR, I HAVE -- I NEED TO
3 SET UP SOME EQUIPMENT.

4 THE COURT: SURE. THAT'S FINE.

5 MR. WAGNON: AND ALL I NEED IS FIVE MINUTES.

6 THE COURT: OKAY, NO PROBLEM.

7 LET'S TAKE ABOUT 10 MINUTES AND THEN WE
8 WILL SEE HOW WE GO.

9 OKAY?

10 MR. WAGNON: THANK YOU. AGAIN 10 MINUTES,
11 LADIES AND GENTLEMEN.

12 WE WILL SEE YOU BACK HERE AT 20 MINUTES
13 AFTER 2:00.

14 WE MIGHT HAVE TWO, TWO SHORT BREAKS THIS
15 TIME.

16

17 (AT THIS TIME, A RECESS
18 WAS TAKEN.)

19

20 (THE FOLLOWING PROCEEDINGS

21 WERE HELD IN OPEN COURT IN

22 THE PRESENCE OF THE JURY:)

23

24

25

26 JOHN WHYSNER,

27 HAVING BEEN PREVIOUSLY DULY SWORN, RESUMED THE

28 WITNESS STAND AND TESTIFIED AS FOLLOWS:

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1 THE COURT: THE JURORS AND ALTERNATES ARE
2 AGAIN PRESENT.

3 MR. WAGNON, YOU MAY PROCEED WHEN YOU ARE
4 READY.

5 MR. WAGNON: THANK YOU, YOUR HONOR.

6

7 CROSS-EXAMINATION

8

9 BY MR. WAGNON:

10 Q. GOOD AFTERNOON, SIR.

11 A. GOOD AFTERNOON.

12 Q. WHILE IT IS STILL REFRESH ON

13 EVERYONE'S MIND, I WANT TO ASK YOU ABOUT ONE OF THE

14 LAST AREAS THAT YOU COVERED DURING DIRECT

15 EXAMINATION.

16 AND YOU MENTIONED A NUMBER OF

17 DIFFERENT RISK FACTORS SUCH AS OBESITY, USE OF

18 NON-HODGKIN'S LYMPHOMA, NONSTEROIDAL

19 ANTI-INFLAMMATORY DRUGS, SMOKING AND MAYBE SOME

20 OTHERS.

21 BUT I THOUGHT I HEARD YOU SAY THAT

22 THE BOTTOM LINE WAS THAT TO A REASONABLE DEGREE OF

23 MEDICAL PROBABILITY, THESE WERE NOT CONTRIBUTORY

24 FACTORS IN TERMS OF CAUSING HIS NON-HODGKIN'S

25 LYMPHOMA. DID I GET THAT CORRECT?

26 A. YES, THAT'S CORRECT.

27 Q. AND SO WHAT WE ARE LEFT WITH, AND I

28 JUST WANT TO CLARIFY THIS AS WELL, THAT IN YOUR

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1 OPINION, THIS IS A CASE WHERE YOU JUST DON'T KNOW

2 WHAT THE CAUSE IS OF HIS NON-HODGKIN'S LYMPHOMA; IS

3 THAT CORRECT?

4 A. THAT'S TRUE.

5 Q. AND THE TECHNICAL TERM, THE SCIENCE

6 PEOPLE USE FOR THAT IS IDIOPATHIC; RIGHT?

7 A. THAT'S TRUE, YES.

8 Q. AND IDIOPATHIC MEANS SIMPLY UNKNOWN.

9 IT DOESN'T MEAN THAT THERE IS NO CAUSE, IT MEANS

10 JUST WHATEVER THE CAUSE IS, WE DON'T KNOW WHAT IT

11 IS; RIGHT?

12 A. WELL, WITH THE CLARIFICATION THAT

13 YOU ARE GIVING MR. RIFF IS THAT SOME DISEASES IT IS

14 COMPLETELY IDIOPATHIC.

15 IN NON-HODGKIN'S LYMPHOMA, THERE ARE

16 SOME INSTANCES WHERE YOU ARE PRETTY SURE THE CAUSAL

17 RELATIONSHIP COULD BE LIKE H.I.V. INFECTION OR

18 SOMETHING LIKE THAT.

19 IN THIS PARTICULAR CASE, WHICH IS

20 THE VAST MAJORITY, WE DON'T KNOW WHAT THE CAUSE IS.

21 Q. NOW, YOU ARE A TOXICOLOGIST, OF

22 COURSE; CORRECT?

23 A. YES.

24 Q. AND YOU DID TALK ABOUT SOME

25 TOXICOLOGY TODAY IN TERMS OF WHAT HAPPENS TO BENZENE

26 WHEN IT GOES INTO THE LIVER; CORRECT? THAT WOULD BE

27 IN THE FIELD OF TOXICOLOGY?

28 A. YES.

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1 Q. AND SO WHAT YOU WERE TALKING ABOUT
2 THERE WAS A MECHANISM, INsofar AS WHAT SCIENCE
3 KNOWS, ABOUT THE FATE OF THAT PARTICULAR CHEMICAL IN
4 THE BODY; RIGHT?

5 A. YES.

6 Q. IS IT FAIR TO SAY THAT THAT LEVEL OF
7 DETAIL, AT THIS POINT IN TIME, THAT LEVEL OF DETAIL
8 IS NOT UNDERSTOOD FOR PETROCHEMICAL SOLVENTS ACROSS
9 THE BOARD?

10 A. I DON'T KNOW WHAT -- LEVEL OF DETAIL
11 REGARD WHAT?

12 Q. HOW THEY ARE METABOLIZED IN THE
13 BODY, EXACTLY WHAT THE METABOLITES ARE, WHAT THEIR
14 FATE IS, WHERE THEY GO, AND THOSE SORTS OF DETAILS,
15 THEY ARE NOT KNOWN YET, ARE THEY?

16 A. WELL, THERE ARE A LOT OF STUDIES ON
17 CHEMICAL -- ON OTHER PETROCHEMICAL SOLVENTS. I
18 MEAN, ALKYNES, ALKANES, TOLUENE, XYLENE, THERE HAVE
19 BEEN METABOLIC STUDIES AND I THINK, IN MOST CASES,

20 WE DO KNOW THEIR METABOLISM AND DISTRIBUTION.

21 Q. WELL, IN A LOT OF CASES, WE DON'T

22 KNOW, WOULD YOU AGREE WITH THAT?

23 A. WELL, IF YOU CAN GIVE ME A SPECIFIC

24 EXAMPLE. I MEAN, I COULD -- WHICH PARTICULAR

25 COMPONENT ARE YOU THINKING ABOUT?

26 Q. THE PARTICULAR PETROCHEMICAL

27 SOLVENTS THAT HE WAS EXPOSED TO AT THE FIRESTONE

28 PLANT.

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1 A. WELL, THESE ARE MIXTURES OF
2 DIFFERENT CHEMICALS AND I THINK YOU WERE ASKING ME
3 ABOUT THE METABOLISM. AND AS A TOXICOLOGIST, I CAN
4 ONLY DISCUSS METABOLISM IN TERMS OF SPECIFIC
5 CHEMICALS THAT MAKE UP THAT MIXTURE.

6 SO IF YOU, IF WE ARE TALKING ABOUT A
7 PARTICULAR ONE, I MEAN, MAYBE, IF YOU MENTION ONE I
8 MIGHT TELL YOU WHAT IT IS OR I MIGHT TELL WHAT YOU
9 IT ISN'T.

10 Q. SO YOU HAVEN'T DONE AN ANALYSIS OF
11 ALL OF THE CHEMICAL CONSTITUENTS OF ALL OF THE
12 PETROCHEMICAL SOLVENTS THAT HE WAS EXPOSED TO AT
13 FIRESTONE, HAVE YOU?

14 A. YOU MEAN IN TERMS OF AN ANALYSIS OF
15 THE WAY IN WHICH THEY ARE METABOLIZED, IS THAT WHAT
16 YOU MEAN OR LITERATURE REVIEW?

17 Q. YES.

18 A. OR SOMETHING ELSE?

19 Q. YES.

20 A. WELL, I WOULD SAY THAT THERE ARE
21 SOME MINOR COMPONENTS OF SOME OF THEM THAT I HAVEN'T
22 REALLY LOOKED INTO.

23 Q. WELL, LET ME ASK IT A DIFFERENT WAY.

24 WITH RESPECT TO CAUSATION, DO WE
25 RELY PRIMARILY ON EPIDEMIOLOGY, THAT, HUMAN
26 EPIDEMIOLOGY STUDIES TO TELL US WHETHER OR NOT A
27 SUBSTANCE CAUSES A PARTICULAR DISEASE?

28 A. YES.

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1 Q. AND IS IT NECESSARY FOR US TO KNOW
2 ALL OF THE TECHNICAL DETAILS, FOR INSTANCE, YOU USE
3 THE EXAMPLE OF CIGARETTE SMOKE.

4 CIGARETTE SMOKE IS A CARCINOGEN THAT
5 HAS BEEN WELL-RECOGNIZED AND IS UNDERSTOOD TO BE, IS
6 A CARCINOGEN; CORRECT?

7 A. YES.

8 Q. AND THAT'S BASED ON EPIDEMIOLOGY
9 STUDIES; RIGHT?

10 A. YES.

11 Q. AND THE PRECISE MECHANISM OF ALL OF
12 THE COMPONENTS OF CIGARETTE SMOKE AND HOW THOSE
13 COMPONENTS CAUSE LUNG CANCER, THAT IS NOT FULLY
14 UNDERSTOOD YET, IS IT?

15 A. NO.

16 Q. SO -- BUT THAT DOESN'T PREVENT US
17 FROM MAKING A CONCLUSION USING EPIDEMIOLOGY, DOES
18 IT?

19 A. THAT'S CORRECT.

20 Q. AND SO IN THIS CASE, WE DO NEED THE
21 ASSISTANCE OF EPIDEMIOLOGY IN ORDER TO ADDRESS THIS
22 ISSUE OF CAUSATION, WOULD YOU AGREE?

23 A. WELL, AS I MENTIONED, THE BRADFORD
24 HILL ELEMENTS ALSO INCLUDE ISSUES RELATED TO
25 BIOLOGICAL PLAUSIBILITY. BUT I WOULD SAY THAT THE
26 MAIN, THE MAIN THRUST OF OUR UNDERSTANDING HAS TO BE
27 THE EPIDEMIOLOGY STUDIES.

28 Q. NOW, WITH RESPECT TO EPIDEMIOLOGY,

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1 FIRST OF ALL, CAN YOU TELL US HOW MANY CLASSES THAT
2 YOU TOOK DURING YOUR MEDICAL TRAINING IN THE FIELD
3 OF EPIDEMIOLOGY?

4 A. WELL, I DON'T THINK THERE WERE ANY
5 SPECIFIC CLASSES IN EPIDEMIOLOGY. WE USED
6 EPIDEMIOLOGY IN TERMS OF TRYING TO UNDERSTAND WHAT
7 THINGS CAUSED DISEASE IN A LOT OF THE CLASSES.

8 Q. DOCTOR, HOW MANY CLASSES DID YOU
9 TAKE IN EPIDEMIOLOGY?

10 A. WE, IF YOU DEFINE -- HOW WOULD YOU
11 DEFINE A CLASS?

12 YOU MEAN A COURSE? A LECTURE? I
13 HAVE HEARD LECTURES IN EPIDEMIOLOGY BUT I CAN'T TELL
14 YOU HOW MANY.

15 Q. DOCTOR, DO YOU REMEMBER TESTIFYING
16 IN THE HOOPER TRIAL?

17 A. YES.

18 Q. AND LET ME READ TO YOU FROM THE
19 TRANSCRIPT OF THAT TRIAL A QUESTION THAT WAS ASKED

20 AND AN ANSWER THAT YOU GAVE.

21 MR. RIFF: EXCUSE ME, PLEASE. MAY I JUST LOOK
22 OVER YOUR SHOULDER AND SEE WHAT YOU PLAN TO READ.

23 NO OBJECTION.

24 MR. WAGNON: AT PAGE -- THE DATE OF THIS IS
25 AUGUST 9TH, 2005, TRANSCRIPT PAGE 2542 AT LINE 24
26 THROUGH LINE 26.

27 THE WITNESS: MAY I SEE THAT, BY THE WAY OR
28 NO?

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1 THE COURT: HE CAN JUST READ IT TO YOU AND
2 THEN IF THERE'S SOME PROBLEM, MR. RIFF WILL FIND IT AND
3 TAKE CARE OF THAT.

4 OKAY.

5 THE WITNESS: OKAY.

6 MR. WAGNON: (READING).

7 "Q. DOCTOR, HOW MANY CLASSES
8 DID YOU TAKE IN EPIDEMIOLOGY?

9 "A. I HAVEN'T TAKEN ANY
10 CLASSES IN EPIDEMIOLOGY."

11 THE WITNESS: WELL, THE WAY I UNDERSTOOD THE
12 QUESTION AT THE TIME MEANT, I THINK I WAS THINKING
13 CLASSES. I WAS THINKING COURSES.

14 BUT I HAVE HAD LECTURES ON EPIDEMIOLOGY.
15 I WAS JUST ASKING YOU WHAT YOU MEANT BY A CLASS.

16 IF YOU MEAN BY A COURSE, THEN I HAVEN'T
17 TAKEN ANY COURSES IN EPIDEMIOLOGY.

18 Q. BY MR. WAGNON: HOW MANY PROFESSIONAL
19 ORGANIZATIONS OF EPIDEMIOLOGISTS, DO YOU BELONG TO?

20 A. NONE.

21 Q. ARE YOU A FELLOW IN THE AMERICAN
22 COLLEGE OF EPIDEMIOLOGY?

23 A. NO.

24 Q. HAVE YOU EVER RECEIVED AN AWARD FOR
25 YOUR WORK IN EPIDEMIOLOGY?

26 A. NO.

27 Q. NOW, WE HAVE TALKED ABOUT SOME
28 STUDIES WHERE THERE WERE TWO COHORTS INVOLVED. ARE

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1 YOU WITH ME?

2 A. NO.

3 Q. WELL, WE HAVE GOT THE EXPOSED AND WE
4 HAVE OVER HERE THE CONTROLS. OKAY.

5 COHORT STUDY?

6 A. WELL, THE COHORT STUDIES THAT I WAS
7 DESCRIBING ACTUALLY DIDN'T HAVE A CONTROLLED COHORT.
8 THEY WERE BEING COMPARED AGAINST WHAT ARE CALLED
9 STANDARDIZED MORTALITY STATISTICS WHICH ARE
10 AVAILABLE BUT I DON'T THINK I -- AS I MENTIONED, IF
11 THAT WAS TRUE, YOU WOULD BE TALKING ABOUT RELATIVE
12 RISKS. BUT IT IS A MINOR POINT. I AM JUST SAYING
13 THAT IT WASN'T -- THERE ARE NO TWO COHORTS.

14 Q. I AM JUST TRYING TO TALK BROAD
15 CONCEPTS HERE.

16 A. OKAY.

17 Q. OKAY. SO FOR CONTROLS, IF YOU ARE
18 USING, YOU MIGHT USE STANDARD STATISTICS DRAWN FROM
19 THE POPULATION AT LARGE; RIGHT?

20 A. WE USE STATISTICS TO COMPARE YOUR
21 COHORT TO THE POPULATION AT LARGE; CORRECT.

22 Q. OKAY. BUT IS THE BASIC THEORY THAT
23 YOU ARE COMPARING A GROUP OF PEOPLE WHO ARE EXPOSED
24 TO THE TOXIN IN QUESTION TO A GROUP THAT IS NOT
25 EXPOSED?

26 A. YES.

27 Q. AND WOULD YOU AGREE THAT IF YOU HAVE
28 UNEXPOSED PEOPLE IN YOUR EXPOSED GROUP, THAT IT CAN

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1 MESS UP YOUR STATISTICS?

2 A. WELL, IT DEPENDS ON HOW YOU DO THE
3 ANALYSIS.

4 SOME PEOPLE ANALYZE ACCORDING TO
5 EVEN IN THE COHORT STUDIES, THEY HAVE FOUND
6 UNEXPOSED PEOPLE, THEY HAVE FOUND LOW EXPOSED
7 PEOPLE, THEY HAVE FOUND PEOPLE WHO HAVE, YOU KNOW,
8 MODERATE EXPOSURES AND THEY HAVE HIGH EXPOSURES.

9 SO IF YOU DESIGN YOUR COHORT STUDY
10 WHERE YOU ARE ACTUALLY LOOKING AT DIFFERENT EXPOSURE
11 GROUPS, IT WOULDN'T EFFECT IT.

12 IF YOU HAD ONLY TWO GROUPS AND YOU
13 HAD LOTS OF UNEXPOSED PEOPLE IN THAT, IT MIGHT
14 EFFECT YOUR STATISTICS.

15 IT MIGHT EFFECT THE VALIDITY OF THE
16 OUTCOME.

17 Q. SIR, IF THE DISEASE RATE THAT WE
18 FIND IN THE EXPOSED GROUP AND OUR CONTROLS ARE THE
19 SAME, THAT WOULD BE AN EXAMPLE OF A NEGATIVE STUDY;

20 RIGHT?

21 A. CORRECT.

22 Q. AND A NEGATIVE STUDY CAN MEAN THAT

23 WE HAVE FOUND NO EFFECT FROM THE EXPOSURE; RIGHT?

24 A. CORRECT.

25 Q. IT CAN ALSO MEAN THAT OUR STUDY

26 LACKS SUFFICIENT STATISTICAL POWER TO BE ABLE TO

27 DETECT AN EFFECT; CORRECT?

28 A. THAT'S CORRECT.

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1 Q. AND IT CAN ALSO MEAN THAT OUR STUDY
2 DESIGN MAY HAVE SOME INHERENT BIASES SUCH AS THE
3 HEALTHY WORKER BIAS THAT MIGHT MAKE THE EFFECT NOT
4 VISIBLE. WOULD YOU AGREE WITH THAT, SIR?

5 A. WELL, THE HEALTHY WORKER EFFECT
6 DEPENDS UPON THE DISEASE, IN TERMS OF MAGNITUDE.

7 THERE ARE SOME DISEASES THAT HAVE
8 HEALTHY WORKER EFFECTS AND THERE ARE OTHER WHERE IT
9 IS NOT A VERY SIGNIFICANT ISSUE.

10 Q. WOULD YOU AGREE, SIR, THAT BIASES
11 CAN BE A FACTOR THAT CAN MAKE IT DIFFICULT FOR YOU
12 TO SEE THE EFFECT OF AN EXPOSURE?

13 A. THAT'S GENERALLY TRUE, YES. IN ALL
14 OF THESE EPIDEMIOLOGY STUDIES.

15 Q. AND IF YOU GET A NEGATIVE RESULT
16 FROM YOUR STUDY, THAT IS, AN ODDS RATIO OF ONE, IT
17 MAY BE BECAUSE THERE IS NO EFFECT TO BE SEEN OR
18 BECAUSE, FROM PROBLEMS WITH YOUR STUDY DESIGN OR
19 YOUR SELECTION, THAT YOU HAVE MISSED SOMETHING THAT,

20 IN FACT, IS THERE.

21 WOULD YOU AGREE WITH THAT?

22 A. WELL, NOW YOU ARE TALKING ABOUT CASE

23 CONTROL STUDIES WITH ODDS RATIOS. I AM NOT EXACTLY

24 SURE -- CAN YOU REPEAT THAT QUESTION AGAIN.

25 Q. WELL, SIR, YOU TALKED A MOMENT AGO

26 ABOUT THE NEED FOR CONSISTENCY AMONG THE STUDIES;

27 RIGHT?

28 A. NO, I KNOW, BUT YOU WERE TALKING

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1 ABOUT COHORT STUDIES AND ALL OF THE SUDDEN YOU SAID
2 ODDS RATIOS AND I WAS TRYING TO RETHINK YOUR
3 QUESTION IN TERMS OF THAT DIFFERENT KIND OF
4 EPIDEMIOLOGY STUDY.

5 Q. SIR, JUST A MOMENT AGO YOU WERE
6 TALKING ABOUT -- WELL, LET'S COME AT THIS A
7 DIFFERENT WAY HERE.

8 YOU REVIEWED THE MEDICAL LITERATURE;
9 CORRECT?

10 A. YES.

11 Q. AND I WROTE DOWN A STATEMENT YOU
12 MADE, YOU SAID LOOKED AT ALL THE LITERATURE YOU
13 COULD FIND. IS THAT RIGHT?

14 A. THAT'S CORRECT. I DID A LITERATURE
15 SEARCH AND I LOOKED AT MOST OF THE LITERATURE, I
16 THINK, THAT THE PLAINTIFFS' EXPERTS HAD PUT TOGETHER
17 AS WELL.

18 Q. AND YOU KNOW HOW TO DO THOSE KINDS
19 OF MEDICAL SEARCHES FOR LOOKING FOR MEDICAL

20 LITERATURE; RIGHT?

21 A. YES.

22 Q. YOU KNEW THAT THIS CASE WAS ABOUT

23 PETROCHEMICAL SOLVENTS INCLUDING BENZENE?

24 A. YES -- WELL, YES. I MEAN, BUT I

25 WOULD TRY -- FOR BENZENE EXPOSURE ISSUES, I TRIED TO

26 GET STUDIES THAT WERE LOOKING PRIMARILY OR

27 EXCLUSIVELY AT BENZENE EXPOSURE.

28 Q. SIR, MY QUESTION WAS A SIMPLE ONE.

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1 DID YOU KNOW THAT THIS CASE INVOLVED
2 ALLEGATIONS OF EXPOSURE TO PETROCHEMICAL SOLVENTS
3 INCLUDING BENZENE?

4 A. YES, YES. I'M SORRY, I
5 MISUNDERSTOOD.

6 Q. AND LET'S TAKE A LOOK AT ONE OF THE
7 STUDIES THAT I BELIEVE WAS ON YOUR CHART BY HARDELL.

8 SIR, I'LL HAND YOU A COPY.

9 MR. WAGNON: YOUR HONOR, I HAVE SOME SUMMARY
10 INFORMATION INCLUDING THE NAME OF THE STUDY AND THE
11 POINTS THAT I WANTED TO ASK HIM ABOUT. THAT I'D LIKE TO
12 DISPLAY WITH THE COURT'S PERMISSION.

13 THE COURT: ANY OBJECTION?

14 MR. RIFF: NO.

15 YOUR HONOR, WILL THE WITNESS ALSO HAVE
16 THIS STUDY? IF THE WITNESS ALSO HAS THE STUDY, THEN I
17 HAVE NO OBJECTION.

18 THE COURT: OKAY, YOU HAVE GIVEN HIM A COPY
19 THAT HE MAY REFER TO.

20 MR. WAGNON: I HAVE JUST HANDED IT TO HIM.

21 THE WITNESS: THIS ISN'T A STUDY THAT I
22 LISTED.

23 Q. BY MR. WAGNON: OKAY, WELL, THERE'S MORE
24 THAN ONE HARDELL STUDY, ISN'T THERE?

25 A. THAT'S CORRECT.

26 Q. AND THIS ONE IS THE ONE FROM 1981;
27 CORRECT?

28 A. THAT'S CORRECT.

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1 Q. AND JUST TO BE CLEAR, IT IS TITLED
2 "MALIGNANT LYMPHOMA AND EXPOSURE TO CHEMICALS,
3 ESPECIALLY ORGANIC SOLVENTS AND CHLOROPHENOLS AND
4 PHENOXY ACIDS, A CASE CONTROL STUDY."

5 CORRECT?

6 A. THAT'S CORRECT.

7 Q. AND I WANT TO ASK YOU SOMETHING
8 ABOUT SOME OF THE STATISTICS FOR THIS.

9 THIS BEING A CASE CONTROL STUDY
10 REPORTED A RELATIVE RISK; RIGHT?

11 A. YES.

12 Q. AND THE RELATIVE RISK IS ONE OF
13 THOSE STATISTICS THAT IF IT IS ONE, IT SHOWS NO
14 INCREASE BUT IF IT IS ABOVE ONE IT SHOWS AN INCREASE
15 THAT HAS BEEN DETECTED; RIGHT?

16 A. THAT'S CORRECT.

17 Q. IN THIS STUDY ON TABLE 5, THEY HAVE
18 A TABLE THERE REGARDING EXPOSURE TO ORGANIC
19 SOLVENTS. DO YOU SEE THAT?

20 A. YES.

21 Q. AND THEY HAVE FOR THE RELATIVE RISK,
22 THEY HAVE FIGURES FOR VARIOUS TYPES OF EXPOSURES;
23 RIGHT?

24 A. YES.

25 Q. AND OVERALL THE RELATIVE RISK FOR
26 EXPOSURE TO SOLVENTS, THAT IS, IT'S IN THE COLUMN
27 LABELED ONE PLUS TWO IN ROMAN NUMERALS, THE RELATIVE
28 RISK WAS 2.4; RIGHT?

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1 A. CAN YOU -- WHICH TABLE IS THIS IN?

2 Q. TABLE 5, MIDDLE OF PAGE 173.

3 A. YES.

4 Q. AND IN THE DISPLAY HERE, I HAVE

5 DISPLAYED IN PARENTHESIS SOME NUMBERS, A PAIR OF

6 NUMBERS FOLLOWING THAT.

7 YOU HAVE SEEN THOSE KINDS OF

8 NUMERICAL DISPLAYS FOLLOWING A RELATIVE RISK FIGURE,

9 HAVEN'T YOU?

10 A. YES. AS A MATTER OF FACT, I HAVE

11 SEEN -- I KNOW THIS STUDY PRETTY WELL.

12 Q. OKAY, WELL, THOSE NUMBERS, THOSE ARE

13 WHAT THEY CALL THE 95 PERCENT CONFIDENCE INTERVAL,

14 AREN'T THEY?

15 A. YES.

16 Q. AND THE 95 PERCENT CONFIDENCE

17 INTERVAL IS THE HIGH AND LOW RANGE WITHIN WHICH WE

18 ARE 95 PERCENT SURE THAT THE TRUE VALUE LIES

19 SOMEWHERE IN THAT RANGE; CORRECT?

20 A. YES.

21 Q. AND CORRESPONDS TO A P-VALUE OF

22 WHAT?

23 A. I COULDN'T TELL YOU WITHOUT DOING

24 THE MATH BUT THE P-VALUES CAN BE VERY DIFFERENT FOR

25 THOSE DIFFERENT ONES.

26 Q. FOR 95 PERCENT CONFIDENCE INTERVAL,

27 A P-VALUE ISN'T .05 OR LESS?

28 A. I THOUGHT YOU WERE ASKING THOSE

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1 SPECIFIC ONES. BECAUSE, WELL, THEY WOULD BE

2 DIFFERENT FOR THOSE.

3 BUT IF YOU HAD ONE THAT WAS

4 BORDERLINE, IN OTHER WORDS, THE CONFIDENCE INTERVAL

5 INCLUDED, WAS 1.0, THEN IT WOULD BE 95 PERCENT.

6 Q. NOW, FOR CONFIDENCE INTERVALS,

7 THAT'S AN IMPORTANT FIGURE TO HAVE IF YOU ARE GOING

8 TO DETERMINE WHETHER OR NOT THE NUMBER IS

9 STATISTICALLY SIGNIFICANT, ISN'T IT?

10 A. YES.

11 Q. BECAUSE IF THE LOWER BOUND OF THE

12 CONFIDENCE INTERVAL IS BELOW ONE, THEN MOST PEOPLE

13 WILL SAY THAT'S NOT SIGNIFICANT, WOULD YOU AGREE?

14 A. EXCUSE ME? CAN YOU REPEAT THE

15 QUESTION.

16 Q. IF THE LOWER BOUND OF THE 95 PERCENT

17 CONFIDENCE INTERVAL IS BELOW ONE, MOST WOULD SAY

18 THAT IT IS NOT A SIGNIFICANT RESULT?

19 A. CORRECT.

20 Q. AND IN THE RESULTS HERE DISPLAYED
21 FOR SOLVENTS, IT HAS A RELATIVE RISK OF 2.4, MEANING
22 THE EXPOSED GROUP WAS MORE THAN TWICE AS LIKELY TO
23 DEVELOP THIS TYPE OF CANCER; CORRECT?

24 A. YES.

25 Q. AND THAT THE CONFIDENCE INTERVAL IS
26 1.5 TO 3.8, SO WE WOULD CALL THAT A SIGNIFICANT
27 RESULT; CORRECT?

28 A. YES.

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1 Q. AND THEN THIS STUDY WENT ON TO LOOK
2 AT THE RESULTS WHEN YOU BROKE IT DOWN INTO THE LEVEL
3 OF EXPOSURE, DIDN'T IT?

4 A. YES.

5 Q. AND IT BASICALLY BROKE IT DOWN TO
6 LOW DOSE AND HIGH DOSE; RIGHT?

7 A. YES.

8 Q. AND LOW DOSE SHOWED A LOWER RELATIVE
9 RISK THAT ACTUALLY ISN'T EVEN STATISTICALLY
10 SIGNIFICANT; RIGHT?

11 A. RIGHT.

12 Q. AND THE HIGHER DOSE SHOWED A HIGHER
13 LEVEL OF RISK; RIGHT?

14 A. YES.

15 Q. AND IN FACT, WHEN WE GOT UP TO THE
16 HIGHEST EXPOSURE OF STYRENE TRICHLORO BENZENE,
17 ACCORDING TO TABLE 5, WE GOT UP TO A RELATIVE RISK
18 OF 4.6, DIDN'T WE?

19 A. YES.

20 Q. AND THAT'S STATISTICALLY

21 SIGNIFICANT, ISN'T IT?

22 A. YES.

23 Q. SO WHAT WE HAVE HERE IN THESE

24 INCREASING RELATIVE RISK NUMBERS WITH INCREASING

25 LEVELS OF EXPOSURE IS WE HAVE A DOSE RESPONSE

26 SHOWING UP STATISTICALLY, DON'T WE?

27 A. YES. ALTHOUGH, IN ORDER TO REALLY

28 CONFIRM THAT, YOU WOULD HAVE TO STATISTICALLY TEST

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1 THE DIFFERENCE BETWEEN THE TWO GROUPS AND THEY

2 DIDN'T DO THAT.

3 BUT THERE IS AN APPARENT DOSE

4 RESPONSE, YES.

5 Q. OKAY.

6 LET'S MOVE ON.

7 THE STUDY ON THE FIRST PAGE CONTAINS

8 AN ABSTRACT; RIGHT?

9 A. YES.

10 Q. AND ONE OF THE THINGS IT SAYS IN

11 THERE IS ORGANIC SOLVENTS MAY BE A CAUSATIVE FACTOR

12 IN MALIGNANT LYMPHOMA; CORRECT?

13 A. YES.

14 Q. NOW, PARNELL, WHICH WAS PART OF A

15 SWEDISH GROUP; RIGHT?

16 A. HARDELL, YES.

17 Q. HARDELL, EXCUSE ME.

18 AND IN FACT, IN THIS AREA OF SOLVENT

19 EXPOSURE, THERE WERE A NUMBER OF SWEDISH STUDIES,

20 WEREN'T THERE?

21 A. YES.

22 Q. LET'S MOVE ON TO THE NEXT HARDELL,

23 IN 1994. SHOW YOU A COPY. AND THE TITLE OF THIS

24 ONE IS "EXPOSURE TO PHENYLOXYACETIC ACIDS,

25 CHLOROPHENOLS OR ORGANIC SOLVENTS IN RELATION TO

26 HISTOPATHOLOGY, STAGE AND ANATOMICAL LOCATION OF

27 NON-HODGKIN'S LYMPHOMA," PUBLISHED IN CANCER

28 RESEARCH IN 1994. CORRECT?

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1 A. YES.

2 Q. AND THIS, IF YOU WOULD TURN TO TABLE

3 2 -- WELL, ACTUALLY, LET'S JUST LOOK AT THE ABSTRACT

4 FIRST HERE.

5 MIDDLE OF THE ABSTRACT, DO YOU SEE

6 THE LINE WHERE IT READS "EXPOSURE TO ORGANIC

7 SOLVENTS YIELDED AN ODDS RATIO OF 2.4." DO YOU SEE

8 THAT?

9 A. YES.

10 Q. AND THEN THEY GIVE THE 95 PERCENT

11 CONFIDENCE INTERVAL OF 1.4 TO 3.9 MEANING IT WAS

12 SIGNIFICANT; RIGHT?

13 A. YES.

14 Q. AND -- WE HAVE A SUMMARY OF SOME OF

15 THE DATA IN THIS STUDY HERE.

16 IF YOU WOULD GO TO TABLE 2.

17 DO YOU HAVE IT?

18 A. YES.

19 Q. IT'S ON PAGE 2387?

20 A. YES.

21 Q. AND IN THERE THEY HAVE LOW DOSE AND
22 HIGH DOSE RESPONSE FIGURES, DON'T THEY?

23 A. YES.

24 Q. OF THE ODDS RATIO WAS, FOR THE LOW
25 DOSE WAS 1.1 AND THE HIGH DOSE WAS 3.5; CORRECT?

26 A. YES.

27 Q. AGAIN, WHAT WE HAVE HERE IS A DOSE
28 RESPONSE AND A SIGNIFICANT RESULT IN TERMS OF THE

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1 OVERALL RELATIVE RISK LOOKING AT EXPOSURE TO

2 SOLVENTS AND LYMPHOMA; CORRECT?

3 A. YES.

4 Q. THERE'S ANOTHER SWEDISH STUDY THAT I

5 SUSPECT YOU ARE FAMILIAR WITH -- OH, THIS HARDELL

6 STUDY, IS THIS ONE YOU DID, QUOTE, IN YOUR SUMMARY

7 CHART?

8 A. WELL, BUT I WAS ONLY QUOTING THE

9 PART OF IT THAT ACTUALLY HAD TO DO WITH PETROLEUM

10 BASED SOLVENTS. THE PROBLEM WITH THIS STUDY, AS

11 WITH THE PREVIOUS STUDY, IS IT INCLUDES A LOT OF

12 DIFFERENT KINDS OF SOLVENTS INCLUDING CHLORINATED

13 SOLVENTS. AND SO I FOCUSED AND I THINK I HAVE IT IN

14 MY CHART BUT I ONLY FOCUSED ON THE PETROLEUM BASED

15 SOLVENTS. AND FOR EXAMPLE, IN THE PREVIOUS ARTICLE,

16 THEY TALK ABOUT THE ORGANIC SOLVENTS THAT THIS IS

17 THE ONE THAT YOU HAD MENTIONED PREVIOUSLY. THEY

18 SAID THAT SEVEN CASES AND THREE CONTROLS WERE

19 EXPOSED TO TRICHLOROETHYLENE. ONE CASE IN FIVE

20 CONTROLS TO STYRENE, ONE CASE TO PERCHLOROETHYLENE

21 AND ONE TO BENZENE.

22 SO OUT OF ALL THE PEOPLE IN THIS

23 STUDY, THERE WAS ONLY ONE PERSON THAT WAS EXPOSED TO

24 A PETROLEUM SOLVENT. ALL OF THE OTHERS WERE THESE

25 CHLORINATED ORGANIC SOLVENTS. SO THAT'S WHY I

26 DIDN'T REFER TO THAT DOSE RESPONSE INFORMATION, NOR

27 DID I REFER TO THIS EARLIER PAPER BECAUSE IT WASN'T

28 RELEVANT TO THE ISSUE OF PETROLEUM SOLVENTS.

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1 Q. PAGE -- TABLE 2 ON PAGE 2387 LISTS

2 VARIOUS TYPES OF CHEMICALS; RIGHT?

3 A. YES.

4 Q. AND IT HAS A WHOLE SECTION THERE FOR

5 ORGANIC SOLVENTS, DOESN'T IT?

6 A. CORRECT.

7 Q. AND THAT IS SEPARATE FROM THE

8 CHLOROPHENOLS WHICH IS ABOVE IT; RIGHT?

9 A. YES.

10 Q. AND AMONG THE ORGANIC SOLVENTS ARE

11 LISTED THINGS LIKE THINNER --

12 A. EXCUSE ME, THE ONES THAT ARE LISTED

13 ABOVE ARE HERBICIDES, PHENOXYACETIC ACIDS AND

14 CHLOROPHENOLS.

15 THE ORGANIC SOLVENTS CLEARLY INCLUDE

16 TRICHLOROETHYLENE, IT ALSO INCLUDES TURPENTINE WHICH

17 COMES FROM PINE TREES.

18 SO THEY HAVE LUMPED TOGETHER UNDER

19 ORGANIC SOLVENTS A WHOLE BUNCH OF DIFFERENT THINGS.

20 Q. YES, THEY HAVE INCLUDED WHITE

21 SPIRITS, HAVEN'T THEY?

22 A. THAT IS ONE THAT IS A PETROLEUM

23 BASED PRODUCT, YES.

24 Q. THAT'S ALSO KNOWN AS PAINT THINNER;

25 RIGHT?

26 A. CORRECT.

27 Q. AND THEY HAVE INCLUDED SOMETHING

28 CALLED THINNER; CORRECT?

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1 A. THAT'S WORSE -- YES, THINNER BUT I
2 DON'T KNOW EXACTLY WHAT THINNER THEY ARE TALKING
3 ABOUT THERE BUT I WOULD CERTAINLY SAY WHITE SPIRIT
4 IS A PETROLEUM BASED SOLVENT.

5 Q. AND FOR THAT THEY CALCULATED AN ODDS
6 RATIO OF 3.2; RIGHT?

7 A. RIGHT. AND I THINK I HAVE ONE OF
8 THESE I HAVE IN MY CHART. THAT IS THE ONE THAT HAS
9 NOTED THAT, BECAUSE IT INVOLVED A PETROLEUM BASED
10 SOLVENT.

11 Q. LET'S MOVE ON TO THE NEXT SWEDISH
12 STUDY. ARE YOU FAMILIAR WITH OLSSON, O-L-S-S-O-N,
13 AND BRANDT, B-R-A-N-D-T, THE TITLE OF THIS IS "RISK
14 OF NON-HODGKIN'S LYMPHOMA AMONG MEN OCCUPATIONALLY
15 EXPOSED TO ORGANIC SOLVENTS" PUBLISHED IN 1988.
16 CORRECT?

17 A. YES.

18 Q. AND AGAIN, IT'S LOOKING AT THE
19 DISEASE OF INTEREST, NON-HODGKIN'S LYMPHOMA;

20 CORRECT?

21 A. THAT'S CORRECT.

22 Q. AND IT IS LOOKING AT ORGANIC

23 SOLVENTS; CORRECT?

24 A. AND AGAIN IT DOESN'T REALLY DEFINE

25 THIS AS -- I WAS TRYING TO CONCENTRATE ON PETROLEUM

26 BASE ORGANIC SOLVENTS. SO AS I MENTIONED BEFORE I

27 REVIEWED A LOT OF THE SOLVENT LITERATURE BUT

28 IN ORDER TO FOCUS ON WHAT WE ARE CONCERNED ABOUT IN

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4043

1 THIS CASE, FOR ME TO INCLUDE IT IN MY TABLE IT WOULD
2 NEED TO BE SOMETHING ABOUT THE PETROLEUM BASE
3 SOLVENTS THAT MR. MOLINA COULD HAVE BEEN EXPOSED TO.

4 Q. SIR, THE -- ONE OF THE SOURCES OF
5 INFORMATION IS THEY RELIED ON PEOPLE'S HISTORIES OF
6 THEIR OCCUPATIONS; CORRECT?

7 A. COULD YOU REFER ME TO WHAT YOU ARE
8 LOOKING AT.

9 Q. SURE. OVER ON PAGE 248, RIGHT-HAND
10 COLUMN, MIDDLE OF THE PAGE, A VARIETY OF OCCUPATIONS
11 WAS ASSOCIATED WITH EXPOSURE TO SOLVENTS.; CORRECT?

12 A. YES.

13 Q. AND THEY INCLUDED REPAIR OF
14 MACHINES, WORK IN THE CHEMICAL INDUSTRY OR AS A
15 CHEMIST, WORK AS A PAINTER, WORK IN THE WOOD OR
16 FURNITURE INDUSTRY, PRINTING WORK, EMPLOYMENT IN THE
17 RUBBER OR PLASTICS INDUSTRY, SHOE MANUFACTURING
18 WORK, CLEANING WORK AND BIOLOGICAL WORK.

19 AND THOSE ARE IN DECREASING LEVELS

20 OF PROPORTION; RIGHT, AMONG THIS GROUP?

21 A. YES.

22 Q. AND JUST TO BE CLEAR, A PAINTER,

23 THAT WOULD MEAN EXPOSURE TO THINGS LIKE PAINT

24 THINNER?

25 A. WELL, AMONG OTHER THINGS. PAINTERS

26 ARE EXPOSED TO ALL SORTS OF THINGS, PIGMENTS,

27 GLYCOLETHERS, YOU KNOW, THERE'S -- THERE'S A HUGE

28 VARIETY OF CHEMICALS IN PAINT, NOT JUST PAINT

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1 THINNER.

2 Q. WORK IN THE WOOD OR FURNITURE

3 INDUSTRY, THAT WOULD INVOLVE APPLYING PAINTINGS AND

4 VARNISHES THAT CONTAIN ORGANIC SOLVENTS; RIGHT?

5 A. VARIOUS TYPES OF ORGANIC SOLVENTS,

6 YES.

7 Q. PRINTING WORK. IN PRINTING WORK,

8 THAT'S KNOWN FOR EXPOSURE TO THINGS LIKE BENZENE OR

9 OTHER ORGANIC SOLVENTS?

10 A. NOT BENZENE SO MUCH AS FAR AS I AM

11 AWARE OF.

12 Q. ORGANIC SOLVENTS?

13 A. SOMETIMES ORGANIC SOLVENTS BUT AGAIN

14 THERE ARE OTHER, LOTS OF OTHER THINGS IN PRINTING.

15 Q. EMPLOYMENT IN THE RUBBER OR PLASTIC

16 INDUSTRY, THAT WOULD INCLUDE MR. MOLINA, WOULDN'T

17 IT?

18 A. I ASSUME SO, IF THAT'S WHAT THEY

19 MEAN BY RUBBER. I DON'T KNOW WHAT THEY MEAN BY

20 PLASTICS INDUSTRY.

21 Q. SHOE MANUFACTURING, THAT'S LONG BEEN

22 A SOURCE OF EXPOSURE TO ORGANIC SOLVENTS; CORRECT?

23 A. USUALLY IN THE DYES ALTHOUGH, AGAIN,

24 ONLY IN THIS CASE I THINK ONLY EMPLOYMENT IN RUBBER

25 AND PLASTICS WAS ONLY SIX PERCENT. SHOE WAS ONLY

26 FOUR PERCENT.

27 Q. LET'S LOOK AT THE, WHAT THE

28 STATISTICS SHOW.

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1 IF YOU WOULD JUST GO TO THE
2 LEFT-HAND COLUMN OF THAT SAME PAGE, TABLE 4, THEY
3 HAVE SOME FIGURES FOR LENGTH OF EXPOSURE ON THE JOB.
4 RIGHT?

5 A. YES.

6 Q. 120 MONTHS, 240 MONTHS, 360 MONTHS;
7 RIGHT? AND THEY HAVE ODDS RATIOS OF 1.8, 3.3, 6.0,
8 RESPECTIVELY; CORRECT?

9 A. YES.

10 Q. SHOWING AGAIN A DOSE RESPONSE
11 RELATIONSHIP, ISN'T THAT RIGHT?

12 A. WELL, I DON'T -- WHEN YOU SAY DOSE,
13 THIS IS ACTUALLY DUE TO DURATION OF EMPLOYMENT AND
14 WE ARE TALKING ABOUT PEOPLE WHO HAVE OCCUPATIONS.
15 IT MEANS HOW LONG THEY WERE IN THOSE OCCUPATIONS. I
16 DON'T KNOW THAT YOU CAN, YOU CAN ACTUALLY TRANSLATE
17 THIS INTO A DOSE OF ANYTHING.

18 Q. SO IT SOUNDS LIKE THE WRITERS WERE
19 MAKING THIS LOGICAL LEAP THAT THE LONGER SOMEBODY

20 WORKED WITH SOLVENTS, THE LARGER THE DOSE WAS THAT
21 THEY GOT EXPOSED TO. THAT'S THE LOGICAL LEAP THE
22 AUTHORS WERE MAKING, ISN'T IT?

23 A. WELL, THEY WERE USING THAT AS AN
24 ILLUSTRATION BUT, AGAIN, I DON'T THINK ONE CAN
25 CONCLUDE FROM THIS THAT EXPOSURE, IN PARTICULAR, TO
26 PETROLEUM SOLVENTS, IS INVOLVED IN THIS INCREASE
27 OVER TIME.

28 Q. WE ARE JUST TRYING TO GET A PICTURE

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1 HERE, AREN'T WE, BY TAKING LITTLE SNAPSHOTS FROM
2 DIFFERENT PLACES?

3 A. NO, WE ARE TRYING TO ANALYZE THE
4 LITERATURE ACCORDING TO A METHODOLOGY WHICH I
5 MENTIONED WAS THE BRADFORD HILL CRITERIA AND ONE OF
6 THE THINGS THAT ANOTHER PART OF THAT IS SPECIFICITY.

7 IN OTHER WORDS, YOU REALLY HAVE TO
8 MAKE SURE THAT WHAT YOU ARE LOOKING AT IS NOT ONLY
9 THE DISEASE BUT ALSO LOOKING AT THE CHEMICAL THAT
10 YOU ARE INTERESTED IN.

11 Q. DID YOU INCLUDE THIS STUDY IN YOUR
12 CHART?

13 A. I REVIEWED IT BUT I DIDN'T INCLUDE
14 IT IN MY CHART BECAUSE IT WASN'T SPECIFICALLY ABOUT
15 PETROLEUM BASE ORGANIC SOLVENTS.

16 Q. IN THE READING IN THE ABSTRACT IT
17 STATES:

18 "THESE FINDINGS SUPPORT
19 THE CONCEPT THAT OCCUPATIONAL

20 EXPOSURE TO ORGANIC SOLVENTS IS A

21 RISK FACTOR FOR NON-HODGKIN'S

22 LYMPHOMA."

23 THAT'S THE CONCLUSION OF THE AUTHORS;

24 RIGHT?

25 A. AGAIN, THEY ARE LOOKING AT ALL

26 SOLVENTS IN MAKING THAT CONCLUSION. THEY ARE NOT

27 SAYING ANYTHING IN PARTICULAR ABOUT THE KINDS OF

28 SOLVENTS THAT WE ARE TALKING ABOUT HERE.

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1 Q. LET'S MOVE ON TO A STUDY BY BERLIN

2 ET. AL. HAND YOU A COPY.

3 AND THIS IS TITLED "CANCER INCIDENTS

4 AND MORTALITY OF PATIENTS WITH SUSPECT SOLVENT

5 RELATED DISORDERS" PUBLISHED IN 1995.

6 THIS STUDY LOOKED AT PEOPLE WHO

7 ALREADY HAVE SOME PROBLEMS FROM EXPOSURES TO

8 SOLVENTS; CORRECT?

9 A. YES, IT'S A COHORT STUDY.

10 Q. AND IT IS LOOKING, IN PARTICULAR, IT

11 IS LOOKING AT WOMEN WHO HAD BEEN EXPOSED TO SOLVENTS

12 AND ALREADY HAD SOME, LIKE NEUROLOGICAL SYMPTOMOLOGY

13 AS A RESULT OF THAT EXPOSURE, WOULD YOU AGREE?

14 A. I DON'T REMEMBER THAT SPECIFICALLY

15 ABOUT THIS STUDY BUT, YOU KNOW, IF YOU WANT TO POINT

16 OUT WHERE THEY SAY THAT.

17 Q. WELL, LET'S LOOK AT THE FIRST PAGE.

18 A. I DON'T HAVE ANY REASON TO DISAGREE

19 WITH THAT.

20 Q. FIRST PAGE IN THE ABSTRACT, AT THE
21 BOTTOM WHERE IT SAYS, "CONCLUSIONS," IT SAYS:
22 "THE STUDIES SHOWED AN
23 INCREASED RISK FOR MALIGNANCIES OF
24 THE HEMATOPOIETIC SYSTEM AND THE
25 UTERINE CERVIX AMONG PATIENTS
26 ORIGINALLY EXAMINED WITH REGARD TO
27 SOLVENT INDUCED DISORDERS."
28 A. YES, OKAY.

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1 Q. AND HEMATOPOIETIC SYSTEM, THAT'S IN
2 REFERENCE TO THE BLOOD-FORMING ORGANS; RIGHT?

3 A. CORRECT.

4 Q. DO SOME PEOPLE CONSIDER LYMPHOMA TO
5 BE A CANCER THAT HAS ITS ORIGINS IN THE
6 HEMATOPOIETIC SYSTEM?

7 A. I DON'T BELIEVE SO. FOR EXAMPLE,
8 HERE AT HODGKIN'S LYMPHOMA THEY ACTUALLY FOUND --
9 THEY FOUND AN INCREASE BUT THEY DIDN'T REALLY FIND
10 IT FOR -- I DON'T REALLY KNOW WHAT THEY WERE TALKING
11 ABOUT HERE IN TERMS OF HEMATOPOIETIC SYSTEM.
12 USUALLY WHEN I THINK OF HEMATO, WE TALK ABOUT
13 LYMPHATIC AND HEMATOPOIETIC SYSTEM SO WE USUALLY
14 DISTINGUISH BETWEEN THE TWO OF THEM. I CAN'T TELL
15 YOU EXACTLY WHAT THEY WERE TRYING TO DESCRIBE HERE
16 IN THIS STUDY.

17 I MEAN, IF YOU WANTED TO POINT OUT
18 SOMETHING THAT YOU WERE PARTICULARLY INTERESTED IN.

19 Q. WELL, ISN'T ONE OF THE DISEASES THAT

20 THEY LOOK AT NON-HODGKIN'S LYMPHOMA?

21 A. YES.

22 Q. AND IF YOU WOULD GO TO TABLE TWO ON

23 PAGE 365, THERE'S SOME DATA THERE?

24 A. YES.

25 Q. FOR NON-HODGKIN'S LYMPHOMA, IT SHOWS

26 A STANDARDIZED INCIDENCE RATIO WHICH, FOR OUR

27 PURPOSES, OPERATES THE SAME AS THESE NUMBERS, IN

28 OTHER WORDS, ONE MEANS NO EFFECT?

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1 A. YES.

2 Q. BIGGER THAN ONE MEANS AN EFFECT.

3 AND THEY FOUND 1.9 FOR NON-HODGKIN'S
4 LYMPHOMA; CORRECT?

5 A. WELL, ONE -- IT DOESN'T MEAN AN
6 EFFECT, IT MEANS THERE'S AN ASSOCIATION. IN THIS
7 CASE, IT IS NOT STATISTICALLY SIGNIFICANT. BUT
8 AGAIN, I WANT TO POINT OUT THE FACT THAT, YOU KNOW,
9 I DON'T REALLY SEE ANY INDICATION HERE AGAIN THAT
10 THESE WERE PETROLEUM BASED SOLVENTS THAT WE WERE,
11 THAT ARE BEING STUDIED IN THIS STUDY.

12 THESE ARE PEOPLE WHO HAVE SOME KIND
13 OF A SOLVENT INDUCED DISORDER BUT IT'S PRETTY
14 NONSPECIFIC ABOUT WHAT WE ARE ACTUALLY, THE
15 CHEMICALS THAT WE ARE ACTUALLY DEALING WITH HERE.

16 Q. SO WHEN THEY REFER IN THE STUDY TO
17 ORGANIC SOLVENTS, THAT DOESN'T, THAT'S NOT SPECIFIC
18 ENOUGH AS FAR AS YOU ARE CONCERNED?

19 A. ORGANIC MEANS THAT IT HAS A CARBON

20 AND A HYDROGEN. IT DOESN'T TELL YOU ANYTHING ELSE
21 ABOUT ANYTHING ELSE THAT IT HAS.

22 THE DIFFERENCE BETWEEN AN ORGANIC
23 SOLVENT AND WATER, FOR EXAMPLE, WATER WOULD BE AN
24 EXAMPLE OF A NONORGANIC SOLVENT.

25 SO ALL THEY ARE REALLY TALKING ABOUT
26 IS SOLVENTS AND THESE ARE THE TYPES OF SOLVENTS THAT
27 ARE BEING USED TO DISSOLVE THINGS THAT CAN'T
28 NORMALLY DISSOLVE THINGS THAT WATER WOULD DISSOLVE.

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4050

1 SO YOU USE WHAT ARE CALLED ORGANIC
2 SOLVENTS, AND THERE ARE A HUGE RANGE OF TYPES OF
3 CHEMICALS THAT ARE, THAT ARE UNDER THAT DEFINITION
4 OF ORGANIC SOLVENTS.

5 Q. IF YOU WOULD TURN TO PAGE 363 UP AT
6 THE UPPER RIGHT-HAND CORNER, THEY DESCRIBE THE MOST
7 COMMON JOBS AMONG THE STUDY PARTICIPANTS AND THEY
8 SAY, MOST OF THE WORKERS WERE EXPOSED TO A MIXTURE
9 OF SOLVENTS, PARTICULARLY WHITE SPIRIT, STYRENE AND
10 TOLUENE.

11 THOSE ARE FAMILIAR NAMES TO YOU,
12 AREN'T THEY?

13 A. THAT'S CORRECT. BUT AGAIN, THEY,
14 THEY WEREN'T RESTRICTING THIS TO, PARTICULARLY
15 PETROLEUM BASED SOLVENTS.

16 SO LET'S SET THIS ONE ASIDE.

17 Q. LET ME ASK YOU ABOUT PERSSON,
18 P-E-R-S-S-O-N.

19 A. I HAVE NEVER MET THE GENTLEMAN. I

20 DON'T KNOW.

21 Q. AND ONE IS ENTITLED "SOME RISK

22 FACTORS FOR NON-HODGKIN'S LYMPHOMA." IT IS

23 PUBLISHED IN 1999.

24 AGAIN, THIS IS ANOTHER SWEDISH

25 STUDY; CORRECT?

26 A. YES. UH-HUH.

27 Q. AND IT, ONCE AGAIN, LOOKS AT

28 NON-HODGKIN'S LYMPHOMA AND ITS RELATIONSHIP TO

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1 SOLVENTS; RIGHT?

2 A. YES.

3 Q. AND LET'S LOOK AT SOME OF THE
4 SOLVENTS THAT ARE INVOLVED HERE.

5 OVERALL, THEY FIND FOR SOLVENTS AND
6 NON-HODGKIN'S LYMPHOMA AN ODDS RATIO OF 1.6;
7 CORRECT?

8 A. YES.

9 Q. AND WERE THEY ABLE TO FIND EVIDENCE
10 OF A DOSE RESPONSE RATIO, I MEAN DOSE RESPONSE
11 EFFECT IN THIS STUDY?

12 A. IF YOU COULD POINT -- I HAVEN'T SEEN
13 THIS STUDY FOR A WHILE SO --

14 Q. WELL, I'LL TELL YOU, FROM WHAT I
15 SEE, IT DIDN'T SHOW IT. IT IS ONE OF THOSE THAT
16 JUST DIDN'T SHOW IT. MAYBE THE NUMBERS ARE TOO
17 SMALL TO NOTICE IT.

18 A. WHERE ARE THEY LOOKING AT? WHERE
19 ARE YOU LOOKING? THE LACK OF A DOSE RESPONSE.

20 Q. OVER ON --

21 A. ARE YOU TALKING ABOUT TABLE 4? IT

22 SAYS SOLVENTS 2 TO 5 VERSUS 0 TO 1?

23 Q. YES.

24 A. THEY DIDN'T FIND -- OR IT IS 1.4 BUT

25 IT IS NOT STATISTICALLY SIGNIFICANT.

26 Q. RIGHT. THAT WAS FOR THE HIGH

27 EXPOSURE.

28 A. HIGH VERSUS LOW.

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1 Q. YES. BUT THEY ALSO LOOK AT WHITE
2 SPIRITS, THAT THAT IS A FAMILIAR NAME AND THINNER
3 AND BOTH OF THOSE FOUND SIGNIFICANT ODDS RATIOS OF
4 2.6 AND 1.9 RESPECTIVELY; CORRECT?

5 A. YES.

6 Q. AND SO THIS WOULD BE CONSIDERED TO
7 BE A POSITIVE STUDY?

8 A. YES. I WOULD THINK SO. I WOULD
9 THINK SO.

10 I AM NOT REALLY SURE IF THIS IS
11 1991, WHETHER OR NOT THIS IS A REPEAT OF A STUDY OF
12 ANOTHER STUDY OR NOT.

13 BUT YOU ARE CORRECT. IT DID SHOW AN
14 INCREASE FOR WHITE SPIRITS. AND I DON'T KNOW WHAT
15 THINNER IS AGAIN. BUT FOR WHITE SPIRITS. BUT
16 AGAIN, FOR BENZENE, THEY FOUND NO -- IN FACT, LESS
17 THAN EXPECTED, THEY FOUND A .8 FOR BENZENE IN THIS
18 STUDY.

19 Q. OKAY. DOCTOR, WE ALL WANT TO GET

20 OUT OF HERE TODAY. SO I WANT TO MOVE ON TO THE NEXT

21 STUDY. DRIVER, I BELIEVE IT IS ONE YOU DID SITE?

22 A. YES.

23 Q. AND THIS IS TITLED "OCCUPATIONAL

24 EXPOSURES AND NON-HODGKIN'S LYMPHOMA IN SOUTHERN

25 SWEDEN," DATED 2004.

26 A. YES.

27 Q. AND YOU HAVE SEEN THIS ONE BEFORE,

28 HAVEN'T YOU?

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1 A. I DID. I PUT IT IN MY TABLE AS YOU
2 NOTED AND I PUT IT, I PUT THE AROMATIC HYDROCARBON
3 SOLVENT EXPOSURE, THE HIGH EXPOSURE ONE, THE 1.9
4 THAT THEY HAVE ON TABLE 3 BECAUSE I THOUGHT THAT
5 AROMATIC, AGAIN, AROMATIC HYDROCARBON SOLVENTS WERE
6 THE CLOSEST TO THE THINGS THAT WE ARE TALKING ABOUT
7 HERE IN THIS, IN THIS CASE.

8 Q. WELL, LET'S TAKE A LOOK AT THOSE
9 STATS.

10 SO THERE'S VARIOUS NUMBERS THAT WERE
11 PUBLISHED IN THIS STUDY AND WHICH ONE DID YOU CHOOSE
12 TO PUT IN YOURS?

13 A. I CAN POINT TO IT. IT'S ALMOST THE
14 HIGHEST ONE. IT IS THIS ONE (INDICATING), THE 1.9.

15 Q. FROM THE AROMATIC SOLVENTS?

16 A. RIGHT, BECAUSE TOLUENE IS AN
17 AROMATIC XYLENE. XYLENE IS AN AROMATIC SOLVENT.
18 BENZENE IS AN AROMATIC SOLVENT. THESE ARE THE ONES
19 THAT ARE OF PRIMARY INTEREST TO US.

20 Q. THE SOLVENT MIXTURES, THE AROMATIC
21 SOLVENTS ARE THE ONES HAVING BENZENE RINGS AND SOME
22 SIMILAR RING TYPE STRUCTURES.

23 A. CORRECT. AND THOSE ARE THE ONES
24 THAT ARE PRIMARILY USED IN RUBBER SOLVENT.

25 Q. THOSE MIXTURES, HOWEVER, ALSO
26 CONTAIN WHAT ARE CALLED ALIPHATIC OR STRAIGHT LINE
27 MOLECULES AS WELL; CORRECT?

28 A. WELL, RUBBER SOLVENT IS PRIMARILY AN

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1 AROMATIC HYDROCARBON. IT IS BECAUSE THE PROPERTIES,
2 THE PROPERTIES OF THE AROMATIC SOLVENTS ARE THE ONES
3 THAT ARE, THE ONES THAT THE RUBBER INDUSTRY NEEDS
4 IN ORDER TO PRODUCE TIRES.

5 Q. SO THE SOLVENTS THAT ARE REPORTED IN
6 THIS STUDY DO SHOW AN INCREASE IN THE -- I MEAN, THE
7 ODDS RATIO IS ABOVE ONE FOR ALL OF THESE; RIGHT?

8 A. THAT'S CORRECT. I PUT IT IN MY
9 TABLE. AS YOU NOTICE, I DON'T WANT TO GET UP, IT
10 WASN'T STATISTICALLY SIGNIFICANT, HOWEVER, BUT LIKE
11 I SAID, I INCLUDED IT IN MY TABLE.

12 Q. AND SO THIS WOULD BE CONSIDERED TO
13 BE A POSITIVE STUDY?

14 A. NOT FOR AROMATIC SOLVENTS. AGAIN,
15 IT DOESN'T QUITE REACH STATISTICAL SIGNIFICANCE EVEN
16 IN THE, EVEN IN THE HIGH EXPOSURE GROUP. AND I
17 THINK THERE WERE ACTUALLY, THERE WEREN'T TWO. I
18 THINK THERE WERE ACTUALLY THREE GROUPS. YEAH, THERE
19 WAS NO EXPOSURE, LOW EXPOSURE, MEDIUM EXPOSURE AND

20 HIGH EXPOSURE.

21 SO I DON'T THINK YOU HAVE THOSE ON

22 THERE.

23 Q. FOR THE AROMATIC SOLVENTS IN

24 GENERAL, THEY DID AN ODDS RATIO CALCULATED AT 1.45

25 AND THAT'S A SIGNIFICANT RESULT; CORRECT?

26 A. OKAY. WELL, I USED -- WHERE ARE YOU

27 POINTING TO?

28 Q. WELL, I BELIEVE YOU CAN FIND IT IN

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1 THE ABSTRACT, THE TOP OF THE FIRST PAGE. AROMATIC

2 HYDROCARBONS. ODDS RATIO IS 1.45?

3 A. OKAY. I USED THE HIGH EXPOSURE

4 GROUP NUMBER, YOU KNOW, BUT I AGREE, YOU CAN ALSO

5 USE -- I DIDN'T SEE THAT IN ONE OF THE TABLES.

6 Q. I GUESS YOU DIDN'T SEE IT IN THE

7 ABSTRACT AT THE TOP OF THE FIRST PAGE?

8 A. NO, I DIDN'T -- I LOOKED FOR THEM

9 USUALLY IN THE TABLES IN THESE KIND OF STUDIES, BUT

10 YOU ARE CORRECT YOU COULD ALSO HAVE PUT THAT NUMBER

11 IN.

12 Q. THEY ALSO LOOKED AT THE QUESTION OF

13 INCREASED RISK ASSOCIATED WITH EXPOSURE TO GASOLINE,

14 DIDN'T THEY, ABSTRACT?

15 A. THAT'S TRUE.

16 Q. I MEAN, THEY FOUND INCREASE RISKS IN

17 WORKERS EXPOSED TO GASOLINE, THEY FOUND AN ODDS

18 RATIO THERE OF 1.46.

19 A. RIGHT, AGAIN, AS I SAID, WHEN I --

20 WHEN I WAS LOOKING AT THESE STUDIES, I TRIED TO GET
21 AS CLOSE TO THE ISSUE OF RUBBER SOLVENT AS I COULD.

22 Q. NOW, IF YOU WOULD GO TO PAGE 16,
23 TABLE 3, THEY DO SOMETHING CALLED A MULTIVARIABLE
24 LOGISTIC REGRESSION OF MATRIX DERIVED EXPOSURES TO
25 HYDROCARBON, DO YOU SEE THAT?

26 A. MULTI-VARIANT, UH-HUH. WHERE ARE
27 YOU READING FROM?

28 Q. TABLE 3.

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1 A. OH, MULTIVARIABLE. OKAY,
2 MULTIVARIABLE LOGISTIC, MULTI-VARIANT IS SOMETHING
3 DIFFERENT.

4 Q. OKAY. AND THEN THEY'VE GOT A LOW
5 EXPOSURE, MEDIUM EXPOSURE AND HIGH EXPOSURE FOR
6 AROMATIC HYDROCARBON SOLVENTS WHICH I BELIEVE YOU
7 TOLD US A MOMENT AGO WHICH ARE THE ONES WE OUGHT TO
8 BE LOOKING AT; RIGHT?

9 A. CORRECT.

10 Q. AND FOR THE LOW, THE MEDIUM AND THE
11 HIGH, THERE'S A STEADY INCREASE IN THE ODDS RATIO,
12 ISN'T THERE?

13 A. THAT'S CORRECT.

14 Q. IT SHOWS A DOSE RESPONSE EFFECT?

15 A. WELL, IT IS HARD TO SAY BECAUSE,
16 AGAIN, ONLY ONE OF THESE, THAT'S THE LOW EXPOSURE
17 GROUP IS A STATISTICALLY SIGNIFICANT RESULT.

18 SO YOU KNOW, IF THEY WERE GOING TO
19 MAKE THAT, THEY WOULD HAVE, THEY SHOULD HAVE DONE A

20 TREND, WHAT'S CALLED A TREND ANALYSIS. AND I DIDN'T
21 SEE THAT THAT WAS, WAS SOMETHING THAT WAS DONE HERE.
22 BECAUSE IN ORDER TO MAKE THE SUPPOSITION OF A DOSE
23 RESPONSE, YOU HAVE TO STATISTICALLY COMPARE THE
24 DIFFERENT GROUPS.

25 Q. LET'S MOVE ON TO THE NEXT ONE. THIS
26 IS BY FONTE, F-O-N-T-E.

27 AND I BELIEVE WE HAVE NOW MOVED TO
28 ITALY, THIS IS AN ITALIAN STUDY; CORRECT?

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1 A. WELL, THAT'S A TWO-PAGE -- I HAVE TO
2 ADMIT I DON'T BELIEVE I HAVE EVER SEEN THIS BEFORE.
3 IT'S IN A JOURNAL I HAVE NEVER HEARD BEFORE EITHER.

4 Q. WELL, LET'S GET THE TITLE?

5 A. MAYBE IT IS IN THE BOOK.

6 Q. THE TITLE IS "OCCUPATIONAL EXPOSURE
7 TO ORGANIC SOLVENTS AND NON-HODGKIN'S LYMPHOMAS" BY
8 RODOLFO FONTE AND GUILANO FRANCO PUBLISHED IN 1985;
9 CORRECT?

10 A. YES.

11 Q. AND THEY ARE CONCERNED WITH ORGANIC
12 SOLVENTS IN THIS CASE, AREN'T THEY?

13 MR. RIFF: EXCUSE ME, YOUR HONOR, FOUNDATION,
14 721(B).

15 THE COURT: DO YOU WANT TO TELL THE WITNESS
16 WHERE THIS COMES FROM, MR. WAGNON.

17 MR. WAGNON: SURE. LET ME FIND OUT FIRST.

18 Q. BY MR. WAGNON: SIR, HAVE YOU SEEN THIS
19 REPORT BEFORE?

20 A. I MIGHT HAVE. YOU KNOW, AGAIN, THIS
21 IS ANOTHER STUDY THAT LOOKS AT, QUOTE, ORGANIC
22 SOLVENTS," AND IT IS ONLY A TWO-PAGE, TWO-PAGE
23 REPORT. IT SAYS "IN ALL NAMED SUBJECTS,
24 EXPOSURE --"

25 MR. RIFF: PARDON ME. COULD WE WAIT FOR THE
26 COURT'S RULING.

27 THE WITNESS: I'M SORRY.

28 THE COURT: I ASKED MR. WAGNON TO TELL THE

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1 WITNESS WHERE IT IS FROM. THAT'S WHAT I WANT YOU TO

2 TALK ABOUT. OKAY.

3 MR. WAGNON: OKAY, THIS IS FROM SOMETHING

4 CALLED I.R.C.S. MEDICAL SI. IT LOOKS LIKE VOLUME 13 AT

5 PAGE 580 TO 581.

6 A. DO YOU KNOW WHAT --

7 Q. THAT IS A JOURNAL THAT YOU ARE JUST

8 UNFAMILIAR WITH?

9 A. I HAVE NEVER HEARD OF I.R.C.S.

10 DO YOU KNOW WHAT THAT STANDS FOR?

11 Q. I DO NOT.

12 ARE YOU FAMILIAR WITH THE

13 ORGANIZATION, THE UNIVERSITY THAT THESE PERSONS ARE

14 AFFILIATED WITH ACCORDING TO THE HEADING?

15 A. MY ITALIAN IS NOT VERY GOOD, I'M

16 AFRAID.

17 IT SAYS, "IN ALL NINE SUBJECT

18 EXPOSURE --"

19 MR. RIFF: EXCUSE ME, PLEASE. THERE'S NO

20 QUESTION. PLEASE WAIT.

21 THE WITNESS: OKAY.

22 Q. BY MR. WAGNON: SUFFICE IT TO SAY, YOU

23 HAVEN'T SEEN IT?

24 A. I DON'T KNOW, I SAID.

25 Q. AND YOU DON'T KNOW ANYTHING ABOUT

26 THE JOURNAL?

27 A. I DON'T KNOW IF I HAVE SEEN THIS,

28 BECAUSE AS I MENTIONED BEFORE, YOU ARE ASKING

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1 WHETHER I HAVE REVIEWED IT. I MAY HAVE REVIEWED IT
2 AND I MAY NOT HAVE INCLUDED IT BECAUSE, FOR REASONS
3 THAT I MENTIONED, IT IS NOT REALLY ABOUT PETROLEUM
4 BASED SOLVENTS. BUT I CAN'T REMEMBER SITTING HERE
5 IF THAT IS TRUE OR NOT.

6 Q. AND LOOKING AT IT DOESN'T REFRESH
7 YOUR RECOLLECTION?

8 A. NO.

9 Q. LOOKING AT THE RELATIVE RISK THEY
10 REPORTED DOESN'T REFRESH YOUR RECOLLECTION?

11 BOTTOM OF THE FIRST PAGE.

12 A. NO. I DON'T REMEMBER THIS.

13 Q. THEN LET'S MOVE ON.

14 HOW ABOUT JAMES S. WOODS ET. AL.,
15 1987, TITLE IS "SOFT TISSUE SARCOMA AND
16 NON-HODGKIN'S LYMPHOMA IN RELATION TO
17 PHENOXYHERBICIDE AND CHLORINATED PHENYL EXPOSURE IN
18 WESTERN WASHINGTON."

19 SIR, THIS APPEARS TO BE ABOUT

20 PESTICIDE EXPOSURE, DOESN'T IT?

21 A. I THINK IT IS HERBICIDES.

22 Q. OKAY, HERBICIDES. MY BAD.

23 BUT THEY COME ACROSS SOME

24 CONFOUNDING PROBLEMS BECAUSE THEIR SUBJECTS WERE

25 EXPOSED TO ORGANIC SOLVENTS.

26 IF YOU ARE LOOKING AT TABLE 7 ON

27 PAGE 905?

28 A. WELL, CAN YOU -- YOU MENTIONED

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4060

1 CONFOUNDING. I AM NOT EXACTLY SURE WHAT YOU MEAN

2 BY -- DO THEY TALK ABOUT CONFOUNDING ISSUES HERE?

3 Q. WELL, LET ME READ TO YOU WHAT THEY

4 DESCRIBED.

5 THEY SAY, TABLE SEVEN PRESENTS RISK

6 ESTIMATES ASSOCIATED WITH VARIOUS OCCUPATIONAL

7 AND/OR LIFESTYLE FACTORS THAT WERE OBSERVED IN THE

8 PRESENT STUDY TO INDEPENDENTLY ALTER THE RISK OF

9 S.T.S. OR N.H.L. AND THAT MIGHT THEREFORE BE

10 CONSIDERED AS POTENTIAL MODIFIERS OF THE EFFECT OF

11 CHEMICAL EXPOSURE ON CANCER RISKS.

12 IN OTHER WORDS, THEY WERE LOOKING --

13 THIS STUDY IS LOOKING AT A DIFFERENT CHEMICAL

14 EXPOSURE BUT ALONG THE WAY THEY FIND THAT THERE'S

15 EXPOSURES TO ORGANIC SOLVENTS THAT MAY CONFOUND THE

16 PICTURE. THAT'S WHAT THEY ARE SAYING, ISN'T IT?

17 A. WELL, I GUESS, YOU KNOW, A LOT OF

18 PESTICIDES ARE DISSOLVED IN ORGANIC SOLVENTS AND I

19 AM NOT EXACTLY SURE -- I GUESS THEY WERE TRYING TO

20 TEASE THAT OUT SOMEHOW BUT AGAIN, I DON'T KNOW WHAT
21 KIND OF ORGANIC SOLVENTS WERE BEING USED AND THAT
22 CERTAINLY WASN'T THE MAIN PURPOSE OF THE, OF THEIR
23 PAPER. THEY WERE LOOKING, THIS WAS PRIMARILY A
24 PAPER ABOUT HERBICIDES AND CHLORINATED PHENOL.

25 Q. HAD YOU CONSIDERED THIS PAPER?

26 A. I BELIEVE THAT I DID.

27 Q. AGAIN, LIKE I SAID, THERE WERE,
28 THERE WERE LOTS OF PAPERS ABOUT ORGANIC SOLVENTS AND

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1 THE DIFFICULTY I HAD WAS TO TRY TO FIND ONES THAT
2 WERE SPECIFICALLY ABOUT PETROLEUM BASE ORGANIC
3 SOLVENTS WHERE PEOPLE ACTUALLY DEFINE THAT. AND I
4 BELIEVE THAT I, I CERTAINLY HAVE THIS PAPER IN MY
5 FILES BECAUSE I AM VERY FAMILIAR WITH IT. AND SO I
6 WOULD ASSUME THAT I TOOK A LOOK AT IT AND DECIDED
7 THAT I COULDN'T REALLY PUT IT IN THE SAME TABLE AS
8 OTHER STUDIES THAT LOOK AT PETROLEUM BASE SOLVENTS.

9 Q. WELL, IN TABLE 7, THEY LIST ORGANIC
10 SOLVENTS AS ONE OF SEVERAL TYPES OF MATERIALS UNDER
11 INDUSTRIAL CHEMICALS; CORRECT?

12 A. WELL, I ONLY SEE -- I SEE INDUSTRIAL
13 CHEMICALS, ORGAN INSOLVENTS AND LEAD, ARSENIC AND
14 WELDING METAL FUMES. I SEE THREE HERE.

15 Q. YES. THE ORGANIC SOLVENTS, THEY
16 SHOW AN ODDS RATIO FOR NON-HODGKIN'S LYMPHOMA, DON'T
17 THEY?

18 A. YES.

19 Q. THE ODDS RATIO, 1.35, THAT'S

20 STATISTICALLY SIGNIFICANT; RIGHT?

21 A. THAT'S CORRECT.

22 Q. THAT WOULD BE CONSIDERED A POSITIVE

23 RESULT; RIGHT?

24 A. YES.

25 Q. I'M NOT SURE HOW TO PRONOUNCE THIS

26 NAME. SIEMIATYCKI. I'LL SPELL IT.

27 A. IT'S FROM MONTREAL. I'LL SPELL IT

28 FOR THE COURT REPORTER. IT'S S-I-E-M-I-A-T-Y-C-K-I.

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1 AND HOW WAS THAT PRONOUNCED?

2 A. I THINK IT'S SIEMIATYCKI.

3 Q. OKAY. I'LL ACCEPT THAT.

4 THIS IS TITLED "ASSOCIATIONS BETWEEN
5 SEVERAL SITES OF CANCER AND 12 PETROLEUM DERIVED
6 LIQUIDS."

7 AND AS YOU SAID, THIS COMES OUT OF
8 MONTREAL, DOESN'T IT?

9 A. YES.

10 Q. AND ONE OF THE THINGS THEY LOOKED AT
11 WAS NON-HODGKIN'S LYMPHOMA AND MINERAL SPIRITS?

12 A. YES.

13 Q. AND THEY LOOKED IN TABLE 6 FOR
14 THE -- A DOSE RESPONSE, DIDN'T THEY, TABLE 6, PAGE
15 498, MIDDLE OF THE PAGE, MINERAL SPIRITS, HYPHEN
16 HODGKIN'S LYMPHOMA. DO YOU HAVE IT?

17 A. YES.

18 Q. AND THEY HAVE FIGURES FOR
19 NON-SUBSTANTIAL EXPOSURE LEVEL AND SUBSTANTIAL

20 EXPOSURE LEVEL; RIGHT?

21 A. YES.

22 Q. AND LET'S LOOK AT THOSE NUMBERS --

23 MR. RIFF: CAN I JUST CONFER WITH COUNSEL FOR

24 A MOMENT.

25 THE COURT: YES.

26 Q. BY MR. WAGNON: THAT'S FOR HODGKIN'S

27 LYMPHOMA. I MEANT TO ASK YOU ABOUT NON-HODGKIN'S

28 LYMPHOMA. THAT'S THE ONE ON THE RIGHT, N.H.L. AND

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4063

1 CUTTING FLUIDS; RIGHT?

2 A. WELL, NON-HODGKIN'S LYMPHOMA IS THE
3 ONE ON THE TOP THAT IS ODDS RATIO IS .8, I THINK.

4 Q. AND MINERAL SPIRITS?

5 A. RIGHT.

6 Q. RIGHT. BUT IT IS CUTTING FLUIDS.

7 AND DID YOU FIND OUT WHAT CUTTING FLUIDS ARE, WHAT
8 KIND OF PETROLEUM DERIVED FLUIDS THOSE ARE?

9 A. WELL, CUTTING FLUIDS ARE NOT, THEY
10 ARE USUALLY CUTTING FLUIDS ARE USUALLY WATER-BASED
11 AND THEY CONTAIN VARIOUS KINDS OF AMINES IN THEM.

12 BY THE WAY, THIS WAS A STUDY, IF YOU
13 WILL NOTICE, ONE OF THE AUTHORIZES IS JERIN,
14 J-E-R-I-N., AND I BELIEVE THAT I HAD, I MEAN, THIS
15 IS A STUDY THAT I THINK WAS REPORTED IN 1998.

16 Q. YOU REPORTED ANOTHER STUDY BY ONE OF
17 THE AUTHORS OF THIS ONE?

18 A. CORRECT.

19 Q. BUT YOU DIDN'T REPORT THIS ONE;

20 RIGHT?

21 A. WELL, THIS ONE IS THE SAME THING.

22 IT DOESN'T SHOW AN INCREASE IN NON-HODGKIN'S

23 LYMPHOMA AND MINERAL SPIRITS. IN THE OTHER ONE, THE

24 1998 JERIN ARTICLE THEY LOOKED PARTICULARLY AT

25 TOLUENE AND XYLENE AND IT WAS CONSISTENT WITH THIS

26 WHERE THIS ONE WAS .8, THE TOLUENE WAS .9 AND THE

27 XYLENE WAS 1.0.

28 AND BY THE WAY, HODGKIN'S DISEASE

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4064

1 AND NON-HODGKIN'S LYMPHOMA ARE, AGAIN, TWO
2 COMPLETELY DIFFERENT DISEASES.

3 Q. I'D LIKE TO CALL YOUR ATTENTION TO A
4 STUDY BY BLAIR, ET. AL., PUBLISHED IN 1993.

5 AND BLAIR IS A STUDY THAT YOU HAD ON
6 YOUR CHART, ISN'T IT?

7 A. YES.

8 Q. AND THE TITLE OF THIS STUDY IS
9 "EVALUATION OF RISKS FOR NON-HODGKIN'S LYMPHOMA BY
10 OCCUPATION AND INDUSTRY EXPOSURES FROM A CASE
11 CONTROL STUDY."

12 DID I READ THAT CORRECTLY?

13 A. YES.

14 Q. THIS LOOKED AT VARIOUS SOLVENTS
15 OTHER THAN BENZENE; RIGHT, AND INCLUDES SOME LOOK
16 INTO BENZENE AS WELL; CORRECT?

17 A. YES.

18 Q. I'D LIKE TO DIRECT YOUR ATTENTION TO
19 THE BOTTOM OF PAGE 304 AND THERE THEY SUMMARIZE SOME

20 ODDS RATIOS FOR VARIOUS TYPES OF OCCUPATIONS WITH

21 DIFFERENT KINDS OF EXPOSURES; RIGHT?

22 A. YES.

23 Q. AND AT THE VERY BOTTOM OF THE PAGE

24 THEY LUMP TOGETHER PAINTING, PLASTERING AND

25 CEMENTING; CORRECT?

26 A. YES.

27 Q. PAINTING, AT LEAST, WOULD BE AN

28 OCCUPATION WHERE ONE IS EXPOSED TO THINNERS LIKE

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4065

1 MINERAL SPIRITS?

2 A. AGAIN, AMONG OTHER THINGS. YES.

3 Q. CEMENTING, DO WE HAVE AN IDEA OF

4 WHAT THAT IS? MAYBE LIKE IN SHOE MAKING, THE USE OF

5 SOLVENT TYPE CEMENTS?

6 A. I DON'T KNOW WHAT CEMENT MEANS. I

7 USUALLY THINK OF CEMENT IN TERMS OF CONCRETE OR -- I

8 DON'T KNOW WHAT IT, EXACTLY, WHAT THEY MEAN.

9 Q. PROBABLY ISN'T CONCRETE THAT THEY

10 ARE TALKING ABOUT HERE, IS IT?

11 A. I HAVE NO IDEA. PLASTERING, THEY

12 ARE TALKING ABOUT PLASTERING SO, YOU KNOW, IF THEY

13 ARE TALKING ABOUT PLASTERING, WOULD THEY BE TALKING

14 ABOUT CONCRETE?

15 Q. WELL, LET'S LOOK AT WHAT THEY FINED

16 WITH THE NUMBERS FOR THESE CATEGORY, WHATEVER IT IS.

17 I MEAN, THEY HAVE TWO ODDS RATIOS, A

18 0.6 AND A 2.7. NOW, A 0.6, THAT'S BELOW THE MAGIC

19 NUMBER 1; RIGHT? THAT MEANS YOU ARE NOT SEEING, IN

20 EFFECT?

21 A. CORRECT.

22 Q. AND 2.7, THAT MEANS YOU ARE SEEING

23 AN INCREASE, POSSIBLY DUE TO THE EFFECT OF THE

24 EXPOSURE; RIGHT?

25 A. WELL, IN THESE OCCUPATIONS OF

26 PAINTING, PLASTERING AND CEMENTING, I AM NOT EXACTLY

27 SURE WHAT MY -- BY DURATION OF EMPLOYMENT --

28 Q. WHAT THESE ARE IS THIS PAIR OF

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4066

1 NUMBERS IS FOR PEOPLE WORKING LESS THAN 10 YEARS AND

2 MORE THAN 10 YEARS?

3 A. RIGHT. RIGHT. REAL ESTATE WAS THE

4 HIGHEST ODDS RATIO OF 3.7.

5 SO --

6 Q. GO FIGURE, HUH?

7 A. RIGHT. I MEAN, I REALLY DON'T KNOW

8 WHAT THEY MEAN BY CEMENTING, WHETHER THAT HAS

9 ANYTHING TO DO WITH ORGANIC SOLVENTS. AND I DON'T

10 THINK REAL ESTATE DOES.

11 Q. BUT WHAT YOU DO SEE IS YOU SEE A

12 DIFFERENCE, A PRETTY SIGNIFICANT DIFFERENCE BETWEEN

13 THE SHORT, SHORTER TERM EXPOSURES AND THE LONGER

14 TERM EXPOSURE; RIGHT?

15 A. THE SHORTER DURATION OF EMPLOYMENT

16 AND LONGER DURATION OF EMPLOYMENT.

17 Q. OKAY. AND AGAIN, WOULD IT BE

18 REASONABLE TO ASSUME THAT THAT CORRESPONDED TO LOWER

19 DOSE AND HIGHER DOSE?

20 A. WELL, NO. I MEAN, IT HAS TO DO WITH
21 DURATION AND EVEN IF DOSE WERE INVOLVED IT WOULD BE
22 DURATION OF DOSE. BUT LIKE I SAY, I DON'T THINK ONE
23 CAN CONCLUDE FROM THIS THAT THERE WAS ANY OR WHAT
24 THE CHEMICAL EXPOSURES ACTUALLY WERE.

25 Q. OKAY. LET'S MOVE ON.

26 I'D LIKE TO DIRECT YOUR ATTENTION TO
27 A STUDY BY MAO, M-A-O, AND OTHERS. THE TITLE OF THE
28 STUDY IS "NON-HODGKIN'S LYMPHOMA AND OCCUPATIONAL

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4067

1 EXPOSURE TO CHEMICALS IN CANADA."

2 AND THIS ONE IS ONE YOU HAVE SEEN
3 BEFORE; RIGHT?

4 A. IT IS IN ONE OF MY TABLES, YES. IT
5 IS IN THE BENZENE TABLE.

6 Q. IT IS ON YOUR TABLE FOR WHAT?

7 A. BENZENE IN CANADA. IS 1.2, NOT
8 SIGNIFICANT.

9 Q. IT IS WHAT YOU REPORTED, ISN'T IT?

10 AND CAN YOU POINT OUT WHERE YOU GOT
11 THAT 1.2, NOT SIGNIFICANT FIGURE?

12 A. TABLE 3.

13 Q. I HAVE WHAT MAKES IT NONSIGNIFICANT
14 AS THE LAWYER BOUND IS .8; CORRECT?

15 A. YES.

16 Q. WHAT I'D LOOK YOU TO DO IS TURN THE
17 PAGE OVER TO TABLE 4.

18 A. RIGHT.

19 Q. AND THEY LIST EXPOSURE TO BENZIDINE?

20 A. BENZIDINE IS AN AROMATIC AMINE.

21 IT'S AN ABSOLUTELY COMPLETELY DIFFERENT COMPOUND.

22 IT'S -- I HAVE WRITTEN A PAPER ON BENZIDINE. IT IS

23 USED TO MAKE DYE STUFFS.

24 Q. DYE STUFFS?

25 A. BENZIDINE BASED DYES, YES.

26 Q. IS IT A PETROCHEMICAL SOLVENT?

27 A. NO.

28 Q. LET'S MOVE ON THEN.

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4068

1 REGO, DEFINITELY ONE YOU KNOW OF;
2 RIGHT? REGO FROM 2002, TITLED "NON-HODGKIN'S
3 LYMPHOMA'S AND ORGANIC SOLVENTS." THIS IS ANOTHER
4 GROUP OF ITALIANS; CORRECT?

5 A. I THINK THEY ARE BRAZILIANS. I KNOW
6 THE NAME MAYBE SOUNDS ITALIAN BUT I THINK THEY ARE
7 FROM BRAZIL.

8 Q. YES, I STAND CORRECTED. YOU ARE
9 RIGHT.

10 NOW, DIRECT YOUR ATTENTION TO THE
11 ABSTRACT, RIGHT IN THE MIDDLE THERE IT READS:

12 "AN ASSOCIATION BETWEEN
13 OCCUPATIONAL EXPOSURE TO ORGANIC
14 SOLVENTS AND NON-HODGKIN'S LYMPHOMA
15 WAS OBSERVED. ODDS RATIO 1.67."

16 DO YOU SEE THAT?

17 A. YES. YES.

18 Q. NOW, DO YOU CONSIDER THAT A
19 SIGNIFICANT FINDING OR NOT?

20 A. WELL, I THINK YOU HAVE GOT IN HERE

21 N.S. WRITTEN ON THE PAPER, AND I MEAN, IT IS

22 STATISTICALLY NOT SIGNIFICANT AND, AGAIN, IT GOES --

23 IT IS TALKING ABOUT ALL ORGANIC SOLVENTS BUT, AND IT

24 IS NOT STATISTICALLY SIGNIFICANT.

25 Q. AND THE REASON IT ISN'T

26 STATISTICALLY SIGNIFICANT IS BECAUSE THE 95 PERCENT

27 CONFIDENCE INTERVAL GOES DOWN TO .97, JUST BELOW

28 ONE; RIGHT?

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1 A. THAT'S CORRECT.

2 Q. IF IT WERE 3/100THS HIGHER, IF IT

3 CAME TO 1.00, WOULD THAT MAKE IT STATISTICALLY

4 SIGNIFICANT?

5 A. NO, IT WOULD HAVE TO BE ONE MORE

6 POINT POWER HIGHER. IT HAS TO NOT INCLUDE ONE.

7 Q. WHAT IF INSTEAD OF GOING TO THE 95

8 PERCENT CONFIDENCE INTERVAL WE ONLY WENT TO THE 90

9 PERCENT CONFIDENCE INTERVAL, THEN THIS WOULD BE A

10 STATISTICALLY SIGNIFICANT RESULT, WOULDN'T IT?

11 A. WELL, NOT ACCORDING TO THE

12 CONVENTIONS THAT MOST SCIENTISTS USE BECAUSE 90

13 PERCENT CONFIDENCE MEANS THAT YOU HAVE A 1 IN 10

14 CHANCE OF BEING WRONG JUST BY RANDOM, RANDOMLY.

15 AND AGAIN, AS I SAID, THIS IS A

16 STUDY OF ALL, QUOTE, ORGANIC SOLVENTS.

17 Q. WELL, IN THE DISCUSSION OVER ON PAGE

18 877, THEY CONCLUDE:

19 "WE FOUND A POSITIVE

20 ASSOCIATION BETWEEN NON-HODGKIN'S

21 LYMPHOMA AND OCCUPATIONAL EXPOSURE

22 TO ORGANIC SOLVENTS."

23 THAT'S WHAT THEY SAY, ISN'T IT?

24 A. WELL, THAT'S WHAT THEY SAY. BUT AS

25 YOU POINTED OUT, THE CONFIDENCE INTERVAL IS .97. SO

26 I DON'T EXACTLY UNDERSTAND -- I THINK THAT -- LET ME

27 SEE IF I CAN -- THE ONLY STATISTICALLY SIGNIFICANT

28 RESULT THAT I SEE HAD TO DO WITH THE DIFFUSE TYPE OF

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1 NON-HODGKIN'S LYMPHOMA. BUT NOT THE FOLLICULAR.

2 BUT IT IS, AS I SAID, THEY DID A LOT OF DIFFERENT

3 STATISTICAL ANALYSES AND THEY PARSED IT OUT A COUPLE

4 OF THEM CAME UP SIGNIFICANT. BUT OVERALL IT'S --

5 THEY ARE TALKING ABOUT ALL NON-HODGKIN'S LYMPHOMA.

6 I DON'T SEE ANY STATISTICAL SIGNIFICANCE HERE.

7 AND AGAIN, THIS IS NOT -- THIS IS

8 REFERRING TO ALL ORGANIC SOLVENTS.

9 Q. THE ONE THING THEY DID LOOK AT WAS

10 THE EFFECT ON TIME, DIDN'T THEY, IN TERMS OF HOW

11 LONG THE PERSON WAS IN THE WORKPLACE?

12 A. I DON'T SEE WHERE THEY HAVE -- YOU

13 MEAN DURATION OF EMPLOYMENT? IS THAT WHAT YOU ARE

14 TALKING ABOUT?

15 Q. CHART, TOP OF PAGE 878. FIGURE 1.

16 A. WELL, THIS IS A TIME SINCE FIRST

17 EXPOSURE. I DON'T -- THIS IS SOMETHING DIFFERENT.

18 THIS HAS TO DO WITH THE ISSUE CALLED LATENCY, I

19 THINK. I DON'T THINK THIS HAS TO DO WITH DURATION

20 OF EMPLOYMENT.

21 Q. WELL, IF THEY REMAINED IN THE
22 EMPLOYMENT FOR THE PERIOD OF TIME, LATENCY AND
23 DURATION OF EXPOSURE WOULD OVERLAP; CORRECT?

24 A. WELL, I DON'T KNOW THAT WE KNOW THAT
25 HERE THOUGH. BUT LATENCY -- IF THAT IS TRUE, THEN
26 LATENCY AND -- YES, THAT WOULD BE CORRECT, IF THAT
27 WERE TRUE.

28 Q. AND WHAT THAT GRAPH SHOWS IS THAT

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1 FOR PERSONS, THE LONGER THEY WERE EMPLOYED, THE
2 LONGER THE LATENCY PERIOD, THE HIGHER THE ODDS
3 RATIO; CORRECT?

4 A. WELL, IT GOES UP AND IT GOES DOWN.

5 Q. WELL, WHAT'S THE HIGH POINT THEN?

6 A. I CAN'T READ THE NUMBERS HERE. IT'S
7 VERY SMALL NUMBERS. LIKE I SAID, IF THE LENGTH OF
8 EMPLOYMENT IS RELATED TO THE LATENCY HERE, THEN IT
9 WOULDN'T BE DOSE. IT WOULDN'T BE RELATED TO
10 DURATION BECAUSE THE LONGEST, THE GREATER THAN 35
11 YEARS HAS AN ODDS RATIO OF .53.

12 Q. IN THE CHART, IN TABLE ONE, THEY
13 DESCRIBE IT AS, IN THE DESCRIPTION, NON-HODGKIN'S
14 LYMPHOMA AND OCCUPATIONAL EXPOSURE TO ORGANIC
15 SOLVENTS, DISTRIBUTION OF ODDS RATIOS BY TIME
16 WINDOWS SINCE FIRST EXPOSURE. CORRECT?

17 A. CORRECT.

18 Q. AND THEN FOR THE 15- TO 20-YEAR
19 TIMEFRAME, THEY SHOW AN ODDS RATIO OF 5.35. THAT'S

20 THE NUMBER THAT'S ON TOP OF THAT BIG BAR THERE;

21 RIGHT?

22 A. RIGHT. BUT YOU SAID TO ASSUME THAT

23 THIS WAS RELATED TO DURATION OF EMPLOYMENT THAT WAS

24 THE GREATEST FOR THE LONGEST DURATION OF EMPLOYMENT.

25 BUT THAT'S NOT WHAT THIS SHOWS. BECAUSE THE

26 LONGEST, IT IS QUITE SMALL.

27 Q. OKAY. WOULD YOU AGREE THAT THE

28 FIGURE, THE ODDS RATIO FOR THE 15 TO 20 YEARS IS, OR

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1 16 TO 20 YEARS IS ALMOST TWICE FOR THE PREVIOUS
2 PERIOD OF 11 TO 15 YEARS?

3 A. FOR THE -- YES, FOR THIS DURATION
4 SINCE FIRST EXPOSURE.

5 Q. AND FOR THE ODDS RATIO FOR THE LESS
6 THAN FIVE YEARS, IT'S QUITE LOW?

7 A. YES. AND AS I MENTIONED, IT IS
8 QUITE LOW FOR GREATER THAN 35 AS WELL.

9 Q. SO ARE WE SEEING SOME SORT OF DOSE
10 RESPONSE HERE IN THESE FIGURES?

11 A. I DON'T KNOW HOW ONE CAN REALLY
12 RELATE THIS TO DOSE RESPONSE. LIKE I SAY, IT GOES
13 UP AND THEN IT GOES BACK DOWN AGAIN.

14 Q. LET'S MOVE ON TO KATO PUBLISHED IN
15 2005. THE TITLE IS "PERSONAL AND OCCUPATIONAL
16 EXPOSURE TO ORGANIC SOLVENTS AND RISK OF
17 NON-HODGKIN'S LYMPHOMA IN WOMEN" IN THE UNITED
18 STATES, EVIDENTLY; CORRECT?

19 A. YES.

20 Q. AND DOESN'T THIS REPORT, FIRST OF

21 ALL, THIS IS A CASE CONTROL STUDY; RIGHT?

22 A. YES.

23 Q. THEY WERE LOOKING AT EXPOSURES TO

24 ORGANIC SOLVENTS AND THE RISK OF NON-HODGKIN'S

25 LYMPHOMA IN WOMEN?

26 A. WELL, IT SAYS IN THE ABSTRACT IS THE

27 PAINT THINNERS -- THEY WERE LOOKING AT THAT AND THE

28 ABSTRACT TALKING ABOUT PAINT THINNERS AND

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1 TURPENTINE. YES.

2 Q. AND FOR PAINT THINNERS AND

3 TURPENTINES, THEY CALCULATED AN ODDS RATIO OF 1.46;

4 RIGHT?

5 A. THAT'S CORRECT.

6 Q. SIGNIFICANT RESULT; RIGHT?

7 A. THAT'S RIGHT. AS I MENTIONED,

8 TURPENTINE COMES FROM PINE TREES.

9 Q. FRITSCHI. FRITSCHI?

10 A. YES.

11 Q. THIS IS AUSTRALIAN; RIGHT?

12 A. THAT'S CORRECT.

13 Q. AND THE TITLE IS "RISK OF

14 NON-HODGKIN'S LYMPHOMA ASSOCIATED WITH OCCUPATIONAL

15 EXPOSURES TO SOLVENTS, METALS, ORGANIC DUSTS AND

16 PCB'S"; CORRECT?

17 A. YES.

18 Q. PUBLISHED IN 2005; CORRECT?

19 A. YES.

20 Q. AND SO WE OBVIOUSLY AREN'T TOO
21 INTERESTED IN THE METALS, ORGANIC DUSTS OR THE
22 PCB'S, BUT IT DOES LOOK AT SOLVENT EXPOSURE, DOESN'T
23 IT?

24 A. RIGHT. IT LOOKS AT BENZENE, WHICH I
25 HAVE IN MY TABLE, WHICH IS 1.09, NOT SIGNIFICANT,
26 1.09. AND THEN IT HAS, WELL -- IT HAS OTHER
27 AROMATICS AND IT HAS CHLORINATED SOLVENTS.

28 Q. WELL, LET'S JUST LOOK AT THE

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1 ABSTRACT ON PAGE 1. LOOK AT THE BOTTOM PART WHERE

2 IT SAYS "RESULTS."

3 IT SAYS:

4 "THE RISK OF

5 NON-HODGKIN'S LYMPHOMA WAS

6 INCREASED BY ABOUT 30 PERCENT FOR

7 EXPOSURE TO ANY SOLVENT WITH A DOSE

8 RESPONSE RELATIONSHIP. SUBGROUP

9 ANALYSIS SHOWED THE FINDING WAS

10 RESTRICTED TO SOLVENTS OTHER THAN

11 BENZENE."

12 IN OTHER WORDS, THEY FOUND A POSITIVE

13 RESPONSE TO ORGANIC SOLVENTS BUT NOT TO THE BENZENE;

14 RIGHT?

15 A. THAT'S RIGHT.

16 Q. SO YOU INCLUDED IT IN YOUR CHART AS

17 A NEGATIVE WITH RESPECT TO BENZENE; RIGHT?

18 A. WELL, BECAUSE THEY HAD AN ACTUAL

19 ANALYSIS OF BENZENE SEPARATELY. SO I INCLUDED THAT.

20 BUT AGAIN, LIKE I SAID, THE ISSUE OF ORGANIC
21 SOLVENTS, THESE -- THAT WHEN THEY LUMP THEM ALL
22 TOGETHER, THEY WEREN'T NECESSARILY PETROLEUM BASED
23 SOLVENTS.

24 Q. SO ARE YOU SAYING THAT ORGANIC
25 SOLVENTS, AGAIN, WAS TOO VAGUE FOR THIS TO BE
26 INCLUDED AS ONE OF THE POSITIVE STUDIES?

27 A. I BELIEVE SO. I MEAN, IT WAS
28 SPECIFIC FOR BENZENE WHEN THEY DID THAT ANALYSIS.

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1 Q. AND WHEN THEY LOOKED AT DURATION OF
2 EXPOSURE, THEY FOUND AN INCREASE FOR SOLVENTS AND
3 N.H.L.?

4 A. ARE YOU TALKING ABOUT THE ABSTRACT
5 AGAIN?

6 Q. NO. THIS IS OVER ON -- LET ME TRY
7 AND FIND YOU THE SPECIFIC PAGE REFERENCE. TABLE 5.

8 THEY LOOK AT EXPOSURE TO ANY
9 SOLVENTS, "NEVER. LESS THAN FOUR DAYS PER YEAR."
10 AND "MORE THAN FOUR DAYS PER YEAR."

11 AND THEY FOUND A DIFFERENCE BETWEEN
12 THE LESS THAN FOUR DAYS PER YEAR AND THE MORE THAN
13 FOUR DAYS PER YEAR; RIGHT?

14 A. YES.

15 Q. AND THEN THEY LOOK AT, IN TERMS OF
16 YEARS OF EXPOSURE, THOSE WITH LESS THAN FIVE YEARS
17 EXPOSURE WAS A SMALLER ODDS RATIO THAN THOSE WITH
18 MORE THAN FIVE YEARS OF EXPOSURE; CORRECT?

19 A. WELL, THERE WAS A TREND GOING FROM

20 NEVER TO LESS THAN FIVE TO FIVE PLUS. IT WAS

21 STATISTICALLY SIGNIFICANT.

22 Q. RIGHT. SO THAT SHOWS A DOSE

23 RELATIONSHIP; RIGHT, IF WE ASSUME THAT YEARS OF

24 EMPLOYMENT RELATES TO A HIGHER DOSE; RIGHT?

25 A. WELL, IT COULD RELATE TO OTHER

26 THINGS AS WELL. BUT AGAIN, AS I MENTIONED, THIS IS

27 FOR ANY SOLVENT AS THEY STATED.

28 THE COURT: MR. WAGNON, COULD I ASK THE JURORS

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1 TO STAND AND STRETCHED A MINUTE.

2 THE COURT: SURE.

3 MR. WAGNON: SURE.

4 THE COURT: WE ARE GOING TO TRY TO GO WITHOUT

5 A BREAK SO WE CAN GET THROUGH THIS AFTERNOON. SO WHY

6 DON'T YOU JUST STAND FOR A MINUTE AND STRETCH IF YOU

7 WOULD, THANK YOU.

8 COUNSEL MAY DO THE SAME, IF YOU LIKE.

9

10 (INTERRUPTION IN

11 PROCEEDINGS.)

12

13

14 JOHN WHYSNER,

15 HAVING BEEN PREVIOUSLY DULY SWORN, RESUMED THE

16 WITNESS STAND AND TESTIFIED AS FOLLOWS:

17

18 DIRECT EXAMINATION (RESUMED)

19

20 BY MR. WAGNON:

21 Q. MILIGI, M-I-L-I-G-I.

22 A. UH-HUH.

23 Q. THIS IS ONE THAT'S ON YOUR LIST, I

24 BELIEVE?

25 A. YES.

26 Q. AND YOU HAVE IT ON YOUR LIST ON
27 BENZENE EXPOSURES. LET'S GET THE TITLE FIRST.

28 THE TITLE OF THIS IS "OCCUPATIONAL

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1 EXPOSURE TO SOLVENTS AND THE RISK OF LYMPHOMAS."

2 CORRECT?

3 A. YES.

4 Q. PUBLISHED IN 2006. AND THESE GUYS

5 ARE ITALIANS; RIGHT?

6 A. YES.

7 Q. THIS IS LOOKING AT EXPOSURES, AGAIN,

8 TO ORGANIC SOLVENTS; RIGHT?

9 A. YES.

10 Q. AND NOW, YOU HAD IT ON YOUR LIST FOR

11 BENZENE AND UNDER THE ODDS RATIOS IT SAID IT ON YOUR

12 LIST, "NO TREND" AND DIDN'T PROVIDE ANY OTHER

13 INFORMATION, DID IT?

14 A. CORRECT.

15 Q. BUT THEY DO COVER AROMATIC SOLVENTS

16 AND NON-HODGKIN'S LYMPHOMA IN HERE, DON'T THEY?

17 A. WELL, I THINK I ALSO HAD IT ON THE

18 SOLVENT PAGE UNDER XYLENE AND TOLUENE, YEAH, I HAVE

19 IT ON THE FIRST -- IT'S THE FIRST ONE ON CASE

20 CONTROL STUDIES OF THE N.H.L. AND PETROLEUM DERIVED
21 SOLVENT EXPOSURES AS WELL. AND IT SAYS THEY WERE
22 INCREASED BUT WITH NO TREND.

23 Q. WELL, LET'S SEE WHAT THEY SAY ON
24 PAGE 554, RIGHT-HAND COLUMN, NEAR THE BOTTOM. THEY
25 ADDRESS AROMATIC HYDROCARBONS. AND WE HAVE AGREED
26 THAT'S THE PROPER TYPE OF SOLVENT THAT WE SHOULD BE
27 TALKING ABOUT IN THIS CASE; RIGHT?

28 A. AGAIN, IN THIS CASE, I WAS TRYING TO

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1 BE MORE SPECIFIC BECAUSE I KNOW THAT TOLUENE AND
2 XYLENE WAS A LARGE COMPONENT OF THE RUBBER SOLVENTS
3 AND SO I FOCUSED ON THAT PARTICULAR PART. BUT --

4 Q. LET'S LOOK AT WHAT THEY SAY FOR
5 AROMATIC HYDROCARBONS. THEY SAY, "FOR AROMATIC
6 HYDROCARBON WE ALSO ANALYZED MEDIUM AND HIGH
7 INTENSITIES SEPARATELY AND WE OBSERVED A STRONGER
8 INCREASE IN RISK FOR SUBJECTS EXPOSED TO THE HIGH
9 INTENSITY."

10 AND THEN THEY HAVE A RELATIVE RISK
11 OF 1.9 THAT'S SIGNIFICANT; CORRECT?

12 A. YES.

13 Q. THEY GO ON TO SAY, "THERE WERE
14 ELEVATED NON-HODGKIN'S LYMPHOMA RISKS ASSOCIATED
15 WITH MEDIUM/HIGH EXPOSURES TO TOLUENE OF 1.8 RISK,
16 XYLENE, A 1.7 RISK, BENZENE, A 1.6 RISK, AND
17 DICHLOROMETHANE, A 1.7 RISK."

18 SO THEY HAVE TEASED OUT SEPARATELY
19 FOR THOSE DIFFERENT CHEMICALS, THE LAST ONE BEING

20 ONE THAT IS NOT INVOLVED HERE; RIGHT?

21 A. THAT'S CORRECT. AND THAT'S

22 REFLECTED IN MY TABLE. I SAID INCREASE BUT NO

23 TREND. AND THEY ACTUALLY DIDN'T, I DON'T BELIEVE

24 THEY ACTUALLY QUITE REACHED STATISTICAL SIGNIFICANCE

25 AGAIN. BUT I THINK I INDICATED THEY WERE INCREASED

26 BUT WHEN THEY DID THE STATISTICAL TREND ANALYSIS

27 THEY DIDN'T FIND A TREND, WHICH IS THE THING THAT

28 YOU LOOK AT FOR DOSE RESPONSE.

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1 Q. WELL, LET'S GO TO THE RESULTS
2 SECTION ON THE ABSTRACT, AT THE PART LABELED
3 "CONCLUSION."

4 I MEAN, THEY CONCLUDE, THEY SAY:

5 "THIS STUDY SUGGESTS
6 THAT AROMATIC AND CHLORINATED
7 HYDROCARBONS ARE A RISK FACTOR FOR
8 NON-HODGKIN'S LYMPHOMA AND PROVIDES
9 PRELIMINARY EVIDENCE FOR AN
10 ASSOCIATION BETWEEN SOLVENTS AND
11 HODGKIN'S DISEASE."

12 NOW, THE HODGKIN'S DISEASE WE DON'T CARE
13 ABOUT BECAUSE THAT'S NOT INVOLVED IN THIS CASE. BUT THE
14 NON-HODGKIN'S LYMPHOMA WE CERTAINLY CARE ABOUT. THEY
15 FIND IT IS ASSOCIATED HERE, DON'T THEY?

16 A. WELL, AS I SAID, WHEN WE LOOK AT
17 THESE STUDIES, SOME -- THERE'S -- ASSOCIATION
18 DOESN'T NECESSARILY MEAN CAUSATION. WE HAVE TO LOOK
19 AT ALL OF THE STUDIES TO SEE IF THEY CORROBORATE

20 EACH OTHER. AND SO ONE STUDY MIGHT SUGGEST, WHICH
21 THEY SAY, SUGGESTS SOMETHING. BUT I THINK THE
22 AUTHORS ARE BEING CAREFUL IN TERMS OF NOTING THAT
23 THAT'S WHAT THEY DO THE STUDIES FOR BECAUSE ONE
24 STUDY MIGHT SUGGEST IT BUT YOU HAVE TO TAKE THE
25 INFORMATION IN, YOU HAVE TO LOOK AT ALL OF IT FOR
26 CONSISTENCY.

27 Q. AND WE HAVE HAD MORE THAN ONE STUDY
28 HERE THAT'S MADE THAT SUGGESTION, HAVEN'T WE?

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1 A. I DON'T KNOW. HAVE WE?

2 HAVE THEY SAID THAT IN THESE
3 STUDIES?

4 Q. YOU DON'T THINK SO?

5 A. WELL, YOU HAVE GONE THROUGH A BUNCH
6 OF STUDIES THAT ARE ABOUT ORGANIC SOLVENTS AND
7 I HAVE GONE THROUGH A BUNCH OF STUDIES THAT ARE
8 ABOUT PETROLEUM BASED ORGANIC SOLVENTS AND I HAVE
9 DESCRIBED MY ANALYSIS.

10 Q. AND ORGANIC SOLVENTS AND PETROLEUM
11 BASED SOLVENTS ARE DIFFERENT THINGS AS FAR AS YOU
12 ARE CONCERNED?

13 A. BECAUSE ORGANIC SOLVENTS CONTAIN A
14 LOT OF DIFFERENT KINDS OF CHEMICALS, PARTICULARLY
15 CHLORINATED CHEMICALS AND ALSO OTHER THINGS LIKE
16 GLYCOL ETHERS AND SO FORTH.

17 Q. LET'S MOVE ON TO SOME OF THE BENZINE
18 STUDIES. AND I'LL GET TO HAYES BUT WE ARE NOT THERE
19 YET.

20 VIANNA, VIANNA AND POLAN.

21 THIS IS BACK FROM 1979. THE TITLE

22 IS "LYMPHOMAS AND OCCUPATIONAL BENZENE EXPOSURE."

23 CORRECT?

24 A. YES.

25 Q. AND IN THIS STUDY, THEY LOOK AT

26 NON-HODGKIN'S LYMPHOMA AND SOLVENT EXPOSURE AND FIND

27 A SIGNIFICANT RELATIVE RISK; RIGHT?

28 A. WELL, WHAT THESE, THEY WERE LOOKING

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1 AT WAS BENZENE AND/OR COAL TAR FRACTIONS, WHICH CAN
2 CONTAIN APPRECIABLE AMOUNTS OF BENZENE.

3 SO AGAIN, THE REASON I DIDN'T
4 CONSIDER THIS STUDY IS COAL TARS HAVE A LOT OF STUFF
5 IN THEM. AND WE WERE TALKING ABOUT POLYAROMATIC
6 HYDROCARBONS BEFORE. AND SO I DON'T THINK ONE CAN
7 LOOK AT THIS AS A STUDY PURELY ABOUT BENZENE
8 EXPOSURE.

9 A. OR SOLVENT OR -- PETROLEUM BASE
10 SOLVENT EXPOSURES.

11 SO THEY ARE REALLY TALKING ABOUT
12 COAL TAR FRACTIONS, WHICH ARE DIFFERENT.

13 Q. WELL, LET'S READ WHAT THEIR SUMMARY
14 SAYS:

15 "THERE WAS A SIGNIFICANT
16 EXCESS OF DEATHES CAUSED BY MAJOR
17 LYMPHOMAS IN MEN EMPLOYED IN
18 OCCUPATIONS WHERE BENZENE AND/OR
19 COAL TAR FRACTIONS ARE USED. THE

20 INCREASE IN RISK WAS LIMITED TO
21 THOSE WHO WERE 45 YEARS OF AGE AND
22 OLDER AT DEATH AND OBSERVATION
23 WHICH IS CONSISTENT WITH THE
24 POSSIBILITY THAT CHRONIC EXPOSURE
25 MIGHT BE IMPORTANT. EVIDENCE FROM
26 OTHER STUDIES SUGGESTS THAT BENZENE
27 MAY ADVERSELY EFFECT THE
28 IMMUNOLOGICAL SYSTEM."

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1 DID I READ THAT CORRECTLY, SIR?

2 A. YES.

3 Q. OKAY. SO YOUR COMMENT IS THAT THEY

4 DIDN'T SEPARATE OUT THE COAL TAR EXPOSURE WELL

5 ENOUGH FOR YOU?

6 A. YES.

7 Q. OKAY. LET'S MOVE ON THEN TO HAYES,

8 A STUDY I KNOW YOU ARE FAMILIAR WITH.

9 THE HAYES STUDY, AND I HAVE A COPY

10 FOR YOU HERE, THIS IS HAYES 1997, AND THE TITLE IS

11 "BENZENE AND THE DOSE RELATED INCIDENCE OF

12 HEMATOLOGIC NEOPLASMS IN CHINA."

13 SIR, THIS IS A STUDY THAT WAS,

14 ALTHOUGH THE PERSON IT WAS -- WHO WAS HAYES?

15 A. HAYES, I BELIEVE, IS PART OF THE

16 NATIONAL CANCER INSTITUTE.

17 Q. RIGHT. IT HAS HIS ADDRESS FOR

18 CORRESPONDENCE THERE AT THE BOTTOM OF THE FIRST PAGE

19 AT BETHESDA, MARYLAND; RIGHT?

20 A. YES.

21 Q. THAT WOULD BE N.C.I., NATIONAL
22 CANCER INSTITUTE?

23 A. THAT'S WHAT I SAID, YES.

24 Q. OR NATIONAL INSTITUTES OF HEALTH, I
25 GUESS, IS WHAT THEY LIST.

26 THIS WAS A STUDY THAT INVOLVED A
27 FAIRLY LARGE COHORT OF EXPOSED PERSONS, DIDN'T IT?

28 A. WELL, ACTUALLY, IT INVOLVED SEVERAL

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1 DIFFERENT KIND OF COHORTS OF PEOPLE WHO HAD
2 EXPOSURES TO BENZENE.

3 Q. WELL, THE -- I'M TRYING TO FOCUS ON
4 THE NUMBERS INVOLVED HERE.

5 I MEAN, SOME OF THE OTHER STUDIES WE
6 HAVE BEEN LOOKING AT INVOLVED, YOU KNOW, ON THE
7 ORDER OF A FEW HUNDRED STUDY CASES; CORRECT?

8 A. WELL, I MEAN, THE PETROLEUM STUDIES
9 INCLUDE 300,000 PEOPLE. BUT, SO, IT'S -- IT'S A
10 REASONABLY LARGE STUDY.

11 Q. 78,000?

12 A. I DON'T KNOW. LET'S SEE HERE.

13 A. YES, 74,000, I BELIEVE.

14 Q. WELL, LET'S GET IT RIGHT. 74,828.
15 BENZENE EXPOSED; RIGHT?

16 A. YES.

17 Q. AND THIS IS THE ONE THAT YOU CITED
18 AS HAVING A RELATIVE RISK OF 3.0?

19 A. CORRECT.

20 Q. FIRST OF ALL, THE LARGER THE STUDY,
21 GENERALLY, DOES IT GIVE ONE BETTER CONFIDENCE IN
22 ONE'S NUMBERS, IF YOU HAVE A LARGER STUDY?

23 A. WELL, IF THE STUDY IS, DOESN'T
24 INCLUDE A LOT OF OTHER CHEMICAL EXPOSURES, YES. AS
25 I MENTIONED, THIS STUDY ACTUALLY IS A STUDY OF
26 SEVERAL DIFFERENT COHORTS WHICH THEY HAVE LUMPED
27 TOGETHER AND MY DIFFICULTY WITH IT IS THAT THEY ARE,
28 IN COMBINING THOSE PEOPLE AND SOME OF THEM HAVE

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1 INCREASED INCIDENCE OF N.H.L. AND OTHERS DON'T.

2 Q. ONE OF THE CHARTS IN HERE, TABLE 2,
3 LOOKS AT THE DOSE RESPONSE TREND IN TERMS OF THE
4 DURATION OF EMPLOYMENT, DON'T THEY?

5 A. YES.

6 Q. AND THE FIGURES THAT THEY GIVE ARE,
7 SHOW, WELL, THEY GIVE YOU THREE CHOICES. THEY GIVE
8 YOU LESS THAN FIVE YEARS, 529 YEARS, AND 10 YEARS
9 PLUS; RIGHT?

10 A. YES.

11 Q. AND THEY SHOW AN INCREASE IN THE
12 RELATIVE RISK OVER THOSE THREE CATEGORIES, DON'T
13 THEY?

14 A. THAT'S CORRECT.

15 Q. AND IN FACT, THE OVER 10 YEARS, THE
16 RELATIVE RISK THEY SITE IS 4.2; RIGHT?

17 A. CORRECT.

18 Q. IN OTHER WORDS, THAT THE
19 PARTICIPANTS WERE FOUR TIMES MORE LIKELY TO DEVELOP

20 THE CANCER THAN SOMEONE WHO WAS UNEXPOSED; RIGHT?

21 A. YES.

22 Q. THEY ALSO LOOKED AT DOSE RESPONSE IN

23 TERMS OF LOW DOSE, MEDIUM DOSE AND HIGH DOSE;

24 CORRECT?

25 A. WELL, THEY LOOK AT DOSE RESPONSE IN

26 TERMS OF THAT AND THEY ALSO LOOK AT DOSE RESPONSE IN

27 TERMS OF WHAT WE CALL CUMULATIVE PARTS PER MILLION

28 YEARS. SO THEY LOOK AT DOSE RESPONSE TWO DIFFERENT

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1 WAYS. AND THE AVERAGE P.P.M. EXPOSURE LEVEL, BUT I
2 WOULD SAY THAT THE -- THE WAY THAT WE HAVE USUALLY
3 LOOKED AT DOSE RESPONSE IN THESE STUDIES IS
4 CUMULATIVE P.P.M. YEARS.

5 Q. WELL, THE -- THEY DO A TREND FOR THE
6 AVERAGE ON P.P.M., DON'T THEY?

7 A. YES.

8 Q. AND YOU -- IT COMES UP WITH A
9 P-VALUE OF .04?

10 A. CORRECT.

11 Q. THAT WOULD MEAN IT IS A SIGNIFICANT
12 TREND?

13 A. YES.

14 Q. AND SO THAT MEANS THAT THERE IS A
15 DOSE RESPONSE EFFECT THAT'S BEING OBSERVED IN THIS
16 STUDY?

17 A. IN TERMS OF, LIKE I SAY, IN TERMS OF
18 THE AVERAGE PART PER MILLION OF EXPOSURE, YES.

19 Q. NOW, THE CONCLUSION THAT THEY COME

20 TO IS SET FORTH IN THE ABSTRACT ON THE FIRST PAGE,
21 IS THAT THE RESULTS OF THIS STUDY SUGGESTS THAT
22 BENZENE EXPOSURE IS ASSOCIATED WITH A SPECTRUM OF
23 HEMATOLOGIC NEOPLASMS AND RELATED DISORDERS IN
24 HUMANS.

25 NOW, HEMATOLOGIC NEOPLASMS, THAT
26 WOULD INCLUDE DISEASE SUCH AS NON-HODGKIN'S
27 LYMPHOMA; WOULDN'T IT?

28 A. YOU KNOW, I'M NOT REALLY SURE WHAT

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1 THIS TERM, THE WAY THEY ARE USING THIS TERM.

2 Q. YOU ARE NOT SURE WHAT THEY MEANT BY
3 THAT?

4 A. NO.

5 Q. WELL, THEY PARSED OUT SPECIFIC
6 DISEASES INCLUDING NON-HODGKIN'S LYMPHOMA, DIDN'T
7 THEY?

8 A. WELL, THEY DID STUDY IT, YEAH. BUT
9 AS I SAID, WHEN YOU ARE TALKING ABOUT THIS
10 CONCLUSORY STATEMENT, I AM NOT REALLY CERTAIN WHAT
11 THEY ARE REFERRING TO HERE. I KNOW THAT LATER WHEN
12 THEY PUBLISHED IN THE YEAR 2000, THEY ACTUALLY
13 QUESTIONED THE RESULTS THAT THEY FOUND REGARDING
14 NON-HODGKIN'S LYMPHOMA BECAUSE OF THIS DIFFERENCE
15 BETWEEN THESE FINDINGS AND THESE DIFFERENT COHORTS
16 AND THEY THOUGHT THAT MAYBE IT WAS DUE TO SOME OTHER
17 CHEMICAL EXPOSURE.

18 Q. WELL, THAT'S ONE OF THE PROBLEMS OF
19 DOING THESE KINDS OF STUDIES, IS IT HARD TO SEPARATE

20 OUT A PARTICULAR CHEMICAL THAT ONE IS EXPOSED TO
21 BECAUSE TYPICALLY THEY ARE EXPOSED TO MIXTURES OF
22 CHEMICALS; RIGHT?

23 A. WELL, EXCEPT -- PLIOFILM COHORT THAT
24 WE TALKED ABOUT THE RINSKI STUDY WAS, IT WAS PRETTY
25 CLEARLY ALL BENZENE EXPOSURE THESE PEOPLE HAD.

26 AND THIS STUDY THEY HAD CHEMICAL
27 WORKERS WHERE THEY HAD STATISTICALLY SIGNIFICANT
28 RESULTS AND THE CHEMICAL WORKERS INCLUDED PEOPLE WHO

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1 ARE MAKING PESTICIDES AND ALL SORTS OF THINGS.

2 SO THAT'S MY DIFFICULTY WITH

3 UNDERSTANDING THIS STUDY.

4 AND AS I MENTION, I PUT IT IN MY

5 CHART AND I CALL THE 3.0 AS POSSIBLY STATISTICALLY

6 SIGNIFICANT ALTHOUGH THEY REPORTED IT YES AND NO IN

7 A COUPLE DIFFERENT PAPERS.

8 Q. THE STUDY BY FABBRO-PERAY, ANOTHER

9 FRENCH STUDY, YOU ARE FAMILIAR WITH THAT?

10 A. YES.

11 Q. AND THE TITLE OF THIS IS

12 ENVIRONMENTAL RISK FACTORS FOR NON-HODGKIN'S

13 LYMPHOMA, A POPULATION BASED CASE CONTROL STUDY IN

14 LANGUEDOC-ROUSSILLON, FRANCE." I'LL SPELL THAT,

15 L-A-N-G-U-E-D-O-C DASH R-O-U-S-S-I-L-L-O-N.

16 SO THIS WAS PUBLISHED IN 2001;

17 CORRECT?

18 A. YES.

19 Q. AND AGAIN, IT REPORTED AN ODDS RATIO

20 OF 2.0, DIDN'T IT?

21 A. YES. I HAD THAT IN MY TABLE AND
22 THAT WAS THE ONE STUDY THAT WAS STATISTICALLY
23 SIGNIFICANT.

24 YOU ARE TALKING ABOUT CASE CONTROL
25 STUDIES NOW AS OPPOSED TO COHORT STUDIES OF BENZENE?

26 Q. SO THIS WOULD GO ON THE LIST OF
27 STUDIES THAT SUPPORT THE EXISTANCE OF A CAUSAL
28 RELATIONSHIP?

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1 A. WELL, I DON'T KNOW IF I WOULD SAY
2 THAT IT SUPPORTS. IT SHOWS AN ASSOCIATION. IF
3 THERE WERE OTHER STUDIES THAT WOULD SHOW THE SAME
4 THING, THEN YOU MIGHT INFER A CAUSAL ASSOCIATION
5 WHERE WE DON'T SEE THAT.

6 Q. IT BROKE OUT SOME OF THE STATISTICS
7 IN TERMS OF NUMBER OF DAYS OF EXPOSURE, DIDN'T IT?

8 A. YES.

9 Q. FOR SOME REASON, THEY USED 810 DAYS
10 AS THE FLIP-FLOP POINT BETWEEN ONE GROUP AND THE
11 NEXT?

12 A. YES.

13 Q. AND FOR LESS THAN 810 DAYS, THE ODDS
14 RATIO WAS 1.7 WHICH WASN'T EVEN SIGNIFICANT, WAS IT?

15 A. EXCUSE ME, WHICH TABLE ARE YOU
16 REFERRING TO?

17 Q. LET ME GET YOU THE CITE.

18 A. I BELIEVE YOU ARE REFERRING TO TABLE

19 6 --

20 Q. TABLE 3.

21 A. OH, TABLE 3. OKAY.

22 Q. TABLE 3, CUMULATIVE IN THE MIDDLE,

23 CUMULATIVE NUMBER OF DAYS, THEY HAVE NEVER, LESS

24 THAN 810 DAYS, MORE THAN 810 DAYS.

25 A. YES.

26 Q. THEN THEY HAVE ODDS RATIOS?

27 A. YES.

28 Q. NEVER IS 1.0. LESS THAN 810 DAYS IS

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1 1.7. GREATER THAN 810 DAYS IS 5.7; CORRECT?

2 A. YES.

3 Q. THEY RUN A P-VALUE OF THAT OF .02?

4 A. AS I MENTIONED THIS STUDY IS A

5 STATISTICALLY SIGNIFICANT STUDY, YES. THAT'S WHAT I

6 HAVE IN MY TABLE.

7 Q. ALL RIGHT. NOW, THERE ARE --

8 STUDIES WE HAVE BEEN LOOKING AT HAVE BEEN STUDIES

9 THAT ARE INDIVIDUAL STUDIES RATHER THAN STUDIES THAT

10 HAVE ATTEMPTED TO GROUP TOGETHER AND LOOK AT MORE OF

11 THE LITERATURE AS A WHOLE. WOULD YOU AGREE?

12 A. WELL, WITH THE EXCEPTION OF THE

13 PETROLEUM WORKER STUDIES THAT HAD 19 DIFFERENT

14 STUDIES INCLUDED IN IT.

15 Q. WE WILL GET TO THAT, I PROMISE.

16 THE BRANDT, B-R-A-N-D-T, DID A

17 REVIEW ARTICLE IN 1987 TITLED "LEUKEMIA AND LYMPHOMA

18 RISKS DERIVED FROM SOLVENTS." CORRECT?

19 A. YES.

20 Q. AND HE, AS IS TYPICAL FOR A REVIEW
21 STUDY, HE REVIEWED THE VARIOUS STUDIES THAT HAD BEEN
22 PUBLISHED IN THE LITERATURE; RIGHT?

23 A. WELL, HE REVIEWED SOME OF THEM. I
24 AM NOT -- I DON'T KNOW WHAT VARIOUS STUDIES, WHETHER
25 OR NOT HE DID A COMPLETE REVIEW OR NOT.

26 Q. WELL, HE CONCLUDED THERE WAS AN
27 OCCUPATIONAL, THAT OCCUPATIONAL EXPOSURE TO ORGANIC
28 SOLVENTS IS ASSOCIATED WITH NON-HODGKIN'S LYMPHOMA,

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1 WITH THE ODDS RATIO OF 3.3; RIGHT?

2 A. THAT'S WHAT HE, THAT'S WHAT HE

3 CONCLUDED. AGAIN, I AM NOT, I AM NOT SURE. I DON'T

4 BELIEVE THAT THIS WAS AN INDIVIDUAL STUDY. AS YOU

5 SAID, THIS WAS A REVIEW ARTICLE.

6 Q. RIGHT.

7 A. SO I AM NOT EXACTLY SURE WHAT, WHAT

8 STUDY HE IS BASING THAT UPON.

9 Q. HE IS REVIEWING THE LITERATURE AND

10 COMING TO A CONCLUSION ABOUT WHAT HE SEES AS THE

11 STATE OF THE ART AS OF 1987; RIGHT?

12 A. RIGHT. AGAIN, AS I POINTED OUT MANY

13 TIMES, HE'S TALKING ABOUT ORGANIC SOLVENTS IN

14 GENERAL.

15 Q. AND HE MAKES A CONCLUSION THAT

16 ORGANIC SOLVENTS IN GENERAL ARE RELATED IN A

17 STATISTICALLY SIGNIFICANT WAY TO NON-HODGKIN'S

18 LYMPHOMA; RIGHT?

19 A. WELL, THAT'S WHAT HE SAYS ABOUT ALL

20 ORGANIC SOLVENTS, YES.

21 Q. OKAY. LET'S MOVE TO VINEIS, SPELLED

22 V-I-E-N-E-S. THE TITLE OF THIS "THE ROLE

23 OCCUPATIONAL EXPOSURE AND IMMUNODEFICIENCY IN B-CELL

24 MALIGNANCIES" PUBLISHED IN 1992.

25 YOU HAVE SEEN THIS BEFORE?

26 A. YES.

27 Q. ANOTHER REVIEW ARTICLE, THIS ONE

28 FROM AN ITALIAN?

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1 A. YES.

2 Q. AND HE CONCLUDES THAT THERE ARE
3 EXCESSES OF NON-HODGKIN'S LYMPHOMA THAT HAVE BEEN
4 OBSERVED IN POPULATIONS EXPOSED TO ORGANIC
5 SOLVENTS," THAT'S HIS CONCLUSION, ISN'T IT?

6 A. WELL, AGAIN, MOSTLY HE IS BASING IT
7 ON THE STUDIES THAT WE HAVE TALKED ABOUT. HE SAYS
8 UNDER "SOLVENTS," HE SAYS:

9 "ORGANIC SOLVENTS
10 COMPRISE A WIDE GROUP OF CHEMICALS
11 USED EXTENSIVELY IN INDUSTRIAL AND
12 AGRICULTURAL ACTIVITIES."

13 SO HE IS BASING THIS, AGAIN, ON --
14 HE IS NOT DIFFERENTIATING BETWEEN DIFFERENT KINDS OF
15 ORGANIC SOLVENTS.

16 Q. NEXT WE HAVE PEARCE.

17 THIS IS TITLED "INCREASING INCIDENCE
18 OF NON-HODGKIN'S LYMPHOMA, OCCUPATIONAL AND
19 ENVIRONMENTAL FACTORS," PUBLISHED IN 1992.

20 HE CONCLUDES:

21 "STUDIES HAVE FOUND AN

22 INCREASED RISK OF NON-HODGKIN'S

23 LYMPHOMA WITH WORK INVOLVING

24 EXPOSURE TO SOLVENTS OR RELATED

25 CHEMICALS."

26 THAT WAS HIS CONCLUSION; RIGHT?

27 A. WHERE ARE YOU READING FROM -- "OR

28 RELATED CHEMICALS"?

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1 Q. YES. YOU WILL FIND IT IN THE
2 ABSTRACT.

3 A. YES, YES. INVOLVING EXPOSURE TO
4 WOOD, SOLVENTS OR RELATED CHEMICALS.

5 Q. RIGHT. THAT'S HIS CONCLUSION ISN'T
6 IT?

7 A. THAT'S WHAT HE SAYS, YES.

8 Q. OKAY. I GATHER YOU DISAGREE WITH
9 HIM, DON'T YOU?

10 A. WELL, I DON'T KNOW. I HAVEN'T
11 REALLY READ THIS PAPER IN AWHILE SO I WOULD HAVE TO
12 BE ABLE TO READ IT OVER TO COMMENT ON HIS
13 CONCLUSION. BUT CERTAINLY I DISAGREE WITH HIM
14 RELATED TO PETROLEUM BASED SOLVENTS.

15 Q. LET'S LOOK AT A PAPER BY
16 WEISENBURGER.

17 DO YOU KNOW WHO DR. WEISENBURGER IS?

18 A. I HAVE READ HIS TESTIMONY, YES.

19 Q. DO YOU KNOW HE TESTIFIED IN THIS

20 CASE?

21 A. THAT'S WHAT I SAID. I READ HIS

22 TESTIMONY IN THIS CASE, YES.

23 Q. AND HE WROTE THIS ARTICLE TITLED

24 "EPIDEMIOLOGY OF NON-HODGKIN'S LYMPHOMA, RECENT

25 FINDINGS REGARDING AN EMERGING EPIDEMIC," PUBLISHED

26 IN 1994; CORRECT?

27 A. YES.

28 Q. AND HE CONCLUDES "STUDIES SUGGESTING

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1 AN ETIOLOGIC LINK." ETIOLOGIC MEANS CAUSAL; RIGHT?

2 A. I DON'T KNOW WHERE YOU ARE READING
3 FROM. EXCUSE ME.

4 Q. OKAY. LET ME -- OVER ON PAGE 21,
5 RIGHT-HAND COLUMN, BOTTOM.

6 HE STATES:

7 "EARLY STUDIES
8 SUGGESTING AN ETIOLOGIC LINK
9 BETWEEN SOLVENT AND OTHER CHEMICAL
10 EXPOSURES AND NON-HODGKIN'S
11 LYMPHOMA HAVE RECENTLY BEEN
12 CONFIRMED."

13 DID I READ THAT CORRECTLY?

14 A. YOU READ IT CORRECTLY.

15 Q. AND SO I GATHER THAT'S SOMETHING YOU
16 DISAGREE WITH; RIGHT?

17 A. WELL, I DISAGREE WITH IT RELATED TO
18 BENZENE AND TO PETROLEUM BASED SOLVENTS.

19 I MEAN, HE MENTIONS A LOT OF THINGS,

20 OTHER KINDS OF CHEMICALS. BUT LIKE I SAY, I

21 DISAGREE RELATED TO THE PETROLEUM BASED SOLVENTS.

22 Q. OKAY. LET'S GO BACK TO A SWEDISH

23 AUTHOR NAMED PERSSON, P-E-R-S-S-O-N, PUBLISHING IN

24 1996, THE TITLE IS "OCCUPATIONAL EXPOSURE AND

25 MALIGNANT LYMPHOMA."

26 THIS IS ANOTHER ONE OF THE SWEDISH

27 AUTHORS; RIGHT?

28 A. YES.

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1 Q. AND THIS IS A REVIEW ARTICLE WHERE
2 HE REVIEWS WHAT THE EVIDENCE IS WITH RESPECT TO
3 ORGANIC SOLVENTS AND OTHER KINDS OF OCCUPATIONAL
4 EXPOSURES AND MALIGNANT LYMPHOMA; CORRECT?

5 A. YES.

6 Q. AND HE CONCLUDES "THE RELATIONSHIP
7 BETWEEN SOLVENT EXPOSURE AND MALIGNANT LYMPHOMA HAS
8 BEEN OBSERVED IN A GREAT NUMBER OF STUDIES."

9 A. WELL, AGAIN, HE IS TALKING ABOUT ALL
10 ORGANIC SOLVENTS AND HE IS TALKING ABOUT ALL
11 LYMPHOMAS WHICH WOULD INCLUDE HODGKIN'S DISEASE, AS
12 WELL AS NON-HODGKIN'S LYMPHOMA.

13 SO WE HAVEN'T REALLY REVIEWED THOSE
14 STUDIES OF HODGKIN'S DISEASE FOR THIS PURPOSE.

15 Q. WOULD YOU AGREE THAT HE CONCLUDES
16 THAT EXPOSURE TO SOLVENTS PLAYS A ROLE IN THE
17 EPIDEMIOLOGY OF MALIGNANT LYMPHOMA?

18 A. WOULD I AGREE THAT HE SAYS THAT?

19 Q. YES.

20 A. YES, YOU READ IT CORRECTLY.

21 Q. OKAY.

22 AND LET'S GO BACK TO MR. REGO,

23 R-E-G-O.

24 MR. REGO, IN 1998, PUBLISHED A

25 REVIEW ARTICLE TITLED "NON-HODGKIN'S LYMPHOMA RISK

26 DERIVED FROM EXPOSURE TO ORGANIC SOLVENTS. A REVIEW

27 OF THE EPIDEMIOLOGIC STUDIES."

28 AND YOU HAVE READ THIS ARTICLE,

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1 HAVEN'T YOU?

2 A. YES.

3 Q. HE KIND OF SUMS UP THE STUDIES. HE
4 COUNTS THEM. HE SAYS: "25 OUT OF 45 POSITIVE
5 STUDIES," THAT'S 55.5 PERCENT, FROM '79 TO '97. AND
6 HE COUNTS UP A TOTAL OF 54 STATISTICALLY SIGNIFICANT
7 ASSOCIATIONS BETWEEN NON-HODGKIN'S LYMPHOMA AND
8 SOLVENT EXPOSURES.

9 THAT'S WHAT HE CONCLUDES, ISN'T IT?

10 A. THE 13, YOU ARE TALKING ABOUT, THE
11 72.2 PERCENT?

12 Q. WELL, LET'S GET TO THAT. HE ALSO
13 FINDS THAT IN 13 OUT OF 18 STUDIES, THAT'S 72
14 PERCENT, IN WHICH SOLVENT EXPOSURE WAS MORE
15 ACCURATELY DEFINED, SUGGESTED ORGANIC SOLVENTS AS A
16 RISK FACTOR FOR N.H.L.

17 MR. RIFF: EXCUSE ME. I BELIEVE THAT WAS
18 MISREAD.

19 THE COURT: WELL, GO AHEAD, MR. WAGNON.

20 THE WITNESS: WELL, I MEAN, I REMEMBER THIS,
21 WHAT THIS SORT OF BROAD-BASED REVIEW ARTICLE DID WAS
22 LOOK AT ALL SORTS OF OCCUPATIONS, LOOK AT ALL SORTS OF
23 CHEMICALS, INCLUDING SOME THAT I DON'T REALLY EVEN
24 CONSIDER SOLVENTS THAT WERE COMMINGLED WITH SOLVENT
25 EXPOSURES. AND WE HAVE BEEN THROUGH A NUMBER OF STUDIES
26 HERE THAT TALK ABOUT SOLVENTS.

27 AND SO HE IS SORT OF DOING THE SAME KIND
28 OF COUNTING EXERCISE IN WHICH HE IS COUNTING UP HOW MANY

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1 STUDIES THERE WERE THAT MIGHT HAVE FOUND A FINDING OF AN
2 INCREASED ASSOCIATION.

3 AND BUT, AGAIN, IT IS ALL ABOUT EITHER
4 OCCUPATIONS WHERE THERE'S SOME ROLE FOR ORGANIC SOLVENTS
5 BUT PEOPLE EXPOSED TO LOTS OF THINGS OR IT'S ABOUT ALL
6 ORGANIC SOLVENTS.

7 Q. SIR, ARE YOU FAMILIAR WITH THE CHIU
8 AN WEISENBURGER STUDIES PUBLISHED IN 2003 WHERE THEY
9 DID AN UPDATE OF THE EPIDEMIOLOGY IN NON-HODGKIN'S
10 LYMPHOMA?

11 A. REVIEW ARTICLE?

12 Q. YES.

13 A. I BELIEVE SO.

14 Q. AND THAT AGAIN CONCLUDED THAT
15 EXPOSURE, OCCUPATIONAL EXPOSURE TO SOLVENTS IS
16 ASSOCIATED WITH NON-HODGKIN'S LYMPHOMA, DIDN'T IT?

17 A. WELL, I DON'T RECALL THAT SPECIFIC
18 WORDING, BUT --

19 Q. OKAY. HOW ABOUT THIS ONE. YOU

20 REMEMBER THIS ONE, MEHLMAN, TITLED "CAUSAL
21 RELATIONSHIP BETWEEN NON-HODGKIN'S LYMPHOMA AND
22 EXPOSURE TO BENZENE AND BENZENE CONTAINING
23 SOLVENTS," PUBLISHED IN 2006?

24 A. WELL, I AM FAMILIAR WITH MYRON
25 MEHLMAN FROM LITIGATION CASES. IS THAT THE SAME ONE
26 YOU ARE TALKING ABOUT?

27 Q. WELL, HE CONCLUDES THAT A LARGE
28 NUMBER OF STUDIES HAVE SHOWN A SIGNIFICANT

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1 ASSOCIATION BETWEEN NON-HODGKIN'S LYMPHOMA AND
2 BENZENE OR BENZENE CONTAINING SOLVENTS, DOESN'T HE?

3 A. I'D HAVE TO SEE IT TO REMEMBER THE
4 WORDING.

5 WELL, IF HE IS TALKING ABOUT
6 PETROLEUM BASED SOLVENTS, I AM ASSUMING THAT THAT'S
7 WHAT HE MEANS BY --

8 Q. LET'S LOOK AT THE ABSTRACT.

9 HE SAYS:

10 "BASED ON AN ANALYSIS OF
11 THE LITERATURE AND THE WEIGHT OF
12 THE EVIDENCE FROM NUMEROUS STUDIES,
13 IT IS REASONABLE TO CONCLUDE THAT
14 EXPOSURE TO BENZENE OR TO SOLVENTS
15 OR PRODUCTS CONTAINING BENZENE IS
16 CAUSALLY RELATED TO NON-HODGKIN'S
17 LYMPHOMA."

18 THAT'S HIS CONCLUSION, ISN'T IT?

19 A. OH, YEAH. AND AGAIN, IT IS BASED

20 ON, LOOK AT TABLE 19, ALL THE OCCUPATIONS THAT HE IS
21 BASING IT. THIS UPON, THESE ARE PEOPLE WHO ARE
22 EXPOSED TO ALL SORTS OF THINGS. EXPLOSIVE MAKERS,
23 INK MAKERS, MIRROR SILVERERS, OIL CLOTH MAKERS. I
24 MEAN, AGAIN, I THINK THAT I JUST DON'T THINK THESE
25 PEOPLE HAVE BEEN CAREFUL IN TERMS OF REALLY LOOKING
26 AT JUST BENZENE AND PETROLEUM BASED SOLVENTS.

27 Q. SIR, THE -- YOU HAVE ALLUDED TO THE
28 STUDY BY WONG AND RAAB.

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1 A. THAT'S ONE OF A STUDY OF WORKERS AT,
2 PETROLEUM WORKERS; RIGHT? THEY WERE WORKERS AT
3 PETROLEUM REFINERIES, PRIMARILY.

4 Q. THAT IS PEOPLE WHO WERE EMPLOYED AT
5 A PETROLEUM REFINERY; CORRECT?

6 A. THAT'S CORRECT.

7 Q. AND DID YOU NOTICE, FIRST OF ALL,
8 HIS COAUTHOR, GERHARD RAAB, IT SAYS THAT HE IS, I
9 GUESS HE IS EMPLOYED BY THE EXXON MOBIL CORPORATION?

10 A. HE IS AN EPIDEMIOLOGIST WITH THEM,
11 YES.

12 Q. AND SO THIS WAS A STUDY OF PETROLEUM
13 WORKERS THAT WAS DONE, IN PART, BY SOMEBODY WHO
14 WORKS FOR THAT INDUSTRY; RIGHT?

15 A. THAT'S TRUE. YES.

16 Q. AND IN FACT, THE STUDY WAS SPONSORED
17 BY THE AMERICAN PETROLEUM INSTITUTE, WASN'T IT?

18 A. I BELIEVE SO, YES.

19 Q. NOW, YOU ARE FAMILIAR WITH THE

20 AMERICAN PETROLEUM INSTITUTE?

21 A. WELL, AS I MENTIONED, THEY SUPPORTED
22 THE WORK THAT I DID TO TRY TO FIGURE OUT WHAT THE
23 MECHANISM WAS BY WHICH BENZENE CAUSED ACUTE
24 MYELOGENOUS LEUKEMIA.

25 MR. WAGNON: YOUR HONOR, I WOULD REQUEST THAT
26 WE MARK AS EXHIBIT NEXT IN ORDER --

27 THE COURT: IT WOULD BE 132, I THINK -- I'M
28 SORRY, WE HAVE A 132. 133.

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1 /// /// ///

2 (EXHIBIT 133, DOCUMENT,
3 MARKED FOR I.D.)

4 ?

5 Q. BY MR. WAGNON: SIR, I WILL HAND YOU A
6 COPY OF THIS. FOR THE RECORD, EXHIBIT 132 IS AN A.P.I.
7 TOXICOLOGICAL REVIEW OF BENZENE DATED SEPTEMBER, 1948.

8 THE COURT: ALL RIGHT, IT MAY BE MARKED FOR
9 IDENTIFICATION.

10 Q. BY MR. WAGNON: SIR, YOU ARE AWARE THAT
11 IN 1948 THE AMERICAN PETROLEUM INSTITUTE PUBLISHED THIS
12 TOXICOLOGICAL REVIEW ON BENZENE?

13 A. YES.

14 Q. YOU HAVE SEEN THIS DOCUMENT BEFORE,
15 HAVEN'T YOU?

16 A. YES. IN FACT, I HAVE LOOKED AT IT
17 IN A LOT OF DETAIL AND LOOKED UP THE REFERENCES THAT
18 IT IS BASED UPON.

19 Q. YES. AND THE -- IF YOU WOULD TURN,

20 IF YOU WOULD, TO PAGE 4, IN THE BOTTOM OF THE

21 LEFT-HAND COLUMN THERE'S A TITLE "SAFE LIMITS."

22 DO YOU SEE THAT?

23 A. YES.

24 Q. AND THEY DESCRIBE THE -- WELL, THEY

25 REFER TO THE AMERICAN STANDARD ASSOCIATION AND MOST

26 STATES HAVE SET AN ARBITRARY LIMIT OF 100 P.P.M. AS

27 THE MAXIMUM PERMISSIBLE BENZENE CONCENTRATION FOR

28 WORKERS EXPOSED TO THIS SUBSTANCE DURING AN

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1 EIGHT-HOUR DAY. CORRECT?

2 A. YES.

3 Q. AND THEN THEY GO ON AND DESCRIBE

4 SOME OTHER STATES HAVE SET SOME LOWER LIMITS.

5 BUT I WANT TO READ YOU THIS SENTENCE

6 AND SEE IF YOU AGREE WITH THIS.

7 "INASMUCH AS THE BODY

8 DEVELOPS NO TOLERANCE TO BENZENE AN

9 AS THERE IS A WIDE VARIATION IN

10 INDIVIDUAL SUSCEPTIBILITY, IT IS

11 GENERALLY CONSIDERED THAT THE ONLY

12 ABSOLUTELY SAFE CONCENTRATION FOR

13 BENZENE IS ZERO."

14 DID I READ THAT CORRECTLY?

15 A. YES.

16 Q. THAT IS WHAT THE A.P.I.

17 TOXICOLOGICAL SURVEY REGARDING BENZENE SAID BACK IN

18 1948, ISN'T IT?

19 A. WELL, I DON'T KNOW WHO SAID IT BUT

20 THIS IS WHAT THIS DOCUMENT SAYS IN 1948.

21 Q. OKAY.

22 MR. WAGNON: THANK YOU, SIR. THAT'S ALL I

23 HAVE.

24 THE COURT: MR. RIFF.

25 MR. RIFF: HOW MUCH TIME WOULD I HAVE THIS

26 AFTERNOON WITH THIS WITNESS, YOUR HONOR, BEFORE YOU

27 BREAK FOR THE DAY?

28 THE COURT: WE MAY LOSE OUR STAFF. YOU CAN

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1 BRING HIM BACK TOMORROW. THAT'S FINE WITH ME.

2 MR. RIFF: WELL, I MEAN IT'S -- COULD WE

3 HUDDLE AT SIDE BAR.

4 THE COURT: SURE.

5

6 (THE FOLLOWING PROCEEDINGS

7 WERE HELD AT THE BENCH:)

8

9 THE COURT: YES, HOW MUCH HAVE YOU GOT? YOU

10 HAVE A HALF HOUR, HAVEN'T YOU IT?

11 MR. RIFF: YES, I HAVE MORE THAN THAT, AND I

12 DON'T WANT TO TRY TO JAM IT.

13 THE COURT: ALL RIGHT, WE WILL BRING THEM BACK

14 TOMORROW. THAT'S FINE.

15

16 (THE FOLLOWING PROCEEDINGS

17 WERE HELD IN OPEN COURT IN

18 THE PRESENCE OF THE JURY:)

19

20 THE COURT: OKAY, LADIES AND GENTLEMEN, WE ARE
21 GOING TO BREAK FOR THE AFTERNOON. LET ME TELL YOU WHAT
22 I ANTICIPATE TOMORROW AND COUNSEL WILL CORRECT ME AS
23 ALWAYS IF I AM WRONG.

24 I ANTICIPATE TOMORROW THAT WE WILL
25 FINISH WITH THIS WITNESS IN THE MORNING, HIGHLY LIKELY
26 BEFORE NOON, AND THEN I ANTICIPATE THAT OTHER THAN
27 ADMITTING EXHIBITS, THAT IS LIKELY TO BE THE END OF THE
28 EVIDENCE PRESENTATION.

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4102-4150

1 NOBODY HAS CORRECTED ME YET.

2 SO MY ANTICIPATION IS THAT WE WILL BREAK
3 BEFORE NOON AND THAT YOU THEN WILL COME BACK ON
4 WEDNESDAY FOR CLOSING ARGUMENTS.

5 COUNSEL AND I NEED SOME TIME TO FINALIZE
6 JURY INSTRUCTIONS WHICH ARE VERY IMPORTANT. THERE MAY
7 BE SOME MOTIONS I HAVE TO DEAL WITH SO COUNSEL AND I
8 WILL BE BUSY THE REST OF THE DAY TOMORROW.

9 BUT WE WILL BREAK FOR NOON, AT NOON AND
10 I KNOW I HAD A QUESTION FROM ONE OF OUR JURORS ABOUT
11 GETTING BACK FROM LUNCH A LITTLE BIT LATE TOMORROW. SO
12 THAT'S NOT GOING TO BE A PROBLEM BECAUSE WE WILL BREAK
13 BEFORE NOON. YOU WILL BE OFF IN THE AFTERNOON AND THEN
14 YOU WILL BE BACK ON WEDNESDAY MORNING FOR CLOSING
15 ARGUMENT.

16 OKAY?

17 SO FAR SO GOOD.

18 OKAY. VERY GOOD. SO WE WILL SEE YOU
19 BACK HERE TOMORROW MORNING AT 9 O'CLOCK.

20 REMEMBER, DON'T DISCUSS THE CASE AMONG
21 YOURSELVES OR WITH ANYONE ELSE AND DON'T FORM ANY
22 OPINIONS ON IT UNTIL IT IS SUBMITTED TO YOU RELATIVELY
23 SOON.

24 THANK YOU VERY MUCH.

25 (THE PROCEEDINGS IN THE ABOVE-
26 ENTITLED MATTER WERE CONTINUED TO
27 TUESDAY, OCTOBER 28TH, 2008 AT
9:00 A.M.)

28 (THE NEXT PAGE IS 4151)

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