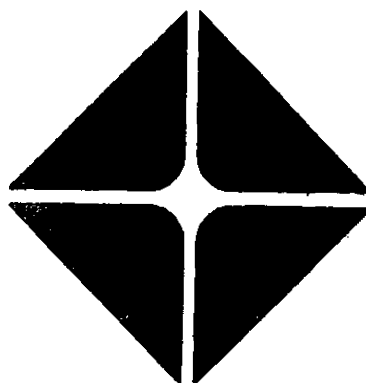


File on eDOCs Yes No
Site Name Sinclair Refinery
Site No. 902003
County Allegheny
Town Wellsville
Foilable Yes No
File Name Documents / Reports
Scanned & eDOC _____

report. HW902003. 1994-02. Remedial-
action - Surface - Soils - Vol 2.



Prepared for

Atlantic Richfield Company

515 South Flower Street
Los Angeles, California 90071

REMEDIAL ACTION REPORT
CONTAMINATED SURFACE SOILS

SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

VOLUME II

Prepared by



GEOSYNTEC CONSULTANTS

5775 Peachtree Dunwoody Road
Atlanta, Georgia 30342

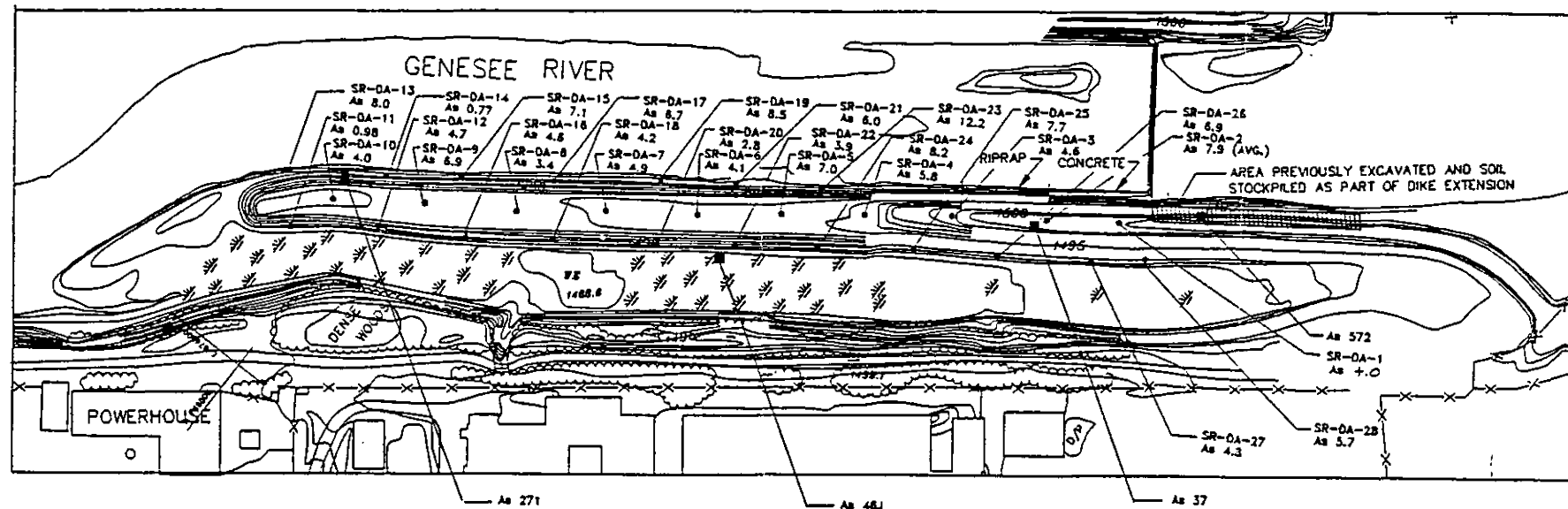
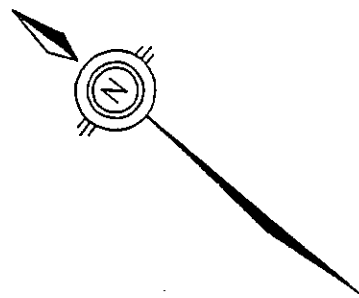
Project Number GQ3201

February 1994

APPENDIX C

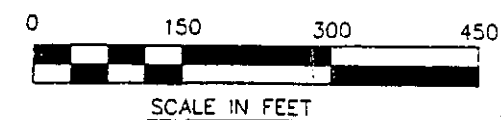
DRAWINGS

- 1 to 5, Ebasco Sampling Locations
- 6 to 12, Remediation Record Drawings
- Construction Drawings AR22 to AR24



LEGEND

- PREVIOUSLY MEASURED ARSENIC LOCATIONS (ABOVE 25 ppm)
LOCATION ESTIMATED
- ARSENIC SAMPLING LOCATIONS - APPROXIMATE 100 FOOT CENTERS
As CONCENTRATIONS ARE IN mg/Kg (ppm)
NOTE: REFER TO TABLE 1 FOR SUMMARY OF DATA, INCLUDING DATA VALIDATION QUALIFIERS



CAD FILE NAME: ARS04.DWG DATE: 1/27/92
PLOT SCALE: 1"=150' TIME: 3:02 PM

THIS DRAWING EXISTS ON A CADD FILE. DO NOT REVISE IT MANUALLY.									
A	1/11/92	DSW	NG						
B	1/27/92	DSW	NG						
C	2/14/92	SO	NG						
REV	DATE	BY	CH	APPROVED	REV	DATE	BY	CH	APPROVED
					EBASCO SERVICES INCORPORATED				
					DEPT 940 DR DSW				
					DATE 2/14/92 CH NG				
					SCALE AS NOTED				
					APPROVED				
					SINCLAIR REFINERY SITE				
					WELLSVILLE, N.Y.				
					ARSENIC SAMPLING LOCATIONS				
					DIKE AREA				
					FIGURE 3-5				
					00				

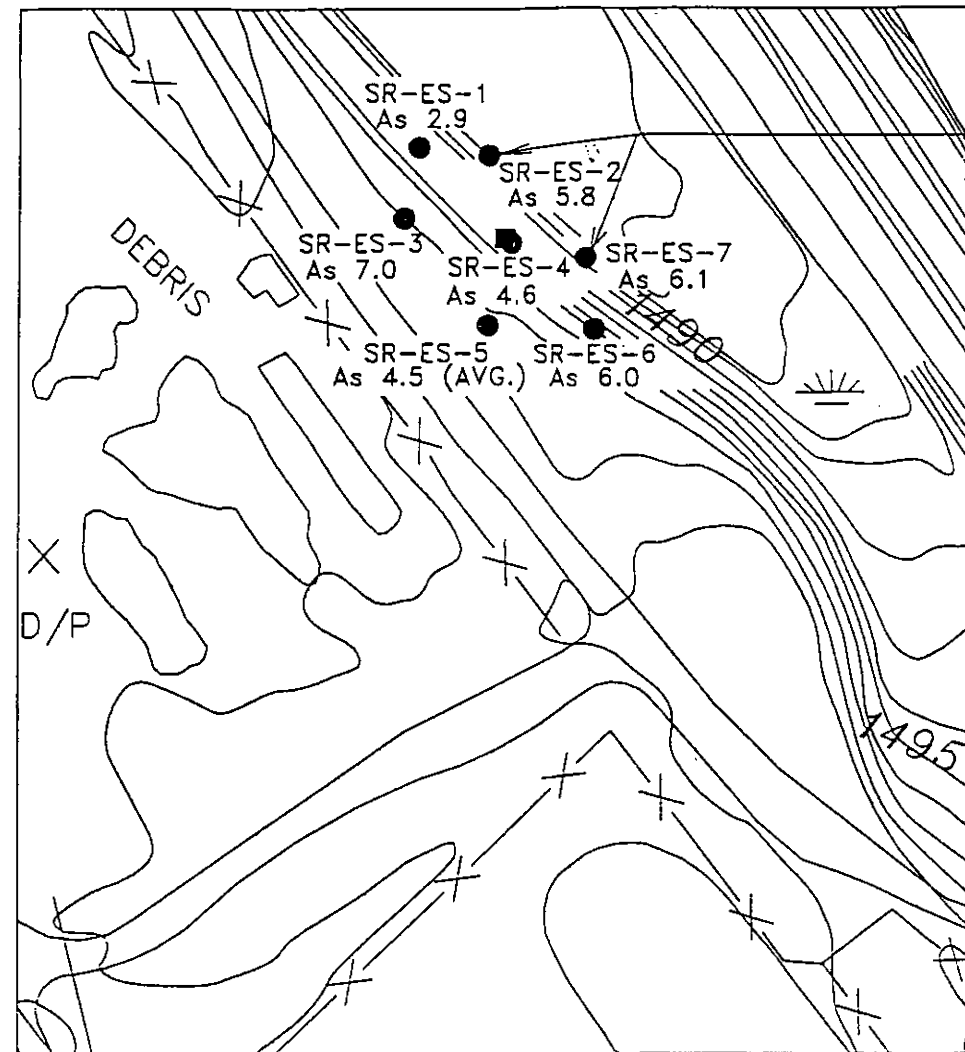
 **GEOSYNTEC CONSULTANTS**
ATLANTA, GEORGIA

PROJECT NO. GQ3201-R19	FIGURE NO. 1
DOCUMENT NO. GA940111	FILE NO. DF



N 768500

E 674500

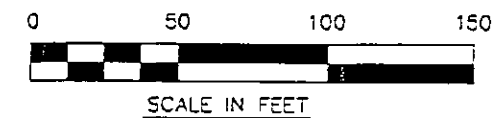


SAMPLE LOCATION ABOVE
WATER LINE IN SWALE

LEGEND

- ARSENIC AT 45 ppm. LOCATION ESTIMATED FROM PREVIOUS MAP
- ARSENIC SAMPLING LOCATIONS
As CONCENTRATIONS ARE IN mg/Kg (ppm)

NOTE: REFER TO TABLE 2 FOR SUMMARY OF DATA,
INCLUDING DATA VALIDATION QUALIFIERS



THIS DRAWING EXISTS ON A CADD FILE. DO NOT REVISE IT MANUALLY.

A	1/11/92	DSW	NG																
B	1/27/92	DSW	NG																
REV	DATE	BY	CH	APPROVED	REV	DATE	BY	CH	APPROVED										

EBASCO SERVICES INCORPORATED

DEPT 940 DR DSW

DATE 1/27/92 CH NG

SCALE AS NOTED

APPROVED

SINCLAIR REFINERY SITE
WELLSVILLE, N.Y.

ARSENIC SAMPLING LOCATIONS
SOUTH END OF SWALE

FIGURE 3-6

00



GEOSYNTEC CONSULTANTS

ATLANTA, GEORGIA.

PROJECT NO. GQ3201-R19

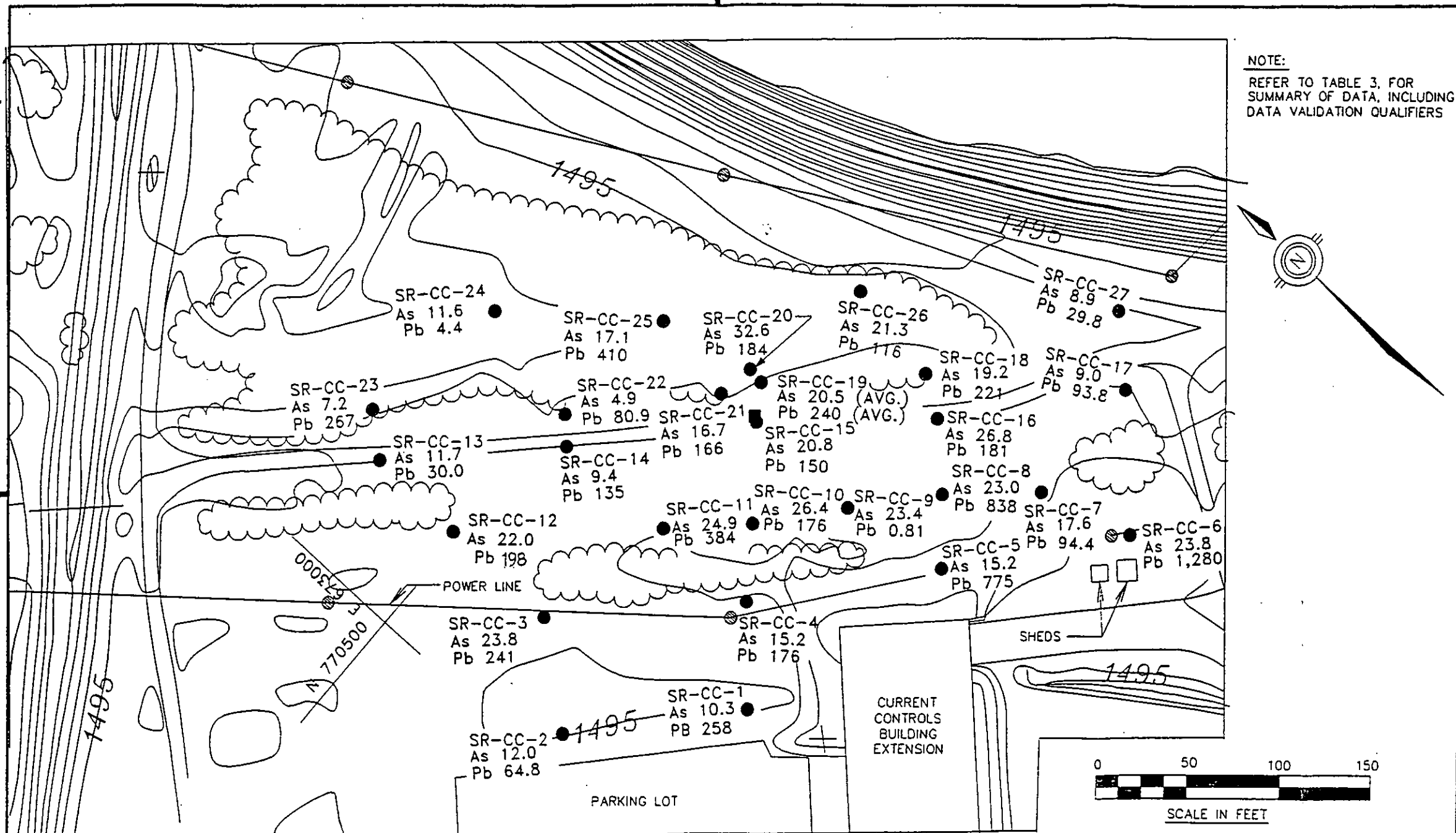
FIGURE NO. 2

DOCUMENT NO. GA940111

FILE NO. DF

CAD FILE NAME: ARCR4B.DWG
DATE: 1/27/92
TIME: 11:08 AM
PLOT SCALE: 1"=50'

CAD FILE NAME: ARCR4.DWG
DATE: 1/27/92
TIME: 12:11 PM
PLOT SCALE: 1=50



LEGEND

- PRIOR LEAD (1020 ppm) AND ARSENIC (39 ppm) LOCATIONS
 - SOIL SAMPLE LOCATIONS, ANALYSIS FOR LEAD AND ARSENIC
- As, Pb CONCENTRATIONS ARE IN mg/Kg (ppm)

THIS DRAWING EXISTS ON A CADD FILE. DO NOT REVISE IT MANUALLY.

A	1/11/92	DSWNG																		
B	1/27/92	DSW/NG																		
C	2/14/92	SO NG																		
REV	DATE	BY	CH	APPROVED	REV	DATE	BY	CH	APPROVED											

EBASCO SERVICES INCORPORATED

DEPT 940 DR DSW
DATE 2/14/92 CH NG
SCALE AS NOTED

APPROVED

SINCLAIR REFINERY SITE
WELLSVILLE, N.Y.

LEAD AND ARSENIC SOIL SAMPLING
LOCATIONS NEAR CURRENT CONTROLS

FIGURE 3-7

00



GEOSYNTEC CONSULTANTS

ATLANTA, GEORGIA

PROJECT NO. GQ3201-R19

FIGURE NO. 3

DOCUMENT NO. GA940111

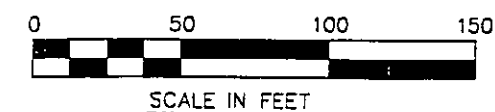
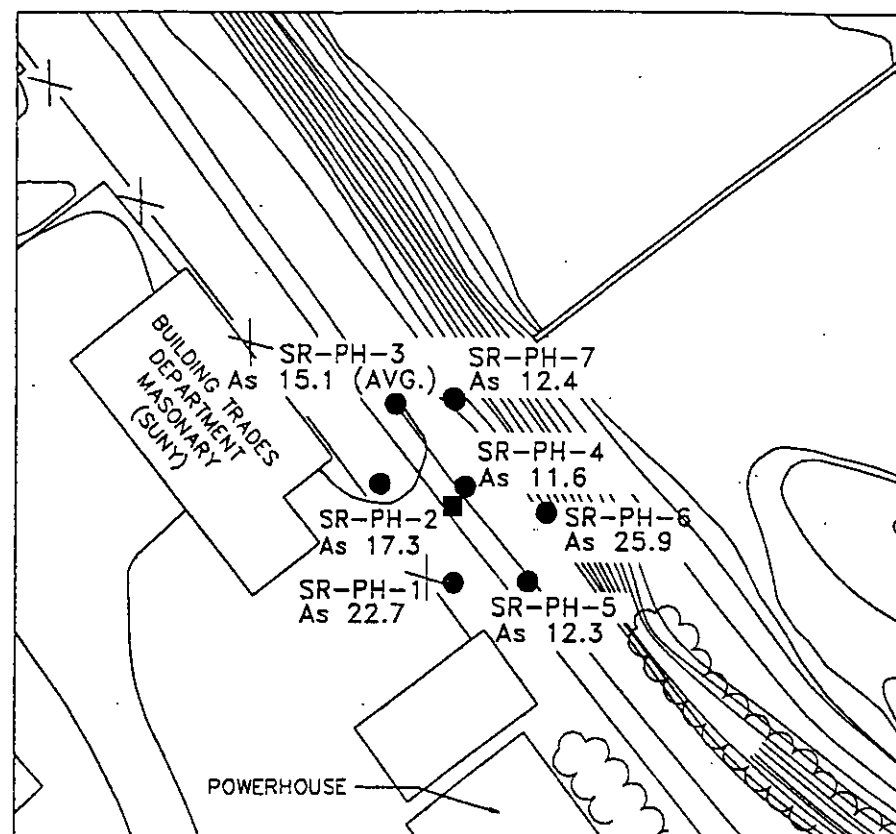
FILE NO. DF



LEGEND

- PRIOR BORING AB-54, ARSENIC REPORTED AT 29 ppm
- SAMPLE LOCATIONS (ARSENIC ANALYSIS)
As CONCENTRATIONS ARE IN mg/Kg (ppm)

NOTE: REFER TO TABLE 4 FOR SUMMARY OF DATA,
INCLUDING DATA VALIDATION QUALIFIERS



N 769500
E 673500

THIS DRAWING EXISTS ON A CADD FILE. DO NOT REVISE IT MANUALLY.														
A 1/11/92 DSW NG						EBASCO SERVICES INCORPORATED						SINCLAIR REFINERY SITE WELLSVILLE, N.Y.		FIGURE 3-8
B 1/27/92 DSW UG						DEPT 940 DR DSW								
DATE 1/27/92 CH NG						APPROVED						ARSENIC SAMPLING LOCATIONS NEAR POWERHOUSE		00
SCALE AS NOTED														
REV	DATE	BY	CH	APPROVED	REV	DATE	BY	CH	APPROVED					



GEOSYNTEC CONSULTANTS
ATLANTA, GEORGIA

PROJECT NO. GQ3201-R19	FIGURE NO. 4
DOCUMENT NO. GA940111	FILE NO. DF

CAD FILE NAME: ARCR4A.DWG DATE: 1/27/92
PLOT SCALE: 1=50 TIME: 12:17 PM

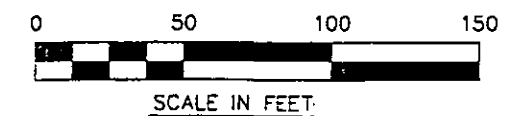
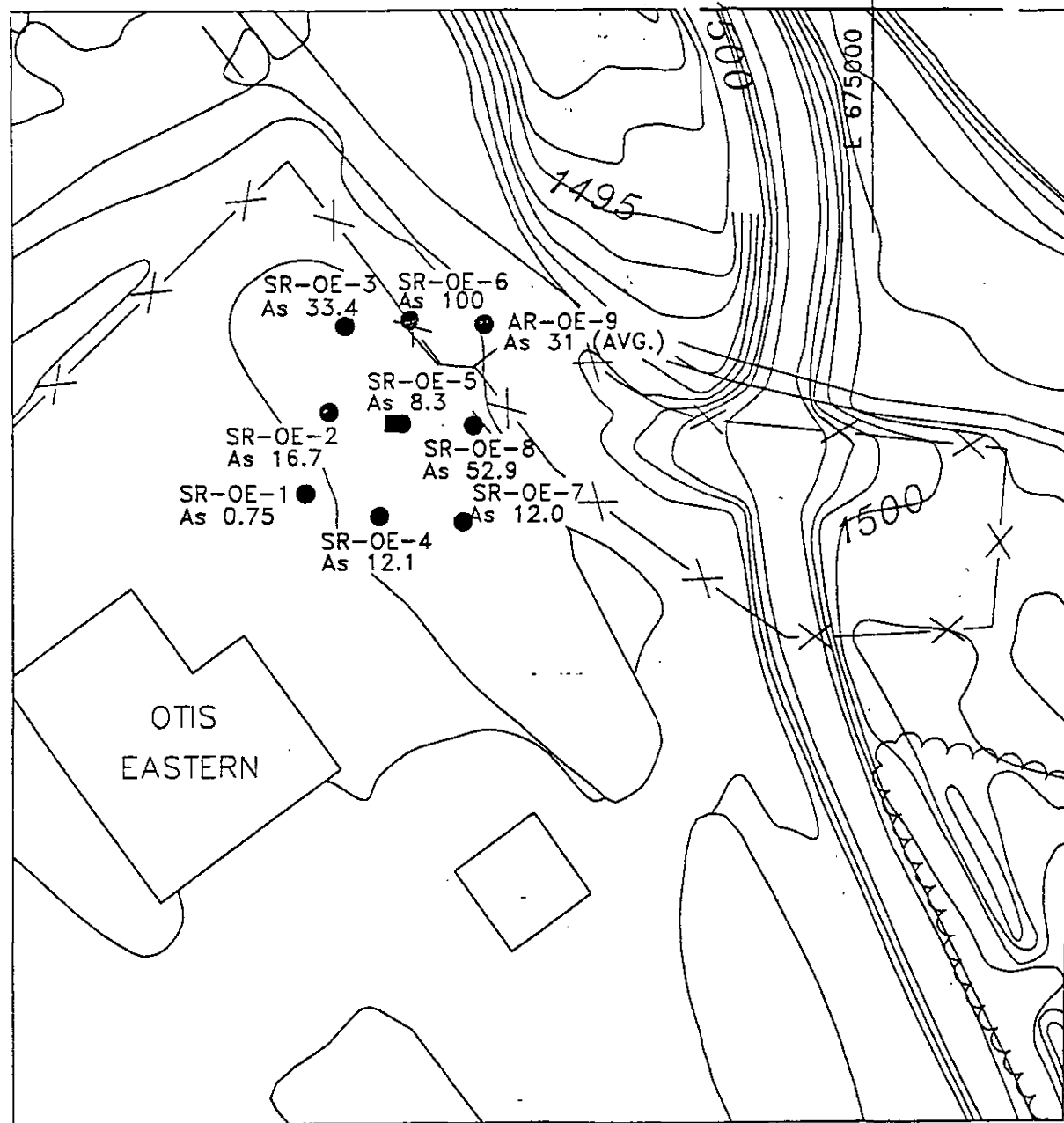
CAD FILE NAME: ARCR4C.DWG DATE: 1/27/92 TIME: 3:09 PM
PLOT SCALE: 1"=50'

LEGEND

- PRIOR SURFACE SAMPLE AB-61, ARSENIC REPORTED AT 43 ppm
- SAMPLE LOCATIONS (ARSENIC ANALYSIS)

As CONCENTRATIONS ARE IN mg/Kg (ppm)

NOTE: REFER TO TABLE 5 FOR SUMMARY OF DATA, INCLUDING DATA VALIDATION QUALIFIERS




THIS DRAWING EXISTS ON A CADD FILE. DO NOT REVISE IT MANUALLY.									
REV	DATE	BY	CH	APPROVED	REV	DATE	BY	CH	APPROVED
A	1/11/92	DSW	NG						
B	1/27/92	DSW	NG						

EBASCO SERVICES INCORPORATED
DEPT 940 DR DSW
DATE 1/27/92 CH NG
SCALE AS NOTED

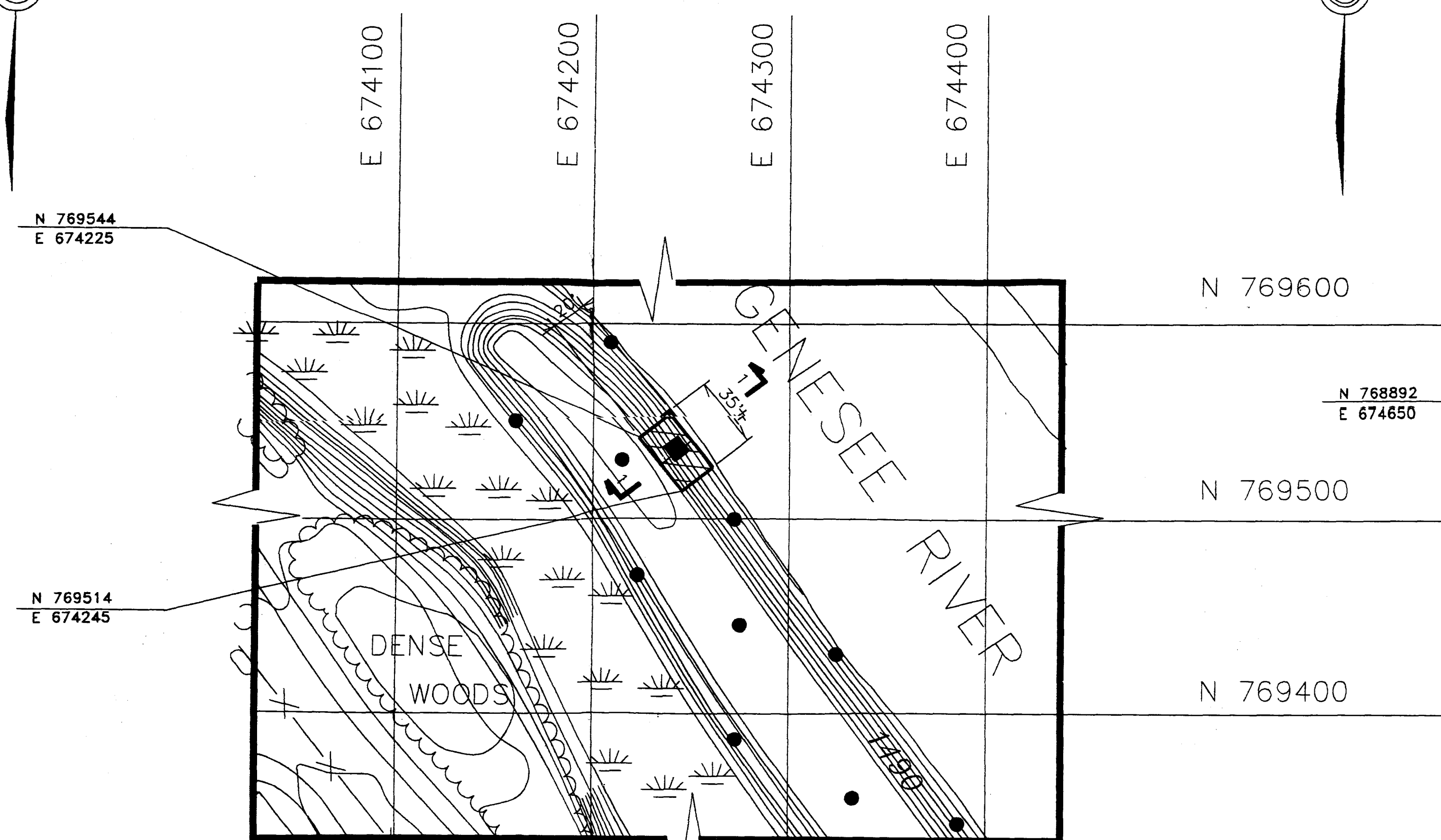
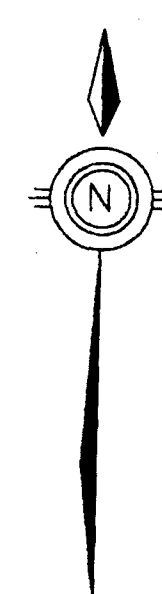
SINCLAIR REFINERY SITE
WELLSVILLE, N.Y.
ARSENIC SAMPLING LOCATIONS
BEHIND OTIS EASTERN

FIGURE 3-9
00

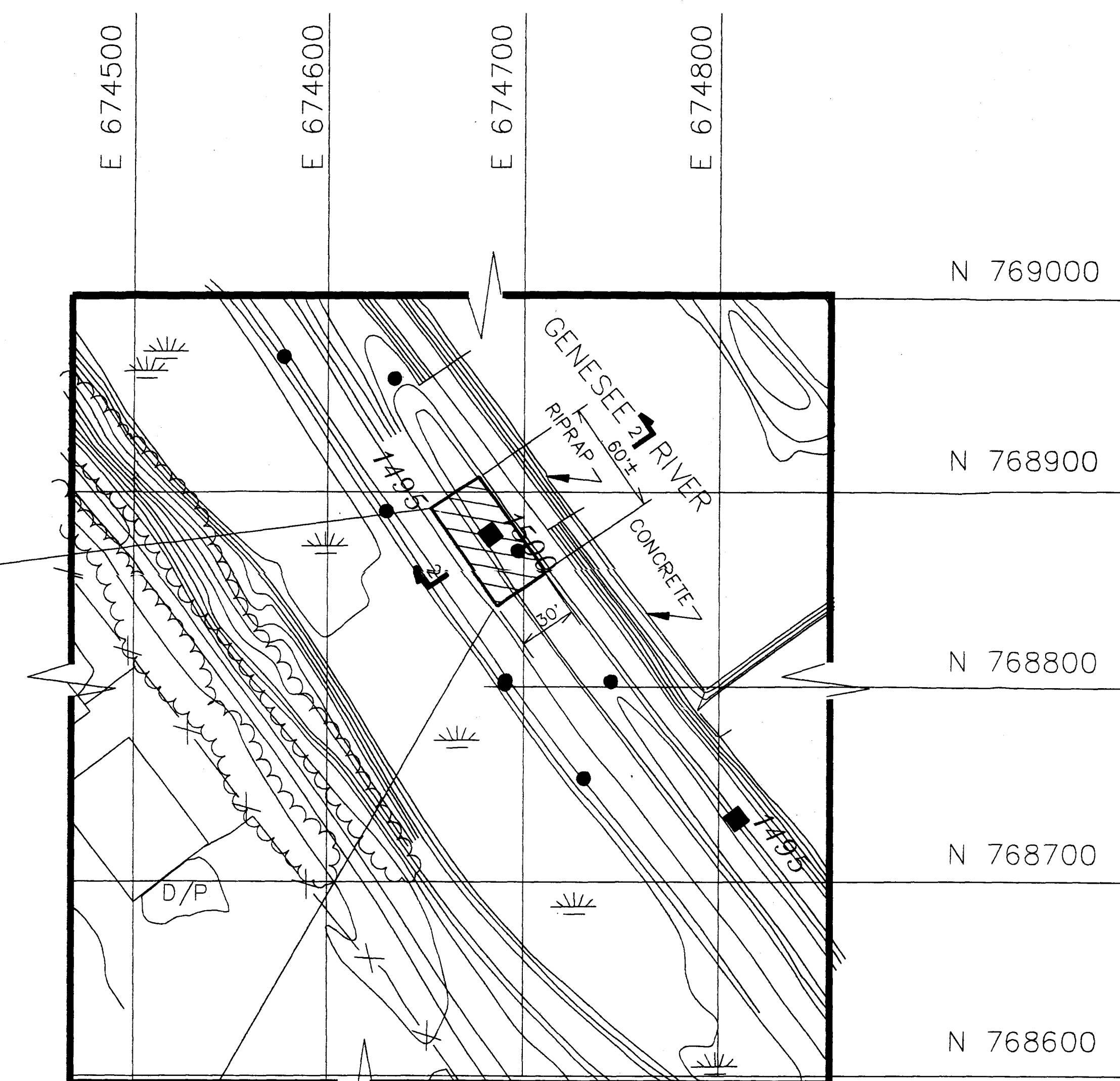
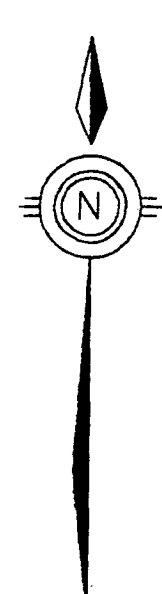
**GEOSYNTEC CONSULTANTS**
ATLANTA, GEORGIA

PROJECT NO. GQ3201-R19	FIGURE NO. 5
DOCUMENT NO. GA940111	FILE NO. DF

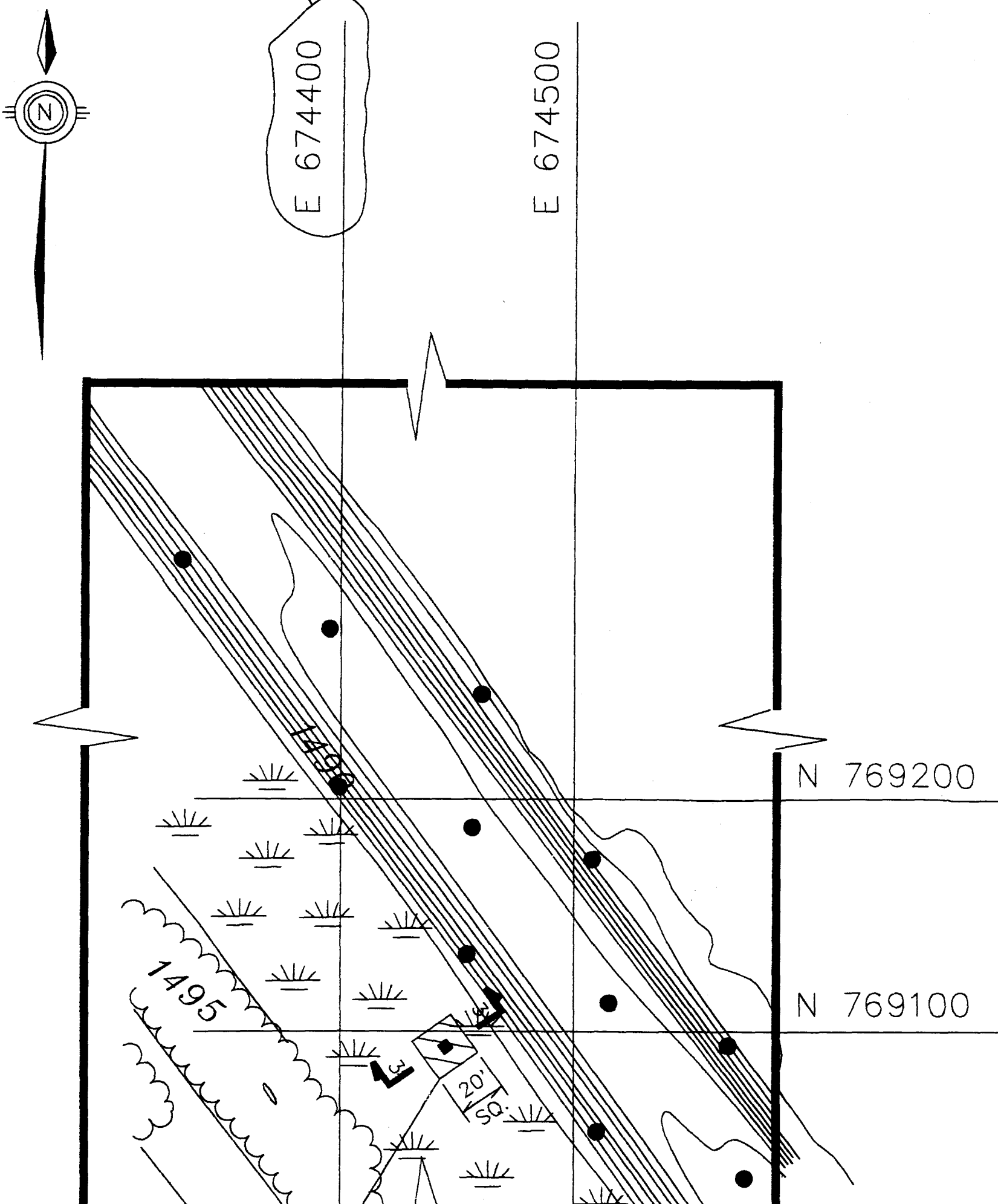
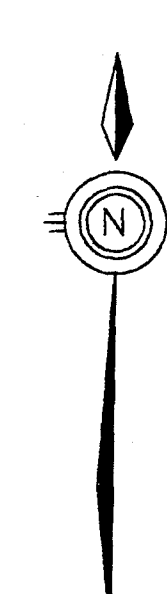
- NOTES:
1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE DWG NO. AR-22
 2. FOR LOCATION OF PLAN SEE DWG NO. AR-22



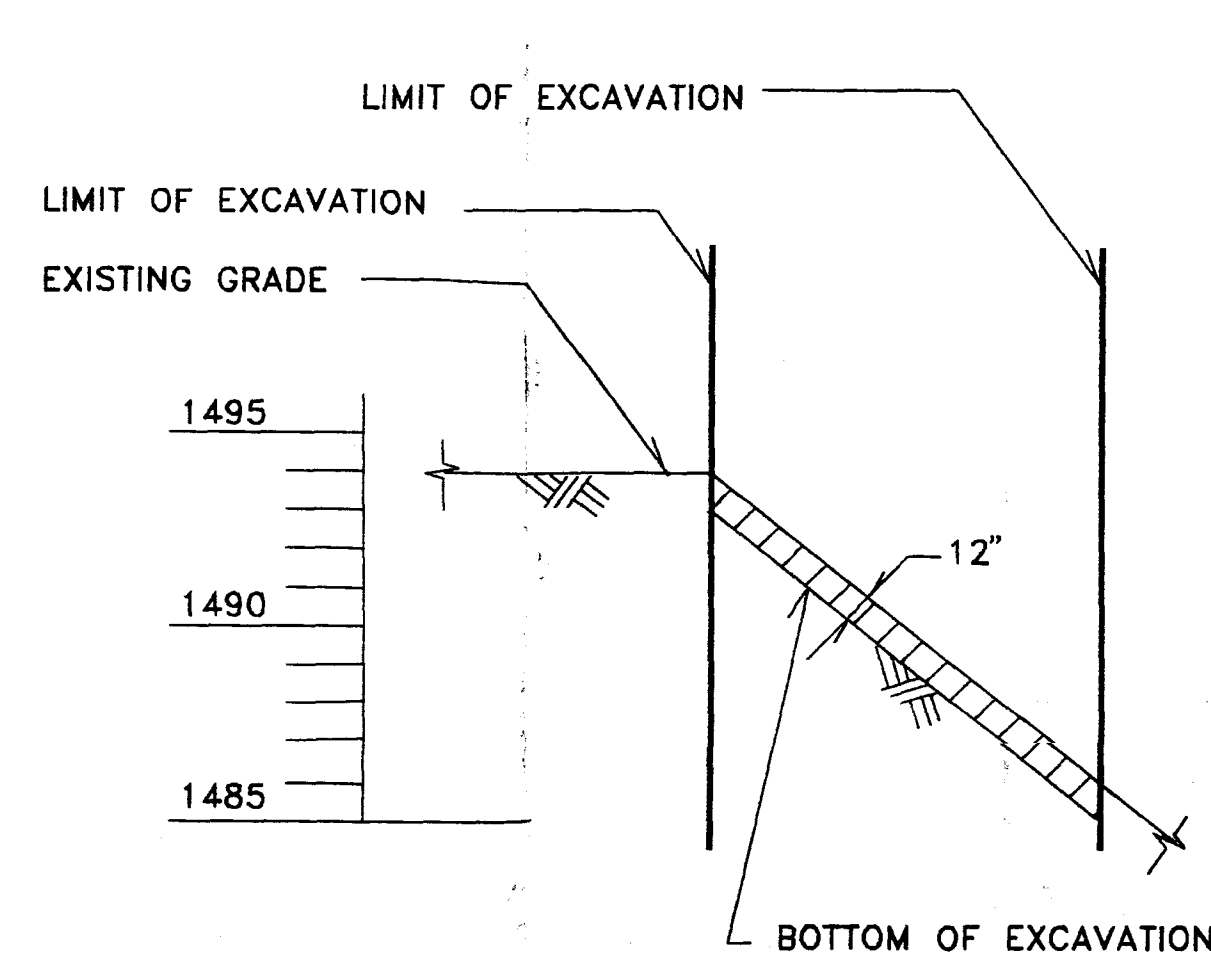
PLAN-E
DIKE AREA



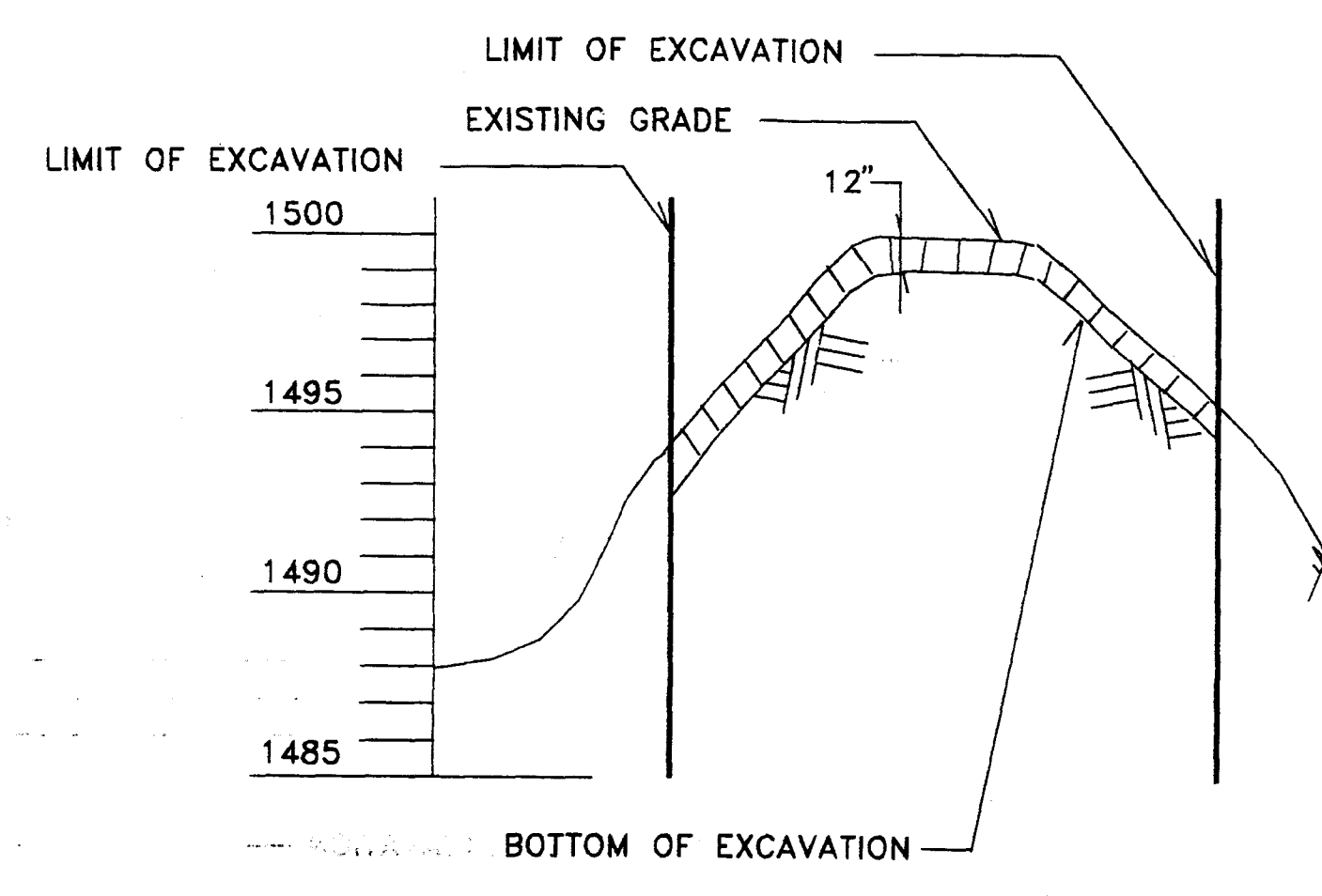
PLAN-F
DIKE AREA



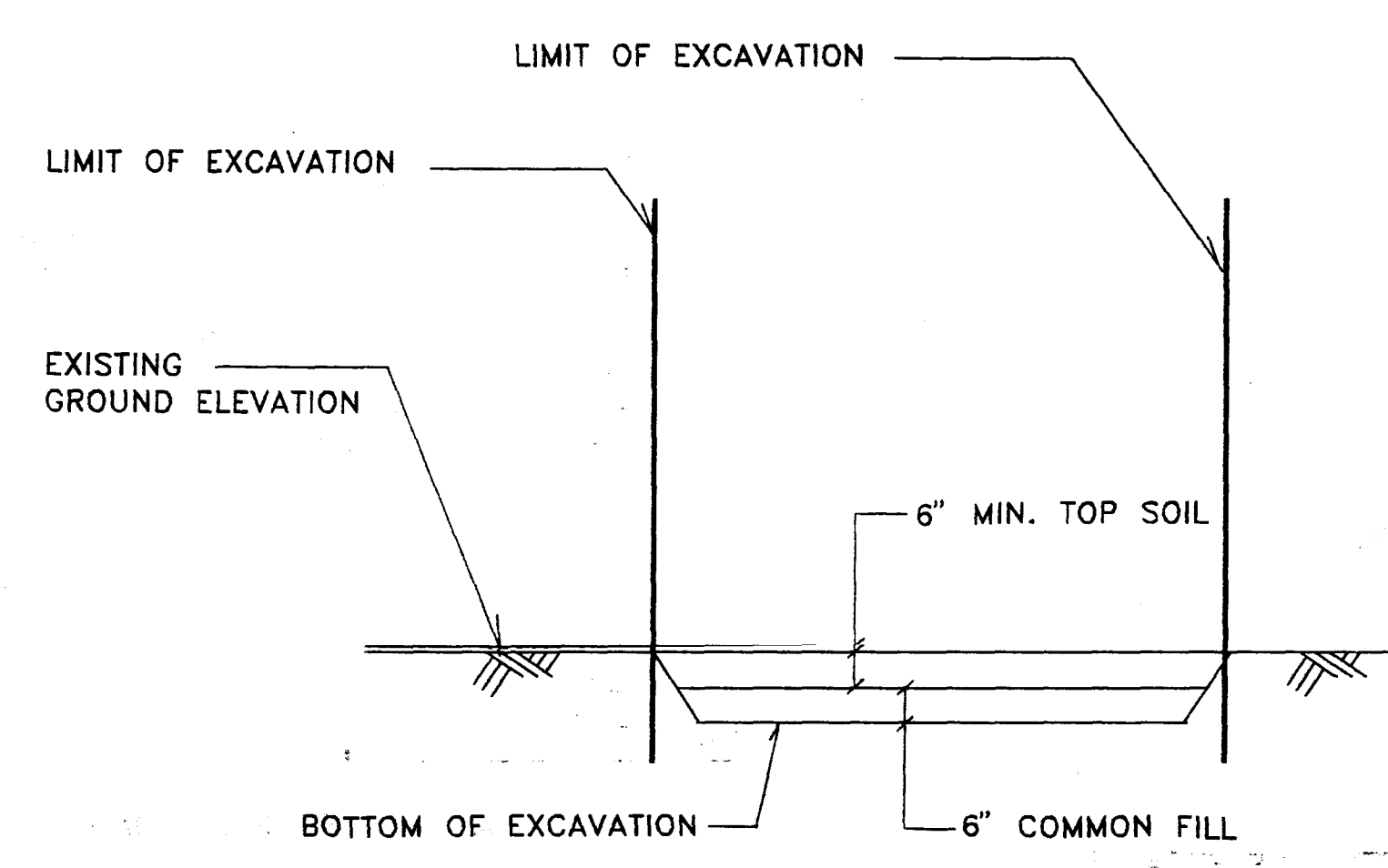
PLAN-G
DIKE AREA



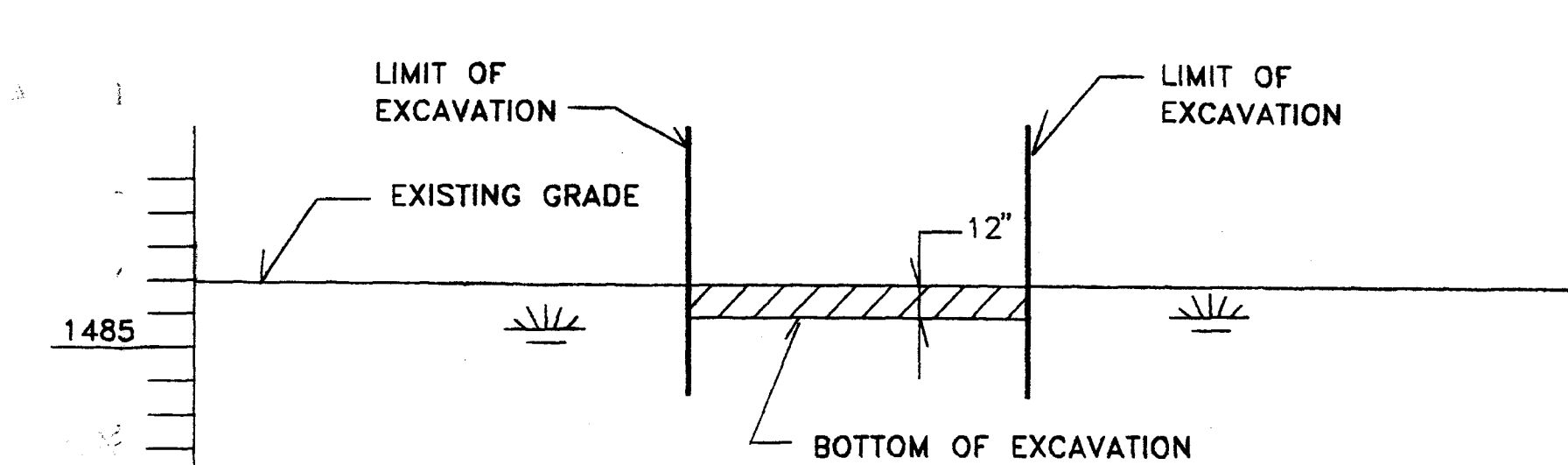
SECTION 1-1
SCALE: HORIZ. 1"=10'
VERT. 1"=5'



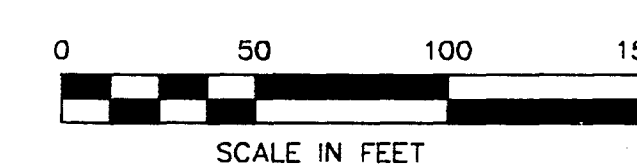
SECTION 2-2
SCALE: HORIZ. 1"=10'
VERT. 1"=5'



BACKFILL DETAIL
(TYPICAL)

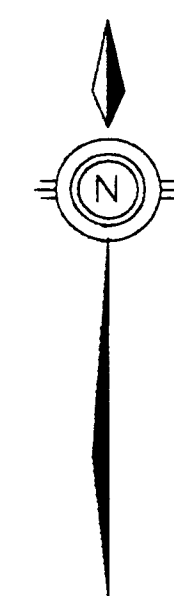


SECTION 3-3
SCALE: HORIZ. 1"=20'
VERT. 1"=5'



NO.	DATE	REVISION	BY	CH	APPROVED
1	6/22/92	REVISED GND COORDINATES	EX	VP	
2			BY	CH	

THIS DRAWING EXISTS ON A CADD FILE. DO NOT REVISE IT MANUALLY.	
ARCO SINCLAIR REFINERY SITE	
REFINERY SURFACE SOIL REMEDIATION EXCAVATION AND BACKFILL PLAN SECTS & DETAILS SH.2	
EBASCO SERVICES INCORPORATED	
SCALE AS NOTED	DATE 5/8/92
APPROVED K. RAMACHANDRA	DATE 5/8/92
NO. 1	AR-24

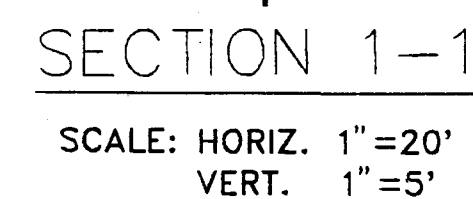


N 770224
E 673335

— LIMITS OF EXCAVATION
AND GRUBBING

N 770185
E 673285

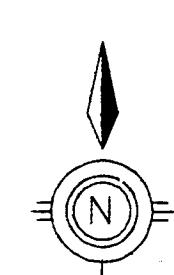
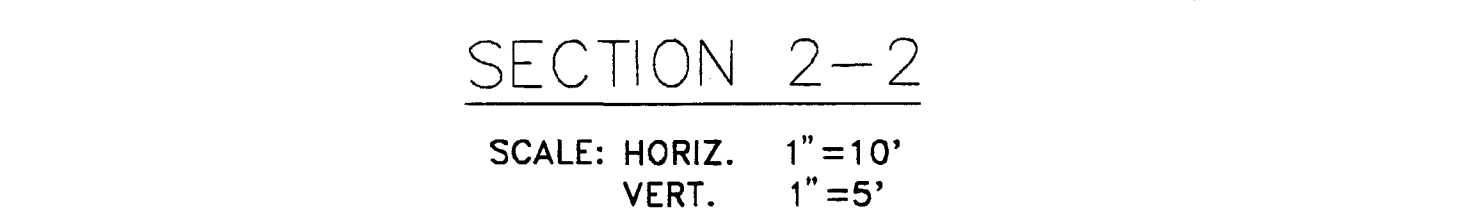
— CONTRACTOR SHALL EXCAVATE
AROUND THE FOUNDATION OF
SHEDS WITHOUT DAMAGING THE SHEDS.



The diagram illustrates a proposed excavation. On the left, a vertical scale shows elevations of 1495, 1490, and 1488. A horizontal line at 1495 is labeled "LIMIT OF EXCAVATION". A diagonal line sloping downwards to the right is labeled "EXISTING GRADE" and "12%". A horizontal line at 1488 is labeled "LIMIT OF EXCAVATION". A diagonal line sloping downwards to the right, parallel to the existing grade, is labeled "BOTTOM OF EXCAVATION".

SECTION 2-2

SCALE: HORIZ. 1"=10'
VERT. 1"=5'

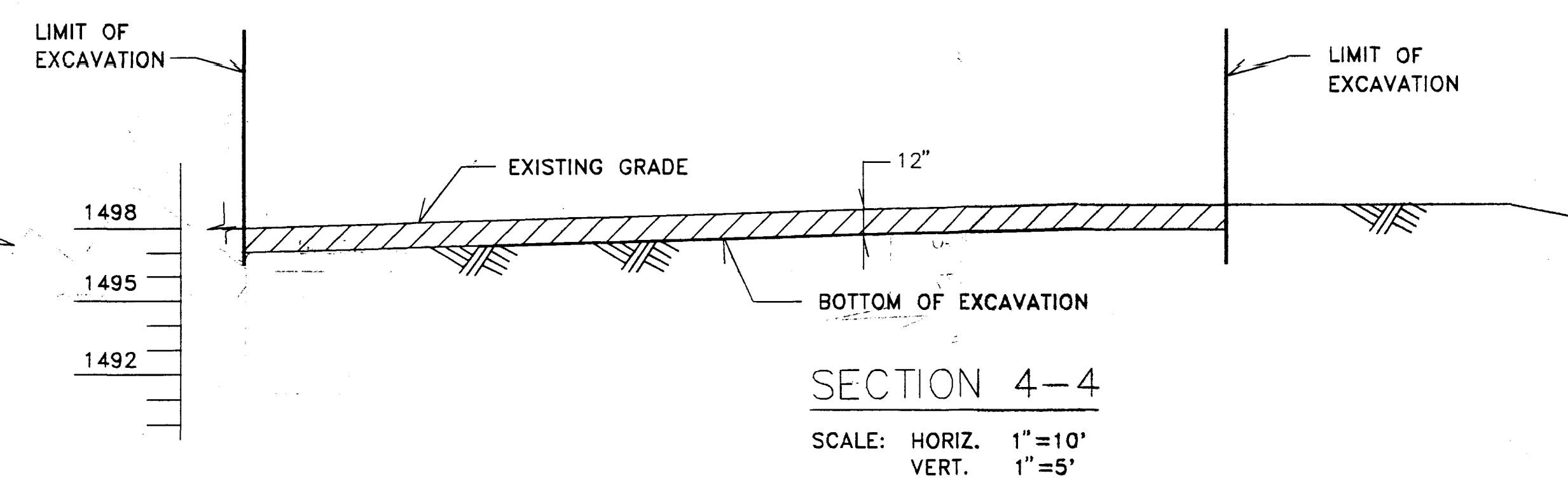


The map shows a topographic representation of the Otis Eastern area. A rectangular study area, measuring 90 feet by 100 feet, is outlined with a thick black border and filled with diagonal hatching. Within this study area, ten black dots represent sample points. The map features contour lines indicating elevations of 1495 and 1500 feet. A road is visible on the right side, and a building labeled 'OTIS EASTERN' is located in the lower-left quadrant. The map is overlaid with a grid of coordinates, with northings ranging from N 768100 to N 768500 and eastings from E 674700 to E 675050. A north arrow is located near the center of the map.

LIMIT OF EXCAVATION
 EXISTING GRADE
 12'
 BOTTOM OF EXCAVATION
 1497
 1492
 LIMIT OF EXCAVATION
 SECTION 3-3
 SCALE: HORIZ. 1"=10'
 VERT. 1"=5'

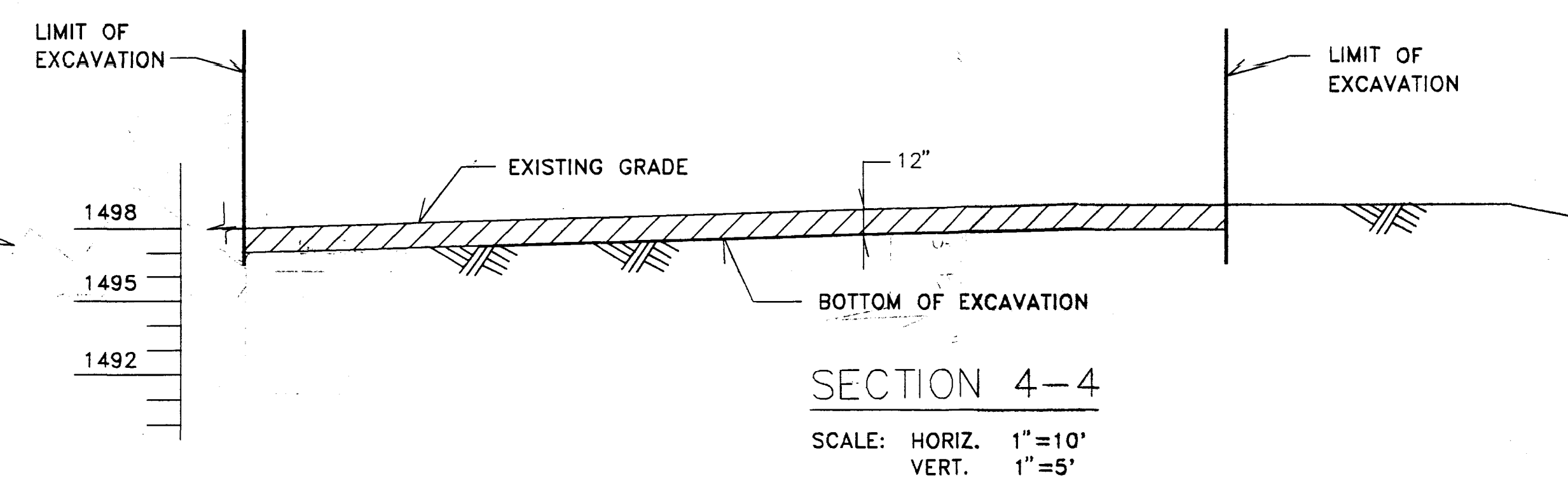
SECTION 3-3

SCALE: HORIZ. 1"=10'
VERT. 1"=5'



SECTION 4-4

SCALE: HORIZ. 1"=10'
VERT. 1"=5'



162a was changed
5/8/92
NY License 051943

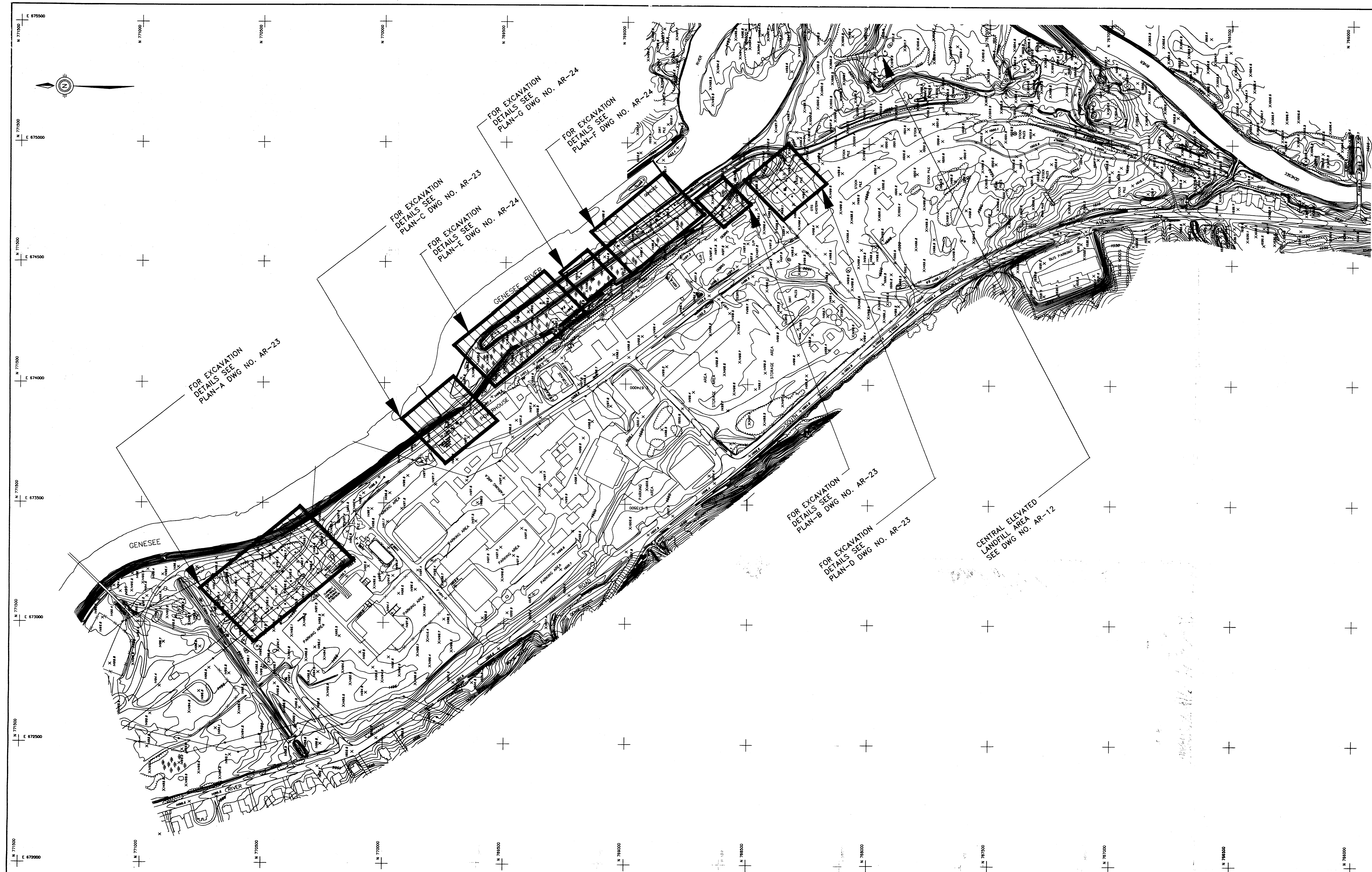
REFINERY SURFACE SOIL REMEDIATION
EXCAVATION AND BACKFILL PLAN
SECTS & DETAILS SH.1

SCALE: AS NOTED	APPROVED <i>[Signature]</i>	DATE 5-8-92
DIV. 940		AR-23
DR. EK/DSW		
CH. VP		

AR-23

CAD FILE NAME: ARCO23
PLOT SCALE: 1"=50'

CAD FILE NAME: ARCO23
PLOT SCALE: 1"=50'



- NOTES:**
1. NOTES ON THIS DRAWING APPLY TO DRAWINGS AR-22, AR-23, AND AR-24 ONLY.
 2. SEE NOTE 1 ON DRAWING AR-15
 3. SEE NOTE 2 ON DRAWING AR-15
 4. SEE NOTE 5 ON DRAWING AR-15
 5. SEE NOTE 7 ON DRAWING AR-15
 6. FOR MATERIALS AND CONSTRUCTION REQUIREMENTS SEE THE TECHNICAL SECTIONS OF THE CONTRACT SPECIFICATIONS.
 7. THE CONTRACTOR SHALL DETERMINE THE LIMITS OF CLEARING. CLEARING OUTSIDE THE EXCAVATION AREA SHALL BE KEPT TO A MINIMUM.
 8. CONTRACTOR SHALL BACKFILL AND GRADE THE EXCAVATED AREA IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 02225 OF TECHNICAL SPECIFICATION. THE BACKFILL GRADE SHALL BE AS CLOSE AS POSSIBLE TO THAT WHICH EXISTED BEFORE EXCAVATION.

REFERENCE DRAWINGS:	DRAWING NO.
SITE GENERAL LAYOUT	AR-12
CELA CAP SECTIONS & DETAILS SH.1	AR-15
REFINERY SURFACE SOIL REMEDIATION EXCAVATION AND BACKFILL PLAN, SECTS & DETAILS SH.1	AR-23
REFINERY SURFACE SOIL REMEDIATION EXCAVATION AND BACKFILL PLAN, SECTS & DETAILS SH.2	AR-24

REFERENCE SPECIFICATIONS:	SECTION NO.
DUST AND VAPOR CONTROL	02040
SITE CLEARING AND GRUBBING	02110
PLACEMENT OF MATERIAL IN CELA	02200
REFINERY AREA EARTHWORK	02225
EROSION & SEDIMENT CONTROL	02485
TEMPORARY CONTROLS/ ENVIRONMENTAL PROTECTION	01560

SYMBOLS:

● ARSENIC SAMPLING LOCATIONS SURVEYED BY D.C. MYERS DEC. 1991	● POST
■ PREVIOUSLY MEASURED ARSENIC LOCATIONS (LOCATION ESTIMATED)	✱ RAILROAD CROSSING
▢ CATCH BASIN	✱ SINGLE SHRUB
▤ DROP INLET	○ SIGN
✱ EVERGREEN TREE	— STONE WALL
— FENCE	○ SWAMP
□ FIRE ALARM BOX	○ TELEPHONE
○ FIRE HYDRANT	□ TRAFFIC CONTROL BOX
○ FLAG POLE	□ TRAFFIC CONTROL TIED
— GUDBEAR	□ TRAFFIC SIGNAL POLE
○ LAMP POST (PVT)	□ TRAFFIC SIGNAL OH
✱ LIGHT POLE	○ SINGLE TREE
□ MAILBOX	● UTILITY POLE
○ MANHOLE	✱ UTILITY POLE W/LIGHT
□ POLICE ALARM BOX	
○ VALVE	

0 100 200 300
SCALE IN FEET

SURVEY BY LUDGATE ENGINEERING CORPORATION
TRANSMITTED 4-5-91

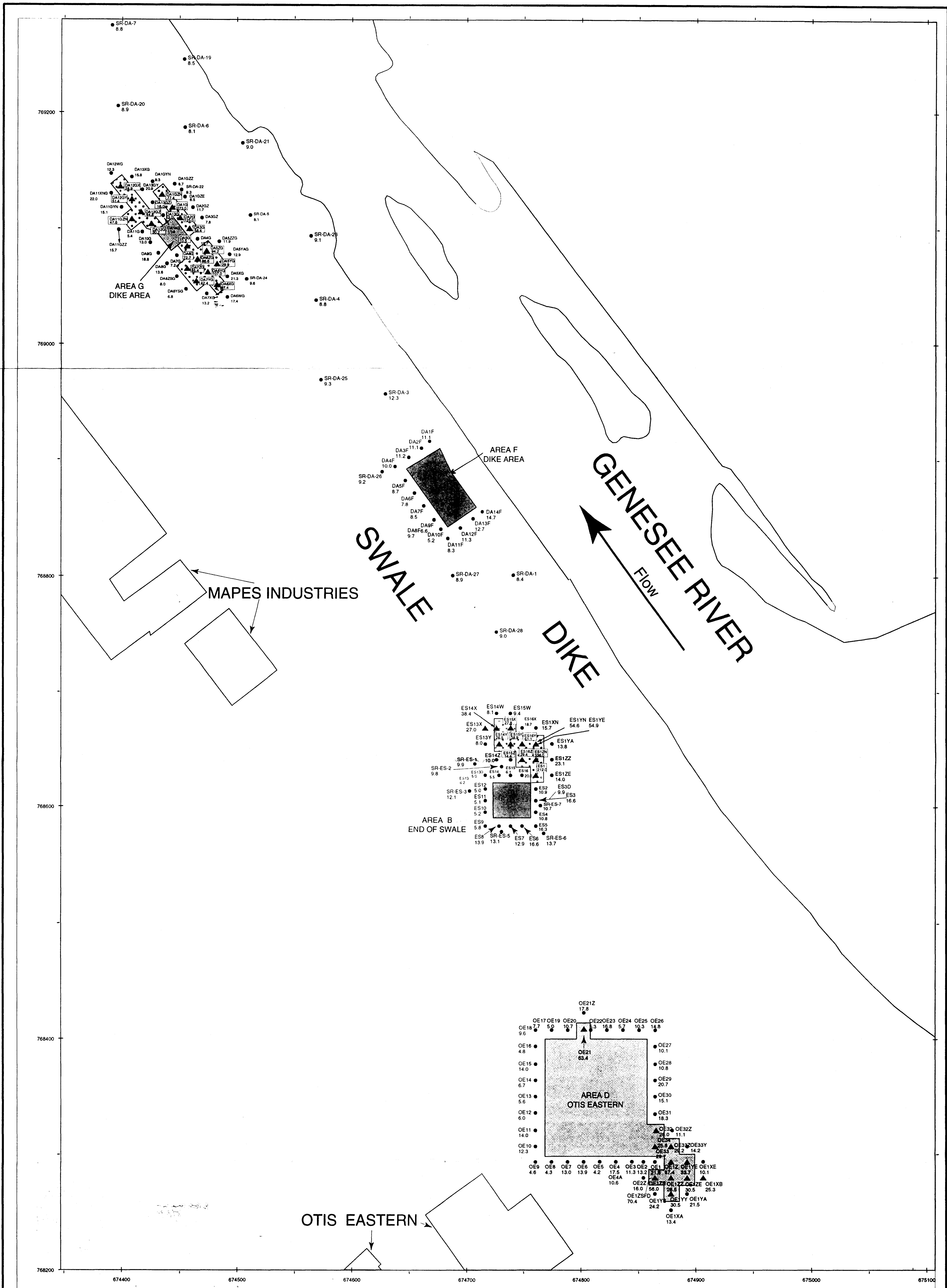
THIS DRAWING EXISTS ON A CADD FILE.
DO NOT REVISE IT MANUALLY.

ARCO
SINCLAIR REFINERY SITE
REFINERY SURFACE SOIL
REMEDATION
GENERAL EXCAVATION PLAN

EBASCO SERVICES INCORPORATED

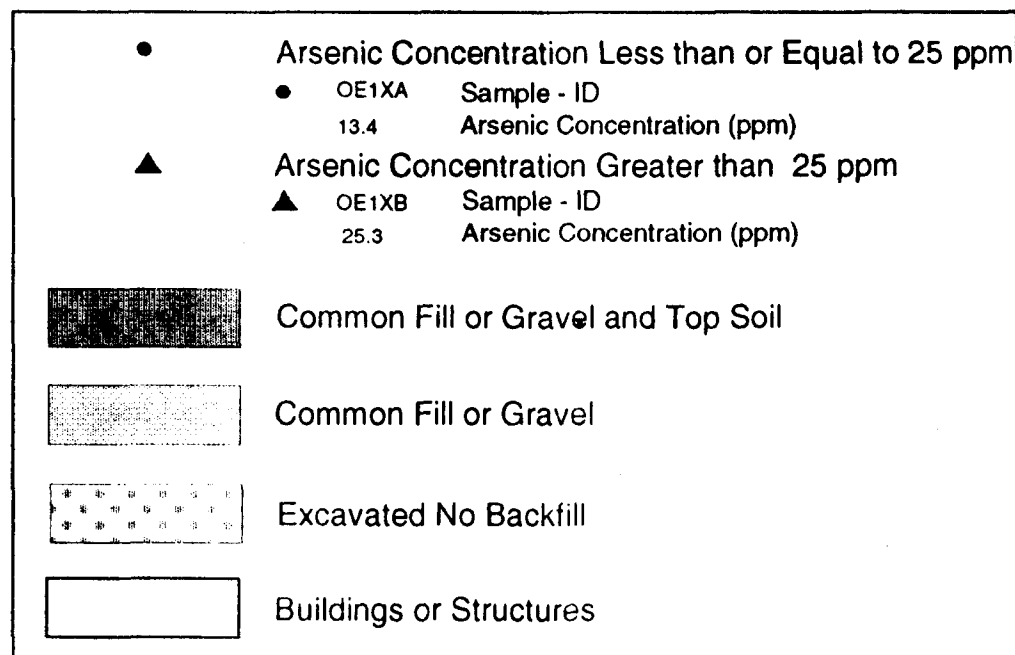
SCALE: AS NOTED	APPROVED	DATE: 5-8-92
DIV. 840	<i>KR. m...</i>	
DR. LEW		
CH. SP		AR-22

NO.	DATE	REVISION	BY	CH	APPROVED



NOTE: Roads, Rivers and Building Features from March 1991
Ebasco Drawing.

NOTE: Coordinate System based on New York State Plane.



GEO SYNTec CONSULTANTS 5775 PEACHTREE DUNWOODY RD., SUITE 200F ATLANTA, GEORGIA 30342 USA ARCO, SINCLAIR REFINERY SITE WELLSVILLE, NEW YORK			
PROJECT: REMEDIATION OF CONTAMINATED SURFACE SOILS			
TITLE: AREAS 'B', 'D', 'F' and 'G' SAMPLING PLAN			
REVISION			
MARK	DATE	REVISION	BY
DATE: 08-FEB-94 SCALE: As Shown			
DESIGN BY: RBN		JOB NO.: GQ3201	
DRAWN BY: RBN		FILE NO.: WVMAP0	
CHECKED BY: SDS		DOCUMENT NO.: GA940111	
REVIEWED BY: JFB		APPROVED BY: JFB	
SIGNATURE		DATE	
DATE		SEAL	

770000
769900
769800
769700
769600
769500
769400
769300
769200
769100
673700 673800 673900 674000 674100 674200 674300

SUNY

AREA C
POWER HOUSE

POWER HOUSE

Power House and surrounding
structures have been removed.

SUNY

BUTLER LARKIN

DIKE
SWALE

GENESEE RIVER
Flow

AREA E
DIKE AREA

AREA C
POWER HOUSE

NOTE: Roads, Rivers and Building Features from March 1991
Ebasco Drawing.

NOTE: Coordinate System based on New York State Plane.

●

PH80

17.4

Arsenic Concentration Less than or Equal to 25 ppm

▲

PH81

26.6

Arsenic Concentration Greater than 25 ppm

Common Fill or Gravel and Top Soil

Common Fill or Gravel

Excavated No Backfill

Buildings or Structures

0 ft

30 ft

60 ft

90 ft

120 ft

150 ft

GROSYNTEC CONSULTANTS

5175 PLACHTREE DUNWOODY RD., SUITE 200F

ALPHARETTA, GEORGIA 30004-1534

ARCO, SINCLAIR REFINERY SITE

WELLSVILLE, NEW YORK

PROJECT:

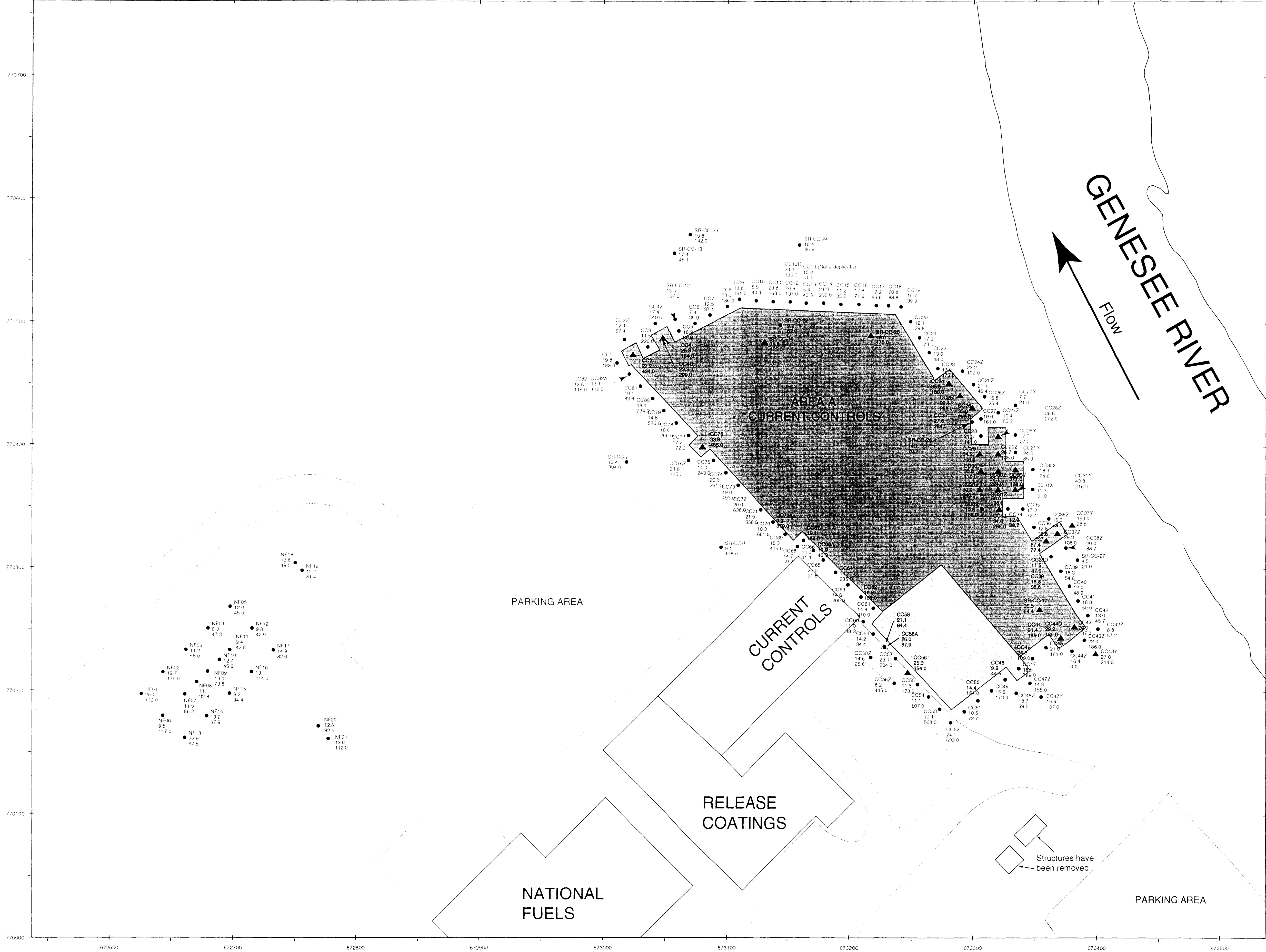
REMEDATION OF CONTAMINATED SURFACE SOILS

TITLE:

AREAS 'C' AND 'E' SAMPLING PLAN

MARK	DATE	REVISION	BY	APPROVED
THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION UNLESS SEALED				
SIGNATURE		DATE		
SEAL		DATE		

DESIGN BY:	DATE:	SCALE:	JOB NO.:
RBN	08-FEB-94	AS SHOWN	GQ3201
DRAWN BY:	CHECKED BY:	REVIEWED BY:	APPROVED BY:
REB	SDS	PHU MGR	JFB
FILE NO.:	DOCUMENT NO.:	DRAWING NO.:	
WVMAPC	GA940111		11



NOTE: Roads, Rivers and Building Features from March 1991 Ebasco Drawing.

NOTE: Coordinate System based on New York State Plane.

CC47Y Sample - ID

19.4 Arsenic Concentration (ppm)

107.0 Lead Concentration (ppm)

CC43Y Sample - ID

27.0 Arsenic Concentration (ppm)

214.0 Lead Concentration (ppm)

Common Fill or Gravel and Top Soil

Common Fill or Gravel

Excavated No Backfill

Buildings or Structures

GEOSYNTec CONSULTANTS
5775 PEACHTREE DUNWOODY RD., SUITE 200F
ATLANTA, GEORGIA 30328 USA

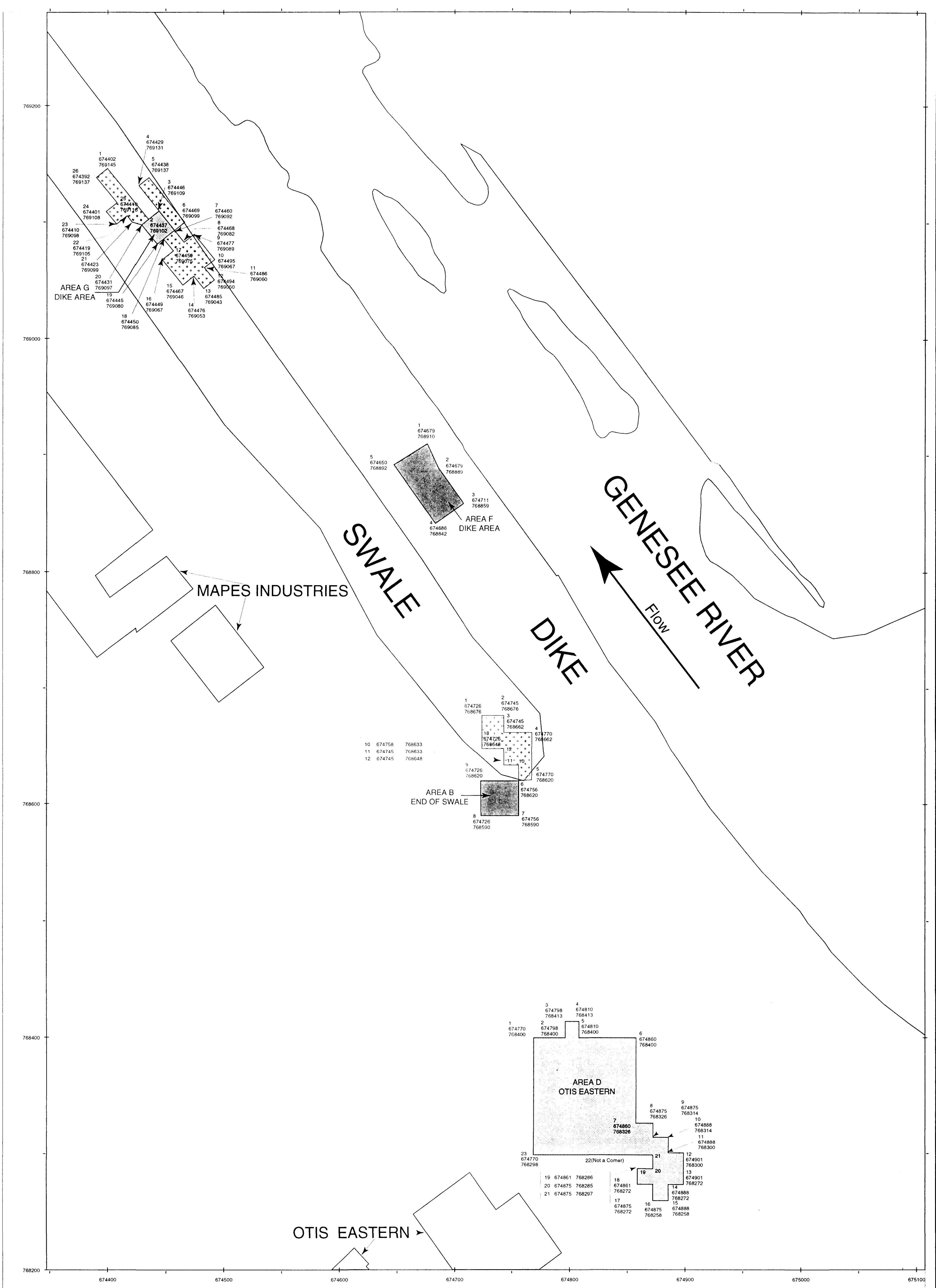
ARCO SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

PROJECT: **REMEDATION OF CONTAMINATED SURFACE SOILS**

TITLE: **AREA 'A' SAMPLING PLAN**

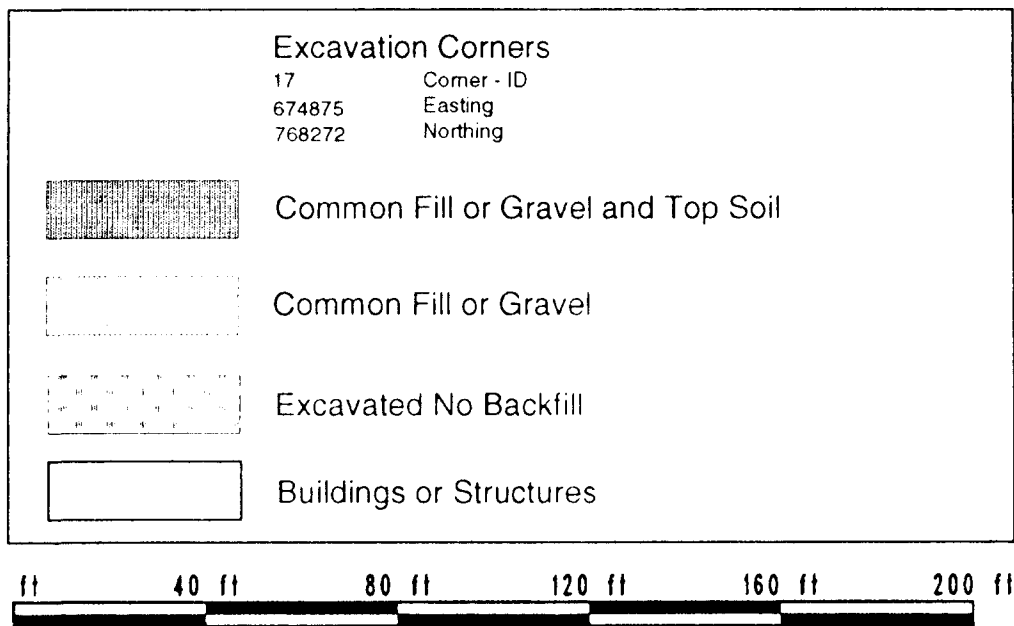
MARK	DATE	REVISION	BY	APPROVED
THIS DRAWING MAY NOT BE ISSUED FOR PROJECT REVISION OR CONSTRUCTION UNLESS SEALED				
DATE: 08-FEB-94		SCALE: As Shown		
DESIGN BY: RBN		JOB NO.: G03201		
DRAWN BY: RBN		FILE NO.: WVMAPA		
CHECKED BY: SDS		DOCUMENT NO.: GA940111		
DESIGNED BY: PROJ. MGR		DRAWING NO.: 10		
APPROVED BY: RBM		PRINCIPAL: JFB		



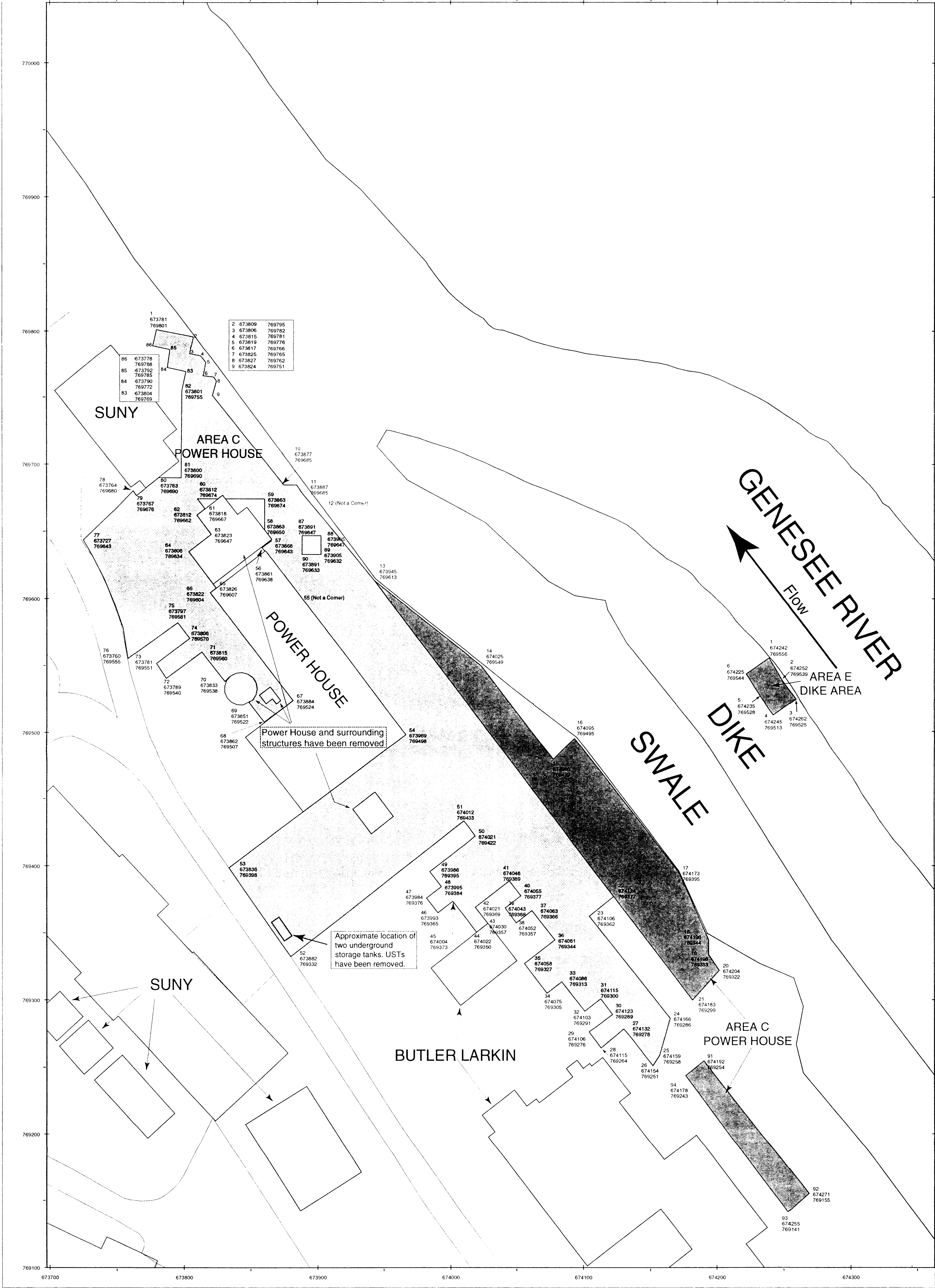


NOTE: Roads, Rivers and Building Features from March 1991 Ebasco Drawing.

NOTE: Coordinate System based on New York State Plane.



GEO SYNTec CONSULTANTS 5775 PEACHTREE DUNWOODY RD., SUITE 200F ATLANTA, GEORGIA 30342 USA																						
ARCO, SINCLAIR REFINERY SITE WELLSVILLE, NEW YORK																						
PROJECT: REMEDIATION OF CONTAMINATED SURFACE SOILS																						
TITLE: AREAS 'B', 'D', 'F' and 'G' EXCAVATION PLAN																						
<table><tr><td>MARK</td><td>DATE</td><td>REVISION</td><td>BY</td><td>APPROVED</td></tr><tr><td colspan="5">THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION UNLESS SEALED</td></tr><tr><td colspan="2">SIGNATURE</td><td>DATE</td><td>SEAL</td><td>APPROVED BY (PRINCIPAL)</td></tr></table>								MARK	DATE	REVISION	BY	APPROVED	THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION UNLESS SEALED					SIGNATURE		DATE	SEAL	APPROVED BY (PRINCIPAL)
MARK	DATE	REVISION	BY	APPROVED																		
THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION UNLESS SEALED																						
SIGNATURE		DATE	SEAL	APPROVED BY (PRINCIPAL)																		
DATE		08-FEB-94		SCALE: As Shown																		
DESIGN BY: RBN		JOB NO.: GQ3201		FILE NO.: WVMAPCC																		
DRAWN BY: REB		DOCUMENT NO.: GA940111		DRAWING NO.: 9																		
CHECKED BY: SDS		REVIEWED BY: RBM		APPROVED BY: JFB																		



NOTE: Roads, Rivers and Building Features from March 1991 Ebasco Drawing.

NOTE: Coordinate System based on New York State Plane.

Excavation Corners

29

Corner -10

674106

Eastings

769276

Northings

Common Fill or Gravel and Top Soil

Common Fill or Gravel

Excavated No Backfill

Buildings or Structures



GeoSYNTEC CONSULTANTS
5775 PEACHTREE DUNWOODY RD., SUITE 200F
ATLANTA, GEORGIA 30342 USA
ARCO, SINCLAIR REFINERY SITE
WELLSVILLE, NEW YORK

PROJECT: REMEDIATION OF CONTAMINATED SURFACE SOILS

TITLE: AREAS 'C' AND 'E' EXCAVATION PLAN

MARK	DATE	REVISION	BY	APPROVED
THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION UNLESS SEALED				
SIGNATURE		DATE	SEAL	
DATE				

DATE: 08-FEB-94

SCALE: As Shown

DESIGN BY: RBN

JOB NO.: G03201

DRAWN BY: REB

FILE NO.: WVMAPCC

CHECKED BY: SDS

DOCUMENT NO.: GA840111

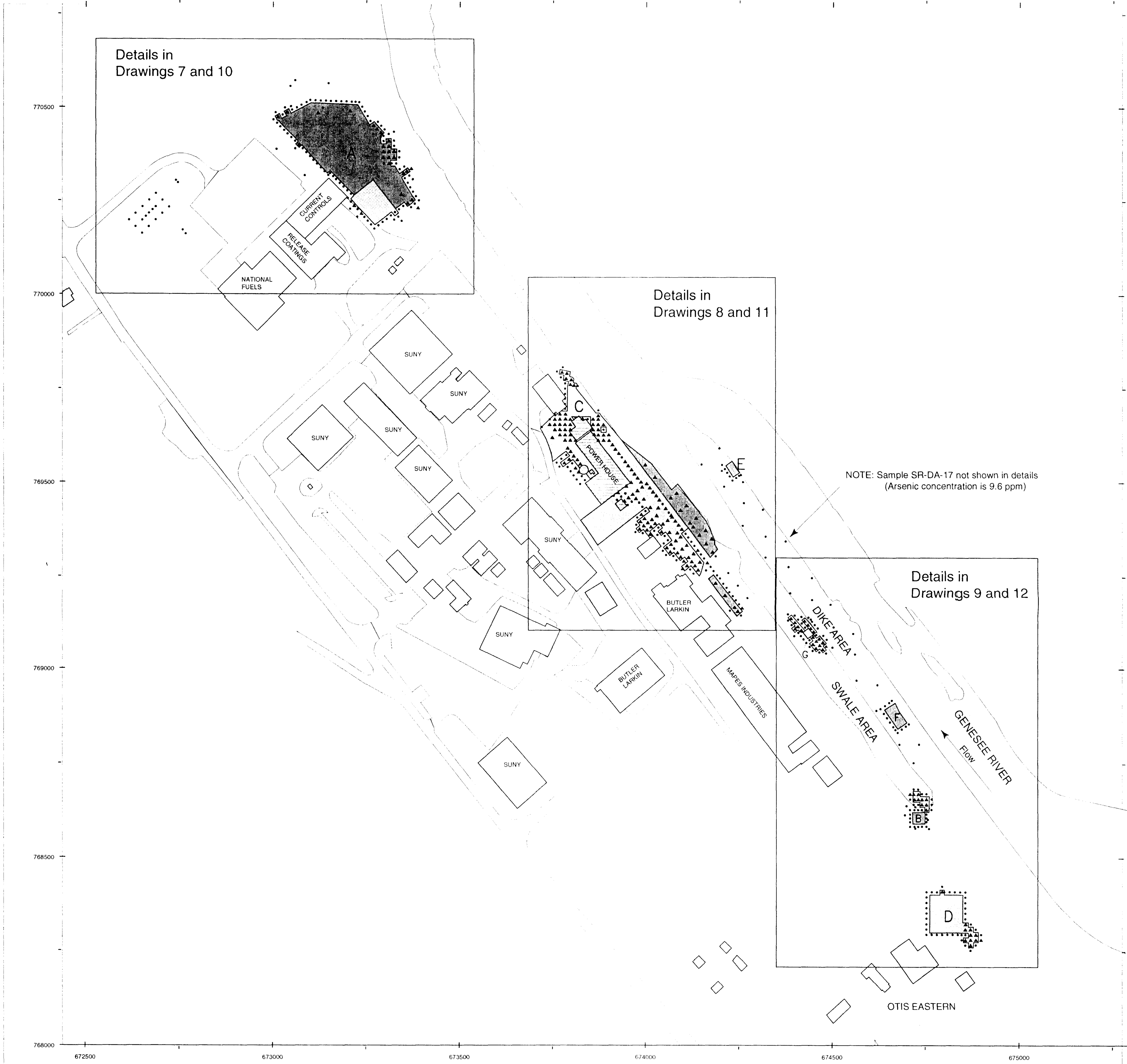
REVIEWED BY: RBM

DRAWING NO.: 8

APPROVED BY: (PRINCIPAL)

JFB





NOTE: Roads, Rivers and Building Features from March 1991
Ebasco Drawing.

NOTE: Coordinate System based on New York State Plane.

•	Arsenic Concentration Less than or Equal to 25 ppm
▲	Arsenic Concentration Greater than 25 ppm
	Common Fill or Gravel and Top Soil
	Common Fill or Gravel
	Excavated No Backfill
	Buildings or Structures
	Removed Structures

0 ft 150 ft 300 ft 450 ft 600 ft 750 ft

GEO-SYNTEC CONSULTANTS 5775 PEACHTREE DUNWOODY RD., SUITE 200F ATLANTA, GEORGIA 30342 USA ARCO, SINCLAIR REFINERY SITE WELLSVILLE, NEW YORK			
PROJECT: REMEDIATION OF CONTAMINATED SURFACE SOILS			
TITLE: SITE PLAN OF EXCAVATION AND SAMPLING LOCATIONS			
MARK	DATE	REVISION	BY
THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED		DATE: 08-FEB-94	SCALE: As Shown
DESIGN BY: RBN		JOB NO.: G03201	
DRAWN BY: RBN		FILE NO.: WUMAST	
CHECKED BY: SDS		DOCUMENT NO.: GA940111	
REVIEWED BY: JFB		DRAWING NO.: 6	
APPROVED BY: JFB			
SIGNATURE		SEAL	
DATE			

APPENDIX D

CONSTRUCTION QUALITY CONTROL FORMS

- **Form A-1, Clearing and Grubbing**
- **Form A-16, Erosion and Sediment Control**
- **Form A-19, Excavation**
- **Form A-20, Collection and Analysis of
Surface Soil Samples**
- **Form A-21, Placement of Common Fill**

FORM A-1

CLEARING AND GRUBBING

FORM A-1
SHEET _____ OF _____
INSPECTION DATE 07-17-93

	ACCEPT	REJECT	N/A
1. VERIFICATION INSPECTION			
- AREA TO BE CLEARED IS STAKED BY THE SURVEY CREWS TO CONFORM WITH THE CONTRACT DRAWINGS.	✓		
- AREA TO BE GRUBBED IS STAKED BY THE SURVEY CREW TO CONFORM WITH THE CONTRACT DRAWINGS.	✓		
- AREA IS FREE OF TREES, BRUSH, LOGS, LIMB WOOD, RUBBISH AND OTHER OBSTRUCTIONS.	✓		
- STUMPS, ROOTS LARGER THAN 1-1/2 INCHES IN DIAMETER AND DECAYED MATTER REMOVED TO A 12" DEPTH FROM AREA REQUIRING GRUBBING.			✓
2. DUST CONTROL			
ACTION TAKEN <u>NONE</u>			
3. LOCATION (APPROXIMATE)			
<u>EAST SIDE POWERHOUSE</u>			
4. REMARKS <u>CLEARING</u>			
INSPECTOR <u>[Signature]</u>			
REVIEWED BY _____			
		DATE <u>07-17-93</u>	
		DATE _____	

CLEARING AND GRUBBING

FORM A-1
SHEET _____ OF _____
INSPECTION DATE 07-18-93

1. VERIFICATION INSPECTION

- AREA TO BE CLEARED IS STAKED BY THE SURVEY CREWS TO CONFORM WITH THE CONTRACT DRAWINGS.
- AREA TO BE GRUBBED IS STAKED BY THE SURVEY CREW TO CONFORM WITH THE CONTRACT DRAWINGS.
- AREA IS FREE OF TREES, BRUSH, LOGS, LIMB WOOD, RUBBISH AND OTHER OBSTRUCTIONS.
- STUMPS, ROOTS LARGER THAN 1-1/2 INCHES IN DIAMETER AND DECAYED MATTER REMOVED TO A 12" DEPTH FROM AREA REQUIRING GRUBBING.

ACCEPT REJECT N/A

✓		
✓		
✓		
		✓

2. DUST CONTROL

ACTION TAKEN

NONE

3. LOCATION (APPROXIMATE)

EAST SIDE POWERHOUSE

4. REMARKS

CLEARING

INSPECTOR

[Signature]

DATE 07-18-93

REVIEWED BY

DATE

CLEARING AND GRUBBING

FORM A-1
SHEET _____ OF _____
INSPECTION DATE 07-21-93

1. VERIFICATION INSPECTION

- AREA TO BE CLEARED IS STAKED BY THE SURVEY CREWS TO CONFORM WITH THE CONTRACT DRAWINGS.
- AREA TO BE GRUBBED IS STAKED BY THE SURVEY CREW TO CONFORM WITH THE CONTRACT DRAWINGS.
- AREA IS FREE OF TREES, BRUSH, LOGS, LIMB WOOD, RUBBISH AND OTHER OBSTRUCTIONS.
- STUMPS, ROOTS LARGER THAN 1-1/2 INCHES IN DIAMETER AND DECAYED MATTER REMOVED TO A 12" DEPTH FROM AREA REQUIRING GRUBBING.

ACCEPT	REJECT	N/A
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2. DUST CONTROL

ACTION TAKEN NONE

3. LOCATION (APPROXIMATE)

AREA BEHIND POWERHOUSE

4. REMARKS

CLEARING, CHIPPING

INSPECTOR

REVIEWED BY

DATE

DATE

07-21-93

CLEARING AND GRUBBING

FORM A-1
SHEET _____ OF _____
INSPECTION DATE 07-22-93

1. VERIFICATION INSPECTION

- AREA TO BE CLEARED IS STAKED BY THE SURVEY CREWS TO CONFORM WITH THE CONTRACT DRAWINGS.
- AREA TO BE GRUBBED IS STAKED BY THE SURVEY CREW TO CONFORM WITH THE CONTRACT DRAWINGS.
- AREA IS FREE OF TREES, BRUSH, LOGS, LIMB WOOD, RUBBISH AND OTHER OBSTRUCTIONS.
- STUMPS, ROOTS LARGER THAN 1-1/2 INCHES IN DIAMETER AND DECAYED MATTER REMOVED TO A 12" DEPTH FROM AREA REQUIRING GRUBBING.

ACCEPT

REJECT

N/A

✓		
✓		
✓		
		✓

2. DUST CONTROL

ACTION TAKEN

NONE

3. LOCATION (APPROXIMATE)

AREA BEHIND BLDG 5-1

4. REMARKS

Clearing/chipping

INSPECTOR

[Signature]

DATE

07-22-93

REVIEWED BY

DATE

CLEARING AND GRUBBING

FORM A-1
SHEET _____ OF _____
INSPECTION DATE 07-23-93

1. VERIFICATION INSPECTION

ACCEPT REJECT N/A

- AREA TO BE CLEARED IS STAKED BY THE SURVEY CREWS TO CONFORM WITH THE CONTRACT DRAWINGS.
- AREA TO BE GRUBBED IS STAKED BY THE SURVEY CREW TO CONFORM WITH THE CONTRACT DRAWINGS.
- AREA IS FREE OF TREES, BRUSH, LOGS, LIMB WOOD, RUBBISH AND OTHER OBSTRUCTIONS.
- STUMPS, ROOTS LARGER THAN 1-1/2 INCHES IN DIAMETER AND DECAYED MATTER REMOVED TO A 12" DEPTH FROM AREA REQUIRING GRUBBING.

✓		
✓		
✓		
		✓

2. DUST CONTROL

ACTION TAKEN

NONE

3. LOCATION (APPROXIMATE)

BEHIND POWERHOUSE

4. REMARKS

CLEARING / CHIPPING

INSPECTOR

[Signature]

DATE

07-23-93

REVIEWED BY

DATE

FORM A-1
SHEET _____ OF _____
INSPECTION DATE 08-02-93

N/A

- AREA TO BE CLEARED IS STAKED BY THE SURVEY CREWS TO CONFORM WITH THE CONTRACT DRAWINGS.
- AREA TO BE GRUBBED IS STAKED BY THE SURVEY CREW TO CONFORM WITH THE CONTRACT DRAWINGS.
- AREA IS FREE OF TREES, BRUSH, LOGS, LIMB WOOD, RUBBISH AND OTHER OBSTRUCTIONS.
- STUMPS, ROOTS LARGER THAN 1-1/2 INCHES IN DIAMETER AND DECAYED MATTER REMOVED TO A 12" DEPTH FROM AREA REQUIRING GRUBBING.

ACTION TAKEN

WATER TRUCK

EX-105 POWERHOUSE

4. REMARKS GRUBBING

GRUBBING

INSPECTOR

DATE 08-02-75

REVIEWED BY

DATE _____

CLEARING AND GRUBBING

FORM A-1
SHEET _____ OF _____
INSPECTION DATE 08-03-92

1. VERIFICATION INSPECTION

ACCEPT REJECT N/A

- AREA TO BE CLEARED IS STAKED BY THE SURVEY CREWS TO CONFORM WITH THE CONTRACT DRAWINGS.
- AREA TO BE GRUBBED IS STAKED BY THE SURVEY CREW TO CONFORM WITH THE CONTRACT DRAWINGS.
- AREA IS FREE OF TREES, BRUSH, LOGS, LIMB WOOD, RUBBISH AND OTHER OBSTRUCTIONS.
- STUMPS, ROOTS LARGER THAN 1-1/2 INCHES IN DIAMETER AND DECAYED MATTER REMOVED TO A 12" DEPTH FROM AREA REQUIRING GRUBBING.

ACCEPT	REJECT	N/A
_____	_____	_____✓
_____✓	_____	_____
_____✓	_____	_____
_____✓	_____	_____

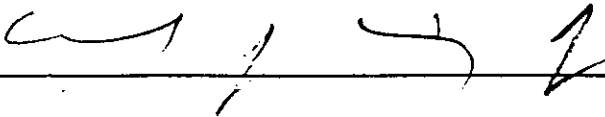
2. DUST CONTROL

ACTION TAKEN WATER TRUCK

3. LOCATION (APPROXIMATE)

EAST SIDE POWERHOUSE

4. REMARKS GRUBBING

INSPECTOR  DATE 08-03-92
REVIEWED BY _____ DATE _____

CLEARING AND GRUBBING

FORM A-1
SHEET _____ OF _____
INSPECTION DATE 08-16-93

1. VERIFICATION INSPECTION

- AREA TO BE CLEARED IS STAKED BY THE SURVEY CREWS TO CONFORM WITH THE CONTRACT DRAWINGS.
- AREA TO BE GRUBBED IS STAKED BY THE SURVEY CREW TO CONFORM WITH THE CONTRACT DRAWINGS.
- AREA IS FREE OF TREES, BRUSH, LOGS, LIMB WOOD, RUBBISH AND OTHER OBSTRUCTIONS.
- STUMPS, ROOTS LARGER THAN 1-1/2 INCHES IN DIAMETER AND DECAYED MATTER REMOVED TO A 12" DEPTH FROM AREA REQUIRING GRUBBING.

ACCEPT REJECT N/A

✓		
✓		
✓		
		✓

2. DUST CONTROL

ACTION TAKEN

NONE

3. LOCATION (APPROXIMATE)

EXTRA BEHIND VALLEY STEEL

4. REMARKS

CLEARING

INSPECTOR

al j l v

DATE

08-16-93

REVIEWED BY

DATE

CLEARING AND GRUBBING

FORM A-1
SHEET _____ OF _____
INSPECTION DATE 08-17-93

1. VERIFICATION INSPECTION

- AREA TO BE CLEARED IS STAKED BY THE SURVEY CREWS TO CONFORM WITH THE CONTRACT DRAWINGS.
- AREA TO BE GRUBBED IS STAKED BY THE SURVEY CREW TO CONFORM WITH THE CONTRACT DRAWINGS.
- AREA IS FREE OF TREES, BRUSH, LOGS, LIMB WOOD, RUBBISH AND OTHER OBSTRUCTIONS.
- STUMPS, ROOTS LARGER THAN 1-1/2 INCHES IN DIAMETER AND DECAYED MATTER REMOVED TO A 12" DEPTH FROM AREA REQUIRING GRUBBING.

ACCEPT	REJECT	N/A
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2. DUST CONTROL

ACTION TAKEN

NONE

3. LOCATION (APPROXIMATE)

ETRA BEHIND VALLEY STEEL

4. REMARKS

CLEARING, CHIPPING

INSPECTOR

[Signature]

DATE

08-17-93

REVIEWED BY

DATE

FORM A-16

EROSION AND SEDIMENT CONTROL

EROSION AND SEDIMENT CONTROL

FORM A-16

SHEET _____ OF _____
INSPECTION DATE 07-30-93

1. MATERIAL

- MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.

ACCEPT

REJECT

N/A

2. PLACEMENT

- SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.

3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.

4. REMARKS SILT FENCE HAY BALES EAST SIDE POWERHOUSE

INSPECTOR

DATE

REVIEWED BY

DATE

EROSION AND SEDIMENT CONTROL

FORM A-16

SHEET _____ OF _____

INSPECTION DATE 08-04-93

1. MATERIAL

- MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.

ACCEPT

REJECT

N/A

2. PLACEMENT

- SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.

3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.

4. REMARKS

HAYDALES / SILT FENCE

SWALE AREA

INSPECTOR

[Signature]

DATE

08-04-93

REVIEWED BY

DATE

EROSION AND SEDIMENT CONTROL

FORM A-16

SHEET _____ OF _____

INSPECTION DATE 08-05-93

1. MATERIAL

- MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.

ACCEPT

REJECT

N/A

_____ ✓

2. PLACEMENT

- SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.

_____ ✓

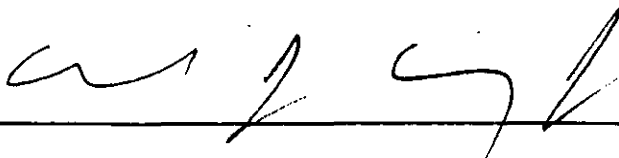
3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.

_____ ✓

4. REMARKS

SWALE AREAS SILT FENCE & Hay Bales

INSPECTOR



DATE

08-05-93

REVIEWED BY

DATE

EROSION AND SEDIMENT CONTROL

FORM A-16

SHEET _____ OF _____

INSPECTION DATE 08-16-93

1. MATERIAL

- MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.

ACCEPT

REJECT

N/A

_____ ✓

2. PLACEMENT

- SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.

_____ ✓

3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.

_____ ✓

4. REMARKS

ADJUST HAYBALES SILT FENCE

INSPECTOR

[Signature]

DATE

08-16-93

REVIEWED BY

DATE

EROSION AND SEDIMENT CONTROL

FORM A-16

SHEET _____ OF _____

INSPECTION DATE 08-17-93

	ACCEPT	REJECT	N/A
1. MATERIAL			
- MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.	_____	_____	<u>✓</u>
2. PLACEMENT			
- SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.	<u>✓</u>	_____	_____
3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.	<u>✓</u>	_____	_____
4. REMARKS <u>HAYBALES @ SILT FENCE, PLASTIC</u>			
<u>POLY SHEET COVER PILES</u>			

INSPECTOR

[Signature]

DATE

08-17-93

REVIEWED BY

DATE

EROSION AND SEDIMENT CONTROL

FORM A-16
SHEET _____ OF _____
INSPECTION DATE 08-27-93

	ACCEPT	REJECT	N/A
1. MATERIAL			
- MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.	_____	_____	<u>✓</u>
2. PLACEMENT			
- SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.	<u>✓</u>	_____	_____
3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.	<u>✓</u>	_____	_____

4. REMARKS INSPECT SEDIMENT BARRIERS

INSPECTOR *[Signature]* DATE 08-27-93

REVIEWED BY _____ DATE _____

EROSION AND SEDIMENT CONTROL

FORM A-16

SHEET _____ OF _____

INSPECTION DATE 09-30-93

1. MATERIAL

- MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.

ACCEPT

REJECT

N/A

2. PLACEMENT

- SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.

3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.

4. REMARKS

ADJUST & REPAIR EXISTING SEDIMENT
BARRIERS @ STOCKPILE AREA

INSPECTOR

REVIEWED BY

DATE

DATE

09-30-93

EROSION AND SEDIMENT CONTROL

FORM A-16

SHEET 1 OF 1

INSPECTION DATE 10/1/93

1. MATERIAL

ACCEPT

REJECT

N/A

- MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.

✓

2. PLACEMENT

- SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.

✓

3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.

✓

4. REMARKS

Check Sediment Barriers, O.K.

INSPECTOR

Charlie Belin

DATE

10/1/93

REVIEWED BY

DATE

EROSION AND SEDIMENT CONTROL

FORM A-16
SHEET 1 OF 1
INSPECTION DATE 10/4/93

- | | ACCEPT | REJECT | N/A |
|---|-------------------------------------|--------------------------|--------------------------|
| 1. MATERIAL | | | |
| - MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. PLACEMENT | | | |
| - SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. REMARKS <u>Check Sediment Barriers, O.K.</u> | | | |

INSPECTOR Charles S. Baker DATE 10/4/93
REVIEWED BY _____ DATE _____

EROSION AND SEDIMENT CONTROL

FORM A-16

SHEET 1 OF 1

INSPECTION DATE 10/5/93

ACCEPT

REJECT

N/A

1. MATERIAL

- MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.

✓

2. PLACEMENT

- SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.

✓

3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.

✓

4. REMARKS

Check Sediment Barriers, O.K.

INSPECTOR

Charles Baker

DATE

10/5/93

REVIEWED BY

DATE

EROSION AND SEDIMENT CONTROL

FORM A-16
SHEET 1 OF 1
INSPECTION DATE 10/6/93

- | | ACCEPT | REJECT | N/A |
|---|-------------------------------------|--------------------------|--------------------------|
| 1. MATERIAL | | | |
| - MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. PLACEMENT | | | |
| - SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. REMARKS <u>Check Sediment Barriers, O.K.</u> | | | |

INSPECTOR CSB DATE 10/6/93
REVIEWED BY _____ DATE _____

EROSION AND SEDIMENT CONTROL

FORM A-16

SHEET 1 OF 1

INSPECTION DATE 10/7/93

	ACCEPT	REJECT	N/A
1. MATERIAL			
- MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. PLACEMENT			
- SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. REMARKS Check Sediment Barriers, O.K.

INSPECTOR Charles Baker DATE 10/7/93

REVIEWED BY _____ DATE _____

EROSION AND SEDIMENT CONTROL

FORM A-16

SHEET 1 OF 1
INSPECTION DATE 10/8/93

	ACCEPT	REJECT	N/A
1. MATERIAL			
- MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.	<u>✓</u>	<u> </u>	<u> </u>
2. PLACEMENT			
- SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.	<u>✓</u>	<u> </u>	<u> </u>
3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.	<u>✓</u>	<u> </u>	<u> </u>

4. REMARKS Check Sediment Barriers, O.K.

INSPECTOR Charles Baker DATE 10/8/93

REVIEWED BY _____ DATE _____

EROSION AND SEDIMENT CONTROL

FORM A-16
SHEET 1 OF 1
INSPECTION DATE 10/11/93

	ACCEPT	REJECT	N/A
1. MATERIAL			
- MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. PLACEMENT			
- SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. REMARKS <u>Check Sediment Barriers, O.K.</u>			

INSPECTOR Charles Behr DATE 10/11/93
REVIEWED BY _____ DATE _____

EROSION AND SEDIMENT CONTROL

FORM A-16

SHEET 1 OF 1

INSPECTION DATE 10/12/93

1. MATERIAL

- MANUFACTURER'S LABEL OR CERTIFICATE
COMPLIES WITH CERTIFIED EROSION AND
SEDIMENT CONTROL PLAN.

ACCEPT

REJECT

N/A

✓

2. PLACEMENT

- SILT FENCES AND OTHER EROSION
CONTROL MEASURES ARE INSTALLED
AS SHOWN ON CERTIFIED EROSION AND
SEDIMENT CONTROL PLAN.

✓

3. LOCATION OF EROSION AND SEDIMENT
CONTROL MEASURES.

✓

4. REMARKS

Check Sediment Barriers, O.K.

INSPECTOR

Charles Baker

DATE 10/12/93

REVIEWED BY

DATE

EROSION AND SEDIMENT CONTROL

FORM A-16

SHEET 1 OF 1
INSPECTION DATE 10/13/93

	ACCEPT	REJECT	N/A
1. MATERIAL			
- MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.	<u>✓</u>	<u> </u>	<u> </u>
2. PLACEMENT			
- SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.	<u>✓</u>	<u> </u>	<u> </u>
3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.	<u>✓</u>	<u> </u>	<u> </u>

4. REMARKS Check Sediment Barriers, O.K.

INSPECTOR Charles Baker DATE 10/13/93

REVIEWED BY _____ DATE _____

EROSION AND SEDIMENT CONTROL

FORM A-16
SHEET 1 OF 1
INSPECTION DATE 10/14/93

- | | ACCEPT | REJECT | N/A |
|---|-------------------------------------|--------------------------|--------------------------|
| 1. MATERIAL | | | |
| - MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. PLACEMENT | | | |
| - SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

4. REMARKS Check Sediment Barriers, O.K.

INSPECTOR Charles Baker DATE 10/14/93

REVIEWED BY _____ DATE _____

EROSION AND SEDIMENT CONTROL

FORM A-16
SHEET 1 OF 1
INSPECTION DATE 10/15/93

	ACCEPT	REJECT	N/A
1. MATERIAL			
- MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.	<u>✓</u>	<u> </u>	<u> </u>
2. PLACEMENT			
- SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.	<u>✓</u>	<u> </u>	<u> </u>
3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.	<u>✓</u>	<u> </u>	<u> </u>

4. REMARKS Check Sediment Barriers, O.K.

INSPECTOR Charlie Baker DATE 10/15/93

REVIEWED BY _____ DATE _____

EROSION AND SEDIMENT CONTROL

FORM A-16
SHEET 1 OF 1
INSPECTION DATE 10/16/93

- | | ACCEPT | REJECT | N/A |
|---|-------------------------------------|--------------------------|--------------------------|
| 1. MATERIAL | | | |
| - MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. PLACEMENT | | | |
| - SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. REMARKS <u>Check Sediment Barriers, O.K.</u> | | | |

INSPECTOR CSB DATE 10/16/93
REVIEWED BY _____ DATE _____

EROSION AND SEDIMENT CONTROL

FORM A-16
SHEET 1 OF 1
INSPECTION DATE 10/18/93

	ACCEPT	REJECT	N/A
1. MATERIAL			
- MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.	<u>✓</u>	<u> </u>	<u> </u>
2. PLACEMENT			
- SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.	<u>✓</u>	<u> </u>	<u> </u>
3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.	<u>✓</u>	<u> </u>	<u> </u>
4. REMARKS <u>Check Sediment Barriers, O.K.</u>			

INSPECTOR

Charles Baker

DATE

10/18/93

REVIEWED BY

DATE

EROSION AND SEDIMENT CONTROL

FORM A-16

SHEET 1 OF 1

INSPECTION DATE 10/19/93

- | | ACCEPT | REJECT | N/A |
|---|-------------------------------------|--------------------------|--------------------------|
| 1. MATERIAL | | | |
| - MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. PLACEMENT | | | |
| - SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. REMARKS <u>Check Sediment Barriers, O.K.</u> | | | |

INSPECTOR

Charles Baker

DATE

10/19/93

REVIEWED BY

DATE

EROSION AND SEDIMENT CONTROL

FORM A-16

SHEET 1 OF 1

INSPECTION DATE 10/20/93

1. MATERIAL

- MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.

ACCEPT

REJECT

N/A

✓

2. PLACEMENT

- SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.

✓

3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.

✓

4. REMARKS Check Sediment Barriers, O.K.

INSPECTOR

Charles Baker

DATE

10/20/93

REVIEWED BY

DATE

EROSION AND SEDIMENT CONTROL

FORM A-16
SHEET 1 OF 1
INSPECTION DATE 10/21/93

	ACCEPT	REJECT	N/A
1. MATERIAL			
- MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. PLACEMENT			
- SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. REMARKS <u>Check Sediment Barriers, O.K.</u>			
<u>Removed Sediment Barrier located</u>			
<u>at Valley Steel site</u>			
<u>Barrier still in Swale Area</u>			

INSPECTOR

CSB

DATE 10/21/93

REVIEWED BY

DATE

EROSION AND SEDIMENT CONTROL

FORM A-16

SHEET 1 OF 1

INSPECTION DATE 10/22/93

1. MATERIAL

ACCEPT

REJECT

N/A

- MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.

✓

2. PLACEMENT

- SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.

✓

3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.

✓

4. REMARKS Check Sediment Barriers, O.K.

INSPECTOR

Charles Baber

DATE

10/22/93

REVIEWED BY

DATE

EROSION AND SEDIMENT CONTROL

FORM A-16
SHEET 1 OF 1
INSPECTION DATE 10/23/93

	ACCEPT	REJECT	N/A
1. MATERIAL			
- MANUFACTURER'S LABEL OR CERTIFICATE COMPLIES WITH CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.	<u>✓</u>	<u> </u>	<u> </u>
2. PLACEMENT			
- SILT FENCES AND OTHER EROSION CONTROL MEASURES ARE INSTALLED AS SHOWN ON CERTIFIED EROSION AND SEDIMENT CONTROL PLAN.	<u>✓</u>	<u> </u>	<u> </u>
3. LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.	<u>✓</u>	<u> </u>	<u> </u>

4. REMARKS Check Sediment Barriers, O.K.

INSPECTOR Charles Behr DATE 10/23/93

REVIEWED BY _____ DATE _____

EROSION AND SEDIMENT CONTROL

FORM A-16
SHEET 1 OF 1
INSPECTION DATE 10/25/93

1. MATERIAL

- MANUFACTURER'S LABEL OR CERTIFICATE
COMPLIES WITH CERTIFIED EROSION AND
SEDIMENT CONTROL PLAN.

ACCEPT

REJECT

N/A

☒

☐

☐

2. PLACEMENT

- SILT FENCES AND OTHER EROSION
CONTROL MEASURES ARE INSTALLED
AS SHOWN ON CERTIFIED EROSION AND
SEDIMENT CONTROL PLAN.

☒

☐

☐

3. LOCATION OF EROSION AND SEDIMENT
CONTROL MEASURES.

☒

☐

☐

4. REMARKS

Check Sediment Barriers, O.K.

INSPECTOR

Charles Baker

DATE

10/25/93

REVIEWED BY

DATE

FORM A-19
EXCAVATION

AUG 06 1992



FORM A-19

SHEET 1 OF 1
INSPECTION DATE 7-30

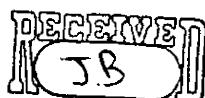
EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

	ACCEPT	REJECT	N/A
1. VERIFICATION INSPECTION			
- EXCAVATION LIMITS STAKED BY SURVEY CREW.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. DUST CONTROL			
ACTION TAKEN <u>NONE REQUIRED</u>			
3. LOCATION:			
COORDINATES _____			

4. REMARKS <u>EXCAVATED REFINERY AREAS B & E</u>			

INSPECTOR <u>Chris Bailey Frederick Martell</u> DATE <u>8-6-92</u>			
REVIEWED BY <u>Jonathan Brando</u> DATE <u>8/6/92</u>			

AUG 11 1992



FORM A-19

SHEET 1 OF 1

INSPECTION DATE 8/10/92

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY
SURVEY CREW.

✓

- EXCAVATION IS COMPLETED TO LIMITS
SHOWN ON CONTRACT DRAWINGS.

 ✓

- POST EXCAVATION SAMPLING LOCATIONS
SURVEYED BY THE SURVEYOR.

 ✓

2. DUST CONTROL

ACTION TAKEN WATER TRUCK USED TO CONTROL DUST

3. LOCATION:

COORDINATES REFINERY AREA "A" - CURRENT CONTROLS

4. REMARKS BEGAN EXCAVATION - VERIFIED PORTION OF AREA #

BACKFILLED. PERFORMED COMPACTION TESTS AS FOLLOWS:

TEST 1:

DENSITY = 98.5%

TEST 2:

DENSITY = 81.4%

REMOVED & RETESTED:

DENSITY = 85.4%

INSPECTOR

Chris Bailey

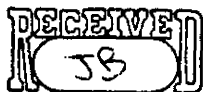
DATE 8/10/92

REVIEWED BY

Jonathan Bonds

DATE 8/11/92

AUG 12 1992



FORM A-19

SHEET 1 OF 1

INSPECTION DATE 8-11-92

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

	ACCEPT	REJECT	N/A
1. VERIFICATION INSPECTION			
- EXCAVATION LIMITS STAKED BY SURVEY CREW.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2. DUST CONTROL

ACTION TAKEN WATER TRUCK USED TO CONTROL DUST
WHEN NEEDED

3. LOCATION:

COORDINATES PLAN "A"

4. REMARKS FINISHED PLACING STONE FOR DRIVEWAY
AT CURRENT CONTROLS TO FINISH A PORTION
OF THE AREA EXCAVATED YESTERDAY.

INSPECTOR Frederick J. Martello / Chris Galt DATE 8-11-92

REVIEWED BY Jonathan Bravels DATE 8/12/92

AUG 13 1992



FORM A-19

SHEET 1 OF 1

INSPECTION DATE 8-12-92

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY SURVEY CREW.
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.

/		
/		
		/

2. DUST CONTROL

ACTION TAKEN NONE REQUIRED IN EXCAVATION - HAUL ROADS
WERE WATERED WITH WATER TRUCK.

3. LOCATION:

COORDINATES CURRENT CONTROLS PLAN "A"

4. REMARKS DURING EXCAVATION A GAS LINE WAS BROKEN.

INSPECTOR

Frederick J. Washburn / Chris B. Boley

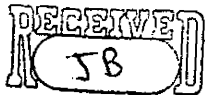
DATE 8-12-92

REVIEWED BY

Jonathan Brandes

DATE 8/13/92

AUG 14 1992



FORM A-19

SHEET 1 OF 1INSPECTION DATE 8/13/92EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY SURVEY CREW.

☒☐☐

- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.

EXCAVATION STILL IN PROGRESS

- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.

☐☐☒

2. DUST CONTROL

ACTION TAKEN NOT NECESSARY

3. LOCATION:

COORDINATES REFINERY AREA "A" - CURRENT CONTROLS4. REMARKS DAN FULLER OF NATIONAL FUEL LOCATED GAS

LINE ADJACENT TO AND BEHIND CURRENT CONTROLS.
HE WILL BE ON-SITE TOMORROW TO LOCATE ANY GAS LINES IN
OTHER REFINERY MEAS. GAS LINE @ CURRENT CONTROLS WAS THEN
EXCAVATED BY HAND & EXPOSED EVERY TEN FEET.

INSPECTOR Fredrick J. Martin / Chris BaileyDATE 8-13-92REVIEWED BY Jonathan BranksDATE 8/14/92

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY SURVEY CREW.
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.

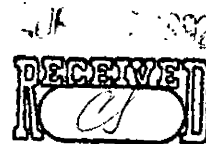
✓		
✓		
		✓

2. DUST CONTROL

ACTION TAKEN HAUL ROADS WERE WATERED AS NEEDED.

3. LOCATION:

COORDINATES CURRENT CONTROLS AREA



4. REMARKS ROGER NORTH OF GEOSYNTEC INSTRUCTED US TO EXCAVATE
10' FROM BACK AND SIDES OF CURRENT CONTROLS BLDG.

INSPECTOR Frederick J. Mastitis

DATE 8-14-92

REVIEWED BY Colin P. Lukow

DATE 8-17-92

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY SURVEY CREW.
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.

✓		
✓		
		✓

2. DUST CONTROL

ACTION TAKEN NONE REQUIRED (RAINY)

3. LOCATION:

COORDINATES CURRENT CONTROLS



4. REMARKS ELEVATIONS WERE VERIFIED BY GEO-CON PERSONNEL.

INSPECTOR Frederick J. Mastle

DATE 8-15-92

REVIEWED BY Colin P. Lukow

DATE 8-17-92

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY SURVEY CREW.
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.

✓
✓
 ✓

2. DUST CONTROL

ACTION TAKEN WATERED ROADS AS REQUIRED

3. LOCATION:

COORDINATES CURRENT CONTROLS



4. REMARKS MOVED SHEDS TO EXCAVATE SOIL UNDER
THEM.

INSPECTOR Fredrick J. Mastitis

DATE 8-17-92

REVIEWED BY Colvin P. Johnson

DATE 8-19-92

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY SURVEY CREW.
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.

ACCEPT	REJECT	N/A
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2. DUST CONTROL

ACTION TAKEN WATERED HAUL ROADS AS NEEDED

3. LOCATION:

COORDINATES CURRENT CONTROLS

AUG 19 1992



4. REMARKS FINISHED EXCAVATION IN CURRENT CONTROLS

INSPECTOR Frederick J. Mastitis

DATE 8-18-92

REVIEWED BY Colleen R. Sutton

DATE 8-19-92

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY SURVEY CREW.
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.

<u> / </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> / </u>
<u> </u>	<u> </u>	<u> / </u>

2. DUST CONTROL

ACTION TAKEN WATERED HAUL ROADS AS REQUIRED.

3. LOCATION:

COORDINATES OTIS EASTERN

AUG 19 1992
RECEIVED
RC

4. REMARKS EXCAVATION WAS STARTED TODAY AND IS
APPROXIMATELY 50% COMPLETE NO FILL HAS BEEN PLACED.

INSPECTOR Frederick J. Marshall

DATE 8-18-92

REVIEWED BY William T. Lickona

DATE 8-19-92

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY SURVEY CREW.
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.

<u>✓</u>	<u> </u>	<u> </u>
<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>✓</u>

2. DUST CONTROL

ACTION TAKEN HAUL ROADS WATERED AS NEEDED.

3. LOCATION:

COORDINATES OTIS EASTERN

RECEIVED
AS

AUG 20 1992

4. REMARKS FINISHED EXCAVATING AND STARTED PLACING
FILL. ELEVATIONS WERE ACCEPTABLE

INSPECTOR Fredrick J. Mastite

DATE 8-19-92

REVIEWED BY Colin P. Johnson

DATE 8-20-92

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY SURVEY CREW.
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.

/
/
 /

2. DUST CONTROL

ACTION TAKEN NONE REQUIRED

3. LOCATION:

COORDINATES POWERHOUSE PLAN C

AUG 21 1992



4. REMARKS FINISHED EXCAVATION BACKFILL TO BEGIN
TOMORROW.

INSPECTOR Frederick J. Mastitis

DATE 8-20-92

REVIEWED BY Colleen P. Serhan

DATE 8-21-92

AUG 25 1992



FORM A-19

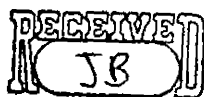
SHEET 1 OF 1

INSPECTION DATE 8-21-92

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

	ACCEPT	REJECT	N/A
1. VERIFICATION INSPECTION			
- EXCAVATION LIMITS STAKED BY SURVEY CREW.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. DUST CONTROL			
ACTION TAKEN <u>AS REQUIRED</u>			
3. LOCATION:			
COORDINATES <u>PLAN F AREA</u>			
4. REMARKS <u>AREA WAS EXCAVATED AND ELEVATIONS</u> <u>VERIFIED.</u>			
INSPECTOR <u>Fredrick J. Mastis</u>		DATE <u>8-21-92</u>	
REVIEWED BY <u>Jonathan Brando</u>		DATE <u>8/25/92</u>	

AUG 25 1992



FORM A-19

SHEET 1 OF 1

INSPECTION DATE 8-24-92

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY SURVEY CREW.
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.

ACCEPT	REJECT	N/A
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2. DUST CONTROL

ACTION TAKEN NONE REQUIRED

3. LOCATION:

COORDINATES PLAN G AREA

4. REMARKS AREA WAS EXCAVATED AND ELEVATIONS VERIFIED.

INSPECTOR Frederick J. Marshall

DATE 8-24-92

REVIEWED BY Jonathan Brandis

DATE 8/25/92

NOV 4 1992



FORM A-19

SHEET 1 OF 1

INSPECTION DATE 11/3/92

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY⁺
SURVEY CREW.

✓

- EXCAVATION IS COMPLETED TO LIMITS⁺
SHOWN ON CONTRACT DRAWINGS.

✓

- POST EXCAVATION SAMPLING LOCATIONS⁺
SURVEYED BY THE SURVEYOR.

✓

* SURVEYING, STAKING & SAMPLING IS RESPONSIBILITY OF GEOSURITE

2. DUST CONTROL

ACTION TAKEN NONE REQUIRED

3. LOCATION:

COORDINATES

4. REMARKS EXCAVATED 2 AREAS AT OTIS EASTERN / 2 AREAS AT

THEIR 2

THE POWERHOUSE; ALL LOCATIONS ARE ALONG THE HAUL ROAD.

Excavated areas 21, 32-33 At Otis Eastern
and areas 2-3, 16-17-18 at Powerhouse. See Attached Map 5

INSPECTOR Chris Barty

DATE 11-3-92

REVIEWED BY Jonathan Branelas

DATE 11/4/92

NOV 5 1992



FORM A-19

SHEET 1 OF 1

INSPECTION DATE 11-4-92

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

	ACCEPT	REJECT	N/A
1. VERIFICATION INSPECTION			
- EXCAVATION LIMITS STAKED BY SURVEY CREW.*	<u>✓</u>	<u> </u>	<u> </u>
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.*	<u>✓</u>	<u> </u>	<u> </u>
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.*	<u>✓</u>	<u> </u>	<u> </u>
* RESPONSIBILITY OF GEOSYNTEC			
2. DUST CONTROL			
ACTION TAKEN <u>NONE REQUIRED</u>			
3. LOCATION:			
COORDINATES <u> </u> <u> </u> <u> </u>			
4. REMARKS <u>EXCAVATED THE FOLLOWING LOCATIONS AT CURRENT CONTROLS:</u> <u>CC-304, CC-331, CC-307, CC-312, CC-30, CC-29, CC-292,</u> <u>CC-282, CC-342, CC-314, CC-332, CC-372, CC-24, CC-25</u> <u>AND CC-26.</u>			
INSPECTOR <u>Chris Burt</u>		DATE <u>11-4-92</u>	
REVIEWED BY <u>Jonathan Brannan</u>		DATE <u>11/7/92</u>	

RECEIVED
JEB

INSPECTION DATE 11-5-92

	ACCEPT	REJECT	N/A
1. VERIFICATION INSPECTION			
- EXCAVATION LIMITS STAKED BY SURVEY CREW.*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
* RESPONSIBILITY OF CEDSYNTEC			
2. DUST CONTROL			
ACTION TAKEN	<u>NONE REQUIRED</u>		
3. LOCATION:			
COORDINATES	<u> </u> <u> </u>		
4. REMARKS <u>EXCAVATED ADDITIONAL REFRESH AREAS AS FOLLOWS:</u>			
<u>@POWERHOUSE : 3, 4, 16Z, 17Z, 17ZS, 16Y, 17YS</u>			
<u>@CURRENT CONTROLS: 76, 2, 4</u>			
INSPECTOR	<u>Chris Bailey</u>		DATE <u>11-5-92</u>
REVIEWED BY	<u>Jonathan Bravos</u>		DATE <u>11/7/92</u>

NOV 7 1992



FORM A-19

SHEET 1 OF 1

INSPECTION DATE 11-6-92

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION


- EXCAVATION LIMITS STAKED BY SURVEY CREW. ✓
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS. ✓
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR. ✓

2. DUST CONTROL

ACTION TAKEN NONE REQUIRED

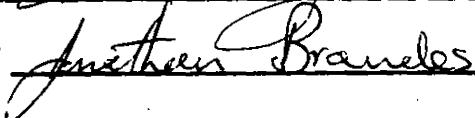
3. LOCATION:

COORDINATES

4. REMARKS EXCAVATED SEPTIC TANK AT OTIS EASTERN
PROPERTY PER REQUEST BY AMCO. 

INSPECTOR 

DATE 11-6-92

REVIEWED BY 

DATE 11/7/92

Written by: _____ Date: ____/____/____ Reviewed by: _____ Date: ____/____/____
YY MM DD YY MM DD

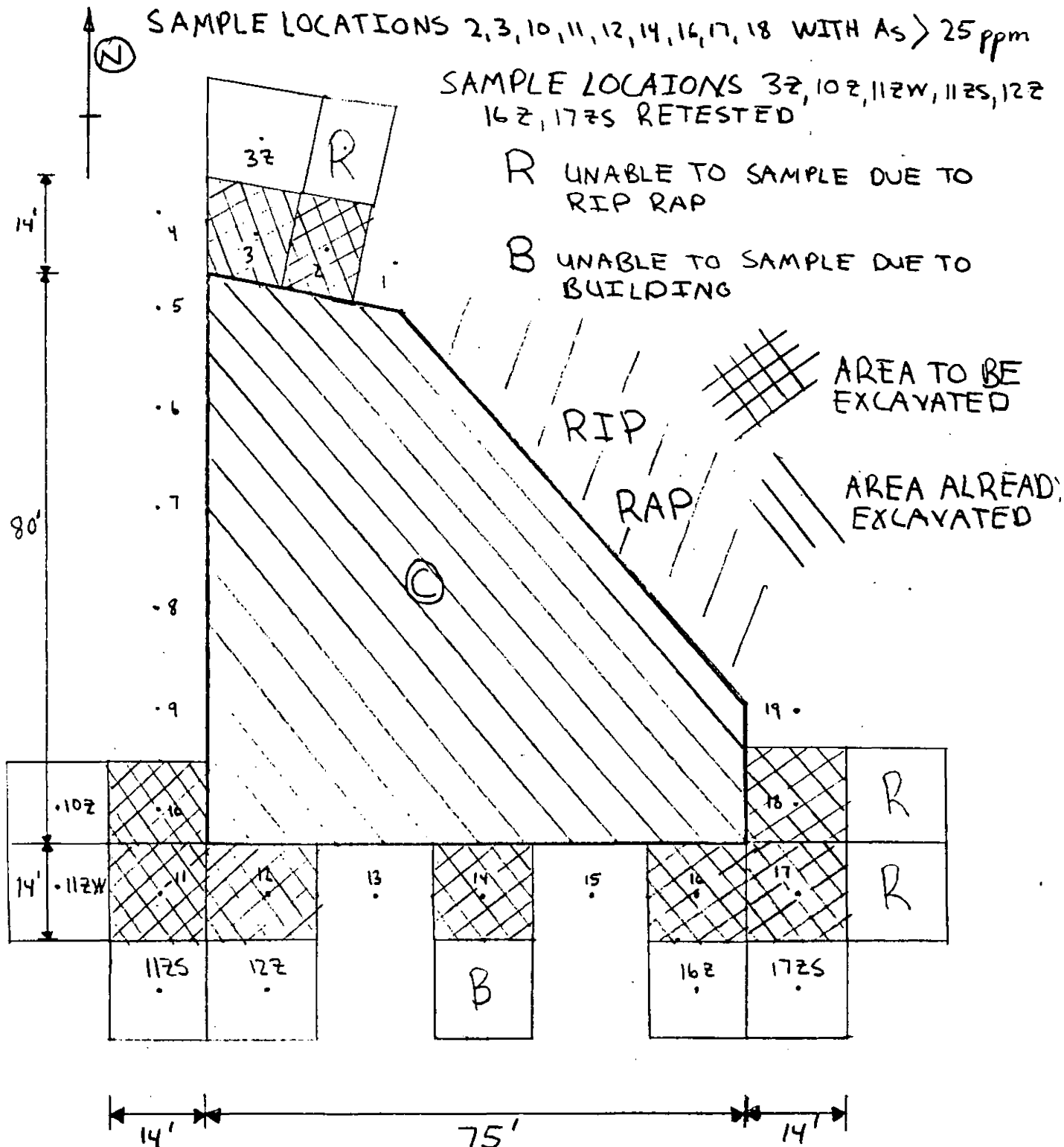
Client: _____ Project: _____ Project/Proposal No.: _____ Task No.: _____

AREA C

SAMPLE LOCATIONS 1 to 19 TESTED

SAMPLE LOCATIONS 2,3,10,11,12,14,16,17,18 WITH $As > 25 \text{ ppm}$

SAMPLE LOCATIONS 3Z,10Z,11ZW,11ZS,12Z
 16Z,17ZS RETESTED



Written by: Date: YY/MM/DD Reviewed by: Date: YY/MM/DD


Client: Project: Project/Proposal No.: Task No.:


AREA D

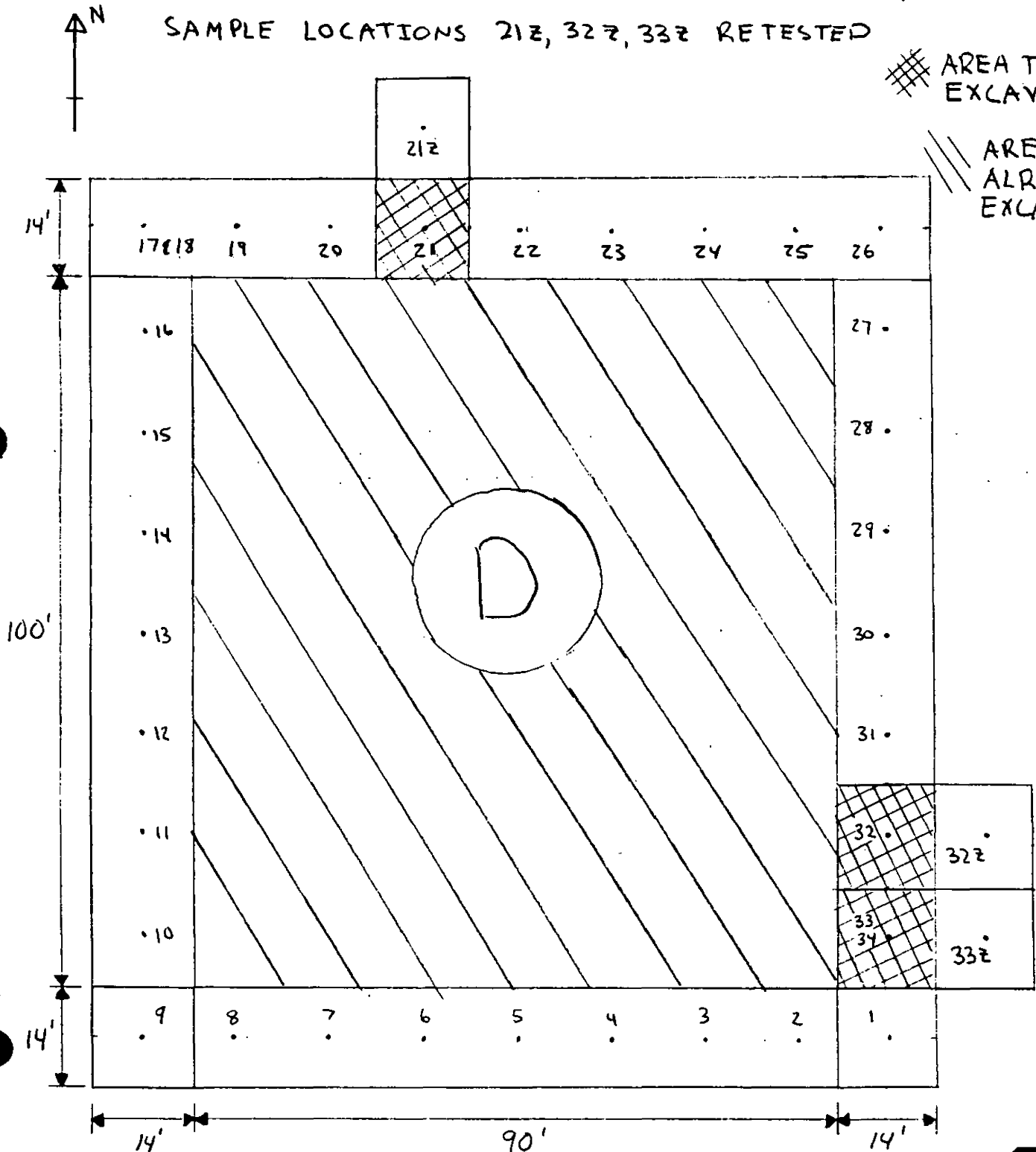
SAMPLE LOCATIONS 1 TO 34 ORIGINALLY TESTED

SAMPLE LOCATIONS 21, 32, 33 WITH $As > 25$ ppm

SAMPLE LOCATIONS 21z, 32z, 33z RETESTED

 AREA TO BE EXCAVATED

 AREA ALREADY EXCAVATED



EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

	ACCEPT	REJECT	N/A
1. VERIFICATION INSPECTION			
- EXCAVATION LIMITS STAKED BY SURVEY CREW.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. DUST CONTROL			
ACTION TAKEN <u>N.A.</u>			
3. LOCATION:			
COORDINATES _____			
4. REMARKS <u>INSTALLATION OF SILT FENCE,</u> <u>EROSION CONTROL, MOBILIZATION</u>			
INSPECTOR <u>DAN DEMING, JR</u>		DATE <u>07-30-93</u>	
REVIEWED BY _____		DATE _____	

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY
SURVEY CREW.

✓

- EXCAVATION IS COMPLETED TO LIMITS
SHOWN ON CONTRACT DRAWINGS.

✓

- POST EXCAVATION SAMPLING LOCATIONS
SURVEYED BY THE SURVEYOR.

✓

2. DUST CONTROL

ACTION TAKEN: WATER TRUCK

3. LOCATION:

COORDINATES PH27 PH26
PH26FD PH254. REMARKS WEST SIDE POWERHOUSEINSPECTOR DAN DEMING, JRDATE 08-03-93

REVIEWED BY _____

DATE _____

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY
SURVEY CREW.

✓

- EXCAVATION IS COMPLETED TO LIMITS
SHOWN ON CONTRACT DRAWINGS.

✓

- POST EXCAVATION SAMPLING LOCATIONS
SURVEYED BY THE SURVEYOR.

✓

2. DUST CONTROL

ACTION TAKEN WATER TRUCK

3. LOCATION:

COORDINATES PH23 PH25 PH25A
PH24 PH25B

4. REMARKS WEST SIDE POWERHOUSE

INSPECTOR DAW DEMING, JR

DATE 08-03-93

REVIEWED BY _____

DATE _____

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY SURVEY CREW.
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.

ACCEPT	REJECT	N/A
✓		
✓		
		✓

2. DUST CONTROL

ACTION TAKEN: WATER TRUCK

3. LOCATION:

COORDINATES PH22 PH11.5 PH49M
PH11Z PH11X PH53M

4. REMARKS NORTH POWERHOUSE, SOUTH POWERHOUSE

INSPECTOR DAN DEMING, JR DATE 08-04-93

REVIEWED BY _____ DATE _____

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

	ACCEPT	REJECT	N/A
1. VERIFICATION INSPECTION			
- EXCAVATION LIMITS STAKED BY SURVEY CREW.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. DUST CONTROL			
ACTION TAKEN <u>WATER TRUCK</u>			
3. LOCATION:			
COORDINATES <u>PH11Y</u> <u>PH49E</u>			
<u>PH11W</u> <u>PH50E</u>			
4. REMARKS <u>SOUTH POWERHOUSE, NORTH POWERHOUSE</u>			
INSPECTOR <u>DAN DEMING, JR</u> DATE <u>08-05-93</u>			
REVIEWED BY _____ DATE _____			

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY
SURVEY CREW.

✓

- EXCAVATION IS COMPLETED TO LIMITS
SHOWN ON CONTRACT DRAWINGS.

✓

- POST EXCAVATION SAMPLING LOCATIONS
SURVEYED BY THE SURVEYOR.

✓

2. DUST CONTROL

ACTION TAKEN WATER TRUCK @ ALL AREAS

3. LOCATION:

COORDINATES PH11Y PH12Y PH22 PH23
PH12 PH11X PH13WHD4. REMARKS B. NORTH & NORTHWEST POWERHOUSE
AREAINSPECTOR DAW DEMING, JRDATE 08-06-93

REVIEWED BY _____

DATE _____

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY SURVEY CREW.
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.

✓
✓
✓

2. DUST CONTROL

ACTION TAKEN WATER TRUCK @ HAUL ROAD,
EXCAVATION & STOCKPILE

3. LOCATION:

COORDINATES PH16Y PH17Y PH40 PH42 PH43
PH17YF PH17WB PH41 PH42FD PH51
PH48 PH49 PH50 PH45 PH46 PH47 PH55

4. REMARKS EAST POWERHOUSE AREA

INSPECTOR DAN DEMING, JR. DATE 08-09-93

REVIEWED BY _____ DATE _____

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

	ACCEPT	REJECT	N/A
1. VERIFICATION INSPECTION			
- EXCAVATION LIMITS STAKED BY SURVEY CREW.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2. DUST CONTROL

ACTION TAKEN WATER TRUCK @ EXCAVATION,
HAUL ROAD, STOCKPILE

3. LOCATION:

COORDINATES CC47 CC44D PH4YN
CC43 PH4YA

4. REMARKS CURRENT CONTROL, NORTHEAST
POWERHOUSE AREA

INSPECTOR DAN JEMING, JR DATE 08-10-93

REVIEWED BY _____ DATE _____

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

	ACCEPT	REJECT	N/A
1. VERIFICATION INSPECTION			
- EXCAVATION LIMITS STAKED BY SURVEY CREW.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2. DUST CONTROL

ACTION TAKEN: NO WATER TRUCK @ HAUL ROAD

3. LOCATION:

COORDINATES ES154B ES1YN ES1ZN DA11ZGN
ES16YB ES16Z ES1 DA12G
DA12GY DA12GX DA12GN DA1G

4. REMARKS EXCAVATION SWALE AREA
NO BACKFILL

INSPECTOR DAN DEMING, JR DATE 08-11-93

REVIEWED BY _____ DATE _____

EXCAVATION
 REFINERY SURFACE SOIL REMEDIATION

	ACCEPT	REJECT	N/A
1. VERIFICATION INSPECTION			
- EXCAVATION LIMITS STAKED BY SURVEY CREW.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. DUST CONTROL			
ACTION TAKEN <u>WATER APPLIED BY PRESSURIZED</u> <u>WATER SPRAY</u>			
3. LOCATION:			
COORDINATES	<u>DA2G</u>	<u>DAGG</u>	<u>DA6ZG</u> <u>DASYG</u>
	<u>DA3G</u>	<u>DA5ZG</u>	<u>DA7ZG</u> <u>DAGYG</u>
		<u>DA7YG</u>	<u>DAGXG</u> <u>ES15XB</u>
4. REMARKS <u>AREA "G", NORTH SWALE</u> <u>NO BACK FILL. EXTRA AREA (ES15XB) NORTH</u> <u>SWALE</u>			
INSPECTOR <u>DAN DEMING JR</u>		DATE <u>08-17-93</u>	
REVIEWED BY _____		DATE _____	

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- | | | | |
|---|---------------|---------------|---------------|
| - EXCAVATION LIMITS STAKED BY SURVEY CREW. | <u>✓</u> | <u> </u> | <u> </u> |
| - EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS. | <u>✓</u> | <u> </u> | <u> </u> |
| - POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR. | <u> </u> | <u> </u> | <u>✓</u> |

2. DUST CONTROL

ACTION TAKEN: WATER TRUCK

3. LOCATION:

COORDINATES 0E33Z 0E1YE 0E1ZZ 0E1VY
0E1Z 0E1ZS 0E1ZE

4. REMARKS EXCAVATION & BACKFILL 7 LOCATIONS
(CONTIGUOUS) OTIS EASTERN

INSPECTOR CS 151 DATE 08-13-93

REVIEWED BY DATE

REFINERY SURFACE SOIL REMEDIATION

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY SURVEY CREW.
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2. DUST CONTROL

ACTION TAKEN: RAIN

3. LOCATION:

COORDINATES PH77B ?
PH80B ?

4. REMARKS EXTRA AREA ALONG W.A.G. BEHIND VALLEY
STEEL, CLEARING & CHIPPING

INSPECTOR DAN DEMING JR DATE 08-17-93

REVIEWED BY _____ DATE _____

EXCAVATION

REFINERY SURFACE SOIL REMEDIATION

REJECT

N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY SURVEY CREW.

- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.

✓

- POST EXCAVATION SAMPLING LOCATIONS
SURVEYED BY THE SURVEYOR.

2. DUST CONTROL

ACTION TAKEN: WATER TRUCK

3. LOCATION:

COORDINATES _____

4. REMARKS EXCAVATE / BACKFILL AREA ALONG

W.A.G. BEHIND VALLEY STREET

INSPECTOR

DAN DEMING, JR

DATE _____

08-18-93

REVIEWED BY

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

	ACCEPT	REJECT	N/A
1. VERIFICATION INSPECTION			
- EXCAVATION LIMITS STAKED BY SURVEY CREW.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2. DUST CONTROL

ACTION TAKEN WATER TRUCK

3. LOCATION:

COORDINATES AREA ALONG WAG.
BEHIND VALLEY STEEL

4. REMARKS BACKFILL

INSPECTOR [Signature]

DATE 08-19-93

REVIEWED BY _____

DATE _____

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY
SURVEY CREW. _____
- EXCAVATION IS COMPLETED TO LIMITS
SHOWN ON CONTRACT DRAWINGS. _____
- POST EXCAVATION SAMPLING LOCATIONS
SURVEYED BY THE SURVEYOR. _____

✓

✓

✓

2. DUST CONTROL

ACTION TAKEN WATER TRUCK

3. LOCATION:

COORDINATES _____

4. REMARKS HAUL ~~AS~~ SOIL FROM STOCK PILE TO
ALLEG. CO. LANDFILL 192.20 TONS

INSPECTOR

Carl J. [Signature]

DATE 09-30-93

REVIEWED BY

DATE _____

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- | | | | |
|---|-------|-------|---|
| - EXCAVATION LIMITS STAKED BY SURVEY CREW. | _____ | _____ | ✓ |
| - EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS. | _____ | _____ | ✓ |
| - POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR. | _____ | _____ | ✓ |

2. DUST CONTROL

ACTION TAKEN. NONE

3. LOCATION:

COORDINATES STOCK PILE AREA

4. REMARKS 194.75 Ex. Soil to Allegheny Cty Landfill
Total to date 386.95

INSPECTOR CEB DATE 10/1/93

REVIEWED BY _____ DATE _____

DATE _____

REFINERY SURFACE SOIL REMEDIATION

DATE _____

FORM A-19

SHEET 1 OF 1INSPECTION DATE 10/6/93

EXCAVATION

REFINERY SURFACE SOIL REMEDIATION

ACCEPT

REJECT

N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY
SURVEY CREW.

 ✓

- EXCAVATION IS COMPLETED TO LIMITS
SHOWN ON CONTRACT DRAWINGS.

 ✓

- POST EXCAVATION SAMPLING LOCATIONS
SURVEYED BY THE SURVEYOR.

 ✓

2. DUST CONTROL

ACTION TAKEN: NONE

3. LOCATION:

COORDINATESSTOCK PILE AREA

4. REMARKS 193.58 tons Ex Soil to Allegany Cty Landfill
Total to Date 987.82 tons

INSPECTOR

Charlie BakerDATE 10/6/93

REVIEWED BY

DATE

REFINERY SURFACE SOIL REMEDIATION

DATE _____

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY
SURVEY CREW.

✓

- EXCAVATION IS COMPLETED TO LIMITS
SHOWN ON CONTRACT DRAWINGS.

✓

- POST EXCAVATION SAMPLING LOCATIONS
SURVEYED BY THE SURVEYOR.

✓

2. DUST CONTROL

ACTION TAKEN: Water Truck

3. LOCATION:

COORDINATES STOCK PILE AREA

4. REMARKS 315.76 tons to Allegany Cty Landfill

Total to Date 1516.31 tons

INSPECTOR Charles S. Baker

DATE 10/8/93

REVIEWED BY _____

DATE _____

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- | | | | |
|---|-------|-------|---|
| - EXCAVATION LIMITS STAKED BY SURVEY CREW. | _____ | _____ | ✓ |
| - EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS. | _____ | _____ | ✓ |
| - POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR. | _____ | _____ | ✓ |

2. DUST CONTROL

ACTION TAKEN: Water Truck

3. LOCATION:

COORDINATES STOCK PILE AREA

4. REMARKS No Ex. Soil - holiday Landfill closed
119.70 tons Backfill Total to Date 119.70 tons

INSPECTOR Charlie Baker DATE 10/11/93

REVIEWED BY _____ DATE _____

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT

REJECT

N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY
SURVEY CREW.

✓

- EXCAVATION IS COMPLETED TO LIMITS
SHOWN ON CONTRACT DRAWINGS.

✓

- POST EXCAVATION SAMPLING LOCATIONS
SURVEYED BY THE SURVEYOR.

✓

2. DUST CONTROL

ACTION TAKEN: Water Truck

3. LOCATION:

COORDINATES

STOCK PILE AREA4. REMARKS 295.67 tons Ex Soil to Allegheny Cty Landfill
20.60 tons Backfill

Total to date: 1811.98 Ex. Soil 140.30 tons Backfill

INSPECTOR

Charles S. BakerDATE 10/12/93

REVIEWED BY

DATE _____

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- | | | | |
|---|-------|-------|---|
| - EXCAVATION LIMITS STAKED BY SURVEY CREW. | _____ | _____ | ✓ |
| - EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS. | _____ | _____ | ✓ |
| - POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR. | _____ | _____ | ✓ |

2. DUST CONTROL

ACTION TAKEN: Water Truck

3. LOCATION:

COORDINATES STOCK PILE AREA

4. REMARKS 196.29 tons Ex Soil to Allegany Cty Landfill
99.72 tons Backfill

Totals to Date: 8008.27 tons Ex Soil 240.02 tons Backfill

INSPECTOR Charles Baker DATE 10/13/93

REVIEWED BY _____ DATE _____

FORM A-19

SHEET 1 OF 1INSPECTION DATE 10/14/93

EXCAVATION

REFINERY SURFACE SOIL REMEDIATION

ACCEPT

REJECT

N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY
SURVEY CREW.

 ✓

- EXCAVATION IS COMPLETED TO LIMITS
SHOWN ON CONTRACT DRAWINGS.

 ✓

- POST EXCAVATION SAMPLING LOCATIONS
SURVEYED BY THE SURVEYOR.

 ✓

2. DUST CONTROL

ACTION TAKEN: Water Truck

3. LOCATION:

COORDINATESSTOCK PILE AREA4. REMARKS 200.75 tons Ex Soil to Allegany County Landfill175.25 tons BackfillTotals to Date 2009.02 tons Ex Soil 415.27 tons BackfillINSPECTOR CSBDATE 10/14/93REVIEWED BY DATE

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- | | | | |
|---|-------|-------|---|
| - EXCAVATION LIMITS STAKED BY SURVEY CREW. | _____ | _____ | ✓ |
| - EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS. | _____ | _____ | ✓ |
| - POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR. | _____ | _____ | ✓ |

2. DUST CONTROL

ACTION TAKEN: Water Truck

3. LOCATION:

COORDINATES STOCK PILE AREA

4. REMARKS 200.18 tons Ex. Soil to Allegheny Cty Landf. 11
101.26 tons Backf. 11

Total to Date: 2409.20 tons Ex. Soil 516.53 tons Backf. 11

INSPECTOR Charles S. Baker DATE 10/15/93

REVIEWED BY _____ DATE _____

ACCEPT REJECT N/A

- EXCAVATION LIMITS STAKED BY SURVEY CREW.

- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.

- POST EXCAVATION SAMPLING LOCATIONS
SURVEYED BY THE SURVEYOR.

ACTION TAKEN: Water Truck

~~COORDINATES~~ STOCK PILE AREA

4. REMARKS No Ex. Sol: 1 today

301.15 tons Backfill Total to Date 817.68 tons

INSPECTOR Charles Baker

DATE 10/16/93

REVIEWED BY _____

DATE _____

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY SURVEY CREW. _____
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS. _____
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR. _____

2. DUST CONTROL

ACTION TAKEN Water Truck

3. LOCATION:

COORDINATES STOCK PILE AREA

4. REMARKS 292.16 tons ex. soil to Allegany Cty Landfill
122.67 tons Backfill

Totals to Date: 2701.36 tons Ex. Soil 940.35 tons Backfill

INSPECTOR Charles Baker

DATE 10/18/93

REVIEWED BY _____

DATE _____

REFINERY SURFACE SOIL REMEDIATION

N/A

- POST EXCAVATION SAMPLING LOCATIONS
SURVEYED BY THE SURVEYOR.

ACTION TAKEN

Water Truck

~~COORDINATES~~

STOCK PILE AREA

4. REMARKS

297.94 tons Ex Soil to Allegany Cty. Landfill
120.44 tons Backfill

Totals to Date: 9999.36 Cons Ex So: 1 1060.79 Cons Back: 1

INSPECTOR

Charles Baker

DATE _____

10/19/93

REVIEWED BY

DATE _____

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

	ACCEPT	REJECT	N/A
1. VERIFICATION INSPECTION			
- EXCAVATION LIMITS STAKED BY SURVEY CREW.	_____	_____	✓
- EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS.	_____	_____	✓
- POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR.	_____	_____	✓

2. DUST CONTROL

ACTION TAKEN: Water Truck

3. LOCATION:

COORDINATES STOCK PILE AREA

4. REMARKS 198.01 tons Ex Soil to Allegheny Cty Landfill
80.16 tons Backfill

Totals to Date: 3197.31 tons Ex Soil 1140.95 tons Backfill

INSPECTOR Charles S. Baker DATE 10/20/93

REVIEWED BY _____ DATE _____

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY
SURVEY CREW.

✓

- EXCAVATION IS COMPLETED TO LIMITS
SHOWN ON CONTRACT DRAWINGS.

✓

- POST EXCAVATION SAMPLING LOCATIONS
SURVEYED BY THE SURVEYOR.

✓

2. DUST CONTROL

ACTION TAKEN: Water Truck

3. LOCATION:

COORDINATES STOCK PILE AREA

4. REMARKS 297.59 tons Ex. Soil to Allegheny Cty Landfill
Total to Date: 3494.90 tons Ex. Soil

INSPECTOR Charles S. Baker

DATE 10/21/93

REVIEWED BY _____

DATE _____

REFINERY SURFACE SOIL REMEDIATION

DATE _____

FORM A-19

SHEET 1 OF 1INSPECTION DATE 10/23/93

EXCAVATION

REFINERY SURFACE SOIL REMEDIATION

ACCEPT

REJECT

N/A

1. VERIFICATION INSPECTION

- EXCAVATION LIMITS STAKED BY
SURVEY CREW.

 ✓

- EXCAVATION IS COMPLETED TO LIMITS
SHOWN ON CONTRACT DRAWINGS.

 ✓

- POST EXCAVATION SAMPLING LOCATIONS
SURVEYED BY THE SURVEYOR.

 ✓

2. DUST CONTROL

ACTION TAKEN: Water Truck

3. LOCATION:

COORDINATES

STOCK PILE AREA4. REMARKS 136.86 tons Ex. Soil to Allegany Cty Landfill136.12 tons Backfill 451.06 tons Topsoil completeTotals to Date: 3927.81 tons Ex. Soil complete 1589.32 tons Backfill

INSPECTOR

Charlie BakerDATE 10/23/93

REVIEWED BY

DATE

EXCAVATION
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- | | | | |
|---|-------|-------|---|
| - EXCAVATION LIMITS STAKED BY SURVEY CREW. | _____ | _____ | ✓ |
| - EXCAVATION IS COMPLETED TO LIMITS SHOWN ON CONTRACT DRAWINGS. | _____ | _____ | ✓ |
| - POST EXCAVATION SAMPLING LOCATIONS SURVEYED BY THE SURVEYOR. | _____ | _____ | ✓ |

2. DUST CONTROL

ACTION TAKEN: Water Truck

3. LOCATION:

COORDINATES STOCK PILE AREA

4. REMARKS 230.67 tons Backfill Total & Date 1819.99 tons
Complete

INSPECTOR Charles S. Baker DATE 10/25/93

REVIEWED BY _____ DATE _____

FORM A-20

**COLLECTION AND ANALYSIS OF
SURFACE SOIL SAMPLES**

FIGURE 4-1

EBASCO SERVICES INCORPORATED
FIELD CHANGE REQUEST

Project Name SINCLAIR REFINERY Ebasco Work Charge Number _____ Field Change No. 1
To GEOSYNTEC Location WELLSVILLE, NY Date 8-27-92

Description:

ONLY USING CUSTODY SEALS ON THE COOLERS
INSTEAD OF THE SAMPLE BOTTLES AND THE COOLERS.

Recommended Disposition:

ALL FIELD SAMPLES REMAIN IN THE SAMPLE COOLERS AND
THE SAMPLES CANNOT BE ACCESSED WITHOUT DISTURBING
THE CUSTODY SEALS ON THE COOLER. USING SEALS ON
THE COOLER ONLY WAS DISCUSSED WITH TOM O'NEILL (EPA REP)
AND IT SOUNDED REASONABLE TO HIM.

Field Sampling Engineer (Signature) Friedrich J. Martits Date 8-27-92

Disposition:

Construction Manager

R. K. K. 09/AUG/92.
GEOSYNTEC CONSULTANTS.

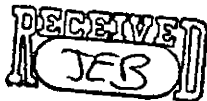
Date

Ed E. King 8/29/92
ARCO.

Distribution: EPA Project Manager
ARCO Project Manager
EBASCO Project Manager
Quality Assurance Manager
Construction Manager

Others as Required _____

SEP 21 1992



FORM A-20

SHEET 1 OF 1

INSPECTION DATE 9-18-92

COLLECTION AND ANALYSIS OF SURFACE SOIL SAMPLES
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- SURFACE SOIL SAMPLES COLLECTED AS
PER PROJECT SAMPLING AND ANALYSIS
PLAN



2. DUST CONTROL

ACTION TAKEN

NONE REQUIRED

3. LOCATION OF SAMPLING:

COORDINATES

PLAN "G"

4. REMARKS

REMAINDER OF SAMPLES TAKEN YESTERDAY WERE
SENT TO THE LAB TODAY. SEE ATTACHED
CHAIN OF CUSTODY. MAPS FOR REFINERY AREAS
WHICH WERE NOT SUBMITTED ARE ATTACHED.

INSPECTOR

Frederick J. Masullo

DATE 9-18-92

REVIEWED BY

Jonathan Brando

DATE 9/21/92



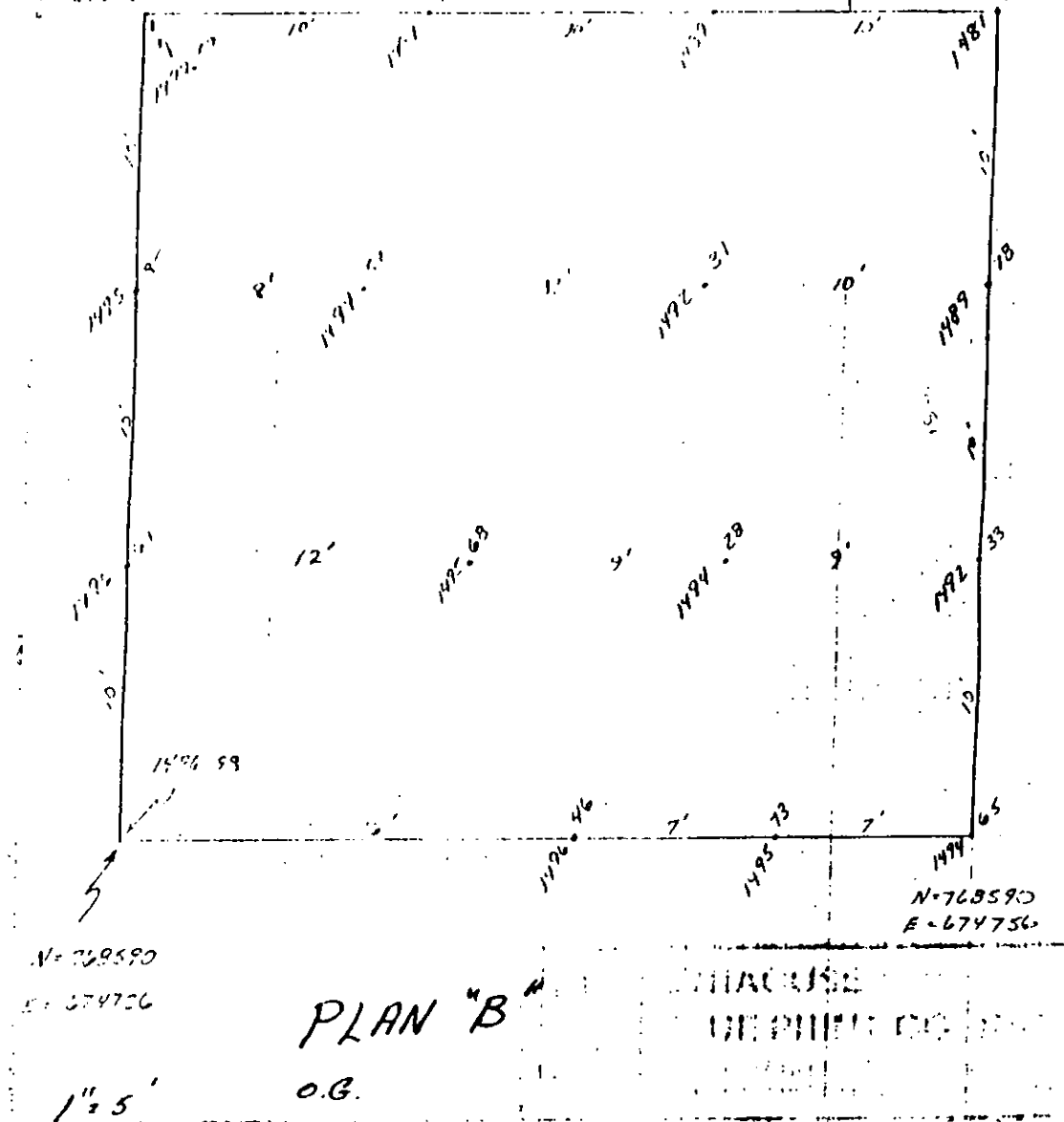
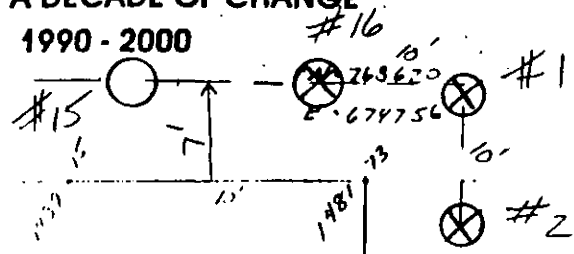
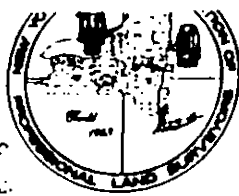
FAX (412

Distribution Original Accompanies Statement. Copy returned with Report.

ENTERING A DECADE OF CHANGE

1990 - 2000

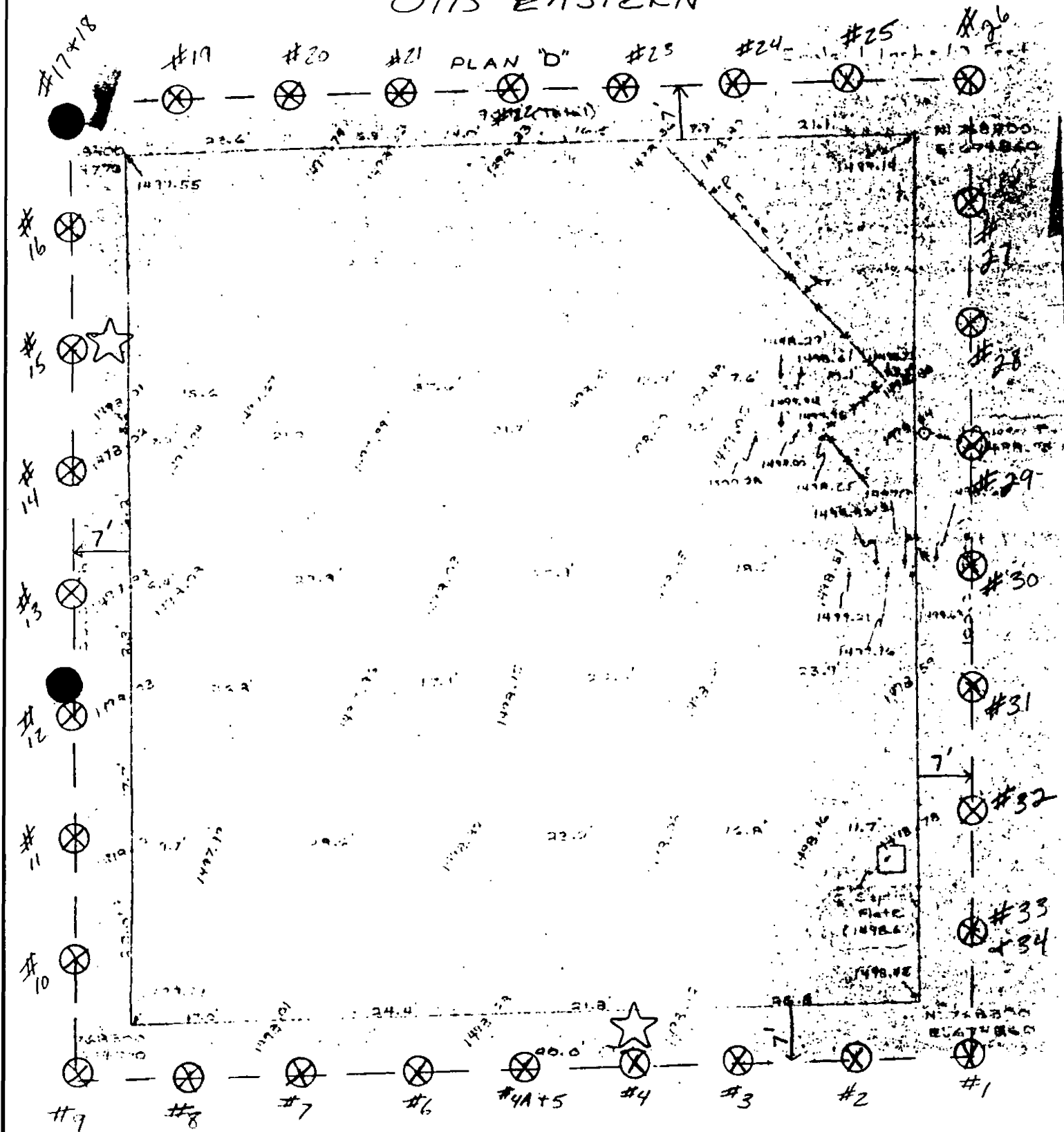
N-768590
E-674756



SAMPLES: SR-ES-CONF-1 TO 16

LOCATIONS IN WET AREA IN SWALE
(MAP SHOWING OTHER SAMPLE LOCATIONS HAS ALREADY
BEEN SUBMITTED.)

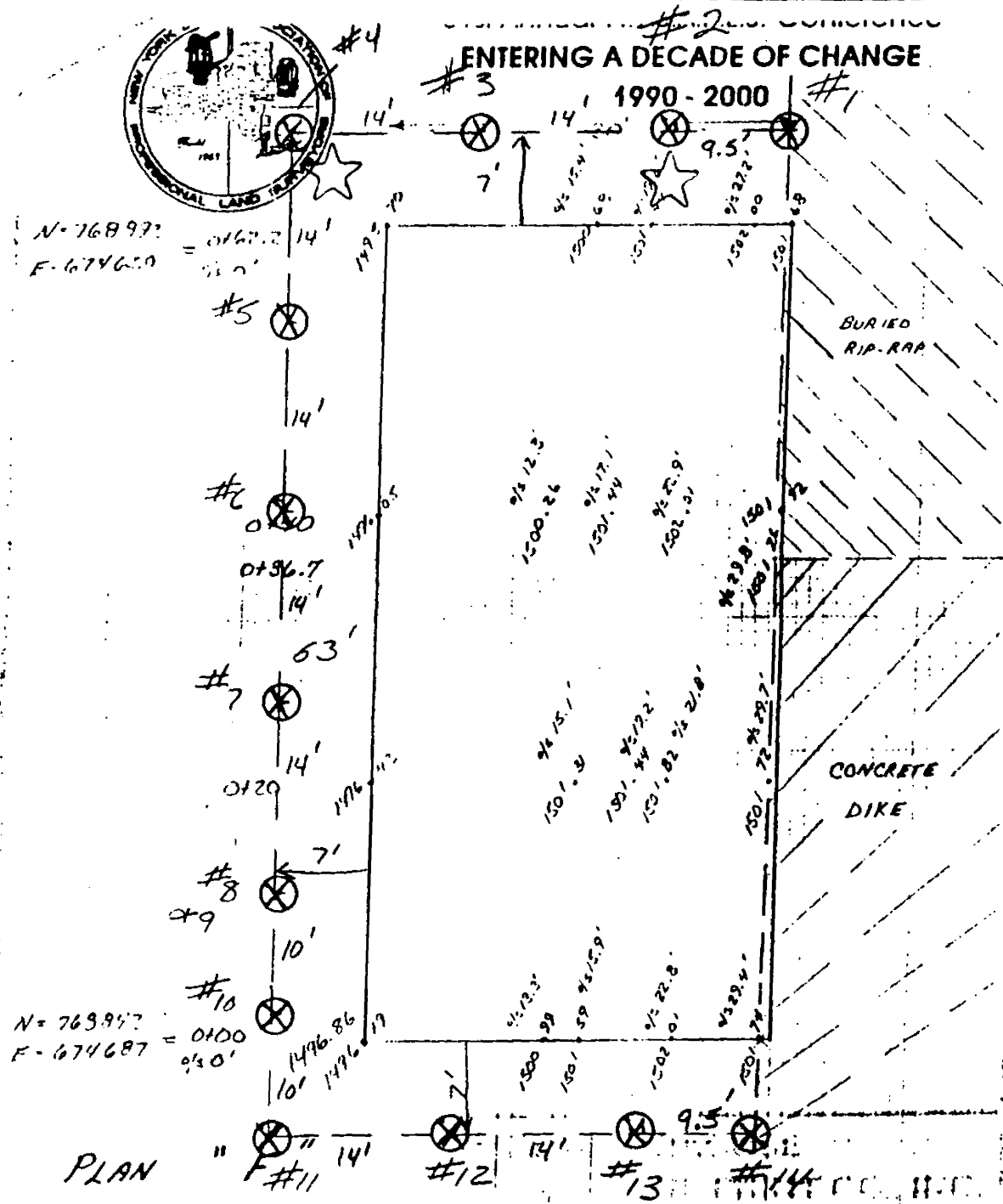
OTIS EASTERN



SAMPLES: SR-OE-CONF-1 TO 34

●★EPA SPLIT SAMPLES

DIKE AREA
PLAN F

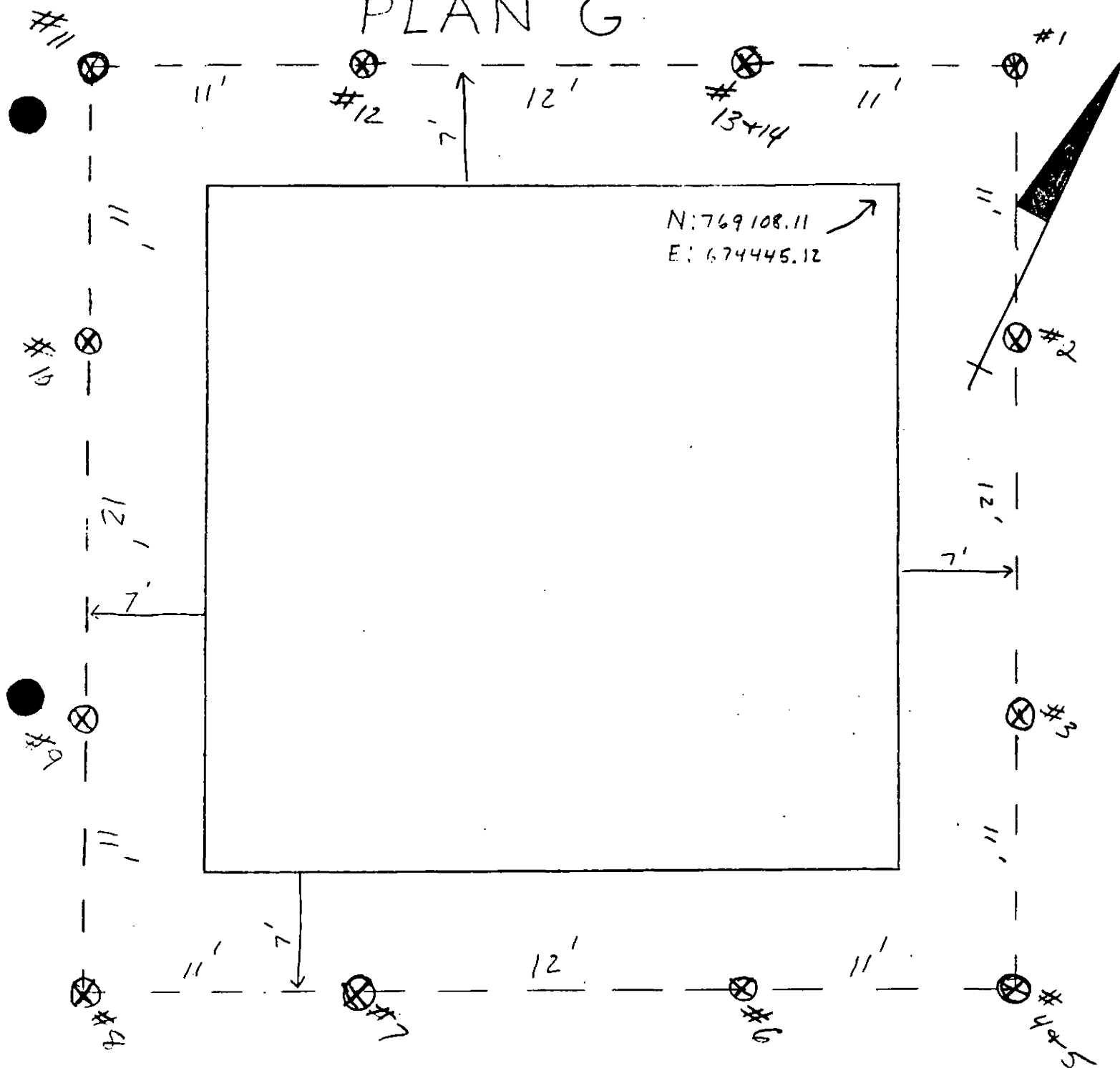

$$1^{\circ} = 10'$$

SAMPLES: SR-DA-CONF-1 TO 14-F



EPA SPLITS

PLAN "G"



SAMPLES: SR-DA-CONF-1 TO 14-G

SEP 18 1992



FORM A-20

SHEET 3 OF 3

INSPECTION DATE 9-17-92

COLLECTION AND ANALYSIS OF SURFACE SOIL SAMPLES
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- SURFACE SOIL SAMPLES COLLECTED AS
PER PROJECT SAMPLING AND ANALYSIS
PLAN



2. DUST CONTROL

ACTION TAKEN NONE REQUIRED

3. LOCATION OF SAMPLING:

COORDINATES PLAN "G" - SWALE DIKE AREA

4. REMARKS FINISHED SAMPLING, SENT ALL BUT 4 SAMPLES

TO LAB, THEY WILL BE SENT OUT TOMORROW. THE
SAMPLES COULD NOT BE TAKEN WITH SHELBY TUBES. THE
SAMPLES WERE DUG OUT WITH A SHOVEL TO A DEPTH
OF 1 FOOT AND A REPRESENTATIVE SAMPLE WAS TAKEN.
SEE THE ATTACHED CHAIN OF CUSTODY.

INSPECTOR

Fredrick J. Masten

DATE 9-17-92

REVIEWED BY

Matthew Brandes

DATE 9/18/92

COLLECTION AND ANALYSIS OF SURFACE SOIL SAMPLES
REFINERY SURFACE SOIL REMEDIATION

ACCEPT

REJECT

N/A

1. VERIFICATION INSPECTION

- SURFACE SOIL SAMPLES COLLECTED AS
PER PROJECT SAMPLING AND ANALYSIS
PLAN



2. DUST CONTROL

ACTION TAKEN

NONE REQUIRED

3. LOCATION OF SAMPLING:

COORDINATES

PLAN "B" - SWALE4. REMARKS FINISHED SAMPLING 3 POINTS IN WET

PORTION OF SWALE, SEE ATTACHED CHAIN OF
CUSTODY. HAD TO DIG OUT SAMPLE IT WAS
TO ROCKY FOR SHELBY TUBES.

SEP 18 1992



INSPECTOR

Frederick J. MastenDATE 9-17-92

REVIEWED BY

Jonathan BanksDATE 9/18/92

COLLECTION AND ANALYSIS OF SURFACE SOIL SAMPLES
REFINERY SURFACE SOIL REMEDIATION

ACCEPT

REJECT

N/A

1. VERIFICATION INSPECTION

- SURFACE SOIL SAMPLES COLLECTED AS
PER PROJECT SAMPLING AND ANALYSIS
PLAN

☒☐☐

2. DUST CONTROL

ACTION TAKEN

NONE REQUIRED

3. LOCATION OF SAMPLING:

COORDINATES PLAN "F" DIKE AREA

4. REMARKS

FINISHED SAMPLING. SEE ATTACHED
CHAIN OF CUSTODY.

SEP 18 1992



INSPECTOR

Fredrick J. Marshall

DATE

9-17-92

REVIEWED BY

Jonathan Braneles

DATE

9/17/92



GEO-CON INC.

GEOTECHNICAL CONTRACTING

Headquarters

4075 Monroeville Blvd. • Corporate

Monroeville, Pennsylvania 15146

Tel (412) 856-7700

10 Building II • Suite

FAX (412) 3

Chain-of Custody Record

PROJ. NO.		PROJECT NAME/LOCATION				NO. OF CONTAINERS	PARAMETER						REMARKS
SAMPLERS: (Signature)							<div style="text-align: center;"> </div>						
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION								
	9-17-92	0856		X	SR-DA-CONF-14-F	1	✓						
		0949			SR-ES-CONF-16	11	✓						
		1003			SR-ES-CONF-1	11	✓						
		1009			SR-ES-CONF-2	11	✓						
		1145			SR-DA-CONF-1-G	11	✓						
		1156			SR-DA-CONF-2-G	11	✓						
		1311			SR-DA-CONF-3-G	11	✓						
		1315			SR-DA-CONF-4-G	11	✓						
		1320			SR-DA-CONF-5-G	11	✓						
		1526			SR-DA-CONF-13-G	11	✓						
		1331			SR-DA-CONF-14-G	11	✓						
		1340			SR-DA-CONF-12-G	11	✓						
		1350			SR-DA-CONF-11-G	11	✓						
	✓	1354		✓	SR-DA-CONF-10-G	11	✓						

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
<i>Fredrick Montebello</i>	9-17-92 PM	AIRBORNE EXPRESS CARRIER			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution Original Accompanies Shipment. Copy returned with Report.

CHAIN OF CUSTODY
Original chain of Custody goes to Laboratory

Proj. # PI-0129		Project name SINCLAIR REFINERY			Type of container	Number of containers	<div style="text-align: center; border: 1px solid black; padding: 5px;"> ARSENIC </div>												Remarks
Samplers (Please print) F. MASTELE J. CLINE																			
Date	Time	Comp.	Grab	Sample Identification															
9-16-92	1435		X	SR-OE-CONF-27	40Z GLASS	1	✓												
"	1445		X	SR-OE-CONF-29	"	"	✓												
"	1457		X	SR-OE-CONF-30	"	"	✓												
"	1552		X	SR-DA-CONF-1-F	"	"	✓												
"	1606		X	SR-DA-CONF-3-F	"	"	✓												
"	1615		X	SR-DA-CONF-5-F	"	"	✓												
"	1626		X	SR-DA-CONF-7-F	"	"	✓												
"	1637		X	SR-DA-CONF-6-F	"	"	✓												
"	1653		X	SR-DA-CONF-8-F	"	"	✓												
"	1705		X	SR-DA-CONF-9-F	"	"	✓												
"	1709		X	SR-DA-CONF-10-F	"	"	✓												
"	1715		X	SR-DA-CONF-11-F	"	"	✓												
"	1731		X	SR-DA-CONF-12-F	"	"	✓												
9-17-92			X	SR-DA-CONF-13-F	"	"	✓												
Relinquished by (Signature) <i>Fredrick J. Mastale</i>		Date/Time 9-17-92 PM		Received by (Signature) AIRBORNE EXPRESS CARRIER		Date/Time		Remarks:											
Relinquished by (Signature)		Date/Time		Received by (Signature)		Date/Time													
Relinquished by (Signature)		Date/Time		Received by (Signature)		Date/Time													

COLLECTION AND ANALYSIS OF SURFACE SOIL SAMPLES
REFINERY SURFACE SOIL REMEDIATION

ACCEPT

REJECT

N/A

1. VERIFICATION INSPECTION

- SURFACE SOIL SAMPLES COLLECTED AS
PER PROJECT SAMPLING AND ANALYSIS
PLAN



2. DUST CONTROL

ACTION TAKEN NONE REQUIRED

3. LOCATION OF SAMPLING:

COORDINATES DIKE (PLAN F)

4. REMARKS STARTED PLAN F TODAY AND SHOULD
FINISH TOMORROW. SAMPLES WILL BE SHIPPED
TOMORROW.

SEP 17 1992



INSPECTOR

Frederick J. WasthDATE 9-16-92

REVIEWED BY

Frederick J. WasthDATE 9/17/92

DECLASSIFIED

SHEET 1 OF 2
INSPECTION DATE 9-16-92

ACCEPT REJECT N/A

- SURFACE SOIL SAMPLES COLLECTED AS
PER PROJECT SAMPLING AND ANALYSIS
PLAN

ACTION TAKEN NONE REQUIRED

COORDINATES OTIS EASTERN (PLAN D)

INSPECTOR

R Frederick J. Mastitis

DATE 9-16-92

REVIEWED BY

Jonathan Brandes

DATE _____

CHAIN OF CUSTODY
Original chain of Custody goes to Laboratory

Proj. # P1-0129		Project name SINCLAIR REFINERY			Type of container	Number of containers	<div style="text-align: center; border: 1px solid black; padding: 5px;"> ARSENIC </div>												Remarks
Samplers (Please print) F. MASTALE J. CLINE																			
Date	Time	Comp.	Grab	Sample Identification															
9-16-92	1004		X	SR-OE-CONF-19	402 GLASS	1	✓												
"	1018		"	SR-OE-CONF-20	"	"	✓												
"	1032		"	SR-OE-CONF-21	"	"	✓												
"	1044		"	SR-OE-CONF-22	"	"	✓												
"	1056		"	SR-OE-CONF-23	"	"	✓												
"	1129		"	SR-OE-CONF-31	"	"	✓												
"	1139		"	SR-OE-CONF-32	"	"	✓												
"	1145		"	SR-OE-CONF-33	"	"	✓												
"	1156		"	SR-OE-CONF-34	"	"	✓										DUPLICATE OF 33		
"	1305		"	SR-OE-CONF-24	"	"	✓												
"	1316		"	SR-OE-CONF-25	"	"	✓												
"	1335		"	SR-OE-CONF-28	"	"	✓												
"	1347		"	SR-OE-CONF-26	"	"	✓												
Relinquished by (Signature)		Date/Time		Received by (Signature)		Date/Time		Remarks:											
<i>Frederick J. Mastale</i>		9-16-92 PM		AIRBORNE EXPRESS CARRIER															
Relinquished by (Signature)		Date/Time		Received by (Signature)		Date/Time													
Relinquished by (Signature)		Date/Time		Received by (Signature)		Date/Time													

ACCEPT REJECT N/A

- SURFACE SOIL SAMPLES COLLECTED AS PER PROJECT SAMPLING AND ANALYSIS PLAN

ACTION TAKEN NONE REQUIRED

COORDINATES OTIS EASTERN (PLAN D)

~~SAMPLES SERV. OUT TODAY. NO SAMPLING TODAY, ONLY
SAMPLE SHIPMENT.~~

RECEIVED
JEB

DATE 9-15-92

DATE 9/16/92

Original chain of Custody goes to Laboratory

CEIMIC Corporation 10 Dean Knauss Drive, Narragansett, RI 02882 (401) 782-8900 FAX (401) 782-8905

SEP 15 1992



FORM A-20

SHEET 1 OF 1

INSPECTION DATE 9-14-92

COLLECTION AND ANALYSIS OF SURFACE SOIL SAMPLES
REFINERY SURFACE SOIL REMEDIATION

ACCEPT

REJECT

N/A

1. VERIFICATION INSPECTION

- SURFACE SOIL SAMPLES COLLECTED AS
PER PROJECT SAMPLING AND ANALYSIS
PLAN



2. DUST CONTROL

ACTION TAKEN NONE REQUIRED

3. LOCATION OF SAMPLING:

COORDINATES 0T15 EASTERN (PLAN D)

4. REMARKS 13 SAMPLES WERE TAKEN PLUS TWO
DUPLICATES. ATTACHED IS THE CHAIN OF
CUSTODY FOR THE SAMPLES SHIPPED
TODAY. SR-OE-CONF-4A IS DUPLICATE
OF 5.

INSPECTOR

Frederick J. Mastitis

DATE 9-14-92

REVIEWED BY

Jonathan Beane

DATE 9/15/92

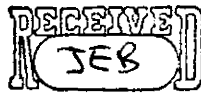
CHAIN OF CUSTODY

Original chain of Custody goes to Laboratory

Proj. # PI-0129		Project name SINCLAIR REFINERY			Type of container	Number of containers	<div style="border: 1px solid black; padding: 5px; transform: rotate(-45deg); display: inline-block;"> ARSENIC </div>										Remarks
Samplers (Please print) F. MASTELE																	
Date	Time	Comp.	Grab	Sample Identification													
9-14-92	0927		X	SR-OE-CONF-1	4oz GLASS	1											
"	0952		X	SR-OE-CONF-2	"	"											
"	1020		X	SR-OE-CONF-3	"	"											
"	1045		X	SR-OE-CONF-4A	"	"											
"	1055		X	SR-OE-CONF-5	"	"											
"	1120		X	SR-OE-CONF-8	"	"											
"	1150		X	SR-OE-CONF-9	"	"											
"	1302		X	SR-OE-CONF-10	"	"											
"	1328		X	SR-OE-CONF-11	"	"											
"	1347		X	SR-OE-CONF-12	"	"											

Relinquished by (Signature) <i>Frederick J. Mastelle</i>	Date/Time 9-14-92 PM	Received by (Signature) AIRBORNE EXPRESS CARRIER	Date/Time	Remarks:
Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	
Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	

SEP 12 1992



FORM A-20

SHEET 1 OF 1

INSPECTION DATE 9-11-92

COLLECTION AND ANALYSIS OF SURFACE SOIL SAMPLES
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- SURFACE SOIL SAMPLES COLLECTED AS
PER PROJECT SAMPLING AND ANALYSIS
PLAN

✓

2. DUST CONTROL

ACTION TAKEN NONE REQUIRED

3. LOCATION OF SAMPLING:

COORDINATES PLAN "C" (POWERHOUSE)
PLAN D (OTIS EASTERN)

4. REMARKS

FINISHED SAMPLING PLAN "C" AND
STARTED PLAN "D". SEE ATTACHED
CHAIN OF CUSTODY FOR SAMPLES SENT TO
LAB.

INSPECTOR

Fredrick J. Martin

DATE 9-11-92

REVIEWED BY

Jonathan Brankes

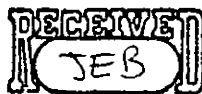
DATE 9/14/92

CHAIN OF CUSTODY

Original chain of Custody goes to Laboratory

Proj. # PI-0129		Project name SINCLAIR REFINERY			Type of container	Number of containers	<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); border: 1px solid black; padding: 2px;">ARSENIC</div> <div style="flex-grow: 1; border: 1px solid black; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px);"></div> </div>												Remarks	
Samplers (Please print) F. MASTELE																				
Date	Time	Comp.	Grab	Sample Identification																
9-11-92	0935		X	SR-PH-CONF-12	40Z GLASS	1	✓													
11	0958		"	SR-PH-CONF-11	"	"	✓													
"	1020		"	SR-PH-CONF-10	"	"	✓													
"	1050		"	SR-PH-CONF-9	"	"	✓													
"	1108		"	SR-PH-CONF-8	"	"	✓													
"	1125		"	SR-PH-CONF-7	"	"	✓													
11	1135		"	SR-PH-CONF-20	"	"	✓													
"	1345		"	SR-OE-CONF-6	"	"	✓													
11	1406		"	SR-OE-CONF-7	"	"	✓													
Relinquished by (Signature) <i>Fredrick J. Mastale</i>				Date/Time 9-11-92 PM	Received by (Signature) AIRBORNE EXPRESS CARRIER				Date/Time	Remarks: PLEASE RETURN COOLER										
Relinquished by (Signature)				Date/Time	Received by (Signature)				Date/Time											
Relinquished by (Signature)				Date/Time	Received by (Signature)				Date/Time											

SEP 11 1992



FORM A-20

SHEET 1 OF 1

INSPECTION DATE 9-10-92

COLLECTION AND ANALYSIS OF SURFACE SOIL SAMPLES
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- SURFACE SOIL SAMPLES COLLECTED AS
PER PROJECT SAMPLING AND ANALYSIS
PLAN

✓

2. DUST CONTROL

ACTION TAKEN N/A

3. LOCATION OF SAMPLING:

COORDINATES PLAN C (POWER HOUSE)

4. REMARKS ATTACHED CHAIN OF CUSTODY IS FOR SAMPLES

TAKEN 9-9-92 AND SENT TODAY. NO SAMPLES
WERE TAKEN TODAY

INSPECTOR Fredrick J. Marshall

DATE 9-10-92

REVIEWED BY Jonathan Brunk

DATE 9/11/92

CHAIN OF CUSTODY
Original chain of Custody goes to Laboratory

Proj. # PL-0129		Project name SINCLAIR REFINERY			Type of container	Number of containers	<div style="border: 1px solid black; padding: 5px; transform: rotate(-45deg); display: inline-block;"> LARSENIC </div>												Remarks
Samplers (Please print) F. MASTELE																			
Date	Time	Comp.	Grab	Sample Identification															
9-4-92	1630		X	SR-PH-CONF-19	422	1													
"	1645		X	SR-PH-CONF-18	"	"													
"	1700		X	SR-PH-CONF-17	"	"													
"	1725		X	SR-PH-CONF-16	"	"													
"	1735		X	SR-PH-CONF-16A	"	"													
"	1742		X	SR-PH-CONF-15	"	"													
"	1800		X	SR-PH-CONF-14	"	"													
"	1820		X	SR-PH-CONF-13	"	"													
Relinquished by (Signature) <i>Frederick J. Mastale</i>				Date/Time 9-10-92 PM	Received by (Signature) AIRBORNE EXPRESS CARRIER				Date/Time	Remarks: PLEASE RETURN COOLER TO: GEO-CON, INC. 2448 S. BROOKLYN AVE. WELLSVILLE, NY 14895									
Relinquished by (Signature)				Date/Time	Received by (Signature)				Date/Time										
Relinquished by (Signature)				Date/Time	Received by (Signature)				Date/Time										

SEP 10 1992



FORM A-20

SHEET 1 OF 1

INSPECTION DATE 9-9-92

COLLECTION AND ANALYSIS OF SURFACE SOIL SAMPLES
REFINERY SURFACE SOIL REMEDIATION

ACCEPT

REJECT

N/A

1. VERIFICATION INSPECTION

- SURFACE SOIL SAMPLES COLLECTED AS
PER PROJECT SAMPLING AND ANALYSIS
PLAN



2. DUST CONTROL

ACTION TAKEN NONE REQUIRED

3. LOCATION OF SAMPLING:

COORDINATES PLAN C POWERHOUSE

4. REMARKS SAMPLES TAKEN AT 11 SAMPLING POINTS.

4 SAMPLES SENT TO LAB SEE ATTACHED SHEET.

INSPECTOR

Frederick J. Martin

DATE 9-9-92

REVIEWED BY

Jonathan Brunk

DATE 9/10/92

Original chain of Custody goes to Laboratory

CEIMIC Corporation 10 Dean Knauss Drive, Narragansett, RI 02882 (401) 782-8900 FAX (401) 782-8905

AUG 29 1992



FORM A-20

SHEET 1 OF 1

INSPECTION DATE 8-28-92

COLLECTION AND ANALYSIS OF SURFACE SOIL SAMPLES
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- SURFACE SOIL SAMPLES COLLECTED AS
PER PROJECT SAMPLING AND ANALYSIS
PLAN

✓

2. DUST CONTROL

ACTION TAKEN NONE REQUIRED

3. LOCATION OF SAMPLING:

COORDINATES CURRENT CONTROLS PLAN "A"

4. REMARKS SAMPLES SR-CC-CONF-63 TO 82 AND PLAN "A"

HAS BEEN COMPLETED. SEE THE ATTACHED MAP
FOR SAMPLING LOCATIONS AND DISTANCES. FOR
THOSE SAMPLING POINTS GREATER THAN 14 FOOT CENTERS
WERE APPROVED BY TOM O'NEILL (EPA REP.)

INSPECTOR Frederick J. Marshall

DATE 8-28-92

REVIEWED BY Jonathan E. Brancos

DATE 8/29/92

PLAN "A" SAMPLING POINTS

SAMPLE ID# = SR-CC-COIN-(#)

A ● ENTERS 1000.
71 14 FEET EXCEPT
FOR THE FOLLOWING:

POINTS CENTERS

6-7 14.5'

7-8 15'

17-18 10'

18-19 10'

30-31 15.5'

31-32 15.5'

33-34 10.5'

34-35 10.5'

41-42 14.5'

54 13'

57-60 13'

65-66 11.5'

66-67 11.5'

67-68 7'

81-82 13'

83-84 13'

SAMPLES

DATE TAKEN

1-43

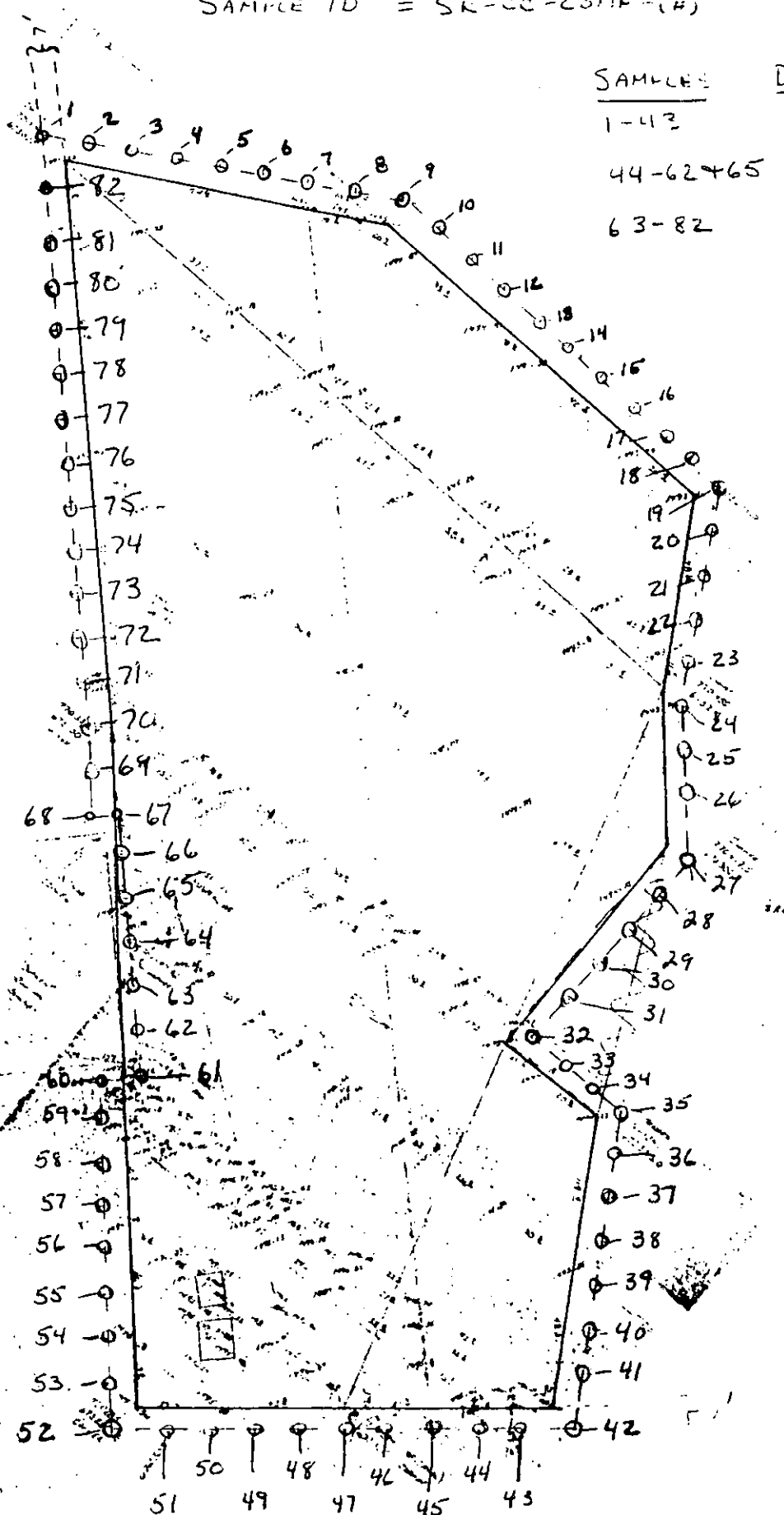
8-20-92

44-62+65

8-27-92

63-82

8-28-92



CHAIN OF CUSTODY

Original chain of Custody goes to Laboratory

Proj. #		Project name			Type of container	Number of containers	<div style="writing-mode: vertical-rl; transform: rotate(180deg);"> ARSENIC & LEAD </div>													Remarks
Sampers (Please print)																				
Date	Time	Comp.	Grab	Sample Identification																
8-28-92	0845		X	SR-CC-CONF-63	402	1	✓													
"	0900		"	SR-CC-CONF-64	"	"	✓													
"	0909		"	SR-CC-CONF-66	"	"	✓													
"	0945		"	SR-CC-CONF-66A	"	"	✓													
"	0920		"	SR-CC-CONF-67	"	"	✓													
"	0929		"	SR-CC-CONF-68	"	"	✓													
"	1020		"	SR-CC-CONF-69	"	"	✓													
"	1025		"	SR-CC-CONF-70	"	"	✓													
"	1025		"	SR-CC-CONF-70A	"	"	✓													
"	1035		"	SR-CC-CONF-71	"	"	✓													
"	1042		"	SR-CC-CONF-72	"	"	✓													
"	1049		"	SR-CC-CONF-73	"	"	✓													
"	1054		"	SR-CC-CONF-74	"	"	✓													
"	1059		"	SR-CC-CONF-75	"	"	✓													

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	Remarks:
<i>Friedrich Mastale</i>	8-28-92 PM	<i>Ambone Express</i> <i>Carver</i>		
Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	
Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	

CHAIN OF CUSTODY

Original chain of Custody goes to Laboratory

[illegible]

AUG 28 1992



FORM A-20

SHEET 1 OF 4

INSPECTION DATE 8-27-92

COLLECTION AND ANALYSIS OF SURFACE SOIL SAMPLES
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- SURFACE SOIL SAMPLES COLLECTED AS
PER PROJECT SAMPLING AND ANALYSIS
PLAN



2. DUST CONTROL

ACTION TAKEN NONE REQUIRED

3. LOCATION OF SAMPLING:

COORDINATES PLAN "F"

4. REMARKS TOM O'NEILL (EPA REP.) TOOK SPLIT SAMPLES
FROM SR-DA-CONF-4-F, AND SR-DA-CONF-2-F.
MAP WILL BE SUBMITTED WHEN THE SAMPLING
IS COMPLETED IN THAT AREA.

INSPECTOR

Frederick J. Mastitis

DATE

8-27-92

REVIEWED BY

Jonathan E. Brankes

DATE

8/28/92

AUG 28 1992



FORM A-20

SHEET 2 OF 4

INSPECTION DATE 8-27-92

COLLECTION AND ANALYSIS OF SURFACE SOIL SAMPLES
REFINERY SURFACE SOIL REMEDIATION

ACCEPT

REJECT

N/A

1. VERIFICATION INSPECTION

- SURFACE SOIL SAMPLES COLLECTED AS PER PROJECT SAMPLING AND ANALYSIS PLAN

✓

2. DUST CONTROL

ACTION TAKEN NONE REQUIRED

3. LOCATION OF SAMPLING:

COORDINATES OTIS EASTERN PLAN "D"

4. REMARKS TOM O'NEILL (EPA REP.) TOOK SPLIT SAMPLES

FROM SR-OE-CONF-4 AND SR-OE-CONF-15.

MAP WILL BE SUBMITTED WHEN THE SAMPLING IS COMPLETED IN THAT AREA.

INSPECTOR Fredrick J. Marshall

DATE 8-27-92

REVIEWED BY Jonathan E. Brandes

DATE 8/28/92

RECEIVED
JEB

INSPECTION DATE 8-27-92

ACCEPT REJECT N/A

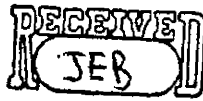
- SURFACE SOIL SAMPLES COLLECTED AS PER PROJECT SAMPLING AND ANALYSIS PLAN

ACTION TAKEN NONE REQUIRED

COORDINATES POWERHOUSE PLAN "C"

DATE 8/28/92

AUG 20 1992



FORM A-20

SHEET 4 OF 4

INSPECTION DATE 8-27-92

COLLECTION AND ANALYSIS OF SURFACE SOIL SAMPLES
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- SURFACE SOIL SAMPLES COLLECTED AS
PER PROJECT SAMPLING AND ANALYSIS
PLAN



2. DUST CONTROL

ACTION TAKEN NONE REQUIRED

3. LOCATION OF SAMPLING:

COORDINATES CURRENT CONTROLS PLAN "A"

4. REMARKS TOM O'NEILL (EPA REP.) SUPERVISED THE SAMPLING
AND DECON. SAMPLES SR-CL-CONF-43 TO 62 WERE
TAKEN. SPLITS WERE TAKEN AT SR-CL-CONF-47, 50, AND 65.
MAP WILL BE SUBMITTED WHEN AREA IS COMPLETED.

INSPECTOR

Frederick J. Mastitis

DATE 8-27-92

REVIEWED BY

Matthew E. Bonds

DATE 8/28/92

CHAIN OF CUSTODY
Original chain of Custody goes to Laboratory

Proj. # PI-0124		Project name SINCLAIR REFINERY			Type of container	Number of containers	<div style="text-align: center;"> </div>												Remarks
Samplers (Please print) F. MASTELE/S. McCAU/M. MULDOOLY																			
Date	Time	Comp.	Grab	Sample Identification															
8-27-92	0855		X	SR-DA-CONF-4-F	402 CLOS	1	✓												
"	0901		"	SR-DA-CONF-2-F	"	"	✓												
"	1000		"	SR-OE-CONF-4	"	"	✓												
"	1008		"	SR-OE-CONF-15	"	"	✓												
"	1058		"	SR-PH-CONF-3	"	"	✓												
"	1103		"	SR-PH-CONF-6	"	"	✓												
"	1135		"	SR-CC-CONF-44	"	"	✓												
"	1135		"	SR-CC-CONF-44 (DUP)	"	"	✓												
"	1147		"	SR-CC-CONF-45	"	"	✓												
"	1152		"	SR-CC-CONF-46	"	"	✓												
Relinquished by (Signature) <i>Frederick J. Mastale</i>		Date/Time 8-27-92 PM		Received by (Signature) <i>Anthony Expers</i>		Date/Time		Remarks:											
Relinquished by (Signature)		Date/Time		Received by (Signature)		Date/Time													
Relinquished by (Signature)		Date/Time		Received by (Signature)		Date/Time													

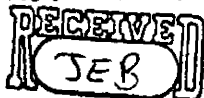
CHAIN OF CUSTODY
Original chain of Custody goes to Laboratory

Proj. #		Project name			Type of container	Number of containers	Asbestos & Lead												Remarks
A-0129		SINCLAIR REFINERY																	
Samplers (Please print)																			
F. MASTELE / S. McCall / M. MULLOOLY																			
Date	Time	Comp.	Grab	Sample Identification															
8-27-92	1515		X	SR-CC-CONF-47	402 GLASS	1	✓												CINDERS PETROLEUM ODOR
"	1530		"	SR-CC-CONF-48	"	"	✓												CLAYEY
"	1540		"	SR-CC-CONF-49	"	"	✓												CINDERS
"	1552		"	SR-CC-CONF-50	"	"	✓												CLAYEY / WITH STONE
"	1407		"	SR-CC-CONF-51	"	"	✓												LOTS OF STONE W/CLAY BOTTOM
"	1420		"	SR-CC-CONF-52	"	"	✓												FILL W/ STONE
"	1520		"	SR-CC-CONF-53	"	"	✓												GRAVEL FILL
"	1530		"	SR-CC-CONF-54	"	"	✓												FILL W/ STONE
"	1548		"	SR-CC-CONF-55	"	"	✓												FILL W/ STONE CLAY BOTTOM
"	1558		"	SR-CC-CONF-56	"	"	✓												CLAYEY W/ PETROLEUM ODOR
"	1610		"	SR-CC-CONF-57	"	"	✓												CINDERS W/ SLIGHT PETROLEUM ODOR
"	1620		"	SR-CC-CONF-58	"	"	✓												CLAYEY W/ SMALL STONES
"	1630		"	SR-CC-CONF-58A	"	"	✓												CINDER FILL W/ SMALL STONE
Relinquished by (Signature)		Date/Time		Received by (Signature)		Date/Time		Remarks:											
F. Mastale		8-28-92 PM		AIRBORNE EXPRESS CARRIER															
Relinquished by (Signature)		Date/Time		Received by (Signature)		Date/Time													
Relinquished by (Signature)		Date/Time		Received by (Signature)		Date/Time													

Original chain of Custody goes to Laboratory

[illegible]

AUG 27 1992



FORM A-20

SHEET 1 OF 1

INSPECTION DATE 8-26-92

COLLECTION AND ANALYSIS OF SURFACE SOIL SAMPLES
REFINERY SURFACE SOIL REMEDIATION

ACCEPT REJECT N/A

1. VERIFICATION INSPECTION

- SURFACE SOIL SAMPLES COLLECTED AS
PER PROJECT SAMPLING AND ANALYSIS
PLAN

✓

2. DUST CONTROL

ACTION TAKEN NONE REQUIRED

3. LOCATION OF SAMPLING:

COORDINATES CURRENT CONTROLS PLAN "A"4. REMARKS COPIES OF CHAIN OF CUSTODY FORMS ARE

ATTACHED FOR SAMPLES TAKEN TODAY (43).
A MAP OF THE AREAS WHERE SAMPLES WERE
TAKEN WILL BE SUPPLIED UPON COMPLETION.
SAMPLING AND DECON PROCEDURES WERE SUPERVISED
BY TOM ONEILL (EPAREP)

INSPECTOR

Fredrick J. MastisDATE 8-26-92

REVIEWED BY

Jonathan E. BranksDATE 8/27/92

CHAIN OF CUSTODY

Original chain of Custody goes to Laboratory

Proj. # PI-0129		Project name SINCLAIR REFINERY			Type of container	Number of containers	<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">MECHANIC LEAD</div> <div style="flex-grow: 1; border-left: 1px solid black; border-right: 1px solid black; height: 100px; position: relative;"> <div style="position: absolute; top: 0; right: 0; width: 100%; height: 100%; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px);"></div> </div> </div>												Remarks
Samplers (Please print) F. MASTELE / S. McCAN / M. MULLOCHY																			
Date	Time	Comp.	Grab	Sample Identification															
8-26-92	0945		X	SR-CC-CONF-1	302 GLASS	1	✓												
"	0950		"	SR-CC-CONF-2	"	"	✓												
"	1001		"	SR-CC-CONF-3	"	"	✓												
"	1015		"	SR-CC-CONF-4	"	"	✓												
"	1018		"	SR-CC-CONF-4 (DUP)	"	"	✓												
"	1025		"	SR-CC-CONF-5	"	"	✓												
"	1035		"	SR-CC-CONF-6	"	"	✓												
"	1041		"	SR-CC-CONF-7	"	"	✓												
"	1050		"	SR-CC-CONF-8	"	"	✓												
"	1055		"	SR-CC-CONF-9	"	"	✓												
"	1100		"	SR-CC-CONF-10	"	"	✓												
"	1105		"	SR-CC-CONF-11	"	"	✓												
"	1112		"	SR-CC-CONF-12	"	"	✓												
"	1112		"	SR-CC-CONF-12 (DUP)	"	"	✓												
Relinquished by (Signature)		Date/Time		Received by (Signature)		Date/Time		Remarks:											
Frederick Mastale		8-26-92 PM		AIRBORNE EXPRESS CARRIER															
Relinquished by (Signature)		Date/Time		Received by (Signature)		Date/Time													
Relinquished by (Signature)		Date/Time		Received by (Signature)		Date/Time													

CHAIN OF CUSTODY

Original chain of Custody goes to Laboratory

Proj. #		Project name			Type of container	Number of containers	ARSENIC & LEAD											Remarks	
P1-6129		SINCLAIR REFINERY																	
Samplers (Please print)																			
F. MASTELE / S. M. CALL / M. MULLOGLY																			
Date	Time	Comp.	Grab	Sample Identification															
8-26-92	1120		X	SR-CC-CONF-13	802 CLASS.	1	✓												
"	1132		"	SR-CC-CONF-14	"	"	✓												
"	1136		"	SR-CC-CONF-15	"	"	✓												
"	1141		"	SR-CC-CONF-16	"	"	✓												
"	1146		"	SR-CC-CONF-17	402 CLASS.	"	✓												
"	1320		"	SR-CC-CONF-18	"	"	✓												
"	1323		"	SR-CC-CONF-19	"	"	✓												
"	1335		"	SR-CC-CONF-20	"	"	✓												
"	1340		"	SR-CC-CONF-21	"	"	✓												
"	1345		"	SR-CC-CONF-22	"	"	✓												
"	1350		"	SR-CC-CONF-23	"	"	✓												
"	1440		"	SR-CC-CONF-24	"	"	✓												
"	1445		"	SR-CC-CONF-25	"	"	✓												
"	1445		"	SR-CC-CONF-25(DUP)	"	"	✓												

Relinquished by (Signature)
Fredrick Mastele

Relinquished by (Signature)

Relinquished by (Signature)

Date/Time
8-27-92 PM

Date/Time

Date/Time

Received by (Signature)
Airborne Express Carrier

Received by (Signature)

Received by (Signature)

Date/Time

Date/Time

Date/Time

Remarks:

CHAIN OF CUSTODY

Original chain of Custody goes to Laboratory

Proj. #		Project name			Type of container	Number of containers	ARJERIC LEAD												Remarks
P1-0129		SINCLAIR REFINERY																	
Samplers (Please print)																			
F. MASTELE / S. McCall / M. MULDOON																			
Date	Time	Comp.	Grab	Sample Identification	Type of container	Number of containers													Remarks
8-26-92	1450		X	SR-CC-CONF-26	402	1													
"	1455		"	SR-CC-CONF-27	"	"													
"	1500		"	SR-CC-CONF-28	"	"													
"	1505		"	SR-CC-CONF-29	"	"													
"	1510		"	SR-CC-CONF-30	"	"													
"	1513		"	SR-CC-CONF-31	"	"													
"	1515		"	SR-CC-CONF-32	"	"													
"	1545		"	SR-CC-CONF-33	"	"													
"	1550		"	SR-CC-CONF-34	"	"													
"	1555		"	CR-CC-CONF-35	"	"													
"	1630		"	CR-CC-CONF-36	"	"													
"	1635		"	CR-CC-CONF-37	"	"													
"	1645		"	CR-CC-CONF-38	"	"													
"	1645		"	CR-CC-CONF-38(DUP)	"	"													

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	Remarks:
<i>Fredrick J. Mastale</i>	8-27-92 PM	<i>Anthony Exaro</i> <i>Carrier</i>		
Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	
Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	

Original chain of Custody goes to Laboratory

[illegible]

DECEIVE
JES

INSPECTION DATE 8-25-92

ACCEPT REJECT N/A

- SURFACE SOIL SAMPLES COLLECTED AS PER PROJECT SAMPLING AND ANALYSIS PLAN

- ACTION TAKEN NONE REQUIRED

- COORDINATES PLAN E AREA

4. REMARKS SEE ATTACHED MAP FOR SAMPLING POINTS.
TOM O'NEILL (EPA REP) IS GOING TO CHECK WITH
THE EPA ABOUT SAMPLING IN RIRRAP AND
ALONG BANK OF PLAN E

INSPECTOR

INSPECTOR Frederick J. Mastilo

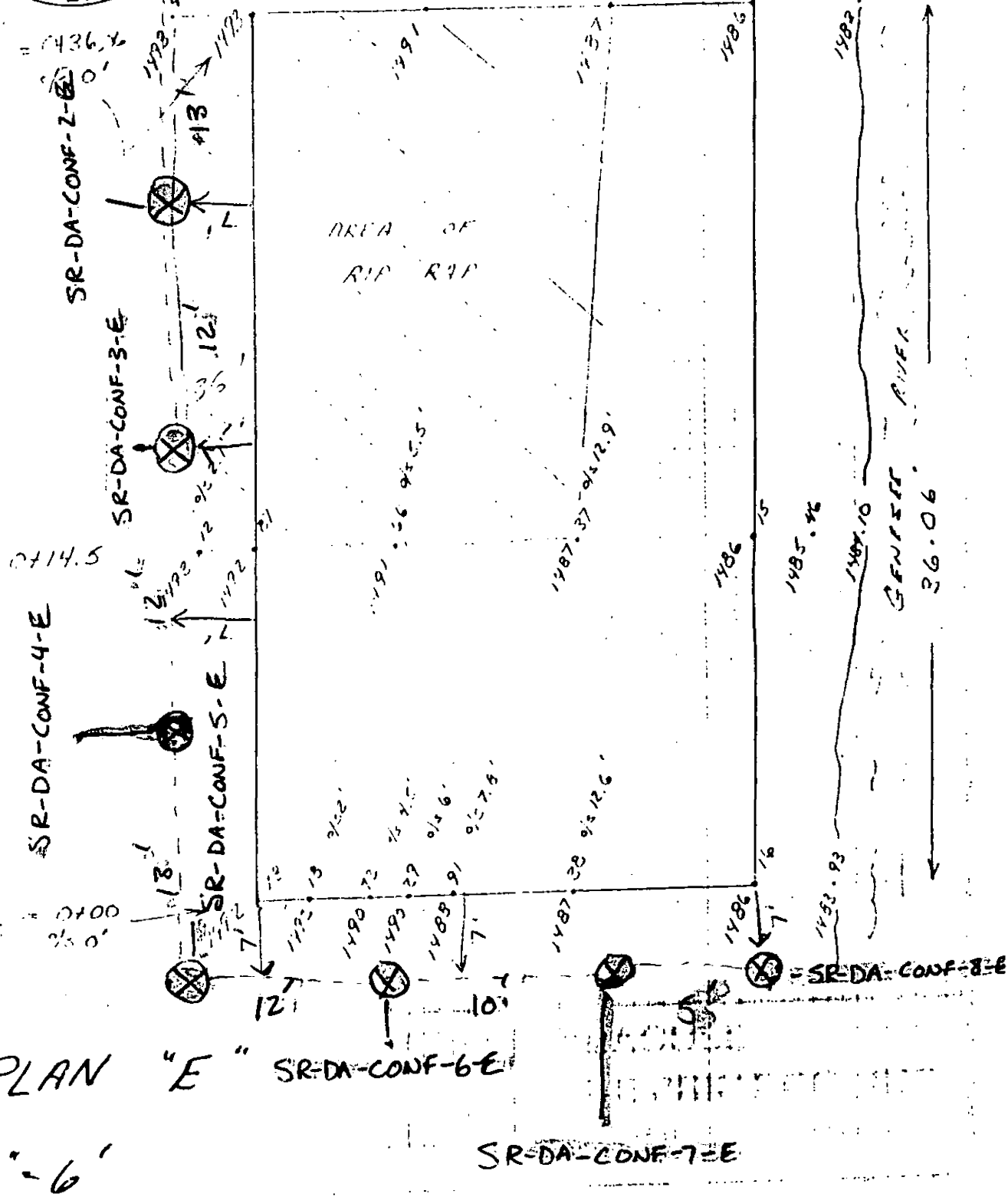
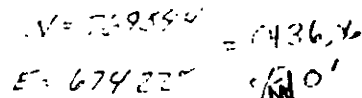
DATE 8-25-92

REVIEWED BY

REVIEWED BY Jonathan E. Brandes

DATE 8/27/92

1990 - 2000

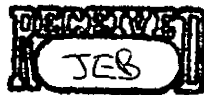


PLAN "E" SR-DA-CONF-6E

1-6'

SAMPLING POINTS PLAN E

AUG 27 1992



FORM A-20

SHEET 1 OF 2

INSPECTION DATE 8-25-92

COLLECTION AND ANALYSIS OF SURFACE SOIL SAMPLES
REFINERY SURFACE SOIL REMEDIATION

ACCEPT

REJECT

N/A

1. VERIFICATION INSPECTION

- SURFACE SOIL SAMPLES COLLECTED AS
PER PROJECT SAMPLING AND ANALYSIS
PLAN

✓

2. DUST CONTROL

ACTION TAKEN NONE REQUIRED

3. LOCATION OF SAMPLING:

COORDINATES PLAN B AREA

4. REMARKS SEE ATTACHED MAP FOR SAMPLING POINTS.

SAMPLES SR-SE-CONF-1, 2 + 16 WERE NOT TAKEN.

EPA AGREED THAT SHELBY TUBES WOULD
BE OKAY FOR WET AREAS.

INSPECTOR Fredrick J. Mastitis

DATE 8-25-92

REVIEWED BY Jonathan E. Brandes

DATE 8/27/92

CHAIN OF CUSTODY

Original chain of Custody goes to Laboratory

Proj. #		Project name			Type of container	Number of containers	<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">ARSENIC & LEAD</div> <div style="border: 1px solid black; width: 100%; height: 100%;"></div> </div>												Remarks
Samplers (Please print)																			
PI-C129		SINCLAIR REFINERY																	
F. MASTELE / S. McCALL		GEO-CON																	
Date	Time	Comp.	Grab	Sample Identification															
8-25-92	1300		X	SR-ES-CONF-9	802 GALS	1	✓												
"	1310		"	SR-ES-CONF-10	"	"	✓												
"	1323		"	SR-ES-CONF-11	"	"	✓												
"	1340		"	SR-ES-CONF-12	"	"	✓												
"	1352		"	SR-ES-CONF-13	"	"	✓												
"	1358		"	SR-ES-CONF-13 (DUP)	"	"	✓												
"	1410		"	SR-ES-CONF-14	"	"	✓												
"	1426		"	SR-ES-CONF-15	"	"	✓												
"	1550		"	SR-DA-CONF-1-E	"	"	✓												
"	1600		"	SR-DA-CONF-2-E	"	"	✓												
"	1610		"	SR-DA-CONF-3-E	"	"	✓												
"	1616		"	SR-DA-CONF-3-E (DUP)	"	"	✓												
"	1625		"	SR-DA-CONF-4-E	"	"	✓												
"	1635		"	SR-DA-CONF-5-E	"	"	✓												

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	Remarks:
<i>Frederick J. Mastale</i>	8-26-92 PM	AIRBORNE EXPRESS CARRIER		
Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	
Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	

CHAIN OF CUSTODY

Original chain of Custody goes to Laboratory

[illegible]

FORM A-21

PLACEMENT OF COMMON FILL

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 1 OF 2
INSPECTION DATE 8/10/92



1. MATERIAL

ACCEPT REJECT N/A

- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS, ROCKS LARGER THAN 3 INCHES.
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS

<u>✓</u>	<u> </u>	<u> </u>
<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>✓</u>

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT (\pm 3% OF OPTIMUM)
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS.
- ALTERNATE METHOD OF PLACEMENT.

<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>✓</u>
<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>✓</u>

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.

<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>✓</u>

● PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN WATER TRUCK USED AS NECESSARY

5. LOCATION:

COORDINATES CURRENT CONTROLS
_____6. REMARKS BEGAN EXCAVATION - PORTION OF AREA VERIFIED
& BACKFILLED NUCLEAR DENSITY TESTS PERFORMED
AS FOLLOWS:

1. DENSITY = 98.5 %
2. DENSITY = 81.4 % *

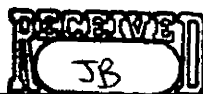
* AREA REROLLLED & RETESTED, DENSITY = 85.4 %

INSPECTOR Chris BattyDATE 9/2/92REVIEWED BY Jonathan E. BranksDATE 9/2/92

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 1 OF 2
INSPECTION DATE 8-12-92

AUG 13 1992



1. MATERIAL

ACCEPT

REJECT

N/A

- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS, ROCKS LARGER THAN 3 INCHES.
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS

<u>✓</u>	<u> </u>	<u> </u>
<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>✓</u>

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT (\pm 3% OF OPTIMUM)
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS.
- ALTERNATE METHOD OF PLACEMENT.

<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>✓</u>
<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>✓</u>

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.

<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>✓</u>

PLACEMENT OF COMMON FILL

REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN NONE REQUIRED

5. LOCATION:

COORDINATES CURRENT CONTROLS AREA (PLAN "A")

6. REMARKS NUCLEAR DENSITY TESTING PERFORMED IT WAS
97.8 % @ 40' OFF D-O AND 95.2% @ 15' OFF E-O

INSPECTOR

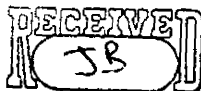
Frederick J. Martello / Chris BallyDATE 8-12-92

REVIEWED BY

Jonathan BrunsDATE 8/13/92

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION
AUG 11 1992

FORM A-21
SHEET 1 OF 2
INSPECTION DATE 8/13/92



1. MATERIAL

ACCEPT

REJECT

N/A

- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS, ROCKS LARGER THAN 3 INCHES.
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS

<u>✓</u>	<u> </u>	<u> </u>
<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>✓</u>

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT (\pm 3% OF OPTIMUM)
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS.
- ALTERNATE METHOD OF PLACEMENT.

<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>✓</u>
<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>✓</u>

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.

<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>✓</u>

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN None ~~was~~ Necessary

5. LOCATION:

COORDINATES Refinery Area "A" - Current Controls

6. REMARKS _____

INSPECTOR Chris Bailey / Frederick J. Martello DATE 8-13-92REVIEWED BY Jonathan Brando DATE 8/14/92

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 1 OF 2
INSPECTION DATE 8-14-92

1. MATERIAL

ACCEPT

REJECT

N/A

- COMMON FILL SOIL OBTAINED FROM
THE APPROVED BORROW AREA

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☐

- FREE FROM SOD, BRUSH, ROOTS OR
OTHER PERISHABLE MATERIALS,
ROCKS LARGER THAN 3 INCHES.

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☐

- EXCAVATION IS COMPLETE AND
ACCEPTED BY THE CONSTRUCTION
MANAGER BASED ON THE SURFACE
SOIL SAMPLES ANALYTICAL RESULTS

☐

☒

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS

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- INSPECT LAYER OF FILL FOR PROPER
MOISTURE CONTENT (\pm 3% OF OPTIMUM)

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- SURVEYOR VERIFIED SLOPES, THICKNESS
AND ELEVATIONS.

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- ALTERNATE METHOD OF PLACEMENT.

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3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT
TEST FOR EACH 100 C.Y. OR EACH
AREA COMPLETED IN ONE DAY
WHICHEVER IS LESS.

☐

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- NUMBER OF PASSES FOR ALTERNATE
METHOD OF PLACEMENT.

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PLACEMENT OF COMMON FILL

REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN HAUL ROAD WATERED AS NEEDED

5. LOCATION:

COORDINATES CURRENT CONTROLS

6. REMARKS DENSITY TESTS WERE NOT PERFORMED TODAY, WILL
BE TAKEN FIRST THING IN THE MORNING.

AUG 17 1992

INSPECTOR Frederick J. MartelloDATE 8-14-92REVIEWED BY Colleen P. LukowDATE 8-17-92

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 1 OF 2
INSPECTION DATE 8-15-92

1. MATERIAL

ACCEPT

REJECT

N/A

- COMMON FILL SOIL OBTAINED FROM
THE APPROVED BORROW AREA

☒

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☐

- FREE FROM SOD, BRUSH, ROOTS OR
OTHER PERISHABLE MATERIALS,
ROCKS LARGER THAN 3 INCHES.

☒

☐

☐

- EXCAVATION IS COMPLETE AND
ACCEPTED BY THE CONSTRUCTION
MANAGER BASED ON THE SURFACE
SOIL SAMPLES ANALYTICAL RESULTS

☐

☒

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS

☒

☐

☐

- INSPECT LAYER OF FILL FOR PROPER
MOISTURE CONTENT (\pm 3% OF OPTIMUM)

☐

☐

☒

- SURVEYOR VERIFIED SLOPES, THICKNESS
AND ELEVATIONS.

☒

☐

☐

- ALTERNATE METHOD OF PLACEMENT.

☐

☐

☒

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT
TEST FOR EACH 100 C.Y. OR EACH
AREA COMPLETED IN ONE DAY
WHICHEVER IS LESS.

☒

☐

☐

- NUMBER OF PASSES FOR ALTERNATE
METHOD OF PLACEMENT.

☐

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PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN NONE REQUIRED (RAINY)

5. LOCATION:

COORDINATES CURRENT CONTROLS

6. REMARKS WORK WAS STOPPED BECAUSE OF EXCESS
RAIN. DENSITY TESTS WERE PERFORMED AT

5 LOCATIONS WHERE FILL WAS PLACED.

#	% PROCTOR	% MOISTURE	PLF	DEPTH	LOCATION FROM "0"
#1 -	94.9	9.2	128.0	4"	ALONG F LINE 90'
#2 -	92.2	10.4	124.3	4"	ALONG H LINE 50'
#3 -	95.3	9.1	128.5	4"	AT J-0
#4 -	90.0	8.6	121.4	4"	3 FT FROM K-0
#5 -	96.2	9.1	129.8	4"	ALONG L LINE 50'

INSPECTOR

Frederick Mastitis

DATE 8-15-92

REVIEWED BY

William P. K. Evers

DATE 8-17-92



AUG 17 1992

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 1 OF 2
INSPECTION DATE 8-17-92

1. MATERIAL

ACCEPT

REJECT

N/A

- COMMON FILL SOIL OBTAINED FROM
THE APPROVED BORROW AREA

✓

- FREE FROM SOD, BRUSH, ROOTS OR
OTHER PERISHABLE MATERIALS,
ROCKS LARGER THAN 3 INCHES.

✓

- EXCAVATION IS COMPLETE AND
ACCEPTED BY THE CONSTRUCTION
MANAGER BASED ON THE SURFACE
SOIL SAMPLES ANALYTICAL RESULTS

✓

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS

✓

- INSPECT LAYER OF FILL FOR PROPER
MOISTURE CONTENT (\pm 3% OF OPTIMUM)

✓

✓

- SURVEYOR VERIFIED SLOPES, THICKNESS
AND ELEVATIONS.

✓

- ALTERNATE METHOD OF PLACEMENT.

✓

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT
TEST FOR EACH 100 C.Y. OR EACH
AREA COMPLETED IN ONE DAY
WHICHEVER IS LESS.

✓

- NUMBER OF PASSES FOR ALTERNATE
METHOD OF PLACEMENT.

✓

AUG 19 1992
RECEIVED

PLACEMENT OF COMMON FILL

REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN WATERED AS NEEDED.

5. LOCATION:

COORDINATES CURRENT CONTROLS6. REMARKS ROGER NORTH OF GEOSYNTEC SAID THAT THE STONESIZE IN THE FILL WAS ACCEPTABLE FOR CURRENT
CONTROLS, BUT WOULD NOT BE ACCEPTABLE FOR THE CAP.

NOTE: NUCLEAR DENSITY TESTING COULD NOT BE PERFORMED
BECAUSE THE TROXLER POWER SWITCH IS BROKEN. IT
WILL BE REPAIRED ASAP.

INSPECTOR

Frederick J. MastalerDATE 8-17-92

REVIEWED BY

William R. LukanDATE 8-19-92

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21

SHEET 1 OF 2

INSPECTION DATE 8-18-92

1. MATERIAL

ACCEPT

REJECT

N/A

- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS, ROCKS LARGER THAN 3 INCHES.
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS

<u>✓</u>	<u> </u>	<u> </u>
<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>✓</u>

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT (\pm 3% OF OPTIMUM)
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS.
- ALTERNATE METHOD OF PLACEMENT.

<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>✓</u>
<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>✓</u>

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.

<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>✓</u>

RECEIVED
65

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN WATERED HAUL ROADS AS NEEDED.

5. LOCATION:

COORDINATES CURRENT CONTROLS

6. REMARKS FINISHED PLACING FILL AND STARTED PLACING

TOP SOIL. NUCLEAR DENSITY TESTS PERFORMED.

A MAP OF ALL TEST LOCATIONS IS ATTACHED. USED 134.9 PCF FOR STANDARD PROCTOR.

DENSITY TESTS				
	% PROCTOR	PCF	DEPTH	% MOISTURE
1.)	97.2	131.2	4"	9.7
2.)	90.7	122.4	4"	11.7
3.)	93.7	126.4	4"	10.3
4.)	95.0	128.2	4"	10.5
5.)	94.4	127.3	4"	9.6
6.)	95.3	128.6	4"	9.4
7.)	92.0	124.1	4"	10.4
8.)	93.8	126.5	4"	9.9

NOTE: THE TOTAL NUMBER
OF TONS PLACED
WAS ≈ 3800 TONS
 $\div 1.5 = 2533$ CY

1 TEST/100 CY = 25

27 WERE PERFORMED
* WILL PRESENT ACTUAL TOTAL
WHEN AVAILABLE

(SEE ATTACHED FOR REMAINDER)

INSPECTOR Fredrick J. Mastitis

DATE 8-18-92

REVIEWED BY William P. Jenkins

DATE 8-19-92

DENSITY TESTS (CONT.)

	<u>% PROCTOR</u>	<u>PCF</u>	<u>DEPTH</u>	<u>% MOISTURE</u>
9.)	93.9	126.7	4"	11.1
10.)	94.9	128.0	4"	8.9
11.)	88.1	118.9	4"	10.1
12.)	93.8	126.6	4"	10.9
13.)	93.7	126.4	4"	10.4
14.)	92.1	131.0	4"	8.1
15.)	85.4	115.2	4"	9.8
16.)	94.2	124.6	4"	10.9 (RETEST OF 15 2 FEET EAST)
17.)	89.2	120.3	4"	9.0
18.)	90.1	121.6	4"	8.7
19.)	92.7	125.0	4"	8.3

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 1 OF 2
INSPECTION DATE 8-19-92

1. MATERIAL

ACCEPT

REJECT

N/A

- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS, ROCKS LARGER THAN 3 INCHES.
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS

✓

✓*

✓

 ✓

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT (\pm 3% OF OPTIMUM)
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS.
- ALTERNATE METHOD OF PLACEMENT.

✓

✓

✓

✓

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.

✓

✓

RECEIVED
AS

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN ROADS WATERED AS NEEDED

5. LOCATION:

COORDINATES OTIS EASTERN6. REMARKS CHARLIE BAKER WAS INFORMED ABOUT THE LARGE STONEIN THE MATERIAL, 1 TRUCKLOAD WAS REJECTED.ROBERT IVY IS CONCERNED ABOUT MAINTAINING THE
PROPER QUALITY OF THE FILL MATERIAL.*
SEE REMARKS

INSPECTOR

Frederick J. MastitisDATE 8-19-92

REVIEWED BY

Colin P. JohnsonDATE 8-20-92RECEIVED
[Stamp]

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 1 OF 2
INSPECTION DATE 8-20-92

1. MATERIAL

ACCEPT

REJECT

N/A

- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS, ROCKS LARGER THAN 3 INCHES.
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS

<u>/</u>	<u> </u>	<u> </u>
<u>/</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>/</u>

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT ($\pm 3\%$ OF OPTIMUM)
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS.
- ALTERNATE METHOD OF PLACEMENT.

<u>/</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>/</u>
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<u> </u>	<u> </u>	<u>/</u>

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.

<u>/</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>/</u>

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN NONE REQUIRED

5. LOCATION:

COORDINATES OTIS EASTERN6. REMARKS COMPLETED BACKFILLING AND ROLLING THEOTIS EASTERN AREA.

DENSITY TESTS

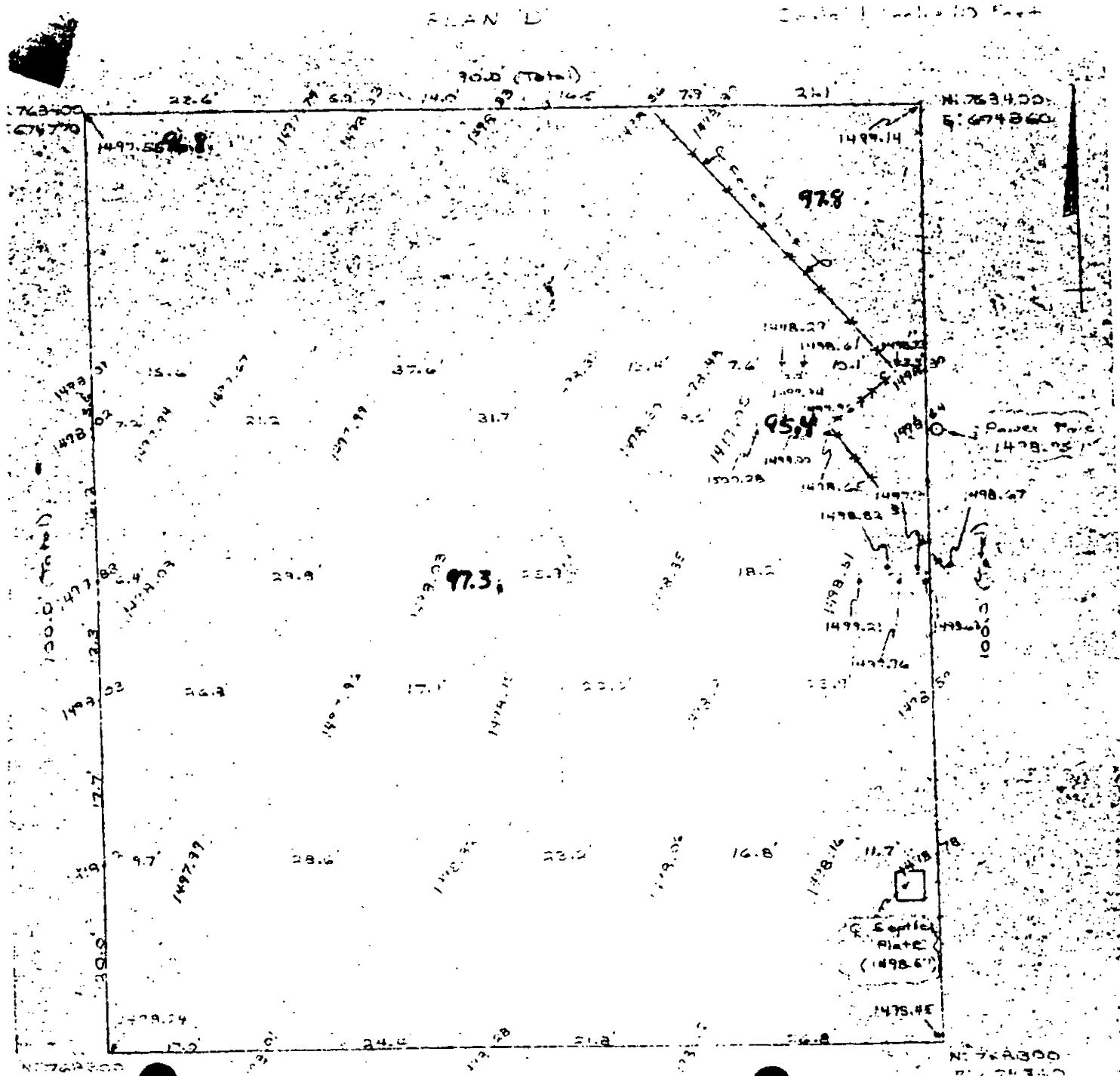
4" DEEP 134.9 PCF STANDARD PROCTOR

#1 % PROCTOR 96.8 130.6 PCF
% MOISTURE 9.1

AUG 21 1992

#2 % PROCTOR 97.3 131.2 PCF
% MOISTURE 9.0#3 % PROCTOR 95.4 128.7 PCF
% MOISTURE 7.1INSPECTOR J. Michael J. MartellDATE 8-20-92REVIEWED BY J. Michael J. MartellDATE 8-20-92

TESTS 8-20-92



PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 1 OF 2
INSPECTION DATE 8-20-12

1. MATERIAL

ACCEPT

REJECT

N/A

- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS, ROCKS LARGER THAN 3 INCHES.
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS

<u>/</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> ✓ </u>

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT (\pm 3% OF OPTIMUM)
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS.
- ALTERNATE METHOD OF PLACEMENT.

<u>/</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> ✓ </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> ✓ </u>

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.

<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> ✓ </u>

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN HAUL ROADS WATERED AS NEEDED.

5. LOCATION:

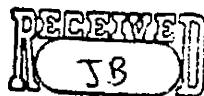
COORDINATES PLAN B AREA6. REMARKS SOIL FOR FILL WAS COMPACTED WITH ADOLER BECAUSE IT WAS ON A SLOPE AND
NOT SAFE FOR A ROLLER.

NUCLEAR DENSITY TESTS 134.9 PCF 4" DEEP

#1 TOP OF SLOPE
% PROCTOR 90.3 121.8 PCF
% MOISTURE 10.4#2 8' DOWN SLOPE TOWARD DIKE
% PROCTOR 87.2 117.6
% MOISTURE 9.0AUG 21 1992
RECEIVED
RCSINSPECTOR Frederick J. MastitisDATE 8-20-92REVIEWED BY Charles H. LaneDATE 8-20-92

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

AUG 14 1992



FORM A-21

SHEET 1 OF 2

INSPECTION DATE 8-21-92

1. MATERIAL	ACCEPT	REJECT	N/A
- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS, ROCKS LARGER THAN 3 INCHES.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. PLACEMENT			
- FILL IS PLACED IN HORIZONTAL LAYERS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT (\pm 3% OF OPTIMUM)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- ALTERNATE METHOD OF PLACEMENT.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. VERIFICATION TESTING			
- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN None Required in Refinery Areas

5. LOCATION:

COORDINATES POWERHOUSE (PLAN C)
AND DIKE PLAN F

6. REMARKS PLAN F WAS COMPACTED USING TRACK HOE BUCKET

FOR SLOPES AND TRACKS FOR THE LEAK PORTIONS,
THE POWERHOUSE WAS DONE WITH A ROLLER.

DENSITY TESTS

POWERHOUSE - USED 134.4 STANDARD PROCTOR 4" DEEP
#1 % PROCTOR 96.6 131.6 PCF SEE ATTACHED MAP FOR LOCATIONS
% MOISTURE 9.4

#2 % PROCTOR 95.4 128.7 PCF
% MOISTURE 9.4

#3 % PROCTOR 95.8 129.2 PCF
% MOISTURE 9.6

#4 % PROCTOR 97.9 132.1 PCF
% MOISTURE 9.0

INSPECTOR

Frederick J. MastitaDATE 8-21-92

REVIEWED BY

Jonathan BrandesDATE 8/25/92

PLAN F - 134.4 PCF STANDARD PROCTOR 4" DEEP SEE ATTACHED MAP

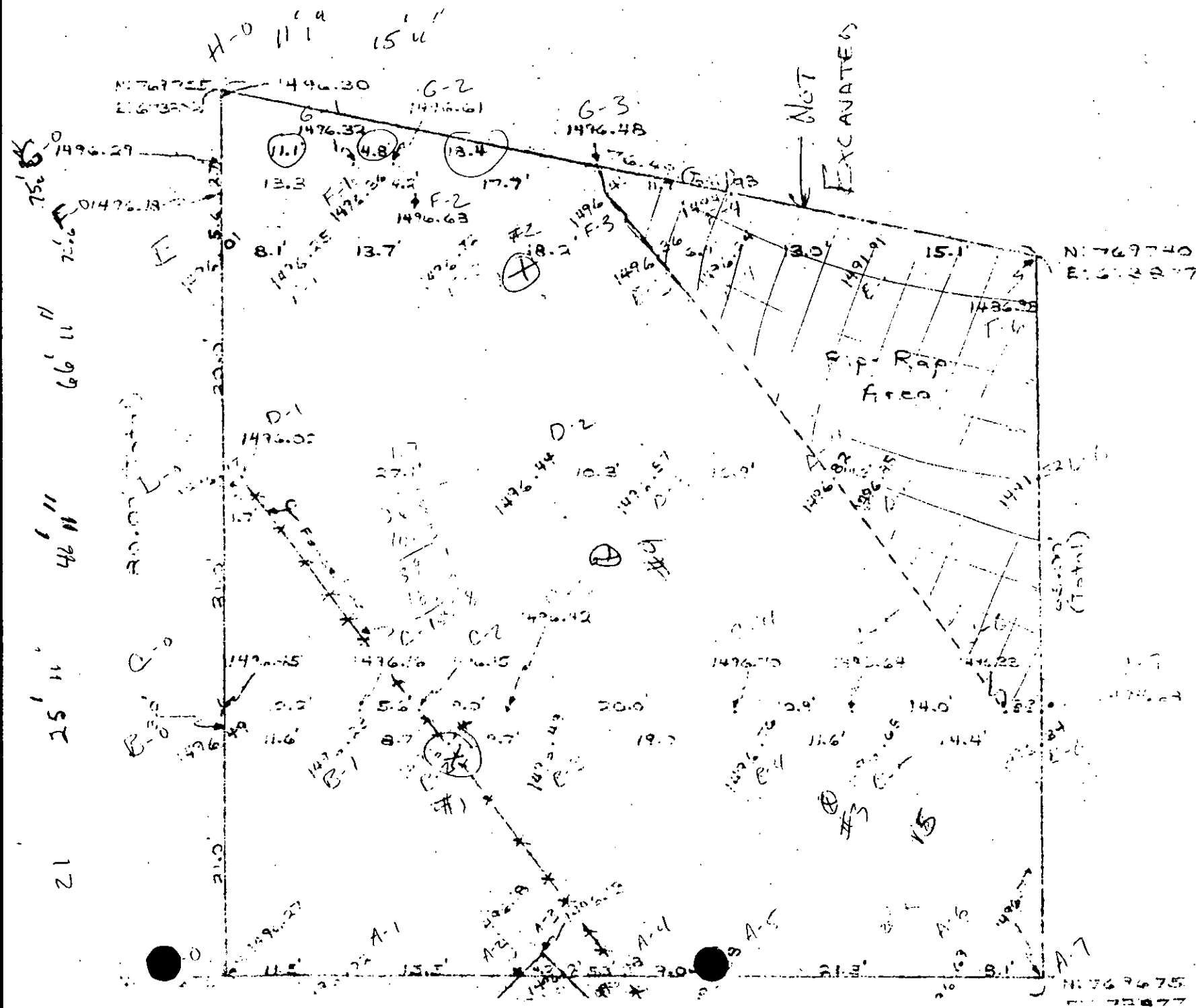
#1 % PROCTOR 96.3 129.8 PCF
% MOISTURE 9.0

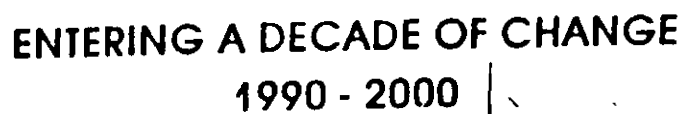
#3 % PROCTOR 91.0 122.7 PCF
% MOISTURE 8.8

#2 % PROCTOR 86.9 117.2 PCF
% MOISTURE 7.0

PLAN "C"

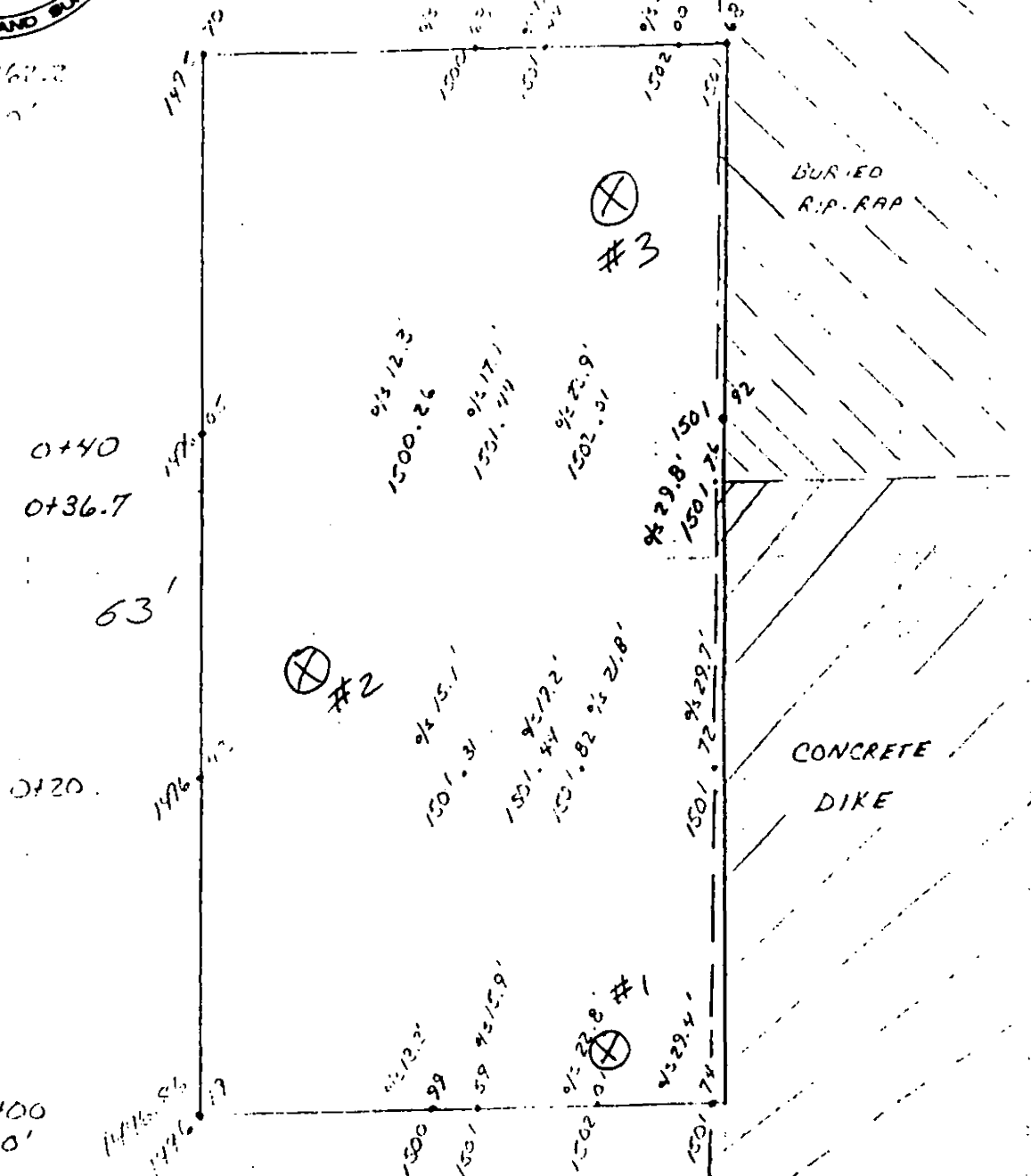
Scale: 1 Inch = 10 Feet





1990 - 2000

N. 769977 = 0462.2
E. 674650 = 7.0'



$N = 763942$
 $F = 674687 = \begin{matrix} 0100 \\ 0100 \end{matrix}$

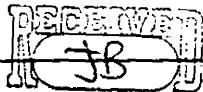
PLAN "F"

$$1'' = 10'$$

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 1 OF 2
INSPECTION DATE 8-24-92

SEP 5 1992



1. MATERIAL

ACCEPT REJECT N/A

- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS, ROCKS LARGER THAN 3 INCHES.
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS

✓		
✓		
		✓

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT (\pm 3% OF OPTIMUM)
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS.
- ALTERNATE METHOD OF PLACEMENT.

✓		
		✓
✓		
		✓

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.

✓		
		✓

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

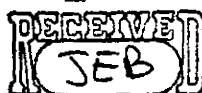
ACTION TAKEN NONE REQUIRED

5. LOCATION:

COORDINATES PLAN E
AND PLAN G.6. REMARKS PLAN E AND G WERE BOTH COMPACTED USINGA TRACK HOE BUCKET. PLAN G COMPACTION WASNOT TESTED BECAUSE OF ITS LOCATION.NUCLEAR DENSITY TESTS - 134.9 PCF STANDARD PROCTOR 4" DEEP
PLANE - SEE MAP#1 % PROCTOR 86.8 117.0 PCF
% MOISTURE 6.9#4 % PROCTOR 79.3 107.0 PCF
% MOISTURE 7.2#2 % PROCTOR 86.8 117.0 PCF
% MOISTURE 7.0#3 RETEST AFTER RECOMPACTING
% PROCTOR 88.3% 119.1 PCF
% MOISTURE 8.1#3 % PROCTOR 78.1 105.3 PCF
% MOISTURE 7.4INSPECTOR Fredrick J. MarshallDATE 8-24-92REVIEWED BY Jonathan FrancisDATE 8/25/92

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

NOV 21 1992



FORM A-21

SHEET 1 OF 2

INSPECTION DATE 11-3-92

1. MATERIAL	ACCEPT	REJECT	N/A
- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA	<u>✓</u>	<u> </u>	<u> </u>
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS, ROCKS LARGER THAN 3 INCHES.	<u>✓</u>	<u> </u>	<u> </u>
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS	<u> </u>	<u> </u>	<u>✓</u>
2. PLACEMENT			
- FILL IS PLACED IN HORIZONTAL LAYERS	<u>✓</u>	<u> </u>	<u> </u>
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT (\pm 3% OF OPTIMUM)	<u> </u>	<u> </u>	<u>✓</u>
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS.*	<u>✓</u>	<u> </u>	<u> </u>
- ALTERNATE METHOD OF PLACEMENT.	<u>✓</u>	<u> </u>	<u> </u>
3. VERIFICATION TESTING			
- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.	<u> </u>	<u> </u>	<u>✓</u>
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.	<u>✓</u>	<u> </u>	<u> </u>

* SURVEYOR IS RESPONSIBLE FOR ACCURACY

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN NONE REQUIRED

5. LOCATION:

COORDINATES _____

6. REMARKS COMPLETED BACKFILLING OF THE 2 ADDITIONAL AREAS

WHICH WERE EXCAVATED TODAY AT OTIS EASTERN. BACKFILLING
OF THE 2 AREAS WHICH WERE EXCAVATED TODAY
AT THE POWERHOUSE WAS ONLY PARTIALLY COMPLETED.

Areas Backfilled: Otis Eastern 21, 32-33
Powerhouse 2-3, 16-17-18

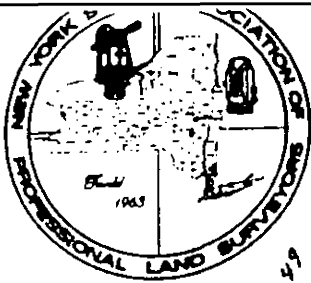
See drawing with form A-19

INSPECTOR

DATE 11-3-92

REVIEWED BY

DATE 11-4-92

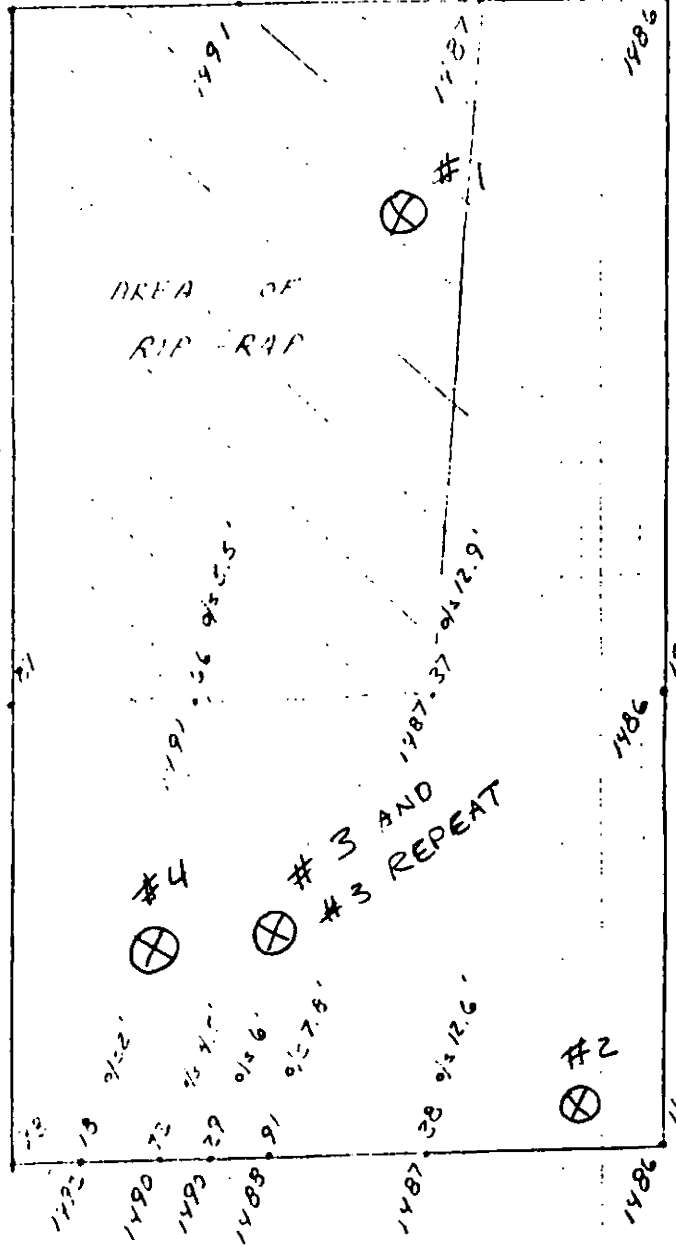


ENTERING A DECADE OF CHANGE 1990 - 2000

N = 769594 = 1436.4
E = 674225 = 1/2 0'

0+14.5

N = 769514 = 0+100
E = 674345 = 1/2 0'



PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

NOV 15 1992

SEB

FORM A-21

SHEET 1 OF 2

INSPECTION DATE 11-4-92

1. MATERIAL

ACCEPT

REJECT

N/A

- COMMON FILL SOIL OBTAINED FROM
THE APPROVED BORROW AREA

✓

- FREE FROM SOD, BRUSH, ROOTS OR
OTHER PERISHABLE MATERIALS,
ROCKS LARGER THAN 3 INCHES.

✓

- EXCAVATION IS COMPLETE AND
ACCEPTED BY THE CONSTRUCTION
MANAGER BASED ON THE SURFACE
SOIL SAMPLES ANALYTICAL RESULTS*

✓

* RESPONSIBILITY OF GEOSYNTEC

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS

✓

- INSPECT LAYER OF FILL FOR PROPER
MOISTURE CONTENT (\pm 3% OF OPTIMUM)

✓

- SURVEYOR VERIFIED SLOPES, THICKNESS
AND ELEVATIONS.*

✓

- ALTERNATE METHOD OF PLACEMENT.

✓

* RESPONSIBILITY OF GEOSYNTEC

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT
TEST FOR EACH 100 C.Y. OR EACH
AREA COMPLETED IN ONE DAY
WHICHEVER IS LESS.

✓

- NUMBER OF PASSES FOR ALTERNATE
METHOD OF PLACEMENT.

✓

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN None Required

5. LOCATION:

COORDINATES _____

6. REMARKS

All areas excavated today were backfilled
with common fill as were the areas not completely
backfilled yesterday at the powerhouse. Top soil
to be placed tomorrow at the current
control locations.

INSPECTOR

Chris BailyDATE 11-4-92

REVIEWED BY

Jonathan BunkerDATE 11/7/92

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 1 OF 2
INSPECTION DATE 11-5-92

NOV 1 1992

JEB

1. MATERIAL	ACCEPT	REJECT	N/A
- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS, ROCKS LARGER THAN 3 INCHES.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
* RESPONSIBILITY OF GEOSYNTEC			
2. PLACEMENT			
- FILL IS PLACED IN HORIZONTAL LAYERS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT (\pm 3% OF OPTIMUM)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS.*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- ALTERNATE METHOD OF PLACEMENT.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
* RESPONSIBILITY OF GEOSYNTEC			
3. VERIFICATION TESTING			
- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

FORM A-21

SHEET 2 OF 2

INSPECTION DATE 11-5-92

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN NONE REQUIRED

5. LOCATION:

COORDINATES _____

6. REMARKS BACKFILLED ALL AREAS LISTED ON FORM A-19
WITH THE EXCEPTION OF AREA 76 AT CURRENT
CONTROLS.

INSPECTOR Chris Burt

DATE 11-5-92

REVIEWED BY Jonathan Brantley

DATE 11/7/92

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21

SHEET 1 OF 2

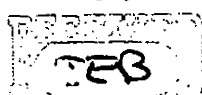
INSPECTION DATE 11-6-92

NOV 7 1992

SEB

1. MATERIAL	ACCEPT	REJECT	N/A
- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS, ROCKS LARGER THAN 3 INCHES.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS *	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
* RESPONSIBILITY OF GEOSYNTEC			
2. PLACEMENT			
- FILL IS PLACED IN HORIZONTAL LAYERS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT (\pm 3% OF OPTIMUM)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS. *	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- ALTERNATE METHOD OF PLACEMENT.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
* RESPONSIBILITY OF GEOSYNTEC			
3. VERIFICATION TESTING			
- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOV 6 7 1992



FORM A-21

SHEET 2 OF 2

INSPECTION DATE 11-6-92

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN NONE REQUIRED

5. LOCATION:

COORDINATES

6. REMARKS BACKFILLED ~~THE~~ AREA No. CC-76 AT CURRENT

CONTINUOUS WHICH WAS NOT BACKFILLED YESTERDAY.
BACKFILLED THIS ENTIRELY W/ COMMON FILL
BECAUSE OF WET CONDITIONS. ALSO BACKFILLED THE
PIPELINE TRENCH WHICH HAD BEEN EXCAVATED ~~BY~~ BY OTHERS
AT THE POWERHOUSE WITH COMMONFILL. EXCAVATED MATERIAL
WHICH WAS THERE WAS HAULED TO THE CELA.

INSPECTOR Chris Baly

DATE 11-6-92

REVIEWED BY Jonathan Brandes

DATE 11/7/92

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 2 OF 3
INSPECTION DATE 07-30-93

1. MATERIAL	ACCEPT	REJECT	N/A
- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA	_____	_____	✓ _____
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS. ROCKS LARGER THAN 3 INCHES.	_____	_____	✓ _____
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS	_____	_____	✓ _____
2. PLACEMENT			
- FILL IS PLACED IN HORIZONTAL LAYERS	_____	_____	✓ _____
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT (\pm 3% OF OPTIMUM)	_____	_____	✓ _____
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS.	_____	_____	✓ _____
- ALTERNATE METHOD OF PLACEMENT.	_____	_____	✓ _____
3. VERIFICATION TESTING			
- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.	_____	_____	✓ _____
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.	_____	_____	✓ _____

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN N.A.

5. LOCATION:

COORDINATES _____

6. REMARKS _____

INSPECTOR DAN DEMING, JR

DATE 07-30-93

REVIEWED BY _____

DATE _____

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 2 OF 3
INSPECTION DATE 08-02-93

1. MATERIAL

ACCEPT

REJECT

N/A

- COMMON FILL SOIL OBTAINED FROM
THE APPROVED BORROW AREA

✓

- FREE FROM SOD, BRUSH, ROOTS OR
OTHER PERISHABLE MATERIALS,
ROCKS LARGER THAN 3 INCHES.

✓

- EXCAVATION IS COMPLETE AND
ACCEPTED BY THE CONSTRUCTION
MANAGER BASED ON THE SURFACE
SOIL SAMPLES ANALYTICAL RESULTS

✓

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS

✓

- INSPECT LAYER OF FILL FOR PROPER
MOISTURE CONTENT (\pm 3% OF OPTIMUM)

✓

- SURVEYOR VERIFIED SLOPES, THICKNESS
AND ELEVATIONS.

✓

- ALTERNATE METHOD OF PLACEMENT.

✓

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT
TEST FOR EACH 100 C.Y. OR EACH
AREA COMPLETED IN ONE DAY
WHICHEVER IS LESS.

✓

- NUMBER OF PASSES FOR ALTERNATE
METHOD OF PLACEMENT.

10

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN WATER TRUCK

5. LOCATION:

COORDINATES PH26FD PH26
PH27 PH25

6. REMARKS WEST SIDE POWER HOUSE

INSPECTOR DAN DENING, JR

DATE 08-03-93

REVIEWED BY _____

DATE _____

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 2 OF 3
INSPECTION DATE 08-03-93

1. MATERIAL

- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS, ROCKS LARGER THAN 3 INCHES.
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS

ACCEPT

REJECT

N/A

✓

✓

✓

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT ($\pm 3\%$ OF OPTIMUM)
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS.
- ALTERNATE METHOD OF PLACEMENT.

✓

✓

✓

✓

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.

10

✓

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN WATER TRUCK

5. LOCATION:

COORDINATES PH23 PH25 PH25B
PH24 PH25A6. REMARKS WEST POWERHOUSE

INSPECTOR

DAN DEMING, JR

DATE

08-03-93

REVIEWED BY

DATE

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 2 OF 3
INSPECTION DATE 08-04-93

1. MATERIAL	ACCEPT	REJECT	N/A
- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA	<u>✓</u>	<u> </u>	<u> </u>
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS, ROCKS LARGER THAN 3 INCHES.	<u>✓</u>	<u> </u>	<u> </u>
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS	<u> </u>	<u> </u>	<u>✓</u>
2. PLACEMENT			
- FILL IS PLACED IN HORIZONTAL LAYERS	<u>✓</u>	<u> </u>	<u> </u>
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT (\pm 3% OF OPTIMUM)	<u> </u>	<u> </u>	<u>✓</u>
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS.	<u>✓</u>	<u> </u>	<u> </u>
- ALTERNATE METHOD OF PLACEMENT.	<u>✓</u>	<u> </u>	<u> </u>
3. VERIFICATION TESTING			
- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.	<u> </u>	<u> </u>	<u>✓</u>
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.	<u>10</u>	<u> </u>	<u> </u>

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN WATER TRUCK

5. LOCATION:

COORDINATES PH2Z PH11Y PH49M
PH11Z PH11X PH53M

6. REMARKS NORTH POWERHOUSE, SOUTH POWERHOUSE

INSPECTOR DAN DEMING, JR

DATE 08-04-93

REVIEWED BY _____

DATE _____

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 2 OF 3
INSPECTION DATE 08-05-93

1. MATERIAL

ACCEPT

REJECT

N/A

- COMMON FILL SOIL OBTAINED FROM
THE APPROVED BORROW AREA

✓

- FREE FROM SOD, BRUSH, ROOTS OR
OTHER PERISHABLE MATERIALS,
ROCKS LARGER THAN 3 INCHES.

✓

- EXCAVATION IS COMPLETE AND
ACCEPTED BY THE CONSTRUCTION
MANAGER BASED ON THE SURFACE
SOIL SAMPLES ANALYTICAL RESULTS

✓

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS

✓

- INSPECT LAYER OF FILL FOR PROPER
MOISTURE CONTENT (\pm 3% OF OPTIMUM)

✓

- SURVEYOR VERIFIED SLOPES, THICKNESS
AND ELEVATIONS.

✓

- ALTERNATE METHOD OF PLACEMENT.

✓

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT
TEST FOR EACH 100 C.Y. OR EACH
AREA COMPLETED IN ONE DAY
WHICHEVER IS LESS.

✓

- NUMBER OF PASSES FOR ALTERNATE
METHOD OF PLACEMENT.

10

FORM A-21

SHEET 3 OF 3

INSPECTION DATE 08-05-93

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN WATER TRUCK

5. LOCATION:

COORDINATES PH49E S1E 53E 49G 53G S1I 49K 49M
50E 52E 54E 51G 49I 53I 51K 51M

6. REMARKS SOUTH POWERHOUSE, NORTH POWERHOUSE

INSPECTOR DAN DEMING, JR

DATE 08-05-93

REVIEWED BY _____

DATE _____

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 2 OF 3
INSPECTION DATE 08-06-93

1. MATERIAL

ACCEPT

REJECT

N/A

- COMMON FILL SOIL OBTAINED FROM
THE APPROVED BORROW AREA

✓

- FREE FROM SOD, BRUSH, ROOTS OR
OTHER PERISHABLE MATERIALS,
ROCKS LARGER THAN 3 INCHES.

✓

- EXCAVATION IS COMPLETE AND
ACCEPTED BY THE CONSTRUCTION
MANAGER BASED ON THE SURFACE
SOIL SAMPLES ANALYTICAL RESULTS

✓

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS

✓

- INSPECT LAYER OF FILL FOR PROPER
MOISTURE CONTENT (\pm 3% OF OPTIMUM)

✓

- SURVEYOR VERIFIED SLOPES, THICKNESS
AND ELEVATIONS.

✓

- ALTERNATE METHOD OF PLACEMENT.

✓

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT
TEST FOR EACH 100 C.Y. OR EACH
AREA COMPLETED IN ONE DAY
WHICHEVER IS LESS.

✓

- NUMBER OF PASSES FOR ALTERNATE
METHOD OF PLACEMENT.

10

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN WATER TRUCK

5. LOCATION:

COORDINATES PH49E PH49G PH49I PH49K PH49M
PH54P PH53G PH53I PH50K PH53M6. REMARKS SOUTH POWERHOUSE, NORTH POWERHOUSEINSPECTOR DAN DEMING, JRDATE 08-06-93

REVIEWED BY _____

DATE _____

LACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 2 OF 3
INSPECTION DATE 08-09-93

1. MATERIAL

ACCEPT

REJECT

N/A

- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS, ROCKS LARGER THAN 3 INCHES.
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS

<u>✓</u>	<u> </u>	<u> </u>
<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>✓</u>

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT (\pm 3% OF OPTIMUM)
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS.
- ALTERNATE METHOD OF PLACEMENT.

<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>✓</u>
<u>✓</u>	<u> </u>	<u> </u>
<u>✓</u>	<u> </u>	<u> </u>

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.

<u> </u>	<u> </u>	<u>✓</u>
<u>10</u>	<u> </u>	<u> </u>

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN WATER TRUCK @ HAUL ROAD

5. LOCATION:

COORDINATES PH17 YB PH41 PH43 PH45 PH47 PH49
PH40 PH51 PH42 PH44 PH46 PH48 PH50
PH56 PH57 PH52 PH53 PH54 PH55

6. REMARKS

EAST POWERHOUSE AREA

INSPECTOR DAN DEMING, JR

DATE 08-09-93

REVIEWED BY _____

DATE _____

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 2 OF 3
INSPECTION DATE 08-10-93

1. MATERIAL

ACCEPT

REJECT

N/A

- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS, ROCKS LARGER THAN 3 INCHES.
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS

<u>✓</u>	<u> </u>	<u> </u>
<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u>✓</u>	<u> </u>

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT (\pm 3% OF OPTIMUM)
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS.
- ALTERNATE METHOD OF PLACEMENT.

<u>✓</u>	<u> </u>	<u> </u>
<u>✓</u>	<u> </u>	<u>✓</u>
<u>✓</u>	<u> </u>	<u> </u>
<u>✓</u>	<u> </u>	<u>✓</u>

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.

<u> </u>	<u> </u>	<u>✓</u>
<u>10</u>	<u> </u>	<u> </u>

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN WATER TRUCK

5. LOCATION:

COORDINATES CC47 CC44D PH4YN PH51A
CC43 PH4YA PH48A6. REMARKS CC CURRENT CONTROL, NORTHEAST
EAST
POWERHOUSE, NORTH POWERHOUSE

INSPECTOR

SAN DEMING, JR

DATE

08-10-93

REVIEWED BY

DATE

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21

SHEET 2 OF 3

INSPECTION DATE 08-11-93

1. MATERIAL

ACCEPT

REJECT

N/A

- COMMON FILL SOIL OBTAINED FROM
THE APPROVED BORROW AREA

_____ ✓

- FREE FROM SOD, BRUSH, ROOTS OR
OTHER PERISHABLE MATERIALS,
ROCKS LARGER THAN 3 INCHES.

_____ ✓

- EXCAVATION IS COMPLETE AND
ACCEPTED BY THE CONSTRUCTION
MANAGER BASED ON THE SURFACE
SOIL SAMPLES ANALYTICAL RESULTS

_____ ✓

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS

_____ ✓

- INSPECT LAYER OF FILL FOR PROPER
MOISTURE CONTENT (\pm 3% OF OPTIMUM)

_____ ✓

- SURVEYOR VERIFIED SLOPES, THICKNESS
AND ELEVATIONS.

_____ ✓

- ALTERNATE METHOD OF PLACEMENT.

_____ ✓

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT
TEST FOR EACH 100 C.Y. OR EACH
AREA COMPLETED IN ONE DAY
WHICHEVER IS LESS.

_____ ✓

- NUMBER OF PASSES FOR ALTERNATE
METHOD OF PLACEMENT.

_____ ✓

FORM A-21

SHEET 3 OF 3

INSPECTION DATE 08-11-93

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN N.A.

5. LOCATION:

COORDINATES _____

6. REMARKS

NO BACKFILL

INSPECTOR

DAN DEMING, JR

DATE

08-11-93

REVIEWED BY

DATE

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 2 OF 3
INSPECTION DATE 08-12-93

1. MATERIAL

ACCEPT

REJECT

N/A

- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS. ROCKS LARGER THAN 3 INCHES.
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS

✓

✓

✓

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT (\pm 3% OF OPTIMUM)
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS.
- ALTERNATE METHOD OF PLACEMENT.

✓

✓

✓

✓

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.

✓

✓

FORM A-21

SHEET 3 OF 3

INSPECTION DATE 08-12-93

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN

N.A.

5. LOCATION:

COORDINATES

6. REMARKS

NO TRACKFILL

INSPECTOR

DAN DEMING, JR

DATE

08-12-93

REVIEWED BY

DATE

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21

SHEET 2 OF 3

INSPECTION DATE 08-13-93

1. MATERIAL

ACCEPT

REJECT

N/A

- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS, ROCKS LARGER THAN 3 INCHES.
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS

✓

✓

✓

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT (\pm 3% OF OPTIMUM)
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS.
- ALTERNATE METHOD OF PLACEMENT.

✓

✓

✓

✓

✓

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.

✓

10

✓

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN WATER TRUCK

5. LOCATION:

COORDINATES 0E33Z 0E1YE 0E1ZZ 0E1Y4
0E1Z 0E1Z5 0E1ZE

6. REMARKS VIBRATORY ROLLER COMPACTED
10 PASSES

INSPECTOR DON DEMING, JR.

DATE 08-13-93

REVIEWED BY _____

DATE _____

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 2 OF 3
INSPECTION DATE 08/06/93

1. MATERIAL	ACCEPT	REJECT	N/A
- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA	_____	_____	_____✓
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS, ROCKS LARGER THAN 3 INCHES.	_____	_____	_____✓
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS	_____	_____	_____✓
2. PLACEMENT			
- FILL IS PLACED IN HORIZONTAL LAYERS	_____	_____	_____✓
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT (\pm 3% OF OPTIMUM)	_____	_____	_____✓
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS.	_____	_____	_____✓
- ALTERNATE METHOD OF PLACEMENT.	_____	_____	_____✓
3. VERIFICATION TESTING			
- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.	_____	_____	_____✓
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.	_____	_____	_____✓

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN NONE

5. LOCATION:

COORDINATES _____

6. REMARKS _____

INSPECTOR Dan Deming, JR

DATE 08-16-93

REVIEWED BY _____

DATE _____

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 2 OF 3
INSPECTION DATE 08-17-93

1. MATERIAL

ACCEPT

REJECT

N/A

- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS. ROCKS LARGER THAN 3 INCHES.
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS

_____	_____	✓ _____
_____	_____	✓ _____
_____	_____	✓ _____

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT (\pm 3% OF OPTIMUM)
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS.
- ALTERNATE METHOD OF PLACEMENT.

_____	_____	✓ _____
_____	_____	✓ _____
_____	_____	✓ _____
_____	_____	✓ _____

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.

_____	_____	✓ _____
_____	_____	✓ _____

FORM A-21

SHEET 3 OF 3

INSPECTION DATE 08-17-93

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN RAIN

5. LOCATION:

COORDINATES _____

6. REMARKS BRUSH CLEARING & CHIPPING
BEHIND VALLEY STEEL

INSPECTOR DAW DEMING, JR

DATE 08-17-93

REVIEWED BY _____

DATE _____

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 2 OF 3
INSPECTION DATE 08-18-83

1. MATERIAL

- COMMON FILL SOIL OBTAINED FROM THE APPROVED BORROW AREA
- FREE FROM SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS, ROCKS LARGER THAN 3 INCHES.
- EXCAVATION IS COMPLETE AND ACCEPTED BY THE CONSTRUCTION MANAGER BASED ON THE SURFACE SOIL SAMPLES ANALYTICAL RESULTS

ACCEPT

REJECT

N/A

<u>✓</u>	<u> </u>	<u> </u>
<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>✓</u>

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS
- INSPECT LAYER OF FILL FOR PROPER MOISTURE CONTENT (\pm 3% OF OPTIMUM)
- SURVEYOR VERIFIED SLOPES, THICKNESS AND ELEVATIONS.
- ALTERNATE METHOD OF PLACEMENT.

<u>✓</u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u>✓</u>
<u>✓</u>	<u> </u>	<u> </u>
<u>✓</u>	<u> </u>	<u> </u>

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT TEST FOR EACH 100 C.Y. OR EACH AREA COMPLETED IN ONE DAY WHICHEVER IS LESS.
- NUMBER OF PASSES FOR ALTERNATE METHOD OF PLACEMENT.

<u> </u>	<u> </u>	<u>✓</u>
<u>10</u>	<u> </u>	<u> </u>

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN WATER TRUCK

5. LOCATION:

COORDINATES _____

6. REMARKS BEHIND VALLEY STEEL, ALONG
W.A.G.

INSPECTOR DAN DEMING JR

DATE 08-18-93

REVIEWED BY _____

DATE _____

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION

FORM A-21
SHEET 2 OF 3
INSPECTION DATE 08-19-93

1. MATERIAL

ACCEPT

REJECT

N/A

- COMMON FILL SOIL OBTAINED FROM
THE APPROVED BORROW AREA

✓

- FREE FROM SOD, BRUSH, ROOTS OR
OTHER PERISHABLE MATERIALS,
ROCKS LARGER THAN 3 INCHES.

✓

- EXCAVATION IS COMPLETE AND
ACCEPTED BY THE CONSTRUCTION
MANAGER BASED ON THE SURFACE
SOIL SAMPLES ANALYTICAL RESULTS

✓

2. PLACEMENT

- FILL IS PLACED IN HORIZONTAL LAYERS

✓

- INSPECT LAYER OF FILL FOR PROPER
MOISTURE CONTENT (\pm 3% OF OPTIMUM)

✓

- SURVEYOR VERIFIED SLOPES, THICKNESS
AND ELEVATIONS.

✓

✓

- ALTERNATE METHOD OF PLACEMENT.

✓

W

3. VERIFICATION TESTING

- 1 DENSITY AND MOISTURE CONTENT
TEST FOR EACH 100 C.Y. OR EACH
AREA COMPLETED IN ONE DAY
WHICHEVER IS LESS.

✓

- NUMBER OF PASSES FOR ALTERNATE
METHOD OF PLACEMENT.

10

PLACEMENT OF COMMON FILL
REFINERY SURFACE SOIL REMEDIATION (CONT'D)

4. DUST CONTROL

ACTION TAKEN WATER TRUCK

5. LOCATION:

COORDINATES ALONG WAG. BEHIND
VALLEY STEEL

6. REMARKS _____

INSPECTOR [Signature]

DATE 08-19-93

REVIEWED BY _____

DATE _____

APPENDIX E

SAMPLE CHAIN-OF-CUSTODY FORMS



AW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY: ARCO WILLOSVILLE
STREET ADDRESS: 2448 South Willoville Ave.
WILLOSVILLE, MO 64595

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE													LENL LAB NO.	
SAMPLERS (SIGNATURE)		SAMPLING DATE			40 ml G VOA HCl	1 L G - AMBER	8 oz G. W/M	2 oz G. W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	1 L PL	4 oz PL W/M	250 ml PL		1 L TEFLON
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION															
11:40 A	X		SO	SR-CC-22															
11:45 A	X		SO	SR-CC-14															
12:30 P	X		SO	SR-CC-25															
12:45 P	X		SO	SR-CC-24															
12:55 P	X		SO	SR-CC-13															
1:25 P	X		SO	SR-CC-23															
1:55 P	X		SO	SR-CC-12															
2:10 P	X		SO	SR-CC-2															
2:40 P	X		SO	SR-CC-1															
3:10 P	X		SO	SR-CC-27															
RELINQUISHED BY: <u>[Signature]</u>				DATE / TIME: <u>8 JUL 1992 14:00</u>		RECEIVED BY: <u>[Signature]</u>		DATE / TIME: <u></u>		RELINQUISHED BY: <u></u>		RECEIVED BY LABORATORY: <u></u>		DATE / TIME: <u></u>					
(SIGNATURE)						(SIGNATURE)				(SIGNATURE)		(SIGNATURE)							

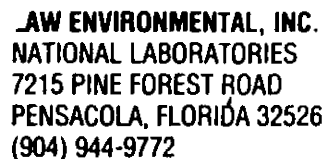
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PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



**SAMPLING
INFORMATION**

NAME OF FACILITY: Alco Smelter Refinery
STREET ADDRESS: 2448 South Main Ave
Wendover, NV 89401

[illegible]

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REMARKS

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



JAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY:

STREET ADDRESS:

APCO Industrial Corp.
2445 S. Highway 101
WELLSVILLE, MD 21885

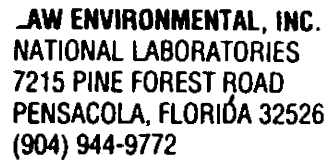
PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
SAMPLERS (SIGNATURE)					40 ml G. VOA HCl	1 L G. - AMBER	8 oz G. W/M	2 oz G. W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH+Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	4 oz PL W/M	250 ml PL	1 L TEFLON	Amber			
TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION																	
0900	Y		So	SR-DA-9	1																
0910	Y		So	SR-DA-15	1																
0950	Y		So	SR-DA-16	1																
0955	Y		So	SR-DA-8	1																
0900	Y		So	SR-DA-17	1																
0915	Y		So	SR-DA-18	1																
0930	Y		So	SR-DA-19	1																
0945	Y		So	SR-DA-20	1																
1005	Y		So	SR-DA-7	1																
1030	Y		So	SR-DA-6	1																
1050	Y		So	SR-DA-21	1																
RELINQUISHED BY:		DATE / TIME		RECEIVED BY:		DATE / TIME		RELINQUISHED BY:		DATE / TIME		RECEIVED BY LABORATORY:		DATE / TIME							
R. J. [Signature]		8 JUL 92 14:00		[Signature]				[Signature]				[Signature]									

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REMARKS

*SOURCE CODES

RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA

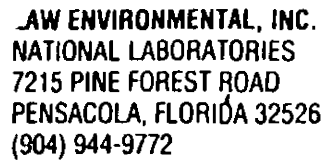


**SAMPLING
INFORMATION**

NAME OF FACILITY: High School Library
STREET ADDRESS: 2018 S. H. Hocking Ave
WILLOSVILLE, NC 27585

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA



**SAMPLING
INFORMATION**

NAME OF FACILITY: Arco Sinker Refinery
STREET ADDRESS: 2448 South Brooklyn Ave

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA



AW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY: Arco Sinclair Refinery
STREET ADDRESS: 2448 South Brooklyn Ave

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
SAMPLERS (SIGNATURE)		SAMPLING DATE			40 ml G VOA HCl	1 L G - AMBER	8 oz G W/M	2 oz G W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	4 oz PL W/M	250 ml PL	1 L TEFLON	250 ml Amber Glass			
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																	
0810	X		So	SR-DA-27	1																
0835	X		So	SR-DA-28	1																
0900	X		So	SR-DA-1	1																
0930	X		So	SR-ES-5	1																
0950	X		So	SR-ES-6	1																
1020	X		So	SR-ES-7	1																
1050	X		So	SR-ES-3	1																
1105	X		So	SR-ES-1	1																
1130	X		So	SR-ES-2	1																
1140	X		So	SR-CC-26	1																
1155	X		So	SR-CC-17	1																

RELINQUISHED BY: <u>Joseph Espinoza</u> (SIGNATURE)	DATE / TIME <u>07/09/92</u>	RECEIVED BY: _____ (SIGNATURE)	DATE / TIME ____	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED BY LABORATORY: _____ (SIGNATURE)	DATE / TIME ____
---	--------------------------------	--------------------------------------	---------------------	--	---	---------------------

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PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

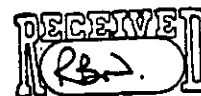
NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA

**CEIMIC
CORPORATION***"Analytical Chemistry for Environmental Management"*DATE: 10/22/92FAX# 716-593-7882TO: Geo Con

(COMPANY NAME)

ATTN: Fred HastelFROM: Cathy MarshNUMBER OF PAGES 1 (INCLUDING COVERSHEET)

OCT 22 1992



RE: _____

COMMENTS/INSTRUCTION:

Attached is our copy of the UPS pickup record.4 coolers were shipped on 10/12/92 UPS andDay Air to Law Environmental Record# 137380491

17160931882
10-22-1992 03:35PM
F.W.M.
CEIMIC CORPORATION

TOTAL P. 02

United Parcel Service

PICKUP RECORD

DATE 10/12/92

CEIMIC CORPORATION
100 DEAN KNAUSS DRIVE
NARRAGANSETT, RHODE ISLAND 02882

PICKUP RECORD NO.
137380491

CHECK CODE
3

STAMP YOUR UPS SHIPPER NUMBER BELOW

RI 012-275

1 EACH PACKAGE ON A SEPARATE LINE. IF RECORD IS VOIDED, PLEASE GIVE TO DRIVER.
INCREASE FRACTIONS OF A POUND TO NEXT FULL POUND.

					TYPE SERVICE		LBS	OS*	DECLARED VALUE** IN EXCESS OF \$100.00	COD AMOUNT	(V) CALL	(A)	FOR SHIPPER'S USE TO RECORD DELIVERY CHARGES
NAME	STREET	CITY	STATE	ZIP CODE	GROUND	AIR							
Days Inn 1723 Lejeune Blvd.		Jacksonville, NC	28540		(V) RES (V) DEL	ZONE IN STATE OUT OF STATE	4	8					
"		"	"	"			4	25					
"		"	"	"			4	25					
"		"	"	"			4	16					
"		"	"	"			4	9					
Low Governmental One Nat'l	Case 7215 Pine Forest Rd.	Pensacola, FL	32526				12	50					
"		"	"	"			12	50					
"		"	"	"			12	50					
"		"	"	"			12	26					
CEIMIC Corp. 5413 Penn H. W II		Pittsburgh, PA	15276				4	5					
Days Inn 1723 Lejeune Blvd.		Jacksonville, NC	28540				4	36					
"		"	"	"			4	36					
"		"	"	"			4	19					
"		"	"	"			4	50					

2ND DAY AIR SHIPPER RECEIPT 2408 0340 258
2ND DAY AIR SHIPPER RECEIPT TRACKING NO. 2408 0340 230
2ND DAY AIR SHIPPER RECEIPT TRACKING NO. 2408 0340 267
2ND DAY AIR SHIPPER RECEIPT TRACKING NO. 2408 0340 249

PICKUP TIME 2:00 PM
NO PKGS. 1 CF
NO CALLS

7-6-92 (800M BHB 6-92)M

* US (Oversize) applied if less than 25 lbs. and more than 84 inches in length and girth combined.
** Unless a greater value is declared in writing on this receipt, the shipper hereby declares and agrees that the declared value of each package or article not enclosed in a package covered by this receipt is \$100, which is a reasonable value under the circumstances surrounding the transportation. The rules relating to liability established by the Warsaw Convention and any amendments thereto shall apply to the international carriage of any shipment hereunder insofar as the same is governed thereby. The entry of a COD amount is not a declaration of value in addition, the maximum value for an air service package is \$25,000 and the maximum carrier liability is \$25,000. Claims not made to carrier within 9 months of the scheduled delivery date are waived.
*** All checks in payment of C.O.D. are accepted at shipper's risk.

Sample Storage Record

Laboratory ID	Refrigerator No.	Date disposed of
920417	ops, voo	
920418	6, voo	9/9/92
920419	4, voo	9/17/92
920420	4	mt
920421	4	9/9/92
920422	4	9/17/92
920423	9, voo	9/9/92
920424	9, voo	9/9/92
920425	voo, 1	9/9/92
920426	5, voo	10/14/92
920427	4, voo	mt
920428	7, voo	9/17/92
920429	5, 9, voo	10/14/92
920430	4	10/6/92
920431	voo	—
920432	1, 2, 5	9/8/92 9/9/92
920433	7, voo	
920434	5, 9	9/24/92
920435	7, voo	9/29/92
920436	3	mt
920437	7, 8, voo	10/16/92
920438	6, voo	9/17/92
920439	6, ops, 3, voo	9/22/92
920440	5, voo	
920441	ops, voo	
920442	voo	—
920443	6	mt

CEIMIC Sample Control Record

5 007

Labs ID	Bottle No.	Ref. No.	Date/Time Removed	Initia.	Date/Time Returned	Initia.	COMMENT
20343	12-715	5	7/6/92	SHD	—	SHD	MT
336	12, 17, 18	5	7/8/92 11:20	MS	7/14/92 0700	AC	
343	10, 11, 12, 13, 14, 15	5	7/9/92 9:00	MS	7/2/92 0856	AC	
336	4, 13, 17, 18	5	7/9 10:00	MS	7/9 5:00	SHD	
336	12, 17, 18	5	7/9 10:00	SHD	7/13 2:00	SHD	
336	4 000	5	7/13 0200	AC	7/13 1044	AC	
536	1-17 Metals	5	7/17 8:05	MS	7/17 1:45	MS	
426	AQ	5	8/24	SHD	8/24	SHD	
426	2-3, 10, 1	5	8/25 10:00	MS	8/25 3:05	BP	
426	1-17 Metals	5	8/26 9 AM	BP	8/26 11:00	BP	
436	1-14 CN	5	8/26 10:30	MS	8/26 2200	MS	
426	2, 3, 4, 5, 10, 11	5	8/27 18:40	JT	8/27 10:00	JT	
429	1-4, 7-9						
427	AQ	5	8/27	SHD	—	SHD	MT
427	1-4, 7-9	5	8/28 12:30	JT	8/28 17:00	JT	
427	14-17	5	8/31 7:00	JT	8/31 14:00	JT	
427	2-1	5	8/31 15:00	JT	8/31 17:30	JT	
432	AQ	5	8/31	SHD	8/31 730	N/A	
440	AQ 10, 10	5	8/30 9/1 2:00	RB			
429	5, 6, 10, 12, 18	5	9/2/92 9:40	SHD	9/3 9:15	SHD	
472	1-7	5	9/5	SHD	9/5	SHD	
440	25, 29	5	9/5	SHD	9/5	SHD	
472	5-10	5	9/8 2400	BP	9/9 1:30	BP	
472	5-10	5	9/9 7:00	JT	9/9 8:30	JT	
486	4, 18, 20, 21, 22, 23	5	9/9 7:20	RB			
434	1-7	5	9/11 10:00	JT	9/11 12:30	JT	
426	1-14	1	9/12 1340	BP	9/13 1725	BP	
429	1-4, 7-9	5	9/15 10:00	JT			
434	1-7	5	9/15 2200	BP	9/15 2400	BP	
417A	9-10	5	9/16 1600	BL	9/16 1700	BL	
429	2, 5, 10, 12, 19, 1	5	9/16 1730	BP	9/17 0700	BP	
429	18, 20, 21, 22, 23, 24	5	9/16 1730	BP	9/17 0300	BP	
472	5-10	5	9/16 1740	BP	9/17 0300	BP	
472	9, 10	5	9/20 1540	BL	9/20 1545	BL	
400	1, 2, 4, 5	5	9/21 8:46	SHD	9/22 11:00	SHD	
486	4, 18, 20	5	9/21 2:00	BP			

CEIMIC Sample Control Record

Lab ID	Bottle No.	Ref. No.	Date/Time Removed	Initia.	Date/Time Returned	Initia.	COMMENT
435	1,2	7	9/6/92 8:35	BP	9/6 16:40	BP	
437	23,6,15,19,21	7	9/6/92 8:35	BP	9/6 16:40	BP	
415	12,16,13,15,17	7	9/8/92 16:00	BP	9/8 19:12	BP	
415	19,21-23,20,20,25	7	9/8/92 16:00	BP	9/8 19:12	BP	
441	1	7	9/11/92 9:15	PS	9/11	PS	
415	1-3, 4, 5, 11, 13, 15, 17, 19, 21, 23, 25	7	9/9/92 14:30	JT	9/9 18:00	BP	
433	20, 14	7	9/10/92 11:05	LAL	9/11 7:40	JT	
457	1-48	7	9/14/92 7:30	JT	9/14 11:00	JT	
437	4-17	7	9/14/92 15:00	TWB	9/14 2:10	TWB	
415	18-17	7	9/14/92 15:00	JT	9/14 18:30	JT	
433	2, 4, 5	7	9/14/92 16:30	JT	9/14 12:30	JT	
437	14, 17	7	9/14 17:50	BP	9/14 21:50	BP	
441	1	7	9/15 9:00	LAL	9/15 19:00	LAL	
437	4, 5, 6, 7, 11, 13, 15, 17, 19, 21, 23, 25	7	9/16 8:00	JT	9/16 16:01	BP	
437	0, 3	7	9/18 9:00	JT			
411	27, 31	7	9/19 12:50	BP	9/19 17:30	BP	
411	14, 7, 10, 13, 16	7	9/19 12:50	BP	9/19 17:30	BP	
411	25, 26, 29, 30, 32	7	9/19 12:50	BP	9/19 17:30	BP	
411	35-37	7	9/19 12:50	BP	9/19 17:30	BP	
437	23, 6, 15, 19, 21	7	9/19 12:50	BP	9/19 17:30	BP	
437	8, 9, 4, 5, 11-14, 17	7	9/19 12:50	BP	9/19 17:30	BP	
504	4, 11, 15, 17, 19, 21, 23, 25	7					
504	2, 11, 13, 15, 17, 19, 21, 23, 25	7	9/21 6:30	YC	9/22 12:30	YC	
504	1-40	7	9/22 12:30	TWB	9/22 1:30	TWB	
504	05, 7	7	9/22 2:30	YC	9/23 5:00	YC	
435	3	7	9/23 5:00	BP	9/25 12:00	LAL	
411	metals 16-27	7	9/29 9:30	BP	9/29 12:45	BP	
415	metals 1-10	7	9/29 9:30	BP	9/29 12:45	BP	
415	21-35 metals	7	10/1 9:30	BP	10/1 2:45	BP	
504	2, 9, 11, 14, 20	7	10/3 9:50	BP	10/3 13:20	BP	
411	1-37	7	10/3 15:30	BP	10/4 11:30	BP	
411	1-35 met	7	10/3 15:30	BP	10/4 11:30	BP	
411	1-2	7	10/5 1:00	BP	10/5 2:30	BP	
411	8, 11, 12, 23, 31	7	10/7 10:00	JT	10/7 13:00	JT	
504	1-31	7	10/7 10:00	TWB	10/8 1:30	MKS	
411	1, 10, 13, 16	2	10/8 11:10	BP	10/9 12:15	BP	

Sample Storage Record

Laboratory ID

Refrigerator No.

Date disposed of

920444	OP 8	9/24/92
920445	OP 8, UOA	
920446	OP 8, UOA	9/24/92
920447	OP 8, UOA	
920448	OP 8, UOA	
920449	7	9/29/92
920450	7	9/29/92
920451	UOA, 8	
920452	OP 8, UOA	9/24/92
920453	UOA, OP 8, OP 3	
920454	UOA, 8, OP 9, OP 10, OP 11	
920455	3, UOA	mt 9/29/92
920456	OP 12, UOA	
920457	OP 12, UOA	
920458	OP 12, UOA	
920459	2	9/24/92
920460	2	mt
920461	6, UOA	
920462	OP 7, UOA	
920463	1	10/6/92
920464	OP 12, UOA	
920465	4	9/29/92
920466	OP 10, UOA	
920467	OP 5, UOA	9/29/92
920468	4	mt
920469	OP 4, UOA	10/16/92

CEIMIC Sample Control Record

1 015

Labs ID	Bottle No.	Ref. No.	Date/Time Removed	Initia.	Date/Time Returned	Initia.	COMMENT
125	1-5	1	8/22/92 11:00	LY	8/22/92 4:20	LY	
920100	1-3	1	3/17/92 8:00	MYA	3/17 4:50	LY	
148	29	1	3/24 100	LY			
148	29	1	3/24 230	LY			
130	1,3-10	1	3/25 1000	LY	3/25 10:00	LY	
203	1-7	1	4/24 830	LY	4/24 10:00	LY	
203	4	1	4/27 1130	LY	4/27 1000	LY	
207	4-11 (not)	1	4/30 2:30	LY	4/30 4:55	LY	
207	1-14 (not)	1	5/1 0830	LY	5/5 28 3:30	LY	
207	1-15 (not)	1	5/5 10:00	LY	5/7 4:45	LY	
207	all mixed	1	5/6 845	LY	5/6 5:10	LY	
547	1-23	1	5/28 9:15 am	LY	5/28 3:45 am	LY	
292	1-6	1	5/10 10:00 am	LY			
305	1,3-6,8	1	6/15 1030 am	LY	6/16/92 445 am	LY	
305	1,2	1	6/16/92 1030	LY	6/16/92 1730	LY	
390	2 HNO3	1	6/16/92 2000	LY	6/16/92 2400	LY	
390	1	1	6/13/92 11:09	LY	6/13/92 11:20	LY	
90	1,2	1	8/15/92 1244	LY	8/15/92 1800	LY	
125	1-8	1	8/24/92 11:15	LY	8/24 5:00	LY	
25	1-8 not	1	8/24/92 11:15	LY	8/24 5:40 am	LY	
410	1 not	1	8/25/92 1:15	LY	8/25 3:00	LY	
425	3,4,8 TCN	1	8/20/92 1222	LY	8/20 1453	LY	
425	1,2,5,6,7	1	8/27/92 16:00	LY			
407	101	1	8/28 1040	LY	8/28 600	LY	
432	1-7 10	1	8/31	LY			
3012	09	1	8/31 1440	LY	8/31 230	LY	
432	4-27 1000	1	9/1	LY	9/1	LY	
463	1-19	1	9/4	LY	9/4	LY	
473	2-10	1	9/11 1015	LY	9/11	LY	
491	1	1	9/15 8:00	LY	9/15 4:15	LY	
113	1-7	1	9/16 4:00	LY	9/16 1900	LY	
491	1	1			9/20 1800	LY	
491	1	1	9/28 15:00	LY			
482	01	1	9/28 10/8 0900	LY	10/3 1900	LY	
495	1-12	1	10/7/92 17:00	LY	10/7 1:20 am	LY	

Sample Storage Record

Laboratory ID	Refrigerator No.	Date disposed of
920496	3, VOA	
920497	3, VOA	
920498	1	10/9/92
920499	3, VOA	
920500	3, VOA	
920501	3 4, VOA	
920502	VOA, 9, IOB	
920503	VOA, 4	
920504	VOA, 7	
920505	VOA, 5, 6, 3	
920506	OP5, OP13, VOA	
920507	OP5, OP8, OP13, VOA	
920508	7	10/9/92
920509	OP13, VOA	
920510	OP13, VOA	
920511	OP13, VOA	
920512	OP4, VOA	
920513	OP4, VOA	
920514	3, VOA	
920515	4, VOA	
920516	OP8, OP9, VOA, OP2	
920517	OP2, VOA	
920518	6	9/29/92
920519	OP2, VOA	
920520	3	mt. 9/29/92
920521	OP1, VOA	

CEIMIC Sample Control Record

7 014

ID	Bottle No.	Ref. No.	Date/Time Removed	Initia.	Date/Time Returned	Initia.	COMMENT
35	1,2	7	9/6/92 8:35	BP	9/6 16:40	BP	
37	23, 15, 19, 21	7	9/6/92 8:35	BP	9/6 16:40	BP	
15	12, 18, 21, 13, 11, 17	7	9/8/92 16:00	BP	9/8 19:12	BP	
115	12, 18, 21, 13, 11, 17	7	9/8/92 16:00	BP	9/8 19:12	BP	
141	1	7	9/11/92 9:15	PS	9/9	PS	
115	1-2, 4, 6, 7, 11, 13, 15, 17, 19, 21, 23	7	9/9/92 14:30	JT	9/9 18:10	BP	
33	all Hg	7	9/10/92 11:05	LAL	9/11 9:40	JT	
33	1-46	7	9/14/92 7:30	JT	9/14 11:00	JT	
30	4-17	7	9/14/92 16:00	TWB	9/14 2:14	TWB	
115	16-17	7	9/14/92 18:00	JT	9/14 18:30	JT	
133	2, 4, 5	7	9/14/92 16:30	JT	9/14 12:30	JT	
37	14, 17	7	9/14 17:50	BP	9/14 21:55	BP	
41	1	7	9/15 9:00	LAL	9/15 19:00	LAL	
37	15, 18, 21, 13, 11, 17	7	9/16 8:00	JT	9/16 16:01	BP	
31	0, 3	7	9/18 9:00	11:1			
11	27, 31	7	9/19 12:50	BP	9/19 17:30	BP	
11	14, 7, 10, 13, 16	7	9/19 12:50	BP	9/19 17:30	BP	
211	25, 26, 29, 30, 32	7	9/19 12:50	BP	9/19 17:30	BP	
411	35-37	7	9/19 12:50	BP	9/19 17:30	BP	
37	23, 6, 15, 19, 21	7	9/19 12:50	BP	9/19 17:30	BP	
37	8, 9, 11, 5, 11, 17	7	9/19 12:50	BP	9/19 17:30	BP	
24	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100	7					
504	1-40	7	9/22 12:30	TWB	9/22 1:00	TWB	
504	05, 7	7	9/22 2:30	LAL	9/23 5:00	LAL	
755	3	7	9/23 5:00	BP	9/25 12:00	LAL	
111	10-13	7	9/29 9:30	BP	7/29 12:45	BP	
115	1-19	7	9/29 9:30	BP	9/29 12:45	BP	
415	21-35	7	10/1 9:30	BP	10/1 2:45	BP	
504	2, 7, 11, 14, 18, 21	7	10/3 9:30	BP	10/3 13:20	BP	
08	1-37	7	10/3 15:30	BP	10/4 11:30	BP	
15	1-38	7	10/3 15:30	BP	10/4 11:30	BP	
115	1-2	7	10/3 1:00	BP	10/3 21:30	BP	
111	8, 14, 12, 21, 31	7	10/7 10:00	JT	10/7 13:00	JT	
504	1-31	7	10/8 11:00	TWB	10/8 13:00	TWB	
411	10, 13, 16	2	10/8 11:00	TWB	10/9 12:15	TWB	

Sample Storage Record

Laboratory ID	Refrigerator No.	Date disposed of
920496	3, UOA	
920497	3, UOA	
920498	1	10/9/92
920499	3, UOA	
920500	3, UOA	
920501	3 4, UOA	
920502	UOA, 1, 1013	
920503	UOA, 4	
920504	UOA, 7	
920505	UOA, 3, 16, 3	
920506	OP5, OP13, UOA	
920507	OP5, OP8, OP13, UOA	
920508	7	10/9/92
920509	OP13, UOA	
920510	OP13, UOA	
920511	OP13, UOA	
920512	OP4, UOA	
920513	OP4, UOA	
920514	3, UOA	
920515	4, UOA	
920516	OP8, OP9, UOA, OP2	
920517	OP2, UOA	
920518	6	9/29/92
920519	OP2, UOA	
920520	3	9/29/92
920521	OP1, UOA	

Sample Storage Record

Laboratory ID

Refrigerator No.

Date disposed of

920522	OP4, OP3, VOA	
920523	OP13, FROST	
920524	OP12, FROST	
920525	3, VOA	9/29/92
920526	2	9/29/92
920527	2, VOA	
920528	4	10/9/92
920529	4	
920530	VOA, OP3, 3	
920531	4	10/9/92
920532	VOA	-
920533	8, VOA, OP10	
920534	OP11, VOA	
920535	6	10/9/92
920536	2, OP10, VOA, OP1	
920537	VOA	-
920538	OP8, OP9, OP10, VOA, OP11, 12	
920539	OP11, VOA	
920540	OP9, VOA	
920541	OP7, VOA	
920542	2, OP10, VOA	
920543	OP13, VOA, 3	
920544	VOA, OP3	
920545	VOA, OP6, 8	
920546	VOA	-
920547	3, 10, VOA	

CEIMIC Sample Control Record

4 000

Lab ID	Bottle No.	Ref. No.	Date/Time Removed	Initia.	Date/Time Returned	Initia.	COMMENT
117	1	4	8/22 1040	UFL	8/28 435	LAL	
118	1	4	8/26 1040	LAL	8/28 435	LAL	
1130	123	4	8/28 1040	LAL	8/28 435	LAL	
1127	201	4	8/28 12:30	UFL			
397	11	4	9/1/92 12:10	JA	9/1/92 6:05	JA	
397	07	4	9/1/92 3:30	JC	9/1 345	JC	
10	Misc mat	4	9/3 1810	LAL			
65	5+6	4	9/4	UFL			
65	5+6	4	9/4 12:05	LAL	9/5 135	LAL	
65	213	4	9/5 1540	BP	9/5 1640	BP	
67	1	4	9/7 14:30	JT	9/7 1810	BP	
193	1	4	9/10	UFL		UFL	MT
165	1-4	4	9/13/92 1000	BL	9/13/92 1030	BL	
127	01	4	9/15 900	LAL			
7	3, 8, 9, 10, 11, 12, 13	4	9/17	UFL	9/17/92 200		
111	2, 3, 5, 10, 12	4	9/17 9:30	L1	9/17/92 103	TWB	
111	3, 4, 6	4	9/17 9:30	BP	9/17/92 103	K1	
111	1, 2, 3, 4, 12	4	9/17 10:30	UFL	9/17 103	TWB	
118	50, 78, 9, 10, 13	4	9/18 11	NP	9/22 500	NP	
118	1, 2, 3	4	9/18 2:30	JA	9/18 5115	JA	
77	19	4	9/20 9:30	BP	9/20 1940	BP	
118	123, 4, 12	4	9/21 1030	L1	9/22 120	L1	
118	1-6	4	9/21 6:30	UFL	9/22 12:30	UFL	
118	Misc Mat	4	9/22 1215	LAL			
118	1-6, 19	4	9/23 1240	TWB			
118	123	4	9/24 830	NP	9/25 1010	NP	
118	10	4	9/25 1200	UFL	9/25 1200	UFL	
118	1, 2	4	9/30 2110	UFL	9/30 11:50	UFL	
118	1, 2	4	10/1 0120	UFL			
118	1-4	4	10/5 1130	UFL	10/8 735	UFL	
118	1-28	4	10/5 12:30	UFL	10/5 20:15	UFL	
118	1-4	4	10/5 12:30	UFL	10/5 20:15	UFL	
118	1-4	4	10/5 12:30	UFL	10/5 20:15	UFL	

CEIMIC Sample Control Record

4 027

Lab ID	Bottle No.	Ref. No.	Date/Time Removed	Initia.	Date/Time Returned	Initia.	COMMENT
501	PE ANALYSIS	27-34 15, 16	10/06 1200	SMD	10/06 1400	SMD	
501	14, 17-22	4	10/7 1100	ICW	—	—	10/7 1100
501	13, 14, 15, 23, 25	4	10/7 1700	MXS	10/8 1300	MXS	
553	1, 2, 3	4	10/8 11:10	ICW	10/8 4:20	ICW	
501	1	4	10/8 12:15	ICW	10/8 4:20	ICW	
531	1-4	4	10/8 12:25	ICW	10/8 12:25	ICW	
501	7, 8	4	10/9 1:00	ICW	—	—	empty vials
557	1, 2, 3	4	10/12 12:15	ICW	10/13 2:30	ICW	
551	1-4	4	10/12 1830	ICW	10/14 1100	ICW	
566	01	4	10/13 11:00	ICW	10/14 900	ICW	
572	1-1	4	10/13 11:35	ICW	10/13 2:30	ICW	
570	1-8	4	10/13 1300	ICW	10/13 1500	ICW	
569	01	4	"	ICW	—	ICW	MT
570	09x2	"	"	ICW	—	ICW	"
553	01	4	10/12 300	ICW			
553	060	4	10/12 300	ICW	10/13 1817	ICW	
561	1-8	4	10/13 1710	ICW	10/14 8:30	ICW	
570	1-8	4	10/13 1715	ICW	10/13 2000	ICW	05+07 empty
570	13-25	4	10/14 1230	ICW	10/15 855	ICW	
571	01 & 02	4	10/14 12:30	ICW	10/15 855	ICW	
573	01-10	4	10/14 1230	ICW	10/15 855	ICW	
570	32 & 33	4	10/15 845	ICW	10/15 855	ICW	
01	11, 12	4	10/16 8:30	ICW	—	ICW	
557	1, 2, 3	4	10/16 11:00	ICW	10/16 1:15	ICW	
573	10	4	10/17 8:30	ICW	10/17 2:10	ICW	
570	34, 36	4	10/17 12:10	ICW	—	ICW	
573	11, 12, 13, 14, 15	4	10/17 1000	ICW	10/17/92 1130	ICW	14 & 1, 13 empty
570	37	4	10/17/92 1500	ICW	—	ICW	empty
570	37	4	10/18 0900	ICW	—	ICW	empty
570	34, 36	4	10/17 12:10	ICW	10/17 2:10	ICW	
501	9, 10	4	10/17 12:10	ICW	—	ICW	PE vials

CEINIC Sample Control Record

Cabs ID	Bottle No.	Ref. No.	Date/Time Removed -	Initia.	Date/Time Returned	Initia.	COMMENT
117	1	4	8/23 1040	LAL	8/28 436	LAL	
122	1	4	8/26 1040	LM	8/28 436	LAL	
430	1-23	4	8/26 1040	LAL	8/28 436	LAL	
427	201	4	8/28 12:30	LM			
397	11	4	9/1/92 12:10	LM	9/1/92 6:05	LM	
397	07	4	9/1/92 3:30	LM	9/1 3:45	LM	
110	Misc mat	4	9/3 1806	LM			
465	5+6	4	9/4	LM			
165	5+6	4	9/4 12:05	LM	9/5 135	LM	
165	23	4	9/5 1640	BP	9/5 1645	BP	
421	1	4	9/9 14:30	JP	9/9 1810	BP	
493	1	4	9/10	LM		LM	MT
465	1-4	4	9/13/92 1000	BL	9/13/92 1030	BL	
427	01	4	9/15 900	LM			
427	12,13	4	9/17 900	LM	9/17/92 200		
427	2,4,5,11,12	4	9/17 9:30	LM	9/17/92 103	TWOB	
427	3,4,6	4	9/17 9:30	LM	9/17/92 3:40	K	
117	1,2,3,4,12	4	9/17 9:30	LM	9/17 1:30	TWOB	
427	3,4,11,12	4	9/17 1:30	LM			
427	50,7,8,9,10,13	4	9/18 4	LM	9/22 5:00	MF	
515	1,2,3	4	9/18 2:30	LM	9/18 5:15	LM	
477	19	4	9/20 9:20	BP	9/20 1940	BP	
418	123,4,12	4	9/20 1200	LM	9/22 1200	LM	
503	1-6	4	9/21 6:30	LM	9/22 12:30	LM	
416,477	Misc Mat	4	9/22 1215	LM			
417	7-6,19	4	9/23 12:30	LM			
515	1,2,3	4	9/24 8:00	LM	9/25 10:10	MF	
514	10	4	9/25 1200	LM	9/25 1200	LM	
522	1,2	4	9/30 4:10	LM	9/30 11:50	SM	
551	1-4	4	10/1 0120	LM			
528	1-28	4	10/5 1130	LM	10/8 735	LM	
531	1-28	4	10/5 12:30	LM	10/5 20:15	LM	
531	1-4	4	10/5 12:35	LM	10/5 20:15	LM	
529	1+2	4	10/6 0900	LM	10/6 1000	LM	#2 EMPTY

CEIMIC Sample Control Record

4 027

Labs ID	Bottle No.	Ref. No.	Date/Time Removed	Initia.	Date/Time Returned	Initia.	COMMENT
501	6 AMPULES	27-34 13, 16	10/06 1200	SMD	10/06 1400	SMD	
501	14, 17-22	4	10/7 1100	ICW	—	—	Un T. 1.1
503	13, 14, 15, 23, 25	4	10/7 1700	NKS	10/8 1700	NKS	
503	1, 2, 3	4	10/8 11:10	TS	10/8 4:20	TS	
503	1	4	10/8 12:15	TS	10/8 4:20	TS	
531	1-4	4	10/8 12:30	TS	10/8 12:30	TWC	
501	7, 8	4	10/7 1:00	SMD	—	—	empty vials
557	1, 2, 3	4	10/12 12:15	SMD	10/13 2:30	SMD	
551	1-4	4	10/12 18:30	TS	10/14 1100	BP	
566	01	4	10/13 11:00	ICW	10/14 900	ICW	
572	1-4	4	10/13 11:35	SMD	10/13 2:30	SMD	
570	1-8	4	10/13 1300	SMD	10/13 1500	SMD	
569	01	4	"	SMD	—	SMD	MT
570	02x2	"	"	SMD	—	SMD	"
501	07	4	10/13 300	LAZ			
553	000	4	10/13 300	LAZ	10/13 1817	BP	
561	1-8	4	10/13 1710	BP	10/14 8:30	TS	
570	1-8	4	10/13 1715	LC	10/13 2000	LC	05807 empty
570	13-25	4	10/14 1230	LC	10/15 855	TS	
571	01 & 02	4	10/14 12:30	LC	10/15 855	TS	
573	01-10	4	10/14 1230	LC	10/15 855	TS	
570	32 & 33	4	10/15 845	LC	10/15 855	TS	
501	11, 12	4	10/16 8:30	SMD	—	—	
557	1, 2, 3	4	10/16 11:00	SMD	10/16 1:15	SMD	
573	10	4	10/17 8:30	MF	10/14 2:10	SMD	
573	14, 15, 18, 19	4	10/17 1000	LC	10/17/92 1136	REL	14 & 1, 13 empty
570	37	4	10/17/92 1500	BL	—	BL	empty
570	37	4	10/18 0900	BL	—	BL	empty
570	34, 36	4	10/19 12:10	SMD	10/19 2:10	SMD	
501	9, 10	4	10/17 12:10	SMD	—	—	PE vials

Sample Storage Record

Laboratory ID	Refrigerator No.	Date disposed of
920522	OP4, OP3, VOA	
920523	OP13, Freezer	
920524	OP12, Freezer	
920525	3, VOA	9/29/92
920526	2	9/29/92
920527	2, VOA	
920528	4	10/9/92
920529	4	
920530	VOA, OP3, 3	
920531	4	10/9/92
920532	VOA	-
920533	8, VOA, OP10	
920534	OP11, VOA	
920535	6	10/9/92
920536	2, OP10, VOA, OP1	
920537	VOA	-
920538	OP8, OP9, OP10, VOA, OP4, 12	
920539	OP11, VOA	
920540	OP7, VOA	
920541	OP7, VOA	
920542	2, I018, VOA	
920543	I013, VOA, 3	
920544	VOA, OP3	
920545	VOA, OP6, 8	
920546	VOA	-
920547	3, 10, VOA	

CHIMIC Corporation 100 Dean Knauss DR., Narragansett, RI 02882

0035

CEIMIC Sample Control Record

9 115

Lab ID	Bottle NO.	Date/Time Removed	Initia.	Date/Time Returned	Initia.	Comments
122	B-11 Gd	4/10 1125	AC	4/21 0922	AC	
123	5-7 11 (-7)	4/10 900	AC		AC	MT
124	12x3 19	4/17	AC		AC	MT
188	1,2,3,5,6	4/20 2:30	RPC	4/20 3:10	RPC	
189	8,9,10,11,12,14	4/21 3:00	RPC	4/21 4:30	RPC	
189	1,2,3,5,6,9,10	4/21 4:30	LL	4/22 5:00	LL	
189	1-13 (metal)	4/21 1248	AC	4/29 5:00	AC	
189	1-13 (metal)	4/21 0:30	CV	4/25 4:50	RPC	
189	1-2,5,8-11,14,15	4/21 2:40	RPC	4/25 4:50	RPC	
189	1-13 (metal)	5/6 11:00	LL	5/5 11:15	LL	
189	1-13 (metal)	5/11 0920	AC			
189	1-13 (metal)	5/17 1427	KK			
189	1-13 (metal)	5/20 915	LL	5/22 9:00	LL	
189	1,2,6,9,10,14	5/21 420	JDM	5/21 5:50	JDM	
189	1-2,5,6,9,10,14,15	5/22 11:30	JDM	5/22 12:30	JDM	
189	1-20	6/10 9:10	JDM	6/10 10:30	JDM	
189	1-20	6/10 11:00	AC	6/10 1512	AC	
189	all (metal)	6/11 8:00	LL			
189	1-20	6/11 1000	LL	6/11 1430	LL	
189	1-20	6/17 10:30	MKS	6/17 1430	MKS	
189	1-20	6/17 11:00	MKS			
189	1-20	6/17 12:45	MKS	6/17 1400	MKS	
189	01,02,03,06	7/2/92 3:00	AC			
189	1,6,9,10,14,15	7/6/92 7:30	LL	7/6 1430	LL	
189	01,12,13,16	7/7/92 1:50	RPC	7/7/92 2:35	RPC	
189	01,13,14,15,16	7/7/92 11:15	LL	7/7/92 12:00	LL	
189	1-14	7/8/92 9:00	MKS	7/8/92 9:45	LL	
189	5-7	7/8/92 0:00	LL	7/10/92 08:54	AC	
189	1,15,18,23,60	7/14/92 12:00	LL	7/14/92 5:10	JDM	
189	1,2,3,6	7/14/92 10:00	LL	7/14/92 2:30	JDM	
189	1,2,3	7/14/92 9:40	JDM	7/14/92 12:30	JDM	
189	1-16	7/14/92 9:00	MKS	7/14/92 12:10	MKS	
189	1-9	8/24/92 9:30	LL			
189	1-6	8/24/92 11:00	LL	8/24/92 0:40	LL	
189	1-8,10,11,12,14	8/25/92 5:00	LL			
189	all (metal)	8/25/92 10:00		8/25 3:30	LL	
189	02 NH ₃	8/26 85	LL			
189	3,6,9,12,15	8/26 11:00	AC	8/26 1453	AC	
189	21-24	8/26 9:30	LL			
189	19	8/27	AC			MT
189	17,21-24	8/27 9:00	LL	8/27 14:00	LL	
189	19,21,23,24,27,28,29	9/2 9:40	JDM			
189	4-7	9/11 10:00	JDM	9/11 12:30	JDM	
189	all (metal)	9/15 9:00	LL	9/15 7:45	LL	
189	1-13	9/15 10:30	LL	9/15 12:30	LL	
189	8-38	9/15 00:00	LL	9/15 04:00	LL	
189	24	9/16 16:15	LL	9/16 17:00	LL	
189	13,11,13-16	9/16 17:10	LL	9/17 0:30	LL	
189	13,21,25-27	9/16 17:30	LL	9/17 0:30	LL	
189	1-37	9/17	LL	9/17	LL	
189	1-8 (1-4 and)	9/18 2:30	LL	9/18 5:15	LL	
189	1-8	9/21 2:15	LL	9/21 6:15	LL	

UTS

CEIMIC Sample Control Record

09011

Labs ID	Bottle NO.	Date/Time Removed	Initia.	Date/Time Returned	Initia.	Comments
165	7, 9, 11, 15, 16	6/17 10:45	SDM	6/17 4:00 pm	MTS	
323	411	6/23	SDM	6/23 11:00		6, 7 MT Edmund 1-5 1-6
323	46	6/23	RI	6/23 1:15	RI	
323	6, 7	6/24 3:15	SDM	6/24 5:00	SDM	
323	4, 90	6/24	UP			
323	1-7, 9-13, 16	6/26 0945	AL	7/2 0925	AL	
333	2, 12, 16	6/29 1:00	SDM	7/2 2:55	SDM	
323	6	6/29 9:00	SDM	7/30 4:30	SDM	
323	6	6/30 11:15	SDM	7/28 2:55	SDM	
323	6, 7	7/1 2:30	SDM	7/1 5:00	SDM	
323	16, 17 NH	7/1 3:30	SDM	7/1 5:00	SDM	
323	2, 10	7/1 2:30	KPL	7/1/92 4:15	KPL	
317	13	7/7 12:30	UL			
364	11	7/7 3:00	SDM	7/7/92 2:45	MTS	
323	6, 5, 9-12, 6, 7	7/9 11:00	UL	7/8/92 1:45	UL	
323	2, 12	7/9 1:00	SDM	7/9/92 1:30	SDM	
402	29, 31	8/17	SDM		MT	
402	6, 5, 12, 24	8/19 9:30	JT	8/19 12:10	JT	
402	24, 5, 5, 12, 24, 28	8/25 10:50	SDM	8/25 4:05	SDM	
452	1-37	9/1	SDM	9/1	SDM	
441	2, 8, 12	9/1 8:45	RI			
441	15, 16, 15, 16	9/1 8:15				
408	2-22, 16	9/2/92 2:00	SDM			
441	SDM 1-16	9/2	SDM	9/2	SDM	
441	1-14	9/2 11:20	JT	9/4 11:35	JT	
441	2-26	9/2 10:44	TWP	9/2	TWP	
441	SDM 1-16	9/5	SDM	9/5	SDM	
441	1-14	9/6 12:10	LY	9/6 4:55	LY	
441	12-31 31-37	9/9 14:00	JT	9/9 15:40	JT	
441	12-31 31-37	9/9 16:00	OP	9/9 23:45	OP	
441	14, 18	9/9 7:30	OP			
452	12-31 31-37	9/11 1:30	TWP	9/11 9:11	TWP	
441	1-41	9/12 8:15	OP	9/12 19:30	OP	
441	1, 3, 6, 15, 16	9/12 10:15	OP	9/12 19:30	OP	
452	12-31 31-37	9/13 13:40	OP	9/13 12:00	OP	
441	1, 3, 6, 15, 16	9/14 19:00	OP	9/14 8:50	OP	
441	12-31 31-37	9/16 9:00	OP	9/16 15:00	OP	
441	15	9/16 9:30	OP	9/16 19:00	OP	
441	10-43	9-17 9:40	OP	9/17 10:1	OP	
441	6-14	9-18 5:30	JT	9-18 12:10	JT	
441	200	9/21 2:30	JT	9/21 5:10	MT	
441	14, 16	9/21 12:55	TWP	9/21 2:30	OP	
441	1-16	9/22 2:30	OP	9/22 5:00	OP	
441	1-16	9/22 16:45	OP	9/23 0:30	OP	
441	15, 16	9/23 8:10	OP	9/23 11:00	OP	
441	29	9/24 1:30	OP	9/24 4:10	OP	
532	3, 4, 8, 9, 14, 18	9/25	SDM		MT	
441	1-14	9/26 9:30	OP	9/26 11:15	OP	
532	9-15, 17-20	9/26 14:30	OP			
409	14, 16	9/27 15:30	MTS	9/27 16:30	MTS	
441	1-13	9/28 13:30	JT	9/28 16:10	JT	
441	12, 15, 18, 12, 15, 18, 20	10/1 14:00	JT	10/2 7:00	JT	

Sample Storage Record

Laboratory ID	Refrigerator No.	Date disposed of
920444	OP8	9/24/92
920445	OP8, UOA	
920446	OP8, UOA	9/24/92
920447	OP8, UOA	
920448	OP8, UOA	
920449	7	9/29/92
920450	7	9/29/92
920451	UOA, 8	
920452	OP8, UOA	9/24/92
920453	UOA, OP1, OP3	
920454	UOA, 8, OP9, OP10, OP11	
920455	3, UOA	mt 9/29/92
920456	OP12, UOA	
920457	OP12, UOA	
920458	OP12, UOA	
920459	2	9/24/92
920460	2	mt
920461	6, UOA	
920462	OP6, OP7, UOA	
920463	1	10/6/92
920464	OP12, UOA	
920465	4	9/29/92
920466	OP10, UOA	
920467	OP5, UOA	9/29/92
920468	4	mt
920469	OP4, UOA	10/16/92



JW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CODY RECORD

153

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY: Arco Wellsville Sulfur Refining
STREET ADDRESS: 2448 South Braddy Ave

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
SAMPLERS (SIGNATURE)		SAMPLING DATE			40 ml G VOA HCl	1 L G - AMBER	8 oz G W/M	2 oz G W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	1 L PL	4 oz PL W/M	250 ml PL	1 L TEFLOW	250 ml Amber		
TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION																	
1335	X		So	NF-1	1																
1345	X		So	NF-2	1																
0900	X		So	NF-3	1																
0930	X		So	NF-4	1																
0945	X		So	NF-5	1																
0955	X		So	NF-6	1																
1010	X		So	NF-7	1																
1020	X		So	NF-8	1																
1050	X		So	NF-9	1																
1100	X		So	NF-10	1																
1105	X		So	NF-11	1																

RELINQUISHED BY: <u>Joe Cejosa</u> (SIGNATURE)	DATE / TIME <u>7/29/1800</u>	RECEIVED BY: <u>Al Bailey</u> (SIGNATURE)	DATE / TIME <u>7/29/1800</u>	RELINQUISHED BY: <u>Al Bailey</u> (SIGNATURE)	RECEIVED BY LABORATORY: <u>Al Bailey</u> (SIGNATURE)	DATE / TIME <u>7/29/1800</u>
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PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

CLP Protocol
Arsonic & Lead (ICP)

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY: Arco Wellsville Sulfur Refinery
STREET ADDRESS: 2448 South Brooklyn Ave.

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
SAMPLERS (SIGNATURE)		SAMPLING DATE			40 ml G VOA HCl	1 L G - AMBER	8 oz G W/M	2 oz G W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH + Ascorbic Acid)	1 L PL (20 Acetate + NaOH)	1 L PL	4 oz PL W/M	250 ml PL	1 L TEFLO	250 ml Amber		
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																	
1355	X		So	NF-12	1																
1035	X		So	NF-13	1																
1115	X		So	NF-14	1																
1125	X		So	NF-15	1																
1243	X		So	NF-16	1																
1250	X		So	NF-17	1																
1300	X		So	NF-18	1																
1310	X		So	NF-19	1																
1320	X		So	NF-20	1																
1325	X		So	NF-21	1																

RELINQUISHED BY: <u>[Signature]</u>	DATE / TIME: <u>7/29/1992</u>	RECEIVED BY: <u>[Signature]</u>	DATE / TIME: _____	RELINQUISHED BY: _____	RECEIVED BY LABORATORY: _____	DATE / TIME: _____
(SIGNATURE)		(SIGNATURE)		(SIGNATURE)	(SIGNATURE)	

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.
PINK COPY RETAINED BY SAMPLERS, YELLOW COPY RETAINED BY LABORATORY.

REMARKS

Arsenic & Lead By ICP
CLP Protocol

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA

CHAIN OF CUSTODY

Original chain of Custody goes to Laboratory

[illegible]

Original chain of Custody goes to Laboratory

Project name SINCLAIR REFINERY						Type of container	Number of containers																	
Samplers (Please print) F. MASTELE / S. McALL GEO-CON								ARSENIC & LEAD																
Date	Time	Comp.	Grab	Sample Identification														Remarks						
8-25-92	1300		X	SR-ES-CONF-9		4oz Glass	1	✓																
"	1310		"	SR-ES-CONF-10		"	"	✓																
"	1323		"	SR-ES-CONF-11		"	"	✓																
"	1340		"	SR-ES-CONF-12		"	"	✓																
"	1352		"	SR-ES-CONF-13		"	"	✓																
"	1352		"	SR-ES-CONF-13 (DUP)		"	"	✓																
"	1410		"	SR-ES-CONF-14		"	"	✓																
"	1426		"	SR-ES-CONF-15		"	"	✓																
"	1550		"	SR-DA-CONF-1-E		"	"	✓																
"	1600		"	SR-DA-CONF-2-E		"	"	✓																
"	1610		"	SR-DA-CONF-3-E		"	"	✓																
"	1616		"	SR-DA-CONF-3-E(DUP)		"	"	✓																
"	1625		"	SR-DA-CONF-4-E		"	"	✓																
"	1635		"	SR-DA-CONF-5-E		"	"	✓																
Relinquished by (Signature)		Date/Time		Received by (Signature)		Date/Time		Remarks:																
<i>Friedrich J Mastale</i>		8-26-92 PM		AIRBORNE EXPRESS CARRIER																				
Relinquished by (Signature)		Date/Time		Received by (Signature)		Date/Time																		
Relinquished by (Signature)		Date/Time		Received by (Signature)		Date/Time																		

Original chain of Custody goes to Laboratory

CEIMIC Corporation 10 Dean Knauss Drive, Narragansett, RI 02882 (401) 782-8900 FAX (401) 782-8905

CHAIN OF CUSTODY

Original chain of Custody goes to Laboratory

Proj. #		Project name			Type of container	Number of containers	MECHANICAL LEAD												Remarks
PI-0129		SINCLAIR REFINERY																	
Samplers (Please print)																			
F. MASTELE/S. McCALL/M. MULLOOXY																			
Date	Time	Comp.	Grab	Sample Identification															
8-22	0945		X	SR-CC-CONF-1	800 GLASS	1	✓												
"	0950		"	SR-CC-CONF-2	"	"	✓												
"	1001		"	SR-CC-CONF-3	"	"	✓												
"	1015		"	SR-CC-CONF-4	"	"	✓												
"	1018		"	SR-CC-CONF-4 (DUP	"	"	✓												
"	1025		"	SR-CC-CONF-5	"	"	✓												
"	1035		"	SR-CC-CONF-6	"	"	✓												
"	1044		"	SR-CC-CONF-7	"	"	✓												
"	1050		"	SR-CC-CONF-8	"	"	✓												
"	1055		"	SR-CC-CONF-9	"	"	✓												
"	1100		"	SR-CC-CONF-10	"	"	✓												
"	1105		"	SR-CC-CONF-11	"	"	✓												
"	1112		"	SR-CC-CONF-12	"	"	✓												
"	1112		"	SR-CC-CONF-12 (DUP	"	"	✓												

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	Remarks:
Fredrick Mastale	8-26-92 PM	AIRBORNE EXPRESS CARRIER		
Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	
Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	

Original chain of Custody goes to Laboratory

Project name SINCLAIR REFINERY						Type of container	Number of containers	ASPHALT & LEAD																	
Samplers (Please print) F. MASTELE / S. M. CALL / M. MULLOCHY																									
Date	Time	Comp.	Grab	Sample Identification														Remarks							
9-26-92	1120		X	SR-CC-CONF-13		80Z CLASS	1	/																	
"	1132		"	SR-CC-CONF-14		"	"	/																	
"	1136		"	SR-CC-CONF-15		"	"	/																	
"	1141		"	SR-CC-CONF-16		"	"	/																	
"	1146		"	SR-CC-CONF-17		40Z CLASS	"	/																	
"	1320		"	SR-CC-CONF-18		"	"	/																	
"	1323		"	SR-CC-CONF-19		"	"	/																	
"	1335		"	SR-CC-CONF-20		"	"	/																	
"	1340		"	SR-CC-CONF-21		"	"	/																	
"	1345		"	SR-CC-CONF-22		"	"	/																	
"	1350		"	SR-CC-CONF-23		"	"	/																	
"	1440		"	SR-CC-CONF-24		"	"	/																	
"	1445		"	SR-CC-CONF-25		"	"	/																	
"	1445		"	SR-CC-CONF-25(DUP)		"	"	/																	
Relinquished by (Signature) <i>Fredrick Mastale</i>				Date/Time 8-27-92 PM		Received by (Signature) <i>Anthon Express Carrier</i>				Date/Time		Remarks:													
Relinquished by (Signature)				Date/Time		Received by (Signature)				Date/Time															
Relinquished by (Signature)				Date/Time		Received by (Signature)				Date/Time															

CHAIN OF CUSTODY

Original chain of Custody goes to Laboratory

Project # PI-0129						Project name <u>SINCLAIR REFINERY</u>							Type of container	Number of containers	<u>ARSENIC & LEAD</u>								Remarks
Date	Time	Comp.	Grab	Sample Identification																			
³⁻²⁶ 92	1450		X	SR-CC - CONF - 26		40Z GLASS	1	/															
"	1455		"	SR-CC - CONF - 27		"	"	/															
"	1500		"	SR-CC - CONF - 28		"	"	/															
"	1505		"	SR-CC - CONF - 29		"	"	/															
"	1510		"	SR-CC - CONF - 30		"	"	/															
"	1513		"	SR-CC - CONF - 31		"	"	/															
"	1515		"	SR-CC - CONF - 32		"	"	/															
"	1545		"	SR-CC - CONF - 33		"	"	/															
"	1550		"	SR-CC - CONF - 34		"	"	/															
"	1555		"	CR-CC - CONF - 35		"	"	/															
"	1630		"	CR-CC - CONF - 36		"	"	/															
"	1635		"	CR-CC - CONF - 37		"	"	/															
"	1645		"	CR-CC - CONF - 38		"	"	/															
"	1645		"	CR-CC - CONF - 38(DUP)		"	"	/															

Relinquished by (Signature) <i>Fredrick J Mastale</i>	Date/Time 8-27-92 PM	Received by (Signature) <i>Anborne Express Carrier</i>	Date/Time	Remarks:

Original chain of Custody goes to Laboratory

CEIMIC Corporation 10 Dean Knauss Drive, Narragansett, RI 02882 (401) 782-8900 FAX (401) 782-8905

Original chain of Custody goes to Laboratory

[illegible]

CHAIN OF CUSTODY

Original chain of Custody goes to Laboratory

Proj. #		Project name			Type of container	Number of containers	<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold;">ARLENIC & CENO</div> <div style="flex-grow: 1; border-left: 1px solid black; border-right: 1px solid black; border-bottom: 1px solid black; position: relative;"> <div style="position: absolute; top: 0; right: 0; width: 100%; height: 100%; background: linear-gradient(to top right, transparent 49%, black 49% 49%, black 49% 51%, transparent 51%); background-size: 4px 4px;"></div> </div> </div>												Remarks
Samplers (Please print) F. MASTELE / S. McCall / M. MULLOOLY																			
Date	Time	Comp.	Grab	Sample Identification															
8-27-92	1515		X	SR-CC-CONF-47	442 GLASS	1	✓											CINDERS PETROLEUM ODOR	
"	1530		"	SR-CC-CONF-48	"	"	✓											CLAYEY	
"	1540		"	SR-CC-CONF-49	"	"	✓											CINDERS	
"	1552		"	SR-CC-CONF-50	"	"	✓											CLAYEY / WITH STONE	
"	1407		"	SR-CC-CONF-51	"	"	✓											LOTS OF STONE W/CLAY BOTTOM	
"	1420		"	SR-CC-CONF-52	"	"	✓											FILL W/ STONE	
"	1520		"	SR-CC-CONF-53	"	"	✓											GRAVEL FILL	
"	1530		"	SR-CC-CONF-53	"	"	✓											FILL W/ STONE	
"	1548		"	SR-CC-CONF-54	"	"	✓											FILL W/ STONE CLAY BOTTOM	
"	1557		"	SR-CC-CONF-55	"	"	✓											CLAYEY W/ PETROLEUM ODOR	
"	1610		"	SR-CC-CONF-56	"	"	✓											CINDERS W/ SLIGHT PETROLEUM ODOR	
"	1620		"	SR-CC-CONF-57	"	"	✓											CLAYEY W/ SMALL STONES	
"	1630		"	SR-CC-CONF-58	"	"	✓											CINDER FILL W/ SMALL STONE	
"	1630		"	SR-CC-CONF-58A	"	"	✓											" " "	

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	Remarks:
<i>Fredrick J. Mastale</i>	8-28-92 PM	AIRBORNE EXPRESS CARRIER		
Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	
Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	

CHAIN OF CUSTODY

Original chain of Custody goes to Laboratory

CEMTEC Corporation 10 Dean Knappa Drive, Narragansett, RI 02882 (401) 782-8800 FAX (401) 782-8905

0028

720450

CHAIN OF CUSTODY

Original chain of Custody goes to Laboratory

Proj. # A-0129		Project name SINGAIR REFINERY		Sample (Please print) F. MASTALE/S. McCALL/M. MULLOOLY		Type of container	Number of containers	Remarks									
Date	Time	Comp.	Sub	1	2	3	4	5	6	7	8	9	10	11	12		
12-21	1516		A	SR-CC-CONF-47	1	✓									CINDERS		
"	1520		"	SR-CC-CONF-48	"	✓									PETROLEUM OILS		
"	1520		"	SR-CC-CONF-49	"	✓									CLAYEY		
"	1522		"	SR-CC-CONF-50	"	✓									CINDERS		
"	1527		"	SR-CC-CONF-51	"	✓									CLAYEY / WITH STONE		
"	1528		"	SR-CC-CONF-52	"	✓									LOTS OF STONE BOTTOM w/CLAY		
"	1530		"	SR-CC-CONF-53	"	✓									FILL w/STONE		
"	1530		"	SR-CC-CONF-54	"	✓									GRAVEL ALL		
"	1538		"	SR-CC-CONF-55	"	✓									FILL w/STONE		
"	1610		"	SR-CC-CONF-56	"	✓									FILL w/STONE GLAY BOTTOM		
"	1610		"	SR-CC-CONF-57	"	✓									CLAYEY w/PETROLEUM OILS		
"	1610		"	SR-CC-CONF-58	"	✓									CLAYEY w/SMALL STONES		
"	1630		"	SR-CC-CONF-58A	"	✓									CINDER FILL w/SMALL STONES		

Relinquished by (Signature) <i>Fredrick J. Mastale</i>	Date/Time 8-28-92 PM	Received by (Signature) AIRBORNE EXPRESS CARRIER	Date/Time	Remarks
Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	
Relinquished by (Signature)	Date/Time	Received by (Signature) <i>Prin. Fisher</i>	Date/Time 8/29/92	

Original chain of Custody goes to Laboratory

[illegible]

CHAIN OF CUSTODY
Original chain of Custody goes to Laboratory

Proj. # P1-0129		Project name SINCLAIR REFINERY			Type of container	Number of containers	ARSENIC & LEAD													Remarks
Samplers (Please print) F MASTELE/S. McCALL/M. MULLOCKY																				
Date	Time	Comp.	Grab	Sample Identification																
8-28-92	0815		X	SR-CC-CONF-63	402	1	✓													
"	0900		"	SR-CC-CONF-64	"	"	✓													
"	0908		"	SR-CC-CONF-66	"	"	✓													
"	0946		"	SR-CC-CONF-66A	"	"	✓													
"	0952		"	SR-CC-CONF-67	"	"	✓													
"	0954		"	SR-CC-CONF-68	"	"	✓													
"	1020		"	SR-CC-CONF-69	"	"	✓													
"	1026		"	SR-CC-CONF-70	"	"	✓													
"	1028		"	SR-CC-CONF-70A	"	"	✓													
"	1035		"	SR-CC-CONF-71	"	"	✓													
"	1042		"	SR-CC-CONF-72	"	"	✓													
"	1048		"	SR-CC-CONF-73	"	"	✓													
"	1054		"	SR-CC-CONF-74	"	"	✓													
"	1059		"	SR-CC-CONF-75	"	"	✓													

Relinquished by (Signature) <i>Friedrich Mastale</i>	Date/Time 8-28-92 PM	Received by (Signature) <i>Ambrose Express</i> <i>Carver</i>	Date/Time	Remarks:
Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	
Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	

Original chain of Custody goes to Laboratory

CEIMIC Corporation 10 Dean Knauss Drive, Narragansett, RI 02882 (401) 782-8900 FAX (401) 782-8905

Original chain of Custody goes to Laboratory

[illegible]

CHAIN OF CUSTODY

Original chain of Custody goes to Laboratory

Proj. # PI-0129		Project name SINCLAIR REFINERY			Type of container	Number of containers	<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); border: 1px solid black; padding: 2px;">ARSENIC</div> <div style="flex-grow: 1; border: 1px solid black; background: linear-gradient(to top right, transparent 49%, black 49% 51%, black 51% 53%, transparent 53%);"></div> </div>										Remarks			
Samplers (Please print) F. MASTELE																				
Date	Time	Comp.	Grab	Sample Identification																
9-11-92	0935		X	SR-PH-CONF-12	40Z GLASS	1	✓													
11	0958		"	SR-PH-CONF-11	"	"	✓													
"	1020		"	SR-PH-CONF-10	"	"	✓													
"	1050		"	SR-PH-CONF-9	"	"	✓													
"	1108		"	SR-PH-CONF-8	"	"	✓													
"	1125		"	SR-PH-CONF-7	"	"	✓													
"	1135		"	SR-PH-CONF-20	"	"	✓													
"	1345		"	SR-OE-CONF-6	"	"	✓													
"	1406		"	SR-OE-CONF-7	"	"	✓													
Relinquished by (Signature) <i>Fredrick J. Mastale</i>		Date/Time 9-11-92 PM		Received by (Signature) AIRBORNE EXPRESS CARRIER		Date/Time		Remarks: PLEASE RETURN COOLER												
Relinquished by (Signature)		Date/Time		Received by (Signature)		Date/Time														
Relinquished by (Signature)		Date/Time		Received by (Signature)		Date/Time														

Original chain of Custody goes to Laboratory

[illegible]

920508

CHAIN OF CUSTODY

Original chain of Custody goes to Laboratory

[illegible]

CEMTEC Corporation 18 Dean Knolls Drive, Narragansett, RI 02882 (401) 782-8900 FAX (401) 782-8905

0036

920508

CHAIN OF CUSTODY Original chain of Custody goes to Laboratory

Proj. #		Project name		Sample (Please print)		Type of container	Number of containers	AS-BUILT										Remarks
P1-0124		SILVER REFINERY		F. NASTOLE J. CLINE														
Date	Time	Comp.	Sub	Sample Identification														
9-16	1004		K	SR-08-CONF-19		4oz	1	✓										
"	1018		"	SR-08-CONF-20		"	"	✓										
"	1032		"	SR-08-CONF-21		"	"	✓										
"	1044		"	SR-08-CONF-22		"	"	✓										
"	1052		"	SR-08-CONF-23		"	"	✓										
"	1121		"	SR-08-CONF-31		"	"	✓										
"	1139		"	SR-08-CONF-32		"	"	✓										
"	1145		"	SR-08-CONF-33		"	"	✓										
"	1156		"	SR-08-CONF-34		"	"	✓										
"	1205		"	SR-08-CONF-24		"	"	✓										
"	1316		"	SR-08-CONF-25		"	"	✓										
"	1325		"	SR-08-CONF-27		"	"	✓										
"	1347		"	SR-08-CONF-26		"	"	✓										

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	Remarks:
<i>Frederick J. Mastich</i>	9-16-92 PM	AIRBORNE EXPRESS CARRIER		
Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	
		<i>Chris Holden</i>	9/17/92 10130	
Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	

CEIMC Corporation 10 Dean Kneass Drive, Narragansett, RI 02882 (401) 782-8900 FAX (401) 782-8905

0039

Original chain of Custody Goes to Laboratory

CELMIC Corporation 10 Dean Knappa Drive, Narragansett, RI 02882 (401) 782-8900 FAX (401) 782-8905



GEOCON INC.

GEOTECHNICAL CONTRACTING

Headquarters

4075 Monroeville Blvd. • Corporate
Monroeville, Pennsylvania 15146
Tel (412) 856-7700

10 Building II • Suite

FAX (412) 7

Chain-of Custody Record

PROJ. NO.		PROJECT NAME/LOCATION				NO. OF CONTAINERS	PARAMETER						REMARKS
SAMPLERS: (Signature)													
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION								
	9-17-92	0856		X	SR-DA-CONF-14-F	1	✓						
		0949			SR-ES-CONF-16	11	✓						
		1003			SR-ES-CONF-1	11	✓						
		1009			SR-ES-CONF-2	11	✓						
		1145			SR-DA-CONF-1-G	11	✓						
		1156			SR-DA-CONF-2-G	11	✓						
		1311			SR-DA-CONF-3-G	11	✓						
		1315			SR-DA-CONF-4-G	11	✓						
		1320			SR-DA-CONF-5-G	11	✓						
		1326			SR-DA-CONF-13-G	11	✓						
		1331			SR-DA-CONF-14-G	11	✓						
		1340			SR-DA-CONF-12-G	11	✓						
		1350			SR-DA-CONF-11-G	11	✓						
	✓	1354		✓	SR-DA-CONF-10-G	11	✓						

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Frederick M. Smith	9-17-92 PM	AIRBORNE EXPRESS CARRIER			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution Original Accompanies Shipment. Copy returned with Report.

19849449463 P. 22



GEOTECHNICAL CONTRACTING

FAX (412) 37

[illegible]

Distribution Original Accompanies Statement. Copy returned with Report.

0042



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NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

2563

SAMPLING

INFORMATION

NPDES NUMBER

NAME OF FACILITY: ARCO Wellsville Sinclair Site

STREET ADDRESS: 2446 South Brooklyn Ave
Wellsville N.Y.

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
SAMPLERS (SIGNATURE)					40 ml G VOA HCl	1 L G - AMBER	8 oz G. W/M	2 oz G. W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH/Ascorbic Acid)	1 L PL (20 Acetic + NaOH)	4 oz PL W/M	250 ml PL	1 L TEFLO	250 ml Amber			
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																	
0930	X		50	CC-55-Z														X			
0945	X		"	CC-56-Y														X			
1015	X		"	CC-56-Z														X			
1030	X		"	CC-57-Z														X			
1046	X		"	CC-58-Z														X			
1050	X		"	CC-58-Y														X			
1055	X		"	CC-59-Z														X			
1115	X		"	CC-75-Z														X			
1125	X		"	CC-77-Z														X			
1130	X		"	CC-76-Z														X			
1145	X		"	CC-1-Z														X			

RELINQUISHED BY:	DATE / TIME	RECEIVED BY:	DATE / TIME	RELINQUISHED BY:	RECEIVED BY LABORATORY:	DATE / TIME
<u>Joseph A. Espinoza</u>	<u>10/28</u>					
(SIGNATURE)		(SIGNATURE)		(SIGNATURE)	(SIGNATURE)	

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PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW

RCRA MONITORING WELL - MW

SOIL / SEDIMENT - SO

SLUDGE - SL

NPDES DISCHARGE - ND

DRINKING WATER - DW

HAZARDOUS WASTE - HW

SURFACE WATER - SW

NON-AQUEOUS - NA



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PENSACOLA, FLORIDA 32526
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CHAIN OF CUSTODY RECORD

2567

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY: ARCO wellsville Sinclair site
STREET ADDRESS: 2448 South Brooklyn Ave

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE														LENL LAB NO.
SAMPLERS (SIGNATURE)		SAMPLING DATE			40 ml G VOA HCl	1 L G - AMBER	8 oz G W/M	2 oz G W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH-Ascorbic Acid)	1 L PL (2N Acetic + NaOH)	1 L PL	4 oz PL W/M	250 ml PL	1 L TEFLO	
TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION															
1145	X		50	CC-76-Y														X	
1150	X			CC-2-Y															
1155	X			CC-2-Z ⁷⁰ CC-2-Z															
1310	X			CC-3-Z															
1315	X			CC-4-Z															
1320	X			CC-4-Y															
1325	X			CC-5-W-Z ⁷⁰															
1400	X			CC-23-Z															
1405	X			CC-24-Z ✓															
1410	X			CC-25-Z ✓															
1420	X			CC-26-Z ✓															

RELINQUISHED BY: <u>Joseph Espinoza</u> (SIGNATURE)	DATE / TIME <u>10/28</u>	RECEIVED BY: _____ (SIGNATURE)	DATE / TIME <u>1</u>	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED BY LABORATORY: _____ (SIGNATURE)	DATE / TIME <u>1</u>
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PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA



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7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

2570

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY: ARCO wellsville Sinclair site
STREET ADDRESS: 2448 S. Brooklyn Ave

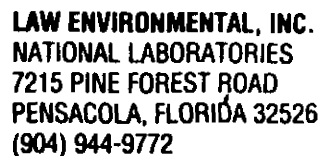
PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE														LENL LAB NO.
SAMPLERS (SIGNATURE)		SAMPLING DATE			40 ml G VOA HCl	1 L G - AMBER	8 oz G. W/M	2 oz G. W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH+Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	4 oz PL W/M	250 ml PL	1 L TEFLO	250 ml	
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION															
1420	X		50	CC-24-Y	1														
1430	X			CC-27-Z	1														
1430	X			CC-25-Y	1														
1435	X			CC-26-Y	1														
1500	X			CC-28-Z	1														
1500				CC-29-Z	1														
1505				CC-30-Z	1														
1510				CC-31-Z	1														
/					1														
/					1														
/					1														
RELINQUISHED BY: <u>Joseph Espinoza</u> (SIGNATURE)					DATE / TIME: <u>10/28</u>	RECEIVED BY: _____ (SIGNATURE)					DATE / TIME: _____	RELINQUISHED BY: _____ (SIGNATURE)					RECEIVED BY LABORATORY: _____ (SIGNATURE)	DATE / TIME: _____	

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.
PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA



2577

**SAMPLING
INFORMATION**

NAME OF FACILITY:

STREET ADDRESS:

(ARCO) Wellsville Sinclair Site
2448 South Brooklyn Ave

SINCLAIR REFINERY

[illegible]

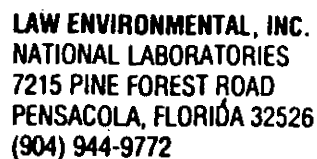
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REMARKS

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



**SAMPLING
INFORMATION**

NAME OF FACILITY: SINCLAIR REFINERY (ARL) WENSHU
STREET ADDRESS: 3448 S. BROOKLYN AVE

[illegible]

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY:

STREET ADDRESS:

SINGULAR REFINERY (ARCO)

ARCO, WELLSVILLE, NEW YORK

2448 S. BROOKLYN AVE

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE														LENL LAB NO.
SAMPLERS (SIGNATURE)		SAMPLING DATE			40 ml G VOA HCl	1 L G - AMBER	8 oz G - W/M	2 oz G - W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH+Ascorbic Acid)	1 L PL (20 Acetic + NaOH)	1 L PL	4 oz PL W/M	250 ml PL	1 L TEFLO	
TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION															
11:35	X			PH-16-Y															
09:25	X			PH-11-Y															
09:40	X			PH-10-Z															
09:30	X			PH-10-Y															
10:40	X			PH-12-Y															
11:30	X			PH-16-Z															
10:30	X			PH-11-ZS															
13:20	X			PH-17-ZZ															
10:20	X			PH-11-Ys															
11:10	X			PH-3-Z															
09:35	X			PH-11-ZW															
RELINQUISHED BY: Joseph Espinoza				DATE / TIME: 10/29	RECEIVED BY: [Signature]				DATE / TIME:	RELINQUISHED BY:				RECEIVED BY LABORATORY:				DATE / TIME:	
(SIGNATURE)					(SIGNATURE)					(SIGNATURE)				(SIGNATURE)					

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.
PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

2571

SINCLAIR REFINERY (ARCO)

SAMPLING

INFORMATION

NPDES NUMBER

NAME OF FACILITY:

~~ARCO~~, WELLSVILLE, NEW YORK

STREET ADDRESS:

2448 S. BROOKLYN AVE

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.	
SAMPLERS (SIGNATURE)		SAMPLING DATE			40 ml G VOA HCl	1 L G - AMBER	8 oz G. W/M	2 oz G. W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH/Ascorbic Acid)	1 L PL (2% Acetic + NaOH)	1 L PL	4 oz PL W/M	250 ml PL	1 L TEFLO	250 mL AMBER			
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																		
11:35	X			PH-16-Y																		
09:25	X			PH-11-Y																		
09:40	X			PH-10-Z																		
09:30	X			PH-10-Y																		
10:40	X			PH-12-Y																		
11:30	X			PH-16-Z																		
10:30	X			PH-11-ZS																		
13:20	X			PH-17-ZZ																		
10:20	X			PH-11-Y3																		
11:10	X			PH-3-Z																		
09:35	X			PH-11-ZW																		
RELINQUISHED BY: <u>Joseph Espinosa</u>				DATE / TIME: <u>10/29</u>	RECEIVED BY: _____				DATE / TIME: _____				RELINQUISHED BY: _____				RECEIVED BY LABORATORY: _____				DATE / TIME: _____	
(SIGNATURE)					(SIGNATURE)								(SIGNATURE)				(SIGNATURE)					

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.
PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW

RCRA MONITORING WELL - MW

SOIL / SEDIMENT - SO

SLUDGE - SL

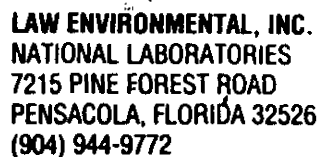
NPDES DISCHARGE - ND

DRINKING WATER - DW

HAZARDOUS WASTE - HW

SURFACE WATER - SW

NON-AQUEOUS - NA



2572

**SAMPLING
INFORMATION**

NAME OF FACILITY: SINCLAIR REFINERY (ARCO) WENUS
STREET ADDRESS: 2448 S. BROOKLYN AVE

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
SAMPLERS (SIGNATURE)					40 ml G VOA HCl	1 L G - AMBER	8 oz G W/M	2 oz G W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	1 L PL	4 oz PL W/M	250 ml PL	1 L TEFLON	250 ML AMBER		
SAMPLING DATE																					
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																	
09:50	X			CC-47-Y																	
08:40	X			CC-47-Z																	
08:50	X			CC-48-Z																	
11:05	X			PH-4-Z																	
11:45	X			PH-12-ZS																	
12:55	X			PH-12-ZS																	
10:10	X			PH-11-ZZ																	
10:35	X			PH-12-Z																	

RELINQUISHED BY:
(Signature)
 (SIGNATURE)

DATE / TIME
 10/29/

RECEIVED BY:

 (SIGNATURE)

DATE / TIME
 ____/____/____

RELINQUISHED BY:

 (SIGNATURE)

RECEIVED BY LABORATORY:

 (SIGNATURE)

DATE / TIME
 ____/____/____

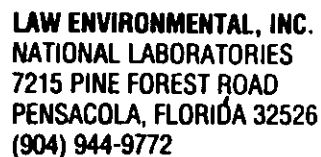
DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



2575

[illegible]

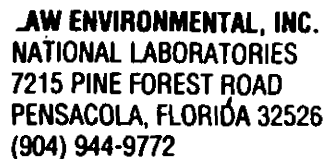
DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA

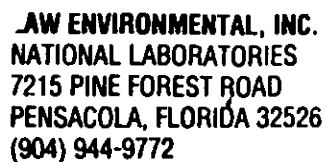


150

NAME OF FACILITY: Arco ~~W~~ Sinclair
STREET ADDRESS: 2448 South Brooklyn Ave.

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA



145 ●

**SAMPLING
INFORMATION**

NAME OF FACILITY: ARCO Sinclair
STREET ADDRESS: 2448 South Brooklyn Ave.

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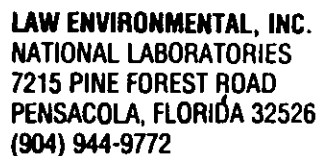
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REMARKS

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

*SOURCE CODES

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



2574

**SAMPLING
INFORMATION**

NAME OF FACILITY: Arco Sinclair
STREET ADDRESS: 2448 South Brooklyn Ave.

PROJECT NAME Arco Sinclair Refinery						JOB NO. GQ 329	TOTAL NO. OF CONTAINERS	CONTAINER TYPE																	LENL LAB NO.																		
SAMPLERS (SIGNATURE) <i>[Signature]</i>								<div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;"> 40 ml G VOA HCl 1 L G - AMBER 8 oz G W/M 2 oz G W/M 1 L G (H₂O) 500 ml - AMBER 1 L PL (HNO₃) 1 L PL (H₂SO₄) 1 L PL (NaOH + Ascorbic Acid) 1 L PL (Zn Acetate + NaOH) 1 L PL 4 oz PL W/M 250 ml PL 1 L TEFLOM 250 ml Amber </div>																																			
SAMPLING DATE 10/30/92																																											
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																																							
1335	X		So	OE-32-Z																						1																	
1230	X		"	OE-21-Y																						1																	
1245	X		"	OE-31-Z																						1																	
1255	X		"	OE-32-Y																						1																	
1400	X		"	OE-21-Z		1																																					
1345	X		"	OE-1-Z		1																																					
1240	Y		"	OE-22-Z		1																																					
1410	Y		"	OE-20-Z		1																																					
1340	Y		"	OE-33-Z		1																																					
1355	X		"	OE-33-Y		1																																					

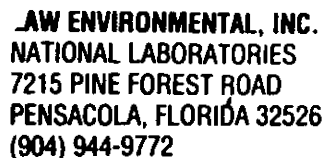
RELINQUISHED BY: <i>[Signature]</i> (SIGNATURE)	DATE / TIME 	RECEIVED BY: _____ (SIGNATURE)	DATE / TIME 	RELINQUISHED BY:	RECEIVED BY LABORATORY: _____ (SIGNATURE)	DATE / TIME
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REMARKS

***SOURCE CODES**

RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA



156

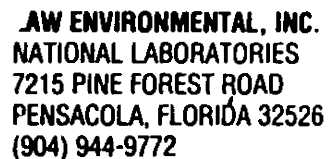
NAME OF FACILITY: Arco Sinclair
STREET ADDRESS: 2448 South Brooklyn Ave

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$\frac{d}{dt} \left(\frac{1}{2} m v^2 \right) = \frac{d}{dt} \left(\frac{1}{2} m \frac{dx}{dt} \frac{dx}{dt} \right) = m \frac{dx}{dt} \frac{d^2x}{dt^2}$

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



1502

**SAMPLING
INFORMATION**

NAME OF FACILITY:

STREET ADDRESS:

(Arceuthobium) Sinclair Refinery
2448 South Franklin Ave

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REMARKS

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

*SOURCE CODES

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

2680

SAMPLING

INFORMATION

NPDES NUMBER

NAME OF FACILITY:

Sinclair Refinery

STREET ADDRESS:

2448 South Brooklyn Ave.

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
(Arco) Sinclair Refinery		EQ 3201-R14			40 ml G VOA HCl	1 L G - AMBER	8 oz G W/M	2 oz G W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	1 L PL	4 oz PL W/M	250 ml PL	1 L TEFLOW	150 ml Clear		
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																	
1345	X	So	→	PH-17YA	1																
1305	X	"	→	PH-4YN	1																
1115	X	"	→	PH-11YA	1																
1125	X	"	→	PH-11XS	1																
1340	X	"	→	PH-17XS	1																
1103	X	"	→	PH-11YB	1																
1320	X	"		PH-16X	1																
1140	X	"		PH-12X	1																
1355	X	"		PH-4Zz	1																
1050	X	"		PH-11XW	1																
0950	X	"		CC-30X	1																

RELINQUISHED BY:	DATE / TIME	RECEIVED BY:	DATE / TIME	RELINQUISHED BY:	DATE / TIME	RECEIVED BY LABORATORY:	DATE / TIME
Jonathan Brando	11/5 1530						
(SIGNATURE)		(SIGNATURE)		(SIGNATURE)		(SIGNATURE)	

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PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

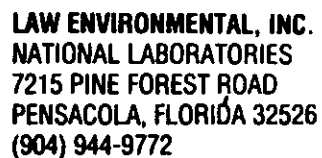
REMARKS

REMARKS

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



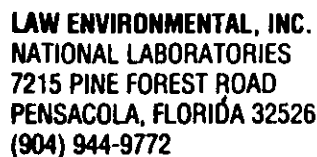
2681

NAME OF FACILITY: Sinclair Refinery
STREET ADDRESS: 2448 South Brooklyn Ave.

[illegible]

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RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA



2683

**SAMPLING
INFORMATION**

NAME OF FACILITY: ENCLAR REFINERY (ARCO)
STREET ADDRESS: 2448 S. BROOKLYN AVE.
WELLSVILLE, NY 14895

PROJECT NAME SINLAR REFINERY		JOB NO. 603201.14	TOTAL NO. OF CONTAINERS	CONTAINER TYPE																	LENL LAB NO.		
SAMPLERS (SIGNATURE) <i>[Signature]</i>																							
SAMPLING DATE 10/20/92																							
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																			
10:30	✓		So	ES 1YA.	1																		
10:40	✓		So	ES 1XN	1																		
10:50	✓		So	ES 1G4	1																		
10:55	✓		So	ES 1SZ	1																		
11:30	✓		So	OE 1HE	1																		
11:25	✓		So	OE 1ZZ	1																		
09:05	✓		So	DA 13GY	1																		
09:30	✓		So	DA 11GZZ	1																		
09:20	✓		So	DA 12GX	1																		
09:35	✓		So	DA 11GYN	1																		

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

*SOURCE CODES

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

2682

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY: SIX LAR REFINERY (ARCO)
STREET ADDRESS: 3448 S. BROOKLYN AVE,
WELLSVILLE, NY 14895

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
SAMPLERS (SIGNATURE)					40 ml G. VOA HCl	1 L G. AMBER	8 oz G. W/M	2 oz G. W/M	1 L G. (H ₂ SO ₄)	500 ml. AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	1 L PL	4 oz PL W/M	250 ml PL	1 L TEFLOW	150 mL CLEAR		
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																	
14:47	✓		80	PH 11 XA														✓			
14:20	✓			PH 17 XA														✓			
13:55	✓			PH 4 YA														✓			
14:45	✓			PH 11 WS														✓			
14:50	✓			PH 11 Y														✓			
14:15	✓			PH 17 WS														✓			
14:55	✓			PH 11 XB														✓			
14:40	✓			PH 12 W														✓			
14:00	✓			PH 4 XN														✓			
RELINQUISHED BY: <u>Ryan Hottel</u>				DATE / TIME: <u>10/20/92 15:15</u>	RECEIVED BY: _____				DATE / TIME: <u>10/20/92</u>	RELINQUISHED BY: _____				RECEIVED BY LABORATORY: _____				DATE / TIME: _____			
(SIGNATURE)					(SIGNATURE)					(SIGNATURE)				(SIGNATURE)							

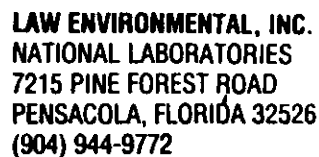
DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.
PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



2573

[illegible]

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

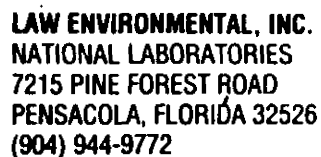
REMARKS

[illegible]

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



2685

**SAMPLING
INFORMATION**

NAME OF FACILITY: Sinclair Refinery
STREET ADDRESS: 2448 South Brooklyn Ave

[illegible]

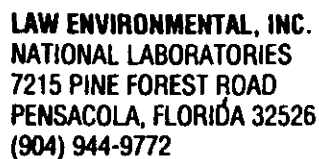
DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



2576

**SAMPLING
INFORMATION**

NAME OF FACILITY: Sinclair Refinery
STREET ADDRESS: 2448 S. Brooklyn Ave

PROJECT NAME		JOB NO.	TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
SAMPLERS (SIGNATURE)				40 ml G VOA HCl	1 L G - AMBER	8 oz G W/M	2 oz G W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	1 L PL	4 oz PL W/M	250 ml PL	1 L TEFLON	150 ml, clear		
SAMPLING DATE																				
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																
0840	X		So	PH-4XA			1									1				
0845	X		"	PH-4XAFD			1									1				
0905	X		"	PH-4YB			1									1				
0945	X		"	PH-13WFD			1									1				
0950	X		"	PH-13W			1									1				
0915	X		"	PH-17XB			1									1				
0920	X		"	PH-17XBFD			1									1				
0935	X		"	PH-17WA			1									1				
1030	X		"	PH-21			1									1				
1015	X		"	PH-22			1									1				
1005	X		"	PH-23			1									1				

RELINQUISHED BY:

Anathan Brander

(SIGNATURE)

DATE / TIME

12/22/92 1300

RECEIVED BY:

(SIGNATURE)

DATE / TIME

RELINQUISHED BY:

(SIGNATURE)

RECEIVED BY LABORATORY:

(SIGNATURE)

DATE / TIME

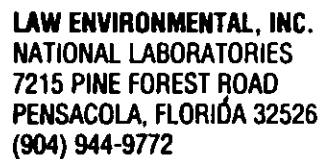
DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



2684

**SAMPLING
INFORMATION**

NAME OF FACILITY:

Sinclair Refinery

STREET ADDRESS:

2448 S. Brooklyn Ave

[illegible]

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

5383

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY: SINCLAIR REFINERY
STREET ADDRESS: 2448 S. BROOKLYN AVE
WELLSVILLE, NY 14895

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
SAMPLERS (SIGNATURE)					40 ml G VOA HCl	1 L G - AMBER	8 oz G. W/M	2 oz G. W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH+Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	1 L PL	4 oz PL W/M	250 ml PL	1 L TEFLON	150 mL CLEAR		
TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION																	
16:40	X		So	CC-44Z	1													1			
10:50	X		So	PH-24																	
11:30	X		So	PH-24A																	
14:41	X		So	PH-25																	
14:55	X		So	PH-25A																	
15:20	X		So	PH-26																	
15:45	X		So	PH-26A																	
15:20	X		So	PH-26FD																	
15:10	X		So	PH-27																	
16:16	X		So	PH-27A																	

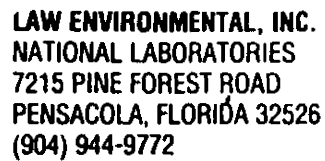
RELINQUISHED BY: <u>Jonathan Branelles</u> (SIGNATURE)	DATE / TIME <u>1993/14:30</u>	RECEIVED BY: _____ (SIGNATURE)	DATE / TIME <u>1</u>	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED BY LABORATORY: _____ (SIGNATURE)	DATE / TIME <u>1</u>
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DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.
PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA

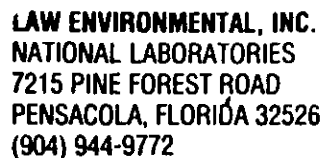


5381

NAME OF FACILITY: SIXLAR FARMERY
STREET ADDRESS: 2448 S. BROOKLIN AVE
WELLSVILLE, NY 14895

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA



5382

**SAMPLING
INFORMATION**

NAME OF FACILITY: SIN-LAR REFINERY
STREET ADDRESS: 2448 S. BROOKLYN AVE
WELLSVILLE, NY 14895

[illegible]

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

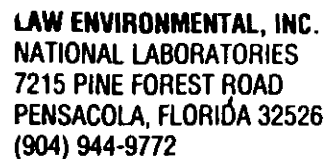
REMARKS

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

$$* R = R_{\text{in}} \text{DATE}$$

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



5385

**SAMPLING
INFORMATION**

NAME OF FACILITY: SINGULAR SECURITY
STREET ADDRESS: 2448 S. BROOKLYN AVE
WELLSVILLE, NY 14895

[illegible]

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW

RCRA MONITORING WELL - MW

SOIL / SEDIMENT - SO

SLUDGE - SL

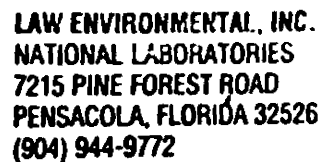
NPDES DISCHARGE - ND

DRINKING WATER - DW

HAZARDOUS WASTE - HW

SURFACE WATER - SW

NON-AQUEOUS - NA



~~SECRET~~ 5385A

**SAMPLING
INFORMATION**

NAME OF FACILITY: SINCLAIR REFINERY
STREET ADDRESS: 2448 S BROOKLYN AVE
WELLSVILLE, NY 14895

[illegible]

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

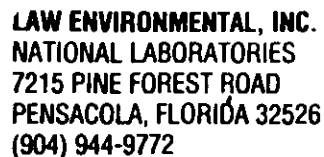
REMARKS

1. REPORT TESTS ON THESE SAMPLES IN SEPARATE SDG VOLUME.
2. DID NOT HAVE ORIGINAL CDC RECORD LEFT HENCE PHOTOCOPY

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - NO
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



5384

NPDES NUMBER

NAME OF FACILITY: SINCLAIR REFINERY

STREET ADDRESS: 2448 S. BROOKLYN AVE
WELLSVILLE NY 14895

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

*SOURCE CODES

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



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7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
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CHAIN OF CUSTODY RECORD

150

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY: SINCLAR Refinery
STREET ADDRESS: 2448 S. BROADWAY AVE
WELLSVILLE, NY 14895

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
SAMPLERS (SIGNATURE)		SAMPLING DATE			40 ml G. VOA HCl	1 L G. - AMBER	8 oz G. W/M	2 oz G. W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH + Ascorbic Acid)	1 L PL (20 Acetate + NaOH)	4 oz PL W/M	250 ml PL	1 L TEFLON	2 L G. S. GLASS	2 L G. S. GLASS	3 L G. S. GLASS	
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																	
10:50	X		So	PH 24 B	1																
10:40	X		So	PH 24 C	1																
10:55	X		So	PH 25 B	1																
10:45	X		So	PH 25 C	1																
11:05	X		So	PH 26 B	1																
11:10	X		So	PH 27 B	1																
11:20	X		So	PH 28 B	1																
11:30	X		So	PH 29 B	1																
11:35	X		So	PH 30 B	1																

RELINQUISHED BY: <u>R. [Signature]</u> (SIGNATURE)	DATE / TIME <u>11 Feb 93</u> <u>14:30</u>	RECEIVED BY: _____ (SIGNATURE)	DATE / TIME _____ _____	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED BY LABORATORY: _____ (SIGNATURE)	DATE / TIME _____ _____
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DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.
PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

*SOURCE CODES

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

5557

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY: Sinclair Refinery
STREET ADDRESS: 2448 S. Brooklyn Ave
Wellsville, NY 14895

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
SAMPLERS (SIGNATURE)					40 ml G VOA HCl	1 L G - AMBER	8 oz G W/M	2 oz G W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH+Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	1 L PL	4 oz PL W/M	250 ml PL	1 L TEFLOW			
TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION																	
1520	X		So	PH-51	1																
1535	X		So	PH-52	1																
1545	X		So	PH-53	1																
1555	X		So	PH-54	1																
1610	X		So	PH-55	1																
1620	X		So	PH-56	1																
1630	X		So	PH-57	1																
1645	X		So	PH-58	1																
1655	X		So	PH-59	1																
1705	X		So	PH-60	1																
RELINQUISHED BY: <u>A. J. [Signature]</u> 4/11/90 14:00					DATE / TIME		RECEIVED BY:		DATE / TIME		RELINQUISHED BY:		RECEIVED BY LABORATORY:		DATE / TIME						
(SIGNATURE)							(SIGNATURE)				(SIGNATURE)		(SIGNATURE)								

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.
PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA



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NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

05

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY:
STREET ADDRESS:

Sinclair Refinery
2448 S. Brooklyn Ave.
Wellsville, NY 14895

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE														LENL LAB NO.
SAMPLERS (SIGNATURE)		SAMPLING DATE			40 ml G VOA HCl	1 L G - AMBER	8 oz G. W/M	2 oz G. W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH+Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	1 L PL	4 oz PL W/M	250 ml PL	1 L TEFLOW	
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION															
0850	X		S0	PH-61	1														
0900	"		"	PH-62	1														
0910	"		"	PH-63	1														
0920	"		"	PH-64	1														
0930	"		"	PH-65	1														
0940	"		"	PH-66	1														
0953	"		"	PH-67	1														
1000	"		"	PH-68	1														
1010	"		"	PH-69	1														
1020	"		"	PH-70	1														
	"		"																

RELINQUISHED BY: <i>Jonathan Brandes</i> (SIGNATURE)	DATE / TIME 4/19/98 1510	RECEIVED BY: (SIGNATURE)	DATE / TIME 	RELINQUISHED BY: (SIGNATURE)	RECEIVED BY LABORATORY: (SIGNATURE)	DATE / TIME
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PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



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NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

6597

SAMPLING

INFORMATION

NPDES NUMBER

NAME OF FACILITY:

STREET ADDRESS:

Sinclair Refinery

2418 S. First St.

Mobile, AL 36604

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE														LENL LAB NO.
SAMPLERS (SIGNATURE)		SAMPLING DATE			40 ml G VOA HCl	1 L G - AMBER	8 oz G. W/M	2 oz G. W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	4 oz PL W/M	250 ml PL	1 L TEFLON		
TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION															
1030	X		So	PH-4XA	1														
1035	X		So	PH-4XAI	1														
1040	X		So	PH-51A	1														
1045	X		So	PH-51B	1														
1055	X		So	PH-56A	1														
1105	X		So	PH-56B	1														
1115	X		So	PH-62A	1														
1120	X		So	PH-62B	1														
1127	X		So	PH-63A	1														
1135	X		So	PH-63B	1														
RELINQUISHED BY: <u>Matthew Krawiec</u> (SIGNATURE)					DATE / TIME: <u>4/11/15</u>		RECEIVED BY: _____ (SIGNATURE)		DATE / TIME: _____		RELINQUISHED BY: _____ (SIGNATURE)		RECEIVED BY LABORATORY: _____ (SIGNATURE)		DATE / TIME: _____				

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.
PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

REMARKS

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



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NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

598

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY:

STREET ADDRESS:

Sinclair Refinery
2448 S. Brooklyn Ave
Wellsville, NY 14895

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE														LENL LAB NO.
SAMPLERS (SIGNATURE)		SAMPLING DATE			40 ml G VOA HCl	1 L G - AMBER	8 oz G W/M	2 oz G W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	1 L PL	4 oz PL W/M	250 ml PL	1 L TEFLON	
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION															
1140	X		So	ES-15Y	1														
1445	X		So	DA-13XG	1														
1155	X		So	ES-16X	1														
1420	X		So	DA-8ZSG	1														
1505	X		So	DA-5ZZG	1														
1520	X		So	DA-12WG	1														
1545	X		So	DA-11XNG	1														
1330	X		So	DA-6XG	1														
1400	X		So	DA-5YG	1														
1330	X		So	DA-7YG	1														
RELINQUISHED BY: <u>Jonathan Brandoles</u> (SIGNATURE)					DATE / TIME: <u>5/1/83</u>		RECEIVED BY: _____ (SIGNATURE)		DATE / TIME: _____		RELINQUISHED BY: _____ (SIGNATURE)		RECEIVED BY LABORATORY: _____ (SIGNATURE)		DATE / TIME: _____				

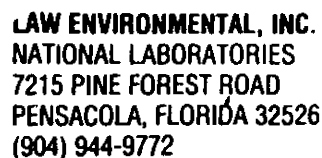
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PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA

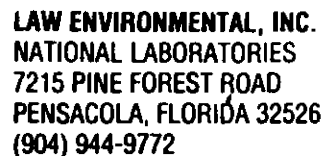


9599

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RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



791

**SAMPLING
INFORMATION**

NAME OF FACILITY:

STREET ADDRESS:

[illegible]

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

*SOURCE CODES

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

792

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY:

STREET ADDRESS:

Sinclair Refining
2448 S. Peachtree Ave
Atlanta, GA 30315

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENI LAB NO.			
SAMPLERS (SIGNATURE)					40 ml G VOA HCl	1 L G - AMBER	8 oz G - W/M	2 oz G - W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	1 L PL	4 oz PL W/M	250 ml PL	1 L TEFLON	4 L ? Amber					
SAMPLING DATE	TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																			
<i>12/11/93</i>	0855	X		So	PH-56C																			
	0900	X		So	PH-57C																			
	0910	X		So	PH-62C																			
	0915	X		So	PH-65C D																			
	0918	X		So	PH-65C																			
	0925	X		So	PH-65A																			
	0940	X		So	PH-67B																			
	0945	X		So	PH-67A																			
	0955	X		So	PH-67C																			
	1002	X		So	PH-69B																			
	1010	X		So	PH-69A																			

RELINQUISHED BY:	DATE / TIME	RECEIVED BY:	DATE / TIME	RELINQUISHED BY:	DATE / TIME	RECEIVED BY LABORATORY:	DATE / TIME
<i>Frederick Sanders</i>	<i>12/11/93</i>						
(SIGNATURE)		(SIGNATURE)		(SIGNATURE)		(SIGNATURE)	

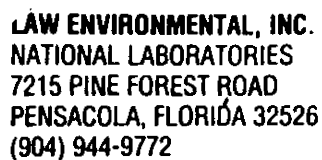
DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.
PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



5600

**SAMPLING
INFORMATION**

NAME OF FACILITY: Sinclair Refinery
STREET ADDRESS: 2448 S. Broadh^{ill} Ave.
Wellsville, NY 14895

[illegible]

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

*SOURCE CODES

RECOVERY WELL - RW

RCRA MONITORING WELL - MW

SOIL / SEDIMENT - SO

SLUDGE - SL

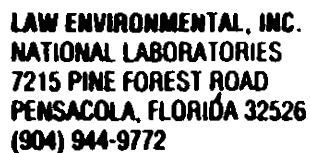
NPDES DISCHARGE - NO

DRINKING WATER - DW

HAZARDOUS WASTE - HW

SURFACE WATER - SW

NON-AQUEOUS - NA



6601

**SAMPLING
INFORMATION**

NAME OF FACILITY: Sinclair Refinery
STREET ADDRESS: 2448 S. Brooklyn Ave
Wellsville, NY 14895

[illegible]

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

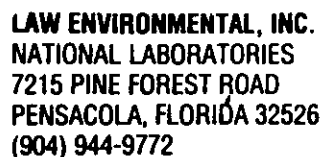
Toronto Lines #592554782

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

•SOURCE CODES

NPDES DISCHARGE · ND
DRINKING WATER · DW
HAZARDOUS WASTE · HW
SURFACE WATER · SW
NON-AQUEOUS · NA

0503



602

PROJECT NAME		JOB NO.	TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
SAMPLERS (SIGNATURE)				40 ml G VOA HCl	1 L.G. - AMBER	8 oz. G. W/M	2 oz. G. W/M	1 L.G. (H ₂ SO ₄)	500 ml - AMBER	1 L. PL (HNO ₃)	1 L. PL (H ₂ SO ₄)	1 L. PL (NaOH + Ascorbic Acid)	1 L. PL (Zn Acetate + NaOH)	1 L. PL	4 oz. PL W/M	250 ml PL	1 L. TEFLON	5 oz. Zr. Jar		
SAMPLING DATE																				
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																
1005	X		So	PH-71		1														
1015	X		So	PH-72		1														
1017	X		So	PH-72D		1														
1025	X		So	PH-73		1														
1035	X		So	PH-74		1														
1043	X		So	PH-75		1														
1050	X		So	PH-76		1														
1103	X		So	PH-77		1														
1113	X		So	PH-78		1														
1123	X		So	PA-79		1														
1130	X		So	PH-80		1														

RELINQUISHED BY:

[Signature]

(SIGNATURE)

DATE / TIME

26 May 1983

RECEIVED BY:

(SIGNATURE)

DATE / TIME

RELINQUISHED BY:

(SIGNATURE)

RECEIVED BY LABORATORY:

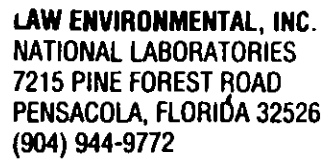
(SIGNATURE)

DATE / TIME

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[illegible]

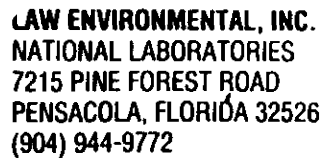
RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA



5558

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA



7559

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

7.113A

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY: Sinclair Refinery
STREET ADDRESS: 2448 Brooklyn Ave.
Wellsville, NY 14895

PROJECT NAME <u>Sinclair Refinery</u>				JOB NO. <u>G-23201 R21</u>		TOTAL NO OF CONTAINERS	CONTAINER TYPE														LENL LAB NO
SAMPLERS (SIGNATURE) <u>Jonathan Brandes</u>				40 ml G VOA HCl 1 L G AMBCH 8 oz G W/M 2 oz G W/M 1 L G (H ₂ SO ₄) 500 ml AMER 1 L PL (HNO ₃) 1 L PL (H ₂ SO ₄) 1 L PL (NaOH + Ascorbic Acid) 1 L PL (20 Acetic + NaOH) 1 L PL 4 oz PL W/M 250 ml PL 1 L TEFLO <u>8 oz Amber</u>																	
SAMPLING DATE <u>July 16 93</u>																					
TIME	GRAB	ICMP	SOURCE CODE	SAMPLE STATION DESCRIPTION																	
0950	X		So	PH-51D ✓	1																
0925	X		So	PH-55E ✓	1																
0935	X		So	PH-49D ✓	1																
0940	X		So	PH-50D ✓	1																
1000	X		So	PH-53D ✓	1																
0955	X		So	PH-52D ✓	1																
1005	X		So	PH-54D ✓	1																
1010	X		So	PH-55D ✓	1																
1035	X		So	PH-57C ✓	1																
1030	X		So	PH-57E ✓	1																
1020	X		So	PH-56D ✓	1																

RELINQUISHED BY <u>Jonathan Brandes</u> (SIGNATURE)	DATE / TIME <u>7/16/93 / 5:30</u>	RECEIVED BY (SIGNATURE)	DATE / TIME 	RELINQUISHED BY (SIGNATURE)	DATE / TIME 	RECEIVED BY LABORATORY (SIGNATURE)	DATE / TIME
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REMARKS

RECOVERY WELL - RW
PCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

*SOURCE CODES

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

7113 B

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY:
STREET ADDRESS:

Sinclair Refinery
2448 Brooklyn Ave
Wellsville, NY 14895

PROJECT NAME Sinclair Refinery				JOB NO. GQ 5201 R21		TOTAL NO OF CONTAINERS	CONTAINER TYPE														LENL LAB NO.
SAMPLERS (SIGNATURE) Jonathan Baneles				SAMPLING DATE July 16 93			40 ml G VOA HCl	1 LG - AMBCH	8 oz G W/M	2 oz G W/M	1 L G W/M	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH/Accurbic Acid)	1 L PL (20 Acetate + NaOH)	4 oz PL W/M	250 ml PL	1 L TEFLON	8 oz Amber	
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																	
1015	X		So	PH-56E		1												1			
1100	X		So	PH-59D		1												1			
1055	X		So	PH-59E		1												1			
1045	X		So	PH-58D		1												1			
1040	X		So	PH-58E		1												1			
1125	X		So	PH-61D ✓		1												1			
1115	X		So	PH-61E ✓		1												1			
1110	X		So	PH-60D ✓		1												1			
1105	X		So	PH-60E ✓		1												1			
1130	X		So	PH-62E ✓		1												1			
1132	X		So	PH-62D		1												1			

RELINQUISHED BY: Jonathan Baneles (SIGNATURE)	DATE / TIME 7/16/93 15:30	RECEIVED BY: (SIGNATURE)	DATE / TIME	RELINQUISHED BY: (SIGNATURE)	RECEIVED BY LABORATORY: (SIGNATURE)	DATE / TIME
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PINK COPY RETAINED BY SAMPLERS YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW	NPDES DISCHARGE - ND
FOUR MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

7.113C

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY: Sinclair Refinery
STREET ADDRESS: 2448 Brooklyn Ave
Walkeville, NY 14895

PROJECT NAME		JOB NO.		TOTAL NO OF CONTAINERS	CONTAINER TYPE														LEN LAB NO.	
SAMPLERS (SIGNATURE)					40 ml G VOA HCl	1 L G - AMBER	8 oz G W/M	2 oz G W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	1 L PL	4 oz PL W/M	250 ml PL	1 L TEFLON		8 oz Amber
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																
1135	X		So	PH-63E /															1	
1140	X		So	PH-63D /															1	
1413	X		So	PH-50E ✓															1	
1415	X		So	PH-49E ✓															1	
1400	X		So	PH-54E ✓															1	
1402	X		So	PH-53E ✓															1	
1405	X		So	PH-52E ✓															1	
1410	X		So	PH-51E ✓															1	
1330	X		So	PH-68E ✓															1	
1335	X		So	PH-68D ✓															1	
1340	X		So	PH-87B ✓															1	

should be PH 81B

RELINQUISHED BY: <u>Jonathan Branches</u> (SIGNATURE)	DATE / TIME <u>7/14/93 15130</u>	RECEIVED BY: (SIGNATURE)	DATE / TIME 	RELINQUISHED BY: (SIGNATURE)	DATE / TIME 	RECEIVED BY LABORATORY: (SIGNATURE)	DATE / TIME
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REMARKS

*SOURCE CODES

RECOVERY WELL - RW	NPDES DISCHARGE - ND
FOUR MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA



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NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

7.113 4

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY: Sinclair Refinery
STREET ADDRESS: 2448 S. Brooklyn Ave.
Wellside NY 14895

PROJECT NAME		JOB NO.		TOTAL NO OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.		
SAMPLERS (SIGNATURE)					40 ml G VOA HCl	1 L G - AMBER	8 oz G W/M	2 oz G W/M	1 L G (H ₂ SO ₄)	50 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH-Acetic Acid)	1 L PL (10 Acetic + NaOH)	1 L PL	4 oz PL W/M	250 ml PL	1 L TEFLO					
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																			
1345	X		S ₀	PH-80 D ✓	1													1					
1320	X		S ₀	PH-66 D ✓	1													1					
1200	X		S ₀	PH-66 E ✓	1													1					
1325	X		S ₀	PH-67 E ✓	1													1					
1327	X		S ₀	PH-67 D ✓	1													1					
1155	X		S ₀	PH-65 D ✓	1													1					
1152	X		S ₀	PH-65 E ✓	1													1					
1148	X		S ₀	PH-64 D ✓	1													1					
1145	X		S ₀	PH-64 E ✓	1													1					
RELINQUISHED BY: <u>Jonathan Brandes</u> (SIGNATURE)					DATE / TIME: <u>7/16/93 1512</u>	RECEIVED BY: _____ (SIGNATURE)					DATE / TIME: _____	RELINQUISHED BY: _____ (SIGNATURE)					DATE / TIME: _____	RECEIVED BY: _____ (SIGNATURE)					DATE / TIME: _____

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REMARKS

*SOURCE CODES

RECOVERY WELL - RW
EPA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



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NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
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CHAIN OF CUSTODY RECORD

7113 E

**SAMPLING
INFORMATION**

NAME OF FACILITY: Sinclair Refinery
STREET ADDRESS: 2448 Brooklyn Ave
Wellsville NY 14895

[illegible]

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REMARKS

*SOURCE CODES

RECOVERY WELL - RW
PIRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

7296

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY: SIX LAIR REFINERY
STREET ADDRESS: 2448. S. BROOKLYN AVE
WELLSVILLE, NY 14895

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
SAMPLERS (SIGNATURE)		SAMPLING DATE			40 ml G VOA HCl	1 L G - AMBER	8 oz G W/M	2 oz G W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH+Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	1 L PL	4 oz PL W/M	250 ml PL	1 L TEFLON	42 - Amber		
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																	
1505	X		So	PH 51 M	1																
1452	X		So	PH 49 M	1																
1445	X		So	PH 49 L	1																
1440	X		So	PH 50 L	1																
1437	X		So	PH 51 L D	1																
1435	X		So	PH 51 L	1																
1410	X		So	PH 49 K	1																
1420	X		So	PH 52 L	1																
1427	X		So	PH 53 L	1																
1420	X		So	PH 54 L	1																
1406	X		So	PH 50 K	1																
RELINQUISHED BY: <u>Jonathan Brancels</u>				DATE / TIME: <u>8/23/140</u>	RECEIVED BY: _____				DATE / TIME: _____	RELINQUISHED BY: _____				RECEIVED BY LABORATORY: _____				DATE / TIME: _____			
(SIGNATURE)					(SIGNATURE)					(SIGNATURE)				(SIGNATURE)							

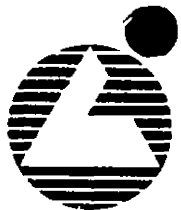
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PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

7297

SAMPLING INFORMATION

NAME OF FACILITY:

NPDES NUMBER

STREET ADDRESS:

SINCLAIR REFINERY

2448 S BROOKLYN AVE

WELLSVILLE, NY 14895

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
SAMPLERS (SIGNATURE)					40 ml G VOA HCl	1 L G - AMBER	8 oz G. W/M	2 oz G. W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH+Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	1 L PL	4 oz PL W/M	250 ml PL	1 L TEFLO	8 oz PL		
SAMPLING DATE																					
TIME	GRAB	COMP.	SOURCE CODE		SAMPLE STATION DESCRIPTION																
1403	X		So	PH	51 K	1															
1400	X		So	PH	52 K	1															
1355	X		So	PH	53 K	1															
1325	X		So	PH	50 J	1															
1351	X		So	PH	54 K	1															
1340	X		So	PH	52 J	1															
1320	X		So	PH	49 J	1															
1335	X		So	PH	51 J	1															
1345	X		So	PH	53 J	1															
1348	X		So	PH	54 J	1															
	X		So	PH		1															
RELINQUISHED BY:		DATE / TIME		RECEIVED BY:		DATE / TIME		RELINQUISHED BY:		DATE / TIME		RECEIVED BY LABORATORY:		DATE / TIME							
Jonathan Brando		8/2/93 1400																			
(SIGNATURE)				(SIGNATURE)				(SIGNATURE)				(SIGNATURE)									

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REMARKS

*SOURCE CODES

RECOVERY WELL - RW

RCRA MONITORING WELL - MW

SOIL / SEDIMENT - SO

SLUDGE - SL

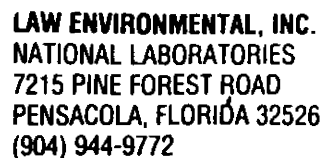
NPDES DISCHARGE - ND

DRINKING WATER - DW

HAZARDOUS WASTE - HW

SURFACE WATER - SW

NON-AQUEOUS - NA



7288

**SAMPLING
INFORMATION**

NAME OF FACILITY:

STREET ADDRESS:

Sinclair Refinery
2448 S. Brooklyn Avenue Wellsville
NY 14896

PROJECT NAME SINCLAIR REFINERY				JOB NO. GQ3201.R14		TOTAL NO. OF CONTAINERS	CONTAINER TYPE														LENL LAB NO.					
SAMPLERS (SIGNATURE) Jonathan Brando																										
SAMPLING DATE 30 JULY 1993																										
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION		40 ml G VOA HCl	1 L G - AMBER	8 oz G. W/M	2 oz G. W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH + Ascorbic Acid)	1 L PL (20 Acetate + NaOH)	4 oz PL W/M	250 ml PL	1 L TEFLON								
1545	X		So	PH 52 N	1													1								
1548	X		So	PH 51 N	1													1								
1555	X		So	PH 49 N	1													1								
1535	X		So	PH 54 N	1													1								
1518	X		So	PH 53 MD	1													1								
1527	X		So	PH 54 M	1													1								
1550	X		So	PH 50 N	1													1								
1540	X		So	PH 53 N	1													1								
1515	X		So	PH 53 M	1													1								
1510	X		Sc	PH 52 M	1													1								
1500	X		So	PH 50 M	1													1								

RELINQUISHED BY:
Jonathan Brando
(SIGNATURE)

DATE / TIME
8/2/93/1400

RECEIVED BY:

(SIGNATURE)

DATE / TIME

RELINQUISHED BY:

(SIGNATURE)

RECEIVED BY LABORATORY:

(SIGNATURE)

DATE / TIME

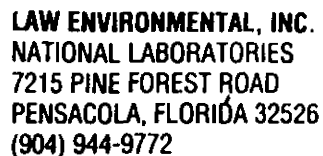
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REMARKS

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA




7291

**SAMPLING
INFORMATION**

Sinclair Behrman

2449 S. Brooklyn Ave. Willsville, NY

PROJECT NAME Sulphur Refinery				JOB NO. 683201.R14		<div style="display: flex; justify-content: space-between;"> <div> TOTAL NO. OF CONTAINERS </div> <div> CONTAINER TYPE 40 ml G VOA HCl 1 L G - AMBER 8 oz. G. W/M 2 oz. G. W/M 1 L G (H₂SO₄) 500 ml - AMBER 1 L PL (HNO₃) 1 L PL (H₂SO₄) 1 L PL (NaOH+Ascorbic Acid) 1 L PL (Zn Acetate + NaOH) 4 oz. PL W/M 250 ml PL 1 L TEFLON AMBER BOTTLE </div> <div> LENL LAB NO. </div> </div>															
SAMPLERS (SIGNATURE) Jonathan Branelles				SAMPLING DATE 30 July 1993																	
TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION																	
10:50	X		So	PH 52 G																	
11:17	X		So	PH 52 H																	
11:45	X		So	PH 52 I																	
10:30	X		So	PH 53 F																	
10:45	X		So	PH 53 G																	
11:23	X		So	PH 53 H																	
11:40	X		So	PH 53 I																	
10:35	X		So	PH 54 F																	
10:40	X		So	PH 54 G																	
11:30	X		So	PH 54 H																	
11:35	X		So	PH 54 I																	

RELINQUISHED BY:

(SIGNATURE)

DATE / TIME
8/1/93 1400

RECEIVED BY:

(SIGNATURE)

DATE / TIME

(SIGNATURE)

RELINQUISHED BY:

(SIGNATURE)

RECEIVED BY LABORATORY:

(SIGNATURE)

DATE / TIME

(SIGNATURE)

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REMARKS

*SOURCE CODES

RECOVERY WELL - RW

RCRA MONITORING WELL - MW

SOIL / SEDIMENT - SO

SLUDGE - SL

NPDES DISCHARGE - NO

DRINKING WATER - DW

HAZARDOUS WASTE - HW

SURFACE WATER - SW

NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

7285

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY: SACLAR REFINERY
STREET ADDRESS: 2448 S. BROOKLYN AVE
USELSVILLE, NY 14895

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
SAMPLERS (SIGNATURE)		SAMPLING DATE			40 ml G VOA HCl	1 L G - AMBER	8 oz G. W/M	2 oz G. W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	4 oz. PL W/M	250 ml PL	1 L TEFLON	1 in. dia Plastic			
TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION																	
11:03	X		SO	PH 49G	1																
11:10	X		SO	PH 49H	1																
11:55	X		SO	PH 49I	1																
10:15	X		SO	PH 50F	1																
11:00	X		SO	PH 50G	1																
11:13	X		SO	PH 50H	1																
11:50	X		SO	PH 50I	1																
10:23	X		SO	PH 51F	1																
10:55	X		SO	PH 51G	1																
11:47	X		SO	PH 51I (R&S)	1																
10:27	X		SO	PH 52F	1																
RELINQUISHED BY:		DATE / TIME		RECEIVED BY:	DATE / TIME		RELINQUISHED BY:		RECEIVED BY LABORATORY:		DATE / TIME										
<u>Jonathan Brando</u>		7/23/93					<u>Jonathan Brando</u>		<u>Jonathan Brando</u>												
(SIGNATURE)				(SIGNATURE)			(SIGNATURE)		(SIGNATURE)												

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REMARKS

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

*SOURCE CODES

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

7298

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY:
STREET ADDRESS:

Sinclair Refinery
2448 S. Brooklyn Ave
Wellsville, NY 14895

PROJECT NAME Sinclair Refinery				JOB NO. GQ3201-R14		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
SAMPLERS (SIGNATURE) Jonathan Brandes				SAMPLING DATE 31 July 93			40 ml G VOA HCl	1 L G - AMBER	8 oz G. WM	2 oz G. WM	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH/Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	1 L PL	4 oz. PL WM	250 ml PL	1 L TEFELON	8 oz. Amber		
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																			
1412	X		So	PH-55K		1																	
1423	X		So	PH-58J		1																	
1420	X		So	PH-57J		1																	
1417	X		So	PH-56J		1																	
1415	X		So	PH-55J		1																	
1458	X		So	PH-57I		1																	
1456	X		So	PH-56I		1																	
1453	X		So	PH-55I		1																	
1426	X		So	PH-59J		1																	

RELINQUISHED BY: Jonathan Brandes (SIGNATURE)	DATE / TIME 8/2/93 1400	RECEIVED BY: (SIGNATURE)	DATE / TIME	RELINQUISHED BY: (SIGNATURE)	RECEIVED BY LABORATORY: (SIGNATURE)	DATE / TIME
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REMARKS

*SOURCE CODES

RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA



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NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

7294

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY: SINCLAIR REFINERY - WELLSVILLE
STREET ADDRESS: 2448 S. BROOKLYN AVE. WELLSVILLE, NY 14894

PROJECT NAME <u>SINCLAIR REFINERY</u>				JOB NO. <u>6A3701R14</u>		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
SAMPLERS (SIGNATURE) <u>Jonathan Bandes</u>				SAMPLING DATE <u>31 JULY 1993</u>			40 ml G VOA HCl	1 L G - AMBER	8 oz G. W/M	2 oz G. W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	4 oz. PL W/M	250 ml PL	1 L TEFLON	8 oz. Amber			
TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION																			
1511	X		So	PH-59H		1																	
1515	X		So	PH-58H		1																	
1528	X		So	PH-55G		1																	
1506	X		So	PH-59I		1																	
1502	X		So	PH-58I		1																	
1525 1525	X		So	PH-55H		1																	
1522	X		So	PH-56H		1																	
1519	X		So	PH-57H		1																	
1532	X		So	PH-56G		1																	
1536	X		So	PH-57G		1																	
1539	X		So	PH-58G		1																	
RELINQUISHED BY: <u>Jonathan Bandes</u> (SIGNATURE)				DATE / TIME <u>8/2/93/1400</u>		RECEIVED BY: _____ (SIGNATURE)		DATE / TIME _____		RELINQUISHED BY: _____ (SIGNATURE)		RECEIVED BY LABORATORY: _____ (SIGNATURE)		DATE / TIME _____									

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REMARKS

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

*SOURCE CODES

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

7286

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY:

SINCLAIR REFINERY

STREET ADDRESS:

244 S. BROOKLYN AVE. WILLSVILLE, NY

KRR

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE														LENL LAB NO.
SAMPLERS (SIGNATURE)					40 ml G VOA HCl	1 L G - AMBER	8 oz G. W/M	2 oz G. W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	1 L PL	4 oz PL W/M	250 ml PL	1 L TEFLON	
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION															
1543	X		So	PH-59G	1														
1546	X		So	PH-59F	1														
1551	X		So	PH-60F	1														
1555	X		So	PH-61F	1														
1600	X		So	PH-58F	1														
1602	X		So	PH-57F	1														
1606	X		So	PH-56F	1														
1608	X		So	PH-56FD	1														
1611	X		So	PH-55F	1														
1025	X		So	PH-490	1														
1030	X		So	PH-500	1														
RELINQUISHED BY:				DATE / TIME	RECEIVED BY:	DATE / TIME	RELINQUISHED BY:	RECEIVED BY LABORATORY:	DATE / TIME										
<i>Jonathan Banuelos</i>				8/2/93/1400															
(SIGNATURE)					(SIGNATURE)		(SIGNATURE)	(SIGNATURE)											

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REMARKS

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

*SOURCE CODES

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

7287

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY:

STREET ADDRESS:

Sinclair Refinery
2448 S. Brooklyn Avenue, West Nile, NY 11995

PROJECT NAME SINCLAIR REFINERY				JOB NO. 60301.R14		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
SAMPLERS (SIGNATURE) Jonathan Brander				SAMPLING DATE 31 JULY 1993			40 ml G. VOA HCl	1 L G. - AMBER	8 oz G. W/M	2 oz G. W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	1 L PL	4 oz PL W/M	250 ml PL	1 L TEFLO	8 oz Amber		
TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION																			
1033	X		So	PH-510		1																	
1037	X		So	PH-520		1																	
1105	X		So	PH-560		1																	
1050	X		So	PH-550		1																	
1045	X		So	PH-540		1																	
1040	X		So	PH-530		1																	
1127	X		So	PH-59P		1																	
1125	X		So	PH-590		1																	
1115	X		So	PH-580		1																	
1110	X		So	PH-570		1																	
1142	X		So	PH-56N		1																	

RELINQUISHED BY: Jonathan Brander (SIGNATURE)	DATE / TIME 8/2/93/1400	RECEIVED BY: (SIGNATURE)	DATE / TIME	RELINQUISHED BY: (SIGNATURE)	RECEIVED BY LABORATORY: (SIGNATURE)	DATE / TIME
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REMARKS

REMARKS

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

*SOURCE CODES

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



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NATIONAL LABORATORIES
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PENSACOLA, FLORIDA 32526
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CHAIN OF CUSTODY RECORD

7290

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY: SINCLAIR REFINERY
STREET ADDRESS: 2447 S. Brooklyn Ave. Westville, NY 14895

PROJECT NAME <u>SINCLAIR REFINERY</u>				JOB NO. <u>603201.R14</u>		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
SAMPLERS (SIGNATURE) <u>Jonathan Brandes</u>				SAMPLING DATE <u>31 JULY 1993</u>			40 ml G. VOA HCl	1 L G. - AMBER	8 oz G. W/M	2 oz G. W/M	1 L G. (H ₂ O ₂)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	4 oz PL W/M	250 ml PL	1 L TEFLON	8 oz Amber			
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																			
1140	X		So	PH - 55N 55N (JB)																			
1134	X		So	PH - 57P																			
1130	X		So	PH - 58P																			
1155	X		So	PH - 59N																			
1152	X		So	PH - 58NP																			
1149	X		So	PH - 58N																			
1145	X		So	PH - 57N																			
1305	X		So	PH - 59M																			
1308	X		So	PH - 58M																			
1310	X		So	PH - 57M																			
1314	X		So	PH - 56M																			

RELINQUISHED BY: <u>Jonathan Brandes</u> (SIGNATURE)	DATE / TIME <u>8/1/93 1100</u>	RECEIVED BY: _____ (SIGNATURE)	DATE / TIME _____	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED BY LABORATORY: _____ (SIGNATURE)	DATE / TIME _____
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REMARKS

*SOURCE CODES

RECOVERY WELL - RW

RCRA MONITORING WELL - MW

SOIL / SEDIMENT - SO

SLUDGE - SL

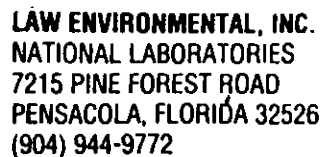
NPDES DISCHARGE - ND

DRINKING WATER - DW

HAZARDOUS WASTE - HW

SURFACE WATER - SW

NON-AQUEOUS - NA



7289

NAME OF FACILITY:

STREET ADDRESS:

SINCLAIR REFINERY
2448 S. BROOKLYN AVE. WALSVILLE, WY

[illegible]

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REMARKS

*SOURCE CODES

RECOVERY WELL - RW

RCRA MONITORING WELL - MW

SOIL / SEDIMENT - SO

SLUDGE - SL

NPDES DISCHARGE - ND

DRINKING WATER - DW

HAZARDOUS WASTE - HW

SURFACE WATER - SW

NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

7299

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY: Sinclair Refinery
STREET ADDRESS: 2448 S. Brooklyn Ave
Wellsville, NY 14895

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
SAMPLERS (SIGNATURE)		SAMPLING DATE			40 ml G VOA HCl	1 L G - AMBER	8 oz G. W/M	2 oz G. W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH+Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	4 oz PL W/M	250 ml PL	1 L TEFLON	8 oz. Amber			
TIME	GRAB	COMP.	SOURCE CODE	SAMPLE STATION DESCRIPTION																	
1012	X		S ₀	PH 66 F	1																
1015	X		S ₀	PH 66 G	1																
1001	X		S ₀	PH 64 G	1																
1017	X		S ₀	PH 60 G D	1																
1007	X		S ₀	PH 65 G	1																
1005	X		S ₀	PH 65 F	1																
0951	X		S ₀	PH 62 F	1																
0948	X		S ₀	PH 63 G	1																
0955	X		S ₀	PH 63 F	1																
0944	X		S ₀	PH 62 G	1																
0952	X		S ₀	PH 64 F	1																
RELINQUISHED BY:		DATE / TIME		RECEIVED BY:		DATE / TIME		RELINQUISHED BY:		DATE / TIME		RECEIVED BY LABORATORY:		DATE / TIME							
<u>Andrew Brando</u>		8/13/90																			
(SIGNATURE)				(SIGNATURE)				(SIGNATURE)				(SIGNATURE)									

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PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL / SEDIMENT - SO
SLUDGE - SL

NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW
SURFACE WATER - SW
NON-AQUEOUS - NA



LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
(904) 944-9772

CHAIN OF CUSTODY RECORD

7300

SAMPLING
INFORMATION
NPDES NUMBER

NAME OF FACILITY:

Sinclair Refinery

STREET ADDRESS:

2448 S. Broadway Ave
Wellsville, NY 14895

PROJECT NAME		JOB NO.		TOTAL NO. OF CONTAINERS	CONTAINER TYPE																LENL LAB NO.
SAMPLERS (SIGNATURE)		SAMPLING DATE			40 ml G VOA HCl	1 L G - AMBER	8 oz G. W/M	2 oz G. W/M	1 L G (H ₂ SO ₄)	500 ml - AMBER	1 L PL (HNO ₃)	1 L PL (H ₂ SO ₄)	1 L PL (NaOH + Ascorbic Acid)	1 L PL (Zn Acetate + NaOH)	1 L PL	4 oz PL W/M	250 ml PL	1 L TEFELON			
TIME	GRAB	COMP	*SOURCE CODE	SAMPLE STATION DESCRIPTION																	
1100	X		S ₀	PH 81 D	1																
1108	X		S ₀	PH 82 B	1																
1055	X		S ₀	PH 81	1																
1036	X		S ₀	PH 69 E	1																
1038	X		S ₀	PH 70 E	1																
1042	X		S ₀	PH 69 D	1																
1045	X		S ₀	PH 70 D	1																
1033	X		S ₀	PH 68 F	1																
1029	X		S ₀	PH 67 F	1																
1026	X		S ₀	PH 68 G	1																
1021	X		S ₀	PH 67 G	1																

RELINQUISHED BY:	DATE / TIME	RECEIVED BY:	DATE / TIME	RELINQUISHED BY:	RECEIVED BY LABORATORY:	DATE / TIME
<i>Jonathan Brando</i>	8/13/93					
(SIGNATURE)		(SIGNATURE)		(SIGNATURE)	(SIGNATURE)	

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PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

*SOURCE CODES

RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA

APPENDIX F

CORRESPONDENCE

- **Laboratory Test Method**
- **Validation Reports**

LABORATORY TEST METHOD



LAW ENVIRONMENTAL, INC.

NATIONAL LABORATORIES DIVISION
7215 PINE FOREST ROAD
PENSACOLA, FLORIDA 32526
904-944-9772
FAX 904-944-9463

Geosyntec
c/o ARCO
P.O. Box 409
Wellsville, NY 14894

July 29, 1992

Dear Mr. North:

I am enclosing three pages from the 7/88 Inorganic Statement of Work under the Contract Laboratory Program which clearly indicates the ability to use the ICP for analyses of arsenic and lead in soil samples. Note that on Page C-1, the footnotes allow the use of any instrument for analytical work when the sample concentration exceeds five times the instrument detection (IDL) even if that instrument IDL does not equal the CRQL. The IDLs for arsenic and lead are 53 ug/L and 23 ug/L, respectively, for ICP analysis at this laboratory.

For your specific project at the ARCO Wellsville site, we were told that the action level for arsenic was 25 ppm (25,000 ug/L) and 1,000 ppm (1,000,000 ug/L) for lead which are very much higher concentrations for your project than the water based CRQL's. In addition, you indicated that the EPA approved the use of the ICP for these analyses.

If you have any further questions or comments, please feel free to contact me at any time.

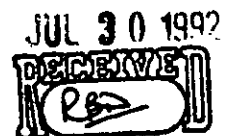
Respectfully submitted,

LAW ENVIRONMENTAL, INC.
NATIONAL LABS

Grace E. Ekman
QA/QC Officer

GEE/cdh

Enclosures



INORGANIC TARGET ANALYTE LIST (TAL)

Analyte	Contract Required
	Detection Limit (1,2) (ug/L)
Aluminum	200
Antimony	60
Arsenic	10
Barium	200
Beryllium	5
Cadmium	5
Calcium	5000
Chromium	10
Cobalt	50
Copper	25
Iron	100
Lead	3
Magnesium	5000
Manganese	15
Mercury	0.2
Nickel	40
Potassium	5000
Selenium	5
Silver	10
Sodium	5000
Thallium	10
Vanadium	50
Zinc	20
Cyanide	10

- (1) Subject to the restrictions specified in the first page of Part G, Section IV of Exhibit D (Alternate Methods - Catastrophic Failure) analytical method specified in SOW Exhibit D may be utilized as long as the documented instrument or method detection limits meet the Contract Required Detection Limit (CRDL) requirements. Higher detection limits may only be used in the following circumstance:

If the sample concentration exceeds five times the detection limit of the instrument or method in use, the value may be reported even though the instrument or method detection limit may not equal the Contract Required Detection Limit. This is illustrated in the example below:

For lead:

Method in use - ICP

Instrument Detection Limit (IDL) - 40

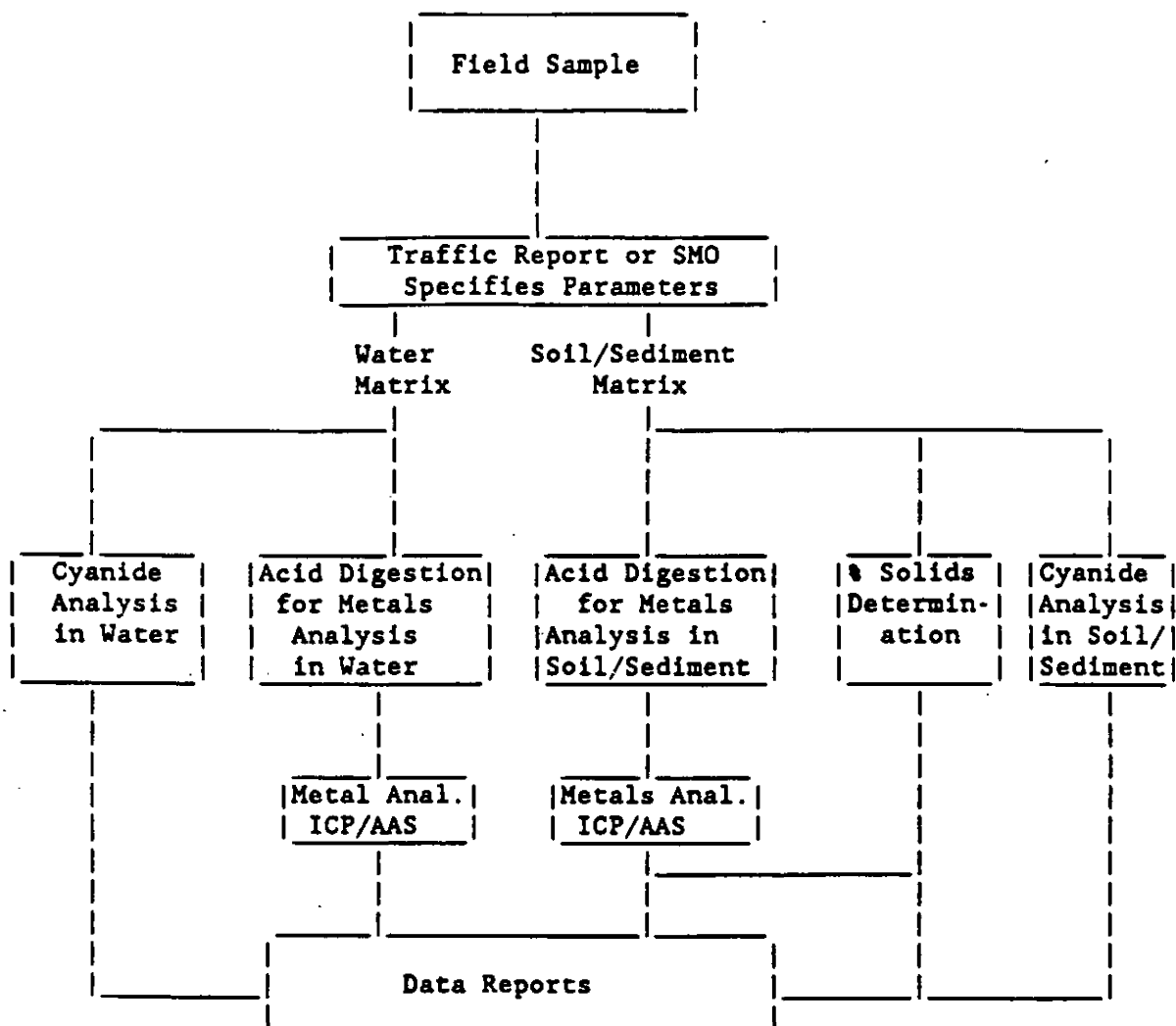
Sample concentration - 220

Contract Required Detection Limit (CRDL) - 3

The value of 220 may be reported even though instrument detection limit is greater than CRDL. The instrument or method detection limit must be documented as described in Exhibit E.

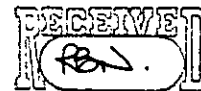
- (2) The CRDL are the instrument detection limits obtained in pure water that must be met using the procedure in Exhibit E. The detection limits for samples may be considerably higher depending on the sample matrix.

Figure 1
INORGANICS METHODS FLOW CHART



VALIDATION REPORTS

20 November 1992



Mr. Roger North
Geosyntec Consultants
C/O Arco
P.O. Box 409
Wellsville, NY 14895

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco, Wellsville site.

The report was produced using the EPA CLP Data Validation protocol for the 7/88 Statement of Work.

Law Environmental submitted eleven (11) data reports each with an SDG Designation Number. The reviewer used this number to identify any problem areas found during validation.

The validation includes the following reports identified by SDG Number and the associated Laboratory Identification Number.

<u>SDG Number</u>	<u>Laboratory ID</u>
SRCCCONF 1	AA25647
SRCCCONF 19	AA25667
SRCCCONF 38	AA25687
SRCCCONF 57	AA25707
SRCCCONF 74	AA25727
SRDACONF 2F	AA25737
SRDACONF 8G	AA25757
SRDACONF 11G	AA25777
SROECONF 2	AA25797
SROECONF 25	AA25817
SRDACONF 6E	AA25837

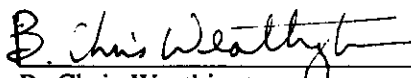
The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

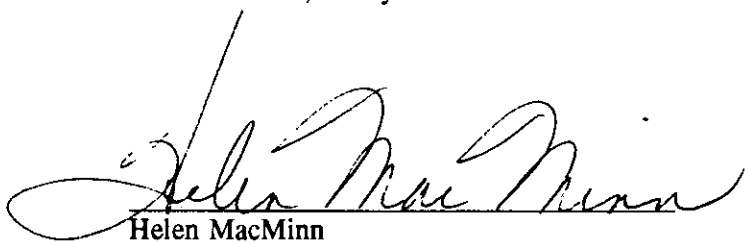


Roger North
20 November 1992
Page Two

CLP Validation

<u>SDG Number</u>	<u>Lab ID</u>	<u>Useable</u>	<u>Unusable</u>	<u>Comment</u>
SRCCCONF 1	AA25647MS	X		Lead spike exceeded EPA criteria. All lead samples associated with this SDG Number are qualified "J".
All SDG Numbers Included in this report	See Above Listing	X		Data end user is notified that the duplicate analysis were performed as matrix spike duplicates for all samples associated with this report.
All SDG Numbers Included in this report.	See Above Listing	X		Interelement correction factors were not performed for arsenic (See Statement pg. 4 of the Validation Report.)


B. Chris Weathington
Vice President, Analytical Division


Helen MacMinn
QA Officer

DATA VALIDATION REPORT

Inorganics
EPA CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco, Wellsville
REVIEWER: Helen MacMinn
DATE OF REVIEW: 19 November 1992

This data package was validated according to:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

All metals samples were received by Law Environmental on 14 October 1992. Reports reviewed will be identified by SDG Number and include the following:

<u>SDG Number</u>	<u>Laboratory ID</u>	<u>Case Number</u>	<u>No. of Samples</u>
SRCCCONF 1	AA25647	GQ3201	20
SRCCCONF 19	AA25667	GQ3201	20
SRCCCONF 38	AA25687	GQ3201	20
SRCCCONF 57	AA25707	P10129	20
SRCCCONF 74	AA25727	P10129	10
SRDACONF 2F	AA25737	P10129	20
SRDACONF 8G	AA25757	P10129	20
SRDACONF 11G	AA25777	P10129	20
SROECONF 2	AA25797	P10129	20
SROECONF 25	AA25817	GQ3201	20
SRDACONF 6E	AA25837	P10129	12

Total Number of Samples Reviewed: 202

Deviations from the stipulated protocol will include specific REQUIREMENTS, reviewer EVALUATION of deviation and ACTION taken as reported in the EPA guidelines for inorganic validation.



Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instruments properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead.
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations were verified for % CCV recovery.

CRDL Standard

The contract required detection limit meets all requirements in the following areas:

- The required ICP analytes meet QC requirement for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks meet all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.



ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check sample meets all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- All required analytes in Solution AB meet QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

Criteria: Spike recovery (%R) must be within the limits of 75-125%.

Evaluation: The spike sample analysis for lead reported for SDG #SRCCCONF1 (Lab ID: AA 25647MS) had a % Recovery of 51.9%.

Action: If the spike recovery is $> 125\%$ or $< 75\%$ and the sample results are $> \text{IDL}$, the Lead data for these samples are qualified as estimated (J).

All other spike sample analysis meet requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic and lead meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Post-Digestion Spike Analysis

A post-digestion spike analysis for Lead was performed for sample report identified as SDG #SRCCCONF 1 (Lab ID #AA 25647MS), as required by EPA protocol when the spike results do not meet criteria.

Post-Digestion Spike Analysis meet requirements in the following areas:

- The post-digestion spike was performed on the applicable analyte whose spike results did not meet QC requirements.



- The post-digestion spike was performed at the proper concentrations.
- The % recovery for lead analysis meets EPA criteria.
- All calculations were verified for % recovery.

Duplicate Analysis

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for all samples associated with this report.

The Matrix Spike Duplicate analysis meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analysis were performed on field samples.
- All analysis meet QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control sample meets all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

The ICP serial dilution meets all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All analytes greater than fifty times the IDL met the QC limit of 10% difference.
- All calculations were verified for % difference.

Quarterly Verification of Instruments Parameters

- IDL's were reported for the quarter in which all samples were analyzed.
- The IDL's were below the CRDL for both arsenic and lead.
- The ICP interelement correction factors were not analyzed for arsenic analysis.
ACTION: Arsenic should not be analyzed by ICP according to the CLP Program. CLP does not account for or require a laboratory to perform interelement checks for Arsenic and as a result this laboratory does not have Arsenic interelement checks. However, this laboratory was aware that the presence of Aluminum and Iron in a sample will cause false positive or inaccurate Arsenic concentrations if Aluminum or Iron is present at "high" concentrations. Because Law Environmental had a high resolution simultaneous instrument, the laboratory was able to verify the presence of



Iron and Aluminum concentrations in samples as part of an analytical run. To verify that there would not be a problem with interference, Law fortified a check sample (ICSAB) with Arsenic, Aluminum and Iron. As a result of the high resolution of Law's ARL ICP instrument the concentration found was 95% of the true concentration. Law uses the ICSAB sample as proof that interferences did not exist for Arsenic in these samples. A review of the concentrations of Aluminum and Arsenic in the samples show that the effect of their presence in the sample would be negligible or non-existent. Therefore, the results are not qualified.

- The ICP interelement correction factors for lead were analyzed and reported on Form XI (Part 1) for each report.
- The linear range analysis was reported for both arsenic and lead on Form XII for each report.



RMC ENVIRONMENTAL SERVICES, Inc.

Tri-County Business Campus
88 Robinson Street
Portstown, PA 19464215-327-4850
215-327-4852 Fax

15 December 1992

Mr. Roger North
Geosyntec Consultants
C/O Arco
P.O. Box 409
Wellsville, NY 14895

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco, Wellsville site.

The report was produced using the EPA CLP Data Validation protocol for the 7/88 Statement of Work.

Law Environmental submitted eleven (11) data reports each with an SDG Designation Number. The reviewer used this number to identify any problem areas found during validation.

The validation includes the following reports identified by SDG Designation Number: DA6YG, DA7ZG, ES1ZN, CC56Z, DA3GZ, PH1GY, ES1YA, CC47Y, DA72G, CC55Z, CC28Z

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.


CLP Validation

<u>SDG Number</u>	<u>Useable</u>	<u>Unusable</u>	<u>Comment</u>
All SDG Numbers Included in this report. (See above listing)	X		Data end user is notified that the duplicate analysis were performed as matrix spike duplicates for all samples associated with this report.
All SDG Numbers Included in this report. (See above listing)	X		Interelement correction factors were not performed for arsenic (See Statement pg. 4 of the Validation Report).
All SDG Numbers Included in this report. (See above listing)	X		ICP Linear Range Analysis reported on EPA Form XII's are all dated 7-19-91. Samples were received during October of 1992. Protocol requires this analysis to be performed on a quarterly basis for all analytes.
CC56Z	X		Spike recovery for Lead analysis outside control limits (80-125). No action taken since sample concentration exceeds spike concentration by a factor of (4) four.

Roger North
15 December 1992
Page Two

<u>SDG Number</u>	<u>Useable</u>	<u>Unusable</u>	<u>Comment</u>
PH16Y	N/A	N/A	Lead results were not validated. Lead results were not requested by client for samples analyzed as part of this data package.
DA6YG	N/A	N/A	Lead results were not validated. Lead results were not requested by client for samples analyzed as part of this data package.

B. Chris Weathington
Vice President, Analytical Division



Helen Mac Minn
QA Officer

DATA VALIDATION REPORT
Inorganics
EPA CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco, Wellsville
REVIEWER: Helen Mac Minn
DATE OF REVIEW: 15 December 1992

This data package was validated according to:

- * EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

All metals samples were received by Law Environmental Laboratory on 11-5,6,12-92. Reports reviewed will be identified by SDG Number and include the following:

SDG Number	Case Number	No. of Samples Included for Review
DA6YG	GQ3201	3
DA7ZG	GQ3201	1
ES1ZN	GQ3201	13
CC56Z	GQ3201	11
DA3GZ	GQ3201	10
PH16Y	GQ3201	16
ES1YA	GQ3201	19
CC47Y	GQ3201	3
DA72G	GQ3201	14
CC55Z	GQ3201	1
CC28Z	GQ3201	1

Total Number of Samples Reviewed: 91

Deviations from the stipulated protocol will include specific REQUIREMENTS, reviewer EVALUATION of deviation and ACTION taken as reported in the EPA guidelines for inorganic validation.

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instruments properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead.
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations were verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirement for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks meet all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP Interference Check Sample meets all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- All required analytes in Solution AB meet QC limits of 80-120 %.
- All calculations verified for % recovery.

Spike Sample Analysis

Criteria: Spike recovery (%R) must be within the limits of 75-125%.

Evaluation: The spike sample analysis for lead reported for SDG#CC56Z (Lab ID:AA26297S) had a % Recovery of 45.5%.

Action: No action is taken to qualify this data since the sample concentration exceeds the spike concentration by a factor of more than (4) four.

All other spike sample analysis meet requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic and lead meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Duplicate Analysis

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for all samples associated with this report.

The Matrix Spike Duplicate analysis meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analysis were performed on field samples.
- All analysis meet QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control sample meets all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120 %.
- All calculations verified for % recovery.

ICP Serial Dilution

The ICP serial dilution meets all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All analytes greater than fifty times the IDL met the QC limit of 10% difference.
- All calculations were verified for % difference.

Quarterly Verification of Instruments Parameters

- IDL's were reported for the quarter in which all samples were analyzed.
- The IDL's were below the CRDL for both arsenic and lead.
- The ICP interelement correction factors were not analyzed for arsenic analysis. ACTION: Arsenic should not be analyzed by ICP according to the CLP Program. CLP does not account for or require a laboratory to perform interelement checks for Arsenic and as a result this laboratory does not have Arsenic interelement checks. However, this laboratory was aware that the presence of Aluminum and Iron in a sample will cause false positive or inaccurate Arsenic concentrations if Aluminum or Iron is present at "high" concentrations. Because Law Environmental had a high resolution simultaneous instrument, the laboratory was able to verify the presence of Iron and Aluminum concentrations in samples as part of an analytical run. To verify that there would not be a problem with interference, LAW fortified a check sample (ICSAB) with Arsenic, Aluminum and Iron. As a result of the high resolution of Law's ARL ICP instrument the concentration found was 95% of the true concentration. Law uses the ICSAB sample as proof that interferences did not exist for Arsenic in these samples. A review of the concentrations of Aluminum and Arsenic in the samples show that the effect of their presence in the sample would be negligible or non-existent. Therefore, the results are not qualified.
- The ICP interelement correction factors for lead were analyzed and reported on Form XI (Part 1) for each report.
- The linear range analysis was reported for both arsenic and lead on Form XII for each report. Data end user should be aware that Linear Ranges were analyzed 7-19-91. Samples were received and analyzed during October of 1992. Protocol requires the Linear Ranges to be performed on a quarterly basis for all analytes.

29 January 1993



Mr. Roger North
Geosyntec Consultants
C/O Arco
P.O. Box 409
Wellsville, NY 14895

Dear Mr. North:

Enclosed is the Inorganic Data Validation report for samples analyzed by Law Environmental Laboratory.

The report was produced using the EPA CLP Data Validation protocol for the 7/88 Statement of Work.

Law Environmental submitted two (2) data reports each with an SDG Designation Number. The reviewer used this number to identify any problem areas found during validation.

The validation includes the following reports identified by SDG Designation Numbers: SDG#11XB and SDG#OE1XE. The following table lists the reviewer's findings and whether the data is useable or required a qualifier:

CLP VALIDATION

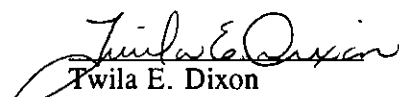
<u>SDG Number</u>	<u>Useable</u>	<u>Unusable</u>	<u>Comment</u>
SDG #11XB	X		Data end user is notified that the duplicate analysis were performed as matrix spike duplicates for all samples associated with this report.
SDG #11XB	X		Interelement correction factors were not performed for arsenic (see Statement Page 3 of the Validation Report).
SDG #11XB	X		ICP Linear Range analysis reported on EPA Form XII is dated 7-19-91. Samples were analyzed during December of 1992. Protocol requires this analysis to be performed on a quarterly basis for all analytes.
SDG #11XB	X		IDL analysis reported on EPA Form X is dated 3-29-92. Samples were analyzed during December of 1992. Protocol requires this analysis to be performed on a quarterly basis for all analytes.




Roger North
29 January 1992
Page Two

<u>SDG Number</u>	<u>Useable</u>	<u>Unusable</u>	<u>Comment</u>
SDG #OE1XE	X		Data end user is notified that the duplicate analysis were performed as matrix spike duplicates for all samples associated with this report.
SDG #OE1XE	X		Interelement correction factors were not performed for arsenic (see Statement Page 3 of the Validation report).

Sincerely,


Twila E. Dixon
Laboratory Manager


Helen MacMinn
QA Officer

DATA VALIDATION REPORT
Inorganics
EPA CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 21 January 1992

This data package was validated according to:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

All metals samples were received by Law Environmental Laboratory on 10-30-92, 11-6,12-92 and 12-23-92. Reports reviewed will be identified by SDG Number and include the following:

<u>SDG Number</u>	<u>Case Number</u>	<u>No. of Samples Included for Review</u>
SDG#11XB	6Q3201	4
SDG#OE1XE	6Q3201	20
Total Number of Samples Received:		24

Deviations from the stipulated protocol will include specific REQUIREMENTS, reviewer EVALUATION of deviation and ACTION taken as reported in the EPA guidelines for inorganic validation.

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instruments properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead.



- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations were verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirement for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks meet all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP Interference Check Sample meets all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- All required analytes in Solution AB meet QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

The spike sample analysis meets requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic and lead meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Duplicate Analysis

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for all samples associated with this report.



The matrix spike duplicate analysis meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analysis were performed on field samples.
- All analysis meet QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control sample meets all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

The ICP serial dilution meets all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All analytes greater than fifty times the IDL met the QC limit of 10% difference.
- All calculations were verified for % difference.

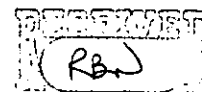
Quarterly Verification of Instruments Parameters

- IDL's were not reported for the quarter in which all samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- The ICP interelement correction factors were not analyzed for arsenic analysis.

Action: Arsenic should not be analyzed by ICP according to the CLP Program. CLP does not account for or require a laboratory to perform interelement checks for arsenic and as a result this laboratory does not have arsenic interelement checks. However, this laboratory was aware that the presence of aluminum and iron in a sample will cause false positive or inaccurate arsenic concentrations if aluminum or iron is present at "high" concentrations. Because Law Environmental had a high resolution simultaneous instrument, the laboratory was able to verify the presence of iron and aluminum concentrations in samples as part of an analytical run. To verify that there would not be a problem with interference, Law fortified a check sample (ICSAB) with arsenic, aluminum and iron. As a result of the high resolution of Law's ARL ICP instrument the concentration found was 95% of the true concentration. Law uses the ICSAB sample as proof that interferences did not exist for arsenic in these samples. A review of the concentrations of aluminum and arsenic in these samples show that the effect of their presence in the sample would be negligible or non-existent. Therefore, the results are not qualified.

- The linear range analysis was reported for arsenic on Form XII for each report. Data end user should be aware that Linear Ranges were analyzed on 7-19-91 for SDG #11XB. Samples were analyzed during December 1992. According to Protocol Linear Ranges are to be performed during the quarter in which the associated samples are analyzed.





19 February 1993

Mr. Roger North
Geosyntec Consultants
C/O Arco
P.O. Box 409
Wellsville, NY 14895

Dear Mr. North:

Enclosed is the Inorganic Data Validation report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocol for the 7/88 Statement of Work.

Law Environmental submitted four (4) data reports each with an SDG Designation Number. The reviewer used this number to identify any problem areas found during validation.

Two data reports were found to have the same SDG number (SDG#CC44Z). After inspection by the validator SDG#CC44Z (Submittal #2) contained three additional samples. These three samples were analyzed by the laboratory on a different date than SDG#CC44Z (Submittal #1) and included a separate set of quality control and raw data information.

Due to the additional data the reviewer had to validate this package as a separate submission. Invoicing will be based on each sample validated regardless of duplication.

The validation includes the following reports identified by SDG Designation Numbers: SDG#PHPRB1, SDG#PH25 and SDG#CC44Z (Submittal #1) and SDG#CC44Z (Submittal #2). The following table lists the reviewer's findings and whether the data is useable or required a qualifier:

CLP VALIDATION

<u>SDG Number</u>	<u>Useable</u>	<u>Qualified</u>	<u>Comment</u>
SDG #PHPRB1		X	Spike analysis results were not submitted with this data package. Validator is aware that associated sample is a field blank and as such cannot be used for spike analysis. However, batch quality control data should be submitted to ensure to the data end use that proper QA/QC procedures were performed at the time of analysis.



SDG #PHPRB1 X

Duplicate analysis results were not submitted with this data package. Validator is aware that associated sample is a field blank and as such cannot be used for duplicate analysis. However, batch quality control data should be submitted to ensure to the data end user that proper QA/QC procedures were performed at the time of analysis.

SDG #PHPRB1 X

Interelement correction factors were not performed for arsenic (see Statement Page 4 of the Validation Report).

SDG #PHPRB1 X

ICP serial dilution results were not submitted with this data package. Since associated sample is a field blank batch quality control data should be submitted to ensure to the data end user that proper QA/QC procedures were performed at the time of analysis.

SDG #PHPRB1 X

IDL analysis reported on EPA Form X is dated 9-2-92. Samples were analyzed during January of 1993. Protocol requires this analysis to be performed on a quarterly basis for all analytes.

SDG #PH25 X

Data end user is notified that the duplicate analysis was performed as a matrix spike duplicate for all samples associated with this report.

SDG #PH25 X

Interelement correction factors were not performed for arsenic (see Statement Page 4 of the Validation report).

SDG #PH25 X

IDL analysis reported on EPA Form X is dated 9-2-92. Samples were analyzed during January 1993. Protocol requires this analysis to be performed on a quarterly basis for all analytes.



Mr. Roger North
19 February 1993
Page 3

SDG #CC44Z

X

Spike recovery for lead analysis is > 125%. Since sample result is > 1DL all associated sample results are qualified "J".

SDG #CC44Z

X

Data end user is notified that the duplicate analysis was performed as a matrix spike duplicate for all samples associated with this report.

SDG #CC44Z

X


IDL analysis reported on EPA Form X is dated 9-2-92. Samples were analyzed during January 1993. Protocol requires this analysis to be performed on a quarterly basis for all analytes.


SDG #CC44Z

X

Interelement correction factors were not performed for arsenic (see Statement Page 4 of the Validation report).

Sincerely,


Twila E. Dixon
Laboratory Manager


Helen MacMinn
QA Officer



DATA VALIDATION REPORT

Inorganics EPA CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 19 February 1993

This data package was validated according to:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

All metals samples were received by Law Environmental Laboratory on 20 January 1993. Reports reviewed will be identified by SDG Number and include the following:

<u>SDG Number</u>	<u>Case Number</u>	<u>No. of Samples Included for Review</u>
SDG#PHPRB1	GQ3201	1
SDG#PH25	GQ3201	10
SDG#CC44Z (Submission#1)	GQ3201	11
SDG#CC44Z (Submission#2)	GQ3201	16
Total Number of Samples Received:		38

Deviations from the stipulated protocol will include specific REQUIREMENTS, reviewer EVALUATION of deviation and ACTION taken as reported in the EPA guidelines for inorganic validation.

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instruments properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.



Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead.
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations were verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirement for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks meet all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP Interference Check Sample meets all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferents for Solution AB are reported.
- All required analytes in Solution AB meet QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

SDG#PHPRB1

Requirements: At least one spiked sample analysis must be performed on each group of samples of a similar matrix type.

Evaluation: Spike analysis results were not submitted with this SDG report. Validator is aware that the associated sample is a field blank and as such cannot be used for duplicate analysis. However, batch quality control data is requested to ensure the



data end user that proper QA/QC procedures were implemented at the time of analysis.

Action: Laboratory is required to submit this data. If the laboratory fails to provide this information the validator has the option to either qualify or reject this data.

SDG#CC44Z

Requirements: Spike recoveries must be within the limits of 75-125%.

Evaluation: Spike recovery for lead analysis is > 125%.

Action: If the spike recovery is > 125% and the sample results are > IDL the data for these samples are qualified as estimated "J".

SDG#PH25

The spike sample analysis meets requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic and lead meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Duplicate Analysis

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for samples associated with these reports.

SDG#PHPRB1

Requirements: One duplicate sample analysis must be analyzed from each group of samples of a similar matrix type.

Evaluation: Duplicate analysis results were not submitted with this data package. Validator is aware that the associated sample is a field blank and as such cannot be used for duplicate analysis. However, batch quality control data is requested to ensure to the data end user that proper QA/QC procedures were performed at the time of analysis.

Action: Laboratory is required to submit this data. If the laboratory fails to provide this information the validator has the option to either qualify or reject this data.

SDG#PH25 and SDG#CC44Z

The matrix spike duplicate analysis meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analysis were performed on field samples.



- All analysis meet QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control sample meets all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

SDG#PHPRB1

Requirements: One serial dilution analysis must be analyzed from each group of samples of a similar matrix type.

Evaluation: Serial dilution results were not submitted with this SDG report. Validator is aware that the associated sample is a field blank and as such cannot be used for the serial dilution. However, batch quality control data is requested to ensure to the data end user that proper QA/QC procedures were implemented at the time of analysis.

Action: Laboratory is required to submit this data. If the laboratory fails to provide this information the validator has the option to either qualify or reject this data.

SDG#PH25 and SDG#CC44Z

The ICP serial dilution meets all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All analytes greater than fifty times the IDL met the QC limit of 10% difference.
- All calculations were verified for % difference.

Quarterly Verification of Instruments Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic and lead.
- The ICP interelement correction factors were not analyzed for arsenic analysis.

Action: Arsenic should not be analyzed by ICP according to the CLP Program. CLP does not account for or require a laboratory to perform interelement checks for arsenic and as a result this laboratory does not have arsenic interelement checks. However, this laboratory was aware that the presence of aluminum and iron in a sample will cause false positive 2or inaccurate arsenic concentrations if aluminum or iron is present at "high" concentrations. Because Law Environmental had a high resolution simultaneous instrument, the laboratory was able to verify the presence of iron and aluminum concentrations in samples as part of an analytical run. To verify that there would not be



a problem with interference, Law fortified a check sample (ICSAB) with arsenic, aluminum and iron. As a result of the high resolution of Law's ARL ICP instrument the concentration found was 95% of the true concentration. Law uses the ICSAB sample as proof that interferences did not exist for arsenic in these samples. A review of the concentrations of aluminum and arsenic in these samples show that the effect of their presence in the sample would be negligible or non-existent. Therefore, the results are not qualified.





A DIVISION OF
RMC ENVIRONMENTAL SERVICES, INC.

26 March 1993

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the ARCO Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted four(4) data reports each with an SDG Designation Number. The reviewer used this number to identify any problem areas found during validation.

The validation includes the following reports identified by SDG Designation Number: SDG#PH24B, SDG#PH28A, SDG#PH28AA and SDG#PH51. The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

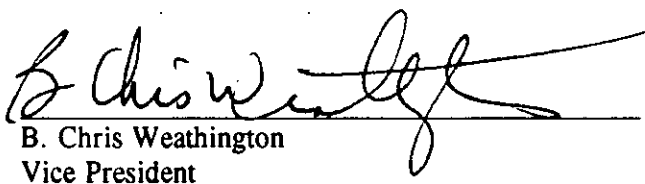
<u>SDG Number</u>	<u>Useable</u>	<u>Unuseable</u>	<u>Qualified</u>
PH24B	X		Data end user is notified that the duplicate analysis was performed as a matrix spike duplicate for all samples associated with this report.
PH24B	X		IDL analysis reported on EPA Form X is dated 9-2-92. Samples were analyzed during February of 1993. Protocol requires the IDL's to be analyzed on a quarterly basis for all analytes.
PH24B	X		ICP Interelement Correction Factors (Form XI-Part I) were not performed for arsenic. See statement Page Three of the validation report for further explanation.

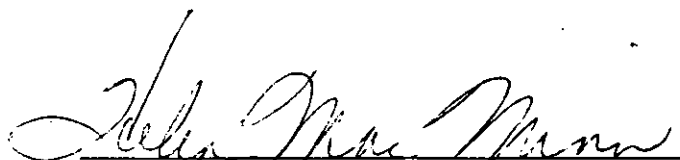


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<u>SDG Number</u>	<u>Useable</u>	<u>Unuseable</u>	<u>Qualified</u>
PH28A	X		All lead results reported on Form I's and associated quality control data are not applicable to this report. Client requested only arsenic analysis for samples received with this SDG sample package.
PH28A	X		Data end user is notified that the duplicate analysis was performed as a matrix spike duplicate for all samples associated with this report.
PH28A	X		Spike sample results (Form V) provided in this data package are batch QA results from SDG #PH28AA. Both sets of samples were analyzed on 2-9-93.
PH28A	X		Spike duplicate sample results (Form VI) provided in this data package are batch QA results from SDG#PH28AA. Both sets of samples were analyzed on 2-9-93.
PH28A	X		Serial dilution sample results (Form IX) provided in this data package are batch QA results from SDG#PH28AA. Both sets of samples were analyzed on 2-9-93.
PH28A	X		IDL analysis reported on EPA Form X is dated 9-2-92. Samples were analyzed during February of 1993. Protocol requires the IDL's to be analyzed on a quarterly basis for all analytes.
PH28A	X		ICP interelement correction factors (Form XI-Part I) were not performed for arsenic. See statement Page Three of the validation report for further explanation.
PH28AA	X		Data end user is notified that the duplicate analysis was performed as a matrix spike duplicate for all samples associated with this report.
PH28AA	X		IDL analysis reported on EPA Form X is dated 9-2-92. Samples were analyzed during February of 1993. Protocol requires the IDL's to be analyzed on a quarterly basis for all analytes.

<u>SDG Number</u>	<u>Useable</u>	<u>Unuseable</u>	<u>Qualified</u>
PH28AA	X		ICP interelement correction factors (Form XI-Part 1) were not performed for arsenic. See statement Page Three of the validation report for a further explanation.
PH51	X		Data end user is notified that the duplicate analysis was performed as a matrix spike duplicate for all samples associated with this reported.
PH51	X		IDL analysis reported on EPA Form X is dated 9-2-92. Samples were analyzed during March of 1993. Protocol requires the IDL's to be analyzed on a quarterly basis for all analytes.
PH51	X		ICP Interelement Correction Factors (Form XI Part I) were not performed for arsenic. See statement Page Three of the validation report for further explanation.


 B. Chris Weathington
 Vice President


 Helen Mac Minn
 QA Officer

DATA VALIDATION REPORT

Inorganics
EPA CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 25 March 1993

This data package was validated according to:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental Laboratory on 2-6, 12-1993 and 3-5-93. Reports reviewed will be identified by SDG Number and include the following:

<u>SDG Number</u>	<u>Case Number</u>	<u>No. of Samples Included for Review</u>
SDG #PH24B	GQ3201	11
SDG #PH28A	GQ3201	5
SDG #PH28AA	GQ3201	13
SDG #PH51	GQ3201	12

Total Number of Samples Received: 41

Deviations from the stipulated protocol will include specific REQUIREMENTS, reviewer EVALUATION of deviation and ACTION taken as reported in the EPA guidelines for inorganic validation.

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at a 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations were verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirement for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks meet all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP Interference Check Sample meets all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- All required analytes in Solution AB meet QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

The data end user is notified that the spike sample results (Form V) for SDG #PH28A provided in the data package are batch QA results from SDG #PH28AA. Both sets of samples were analyzed on 2-9-93.

The spike sample analysis meets requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic and lead (where applicable) meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Duplicate Analysis

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for samples associated with these reports. In addition, spike duplicate sample results (Form VI) provided in data package are batch QA results from SDG #PH28AA. Both sets of samples were analyzed on 2-9-93.

The matrix spike duplicate analyses meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analyses were performed on field samples.
- All analyses meet QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

Data end user is notified that the serial dilution results (Form IX) for SDG #PH28A provided in the data package are batch QA results from SDG #PH28AA. Both sets of samples were analyzed on 2-9-93.

The ICP serial dilutions meet all requirements in the following areas:

- Serial dilutions were performed at the correct frequency.
- All analytes greater than fifty times the IDL met the QC limit of 10% difference.
- All calculations were verified for % difference.

Quarterly Verification of Instruments Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic and lead.
- The ICP interelement correction factors were not analyzed for arsenic analysis.
ACTION: Arsenic should not be analyzed by ICP according the CLP Program. CLP does not account for or require a laboratory to perform interelement checks for arsenic and as a result this laboratory does not have arsenic interelement checks. However, this laboratory was aware that the presence of aluminum and iron in a sample will cause false positives or inaccurate arsenic concentrations if aluminum or iron is present at "high" concentrations. Because Law Environmental had a high resolution simultaneous instrument, the laboratory was able to verify the presence of iron and aluminum concentrations in samples as part of an analytical run. To verify that there would not be a problem with interference, Law fortified a check sample (ICSAB) with arsenic, aluminum and iron. As a result of the high resolution of Law's ARL ICP instrument the concentration found was 95% of the true concentration. Law uses the ICSAB sample as proof that interferences did not exist for arsenic in these samples. A review of the concentrations of aluminum and arsenic in these samples show that the effect of their presence in the sample would be negligible or non-existent. Therefore, the results are not qualified.

RMC *Analytics*

A DIVISION OF
RMC ENVIRONMENTAL SERVICES, INC.

11 June 1993

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with an SDG Designation Number ES15W. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP Validation Summary

<u>Enseco Project</u>	<u>Useable</u>	<u>Qualified</u>	<u>Comments</u>
ES15W	X		Data End user is notified that the duplicate analysis was performed as a matrix spike duplicate for all samples associated with this report.
ES15W	X		ICP Interelement Correction Factors (Form XI-Part I) were not performed for arsenic. See statement page 3 of the validation report for a further explanation.

Sincerely,


Helen MacMinn
QA Officer

gjs
Enclosure



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DATA VALIDATION REPORT

Inorganics
NJDEP CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 11 June 1993

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental Laboratory on 5-27-93. Report reviewed is identified by SDG Number: ES15W and Case Number: GQ3201. The number of samples included for Review was sixteen (16).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirement for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks met all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICB Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check sample met all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- Analytes and interferences for Solution A were reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

The spike sample analysis meets requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Duplicate Sample Analysis

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for samples associated with this report.

The matrix spike duplicate analyses meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analyses were performed on field samples.
- All analyses meet QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

The ICP serial dilutions meet all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All calculations were verified for % difference.

Quarterly Verification of Instruments Parameters

- IDL's were reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- The ICP interelement correction factors were not analyzed for arsenic analysis.
ACTION: Arsenic should not be analyzed by ICP according to the CLP Program. CLP does not account for or require a laboratory to perform interelement checks. However, this laboratory was aware that the presence of aluminum and iron in a sample will cause false positives or inaccurate arsenic concentrations if aluminum or iron is present at "high" concentrations. Because Law Environmental had a high resolution simultaneous instrument, the laboratory was able to verify the presence of iron and aluminum concentrations in samples as part of an analytical run. To verify that there would not be a problem with interference, Law fortified a check sample (ICSAB) with arsenic, aluminum and iron. As a result of the high resolution of Law's ARL ICP instrument the concentration found was 98% of the true concentration. Law uses the ICSAB sample as proof that interferences did not exist for arsenic in these samples. A review of the concentrations of aluminum and arsenic in these samples show that the effect of their presence in the sample would be negligible or non-existent. Therefore, the results are not qualified.

RMC *Analytics*

A DIVISION OF
RMC ENVIRONMENTAL SERVICES, INC.

29 June 1993

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with an SDG Designation Number PH77B. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP Validation Summary

<u>Enseco Project</u>	<u>Useable</u>	<u>Qualified</u>	<u>Comments</u>
PH77B	X		Data End user is notified that the duplicate analysis was performed as a matrix spike duplicate for all samples associated with this report.
PH77B	X		ICP Interelement Correction Factors (Form XI-Part I) were not performed for arsenic. See statement page 3 of the validation report for a further explanation.

Sincerely,



Helen MacMinn
QA Officer

gjs
Enclosure



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DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 29 June 1993

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental Laboratory on 6-05-93. Report reviewed is identified by SDG Number: PH77B and Case Number: EQ3201. The number of samples included for Review was eight (8).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirement for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks met all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICB Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check sample met all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- Analytes and interferences for Solution A were reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

The spike sample analysis meets requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Duplicate Sample Analysis

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for samples associated with this report.

The matrix spike duplicate analyses meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analyses were performed on field samples.
- All analyses meet QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

The ICP serial dilutions meet all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All calculations were verified for % difference.

Quarterly Verification of Instruments Parameters

- IDL's were reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- The ICP interelement correction factors were not analyzed for arsenic analysis.
ACTION: Arsenic should not be analyzed by ICP according to the CLP Program. CLP does not account for or require a laboratory to perform interelement checks. However, this laboratory was aware that the presence of aluminum and iron in a sample will cause false positives or inaccurate arsenic concentrations if aluminum or iron is present at "high" concentrations. Because Law Environmental had a high resolution simultaneous instrument, the laboratory was able to verify the presence of iron and aluminum concentrations in samples as part of an analytical run. To verify that there would not be a problem with interference, Law fortified a check sample (ICSAB) with arsenic, aluminum and iron. As a result of the high resolution of Law's ARL ICP instrument the concentration found was 95% of the true concentration. Law uses the ICSAB sample as proof that interferences did not exist for arsenic in these samples. A review of the concentrations of aluminum and arsenic in these samples show that the effect of their presence in the sample would be negligible or non-existent. Therefore, the results are not qualified.

8 December 1993

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number ES15W2. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
ES15W2	X		Data end user is notified that the duplicate analysis was performed as a matrix spike duplicate for all samples associated with this report.
ES15W2	X		ICP IDL analysis reported on EPA Form X is dated 4/26/93. Samples were received 5/27/93 but not analyzed until 7/16/93. Protocol requires this analysis to be performed on a quarterly basis.
ES15W2	X		ICP linear range analysis reported on EPA Form XII is dated 4/26/93. Samples were received 5/27/93 but not analyzed until 7/16/93. Protocol requires this analysis to be performed on a quarterly basis.

Sincerely,


Helen MacMinn
QA Officer



DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 8 December 1993

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 5/27/93. The report reviewed is identified by SDG Number ES15W2 and Case Number GQ3201. The number of samples included for review was six(6).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks met all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check sample met all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- Analytes and interferences for Solution A were reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

The spike sample analysis meets requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Duplicate Sample Analysis

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for samples associated with this report.

The matrix spike duplicate analyses meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analyses were performed on field samples.
- All analyses met QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

The ICP serial dilutions meet all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All calculations were verified for % difference.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

8 December 1993

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number 40387. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
40387	X		Matrix Spike/Sample Duplicate analysis results were not provided in this data package for samples analyzed on 8/19/93.
40387	X		ICP Serial Dilution results were not provided in this data package for samples analyzed on 8/19/93.
40387	X		ICP IDL analysis reported on EPA Form X is dated 4/26/93. Sample was received 8/3/93 and analyzed 8/19/93. Protocol requires this analysis to be performed on a quarterly basis.



Roger North
8 December 1993
Page Two

LAW SDG
NUMBER

USEABLE

QUALIFIED

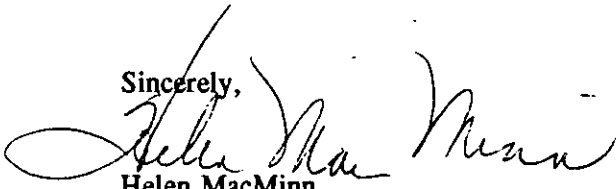
COMMENTS

40387

X

ICP linear range analysis reported on EPA Form XII is dated 4/26/93. Sample was received 8/3/93 and analyzed on 8/19/93. Protocol requires this analysis to be performed on a quarterly basis for all analytes.

Sincerely,



Helen MacMinn
QA Officer

gjs
Enclosure

RMC
Analytics

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 8 December 1993

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 8/3/93. The report reviewed is identified by SDG Number 40387 and Case Number GQ3201. The number of samples included for review was one(1).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks met all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check sample met all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- Analytes and interferences for Solution A were reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

Form V for spike sample results was not provided in this data package.

Duplicate Sample Analysis

Form VI for sample duplicate results was not provided in this data package.

Laboratory Control Sample

The laboratory control sample meets all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

Form IX for ICP Serial Dilution results was not provided in this data package.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

8 December 1993

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number 40407. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
40407	X		Matrix Spike/Sample Duplicate analysis results were not provided in this data package for samples analyzed on 8/6,13/93.
40407	X		ICP Serial Dilution results were not provided in this data package for samples analyzed on 8/6,13/93.
40407	X		ICP IDL analysis reported on EPA Form X is dated 4/26/93. Samples were received 8/3/93 and analyzed 8/6,13/93. Protocol requires this analysis to be performed on a quarterly basis.



Roger North
8 December 1993
Page Two

LAW SDG
NUMBER

USEABLE

QUALIFIED

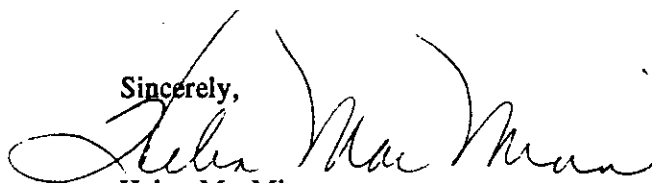
COMMENTS

40407

X

ICP linear range analysis reported on EPA Form XII is dated 4/26/93. Samples were received 8/3/93 and analyzed on 8/6,13/93. Protocol requires this analysis to be performed on a quarterly basis for all analytes.

Sincerely,



Helen MacMinn
QA Officer

gjs
Enclosure

RMC
Analytics

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 8 December 1993

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 8/3/93. The report reviewed is identified by SDG Number 40407 and Case Number GQ3201. The number of samples included for review was four(4).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks met all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check sample met all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- Analytes and interferences for Solution A were reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

Form V for spike sample results were not provided in this data package.

Duplicate Sample Analysis

Form VI for sample duplicate results were not provided in this data package.

Laboratory Control Sample

The laboratory control sample meets all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

Form IX for ICP Serial Dilution results were not provided in this data package.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

8 December 1993

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number 40447. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
40447	X		Data end user is notified that the duplicate analysis was performed as a matrix spike duplicate for all samples associated with this report.
40447	X		ICP IDL analysis reported on EPA Form X is dated 4/26/93. Samples were received 8/3/93 and analyzed 8/24/93. Protocol requires this analysis to be performed on a quarterly basis.
40447	X		ICP linear range analysis reported on EPA Form XII is dated 4/26/93. Samples were received 8/3/93 and analyzed 8/24/93. Protocol requires this analysis to be performed on a quarterly basis.

Sincerely,


Helen MacMinn
QA Officer



DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 8 December 1993

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 8/3/93. The report reviewed is identified by SDG Number 40447 and Case Number GQ3201. The number of samples included for review was three(3).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks met all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check sample met all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- Analytes and interferences for Solution A were reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

The spike sample analysis meets requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Duplicate Sample Analysis

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for samples associated with this report.

The matrix spike duplicate analyses meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analyses were performed on field samples.
- All analyses met QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

The ICP serial dilutions meet all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All calculations were verified for % difference.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

8 December 1993

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number 40467. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
40467	X		Matrix Spike/Sample Duplicate analysis results were not provided in this data package for samples analyzed on 8/6,13,19,24/93.
40467	X		ICP Serial Dilution results were not provided in this data package for samples analyzed on 8/6,13,19,24/93.
40467	X		ICP IDL analysis reported on EPA Form X is dated 4/26/93. Samples were received 8/3/93 and analyzed 8/6,13,19,24/93. Protocol requires this analysis to be performed on a quarterly basis.



Roger North
8 December 1993
Page Two

LAW SDG
NUMBER

USEABLE

QUALIFIED

COMMENTS

40467

X

ICP linear range analysis reported on EPA Form XII is dated 4/26/93. Samples were received 8/3/93 and analyzed on 8/6,13,19,24/93. Protocol requires this analysis to be performed on a quarterly basis for all analytes.

Sincerely,



Helen MacMinn
QA Officer

gjs
Enclosure

RMC
Analytics

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 8 December 1993

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 8/3/93. The report reviewed is identified by SDG Number 40467 and Case Number GQ3201. The number of samples included for review was seven(7).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks met all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check sample met all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferents for Solution AB are reported.
- Analytes and interferents for Solution A were reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

For V for spike sample results were not provided in this data package.

Duplicate Sample Analysis

Form VI for sample duplicate results were not provided in this data package.

Laboratory Control Sample

The laboratory control sample meets all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

Form IX for ICP Serial Dilution results were not provided in this data package.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

8 December 1993

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number 40487. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
40487	X		Matrix Spike/Sample Duplicate analysis results were not provided in this data package for samples analyzed on 8/13, 19, 24/93.
40487	X		ICP Serial Dilution results were not provided in this data package for samples analyzed on 8/13,19,24/93.
40487	X		ICP IDL analysis reported on EPA Form X is dated 4/26/93. Samples were received 8/3/93 and analyzed 8/13,19,24/93. Protocol requires this analysis to be performed on a quarterly basis.



Roger North
8 December 1993
Page Two

LAW SDG
NUMBER

USEABLE

QUALIFIED

COMMENTS

40487

X

ICP linear range analysis reported on EPA Form XII is dated 4/26/93. Samples were received 8/3/93 and analyzed on 8/13,19,24/93. Protocol requires this analysis to be performed on a quarterly basis for all analytes.

Sincerely,



Helen MacMinn
QA Officer

gjs
Enclosure

RMC
Analytics

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 8 December 1993

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 8/3/93. The report reviewed is identified by SDG Number 40487 and Case Number GQ3201. The number of samples included for review was nine(9).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks met all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check sample met all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- Analytes and interferences for Solution A were reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

Form V for spike sample results were not provided in this data package.

Duplicate Sample Analysis

Form VI for sample duplicate results were not provided in this data package.

Laboratory Control Sample

The laboratory control sample meets all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

Form IX for ICP Serial Dilution results were not provided in this data package.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

RMC *Analytics*

A DIVISION OF
RMC ENVIRONMENTAL SERVICES, INC.

10 December 1993

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number 39584. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
39584	X		Data end user is notified that the duplicate analysis, analyzed 7/21,29/93 and 8/6/93, were performed as a matrix spike duplicate for all samples associated with this report.
39584	X		ICP IDL analysis reported on EPA Form X is dated 4/26/93. Samples were received 7/17/93 and analyzed 7/21,29/93 and 8/6/93. Protocol requires this analysis to be performed on a quarterly basis.
39584	X		ICP linear range analysis reported on EPA Form XII is dated 4/26/93. Samples were received 7/17/93 and analyzed on 7/21,29/93 and 8/6/93. Protocol requires this analysis to be performed on a quarterly basis.

Sincerely,


Helen MacMinn
QA Officer



TRI-COUNTY BUSINESS CAMPUS • 88 ROBINSON STREET • POTTSTOWN, PA 19464 • 215-327-4850 • FAX 215-327-4852

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 10 December 1993

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 7/17/93. The report reviewed is identified by SDG Number ES15W2 and Case Number GQ3201. The number of samples included for review were seventeen(17).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks meet all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check samples meet all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- Analytes and interferences for Solution A were reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

The spike sample analyses meet requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Duplicate Sample Analysis

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for samples associated with this report.

The matrix spike duplicate analyses meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analyses were performed on field samples.
- All analyses met QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

The ICP serial dilutions meet all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All calculations were verified for % difference.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

10 December 1993

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number 39600. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
39600	X		Data end user is notified that the duplicate analysis was performed as a matrix spike duplicate for samples analyzed on 8/6,13/93.
39600	X		Matrix Spike/Sample Duplicate analysis results were not provided in this data package for samples analyzed on 7/21,29/93.
39600	X		ICP serial dilution results were not provided in this data package for samples analyzed on 7/21,29/93.
39600	X		ICP IDL analysis reported in EPA Form X is dated 4/26/93. Samples were received 7/17/93 and analyzed 7/21,29/93 and 8/6,13/93. Protocol requires this analysis to be performed on a quarterly basis.



Mr. Roger North
10 December 1993
Page Two

39600

X

ICP linear range analysis reported on EPA Form XII is dated 4/26/93. Samples were received 7/17/93 and analyzed on 7/21,29/93 and 8/6,13/93. Protocol requires this analysis to be performed on a quarterly basis for all analytes.

Sincerely,


Helen MacMinn
QA Officer

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 10 December 1993

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 7/17/93. The report reviewed is identified by SDG Number 39600 and Case Number GQ3201. The number of samples included for review were eighteen(18).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks meet all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check samples meet all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- Analytes and interferences for Solution A were reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

Form V for spike sample results were not provided in this data package for samples analyzed on 7/21,29/93.

The spike sample analyses analyzed on 8/6,13/93 meet requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Duplicate Sample Analysis

Form VI for sample duplicate results were not provided in this data package for samples analyzed on 7/21,29/93.

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for samples analyzed on 8/6,13/93.

The matrix spike duplicate analyses meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analyses were performed on field samples.
- All analyses met QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

Form IX for ICP serial dilution results were not provided in this data package for samples analyzed on 7/21,29/93.

The ICP serial dilutions analyzed on 8/6,13/93 meet all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All calculations were verified for % difference.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

10 December 1993

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number 39617. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
39617	X		Matrix Spike/Sample Duplicate analysis results were not provided in this data package for samples analyzed on 7/21/93 and 8/6,13/93.
39617	X		ICP Serial Dilution results were not provided in this data package for samples analyzed on 7/21/93 and 8/6,13/93.
39617	X		ICP IDL analysis reported on EPA Form X is dated 4/26/93. Samples were received 7/17/93 and analyzed 8/6,13/93. Protocol requires this analysis to be performed on a quarterly basis.



Roger North
10 December 1993
Page Two

LAW SDG
NUMBER

USEABLE

QUALIFIED

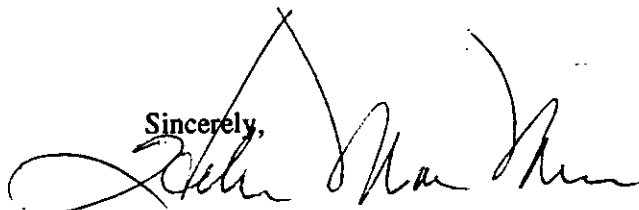
COMMENTS

39617

X

ICP linear range analysis reported on EPA Form XII is dated 4/26/93. Samples were received 7/17/93 and analyzed on 7/21/93 and 8/6,13/93. Protocol requires this analysis to be performed on a quarterly basis for all analytes.

Sincerely,



Helen MacMinn
QA Officer

gjs
Enclosure

RMC
Analytics

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 10 December 1993

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 8/3/93. The report reviewed is identified by SDG Number 39617 and Case Number GQ3201. The number of samples included for review was seven(7).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks meet all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check samples meet all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- Analytes and interferences for Solution A were reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

Form V for spike sample results were not provided in this data package.

Duplicate Sample Analysis

Form VI for sample duplicate results were not provided in this data package.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

Form IX for ICP Serial Dilution results were not provided in this data package.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

10 December 1993

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number 39688. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
39688	X		Data end user is notified that the duplicate analysis was performed as a matrix spike duplicate for all samples associated with this report.
39688	X		ICP IDL analysis reported on EPA Form X is dated 4/26/93. Samples were received 7/20/93 and analyzed 7/22/93. Protocol requires this analysis to be performed on a quarterly basis.
39688	X		ICP linear range analysis reported on EPA Form XII is dated 4/26/93. Samples were received 7/20/93 and analyzed on 7/22/93. Protocol requires this analysis to be performed on a quarterly basis.

Sincerely,


Helen MacMinn
QA Officer



DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 10 December 1993

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 7/20/93. The report reviewed is identified by SDG Number 39688 and Case Number GQ3201. The number of samples included for review were four(4).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks meet all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check samples meet all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- Analytes and interferences for Solution A were reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

The spike sample analyses meet requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Duplicate Sample Analysis

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for samples associated with this report.

The matrix spike duplicate analyses meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analyses were performed on field samples.
- All analyses met QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

The ICP serial dilutions meet all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All calculations were verified for % difference.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

8 December 1993

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number 40467. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
40467	X		Matrix Spike/Sample Duplicate analysis results were not provided in this data package for samples analyzed on 8/6,13,19,24/93.
40467	X		ICP Serial Dilution results were not provided in this data package for samples analyzed on 8/6,13,19,24/93.
40467	X		ICP IDL analysis reported on EPA Form X is dated 4/26/93. Samples were received 8/3/93 and analyzed 8/6,13,19,24/93. Protocol requires this analysis to be performed on a quarterly basis.



Roger North
8 December 1993
Page Two

LAW SDG
NUMBER

USEABLE

QUALIFIED

COMMENTS

40467

X

ICP linear range analysis reported on EPA Form XII is dated 4/26/93. Samples were received 8/3/93 and analyzed on 8/6,13,19,24/93. Protocol requires this analysis to be performed on a quarterly basis for all analytes.

Sincerely,



Helen MacMinn
QA Officer

gjs
Enclosure

RMC
Analytics

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 8 December 1993

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 8/3/93. The report reviewed is identified by SDG Number 40467 and Case Number GQ3201. The number of samples included for review was seven(7).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks met all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check sample met all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- Analytes and interferences for Solution A were reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

For V for spike sample results were not provided in this data package.

Duplicate Sample Analysis

Form VI for sample duplicate results were not provided in this data package.

Laboratory Control Sample

The laboratory control sample meets all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

Form IX for ICP Serial Dilution results were not provided in this data package.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

8 December 1993

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number 40487. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
40487	X		Matrix Spike/Sample Duplicate analysis results were not provided in this data package for samples analyzed on 8/13, 19, 24/93.
40487	X		ICP Serial Dilution results were not provided in this data package for samples analyzed on 8/13,19,24/93.
40487	X		ICP IDL analysis reported on EPA Form X is dated 4/26/93. Samples were received 8/3/93 and analyzed 8/13,19,24/93. Protocol requires this analysis to be performed on a quarterly basis.



Roger North
8 December 1993
Page Two

LAW SDG
NUMBER

USEABLE

QUALIFIED

COMMENTS

40487

X

ICP linear range analysis reported on EPA Form XII is dated 4/26/93. Samples were received 8/3/93 and analyzed on 8/13,19,24/93. Protocol requires this analysis to be performed on a quarterly basis for all analytes.

Sincerely,



Helen MacMinn
QA Officer

gjs
Enclosure

RMC
Analytics

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 8 December 1993

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 8/3/93. The report reviewed is identified by SDG Number 40487 and Case Number GQ3201. The number of samples included for review was nine(9).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks met all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check sample met all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferents for Solution AB are reported.
- Analytes and interferents for Solution A were reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

Form V for spike sample results were not provided in this data package.

Duplicate Sample Analysis

Form VI for sample duplicate results were not provided in this data package.

Laboratory Control Sample

The laboratory control sample meets all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

Form IX for ICP Serial Dilution results were not provided in this data package.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

RMC *Analytics*

A DIVISION OF
RMC ENVIRONMENTAL SERVICES, INC.

10 December 1993

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number 39584. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
39584	X		Data end user is notified that the duplicate analysis, analyzed 7/21,29/93 and 8/6/93, were performed as a matrix spike duplicate for all samples associated with this report.
39584	X		ICP IDL analysis reported on EPA Form X is dated 4/26/93. Samples were received 7/17/93 and analyzed 7/21,29/93 and 8/6/93. Protocol requires this analysis to be performed on a quarterly basis.
39584	X		ICP linear range analysis reported on EPA Form XII is dated 4/26/93. Samples were received 7/17/93 and analyzed on 7/21,29/93 and 8/6/93. Protocol requires this analysis to be performed on a quarterly basis.

Sincerely,


Helen MacMinn
QA Officer



TRI-COUNTY BUSINESS CAMPUS • 88 ROBINSON STREET • POTTSTOWN, PA 19464 • 215-327-4850 • FAX 215-327-4852

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 10 December 1993

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 7/17/93. The report reviewed is identified by SDG Number ES15W2 and Case Number GQ3201. The number of samples included for review were seventeen(17).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks meet all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check samples meet all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferents for Solution AB are reported.
- Analytes and interferents for Solution A were reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

The spike sample analyses meet requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Duplicate Sample Analysis

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for samples associated with this report.

The matrix spike duplicate analyses meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analyses were performed on field samples.
- All analyses met QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

The ICP serial dilutions meet all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All calculations were verified for % difference.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

10 December 1993

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number 39600. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
39600	X		Data end user is notified that the duplicate analysis was performed as a matrix spike duplicate for samples analyzed on 8/6,13/93.
39600	X		Matrix Spike/Sample Duplicate analysis results were not provided in this data package for samples analyzed on 7/21,29/93.
39600	X		ICP serial dilution results were not provided in this data package for samples analyzed on 7/21,29/93.
39600	X		ICP IDL analysis reported in EPA Form X is dated 4/26/93. Samples were received 7/17/93 and analyzed 7/21,29/93 and 8/6,13/93. Protocol requires this analysis to be performed on a quarterly basis.




Mr. Roger North
10 December 1993
Page Two

39600

X

ICP linear range analysis reported on EPA Form XII is dated 4/26/93. Samples were received 7/17/93 and analyzed on 7/21,29/93 and 8/6,13/93. Protocol requires this analysis to be performed on a quarterly basis for all analytes.

Sincerely,


Helen MacMinn
QA Officer

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 10 December 1993

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 7/17/93. The report reviewed is identified by SDG Number 39600 and Case Number GQ3201. The number of samples included for review were eighteen(18).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks meet all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check samples meet all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- Analytes and interferences for Solution A were reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

Form V for spike sample results were not provided in this data package for samples analyzed on 7/21,29/93.

The spike sample analyses analyzed on 8/6,13/93 meet requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Duplicate Sample Analysis

Form VI for sample duplicate results were not provided in this data package for samples analyzed on 7/21,29/93.

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for samples analyzed on 8/6,13/93.

The matrix spike duplicate analyses meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analyses were performed on field samples.
- All analyses met QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

Form IX for ICP serial dilution results were not provided in this data package for samples analyzed on 7/21,29/93.

The ICP serial dilutions analyzed on 8/6,13/93 meet all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All calculations were verified for % difference.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

RMC**Analytics**A DIVISION OF
RMC ENVIRONMENTAL SERVICES, INC.

10 December 1993

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number 39617. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
39617	X		Matrix Spike/Sample Duplicate analysis results were not provided in this data package for samples analyzed on 7/21/93 and 8/6,13/93.
39617	X		ICP Serial Dilution results were not provided in this data package for samples analyzed on 7/21/93 and 8/6,13/93.
39617	X		ICP IDL analysis reported on EPA Form X is dated 4/26/93. Samples were received 7/17/93 and analyzed 8/6,13/93. Protocol requires this analysis to be performed on a quarterly basis.



Roger North
10 December 1993
Page Two

LAW SDG
NUMBER

USEABLE

QUALIFIED

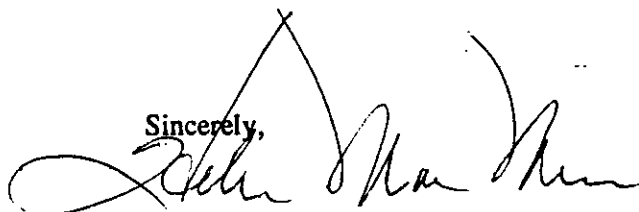
COMMENTS

39617

X

ICP linear range analysis reported on EPA Form XII is dated 4/26/93. Samples were received 7/17/93 and analyzed on 7/21/93 and 8/6,13/93. Protocol requires this analysis to be performed on a quarterly basis for all analytes.

Sincerely,



Helen MacMinn
QA Officer

gjs
Enclosure

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 10 December 1993

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 8/3/93. The report reviewed is identified by SDG Number 39617 and Case Number GQ3201. The number of samples included for review was seven(7).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks meet all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check samples meet all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- Analytes and interferences for Solution A were reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

Form V for spike sample results were not provided in this data package.

Duplicate Sample Analysis

Form VI for sample duplicate results were not provided in this data package.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

Form IX for ICP Serial Dilution results were not provided in this data package.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

10 December 1993

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number 39688. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
39688	X		Data end user is notified that the duplicate analysis was performed as a matrix spike duplicate for all samples associated with this report.
39688	X		ICP IDL analysis reported on EPA Form X is dated 4/26/93. Samples were received 7/20/93 and analyzed 7/22/93. Protocol requires this analysis to be performed on a quarterly basis.
39688	X		ICP linear range analysis reported on EPA Form XII is dated 4/26/93. Samples were received 7/20/93 and analyzed on 7/22/93. Protocol requires this analysis to be performed on a quarterly basis.

Sincerely,


Helen MacMinn
QA Officer



DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 10 December 1993

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 7/20/93. The report reviewed is identified by SDG Number 39688 and Case Number GQ3201. The number of samples included for review were four(4).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks meet all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check samples meet all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferents for Solution AB are reported.
- Analytes and interferents for Solution A were reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

The spike sample analyses meet requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Duplicate Sample Analysis

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for samples associated with this report.

The matrix spike duplicate analyses meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analyses were performed on field samples.
- All analyses met QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

The ICP serial dilutions meet all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All calculations were verified for % difference.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

10 December 1993

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number 40427. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
40427	X		Matrix Spike/Sample Duplicate analysis results were not provided in this data package for samples analyzed on 8/6,13/93.
40427	X		ICP Serial Dilution results were not provided in this data package for samples analyzed on 8/6,13/93.
40427	X		ICP IDL analysis reported on EPA Form X is dated 4/26/93. Samples were received 8/3/93 and analyzed 8/6,13/93. Protocol requires this analysis to be performed on a quarterly basis.



Roger North
10 December 1993
Page Two

LAW SDG
NUMBER

USEABLE

QUALIFIED


COMMENTS

40427

X

ICP linear range analysis reported on EPA Form XII is dated 4/26/93. Samples were received 8/3/93 and analyzed on 8/6,13/93. Protocol requires this analysis to be performed on a quarterly basis for all analytes.

Sincerely,



Helen MacMinn
QA Officer

gjs
Enclosure

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 10 December 1993

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 8/3/93. The report reviewed is identified by SDG Number 40427 and Case Number GQ3201. The number of samples included for review were two(2).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks meet all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check samples meet all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- Analytes and interferences for Solution A were reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

Form V for spike sample results were not provided in this data package.

Duplicate Sample Analysis

Form VI for sample duplicate results were not provided in this data package.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

Form IX for ICP Serial Dilution results were not provided in this data package.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

10 December 1993

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number 40507. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

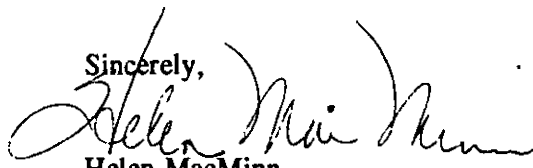
<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
40507	X		Matrix Spike/Sample Duplicate analysis results were not provided in this data package for samples analyzed on 8/6,13/93.
40507	X		ICP Serial Dilution results were not provided in this data package for samples analyzed on 8/6,13/93.
40507	X		ICP IDL analysis reported on EPA Form X is dated 4/26/93. Samples were received 8/3/93 and analyzed on 8/6,13,19/93. Protocol requires this analysis to be performed on a quarterly basis.



Roger North
10 December 1993
Page Two

<u>LAW SDG</u> <u>NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
40507	X		ICP linear range analysis reported on EPA Form XII is dated 4/26/93. Samples were received 8/3/93 and analyzed on 8/6,13,19/93. Protocol requires this analysis to be performed on a quarterly basis for all analytes.

Sincerely,



Helen MacMinn
QA Officer

gjs
Enclosure

RMC
Analytics

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 10 December 1993

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 8/3/93. The report reviewed is identified by SDG Number 40507 and Case Number GQ3201. The number of samples included for review were thirteen(13).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks meet all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check samples meet all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- Analytes and interferences for Solution A were reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

Form V for spike sample results were not provided in this data package.

Duplicate Sample Analysis

Form VI for sample duplicate results were not provided in this data package.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

Form IX for ICP Serial Dilution results were not provided in this data package.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

5 January 1994

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number 40487B. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
40487B	X		Data end user is notified that the duplicate analysis was performed as a matrix spike duplicate for this report.
40487B	X		ICP IDL analysis reported on EPA Form X is dated 4/26/93. Samples were received 8/3/93 and analyzed 9/7/93. Protocol requires this analysis to be performed on a quarterly basis.
40487B	X		ICP linear range analysis reported on EPA Form XII is dated 4/26/93. Samples were received 8/3/93 and analyzed 9/7/93. Protocol requires this analysis to be performed on a quarterly basis.

Sincerely,

Helen MacMinn
QA Officer



DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 29 December 1993

This data package was validated according to the following:

- EPA Laboratory Data Validation. Functional Guidelines for Evaluating Inorganic Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 8/3/93. The report reviewed is identified by SDG Number 40487B and Case Number GQ3201. The number of samples included for review were three(3).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibrations meet all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limit standard meets all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks met all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.

ICP Preparation Blank

The ICP Preparation Blank meets all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.

ICP Interference Check Sample

The ICP interference check sample AB meets all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferents for Solution AB are reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations were verified for % recovery.

Spike Sample Analysis

The spike sample analysis meets requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Duplicate Sample Analysis

The data end user is notified that the duplicate analysis was performed as a matrix spike duplicate for this report.

The matrix spike duplicate analysis meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analyses were performed on field samples.
- All analyses met QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control sample meets all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

The ICP serial dilution meets all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All calculations were verified for % difference.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- The IDL's were below the CRDL for arsenic.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

RMC *Analytics*

A DIVISION OF
RMC ENVIRONMENTAL SERVICES, INC.

9 February 1994

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

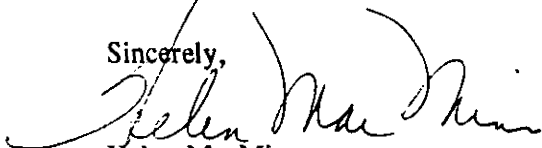
Law Environmental submitted this report with the SDG Designation Number ES15Y. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
ES15Y	X		Data end user is notified that the duplicate analysis, analyzed 5/12/93 was performed as a matrix spike duplicate for all samples associated with this report.
ES15Y	X		Discrepancy noted by validator on page 32 of this report. Duplicate result is recorded on Form VI as 481.6374 mg/Kg. A review of the raw data indicates this value should be 530.2 mg/Kg.
ES15Y	X		Interelement correction factors reported on EPA Form XI are dated 8/28/91. Samples were received and analyzed in 1993. Protocol requires this analysis to be performed on an annual basis.

Sincerely,


Helen MacMinn
QA Officer



TRI-COUNTY BUSINESS CAMPUS • 88 ROBINSON STREET • POTTSTOWN, PA 19464 • 215-327-4850 • FAX 215-327-4852

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 9 February 1994

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 5/8/93 for the analysis of arsenic. The report reviewed is identified by SDG Number ES15Y and Case Number GQ3201. The number of samples included for review were thirteen (13).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks met all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- The absolute values of the calibration blank results do not exceed the instrument detection limit (IDL) for arsenic.
- Initial and continuing calibration blanks were analyzed at the proper wavelength.

ICP Preparation Blank

The ICP Preparation Blank meets all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.
- The proper number of PB were analyzed for this sample set.

ICP Interference Check Sample

The ICP interference check sample met all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

The spike sample analyses meet requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Duplicate Sample Analysis

Discrepancy noted by validator on page 32 of this report. Duplicate result is recorded on Form VI as 481.6374 mg/Kg. A review of the raw data indicates this value should be 530.2 mg/Kg.

The data end user is also notified that the duplicate analyses were performed as matrix spike duplicates for all samples associated with this report.

The matrix spike duplicate analyses meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analyses were performed on field samples.
- All analyses met QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control sample meets all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

The ICP serial dilutions meet all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All calculations were verified for % difference.

Quarterly Verification of Instrument Parameters

- IDL's were reported for the quarter in which the samples were analyzed.
- Linear ranges were reported for the quarter in which the samples were analyzed.
- Interelement correction factors submitted with this report are dated 8/28/91. Samples associated with this report were analyzed 5/12/93. EPA protocol requires that the interelement correction factors be analyzed and reported on an annual basis.



A DIVISION OF
RMC ENVIRONMENTAL SERVICES, INC.

9 February 1994

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number PH48A. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
PH48A	X		Data end user is notified that the duplicate analysis, analyzed 5/10/93 was performed as a matrix spike duplicate for all samples associated with this reported.
PH48A	X		Deficiency noted on Form III (page 27) and confirmed by validator on raw data (page 46). Initial calibration blank recovery of 70.2 ug/l exceeds the instrument detection limit (IDL) of 42.0 ug/l.
PH48A	X		Interelement correction factors reported on EPA Form XI are dated 8/28/91. Samples were received and analyzed in 1993. Protocol requires this analysis to be performed annually.

Sincerely,

Helen MacMinn
QA Officer



TRI-COUNTY BUSINESS CAMPUS • 88 ROBINSON STREET • POTTSTOWN, PA 19464 • 215-327-4850 • FAX 215-327-4852

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 9 February 1994

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 5/5/93 for the analyses of arsenic. The report reviewed is identified by SDG Number PH48A and Case Number GQ3201. The number of samples included for review were twelve (12).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Deficiency noted on Form III (page 27) and confirmed by validator on raw data (page 46). Initial calibration blank recovery of 70.2 ug/l exceeds the instrument detection limit (IDL) of 42.0 ug/l.

Initial and continuing calibration blanks meet requirements as follows:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- The absolute values of the continuing calibration blank results do not exceed the instrument detection limit (IDL) for arsenic.
- Initial and continuing blanks were analyzed at the proper wavelength.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB is \leq CRDL.
- The proper number of PB were analyzed for this sample set.

ICP Interference Check Sample

The ICP interference check samples meet all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

The spike sample analyses meet requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentration.
- The % recovery for arsenic meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Duplicate Sample Analysis

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for samples associated with this report.

The matrix spike duplicate analyses meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analyses were performed on field samples.
- All analyses met QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

The ICP serial dilutions meet all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All calculations were verified for % difference.

Quarterly Verification of Instrument Parameters

- IDL's were reported for the quarter in which the samples were analyzed.
- Interelement correction factors reported on EPA Form XI are dated 8/28/91. Samples were received and analyzed in 1993. Protocol requires this analysis to be performed annually.
- Linear ranges were reported for the quarter in which the samples were analyzed.

9 February 1994

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number PH61. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
PH61	X		Data end user is notified that the duplicate analysis, analyzed 4/23/93 was performed as a matrix spike duplicate for all samples associated with this report.
PH61	X		ICP IDL analysis reported on EPA Form X is dated 3/19/92. Samples were received 4/20/93 and analyzed 4/23/93. Protocol requires this analysis to be performed on a quarterly basis.
PH61	X		Interelement correction factors reported on EPA Form XI are dated 8/28/91. Samples were received and analyzed in 1993. Protocol requires this analysis to be performed annually.



Mr. Roger North
9 February 1994
Page Two

LAW SDG
NUMBER

USEABLE

QUALIFIED

COMMENTS

PH61

X

ICP linear range analysis reported on EPA Form XII is dated 12/31/92. Samples were received 4/20/93 and analyzed on 4/23/93. Protocol requires this analysis to be performed on a quarterly basis.

Sincerely,



Helen MacMinn
QA Officer

Enclosure

RMC
Analytics

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 9 February 1994

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 4/20/93 for the analysis of arsenic. The report reviewed is identified by SDG Number PH61 and Case Number GQ3201. The number of samples included for review were twelve (12).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks meet all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- Absolute values for all analytes in the ICB and CCB are below the CRDL.
- Initial and continuing calibration blanks were analyzed at the proper wavelength.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB is \leq CRDL.
- The proper number of PB were analyzed for this sample set.

ICP Interference Check Sample

The ICP interference check samples meet all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferents for Solution AB are reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

The spike sample analyses meet requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Duplicate Sample Analysis

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for samples associated with this report.

The matrix spike duplicate analyses meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analyses were performed on field samples.
- All analyses met QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

The ICP serial dilutions meet all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All calculations were verified for % difference.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- Interelement correction factors reported on EPA Form XI are dated 8/28/91. Samples were received and analyzed in 1993. Protocol requires this analysis to be performed annually.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

9 February 1994

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number SRCC22. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY


<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
SRCC22	X		Discrepancy noted by validator on Form II (Part 2) page 24 of this data deliverable. Found value for final arsenic recovery recorded as 282.20 ug/l. Review of raw data indicates this value to be 292 ug/l resulting in a 97.3% recovery.
SRCC22	X		Data end user is notified that the duplicate analysis, analyzed 7/14/92, was performed as a matrix spike duplicate for all samples associated with this report.
SRCC22	X		ICP IDL analysis reported on EPA Form X is dated 3/29/92. Samples were received 7/9/92 and analyzed 7/14/92. Protocol requires this analysis to be performed on a quarterly basis.
SRCC22	X		Interelement correction factors reported on Form X1 (Part I) are dated 8/28/91. Samples were received 7/9/92 and analyzed on 7/14/92. Protocol requires this analysis to be performed on an annual basis.



Roger North
9 February 1994
Page Two

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
SRCC22	X		ICP linear range analysis reported on EPA Form XII is dated 3/29/92. Samples were received 7/9/92 and analyzed on 7/14/92. Protocol requires this analysis to be performed on a quarterly basis.
SRCC22	X		Deficiency noted by the validator on page 28, Form V (Part I). Lead value of (126%) does not meet EPA criteria of 75-125%. Post-digestion spike was performed as required by EPA protocol.
SRC22	X		Deficiency noted by the validator on page 25, Form III. Preparation blank absolute values for arsenic and lead are at a level greater than the reported CRDL.

Sincerely,


Helen MacMinn
QA Officer

Enclosure

RMC
Analytics

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 9 February 1994

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 7/9/92 for the analysis of arsenic and lead. The report reviewed is identified by SDG Number SRCC22 and Case Number GQ3201. The number of samples included for review were twelve (12).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

A discrepancy was noted by the validator on Form II (Part 2) page 24. Found value for final arsenic recovery is recorded as 282.20 ug/l. Review of raw data indicates this value to be 292 ug/l resulting in a 97.3% recovery.

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks met all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- The absolute values of the calibration blank results do not exceed the instrument detection limits (IDL) for arsenic and lead.
- Initial and continuing calibration blanks were analyzed at the proper wavelength.

ICP Preparation Blank

Deficiency noted by this validator on Form III (page 25). Preparation blank absolute values are at a level greater than the reported CRDL.

The ICP Preparation Blank meets all requirements in the following areas:

- PB performed in the proper frequency.
- The proper number of PB were analyzed for this sample set.

ICP Interference Check Sample

The ICP interference check sample met all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferents for Solution AB are reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

Deficiency noted by the validator on page 28, Form V (Part I). Lead value of (126.9%) does not meet EPA criteria of 75-125.

The spike sample analyses meet requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.

Post-Digestion Spike Analysis

The post-digestion/post-distillation spike is required to be performed on analytes that do not meet the 75-125% spike criteria. The post-digestion spike sample meets all requirements in the following areas:

- Post-digestion spike was analyzed at the proper analyte concentration.
- Post-digestion spike was performed on a field sample.
- The post-digestion spike recovery was verified for % recovery and is within the criteria limits of 75-125.

Duplicate Sample Analysis

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for samples associated with this report.

The matrix spike duplicate analyses meet all requirements in the following area:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analyses were performed on field samples.
- All analyses met QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control sample meets all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

The ICP serial dilutions meet all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All calculations were verified for % difference.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- Interement correction factors reported on Form XI are dated 8/28/91. Samples associated with this report were analyzed 7/14/92. Interement correction factors are required to be analyzed and reported on an annual basis.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

9 February 1994

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number SRCC26. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

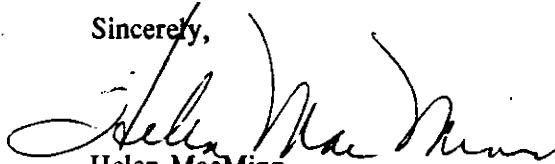
<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
SRCC26	X		Spike sample analysis (Form V) not provided in this data package.
SRCC26	X		Duplicate sample analysis (Form VI) not provided in this data package.
SRCC26	X		ICP IDL analysis reported on EPA Form X is dated 3/29/92. Samples were received 7/10/92 and analyzed 7/15/92. Protocol requires this analysis to be performed on a quarterly basis.
SRCC26	X		ICP linear range analysis reported on EPA Form XII is dated 3/29/92. Samples were received 7/10/92 and analyzed on 7/15/92. Protocol requires this analysis to be performed on a quarterly basis.



Mr. Roger North
9 February 1994
Page Two

<u>LAW SDG</u> <u>NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
SRCC26	X		Serial Dilution Analysis (Form IX) not provided in this data package.
SRCC26	X		Deficiency noted by the validator on page 16, Form III. Preparation blank absolute values for arsenic and lead are at a level greater than the reported CRDL.

Sincerely,


Helen MacMinn
QA Officer

Enclosure

RMC
Analytics

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 9 February 1994

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 7/10/92 for the analysis of arsenic and lead. The report reviewed is identified by SDG Number SRCC26 and Case Number GQ3201. The number of samples included for review were two(2).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks met all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- The absolute values of the calibration blank results do not exceed the instrument detection limits (IDL) for arsenic and lead.
- Initial and continuing calibration blanks were analyzed at the proper wavelength.

ICP Preparation Blank

Deficiency noted by this validator on Form III (page 16). Preparation blank absolute values are at a level greater than the reported CRDL for arsenic and lead.

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- The proper number of PB were analyzed for this sample set.

ICP Interference Check Sample

The ICP interference check sample met all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferents for Solution AB are reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

A spike sample analysis (Form V) was not provided in this data deliverable package.

Duplicate Sample Analysis

A duplicate sample analysis (Form VI) was not provided in this data package.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

An ICP serial dilution analysis (Form IX) was not provided in this data deliverable package.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

RMC *Analytics*

A DIVISION OF
RMC ENVIRONMENTAL SERVICES, INC.

9 February 1994

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number SRDA9. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
SRDA9	X		Data end user is notified that the duplicate analysis, analyzed 7/14/92 was performed as a matrix spike duplicate for all samples associated with this report.
SRDA9	X		ICP IDL analysis reported on EPA Form X is dated 3/29/92. Samples were received 7/9/92 and analyzed 7/14/92. Protocol requires this analysis to be performed on a quarterly basis.
SRDA9	X		ICP linear range analysis reported on EPA Form XII is dated 3/29/92. Samples were received 7/9/92 and analyzed on 7/14/92. Protocol requires this analysis to be performed on a quarterly basis.
SRDA9	X		Deficiency noted by the validator on page 30, Form III. Preparation blank absolute value for arsenic is at a level greater than the reported CRDL.



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Mr. Roger North
9 February 1994
Page Two

LAW SDG
NUMBER

USEABLE

QUALIFIED

COMMENTS

SRDA9

X

Interelement correction factors reported on EPA Form XI are dated 8/28/91. Samples were received and analyzed in 1992. Protocol requires this analysis to be performed annually.

Sincerely,



Helen MacMinn
QA Officer

Enclosure

RMC
Analytics

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 9 February 1994

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 7/9/92 for the analysis of arsenic. The report reviewed is identified by SDG Number SRDA9 and Case Number GQ3201. The number of samples included for review were sixteen (16).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks met all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- The absolute values of the calibration blank results do not exceed the instrument detection limit (IDL) for arsenic.
- Initial and continuing calibration blanks were analyzed at the proper wavelength.

ICP Preparation Blank

Deficiency noted by this validator on Form III (page 30). Preparation blank absolute value is at a level greater than the reported CRDL for arsenic.

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- The proper number of PB were analyzed for this sample set.

ICP Interference Check Sample

The ICP interference check sample met all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

The spike sample analysis meets requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Duplicate Sample Analysis

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for samples associated with this report.

The matrix spike duplicate analyses meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analyses were performed on field samples.
- All analyses met QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

The ICP serial dilutions meet all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All calculations were verified for % difference.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- Interelement correction factors submitted with this report are dated 8/28/91. Samples associated with this report were analyzed 7/14/92. Protocol requires that the interelement correction factors be analyzed and reported annually.
- Linear ranges were not reported for the quarter in which the samples were analyzed.



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RMC ENVIRONMENTAL SERVICES, INC.

9 February 1994

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number SRDA10. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
SRDA10	X		Spike sample analysis (Form V) not provided in this data package.
SRDA10	X		Duplicate sample analysis (Form VI) not provided in this data package.
SRDA10	X		Serial dilution analysis (Form IX) not provided in this data package.
SRDA10	X		ICP IDL analysis reported on EPA Form X is dated 3/29/92. Samples were received 7/9/92 and analyzed 7/14/92. Protocol requires this analysis to be performed on a quarterly basis.
SRDA10	X		Deficiency noted by this validator on page 20, Form III. Preparation blank absolute value for arsenic is at a level greater than the reported CRDL.



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Roger North
9 February 1994
Page Two

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
SRDA10	X		Interelement correction factors submitted with this report are dated 8/28/91. Samples associated with this report were analyzed on 7/14/92. EPA protocol requires that this analysis be analyzed and reported on an annual basis.
SRDA10	X		ICP linear range analysis reported on EPA Form XII is dated 3/29/92. Samples were received 7/9/92 and analyzed on 7/14/92. Protocol requires this analysis to be performed on a quarterly basis.

Sincerely,


Helen MacMinn
QA Officer

Enclosure

RMC
Analytics

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 9 February 1994

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 7/9/92 for the analysis of arsenic. The report reviewed is identified by SDG Number SRDA10 and Case Number GQ3201. The number of samples included for review were five (5).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks met all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- The absolute value of the calibration blank results do not exceed the instrument detection limit (IDL) for arsenic.
- Initial and continuing calibration blanks were analyzed at the proper wavelength.

ICP Preparation Blank

Deficiency noted by this validator on Form III, page 20. Preparation blank absolute value is at a level greater than the reported CRDL for arsenic.

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- The proper number of PB were analyzed for this sample set.

ICP Interference Check Sample

The ICP interference check sample met all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

A spike sample analysis (Form V) was not provided in this data deliverable package.

Duplicate Sample Analysis

A duplicate sample analysis (Form VI) was not provided in this data deliverable package.

Laboratory Control Sample

The laboratory control sample meets all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

An ICP serial dilution analysis (Form IX) was not provided in this data deliverable package.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- Inter-element correction factors submitted with this report are dated 8/28/91. Samples associated with this report were analyzed on 7/14/92. EPA protocol requires that the inter-element correction factors be analyzed and reported on an annual basis.

9 February 1994

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number SRDA23. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

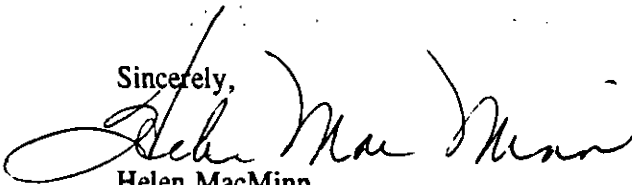
<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
SRDA23	X		Data end user is notified that the duplicate analysis, analyzed 7/15/93 was performed as a matrix spike duplicate for all samples associated with this report.
SRDA23	X		ICP IDL analysis reported on EPA Form X is dated 3/29/92. Samples were received 7/10/92 and analyzed 7/15/92. Protocol requires this analysis to be performed on a quarterly basis.
SRDA23	X		ICP linear range analysis reported on EPA Form XII is dated 3/29/92. Samples were received 7/10/92 and analyzed on 7/15/92. Protocol requires this analysis to be performed on a quarterly basis.



Mr. Roger North
9 February 1994
Page Two

<u>LAW SDG</u> <u>NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
SRDA23	X		Deficiency noted by the validator on page 31, Form III. Preparation blank absolute value for arsenic is at a level greater than the reported CRDL.

Sincerely,



Helen MacMinn
QA Officer

Enclosure

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 9 February 1994

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 7/10/92 for the analysis of arsenic. The report reviewed is identified by SDG Number SRDA23 and Case Number GQ3201. The number of samples included for review were sixteen (16).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks met all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- The absolute values of the calibration blank results do not exceed the instrument detection limit (IDL) for arsenic.
- Initial and continuing calibration blanks were analyzed at the proper wavelength.

ICP Preparation Blank

Deficiency noted by this validator on Form III (page 31). Preparation blank absolute values are at a level greater than the reported CRDL.

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- The proper number of PB were analyzed for this sample set.

ICP Interference Check Sample

The ICP interference check sample met all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferents for Solution AB are reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

The spike sample analyses meet requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Duplicate Sample Analysis

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for samples associated with this report.

The matrix spike duplicate analyses meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analyses were performed on field samples.
- All analyses met QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control sample meets all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

The ICP serial dilutions meet all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All calculations were verified for % recovery.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

9 February 1994

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

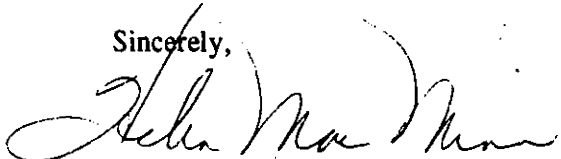
Law Environmental submitted this report with the SDG Designation Number DA6XG. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
DA6XG	X		Data end user is notified that the duplicate analysis, analyzed 5/21/93 was performed as a matrix spike duplicate for all samples associated with this report.
DA6XG	X		Interelement correction factors submitted with this report are dated 8/28/91. Samples associated with this report were analyzed on 5/21/93. EPA protocol requires that this analysis be analyzed annually.

Sincerely,



Helen MacMinn
QA Officer



DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 9 February 1994

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 5/19/93 for the analysis of arsenic. The report reviewed is identified by SDG Number DA6XG and Case Number GQ3201. The number of samples included for review were twenty-one (21).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks met all requirements in the following areas:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- The absolute values of the calibration blank results do not exceed the instrument detection limit (IDL) for arsenic.
- Initial and continuing calibration blanks were analyzed at the proper wavelength.

ICP Preparation Blank

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- PB are \leq CRDL.
- The proper number of PB were analyzed for this sample set.

ICP Interference Check Sample

The ICP interference check sample met all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferents for Solution AB are reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

The spike sample analysis meets requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Duplicate Sample Analysis

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for samples associated with this report.

The matrix spike duplicate analyses meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analyses were performed on field samples.
- All analyses met QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

The ICP serial dilutions meet all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All calculations were verified for % difference.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- Interelement correction factors submitted with this report are dated 8/28/91. Samples associated with this report were analyzed 5/21/93. EPA protocol requires that the interelement correction factors be analyzed and reported on an annual basis.

RMC *Analytics*

A DIVISION OF
RMC ENVIRONMENTAL SERVICES, INC.

14 February 1994

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number NF21. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
NF21	X		Deficiency noted by the validator on pages 15 and 16, Form III. Preparation blank absolute values for arsenic and lead are at a level greater than the reported CRDL.
NF21	X		Spike sample analysis (Form V) not provided in this data package.
NF21	X		Duplicate sample analysis (Form VI) not provided in this data package.
NF21	X		Serial dilution analysis (Form IX) not provided in this data package.
NF21	X		ICP IDL analysis reported on EPA Form X is dated 3/29/92. The sample was received 7/30/92 and analyzed 8/3/92. Protocol requires this analysis to be performed on a quarterly basis.



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Roger North
14 February 1994
Page Two

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
NF21	X		Interelement correction factors submitted with this report are dated 8/28/91. Samples were analyzed 8/3/91. EPA protocol requires that this analysis be analyzed and reported annually.
NF21	X		ICP linear range analysis reported on EPA Form XII is dated 3/29/92. Samples were received 7/30/92 and analyzed on 8/3/92. Protocol requires this analysis to be performed on a quarterly basis.

Sincerely,



Helen MacMinn
QA Officer

Enclosure

RMC
Analytics

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 14 February 1994

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 7/30/92 for the analysis of arsenic and lead. The report reviewed is identified by SDG Number NF21 and Case Number GQ3201. The number of samples included for review was one (1).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks meet requirements as follows:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- The absolute values of the calibration blank results do not exceed the instrument detection limit (IDL) for arsenic and lead.
- Initial and continuing calibration blanks were analyzed at the proper wavelength.

ICP Preparation Blank

Deficiency noted by this validator on Form III, pages 15 and 16. Preparation blank absolute values are at a level greater than the reported CRDL's for arsenic and lead.

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- The proper number of PB were analyzed for this sample set.

ICP Interference Check Sample

The ICP interference check samples meet all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferences for Solution AB are reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

A spike sample analysis (Form V) was not provided in this data deliverable package.

Duplicate Sample Analysis

A duplicate sample analysis (Form VI) was not provided in this data deliverable package.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

An ICP serial dilution analysis (Form IX) was not provided in this data deliverable package.

Quarterly Verification of Instrument Parameters

- IDL's were reported for the quarter in which the samples were analyzed.
- Inter-element correction factors submitted with this report are dated 8/28/91. Samples associated with this report were analyzed on 8/3/92. EPA protocol requires that the inter-element correction factors be analyzed and reported on an annual basis.
- Linear ranges were not reported for the quarter in which the samples were analyzed.

14 February 1994

Mr. Roger North
Geosyntec Consultants
5775 Peach Tree Dunwoody Road
Suite 200F
Atlanta, Georgia 30342

Dear Mr. North:

Enclosed is the Inorganic Data Validation Report for samples analyzed by Law Environmental Laboratory for the Arco Sinclair Refinery Site.

The report was produced using the EPA CLP Data Validation protocols for 7/88 Statement of Work.

Law Environmental submitted this report with the SDG Designation Number NF1. The reviewer used this number to identify any problem areas found during validation.

The following table lists the reviewer's findings and whether the data is useable or required a qualifier.

CLP VALIDATION SUMMARY

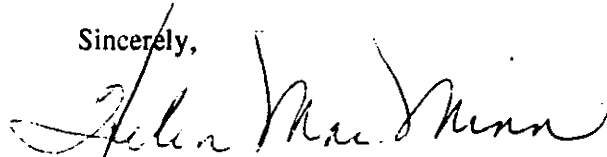
<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
NF1	X		Deficiency noted by the validator on pages 39 and 40, Form III. Preparation blank absolute values for arsenic and lead are at a level greater than the reported CRDL.
NF1	X		Deficiency noted by the validator on page 44, Form V (Part 1). Lead spike recovery of (74.4%) does not meet EPA criteria of 75-125%. Post digestion spike was performed as required by EPA Protocol.
NF1	X		Data end user is notified that the duplicate analyses analyzed 8/3/92 were performed as matrix spike duplicates for all samples associated with this report.
NF1	X		ICP IDL analysis reported on EPA Form X is dated 3/29/92. The samples were received 7/30/92 and analyzed 8/3/92. Protocol requires this analysis to be performed on a quarterly basis.



Roger North
14 February 1994
Page Two

<u>LAW SDG NUMBER</u>	<u>USEABLE</u>	<u>QUALIFIED</u>	<u>COMMENTS</u>
NF1	X		Interelement correction factors reported on Form XI (Part 1) are dated 8/28/91. Samples were received 7/30/92 and analyzed on 8/3/92. Protocol requires this analysis to be performed annually.
NF1	X		ICP linear range analysis reported on EPA Form XII is dated 3/29/92. Samples were received 7/30/92 and analyzed on 8/3/92. Protocol requires this analysis to be performed on a quarterly basis.

Sincerely,



Helen MacMinn
QA Officer

Enclosure

RMC
Analytics

DATA VALIDATION REPORT

Inorganics
CLP Requirements

CLIENT: Geosyntec Consultants
LABORATORY: Law Environmental
SITE: Arco-Sinclair Refinery
REVIEWER: Helen MacMinn
DATE OF REVIEW: 14 February 1994

This data package was validated according to the following:

- EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis, July, 1988.

METALS REVIEW

The metals samples reviewed for this report were received by Law Environmental on 7/30/92 for the analysis of arsenic and lead. The report reviewed is identified by SDG Number NF1 and Case Number GQ3201. The number of samples included for review were twenty-four (24).

Sample Holding Times

All sample holding times meet EPA criteria.

Initial Calibration Verification

The initial calibration meets all requirements in the following areas:

- Instrument properly standardized for ICP analysis.
- The ICV was analyzed immediately after each system was calibrated.
- The ICV was analyzed for arsenic and lead as required.
- All ICV analytes meet the QC requirements for % recovery.
- Calculations were verified for ICV % recovery.

Continuing Calibration Verification

The continuing calibration meets all requirements in the following areas:

- The CCV was performed at the 10% frequency for arsenic and lead (where applicable).
- The CCV was performed at the beginning and end of each sample analysis.
- The CCV standards were analyzed for all analytes.
- All CCV analytes meet the QC requirements for % recovery.
- CCB analysis followed CCV analysis for all analytes.
- All calculations verified for % CCV recovery.

CRDL Standard

The contract required detection limits meet all requirements in the following areas:

- The required ICP analytes meet QC requirements for % recovery.
- The CRDL analysis for ICP was performed at the correct frequency and concentration.
- All calculations were verified for % recovery for the CRDL standards.

Initial and Continuing Calibration Blanks

Initial and continuing calibration blanks meet requirements as follows:

- Initial and continuing calibration blanks were analyzed in the proper sequence.
- The absolute values of the calibration blank results do not exceed 2 the instrument detection limit (IDL) for arsenic and lead.
- Initial and continuing calibration blanks were analyzed at the proper wavelength.

ICP Preparation Blank

Deficiency noted by this validator on pages 39 and 40, Form III. Preparation blank absolute values for arsenic and lead are at a level greater than the reported CRDL.

The ICP Preparation Blanks meet all requirements in the following areas:

- PB performed in the proper frequency.
- The proper number of PB were analyzed for this sample set.

ICP Interference Check Sample

The ICP interference check samples meet all requirements in the following areas:

- ICP interference check samples performed at the correct frequency.
- Analytes and interferents for Solution AB are reported.
- All required analytes in Solution AB met QC limits of 80-120%.
- All calculations verified for % recovery.

Spike Sample Analysis

Deficiency noted by the validator on page 44, Form V (Part I). Lead value of (74.4%) does not meet EPA criteria of 75-125%.

The spike sample analyses meet requirements in the following areas:

- The sample spike analysis was performed at the correct frequency.
- The sample spike analysis was performed on a field sample.
- The sample spike analysis was performed at the proper concentrations.
- The % recovery for arsenic meet the EPA criteria of 75-125%.
- All calculations were verified for % recovery.

Post-Digestion Spike Analysis

The post-digestion/post-distillation spike is required to be performed on analytes that do not meet the 75-125% spike criteria. The post-digestion spike sample meets all requirements in the following areas:

- Post-digestion spike was analyzed at the proper analyte concentration.
- Post-digestion spike was performed on a field sample.
- The post-digestion spike recovery (93.1%) was verified for % recovery and is within the criteria limits of 75-125.

Duplicate Sample Analysis

The data end user is notified that the duplicate analyses were performed as matrix spike duplicates for all samples associated with this report.

The matrix spike duplicate analyses meet all requirements in the following areas:

- All duplicate analyses were performed at the correct frequency.
- Duplicate analyses were performed on field samples.
- All analyses met QC limits established for soil samples of $\pm 35\%$.
- All calculations were verified for % RPD.

Laboratory Control Sample

The laboratory control samples meet all requirements in the following areas:

- LCS performed at the correct frequency.
- All analytes meet the QC limits of 80-120%.
- All calculations verified for % recovery.

ICP Serial Dilution

The ICP serial dilutions meet all requirements in the following areas:

- Serial dilution performed at the correct frequency.
- All calculations were verified for % difference.

Quarterly Verification of Instrument Parameters

- IDL's were not reported for the quarter in which the samples were analyzed.
- Interement correction factors submitted with this report are dated 8/28/91. Samples associated with this report were analyzed on 8/3/92. Interement correciton factors are required to be analyzed and reported annually.
- Linear ranges were not reported for the quarter in which the samples were analyzed.