PLAINTIFF'S EXHIBIT

DOW-1916

1980 INDUSTRIAL HYGIENE SURVEY SUMMARY

1980 INDUSTRIAL HYGIENE SURVEY SUMMARY

It is the responsibility of employers to annually determine employee exposure to potential health hazards in the work area and report the results to all involved personnel. The employee is also to be informed of the toxic and hazardous properties of these chemicals and physical agents, the limits they may be exposed to without danger, the symptoms of over-exposure, and what they should do to prevent overexposure.

The 1980 I.H.S. was determined and carried out in accordance with the NIOSH occupational exposure sampling strategy.

Environmental Hazards Monitored in CA II Block

	TLV or IHG
Chlorine	1 ppm
HCBD	50 ppb
Asbestos	2 fib./cc>5μ
Sulfuric Acid Fumes	1 mg/m^3
Caustic Fumes	2 mg/m^3
Hydrochloric Acid Fumes	7 mg/m^3
Noise	85 db (A)

CHLORINE:

Chlorine gas has a TLV of 1 ppm. Above this level it can be very irritating to the eyes, nose, throat and lungs. At high concentrations there can be a burning sensation to the skin. Operators are required to carry a mouth-bit type respirator at all times - these are designed to help escape from chlorine. If required to work in a chlorine atmosphere under emergency conditions, Scott Air Pak equipment must be worn. Chlorine has very good warning properties with an odor threshold of approximately 0.25 - 1.0 ppm. Samples were obtained in impingers containing a dilute caustic solution (.02N) and analyzed using a photoelectric color meter.

TYPE	#TESTED	AVG. READING	HIGHEST READI
Personnel - TWA			
Limit: 1 ppm C	13	< .1 ppm	< .1 ppm
Excursion	12	<1.25	4.65
Area	13	< .461	1.53

The high reading on excursion samples occurred while sampling on the cells during backpressure conditions. Other excursion readings were obtained while sampling chlorine. The significant readings collected from area sampling occurred as a result of cell startups and process upsets. Personnel involved in excursion samples were wearing respiratory protection.

HCBD:

HCBD is a colorless oily liquid with a strong pungent odor. Odor is considered a poor indication of excessive exposure. It can be detected at 200 ppb, however, the exposure limit is 50 ppb. Because of the high toxicity of this material that may be able to cause cancer in man, HCBD should be handled with extreme care and all exposure avoided. Operators sampling and loading HCBD to the system or working on equipment associated with HCBD are required to wear breathing air. When the use of breathing air is unfeasible (i.e. activities in which a lot of moving around is required) a full-face respirator with MSA #88340 GMC organic vapor canister should be worn. HCBD sampling is done every 6 months. Porapak QS tubes were used to collect samples and analysis was achieved by gas chromatography.

The HCBD system has been removed from CA II plant. Demolition work was completed in December, 1980, however the HCBD system had not run since early 1980.

TYPE	#TESTED	AVG. READING	HIGHEST READING
Personnel -TWA			
Limit: 50 ppb	4	.31 ppb	.70 ppb
Excursion	2	47.95	81.0
Area	15	16.05	82.7

The excursion high reading was collected while sampling HCBD as a prerequisite for disposal. Significant area sample readings occurred while draining and purging the HCBD system.

ASBESTOS:

The Dow IHG for asbestos is 2 fibers per cc greater than 5 microns in length. Asbestos fibers in the atmosphere are potentially hazardous. There are no immediate chemical or physical warning properties and effects from overexposure may appear after a latency period of 20 or more years. Asbestosis, mesothelisma and asbestos corns may result from overexposure. A dust respirator, rubber gloves, rubber boots and a disposable paper suit must be worn when handling asbestos. Asbestos is to be handled wet at all times. The written procedure for asbestos handling should be read and adhered to. Good housekeeping is essential to keep the area clean of asbestos. Asbestos sampling is done every six months. Samples were obtained on .8 micron pore size millipore filters. An asbestos count is made by magnifying a 4 square grid section of the sample 500 times and counting asbestos fibers.

TYPE	#TESTED	AVG. READING	HIGHEST READING
Excursion			
Limit: 2 fib./cc>5μ	12	<.107 fib./cc>5μ	.16 fib./cc>5μ

SULFURIC ACID FUMES:

The TLV for sulfuric acid is 1 mg/m^3. Exposure to the skin causes severe chemical burns. Inhalation of the mist can produce irritation of the upper respiratory system and nasal passages. When working with sulfuric acid, a full acid suit and respirator must be worn. Samples were scrubbed in an

impinger through distilled water and analyzed for sulfates using a photoelectric color meter.

TYPE	#TESTED	AVG. READING	HIGHEST READING
Excursion			
Limit: 3 mg/m^3	3	<.044 mg/m^3	.091 mg/m^3

CAUSTIC FUMES:

The TLV for caustic fumes is 2 mg/m^3. Contact with the skin or eyes causes severe burns and must be washed off immediately. Inhalation causes coughing and painful nose and throat irritation. When working with caustic, rubber boots, rubber gloves, respirator and monogoggles must be worn. The samples are collected on .8 micron pore size filters. The caustic is extracted from the filters and analyzed by atomic absorption.

TYPE	#TESTED	AVG. READING	HIGHEST READING
Personnel - TWA			
Limit: 2 mg/m^3C	10	.059 mg/m^3	.100 mg/m^3
Excursion	7	.035	.06
Area	3	.177	.34

HYDROCHLORIC ACID FUMES:

The TLV for HCl is 7 mg/m^3. The concentrated acid or gas can cause severe burns to the skin. Inhalation will irritate the nose, throat, lungs and eyes. Prolonged exposure can result in ulceration of the nose and throat. Samples were collected by scrubbing through a .02N caustic solution and analyzed for chlorides using a photoelectric color meter.

TYPE	#TESTED	AVG. READING	HIGHEST READING
Excursion			
Limit: 7 mg/m^3C	4	.012 mg/m^3	.016 mg/m^3

NOISE:

The Louisiana Division Noise Standard states "the permissible exposure to continuous noise shall not exceed an eight-hour time - weighted average of 85 db (A), with a doubling rate of 5 db (A) which means that the allowable exposure time doubles with each 5 db (A) reduction in noise level". Prolonged and repeated exposures to levels exceeding 90 db (A) may cause severe damage to the nerves in the inner ear. Caution signs are placed in the high noise level areas throughout the plant as a reminder to wear hearing protection and to point out these problem areas. An area survey of the plant was made using a Bruel and Kjaer Model 2205 sound level meter calibrated at 94 db (A) (1000 Hz). The noise survey showed that all production areas in the CA II block had some noise levels above 85 db (A). The Dupont Model 100 audio dosimeter was used to monitor

noise exposure to CA II personnel.

TYPE	#TESTED	AVG. READING	HIGHEST READI...
Personnel - TWA			
Limit: 85 db (A)@100%	34	37.8%	117%

The highest result was obtained on a contract employee who spent all day in the caustic and power areas. Other upper range readings were obtained from the power operators.