177434

87-101

84

1190400007 Marion
Tara Corp
Superfund/Tech

ENVIRODYNE ENGINEERS

February 24, 1987
3075-00034

Ms. Sue Doubet
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, Illinois 62706

Dear Sue:

Enclosed are the analytical data and associated quality control information for the water samples received January 7, 1987 from TARA CORP/NL Industries (site no. 1190400007). These samples were analyzed for Total Lead, Dissolved Metals, Sulfate, and Total Dissolved Solids. Please note that due to insufficient sample volume, several metals were excluded from the requested list, per the instructions from Scott Siders of your office. The dissolved metals data specifically needed by Scott were As, Cd, Mn, Ni, Pb, and Zn. However, we were also able to provide data for dissolved Al, Ba, Be, Ca, Cr, Cu, Se, Tl, and V.

Regarding the metals analyses for this project, only selenium was digested and analyzed twice due to poor matrix spike recovery. The spike recoveries were out of QC range in both cases.

If you have any questions about this package, please feel free to call. Thank you for selecting Envirodyne Engineers, Inc. for this assignment.

Sincerely,

John J. Coniglio

John J. Coniglio
Project Manager

JJC/jag
Enclosure

RECEIVED
FEB 25 1987
IEPA-DLPC

Illinois Environmental Protection Agency
Contract Laboratory Services
Inorganic Analyses Data Package

DATE: 2-23-87

COVER SHEET

Lab Name : Envirodyne Engineers, Inc.
Site Inventory No:1190400007
Region: SOUTHERN

Q.C. Report No.: 3075-00034
Facility Name: TAMA CORP
County: MADISON

Sample Numbers

IEPA Monitor Point No.	Lab ID Number	IEPA Monitor Point No.	Lab ID Number
8102	870017		
8102	870018		
8102	870019		

Comments: The selenium was digested and analyzed twice due to poor matrix spike recovery. In both cases, the spike recoveries were out of QC range

ICP interelement and background corrections applied.

Background corrections were applied before raw data generation. Interelement corrections were applied after raw data generation.

Footnotes:

NR - Not required by contract at this time.
Value - If the result is a value greater than or equal to the instrument detection limit, but less than the contract required detection limit, report the value in brackets (ie [10]). Indicate the analytical method used with P (for ICP/Flame AA) or F (for furnace).
U - Indicates element was analyzed for but not detected. Report with the detection limit value (ie 10U).
E - Indicates a value estimated or not reported due to the presence of interference. Explanatory note included on cover page.
S - Indicates value determined by Method of Standard Addition.
N - Indicates spike sample recovery is not within control limits.
* - Indicates duplicate analysis is not within control limits.
+ - Indicates the correlation coefficient for method of standard addition is less than 0.995.

Illinois Environmental Protection Agency
Contract Laboratory Services

Q.C. Form I
Q.C. Report No.: 3075-00034

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name : Envirodyne Engineers, Inc.
Date : 2-23-87

Site Inventory No: 1190400007
Units : ug/l or ug/kg
(circle one)

	Initial Calibration			Continuing Calibration					
Compound	True Value	Found Value	% Recov	True Value	Found Value	% Recov	Found Value	% Recov	Method
1 DISSOLVED AL	7500	7590	101	8000	8100	101			P
2 DISSOLVED BA	8000	7790	97	8000	8560	107			P
3 DISSOLVED BE	800	811	101	800	876	110			P
4 DISSOLVED CD	800	810	101	800	851	106			P
5 DISSOLVED CR	800	807	101	250	238	95			P
6 DISSOLVED CO	8000	7880	99	8000	8230	103			P
7 DISSOLVED CU	800	788	99	800	856	107			P
8 DISSOLVED MN	8000	8110	101	8000	8770	110			P
9 DISSOLVED NI	8000	7850	98	8000	8460	106			P
10 DISSOLVED PB	8000	8040	101	35	33.5	96			F
11 TOTAL LEAD	8000	8040	101	35	33.5	96			F
12 DISSOLVED V	8000	8010	100	8000	8460	106			P
13 DISSOLVED ZN	800	806	101	250	242	97			F
14 DISSOLVED AS	35	37	106	35	32	91			F
15 DISSOLVED SE	35	37	106	35	35	100			F
16 DISSOLVED TL	35	33	94	35	23	66			F

Initial Calibration Source: Fischer Scientific
Continuing Calibration Source: Fischer Scientific
Control Limits : Mercury 80-120%; All other compounds 90-110%
Analytical method used : P - ICP/Flame AA; F - Furnace

Illinois Environmental Protection Agency
Contract Laboratory Services

Q.C. Form II
Q.C. Report No.:3075-00034

BLANKS

Lab Name : Envirodyne Engineers, Inc.
Matrix : WATER

Site Inventory No:1190400007
Units : ug/l or ug/kg
(circle one)

Compound	Initial Calibr. Blk Value	Continuing Calibration Blank Value 1	2	3	4	Procedural Blank 1	2
1 DISSOLVED AL	0	<200				<200	
2 DISSOLVED BA	0	<200				<200	
3 DISSOLVED BE	0	<5				<5	
4 DISSOLVED CD	0	<5				<5	
5 DISSOLVED CR	0	<10				<10	
6 DISSOLVED CO	0	<50				<50	
7 DISSOLVED CU	0	<25				<25	
8 DISSOLVED MN	0	<15				<15	
9 DISSOLVED NI	0	<40				<40	
10 DISSOLVED PB	0	<50				<50	
11 TOTAL LEAD	0	<50				<50	
12 DISSOLVED V	0	<50				<50	
13 DISSOLVED ZN	0	<20				<20	
14 DISSOLVED AS	0	<3.5				<3.5	
15 DISSOLVED SE	0	<3.2				<3.2	
16 DISSOLVED TL	0	<2.40				<2.40	
17 SO4	0	<3				<3	
18 TDS	0	<5				<5	

Illinois Environmental Protection Agency
Contract Laboratory Services

Q.C. Form IV
Q.C. Report No. 3075-00034

SPIKE SAMPLE RECOVERY

Lab Name : Envirodyne Engineers, Inc.
Matrix : water

Site Inventory No: 1190400007
Units : ug/l or ug/kg
(circle one)

	SITE ID	COMPOUND	CONTROL LIMIT (%R)	SPIKED SAMPLE RESULT	SAMPLE RESULT	SPIKE ADDED	% RECOV	
1	6102	DISSOLVED AL	75-125	1890	<200	2000	95	
2	6102	DISSOLVED BA	75-125	2170	<200	2000	109	
3	6102	DISSOLVED BE	75-125	540	<5	50	108	
4	6102	DISSOLVED CD	75-125	52	<5	50	104	
5	6102	DISSOLVED CR	75-125	256	<10	250	102	
6	6102	DISSOLVED CO	75-125	479	<50	500	96	
7	6102	DISSOLVED CU	75-125	289	<25	250	116	
8	6102	DISSOLVED MN	75-125	355	135	200	110	
9	6102	DISSOLVED NI	75-125	443	<40	400	111	
10	6102	DISSOLVED PB	75-125	20	<2.0	20	100	
11	6102	DISSOLVED V	75-125	492	<50	500	98	
12	6102	DISSOLVED ZN	75-125	215	<20	200	108	
13	6102	DISSOLVED AS	75-125	21.9	<3.5	20	110	
14	6102	DISSOLVED SE	75-125	6.75	<3.2	10	68	R
15	6102	DISSOLVED SE	75-125	7.38	<3.2	10	74	R
16	6102	DISSOLVED TL	75-125	40.2	<2.40	50	80	

%RECOV = [(SSR-SR)/SA] x 100 "R" - Out of Control

Comments : Selenium was digested and analysed twice due to poor matrix spike recoveries. The recoveries were out of QC range in both cases.

Illinois Environmental Protection Agency
Contract Laboratory Services

Q.C. Form V
Q.C. Report No.: 3075-00034

DUPLICATES

Lab Name : Envirodyne Engineers, Inc.
Matrix : Water

Site Inventory No: 1190400007
Units : ug/l or ug/kg
(circle one)

	SITE ID	COMPOUND	CONTROL LIMIT	SAMPLE (S)	DUPLICATE (D)	RPD
1	6102	Dissolved Al	+/-20%	< 200	< 200	NC
2		Dissolved As	+/-20%	< 3.5	< 3.5	NC
3		Dissolved Ba	+/-20%	< 200	< 200	NC
4		Dissolved Be	+/-20%	< 5	< 5	NC
5		Dissolved Cd	+/-20%	< 5	< 5	NC
6		Dissolved Co	+/-20%	< 50	< 50	NC
7		Dissolved Cr	+/-20%	< 10	< 10	NC
8		Dissolved Cu	+/-20%	< 25	< 25	NC
9		Dissolved Mn	+/-20%	135	152	12
10		Dissolved Ni	+/-20%	< 40	< 40	NC
11		Dissolved Pb	+/-20%	< 2.0	< 2.0	NC
12		Dissolved Se	+/-20%	< 3.2	< 3.2	NC
13		Dissolved Tl	+/-20%	< 2.4	< 2.4	NC
14		Dissolved V	+/-20%	< 50	< 50	NC
15		Dissolved Zn	+/-20%	< 20	< 20	NC
16		TDS	+/-20%	678000	654000	4

* - Out of Control
RPD - Relative Percent Difference
NC - Non calculable RPD due to value(s) less than CRDL

RPD = [(S-D)/((S+D)/2)] x 100

Illinois Environmental Protection Agency
Contract Laboratory Services

Q.C. Form VI
Q.C. Report No.: 3075-00034

INSTRUMENT DETECTION LIMITS AND
LABORATORY CONTROL SPIKE

Lab Name : Envirodyne Engineers, Inc.
Date : 2-23-87

Site Inventory #: 1190400007
LCS Units : ug/l or ug/kg
(circle one)

METALS	CRDL (ug/l)	INSTRUMENT DETECTION LIMITS (IDL) - ug/l ICP/AA	FURNACE	LAB CONTROL SAMPLE TRUE	FOUND	%R
1 Aluminum	200	114		7500	6600	88
3 Arsenic	10		3.5	40	42	105
4 Barium	200	50		7500	7150	95
5 Beryllium	5	5		750	812	108
6 Cadmium	5	5		750	742	99
7 Chromium	10	8		7500	7860	105
8 Cobalt	50	50		7500	6670	89
9 Copper	25	20		750	750	100
11 Lead	5	69	2.0	40	39	98
12 Manganese	15	10		7500	7200	ERR
13 Nickel	40	40		7500	7210	96
14 Selenium	5		3.2	40	47	118
15 Thallium	10		2.0	40	40	100
16 Vanadium	50	50		7500	7060	94
17 Zinc	20	10		7500	8060	107

IEPA ANALYSIS PROGRAM
Report of INORGANIC Results
Water Samples

Site ID : G102
Sample # : 17

PARAMETER	REMARKS (see inst.)	< OR >	VALUE (ug/l)	DILUTION FACTOR
TOTAL LEAD			304	1

IEPA ANALYSIS PROGRAM
Report of INORGANIC Results
Water Samples

Site ID : 8102
Sample # : 1B

PARAMETER	REMARKS (see inst.)	< OR >	VALUE (ug/l)	DILUTION FACTOR
DISSOLVED ALUMINUM	U	<	200	1
DISSOLVED ARSENIC	U	<	10	1
DISSOLVED BARIUM	U	<	200	1
DISSOLVED BERYLLIUM	U	<	5	1
DISSOLVED CADMIUM	U	<	5	1
DISSOLVED CHROMIUM	U	<	10	1
DISSOLVED COBALT	U	<	50	1
DISSOLVED COPPER	U	<	25	1
DISSOLVED MANGANESE			135	1
DISSOLVED NICKEL	U	<	40	1
DISSOLVED SELENIUM	U R	<	5	1
DISSOLVED THALLIUM	U	<	10	1
DISSOLVED VANADIUM	U	<	50	1
DISSOLVED ZINC			20	1
DISSOLVED LEAD	U	<	5	1

IEPA ANALYSIS PROGRAM
Report of INORGANIC Results
Water Samples

Site ID : G102
Sample # : 19

PARAMETER	REMARKS (see inst.)	(OR)	VALUE (ug/l)	DILUTION FACTOR
TOTAL DISOLVED METALS			678000	1
SULFATE			140000	1

IEPA ANALYSIS PROGRAM
Report of INORGANIC Results
Water Samples

Site ID : G102MS
Sample # : 18

PARAMETER	REMARKS (see inst.)	< OR >	VALUE (ug/l)	DILUTION FACTOR
DISSOLVED ALUMINUM			1890	1
DISSOLVED ARSENIC			22	1
DISSOLVED BARIUM			2170	1
DISSOLVED BERYLLIUM			54	1
DISSOLVED CADIUM			52	1
DISSOLVED CHROMIUM			256	1
DISSOLVED COBALT			479	1
DISSOLVED COPPER			289	1
DISSOLVED LEAD			20	1
DISSOLVED MANGANESE			355	1
DISSOLVED NICKEL			443	1
DISSOLVED SELENIUM			6.75	1
DISSOLVED THALLIUM			40	1
DISSOLVED VANADIUM			492	1
DISSOLVED ZINC			215	1

IEPA ANALYSIS PROGRAM
Report of INORGANIC Results
Water Samples

Site ID : G102 DUP
Sample # : 18

PARAMETER	REMARKS (see inst.)	< OR >	VALUE (ug/l)	DILUTION FACTOR
DISSOLVED ALUMINUM	U	<	200	1
DISSOLVED ARSENIC	U	<	10	1
DISSOLVED BARIUM	U	<	200	1
DISSOLVED BERYLLIUM	U	<	5	1
DISSOLVED CADIUM	U	<	5	1
DISSOLVED CHROMIUM	U	<	10	1
DISSOLVED COBALT	U	<	50	1
DISSOLVED COPPER	U	<	25	1
DISSOLVED LEAD	U	<	5	1
DISSOLVED MANGANESE			152	1
DISSOLVED NICKEL	U	<	40	1
DISSOLVED SELENIUM	U	<	5	1
DISSOLVED THALLIUM	U	<	10	1
DISSOLVED VANADIUM	U	<	50	1
DISSOLVED ZINC	U	<	20	1
TDS			654000	1