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NEWSPAPER ARTICLE "COAST RESIDENTS JUST NOW DISCOVERING HERBICIDE
STORED HERE FOR SIX YEARS" NCBC GULFPORT MS
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Coast residents just now discovering herbicide stored here for six years

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Six years ago when Herbicide Orange was linked to bird defects and banned from most uses by the federal government, the Mississippi Gulf Coast was barely aware of the chemical's existence.

Years ago when the Air Force proposed to incinerate the toxic defoliant at sea and was subsequently turned down, Coast residents showed only a passing interest.

Now, as the Air Force nears fruition of a plan to reprocess the herbicide, isolate and safely store its deadly contaminant — dioxin — and take steps toward the ultimate solution of an environmental nightmare, the Gulf Coast is only beginning to become concerned enough to attempt to learn Herbicide Orange's complexities.

In recent weeks, there has been a swirl of activity con-

cerning the herbicide.

•A Gulfport physician criticized the Air Force proposal to reprocess the defoliant at the Seabee Center in Gulfport where more than 800,000 gallons are stored.

•Rep. Trent Lott, R-Miss., personally met with top ranking Air Force officials seeking information about safety precautions.

•Pass Christian Mayor Steve Saucier urged that reprocessing not be done locally.

•Biloxi Mayor Jerry O'Keefe and City Attorney Cono Caranna II considered presenting a resolution about Herbicide Orange to the Biloxi City Council but no action has been taken.

•A Long Beach resident called Gov. Cliff Finch's hotline to see what the governor thought about the situation.

•And the Air Force sent two of its technical experts to the Coast to explain more fully the reprocessing and al-

lay budding fears that a chemical accident could result in death or destruction.

Much of what Dr. Walter Melvin Jr., a toxicologist, and Maj. James W. Tremblay, a bio-environmental engineer, said reiterated a 40-page amendment to an environmental impact statement filed by the Air Force. The amendment outlines the results of a pilot project conducted in Gulfport earlier this year and proposes full-scale reprocessing here and on Johnston Island in the Pacific where more of the herbicide is stored. The pilot project involved the reprocessing of about 1,000 gallons of Herbicide Orange as a test.

Main areas of the Air Force proposal are the following:

•Safety precautions to prevent, as much as technically possible, damage to the environment during reprocessing and transportation.

•How the herbicide actually would be reprocessed.

•What would result from reprocessing and what would be done with the dioxin absorbed by coconut carbon during reprocessing.

Full-scale reprocessing "would be safer" than the pilot project because of additional safeguards, says Dr. Melvin, director of the Occupational and Environmental Health Headquarters of the Aerospace Medical Division.

According to the Air Force proposal, "All equipment which contacts the herbicide will be sized and selected so that compatible and reliable equipment is used. For example, the problems associated with the repair of a Herbicide Orange-contaminated pump, the loss of processing time if a pump needs to be replaced, and the environmental impact associated with a leaking pump all dictate that only the very best equipment be used."

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Dr. Melvin said components of the reprocessing — such as valves, tanks and temperature gauges — would be upgraded in the full-scale version, which "will have little resemblance to the pilot plant."

During last summer's pilot project, traces of Herbicide Orange went into the air and were monitored by air sampling devices and biomonitoring plants — in this case tomatoes, which are highly sensitive to herbicide.

The tomato plants, according to the Air Force report, were located up to 1,600 feet from the pilot reprocessing facility and, along with local thistle, shriveled up. When the pilot project ended, the plants recovered.

The herbicide vapors which caused the temporary plant damage occurred mostly, Air Force officials say, when the drums were opened and exposed to air prior to actual reprocessing.

However, for the full-scale project the Air Force is designing an enclosed de-drumming facility to keep vapors from going into the air. The operation "will be maintained at a pressure slightly less than atmospheric with all exhausted air being discharged through activated carbon to absorb odors and minimize the chance of damage to nearby flora," the proposal states.

The report also says plant damage "is not anticipated due to additional engineering constraints such as carbon-filtered vents and leak-free pumps that will be incorporated to eliminate discharge of herbicide to the ambient air."

During full-scale reprocessing, the air sampling devices and tomato plants again would be used to monitor the air.

If any of the highly sensitive plants sustain damage, "the reprocessing plant will be checked immediately for leaks, loose fittings, faulty vent filters, etc., and any faults will be corrected. Extensive and/or continued damage coupled with an absence of discernible faults will result in operational shut-down so that thorough inspection and repair can be accomplished," the proposal adds.

With these safeguards, the Air Force has concluded, "...it is anticipated that there will be only minimal impact on air quality in the immediate vicinity of the reprocessing plant and no measurable impact on air quality outside of this area due to herbicide reprocessing."

Agent Chemical Inc., a Houston, Texas-based firm, proposed last year to reprocess Herbicide Orange and the Air Force required the company to conduct the pilot project to test reprocessing's environmental and economic feasibility.

How does the company's system of filtering the highly

toxic dioxin from the herbicide work?

Stocks of raw herbicide are placed into heating tanks which raise the temperature to 100 degrees Centigrade. While the boiling point of water is 100 degrees C, the boiling point of Herbicide Orange is at least 310 degrees C, according to Dr. Melvin.

After being heated, the herbicide is passed through a series of cartridges containing activated coconut carbon, a substance which has been proven in laboratory tests and in the pilot project to be able to absorb the dioxin and leave a herbicide which meets Environmental Protection Agency standards.

Fears of the reprocessing are primarily centered around a chemical disaster which occurred last summer at a facility in Italy where four pounds of dioxin spread into the air during a manufacturing process.

A Swiss-owned chemical firm, Icmasa, was manufacturing trichlorophenol, and, following a series of chemical reactions, a valve blew, causing the leakage of dioxin into the atmosphere and subsequent contamination of the Italian city of Seveso.

The pollution spread over 600 acres, forcing more than 1,000 people to evacuate their homes, hospitalizing at least 35 and resulting in several therapeutic abortions. More than 500 persons, many of whom sustained skin damage, are expected to undergo observation for years.

Air Force and Agent Chemical officials have repeatedly said the Herbicide Orange reprocessing is substantially unlike the manufacturing process which led to the incident in Italy.

According to Dr. Melvin, the manufacturing process involved a series of chemical reactions, whereas the Herbicide Orange reprocessing involves only an absorption of dioxin. Agent Chemical officials note that in the manufacturing process, contents are under high pressure, unlike that of reprocessing.

"There is no chemical reaction, no production (of dioxin) per se," said Dr. Melvin. "To say that TCD (dioxin) is produced in reprocessing is not correct."

Each cartridge produced in the reprocessing would be 10 feet long, 30 inches in diameter with a protective wall of three-eighths-inch steel. Each one contains 1.2 pounds of carbon and would be sealed air-tight immediately after filtering.

Agent Chemical has proposed to reprocess the herbicide at the Seabee Center during an 86-day period, claiming about 10,000 gallons of herbicide per day. The 300 cartridges anticipated in local reprocessing would contain 390,000 pounds of carbon with nearly 19 pounds of dioxin, or about .07 of a pound of dioxin per cartridge.

The safety of dioxin absorbed on charcoal in the steel

encased cartridges has been a source of controversy in the western part of the United States in recent months. Twelve cartridges produced in the pilot program have been booted out of California and Oregon, refused entrance into Washington and now rest on Johnston Island.

The Air Force maintains, however, that dioxin stored in this manner is safe.

Maj. Tremblay, the bio-environmental engineer, said dioxin absorbed on carbon is "inert under normal temperature and pressure." If the steel shell of a cartridge was punctured and the carbon spilled out, the clean-up would "involve a dust pan and broom." He added that he would not be afraid to pick up a piece of carbon absorbed with dioxin by using his bare hand.

The federal government has no approved method of destroying dioxin but the Air Force is attempting to locate an incinerator for such purpose.

According to Harry W. Trask, program manager of the EPA's pesticide waste management program, "Incineration is the most effective method of managing this extremely hazardous waste...Incineration studies on Herbicide Orange show that 99.9 per cent or better destruction efficiency is achievable on the first pass through appropriate equipment."

An incinerator to burn the dioxin-contaminated carbon would need to sustain a temperature of 1,000 degrees C and the Air Force is checking firms in the private sector to see what is available.

Said Dr. Melvin, "The combustion technology either exists or is near at hand."

Without a permanent solution, the Air Force proposes to store the cartridges and, while it has developed criteria for such a storage area, it has yet to find one.

The criteria include that the area be remote, under federal control, clearly marked as to its use and restrictions, designed to preclude contact with water supplies, wildlife, recreational areas and agricultural land, and in an arid climate, not in a 100-year flood plain.

An Air Force spokesman said Mississippi is a "less desirable site," but the state has not been ruled out as a potential storage area.

Barring objections from the EPA and operating under "ideal conditions," the Defense Supply Agency (the Department of Defense's disposal agency) would enter into negotiations in late January with Agent Chemical to sell Herbicide Orange for reprocessing.

After the Defense Supply Agency and Agent Chemical settled on price and conditions, the herbicide's sale and, in essence, the whole project would have to be approved by Congress, according to an Air Force spokesman.

While the 2.3 million gallons of herbicide cost the Air Force about \$17 million, estimates of a sale price of what is now known to be a contaminated substance have not gone above \$5 million.

Two years ago during a world-wide shortage of herbicide, a purified 2.3 million gallons of Herbicide Orange was estimated to be worth up to \$60 million. Due to an easing in the shortage, that figure is now believed to be inflated.

Until Dr. Thomas Quigley, a Gulfport physician who also holds a master's degree in public health, expressed his belief earlier this month that Herbicide Orange should not be reprocessed in Gulfport, there had been no local public statements against the Air Force's proposal.

Dr. Quigley, expressing concern about reprocessing near two hospitals located near the Seabee Center, asked that the Mississippi Air and Water Pollution Control Commission not issue a permit to Agent Chemical. While the state commission issued a permit and extensions for the pilot project, it would need to issue another permit for full-scale reprocessing and is expected to rely heavily on the Air Force's proposal and whatever comments the EPA makes.

Dr. Quigley, citing the disaster in Italy, urged that the Herbicide Orange at the Seabee Center be shipped out immediately to Johnston Island.

Based on Dr. Quigley's comments, Pass Christian Mayor Steve Saucier wrote the air and water pollution control commission also asking that it not issue a permit.

Why reprocess the herbicide in Gulfport?

According to the Air Force's proposal, "Of paramount importance is the fact that movement of the contaminated herbicide to the processing plant will be limited to no more than a few hundred yards. It will neither be necessary to de-drum non-shippable drums nor move the unprocessed herbicide from federal property...reprocessing on-site, where stored, combines maximum control of the unprocessed herbicide with minimum risk of environmental insult."

According to Dr. Melvin, moving the herbicide to another location for reprocessing creates an "added transportation difficulty" because of the number of steps necessary to prepare the herbicide for shipment and its

vast quantity.

In all likelihood, the herbicide would have to be re-drummed or placed in bulk storage for any shipment. John Harper, chief enforcement officer of the air and water pollution control commission, has said the state agency will not allow Herbicide Orange to be moved from the Seabee Center in its present containers.

The Air Force has estimated that to properly store the 800,000 gallons of herbicide at the Seabee Center and ship it to Johnston Island would require an expenditure of \$1.3 million.

Dr. Quigley, who has asked that the state pollution control commission hold a public hearing on the reprocessing, said the Air Force should be able to assure the community that reprocessing can be performed without accident.

Asked if such assurance could be given, Dr. Melvin, who until recently was the commander of the Air Force Environmental Health Laboratory at Kelly AFB in Texas, said:

"Very few things of this nature can be guaranteed...nothing can be guaranteed in transportation, either. The question is, can the (reprocessing) operation be carried out with acceptable or reasonable risk? I think it can be from the engineering and scientific points of view."

Dr. Quigley said he fears a major chemical accident at the reprocessing facility. Asked how one could happen, he said it was "axiomatic" and when asked to elaborate, he would not except to say that in any process of chemical manipulation there exists "the possible danger for error."

When asked about the pilot project and its relationship to full-scale reprocessing, Dr. Quigley said, "I don't think I'll get strung out on some detailed questions at this time. I'm not a chemical engineer."

The story of Herbicide Orange

Sixteen years ago the Air Force was in the market for a herbicide which could be used to defoliate jungles. At the same time, Herbicide Orange was developed and the Air Force began making purchases.

The herbicide was used in the Vietnam war and now sits idle as an environmentally unacceptable product.

The following is the long and winding life story of Herbicide Orange:

•1962 — Herbicide Orange is developed for military use as a defoliant but its link to birth defects is not known.

•1965 — The Air Force begins to defoliate jungles in the Vietnam war with Herbicide Orange, which at that time was known as Agent Orange. Chemical companies such as Dow and Monsanto produce the herbicide for the Air Force. In the next five years, the Air Force sprays more than 11 million gallons in Vietnam.

•1969 — Vietnamese newspapers report an increase in birth defects and subsequent hearings are held in the U.S. to determine the cause. The Vietnamese defoliation, however, continues.

•1970 — The Department of Agriculture suspends most uses of 2,4,5-T, a component of Herbicide Orange which contains the highly toxic contaminant dioxin. It is the dioxin which is linked to birth defects. The Air Force then ceases defoliation of Vietnamese jungles with Herbicide Orange.

•1971 — The Air Force is made responsible for disposing of Herbicide Orange. More than 800,000 gallons in the United States which had been destined for Vietnam through the Port of Gulfport is stored at the Seabee Center. Another 1.5 million gallons is shipped from Vietnam to Johnston Island in the Pacific for storage.

•1974 — The Air Force proposes to incinerate

Herbicide Orange at sea on board the Dutch-owned ship Vulcanus. The proposal is the result of three years of study and is announced in a final environmental impact study.

•February, 1975 — At a public hearing on incineration at sea, the Environmental Protection Agency fails to approve incineration and urges the Air Force to further consider reprocessing the herbicide into an environmentally acceptable product. The Air Force then invites private firms to conduct a pilot reprocessing program.

•August, 1975 — The Mississippi Air and Water Pollution Control Commission issues a permit to Agent Chemical Inc. of Houston, Tex., to construct a pilot facility at the Seabee Center.

•October, 1975 — The state pollution control commission issues a permit for Agent Chemical to operate its pilot facility.

•February, 1976 — Pilot reprocessing is suspended because of Agent Chemical's technical problems. The firm objects to the suspension.

•July, 1976 — Agent Chemical completes a final series of tests and announces it has successfully removed dioxin from the herbicide. Analysis of the tests by the Air Force later confirms the success of the process.

•September, 1976 — The State of California refuses to permit the burial of 12 cartridges containing dioxin-contaminated carbon which came from the pilot project. Later in the month the cartridges are buried in Oregon.

•December, 1976 — Oregon orders that the cartridges be exhumed and removed from the state. Washington officials refuse to let the cartridges be driven into their state. The Air Force airlifts the cartridges from Portland, Ore., to Johnston Island.

Glossary of terms

AGENT CHEMICAL INC. — A Houston, Texas-based chemical company which proposes to remove the dioxin from Herbicide Orange to produce an environmentally acceptable herbicide for resale. It has spent more than a year and \$300,000 in developing its proposal.

COCONUT CARBON — A carbon substance produced from by a charcoal process coconut shells.

DE-DRUM — A procedure where the 55-gallon cans containing Herbicide Orange are opened.

DIOXIN — One of the deadliest substances known to man, through its existence in Herbicide Orange it was linked to birth defects in the late 1960s. While its concentration in Herbicide Orange is two to five parts per million, the Environmental Protection Agency forbids sale of a herbicide containing more than .1 parts per million.

DRUMS — There are some 15,000 55-gallon drums of Herbicide Orange at the Seabee Center and 25,000 drums on Johnston Island. The drums at the Seabee Center are deteriorating and, if reprocessing locally is dealt a setback, they probably will have to be redrummed in an enclosed environment. The deterioration is caused by salt air, not the herbicide, according to Air Force officials.

HERBICIDE ORANGE — A defoliant used by the Air Force in the Vietnam War, it contains equal amounts of 2,4,5-T and 2,4-D, two herbicides. It also contains traces of dioxin (TCDD) which were produced during the 2,4,5-t's manufacture. More than 800,000 gallons are stored at the Seabee Center in Gulfport and almost 1.5 million gallons are stored on Johnston Island, a federally controlled atoll in the Pacific.

PILOT PROJECT — Held earlier this year, it was a test to determine the environmental and economic feasibility of reprocessing Herbicide Orange. Agent Chemical successfully absorbed dioxin into the carbon. The project, which sustained technical problems in the beginning, concluded successfully in July.

RE-DRUM — A procedure where deteriorating drums are opened and the herbicide is removed to a new can which is then sealed.

REPROCESSING — A process in which Herbicide Orange is heated and filtered through columns of activated coconut carbon where dioxin is absorbed. An environmentally acceptable herbicide results.

REPROCESSING CARTRIDGES — Steel encased, each cartridge would measure 10 feet long and 30 inches in diameter, and hold about 1,284 pounds of carbon. After reprocessing, the carbon in each cartridge would absorb about .07 pounds of dioxin.