MISSISSIPPI STATE UNIVERSITY

DEPARTMENT OF ZOOLOGY
P.O. DRAWER Z
STATE COLLEGE, MISSISSIPPI 39762
PHONE (601) 323-4321, EXT. 305

October 5, 1966

cc Papageage
H.C. Carder - [illegible]
W.C. Dunlap - [illegible]
[illegible] Leisy
[illegible] Miller

Mr. L. C. Fuhrmeister
Technical Services Superintendent
Monsanto Chemical Company
Anniston, Alabama 36202

Dear Mr. Fuhrmeister:

The following is a brief report of our activities in August and September, excluding the information contained in my letter of September 19, 1966:

1) The sample of PNP provided by Monsanto was used in preliminary tests to determine its toxicity to bluegills (Lepomis macrochirus). Specimens measuring 1.5 to 2.0 inches in length were exposed in concentrations up to 1000 ppb at room temperature (72 ± 2 F). All fish survived. PNP in relatively non-toxic compared with insecticides.

2) Previously, we reported tentative 36-hr TL_m values for bluegills to be about 25 ppb for methyl parathion and about 75 ppb for ethyl parathion. Additional tests have confirmed the 25 ppb value for methyl parathion but indicate that the parathion value may be closer to 65 ppb. Although these points may be further refined, I am confident that they are accurate within ± 2.5 ppb.

3) On September 20, we collected 50 mosquitofish (Gambusia affinis) from Choccolocco Creek (4 miles east of Boiling Spring) and subjected them to bioassay. These screening tests indicate 36-hr TL_m values of about 80 ppb for parathion and about 60 ppb for methyl parathion. The accuracy of these estimates will improve when additional specimens are tested.

4) The following is a summary of water, mud, and fish samples analyzed to date:

DATE	COLLECTION SITE	SAMPLE	PESTICIDES (ppb)
8/18/66	Bridge - 4 miles E. Boiling Spring	Water	DDT 0.37 DDE 0.24 Methyl Parathion trace 3 unidentified peaks

DSW 162355

PLAINTIFF'S EXHIBIT 9

WATER_PCB-SD0000006050

DATE	COLLECTION SITE	SAMPLE	PESTICIDES (ppb)
8/18/1966	Bridge – 4 miles E. Boiling Spring	Fish (Golden Redhorse)	DDT 294 DDE 172 TDE 32
	Interference in first 8.5 minutes of effluent.		
8/18/1966	Anniston Sewage Plant	Water	DDT 0.37 DDE 0.36 Lindane ? 0.07 Methyl Parathion 0.44 3 unidentified peaks
8/18/1966	Bridge – Highway # 21	Water	DDT 0.62 DDE 0.63 TDE 0.15 Heptachlor trace 3 unidentified peaks
8/18/1966	Jackson Shoal	Water	DDT 0.20 DDE 0.31 Lindane trace 4 unidentified peaks
8/18/1966	Jackson Shoal	Mud	DDT and metabolites
	Interference for first 9 minutes of effluent and high background.		
9/19/1966	4 miles E. Boiling Spring	Water (Main Stream)	DDT trace DDE 0.69 TDE trace 4 unidentified peaks
9/19/1966	4 miles E. Boiling Spring	Water (Backwater)	DDT 1.04 DDE 0.71 TDE 0.82 4 unidentified peaks
9/19/1966	Anniston Sewage Plant	Water	DDT 1.05 DDE 0.50 2 unidentified peaks

DSW 162356

WATER_PCB-SD0000006051

DATE	COLLECTION SITE	SAMPLE	PESTICIDES (ppb)
9/19/1966	3 miles SW Coldwater Spring	Water	DDT 1.29 DDE 0.58 TDE 0.50 5 unidentified peaks

The water analyses are based on 700 ml samples. The August samples were extracted with chloroform and the September samples with hexane, which may account for the higher levels of chlorinated hydrocarbons in the September samples. All samples were run on a Dow-11 column (non-polar). Several samples were run on a Q F-1 column (polar) for confirmation. About 4 or 5 unidentified peaks appear in nearly all the samples. The largest of these may be malathion or heptachlor epoxide, for which we do not presently have chromatographic standards. Also, samples from 4 miles East of Boiling Spring contain something that behaves similar to toxaphene. Endrin, aldrin, dieldrin and parathion were absent; heptachlor, lindane, and methyl parathion were present in trace amounts only.

Sincerely yours,

Denzel E. Ferguson
Professor of Zoology

bp

DSW 162357

MISSISSIPPI STATE UNIVERSITY

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19 January 1967

LC PAPAGEORGE
LESY
CARDER
WP DUNLAP

Mr. L. C. Fuhrmeister
Technical Services Superintendent
Monsanto Chemical Company
Anniston, Alabama 36202

Dear Mr. Fuhrmeister:

We have been having problems! High water in Choccolocco Creek hindered attempts to replace fish in our cages until last weekend (Jan. 15). Also, water samples collected during high water failed to provide useful information concerning microflora. These analyses were done by our Microbiology Department and will be repeated when the stream flow returns to normal.

The most vexing problem has been the appearance of a large peak on gas chromatograms that coincides with parathion--this peak was found in samples from all of our stations. Initially, we thought it to be parathion. However, when we found it upstream from Anniston and because of its peculiar behavior on thin-layer plates, we decided that it was not parathion. Yet, the peak masked the actual parathion peak (if any) and prevented quantitation of parathion in samples. After rechecking all equipment, reagents, and other materials used to process samples, we finally discovered the source of the mysterious peak. It seems that hexane stored in polyethylene squeeze bottles picks up at least three contaminants, one of which has the exact same retention time as parathion. This has been a most exasperating experience.

The following samples were analyzed with the problem peak present, and we quantitated the peak as though it were parathion.

DATE	LOCALITY	SAMPLE	INSECTICIDES
10/10/66	Bridge on Hiway 78 - 3 mi. East of Boiling Springs	750 ml water	DDT - 0.4 ppb DDD - trace DDE - 0.4 ppb 3 unknown peaks



DSW 162366

CV96-J-0440-E
DATE 04/02/01

PLFF EXHIBIT NO. 956

DATE	LOCALITY	SAMPLE	INSECTICIDES
10/10/66	Anniston Sewage Treatment Plant	750 ml water	DDT - 0.2 ppb DDD - 0.2 ppb DDE - 0.3 ppb Methyl Parathion - 0.7 ppb 2 unknown peaks
10/10/66	Choccolocco Creek ½ mi. upstream from mouth of Coldwater Creek.	750 ml water	DDT - 0.8 ppb DDD - trace DDE - 0.8 ppb BHC - trace Methyl Parathion - 1.1 ppb 3 unknown peaks
10/10/66	Bridge on Hiway 109	Bluegill (1.01 g)	

About 15 tall peaks, many of which interfere with pesticides. One peak corresponds with methyl parathion (13.550 ppm) and another with malathion (10.560 ppm). Many of these large peaks correspond exactly with peaks noted in mud samples collected downstream from Anniston and with those in water samples from Snow Creek at the Monsanto Plant.

We believe that a number of materials that enter Snow Creek from the Monsanto Plant are being accumulated by fish in Choccolocco Creek. Presumably these substances are non-toxic.

10/24/66	Choccolocco Creek ½ mi. upstream from mouth of Coldwater Creek.	Bluegill (3.29 g) (Starkville fish - caged).	

At least 15 peaks and high levels of interference. Some had retention times similar to parathion, DDE, DDT, malathion, and methyl parathion.

12/10/66	Bridge on Hiway 78 - 3 mi. East of Boiling Springs.	1000 ml water	BHC - trace DDT - 2.3 ppb DDE - 4.0 ppb Malathion - 3.5 ppb Parathion* - 12.9 ppb

* This peak is the one mentioned earlier. If parathion is actually present, it is masked by the contaminant.

DSW 162367

WATER_PCB-SD0000006054

DATE	LOCALITY	SAMPLE	INSECTICIDES
12/10/66	Anniston Sewage Treatment Plant	1000 ml water	DDT - 2.0 ppb DDD - 0.3 ppb DDE - 1.8 ppb BHC - 0.2 ppb Malathion - 9.0 ppb Parathion* - 26.8 ppb 2 unknown peaks

* The contaminant peak.

All water samples were extracted with chloroform. Tissue sample were extracted with Hexane/Isopropanol (3:1). All samples were cleaned up on florisil columns and evaporated to an appropriate concentration for analysis. Analysis was made on 10% DC-200 on Anakrom ABS.

We have reason to believe that our values reported for BHC may be unreliable since we encounter a fair amount of interference in this area.

The following data are derived from tests of cholinesterase activity in 6 bluegills cage one month in Choccolocco Creek at the Hiway 93 bridge. Originally the fish were collected from Country Club Lake near Starkville. Six control fish from Country Club Lake were tested for comparison.

DATE	TREATMENT	BRAIN WT. (mg)	μM ACh HYDROLYZED 20' at 25° C	SPECIFIC ACTIVITY
12/20/66	Caged	34	1.40	1.20
12/20/66	Caged	36	1.40	1.20
12/20/66	Caged	37	1.70	1.46
12/20/66	Caged	40	1.70	1.46
12/20/66	Caged	44	2.20	1.89
12/20/66	Caged	46	2.00	1.71
12/20/66	Control	29	1.50	1.29
12/20/66	Control	36	2.90	2.49
12/20/66	Control	37	2.25	1.93
12/20/66	Control	42	1.35	1.16
12/20/66	Control	43	1.80	1.54
12/20/66	Control	43	1.80	1.54

Control: Mean - 1.66
Range - 1.20 - 1.89

Caged: Mean - 1.49
Range - 1.16 - 2.49

WATER_PCB-SD0000006055

Although the means suggest a 10.2% inhibition in the caged fish, this difference is not significant at the 5% level when tested with a t-test. However, the t-value (2.501) barely missed being significant ($t = 2.571$ with 5 d.f.), in spite of the inadequate sample size.

A preliminary literature search has revealed several reports of enzyme inhibition by mercury, especially some of the enzymes involved in degradation of phosphate insecticides (See R. D. O'brien. 1960. Toxic phosphorous esters. Academic Press, N. Y. p. 119). We have some studies underway regarding possible synergistic or additive effects of mercury and parathion. We are not yet ready to report our findings.

In conclusion, it is obvious that all our data are incomplete. A number of materials originating at the Monsanto Plant (via Snow Creek) are showing up in fish and mud samples taken downstream from Anniston. We hope to make a trip to Anniston soon and bring chromatograms to illustrate this phenomenon. We have not been able to detect parathion in Choccolocco Creek. Studies of possible cholinesterase inhibition in caged fish hold promise but are still incomplete.

Preliminary flow-through studies and an investigation of the effects of mercury are just now getting started.

Sincerely yours,

Denzel E. Ferguson
Professor of Zoology

DEF:wb

DSW 162369

WATER_PCB-SD0000006056

MISSISSIPPI STATE UNIVERSITY

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10 March 1967

cc. Papageorge
CARDER
LEISY
DUNLAP
MILLER
SIMPSON

Mr. L. C. Fuhrmeister
Technical Services Superintendent
Monsanto Chemical Company
Anniston, Alabama

Dear Mr. Fuhrmeister:

The following is a brief report of some recent developments, especially those related to our trip last week.

First, some bad news. Both of our gas chromatographs are down and it will be a while before we are able to have them repaired. We have a large number of samples being processed.

On March 5, we collected a water sample from Dry Creek (at the Hiway 202 bridge). The attendant at the service station said that fish had been killed in the creek. This man claims that several cattle died as a result of drinking from Dry Creek. He said that on Friday afternoons the creek is a real mess. However, when we collected the water samples, I observed live mosquitofish in the creek, thus, I am not convinced that the stream is as bad as he thinks. Some samples should be taken on Fridays and used for bioassay tests of bluegills.

I gave the Mississippi State Chemical Lab 2 bluegills and a carp for mercury analyses. They seemed to doubt that they could do a quantitative analysis, but promised to do their best. If you people have competent chemists who could do mercury analyses on some of the dead fish from down stream, I suggest that you get them busy, especially in view of the cholinesterase data below.

We caught a number of fish of several species at Jackson Shoals, including some minnows and small bass for residue analysis on GLC.

On March 5, we obtained 23 small bluegills from Choccolocco Creek at Jackson Shoals (ca. 150 yards below the confluence of Eastaboga Creek). Cholinesterase levels were determined for 20 of these fish using the brains of 2 fish as a single sample. On March 7, cholinesterase levels were run on 10 bluegills from our control population at the Country Club. Procedure, chemicals, and other variables were identical in tests of these two groups of fish.

ALL-STATE LEGAL
PLAINTIFF'S EXHIBIT
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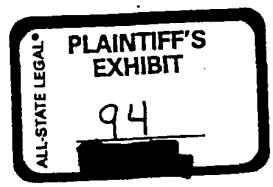

DSW 162383

In Table 1, A-1 through A-10 are bluegills collected from Choccolocco Creek at Jackson Shoals; C-1 through C-5 are control bluegills from Country Club Lake.

Table 1. Comparison of AChE levels in Choccolocco Creek and State College bluegills.

Sample No.	Brain Wt.	Optical Density	μM ACh Hydrolyzed 20'	60'	Specific Activity	Average
A-1	67.5	.209	2.07	6.21	1.77	
A-2	76.2	.210	2.07	6.21	1.77	
A-3	66.1	.164	1.62	4.86	1.39	
A-4	91.2	.175	1.73	5.19	1.48	
A-5	81.7	.185	1.83	5.49	1.58	1.72
A-6	56.6	.233	2.30	6.90	1.98	
A-7	58.6	.242	2.38	7.14	2.04	
A-8	53.7	.265	2.63	7.89	2.25	
A-9	62.2	.170	1.67	5.01	1.43	
A-10	73.4	.185	1.81	5.43	1.55	
C-1	101.4	.200	1.96	5.88	1.68	
C-2	102.5	.167	1.65	4.95	1.41	
C-3	90.8	.187	1.85	5.55	1.59	1.47
C-4	84.8	.170	1.66	4.98	1.43	
C-5	110.9	.145	1.42	4.26	1.22	

DSW 162384

WATER_PCB-SD0000006058

Please note that the Choccolocco Creek bluegills have higher cholinesterase values than our controls. Although, these values may not be absolutely correct, they are close enough to assure us that there is no inhibition in the Choccolocco samples. Our average value (1.72) compares favorably with those of control bluegills from Choccolocco Creek that were reported by the SE Water Lab, especially if their very large specimens are omitted. (Note: Small fish tend to have higher AChE activity per unit weight of brain tissue.) Also, in our tests each value represents two brains; they ran individual fish. Our controls compare favorably with controls that we have caged upstream from Anniston in Choccolocco Creek.

Table 2. Water quality data collected March 4, 1967.

Location	Time	pH	Temp (°C)	D. O. (ppm) Surface	D. O. (ppm) Elbow Depth
Choccolocco Creek - 4 mi. E. Boiling Spring	11:30	7.7	12.0	9.0	8.5
Anniston Sewage Plant	Noon	7.2	18.0	4.8	---
Choccolocco Creek - Flat Bridge	1:30	7.7	13.0	8.0	7.7
Choccolocco Creek - Hiway #93 Bridge	2:00	8.0	14.0	8.3	8.8
Choccolocco Creek - Hiway #77 Bridge	---	---	---	8.9	8.5

We hope to get more AChE data soon. If fish continue to die in Choccolocco Creek and if AChE levels continue to show no inhibition, it will be obvious that some other lethal factor is operating. Such findings should aid the lawyers in building their case.

I am leaving Sunday for a meeting in San Francisco. If you need to contact our group before the end of next week, please call Larry Ludke.

Sincerely yours,

Denzel E. Ferguson
Professor of Zoology

DEF:wb

WATER_PCB-SD0000006059

MISSISSIPPI STATE UNIVERSITY

DEPARTMENT OF ZOOLOGY
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10 March 1967

W. Pennington
CARDER
LESY
DUNLAP
MILLER
SIMPSON

Mr. L. C. Fuhrmeister
Technical Services Superintendent
Monsanto Chemical Company
Anniston, Alabama

Dear Mr. Fuhrmeister:

The following is a brief report of some recent developments, especially those related to our trip last week.

First, some bad news. Both of our gas chromatographs are down and it will be a while before we are able to have them repaired. We have a large number of samples being processed.

On March 5, we collected a water sample from Dry Creek (at the Hiway 202 bridge). The attendant at the service station said that fish had been killed in the creek. This man claims that several cattle died as a result of drinking from Dry Creek. He said that on Friday afternoons the creek is a real mess. However, when we collected the water samples, I observed live mosquitofish in the creek, thus, I am not convinced that the stream is as bad as he thinks. Some samples should be taken on Fridays and used for bioassay tests of bluegills.

I gave the Mississippi State Chemical Lab 2 bluegills and a carp for mercury analyses. They seemed to doubt that they could do a quantitative analysis, but promised to do their best. If you people have competent chemists who could do mercury analyses on some of the dead fish from down stream, I suggest that you get them busy, especially in view of the cholinesterase data below.

We caught a number of fish of several species at Jackson Shoals, including some minnows and small bass for residue analysis on GLC.

On March 5, we obtained 23 small bluegills from Choccolocco Creek at Jackson Shoals (ca. 150 yards below the confluence of Eastaboga Creek). Cholinesterase levels were determined for 20 of these fish using the brains of 2 fish as a single sample. On March 7, cholinesterase levels were run on 10 bluegills from our control population at the Country Club. Procedure, chemicals, and other variables were identical in tests of these two groups of fish.



DSW 162383

WATER_PCB-SD0000006060

In Table 1, A-1 through A-10 are bluegills collected from Choccolocco Creek at Jackson Shoals; C-1 through C-5 are control bluegills from Country Club Lake.

Table 1. Comparison of AChE levels in Choccolocco Creek and State College bluegills.

Sample No.	Brain Wt.	Optical Density	μM ACh Hydrolyzed 20'	60'	Specific Activity	Average
A-1	67.5	.209	2.07	6.21	1.77	
A-2	76.2	.210	2.07	6.21	1.77	
A-3	66.1	.164	1.62	4.86	1.39	
A-4	91.2	.175	1.73	5.19	1.48	
A-5	81.7	.185	1.83	5.49	1.58	1.72
A-6	56.6	.233	2.30	6.90	1.98	
A-7	58.6	.242	2.38	7.14	2.04	
A-8	53.7	.265	2.63	7.89	2.25	
A-9	62.2	.170	1.67	5.01	1.43	
A-10	73.4	.185	1.81	5.43	1.55	
C-1	101.4	.200	1.96	5.88	1.68	
C-2	102.5	.167	1.65	4.95	1.41	
C-3	90.8	.187	1.85	5.55	1.59	1.47
C-4	84.8	.170	1.66	4.98	1.43	
C-5	110.9	.145	1.42	4.26	1.22	

DSW 162384

WATER_PCB-SD0000006061

Please note that the Choccolocco Creek bluegills have higher cholinesterase values than our controls. Although, these values may not be absolutely correct, they are close enough to assure us that there is no inhibition in the Choccolocco samples. Our average value (1.72) compares favorably with those of control bluegills from Choccolocco Creek that were reported by the SE Water Lab, especially if their very large specimens are omitted. (Note: Small fish tend to have higher AChE activity per unit weight of brain tissue.) Also, in our tests each value represents two brains; they ran individual fish. Our controls compare favorably with controls that we have caged upstream from Anniston in Choccolocco Creek.

Table 2. Water quality data collected March 4, 1967.

Location	Time	pH	Temp (°C)	D. O. (ppm) Surface	D. O. (ppm) Elbow Depth
Choccolocco Creek - 4 mi. E. Boiling Spring	11:30	7.7	12.0	9.0	8.5
Anniston Sewage Plant	Noon	7.2	18.0	4.8	---
Choccolocco Creek - Flat Bridge	1:30	7.7	13.0	8.0	7.7
Choccolocco Creek - Hiway #93 Bridge	2:00	8.0	14.0	8.3	8.8
Choccolocco Creek - Hiway #77 Bridge	---	---	---	8.9	8.5

We hope to get more AChE data soon. If fish continue to die in Choccolocco Creek and if AChE levels continue to show no inhibition, it will be obvious that some other lethal factor is operating. Such findings should aid the lawyers in building their case.

I am leaving Sunday for a meeting in San Francisco. If you need to contact our group before the end of next week, please call Larry Ludke.

Sincerely yours,

Denzel E. Ferguson
Professor of Zoology

DEF:wb

DSW 162385

WATER_PCB-SD0000006062

MISSISSIPPI STATE UNIVERSITY

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6 April 1967

cc: Papageorge
H.C. CARDER - H.C.
W.P. Dunlap - H.C.
D.W. Miller
H. Simpson
W.C. Robinson

Mr. L. C. Fuhrmeister
Technical Services Superintendent
Monsanto Chemical Company
Anniston, Alabama

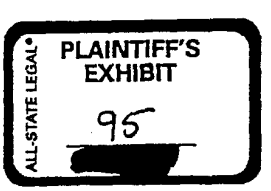
Dear Mr. Fuhrmeister:

The following report includes a summary of some of our recent findings:

Table 1. Water-quality data collected March 22, 1967.

Location	Time	pH	Temp. (°C)	D. O. (ppm) Surface	D. O. (ppm) Elbow Depth
Choccolocco Creek - 4 mi. E. Boiling Spring	7:00 AM	7.4	13	8.9	8.9
Choccolocco Creek - Flat Bridge	8:15 AM	7.2	13.5	8.0	7.8
Choccolocco Creek - Hiway #93 Bridge	10:15 AM	7.7	14.0	8.5	8.4
Choccolocco Creek - Hiway #77 Bridge	11:00 AM	8.0	15.0	9.0	8.8
Anniston Sewage Treatment Plant	7:30 AM	7.3	19.0	None Detectable	---
Monsanto Treatment Facility	9:15 AM	6.2	17.0	6.5	---
Snow Creek at Front Fence	9:30 AM	11.2	22.0	8.0	---

DSW 162386



PLAINTIFF'S EXHIBIT 95 [redacted]

ALL-STATE LEGAL

WATER_PCB-SD0000006063

Everything in Table 1 seems in order except the pH in the front ditch. Previous readings have always been very low or near 7.0.

You will recall my brief report of March 10 in which we found normal ACh levels in bluegills collected at Jackson Shoals. On March 23 we obtained other specimens from Choccolocco Creek for cholinesterase tests. All fish were kept alive until tested and each fish was tested separately (we usually pool two brains to make a sample). The samples in Table 2 were as follows:

Samples 1, 2 Distressed bluegills collected at Eureka Bridge.
Samples 3, 4, 5, 6 Healthy bluegills collected at Jackson Shoals.
Samples 7, 8, 9, 10 Healthy green sunfish collected at Jackson Shoals.

Table 2.

Sample No.	Brain Wt.	Optical Density	µM ACh Hydrolyzed 20'	60'	Specific Activity	Average
1	108.1 mg	.130	2.06	6.18	1.76	1.52
2	35.3 mg	.093	1.48	4.44	1.27	
3	100.7 mg	.133	2.20	6.60	1.88	1.69
4	41.2 mg	.094	1.62	4.86	1.39	
5	38.2 mg	.111	1.76	5.28	1.51	
6	26.5 mg	.145	2.30	6.90	1.97	
7	35.4 mg	.145	2.29	6.87	1.96	1.75
8	28.2 mg	.107	1.66	4.98	1.42	
9	36.0 mg	.142	2.28	6.88	1.96	
10	26.7 mg	.114	1.89	5.57	1.65	

On March 25, Dr. L. L. Ellis and I collected 9 distressed bluegills and 3 distressed green sunfish at Eureka Bridge. These were quick frozen on dry ice and kept frozen until analyzed on April 1.

DSW 162387

WATER_PCB-SD0000006064

These samples gave us peculiar results. Three of them failed to give a meaningful reading and the others showed great variation. We don't know whether this can be attributed to technique, equipment, or the samples. For what it is worth, the results are shown in Table 3.

Table 3.

Sample No.	Brain Wt.	Optical Density	μM ACh Hydrolyzed 20'	60'	Specific Activity	Average
1	77.8 mg	no data				
2	90.1 mg	no data				
3	100.0 mg	no data				
4	92.1 mg	.059	0.76	2.28	.65	
5	82.3 mg	.074	0.98	2.94	.84	
6	72.8 mg	.118	1.44	4.32	1.23	1.06
7	75.9 mg	.098	1.21	3.63	1.04	
8	85.8 mg	.141	1.79	5.37	1.53	
9	88.7 mg	.074	0.61	1.83	.52	
10	80.4 mg	.107	1.38	4.14	1.18	1.00
11	80.0 mg	.120	1.54	4.62	1.32	

This weekend we plan to collect additional specimens and freeze them. We will bring some of our control fish over and freeze them at the same time. This may indicate the source of our problems.

The following data refer to GLC analyses of samples collected March 5, 1967.

Location	Sample	Results
Dry Creek at Hiway 202 Bridge	700 ml water	2 small peaks - not pesticides or TCE.
Monsanto Treatment Facility	700 ml water	5 large peaks - unidentified

WATER_PCB-SD0000006065

Location	Sample	Results
Choccolocco Creek - 4 mi. E. Boiling Spring	700 ml water	2 peaks - one represents a trace of DDE.
Anniston Sewage Treatment Plant	700 ml water	3 peaks but * no pesticides
Choccolocco Creek - Hiway #93 Bridge	700 ml water	DDT - trace DDE - trace

(Note this water sample did not have the usual high interference that we have often attributed to Snow Creek.)

Choccolocco Creek - 4 mi. E. Boiling Spring	Golden Redhorse**	DDE - trace DDT - 0.05 ppm
Choccolocco Creek - Flat Bridge	Bluegill (Caged)** (12.14 g)	14 major peaks

(The sample produced high background that interfered with detection of DDE, DDT, DDD, heptachlor epoxide and methyl parathion. One peak corresponds to parathion, however, the compound causing the peak is less polar than parathion when tested in a partition-coefficient test.

Choccolocco Creek - Jackson Shoals	Spotted Bass ** (5.80 g)	17 major peaks Same background as mentioned above.

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* Two peaks resembled parathion and DDE but their partition coefficients (hexane - acetronitrile) proved otherwise.

** The GLC tracings for these 3 fish are included as a part of this report. Note the clean sample from the fish taken upstream. Many of the peaks in the downstream fish are those we have found in Snow Creek. Could this be the reason that the SE Lab did not do GLC analyses of fish tissues as a part of their report? Note that we indicate retention times for several pesticides on one tracing. The peaks do not match these times perfectly, indicating that they are not pesticides.

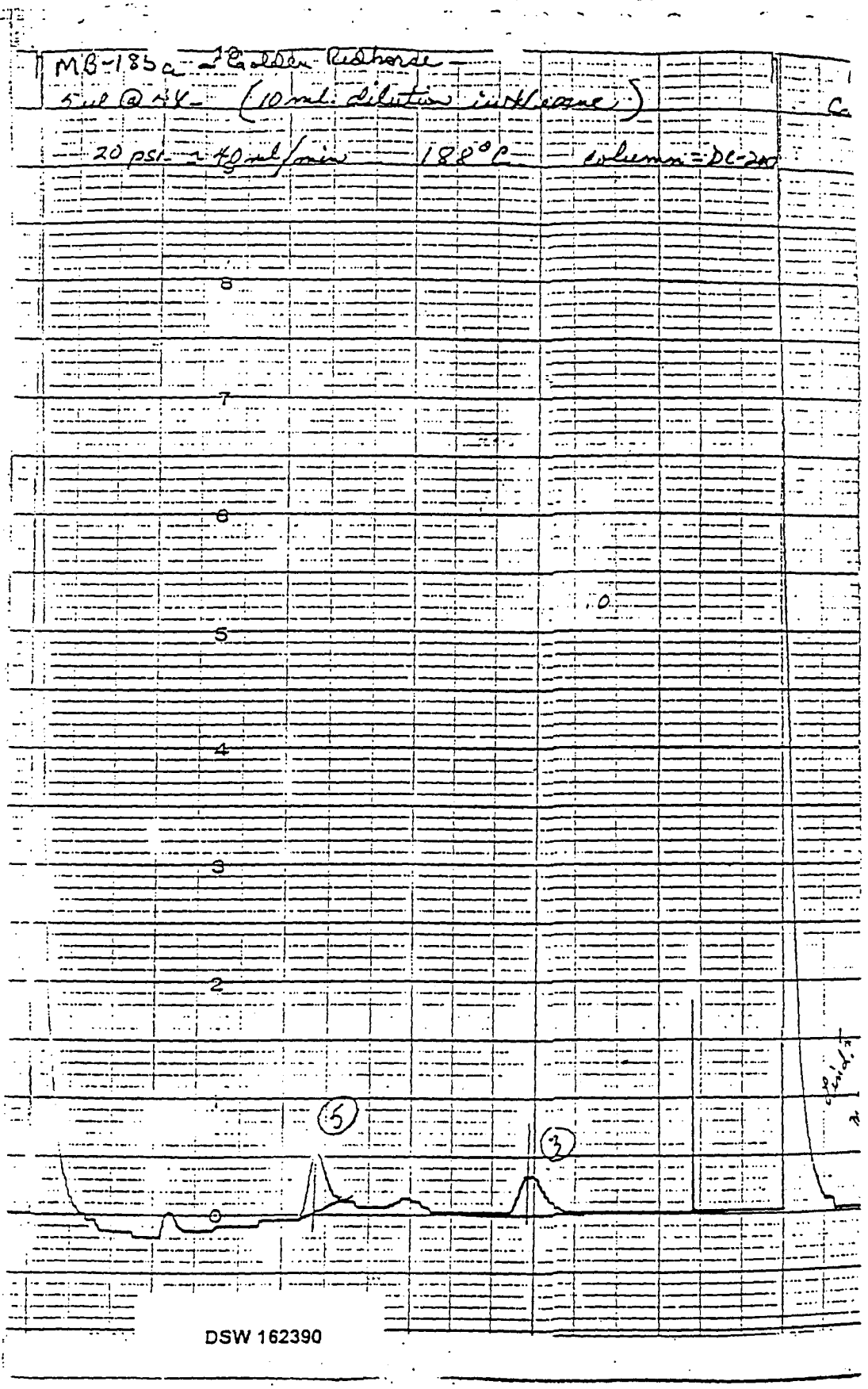
Sincerely yours,

Denzel E. Ferguson
Professor of Zoology

DEF:wb

DSW 162389

WATER_PCB-SD0000006066



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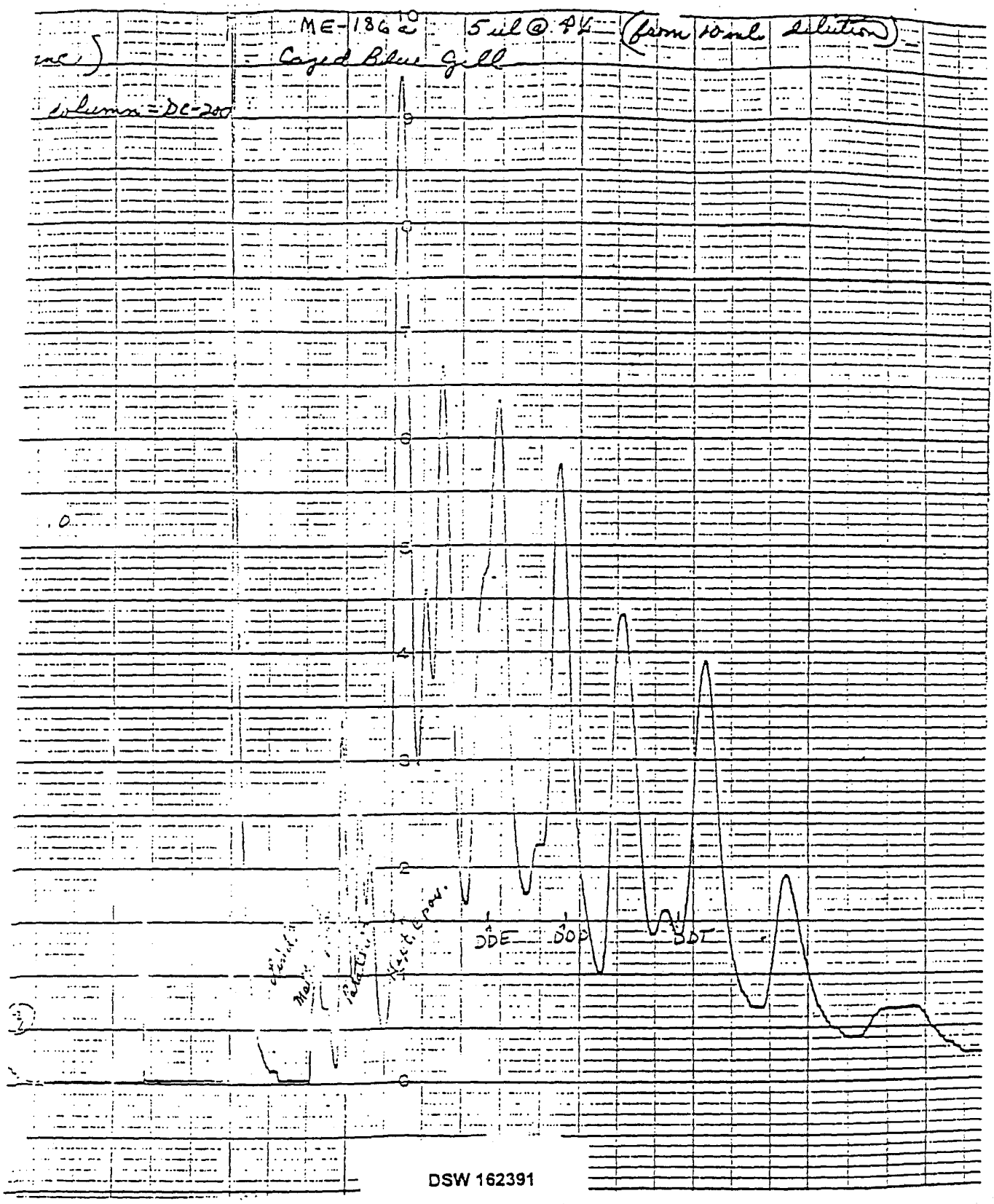

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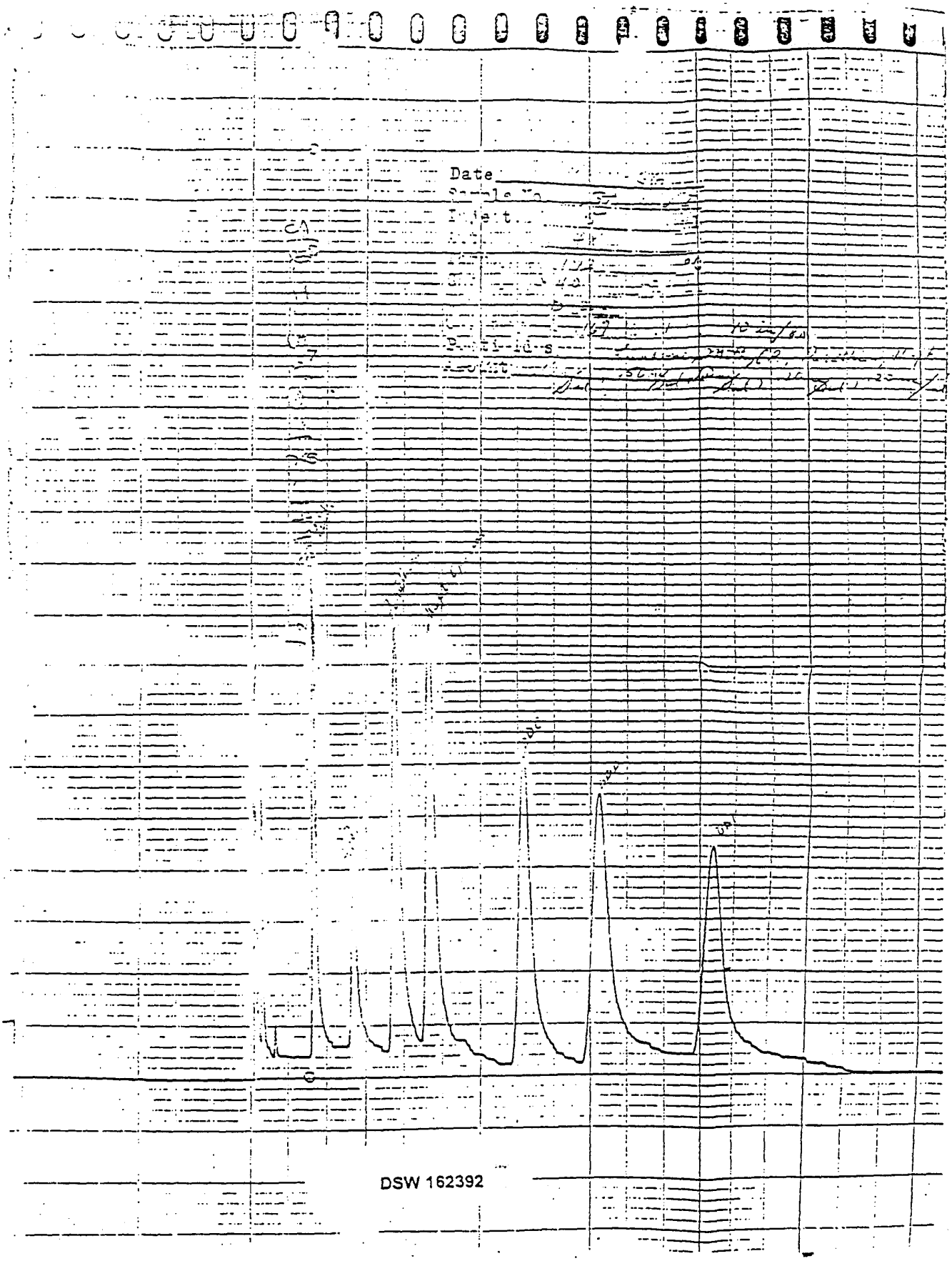

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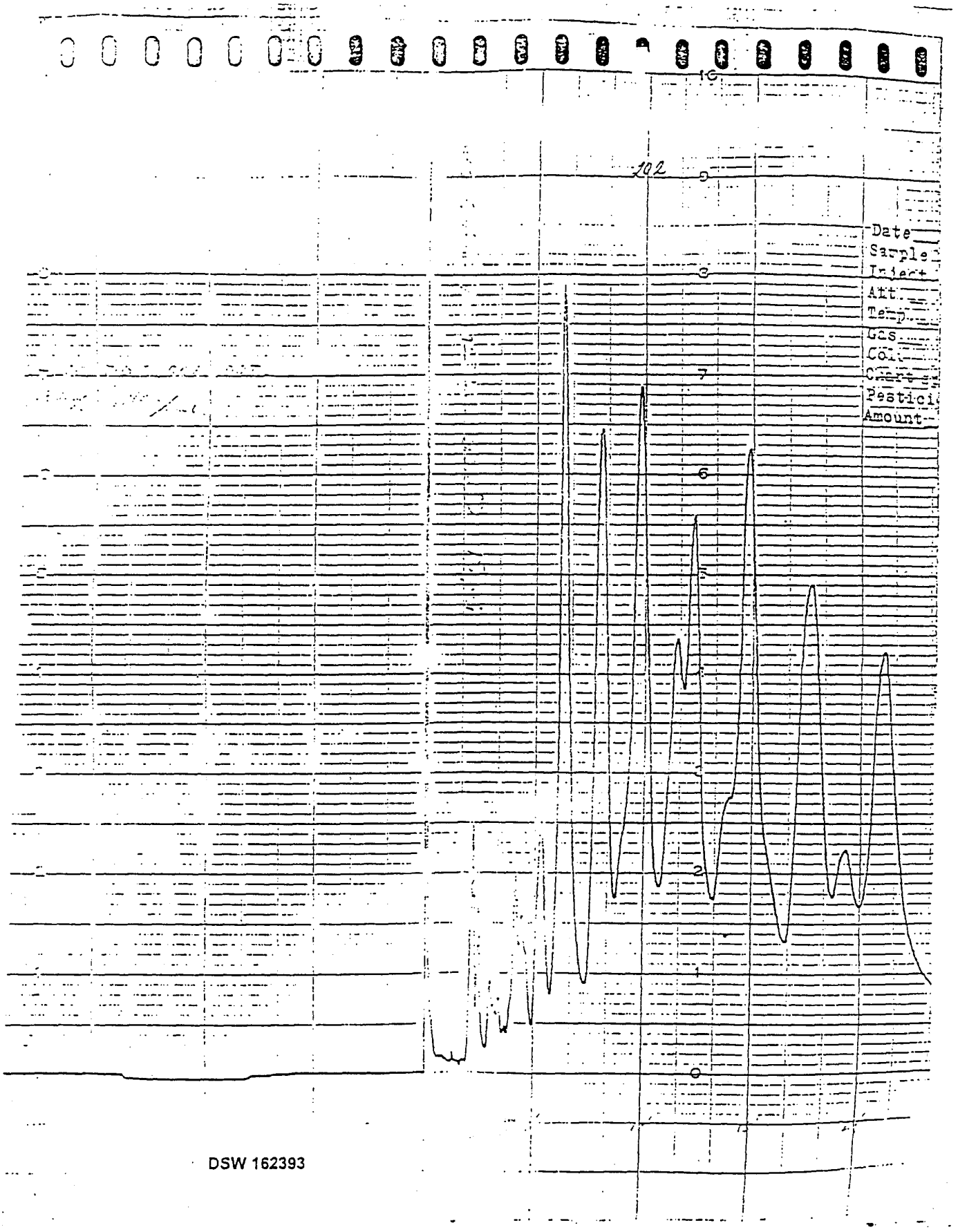
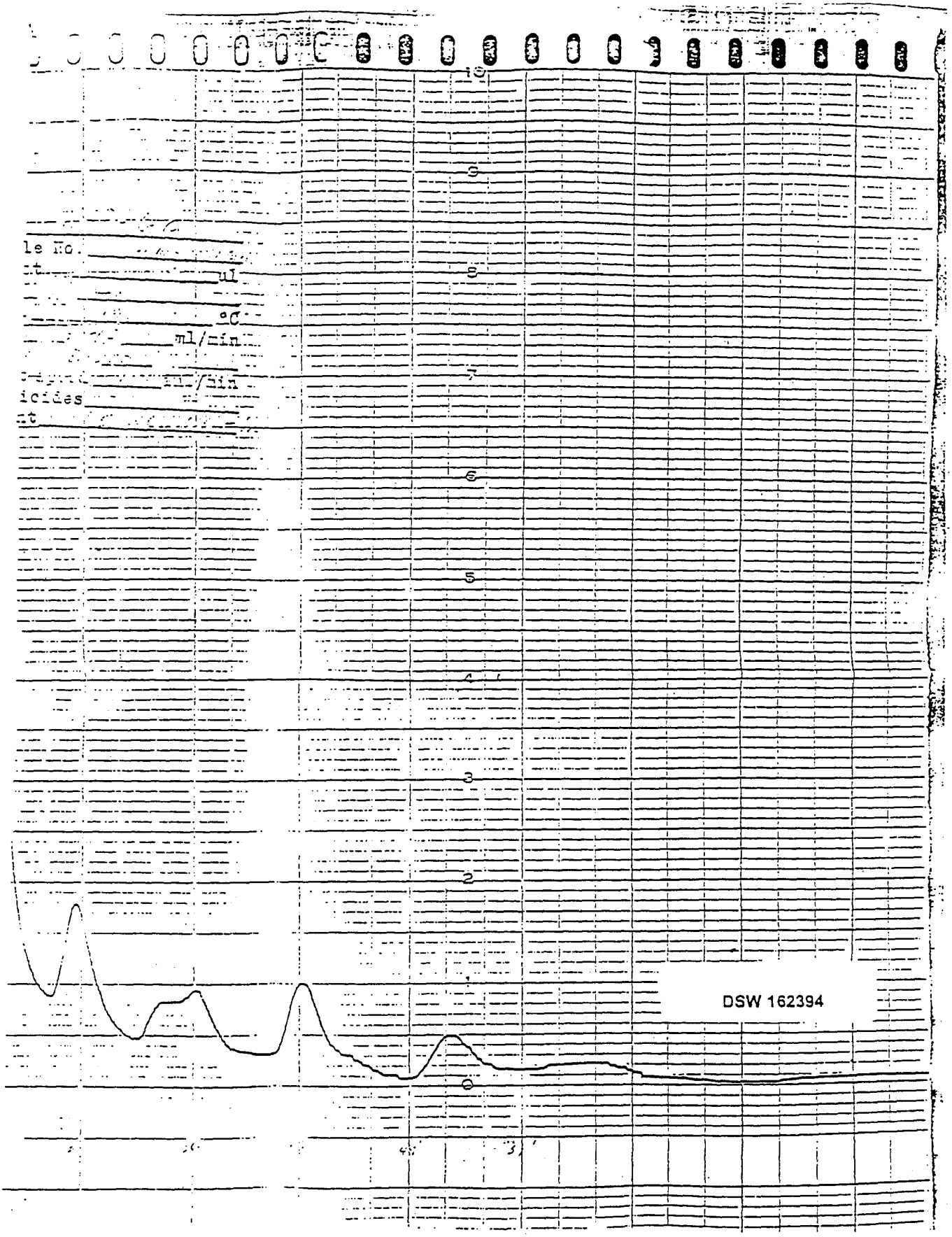


DSW 162393

WATER_PCB-SD0000006070

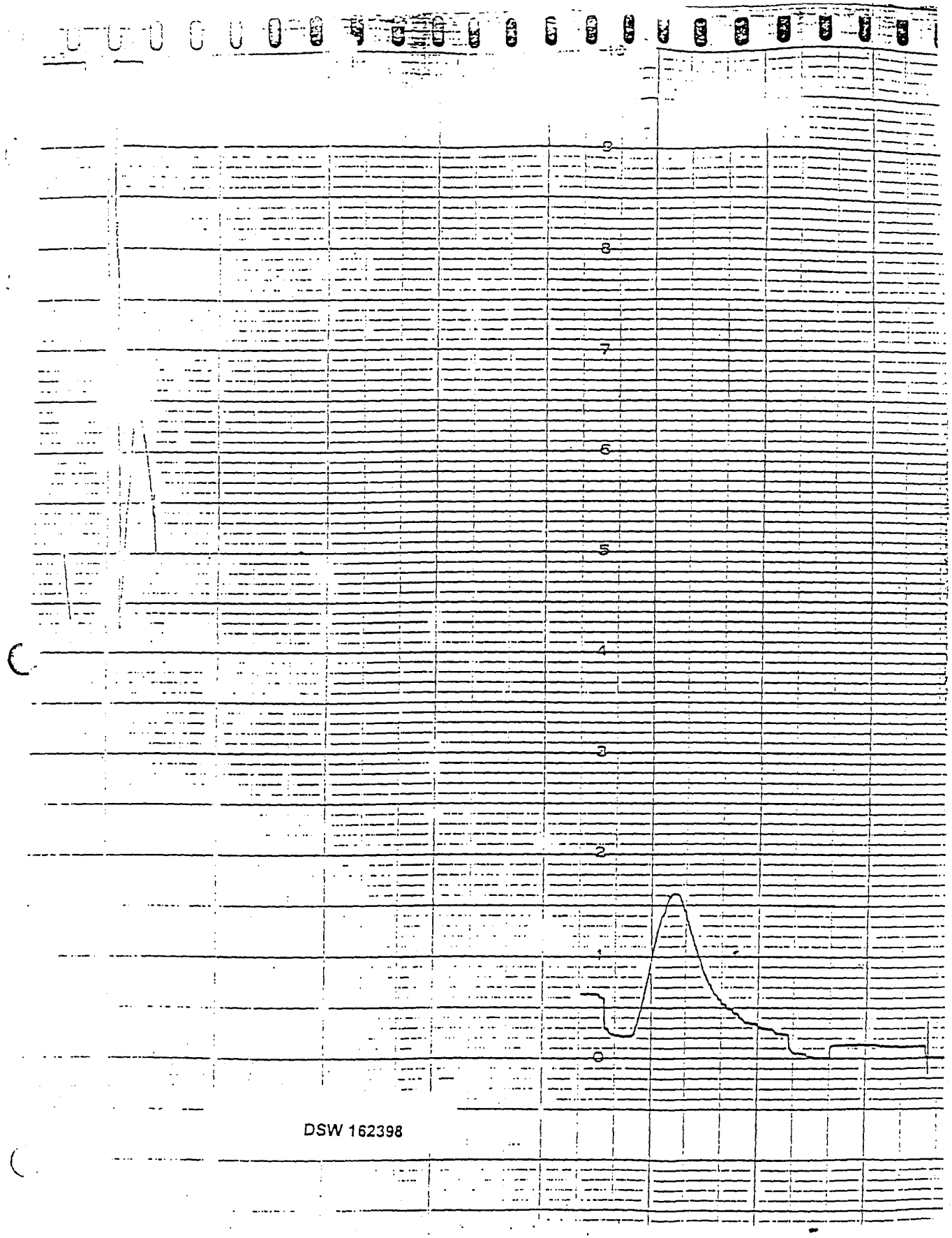


WATER_PCB-SD0000006071

DSW 162395

DSW 162396

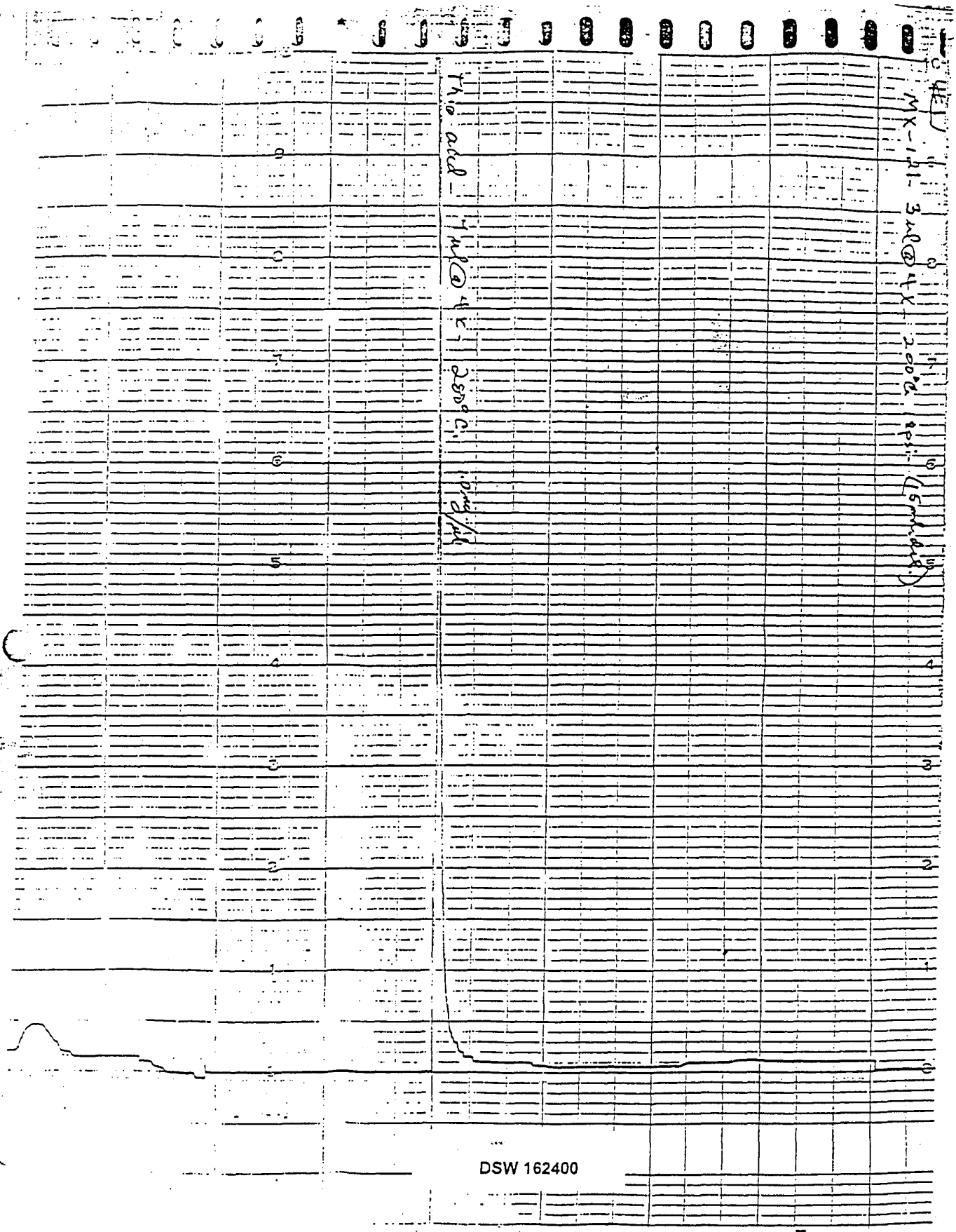
DSW 162397



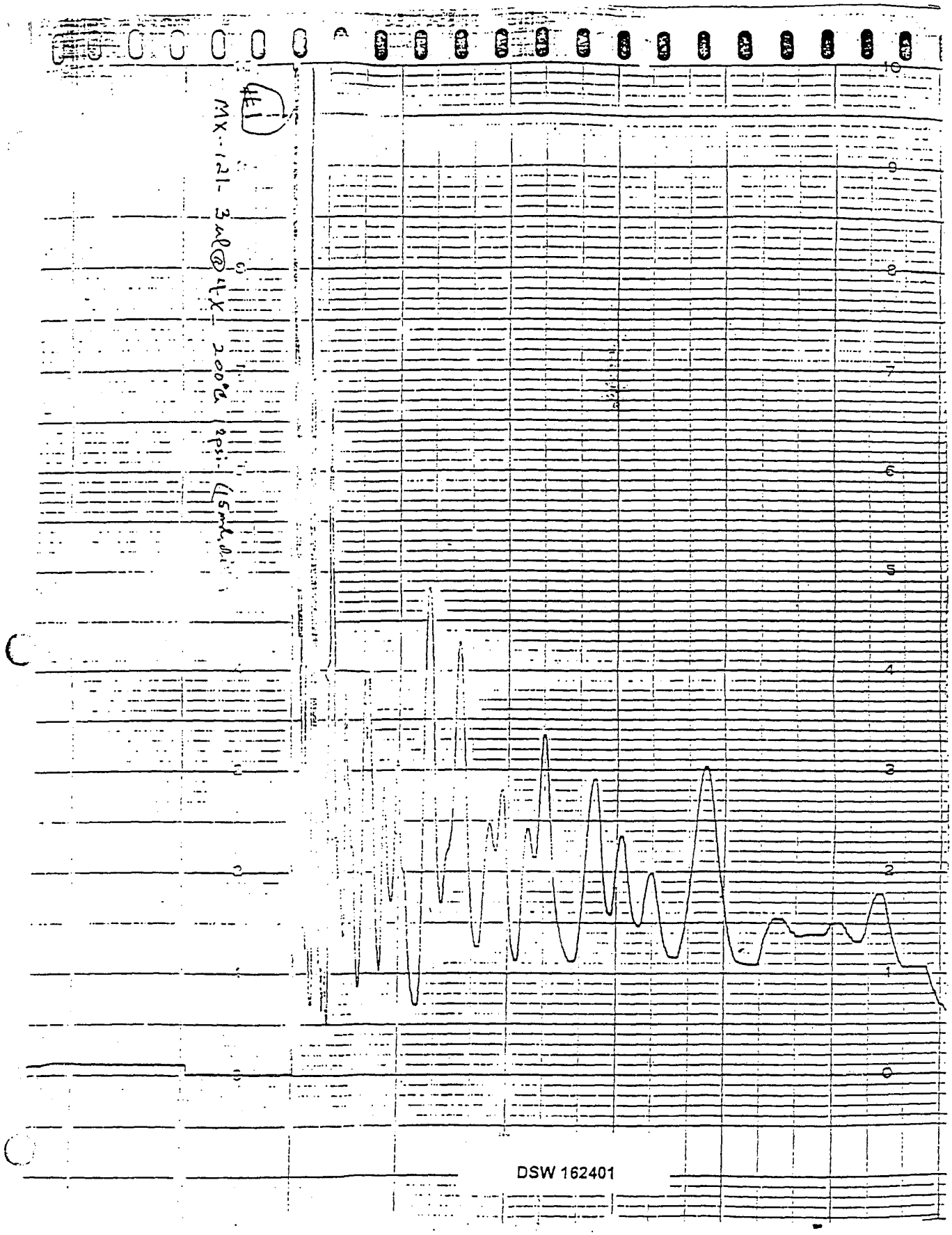
DSW 162398

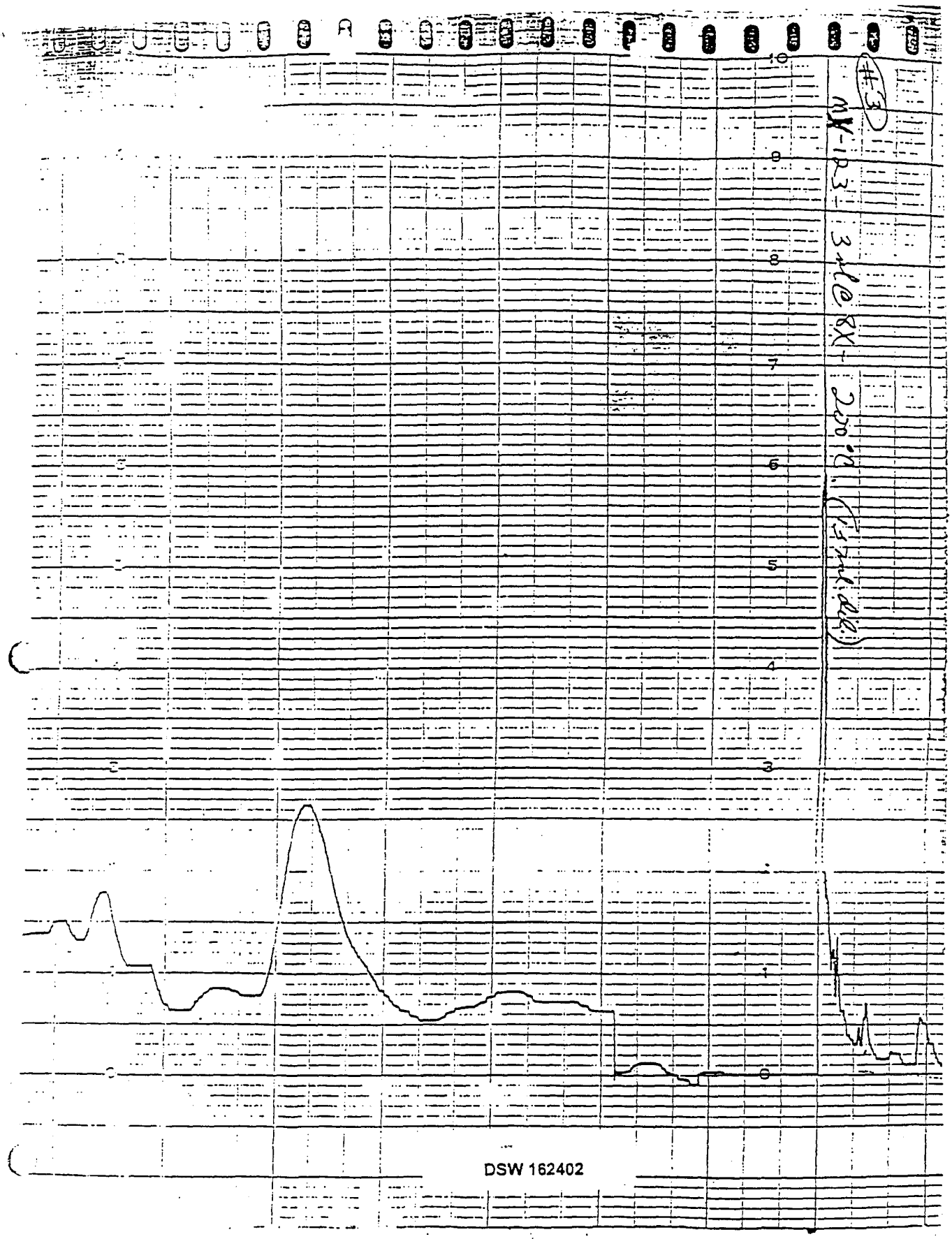
WATER_PCB-SD0000006075

MW-102
DSW 162399



DSW 162400


#1
MX-121- 3ul@4X 200°C 12psi (15mL di
10
9
8
7
6
5
4
3
2
1
0
DSW 162401



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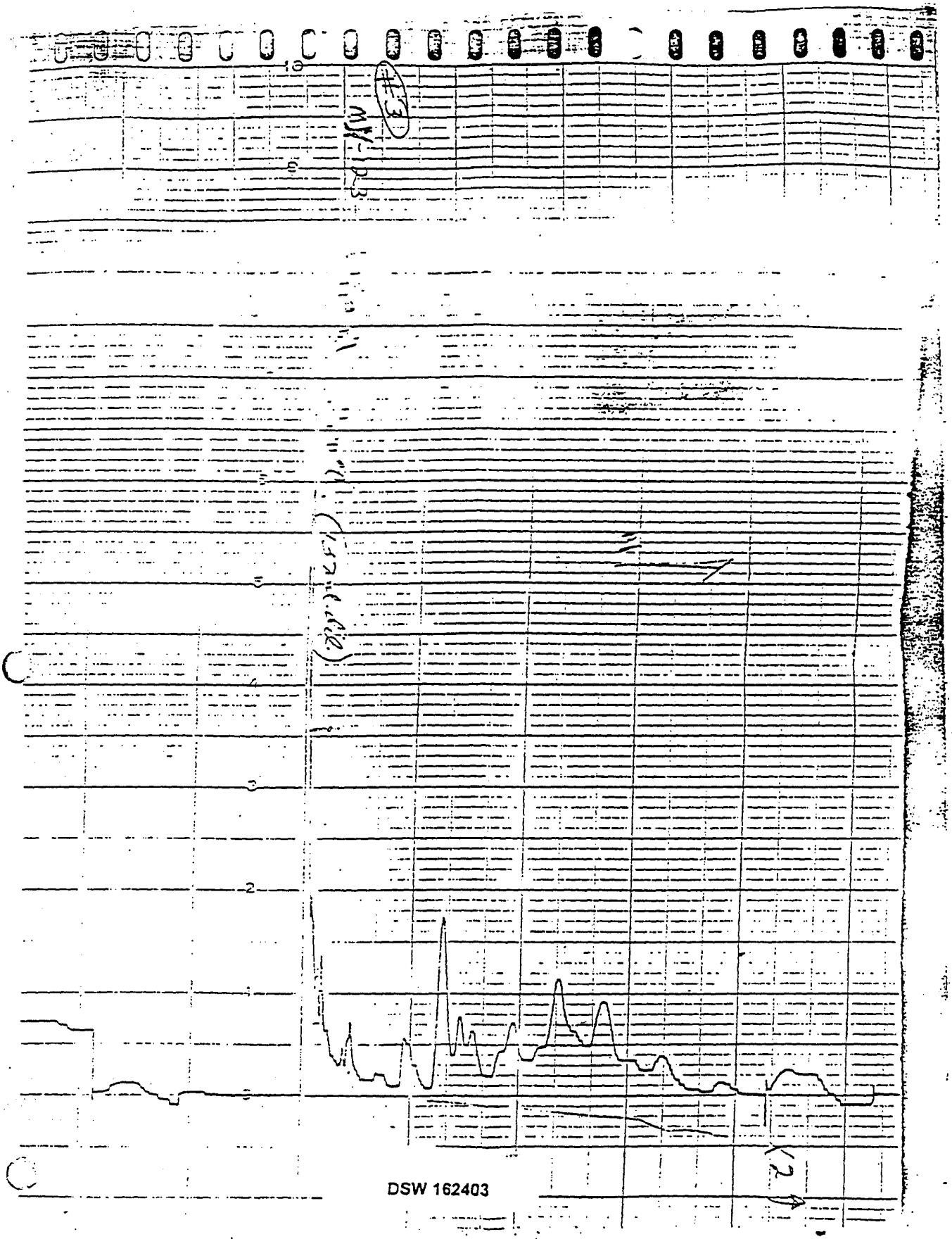

WATER_PCB-SD0000006080

WATER_PCB-SD0000006081