

REPORT DOCUMENTATION PAGE

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13. ABSTRACT (Maximum 200 words) THIS REPORT DOCUMENTS THE PHASE I CONTAMINATION SURVEY OF SITE 36-17 WHICH WAS USED FOR DISPOSAL OF SOLID WASTES IN PITS AND TRENCHES. 99 SAMPLES FROM 46 BORINGS WERE ANALYZED FOR VOLATILE AND SEMIVOLATILE ORGANICS AND METALS WITH SEPARATE ANALYSES FOR HG, AS, AND DBCP. HIGH LEVELS OF CR, CU, ZN, DLDRN, ENDRN, DIMP, CLDAN, DBCP, CPMS, AND ALDRN WERE DETECTED IN THE SAMPLES. METAL ANOMALIES WERE ALSO DETECTED AT THE SITE. AN EXTENSIVE PHASE II PROGRAM CONSISTING OF 40 ADDITIONAL BORINGS AND MORE GEOPHYSICAL INVESTIGATIONS IS RECOMMENDED TO BETTER LOCATE THE DISPOSAL TRENCHES. THE VOLUME OF CONTAMINATED MATERIAL PRESENT IS ESTIMATED AT 2,603,000 CUBIC YARDS. APPENDICES: PHOTOGRAPHS, PHASE I ANALYTICAL DATA.				
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LITIGATION TECHNICAL SUPPORT AND SERVICES

ROCKY MOUNTAIN ARSENAL

PHASE II SECTION 36

DRAFT FINAL SOURCE REPORTS 36-UNC, 36-3, AND 36-17

TASK NUMBER 1 (36-17)

MAY 1986

ENVIRONMENTAL SCIENCE AND ENGINEERING

PROGRAM MANAGER'S OFFICE FOR ROCKY MOUNTAIN ARSENAL

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LITIGATION TECHNICAL SUPPORT AND SERVICES

ROCKY MOUNTAIN ARSENAL
PHASE II
SECTION 36

DRAFT FINAL SOURCE REPORTS
36-UNC, 36-3, and 36-17
MAY 1986

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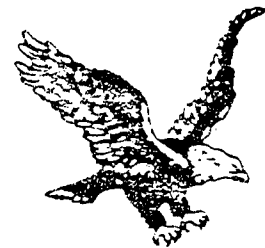
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SOURCE 36-17: COMPLEX DISPOSAL ACTIVITY

1.0 PHYSICAL SETTING

1.1 LOCATION

This source is characterized by a variety of disposal practices in numerous areas with overlapping boundaries and imprecise history. This site contains both a northern and southern section and is approximately 107 acres in size (Figure 36-17-1a and 36-17-1b). For the most part disposal of solid wastes in trenches and pits has occurred. The following information has been obtained for Source 36-17:

Estimated Areal Extent = 4,685,000 ft²

Estimated Vertical Extent = 15 ft

Estimated Volume = 2,603,000 yd³ (RMACCPMT, 1984)

Revised Areal Extent = 4,181,000 ft²

As a result of program changes the areal extent of Source 36-17 was revised. Program changes include reduction of the scale of investigation at Sources 36-9 and 36-16 which are both contained within Source 36-17N. Sources 36-9 and 36-16 were categorized as an Incendiary and Munitions Test Site and an Incendiary Burn Site, respectively. Both sources were believed to have resulted from Army activities. During Phase I, these sources were considered part of Source 36-17. The southern portion of Source 36-17 was reduced in extent due to the expansion of Source 36-3. The revised Source 36-17 areal extent is cited above. Evidence of disposal activities is clearly visible within this site. Two open trenches exist in Source 36-17N. Broken vials and other debris are found in Source 36-17S, just south of Source 36-3 in what has been referred to as the "baby bottle area". Views north and west for Source 36-17N and northwest and southwest for Source 36-17S are shown in photographs in Appendix 36-17-A.

1.2 GEOLOGY

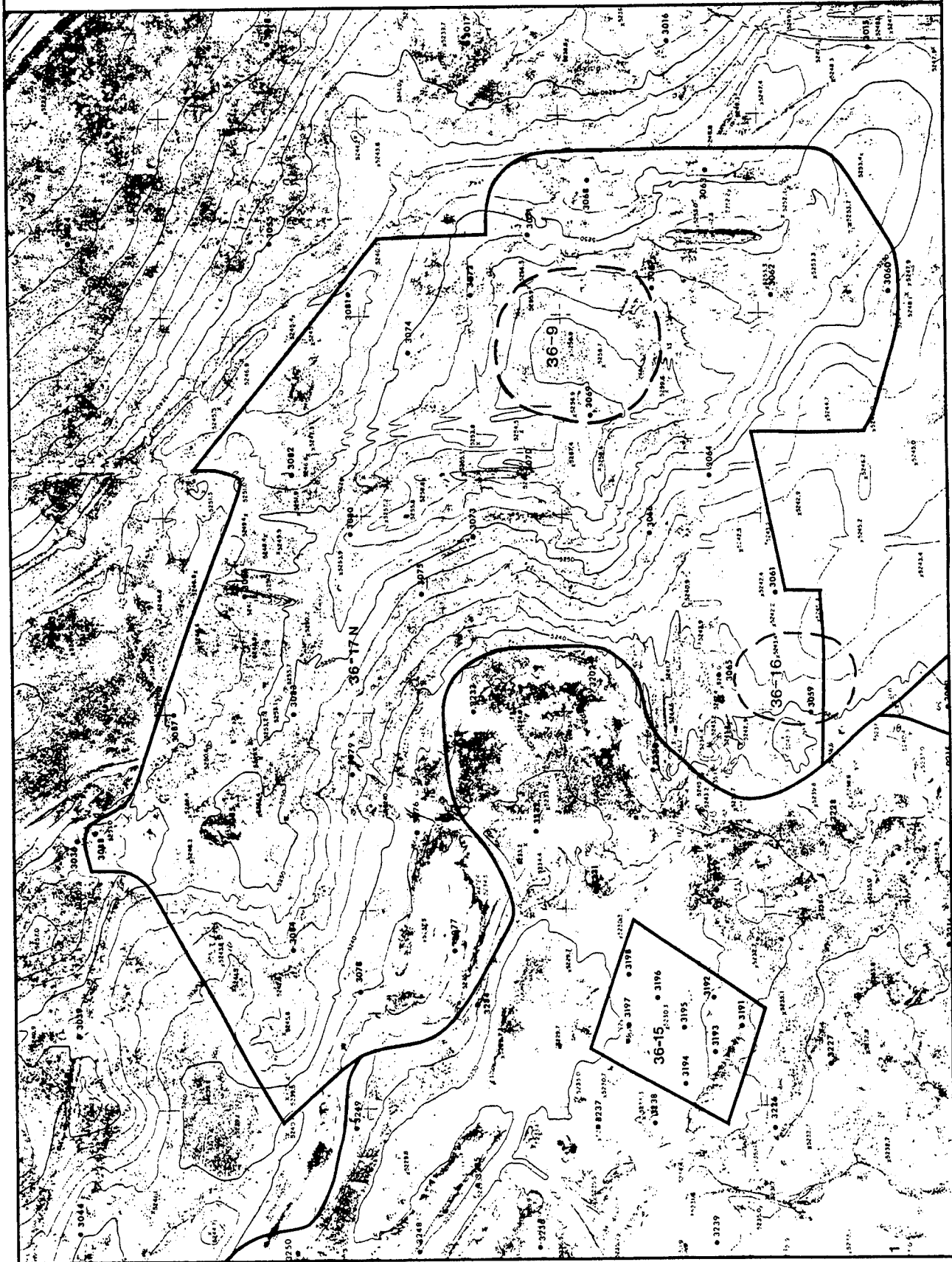
This source, located in the eastern half of Section 36, is divided into a northern and southern sector and extends almost the entire length of



EXPLANATION
• Phase I Boring

Figure 36-17-1a
SOURCE 36-17N
PHASE I INVESTIGATION
BORING LOCATION MAP
RMA, SECTION 36

Prepared for:
U.S. Army Program Manager's Office
For Rocky Mountain Arsenal
Aberdeen Proving Ground, Maryland



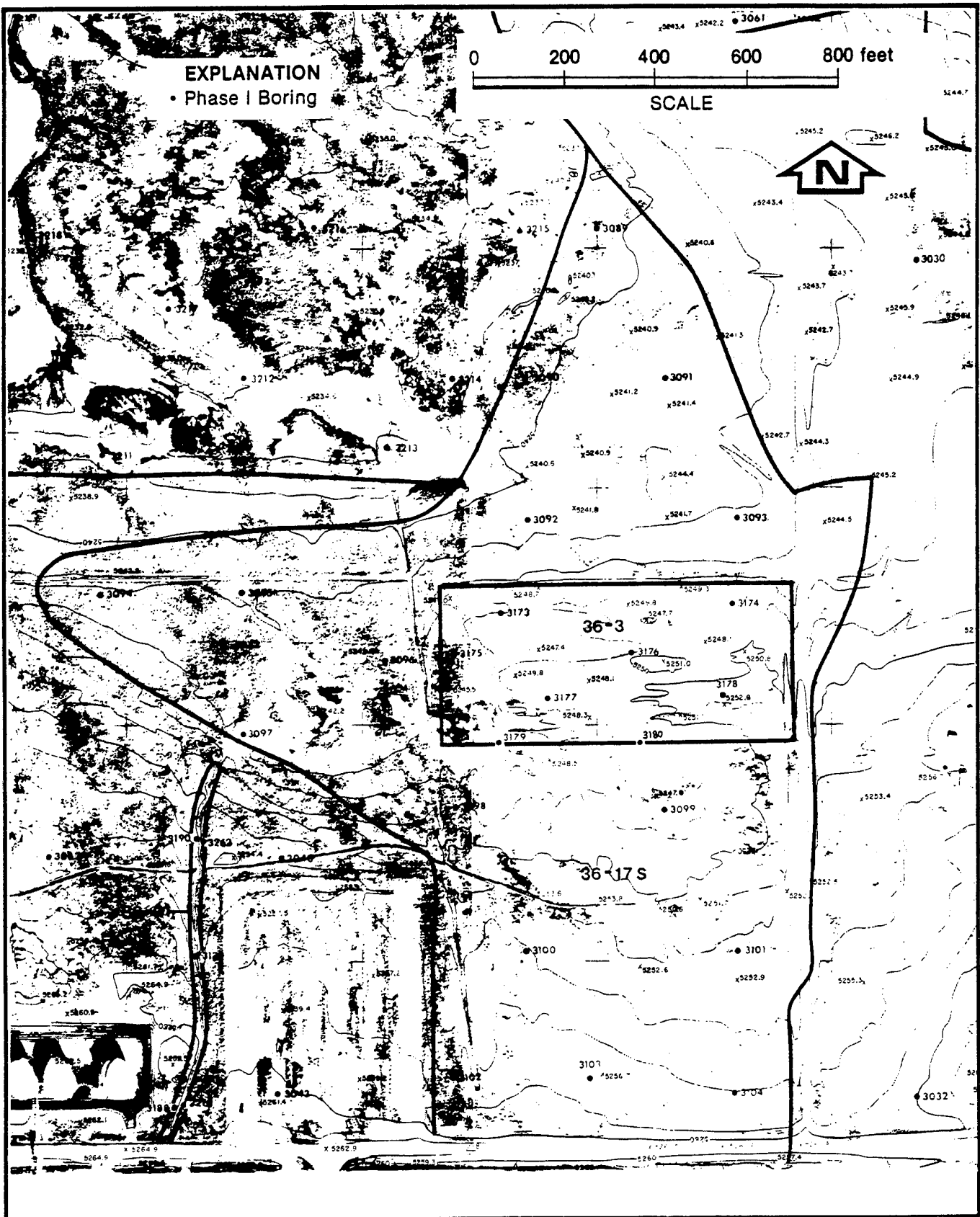


Figure 36-17-1b
 SOURCE 36-17S, PHASE I INVESTIGATION
 BORING LOCATION MAP
 RMA, SECTION 36
 SOURCE: ESE, 1986

Prepared for:
 U.S. Army Program Manager's Office
 For Rocky Mountain Arsenal
 Aberdeen Proving Ground, Maryland

Section 36. The center of Source 36-17N sits on a bedrock high. Alluvial thickness beneath this site was reported at 20 to 30 ft, with the thickest alluvium closest to Basin A. This alluvium is largely silty sand. The underlying Denver Formation consists of interbedded clays, silty sand, and organic rich clays. Ground water flow is generally to the north/northwest.

Alluvium thickness in Source 36-17S was also reported at 20 to 30 ft, but the alluvium consists of interbedded clays and silty sands. The Denver Formation, as in most locations, consists of interbedded silts, silty sands, clays, and organic rich clays.

The Phase I boring program results indicate that the source is underlain by alluvial materials consisting of interbedded silts and silty sands. These materials were encountered to the depths explored in Source 36-17S, however, bedrock was encountered beneath Source 36-17N at depths ranging from 11 to 17.5 ft. Boring logs representative of Source 36-17 are presented in Figures 36-17-2 and 36-17-3.

1.3 HYDROLOGY

Surface waters from Source 36-17N may drain towards Basin A in the west and towards First Creek in the eastern portion. Surface waters from Source 36-17S drain northeastward towards First Creek from most of this site. Ground water flow is generally to the north.

The water table was encountered in eight borings, seven of which were located in Source 36-17S. A summary of the depth to water table and estimated water table elevations is presented below:

DEPTH (FEET)
 0.0 0.0 0 TOP OF WELL TOP OF CASING

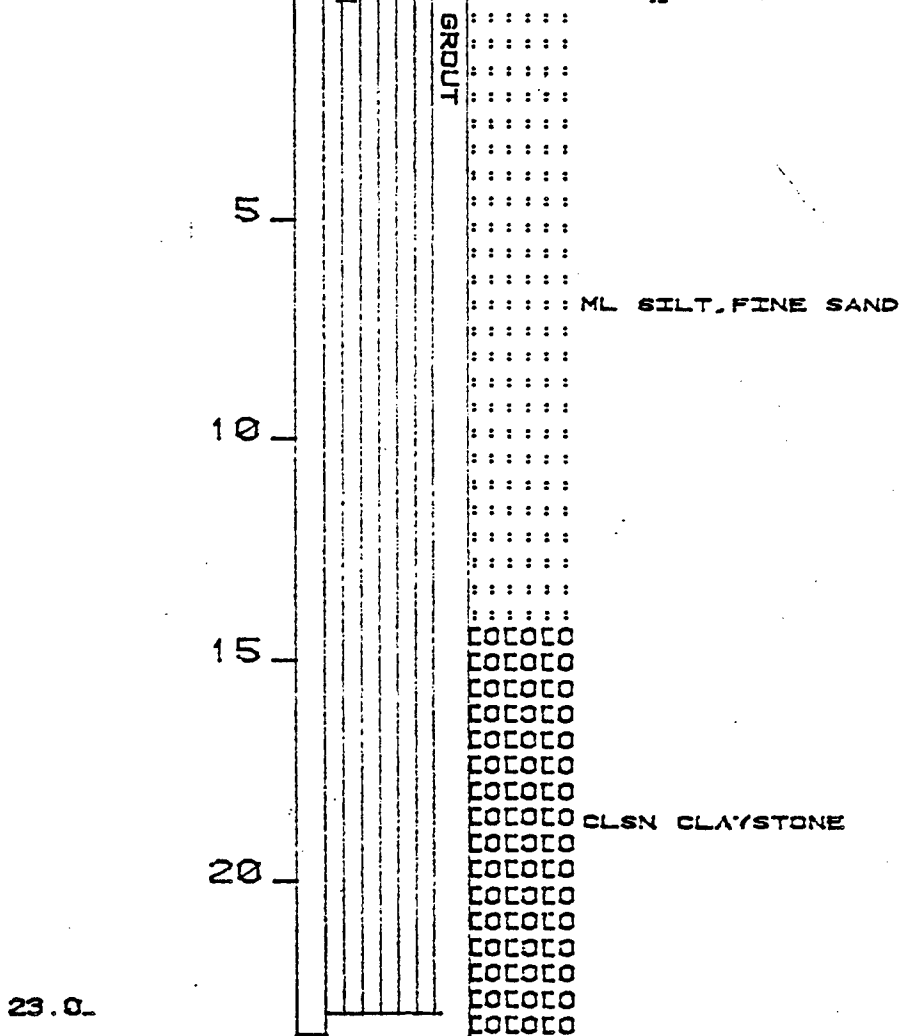


Figure 36-17-2
 FIELD BORING PROFILE FOR
 BORING 3067
 SOURCE: ESE, 1986

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 Aberdeen Proving Ground, Maryland

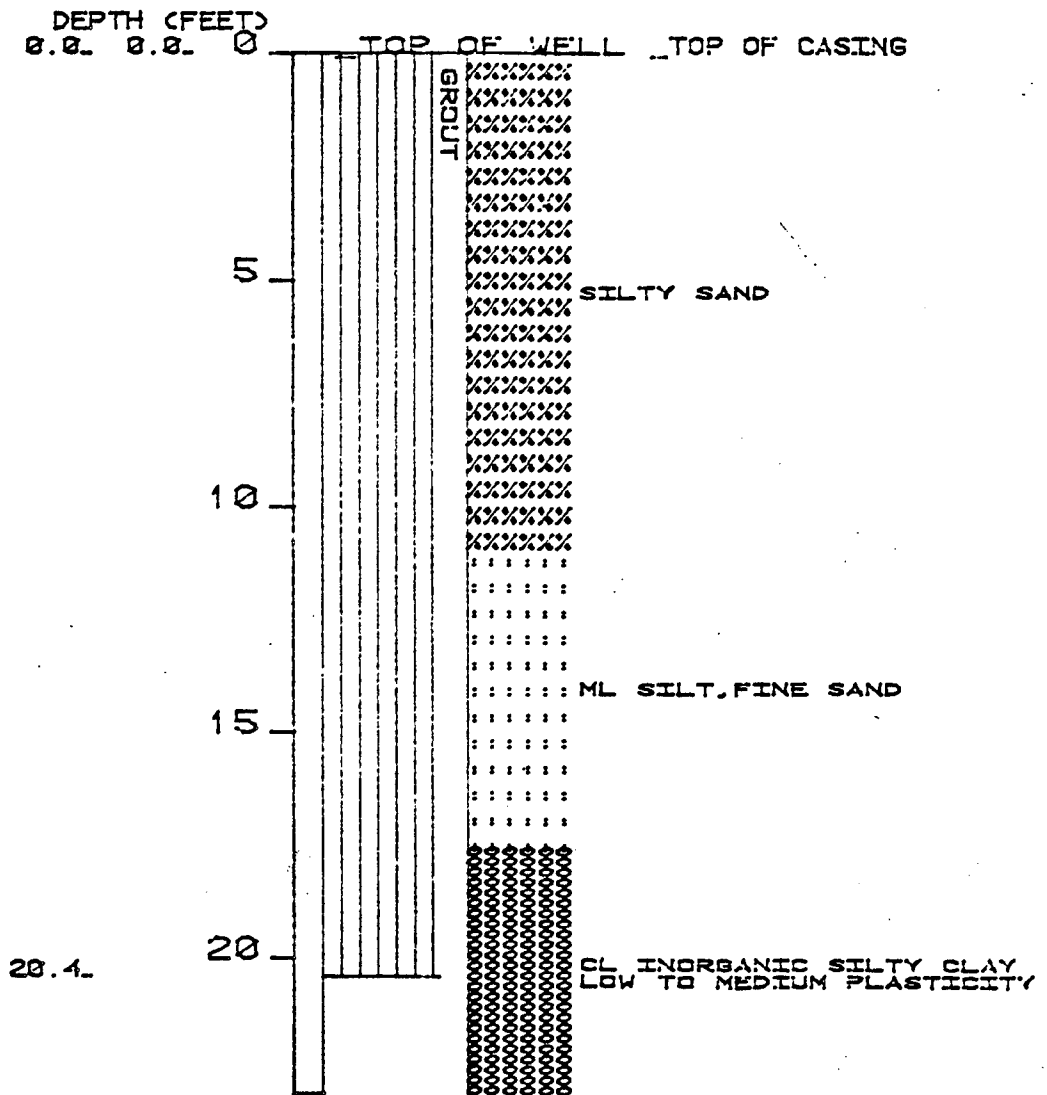


Figure 36-17-3
 FIELD BORING PROFILE FOR
 BORING 3083

SOURCE: ESE, 1986

Prepared for:
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 Aberdeen Proving Ground, Maryland

<u>Boring</u>	<u>Depth to Water (ft)</u>	<u>Estimated Ground Water Elevation*</u>
3084 (36-17N)	14.5	5229.0
3090	4.5	5235.0
3092	4.0	5237.5
3093	6.0	5236.0
3094	4.0	5239.0
3095	4.6	5237.0
3097	4.0	5241.0
3098	4.5	5244.0
3099	4.0	5243.5

* Rounded to nearest 0.5 ft

The estimated ground water elevations were determined using unstabilized water levels and the top of boring elevations. The data presented is in general conformance with the projections presented in the Task 1 Technical Plan.

Ponded surface water was observed directly east of Boring 3077 and south of Boring 3076. At the time of drilling there were no signs of the source of this water, however, there is a light northwest trending drainage that enters the area.

2.0 HISTORY

Disposal activity in this area was observed in the first aerial photograph of Section 36, dated 1948. Activity in this source area continued from this date through 1975. On the 1948 photo several disposal activities have been observed. In the northern portion of Source 36-17 a large bare area existed, but only two trenches were visible. In the center of this northern portion of Source 36-17, disturbances showed the existence of eight to twelve trenches. A portion of this area was used for burial of M-17 incendiary devices. The southern portion of this source remained undisturbed with the exception of activity within the Source 36-3 area where insecticides were being disposed.

The 1950 aerial photograph showed no new activity in the southern portion of this source and minimal activity in the northern portion. The site, which appeared to contain most of the trenches in 1948, appeared to be completely disturbed. The central area of the northern portion of Source 36-17 contained four round pits and four irregular dark patches which were former pools or spills.

The 1953 aerial photo showed increased trenching activity in the northern sector. One new pit and fifteen new trenches appeared in the north-northwest portion of this sector. At least two new trenches were added in the central portion of the northern sector of Source 36-17. Two new disturbed areas were also visible in the northern part of the southern sector.

The 1958 photograph showed no new activity in the southern sector, but many new trenches in the northern sector of Source 36-17. At least six new pits and fourteen new trenches appeared mostly concentrated along the western portion of this source, close to the Basin A high water mark. One large pit and several bare spots also appeared in the western portion of Source 36-17. The 1962 photo showed the addition of eleven new trenches and six new pits in Source 36-17N.

The 1975 photo showed new activities occurred in areas already occupied by previous trenches and pits. Therefore, old sites were covered and new ones were cut on a fairly routine basis. In general, half of the new trenches (about 20 trenches and several pits) in Source 36-17N were further east than the trenches apparent in the 1962 photo.

Source 36-9 was used for the testing and disposal of incendiary munitions. These munitions were reportedly ignited on the ground surface and in shallow trenches. Following burning the trenches were backfilled. The 1948 aerial photo shows activity at this site but no new activity was observed from 1950. Source 36-16 was also a primary disposal area for incendiary munitions. Many trenches and pits were observed in aerial photographs from 1948 through 1975.

3.0 EXTENT OF CONTAMINATION

3.1 SOIL

3.1.1 Previous Soils Investigations

This area did not appear to be used for pesticide disposal, based on chemical analysis of soil samples collected under the OTSG Program. Contaminants found in relatively high concentrations were copper, zinc, arsenic, and mercury. No detectable pesticides were found in soils collected from a borehole to a depth of 17 ft. However, this single sample point does not ensure that pesticide disposal did not occur in this source.

3.1.2 Phase I Contamination Survey

3.1.2.1 Phase I Soil Boring Program

The source boundaries of Source 36-17 have been slightly modified as the result of aerial photograph interpretation and field observations resulting in a revised source areal extent of 4,181,000 ft². Based on a borehole spacing of 150 ft, a total of 46 Phase I borings were completed. Boreholes ranged in depth from 5 to 23.5 ft. A borehole location map is presented in Figure 36-17-1a and 36-17-1b.

Prior to commencing drilling operations, all boring locations were cleared in accordance with the surface geophysics program detailed in the Task 1 Technical Plan. A grid, 20 feet on a side was set up at each boring location and gradiometer readings were obtained at a spacing of 5 ft throughout the grid area. These data were used to produce contour plots of the vertical magnetic gradient. Based on the contour plots the boring was relocated elsewhere within the grid or left in its original location. A metal detector was then employed to determine if any metal was present in the near surface soils (0 to 2 ft) within 5 ft of the boring locations. If metal was detected the boring was relocated again and the process repeated until satisfactory results were obtained.

The geophysics program results for Source 36-17S did not indicate the presence of buried metal at any borehole locations. Both the gradiometer survey and metal detector scans were negative for buried metal.

A total of five borings (3065, 3070, 3074, 3075, and 3086) in Source 36-17N were relocated due to potential buried metal identified by the geophysical program. Two boreholes (3065 and 3070) were relocated due to anomalies present (indicative of buried metal) in the magnetic gradient plots (Figures 36-17-4 and 36-17-5). The remaining three borings were relocated due to the metal detector scans. The contour plots of Boreholes 3075, 3083, and 3086, as shown in Figures 36-17-6 to 36-17-8, display anomalies indicative of buried metal. However, these borings did require relocation due to the anomalies, because of their spacial relationship.

The sampling program at Source 36-17 consisted of 99 samples distributed as shown in Table 36-17-1. All samples were obtained using the drill rig and continuous coring method as described in the Task I Technical Plan. As explained therein, predetermined sampling intervals were established every 5 ft beginning with a 0 to 1 ft sample. In some cases field conditions such as obstructions or water table position forced some adjustment in these intervals. Extra samples were taken (Intervals X, Y, or Z) when the soil column exhibited visual anomalies.

The Y interval at Boring 3086, for instance, was taken between the predetermined A and B intervals in an area where the soil column showed visual evidence of residue from burning. The chemical analysis confirmed this was probably the bottom of a burning pit for munitions disposal. All samples were subjected to analysis by GC/MS for semi-volatile organics, an ICP metals screen, and separate analyses for Hg, As, and DBCP. GC/MS analysis for volatile organics was performed on the deeper samples from selected borings.

3.1.2.2 Phase I Geophysical Investigations

Based on the complex disposal history and large areal extent of Source 36-17, a limited Phase I geophysical investigation was performed. The purpose of the investigation was to further define the approximate location and boundaries of the disposal trenches constructed in this source. Due to the lack of existing surficial evidence indicating the location of disposal trenches and pits, geophysical techniques were

Table 36-17-1. Sampling Intervals and Analytical Parameters for
Source 36-17 (Page 1 of 2)

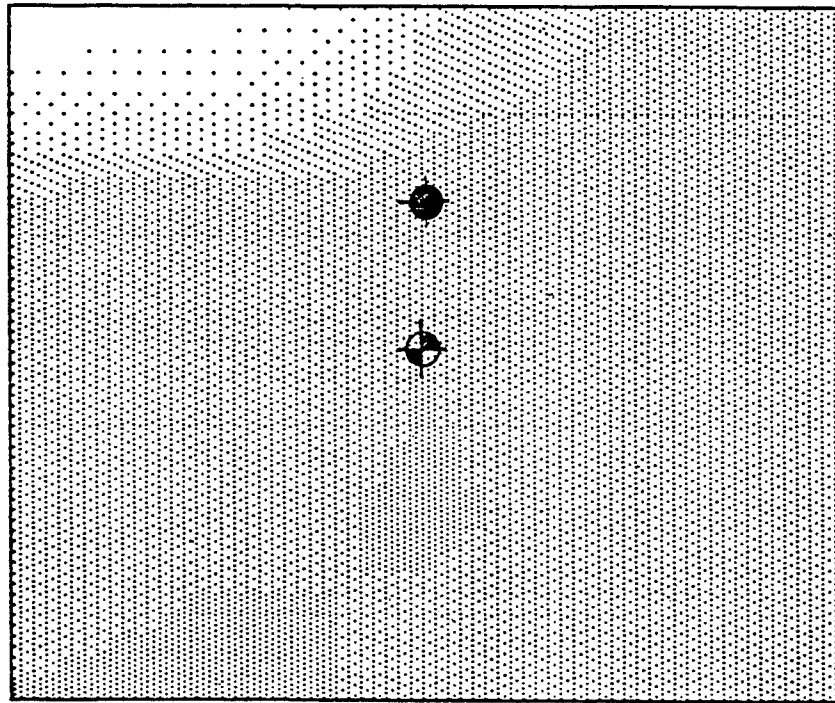
Bore Number	Sample Interval (ft)					Analytical Parameters
	A	B	C	D	E	
3059	0-1	4-5	--	--	--	*
3060	0-1	4-5	--	--	--	*
3061	0-1	4-5	--	--	--	*
3062	0-1	4-5	--	--	--	*
3063	0-1	4-5	--	--	--	*
3064	0-1	4-5	--	--	--	*
3065	0-1	4-5	9-10	12-13(Z)	--	*
3066	0-1	4-5	--	--	--	*
3067	0-1	4-5	9-10	14-15	19-20	*; ** (E)
3068	0-1	4-5	--	--	--	*
3069	0-1	4-5	9-10	14-15	--	*
3070	0-1	4-5	--	--	--	*
3071	0-1	4-5	--	--	--	*
3072	0-1	4-5	--	--	--	*
3073	0-1	4-5	--	--	--	*
3074	0-1	4-5	--	--	--	*
3075	0-1	4-5	--	--	--	*
3076	0-1	4-5	--	--	--	*
3077	0-1	4-5	--	--	--	*
3078	0-1	4-5	--	--	--	*
3079	0-1	4-5	--	--	--	*
3080	0-1	4-5	9-10	14-15	--	*; ** (C,D)
3081	0-1	4-5	--	--	--	*
3082	0-1	4-5	--	--	--	*
3083	0-1	4-5	9-10	14-15	19-20	*; ** (E)
3084	0-1	4-5	9-10	14-15	--	*; ** (C,D)
3085	0-1	4-5	--	--	--	*
3086	0-1	4-5	2-3(Y)	--	--	*
3087	0-1	4-5	--	--	--	*

Table 36-17-1. Sampling Intervals and Analytical Parameters for Source 36-17 (Continued, Page 2 of 2)

Bore Number	Sample Interval (ft)					Analytical Parameters
	A	B	C	D	E	
3088	0-1	4-5	--	--	--	*
3089	0-1	4-5	--	--	--	*
3091	0-1	4-5	--	--	--	*
3095	0-1	4-5	--	--	--	*
3096	0-1	4-5	--	--	--	*,** (B)
3097	0-1	4-5	--	--	--	*
3098	0-1	4-5	--	--	--	*
3099	0-1	4-5	--	--	--	*
3100	0-1	4-5	--	--	--	*
3101	0-1	4-5	--	--	--	*
3102	0-1	4-5	--	--	--	*
3103	0-1	4-5	--	--	--	*
3104	0-1	4-5	--	--	--	*

* Semi-volatile organics, DBCP, ICP Metals, Arsenic, Mercury (in all intervals).

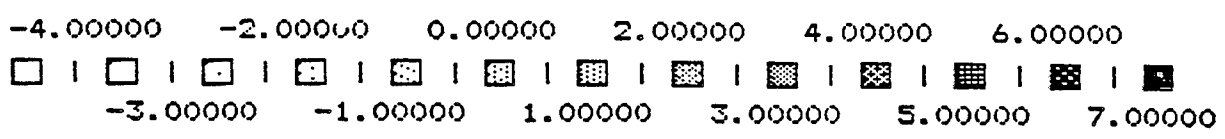
** Volatile Organics (in Intervals Indicated Only).



20'



20'



EXPLANATION



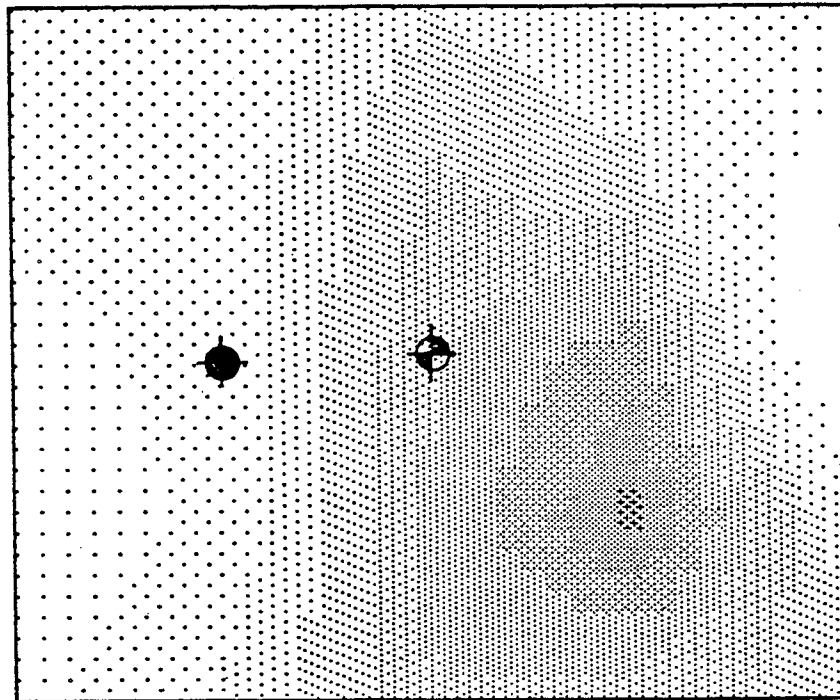
-  Original Boring Location
-  Final Boring Location

Figure 36-17-4
 CONTOUR PLOT OF VERTICAL MAGNETIC
 GRADIENT BORING 3065

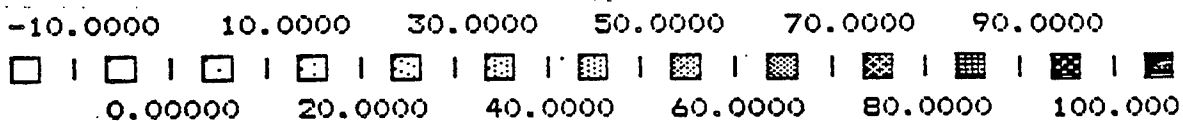
SOURCE: HLA, 1986

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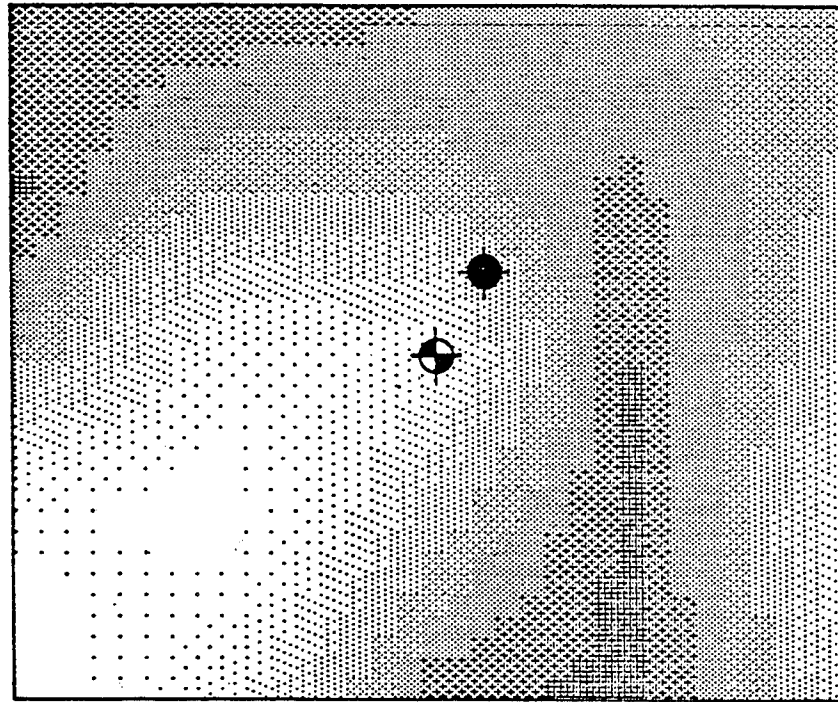
EXPLANATION

- Original Boring Location
- Final Boring Location

Figure 36-17-5
 CONTOUR PLOT OF VERTICAL MAGNETIC
 GRADIENT BORING 3070

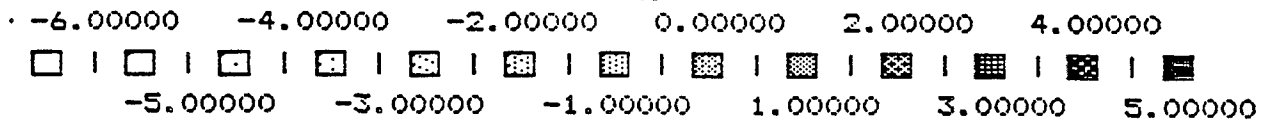
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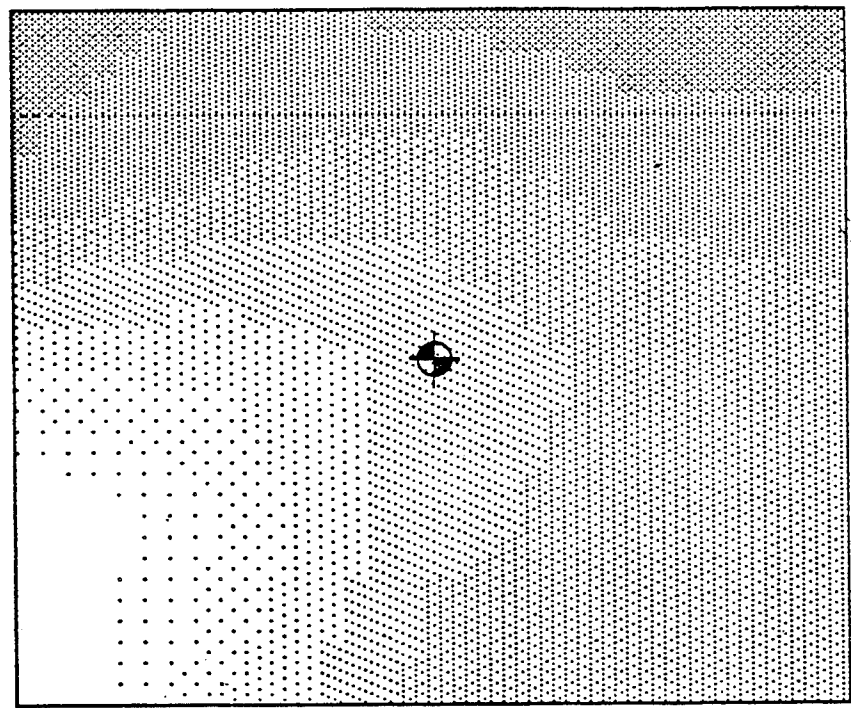
-  Original Boring Location
-  Final Boring Location

Figure 36-17-6
 CONTOUR PLOT OF VERTICAL MAGNETIC
 GRADIENT BORING 3075

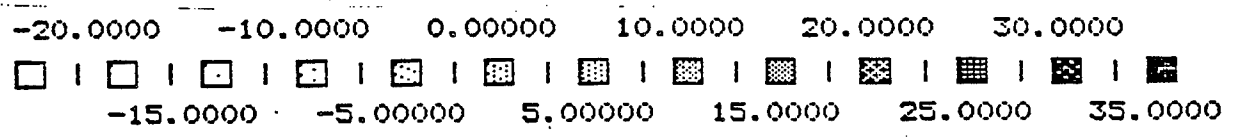
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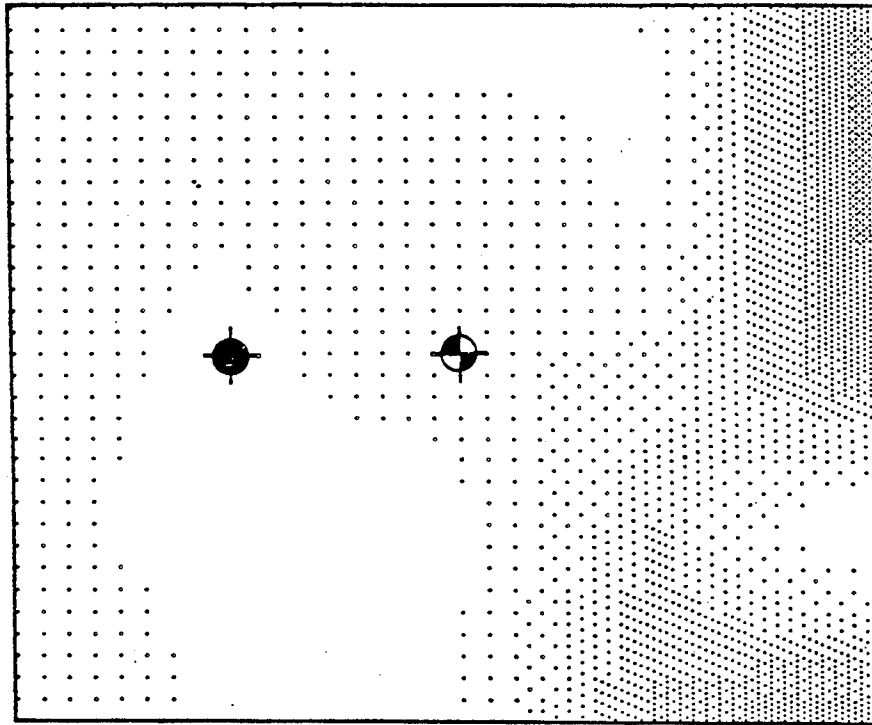
EXPLANATION

- Original Boring Location
- Final Boring Location

Figure 36-17-7
**CONTOUR PLOT OF VERTICAL MAGNETIC
 GRADIENT BORING 3083**

SOURCE: HLA, 1986

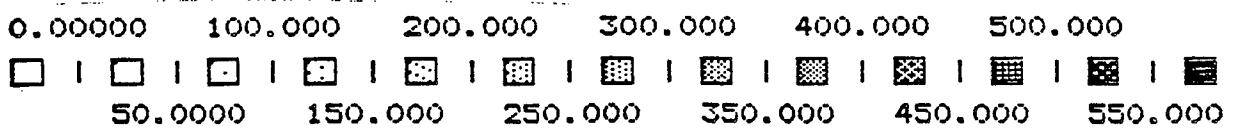
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20'



20'



EXPLANATION

- Original Boring Location
- Final Boring Location

Figure 36-17-8
 CONTOUR PLOT OF VERTICAL MAGNETIC
 GRADIENT BORING 3086

SOURCE: HLA, 1986

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deemed a more cost and time effective method of locating areas to be further investigated for the Phase II boring program.

The Phase I geophysical investigation was performed over a 500 ft by 200 ft area located at the northern boundary of Source 36-17N. Historical aerial photography indicates that this area was used extensively for disposal activities.

The Phase I geophysical program employed two of the methods used in the Source 36-3 geophysical program. These methods were Electromagnetics (EM) and Vertical Electrical Soundings (VES). Upon consideration of the results of the Source 36-3 investigation and time constraints, it was decided that a magnetometer survey would not be conducted at this time.

EM data was collected along transects spaced at 5 ft intervals throughout the study area. Strip chart recorders were utilized to provide continuous data along each transect. Data was compiled and input into an IBM-PC which generated contour plots of the EM in-phase component (sensitive to ferrous and non-ferrous metal).

A total of four VES soundings were performed within the Source 36-17N geophysical investigation area. VES soundings provide the electrical stratigraphy of the soils at the sounding location.

A detailed discussion of the geophysical methods employed and respective theory are provided in the document titled "Geophysical Investigation of Source 36-3, 36-10 and 36-17".

3.1.2.3 Phase I Field Observations

Portions of the area contained within Source 36-17 are significantly disturbed. There are distinct areas of severe vegetation stress along the boundary between Source 36-17 and Basin A. Also, there is a large barren area immediately south of Source 36-3 which contains numerous small glass bottles and broken glass. This area is surrounded by a small earthen berm approximately 1 ft high.

Trenches are still present in the north-central and southeast areas of Source 36-17N. Boring 3086 penetrated the northern trench and the southern is approximately 100 ft west of Boring 3063. Other indicators of disposal activities in this source include:

- o Large metal tanks (possibly reaction vessels) and dragline buckets are present on the surface 90 ft west of Borehole 3065;
- o A sunken concrete cistern approximately 6 ft deep near Borehole 3083;
- o A large mound of construction debris located near the Basin A boundary in the vicinity of Borehole 3230;
- o A shallow pit with metal debris is present southwest of Borehole 3084; and
- o Surface debris (broken glass, wood and metal fragments, construction debris) scattered about the area.

Air monitoring results varied significantly from Source 36-17N and 36-17S. HNU reading taken in the borehole annulus of Source 36-17N boreholes (3059-3088) ranged from 1 to 14 ppm whereas those taken from Source 36-17S boreholes (3089-3104) ranged from 60 ppm to 500 ppm. Boreholes with readings greater than 50 ppm were: 3089 (500 ppm from 0 to 1 ft, 400 ppm from 1 to 4 ft, 110 ppm from 4 to 5 ft); 3090 (400 ppm from 1 to 4 ft, 90 ppm from 4 to 5 ft); and 3099 (60 ppm from 1 to 4 ft and 4 to 5 ft). No above background readings were obtained in the breathing zone.

Field monitoring for chemical agents was negative at all locations. However, composite samples of Boreholes 3090, 3092, 3093, and 3094 sent to the RMA laboratory for agent screening were positive for mustard. These samples were delivered to RMA personnel for appropriate processing and disposal.

3.1.2.4 Phase I Contaminant Levels and Distribution

The northern portion of Source 36-17 appears to have been used almost exclusively for disposal and destruction of a variety of munitions. These munitions include bursters, bombs, bomblets, incendiary devices, WP grenades, neutralized GB, and other chemical-filled munitions. Organic

contaminants expected in this source area included mustard, GB, Lewisite, and possibly surety materials other than the more common agents. UXO was also expected in some locations.

The history of Source 36-17S is somewhat less clear. The large devegetated area south of Source 36-3 shows evidence of surface or near surface disposal of numerous small glass vials. These could have been from field identification kits or laboratory operations. The area north of Source 36-3 was reportedly used for disposal of materials generated by mustard manufacturing. Anticipated contaminants at this site were pesticides, agents, and possibly UXO.

Analytical data for the Phase I boring program have been tabulated in Appendix 36-17-B. A descriptive summary of these results is presented in Table 36-17-2. Samples containing concentrations above detection limits are tabulated in Table 36-17-3 and significant values are displayed graphically in Figure 36-17-9a and 36-17-9b.

Analysis of Source 36-17 Phase I soil samples indicated the presence of DBCP, organochlorine pesticides, and organosulfur compounds, and elevated arsenic, mercury, and metals concentrations. Organochlorine pesticides observed include aldrin, dieldrin, endrin, DIMP, chlordane, and DBCP. Concentration range from slightly greater than the associated detection limits to some very high levels in isolated areas.

All samples taken from this source were tested for presence of agents by the RMA laboratory which analyzed a composite of each days samples. If positive readings were found, individual samples from each boring were analyzed to identify location. Positive readings for mustard were found in Borings 3900, 3092, 3093, and 3094. Samples from these boring were consequently not analyzed for other constituents.

Compounds which were not part of the target list (unknowns) detected during the Phase I GC/MS analysis are included in the data file presented in Appendix 36-17-B. They are identified only as UNK123, where the three

Table 36-17-2. Summary of Analytical Results for Source 36-17 Analytical Data

Constituent	Number of Samples*	Range	Concentrations (µg/g)			Standard Deviation	Detection Limit (µg/g)
			Mean	Median			
<u>Volatiles</u>							
None Detected							
<u>Semi-Volatiles</u>							
Aldrin	3	1->1000	300	6	600	0.9	
Dieldrin	6	0.3->499	80	0.9	200	0.3	
Endrin	1	0.9-0.9	--	--	--	0.7	
Chlordane	2	60-70	70	70	5	1	
P,p'-DDE	1	3-3	--	--	--	0.3	
DIMP	5	0.7-4	2	2	2	0.5	
PCPMS	1	0.7-0.7	--	--	--	0.3	
DBCP	6	0.012-0.44	0.12	0.07	0.16	0.005	
<u>Metals</u>							
Cadmium	12	0.70-13	3.3	1.0	4.1	0.9	
Chromium	83	7.0-1,400	30	11	160	7.2	
Copper	95	5.0-660	21	10	68	4.8	
Lead	25	17-7,100	310	23	1,400	17	
Zinc	88	24-12,000	200	39	1,300	16	
Arsenic	23	4.7-29	10	6.5	7.1	4.7	
Mercury	26	0.050-1.2	0.18	0.12	0.24	0.05	

* Number of samples in which constituent was detected.

Source: ESE, 1986

Table 36-17N-3. Concentrations of Target Analytes Above Detection Limits in Source 36-17N Soil Samples (Page 1 of 6)

Bore Number	3059A	3059B	3060A	3060B	3061A	3061B	3062A	3062B	3063A	3063B	3064A	3064B	3065A
Depth (ft)	0-1	4-5	0-1	4-5	0-1	4-5	0-1	4-5	0-1	4-5	0-1	4-5	1-2
Geologic Material	Sandy Silt	Silty Sand	Slightly Sandy Silt	Sandy Silt	Sandy Silt	Sandy Silt	Sandy Silt	Sandy Silt	Slightly Sandy Silt	Slightly Sandy Silt	Slightly Sandy Silt	Sandy Silt	Sandy Silt
AIR MONITORING													
HNU (ppm)	BKD	BKD	BKD	1	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD
SOIL CHEMISTRY													
Volatiles (µg/g)													
None Detected													
Semi-Volatiles (µg/g)													
Chlordane	70	--	--	--	--	--	--	--	--	--	--	--	--
DIMP	--	0.9	--	--	--	--	--	--	--	--	--	--	--
Aldrin	--	--	--	--	--	--	--	--	--	--	--	--	>1000
Dieldrin	--	--	--	--	--	--	--	--	--	--	--	--	>499
Metals (µg/g)													
Cadmium	--	--	--	--	--	--	--	--	--	--	--	2.9	--
Chromium	16	10	14	--	18	--	11	12	11	9	13	10	10
Copper	8	--	15	8	11	5	14	11	20	9	11	8	11
Lead	27	--	--	--	29	--	--	--	--	--	--	--	--
Zinc	57	32	39	37	70	26	--	37	64	--	35	--	--
Arsenic	7.9	--	--	--	6.7	--	--	--	--	--	0.17	--	--
Mercury	0.15	--	--	--	--	--	--	--	--	--	0.11	0.11	0.12

Table 36-17N-3. Concentrations of Target Analytes Above Detection Limits in Source 36-17N Soil Samples (Continued, Page 2 of 6)

Bore Number	3065B	3065C	3065Z	3066A	3066B	3067A	3067B	3067C	3067D	3067E	3068A	3068B	3069A
Depth (ft)	4-5	9-10	12-13	0-1	4-5	0-1	4-5	9-10	14-15	19-20	0-1	4-5	0-1
Geologic Material	Silty Sand	Sandy Silt	Sandy Silt	Sandy Silt	Sandy Silt	Sandy Silt	Sandy Silt	Sandy Silt	Silty Claystone	Silty Claystone	Slightly Silty	Slightly Silty	Sandy Silt

AIR MONITORING

HNU (ppm)	1	1	1	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD

SOIL CHEMISTRY

Volatiles (µg/g)

None Detected

Semi-Volatiles (µg/g)

None Detected

Metals (µg/g)

Cadmium	--	14	20	--	--	--	10	14	0.9	1.0	14	10	--
Chromium	11	13	19	10	7	11	9	22	41	46	16	10	9
Copper	10	--	--	--	--	--	--	--	25	22	21	10	8
Lead	--	--	69	--	--	34	--	51	90	86	44	32	--
Zinc	--	37	--	--	--	--	--	--	--	--	--	--	32
Arsenic	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	--	0.17	--	0.12	--	0.09	--	--	--	--	--	--	--

Table 36-17N-3. Concentrations of Target Analytes Above Detection Limits in Source 36-17N Soil Samples (Continued, Page 3 of 6)

Bore Number	3069B	3069C	3069D	3070A	3070B	3071A	3071B	3072A	3072B	3073A	3073B	3074A	3074B
Depth (ft)	4-5	9-10	14-15	0-1	4-5	0-1	4-5	0-1	4-5	0-1	4-5	0-1	4-5
Geologic Material	Silty Sand	Silty Sand	Claystone	Silty Sand	Silty Sand	Sandy Silt	Silty Sand	Silty Sand	Silty Sand	Sandy Silt	Silty Sand	Sandy Silt	Silty Sand
AIR MONITORING													
HNU (ppm)	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD
SOIL CHEMISTRY													
Volatiles (µg/g)													
None Detected													
Semi-Volatiles (µg/g)										0.3			
Dieldrin													
Metals (µg/g)													
Cadmium		9	34		11	8		14	10	12		15	10
Chromium	5	8	25	15	9	6	5	13	9	12	13	13	10
Copper			21							33			
Lead	24	35	69	42	43	28	29	39		51	37	42	31
Zinc		6.1		4.7	6.5					5.1	5.1		
Arsenic							0.06			0.08			
Mercury											0.05		

Table 36-17N-3. Concentrations of Target Analytes Above Detection Limits in Source 36-17N Soil Samples (Continued, Page 4 of 6)

Bore Number	3075A	3075B	3076A	3076B	3077A	3077B	3078A	3078B	3079A	3079B	3080A	3080B
Depth (ft)	0-1	4-5	0-1	4-5	0-1	4-5	0-1	4-5	0-1	4-5	0-1	4-5
Geologic Material	Silty Sand	Silty Sand	Slightly Silty Sand	Slightly Silty Sand	Slightly Silty Sand	Slightly Silty Sand	Slightly Silty Sand	Slightly Silty Sand	Slightly Silty Sand	Slightly Silty Sand	Slightly Silty Sand	Slightly Silty Sand
	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD
HNU (ppm)												
AIR MONITORING												
SOIL CHEMISTRY												
Volatiles (µg/g)												
None Detected												
Semi-Volatiles (µg/g)												
Dieldrin	--	--	3	--	1	--	--	--	--	--	--	--
Endrin	--	--	0.9	--	--	--	--	4	--	--	--	--
DIMP	--	--	--	2	--	--	--	--	--	--	--	--
Metals (µg/g)												
Cadmium	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	7	8	12	10	9	8	--	8	10	9	--	--
Copper	6	8	30	8	10	6	6	6	8	7	6	6
Lead	--	--	30	--	23	--	--	--	18	--	--	--
Zinc	30	39	60	44	41	32	26	35	38	38	34	30
Arsenic	--	--	27	--	11	11	8.9	--	5.0	--	--	--
Mercury	--	0.07	0.59	0.07	0.20	--	--	--	--	0.23	--	--

Table 36-17N-3. Concentrations of Target Analytes Above Detection Limits in Source 36-17N Soil Samples (Continued, Page 5 of 6)

Bore Number	3080C	3080D	3081A	3081B	3082A	3082B	3083A	3083B	3083C	3083D	3083E	3084A	3084B
Depth (ft)	9-10	14-15	0-1	4-5	0-1	4-5	0-1	4-5	9-10	14-15	19-20	0-1	4-5
Geologic Material	Silty Sand	Claystone	Sandy Silt	Silty Sand	Sandy Silt	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Sandy Clayey Silt	Sandy Clay	Silty Silt	Sandy Silt
AIR MONITORING													
HNU (ppm)	BKD	BKD	14	12	1	1.2	BKD	BKD	BKD	BKD	BKD	BKD	BKD
SOIL CHEMISTRY													
Volatiles (µg/g)													
None Detected													
Semi-Volatiles (µg/g)													
DDE	--	--	--	--	--	--	3	--	--	--	--	--	--
Metals (µg/g)													
Cadmium	1.0	--	--	--	--	--	6.9	--	--	--	--	--	--
Chromium	9	--	14	13	--	12	16	14	14	15	12	8	9
Copper	9	36	15	12	5	8	14	13	15	15	22	5	5
Lead	--	18	19	--	--	17	20	--	--	--	--	--	--
Zinc	38	66	39	39	35	48	48	39	44	50	51	27	31
Arsenic	--	--	--	--	--	5.7	--	--	--	--	--	--	--
Mercury	--	0.06	--	--	--	--	0.36	--	--	--	--	--	--

Table 36-17N-3. Concentrations of Target Analytes Above Detection Limits in Source 36-17N Soil Samples (Continued, Page 6 of 6)

Bore Number	3084C	3084D	3085A	3085B	3086A	3086B	3086Y	3087A	3087B	3088A	3088B
Depth (ft)	9-10	14-15	0-1	4-5	0-1	4-5	2-2.5	0-1	4-5	0-1	4-5
Geologic Material	Sandy Silt	Saturated Silty Sand	Slightly Clayey Silt	Sandy Silt	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
AIR MONITORING											
HNU (ppm)	BKD	BKD	BKD	BKD	50-100	BKD	BKD	1.2	BKD	BKD	BKD
SOIL CHEMISTRY											
Volatiles (µg/g)											
None Detected											
Semi-Volatiles (µg/g)											
DBCP	--	--	--	--	0.012	0.14	0.11	--	--	--	--
Metals (µg/g)											
Cadmium	--	--	--	--	1.8	13	9.6	--	--	--	--
Chromium	9	--	14	8	15	33	1400	--	8	8	8
Copper	6	5	17	5	27	170	660	6	--	6	5
Lead	--	--	32	--	.96	150	7100	--	--	--	--
Zinc	34	36	65	29	112	2500	12,000	27	28	30	31
Arsenic	--	--	7.8	--	--	--	--	--	--	--	--
Mercury	--	--	0.06	--	0.13	1.2	--	--	--	--	--

BKD No readings above ambient background.
-- Below detection limit.

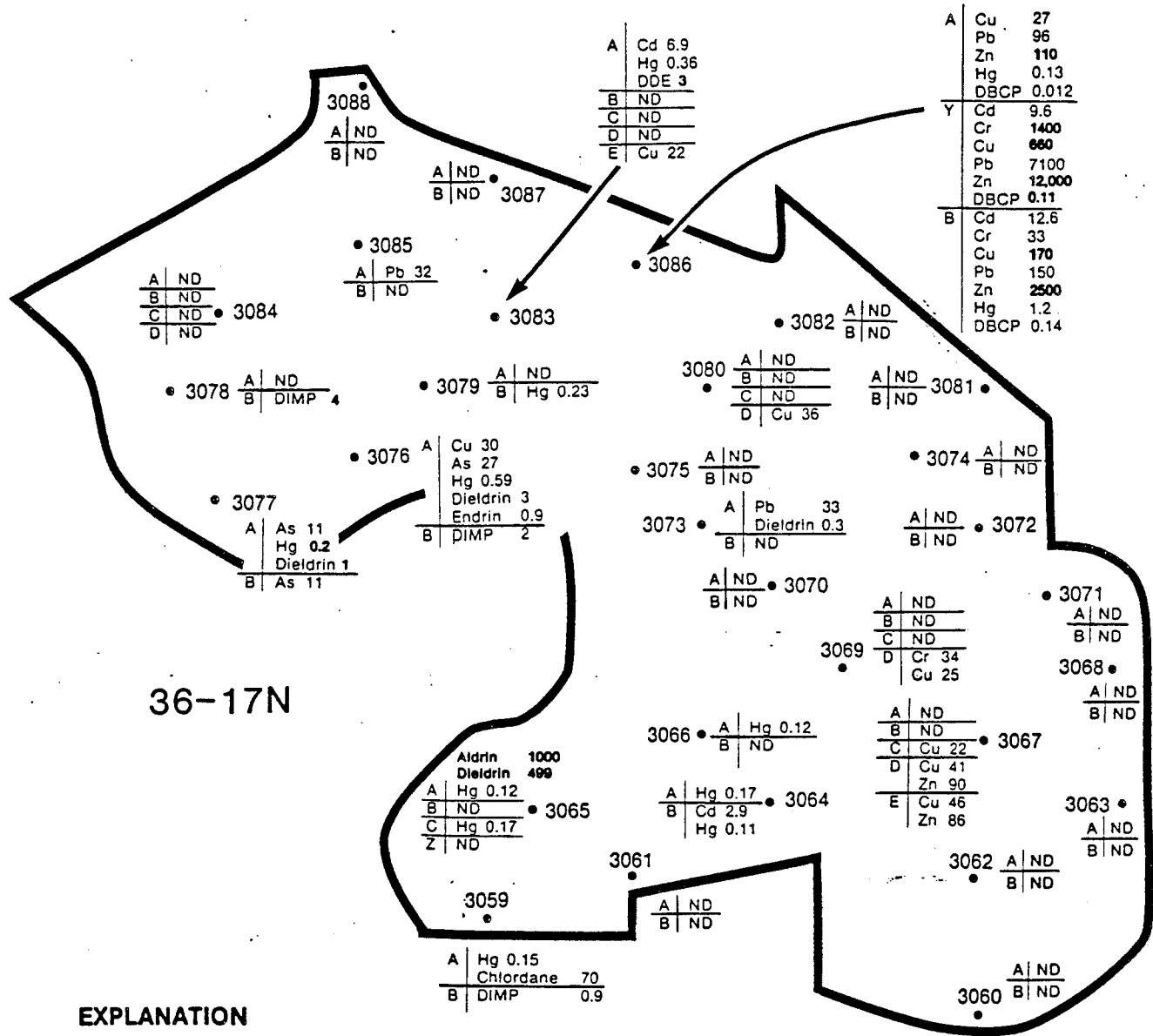
Table 36-17S-3. Concentrations of Target Analytes Above Detection Limits in Source 36-17S Soil Samples (Page 1 of 2)

Bore Number Depth (ft) Geologic Material	3089A 0-1 Slightly Sandy Silt	3089B 4-5 Sandy Silt	3091A 0-1 Sandy Silt	3091B 4-5 Clayey Silt	3095A 0-1 Slightly Silty Sand	3095B 4-5 Slightly Silty Sand	3096A 0-1 Clayey Silt	3096B 4-5 Clayey Silt	3097A 0-1 Silty Sand	3097B 4-5 Saturated Sandy Silt	3098A 0-1 Sandy Silt	3098B 4-5 Silty Sand
	500	400	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD
AIR MONITORING												
HNU (ppm)	500	400	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD
SOIL CHEMISTRY												
<u>Volatiles (µg/g)</u>												
None Detected												
<u>Semi-Volatiles (µg/g)</u>												
Dieldrin	0.7	--	--	--	--	--	--	--	--	0.6	--	--
Chlordane	60	--	--	--	--	--	--	--	--	--	--	--
DIMP	--	0.7	--	--	--	--	--	4	--	--	--	0.013
DBCP	--	--	--	0.031	--	--	--	--	--	--	--	--
Aldrin	--	--	--	--	--	--	--	--	--	1	--	--
PCPMS	--	--	--	--	--	--	--	--	--	--	--	--
<u>Metals (µg/g)</u>												
Cadmium	--	--	--	--	0.7	--	--	0.8	--	--	--	--
Chromium	11	14	12	11	15	11	16	18	7	--	10	22
Copper	7	9	8	7	17	13	22	17	7	--	7	8
Lead	--	19	25	--	20	--	--	--	25	--	18	--
Zinc	48	46	44	39	52	41	71	45	62	34	37	43
Arsenic	16	--	--	4.9	21	--	--	29	6.2	--	5.1	5.4
Mercury	0.20	--	0.06	--	0.09	--	--	--	0.13	--	0.07	--

Table 36-17S-3. Concentrations of Target Analytes Above Detection Limits in Source 36-17S Soil Samples (Continued, Page 2 of 2)

Bore Number	3099A	3099B	3100A	3100B	3111A	3101B	3102A	3102B	3103A	3103B	3104A	3104B
Depth (ft)	0-1	4-5	0-1	4-5	0-1	4-5	0-1	4-5	0-1	4-5	0-1	4-5
Geologic Material	Clayey Silt	Saturated Clayey Silt	Silty Sand	Silty Sand	Clayey Silt	Clayey Silt	Silty Sand	Clayey Sand	Sandy Silt	Silty Sand	Sandy Silt	Silty Sand
AIR MONITORING												
HNU (ppm)	60	90	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD	BKD
SOIL CHEMISTRY												
Volatiles (µg/g)												
None Detected												
Semi-Volatiles (µg/g)												
Dieldrin	--	--	--	--	--	--	--	--	--	--	--	--
Chlordane	--	--	--	--	--	--	--	--	--	--	--	--
DIMP	--	--	--	--	--	--	--	--	--	--	--	--
DBCP	--	0.44	--	--	--	--	--	--	--	--	--	--
Aldrin	--	6	--	--	--	--	--	--	--	--	--	--
PCPMS	--	0.7	--	--	--	--	--	--	--	--	--	--
Metals (µg/g)												
Cadmium	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	14	10	17	16	18	--	9	11	16	15	21	11
Copper	9	7	16	15	10	--	13	11	15	14	17	12
Lead	22	--	--	--	26	--	--	--	--	--	--	--
Zinc	47	36	52	45	60	24	39	--	44	41	59	--
Arsenic	4.8	--	--	--	6.9	--	--	--	--	--	--	--
Mercury	--	--	--	--	--	--	--	--	--	0.16	--	--

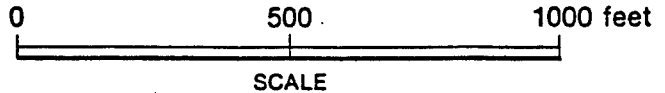
BKD No readings above ambient background.
-- Below detection limit.



EXPLANATION

3139 ● Phase I Boring

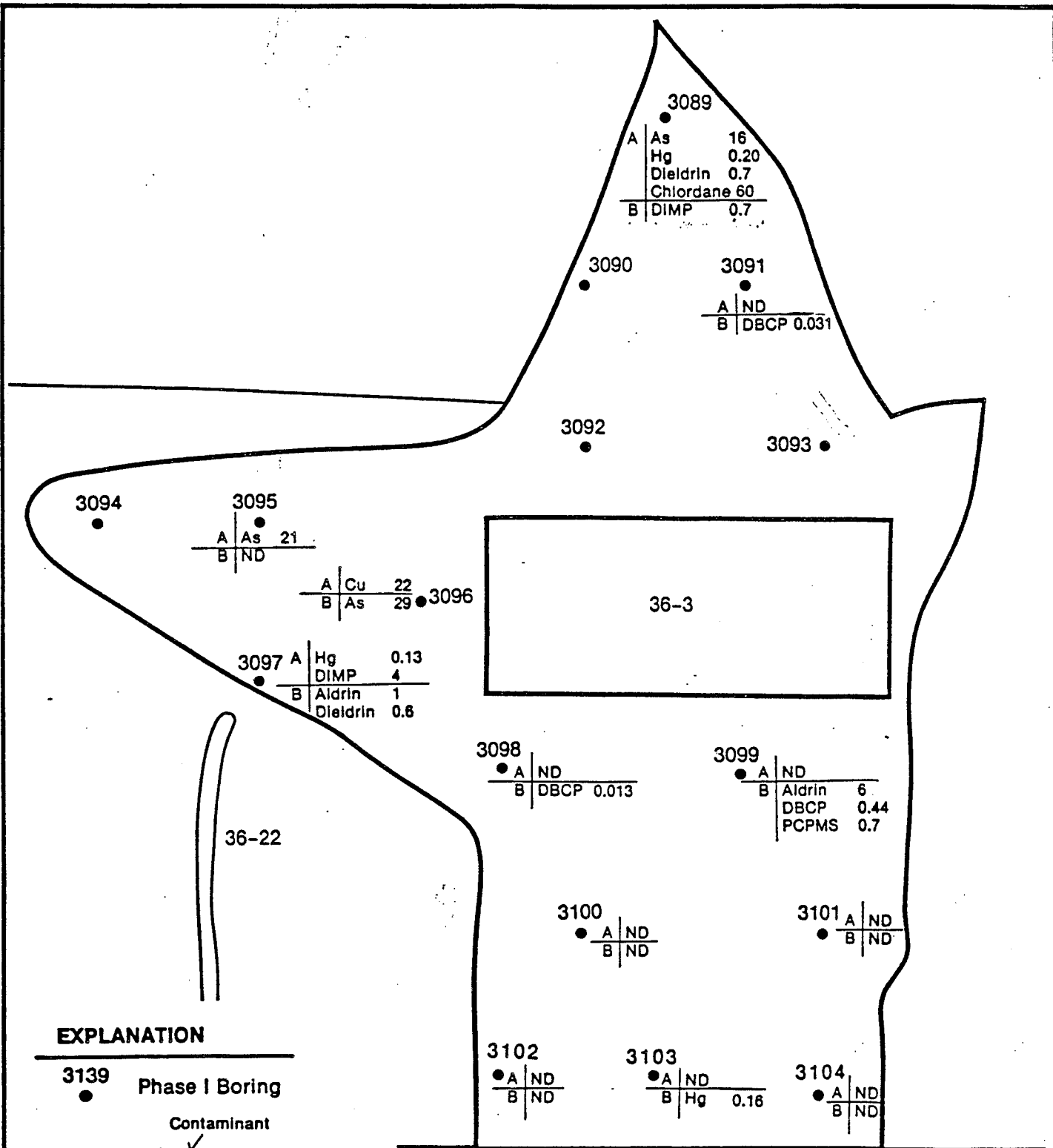
Sampling Interval	Contaminant	Level (PPM)
A	As	21
B	Hg	0.5
C	DBCP	0.07



ND No Organics Above Detection Limits;
No Elevated Metals.

Figure 36-17-9a
SOURCE 36-17S
PHASE I CHEMICAL ANALYSIS
SOURCE: ESE, 1986

Prepared for:
U.S. Army Program Manager's Office
For Rocky Mountain Arsenal
Aberdeen Proving Ground, Maryland



3089

A	As	16
	Hg	0.20
	Dieldrin	0.7
	Chlordane	60
B	DIMP	0.7

3091

A	ND
B	DBCP 0.031

3095

A	As	21
B	ND	

3096

A	Cu	22
B	As	29

3097

A	Hg	0.13
	DIMP	4
B	Aldrin	1
	Dieldrin	0.6

3098

A	ND
B	DBCP 0.013

3099

A	ND
B	Aldrin 6
	DBCP 0.44
	PCPMS 0.7

3100

A	ND
B	ND

3101

A	ND
B	ND

3102

A	ND
B	ND

3103

A	ND
B	Hg 0.16

3104

A	ND
B	ND

Figure 36-17-9b
SOURCE 36-17S
PHASE I CHEMICAL ANALYSIS
SOURCE: ESE, 1986

Prepared for:
U.S. Army Program Manager's Office
For Rocky Mountain Arsenal
Aberdeen Proving Ground, Maryland

digit number is relative retention time. Library searches were run against the unknowns, and an attempt at positive identification was made as summarized in Table 36-17-4.

3.1.2.4 Phase I Contamination Assessment

The pattern of contamination observed at Source 36-17N is generally consistent with the reported history as a trench disposal area. Many of the Phase I borings encountered little or no evidence of contamination. All borings east of a line between 3073 and 3066 were free of significant contamination. This could indicate the area was not used for trench disposal. However, the data for 3086 and surrounding areas indicates this conclusion would be premature. Boring 3186 exhibited visual staining in the column, and the chemical results show the highest levels of metals found in Section 36, in addition to some DBCP. The surrounding holes exhibit little evidence of contamination. This pattern illustrates that contamination within Source 36-17 is severe in isolated areas, but large portions of the area are probably uncontaminated.

The deeper intervals of Borings 3067 and 3069 exhibit Cr, Cu, and Zn concentrations slightly above those seen elsewhere. These levels are within the indicator ranges used as representative of natural variations. This is regarded as indicative of the phenomenon discussed in the Executive Summary of elevated metals levels in shales. These deeper borings penetrated the Denver Formation, which has exhibited similar metals levels in other sources (Source 36-12).

The portion of Source 36-17N adjacent to Basin A exhibits a pattern of pesticide contamination not seen in the remainder of the area. Pesticides including dieldrin, endrin, and DIMP are prevalent in Borings 3077 and 3076, as they are in the adjacent Boring 3233 in Basin A. This would suggest a particular source of contamination in this area. DIMP is not commonly found elsewhere in Basin A or Source 36-17N.

Table 36-17-4. Tentative Identification of Non-Target Compounds in Source 36-17. (Page 1 of 9)

Borehole Number	Interval Depth (ft)	Unknown Number	Concentration (ppm)	Sample Number	Lot	Best Fit*	Phase II Analysis Required	Comments*
3059	0-1	609	0.9	505600	BIB	No match found	N	No positive identification
		611	5			No good library match found	N	No positive identification
		612	0.7			No good library match found	N	No positive identification
		614	2			No good library match found	N	No positive identification
		619	0.6			B-p-Ts coelecite	N	No positive identification
3059	4-5	523	0.4	505601	BIB	Phthalate	N	In blank
		634	0.3			Phthalate	N	Plasticizer
		637	0.7			Phthalate	N	Plasticizer
		654	0.4				N	Plasticizer
		608	0.3			Hexadecanoic acid	N	Naturally occurring
615	1	Alkene hydrocarbon	N	Oil				
3060	0-1	614	1	505607	MEK	Dibutyl nonanoate	N	Naturally occurring
3061	0-1	523	0.3	505612	BIB	Octadecenal	N	In blank
		614	0.9			Octadecenal	N	In blank
		631	0.4			Phthalate	N	By-product
		633	0.4			Diheptyl phthalate	N	Plasticizer
		636	0.7				N	Plasticizer
		523	0.3			Phthalate	N	In blank
		634	0.4			Phthalate	N	Plasticizer
637	0.9	Phthalate	N	Plasticizer				
3062	0-1	641	0.3	505618	MEJ	Phthalate	N	Plasticizer
		654	0.4			Phthalate	N	Plasticizer
		542	1			1,3 Butanediol	N	Naturally occurring
		579	0.4			Isobutyl butenedioate	N	Naturally occurring
		609	1			Hexadecanoic acid	N	Naturally occurring
		633	0.5			Hydrocarbon unknown	N	Oil, No positive identification
3062	4-5	634	0.3	505619	MEJ	Unknown hydrocarbon	N	Oil, No positive identification
		542	1			1,3 butanediol	N	No positive identification
		544	0.3			Unknown	N	Naturally occurring
		579	2			Isobutyl butenedioate	N	Naturally occurring
		609	3			Hexadecanoic acid	N	Naturally occurring
		633	2			Alkene hydrocarbon C ₁₈ or higher	N	Oil, No positive identification
3063	0-1	608	0.3	505624	MEK	Hexadecanoic acid	N	Naturally occurring
		633	0.6			Alkene hydrocarbon	N	Oil, No positive identification

Table 36-17-4. Tentative Identification of Non-Target Compounds in Source 36-17. (Continued, Page 2 of 9)

Borehole Number	Interval Depth (ft)	Unknown Number	Concentration (ppm)	Sample Number	Lot	Best Fit*	Phase II Analysis Required	Comments*				
3063	4-5	614	0.8	505625	MEK	Dibutyl nonanoate	N	Naturally occurring Plasticizer				
		635	2				N					
3064	0-1	542	0.3	505630	MEJ	1,3, butanediol	N	Naturally occurring Naturally occurring Naturally occurring				
		579	0.3			Isobutyl butenedioate	N					
		609	0.3			Hexadecanoic acid	N					
		629	2			Diocetyl adipate	N					
3064	4-5	542	0.9	505631	MEJ	1,3 butanediol	N	Naturally occurring Naturally occurring Oil, No positive identification				
		579	0.4			Isobutyl butenedioate	N					
		609	0.5			Hexadecanoic acid	N					
		633	0.3			Alkene hydrocarbon	N					
3065	0-1	596	20	505636	MEJ	Pentachlorooctahydroethano-						
		601	20			cyclopropentadiene						
		604	20			Chlorinated unknown						
		606	20			Unknown						
		612	10			Chlorinated unknown						
		613	20			Unknown						
		617	40			Chlorinated unknown						
		621	100			Chlorinated unknown						
		622	20			Unknown						
		633	10			Chlorinated unknown						
3065	4-5	542	2	505637	MEJ	1,3 butanediol	N	Naturally occurring No positive identification				
		579	0.5			Isobutyl butenedioate	N					
		604	1			Unknown	N					
		621	0.5			Unknown organophosphate	N					
3065	9-10	629	3	505638	MEJ	Diocetyl adipate	N	Naturally occurring				
		542	2			1,3 butanediol	N					
		579	0.5			Isobutyl butenedioate	N					
		609	0.4			Hexadecanoic acid	N					
		632	0.4			Alkene hydrocarbon	N					
3065	12-13	614	0.5	505672	MEK	Dibutyl nonanoate	N	Naturally occurring Naturally occurring				
		629	1			Diocetyl adipate	N					
3066	0-1	542	0.9	505642	MEJ	1,3 butanediol	N	Naturally occurring Oil, No positive identification				
		579	0.5			Isobutyl butenedioate	N					
		633	0.3			Alkyl hydrocarbon	N					

Table 36-17-4. Tentative Identification of Non-Target Compounds in Source 36-17 (Continued, Page 3 of 9)

Borehole Number	Interval Depth (ft)	Unknown Number	Concentration (ppm)	Sample Number	Lot	Best Fit*	Phase II Analysis Required	Comments*
3066	4-5	542	1	505643	MEJ	1,3 butanediol	N	Naturally occurring
		579	1			Isobutyl butenedioate	N	Naturally occurring
		609	0.3			Hexadecanoic acid	N	Oil, No positive identification
		633	1			Alkyl hydrocarbon		
3067	0-1	542	2	505648	MEJ	1,3 butanediol	N	Naturally occurring
		579	0.5			Isobutyl butenediol	N	Naturally occurring
		609	0.4			Hexadecanoic acid	N	Oil, No positive identification
		633	0.7			Alkyl hydrocarbon		
3067	4-5	542	1	505649	MEJ	1,3 butanediol	N	Naturally occurring
		579	0.5			Isobutyl butenedioate	N	Naturally occurring
		609	0.3			Hexadecanoic acid	N	Oil, No positive identification
		633	0.6			Alkyl hydrocarbon		
		602	0.6			Unknown	N	No positive identification
		614	6			Hexadecanoic acid	N	Naturally occurring
3067	9-10	602	0.6	505650	MEK	Unknown	N	No positive identification
		608	0.6			Hexadecanoic acid	N	Naturally occurring
		614	6			Dibutyl nonanoate	N	Naturally occurring
		633	0.8			Alkene hydrocarbon	N	Oil, No positive identification
		635	1			Bis (2-ethyl hexyl) Phthalate	N	Plasticizer
		602	0.6			Unknown	N	None detected
3067	14-15	602	0.6	505651	MEK	Unknown	N	None detected
		608	0.6			Hexadecanoic acid	N	Naturally occurring
3067	19-20	614	0.8	505652	MEK	Dibutyl nonanoate	N	Naturally occurring
		633	0.5			Alkene hydrocarbon	N	Oil, No positive identification
3068	0-1	579	0.2	505654	MEK	Diisobutyl butenoate	N	Naturally occurring
		608	0.3			Hexadecanoic acid	N	Naturally occurring
3068	4-5	614	0.5	505655	MEK	Dibutyl nonanoate	N	Naturally occurring
		635	0.6			Bis (2 ethyl hexyl) Phthalate	N	Plasticizer
3069	0-1	530	5	505660	BIC	Tetrachloroethane	N	Lab contaminant
		542	1			No good library match	N	No positive identification
		554	1			No good library match	N	No positive identification
		555	9			No match found	N	No positive identification
		614	6			Octadecenyloxy ethanol	N	In blank
3069	4-5	614	2	505661	BIC	Octadecanol	N	In blank
		614	2			Octadecanol		
3069	9-10	530	2	505662		Tetrachloroethane	N	Lab contaminant
		555	3			No library match found	N	No positive identification
		614	2			No library match found	N	In blank
		614	2			No library match found	N	In blank

Table 36-17-4. Tentative Identification of Non-Target Compounds in Source 36-17. (Continued, Page 4 of 9)

Borehole Number	Interval Depth (ft)	Unknown Number	Concentration (ppm)	Sample Number	Lot	Best Fit*	Phase II Analysis Required	Comments*
3069	14-15	544	1	505663	BIC	1,3-dichlorobenzene-d4	N	Surrogate In blank
		614	2					
3070	0-1	614	2	505666			N	In blank
3070	4-5			505667			N	None detected
3071	0-1	513	0.8	505700	BIC	Trichloroethane (1,1,2)	N	Lab contaminant
		530	6					
		555	10					
		614	14					
3071	4-5	614	2.0	505701	BIC	Dibutyl nonanedioate	N	Naturally occurring
3072	0-1	633	0.4	505706	MEL	Alkyl hydrocarbon	N	Oil, No positive identification Plasticizer
		635	0.9					
3072	4-5	631	0.6	505707	MEL	Dioctyl adipate	N	Naturally occurring
3073	0-1	567	0.9	505712	BID	Tetradecane	N	Hydrocarbon aliphatic
		575	1					
		614	1					
		618	1					
		619	3.0					
3073	4-5	523	2	505713	BID		N	In blank
3074	0-1	542	0.2	505718	MEL	1,3 butanediol	N	Naturally Occurring Plasticizer
		629	2					
		635	0.3					
3074	4-5	635	0.7	505719	MEL	Bis (2 ethyl hexyl) phthalate	N	Plasticizer
3075	0-1	523	1	505724	BID		N	In blank
3075	4-5			505725			N	None detected
3076	0-1			505730			N	None detected
3076	4-5			505731			N	None detected
3077	0-1	614	4	505736	BIE	Dibutyl nonanedioate	N	Naturally occurring
3077	4-5		1	505737			N	None detected
3078	0-1	614	1	505742	BID	Dibutyl nonanedioate	N	Naturally occurring

Table 36-17-4. Tentative Identification of Non-Target Compounds in Source 36-17. (Continued, Page 5 of 9)

Borehole Number	Interval Depth (ft)	Unknown Number	Concentration (ppm)	Sample Number	Lot	Best Fit*	Phase II Analysis Required	Comments*
3078	4-5	637	8	505743	BID	Bis (2-ethyl hexyl) phthalate	N	Plasticizer
3079	0-1	538	1	505748	BIE	Dimethoxymethane		Solvent
3079	4-5			505749			N	None detected
3080	0-1	614	3.0	505754	BIC		N	In blank
3080	4-5			505755			N	None detected
3080	9-10			505756			N	None detected
3080	14-15	614	3	505757	BIC		N	In blank
3081	0-1	633	0.3	505760	MEL	Alkene	N	Oil, No positive identification Plasticizer
		635	0.4			Bis (2-ethyl hexyl) phthalate	N	
3082	0-1	609	1	505766	BIC	Dibutyl phthalate	N	Plasticizer
		614	10				N	In blank
		614	4			Octadecenol		
3082	4-5	614	20	505767	BIC		N	In blank
		614	5			Octadecenol		In blank
3083	0-1	576	1	505800	MEL	Hydrocarbon C ₁₄	N	Oil, No positive identification
		580	0.9			Hydrobarbon	N	Oil, No positive identification
		582	1			Hydrocarbon	N	Oil, No positive identification
		620	3			C ₁₄ H ₂₈ Cl ₁₄	N	Oil, No positive identification
		635	1			Bis (2-ethyl hexyl) phthalate	N	Isomer of DDE Plasticizer
3083	4-5	589	8	505801	MEM	Diethyl phthalate	N	Plasticizer
		632	0.2			17-Pentatriacontene	N	Oil
		635	1			Bis (2-ethyl hexyl) phthalate	N	Plasticizer
3083	9-10	635	0.6	505802	MEM	Bis (2-ethyl hexyl) phthalate	N	Plasticizer
3083	14-15	579	0.2	505803	MEM	Isobutyl butenoate	N	Naturally occurring Plasticizer
		589	10			Diethyl phthalate	N	Naturally occurring Plasticizer
		614	0.8			Dibutyl nonandioate	N	Naturally occurring Oil
		632	0.5			Eicosene	N	Plasticizer
		635	9			Bis (2-ethyl hexyl) Phthalate	N	

Table 36-17-4. Tentative Identification of Non-Target Compounds in Source 36-17. (Continued, Page 6 of 9)

Borehole Number	Interval Depth (ft)	Unknown Number	Concentration (ppm)	Sample Number	Lot	Best Fit*	Phase II Analysis Required	Comments*
3083	19-20	614	0.4	505804	MEM	Dibutyl nonanedioate	N	Naturally occurring
		629	0.4			Di-n-octyl adipate	N	Naturally occurring
		632	0.4			Alkene hydrocarbon	N	Oil
		635	10			Bis (2-ethyl hexyl) phthalate	N	Plasticizer
3084	0-1		505806			N	None detected	
3084	4-5	523	1	505807	BID		N	In blank
3084	9-10	513	0.9	505808	BID	Toluene	N	Solvent
		614	2			Dibutyl nonanedioate	N	Naturally occurring
3084	14-15	513	1	505809	BID	Toluene	N	Solvent
		639	5			Bis (2-ethyl hexyl) phthalate	N	Plasticizer
3085	0-1	614	2	505812	BID		N	In blank
3085	4-5			505813			N	None detected
3086	0-1	577	2	505818	MEM	Trichloro aniline		
		578	1			Trichlorinated unknown		
		589	10			Diethyl phthalate	N	Plasticizer
		623	0.7			Chlorinated unknown		
		635	2			Bis (2-ethyl hexyl) phthalate	N	Plasticizer
3086	2-3	524	600	505872	MEM	Tetrachloroethane		Oil
		562	200			C13 alkane		Oil
		567	200			C14 alkane		Oil
		569	200			C13 alkane		Oil
		574	300			C15 alkane		Oil
		576	300			C14 alkane		Oil
		580	300			Unknown alkane		Oil
		582	300			C15 alkane		Oil
		588	400			C16 alkane		Oil
		591	200			Unknown alkane		Oil
		594	300			C17 alkane		Oil
		595	200			Unknown alkane		Oil
		600	100			Unknown alkane		Oil
		525	1000			Tetrachloroethene		Oil
		562	90			C13 alkane		Oil
567	90	Unknown alkane		Oil				
569	70	Unknown alkane		Oil				
574	100	C15 alkane		Oil				
576	80	C14 alkane		Oil				
580	100	Unknown alkane		Oil				
582	100	C15 alkane		Oil				
588	100	Unknown alkane + diethyl phthalate		Plasticizer				

Table 36-17-4. Tentative Identification of Non-Target Compounds in Source 36-17. (Continued, Page 7 of 9)

Borehole Number	Interval Depth (ft)	Unknown Number	Concentration (ppm)	Sample Number	Lot	Best Fit*	Phase II Analysis Required	Comments*	
3087	0-1	591	90	505824	BID	Unknown alkane	N	Oil	
		594	40			C17 alkane		Oil	
		595	100			Unknown alkane		Oil	
		600	70			C14 alkane		Oil	
		605	40			Unknown alkane		Oil	
		609	30			Dibutyl phthalate		Plasticizer	
3088	0-1	635	70	505830	BID	Bis (2-ethyl hexyl) phthalate	N	Plasticizer	
		637	10			di-n-Octylphthalate-d4		Surrogate	
3088	4-5	614	1	505831	BID	Methyl octyne	N	In blank	
		638	2.0					Bis (2-ethyl hexyl) Phthalate	Plasticizer
3089	0-1	609	1	505836	BIB	No good library match found	N	No positive identification	
		612	0.7			No good library match found		No positive identification	
		614	1			Octadecanol		In blank	
		615	2			No good library match found		No positive identification	
		637	0.8			Phthalate		Plasticizer	
3089	4-5	523	0.6	505837	BIB	Similar to 2,7-dimethyl-3,6-dimethylene-1,7-octadiene	N	In blank	
		579	0.7					Methyl-tricyclooctene carboxylate and Methyl benzene propanoate	No positive identification
3091	0-1	585	0.6	505848	BIB	Phthalate	N	Plasticizer	
		636	0.7			Phthalate		Plasticizer	
		660	0.4			Phthalate		Plasticizer	
		523	0.3			Cyclohexenone		In blank	
		532	0.3			Octadecenoic acid		Solvent	
		618	0.4			Phthalate		Naturally occurring Plasticizer	
3091	4-5	633	0.3	505849	BIB	Similar to 2,7-dimethyl-3,6-dimethylene-1,7-octadiene	N	No positive identification	
		636	0.6					Diheptyl phthalate	Plasticizer
		523	0.3					Phthalate	In blank
		579	0.4					lower intensities	No positive identification
		585	0.5					Phthalate	No positive identification
3091	4-5	633	0.4	505849	BIB	Diheptyl phthalate	N	Plasticizer	
		636	0.7					Diheptyl phthalate	Plasticizer

Table 36-1 Tentative Identification of Non-Target Compounds in Source 36 (Continued, Page 8 of 9)

Borehole Number	Interval Depth (ft)	Unknown Number	Concentration (ppm)	Sample Number	Lot	Best Fit*	Phase II Analysis Required	Comments*
3095	0-1	579	0.3	505900	MEN	Diisobutyl butenediote	N	Naturally occurring
		609	0.3			Hexadecanoic acid	N	Naturally occurring
		629	0.2			Dioctyl adipate	N	Naturally occurring
		633	0.3			Alkene	N	Oil, No positive identification
3095	4-5	604	1	505901	MEN	Diisobutyl phthalate	N	Plasticizer
3096	0-1	629	1	505906	MEN	Dioctyl adipate	N	Naturally occurring
3096	4-5	635	2	505907	MEN	Bis (2-ethyl hexyl) phthalate	N	Plasticizer
3097	0-1	614	1	505912	BIE	Octadecenol	N	In blank
3097	4-5	538	2	505913	BIE	Dimethoxy methane		Solvent
		610	1					
		614	1					
3098	0-1			505918			N	None detected
3098	4-5			505919			N	None detected
3099	0-1	523	0.8	505924	BIA	Diheptyl phthalate	N	In blank
		636	1			Phthalate	N	Plasticizer
		641	0.4			Phthalate	N	Plasticizer
		654	0.6				N	Plasticizer
3099	4-5	523	1	505925	BIA	Alpha-methyl-benzene methanol	N	In blank
		547	2			1-phenyl-ethanone		
		547	9			Diheptyl phthalate	N	Plasticizer
		636	1					
3100	0-1	542	10	505930	MEI	1,3 butanediol		
		593	2			Methoxy unknown	N	No positive identification
		609	7			Dibutyl phthalate	N	Plasticizer
		632	2			Alkene hydrocarbon	N	Oil, No positive identification
		635	2			Bis (2-ethyl hexyl) phthalate	N	Plasticizer
3100	4-5	544	2	505931	MEI	1,3 butanediol		
		579	1			Diisobutyl butenoate	N	Naturally occurring
		608	1			Hexadecanoic acid	N	Naturally occurring
		632	5			Alkene hydrocarbon	N	Oil, No positive identification
		635	1			Bis (2-ethyl hexyl) phthalate	N	Plasticizer
3101	0-1	513	2	505936	BIA	Toluene		
		636	1			Diheptyl phthalate	N	Plasticizer

Borehole Number	Interval Depth (ft)	Unknown Number	Concentration (ppm)	Sample Number	Lot	Best Fit*	Phase II Analysis Required	Comments*
3101	4-5	637	3	505937	BIA	Bis (2-ethyl hexyl) phthalate	N	Plasticizer
		654	0.6				N	Plasticizer
3102	0-1	523	1	505942	MEI	Cyclohexenol	N	In blank
		527	0.5				N	Solvent
		532	0.9				N	In blank
		636	0.7				N	Plasticizer
		654	0.3				N	Plasticizer
		579	0.7				N	Naturally occurring
		604	3				N	Plasticizer
609	1	N	Plasticizer					
632	2	N	Oil, No positive identification					
3102	4-5	635	7	505943	MEI	Diisobutyl butenoate	N	Naturally occurring
		542	0.4				N	Plasticizer
		579	1				N	Plasticizer
		608	0.3				N	Oil, No positive identification
		632	1				N	Plasticizer
		635	3				N	Plasticizer
		546	0.4				N	Naturally occurring
		579	1				N	Naturally occurring
		608	0.3				N	Oil, No positive identification
		632	1				N	Plasticizer
3103	0-1	546	2	505948	MEI	Bis (2 ethyl hexyl) phthalate	N	Plasticizer
		579	0.7				N	Naturally occurring
		608	0.7				N	Naturally occurring
		609	1				N	Plasticizer
		632	2				N	Oil, No positive identification
		542	2				N	Plasticizer
		608	0.9				N	Naturally occurring
		633	1				N	Oil, No positive identification
		635	3				N	Plasticizer
		634	0.5				N	No positive identification
3104	0-1	543	0.1	505954	MEI	1,3 butanediol	N	Naturally occurring
		579	0.5				N	Naturally occurring
		608	0.8				N	Oil, No positive identification
		632	1				N	Plasticizer
		635	6				N	No positive identification
		548	3				N	Naturally occurring
		579	0.4				N	Naturally occurring
608	0.8	N	Oil, No positive identification					
632	1	N	Plasticizer					
3104	4-5	548	3	505955	MEI	Bis (2-ethyl hexyl) phthalate	N	Plasticizer
		579	0.4				N	Naturally occurring
		608	0.8				N	Naturally occurring
		632	1				N	Oil, No positive identification
		635	0.8				N	Plasticizer

The southwestern corner of Source 36-17N exhibits an unusual pattern, which is also found in the northern dip of Source 36-17S (Boring 3089). Very high levels of chlordane are found in this area, in addition to dieldrin, endrin, and DIMP. Historical records show Army Source 36-16 in this area, a reported munitions disposal area. This may explain the metals found in Boring 3202 in Basin A, but does not explain the pesticides. The chemical data would indicate the many trenches and pits observed in this area were likely used for pesticide disposal. The vertical stratification of this contamination would seem to indicate surface rather than trench disposal. The metals and chlordane are only found in the surface interval. However, the 4 to 5 foot samples contained DIMP and DBCP. This may be due to weathering or migration, but could also indicate a combination of disposal methods.

Most of the data in the northern half of Source 36-17S was lost due to presence of mustard in Borings 3090, 3092, 3093, and 3094. This precluded further analysis of samples from these holes. Borings 3213, 3214, and 3215, adjacent to Source 36-17S in Basin A, show DBCP and DIMP contamination. This suggests a possible link to Source 36-17, as these compounds are not found further west in Basin A.

The central portion of Source 36-17S shows some moderate levels of arsenic in addition to pesticides. The area just south of 3603 shows fairly high levels of DBCP, PCPMS, and aldrin. This would indicate that the broken vials found in this area may have contained pesticides. South of a line between borings 3100 and 3101, Source 36-17S appears uncontaminated. This is consistent with the lack of observed disturbances in this area.

The Phase I geophysical investigation of Source 36-17N was designed to provide more information as to the location, orientation, and dimensions of disposal trenches or pits. The EM data was contoured and interpreted to define trench or pit boundaries. The positions of large negative EM anomalies or troughs were interpreted to indicate the presence of a metal bearing trench or pit.

The Phase I geophysical survey resulted in the identification of four anomalies representative of disposal trenches or pits. In addition, the survey also resulted in the identification of an anomaly suggestive of a buried pipeline. Comparison of RMA Contaminant Source Maps and Plate 10 (Geophysical Investigation of Source 36-3, 36-10, and 36-17, 1986) indicates that this line is very likely the cast iron chemical pipeline originating in the North Plants and terminating at Basin A.

As no Phase I borings were constructed thru or adjacent to these anomalies the existence of these trenches and/or soil contamination has not been verified. The Phase II soil boring program will include borings in these areas to provide the requisite verifications.

Results of the VES soundings do not indicate anomalous data suggestive of grossly contaminated soils. However, they do suggest that if soil contamination does exist within the study area it is confined to an area near the existing excavation.

Ground water analytical data for the period of 1976 through 1985 were retrieved from the USATHAMA RMA data base and reviewed. The most recent analyses from each well were selected for inclusion in this report. See Figures 36-17-10a and 36-17-10b and Table 36-17-5a and 36-17-5b. In some cases, less recent data were included in order to allow comparison between two or more wells. The data have been annotated to indicate whether one or more analyses are available for each well over the period investigated, and whether target compounds were detected in determinations not included in this report. Although these data are limited in nature, they do provide additional insight regarding the interrelationship between vadose and phreatic zone contamination in the vicinity of Source 36-17.

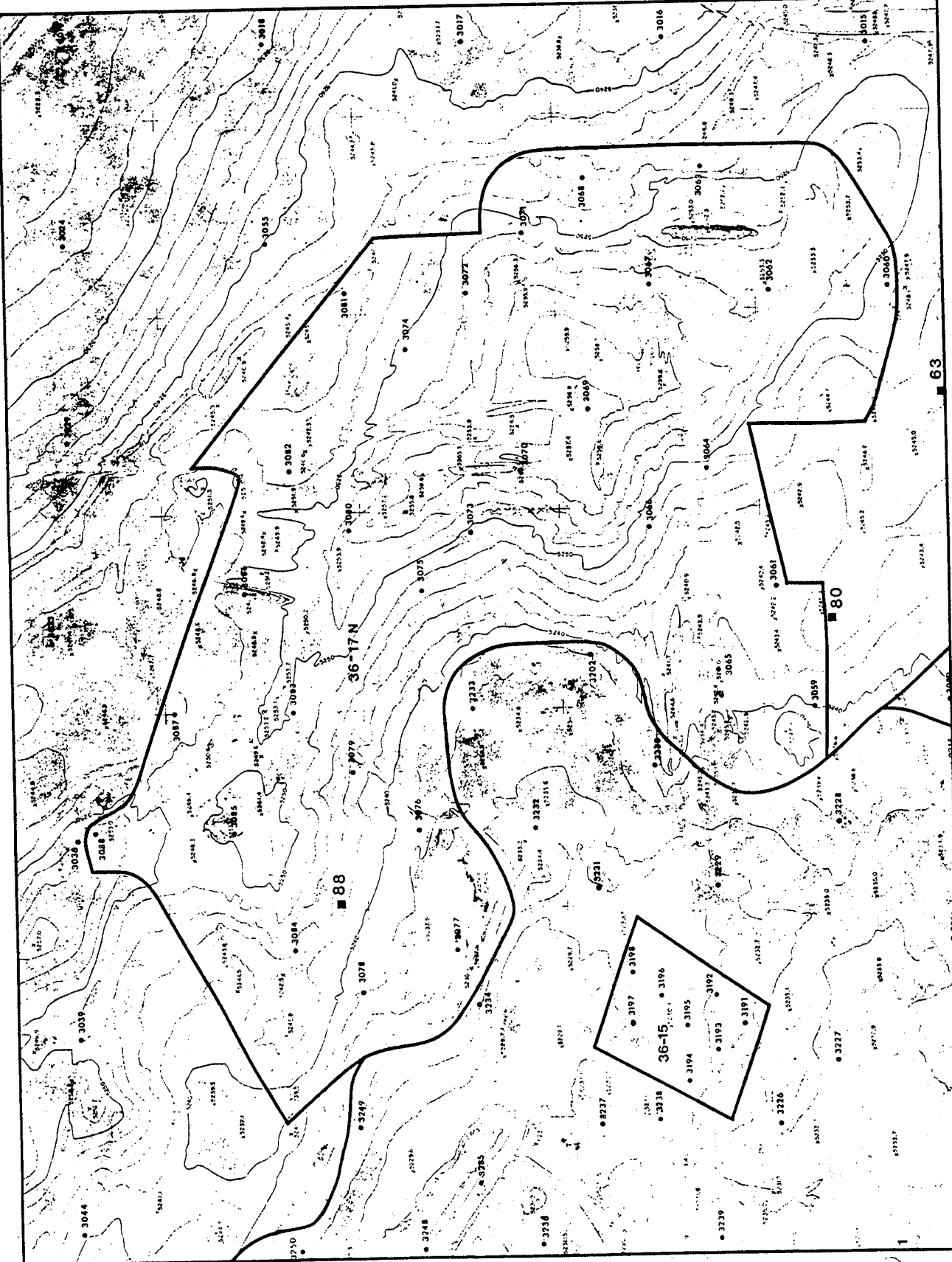
The existing well distribution in the vicinity of Source 36-17 is suitable for an evaluation of upgradient and downgradient conditions in the alluvial aquifer, however, the parameter suits and sampling dates do not permit such an analysis in most cases. The ground water analytical

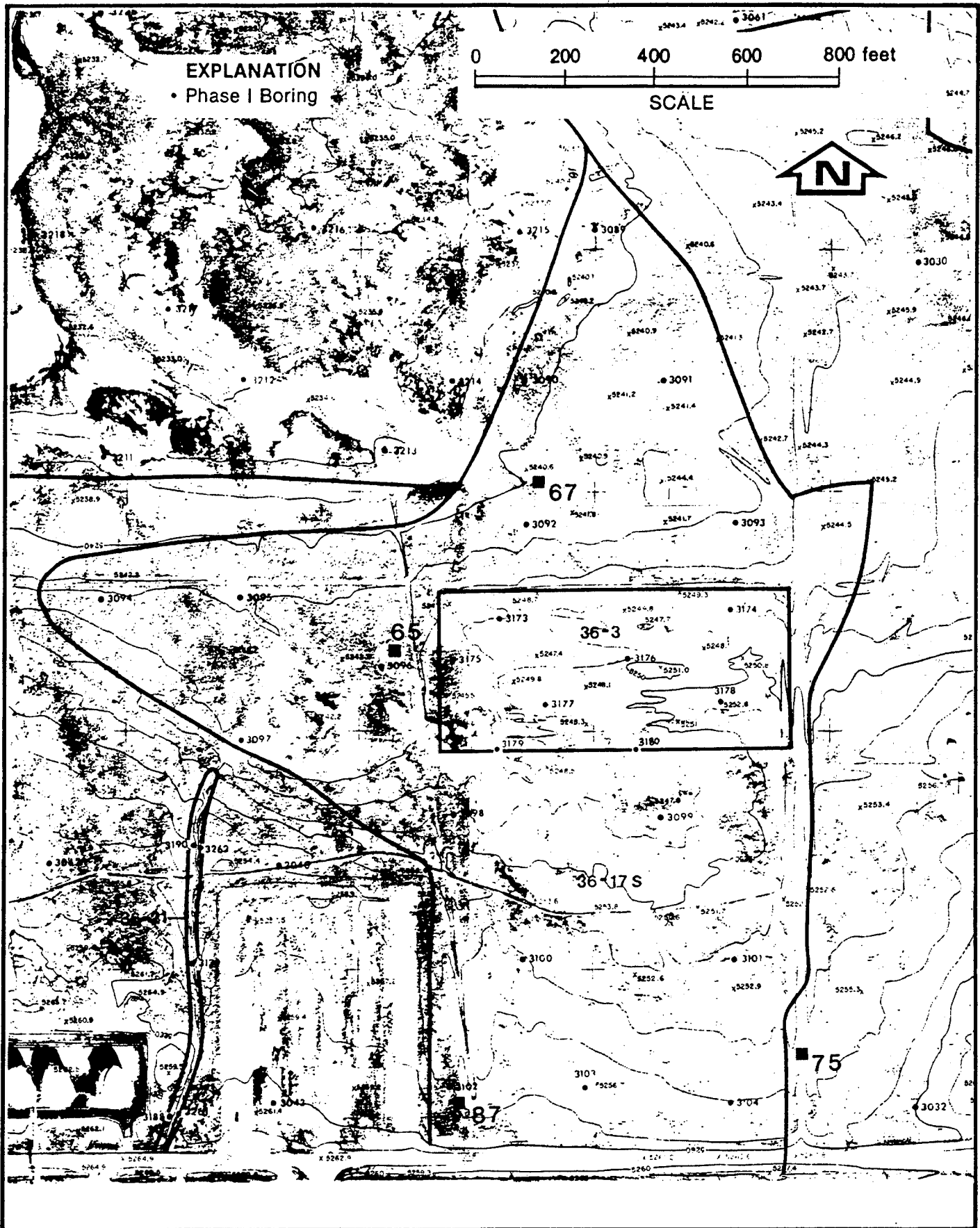


EXPLANATION
■ Monitoring Wells

Figure 36-17-10a
LOCATION OF SELECTED
MONITORING WELLS IN
THE VICINITY OF
SOURCE 36-17N

Prepared for:
U.S. Army Program Manager's Office
For Rocky Mountain Arsenal
Aberdeen Proving Ground, Maryland





EXPLANATION

• Phase I Boring

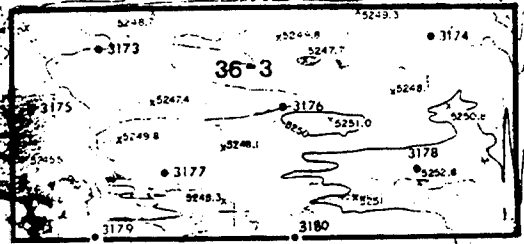
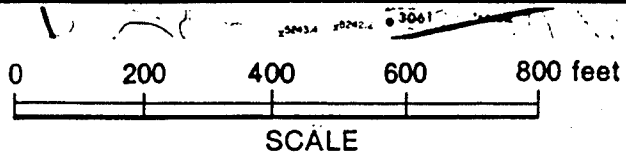


Figure 36-17-10b
 LOCATION OF SELECTED MONITORING
 WELLS IN THE VICINITY OF
 SOURCE 36-17S
 SOURCE: ESE, 1986

Prepared for:
 U.S. Army Program Manager's Office
 For Rocky Mountain Arsenal
 Aberdeen Proving Ground, Maryland

Table 36-17-5a. Selected Analytical Results for Ground Water Samples
Collected Near Source 36-17N (units in µg/g or ppb)

Aquifer Date	Well Designation					
	63 Alluvial 79046 ²	80 Alluvial 79047 ²	84 Alluvial 79047 ²	84 Alluvial 83145 ²	88 Alluvial 79047 ²	88 Alluvial 83143 ²
Arsenic	<0.5	<0.5	0.015*	—	0.016*	—
Aldrin	<1.0	<1.0	<1.0*	<0.2*	<1.0	<0.2
Dieldrin	1.54	<0.5	<0.5*	<0.2*	<0.5*	<0.2*
Endrin	0.5	<0.5	<0.5*	<0.2*	<0.5*	<0.2*
Isodrin	<0.5	<0.5	<0.5*	9.42	<0.5*	0.55
DBCP	<0.4	<0.4*	<0.4*	0.23*	<0.4*	<0.2*
DCPD	<10.0	<10.0	<10.0	<1.0	<10.0	<1.0
DIMP	2.13	7540*	11590*	13900*	129.0*	223*
PCPMS	<5.0	<5.0	<5.0	—	<5.0*	—
PCMSO	<5.0	<5.0	<5.0	<20.0	<5.0*	<20.0
PCMSO ₂	<5.0	30.9	129.0*	<20.0	<5.0	<20.0
Dithiane	<5.0	25.7*	450.0*	611.0*	<5.0*	1050.0*
Oxathiane	<0.5	5.65*	196.0*	—	92.9*	—
Carbon Tetrachloride	—	—	—	<1.0	—	<1.0
Chloroform	—	—	—	34.0	—	11.0
Trichloroethene	—	—	—	1089.0	—	1.0
Tetrachloroethene	—	—	—	9.0	—	<1.0
Benzene	—	—	—	16.0	—	11.0
Chlorobenzene	—	—	—	<1.0	—	<1.0
Dichlorobenzene	—	—	—	<1.0	—	<1.0
Toluene	—	—	—	<1.0	—	<1.0
Xylene	—	—	—	<0.1	—	<0.1

¹ One date available.

² Multiple dates available.

* Positive results on other date.

Table 36-17-5b. Selected Analytical Results for Ground Water Samples
Collected Near Source 36-17S (units in µg/g or ppb)

Aquifer Date	Well Designation				
	65 Alluvial 79081 ²	67 Alluvial 79080 ²	75 Alluvial 79080 ²	75 Alluvial 83119 ²	87 Alluvial 79081 ²
Arsenic	<0.5	<0.5	<0.5	—	<0.5
Aldrin	<1.0	<1.0*	<1.0	<0.2	<1.0
Dieldrin	<0.5	0.79*	0.85*	0.46*	<0.5*
Endrin	<0.5	<0.5*	<0.5	<0.2	<0.5
Isodrin	<0.5	<0.5*	<0.5*	<0.2*	<0.5*
DBCP	<0.4	<0.4	<0.4*	<0.2*	<0.4*
DCPD	<10.0	<10.0*	<10.0	<1.0	<10.0
DIMP	<2.0	<2.0*	<2.0*	<10.0*	3.4*
PCPMS	<5.0	<5.0	<5.0	—	<5.0
PCPMSO	<5.0	<5.0*	<5.0	<20.0	<5.0*
PCPMSO ₂	<5.0	<5.0*	<5.0	<20.0	13.1*
Dithiane	<5.0	<5.0*	<5.0	<20.0	<5.0
Oxathiane	<5.0	<5.0	<5.0	—	<5.0 ¹
Carbon Tetrachloride	—	—	—	<1.0 ¹	—
Chloroform	—	—	—	65.0 ²	—
Trichloroethene	—	—	—	<1.0 ²	—
Tetrachloroethene	—	—	—	<1.0 ²	—
Benzene	—	—	—	47.0 ¹	—
Chlorobenzene	—	—	—	<1.0 ¹	—
Dichlorobenzene	—	—	—	<1.0 ¹	—
Toluene	—	—	—	<1.0 ¹	—
Xylene	—	—	—	<0.1 ¹	—

¹ One date available.

² Multiple dates available.

* Positive results on other date.

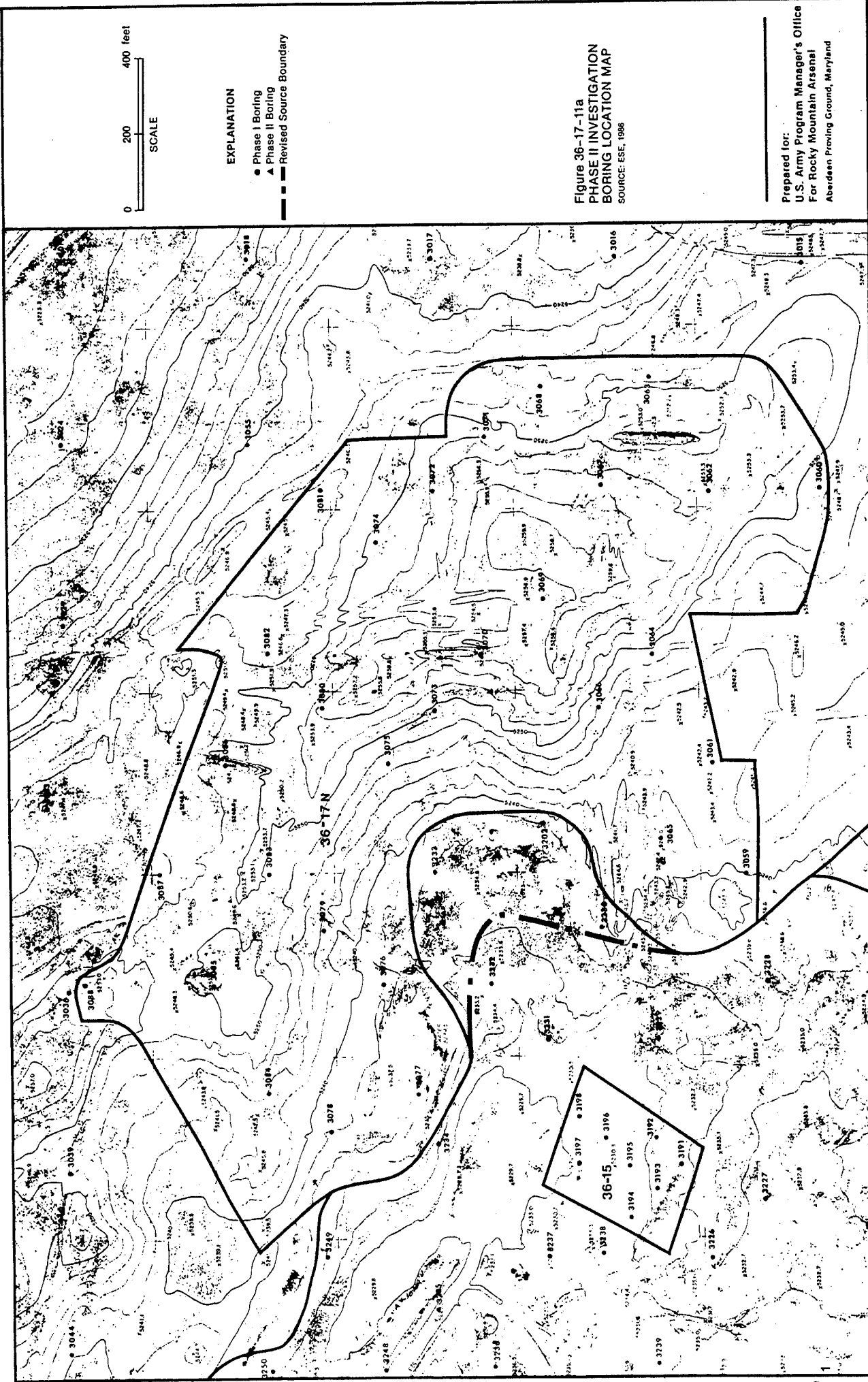
data indicate the presence of numerous contaminants in the alluvial aquifer including chlorinated pesticides, DBCP, DCPD, organosulfur compounds, aromatic solvents, halogenated aliphatic, and aromatic solvents. Although a precise determination of the source of these compounds is difficult, they are consistent with reported disposal of pesticides and herbicide process wastes and mustard in the area. Contributions of pesticide and herbicide wastes and solvents may also be derived from Source 36-3, the Shell insecticide pits.

3.1.3 Phase II Contamination Survey

3.1.3.1 Revised Phase II Program

Historical disposal activities within Source 36-17N have resulted in contamination being confined to the immediate vicinity of disposal trenches or burn pits. This resulted in Phase I chemical data which for the most part do not exceed contaminant indicator levels. The localized nature of contamination within this source area is confirmed by the soil quality data generated at Borehole 3086. Extremely elevated concentrations are present in soils contained within a former trench site, and little or no contamination is found in adjacent areas.

Based on an evaluation of Phase I analytical data, a minor modification was made to the Source 36-17N boundaries. This modification, shown in Figure 36-17-11a, is the inclusion of a small basin in the eastern portion of Basin A into the Source 36-17 area. This was based on the observation that contaminants detected in Boreholes 3233, 3202, and 3230 do not occur in adjacent portion of Basin A. Although this portion of Section 36 is a natural depression, it is at a slightly higher elevation than the main portion of Basin A. This area was also utilized for trenched disposal of materials as evidenced by interpretation of aerial photographs. Although much of the soil between Sources 36-1 and 36-17 contains contaminants which have resulted from several process boundaries of sources have been defined such that areas which deviate from recognized Basin A contaminant patterns are included within the associated portions of Source 36-17.



- EXPLANATION**
- Phase I Boring
 - ▲ Phase II Boring
 - Revised Source Boundary

Figure 36-17-11a
PHASE II INVESTIGATION
BORING LOCATION MAP
 SOURCE: ESE, 1988

Prepared for:
 U.S. Army Program Manager's Office
 For Rocky Mountain Arsenal
 Aberdeen Proving Ground, Maryland

As contamination in Source 36-17N appears to be confined to very isolated areas, a Phase II boring program alone would provide only "hit or miss" information on the extent of contamination. It is anticipated that many of the numerous trenches observed in historical aerial photographs contain contaminated soil similar to that observed in Borehole 3086. Therefore the primary thrust of the initial Phase II program will be to use available resources to accurately locate these trenches.

Based on the success of the limited geophysical investigation of Source 36-17N, more intensive Phase II geophysical program will be implemented map areas that most likely contain disposal trenches. The Phase II geophysical program will employ both EM and magnetometer methods. The entire area of Source 36-17N will be covered by transects spaced at 10 foot intervals. EM and magnetometer data will be collected on transects and spaced at 20 ft, but offset 10 ft from each other (e.g., EM data will be obtained at lines 0, 20, and 40 ft and magnetometer data at 10, 30, 50 ft). This provides continuous data collected along transects spaced at 10 foot intervals.

A detailed Phase II soil boring program for Source 36-17N will be formulated at the conclusion of this geophysical program. Areas that exhibit anomalies suggestive of disposal trenches will be thoroughly investigated by Phase II boring. For budget estimation and manpower requirement purposes, a proposed Phase II boring program is presented below:

<u>Number of Borings</u>	<u>Depth (ft)</u>	<u>Number of Samples</u>
10	20	50
20	10	60
<u>10</u>	5	<u>20</u>
40		130

Sampling intervals are assumed to be the same for Phase I, that is 0 to 1, 4 to 5, 9 to 10, 14 to 15, and 19 to 20 ft.

The analytical program for Source 36-17N is summarized below. This is only an estimate and is based on the assumption that borings in the northern half of the site (half of the sample total) will be analyzed for the Phase I contaminants and in the southern half will be analyzed for specified compounds. This assumption is derived from a better understanding of the contaminants in the southern area. Volatile organics will be performed on approximately 10 percent of the sample population.

<u>Analytical Method</u>	<u>Number of Samples</u>
Semi-Volatiles	65
Volatile Organics	13
Metals	130
Organochlorine Compounds	65
Organosulfur Compounds	65
Arsenic	130
Mercury	130

Following the evaluation of analytical data generated by the Phase I investigative program the boundaries Source 36-17S were also revised. These revisions, shown in Figure 36-17-11b were significant for the southern, western, and northern borders of this area. As no contaminants were detected in significant concentrations in the southern portion of Source 36-17S (Boreholes 3102, 3103, and 3104) this area has been deleted from the Phase II investigation. The revised southern boundary is located through a line connecting Phase I Boreholes 3100 and 3101 as well as "uncontaminated" Borehole 3040 none of which detected contaminant compounds.

The western edge of this source area has been modified to include the area south of Borehole 3097 where DIMP and pesticides were detected and to meet with the revised boundaries of Basin A (Source 36-1) in this area. The exact location of the source boundary in this region is uncertain due to the loss of samples from Borehole 3094 as a result of the presence of mustard. The northwest edge of Source 36-17S has been modified to include an area formerly included in Source 36-1. The reason

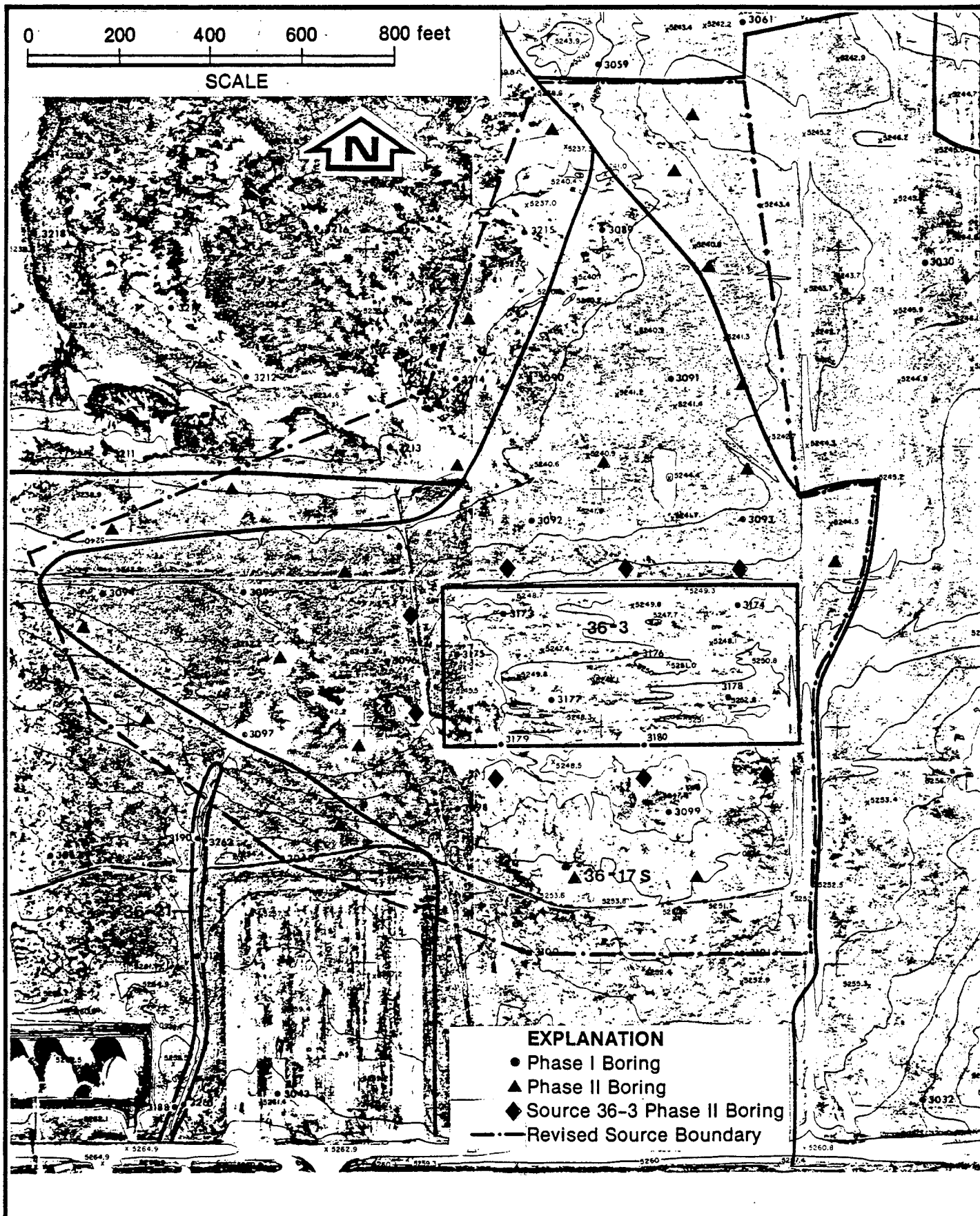


Figure 36-17-11b
 PHASE II INVESTIGATION
 BORING LOCATION MAP
 SOURCE: ESE, 1986

Prepared for:
 U.S. Army Program Manager's Office
 For Rocky Mountain Arsenal
 Aberdeen Proving Ground, Maryland

for this reallocation of this area is the presence of DIMP, organosulfur compounds, and DBCP in Boreholes 3213, 3214, and 3215, which is uncharacteristic of contaminant trends in adjacent portions of Basin A. Again the exact location of this portion of the Source 36-17 boundary is questionable due to the loss of samples from Boreholes 3090 and 3092 as a result of mustard contamination.

The final alteration in the boundary of this source area is in the northeast section. Contaminants detected in Boreholes 3089 and 3059 (Source 36-17N) have caused revisions of the source boundary to connect these two areas. An area of significant vegetation stress in this location is now included within the Source 36-17 boundary. The two portions of Source 36-17 will remain separate even though they are contiguous. The area of this source may be redistributed or subdivided based on Phase II results.

To aid in disposal trench location a geophysical program will be performed directly north of Source 36-3. The techniques utilized and the program design will be the same as for those in Source 36-17N. The results of the Phase II geophysical program will be combined with the results of aerial photograph interpretation and field mapping of surface expressions to design the Phase II soil boring program. As samples from four boreholes in the source area were not analyzed due to the presence of mustard, geophysics and field mapping may be the only method of estimating volumes of contaminated soil unless chemical analyses can be performed at some location on mustard contaminated soils.

The Phase II soil boring program for Source 36-17S will be finalized after geophysical studies are complete. A Phase II program has been proposed for estimation purposes. The exact locations of boreholes and sampling intervals may be altered prior to development of the final Phase II plan.

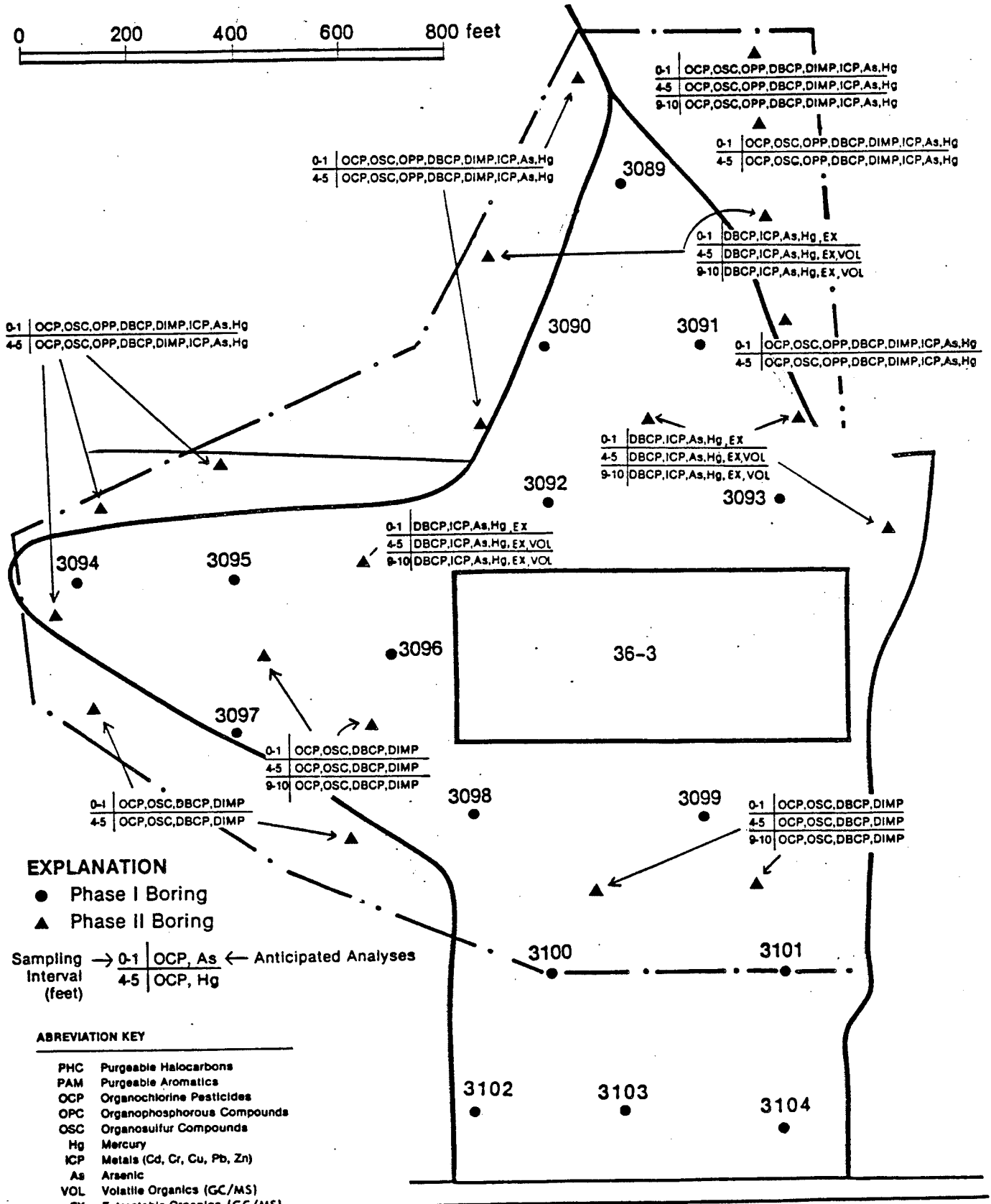
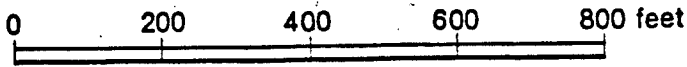
Source 36-17S Phase II soil sampling plan is shown in Figure 36-17-11b. Eight boreholes proposed adjacent to Source 36-3 are part of the Phase II program for Source 36-3 to define the areal extent of contamination for this source. Modifications of the Source 36-3 boundary will not be made until completion of the Phase II investigation due primarily to lack of data directly north of this source (mustard contaminated soils not analyzed). The Phase II program consists of the construction of 20 soil borings. Sampling intervals will be 0 to 1, 4 to 5, and 9 to 10 ft. Of the 20 remaining boreholes anticipated for this source 9 will be to depths of 5 ft, and 11 to depths of 10 ft.

<u>Number of Borings</u>	<u>Depth (ft)</u>	<u>Number of Samples</u>
11	10	33
<u>9</u>	5	<u>18</u>
TOTAL 30		51

The analytical schedule for this source area is listed below. The lack of chemical data in certain portions of this source area necessitates a repeat of the Phase I analytical schedule. Samples to the north of Source 36-3 will be analyzed for a full range of analytes. Samples from the six borings south and west of Source 36-3 will be tested for organochlorine pesticides, DBCP, DIMP, and organosulfur compounds (see Figure 36-17-12).

<u>Analytical Method</u>	<u>Number of Samples</u>
Organochlorine pesticides	35
Organosulfur Compounds	17
DBCP	51
Metals	35
Organophosphorus Compounds	33
DIMP/DMMP	33
Arsenic	51
Mercury	51
Volatile Organics	12
Extractable Organics	18

Based on Phase I chemical analysis results, it is anticipated that all Phase II investigations in Source 36-17 will require use of full Level C Protection.



EXPLANATION

- Phase I Boring
- ▲ Phase II Boring

Sampling Interval (feet) → 0-1 | OCP, As ← Anticipated Analyses
 4-5 | OCP, Hg

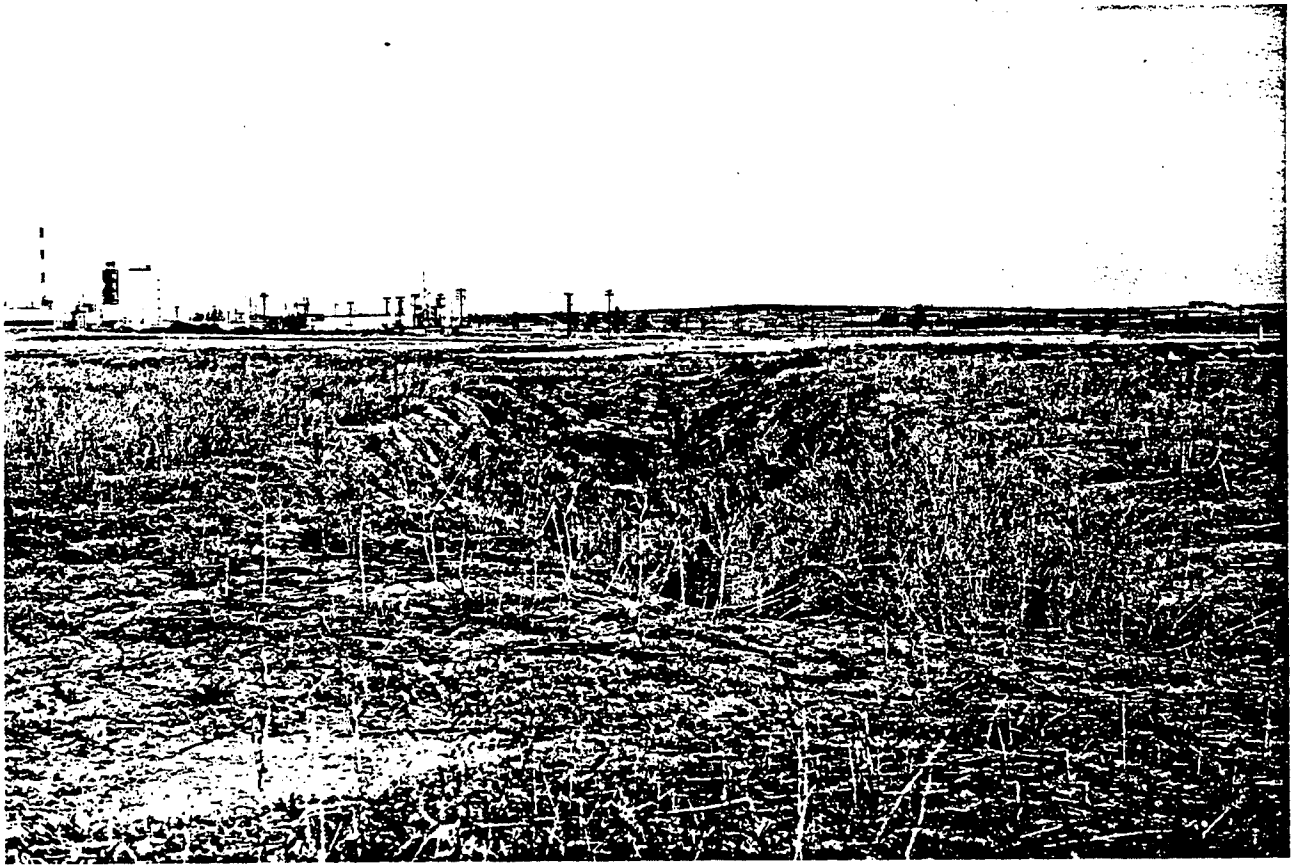
ABREVIATION KEY

- PHC Purgeable Halocarbons
- PAM Purgeable Aromatics
- OCP Organochlorine Pesticides
- OPC Organophosphorous Compounds
- OSC Organosulfur Compounds
- Hg Mercury
- ICP Metals (Cd, Cr, Cu, Pb, Zn)
- As Arsenic
- VOL Volatile Organics (GC/MS)
- EX Extractable Organics (GC/MS)

Figure 36-17-12
 SOURCE 36-17
 PHASE II CHEMICAL ANALYSIS SCHEDULE
 SOURCE: ESE, 1986

Prepared for:
 U.S. Army Program Manager's Office
 For Rocky Mountain Arsenal
 Aberdeen Proving Ground, Maryland

APPENDIX 37-17-A



SOURCE 36-17N
View North



SOURCE 36-17N
View West



SOURCE 36-17S
View Northwest



SOURCE 36-17S
View Southwest

APPENDIX 36-17-B

ENVIRONMENTAL SCIENCE & ENGINEERING

01/11/86

STATUS: PRELIMINARY

PROJECT NUMBER 04936300
 FIELD GROUP: 3617H
 PARAMETERS: ALL

PROJECT NAME SECTION 36 RMA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GEISZLER/BERGDOLL

PARAMETERS	STORET #	3059A 505600	3059B 505601	3060A 505606	3060B 505607	3061A 505612	3061B 505613	3062A 505618	3062B 505619	3063A 505624	3063B 505625
DATE	METHOD #	6/25/85	6/25/85	6/27/85	6/27/85	6/25/85	6/25/85	6/27/85	6/27/85	6/27/85	6/27/85
TIME		1247	1300	1301	1313	1330	1340	956	1009	1346	1358
SAMPLE TYPE		SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE DEPTH(CM)		0	122	0	122	0	122	0	122	0	122
SITE TYPE 1		BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE
INSTALLATION CODE		RK	RK	RK	RK	RK	RK	RK	RK	RK	RK
SAMPLING TECHNIQUE		S	S	S	S	S	S	S	S	S	S
MOISTURE(ZHET WT)		9.2	6.1	7.7	3.3	2.5	1.9	7.5	4.5	5.0	5.3
CADMIUM,SED (UG/G-DRY)		<0.9	<0.9	<0.5	<0.5	<0.9	<0.9	<0.5	<0.5	<0.5	<0.5
CR,SUIL (UG/G-DRY)		16	10	14	<7	18	<7	11	12	11	9
COPPER,SED (UG/G-DRY)		8	<5	15	8	11	5	14	11	20	9
LEAD,SED (UG/G-DRY)		27	<17	<16	<16	29	<17	<16	<16	<16	<16
ZINC,SED (UG/G-DRY)		57	32	39	37	70	26	<28	37	64	<28
ARSENIC,SED (UG/G-DRY)		7.9	<4.7	<5.2	<5.2	6.7	<4.7	<5.2	<5.2	<5.2	<5.2
MERCURY,SED (UG/G-DRY)		0.15	<0.05	<0.07	<0.07	<0.05	<0.05	<0.07	<0.07	<0.07	<0.07
ALDRIN,SED (UG/G-DRY)		<0.900	<0.900	<0.500	<0.500	<0.900	<0.900	<0.500	<0.500	<0.500	<0.500
DIELDRIN(UG/G-DRY)		<0.300	<0.300	<0.600	<0.600	<0.300	<0.300	<0.600	<0.600	<0.600	<0.600
DDT,PP*(UG/G-DRY)		<0.400	<0.400	<2.00	<2.00	<0.400	<0.400	<2.00	<2.00	<2.00	<2.00
ENDRIN (UG/G-DRY)		<0.700	<0.700	<4.00	<4.00	<0.700	<0.700	<4.00	<4.00	<4.00	<4.00
CHLORDANE,SED(UG/G-DRY)		70.1	<1.00	<6.00	<6.00	<1.00	<1.00	<6.00	<6.00	<6.00	<6.00
DDE,PP*(UG/G-DRY)		<0.300	<0.300	<0.500	<0.500	<0.300	<0.300	<0.500	<0.500	<0.500	<0.500
1,4 OXATHIANE (UG/G-DRY)		<0.300	<0.300	<0.500	<0.500	<0.300	<0.300	<0.500	<0.500	<0.500	<0.500

ENVIRONMENTAL SCIENCE & ENGINEERING 01/11/86 STATUS: PRELIMINARY
 PROJECT NUMBER 84936300 PROJECT NAME SECTION 36 RMA
 FIELD GROUP: 3617H PROJECT MANAGER: BILL FRASER
 PARAMETERS: ALL SAMPLES: ALL FIELD GROUP LEADER: GEISZLER/BERGDOLL

PARAMETERS	STORET #	3059A 505600	3059B 505601	3060A 505606	3060B 505607	3061A 505612	3061B 505613	3062A 505616	3062B 505619	3063A 505624	3063B 505625
DATE	METHOD #	6/25/85	6/25/85	6/27/85	6/27/85	6/25/85	6/25/85	6/27/85	6/27/85	6/27/85	6/27/85
TIME		1247	1300	1301	1313	1330	1340	956	1009	1346	1358
TRANS-1,2-DICHLOROTETRAETHYLENE (UG/G-DRY)	98687	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE (UG/G-DRY)	98688	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE (UG/G-DRY)	98689	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE (UG/G-DRY)	98690	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE (UG/G-DRY)	98691	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-TRICHLOROETHANE (UG/G-DRY)	98692	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE (UG/G-DRY)	98693	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE (UG/G-DRY)	98694	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-XYLENE (UG/G-DRY)	98695	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MIBK (UG/G-DRY)	98696	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DNDS (UG/G-DRY)	98697	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE (UG/G-DRY)	98699	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O-AND/OR P-XYLENE (UG/G-DRY)	98700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCPMS02 (UG/G-DRY)	98703	<0.300	<0.300	<0.400	<0.400	<0.300	<0.300	<0.400	<0.400	<0.400	<0.400
COORDINATE, E/N (STP)	98393	2186494	2186494	2187550	2187550	2186802	2186802	2187549	2187549	2187549	2187549
COORDINATE, N/S (STP)	98392	182870	182870	182664	182664	182966	182966	182962	182962	183123	183123
UNK542 (UG/G)	90024			NA	NA			1.19	1.05	NA	NA
UNK579 (UG/G)	90043							0.432	2.09		
UNK609 (UG/G)	90066	* 0.869		NA	NA			0.973	3.14	NA	NA
UNK633 (UG/G)	90085					* 0.412		0.540	2.09	0.631	

ENVIRONMENTAL SCIENCE & ENGINEERING

01/11/86

STATUS: PRELIMINARY

PROJECT NUMBER 84936300
 FIELD GROUP: 3617M
 PARAMETERS: ALL

PROJECT NAME SECTION 36 RMA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GEISZLER/BLKGDWLL

PARAMETERS	STORET #	3069A 505630	30648 505631	3065A 505636	3065B 505637	SAMPLE NUMBERS 3065C 505638	3066A 505642	3066B 505643	3067A 505648	3067B 505649	3067C 505650
DATE	METHOD #	06/26/85	06/26/85	06/26/85	06/26/85	06/26/85	06/26/85	06/26/85	06/27/85	06/27/85	06/27/85
TIME		1014	1031	1340	1358	1414	1059	1115	115	732	753
TRANS-1,2-DICHLOROETHENE (UG/G-DRY)	98687	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300
ETHYLBENZENE (UG/G-DRY)	98688	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400
METHYLENE CHLORIDE (UG/G-DRY)	98689	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE (UG/G-DRY)	98690	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.500
TOLUENE (UG/G-DRY)	98691	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300
1,1,1-TRICHLOROETHANE (UG/G-DRY)	98692	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.500
1,1,2-TRICHLOROETHANE (UG/G-DRY)	98693	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.600
TRICHLOROETHENE (UG/G-DRY)	98694	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.800
M-XYLENE (UG/G-DRY)	98695	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300
MIBK (UG/G-DRY)	98696	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400
DMDS (UG/G-DRY)	98697	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.00
BENZENE (UG/G-DRY)	98699	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.500
O-AND/PUR P-XYLENE (UG/G-DRY)	98700	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.500
PCPMS02 (UG/G-DRY)	98703	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400
COORDINATE X (M/S/STP)	98393	2187101	2187101	2186590	2186590	2186590	2186952	2186952	2187554	2187554	2187554
COORDINATE Y (M/S/STP)	98392	183127	183127	183110	183110	183110	183273	183273	183264	183264	183264
UNK542 (UG/G)	90024	0.324	0.932	IL	1.53	1.64	0.866	1.38	2.13	1.04	1.04
UNK579 (UG/G)	90043	0.324	0.414	IL	0.547	0.469	0.541	0.956	0.533	0.518	0.518
UNK609 (UG/G)	90066	0.324	0.518	IL	IL	0.352	IL	0.319	0.427	0.311	0.311
UNK633 (UG/G)	90085	IL	0.311	11.2	IL	0.352	0.325	0.956	0.747	0.621	0.777

ENVIRONMENTAL SCIENCE & ENGINEERING

01/11/86

STATUS: PRELIMINARY

PROJECT NAME SECTION 36 RHA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GILSZLER/BEFCOULL

PROJECT NUMBER 84936300
 FIELD GROUP: 3617H
 PARAMETERS: ALL SAMPLES: ALL

PARAMETERS	STORE #	3067D	3067E	3068A	3068B	3069C	3069D	307CA	307D
		505651	505652	505654	505655	505660	505663	505665	505667
DATE	METHOD #	06/27/85	06/27/85	06/27/85	06/27/85	7/1/85	7/1/85	7/1/85	7/1/85
TIME		822	852	1446	1502	748	804	833	1104
TRANS-1,2-DICHLOROBENE (UG/G-DRY)	98687	NA	<0.800	NA	NA	NA	NA	NA	NA
ETHYLBENZENE (UG/G-DRY)	98688	NA	<0.400	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE (UG/G-DRY)	98689	NA		NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE (UG/G-DRY)	98690	NA	<0.500	NA	NA	NA	NA	NA	NA
TOLUENE (UG/G-DRY)	98691	NA	<0.300	NA	NA	NA	NA	NA	NA
1,1,1-TRICHLOROETHANE (UG/G-DRY)	98692	NA	<0.500	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE (UG/G-DRY)	98693	NA	<0.600	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE (UG/G-DRY)	98694	NA	<0.600	NA	NA	NA	NA	NA	NA
M-XYLENE (UG/G-DRY)	98695	NA	<0.300	NA	NA	NA	NA	NA	NA
MIBK (UG/G-DRY)	98696	NA	<0.400	NA	NA	NA	NA	NA	NA
DNOS (UG/G-DRY)	98697	NA	<4.00	NA	NA	NA	NA	NA	NA
BENZENE (UG/G-DRY)	98699	NA	<1.00	NA	NA	NA	NA	NA	NA
O-AND/OR P-XYLENE (UG/G-DRY)	98700	NA	<0.500	NA	NA	NA	NA	NA	NA
PCPMSU2 UG/G-DRY	93703	<0.400	<0.400	<0.400	<0.400	<0.300	<0.300	<0.300	<0.300
COORDINATE, E/H(SIP)	98393	2187554	2187554	2187848	2187848	2187252	2187252	2187252	2187252
COORDINATE, N/S(SIP)	96392	183264	183264	183415	183415	183419	183419	183419	183419
UNK542 (UG/G)	90024	NA	NA	NA	NA	NA	NA	NA	NA
UNK579 (UG/G)	90043	NA	0.211	NA	NA	NA	NA	NA	NA
UNK609 (UG/G)	90066	NA	NA	NA	NA	NA	NA	NA	NA
UNK633 (UG/G)	90085	NA	0.500	NA	NA	NA	NA	NA	NA

ENVIRONMENTAL SCIENCE & ENGINEERING

01/11/86

STATUS: PRELIMINARY

PROJECT NUMBER 84936300
 FIELD GROUP: 3017H SAMPLES: ALL
 PARAMETERS: ALL

PROJECT NAME SECTION 36 RNA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GEISZLEK/BERGZILL

PARAMETERS	STORET #	30670	3067E	3068A	30688	3069C	3069C	3069C	3069C	3071A	3071B
	505651	505652	505654	505655	505660	505662	505661	505663	505666	505666	505667
DATE	METHOD #	06/27/85	06/27/85	06/27/85	06/27/85	7/1/85	7/1/85	7/1/85	7/1/85	7/1/85	7/1/85
TIME	822	852	1446	1502	748	828	304	933	1109	1123	
UNK619 (UG/G)	90105	0	0	0	0	0	0	0	0	0	
UNK637 (UG/G)	90089	0	0	0	0	0	0	0	0	0	
UNK654 (UG/G)	90113	0	0	0	0	0	0	0	0	0	
UNK631 (UG/G)	90083	0	0	0	0	0	0	0	0	0	
UNK636 (UG/G)	90088	0	0	0	0	0	0	0	0	0	
UNK641 (UG/G)	90107	0	0	0	0	0	0	0	0	0	
UNK530 (UG/G)	90019	0	0	0	0	0	0	0	0	0	
UNK554 (UG/G)	90096	0	0	0	0	0	0	0	0	0	
UNK555 (UG/G)	90097	0	0	0	0	0	0	0	0	0	

- * 4.83
- * 2.15
- * 1.06
- * 9.32
- * 2.97

ENVIRONMENTAL SCIENCE & ENGINEERING 01/11/86 STATUS: PRELIMINARY
 PROJECT NUMBER 84336300 PROJECT NAME SECTION 36 RMA
 FIELD GROUP: 3617H SAMPLES: ALL PROJECT MANAGER: BILL FRASER
 PARAMETERS: ALL FIELD GROUP LEADER: GEIS/LEN/BERGDOLL

PARAMETERS	STORET #	BLK	BLK	BLK	BLK	BLK	BLK	SAMPLE NUMBERS
		30652	505680	505681	505690	505691	505692	
		505672	505680	505681	505690	505691	505692	
DATE	METHOD #	06726/85	6725/85	771/85	06/27/85	06/27/85	06/27/85	
TIME		1428	0	0	0	0	0	
SAMPLE TYPE	71999	SO	SO	SO	SO	SO	SO	
SAMPLE DEPTH(CM)	99758	366	0	0	0	0	0	
SITE TYPE 1	99759	BORE	QCHB	QCHB	QCHB	QCHB	QCHB	
INSTALLATION CODE	99720	RK	RK	RK	RK	RK	RK	
SAMPLING TECHNIQUE	72005	S	G	G	S	S	S	
MOISTURE(WET WT)	70320	21.2	2.0	2.6	2.0	2.0	2.0	
CADMIUM,SED (UG/G-DRY)	1028	<0.5	<0.9	NA	NA	NA	NA	
CR,SOIL (UG/G-DRY)	99584	20	11					
COPPER,SED (UG/G-DRY)	1043	19	9					
LEAD,SED (UG/G-DRY)	1052	<16	18					
ZINC,SED (UG/G-DRY)	1093	69	40					
ARSENIC,SED (UG/G-DRY)	1003	<5.2	5.9		<5.2			
MERCURY,SED (UG/G-DRY)	71921	<0.07	<0.05		<0.07	<0.07	<0.07	
ALORIN,SED (UG/G-DRY)	98356	<0.500	<0.900		<0.500	<0.500	<0.500	
DIELDRIN(UG/G-DRY)	98365	<0.600	<0.300		<0.600	<0.600	<0.600	
DDT,PP*(UG/G-DRY)	98364	<2.00	<0.400		<2.00	<2.00	<2.00	
ENDRIN (UG/G-DRY)	98369	<4.00	<0.700		<4.00	<4.00	<4.00	
CHLORDANE,SED(UG/G-DRY)	98361	<6.00	<1.00		<6.00	<6.00	<6.00	
DDE,PP*(UG/G-DRY)	98363	<0.500	<0.300		<0.500	<0.500	<0.500	
1,4 OXATHIANE (UG/G-DRY)	98644	<0.500	<0.300		<0.500	<0.500	<0.500	
	0							

ENVIRONMENTAL SCIENCE & ENGINEERING

01/11/66

STATUS: PRELIMINARY

PROJECT NUMBER 84936300
 FIELD GROUP: 3617H
 PARAMETERS: ALL

PROJECT NAME SECTION 36 RMA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GEISLER/BERGOLL

PARAMETERS	STORE #	BLK	BLK	BLK	BLK	BLK	SAMPLE NUMBERS
		3065Z	505672	505680	505681	505690	BLK BLK 505691 505692
DATE	METHOD #	06/26/85	6/25/85	7/1/85	06/27/85	06/27/85	06/27/85
TIME		1428	0	0	0	0	0
DIMP (UG/G-DRY)	98645	<3.00	<0.500	<0.500	<3.00	<3.00	<3.00
DICHLORVUS (UG/G-DRY)	98646	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXCLCYPENOL (UG/G-DRY)	98647	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
MALATHION (UG/G-DRY)	98648	<2.00	<0.600	<0.600	<2.00	<2.00	<2.00
ISODRIN (UG/G-DRY)	98649	<0.600	<0.300	<0.300	<0.600	<0.600	<0.600
1,4 DITHIANE (UG/G-DRY)	98650	<2.00	<0.300	<0.300	<2.00	<2.00	<2.00
DICCCLOPENTADIENE (U G/G-DRY)	98651	<6.00	<0.300	<0.300	<6.00	<6.00	<6.00
D8CP(NEHAGON) (UG/G-DRY)	98652	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
P-CLPHENYLMETHYLSULFI DE(UG/G-D)	98653	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
P-CLPHENYLMETHYLSULFO NE(UG/G-D)	98654	<1.00	<0.400	<0.400	<1.00	<1.00	<1.00
ATRAZINE (UG/G-DRY)	98655	<0.500	<0.700	<0.700	<0.500	<0.500	<0.500
SUPONA (UG/G-DRY)	98656	<0.900	<0.500	<0.500	<0.900	<0.900	<0.900
DMNP (UG/G-DRY)	98657	<3.00	<2.00	<2.00	<3.00	<3.00	<3.00
EITYPARATHION (UG/G-DRY)	98658	<2.00	<0.700	<0.700	<2.00	<2.00	<2.00
CARBON TETRACHLORIDE (UG/G-DRY)	98660	<0.400			<0.400		
CHLOROBENZENE (UG/G-DRY)	98661	<0.300			<0.300		
CHLOROFORM (UG/G-DRY)	98662	<0.700			<0.700		
1,1-DICHLORETHANE (UG/G-DRY)	98663	<0.500			<0.500		
1,2-DICHLOROETHANE (UG/G-DRY)	98664	<0.400			<0.400		
BICCCLOPENTADIENE (UG/G-DRY)	98666	<0.800			<0.800		

ENVIRONMENTAL SCIENCE & ENGINEERING 01/11/86 STATUS: PRELIMINARY
 PROJECT NUMBER 84936300 PROJECT NAME SECTION 36 RHA
 FIELD GROUP: 3617M PROJECT MANAGER: BILL FRASER
 PARAMETERS: ALL SAMPLES: ALL FIELD GROUP LEADER: GEIS/LLH/BERGDUILL

PARAMETERS	STORET #	30652 505672	BLK 505680	BLK 505681	BLK 505690	BLK 505691	BLK 505692
DATE	METHOD #	06/26/85	6/25/85	7/1/85	06/27/85	06/27/85	06/27/85
TIME		1420	0	0	0	0	0
UNK634 (UG/G)	90086					IL	
	0						
UNK544 (UG/G)	90026					IL	
	0						
UNK629 (UG/G)	90062	1.02				IL	
	0						
UNK604 (UG/G)	90061					IL	
	0						
UNK621 (UG/G)	90075					IL	
	0						
UNK596 (UG/G)	90055					IL	
	0						
UNK601 (UG/G)	90058					IL	
	0						
UNK606 (UG/G)	90063					IL	
	0						
UNK612 (UG/G)	90068					IL	
	0						
UNK613 (UG/G)	90069					IL	
	0						
UNK617 (UG/G)	90072					IL	
	0						
UNK622 (UG/G)	90076					IL	
	0						
UNK608 (UG/G)	90065					IL	
	0						
UNK615 (UG/G)	90071					IL	
	0						
UNK614 (UG/G)	90070	0.508				IL	
	0						
UNK635 (UG/G)	90087					IL	
	0						
UNK602 (UG/G)	90059					IL	
	0						
UNK545 (UG/G)	90027					IL	
	0						
UNK523 (UG/G)	90092					IL	
	0						
UNK611 (UG/G)	90067					IL	
	0						

2.76

A 0.286

A 1.82

ENVIRONMENTAL SCIENCE & ENGINEERING

01/27/86

STATUS: PRELIMINARY

PROJECT NUMBER 84936300
 FIELD GROUP: 3617X
 PARAMETERS: ALL

PROJECT NAME SECTION 36 RMA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GEISZLER/BERGDOLL

PARAMETERS	STURET #	3071A 505700	3071B 505701	3072A 505706	3072B 505707	3073A 505712	3073B 505713	3074A 505718	3074B 505719	3075A 505724	3075B 505725
		7/1/85	7/1/85	07/03/85	07/03/85	7/8/85	7/8/85	07/02/85	07/02/85	7/8/85	7/8/85
	HLTHDD #	1421	1445	721	732	735	749	1408	1422	829	848
SAMPLE TYPE	71999	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE DEPTH(CM)	99758	0	122	0	122	0	122	0	122	0	122
SITE TYPE 1	99759	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE	BORE
INSTALLATION CODE	99720	RK	RK	RK	RK	RK	RK	RK	RK	RK	RK
SAMPLING TECHNIQUE	72005	S	S	S	S	S	S	S	S	S	S
MOISTURE(ZMET HT)	70320	5.5	3.7	8.1	4.4	5.3	13.4	9.5	4.5	3.0	4.8
CADMIUM,SED (UG/G-DRY)	1028	<0.9	<0.9	<0.5	<0.5	<0.9	<0.9	<0.5	<0.5	<0.9	<0.9
CR,SOIL (UG/G-DRY)	99584	8	<7	14	10	12	<7	15	10	7	8
COPPER,SED (UG/G-DRY)	1043	6	5	13	9	12	13	13	10	6	8
LEAD,SED (UG/G-DRY)	1052	<17	<17	<16	<16	33	<17	<16	<16	<17	<17
ZINC,SED (UG/G-DRY)	1093	28	29	39	<28	51	37	42	31	30	39
ARSENIC,SED (UG/G-DRY)	1003	<4.7	<4.7	<5.2	<5.2	5.1	5.1	<5.2	<5.2	<4.7	<4.7
MERCURY,SED (UG/G-DRY)	71921	<0.05	0.06	<0.07	<0.07	0.08	0.05	<0.07	<0.07	<0.05	0.07
ALDRIN,SED (UG/G-DRY)	98356	<0.900	<0.900	<0.500	<0.500	<0.900	<0.900	<0.500	<0.500	<0.900	<0.900
DIELDRIN(UG/G-DRY)	98365	<0.300	<0.300	<0.600	<0.600	0.322	<0.300	<0.600	<0.600	<0.300	<0.300
DUT,PP*(UG/G-DRY)	98364	<0.400	<0.400	<2.00	<2.00	<0.400	<0.400	<2.00	<2.00	<0.400	<0.400
ENDRIN (UG/G-DRY)	98369	<0.700	<0.700	<4.00	<4.00	<0.700	<0.700	<4.00	<4.00	<0.700	<0.700
CHLORDANE,SED(UG/G-DRY)	98361	<1.00	<1.00	<6.00	<6.00	<1.00	<1.00	<6.00	<6.00	<1.00	<1.00
ODE,PP*(UG/G-DRY)	98363	<0.300	<0.300	<0.500	<0.500	<0.300	<0.300	<0.500	<0.500	<0.300	<0.300
1,4 DAXTHANE (UG/G-DRY)	98644	<0.300	<0.300	<0.500	<0.500	<0.300	<0.300	<0.500	<0.500	<0.300	<0.300

ENVIRONMENTAL SCIENCE & ENGINEERING

01/27/86

STATUS: PRELIMINARY

PROJECT NUMBER 84936300
 FIELD GROUP: 3617X
 PARAMETERS: ALL SAMPLES: ALL

PROJECT NAME SECTION 36 RMA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GEISLER/BERGDOLL

PARAMETERS	STORET #	DATE	SAMPLE NUMBERS											
			3076A	3076B	3077A	3077B	3079A	3079B	3080A	3080B	3078A	3078B	3079A	
UNK631 (UG/G)	90083	7/10/85	800	815	713	727	844	900	847	902	734	747		
UNK533 (UG/G)	90021												* 4.01	* 1.49
UNK609 (UG/G)	90066													* 3.26
UNK513 (UG/G)	90116													
UNK530 (UG/G)	90019													
UNK555 (UG/G)	90097													
UNK614 (UG/G)	90070													
UNK523 (UG/G)	90092													
UNK567 (UG/G)	90036													
UNK575 (UG/G)	90121													
UNK618 (UG/G)	90073													
UNK619 (UG/G)	90105													
UNK637 (UG/G)	90089													
UNK536 (UG/G)	90123													

* 8.50

* 1.05

ENVIRONMENTAL SCIENCE & ENGINEERING

01/27/86

STATUS: PRELIMINARY

PROJECT NUMBER 84936300
 FIELD GROUP: 3617X
 PARAMETERS: ALL

PROJECT NAME SECTION 36 RMA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GEISLER/BERGDOOL

SAMPLES: ALL

SAMPLE NUMBERS

PARAMETERS	STORET #	3080C 505756	3080D 505757	3081A 505760	3081B 505761	3082B 505766	3082B 505767	BLK 505780	BLK 505781	BLK 505782	BLK 505783
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DATE	METHOD #	7/2/85	7/2/85	07/02/85	7/2/85	7/2/85	7/1/85	7/8/85	7/10/85	7/9/85
TIME		811	833	1252	1313	953	1006	0	0	0
SAMPLE TYPE	71999	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE DEPTH(CH)	99758	274	427	0	122	0	122	0	0	0
SITE TYPE 1	99759	BORE	BORE	BORE	BORE	BORE	BORE	QCMB	QCMB	QCMB
INSTALLATION CODE	99720	RK	RK	RK	RK	RK	RK	RK	RK	RK
SAMPLING TECHNIQUE	72005	S	S	S	S	S	S	G	G	G
MOISTURE(ZHET MT)	70320	8.1	20.5	4.6	8.5	5.1	5.5	2.0	2.0	2.0
CADMIUM,SED (UG/G-DRY)	1028	1.0	<0.9	0.7	<0.5	<0.9	<0.9	NA	NA	NA
CR,SOIL (UG/G-DRY)	99564	9	<7	14	13	<7	12	NA	NA	NA
CUPPER,SED (UG/G-DRY)	1043	9	36	15	12	5	8	NA	NA	NA
LEAD,SED (UG/G-DRY)	1052	<17	18	19	<16	<17	17	NA	NA	NA
ZINC,SED (UG/G-DRY)	1093	38	66	39	39	35	48	NA	NA	NA
ARSENIC,SED (UG/G-DRY)	1003	<4.7	<4.7	<5.2	<5.2	<4.7	5.7	NA	NA	NA
MERCURY,SED (UG/G-DRY)	71921	<0.05	0.06	<0.07	<0.07	<0.05	<0.05	<0.900	<0.900	<0.900
ALDRIN,SED (UG/G-DRY)	98356	<0.300	<0.300	<0.500	<0.500	<0.300	<0.300	<0.300	<0.300	<0.300
DIELDRIN(UG/G-DRY)	98365	<0.400	<0.400	<2.00	<2.00	<0.400	<0.400	<0.400	<0.400	<0.400
DDE,PP*(UG/G-DRY)	98364	<0.700	<0.700	<4.00	<4.00	<0.700	<0.700	<0.700	<0.700	<0.700
ENDRIN (UG/G-DRY)	98369	<1.00	<1.00	<6.00	<6.00	<1.00	<1.00	<1.00	<1.00	<1.00
CHLORDANE,SED(UG/G-DRY)	98361	<0.300	<0.300	<6.00	<6.00	<0.300	<0.300	<0.300	<0.300	<0.300
DDE,PP*(UG/G-DRY)	98363	<0.300	<0.300	<6.00	<6.00	<0.300	<0.300	<0.300	<0.300	<0.300
1,4 DIXATHANE (UG/G-DRY)	98644	<0.300	<0.300	<6.00	<6.00	<0.300	<0.300	<0.300	<0.300	<0.300

ENVIRONMENTAL SCIENCE & ENGINEERING

01/27/86

STATUS: PRELIMINARY

PROJECT NUMBER 84936300
FIELD GROUP: 3617X
PARAMETERS: ALL

PROJECT NAME SECTION 36 RMA
PROJECT MANAGER: BILL FRASER
FIELD GROUP LEADER: GEISZLER/BERGDOLL

SAMPLE NUMBERS

BLK 505783

BLK 505782

BLK 505781

BLK 505780

BLK 505767

BLK 505766

BLK 505761

BLK 505760

BLK 505757

BLK 505756

BLK 505755

BLK 505754

BLK 505753

BLK 505752

BLK 505751

PARAMETERS	STORET #	DATE	TIME	METHOD #	3080D	3081A	3081B	3082A	3082B	7/1/85	7/2/85	7/8/85	7/10/85	7/9/85
UNK631 (UG/G)	90083	7/2/85	811	833	1252	1313	953	1006	0	0	0	0	0	0
UNK533 (UG/G)	90021													
UNK609 (UG/G)	90066													
UNK513 (UG/G)	90116													
UNK530 (UG/G)	90019													
UNK555 (UG/G)	90097													
UNK614 (UG/G)	90070				2.63				13.5	19.3	1.21			
UNK523 (UG/G)	90092													
UNK567 (UG/G)	90036													
UNK575 (UG/G)	90121													
UNK618 (UG/G)	90073													
UNK619 (UG/G)	90105													
UNK637 (UG/G)	90039													
UNK538 (UG/G)	90123													

* 1.11

* 1.21

* 1.56

ENVIRONMENTAL SCIENCE & ENGINEERING

01/27/86

STATUS: PRELIMINARY

PROJECT NUMBER 84936300
 FIELD GROUP: 3617X
 PARAMETERS: ALL
 PROJECT NAME SECTION 36 RMA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GEISLER/BERGDOLL

SAMPLE NUMBERS

PARAMETERS	STORET #	BLK 505790	BLK 505791	BLK 505792
DATE	METHOD #	07/02/85	07/02/85	07/02/85
TIME		0	0	0
SAMPLE TYPE	71999	SO	SO	SO
SAMPLE DEPTH(CH)	99758	0	0	0
SITE TYPE 1	99759	QCMB	QCMB	QCMB
INSTALLATION CODE	99720	RK	RK	RK
SAMPLING TECHNIQUE	72005	G	G	G
MOISTURE(ZHET HT)	70320	2.0	2.0	2.0
CADMIUM,SED (UG/G-DRY)	1028	NA	NA	NA
CR,SUIL (UG/G-DRY)	99584			
COPPER,SED (UG/G-DRY)	1043			
LEAD,SED (UG/G-DRY)	1052			
ZINC,SED (UG/G-DRY)	1093			
ARSENIC,SED (UG/G-DRY)	1003			
MERCURY,SED (UG/G-DRY)	71921	<0.07		
ALDRIN,SED (UG/G-DRY)	98356	<0.500		
DIELDRIN(UG/G-DRY)	98365	<0.600		
DDT,PP*(UG/G-DRY)	98364	<2.00		
ENDRIN (UG/G-DRY)	98369	<4.00		
CHLORDANE,SED(UG/G-DRY)	98361	<6.00		
DDE,PP*(UG/G-DRY)	98363	<0.500		
1,4 OXATHIANE (UG/G-DRY)	98644	<0.500		
	0			

ENVIRONMENTAL SCIENCE & ENGINEERING

01/27/86

STATUS: PRELIMINARY

PROJECT NUMBER 84936300
 FIELD GROUP: 3617X
 PARAMETERS: ALL

PROJECT NAME SECTION 36 RMA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GEISZLER/BERGDOLL

SAMPLE NUMBERS

PARAMETERS	STORET #	BLK 505790	BLK 505791	BLK 505792
DATE	METHOD #	07/02/85	07/02/85	07/02/85
TIME		0	0	0
DIMP (UG/G-DRY)	98645	<3.00		
DICHLOROS (UG/G-DRY)	98646	<0.300		
HEXCLCYPENDI (UG/G-DRY)	98647	<1.00		
MALATHION (UG/G-DRY)	98648	<2.00		
ISODRIN (UG/G-DRY)	98649	<0.600		
1,4 DITHIOL (UG/G-DRY)	98650	<2.00		
DICYCLOPENTADIENE (U G/G-DRY)	98651	<6.00		
DBCP (NEMAGON) (UG/G-DRY)	98652	<0.005		
P-CLPHEXYLETHIUSULFI (UG/G-DRY)	98653	<0.300		
P-CLPHEXYLETHIUSULFO (UG/G-DRY)	98654	<1.00		
ATRAZINE (UG/G-DRY)	98655	<0.500		
SUPONA (UG/G-DRY)	98656	<0.900		
DHP (UG/G-DRY)	98657	<3.00		
EIP PARATHION (UG/G-DRY)	98658	<2.00		
CARBON TETRACHLORIDE (UG/G-DRY)	98680			
CHLOROBENZENE (UG/G-DRY)	98681			
CHLOROFORM (UG/G-DRY)	98682			
1,1-DICHLOROETHANE (UG/G-DRY)	98683			
1,2-DICHLOROETHANE (UG/G-DRY)	98684			
BICYCLOHEPTADIENE (UG/G-DRY)	98686			

ENVIRONMENTAL SCIENCE & ENGINEERING

01/27/86

STATUS: PRELIMINARY

PROJECT NUMBER 84936300
 FIELD GROUP: 3617X
 PARAMETERS: ALL

PROJECT NAME SECTION 36 RMA
 PROJECT MANAGERS BILL FRASER
 FIELD GROUP LEADER: GEISLER/BERGDOLL

SAMPLE NUMBERS

PARAMETERS	STORET #	BLK 505790	BLK 505791	BLK 505792
DATE	METHOD #	07/02/85	07/02/85	07/02/85
TIME		0	0	0
TRANS-1,2-DICHLOROETHANE (UG/G-D)	98687			
ETHYLBENZENE (UG/G-DRY)	98688			
METHYLENE CHLORIDE (UG/G-DRY)	98689			
TETRACHLOROETHENE (UG/G-DRY)	98690			
TOLUENE (UG/G-DRY)	98691			
1,1,1-TRICHLOROETHANE (UG/G-D)	98692			
1,1,2-TRICHLOROETHANE (UG/G-D)	98693			
TRICHLOROETHENE (UG/G-DRY)	98694			
M-XYLENE (UG/G-DRY)	98695			
MIBK (UG/G-DRY)	98696			
DMS	98697			
BENZENE (UG/G-DRY)	98699			
O-AND/OR P-XYLENE (UG/G-DRY)	98700			
PCPMS02 (UG/G-DRY)	98703	<0.400		
COORDINATE N/S (STP)	98392			
COORDINATE E/W (STP)	98393			
UNK633 (UG/G)	90085			
UNK635 (UG/G)	90087	0.918		
UNK542 (UG/G)	90024			
UNK629 (UG/G)	90082			

ENVIRONMENTAL SCIENCE & ENGINEERING

01/27/86

STATUS: PRELIMINARY

PROJECT NUMBER 84936300
 FIELD GROUP: 3617X
 PARAMETERS: ALL

PROJECT NAME SECTION 36 RHA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GEISZLER/BERGDOLL

SAMPLES: ALL

SAMPLE NUMBERS

PARAMETERS	STORET #	BLK 505790	BLK 505791	BLK 505792
DATE	METHOD #	07/02/85	07/02/85	07/02/85
TIME		0	0	0
UNK631 (UG/G)	90083			
UNK533 (UG/G)	90021	1.22		
UNK609 (UG/G)	90066			
UNK513 (UG/G)	90116			
UNK530 (UG/G)	90019			
UNK555 (UG/G)	90097			
UNK614 (UG/G)	90070			
UNK523 (UG/G)	90092			
UNK567 (UG/G)	90036			
UNK575 (UG/G)	90121			
UNK618 (UG/G)	90073			
UNK619 (UG/G)	90105			
UNK637 (UG/G)	90089			
UNK538 (UG/G)	90123			

ENVIRONMENTAL SCIENCE & ENGINEERING

01/11/86

STATUS: PRELIMINARY

PROJECT NAME SECTION 36 RMA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GEISZLER/BERGOLL

PROJECT NUMBER 84936300
 FIELD GROUP: 36171
 PARAMETERS: ALL SAMPLES: ALL

PARAMETERS	STORET #	3083A 505800	3083B 505801	3083C 505802	3083D 505803	3083E 505804	3084A 505806	3084B 505807	3084C 505808	3084D 505809	3084E 505812
UNK609 (UG/G)	90066	0	0	0	0	0	0	0	0	0	0
UNK524 (UG/G)	90015	0	0	0	0	0	0	0	0	0	0
UNK533 (UG/G)	90021	0	0	0	0	0	0	0	0	0	0
UNK557 (UG/G)	90031	0	0	0	0	0	0	0	0	0	0
UNK612 (UG/G)	90068	0	0	0	0	0	0	0	0	0	0
UNK615 (UG/G)	90071	0	0	0	0	0	0	0	0	0	0
UNK637 (UG/G)	90089	0	0	0	0	0	0	0	0	0	0
UNK523 (UG/G)	90092	0	0	0	0	0	0	0	0	0	0
UNK585 (UG/G)	90102	0	0	0	0	0	0	0	0	0	0
UNK636 (UG/G)	90088	0	0	0	0	0	0	0	0	0	0
UNK660 (UG/G)	90120	0	0	0	0	0	0	0	0	0	0
UNK532 (UG/G)	90020	0	0	0	0	0	0	0	0	0	0
UNK618 (UG/G)	90073	0	0	0	0	0	0	0	0	0	0
UNK633 (UG/G)	90085	0	0	0	0	0	0	0	0	0	0
UNK513 (UG/G)	90116	0	0	0	0	0	0	0	0	0	0
UNK639 (UG/G)	90122	0	0	0	0	0	0	0	0	0	0
UNK630 (UG/G)	90090	0	0	0	0	0	0	0	0	0	0

METHOD #

DATE

TIME

813

07/03/85

07/03/85

07/03/85

07/03/85

07/03/85

07/03/85

07/03/85

07/03/85

07/03/85

07/03/85

07/03/85

07/03/85

07/03/85

826

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844

946

1009

1027

1049

1137

1137

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1137

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1137

1137

* 1.05

* 0.926

* 1.04

* 5.37

ENVIRONMENTAL SCIENCE & ENGINEERING

01/11/86

STATUS: PRELIMINARY

PROJECT NUMBER: 44936300
 FIELD GROUP: 36177
 PARAMETERS: ALL

PROJECT NAME: SECTION 36 RMA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GEISLER/BIFG0011

SAMPLES: ALL

SAMPLE NUMBERS
 3087A 3088 3089A 3088 3088 3091A
 505816 505819 505824 505825 505830 505831 505836 505837 505840

PARAMETERS	STORET #	30858 505813	3086A 505816	30868 505819	3087A 505824	3087B 505825	3088A 505830	3088 505831	3089A 505836	3088 505837	3091A 505840
DATE	METHOD #	7/9/85	07/03/85	07/03/85	7/8/85	7/8/85	7/8/85	7/8/85	6/25/85	6/25/85	6/25/85
TIME		741	1101	1117	942	954	1025	1047	1000	1010	355
UNK580 (UG/G)	90044			120							
UNK539 (UG/G)	0		11.5								
UNK632 (UG/G)	90084										
UNK614 (UG/G)	90070										
UNK629 (UG/G)	90082										
UNK579 (UG/G)	90043										
UNK577 (UG/G)	90041										
UNK576 (UG/G)	90042		2.29								
UNK623 (UG/G)	90077		1.15								
UNK525 (UG/G)	90016		0.687								
UNK562 (UG/G)	90033			1270							
UNK567 (UG/G)	90036			93.5							
UNK569 (UG/G)	90038			93.5							
UNK574 (UG/G)	90039			66.8							
UNK588 (UG/G)	90049			134							
UNK591 (UG/G)	90051			107							
UNK594 (UG/G)	90053			93.5							
UNK595 (UG/G)	90054			40.1							
UNK600 (UG/G)	90057			134							
UNK605 (UG/G)	90062			66.8							
				40.1							

* 1.02 * 0.990 * 1.10

* 0.665

ENVIRONMENTAL SCIENCE & ENGINEERING 01/11/86 STATUS: PRELIMINARY
 PROJECT NUMBER 34936300 PROJECT NAME SECTION 36 RMA
 FIELD GROUP: 36177 PROJECT MANAGER: BILL FRASER
 PARAMETERS: ALL SAMPLES: ALL FIELD GROUP LEADER: GEISZLER/BERGOUILL

PARAMETERS	STORET #	3086 505872	BLK 505880	BLK 505881	505802	BLK 505890	BLK 505891	BLK 505892
DATE	METHOD #	6/25/85	07/03/85	6/25/85	7/8/85	7/9/85	07/03/85	07/03/85
TIME		819	1111	0	0	0	0	0
SAMPLE TYPE		SO	SO	SO	SO	SO	SO	SO
SAMPLE DEPTH(CM)		122	61	0	0	0	0	0
SITE TYPE 1		BORE	BURE	QCMB	QCMB	QCMB	QCMB	QCMB
INSTALLATION CODE		RK	RK	RK	RK	RK	RK	RK
SAMPLING TECHNIQUE		S	S	G	G	G	G	G
MOISTURE(ZWET WT)		11.3	18.4	2.3	2.3	2.3	2.0	2.0
CADMIUM,SED (UG/G-DRY)		<0.9	9.6	NA	NA	<0.5	NA	NA
CR,SOIL (UG/G-DRY)		11	1450	NA	NA	15	NA	NA
COPPER,SED (UG/G-DRY)		7	657	NA	NA	13	NA	NA
LEAD,SED (UG/G-DRY)		<17	7100	NA	NA	<16	NA	NA
ZINC,SED (UG/G-DRY)		39	11800	NA	NA	37	NA	NA
ARSENIC,SED (UG/G-DRY)		4.9	<5.2	NA	NA	<5.2	NA	NA
MERCURY,SED (UG/G-DRY)		<0.05	<0.07	NA	NA	<0.07	NA	NA
ALDRIN,SED (UG/G-DRY)		<0.900	<50.0	NA	NA	<0.500	NA	NA
DIELDRIN(UG/G-DRY)		<0.300	<60.0	NA	NA	<0.600	NA	NA
DDT,PP* (UG/G-DRY)		<0.400	<200	NA	NA	<2.00	NA	NA
ENDRIN (UG/G-DRY)		<0.700	<400	NA	NA	<4.00	NA	NA
CHLOROCYCLOHEXANE,SED(UG/G-DRY)		<1.00	<600	NA	NA	<6.00	NA	NA
DDT,PP* (UG/G-DRY)		<0.300	<50.0	NA	NA	<0.500	NA	NA
1,4 OXATHIANE (UG/G-DRY)		<0.300	<50.0	NA	NA	<0.500	NA	NA

ENVIRONMENTAL SCIENCE & ENGINEERING

01/11/86

STATUS: PRELIMINARY

PROJECT NUMBER 84936300
 FIELD GROUP: 3617Y SAMPLES: ALL
 PARAMETERS: ALL

PROJECT NAME SECTION 36 RMA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GLISZLER/BERGDOHL

PARAMETERS	STORET #	3091B 505849	3086 505872	BLK 505880	BLK 505881	BLK 505882	BLK 505890	BLK 505891	DLK 505892
DATE	METHOD #	6/25/85	07/03/85	6/25/85	7/8/85	7/9/85	07/03/85	07/03/85	07/03/85
TIME		819	1111	0	0	0	0	0	0
DIMP (UG/G-DRY)	98645	<0.500	<300				<1.00		
DICHLORVCS (UG/G-DRY)	98646	<0.300	<30.0				<0.300		
HEXCLCYPENDI (UG/G-DRY)	98647	<1.00	<100				<1.00		
MALATHION (UG/G-DRY)	98648	<0.600	<200				<2.00		
ISODRIN (UG/G-DRY)	98649	<0.300	<60.0				<0.600		
1,4 DITHIANE (UG/G-DRY)	98650	<0.300	<200				<2.00		
DICCCYCLOPENTADIENE (U G/G-DRY)	98651	<0.300	<600				<6.00		
DBCP (NEMAGUN) (UG/G-DRY)	98652	0.031	0.109				<0.005		
P-CLPHENYLHLTHYSULFI (UG/G-DRY)	98653	<0.300	<30.0				<0.300		
P-CLPHENYLHLTHYSULFO (UG/G-DRY)	98654	<0.400	<100				<1.00		
ATRAZINE (UG/G-DRY)	98655	<0.700	<50.0				<0.500		
SUPONA (UG/G-DRY)	98656	<0.500	<90.0				<0.900		
DIMP (UG/G-DRY)	98657	<2.00	<300				<3.00		
ETY*PARATHION (UG/G-DRY)	98658	<0.700	<200				<2.00		
CARBON TETRACHLORIDE (UG/G-DRY)	98680	NA	NA	<0.300			<0.400		
CHLOROBENZENE (UG/G-DRY)	98681	NA	NA	<0.300			<0.300		
CHLOROFORM (UG/G-DRY)	98682	NA	NA	1.18			<0.700		
1,1-DICHLOROETHANE (UG/G-DRY)	98683	NA	NA	<0.300			<0.500		
1,2-DICHLOROETHANE (UG/G-DRY)	98664	NA	NA	<0.300			<0.400		
81CYCLOHEPTADIENE (UG/G-DRY)	98686	NA	NA	<0.300			<0.800		

ENVIRONMENTAL SCIENCE & ENGINEERING

01/11/86

STATUS: PRELIMINARY

PROJECT NUMBER 84936300
 FIELD GROUP: 3617Y
 PARAMETERS: ALL

PROJECT NAME SECTION 36 RMA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GEISZLER/BERGOLL

PARAMETERS	STORET #	3086	3086	BLK	BLK	BLK	BLK	BLK	BLK	BLK	BLK	BLK
	505899	505872	505880	505881	505882	505890	505891	505892				
DATE	6/25/85	07/03/85	6/25/85	7/8/85	7/9/85	07/03/85	07/03/85	07/03/85				
TIME	019	1111	0	0	0	0	0	0				
METHOD #												
TRANS-1,2-DICHLORGET	98687	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENE(UG/G-D	0		<0.300									
ETHYLBENZENE	98688	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(UG/G-DRY)	0		<0.300									
METHYLENE CHLORIDE	98689	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(UG/G-DRY)	0		0.869									
TETRACHLORETHENE	98690	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(UG/G-DRY)	0		<0.300									
TOLUENE	98691	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(UG/G-DRY)	0		<0.300									
1,1,1-TRICHLORETHAN	98692	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(UG/G-DRY)	0		0.760									
1,1,2-TRICHLORETHAN	98693	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(UG/G-DRY)	0		<0.300									
TRICHLORCETHENE	98694	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(UG/G-DRY)	0		<0.300									
M-XYLENE	98695	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(UG/G-DRY)	0		<0.300									
MIBK	98696	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(UG/G-DRY)	0		<0.500									
DMS	98697	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(UG/G-DRY)	0		<0.300									
BENZENE	98698	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(UG/G-DRY)	0		<0.300									
O-AND/OR P-XYLENE	98700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(UG/G-DRY)	0		<0.500									
PCPMS02	98703	<0.300	<40.0									
COORDINATE N/S(SIP)	98392	182222	184285									
COORDINATE E/W(SIP)	98393	2186652	2186800									
UNK620 (UG/G)	90074		NA									
UNK635 (UG/G)	90087											
UNK502 (UG/G)	90045		270									
UNK576 (UG/G)	90040		294									

1.02

ENVIRONMENTAL SCIENCE & ENGINEERING

01/11/86

STATUS: PRELIMINARY

PROJECT NUMBER 84936360
 FIELD GROUP: 36177
 PARAMETERS: ALL SAMPLES: ALL

PROJECT NAME SECTION 36 RMA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GEISLER/BERGQLL

PARAMETERS	SOCKET #	30918 505849	3086 505872	BLK 505880	BLK 505881	BLK 505892	BLK 505891	BLK 505892
DATE	METHOD #	6/25/85	07/03/85	6/25/85	7/8/85	7/9/85	07/03/85	07/03/85
TIME		819	1111	0	0	0	0	0
UNK580 (UG/G)	90644		270					
UNK589 (UG/G)	90650							10.2
UNK632 (UG/G)	90084							
UNK614 (UG/G)	90670							
UNK629 (UG/G)	90062							
UNK579 (UG/G)	90643	* 0.374						
UNK577 (UG/G)	90091							
UNK578 (UG/G)	90092							
UNK623 (UG/G)	90077							
UNK525 (UG/G)	90016							1.02
UNK562 (UG/G)	90033		184					
UNK567 (UG/G)	90036		196					
UNK569 (UG/G)	90038		196					
UNK574 (UG/G)	90039		257					
UNK586 (UG/G)	90049		604					
UNK591 (UG/G)	90051		164					
UNK594 (UG/G)	90053		319					
UNK595 (UG/G)	90054		245					
UNK600 (UG/G)	90057		123					
UNK605 (UG/G)	90062							

ENVIRONMENTAL SCIENCE & ENGINEERING

01/11/86

STATUS: PRELIMINARY

PROJECT NUMBER 04936300
 FIELD GROUP: 3617Z
 PARAMETERS: ALL

PROJECT NAME SECTION 36 RMA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GELSZLER/BERGDOLL

PARAMETERS	STOR#	3095A 505900	3095B 505901	3096A 505906	3096B 505907	3097A 505912	3097B 505913	3098A 505919	3099A 505924	3099B 505925
DATE	METHOD #	07/11/85	07/11/85	07/11/85	07/11/85	7/10/85	7/10/85	7/10/85	6/24/85	6/25/85
TIME		020	046	725	740	1109	1129	1912	219	340
DIMP (UG/G-DRY)	98645	<3.00	<3.00	<3.00	<3.00	4.47	<0.500	<0.500	<0.500	<0.500
DICHLORVUS (UG/G-DRY)	98646	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXCLYFENG (UG/G-DRY)	98647	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
MALATHION (UG/G-DRY)	98648	<2.00	<2.00	<2.00	<2.00	<0.600	<0.600	<0.600	<0.600	<0.600
ISOBORN (UG/G-DRY)	98649	<0.600	<0.600	<0.600	<0.600	<0.300	<0.300	<0.300	<0.300	<0.300
1,4 DITHIANE (UG/G-DRY)	98650	<2.00	<2.00	<2.00	<2.00	<0.300	<0.300	<0.300	<0.300	<0.300
DICYCLOPENTADIENE (U G/G-DRY)	98651	<6.00	<6.00	<6.00	<6.00	<0.300	<0.300	<0.300	<0.300	<0.300
DBCP (NEMAGON) (UG/G-DRY)	98652	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.013	<0.005	0.436
P-CLPHENYLMEHTHSULFI DE (UG/G-DRY)	98653	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	0.563
P-CLPHENYLMEHTHSULFU NE (UG/G-DRY)	98654	<1.00	<1.00	<1.00	<1.00	<0.400	<0.400	<0.400	<0.400	<0.400
ATRAZINE (UG/G-DRY)	98655	<0.500	<0.500	<0.500	<0.500	<0.700	<0.700	<0.700	<0.700	<0.700
SUPONA (UG/G-DRY)	98656	<0.900	<0.900	<0.900	<0.900	<0.500	<0.500	<0.500	<0.500	<0.500
DHP (UG/G-DRY)	98657	<3.00	<3.00	<3.00	<3.00	<2.00	<2.00	<2.00	<2.00	<2.00
ETP-PARATHION (UG/G-DRY)	98658	<2.00	<2.00	<2.00	<2.00	<0.700	<0.700	<0.700	<0.700	<0.700
CARBON TETRACHLORIDE (UG/G-DRY)	98680	NA	NA	NA	<0.400	NA	NA	NA	NA	NA
CHLOROBENZENE (UG/G-DRY)	98681	NA	NA	NA	<0.300	NA	NA	NA	NA	NA
CHLOROFORN (UG/G-DRY)	98682	NA	NA	NA	<0.700	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE (UG/G-DRY)	98683	NA	NA	NA	<0.500	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE (UG/G-DRY)	98684	NA	NA	NA	<0.400	NA	NA	NA	NA	NA
BICYCLOHEPTADIENE (UG/G-DRY)	98686	NA	NA	NA	<0.800	NA	NA	NA	NA	NA

ENVIRONMENTAL SCIENCE & ENGINEERING

01/11/86

STATUS: PRELIMINARY

PROJECT NUMBER 84936300
 FIELD GROUP: 3617Z
 PARAMETERS: ALL

PROJECT NAME SECTION 36 RMA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GEISLER/BERGOLL

PARAMETERS	STORET #	3095A 505900	30958 505901	3096A 505906	3096B 505907	3097A 505912	3097B 505913	3098A 505918	3098B 505919	3099A 505924	3099B 505925
DATE	METHOD #	07/11/85	07/11/85	07/11/85	07/11/85	07/10/85	07/10/85	07/10/85	07/10/85	07/10/85	07/10/85
TIME		828	846	725	740	1109	1129	958	1012	819	512
UNK635 (UG/G)	90087										
UNK593 (UG/G)	90052	NA	NA	NA							
UNK609 (UG/G)	90066	0.323									
UNK632 (UG/G)	90084	NA	NA	NA							
UNK543 (UG/G)	90025	NA	NA	NA							
UNK579 (UG/G)	90043	0.323									
UNK544 (UG/G)	90026	NA	NA	NA							
UNK604 (UG/G)	90061		1.10								
UNK546 (UG/G)	90028	NA	NA	NA							
UNK548 (UG/G)	90029	NA	NA	NA							
UNK629 (UG/G)	90082	0.215		1.13							
UNK522 (UG/G)	90014	NA	NA	NA							
UNK517 (UG/G)	90012	NA	NA	NA							
UNK513 (UG/G)	90116										
UNK523 (UG/G)	90092										
UNK532 (UG/G)	90020										
UNK655 (UG/G)	90119										
UNK636 (UG/G)	90088										
UNK641 (UG/G)	90107										
UNK654 (UG/G)	90113										

* 0.784 * 1.011
 * 1.00 * 1.01
 * 0.390
 * 0.558

ENVIRONMENTAL SCIENCE & ENGINEERING

01/11/86

STATUS: PRELIMINARY

PROJECT NUMBER 84936300
 FIELD GROUP: 3617Z SAMPLES: ALL
 PARAMETERS: ALL

PROJECT NAME SECTION 36 RMA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GEISZLER/81160811

PARAMETERS	STORET #	3095A 505900	3095B 505901	3096A 505906	3096B 505907	3097A 505912	3097B 505913	3098A 505918	3098B 505919	3099A 505924	3099B 505925
DATE	METHOD #	07/11/85	07/11/85	07/11/85	07/11/85	7/10/85	7/10/85	7/10/85	7/10/85	6/24/85	6/25/85
TIME		820	846	725	740	1109	1129	958	1012	819	843
UNK597 (UG/G)	90094										
UNK637 (UG/G)	90089										
UNK527 (UG/G)	90017										
UNK614 (UG/G)	90070										
UNK538 (UG/G)	90123										
UNK610 (UG/G)	90124										
						* 1.63	* 1.21				* 2.52
							* 1.73				
							* 1.24				

ENVIRONMENTAL SCIENCE & ENGINEERING

01/11/86

STATUS: PRELIMINARY

PROJECT NUMBER 84936300
 FIELD GROUP: 3617Z
 PARAMETERS: ALL

PROJECT NAME SECTION 36 RMA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GEISZLER/BERGOLL

PARAMETERS	STORET #	3100A 505930	3100B 505931	3101A 505936	3101B 505937	3102A 505942	3102B 505943	3103A 505948	3103B 505949	3104A 505954	3104B 505955
DATE	METHOD #	06/20/85	06/20/85	6/24/85	6/24/85	06/20/85	06/20/85	06/20/85	06/20/85	06/20/85	06/21/85
TIME		1017	1030	736	751	913	931	823	837	739	752
TRANS-1,2-DICHLOROETHENE (UG/G-DRY)	98687	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE (UG/G-DRY)	98688	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE (UG/G-DRY)	98689	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE (UG/G-DRY)	98690	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE (UG/G-DRY)	98691	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-TRICHLOROETHANE (UG/G-DRY)	98692	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE (UG/G-DRY)	98693	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE (UG/G-DRY)	98694	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-XYLENE (UG/G-DRY)	98695	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MIBK (UG/G-DRY)	98696	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DMDS (UG/G-DRY)	98697	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE (UG/G-DRY)	98699	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O-AND/OR P-XYLENE (UG/G-DRY)	98700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCPMS02 (UG/G-DRY)	98703	<0.400	<0.400	<0.300	<0.300	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400
COORDINATE,N/S(STP)	98392	181019	181019	181021	181021	180721	180721	180721	180721	180721	180721
COORDINATE,E/W(STP)	98393	2186352	2186352	2186806	2186806	2186205	2186205	2186504	2186504	2186803	2186303
UNK634 (UG/G)	90086						0.452		0.457		
UNK542 (UG/G)	90024	>14.3							2.28		
UNK638 (UG/G)	90065		1.21				0.339	0.743	0.913	0.604	0.773
UNK633 (UG/G)	90085								1.14		

ENVIRONMENTAL SCIENCE & ENGINEERING

01/11/66

STATUS: PRELIMINARY

PROJECT NUMBER 04936300
 FIELD GROUP: 3617Z
 PARAMETERS: ALL

PROJECT NAME SECTION 36 RNA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GEISZLER/BERGULL

SAMPLES: ALL

PARAMETERS	STORET #	3100A 505930	3101A 505936	31018 505937	3102A 505942	31028 505943	3103A 505948	3103B 505949	3104A 505954	3104B 505955
DATE	METHOD #	06/20/85	6/24/85	6/24/85	06/20/85	06/20/85	06/20/85	06/20/85	06/20/85	06/20/85
TIME		1017	736	751	913	931	823	637	729	752
UNK635 (UG/G)	90087	2.20			7.28	3.39		3.42	5.74	0.773
UNK593 (UG/G)	90052	2.20					1.06		1.15	1.10
UNK609 (UG/G)	90066	>6.60			1.04				0.115	
UNK632 (UG/G)	90064	2.20			2.08	1.13	2.12		0.459	0.442
UNK543 (UG/G)	90025				0.728	1.13	0.743			
UNK579 (UG/G)	90043									
UNK544 (UG/G)	90026									
UNK604 (UG/G)	90061				3.12					
UNK546 (UG/G)	90028						2.12			
UNK548 (UG/G)	90029									
UNK629 (UG/G)	90082									
UNK522 (UG/G)	90014									
UNK517 (UG/G)	90012									
UNK513 (UG/G)	90116									
UNK523 (UG/G)	90092									
UNK532 (UG/G)	90020									
UNK655 (UG/G)	90119									
UNK636 (UG/G)	90088									
UNK641 (UG/G)	90107									
UNK654 (UG/G)	90113									

* 1.00 * 0.722
 * 0.565 * 0.342

>3.31

ENVIRONMENTAL SCIENCE & ENGINEERING

01/11/86

STATUS: PRELIMINARY

PROJECT NUMBER 84936300
 FIELD GROUP: 3617Z
 PARAMETERS: ALL

PROJECT NAME SECTION 36 RMA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GEISZLER/BERGOLL

SAMPLES: ALL

PARAMETERS	STORET #	3100A	3100B	3101A	3101B	3102A	3103A	3103B	3104A	3104B
		505930	505931	505936	505937	505942	505946	505949	505954	505955

SAMPLE NUMBERS

DATE	METHOD #	06/20/85	06/20/85	6/24/85	6/24/85	06/20/85	06/20/85	06/20/85	06/20/85	06/20/85
TIME		1017	1030	736	751	913	931	937	739	722

UNK547 (UG/G)	9J094	0								
UNK637 (UG/G)	9U089	0		* 3.08						
UNK527 (UG/G)	9J017	0								* 6.547
UNK614 (UG/G)	9U070	0								
UNK538 (UG/G)	9J123	0								
UNK610 (UG/G)	9U124	0								

ENVIRONMENTAL SCIENCE & ENGINEERING

01/11/86

STATUS: PRELIMINARY

PROJECT NUMBER 84936300
 FIELD GROUP: 3617Z SAMPLES: ALL
 PARAMETERS: ALL

PROJECT NAME SECTION 36 RHA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GEISLER/BERGOLL

PARAMETERS	STORET #	BLK	505980	BLK	505981	BLK	505982	BLK	505990	BLK	505991	BLK	505992
DATE	METHOD #	6/24/85	6/25/85	7/10/85	06/24/85	06/25/85	07/10/85						
TIME		0	0	0	0	0	0	0	0	0	0	0	0
SAMPLE TYPE	71999	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE DEPTH(CM)	9758	0	0	0	0	0	0	0	0	0	0	0	0
SITE TYPE 1	9759	QCHB	QCHB	QCHB	QCHB	QCHB	QCHB	QCHB	QCHB	QCHB	QCHB	QCHB	QCHB
INSTALLATION CODE	9720	RK	RK	RK	RK	RK	RK	RK	RK	RK	RK	RK	RK
SAMPLING TECHNIQUE	7205	G	G	G	G	G	G	G	G	G	G	G	G
MUJSTURE(2MET HT)	70320	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
CADMIUM,SED (UG/G-GRV)	1028	<0.9	NA	NA	NA	NA	NA	<0.5	NA	NA	NA	NA	NA
CR,SOIL (UG/G-DRY)	99584	11	NA	NA	NA	NA	NA	12	NA	NA	NA	NA	NA
COPPER,SED (UG/G-DRY)	1043	10	NA	NA	NA	NA	NA	12	NA	NA	NA	NA	NA
LEAD,SED (UG/G-DRY)	1052	<17	NA	NA	NA	NA	NA	<16	NA	NA	NA	NA	NA
ZINC,SED (UG/G-DRY)	1093	41	NA	NA	NA	NA	NA	34	NA	NA	NA	NA	NA
ARSENIC,SED (UG/G-DRY)	1003	<4.7	NA	NA	NA	NA	NA	NA	<0.07	<0.07	<0.07	<0.07	0.10
MERCURY,SED (UG/G-DRY)	71921	<0.05	NA	NA	NA	NA	NA	NA	<0.500	<0.500	<0.500	<0.500	<0.500
ALDRIN,SED (UG/G-DRY)	98356	<0.900	NA	NA	NA	NA	NA	NA	<0.600	<0.600	<0.600	<0.600	<0.600
DIELDRIN(UG/G-DRY)	98365	<0.300	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00
DDE,PP(UG/G-DRY)	98364	<0.400	NA	NA	NA	NA	NA	NA	<4.00	<4.00	<4.00	<4.00	<4.00
ENDRIN (UG/G-DRY)	98369	<0.700	NA	NA	NA	NA	NA	NA	<6.00	<6.00	<6.00	<6.00	<6.00
CHLOROCANE,SED(UG/G-DRY)	98361	<1.00	NA	NA	NA	NA	NA	NA	<0.500	<0.500	<0.500	<0.500	<0.500
DDE,PP (UG/G-DRY)	98363	<0.300	NA	NA	NA	NA	NA	NA	<0.500	<0.500	<0.500	<0.500	<0.500
1,4 OXATHIANE (UG/G-DRY)	98644	<0.300	NA	NA	NA	NA	NA	NA	<0.500	<0.500	<0.500	<0.500	<0.500

ENVIRONMENTAL SCIENCE & ENGINEERING
 PROJECT NUMBER 84936300
 FIELD GROUP: 36172
 PARAMETERS: ALL SAMPLES: ALL
 STATUS: PRELIMINARY
 PROJECT NAME SECTION 36 RMA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GLITSZLER/BERGQUILL

01/11/86

PARAMETERS	STORET #	BLK 505980	BLK 505981	BLK 505982	BLK 505990	BLK 505991	BLK 505992
DATE	METHOD #	6/24/85	6/25/85	7/10/85	06/24/85	06/25/85	07/10/85
TIME		0	0	0	0	0	0
DMP (UG/G-DRY)	98645	<0.500	<0.500	<0.300	<3.00	<3.00	<3.00
DICHLORVUS (UG/G-DRY)	98646	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXCLCYPENDI (UG/G-DRY)	98647	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
MALATHION (UG/G-DRY)	98648	<0.600	<0.600	<2.00	<2.00	<2.00	<2.00
ISODRIN (UG/G-DRY)	98649	<0.300	<0.300	<0.600	<0.600	<0.600	<0.600
1,4 DITHIANE (UG/G-DRY)	98650	<0.300	<0.300	<2.00	<2.00	<2.00	<2.00
DICCCYCLOPENTADIENE (UG/G-DRY)	98651	<0.300	<0.300	<6.00	<6.00	<6.00	<6.00
DBCP (NEMAGON) (UG/G-DRY)	98652	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
P-CLPHENYLETHYSULF (UG/G-DRY)	98653	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
P-CLPHENYLETHYSULFO (UG/G-DRY)	98654	<0.400	<0.400	<1.00	<1.00	<1.00	<1.00
ATRAZINE (UG/G-DRY)	98655	<0.700	<0.700	<0.500	<0.500	<0.500	<0.500
SUPONA (UG/G-DRY)	98656	<0.500	<0.500	<0.900	<0.900	<0.900	<0.900
DMP (UG/G-DRY)	98657	<2.00	<2.00	<3.00	<3.00	<3.00	<3.00
ETP PARATHION (UG/G-DRY)	98658	<0.700	<0.700	<2.00	<2.00	<2.00	<2.00
CARBON TETRACHLORIDE (UG/G-DRY)	98680						
CHLOROBENZENE (UG/G-DRY)	98681						
CHLOROFORM (UG/G-DRY)	98682						
1,1-DICHLOROETHANE (UG/G-DRY)	98683						
1,2-DICHLOROETHANE (UG/G-DRY)	98684						
BICYCLOHEPTADIENE (UG/G-DRY)	98686						

ENVIRONMENTAL SCIENCE & ENGINEERING 01/11/86 STATUS: PRELIMINARY

PROJECT NUMBER 84936300 PROJECT NAME SECTION 36 RMA
 FIELD GROUP: 3617Z PROJECT MANAGER: BILL FRASER
 PARAMETERS: ALL SAMPLES: ALL FIELD GROUP LEADER: GEISZLER/BERGVOIL

PARAMETERS	STORET #	BLK 505980	BLK 505981	BLK 505982	BLK 505990	BLK 505991	BLK 505992
DATE	METHOD #	6/24/85	6/25/85	7/10/85	06/24/85	06/25/85	07/10/85
TIME		0	0	0	0	0	0
TRANS-1,2-DICHLOROE ENE (UG/G-D)	98687	0	0	0	0	0	0
ETHYLBENZENE (UG/G-DRY)	98688	0	0	0	0	0	0
METHYLENE CHLORIDE (UG/G-DRY)	98689	0	0	0	0	0	0
TETRACHLOROETHENE (UG/G-DRY)	98690	0	0	0	0	0	0
TOLUENE (UG/G-DRY)	98691	0	0	0	0	0	0
1,1,1-TRICHLOROETHAN E (UG/G-D)	98692	0	0	0	0	0	0
1,1,2-TRICHLOROETHAN E (UG/G-D)	98693	0	0	0	0	0	0
TRICHLOROETHENE (UG/G-DRY)	98694	0	0	0	0	0	0
M-XYLENE (UG/G-DRY)	98695	0	0	0	0	0	0
MIBK (UG/G-DRY)	98696	0	0	0	0	0	0
DMSO (UG/G-DRY)	98697	0	0	0	0	0	0
BENZENE (UG/G-DRY)	98699	0	0	0	0	0	0
O-AND/OR P-XYLENE (UG/G-DRY)	98700	0	0	0	0	0	0
PCPMSO2 UG/G-DRY	98703	<0.300			<0.400	<0.400	
COORDINATE(N/S/E/P)	90392						
COORDINATE(E/H/S/P)	98393						
UNK634 (UG/G)	90686	0	0	0	0	0	0
UNK542 (UG/G)	90024	0	0	0	0	0	0
UNK608 (UG/G)	90065	0	0	0	0	0	0
UNK633 (UG/G)	90085	0	0	0	0	0	0

ENVIRONMENTAL SCIENCE & ENGINEERING
 PROJECT NUMBER 84336300
 FIELD GROUP: 3617Z
 PARAMETERS: ALL
 SAMPLES: ALL
 STATUS: PRELIMINARY
 PROJECT NAME SECTION 36 RMA
 PROJECT MANAGER: BILL FRASER
 FIELD GROUP LEADER: GEISZLER/BERGULL

01/11/86

PARAMETERS	STORET #	BLK	BLK	BLK	BLK	BLK	BLK	BLK	SAMPLE NUMBERS
DATE	METHOD #	6/24/85	6/25/85	7/10/85	6/24/85	6/25/85	06/24/85	06/25/85	07/10/85
UNK635 (UG/G)	90087								
	0								
UNK593 (UG/G)	90052								
	0								
UNK609 (UG/G)	90066								
	0								
UNK632 (UG/G)	90084								
	0								
UNK543 (UG/G)	90025								
	0								
UNK579 (UG/G)	90043								
	0								
UNK544 (UG/G)	90026								
	0								
UNK604 (UG/G)	90061								
	0								
UNK546 (UG/G)	90028								
	0								
UNK548 (UG/G)	90029								
	0								
UNK629 (UG/G)	90082								
	0								
UNK522 (UG/G)	90014								
	0								
UNK517 (UG/G)	90012								
	0								
UNK513 (UG/G)	90116								
	0								
UNK523 (UG/G)	90092								
	0								
UNK532 (UG/G)	90020								
	0								
UNK655 (UG/G)	90119								
	0								
UNK636 (UG/G)	90088								
	0								
UNK641 (UG/G)	90107								
	0								
UNK654 (UG/G)	90113								
	0								

0.612

0.306

1.02

ENVIRONMENTAL SCIENCE & ENGINEERING

01/11/86

STATUS: PRELIMINARY

PROJECT NUMBER 34936300
FIELD GROUP: 3617Z
PARAMETERS: ALL SAMPLES: ALL

PROJECT NAME SECTION 36 RMA
PROJECT MANAGER: BILL FRASER
FIELD GROUP LEADER: GEISLER/BERGDOLL

PARAMETERS	STORET #	BLK 505980	BLK 505981	BLK 505982	BLK 505990	BLK 505991	BLK 505992
	METHOD #	6/24/85	6/25/85	7/10/85	06/24/85	06/25/85	07/10/85
DATE		0	0	0	0	0	0
TIME		0	0	0	0	0	0
UNK547 (UG/G)	90094						
	0						
UNK637 (UG/G)	90089						
	0						
UNK527 (UG/G)	90017						
	0						
UNK614 (UG/G)	90070						
	0						
UNK538 (UG/G)	90123						
	0						
UNK610 (UG/G)	90124						
	0						

SAMPLE NUMBERS