



DOW CHEMICAL U.S.A.

14294

ST0085192

TEXAS OPERATIONS
FACILITY, TEXAS 77401

CONFIDENTIAL ----- FOR THE USE OF DOW EMPLOYEES ONLY

PLAINTIFF'S EXHIBIT

DOW-1803

INDUSTRIAL HYGIENE REPORT

EVALUATION OF POTENTIAL EMPLOYEE EXPOSURES TO NOISE,
ASBESTOS, AND CHLORINE/CAUSTIC - UNIT II, OYSTER
CREEK SITE

FILE NO OC511-2962HAC
DATE January 6, 1988
AUTHOR D. R. Mathurin
B. J. Jenkins
D. L. Albert
CHECKED Sanna Hicks
DATE 2/1/88

Summary

Personal exposures to noise, asbestos, and chlorine were monitored during 1986 and 1987 at Cl₂-Caustic-Unit II, Oyster Creek Site. None of the average noise exposure levels exceeded the OSHA Standard for 8-hour and 12-hour work shifts, but did exceed 50% of OSHA allowable (action level) for Process Technicians and Sr. Process Technicians working 12-hour shifts and Repair Technicians working 8-hour shifts. A hearing conservation program is in place now with hearing protection being utilized. New recommendations for use of hearing protection are discussed in the body of this report. Results of an area survey conducted in June of 1986 are also included in this report.

Exposure to chlorine did not exceed the Industrial Hygiene Guideline (IHG) of 1 ppm ceiling for any of the personnel sampled. Additional chlorine monitoring is planned for 1988.

Employee exposures to asbestos did not exceed the 0.2 f/cc OSHA limit. Asbestos exposure for one (1) contractor did exceed the OSHA action level of 0.1 f/cc. Asbestos will be monitored again in 1988.

Distribution

D. E. Cragar, B-101
W. F. Cushman, M.D., B-101
G. W. Engdahl, 1903, Midland
*J. E. LeBeau, 1903, Midland

*L. W. Rampy, 1903, Midland
M. G. Swank, 1803, Midland
J. D. Wade, CC-201
H. C. Waldrop, CC-201

* Cover Sheet Only

EVALUATION OF POTENTIAL EMPLOYEE EXPOSURES TO

PURPOSE

Industrial hygiene monitoring was conducted at Cl₂ Caustic-Unit II Plant during 1986 and 1987 as outlined in the protocol, File #OCSII-2962. Employee exposures to asbestos, noise and chlorine were evaluated. An area noise survey was also conducted and octave band analysis performed in problem areas. The purpose of this report is only to summarize the data since the measurements were collected by another industrial hygienist.

CONCLUSIONS

1. Process Technicians and Sr. Process Technicians working 12-hour shifts did exceed the action level (82 dBA), 50% of the OSHA allowable (12-hour - 87 dBA). Repair Technicians working 8-hour shifts also exceeded the action level (85 dBA), 50% of the OSHA allowable (8-hour - 90 dBA).
2. An area noise survey of the plant did determine some locations that exceeded the 115 dBA ceiling. An octave band analysis was conducted in several areas to help evaluate the noise source.
3. Chlorine exposures for Process Technicians in the chlorine compression and cell areas were within the established Industrial Hygiene Guidelines.
4. Process Technicians and Sr. Process Technicians' exposures to asbestos were within the established Industrial Hygiene Guidelines.
5. One contractor uncovering cells during a chlorine cell series assembly procedure was potentially exposed to an airborne concentration of .11 fibers per cubic centimeter asbestos. This level does exceed the action level of .10 fibers per cubic centimeter of asbestos, but uncovering cells is not a high occurrence activity.

RECOMMENDATIONS

1. The individual monitoring results have been communicated to employees. The results of this report must be communicated to employees and documented on the attached form. Training should be completed and the form returned to Industrial Hygiene Services, B-101, within 60 days of the date of this report (March 25, 1988).
2. Hearing protection must be worn as outlined in the new Dow Texas Operations Safety Standard (O-46, 1989) whenever noise levels exceed 90 dBA (ceiling) or whenever exposures exceed 85 dBA as a TWA. Areas with sound levels greater than 90 dBA shall be posted with signs to alert employees that hearing protection is required in the area. Industrial Hygiene Services will assist the plant as necessary.
3. Additional monitoring and evaluation of employee exposures to asbestos during chlorine cell maintenance operations shall be conducted.

ST0085183

EVALUATION OF POTENTIAL EMPLOYEE EXPOSURES TO

RESULTS AND DISCUSSION

Personal TWA exposures and area surveys for noise were conducted in 1986-87 at the Cl₂ Caustic - Unit II Plant. The summary of average exposures and individual results are given in Table I and II respectively. The results of the area survey are listed in Table III. Mean 8 and 12-hour TWA exposures for all job classifications were within acceptable limits. Process Technicians, Sr. Process Technicians and Repair Technicians job classifications did exceed the action level of 50% of OSHA allowable. Also three individual personnel samples exceeded the IHG for noise and present a potential exposure only because hearing protection was being utilized. The area noise survey did designate some areas with greater than 115 dBA. The area survey will establish a data base to designate areas greater than 90 dBA in conjunction with Texas Operations Safety Standard O-46 newly issued standards.

Table IV summarizes the asbestos and chlorine monitoring for 1985-87 at Cl₂ Caustic - Unit II. All personal TWA exposures were less than the IHGs for asbestos. One of thirteen measurements for a contractor pipefitter did exceed the action level of .10 fibers/cubic centimeter during the uncovering of a new chlorine cell prior to series assembly. The personal monitoring results for asbestos are listed in Table V and are only potential exposures because protective equipment and respirators are utilized.

On April 7 and 9, 1987, personal TWA exposures to chlorine were monitored for Process Technicians CHSE and Process Technicians Chlorine. For these samples, the Process Technicians CHSE is responsible for operation of the chlorine compression and hydrogen recovery portion of the plant. The Chlorine Technician is responsible for the chlorine cooling and drying area. This includes collection and analysis of samples in this area. All individual TWA exposures to chlorine were less than the IHGs. The results of the chlorine monitoring are listed in Table VI.

EVALUATION CRITERIA

The Dow Industrial Hygiene Guide (DIHG), the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) and the OSHA Permissible Exposure Limit (PEL) are the 8-hour time-weighted average (TWA) concentrations of airborne substances to which it is believed nearly all employees may be exposed throughout a working lifetime without adverse health effects. IHGs are intended to be used as guidelines for evaluating employee exposures and as aids for designing or modifying plants or operations--not as fine lines between safe and dangerous concentrations. Dow generated IHGs are developed by Occupational Health teams using toxicology information, industrial hygiene data and medical experience and are approved by the Dow Industrial Health Board.

Most IHGs represent time-weighted average (TWA) concentrations for an 8-12 hour workday, 40-hour workweek. Limited short-term (excursion) exposures to higher concentrations are acceptable for most materials as long as the 8-hour TWA exposure does not exceed the IHG. Excursion guidelines, in addition to the TWA guideline, have been established for some materials which may cause adverse effects from brief exposures to relatively high concentrations. Professional judgment, rather than specific duration or frequency limits, should be used when applying these excursion guides. A few materials have IHGs which are ceiling exposures criteria, indicating that exposures should not exceed that level even for brief periods. IHGs are usually expressed in parts per million, volume by volume (ppm-v/v) or milligrams of contaminant per cubic meter of air (mg/m³).

ST0085184

EVALUATION OF POTENTIAL EMPLOYEE EXPOSURES TO

EVALUATION CRITERIA (Cont'd)

A "skin" notation may be used with an IHG to indicate that the material can be absorbed through the skin. For these materials, skin contact can contribute to the overall exposure; therefore, inhalation exposure evaluations may not be representative of total exposure.

Evaluation of noise exposure levels was based on the OSHA Permissible Exposure Limit (PEL) of 90 dBA as an 8-hour TWA (100%). An exposure of 50% is equivalent to 85 dBA as an 8-hour TWA. Employees with exposures greater than 50% of the OSHA allowable must be included in the Hearing Conservation Program.

Personal exposures are based on the following criteria:

<u>Agent</u>	<u>TWA</u>	<u>Ceiling</u>	<u>Source</u>
Asbestos	.2 f/cc	--	OSHA
Chlorine	---	1 ppm	OSHA
Noise - 8-hour	90 dBA	115 dBA	OSHA
12-hour	87 dBA	*90 dBA	DIHG

* Effective 11/9/87

SAMPLING AND ANALYSIS

Eight-hour measurements of asbestos were performed following the procedures outlined in the Occupational Safety and Health Asbestos Standard. Samples were collected using 25 mm mixed cellulose ester (MCE) fiber filters at a flow rate of 2.0 liter/minute and analyzed optically (NIOSH 7400).

Eight-hour measurements of chlorine during operation checks and collection of samples were conducted using the Metrosonics chlorine monitoring systems as outlined in HEH-IHM-81-41. The Metrosonics chlorine monitor and data acquisition system employs an electrochemical sensor in which an aqueous electrolytic solution, exposed to ambient air via porous glass frit, generates an output current proportional to chlorine concentration in the air. The data is analyzed, printed out, and archived on an IBM computer via Metrosoft applications software.

Personnel noise dosimetry was done as outlined in Texas Operations hearing Conservation Manual using GenRad noise dosimeters. Area noise levels throughout the process area, lab, and the control room were measured with a GenRad (General Radio) Type 1988 Precision Sound Level Meter.

ST0085185

TABLE I
SUMMARY OF AVERAGE NOISE EXPOSURE

<u>Job Classification</u>	<u>Job Code</u>	<u>Number of Samples</u>	<u>% OSHA Allowable Range</u>	<u>Average</u>	<u>Equivalent dBA</u>
<u>8-Hour Shift</u>					
Process Tech - Electrical Sr. Technician-Electrical Sr. Technician-Instrument	22170E 25287E	3	4 - 28	13	75
Process Tech-Cell Control Sr. Tech-Day Cell Control	22170PC 25287OCL	3	16 - 42	30	81
Sr. Technician-Repair Process Technician-Repair Unit Technician-Repair	25287R 22170R 25341R	7	12 - 107	49	95
Process Technician-Caustic	22170HA	5	24 - 53	35	83
Process Technician-Chlorine Sr. Technician-Chlorine	22170CL 25287CL	3	17 - 32	23	79
Process Technician-CHSE Sr. Technician-CHSE	22170CHSE 25287CHSE	2	18 - 30	24	80
Process Technician-Utility Sr. Technician-Gas Turbine	22170UT 25287GT	5	21 - 122	35	83
Administrative & Clerical	---	8	1 - 32	12.0	75
			8-Hour IHG Action Level	100 50	90 85
<u>12-Hour Shift</u>					
Process Technician-Caustic	22170HA	3	20 - 65	38	80
Process Technician-Chlorine Sr. Technician-Chlorine	22170CL 25287CL	2	31 - 53	42	84
Process Technician-CHSE Sr. Technician-CHSE	22170CHSE 25287CHSE	3	70 - 85	73	85
Process Technician- Treating and Transfer	22170TNT	4	12 - 22	15	75
Process Technician-Utility Sr. Technician-Gas Turbine	22170UT 25287GT	4	59 - 190	82	85
			12 Hour IHG Action Level	100 50	87 82

ST0085186

TABLE II
NOISE - PERSONAL MONITORING RESULTS

<u>Job Classification</u>	<u>Master Number</u>	<u>Date</u>	<u>Exposure Time (Min)</u>	<u>Time-Weighted Average % of OSHA Allowable</u>
Process Tech-Caustic	206667	7-31-86	640	20
	202738	7-31-86	720	27
	206667	8-01-86	710	68
	202445	7-01-86	470	27
	202738	6-27-86	405	42
	202433	6-25-86	405	31
	202588	7-03-86	435	24
	Contractor	7-02-86	445	53
Contractor Instrument and Electrical	Contractor	7-19-86	475	4
	Contractor	7-14-86	455	28
	Contractor	7-14-86	460	8
Process Technician Cell Control	261982	8-01-86	445	32
	202751	7-22-86	580	42
	205614	8-01-86	445	16
Process Technician Chlorine	202705	8-01-86	520	19
	202751	7-02-86	515	17
	202308	7-02-86	525	32
	202619	7-31-86	730	53
	202735	7-31-86	630	31
Process Technician CHSE	202345	7-31-86	650	85
	202341	7-31-86	680	54
	202345	8-01-86	720	70
	202679	7-22-86	570	30
	206254	7-03-86	410	18
Process Technician Utility	202808	7-31-86	640	69
	206254	8-01-86	660	190
	202808	8-01-86	670	60
	206254	7-31-86	735	58
	202857	7-09-86	470	122
	205254	6-27-86	400	21
	202808	6-25-86	490	61
	202505	7-22-86	280	34
	202857	7-01-86	450	93

ST0085187

TABLE II
NOISE - PERSONAL MONITORING RESULTS

<u>Job Classification</u>	<u>Master Number</u>	<u>Date</u>	<u>Exposure Time (Min)</u>	<u>Time-Weighted Average % of OSHA Allowable</u>
Process Technician- Treating & Transfer	202554	9-01-86	660	15
	202202	7-31-86	715	12
	202507	7-22-86	480	22
	202854	7-31-86	620	13
Process Technician- Repair	202311	8-01-86	425	12
	202251	5-25-86	420	68
	206380	7-01-86	465	36
	202251	5-27-86	435	107
	206667	7-22-86	410	21
	202251	5-27-86	465	21
Contractor Repair	Contractor	7-22-86	420	80
Process Engineer	145242	7-24-86	445	12
Safety Supervisor	202097	7-31-86	495	10
Process Engineer	301918	7-31-86	470	9
Mechanical Supervisor	138669	7-31-86	475	1
Process Engineer	230129	8-01-86	480	32
Process Specialist	139853	8-01-86	480	11
Process Engineer	202861	7-18-86	470	10

ST0085188

TABLE III
AREA NOISE SURVEY AT CHLORINE/CAUSTIC - UNIT II

CRITICAL AREANoise Level (dBA)

On driveway about 100 ft. from GT I	91
Air expelled from solenoid of FL 410 B	90
Between P307 A & P307 B	92
3 ft east of P325 D	94
East side of GT II about 6' from HRU	93
GI II midway turbine (on deck)	93
Outside door of GT II enclosure door closed about 4' from door	102
Inside enclosure at GT II - Gas compressor coupling	118
On steps east of GT II Compressor coupling enclosure	102
GT I PS&G cabinet	95
Hallway between FS401 & D401	92
Platform of GTI east side at AWC intake	100
GI I Midway on platform (turbine)	96

CAUSTIC AREA

3 ft. east of P325D	94
Between P106 A & B	85
3 ft. south of P345	89
3 ft. south of P322	87
2 ft. north of P330A; P330B, not operating	82
2 ft. east of P328B	86
2 ft. north of P328A	96
South of P410 approximately 4 ft.	91
3 ft. north of P424A	79
4 ft. west of P405A	85
3 ft. north of P401G	87
3 ft. north of P401F	87
3 ft. north of P401E	88
3 ft. south of P312	84
Between P338A & P338B	90
Between P335A & P335B	84
3 ft. east of T-68-1	91
Between P307A & P307B	92
2 ft. northeast of P324A	88
3 ft east of T68-2	88
1 ft. north of P327	71
2 ft. west of P102B pump (A) is not operating	85
2 ft. south of raw brine line also south of P315C	91
1 ft. west of Borg/Warner Nat. BD#42104 northeast of trailer	80
2 ft. north of P336C	79
2 ft. north of P336B/P336A not operating	75
Between P414B & A	81
2 ft. west of P-323B	84
1 ft. south of P-351A	86
2 ft. south of P-325A	85
2 ft. south of P-325B	91

610085189

TABLE III
AREA NOISE SURVEY AT CHLORINE/CAUSTIC - UNIT II

CELL AND UTILITY AREAS

	Noise Level (dBA)
2 ft. south of P99A	91
2 ft. north of C202A	88
2 ft. west of C202B	91
3 ft. west of P209B; P209A not running	94
3 ft. north of P401A	91
3 ft. north of P401B	93
3 ft. north of P401C	92
3 ft. north of P401D	92
North of CT401 sidestream filter	91
3 ft. north of CT401 control valve near water tower	103
6 ft. southeast of PBU 402 level control valve	111
South of PBU 401 control box	105
Between P421 A&B	92
South of P419 & P418 & P420	88
P120 waste water recycle	91
2 ft. south of P120	92
East of GT 11	91
Welding shop north	85
Gear oil compressor refrigerator unit (CO ₂ tank)	84
Between P115A & P115B; between P210A & P210B	82
Between 260A and P260B	83
About 75' radius of sand blaster at work on top of evaporation in Caustic	84

CAUSTIC AND UTILITY AREAS

Welding shop south	81
Interior warehouse #1	82
Interior warehouse #3	65
About 75' radius of sand blaster at work on top of evaporator in NaOH	94
10 ft. from Jack hammer operator	101
General reading in building east of cells	75
4 ft. south of E401B	93
2 ft. north of P406	95
P309 not running west of pump	78
Under pipeway at intersection of fire lane and driveway in front of Utility	88
2 ft. east of 311A	86
2 ft. north of 311B	87
2 ft. east of P32B	92
3 ft. from P323B	80
2 ft. 329A	80
Between P322 A&B	80
2 ft. southeast of P312A	89
Directly at the bottom of the evaporator that sand blaster is working on	104

ST0085190

TABLE III
AREA NOISE SURVEY AT CHLORINE/CAUSTIC - UNIT II

CAUSTIC AND UTILITY AREAS

	Noise Level (dBA)
CT 402 lower platform on top of red grating	85
General area on top of CT401	84
D401 general area	101
Between D401 and FS401 walkway	94
Between D405 and P409B	97

UTILITIES AREA

5 ft. east of P414B	82
100 ft. north of D-308 middle of walkway	84
5 ft. south of emergency generator under pipeway	89
4 ft. west of filterrite	92
Between C402 & E402	79
Between C402 & D302	88
Between P402 A&B	91
3 ft. south of P402A	90
3 ft. west of P404	90
Between P403B & P404	91
Between P403 A&B	91
3 ft. south of P417A	90

H₂ COLLECTION CELL AREA

4 ft. south of A105	78
4 ft. south of A104	78
Between C520 A&B Aux A/C rll	77
Air expelled from solenoid of FL 410B at 4'	97
Between P602 A&B	81
3 ft. west of T601	85
3 ft. north of P603B	83
South of P601A	91
3 ft. south of P603A	84
Between P201 A&B	90
Between P212 A&B	86
Between P260 A&B	86
2 ft. west of P251B	85

BRINE POND CELL AREA & UTILITIES

2 ft. west of P104A	90
2 ft. west of P107B	92
2 ft. west of P107C	87
Surrounding area of P107 A,B,C north, northwest, northeast	91
Surrounding area of P107 A,B,C south, southwest, southeast	92
3 ft. south of P-411	90
On stairwell behind GT-11	97
Between P-405 A&B	92
Between P-407 A&B	98
2 ft. south of GT-11 seal air tank	102
2 ft. west of P401 B; P401 A not running	96

NOTE: This area survey was conducted in June and July of 1986 by Unit II personnel.

ST0085191

TABLE IV
SUMMARY OF MONITORING DATA FOR ASBESTOS AND CHLORINE

ASBESTOS

<u>Work Activity</u>	<u>Job Classification</u>	<u>Number of Samples</u>	<u>8-Hour TWA in fibers/cc Range</u>	<u>Average</u>
Collecting samples Cell pulping	Process Technician	17	0.01 - 0.03	0.02
Uncovering and setting cells	Process Technician	13	<0.01 - 0.11	0.02
Storing cells in warehouse	Process Technician	5	<0.01 - 0.01	<0.01
Removing asbestos flange gaskets	Coverer	10	<0.01 - 0.01	<0.01
Removing spiral wound asbestos gaskets	Coverer	2	<0.01 - 0.02	0.02
Industrial Hygiene Guide			0.2 fibers/cc	

CHLORINE

<u>Work Activity</u>	<u>Job Classification</u>	<u>Number of Samples</u>	<u>PPM 8-Hr. TWA</u>	<u>Excursion</u>
Chlorine	Process Technician	2	.12	.99
CHSE	Process Technician	1	.01	.30
Industrial Hygiene Guide			1 ppm C	

ST0085192

IHS File OCSII 2962HAC

TABLE V
ASBESTOS MONITORING RESULTS

Date	Master Number	Job Classification	Work Activity	Sample Time (Min)	Sample Volume (R)	Fibers/cc	8-Hour TWA
7-21-86	202767	12700580	Pulping Cells	475	513	0.07	0.02
7-21-86	AREA	Sample	Cell pulping area	458	354	<0.01	<0.01
7-21-86	206614	12700580	Collecting samples & pulping cells	478	463	0.02	0.02
7-21-86	AREA	Sample	Between cells during pulping	240	257	<0.01	<0.01
7-22-86	206614	12700580	Pulping cells	437	476	0.02	0.02
7-22-86	202705	12700004	Collecting samples & pulping cells	435	465	0.03	0.03
7-27-86	202302	12700580	Collecting samples & pulping cells	421	434	0.01	0.01
7-28-86	261982	12700580	Work in control room area	468	482	0.01	0.01
7-28-86	206614	12700580	Analyze samples & pulp cells	469	519	0.02	0.02
7-28-86	202767	12700580	Pulping cells	465	507	0.01	0.01
7-30-86	202767	12700580	Work in lab on pH samples	517	527	0.02	0.02
7-30-86	261902	12700580	Collect samples & pulp cells	525	577	0.02	0.02
7-31-86	261942	12700580	Analyze samples & pulp cells	498	548	<0.01	<0.01

36158001S

TABLE V
ASBESTOS MONITORING RESULTS (Cont'd)

Date	Master Number	Job Classification	Work Activity	Sample Time (Min)	Sample Volume (L)	Fibers/cc	8-Hour TWA
7-31-86	202767	12700580	Analyze samples & pulp cells	498	548	0.01	0.01
5-29-86	202445	12700580	Collect samples & lab work	340	710	<0.01	<0.01
5-29-87	202633	12700580	Collect samples & lab work	265	548	<0.01	<0.01
4-06-87	202679	12700580	Setting cells	480	1018	<0.01	<0.01
4-06-87	202505	12700580	Operating forklift & setting cells	480	998	0.05	0.05
4-06-87	AREA	Sample	Reside series 6 cell assembly	720	1390	<0.01	<0.01
4-06-87	AREA	Sample	Reside series 6 cell	720	1462	<0.01	<0.01
4-06-87	AREA	Sample	Hot house area	720	1454	<0.01	<0.01
8-31-87	202595	12700580	Uncovering cells	150	291	<0.01	<0.01
8-31-87	AREA	Sample	On forklift hauling cells	166	342	<0.01	<0.01
8-31-87	AREA	Sample	Next to cell uncovering	157	307	<0.01	<0.01
8-31-87	AREA	Sample	Downwind from new cell on rig	131	259	<0.01	<0.01
8-25-87	206614	12700580	Storing cells in warehouse	31	60	0.04	<0.01

1115 File 110511 29621111

TABLE V
ASBESTOS MONITORING RESULTS (Cont'd)

Date	Master Number	Job Classification	Work Activity	Sample Time (Min)	Sample Volume (R)	Fibers/cc	8-Hour TMA
8-20-87	261982	12700580	Operating forklift storing cells in warehouse	42	84	0.01	<0.01
8-20-87	202519	12700580	Storing cells in warehouse	44	86	0.01	<0.01
8-20-87	206614	12700580	Storing cells in warehouse	145	283	<0.01	<0.01
8-20-87	AREA	Sample	On forklift truck storing cells	190	380	<0.01	<0.01
8-20-87	AREA	Sample	In warehouse next to cell storage area	168	328	<0.01	<0.01
5-28-87	Contractor	22400000C	Scraping gasket with wetting agent applied	35	75	<0.01	<0.01
5-28-87	Contractor	22400000C	Filling glove bag for asbestos removal	12	26	0.06	<0.01
5-28-87	AREA	Sample	5' downwind from gasket scraping	51	133	<0.01	<0.01
5-28-87	AREA	Sample	Next to flange during gasket scraping	11	25	<0.01	<0.01
5-29-87	Contractor	22400000C	Scraping 8 inches asbestos gasket from flange	10	21	<0.01	<0.01
5-29-87	Contractor	22400000C	1.5' downwind from gasket scraping	12	27	<0.01	<0.01
5-29-87	Contractor	22400000C	Scraping 4" spiral wound asbestos gasket	17	36	0.03	<0.01

56158001S

IHS File OCS11-2962HAC

TABLE V
ASBESTOS MONITORING RESULTS (Cont'd)

Date	Master Number	Job Classification	Work Activity	Sample Time (Min)	Sample Volume (R)	Fibers/cc	8-Hour TWA
5-29-87	AREA	Sample	2" downwind from flange while scraping spiral wound gasket	20	45	0.44	0.02
6-08-87	Contractor	22400000C	Scraping 54" gasket from flange	90	187	0.04	<0.01
6-08-87	456-06-2760	22400000C	Scraping 54" gasket from flange	95	195	<0.01	<0.01
6-08-87	AREA	Sample	Next to CV 301	18	37	0.06	<0.01
6-08-87	AREA	Sample	8' downwind from flange being scraped	90	187	0.02	<0.01
4-06-87	Gulf States Contractor	22400000C	Uncovering new cells for installation	480	926	0.11	0.11
8-31-87	455-96-3462	22400000C	Uncovering new cells for installation	133	277	0.01	<0.01
8-31-87	450-51-8440	22400000C	Uncovering new cells for installation	129	262	0.02	<0.01
9-01-87	455-96-3462	22400000C	Uncovering new cells for installation	156	324	<0.01	<0.01

96158001S

IHS file 00511-27620AC

TABLE VI
CHLORINE MONITORING RESULTS

Date	Master Number	Job Classification	Work Activity	Sample Time(Min)	8-Hour TWA	STEL
4-07-87	206614	12700580	Chlorine cell area & sampling	351	0.14	0.86
4-09-87	206614	12700580	Chlorine compressor area	413	0.21	0.92
4-09-87	266349	12700580	Chlorine compressor area	410	0.01	0.30

16158001S