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APPENDIX A

VISUAL SITE INSPECTION PHOTOGRAPHIC LOG

Whyco Chromium, Thomaston, CT
March 28, 1989

PHOTO 1 - Area of FORMER SLUDGE DRYING LAGOON (in foreground) and FORMER HYPALON LINED THICKENING LAGOONS (toward the rear) These areas have been excavated and placed in the sludge landfill. (SWMU No. 3 and SWMU No. 2, respectively)

PHOTO 2 - Area of FORMER EFFLUENT RECHARGE LAGOONS. Note Naugatuck River to the right and railroad tracks to the left with Waterbury Road further back.

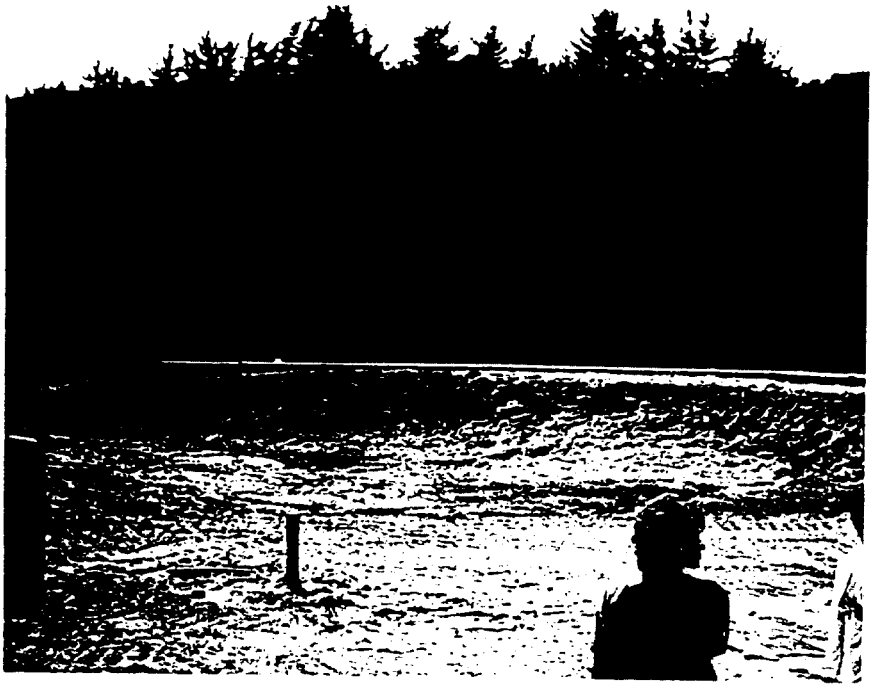

PHOTO 3 - FORMER EFFLUENT RECHARGE LAGOON located to the south of the sludge landfill and west of the lagoons in Photo 2.

PHOTO 4 - SLUDGE LANDFILL looking northwest. PRODUCTION BUILDING visible in the background. (SWMU No. 1 and SWMU No. 4, respectively)

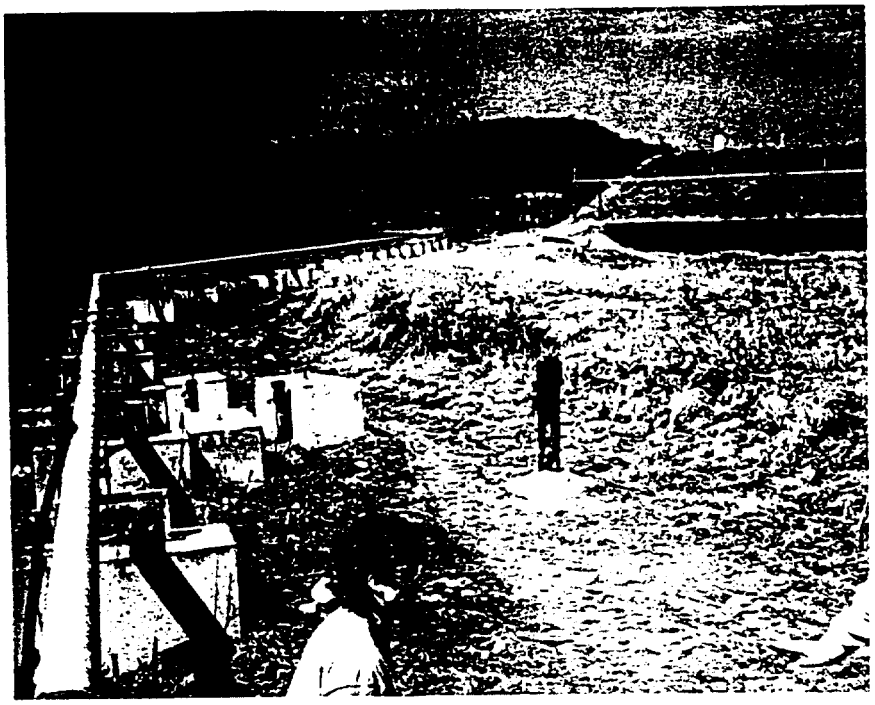

PHOTO 5 - EXIT PIPE from the facility, the present NPDES regulated wastewater discharge, running along the western edge of the site. Naugatuck River to the left, SLUDGE LANDFILL to the right with the facility behind it. Note the ROLLOFF CONTAINER (AC No. 1) to the left of the landfill.

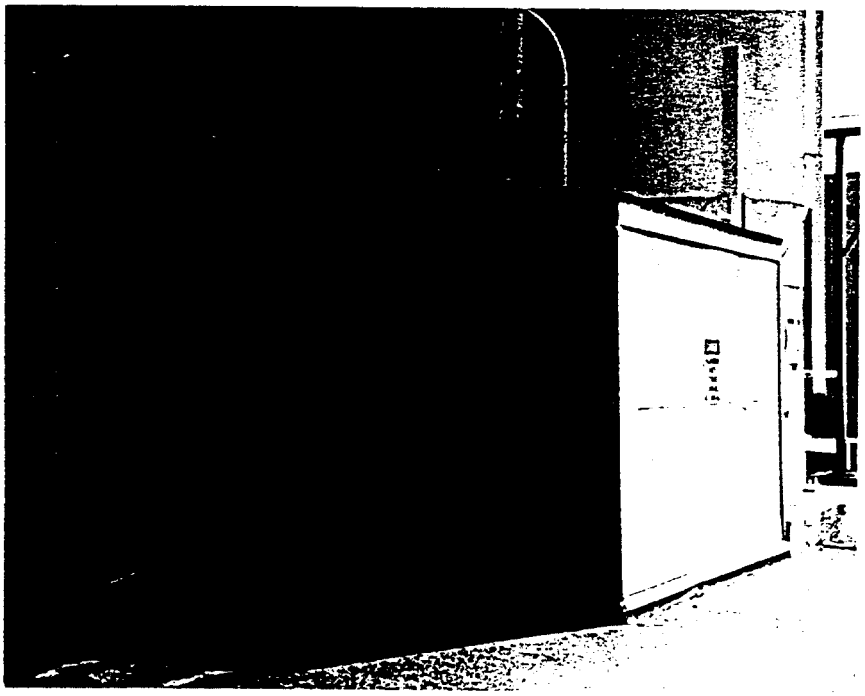

PHOTO 6 - FLAMMABLE WASTE DRUM STORAGE AREA, located outside the main production building. The lime silo (used for pH neutralization) is located directly behind it. (SWMU No. 12)

PHOTO 7 - Interior of the FLAMMABLE WASTE DRUM STORAGE AREA

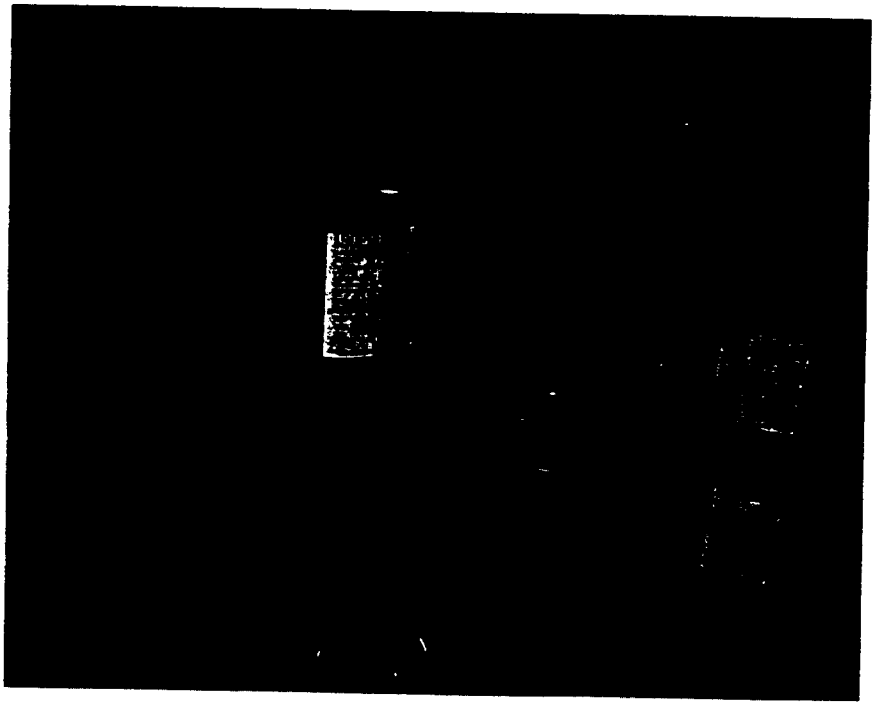

PHOTO 8 - Drums of isopropyl alcohol and methyl ethyl ketone inside the FLAMMABLE WASTE DRUM STORAGE AREA. As noted in the text, this area has not been used to store ignitable materials for some time, but is used to store raw materials used in the "waxing" process.

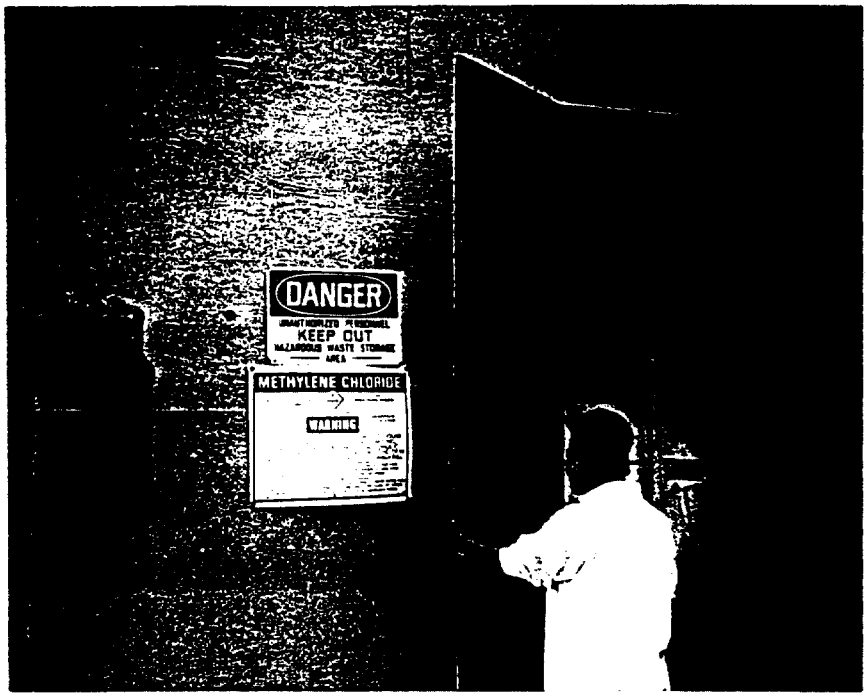

PHOTO 9 - WASTE METHYLENE CHLORIDE BULK STORAGE AREA. This tank is no longer in use and was slated for decontamination and removal earlier this year. (SWMU No. 14)

PHOTO 10 - ROLLOFF PAD AND CONTAINERS located at the northwest corner of the sludge landfill. (AC No. 1)

PHOTO 11 - View of top of one of the ROLLOFF CONTAINERS. Note presence of orange tarp covering, PRODUCTION FACILITY in the background (west side with lime silo).

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APPENDIX B

SOIL SAMPLE ANALYSES
DATA VALIDATION LETTER REPORT AND DATA SUMMARY

Whyco Chromium, Thomaston, CT
June 27, 1989

LETTER REPORT
INORGANIC CASE 11692
WHYCO CHROMIUM
THOMASTON, CONNECTICUT
DATA VALIDATION

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, D.C. 20460

Work Assignment No.	:	R01017
EPA Region	:	I
Facility I.D. No.	:	
Contract No.	:	68-01-7331
CDM Federal Programs Corporation Document No.	:	T1137-R01-EP-DKHD-1
Prepared By	:	CDM FPC
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Telephone Number	:	(617) 573-965~~3~~5
Date Prepared	:	June 27, 1989 AR 7/24/89

June 20, 1989

Mr. Dennis Gagne
Regional Sample Control Custodian
U.S. Environmental Protection Agency
JFK Federal Building
Boston, Massachusetts 02203

RE: Contract No. 68-01-7331
Case 11692, SDG MAK878
ENSECO Laboratory
Whyco Chromium Site, Thomaston, Connecticut
Metals: 11/soil/MAK878-MAK888
Cyanide: 11/soil/MAK878-MAK888

Dear Mr. Gagne:

A validation was performed on the inorganic analytical data from 11 soil samples collected by CDM Federal Programs Corporation (CDM FPC) at the Whyco Chromium site. The data were evaluated based on the following parameters:

* - data completeness
* - holding times
* - calibration verification
- laboratory and field blank analyses
* - ICP interference check sample results
- matrix spike recoveries
- laboratory duplicates
* - field duplicates
* - laboratory control sample results
* - furnace atomic absorption results
- serial dilution results
- detection limit results
* - sample quantitations

* - All criteria were met for this parameter.

Table I summarizes the validation recommendations which were based on the following information:

Holding Times

Holding times were met for all samples and analytes. However, Form 10 of the data package listed the cyanide preparation date as 4/25/89 for all samples when the Sample Preparation Sheet (p. 137 of the data package) reported the CN preparation date as 4/18/89. A corrected Form 10 should be requested from the laboratory.

Blank Analyses

No equipment or trip blanks were included with the case. The following analytes were detected in either a calibration blank or a preparation blank:

Element	Max. Conc./Units	Action Level
Antimony	43.9 ug/L	43.9 mg/kg
Magnesium	49.0 ug/L	49.0 mg/kg
Aluminum	7.7 mg/kg	34.0 mg/kg
Copper	1.0 mg/kg	5.0 mg/kg
Zinc	1.6 mg/kg	8.0 mg/kg
Manganese	-5.5 ug/L	No Action

No action results from these blank levels since all Sb results were ND, all Mg, Al, Cu and Zn results were above the respective action levels, and all Mn results were high relative to the detection limit.

Matrix Spike Analysis

Sample MAK878 was used for the matrix spike analyses. The following spike recovery results were not within the QC limits of 75-125% when the sample result was less than 4x the spike amount:

Analyte	% Recovery	Action
Antimony	56.9	uJ
Chromium	186.0	J
Copper	137.1	J
Manganese	156.3	J
Nickel	129.1	J

As a result, all Sb results are estimated due to a potential 43% negative bias; false negatives may exist. In addition, all Cr, Cu, Mn and Ni results are estimated due to potential positive biases of 86%, 37%, 56% and 29%, respectively.

Laboratory Duplicate Results

Sample MAK878 was used for the laboratory duplicate analyses for all analytes. All analyte precision results were acceptable except those of calcium (RPD = 112.5) and chromium (RPD = 38.6). As a result, it is recommended to estimate the Ca and Cr results in all samples.

Laboratory Control Sample

All LCS recovery results met QC criteria. However, two transcription errors were noted in reviewing the LCS data. The mercury worksheet incorrectly showed the LCS results as blank results, and Form 7 incorrectly

reported the "found" sodium result as 296.0 ug/L when the raw data listed the result as 217.0 ug/L. These errors do not adversely affect the reported sample results, so no action is recommended beyond request of corrected Hg worksheet and Form 7.

Furnace Analysis Results

All furnace analysis QC was acceptable. It was noted, however, that the thallium and selenium results for the LCS sample were not flagged with "W" as required. No action is recommended.

Serial Dilution Results

Sample MAK878 was used for the serial dilution analysis. QC criteria were met for all analytes except zinc, whose %D was 17.8. It is recommended to estimate zinc results in all samples.

Detection Limits

Detection limits were included on Form 11 for all instruments and analytes except cyanide. The CN nondetect results are reported at 10 ug/L or 0.5 mg/kg on the cyanide worksheets, so the CRDL apparently is achievable. This should be confirmed with the laboratory, however. All reported detection limits were below the CRDL except that for lead analyzed by ICP. The ICP Pb IDL was reported to be 25.0 ug/L; the Pb CRDL is 5 ug/L. Since the samples containing high concentrations of Pb (>5xIDL) were quantitated from the ICP, this is acceptable.

Very truly yours,

CDM Federal Programs Corporation

Anita C. Rigassio

Anita C. Rigassio
CLP Lead Chemist

Karen Stone

Karen Stone
TES III Regional Manager

Enclosures

cc: Deborah Szaro, U.S. EPA Region I Deputy Project Officer

Whyco Chromium Site
Case 11692, SDG MAK878
Table I. Recommendation Summary

Aluminum		Magnesium	
Antimony	UJ^1	Manganese	J^1
Arsenic		Mercury	
Barium		Nickel	J^1
Berylium		Potassium	
Cadmium		Selenium	
Calcium	J^2	Silver	
Chromium	$J^{1,2}$	Sodium	
Cobalt		Thallium	
Copper	J^1	Vanadium	
Iron		Zinc	J^3
Lead		Cyanide	

If the field is blank, the qualifier is A - Accept all data.

UJ^1, J^1 - Estimate results due to unacceptable matrix spike recoveries.

J^2 - Estimate results due to laboratory imprecision.

J^3 - Estimate results due to interferences (indicated by serial dilution results).

Data Summary Key

A	Acceptable data.
J	The associated numerical value is estimated quantity.
U	The compound was analyzed for, but was not detected. The associated numerical value is the instrument detection limit.
UJ	The compound was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.
—	The compound was analyzed for, but was not detected. The sample quntitation limit is the same as the IDL presented.

SITE: Khyco Chromium
CASE: 11692, SDG MAK878
LABORATORY: ENSECO

INORGANIC SOIL ANALYSIS
mg/kg

SAMPLE NUMBER:			MAK878	MAK879	MAK880	MAK881	MAK882	MAK883	MAK884	FIELD DUPS MAK885	MAK886	MAK887	MAK888		
SAMPLE LOCATION:															
LABORATORY NUMBER:															
% SOLIDS:			87.8	78.6	87.9	85.5	89.4	84.3	87.5	86.1	86.3	86.1	78.8		
INORGANIC ELEMENTS		INSTRUMENT DETECTION LIMITS (ug/l, ppb)												CONTRACT DETECTION LIMITS (mg/kg)	(ug/L,ppb)
ALUMINUM	P	21.0	4480	12700	8250	7630	4250	7770	6620	6470	6640	7880	9900	40	200
ANTIMONY	P	24.0	5.5 uJ	6.1 uJ	5.5 uJ	5.6 uJ	5.4 uJ	5.7 uJ	5.5 uJ	5.6 uJ	5.6 uJ	5.6 uJ	6.1 uJ	12	60
ARSENIC	F	2.0/1.0	0.98	1.7	1.4	1.8	1.1	1.7	0.66	1.0	1.1	1.3	11.8	2	10
BARIUM	P	2.0	32.0	59.2	42.4	45.1	21.0	56.1	45.0	39.3	38.9	47.2	71.8	40	200
BERYLLIUM	P	1.0	0.33	0.59	0.49	0.51	0.26	0.56	0.41	0.46	0.46	0.45	0.53	1	5
CADMIUM	P	4.0	4.3	8.2	6.9	4.2	2.4	16.7	123	16.2	16.1	52.0	1.2	1	5
CALCIUM	P	69.0	11900 J	3400 J	1510 J	1860 J	911 J	1550 J	3200 J	1740 J	1580 J	5470 J	2580 J	1000	5000
CHROMIUM	P	5.0	85.2 J	168 J	199 J	159 J	87.8 J	918 J	1510 J	334 J	351 J	924 J	45.8 J	2	10
COBALT	P	4.0	8.8	22.0	21.4	12.7	7.5	35.1	117	28.9	28.2	71.1	9.3	10	50
COPPER	P	5.0	56.0 J	119 J	154 J	306 J	88.7 J	466 J	1150 J	305 J	273 J	527 J	100 J	5	25
IRON	P	31.0	7690	17600	13500	12500	7300	12900	12600	11700	12600	17800	15700	20	100
LEAD	P/F	25.0/1.0	41.7	42.4	46.4	44.0	17.6	75.7	256	68.6	53.8	189	119	5	5
MAGNESIUM	P	47.0	2120	3740	2990	2950	1590	3060	2700	2700	2990	3460	3610	1000	5000
MANGANESE	P	5.0	154 J	354 J	342 J	220 J	158 J	297 J	322 J	268 J	274 J	373 J	502 J	3	15
MERCURY	CV	0.1	--	--	--	--	--	--	--	--	--	--	--	0.1	0.2
NICKEL	P	5.0	77.9J	176J	197J	113J	56.3J	731J	1650J	378J	386J	1100J	29.7J	8	40
POTASSIUM	P	92.0	1110	1460	963	992	586	1070	927	933	982	1170	1510	1000	5000
SELENIUM	F	2.0/1.0	--	--	--	--	--	--	--	--	--	--	--	1	5
SILVER	P	4.0	--	--	--	--	--	--	--	--	--	--	--	2	10
SODIUM	P	1480	--	--	--	--	--	--	--	--	--	--	--	1000	5000
THALLIUM	F	2.0	--	--	--	--	--	--	--	--	--	--	--	2	10
VANADIUM	P	3.0	18.1	27.8	20.9	20.7	13.2	20.8	19.3	19.3	19.7	24.6	32.1	10	50
ZINC	P	2.0	63.5 J	137 J	160 J	196 J	82.9 J	423 J	846 J	292 J	296 J	741 J	215 J	4	20
CYANIDE	AS		6.2	20.5	16.7	8.3	16.4	28.2	--	22.1	15.8	34.1	1.8	0.5	10

ANALYTICAL METHOD
F - FURNACE
P - ICP/FLAME AA
CV - COLD VAPOR
C - COLORIMETRIC
AS - AUTOMATED COLD VAPOR

NOTE:
J - QUANTITATION IS APPROXIMATE DUE TO LIMITATIONS IDENTIFIED IN THE QUALITY CONTROL REVIEW (DATA REVIEW).
R - VALUE IS REJECTED.
-- VALUE IS NONDETECT.

Lead analyzed by ICP in all samples except MAK882.

As and Se IDLs are for instruments PE2380 and Z5000/5100, respectively.