

## The Inside Story

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## Introduction

[Anniston's PCBs in the press](#)

The story of Anniston is a cautionary tale. Monsanto's internal documents, many of which are being posted here for the first time for the world to finally see, uncover a shocking story of corporate deception and dangerous secrets. As *The Washington Post* revealed [[Monsanto Hid Decades of Pollution](#)] (front page, Jan. 1, 2002) and "[In Dirt, Water and Hogs, Town Got Its Fill of PCBs](#)" (Jan. 1, 2002).], Monsanto hid its advanced knowledge of the health effects and vast PCB pollution problems from the public and - most importantly - from its closest neighbors, the people of Anniston. While the documents provide a glimpse into Monsanto's corporate culture, a spokesperson for a Monsanto spin-off corporation, Solutia, has repeatedly asserted that the company is "really pretty proud of what we did" and that Monsanto "did what any company would do, even today."

The Monsanto-Solutia public relations propaganda being used to counter these revelations is replete with assertions that press coverage has been unfair, based on comments from its documents "taken out of context."

Now, the world can read the story of Anniston, in context, and in Monsanto's own words.

The Monsanto documents posted on this website surfaced from a series of lawsuits brought by Anniston residents, including *Owens v. Monsanto*, 96-CV-440, (N.D. Ala.). The *Owens* case settled in April 2001 for \$43 million dollars. The current case *Abernathy v. Monsanto*, CV-2001-832, Etowah County Circuit Court, is in trial now. Besides questions of who will pay to clean up Anniston, these court cases, and the documents emerging from them, raise a more contemporary question:

If Monsanto hid what it knew about its toxic pollution for decades, what is the company hiding from the public now?

This question seems particularly important to us as this powerful company asks the world to trust it with a worldwide, high-stakes gamble with the environmental consequences of its genetically modified organisms.

## Anniston In-depth

- [Monsanto knew about PCB toxicity for decades](#)
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## MONSANTO KNEW ABOUT PCB TOXICITY FOR DECADES

[Anniston's PCBs in the press](#)

Monsanto's defense of its actions surrounding PCBs can best be summarized this way: the company claims it didn't know that PCBs were harmful to human health or persistent in the environment until the late 1960s, and as soon as the company learned of these threats, it acted quickly and responsibly to address the problem in a cooperative, forthright manner with the government.

"And the truth is that in 1966 when we found out that PCBs were in the environment, we started an investigation journey and we tried to gather information and we acted responsibly." [Trial Transcript, *Owens v. Monsanto* CV-96-J-440-E, (N.D. Alabama April 4, 2001), pg. 454, line 6]

...

"when Monsanto learned that PCBs could possibly be in the environment, it acted promptly and responsibly and continues to do so." [Trial Transcript, *Owens v. Monsanto* CV-96-J-440-E, (N.D. Alabama April 4, 2001), pg. 455, line 14]

But as the company's own documents show, Monsanto went to extraordinary efforts to keep the public in the dark about PCBs, and even manipulated scientific studies by urging scientists to change their conclusions to downplay the risks of PCB exposure. Monsanto's conduct, throughout the entire period that the company made PCBs, was less than commendable. Their attempts today to backpedal on the science and shirk responsibility for the global saturation of PCBs is equally discouraging, as are their repeated attempts to "green" their image with flashy, expensive PR campaigns.

Today Monsanto does not deny that everyone is contaminated with PCBs. They argue instead that since they have contaminated the entire planet they are innocent of all liability. In Monsanto's opening statement to the court in the trial of *Owens v. Monsanto* on April 4, 2001, the company's lawyers acknowledged only one health threat posed by exposure to PCBs: chloracne, a serious skin condition. According to the lead attorney for Monsanto, defending the company against allegations that its PCB pollution poses a health threat to residents living near its Anniston, AL chemical plant,

"The truth is that PCBs are everywhere. They are in meat, they are in everyone in the courtroom, they are everywhere and they have been for a long time, along with a host of other substances. The truth is that the men and women who have worked around PCBs the most over forty, fifty, sixty years, people in our plant, people in the electrical industry, have not experienced any significant health problems which can be associated or tied into or caused by PCBs other than a serious skin condition called chloracne, which is easily treatable." [Trial Transcript, *Owens v. Monsanto* CV-96-J-440-E, (N.D. Alabama April 4, 2001), pg. 453, line 16]

In making these arguments, Monsanto is ignoring the growing evidence that PCBs are quite capable of causing harm to the human body. Following in their predecessor's footsteps, a spokesperson for Solutia, the company created by Monsanto to assume control over (and liability for) its chemical operations, told Chemical Week in June 2000: "The overwhelming weight of scientific evidence suggests there are no chronic human health effects associated with exposure to PCBs." Government and independent scientists and public health agencies have concluded otherwise. Both the U.S. Environmental Protection Agency (EPA) and the International Agency for Research on

Cancer (IARC) have concluded that PCBs are probably carcinogenic to humans (U.S. EPA 1996; IARC 1978, 1987). The Agency for Toxic Substances and Disease Registry (ATSDR) also suspects that PCBs accumulating in the human body as a result of fish consumption may be causing "developmental deficits and neurological problems in children." ([ATSDR http://www.atsdr.cdc.gov/DT/pcb007.html](http://www.atsdr.cdc.gov/DT/pcb007.html))

Other studies on health effects associated with PCB exposure indicate neurotoxicity, reproductive and developmental toxicity, immune system suppression, liver damage, skin irritation, and endocrine disruption (Cogliano 1998; Browner testimony 1998; U.S. EPA 1996; Rice 1995).

Available data on the toxicity and persistence of PCBs prompted the global community of nations to include PCBs in the "Dirty Dozen" chemicals being banned by U.N. convention through the Persistent Organic Pollutant or "POPs" Treaty, signed by President Bush.

As the world came to consensus on the hazards of PCBs, Monsanto made no effort to inform the residents of Anniston of the extent of contamination in their community. A 1975 memo from a Monsanto employee to company officials reveals:

"We have no information relating to the effects of PCBs on the people in the areas surrounding our producing facility. We have no programs underway at present to study these effects." [Papageorge to Potter; December 24, 1975]

### **"The World's Best Reference File" on PCBs**

Besides ignoring mainstream scientific consensus and downplaying a significant skin disease, Monsanto has routinely displayed a capacity to ignore its own science, which decades ago documented an array of health effects. Most noteworthy is a correlation between PCB exposure and liver damage, which Monsanto learned about in 1938 and repeatedly mentioned in its internal communications and in warnings to some of its customers. Monsanto wouldn't have to go any further than its own file cabinets and libraries to find documentation of the toxic effects of PCBs.

One memo in particular describes the fact that Monsanto believed it had the most comprehensive collection of information on PCBs in the world.

"I can say that we have probably the world's best reference file on the PCB situation. This includes reprints from the literature beginning in 1936 to reports issued last week." [Wheeler to Don Otto; August 6, 1971]

### **As PCBs are found increasingly hazardous, safety precautions for workers are dropped**

As early as 1937, Monsanto knew that repeated contact with PCBs, also referred to by their brand name Aroclors, could lead to "systemic toxic effects" including "an acne-form skin eruption." [L.A. Watt; October 11, 1937]

The following year, Monsanto learned that test animals exposed to PCBs developed liver damage, according to Dr. Cecil Drinker, who wrote a "Report to the Monsanto Chemical Company" about his findings in 1938. ["[Report to the Monsanto Chemical Company](#)" by Drinker]

Dr. Drinker published his findings in [The Journal of Industrial Hygiene and Toxicology](#) in 1939. In response to a 1947 inquiry from one of its Aroclor customers about possible liver damage, Monsanto referred the customer to Dr. Drinker's published work, promoting it as the best information available on the subject:

"The best published information about the toxicity of Aroclor vapors with reference to possible damage to the liver is in a series of three articles written for the [Journal of Industrial Hygiene and Toxicology](#)...

We particularly wish to refer you to this article entitled, "Further Observations on the Possible Systemic Toxicity of Certain of the Chlorinated Hydrocarbons with Suggestions for Permissible Concentrations in the Air of Workrooms," by Cecil K. Drinker, [The Journal of Industrial Hygiene and](#)

Toxicology, Vol. 21, No. 5, May, 1939." [Monsanto to Celanese; December 30, 1947 ]

At the conclusion of this letter highlighting Drinker's findings and praising it as the most accurate available science on PCBs, Monsanto wrote to a customer that:

"Based on our practical experience in the manufacture and sale of millions of pounds of Aroclors annually, the point that we would emphasize is that workers should not be exposed to Aroclor vapors and that the men working with Aroclors should observe "good housekeeping" rules about keeping their clothing and skins free of the material and avoid ingestion of it."  
[Monsanto to Celanese; December 30, 1947]

A memo from November 1950 which was sent to Monsanto offices in Anniston, St. Louis (headquarters), London and Newport, England (another PCB production facility) discussed the safety considerations and health issues pertaining to workers in the Aroclor plants. The memo reveals:

"For a time the Aroclor operators had to bathe on leaving work and a change of work clothing was provided, but this practice was discontinued."  
[E. Mather November 1950, Process for the manufacture of diphenyl and santowax].

An undated document entitled "The Handling of Aroclors (Chlorinated Diphenyl)" included a paragraph on this subject:

"Personal cleanliness is of utmost importance. Work clothes should be changed daily and must not be worn away from the plant. Before changing to street clothes at the end of the day the workmen should bathe with plenty of soap and warm water. Neglect of these simple precautions may result in skin infections, ill health, discomfort, inefficiency and loss of time."  
[The Handling of Aroclors]

The document "Process for the Production of Aroclors, Pyranols, Etc. at the Anniston and at the WM. G. Krummrich Plant" from April 1955 explains that (Note: The Krummrich Plant in Sauget, IL, was Monsanto's other PCB production besides Anniston):

"From the start of Aroclor manufacture at the Krummrich plant the operators have been supplied a clean change of clothes every day, and time has been allowed at the end of the shift for bathing. Operators are advised to wash hands and face before eating. The Anniston operators do not have the same issue of clean clothes." [Process for the Production of Aroclors, Pyranols, Etc. at the Anniston and at the WM. G. Krummrich Plant by E. Mather; April 1955]

This document further states that:

"At Anniston, no special protective clothing is provided for the Diphenyl and Aroclors operators. A daily change of clothing was provided in the past but this practice ceased before the war... the men are expected to take a bath, in their own time, at the end of the shift." [Process for the Production of Aroclors, Pyranols, Etc. at the Anniston and at the WM. G. Krummrich Plant by E. Mather; April 1955]

This document also mentions that there had been an accident in Monsanto's UK PCB plant:

"Newport plant report for December 1951 records burns by hot Aroclor-a case of a splash into a man's eye-without serious damage." [Process for the Production of Aroclors, Pyranols, Etc. at the Anniston and at the WM. G. Krummrich Plant by E. Mather; April 1955]

In a 1949 inter-office memo, M.N. Strachan of Monsanto wrote to his colleague, Dr. J.W. Barrett, about the company's published information regarding Aroclor toxicity:

"As far as I know, we only publish one technical service bulletin on Aroclors

(G2) and this states: 'Toxicity- Prolonged exposure to AROCLOR vapours will lead to systemic toxic effects. ... acne form skin eruptions... Toxic effects will follow considerable oral ingestion, but this hazard is unlikely to be encountered.' [Strachan to Barrett, 30.8.49 Aroclor Toxicity Summary of References]

A letter dated February 14, 1950 from a Monsanto doctor to the Indiana Board of Health describes a situation in a Brazil, Indiana plant where workers exposed to PCBs had experienced health problems, and it shows that Monsanto was well aware of potential liver problems related to chronic high-level exposure.

"Upon hearing of the illness, one of our development engineers went to the plant and gave his recommendations, and then I called the plant physician to try to obtain some idea of what the illnesses were. As far as I could determine, two men suffered from gastrointestinal upset. I suspected the possibility that the Aroclor fumes might have caused liver damage, but was unable to obtain this information over the phone." [Kelly MD to Indiana State Board of Health regarding Brazil, Indiana workers sickened by aroclors]

A memo from 1952 concerning an agreement between the U.S. Public Health Service and the manufacturers of chlorinated hydrocarbons (which include PCBs) about labeling requirements reveals an astonishing use of one the company's most toxic PCBs, which Monsanto referred to as "the prize application." The memo also referenced cases of chloracne and even deaths associated with exposure to PCBs among workers; and cases of workers' wives developing skin problems carried home on clothing:

"Back in 1938 or thereabouts, when the Aroclor applications were relatively few and the customers about equally few, there was indeed the prize application of using Aroclor 1254 as a chewing gum plasticizer. The wording of our label would not be compatible with this sort of thing."

"While the toxicity hazard of Aroclor's fumes is well established and should be thoroughly understood by all, yet, as we go along we find that we are always confronted with violations in one degree or another, and indeed, regard keeping in touch with these things to be a major responsibility in the promotion of Aroclors."

"Referring to the few deaths and the relatively large number of acne or dermatitis cases arising during the war, in connection with fabricators of Navy cable coating materials using a mixture of Aroclor 4465 and Halowax, there are two things to keep in mind. One is that this combination of chlorinated hydrocarbons is more toxic than the chlorinated biphenyl or terphenyls alone; and secondly, in this program of operations, proper working facilities and cleanliness were overlooked. In fact, the workers' wives at home even acquired acne and dermatitis which was traced back to the halogenated hydrocarbon compounds." [P.G. Benignus to T.K. Smith; February 29, 1952]

A document dated September 1, 1953 begins by stating:

"As I am sure you know, Aroclors cannot be considered nontoxic." [Wheeler to Mather; September 1, 1953]

The same document concludes by explaining that Monsanto was worried about the use of Aroclors in paints that might be used in unventilated areas.

"As you indicated, we are watching the use of the Aroclors as plasticizers in emulsion paints. We do not recommend that they be used in paints which might be applied in confined or unventilated areas, particularly if the paints might be used on heated surfaces. As you stated, this is a case of worrying about the exposure of painters who might apply such materials day in and day out rather than the worrying about those who might occupy the room during or shortly after the paint has been applied." [Wheeler to Mather; September 1, 1953]

In 1954, a memo from Monsanto Medical Department's Dr. Emmet Kelly to Dr. N.R. Newman in Monsanto's Newport, England plant explained that:

"What we were really worrying about was the possibility that a man would develop hepatitis on an idiopathic, viral, or serum basis and on questioning would recall that he had painted a room with Aroclor paint and state that he had smelled it very strongly. I am afraid that we might be convicted by association even though we were sure one could not get a level high enough to cause trouble. We have, however, been concerned with the level of Aroclor during spray painting, but I think that level can only be determined by actual measurements.

Please do not worry about asking me these questions because we certainly want you to have the entire picture about Aroclor toxicity." [Kelly to Newman; February 12, 1954]

Also in 1954, Monsanto learned that one of its customers had had a serious problem with workers' health because of Aroclor exposure in its plant. Skin problems developed even after "continuous mild exposure."

"Lesions of chloracne developed in seven workers employed in an organic acid manufacturing plant when Aroclor was used..... An unusual feature of this out break of dermatitis was the long period of exposure before any cases were recognised. Sudden recognition of seven cases after 19 months was a result of the especially careful examination of the exposed employees after discovery of the first case. Of 14 exposed or potentially exposed, seven developed chloracne. The fact that air tests, even in the presence of vapors, showed only negligible amounts of chlorinated hydrocarbons indicates that this type of intermittent but fairly long continued mild exposure is not innocuous." [1954 Seven Workers Develop Chloracne in Plant Using Aroclor]

Indeed, even decades after these documents were written, Monsanto continued to hear of problematic exposures to workers in its customers' plants. As a 1976 memo from a Monsanto doctor explains, the chloracne and liver problems remained a serious issue in the workplace even then:

"I told him that his primary concern must be the possibility of chloracne and that I would do liver function studies on these workers in their periodic examinations. I told him that the most important study he could do was to get an analysis of the PCB content in the air and to instruct the workers to wear gloves when there was a chance of skin contact with PCB's." [Roush to Weber re: phone call from J.J. Kelly of Transformer Consultants in Akron, Ohio; September 10, 1976]

Furthermore, while Monsanto downplays its severity today, chloracne is a rare acne-like condition caused only by exposure to toxic chemicals. [Chloracne Pictures]. In contrast to Monsanto's blithe courtroom claim that the condition is "easily treatable," there is ample evidence that chloracne is resistant to usual acne treatments, leaves ugly scars, and in serious cases it can persist for decades after symptoms first appear. One study revealed that chloracne was still present in some workers 30 years after the original exposure. (Moses, 1984)

### **Monsanto's MD Questions Need for Safety Studies**

In 1955, Monsanto's Medical Director, Dr. Emmet Kelly, wrote an internal memo which chastises a colleague for wanting to study Aroclor exposure problems in the workplace more extensively:

"I don't know how you would get any particular advantage in doing more work. What is it that you want to prove?"

Further down the memo states:

"MCC's position can be summarized in this fashion. We know Aroclors are toxic but the actual limit has not been precisely defined. It does not make

too much difference, it seems to me, because our main worry is what will happen if an individual develops [sic] any type of liver disease and gives a history of Aroclor exposure. I am sure the juries would not pay a great deal of attention to MACs.

We, therefore, review every new Aroclor use.... if it is an industrial application... we are much more liberal in the use of Aroclor. If, however, it is distributed to householders where it can be used in almost any shape and form and we are never able to know how much of the concentration they are exposed to, we are much more strict. No amount of toxicity testing will obviate this last dilemma and therefore I do not believe any more testing would be justified." [Letter from Dr. Kelly to Dr. Barrett Re: Aroclor Toxicity; September 20, 1955]

### **No Eating in the Aroclor Department**

Also in 1955, Monsanto announced its opinion that workers should not eat lunch in the Aroclor department. The document indicates that:

"It is the opinion of the Medical Department that the eating of lunches should not be allowed in this department.... early literature work claimed that chlorinated biphenyls were quite toxic materials by ingestion or inhalation. In any case where a workman claimed physical harm from any contaminated food, it would be extremely difficult on the basis of past literature reports to counter such claims." [J.T. Garrett to H.B. Patrick; November 14, 1955]

### **The Navy Rejects Monsanto's PCBs: "Just too toxic for use"**

In 1956, the U.S. Navy considered using one of Monsanto's products which contained PCBs, called Pydraul 150, as a hydraulic fluid in Navy submarines. But after conducting their own toxicity tests, which showed that skin applications of Pydraul 150 killed all rabbits tested and that a statistical model on inhalation of Pydraul 150 indicated "definite liver damage," the Navy decided not to use Monsanto's product due to its potentially harmful effects. In Dr. Kelly's own words:

"No matter how we discussed the situation, it was impossible to change their thinking that Pydraul 150 is just too toxic for use in a submarine." [Kelly to Armstrong; January 21, 1957]

The Navy's decision to do its own toxicity tests, despite having been supplied Monsanto's tests, greatly bothered a member of Monsanto's Medical Department, Elmer Wheeler, who wrote on December 26, 1956 to a Monsanto colleague in Washington, D.C.:

"Out of all of this it appears quite certain that in the future we will not spend one nickel to develop toxicity data on hydraulic fluids for the Navy. We will continue to get information to satisfy ourselves that the use of our fluids is safe under any normal foreseeable conditions. This is generally enough to satisfy non-military customers. If the Navy has interest in any of these fluids and wishes to accept them toxicity wise on the information available, they are welcome to do so. If the fluids are not acceptable toxicity wise on the basis of such data, then perhaps we can save a lot of time and effort by advising the Navy to look elsewhere for their requirements.

In spite of the tone of the above memo, Emmet [Dr. Kelly] and I wish you the happiest of New Years!" [Wheeler to Sido; December 26, 1956]

Nine months later, Mr. Wheeler wrote the following to another colleague:

"The Navy convinced us that they would not accept Pydraul 150 and probably no other fluid containing chlorine or chlorinated diphenyls. We have not attempted to dissuade [the Navy representative] since it appears to be hopeless. Since the interpretation of toxicity data is quite relative, our interpretation of facts and data would not be sufficient to change their opinions." [Wheeler to Slayton; September 25, 1957]

Despite all the company knew of the toxic effects of PCBs, Monsanto consistently failed to adequately disclose its full knowledge to its customers. Most customers didn't take the initiative to run their own tests as the Navy had, and therefore, remained in the dark about the potential danger of exposure to PCBs.

### **Labeling: "Comply with the minimum"**

A December 5, 1958 document explains Monsanto's disturbing approach toward compliance with labeling laws newly enacted in many states, and explains the company's reluctance to provide a label proposed by a customer:

"In order to comply with recent changes in labeling laws enacted by several state legislatures, the subject of correct labeling for the Pydrauls has been a great concern to us.

This situation was brought forcibly to our attention by a specific request from Socony Mobil that a caution stamp be affixed to all Pydraul which they purchase from Monsanto for resale. We believe the wording which they use on this stamp is not in the best interest of Pydraul sales, and is such that our competition could use to great advantage.....

It is our desire to comply with the necessary regulations, but to comply with the minimum and not to give any unnecessary information which could very well damage our sales position in the synthetic hydraulic fluid field." [D.F. Smith to R.D. Minter; December 5, 1958]

A 1959 letter from Dr. Kelly to Monsanto HQ in St. Louis further discusses problems with the Pydraul PCB product line, apparently referring to the difficulty of marketing the product in Germany for use in the food industry:

"I wish I could be as optimistic as you are in stating that "any information you can give us from a medical standpoint will certainly be helpful in promoting the sale of Pydraul AC in Germany." If these Germans are afraid of mineral oil, I feel they will be rather suspicious of Pydraul AC. After all, the constituents are considerably more toxic than mineral oil." [Kelly M.D. to O.F. Heasel]

Further down, Dr. Kelly concludes the letter saying:

"I think the Germans are being overcautious in this matter, but I certainly can't give Pydraul an absolutely clean bill of health, assuming some might get into the food." [Kelly to Heasel; June 23, 1959]

### **Suspected Liver Damage**

A letter from Dr. Kelly to Mr. Richard Davis at HQ in St. Louis dated February 2, 1961 reveals another case of workers sickened by PCB exposure:

"Yesterday, Mr. Allen of the subject company called and stated he had two employees nauseated from exposure to a leak in a heat transfer unit that used Aroclor 1248. One individual was under the care of a physician and the physician suspected liver damage although no jaundice could be seen (patient a negro) and was not hospitalized." [Kelly to Allen; February 2, 1961]

A letter from the Hexagon representative to Dr. Kelly dated February 14, 1961 provides more information:

"In reference to our recent telephone conversation, I would like to further discuss the incident wherein two of our plant personnel were exposed to hot Arochlor (1248) vapors generated by a broken pipe connection. For your information and records the two men developed symptoms of Hepatitis as you predicted and were confined to a hospital for approximately two weeks.

In view of the above experience which has given me considerable concern I



felt that the matter should be brought to your attention. Since we are dealing with a highly toxic material at high temperatures and since these failures cannot be prevented, it is felt that a more thorough and clearly written description of the hazards be described under Safety of Handling. Also the antidote or first aid treatment if any be included. I certainly would be interested in this information if available.

I trust that this matter will be given your serious consideration so that other or new users are fully aware of the problem." [Allen of Hexagon to Dr. Kelly; February 14, 1961]

A year later, a letter from Dr. Kelly to a doctor with the U.S. Public Health Service in Ohio dated March 15, 1962 fails to mention the chloracne problem and does not mention any of the other exposure incidents that Dr. Kelly was fully aware of:

"As I told you on the telephone, our experience and the experience of our customers over a period of nearly 25 years, has been singularly free of difficulties. To our knowledge, there have been only three instances where chloracne has occurred. In view of the millions of pounds which have been produced and used in many and varied applications, the low frequency of any difficulties has been gratifying...."

Further down:

"I would, however, assume that it has the same toxic character as the lower Aroclors. Therefore, if sufficient material were inhaled, liver problems would develop." [M. Kelly M.D. to U.S. Public Health Service]

### **Monsanto Favors "Minimum Precautionary Statement"**

In 1964, Congress passed the Federal Hazardous Substances Labeling Act to ensure that toxic substances were properly identified as such on consumer products. A May 27, 1964 memo from Monsanto's Medical Department explains that Aroclor 1232 would need to be labeled under the new law. It notes that Monsanto would not take responsibility for assuring the proper labeling of its customers' products containing PCBs, but that it would suggest a "minimum precaution statement." Their idea of a warning seems more fitting for a bite-sized plastic accessory than a toxic chemical:

"We have several indications that the Aroclors are more toxic when in an oil solution than when administered undiluted to animals.

The ultimate responsibility for the proper labeling of a formulation remains with the customer since we cannot be expected to get animal data on every possible formulation containing a Monsanto product. In all the varying concentrations and with the innumerable combinations of other components such as antioxidants, colorants, etc.

The very minimum precautionary statement that I think would be necessary would be:

Caution-Harmful if swallowed.

Keep out of the reach of children"

[Wheeler to Nemits; May 27, 1964]

### **Warning Its PCB Customers**

Monsanto was also fielding a lot of questions from its PCB customers who wrote to inquire about the chemical's toxicity. One customer in particular got an earful from Monsanto:

"[The concerned customer] went on to say that in his own plant Aroclor spills on the floor were common and that his own employees had complained of discomfort. I was brutally frank and told him that this had to stop before he killed somebody with liver or kidney damage-- not because

of a single exposure necessarily but only to emphasize that 8-hour daily exposures of this type would be completely unsafe." [Wheeler to Davis; September 3, 1965]

In direct contrast to Monsanto's current claims of PCBs' harmlessness, the company advised a concerned customer in a February 2, 1967 letter that:

"...Aroclors can cause damage to the liver as a result of prolonged exposure to the vapour and to the liquid. To the best of our knowledge no fatality has ever been attributed to a chlorinated diphenyl, but in view of the chronic action on the liver we advise that contact with the vapour and liquid must be kept to a minimum." [Hardy to Border Chemicals Ltd.]

### **Concerns About Media Coverage**

A memo dated February 10, 1967 from Dr. Kelly to Monsanto Europe discussed the concern Monsanto had about the probability that the American public would learn about the PCB problem through the media as the European public had, and also discussed the company's concern about customer inquiries regarding toxicity:

"We are very worried about what is liable to happen in the states when the various technical and lay news media pick up the subject. This is especially critical at this time because air pollution is getting a tremendous amount of publicity in the United States.

We have been receiving quite a few communications from our customers, but the most critical one is NCR, who are very much involved with their carbonless carbon paper.

...

The consensus in St. Louis is that while Monsanto would like to keep in the background in this problem, we don't see how we will be able to in the United States. We feel our customers, especially NCR, may ask us for some sort of data concerning the safety of these residues in humans. This obviously might be opening the door to an extensive and quite expensive toxicological/pharmacological investigation." [Kelly to D. Wood; February 10, 1967]

### **Monsanto's Aroclor Ad-Hoc Committee: "We Can't Afford to Lose One Dollar of Business"**

In the late 1960s, Monsanto was continuing to field questions from concerned customers and also struggling with major pollution problems in Anniston. The company became increasingly compelled to defend its PCB products from accusations of harmful effects coming from around the country.

On August 25, 1969 Monsanto formed its "Aroclor Ad-hoc Committee" in an effort to defend against governmental and public scrutiny regarding its PCBs. The Committee was charged with assessing the situation and determining how best to protect Monsanto's global Aroclor market, which had grown into a \$22 million a year business, with gross profits of \$10 million.

The goal of this committee, it seems, was to do everything possible to enable the continued production and sales of PCBs. Specifically, as the Committee's first report described in October 1969:

"...an "ad hoc" committee was appointed to prepare a resume of the situation concerning the environmental contamination through the manufacture and use of polychlorinated biphenyls (Aroclors).

The objective of the committee was to recommend action that will:

- (1) Protect continued sales and profits of Aroclors;
- (2) Permit continued development of new uses and sales;
- (3) Protect the image of the Organic Division and the Corporation as members of the business community recognizing their responsibilities to

prevent and/or control contamination of the global ecosystem."  
[Confidential Report of Aroclor "Ad Hoc" Committee; October 2, 1969]

Monsanto worried that:

"As the alarm concerning the contamination of the environment grows it is almost certain that a number of our customers or their products will be incriminated. The company could be considered derelict, morally if not legally, if it fails to notify all customers of the potential implication."  
[Confidential Report of Aroclor "Ad Hoc" Committee; October 2, 1969]

Monsanto recognized the fact that the environmental contamination at its facilities paled in comparison to the widespread contamination caused by the various uses of PCB by the company's customers. Today, General Electric Co.'s problems in the Hudson River and elsewhere are a prime example.

"Environmental Contamination by Customers:

Our in-plant problems are very small vs. problems of dealing with environmental contamination by customers. In one application alone (highway paints), one million lbs/year are used. Through abrasion and leaching we can assume that nearly all of this Aroclor winds up in the environment." [Minutes of Aroclor Ad Hoc Committee First Meeting; September 5, 1969]

The company realized that the stakes were high in defending itself and its PCB market:

"This is a serious matter, not only from the pollution viewpoint, but also because of the \$22M worldwide customer business involved with resultant gross profits of \$10M and a net investment of \$9M. In addition, there could be possible adverse legal and public relations issues leveled against Monsanto." [PCB Presentation to Corporate Development Committee]

Another internal document from 1970 put it plainly:

"We can't afford to lose one dollar of business. Our attitude in discussing this subject with our customer will be the deciding factor in our success or failure in retaining all our present business. Good luck." [Monsanto (St. Louis), "Pollution Letter,"; February 16, 1970]

There were certainly some uses of Aroclors which seemed particularly vulnerable to scrutiny, like use in paints for water storage tanks and swimming pools.

"In the plasticizer use area, the Aroclors may be used in rubber based paints or surface coatings. The uses for these surface coatings include the interior walls of potable water supply storage tanks in some communities. In Europe we have been told that similar paints are widely used for swimming pools. In spite of the low degree of solubility of the PCB's in water, there are sentiments among the European scientists (and our PCB competitive manufacturers) that such uses may be sources of pollution.

Other customer applications or uses which could be suspect include highway marking paints, any of the oil and/or grease lubricant applications, caulking compounds and sealants." [Confidential Report of Aroclor "Ad Hoc" Committee; October 2, 1969]

## **PCBs in Detergents**

As the list of products that PCBs were used in or had contaminated grew, Monsanto attempted to test each one to determine if there were indeed PCBs in the product. The company quickly accumulated more samples than it could analyze, and was struggling to manage its backlog. Monsanto, therefore, decided not to tell some of its customers that PCBs had been found in their product, choosing to delay until after Monsanto had a chance to confirm it in the company's labs.

"A case in point is the delay in analyzing thirteen samples from the

Inorganic Division. Samples were submitted following the finding that five of five commercially available electric dishwashing compounds analyzed showed the presence of PCB's. The Inorganic Division can not exonerate the products it sells to the detergent manufacturers until it has some data showing whether or not Monsanto supplied materials are contaminated. In the meantime Inorganic Division Quality Control has suggested to its Division Engineering that future designs for making detergent components insure that the use of Aroclors will not permit contamination. Secondly, it is obvious that the Division cannot approach its detergent manufacturing customers about their potential problems until the above data indicate that 'our own skirts are clean.'" [Confidential Report of Ad Hoc Committee; October 2, 1969]

The Committee's report painted a grim picture of its prospects for successfully saving the more highly chlorinated PCB product line from fatal scrutiny:

"The committee believes there is little probability that any action that can be taken will prevent the growing incrimination of specific polychlorinated biphenyls (the higher chlorinated-e.g. Aroclors 1254 and 1260) as nearly global environmental contaminants leading to contamination of human food (particularly fish), the killing of some marine species (shrimp), and the possible extinction of several species of fish eating birds." [Confidential Report of Aroclor "Ad Hoc" Committee; October 2, 1969]

### **"When are we going to tell our customers?"**

In an internal memo dated January 29, 1970 with the subject "Status of Aroclor Toxicological Studies" Monsanto's Emmet Wheeler reported about the company's recent animal studies:

"Our interpretation is that the PCB's are exhibiting a greater degree of toxicity in this chronic study than we had anticipated. Secondly, although there are variations depending on species of animals, the PCB's are about the same as DDT in mammals.

We have additional interim data which will perhaps be more discouraging. We are repeating some of the experiments to confirm or deny the earlier findings and are not distributing the early results at this time." [Wheeler to Cameron; January 29, 1970]

### **PCBs in Animal Feed**

A March 30, 1970 letter from Dr. Kelly to W.B. Papageorge of Monsanto discusses a problem in Ohio that had Monsanto worried and wondering what to tell its customers using paints containing Aroclors:

"We have been in communication with a Dr. Hill of the Ohio State Board of Health. He has found PCB, particularly Aroclor 1254, in samples of milk from at least three herds in Ohio. He has traced this contamination back to silage from three different silos. Dr. Hill reported concentrations of 0.2 ppm of PCB in the silage in the center of the silo and up to 20 ppm in the material next to the walls. He also stated that concentration in the milk were between 0.1 ppm and 0.6 ppm and that some of the milk had been destroyed.

The silos are concrete silos whose interior surfaces were painted in 1967 using a formulation that contained 1254. I don't know if there was any other Aroclor in the formulation nor do we know the coating manufacturer; although, this could be found out if important. The presence of PCB in the silage came from flaking off of the material and possibly from leaching out during the silage storage. At present they will have to destroy about 150 tons of silage which is valued at about \$30 a ton. As a rough guess, they consider there may be 50 other silos involved in Ohio that were painted with the same formulation. They are also looking into the fat contamination of the cows themselves.

All in all, this could be quite a serious problem, having legal and publicity

overtones.

This brings us to a very serious point. When are we going to tell our customers not to use any Aroclor in any paint formulation that contacts food, feed, or water for animals or humans? I think it is very important that this be done." [Kelly to Papageorge; March 30, 1970]

A week later, Dr. Kelly wrote again to W.B. Papageorge, explaining that the FDA and/or USDA was considering setting tolerance levels for PCBs in milk and fat of animals, but that he had been unable to find out who within the government he should talk to in order to find out more about the subject:

"...At present, I am at a dead end as far as finding out anything from the FDA or Department of Agriculture. I am not so sure whether it might not do more harm than good for us to start poking around to find out. Let me know if anyone has any firm convictions that I should start digging." [Kelly to Papageorge; April 7, 1970]

By October 1970, the executives at Monsanto's Headquarters office in St. Louis were coming to grips with the fact that their PCB customers were still largely in the dark about the problems with the product. Though the company had already withdrawn some Aroclor plasticizer products from the market, many Aroclor products remained, and the company recognized that they needed to get the word out to customers if they hoped to have a credible defense in case of lawsuits.

"It was emphasized that that we must continue to emphasize to all remaining users of PCB's the importance of preventing escape to the environment and we must ensure that these warnings are fully documented so that they will support the action we have taken in this area should we become involved in legal actions." [Papageorge to various employees; October 6, 1970]

Monsanto continued to defend its Aroclor line of products, and sought to prolong the sale of PCBs despite having plenty of indication that this chemical was harmful to human health and the environment. As this document [September 9, 1969 Memo] describes, Monsanto's strategy for dealing with its PCB contamination problems seems to have focused only on how to protect the company's bottom line and to guard against liability for the pollution.

A September 29, 1976 Monsanto document provides insight into the company's approach to disclosing information about the toxicity of PCBs even after it ceased production of Aroclors in Anniston:

"Note: If a question comes up about carcinogenicity, use the following statement which you may attribute to George Roush, M.D., Director of Monsanto's Medical and Environmental Health Department:

We have seen nothing in our preliminary health studies with our PCB workers or, indeed, in our extensive long-term feeding studies with animals that would indicate that PCBs are carcinogenic.

General Recommendations:

- (1) Avoid any comments that suggest liability.
- (2) Avoid any medical questions if possible.
- (3) Do not offer information on MCS 1238 or our development program. If a question comes up, say our development work was shelved in the late spring when it became obvious that our proprietary approach would not enable us to compete with the commodity type alternates being pursued by industry.
- (4) Make NO comments about the U.S. law suits that have been recently publicized.
- (5) Make no comments on the PCBs in mothers' milk stories that have been circulating in the U.S. press.
- (6) Feel free to use any of the information contained in the

attached U.S. press release but avoid lifting phrases out of context."

[Bishop and Wood, Monsanto; September 29, 1976]

PCB production in Anniston officially ceased on May 1, 1972 (liquid Aroclor production ceased at Anniston in August 1971, while solid Aroclor production ceased in May of 1972). [Jessee to EPA; July 5, 1972; AWIC to Jessee; November 13, 1972] However, PCB production would continue at Monsanto's other U.S. plant in Sauget, IL until 1977.

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**Chapter 2: Pollution Problems in Anniston »**

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## POLLUTION PROBLEMS IN ANNISTON

[Anniston's PCBs in the press](#)

"It is impossible to establish a limit as to what can be discharged "safely". Investigation has shown that the waters in receiving streams below the Anniston Plant contain significant (parts per million) concentrations of PCB. More ominous perhaps is the fact that sediment in the bottom of these streams miles below our plants may contain up to 2% Aroclor." ["Confidential Report of Aroclor Ad hoc Committee"; October 2, 1969]

Nobody knows the exact quantity of pollution Monsanto discharged from its Anniston plant into the local waterways. Certainly, the amount was not insignificant, and likely exceeds the amount dumped by General Electric into the Hudson River (an estimated 1.3 million pounds). While the discharges to water aren't clearly established, there are incomplete records that show Monsanto dumped at least 5.5 million pounds of PCBs in landfills located near the plant. [document] What is clear from the documents is that Monsanto was never able to control its discharges effectively throughout the entire 37 year period of PCB production, and even beyond.

A company report from March 21, 1969 revealed the extent of PCB production and details the company's thoughts about the source and severity of environmental contamination:

"From the background data presented it appears that something of the order of 80 million pounds of polychlorinated biphenyls (PCB) are produced annually. These products contain from 3 to 9 chlorine atoms per molecule and become increasingly inert and stable to environmental oxidation with higher degree of chlorination. However, about half the production is in the 3-chlorine atom variety (Aroclor 1242).

At first thought it seems unlikely because of the major uses of PCB in capacitors, transformer oils, heat transfer fluids in closed systems, that these materials could be the source of the substantial degree of environmental contamination reported. However, about 40 million pounds annually is stated to be used as plasticizers, hydraulic fluid, adhesives, and in carbon paper. From this amount a very substantial percentage must escape into the environment as waste. Because of the apparent high stability of PCB, amounts entering the environment would be degraded very slowly and it seems possible that at least 10 million pounds annually may become environmental contaminants. Since the PCB's were introduced commercially in 1929 there have been 40 years of production. If this has averaged 50 million pounds per year, then about  $2 \times 10^9$  have been made and perhaps  $2 \times 10^8$  pounds have entered the environment. Because of the apparent stability of these compounds most of this amount may still be circulating in the global ecosystem and this is suggested by the levels reported by Holmes et al. (1967) and Risebrough et al. (1968) in animal tissues which are quite comparable to those found for DDT. Both PCB and DDT are extremely stable and water insoluble and have been produced in roughly the same total amounts over the past 30 years. Thus it seems quite reasonable to conclude that the environmental contamination described for PCB is due to waste amounts of these compounds. This, coupled with the thorough evidence from mass spectrometry strongly suggests that there is an important environmental quality problem involved in wastes of PCB. [Report and Comments on Meeting on Chlorinated Biphenyls in the

## **"We should begin to protect ourselves"**

By 1969, Monsanto was feeling the pressure of government attention toward its Anniston, Alabama plant. The company's documents clearly show that Monsanto was trying to stay a step ahead of the interested government agencies, attempting to assess on its own the extent of the contamination near the plant in advance of any potential investigation. The company wasn't interested in cleaning up the contamination at this point, preferring to assess the situation and then wait and see what the regulators would do.

"With the likelihood that the attention now being focused on presence of aroclors in natural waters will draw attention to any aroclor being sewerred in our production plant outfalls, we should begin to protect ourselves. Since the problem, if any, has not yet been defined, I'm recommending at this time only action preparatory to actual clean up." [Hodges memo Aroclors in Plant Effluent; January 23, 1969]

In a letter describing the results of sediment and water sampling in Snow Creek near the Anniston facility which showed significant PCB pollution, a Monsanto employee explains the need to prepare due to the likelihood that the government might look into the problem.

"Bill, on the basis of this information, I think that if the PCB accusation turns out to be true and the government people become more active, we should plan on an extensive evaluation of the extent of contamination in this area. For example, samples should be taken further down Snow Creek, down Choccolocco Creek and even from the Coosa River if necessary." [E.S. Tucker to Richard & Wheeler Re: Aroclor-Wildlife; February 25, 1969]

While it looked farther afield from the plant for evidence of contamination, Monsanto found it had a serious problem in Anniston regarding its pollution of the waterways, as it noted in this May 12, 1969 correspondence. Again, no one in Anniston or downstream was warned.

### "A. Definition of Problems

1. External to Plant-- that a problem exists at Anniston is evident because "free" globules of aroclors can be seen in Snow Creek. We do not know what problem exists in Choccolocco Creek and the Coosa River. By July 1, 1969, we will determine the limit of visual evidence of aroclors downstream in Snow Creek." [Letter from Hodges to Kuhn; May 12, 1969]

In 1969, the Anniston plant was discharging about 250 pounds of PCBs into Snow Creek a day, according to an internal memo marked "CONFIDENTIAL-F.Y.I. AND DESTROY." [Hodges to Bergen Confidential FYI and Destroy; August 7, 1970]

The possibility that government investigations might discover what company officials already knew remained a major worry for Monsanto, and became more ominous as the company learned more about the severity of its PCB effluent problem. In an internal Monsanto communication from September 9, 1969, with the subject heading "Defense of Aroclor," the company worried about the result of a potential investigation:

#### *"Monsanto Plants*

The Department of Interior and/or State authorities could monitor plant outfall and find ppm of chlorinated biphenyls at Krummerich or Anniston anytime they choose to do so. This would shut us down depending on what plants or animals they choose to find harmed." [W.R. Richard to E. Wheeler]

The last thing Monsanto needed was another massive discharge from the Anniston plant just when the government might come knocking on its door. In November 1969, an equipment malfunction at the plant resulted in the loss of some 1,500 gallons of PCB



into the sewer. This memo describes the scene:

"On Thursday (November 6, 1969) the line on the bottom of the #3 Aroclor still receiver failed which resulted in the loss of approximately 1,500 gallons of Aroclor 1242 to the acid sewer. To date we have only been able to recover approximately 350 gallons of this material." [E.G. Wright to W.B. Papageorge; November 14, 1969]

Further efforts to recover the spilled PCBs were moderately successful, but an estimated 900 gallons of PCBs were lost in the sewer. [E.G. Wright to W.B. Papageorge; November 20, 1969]

A January 1970 memo, containing the results of an analysis of water and mud samples taken at various points along Choccolocco Creek, showed levels as high as 1656 ppm Aroclor found in mud samples, and 16.5 ppm in water samples. [E.S. Tucker to E.G. Wright; January 19, 1970]

In a March 1970 communication to Monsanto Tokyo regarding Aroclors, W.B. Papageorge explained the situation in Anniston, noting that there continued to be no sign of life in Snow Creek, a fact which had been pointed out to Monsanto four years earlier by the Mississippi State University contractors investigating the watershed.

#### *"Aroclor Toxicity-Anniston plant"*

Your question as to why the toxicity of Aroclors has not turned up downstream of the Anniston plant after 40 years of manufacture is difficult to answer. We just don't know. Aroclors have been found in Snow Creek near the plant. There is no record of any water life observed in this creek for many years. We've assumed other plant wastes were to blame; e.g. muriatic acid. Aroclors could be involved also.

#### Biodegradability

Tests on the biodegradability of Aroclors are being conducted both in St. Louis Research and at Ruabon [Wales]. At present, Aroclor 1221 appears biodegradable in river water and activated sludge. Aroclor 1242 undergoes slight degradation in sludge containing microorganisms acclimated to biphenyl. All other Aroclors have resisted biological degradation, to date. There is some indication that isomer structure determines ease of degradation." [W.B. Papageorge to J.R. Durland-Tokyo; March 6, 1970]

This same memo shows that Monsanto fully recognized its poor waste disposal practices at the time, yet decided not to do anything proactive to address the problem.

"All waste containing PCB's is at present hauled to the dumps the plants have been using for other plant waste. We recognize this is not the ultimate, since PCB's could eventually enter the environment, but we will continue this practice until better methods of disposal are available." [W.B. Papageorge to J.R. Durland-Tokyo; March 6, 1970]

### **Leaking Landfills**

Just a few weeks later, in a March 31, 1970 memo, an employee in Anniston revealed that the dump where Monsanto put all of its PCB wastes was leaking.

"A serious problem exists at the present time with the Monsanto dump. The two main areas of concern are: (1) water leakage from the P.C.B. dump, and (2) lack of security throughout the dump area. These two areas create hazards in the areas of water pollution and in liability problems." [Recommendations of Task Force on Plant Dump; March 31, 1970]

Noting that the State of Alabama would soon require all dumps to convert to lined landfills, Monsanto recognized that its dump operations could be subjected to scrutiny.

"In light of the attention P.C.B. has received, it is highly probable that the Monsanto (P.C.B.) dump area could be classified as a serious water

pollution source." [Recommendations of Task Force on Plant Dump; March 31, 1970]

While the company appeared to be addressing the problem with its wastes and had even helped some of its customers with their waste problems, Monsanto certainly had an ulterior motive. It surmised that if the company were able to control the release of PCBs into the environment to an "acceptable" level; appease its customers' needs regarding disposal; and appear to be taking measures to guard against further contamination, perhaps they would be allowed to continue selling the highly-profitable Aroclor products. Monsanto informed one of its customers:

"From the interest and concern which you have expressed I am certain that you will do all you can to reduce the escape of PCB's from your operation. When all of us succeed in this objective, I am certain that no regulatory agency will be compelled to take precipitous action regarding the use of PCB's in vital applications." [Papageorge to Cavanaugh; July 6, 1970]

### **Friends in the Right Places: Alabama Regulators Quietly Assist Monsanto**

On May 6, 1970, three Monsanto employees met with Joe Crockett, Technical Staff Director of the Alabama Water Improvement Commission. This was the first time that the company discussed PCB pollution with a regulator. Monsanto's agenda for the meeting was to:

"familiarize Mr. Crockett with the situation regarding Aroclor wastes and their reported pollution potential and, secondly, to build confidence that Monsanto intends to cooperate with governmental agencies to define the effects of Aroclor on the environment." [Aroclor Pollution AWIC Contact; May 7, 1970]

The document explains the reaction the AWIC official had toward the situation:

"Mr. Crockett was most appreciative of Monsanto's approach to the problem and the fact that Monsanto came to him. He alluded that our action would produce a situation that was beneficial to the protection of both the Monsanto and AWIC positions. His recommendations were as follows:

1. Supply the AWIC with a general process description detailing potential loss sources.
2. Continue to develop information and as major items develop inform the AWIC.
3. Give no statements or publications which would bring to the situation to the public's attention.
4. If approached by news media, either the AWIC or Monsanto is free to state that the situation is under study by the staff of AWIC at the direction of the Technical director, Mr. Crockett.
5. If in the future, information is developed indicating that Aroclors are detrimental to watersheds, Monsanto will be required to secure a permit from AWIC to allow certain maximum quantities of chlorinated biphenyl to enter Snow Creek.

In summary, Mr. Crockett appeared notably unexcited at our disclosure and all his remarks were directed toward a careful evaluation followed by actions as required by data. The full cooperation of the AWIC to reach the above objective on a confidential basis can be anticipated.

It must be remembered, however, that all AWIC actions are subject to state political pressure and federal control." [Aroclor Pollution AWIC Contact; May 7, 1970]

Monsanto later agreed to submit status reports to Crockett about their efforts to reduce PCB emissions from the plant. In these reports, and other correspondence of the early 1970s, Monsanto sought to convince regulators that the company had responded to the problem immediately upon learning about the potential danger, and that they were in control of the situation.

Crockett agreed to keep the reports out of the public eye, giving the company control over the fate of vital information pertaining to public health and safety.

"In conjunction with this information, a lengthy discussion of the technical complexity of Aroclor or PCB numbers resulted in Mr. Crockett's agreeing that any written effluent level reports would be held confidential by the Technical Staff and would not be available to the public until or unless Monsanto released it." [Landwehr to Jessee; October 26, 1970]

An internal "Progress Report on Aroclor Losses at the Anniston Plant" dated July 21, 1970 revealed that Monsanto had taken a sample from the source of the drinking water supply for the City of Anniston and had tested it for the presence of PCBs. The sample did not contain PCBs. However, to quote the Progress Report's description of the matter:

"It might be interesting to note that this is the only sample collected to date which does not contain Aroclors." [Progress Report; July 21, 1970]

### **"Confidential- F.Y.I. and Destroy"**

In August 1970, Monsanto learned that the Food and Drug Administration (FDA) had taken fish samples from Choccolocco Creek and found fish with more than 55 times the legal limit of PCBs set by the Alabama Department of Public Health. FDA had provided the results to the Alabama Water Improvement Commission (AWIC), which alerted Monsanto to the situation. Luckily for Monsanto, the AWIC regulator in charge was looking out for their best interests.

"Joe Crockett, Secretary of the Alabama Water Improvement Commission, will try to handle the problem quietly without release of the information to the public at this time." [Hodges to Bergen Confidential FYI and Destroy; August 7, 1970]

Even though the local waterways were heavily fished both commercially and recreationally, Monsanto and State regulators took active steps to keep the public in the dark about the PCB-laden fish. Minutes of an August 1970 meeting- marked "Confidential- F.Y.I. and Destroy"- indicated that "a proposed statement" had been drafted in case the word got out, but even this was rejected in favor of "an innocuous, essentially 'no comment' type statement." [Hodges to Bergen Confidential FYI and Destroy; August 7, 1970]

### **Keeping the Press and Public in the Dark**

Another document, from a few weeks later, confirmed the troubling response by the AWIC official who was supposed to be protecting public health and the environment, not Monsanto:

"Crockett told me that if this PCB issue hits the Alabama press, the Alabama Water Improvement Commission would be forced to close Choccolocco Creek and the Martin-Logan Reservoir to commercial and sport fishing unless we can prove that the contamination level does not reach the reservoir. The State of Alabama has no choice but to follow the guide lines of the FDA which calls for no more than 5 ppm PCB in fish." [Garrett to Landwehr; August 17, 1970]

The press did pick up the issue, but Monsanto acted quickly to influence the coverage. "Somehow," as this November 1970 "PR REPORT" describes, the Anniston Star (local newspaper) obtained the figures from the federal Food and Drug Administration (FDA) that showed high levels of PCBs in fish in Choccolocco Creek. But, as this document describes, the company successfully averted negative attention by "convincing" the reporter to write a "factual" piece "emphasizing" that there was "no cause for public alarm." [John to Papageorge; November 30, 1970]

### **Internal Progress Reports Find Lack of Progress**

The same August 7, 1970 memo, which had described the strategy for dealing with the PCB-laden fish problem, had also relayed to several company employees the findings of

the Technical Services Department's Progress Report from July. The memo explained that between April 15 and June 30, the Anniston plant had dumped an average of 16 pounds of PCBs per day into Snow Creek, though the waste load sometimes spiked as high as 80 pounds a day. [Hodges to Bergen; August 7, 1970][Hodges to Bell; September 18, 1970]

Also in August 1970, Monsanto implemented measures to limit discharges of Aroclor, hoping to show that they could curb the PCB losses to the environment. However, the monthly Progress Report for August 1970 from the Technical Services Department at Anniston, this time marked "Confidential- Read and Destroy," revealed that the pollution control measures were not immediately successful, and in fact the discharge of PCBs had increased significantly since the last report:

"Aroclor loses during August increased to a level of 7280 ppb in plant effluent, equal to 88 #/day. This increase corresponds to high turbidity of the effluent from limestone inert material as the settling capacity of the final acid treatment pit has deteriorated since last clean-out." [TSD Monthly Report; August 1970]

These results were nearly 900 times higher than the plant's goal for discharges at the time, which was a tenth of a pound a day, as described here:

"(5) Final Treatment- Based on some indications (and much hope), by September, the actions above may approach the present plant objective of 10 ppb of PCB's in 700 gpm (or 0.1 #/day)." [Confidential FYI and Destroy; August 7, 1970]

### **"Extreme Reluctance to Report" Emissions from Anniston Plant**

A few weeks later, a September 18, 1970 memo from Monsanto headquarters to an Anniston plant employee explained that the emissions problem had not been solved, and in fact was out of control. Headquarters pleaded with the plant employees to find a solution. The memo also indicated the company's hesitancy to be forthright with regulators regarding its discharges in Anniston, highlighting Monsanto's fear that the public might learn about the pollution.

"In reviewing your proposed letter to Joe Crockett with Legal, et al, we requested latest emissions data on the flow to Snow Creek. We had hoped that it might show an improvement over the 1st week in September and thus demonstrate a favorable trend to Crockett. Instead the emissions are considerably increased with 9/13/70 at 6.25 ppm (or about 80 lbs. of PCB for the day). From the Legal standpoint, there is extreme reluctance to report even the relatively low emission figures because the information could be subpoenaed and used against us in legal actions. Obviously, having to report these gross losses multiplies, enormously, our problems because the figures would appear to indicate lack of control.

Realizing the extreme efforts the plant has gone to in order to curtail loss of PCBs, is there anything more that can be done to get the losses down?" [Hodges to Bell; September 18, 1970]

The September Status Report continued to show that Monsanto couldn't get the discharge levels anywhere near their goal of 0.1 pound a day in Anniston.

"PCB Levels in Snow Creek- Average PCB loss for the month was high at 2600 ppb or 32 lbs/day, largely as a result of one very bad day (400 lbs). [September Status Report, Papageorge; October 6, 1970]

This memo from December 7, 1970 conveys the sense of urgency Monsanto had to get the discharge numbers down quickly.

"One very important objective of our PCB environmental control program was to control the losses of PCB in our plants to achieve a maximum of 50 ppb in the waste water effluent by 1-1-71 and 10 ppb by 9-1-71.

During the month of September, Newport reported an average of 246 ppb.

During November Anniston reported 1410 ppb and the Krummrich Plant reported 495 ppb.

Because of the seriousness of the PCB problem this level of performance cannot be allowed to continue. I do not recall that any of the plants have been denied a resource they requested to achieve the stated objectives.

We do not have the luxury of unlimited time to combat this problem. What do we need to reduce losses quickly? [Papageorge to Savage; December 7, 1970]

Having failed to meet its goals for pollution reduction, Monsanto was noticeably frustrated with the amount of money it would require to actually meet the goals.

"Early in 1970 we established a target of 10ppb of PCB's in our plate waste streams which we expected to achieve by the third quarter 1971.

...

Clean-up of these sources can be economically impractical.

...

It appears that the PCB contamination is so widespread that all of the plant's effluent must be treated. ...

For 1971 I am proposing that 1 pound per day of PCB in the water effluent be achieved in our plants by Sept. 1972 and 1 pound per day to the atmosphere by year end. These are levels which I believe the regulatory agencies might tolerate." [Papageorge to Savage; January 29, 1971]

Production of PCBs officially ceased in Anniston on May 1, 1972. [Jessee to EPA July 5, 1972; AWIC to Jessee; November 13, 1972]

### **Chapter 3: Monsanto Responds to PCBs in Wildlife »**

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last updated: january.9.2002

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## MONSANTO RESPONDS TO PCBs IN WILDLIFE

[Anniston's PCBs in the press](#)

"The committee believes there is little probability that any action that can be taken will prevent the growing incrimination of specific polychlorinated biphenyls (the higher chlorinated-e.g. Aroclors 1254 and 1260) as nearly global environmental contaminants leading to contamination of human food (particularly fish), the killing of some marine species (shrimp), and the possible extinction of several species of fish eating birds." ["Confidential Report of Aroclor Ad hoc Committee"; October 2, 1969]

From polar bears in the Arctic to penguins in Antarctica, PCBs have wreaked havoc on wildlife for decades. Since PCBs accumulate in body fat, and concentrations increase significantly each step up the food chain as large predators absorb all the PCBs stored in their prey, the highest concentrations appear at the top of the food chain in the oldest predators. Because killer whales are at the top of the marine food chain, and they can live to be 80 years old, subsisting on other long living prey like seals and salmon, they have the highest levels of PCBs. Recent studies of killer whales in the Gulf of Alaska revealed that the killer whales in that water body are among the most heavily PCB-laden marine mammals in the world, and their numbers are in rapid decline. [<http://adn-proxy.nandomedia.com/front/story/635937p-679928c.html>]

But top predators are not the only wildlife affected by PCBs in their bodies. Many other species of wildlife have been threatened. As the following documents show, Monsanto was aware of these issues, and even predicted the extinction of some wildlife species, yet the company did nothing to stop this from happening. Also, Monsanto conducted extensive surveys of PCB concentrations in fish both near the Anniston plant and farther afield. The testing revealed dangerously high levels of PCBs, yet the company failed to warn local residents who were eating the contaminated fish. It wasn't until 1993, nearly thirty years after Monsanto knew definitively about the fish contamination in Anniston, that local residents were warned by Alabama officials not to eat the fish from waterways downstream from the Monsanto facility. Despite strong warnings in the 1960s from university scientists and others, including a warning that PCB levels in Anniston streams could endanger local children and pets, Monsanto continued to pollute the streams in Anniston, some of which showed no forms of life, and said nothing to the people of Anniston about the pollution.

### Persistence Prevails

Monsanto claims that it didn't know about the persistence or accumulation of PCBs in the environment until 1966.

"And the truth is that in 1966 when we found out that PCBs were in the environment, we started an investigation journey and we tried to gather information and we acted responsibly." [Trial Transcript, *Owens v. Monsanto* CV-96-J-440-E, (N.D Alabama April 5, 2001), pg. 454, line 6]

However, in 1960, years prior to the public learning about the persistent nature of PCBs in the environment, Monsanto wrote to a customer in Pennsylvania who used one of the company's Pydraul hydraulic fluids which contained PCBs:

"As you know, the Pydraul fluids are insoluble in water as well as heavier than water. Unless these materials are strongly emulsified they will sink to the bottom of any receiving stream and as such will not give rise to the

typical picture of oil pollution. If the material is discharged in large concentrations it will adversely effect the organisms in the bottom of the receiving stream which will effect the aquatic life in the stream.

We have had no experience with any regulatory agency concerning the discharge of these materials. I would imagine that these agencies would frown on the discharge of large quantities of any type hydraulic fluid.

Based on the toxicity studies of these fluids with laboratory animals I would not expect them to be very toxic to aquatic life. On the other hand, this is a surmise on my part since we have no tests on aquatic animals." [Monsanto to PA customer; August 29, 1960]

A document from 1969 reveals additional evidence that Monsanto knew prior to 1966 of PCBs' ability to persist in the environment. As the document explains, PCBs had been mixed with soil and buried in test plots back in 1939 during an experiment into the use of Aroclors as termite repellants. As the document notes, a Monsanto employee had returned to the test area in 1963 and found the Aroclors were still there:

"Marsh had reasons to look at some of these sample plots in June of 1963 and recalls that in some instances there was still visual evidence of the presence of Aroclor." [Wheeler to Richard; April 8, 1969 Re: Aroclor Degradation in Soil]

### **"There is no doubt"**

In 1966, the world got its first glimpse into the persistence of PCBs when a Swedish scientist who was studying the pesticide DDT (another Monsanto product) found a second compound that was exhibiting many of the same characteristics in tests. The "mystery peak" on the scientists' testing equipment turned out to be PCBs. Probing further, the scientist had found PCBs in the hair of his entire family and he also discovered PCBs in fish, birds and pine needles, leading to the conclusion that PCBs were persistent and widespread in the environment.

According to a letter sent to Monsanto Europe representatives from Rising & Strand, a Swedish firm, documenting the Swedish study:

"PCB is found in the water and in air, and not only in the Swedish air, but also in e.g. London air. Mr. Jensen has not yet been in London for sampling but could identify the poison by studying a gas chromatogram of air published in a British technical journal.

Mr. Jensen har [sic] also examined the hair of his family and himself and has found PCB on all samples. Most PCB was found in the hair of his wife but most sensational was that the girl aged 5 months had more PCB in her hair than her brothers and sisters of 3 and 6 years. Probably the girl had got the poison via the mother's milk.

In the State Museum Mr. Jensen has examined the whole collection of sea eagles dating back to 1880. By testing it could be established that PCB was present only in birds from 1944 and thereafter while birds collected before 1944 were quite free from PCB." [Rising & Strand to D. Wood Brussels; November 28, 1966]

The memo also reveals that:

"Mr. Jensen also found that PCB does not appear in animals living on a vegetarian diet, such as the elk." [Rising & Strand to D. Wood Brussels; November 28, 1966]

The memo concludes:

"I suppose there is no doubt that what has been termed Polychlorinated Biphenyls is equal to Aroclor. There is also no doubt that the published facts will cause considerable unrest in several quarters. We probably will have to have Aroclor registered with the Swedish Board of Poisonous Substances

and the industry will have to be particularly careful in handling the material. The problem in some cases of course may be the disposal of used material. I understand that there hardly exists a convenient method of destroying Aroclor and that possibly burying unuseable material may be the only answer." [Rising & Strand to D. Wood Brussels; November 28, 1966]

### **Contractors Find Problems in Anniston**

Meanwhile, 1966 was also shaping up to be a revealing year back in the U.S., where Monsanto was learning just how bad the pollution problem was at the Anniston plant, and the frightening toll their waste effluent was having on living organisms.

As this document explains:

"In the late summer of 1966, the Zoology Department of Mississippi State University entered into a contract with the Monsanto Chemical Company to investigate certain physical, chemical, and biological properties of the Choccolocco Creek Drainage in Alabama..... A specific goal was to examine evidence and information related to the fish kill that occurred in Choccolocco Creek in March 1966." [Final Report Investigations of Certain Pesticide-Wildlife Relationships in the Choccolocco Creek Drainage; August 31, 1967]

In a November 2, 1966 memo from the Mississippi State College Professor of Zoology to Monsanto, the scientist explains the results of recent caging experiments in the local waterways. The tests involved placing cages filled with 25 live bluegill fish at thirteen different locations in the Choccolocco Creek Drainage (the system of waterways that accepted wastes from the Monsanto plant). The results were troublesome, indicating that Snow Creek was "devoid of life."

"3. A branch of Snow Creek originating in the Monsanto plant and flowing east under Highway 202 and thence north. Water Temp. = 32.1 C. Result: All 25 fish lost equilibrium and turned on their sides in 10 seconds and all were dead in 3 minutes. The gill covers (opercles) immediately assumed a flared position, and blood issued from the gills after 3-minutes exposure."

...

"Miscellaneous observations

Our preliminary inspections indicate Snow Creek to be devoid of life. The stream is characterized by a distinctive color.....

Conclusion

"The outflow to Snow Creek from the east side of the Monsanto Plant (at Highway 202) contains some extremely toxic materials and kills fish in less than 24 hours when diluted 300 times. In a flowing system (as opposed to our static tests) and under conditions of constant exposure, this effluent would probably kill fish when diluted 1000 times or so. Since this is a surface stream that passes through residential areas, it may represent a potential source of danger to children, domestic animals, etc.

Although our caging experiments lasted only 48 hours, they revealed toxic conditions extending from the Monsanto Plant to Choccolocco Creek and downstream. Prolonged exposures of weeks and months to these substances could very likely kill fish at all points in Choccolocco Creek below the mouth of Snow Creek. (We have some long-term caging experiments in progress.)" ...

Mr. Fuhrmeister, can your people tell us what is going into Snow Creek?" [Ferguson to Fuhrmeister; November 2, 1966]

There is no indication Monsanto adequately addressed the disturbing conclusion in the scientist's report about risks to children and pets:



"Since this is a surface stream that passes through residential areas, it may represent a potential source of danger to children, domestic animals, etc."

Nearly a year later, in their Final Report to Monsanto, the Mississippi State scientists relayed to Monsanto a number of disturbing findings:

"When a tributary of Snow Creek originating within the Monsanto Plant was found to be devoid of life, samples of water from the stream were used to bioassay bluegills. The fish lost equilibrium in the full strength water in ten seconds and all died in less than 5 minutes. Bluegills survived less than 16 hours when bioassayed in 1 part Snow Creek water diluted with 300 parts tap water. Further investigations showed unfavorable pH and mercury to be the lethal agents." [pg.6] "Fish Kills: There is a disturbing amount of low-level mortality among Choccolocco Creek fishes and a few dead individuals can be found most anytime, especially from Jackson Shoals downstream. A further indication that some sublethal factor may be present is the apparently high incidence of diseased fish. Several fish were observed near Jackson Shoals that had large patches of fungus on them." [pg. 12]

Among the conclusions of the Mississippi scientists were some very straightforward warnings to Monsanto:

"3. Snow Creek is a potential source of future legal problems. The stream does not support life and contains many materials that accumulate in water, fish, and muds downstream. Although there is no evidence that these materials are harmful to fish, their presence constitutes damaging evidence of pollution. The argument that these compounds impart undesirable palatability qualities to Choccolocco Creek fish would be very convincing and probably easy to prove. 4. Choccolocco Creek fish populations are subject to continued low-level mortality and periodic massive die-offs. There are reports of fish kills in Dry Creek; Coldwater Creek is highly polluted. Monsanto needs to monitor the biological effects of its effluents as a protection against future accusations."

The recommendations of the Mississippi State University scientists were brutally honest:

- "1. Do not release untreated waste in the future!
2. Clean-up Snow Creek.
3. In the event of a future fish kill, collect samples of fish and water and immediately call in a qualified consultant.
4. A qualified biologist should inspect Choccolocco Creek periodically, perhaps every other month, to document the status quo in the event of another fish kill. [Mississippi State University Final Report]

As noted in the report, mercury was named as one of the lethal agents in the fish studies. Mercury was used in the production of PCBs, and it presents a significant pollution problem in Anniston, as the Anniston Star reported in the summer of 2001. [Anniston Star article <http://www.AnnistonStar.com/news/2001/as-localnews-0720-0-vh207933.htm>]

### **Monsanto Worries About "The Wildlife People"**

A company memo dated December 30, 1968 describes one employee's thoughts about the situation Monsanto was facing regarding the attention being paid to environmental damage linked to chemicals, especially its PCBs (a.k.a. Aroclor):

"The wildlife people are dedicated to the demise of DDT. Our problem is that Aroclor has been "identified" along with DDT residues and hence we are almost certain of being drawn into the court records and may also be one of the scapegoats of the DDT defense. The wildlife people have accused Aroclor of doing all the bad things of DDT." [W.R. Wright to W.A. Kuhn; December 30, 1968]

It is clear that the company was very worried about the "accusations in the literature that chlorinated biphenyls are poisoning and killing wildlife." Monsanto was determined

to stay one step ahead of "these wildlife people." This memo also explains that Monsanto was conducting tests on animals to determine "a safe level for Aroclor feeding." It seems that their goal was to find a level at which the test animals would not accumulate PCBs, and then stage a two-year "experiment," no doubt hoping to show that PCBs were not harmful to wildlife. But, as the author of the memo surmised:

"This will help a bit but the wildlife people won't be stopped by this kind of evidence."

The memo's author urged the company to reduce air and stream pollution, worrying that:

"I believe we should make sure that our plants have minimum air or stream pollution. I believe Anniston is vulnerable and that off-gas HCl and Aroclor should be 100% controlled."

The memo concluded that the company should act quickly because the "wildlife people" would probably target PCBs once an ongoing court case against DDT had subsided:

"We probably have 6 months to 1 year while they fight out the DDT case. I want to use this time to minimize our exposure." [W.R. Wright to W.A. Kuhn; December 30, 1968]

### **"Greater degree of toxicity...than we had anticipated"**

Over the next few years, Monsanto conducted PCB toxicity tests on a variety of animals, including dogs, [testing documents] rats, fish and chickens. Their findings were anything but encouraging. In a January 29, 1970 memo from Monsanto's Medical Department to a Monsanto employee in Brussels, a company doctor reported that:

"Our interpretation is that the PCB's are exhibiting a greater degree of toxicity in this chronic study than we had anticipated. Secondly, although there are variations depending on species of animals, the PCB's are about the same as DDT in mammals. We have additional interim data which will perhaps be more discouraging. We are repeating some of the experiments to confirm or deny the earlier findings and are not distributing the early results at this time." [Wheeler to Cameron]

### **"Aroclors [PCBs] are highly stable under all known conditions"**

In a July 8, 1970 letter to a customer regarding the toxicity of PCBs, Monsanto's Manager of Environmental Control, William Papageorge, explained the company's thoughts on both the persistence and toxicity of PCBs:

Biodegradability - Biodegradation studies conducted in our research laboratories in St. Louis, Missouri and in Ruabon, Wales using media consisting of local river waters or activated sludges acclimated to biphenyl give direct evidence that the lower chlorinated biphenyls are affected. There is some evidence that chlorine position on the biphenyl configuration does influence the degree of destruction by the microorganisms. I have enclosed a tabulation from our Ruabon laboratory which attempts to show this difference. We do not have formal information regarding the effect of sunlight or other natural influences on Aroclors. Experience gained over many years indicates Aroclors are highly stable under all known conditions present in the environment.

Toxicity - There is ample evidence from many laboratories that certain species of birds which are at the top of the marine food chain cannot reproduce properly when PCB's are present in their diets.

The U.S. Fisheries laboratory at Gulfbreeze, Florida conducted a study which indicated that juvenile brown shrimp did not survive in water containing 5 parts per billion of PCB." [Papageorge to Jenkins; July 8, 1970]

The harmful effects of PCBs weren't only being discovered in the laboratory. As this document [Report of Aroclor "Ad Hoc" Committee] describes, U.S. government agencies

had found PCBs in dead eagles and marine birds. It also describes that the U.S. Food and Drug Administration had contacted Monsanto to inform the company that the State of Georgia had found PCBs in milk samples, and discusses other cases involving contaminated milk.

Another Monsanto plant had also drawn the attention of the U.S. government. A subsidiary of the U.S. Department of Interior had found PCBs in the Escambia River below Monsanto's Pensacola, Florida plant, where PCBs were used (not manufactured). The Bureau of Commercial Fisheries reported that its tests revealed that concentrations of 5 parts per billion of Aroclor 1254 had killed juvenile brown shrimp in just 18 days. [Report of Aroclor "Ad Hoc" Committee]

Another Monsanto description of the shrimp study is contained in the "Confidential Report of the Aroclor Ad hoc Committee.":

"Shrimp--In August, 1969, West Florida State University at Pensacola reported to our Pensacola Plant that PCB's (Aroclor 1254) had been found in the Escambia River below our outfall. The amount was reported as 40-45 parts per billion one quarter mile below the plant and 1 ppb at the bridge over the river as it enters Pensacola Bay.

The Gulf Breeze Laboratories of the Bureau of Commercial Fisheries (U.S. Department of Interior) at Pensacola next reported that 40 ppb killed baby shrimp in 96 hours. Further study indicated that 5 ppb killed 18 of 25 baby shrimp in 18 days.

Plant investigation revealed that one to three gallons per day of Aroclor 1254 was being lost to the river from the use of Pydraul AC in air compressors." [Confidential Report of the Aroclor Ad hoc Committee; October 15, 1969]

Monsanto was, justifiably, concerned about this problem.

"The incident at the Monsanto Plant at Pensacola indicates that all Monsanto Plants using Aroclors should be made aware of the potential problem and efforts made to eliminate any losses. The significance of "any losses" may be related to the one to three gallons per day which was being lost at the Pensacola Plant." [Report of Aroclor "Ad Hoc" Committee]

### **High PCB Levels Found in Fish**

Back in Anniston, where a recent equipment failure had resulted in the loss of 1,500 gallons of Aroclor from the plant [E.G. Wright to W.B. Papageorge; November 20, 1969], and the plant was regularly discharging an average of 16 pounds of PCBs into Snow Creek, Monsanto was sending employees out with fishing poles to catch samples from Choccolocco Creek for testing. An August 6, 1970 memo revealed that a Blacktail Shiner fish which had been caught in the Creek and tested for PCB residue contained 37,800ppm of Aroclor 1254 in its fat (by comparison, the FDA action level for PCBs in fish is 2ppm). [CPG 7108.19 and CFR 109. 30 (A)] The fish had been caught 7-8 miles below the confluence with Snow Creek, roughly 15 miles downstream from the plant. Other samples taken from the same area, while not as high, indicated that PCBs were bioaccumulating in several species' fatty tissues to a high degree: lipid tests on a Warmouth fish revealed 17,590 ppm of Aroclor 1254; a Green Sunfish 7970 ppm; a Largemouth Bass 9720 ppm; frogs contained 4700 ppm. [E.S. Tucker to Papageorge; Aug 6 1970]

### **Monsanto Buys Contaminated Hogs Without Revealing Contamination**

In the winter of 1970, an Anniston resident who lived near the plant and repeatedly grazed the family hogs on a hill nearby, unaware that it was company property, was approached by a Monsanto employee who inquired about the swine. The Monsanto employee first told the resident to remove the pigs from the company's property, but then quickly returned to offer the resident \$25 a head for the hogs and a bottle of white corn liquor for the trouble. The resident accepted the offer, happy to have the extra money just before Christmas time. [Trial Transcript, *Owens v. Monsanto* CV-96-J-440-E, (N.D. Alabama April 5, 2001), pg. 551, line 1]

While this episode is not discussed in detail in the Monsanto documents, the coincidence of a December 21, 1970 memo from E.S. Tucker to W.B. Papageorge (both Monsanto employees) seems to confirm the resident's story about this incident. It is believed that Monsanto shot the pigs, and before burying them as hazardous waste in the plant dump, tested them for PCB content, as this document seems to confirm. [E.S. Tucker to W.B. Papageorge; December 21, 1970]

The memo, with the subject line "PCB CONTENT OF HOG FAT AND LIVER SAMPLES SENT FROM ANNISTON," mysteriously contained no description of the subject matter, only stating that:

"E.G. Wright should be contacted for details regarding the source of these samples, etc." [E.S. Tucker to W.B. Papageorge; December 21, 1970]

The analysis revealed that the hogs were highly contaminated, having as much as 19,000 ppm of PCBs in their fat. The company never announced its findings publicly, nor were residents ever warned not to eat livestock that regularly grazed near the plant and drank from the drainage ditches.

### **"...the data are detrimental to Monsanto"**

In 1971, a Congressional subcommittee released a report criticizing Monsanto's pollution problems in Anniston. Monsanto reacted defensively, asking one of its contractors to try to produce evidence that could be used to counter the negative publicity. A memo from the contractor firm that Monsanto had hired to conduct fish tests explained:

"However, considering the unfavorable publicity Monsanto Company recently received as a result of the congressional sub-committee report, we felt it imperative that we submit an interim report to Mosnanto [sic] Company at this time in order to insure that both parties (Monsanto and consultants) may know where we presently stand with regard to the PCB residue analyses."

The memo revealed that:

"However the results are not good since both analyses show us that Aroclor 1254 residues have not decreased as we had hoped they would. Considering the residual nature of P.C.B's we were certainly optimistic to say the least."

"At this point we would have to say that the data are detrimental to Monsanto."

"In the future we must be able to demonstrate considerable decreases in residue levels here if we are to show environmental improvement."

"In summary, there is nothing we can do with the residue data at this point that would allow Monsanto to counteract the unfavorable public opinion that may result from the congressional sub-committee report (which we have not seen). Perhaps the June, 1971 data will show a decrease that is not apparent at this point-we can only hope that this will be the case."

"We are very sorry that we can't paint a brighter picture at the present time. However, we all know that we have to study these situations carefully and that we must be able to document any claims of environmental improvement before they are released for public consumption." [Bio Consultants Suttkus and Gunning to E.G. Wright; August 15, 1971]

The following summer (1972), Biological Consultants sent a report to Monsanto describing the findings of its first year of studies involving fish samples taken from the local waterways, most notably Choccolocco Creek. The report's findings were as follows:

"1) The data for the first year of the survey indicate clearly that the fishes below the Monsanto outfall have concentrated the PCB residues to a very high level. The highest values obtained for fishes were at Stations 7, 8, and

10 in Choccolocco Creek. Secondly, fishes below the confluence of Choccolocco Creek and the Coosa River concentrate the PCB residues to a greater degree than do their counterparts upstream from the confluence. However, the relative amounts are much smaller in the Coosa River (Logan Martin Reservoir) than in Choccolocco Creek below the outfall.

2) We continue to find deformed, sick and lethargic fishes in our collections, particularly at Stations 7, 8, and 10. Since the residue levels are highest at these stations it is apparent to us that there is a cause and effect relationship." [Bio Consultants to J.T. Bell; June 9, 1972]

### **Thirty Years of Secrets**

It wasn't until late summer of 1993 that the residents of Anniston learned of the high levels of PCBs in local fish. A contractor, now deceased, had found deformed fish in Choccolocco Creek and had tested the fish for PCBs. The results, given by the contractor to regulators, showed enough contamination to prompt an investigation by the State. On November 2, 1993 the Alabama Department of Public Health issued the first fish consumption advisory officially warning residents not to eat fish caught from Choccolocco Creek [Alabama Department of Public Health fish consumption advisory; November 2, 1993].

Contrary to Monsanto's recent claims about having acted responsibly and quickly once they found out about the contamination, the company's own documents demonstrate a different reality.

**Chapter 4: "Appropriate Research Efforts" »**

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## "APPROPRIATE RESEARCH EFFORTS"

[Anniston's PCBs in the press](#)

Monsanto told the jury and the court in their opening statement during the Owens v. Monsanto trial that the company learned of the persistent nature of PCBs in 1966, when Swedish scientists announced that they had found PCBs in human hair, fish, birds, eggs, and pine needles and had concluded that PCBs had highly persistent and bioaccumulative abilities in the environment. However, Monsanto omitted to tell the court that the company had launched an organized effort to discredit the work of the Swedish scientists as soon as it learned about the study.

Despite the fact that the company had actually known of the persistent nature of PCBs since the late 1930s (after all, PCBs were marketed as stable, highly resilient, compounds), Monsanto set out to attack the Swedish study in an effort to prolong even further the public's finding out about the PCBs already accumulating in the environment.

Monsanto began its counter attack by first attempting to confirm that the Swedish scientists had in fact found PCBs and had not mistakenly identified another compound.

At first there was some confusion on Monsanto's part as to which chemical the Swedish scientist might have found, and the company doctor was convinced that another chemical, and likely another Monsanto product, had been detected instead of PCBs. But, the Monsanto doctor was reluctant to point toward one of the company's herbicides, which he suspected was a more likely culprit, as explained in this document:

"I do not believe that we can glibly accept Aroclors as a synonym for polychlorinated phenols that were discussed at a meeting of scientists at the Wenner-Gren Centre in Stockholm on November 27 [1966].

There are polychlorinated phenols which presumably could include derivatives from, or impurities in pentachlorophenol, and, especially, 2,4-D and 2,4,5-T. These compounds would be much more liable to appear in salmon, pike, and sea eagles than any derived from Aroclors.

There are many chlorinated polyphenyls that can be formed during the manufacture of 2,4,5-T [another Monsanto product and the prime ingredient in Agent Orange] and probably pentachlorophenol, as well. Our only problem is whether or not we want to bring these facts up and have our herbicide program receive another black eye. This, I will have to leave to your judgement.

I think the question here is primarily an analytical problem. How can we find out what product Mr. Jensen is talking about? [Kelly to Wood; December 12, 1966]

It was actually a Shell scientist who made the confirmation that the Swedes' chemical was PCBs and alerted Monsanto. [Hardy to several Monsanto employees marked COMPANY CONFIDENTIAL; January 6, 1967 ]

After learning definitively that their PCBs were the culprit, Monsanto began its response, hoping to discredit the scientists. Monsanto hoped to:

"establish by appropriate research efforts 'tolerance' or safe levels for particular Aroclors in the environment." [Confidential: Report of Aroclor "Ad

Hoc" Committee]

The company contracted with a laboratory called Industrial Bio-Test to do animal-feeding studies hoping to show that PCBs were not as bad as had been suggested by independent scientists.

It should be noted that Industrial Bio-Test, a lab that many chemical companies hired to perform tests which were used in seeking Federal approval of chemical products, was later convicted for falsifying chemical testing results and "fixing" studies. Three of its employees received prison sentences, and interestingly, many of their chemical industry clients sued IBT and were shocked to learn of the misconduct. Monsanto was not among those who condemned IBT, and it appears that Monsanto never brought suit against IBT or its convicted employees.

Besides the "appropriate research efforts" underway at Industrial Bio-Test, Monsanto went to great lengths to influence the Swedish scientist's writing about his findings:

"The point that I [Monsanto's D. Wood] have made to Jensen is the need for care in any further publication of his work which is made... I am hopeful that we might persuade Jensen himself to write a letter defining the true extent of his own research work and placing his results in their proper perspective." [D. Wood to G.R. Buchanan Re: Sweden, Aroclor; January 26, 1967]

**"Either his position is attacked and discounted or..."**

In 1968, Monsanto found itself once again defending itself against a scientist who had found PCBs in wildlife and the environment, only this time the source of frustration was domestic. A scientist at UCLA Berkeley had discovered PCBs in fish and birds along the coast of California and beyond, as described in this internal Monsanto document:

"In a few words, Risebrough has found PCBs along with chlorinated pesticides in a number of species of fish and birds along the California coast as well as in waters off Baja California and Central America. He further reports PCB in fish from the Channel Islands and Puget Sound. No PCB was detected in the liver of tuna taken in the Galapegos Archipelago. Scott Tucker is going to scrutinize the analytical aspects and particularly the validity of some of the assumptions made by the author." [Wheeler to Richard; October 21, 1968]

Much to Monsanto's dismay, the UCLA scientist had published his work in the journal Nature, as noted in another Monsanto document:

"Riseborough in a recent paper "Nature", Vol. 220, Dec 14, 1968, has attacked chlorinated biphenyls in three ways:

- (1) a pollutant- widely spread by air-water; therefore an uncontrollable pollutant.
- (2) A toxic substance- with no permissible allowable levels causing extinction of peregrine falcon by induced hepatic enzymes which degrade steroids upsetting Ca metabolism leading to reproductive weakness, presumably through thinner egg shells.
- (3) A toxic substance endangering man himself; implying that the peregrine falcon is a leading indicator of things to come." [Richard to Wheeler: Aroclor Wildlife Accusations; March 6, 1969]

Further down, the memo details Monsanto's planned response to the scientist's publication:

"Monsanto is preparing to challenge certain aspects of this problem but we are not prepared to defend against all of the accusations.

- (a) Monsanto is preparing itself to identify trace ppb quantities of chlorinated biphenyls in water samples, in concentrated collected air

samples, and in animal tissues. We will know whether we have been falsely identified and accused or not. We will eventually know where any pollution is taking place and the extent of the pollution.

(b) We are not prepared to defend ourselves against the accusations made of enzyme and hormone activity, the isolation of the enzymes or metabolic products, the indirect accusation of cancer, or the splitting of genes, when its accusation is made. Whether we can defend this route or not needs further discussion.

(c) Through the Industrial Bio-Test program we are to establish the long term allowable limits of chlorinated biphenyls for certain birds-fish-animals by feeding experiments, pathological examination, and tissue analysis for chlorinated biphenyls. We may be able to answer reproductive ability in some animals.

....

Where does this leave us?

Under identification and control of exposure- we will be able to identify and analyze residues as well or better than anyone in the world. We will probably find residues other than DDT and PCB's. We will probably wind up sharing the blame in the ppm to ppb concentration level.

We can take steps to minimize pollution from our own chlorinated biphenyl plants, we can work with our larger customers to minimize pollution, we can continue to set up disposal and reclaim operations. We can work for minimum exposure in manufacture and disposal of capacitors, transformers and heat transfer systems, and minimize losses for large hydraulic users.

But, we can't easily control hydraulic fluid losses in small plants. It will be still more difficult to control other end uses such as cutting oils, adhesives, plastics and NCR paper. In these applications exposure to consumers is greater and the disposal problem becomes complex. If chlorinated biphenyl is shown to have some long term enzyme or hormone activity in the ppm range, the applications with consumer exposure would cause difficulty.

Risebrough has taken known Aroclor samples and claims to have evidence of enzyme and hormone change. Here there is no question of identification. Either his position is attacked and discounted or we will eventually have to withdraw product from end uses which have exposure problems. Since Risebrough's paper in "Nature", Dec. 1968 has just been published, it is timely, perhaps imperative, that this paper and its implications be discussed with certain customers. This is a rough one because it could mean loss of business on empty and false claims by Risebrough.

Well prepared discussions with Ind. Bio-Test, Monsanto biochemists, the medical and legal departments must take place now. The position of DDT manufacturers should be determined as a guide. We are being accused of the same things attributed to DDT." [Richard to Wheeler: Aroclor Wildlife Accusations; March 6, 1969]

### **"The latter phrase is preferable"**

In 1975, after being commissioned by Monsanto to conduct cancer studies on lab rats fed PCBs, Industrial Bio-Test issued its findings to the company in a series of reports, concluding that PCBs were "slightly tumorigenic." Monsanto wrote a letter to the lab in response, explaining that it had revised the conclusion of two of the reports and requesting that the scientists falsify their findings in the third report by changing the wording of the conclusion to one more preferable to the company.

"Dear Joe:

The attached table summarizes a comparison of the 3 revised AROCLOR reports (1242, 1254, 1260).



In two instances, the previous conclusion of "slightly tumorigenic" was changed to "does not appear to be carcinogenic". The latter phrase is preferable. May we request that the AROCLOR 1254 report be amended to say "does not appear to be carcinogenic". [Levinskas Monsanto to J.C. Calandra IBT: re: AROCLOR 2-year Rat Feeding Studies; July 18, 1975]

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