



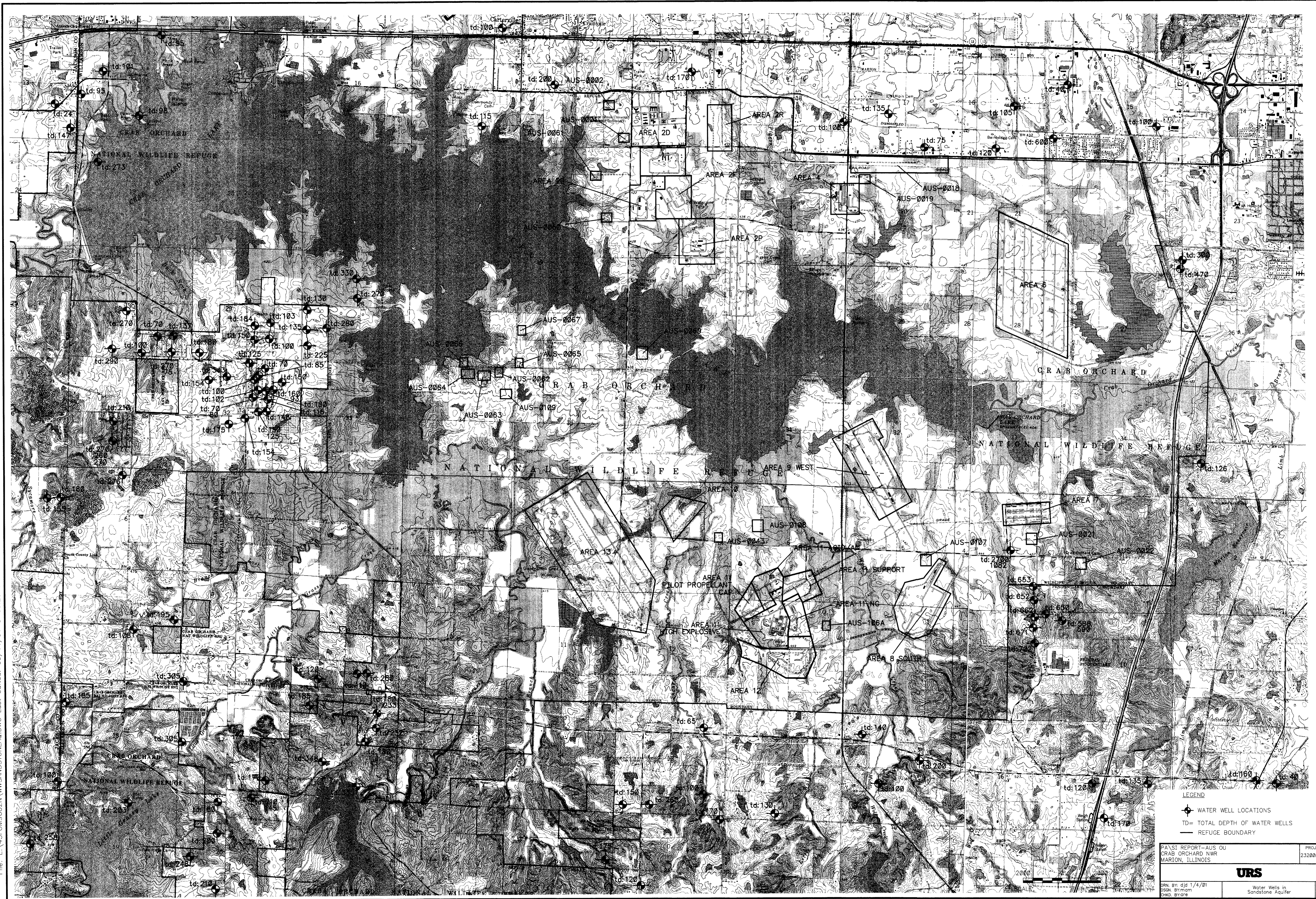
BOOK OF LARGE FIGURES

Final Preliminary Assessment/Site Inspection Report

**Additional and Uncharacterized Sites Operable Unit
Crab Orchard National Wildlife Refuge NPL Site
Marion, Illinois (Williamson County)**

JUNE 2003

This Final Book of Large Figures is identical to the "Draft-Final" version issued in September 2001.



LEGEND
 ● WATER WELL LOCATIONS
 TD= TOTAL DEPTH OF WATER WELLS
 — REFUGE BOUNDARY

FAST REPORT-AUS 01
 CRAB ORCHARD NWR
 MARION, ILLINOIS

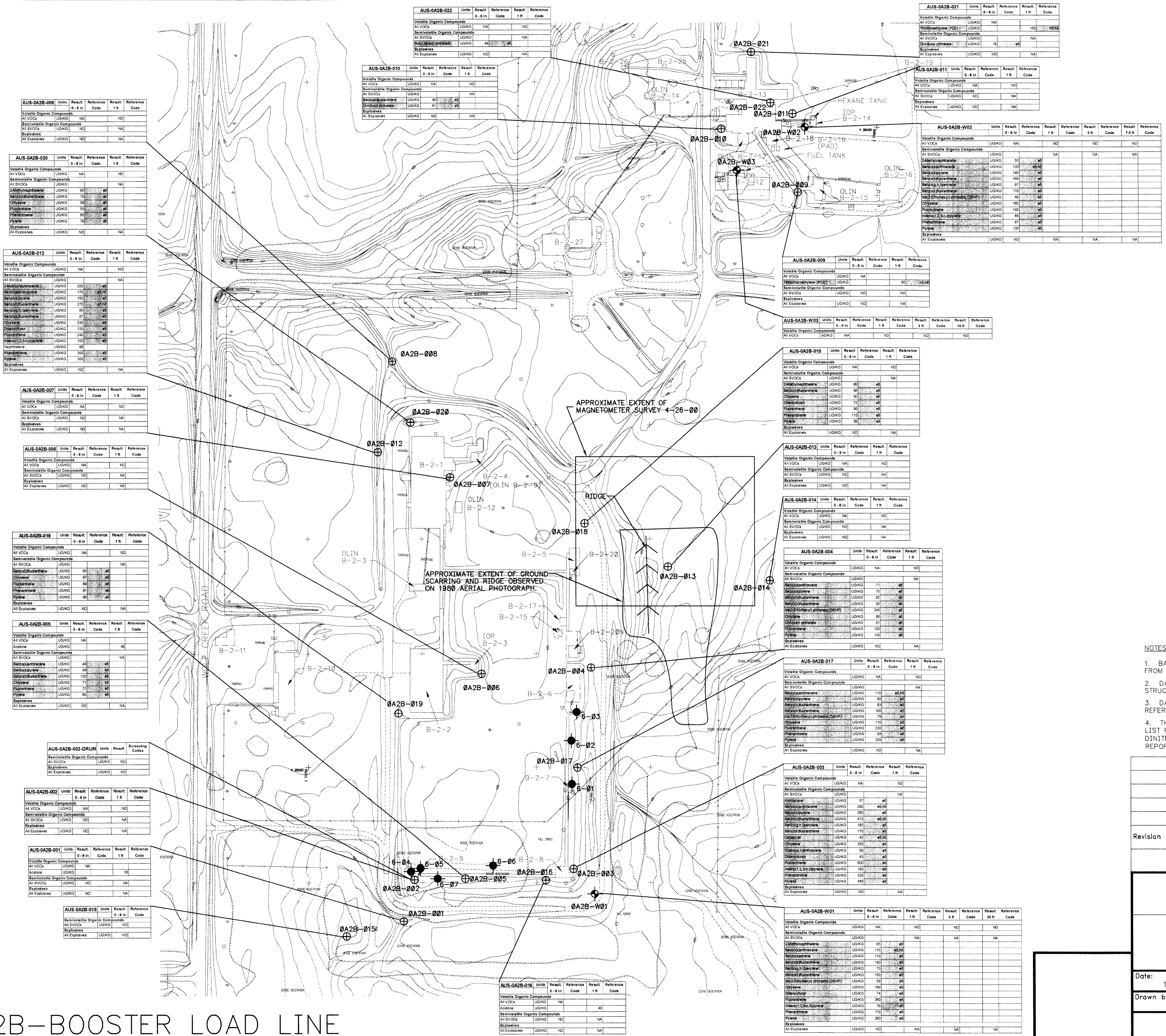
PROJECT NO.
 232000026.00

URS

DN: BY: ejd 1/4/01
 DSN: BY:mcm
 CHK: BY:ore

Water Wells in
 Sandstone Aquifer

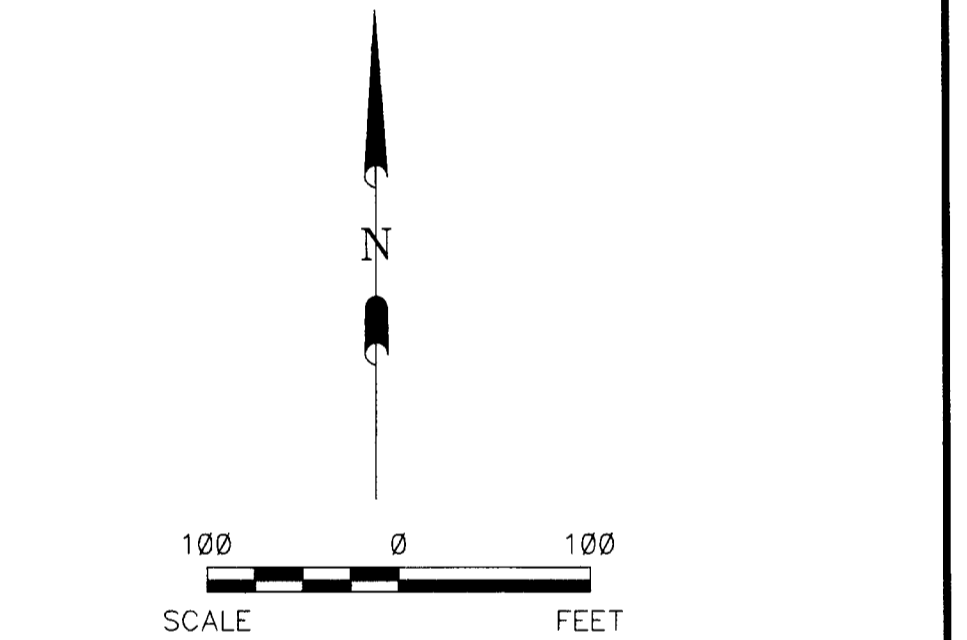
FIG. NO.
 2-3



LEGEND

- MONITORING WELL LOCATION
- HAND AUGER LOCATION
- USEPA 1998 SAMPLE LOCATION

Screening Reference	Reference Code
AUS Background Soil (LTL)	B1
Little Grand Background Sediment (LTL)	B2
Little Grand Background Surface Water (LTL)	B3
Ecological Direct Exposure Pathway: TRV - Soil	B4
Ecological Direct Exposure Pathway: TRV - Sediment	B5
Ecological Direct Exposure Pathway: TRV - Surface Water	B6
TEPA General Use Surface Water Quality Aquatic Life Toxicity	B7
Superfund Chemical Data Tables Acute Values (potential bioaccumulation)	B8
USEPA Region IX Industrial Soil PEG - concrete	B9
USEPA Region IX Industrial Soil PEG - nonconcrete	B10
USEPA Region IX Tap Water PEG - nonconcrete	B11
USEPA Region IX Tap Water PEG - nonconcrete	B12
USEPA Region IX Tap Water PEG - nonconcrete	B13
USEPA Region IX Tap Water PEG - nonconcrete	B14
USEPA Region IX Tap Water PEG (DAP-1)	B15
USEPA MCL Drinking Water Standards	B16
USEPA TACO Industrial/Commercial Soil Ingestion	B17
USEPA TACO Construction Worker Soil Ingestion	B18
USEPA TACO Plant Soil Component of Groundwater	B19
USEPA General Use Surface Water Quality Human Health	B20



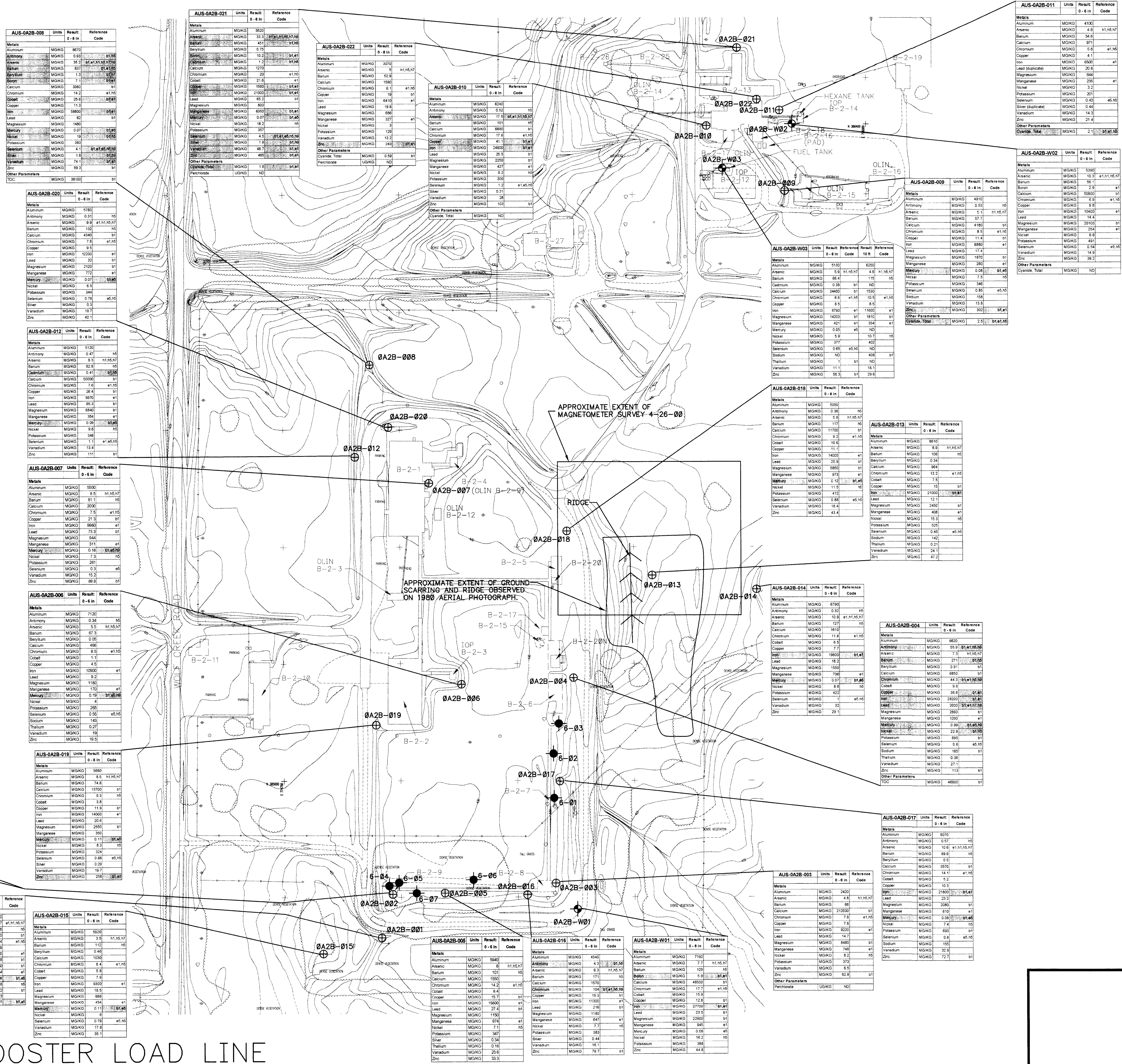
- NOTES:**
- BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT.
 - DASHED OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES AND/OR ROADS.
 - DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO QCSR FOR DATA QUALIFIERS.
 - THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

Revision No.	Description	Date	By	App.	
REVISIONS					
PA/SI REPORT-AUS 0A CRAB ORCHARD NWR MARION, ILLINOIS					
AUS-0A2B Sample Locations and Detections of Organic Compounds in Soils/Drums					
Date:	11/14/00	Project Number:	232000026.00	Figure Number:	3-4
Drawn by:	DJD	Design by:	MAM	Checked by:	CMW

AREA 2B-BOOSTER LOAD LINE

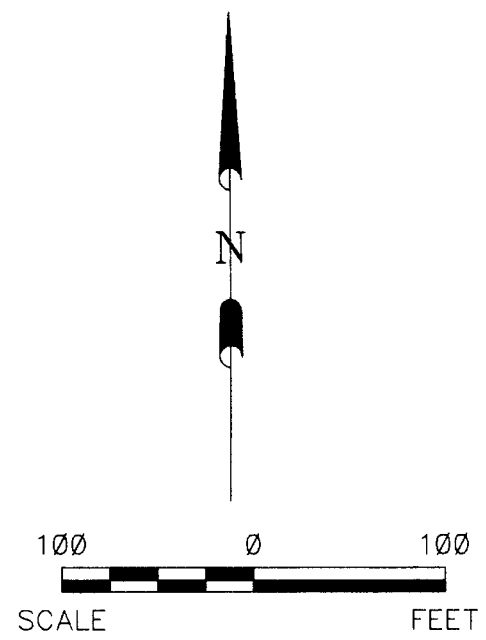


FILE: E:\232000026\002\PA-SI-REPORT-AUS-QA2B-SAMPLE LOCATION 2-AUS-QA2B.DWG, last edited: SEP 19 09 10:15 AM, URS CORP.



- LEGEND**
- ⊕ MONITORING WELL LOCATION
 - ⊙ HAND AUGER LOCATION
 - ◆ USEPA 1998 SAMPLE LOCATION

Screening Reference	Reference Code
AUS Background Soil UTL	B1
1 Mile Green Background Sediment UTL	B2
1 Mile Green Background Surface Water UTL	B3
Ecological Direct Exposure Pathway TRV - Soil	E1
Ecological Direct Exposure Pathway TRV - Surface Water	E2
Ecological Direct Exposure Pathway TRV - Sediment	E3
IEPA General Use Surface Water Quality Agency 1 Use Toxicity	E4
IEPA General Use Surface Water Quality Agency 1 Use Toxicity	E5
Superfund Chemical Data Matrix Core Values (potential bioaccumulation)	E6
USEPA Region IX Industrial Soil PRL - noncarcinogen	B1
USEPA Region IX Industrial Soil PRL - carcinogen	B2
USEPA Region IX Tap Water PRL - noncarcinogen	B3
USEPA Region IX Tap Water PRL - carcinogen	B4
USEPA Region IX Tap Water PRL - noncarcinogen	B5
USEPA Region IX Tap Water PRL - carcinogen	B6
USEPA MCL Drinking Water Standards	B7
IEPA TACO Industrial/Commercial Soil Degradation	B8
IEPA TACO Industrial/Commercial Soil Degradation	B9
IEPA TACO Construction Worker Soil Degradation	B10
IEPA TACO Class II Soil Component of Groundwater	B11
IEPA General Use Surface Water Quality Human Health	B12



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Revision No.	Description	Date	By	App.
REVISIONS				

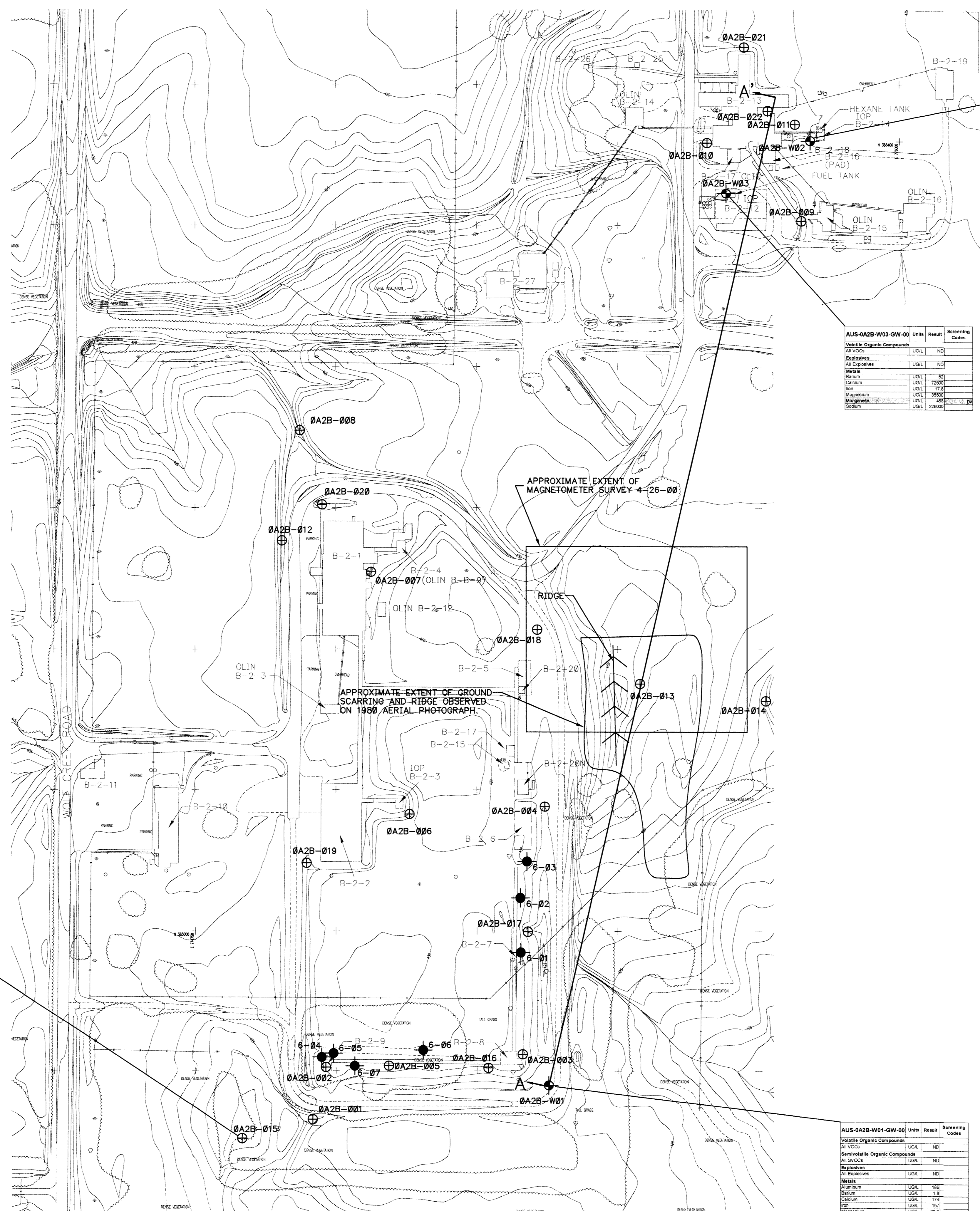
PA/SI REPORT-AUS OU
CRAB ORCHARD NWR
MARION, ILLINOIS

AUS-QA2B
Sample Locations and Detections of
Inorganic Compounds in Soils/Drums

Date: 11/14/00	Project Number: 232000026.00	Figure Number: 3-5
Drawn by: DUD	Design by: MAM	Checked by: CMW



AREA 2B-BOOSTER LOAD LINE

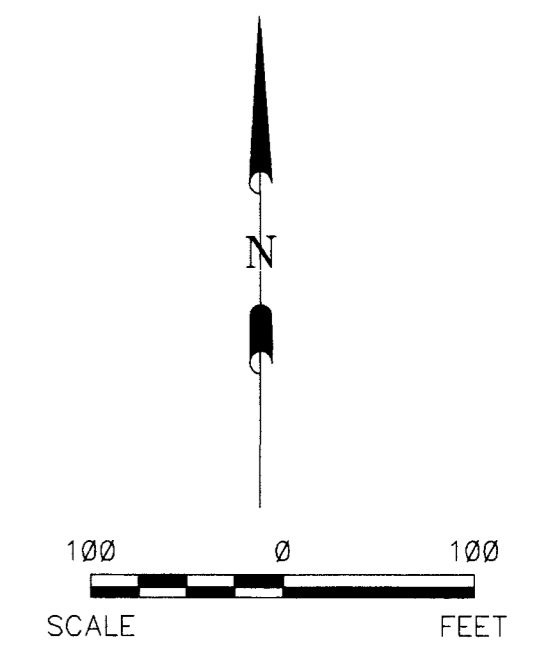


AUS-0A2B-W02-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds	UG/L	ND	
All VOCs	UG/L	ND	
Explosives	UG/L	ND	
All Explosives	UG/L	ND	
Metals	UG/L	ND	
Aluminum	UG/L	52	
Barium	UG/L	7200	
Calcium	UG/L	17.8	
Copper	UG/L	3500	
Magnesium	UG/L	48	
Manganese	UG/L	22000	
Sodium	UG/L	ND	

AUS-0A2B-W03-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds	UG/L	ND	
All VOCs	UG/L	ND	
Explosives	UG/L	ND	
All Explosives	UG/L	ND	
Metals	UG/L	ND	
Aluminum	UG/L	52	
Barium	UG/L	7200	
Calcium	UG/L	17.8	
Copper	UG/L	3500	
Magnesium	UG/L	48	
Manganese	UG/L	22000	
Sodium	UG/L	ND	

- LEGEND**
- ⊕ MONITORING WELL LOCATION
 - ⊙ HAND AUGER LOCATION
 - ★ USEPA 1998 SAMPLE LOCATION

Screening Reference	Reference Code
AUS Background Soil LTL	b1
1.0 mg/L Grassy Background Surface Water LTL	b2
Ecological Direct Exposure Pathway TRV - Soil	e1
Ecological Direct Exposure Pathway TRV - Sediment	e2
Ecological Direct Exposure Pathway TRV - Surface Water	e3
IEPA General Use Surface Water Quality Aquatic Life Toxicity	e4
Superfund Chemical Data Matrix Kow values (potential bioaccumulation)	e5
USEPA Region IX Industrial Soil PRG - carcinous	b1
USEPA Region IX Industrial Soil PRG - noncarcinous	b2
USEPA Region IX Tap Water PRG - carcinous	b3
USEPA Region IX Tap Water PRG - noncarcinous	b4
USEPA Region IX Migration to Groundwater PRG (DAG+1)	b5
USEPA MCL Drinking Water Standards	b6
IEPA TACO Construction/Commercial Soil Ingestion	b7
IEPA TACO Construction/Worker Soil Ingestion	b8
IEPA TACO Class I Soil Component of Groundwater	b9
IEPA General Use Surface Water Quality Human Health	b10



APPROXIMATE EXTENT OF MAGNETOMETER SURVEY 4-26-00

APPROXIMATE EXTENT OF GROUND SCARRING AND RIDGE OBSERVED ON 1980 AERIAL PHOTOGRAPH

AUS-0A2B-015-SW-00	Units	Result	Screening Codes
Semi-volatile Organic Compounds	UG/L	ND	
All SVOCs	UG/L	ND	
Explosives	UG/L	ND	
All Explosives	UG/L	ND	
Metals	UG/L	ND	
Aluminum	UG/L	3400	
Barium	UG/L	5	
Bismuth	UG/L	240	
Calcium	UG/L	10800	
Chromium	UG/L	74	
Copper	UG/L	2300	
Lead	UG/L	25	
Magnesium	UG/L	6170	
Manganese	UG/L	448	
Mercury	UG/L	3620	
Sodium	UG/L	3770	
Other Parameters	UG/L	ND	
Pesticides	UG/L	ND	

AUS-0A2B-W01-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds	UG/L	ND	
All VOCs	UG/L	ND	
Semi-volatile Organic Compounds	UG/L	ND	
All SVOCs	UG/L	ND	
Explosives	UG/L	ND	
All Explosives	UG/L	ND	
Metals	UG/L	ND	
Aluminum	UG/L	188	
Barium	UG/L	118	
Calcium	UG/L	174	
Copper	UG/L	151	
Iron	UG/L	28.3	
Magnesium	UG/L	4.8	
Manganese	UG/L	30.6	
Sodium	UG/L	5.11	
Other Parameters	UG/L	ND	
Pesticides	UG/L	ND	

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Revision No.	Description	Date	By	App.

REVISIONS

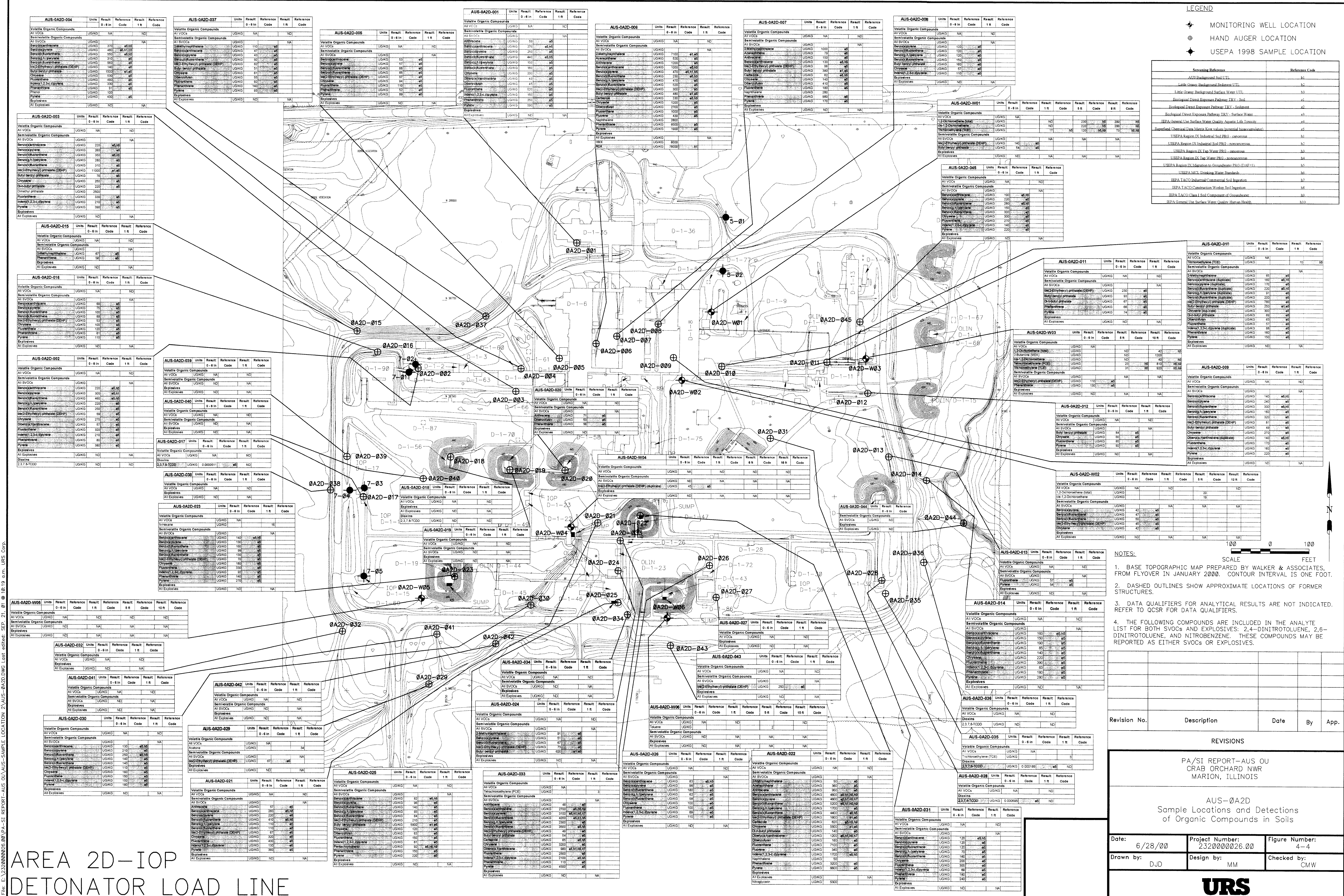
PA/SI REPORT-AUS 01
CRAB ORCHARD NWR
MARION, ILLINOIS

AUS-0A2B
Sample Locations and Detections in
Surface Water and Groundwater

Date: 11/14/00	Project Number: 232000026.00	Figure Number: 3-6
Drawn by: DJD	Design by: MAM	Checked by: CMW

AREA 2B-BOOSTER LOAD LINE





LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊙ HAND AUGER LOCATION
- ◆ USEPA 1998 SAMPLE LOCATION

Screening Reference	Reference Code
AIS Background Soil LTL	NA
Limit Group Background Soil LTL	NA
Limit Group Background Surface Water LTL	NA
Biological Direct Exposure Pathway: SVL - Soil	NA
Biological Direct Exposure Pathway: SVL - Sediment	NA
Biological Direct Exposure Pathway: SVL - Surface Water	NA
IEPA (General Use) Surface Water Quality Agency Life Toxicity	NA
USEPA Region IX Industrial Soil PEG - noncarcinogenic	NA
USEPA Region IX Tap Water PEG - noncarcinogenic	NA
USEPA Region IX Tap Water PEG - carcinogenic	NA
USEPA Region IX Drinking Water Standards	NA
IEPA TACO Industrial/Commercial Soil Ingestion	NA
IEPA TACO Consumer Working Soil Ingestion	NA
IEPA TACO Class I Soil Component of Groundwater	NA
IEPA General Use Surface Water Quality Human Health	NA

AUS-0A2D-004	Units	Result	Reference	Result	Reference
0-6 in		Code	1 ft	Code	
Volatile Organic Compounds					
All VOCs					
Semi-volatile Organic Compounds					
All SVOCs					
Explosives					
All Explosives					

AUS-0A2D-005	Units	Result	Reference	Result	Reference
0-6 in		Code	1 ft	Code	
Volatile Organic Compounds					
All VOCs					
Semi-volatile Organic Compounds					
All SVOCs					
Explosives					
All Explosives					

AUS-0A2D-006	Units	Result	Reference	Result	Reference
0-6 in		Code	1 ft	Code	
Volatile Organic Compounds					
All VOCs					
Semi-volatile Organic Compounds					
All SVOCs					
Explosives					
All Explosives					

AUS-0A2D-007	Units	Result	Reference	Result	Reference
0-6 in		Code	1 ft	Code	
Volatile Organic Compounds					
All VOCs					
Semi-volatile Organic Compounds					
All SVOCs					
Explosives					
All Explosives					

AUS-0A2D-008	Units	Result	Reference	Result	Reference
0-6 in		Code	1 ft	Code	
Volatile Organic Compounds					
All VOCs					
Semi-volatile Organic Compounds					
All SVOCs					
Explosives					
All Explosives					

AUS-0A2D-009	Units	Result	Reference	Result	Reference
0-6 in		Code	1 ft	Code	
Volatile Organic Compounds					
All VOCs					
Semi-volatile Organic Compounds					
All SVOCs					
Explosives					
All Explosives					

NOTES:
 1. BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT.
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SCALE: 1" = 100 FEET

Revision No.	Description	Date	By	App.

REVISIONS

PA/SI REPORT-AUS OU
 CRAB ORCHARD NWR
 MARION, ILLINOIS

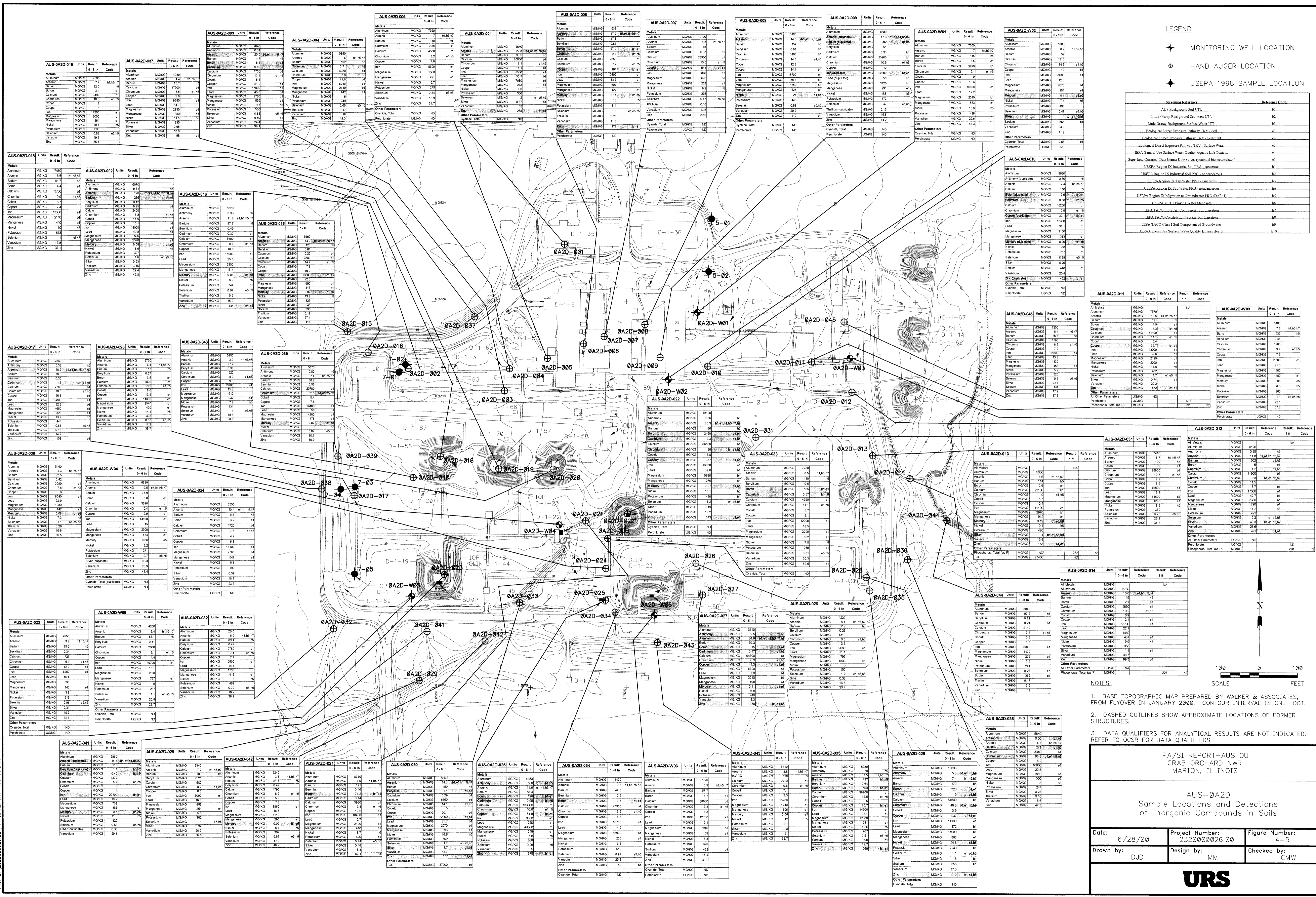
AUS-0A2D
 Sample Locations and Detections
 of Organic Compounds in Soils

Date: 6/28/00	Project Number: 232000026.00	Figure Number: 4-4
Drawn by: DJD	Design by: MM	Checked by: CMW



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Fig. E: 2330000025 80 PA-AS-1 REPORT-AUS-0A22-AUS-0A22-DWG Last revised: SEP. 19. 91 @ 97.42 U.S. CORP.



LEGEND

- MONITORING WELL LOCATION
- HAND AUGER LOCATION
- USEPA 1998 SAMPLE LOCATION

Screening Reference Reference Code

AUS Background Soil LTL	b1
Little Gray Background Sediment LTL	b2
Little Gray Background Surface Water LTL	b3
Biological Direct Exposure Pathway, TRV - Soil	c1
Biological Direct Exposure Pathway, TRV - Sediment	c2
Biological Direct Exposure Pathway, TRV - Surface Water	c3
Biological Direct Exposure Pathway, TRV - Aquatic Life Toxicity	c4
Superfund Chemical Data Matrix Kow values (potential bioaccumulation)	e1
USEPA Region IX Industrial Soil PRG - carcinogenic	h1
USEPA Region IX Tap Water PRG - carcinogenic	h3
USEPA Region IX Tap Water PRG - non-carcinogenic	h4
USEPA Region IX Migration to Groundwater PRG (DAP-1)	h5
USEPA MCL Drinking Water Standards	b7
IEPA TACO Industrial/Commercial Soil Ingestion	b7
IEPA TACO Class I Soil Component of Groundwater	h8
IEPA General Use Surface Water Quality	h10

AUS-0A22-011 Units Result Reference Code

Metals	Units	Result	Reference	Code
Aluminum	MG/KG	7690	NA	
Antimony	MG/KG	0.33	11.16, 37	
Asenic	MG/KG	48.9	11.16, 37, 76, 78	
Beryllium	MG/KG	0.36	11.16, 37	
Barium	MG/KG	785	11.16, 37	
Bismuth	MG/KG	1.9	11.16, 37	
Calcium	MG/KG	7760	11.16, 37	
Chromium	MG/KG	10.3	11.16, 37	
Cobalt	MG/KG	0.13	11.16, 37	
Copper	MG/KG	10.8	11.16, 37	
Iron	MG/KG	1080	11.16, 37	
Lead	MG/KG	32	11.16, 37	
Magnesium	MG/KG	4650	11.16, 37	
Manganese	MG/KG	339	11.16, 37	
Nickel	MG/KG	44	11.16, 37	
Potassium	MG/KG	444	11.16, 37	
Selenium	MG/KG	12.9	11.16, 37	
Silver	MG/KG	0.17	11.16, 37	
Sodium	MG/KG	1.7	11.16, 37	
Thallium	MG/KG	0.16	11.16, 37	
Vanadium	MG/KG	12.9	11.16, 37	
Zinc	MG/KG	158	11.16, 37	

AUS-0A22-012 Units Result Reference Code

Metals	Units	Result	Reference	Code
Aluminum	MG/KG	7410	NA	
Antimony	MG/KG	0.33	11.16, 37	
Asenic	MG/KG	6.7	11.16, 37	
Barium	MG/KG	3.0	11.16, 37	
Bismuth	MG/KG	1.9	11.16, 37	
Calcium	MG/KG	1180	11.16, 37	
Chromium	MG/KG	10.3	11.16, 37	
Cobalt	MG/KG	0.13	11.16, 37	
Copper	MG/KG	10.8	11.16, 37	
Iron	MG/KG	1080	11.16, 37	
Lead	MG/KG	32	11.16, 37	
Magnesium	MG/KG	1160	11.16, 37	
Manganese	MG/KG	216	11.16, 37	
Nickel	MG/KG	100	11.16, 37	
Potassium	MG/KG	1900	11.16, 37	
Selenium	MG/KG	451	11.16, 37	
Silver	MG/KG	0.06	11.16, 37	
Sodium	MG/KG	6.3	11.16, 37	
Thallium	MG/KG	0.11	11.16, 37	
Vanadium	MG/KG	20.2	11.16, 37	
Zinc	MG/KG	22.1	11.16, 37	

AUS-0A22-013 Units Result Reference Code

Metals	Units	Result	Reference	Code
Aluminum	MG/KG	6700	NA	
Antimony	MG/KG	0.33	11.16, 37	
Asenic	MG/KG	14.8	11.16, 37	
Barium	MG/KG	3.0	11.16, 37	
Bismuth	MG/KG	1.9	11.16, 37	
Calcium	MG/KG	1800	11.16, 37	
Chromium	MG/KG	10.3	11.16, 37	
Cobalt	MG/KG	0.13	11.16, 37	
Copper	MG/KG	10.8	11.16, 37	
Iron	MG/KG	1080	11.16, 37	
Lead	MG/KG	32	11.16, 37	
Magnesium	MG/KG	1900	11.16, 37	
Manganese	MG/KG	427	11.16, 37	
Nickel	MG/KG	8.2	11.16, 37	
Potassium	MG/KG	1900	11.16, 37	
Selenium	MG/KG	14.2	11.16, 37	
Silver	MG/KG	0.07	11.16, 37	
Sodium	MG/KG	8.7	11.16, 37	
Thallium	MG/KG	0.2	11.16, 37	
Vanadium	MG/KG	21.2	11.16, 37	
Zinc	MG/KG	28.8	11.16, 37	

NOTES:

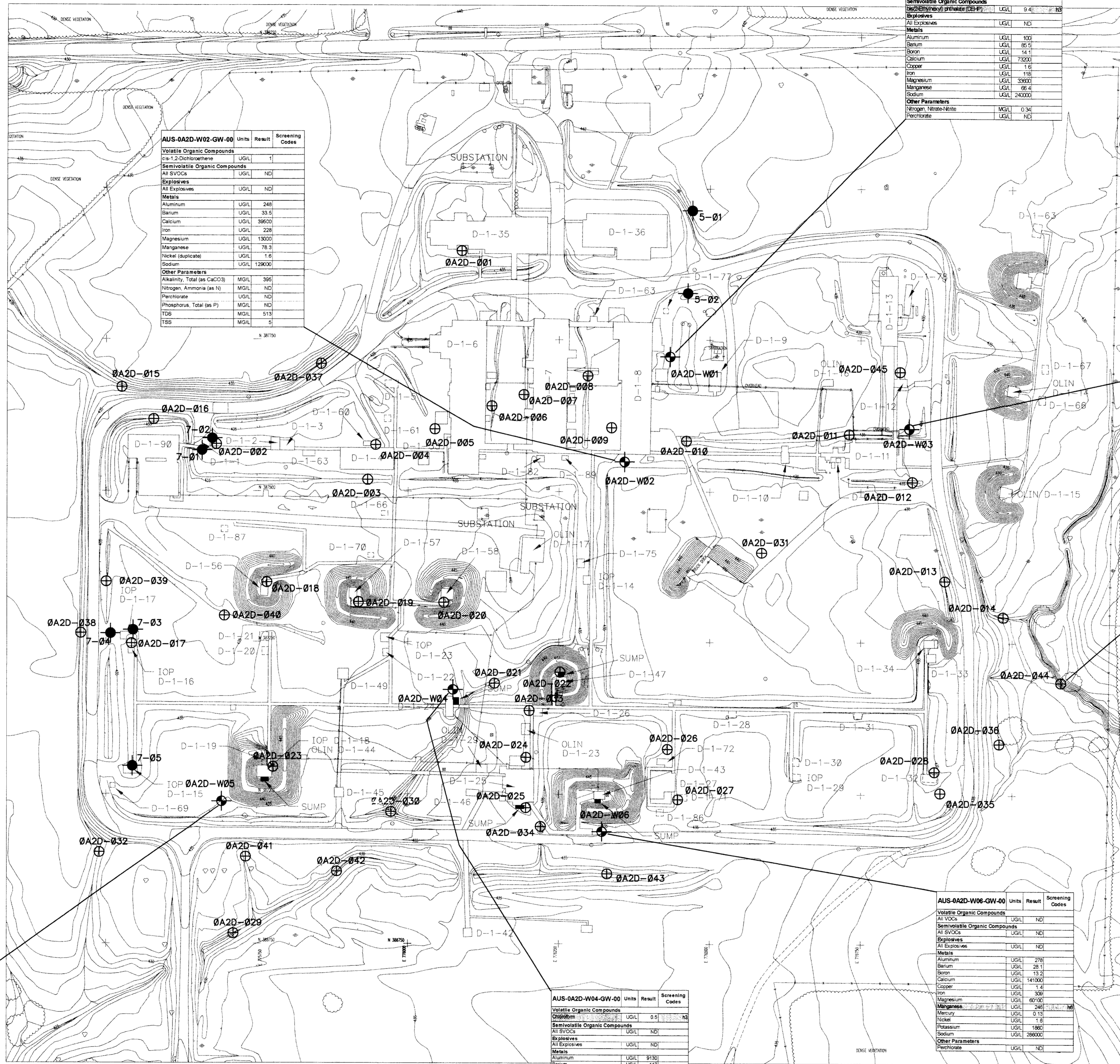
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PA/SI REPORT-AUS-0A22-AUS-0A22-DWG
MARION, ILLINOIS

AUS-0A22
Sample Locations and Detections of Inorganic Compounds in Soils

Date:	6/28/00	Project Number:	2320000026.00	Figure Number:	4-5
Drawn by:	DUD	Design by:	MM	Checked by:	CMW

URS



Screening Reference	Reference Code
AUS Background Soil LTL	b1
Little Grass Background Soil LTL	b2
Little Grass Background Surface Water LTL	b3
Ecological Direct Exposure Pathway TRV - Soil	e1
Ecological Direct Exposure Pathway TRV - Sediment	e2
Ecological Direct Exposure Pathway TRV - Surface Water	e3
IEPA General Use Surface Water Quality Aquatic Life Toxicity	e4
Superfund Chemical Data Matrix Koc values (potential bioaccumulation)	e5
USEPA Region IX Industrial Soil PRG - noncarcinogenic	i1
USEPA Region IX Industrial Soil PRG - carcinogenic	i2
USEPA Region IX Tap Water PRG - noncarcinogenic	i3
USEPA Region IX Tap Water PRG - carcinogenic	i4
USEPA Region IX Migration to Groundwater PRG (PAF-1)	i5
USEPA MCL Drinking Water Standards	i6
IEPA TACO Industrial/Commercial Soil Ingestion	i7
IEPA TACO Construction Worker Soil Ingestion	i8
IEPA TACO Class I Soil Component of Groundwater	i9
IEPA General Use Surface Water Quality Human Health	i10

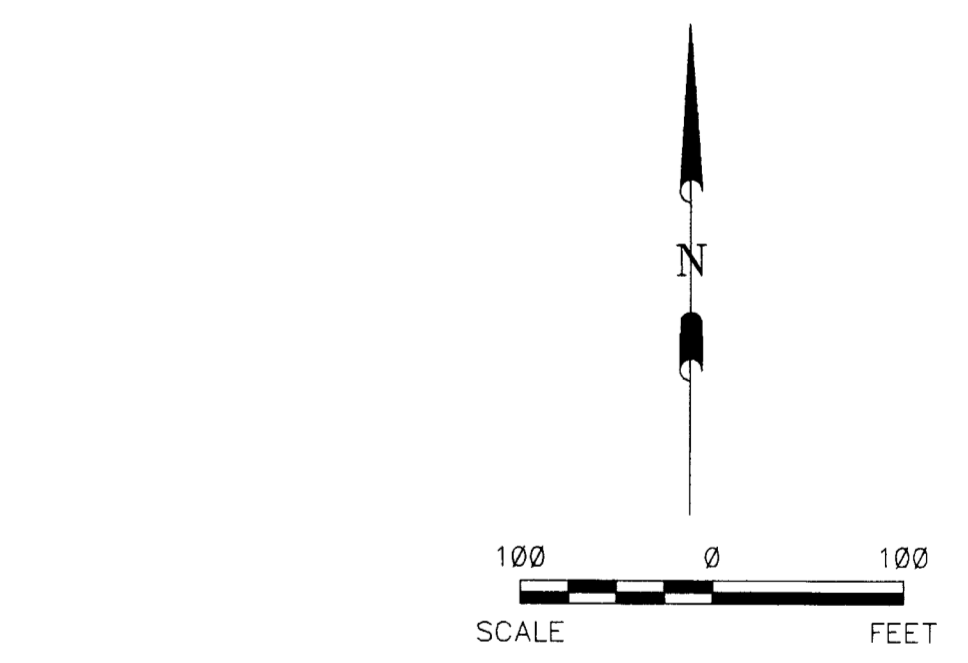
- LEGEND**
- ⊕ MONITORING WELL LOCATION
 - ⊕ HAND AUGER LOCATION
 - ◆ USEPA 1998 SAMPLE LOCATION

AUS-0A2D-W05-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
1,1-Dichloroethane	UG/L	4	
Trichloroethene (TCE)	UG/L	0.6	
Semi-volatile Organic Compounds			
1,2-Dichlorobenzene (DCB)	UG/L	1.4	
Explosives			
All Explosives	UG/L	ND	
Metals			
Aluminum	UG/L	4300	
Arsenic	UG/L	2.3	
Barium	UG/L	100	
Calcium	UG/L	20000	
Chromium	UG/L	2.6	
Copper	UG/L	1.7	
Iron	UG/L	3500	
Magnesium	UG/L	10000	
Manganese	UG/L	200	
Nickel	UG/L	4.8	
Potassium	UG/L	2000	
Sodium	UG/L	20000	
Vanadium	UG/L	5.1	
Zinc	UG/L	8.5	
Other Parameters			
Arsenic, Total (as AsCl3)	MG/L	ND	
Nitrogen, Ammonia (as N)	MG/L	ND	
Nitrogen, Nitrate-Nitro	MG/L	0.21	
Perchlorate	UG/L	ND	
Phosphorus, Total (as P)	MG/L	0.13	
TDS	MG/L	500	
TSS	MG/L	84.5	

AUS-0A2D-W04-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
1,1-Dichloroethane	UG/L	0.5	
Trichloroethene (TCE)	UG/L	0.5	
Semi-volatile Organic Compounds			
1,2-Dichlorobenzene (DCB)	UG/L	ND	
Explosives			
All Explosives	UG/L	ND	
Metals			
Aluminum	UG/L	9130	
Barium	UG/L	100	
Calcium	UG/L	10000	
Chromium	UG/L	12.8	
Copper	UG/L	1.8	
Iron	UG/L	10700	
Magnesium	UG/L	10000	
Manganese	UG/L	200	
Nickel	UG/L	4.8	
Potassium	UG/L	1000	
Sodium	UG/L	20000	
Vanadium	UG/L	5.1	
Zinc	UG/L	8.5	
Other Parameters			
Perchlorate	UG/L	ND	

AUS-0A2D-W06-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UG/L	ND	
Semi-volatile Organic Compounds			
All SVOCs	UG/L	ND	
Explosives			
All Explosives	UG/L	ND	
Metals			
Aluminum	UG/L	270	
Barium	UG/L	28.1	
Boron	UG/L	13.2	
Calcium	UG/L	14300	
Chromium	UG/L	1.4	
Copper	UG/L	1.4	
Iron	UG/L	300	
Magnesium	UG/L	6070	
Manganese	UG/L	240	
Mercury	UG/L	0.13	
Nickel	UG/L	1.8	
Potassium	UG/L	1000	
Sodium	UG/L	20000	
Other Parameters			
Perchlorate	UG/L	ND	

AUS-0A2D-W03-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
1,1-Dichloroethane	UG/L	2	
1,2-Dichloroethane (DCB)	UG/L	400	
1,2-Dichlorobenzene (DCB)	UG/L	2800	
1,2-Dichloroethane (DCB)	UG/L	2	
1,2-Dichloroethane (DCB)	UG/L	4000	
Vinyl chloride	UG/L	11	
Semi-volatile Organic Compounds			
1,2-Dichlorobenzene (DCB)	UG/L	1.1	
Explosives			
All Explosives	UG/L	ND	
Metals			
Aluminum	UG/L	4300	
Barium	UG/L	73.2	
Calcium	UG/L	90000	
Chromium	UG/L	7.5	
Copper	UG/L	4.8	
Iron	UG/L	4110	
Magnesium	UG/L	21000	
Manganese	UG/L	100	
Nickel	UG/L	3.9	
Potassium	UG/L	3000	
Sodium	UG/L	130000	
Vanadium	UG/L	10.8	
Other Parameters			
Arsenic, Ammonia (as N)	MG/L	0.13	
Nitrogen, Ammonia (as N)	MG/L	ND	
Perchlorate	UG/L	ND	
Phosphorus, Total (as P)	MG/L	0.14	



- NOTES:**
- BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT.
 - DASHED OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES.
 - DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO QCSR FOR DATA QUALIFIERS.
 - THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

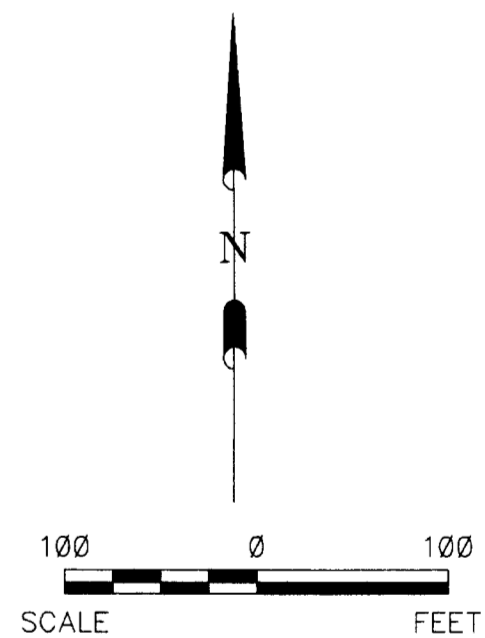
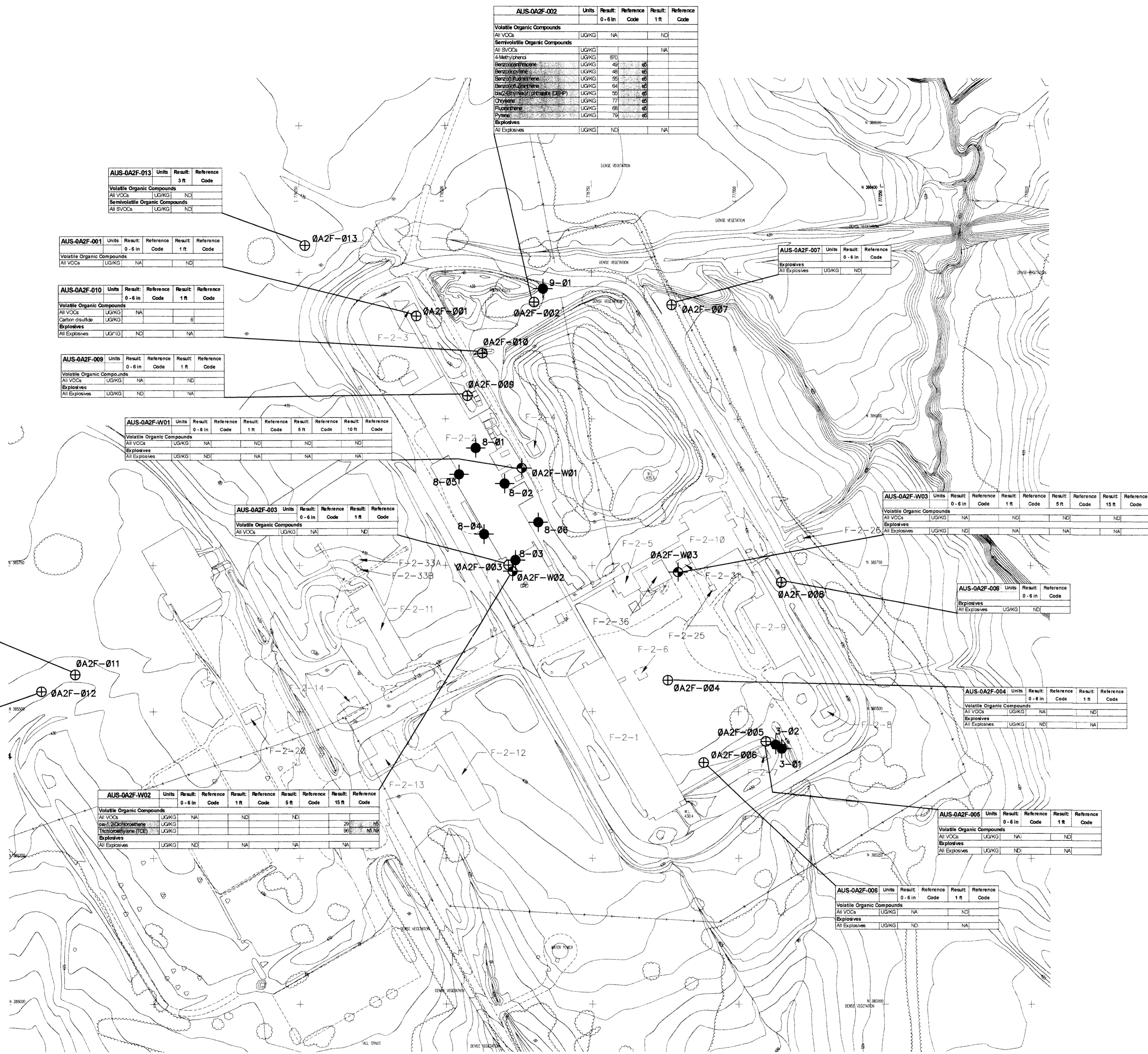
Revision No.	Description	Date	By	App.	
REVISIONS					
PA/SI REPORT-AUS 00 CRAB ORCHARD NWR MARION, ILLINOIS					
AUS-0A2D Sample Locations and Detections in Surface Water and Groundwater					
Date:	6/28/00	Project Number:	232000026.00	Figure Number:	4-6
Drawn by:	DJD	Design by:	MM	Checked by:	CMW
URS					

AREA 2D-IOP DETONATOR LOAD LINE

LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊕ HAND AUGER LOCATION
- ⊕ USEPA 1998 SAMPLE LOCATION

Screening Reference	Reference Code
AUS Background Soil UTI	51
1 mile Grassy Background Surface Water UTI	52
1 mile Grassy Background Surface Water UTI	53
Ecological Direct Exposure Pathway TRV - Soil	54
Ecological Direct Exposure Pathway TRV - Sediment	55
Ecological Direct Exposure Pathway TRV - Surface Water	56
IRPA General Use Surface Water Quality Human Health	57
Superfund Chemical Data Matrix Soil Values (Potential Toxicity/Health)	58
USEPA Region IX Industrial Soil PFOA - nonresidential	59
USEPA Region IX Industrial Soil PFOA - nonresidential	60
USEPA Region IX Tap Water PFOA - nonresidential	61
USEPA Region IX Tap Water PFOA - nonresidential	62
USEPA Region IX Air Quality PFOA (PFAE-1)	63
USEPA MCL Drinking Water Standards	64
IRPA TACO Industrial/Commercial Soil Exposure	65
IRPA TACO Construction Worker Soil Exposure	66
IRPA TACO Class I Soil Component of Groundwater	67
IRPA General Use Surface Water Quality Human Health	68



Revision No.	Description	Date	By	App.

REVISIONS

PA/SI REPORT-AUS OU
CRAB ORCHARD NWR
MARION, ILLINOIS

AUS-0A2F
Sample Locations and Detections of
Organic Compounds in Soils

Date:	11/14/00	Project Number:	232000026.00	Figure Number:	5-2
Drawn by:	DJD	Design by:	MM	Checked by:	CMW



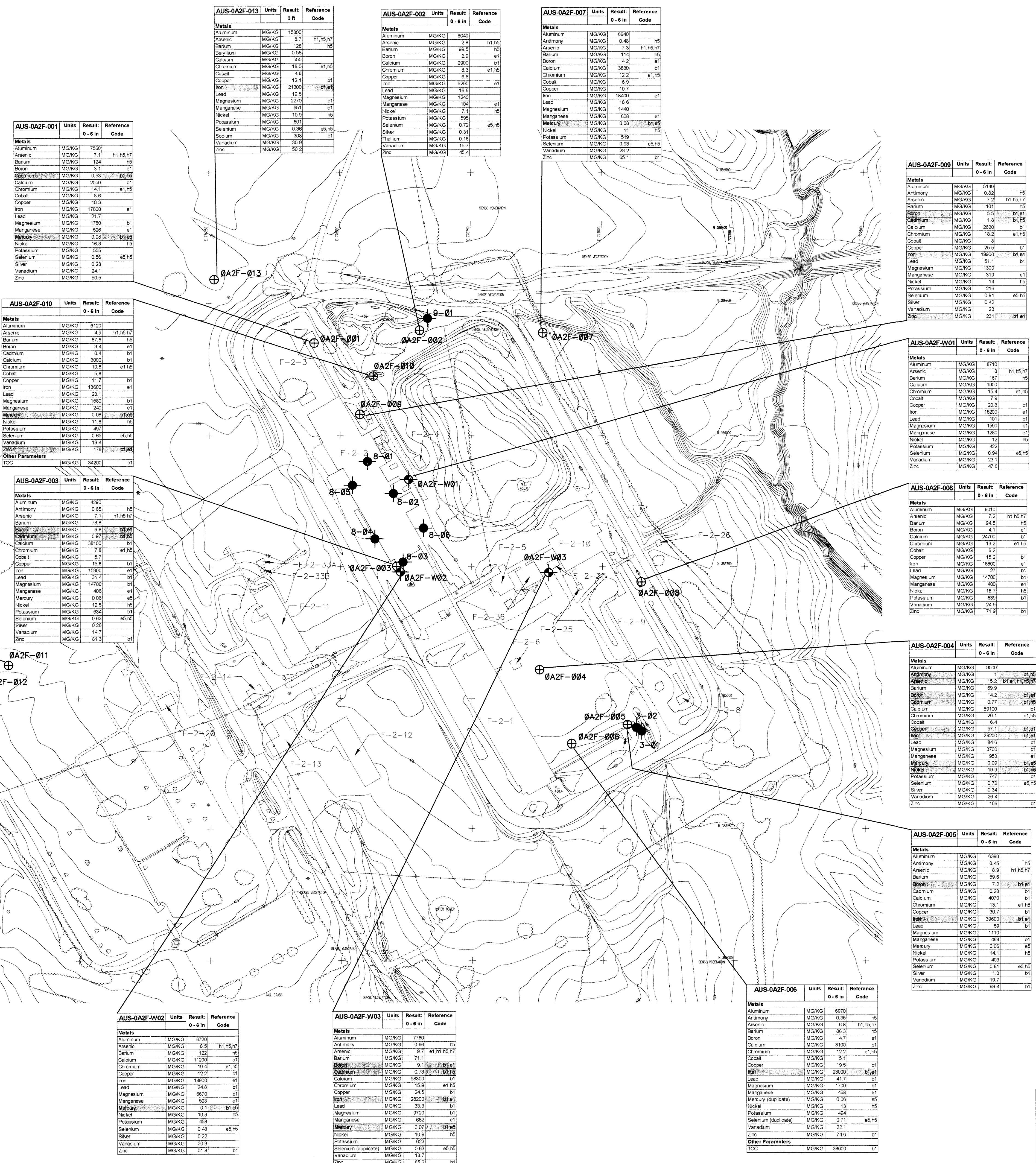
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- NOTES:**
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NOTES:

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AUS-0A2F-011			
Units	Result	Reference	
0 - 6 in		Code	
Metals			
Aluminum	MG/KG	13400	
Arsenic	MG/KG	8.5	h1,h5,h7
Barium	MG/KG	148	h5
Beryllium	MG/KG	0.61	b1
Boron	MG/KG	3850	b1
Calcium	MG/KG	18.5	e1,h5
Cobalt	MG/KG	9.4	b1
Copper	MG/KG	14	b1
Iron	MG/KG	21000	b1,e1
Lead	MG/KG	15.8	b1
Magnesium	MG/KG	3870	b1
Manganese	MG/KG	681	e1
Mercury	MG/KG	0.02	e5
Nickel	MG/KG	14	h5
Potassium	MG/KG	648	b1
Selenium	MG/KG	0.39	e5,h5
Sodium	MG/KG	58.2	b1
Vanadium	MG/KG	32	b1
Zinc	MG/KG	48.1	b1
Other Parameters			
TOC	MG/KG	34200	b1

AUS-0A2F-010			
Units	Result	Reference	
0 - 6 in		Code	
Metals			
Aluminum	MG/KG	5120	
Arsenic	MG/KG	4.9	h1,h5,h7
Barium	MG/KG	87.6	h5
Boron	MG/KG	3.4	e1
Calcium	MG/KG	0.4	b1
Chromium	MG/KG	3000	b1
Cobalt	MG/KG	5.6	e1,h5
Copper	MG/KG	11.7	b1
Iron	MG/KG	15800	e1
Lead	MG/KG	23	b1
Magnesium	MG/KG	1560	b1
Manganese	MG/KG	240	e1
Mercury	MG/KG	0.08	e5,h5
Nickel	MG/KG	16.3	h5
Potassium	MG/KG	497	b1
Selenium	MG/KG	0.85	e5,h5
Sodium	MG/KG	19.4	b1
Vanadium	MG/KG	178	b1,e1
Zinc	MG/KG	178	b1,e1
Other Parameters			
TOC	MG/KG	34200	b1

AUS-0A2F-001			
Units	Result	Reference	
0 - 6 in		Code	
Metals			
Aluminum	MG/KG	7560	
Arsenic	MG/KG	7.1	h1,h5,h7
Barium	MG/KG	124	h5
Boron	MG/KG	3.1	e1
Calcium	MG/KG	0.53	b1,h5
Chromium	MG/KG	2550	b1
Cobalt	MG/KG	14.1	e1,h5
Copper	MG/KG	10.3	b1
Iron	MG/KG	17800	e1
Lead	MG/KG	27	b1
Magnesium	MG/KG	1760	b1
Manganese	MG/KG	528	e1
Mercury	MG/KG	0.08	e5,h5
Nickel	MG/KG	16.3	h5
Potassium	MG/KG	565	b1
Selenium	MG/KG	0.38	e5,h5
Sodium	MG/KG	308	b1
Vanadium	MG/KG	24.1	b1
Zinc	MG/KG	50.5	b1

AUS-0A2F-013			
Units	Result	Reference	
0 - 6 in		Code	
Metals			
Aluminum	MG/KG	15600	
Arsenic	MG/KG	8.7	h1,h5,h7
Barium	MG/KG	128	h5
Beryllium	MG/KG	0.58	b1
Calcium	MG/KG	18.5	e1,h5
Chromium	MG/KG	18.5	e1,h5
Cobalt	MG/KG	4.8	b1
Copper	MG/KG	13.1	b1
Iron	MG/KG	23300	b1,e1
Lead	MG/KG	19.0	b1
Magnesium	MG/KG	2270	b1
Manganese	MG/KG	651	e1
Nickel	MG/KG	10.9	h5
Potassium	MG/KG	601	b1
Selenium	MG/KG	0.38	e5,h5
Sodium	MG/KG	308	b1
Vanadium	MG/KG	30.9	b1
Zinc	MG/KG	50.2	b1

AUS-0A2F-002			
Units	Result	Reference	
0 - 6 in		Code	
Metals			
Aluminum	MG/KG	9040	
Arsenic	MG/KG	2.8	h1,h5
Barium	MG/KG	36.5	h5
Boron	MG/KG	2.9	e1
Calcium	MG/KG	2600	b1
Chromium	MG/KG	8.3	e1,h5
Copper	MG/KG	6.6	e1,h5
Iron	MG/KG	9290	e1
Lead	MG/KG	16.6	b1
Magnesium	MG/KG	1340	b1
Manganese	MG/KG	154	e1
Nickel	MG/KG	7.1	h5
Potassium	MG/KG	586	b1
Selenium	MG/KG	0.72	e5,h5
Silver	MG/KG	0.31	b1
Sodium	MG/KG	0.18	b1
Vanadium	MG/KG	15.7	b1
Zinc	MG/KG	45.4	b1

AUS-0A2F-007			
Units	Result	Reference	
0 - 6 in		Code	
Metals			
Aluminum	MG/KG	6940	
Arsenic	MG/KG	0.48	h5
Barium	MG/KG	7.3	h1,h5,h7
Boron	MG/KG	114	h5
Boron	MG/KG	4.2	e1
Calcium	MG/KG	3800	b1
Chromium	MG/KG	12.2	e1,h5
Cobalt	MG/KG	8.9	b1
Copper	MG/KG	10.7	b1
Iron	MG/KG	18400	e1
Lead	MG/KG	18.8	b1
Magnesium	MG/KG	1440	b1
Manganese	MG/KG	658	e1
Mercury	MG/KG	0.08	b1,e1
Nickel	MG/KG	11	h5
Potassium	MG/KG	519	b1
Selenium	MG/KG	0.93	e5,h5
Vanadium	MG/KG	28.2	b1
Zinc	MG/KG	65.1	b1

AUS-0A2F-009			
Units	Result	Reference	
0 - 6 in		Code	
Metals			
Aluminum	MG/KG	6140	
Arsenic	MG/KG	0.82	h5
Barium	MG/KG	7.2	h1,h5,h7
Boron	MG/KG	5.5	b1,e1
Calcium	MG/KG	1.8	b1,h5
Chromium	MG/KG	2620	b1
Chromium	MG/KG	18.2	e1,h5
Cobalt	MG/KG	8	b1
Copper	MG/KG	25.5	b1
Iron	MG/KG	19900	b1,e1
Lead	MG/KG	51.1	b1
Magnesium	MG/KG	1300	b1
Manganese	MG/KG	319	e1
Nickel	MG/KG	14	h5
Potassium	MG/KG	216	b1
Selenium	MG/KG	0.42	e5,h5
Silver	MG/KG	0.31	b1
Vanadium	MG/KG	23	b1
Zinc	MG/KG	231	b1,e1

AUS-0A2F-W01			
Units	Result	Reference	
0 - 6 in		Code	
Metals			
Aluminum	MG/KG	8710	
Arsenic	MG/KG	8	h1,h5,h7
Barium	MG/KG	107	h5
Calcium	MG/KG	180	b1
Chromium	MG/KG	15.4	e1,h5
Cobalt	MG/KG	7.9	b1
Copper	MG/KG	20	b1
Iron	MG/KG	18200	e1
Lead	MG/KG	101	b1
Magnesium	MG/KG	1560	b1
Manganese	MG/KG	1280	e1
Nickel	MG/KG	12	h5
Potassium	MG/KG	422	b1
Selenium	MG/KG	0.94	e5,h5
Vanadium	MG/KG	23.1	b1
Zinc	MG/KG	47.6	b1

AUS-0A2F-008			
Units	Result	Reference	
0 - 6 in		Code	
Metals			
Aluminum	MG/KG	8070	
Arsenic	MG/KG	7.2	h1,h5,h7
Barium	MG/KG	34.5	h5
Boron	MG/KG	4.1	e1
Calcium	MG/KG	24700	b1
Chromium	MG/KG	13.2	e1,h5
Cobalt	MG/KG	6.2	b1
Copper	MG/KG	15.2	b1
Iron	MG/KG	18800	e1
Lead	MG/KG	27	b1
Magnesium	MG/KG	14700	b1
Manganese	MG/KG	400	e1
Nickel	MG/KG	18	h5
Potassium	MG/KG	639	b1
Vanadium	MG/KG	13.8	b1
Zinc	MG/KG	71.9	b1

AUS-0A2F-004			
Units	Result	Reference	
0 - 6 in		Code	
Metals			
Aluminum	MG/KG	9500	
Arsenic	MG/KG	15.2	b1,e1,h1,h5,h7
Barium	MG/KG	69.9	h5
Boron	MG/KG	14.2	b1,e1
Calcium	MG/KG	0.77	b1,h5
Chromium	MG/KG	59100	b1
Cobalt	MG/KG	20.1	e1,h5
Copper	MG/KG	6	b1
Iron	MG/KG	57.1	b1,e1
Lead	MG/KG	25200	b1,e1
Magnesium	MG/KG	1840	b1
Manganese	MG/KG	3700	b1
Nickel	MG/KG	863	b1
Potassium	MG/KG	0.28	b1,e1
Selenium	MG/KG	19.8	b1,h5
Silver	MG/KG	747	b1
Sodium	MG/KG	0.72	e5,h5
Vanadium	MG/KG	0.34	e5,h5
Zinc	MG/KG	26.4	b1

AUS-0A2F-005			
Units	Result	Reference	
0 - 6 in		Code	
Metals			
Aluminum	MG/KG	6390	
Arsenic	MG/KG	0.48	h5
Barium	MG/KG	8.9	h1,h5,h7
Boron	MG/KG	59.8	h5
Calcium	MG/KG	7.2	b1,e1
Chromium	MG/KG	0.28	b1
Cobalt	MG/KG	30.7	b1
Copper	MG/KG	57.1	b1,e1
Iron	MG/KG	25200	b1,e1
Lead	MG/KG	1.08	b1,e1
Magnesium	MG/KG	41.7	b1
Manganese	MG/KG	1700	b1
Nickel	MG/KG	13.2	b1
Potassium	MG/KG	484	b1
Selenium	MG/KG	0.06	e5
Silver	MG/KG	14.1	h5
Vanadium	MG/KG	403	h5
Zinc	MG/KG	0.81	e5,h5
Other Parameters			
TOC	MG/KG	38000	b1

AUS-0A2F-006			
Units	Result	Reference	
0 - 6 in		Code	
Metals			
Aluminum	MG/KG	6970	
Arsenic	MG/KG	0.35	h5
Barium	MG/KG	6.8	h1,h5,h7
Boron	MG/KG	4.7	e1
Calcium	MG/KG	3100	b1
Cobalt	MG/KG	5.1	e1,h5
Copper	MG/KG	19.5	b1
Iron	MG/KG	23000	b1,e1
Lead	MG/KG	41.7	b1
Magnesium	MG/KG	1700	b1
Manganese	MG/KG	468	e1
Nickel	MG/KG	13	h5
Potassium	MG/KG	484	b1
Selenium	MG/KG	0.71	e5,h5
Vanadium	MG/KG	22.1	b1
Zinc	MG/KG	74.6	b1
Other Parameters			
TOC	MG/KG	38000	b1

AUS-0A2F-W02			
Units	Result	Reference	
0 - 6 in		Code	
Metals			
Aluminum	MG/KG	6720	
Arsenic	MG/KG	8.5	h1,h5,h7
Barium	MG/KG	122	h5
Calcium	MG/KG	11200	b1
Chromium	MG/KG	10.4	e1,h5
Copper	MG/KG	12.2	b1
Iron	MG/KG	4600	e1
Lead	MG/KG	24.8	b1
Magnesium	MG/KG	6670	b1
Manganese	MG/KG	320	e1
Mercury	MG/KG	0.1	b1,e1
Nickel	MG/KG	10.8	h5
Potassium	MG/KG	461	b1
Selenium	MG/KG	0.48	e5,h5
Silver	MG/KG	0.22	h5
Vanadium	MG/KG	20.3	b1
Zinc	MG/KG	61.6	b1

AUS-0A2F-W03			
Units	Result	Reference	
0 - 6 in		Code	
Metals			
Aluminum	MG/KG	7760	
Arsenic	MG/KG	0.88	h5
Barium	MG/KG	71.1	h1,h5,h7
Boron	MG/KG	9.1	b1,e1
Calcium	MG/KG	0.73	b1,h5
Chromium	MG/KG	58300	b1
Copper	MG/KG	24.8	b1
Iron	MG/KG	15.9	e1,h5
Lead	MG/KG	33.3	b1
Magnesium	MG/KG	920	b1
Manganese	MG/KG	980	e1
Mercury	MG/KG	0.07	b1,e1
Nickel	MG/KG	10.9	h5
Potassium	MG/KG	523	b1
Selenium	MG/KG	0.63	e5,h5
Vanadium	MG/KG	18.7	b1
Zinc	MG/KG	65.2	b1

LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊕ HAND AUGER LOCATION
- ⊕ USEPA 1998 SAMPLE LOCATION

Screening Reference	Reference Code
AUS Background Soil UTL	b1
1 mile Grass Background Sediment UTL	b2
1 mile Grass Background Surface Water UTL	b3
Ecological Direct Exposure Pathway: TRV - Soil	e1
Ecological Direct Exposure Pathway: TRV - Surface Water	e2
Ecological Direct Exposure Pathway: TRV - Sediment	e3
IEPA General Use Surface Water Quality Aquatic Life Toxicity	e4
Superfund Chemical Data Matrix Koc values (potential bioaccumulation)	e5
USEPA Region IX Industrial Soil PFC - nonarcene	h1
USEPA Region IX Industrial Soil PFC - nonarcene	h2
USEPA Region IX Tap Water PFC - nonarcene	h3
USEPA Region IX Tap Water PFC - nonarcene	h4
USEPA Region IX Migration to Groundwater PFC (PAE-1)	h5
USEPA MCL Drinking Water Standards	h6
IEPA TACO Industrial/Commercial Soil Ingestion	b7
IEPA TACO Construction Worker Soil Ingestion	h8

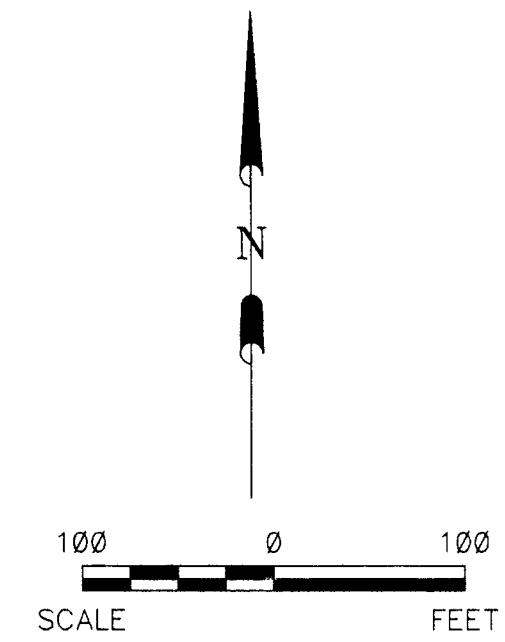
LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊙ HAND AUGER LOCATION
- ⊛ USEPA 1998 SAMPLE LOCATION

Screening Reference	Reference Code
AUS Background Soil LTL	b1
1 mL Grab Background Sediment LTL	b2
1 mL Grab Background Surface Water LTL	b3
Ecological Direct Exposure Pathway TRV - Soil	e1
Ecological Direct Exposure Pathway TRV - Sediment	e2
Ecological Direct Exposure Pathway TRV - Surface Water	e3
TEPA General Use Surface Water Quality Aquatic Life Toxicity	e4
Superfund Chemical Data Matrix Koc values (potential bioaccumulation)	e5
USEPA Region IX Industrial Soil PRG - nonarcious	b1
USEPA Region IX Industrial Soil PRG - nonarcuous	b2
USEPA Region IX Tap Water PRG - nonarcuous	b3
USEPA Region IX Tap Water PRG - nonarcuous	b4
USEPA Region IX Migration to Groundwater PRG (DAF-1)	b5
USEPA MCL Drinking Water Standards	b6
TEPA TACO Industrial/Commercial Soil Ingestion	b7
TEPA TACO Industrial/Commercial Soil Ingestion	b8
TEPA TACO Class I Soil Component of Groundwater	b9
TEPA General Use Surface Water Quality Human Health	b10

NOTES:

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Revision No.	Description	Date	By	App.
REVISIONS				

PA/SI REPORT-AUS OU CRAB ORCHARD NWR MARION, ILLINOIS

AUS-0A2P Sample Locations and Detections of Inorganic Compounds in Soils

Date: 6/28/00	Project Number: 232000026.00	Figure Number: 6-4
Drawn by: DJD	Design by: MM	Checked by: CMW



AUS-0A2P-003	Units	Result	Reference Code
Aluminum	MG/KG	6960	b1
Arsenic	MG/KG	7.7	e1, h1, h5, h7
Barium	MG/KG	87.4	b5
Calcium	MG/KG	2090	b1
Chromium	MG/KG	10.3	e1, h5
Cobalt	MG/KG	8.5	b1
Copper	MG/KG	8.5	b1
Iron	MG/KG	18100	e1
Lead	MG/KG	19.4	b1
Magnesium	MG/KG	1510	b1
Manganese	MG/KG	879	e1
Nickel	MG/KG	10.6	b5
Potassium	MG/KG	482	b1
Selenium	MG/KG	1.2	e1, e5, h5
Silver (duplicate)	MG/KG	0.53	b1
Vanadium	MG/KG	22.3	b1
Zinc	MG/KG	34.1	b1

AUS-0A2P-001	Units	Result	Reference Code
Aluminum	MG/KG	11700	b1
Arsenic	MG/KG	13.9	e1, h1, h5, h7
Barium	MG/KG	71.2	b5
Calcium	MG/KG	1960	b1
Chromium	MG/KG	15.4	e1, h5
Copper	MG/KG	14.4	b1
Iron	MG/KG	2520	b1
Lead	MG/KG	15.4	b1
Magnesium	MG/KG	2700	b1
Manganese	MG/KG	246	b1
Nickel	MG/KG	10.7	b5
Potassium	MG/KG	637	b1
Selenium	MG/KG	0.87	e1, e5, h5
Silver	MG/KG	0.21	b1
Vanadium	MG/KG	31.7	b1
Zinc	MG/KG	43.3	b1

AUS-0A2P-002	Units	Result	Reference Code
Aluminum	MG/KG	4620	b1
Arsenic	MG/KG	0.28	b5
Barium	MG/KG	79.1	b5
Beryllium	MG/KG	56.4	b1
Boron	MG/KG	2.8	e1, h1, h5, h7
Calcium	MG/KG	0.52	b1
Chromium	MG/KG	1760	b1
Cobalt	MG/KG	8.3	e1, h5
Copper	MG/KG	6.7	b1
Iron	MG/KG	13400	e1
Lead	MG/KG	14.8	b1
Magnesium	MG/KG	1800	b1
Manganese	MG/KG	561	e1
Nickel	MG/KG	7.6	b5
Potassium	MG/KG	0.17	e1, e5, h5
Selenium	MG/KG	0.86	e5, h5
Silver	MG/KG	18.6	b1
Vanadium	MG/KG	192	b1
Zinc	MG/KG	119	b1

AUS-0A2P-023	Units	Result	Reference Code
Aluminum	MG/KG	7900	b1
Arsenic	MG/KG	3.9	e1, h1, h5, h7
Barium	MG/KG	79.1	b5
Beryllium	MG/KG	0.42	b1
Boron	MG/KG	0.23	e1, h1, h5, h7
Calcium	MG/KG	2310	b1
Chromium	MG/KG	9.5	e1, h5
Cobalt	MG/KG	8.1	b1
Copper	MG/KG	8.5	b1
Iron	MG/KG	10700	e1
Lead	MG/KG	8.1	b1
Magnesium	MG/KG	1430	b1
Manganese	MG/KG	586	b1
Nickel	MG/KG	12.8	b5
Potassium	MG/KG	0.04	e1, e5, h5
Selenium	MG/KG	0.89	b5
Silver	MG/KG	13.6	b1
Vanadium	MG/KG	148	b1
Zinc	MG/KG	17.9	b1

AUS-0A2P-W01	Units	Result	Reference Code
Aluminum	MG/KG	6200	b1
Arsenic	MG/KG	9.8	e1, h1, h5, h7
Barium	MG/KG	89.1	b5
Calcium	MG/KG	0.21	b1
Chromium	MG/KG	16400	b1
Cobalt	MG/KG	13	e1, h5
Copper	MG/KG	6.1	b1
Iron	MG/KG	17600	e1
Lead	MG/KG	11.8	b1
Magnesium	MG/KG	4730	b1
Manganese	MG/KG	472	e1, h5
Nickel	MG/KG	0.15	e1, h5, h7
Potassium	MG/KG	13.6	b1
Selenium	MG/KG	1.6	e1, e5, h5
Silver	MG/KG	20.6	b1
Vanadium	MG/KG	50.6	b1
Zinc	MG/KG	119	b1

AUS-0A2P-004	Units	Result	Reference Code
Aluminum	MG/KG	8270	b1
Arsenic	MG/KG	0.43	b5
Barium	MG/KG	21.4	e1, h1, h5, h7
Beryllium	MG/KG	84	b1
Boron	MG/KG	3310	b1
Calcium	MG/KG	12	e1, h5
Chromium	MG/KG	11.8	b1
Cobalt	MG/KG	11.6	b1
Copper	MG/KG	18600	b1
Iron	MG/KG	139	b1
Lead	MG/KG	2270	b1
Magnesium	MG/KG	581	b1
Manganese	MG/KG	13	b1
Nickel	MG/KG	0.98	e1, h5
Potassium	MG/KG	11.3	b5
Selenium	MG/KG	0.019	e5
Silver	MG/KG	1.2	e1, e5, h5
Vanadium	MG/KG	1.1	b1
Zinc	MG/KG	24.8	b1

AUS-0A2P-011	Units	Result	Reference Code
Aluminum	MG/KG	8140	b1
Arsenic	MG/KG	0.76	b5
Barium	MG/KG	15.7	e1, h1, h5, h7
Beryllium	MG/KG	0.96	b1
Boron	MG/KG	0.23	e1, h1, h5, h7
Calcium	MG/KG	15.4	e1, h5
Chromium	MG/KG	15.1	b1
Cobalt	MG/KG	15.1	b1
Copper	MG/KG	18300	b1
Iron	MG/KG	21600	b1
Lead	MG/KG	60.5	b1
Magnesium	MG/KG	1830	b1
Manganese	MG/KG	200	e1
Nickel	MG/KG	0.16	b5
Potassium	MG/KG	534	b1
Selenium	MG/KG	9.81	e5, h5
Silver	MG/KG	26.5	b1
Vanadium	MG/KG	17	b1
Zinc	MG/KG	67.3	b1

AUS-0A2P-W02	Units	Result	Reference Code
Aluminum	MG/KG	5360	b1
Arsenic	MG/KG	1.3	b5
Barium	MG/KG	10	e1, h1, h5, h7
Calcium	MG/KG	62.5	b1
Chromium	MG/KG	796	e1
Copper	MG/KG	12.6	e1, h5
Iron	MG/KG	7.7	b1
Lead	MG/KG	11900	e1
Magnesium	MG/KG	17.7	b1
Manganese	MG/KG	2269	b1
Nickel	MG/KG	0.1	e1, h5, h7
Potassium	MG/KG	7.5	b5
Selenium	MG/KG	0.85	e5, h5
Silver	MG/KG	237	b1
Vanadium	MG/KG	30.4	b1
Zinc	MG/KG	30.4	b1

AUS-0A2P-012	Units	Result	Reference Code
Aluminum	MG/KG	9530	b1
Arsenic	MG/KG	10.9	e1, h1, h5, h7
Barium	MG/KG	136	e1, h5
Boron	MG/KG	4	b1
Calcium	MG/KG	136	e1, h5
Chromium	MG/KG	16	e1, h5
Cobalt	MG/KG	10.2	b1
Copper	MG/KG	12.7	e1, h5
Iron	MG/KG	20300	b1
Lead	MG/KG	39.8	b1
Magnesium	MG/KG	2360	b1
Manganese	MG/KG	417	e1
Nickel	MG/KG	18.8	b5
Potassium	MG/KG	334	b1
Selenium	MG/KG	22.9	e1, e5, h5
Vanadium	MG/KG	29	b1
Zinc	MG/KG	66.1	b1

AUS-0A2P-020	Units	Result	Reference Code
Aluminum	MG/KG	7190	b1
Arsenic	MG/KG	10.3	e1, h1, h5, h7
Barium	MG/KG	73.7	b1
Calcium	MG/KG	2.4	e1
Chromium	MG/KG	2660	b1
Cobalt	MG/KG	11.5	e1, h5
Copper	MG/KG	10.8	b1
Iron	MG/KG	16400	e1
Lead	MG/KG	18.3	b1
Magnesium	MG/KG	1920	b1
Manganese	MG/KG	509	b1
Nickel	MG/KG	9.9	b5
Potassium	MG/KG	521	b1
Selenium	MG/KG	0.21	e1, e5, h5
Vanadium	MG/KG	26.3	b1
Zinc	MG/KG	97.1	b1

AUS-0A2P-015	Units	Result	Reference Code
Aluminum	MG/KG	5670	b1
Arsenic	MG/KG	10.9	e1, h1, h5, h7
Barium	MG/KG	73.9	b1
Calcium	MG/KG	4530	b1
Chromium	MG/KG	12.6	e1, h5
Cobalt	MG/KG	6.4	b1
Copper	MG/KG	15.1	b1
Iron	MG/KG	15900	e1
Lead	MG/KG	10.7	b1
Magnesium	MG/KG	2600	b1
Manganese	MG/KG	873	e1
Nickel	MG/KG	10	b5
Potassium	MG/KG	658	b1
Selenium	MG/KG	0.57	e5, h5
Vanadium	MG/KG	18.6	b1
Zinc	MG/KG	38.5	b1

AUS-0A2P-008	Units	Result	Reference Code
Aluminum	MG/KG	6900	b1
Arsenic	MG/KG	9.1	b5
Barium	MG/KG	25.1	e1, h1, h5, h7
Calcium	MG/KG	90.7	b5
Chromium	MG/KG	2100	b1
Cobalt	MG/KG	11.5	e1, h5
Copper	MG/KG	6.3	b1
Iron	MG/KG	13	e1
Lead	MG/KG	15600	e1
Magnesium	MG/KG	289	b1
Manganese	MG/KG	0.09	e1, h5, h7
Nickel	MG/KG	9.1	b5
Potassium	MG/KG	647	b1
Selenium	MG/KG	1.2	e1, e5, h5
Silver	MG/KG	1.1	b1
Vanadium	MG/KG	10700	b1
Zinc	MG/KG	52.2	b1

AUS-0A2P-013	Units	Result	Reference Code
Aluminum	MG/KG	6510	b1
Arsenic	MG/KG	6.7	e1, h1, h5, h7
Barium	MG/KG	106	b5
Boron	MG/KG	4.3	b1
Calcium	MG/KG	0.103	b1
Chromium	MG/KG	10700	b1
Cobalt	MG/KG	12.5	e1, h5
Copper	MG/KG	4.6	b1
Iron	MG/KG	17.6	b1
Lead	MG/KG	2400	b1
Magnesium	MG/KG	75.5	b1
Manganese	MG/KG	2710	b1
Nickel	MG/KG	295	e1
Potassium	MG/KG	14.3	b5
Selenium	MG/KG	573	b1
Vanadium	MG/KG	21.7	b1
Zinc	MG/KG	73.5	b1

AUS-0A2P-016	Units	Result	Reference Code
Aluminum	MG/KG	6510	b1
Arsenic	MG/KG	6.7	e1, h1, h5, h7
Barium	MG/KG	106	b5
Boron	MG/KG	4.3	b1
Calcium	MG/KG	0.103	b1
Chromium	MG/KG	10700	b1
Cobalt	MG/KG	12.5	e1, h5
Copper	MG/KG	4.6	b1
Iron	MG/KG	17.6	b1
Lead	MG/KG	2400	b1
Magnesium	MG/KG	75.5	b1
Manganese	MG/KG	2710	b1
Nickel	MG/KG	295	e1
Potassium	MG/KG	14.3	b5
Selenium	MG/KG	573	b1
Vanadium	MG/KG	21.7	b1
Zinc	MG/KG	73.5	b1

AUS-0A2P-017	Units	Result	Reference Code
Aluminum	MG/KG	6510	b1
Arsenic	MG/KG	6.7	e1, h1, h5, h7
Barium	MG/KG	106	b5
Boron	MG/KG	4.3	b1
Calcium	MG/KG	0.103	b1
Chromium	MG/KG	10700	b1
Cobalt	MG/KG	12.5	e1, h5
Copper	MG/KG	4.6	b1
Iron	MG/KG	17.6	b1
Lead	MG/KG	2400	b1
Magnesium	MG/KG	75.5	b1
Manganese	MG/KG	2710	b1
Nickel	MG/KG	295	e1
Potassium	MG/KG	14.3	b5
Selenium	MG/KG	573	b1
Vanadium	MG/KG	21.7	b1
Zinc	MG/KG	73.5	b1

AUS-0A2P-018	Units	Result	Reference Code
Aluminum	MG/KG	6510	b1
Arsenic	MG/KG	6.7	e1, h1, h5, h7
Barium	MG/KG	106	b5
Boron	MG/KG	4.3	

AUS-0A2P-W03-GW-00				
Units	Result	Screening	Codes	
Volatile Organic Compounds				
1,1-Dichloroethane	UGL	ND		
1,2-Dichloroethane	UGL	14	NS	NS
1,1,1-Trichloroethane	UGL	18	NS	NS
1,2-Dichlorobenzene (DCB)	UGL	2		
1,4-Dichlorobenzene	UGL	0.6		
1,3-Dichlorobenzene	UGL	29		
Trichloroethylene (TCE)	UGL	250	NS	NS
Trichloroethylene (PCE)	UGL	110000	NS	NS
Explosives				
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	48.9		
Barium	UGL	49.9		
Boron	UGL	11.1		
Calcium	UGL	87000		
Copper	UGL	89		
Iron	UGL	20000		
Magnesium	UGL	19.5		
Manganese	UGL	9.2		
Selenium	UGL	33800		
Sodium	UGL	33800		
Other Parameters				
Perchlorate	UGL	ND		

AUS-0A2P-W05-GW-00				
Units	Result	Screening	Codes	
Volatile Organic Compounds				
Trichloroethylene (TCE)	UGL	0.9		
Explosives				
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	74.3		
Barium	UGL	36.1		
Boron	UGL	30.6		
Calcium	UGL	33900		
Copper	UGL	70		
Iron	UGL	15900		
Magnesium	UGL	19.2		
Manganese	UGL	8.2		
Selenium	UGL	22700		
Sodium	UGL	22700		
Other Parameters				
Alkalinity, Total (as CaCO3)	MG/L	ND		
Nitrogen, Ammonia (as N)	MG/L	ND		
Nitrogen, Nitrate-Nitrite	MG/L	1.1	NS	NS
Perchlorate	UGL	ND		

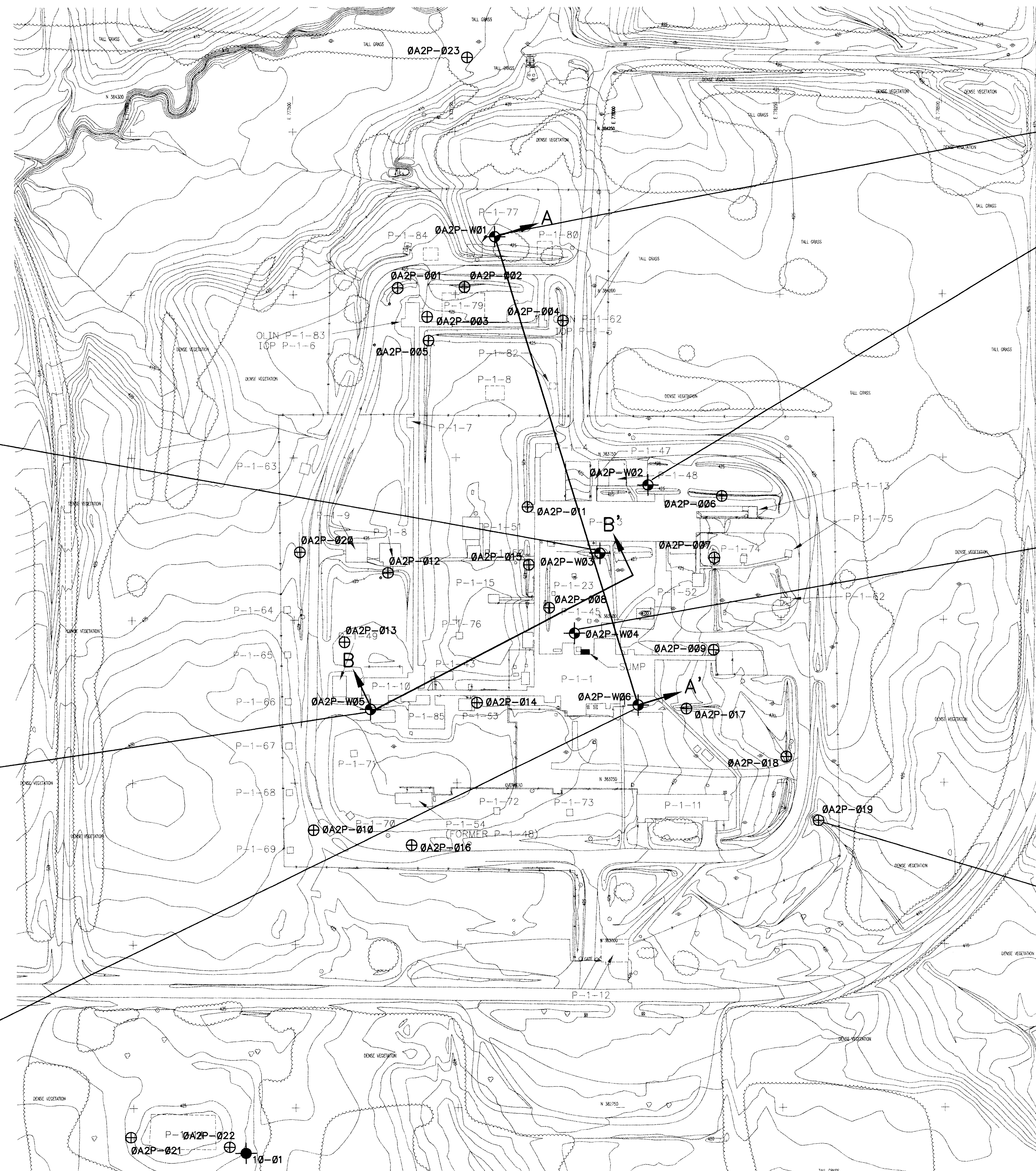
AUS-0A2P-W06-GW-00				
Units	Result	Screening	Codes	
Volatile Organic Compounds				
All SVOCs	UGL	ND		
Semi-volatile Organic Compounds				
All SVOCs	UGL	ND		
Explosives				
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	133		
Barium	UGL	61.1		
Boron	UGL	119		
Calcium	UGL	84000		
Copper	UGL	48		
Iron	UGL	21900		
Magnesium	UGL	8.1		
Manganese	UGL	8.1		
Selenium	UGL	8900		
Sodium	UGL	8900		
Other Parameters				
Alkalinity, Total (as CaCO3)	MG/L	223		
Nitrogen, Ammonia (as N)	MG/L	ND		
Nitrogen, Nitrate-Nitrite	MG/L	4.8	NS	NS
Perchlorate	UGL	ND		
TSS	MG/L	2.5		

AUS-0A2P-W01-GW-00				
Units	Result	Screening	Codes	
Volatile Organic Compounds				
Trichloroethylene (TCE)	UGL	5		
Explosives				
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	1200		
Barium	UGL	54.4		
Calcium	UGL	66000		
Copper	UGL	89		
Iron	UGL	30700		
Magnesium	UGL	22.1		
Nickel	UGL	1.7		
Potassium	UGL	125		
Sodium	UGL	89700		
Other Parameters				
Alkalinity, Total (as CaCO3)	MG/L	248		
Nitrogen, Ammonia (as N)	MG/L	ND		
Nitrogen, Nitrate-Nitrite	MG/L	1.8	NS	NS
Perchlorate	UGL	ND		
TSS	MG/L	548		
TSS	MG/L	34.9		

AUS-0A2P-W02-GW-00				
Units	Result	Screening	Codes	
Volatile Organic Compounds				
1,1,2-Trichloroethane	UGL	40		
1,1,2,2-Tetrachloroethane	UGL	1.1		
Trichloroethylene (TCE)	UGL	6	NS	NS
Vinyl Chloride	UGL	0.1		
Explosives				
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	63.3		
Barium	UGL	31.8		
Boron	UGL	11.7		
Calcium	UGL	49000		
Copper	UGL	11		
Iron	UGL	63.7		
Magnesium	UGL	19900		
Manganese	UGL	24.6		
Selenium	UGL	6000		
Sodium	UGL	6000		
Other Parameters				
Nitrogen, Ammonia (as N)	MG/L	0.91		
Nitrogen, Nitrate-Nitrite	MG/L	0.27		
Perchlorate	UGL	ND		

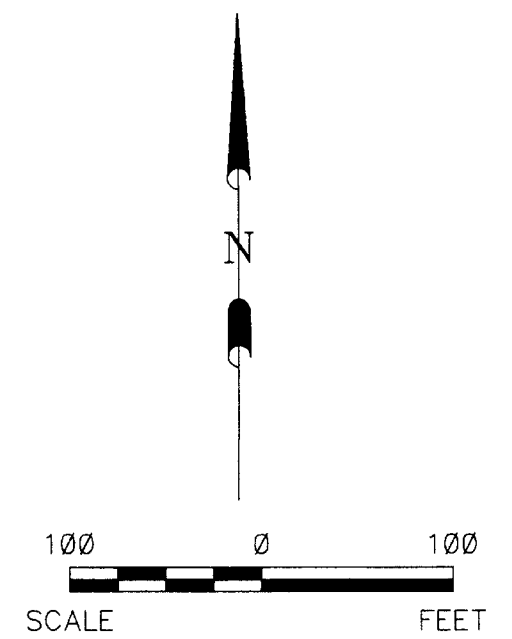
AUS-0A2P-W04-GW-00				
Units	Result	Screening	Codes	
Volatile Organic Compounds				
All VOCs	UGL	ND		
Semi-volatile Organic Compounds				
All SVOCs	UGL	ND		
Explosives				
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	579		
Barium	UGL	34.4		
Calcium	UGL	30000		
Copper	UGL	164		
Iron	UGL	20900		
Magnesium	UGL	7		
Manganese	UGL	3.3		
Selenium	UGL	3.3		
Sodium	UGL	34000		
Other Parameters				
Nitrogen, Ammonia (as N)	MG/L	0.11		
Nitrogen, Nitrate-Nitrite	MG/L	0.73		
Perchlorate	UGL	1200		

AUS-0A2P-019-SW-0X				
Units	Result	Screening	Codes	
Volatile Organic Compounds				
All VOCs	UGL	ND		
Semi-volatile Organic Compounds				
All SVOCs	UGL	ND		
Explosives				
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	1300	NS	NS
Arsenic	UGL	2.1		
Barium	UGL	62.4		
Calcium	UGL	63400		
Copper	UGL	1200	NS	NS
Iron	UGL	1200	NS	NS
Magnesium	UGL	1200	NS	NS
Potassium	UGL	1970		
Selenium	UGL	2900		
Zinc	UGL	58.9		
Other Parameters				
Perchlorate	UGL	ND		



- LEGEND**
- ⊕ MONITORING WELL LOCATION
 - ⊕ HAND AUGER LOCATION
 - ⊕ USEPA 1998 SAMPLE LOCATION

Screening Reference	Reference Code
AUS Background Soil UTL	B1
1 mile Grassy Background Sediment UTL	B2
1 mile Grassy Background Surface Water UTL	B3
Ecological Direct Exposure Pathway: TRV - Soil	E1
Ecological Direct Exposure Pathway: TRV - Sediment	E2
Ecological Direct Exposure Pathway: TRV - Surface Water	E3
IEPA General Use Surface Water Quality: Aquatic Life Toxicity	E4
Superfund Chemical Data Matrix: Kow Values (potential bioaccumulation)	E5
Other Parameters	
US EPA Region IX Industrial Soil PRG - carcinogens	B1
US EPA Region IX Industrial Soil PRG - noncarcinogens	B2
US EPA Region IX Tap Water PRG - carcinogens	B3
US EPA Region IX Tap Water PRG - noncarcinogens	B4
US EPA Region IX Migration to Groundwater PRG (DAP=1)	B5
US EPA MCL Drinking Water Standards	B6
IEPA TACO Industrial/Commercial Soil Ingestion	B7
IEPA TACO Construction Worker Soil Ingestion	B8
IEPA TACO Class I Soil Component of Groundwater	B9
IEPA General Use Surface Water Quality Human Health	B10



Revision No.	Description	Date	By	App.

REVISIONS

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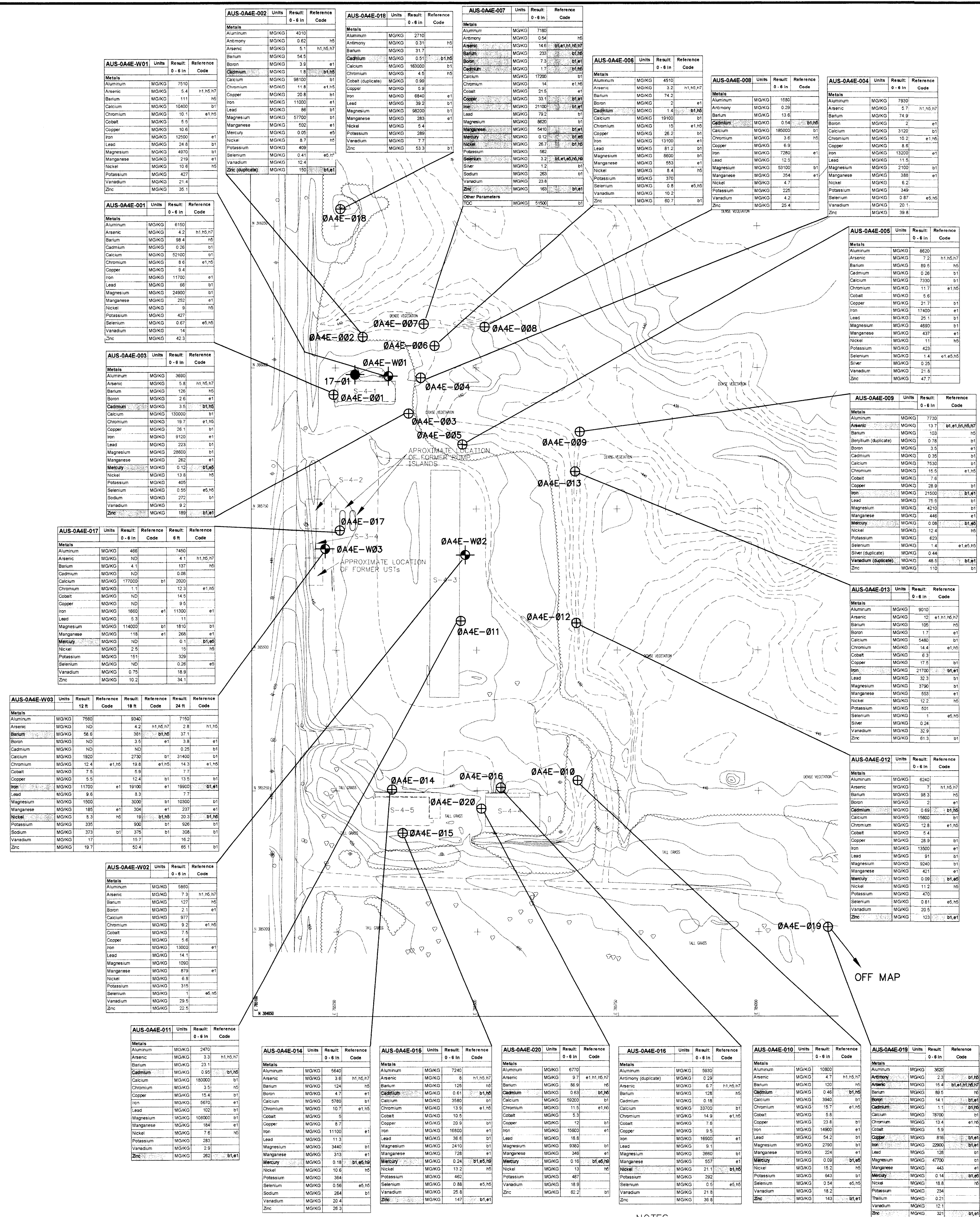
AUS-0A2P Sample
Locations and Detections
in Surface Water and Groundwater

Date: 6/28/00	Project Number: 2320000026.00	Figure Number: 6-5
Drawn by: DJD	Design by: MM	Checked by: CMW



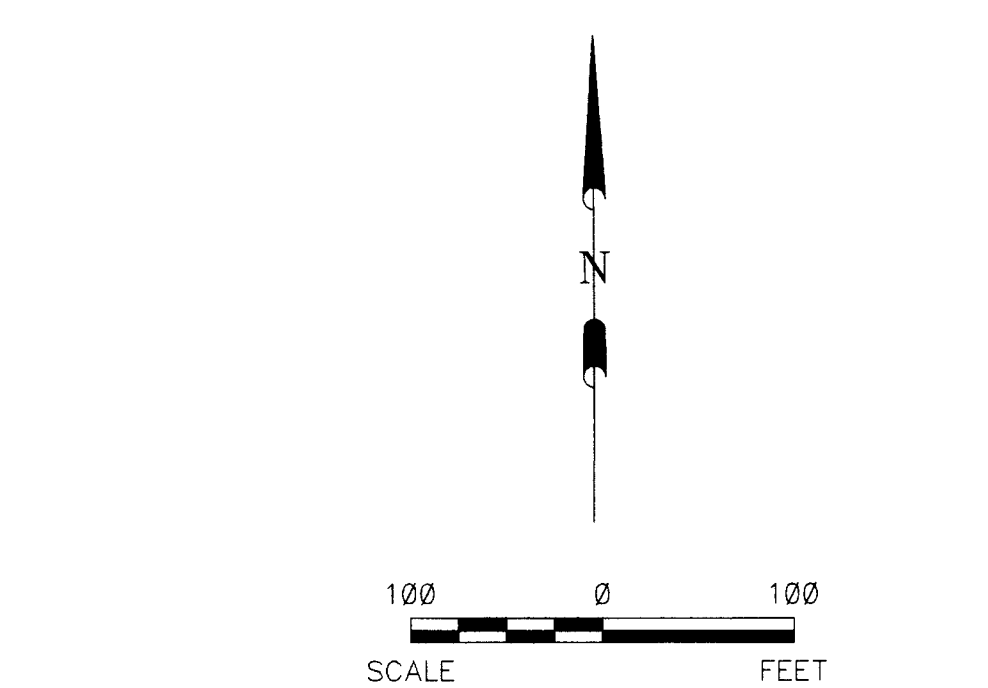
- NOTES:**
- BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT.
 - DASHED OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES.
 - DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO QOSR FOR DATA QUALIFIERS.
 - THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

AREA 4 EAST-EAST SHOP AREA



- LEGEND**
- ⊕ MONITORING WELL LOCATION
 - ⊕ HAND AUGER LOCATION
 - ⊕ USEPA 1998 SAMPLE LOCATIONS

Screening Reference	Reference Code
AUS Background Soil UTL	S1
1 mile Grassy Background Sediment UTL	S2
1 mile Grassy Background Surface Water UTL	S3
Biological Direct Exposure Pathway TRV - Soil	E1
Biological Direct Exposure Pathway TRV - Sediment	E2
Biological Direct Exposure Pathway TRV - Surface Water	E3
IEPA General Use Surface Water Quality Aquatic Life Toxicity	E4
Superfund Chemical Data Tables (contaminant background)	E5
1'SEPA Region IX Industrial Soil PRG - carcinogen	N1
1'SEPA Region IX Industrial Soil PRG - noncarcinogen	N2
1'SEPA Region IX Top Water PRG - carcinogen	N3
1'SEPA Region IX Top Water PRG - noncarcinogen	N4
1'SEPA Region IX Migration to Groundwater PRG (DAE-1)	N5
USEPA MCL Drinking Water Standards	N6
IEPA TACO Industrial/Commercial Soil Ingestion	N7
IEPA TACO Commercial/Residential Soil Ingestion	N8
IEPA TACO Class I Soil Component of Groundwater	N9
IEPA General Use Surface Water Quality Human Health	S10



Revision No.	Description	Date	By	App.
REVISIONS				

PA/SI REPORT-AUS OU
CRAB ORCHARD NWR
MARION, ILLINOIS

AUS-04E
Sample Locations and Detections of
Inorganic Compounds in Soils

Date: 11/14/00	Project Number: 232000026.00	Figure Number: 8-4
Drawn by: DJD	Design by: MAM	Checked by: CMW



NOTES:

1. BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT.
2. DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.

LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊕ HAND AUGER LOCATION
- ⊕ USEPA 1998 SAMPLE LOCATIONS

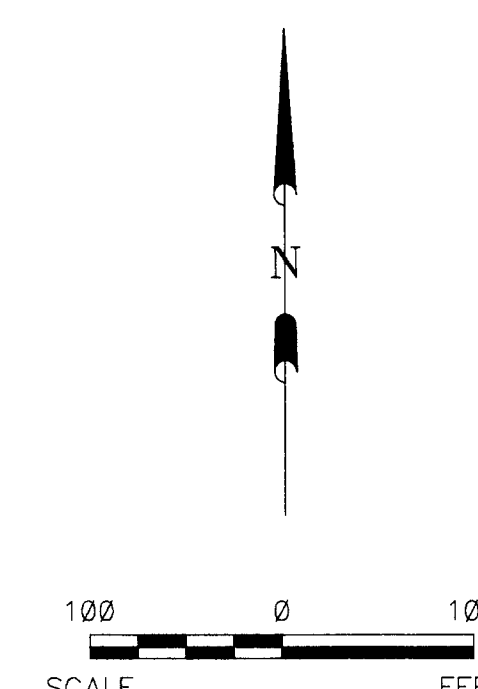
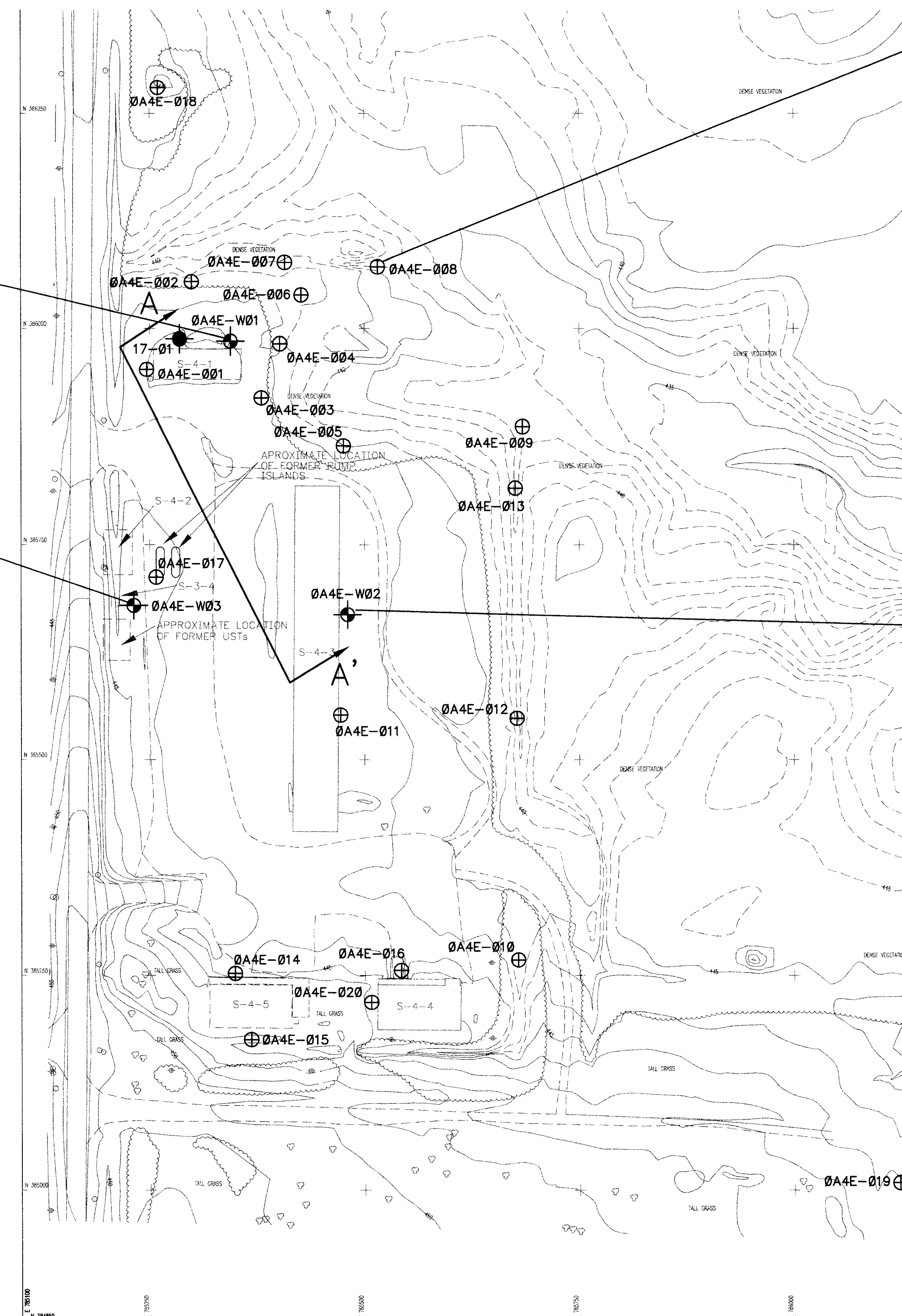
Screening Reference	Reference Code
AUS Background Soil LTI	51
Little Grand Background Soil LTI	52
Little Grand Background Surface Water LTI	53
Ecological Target Exposure Pathway TRV - Soil	54
Ecological Target Exposure Pathway TRV - Surface Water	55
IEPA General Use Surface Water Quality Aquatic Life Toxicity	56
Superfund Chemical Data Users Know-what (General Inorganic/Inorganic)	57
USEPA Region IX Industrial Soil EQC - Agriculture	58
USEPA Region IX Tap Water EQC - Agriculture	59
USEPA Region IX Industrial Soil EQC - Agriculture	60
USEPA Region IX Tap Water EQC - Agriculture	61
USEPA Region IX Migration to Groundwater EQC (DN-1)	62
USEPA Region IX Migration to Groundwater EQC (DN-1)	63
USEPA Region IX Migration to Groundwater EQC (DN-1)	64
USEPA Region IX Migration to Groundwater EQC (DN-1)	65
USEPA Region IX Migration to Groundwater EQC (DN-1)	66
USEPA Region IX Migration to Groundwater EQC (DN-1)	67
USEPA Region IX Migration to Groundwater EQC (DN-1)	68
USEPA Region IX Migration to Groundwater EQC (DN-1)	69
USEPA Region IX Migration to Groundwater EQC (DN-1)	70
USEPA Region IX Migration to Groundwater EQC (DN-1)	71
USEPA Region IX Migration to Groundwater EQC (DN-1)	72
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USEPA Region IX Migration to Groundwater EQC (DN-1)	98
USEPA Region IX Migration to Groundwater EQC (DN-1)	99
USEPA Region IX Migration to Groundwater EQC (DN-1)	100

AUS-0A4E-W01-QW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UG/L	ND	
Polynuclear Aromatic Hydrocarbons (PAHs)	UG/L	ND	
All PAHs	UG/L	ND	
Explosives			
1,3,5-Trinitrobenzene	UG/L	2.5	
Metals			
Calcium	UG/L	141000	
Magnesium	UG/L	58100	
Manganese	UG/L	811	SB
Potassium	UG/L	1350	
Sodium	UG/L	134000	

AUS-0A4E-W03-QW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UG/L	ND	
Polynuclear Aromatic Hydrocarbons (PAHs)	UG/L	ND	
All PAHs	UG/L	ND	
Metals			
Aluminum	UG/L	138	
Beryllium	UG/L	49.3	
Calcium	UG/L	6800	
Iron	UG/L	156	
Magnesium	UG/L	37100	
Manganese	UG/L	565	SB
Nickel	UG/L	1.8	
Cadmium	UG/L	205000	

AUS-0A4E-W08-SW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UG/L	ND	
Polynuclear Aromatic Hydrocarbons (PAHs)	UG/L	ND	
All PAHs	UG/L	ND	
Explosives			
All Explosives	UG/L	ND	
Metals			
Aluminum	UG/L	387	SB
Beryllium	UG/L	73.4	SB
Calcium	UG/L	83900	SB
Chromium	UG/L	1.8	
Iron	UG/L	338	SB
Magnesium	UG/L	20700	SB
Manganese	UG/L	286	
Potassium	UG/L	928	
Sodium	UG/L	81900	SB
Zinc	UG/L	6.4	
Other Parameters			
Nitrogen - Ammonia (as N)	MG/L	0.14	
Nitrogen - Nitrate/Nitrite	MG/L	0.12	SB

AUS-0A4E-W02-QW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UG/L	ND	
Polynuclear Aromatic Hydrocarbons (PAHs)	UG/L	ND	
All PAHs	UG/L	ND	
Metals			
Aluminum	UG/L	584	
Calcium	UG/L	33300	
Iron	UG/L	442	
Magnesium	UG/L	1350	
Potassium	UG/L	1280	
Sodium	UG/L	105000	



Revision No.	Description	Date	By	App.

REVISIONS

PA/SI REPORT-AUS OU CRAB ORCHARD NWR MARION, ILLINOIS

AUS-0A4E Sample Locations and Detections in Surface Water and Groundwater

Date: 11/14/00	Project Number: 232000026.00	Figure Number: 8-5
Drawn by: DJD	Design by: MAM	Checked by: CMW



- NOTES:
1. BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT.
 2. DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
 3. THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

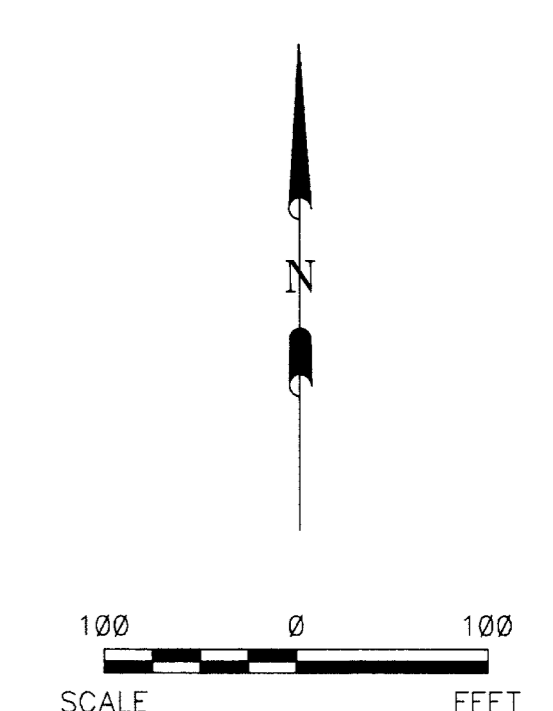
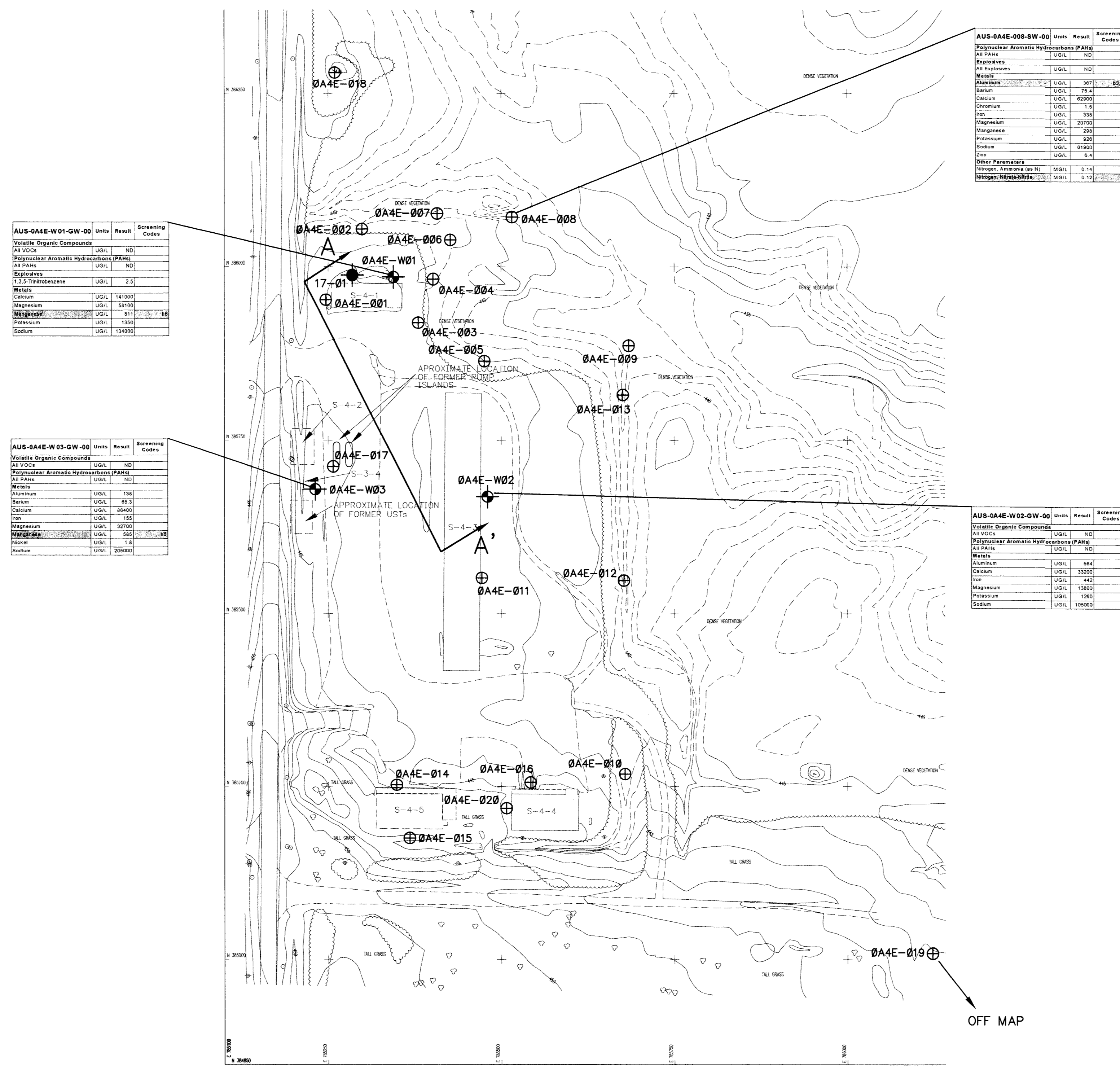
AREA 4 EAST-IOP EAST SHOP AREA

Fig. E:\232000026.00\PA-SI REPORT-AUS OU\AUS-0A4E.DWG Last edited: AUG. 03. 01. © 10:30 a.m. URS Corp.

LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊕ HAND AUGER LOCATION
- ⊕ USEPA 1998 SAMPLE LOCATIONS

Screening Reference	Reference Code
AUS Background Soil UTL	b1
Little Grand Background Sediment UTL	b2
Little Grand Background Surface Water UTL	b3
Ecological Direct Exposure Pathway TRV - Soil	e1
Ecological Direct Exposure Pathway TRV - Sediment	e2
Ecological Direct Exposure Pathway TRV - Surface Water	e3
IEPA General Use Surface Water Quality Inlet Toxicity	e4
Superfund Chemical Data Matrix Koc values (potential bioaccumulation)	e5
USEPA Region IX Industrial Soil PRG - noncarcinogen	b1
USEPA Region IX Industrial Soil PRG - carcinogen	b2
USEPA Region IX Tap Water PRG - noncarcinogen	b3
USEPA Region IX Tap Water PRG - carcinogen	b4
USEPA Region IX Migration to Groundwater PRG (TAC-1)	b5
USEPA MCL Drinking Water Standards	b6
IEPA TACO Industrial/Commercial Soil Ingestion	b7
IEPA TACO Construction Worker Soil Ingestion	b8
IEPA TACO Class I Soil Component of Groundwater	b9
IEPA General Use Surface Water Quality Human Health	b10



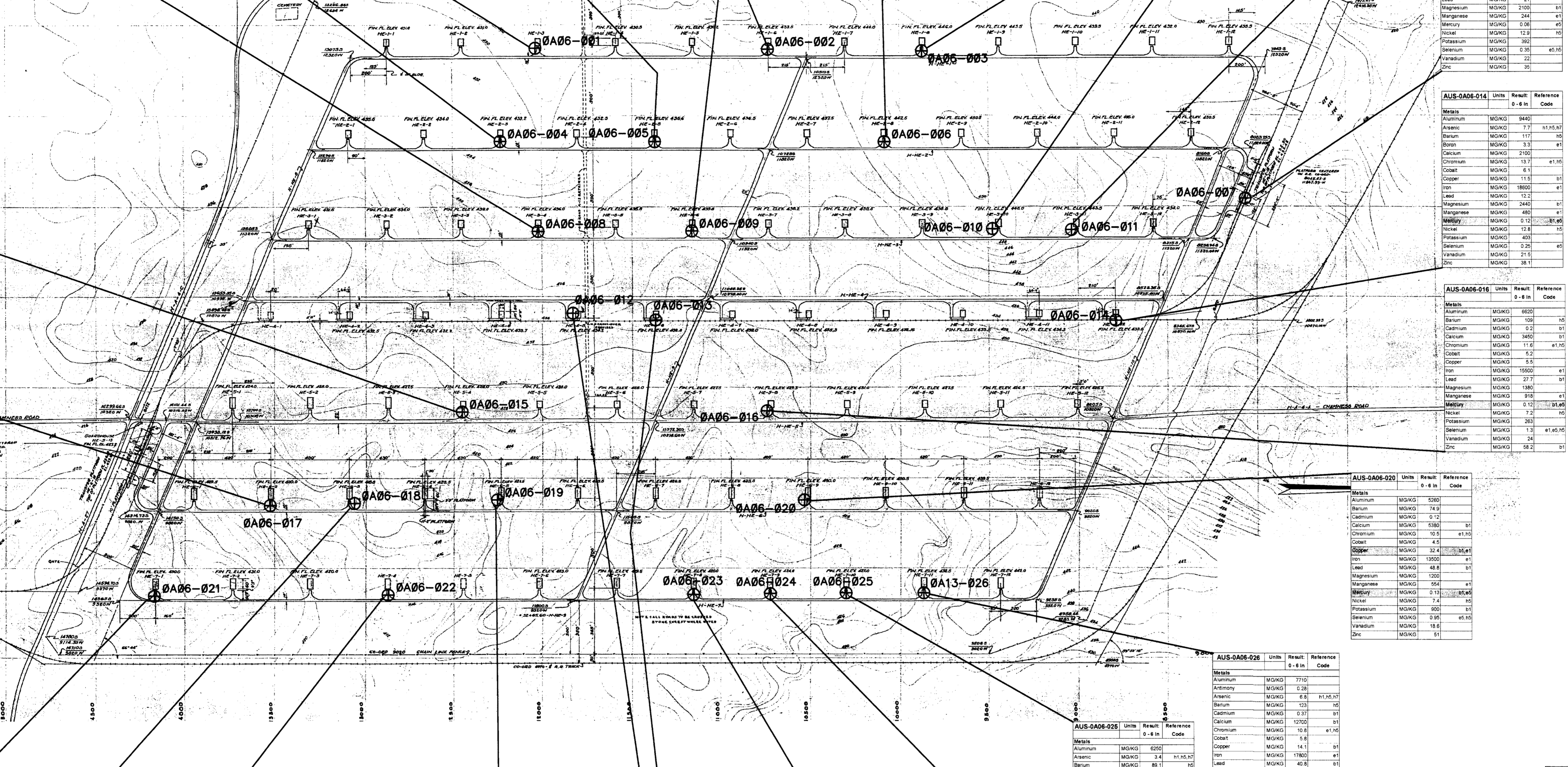
Revision No.	Description	Date	By	App.	
REVISIONS					
PA/SI REPORT-AUS OU GRAB ORCHARD NWR MARION, ILLINOIS					
AUS-04E Sample Locations and Detections in Surface Water and Groundwater					
Date:	11/14/00	Project Number:	2320000026.00	Figure Number:	8-5
Drawn by:	DJD	Design by:	MAM	Checked by:	CMW
URS					

- NOTES:
1. BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT.
 2. DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
 3. THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

AREA 4 EAST-IOP EAST SHOP AREA

LEGEND
 HAND AUGER LOCATION

AUS-0A06-008	Units	Result	Reference Code
Aluminum	MG/KG	17500	
Antimony	MG/KG	10.8	11.15, 15.71
Barium	MG/KG	49.2	
Boron	MG/KG	5.2	41
Calcium	MG/KG	86000	51
Chromium	MG/KG	18.1	41, 15
Copper	MG/KG	14	41
Iron	MG/KG	14500	41
Lead	MG/KG	16.4	41
Magnesium	MG/KG	27000	41
Manganese	MG/KG	377	41
Nickel	MG/KG	0.97	41, 45
Potassium	MG/KG	876	41
Selenium	MG/KG	27.5	45, 10
Vanadium	MG/KG	27.5	45, 10
Zinc	MG/KG	44.8	



Screening Reference	Reference Code
AI'S Background Soil U/L	b1
Little Grassy Background Sediment U/L	b2
Little Grassy Background Surface Water U/L	b3
Ecological Direct Exposure Pathway TRV - Soil	e1
Ecological Direct Exposure Pathway TRV - Surface Water	e2
Ecological Direct Exposure Pathway TRV - Sediment	e3
USEPA General Use Surface Water Quality Aquatic Life Toxicity	e4
USEPA General Use Surface Water Quality Human Health Toxicity	e5
Superfund Chemical Data Matrix Key values (potential bioaccumulative)	
USEPA Region IX Industrial Soil PRG - cancerous	h1
USEPA Region IX Industrial Soil PRG - noncancerous	h2
USEPA Region IX Tap Water PRG - cancerous	h3
USEPA Region IX Tap Water PRG - noncancerous	h4
USEPA Region IX Migration to Groundwater PRG (DAP-1)	h5
USEPA MCL Drinking Water Standards	h6
IEPA TACO Industrial/Commercial Soil Ingestion	h7
IEPA TACO Construction Worker Soil Ingestion	h8
IEPA TACO Class I Soil Component of Groundwater	h9
IEPA General Use Surface Water Quality Human Health	h10

AUS-0A06-007	Units	Result	Reference Code
Aluminum	MG/KG	6200	
Antimony	MG/KG	7.31	11.15, 15.71
Barium	MG/KG	82.5	
Boron	MG/KG	5.7	41
Calcium	MG/KG	13.23	41, 15
Chromium	MG/KG	13.1	41, 15
Cobalt	MG/KG	9	41
Copper	MG/KG	13.1	41
Iron	MG/KG	17600	41
Lead	MG/KG	31.9	41
Magnesium	MG/KG	53200	41
Manganese	MG/KG	491	41
Nickel	MG/KG	0.22	41, 45
Potassium	MG/KG	109	41
Selenium	MG/KG	12.1	45, 10
Vanadium	MG/KG	16	45, 10
Zinc	MG/KG	35	

AUS-0A06-016	Units	Result	Reference Code
Aluminum	MG/KG	6200	
Antimony	MG/KG	109	10
Barium	MG/KG	117	10
Boron	MG/KG	3.3	41
Calcium	MG/KG	2100	41
Chromium	MG/KG	13.7	41, 15
Cobalt	MG/KG	6.1	41
Copper	MG/KG	12.1	41
Iron	MG/KG	18000	41
Lead	MG/KG	12.2	41
Magnesium	MG/KG	24400	41
Manganese	MG/KG	490	41
Nickel	MG/KG	0.12	41, 45
Potassium	MG/KG	128	15
Selenium	MG/KG	0.88	45, 10
Vanadium	MG/KG	21.5	45, 10
Zinc	MG/KG	58.2	

AUS-0A06-020	Units	Result	Reference Code
Aluminum	MG/KG	5200	
Antimony	MG/KG	74.9	
Barium	MG/KG	0.72	
Boron	MG/KG	6.80	41
Calcium	MG/KG	10.5	41, 15
Chromium	MG/KG	4.8	41
Cobalt	MG/KG	32	41
Copper	MG/KG	13500	41
Iron	MG/KG	48.8	41
Lead	MG/KG	1900	41
Magnesium	MG/KG	2400	41
Manganese	MG/KG	0.13	41, 45
Nickel	MG/KG	7.4	45, 10
Potassium	MG/KG	800	41
Selenium	MG/KG	0.95	45, 10
Vanadium	MG/KG	18.6	45, 10
Zinc	MG/KG	51	

NOT TO SCALE

Revision No.	Description	Date	By	App.
REVISIONS				

PA/SI REPORT-AUS OU
 CRAB ORCHARD NWR
 MARION, ILLINOIS

AUS-0A06 Sample Locations and
 Detections of Inorganic
 Compounds in Soils

Date: 11/14/00	Project Number: 232000026.00	Figure Number: 10-3
Drawn by: DJD	Design by: MAM	Checked by: CMW



FILE: E:\232000026.00\PA-SI REPORT-AUS OU\TAB 10-3.DWG Last edited: AUG 03, 01 @ 11:24 a.m. URS Corp.

BASE MAP SOURCE: ILLINOIS ORDNANCE PLANT, CARBONDALE, ILLINOIS, 1942,
 LOCATION LAYOUT, AMMONIUM NITRATE-HIGH EXPLOSIVE & SMOKELESS POWDER
 STORAGE, PLAN NO. 6544-101.10

NOTE:
 1. DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED,
 REFER TO THE QCSR FOR DATA QUALIFIERS.

File: E:\2320000026\00\PA-SI REPORT-AUS_OU_AUS-0A07_11-5.DWG Last edited: 09/13/01 @ 2:59 p.m. @ WCC-SI, LOUIS

Table AUS-0A07-001: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-001.

Table AUS-0A07-002: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-002.

Table AUS-0A07-003: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-003.

Table AUS-0A07-004: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-004.

Table AUS-0A07-005: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-005.

Table AUS-0A07-006: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-006.

Table AUS-0A07-010: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-010.

Table AUS-0A07-008: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-008.

Table AUS-0A07-009: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-009.

Table AUS-0A07-007: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-007.

Table AUS-0A07-016: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-016.

Table AUS-0A07-019: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-019.

Table AUS-0A07-017: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-017.

Table AUS-0A07-030: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-030.

Table AUS-0A07-029: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-029.

Table AUS-0A07-020: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-020.

Table AUS-0A07-021: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-021.

Table AUS-0A07-012: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-012.

Table AUS-0A07-018: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-018.

Table AUS-0A07-022: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-022.

Table AUS-0A07-013: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-013.

Table AUS-0A07-027: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-027.

Table AUS-0A07-028: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-028.

Table AUS-0A07-011: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-011.

Table AUS-0A07-014: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-014.

Table AUS-0A07-015: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-015.

Table AUS-0A07-023: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-023.

Table AUS-0A07-024: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-024.

Table AUS-0A07-025: Analytical results for various pesticides and volatile organic compounds at sample location 0A07-025.

LEGEND: HAND AUGER LOCATION, TEST PIT LOCATION, STRESSED VEGETATION.

Table with Screening Reference and Reference Code columns, listing various environmental standards and codes.

- NOTES: 1.) SAMPLE LOCATIONS FOR AREA 7 AT CRAB ORCHARD NATIONAL WILDLIFE REFUGE... 2.) DASHED OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES... 3.) DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED... 4.) THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES...



Table with columns: Revision No., Description, Date, By, App.

PA/SI REPORT CRAB ORCHARD NWR MARION, ILLINOIS AUS-0A07 Sample Locations and Detections of Organic Compounds in Soils

Table with columns: Date, Project Number, Figure Number, Drawn by, Design by, Checked by.

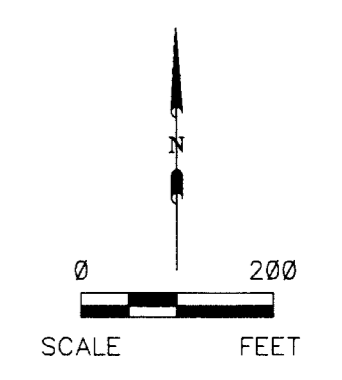
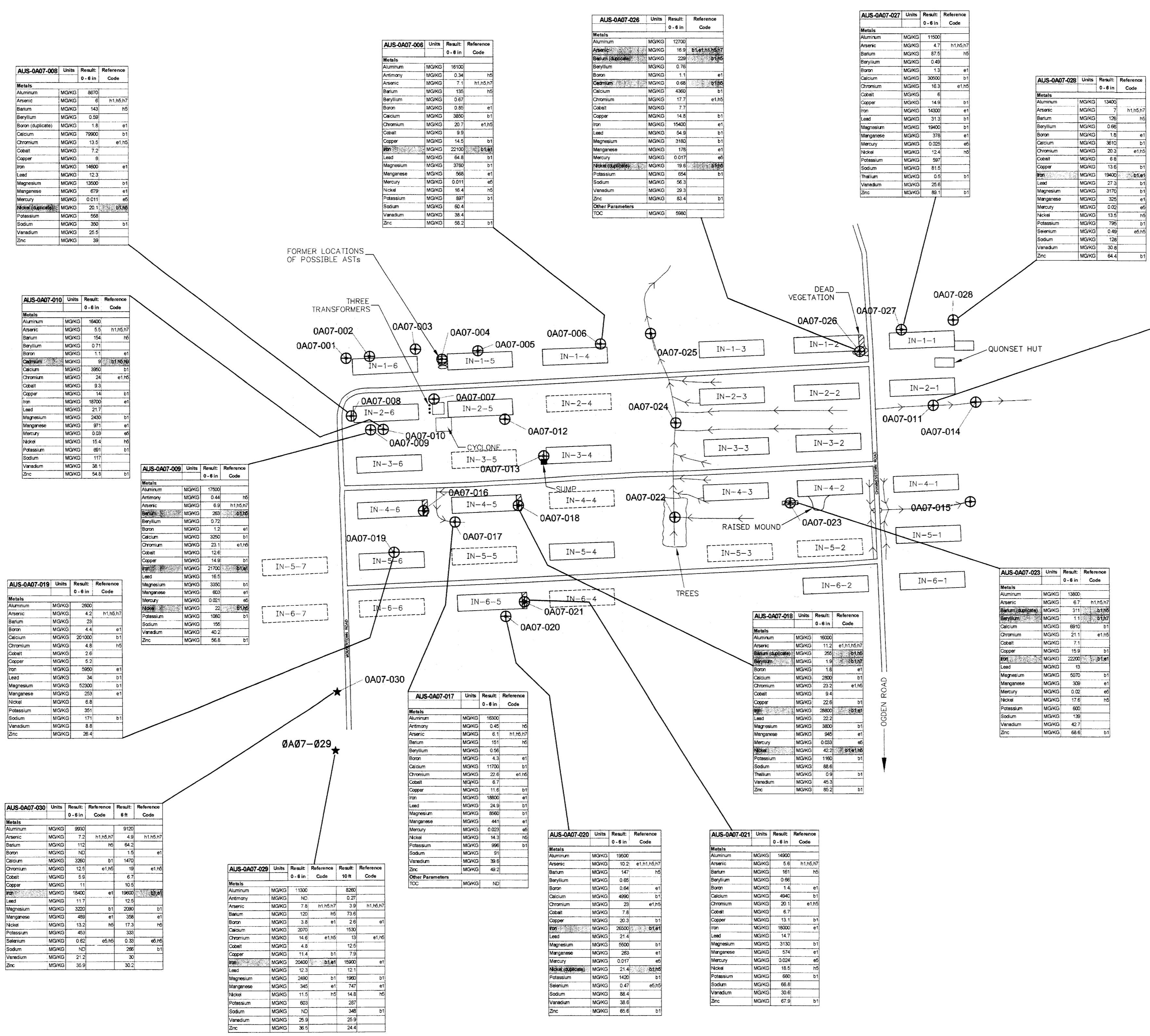


AUS-0A07-IOP INERT STORAGE AREA

File: E:\2320000026\PA-SI REPORT-AUS OU\AUS-0A07 11-6.DWG Last edited: 09/13/01 @ 2:59 p.m. @ WCC-ST.LOUIS

LEGEND
⊕ TEST PIT LOCATION
★ TEST PIT LOCATION
▭ STRESSED VEGETATION

Screening Reference	Reference Code
AUS Background Soil LTL	b1
Little Green Background Sediment LTL	b2
Little Green Background Surface Water LTL	b3
Ecological Direct Exposure Pathway TRV - Soil	e1
Ecological Direct Exposure Pathway TRV - Sediment	e2
Ecological Direct Exposure Pathway TRV - Surface Water	e3
IEPA General Use Surface Water Quality Acute/Life Toxicity	e4
Superfund Chemical Data Matrix Ken values (potential bioaccumulators)	e5
USEPA Region IX Industrial Soil FRG - noncancerous	b1
USEPA Region IX Industrial Soil FRG - cancerous	b2
USEPA Region IX Tap Water FRG - noncancerous	b3
USEPA Region IX Tap Water FRG - cancerous	b4
USEPA Region IX Migration to Groundwater FRG (DAF-1)	b5
USEPA MCL Drinking Water Standards	b6
IEPA TACO Industrial Commercial Soil Ingestion	b7
IEPA TACO Construction Worker Soil Ingestion	b8
IEPA TACO Class I Soil Component of Groundwater	b9
IEPA General Use Surface Water Quality Human Health	b10



Revision No.	Description	Date	By	App.

REVISIONS

PA/SI REPORT
CRAB ORCHARD NWR
MARION, ILLINOIS

AUS-0A07 Sample Locations
and Detections of Inorganic
Compounds in Soils

Date: 11/03/00	Project Number: 2320000026.00	Figure Number: 11-6
Drawn by: djd	Design by: mch	Checked by: mch/cmw



NOTES:

- 1.) SAMPLE LOCATIONS FOR AREA 7 AT CRAB ORCHARD NATIONAL WILDLIFE REFUGE. BUILDING AND ROAD LOCATIONS ARE BASED ON 1993 USGS DOQ'S. FOR FURTHER INFORMATION CONTACT CHUCK BEASLEY OR THE CRAB ORCHARD CERCLA STAFF.

CRAB ORCHARD NATIONAL WILDLIFE REFUGE
8588 ROUTE 148
MARION, ILLINOIS 62959
(618) 997-3344
- 2.) DASHED OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES.
- 3.) DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.

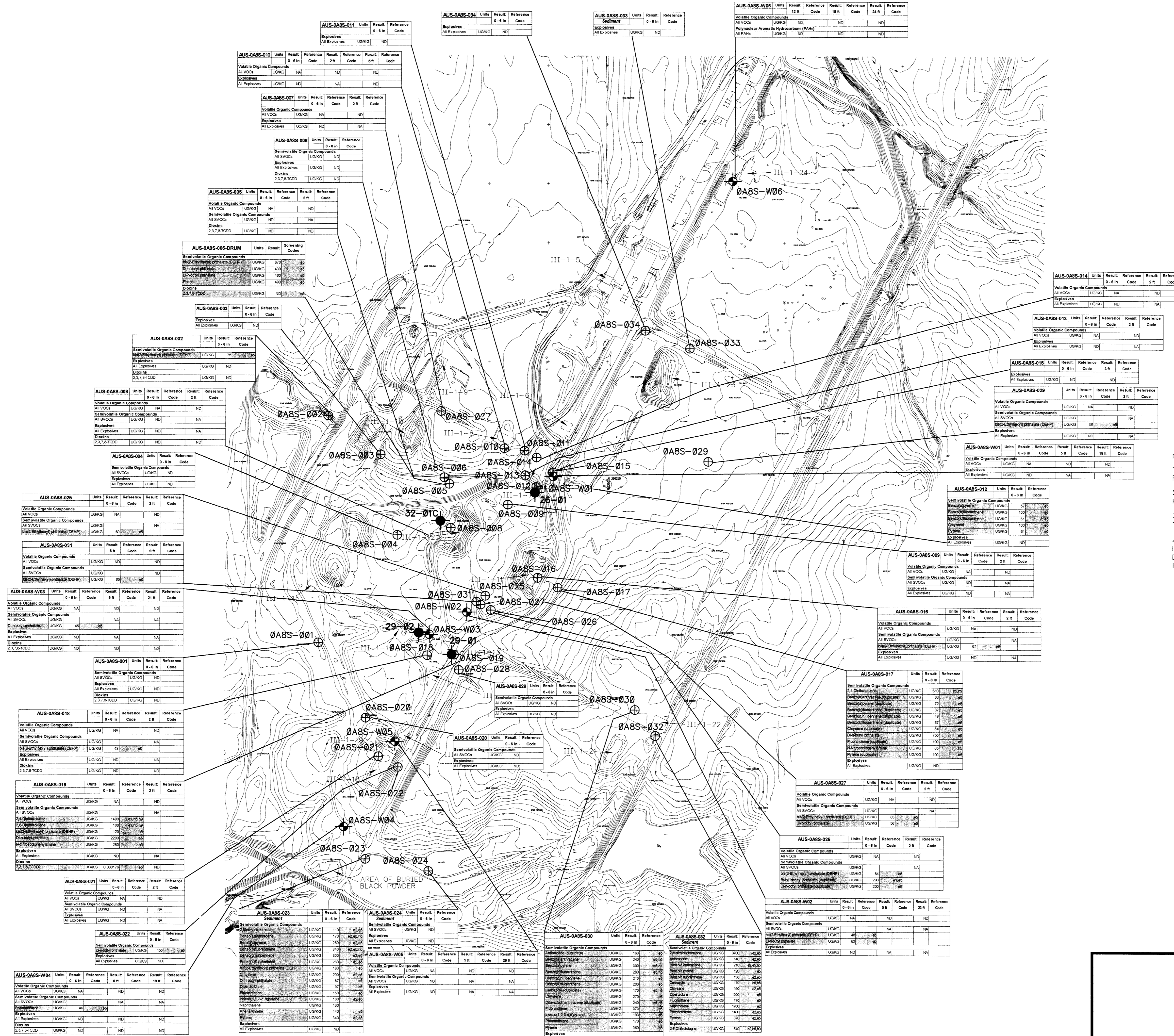
AUS-0A07-IOP INERT STORAGE AREA

AREA 8 SOUTH-FORMER IOP LOAD LINE III

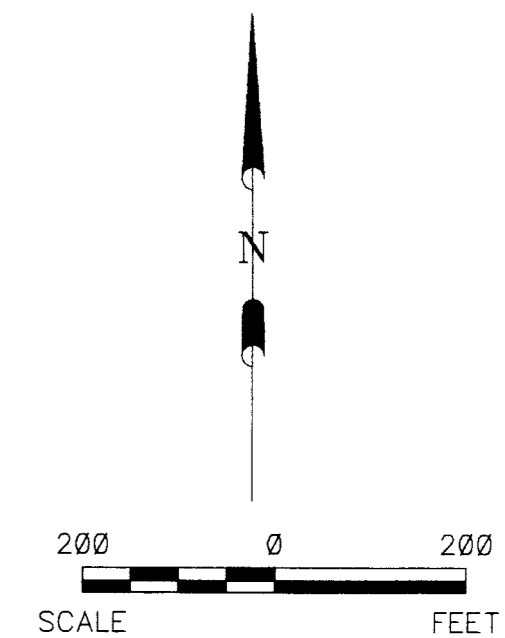
LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊙ HAND AUGER LOCATION
- ⬤ USEPA 1998 SAMPLE LOCATION

Screening Reference	Reference Code
AUS Background Soil UTL	B1
Little Grassy Background Sediment UTL	B2
Little Grassy Background Surface Water UTL	B3
Ecological Direct Exposure Pathway TRV - Soil	E1
Ecological Direct Exposure Pathway TRV - Sediment	E2
Ecological Direct Exposure Pathway TRV - Surface Water	E3
TEPA General Use Surface Water Quality Aquatic Life Toxicity	E4
Superfund Chemical Data Matrix Kow values (potential bioaccumulation)	E5
USEPA Region IX Industrial Soil FRG - nonconcern	I1
USEPA Region IX Industrial Soil FRG - concern	I2
USEPA Region IX Tap Water FRG - nonconcern	I3
USEPA Region IX Tap Water FRG - concern	I4
USEPA Region IX Migration to Groundwater FRG (I/A)-1	I5
USEPA MCL Drinking Water Standards	I6
USEPA TACO Industrial/Commercial Soil Ingestion	I7
USEPA TACO Construction Worker Soil Ingestion	I8
USEPA TACO Class I Soil Component of Groundwater	I9
USEPA General Use Surface Water Quality Human Health	I10



- NOTES:
1. BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT.
 2. DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
 3. SEDIMENT SAMPLES ARE NOTED AS SUCH IN THE LABEL, UNDERNEATH THE SAMPLE IDENTIFICATION NUMBER.
 4. THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.



Revision No.	Description	Date	By	App.
REVISIONS				

PA/SI REPORT-AUS OU
CRAB ORCHARD NWR
MARION, ILLINOIS

AUS-0ABS Sample Locations
and Detections of Organic Compounds
in Soils/Sediments/Drums

Date: June 29, 2000	Project Number: 232000026.00	Figure Number: 12-5
Drawn by: DJD	Design by: MM	Checked by: CMW



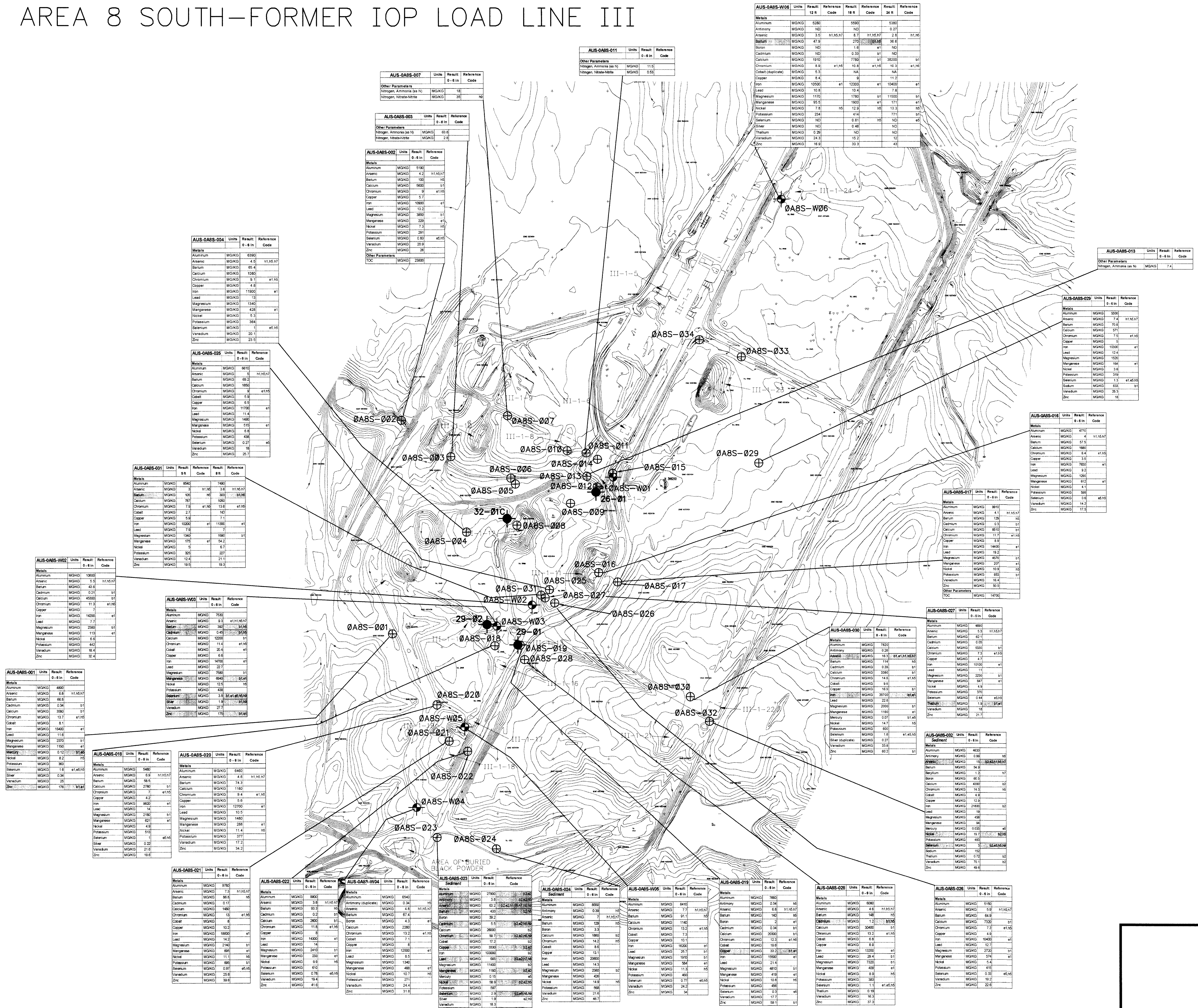
AREA 8 SOUTH-FORMER IOP LOAD LINE III

LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊙ HAND AUGER LOCATION
- ⬤ USEPA 1998 SAMPLE LOCATION

Screening Reference	Reference Code
AUS Background Soil UTL	50
Little Drain Background Sediment UTL	50
Little Drain Background Surface Water UTL	50
Ecological Direct Exposure Pathway - Soil	e1
Ecological Direct Exposure Pathway - TRV - Sediment	e2
Ecological Direct Exposure Pathway - TRV - Surface Water	e3
IEPA General Use Surface Water Quality Average Life Toxicity	e4
Superfund Chemical Data Means from values (potential bioaccumulation)	e5
USEPA Region IV Industrial Soil PFO - carcinogenic	51
USEPA Region IV Industrial Soil PFO - noncarcinogenic	52
USEPA Region IV Tap Water PFO - carcinogenic	53
USEPA Region IV Tap Water PFO - noncarcinogenic	54
USEPA Region IV Migration to Groundwater PFO (PAE-1)	55
USEPA MCL Drinking Water Standards	56
IEPA TACO Industrial Commercial Soil Detection	57
IEPA TACO Construction Worker Soil Detection	58
IEPA TACO Class 1 Soil Component of Groundwater	59
IEPA General Use Surface Water Quality Human Health	60

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- NOTES:
1. BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLOYER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT.
 2. DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
 3. SEDIMENT SAMPLES ARE NOTED AS SUCH IN THE LABEL, UNDERNEATH THE SAMPLE IDENTIFICATION NUMBER.

Revision No.	Description	Date	By	App.

PA/SI REPORT-AUS OU CRAB ORCHARD NWR MARION, ILLINOIS

AUS-0ABS Sample Locations and Detections of Inorganic Compounds in Soils/Sediments		
Date: June 29, 2000	Project Number: 232000026.00	Figure Number: 12-6
Drawn by: DJD	Design by: MM	Checked by: CMW



AREA 8 SOUTH-FORMER IOP LOAD LINE III

LEGEND

- ◆ MONITORING WELL LOCATION
- ⊕ HAND AUGER LOCATION
- ◆ USEPA 1998 SAMPLE LOCATIONS

Screening Reference	Reference Code
AUS Background Soil UTL	b1
Little Grass Background Sediment UTL	b2
Little Grass Background Surface Water UTL	b3
Ecological Direct Exposure Pathway TRV - Soil	e1
Ecological Direct Exposure Pathway TRV - Sediment	e2
Ecological Direct Exposure Pathway TRV - Surface Water	e3
IEPA General Use Surface Water Quality Aquatic Life Toxicity	e4
Superfund Chemical Data Matrix EC50 values (potential bioaccumulation)	e5
USEPA Region IX Industrial Soil PRG - noncarcinous	h1
USEPA Region IX Industrial Soil PRG - carcinous	h2
USEPA Region IX Tap Water PRG - carcinous	h3
USEPA Region IX Tap Water PRG - noncarcinous	h4
USEPA Region IX Migration to Groundwater PRG (PAF-1)	h5
USEPA MCL Drinking Water Standards	h6
IEPA TACO Industrial/Commercial Soil Ingestion	h7
IEPA TACO Construction Worker Soil Ingestion	h8
IEPA TACO Class I Soil Component of Groundwater	h9
IEPA General Use Surface Water Quality Human Health	h10

AUS-0ABS-W06-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UG/L	ND	
Semi-volatile Organic Compounds			
All SVOCs	UG/L	ND	
Explosives			
All Explosives	UG/L	ND	
Metals			
Aluminum	UG/L	740	
Barium	UG/L	21.5	
Bismuth	UG/L	30.0	
Cadmium	UG/L	14000	
Copper	UG/L	1.4	
Iron	UG/L	870	
Magnesium	UG/L	6000	
Manganese	UG/L	160	
Mercury	UG/L	2.1	
Selenium	UG/L	10000	
Zinc	UG/L	3.5	

AUS-0ABS-002-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UG/L	ND	
Semi-volatile Organic Compounds			
All SVOCs	UG/L	3.1	03, 04, 05
Explosives			
All Explosives	UG/L	ND	
Metals			
Aluminum	UG/L	437	03, 05
Barium	UG/L	54.7	03
Bismuth	UG/L	11400	03
Cadmium	UG/L	312	03
Copper	UG/L	1200	03
Iron	UG/L	85.8	03
Magnesium	UG/L	6000	03
Manganese	UG/L	1710	03
Mercury	UG/L	1700	03
Selenium	UG/L	6000	03
Zinc	UG/L	ND	
Other Parameters			
Perchlorate	UG/L	ND	

AUS-0ABS-W02-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UG/L	ND	
Semi-volatile Organic Compounds			
All SVOCs	UG/L	ND	
Explosives			
All Explosives	UG/L	ND	
Metals			
Aluminum	UG/L	34000	
Barium	UG/L	16000	
Bismuth	UG/L	1200	
Cadmium	UG/L	6	
Copper	UG/L	8700	
Iron	UG/L	ND	
Magnesium	UG/L	ND	
Manganese	UG/L	ND	
Mercury	UG/L	ND	
Selenium	UG/L	ND	
Zinc	UG/L	ND	
Other Parameters			
Perchlorate	UG/L	ND	

AUS-0ABS-W03-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UG/L	ND	
Semi-volatile Organic Compounds			
All SVOCs	UG/L	ND	
Explosives			
All Explosives	UG/L	1.1	
2,4-Dinitrochlorobenzene	UG/L	0.81	
2,6-Dinitrochlorobenzene	UG/L	0.81	
Metals			
Aluminum	UG/L	207	
Barium	UG/L	1900	
Bismuth	UG/L	120	
Cadmium	UG/L	13000	
Copper	UG/L	207	
Iron	UG/L	1300	
Magnesium	UG/L	27	
Manganese	UG/L	19000	
Mercury	UG/L	ND	
Selenium	UG/L	ND	
Zinc	UG/L	ND	
Other Parameters			
Perchlorate	UG/L	ND	

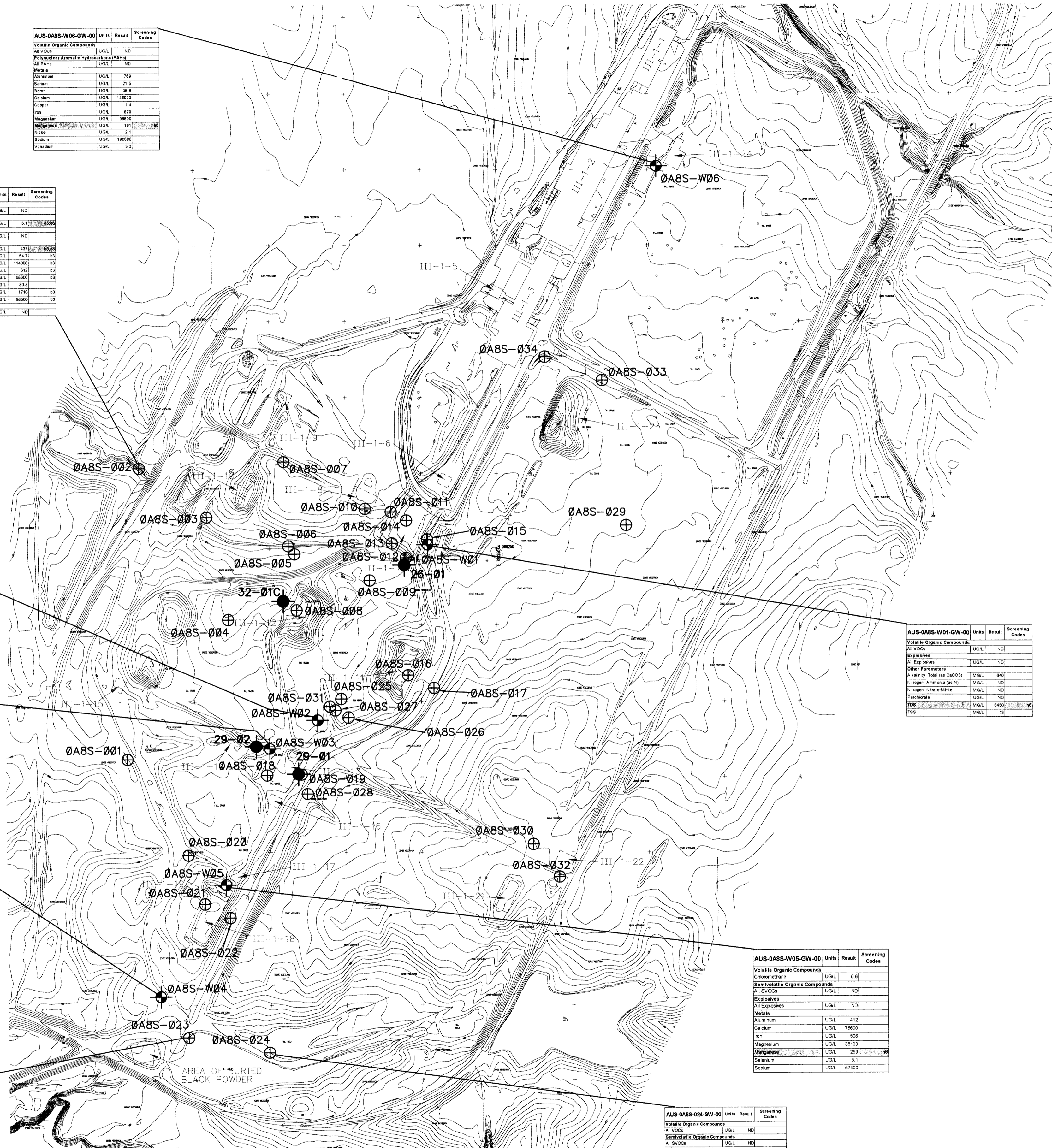
AUS-0ABS-W04-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UG/L	ND	
Semi-volatile Organic Compounds			
All SVOCs	UG/L	ND	
Explosives			
All Explosives	UG/L	ND	
Metals			
Aluminum	UG/L	160	
Barium	UG/L	73.4	
Bismuth	UG/L	38.4	
Cadmium	UG/L	6000	
Copper	UG/L	200	
Iron	UG/L	1600	
Magnesium	UG/L	4800	
Manganese	UG/L	1.8	
Mercury	UG/L	2000	
Selenium	UG/L	ND	
Zinc	UG/L	ND	
Other Parameters			
Perchlorate	UG/L	ND	

AUS-0ABS-023-SW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UG/L	ND	
Semi-volatile Organic Compounds			
All SVOCs	UG/L	ND	
Explosives			
All Explosives	UG/L	ND	
Metals			
Aluminum	UG/L	31.8	03
Barium	UG/L	1200	03
Bismuth	UG/L	21.4	03, 04, 05
Cadmium	UG/L	1400	03, 04, 05
Copper	UG/L	1300	03, 04, 05
Iron	UG/L	180	03, 04, 05
Magnesium	UG/L	180	03, 04, 05
Manganese	UG/L	5.1	03, 04, 05
Mercury	UG/L	ND	
Selenium	UG/L	ND	
Zinc	UG/L	ND	
Other Parameters			
Perchlorate	UG/L	ND	

AUS-0ABS-W01-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UG/L	ND	
Semi-volatile Organic Compounds			
All SVOCs	UG/L	ND	
Explosives			
All Explosives	UG/L	ND	
Metals			
Aluminum	UG/L	ND	
Barium	UG/L	ND	
Bismuth	UG/L	ND	
Cadmium	UG/L	ND	
Copper	UG/L	ND	
Iron	UG/L	ND	
Magnesium	UG/L	ND	
Manganese	UG/L	ND	
Mercury	UG/L	ND	
Selenium	UG/L	ND	
Zinc	UG/L	ND	
Other Parameters			
Perchlorate	UG/L	ND	

AUS-0ABS-W05-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
Chloroethane	UG/L	0.6	
Semi-volatile Organic Compounds			
All SVOCs	UG/L	ND	
Explosives			
All Explosives	UG/L	ND	
Metals			
Aluminum	UG/L	412	
Barium	UG/L	7600	
Bismuth	UG/L	500	
Cadmium	UG/L	3800	
Copper	UG/L	2900	
Iron	UG/L	5.1	
Magnesium	UG/L	57400	
Manganese	UG/L	ND	
Mercury	UG/L	ND	
Selenium	UG/L	ND	
Zinc	UG/L	ND	
Other Parameters			
Perchlorate	UG/L	ND	

AUS-0ABS-024-SW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UG/L	ND	
Semi-volatile Organic Compounds			
All SVOCs	UG/L	ND	
Explosives			
All Explosives	UG/L	ND	
Metals			
Aluminum	UG/L	1000	03, 04, 05
Barium	UG/L	51.4	03
Bismuth	UG/L	11900	03
Cadmium	UG/L	2.2	03
Copper	UG/L	3.0	03
Iron	UG/L	4.4	03
Magnesium	UG/L	500	03, 04, 05
Manganese	UG/L	6410	03
Mercury	UG/L	401	03
Selenium	UG/L	4.0	03
Zinc	UG/L	4010	03
Other Parameters			
Perchlorate	UG/L	ND	



- NOTES:
- BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT.
 - DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
 - THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROCHLOROBENZENE, 2,6-DINITROCHLOROBENZENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

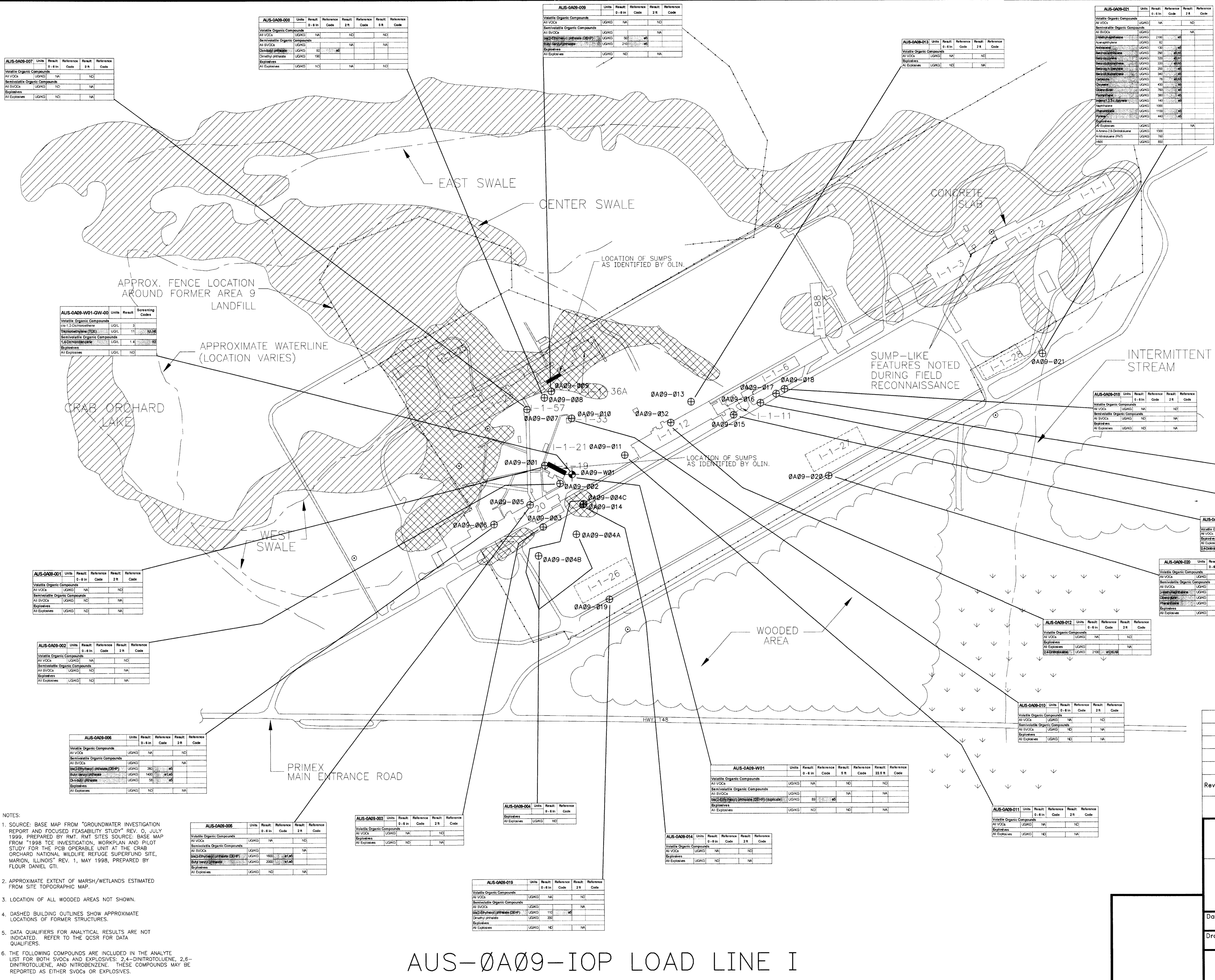
Revision No.	Description	Date	By	App.

PA/SI REPORT-AUS OU CRAB ORCHARD NWR MARION, ILLINOIS

AUS-0ABS Sample Locations and Detections in Surface Water and Groundwater

Date: June 29, 2000	Project Number: 232000026.00	Figure Number: 12-7
Drawn by: DJD	Design by: MM	Checked by: CMW





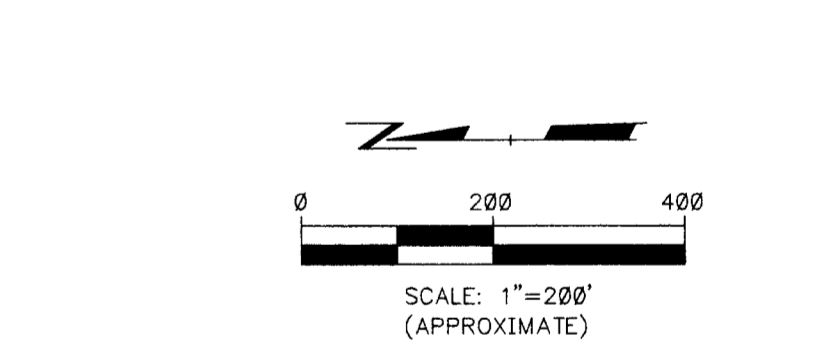
LEGEND

- APPROXIMATE DESIGN LIMITS OF PCB OU REMEDIAL ACTION SOIL EXCAVATION (NOTE: ACTUAL EXCAVATION EXCEEDED DESIGN, BUT DRAWINGS ARE NOT AVAILABLE)
- FENCE
- APPROXIMATE CENTERLINE OF SURFACE DRAINAGE CHANNEL/SWALE
- MARSH/WETLAND
- APPROXIMATE LOCATION OF WOODED AREAS WEST OF SITE 32/33
- EXISTING MONITORING WELLS
- SOIL BORINGS/MONITORING WELLS
- HAND AUGER LOCATIONS
- AREA WHERE PCB OU REMEDIATION BOUNDARIES ARE IN QUESTION

Revising Reference	Reference Code
AIS Background Soil UTL	31
Little Cherty Background Indenture UTL	32
Little Cherty Background Surface Water UTL	33
Ecological Direct Exposure Pathway TSS - Soil	41
Ecological Direct Exposure Pathway TSS - Sediment	42
Ecological Direct Exposure Pathway TSS - Surface Water	43
ISPA General Use Surface Water Quality Aquatic Life Toxicity	44
Regulated Chemical Data Matrix from values presented in Subcompartments	45
USEPA Region IX Industrial Soil PFOA - concentration	31
USEPA Region IX Industrial Soil PFOA - concentration	32
USEPA Region IX Top Water PFOA - concentration	33
USEPA Region IX Top Water PFOA - concentration	34
USEPA Region IX Migration to Groundwater PFOA (MAGP-1)	35
USEPA MCL Drinking Water Standards	36
ISPA TACU Industrial/Commercial Soil Regulation	37
ISPA TACU Construction/Traffic Soil Regulation	38
ISPA TACU Class 1 Soil Component of Groundwater	39
ISPA General Use Surface Water Quality Status Health	40

Revising Reference	Reference Code
AIS Background Soil UTL	31
Little Cherty Background Indenture UTL	32
Little Cherty Background Surface Water UTL	33
Ecological Direct Exposure Pathway TSS - Soil	41
Ecological Direct Exposure Pathway TSS - Sediment	42
Ecological Direct Exposure Pathway TSS - Surface Water	43
ISPA General Use Surface Water Quality Aquatic Life Toxicity	44
Regulated Chemical Data Matrix from values presented in Subcompartments	45
USEPA Region IX Industrial Soil PFOA - concentration	31
USEPA Region IX Industrial Soil PFOA - concentration	32
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USEPA Region IX Top Water PFOA - concentration	34
USEPA Region IX Migration to Groundwater PFOA (MAGP-1)	35
USEPA MCL Drinking Water Standards	36
ISPA TACU Industrial/Commercial Soil Regulation	37
ISPA TACU Construction/Traffic Soil Regulation	38
ISPA TACU Class 1 Soil Component of Groundwater	39
ISPA General Use Surface Water Quality Status Health	40

Revising Reference	Reference Code
AIS Background Soil UTL	31
Little Cherty Background Indenture UTL	32
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Ecological Direct Exposure Pathway TSS - Sediment	42
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ISPA General Use Surface Water Quality Status Health	40



Revision No.	Description	Date	By	App.

REVISIONS

PA/SI REPORT-AUS OU
CRAB ORCHARD NWR
MARION, ILLINOIS

AUS-0A09 Sample Locations and
Detections of Organic Compounds in Soils
and Groundwater

Date: 1/05/01	Project Number: 232000026.00	Figure Number: 13-5
Drawn by: DJD	Design by: MAM	Checked by: CMW



- NOTES:**
- SOURCE: BASE MAP FROM "GROUNDWATER INVESTIGATION REPORT AND FOCUSED FEASIBILITY STUDY" REV. 0, JULY 1999, PREPARED BY RMT. RMT SITES SOURCE, BASE MAP FROM "1998 TCE INVESTIGATION, WORKPLAN AND PILOT STUDY FOR THE PCB OPERABLE UNIT AT THE CRAB ORCHARD NATIONAL WILDLIFE REFUGE SUPERFUND SITE, MARION, ILLINOIS" REV. 1, MAY 1998, PREPARED BY FLOUR DANIEL GTI.
 - APPROXIMATE EXTENT OF MARSH/WETLANDS ESTIMATED FROM SITE TOPOGRAPHIC MAP.
 - LOCATION OF ALL WOODED AREAS NOT SHOWN.
 - DASHED BUILDING OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES.
 - DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
 - THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROLOUENE, 2,6-DINITROLOUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

AUS-0A09-IOP LOAD LINE I

File: E:\232000026.00\04-11-REVISED-AUS_0A09-13-0066_13-0066.dwg, User: rmt, Date: 08/12/01, 9:21:11 a.m., 48 WPC-ST-1015

- NOTES:
- SOURCE: BASE MAP FROM "GROUNDWATER INVESTIGATION REPORT AND FOCUSED FEASIBILITY STUDY" REV. 0, JULY 1999, PREPARED BY RVT, RVT SITES SOURCE: BASE MAP FROM "1998 TCE INVESTIGATION, WORKPLAN AND PILOT STUDY FOR THE PCB OPERABLE UNIT AT THE CRAB ORCHARD NATIONAL WILDLIFE REFUGE SUPERFUND SITE, MARION, ILLINOIS" REV. 1, MAY 1998, PREPARED BY FLOUR DANIEL GTI.
 - APPROXIMATE EXTENT OF MARSH/WETLANDS ESTIMATED FROM SITE TOPOGRAPHIC MAP.
 - LOCATION OF ALL WOODED AREAS NOT SHOWN.
 - DASHED BUILDING OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES.
 - DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.

AUS-0A09-008			
Units	Result	Reference	Code
Metals			
Aluminum	MG/KG	6120	
Arsenic	MG/KG	6.6	H1,H5,H7
Barium	MG/KG	125	H5
Boron	MG/KG	18.1	B1,H5
Calcium	MG/KG	1420	
Chromium	MG/KG	34	e1,H5
Cobalt	MG/KG	9	e1
Copper	MG/KG	9	e1
Iron	MG/KG	1500	e1
Lead	MG/KG	13.4	e1
Magnesium	MG/KG	126	
Manganese	MG/KG	126	e1
Nickel	MG/KG	6.8	e1
Potassium	MG/KG	364	
Selenium	MG/KG	1.0	e1,H5,H6
Vanadium	MG/KG	19.0	
Zinc	MG/KG	37.4	
Other Parameters			
TOC	MG/KG	1670	

AUS-0A09-009			
Units	Result	Reference	Code
Metals			
Aluminum	MG/KG	5760	
Arsenic	MG/KG	4.4	H1,H5,H7
Barium	MG/KG	125	H5
Boron	MG/KG	5	e1
Calcium	MG/KG	1330	
Chromium	MG/KG	12.9	e1
Cobalt	MG/KG	8.4	e1
Copper	MG/KG	1500	e1
Iron	MG/KG	14.7	e1
Lead	MG/KG	13.4	e1
Magnesium	MG/KG	1300	e1
Manganese	MG/KG	878	
Nickel	MG/KG	7.1	e1
Potassium	MG/KG	362	
Selenium	MG/KG	1.2	e1,H5,H6
Vanadium	MG/KG	14.8	
Zinc	MG/KG	63.8	e1

AUS-0A09-010			
Units	Result	Reference	Code
Metals			
Aluminum	MG/KG	7120	
Arsenic	MG/KG	10.1	H1,H5,H7
Barium	MG/KG	22.5	
Boron	MG/KG	10.1	e1
Calcium	MG/KG	1330	
Chromium	MG/KG	12.9	e1
Cobalt	MG/KG	8.4	e1
Copper	MG/KG	1500	e1
Iron	MG/KG	14.7	e1
Lead	MG/KG	13.4	e1
Magnesium	MG/KG	1300	e1
Manganese	MG/KG	8.5	
Nickel	MG/KG	341	
Potassium	MG/KG	361	
Selenium	MG/KG	1.2	e1,H5,H6
Vanadium	MG/KG	22.4	
Zinc	MG/KG	28.8	

AUS-0A09-013			
Units	Result	Reference	Code
Metals			
Aluminum	MG/KG	5000	
Arsenic	MG/KG	8.4	H1,H5,H7
Barium	MG/KG	18.8	
Boron	MG/KG	2.1	e1
Calcium	MG/KG	3140	e1
Chromium	MG/KG	8.5	e1,H5
Cobalt	MG/KG	8.5	e1
Copper	MG/KG	1900	e1
Iron	MG/KG	1900	e1
Lead	MG/KG	22.8	
Magnesium	MG/KG	1720	e1
Manganese	MG/KG	591	
Nickel	MG/KG	3.08	H5,H6
Potassium	MG/KG	8	
Selenium	MG/KG	8	
Vanadium	MG/KG	33.1	
Zinc	MG/KG	38.8	

AUS-0A09-018			
Units	Result	Reference	Code
Metals			
Aluminum	MG/KG	1800	
Arsenic	MG/KG	9	H1,H5,H7
Barium	MG/KG	87.7	H5
Beryllium	MG/KG	0.38	e1
Boron	MG/KG	3	e1
Calcium	MG/KG	1900	e1
Chromium	MG/KG	18.2	e1,H5
Cobalt	MG/KG	5.3	
Copper	MG/KG	12.8	e1
Iron	MG/KG	1600	e1
Lead	MG/KG	18.6	
Magnesium	MG/KG	4110	e1
Manganese	MG/KG	190	e1
Mercury	MG/KG	0.019	e1
Nickel	MG/KG	12.4	H5
Potassium	MG/KG	1100	e1
Selenium	MG/KG	0.42	H5,H6
Sodium	MG/KG	79.7	
Vanadium	MG/KG	25.8	
Zinc	MG/KG	30.4	e1

AUS-0A09-017			
Units	Result	Reference	Code
Metals			
Aluminum	MG/KG	1400	
Arsenic	MG/KG	0.24	
Barium	MG/KG	8.3	H1,H5,H7
Beryllium	MG/KG	0.45	e1
Boron	MG/KG	7710	e1
Calcium	MG/KG	18.1	e1,H5
Cobalt	MG/KG	6.2	
Copper	MG/KG	15.9	e1
Iron	MG/KG	1900	e1,H5
Lead	MG/KG	350	e1
Magnesium	MG/KG	593	e1
Manganese	MG/KG	611	e1
Nickel	MG/KG	14.5	H5
Potassium	MG/KG	969	e1
Selenium	MG/KG	81.8	
Vanadium	MG/KG	158	e1,H5
Zinc	MG/KG	158	e1,H5

Screening Reference	Reference Code
AUS Background Soil UTL	b1
Little Grass Background Sediment UTL	b2
Little Grass Background Surface Water UTL	b3
Ecological Direct Exposure Pathway TRV - Soil	e1
Ecological Direct Exposure Pathway TRV - Sediment	e2
Ecological Direct Exposure Pathway TRV - Surface Water	e3
BEPA General Use Surface Water Quality Aquatic Life Toxicity	e4
Superfund Chemical Data Matrix Low-value Inorganic (non-complexed)	e5
USEPA Region IX Industrial Soil PRC1 - copper/iron	b1
USEPA Region IX Industrial Soil PRC1 - nonmetals	b2
USEPA Region IX Tap Water PRC1 - nonmetals	b3
USEPA Region IX Tap Water PRC1 - nonmetals	b4
USEPA Region IX Migration to Groundwater PRC1 (DAF=1)	b5
USEPA MTL Drinking Water Standards	b6
BEPA TACO Industrial/Commercial Soil Ingestion	b7
BEPA TACO Construction Worker Soil Ingestion	b8
BEPA TACO Class I Soil Component of Groundwater	b9
BEPA General Use Surface Water Quality Human Health	b10

AUS-0A09-021			
Units	Result	Reference	Code
Metals			
Aluminum	MG/KG	5760	
Arsenic	MG/KG	6.2	H1,H5,H7
Barium	MG/KG	38.2	
Beryllium	MG/KG	0.32	B1,H5
Boron	MG/KG	8.8	B1,H5
Calcium	MG/KG	15900	e1
Chromium	MG/KG	8.9	e1,H5
Cobalt	MG/KG	2.9	
Copper	MG/KG	7.6	
Iron	MG/KG	950	e1
Lead	MG/KG	63.9	e1
Magnesium	MG/KG	3090	e1
Manganese	MG/KG	265	e1
Mercury	MG/KG	0.014	B1,H5
Nickel	MG/KG	1.2	H5
Potassium	MG/KG	1040	e1
Selenium	MG/KG	189	e1
Vanadium	MG/KG	14.3	
Zinc	MG/KG	70.3	e1

AUS-0A09-016			
Units	Result	Reference	Code
Metals			
Aluminum	MG/KG	5000	
Arsenic	MG/KG	3.7	H1,H5,H7
Barium	MG/KG	71.5	
Boron	MG/KG	3.88	e1
Calcium	MG/KG	1400	e1
Chromium	MG/KG	8.1	e1,H5
Cobalt	MG/KG	8.2	
Copper	MG/KG	800	e1
Iron	MG/KG	14.2	
Lead	MG/KG	20.0	e1
Magnesium	MG/KG	178	e1
Manganese	MG/KG	8.9	H5
Nickel	MG/KG	8.9	H5
Potassium	MG/KG	715	e1
Selenium	MG/KG	3.8	B1,H5,H6
Cadmium	MG/KG	870	e1
Chromium (approx)	MG/KG	25.8	B1,H5,H6
Zinc	MG/KG	147	B1,H5

AUS-0A09-015			
Units	Result	Reference	Code
Metals			
Aluminum	MG/KG	1300	e1
Arsenic	MG/KG	14.2	
Barium	MG/KG	20.0	e1
Boron	MG/KG	1.0	e1
Calcium	MG/KG	100	e1
Chromium	MG/KG	0.36	B1,H5,H6
Cobalt	MG/KG	1.0	H5
Copper	MG/KG	40	e1
Iron	MG/KG	3.9	e1,H5
Lead	MG/KG	11.2	H5
Magnesium	MG/KG	11.2	H5
Manganese	MG/KG	11.2	H5
Nickel	MG/KG	0.9	e1,H5
Potassium	MG/KG	11.2	H5
Selenium	MG/KG	11.2	H5
Vanadium	MG/KG	11.2	H5
Zinc	MG/KG	11.2	H5

AUS-0A09-020			
Units	Result	Reference	Code
Metals			
Aluminum	MG/KG	960	
Arsenic	MG/KG	0.56	H5
Barium	MG/KG	11.2	H5
Boron	MG/KG	75.9	
Calcium	MG/KG	0.27	
Chromium	MG/KG	14	e1,H5
Cobalt	MG/KG	20.0	e1
Copper	MG/KG	15.9	e1
Iron	MG/KG	1200	e1
Lead	MG/KG	190	e1
Magnesium	MG/KG	2300	e1
Manganese	MG/KG	501	e1
Nickel	MG/KG	0.029	e1
Potassium	MG/KG	1.9	H5
Selenium	MG/KG	66	e1
Sodium	MG/KG	96.3	
Vanadium	MG/KG	11.2	H5
Zinc	MG/KG	63.4	e1

Revision No.	Description	Date	By	App.

REVISIONS

PA/SI REPORT-AUS OU
CRAB ORCHARD NWR
MARION, ILLINOIS

AUS-0A09 Sample Locations and
Detections of Inorganic Compounds in
Soils and Groundwater

Date: 1/05/01	Project Number: 232000026.00	Figure Number: 13-6
Drawn by: DJD	Design by: MAM	Checked by: CMW

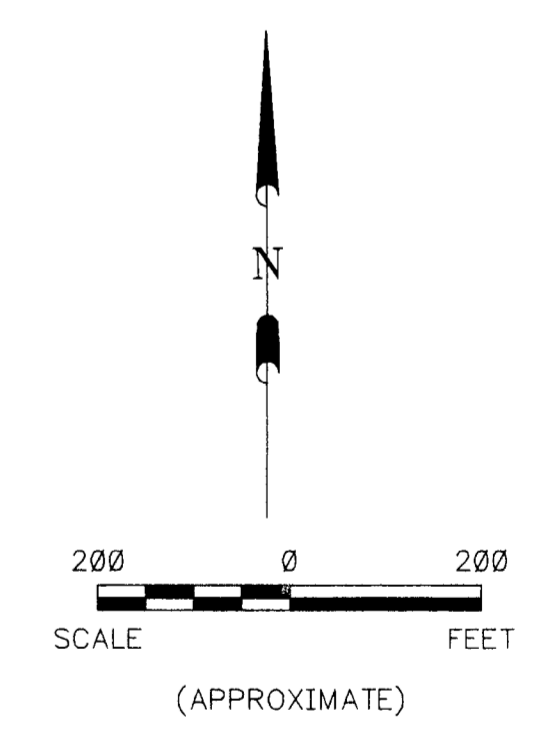
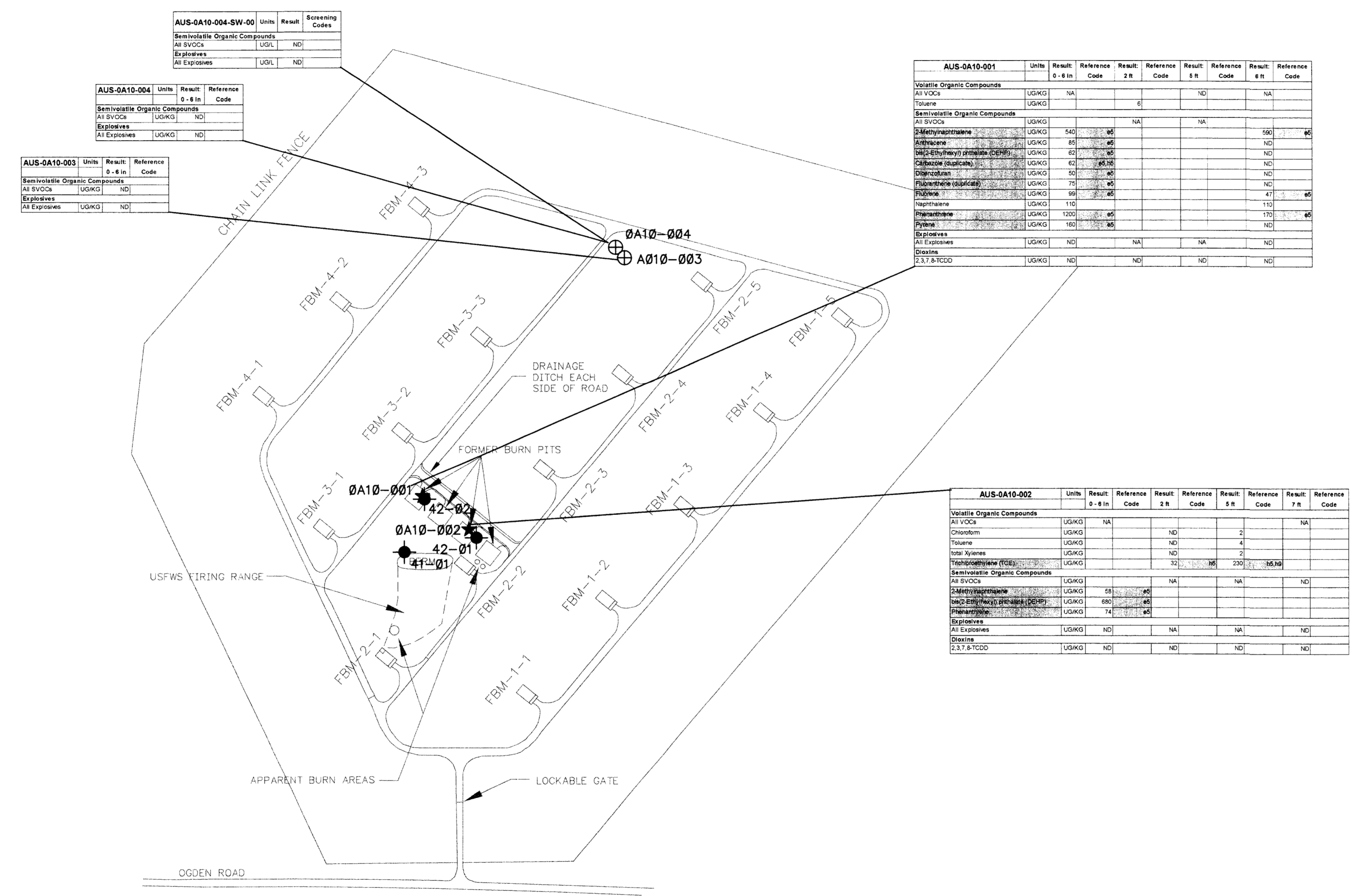


AUS-0A09-IOP LOAD LINE I

FILE: E:\232000026\DATA\SI REPORT\AUS_0A09-IOP_LOAD_LINE_08/03/01.dwg, 11:10 a.m., 08/03/01, © W.C. CLEGG

- LEGEND**
- ★ TEST PIT LOCATIONS
 - ⊕ HAND SAMPLE LOCATIONS
 - DITCHLINE
 - USEPA 1998 SAMPLE LOCATIONS

Screening Reference	Reference Code
AUS Background Soil LUL	b1
1 mile Orange Background Sediment LUL	b2
1 mile Orange Background Surface Water LUL	b3
Ecological Direct Exposure Pathway TRV - Soil	e1
Ecological Direct Exposure Pathway TRV - Sediment	e2
Ecological Direct Exposure Pathway TRV - Surface Water	e3
IRPA General Use Surface Water Quality Aquatic Life Toxicity	e4
Superfund Chemical Data Matrix Risk Values (potential bioaccumulation)	e5
US EPA Region IX Industrial Soil PFOI - noncancerous	b1
US EPA Region IX Industrial Soil PFOI - noncancerous	b2
US EPA Region IX Tap Water PFOI - cancerous	b3
US EPA Region IX Tap Water PFOI - noncancerous	b4
US EPA Region IX Migration to Groundwater PFOI (Table 1)	b5
US EPA MCL Drinking Water Standards	b6
IRPA TACO Industrial/Commercial Soil Ingestion	b7
IRPA TACO Construction Worker Soil Ingestion	b8
IRPA TACO Class I Soil Component of Groundwater	b9
IRPA General Use Surface Water Quality Human Health	b10



- NOTES:**
- BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT.
 - NONE OF THE BUILDINGS OR BURN PITS ARE CURRENTLY ON SITE.
 - DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
- SOURCES: U.S. ACE, 1944, WAR DEPARTMENT FACILITIES INVENTORY OF THE ILLINOIS ORDNANCE PLANT, PART 1 SECT. 5 PAGE 14 (PLAN NO. 6544-101.28)
 OLIN BURNING GROUND LAYOUT SOURCE: PRI-00521
- THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

Revision No.	Description	Date	By	App.	
REVISIONS					
PA/SI REPORT-AUS OU CRAB ORCHARD NWR MARION, ILLINOIS					
AUS-0A10 Sample Locations and Detections of Organic Compounds in Soils and Surface Water					
Date:	12/19/00	Project Number:	2320000026.00	Figure Number:	14-2
Drawn by:	DJD	Design by:	MAM	Checked by:	MCH/CMW

AUS-0A10-AREA 10-IOP FUSE AND BOOSTER STORAGE MAGAZINE



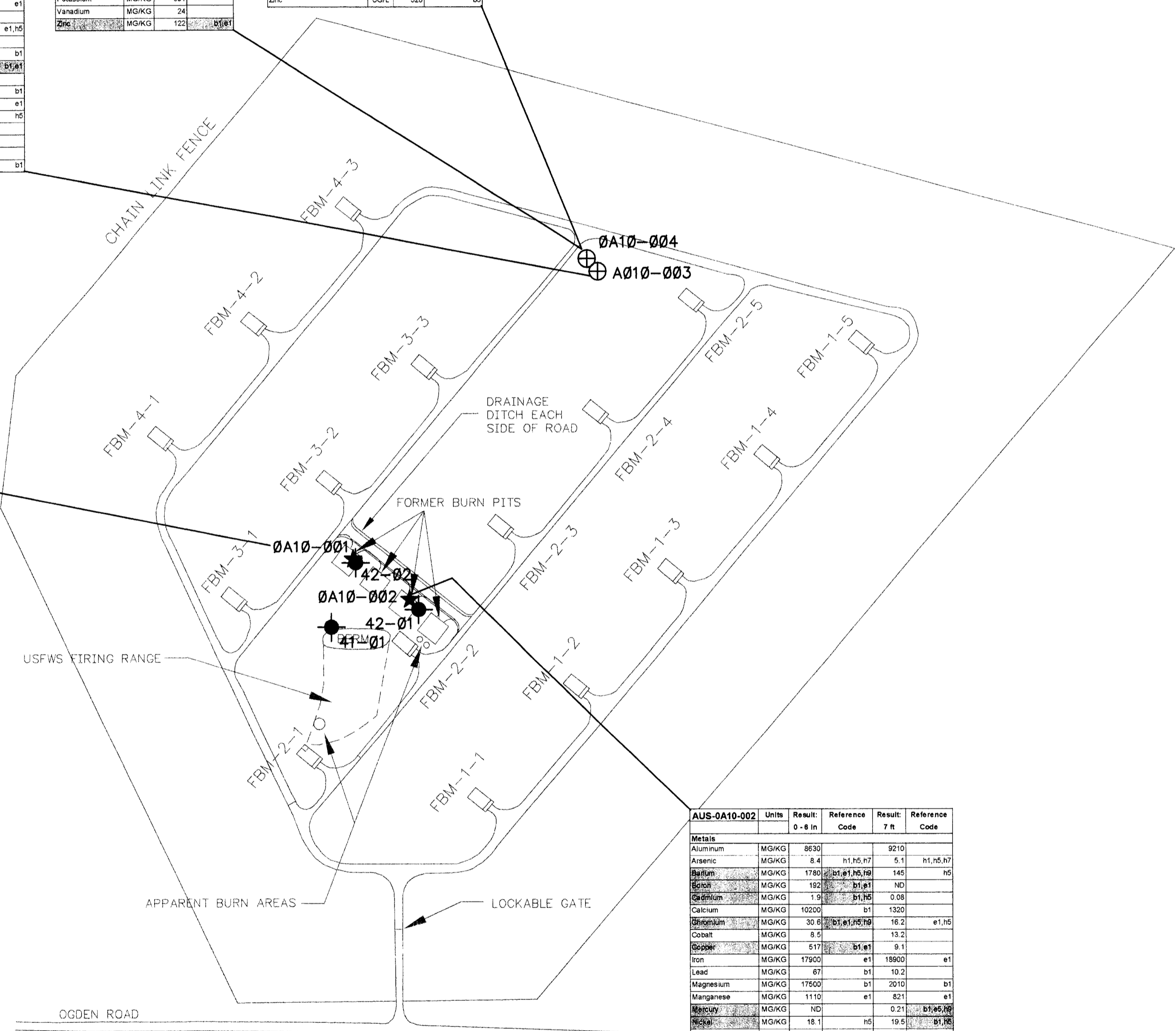
- LEGEND**
- ★ TEST PIT LOCATIONS
 - ⊕ HAND SAMPLE LOCATIONS
 - DITCHLINE
 - USEPA 1998 SAMPLE LOCATIONS

AUS-0A10-004			
Units	Result	Reference	Code
Aluminum	MG/KG	8000	
Arsenic	MG/KG	6.9	H1, H5, H7
Barium	MG/KG	113	H5
Boron	MG/KG	2.5	E1
Calcium	MG/KG	1200	
Chromium	MG/KG	12.4	E1, H5
Cobalt	MG/KG	7	E1
Copper	MG/KG	13.1	E1
Iron	MG/KG	16000	E1
Lead	MG/KG	16.9	E1
Magnesium	MG/KG	1700	E1
Manganese	MG/KG	457	E1
Nickel	MG/KG	11.4	H5
Potassium	MG/KG	591	
Vanadium	MG/KG	24	
Zinc	MG/KG	123	E1, H5

AUS-0A10-004-SW-00			
Units	Result	Screening	Code
Aluminum	UG/L	13300	S3
Barium	UG/L	376	S3
Boron	UG/L	24.1	S3
Calcium	UG/L	8110	S3
Chromium	UG/L	14.6	S3
Copper	UG/L	13100	S3
Iron	UG/L	10.6	S3
Lead	UG/L	5600	S3
Magnesium	UG/L	307	S3
Manganese	UG/L	3000	S3
Potassium	UG/L	21.7	E3
Zinc	UG/L	328	S3

AUS-0A10-001			
Units	Result	Reference	Code
Aluminum	MG/KG	4130	7570
Arsenic	MG/KG	4.4	H1, H5, H7
Barium	MG/KG	14100	H1, H5, H7
Boron	MG/KG	513	ND
Calcium	MG/KG	0.33	E1
Cadmium	MG/KG	1200	
Chromium	MG/KG	31.4	E1, H1, H5, H7
Cobalt	MG/KG	11	E1
Copper	MG/KG	107	E1, H1, H5, H7
Iron	MG/KG	8500	E1
Lead	MG/KG	16.1	E1
Magnesium	MG/KG	51900	E1
Manganese	MG/KG	700	E1
Nickel	MG/KG	0.27	E1, H1, H5, H7
Potassium	MG/KG	531	376
Selenium	MG/KG	0.31	E1, H1, H5, H7
Sodium	MG/KG	1070	E1
Vanadium	MG/KG	16.2	E1
Zinc	MG/KG	174	E1

AUS-0A10-002			
Units	Result	Reference	Code
Aluminum	MG/KG	8930	2210
Arsenic	MG/KG	8.4	H1, H5, H7
Barium	MG/KG	1760	H1, H5, H7
Boron	MG/KG	180	ND
Calcium	MG/KG	11300	208
Chromium	MG/KG	10200	E1
Cobalt	MG/KG	30.0	E1, H1, H5, H7
Copper	MG/KG	8.9	E1
Iron	MG/KG	5170	E1
Lead	MG/KG	17900	E1
Lead	MG/KG	67	E1
Magnesium	MG/KG	17500	E1
Manganese	MG/KG	1150	E1
Nickel	MG/KG	ND	0.21
Potassium	MG/KG	16.1	H5
Potassium	MG/KG	720	E1
Selenium	MG/KG	1.7	E1, H1, H5, H7
Sodium	MG/KG	8.9	E1, H1, H5, H7
Sodium	MG/KG	1000	ND
Vanadium	MG/KG	24.9	E1
Zinc	MG/KG	360	E1, H1



Screening Reference	Reference Code
AUS Background Soil UTL	b1
Little Grassy Background Sediment UTL	b2
Little Grassy Background Surface Water UTL	b3
Ecological Direct Exposure Pathway TRV - Soil	e1
Ecological Direct Exposure Pathway TRV - Sediment	e2
Ecological Direct Exposure Pathway TRV - Surface Water	e3
EPA General Use Surface Water Quality Aquatic Life Toxicity	e4
Superfund Chemical Data Matrix Kow values (potential bioaccumulation)	e5
USEPA Region IX Industrial Soil PRG - noncarcinous	b1
USEPA Region IX Industrial Soil PRG - noncarcinous	b2
USEPA Region IX Tap Water PRG - noncarcinous	b3
USEPA Region IX Tap Water PRG - noncarcinous	b4
USEPA Region IX Migration to Groundwater PRG (DAP-1)	b5
USEPA MCL Drinking Water Standards	b6
IEPA TACO Industrial/Commercial Soil Ingestion	b7
IEPA TACO Construction Worker Soil Ingestion	b8
IEPA TACO Class I Soil Component of Groundwater	b9
IEPA General Use Surface Water Quality Human Health	b10

- NOTES:**
- BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT.
 - NONE OF THE BUILDINGS OR BURN PITS ARE CURRENTLY ON SITE.
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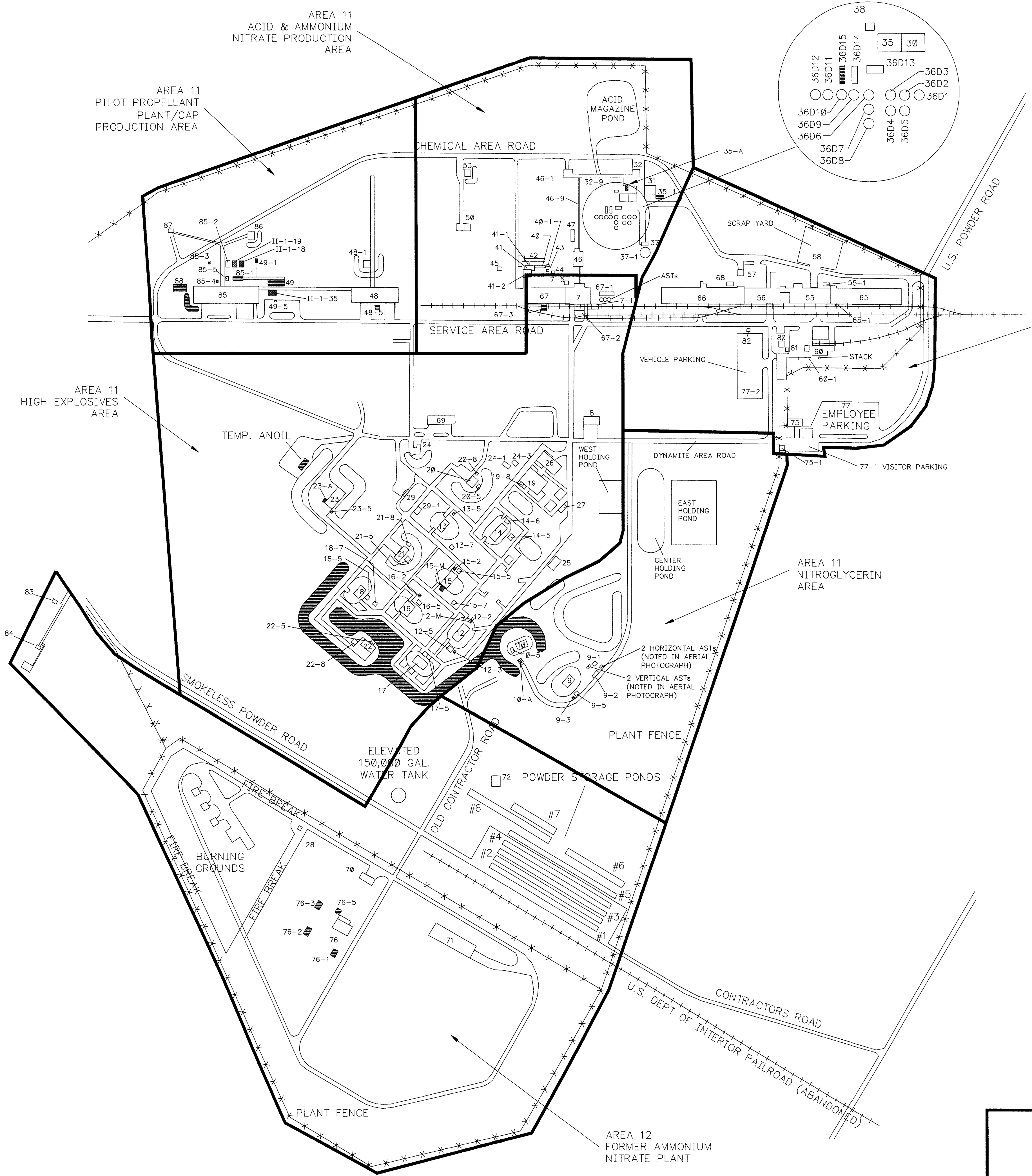
SOURCES: U.S. ACE, 1944, WAR DEPARTMENT FACILITIES INVENTORY OF THE ILLINOIS ORDNANCE PLANT, PART 1 SECT. 5 PAGE 14 (PLAN NO. 6544-101.28)
 OLIN BURNING GROUND LAYOUT SOURCE: PRI-00521

AUS-0A10-AREA 10-IOP FUSE AND BOOSTER STORAGE MAGAZINE

Revision No.	Description	Date	By	App.
REVISIONS				
PA/SI REPORT-AUS OU CRAB ORCHARD NWR MARION, ILLINOIS				
AUS-0A10 Sample Locations and Detections of Inorganic Compounds in Soils and Surface Water				
Date:	Project Number:	Figure Number:		
12/19/00	232000026.00	14-3		
Drawn by:	Design by:	Checked by:		
DJD	MAM	MCH/CMW		
URS				

Olin Bldg	Olin Designation (1966-1964)	U.S. Powder	U.S. Powder/CSC Designation (1964-1982)
7	Dope House	7	Dope House
7-A	Track Shed	7-1	Track Shed
7-E	Control House (Not Shown On Map)	7-5	Control House (New)
8	Dynamite & First Aid Office and Change House	8	Dynamite Off & First Aid
9	Nitator	9	Nitator
9-A	Spent Acid	9-1	Spent Acid House
9-B	Soda House	9-2	Soda House
9-E	Control House	9-3	Water Softener Bldg. (New)
10	N.G. Storage	10	N.G. Storage Bldg.
10-A	Catch Tank	(Removed)	(Removed)
10-B	Control House	10-5	Control House
11	(Not Named) (Not Shown On Map)	11	Former Mix House (Not Shown On Map)
12	Mix House	12	Mix House No. 2 Fig. 8 Mixer (Gelatin)
12DS	DNT Storage (Not Shown On Map)	(Removed)	(Removed)
12-E	Air Condition House	12-3	Water Softener Bldg. (New)
12-M	Motor House	(Removed)	(Removed)
12-P	Pump House	12-2	Storage Bldg.
13	Pack House - Hall	13	Hall Pack House (Dynamite)
13-E	Air Condition House	13-5	Control House
13-T	Toilet	13-7	Toilet
14	Pack House - Starnett	14	"LL" Pack House (Dynamite)
14-E	Air Condition House	14-5	Control House
14-M	Motor House	14-6	Storage Bldg.
15	Pack House - Gil-Vibra Pack	15	Gil Vibra Pack House (Dynamite)
15-E	Air Condition House	15-5	Control House
15-M	Motor House	(Removed)	(Removed)
15-T	Toilet	15-7	Toilet
16	Gel Cartridge Pack House	16	Gel Cartridge Pack House
16-E	Air Condition House	16-2	Storage Bldg. (New)
16-M	Mix House - Talley	16-5	Control House
17	Mix House - Talley	17	Talley Mix House (Dynamite)
17-E	Air Condition House	17-5	Control House
18	Pack House/MJU 4A Mix House	18	Powder Stripping House
18-E	Air Condition House	18-5	Control House
18-T	Toilet	18-7	Toilet
19	Shell House	19	Shell House
19-W	Wax House	19-8	Wax House
20	Case House No. 1 8" Waxers	20	Case House No. 1
20-E	Electrical Control House	20-5	Control House
20-W	Wax House	20-8	Wax House
21	Case House No. 2 Large & 24" Waxers	21	Superprime & Slurry
21-E	Electrical Control House	21-5	Control House
21-W	Wax House	21-8	Wax House
22	Case House No. 3 Small Waxers	22	Torpedex Operation/Storage Bldg.
22-E	Electrical Control House	22-5	Control House
22-W	Wax House	22-8	Wax House
23	ANOL Mfg. Bldg.	23	ANOL Mfg. Bldg.
23-A	Heated House-ANOL Mix Bldg.	(Removed or not in use)	(Removed or not in use)
24	Dynamite Maintenance Shop R&D Lab	24	Control House (New)
24-A	Dynamite	24-1	Dynamite Maint. Shop
24-C	Parts Cleaning - Dynamite	24-3	Dynamite Parts Cleaning
25	N.C. - TNT Screening (Not Shown On Map)	(Removed)	(Removed)
26	Box Assembly	26	Box Assembly
27	Tractor House	27	Tractor House
28	Burning House	28	Burning House
29	(Removed)	(Removed)	(Removed)
30	Ammonia Oxidation House	30	Ammonia Oxidation Bldg.
31	Cooling Tower & Control	31	Cooling Tower & Control Bldg.
32	Office & Shop (Acid)	32	Acid Office & Shop
32-R	Ramp 32 to 46-A	32-9	Ramp 32 to 46-1
35	Nitric Acid Concentration	35	Nitric Acid Concentration
35-A	Switch House Sub No. #1	(Removed)	(Removed)
36-D1	Off-Site Tank	36-D1	Switch House - Sub Station #1 (New)
36-D2	Off-Site Tank	36-D2	Off-Site Tank - 200 - Weak N.A.
36-D3	Off-Site Tank	36-D3	Off-Site Tank - 201 - Weak N.A.
36-D4	Off-Site Tank	36-D4	Off-Site Tank - 202 - Weak N.A.
36-D5	Off-Site Tank	36-D5	Off-Site Tank - 203 - Weak N.A.
36-D6	Off-Site Tank	36-D6	Off-Site Tank - 204 - Weak N.A.
36-D7	Off-Site Tank	36-D7	Off-Site Tank - 400 - 68% Sulphuric
36-D8	Off-Site Tank	36-D8	Off-Site Tank - 401 - 68% Sulphuric
36-D9	Off-Site Tank	36-D9	Off-Site Tank - 402 - 68% Sulphuric
36-D10	Off-Site Tank	36-D10	Off-Site Tank - 500 - Oxum Stor.
36-D11	Off-Site Tank	36-D11	Off-Site Tank - 501 - Oxum Stor.
36-D12	Off-Site Tank	36-D12	Off-Site Tank - 300 - Mixed Acid
36-D13	Off-Site Tank	36-D13	Off-Site Tank - 302 - M.A. Scale TK.
36-D14	Off-Site Tank	36-D14	Off-Site Tank - 303 - S.A. Circ. TK.
36-D15	Off-Site Tank (Contents Unknown)	(Removed)	(Removed)
37	Ammonia Compressor House	37	Ammonia Compressor House
37-A	Ammonia Hotterosphere	37-1	Ammonia Hotterosphere
38	Spent Acid House	38	Spent Acid House
40	Phll Tower & Wet End	40	Phll Tower & Wet End
40-A	Control Bldg. (A.N.)	40-1	Control Bldg. A.N.
41	Cooling & Bagging Bldg.	41	Cooling & Bagging Bldg.
41-A	A.N. Recovery Bldg.	41-1	A.N. Recovery Bldg.
41-B	A.N. Truck Dock/Shipping	41-2	A.N. Truck Dock
42	Graining Bldg.	42	Graining Bldg.
43	A.N. Lab	43	A.N. Laboratory
44	Compressor House (Steam)	44	Compressor House (Steam)
45	A.N. Lunch Room	45	Lunch Room
46	A.N. Storage (Halfway House)	46	A.N. Storage
46-A	A.N. Raw Material Storage/N.G. Dry House	46-1	A.N. Raw Material Storage
46-R	Ramp 46 to 32-R	46-9	Ramp 46 to 32-9
47	Chemical Area Maintenance Shop	47	Chemical Area Maint. Shop
48	A.N. Whse./Jet Starter Cartridge Assembly	48	Storage Bldg.
48-1	TNT Screening Building	48-1	Storage Bldg.
48-5	Maintenance Shop & Stores	48-5	Electric Control House (New)
49	(Not Named)	49	Still Present On Site-May Not Be In Use
49-1	(Not Named)	49-1	Big Inch Cap Assembly Line
49-5	(Not Named)	49-5	Big Inch Screening House (New)
50	Use unknown	50	Electric Control House (New)
53	DYNOL Mix House	53	Storage Bldg.
55	Carpenter & Machine Shop	55	Storage Bldg.
55-A	Steam Reg. For 55	55-1	Carpenter Machine & Sht. Metal Shop
56	Garage - Washroom - Office	56	Steam Regulator Station
57	Welding Shop	57	Garage - Washroom & Office
58	Salvage Yard	58	Welding Shop
60	Boiler House	60	Salvage yard
60-A	Boiler House Shop	60-1	Boiler House
65	General Stores	65	Boiler House Shop
66	Inert Stores No. 1	66	General Stores
67	Inert Stores No. 2	67	Track Scale (New)
67-A	Apricot Pit Storage	67-1	Oil Stores
67-B	Bag Sulphur Storage	67-2	R&D Office & Lab
67-C	Bulk A.N. Loading (New)	67-3	Storage Bldg.
68	Oil Stores	68	Warehouse & Paper Stores
68	Warehouse - Change House-R & D	68	Powder Storage Ponds (#1-#7)
70	Stores - Change House	70	Administration Bldg.
71	Paper Stores	71	Administration Bldg.
72	Powder Storage Ponds (#1-#7)	72	Guard House
75	Administration Building	75	Not known if Olin used this building.
75-A	Guard House/Possible Lab	75-1	RDX Separation
76	(Not Named)	76	Air Dryer & Steam Gen. (New)
76-1	(Not Named)	76-1	Mixer House (RDX) (New)
76-2	(Not Named)	76-2	Tray Drier (RDX) (New)
76-3	(Not Named)	76-3	Electric Control House (New)
76-5	(Not Named)	76-5	Employee Parking
77	(Not Named)	77	Visitor Parking
77-1	(Not Named)	77-1	Vehicle Parking
77-2	(Not Named)	77-2	O.C. Laboratory
80	Laboratory	80	G.C. Storage
80-A	Laboratory Storage	81	Component Magazine
82	Component Magazine (Not Shown On Map)	82	(Not Named)
83	Cap Magazine	83	Shooting House
84	Shooting House	84	Storage
85	Pilot Propellant Plant	85	Building removed
85-1	Grain Curing Building	85-1	Building removed
85-2	Grain Curing Building	85-2	Dryer Bldg.
85-3	Nitroglycerin Storage	85-3	Compressor Bldg.
85-4	(Not Named)	85-4	Storage Bldg.
85-5	(Not Named)	85-5	Storage Bldg. (New)
86	Refer to Footnotes 1 & 2	86	Electric Control House
87	Refer to Footnote 1	87	Ingredient Storage for Big Inch Cap Line
88	Use unknown	88	Big Inch Cap Testing/Storage Bldg.

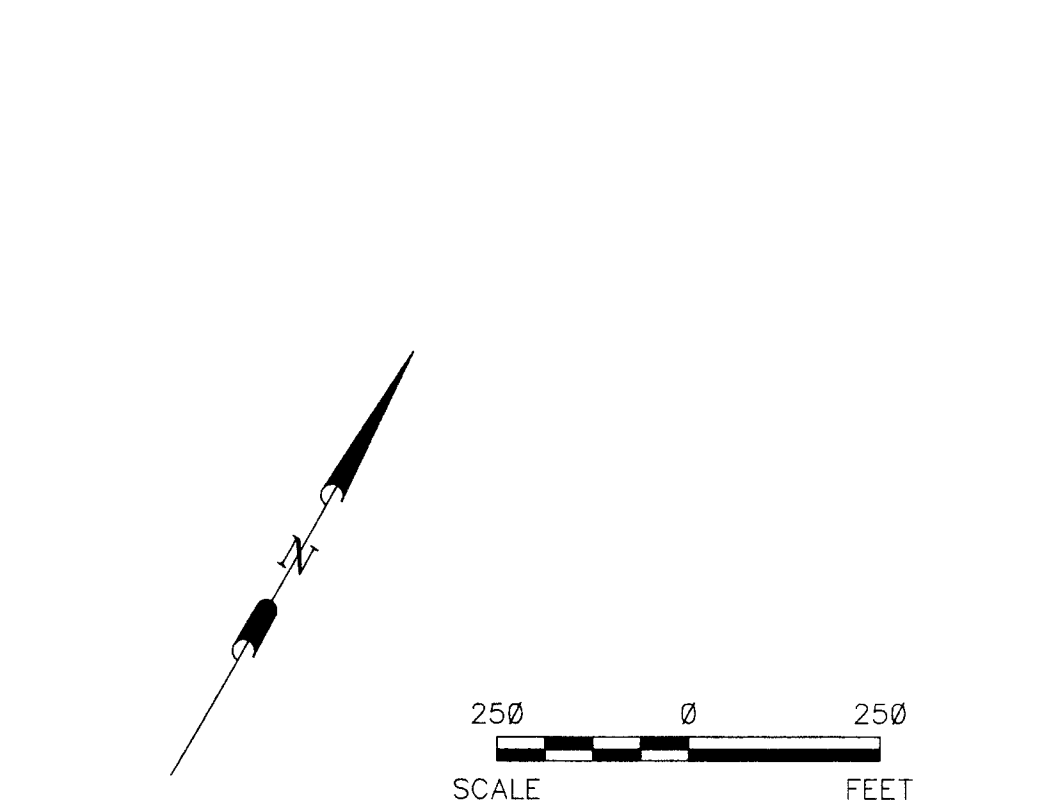
Footnotes:
1. Buildings appear to have been built by Olin, based on Olin map however, no use was identified.
2. According to R. Altekruze (former Olin employee) the building was used to test explosives manufactured at the Pilot Propellant Plant.



- NOTES:
- SOURCES: U.S. POWDER COMPANY PLANT MAP REV. 1, MARCH 13, 1974
OLIN MATHIESON CHEMICAL CORPORATION
PLANT MAP LATEST REVISION MAY 29, 1963
 - U.S. POWDER BUILDING NUMBERS ARE USED TO DESIGNATE ALL BUILDINGS EXCEPT FOR THOSE USED BY OLIN EXCLUSIVELY, WHICH DISPLAY OLIN BUILDING NUMBERS

LEGEND

- USED BY U.S. POWDER EXCLUSIVELY
- USED BY OLIN EXCLUSIVELY
- BORDER OF AUS AREA DESIGNATIONS



Revision No.	Description	Date	By	App.

REVISIONS

PA/SI REPORT-AUS OU
CRAB ORCHARD NWR
MARION, ILLINOIS

Areas 11 & 12 Site Layout for
Olin & U.S. Powder Operations

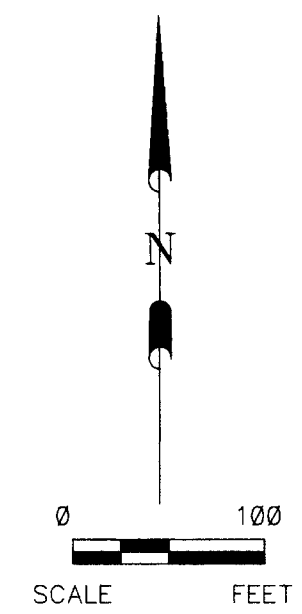
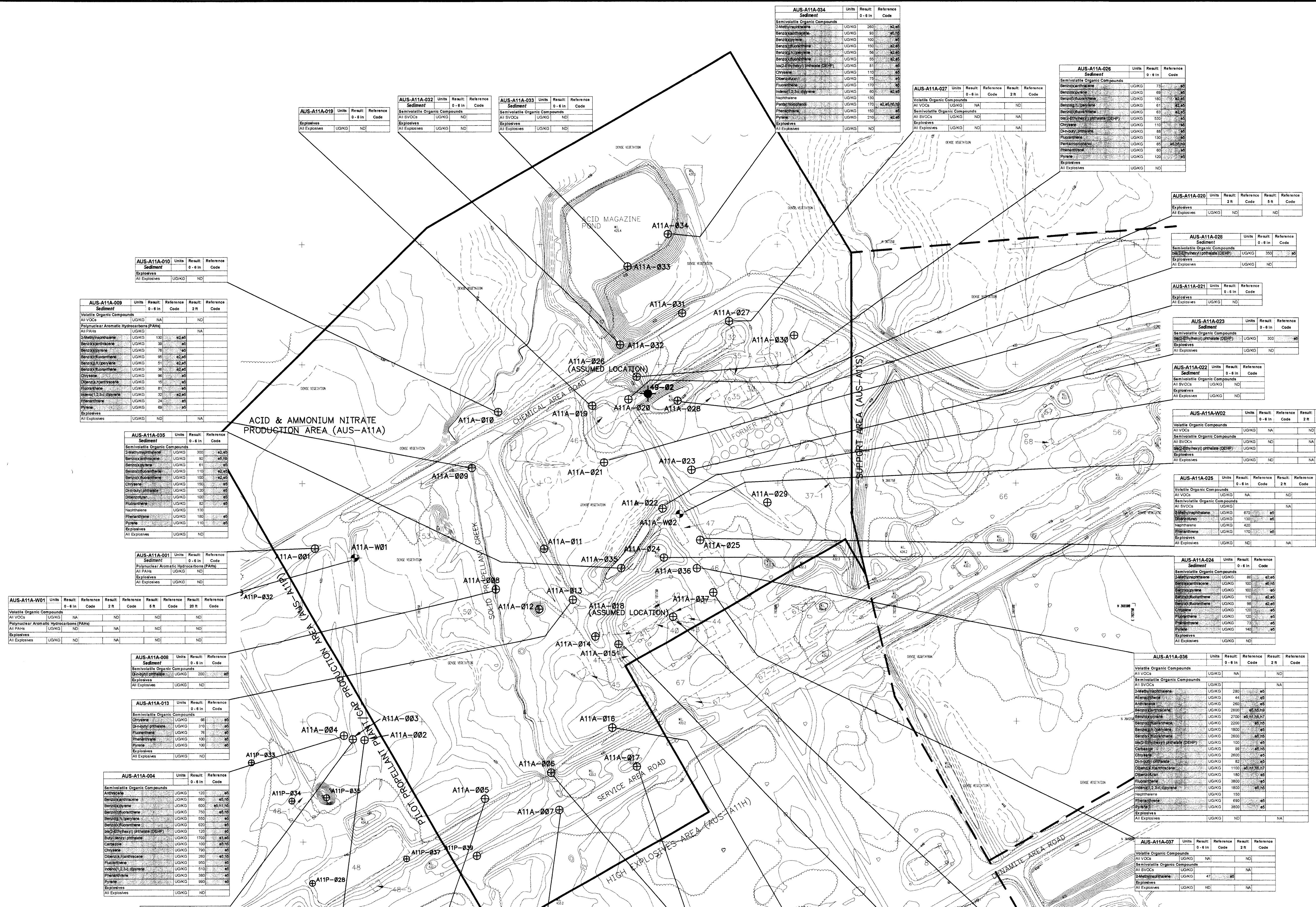
Date: 12/28/00	Project Number: 2320000026.00	Figure Number: 15-3
Drawn by: DJD	Design by: MAM	Checked by: MMF/SEA



LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊕ HAND AUGER LOCATION
- ⊕ USEPA 1998 SAMPLE LOCATIONS

Screening Reference	Reference Code
AUS Background Soil LTL	b1
1 mile Grass Background Sediment LTL	b2
1 mile Grass Background Surface Water LTL	b3
Ecological Direct Exposure Pathway - Soil	c1
Ecological Direct Exposure Pathway - TRV - Sediment	c2
Ecological Direct Exposure Pathway - TRV - Surface Water	c3
IEPA General Use Surface Water Quality Aquatic Life Toxicity	c4
Superfund Chemical Data Matrix Key values (potential bioaccumulators)	c5
USEPA Region IX Industrial Soil PRG - carcinous	b1
USEPA Region IX Industrial Soil PRG - noncarcinous	b2
USEPA Region IX Tap Water PRG - carcinous	b3
USEPA Region IX Tap Water PRG - noncarcinous	b4
USEPA Region IX Migration to Groundwater PRG (GAP-1)	b5
USEPA MCL Drinking Water Standards	b6
IEPA TACO Industrial/Commercial Soil Ingestion	b7
IEPA TACO Construction Worker Soil Ingestion	b8
IEPA TACO Diesel Soil Component of Human Health	b9
IEPA General Use Surface Water Quality Human Health	b10



NOTES:

1. BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT. DASHED OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES BASED ON DRAWINGS PREPARED BY FORMER TENANTS (U.S. POWDER/OILIN). SEE FIGURE 15-3 FOR EXPLANATION OF FORMER STRUCTURES. NOTE THAT U.S. POWDER BUILDING NUMBERS ARE USED TO DESIGNATE ALL STRUCTURES EXCEPT THOSE USED EXCLUSIVELY BY OLIN, WHICH HAVE OLIN BUILDING NUMBERS.
2. DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
3. SEDIMENT SAMPLES ARE NOTED AS SUCH IN THE LABEL, UNDERNEATH THE SAMPLE IDENTIFICATION NUMBER.
4. THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

Revision No.	Description	Date	By	App.
REVISIONS				

PA/SI REPORT-AUS OJ
CRAB ORCHARD NWR
MARTON, ILLINOIS

AUS-A11A
Sample Locations and Detections of
Organic Compounds in Soils/Sediments

Date: 06-26-2000	Project Number: 232000026.00	Figure Number: 15-7
Drawn by: DJD	Design by: MM	Checked by: MCH/CMW



AUS-A11A-019	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-020	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-021	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-022	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-023	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-024	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-025	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-026	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-027	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-028	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-029	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-030	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-031	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-032	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-033	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-034	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-035	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-036	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-037	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-009	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-008	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-007	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-006	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-005	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-004	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-003	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-002	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

AUS-A11A-001	Units	Result	Reference	Code
Sediment				
Explosives				
All Explosives				

ACID & AMMONIUM NITRATE
PRODUCTION AREA (AUS-A11A)

CHEMICAL AREA

HIGH EXPLOSIVES AREA (AUS-A11H)

ACID & AMMONIUM NITRATE
PRODUCTION AREA (AUS-A11A)

ACID & AMMONIUM NITRATE
PRODUCTION AREA (AUS-A11A)

ACID & AMMONIUM NITRATE
PRODUCTION AREA (AUS-A11A)

ACID & AMMONIUM NITRATE
PRODUCTION AREA (AUS-A11A)

ACID & AMMONIUM NITRATE
PRODUCTION AREA (AUS-A11A)

ACID & AMMONIUM NITRATE
PRODUCTION AREA (AUS-A11A)

ACID & AMMONIUM NITRATE
PRODUCTION AREA (AUS-A11A)

ACID & AMMONIUM NITRATE
PRODUCTION AREA (AUS-A11A)

ACID & AMMONIUM NITRATE
PRODUCTION AREA (AUS-A11A)

ACID & AMMONIUM NITRATE
PRODUCTION AREA (AUS-A11A)

ACID & AMMONIUM NITRATE
PRODUCTION AREA (AUS-A11A)

LEGEND

- MONITORING WELL LOCATION
- HAND AUGER LOCATION
- USEPA 1998 SAMPLE LOCATIONS

Screening Reference	Reference Code
AUS Background Soil T11	B1
1 Mile Downwind Background Surface T11	B2
1 Mile Downwind Background Surface T12	B3
Ecological Direct Exposure Pathway: TRV - Soil	C1
Ecological Direct Exposure Pathway: TRV - Surface	C2
Ecological Direct Exposure Pathway: TRV - Sediment	C3
HEPA General Use Surface Water Quality Aquatic Life Toxicity	C4
Superfund Chemical Data Matrix: Raw Values (general bioaccumulation)	C5
USEPA Region IX Industrial Soil P10 - arsenic	B1
USEPA Region IX Industrial Soil P10 - vanadium	B1
USEPA Region IX Tap Water P10 - arsenic	B3
USEPA Region IX Tap Water P10 - vanadium	B3
USEPA Region IX MCL (Maximum Contaminant Level) (D50-1)	B3
USEPA MCL (Maximum Contaminant Level) (D50-1)	B3
USEPA TACO Construction/Industrial Soil Exposure	B3
USEPA TACO Chemical Soil Component of Groundwater	B3
HEPA General Use Surface Water Quality Human Health	B10

AUS-A11A-021	Units	Result	Reference
Aluminum	MG/KG	1550.0	B1
Antimony	MG/KG	0.67	B1
Arsenic	MG/KG	5.2	B1, B5, B7
Barium	MG/KG	187.0	B1
Beryllium	MG/KG	0.67	B1
Boron	MG/KG	3.3	B2
Calcium	MG/KG	400.0	B2
Cadmium	MG/KG	10.4	B2
Chromium	MG/KG	20.1	B2
Cobalt	MG/KG	21.1	B2
Copper	MG/KG	300.0	B2
Lead	MG/KG	16.0	B2
Magnesium	MG/KG	300.0	B2
Manganese	MG/KG	60.0	B1
Nickel	MG/KG	0.026	B5
Potassium	MG/KG	20.7	B1, B2, B5, B6
Potassium	MG/KG	115.0	B2
Silver	MG/KG	1.1	B1, B5, B6
Selenium	MG/KG	36.1	B2
Sodium	MG/KG	106.0	B2
Zinc	MG/KG	106.0	B2

AUS-A11A-022	Units	Result	Reference
Aluminum	MG/KG	930.0	B1
Antimony	MG/KG	0.67	B1
Arsenic	MG/KG	6.9	B1, B5, B7
Barium	MG/KG	97.6	B1
Beryllium	MG/KG	0.26	B1
Boron	MG/KG	5.1	B5, B7
Calcium	MG/KG	97.9	B1
Cadmium	MG/KG	7.9	B2
Chromium	MG/KG	3.9	B2
Cobalt	MG/KG	530.0	B1
Copper	MG/KG	27.3	B2
Lead	MG/KG	173.0	B2
Magnesium	MG/KG	28.3	B2
Manganese	MG/KG	180.0	B2
Nickel	MG/KG	13.4	B2
Potassium	MG/KG	0.47	B5, B6
Selenium	MG/KG	66.3	B2
Silver	MG/KG	27.9	B2
Sodium	MG/KG	151.1	B2, B5, B6
Zinc	MG/KG	49.6	B2

AUS-A11A-023	Units	Result	Reference
Aluminum	MG/KG	1050.0	B1
Antimony	MG/KG	0.67	B1
Arsenic	MG/KG	6.9	B1, B5, B7
Barium	MG/KG	150.0	B1
Beryllium	MG/KG	0.26	B1
Boron	MG/KG	5.1	B5, B7
Calcium	MG/KG	13.9	B2
Cadmium	MG/KG	5.2	B2
Cobalt	MG/KG	15.8	B2
Copper	MG/KG	260.0	B2
Lead	MG/KG	15.9	B2
Magnesium	MG/KG	215.0	B2
Manganese	MG/KG	47.0	B1
Nickel	MG/KG	11.8	B2
Potassium	MG/KG	67.9	B2
Selenium	MG/KG	0.37	B5, B6
Silver	MG/KG	28.0	B2
Sodium	MG/KG	118.0	B2
Zinc	MG/KG	54.5	B2

- NOTES:
- BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT. DASHED OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES BASED ON DRAWINGS PREPARED BY FORMER TENANTS (U.S. POWDER/OLIN). SEE FIGURE 15-3 FOR EXPLANATION OF FORMER STRUCTURES. NOTE THAT U.S. POWDER BUILDING NUMBERS ARE USED TO DESIGNATE ALL STRUCTURES EXCEPT THOSE USED EXCLUSIVELY BY OLIN, WHICH HAVE OLIN BUILDING NUMBERS.
 - DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
 - SEDIMENT SAMPLES ARE NOTED AS SUCH IN THE LABEL, UNDERNEATH THE SAMPLE IDENTIFICATION NUMBER.

Revision No.	Description	Date	By	App.

PA/SI REPORT-AUS OU
CRAB ORCHARD NWR
MARION, ILLINOIS

AUS-A11A
Sample Locations and Detections of
Inorganic Compounds in Soils/Sediments

Date: 06-26-2000	Project Number: 232000026.00	Figure Number: 15-8
Drawn by: DJD	Design by: MM	Checked by: MCH/CMW

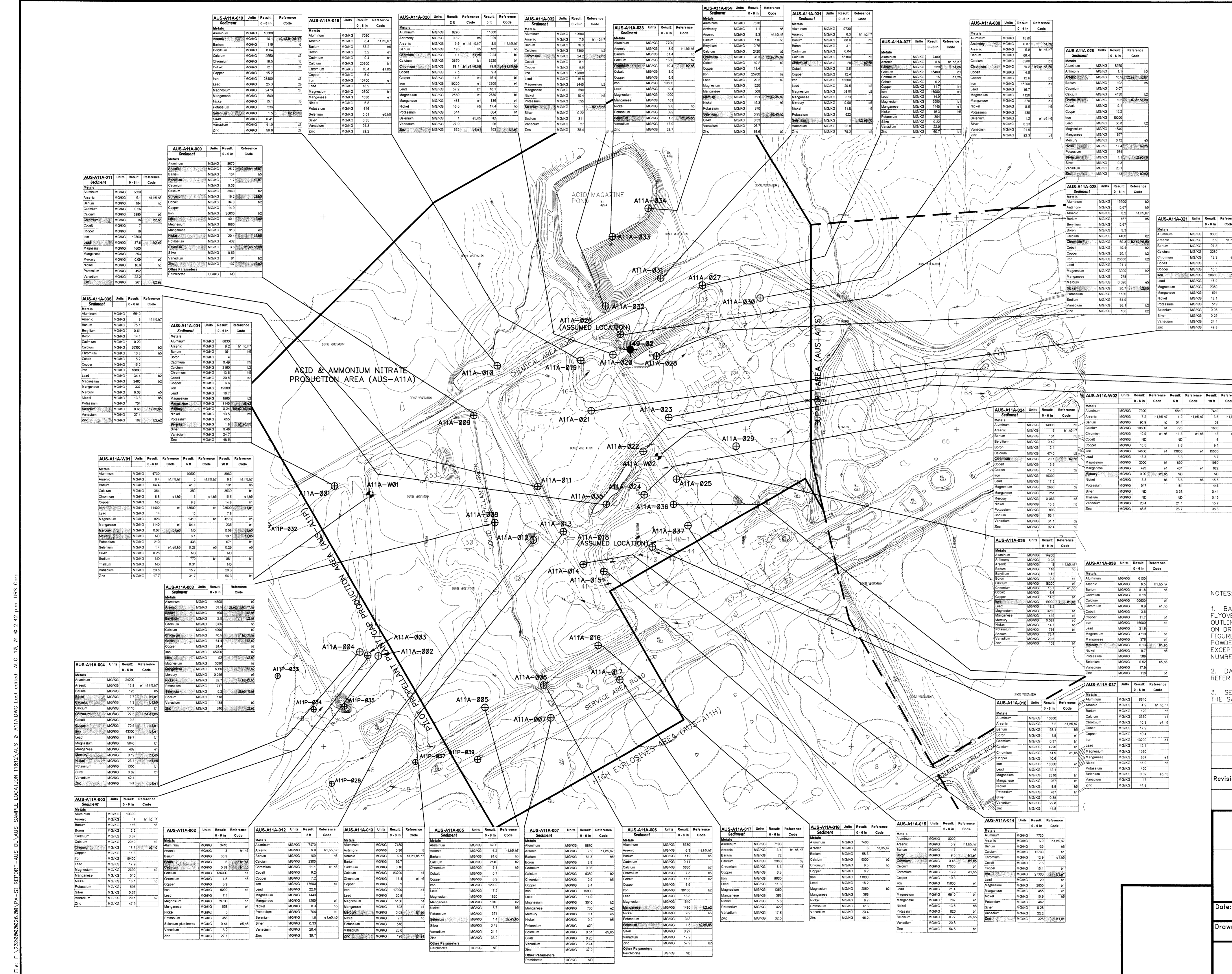


FIG. 15-3: AUS OU/AUS-SAMPLE LOCATION 11A2/AUS-0-A11A.DWG last edited: AUG. 18, 01 @ 2:42 p.m. URS Corp.

AUS-A11A-033-SW-00 Units Result Screening Codes				
Volatiles Organic Compounds				
All SVOCs	UGL	ND		
Semi-volatile Organic Compounds				
All SVOCs	UGL	ND		
Explosives				
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	415	03	03
Arsenic	UGL	2.6		
Barium	UGL	18.4		
Boron	UGL	19.9		
Calcium	UGL	21400	03	03
Chromium	UGL	3.7		
Copper	UGL	160		
Iron	UGL	15000	03	03
Magnesium	UGL	16000	03	03
Manganese	UGL	16000	03	03
Mercury	UGL	0.26	03	03
Potassium	UGL	820		
Sodium	UGL	16000	03	03
Other Parameters				
Alkalinity, Total (as CaCO3)	MGL	7.2	03	03
Nitrogen, Ammonia (as N)	MGL	0.26	03	03
Nitrogen, Nitrate-Nitrite	MGL	1.0	03	03
Phosphate, Total (as P)	MGL	0.15	03	03
TDS	MGL	12	03	03

AUS-A11A-032-SW-00 Units Result Screening Codes				
Volatiles Organic Compounds				
All SVOCs	UGL	ND		
Semi-volatile Organic Compounds				
All SVOCs	UGL	ND		
Explosives				
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	289	03	03
Arsenic	UGL	12		
Barium	UGL	65		
Boron	UGL	36300	03	03
Calcium	UGL	146000	03	03
Chromium	UGL	720		
Copper	UGL	36300	03	03
Iron	UGL	175000	03	03
Magnesium	UGL	100		
Manganese	UGL	83		
Mercury	UGL	0.26	03	03
Potassium	UGL	89		
Sodium	UGL	1900		
Zinc	UGL	46000	03	03
Other Parameters				
Alkalinity, Total (as CaCO3)	MGL	300	03	03
Nitrogen, Ammonia (as N)	MGL	0.47	03	03
Nitrogen, Nitrate-Nitrite	MGL	1.8	03	03
Phosphate, Total (as P)	MGL	0.15	03	03
TDS	MGL	720	03	03

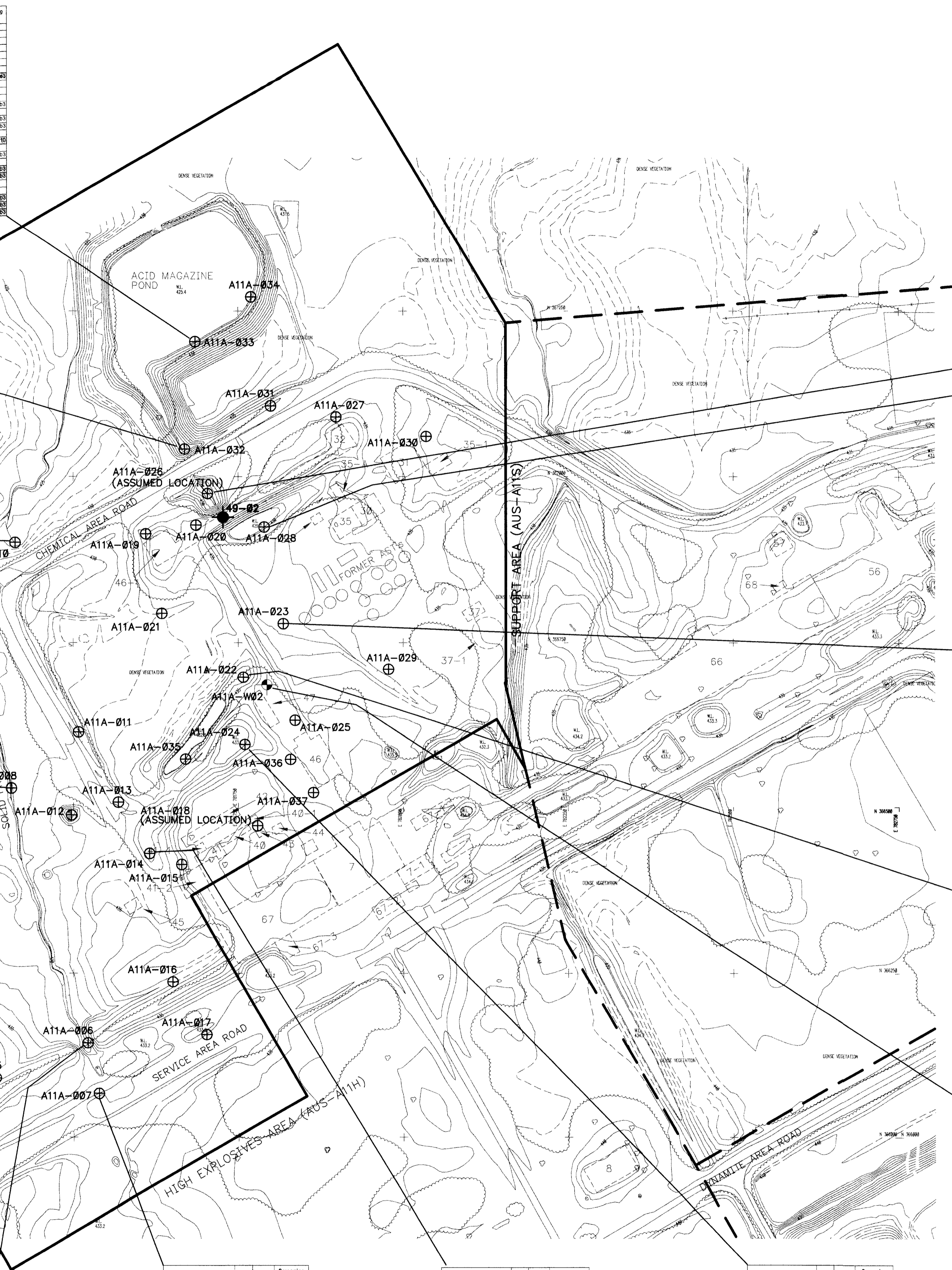
AUS-A11A-010-SW-00 Units Result Screening Codes				
Volatiles Organic Compounds				
All SVOCs	UGL	ND		
Semi-volatile Organic Compounds				
All SVOCs	UGL	ND		
Explosives				
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	8000	03	03
Arsenic	UGL	3.1		
Barium	UGL	65		
Boron	UGL	36300	03	03
Calcium	UGL	146000	03	03
Chromium	UGL	720		
Copper	UGL	175000	03	03
Iron	UGL	100		
Magnesium	UGL	83		
Manganese	UGL	100		
Mercury	UGL	0.26	03	03
Potassium	UGL	89		
Sodium	UGL	1900		
Zinc	UGL	46000	03	03
Other Parameters				
Alkalinity, Total (as CaCO3)	MGL	1.8	03	03
Nitrogen, Ammonia (as N)	MGL	0.47	03	03
Nitrogen, Nitrate-Nitrite	MGL	1.8	03	03
Phosphate, Total (as P)	MGL	0.15	03	03
TDS	MGL	100	03	03

AUS-A11A-W01-GW-00 Units Result Screening Codes				
Volatiles Organic Compounds				
All SVOCs	UGL	ND		
Semi-volatile Organic Compounds				
All SVOCs	UGL	ND		
Explosives				
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	137		
Arsenic	UGL	16.2		
Barium	UGL	310		
Boron	UGL	36300	03	03
Calcium	UGL	146000	03	03
Chromium	UGL	720		
Copper	UGL	175000	03	03
Iron	UGL	100		
Magnesium	UGL	83		
Manganese	UGL	100		
Mercury	UGL	0.26	03	03
Potassium	UGL	89		
Sodium	UGL	1900		
Zinc	UGL	46000	03	03
Other Parameters				
Alkalinity, Total (as CaCO3)	MGL	0.51		
Nitrogen, Ammonia (as N)	MGL	0.47	03	03
Nitrogen, Nitrate-Nitrite	MGL	1.8	03	03
Phosphate, Total (as P)	MGL	0.15	03	03
TDS	MGL	6170	03	03

AUS-A11A-008-SW-00 Units Result Screening Codes				
Volatiles Organic Compounds				
All SVOCs	UGL	ND		
Semi-volatile Organic Compounds				
All SVOCs	UGL	ND		
Explosives				
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	28000	03	03
Arsenic	UGL	16.2		
Barium	UGL	310		
Boron	UGL	36300	03	03
Calcium	UGL	146000	03	03
Chromium	UGL	720		
Copper	UGL	175000	03	03
Iron	UGL	100		
Magnesium	UGL	83		
Manganese	UGL	100		
Mercury	UGL	0.26	03	03
Potassium	UGL	89		
Sodium	UGL	1900		
Zinc	UGL	46000	03	03
Other Parameters				
Alkalinity, Total (as CaCO3)	MGL	1.1		
Nitrogen, Ammonia (as N)	MGL	0.47	03	03
Nitrogen, Nitrate-Nitrite	MGL	1.8	03	03
Phosphate, Total (as P)	MGL	0.15	03	03
TDS	UGL	64700	03	03

AUS-A11A-006-SW-00 Units Result Screening Codes				
Volatiles Organic Compounds				
All SVOCs	UGL	ND		
Semi-volatile Organic Compounds				
All SVOCs	UGL	ND		
Explosives				
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	180		
Arsenic	UGL	16.2		
Barium	UGL	310		
Boron	UGL	36300	03	03
Calcium	UGL	146000	03	03
Chromium	UGL	720		
Copper	UGL	175000	03	03
Iron	UGL	100		
Magnesium	UGL	83		
Manganese	UGL	100		
Mercury	UGL	0.26	03	03
Potassium	UGL	89		
Sodium	UGL	1900		
Zinc	UGL	46000	03	03
Other Parameters				
Alkalinity, Total (as CaCO3)	MGL	1.91		
Nitrogen, Ammonia (as N)	MGL	0.47	03	03
Nitrogen, Nitrate-Nitrite	MGL	1.8	03	03
Phosphate, Total (as P)	MGL	0.15	03	03
TDS	MGL	607	03	03

AUS-A11A-007-SW-00 Units Result Screening Codes				
Volatiles Organic Compounds				
All SVOCs	UGL	ND		
Semi-volatile Organic Compounds				
All SVOCs	UGL	ND		
Explosives				
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	300		
Arsenic	UGL	3.3		
Barium	UGL	16.2		
Boron	UGL	36300	03	03
Calcium	UGL	146000	03	03
Chromium	UGL	1.1		
Copper	UGL	1900		
Iron	UGL	1600	03	03
Magnesium	UGL	1600	03	03
Manganese	UGL	1600	03	03
Mercury	UGL	0.26	03	03
Potassium	UGL	2400		
Selenium	UGL	2		
Sodium	UGL	2400		
Zinc	UGL	7800		
Other Parameters				
Alkalinity, Total (as CaCO3)	MGL	0.30		
Nitrogen, Ammonia (as N)	MGL	0.47	03	03
Nitrogen, Nitrate-Nitrite	MGL	1.8	03	03
Phosphate, Total (as P)	MGL	0.15	03	03
TDS	MGL	210	03	03



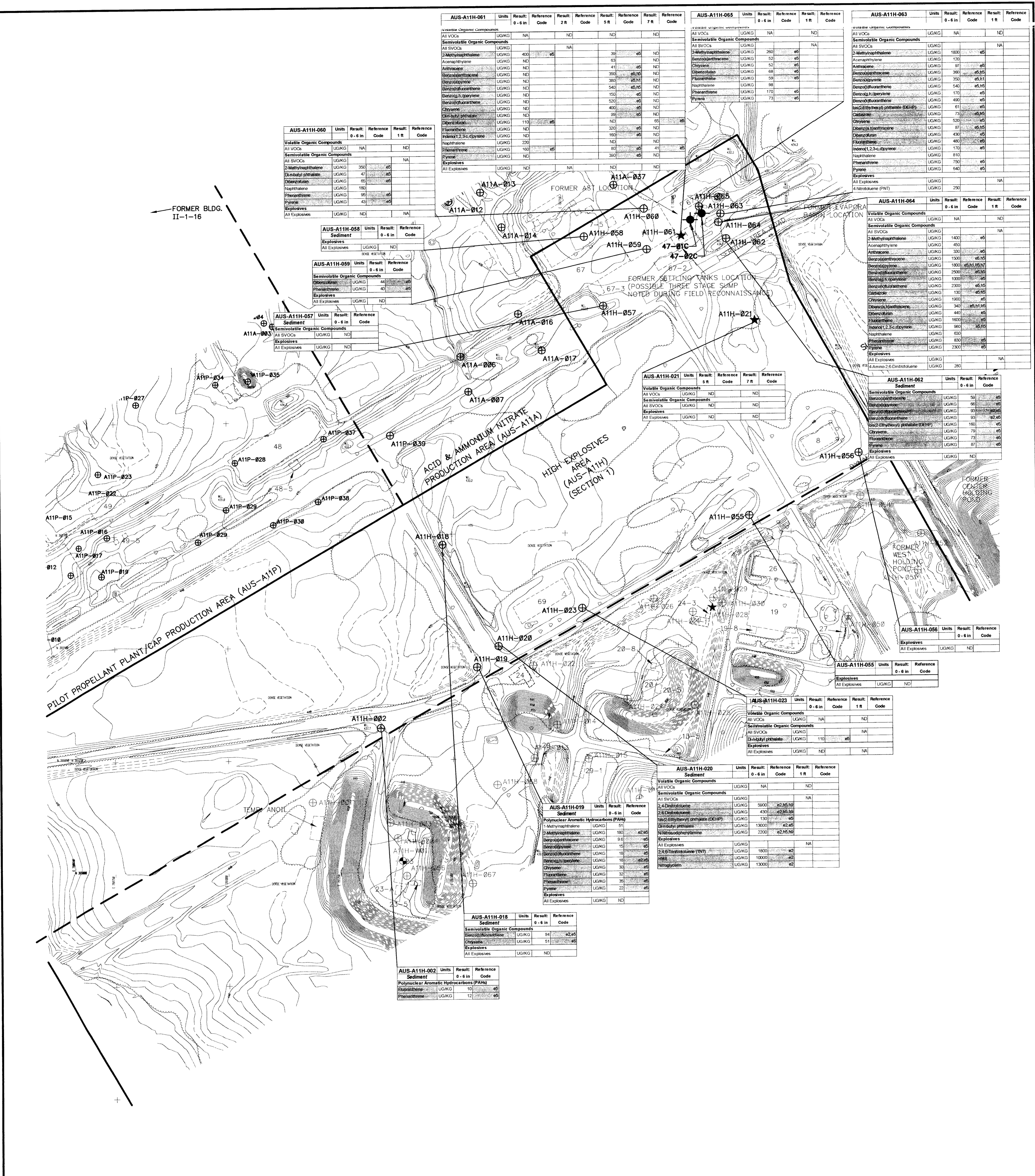
AUS-A11A-016-SW-00 Units Result Screening Codes				
Volatiles Organic Compounds				
All SVOCs	UGL	ND		
Semi-volatile Organic Compounds				
All SVOCs	UGL	ND		
Explosives				
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	180		
Arsenic	UGL	16.2		
Barium	UGL	310		
Boron	UGL	36300	03	03
Calcium	UGL	146000	03	03
Chromium	UGL	720		
Copper	UGL	175000	03	03
Iron	UGL	100		
Magnesium	UGL	83		
Manganese	UGL	100		
Mercury	UGL	0.26	03	03
Potassium	UGL	89		
Sodium	UGL	1900		
Zinc	UGL	46000	03	03
Other Parameters				
Alkalinity, Total (as CaCO3)	MGL	0.91		
Nitrogen, Ammonia (as N)	MGL	0.47	03	03
Nitrogen, Nitrate-Nitrite	MGL	1.8	03	03
Phosphate, Total (as P)	MGL	0.15	03	03
TDS	MGL	417	03	03

AUS-A11A-028-SW-00 Units Result Screening Codes				
Volatiles Organic Compounds				
All SVOCs	UGL	ND		
Semi-volatile Organic Compounds				
All SVOCs	UGL	ND		
Explosives				
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	180		
Arsenic	UGL	16.2		
Barium	UGL	310		
Boron	UGL	36300	03	03
Calcium	UGL	146000	03	03
Chromium	UGL	720		
Copper	UGL	175000	03	03
Iron	UGL	100		
Magnesium	UGL	83		
Manganese	UGL	100		
Mercury	UGL	0.26	03	03
Potassium	UGL	89		
Sodium	UGL	1900		
Zinc	UGL	46000	03	03
Other Parameters				
Alkalinity, Total (as CaCO3)	MGL	1.11		
Nitrogen, Ammonia (as N)	MGL	0.47	03	03
Nitrogen, Nitrate-Nitrite	MGL	1.8	03	03
Phosphate, Total (as P)	MGL	0.15	03	03
TDS	MGL	354	03	03

AUS-A11A-022-SW-00 Units Result Screening Codes				
Volatiles Organic Compounds				
All SVOCs	UGL	ND		
Semi-volatile Organic Compounds				
All SVOCs	UGL	ND		
Explosives				
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	180		
Arsenic	UGL	16.2		
Barium	UGL	310		
Boron	UGL	36300	03	03
Calcium	UGL	146000	03	03
Chromium	UGL	720		
Copper	UGL	175000	03	03
Iron	UGL	100		
Magnesium	UGL	83		
Manganese	UGL	100		
Mercury	UGL	0.26	03	03
Potassium	UGL	89		
Sodium	UGL	1900		
Zinc	UGL	46000	03	03
Other Parameters				
Alkalinity, Total (as CaCO3)	MGL	1.11		
Nitrogen, Ammonia (as N)	MGL	0.47	03	03
Nitrogen, Nitrate-Nitrite	MGL	1.8	03	03
Phosphate, Total (as P)	MGL	0.15	03	03
TDS	MGL	354	03	03

AUS-A11A-026-SW-00 Units Result Screening Codes				
Volatiles Organic Compounds				
All SVOCs	UGL	ND		
Semi-volatile Organic Compounds				
All SVOCs	UGL	ND		
Explosives				
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	820	03	03
Arsenic	UGL	16.2		
Barium	UGL	16.2		
Boron	UGL	36300	03	03
Calcium	UGL	146000	03	03
Chromium	UGL	720		
Copper	UGL	175000	03	03
Iron	UGL	4300	03	03
Magnesium	UGL	15100	03	03
Manganese	UGL	1600		
Mercury	UGL	0.26	03	03
Potassium	UGL	940		
Sodium	UGL	17700	03	03
Zinc	UGL	7.7		
Other Parameters				
Alkalinity, Total (as CaCO3)	MGL	1.91	03	03
Nitrogen, Ammonia (as N)	MGL	0.47	03	03
Nitrogen, Nitrate-Nitrite	MGL	1.8	03	03
Phosphate, Total (as P)	MGL	0.15	03	03
TDS	MGL	460	03	03

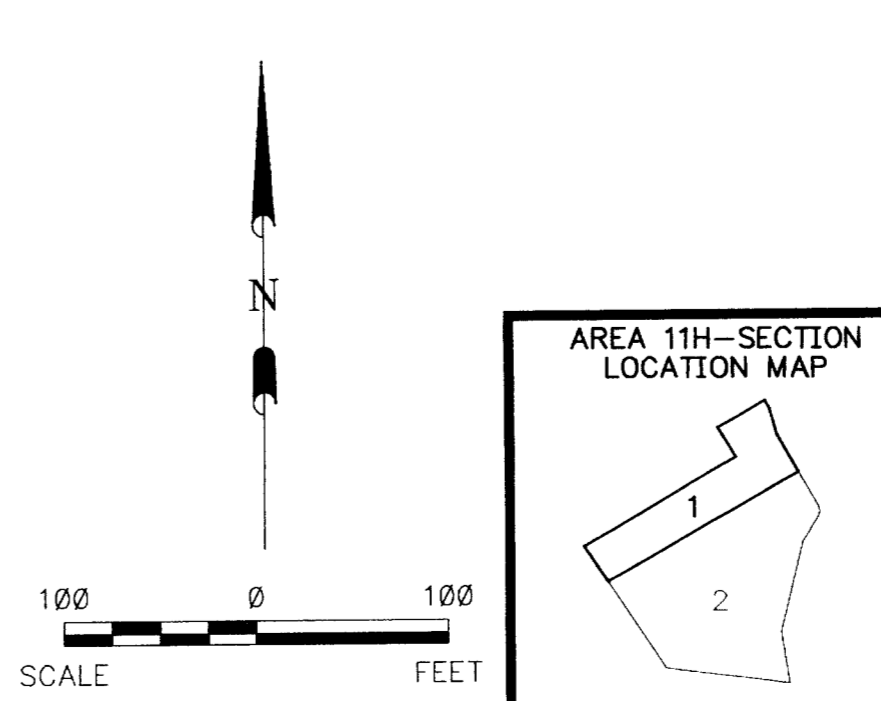
AUS-A11A-028-SW-00 Units Result Screening Codes				
Volatiles Organic Compounds				
All SVOCs	UGL	ND		
Semi-volatile Organic Compounds				
All SVOCs	UGL	ND		
Explosives				
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	2500	03	03
Arsenic	UGL	16.2		
Barium	UGL	79		
Boron	UGL	36300	03	03
Calcium	UGL	127		
Chromium	UGL	127		
Copper	UGL	7.9		
Iron	UGL	4300	03	03
Magnesium	UGL	15100	03	03
Manganese	UGL	1600		
Mercury	UGL	0.26	03	03
Potassium	UGL	940		
Sodium	UGL	17700	03	03
Zinc	UGL	7.7		



- LEGEND**
- ⊕ MONITORING WELL LOCATION
 - ⊕ HAND AUGER LOCATION
 - ★ TEST PIT LOCATION
 - ◆ USEPA 1998 SAMPLE LOCATIONS

- NOTES:**
1. BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT. DASHED OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES BASED ON DRAWINGS PREPARED BY FORMER TENANTS (U.S. POWDER/OLIN). SEE FIGURE 15-3 FOR EXPLANATION OF FORMER STRUCTURES. NOTE THAT U.S. POWDER BUILDING NUMBERS ARE USED TO DESIGNATE ALL STRUCTURES EXCEPT THOSE USED EXCLUSIVELY BY OLIN, WHICH HAVE OLIN BUILDING NUMBERS.
 2. DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
 3. SEDIMENT SAMPLES ARE NOTED AS SUCH IN THE LABEL, UNDERNEATH THE SAMPLE IDENTIFICATION NUMBER.
 4. THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

Screening Reference	Reference Code
AUS Background Soil UTL	b1
Little Green Background Sediment UTL	b2
Little Green Background Surface Water UTL	b3
Ecological Direct Exposure Pathway - TRV - Soil	e1
Ecological Direct Exposure Pathway - TRV - Sediment	e2
Ecological Direct Exposure Pathway - TRV - Surface Water	e3
IEPA General Use Surface Water Quality Agency 1-6c Toxicity	e4
Superfund Chemical Data Matrix Key values (potential bioaccumulators)	e5
USEPA Region IX Industrial Soil PRG - carcinous	b4
USEPA Region IX Industrial Soil PRG - noncarcinous	b5
USEPA Region IX Tap Water PRG - carcinous	b6
USEPA Region IX Tap Water PRG - noncarcinous	b7
USEPA Region IX Maximum Contaminant Level Goal (MCL-G)	b8
USEPA MCL Drinking Water Standards	b9
IEPA TACO Industrial/Commercial Soil Injection	s1
IEPA TACO Construction Worker Soil Injection	s2
IEPA TACO Class 1 Soil Component of Groundwater	s3
IEPA General Use Surface Water Quality Human Health	s4



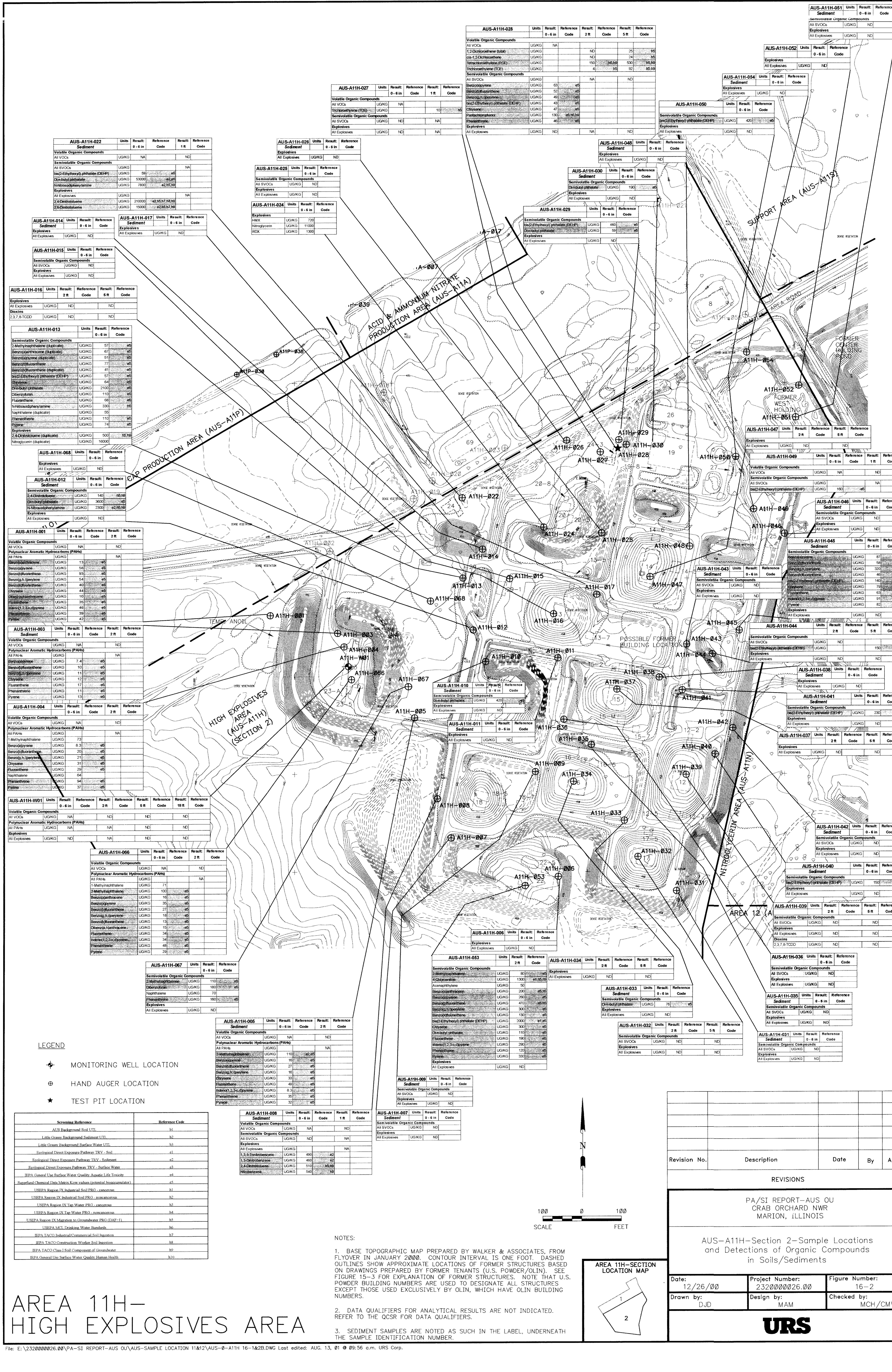
PA/SI REPORT-AUS OU
CRAB ORCHARD NWR
MARION, ILLINOIS

AUS-A11H-Section 1-Sample Locations
and Detections of Organic Compounds
in Soils/Sediments

Date: 12/26/00	Project Number: 232000026.00	Figure Number: 16-1
Drawn by: DJD	Design by: MAM	Checked by: MCH/CMW

URS

AREA 11H-HIGH EXPLOSIVES AREA



AUS-A11H-022	Units	Result	Reference	Result	Reference
Sediment					
Volatile Organic Compounds					
All VOCs					
Semivolatile Organic Compounds					
All SVOCs					
Explosives					
All Explosives					

AUS-A11H-013	Units	Result	Reference
Semivolatile Organic Compounds			
2-Methylanthracene (duplicate)	UG/KG	57	ND
Benzofluoranthene (duplicate)	UG/KG	67	ND
Benzofluoranthene (duplicate)	UG/KG	51	ND
Benzofluoranthene	UG/KG	77	ND
Benzofluoranthene (duplicate)	UG/KG	41	ND
Diethylstilbestrol (DES)	UG/KG	57	ND
Chrysene	UG/KG	64	ND
Diethylstilbestrol	UG/KG	2100	ND
Dibenzofuran	UG/KG	110	ND
Fluoranthene	UG/KG	68	ND
Nitrofluorene	UG/KG	330	ND
Nitrofluorene (duplicate)	UG/KG	55	ND
Phenanthrene	UG/KG	110	ND
Pyrene	UG/KG	74	ND
Explosives			
All Explosives			
2,3,7,8-TCDD			

AUS-A11H-012	Units	Result	Reference
Sediment			
Semivolatile Organic Compounds			
All SVOCs			
Explosives			
All Explosives			

AUS-A11H-001	Units	Result	Reference
Volatile Organic Compounds			
All VOCs			
Semivolatile Organic Compounds			
All SVOCs			
Explosives			
All Explosives			

AUS-A11H-003	Units	Result	Reference
Volatile Organic Compounds			
All VOCs			
Semivolatile Organic Compounds			
All SVOCs			
Explosives			
All Explosives			

AUS-A11H-004	Units	Result	Reference
Volatile Organic Compounds			
All VOCs			
Semivolatile Organic Compounds			
All SVOCs			
Explosives			
All Explosives			

AUS-A11H-006	Units	Result	Reference
Volatile Organic Compounds			
All VOCs			
Semivolatile Organic Compounds			
All SVOCs			
Explosives			
All Explosives			

AUS-A11H-007	Units	Result	Reference
Semivolatile Organic Compounds			
All SVOCs			
Explosives			
All Explosives			

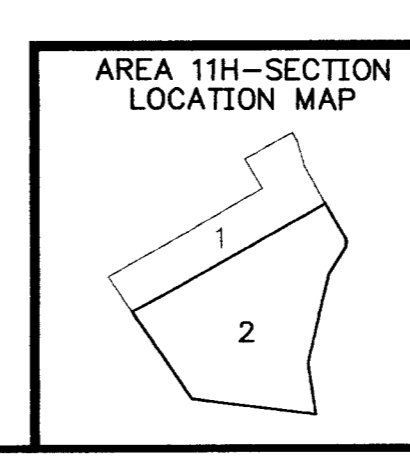
AUS-A11H-005	Units	Result	Reference
Volatile Organic Compounds			
All VOCs			
Semivolatile Organic Compounds			
All SVOCs			
Explosives			
All Explosives			

Screening Reference	Reference Code
AUS Background Soil (LTI)	b1
Little Grass Background Soil (LTI)	b2
Little Grass Background Surface Water (LTI)	b3
Ecological Direct Exposure Pathway TRV - Soil	e1
Ecological Direct Exposure Pathway TRV - Sediment	e2
Ecological Direct Exposure Pathway TRV - Surface Water	e3
RPA General Use Surface Water Quality Aquatic Life Toxicity	g4
Superfund Chemical Data Matrix Risk values (potential bioaccumulation)	e5
USEPA Region IX Industrial Soil PRC - carcinous	h1
USEPA Region IX Industrial Soil PRC - noncarcinous	h2
USEPA Region IX Tap Water PRC - carcinous	h3
USEPA Region IX Tap Water PRC - noncarcinous	h4
USEPA Region IX Migration to Groundwater PRC (DAP-1)	h5
USEPA MCL Drinking Water Standards	h6
RPA TACO Industrial/Commercial Soil Ingestion	h7
RPA TACO Construction Worker Soil Ingestion	h8
RPA TACO Class 1 Soil Component of Groundwater	h9
RPA General Use Surface Water Quality Human Health	h10

AREA 11H-HIGH EXPLOSIVES AREA

NOTES:

- BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLOYER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT. DASHED OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES BASED ON DRAWINGS PREPARED BY FORMER TENANTS (U.S. POWDER/OLIN). SEE FIGURE 15-3 FOR EXPLANATION OF FORMER STRUCTURES. NOTE THAT U.S. POWDER BUILDING NUMBERS ARE USED TO DESIGNATE ALL STRUCTURES EXCEPT THOSE USED EXCLUSIVELY BY OLIN, WHICH HAVE OLIN BUILDING NUMBERS.
- DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
- SEDIMENT SAMPLES ARE NOTED AS SUCH IN THE LABEL, UNDERNEATH THE SAMPLE IDENTIFICATION NUMBER.



Revision No.	Description	Date	By	App.

REVISIONS

PA/SI REPORT-AUS OU CRAB ORCHARD NWR MARION, ILLINOIS

AUS-A11H-Section 2-Sample Locations and Detections of Organic Compounds in Soils/Sediments

Date:	Project Number:	Figure Number:
12/26/00	232000026.00	16-2
Drawn by:	Design by:	Checked by:
DJD	MAM	MCH/CMW



AUS-A11H-058	Units	Result	Reference	AUS-A11H-061	Units	Result	Reference	AUS-A11H-063	Units	Result	Reference	AUS-A11H-064	Units	Result	Reference
Sediment				Sediment				Sediment				Sediment			
0 - 6 in				0 - 6 in				0 - 6 in				0 - 6 in			
Aluminum	MG/KG	18600	b2	Aluminum	MG/KG	9400	2170	Aluminum	MG/KG	8030	14000	Aluminum	MG/KG	13400	b2
Antimony	MG/KG	0.29		Antimony	MG/KG	0.29		Antimony	MG/KG	0.29		Antimony	MG/KG	0.3	
Arsenic	MG/KG	7.2	H1,H5,H7	Arsenic	MG/KG	6.4	H1,H5,H7	Arsenic	MG/KG	6.2	H1,H5,H7	Arsenic	MG/KG	8.06	
Barium	MG/KG	150	H5	Barium	MG/KG	136	H5	Barium	MG/KG	120	H5	Barium	MG/KG	101	H5
Beryllium	MG/KG	0.87	b1	Beryllium	MG/KG	0.26	b1	Beryllium	MG/KG	0.96	b1	Beryllium	MG/KG	0.41	H5
Calcium	MG/KG	3300	b2	Calcium	MG/KG	10500	b1	Calcium	MG/KG	23000	b1	Calcium	MG/KG	6.3	H1,H5,H7
Chromium	MG/KG	24.7	b2,b5	Chromium	MG/KG	12.3	e1,H5	Chromium	MG/KG	15.9	e1,H5	Chromium	MG/KG	0.9	b1
Cobalt	MG/KG	6.6	b2	Cobalt	MG/KG	11.3	6.6	Cobalt	MG/KG	5.2	b1	Cobalt	MG/KG	28.3	b1,e1
Copper	MG/KG	15.4	b2	Copper	MG/KG	17150	e1	Copper	MG/KG	16	b1	Copper	MG/KG	0.63	b1,b5
Iron	MG/KG	26300	b2	Iron	MG/KG	11	2	Iron	MG/KG	24100	b2	Iron	MG/KG	34800	b1
Lead	MG/KG	23.8	b2	Lead	MG/KG	6590	b1	Lead	MG/KG	41	b1	Lead	MG/KG	14.4	e1,H5
Magnesium	MG/KG	2960		Magnesium	MG/KG	12.3	e1	Magnesium	MG/KG	1470	b1	Magnesium	MG/KG	4.9	b1
Manganese	MG/KG	390		Manganese	MG/KG	440	e1	Manganese	MG/KG	309	e1	Manganese	MG/KG	18.6	b1
Mercury	MG/KG	0.071	e5	Mercury	MG/KG	12.3	e1	Mercury	MG/KG	0.081	b1,e5	Mercury	MG/KG	20500	b1,e1
Nickel	MG/KG	23.6	b2,e2,b5	Nickel	MG/KG	469	H5	Nickel	MG/KG	15.9	H5	Nickel	MG/KG	35	b1
Potassium	MG/KG	1190		Potassium	MG/KG	20.9	3.17	Potassium	MG/KG	55.9	b1,e1	Potassium	MG/KG	4280	b1
Sodium	MG/KG	77.9		Sodium	MG/KG	49.7	52.6	Sodium	MG/KG	19.6	H5	Sodium	MG/KG	313	b1
Vanadium	MG/KG	44	b2	Vanadium	MG/KG	20.9	3.17	Vanadium	MG/KG	91.6	H5	Vanadium	MG/KG	0.38	b1,e1,H5
Zinc	MG/KG	71.6	b2	Zinc	MG/KG	49.7	52.6	Zinc	MG/KG	84.1	b1	Zinc	MG/KG	17	H5

AUS-A11H-059	Units	Result	Reference
Sediment			
0 - 6 in			
Aluminum	MG/KG	15000	b2
Antimony	MG/KG	0.3	
Arsenic	MG/KG	6.8	H1,H5,H7
Barium	MG/KG	87.1	H5
Beryllium	MG/KG	0.68	b1
Calcium	MG/KG	4900	b1
Chromium	MG/KG	18.3	e1,H5
Cobalt	MG/KG	10.2	b1
Copper	MG/KG	11.4	b1
Iron	MG/KG	24300	b2
Lead	MG/KG	11.7	b1
Magnesium	MG/KG	2040	b1
Manganese	MG/KG	490	e1
Mercury	MG/KG	0.021	e5
Nickel	MG/KG	19	b1,H5
Potassium	MG/KG	863	b1
Sodium	MG/KG	63.8	
Vanadium	MG/KG	29.1	
Zinc	MG/KG	41.1	

AUS-A11H-057	Units	Result	Reference
Sediment			
0 - 6 in			
Aluminum	MG/KG	16100	b2
Antimony	MG/KG	0.23	
Arsenic	MG/KG	7.6	H1,H5,H7
Barium	MG/KG	770	b2,b5
Beryllium	MG/KG	0.73	b1
Calcium	MG/KG	8300	b2
Chromium	MG/KG	26.1	b2,b5
Cobalt	MG/KG	19.6	b1
Copper	MG/KG	15.7	b1
Iron	MG/KG	21000	b2
Lead	MG/KG	21	b1
Magnesium	MG/KG	4270	b2
Manganese	MG/KG	106	b1
Mercury	MG/KG	0.037	e5
Nickel	MG/KG	21.9	b2,b5
Potassium	MG/KG	850	b1
Sodium	MG/KG	212	
Vanadium	MG/KG	34.4	b2
Zinc	MG/KG	96.2	b2

AUS-A11H-019	Units	Result	Reference
Sediment			
0 - 6 in			
Aluminum	MG/KG	5630	b2
Arsenic	MG/KG	9.4	H1,H5,H7
Barium	MG/KG	85.3	H5
Boron	MG/KG	3.1	
Calcium	MG/KG	5000	b2
Chromium	MG/KG	13.5	H5
Cobalt	MG/KG	7.1	b1
Copper	MG/KG	21.1	b2
Iron	MG/KG	22000	b2
Lead	MG/KG	30.7	b2
Magnesium	MG/KG	2110	b2
Manganese	MG/KG	806	e2
Nickel	MG/KG	19.2	b2,b5
Potassium	MG/KG	14.6	H5
Selenium	MG/KG	1.7	b2,e5,b5
Silver	MG/KG	22	
Vanadium	MG/KG	14.6	b1
Zinc	MG/KG	298	b2,b5

AUS-A11H-020	Units	Result	Reference
Sediment			
0 - 6 in			
Aluminum	MG/KG	9480	
Arsenic	MG/KG	9.7	H1,H5,H7
Barium	MG/KG	106	H5
Boron	MG/KG	2.3	
Calcium	MG/KG	6.6	b2,e2,b5,b5
Chromium	MG/KG	5000	b2
Cobalt	MG/KG	13.5	H5
Copper	MG/KG	6.4	
Iron	MG/KG	10000	
Lead	MG/KG	9.3	
Magnesium	MG/KG	1130	
Manganese	MG/KG	262	
Nickel	MG/KG	7.1	H5
Potassium	MG/KG	320	
Selenium	MG/KG	0.53	e5,H5
Silver	MG/KG	14.6	
Vanadium	MG/KG	14.6	
Zinc	MG/KG	41	

AUS-A11H-002	Units	Result	Reference
Sediment			
0 - 6 in			
Aluminum	MG/KG	11300	b2
Antimony	MG/KG	0.27	
Arsenic	MG/KG	5	H1,H5,H7
Barium	MG/KG	96.5	H5
Beryllium	MG/KG	0.6	b1
Calcium	MG/KG	8470	b2
Chromium	MG/KG	16.5	H5
Cobalt	MG/KG	11.1	b2
Copper	MG/KG	11.4	
Iron	MG/KG	14700	
Lead	MG/KG	13.9	
Magnesium	MG/KG	1820	
Manganese	MG/KG	954	e2
Mercury	MG/KG	0.025	e5
Nickel	MG/KG	14.4	H5
Potassium	MG/KG	702	
Sodium	MG/KG	48.4	
Vanadium	MG/KG	27.2	
Zinc	MG/KG	124	b2,b5

AUS-A11H-021	Units	Result	Reference
Sediment			
0 - 6 in			
Aluminum	MG/KG	8840	9460
Arsenic (duplicate at 0)	MG/KG	14.6	H1,H5,H7
Barium	MG/KG	82.3	H5
Calcium	MG/KG	140	0.25
Chromium	MG/KG	1410	1170
Cobalt (duplicate at 0)	MG/KG	10	e1,H5
Copper	MG/KG	8	NA
Iron (duplicate at 0)	MG/KG	9.5	17.4
Lead (duplicate at 0)	MG/KG	25100	e1
Lead	MG/KG	6.3	30000
Magnesium	MG/KG	1400	1550
Manganese	MG/KG	133	e1
Nickel	MG/KG	8.1	H5
Potassium	MG/KG	303	347
Selenium	MG/KG	0.92	e5,H5
Silver	MG/KG	ND	0.42
Vanadium	MG/KG	26.6	24.6
Zinc	MG/KG	31.2	47.8

AUS-A11H-022	Units	Result	Reference
Sediment			
0 - 6 in			
Aluminum	MG/KG	4990	
Arsenic	MG/KG	3.1	H1,H5,H7
Barium	MG/KG	69.2	
Calcium	MG/KG	5750	b1
Chromium	MG/KG	6.6	e1,H5
Cobalt	MG/KG	3	
Copper	MG/KG	7.6	
Iron	MG/KG	7980	e1
Lead	MG/KG	12.7	b1
Magnesium	MG/KG	1720	b1
Manganese	MG/KG	196	e1
Nickel	MG/KG	6.6	
Potassium	MG/KG	228	
Selenium	MG/KG	0.33	e5,H5
Vanadium	MG/KG	11.5	
Zinc	MG/KG	30.6	

AUS-A11H-023	Units	Result	Reference
Sediment			
0 - 6 in			
Aluminum	MG/KG	4500	
Arsenic	MG/KG	2.8	H1,H5
Barium	MG/KG	69.3	
Calcium	MG/KG	1370	
Chromium	MG/KG	8.5	H5
Cobalt	MG/KG	3.9	
Copper	MG/KG	6.4	
Iron	MG/KG	10000	
Lead	MG/KG	9.3	
Magnesium	MG/KG	1130	
Manganese	MG/KG	262	
Nickel	MG/KG	7.1	H5
Potassium	MG/KG	320	
Selenium	MG/KG	0.53	e5,H5
Silver	MG/KG	14.6	
Vanadium	MG/KG	14.6	
Zinc	MG/KG	41	

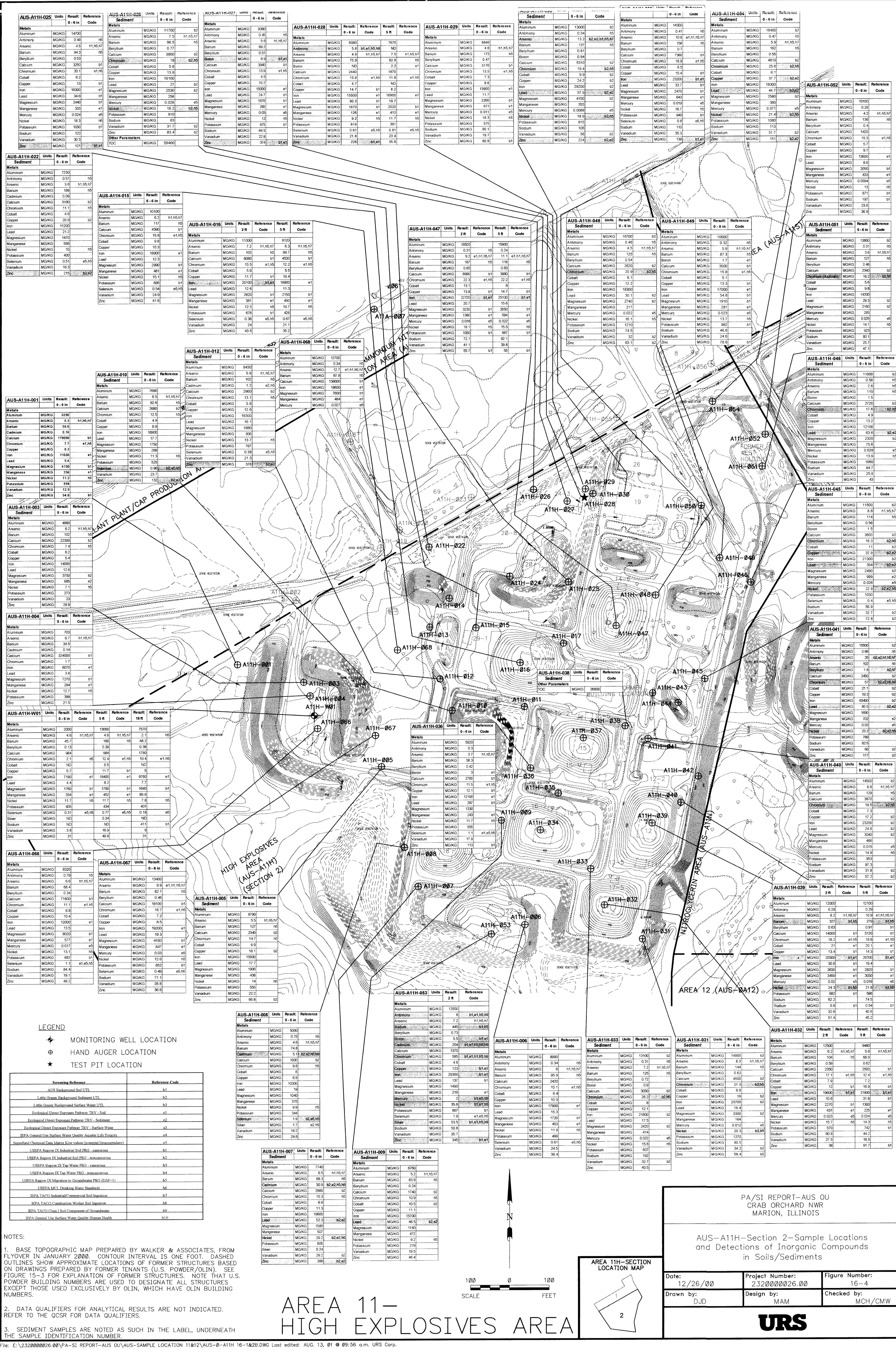
AUS-A11H-018	Units	Result	Reference
Sediment			
0 - 6 in			
Aluminum	MG/KG	4500	
Arsenic	MG/KG	2.8	H1,H5
Barium	MG/KG	69.3	
Calcium	MG/KG	1370	
Chromium	MG/KG	8.5	H5
Cobalt	MG/KG	3.9	
Copper	MG/KG	6.4	
Iron	MG/KG	10000	
Lead	MG/KG	9.3	
Magnesium	MG/KG	1130	
Manganese	MG/KG	262	
Nickel	MG/KG	6.6	
Potassium	MG/KG	228	
Selenium	MG/KG	0.33	e5,H5
Vanadium	MG/KG	11.5	
Zinc	MG/KG	30.6	

AUS-A11H-024	Units	Result	Reference
Sediment			
0 - 6 in			
Aluminum	MG/KG	13400	b2
Antimony	MG/KG	0.3	
Arsenic	MG/KG	5.2	H1,H5,H7
Barium	MG/KG	101	H5
Beryllium	MG/KG	0.43	
Calcium	MG/KG	44100	b2
Chromium	MG/KG	16.2	H5
Cobalt	MG/KG	7.3	
Copper	MG/KG	11	
Iron	MG/KG	14680	
Lead	MG/KG	10.1	
Magnesium	MG/KG	28000	b2
Manganese	MG/KG	455	
Mercury	MG/KG	0.029	e5
Nickel	MG/KG	13.3	H5
Potassium	MG/KG	620	
Sodium	MG/KG	154	
Vanadium	MG/KG	29.8	b2
Zinc	MG/KG	46.1	

AUS-A11H-025	Units	Result	Reference
Sediment			
0 - 6 in			
Aluminum	MG/KG	4990	
Arsenic	MG/KG	3.1	H1,H5,H7
Barium	MG/KG	69.2	
Calcium	MG/KG	5750	b1
Chromium	MG/KG	6.6	e1,H5
Cobalt	MG/KG	3	
Copper	MG/KG	7.6	
Iron	MG/KG	7980	e1
Lead	MG/KG	12.7	b1
Magnesium	MG/KG	1720	b1
Manganese	MG/KG	196	e1
Nickel	MG/KG	6.6	
Potassium	MG/KG	228	
Selenium	MG/KG	0.33	e5,H5
Vanadium	MG/KG	11.5	
Zinc	MG/KG	30.6	

AUS-A11H-026	Units	Result	Reference
Sediment			
0 - 6 in			
Aluminum	MG/KG	13400	b2
Antimony	MG/KG	0.3	
Arsenic	MG/KG	5.2	H1,H5,H7
Barium	MG/KG	101	H5
Beryllium	MG/KG	0.43	
Calcium	MG/KG	44100	b2
Chromium	MG/KG	16.2	H5
Cobalt	MG/KG	7.3	
Copper	MG/KG	11	
Iron	MG/KG	14680	
Lead	MG/KG	10.1	
Magnesium	MG/KG	28000	b2
Manganese	MG/KG	455	
Mercury	MG/KG	0.029	e5
Nickel	MG/KG	13.3	H5
Potassium	MG/KG	620	
Sodium	MG/KG	154	
Vanadium	MG/KG	29.8	b2
Zinc	MG/KG	46.1	

AUS-A11H-027	Units	Result	Reference
Sediment			
0 - 6 in			
Aluminum	MG/KG	4990	
Arsenic	MG/KG	3.1	H1,H5,H7
Barium	MG/KG	69.2	
Calcium	MG/KG	5750	b1
Chromium	MG/KG	6.6	e1,H5
Cobalt	MG/KG	3	
Copper	MG/KG	7.6	
Iron	MG/KG	7980	e



AUS-A11H-025			
Units	Result	Reference	Code
Aluminum	MG/KG	14700	b1
Arsenic	MG/KG	0.46	b1
Barium	MG/KG	15	b1
Beryllium	MG/KG	0.77	b1
Bismuth	MG/KG	34.3	b1
Cadmium	MG/KG	0.53	b1
Calcium	MG/KG	350	b1
Chromium	MG/KG	20.1	e1
Cobalt	MG/KG	6.2	b1
Copper	MG/KG	13	b1
Lead	MG/KG	15300	b1
Magnesium	MG/KG	34.6	b1
Manganese	MG/KG	2440	b1
Mercury	MG/KG	0.024	e5
Nickel	MG/KG	18.3	b5
Potassium	MG/KG	1030	b1
Selenium	MG/KG	12	b1
Sodium	MG/KG	30.3	b1
Vanadium	MG/KG	121	b1
Zinc	MG/KG	121	b1

AUS-A11H-026			
Units	Result	Reference	Code
Aluminum	MG/KG	11700	b1
Arsenic	MG/KG	7.5	b1
Barium	MG/KG	96.5	b1
Beryllium	MG/KG	0.77	b1
Bismuth	MG/KG	34.3	b1
Cadmium	MG/KG	0.53	b1
Calcium	MG/KG	350	b1
Chromium	MG/KG	20.1	e1
Cobalt	MG/KG	6.2	b1
Copper	MG/KG	13	b1
Lead	MG/KG	15300	b1
Magnesium	MG/KG	34.6	b1
Manganese	MG/KG	2440	b1
Mercury	MG/KG	0.024	e5
Nickel	MG/KG	18.3	b5
Potassium	MG/KG	1030	b1
Selenium	MG/KG	12	b1
Sodium	MG/KG	30.3	b1
Vanadium	MG/KG	121	b1
Zinc	MG/KG	121	b1

AUS-A11H-027			
Units	Result	Reference	Code
Aluminum	MG/KG	9000	b1
Arsenic	MG/KG	0.46	b1
Barium	MG/KG	15	b1
Beryllium	MG/KG	0.77	b1
Bismuth	MG/KG	34.3	b1
Cadmium	MG/KG	0.53	b1
Calcium	MG/KG	350	b1
Chromium	MG/KG	20.1	e1
Cobalt	MG/KG	6.2	b1
Copper	MG/KG	13	b1
Lead	MG/KG	15300	b1
Magnesium	MG/KG	34.6	b1
Manganese	MG/KG	2440	b1
Mercury	MG/KG	0.024	e5
Nickel	MG/KG	18.3	b5
Potassium	MG/KG	1030	b1
Selenium	MG/KG	12	b1
Sodium	MG/KG	30.3	b1
Vanadium	MG/KG	121	b1
Zinc	MG/KG	121	b1

AUS-A11H-028			
Units	Result	Reference	Code
Aluminum	MG/KG	9000	b1
Arsenic	MG/KG	0.46	b1
Barium	MG/KG	15	b1
Beryllium	MG/KG	0.77	b1
Bismuth	MG/KG	34.3	b1
Cadmium	MG/KG	0.53	b1
Calcium	MG/KG	350	b1
Chromium	MG/KG	20.1	e1
Cobalt	MG/KG	6.2	b1
Copper	MG/KG	13	b1
Lead	MG/KG	15300	b1
Magnesium	MG/KG	34.6	b1
Manganese	MG/KG	2440	b1
Mercury	MG/KG	0.024	e5
Nickel	MG/KG	18.3	b5
Potassium	MG/KG	1030	b1
Selenium	MG/KG	12	b1
Sodium	MG/KG	30.3	b1
Vanadium	MG/KG	121	b1
Zinc	MG/KG	121	b1

AUS-A11H-029			
Units	Result	Reference	Code
Aluminum	MG/KG	8840	b1
Arsenic	MG/KG	4.6	b1
Barium	MG/KG	137	b1
Beryllium	MG/KG	0.81	b1
Bismuth	MG/KG	0.94	b1
Cadmium	MG/KG	0.53	b1
Calcium	MG/KG	19.4	b1
Chromium	MG/KG	9.9	b1
Cobalt	MG/KG	2.2	b1
Copper	MG/KG	24.2	b1
Lead	MG/KG	28200	b1
Magnesium	MG/KG	37.9	b1
Manganese	MG/KG	350	b1
Mercury	MG/KG	0.088	e5
Nickel	MG/KG	18.9	b1
Potassium	MG/KG	815	b1
Selenium	MG/KG	108	b1
Sodium	MG/KG	36	b1
Vanadium	MG/KG	224	b1
Zinc	MG/KG	80.8	b1

AUS-A11H-030			
Units	Result	Reference	Code
Aluminum	MG/KG	13000	b1
Arsenic	MG/KG	0.34	b1
Barium	MG/KG	137	b1
Beryllium	MG/KG	0.81	b1
Bismuth	MG/KG	0.94	b1
Cadmium	MG/KG	0.53	b1
Calcium	MG/KG	19.4	b1
Chromium	MG/KG	9.9	b1
Cobalt	MG/KG	2.2	b1
Copper	MG/KG	24.2	b1
Lead	MG/KG	28200	b1
Magnesium	MG/KG	37.9	b1
Manganese	MG/KG	350	b1
Mercury	MG/KG	0.088	e5
Nickel	MG/KG	18.9	b1
Potassium	MG/KG	815	b1
Selenium	MG/KG	108	b1
Sodium	MG/KG	36	b1
Vanadium	MG/KG	224	b1
Zinc	MG/KG	80.8	b1

AUS-A11H-031			
Units	Result	Reference	Code
Aluminum	MG/KG	14000	b1
Arsenic	MG/KG	0.41	b1
Barium	MG/KG	10.6	b1
Beryllium	MG/KG	0.7	b1
Bismuth	MG/KG	158	b1
Cadmium	MG/KG	0.77	b1
Calcium	MG/KG	7960	b1
Chromium	MG/KG	18.9	b1
Cobalt	MG/KG	25.6	b1
Copper	MG/KG	15.4	b1
Lead	MG/KG	23000	b1
Magnesium	MG/KG	643	b1
Manganese	MG/KG	0.019	e5
Mercury	MG/KG	16.7	b1
Nickel	MG/KG	940	b1
Potassium	MG/KG	0.87	b1
Selenium	MG/KG	110	b1
Sodium	MG/KG	35.3	b1
Vanadium	MG/KG	130	b1
Zinc	MG/KG	130	b1

AUS-A11H-032			
Units	Result	Reference	Code
Aluminum	MG/KG	16000	b1
Arsenic	MG/KG	0.47	b1
Barium	MG/KG	5.9	b1
Beryllium	MG/KG	162	b1
Bismuth	MG/KG	18.9	b1
Cadmium	MG/KG	40.0	b1
Calcium	MG/KG	25.6	b1
Chromium	MG/KG	6.1	b1
Cobalt	MG/KG	37.7	b1
Copper	MG/KG	19300	b1
Lead	MG/KG	33.7	b1
Magnesium	MG/KG	2470	b1
Manganese	MG/KG	643	b1
Mercury	MG/KG	0.019	e5
Nickel	MG/KG	16.7	b1
Potassium	MG/KG	940	b1
Selenium	MG/KG	110	b1
Sodium	MG/KG	35.3	b1
Vanadium	MG/KG	130	b1
Zinc	MG/KG	130	b1

AUS-A11H-033			
Units	Result	Reference	Code
Aluminum	MG/KG	16000	b1
Arsenic	MG/KG	0.47	b1
Barium	MG/KG	5.9	b1
Beryllium	MG/KG	162	b1
Bismuth	MG/KG	18.9	b1
Cadmium	MG/KG	40.0	b1
Calcium	MG/KG	25.6	b1
Chromium	MG/KG	6.1	b1
Cobalt	MG/KG	37.7	b1
Copper	MG/KG	19300	b1
Lead	MG/KG	33.7	b1
Magnesium	MG/KG	2470	b1
Manganese	MG/KG	643	b1
Mercury	MG/KG	0.019	e5
Nickel	MG/KG	16.7	b1
Potassium	MG/KG	940	b1
Selenium	MG/KG	110	b1
Sodium	MG/KG	35.3	b1
Vanadium	MG/KG	130	b1
Zinc	MG/KG	130	b1

AUS-A11H-034			
Units	Result	Reference	Code
Aluminum	MG/KG	7200	b1
Arsenic	MG/KG	0.51	b1
Barium	MG/KG	188	b1
Beryllium	MG/KG	0.09	b1
Bismuth	MG/KG	3100	b1
Cadmium	MG/KG	11.1	b1
Calcium	MG/KG	4.6	b1
Chromium	MG/KG	20.9	b1
Cobalt	MG/KG	11000	b1
Copper	MG/KG	21.2	b1
Lead	MG/KG	1470	b1
Magnesium	MG/KG	596	b1
Manganese	MG/KG	10	b1
Nickel	MG/KG	30	b1
Potassium	MG/KG	0.91	e5
Selenium	MG/KG	16.3	b1
Sodium	MG/KG	215	b1
Vanadium	MG/KG	121	b1
Zinc	MG/KG	121	b1

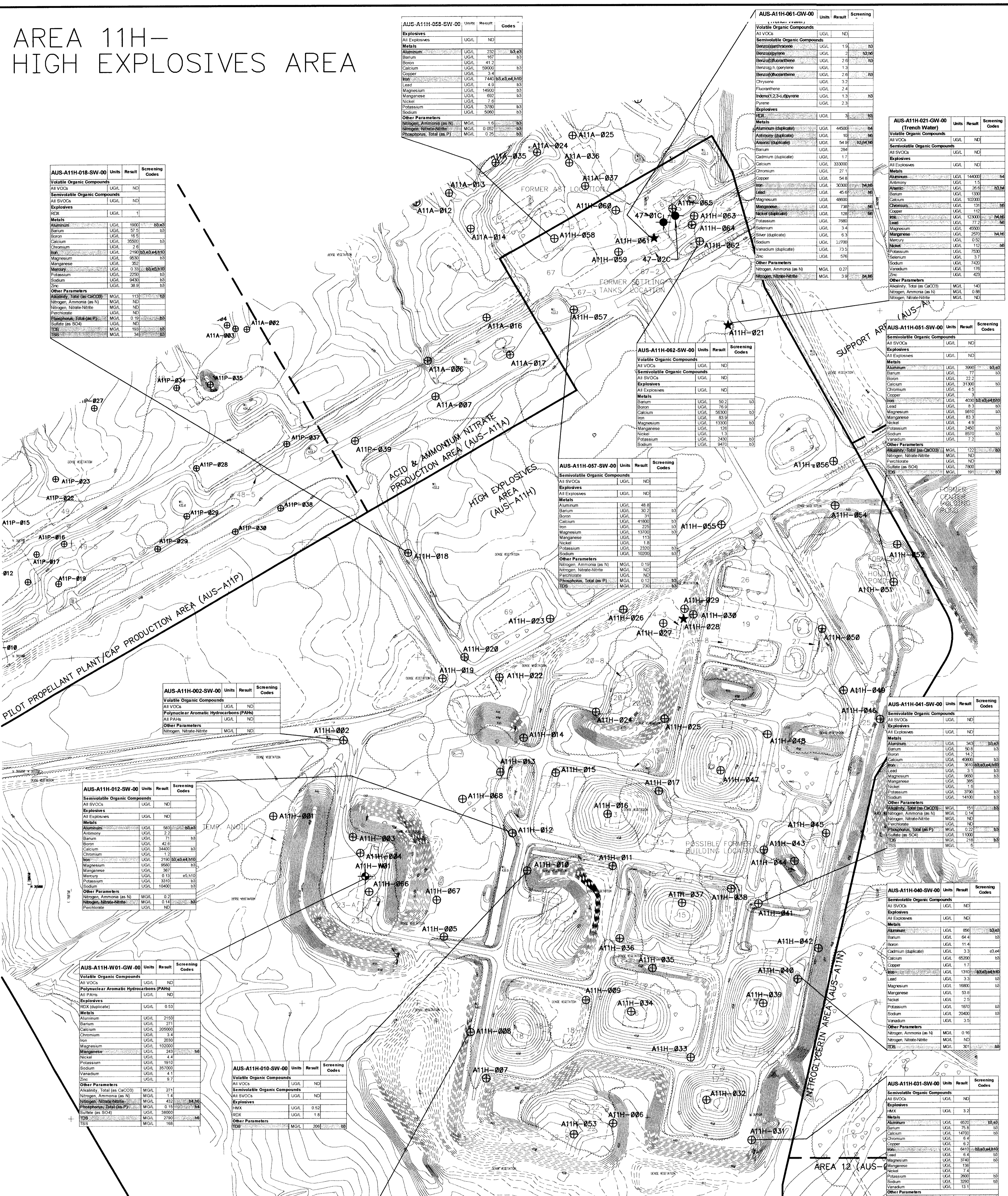
AUS-A11H-035			
Units	Result	Reference	Code
Aluminum	MG/KG	10100	b1
Arsenic	MG/KG	10.3	b1
Barium	MG/KG	137	b1
Beryllium	MG/KG	4300	b1
Bismuth	MG/KG	15.9	b1
Cadmium	MG/KG	9.8	b1
Calcium	MG/KG	117	b1
Chromium	MG/KG	18000	b1
Cobalt	MG/KG	12.3	b1
Copper	MG/KG	2900	b1
Lead	MG/KG	481	b1
Magnesium	MG/KG	11.1	b1
Manganese	MG/KG	696	b1
Mercury	MG/KG	0.54	e5
Nickel	MG/KG	24.9	b1
Potassium	MG/KG	41.6	b1
Selenium	MG/KG	10.3	b1
Sodium	MG/KG	10.3	b1
Vanadium	MG/KG	10.3	b1
Zinc	MG/KG	10.3	b1

AUS-A11H-036			
Units	Result	Reference	Code
Aluminum	MG/KG	11000	b1
Arsenic	MG/KG	7.2	b1
Barium	MG/KG	103	b1
Beryllium	MG/KG	6980	b1
Bismuth	MG/KG	10.5	b1
Cadmium	MG/KG	5.9	b1
Calcium	MG/KG	11.7	b1
Chromium	MG/KG	20100	b1
Cobalt	MG/KG	12.6	b1
Copper	MG/KG	2820	b1
Lead	MG/KG	381	b1
Magnesium	MG/KG	11.7	b1
Manganese	MG/KG	978	b1
Mercury	MG/KG	0.36	e5
Nickel	MG/KG	24	b1
Potassium	MG/KG	43.5	b1
Selenium	MG/KG	10.3	b1
Sodium	MG/KG	10.3	b1
Vanadium	MG/KG	10.3	b1
Zinc	MG/KG	10.3	b1

AUS-A11H-037			
Units	Result	Reference	Code
Aluminum	MG/KG	12700	b1
Arsenic	MG/KG	0.34	b1
Barium	MG/KG	12.7	b1
Beryllium	MG/KG	87.8	b1
Bismuth	MG/KG	19000	b1
Cadmium	MG/KG	7600	b1
Calcium	MG/KG	484	b1
Chromium	MG/KG	0.077	e5
Cobalt	MG/KG	12700	b1
Copper	MG/KG	0.34	b1
Lead	MG/KG	12.7	b1
Magnesium	MG/KG	87.8	b1
Manganese	MG/KG	19000	b1
Mercury	MG/KG	7600	b1
Nickel	MG/KG	484	b1
Potassium	MG/KG	0.077	e5
Selenium	MG/KG	12700	b1
Sodium	MG/KG	0.34	b1
Vanadium	MG/KG	12.7	b1
Zinc	MG/KG	12.7	b1

AUS-A11H-038			
Units	Result	Reference	Code
Aluminum	MG/KG	8430	b1
Arsenic	MG/KG	10.3	b1
Barium	MG/KG	102</	

AREA 11H- HIGH EXPLOSIVES AREA



LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊙ HAND AUGER LOCATION
- ★ TEST PIT LOCATION
- ◆ USEPA 1998 SAMPLE LOCATIONS

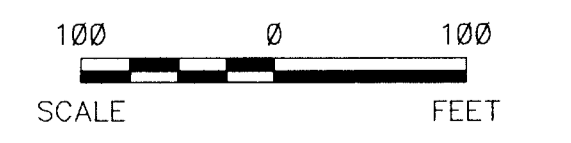
Screening Reference	Reference Code
AUS Background Soil LTT	B1
1 inch Grassy Background Sediment LTT	B2
1 inch Grassy Background Surface Water LTT	B3
Ecological Direct Exposure Pathway TRV - Soil	E1
Ecological Direct Exposure Pathway TRV - Sediment	E2
Ecological Direct Exposure Pathway TRV - Surface Water	E3
IEPA General Use Surface Water Quality Aquatic Life Toxicity	G1
Superfund Chemical Data Matrix Key values (potential bioaccumulation)	S1
USEPA Region IX Industrial Soil PRG - cancerous	I1
USEPA Region IX Industrial Soil PRG - non-cancerous	I2
USEPA Region IX Tap Water PRG - cancerous	T1
USEPA Region IX Tap Water PRG - non-cancerous	T2
USEPA Region IX Migration to Groundwater PRG (DAF-1)	M1
USEPA MCL Drinking Water Standards	D1
IEPA TACO Industrial/Commercial Soil Ingestion	C1
IEPA TACO Construction Worker Soil Ingestion	C2
IEPA TACO Class I Soil Component of Groundwater	G1
IEPA General Use Surface Water Quality Human Health	H1

AUS-A11H-008-SW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UG/L	ND	
Semivolatile Organic Compounds			
All SVOCs	UG/L	ND	
Explosives			
All Explosives	UG/L	ND	
Metals			
Aluminum	UG/L	430	B3, B5
Barium	UG/L	53.3	B3
Boron	UG/L	32.8	B3
Calcium	UG/L	3400	B3
Chromium	UG/L	0.96	B3
Copper	UG/L	290	B3, B5, B6, B10
Iron	UG/L	1.7	B3
Magnesium	UG/L	960	B3
Manganese	UG/L	510	B3
Mercury	UG/L	0.23	B5, B6, B10
Nickel	UG/L	340	B3
Potassium	UG/L	960	B3
Sodium	UG/L	960	B3
Vanadium	UG/L	1.7	B3
Zinc	UG/L	9.7	B3
Other Parameters			
Alkalinity, Total (as CaCO3)	MG/L	271	
Nitrogen, Ammonia (as N)	MG/L	1.4	
Nitrogen, Nitrate-Nitrite	MG/L	432	M, H, N
Phosphorus, Total (as P)	MG/L	0.15	B4
Sulfate (as SO4)	MG/L	8000	
TDS	MG/L	2780	B6
TSS	MG/L	168	B3

AUS-A11H-010-SW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UG/L	ND	
Semivolatile Organic Compounds			
All SVOCs	UG/L	ND	
Explosives			
All Explosives	UG/L	ND	
Metals			
Aluminum	UG/L	430	B3, B5
Barium	UG/L	53.3	B3
Boron	UG/L	32.8	B3
Calcium	UG/L	3400	B3
Chromium	UG/L	0.96	B3
Copper	UG/L	290	B3, B5, B6, B10
Iron	UG/L	1.7	B3
Magnesium	UG/L	960	B3
Manganese	UG/L	510	B3
Mercury	UG/L	0.23	B5, B6, B10
Nickel	UG/L	340	B3
Potassium	UG/L	960	B3
Sodium	UG/L	960	B3
Vanadium	UG/L	1.7	B3
Zinc	UG/L	9.7	B3
Other Parameters			
Alkalinity, Total (as CaCO3)	MG/L	271	
Nitrogen, Ammonia (as N)	MG/L	1.4	
Nitrogen, Nitrate-Nitrite	MG/L	432	M, H, N
Phosphorus, Total (as P)	MG/L	0.15	B4
Sulfate (as SO4)	MG/L	8000	
TDS	MG/L	2780	B6
TSS	MG/L	168	B3

NOTES:

- BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLOYER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT. DASHED OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES BASED ON DRAWINGS PREPARED BY FORMER TENANTS (U.S. POWDER/OLIN). SEE FIGURE 15-3 FOR EXPLANATION OF FORMER STRUCTURES. NOTE THAT U.S. POWDER BUILDING NUMBERS ARE USED TO DESIGNATE ALL STRUCTURES EXCEPT THOSE USED EXCLUSIVELY BY OLIN, WHICH HAVE OLIN BUILDING NUMBERS.
- DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
- THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.



AUS-A11H-061-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UG/L	ND	
Semivolatile Organic Compounds			
All SVOCs	UG/L	ND	
Explosives			
All Explosives	UG/L	ND	
Metals			
Aluminum	UG/L	4400	B3
Barium	UG/L	10	B3
Boron	UG/L	54.9	B3, B5, B6
Calcium	UG/L	1.7	B3
Chromium	UG/L	33000	B3
Copper	UG/L	27.1	B3
Iron	UG/L	54.8	B3
Lead	UG/L	3000	B3, B5, B6
Magnesium	UG/L	4900	B3
Manganese	UG/L	730	B3
Nickel	UG/L	138	B3
Potassium	UG/L	780	B3
Silver	UG/L	3.4	B3
Sodium	UG/L	6.3	B3
Sulfur	UG/L	2.77	B3
Vanadium	UG/L	73.5	B3
Zinc	UG/L	576	B3
Other Parameters			
Nitrogen, Ammonia (as N)	MG/L	0.27	
Nitrogen, Nitrate-Nitrite	MG/L	3.9	B4, B6

AUS-A11H-021-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UG/L	ND	
Semivolatile Organic Compounds			
All SVOCs	UG/L	ND	
Explosives			
All Explosives	UG/L	ND	
Metals			
Aluminum	UG/L	14400	B4
Barium	UG/L	1.4	B3
Boron	UG/L	26.6	B3, B6
Calcium	UG/L	1000	B3
Chromium	UG/L	131	B3
Copper	UG/L	12300	B4, B6
Iron	UG/L	77.2	B3
Lead	UG/L	4900	B3
Magnesium	UG/L	2075	B3
Manganese	UG/L	0.52	B3
Nickel	UG/L	112	B3
Potassium	UG/L	7500	B3
Sodium	UG/L	7400	B3
Sulfur	UG/L	1760	B3
Zinc	UG/L	425	B3
Other Parameters			
Alkalinity, Total (as CaCO3)	MG/L	140	
Nitrogen, Ammonia (as N)	MG/L	0.86	
Nitrogen, Nitrate-Nitrite	MG/L	ND	

AUS-A11H-051-SW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UG/L	ND	
Semivolatile Organic Compounds			
All SVOCs	UG/L	ND	
Explosives			
All Explosives	UG/L	ND	
Metals			
Aluminum	UG/L	3900	B3, B5
Barium	UG/L	77	B3
Boron	UG/L	22.2	B3
Calcium	UG/L	3100	B3
Chromium	UG/L	4.5	B3
Copper	UG/L	4000	B3, B5, B6, B10
Iron	UG/L	8.3	B3
Lead	UG/L	9870	B3
Magnesium	UG/L	83	B3
Manganese	UG/L	4.9	B3
Nickel	UG/L	2400	B3
Potassium	UG/L	1570	B3
Sodium	UG/L	7.2	B3
Vanadium	UG/L	123	B3
Zinc	UG/L	191	B3
Other Parameters			
Alkalinity, Total (as CaCO3)	MG/L	123	B3
Nitrogen, Ammonia (as N)	MG/L	ND	
Nitrogen, Nitrate-Nitrite	MG/L	ND	
Phosphorus, Total (as P)	MG/L	7800	B3
Sulfate (as SO4)	MG/L	191	B3
TDS	MG/L	6	B3

AUS-A11H-041-SW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UG/L	ND	
Semivolatile Organic Compounds			
All SVOCs	UG/L	ND	
Explosives			
All Explosives	UG/L	ND	
Metals			
Aluminum	UG/L	343	B3, B5
Barium	UG/L	59.6	B3
Boron	UG/L	14.2	B3
Calcium	UG/L	4900	B3
Chromium	UG/L	3510	B3, B5, B6, B10
Copper	UG/L	3.1	B3
Iron	UG/L	960	B3
Magnesium	UG/L	960	B3
Manganese	UG/L	960	B3
Nickel	UG/L	1.6	B3
Potassium	UG/L	3700	B3
Sodium	UG/L	14100	B3
Vanadium	UG/L	1.7	B3
Zinc	UG/L	151	B3
Other Parameters			
Alkalinity, Total (as CaCO3)	MG/L	151	B3
Nitrogen, Ammonia (as N)	MG/L	0.14	
Nitrogen, Nitrate-Nitrite	MG/L	ND	
Phosphorus, Total (as P)	MG/L	0.22	B3
Sulfate (as SO4)	MG/L	219	B3
TDS	MG/L	6	B3

AUS-A11H-031-SW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UG/L	ND	
Semivolatile Organic Compounds			
All SVOCs	UG/L	ND	
Explosives			
All Explosives	UG/L	3.2	B3
Metals			
Aluminum	UG/L	6500	B3, B5
Barium	UG/L	75.8	B3
Boron	UG/L	14.4	B3
Calcium	UG/L	14700	B3
Chromium	UG/L	1.4	B3
Copper	UG/L	6.2	B3
Iron	UG/L	6410	B3, B5, B6, B10
Lead	UG/L	158	B3
Magnesium	UG/L	3740	B3
Manganese	UG/L	1.4	B3
Nickel	UG/L	2.4	B3
Potassium	UG/L	2800	B3
Sodium	UG/L	3260	B3
Vanadium	UG/L	13.1	B3
Zinc	UG/L	1.2	B3
Other Parameters			
Nitrogen, Ammonia (as N)	MG/L	1.2	B3
Nitrogen, Nitrate-Nitrite	MG/L	0.062	B3
Phosphorus, Total (as P)	MG/L	1.63	B3
Sulfate (as SO4)	MG/L	8500	B3
TDS	MG/L	151	B3, B5, B6, B10

Revision No.	Description	Date	By	App.

REVISIONS

PA/SI REPORT-AUS OU
CRAB ORCHARD NWR
MARION, ILLINOIS

AUS-A11H Sample Locations and
Detections in Surface Water, Trench
Water and Groundwater

Date:	12/27/00	Project Number:	232000026.00	Figure Number:	16-5
Drawn by:	DJD	Design by:	MAM	Checked by:	MCH/CMW

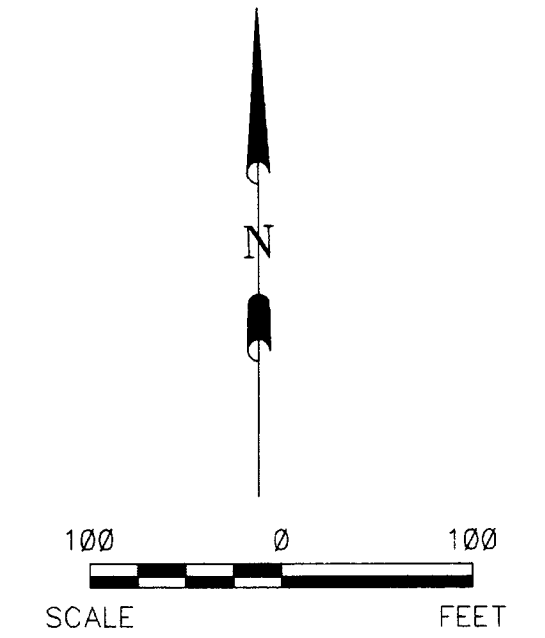
URS



LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊕ HAND AUGER LOCATION
- ◇ POSSIBLE FORMER TRENCH LOCATION

Screening Reference	Reference Code
AUS Background Soil (U)	B1
1 mile Down Background Surface Water (U)	B2
1 mile Down Background Surface Water (U)	B3
Ecological Direct Exposure Pathway (U) - Soil	e1
Ecological Direct Exposure Pathway (U) - Surface Water	e2
Ecological Direct Exposure Pathway (U) - Sediment	e3
Ecological Direct Exposure Pathway (U) - Surface Water	e4
IEPA General Use Surface Water Quality Analytic Life Toxicity	e5
Superfund Chemical Data Matrix Key values (potential bioaccumulation)	e6
USEPA Region IV Industrial Soil PRG - carcinous	B4
USEPA Region IV Industrial Soil PRG - noncarcinous	B5
USEPA Region IX Tap Water PRG - carcinous	B6
USEPA Region IX Tap Water PRG - noncarcinous	B7
USEPA Region IX Migration to Groundwater PRG (MAG-1)	B8
USEPA MCL Drinking Water Standards	B9
IEPA TACO Industrial/Commercial Soil Ingestion	B10
IEPA TACO Construction Worker Soil Ingestion	B11
IEPA TACO Class I Soil Component of Groundwater	B12
IEPA General Use Surface Water Quality Human Health	B13

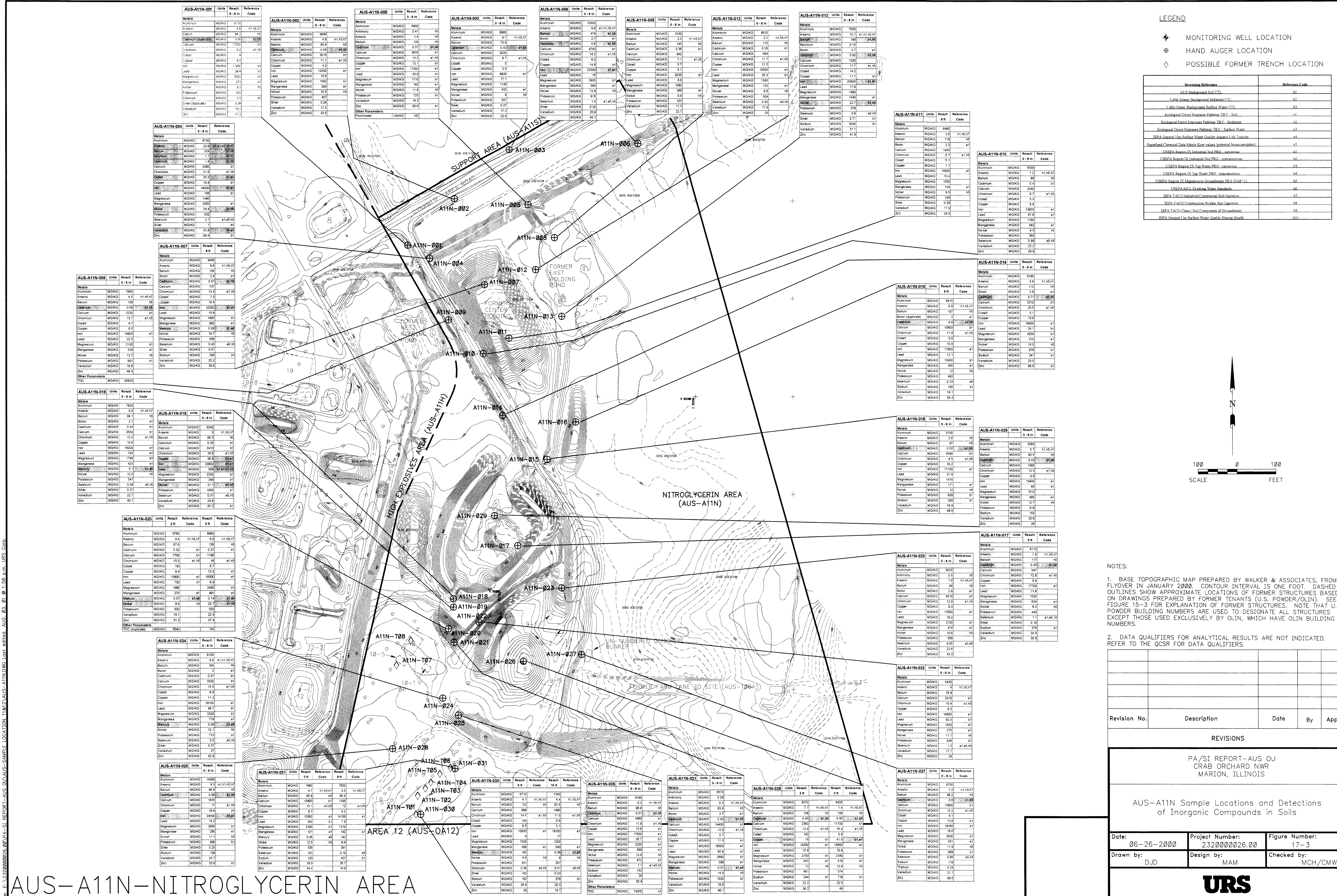


NOTES:

1. BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT. DASHED OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES BASED ON DRAWINGS PREPARED BY FORMER TENANTS (U.S. POWDER/OLIN). SEE FIGURE 15-3 FOR EXPLANATION OF FORMER STRUCTURES. NOTE THAT U.S. POWDER BUILDING NUMBERS ARE USED TO DESIGNATE ALL STRUCTURES EXCEPT THOSE USED EXCLUSIVELY BY OLIN, WHICH HAVE OLIN BUILDING NUMBERS.
2. DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
3. THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

Revision No.	Description	Date	By	App.	
REVISIONS					
PA/SI REPORT-AUS OU CRAB ORCHARD NWR MARION, ILLINOIS					
AUS-A11N Sample Locations and Detections of Organic Compounds in Soils					
Date:	06-26-2000	Project Number:	232000026.00	Figure Number:	17-2
Drawn by:	DJD	Design by:	MAM	Checked by:	MCH/CMW
URS					

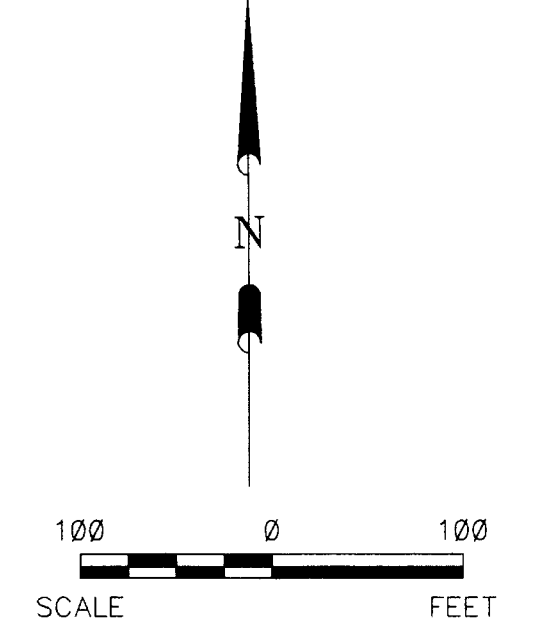
AUS-A11N NITROGLYCERIN AREA



LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊕ HAND AUGER LOCATION
- ◇ POSSIBLE FORMER TRENCH LOCATION

Screening Reference	Reference Code
AUS Background Soil LTL	b1
Little Green Background Sediment LTL	b2
Little Green Background Surface Water LTL	b3
Ecological Direct Exposure Pathway: TRV - Soil	c1
Ecological Direct Exposure Pathway: TRV - Sediment	c2
Ecological Direct Exposure Pathway: TRV - Surface Water	c3
IEPA General Use Surface Water Quality Agency Life Expectancy	d4
Superfund Chemical Data Matrix Key values (general background)	e5
USEPA Region IX Industrial Soil PFOA Concentration	b1
USEPA Region IX Industrial Soil PFOA Concentration	b2
USEPA Region IX Tap Water PFOA Concentration	b3
USEPA Region IX Tap Water PFOA Concentration	b4
USEPA Region IX Tap Water PFOA Concentration	b5
USEPA Region IX Groundwater PFOA (PAF-1)	b6
USEPA MCL Drinking Water Standards	b7
IEPA TACO Industrial/Commercial Soil Ingestion	b7
IEPA TACO Commercial/Residential Soil Ingestion	b8
IEPA TACO Class I Soil Component of Groundwater	b9
IEPA General Use Surface Water Quality Human Health	b10



NOTES:

- BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT. DASHED OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES BASED ON DRAWINGS PREPARED BY FORMER TENANTS (U.S. POWDER/OLIN). SEE FIGURE 15-3 FOR EXPLANATION OF FORMER STRUCTURES. NOTE THAT U.S. POWDER BUILDING NUMBERS ARE USED TO DESIGNATE ALL STRUCTURES EXCEPT THOSE USED EXCLUSIVELY BY OLIN, WHICH HAVE OLIN BUILDING NUMBERS.
- DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.

Revision No.	Description	Date	By	App.

REVISIONS

PA/SI REPORT-AUS OU
CRAB ORCHARD NWR
MARION, ILLINOIS

**AUS-A11N Sample Locations and Detections
of Inorganic Compounds in Soils**

Date: 06-26-2000	Project Number: 232000026.00	Figure Number: 17-3
Drawn by: DJD	Design by: MAM	Checked by: MCH/CMW

AUS-A11N-NITROGLYCERIN AREA

Fig. E-17-3 (02/26/2000) (PA-SI) REPORT-AUS OU-AUS-SAMPLE LOCATION MAP-AUS-A11N-DWG. last edited: AUG. 03, @ 1:58 p.m. URS CORP.

LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊕ HAND AUGER LOCATION
- ◇ POSSIBLE FORMER TRENCH LOCATION

AUS-A11N-001-SW-00				
Explosives	Units	Result	Screening	Code
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	1600	03	03
Barium	UGL	36.2	03	03
Boron	UGL	15	03	03
Calcium	UGL	3400	03	03
Chromium	UGL	15	03	03
Copper	UGL	1750	03	03
Lead	UGL	4.1	03	03
Magnesium	UGL	5200	03	03
Manganese	UGL	44	03	03
Nickel	UGL	3330	03	03
Iron	UGL	1000	03	03
Zinc	UGL	1000	03	03
Other Parameters				
Acidity, Total (as CaCO ₃)	MGL	100	03	03
Nitrogen, Nitrate-Nitrite	MGL	ND		
Sulfate (as SO ₄)	UGL	1000	03	03

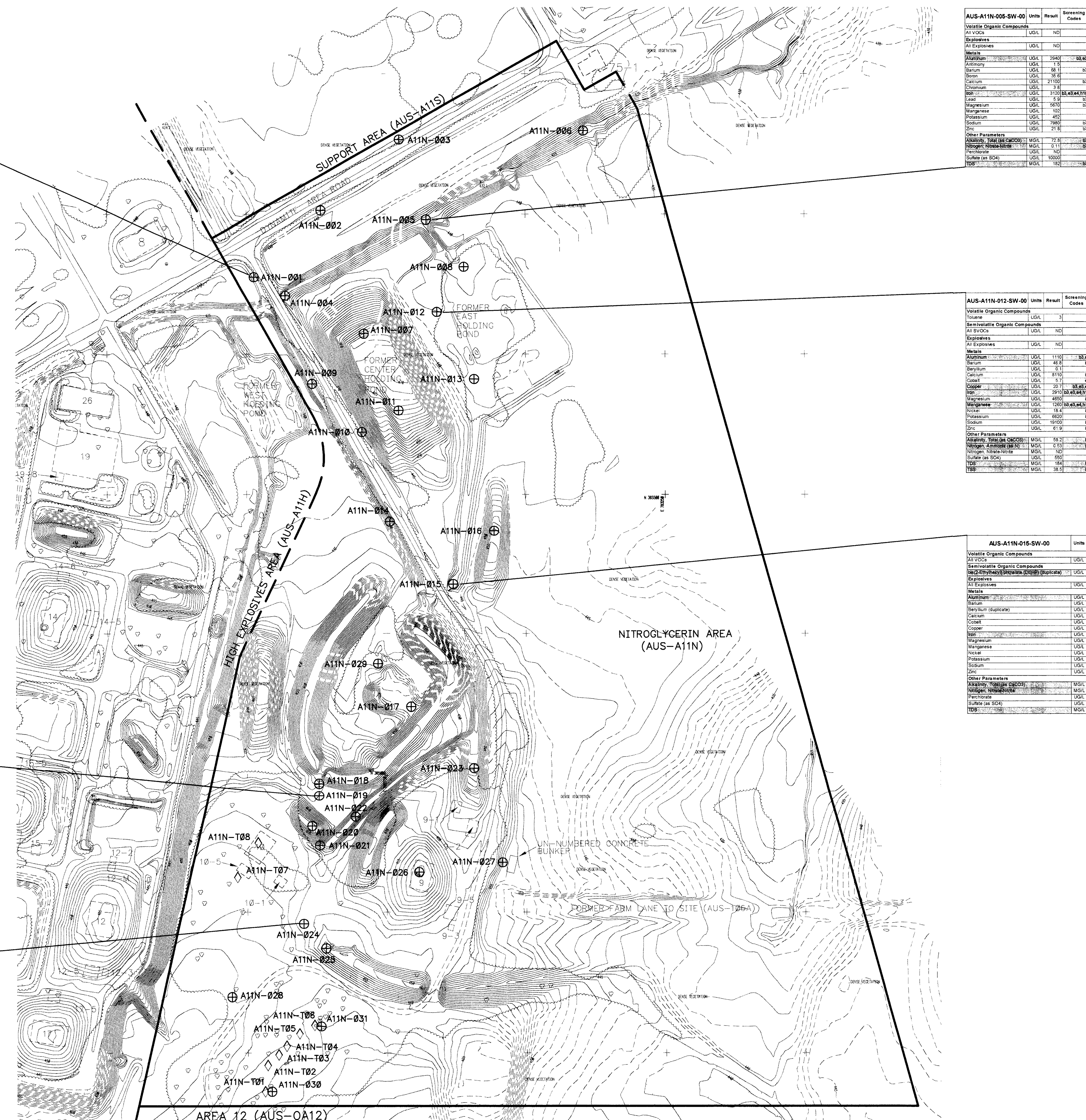
AUS-A11N-005-SW-00				
Explosives	Units	Result	Screening	Code
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	2540	03	03
Barium	UGL	12	03	03
Boron	UGL	88.1	03	03
Calcium	UGL	35.6	03	03
Chromium	UGL	21100	03	03
Copper	UGL	3300	03	03
Lead	UGL	8.9	03	03
Magnesium	UGL	2630	03	03
Manganese	UGL	102	03	03
Nickel	UGL	400	03	03
Potassium	UGL	7800	03	03
Sodium	UGL	7800	03	03
Zinc	UGL	21.8	03	03
Other Parameters				
Acidity, Total (as CaCO ₃)	MGL	70.8	03	03
Nitrogen, Nitrate-Nitrite	MGL	0.11	03	03
Potassium	UGL	ND		
Sulfate (as SO ₄)	UGL	1000	03	03
TDS	MGL	182	03	03

AUS-A11N-019-SW-00				
Explosives	Units	Result	Screening	Code
All Explosives	UGL	0.68		
Metals				
Aluminum	UGL	6200	03	03
Barium	UGL	180	03	03
Calcium	UGL	3900	03	03
Chromium	UGL	7.5	03	03
Copper	UGL	6.3	03	03
Lead	UGL	17	03	03
Magnesium	UGL	1100	03	03
Manganese	UGL	93	03	03
Nickel	UGL	810	03	03
Potassium	UGL	779	03	03
Sodium	UGL	14	03	03
Zinc	UGL	7600	03	03
Other Parameters				
Acidity, Total (as CaCO ₃)	MGL	110	03	03
Nitrogen, Nitrate-Nitrite	MGL	0.05	03	03
Nitrogen, Nitrate-Nitrite	MGL	0.05	03	03
Sulfate (as SO ₄)	UGL	69	03	03
TDS	MGL	164	03	03
TSS	MGL	35.9	03	03

AUS-A11N-012-SW-00				
Explosives	Units	Result	Screening	Code
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	1110	03	03
Barium	UGL	48.8	03	03
Boron	UGL	8.1	03	03
Calcium	UGL	5110	03	03
Chromium	UGL	9.7	03	03
Copper	UGL	20.7	03	03
Lead	UGL	2910	03	03
Magnesium	UGL	4600	03	03
Manganese	UGL	1260	03	03
Nickel	UGL	18.4	03	03
Potassium	UGL	6600	03	03
Sodium	UGL	19100	03	03
Zinc	UGL	61.9	03	03
Other Parameters				
Acidity, Total (as CaCO ₃)	MGL	56.7	03	03
Nitrogen, Ammonia (as N)	MGL	0.53	03	03
Nitrogen, Nitrate-Nitrite	MGL	ND		
Sulfate (as SO ₄)	UGL	590	03	03
TDS	MGL	184	03	03
TSS	MGL	18.5	03	03

AUS-A11N-015-SW-00				
Explosives	Units	Result	Screening	Code
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	2900	03	03
Barium	UGL	135	03	03
Beryllium (duplicate)	UGL	0.13	03	03
Calcium	UGL	6600	03	03
Copper	UGL	3.6	03	03
Copper	UGL	6.5	03	03
Lead	UGL	4480	03	03
Magnesium	UGL	18600	03	03
Manganese	UGL	375	03	03
Nickel	UGL	9.2	03	03
Potassium	UGL	8300	03	03
Sodium	UGL	13600	03	03
Zinc	UGL	38.6	03	03
Other Parameters				
Acidity, Total (as CaCO ₃)	MGL	210	03	03
Nitrogen, Nitrate-Nitrite	MGL	0.16	03	03
Potassium	UGL	ND		
Sulfate (as SO ₄)	UGL	5800	03	03
TDS	MGL	301	03	03

AUS-A11N-024-TK-00				
Explosives	Units	Result	Screening	Code
All Explosives	UGL	ND		
Metals				
Aluminum	UGL	2960	03	03
Barium	UGL	64.3	03	03
Boron	UGL	2690	03	03
Calcium	UGL	2.4	03	03
Copper	UGL	7.5	03	03
Lead	UGL	30	03	03
Magnesium	UGL	19	03	03
Manganese	UGL	690	03	03
Nickel	UGL	137	03	03
Potassium	UGL	3400	03	03
Other Parameters				
Acidity, Total (as CaCO ₃)	MGL	84	03	03
Nitrogen, Nitrate-Nitrite	MGL	0.26	03	03
Sulfate (as SO ₄)	UGL	8900	03	03



- NOTES:
- BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT. DASHED OUTLINES SHOW APPROXIMATE LOCATION OF FORMER STRUCTURES BASED ON DRAWINGS PREPARED BY FORMER TENANTS (U.S. POWDER/OLIN). SEE FIGURE 15-3 FOR EXPLANATION OF FORMER STRUCTURES. NOTE THAT U.S. POWDER BUILDING NUMBERS ARE USED TO DESIGNATE ALL STRUCTURES EXCEPT THOSE USED EXCLUSIVELY BY OLIN, WHICH HAVE OLIN BUILDING NUMBERS.
 - DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
 - THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

Revision No.	Description	Date	By	App.
REVISIONS				
PA/SI REPORT-AUS OU CRAB ORCHARD NWR MARION, ILLINOIS				
AUS-A11N Sample Locations and Detections in Surface Water				
Date: 06-26-2000	Project Number: 232000026.00	Figure Number: 17-4		
Drawn by: DJD	Design by: MAM	Checked by: MCH/CMW		

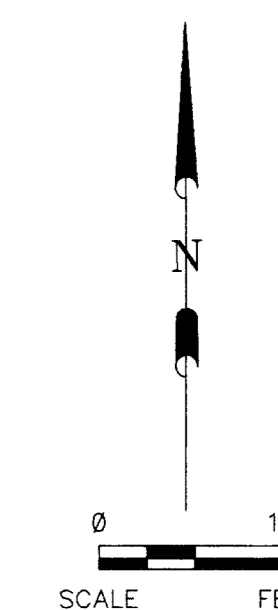


AUS-A11N-NITROGLYCERIN AREA

LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊕ HAND AUGER LOCATION
- ⊕ USEPA 1998 SAMPLE LOCATIONS

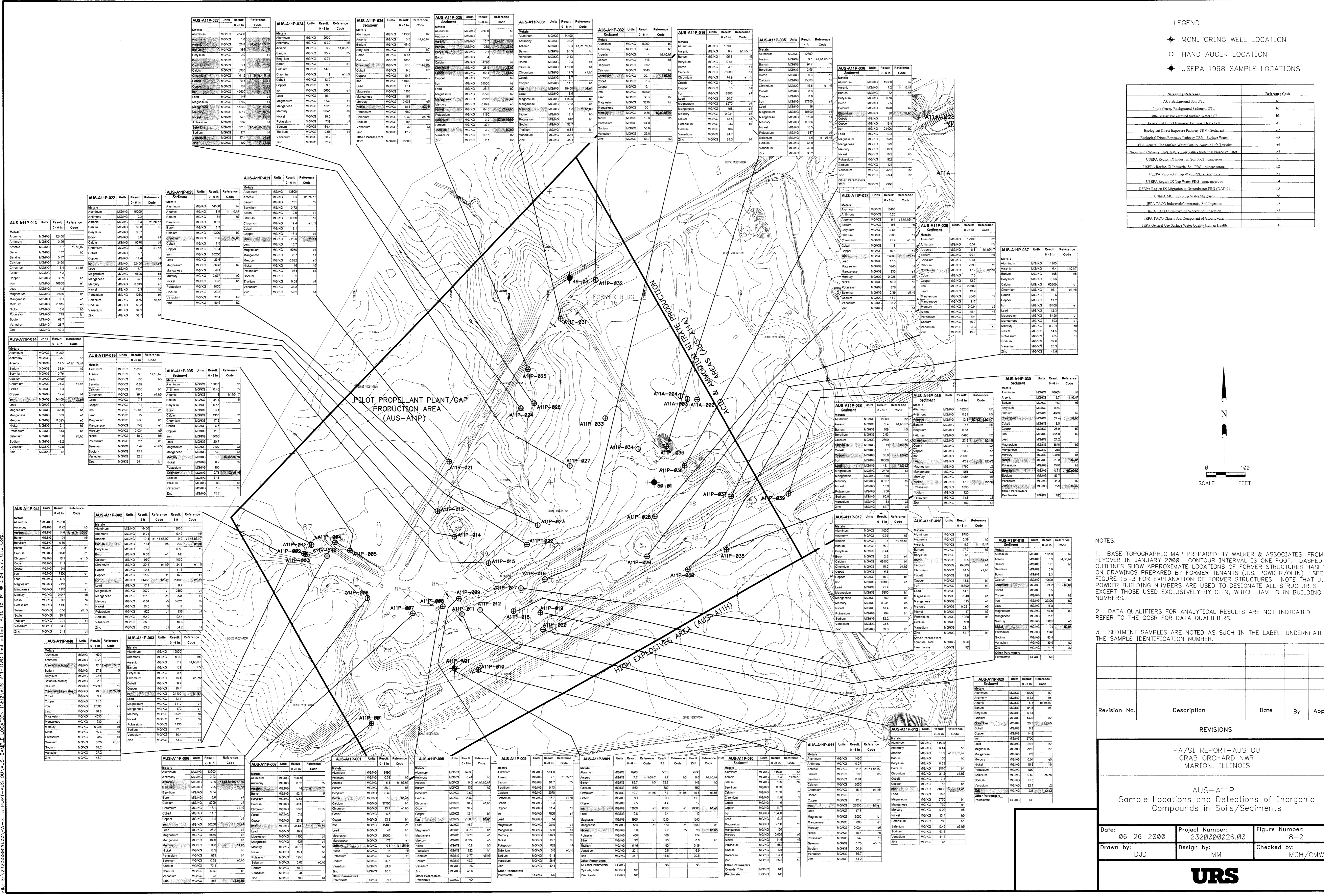
Screening Reference	Reference Code
AUS Background Soil/UTI	B1
Little Grass Background Sediment/UTI	B2
Little Grass Background Surface Water/UTI	B3
Ecological Direct Exposure Pathway: TRV - Soil	C1
Ecological Direct Exposure Pathway: TRV - Sediment	C2
Ecological Direct Exposure Pathway: TRV - Surface Water	C3
HEPA General Use Surface Water Quality: Aquatic Life Toxicity	C4
Superfund Chemical Data Matrix: Non-Volcanic (potential bioaccumulation)	C5
USEPA Region IX Industrial Soil PBQ - cancerous	B1
USEPA Region IX Industrial Soil PBQ - noncancerous	B2
USEPA Region IX Tap Water PBQ - cancerous	B3
USEPA Region IX Tap Water PBQ - noncancerous	B4
USEPA Region IX Migration to Groundwater PBQ (DAP-1)	B5
USEPA MCL Drinking Water Standards	B6
HEPA TACO Industrial/Commercial Soil Ingestion	B7
HEPA TACO Construction Worker Soil Ingestion	B8
HEPA TACO Class 1 Soil Component of Groundwater	B9
HEPA General Use Surface Water Quality: Human Health	B10



- NOTES:
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 - DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
 - SEDIMENT SAMPLES ARE NOTED AS SUCH IN THE LABEL, UNDERNEATH THE SAMPLE IDENTIFICATION NUMBER.
 - THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

Revision No.	Description	Date	By	App.	
REVISIONS					
PA/SI REPORT-AUS OU CRAB ORCHARD NWR MARION, ILLINOIS					
AUS-A11P Sample Locations and Detections of Organic Compounds in Soils/Sediments					
Date:	06-26-2000	Project Number:	232000026.00	Figure Number:	18-1
Drawn by:	DJD	Design by:	MM	Checked by:	MCH/CMW
URS					

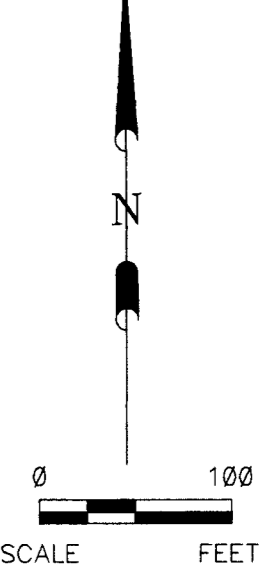
File: E:\232000026\06\PA-SI REPORT-AUS OU\AUS-SAMPLE LOCATION 11&12\AUS-A11P.DWG Last modified: AUG. 10. 01 @ 3:04 p.m. URS Corp.



LEGEND

- MONITORING WELL LOCATION
- HAND AUGER LOCATION
- USEPA 1998 SAMPLE LOCATIONS

Screening Reference	Reference Code
AUS Background Soil UTL	B1
Little Grassy Background Surface UTL	B1
Little Grassy Background Surface UTL	B1
Ecological Direct Exposure Pathway TRV - Soil	B1
Ecological Direct Exposure Pathway TRV - Sediment	B1
Ecological Direct Exposure Pathway TRV - Surface Water	B1
IEPA General Use Surface Water Quality Aquatic Life Toxicity	B1
Superfund Chemical Data Matrix Row Values (potential bioaccumulation)	B1
USEPA Region IX Industrial Soil PRG - concentration	B1
USEPA Region IX Industrial Soil ERG - nonconcentration	B1
USEPA Region IX Tap Water PRG - concentration	B1
USEPA Region IX Tap Water ERG - nonconcentration	B1
USEPA Region IX Migration to Groundwater PRG (DAG-1)	B1
USEPA MCL Drinking Water Standards	B1
IEPA TACO Industrial/Commercial Soil Ingestion	B1
IEPA TACO Industrial/Commercial Soil Ingestion	B1
IEPA TACO Class 1 Soil Component of Groundwater	B1
IEPA General Use Surface Water Quality Human Health	B1



NOTES:

- BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLOYER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT. DASHED OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES BASED ON DRAWINGS PREPARED BY FORMER TENANTS (U.S. POWDER/OLIN). SEE FIGURE 15-3 FOR EXPLANATION OF FORMER STRUCTURES. NOTE THAT U.S. POWDER BUILDING NUMBERS ARE USED TO DESIGNATE ALL STRUCTURES EXCEPT THOSE USED EXCLUSIVELY BY OLIN, WHICH HAVE OLIN BUILDING NUMBERS.
- DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
- SEDIMENT SAMPLES ARE NOTED AS SUCH IN THE LABEL, UNDERNEATH THE SAMPLE IDENTIFICATION NUMBER.

Revision No.	Description	Date	By	App.
REVISIONS				

PA/SI REPORT-AUS OU CRAB ORCHARD NWR MARION, ILLINOIS

AUS-A11P
Sample Locations and Detections of Inorganic Compounds in Soils/Sediments

Date: 06-26-2000	Project Number: 232000026.00	Figure Number: 18-2
Drawn by: DJD	Design by: MM	Checked by: MCH/CMW



Fig. E-222000026.00 PA-SI REPORT-AUS OU CRAB ORCHARD NWR MARION, ILLINOIS. LOCATION 18-2 AUS-A11P-DWG. Last reflect: AUC. 10. 01. 04. 04 a.m. URS Corp.

LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊕ HAND AUGER LOCATION
- ◆ USEPA 1998 SAMPLE LOCATIONS

Screening Reference	Reference Code
AUS Background Soil UTL	B1
Little Grassy Background Surface Water UTL	B2
Little Grassy Background Surface Water UTL	B3
Ecological Direct Exposure Pathway TRV - Soil	B4
Ecological Direct Exposure Pathway TRV - Sediment	B5
Ecological Direct Exposure Pathway TRV - Surface Water	B6
IEPA General Use Surface Water Quality Aquatic Life Toxicity	B7
Superfund Chemical Data Matrix Risk values (potential bioaccumulation)	B8
USEPA Region IX Industrial Soil FRG - carcinogen	B9
USEPA Region IX Industrial Soil FRG - noncarcinogen	B10
USEPA Region IX Tap Water FRG - carcinogen	B11
USEPA Region IX Tap Water FRG - noncarcinogen	B12
USEPA Region IX Migration to Groundwater FRG (DAP-1)	B13
USEPA MCL Drinking Water Standards	B14
IEPA TACO Industrial/Commercial Soil Ingestion	B15
IEPA TACO Construction Worker Soil Ingestion	B16
IEPA TACO Class I Soil Component of Groundwater	B17
IEPA General Use Surface Water Quality Human Health	B18

AUS-A11P-004-SW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
Explosives			
All Explosives			
Metals			
Aluminum	UGL	6670	B5,B6
Arsenic	UGL	12.3	B3
Barium	UGL	78.7	B3
Boron	UGL	26.8	B3
Calcium	UGL	3600	B3
Chromium	UGL	7.2	B3
Cadmium	UGL	1.2	B3,B4
Copper	UGL	4.9	B3
Lead	UGL	11200	B5,B6
Magnesium	UGL	3360	B3
Manganese	UGL	2410	B5,B6
Potassium	UGL	2800	B3
Selenium	UGL	4.35	B3,B6
Sodium	UGL	2900	B3
Vanadium	UGL	14.4	B3

AUS-A11P-036-SW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs			
Semi-volatile Organic Compounds			
All SVOCs			
Explosives			
All Explosives			
Metals			
Aluminum	UGL	2870	B5,B6
Arsenic	UGL	5.4	B3
Barium	UGL	86	B3
Boron	UGL	12.4	B3
Calcium	UGL	10400	B3
Chromium	UGL	9.9	B3
Copper	UGL	1.3	B3
Cadmium	UGL	4.35	B3,B4
Copper	UGL	4.9	B3
Lead	UGL	6600	B5,B6
Magnesium	UGL	3310	B3
Manganese	UGL	3.9	B3
Nickel	UGL	4.9	B3
Potassium	UGL	4180	B3
Sodium	UGL	4180	B3
Vanadium	UGL	6.5	B3
Zinc	UGL	12.7	B3
Other Parameters			
Nitrogen, Ammonia (as N)	MGL	0.33	B8
Nitrogen, Nitrate-Nitrite	MGL	ND	B8

AUS-A11P-038-SW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs			
Semi-volatile Organic Compounds			
All SVOCs			
Explosives			
All Explosives			
Metals			
Aluminum	UGL	2870	B5,B6
Arsenic	UGL	14.1	B3
Barium	UGL	89.1	B3
Boron	UGL	33.8	B3
Calcium	UGL	8200	B3
Chromium	UGL	10.4	B3
Cadmium	UGL	4.35	B3,B4
Copper	UGL	4.9	B3
Lead	UGL	7200	B5,B6
Magnesium	UGL	2290	B3
Manganese	UGL	3.9	B3
Nickel	UGL	4.9	B3
Potassium	UGL	2910	B3
Sodium	UGL	4460	B3
Vanadium	UGL	4.1	B3
Zinc	UGL	4.9	B3
Other Parameters			
Nitrogen, Ammonia (as N)	MGL	0.33	B8
Nitrogen, Nitrate-Nitrite	MGL	ND	B8

AUS-A11P-039-SW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs			
Semi-volatile Organic Compounds			
All SVOCs			
Explosives			
All Explosives			
Metals			
Aluminum	UGL	2900	B5,B6
Arsenic	UGL	6.1	B3
Barium	UGL	86.1	B3
Boron	UGL	3660	B3
Calcium	UGL	3.8	B3
Chromium	UGL	33.8	B3
Cadmium	UGL	4.35	B3,B4
Copper	UGL	6400	B5,B6
Lead	UGL	9.9	B3
Magnesium	UGL	6000	B3
Manganese	UGL	3.9	B3
Nickel	UGL	4.9	B3
Potassium	UGL	1910	B3
Sodium	UGL	3700	B3
Vanadium	UGL	6.1	B3
Zinc	UGL	13.7	B3
Other Parameters			
Nitrogen, Ammonia (as N)	MGL	0.33	B8
Nitrogen, Nitrate-Nitrite	MGL	ND	B8
Phosphorus, Total (as P)	MGL	0.38	B8
Phosphate, Total (as P)	MGL	1.05	B8

AUS-A11P-W01-QW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs			
Semi-volatile Organic Compounds			
All SVOCs			
Explosives			
All Explosives			
Metals			
Aluminum	UGL	5730	B5,B6
Arsenic	UGL	1.9	B3
Barium	UGL	12.3	B3
Boron	UGL	12.3	B3
Calcium	UGL	4700	B3
Chromium	UGL	5.8	B3
Copper	UGL	5.8	B3
Lead	UGL	4400	B5,B6
Magnesium	UGL	3.9	B3
Manganese	UGL	1.9	B3
Nickel	UGL	7.1	B3
Potassium	UGL	1.9	B3
Sodium	UGL	3060	B3
Vanadium	UGL	1.9	B3
Zinc	UGL	14.4	B3
Other Parameters			
Ammonia, Total (as NH3)	MGL	337	B8
Nitrogen, Ammonia (as N)	MGL	ND	B8
Nitrogen, Nitrate-Nitrite	MGL	0.33	B8
Phosphorus, Total (as P)	UGL	ND	B8
Phosphate, Total (as P)	UGL	ND	B8
Sulfate (as SO4)	UGL	80000	B8
TDS	UGL	400	B8
TSS	MGL	ND	B8

AUS-A11P-019-SW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs			
Semi-volatile Organic Compounds			
All SVOCs			
Explosives			
All Explosives			
Metals			
Aluminum	UGL	695	B5,B6
Arsenic	UGL	9.4	B3
Barium	UGL	10.6	B3
Boron	UGL	21.9	B3
Calcium	UGL	3300	B3
Cadmium	UGL	1790	B5,B6
Copper	UGL	620	B3
Lead	UGL	142	B3
Magnesium	UGL	2400	B3
Manganese	UGL	1200	B3
Nickel	UGL	4.7	B3
Potassium	UGL	141	B3
Sodium	UGL	141	B3
Vanadium	UGL	141	B3
Other Parameters			
Nitrogen, Ammonia (as N)	MGL	0.33	B8
Nitrogen, Nitrate-Nitrite	UGL	ND	B8
Phosphorus, Total (as P)	UGL	ND	B8
Phosphate, Total (as P)	MGL	141	B8
TDS	MGL	141	B8

AUS-A11P-029-SW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs			
Semi-volatile Organic Compounds			
All SVOCs			
Explosives			
All Explosives			
Metals			
Aluminum	UGL	660	B5,B6
Arsenic	UGL	9.4	B3
Barium	UGL	17.4	B3
Boron	UGL	23.4	B3
Calcium	UGL	8200	B3
Cadmium	UGL	3760	B5,B6
Copper	UGL	3200	B3
Lead	UGL	270	B3
Magnesium	UGL	270	B3
Manganese	UGL	3.3	B3
Nickel	UGL	1040	B3
Potassium	UGL	2900	B3
Sodium	UGL	3.3	B3
Vanadium	UGL	4.7	B3
Other Parameters			
Nitrogen, Ammonia (as N)	MGL	0.33	B8
Nitrogen, Nitrate-Nitrite	MGL	ND	B8
Phosphorus, Total (as P)	UGL	ND	B8
Phosphate, Total (as P)	MGL	0.14	B8
TDS	MGL	59.5	B8

- NOTES:
- BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT. DASHED OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES BASED ON DRAWINGS PREPARED BY FORMER TENANTS (U.S. POWER/OLIN). SEE FIGURE 15-3 FOR EXPLANATION OF FORMER STRUCTURES. NOTE THAT U.S. POWDER BUILDING NUMBERS ARE USED TO DESIGNATE ALL STRUCTURES EXCEPT THOSE USED EXCLUSIVELY BY OLIN, WHICH HAVE OLIN BUILDING NUMBERS.
 - DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
 - THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

Revision No.	Description	Date	By	App.

REVISIONS

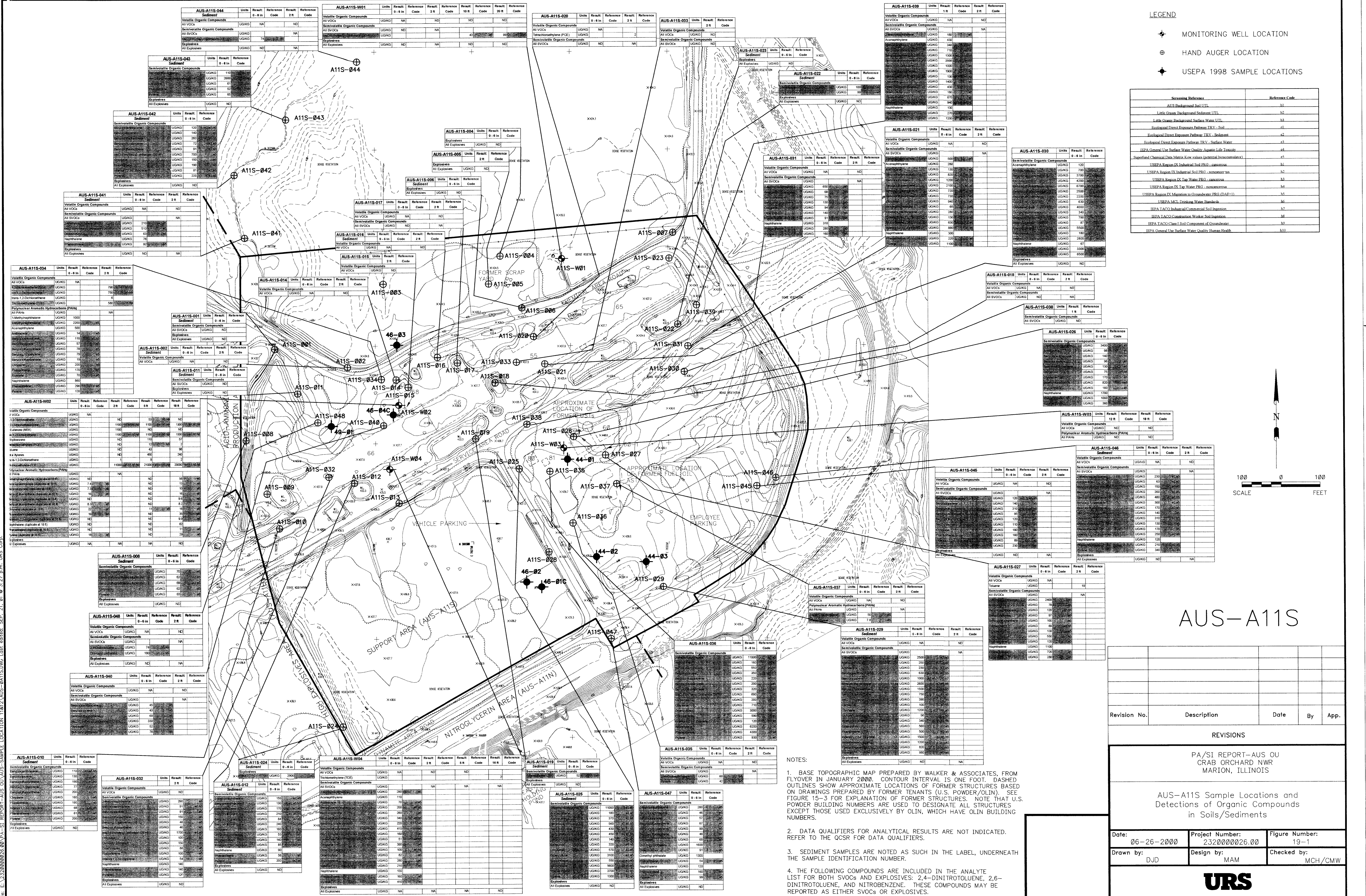
PA/SI REPORT-AUS OU
CRAB ORCHARD NWR
MARION, ILLINOIS

AUS-A11P
Sample Locations and Detections in
Surface Water and Groundwater

Date: 06-26-2000	Project Number: 232000026.00	Figure Number: 18-3
Drawn by: DJD	Design by: MM	Checked by: MCH/CMW

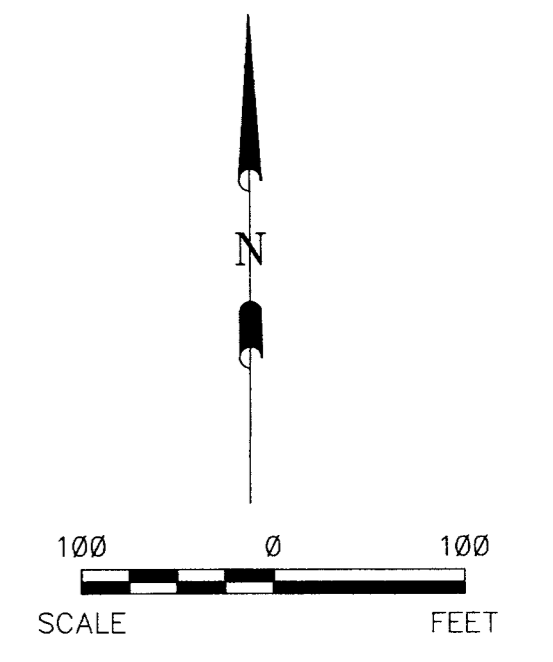
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- LEGEND**
- ⊕ MONITORING WELL LOCATION
 - ⊗ HAND AUGER LOCATION
 - ◆ USEPA 1998 SAMPLE LOCATIONS

Screening Reference	Reference Code
AUS Background Soil/UTI	B1
Little Green Background Sediment/UTI	B2
Little Green Background Water/UTI	B3
Ecological Direct Exposure Pathway: TRV - Soil	C1
Ecological Direct Exposure Pathway: TRV - Sediment	C2
Ecological Direct Exposure Pathway: TRV - Surface Water	C3
IEPA General Use Surface Water Quality Action/Life Toxicity	C4
Superfund Chemical Data Matrix Kow Values (potential bioaccumulative)	C5
USEPA Region IX Industrial Soil PEG - carcinogenic	N1
USEPA Region IX Industrial Soil PEG - noncarcinous	N2
USEPA Region IX Top Water PEG - carcinogenic	N3
USEPA Region IX Top Water PEG - noncarcinous	N4
USEPA Region IX Migration to Groundwater: PEG (DAP-1)	N5
USEPA MCL Drinking Water Standards	N6
IEPA TACO Industrial/Commercial Soil Ingestion	N7
IEPA TACO Consumer Worker Soil Ingestion	N8
IEPA TACO Class 1 Soil Component of Groundwater	N9
IEPA General Use Surface Water Quality Human Health	N10



AUS-A11S

Revision No.	Description	Date	By	App.

REVISIONS

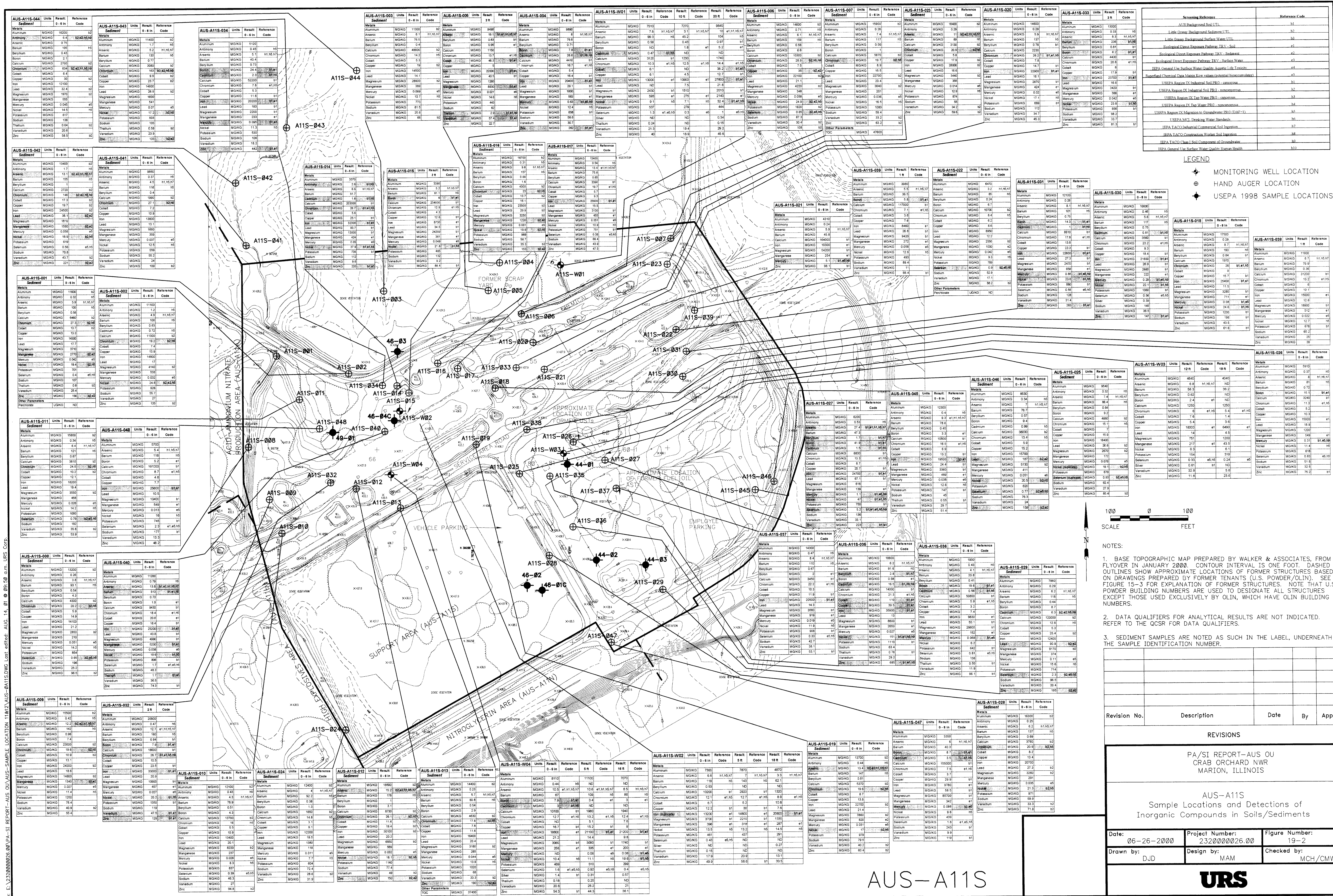
PA/SI REPORT-AUS OU
CRAB ORCHARD NWR
MARION, ILLINOIS

AUS-A11S Sample Locations and
Detections of Organic Compounds
in Soils/Sediments

Date: 06-26-2000	Project Number: 232000026.00	Figure Number: 19-1
Drawn by: DJD	Design by: MAM	Checked by: MCH/CMW



- NOTES:**
- BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLOYER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT. DASHED OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES BASED ON DRAWINGS PREPARED BY FORMER TENANTS (U.S. POWDER/OLIN). SEE FIGURE 15-3 FOR EXPLANATION OF FORMER STRUCTURES. NOTE THAT U.S. POWDER BUILDING NUMBERS ARE USED TO DESIGNATE ALL STRUCTURES EXCEPT THOSE USED EXCLUSIVELY BY OLIN, WHICH HAVE OLIN BUILDING NUMBERS.
 - DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
 - SEDIMENT SAMPLES ARE NOTED AS SUCH IN THE LABEL, UNDERNEATH THE SAMPLE IDENTIFICATION NUMBER.
 - THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.



Screening Reference	Reference Code
AUS Background Soil (L)	b1
Line Drap Background Sediment (L)	b1
Line Drap Background Surface Water (L)	b1
Biological Direct Exposure Pathway: TRV - Soil	c1
Biological Direct Exposure Pathway: TRV - Sediment	c2
Biological Direct Exposure Pathway: TRV - Surface Water	c3
USPA General Use Surface Water Quality Analysis - de Toxicity	c4
Superfund Chemical Data Matrix (see values potential bioaccumulation)	c5
US EPA Region IX Industrial Soil PRG - cadmium	h1
US EPA Region IX Industrial Soil PRG - chromium	h2
US EPA Region IX Industrial Soil PRG - copper	h3
US EPA Region IX Industrial Soil PRG - lead	h4
US EPA Region IX Industrial Soil PRG - mercury	h5
US EPA Region IX Industrial Soil PRG - nickel	h6
US EPA Region IX Industrial Soil PRG - potassium	h7
US EPA Region IX Industrial Soil PRG - selenium	h8
US EPA Region IX Industrial Soil PRG - silver	h9
US EPA Region IX Industrial Soil PRG - vanadium	h10
US EPA Region IX Industrial Soil PRG - zinc	h11
US EPA Region IX Tap Water PRG - cadmium	h12
US EPA Region IX Tap Water PRG - chromium	h13
US EPA Region IX Tap Water PRG - copper	h14
US EPA Region IX Tap Water PRG - lead	h15
US EPA Region IX Tap Water PRG - mercury	h16
US EPA Region IX Tap Water PRG - nickel	h17
US EPA Region IX Tap Water PRG - potassium	h18
US EPA Region IX Tap Water PRG - selenium	h19
US EPA Region IX Tap Water PRG - silver	h20
US EPA Region IX Tap Water PRG - vanadium	h21
US EPA Region IX Tap Water PRG - zinc	h22
US EPA TACO Industrial Commercial Soil Ingestion	h23
US EPA TACO Industrial Commercial Soil Ingestion	h24
US EPA TACO Industrial Commercial Soil Ingestion	h25
US EPA TACO Industrial Commercial Soil Ingestion	h26
US EPA TACO Industrial Commercial Soil Ingestion	h27
US EPA TACO Industrial Commercial Soil Ingestion	h28
US EPA TACO Industrial Commercial Soil Ingestion	h29
US EPA TACO Industrial Commercial Soil Ingestion	h30
US EPA TACO Industrial Commercial Soil Ingestion	h31
US EPA TACO Industrial Commercial Soil Ingestion	h32
US EPA TACO Industrial Commercial Soil Ingestion	h33
US EPA TACO Industrial Commercial Soil Ingestion	h34
US EPA TACO Industrial Commercial Soil Ingestion	h35
US EPA TACO Industrial Commercial Soil Ingestion	h36
US EPA TACO Industrial Commercial Soil Ingestion	h37
US EPA TACO Industrial Commercial Soil Ingestion	h38
US EPA TACO Industrial Commercial Soil Ingestion	h39
US EPA TACO Industrial Commercial Soil Ingestion	h40

LEGEND

- MONITORING WELL LOCATION
- HAND AUGER LOCATION
- US EPA 1998 SAMPLE LOCATIONS

AUS-A11S-001	Units	Result	Reference	AUS-A11S-002	Units	Result	Reference
Aluminum	MG/KG	11000	52	Aluminum	MG/KG	11000	52
Antimony	MG/KG	0.32	10	Antimony	MG/KG	0.32	10
Arsenic	MG/KG	5.9	11.15,17	Arsenic	MG/KG	5.9	11.15,17
Barium	MG/KG	106	10	Barium	MG/KG	106	10
Beryllium	MG/KG	0.63	10	Beryllium	MG/KG	0.63	10
Boron	MG/KG	121	10	Boron	MG/KG	121	10
Calcium	MG/KG	1680	52	Calcium	MG/KG	1680	52
Cadmium	MG/KG	0.17	52	Cadmium	MG/KG	0.17	52
Chromium	MG/KG	3700	52	Chromium	MG/KG	3700	52
Cobalt	MG/KG	13.3	52	Cobalt	MG/KG	13.3	52
Copper	MG/KG	133	52	Copper	MG/KG	133	52
Lead	MG/KG	117	52	Lead	MG/KG	117	52
Iron	MG/KG	24000	52	Iron	MG/KG	24000	52
Magnesium	MG/KG	3810	52	Magnesium	MG/KG	3810	52
Manganese	MG/KG	1600	52	Manganese	MG/KG	1600	52
Mercury	MG/KG	0.058	52	Mercury	MG/KG	0.058	52
Nickel	MG/KG	18.9	52	Nickel	MG/KG	18.9	52
Potassium	MG/KG	193	52	Potassium	MG/KG	193	52
Selenium	MG/KG	0.56	52	Selenium	MG/KG	0.56	52
Silver	MG/KG	1.36	52	Silver	MG/KG	1.36	52
Sodium	MG/KG	103	52	Sodium	MG/KG	103	52
Sulfur	MG/KG	431	52	Sulfur	MG/KG	431	52
Vanadium	MG/KG	27	52	Vanadium	MG/KG	27	52
Zinc	MG/KG	291	52	Zinc	MG/KG	291	52

AUS-A11S-003	Units	Result	Reference	AUS-A11S-004	Units	Result	Reference
Aluminum	MG/KG	11000	52	Aluminum	MG/KG	11000	52
Antimony	MG/KG	0.32	10	Antimony	MG/KG	0.32	10
Arsenic	MG/KG	5.9	11.15,17	Arsenic	MG/KG	5.9	11.15,17
Barium	MG/KG	106	10	Barium	MG/KG	106	10
Beryllium	MG/KG	0.63	10	Beryllium	MG/KG	0.63	10
Boron	MG/KG	121	10	Boron	MG/KG	121	10
Calcium	MG/KG	1680	52	Calcium	MG/KG	1680	52
Cadmium	MG/KG	0.17	52	Cadmium	MG/KG	0.17	52
Chromium	MG/KG	3700	52	Chromium	MG/KG	3700	52
Cobalt	MG/KG	13.3	52	Cobalt	MG/KG	13.3	52
Copper	MG/KG	133	52	Copper	MG/KG	133	52
Lead	MG/KG	117	52	Lead	MG/KG	117	52
Iron	MG/KG	24000	52	Iron	MG/KG	24000	52
Magnesium	MG/KG	3810	52	Magnesium	MG/KG	3810	52
Manganese	MG/KG	1600	52	Manganese	MG/KG	1600	52
Mercury	MG/KG	0.058	52	Mercury	MG/KG	0.058	52
Nickel	MG/KG	18.9	52	Nickel	MG/KG	18.9	52
Potassium	MG/KG	193	52	Potassium	MG/KG	193	52
Selenium	MG/KG	0.56	52	Selenium	MG/KG	0.56	52
Silver	MG/KG	1.36	52	Silver	MG/KG	1.36	52
Sodium	MG/KG	103	52	Sodium	MG/KG	103	52
Sulfur	MG/KG	431	52	Sulfur	MG/KG	431	52
Vanadium	MG/KG	27	52	Vanadium	MG/KG	27	52
Zinc	MG/KG	291	52	Zinc	MG/KG	291	52

AUS-A11S-005	Units	Result	Reference	AUS-A11S-006	Units	Result	Reference
Aluminum	MG/KG	11000	52	Aluminum	MG/KG	11000	52
Antimony	MG/KG	0.32	10	Antimony	MG/KG	0.32	10
Arsenic	MG/KG	5.9	11.15,17	Arsenic	MG/KG	5.9	11.15,17
Barium	MG/KG	106	10	Barium	MG/KG	106	10
Beryllium	MG/KG	0.63	10	Beryllium	MG/KG	0.63	10
Boron	MG/KG	121	10	Boron	MG/KG	121	10
Calcium	MG/KG	1680	52	Calcium	MG/KG	1680	52
Cadmium	MG/KG	0.17	52	Cadmium	MG/KG	0.17	52
Chromium	MG/KG	3700	52	Chromium	MG/KG	3700	52
Cobalt	MG/KG	13.3	52	Cobalt	MG/KG	13.3	52
Copper	MG/KG	133	52	Copper	MG/KG	133	52
Lead	MG/KG	117	52	Lead	MG/KG	117	52
Iron	MG/KG	24000	52	Iron	MG/KG	24000	52
Magnesium	MG/KG	3810	52	Magnesium	MG/KG	3810	52
Manganese	MG/KG	1600	52	Manganese	MG/KG	1600	52
Mercury	MG/KG	0.058	52	Mercury	MG/KG	0.058	52
Nickel	MG/KG	18.9	52	Nickel	MG/KG	18.9	52
Potassium	MG/KG	193	52	Potassium	MG/KG	193	52
Selenium	MG/KG	0.56	52	Selenium	MG/KG	0.56	52
Silver	MG/KG	1.36	52	Silver	MG/KG	1.36	52
Sodium	MG/KG	103	52	Sodium	MG/KG	103	52
Sulfur	MG/KG	431	52	Sulfur	MG/KG	431	52
Vanadium	MG/KG	27	52	Vanadium	MG/KG	27	52
Zinc	MG/KG	291	52	Zinc	MG/KG	291	52

AUS-A11S-007	Units	Result	Reference	AUS-A11S-008	Units	Result	Reference
Aluminum	MG/KG	11000	52	Aluminum	MG/KG	11000	52
Antimony	MG/KG	0.32	10	Antimony	MG/KG	0.32	10
Arsenic	MG/KG	5.9	11.15,17	Arsenic	MG/KG	5.9	11.15,17
Barium	MG/KG	106	10	Barium	MG/KG	106	10
Beryllium	MG/KG	0.63	10	Beryllium	MG/KG	0.63	10
Boron	MG/KG	121	10	Boron	MG/KG	121	10
Calcium	MG/KG	1680	52	Calcium	MG/KG	1680	52
Cadmium	MG/KG	0.17	52	Cadmium	MG/KG	0.17	52
Chromium	MG/KG	3700	52	Chromium	MG/KG	3700	52
Cobalt	MG/KG	13.3	52	Cobalt	MG/KG	13.3	52
Copper	MG/KG	133	52	Copper	MG/KG	133	52
Lead	MG/KG	117	52	Lead	MG/KG	117	52
Iron	MG/KG	24000	52	Iron	MG/KG	24000	52
Magnesium	MG/KG	3810	52	Magnesium	MG/KG	3810	52
Manganese	MG/KG	1600	52	Manganese	MG/KG	1600	52
Mercury	MG/KG	0.058	52	Mercury	MG/KG	0.058	52
Nickel	MG/KG	18.9	52	Nickel	MG/KG	18.9	52
Potassium	MG/KG	193	52	Potassium	MG/KG	193	52
Selenium	MG/KG	0.56	52	Selenium	MG/KG	0.56	52
Silver	MG/KG	1.36	52	Silver	MG/KG	1.36	52
Sodium	MG/KG	103	52	Sodium	MG/KG	103	52
Sulfur	MG/KG	431	52	Sulfur	MG/KG	431	52
Vanadium	MG/KG	27	52	Vanadium	MG/KG	27	52
Zinc	MG/KG	291	52	Zinc	MG/KG	291	52

Revision No.	Description	Date	By	App.

PA/SI REPORT-AUS OU CRAB ORCHARD NWR MARION, ILLINOIS

AUS-A11S
Sample Locations and Detections of Inorganic Compounds in Soils/Sediments

Date: 06-26-2000 Project Number: 232000026.00 Figure Number: 19-2
 Drawn by: DJD Design by: MAM Checked by: MCH/CMW

URS

LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊙ HAND AUGER LOCATION
- ◆ USEPA 1998 SAMPLE LOCATIONS

Screening Reference	Reference Code
AUS Background Soil UTL	31
1 Mile Down Background Sediment UTL	32
1 Mile Down Background Surface Water UTL	33
Ecological Direct Exposure Pathway (ENV) - Sediment	42
Ecological Direct Exposure Pathway (ENV) - Surface Water	43
ITPA (General Use Surface Water) Drinking Water Toxicant	44
Superfund Chemical Data Matrix (Kovacs) (potential bioaccumulation)	45
USEPA Region IX Industrial Soil PRC - conservative	35
USEPA Region IX Industrial Soil PRC - nonconservative	36
USEPA Region IX Top Water PRC - conservative	34
USEPA Region IX Top Water PRC - nonconservative	33
USEPA Region IX Groundwater PRC (DAP-1)	35
USEPA MCL Drinking Water Standards	36
ITPA TACO Commercial Soil Ingestion	37
ITPA TACO Commercial Surface Soil Ingestion	38
ITPA TACO General Use Soil Component of Groundwater	39
ITPA General Use Surface Water Quality Human Health	310



AUS-A115-001-SW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
Toluene	UGL	1	
Semi-volatile Organic Compounds			
All SVOCs	UGL	ND	
Explosives			
All Explosives	UGL	ND	
Metals			
Aluminum	UGL	4900	33, 34, 35
Antimony	UGL	11.9	33
Barium	UGL	11.2	33, 34
Boron	UGL	11.2	33, 34
Bismuth	UGL	46.6	33, 34
Calcium	UGL	53.8	33, 34
Chromium	UGL	53.8	33, 34
Copper	UGL	21.0	33, 34
Lead	UGL	7.2	33, 34, 35
Magnesium	UGL	150	33, 34, 35
Manganese	UGL	1200	33, 34, 35
Mercury	UGL	0.01	33, 34, 35
Potassium	UGL	60.1	33
Selenium	UGL	1.5	33
Silver	UGL	4.7	33
Sulfur	UGL	1187	33, 34
Zinc	UGL	552	33
Other Parameters			
Acidity, Total (as CaCO3)	MGL	140	33
Nitrogen, Ammonia (as N)	MGL	1	33
Nitrogen, Nitrate-Nitrite	MGL	0.25	33
Phosphate, Total (as P)	MGL	0.025	33
Sulfate (as SO4)	UGL	17000	33
TDS	MGL	625	33
TDS (Explosives)	MGL	625	33

AUS-A115-011-SW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UGL	ND	
Semi-volatile Organic Compounds			
All SVOCs	UGL	ND	
Explosives			
All Explosives	UGL	ND	
Metals			
Barium	UGL	41.5	33
Boron	UGL	21.1	33
Calcium	UGL	56900	33
Magnesium	UGL	30300	33
Manganese	UGL	190	33
Potassium	UGL	3620	33
Sodium	UGL	30200	33

AUS-A115-008-SW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
Carbon tetrachloride	UGL	1	
Chloroform	UGL	0.5	
Semi-volatile Organic Compounds			
Phenol	UGL	1.5	
Explosives			
2,4-Dinitrotoluene	UGL	5.5	
2-Amino-2,6-Dinitrotoluene	UGL	18	
Nitrobenzene	UGL	0.75	
Metals			
Aluminum	UGL	68000	33, 34
Antimony	UGL	31.4	33
Barium	UGL	1270	33
Bismuth	UGL	47.9	33
Boron	UGL	135	33
Calcium	UGL	59.9	33, 34
Cadmium	UGL	20000	33, 34
Chromium	UGL	97	33
Copper	UGL	1187	33, 34
Lead	UGL	179	33, 34, 35
Iron	UGL	8760	33, 34, 35
Magnesium	UGL	12000	33, 34
Manganese	UGL	2200	33, 34, 35
Mercury	UGL	0.01	33, 34, 35
Nickel	UGL	153	33
Potassium	UGL	16.1	33, 34
Selenium	UGL	86400	33, 34
Sodium	UGL	1700	33, 34, 35
Sulfur	UGL	1187	33, 34, 35
Zinc	UGL	1700	33, 34, 35
Other Parameters			
Nitrogen, Ammonia (as N)	MGL	0.74	33
Nitrogen, Nitrate-Nitrite	MGL	1.7	33, 34
Phosphate	UGL	1.2	33
Sulfate (as SO4)	UGL	100000	33
TDS	MGL	100	33, 34
TDS (Explosives)	MGL	14.5	33

AUS-A115-009-SW-00	Units	Result	Screening Codes
Metals			
Asenic	UGL	5.6	
Barium	UGL	43.3	33
Boron	UGL	22.7	33
Calcium	UGL	17900	33
Cadmium	UGL	3.3	33
Iron	UGL	701	33
Magnesium	UGL	11500	33
Manganese	UGL	249	33
Potassium	UGL	2260	33
Sodium	UGL	890	33
Other Parameters			
Acidity, Total (as CaCO3)	MGL	95.8	33
Nitrogen, Ammonia (as N)	MGL	0.25	33
Nitrogen, Nitrate-Nitrite	MGL	7.0	33
Phosphate, Total (as P)	MGL	0.025	33
Sulfate (as SO4)	UGL	1400	33
TDS	MGL	100	33, 34
TDS (Explosives)	MGL	14.5	33

AUS-A115-010-SW-00	Units	Result	Screening Codes
Semi-volatile Organic Compounds			
All SVOCs	UGL	ND	
Explosives			
All Explosives	UGL	ND	
Metals			
Aluminum	UGL	5.1	
Barium	UGL	31.4	33
Bismuth	UGL	88	33
Calcium	UGL	36500	33
Chromium	UGL	1290	33, 34, 35
Copper	UGL	1187	33, 34
Magnesium	UGL	11500	33
Manganese	UGL	190	33
Potassium	UGL	3650	33
Sodium	UGL	976	33
Other Parameters			
Acidity	UGL	ND	
Phosphate	MGL	79	33, 34

AUS-A115-012-SW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UGL	ND	
Semi-volatile Organic Compounds			
All SVOCs	UGL	ND	
Explosives			
All Explosives	UGL	ND	
Metals			
Barium	UGL	44	33
Boron	UGL	11.2	33
Calcium	UGL	15100	33
Chromium	UGL	1500	33
Magnesium	UGL	239	33
Potassium	UGL	1950	33
Sodium	UGL	2180	33
Other Parameters			
Acidity	UGL	ND	
Phosphate	MGL	79	33, 34

AUS-A115-043-SW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
1,2-Dichloroethane	UGL	7	
Trichloroethylene (TCE)	UGL	22	
Semi-volatile Organic Compounds			
All SVOCs	UGL	ND	
Explosives			
All Explosives	UGL	ND	
Metals			
Aluminum	UGL	28000	33, 34
Antimony	UGL	6.1	33
Asenic	UGL	16.6	33
Barium	UGL	469	33
Bismuth	UGL	39	33
Boron	UGL	20.7	33
Calcium	UGL	46000	33
Chromium	UGL	214	33, 34, 35
Copper	UGL	1187	33, 34
Lead	UGL	65.9	33, 34, 35
Iron	UGL	3400	33, 34, 35
Magnesium	UGL	16000	33, 34, 35
Manganese	UGL	34.4	33
Mercury	UGL	0.11	33, 34, 35
Nickel	UGL	17.3	33
Potassium	UGL	3680	33
Selenium	UGL	8.1	33, 34
Silver	UGL	5.0	33, 34
Sulfur	UGL	3800	33
Titanium	UGL	66.1	33, 34
Vanadium	UGL	53.4	33, 34
Zinc	UGL	429	33
Other Parameters			
Nitrogen, Ammonia (as N)	MGL	0.74	33
Nitrogen, Nitrate-Nitrite	MGL	1.7	33
TDS	MGL	310	33

AUS-A115-042-SW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UGL	ND	
Semi-volatile Organic Compounds			
All SVOCs	UGL	ND	
Explosives			
All Explosives	UGL	ND	
Metals			
Aluminum	UGL	28000	33, 34
Antimony	UGL	6.1	33
Asenic	UGL	16.6	33
Barium	UGL	469	33
Bismuth	UGL	39	33
Boron	UGL	20.7	33
Calcium	UGL	46000	33
Chromium	UGL	214	33, 34, 35
Copper	UGL	1187	33, 34
Lead	UGL	65.9	33, 34, 35
Iron	UGL	3400	33, 34, 35
Magnesium	UGL	16000	33, 34, 35
Manganese	UGL	34.4	33
Mercury	UGL	0.11	33, 34, 35
Nickel	UGL	17.3	33
Potassium	UGL	3680	33
Selenium	UGL	8.1	33, 34
Silver	UGL	5.0	33, 34
Sulfur	UGL	3800	33
Titanium	UGL	66.1	33, 34
Vanadium	UGL	53.4	33, 34
Zinc	UGL	429	33
Other Parameters			
Nitrogen, Ammonia (as N)	MGL	0.74	33
Nitrogen, Nitrate-Nitrite	MGL	1.7	33
TDS	MGL	160	33

AUS-A115-W01-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UGL	ND	
Semi-volatile Organic Compounds			
All SVOCs	UGL	ND	
Explosives			
All Explosives	UGL	ND	
Metals			
Aluminum	UGL	ND	
Asenic	UGL	ND	
Barium	UGL	ND	
Bismuth	UGL	ND	
Boron	UGL	ND	
Calcium	UGL	17200	
Chromium	UGL	1.1	
Copper	UGL	ND	
Iron	UGL	ND	
Magnesium	UGL	10300	
Manganese	UGL	146	
Nickel	UGL	ND	
Potassium	UGL	11400	
Selenium	UGL	ND	
Silver	UGL	ND	
Sulfur	UGL	ND	
Zinc	UGL	ND	
Other Parameters			
Acidity, Total (as CaCO3)	MGL	ND	
Nitrogen, Ammonia (as N)	MGL	ND	
Nitrogen, Nitrate-Nitrite	MGL	ND	
Phosphate, Total (as P)	MGL	ND	
Sulfate (as SO4)	MGL	ND	
TDS	MGL	ND	
TDS (Explosives)	MGL	ND	

AUS-A115-022-SW-00	Units	Result	Screening Codes
Semi-volatile Organic Compounds			
All SVOCs	UGL	ND	
Explosives			
All Explosives	UGL	ND	
Metals			
Aluminum	UGL	241	33, 34, 35
Barium	UGL	48	33
Boron	UGL	30.4	33
Calcium	UGL	2480	33
Chromium	UGL	130	33, 34, 35
Copper	UGL	7860	33
Magnesium	UGL	1.3	33
Potassium	UGL	1140	33
Selenium	UGL	1030	33
Sodium	UGL	1030	33
Other Parameters			
Acidity, Total (as CaCO3)	MGL	83.7	33
Nitrogen, Ammonia (as N)	MGL	0.17	33
Nitrogen, Nitrate-Nitrite	MGL	1.2	33
Phosphate	UGL	1.2	33
Phosphate, Total (as P)	MGL	0.025	33
Sulfate (as SO4)	UGL	5200	33
TDS	MGL	115	33, 34
TDS (Explosives)	MGL	14.5	33

AUS-A115-W02-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UGL	10000	33, 34
Semi-volatile Organic Compounds			
All SVOCs	UGL	20000	33, 34
Explosives			
All Explosives	UGL	ND	
Metals			
Aluminum	UGL	241	33, 34, 35
Barium	UGL	48	33
Boron	UGL	30.4	33
Calcium	UGL	2480	33
Chromium	UGL	1.3	33
Copper	UGL	7860	33
Magnesium	UGL	1.3	33
Potassium	UGL	1140	33
Selenium	UGL	1030	33
Sodium	UGL	1030	33
Other Parameters			
Acidity, Total (as CaCO3)	MGL	83.7	33
Nitrogen, Ammonia (as N)	MGL	0.17	33
Nitrogen, Nitrate-Nitrite	MGL	1.2	33
Phosphate	UGL	1.2	33
Phosphate, Total (as P)	MGL	0.025	33
Sulfate (as SO4)	UGL	5200	33
TDS	MGL	115	33, 34
TDS (Explosives)	MGL	14.5	33

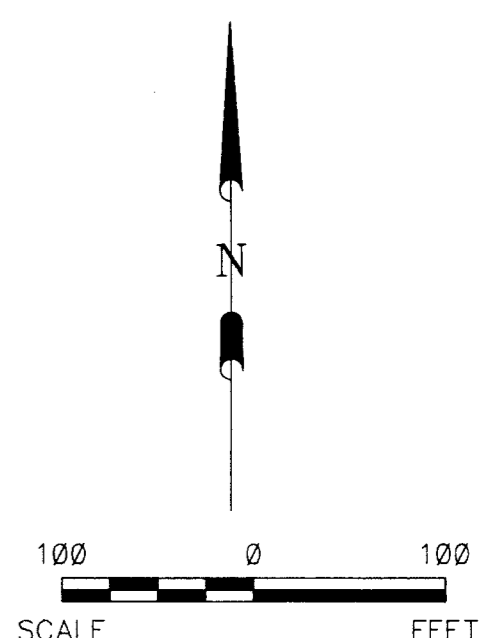
AUS-A115-W03-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All VOCs	UGL	ND	
Semi-volatile Organic Compounds			
All SVOCs	UGL	ND	
Explosives			
All Explosives	UGL	ND	
Metals			
Aluminum	UGL	2140	
Barium	UGL	41.3	
Boron	UGL	283	
Calcium	UGL	17200	
Chromium	UGL	3	
Copper	UGL	1480	
Iron	UGL	10300	
Magnesium	UGL	288	33, 34, 35
Manganese	UGL	1030	
Nickel	UGL	1030	
Potassium	UGL	1030	
Selenium	UGL	5.9	
Sodium	UGL	17700	
Sulfur	UGL	6.1	
Zinc	UGL	6.1	
Other Parameters			
Nitrogen, Nitrate-Nitrite	MGL	0.61	



LEGEND

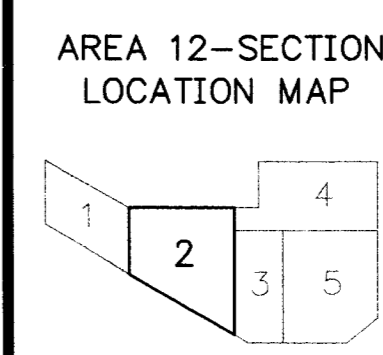
- ⊕ MONITORING WELL LOCATION
- ⊕ HAND AUGER LOCATION
- ★ TEST PIT LOCATION

Screening Reference	Reference Code
AUS Background Soil UTL	51
Little Grass Background Surface Water UTL	52
Little Grass Background Surface Water UTL	53
Ecological Direct Exposure Pathway TRV - Soil	61
Ecological Direct Exposure Pathway TRV - Sediment	62
Ecological Direct Exposure Pathway TRV - Surface Water	63
TEPA General Use Surface Water Quality Aquatic Life Toxicity	64
Superfund Chemical Data Matrix Key values (potential noncumulative)	65
USEPA Region IX Industrial Soil PFOA - noncumulative	66
USEPA Region IX Industrial Soil PFOA - noncumulative	67
USEPA Region IX Top Water PFOA - noncumulative	68
USEPA Region IX Top Water PFOA - noncumulative	69
USEPA Region IX Migration to Groundwater PFOA (DAP)-1	70
USEPA MCL Drinking Water Standards	71
TEPA TACO Industrial/Commercial Soil Degradation	72
TEPA TACO Construction Worker Soil Degradation	73
TEPA TACO Class I Soil Component of Groundwater	74
TEPA General Use Surface Water Quality Human Health	810



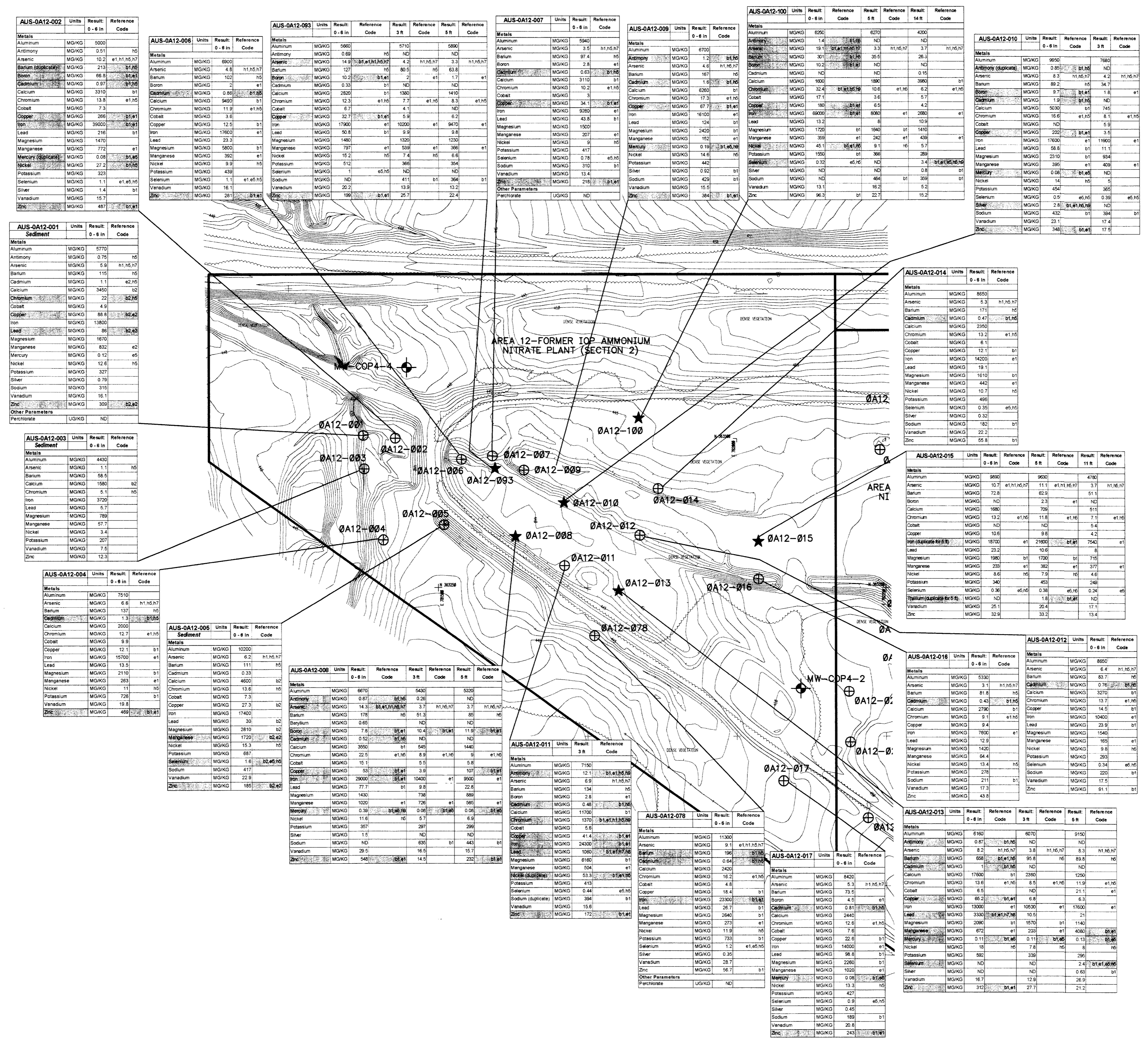
- NOTES:**
1. BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT. DASHED OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES BASED ON DRAWINGS PREPARED BY FORMER TENANTS (U.S. POWDER/OLIN). SEE FIGURE 15-3 FOR EXPLANATION OF FORMER STRUCTURES. NOTE THAT U.S. POWDER BUILDING NUMBERS ARE USED TO DESIGNATE ALL STRUCTURES EXCEPT THOSE USED EXCLUSIVELY BY OLIN, WHICH HAVE OLIN BUILDING NUMBERS.
 2. DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
 3. SEDIMENT SAMPLES ARE NOTED AS SUCH IN THE LABEL, UNDERNEATH THE SAMPLE IDENTIFICATION NUMBER.
 4. THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

AREA 12-AMMONIUM NITRATE PLANT



Revision No.	Description	Date	By	App.
REVISIONS				
PA/SI REPORT-AUS OU CRAB ORCHARD NWR MARION, ILLINOIS				
AUS-0A12-Section 2-Sample Locations and Detections of Organic Compounds in Soils/Sediments				
Date:	12/27/00	Project Number:	232000026.00	Figure Number:
Drawn by:	DJD	Design by:	MM	Checked by:
				MCH/CMW

Fig. E. 12.200800026.00 PA-SI REPORT-AUS 00/AUS-SAMPLE LOCATION 1142.2/AUS-0A12(INORGANIC)DWG. Last edited: AUG. 06. 01. 15.55 am. URS Corp.



LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊕ HAND AUGER LOCATION
- ★ TEST PIT LOCATION

Screening Reference	Reference Code
AUS Background Soil UTL	01
Little Gray Background Sediment UTL	02
Little Gray Background Surface Water UTL	03
Ecological Direct Exposure Pathway TRV - Soil	04
Ecological Direct Exposure Pathway TRV - Sediment	05
Ecological Direct Exposure Pathway TRV - Surface Water	06
IEPA General Use Surface Water Quality Aquatic Life Toxicity	07
Superfund Chemical Data Matrix Key values (potential background)	08
1/SEPA Region IX Industrial Soil PFO - noncarcinous	09
1/SEPA Region IX Industrial Soil PFO - carcinous	10
1/SEPA Region IX Tap Water PFO - noncarcinous	11
1/SEPA Region IX Tap Water PFO - carcinous	12
1/SEPA Region IX Migration to Groundwater PFO (DAF-1)	13
IEPA MCL Drinking Water Standard	14
IEPA TACO Industrial/Commercial Soil Ingestion	15
IEPA TACO Construction Worker Soil Ingestion	16
IEPA TACO Class 1 Soil Component of Groundwater	17
IEPA General Use Surface Water Quality Human Health	18

AUS-0A12-002	Units	Result	Reference Code
Aluminum	MG/KG	5000	01
Antimony	MG/KG	2.51	12
Arsenic	MG/KG	10.2	e1.01.05.07
Barium	MG/KG	213	e1.01.05.07
Boron	MG/KG	2.97	e1.01.05.07
Cadmium	MG/KG	0.88	e1.01.05.07
Calcium	MG/KG	3310	01
Chromium	MG/KG	13.8	e1.05
Cobalt	MG/KG	7.3	e1.05
Copper	MG/KG	366	e1.01
Iron	MG/KG	33000	e1.01
Lead	MG/KG	218	01
Magnesium	MG/KG	1470	01
Manganese	MG/KG	772	01
Mercury (duplicate)	MG/KG	0.08	e1.05
Nickel	MG/KG	27.2	e1.05
Potassium	MG/KG	325	01
Selenium	MG/KG	1.1	e1.05.05
Silver	MG/KG	1.4	01
Vanadium	MG/KG	15.7	01
Zinc	MG/KG	487	e1.01.01
Other Parameters	LOG/KG	ND	

AUS-0A12-001	Units	Result	Reference Code
Aluminum	MG/KG	5770	01
Antimony	MG/KG	0.75	15
Arsenic	MG/KG	5.8	e1.05.07
Barium	MG/KG	115	15
Cadmium	MG/KG	1.1	e2.05
Calcium	MG/KG	3400	02
Chromium	MG/KG	22	e1.05
Cobalt	MG/KG	4.9	01
Copper	MG/KG	88	e1.05.07
Iron	MG/KG	15800	01
Lead	MG/KG	85	e1.05
Magnesium	MG/KG	1670	01
Manganese	MG/KG	832	02
Mercury	MG/KG	0.12	05
Nickel	MG/KG	12.6	15
Potassium	MG/KG	327	01
Silver	MG/KG	0.79	01
Sodium	MG/KG	375	01
Vanadium	MG/KG	16.1	01
Zinc	MG/KG	309	e1.05.07
Other Parameters	LOG/KG	ND	

AUS-0A12-003	Units	Result	Reference Code
Aluminum	MG/KG	4450	01
Arsenic	MG/KG	1.1	15
Barium	MG/KG	58.5	15
Calcium	MG/KG	1560	02
Chromium	MG/KG	5.1	15
Cobalt	MG/KG	5.7	01
Copper	MG/KG	789	01
Iron	MG/KG	57.7	01
Lead	MG/KG	3.4	01
Magnesium	MG/KG	207	01
Manganese	MG/KG	12.6	01
Nickel	MG/KG	3.7	01
Potassium	MG/KG	207	01
Selenium	MG/KG	1.8	01
Silver	MG/KG	7.5	01
Vanadium	MG/KG	15.3	01
Zinc	MG/KG	15.3	01
Other Parameters	LOG/KG	ND	

AUS-0A12-004	Units	Result	Reference Code
Aluminum	MG/KG	7570	01
Arsenic	MG/KG	6.8	e1.05.07
Barium	MG/KG	137	15
Calcium	MG/KG	13	e1.05
Chromium	MG/KG	12.7	e1.05
Cobalt	MG/KG	9.9	01
Copper	MG/KG	12.1	01
Iron	MG/KG	15700	e1
Lead	MG/KG	13.5	01
Magnesium	MG/KG	2190	01
Manganese	MG/KG	303	e1
Nickel	MG/KG	11	ND
Potassium	MG/KG	726	01
Selenium	MG/KG	18.8	01
Vanadium	MG/KG	460	e1.01
Zinc	MG/KG	460	e1.01
Other Parameters	LOG/KG	ND	

AUS-0A12-005	Units	Result	Reference Code
Aluminum	MG/KG	5200	01
Arsenic	MG/KG	6.2	e1.05.07
Barium	MG/KG	111	15
Calcium	MG/KG	4600	02
Chromium	MG/KG	13.6	15
Cobalt	MG/KG	7.3	01
Copper	MG/KG	27.3	01
Iron	MG/KG	17400	01
Lead	MG/KG	30	ND
Magnesium	MG/KG	3810	01
Manganese	MG/KG	1730	e1.05
Nickel	MG/KG	15.3	15
Potassium	MG/KG	687	01
Selenium	MG/KG	1.8	e1.05.05
Sodium	MG/KG	417	01
Vanadium	MG/KG	22.9	01
Zinc	MG/KG	185	e1.05.07
Other Parameters	LOG/KG	ND	

AUS-0A12-006	Units	Result	Reference Code
Aluminum	MG/KG	5660	01
Antimony	MG/KG	0.66	ND
Arsenic	MG/KG	14.4	e1.05.07
Barium	MG/KG	4.8	e1.05.07
Boron	MG/KG	127	01
Cadmium	MG/KG	15.2	e1.01
Calcium	MG/KG	2820	01
Chromium	MG/KG	12.3	e1.05
Cobalt	MG/KG	12.7	01
Copper	MG/KG	12.7	01
Iron	MG/KG	17000	01
Lead	MG/KG	50.8	01
Magnesium	MG/KG	1480	01
Manganese	MG/KG	5800	01
Mercury	MG/KG	0.08	01
Nickel	MG/KG	3.9	05
Potassium	MG/KG	438	05
Selenium	MG/KG	1.1	e1.05.05
Sodium	MG/KG	411	01
Vanadium	MG/KG	16	01
Zinc	MG/KG	38	e1.01
Other Parameters	LOG/KG	ND	

AUS-0A12-007	Units	Result	Reference Code
Aluminum	MG/KG	5940	01
Antimony	MG/KG	3.5	e1.05.07
Arsenic	MG/KG	87.4	05
Barium	MG/KG	2.8	01
Boron	MG/KG	0.03	e1.05.07
Calcium	MG/KG	3110	e1.05
Chromium	MG/KG	10.2	e1.05
Cobalt	MG/KG	34	e1.01
Copper	MG/KG	930	01
Iron	MG/KG	43.8	01
Lead	MG/KG	1000	01
Magnesium	MG/KG	1920	01
Manganese	MG/KG	207	01
Nickel	MG/KG	0.78	e1.05
Potassium	MG/KG	310	01
Selenium	MG/KG	13.4	01
Sodium	MG/KG	218	e1.01
Vanadium	MG/KG	19	e1.01
Zinc	MG/KG	25.7	01
Other Parameters	LOG/KG	ND	

AUS-0A12-008	Units	Result	Reference Code
Aluminum	MG/KG	5660	01
Antimony	MG/KG	0.66	ND
Arsenic	MG/KG	14.4	e1.05.07
Barium	MG/KG	4.8	e1.05.07
Boron	MG/KG	127	01
Cadmium	MG/KG	15.2	e1.01
Calcium	MG/KG	2820	01
Chromium	MG/KG	12.3	e1.05
Cobalt	MG/KG	12.7	01
Copper	MG/KG	12.7	01
Iron	MG/KG	17000	01
Lead	MG/KG	50.8	01
Magnesium	MG/KG	1480	01
Manganese	MG/KG	5800	01
Mercury	MG/KG	0.08	01
Nickel	MG/KG	3.9	05
Potassium	MG/KG	438	05
Selenium	MG/KG	1.1	e1.05.05
Sodium	MG/KG	411	01
Vanadium	MG/KG	16	01
Zinc	MG/KG	38	e1.01
Other Parameters	LOG/KG	ND	

AUS-0A12-009	Units	Result	Reference Code
Aluminum	MG/KG	5660	01
Antimony	MG/KG	0.66	ND
Arsenic	MG/KG	14.4	e1.05.07
Barium	MG/KG	4.8	e1.05.07
Boron	MG/KG	127	01
Cadmium	MG/KG	15.2	e1.01
Calcium	MG/KG	2820	01
Chromium	MG/KG	12.3	e1.05
Cobalt	MG/KG	12.7	01
Copper	MG/KG	12.7	01
Iron	MG/KG	17000	01
Lead	MG/KG	50.8	01
Magnesium	MG/KG	1480	01
Manganese	MG/KG	5800	01
Mercury	MG/KG	0.08	01
Nickel	MG/KG	3.9	05
Potassium	MG/KG	438	05
Selenium	MG/KG	1.1	e1.05.05
Sodium	MG/KG	411	01
Vanadium	MG/KG	16	01
Zinc	MG/KG	38	e1.01
Other Parameters	LOG/KG	ND	

AUS-0A12-010	Units	Result	Reference Code
Aluminum	MG/KG	5660	01
Antimony	MG/KG	0.66	ND
Arsenic	MG/KG	14.4	e1.05.07
Barium	MG/KG	4.8	e1.05.07
Boron	MG/KG	127	01
Cadmium	MG/KG	15.2	e1.01
Calcium	MG/KG	2820	01
Chromium	MG/KG	12.3	e1.05
Cobalt	MG/KG	12.7	01
Copper	MG/KG	12.7	01
Iron	MG/KG	17000	01
Lead	MG/KG	50.8	01
Magnesium	MG/KG	1480	01
Manganese	MG/KG	5800	01
Mercury	MG/KG	0.08	01
Nickel	MG/KG	3.9	05
Potassium	MG/KG	438	05
Selenium	MG/KG	1.1	e1.05.05
Sodium	MG/KG	411	01
Vanadium	MG/KG	16	01
Zinc	MG/KG	38	e1.01
Other Parameters	LOG/KG	ND	

AUS-0A12-011	Units	Result	Reference Code
Aluminum	MG/KG	5660	01
Antimony	MG/KG	0.66	ND
Arsenic	MG/KG	14.4	e1.05.07
Barium	MG/KG	4.8	e1.05.07
Boron	MG/KG	127	01
Cadmium	MG/KG	15.2	e1.01
Calcium	MG/KG	2820	01
Chromium	MG/KG	12.3	e1.05
Cobalt	MG/KG	12.7	01
Copper	MG/KG	12.7	01
Iron	MG/KG	17000	01
Lead	MG/KG	50.8	01
Magnesium	MG/KG	1480	01
Manganese	MG/KG	5800	01
Mercury	MG/KG	0.08	01
Nickel	MG/KG	3.9	05
Potassium	MG/KG	438	05
Selenium	MG/KG	1.1	e1.05.05
Sodium	MG/KG	411	01
Vanadium	MG/KG	16	01
Zinc	MG/KG	38	e1.01
Other Parameters	LOG/KG	ND	

AUS-0A12-012	Units	Result	Reference Code
Aluminum	MG/KG	5660	01
Antimony	MG/KG	0.66	ND
Arsenic	MG/KG	14.4	e1.05.07
Barium	MG/KG	4.8	e1.05.07
Boron	MG/KG	127	01
Cadmium	MG/KG	15.2	e1.01
Calcium	MG/KG	2820	01
Chromium	MG/KG	12.3	e1.05
Cobalt	MG/KG	12.7	01
Copper	MG/KG	12.7	01
Iron	MG/KG	17000	01
Lead	MG/KG	50.8	01
Magnesium	MG/KG	1480	01
Manganese	MG/KG	5800	01
Mercury	MG/KG	0.08	01
Nickel	MG/KG	3.9	05
Potassium	MG/KG	438	05
Selenium	MG/KG	1.1	e1.05.05
Sodium	MG/KG	411	01
Vanadium	MG/KG	16	01
Zinc	MG/KG	38	e1.01
Other Parameters	LOG/KG	ND	

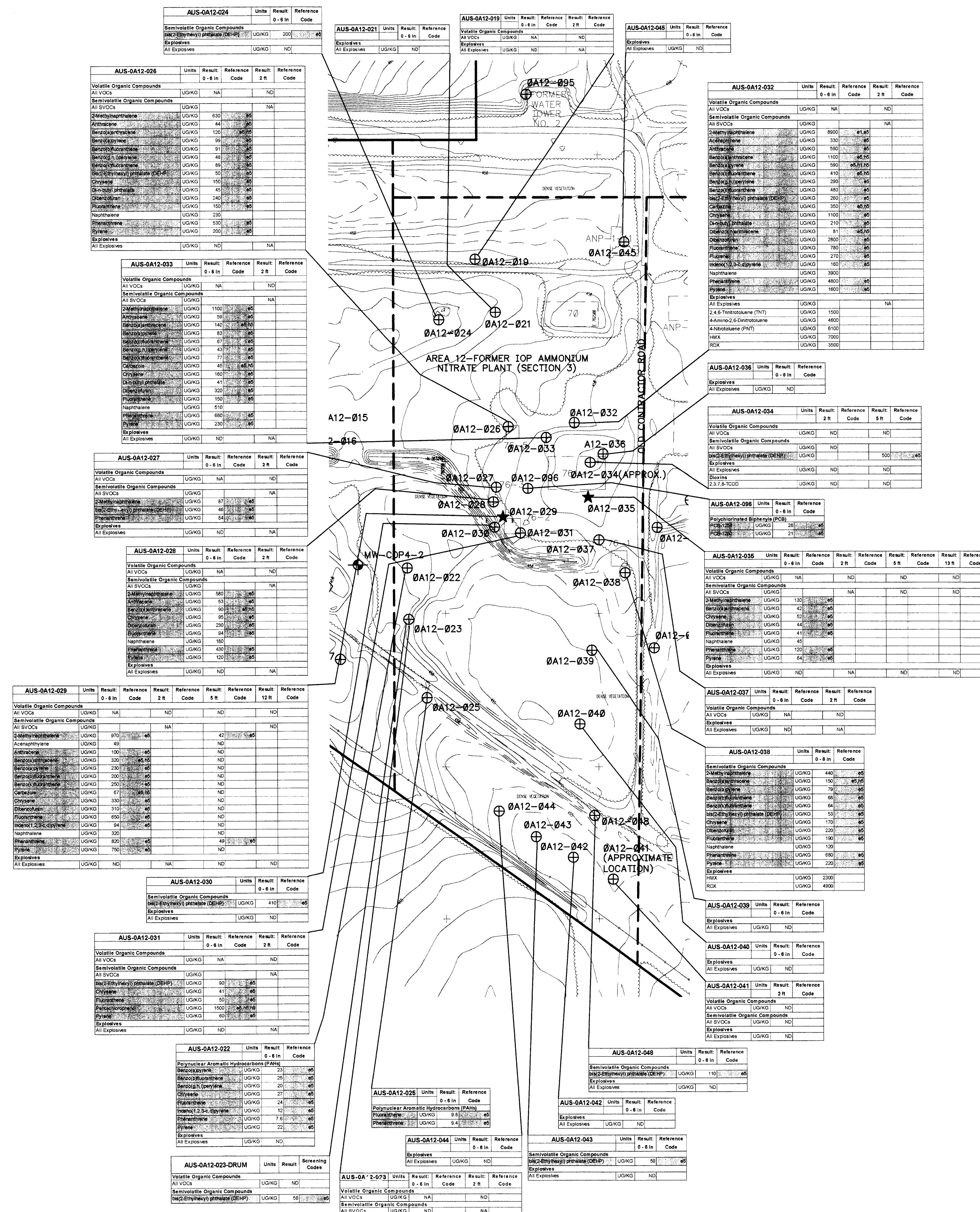
AUS-0A12-013	Units	Result	Reference Code
Aluminum	MG/KG	5660	01
Antimony	MG/KG	0.66	ND
Arsenic	MG/KG	14.4	e1.05.07
Barium	MG/KG	4.8	e1.05.07
Boron	MG/KG	127	01
Cadmium	MG/KG	15.2	e1.01
Calcium	MG/KG	2820	01
Chromium	MG/KG	12.3	e1.05
Cobalt	MG/KG	12.7	01
Copper	MG/KG	12.7	01
Iron	MG/KG	17000	01
Lead	MG/KG	50.8	01
Magnesium	MG/KG	1480	01
Manganese	MG/KG	5800	01
Mercury	MG/KG	0.08	01
Nickel	MG/KG	3.9	05
Potassium	MG/KG	438	05
Selenium	MG/KG	1.1	e1.05.05
Sodium	MG/KG	411	01
Vanadium	MG/KG	16	01
Zinc	MG/KG	38	e1.01
Other Parameters	LOG/KG	ND	

AUS-0A12-014	Units	Result	Reference Code
Aluminum	MG/KG	5660	01
Antimony	MG/KG	0.66	ND
Arsenic	MG/KG	14.4	e1.05.07
Barium	MG/KG	4.8	e1.05.07
Boron	MG/KG	127	01
Cadmium	MG/KG	15.2	e1.01
Calcium	MG/KG	2820	01
Chromium	MG/KG	12.3	e1.05
Cobalt	MG/KG	12.7	

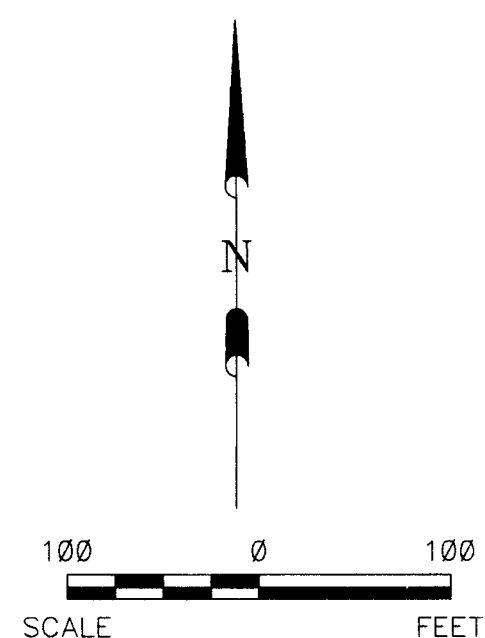
AREA 12-AMMONIUM NITRATE PLANT

LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊕ HAND AUGER LOCATION
- ★ TEST PIT LOCATION



Screening Reference	Reference Code
AUS Background Soil UTL	b1
1 mile Grass Background Sediment UTL	b2
1 mile Grass Background Surface Water UTL	b3
Ecological Direct Exposure Pathway TRV - Soil	e1
Ecological Direct Exposure Pathway TRV - Sediment	e2
Ecological Direct Exposure Pathway TRV - Surface Water	e3
ITPA General Use Surface Water Quality Aquatic Life Toxicity	a4
Superfund Chemical Data Matrix (see values for animal bioaccumulation)	a5
USEPA Region IX Industrial Soil PFO2 - noncarcinous	b1
USEPA Region IX Industrial Soil PFO2 - noncarcinous	b2
USEPA Region IX Tap Water PFO2 - noncarcinous	b3
USEPA Region IX Tap Water PFO2 - noncarcinous	b4
USEPA Region IX Migration to Groundwater PFO2 (DAP-1)	b5
USEPA MCL Drinking Water Standard	b6
ITPA TACO Industrial/Commercial Soil Investigation	b7
ITPA TACO Construction Worker Soil Investigation	b8
ITPA TACO Class 1 Soil Component of Groundwater	b9
ITPA General Use Surface Water Quality Human Health	b10



Revision No.	Description	Date	By	App.

REVISIONS

PA/SI REPORT-AUS OU CRAB ORCHARD NWR MARION, ILLINOIS

AUS-0A12-Section 3-Sample Locations and Detections of Organic Compounds in Soils/Drums

Date:	12/27/00	Project Number:	232000026.00	Figure Number:	20-13
Drawn by:	DJD	Design by:	MAM	Checked by:	MCH/CMW

URS

File: E:\232000026\00\PA-SI REPORT-AUS OU\AUS-SAMPLE LOCATION 11&12\AUS-0A12\ORGANIC.DWG Last edited: AUG 30, 01 @ 09:11 a.m. URS Corp.

NOTES:

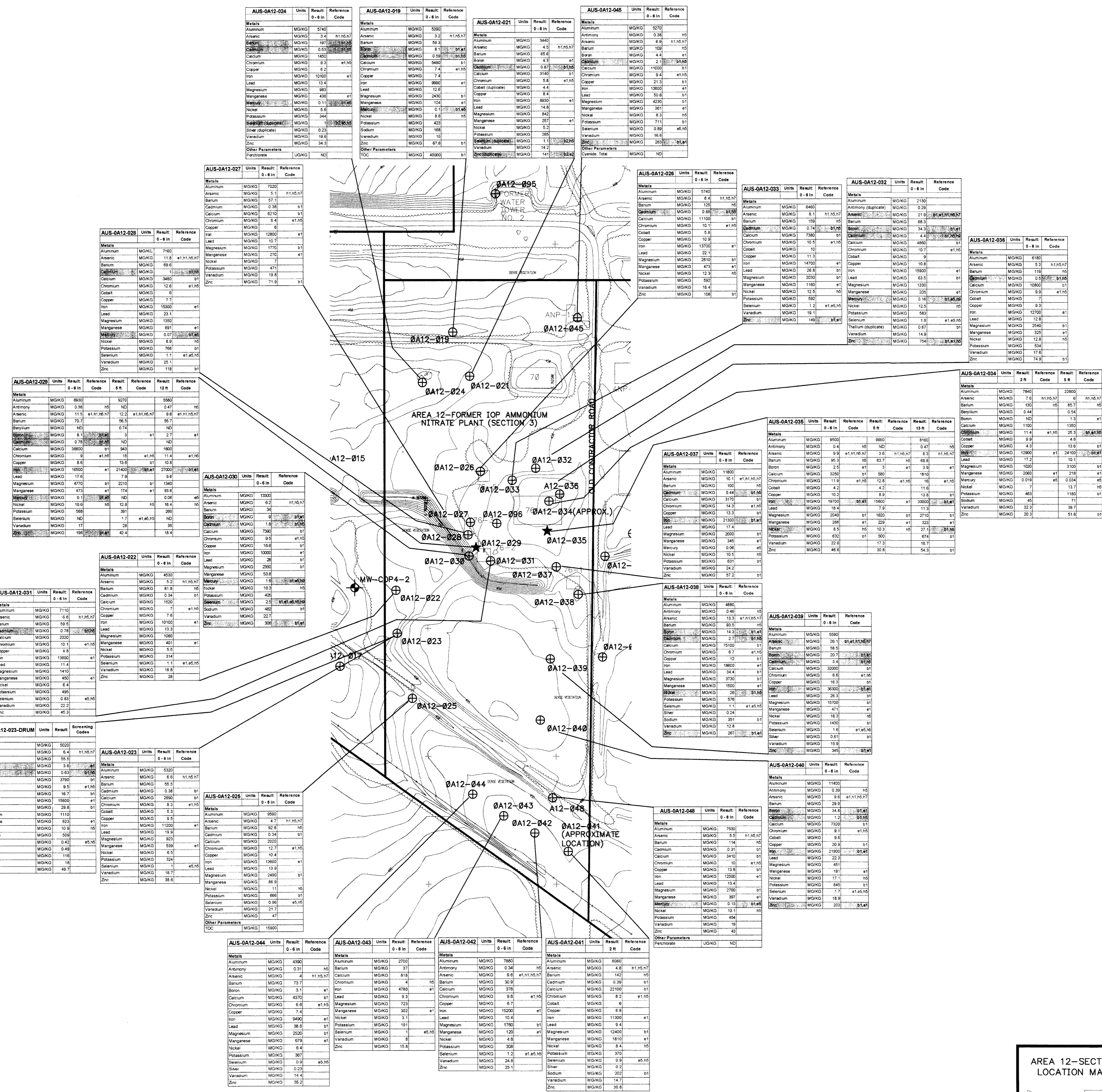
1. BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT. DASHED OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES BASED ON DRAWINGS PREPARED BY FORMER TENANTS (U.S. POWDER/OLIN). SEE FIGURE 15-3 FOR EXPLANATION OF FORMER STRUCTURES. NOTE THAT U.S. POWDER BUILDING NUMBERS ARE USED TO DESIGNATE ALL STRUCTURES EXCEPT THOSE USED EXCLUSIVELY BY OLIN, WHICH HAVE OLIN BUILDING NUMBERS.
2. DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
3. THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

File: E:\23200000206\0014-S1-REPORT-AUS-012-DRUM-LOCATIONS.DWG Last edited: AUG. 06. 01. @ 10:55 a.m. URS Corp.

NOTES:

1. BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVALS ONE FOOT. DASHED OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES BASED ON DRAWINGS PREPARED BY FORMER TENANTS (U.S. POWDER/OLIN). SEE FIGURE 15-3 FOR EXPLANATION OF FORMER STRUCTURES. NOTE THAT U.S. POWDER BUILDING NUMBERS ARE USED TO DESIGNATE ALL STRUCTURES EXCEPT THOSE USED EXCLUSIVELY BY OLIN, WHICH HAVE OLIN BUILDING NUMBERS.

2. DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.



- MONITORING WELL LOCATION
HAND AUGER LOCATION
TEST PIT LOCATION

Table with 2 columns: Screening Reference and Reference Code. Lists various screening and reference codes used in the report.

Table with 5 columns: Revision No., Description, Date, By, App. Contains revision history information.

PA/SI REPORT-AUS OU CRAB ORCHARD NWR MARION, ILLINOIS
AUS-0A12-Section 3-Sample Locations and Detections of Inorganic Compounds in Soils/Drums
Includes project details like Date, Project Number, Figure Number, Design by, and Checked by, along with the URS logo.

AREA 12-AMMONIUM NITRATE PLANT

LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊕ HAND AUGER LOCATION
- ★ TEST PIT LOCATION

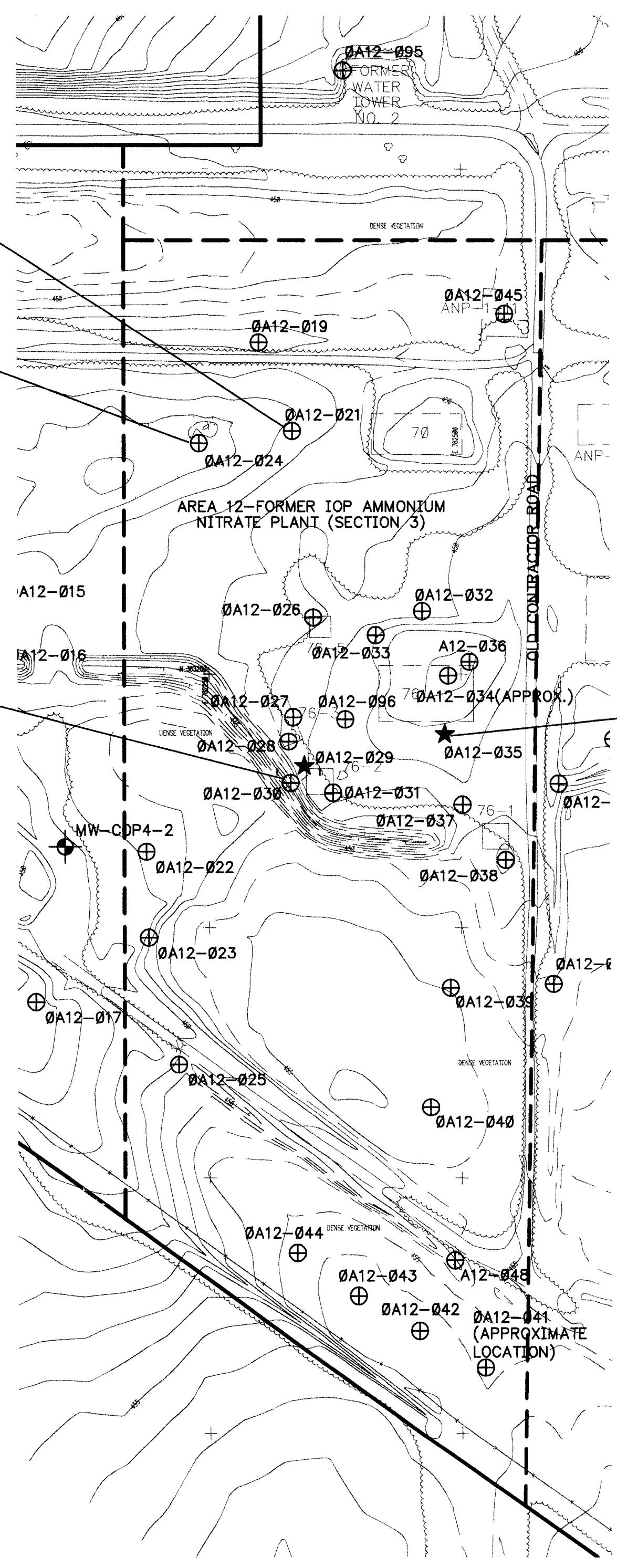
Screening Reference	Reference Code
AUS Background Soil (TL)	b1
Little Creek Background Sediment (TL)	b2
Little Creek Background Surface Water (TL)	b3
Ecological Direct Exposure Pathway: TRV - Soil	c1
Ecological Direct Exposure Pathway: TRV - Sediment	c2
Ecological Direct Exposure Pathway: TRV - Surface Water	c3
IEPA General Use Surface Water Quality Aquatic Life Toxicity	c4
Superfund Chemical Data Matrix Non-Voliles (potential bioaccumulative)	c5
USEPA Region IX Industrial Soil PRG - carcinogen	b1
USEPA Region IX Industrial Soil PRG - noncarcinogen	b2
USEPA Region IX Tap Water PRG - carcinogen	b3
USEPA Region IX Tap Water PRG - noncarcinogen	b4
USEPA Region IX Migration Groundwater PRG (D-F-1)	b5
USEPA MCL Drinking Water Standards	b6
IEPA TACO Industrial/Commercial Soil Ingestion	b7
IEPA TACO Construction Worker Soil Ingestion	b8
IEPA TACO Class I Soil Component of Groundwater	b9
IEPA General Use Surface Water Quality Human Health	b10

AUS-0A12-021-SW-00	Units	Result	Screening Codes
Explosives			
All Explosives	UGA	ND	
Metals			
Aluminum	UGA	1160	b3
Barium	UGA	39	b3
Boron	UGA	0.41	
Cadmium	UGA	20	b3
Calcium	UGA	1060	b3
Copper	UGA	4.8	b3
Chromium	UGA	11.1	b3
Chlorine	UGA	8.8	b3
Chromium	UGA	12.10	b3
Lead	UGA	12.5	b3
Magnesium	UGA	2700	b3
Manganese	UGA	80	b3
Mercury	UGA	11.8	b3
Nickel	UGA	890	b3
Potassium	UGA	3900	b3
Selenium	UGA	1.8	b3
Silver	UGA	1.0	b3
Sulfur	UGA	20.6	b3
Zinc	UGA	106	b3
Other Parameters			
Nitrogen, Ammonia as N	MGA	1.0	b3
Nitrogen, Nitrate as N	MGA	1.0	b3
Nitrogen, Total as N	MGA	1.0	b3
Phosphate, Total as P	MGA	1.0	b3

AUS-0A12-024-SW-00	Units	Result	Screening Codes
Explosives			
All Explosives	UGA	ND	
Metals			
Aluminum	UGA	125	b3
Barium	UGA	1.4	
Boron	UGA	158	b3
Calcium	UGA	4760	b3
Copper	UGA	4.3	b3
Chromium	UGA	1970	b3
Chromium	UGA	1970	b3
Lead	UGA	318	b3
Magnesium	UGA	4900	b3
Manganese	UGA	2.1	b3
Mercury	UGA	1900	b3
Nickel	UGA	1900	b3
Potassium	UGA	1900	b3
Selenium	UGA	1.0	b3
Silver	UGA	1.0	b3
Sulfur	UGA	1.0	b3
Zinc	UGA	1.0	b3
Other Parameters			
Nitrogen, Ammonia as N	MGA	1.0	b3
Nitrogen, Nitrate as N	MGA	1.0	b3
Nitrogen, Total as N	MGA	1.0	b3
Phosphate, Total as P	MGA	1.0	b3

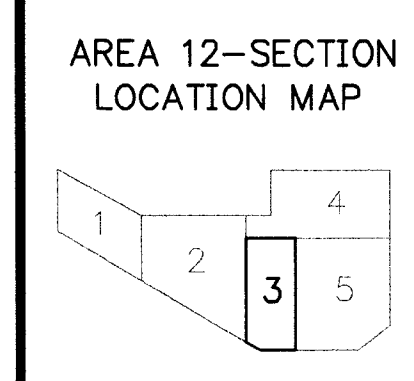
AUS-0A12-030-SW-00	Units	Result	Screening Codes
Explosives			
All Explosives	UGA	ND	
Metals			
Aluminum	UGA	1.8	
Barium	UGA	1.4	
Boron	UGA	138	b3
Calcium	UGA	81.8	b3
Chromium	UGA	600	b3
Chromium	UGA	16100	b3
Copper	UGA	4	b3
Copper	UGA	3.7	b3
Lead	UGA	900	b3
Lead	UGA	7830	b3
Magnesium	UGA	311	b3
Magnesium	UGA	3100	b3
Mercury	UGA	2	b3
Nickel	UGA	8400	b3
Potassium	UGA	30	b3
Sulfur	UGA	30	b3
Zinc	UGA	30	b3
Other Parameters			
Nitrogen, Ammonia as N	MGA	0.30	b3
Nitrogen, Nitrate as N	MGA	0.08	b3
Nitrogen, Total as N	MGA	0.00	b3
Phosphate, Total as P	MGA	0.00	b3
Phosphate, Total Orthophosphate as P	MGA	1.0	b3

AUS-0A12-036-SW-00 (Trench Water)	Units	Result	Screening Codes
Explosives			
All Explosives	UGA	ND	
Metals			
Aluminum	UGA	ND	
Barium	UGA	ND	
Boron	UGA	ND	
Calcium	UGA	20	b3
Calcium	UGA	20	b3
Chromium	UGA	40	b3
Chromium	UGA	40	b3
Copper	UGA	4.0	b3
Copper	UGA	4.0	b3
Lead	UGA	11000	b3
Lead	UGA	11000	b3
Magnesium	UGA	1100	b3
Magnesium	UGA	1100	b3
Mercury	UGA	4.0	b3
Mercury	UGA	4.0	b3
Nickel	UGA	11000	b3
Nickel	UGA	11000	b3
Potassium	UGA	11000	b3
Potassium	UGA	11000	b3
Selenium	UGA	2.0	b3
Selenium	UGA	2.0	b3
Sulfur	UGA	11000	b3
Sulfur	UGA	11000	b3
Zinc	UGA	11000	b3
Zinc	UGA	11000	b3
Other Parameters			
Phosphate, Total as P	MGA	2.0	b3
Phosphate, Total Orthophosphate as P	MGA	1.0	b3



- NOTES:
1. BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT. DASHED OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES BASED ON DRAWINGS PREPARED BY FORMER TENANTS (U.S. POWDER/OLIN). SEE FIGURE 15-3 FOR EXPLANATION OF FORMER STRUCTURES. NOTE THAT U.S. POWDER BUILDING NUMBERS ARE USED TO DESIGNATE ALL STRUCTURES EXCEPT THOSE USED EXCLUSIVELY BY OLIN, WHICH HAVE OLIN BUILDING NUMBERS.
 2. DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
 3. THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

AREA 12-AMMONIUM NITRATE PLANT

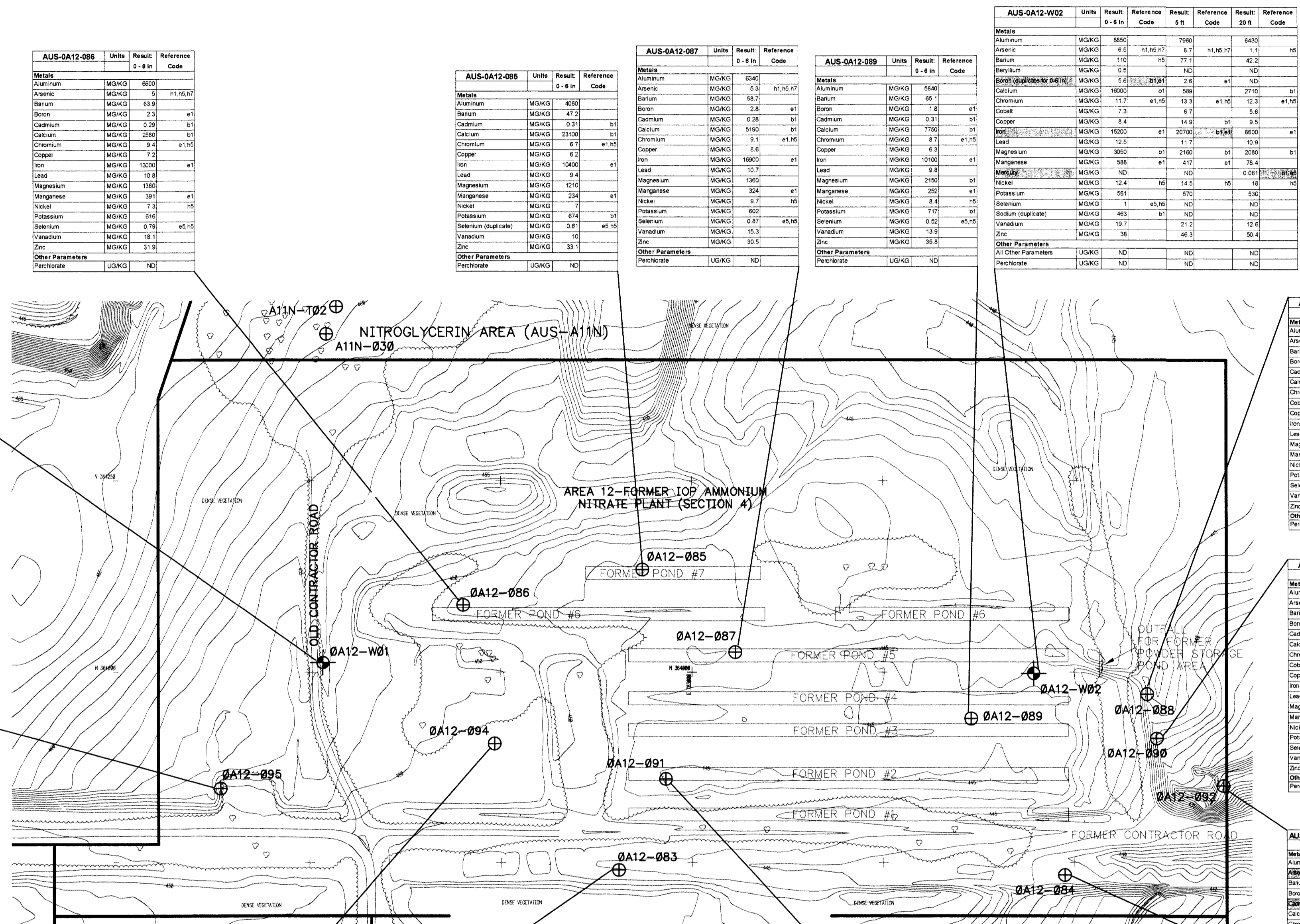


Revision No.	Description	Date	By	App.
REVISIONS				
PA/SI REPORT-AUS OU CRAB ORCHARD NWR MARION, ILLINOIS				
AUS-0A12-Section 3-Sample Locations and Detections in Surface Water and Trench Water				
Date:	Project Number:	Figure Number:		
12/27/00	232000026.00	20-15		
Drawn by:	Design by:	Checked by:		
GJD	MAM	MCH/CMW		
URS				

LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊕ HAND AUGER LOCATION
- ★ TEST PIT LOCATION

Screening Reference	Reference Code
AUS Background Soil LTL	b1
Little Green Background Sediment LTL	b2
Little Green Background Surface Water LTL	b3
Biological Direct Exposure Pathway TRV - Soil	e1
Ecological Direct Exposure Pathway TRV - Sediment	e2
Ecological Direct Exposure Pathway TRV - Surface Water	e3
IEPA General Use Surface Water Quality Aquatic Life Toxicity	e4
Superfund Chemical Data Matrix (Kovar values potential bioaccumulation)	e5
USEPA Region IX Industrial Soil PRG - noncarcinous	h1
USEPA Region IX Industrial Soil PRG - noncarcinous	h2
USEPA Region IX Tap Water PRG - noncarcinous	h3
USEPA Region IX Tap Water PRG - noncarcinous	h4
USEPA Region IX Migration to Groundwater PRG (DAF-1)	h5
USEPA MCL Drinking Water Standards	h6
IEPA TACO Industrial/Commercial Soil Ingestion	h7
IEPA TACO Construction Worker Soil Ingestion	h8
IEPA TACO Class I Soil Component of Groundwater	h9
IEPA General Use Surface Water Quality Human Health	h10



AUS-0A12-086			
Units	Result	Reference	
0 - 8 in		Code	
Metals			
Aluminum	MG/KG	6600	
Arsenic	MG/KG	5	H1, H5, H7
Barium	MG/KG	63.9	
Boron	MG/KG	2.3	e1
Cadmium	MG/KG	0.29	b1
Calcium	MG/KG	2480	b1
Chromium	MG/KG	9.4	e1, h5
Copper	MG/KG	1.2	
Iron	MG/KG	13000	e1
Lead	MG/KG	19.8	
Magnesium	MG/KG	1800	
Manganese	MG/KG	391	e1
Nickel	MG/KG	7.3	h5
Potassium	MG/KG	846	
Selenium	MG/KG	0.19	e5, h5
Vanadium	MG/KG	18.1	
Zinc	MG/KG	31.9	
Other Parameters			
Perrchlorate	UG/KG	ND	

AUS-0A12-085			
Units	Result	Reference	
0 - 8 in		Code	
Metals			
Aluminum	MG/KG	4000	
Arsenic	MG/KG	47.20	
Barium	MG/KG	0.31	b1
Boron	MG/KG	23000	b1
Cadmium	MG/KG	6.7	e1, h5
Chromium	MG/KG	6.2	
Copper	MG/KG	13400	e1
Iron	MG/KG	9.4	
Lead	MG/KG	12100	
Magnesium	MG/KG	234	e1
Nickel	MG/KG	7	h5
Potassium	MG/KG	474	b1
Selenium	MG/KG	0.81	e5, h5
Vanadium	MG/KG	10	
Zinc	MG/KG	33.1	
Other Parameters			
Perrchlorate	UG/KG	ND	

AUS-0A12-089			
Units	Result	Reference	
0 - 8 in		Code	
Metals			
Aluminum	MG/KG	5840	
Arsenic	MG/KG	66.7	
Barium	MG/KG	1.8	e1
Boron	MG/KG	0.28	b1
Cadmium	MG/KG	51900	b1
Chromium	MG/KG	9.1	e1, h5
Copper	MG/KG	6.6	
Iron	MG/KG	18900	e1
Lead	MG/KG	10.7	
Magnesium	MG/KG	1360	
Manganese	MG/KG	324	e1
Nickel	MG/KG	6.7	h5
Potassium	MG/KG	660	
Selenium	MG/KG	0.87	e5, h5
Vanadium	MG/KG	19.3	
Zinc	MG/KG	30.5	
Other Parameters			
Perrchlorate	UG/KG	ND	

AUS-0A12-W02			
Units	Result	Reference	
0 - 8 in		Code	
Metals			
Aluminum	MG/KG	6850	
Arsenic	MG/KG	6.5	H1, H5, H7
Barium	MG/KG	110	h5
Boron	MG/KG	2.8	h5
Cadmium	MG/KG	5.6	b1, e1
Calcium	MG/KG	16000	b1
Chromium	MG/KG	11.7	e1, h5
Cobalt	MG/KG	1.3	h5
Copper	MG/KG	6.4	h5
Iron	MG/KG	15000	e1
Lead	MG/KG	12.9	h5
Magnesium	MG/KG	3000	b1
Manganese	MG/KG	588	e1
Nickel	MG/KG	140	h5
Potassium	MG/KG	12.4	h5
Selenium	MG/KG	0.81	e5, h5
Sodium	MG/KG	460	b1
Vanadium	MG/KG	19.7	h5
Zinc	MG/KG	46.3	h5
Other Parameters			
All Other Parameters	UG/KG	ND	
Perrchlorate	UG/KG	ND	

AUS-0A12-W01			
Units	Result	Reference	
0 - 8 in		Code	
Metals			
Aluminum	MG/KG	3920	
Arsenic	MG/KG	5.1	H1, H5, H7
Barium	MG/KG	45.8	h5
Boron	MG/KG	0.49	h5
Cadmium	MG/KG	16.2	b1, e1
Calcium	MG/KG	1.1	b1, h5
Chromium	MG/KG	13000	b1
Chromium	MG/KG	3.8	e1, h5
Copper	MG/KG	5.8	h5
Iron	MG/KG	8700	e1
Lead	MG/KG	76.7	b1
Lead	MG/KG	14000	b1
Magnesium	MG/KG	523	e1
Manganese	MG/KG	5.7	h5
Nickel	MG/KG	0.84	e5, h5
Potassium	MG/KG	0.84	e5, h5
Selenium	MG/KG	0.84	e5, h5
Silver	MG/KG	ND	
Sodium	MG/KG	ND	
Thallium	MG/KG	ND	
Vanadium	MG/KG	11.7	h5
Zinc	MG/KG	124	b1, h5
Other Parameters			
All Other Parameters	UG/KG	ND	
Perrchlorate	UG/KG	ND	

AUS-0A12-086			
Units	Result	Reference	
0 - 8 in		Code	
Metals			
Aluminum	MG/KG	1880	
Arsenic	MG/KG	6	H1, H5, H7
Barium	MG/KG	132	h5
Boron	MG/KG	0.33	b1
Calcium	MG/KG	929	
Chromium	MG/KG	10.8	e1, h5
Copper	MG/KG	10.5	
Iron	MG/KG	14000	e1
Lead	MG/KG	12.7	
Magnesium	MG/KG	1970	b1
Manganese	MG/KG	154	e1
Nickel	MG/KG	7.7	h5
Potassium	MG/KG	465	
Sodium	MG/KG	589	b1
Vanadium	MG/KG	18.1	
Zinc	MG/KG	18.3	

AUS-0A12-084			
Units	Result	Reference	
0 - 8 in		Code	
Metals			
Aluminum	MG/KG	4900	
Arsenic	MG/KG	4.5	H1, H5, H7
Barium	MG/KG	75.6	
Boron	MG/KG	3	e1
Cadmium	MG/KG	0.74	b1, h5
Calcium	MG/KG	16000	b1
Chromium	MG/KG	9.9	e1, h5
Cobalt	MG/KG	7.1	
Copper	MG/KG	5.7	
Iron	MG/KG	9860	e1
Lead	MG/KG	28.7	b1
Magnesium	MG/KG	5080	b1
Manganese	MG/KG	1340	e1
Nickel	MG/KG	6.8	
Potassium	MG/KG	285	
Selenium	MG/KG	1	e5, h5
Vanadium	MG/KG	16.6	
Zinc	MG/KG	216	b1, h5

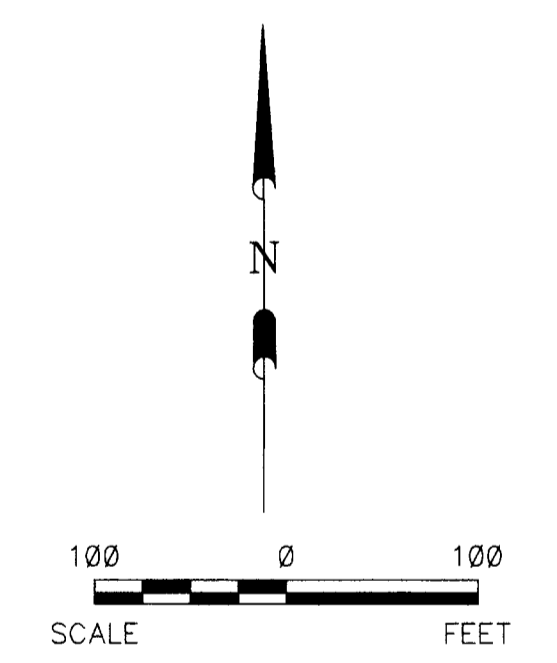
AUS-0A12-085			
Units	Result	Reference	
0 - 8 in		Code	
Metals			
Aluminum	MG/KG	6900	
Arsenic	MG/KG	7.1	H1, H5, H7
Barium	MG/KG	199	h5
Boron	MG/KG	0.31	b1
Calcium	MG/KG	2440	
Chromium	MG/KG	11.4	e1, h5
Cobalt	MG/KG	11.3	
Copper	MG/KG	10.8	
Iron	MG/KG	18000	e1
Lead	MG/KG	12.7	
Magnesium	MG/KG	2100	b1
Manganese	MG/KG	541	e1
Nickel	MG/KG	14.8	h5
Potassium	MG/KG	428	
Selenium	MG/KG	0.63	e5, h5
Vanadium	MG/KG	18	
Zinc	MG/KG	39.9	
Other Parameters			
Perrchlorate	UG/KG	ND	

AUS-0A12-091			
Units	Result	Reference	
0 - 8 in		Code	
Metals			
Aluminum	MG/KG	8850	
Arsenic	MG/KG	4.8	H1, H5, H7
Barium	MG/KG	68.1	
Boron	MG/KG	1.8	e1
Cadmium	MG/KG	0.29	b1
Calcium	MG/KG	4380	b1
Chromium	MG/KG	10.3	e1, h5
Copper	MG/KG	8.3	
Iron	MG/KG	13900	e1
Lead	MG/KG	10.9	
Magnesium	MG/KG	2100	b1
Manganese	MG/KG	478	e1
Nickel	MG/KG	8.4	h5
Potassium	MG/KG	590	
Selenium	MG/KG	0.63	e5, h5
Vanadium	MG/KG	18	
Zinc	MG/KG	31.6	
Other Parameters			
Perrchlorate	UG/KG	ND	

AUS-0A12-084			
Units	Result	Reference	
0 - 8 in		Code	
Metals			
Aluminum	MG/KG	7940	
Arsenic	MG/KG	14.4	H1, H5, H7
Barium	MG/KG	94.4	h5
Boron	MG/KG	6	e1
Cadmium	MG/KG	0.78	b1, h5
Calcium	MG/KG	4600	b1
Chromium	MG/KG	14.3	e1, h5
Cobalt	MG/KG	8.8	
Copper	MG/KG	8.3	
Iron	MG/KG	13.3	b1, e1
Lead	MG/KG	13.3	
Magnesium	MG/KG	2100	b1
Manganese	MG/KG	1200	e1
Nickel	MG/KG	8.1	h5
Potassium	MG/KG	524	
Selenium	MG/KG	0.96	e5, h5
Vanadium	MG/KG	31.8	
Zinc	MG/KG	49.7	

AUS-0A12-088			
Units	Result	Reference	
0 - 8 in		Code	
Metals			
Aluminum	MG/KG	14200	
Arsenic	MG/KG	6.2	H1, H5, H7
Barium	MG/KG	119	h5
Boron	MG/KG	1.9	e1
Calcium	MG/KG	0.28	b1
Calcium	MG/KG	2620	b1
Chromium	MG/KG	12.9	e1, h5
Cobalt	MG/KG	6	
Copper	MG/KG	9.8	
Iron	MG/KG	16400	e1
Lead	MG/KG	9.6	
Magnesium	MG/KG	1800	b1
Manganese	MG/KG	358	e1
Nickel	MG/KG	11.6	h5
Potassium	MG/KG	566	
Selenium	MG/KG	0.81	e5, h5
Vanadium	MG/KG	20.9	
Zinc	MG/KG	36.9	
Other Parameters			
Perrchlorate	UG/KG	ND	

AUS-0A12-092			
Units	Result	Reference	
0 - 8 in		Code	
Metals			
Aluminum	MG/KG	7940	
Arsenic	MG/KG	14.4	H1, H5, H7
Barium	MG/KG	94.4	h5
Boron	MG/KG	6	e1
Cadmium	MG/KG	0.78	b1, h5
Calcium	MG/KG	4600	b1
Chromium	MG/KG	14.3	e1, h5
Cobalt	MG/KG	8.8	
Copper	MG/KG	8.3	
Iron	MG/KG	13.3	b1, e1
Lead	MG/KG	13.3	
Magnesium	MG/KG	2100	b1
Manganese	MG/KG	1200	e1
Nickel	MG/KG	8.1	h5
Potassium	MG/KG	524	
Selenium	MG/KG	0.96	e5, h5
Vanadium	MG/KG	31.8	
Zinc	MG/KG	49.7	



Revision No.	Description	Date	By	App.
REVISIONS				

PA/SI REPORT-AUS OU
CRAB ORCHARD NWR
MARION, ILLINOIS

AUS-0A12-Section 4-Sample Locations
and Detections of Inorganic

LEGEND

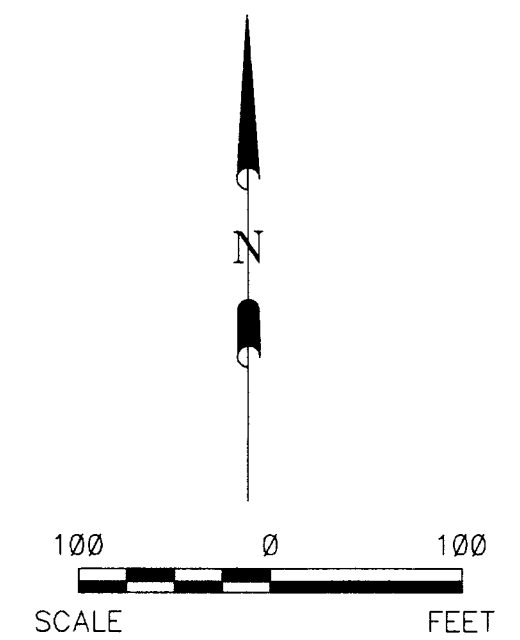
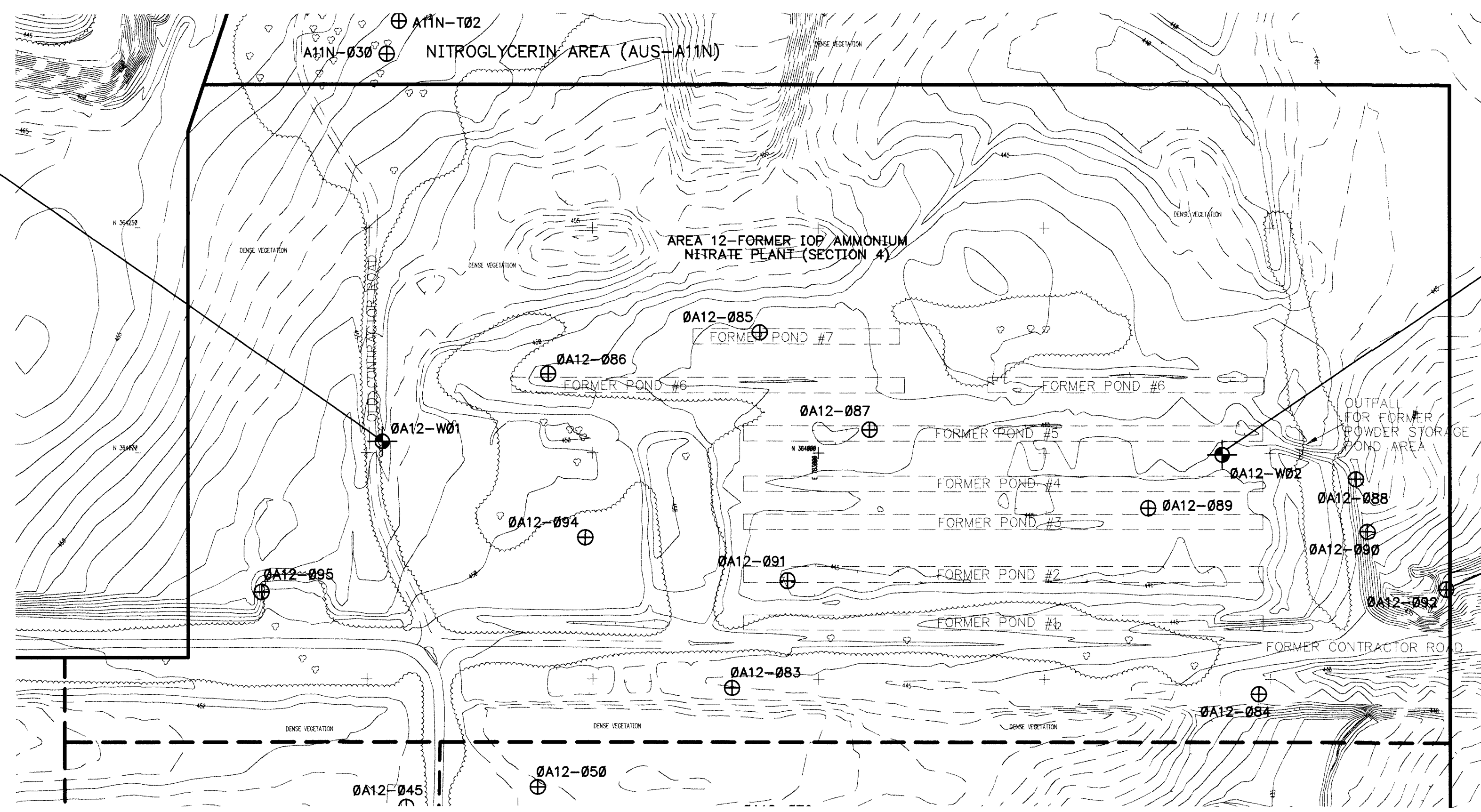
- ⊕ MONITORING WELL LOCATION
- ⊕ HAND AUGER LOCATION
- ★ TEST PIT LOCATION

Screening Reference	Reference Code
AUS Background Soil LTL	31
Little Grass Background Sediment LTL	32
Little Grass Background Surface Water LTL	33
Ecological Direct Exposure Pathway TRV - Soil	41
Ecological Direct Exposure Pathway TRV - Sediment	42
Ecological Direct Exposure Pathway TRV - Surface Water	43
EPA Regional Use Surface Water Quality Appraisal Life Toxicity	44
Expected Chemical Data Matrix Key Values (Potential Toxicity)	45
USEPA Region IX Industrial Soil PFOA - groundwater	51
USEPA Region IX Industrial Soil PFOA - surface water	52
USEPA Region IX Tap Water PFOA - groundwater	53
USEPA Region IX Tap Water PFOA - surface water	54
USEPA Region IX Migration to Groundwater PFOA (MAY-1)	55
USEPA MCL Drinking Water Standards	56
EPA TACO Industrial/Commercial Soil Ingestion	57
EPA TACO Consumer Worker Soil Ingestion	58
EPA TACO Child Soil Consumption of Groundwater	59
EPA General Use Surface Water Quality Human Health	610

AUS-0A12-W01-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
All SVOCs	USGL	ND	
Environmental Organic Compounds			
All SVOCs	USGL	ND	
Explosives			
All Explosives	USGL	ND	
Metals			
Aluminum	USGL	132000	33, 43
Antimony	USGL	18.2	33, 43
Barium	USGL	1800	
Beryllium	USGL	12.4	33, 43
Cadmium	USGL	8000	
Chromium	USGL	215	33, 43
Copper	USGL	132	
Cobalt	USGL	184	
Iron	USGL	288000	33, 43
Lead	USGL	112	33, 43
Magnesium	USGL	72300	
Manganese	USGL	7310	33, 43
Mercury	USGL	0.32	
Nickel	USGL	290	33, 43
Potassium	USGL	7450	
Selenium	USGL	8.2	
Sodium	USGL	184000	
Zinc	USGL	770	33, 43
Other Parameters			
Arsenic, Total (as As)	MGL	499	
Nitrogen, Ammonia (as N)	MGL	0.16	
Nitrogen, Nitrate-Nitrite	MGL	0.060	
Perchlorate	USGL	ND	
Phosphate, Total (as P)	MGL	0.12	
Sulfate (as SO4)	USGL	20000	
TDS	MGL	888	
TSS	USGL	750	

AUS-0A12-W03-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
Chloroethane	USGL	0.7	
Environmental Organic Compounds			
All SVOCs	USGL	ND	
Explosives			
All Explosives	USGL	ND	
Metals			
Aluminum	USGL	398	
Barium	USGL	69.7	
Cadmium	USGL	7490	
Chromium	USGL	34.1	
Copper	USGL	384	
Iron	USGL	37400	
Magnesium	USGL	47.2	
Mercury	USGL	2.3	
Potassium	USGL	782	
Sodium	USGL	20800	
Zinc	USGL	2.8	
Other Parameters			
Perchlorate	USGL	ND	

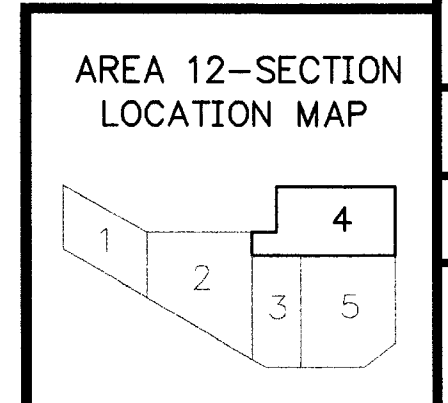
AUS-0A12-090-SW-00	Units	Result	Screening Codes
Explosives			
2,4-Dinitrotoluene	USGL	0.38	
2,6-Dinitrotoluene	USGL	1.4	
2-Nitrotoluene (ONT)	USGL	1.4	
Metals			
Aluminum	USGL	469	33, 43
Barium	USGL	63.7	43
Beryllium	USGL	475	
Cadmium	USGL	132000	33, 43
Chromium	USGL	865	33, 43
Copper	USGL	107000	33, 43
Iron	USGL	66.9	33, 43
Magnesium	USGL	1.4	33, 43
Manganese	USGL	28.2	43
Nickel	USGL	114000	43
Sodium	USGL	28.2	43
Zinc	USGL	28.2	43
Other Parameters			
Nitrogen, Ammonia (as N)	MGL	0.24	
Nitrogen, Nitrate-Nitrite	MGL	35.9	43



NOTES:

1. BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT. DASHED OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES BASED ON DRAWINGS PREPARED BY FORMER TENANTS (U.S. POWDER/OLIN). SEE FIGURE 15-3 FOR EXPLANATION OF FORMER STRUCTURES. NOTE THAT U.S. POWDER BUILDING NUMBERS ARE USED TO DESIGNATE ALL STRUCTURES EXCEPT THOSE USED EXCLUSIVELY BY OLIN, WHICH HAVE OLIN BUILDING NUMBERS.
2. DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE OCSR FOR DATA QUALIFIERS.
3. THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

AREA 12-AMMONIUM NITRATE PLANT

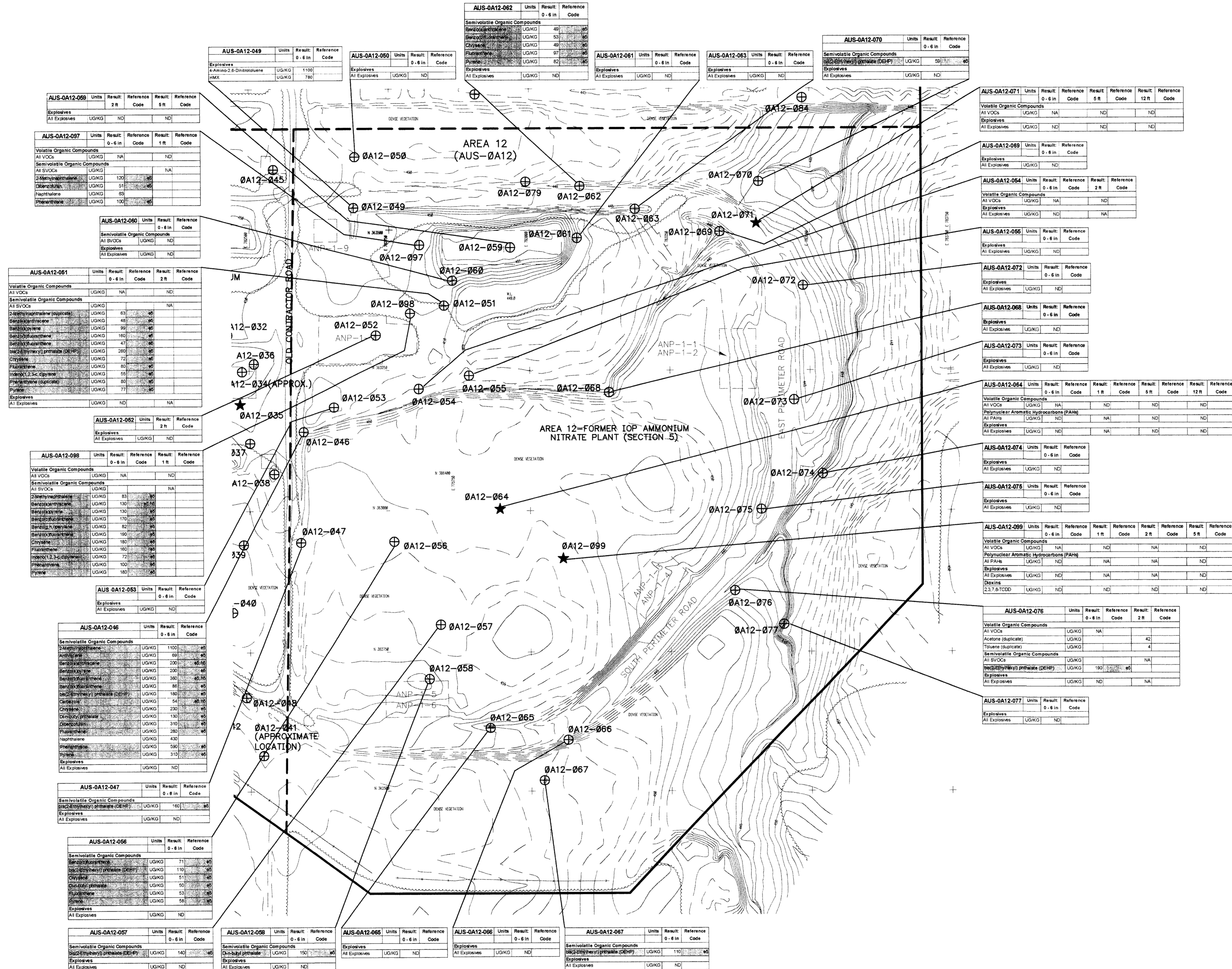


Revision No.	Description	Date	By	App.	
REVISIONS					
PA/SI REPORT-AUS OU CRAB ORCHARD NWR MARION, ILLINOIS					
AUS-0A12-Section 4-Sample Locations and Detections in Surface Water and Groundwater					
Date:	12/27/00	Project Number:	232000026.00	Figure Number:	20-18
Drawn by:	DJD	Design by:	MAM	Checked by:	MCH/CMW
URS					

LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊕ HAND AUGER LOCATION
- ★ TEST PIT LOCATION

Screening Reference	Reference Code
AUS Background Soil UTL	31
Little Green Background Sediment UTL	32
Little Green Background Surface Water UTL	33
Ecological Direct Exposure Pathway: TEL - Soil	41
Ecological Direct Exposure Pathway: TEL - Sediment	42
Ecological Direct Exposure Pathway: TEL - Surface Water	43
IEPA General Use Surface Water Quality Agency: IIG Toxicity	44
Support Chemical Data Matrix: Key values (potential bioaccumulation)	45
USEPA Region IX Industrial Soil PFCs - noncarcinogenic	46
USEPA Region IX Industrial Soil PFCs - carcinogenic	47
USEPA Region IX Tap Water PFCs - noncarcinogenic	48
USEPA Region IX Tap Water PFCs - carcinogenic	49
USEPA Region IX Migration in Groundwater PFCs (DnPh-1)	50
USEPA MCL Drinking Water Standards	51
IEPA TACO Industrial/Commercial Soil Ingestion	52
IEPA TACO Construction Worker Soil Ingestion	53
IEPA TACO Class 1 Soil Component of Groundwater	54
IEPA General Use Surface Water Quality Human Health	55



AUS-0A12-049	Units	Result	Reference Code
Explosives	UG/KG	1100	
All Explosives	UG/KG	790	

AUS-0A12-050	Units	Result	Reference Code
Explosives	UG/KG	ND	
All Explosives	UG/KG	ND	

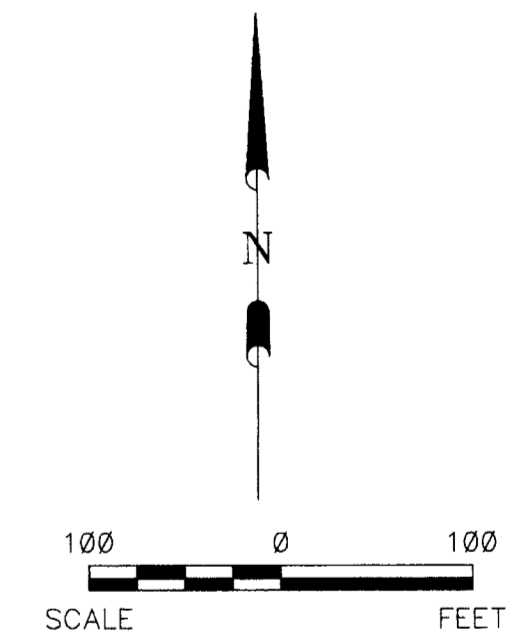
AUS-0A12-051	Units	Result	Reference Code
Explosives	UG/KG	ND	
All Explosives	UG/KG	ND	

AUS-0A12-052	Units	Result	Reference Code
Explosives	UG/KG	ND	
All Explosives	UG/KG	ND	

AUS-0A12-053	Units	Result	Reference Code
Explosives	UG/KG	ND	
All Explosives	UG/KG	ND	

AUS-0A12-054	Units	Result	Reference Code
Explosives	UG/KG	ND	
All Explosives	UG/KG	ND	

AUS-0A12-055	Units	Result	Reference Code
Explosives	UG/KG	ND	
All Explosives	UG/KG	ND	



Revision No.	Description	Date	By	App.

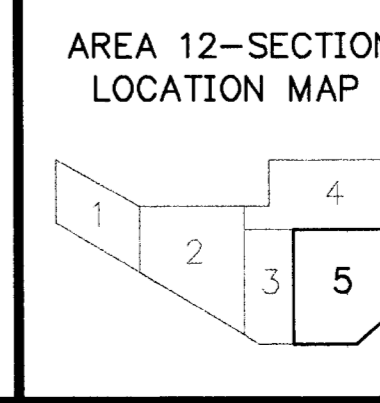
REVISIONS

PA/SI REPORT-AUS OU
CRAB ORCHARD NWR
MARION, ILLINOIS

AUS-0A12-Section 5-Sample Locations
and Detections of Organic
Compounds in Soils

Date:	Project Number:	Figure Number:
12/27/00	232000026.00	20-19
Drawn by:	Design by:	Checked by:
DJD	MAM	MCH/CMW

URS



AREA 12-AMMONIUM NITRATE PLANT

NOTES:

1. BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT. DASHED OUTLINES SHOW APPROXIMATE LOCATIONS OF FORMER STRUCTURES BASED ON DRAWINGS PREPARED BY FORMER TENANTS (U.S. POWDER/OLIN). SEE FIGURE 15-3 FOR EXPLANATION OF FORMER STRUCTURES. NOTE THAT U.S. POWDER BUILDING NUMBERS ARE USED TO DESIGNATE ALL STRUCTURES EXCEPT THOSE USED EXCLUSIVELY BY OLIN, WHICH HAVE OLIN BUILDING NUMBERS.
2. DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
3. THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

Screening Reference	Reference Code
AUS Background Soil UTL	b1
Little Grassy Background Sediment UTL	b2
Little Grassy Background Surface Water UTL	b3
Ecological Direct Exposure Pathway TRV - Soil	e1
Ecological Direct Exposure Pathway TRV - Sediment	e2
Ecological Direct Exposure Pathway TRV - Surface Water	e3
IEPA General Use Surface Water Quality Aquatic Life Toxicity	e4
Superfund Chemical Data Matrix Kow values (potential bioaccumulators)	e5
USEPA Region IX Industrial Soil PRG - noncarcinous	b1
USEPA Region IX Tap Water PRG - noncarcinous	b2
USEPA Region IX Groundwater PRG - noncarcinous	b3
USEPA Region IX Migration to Groundwater PRG (DAP-1)	b4
USEPA Region IX Migration to Groundwater PRG (DAP-2)	b5
USEPA MCL Drinking Water Standards	b6
IEPA TACO Industrial/Commercial Soil Ingestion	b7
IEPA TACO Construction Worker Soil Ingestion	b8
IEPA TACO Class I Soil Component of Groundwater	b9
IEPA General Use Surface Water Quality Human Health	b10

AUS-0A13-004	Units	Result	Reference
0 - 6 in			Code
Metals			
Aluminum	MG/KG	7720	b1
Antimony	MG/KG	1.3	e1,e5
Arsenic	MG/KG	4.5	e1,e5
Barium	MG/KG	145	b5
Boron	MG/KG	4.3	e1
Calcium	MG/KG	5.5	e1,e5
Chromium	MG/KG	12.1	e1,e5
Cobalt	MG/KG	117	e1,e5
Copper	MG/KG	1462	e1
Iron	MG/KG	72.8	b1
Lead	MG/KG	1900	b1
Magnesium	MG/KG	1200	b1
Manganese	MG/KG	530	e1
Mercury	MG/KG	3.85	e1,e5
Nickel	MG/KG	13.3	e1
Potassium	MG/KG	880	b1
Selenium	MG/KG	13.2	e1
Silver	MG/KG	207	e1,e5
Zinc	MG/KG	297	e1,e5

AUS-0A13-014	Units	Result	Reference
0 - 6 in			Code
Metals			
Aluminum	MG/KG	5790	b1
Antimony	MG/KG	1.8	e1,e5
Arsenic	MG/KG	6.5	e1,e5
Barium	MG/KG	138	b5
Boron	MG/KG	6.8	e1
Calcium	MG/KG	0.12	b1
Chromium	MG/KG	155	e1,e5
Cobalt	MG/KG	13.8	b1
Copper	MG/KG	13.8	b1
Iron	MG/KG	2500	e1,e5
Lead	MG/KG	25.7	b1
Magnesium	MG/KG	4560	b1
Manganese	MG/KG	1170	e1
Nickel	MG/KG	10.9	b5
Potassium	MG/KG	341	b1
Selenium	MG/KG	0.95	e5
Silver	MG/KG	1120	b1
Sodium	MG/KG	14.9	b1
Vanadium	MG/KG	28.5	b1
Zinc	MG/KG	89.3	b1

AUS-0A13-019	Units	Result	Reference
0 - 6 in			Code
Metals			
Aluminum	MG/KG	5959	b1
Antimony	MG/KG	2.2	e1
Arsenic	MG/KG	4.1	e1,e5
Barium	MG/KG	82.1	b5
Boron	MG/KG	1.6	e1
Calcium	MG/KG	3890	b1
Chromium	MG/KG	7.2	e1,e5
Cobalt	MG/KG	3.3	b1
Copper	MG/KG	10.4	e1
Iron	MG/KG	8440	e1
Lead	MG/KG	12	b1
Magnesium	MG/KG	1619	b1
Manganese	MG/KG	631	b1
Nickel	MG/KG	6.9	b1
Potassium	MG/KG	4740	b1
Selenium	MG/KG	1.1	e5
Silver	MG/KG	1120	b1
Sodium	MG/KG	14.9	b1
Vanadium	MG/KG	28.5	b1
Zinc	MG/KG	39.9	b1

AUS-0A13-018	Units	Result	Reference
0 - 6 in			Code
Metals			
Aluminum	MG/KG	4500	b1
Antimony	MG/KG	0.33	b5
Arsenic	MG/KG	4	e1,e5
Barium	MG/KG	41.9	b5
Boron	MG/KG	2.2	e1
Calcium	MG/KG	0.24	b1
Chromium	MG/KG	124000	b1
Cobalt	MG/KG	7.4	e1,e5
Copper	MG/KG	2.6	b1
Iron	MG/KG	32.3	b1
Lead	MG/KG	8860	e1
Lead	MG/KG	11.2	b1
Magnesium	MG/KG	7900	b1
Manganese	MG/KG	299	e1
Nickel	MG/KG	9.3	b5
Potassium	MG/KG	483	b1
Selenium	MG/KG	0.55	e5
Silver	MG/KG	181	b1
Sodium	MG/KG	17.5	b1
Vanadium	MG/KG	40.1	b1
Zinc	MG/KG	40.1	b1

AUS-0A13-021	Units	Result	Reference
0 - 6 in			Code
Metals			
Aluminum	MG/KG	9001	b1
Arsenic	MG/KG	6.8	e1,e5
Barium	MG/KG	75	b5
Boron	MG/KG	4.2	e1
Calcium	MG/KG	82000	b1
Chromium	MG/KG	10.4	e1,e5
Cobalt	MG/KG	5.2	b1
Copper	MG/KG	8.2	b1
Iron	MG/KG	16000	e1
Lead	MG/KG	15.5	b1
Magnesium	MG/KG	18000	b1
Manganese	MG/KG	502	e1
Mercury	MG/KG	0.17	e1,e5
Nickel	MG/KG	11.4	b5
Potassium	MG/KG	639	b1
Selenium	MG/KG	1.2	e1,e5
Silver	MG/KG	17.5	b1
Vanadium	MG/KG	17.5	b1
Zinc	MG/KG	52.9	b1

AUS-0A13-024	Units	Result	Reference
0 - 6 in			Code
Metals			
Aluminum	MG/KG	6001	b1
Arsenic	MG/KG	9.1	e1,e5
Barium	MG/KG	163	b5
Boron	MG/KG	1.6	e1
Calcium	MG/KG	7910	b1
Chromium	MG/KG	10.8	e1,e5
Cobalt	MG/KG	5.5	b1
Copper	MG/KG	14.2	b1
Copper	MG/KG	15000	e1
Lead	MG/KG	14.8	e1
Lead	MG/KG	14.8	e1
Magnesium	MG/KG	4390	b1
Manganese	MG/KG	491	e1
Nickel	MG/KG	11	b5
Potassium	MG/KG	4342	b1
Selenium	MG/KG	1.4	e1,e5
Sodium	MG/KG	1900	b1
Silver	MG/KG	29.3	b1
Vanadium	MG/KG	39.8	b1
Zinc	MG/KG	59.8	b1

AUS-0A13-026	Units	Result	Reference
0 - 6 in			Code
Metals			
Aluminum	MG/KG	5970	b1
Antimony	MG/KG	0.42	b5
Arsenic	MG/KG	5.1	e1,e5
Barium	MG/KG	62.9	b5
Boron	MG/KG	2.1	e1
Calcium	MG/KG	4540	b1
Chromium	MG/KG	6.8	e1,e5
Cobalt	MG/KG	9.1	b1
Copper	MG/KG	8.1	e1,e5
Iron	MG/KG	12300	e1
Lead	MG/KG	1200	b1
Magnesium	MG/KG	1480	b1
Manganese	MG/KG	124	e1
Nickel	MG/KG	6.9	b1
Potassium	MG/KG	4000	b1
Selenium	MG/KG	1.4	e1,e5
Silver	MG/KG	1200	b1
Sodium	MG/KG	12.9	b1
Vanadium	MG/KG	42.9	b1
Zinc	MG/KG	44.1	b1

AUS-0A13-020	Units	Result	Reference
0 - 6 in			Code
Metals			
Aluminum	MG/KG	6040	b1
Arsenic	MG/KG	3.4	e1,e5
Barium	MG/KG	196	b5
Boron	MG/KG	2.4	e1
Calcium	MG/KG	0.15	b1
Chromium	MG/KG	17100	b1
Cobalt	MG/KG	9.1	e1,e5
Copper	MG/KG	5961	e1
Iron	MG/KG	12300	e1
Lead	MG/KG	251	b1
Magnesium	MG/KG	21300	b1
Manganese	MG/KG	403	b1
Nickel	MG/KG	0.26	e5
Potassium	MG/KG	7.4	b5
Selenium	MG/KG	0.08	e5
Silver	MG/KG	1.2	e1,e5
Sodium	MG/KG	10.1	b1
Vanadium	MG/KG	10.1	b1
Zinc	MG/KG	44.1	b1

AUS-0A13-021	Units	Result	Reference
0 - 6 in			Code
Metals			
Aluminum	MG/KG	5520	b1
Antimony	MG/KG	0.98	e1
Arsenic	MG/KG	8.8	e1,e5
Barium	MG/KG	110	b5
Boron	MG/KG	3.9	e1
Calcium	MG/KG	18000	b1
Chromium	MG/KG	13.3	e1,e5
Cobalt	MG/KG	5.9	b1
Copper	MG/KG	14.1	b1
Copper	MG/KG	4	e1
Iron	MG/KG	35.6	e1
Lead	MG/KG	1900	b1
Magnesium	MG/KG	1900	b1
Manganese	MG/KG	307	b1
Nickel	MG/KG	8.8	b5
Potassium	MG/KG	5900	b1
Selenium	MG/KG	1.6	e1,e5
Silver	MG/KG	1180	b1
Sodium	MG/KG	12.9	b1
Vanadium	MG/KG	23.9	b1
Zinc	MG/KG	47.3	b1

AUS-0A13-022	Units	Result	Reference
0 - 6 in			Code
Metals			
Aluminum	MG/KG	4840	b1
Antimony	MG/KG	0.37	b5
Arsenic	MG/KG	2.4	b5
Barium	MG/KG	90.5	b5
Calcium	MG/KG	2650	b1
Chromium	MG/KG	7	e1,e5
Cobalt	MG/KG	4	e1
Copper	MG/KG	7.3	b1
Iron	MG/KG	13000	e1
Lead	MG/KG	19.3	b1
Lead	MG/KG	10.5	b1
Magnesium	MG/KG	1902	b1
Manganese	MG/KG	506	e1
Nickel	MG/KG	6.1	b5
Potassium	MG/KG	401	b1
Selenium	MG/KG	0.96	b5
Silver	MG/KG	3230	b1
Sodium	MG/KG	19.9	b1
Vanadium	MG/KG	14.2	b1
Zinc	MG/KG	18.8	b1

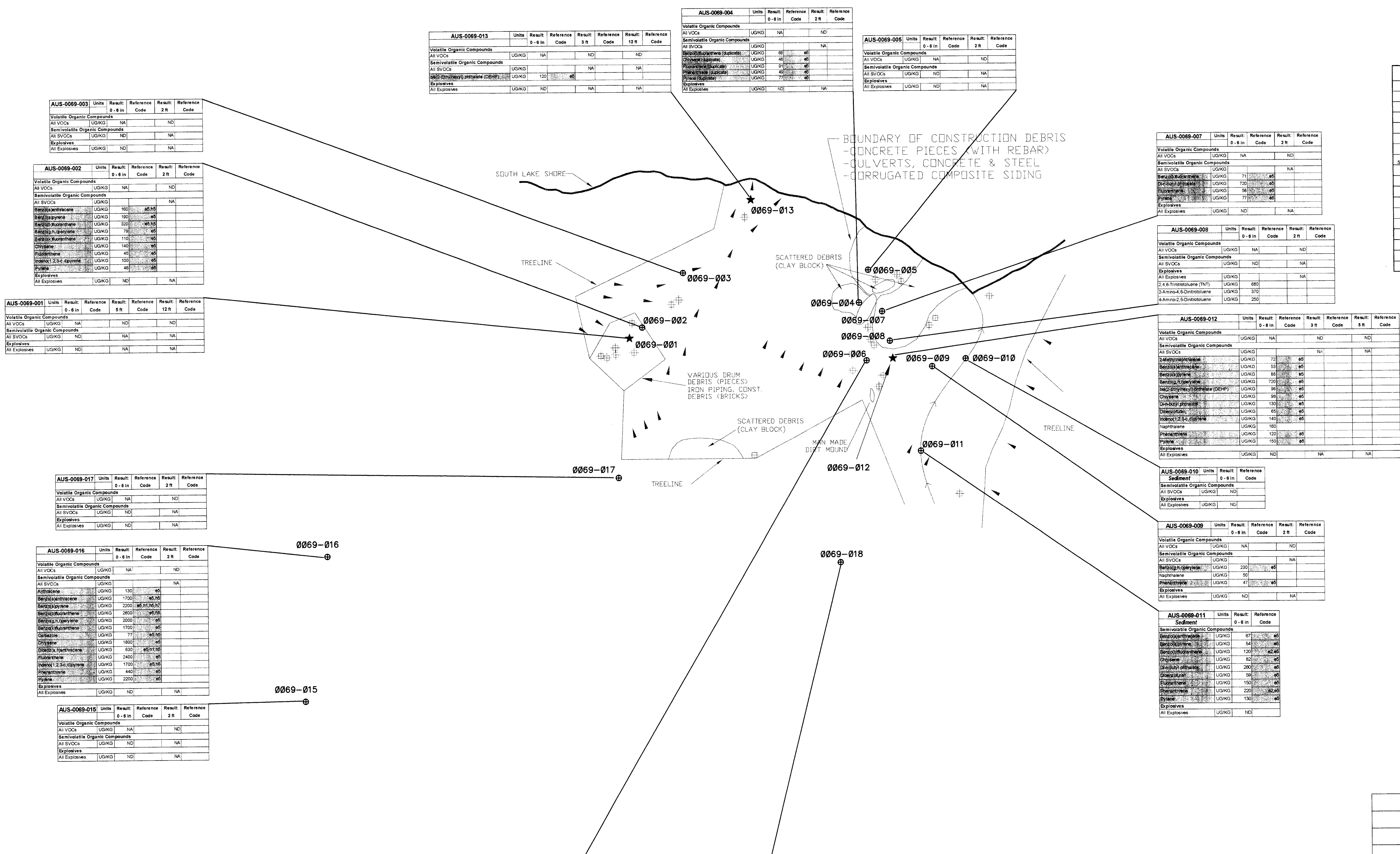
AUS-0A13-023	Units	Result	Reference
0 - 6 in			Code
Metals			
Aluminum	MG/KG	6000	b1
Antimony	MG/KG	0.27	b5
Arsenic	MG/KG	4.7	e1,e5
Barium	MG/KG	95.6	b5
Boron	MG/KG	3.4	e1
Calcium	MG/KG	2980	b1
Chromium	MG/KG	13.7	e1,e5
Cobalt	MG/KG	4.5	e1
Copper	MG/KG	6.8	b1
Iron	MG/KG	13500	e1
Lead	MG/KG	13.2	b1
Magnesium	MG/KG	2200	b1
Manganese	MG/KG	620	b1
Nickel	MG/KG	402	e1
Potassium	MG/KG	63	b1
Selenium	MG/KG	0.27	e1,e5
Silver	MG/KG	620	b1
Sodium	MG/KG	613	b1
Vanadium	MG/KG	11	e1,e5
Zinc	MG/KG	42.3	b1

AUS-0A13-024	Units	Result	Reference
0 - 6 in			Code
Metals			
Aluminum	MG/KG	7190	b1
Antimony	MG/KG	0.28	e1
Arsenic	MG/KG	8.7	e1,e5
Barium	MG/KG	102	b5
Boron	MG/KG	1.9	e1
Calcium	MG/KG	2000	b1
Chromium	MG/KG	4.7	e1,e5
Cobalt	MG/KG	4.5	e1
Copper	MG/KG	6.8	b1
Iron	MG/KG	13500	e1
Lead	MG/KG	13.2	b1
Magnesium	MG/KG	2200	b1
Manganese	MG/KG	620	b1
Nickel	MG/KG	402	e1
Potassium	MG/KG	63	b1
Selenium	MG/KG	0.27	e1,e5
Silver	MG/KG	620	b1
Sodium	MG/KG	613	b1
Vanadium	MG/KG	11	e1,e5
Zinc	MG/KG	42.3	b1

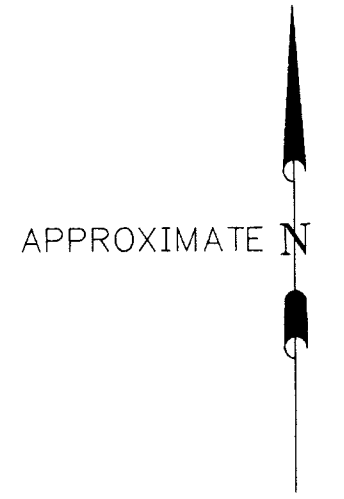
AUS-0A13-025	Units	Result	Reference
0 - 6 in			Code

LEGEND

- ★ TEST PIT LOCATION
- ⊕ HAND AUGER LOCATIONS
- DITCHLINE
- ⊞ 55 GALLON DRUM
- ↘ FLOW ARROWS



Screening Reference	Reference Code
AUS Background Soil UTL	b1
Little Chain Background Sediment UTL	b2
Little Chain Background Surface Water UTL	b3
Ecological Direct Exposure Pathway TRV - Soil	e1
Ecological Direct Exposure Pathway TRV - Sediment	e2
Ecological Direct Exposure Pathway TRV - Surface Water	e3
IEPA Chemical Use Surface Water Quality Aquatic Life Toxicity	e4
Superfund Chemical Data Matrix: Raw values (potential bioaccumulation)	e5
USEPA Region IX In-Stream Soil PRG - noncarcinogen	b1
USEPA Region IX Industrial Soil PRG - noncarcinogen	b2
USEPA Region IX Tap Water PRG - noncarcinogen	b3
USEPA Region IX Tap Water PRG - carcinogen	b4
USEPA Region IX Migration to Groundwater PRG (DAP-1)	b5
USEPA MCL Drinking Water Standards	b6
IEPA TACO Industrial/Commercial Soil Ingestion	b7
IEPA TACO Construction Work Soil Ingestion	b8
IEPA TACO Child Soil Component of Groundwater	b9
IEPA General Use Surface Water Quality Human Health	b10

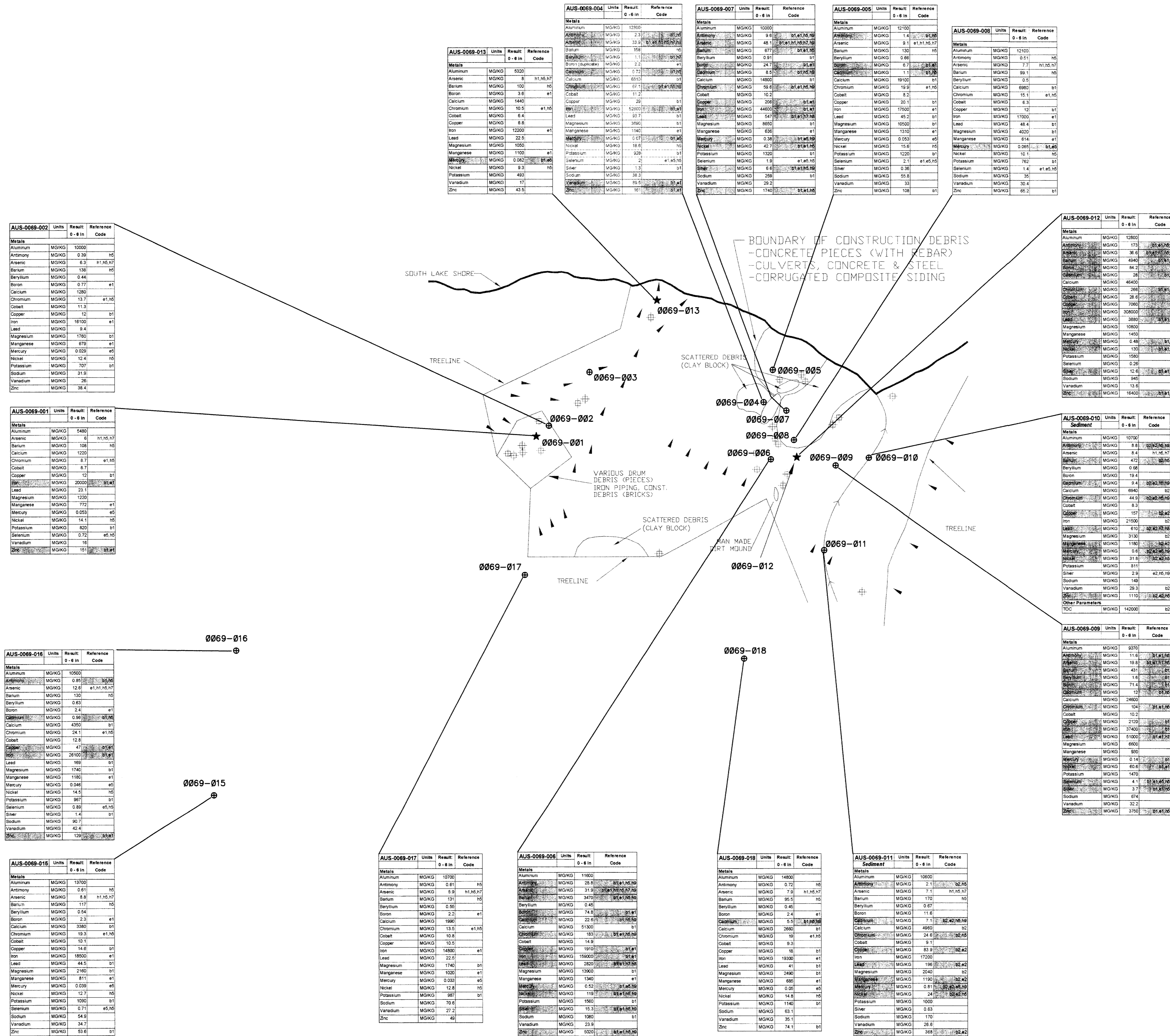


NOTES:

1. SAMPLE LOCATIONS ARE APPROXIMATE. SURVEY COORDINATES ARE FOUND IN TABLE 28-1.
2. THE BASE MAP FOR THIS FIGURE IS A HAND SKETCH PREPARED DURING FIELD RECONNAISSANCE. THE DRAWING IS NOT TO SCALE. THE DIMENSIONS OF THE SITE AS SHOWN ARE APPROXIMATELY 500 BY 800 FEET.
3. DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
4. SEDIMENT SAMPLES ARE NOTED AS SUCH IN THE LABEL, UNDERNEATH THE SAMPLE IDENTIFICATION NUMBER.
5. THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

AUS-0069-FORMER EMMA OU SITE COC-15

Revision No.	Description	Date	By	App.	
REVISIONS					
PA/SI REPORT AU SOU CRAB ORCHARD NWR MARION, ILLINOIS					
AUS-0069 Sample Locations and Detections of Organic Compounds in Soils/Sediments					
Date:	12/20/00	Project Number:	2320000026.00	Figure Number:	28-1
Drawn by:	CHS	Design by:	MAM	Checked by:	MCH/CMW
URS					



LEGEND

- ★ TEST PIT LOCATION
- ⊕ HAND AUGER LOCATIONS
- DITCHLINE
- ⊞ 55 GALLON DRUM
- ↘ FLOW ARROWS

Screening Reference	Reference Code
AUS Background Soil UTL	h1
Little Grass Background Sediment UTL	h2
Little Grass Background Surface Water UTL	h3
Ecological Direct Exposure Pathway TRV - Soil	e1
Ecological Direct Exposure Pathway TRV - Sediment	e2
Ecological Direct Exposure Pathway TRV - Surface Water	e3
IEPA General Use Surface Water Quality - Aquatic Life Toxicity	e4
Superfund Chemical Data Matrix Kow values (potential bioaccumulation)	e5
USEPA Region IX Industrial Soil PRG - cancerous	h1
USEPA Region IX Industrial Soil PRG - noncancerous	h2
USEPA Region IX Tap Water PRG - cancerous	h3
USEPA Region IX Tap Water PRG - noncancerous	h4
USEPA Region IX Migration to Groundwater PRG (DAP-1)	h5
USEPA MCL Drinking Water Standards	h6
IEPA TACO Industrial Commercial Soil Ingestion	h7
IEPA TACO Construction Worker Soil Ingestion	h8
IEPA TACO Class I Soil Component of Groundwater	h9
IEPA General Use Surface Water Quality Human Health	h10

NOTES:

1. SAMPLE LOCATIONS ARE APPROXIMATE. SURVEY COORDINATES ARE FOUND IN TABLE 28-1.
2. THE BASE MAP FOR THIS FIGURE IS A HAND SKETCH PREPARED DURING FIELD RECONNAISSANCE. THE DRAWING IS NOT TO SCALE. THE DIMENSIONS OF THE SITE AS SHOWN ARE APPROXIMATELY 500 BY 800 FEET.
3. DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
4. SEDIMENT SAMPLES ARE NOTED AS SUCH IN THE LABEL, UNDERNEATH THE SAMPLE IDENTIFICATION NUMBER.

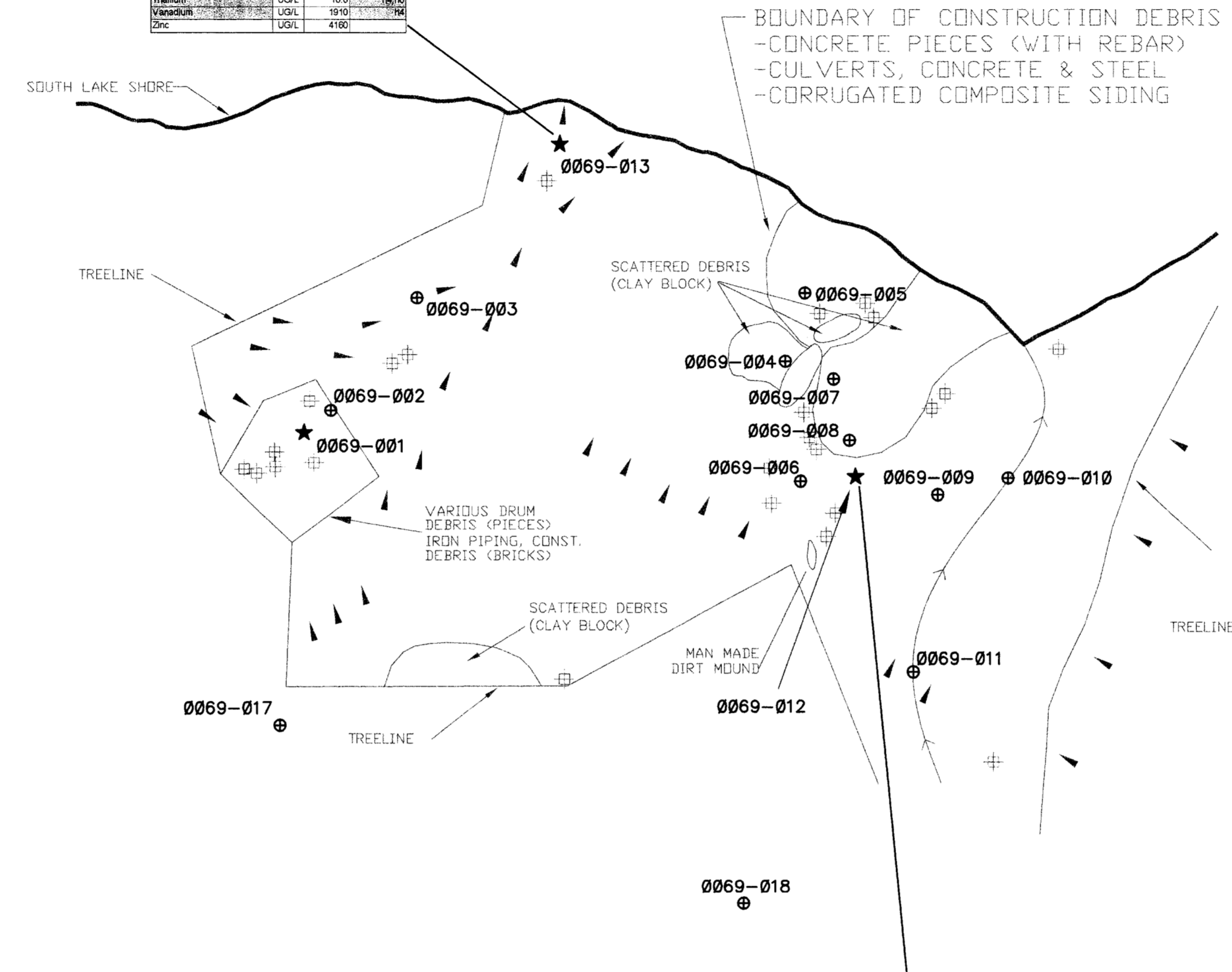
AUS-0069-FORMER EMMA OU SITE COC-15

Revision No.	Description	Date	By	App.
REVISIONS				
PA/SI REPORT AU SOU CRAB ORCHARD NWR MARION, ILLINOIS				
AUS-0069 Sample Locations and Detections of Inorganic Compounds in Soils/Sediments				
Date:	Project Number:	Figure Number:		
12/20/00	2320000026.00	28-2		
Drawn by:	Design by:	Checked by:		
CHS	MAM	MCH/CMW		
URS				

AUS-0069-013-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
A1 VOCs	UGL	ND	
Semi-volatile Organic Compounds			
A2 VOCs	UGL	ND	
Explosives			
All Explosives	UGL	ND	
Metals			
Aluminum	UGL	143000	ND
Antimony	UGL	0	
Arsenic	UGL	327	ND
Bismuth	UGL	1200	ND
Boron	UGL	475	ND
Barium	UGL	200	
Calcium	UGL	17000	
Chromium	UGL	180	ND
Cobalt	UGL	48	
Copper	UGL	190	ND
Lead	UGL	10700	ND
Lithium	UGL	675	ND
Magnesium	UGL	28000	
Manganese	UGL	4800	ND
Mercury	UGL	3.6	ND
Nickel	UGL	190	ND
Potassium	UGL	61500	
Silica	UGL	11.7	
Sodium	UGL	74100	
Thallium	UGL	10.6	ND
Vanadium	UGL	390	ND
Zinc	UGL	4160	

- LEGEND**
- ★ TEST PIT LOCATION
 - ⊕ HAND AUGER LOCATIONS
 - DITCHLINE
 - ⊕ 55 GALLON DRUM
 - ▲ FLOW ARROWS

Screening Reference	Reference Code
AUS Background Soil UTL	b1
Little Grass Background Sediment UTL	b2
Little Grass Background Surface Water UTL	b3
Ecological Direct Exposure Pathway TRV - Soil	c1
Ecological Direct Exposure Pathway TRV - Sediment	c2
Ecological Direct Exposure Pathway TRV - Surface Water	c3
IEPA General Use Surface Water Quality Aquatic Life Toxicity	e4
Superfund Chemical Data Matrix Kow values (potential bioaccumulation)	e5
USEPA Region IX Industrial Soil PRG - carcinogen	h1
USEPA Region IX Industrial Soil PRG - noncarcinogen	h2
USEPA Region IX Tap Water PRG - carcinogen	h3
USEPA Region IX Tap Water PRG - noncarcinogen	h4
USEPA Region IX Migration to Groundwater PRG (DAP-1)	h5
USEPA MCL Drinking Water Standards	h6
IEPA TACO Industrial/Commercial Soil Ingestion	h7
IEPA TACO Construction Worker Soil Ingestion	h8
IEPA TACO Class I Soil Component of Groundwater	h9
IEPA General Use Surface Water Quality Human Health	h10

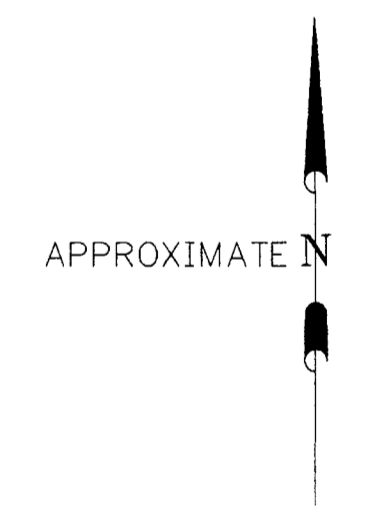


AUS-0069-012-GW-00	Units	Result	Screening Codes
Volatile Organic Compounds			
1,1,2-Dichloroethane	UGL	1	
Semi-volatile Organic Compounds			
1,1,1-Trichloroethane (TCE)	UGL	3.9	
Explosives			
MX	UGL	0.71	
Metals			
Aluminum	UGL	590	
Antimony	UGL	3.9	
Arsenic	UGL	3.6	ND
Bismuth	UGL	34	
Boron	UGL	3	
Calcium	UGL	11	
Chromium	UGL	160	
Cobalt	UGL	15.3	
Copper	UGL	4.5	
Lead	UGL	60	
Lithium	UGL	1270	ND
Magnesium	UGL	14	ND
Manganese	UGL	200	ND
Mercury	UGL	6.8	ND
Nickel	UGL	8.2	
Potassium	UGL	347	
Vanadium	UGL	15.4	
Zinc	UGL	460	

0069-016 ⊕

0069-015 ⊕

- NOTES:**
- SAMPLE LOCATIONS ARE APPROXIMATE. SURVEY COORDINATES ARE FOUND IN TABLE 28-1.
 - THE BASE MAP FOR THIS FIGURE IS A HAND SKETCH PREPARED DURING FIELD RECONNAISSANCE. THE DRAWING IS NOT TO SCALE. THE DIMENSIONS OF THE SITE AS SHOWN ARE APPROXIMATELY 500 BY 800 FEET.
 - DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
 - THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.



Revision No.	Description	Date	By	App.	
REVISIONS					
PA/SI REPORT AU SOU CRAB ORCHARD NWR MARION, ILLINOIS					
AUS-0069 Sample Locations and Detections in Trench Water					
Date:	12/20/00	Project Number:	232000026.00	Figure Number:	28-3
Drawn by:	CHS	Design by:	MAM	Checked by:	MCH/CMW
URS					

AUS-0069-FORMER EMMA OU SITE COC-15

LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊕ HAND AUGER LOCATION

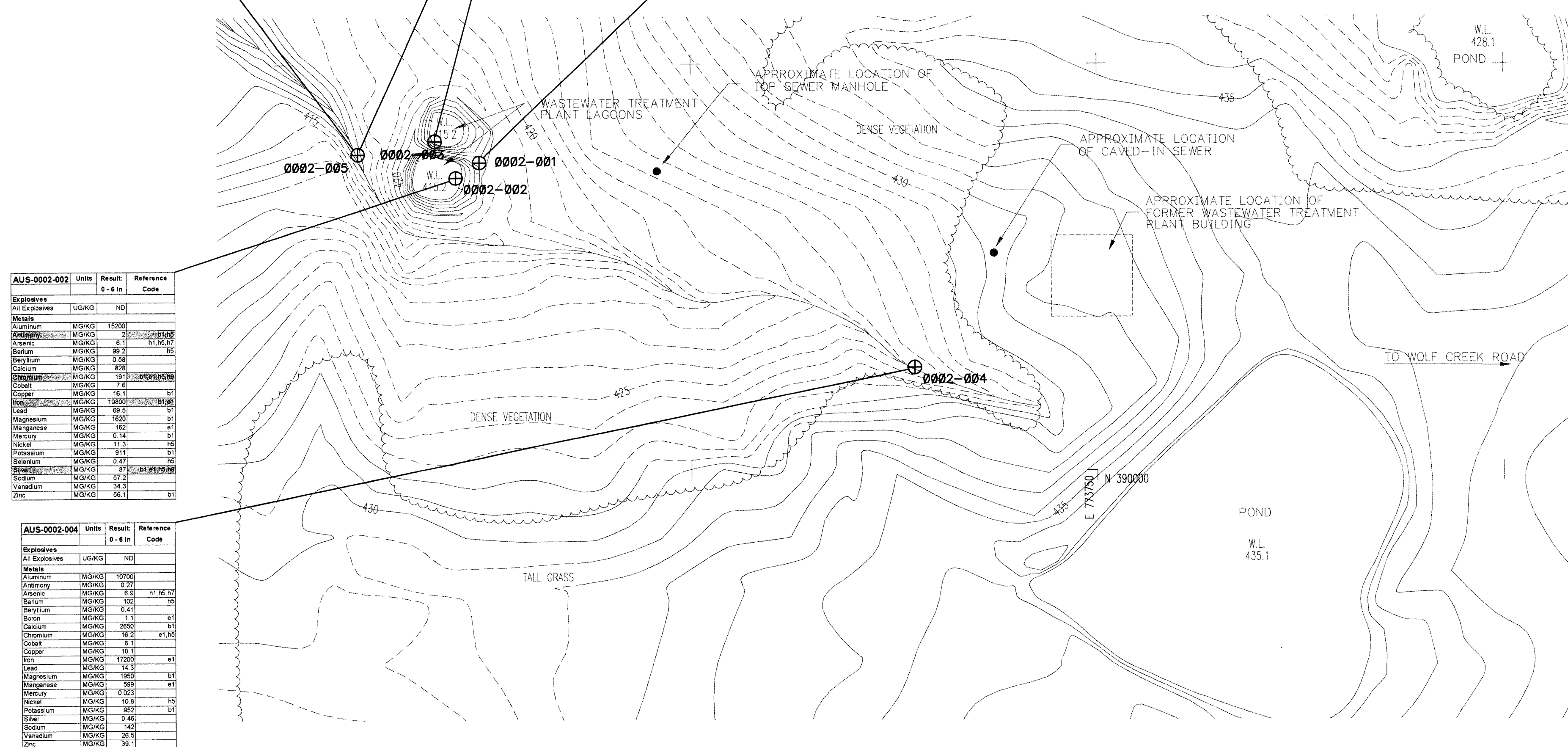
Screening Reference	Reference Code
AUS Background Soil UTL	51
Little Grass Background Sediment UTL	52
Little Grass Background Surface Water UTL	53
Ecological Direct Exposure Pathway TRV - Soil	e1
Ecological Direct Exposure Pathway TRV - Sediment	e2
Ecological Direct Exposure Pathway TRV - Surface Water	e3
IEPA General Use Surface Water Quality Agency Use Toxicity	e4
Superfund Chemical Data Matrix Kow values (potential bioaccumulative)	e5
1/USEPA Region IX Industrial Soil PFI - nonconcern	h1
1/USEPA Region IX Industrial Soil PFI - nonconcern	h2
1/USEPA Region IX Tap Water PFI - nonconcern	h3
1/USEPA Region IX Tap Water PFI - nonconcern	h4
1/USEPA Region IX Migration to Groundwater PFI (DAZ-1)	h5
1/USEPA MCL Drinking Water Standards	h6
IEPA TACO Industrial/Commercial Soil Ingestion	h7
IEPA TACO Construction Worker Soil Ingestion	h8
IEPA TACO Class I Soil Component of Groundwater	h9
IEPA General Use Surface Water Quality Human Health	h10

AUS-0002-005	Units	Result	Reference
0 - 6 In			Code
Explosives			
All Explosives	UG/KG	ND	
Metals			
Aluminum	MG/KG	6600	
Arsenic	UG/L	5.9	NI, H, S1
Barium	MG/KG	87.2	H6
Beryllium	MG/KG	0.48	
Calcium	MG/KG	712	
Chromium	MG/KG	14.7	e1, H6
Cobalt	MG/KG	5.7	
Copper	MG/KG	18.7	e1
Lead	MG/KG	1600	
Magnesium	MG/KG	1300	
Manganese	MG/KG	302	
Mercury	MG/KG	0.022	
Nickel	MG/KG	19.3	H6
Potassium	MG/KG	681	S1
Sodium	MG/KG	52.3	
Vanadium	MG/KG	26.4	
Zinc	MG/KG	35.6	

AUS-0002-005-SW-00	Units	Result	Screening
UG/L	ND	Code	
Explosives			
All Explosives	UG/L	ND	
Metals			
Aluminum	UG/L	15000	H6, S1
Arsenic	UG/L	5.9	NI, H, S1
Barium	UG/L	139	S1
Beryllium	UG/L	13.3	S1
Calcium	UG/L	18000	S1
Chromium	UG/L	3.4	S1
Cobalt	UG/L	4.8	S1
Copper	UG/L	8200	S1, H6, S1, H6
Lead	UG/L	18000	S1, H6, S1, H6
Magnesium	UG/L	11000	S1, H6, S1, H6
Manganese	UG/L	11.7	S1
Nickel	UG/L	11.7	S1
Potassium	UG/L	8400	S1
Sodium	UG/L	9100	S1, H6, S1, H6
Sulfur	UG/L	7200	S1
Vanadium	UG/L	21.1	S1
Zinc	UG/L	22.1	S1

AUS-0002-003	Units	Result	Reference
0 - 6 In			Code
Explosives			
All Explosives	UG/KG	ND	
Metals			
Aluminum	MG/KG	18000	
Arsenic	MG/KG	7.7	NI, H, S1, H6, H6
Barium	MG/KG	193	S1
Beryllium	MG/KG	0.6	S1
Boron	MG/KG	1.7	e1
Calcium	MG/KG	1.4	S1, H6, S1, H6
Chromium	MG/KG	737	NI, H, S1, H6, H6
Cobalt	MG/KG	5.3	
Copper	MG/KG	14.7	e1
Lead	MG/KG	1700	e1
Magnesium	MG/KG	1700	e1
Manganese	MG/KG	2000	e1
Mercury	MG/KG	0.37	S1, H6, S1, H6
Nickel	MG/KG	19.3	S1
Potassium	MG/KG	1300	S1
Sodium	MG/KG	57.5	S1, H6, S1, H6
Sulfur	MG/KG	0.61	S1
Vanadium	MG/KG	30.8	S1
Zinc	MG/KG	228.32	S1, H6

AUS-0002-001	Units	Result	Reference
0 - 6 In			Code
Explosives			
All Explosives	UG/KG	ND	
Metals			
Aluminum	MG/KG	12000	
Arsenic	MG/KG	7.7	NI, H, S1, H6, H6
Barium	MG/KG	193	S1
Beryllium	MG/KG	0.6	S1
Boron	MG/KG	1.7	e1
Calcium	MG/KG	1.4	S1, H6, S1, H6
Chromium	MG/KG	630	S1
Cobalt	MG/KG	5.3	e1, H6
Copper	MG/KG	14.7	e1
Lead	MG/KG	2000	S1, H6
Magnesium	MG/KG	2000	S1, H6
Mercury	MG/KG	0.37	S1, H6, S1, H6
Nickel	MG/KG	19.3	S1
Potassium	MG/KG	1300	S1
Sodium	MG/KG	57.5	S1, H6, S1, H6
Sulfur	MG/KG	0.61	S1
Vanadium	MG/KG	30.8	S1
Zinc	MG/KG	228.32	S1, H6



AUS-0002-002	Units	Result	Reference
0 - 6 In			Code
Explosives			
All Explosives	UG/KG	ND	
Metals			
Aluminum	MG/KG	15000	
Arsenic	MG/KG	5.9	NI, H, S1, H6
Barium	MG/KG	87.2	H6
Beryllium	MG/KG	0.48	
Calcium	MG/KG	858	
Chromium	MG/KG	19.7	S1, H6, S1, H6
Cobalt	MG/KG	7.4	S1
Copper	MG/KG	16.1	e1
Lead	MG/KG	89.5	S1
Magnesium	MG/KG	1200	S1
Manganese	MG/KG	162	e1
Mercury	MG/KG	0.148	S1
Nickel	MG/KG	11.3	H6
Potassium	MG/KG	671	S1
Sodium	MG/KG	0.41	S1
Sulfur	MG/KG	87	S1, H6, S1, H6
Vanadium	MG/KG	34.3	
Zinc	MG/KG	56.1	S1

AUS-0002-004	Units	Result	Reference
0 - 6 In			Code
Explosives			
All Explosives	UG/KG	ND	
Metals			
Aluminum	MG/KG	10700	
Arsenic	MG/KG	5.9	NI, H, S1, H6
Barium	MG/KG	8.9	NI, H, S1, H6
Beryllium	MG/KG	0.41	e1
Boron	MG/KG	1.1	e1
Calcium	MG/KG	2650	S1
Chromium	MG/KG	18.2	e1, H6
Cobalt	MG/KG	8.1	
Copper	MG/KG	1700	e1
Lead	MG/KG	14.9	S1
Magnesium	MG/KG	1390	S1
Manganese	MG/KG	599	e1
Mercury	MG/KG	0.303	S1
Nickel	MG/KG	10.8	H6
Potassium	MG/KG	602	S1
Sulfur	MG/KG	0.46	S1
Sodium	MG/KG	142	S1
Vanadium	MG/KG	26.5	S1
Zinc	MG/KG	39.1	S1

NOTES:

- BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT.
- DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO QCSR FOR DATA QUALIFIERS.
- THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

Revision No.	Description	Date	By	App.
REVISIONS				
PA/SI REPORT-AUS OU CRAB ORCHARD NWR MARION, ILLINOIS				
AUS-0002 Sample Locations and Detections in Soils and Surface Water				
Date:	Project Number:	Figure Number:		
11/14/00	232000026.00	31-1		
Drawn by:	Design by:	Checked by:		
DJD	MAM	MCH/CMW		
URS				

AUS-0002-FORMER IOP ADMINISTRATIVE AREA WASTEWATER TREATMENT PLANT

LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊕ HAND AUGER LOCATION
- ⊕ USEPA 1998 SAMPLE LOCATIONS

Screening Reference	Reference Code
AUS Background Soil UTL	B1
Little Grand Background Sediment UTL	B2
Little Grand Background Surface Water UTL	B3
Ecological Direct Exposure Pathway TRV - Soil	E1
Ecological Direct Exposure Pathway TRV - Sediment	E2
Ecological Direct Exposure Pathway TRV - Surface Water	E3
IEPA General Use Surface Water Quality Acute/Life Toxicity	E4
Superfund Chemical Data Matrix Risk Values (Potential Accumulation)	E5
USEPA Region IV Industrial Soil PFOA - noncancerous	I1
USEPA Region IV Industrial Soil PFOA - cancerous	I2
USEPA Region IX Tap Water PFOA - noncancerous	I3
USEPA Region IX Tap Water PFOA - cancerous	I4
USEPA Region IX Migration to Groundwater PFOA (DAP-1)	I5
USEPA MCL Drinking Water Standards	I6
IEPA TACD Industrial/Commercial Soil Ingestion	I7
IEPA TACD Industrial/Commercial Soil Ingestion	I8
IEPA TACD Class I Soil Component of Groundwater	I9
IEPA General Use Surface Water Quality Human Health	I10

AUS-0060-006	Units	Result	Reference	Result	Reference
0 - 8 in		0 - 8 in	1 ft		
Volatiles Organic Compounds					
Air VOCs	UG/KG	NA		ND	
Air Explosives	UG/KG	ND		NA	
Metals					
All Metals	MG/KG	NA		NA	
Aluminum	MG/KG	10100			
Arsenic	MG/KG	81	11,115,16,17		
Barium	MG/KG	72.4			
Beryllium	MG/KG	0.42			
Boron	MG/KG	0.69	e1		
Calcium	MG/KG	201			
Chromium	MG/KG	17.5	e1,10		
Cobalt	MG/KG	4.9			
Copper	MG/KG	11.1	e1		
Iron	MG/KG	18000	e1		
Lead	MG/KG	12.2	e1		
Magnesium	MG/KG	2500	e1		
Manganese	MG/KG	340	e1		
Mercury	MG/KG	0.044	e0		
Nickel	MG/KG	10.5	e0		
Potassium	MG/KG	767	e1		
Selenium	MG/KG	1.5	e1,e5,10		
Sodium	MG/KG	35.9			
Vanadium	MG/KG	33.3			
Zinc	MG/KG	42.1			

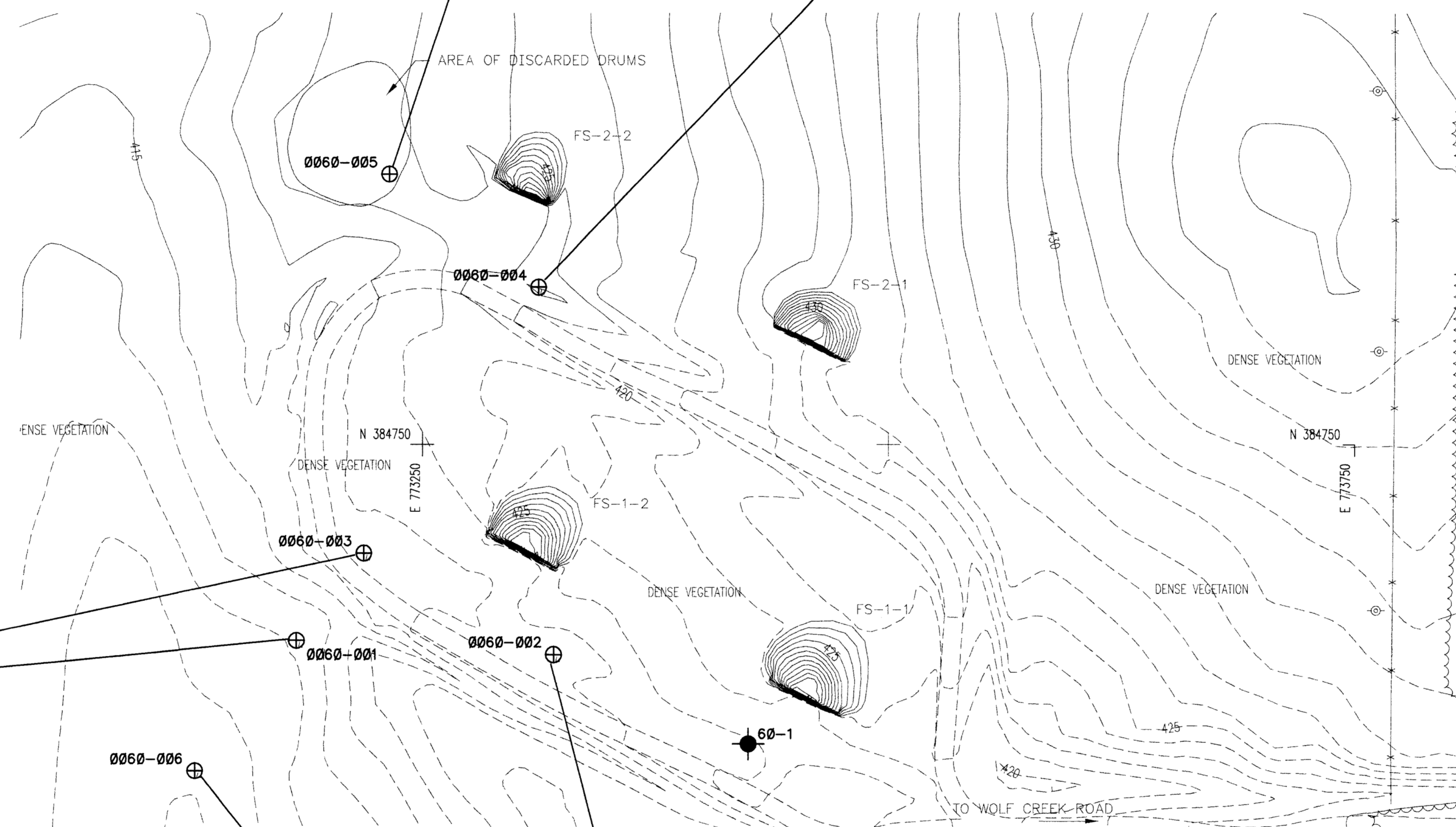
AUS-0060-004	Units	Result	Reference	Result	Reference
0 - 8 in		0 - 8 in	1 ft		
Explosives					
All Explosives	UG/KG	ND			
Metals					
All Metals	MG/KG	13100			
Aluminum	MG/KG	0.27			
Arsenic	MG/KG	12.2	e1,11,15,17		
Barium	MG/KG	122	e0		
Beryllium	MG/KG	0.66			
Boron	MG/KG	3.1	e1		
Calcium	MG/KG	1140			
Chromium	MG/KG	19.6	e1,15		
Cobalt	MG/KG	9.5			
Copper	MG/KG	11			
Iron	MG/KG	22000	e1,10,11		
Lead	MG/KG	26.1	e1		
Magnesium	MG/KG	2400	e1		
Manganese	MG/KG	341	e1		
Mercury	MG/KG	0.14	e1,10,15,16		
Nickel	MG/KG	12.6	e0		
Potassium	MG/KG	806	e1		
Selenium	MG/KG	2	e1,e5,10		
Sodium	MG/KG	46.9			
Vanadium	MG/KG	43.6			
Zinc	MG/KG	53	e1		

AUS-0060-003	Units	Result	Reference	Result	Reference
0 - 8 in		0 - 8 in	1 ft		
Volatiles Organic Compounds					
Air VOCs	UG/KG	NA		ND	
Air Explosives	UG/KG	ND		NA	
Metals					
All Metals	MG/KG	NA		NA	
Aluminum	MG/KG	14000			
Antimony	MG/KG	0.52	e0		
Arsenic	MG/KG	11.2	e1,11,15,17		
Barium	MG/KG	343	e1,10,15		
Beryllium	MG/KG	0.65			
Boron	MG/KG	1.9	e1		
Calcium	MG/KG	7200	e1		
Chromium	MG/KG	18.2	e1,10		
Cobalt	MG/KG	14.3			
Copper	MG/KG	14	e1		
Iron	MG/KG	21000	e1,10,11		
Lead	MG/KG	17.3	e1		
Magnesium	MG/KG	5510	e1		
Manganese	MG/KG	3170	e1		
Mercury	MG/KG	0.054	e0		
Nickel	MG/KG	18.8	e0		
Potassium	MG/KG	896	e1		
Selenium	MG/KG	1.8	e1,e5,10		
Sodium	MG/KG	44.5			
Thallium	MG/KG	0.54	e1		
Vanadium	MG/KG	36.9			
Zinc	MG/KG	95.6	e1		

AUS-0060-001	Units	Result	Reference	Result	Reference
0 - 8 in		0 - 8 in	1 ft		
Explosives					
All Explosives	UG/KG	ND			
Metals					
All Metals	MG/KG	14200			
Aluminum	MG/KG	0.32	e0		
Arsenic	MG/KG	13.5	e1,11,15,17		
Barium	MG/KG	127	e0		
Beryllium	MG/KG	0.75			
Boron	MG/KG	2.4	e1		
Calcium	MG/KG	2800			
Chromium	MG/KG	22	e1,10		
Cobalt	MG/KG	10.2			
Copper	MG/KG	13.7	e1		
Iron	MG/KG	24400	e1,10,11		
Lead	MG/KG	22.5	e1		
Magnesium	MG/KG	2780	e1		
Manganese	MG/KG	941	e1		
Mercury	MG/KG	0.040	e1,10,15		
Nickel	MG/KG	17.5	e0		
Potassium	MG/KG	914	e1		
Selenium	MG/KG	2	e1,e5,10		
Sodium	MG/KG	46.1			
Vanadium	MG/KG	41.4			
Zinc	MG/KG	140	e1,10,15		

AUS-0060-008	Units	Result	Reference	Result	Reference
0 - 8 in		0 - 8 in	1 ft		
Explosives					
All Explosives	UG/KG	ND			
Metals					
All Metals	MG/KG	10700			
Aluminum	MG/KG	9.9	e1,10,17		
Barium	MG/KG	80.7	e0		
Beryllium	MG/KG	0.9			
Calcium	MG/KG	744			
Chromium	MG/KG	12.8	e1,15		
Cobalt	MG/KG	9.8			
Copper	MG/KG	7.8			
Iron	MG/KG	14000	e1		
Lead	MG/KG	13.2			
Magnesium	MG/KG	1460			
Manganese	MG/KG	702	e1		
Mercury	MG/KG	0.022	e0		
Nickel	MG/KG	8.9	e0		
Potassium	MG/KG	907			
Selenium	MG/KG	0.99	e0,10		
Sodium	MG/KG	38.2			
Vanadium	MG/KG	27.5			
Zinc	MG/KG	32.4			

AUS-0060-002	Units	Result	Reference	Result	Reference
0 - 8 in		0 - 8 in	1 ft		
Volatiles Organic Compounds					
Air VOCs	UG/KG	NA		ND	
Air Explosives	UG/KG	ND		NA	
Metals					
All Metals	MG/KG	NA		NA	
Aluminum	MG/KG	12700			
Arsenic	MG/KG	8.46	e0		
Barium	MG/KG	88.2	e0		
Beryllium	MG/KG	0.6			
Boron	MG/KG	1.8	e1		
Calcium	MG/KG	1370			
Chromium	MG/KG	17.8	e1,10		
Cobalt	MG/KG	8.5			
Copper	MG/KG	11.5	e1		
Iron	MG/KG	20100	e1,10,11		
Lead	MG/KG	11.4	e1		
Magnesium	MG/KG	2400	e1		
Manganese	MG/KG	384	e1		
Mercury	MG/KG	0.037	e0		
Nickel	MG/KG	13	e0		
Potassium	MG/KG	796	e1		
Selenium	MG/KG	1.9	e1,e5,10		
Sodium	MG/KG	40.4			
Vanadium	MG/KG	35.1			
Zinc	MG/KG	44.1			



NOTES:

1. BASE TOPOGRAPHIC MAP PREPARED BY WALKER & ASSOCIATES, FROM FLYOVER IN JANUARY 2000. CONTOUR INTERVAL IS ONE FOOT.
2. DATA QUALIFIERS FOR ANALYTICAL RESULTS ARE NOT INDICATED. REFER TO THE QCSR FOR DATA QUALIFIERS.
3. THE FOLLOWING COMPOUNDS ARE INCLUDED IN THE ANALYTE LIST FOR BOTH SVOCs AND EXPLOSIVES: 2,4-DINITROTOLUENE, 2,6-DINITROTOLUENE, AND NITROBENZENE. THESE COMPOUNDS MAY BE REPORTED AS EITHER SVOCs OR EXPLOSIVES.

AUS-0060-AREA 14 LEAD AZIDE/MERCURY FULMINATE STORAGE IGLOOS

Revision No.	Description	Date	By	App.
REVISIONS				

PA/SI REPORT-AUS OU CRAB ORCHARD NWR MARION, ILLINOIS

AUS-0060 Sample Locations and Detections in Soils

Date: 11/14/00	Project Number: 232000026.00	Figure Number: 37-1
Drawn by: OJD	Design by: MAM	Checked by: MCH/CMW

