

Interoffice Communication

To John Minott, Lake Charles
 From E. A. Setzkorn, Ponca City
 Date August 31, 1972
 Subject Analysis of Effluent Waters

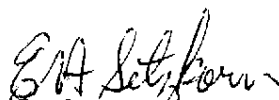
The analyses of the last two effluent water samples received from you have been completed. The results are shown as follows:

	Sample No. and Description	
	LCVCP-I-72-44	LCVCP-I-72-45
	"As Is" Effluent Water	"Acidified" Effluent Water
	ppm	
Ammonia nitrogen, as N	2	
Total Kjeldahl nitrogen, as N	10	
Organic nitrogen, as N	8	
Nitrate nitrogen, as N	<0.5	
Nitrite nitrogen	<0.01	
TOC	461	
Oil and grease	4	
Lead		0.13 ppm
Ethylene glycol		10 ppm
Phenol		<10 ppb
Fluoride	<1	
	LCVCP-I-72-46	LCVCP-I-72-47
	"As Is" Effluent Water	"Acidified" Effluent Water
	ppm	
Ammonia nitrogen, as N	9	
Total Kjeldahl nitrogen, as N	10	
Organic nitrogen as N	1	
Nitrate nitrogen, as N	<0.5	
Nitrite nitrogen, as N	<0.01	
TOC	469	
Oil and grease	2	
Lead		<0.10 ppm
Ethylene glycol		8 ppm
Phenol		<10 ppb
Fluoride	<1	
Mercury		0.6 ppb

Sample LCVCP-I-72-43 previously reported to have <1 ppb mercury was re-analyzed using a different instrument. A value of 0.3 ppb Hg was found for the sample using the new equipment.

John Minott
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August 31, 1972

If you have any questions about the reported analyses please let me hear from you.


E. A. Setzkorn
Analytical Coordinator

ah
CC: PLF

CWH 000003094



Interoffice Communication

To John Minott, Lake Charles
From E. A. Setzkorn, Ponca City
Date August 28, 1972
Subject Analysis of Effluent Water Samples Numbers LCVCP-I-72-42 and 43

The analyses of the subject water samples have been completed. The results are shown as follows:

	<u>Sample No. and Description</u>	
	<u>LCVCP-I-72-42</u> <u>"As Is" 7-22-72</u>	<u>LCVCP-I-72-43</u> <u>Acidified 7-22-72</u>
	<u>ppm</u>	
Ammonia nitrogen as N	2.0	
Total Kjeldahl nitrogen as N	11.0	
Organic nitrogen as N	9.0	
Nitrate nitrogen as N	<0.5	
Nitrite nitrogen as N	<0.01	
TOC	504	
Oil and grease	1.5	
Pb		<0.05 ppm
Ethylene glycol		19 ppm
Phenol		<10 ppb
Fluorine	72 ppb (previously reported)	
Mercury		<1.0 ppb 0.3 ppb

Mercury analyses previously reported to you by telephone are shown as follows:

<u>Sample No.</u>	<u>ppb Hg</u>
LCVCP-I-72-32	1.4
-39	<1.0
-41	<1.0

If you have any questions about the reported results, please let me hear from you.


E. A. Setzkorn
Analytical Coordinator

ah
CC: PLF



Interoffice Communication

To John Minott, Lake Charles
From E. A. Setzkorn, Ponca City
Date August 9, 1972
Subject Analyses of Effluent Waters

The analyses of your last two sets of effluent waters have been completed.
The results are shown as follows:

Sample No. and Description		
LCVCP-I-72-38		LCVCP-I-72-39
"As Is" Secondary Effluent	"Acidified" Secondary Effluent	
7-10-72	7-10-72	
Ammonia Nitrogen as N	3 ppm	
Total Kjeldahl Nitrogen as N	13	
Organic Nitrogen as N	10	
Nitrate Nitrogen	<0.5	
Nitrite Nitrogen	<0.01	
TOC	794	
Oil and Grease	2.7	
Pb		0.08 ppm
Ethylene Glycol		52
Phenol		<10 ppb
<i>Handwritten: <1.0 ppt</i>		
LCVCP-I-72-40		LCVCP-I-72-41
"As Is" Secondary Effluent	"Acidified" Secondary Effluent	
Ammonia Nitrogen as N	1 ppm	
Total Kjeldahl Nitrogen as N	4	
Organic Nitrogen as N	3	
Nitrate Nitrogen	<0.5	
Nitrite Nitrogen	<0.01	
TOC	798	
Oil and Grease	2.4	
Pb		<0.01 ppm
Ethylene Glycol		56
Phenol		67 ppb
<i>Handwritten: <1.0 ppt</i>		

Fluoride analyses were made on the last three sets of water samples.
These results are shown as follows:

Sample Number	PPB as F
LCVCP-I-72-38 "As Is"	88
LCVCP-I-72-40 "As Is"	72
LCVCP-I-72-42 "As Is"	72

CWH 000003096

John Minott
Page 2
August 8, 1972

If you have any questions about the reported results, please let me hear-
from you.

E. A. Setzkorn
E. A. Setzkorn
Analytical Coordinator

ah
CC: PLF

CWH 000003097



Interoffice Communication

To P. L. Fetzner, Lake Charles
From E. A. Setzkorn, Ponca City
Date July 27, 1972
Subject Effluent Water Analysis

The first set of water analyses have been completed in the series of 5 sets discussed with you by telephone. The work on the second and third sets is underway at the present time. The results are shown as follows:

	<u>LCVCP-I-72-31</u> <u>"As Is" 7-2-72</u>	<u>LCVCP-72-32</u> <u>"Acidified" 7-2-72</u>
Ammonia Nitrogen as N	1 ppm	
Total Kjeldahl Nitrogen as N	12	
Organic Nitrogen as N	11	
Nitrate Nitrogen	<0.5	
Nitrite Nitrogen	<0.01	
TOC	868	
Oil and Grease	0.8	
Pb		0.01 ppm
Ethylene Glycol		40
Phenol		<10 ppb

Hg *1.4 µg/l*
Our mercury analyzer is out of service; as soon as repairs are made, we will analyze the sample for Hg content and report the value to you.

If you have any questions about the reported data, please let me hear from you.

E. A. Setzkorn
E. A. Setzkorn
Analytical Coordinator

ah
CC: JM

CWH 000003098



Interoffice Communication

To Mr. John Minott, Lake Charles
From Mr. E. A. Setzkorn, Ponca City
Date June 19, 1972
Subject Effluent Water Analysis

The analyses of your last set of effluent water samples have been completed. The results are shown as follows:

	LCVCP-I-72-25 Neutral Water Effluent 4-30-72	LCVCP-I-72-26 Acidified Sample 4-30-72
	<u>ppm</u>	<u>ppm</u>
Total Kjeldahl Nitrogen as N	22	
Ammonia Nitrogen as N	14 — <i>14.5 ppm</i>	
Organic Nitrogen as N	8	
Nitrate Nitrogen	<0.5	
Nitrite Nitrogen	<0.01	
Oil and Grease	6	
TOC	1121	
Al		<0.1 — <i>Plant noted</i>
Cd		<0.05 <i>Plant = 0.15</i>
Na		5000 — <i>Plant 6 ppm</i>
	<u>ppb</u>	
Cyanide	nil	
Phenol	<10	
	LCVCP-I-72-27 Neutral Water Effluent 5-14-72	LCVCP-I-72-28 Acidified Sample 5-14-72
	<u>ppm</u>	<u>ppm</u>
Total Kjeldahl Nitrogen as N	14	
Ammonia Nitrogen as N	4 — <i>2.5 ppm plant</i>	
Organic Nitrogen as N	10	
Nitrate Nitrogen	<0.5	
Nitrite Nitrogen	<0.01	
Oil and Grease	7	
TOC	543	
Al		<0.1 <i>Plant - Noted</i>
Cd		<0.05 — <i>Plant = 0.15</i>
Na		4300 — <i>Plant = 1200</i>
	<u>ppb</u>	
Phenol	<10	
Cyanide	Nil	

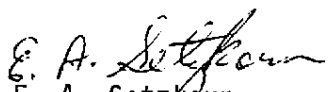
CWH 000003099

Mr. John Minott
Page 2
June 19, 1972

Sample LCVCP-I-72-27 (neutral) was examined for ethylene glycol content by GLC and only 10 ppm were found. The acidified counterpart Sample 72-28 was then examined and 240 ppm of ethylene glycol was found. Evidently the glycol in the neutral sample had degraded biologically. A retain effluent sample (acidified) from 1-17-72 was found and analyzed for ethylene glycol content. The amount found was 300 ppm. The new GLC method for analysis of ethylene glycol in water has been given to Mr. Paul Fetzer. The method seems to be repeatable and reliable for this determination.

COD values on these waters (72-27 and 28) ranged from 1200 to ~3,000 ppm, with some sort of consistency around the 2800 - 3000 ppm level. We have little confidence in our COD values. Several water samples were evaporated, dried at 100°C and COD values determined on the dry solids. Values around 2800 ppm were also found on the dried solids. We stopped any further COD work at this point. Paul indicated that he felt the COD determination was no longer a problem based on recent work at the VCM plant. Two fresh effluent water samples received from Paul during his visit to R&D will be checked early next week to determine the extent of agreement between our two laboratories for COD analysis.

If you have any questions about the reported analyses, please let me hear from you.


E. A. Setzkorn
Analytical Coordinator

ah
CC: PLF

Interoffice Communication

To John Minott, Lake Charles
 From E. A. Setzkorn, Ponca City
 Date May 18, 1972
 Subject Effluent Water Analysis

The analyses of your effluent water samples have been completed. The data are shown as follows:

	4-16-72 LCVCP-I-		4-23-72 LCVCP-I-	
	<u>72-19</u>	<u>72-20</u>	<u>72-22</u>	<u>72-23</u>
	<u>ppm</u>	<u>ppm</u>	<u>ppm</u>	<u>ppm</u>
Total Kjeldahl nitrogen	17			16
Ammonia nitrogen as N	12			14
Total organic nitrogen as N	5			2
Nitrate Nitrogen as N	.3			.3
Nitrite Nitrogen as NO ₂	ND*			.06
Aluminum		<0.10	<0.10	
Cadmium		<0.01	<0.01	
Sodium		5,100	5,000	
TOC	1,010			940
Oil and Grease	6			4
	<u>ppb</u>	<u>ppb</u>	<u>ppb</u>	<u>ppb</u>
Cyanide	nil			nil
Phenol	<10			15

*None detected

A TOC analysis was made on the LCVCP-I-72-19 sample after the sample was filtered through a 0.45 micron filter. The TOC on the filtrate was 1010 ppm, identical to the unfiltered sample.

A separate sample was received from you for formate analysis, sample number LCVCP-I-72-21, dated 3-12. A formate concentration of 512 ppm was found in this sample using the recently developed chromotropic acid procedure. I mailed Paul a copy of this procedure on 5-8-72.

If you have any questions about the reported data, please let me hear from you.

E. A. Setzkorn
 E. A. Setzkorn

Analytical Coordinator

CC: PLF:HTF:FME:REL:WDL



Interoffice Communication

To Mr. John Minott, Lake Charles
From Mr. E. A. Setzkorn, Ponca City
Date May 1, 1972
Subject Analyses of Well and Effluent Water, VCM Plant

The analysis of your water samples have been completed and were reported to you by telephone on 4-21-72. This letter confirms the data transmitted to you by telephone. The data are shown as follows:

	LCVCP-I-72-12 Well Water	LCVCP-I-72-14 Effluent Water
	<u>ppm</u>	<u>ppm</u>
Total Kjeldahl Nitrogen	<1	17
Ammonia Nitrogen, as N	<1	15
Total Organic Nitrogen, as N	<1	2
Nitrate Nitrogen, as N	<0.1	0.4
Nitrite Nitrogen, as NO ₂	<0.03	<0.03
Cadmium (LCVCP-72-13 & 15)	<0.01	<0.01
Sodium (LCVCP-72-13 & 15)	37	6,000
Aluminum (LCVCP-72-13 & 15)	<0.10	<0.10
TOC	20	1,420
Oil and Grease	5	11
	<u>ppb</u>	<u>ppb</u>
Cyanide	nil nil	nil
Phenol	<10	<10

If you have any questions about the reported data, please let me hear from you.

E. A. Setzkorn
Analytical Coordinator

ah
CC: PLF
HTF:FME:REL:WDL

Interoffice Communication

To Mr. John Minott, Lake Charles, La.
 From E. A. Setzkorn
 Date March 21, 1972
 Subject Water Analysis

The analyses of your third set of effluent and well water samples have been completed. The results are shown as follows:

Component	2/7/72 Sample No. 2/2/72	
	LCVCP-I-72-8 Effluent Water	LCVCP-I-72-9 Well Water
TOC ppm	1037 <i>Plant Analysis</i>	18
Oil & Grease ppm	26	1
Total Organic Nitrogen ppm	10	<1
Ammonia Nitrogen ppm	10 <i>61</i>	<1
Nitrate Nitrogen ppm	0.2	<0.1
Nitrite Nitrogen ppm	0	0
Sodium ppm	6000 <i>5900</i>	37
Al ppm	0.4 <i>1.54</i>	<0.1
Cd ppm	<0.01 <i>0.21</i>	<0.01
Phenol ppb	25	<10
Cyanide ppb	2	0.8

The fourth set of samples have been received and work is in progress on the analyses of these waters.

Please call me if you have any questions on the data reported in this letter.

E. A. Setzkorn
 E. A. Setzkorn
 Analytical Coordinator

cg
 CC: PLF-FK



AIR MAIL

Interoffice Communication

To John Minott, Lake Charles
From E. A. Setzkorn, Ponca City
Date March 10, 1972
Subject Plant Water Analysis

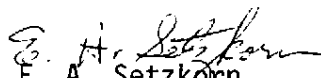
Analyses have been completed on four of your water samples. The results are shown as follows:

Component	1/17/72	1/17/72	2/3/72	2/3/72
	LCVCP-I-72-2 Plant Effluent	Sample No. LCVCP-I-72-3 Well Water	LCVCP-I-72-6 Plant Effluent	LCVCP-I-72-7 Well Water
TOC ppm	1,491	24	783	19
Oil and Grease ppm	11.7	4.3	5.0	1.9
Total Nitrogen ppm	11	<1.0	22	<1.0
Organic Nitrogen ppm	5	<0.5	3	<0.5
Ammonia Nitrogen ppm	6	<0.5	19	<0.5
Nitrate Nitrogen ppm	1	<0.5	1	<0.5
Nitrite Nitrogen ppm	0	0	0	0
Sodium ppm	2,900 (14,000 plant)	34	4,000 (4,100 plant)	35
Al ppm	<0.1	<0.1	0.90	<0.10
Cd ppm	<0.01 (0.25 ppm plant)	<0.01	<0.01 (0.19 ppm plant)	<0.01
Phenol ppb	<10	<10	30	<10
Cyanide ppb	1	0.4	0.8	0.4

The analyses of the third set of samples (72-8 and 9) will be completed within the next few days.

The two effluent samples show a considerable difference in the quantity of several of the components. The 72-2 set is much darker (brown) than the 72-6 set. The third set of effluent samples (72-8) are visually about intermediate in color compared to 72-2 and 72-6. The color, of course, may not be a factor in composition, but is mentioned for your interest in the event that you were not aware of this difference in visual appearance. 2/7/72

If you have any questions about any part of the reported data, please let me hear from you. I will report the data from the third set to you early next week.


E. A. Setzkorn
Analytical Coordinator

ah

CC: PLF:HTF:FME:REL:WDL

CWH 000003104



Interoffice Communication

To John Minott, VCM Plant, Lake Charles
From Gene Setzkorn, Analytical Research Section, Ponca City
Date September 24, 1971
Subject Plant Water Analysis

This letter reports the mercury and oil and grease analyses on your two samples of plant water. All other requested analyses were reported to you in my previous data letter EAS to JM 9-15-71.

The results are shown as follows:

	Sample No. and Description 7/25/71 LCVCP-I-71-21 <u>Plant Effluent Water</u>	LCVCP-I-71-22 <u>Well Water</u>
Oil and Grease	3.1 ppm	ND
Hg	Bad 15.5 ppb	2.4 ppb x Bad

Rechecked & tested *> 1.0 ppm with sample* *for 2 tanks sample*

The mercury values are higher than on your previous water samples which were reported as <0.0005 ppm, or <0.5 ppb. The mercury values were checked and appear to be correct. If you wish, we could quickly check fresh samples of the two waters. The mercury analysis is not time consuming and could probably be completed on the day the samples are received.

E. A. Setzkorn
E. A. Setzkorn
Analytical Coordinator

ah
CC:
PLF

*John - I talked to Paul this PM (Fri) +
asked him to bring more samples
for the Hg ck - he will. These
don't look right.*

Alan



Interoffice Communication

To John Minott, VCM Plant, Lake Charles

From Gene Setzkorn, Analytical Research Section, Ponca City

Date September 15, 1971

Subject Plant Water Analysis

This letter reports all of the analyses except oil and grease and mercury values you requested on your two samples of plant water. The data are shown as follows:

Component	Sample No. and Description	
	LCVCP-I-71-21 Plant Effluent Water	LCVCP-I-71-22 Well Water
Total Nitrogen	27 ppm <i>rechecked</i>	<0.1 ppm
NH ₃ Nitrogen	27 ppm	<0.1 ppm
Organic Nitrogen	<1 ppm	<0.1 ppm
Nitrate Nitrogen	.015 ppm	0.015 ppm
Nitrite Nitrogen	<0.001 ppm	<0.001 ppm
? - Phenol	0.3 ppm	<0.1 ppm
Sulfide	0.01 ppm	<0.01 ppm
COD	4135 ppm (3680 ppm)	5 ppm
Total Organic Carbon	879 ppm	12.5 ppm
Cd	0.1 ppm —	0.1 ppm
Co	<0.5 ppm (0.7 + 0.5 ppm)	<0.5 ppm (0.16 ppm)
Cr	5.0 ppm (6.0 ppm)	<0.5 ppm
Cu	0.5 ppm (0.4 ppm)	0.5 ppm
Cu Recheck	0.5 ppm —	<0.3 ppm
Ca	320 ppm —	29 ppm
Mg	15.8 ppm (10.8 ppm)	7.5 ppm
Mn	0.55 ppm (0.75 ppm)	0.4 ppm (0.4 ppm)
Pb	1.0 ppm —	<1.0 ppm
Na	4600 ppm —	37.5 ppm
Zn	1.4 ppm (2.2 ppm)	<0.1 ppm
Ni	<0.5 ppm —	<0.5 ppm
Hg	<25 ppm —	<25 ppm
Al	2.0 ppm —	<2.0 ppm
LCVCP-I-71-25		LCVCP-I-71-26
Cyanide	Nil	<1.0 ppm



Interoffice Communication

To John Minott, VCM Plant, Lake Charles
From E. A. Setzkorn, Analytical Research Section, Ponca City
Date August 18, 1971
Subject Metals Analysis of Plant Effluent Water

The data reported in this letter confirms the values reported to you by telephone on August 5, 1971. The data are shown as follows:

		ppm							
Sample No.		Cd	Cr	Cu	Fe	Mg	Mn	Pb	Zn
<i>all H₂O</i>	LCVCP-I-71-10	<0.2	<0.4	<0.4	1.6	8.2	0.39	<1.5	0.05
<i>Effluent</i>	LCVCP-I-71-11	<0.2	2.7	<0.4	8.2	16.2	0.74	<1.5	1.2

*Sample dated
5/12/71*

The above values were obtained by atomic absorption spectroscopy. Colorimetric values for Fe and Cu were reported to you by letter on June 25, 1971. The colorimetric values were 1.5 and 9.8 ppm for Fe on the two samples, versus 1.6 and 8.2 by AA on the same samples. Colorimetric Cu values were <0.1 and <0.1 versus <0.4 and <0.4 by AA on the same samples. This shows good agreement between the two different techniques.

Please call me if you have any questions about the reported data.

E. A. Setzkorn
E. A. Setzkorn
Analytical Coordinator

ah
CC:
PLF
HTF:FME:REL:WDL

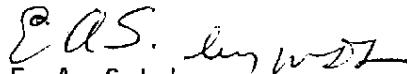
CWH 000003107

John Minott
Page 2
September 15, 1971

The oil and grease analysis will be made within the next few days. Our mercury analyzer for very low mercury detection is presently out of service. As soon as the instrument is repaired we will check your two samples for low level mercury content. The timing on the instrument repair work is somewhat uncertain, since a factory ordered part has not yet been received, however, it should be back in service within the next two weeks.

You will note the lower phenol values than those previously transmitted to you by telephone. The earlier values were obtained by UV analysis. The values reported in this letter were obtained by a standard colorimetric procedure used in the Refinery Laboratory. The high UV values for phenol are almost certainly in error and are due to interferences in the UV region from components in the water other than phenol.

Please let me hear from you if you have any questions about the reported data.



E. A. Setzkorn
Analytical Coordinator

ah
CC:
HTF:FME:REL:WDL

CWH 000003108

INTEROFFICE COMMUNICATION

Ponca City, Oklahoma
June 25, 1971

TO: Mr. John Minott, VCM Plant, Lake Charles

SUBJECT: Plant Effluent Water Analyses

This letter reports all of the analyses which have been completed to this date on your two plant effluent waters. The data are shown as follows:

Component	Sample No.	
	LCVCP-I-71-10	LCVCP-I-71-11
	5/14/71	Effluent Water, on 5/10/1971
	ppm	ppm
Total Nitrogen	<0.5	29.0
Ammonia Nitrogen	<0.1	22.5
Organic Nitrogen	<0.5	6.5
Nitrate Nitrogen	<0.1	0.8
Inorganic Carbon	32.6	26.8
Organic Carbon	0.3	307
Total Carbon	32.9	333.8
Total P ₂ O ₅	0.6	2.0
Ortho P ₂ O ₅	0.4	1.1
Sulfate as SO ₄	<5	188
Sulfide	<0.01	<0.02
Fe	1.5	9.8
Cu	<0.1	<0.1
Hg	<0.0005 (0.5 ppb)	<0.0005 (0.5 ppb)
Oil and Grease	2.0	2.3
Phenol	<0.5	2.0
Fluoride as F	2 ppb	4 ppb

Method development work is essentially complete for cyanide and nitrite; we expect to be able to report values for these compounds within about a week.

Atomic absorption analysis for the remaining metals on your list should also be completed by early next week.

Please call me if you have any questions about the data reported.

E. A. Setzkorn
E. A. Setzkorn
Analytical Coordinator

EAS-VAH
CC: PLF

HTF:FME:REL:WDL

11.2 0.05 0.2 0.4 1.5 <0.04 <0.04 1.6 AA
↑ ↑ ↑ ↑ ↑
Cu Fe
11.2 1.2 16.2 0.7 <1.5 2.7 1.2 AA
10.4

CWH 000003109