STATE OF ALABAMA

WATER IMPROVEMENT COMMISSION

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Montgomery, AL 36130

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September 24, 1976

RECEIVED
SEP 28 1976
ENVIRONMENTAL HEALTH
ADMINISTRATION

Mr. William T. Willis, Director
Environmental Health Administration
Department of Public Health
State Office Building

Dear Mr. Willis:

I am enclosing a copy of the PCB analytical data from fish samples collected in Weiss Lake on September 7-8, 1976, and from Choccolocca Creek, Logan Martin areas on September 9, 1976.

As Mr. John Williford related to you by telephone, several corrections to the composite data were made by the Pesticide Residue Laboratory in the written report. As you will recall, Dr. Rex Richburg reported the tentative data to this office by telephone as he received it from the analyst.

You will also find enclosed for your information and use copies of PCB material extracted from Chemical Engineering News and the Atlanta Journal. These copies were forwarded to this office by Mr. Bill Adams, EPA in Athens, Georgia.

Yours very truly,

James W. Warr
Chief Administrative Officer
Water Improvement Commission

JWW/ssg

Encs.

MONS 211750

Science

High cancer rates among workers exposed to PCB's have been reported to the National Institute for Occupational Safety & Health by Mobil Oil. According to NIOSH, the Mobil data are the first from either animals or humans to suggest a correlation between exposure to polychlorinated biphenyls and increased skin and pancreatic cancers. Mobil reports that eight cancers developed between 1957 and 1975 among 92 R&D and refinery workers exposed for five or six years in the late 1940's and early 1950's to varying levels of Aroclor 1254, a mixture of PCB's. Of the eight cancers, three were malignant melanomas, or skin cancers, and two were cancers of the pancreas. NIOSH says that this is a significantly higher rate than would be expected in a population of that size.

The exact amount of DDT in meat doesn't seem to matter to rats. There were no differences in DDT retention for rats fed for 120 days with cooked beef containing amounts of the pesticide moderately above and below the FDA tolerance level of 5 ppm in rendered fat, according to Dr. Robert W. Rogers and coworkers at Mississippi State University. Other rats were fed meat with DDT added to double the original concentrations of 4.25 ppm and 7.55 ppm. Adding DDT increased its retention in rats, but toxicity effects measured by mixed function oxidases and formation of smooth endoplasmic reticulum in the liver did not always increase with increasing DDT. One reason may be cooking, which removes about half the DDT from beef, Rogers says.

There's ozone in Mars' atmosphere, say earth-bound scientists who have been studying the planet through telescopes. The group, which includes researchers from the National Oceanic & Atmospheric Administration, the Smithsonian Astrophysical Observatory, and France's National Center for Scientific Research, used powerful telescopes at Mt. Hopkins, Ariz., to detect the infrared radiance of excited oxygen molecules produced by the photochemical breakup of triatomic oxygen. Peak ozone concentrations occur at about 30 km altitude on Mars, the group believes.

Jupiter's hydrogen atmosphere may behave something like earth's atmosphere and something like the oceans. This is the conclusion of Dr. Gareth P. Williams of the National Oceanic & Atmospheric Administration, who applied a computer model of the earth's atmosphere to Jupiter. He found that it not only reproduced the patterns known to exist but provided new explanations of such visible features as the great red spot (a special type of large stationary eddy) and the horizontal stripes (jet streams traveling in opposite directions). It also revealed a four-year cycle in the transfer of heat (compared to earth's cycle of about a month).

An unmanned Soviet spacecraft, Luna 24, made a one- [illegible] moon's crust, placed the samples in airtight contain[er] and lifted off on Aug. 19 for return to earth. Landin[g] earth was scheduled for Aug. 22 within the U.S.S[R]

An electron spin resonance (ESR) spectroscopy source" has been set up by NIH with a $200,000 [grant] to the Medical College of Wisconsin, Milwaukee. purpose of the grant is to allow scientists from a[round] the U.S. to use ESR to study the role of paramag[netic] molecules in cellular chemistry and in the develop[ment] of various diseases. Wisconsin researchers al[ready] have used it to identify the presence of melan[in] amelanotic tumor, a type of malignant melanor[na] which melanin production is low.

Education

A new B.S. degree with a major in engineering chem[istry] is being offered this fall by the State University o[f] York, Stony Brook. The new major is sponsored by the chemistry and materials science depart[ments] and is aimed at students interested in solid chemistry and materials technology. The progra[m] cuses on modern industrial processes and is de[signed] to provide background in polymeric materials, conductor processing, modern technology and ronmental problems in industry, mineral resources biomedical materials application.

Technology

Generation of electric power using liquid fuels d[erived] from coal will be evaluated for economic and te[chnical] viability by five utility companies and Stone & W[ebster] Engineering Corp., which have joined to form the East Coal Utilization Program (NECUP). The $2 first phase of NECUP is due for completion by [end] of the year. Use of mixtures of oil with finely grou[nd] and processes that add hydrogen to coal under p[ressure] are among the operations to be reviewed. The fi[ve] companies are Boston Edison, Long Island L[ighting] New England Power, New England Gas & Elect[ric] Northeast Utilities.

Common clays can help catalyze complex ch[emical] reactions, say researchers at Michigan State Un[iversity] By binding catalytic materials to clay particle[s] researchers say they can dramatically increase [rate] of chemical reactions and limit the formation o[f] sirable side products. Clay particles consist of packed stacks of negatively charged silicate each less than 2 microns in diameter. Positively ions such as sodium and calcium generally a[re] wicked between the plates. Standard ion e[xchange] methods are used by the MSU scientists to rep[lace] naturally occurring ions with catalytic ions.

The impact of existing and proposed energy fac[ilities] the lower Ohio River basin will be studie[d] searchers at the state university [illegible]

MONS 211751

Liver Cancer, PCBs Linked

SEP 15 RECD

By MORTON MINTZ
The Washington Post

COLD SPRING HARBOR, N.Y. — A toxic industrial chemical that recently was found in the milk of 65 of 67 tested American nursing mothers was linked to liver cancer in humans Sunday by a leading Japanese scientist.

The chemical, polychlorinated biphenyls (PCBs), is believed to be present in the fatty tissue of nearly every person in the United States, Japan and possibly other industrialized countries.

The association of PCBs with human liver cancer — which is always fatal, generally within a few years — developed from an episode in which about 1,000 persons in Yusho, Japan, over a period of a few weeks in 1968 ate rice oil accidentally contaminated with a total of 0.5 to 1.0 grams of PCBs.

Varying but apparently extremely high amounts of PCBs ingested persisted in several of the victims' bodies. Many still report fatigue, headaches, fever, cough, numbness in the limbs, severe skin eruptions, and digestive and menstrual disorders. Some infants born to victims had PCBs in their tissues at birth, and also had severe skin discolorations.

PCBs, extremely stable chemicals, are used in electrical equipment, paints, printing ink, adhesives and other products. They have been used widely for 45 years but were not regarded as environmental contaminants until 1966.

Dr. Tjkashi Hirayama, a specialist in tracing the causes of human disease at the National Cancer Center Research Institute in Tokyo, told an international conference on cancer here that five of the Yusho victims died of liver cancer within five years after eating the contaminated

PCBS CANCER LINKED

Continued from Page 1A

compared with the expected rate of 31 per 100,000.

Hirayama, in an interview later, said that the association between PCBs and liver cancer was definite in two cases and possible or probably in the remaining three. The two definite cases alone translate into a rate six times higher than normal, while all five cases translate into a 16-fold higher incidence, he said.

Hirayama's presentation followed a report by pathologist James R. Allen of the University of Wisconsin, who warned that "any level" of human exposure to PCBs "may be injurious to human health."

The Yusho rates — reinforced by data on brain changes in monkeys and other adverse effects in animals cited by Allen — suggest a "high possibility" that PCBs caused the liver cancers, Hirayama said.

As for the hundreds of millions of persons who have ingested much smaller amounts of PCBs, mainly in their food, Hirayama said, "I am concerned about the implications for people everywhere . . . . There is no question the problem is serious."

Although Hirayama previously had reported the liver cancer risk calculations in Japan, they came as a surprise to several attending scientists who specialize in causes of environmental cancer.

Exposed to this "severe toxicity," Allen said, their breast-fed infants developed skin discoloration, acne, loss of eyelashes, and swelling and congestion of the eyelids.

The infants improved when weaned from milk containing PCBs, but Allen said, a 1975 study showed that "behavioral and learning deficits" had persisted for at least a year and may still continue.

Allen recalled that the first indication that PCB may be linked to cancer came from a Japanese study in mice in 1972. In a study of rats reported in 1973, 92 per cent of PCB-fed rats developed apparently malignant liver growths.

Not yet knowing of Hirayama's calculations of the human liver cancer increase at Yusho, Allen based his concern that PCBs may be carcinogens on animal data, saying: "There are only suggestions that a higher incidence of cancer occurs in persons exposed to PCBs."

Hirayama's disclosure "is one of the most worrisome sets of data that we have recently seen," said Dr. Irwin J. Selikoff of the Mount Sinai School of Medicine in New York City.

The Environmental Protection Agency recently reported that PCBs had been found in tests of milk of mothers who live in 19 states. EPA and Department of Health, Education and Welfare officials have set Sept. 23 for a meeting with obstetricians and pediatricians about how to [illegible]

MONS 211752

ALABAMA DEPARTMENT OF AGRICULTURE AND INDUSTRIES

PESTICIDE RESIDUE LABORATORY DIVISION

HIGHWAY 29 AT DONAHUE DRIVE

P. O. BOX 370

AUBURN, ALABAMA 36830

Phone 821-2300

HOWELL AN LANE
COMMISSIONER

REX N. RICHBURG
DIRECTOR

TO: Name: Mr. John Williford Address: Water Improvement Commission

City: Montgomery State: AL Zip:

llected	County	District	Processor	Reported	Residue Signifi cance
9-7-76	3	III	999	9-17-76	
mple No. b. Field	Product	Route or Batch	Pesticide Found	Findings PPM	Code Reverse
R-10202	794-Fish & Wildlife	Above Dam Sample #1	PCB	4.21 ppm	1
R-10203	794-Fish & Wildlife	Above Dam Sample #2	PCB	4.21 ppm	1
R-10204	794-Fish & Wildlife	Above Dam #4	PCB	4.21 ppm	1
R-10205	794-Fish & Wildlife	Above Dam #9	PCB	2.93 ppm	1
R-10206	794-Fish & Wildlife	Above Dam #11	PCB	2.93 ppm	1
R-10207	794-Fish & Wildlife	Above Dam #12	PCB	2.93 ppm	1
R-10208	794-Fish & Wildlife	Above Dam #13 9/7	PCB	3.14 ppm	1
R-10209	794-Fish & Wildlife	Above Dam #15 9/7	PCB	3.14 ppm	1
R-10210	794-Fish & Wildlife	Near Water Intake #19 9/7	PCB	2.39 ppm	1
R-10211	794-Fish & Wildlife	Near Water Intake #20 9/7	PCB	2.39 ppm	

REMARKS:

*Less than .01 ppm

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SEP 20 1976

WATER IMPROVEMENT COMMISSION

Sample Technician

Chemist

Director

MONS 211753

ALABAMA DEPARTMENT OF AGRICULTURE AND INDUSTRIES
PESTICIDE RESIDUE LABORATORY DIVISION
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Phone 821-2300
MILLAN LANE, COMMISSIONER
REX H. RICHBURG, DIRECTOR

Name: Mr. John Williford Address: Water Improvement Commission

City: Montgomery State: AL Zip:

ed	County	District	Processor	Reported	Residue Signifi-
76	3	III	999	9-17-76	cance
No. Field	Product	Route or Batch	Pesricide Found	Findings PPM	Code Reverse S
212	794-Fish & Wildlife	Near Water Intake #27 9/7	PCB	2.39 ppm	1
213	794-Fish & Wildlife	Near Water Intake #28 9/7	PCB	3.44 ppm	1
214	794-Fish & Wildlife	Near Water Intake #29 9/7	PCB	3.44 ppm	1
215	794-Fish & Wildlife	Near Water Intake #30 9/7	PCB	3.44 ppm	1
216	794-Fish & Wildlife	Near Water Intake #31 9/7	PCB	14.67 ppm	3A
217	794-Fish & Wildlife	Near Water Intake #32 9/7	PCB	14.67 ppm	3A
218	794-Fish & Wildlife	Coosa River 9/7 Ala./Ga. State line #33	PCB	1.75 ppm	1
219	794-Fish & Wildlife	Coosa River 9/7 Ala./Ga. State line #35	PCB	1.75 ppm	1
220	794-Fish & Wildlife	Coosa River 9/7 Ala./Ga. State line #37	PCB	1.75 ppm	1

RKS:

Sample Technician

Chemist

Director

s than .01 ppm

MONS 211754

ALABAMA DEPARTMENT OF AGRICULTURE AND INDUSTRIES

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ALLAN LANE
COMMISSIONER

REX W. RICHBURG
DIRECTOR

Name: Mr. John Williford Address: Water Improvement Commission

City: Montgomery State: AL Zip:

rd 6	County 3	District III	Processor 999	Reported 9-17-76	Residue Signifi-cance
lo. Field	Product	Route or Batch	Pesticide Found	Findings PPM	Code Reverse Si
21	794-Fish & Wildlife	Coosa River 9/7 Ala./Ga. State line #37	PCB	1.75 ppm	1
12	794-Fish & Wildlife	Coosa River 9/7 Ala./Ga. State line #39	PCB	1.75 ppm	1
3	794-Fish & Wildlife	Ala./Ga. State line #40 Coosa River 9/7	PCB	1.75 ppm	1
4	794-Fish & Wildlife	Coosa River 9/7 Ala./Ga. State line #41	PCB	4.78 ppm	2A
5	794-Fish & Wildlife	Coosa River 9/7 Ala. Ga. State line #42	PCB	4.78 ppm	2A
6	794-Fish & Wildlife	Coosa River 9/7 Ala./Ga. State line #43	PCB	4.78 ppm	2A
7	794-Fish & Wildlife	Coosa River Ala./Ga. State Line #44	PCB	40.25 ppm	3A

ian .01 ppm

Sample Technician

Chemist

Director

MONS 211755

ALABAMA DEPARTMENT OF AGRICULTURE AND INDUSTRIES

PESTICIDE RESIDUE LABORATORY DIVISION

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MCMILLAN LANE
COMMISSIONER

REX H. RICHBURG
DIRECTOR

TO: Name: John Williford Address: Water Improvement Commission

City: Montgomery State: AL Zip:

llected	County	District	Processor	Reported	Residue Significance
9-9-76	3	III	999	9-17-76	
mple No. b. Field	Product	Route or Batch	Pesticide Found	Findings PPM	Code Revers
R-10238	794-Fish & Wildlife	Choccolocca Creek Largemouth Bass #1	PCB	.519 ppm	1
R-10239	794-Fish & Wildlife	Largemouth Bass #2	PCB	.519 ppm	1
R-10240	794-Fish & Wildlife	Largemouth Bass #5	PCB	.519 ppm	1
R-10241	794-Fish & Wildlife	Choccolocca Spotted Sucker #10	PCB	.756 ppm	1
R-10242	794-Fish & Wildlife	Choccolocca Red-tail Blackhorse #11	PCB	.756 ppm	1
R-10243	794-Fish & Wildlife	Logan-Martin Lake near Dam Largemouth Bass #12	PCB	1.028 ppm	1
R-10244	794-Fish & Wildlife	Logan-Martin Lake-Largemouth Bass #14	PCB	1.028 ppm	1
R-10245	794-Fish & Wildlife	Logan Martin Largemouth Bass #15	PCB	1.028 ppm	1

REMARKS:

*Less than .01 ppm

Sample Technician

Chemist

Director

MONS 211756

ALABAMA DEPARTMENT OF AGRICULTURE AND INDUSTRIES

PESTICIDE RESIDUE LABORATORY DIVISION

HIGHWAY 29 AT DONAHUE DRIVE

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AUBURN, ALABAMA - 36830

MCMILLAN LANE
COMMISSIONER

REX T. RICHARDS
DIRECTOR

TO: Name: John Williford Address: Water Improvement Commission

City: Montgomery State: AL Zip:

Ilected	County	District	Processor	Reported	Residue Signifi cance
9-9-76	3	III	999	9-17-76	
mple No. b. Field	Product	Route or Batch	Pesticide Found	Findings PPM	Court Reverse
R-10246	794-Fish & Wildlife	Logan Martin Carp #20	PCB	.977 ppm	1
R-10247	794-Fish & Wildlife	Logan Martin Carp #21	PCB	.977 ppm	1
R-10248	794-Fish & Wildlife	Logan Martin Carp #22	PCB	.977 ppm	1

EMARKS:

Sample Technic...

Chemist

Director

'Less than .01 ppm

MONS 211757

Category 1 - This level of residue from detectable levels to caution levels (80% of EPA tolerance) is not considered to be a residue problem.

Category 2 - Caution Levels

2A - This level of residue finding is less than EPA tolerance but more than 80% of established EPA tolerance level for food intended for human consumption. Steps should be taken to avoid further increases in residue levels.

2B - This level of residue is too high to be fed for long periods of time to dairy animals, to do so may cause excessive residue in milk.

2C - The level of residue in this feed is too high to be fed for long periods of time to dairy animals or animals intended for slaughter. Such practice may cause excessive residue in milk or fat of the animals.

2D - The level of residue in this water sample is above that recommended for fisheries use, but is not high enough to endanger cattle.

2E - The level of residue in this sample of well water is above the desirable level for public water supply. (From Federal Water Quality Administration)

The residue finding in this feed component indicates it should be used with Caution:

2F - The finished feed should not contain more than 80% of this component.

2G - The finished feed should not contain more than 50% of this component.

2H - The finished feed should not contain more than 25% of this component.

2I - The finished feed should not contain more than 10% of this component.

2J - The finished feed should not contain more than 5% of this component.

Category 3 - Warning Levels

3A - This level of residue is above EPA established tolerance for food intended for human consumption.

3B - This level of residue in feed is too high to be fed to dairy animals or animals intended for slaughter.

3C - The residue finding in this feed component indicates it should not be used for feed manufacturing.

Category 4 - Danger Levels

4A - The level of residue found in this sample of water is high enough to endange fish and other aquatic life, but is not high enough to endanger cattle.

4B - The level of pesticide residue found in this sample is high enough to endang wildlife, humans or other animals consuming it.

Category 5 - No tolerance date available for pesticide residue found in product submitted for testing.

MONS 211758