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A1057 030-17

JCM



FACSIMILE TRANSMISSION HEADER

DATE: 1992 APRIL 02 EXT: 3050  
 TO: MARIA GRECO DANAHER FAC#: 4783  
 FROM: CLOIS GREEN

RE: LAVACA BAY  
 OTHER INSTRUCTIONS IF ANY: Comments have been marked on copy of draft. I will be in Pch. Mon., 4-6, PM and all day Tuesday, 4-7, if you would like to discuss. Will be with Pat Atkins group.

Number of pages including this transmittal sheet:

14 Letter  
           Legal

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 ALCOA, ROCKDALE USE ONLY:  
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 Time Operator

C. Green  
 EXHIBIT  
 P-47  
 CASE# 9-14-95

Defendants' Exhibit  
25227

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RE: LAVACA BAY FACT MEMO - CONFIDENTIAL - for litigation

1956

Construction began, in March, for the bauxite dock, barge depth (thirteen foot) channel only. This channel ended at the R-10 bauxite dock. In February of 1957, a contract was awarded to King Fisher Marine Company for dredging the channel from Port Lavaca Channel to Alcoa's bauxite dock. The one hundred foot wide barge channel was completed in 1957 from Pass Cavallo-Port Lavaca Waterway across Lavaca Bay to Mitchell's Point (the bauxite dock site), and included a connection between the Smelting Dock and the R-10 Turning Basin. ~~Once this channel was~~

There was an earlier channel from smelting dock westward. The smelting dock was dredged occasionally while plant operated.

~~completed~~ ~~the smelting dock was no longer required.~~ The new channel formally opened on May 22, 1958, and the first bauxite barge arrived at the bauxite dock in January of 1959. In 1959, Alcoa began its Bauxite Refining Operation at Point Comfort. At that time, the Alcoa plant consisted of the Smelting Unit (began operation, 1950, <sup>and shutdown 1980</sup>) the Carbon Plant (1950), the Aluminum Ingot Plant (1953, shut down in 1980) and the Oil and Gas Processing Plant (1959, sold in 1988), along with various maintenance and solid waste management facilities.

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ALCOA DATE

1960 The deep channel opened to Alcoa's bauxite dock; first ship arrived. Federal funds had been authorized for this project (entitled the "Metagorda Ship Channel Project") in 1959. *Nav. Dist. was local sponsor of public dock*  
*public portion of*  
*Alcoa resp. from Y to R-10*

1961 The Cryolite plant began operation. It was shut down during the 1980's, and was physically removed in 1987.

1962 Texas Water Quality Board issued the original industrial wastewater discharge permit for Alcoa's Point Comfort Operations (a copy will be supplied by John Mayfield for review). This permit was amended in 1963, and again in 1965 (copies of the amendments will also be supplied).

The Aluminum Fluoride Plant began operation (Note: the raw material for aluminum fluoride is calcium fluoride; and some calcium fluoride sources have 10-20 ppm of Mercury).

1964-67 In September of 1964, Alcoa entered into an agreement with Monsanto concerning the construction, by Alcoa, of a caustic chlorine ("Chlor-Alkali") plant at Point Comfort, Texas, and the sale of chlorine ~~and caustic soda~~, from



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the plant, by Alcoa to Monsanto. As part of the original agreement, Monsanto was to provide the technical know-how, and was to supervise certain aspects of the production at the plant, including a yearly Mercury inventory. Fred Carter, who is ~~factored out of~~ <sup>present Engineering Manager of</sup> the Point Comfort ~~plant~~, is familiar with the original negotiations. The agreement provided for Monsanto to furnish the design, engineering, and certain equipment for the plant. The original agreement was amended in December of 1966, and again in March of 1969, to adjust certain numerical figures when the plant was expanded. The facility itself was completed in 1966, and officially began production in 1967. <sup>Debugging oper. began in 1966.</sup>

1966-69

From March of 1966 <sup>until late 1969 or early</sup> ~~through approximately~~ 1970, wastewater from the Chlor-Alkali plant was discharged directly into Lavaca Bay through outfalls 12 and 9A, although amounts of direct discharge decreased substantially after 1969. In August of 1967, Alcoa dredged the Refining Channel; disposal of dredged material is likely to have occurred onto the Off Shore Island. In 1968, the Chlor-Alkali Plant was expanded from forty-two cells to fifty-eight cells (DeMora design).

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0320-1-88

1968 Texas Water Quality Board inspected Alcoa outfalls on February 8; no mention of mercury is made in its report.

1969 In February, Alcoa organized a task force ~~on~~ ~~the suggestion of Chris Green,~~ to improve the efficiency of the Chlor-Alkali operations at Point Comfort, with major emphasis on Mercury losses. Green had reviewed an article regarding

the concern of Swedish scientists about Mercury contamination and its effect on humans, and began to question the effect of the direct discharge into the Bay. ~~In addition,~~ There was

June 69  
↓

an economic concern about the loss of the Mercury. The members of this "task force" were: Fred Williams, ~~who had left Alcoa~~ <sup>who</sup> is now a ~~technical consultant and resides in~~ <sup>at</sup> the Point Comfort ~~Plant~~ <sup>are</sup> Tom Roberts, who ~~had~~ transferred to Lebanon and may have retired; and (possibly) Rudy Poders, who was a process supervisor at the C-A plant, and then retired from Alcoa in 1982.

In April, there was another inspection of Point Comfort industrial waste water discharges by Texas Water Quality Board; there was no mention of Mercury in the inspection report. Also in April, Alcoa completed its preliminary analysis of all effluent streams in order to define the nature and extent of Mercury losses.

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EX-105

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1969

Alcoa agreed, in June, at the request of the Texas Water Quality Board, to undertake and fund an ecological study of Lavaca Bay. The purpose of the study was to determine the effect of effluents from Alcoa's fourteen direct discharge outfalls on marine life in the bay. Al Rambikur, who has since retired and resides in the Point Comfort area, was assigned to work full-time on environmental matters for the plant.

On July 25, Texas Water Quality Board issued a revised permit to Alcoa (Chlor-Alkali process noted but mercury not mentioned) in which special provisions required that Alcoa conduct an ecological study.

By August of 1969, all water streams had been analyzed, and tentative proposals for alternate disposal had been made. Certain minor equipment modifications were undertaken to improve disposal.

A total of eleven alternative proposals were completed, by November, for changing, treating or eliminating effluents contaminated with Mercury, chlorine or hypochlorite; a number of these required major capital expenditures and

*This Evaporator was never installed; plant had another evaporator for salt. 1970*

extensive changes to operating procedures. Engineering was begun on an evaporator that would be installed to reduce the volume of brine stream from the C-A plant so that effluent could then be added to that brine stream.

Based on growing concerns about Mercury discharge, Alcoa diverted Chlor-Alkali waste water, mixing it with gypsum, before piping it under the deep ship channel to the Off Shore Lagoon. The Off Shore Lagoon had two outfalls for surplus water ("sluicing system").

The first visit to Point Comfort by state and federal agency personnel to sample effluent streams from the Chlor-Alkali plant occurred on May 19. Agency data (P.W.Q.A.'s Lab) showed 0.029 ppm mercury or 0.13 pounds/day going to Lavaca Bay. A copy of the agencies' report is available.

On July 21, the Texas Department of Health closed most of Lavaca Bay to oystering based on concerns about Mercury contamination.

Alcoa's first sampling trip related to ecological study of Lavaca Bay occurred in March of this year.

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A-1050-1000

On July 25, 1970:

Alcoa began to divert the Chlor-Alkali wastewater from the Off Shore Lagoon to the alumina plant to be mixed with "liquor stream" ("red mud") water. This water was not discharged, but was used as make up water to the process. ~~used as make up water to the process.~~ ~~when discharge to the Bay began under permit.~~ Putting this effluent into the alumina system caused the salt level in the liquor stream to increase substantially, which decreased alumina production.

State (TSDM) and federal (FWQA) agency personnel conducted a number of samplings for Mercury, including measurements at outfalls 11A and 11B, an investigation of "spillage" of surface Mercury, and an intensive five-day sampling of all plant discharges in late July. Results of the tests showed significant Mercury concentrations in the soil sediments in the outfall channels and ship channel. Information regarding these tests is contained in a 9-10-70 TMOB memo, a copy of which is in our files.

On July 31, the Texas Water Quality Board issued an emergency order to Alcoa to reduce Mercury discharges to Lavaca Bay.



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Sampling during August showed that Mercury in the off-shore lagoon effluent had decreased to undetectable limits, but channel bottom samples at that time indicated high Mercury levels in the vicinity of the C-A plant.

A study was conducted, at ATC by G.F. Lens, concerning the Mercury concentration in bauxite.

Alcoa's ecological study of the Bay area was extended for two years.

On December 15, the Executive Director of TWQS, Hugh Yantis, issued a letter to Alcoa's Point Comfort Operations Manager, E.L. Wohlsten (now deceased), containing the opinion that "Alcoa is complying with the orders and instructions of the Texas Water Quality Board as they are embodied either in the presently held waste discharge permit or later orders or instructions from the Board...".

1971

Chlor-Alkali waste water line to Lake No. 2 (which eventually became Lakes 1, 2 and 3) was finished. All Chlor-Alkali waste water was diverted to Lake No. 2 for the duration of plant operations. The plant has remained at zero discharge, including storm water runoff, since the completion of that pipeline.

- 1971 Texas Department of Health reopened Lavaca Bay to oystering.
  
- 1972 Dr. William G. Stanton's report, titled "The Ecological Impact of Mercury Discharge on an Enclosed Secondary Bay", was published in August. This research was supported by Alcoa.
  
- 1974 A special "dredge lake" was constructed into which dredge spoils were put, with minor exceptions. Prior to this time, dredge spoils were ~~kept~~ <sup>placed</sup> mainly on the Off Shore ~~Islands~~ <sup>Islands</sup>.  
 (However, in 1986, the shallow smelting area was dredged by Alcoa and WitCo, and the spoils placed into the Off Shore Lagoon, as were the spoils from Alcoa's 1988 dredging of the large/deep channel area).
  
- 1976 Alcoa funded study related to mercury in Blue Crabs in Lavaca and Cox Bays, and a report was issued in 1978.
  
- 1977 Alcoa's Chlor-Alkali agreement with Monsanto expired.
  
- 1978 Alcoa permits were modified by Texas Department of Water Resources to include the monitoring and

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reporting requirements of mercury. Grab sample limits were 0.010 mg/l and composite sample limits were 0.005 mg/l. Monthly sampling frequency was specified.

- 1979 April 30 was the last day of operation of the Chlor-Alkali plant.
- 1981 First sampling of a Chlor-Alkali groundwater monitoring well by Alcoa took place in November.
- 1982 In mid-April, Alcoa submitted its first groundwater monitoring data to the Texas Department of Water Resources that showed contamination at the Chlor-Alkali plant site .
- 1983 Alcoa reviewed Chlor-Alkali groundwater Mercury data with Texas Water Commission personnel in Corpus Christi on January 6.  
  
The final report from Law Engineering concerning Hydrogeologic Exploration of the Chlor-Alkali plant site published on April 13. This report was shared with TWC by Alcoa.
- 1983 Final specifications for demolition of the Chlor-Alkali plant were routed for local approval during September. The demolition began

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ATOMIC ENERGY COMMISSION

In July of 1985, and was completed in July of 1986. "Clean" process equipment was sold into the chlorine industry. Fiberglass pipeline, etc., was disposed of into the mudlakes, which are continually monitored.

1987 Alcoa permits were modified by the Texas Water Commission, and the requirement for monitoring and reporting of mercury was dropped. Actual monitoring was continued. Sampling frequency was established for the "first discharge" for each month.

1988 The Texas Department of Health closed portions of Lavaca Bay to the taking of finfish and crabs. This order remained in effect, <sup>4-21-88</sup> ~~through 1988 and into 1989.~~

1989 On June 9, Alcoa received a Section 108 Order for EPA as part of the Section 104L process. The order required Alcoa to sample and report total and dissolved mercury on all outfalls once per week for the period of 7-1-89 through 10-1-89.

The EPA Section 108 Order of 1989 June 09 was modified, on July 19, based on Alcoa data submitted. The order was limited to sampling and reporting of Outfall 003 for a period of 90 days.

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ATTORNEY

CLIENT

1989 In October, Alcoa submitted its final report to EPA in compliance with the Section 108 Order of 6-9-89.

1990 Texas Water Commission requested a copy of Alcoa's groundwater monitoring data from the Chlor-Alkali plant during routine inspection in February.

First meeting between representatives from Alcoa and "trustees" of natural resources representing state and federal agencies took place on December 18.

1991 Received verbal approval, in January, from TWC, for additional groundwater monitoring wells.

1991 In February, EPA requested information related to plant site under CERCLA Section 104 and RCRA Section 3007.

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Former personnel of Point Comfort/Chlor-Alkali Plant who may have additional information concerning Mercury discharges and subsequent remedial efforts:

Fred Mabry - retired; still in the area; may know about original Mercury problems.

Cl Belcelore - former production manager; retired, and in extremely poor health; now in Mobile area.

Jack Laudenberg - retired; in Arkansas.

D.L. Emery - former superintendent of C-A plant; retired; in the Rockdale area.

Jim Sadgett - left Alcoa, but still in Point Comfort area.

Larry Jones - former processing engineer at C-A plant; still employed at Alcoa/Point Comfort.

MARIA GRECO DANAHER

March 31, 1992

564MCD  
JTT

Defendants Exhibit 25227

92-2-28065-5

ALCOA, ET ANO.  
VS.  
ADMIRAL INSURANCE, ET AL

**FILED**

KING COUNTY, WASHINGTON

JUN 05 1996

SUPERIOR COURT CLERK  
BY VICTOR A. BIGORNIA  
DEPUTY