RI/FS-EIS DOCUMENT: DOE/EIS-0185D-074- vol.2
REMEDIAL INVESTIGATION: DOE/OR/21548-074, VOL. II

Remedial Investigation for the Chemical Plant Area of the Weldon Spring Site

Volume II

November 1992

prepared by

MK-Ferguson Company and Jacobs Engineering Group

prepared for

U.S. Department of Energy, Oak Ridge Field Office, Weldon Spring Site Remedial Action Project, under Contract DE-AC05-86OR21548

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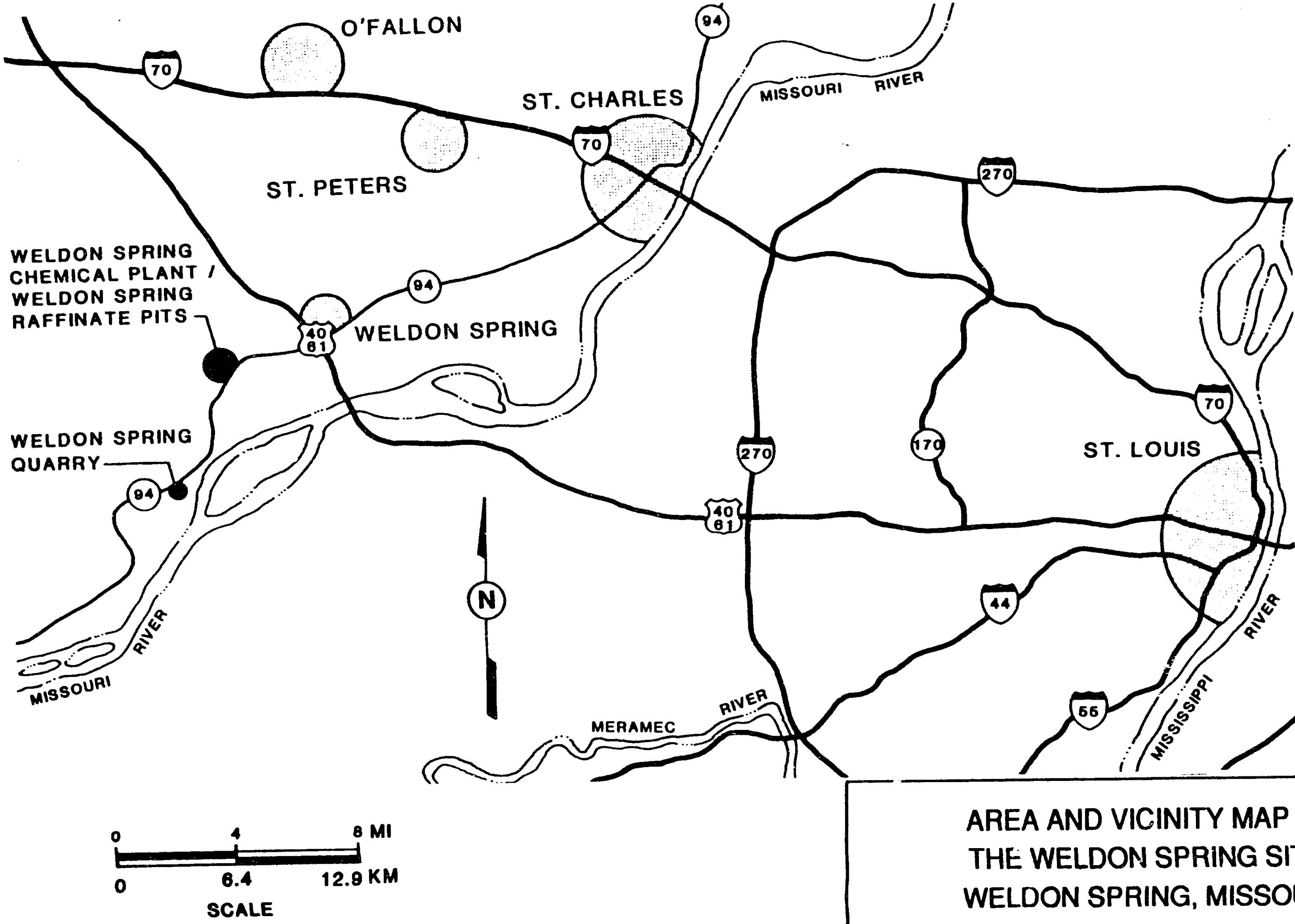
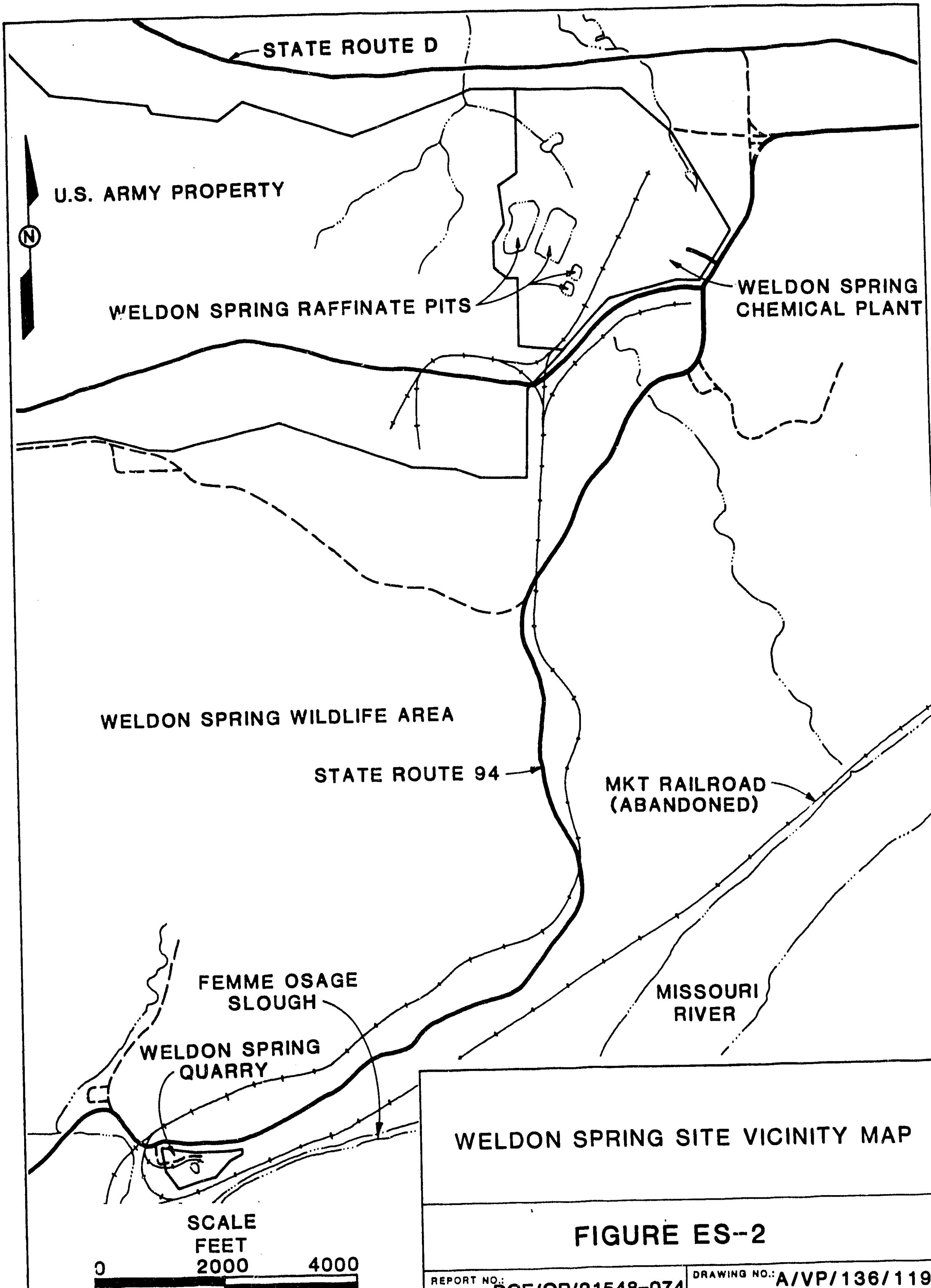


SOURCE: MKF & JEG 1990

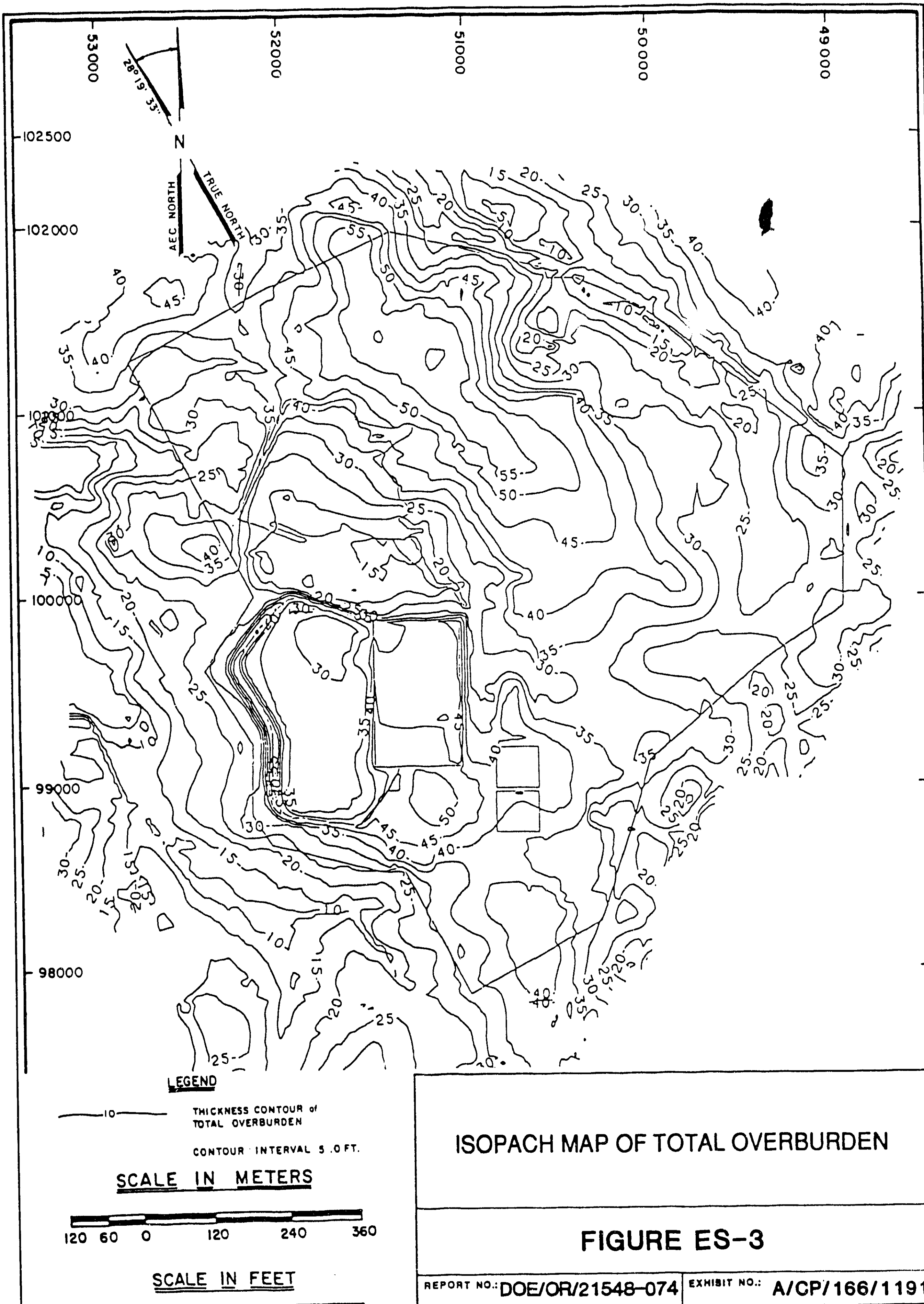
AREA AND VICINITY MAP OF THE WELDON SPRING SITE, WELDON SPRING, MISSOURI			
FIGURE ES-1			
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/135/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE 11/91	



WELDON SPRING SITE VICINITY MAP

FIGURE ES-2

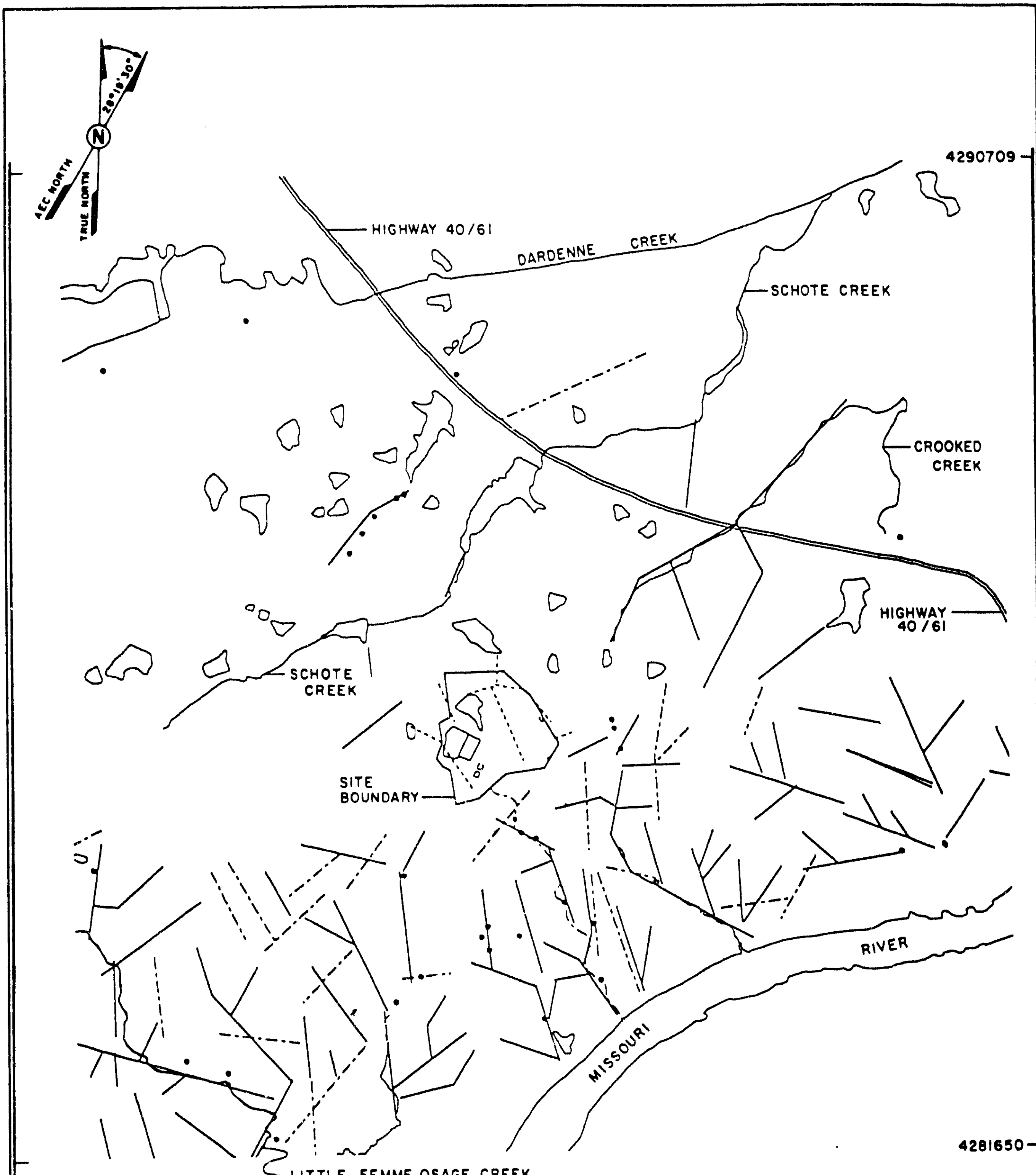
REPORT NO.: DOE/OR/21548-074		DRAWING NO.: A/VP/136/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



ISOPACH MAP OF TOTAL OVERBURDEN

FIGURE ES-3

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/166/1191			
ORIGINATOR: BLG		DRAWN BY: GLN		DATE: 11/91	



LEGEND

LINEAR STREAM SEGMENT
LINEAR BEDROCK DEPRESSION
PHOTO LINEAMENT
SPRINGS and SEEPS

SCALE IN METERS

1440 720 0 1440 2880 4320

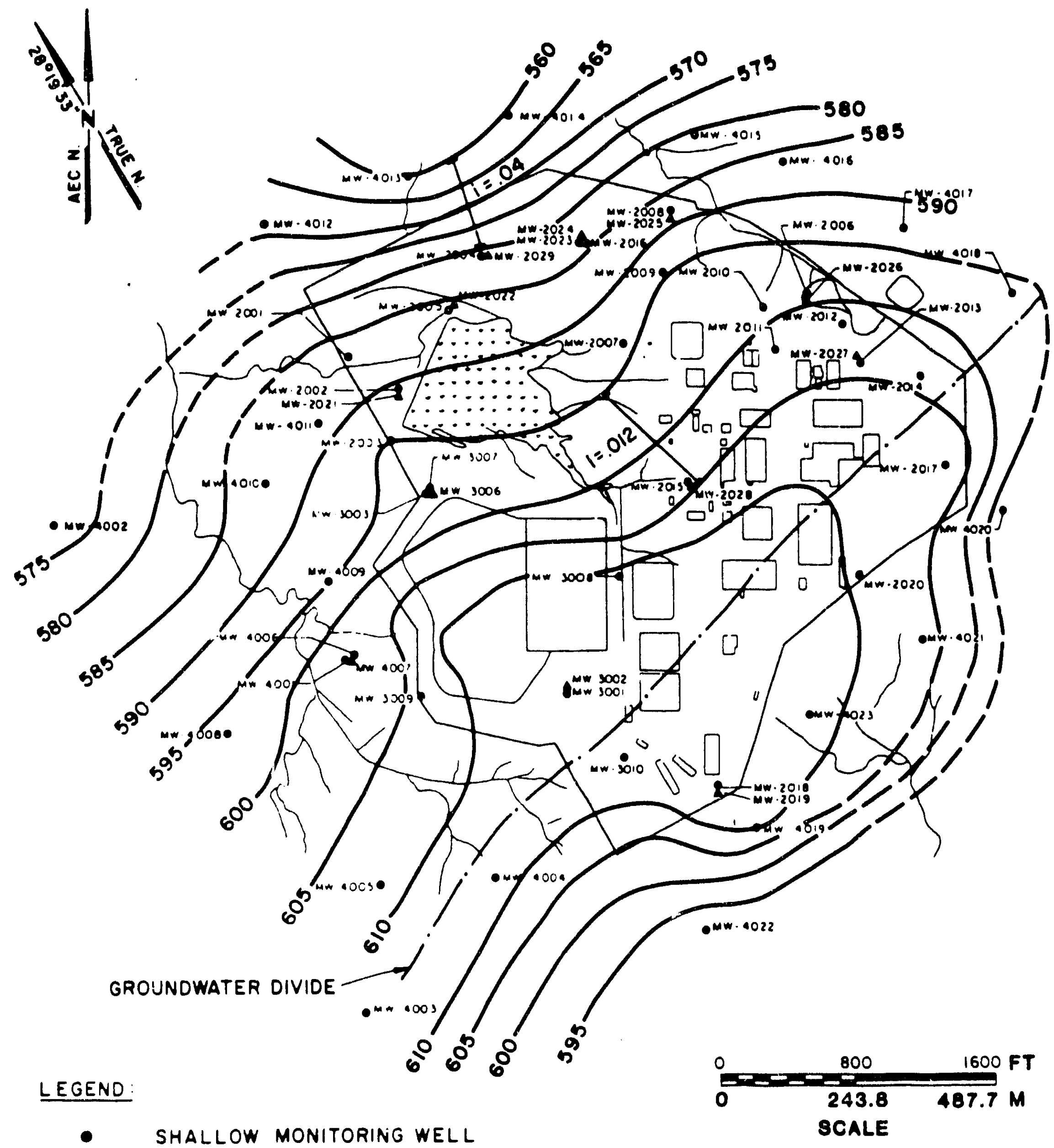
SCALE IN FEET

6000 4000 2000 0 1000

REGIONAL STRUCTURAL FEATURES

FIGURE ES-4

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/137/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



LEGEND:

● SHALLOW MONITORING WELL

▲ DEEP MONITORING WELL

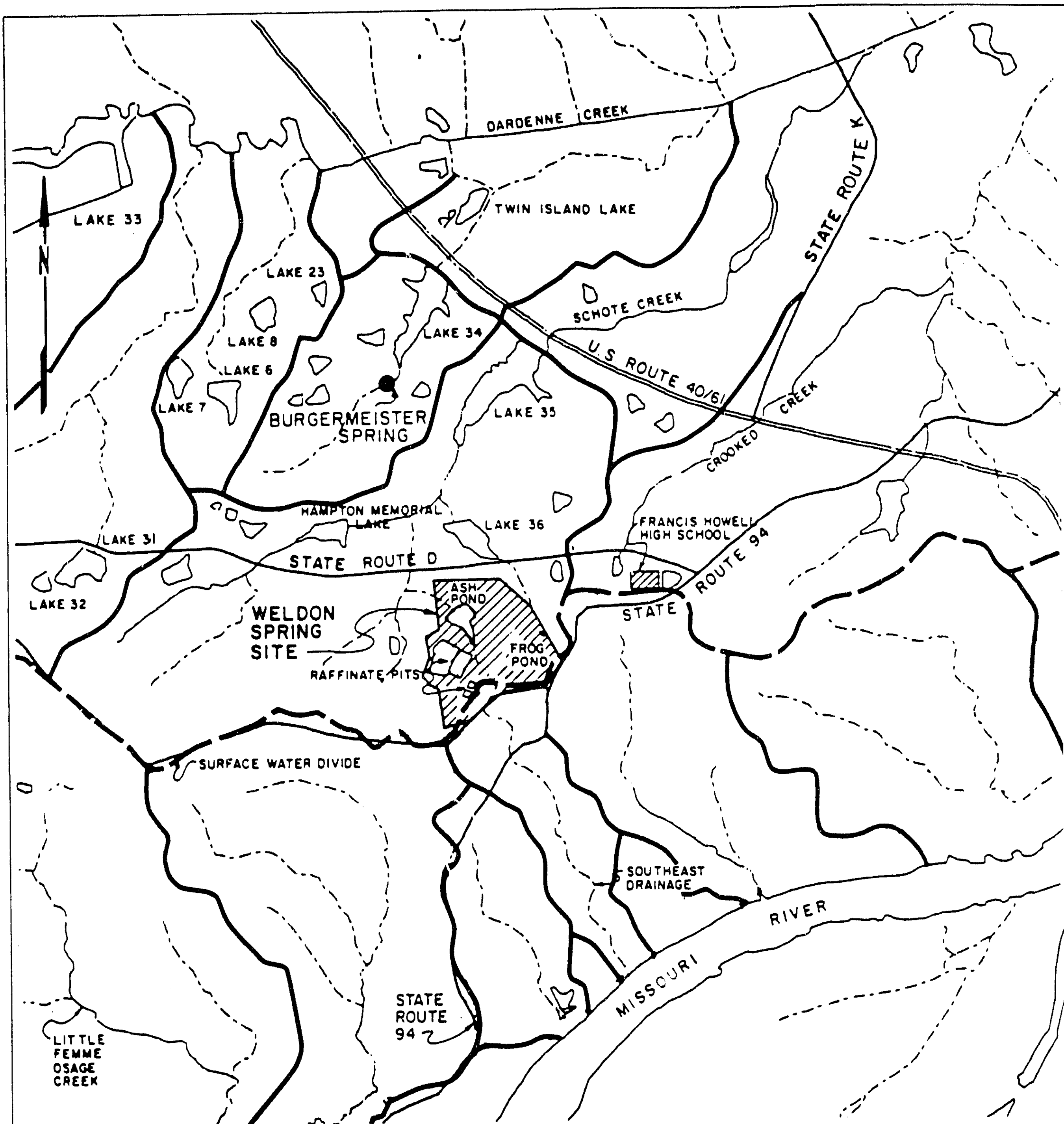
—600— POTENTIOMETRIC CONTOUR (FT-MSL)

SOURCE: TABLE 4.6-8

POTENTIOMETRIC SURFACE,
SHALLOW WELLS - DECEMBER 1988

FIGURE ES-5

REPORT NO	DOE/OR/21548-074	EXHIBIT NO	A/CP/167/1191
ORIGINATOR BLG	DRAWN BY GLN	DATE 11/91	



0 3200 6400 FT

0 975.4 1950.7 M

SCALE

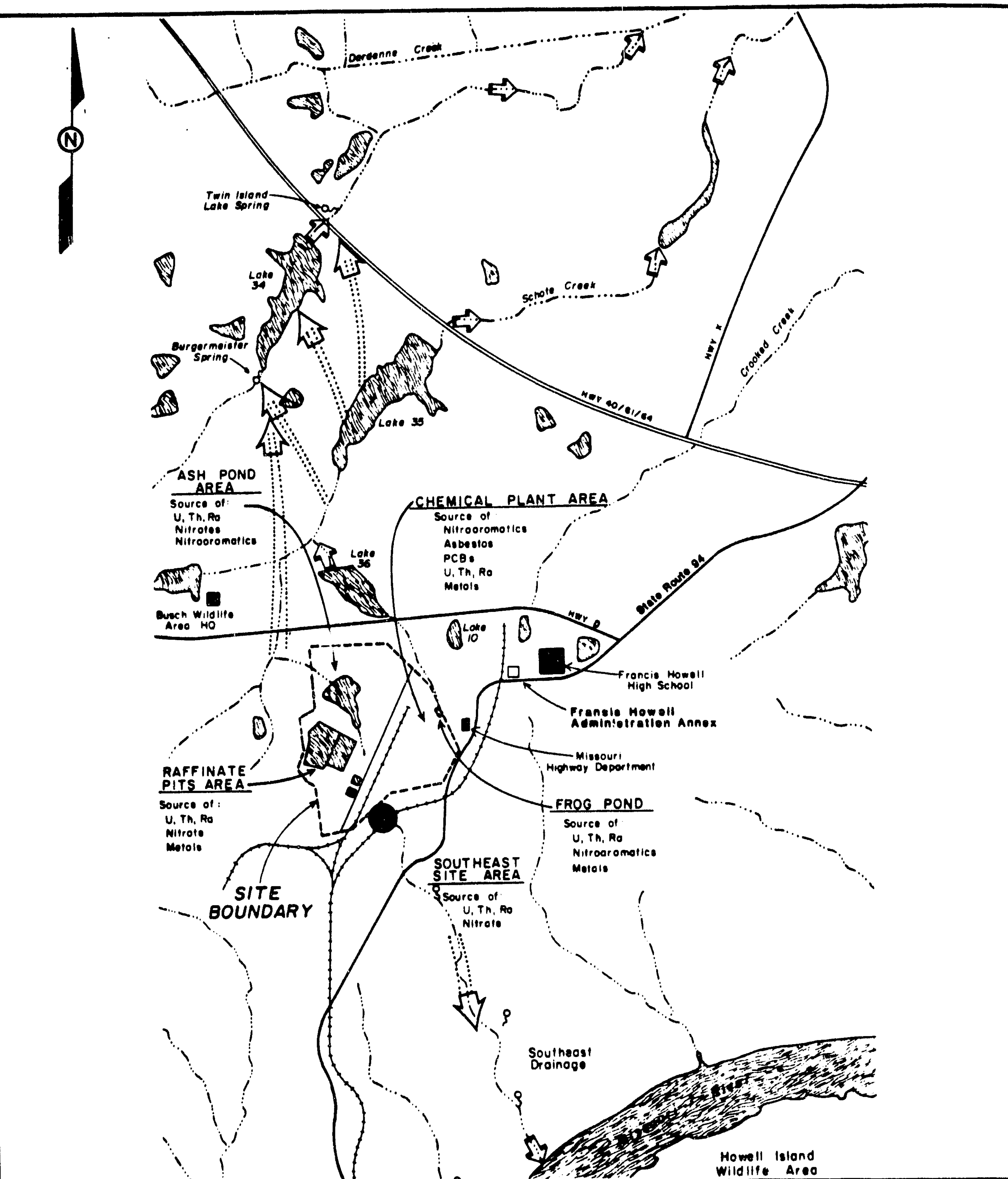
LEGEND:

- SURFACE WATER DIVIDE BETWEEN MISSISSIPPI RIVER AND MISSOURI RIVER
- DRAINAGE BOUNDARY
- CREEK OR SURFACE DRAINAGE
- POND OR LAKE

SURFACE WATER DRAINAGES NEAR THE WSS

FIGURE ES-6

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/138/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



Surface water flow path from WSS

Known groundwater flow path to spring at surface

Spring

Creek

Potential Receptors

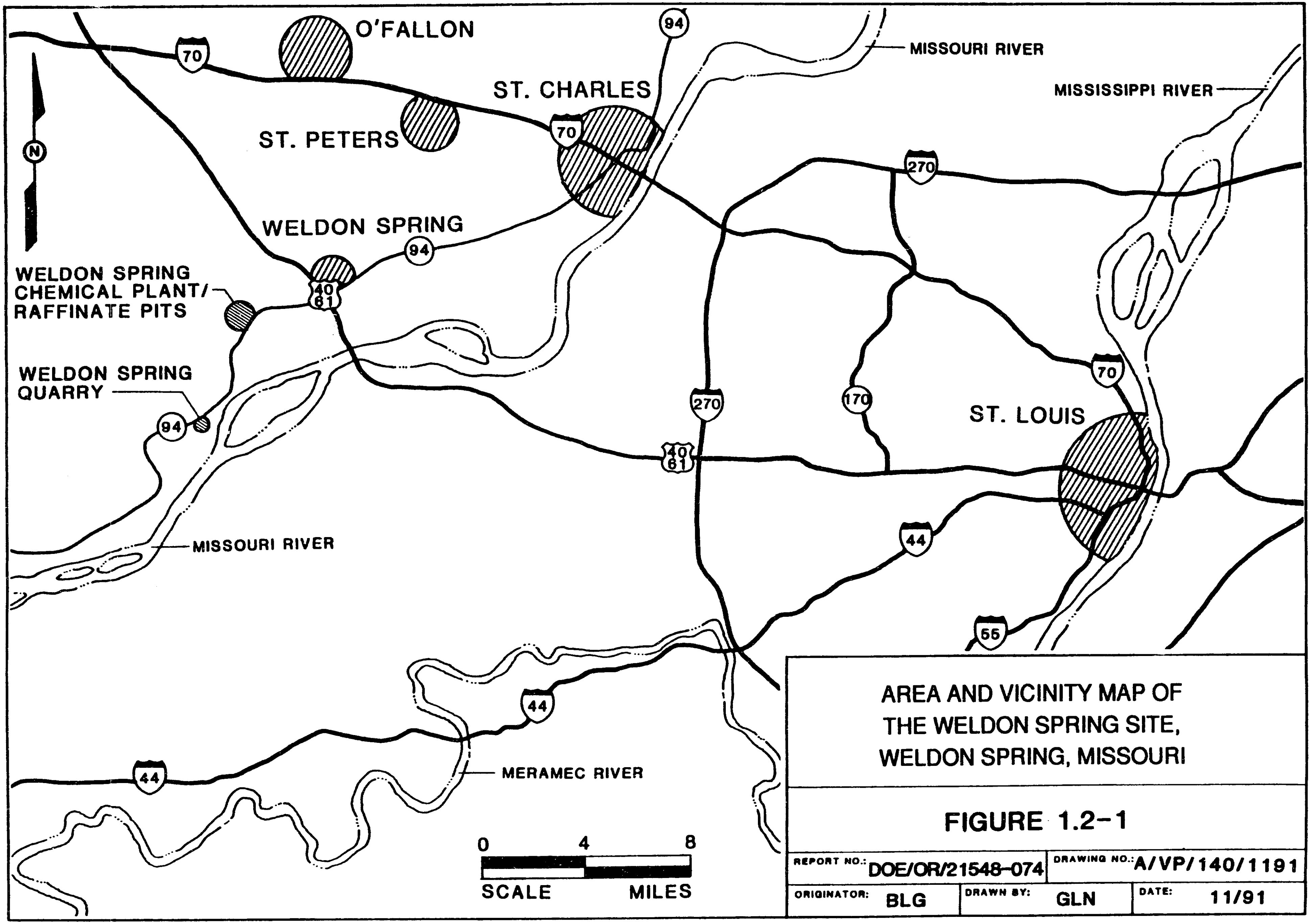
Major Sources of Contaminants (Secondary sources not included)

SCALE 0 1000 2000 FT
0 304.8 609.6 M

CONCEPTUAL MODEL FOR CONTAMINANT SOURCE, TRANSPORT & EXPOSURE

FIGURE ES-7

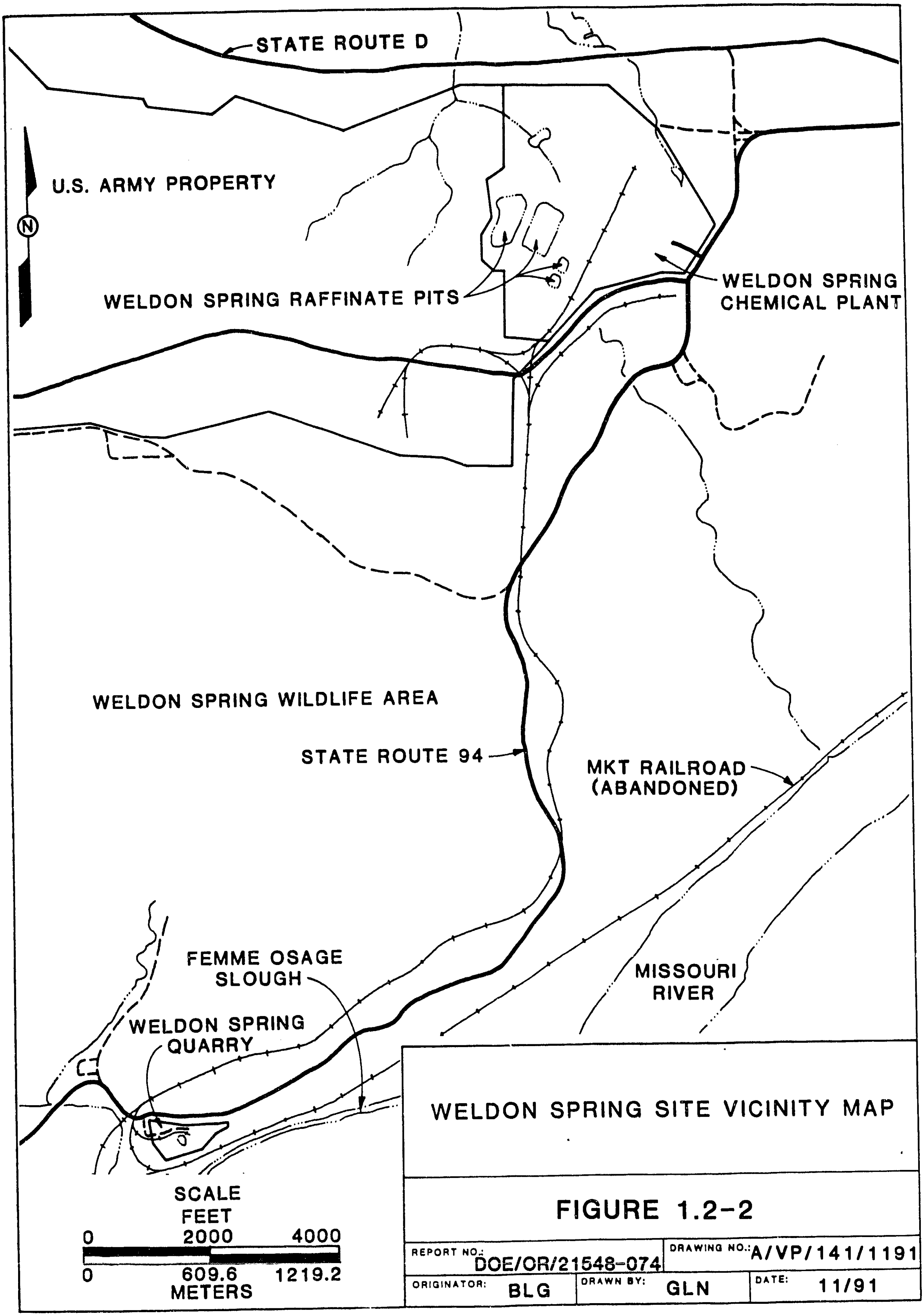
REPORT NO.	DOE/OR/21548-074	EXHIBIT NO.	A/VP/139/1191		
ORIGINATOR	BLG	DRAWN BY	GLN	DATE	11/91



AREA AND VICINITY MAP OF THE WELDON SPRING SITE, WELDON SPRING, MISSOURI

FIGURE 1.2-1

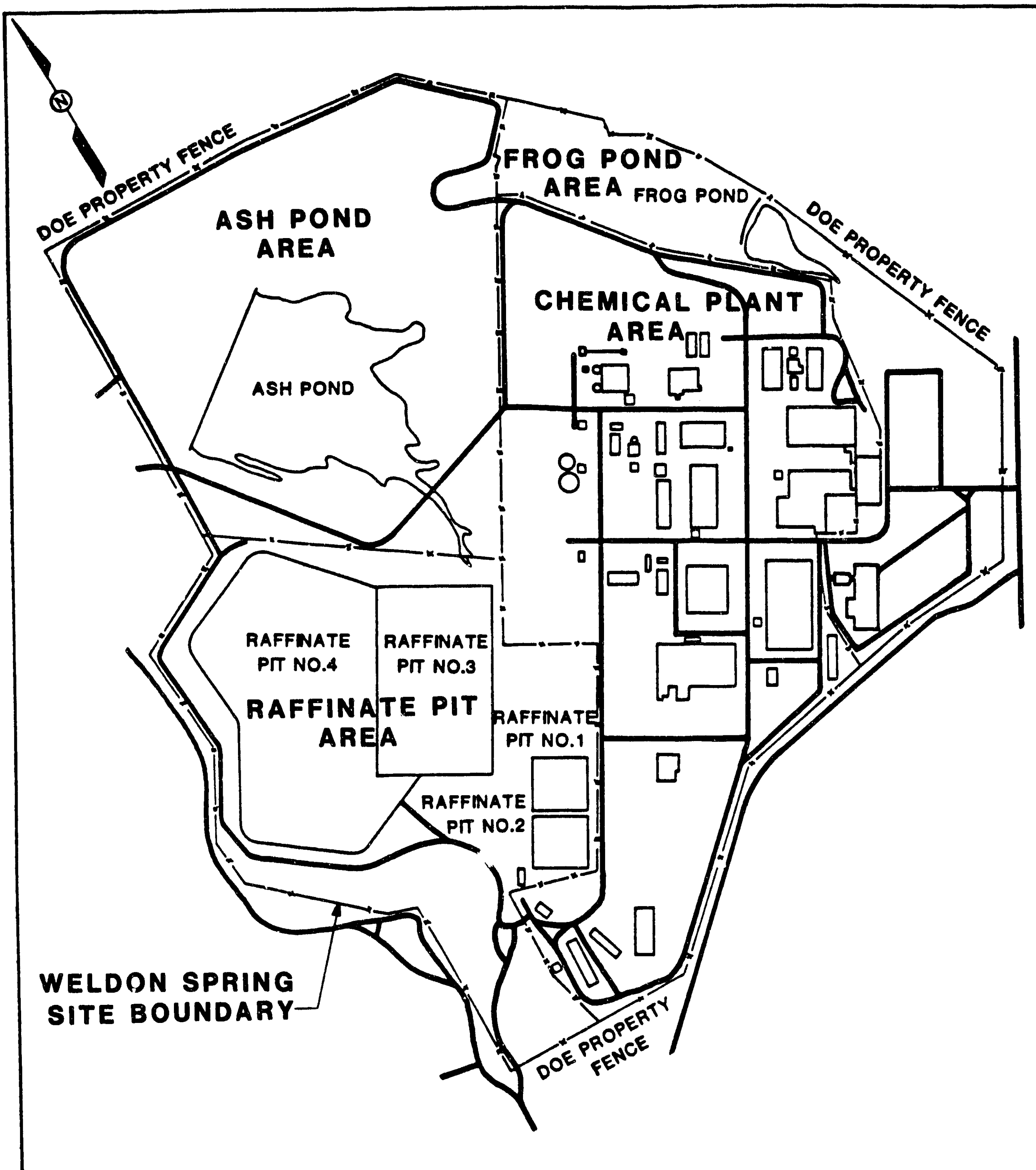
REPORT NO.: DOE/OR/21548-074		DRAWING NO.: A/VP/140/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



WELDON SPRING SITE VICINITY MAP

FIGURE 1.2-2

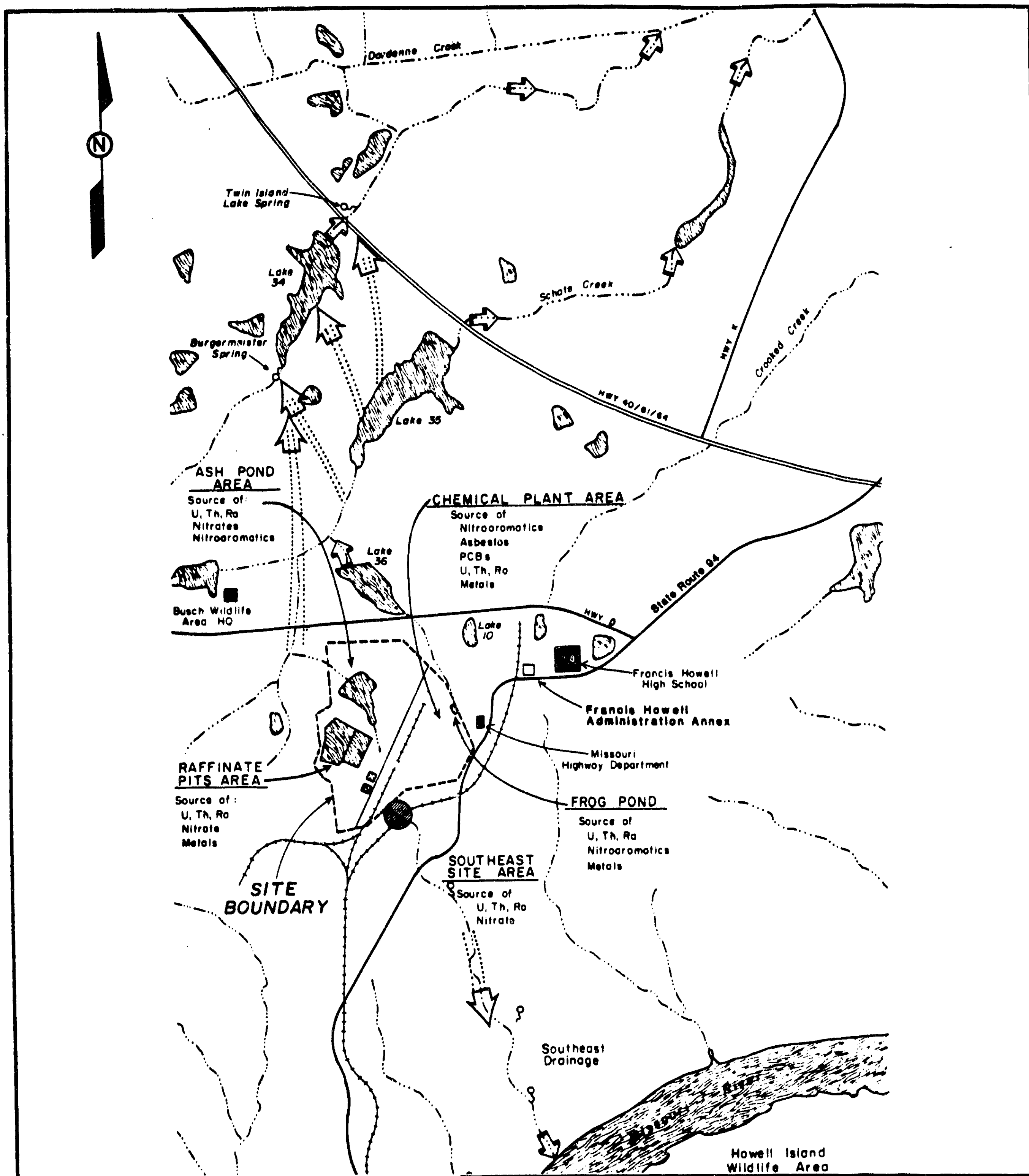
REPORT NO.: DOE/OR/21548-074		DRAWING NO.: A/VP/141/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	

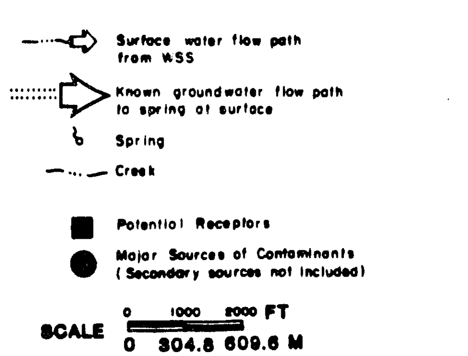


WELDON SPRING CHEMICAL PLANT AND RAFFINATE PITS

FIGURE 1.2-3

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/168/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	

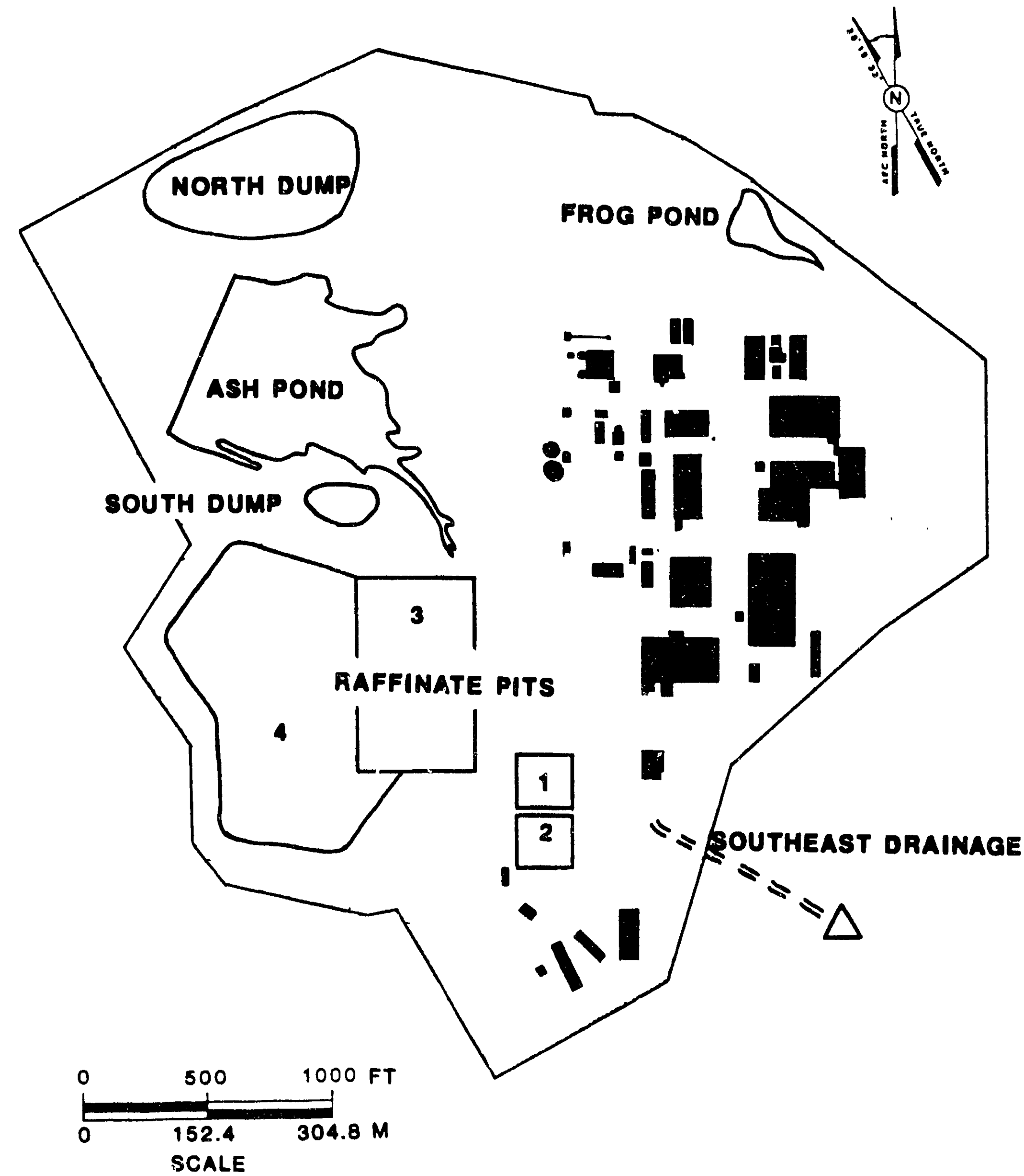




CONCEPTUAL MODEL FOR CONTAMINANT SOURCE, TRANSPORT & EXPOSURE

FIGURE 1.3-1

REPORT NO. DOE/OR/21548-074		EXHIBIT NO. A/VP/142/1191	
ORIGINATOR BLG	DRAWN BY GLN	DATE 11/91	



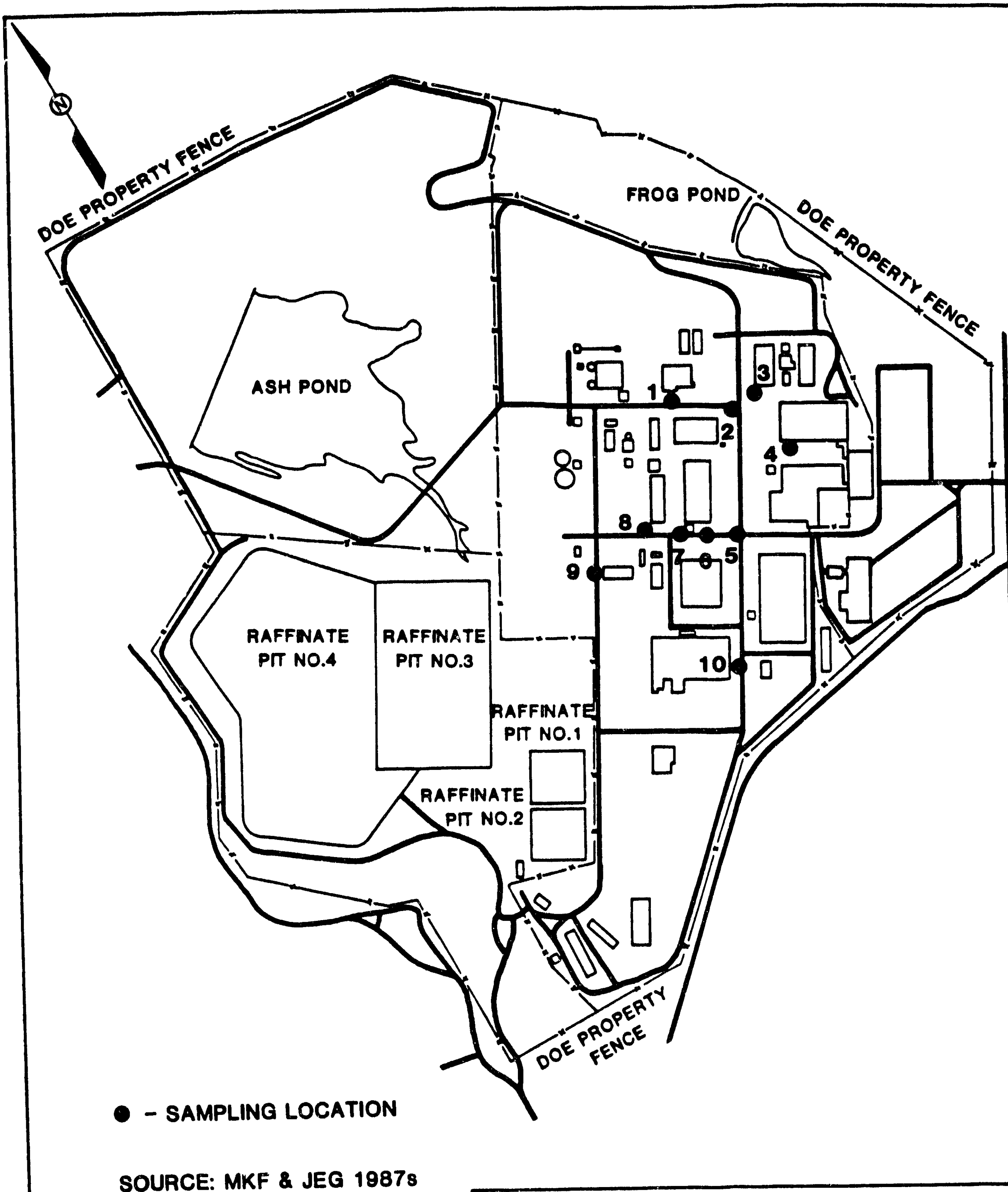
NOTE: WSCP Buildings shaded in black.

CONTAMINANT SOURCE AREAS

FIGURE 3.1-1

REPORT NO	DOE/OR/21548-074	EXHIBIT NO	A/CP/169/1191

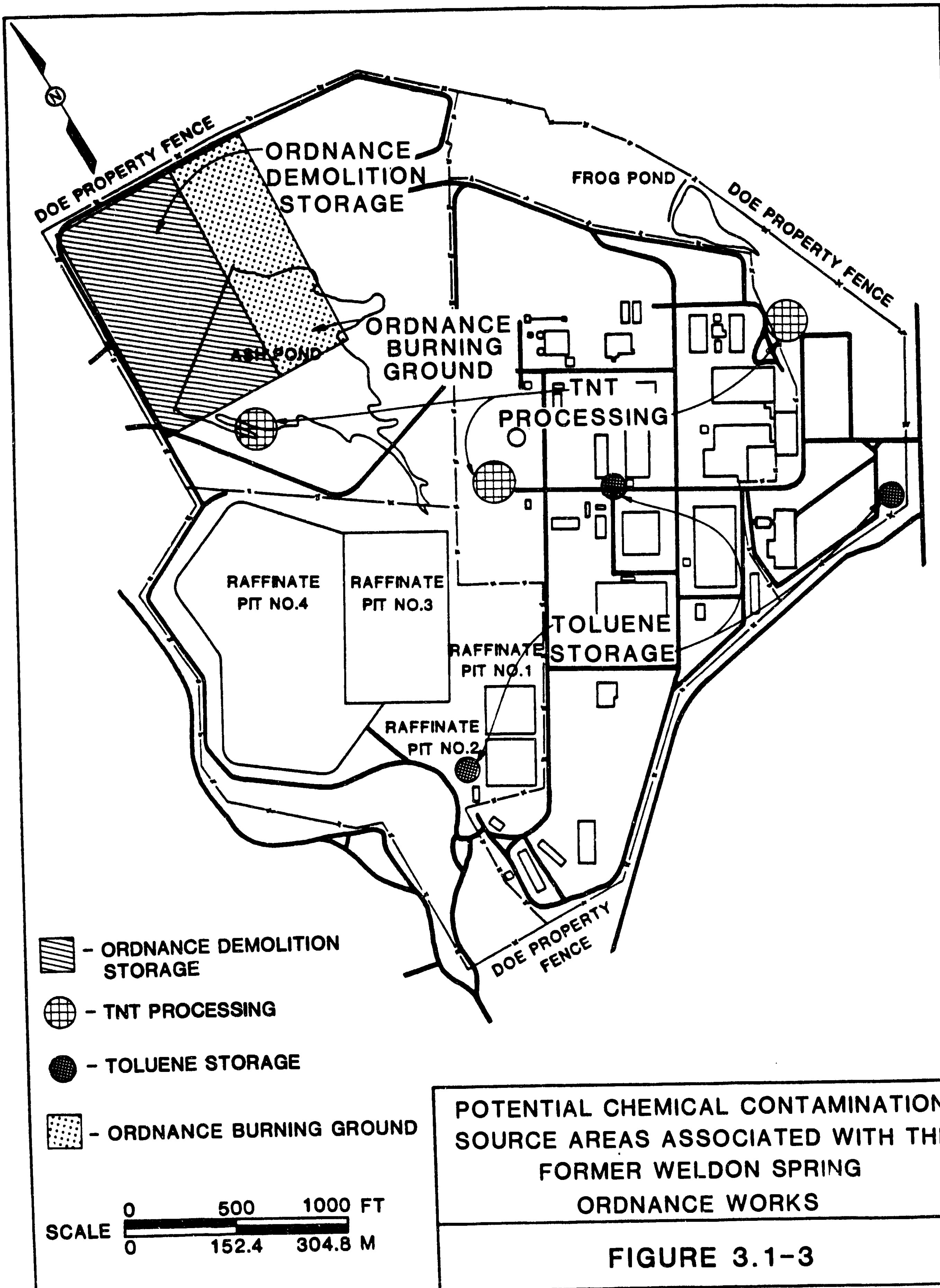
ORIGINATOR	BLG	DRAWN BY	GLN	DATE	11/91



SAMPLE LOCATIONS OF EXTERIOR BULK SAMPLING FOR ACM

FIGURE 3.1-2

REPORT NO.	DOE/OR/21548-074	EXHIBIT NO.	A/CP/170/1191		
ORIGINATOR	BLG	DRAWN BY	GLN	DATE	11/91

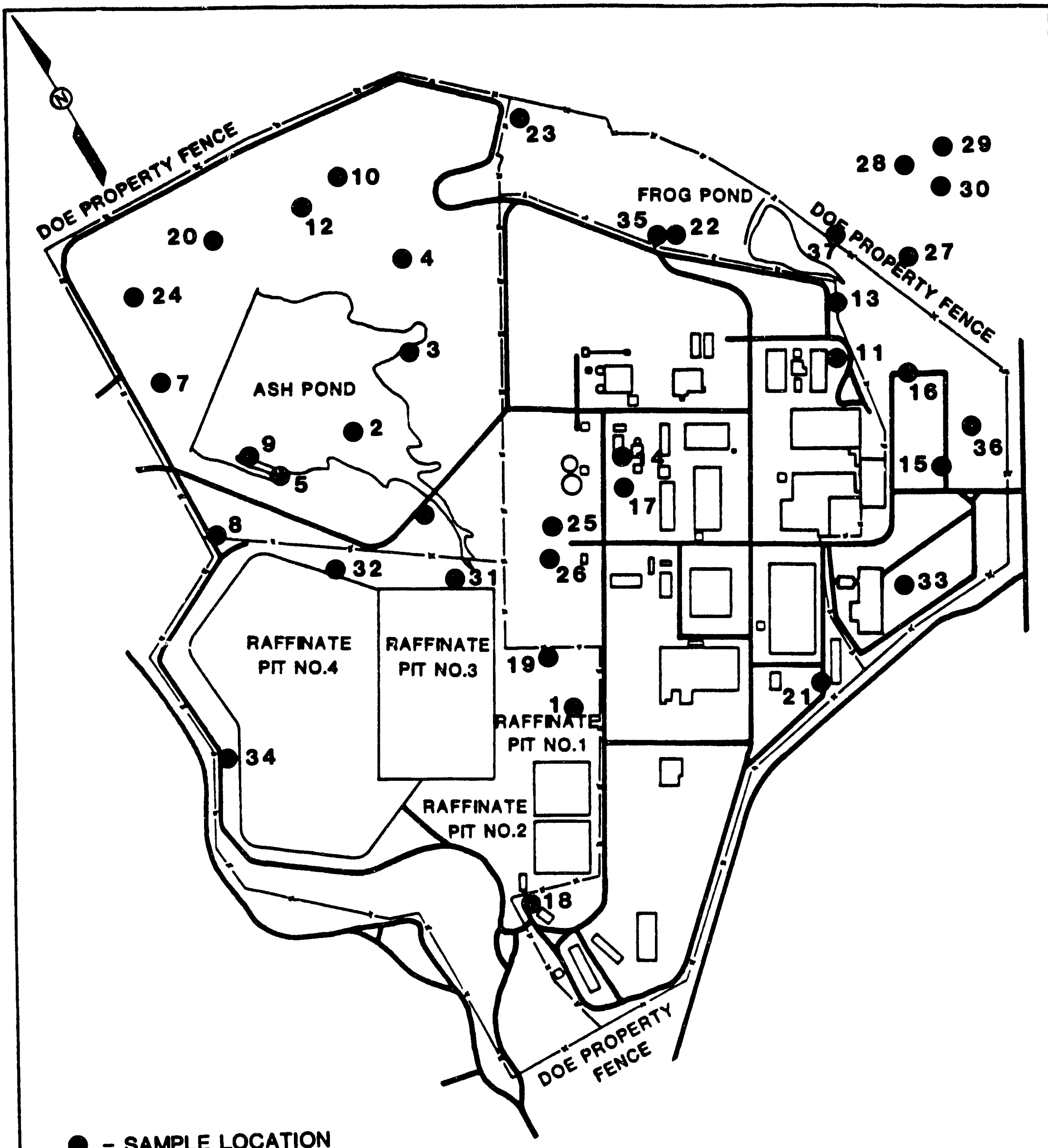


SOURCE: MKF & JEG 1988l

POTENTIAL CHEMICAL CONTAMINATION SOURCE AREAS ASSOCIATED WITH THE FORMER WELDON SPRING ORDNANCE WORKS

FIGURE 3.1-3

REPORT NO. DOE/OR/21548-074		EXHIBIT NO. A/CP/171/1191	
ORIGINATOR BLG	DRAWN BY GLN	DATE 11/91	



● - SAMPLE LOCATION

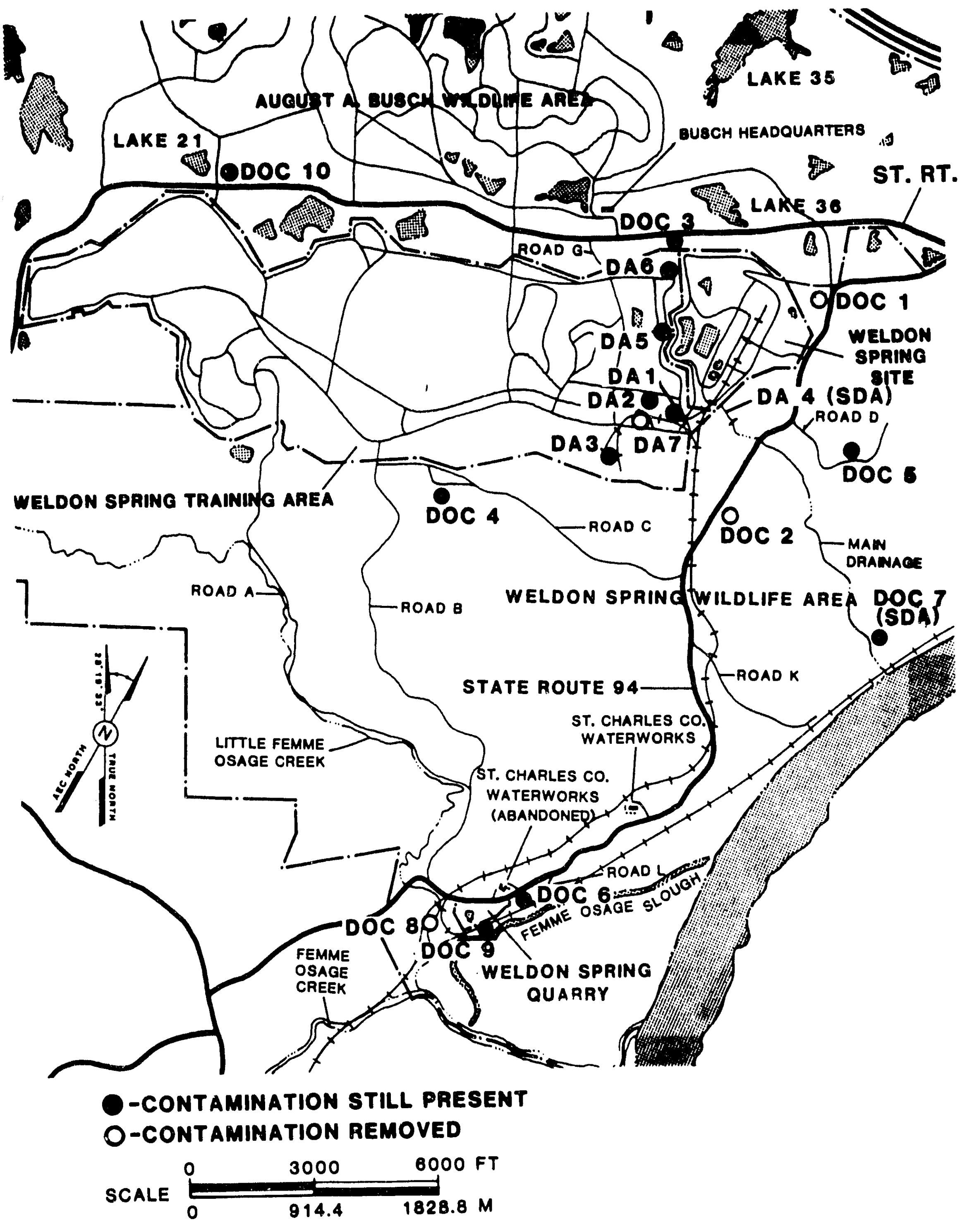
SOURCE: MKF & JEG 1988l

SCALE 0 500 1000 FT / 0 152.4 304.8 M

PHASE I SOIL SAMPLING LOCATIONS

FIGURE 3.2-1

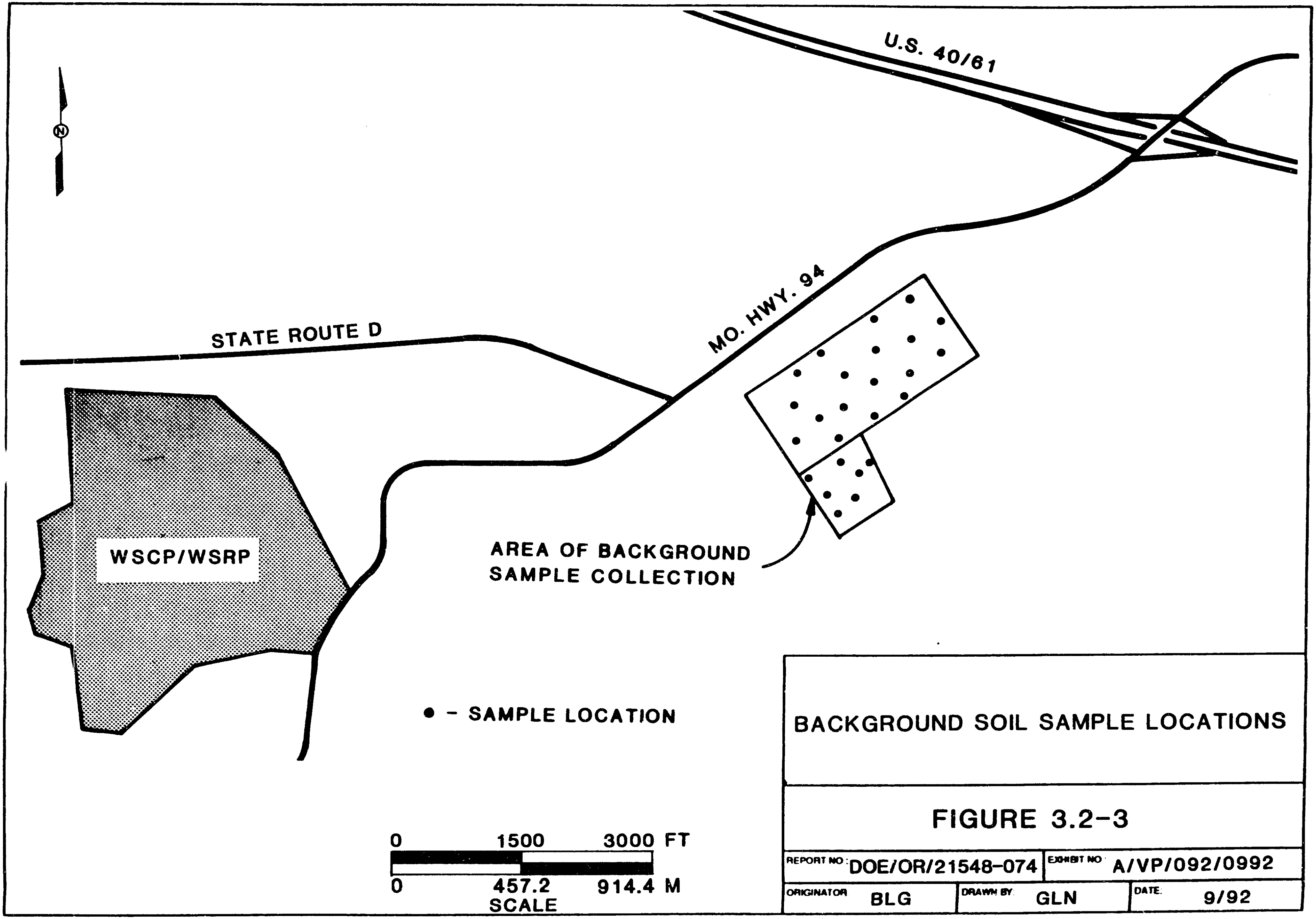
REPORT NO.: DOE/OR/21548-074			EXHIBIT NO.: A/CP/172/1191		
ORIGINATOR: BLG		DRAWN BY: GLN		DATE: 11/91	



RADIOLOGICALLY CONTAMINATED PROPERTY LOCATIONS

FIGURE 3.2-2

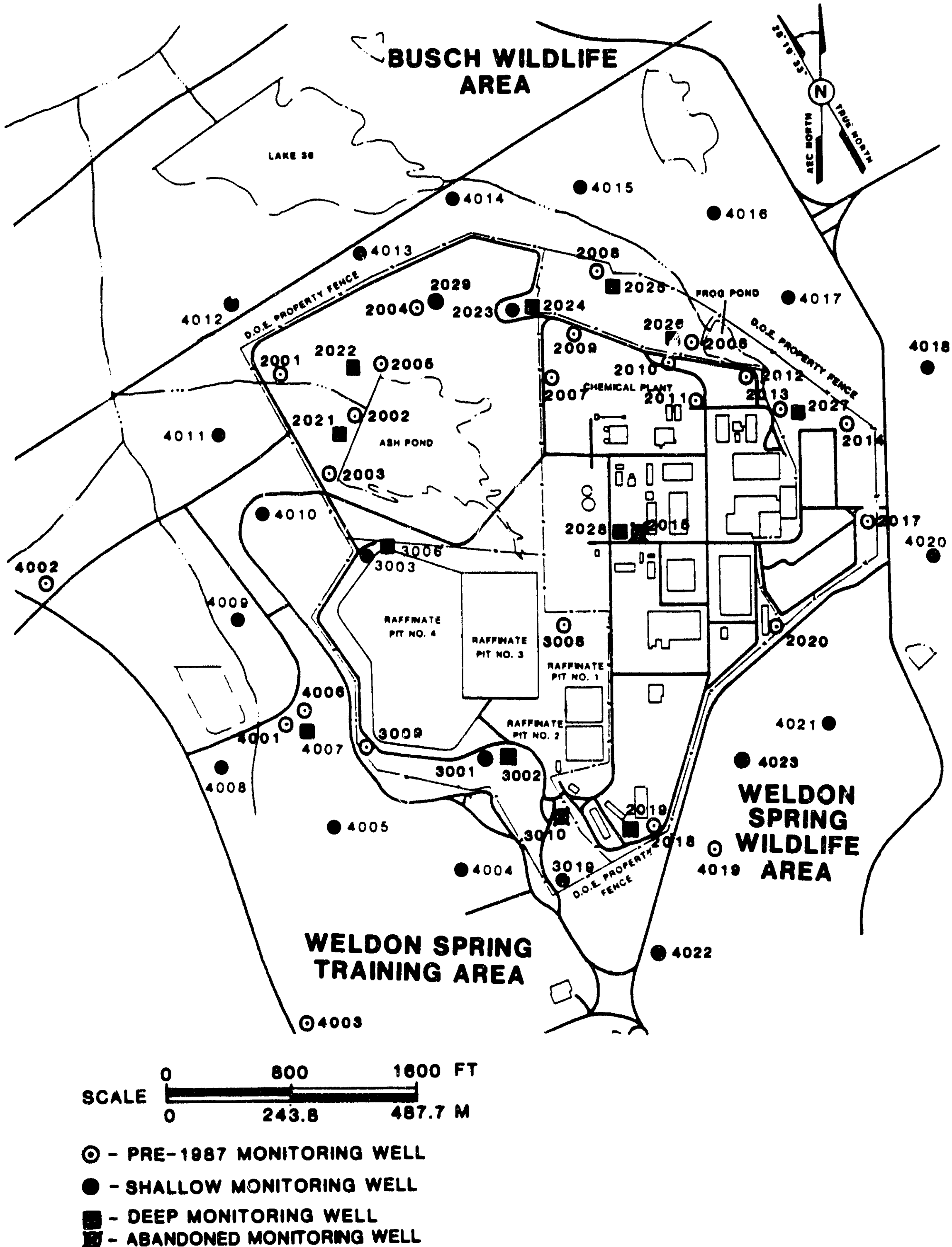
REPORT NO	DOE/OR/21548-074	EXHIBIT NO	A/VP/143/1191
ORIGINATOR BLG	DRAWN BY GLN	DATE	11/91



BACKGROUND SOIL SAMPLE LOCATIONS

FIGURE 3.2-3

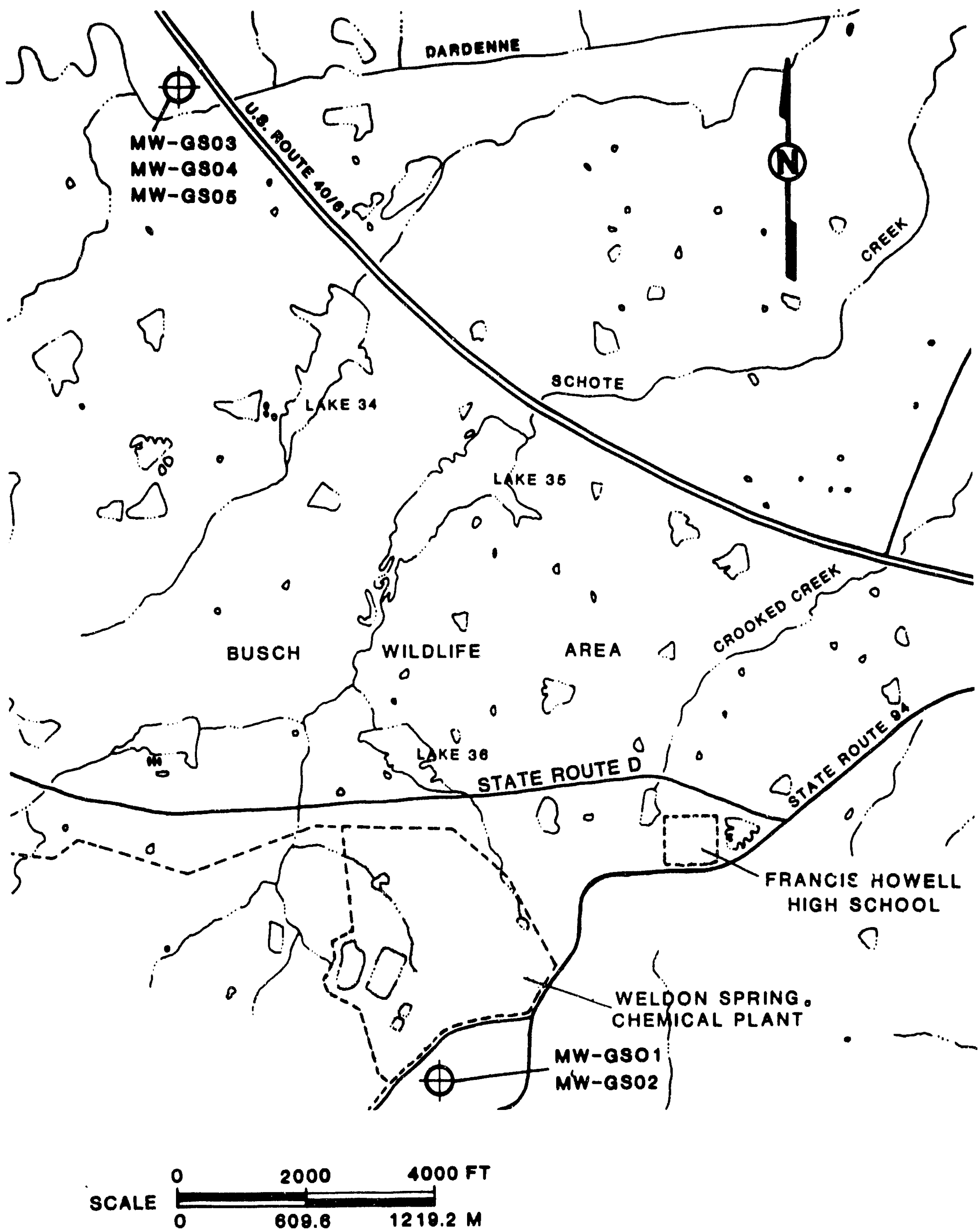
REPORT NO: DOE/OR/21548-074		EXHIBIT NO: A/VP/092/0992	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 9/92	



EXTENDED MONITORING WELL NETWORK

FIGURE 3.4-1

REPORT NO DOE/OR/21548-074		EXHIBIT NO A/CP/173/1191	
ORIGINATOR BLG	DRAWN BY GLN	DATE 11/91	

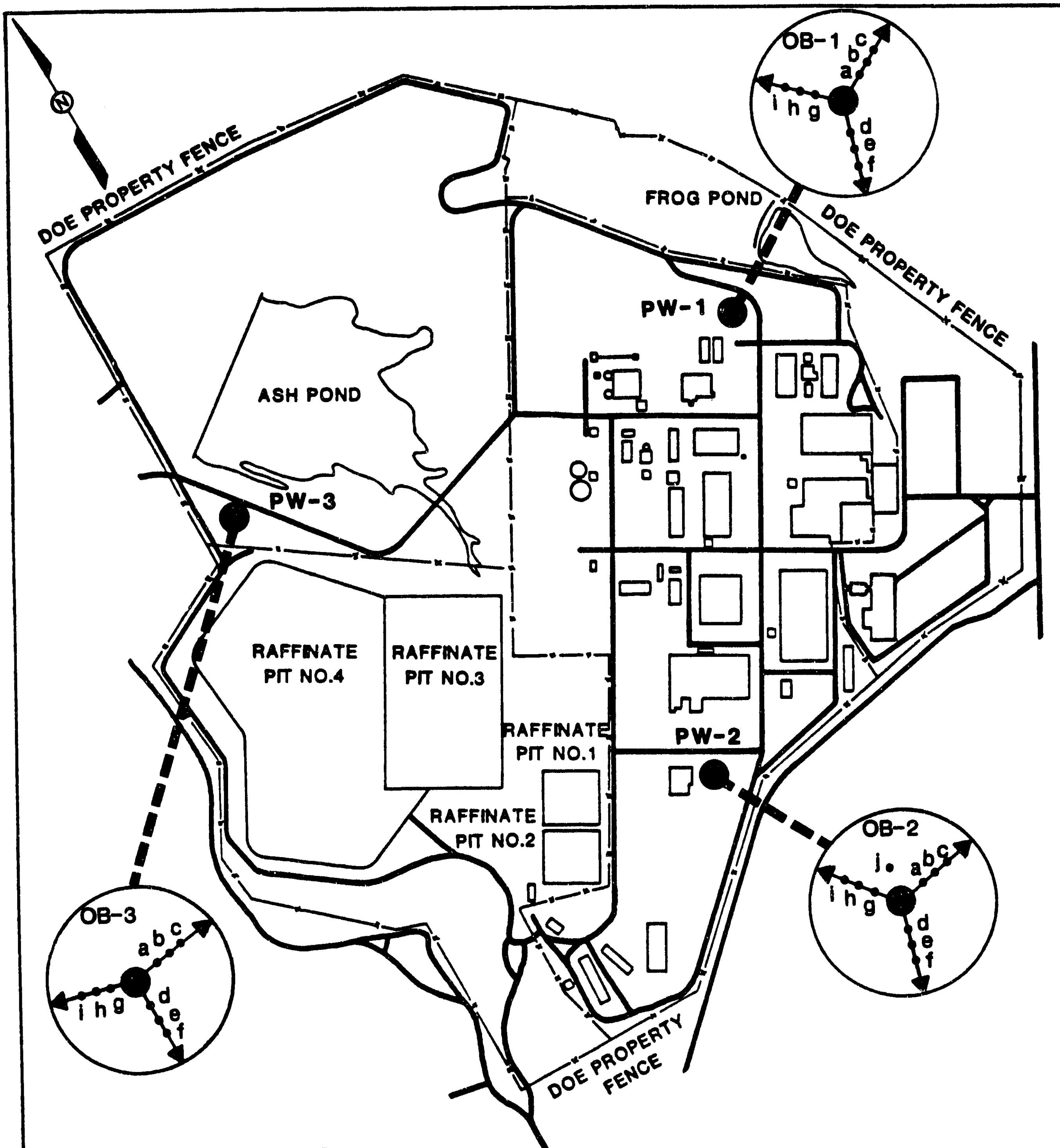


SOURCE MKF & JEG 1990

DEEP USGS MONITORING WELL
CLUSTER LOCATION

FIGURE 3.4-2

REPORT NO. DOE/OR/21548-074		EXHIBIT NO. A/VP/144/1191	
ORIGINATOR BLG	DRAWN BY GLN	DATE 11/91	



PW-1 - PUMP WELL TEST

OB-1 - OBSERVATION WELL NETWORK

a-j - INDIVIDUAL OBSERVATION WELLS

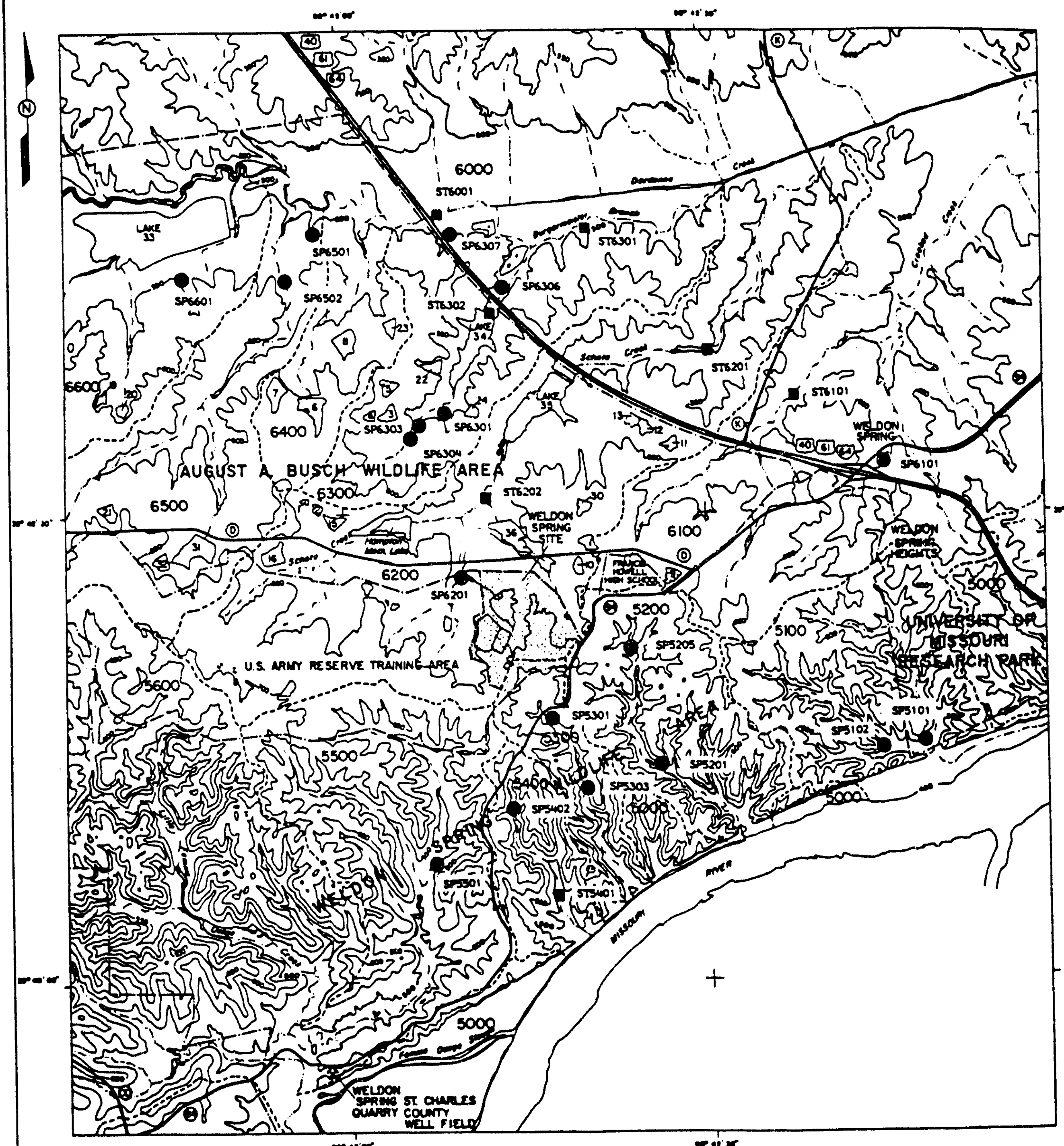
SCALE 0 500 1000 FT / 0 152.4 304.8 M

SOURCE MKF & JEG 1990

PUMPING AND OBSERVATION WELL LOCATIONS

FIGURE 3.4-3

REPORT NO. DOE/OR/21548-074		EXHIBIT NO. A/CP/174/1191
ORIGINATOR BLG	DRAWN BY GLN	DATE 11/91



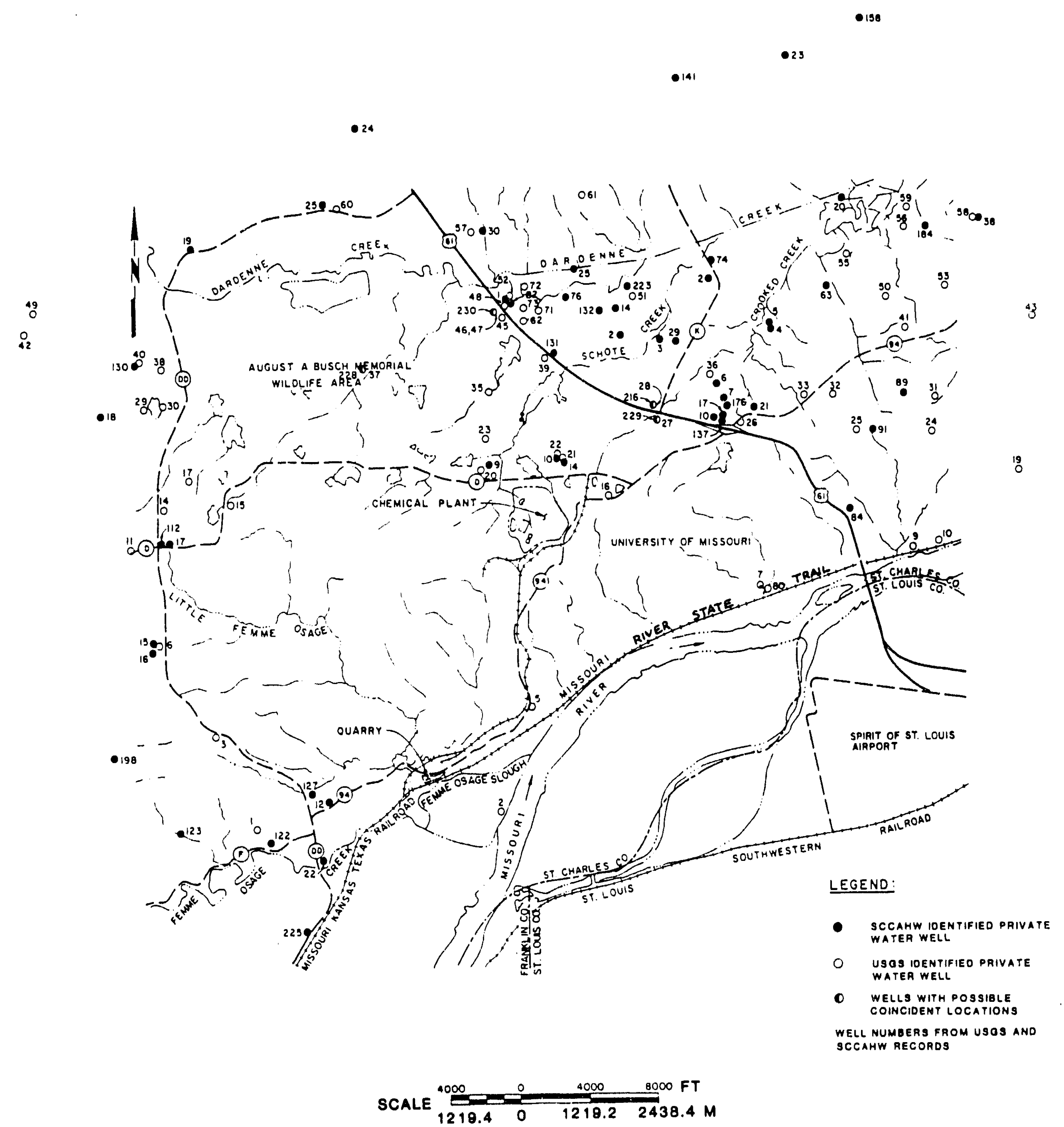
0 1 2 MI
0 1.6 3.2 KM

SOURCE: MDNR 1989b

WATER TRACING SAMPLE LOCATIONS

FIGURE 3.4-4

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/145/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91

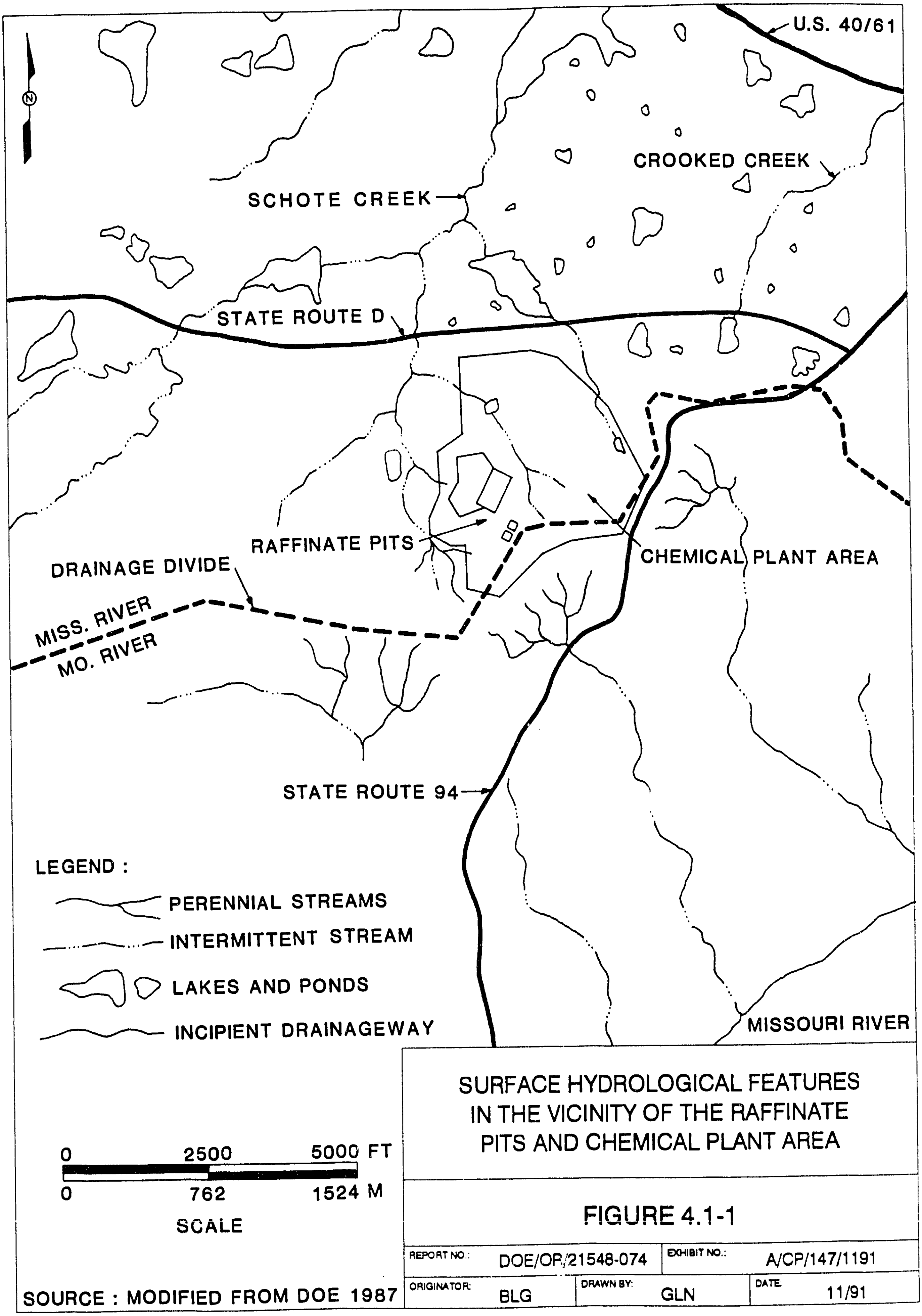


SOURCE MKF & JEG 1990

PRELIMINARY MAP OF PRIVATE WATER WELLS IN THE VICINITY OF THE WSS

FIGURE 3.4-5

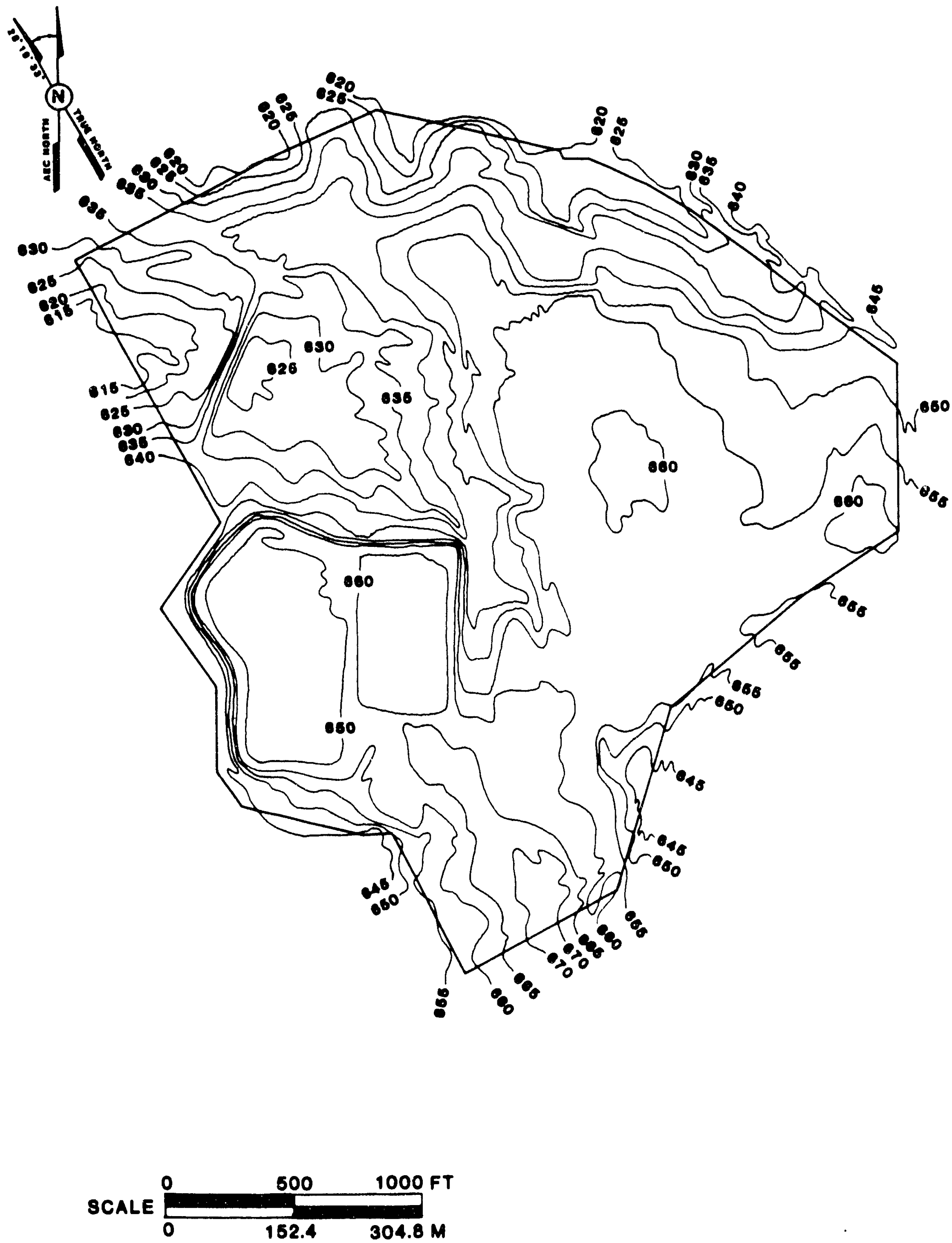
REPORT NO: DOE/OR/21548-074		EXHIBIT NO. A/VP/146/1191	
ORIGINATOR BLG	DRAWN BY GLN	DATE 11/91	



SURFACE HYDROLOGICAL FEATURES IN THE VICINITY OF THE RAFFINATE PITS AND CHEMICAL PLANT AREA

FIGURE 4.1-1

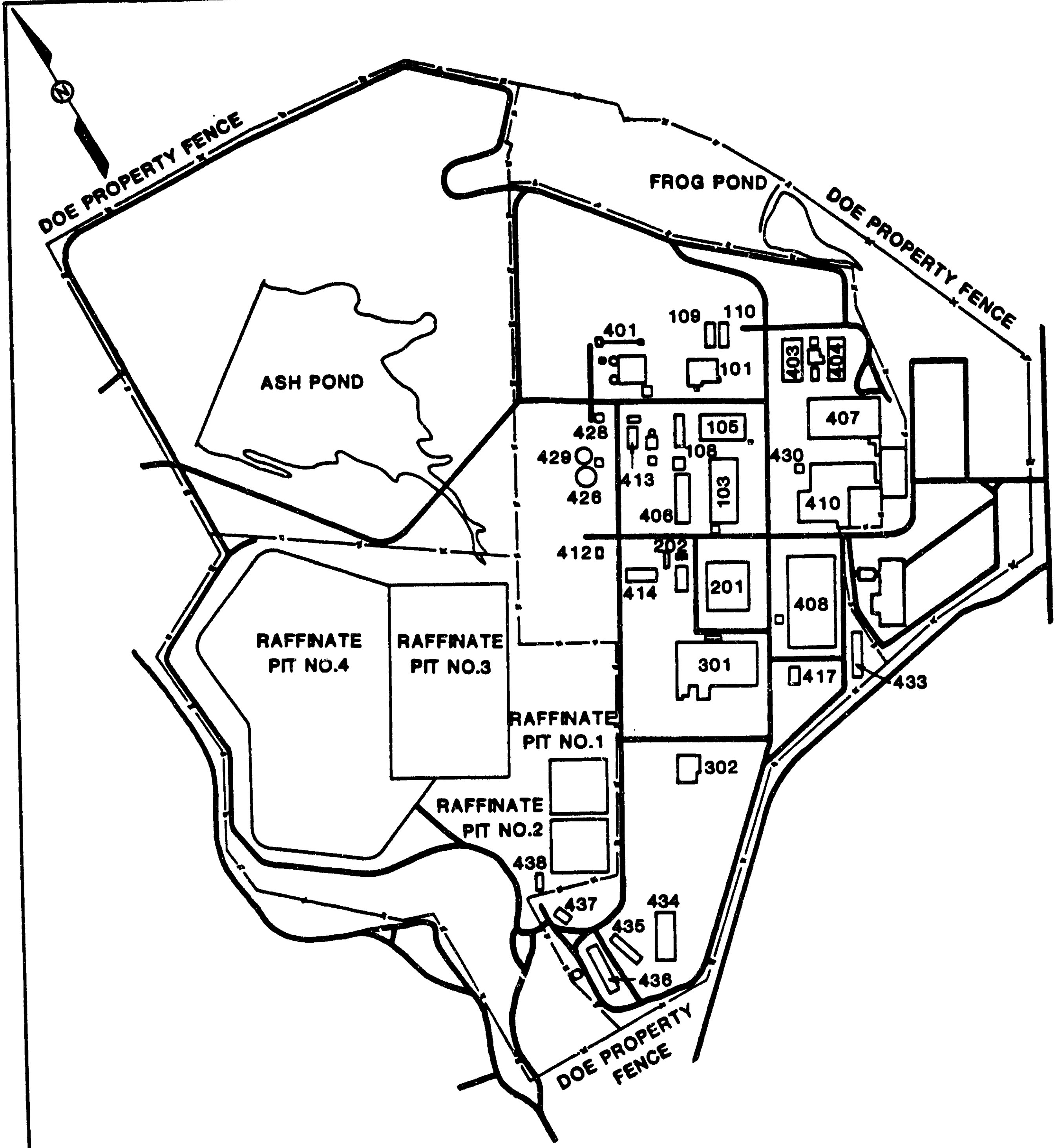
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/147/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



TOPOGRAPHIC MAP OF THE
WELDON SPRING AREA
(ELEVATIONS IN FEET ABOVE MSL)

FIGURE 4.1-2

REPORT NO	DOE/OR/21548-074	EXHIBIT NO.	A/CP/175/1191
ORIGINATOR	BLG	DRAWN BY	GLN
DATE	11/91		



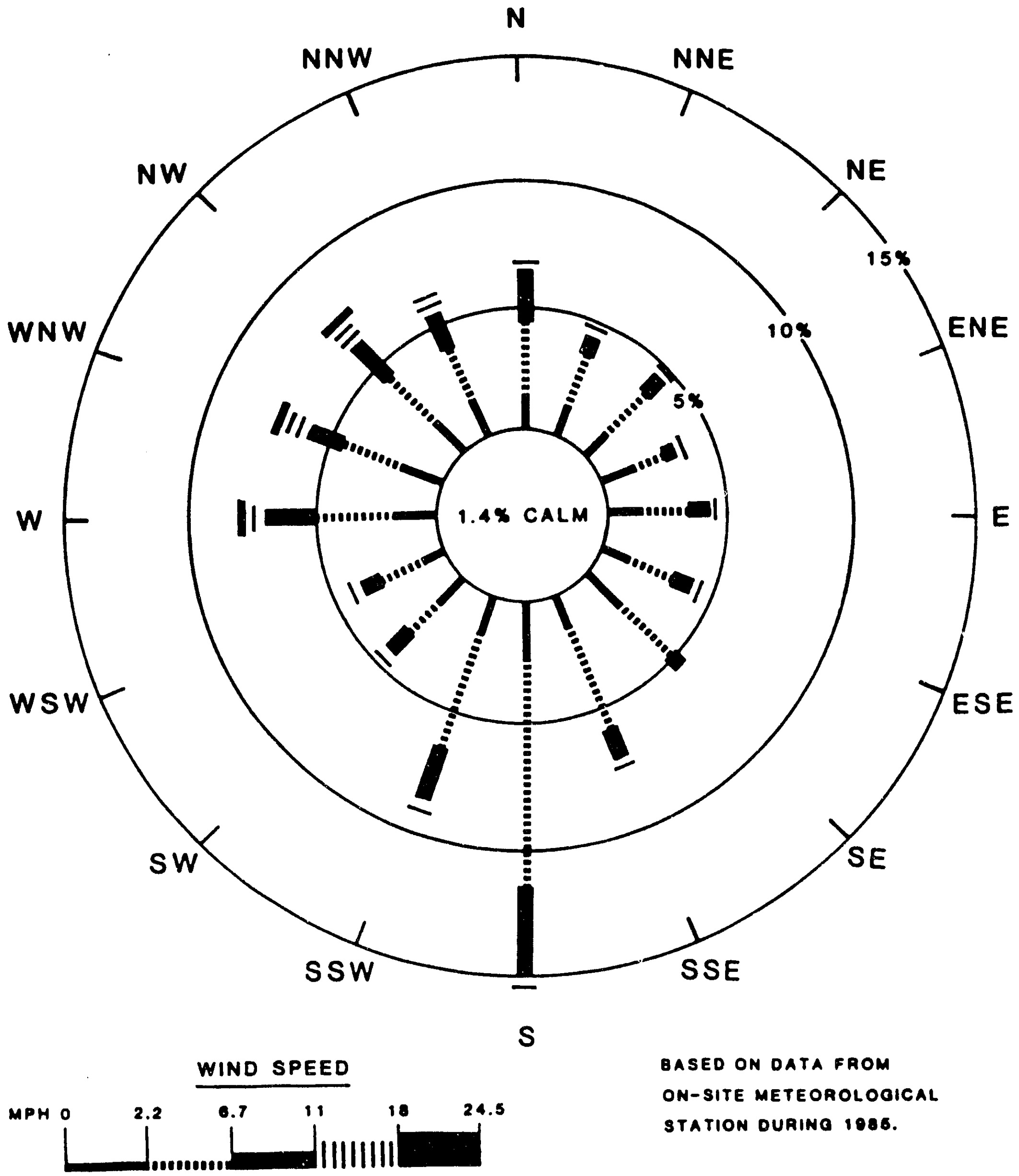
SOURCE MKF & JEG 1987

SCALE 0 500 1000 FT
0 152.4 304.8 M

MAP OF THE WSCP/WSRP

FIGURE 4.1-3

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/176/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	

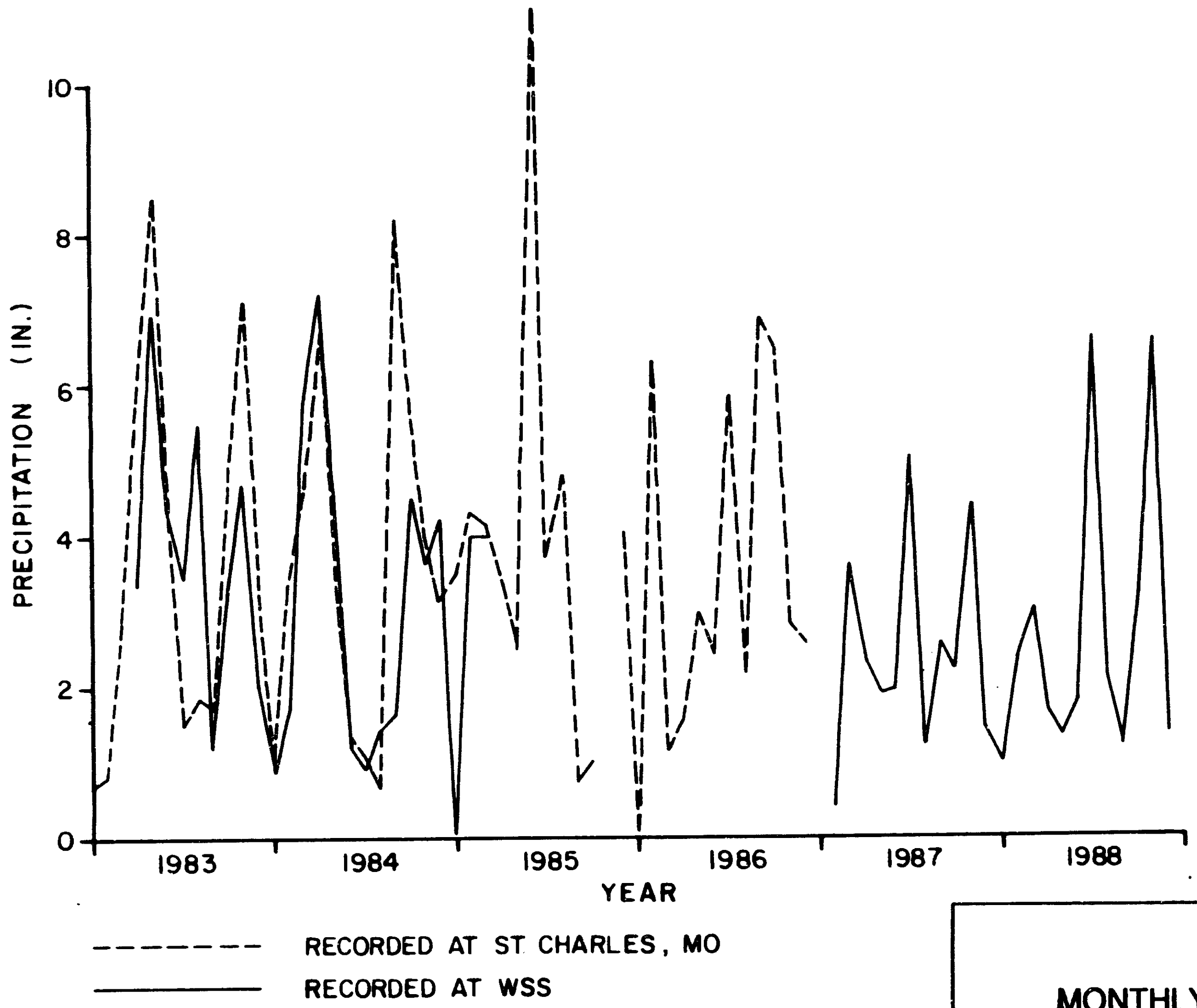


SOURCE : BNI 1986c

ANNUAL WIND ROSE FOR
THE WSS - 1985

FIGURE 4.2-1

REPORT NO.	DOE/OR/21548-074	EXHIBIT NO.	A/PI/227/1191		
ORIGINATOR	BLG	DRAWN BY	GLN	DATE	11/91

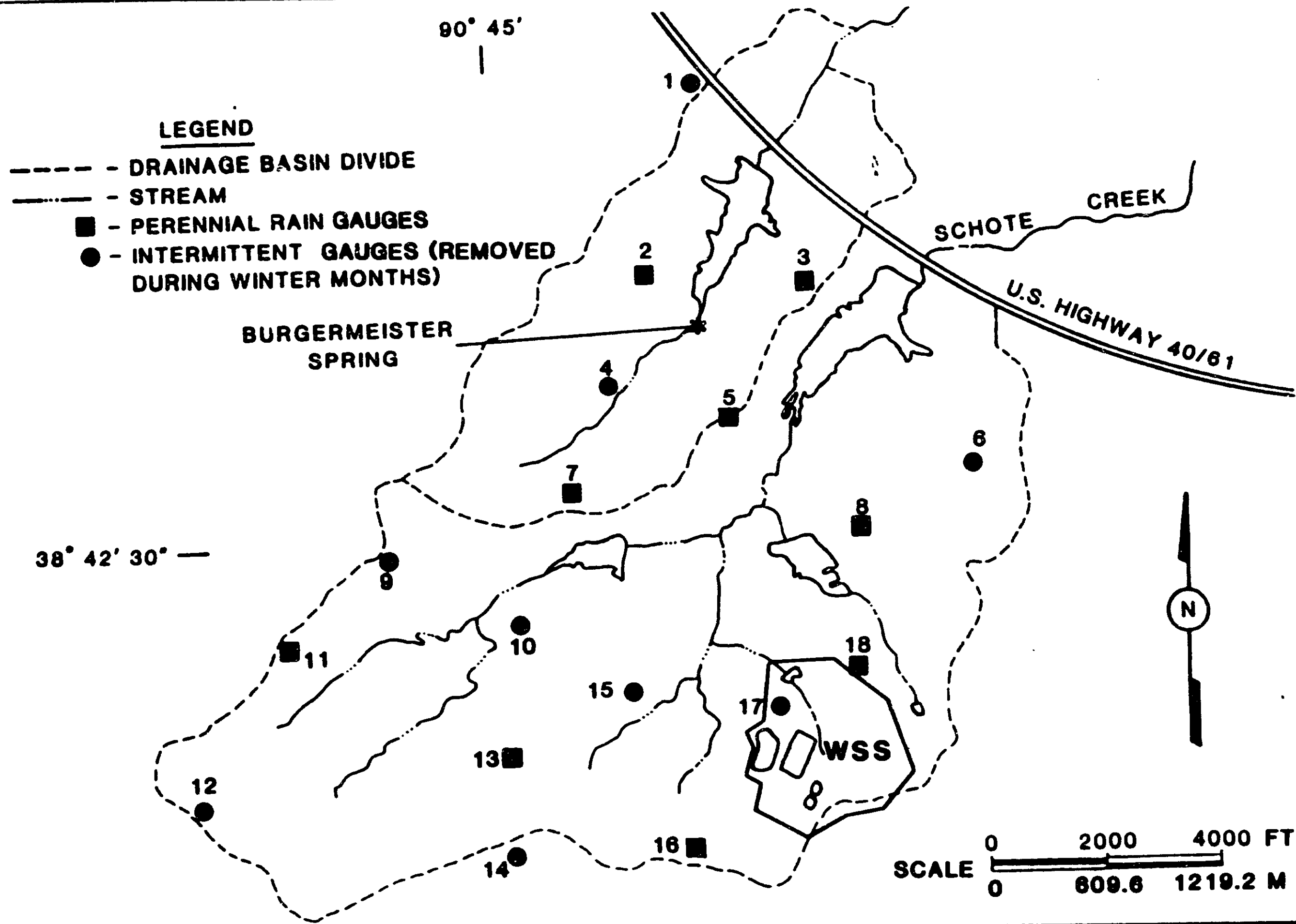


SEE SECTION 12 FOR CONVERSION FACTORS
SOURCES: NOAA 1981-1986; 1984; BNI 1986a; MKF AND JEG 1989f

MONTHLY PRECIPITATION 1983-1988

FIGURE 4.2-2

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/PI/228/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



SOURCE: MKF & JEG 1988I

LOCATION OF USGS RAIN GAUGES			
FIGURE 4.2-3			
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/148/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	

SYSTEM	SERIES	STRATIGRAPHIC UNIT	TYPICAL THICKNESS (FT)'	LITHOLOGY	PHYSICAL CHARACTERISTICS	AQUIFER DESIG
QUATERNARY	HOLOCENE	Alluvium	0.5-4		Gravelly, silty loam	
	PLEISTOCENE	Loess and Glacial Drift	15-55	Variable	Silty clay, gravelly clay, silty loam, clay, or loam over residuum from weathered bedrock	
MISSISSIPPIAN	MERAMECIAN	Salem Formation	0-15		Limestone, limey dolomite, finely to coarsely crystalline, massively bedded, and thin bedded shale	*
		Warsaw Formation	60-80		Shale and thin to medium bedded finely crystalline limestone with interbedded chert	*
	OSAGEAN	Burlington and Keokuk Limestones	100-200		Cherty limestone, very fine to very coarsely crystalline, fossiliferous, thickly bedded to massive	SHALLOW BEDROCK AQUIFER
		Fern Glen Limestone	45-70		Cherty limestone, dolomitic in part, very fine to very coarsely crystalline, medium to thickly bedded	
	KINDERHOOKIAN	Chouteau Limestone	20-50		Dolomitic, argillaceous limestone, finely crystalline, thin to medium bedded	
		Bushberg Sandstone	40-55		Quartz arenite, fine to medium grained, friable	
DEVONIAN	UPPER	Lower Part of Sulfur Spring Group undifferentiated			Calcareous siltstone, sandstone, oolitic limestone, and hard carbonaceous shale	
ORDOVICIAN	CINCINNATIAN	Maquoketa Shale	10-30		Calcareous to dolomitic silty shale and mudstone, thinly laminated to massive	LEAKY CONFINING LAYER
	CHAMPLAINIAN	Kimmswick Limestone	70-100		Limestone, coarsely crystalline, medium to thickly bedded, fossiliferous and cherty near base	
		Decorah Formation	30-60		Shale with thin interbeds of very finely crystalline limestone	
		Plattin Limestone	100-130		Dolomitic limestone, very finely crystalline, fossiliferous, thinly bedded	
		Joachim Dolomite	80-105		Interbedded very finely crystalline, thinly bedded dolomite, limestone, and shale. Sandy at base	
		St. Peter Sandstone	120-150		Quartz arenite, fine to medium grained, massive	DEEP BEDROCK AQUIFER
	CANADIAN	Powell Dolomite	50-60		Sandy dolomite, medium to finely crystalline, minor chert and shale	
		Cotter Dolomite	200-250		Argillaceous, cherty dolomite, fine to medium crystalline. Interbedded with shale	
		Jefferson City Dolomite	160-180		Dolomite, fine to medium crystalline	
		Roubidoux Formation	150-170		Dolomitic sandstone	
		Gasconade Dolomite	250		Cherty dolomite and arenaceous dolomite (Gunter Member)	
CAMBRIAN	UPPER	Eminence Dolomite	200		Dolomite, medium to coarsely crystalline, medium bedded to massive	
		Potosi Dolomite	100		Dolomite, fine to medium crystalline, thickly bedded to massive. Drusy quartz common	

'Thickness data sources vary. Quaternary unit thicknesses based on on-site drilling and trenching. Burlington and Keokuk through Joachim Dolomite based on USGS wells MW GS02 and GS05. St. Peter Sandstone and below from Kleeschulte and Emmett (1987). Warsaw and Salem Formations from Missouri DNR-DGLS Geologic Map OFM-89-252 GI (1989).

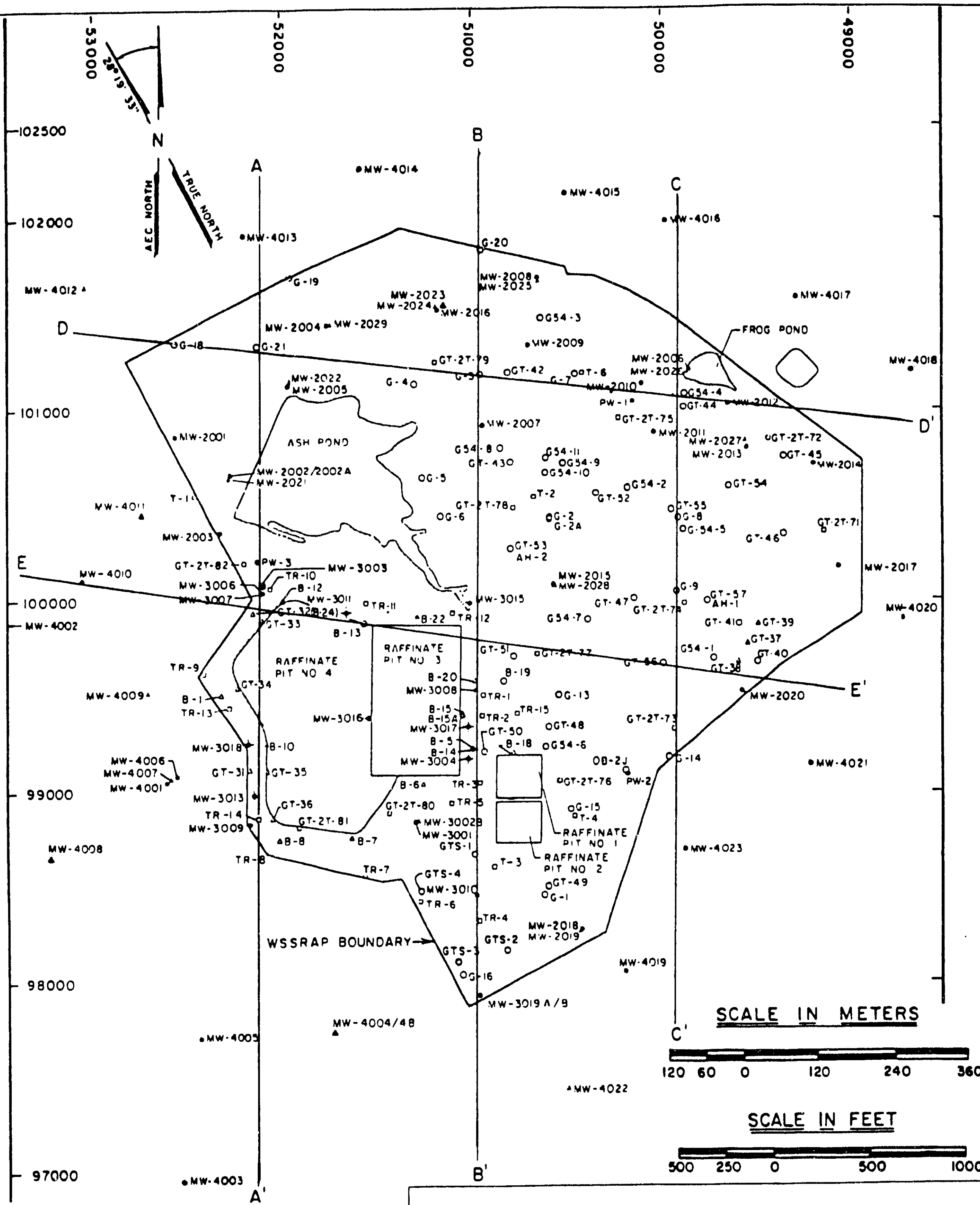
*The Warsaw and Salem Formations are not believed to be saturated in the WSS vicinity.

SEE SECTION 12 FOR CONVERSION FACTORS

GENERALIZED STRATIGRAPHIC COLUMN

FIGURE 4.3-1

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/PI/229/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



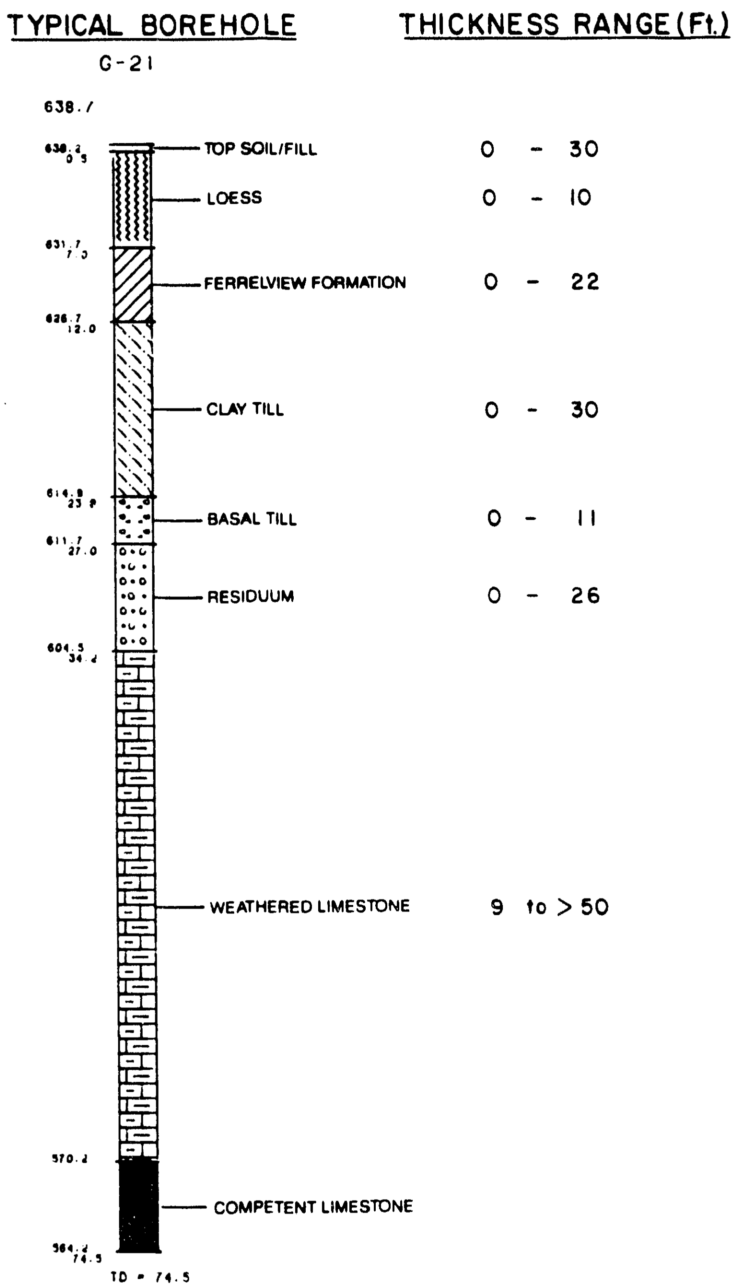
LEGEND

- • MONITOR WELL (WEATHERED BEDROCK)
- ▲ MONITOR WELL (COMPETENT BEDROCK)
- ○ BOREHOLE
- △ PIEZOMETER
- ✦ OVERBURDEN WELL
- □ TRENCH
- A - A' CROSS SECTION LOCATION

BOREHOLE AND TRENCH LOCATION MAP WITH CROSS SECTIONS

FIGURE 4.3-2

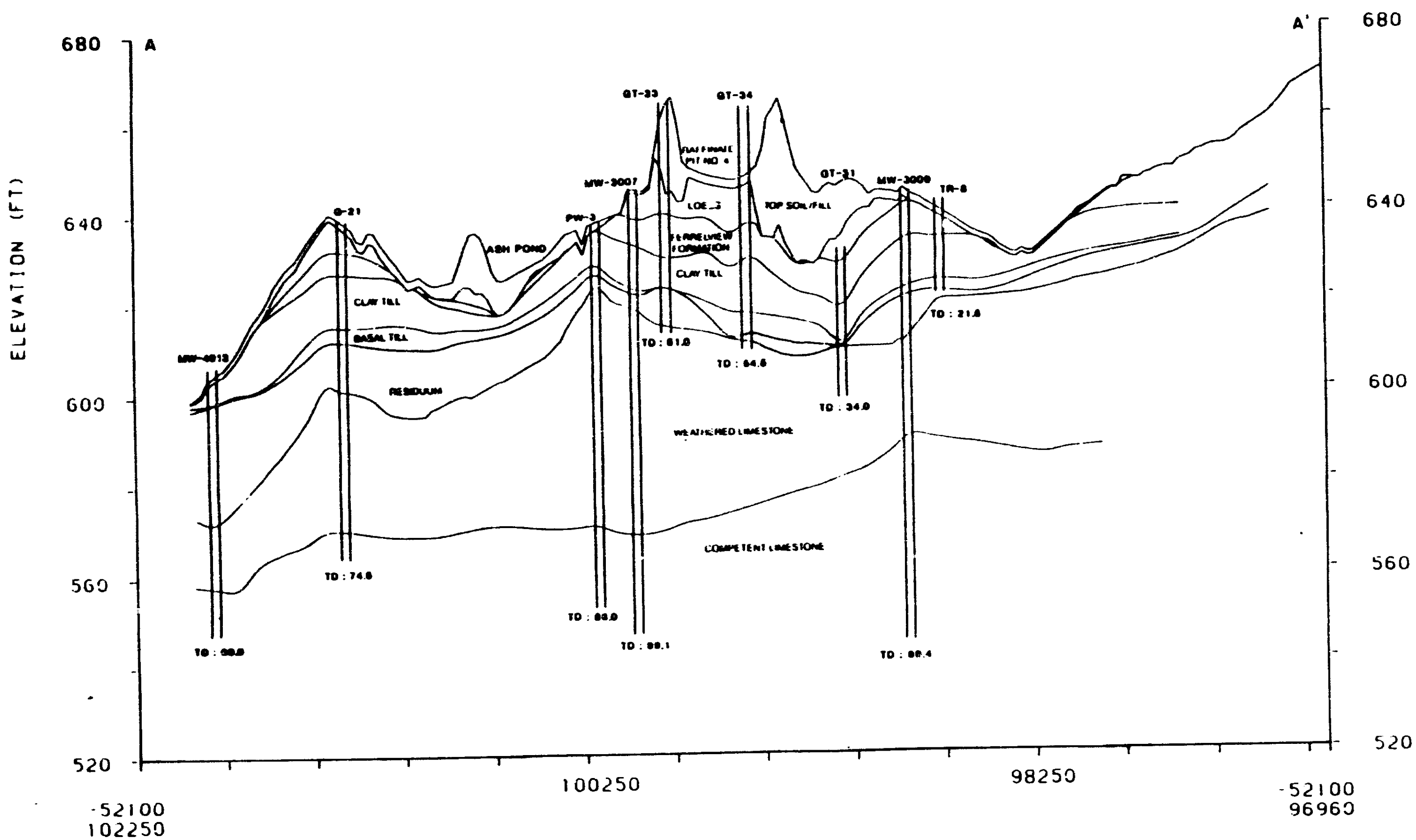
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/177/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



TYPICAL BOREHOLE LITHOLOGY

FIGURE 4.3-3

REPORT NO. DOE/OR/21548-074		EXHIBIT NO A/PI/230/1191	
ORIGINATOR BLG	DRAWN BY GLN	DATE 11/91	



Scale

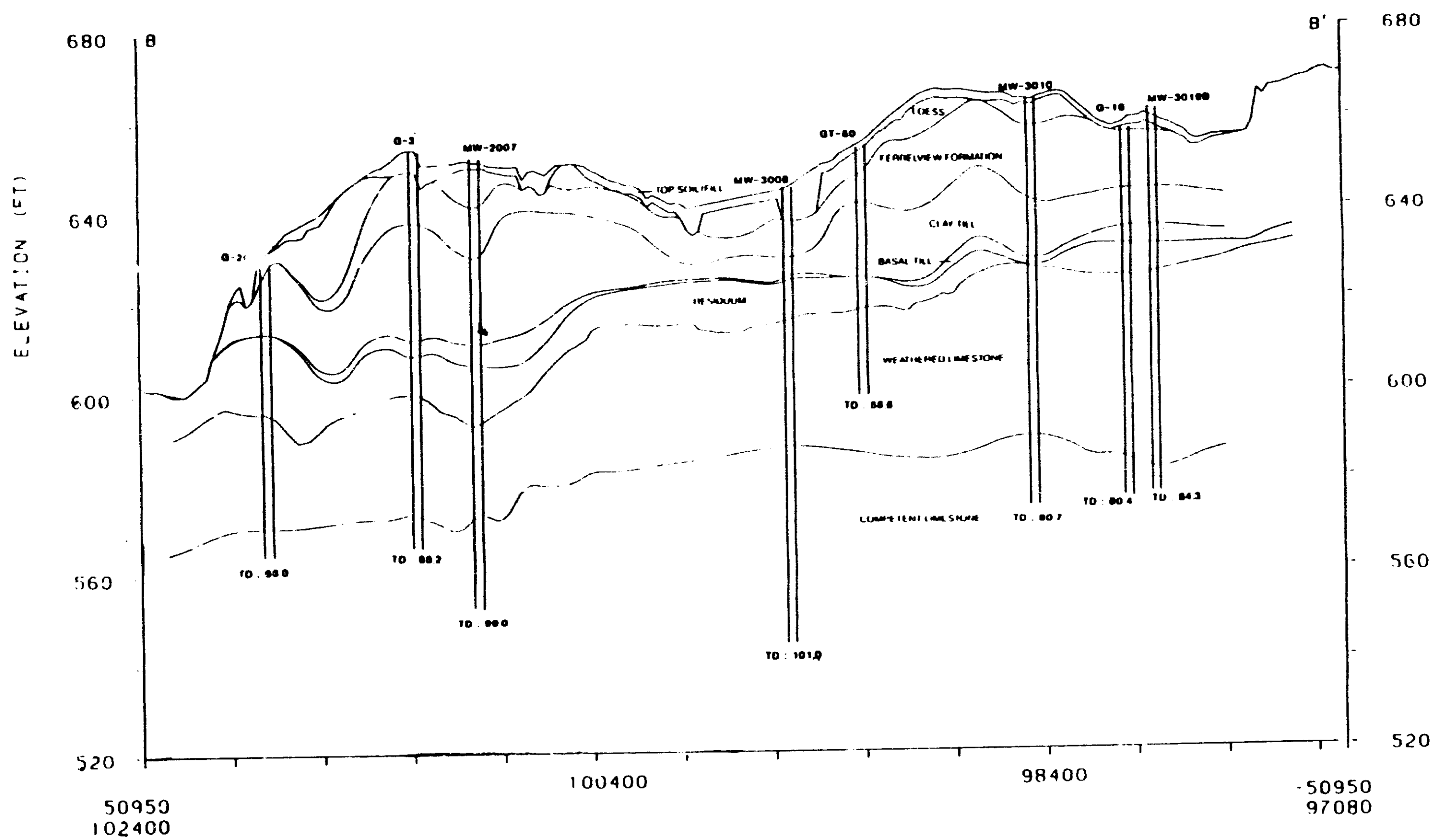
Horz Scale 1 unit = 122 M (400 ft)
Vert Scale 1 unit = 61 M (20 ft)

SEE SECTION 12 FOR CONVERSION FACTORS

GEOLOGIC CROSS SECTION A-A'

FIGURE 4.3-4

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/178/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



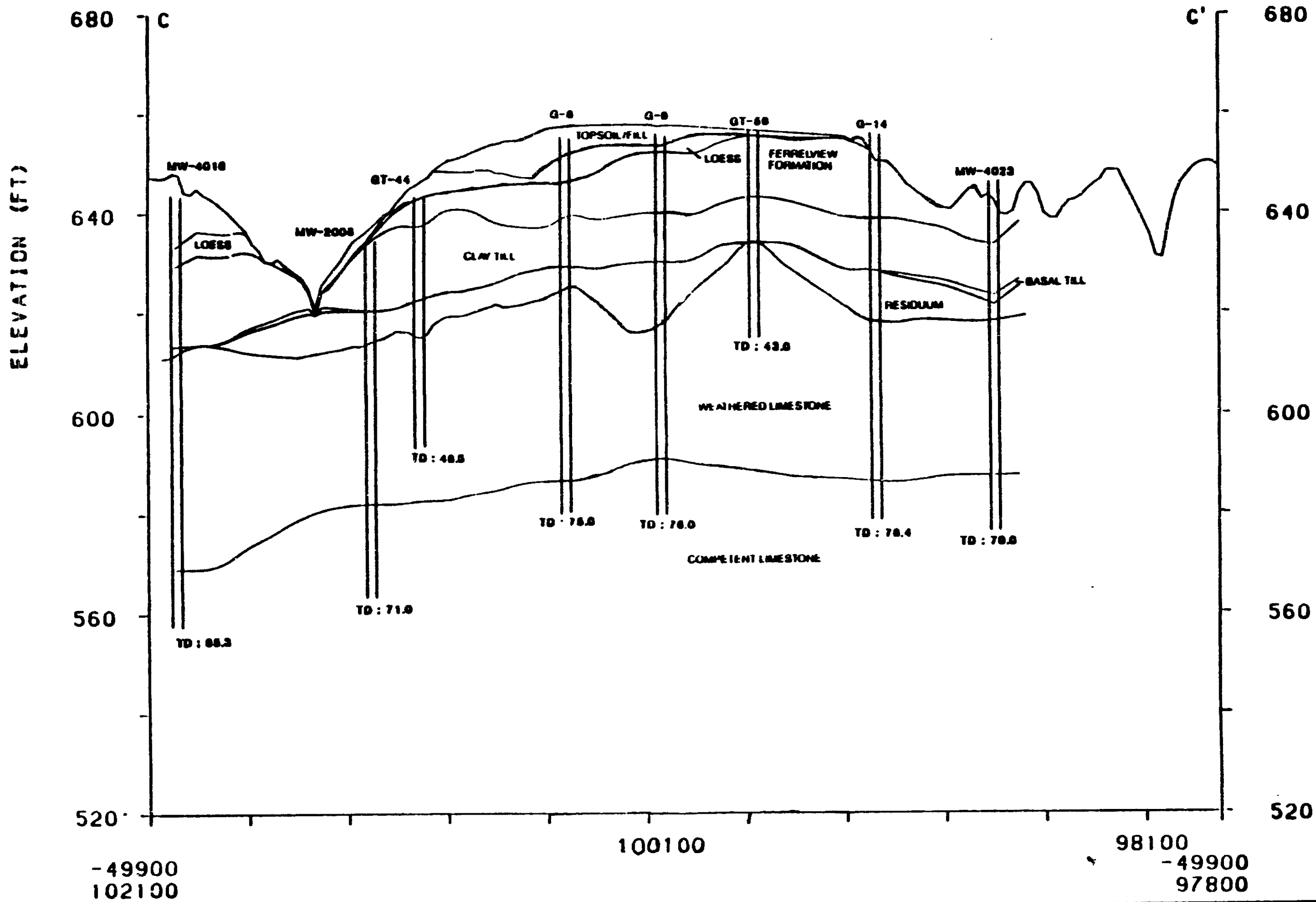
Scale
Horz Scale 1 unit = 122 M (400 ft)
Vert Scale 1 unit = 61 M (20 ft)

SEE SECTION 12 FOR CONVERSION FACTORS

GEOLOGIC CROSS SECTION B-B'

FIGURE 4.3-5

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/179/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



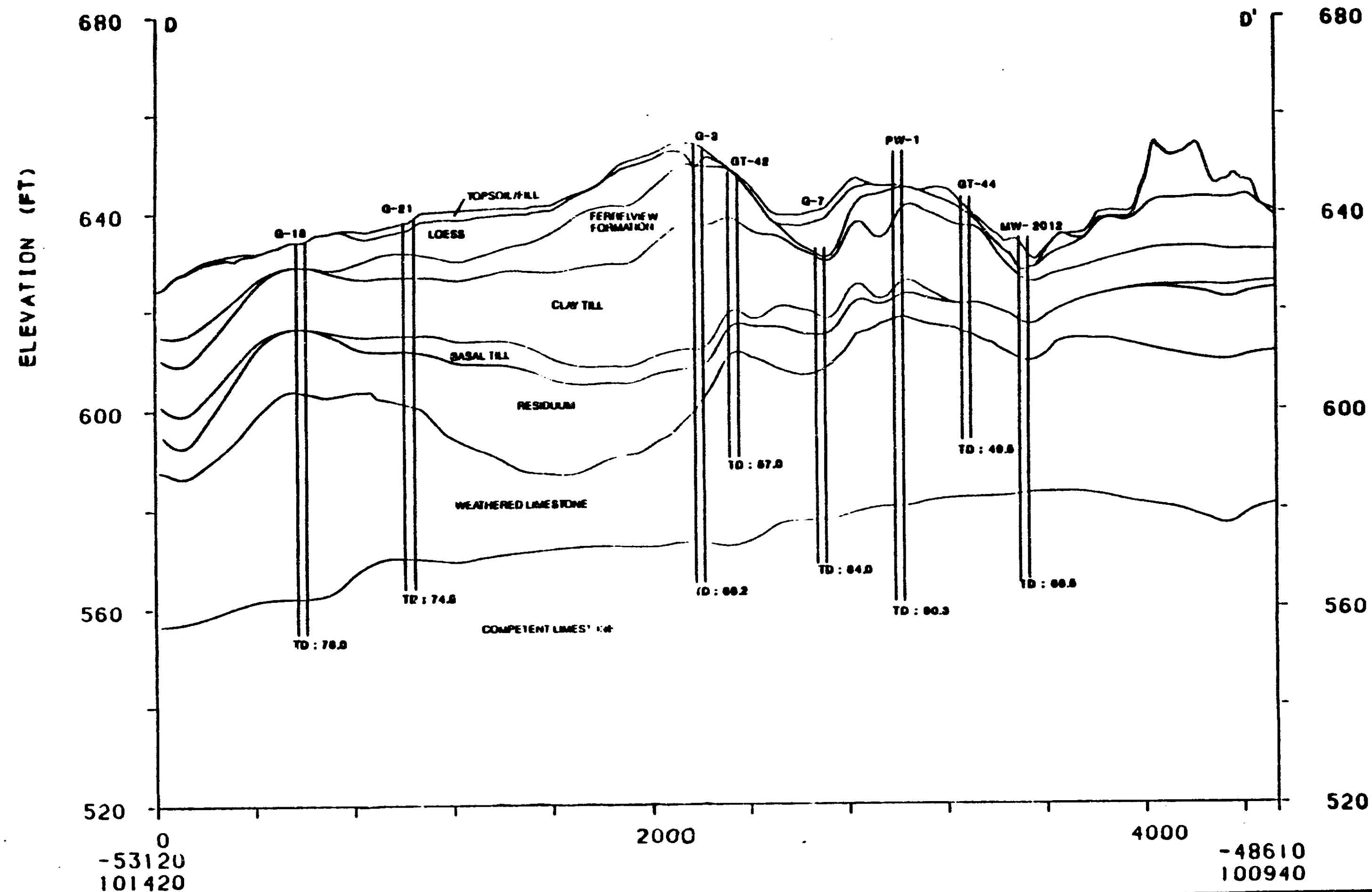
Scale
Horz. Scale 1 unit = 122 M (400 ft.)
Vert. Scale 1 unit - 6.1 M (20 ft.)

SEE SECTION 12 FOR CONVERSION FACTORS

GEOLOGIC CROSS SECTION C-C'

FIGURE 4.3-6

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/180/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



Scale

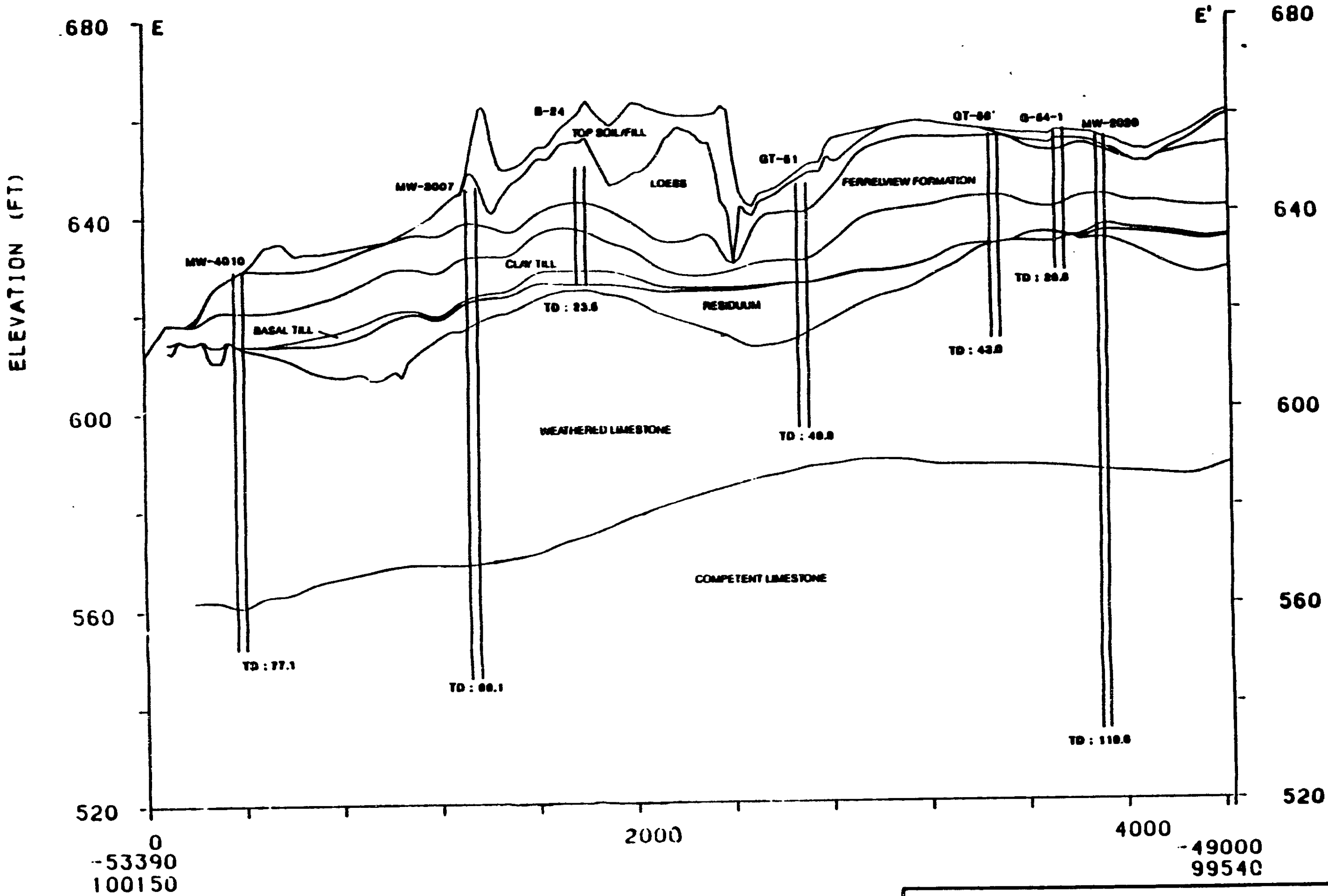
Horz. Scale 1 unit 122 M (400 ft.)
Vert. Scale 1 unit = 6.1 M (20 ft.)

SEE SECTION 12 FOR CONVERSION FACTORS

GEOLOGIC CROSS SECTION D-D'

FIGURE 4.3-7

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/181/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



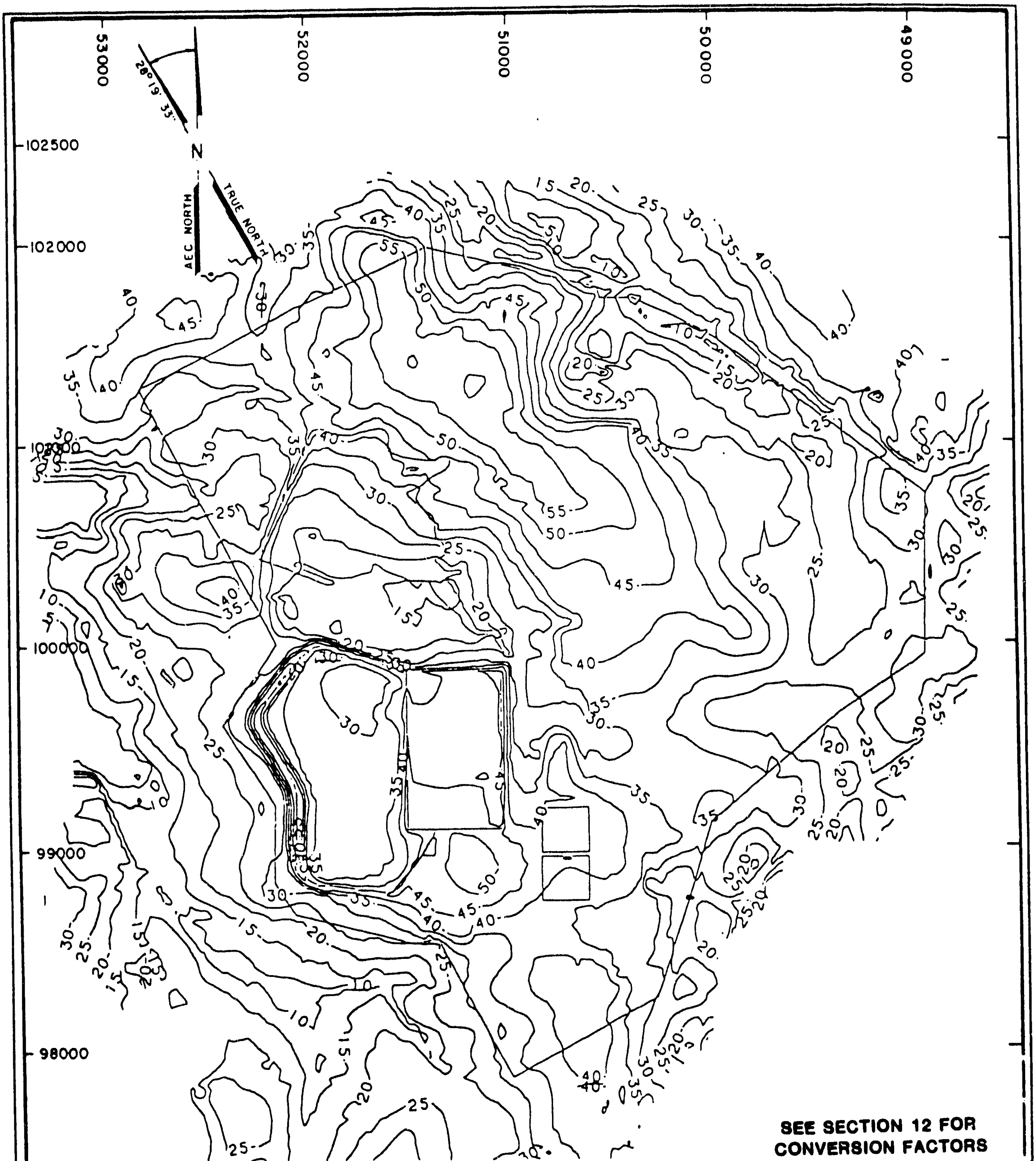
Scale
Horz. Scale 1 unit = 122 M (400 ft.)
Vert. Scale 1 unit = 6.1 M (20 ft.)

SEE SECTION 12 FOR CONVERSION FACTORS

GEOLOGIC CROSS SECTION E-E'

FIGURE 4.3-8

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/182/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



LEGEND

——10—— THICKNESS CONTOUR of TOTAL OVERBURDEN

CONTOUR INTERVAL 5.0 FT

SCALE IN METERS

120 60 0 120 240 360

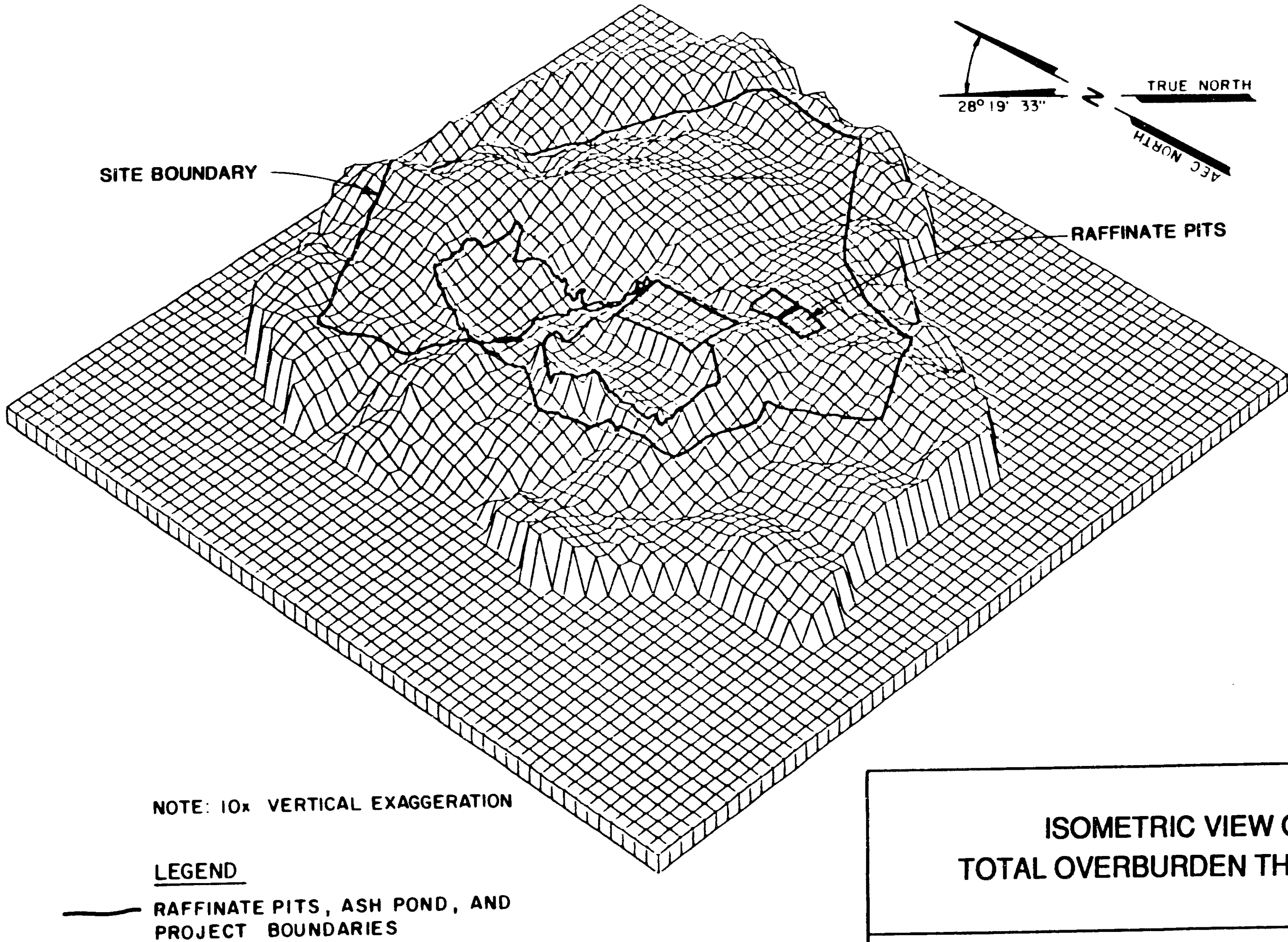
SCALE IN FEET

500 250 0 500 1000

ISOPACH MAP OF TOTAL OVERBURDEN

FIGURE 4.3-9

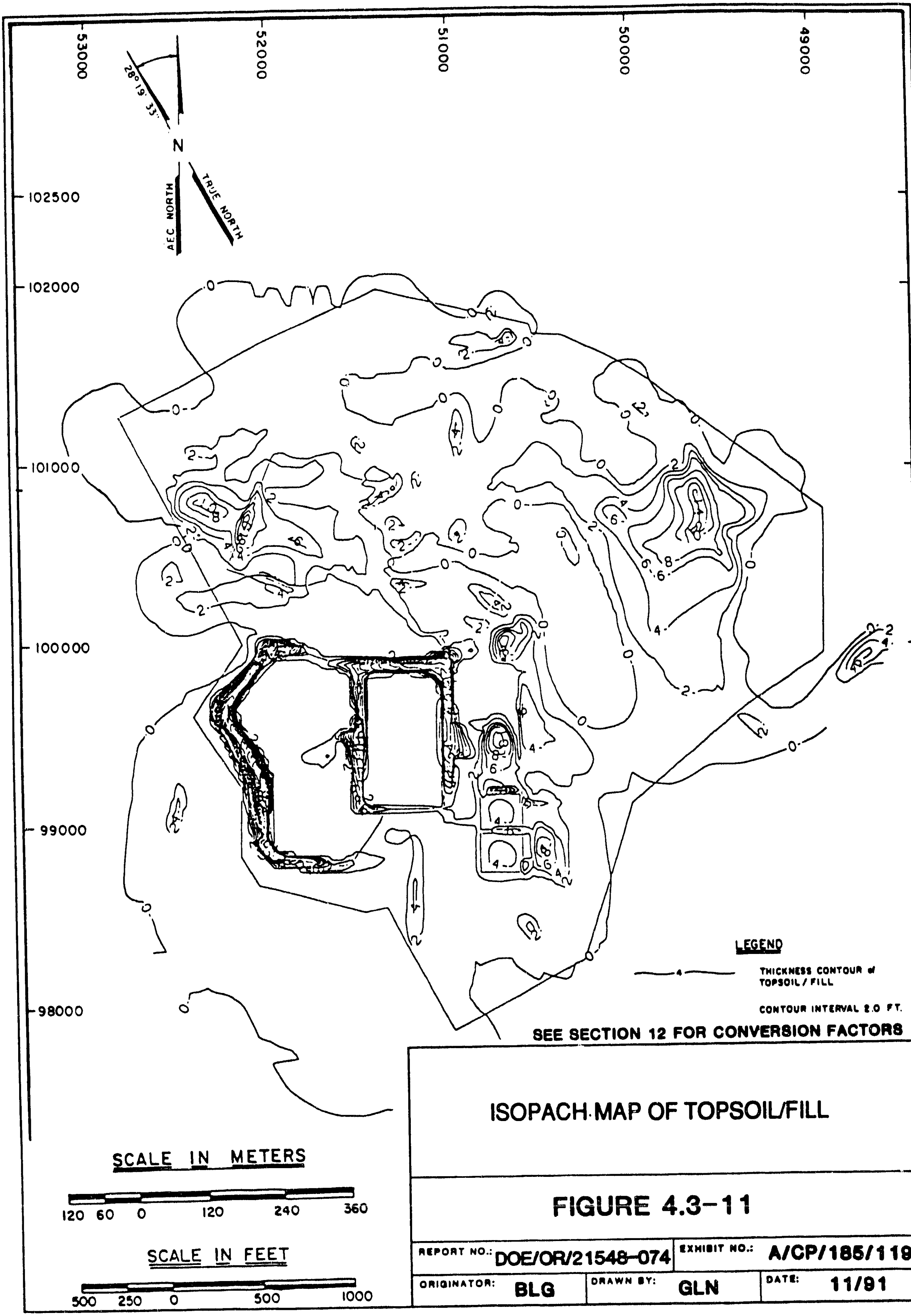
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/183/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



ISOMETRIC VIEW OF
TOTAL OVERBURDEN THICKNESS

FIGURE 4.3-10

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/164/1191	
ORIGINATOR: BLG	DRAWN BY: GLN		DATE: 11/91

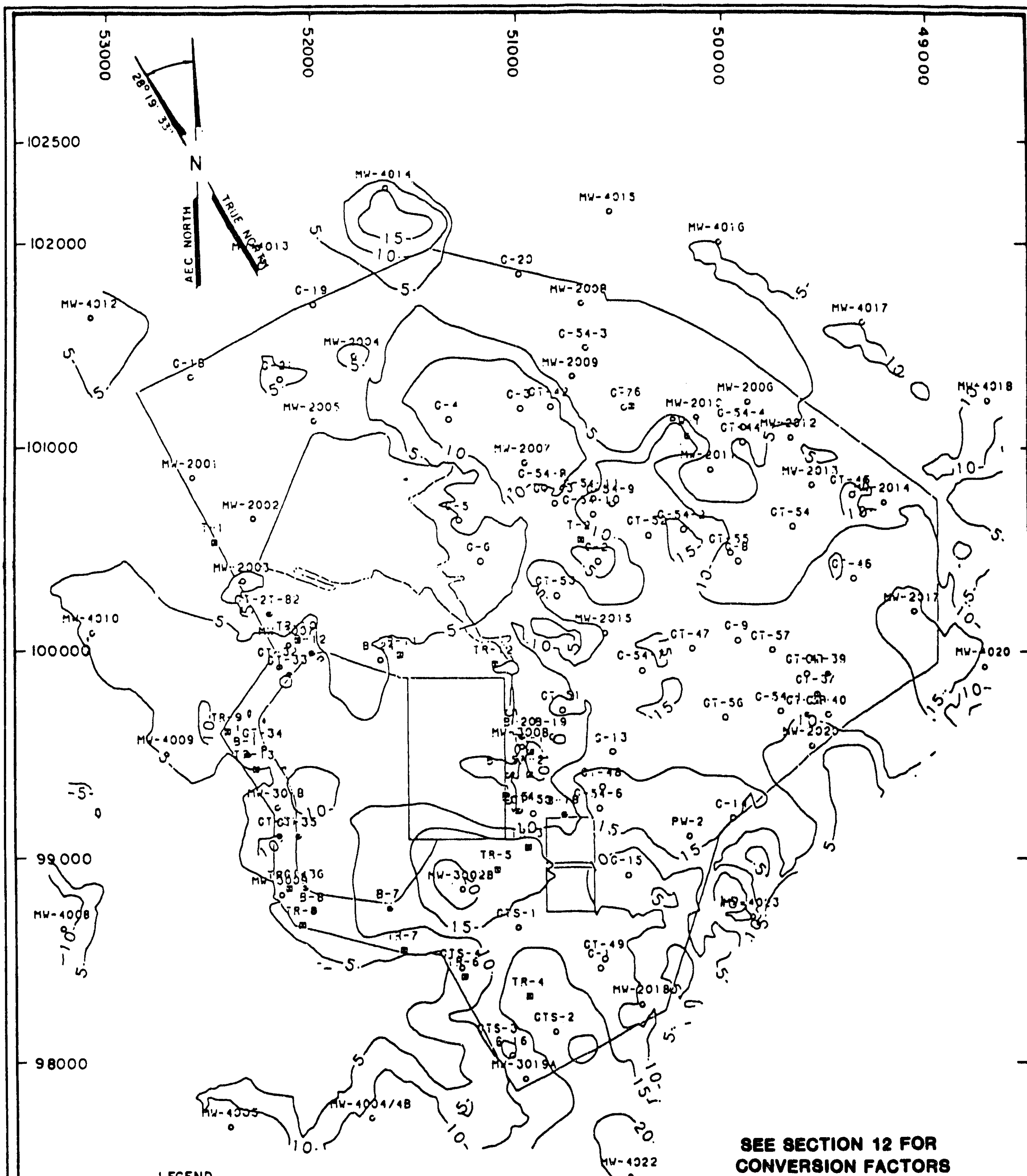


SEE SECTION 12 FOR CONVERSION FACTORS

ISOPACH MAP OF TOPSOIL/FILL

FIGURE 4.3-11

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/185/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



LEGEND

——10—— THICKNESS CONTOUR of FERRELVIEW FORMATION

CONTOUR INTERVAL 5.0 FT.

SCALE IN METERS

120 60 0 120 240 360

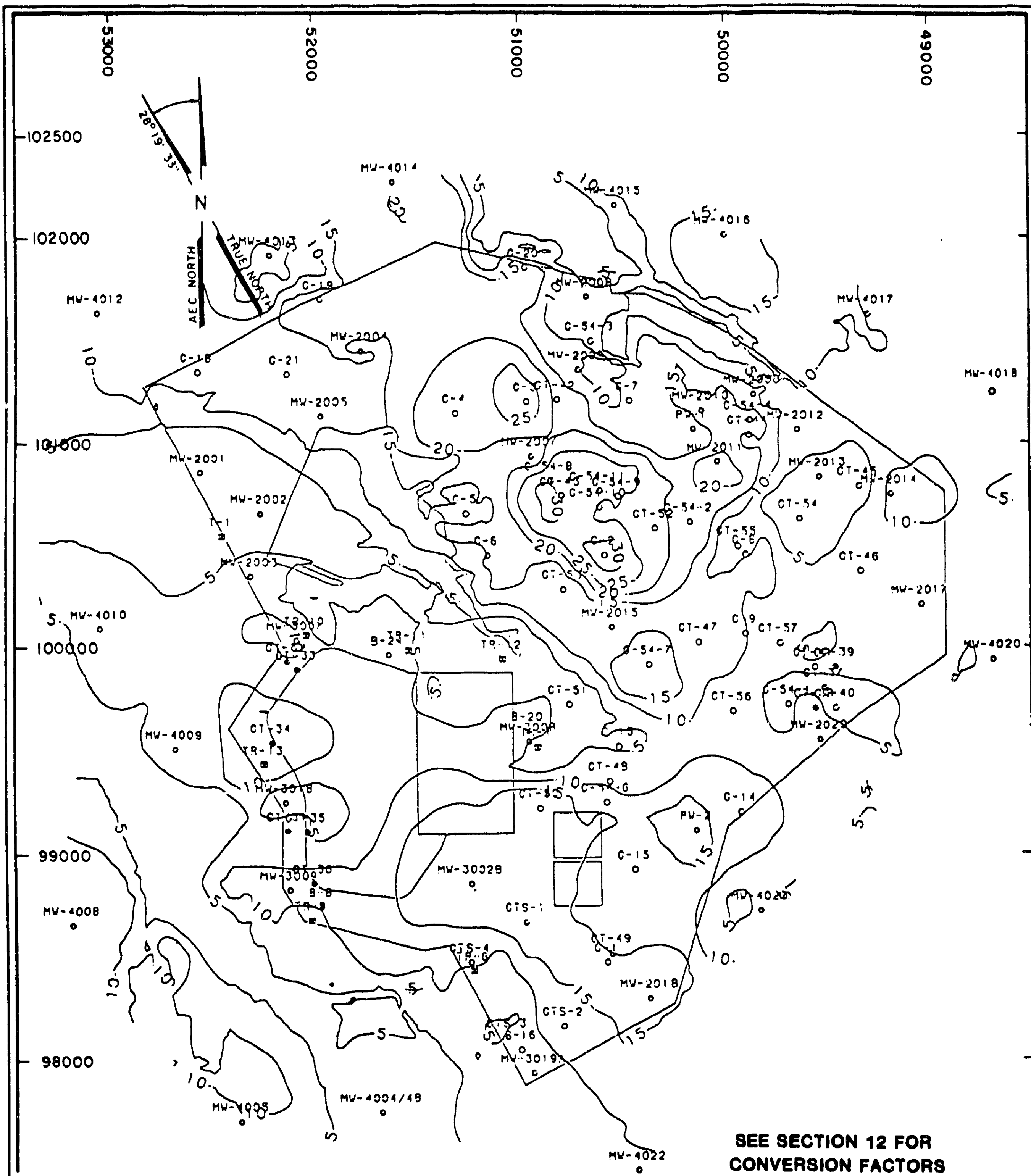
SCALE IN FEET

500 250 0 500 1000

ISOPACH MAP OF FERRELVIEW FORMATION

FIGURE 4.3-12

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/186/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



LEGEND

——10—— THICKNESS CONTOUR of CLAY TILL

CONTOUR INTERVAL 5.0 FT

SCALE IN METERS

120 60 0 120 240 360

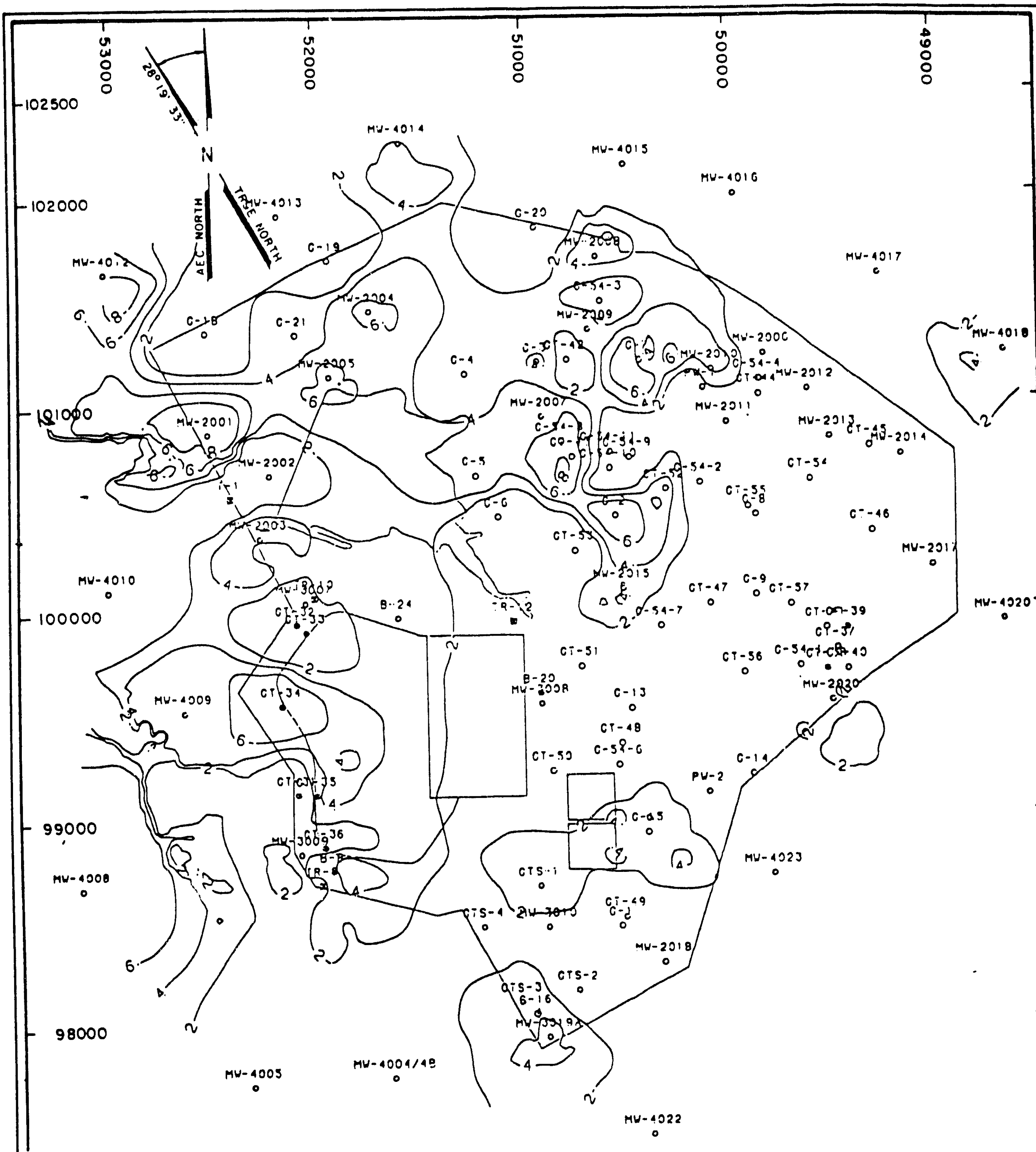
SCALE IN FEET

500 250 0 500 1000

ISOPACH MAP OF CLAY TILL

FIGURE 4.3-13

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/187/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



SEE SECTION 12 FOR CONVERSION FACTORS

LEGEND

THICKNESS CONTOUR of BASAL TILL

CONTOUR INTERVAL 2.0 FT.

SCALE IN METERS

120 60 0 120 240 360

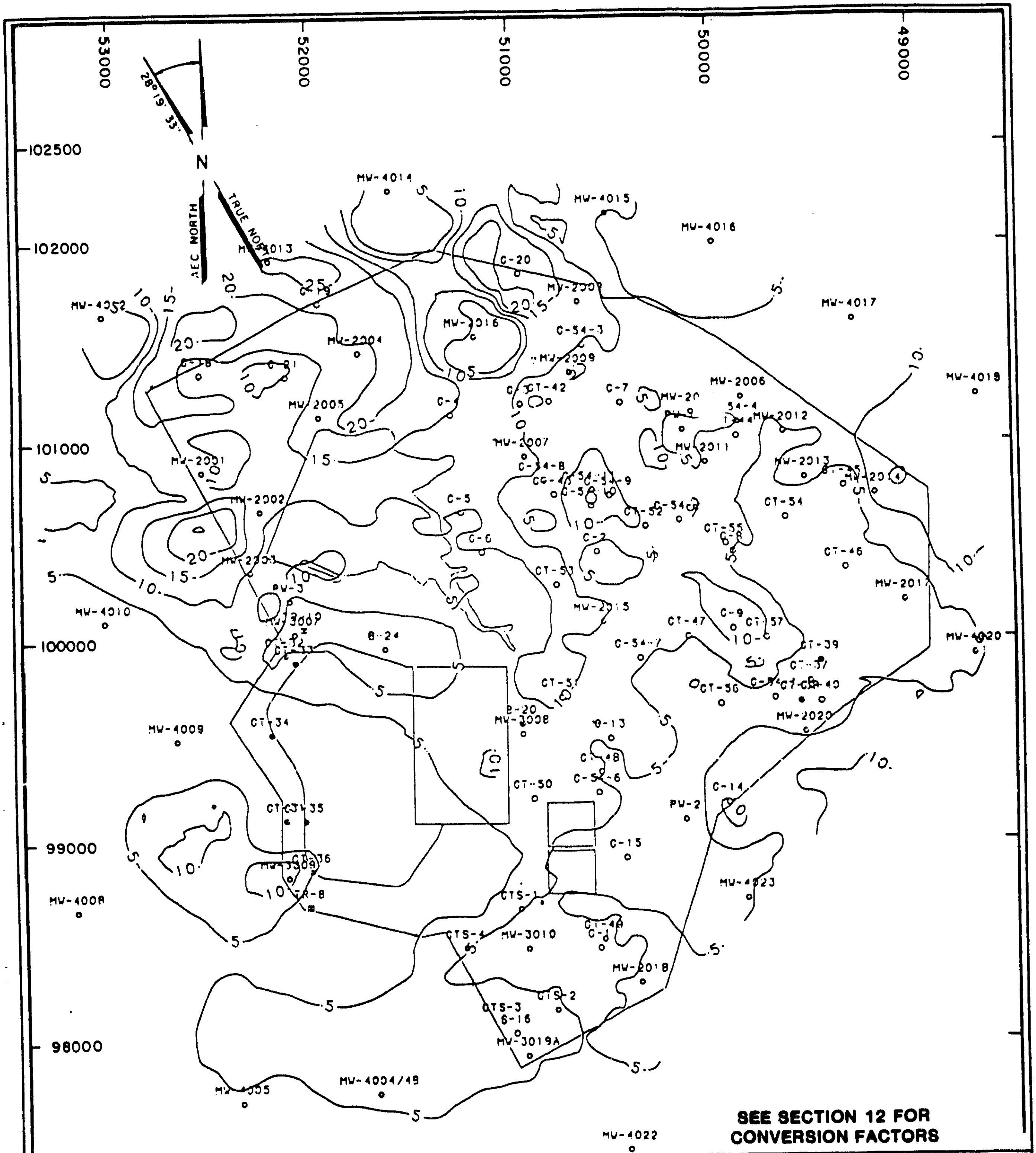
SCALE IN FEET

500 250 0 500 1000

ISOPACH MAP OF BASAL TILL

FIGURE 4.3-14

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/188/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



LEGEND

——10—— THICKNESS CONTOUR of RESIDUUM

CONTOUR INTERVAL 2.0 FT.

SCALE IN METERS

120 60 0 120 240 360

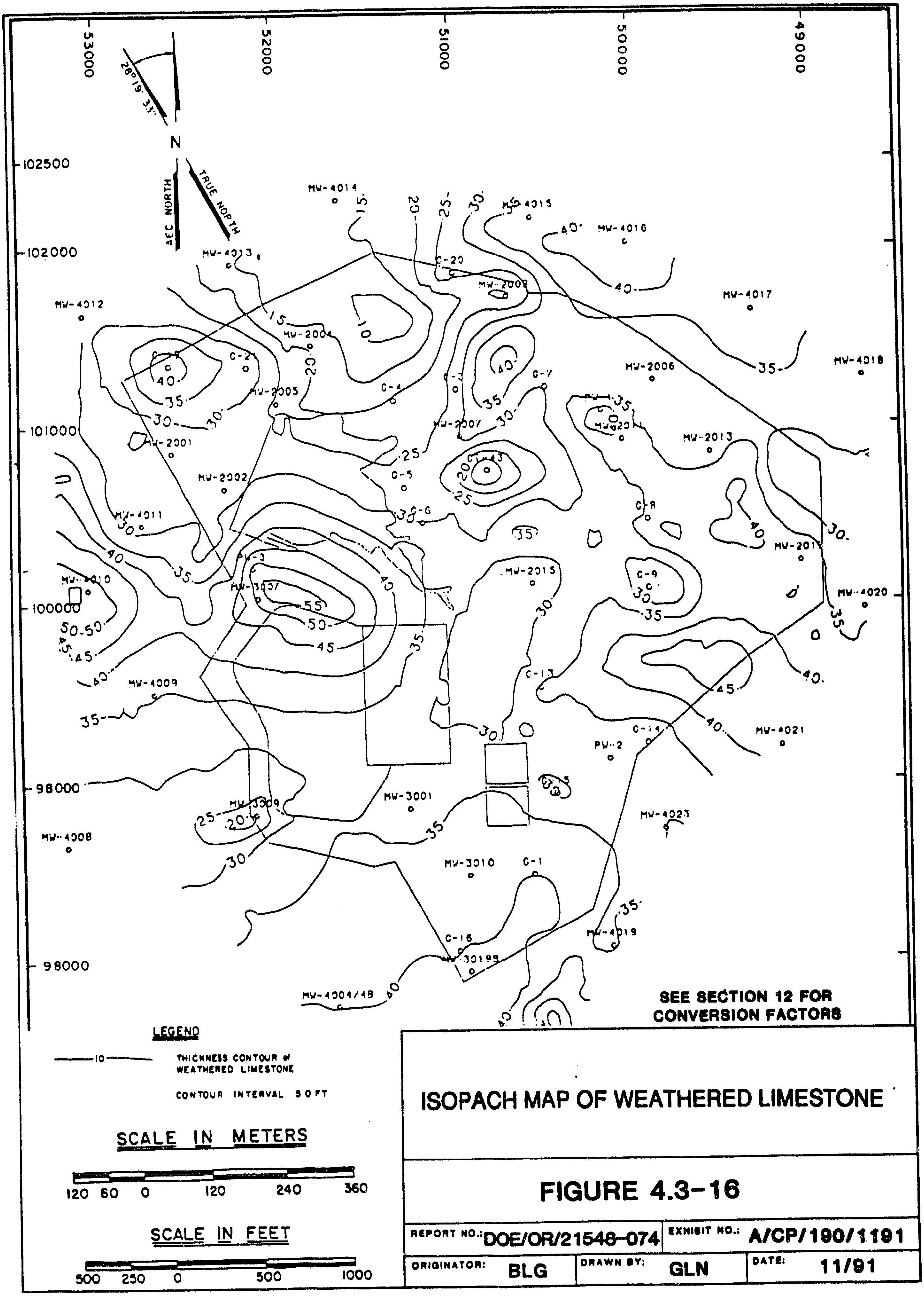
SCALE IN FEET

500 250 0 500 1000

ISOPACH MAP OF RESIDUUM

FIGURE 4.3-15

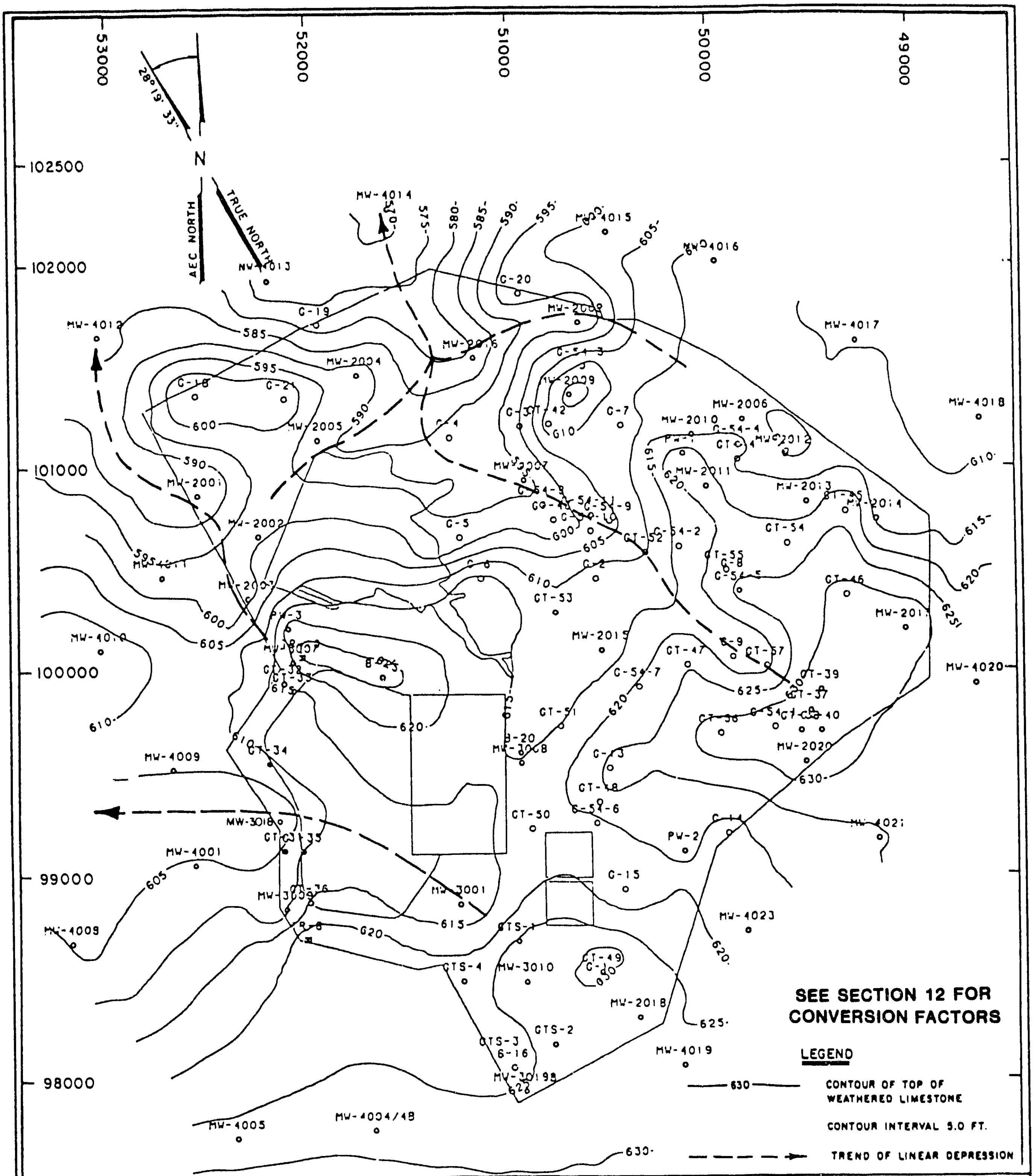
REPORT NO.:	DOE/OR/21548-074	EXHIBIT NO.:	A/CP/189/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE:	11/91



ISOPACH MAP OF WEATHERED LIMESTONE

FIGURE 4.3–16

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/190/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



SCALE IN METERS

120 60 0 120 240 360

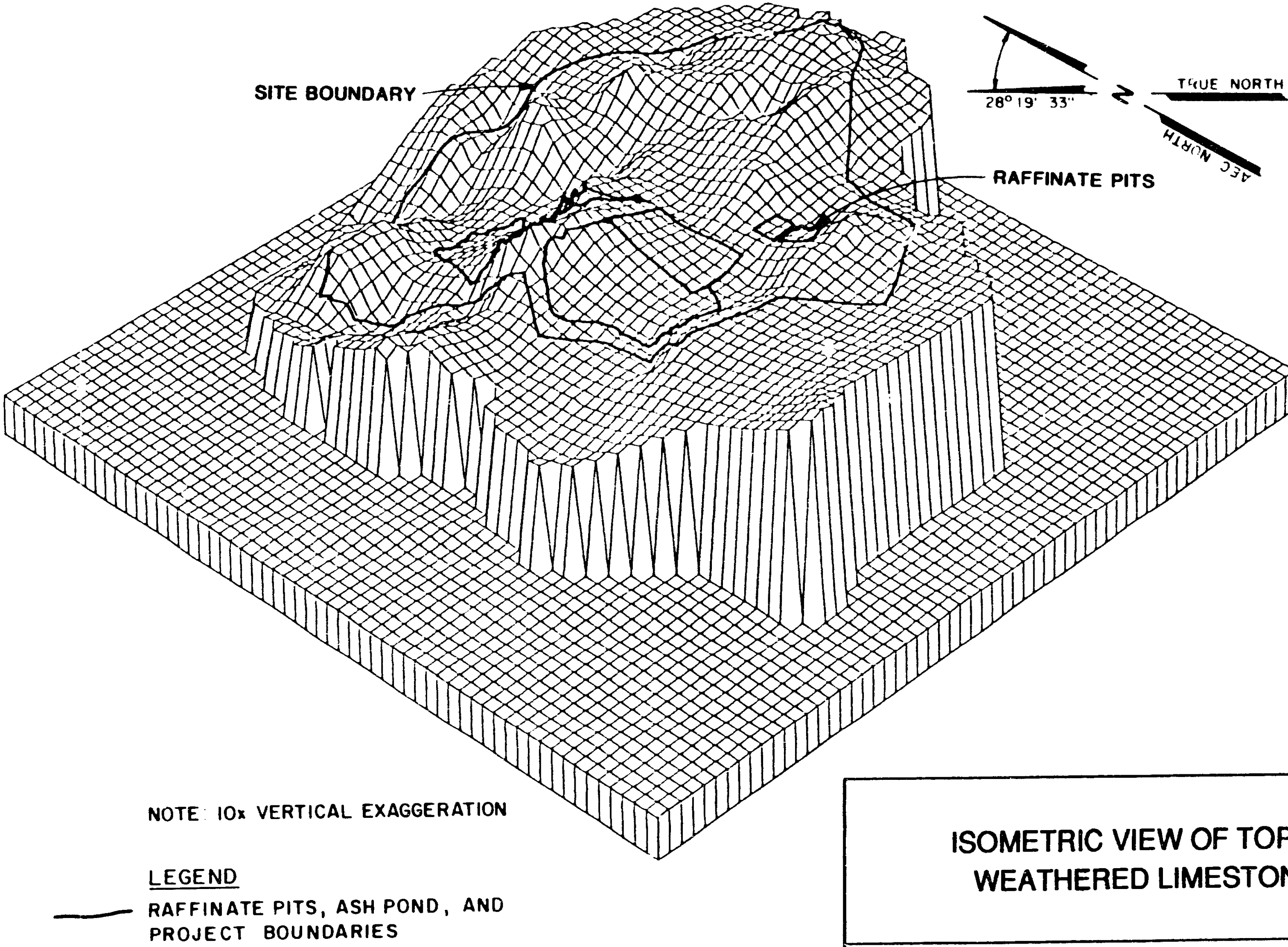
SCALE IN FEET

500 250 0 500 1000

CONTOUR MAP OF TOP OF WEATHERED LIMESTONE

FIGURE 4.3-17

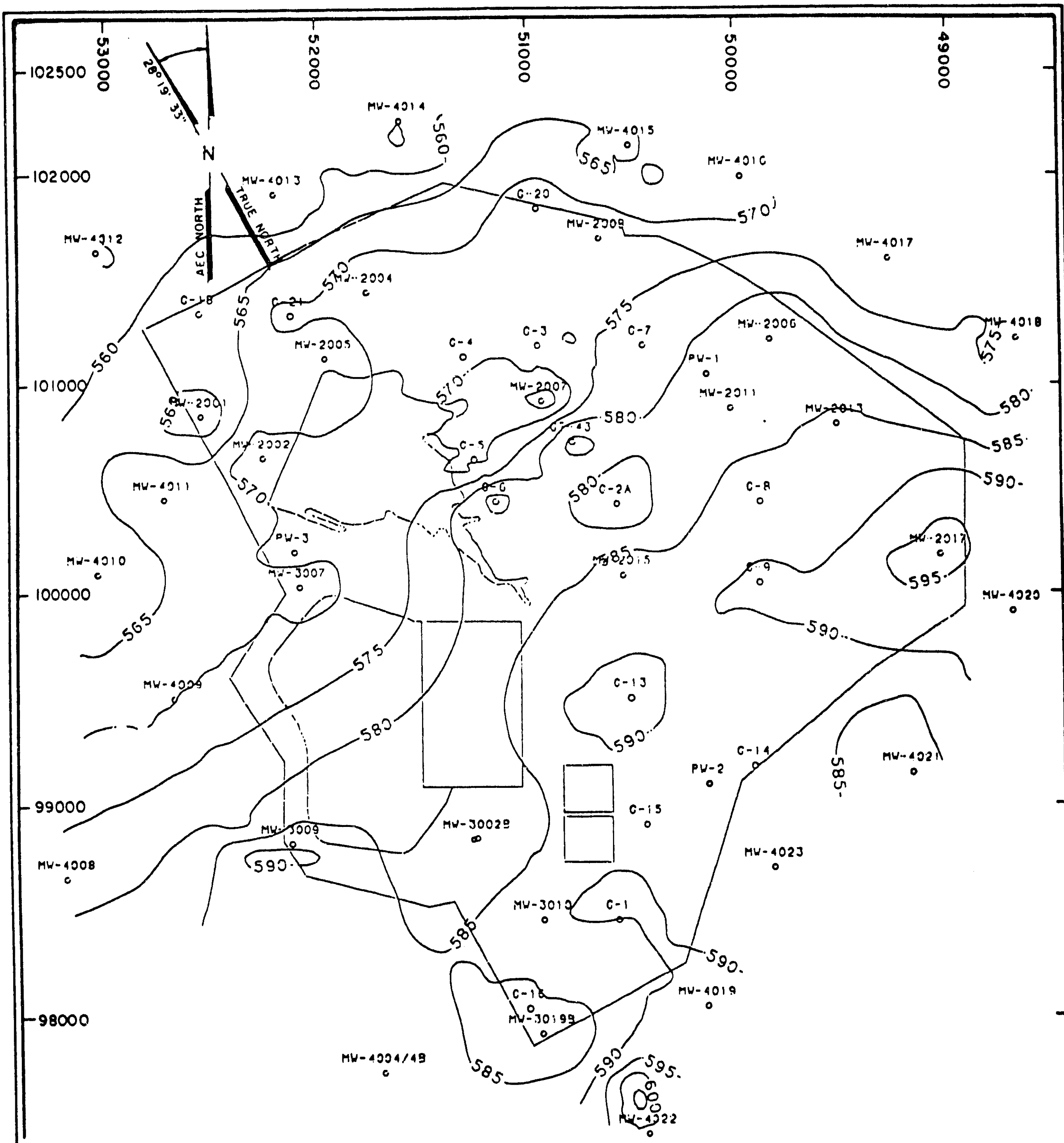
REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/CP/191/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



ISOMETRIC VIEW OF TOP OF WEATHERED LIMESTONE

FIGURE 4.3-18

REPORT NO.: DOE/OR/21543-074		EXHIBIT NO.: A/CP/192/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



LEGEND

——590—— CONTOUR OF TOP OF COMPETENT LIMESTONE

CONTOUR INTERVAL 5.0 FT.

SCALE IN METERS

120 60 0 120 240 360

SCALE IN FEET

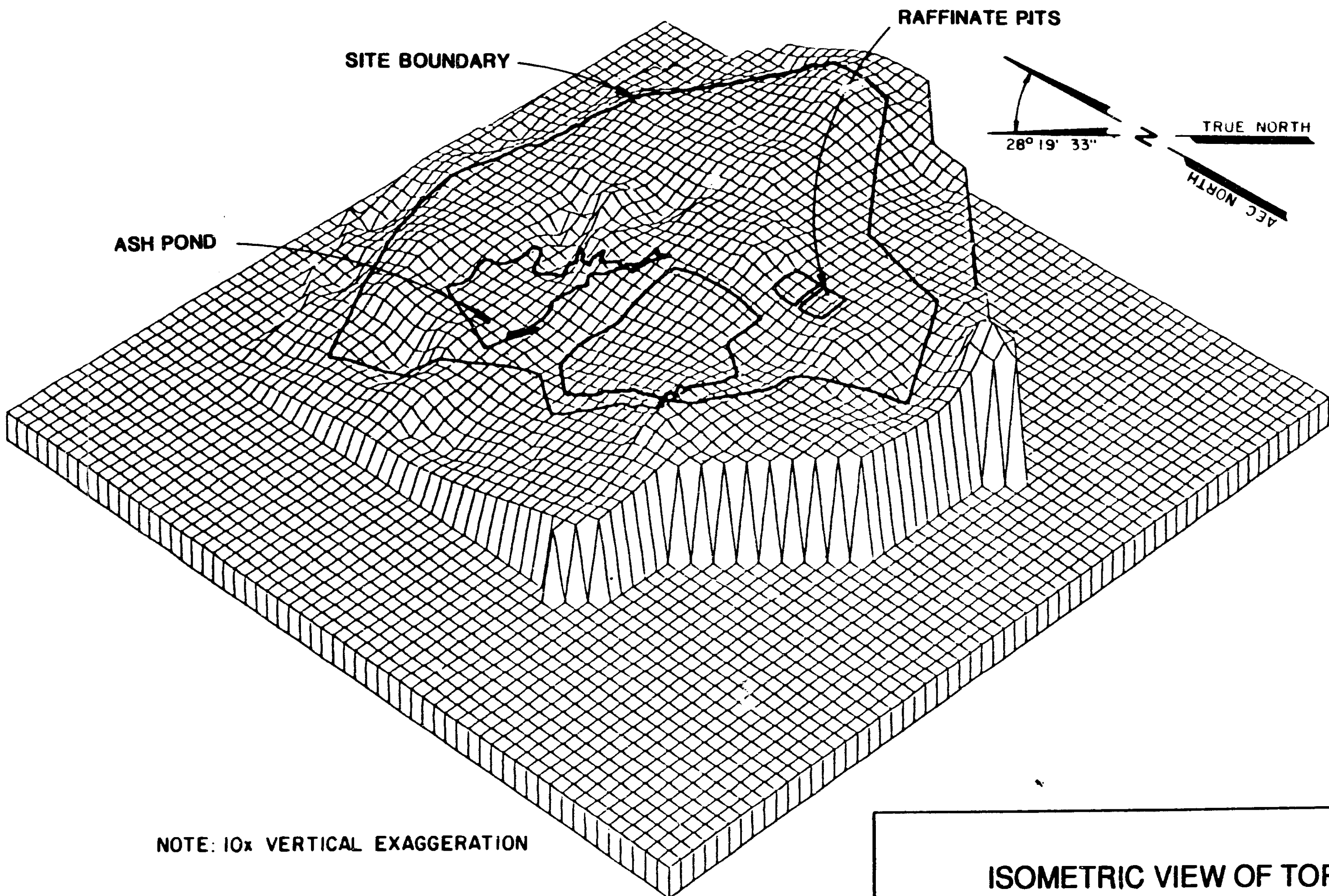
500 250 0 500 1000

SEE SECTION 12 FOR CONVERSION FACTORS

CONTOUR MAP OF TOP OF COMPETENT LIMESTONE

FIGURE 4.3-19

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/193/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



NOTE: 10x VERTICAL EXAGGERATION

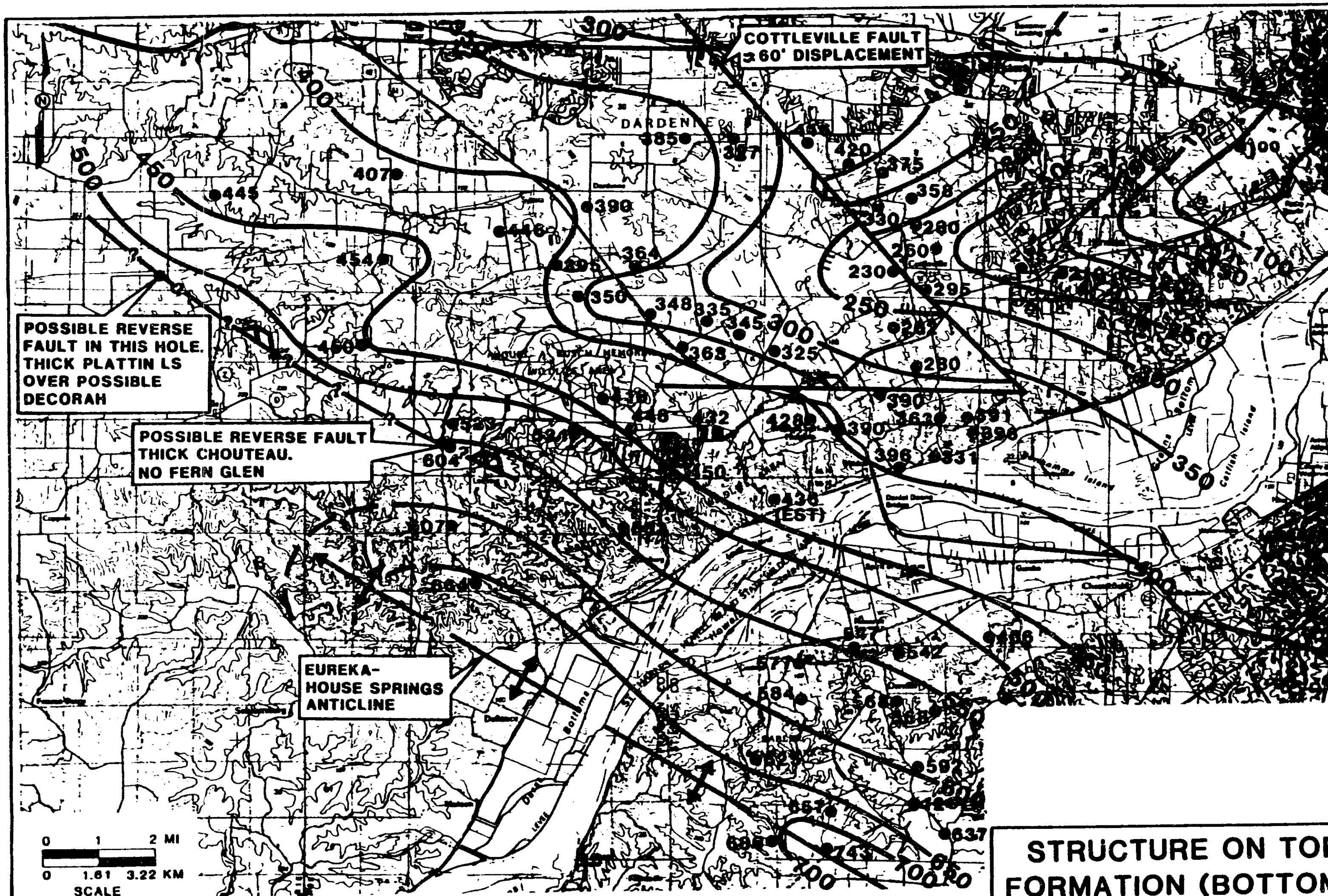
LEGEND

RAFFINATE PITS, ASH POND, AND PROJECT BOUNDARIES

ISOMETRIC VIEW OF TOP OF COMPETENT LIMESTONE

FIGURE 4.3-20

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/194/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	

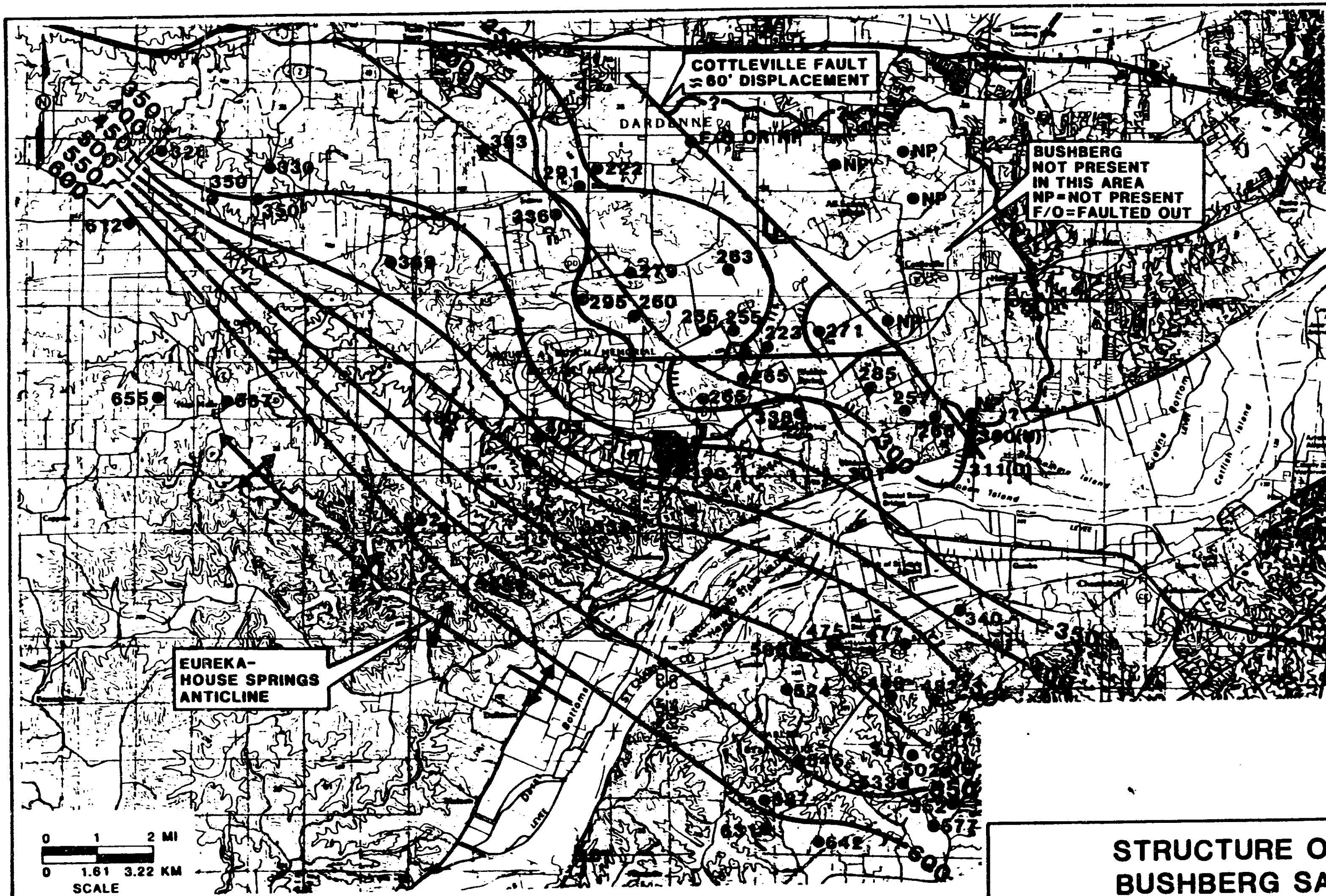


STRUCTURE ON TOP OF FERN GLEN FORMATION (BOTTOM OF BURLINGTON-KEOKUK LIMESTONE)

CONTOUR INTERVAL 50'

FIGURE 4.3-21

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/149/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91

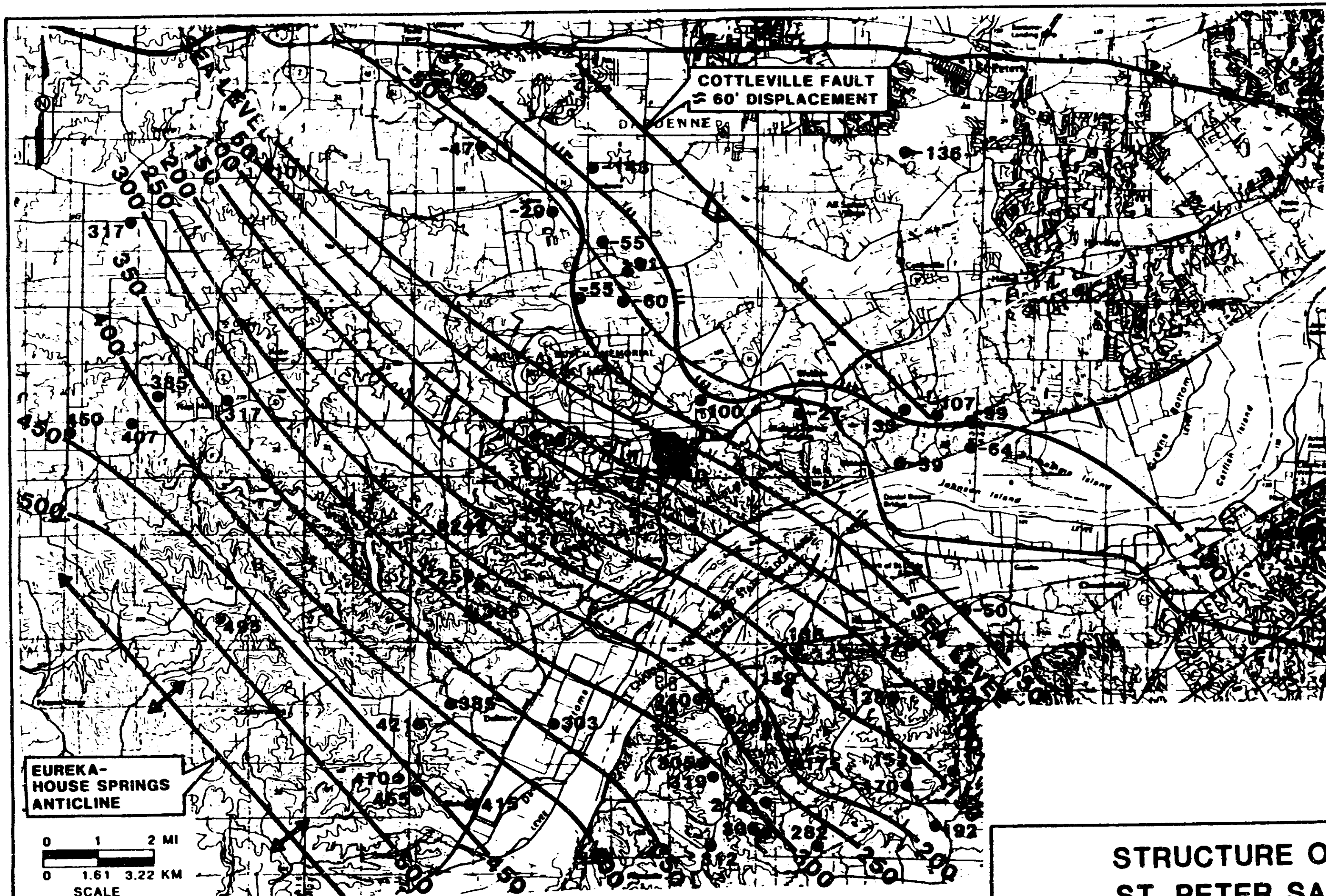


STRUCTURE ON TOP OF
BUSHBERG SANDSTONE

CONTOUR INTERVAL 50'

FIGURE 4.3-22

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/150/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	

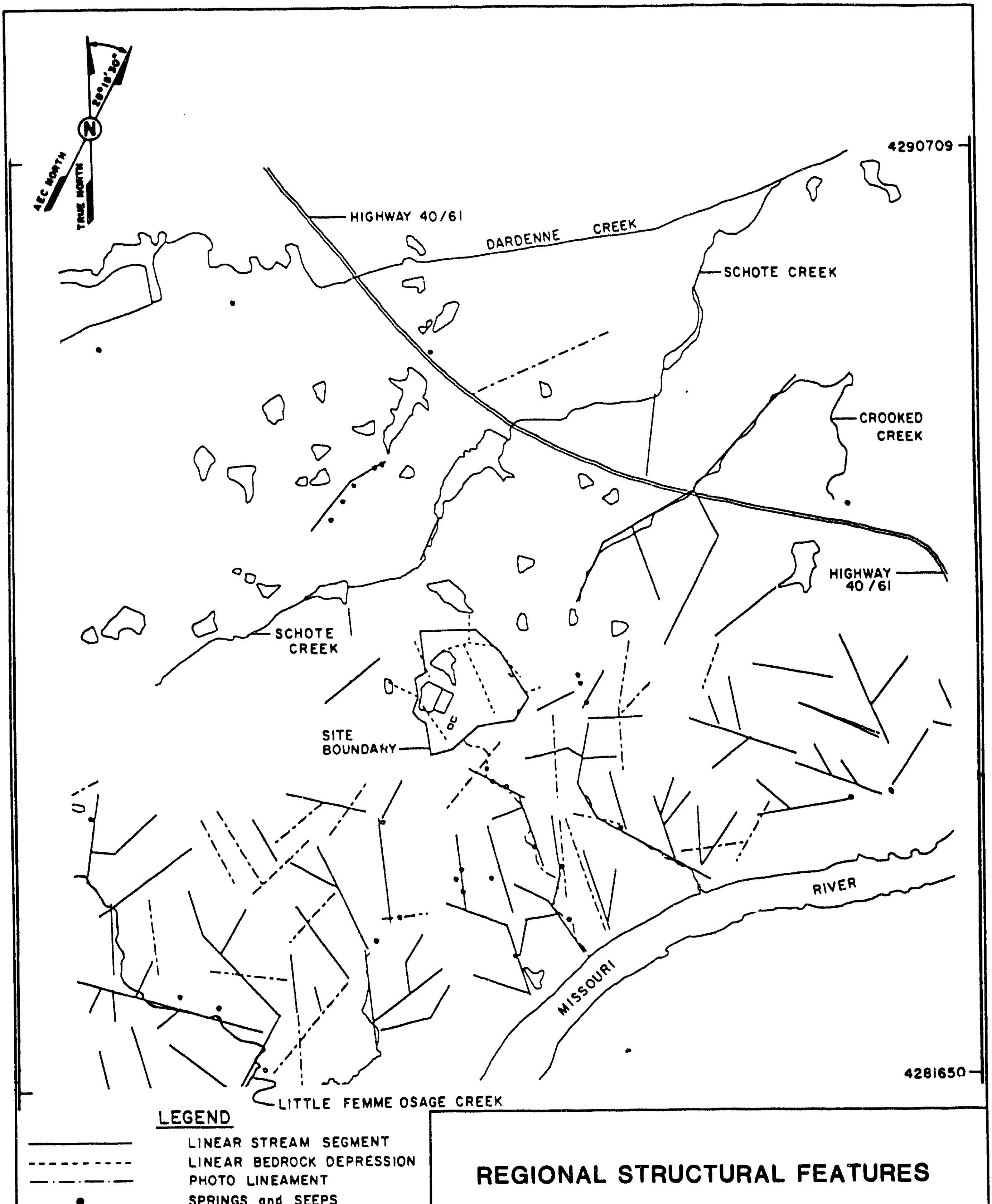


STRUCTURE ON TOP OF
ST. PETER SANDSTONE

CONTOUR INTERVAL 50'

FIGURE 4.3-23

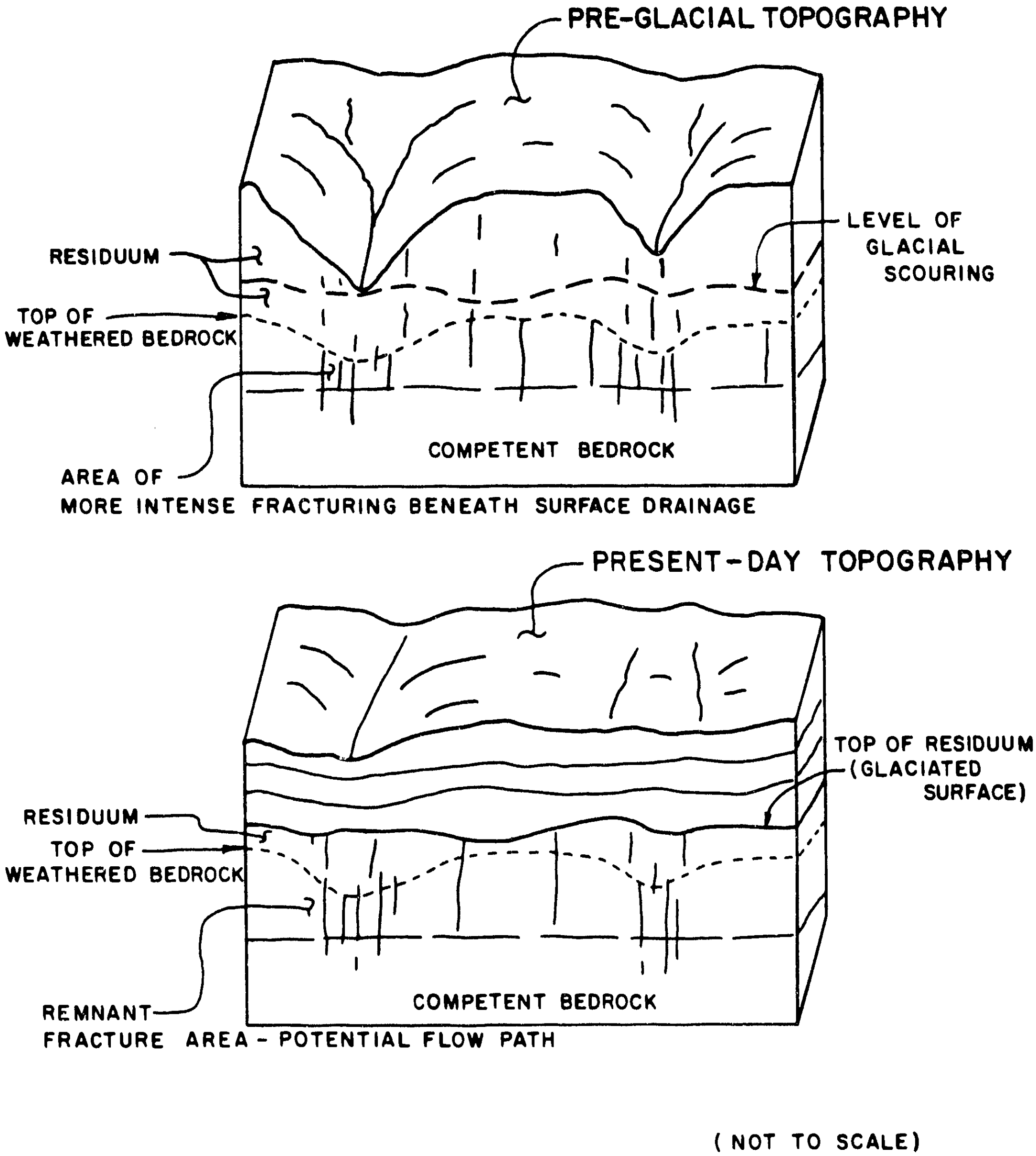
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/151/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



REGIONAL STRUCTURAL FEATURES

FIGURE 4.3-24

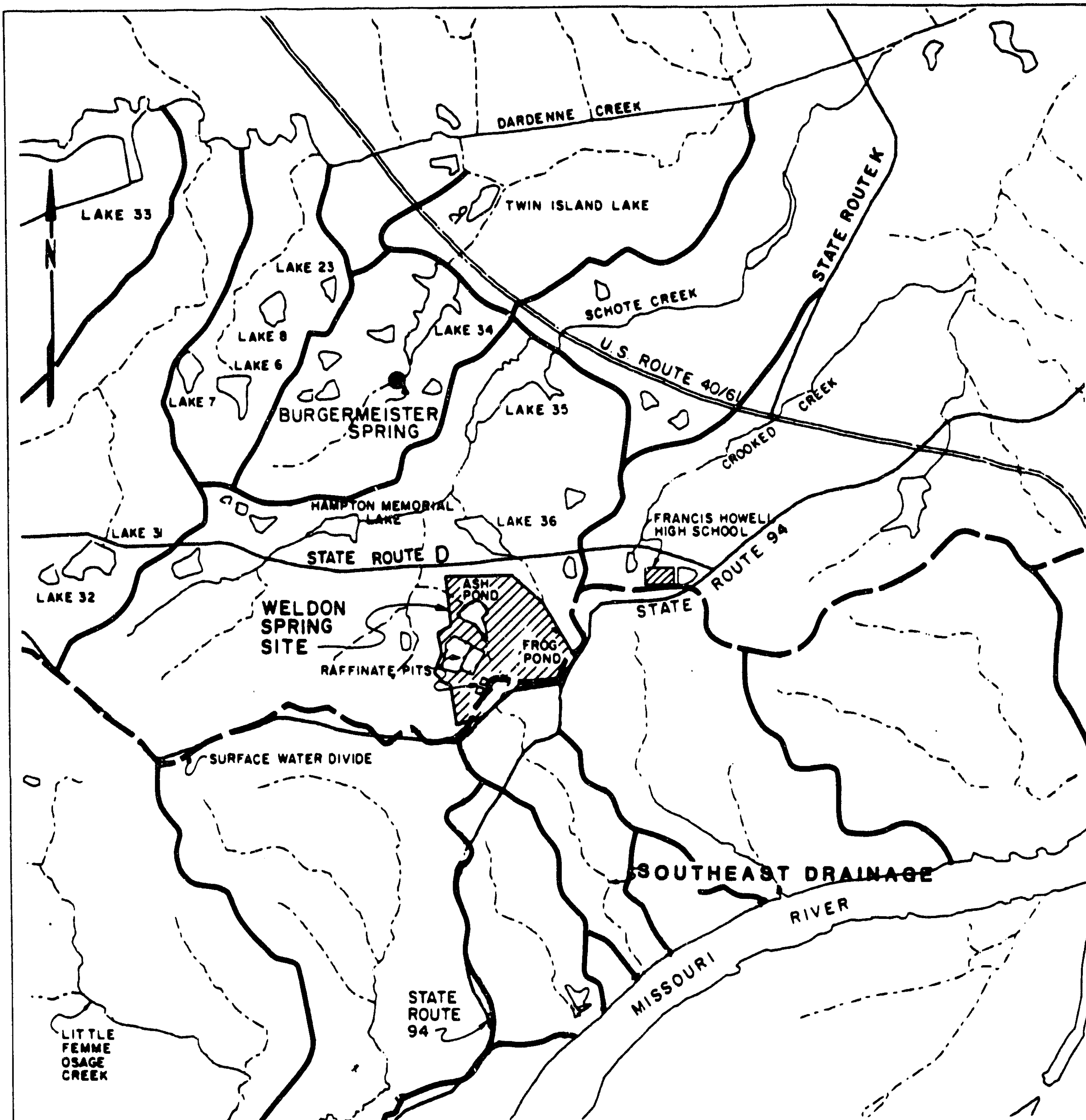
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/152/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



BLOCK DIAGRAM DEPICTING GENESIS OF WEATHERED BEDROCK SURFACE

FIGURE 4.3-25

REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/PI/231/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



0 3200 6400 M

0 975.4 1950.7 FT

SCALE

LEGEND:

SURFACE WATER DIVIDE BETWEEN MISSISSIPPI RIVER AND MISSOURI RIVER

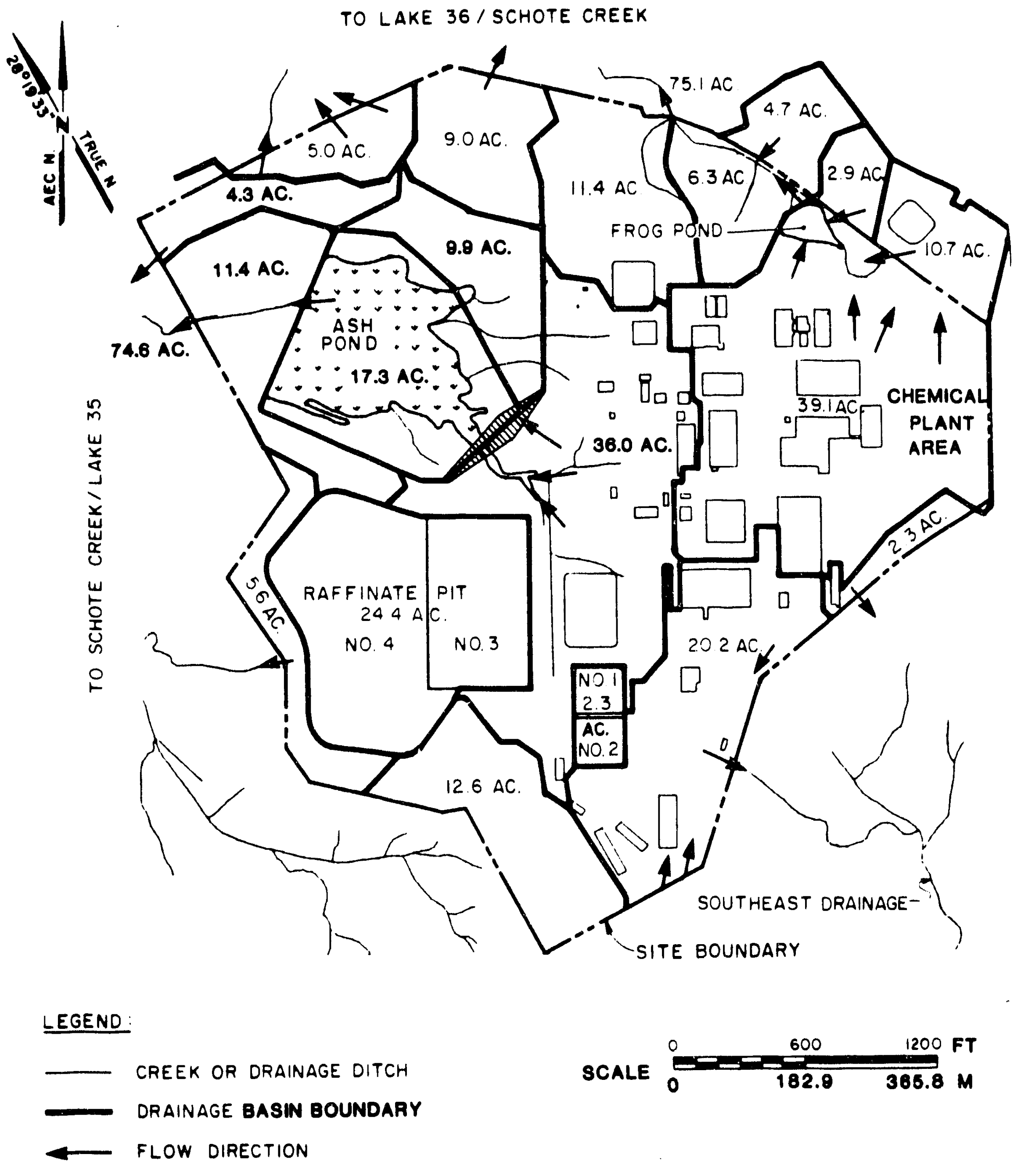
DRAINAGE BOUNDARY

CREEK OR SURFACE DRAINAGE

POND OR LAKE

SPRING

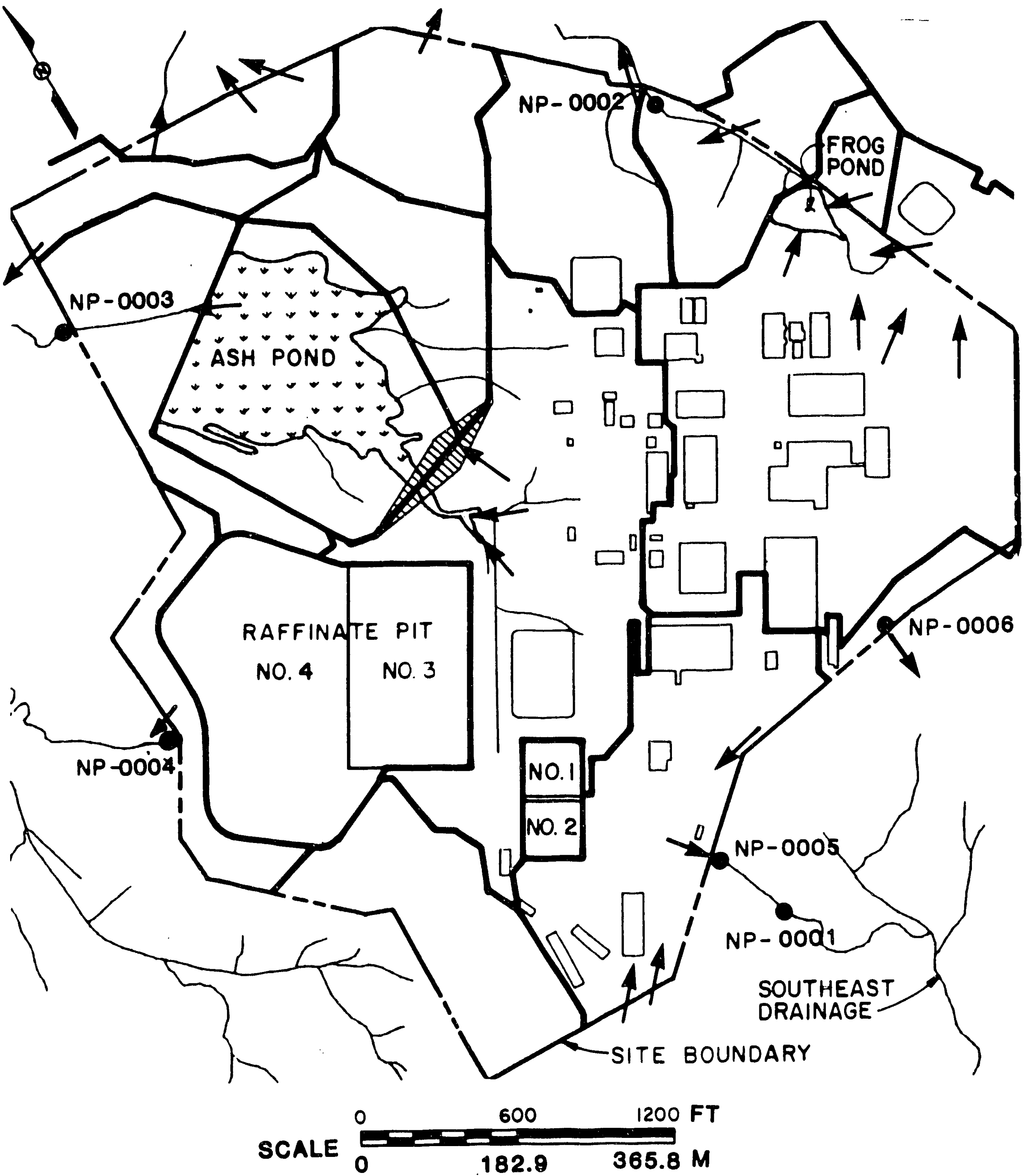
SURFACE WATER DRAINAGES NEAR THE WSS			
FIGURE 4.4-1			
REPORT NO.:	DOE/OR/21548-074	EXHIBIT NO.:	A/CP/153/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE:	11/91



SURFACE WATER DRAINAGE AT THE WELDON SPRING SITE

FIGURE 4.4-2

REPORT NO. DOE/OR/21548-074		EXHIBIT NO. A/CP/195/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



LEGEND:

- CREEK OR DRAINAGE DITCH
- DRAINAGE BASIN BOUNDARY
- FLOW DIRECTION
- NPDES SAMPLING LOCATION

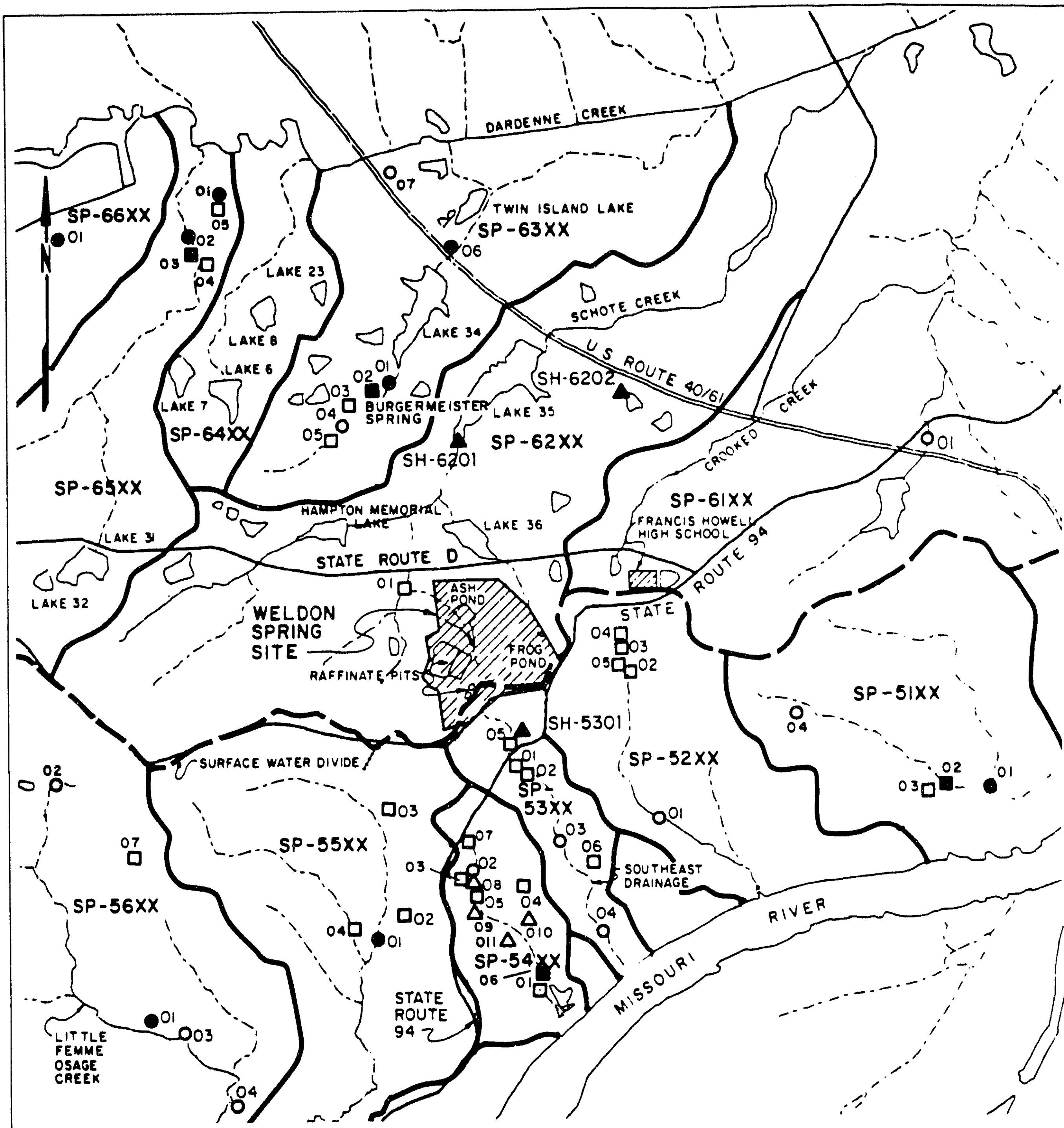
SOURCE: MKF & JEG 1988a

NPDES SURFACE WATER SAMPLING LOCATIONS

FIGURE 4.4-3

REPORT NO.:	DOE/OR/21548-074	EXHIBIT NO.:	A/CP/196/1191

ORIGINATOR:	BLG	DRAWN BY:	GLN	DATE:	11/91



SCALE

0 3200 6400 FT

0 975.4 1950.7 M

LEGEND:

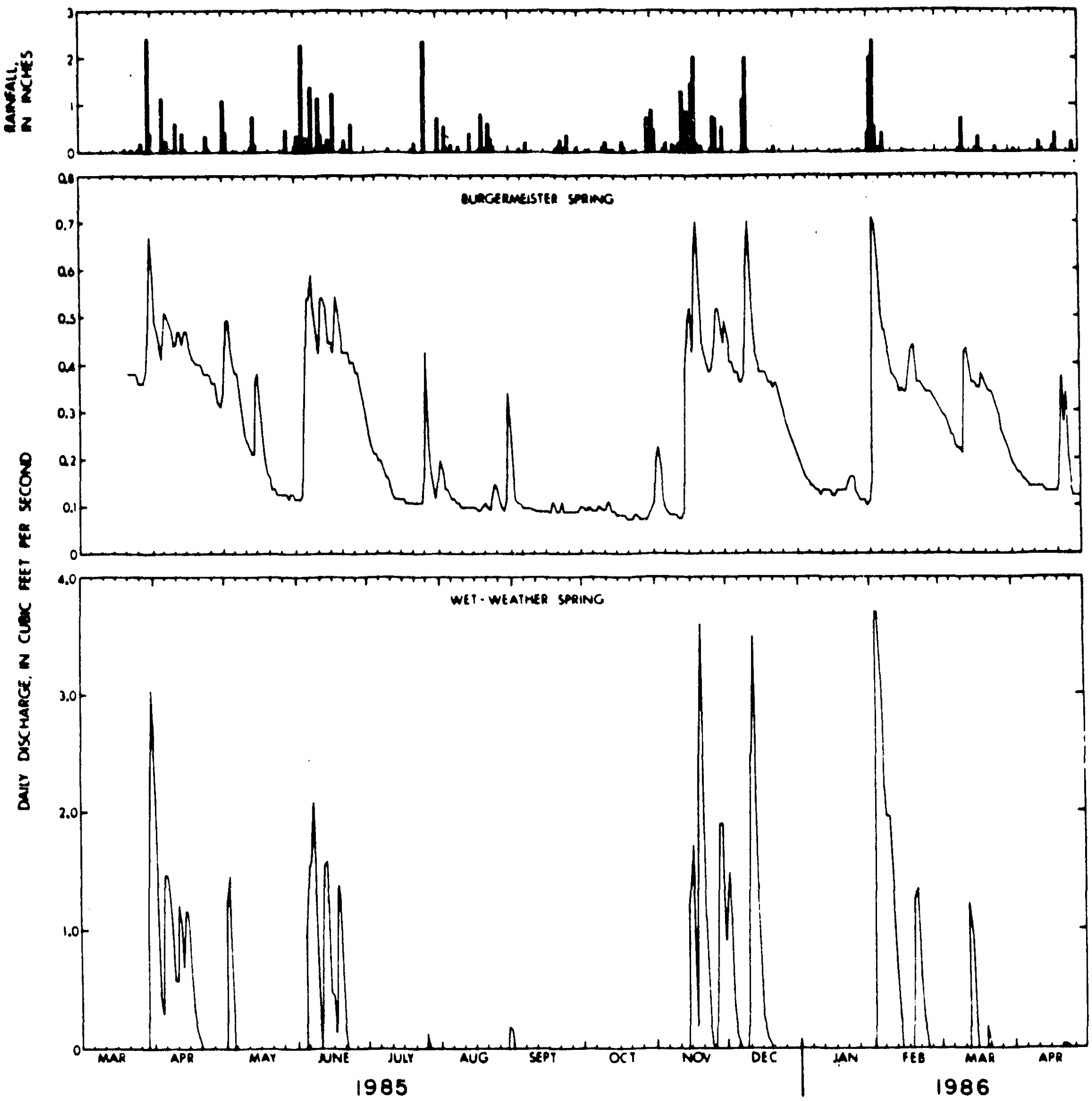
- SURFACE WATER DIVIDE BETWEEN MISSISSIPPI RIVER AND MISSOURI RIVER
- DRAINAGE BOUNDARY
- CREEK OR SURFACE DRAINAGE
- POND OR LAKE
- ● PERENNIAL SPRING WITH LARGE MAXIMUM FLOW
- ○ PERENNIAL SPRING WITH SMALL MAXIMUM FLOW
- ■ WET WEATHER SPRING WITH LARGE MAXIMUM FLOW
- □ WET WEATHER SPRING WITH SMALL MAXIMUM FLOW
- ▲ SWALLOW HOLE (SH)
- △ SEEP
- SP-63XX SPRING OR SEEP IN DESIGNATED DRAINAGE AREA NUMBER 63. XX REPRESENTS THE DESIGNATED SPRING NUMBER IN DRAINAGE 63.

SOURCE: MDNR 1989a

SPRINGS AND SEEPS IN THE VICINITY OF THE WSS

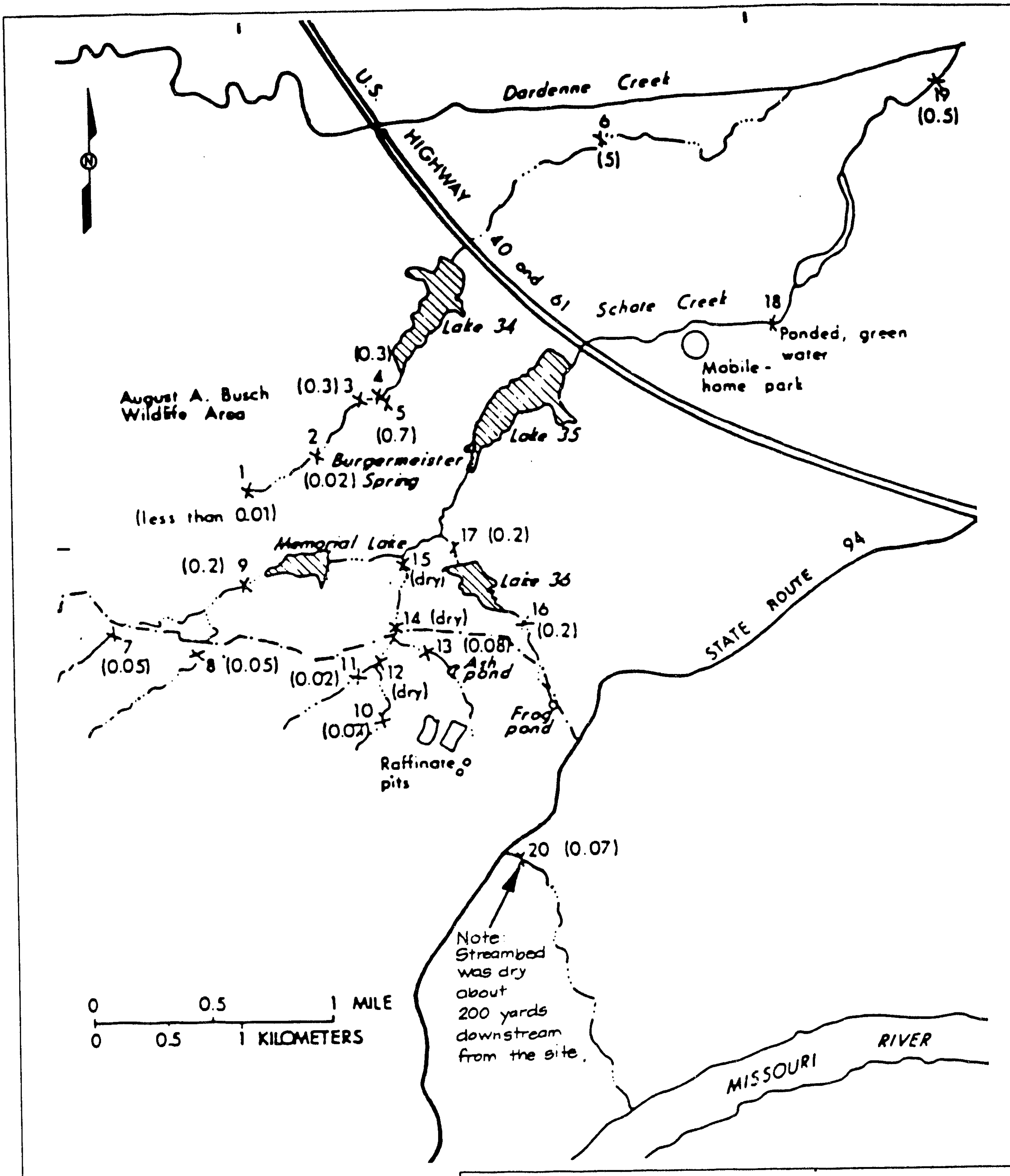
FIGURE 4.4-4

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/154/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



SEE SECTION 12 FOR CONVERSION FACTORS
SOURCE: KLEESCHULTE AND EMMETT 1987

HYDROGRAPHS OF BURGERMEISTER SPRING AND NEARBY WE⁻⁻-WEATHER SPRING, MARCH 1985 TO APRIL 1986	
FIGURE 4.4-5	
REPORT NO. DOE/OR/21548-074	EXHIBIT NO.: A/PI/232/1191
ORIGINATOR: BLG	DRAWN BY: GLN — DATE: 11/91



EXPLANATION

4 × (0.05) SEEPAGE-RUN OBSERVATION SITE.-- Number in parenthesis indicates estimated discharge, in cubic feet per second.

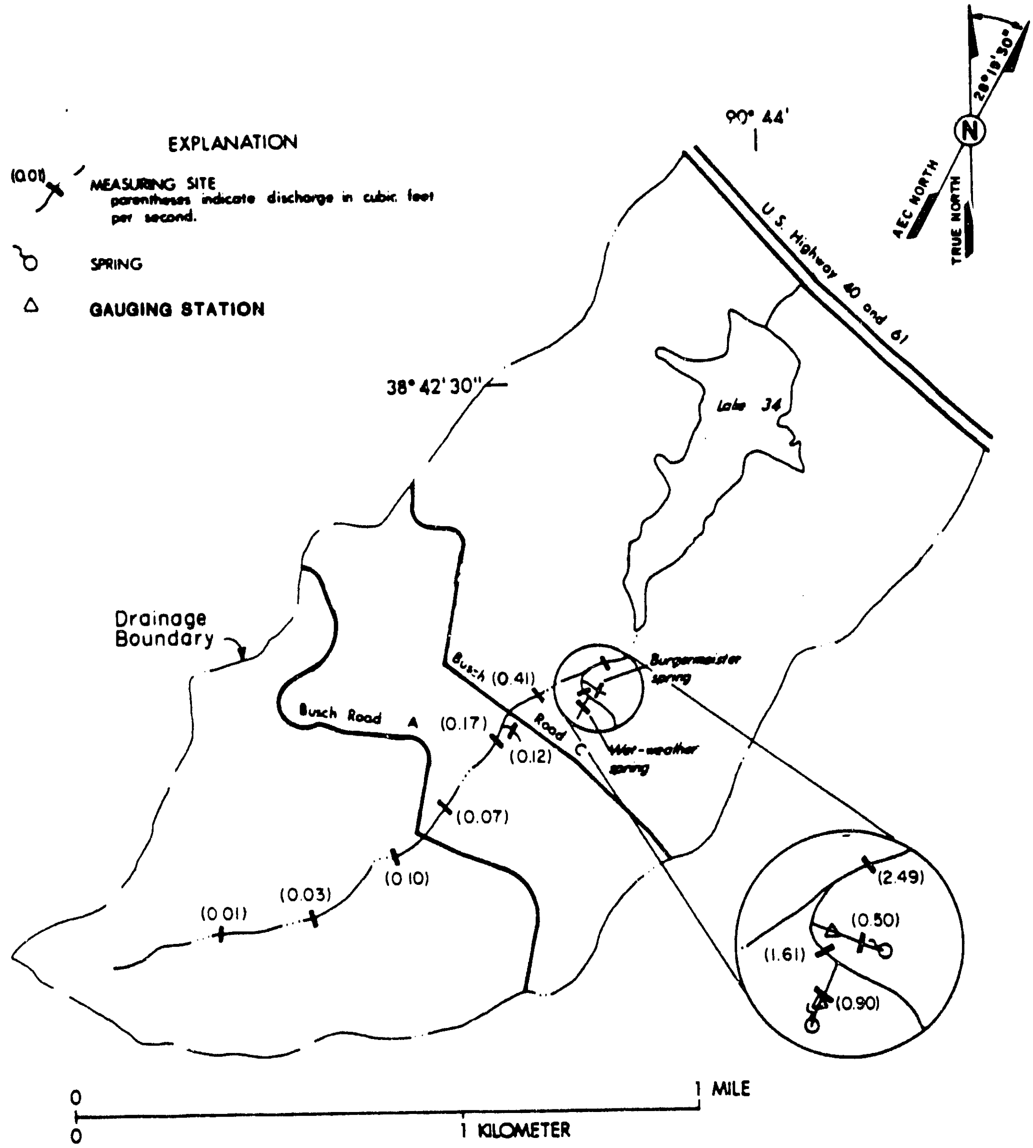
SEE SECTION 12 FOR CONVERSION FACTORS

SOURCE: KLEESCHULTE AND EMMETT 1986

SEEPAGE RUN RESULTS - SCHOTE CREEK AND VICINITY, DECEMBER 11, 1984

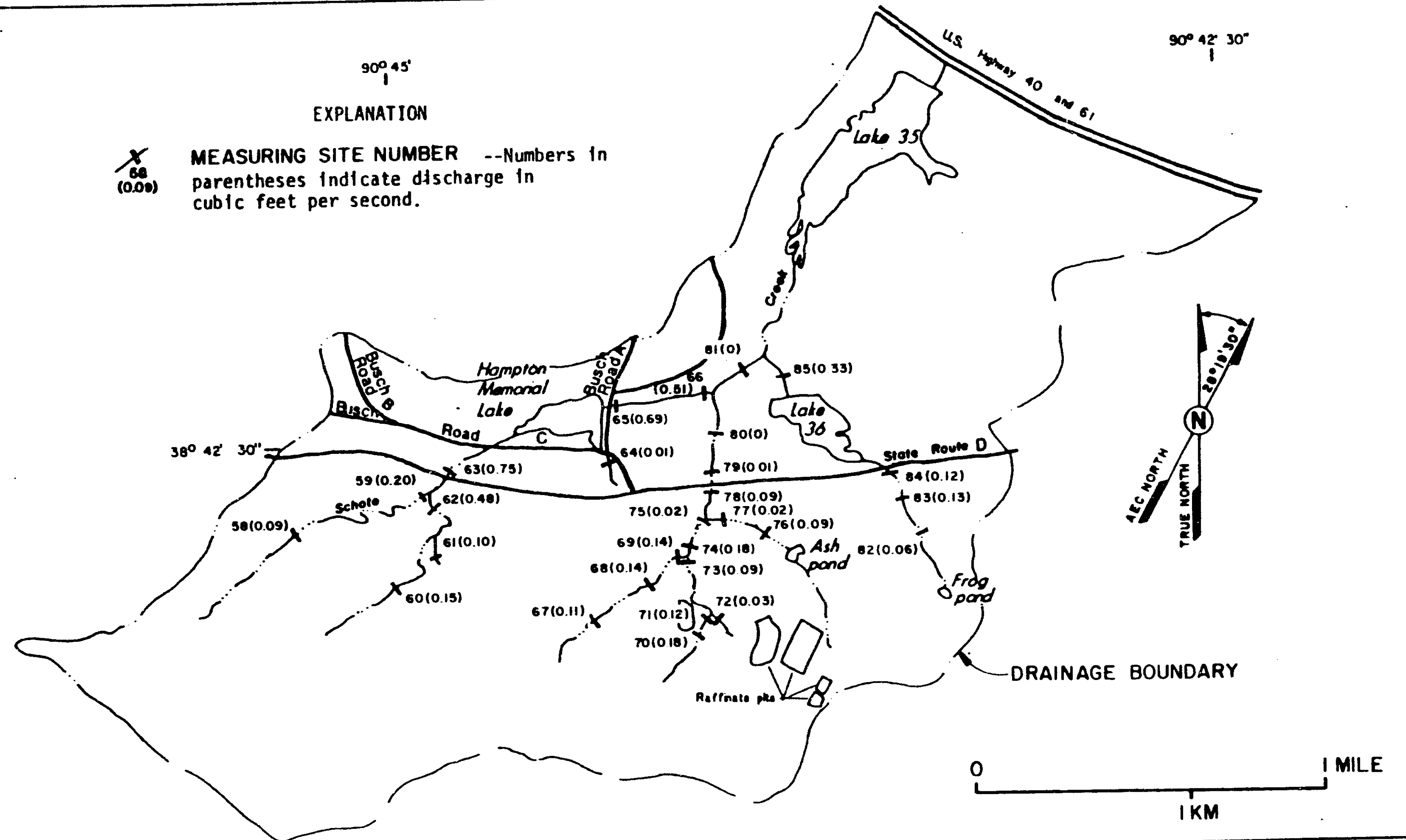
FIGURE 4.4-6

REPORT NO.:	DOE/OR/21548-074		EXHIBIT NO.:	A/CP/155/1191	
ORIGINATOR:	BLG	DRAWN BY:	GLN	DATE:	11/91



SOURCE: KLEESCHULTE, 1986

SEEPAGE RUN RESULTS - TRIBUTARY TO DARDEENE CREEK UPSTREAM OF LAKE 34, APRIL 2-3, 1985			
FIGURE 4.4-7			
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/156/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	

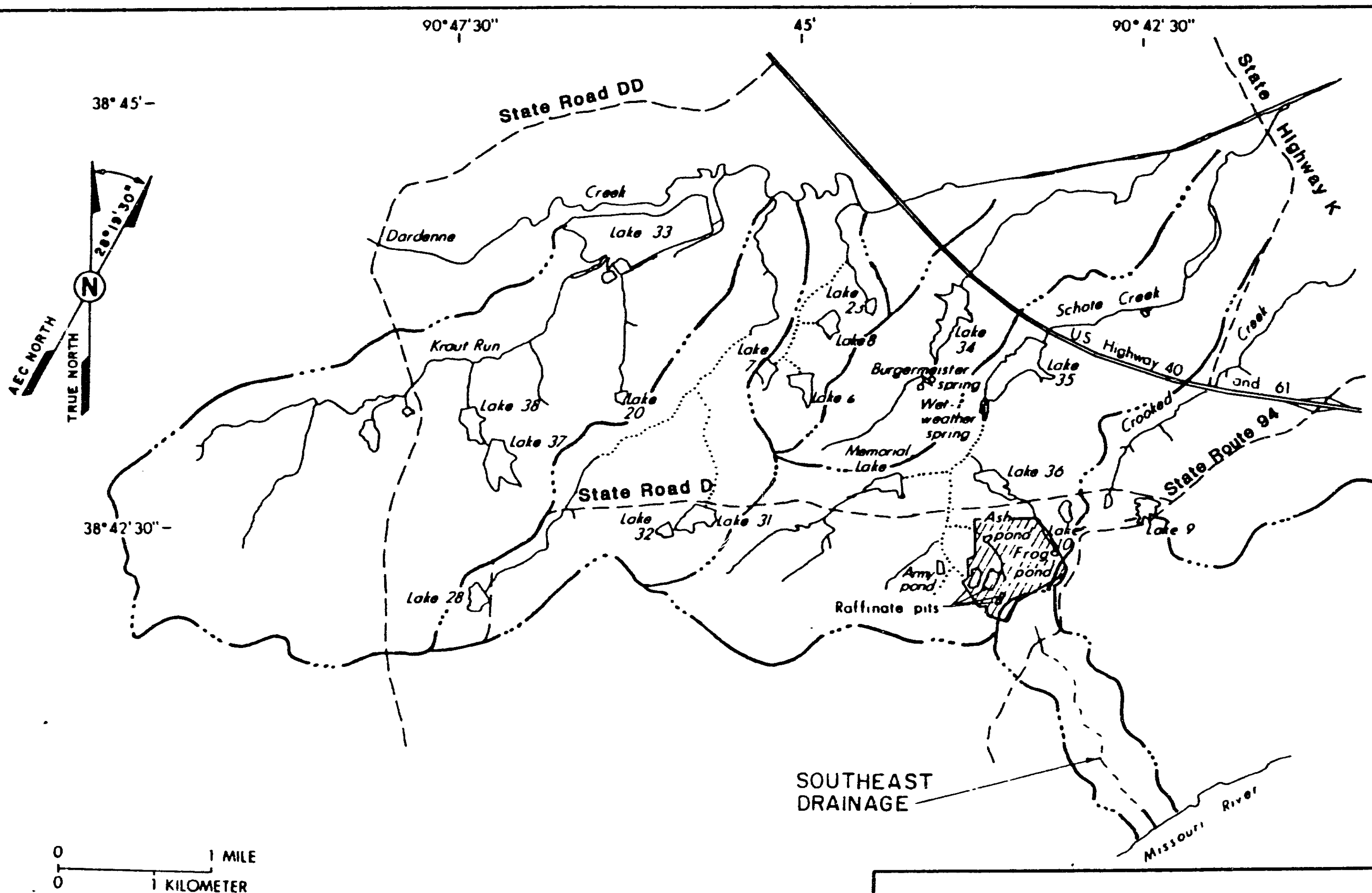


SOURCE: KLEESCHULTE ETAL. 1986

SEEPAGE RUN RESULTS - SCHOTE CREEK UPSTREAM OF LAKE 35, APRIL 2-3, 1985

FIGURE 4.4-8

REPORT NO: DOE/OR/21548-074		EXHIBIT NO.: A/VP/157/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



LEGEND:

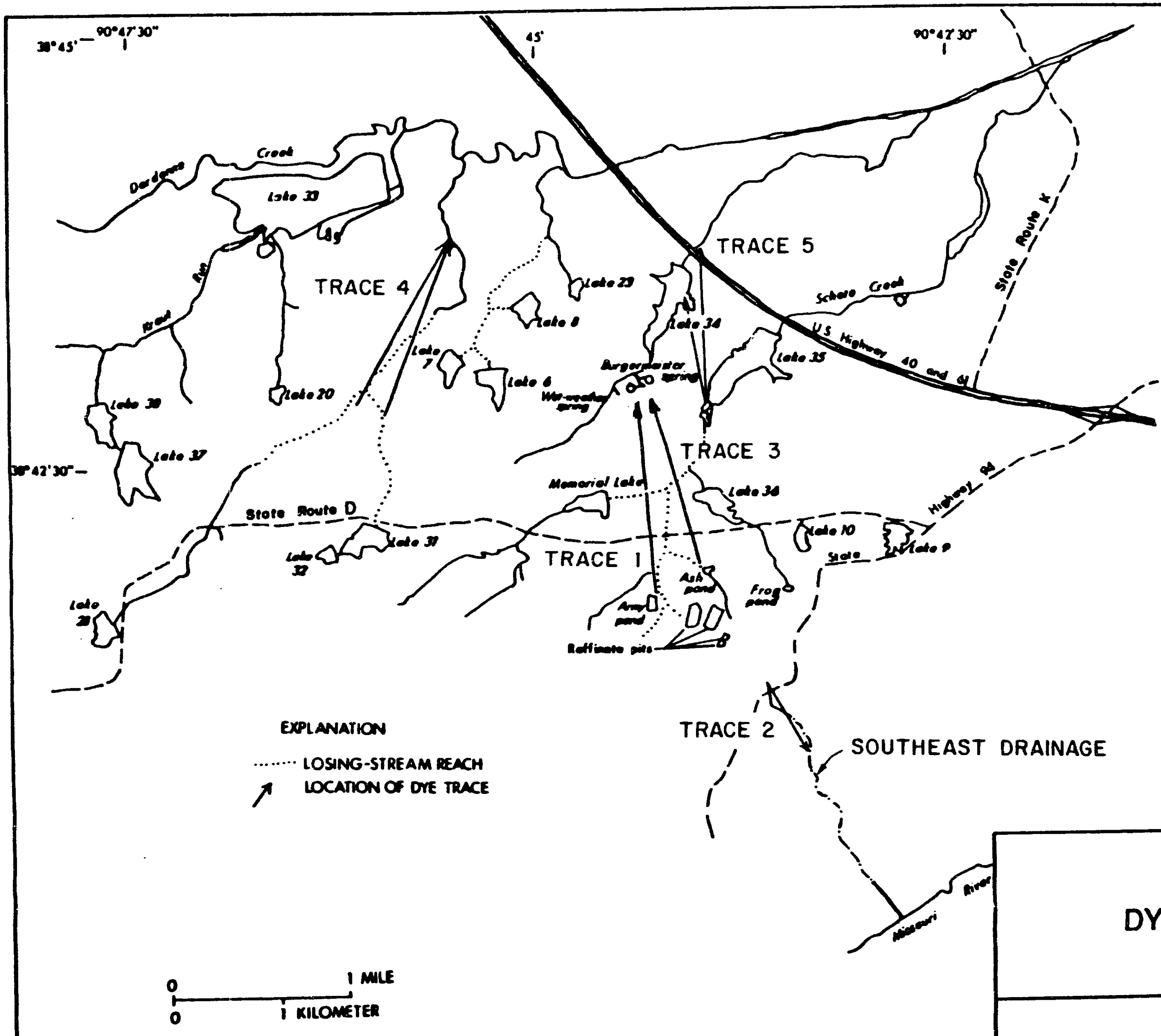
- ·············· LOSING-STREAM REACH
- —·–·— DRAINAGE BOUNDARY

SOURCE : KLEESCHULTE ETAL. 1986

LOSING STREAM REACHES IDENTIFIED FROM SEEPAGE RUNS

FIGURE 4.4-9

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/158/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	

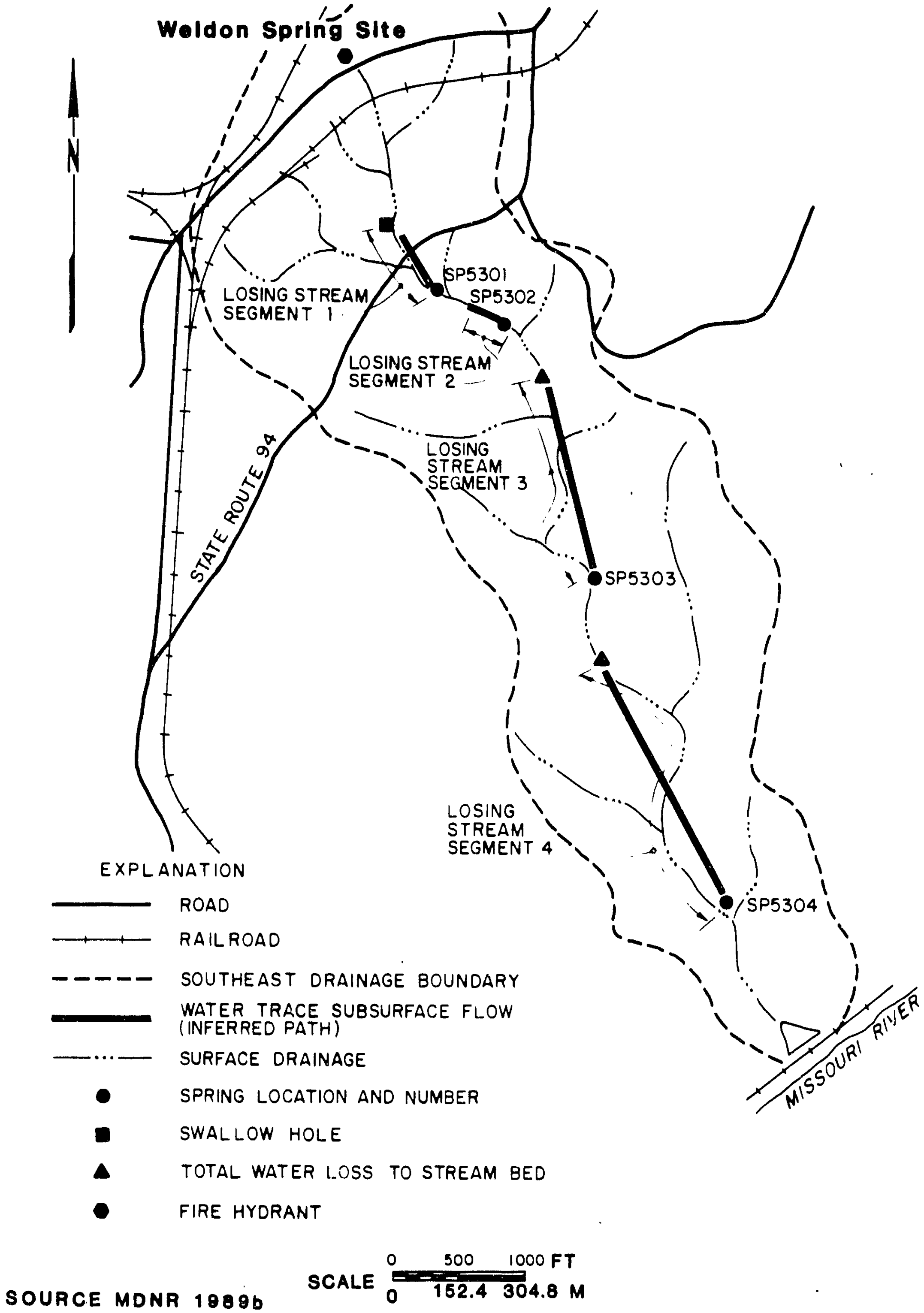


SOURCE: KLEESCHULTE AND EMMETT 1987

DYE TRACES NEAR THE WSS

FIGURE 4.4-10

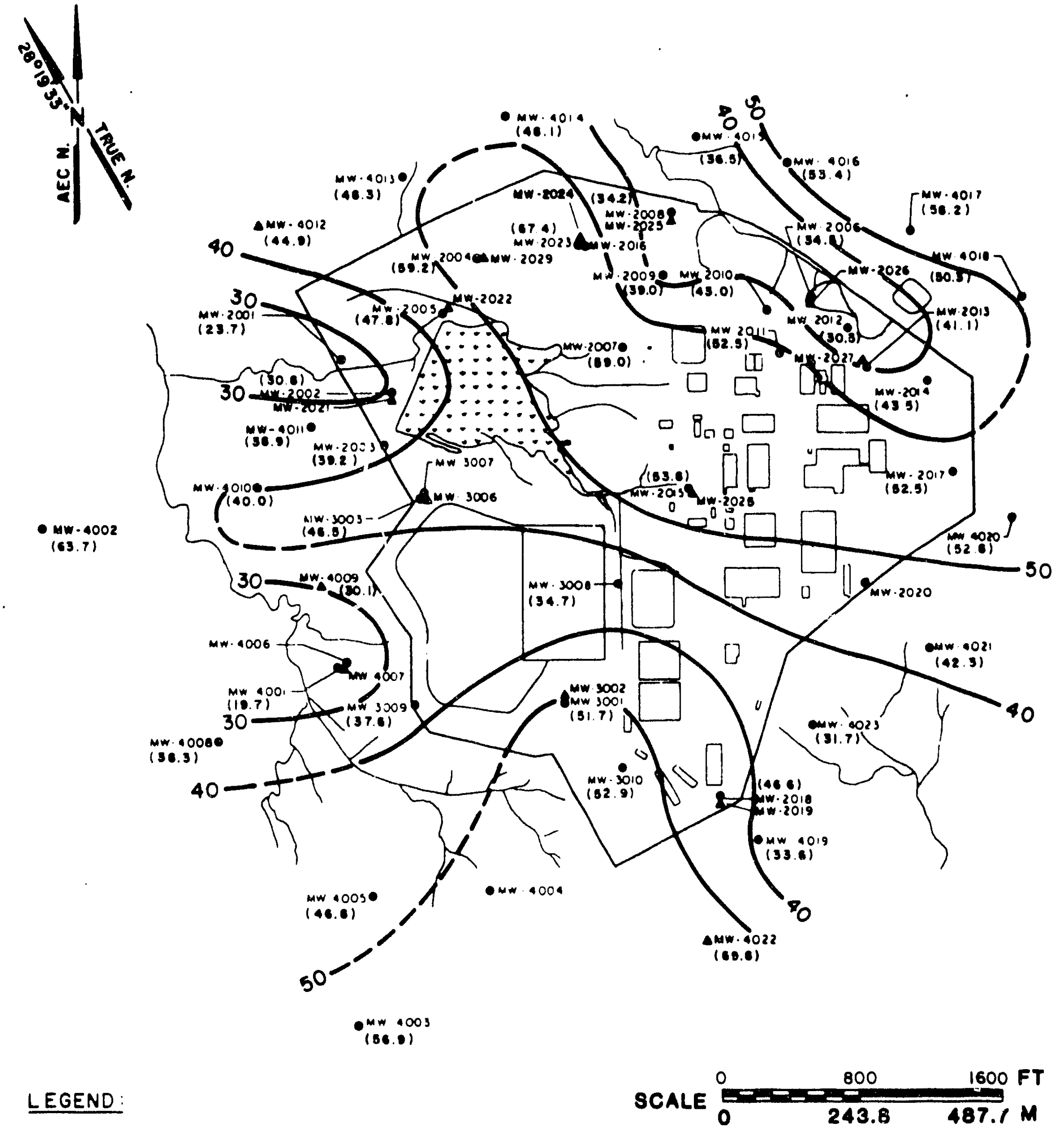
REPORT NO:	DOE/OR/21548-074	EXHIBIT NO:	A/VP/159/1191		
ORIGINATOR:	BLG	DRAWN BY:	GLN	DATE:	11/91



WATER TRACING STUDY
SOUTHEAST DRAINAGE
OCTOBER 28 - NOVEMBER 2, 1987

FIGURE 4.4-11

REPORT NO.:	DOE/OR/21548-074	EXHIBIT NO.:	A/VP/160/1191		
ORIGINATOR:	BLG	DRAWN BY:	GLN	DATE:	11/91



LEGEND:

50 VADOSE ZONE THICKNESS CONTOUR (10 FEET INTERVAL)(FT-MSL)

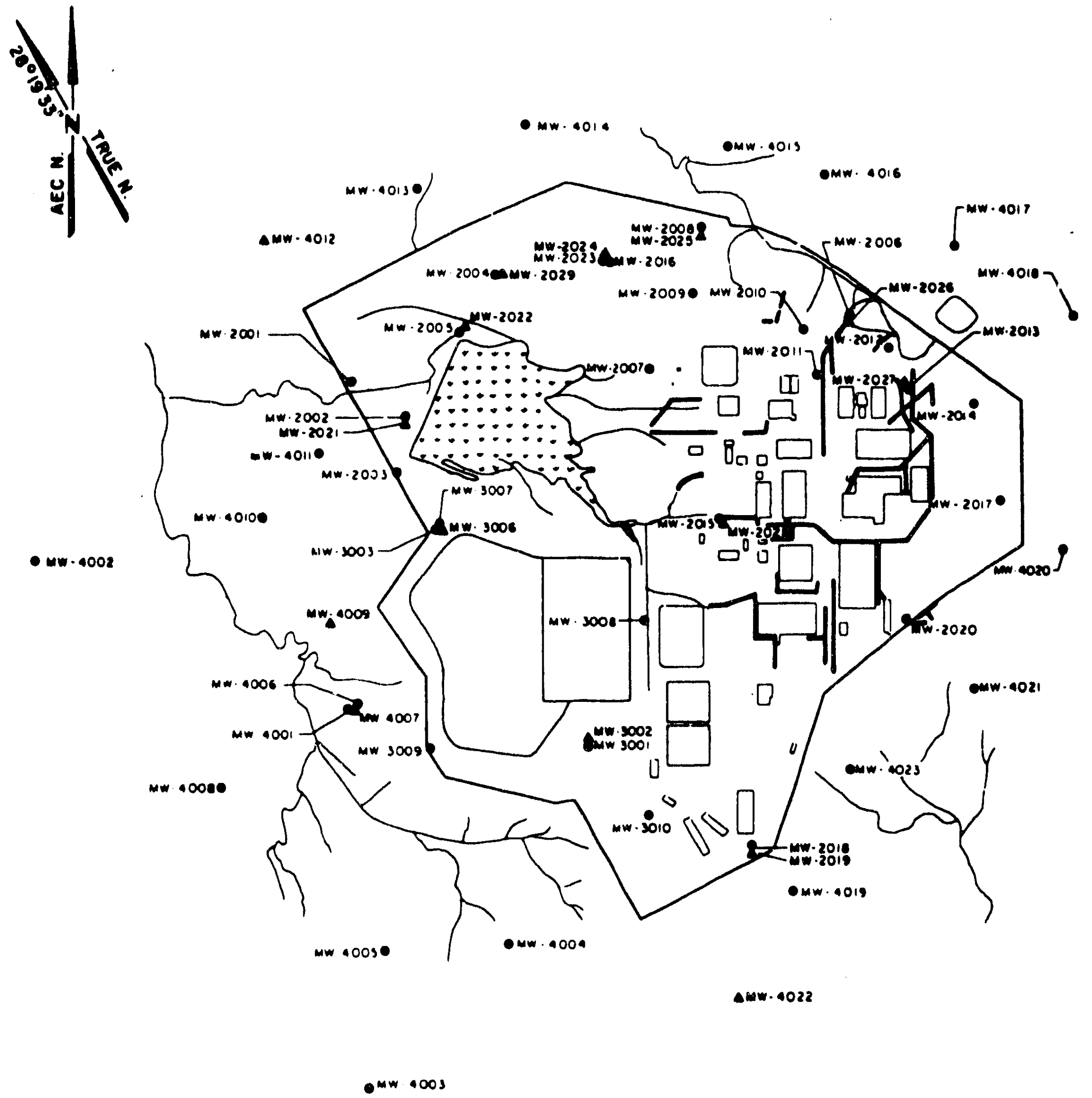
MW-4005 (46.8) DATA POINT WITH GROUNDWATER MONITORING WELL NUMBER AND VADOSE ZONE THICKNESS IN FEET.

NOTE:
VADOSE ZONE THICKNESS BASED ON GROUND ELEVATIONS GIVEN IN TABLE 4.6-1 AND JULY 1988 WATER LEVEL ELEVATIONS GIVEN IN TABLE 4.6-8.

VADOSE ZONE THICKNESS, JULY 1988

FIGURE 4.5-1

REPORT NO.:	DOE/OR/21548-074	EXHIBIT NO.:	A/CP/197/1191		
ORIGINATOR:	BLG	DRAWN BY:	GLN	DATE:	11/91



LEGEND:

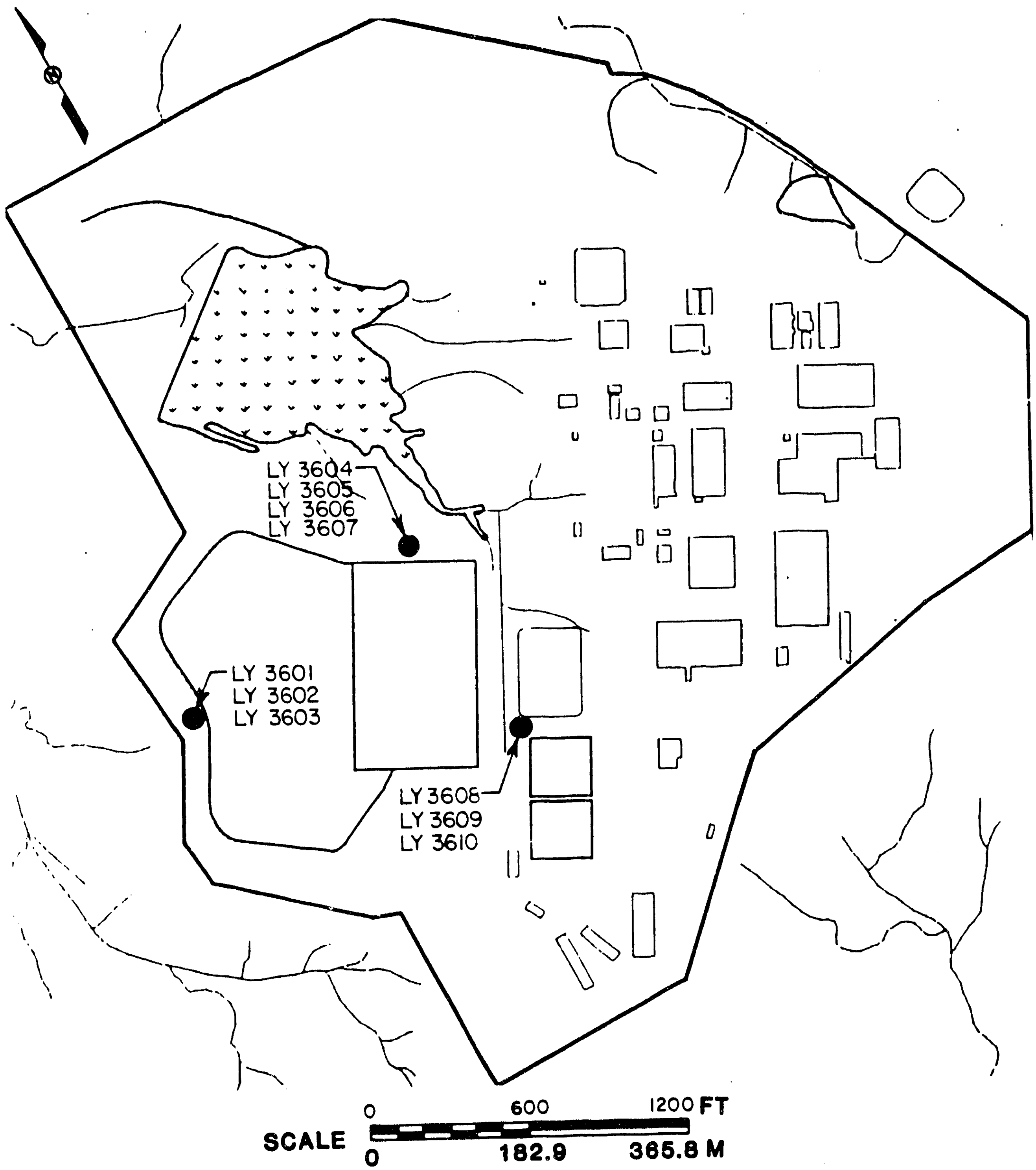
STORM SEWER LINE

SCALE 0 800 1600 FT
0 243.8 487.7 M

STORM SEWER LOCATIONS

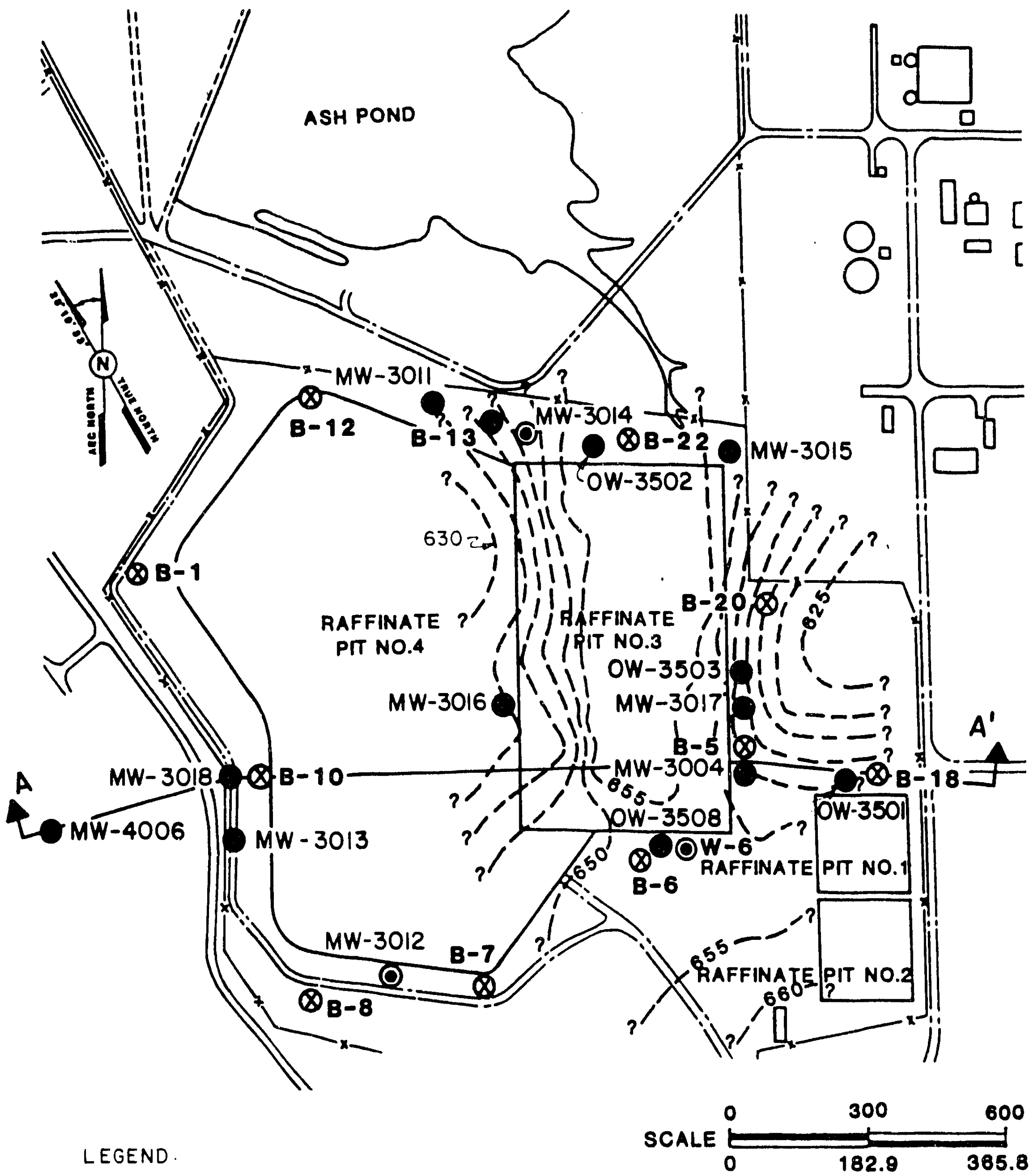
FIGURE 4.5-2

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/198/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



SOURCE : MKF AND JEG 1988†

LYSIMETER LOCATIONS			
FIGURE 4.5-3			
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/199/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



LEGEND

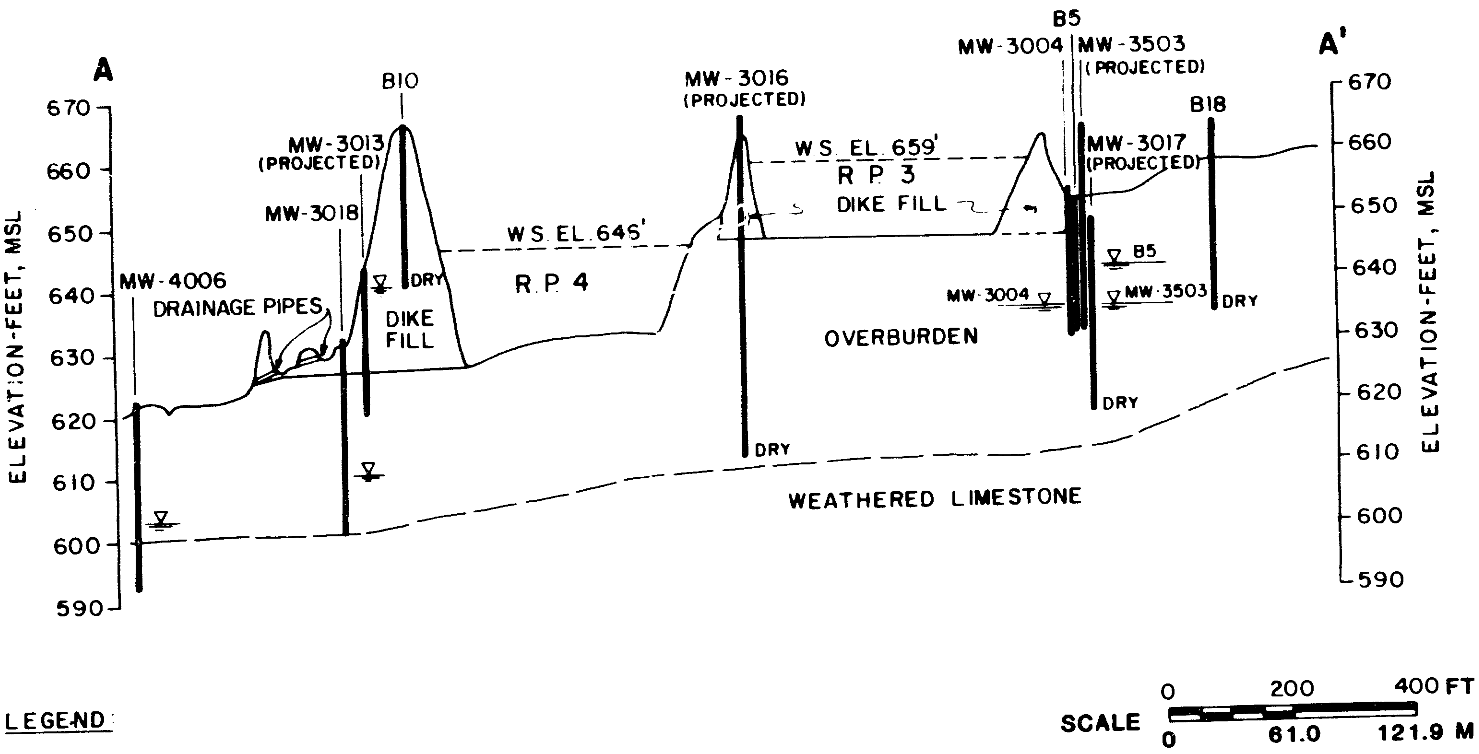
- OVERBURDEN MONITORING WELL
- ABANDONED OVERBURDEN MONITORING WELL
- VIBRATING - WIRE PIEZOMETER
- 655 TOP OF 5000 FT/SEC VELOCITY LAYER CONTOUR (5-FOOT INTERVAL) (BASED ON GEOPHYSICAL SURVEY DATA)

SOURCES: BNI 1984c ; MKF AND JEG 1988t

OVERBURDEN MONITORING WELLS AND PIEZOMETERS

FIGURE 4.5-4

REPORT NO. DOE/OR/21548-074		EXHIBIT NO.: A/RP/003/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE 11/91	



LEGEND:

APPROXIMATE WATER LEVEL IN WELL OR PIEZOMETER

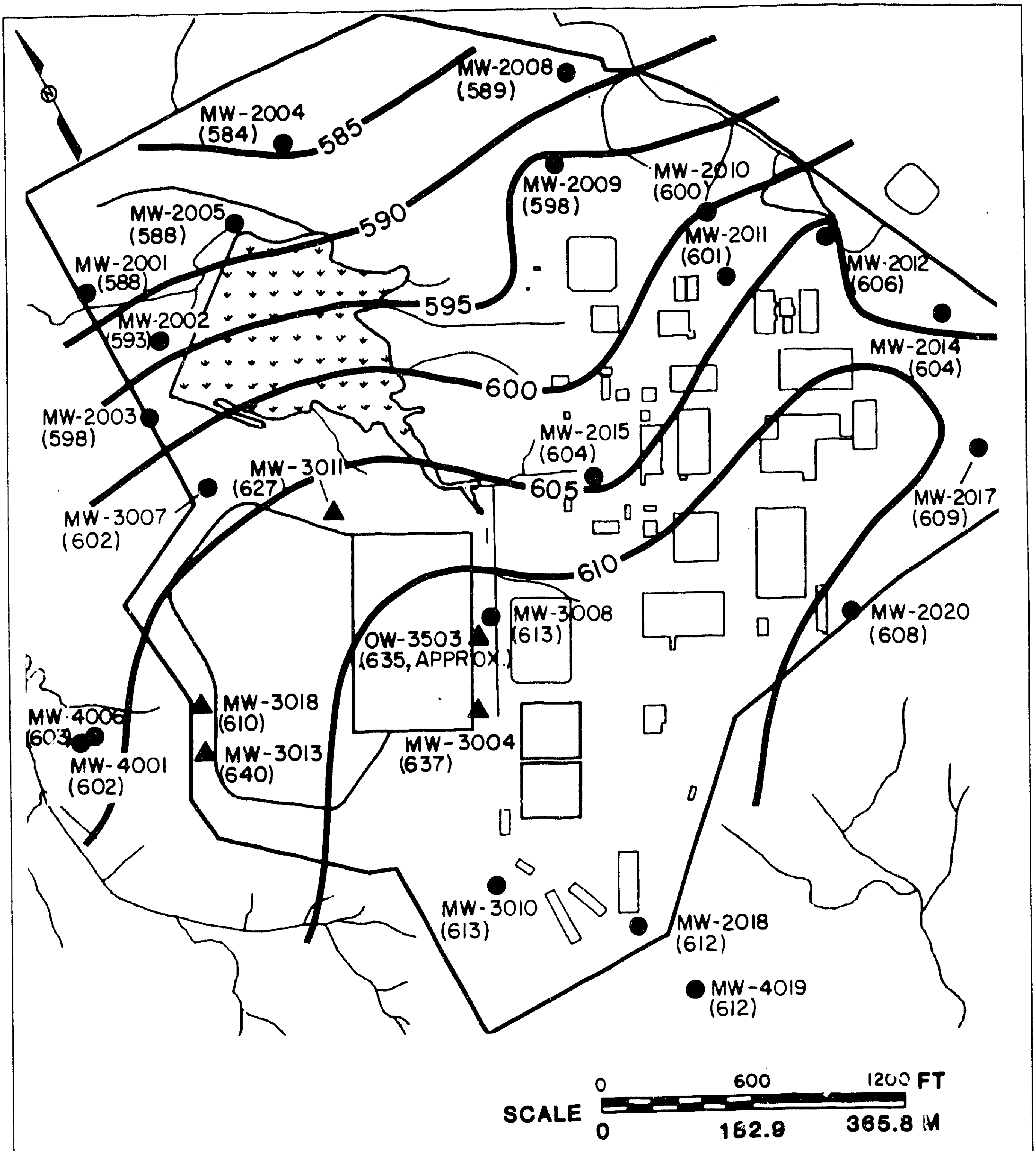
NOTE:
LOCATION OF CROSS SECTION SHOWN ON FIGURE 4.5-4.

SEE SECTION 12 FOR CONVERSION FACTORS
SOURCE: MODIFIED FROM BNI 1984c

CROSS-SECTION THROUGH RAFFINATE PITS 3 AND 4

FIGURE 4.5-5

REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/RP/004/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



LEGEND:

▲ OVERBURDEN MONITORING WELL WITH 7/14/87 WATER LEVEL (FT., MSL)

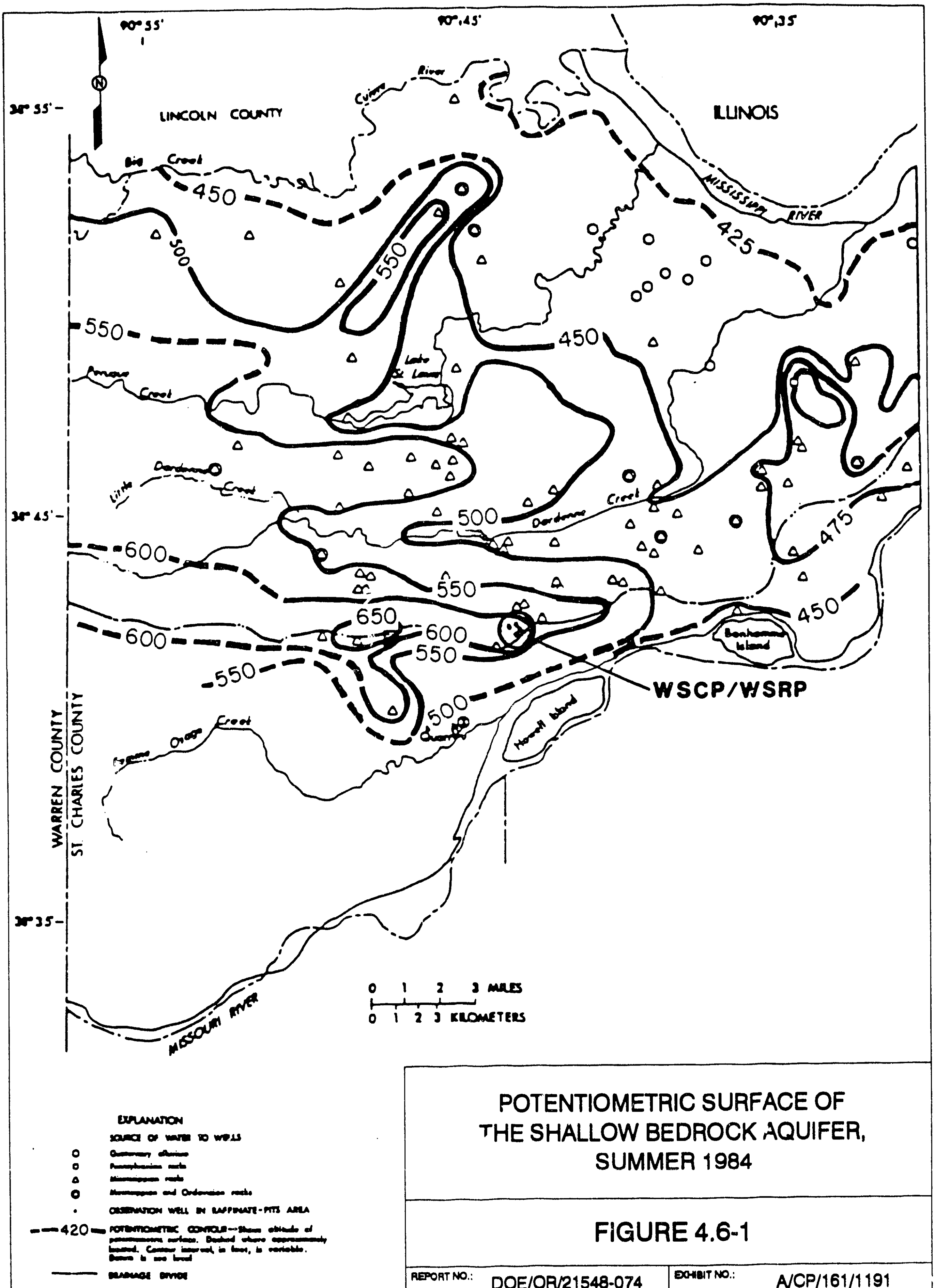
● SHALLOW BEDROCK WELL WITH 7/14/87 WATER LEVEL (FT., MSL) USED TO DEFINE GROUNDWATER LEVEL CONTOURS

610 SHALLOW BEDROCK WELL GROUNDWATER LEVEL CONTOUR, (5-FOOT INTERVAL) (7/14/87)

PERCHED/MOUNDED GROUNDWATER AT THE WSS

FIGURE 4.5-6

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/200/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	

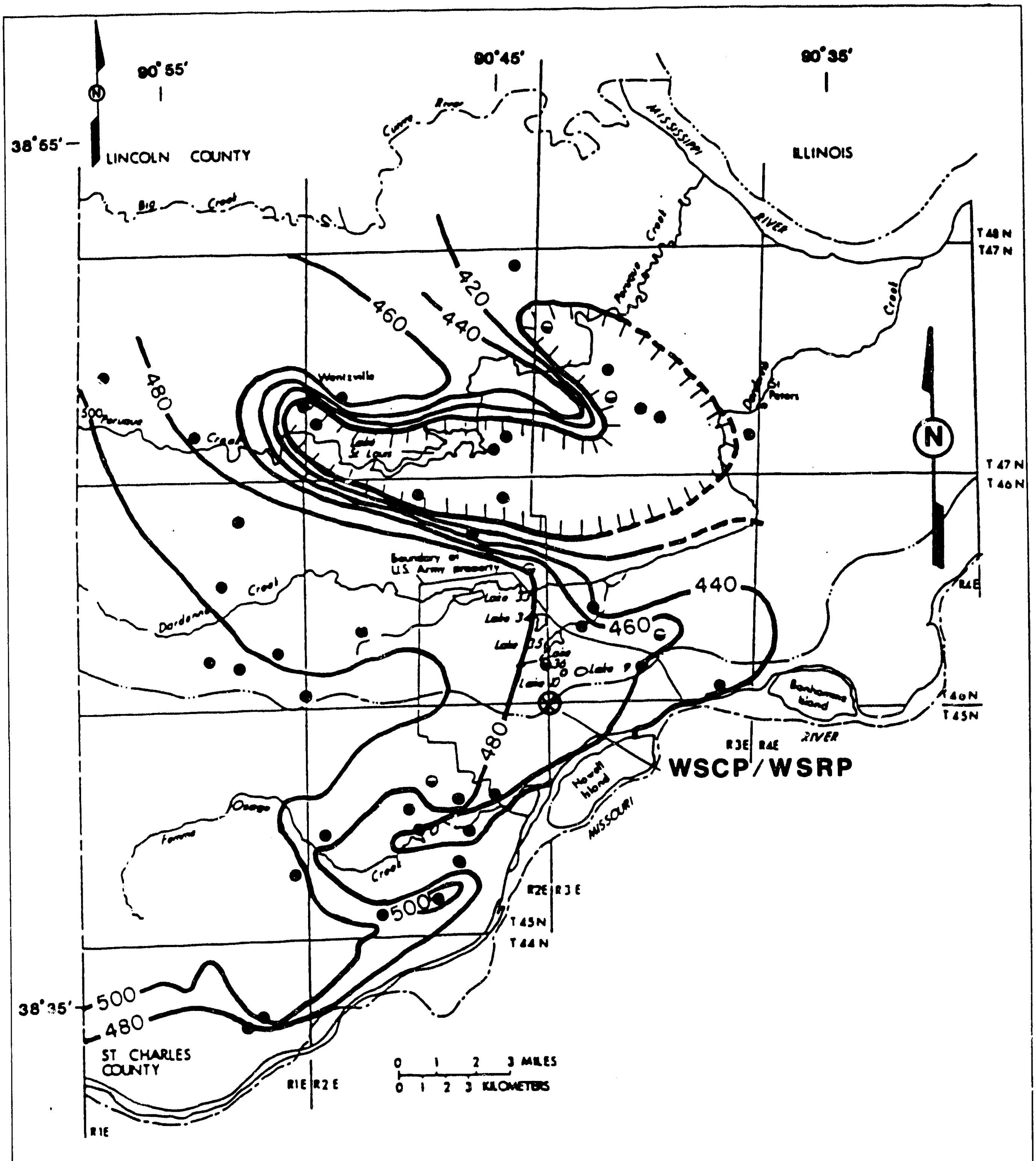


SOURCE : KLEESCHULTE & EMMETT 1986

POTENTIOMETRIC SURFACE OF
THE SHALLOW BEDROCK AQUIFER,
SUMMER 1984

FIGURE 4.6-1

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/161/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



EXPLANATION

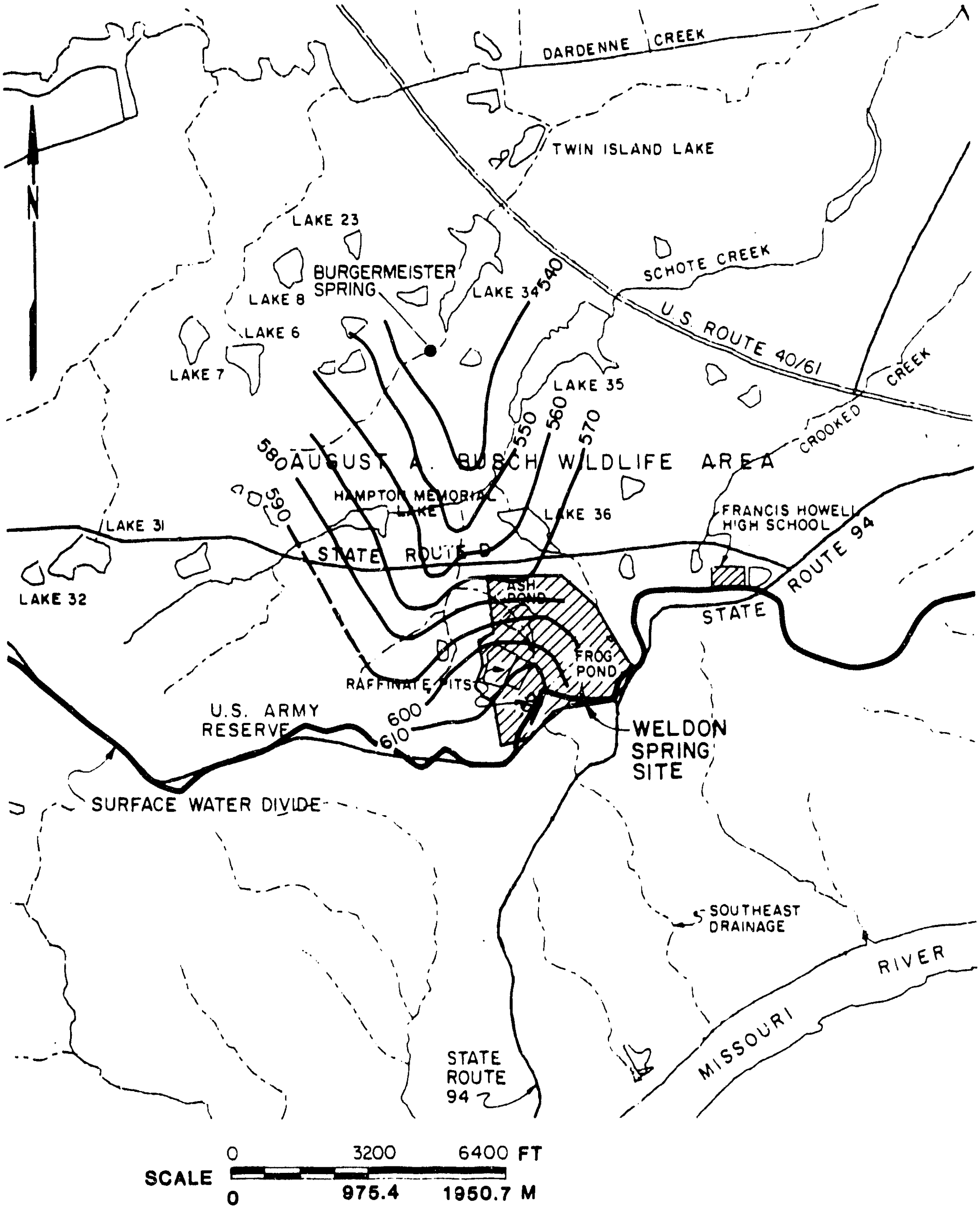
- WELL OPEN TO BOTH THE SHALLOW AND DEEP BEDROCK AQUIFERS
- WELL OPEN TO THE DEEP BEDROCK AQUIFER
- 480 — POTENTIOMETRIC CONTOUR--Shows altitude of potentiometric surface. Dashed where approximately located. Contour interval 20 feet. Datum is sea level
- DRAINAGE DIVIDE
- BOUNDARY OF AREA AFFECTED BY PUMPING--Dashed where approximately located

SOURCE: KLEESCHULTE & EMMETT 1986

POTENTIOMETRIC SURFACE OF THE DEEP BEDROCK AQUIFER, SUMMER 1984

FIGURE 4.6-2

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/162/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



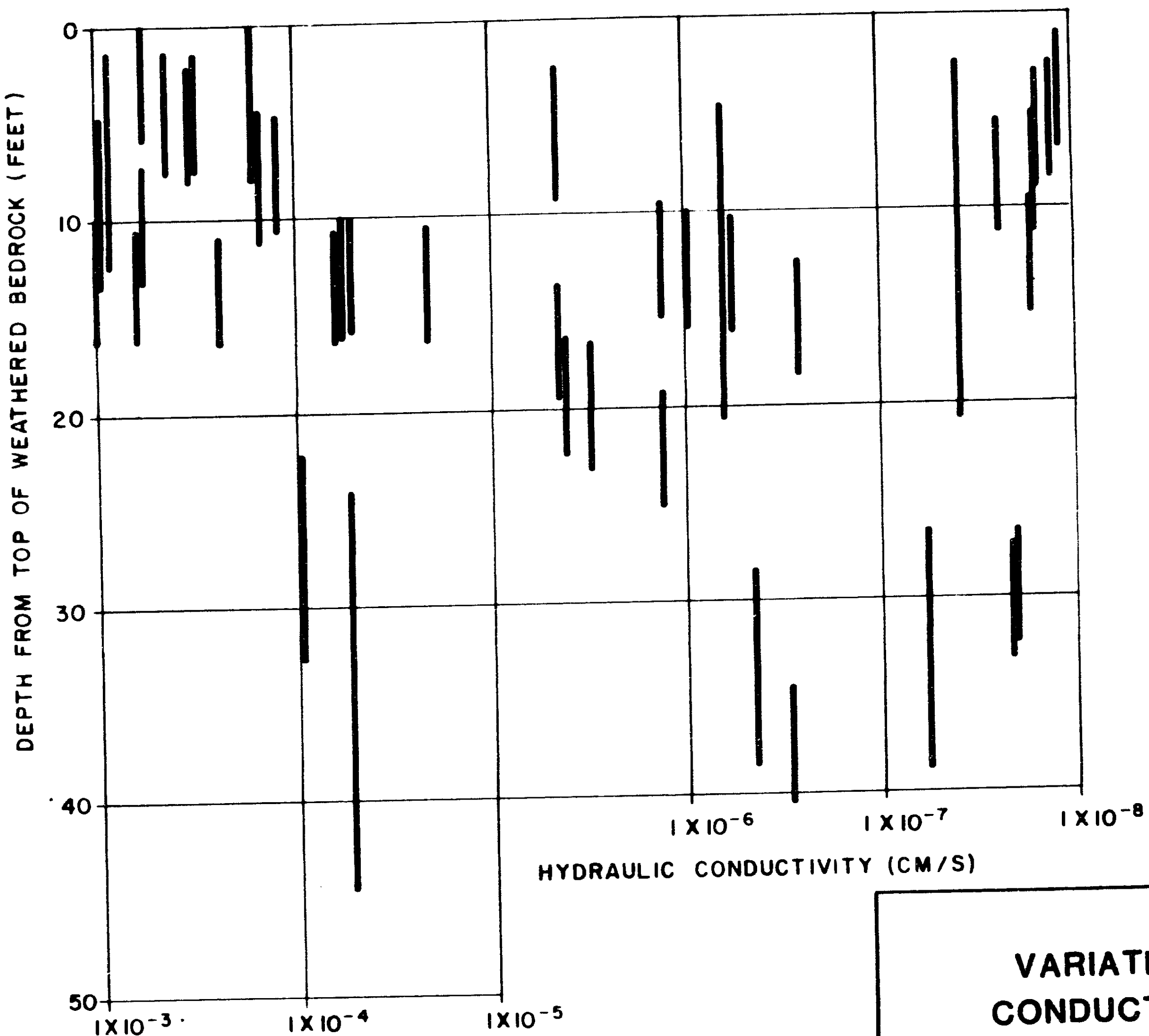
LEGEND:
580 POTENTIOMETRIC CONTOUR (FT-MSL)

SOURCE: KLEESCHULTE & EMMETT 1987

POTENTIOMETRIC SURFACE, SHALLOW BEDROCK AQUIFER – WSS VICINITY, JULY 1987

FIGURE 4.6-3

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/163/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91

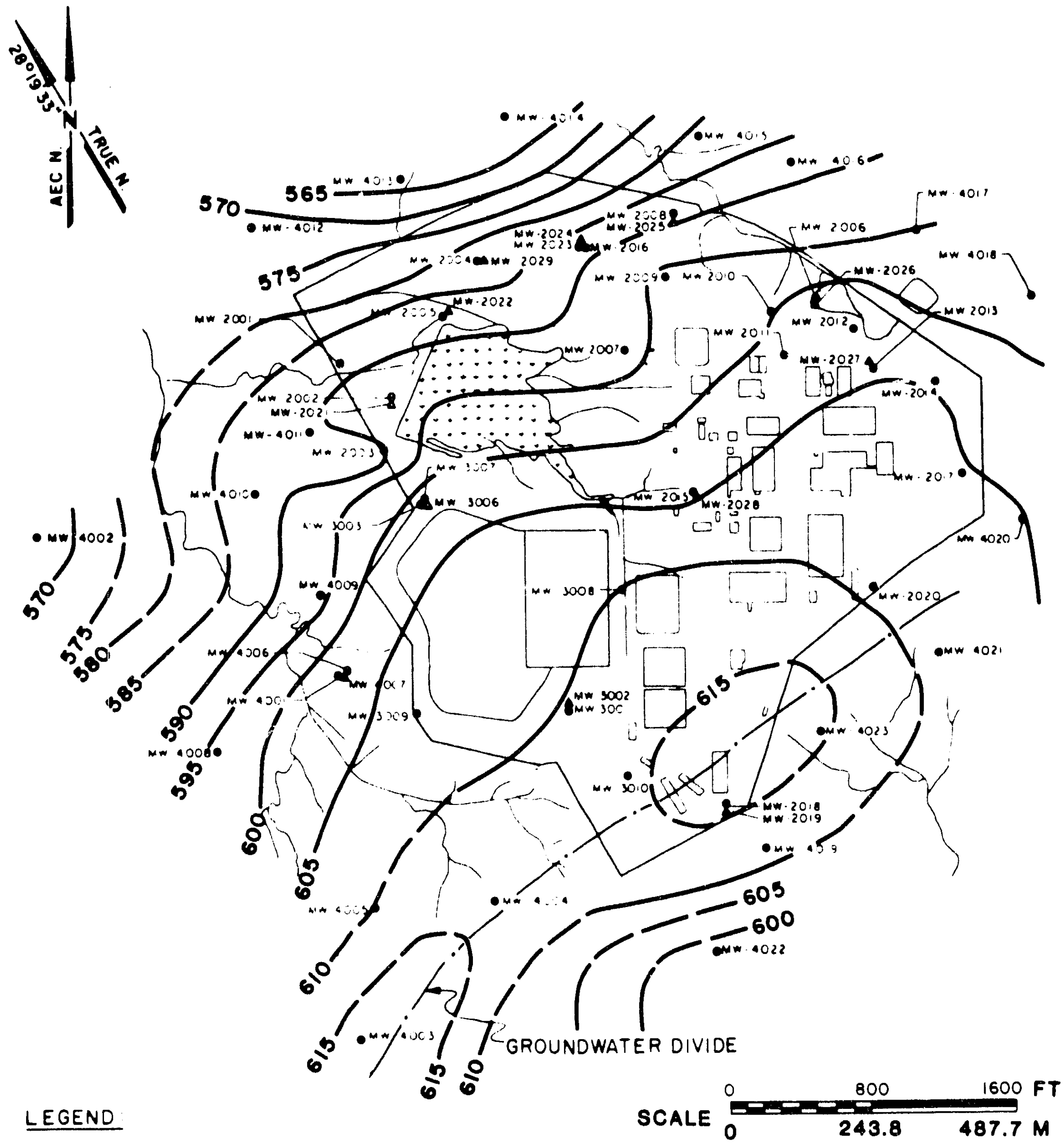


SOURCE : BNI 1987 SEE SECTION 12 FOR CONVERSION FACTORS

VARIATION IN HYDRAULIC CONDUCTIVITY WITH DEPTH

FIGURE 4.6-4

REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/PI/233/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



LEGEND

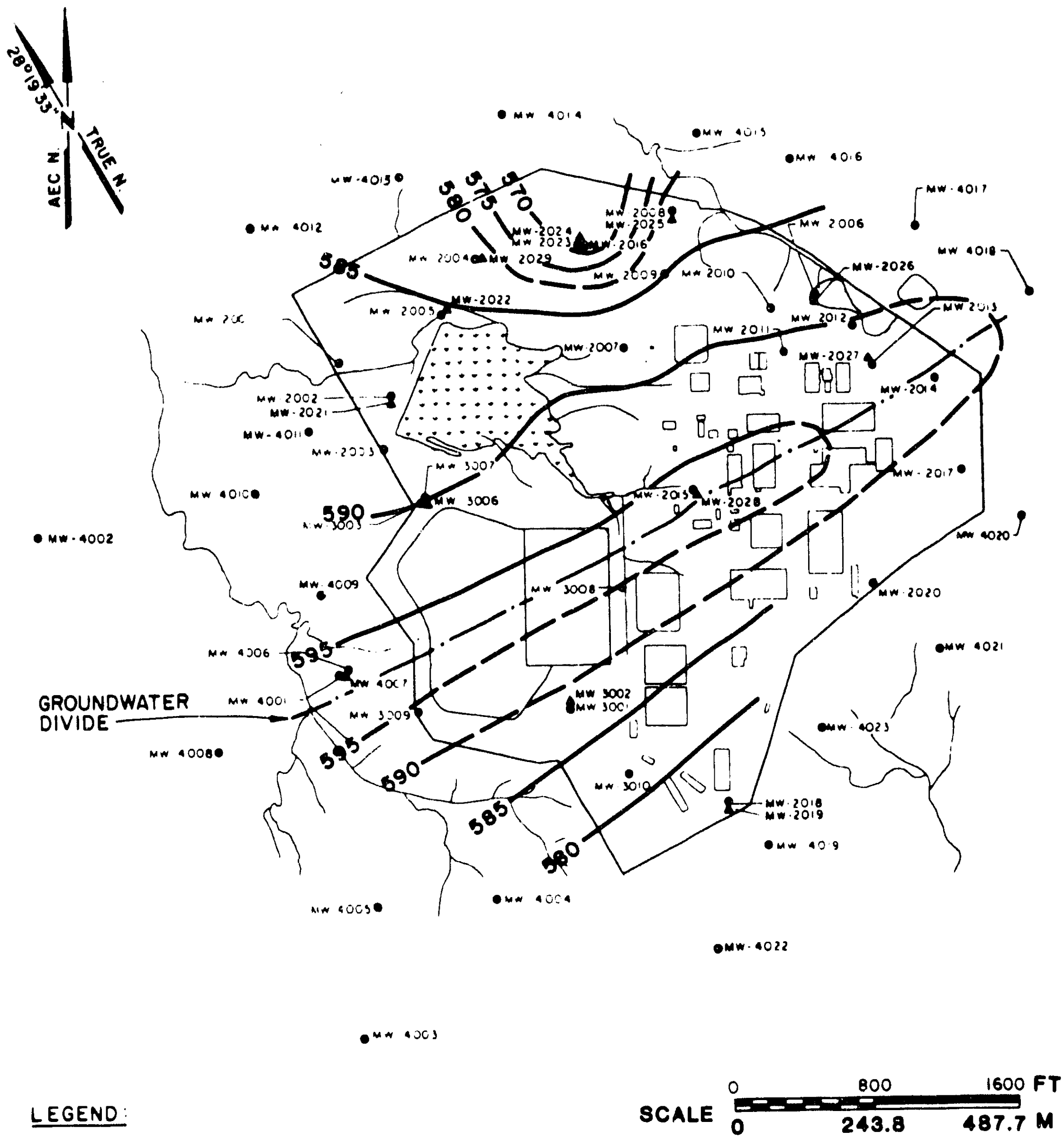
- ● SHALLOW MONITORING WELL
- ▲ DEEP MONITORING WELL
- —600— POTENTIOMETRIC CONTOUR (FT-MSL)

SOURCE: TABLE 4.6-8

POTENTIOMETRIC SURFACE, SHALLOW WELLS - JULY 1988

FIGURE 4.6-5

REPORT NO. DOE/OR/21548-074	EXHIBIT NO. A/CP/201/1191	
ORIGINATOR BLG	DRAWN BY GLN	DATE 11/91



LEGEND:

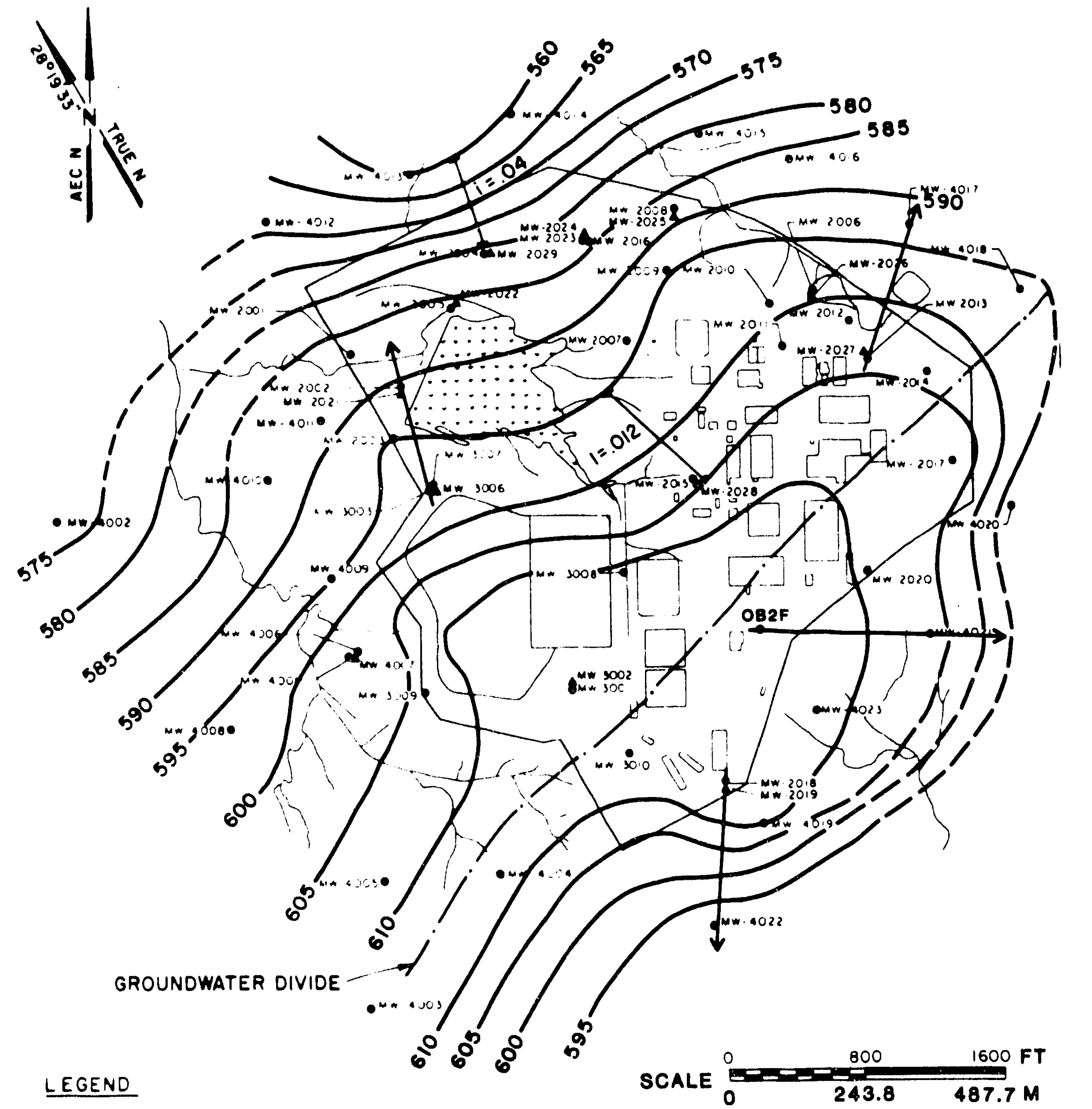
- ● SHALLOW MONITORING WELL
- ▲ DEEP MONITORING WELL
- —595— POTENTIOMETRIC CONTOUR (FT - MSL)

SOURCE: TABLE 4.6-8

POTENTIOMETRIC SURFACE, DEEP WELLS - JULY 1988

FIGURE 4.6-6

REPORT NO: DOE/OR/21548-074		EXHIBIT NO.: A/CP/202/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



LEGEND

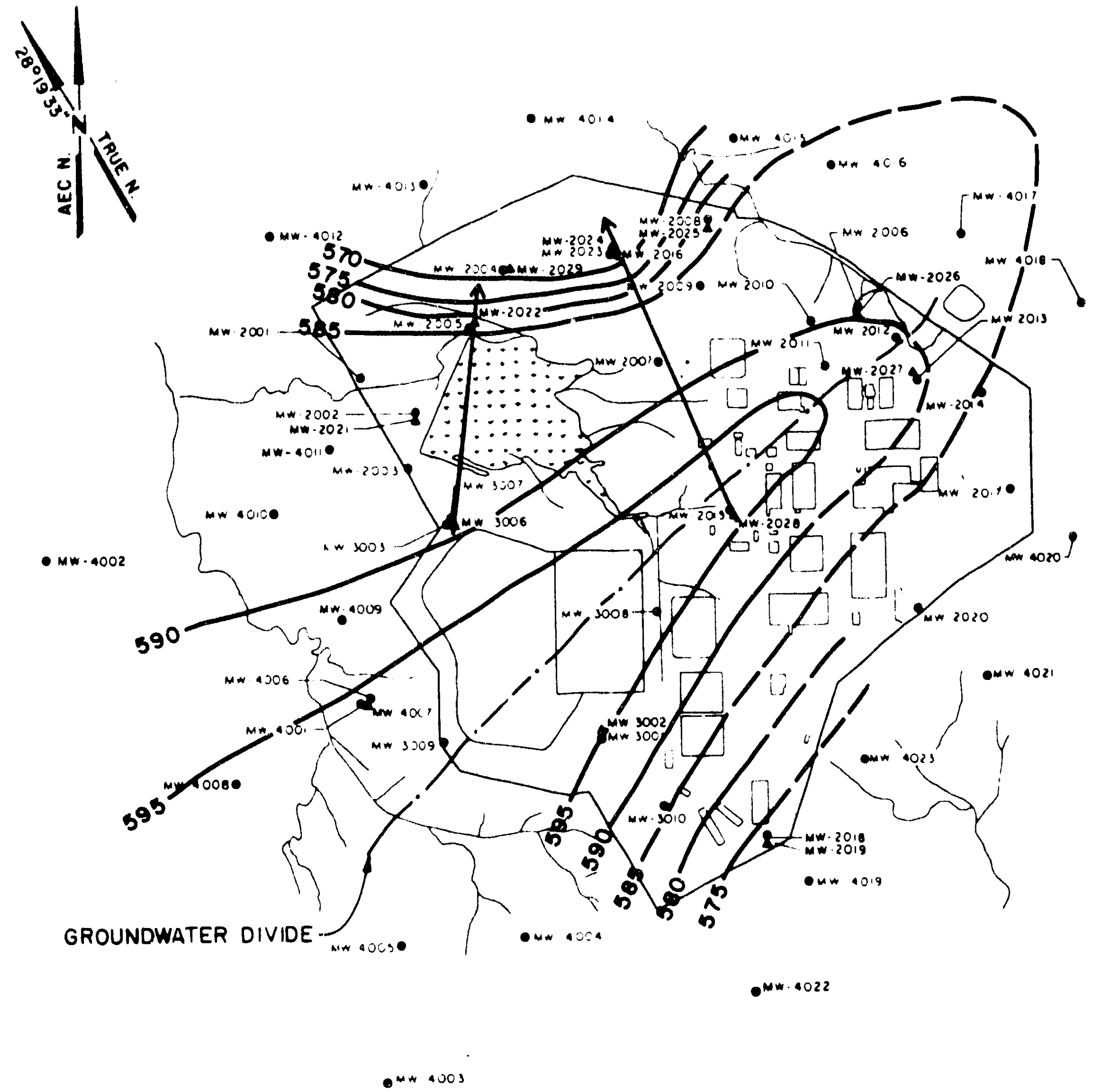
- ● SHALLOW MONITORING WELL
- ▲ DEEP MONITORING WELL
- —600— POTENTIOMETRIC CONTOUR (FT - MSL)
- ——→ SHALLOW GROUNDWATER FLOW PATH

SOURCE: TABLE 4.6-8

POTENTIOMETRIC SURFACE,
SHALLOW WELLS - DECEMBER 1988

FIGURE 4.6-7

REPORT NO. DOE/OR/21548-074	EXHIBIT NO. A/CP/203/1191	
ORIGINATOR BLG	DRAWN BY GLN	DATE 11/91



LEGEND:

- ● SHALLOW MONITORING WELL
- ▲ DEEP MONITORING WELL
- —595— POTENTIOMETRIC CONTOUR (FT-MSL)
- ———→ DEEP GROUNDWATER FLOW PATH

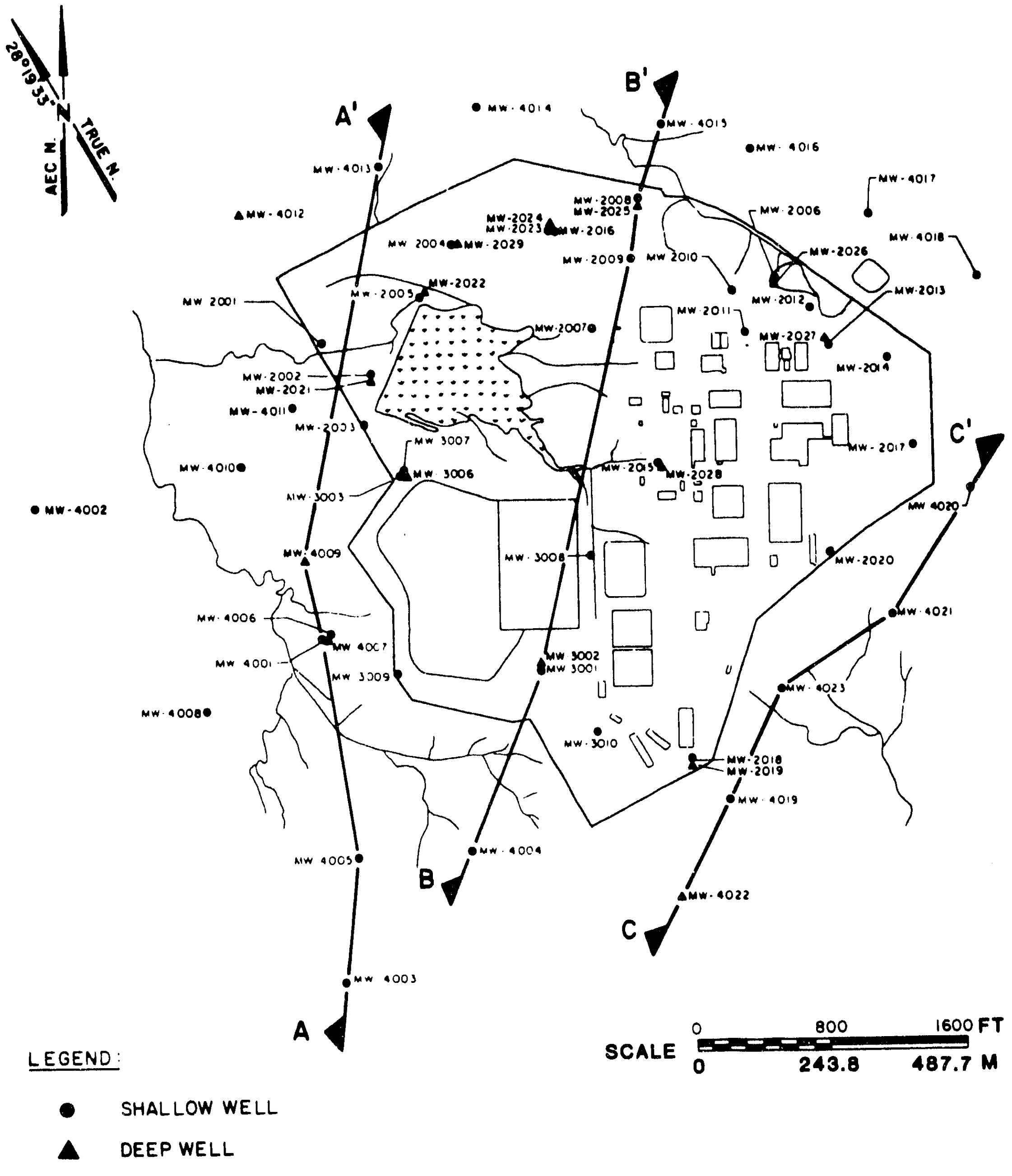
SCALE 0 800 1600 FT / 0 243.8 487.7 M

SOURCE: TABLE 4.6-8

POTENTIOMETRIC SURFACE, DEEP WELLS - DECEMBER 1988

FIGURE 4.6-8

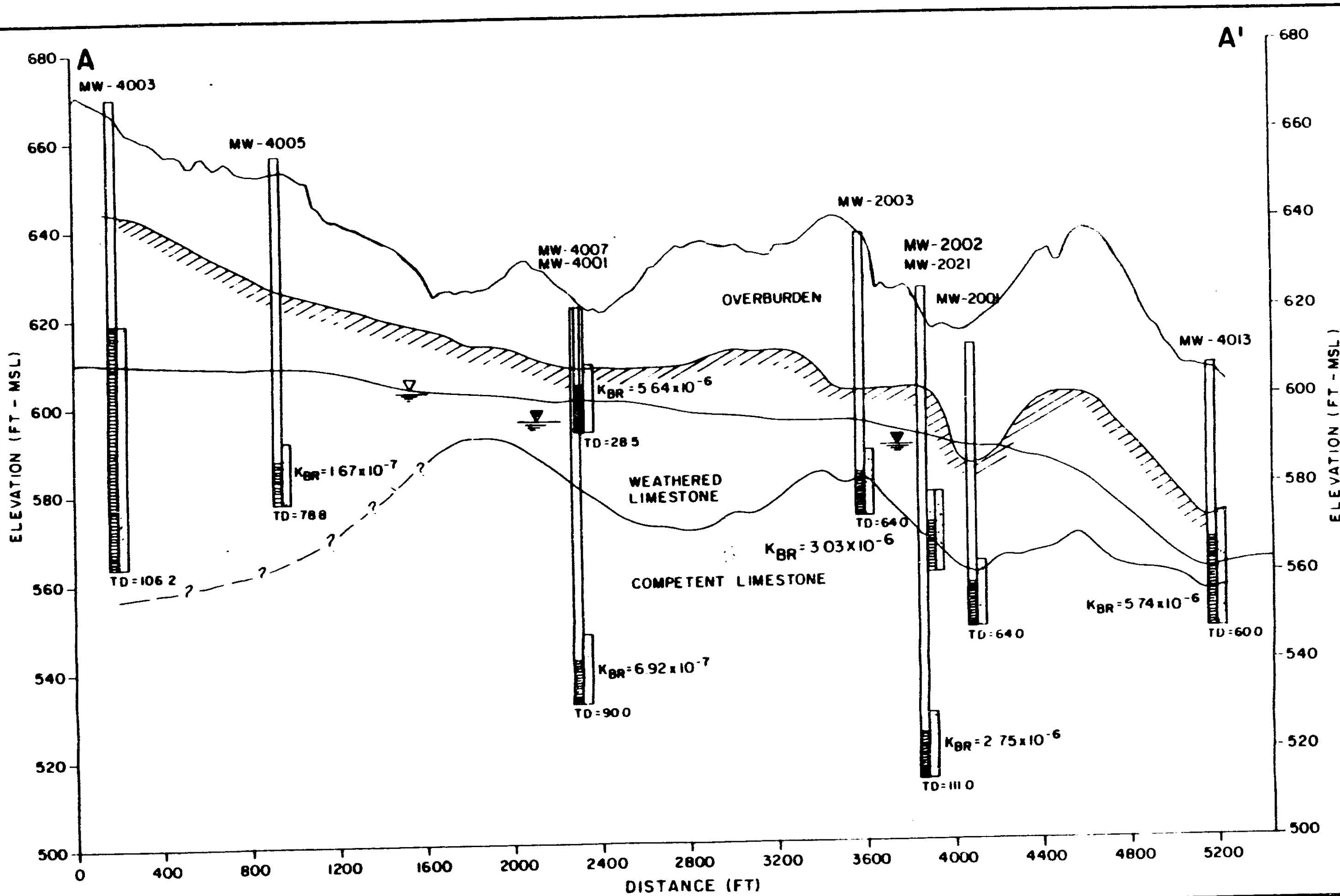
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/204/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



HYDROGEOLOGIC CROSS-SECTION LOCATIONS

FIGURE 4.6-9

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/205/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



LEGEND:

POTENTIOMETRIC SURFACE IN SHALLOW WELLS (DEC. 1988)

POTENTIOMETRIC SURFACE IN DEEP WELLS (DEC. 1988)

K_{BR} = HYDRAULIC CONDUCTIVITY AS DETERMINED FROM IN SITU TESTS (cm/s)

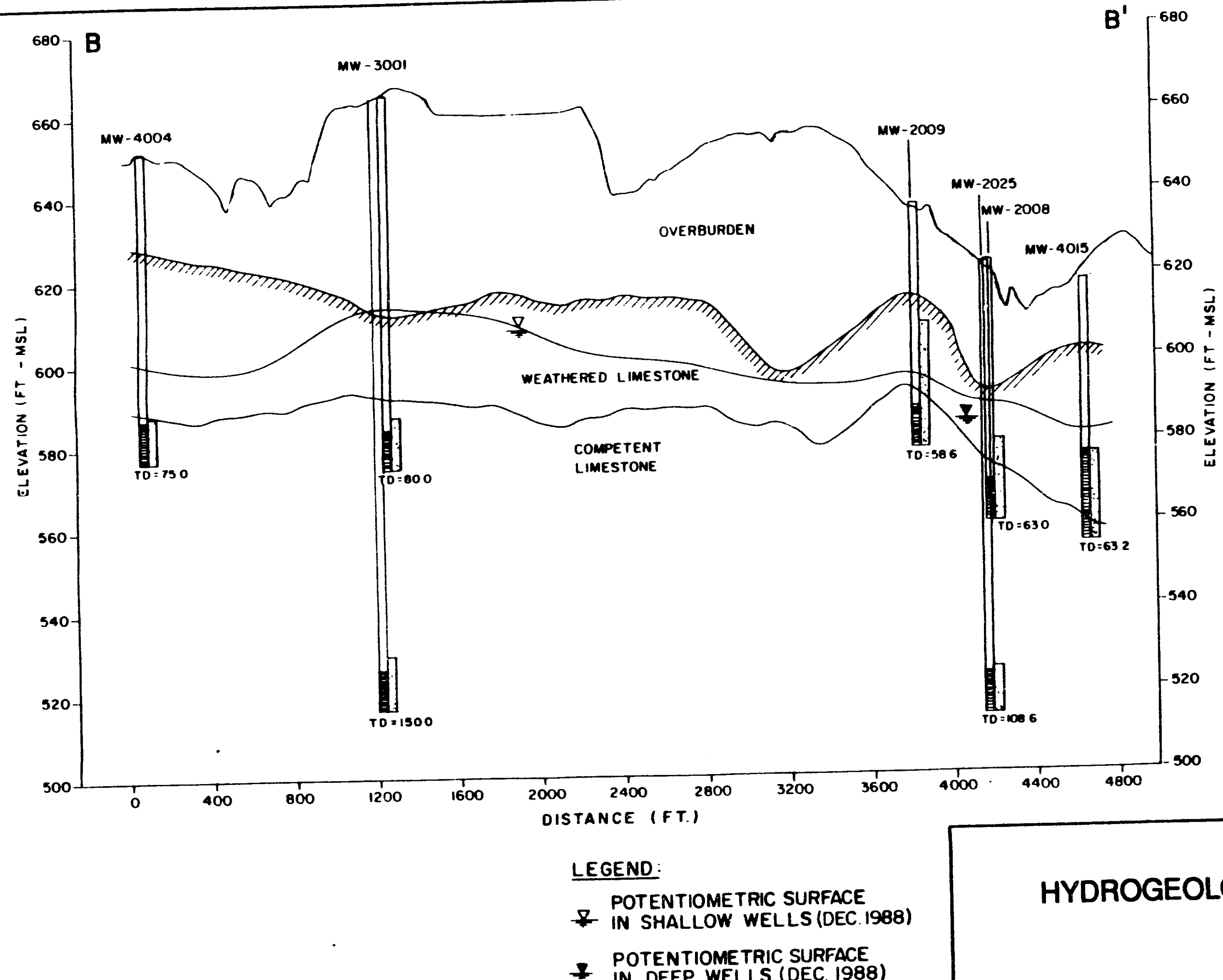
VERTICAL EXAGGERATION 20:1

SEE SECTION 12 FOR CONVERSION FACTORS

HYDROGEOLOGIC CROSS-SECTION A-A'

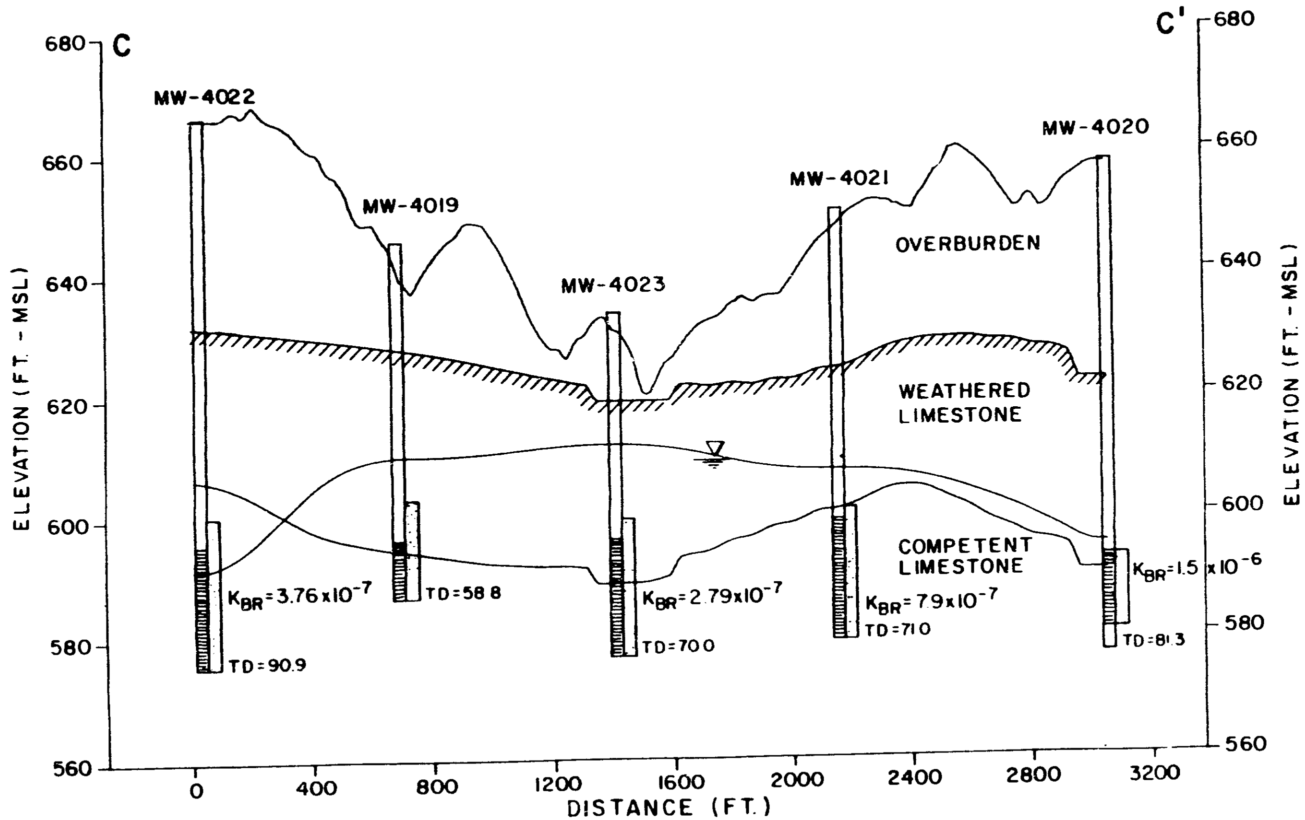
FIGURE 4.6–10

REPORT NO.: DOE/OR/21548–074		EXHIBIT NO.: A/CP/206/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



VERTICAL EXAGGERATION 20:1 SEE SECTION 12 FOR CONVERSION FACTORS

HYDROGEOLOGIC CROSS-SECTION B-B'	
FIGURE 4.6-11	
REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/CP/207/1191
ORIGINATOR: BLG	DRAWN BY: GLN · DATE: 11/91



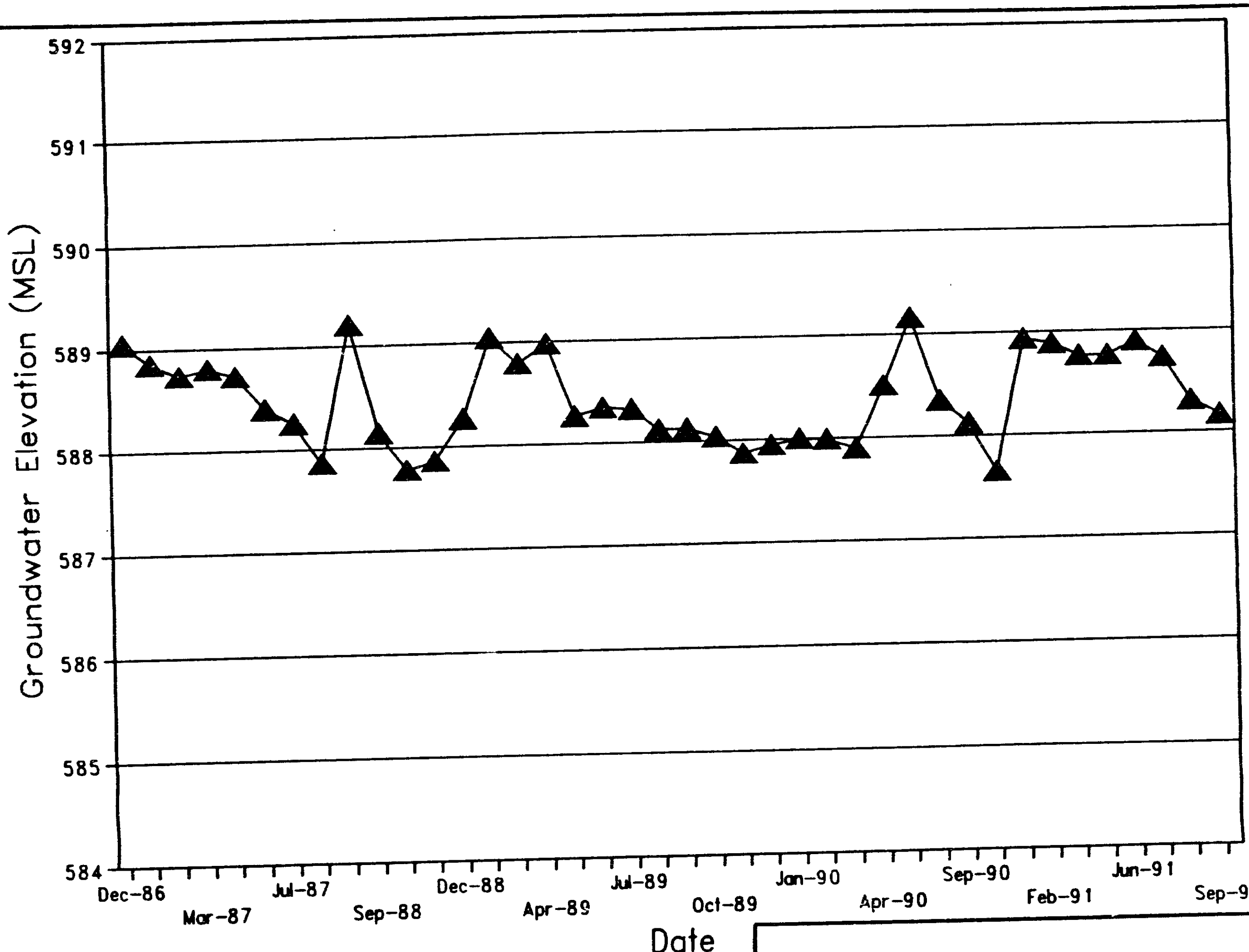
LEGEND:

POTENTIOMETRIC SURFACE (DEC. 1988)

K_{BR} HYDRAULIC CONDUCTIVITY AS DETERMINED BY IN SITU TESTS (cm/s)

VERTICAL EXAGGERATION 20:1 **SEE SECTION 12 FOR CONVERSION FACTORS**

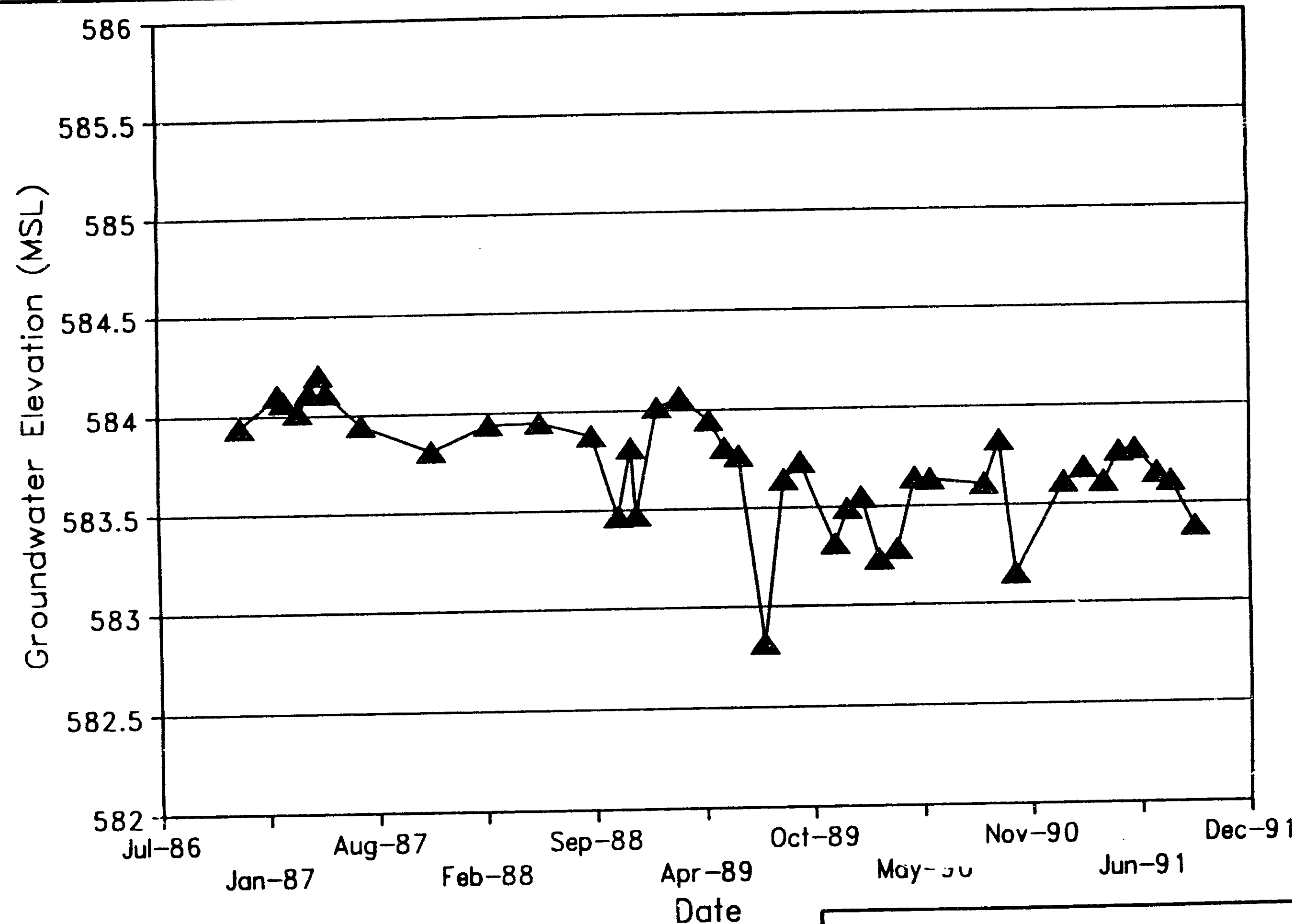
HYDROGEOLOGIC CROSS-SECTION C-C'		
FIGURE 4.6-12		
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/203/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



MW-2001 HYDROGRAPH

FIGURE 4.6-13

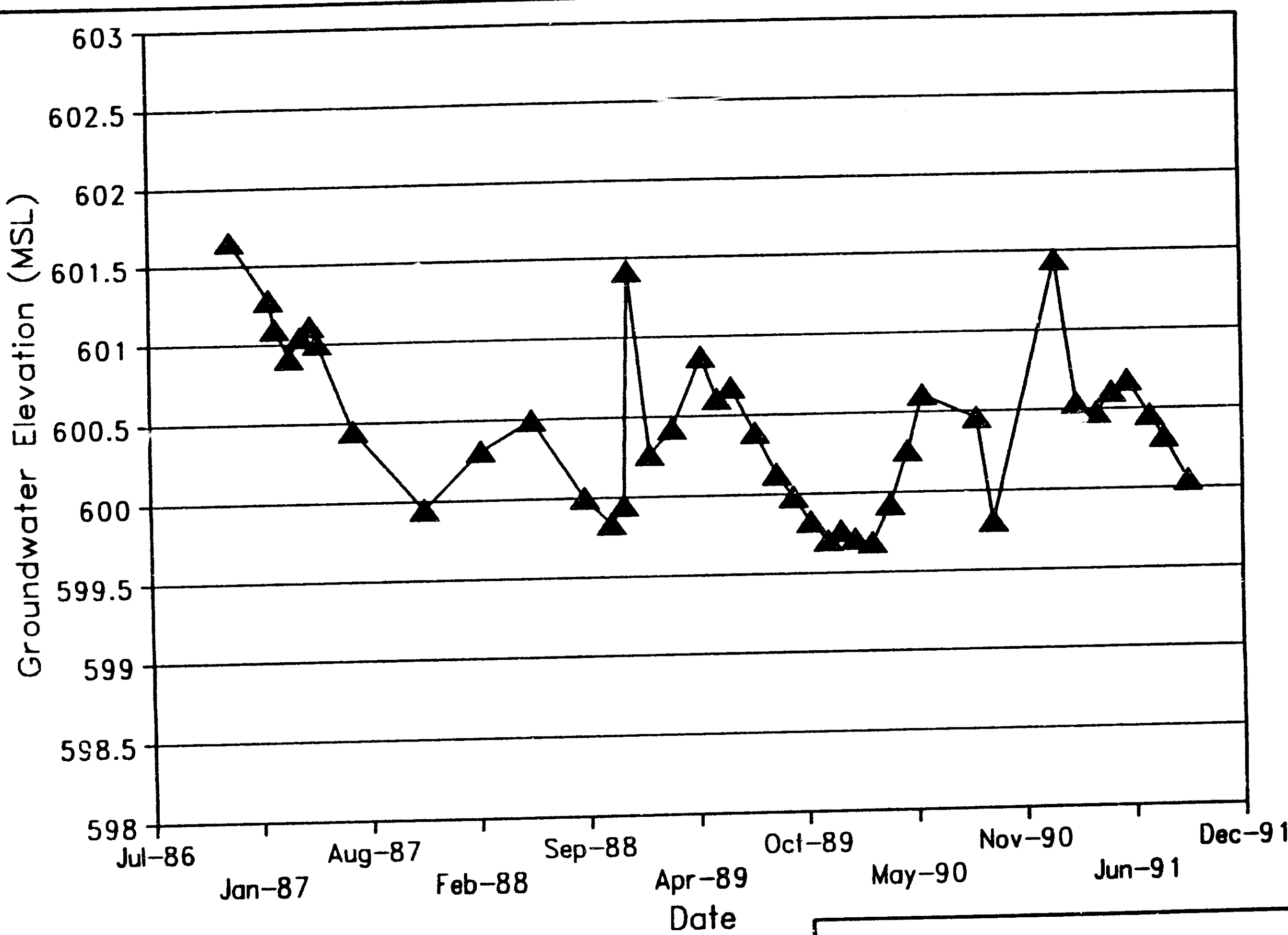
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/PI/234/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



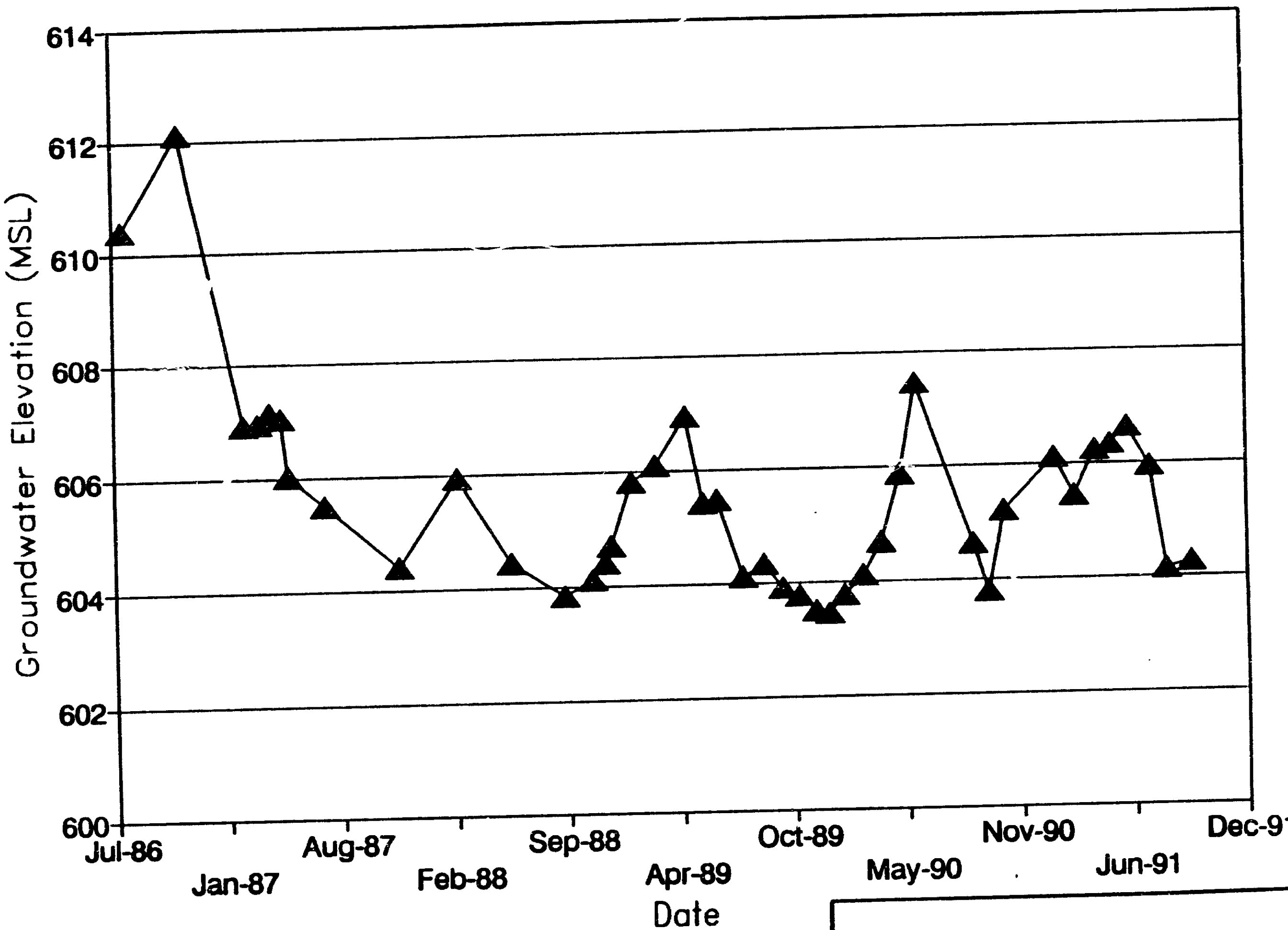
MW-2004 HYDROGRAPH

FIGURE 4.6-14

REPORT NO.:	DOE/OR/21548-074		EXHIBIT NO.:	A/PI/235/1191	
ORIGINATOR:	BLG	DRAWN BY:	GLN	DATE:	11/91



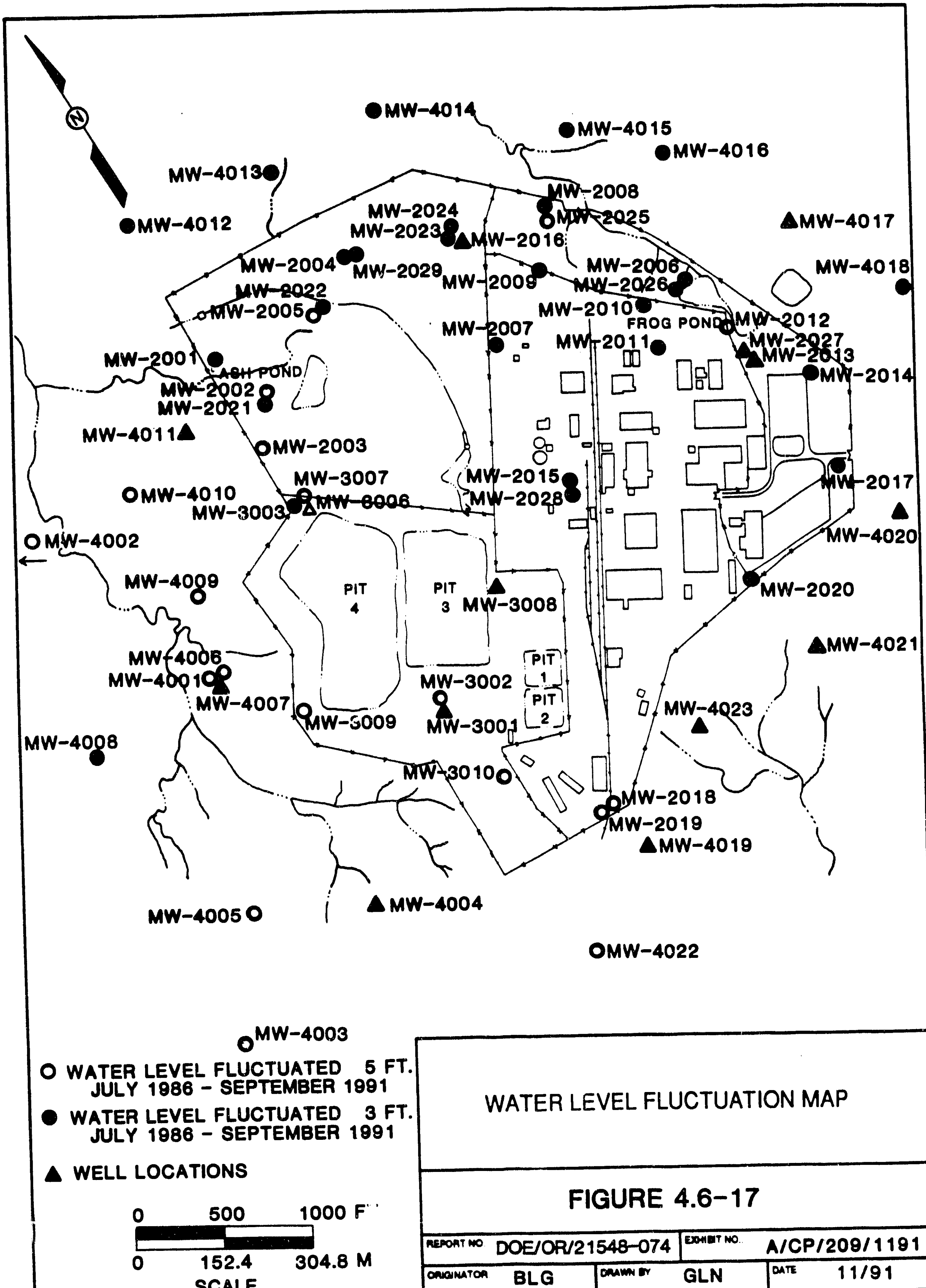
MW-2010 HYDROGRAPH	
FIGURE 4.6-15	
REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/PI/236/1191
ORIGINATOR: BLG	DRAWN BY: GLN — DATE: 11/91



MW-2012 HYDROGRAPH

FIGURE 4.6-16

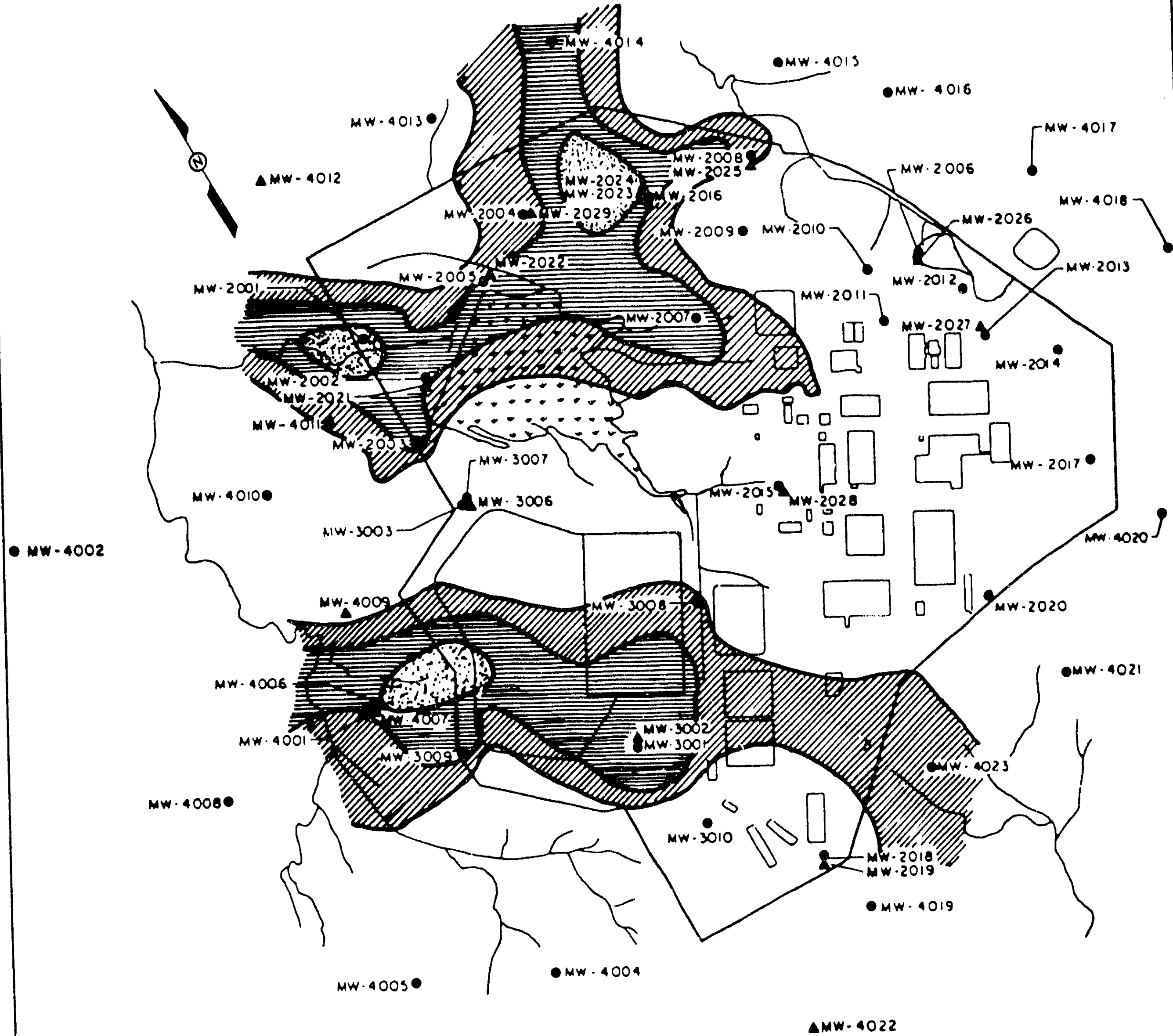
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/PI/237/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



WATER LEVEL FLUCTUATION MAP

FIGURE 4.6-17

REPORT NO. DOE/OR/21548-074	EXHIBIT NO. A/CP/209/1191	
ORIGINATOR BLG	DRAWN BY GLN	DATE 11/91



LEGEND:

AREAS IN WHICH GROUNDWATER OCCURS ABOVE WEATHERED BEDROCK IN RESIDUUM

AREAS IN WHICH GROUNDWATER TABLE IS 0 TO 5 FEET BELOW WEATHERED BEDROCK SURFACE

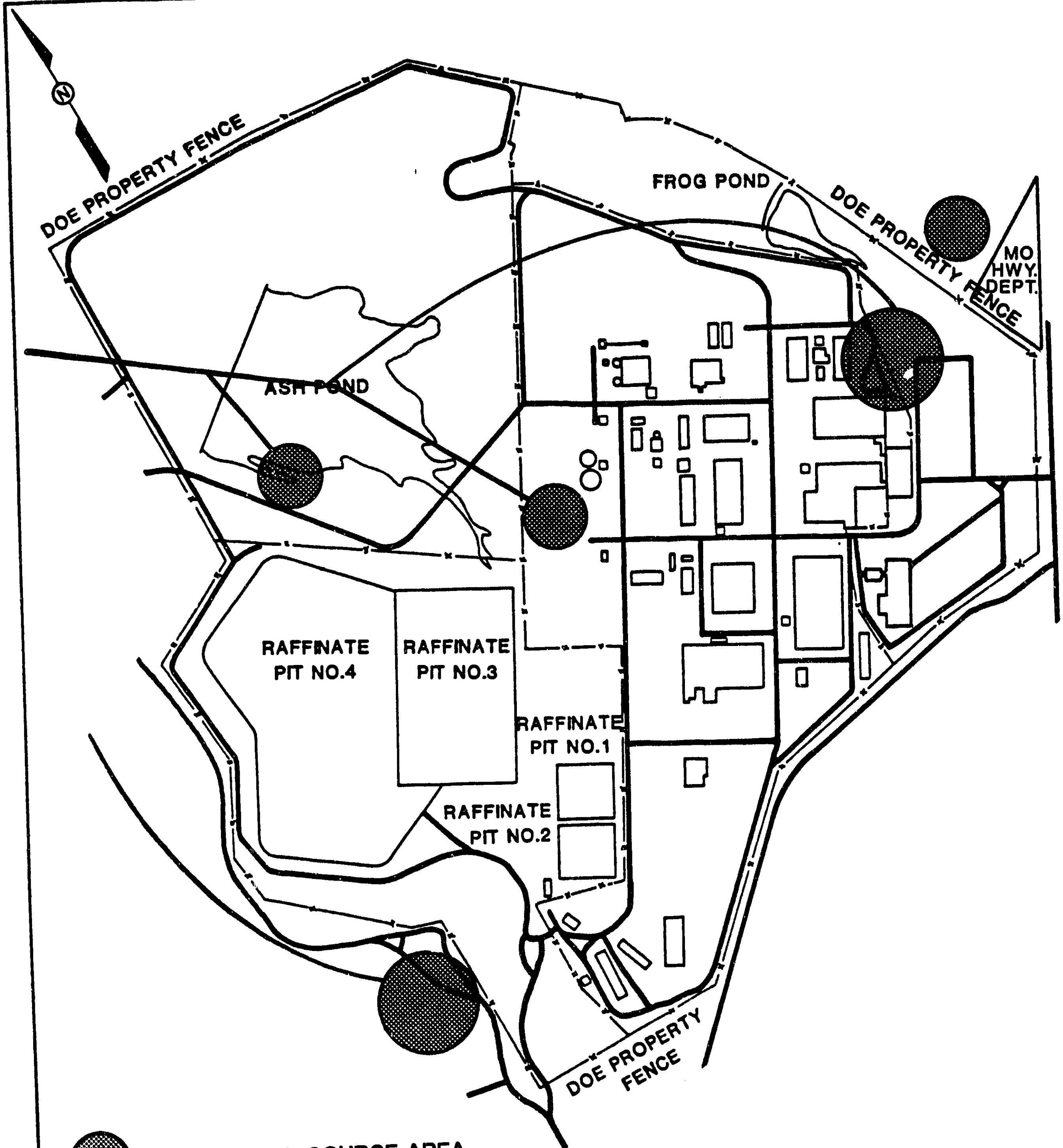
AREAS IN WHICH GROUNDWATER TABLE IS 5 TO 10 FEET BELOW WEATHERED BEDROCK SURFACE

SCALE 0 800 1600 FT
0 243.8 487.7 M

DEPTH TO GROUNDWATER IN UPPER 10 FEET OF BEDROCK, DECEMBER 1988

FIGURE 4.6-18

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/210/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



- POTENTIAL SOURCE AREA

- WASTEWATER LINE

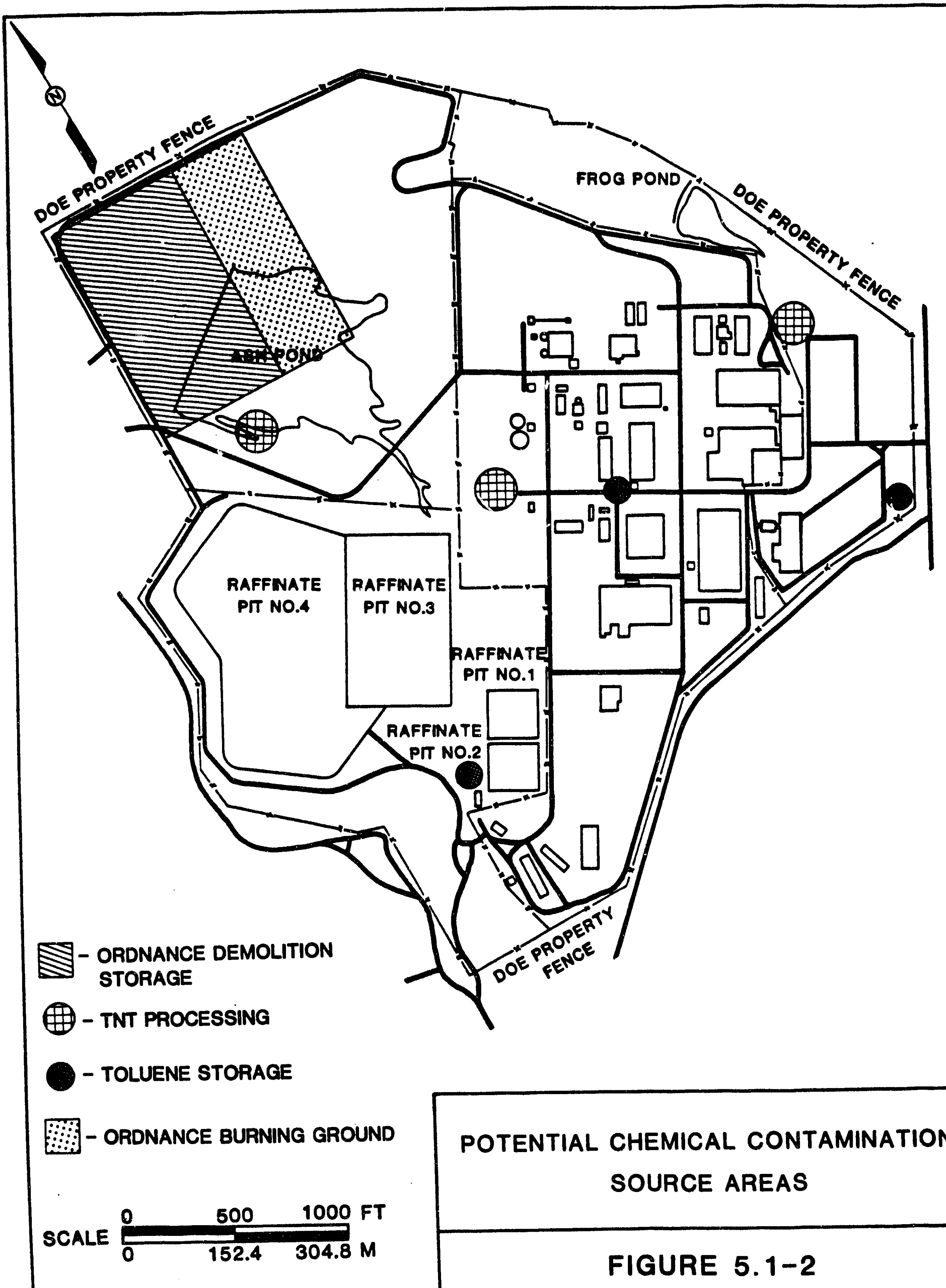
SCALE 0 500 1000 FT
0 152.4 304.8 M

SOURCE: MKF & JEG 1988I

POTENTIAL NITROAROMATIC SOURCE AREAS AT THE WSCP/WSRP

FIGURE 5.1-1

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/211/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91

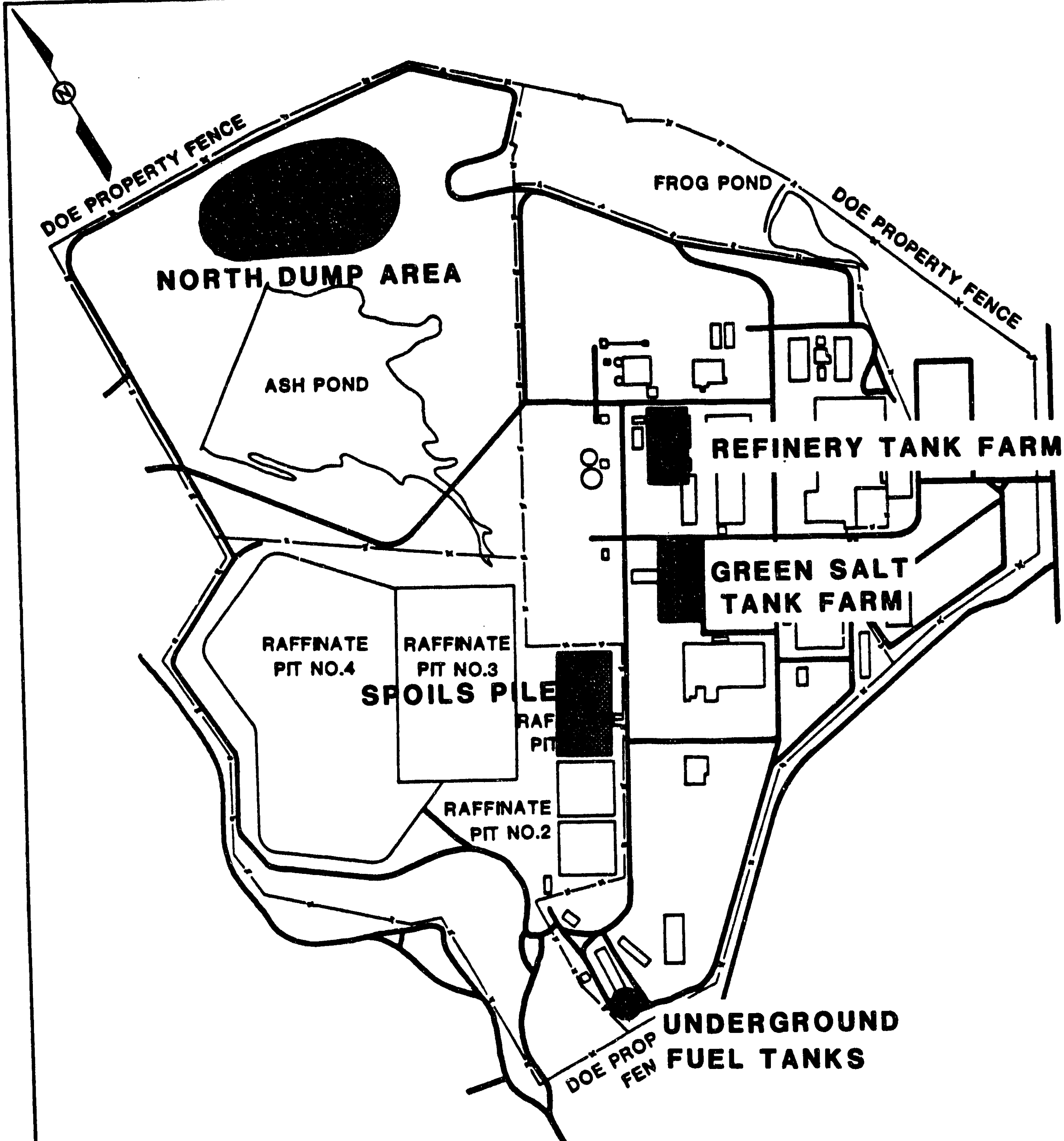


SOURCE MKF & JEG 1988I

POTENTIAL CHEMICAL CONTAMINATION SOURCE AREAS

FIGURE 5.1-2

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/212/1191	
ORIGINATOR: BLG	DRAWN BY: GLN		DATE: 11/91



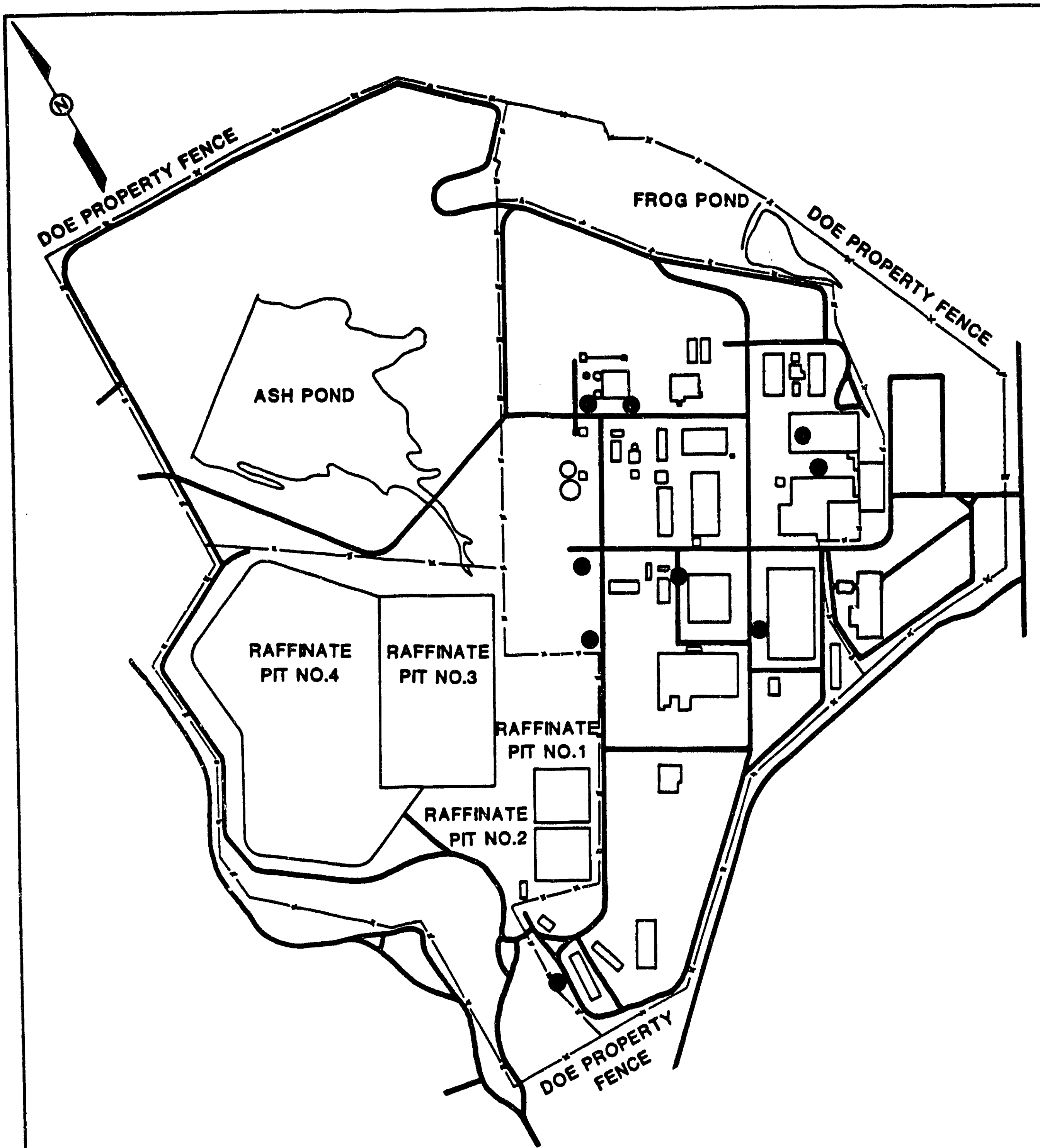
SOURCE: MKF & JEG 1988I

SCALE 0 500 1000 FT
0 152.4 304.8 M

POTENTIAL CHEMICAL CONTAMINATION SOURCE AREAS ASSOCIATED WITH THE WSCP/WSRP

FIGURE 5.1-3

REPORT NO.: DOE/OR/2148-074		EXHIBIT NO.: A/CP/213/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



● – PCB-CONTAINING ELECTRICAL EQUIPMENT

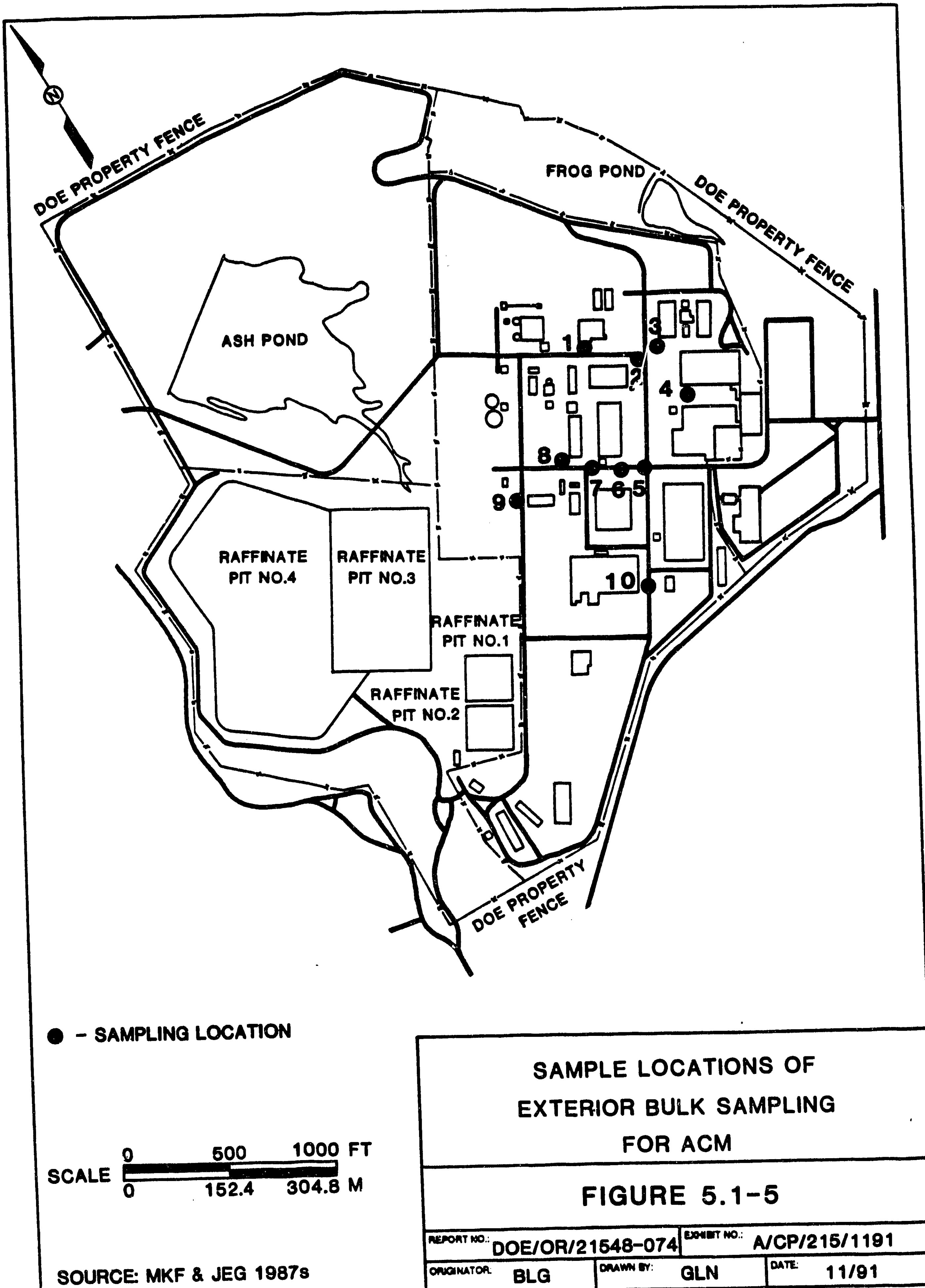
SCALE 0 500 1000 FT
0 152.4 304.8 M

SOURCE: MKF & JEG 1987a

BUILDINGS AND ELECTRICAL EQUIPMENT CONTAINING PCB'S AT THE WELDON SPRING SITE

FIGURE 5.1-4

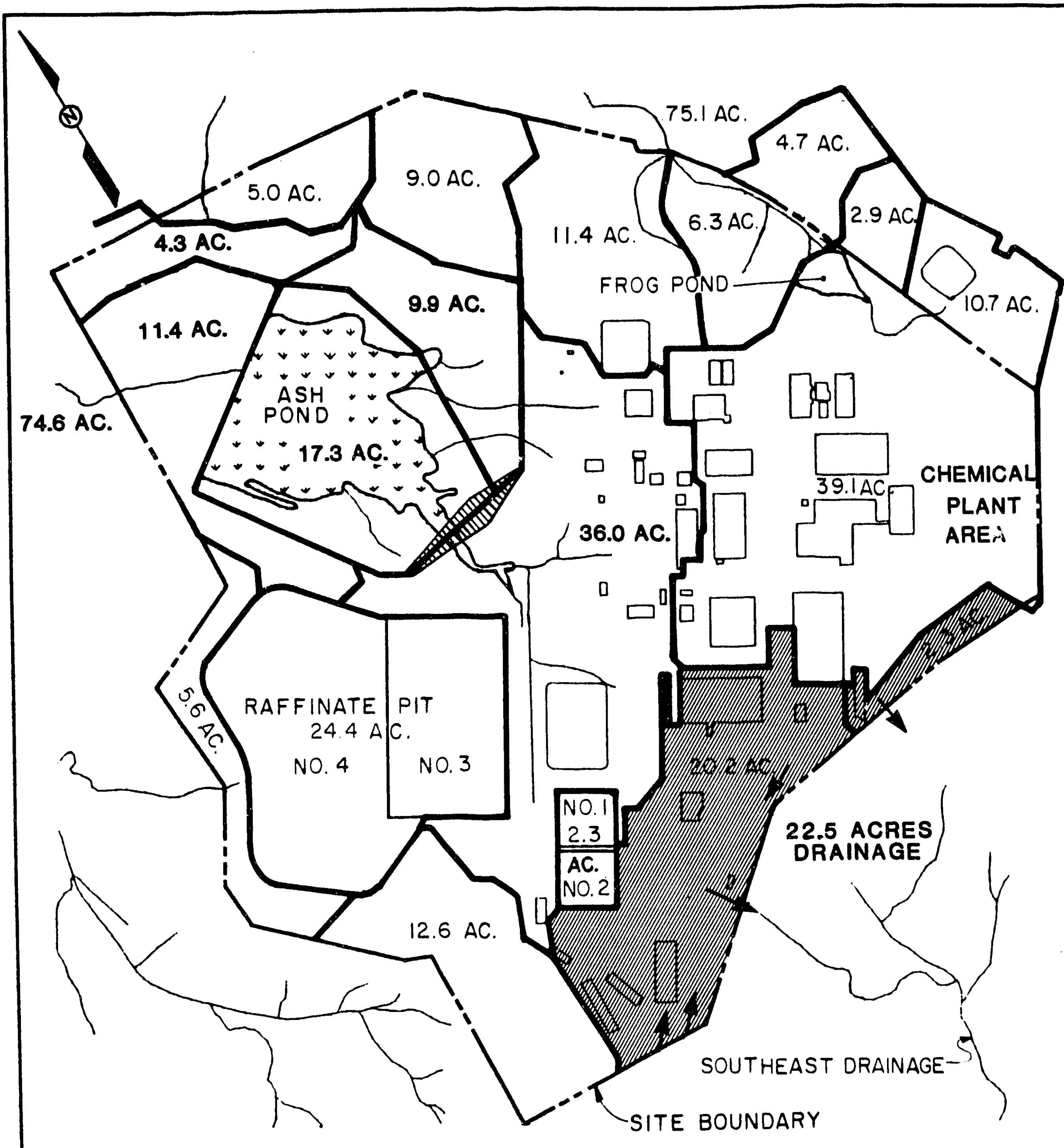
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/214/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



SAMPLE LOCATIONS OF
EXTERIOR BULK SAMPLING
FOR ACM

FIGURE 5.1-5

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/215/1191	
ORIGINATOR: BLG	DRAWN BY: GLN		DATE: 11/91



LEGEND:

CREEK OR DRAINAGE DITCH

DRAINAGE BASIN BOUNDARY

FLOW DIRECTION

0 600 1200 FT

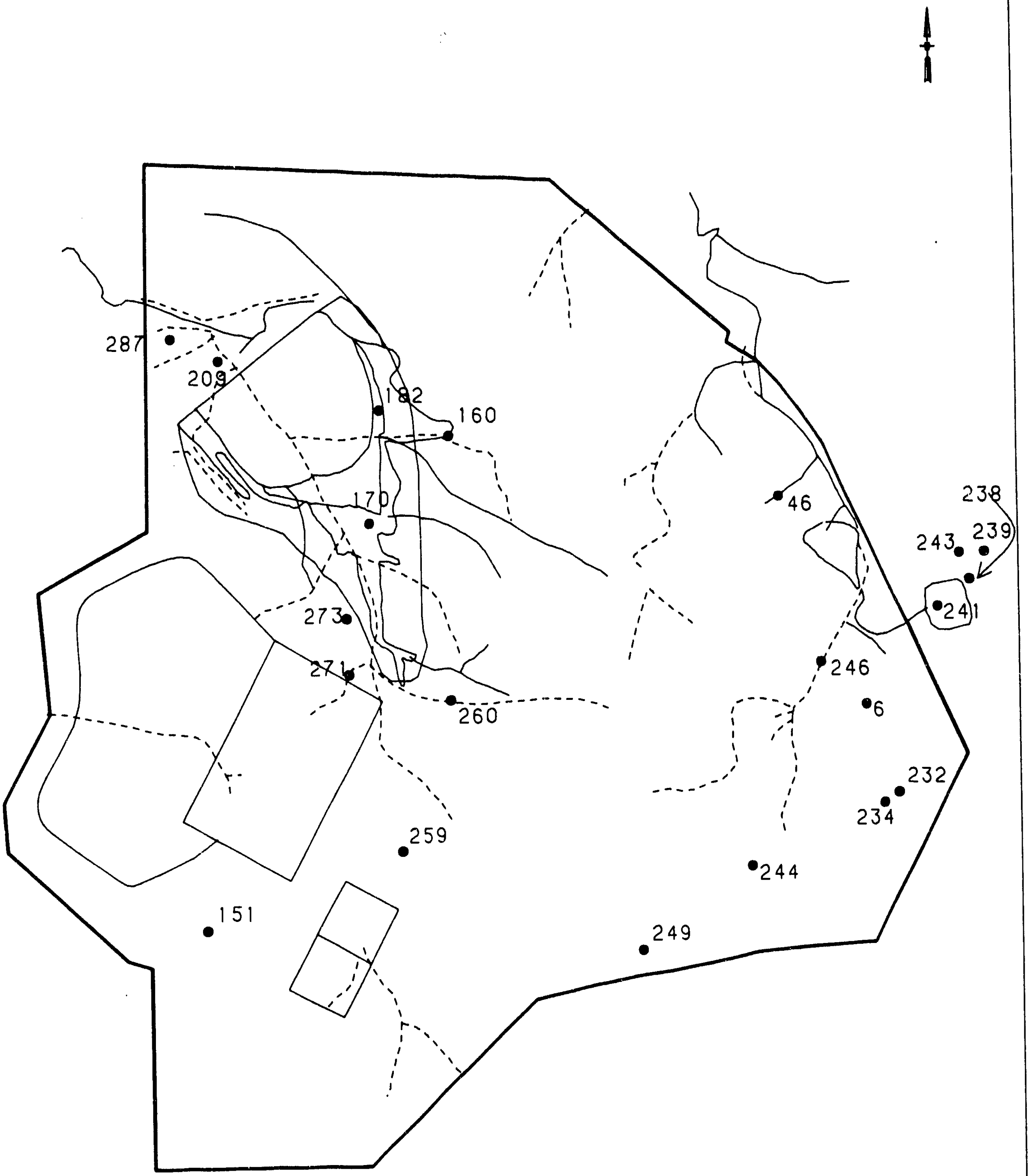
0 182.9 365.8 M

SCALE

SOUTHEAST SITE DRAINAGE

FIGURE 5.1-6

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/216/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



LEGEND

● Nitroaromatics Concentration > Not Detected

Current Drainage

1954 Drainage

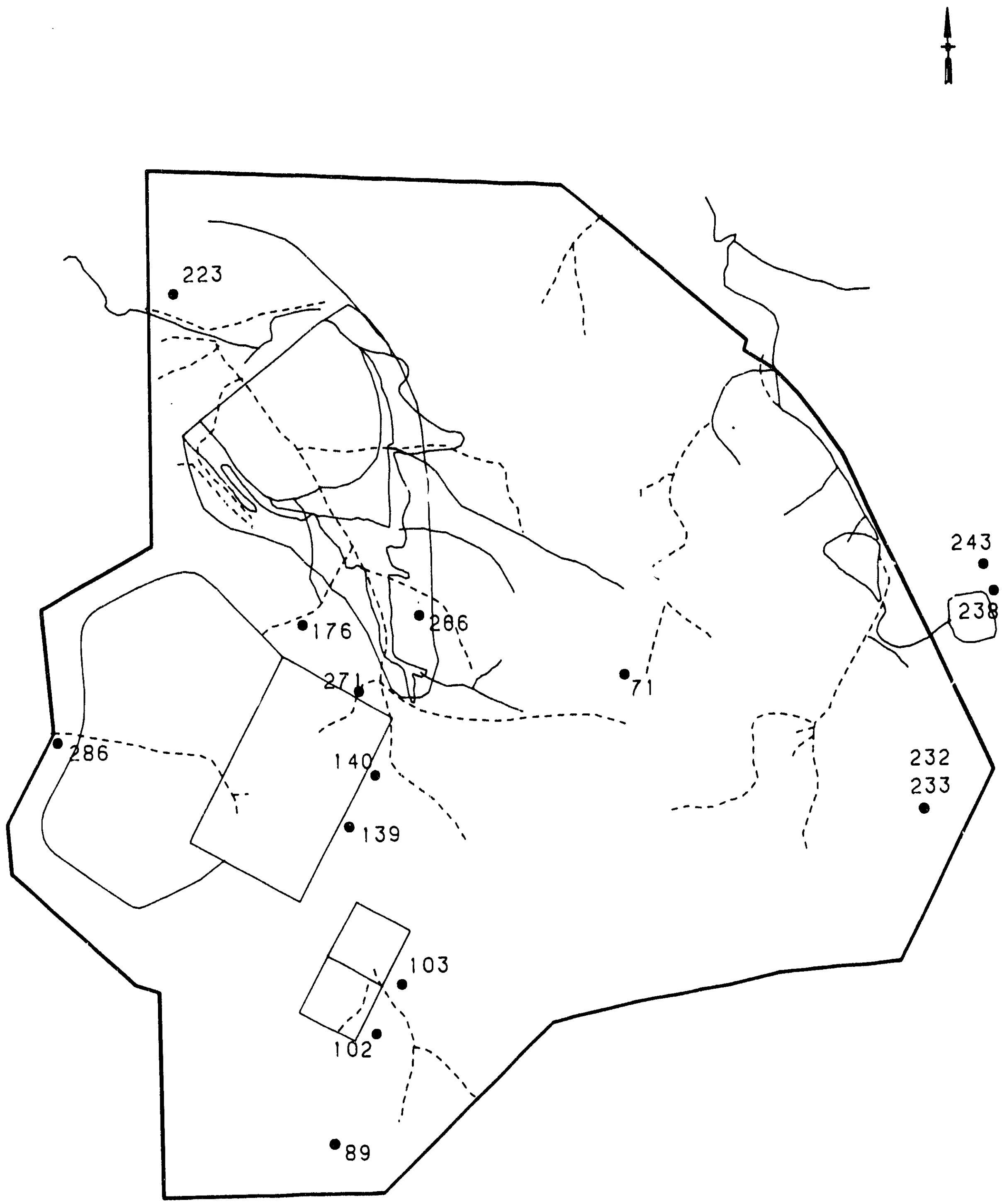
100 50 0 100 200 METERS

300 150 0 300 600 FEET

LOCATION OF ELEVATED NITROAROMATICS CONCENTRATIONS IN SOILS

FIGURE 5.2-1

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/116/0992
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92



LEGEND

● Nitrate Concentration > 71.86 ug/g

Current Drainage

1954 Drainage

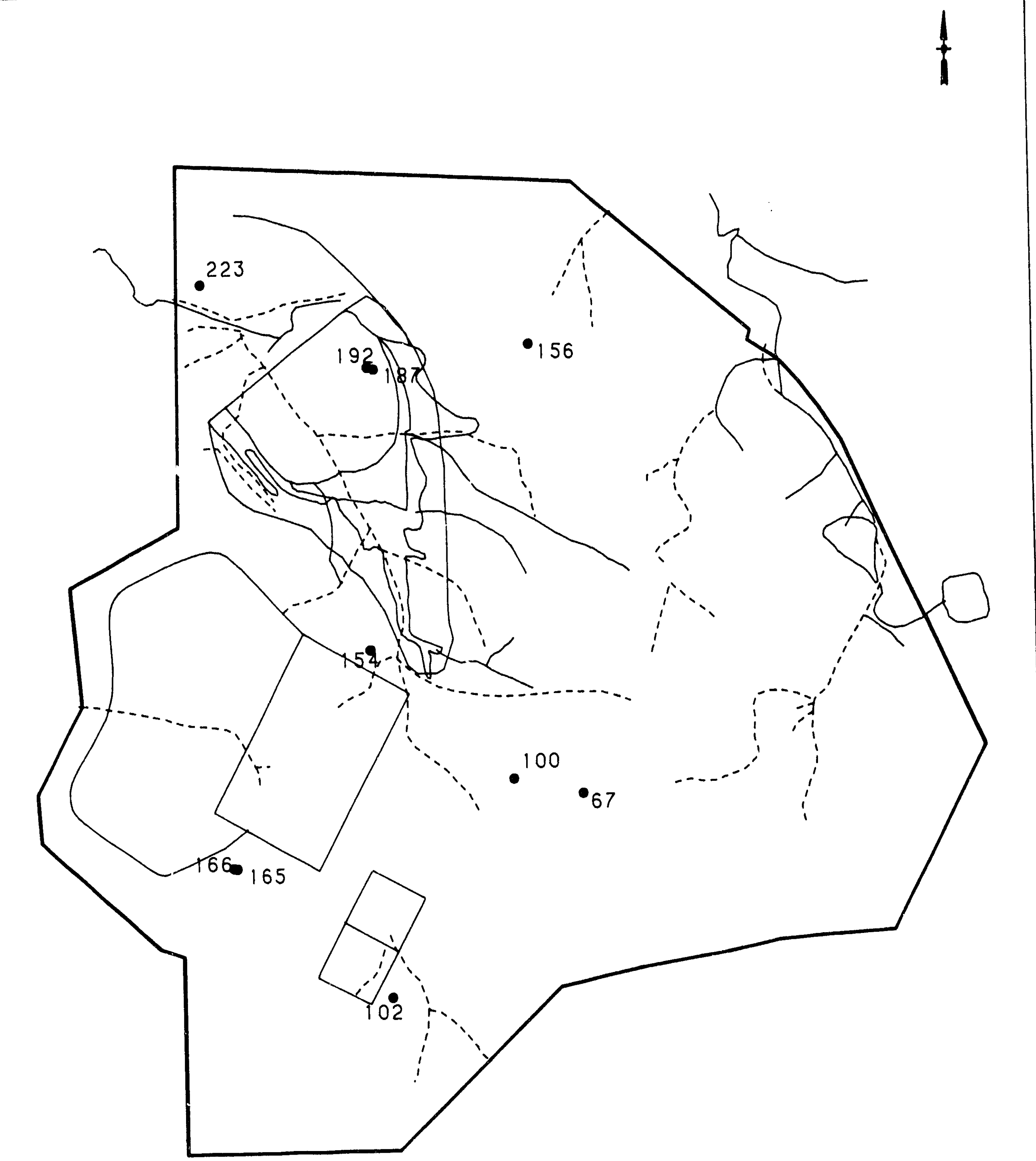
100 50 0 100 200 METERS

300 150 0 300 600 FEET

LOCATION OF ELEVATED NITRATE CONCENTRATIONS IN SOILS

FIGURE 5.2-2

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/117/0992	
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92	



LEGEND

● Nitrite Concentration > 0.25 ug/g

Current Drainage

1954 Drainage

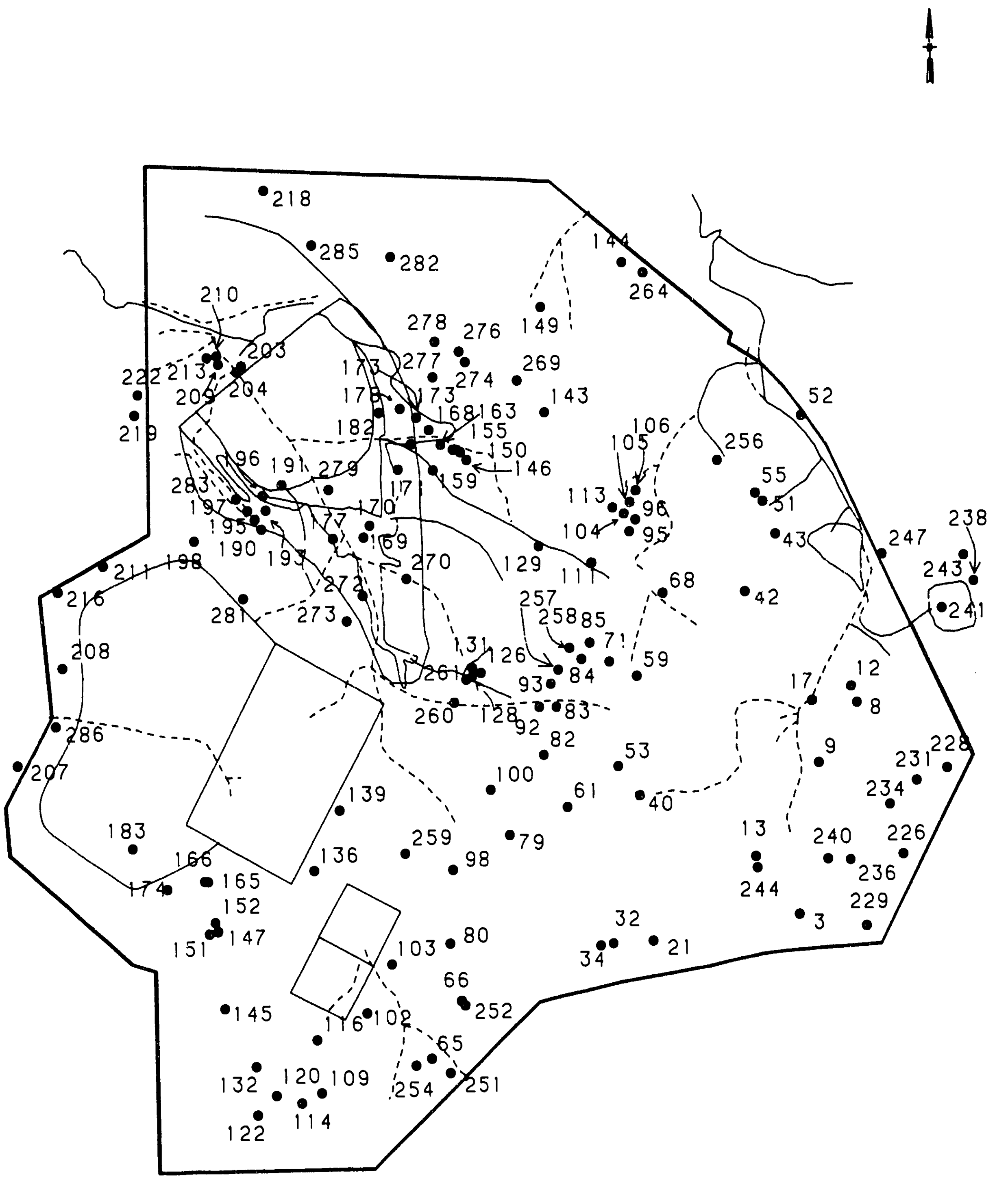
100 50 0 100 200 METERS

300 150 0 300 600 FEET

LOCATION OF ELEVATED NITRITE CONCENTRATIONS IN SOILS

FIGURE 5.2-3

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/118/0992	
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92	



LEGEND

Sulfate Concentration > 93.17 ug/g

Current Drainage

1954 Drainage

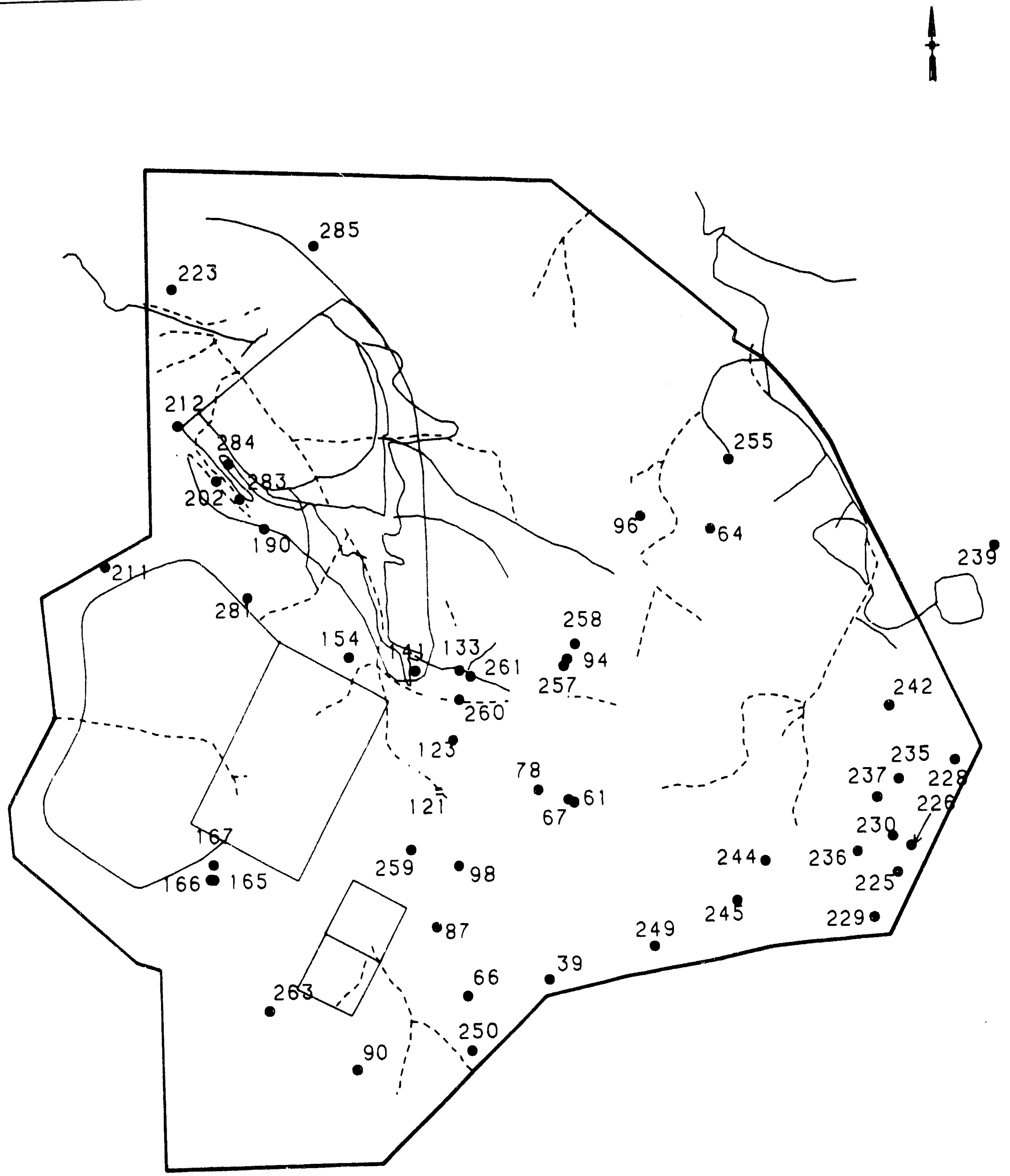
100 50 0 100 200 METERS

300 150 0 300 600 FEET

LOCATION OF ELEVATED SULFATE CONCENTRATIONS IN SOILS

FIGURE 5.2-4

REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/CP/119/0992	
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92



LEGEND

Fluoride Concentration > 13.85 ug/g

Current Drainage

1954 Drainage

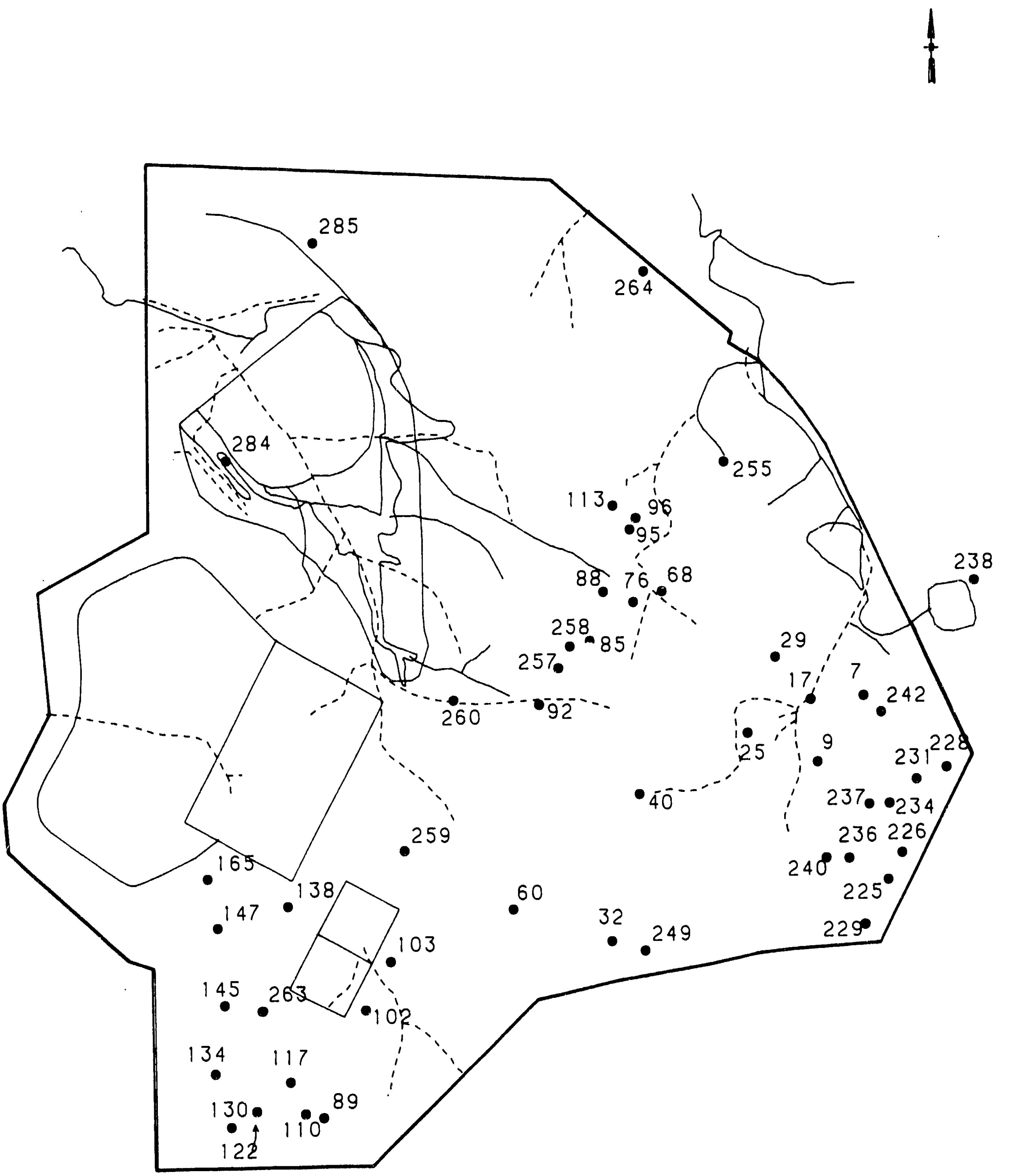
100 50 0 100 200 METERS

300 150 0 300 600 FEET

LOCATION OF ELEVATED FLUORIDE CONCENTRATIONS IN SOILS

FIGURE 5.2-5

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/120/0992	
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92	



LEGEND

● Chloride Concentration > 9.6 ug/g

Current Drainage

1954 Drainage

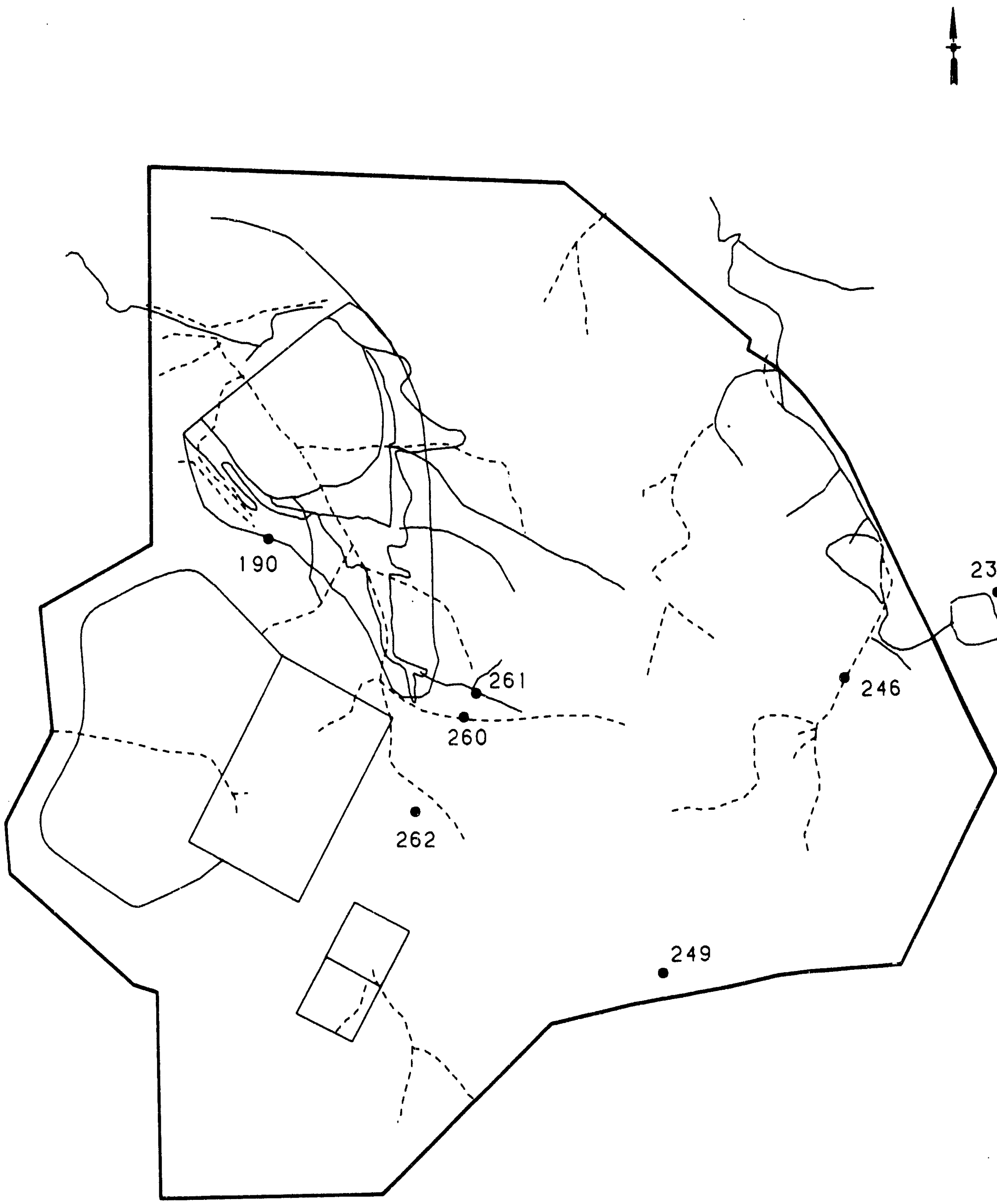
100 50 0 100 200 METERS

300 150 0 300 600 FEET

LOCATION OF ELEVATED CHLORIDE CONCENTRATIONS IN SOILS

FIGURE 5.2-6

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/121/0992
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92



LEGEND

● Silver Concentration > 7.0 ug/g

Current Drainage

1954 Drainage

100 50 0 100 200 METERS

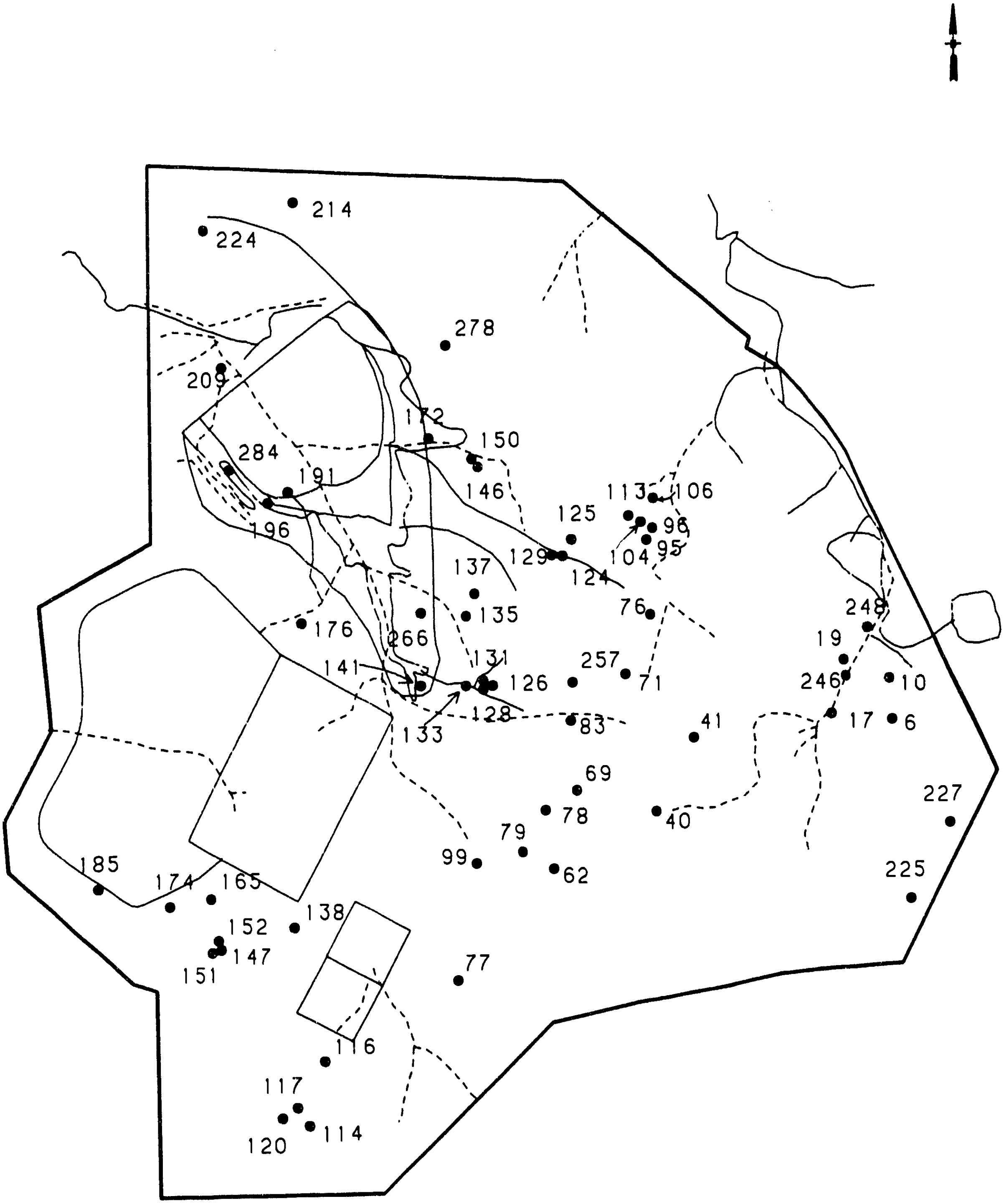
300 150 0 300 600 FEET

LOCATION OF ELEVATED SILVER CONCENTRATIONS IN SOILS

FIGURE 5.2-7

REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/CP/122/0992

ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92



LEGEND

Aluminum Concentration > 24,374.88 ug/g

Current Drainage

1954 Drainage

100 50 0 100 200 METERS

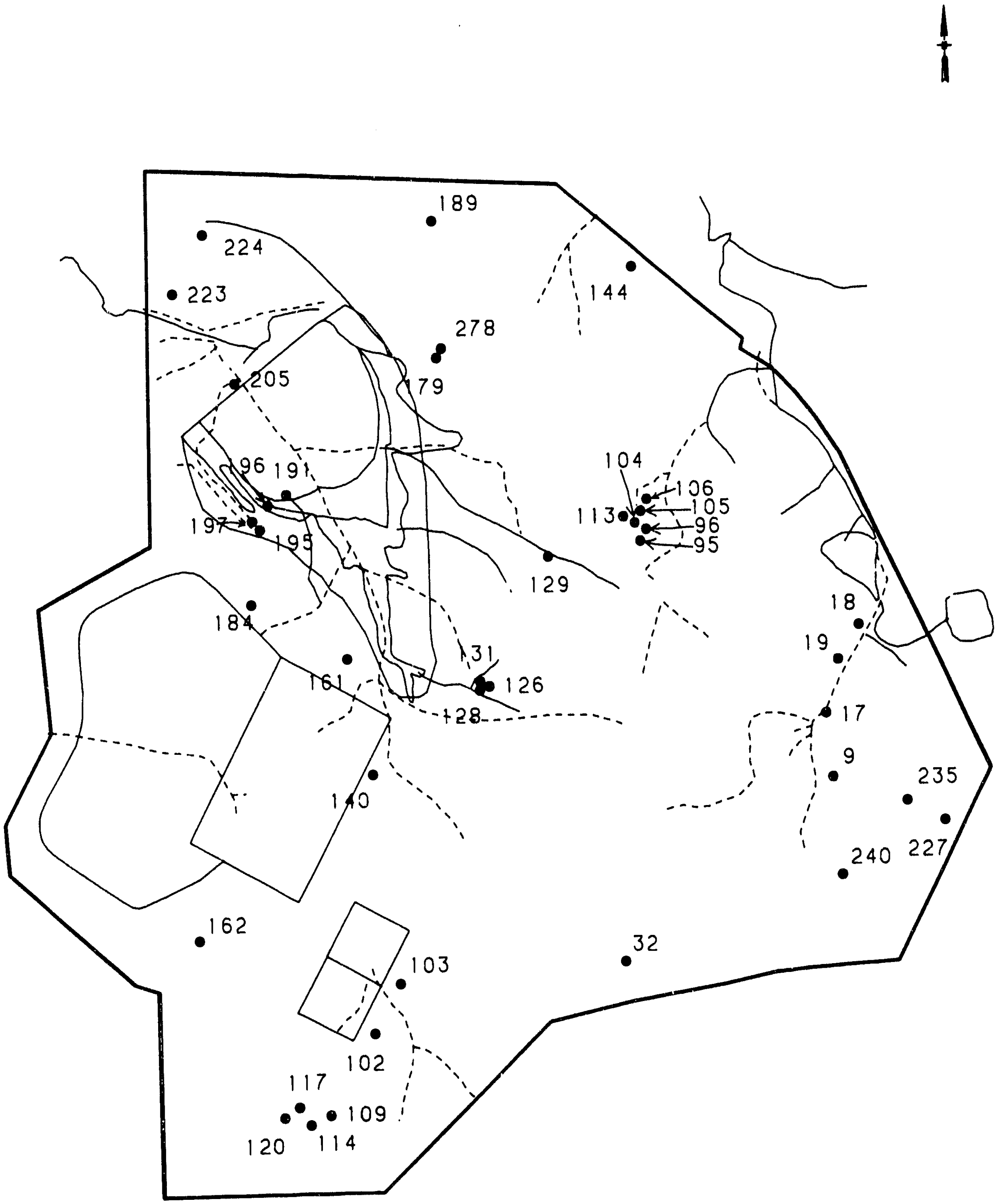
300 150 0 300 600 FEET

LOCATION OF ELEVATED ALUMINUM CONCENTRATIONS IN SOILS

FIGURE 5.2-8

REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/CP/123/0992

ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92



LEGEND

● Arsenic Concentration > 25.81 ug/g

Current Drainage

1954 Drainage

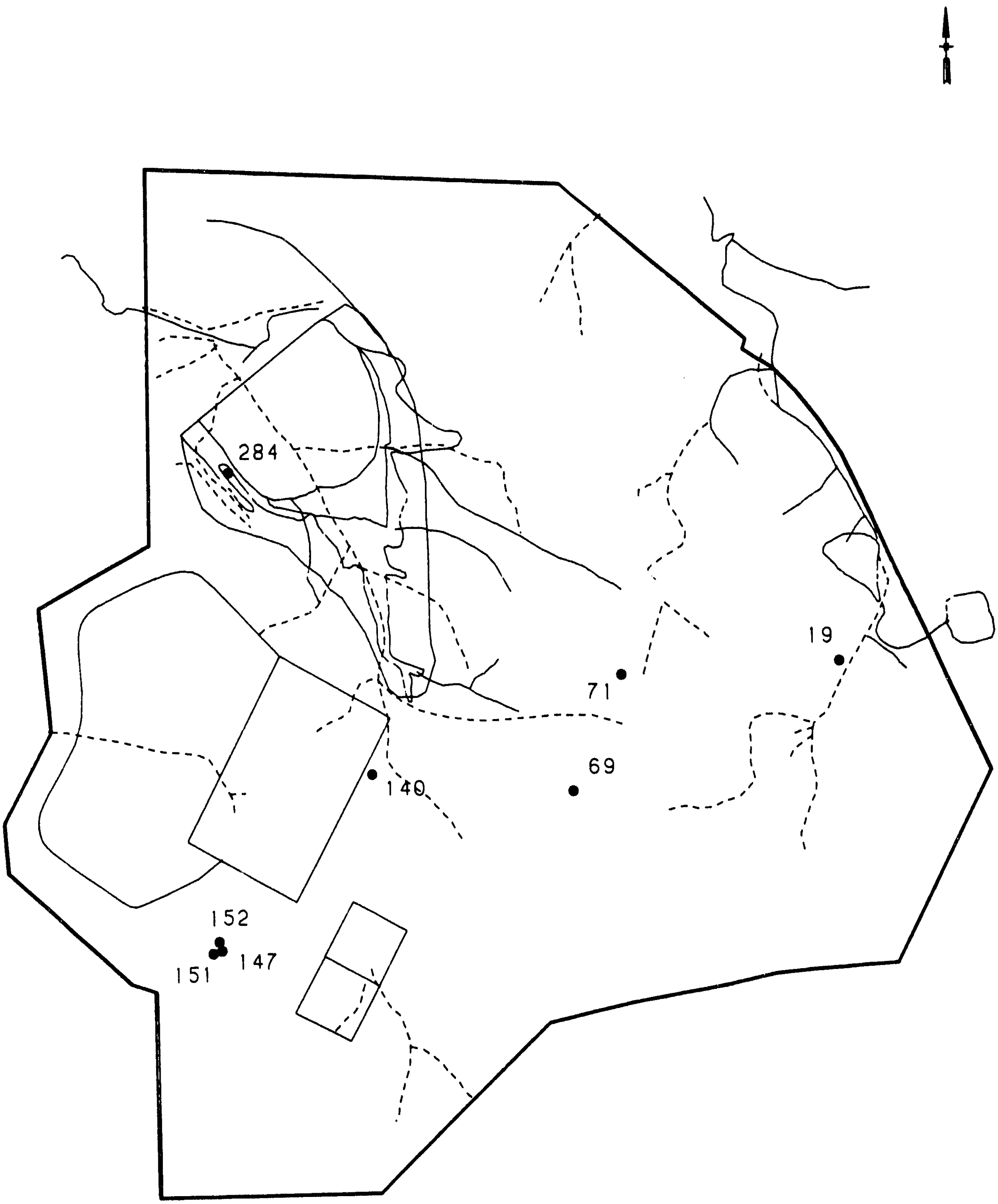
100 50 0 100 200 METERS

300 150 0 300 600 FEET

LOCATION OF ELEVATED ARSENIC CONCENTRATIONS IN SOILS

FIGURE 5.2-9

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/124/0992
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92



LEGEND

- ● Barium Concentration > 616.04 ug/g
- Current Drainage
- 1954 Drainage

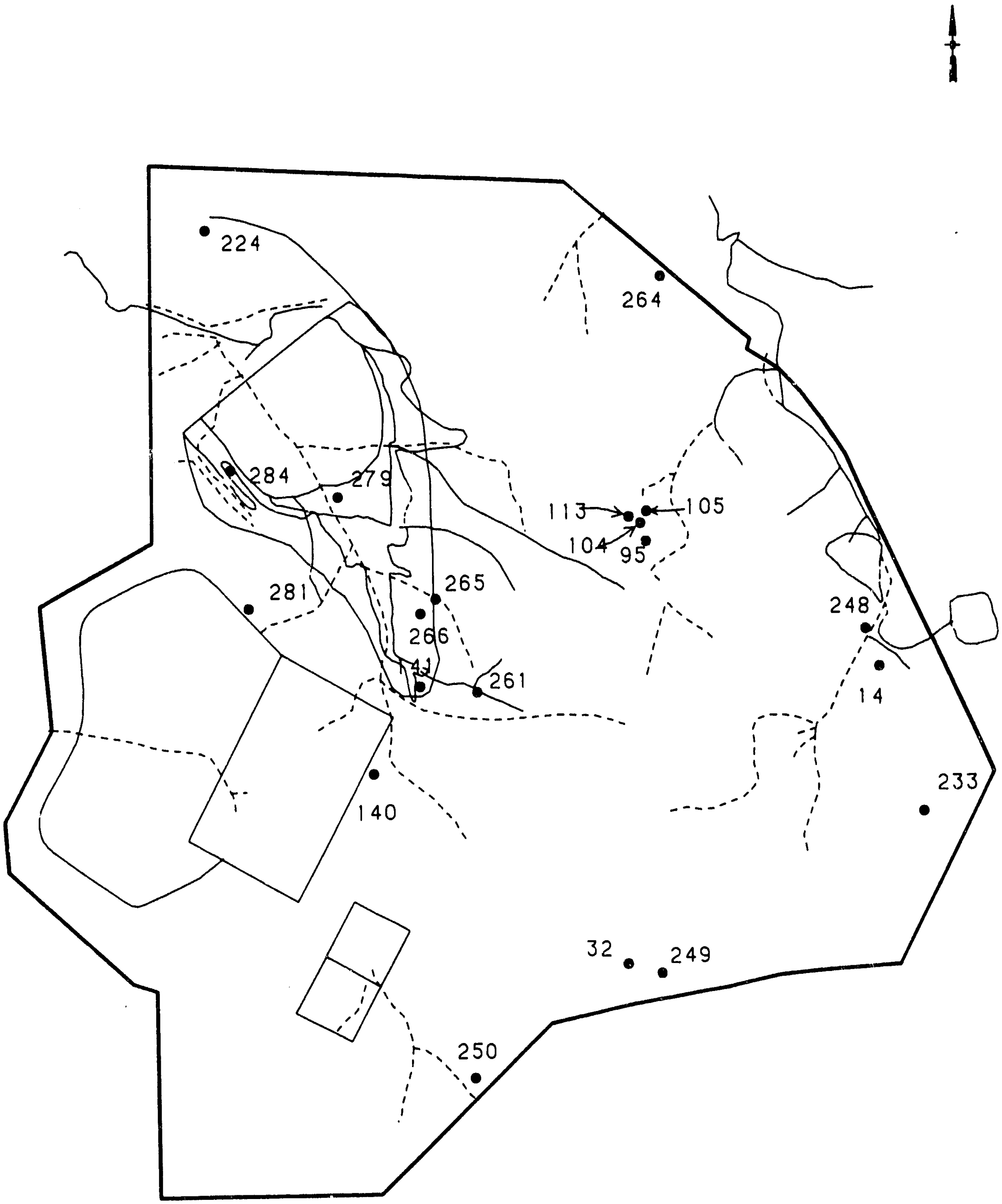
100 50 0 100 200 METERS

300 150 0 300 600 FEET

LOCATION OF ELEVATED BARIUM CONCENTRATIONS IN SOILS

FIGURE 5.2-10

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/125/0992
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92



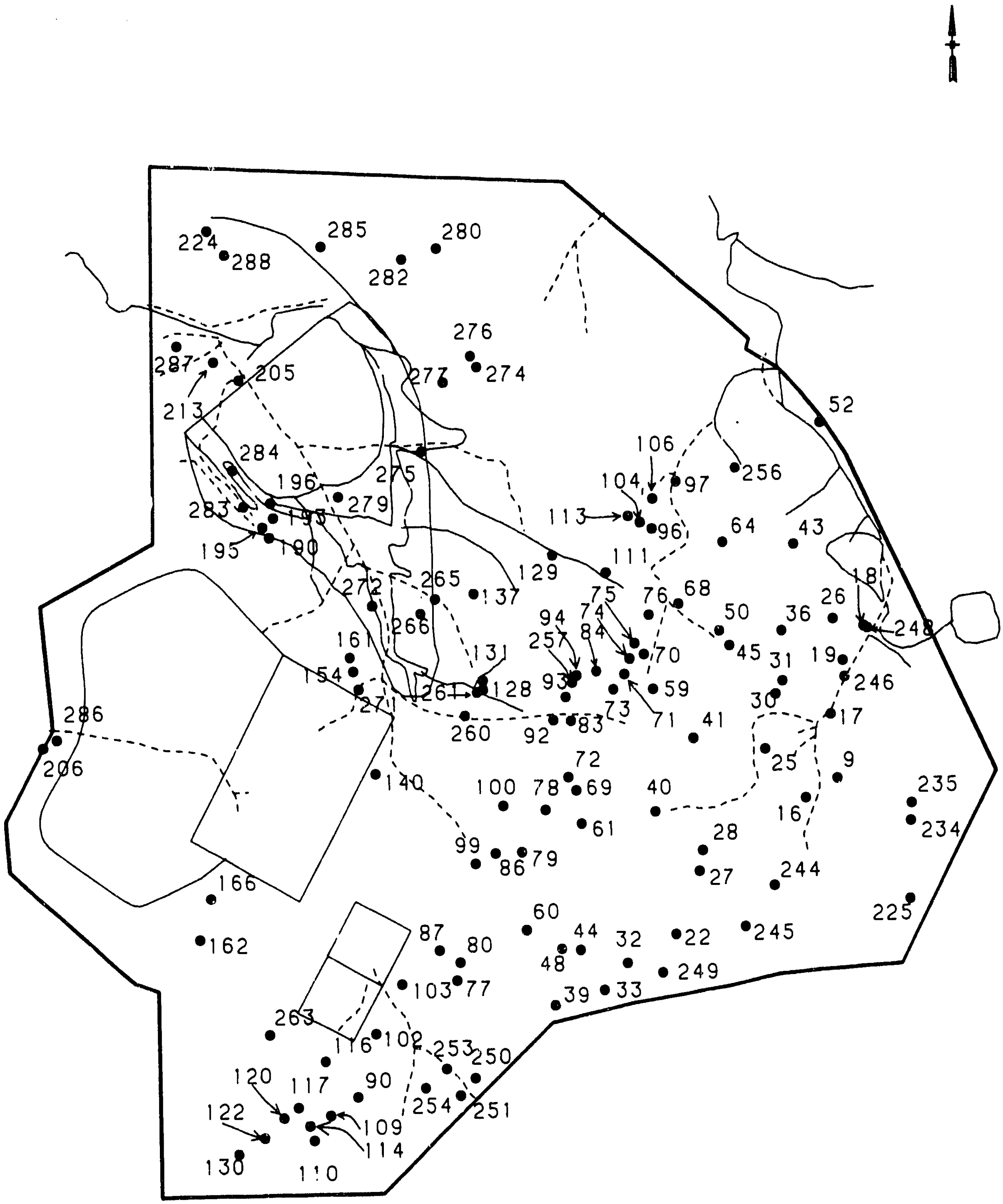
LEGEND

- Beryllium Concentration > 2.21 ug/g
- Current Drainage
- 1954 Drainage

100 50 0 100 200 METERS

300 150 0 300 600 FEET

LOCATION OF ELEVATED BERYLLIUM CONCENTRATIONS IN SOILS		
FIGURE 5.2-11		
REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/CP/126/0992	
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92



LEGEND

Calcium Concentration > 5,018.80 ug/g

Current Drainage

1954 Drainage

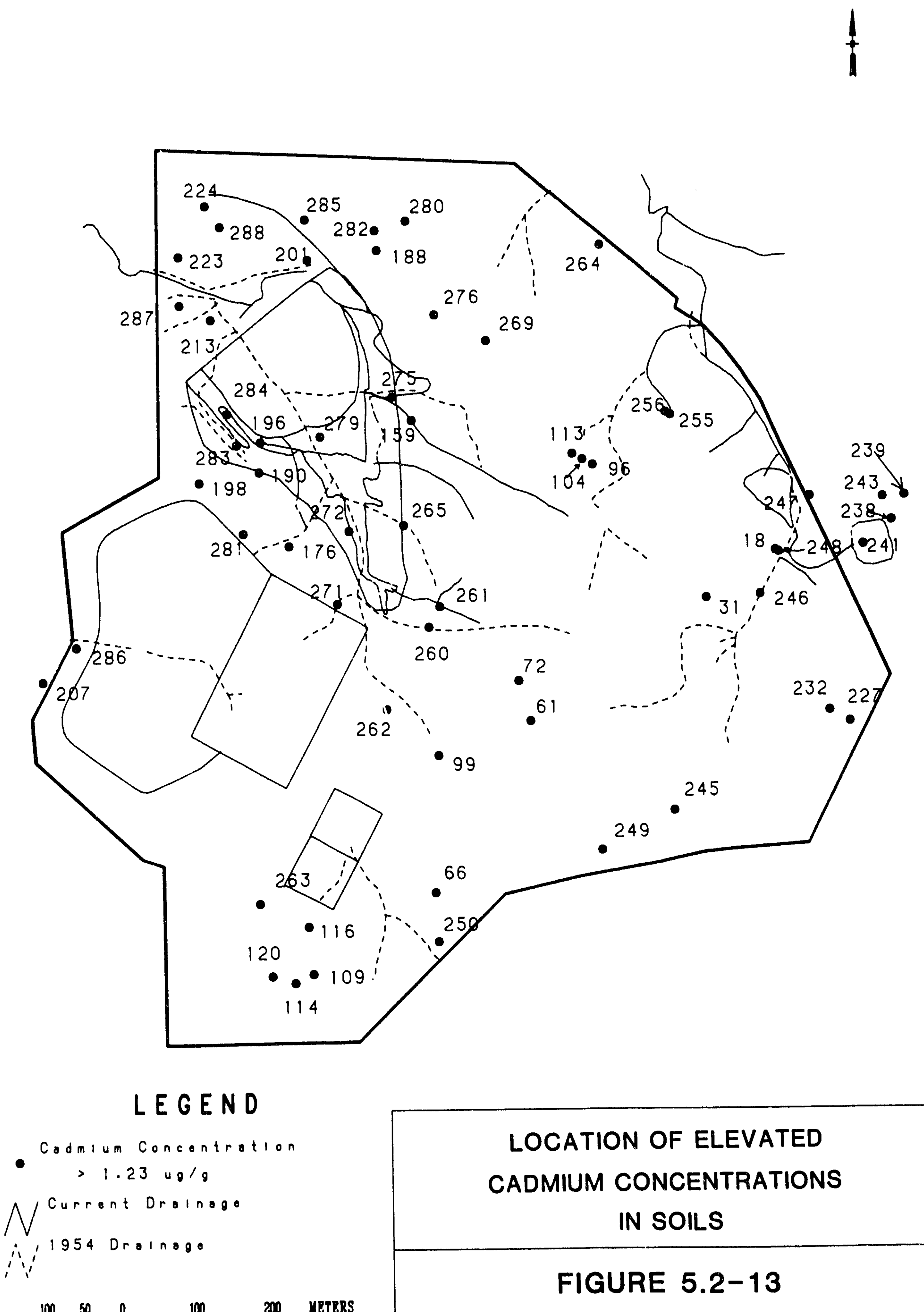
100 50 0 100 200 METERS

300 150 0 300 600 FEET

LOCATION OF ELEVATED CALCIUM CONCENTRATIONS IN SOILS

FIGURE 5.2-12

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/127/0992	
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92	

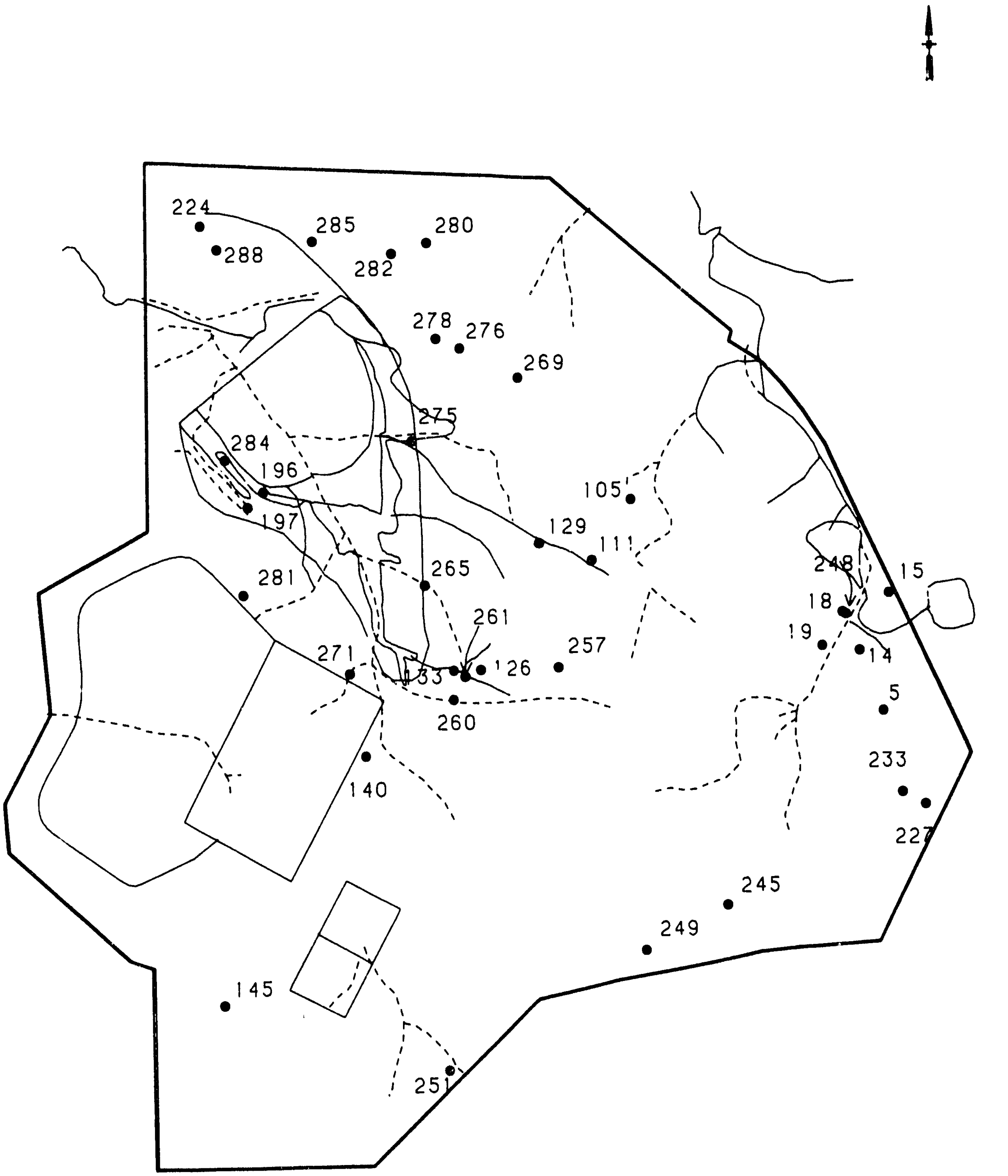


LOCATION OF ELEVATED CADMIUM CONCENTRATIONS IN SOILS

FIGURE 5.2-13

REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/CP/128/0992

ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92



LEGEND

● Cobalt Concentration > 26.13 ug/g

Current Drainage

1954 Drainage

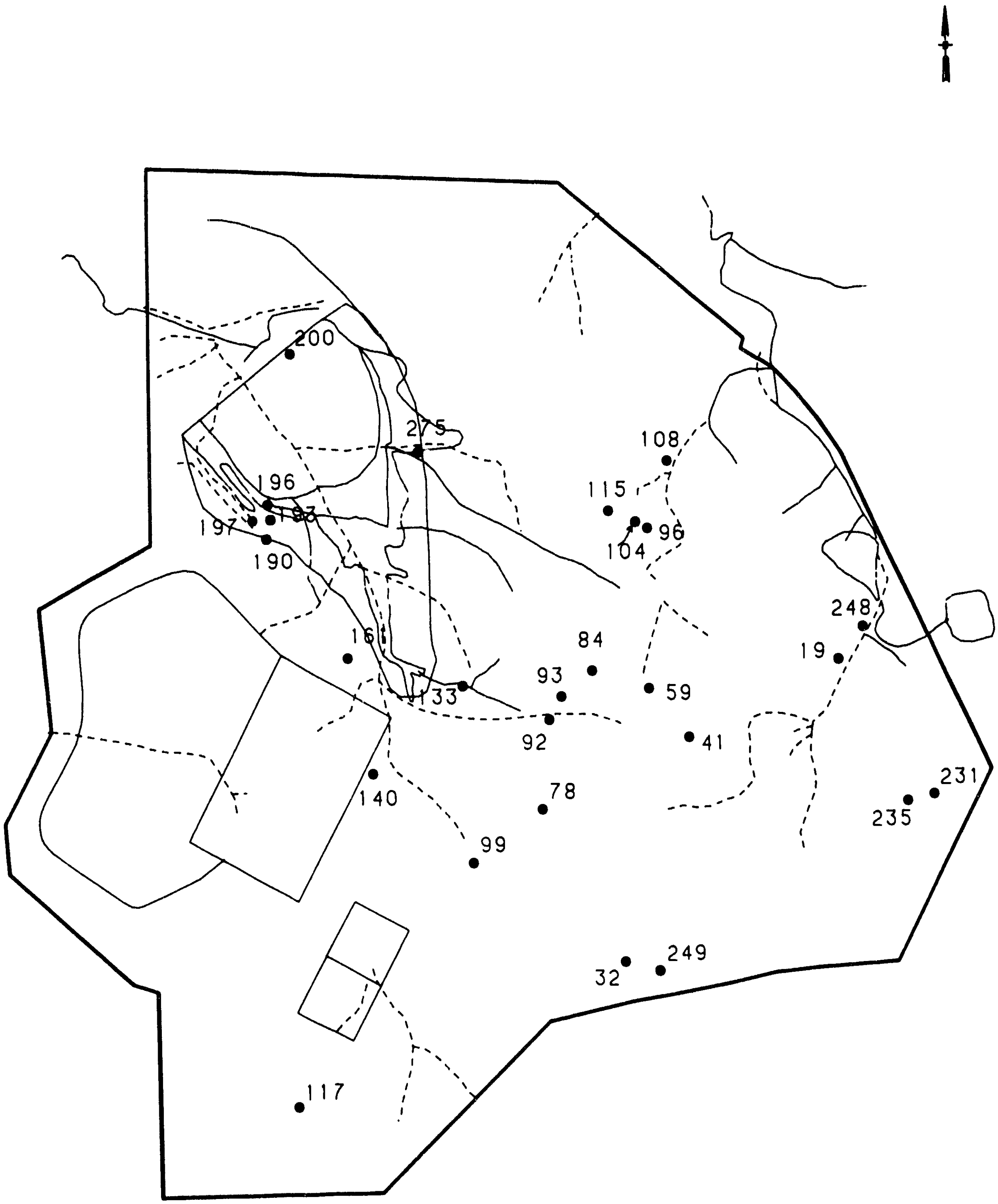
100 50 0 100 200 METERS

300 150 0 300 600 FEET

LOCATION OF ELEVATED COBALT CONCENTRATIONS IN SOILS

FIGURE 5.2-14

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/129/0992
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92



LEGEND

● Chromium Concentration > 39.67 ug/g

Current Drainage

1954 Drainage

100 50 0 100 200 METERS

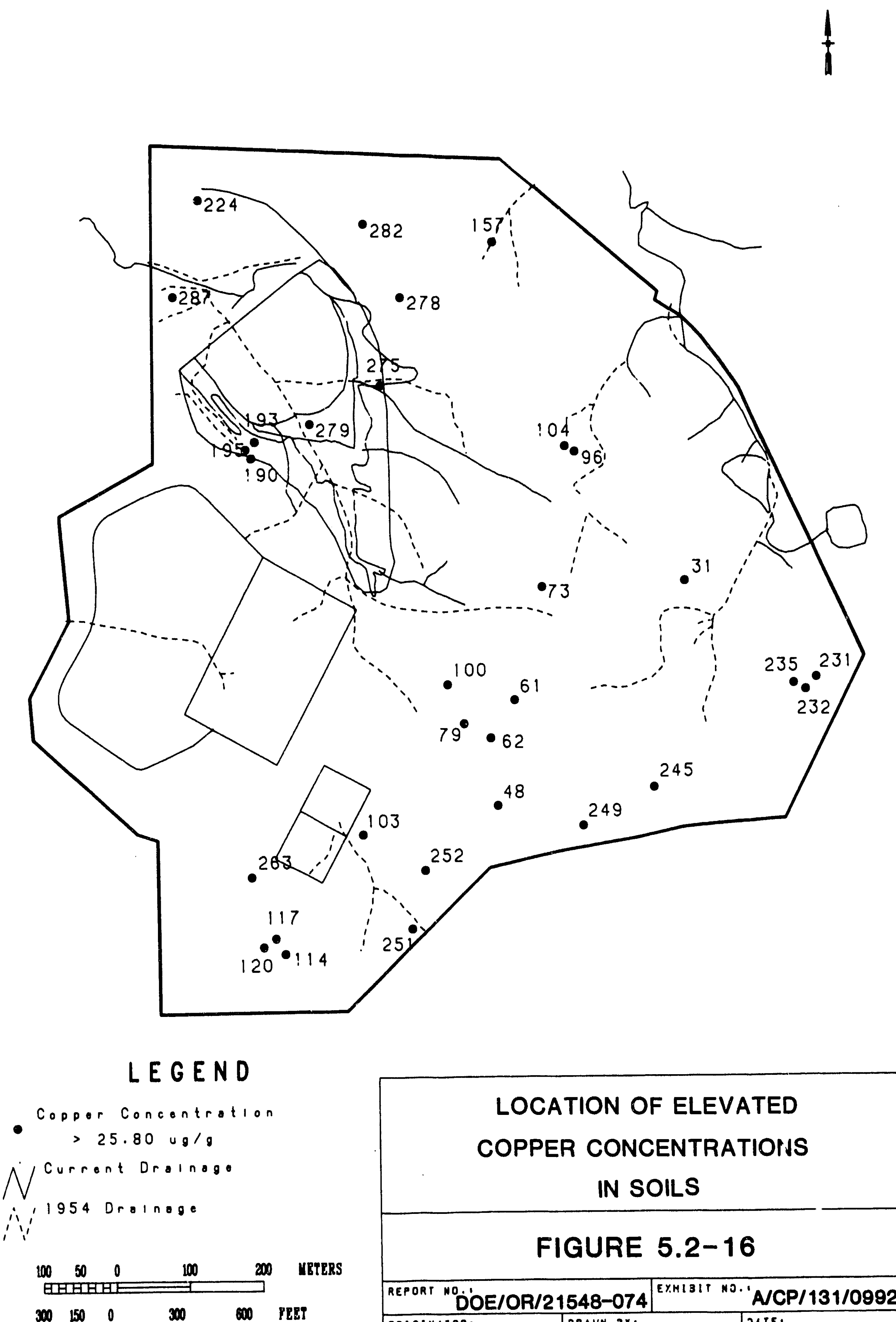
300 150 0 300 600 FEET

LOCATION OF ELEVATED CHROMIUM CONCENTRATIONS IN SOILS

FIGURE 5.2-15

REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/CP/130/0992

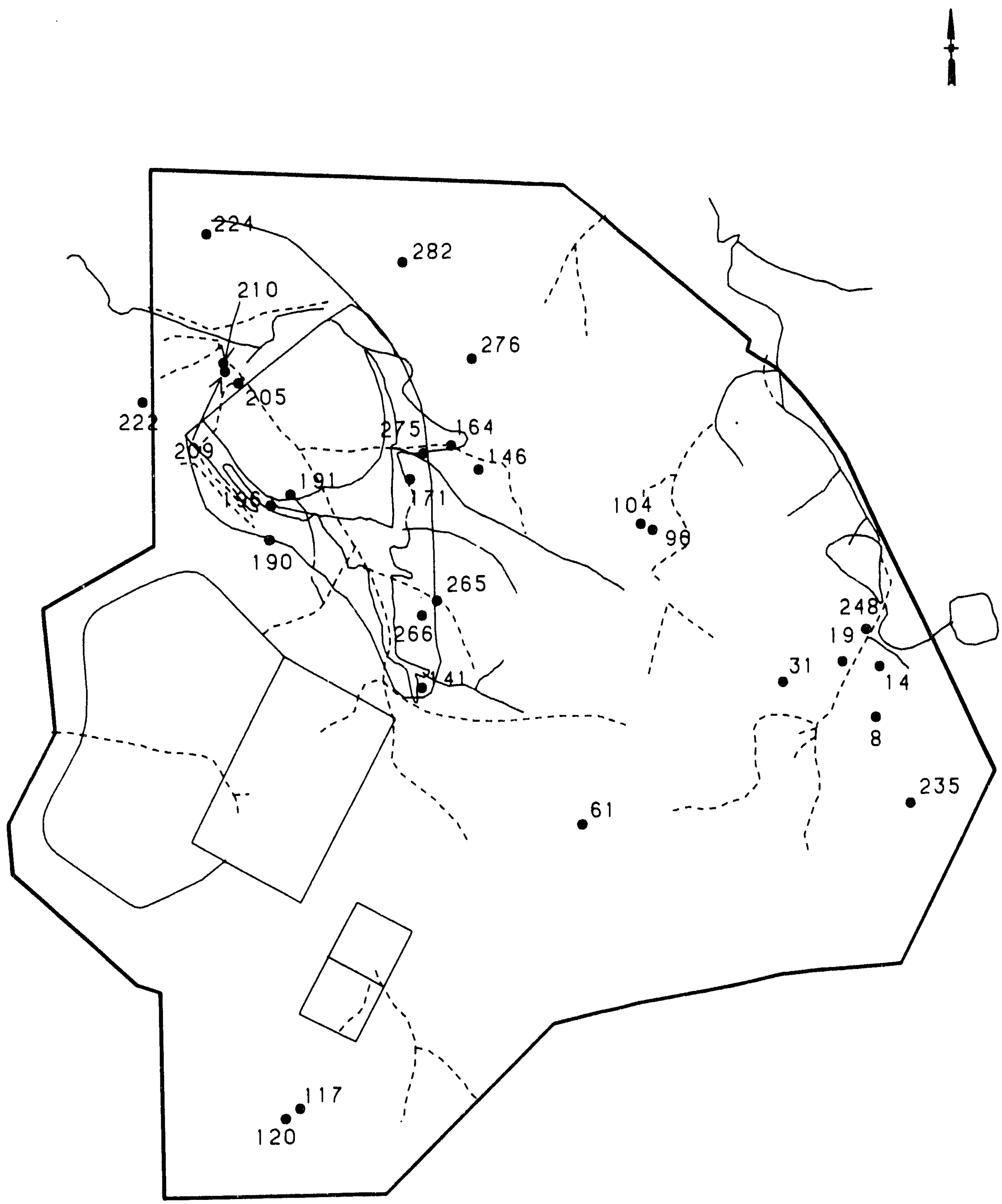
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92



LOCATION OF ELEVATED COPPER CONCENTRATIONS IN SOILS

FIGURE 5.2-16

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/131/0992
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92



LEGEND

● Iron Concentration > 30,738.98 ug/g

Current Drainage

1954 Drainage

100 50 0 100 200 METERS

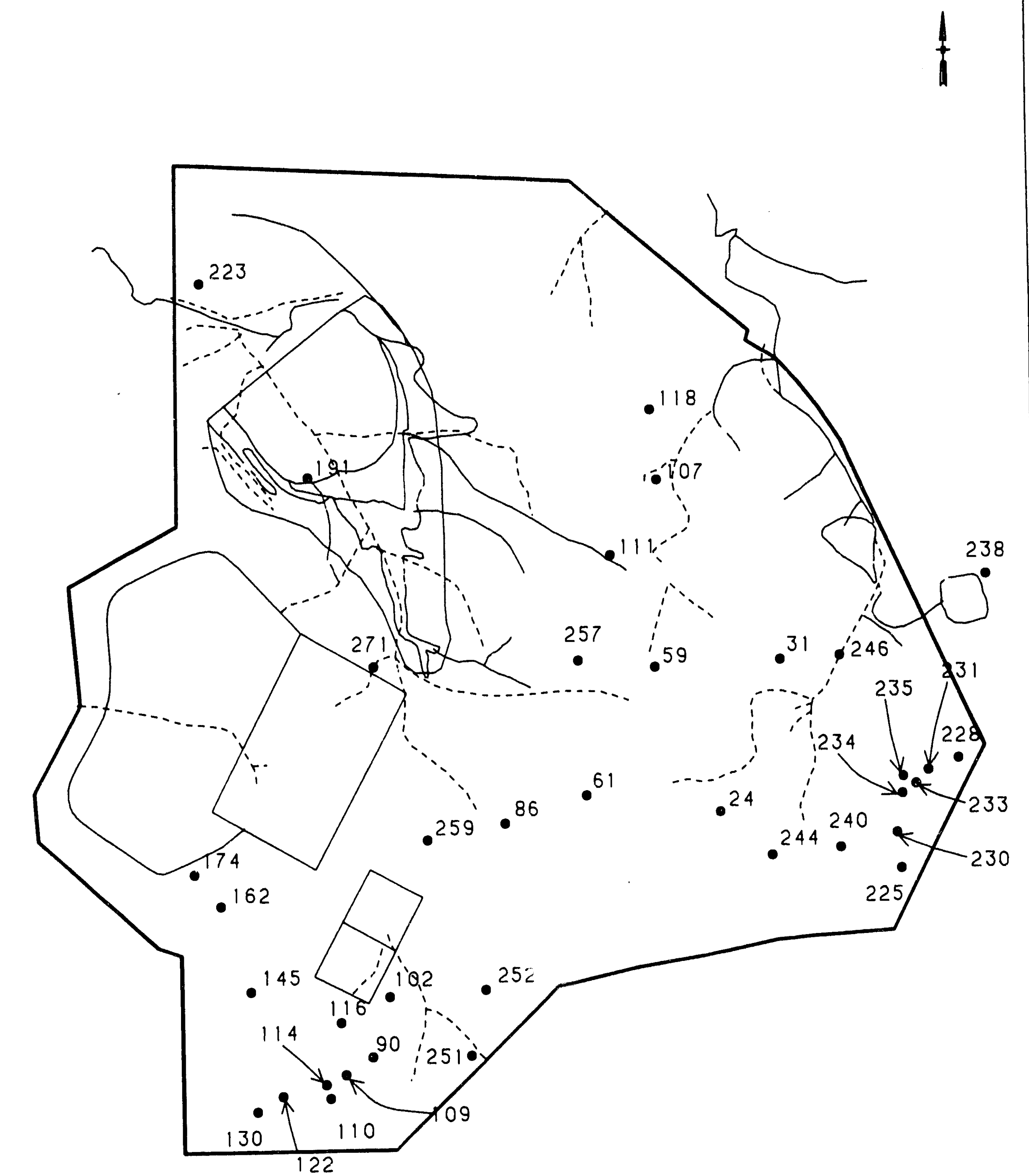
300 150 0 300 600 FEET

LOCATION OF ELEVATED IRON CONCENTRATIONS IN SOILS

FIGURE 5.2-17

REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/CP/132/0992

ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92



LEGEND

Mercury Concentration > 0.17 ug/g

Current Drainage

1954 Drainage

100 50 0 100 200 METERS

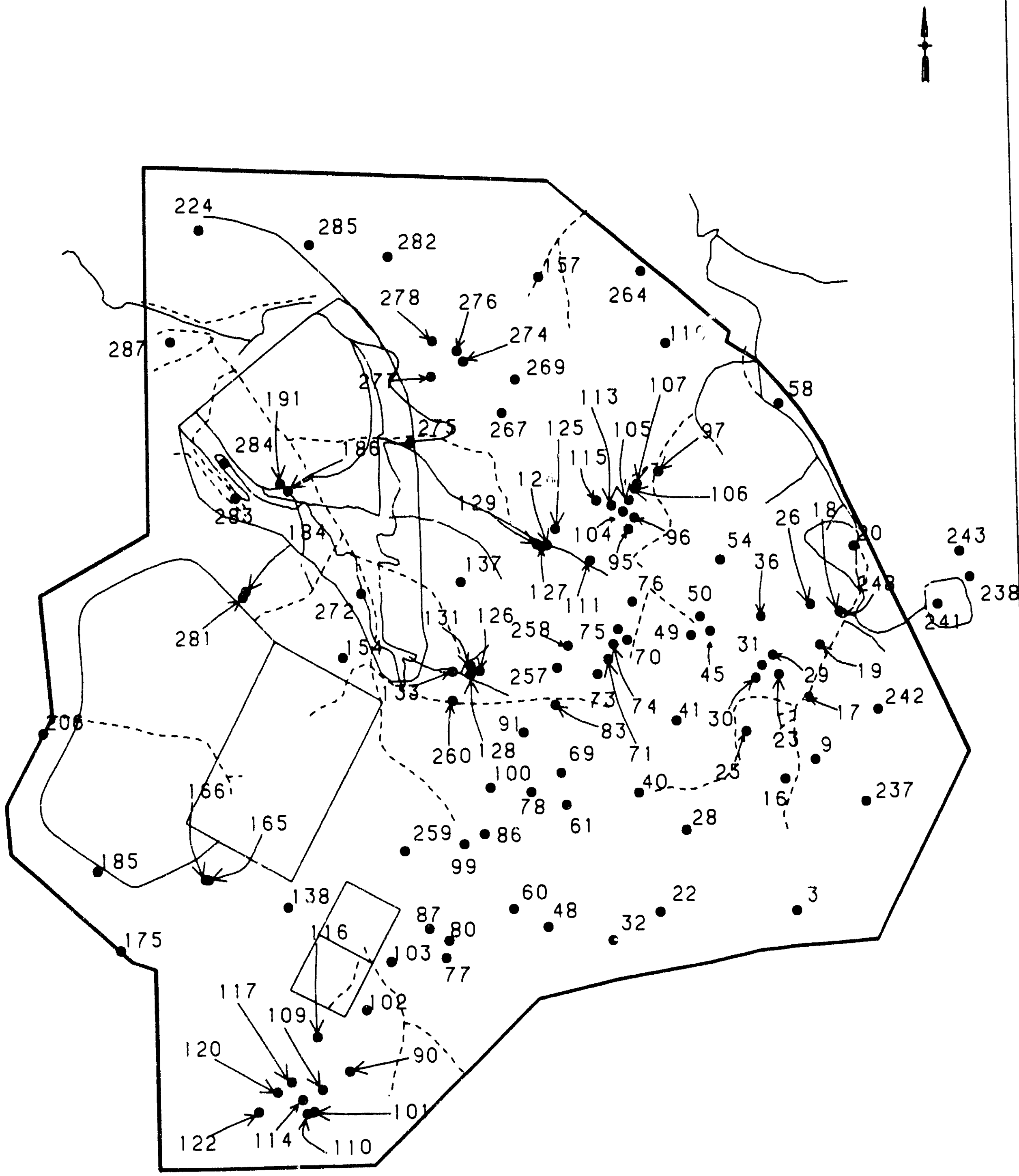
300 150 0 300 600 FEET

LOCATION OF ELEVATED MERCURY CONCENTRATIONS IN SOILS

FIGURE 5.2-18

REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/CP/133/0992

ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92



LEGEND

● Potassium Concentration > 982.43 ug/g

Current Drainage

1954 Drainage

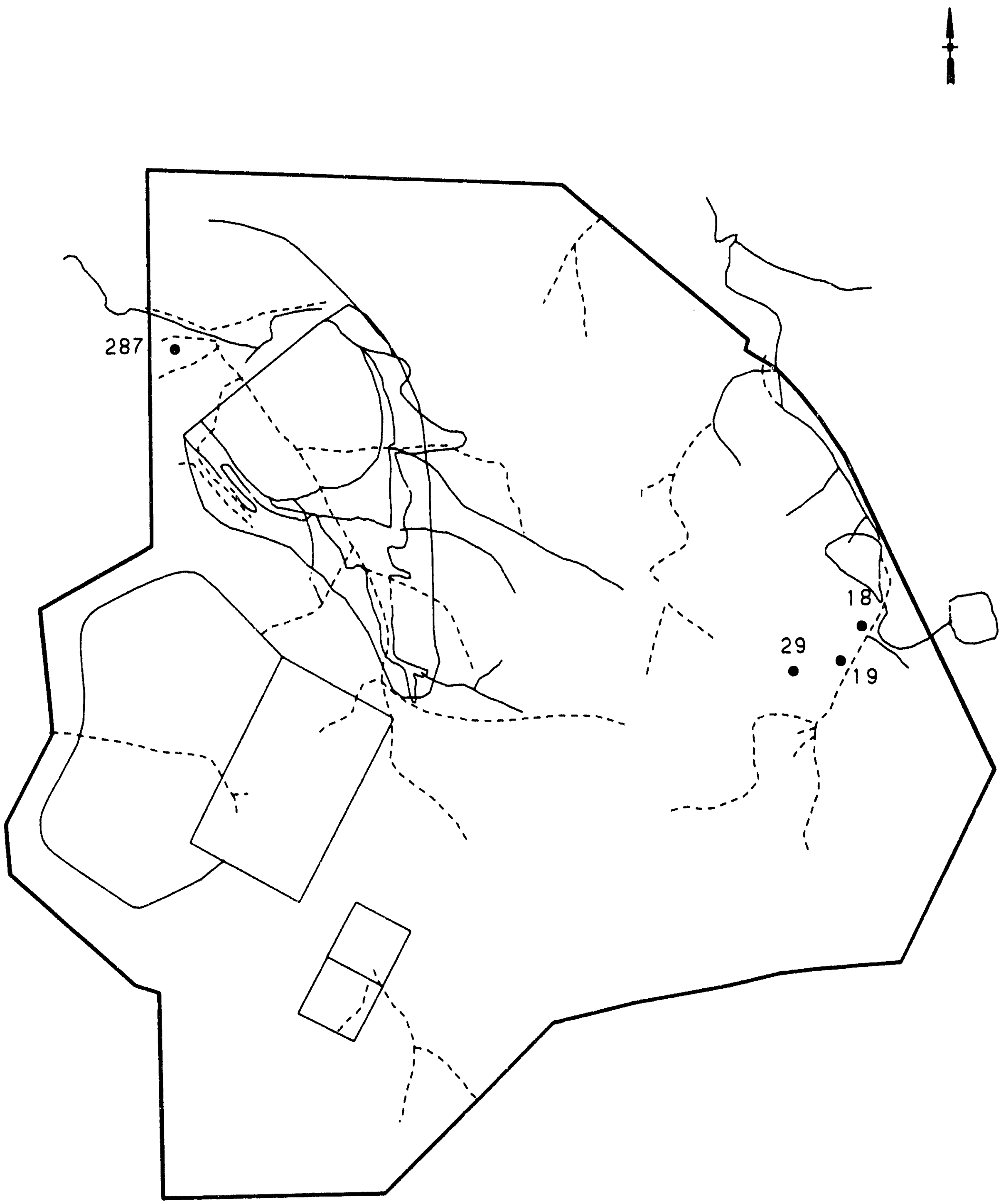
100 50 0 100 200 METERS

300 150 0 300 600 FEET

LOCATION OF ELEVATED POTASSIUM CONCENTRATIONS IN SOILS

FIGURE 5.2-19

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/134/0992
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92



LEGEND

● Lithium Concentration > 29.60 ug/g

Current Drainage

1954 Drainage

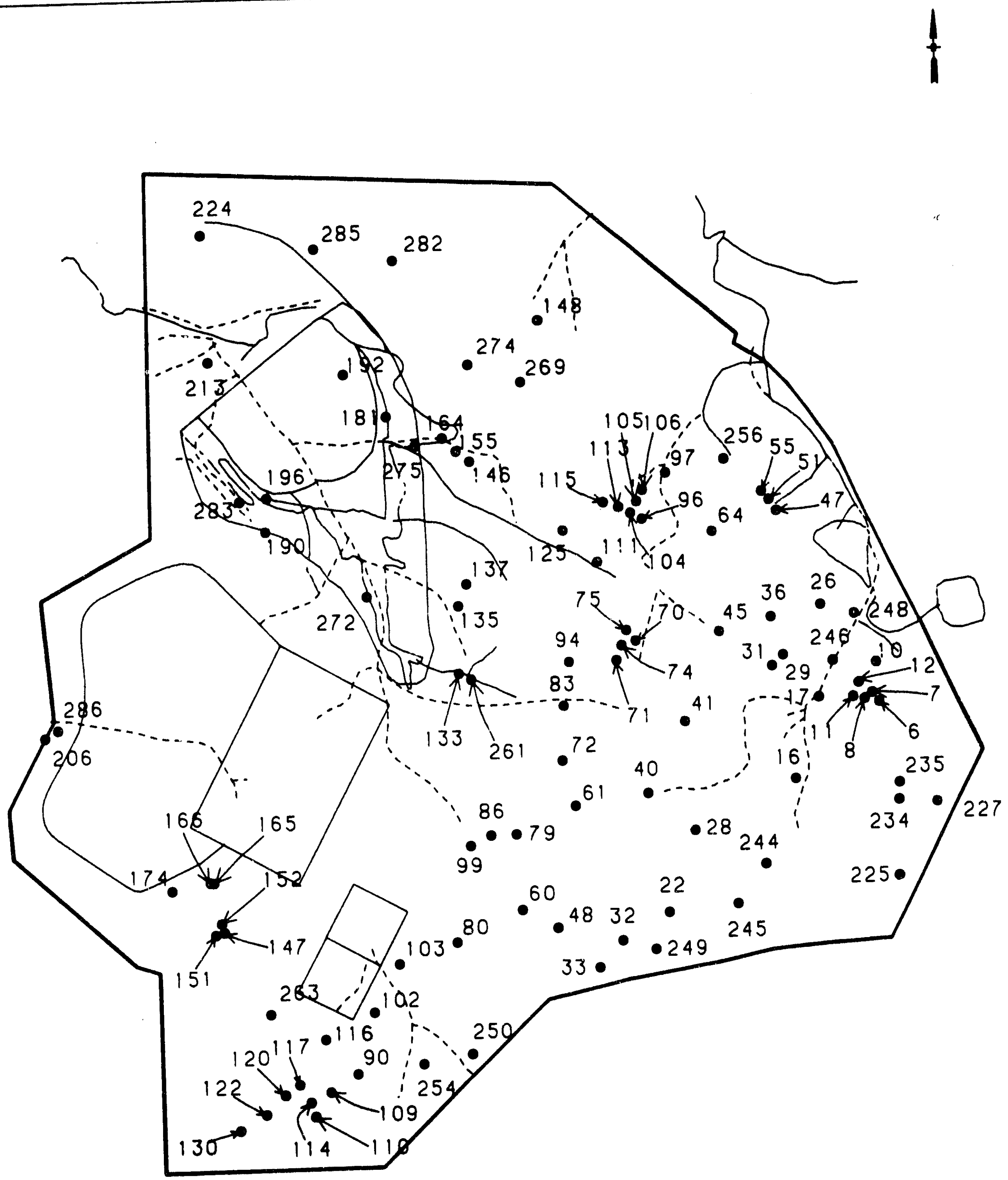
100 50 0 100 200 METERS

300 150 0 300 600 FEET

LOCATION OF ELEVATED LITHIUM CONCENTRATIONS IN SOILS

FIGURE 5.2-20

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/135/0992	
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92	



LEGEND

● Magnesium Concentration > 3,414.96 ug/g

Current Drainage

1954 Drainage

100 50 0 100 200 METERS

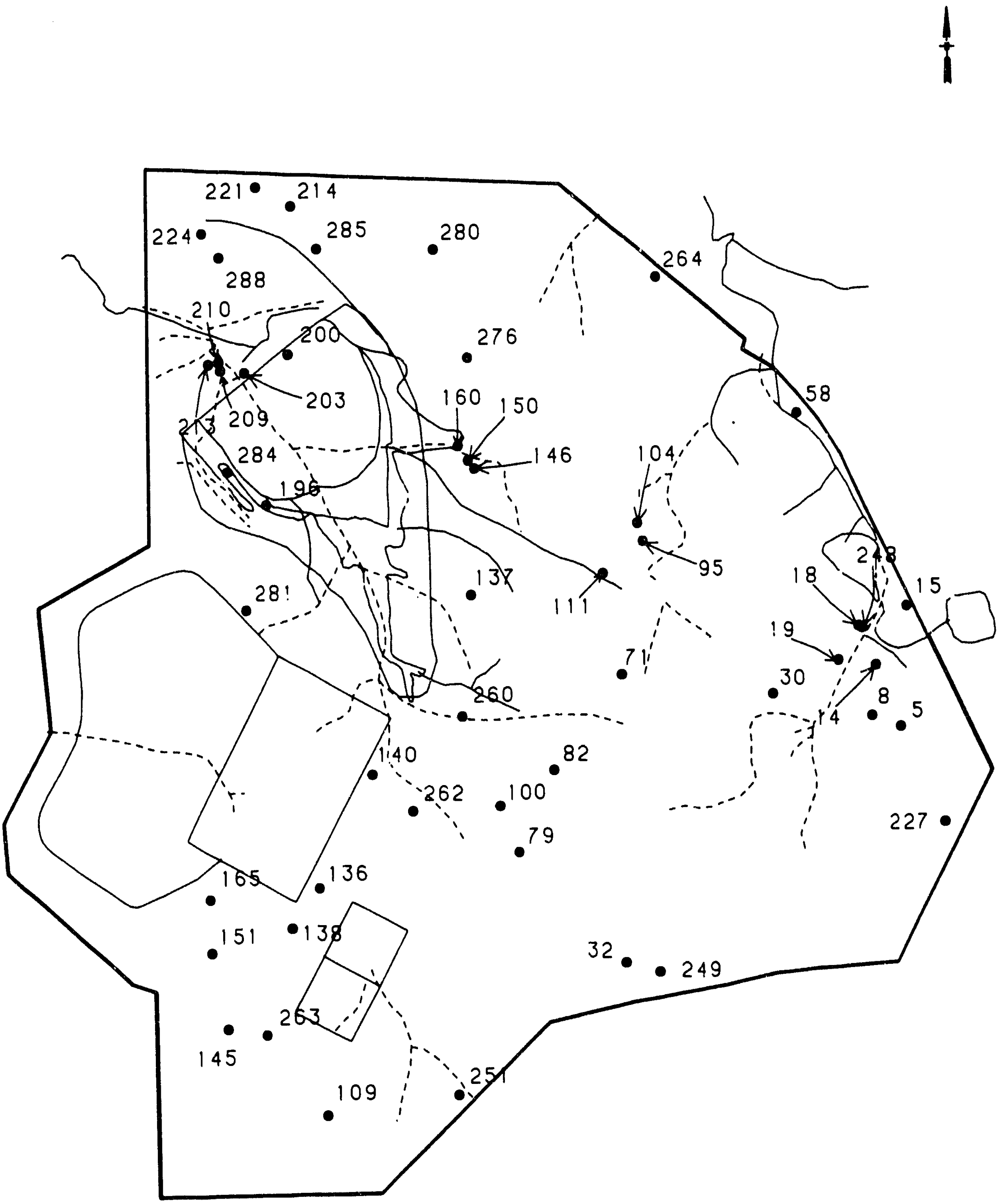
300 150 0 300 600 FEET

LOCATION OF ELEVATED MAGNESIUM CONCENTRATIONS IN SOILS

FIGURE 5.2-21

REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/CP/136/0992

ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92



LEGEND

Manganese Concentration > 1557.97 ug/g

Current Drainage

1954 Drainage

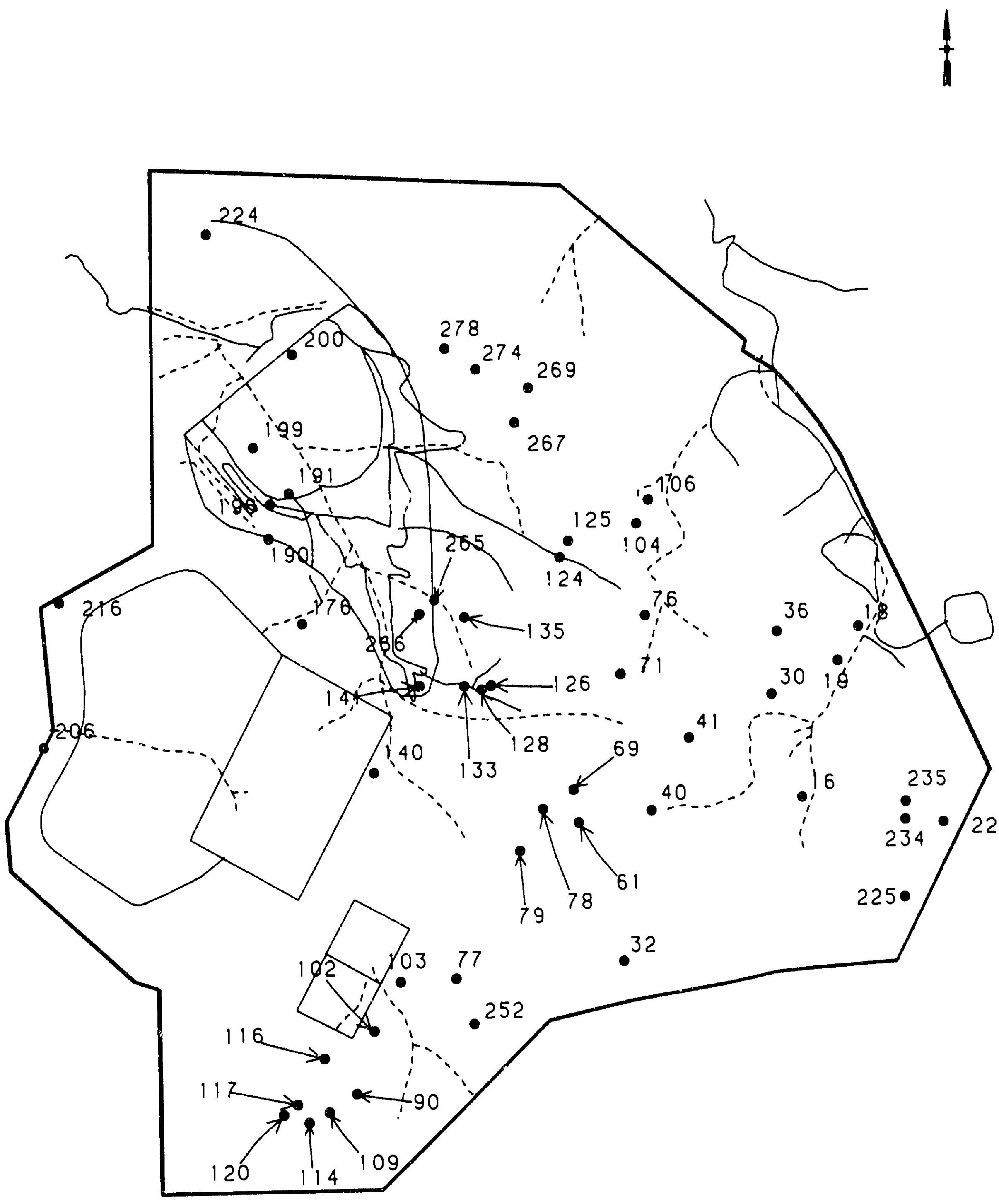
100 50 0 100 200 METERS

300 150 0 300 600 FEET

LOCATION OF ELEVATED MANGANESE CONCENTRATIONS IN SOILS

FIGURE 5.2-22

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/137/0992	
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92	



LEGEND

● Molybdenum Concentration > 24.72 ug/g

Current Drainage

1954 Drainage

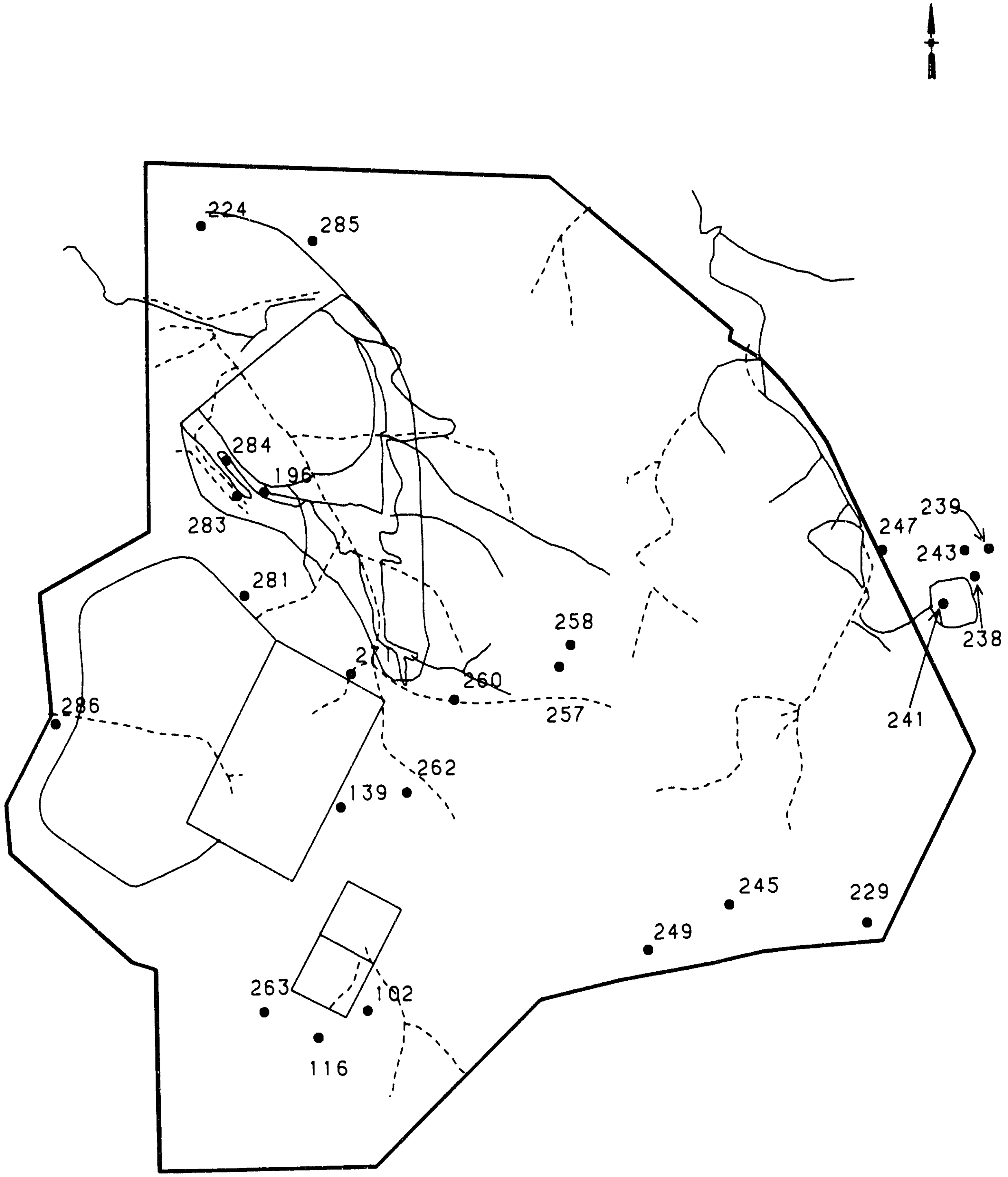
100 50 0 100 200 METERS

300 150 0 300 600 FEET

LOCATION OF ELEVATED MOLYBDENUM CONCENTRATIONS IN SOILS

FIGURE 5.2-23

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/138/0992
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92



LEGEND

• Sodium Concentration > 682.24 ug/g

Current Drainage

1954 Drainage

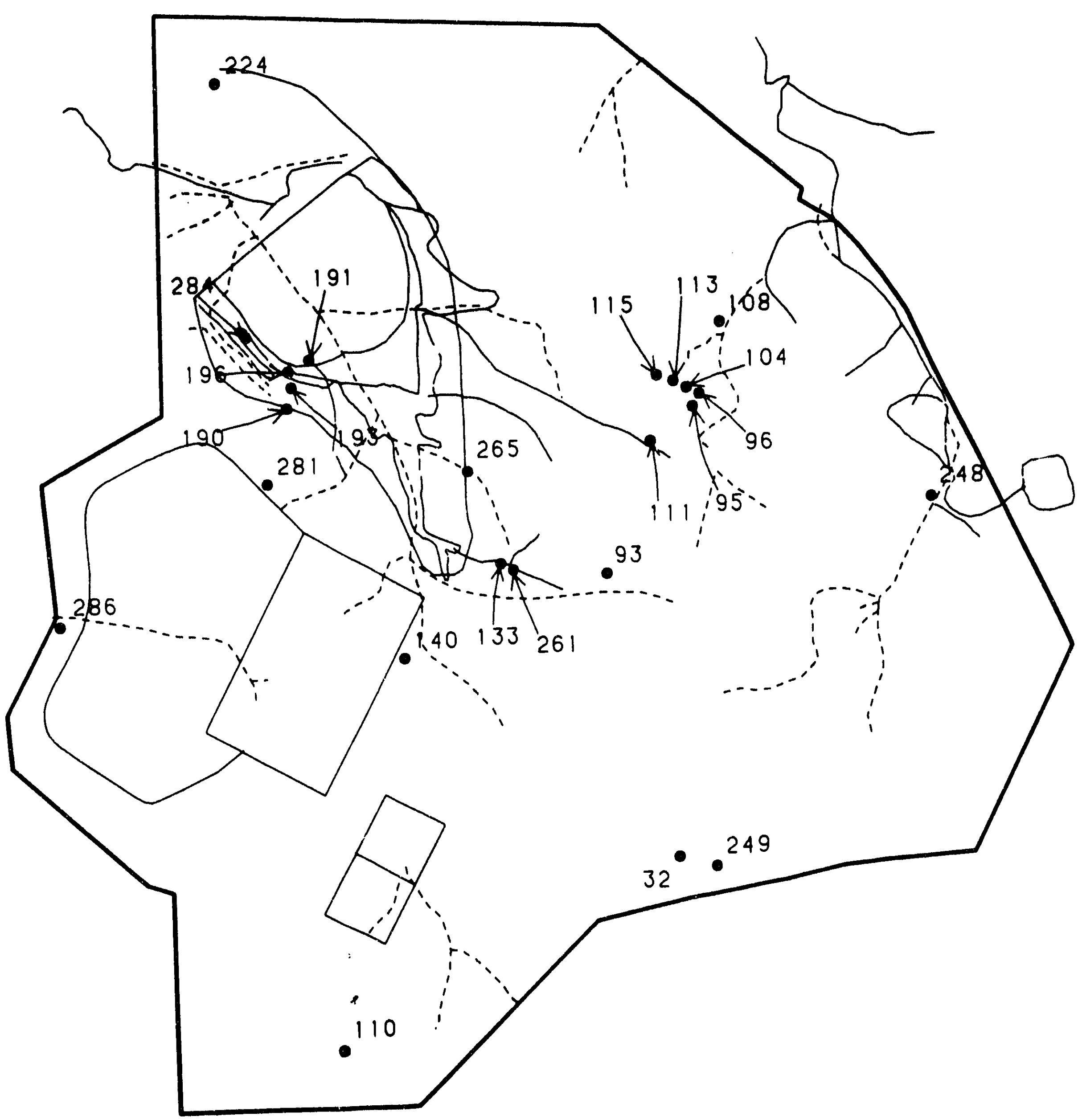
100 50 0 100 200 METERS

300 150 0 300 600 FEET

LOCATION OF ELEVATED SODIUM CONCENTRATIONS IN SOILS

FIGURE 5.2-24

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/139/0992
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92



LEGEND

Nickel Concentration > 43.39 ug/g

Current Drainage

1954 Drainage

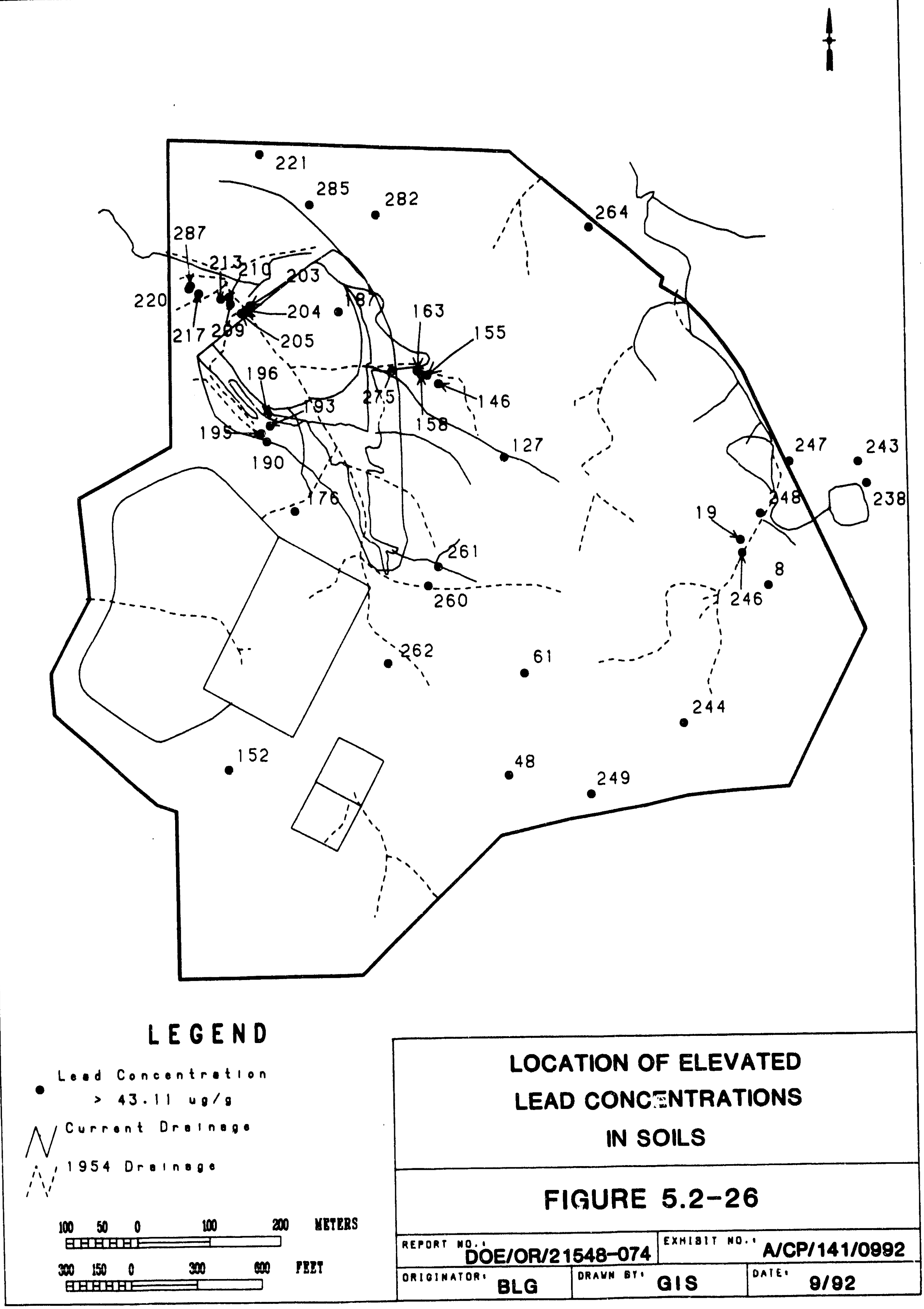
100 50 0 100 200 METERS

300 150 0 300 600 FEET

LOCATION OF ELEVATED NICKEL CONCENTRATIONS IN SOILS

FIGURE 5.2-25

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/140/0992
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92

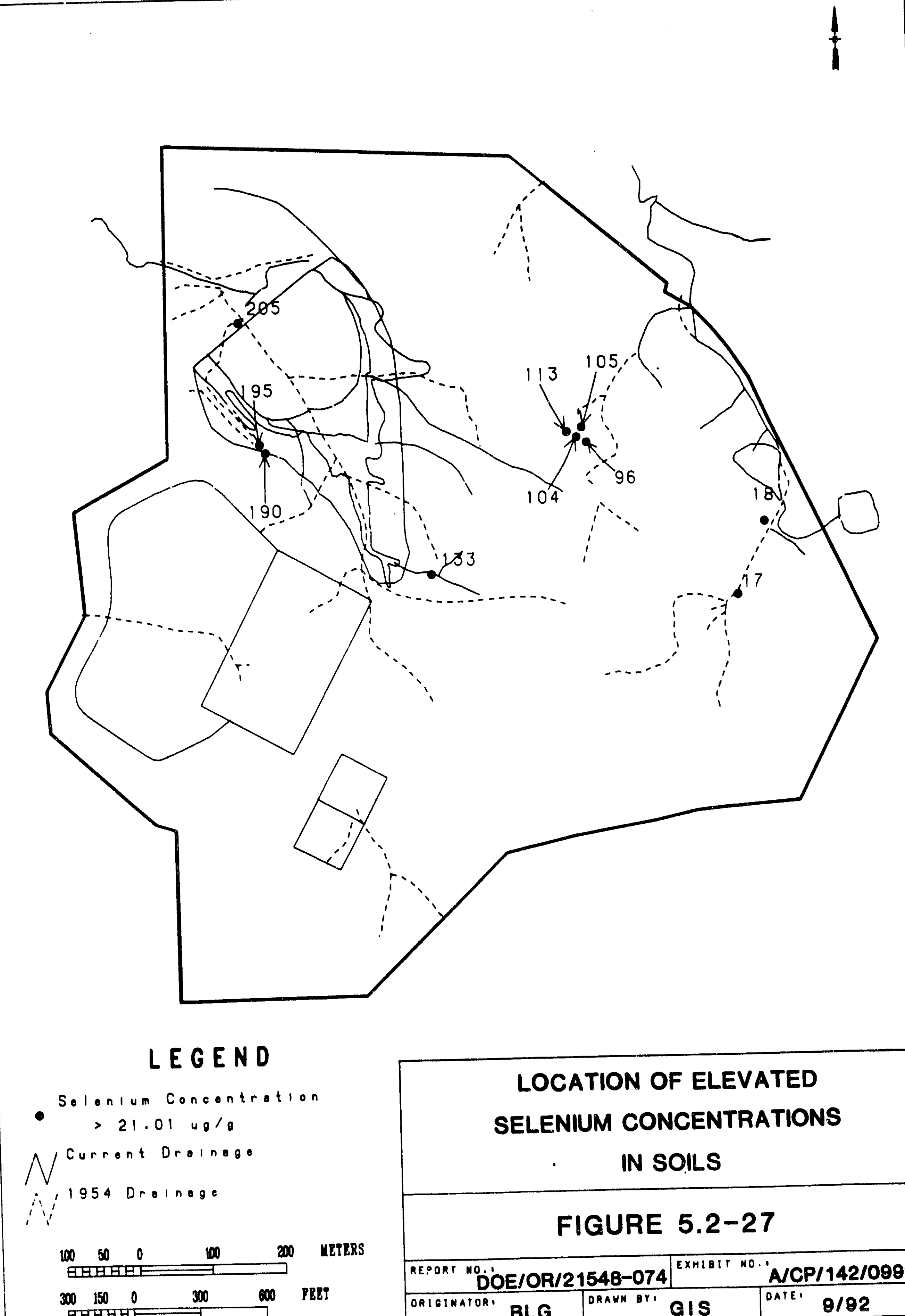


LOCATION OF ELEVATED LEAD CONCENTRATIONS IN SOILS

FIGURE 5.2-26

REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/CP/141/0992

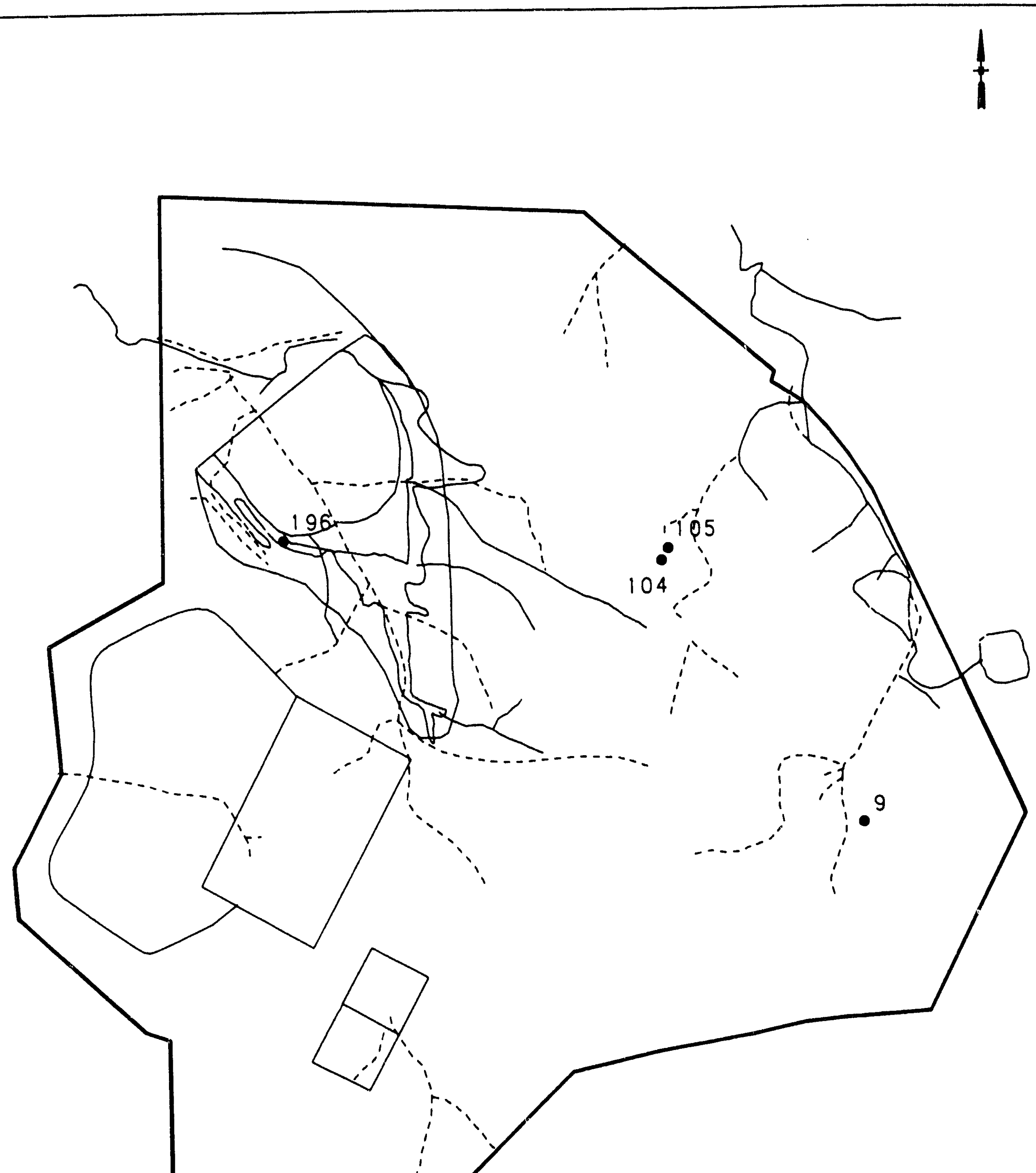
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92



LOCATION OF ELEVATED SELENIUM CONCENTRATIONS IN SOILS

FIGURE 5.2-27

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/142/0992	
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92	



LEGEND

- Thallium Concentration > 17.06 ug/g
- Current Drainage
- 1954 Drainage

100 50 0 100 200 METERS

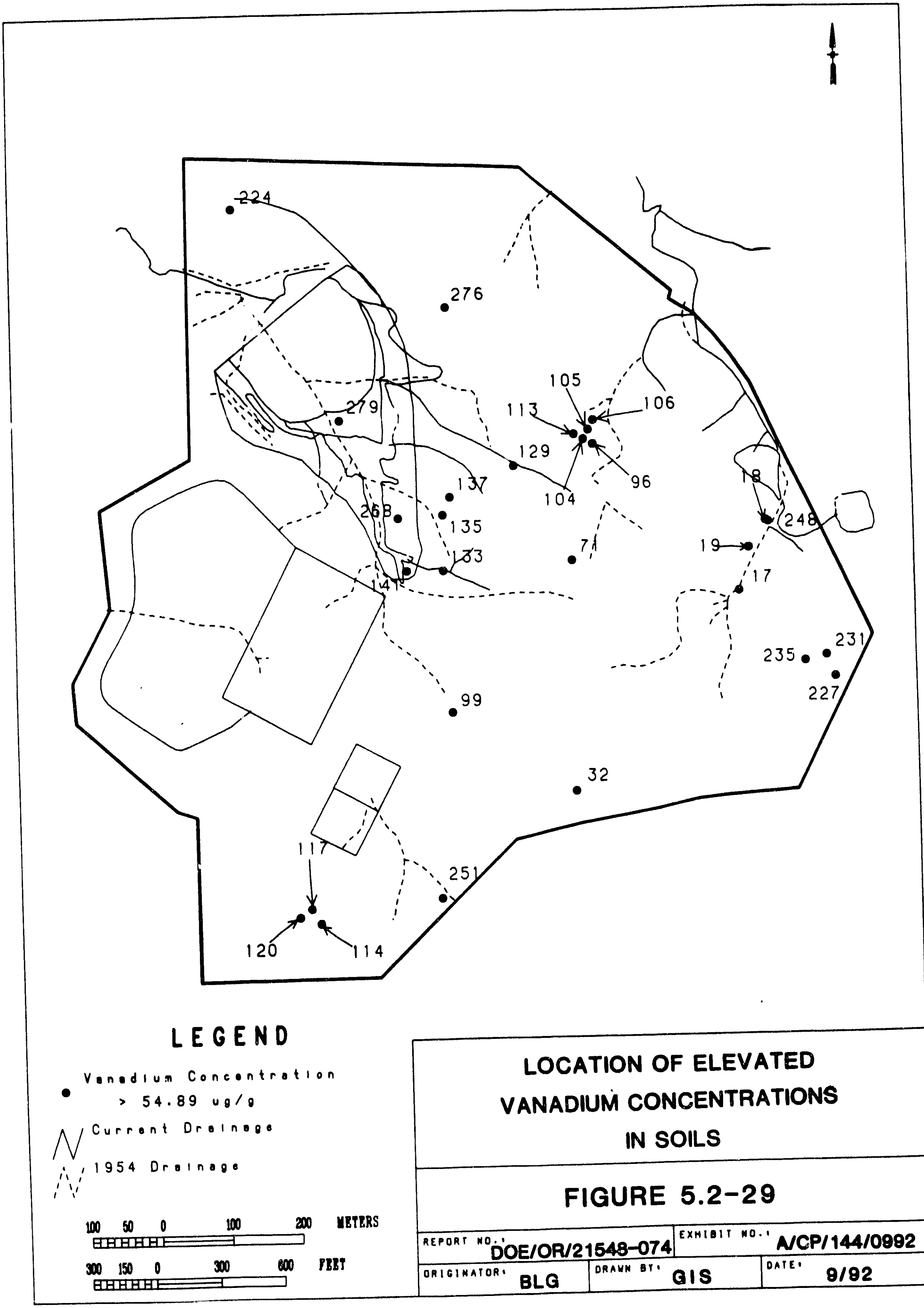
300 150 0 300 600 FEET

LOCATION OF ELEVATED THALLIUM CONCENTRATIONS IN SOILS

FIGURE 5.2-28

REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/CP/143/0992

ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92

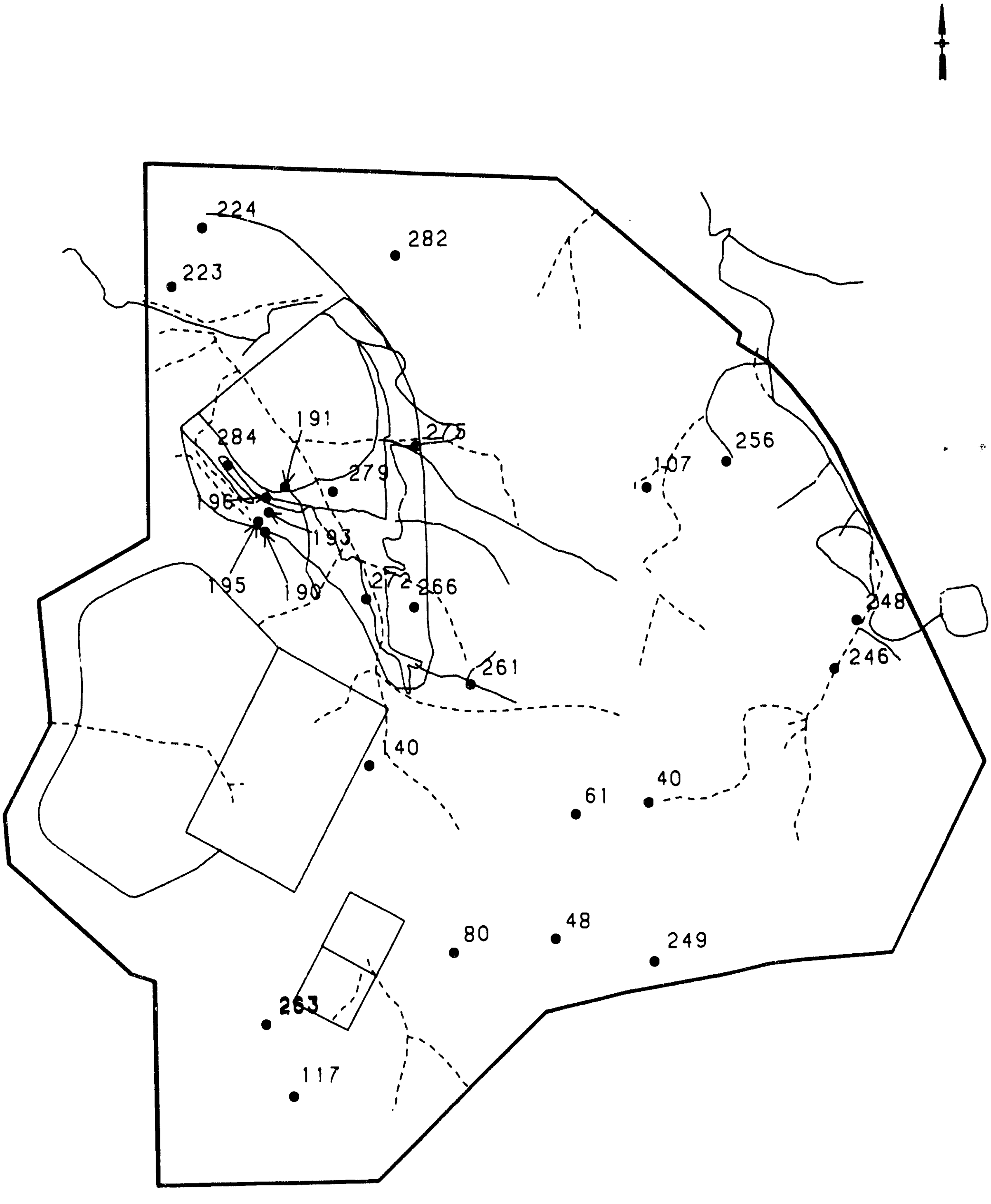


LOCATION OF ELEVATED VANADIUM CONCENTRATIONS IN SOILS

FIGURE 5.2-29

REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/CP/144/0992

ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92



LEGEND

● Zinc Concentration > 78.09 ug/g

Current Drainage

1954 Drainage

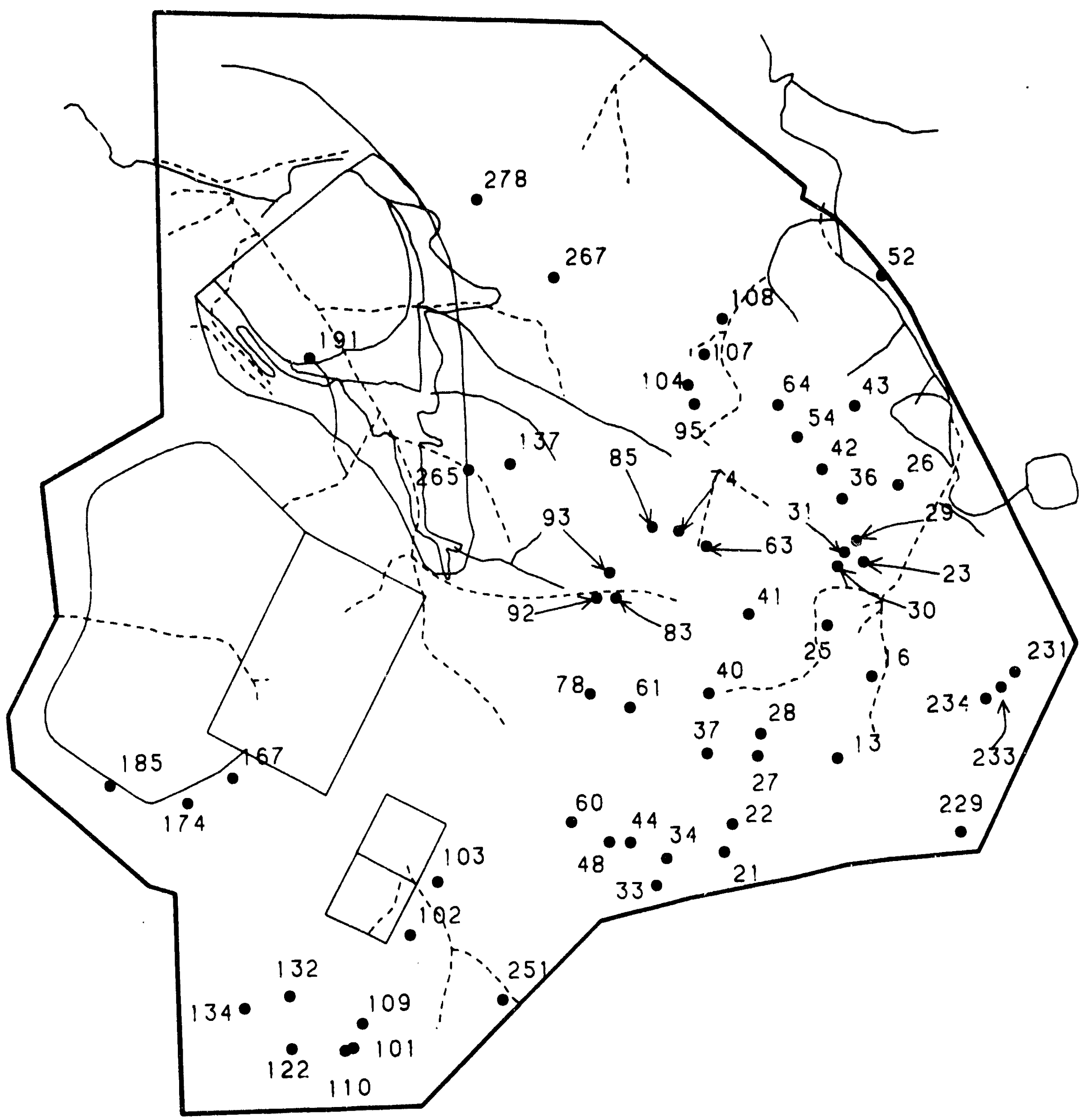
100 50 0 100 200 METERS

300 150 0 300 600 FEET

LOCATION OF ELEVATED ZINC CONCENTRATIONS IN SOILS

FIGURE 5.2-30

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/145/0992	
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92	



LEGEND

● Semi-Volatiles Concentration > Not Detected

Current Drainage

1954 Drainage

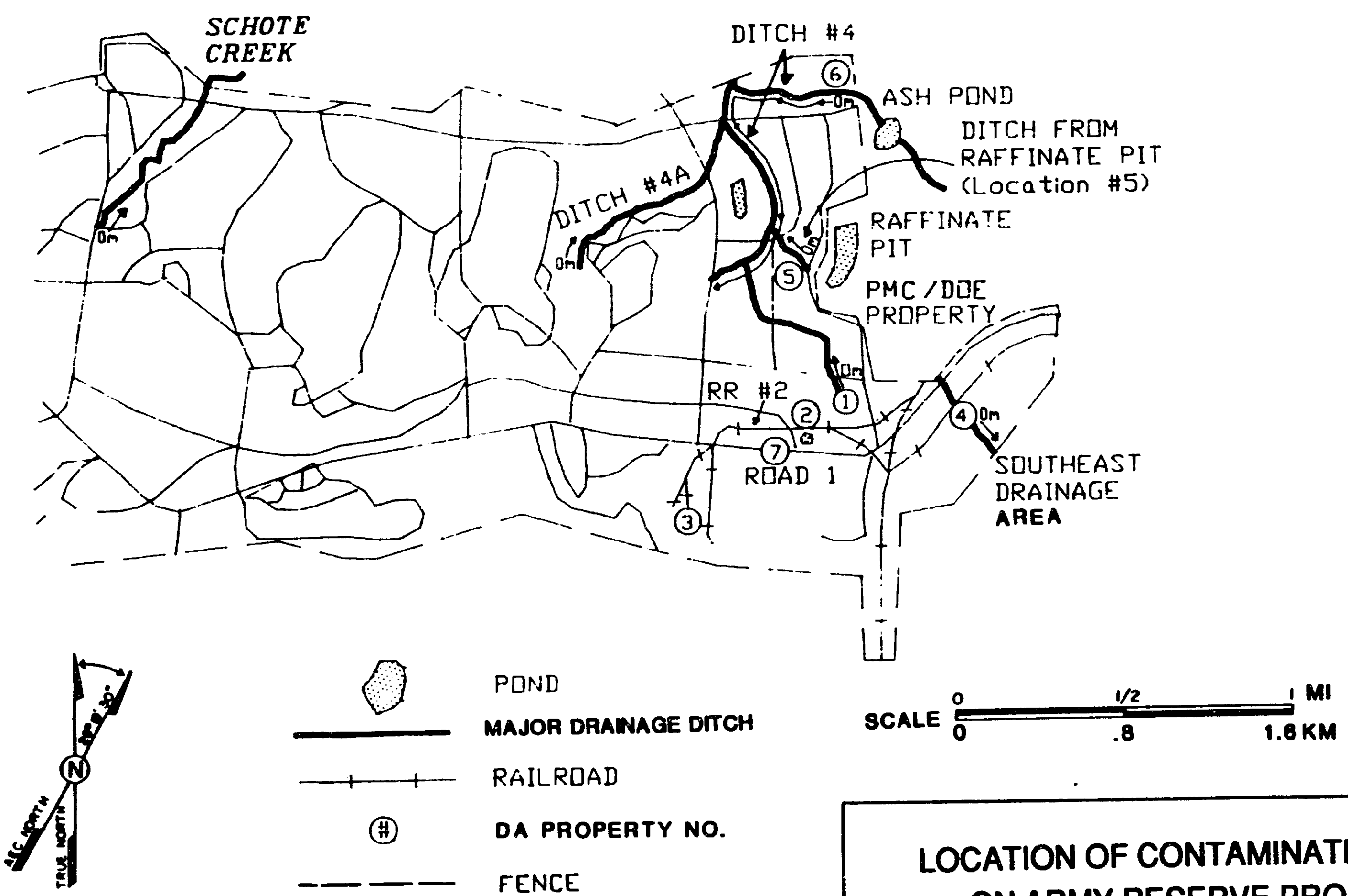
100 50 0 100 200 METERS

300 150 0 300 600 FEET

LOCATION OF ELEVATED SEMI-VOLATILES CONCENTRATIONS IN SOILS

FIGURE 5.2-31

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/146/0992	
ORIGINATOR: BLG	DRAWN BY: GIS	DATE: 9/92	

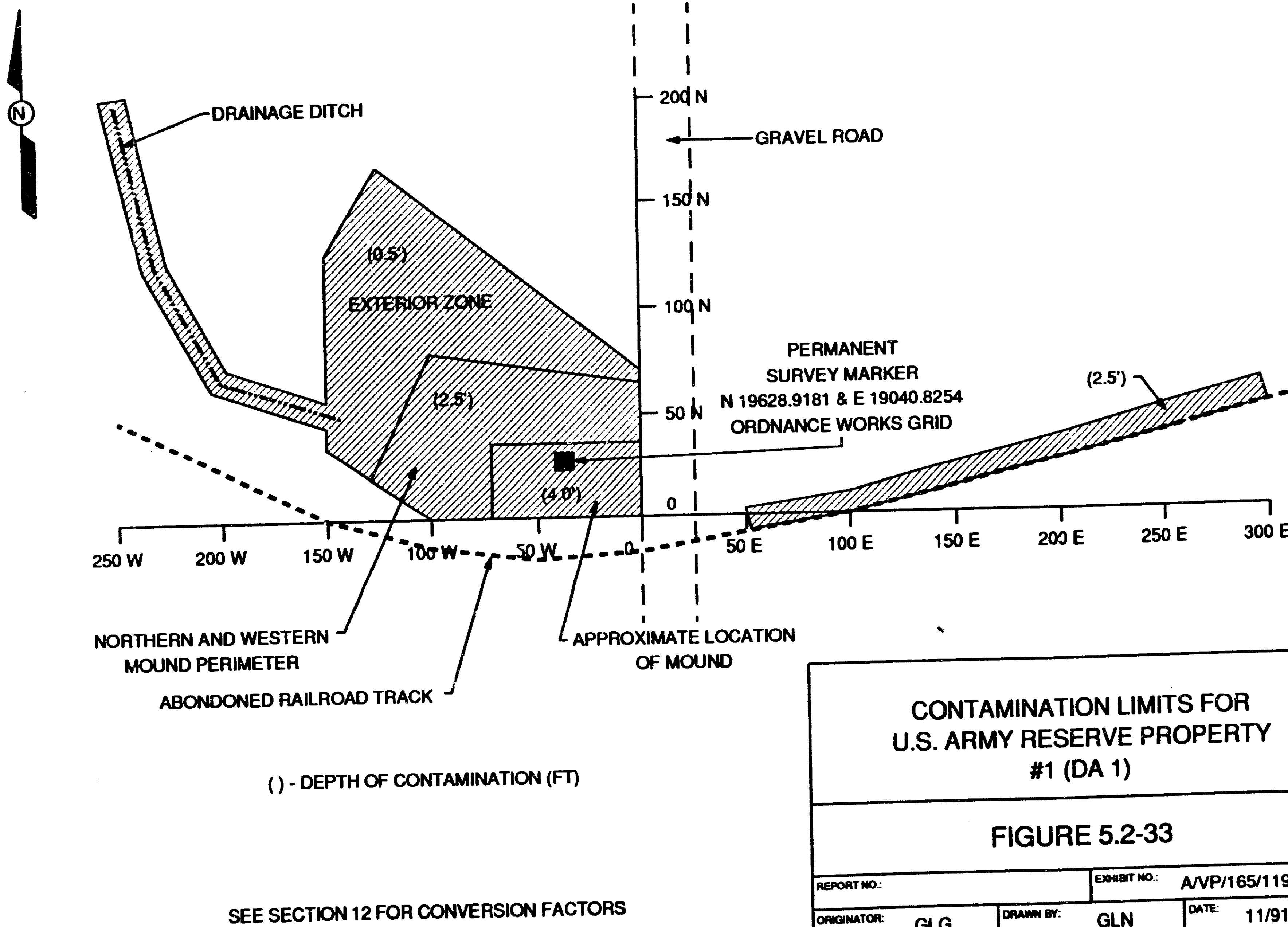


SOURCE: ORAU 1986a

LOCATION OF CONTAMINATED AREAS
ON ARMY RESERVE PROPERTY

FIGURE 5.2-32

REPORT NO.: DOE/OR/21548-074 | EXHIBIT NO.: A/VP/164/1191
ORIGINATOR: BLG | DRAWN BY: GLN | DATE: 11/91

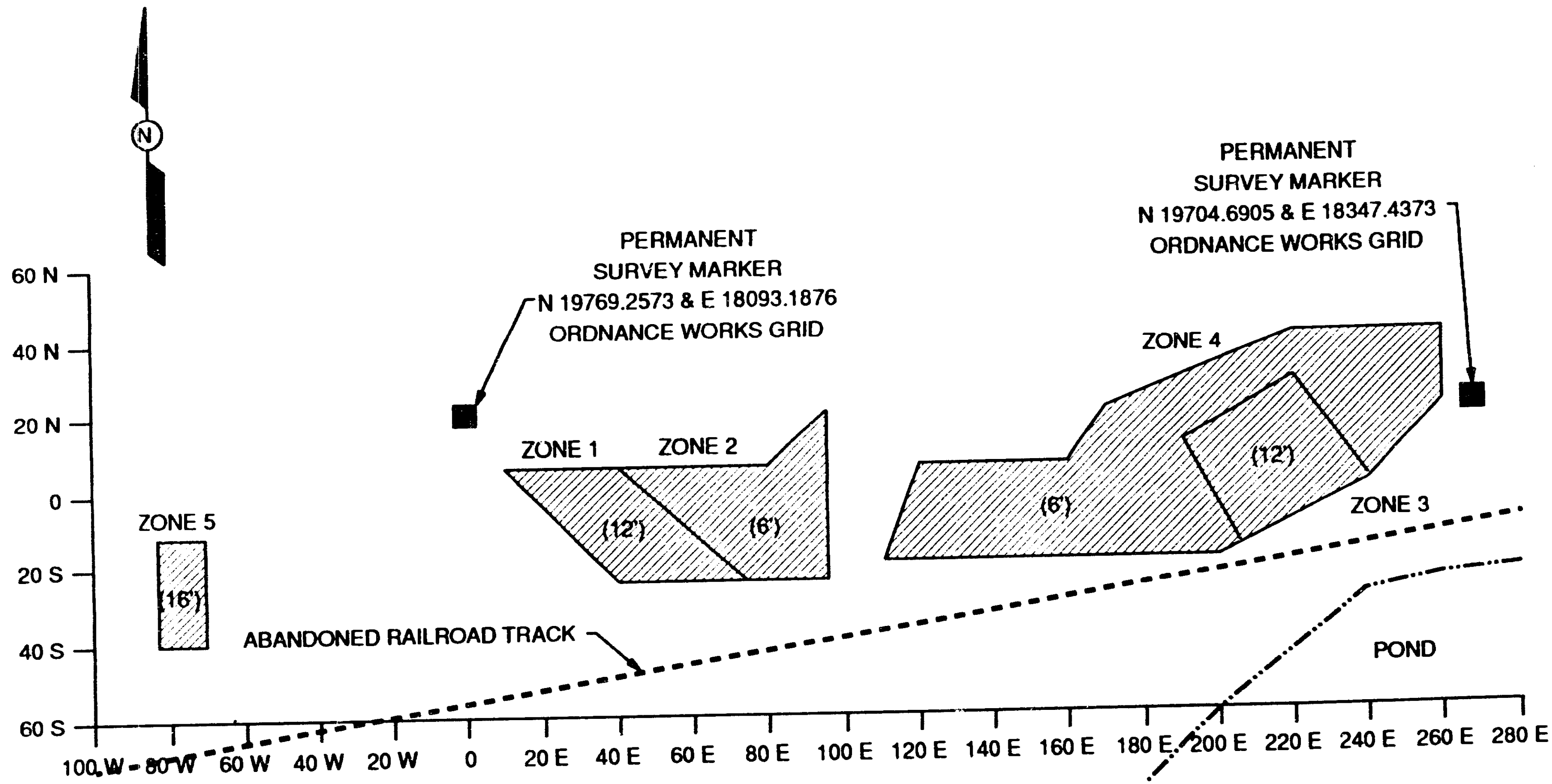


CONTAMINATION LIMITS FOR
U.S. ARMY RESERVE PROPERTY
#1 (DA 1)

FIGURE 5.2-33

REPORT NO.:	EXHIBIT NO.: A/VP/165/1191

ORIGINATOR: GLG	DRAWN BY: GLN	DATE: 11/91



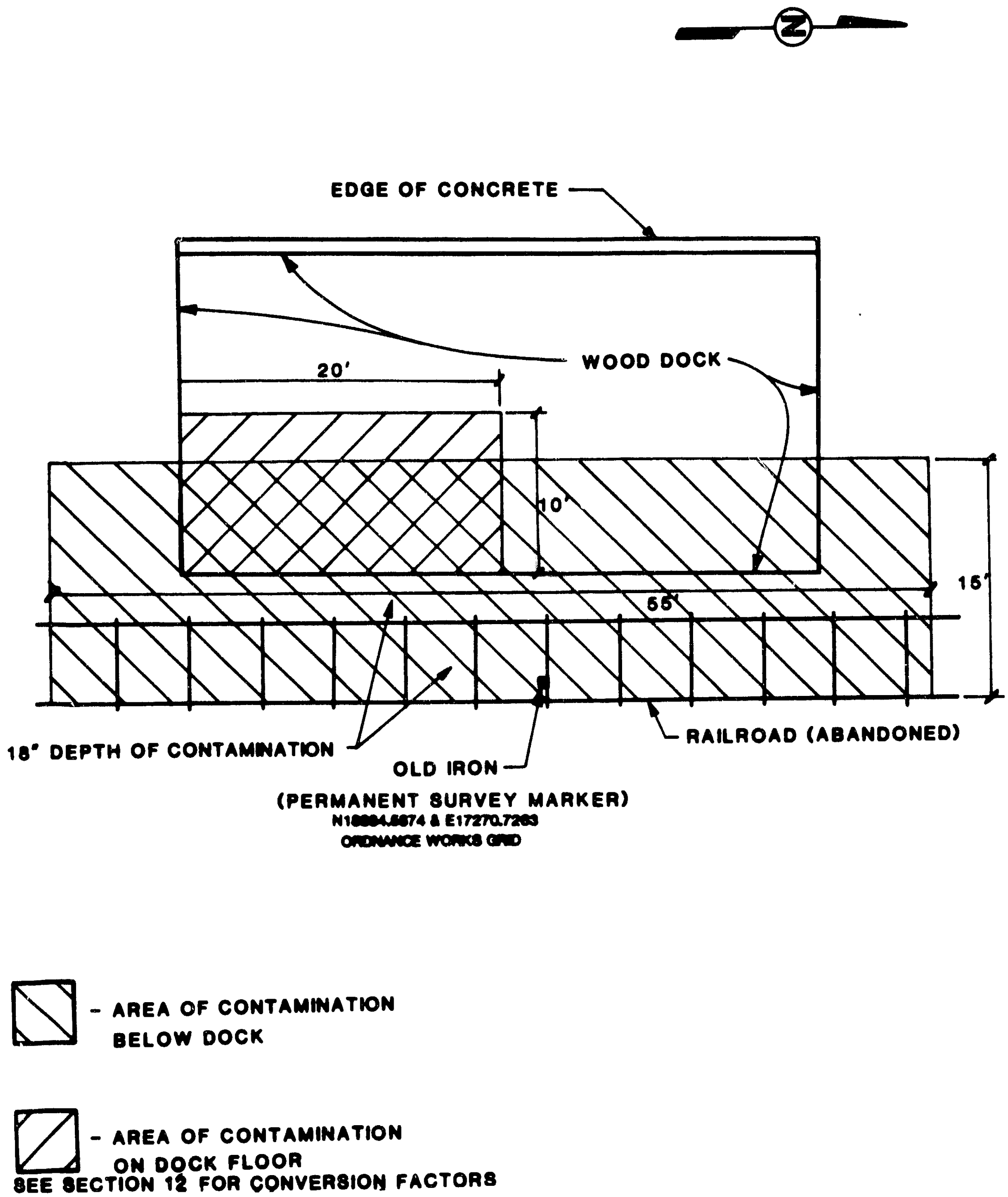
( ) - DEPTH OF CONTAMINATION (FT)

SEE SECTION 12 FOR CONVERSION FACTORS

CONTAMINATION LIMITS FOR U.S. ARMY RESERVE PROPERTY #2 (DA 2)

FIGURE 5.2-34

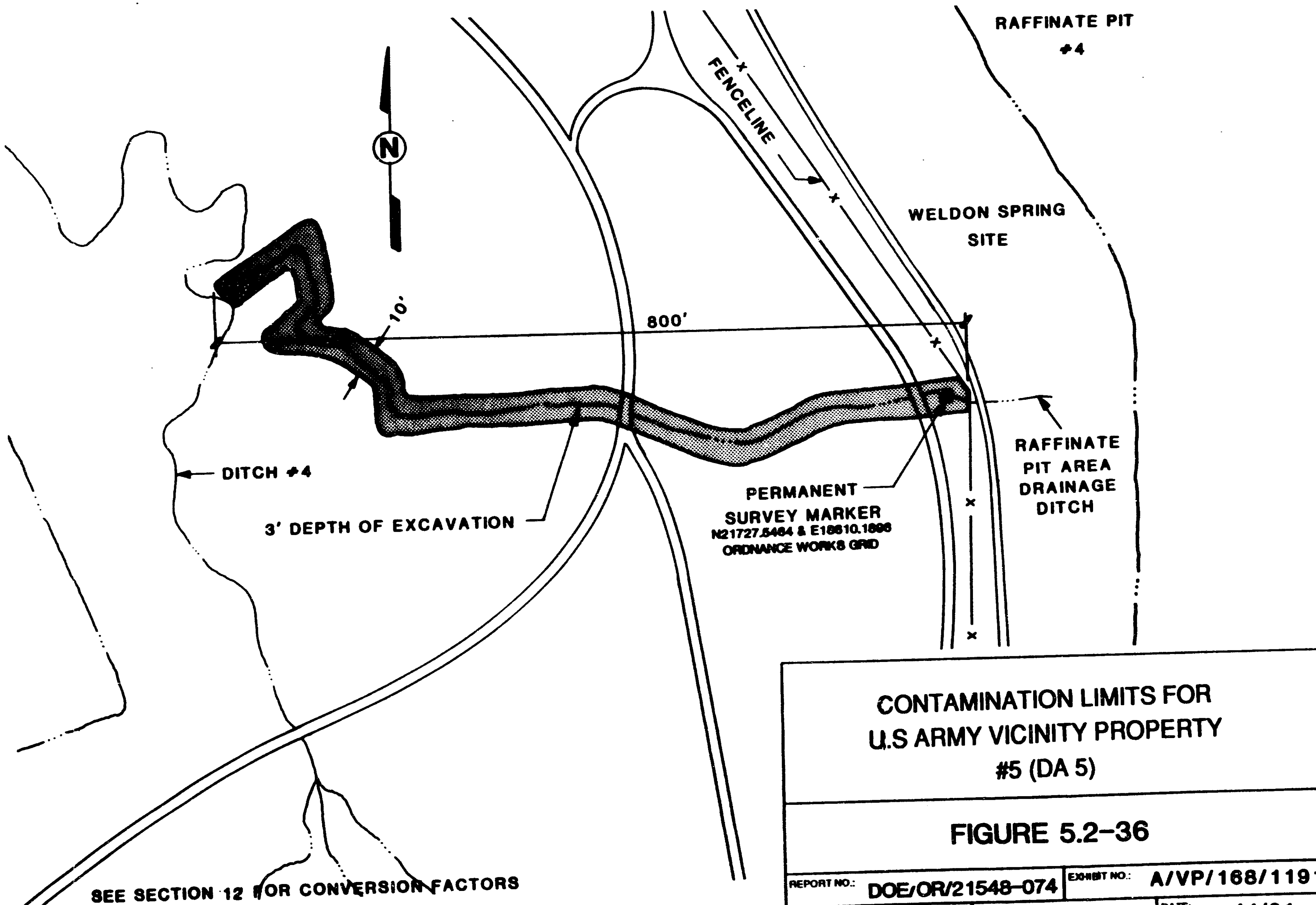
REPORT NO.:			EXHIBIT NO.:	A/VP/166/1191	
ORIGINATOR:	BLG	DRAWN BY:	GLN	DATE:	11/92



CONTAMINATION LIMITS FOR
U.S ARMY VICINITY PROPERTY
#3 (DA 3)

FIGURE 5.2-35

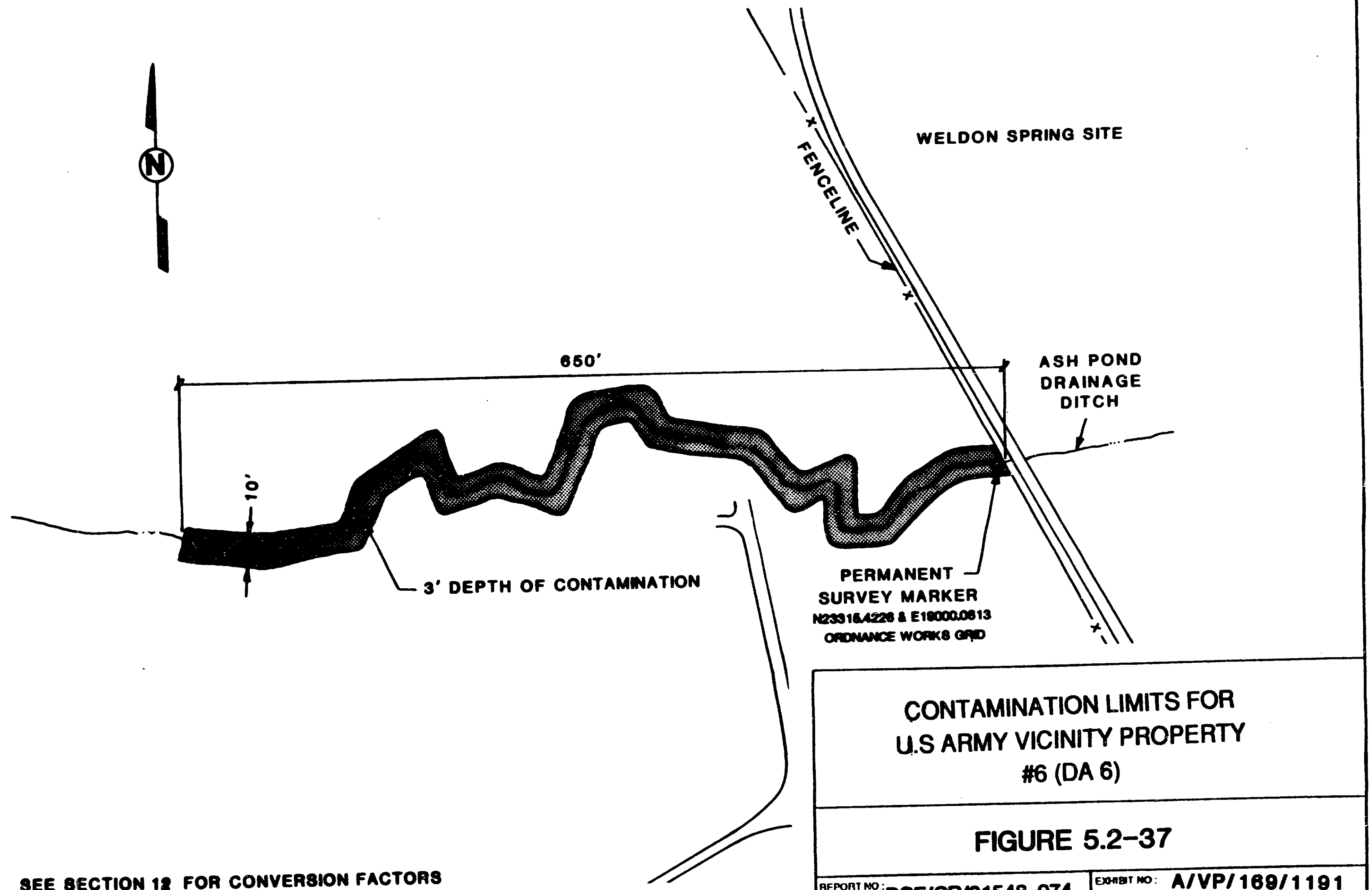
REPORT NO.	DOE/OR/21548-074	EXHIBIT NO.	A/VP/167/1191		
ORIGINATOR	BLG	DRAWN BY	GLN	DATE	11/91



CONTAMINATION LIMITS FOR
U.S ARMY VICINITY PROPERTY
#5 (DA 5)

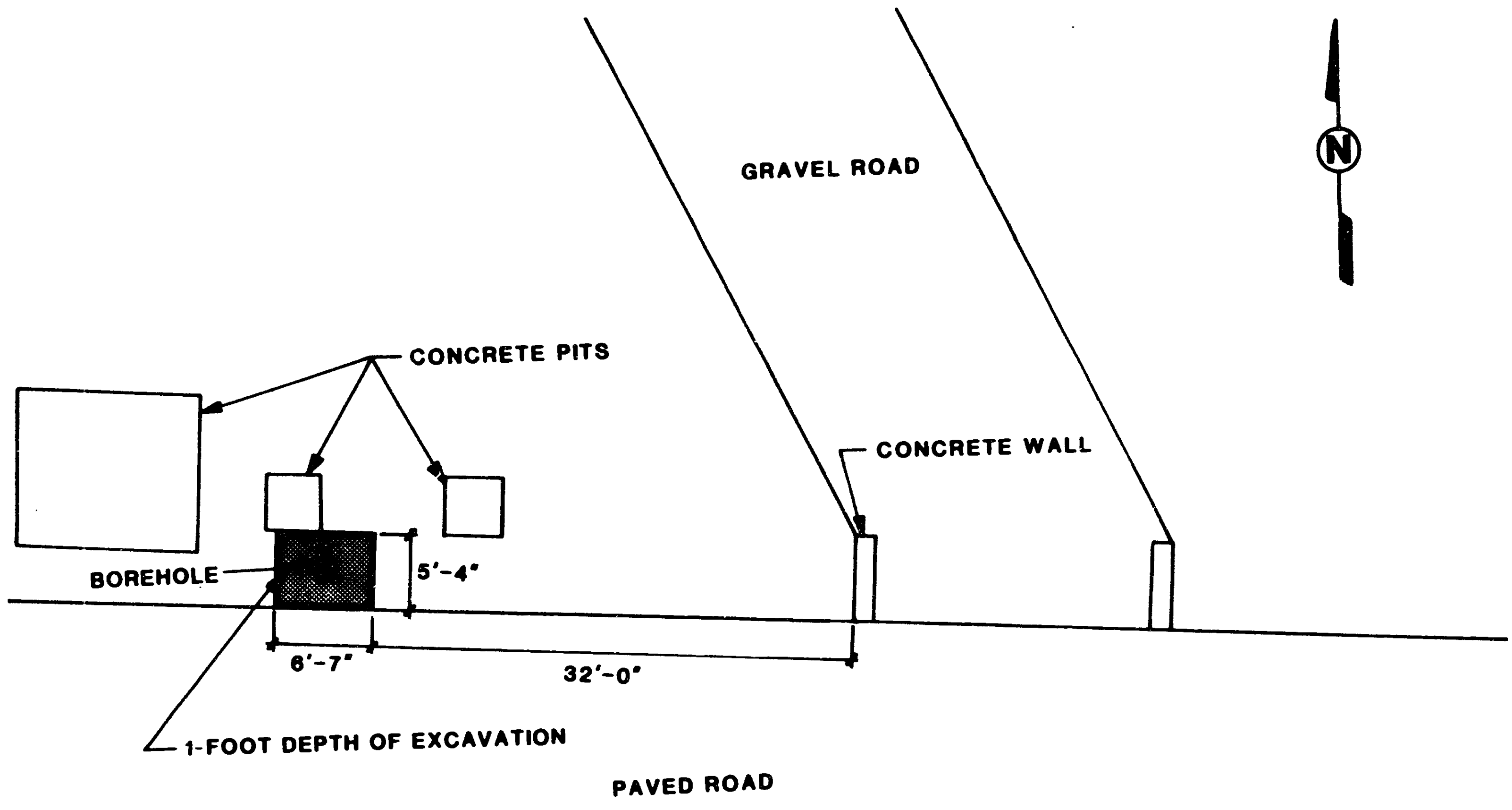
FIGURE 5.2–36

REPORT NO.: DOE/OR/21548–074		EXHIBIT NO.: A/VP/168/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



SEE SECTION 12 FOR CONVERSION FACTORS

CONTAMINATION LIMITS FOR U.S ARMY VICINITY PROPERTY #6 (DA 6)					
FIGURE 5.2-37					
REPORT NO.:	DOE/OR/21548-074	EXHIBIT NO.:	A/VP/169/1191		
ORIGINATOR:	BLG	DRAWN BY:	GLN	DATE:	11/91

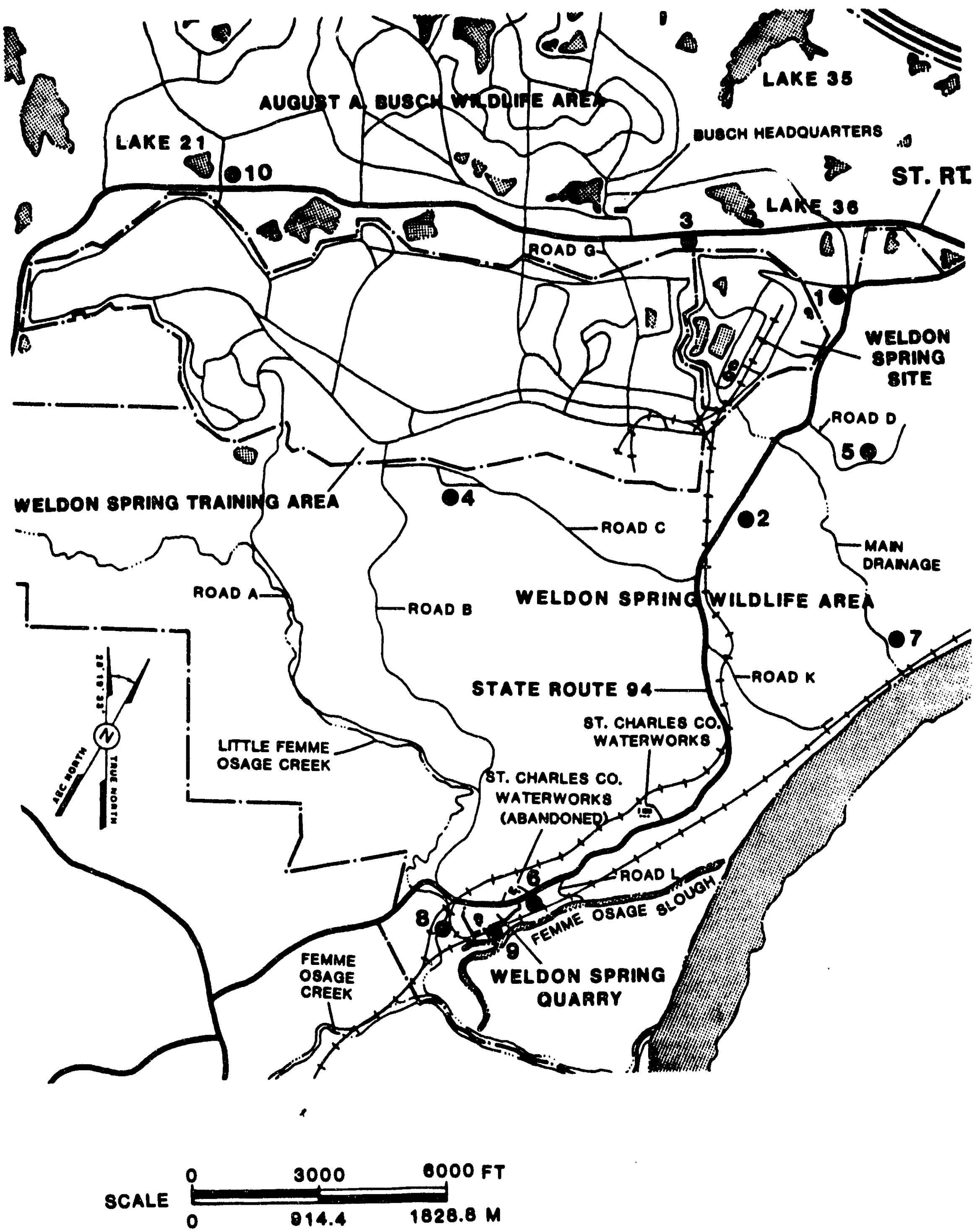


SEE SECTION 12 FOR CONVERSION FACTORS

CONTAMINATION LIMITS FOR
U.S ARMY VICINITY PROPERTY
#7 (DA 7)

FIGURE 5.2–38

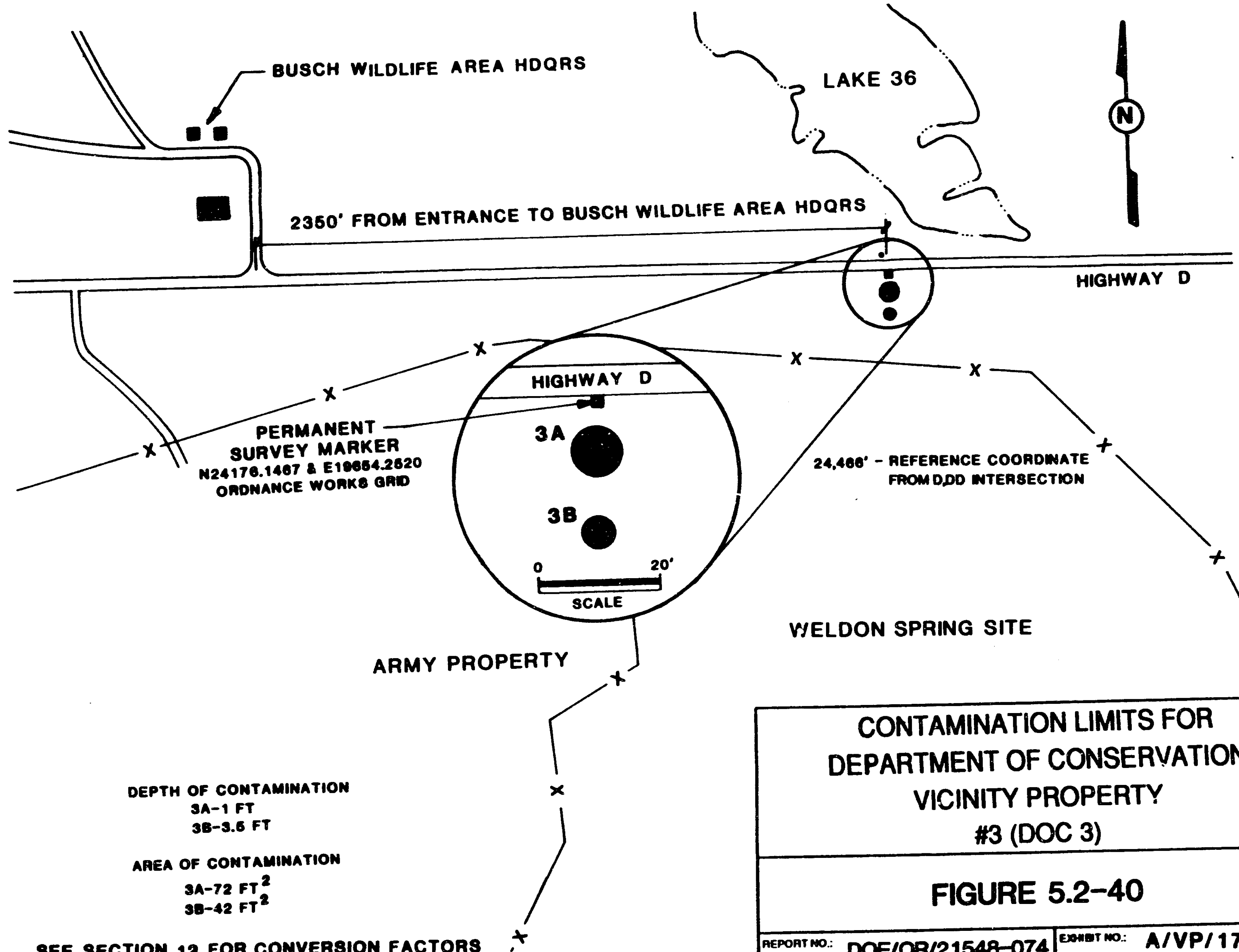
REPORT NO.: DOE/OR/21548–074		EXHIBIT NO.: A/VP/170/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



LOCATIONS OF CONTAMINATION IDENTIFIED ON THE WELDON SPRING AND AUGUST BUSCH WILDLIFE AREAS

FIGURE 5.2-39

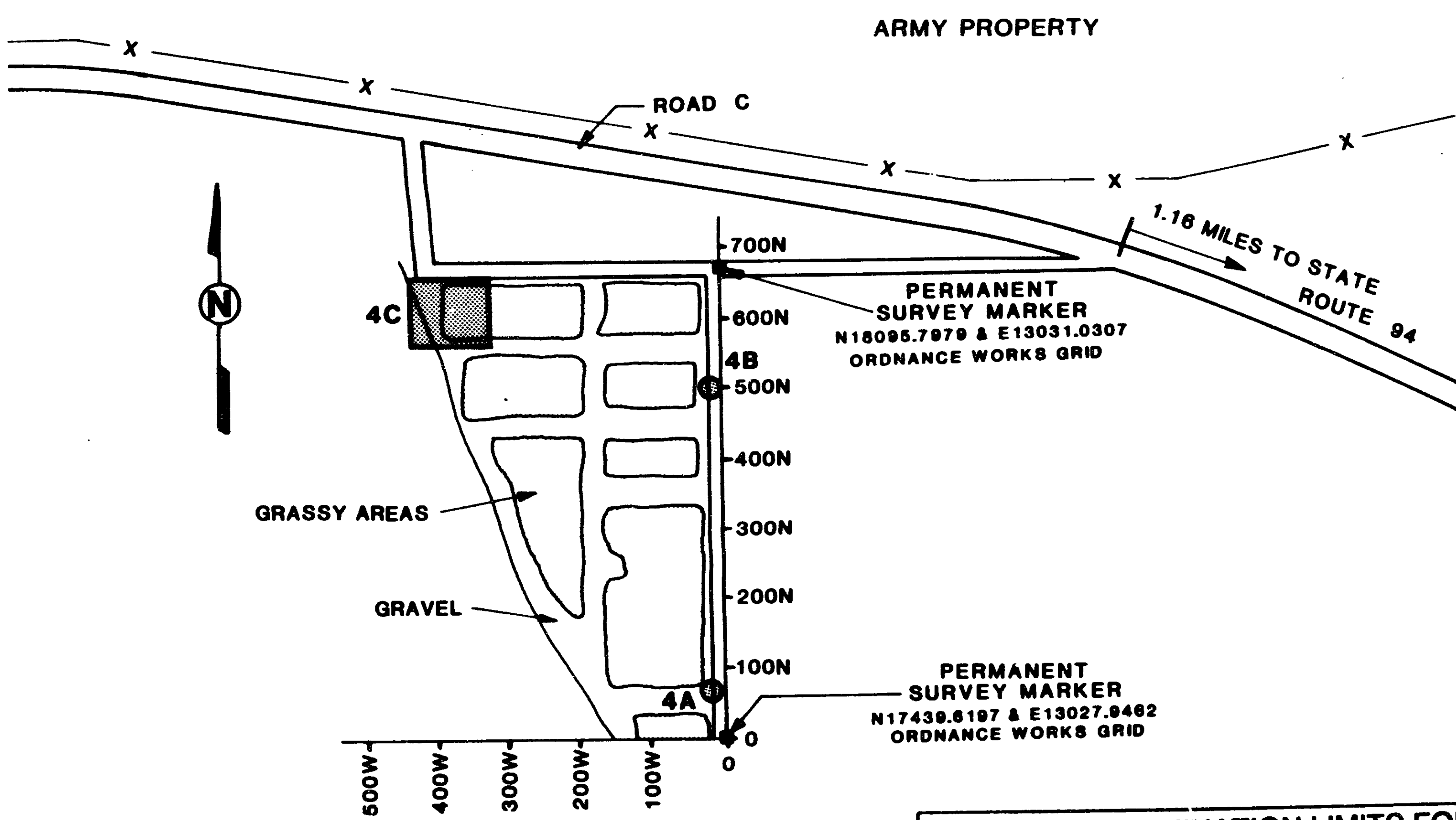
REPORT NO.	DOE/OR/21548-074	EXHIBIT NO.	A/VP/171/1191		
ORIGINATOR	BLG	DRAWN BY	GLN	DATE	11/91



CONTAMINATION LIMITS FOR DEPARTMENT OF CONSERVATION VICINITY PROPERTY #3 (DOC 3)

FIGURE 5.2-40

REPORT NO.:	DOE/OR/21548-074	EXHIBIT NO.:	A/VP/172/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE:	11/91



DEPTH OF CONTAMINATION
4A-1.5FT
4B-0.5FT
4C-1.0FT

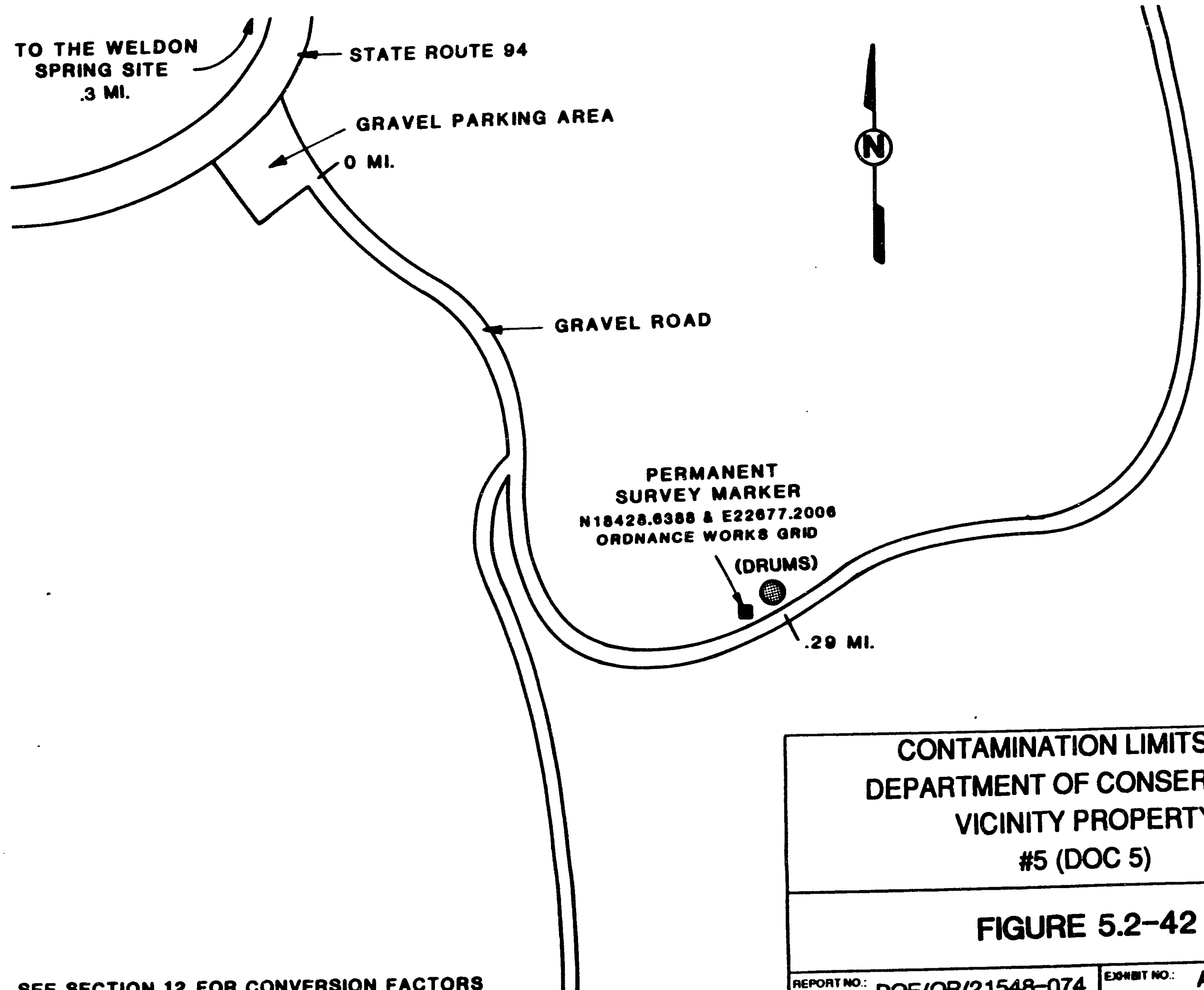
AREA OF CONTAMINATION
$4A-168FT^2$
$4B-130FT^2$
$4C-6500FT^2$

SEE SECTION 12 FOR CONVERSION FACTORS

CONTAMINATION LIMITS FOR
DEPARTMENT OF CONSERVATION
VICINITY PROPERTY
#4 (DOC 4)

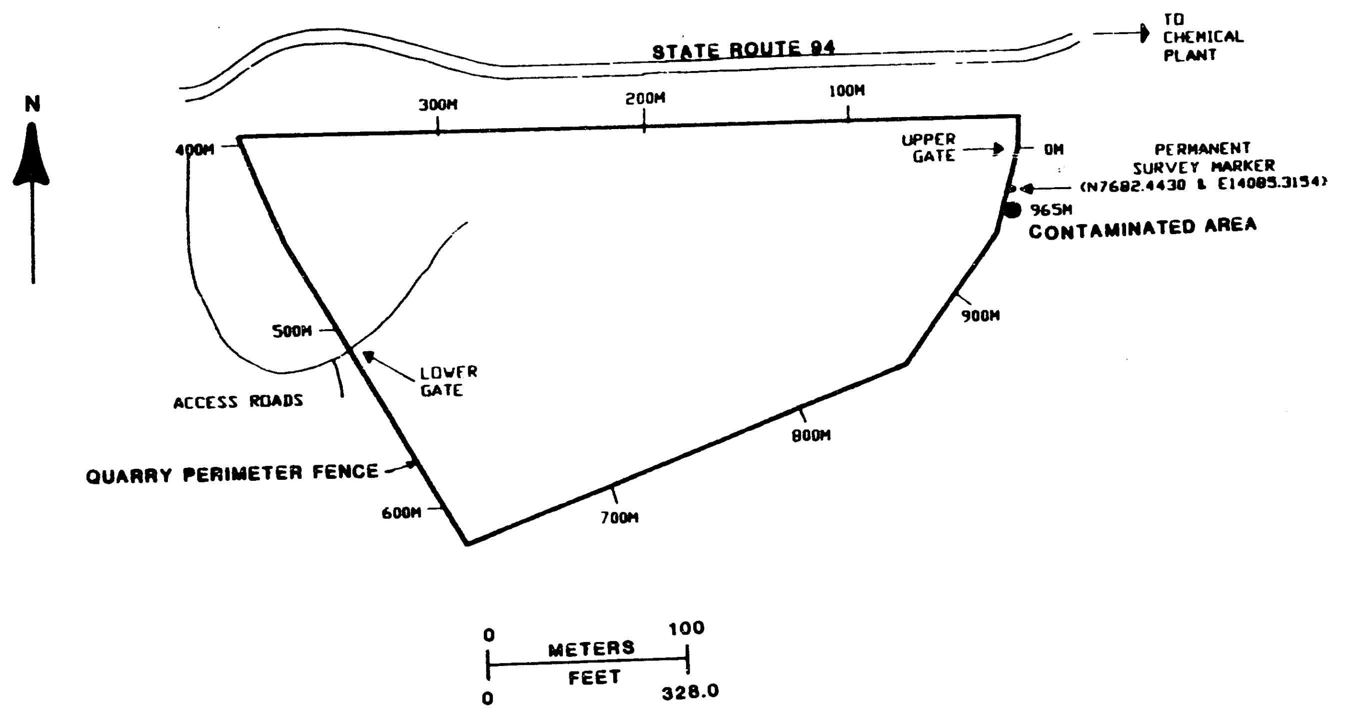
FIGURE 5.2-41

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/173/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



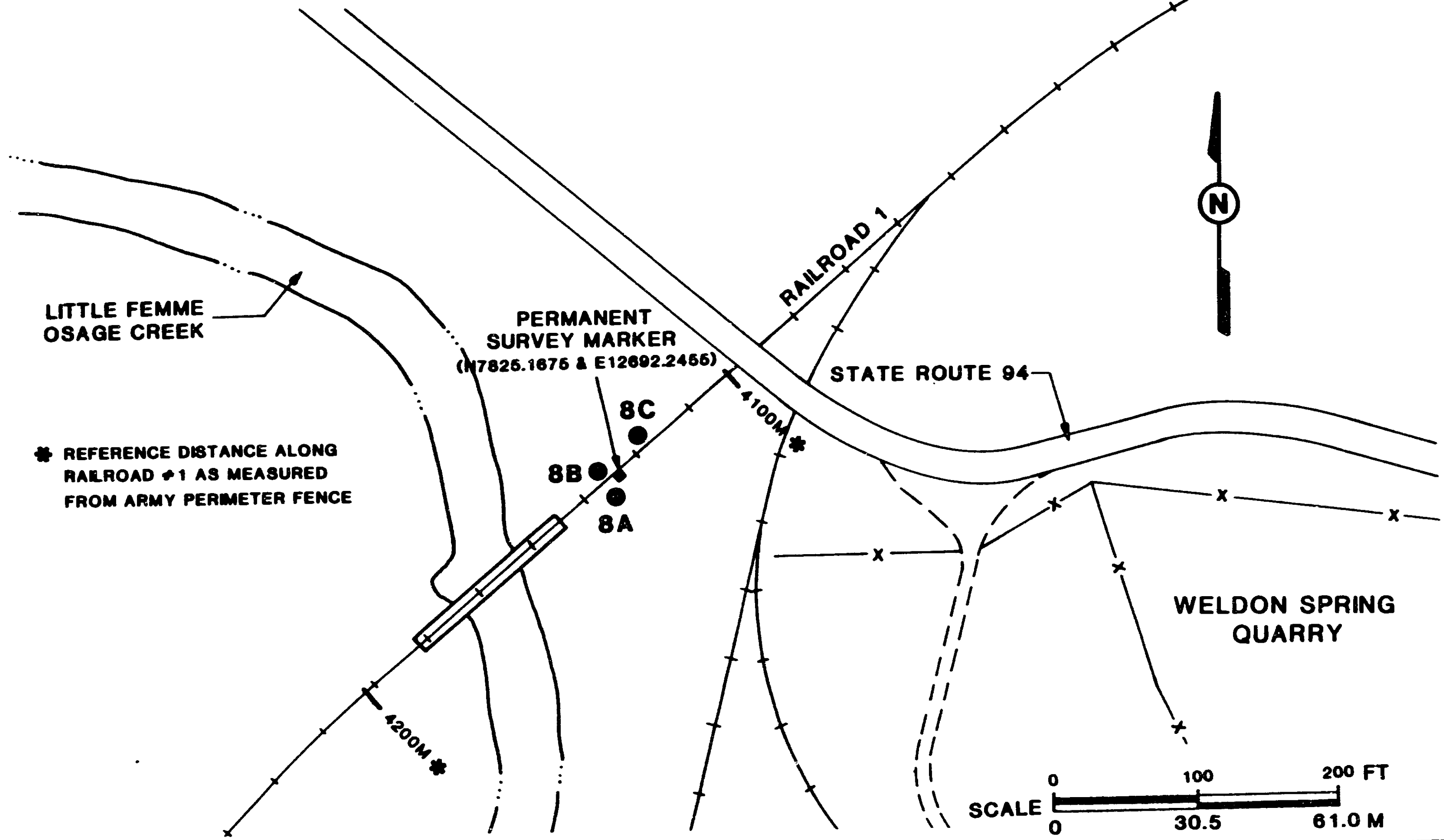
SEE SECTION 12 FOR CONVERSION FACTORS

CONTAMINATION LIMITS FOR DEPARTMENT OF CONSERVATION VICINITY PROPERTY #5 (DOC 5)		
FIGURE 5.2–42		
REPORT NO.: DOE/OR/21548–074	EXHIBIT NO.: A/VP/174/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



SOURCE ORAU 1986a

AREA OF CONTAMINATION (DOC 6) NEAR THE QUARRY PERIMETER FENCE			
FIGURE 5.2-43			
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/175/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



DEPTH OF CONTAMINATION

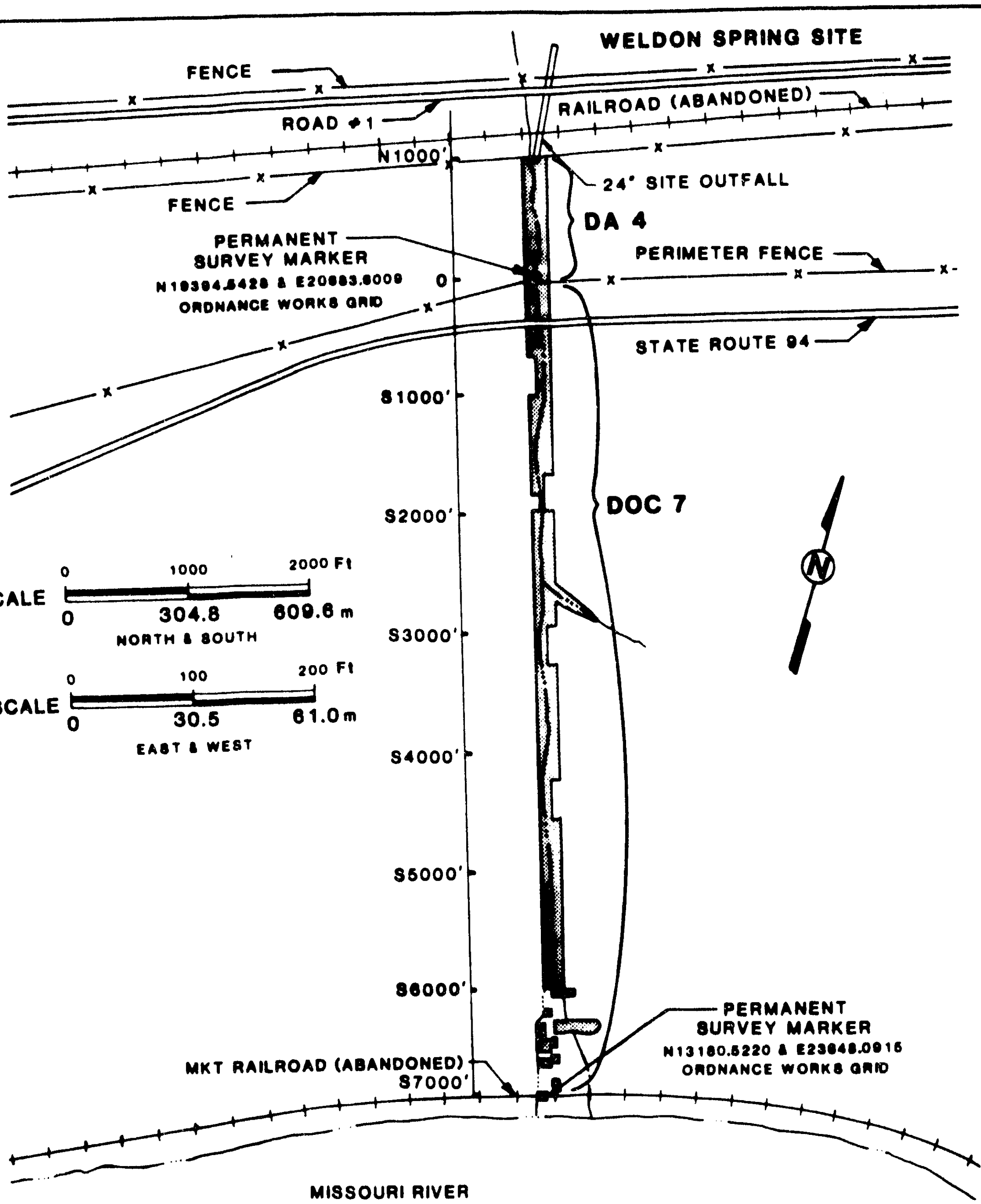
8A-2FT
8B-2.5FT
8C-1.5FT

AREA OF CONTAMINATION
8A-6FT^2
8B-9FT^2
8C-9FT^2

CONTAMINATION LIMITS FOR
DEPARTMENT OF CONSERVATION
VICINITY PROPERTY
#8 (DOC 8)

FIGURE 5.2-44

REPORT NO. DOE/OR/21548-074		EXHIBIT NO.: A/VP/176/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	

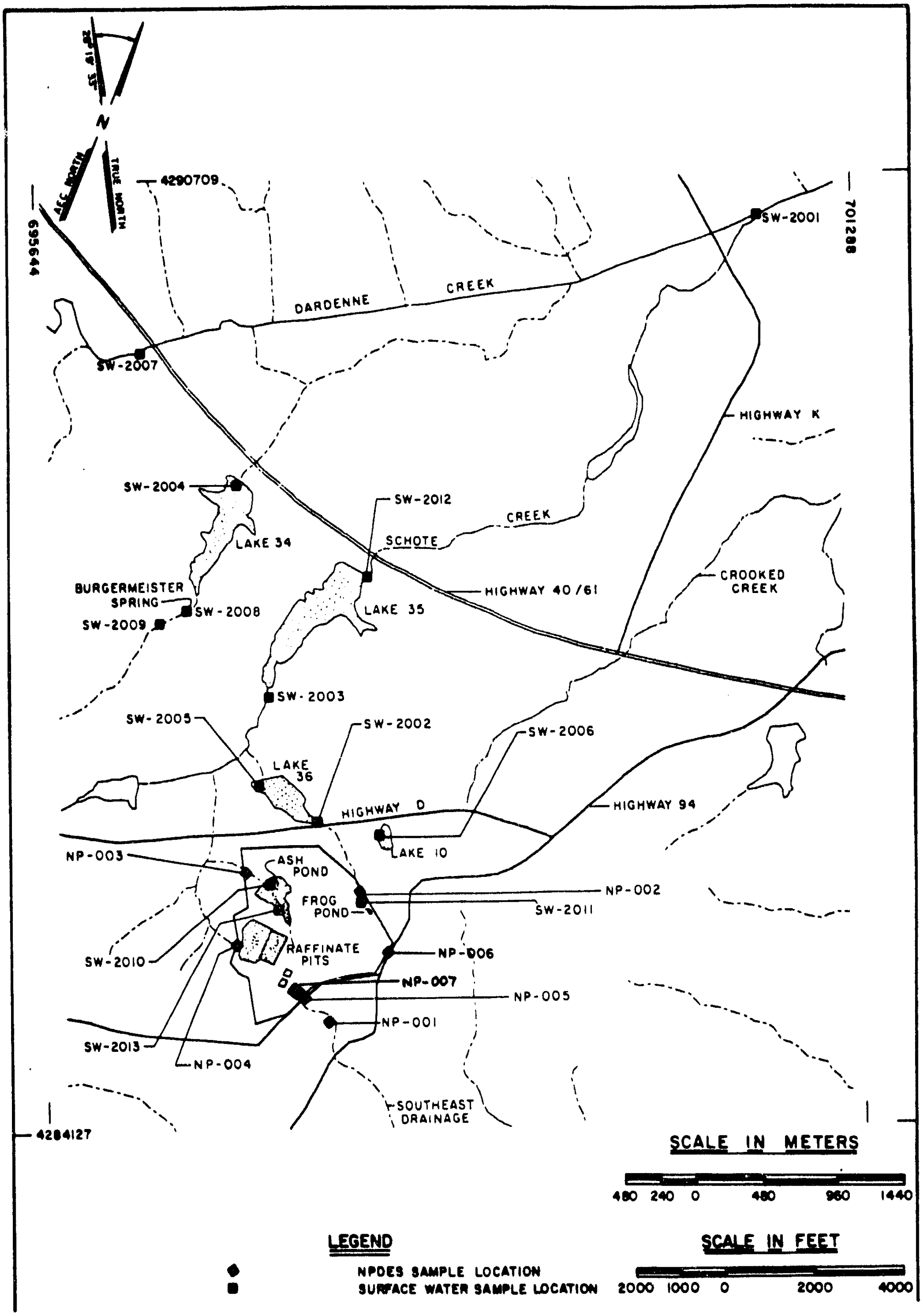


SEE SECTION 12 FOR CONVERSION FACTORS

CONTAMINATION LIMITS FOR THE SOUTHEAST DRAINAGE EASEMENT (SDE)

FIGURE 5.2-45

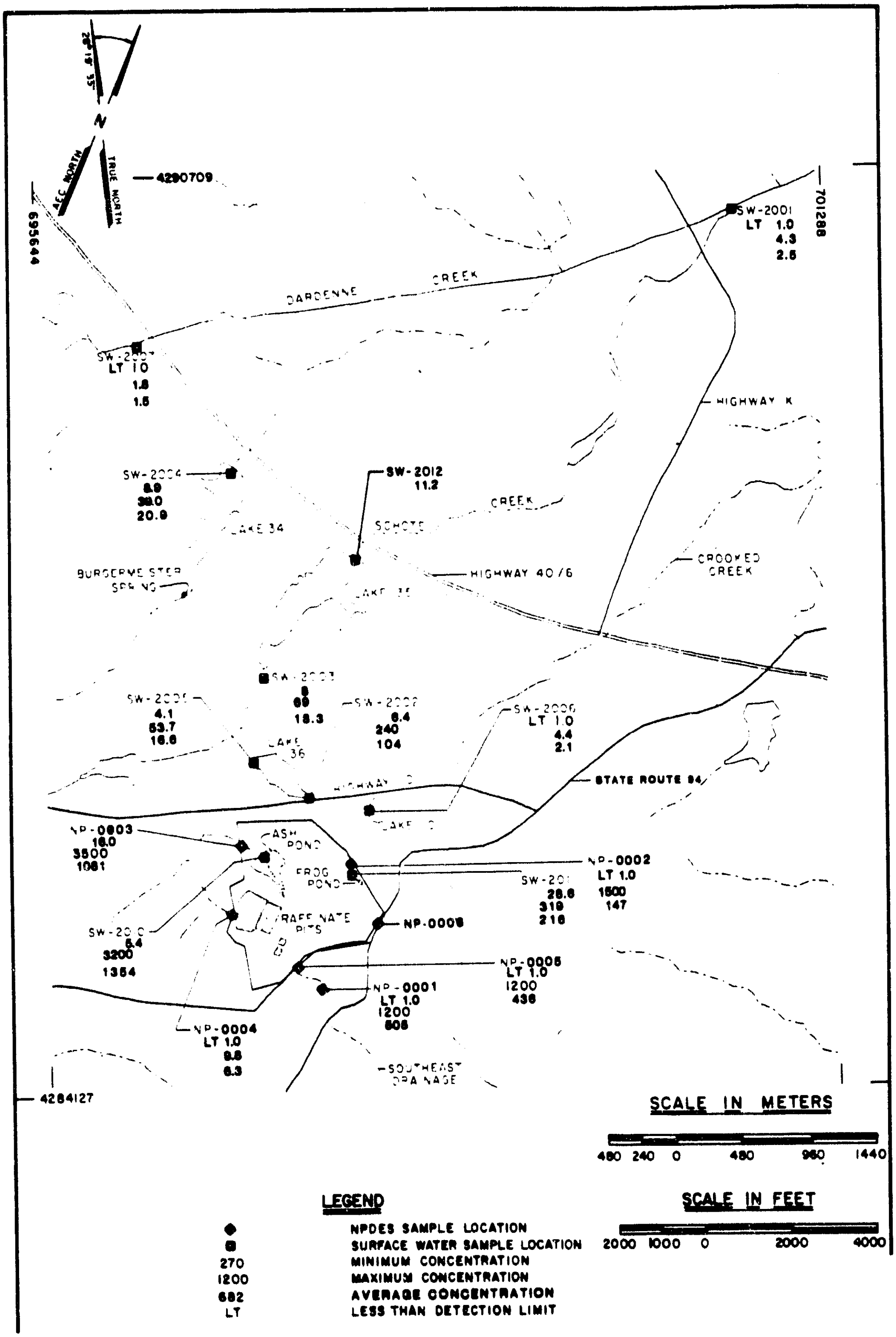
REPORT NO.	DOE/OR/21548-074	EXHIBIT NO	A/VP/177/1191		
ORIGINATOR	BLG	DRAWN BY	GLN	DATE	11/91



SURFACE WATER AND NPDES SAMPLING LOCATIONS

FIGURE 5.3-1

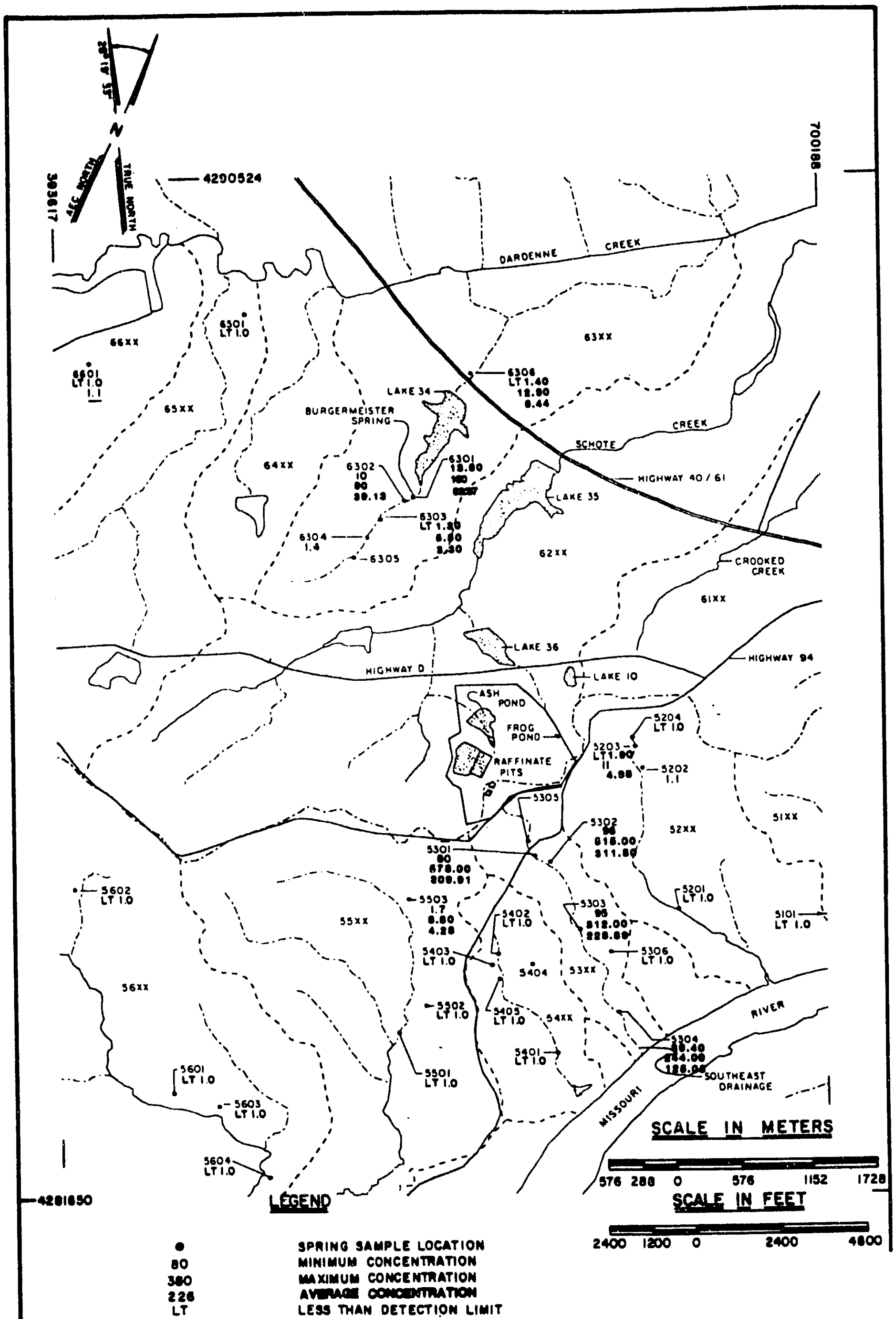
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/178/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



TOTAL URANIUM CONCENTRATIONS (pCi/l) - SURFACE WATER

FIGURE 5.3-2

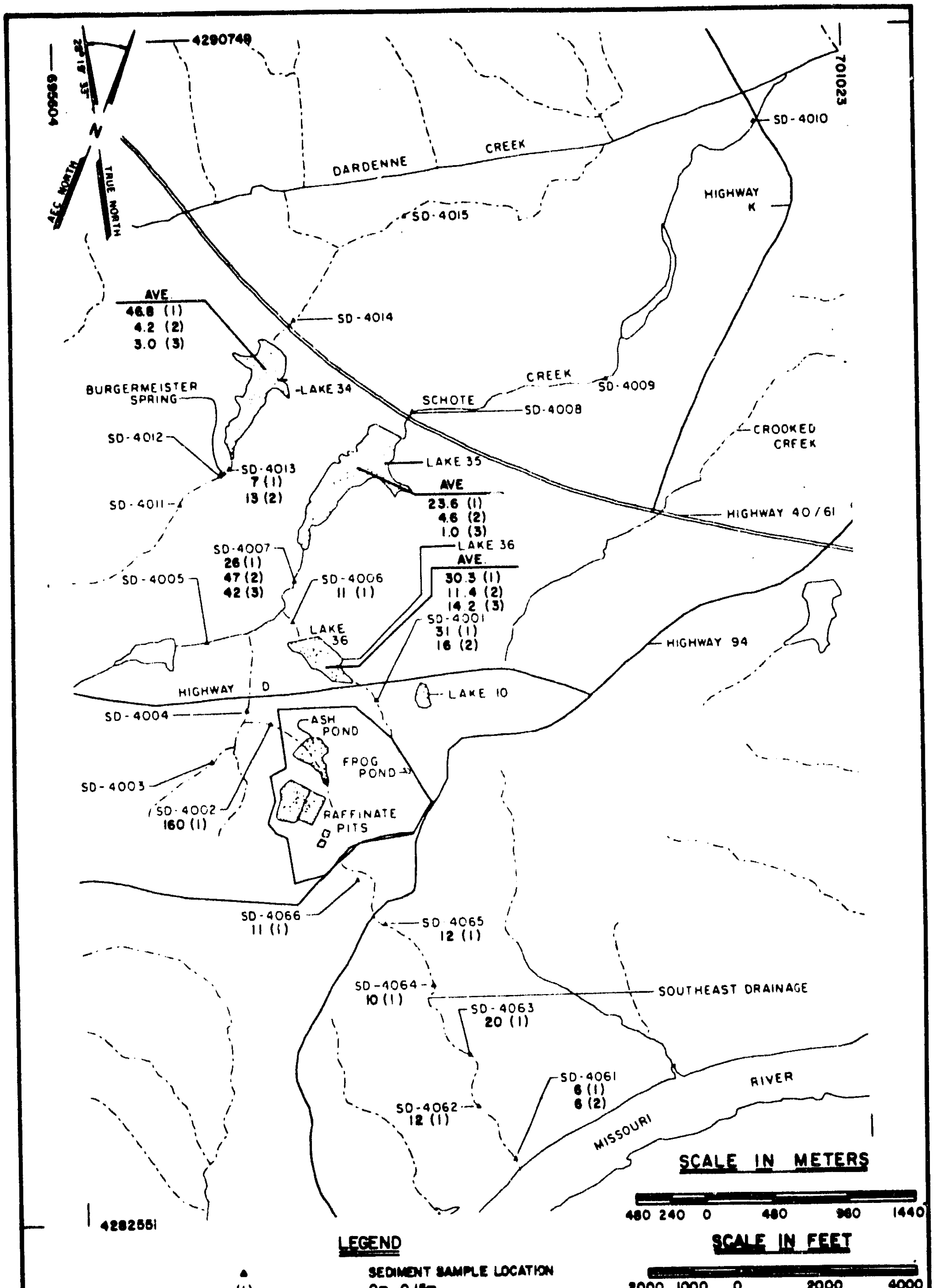
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/179/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



TOTAL URANIUM CONCENTRATIONS (pCi/l) - SPRINGS

FIGURE 5.3-3

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/180/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



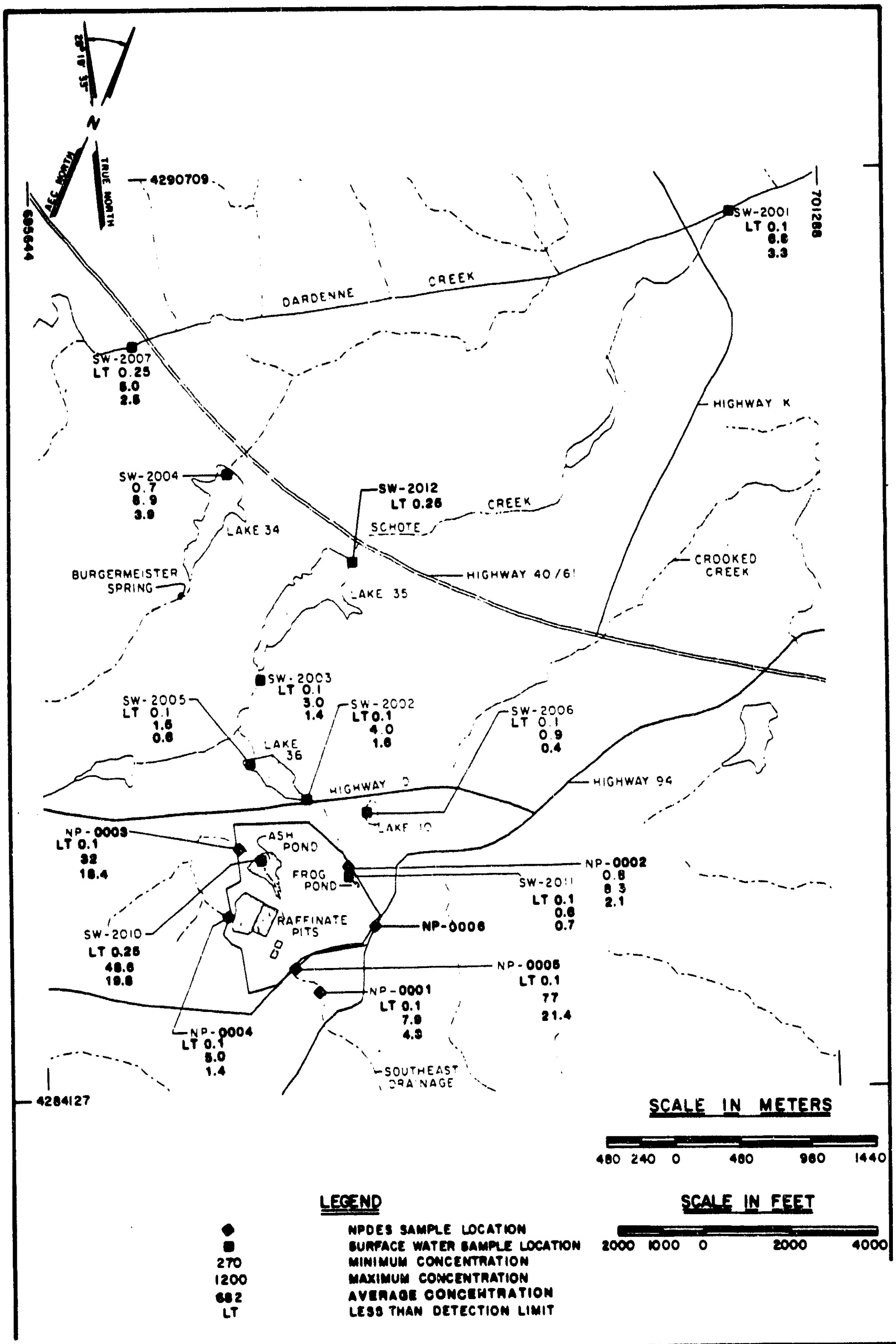
LEGEND

▲	SEDIMENT SAMPLE LOCATION
(1)	0m - 0.15m
(2)	0.15m - 0.30m
(3)	0.30m - 0.46m
m	METER

DETECTABLE TOTAL URANIUM CONCENTRATIONS (pCi/l) - SEDIMENT

FIGURE 5.3-4

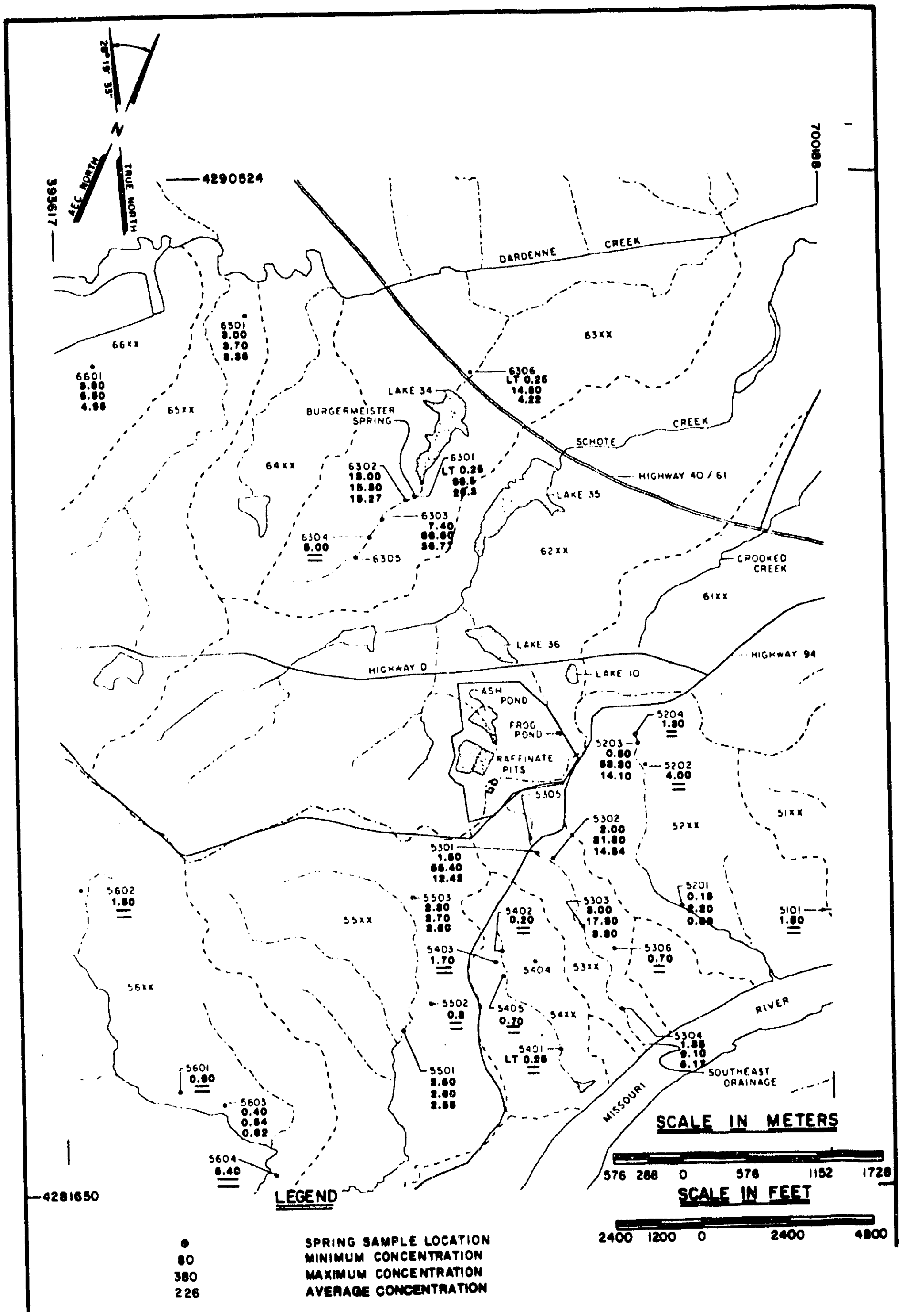
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/181/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



NITRATE CONCENTRATIONS (mg/l) - SURFACE WATER

FIGURE 5.3-5

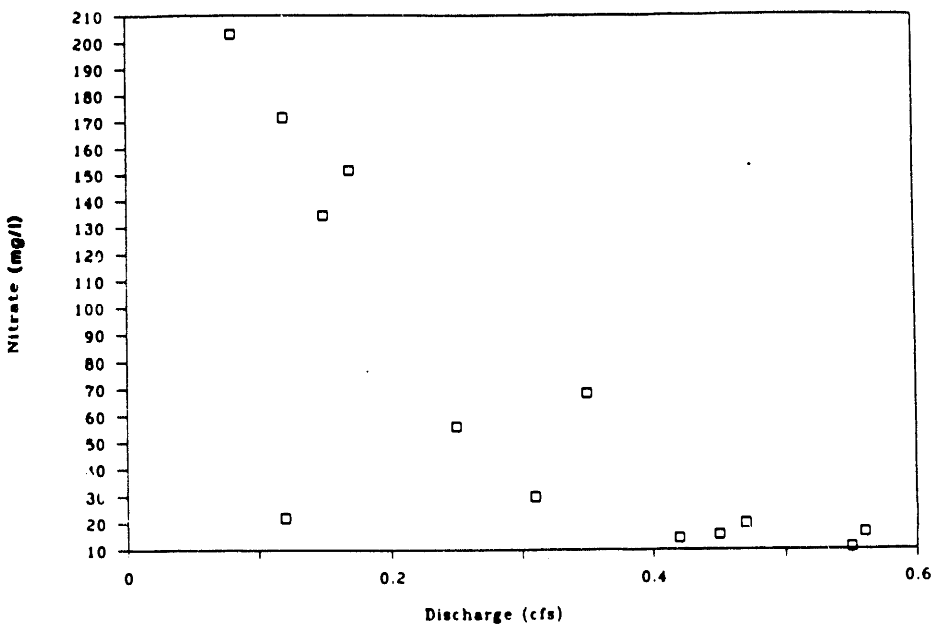
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/182/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



NITRATE CONCENTRATIONS (mg/l) - SPRINGS

FIGURE 5.3-6

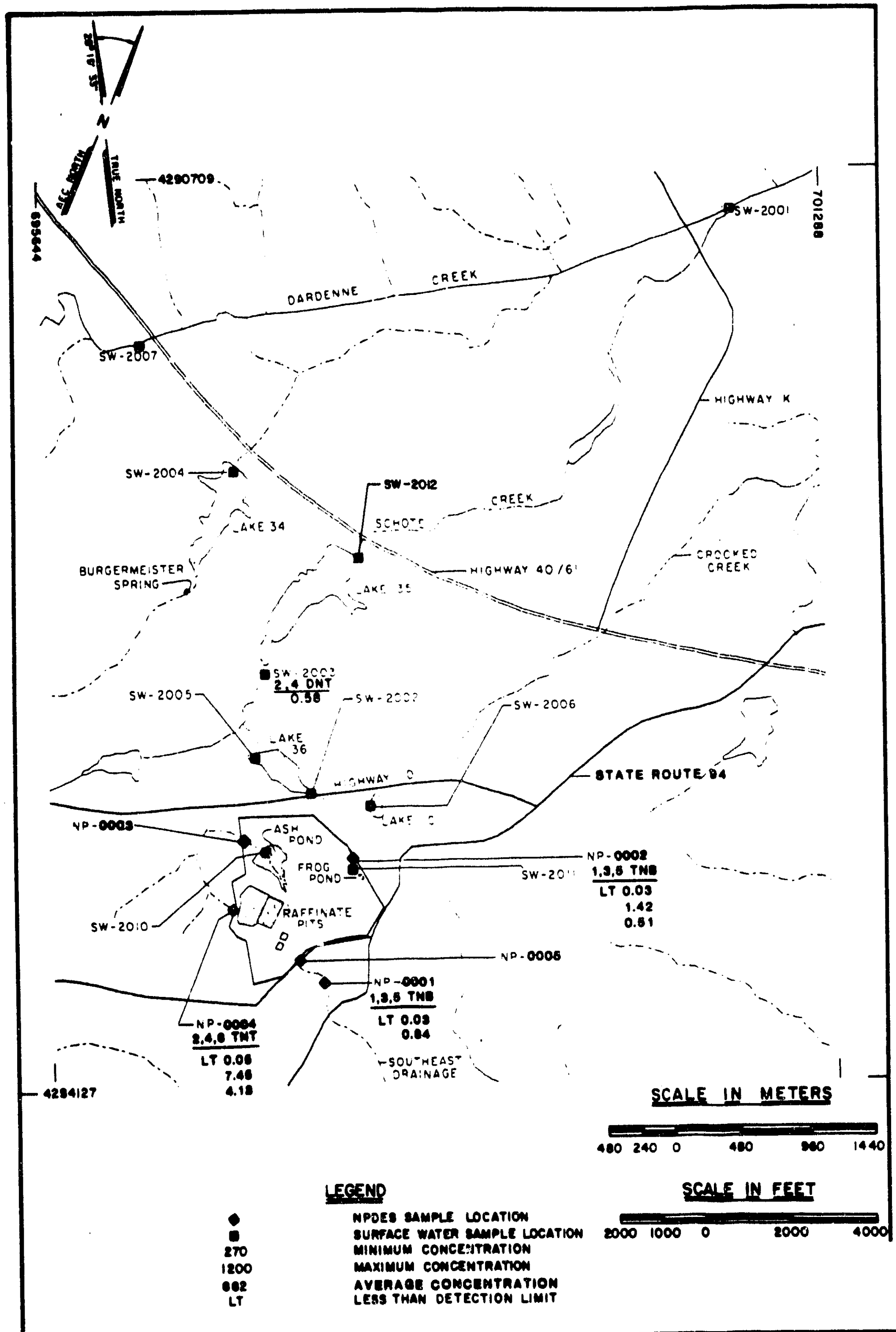
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/183/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



THE CONCENTRATION OF NITRATE AS A FUNCTION OF THE DISCHARGE AT BURGERMEISTER SPRING

FIGURE 5.3-7

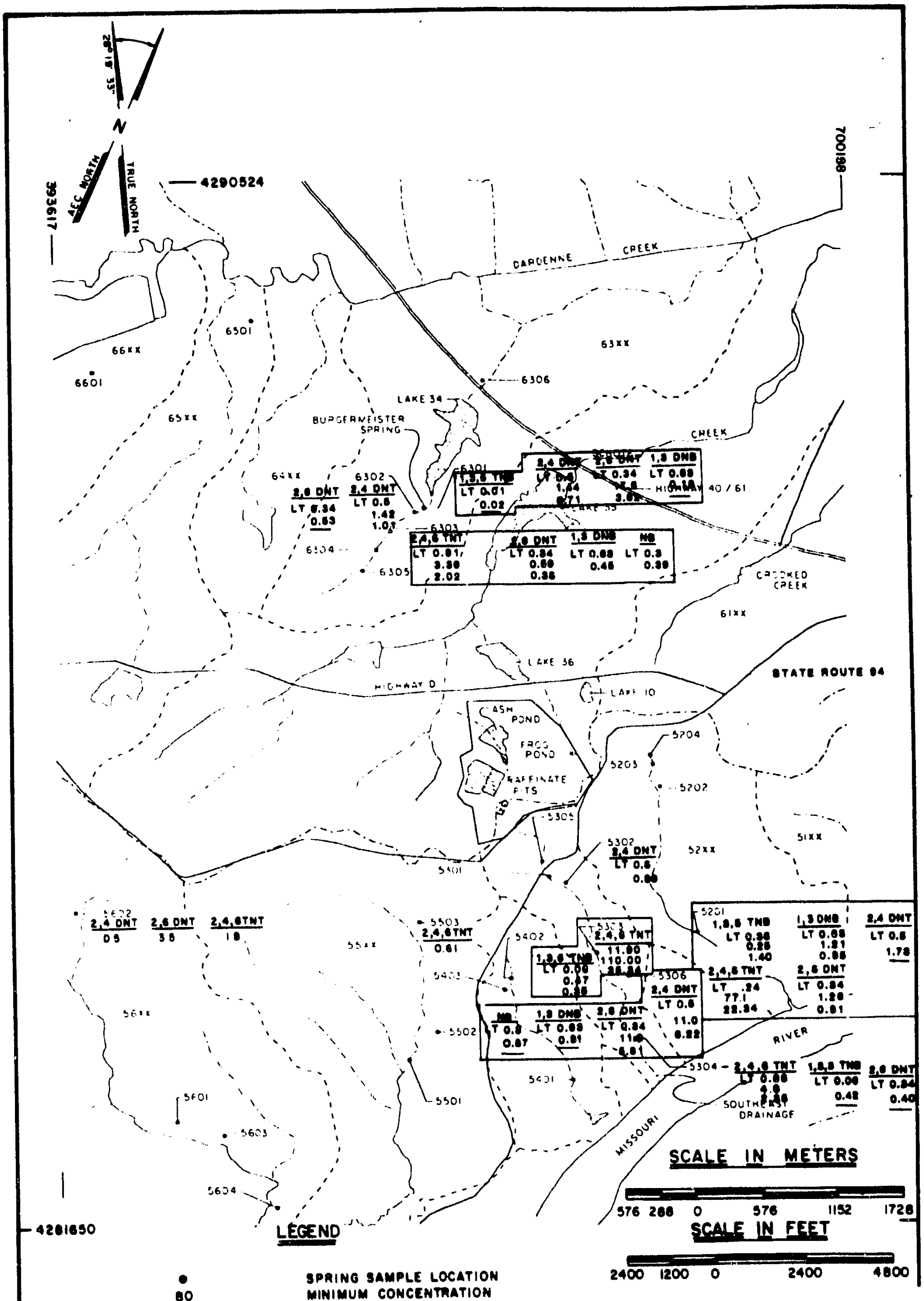
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/PI/238/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



DETECTABLE NITROAROMATIC COMPOUND CONCENTRATIONS (ug/l) - SURFACE WATER

FIGURE 5.3-8

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/184/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



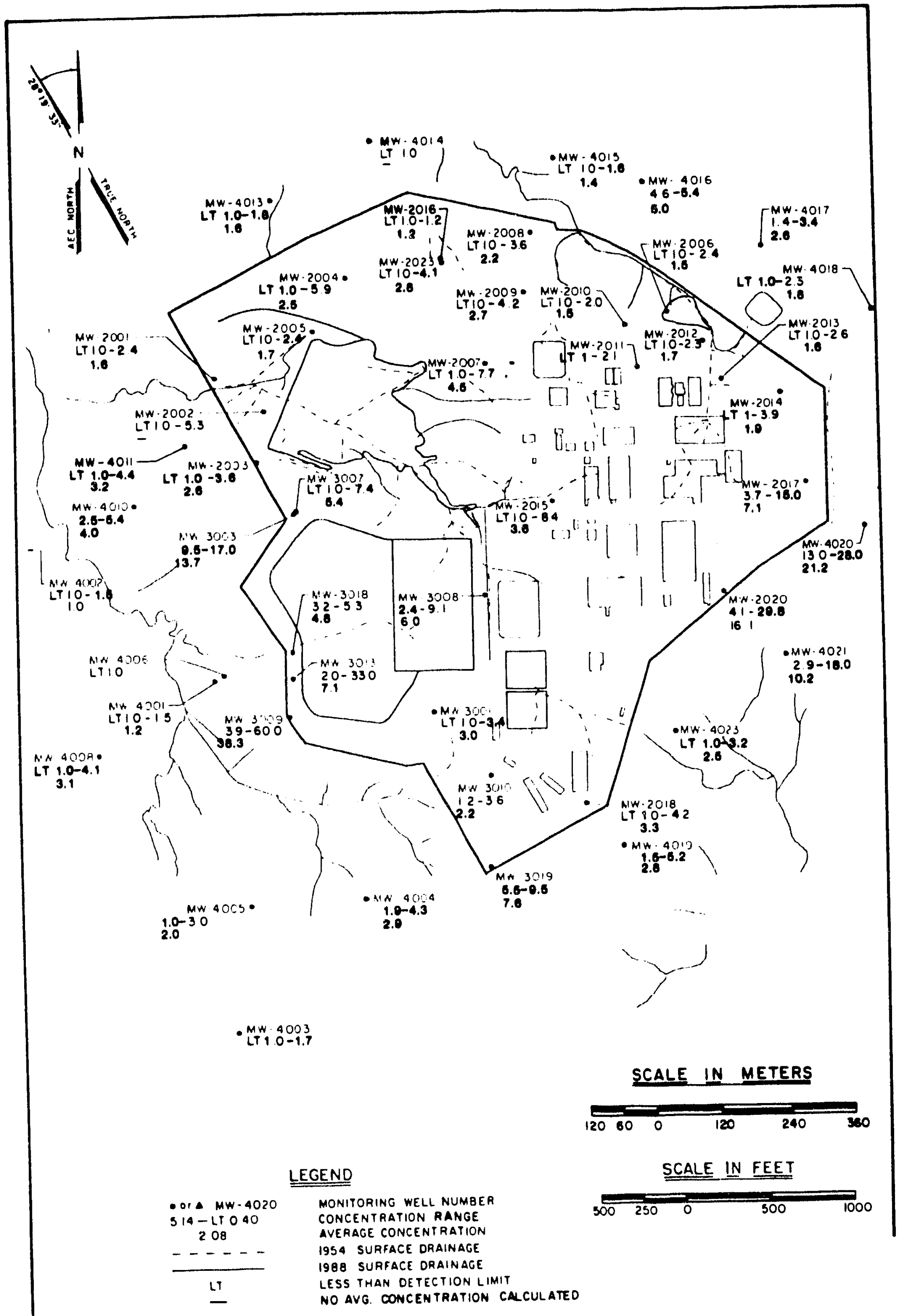
LEGEND

●	SPRING SAMPLE LOCATION
80	MINIMUM CONCENTRATION
380	MAXIMUM CONCENTRATION
226	AVERAGE CONCENTRATION
LT	LESS THAN DETECTION LIMIT

DETECTABLE NITROAROMATIC COMPOUND CONCENTRATIONS (ug/l) - SPRINGS

FIGURE 5.3-9

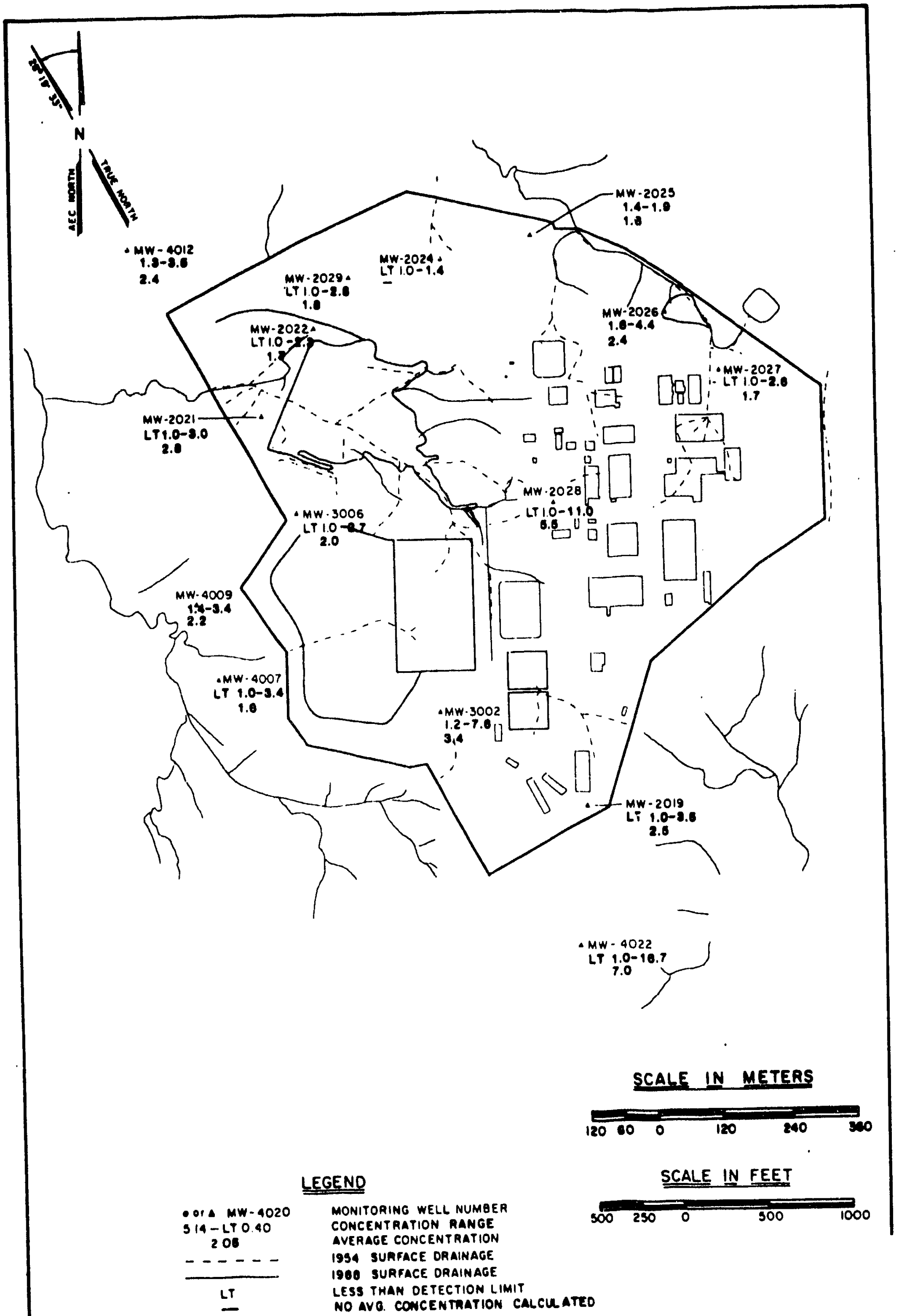
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/185/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



WEATHERED LIMESTONE URANIUM CONCENTRATIONS (pCi/l)

FIGURE 5.4-1

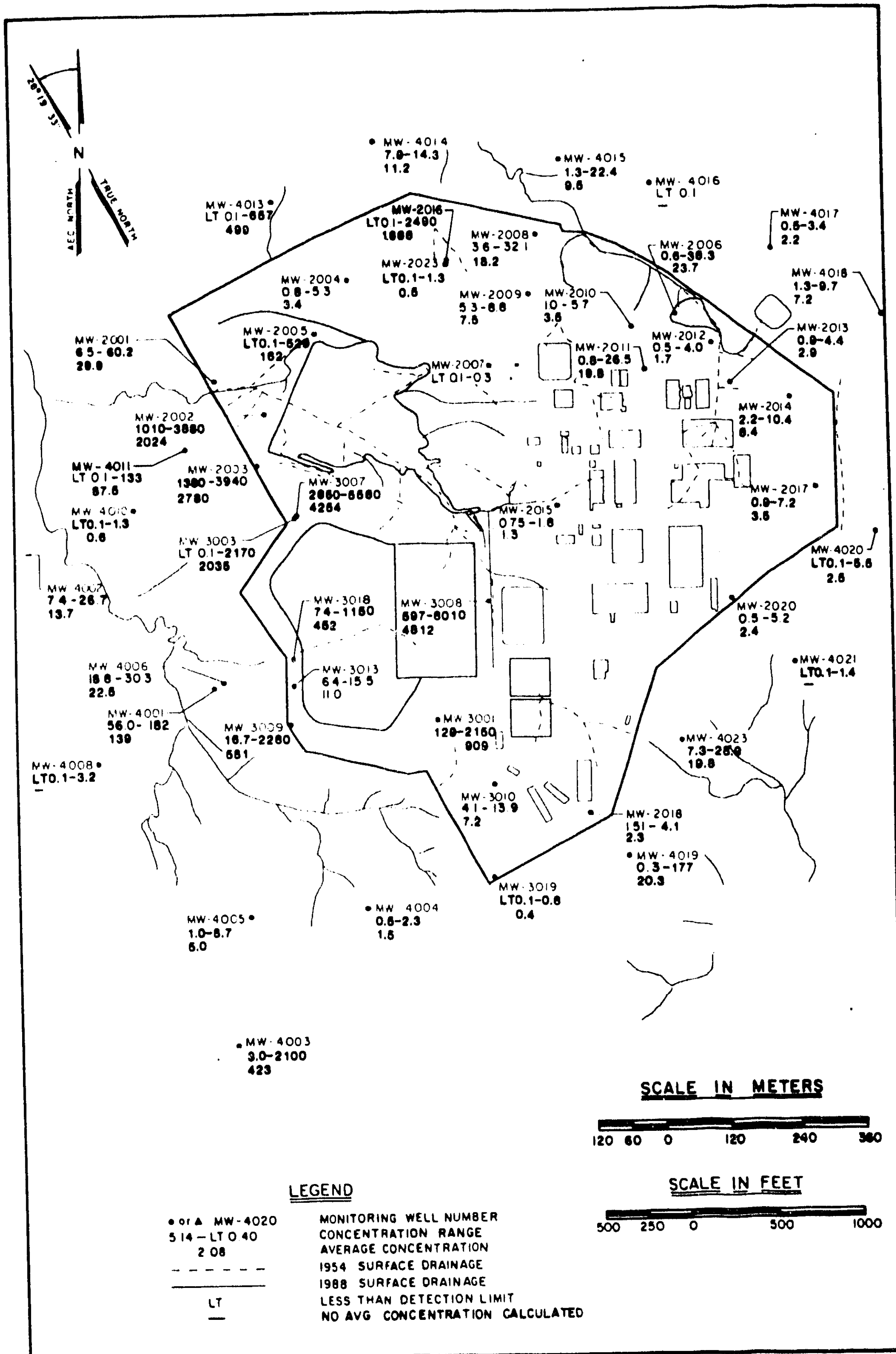
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/248/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



COMPETENT LIMESTONE URANIUM CONCENTRATIONS (pCi/l)

FIGURE 5.4-2

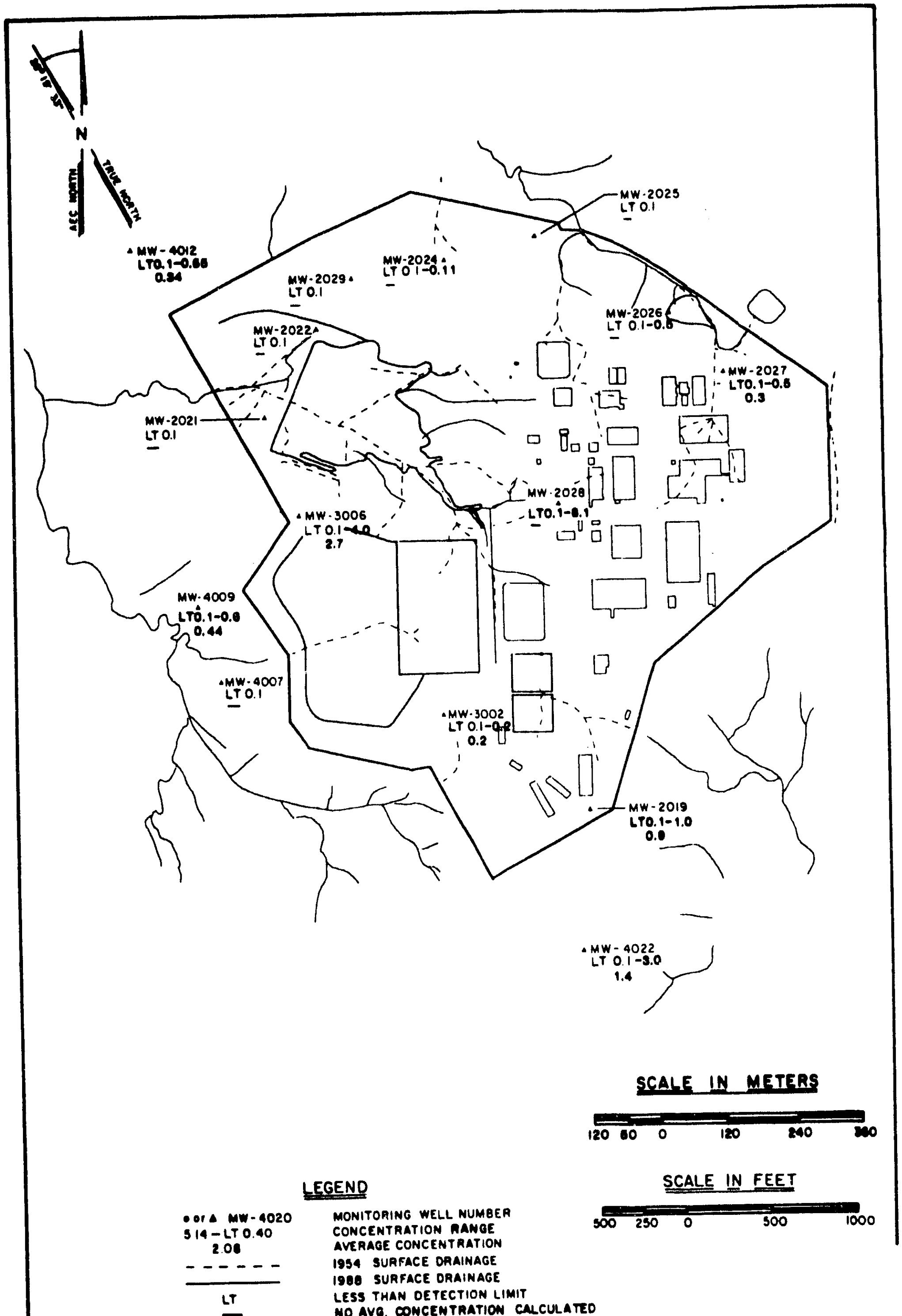
REPORT NO. DOE/OR/21548-074		EXHIBIT NO.: A/CP/249/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



WEATHERED LIMESTONE NITRATE CONCENTRATIONS (mg/l)

FIGURE 5.4-3

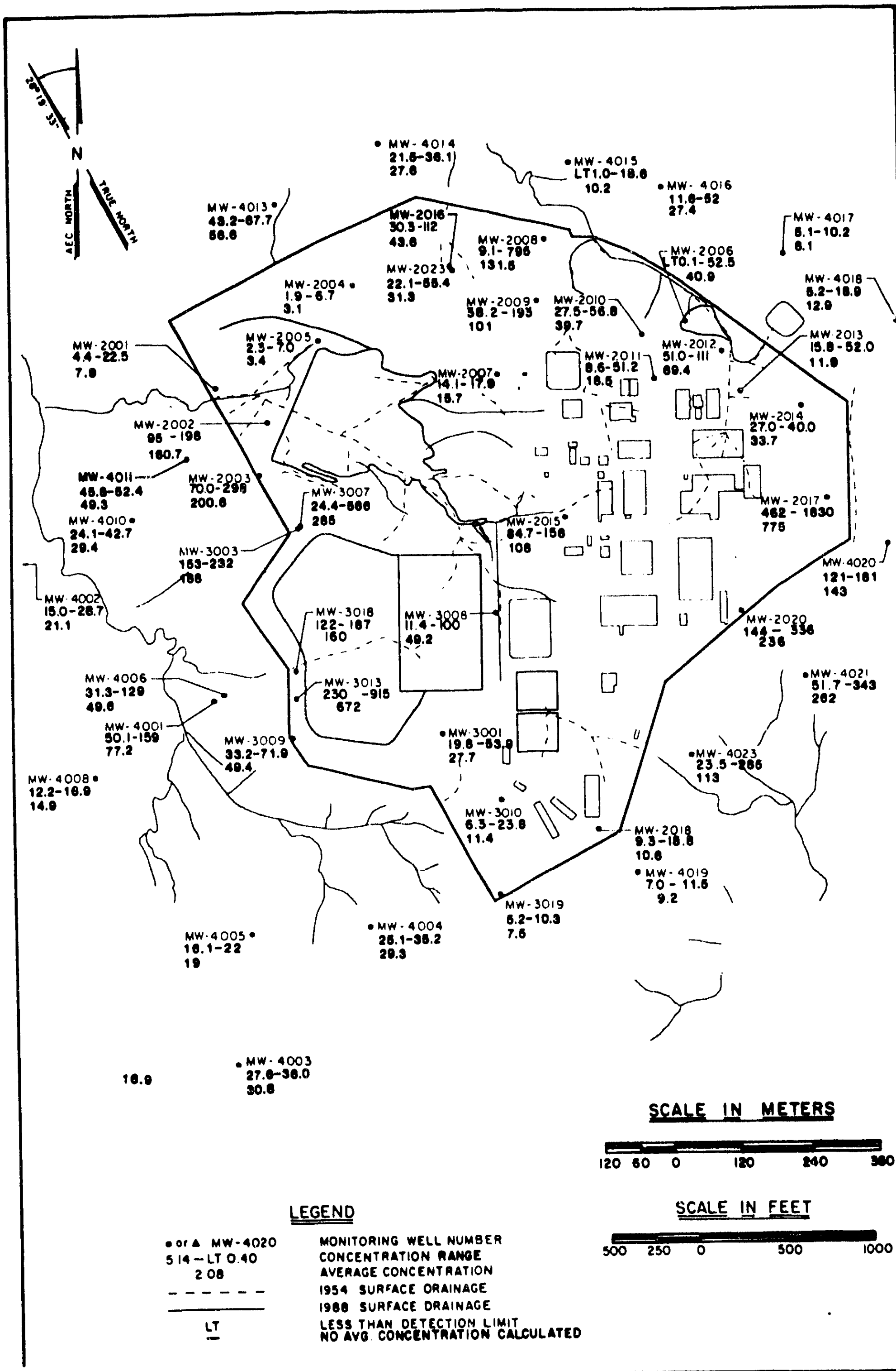
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/250/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



COMPETENT LIMESTONE NITRATE CONCENTRATIONS (mg/l)

FIGURE 5.4-4

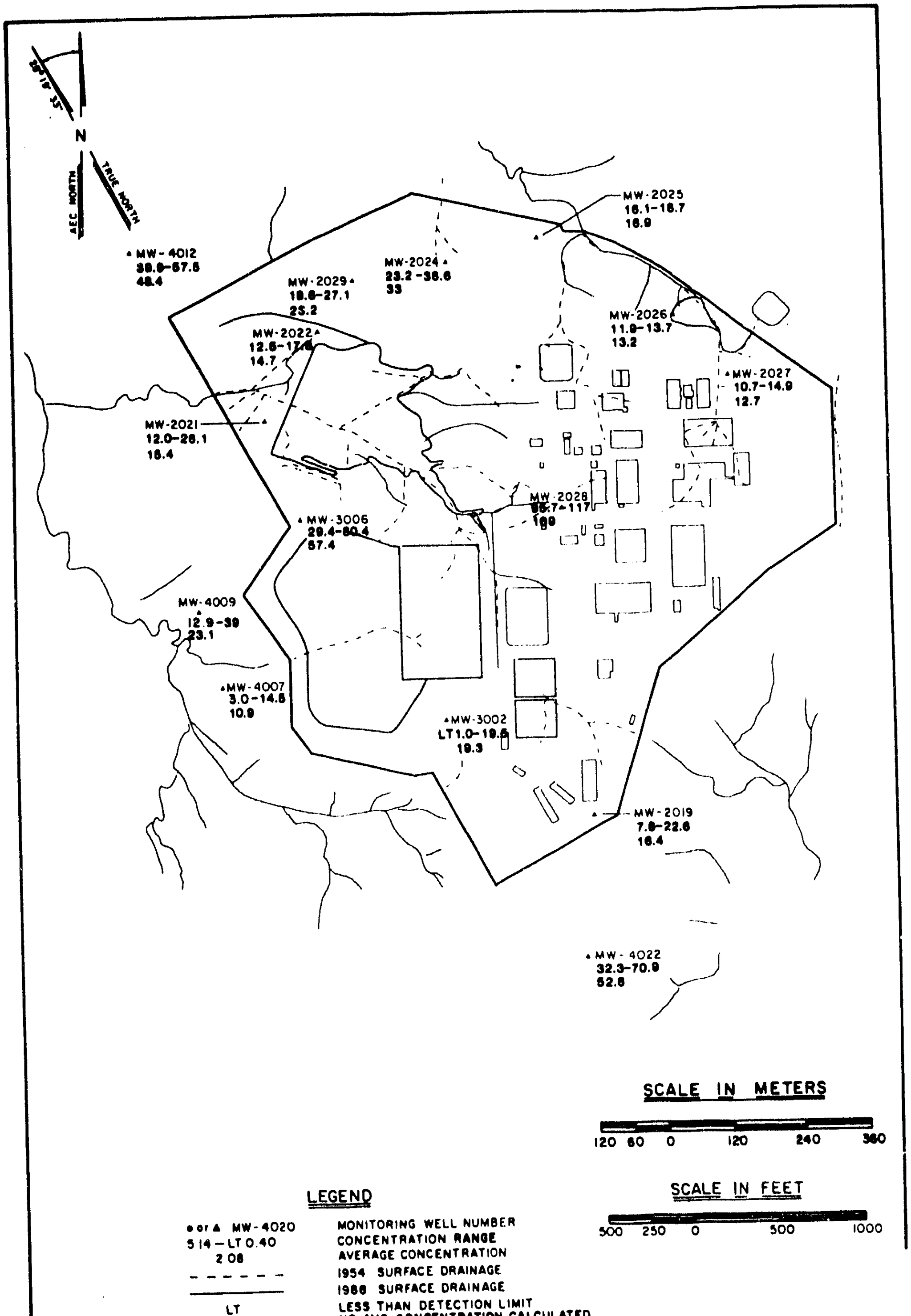
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/251/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



WEATHERED LIMESTONE SULFATE CONCENTRATIONS (mg/l)

FIGURE 5.4-5

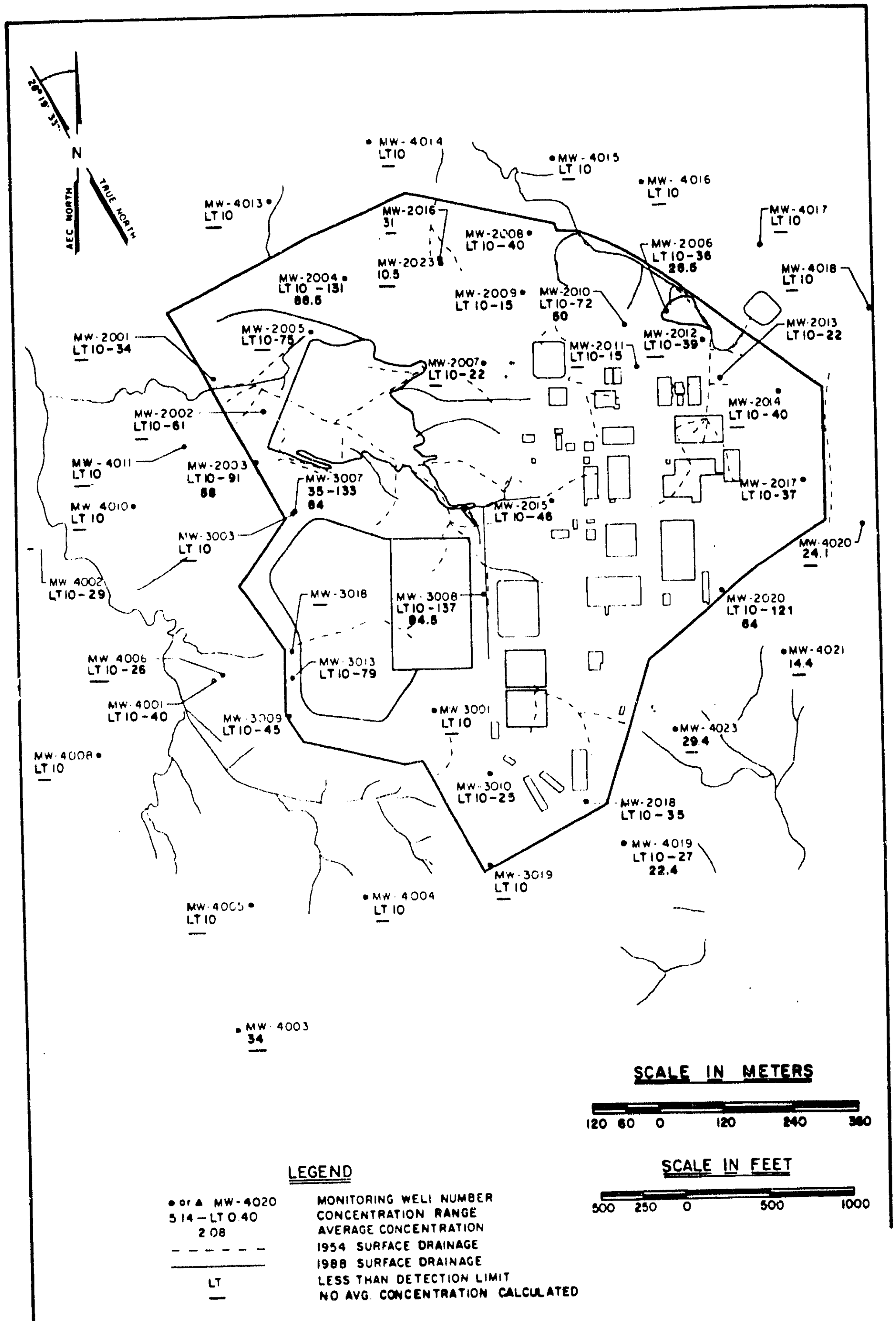
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/252/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



COMPETENT LIMESTONE SULFATE CONCENTRATIONS (mg/l)

FIGURE 5.4-6

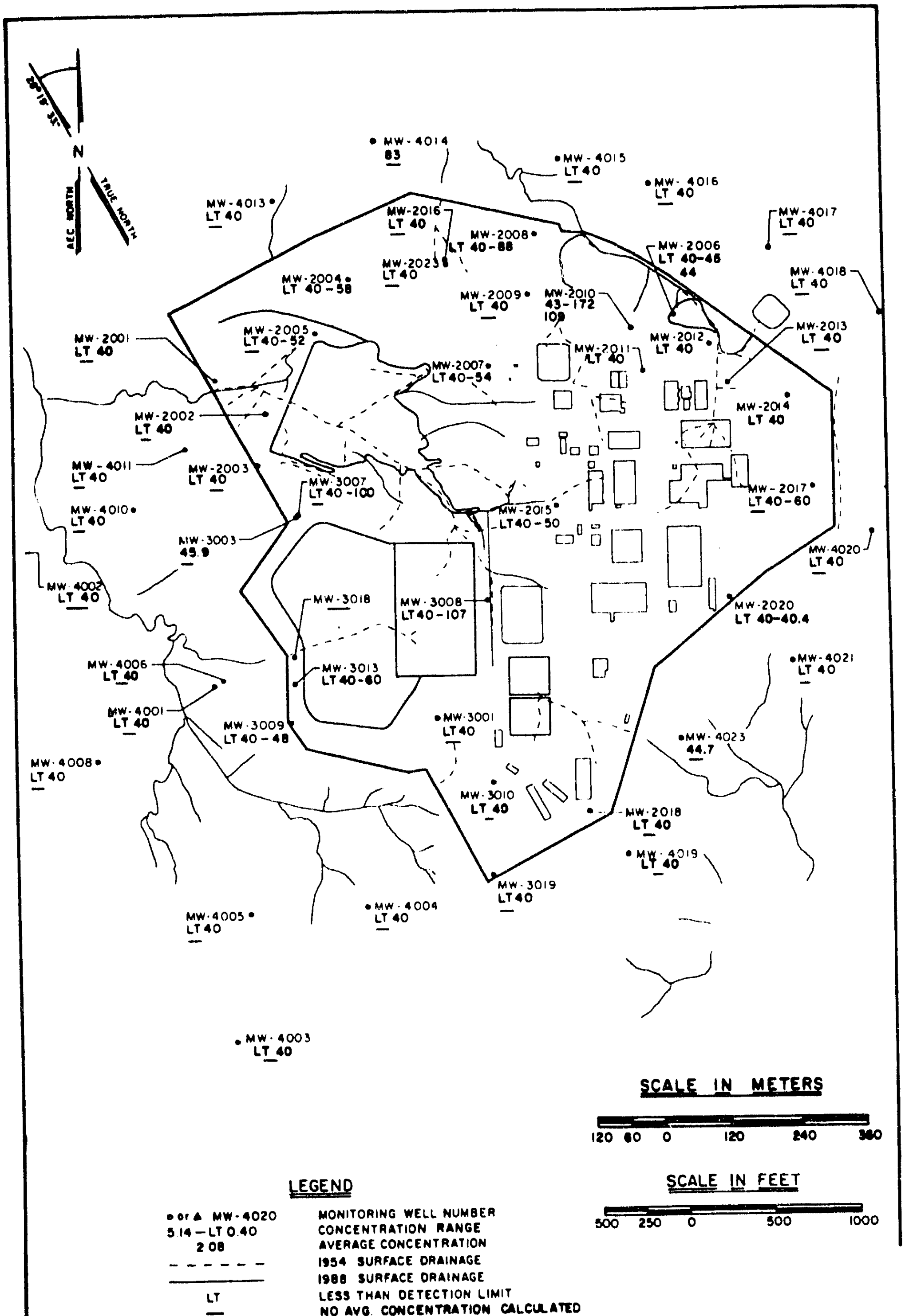
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/253/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



WEATHERED LIMESTONE CHROMIUM CONCENTRATIONS (ug/l)

FIGURE 5.4-7

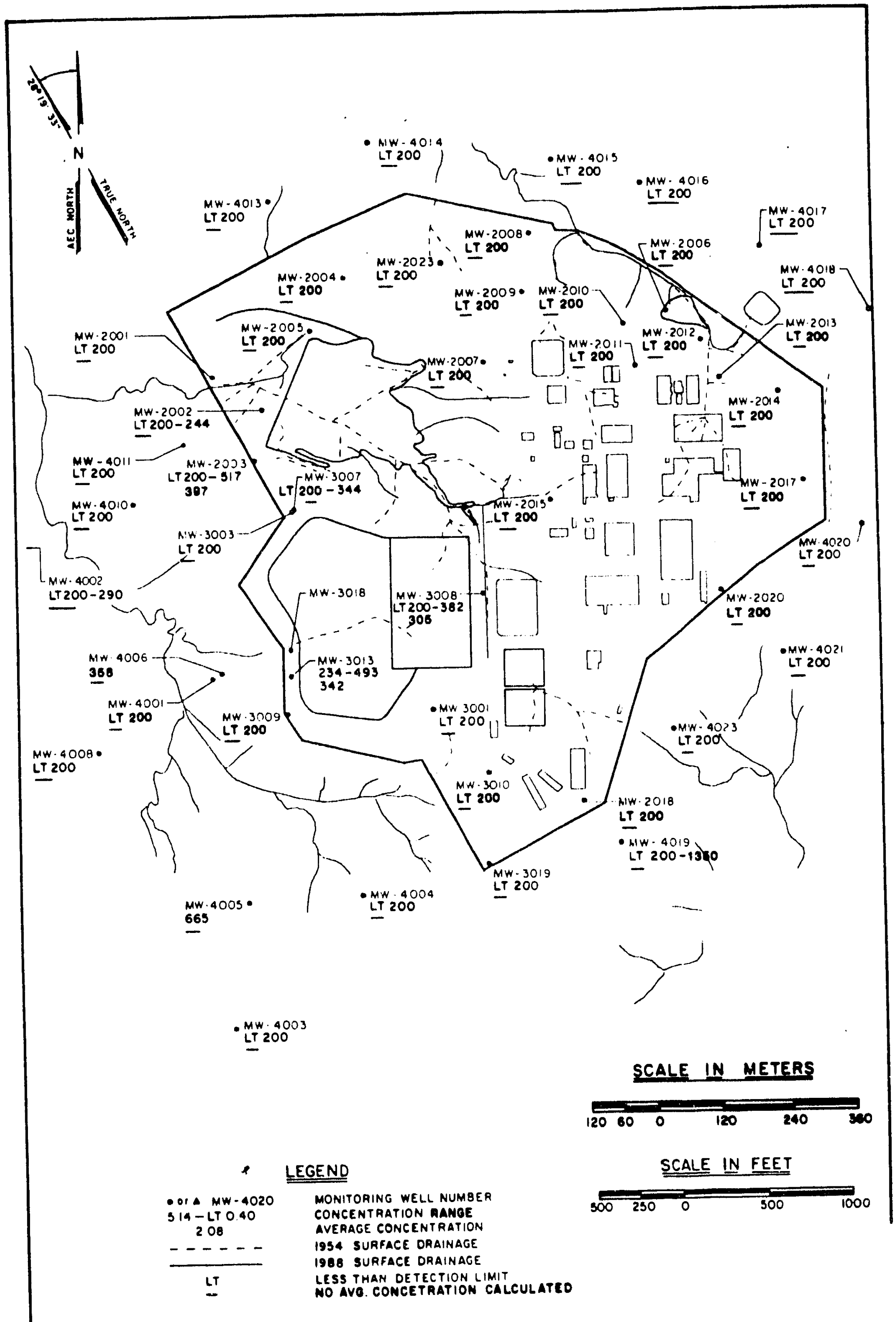
REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/CP/254/1191
ORIGINATOR: BLG	DRAWN BY: GLN / DATE: 11/91



WEATHERED LIMESTONE NICKEL CONCENTRATIONS (ug/l)

FIGURE 5.4-8

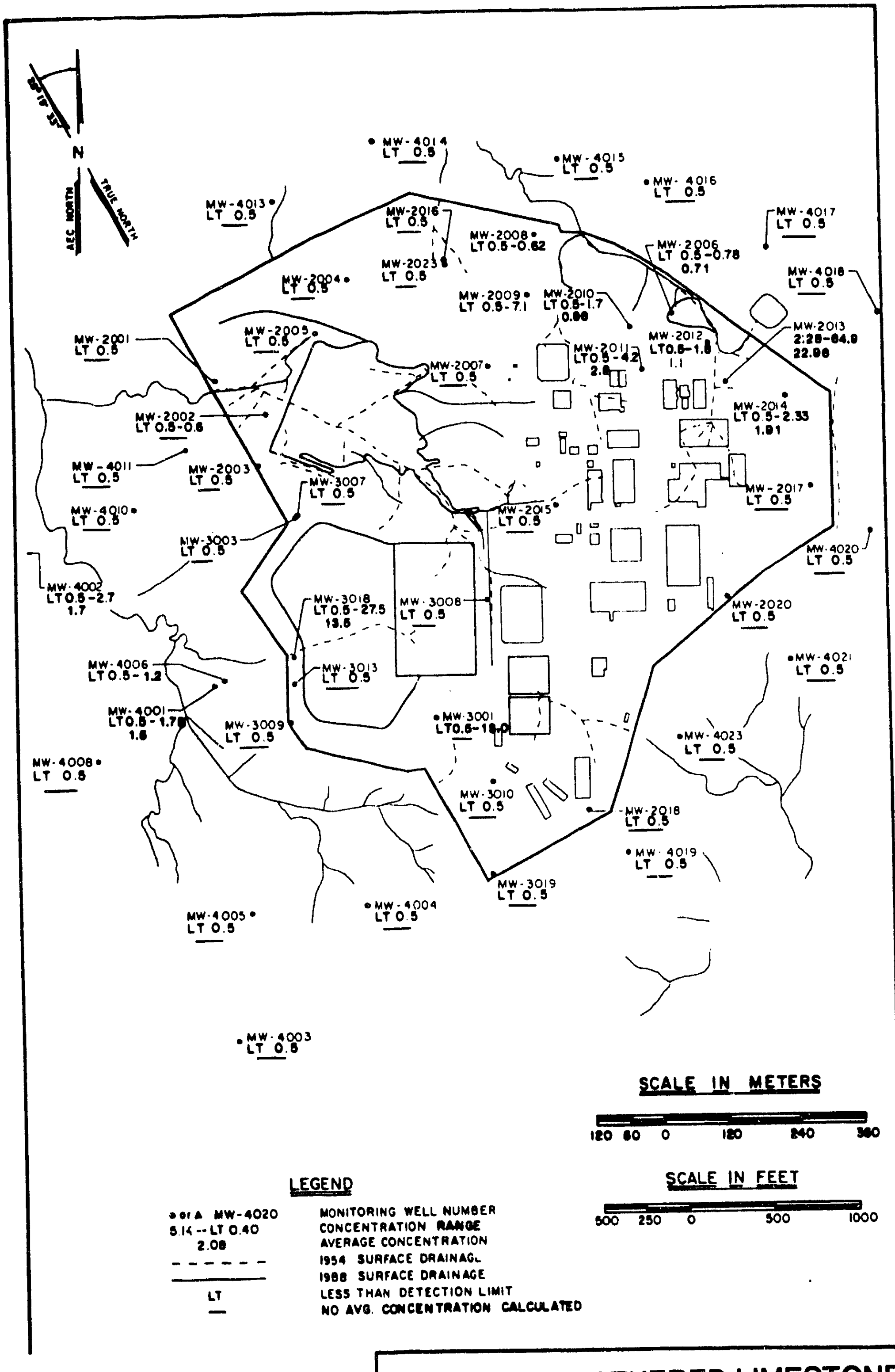
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/255/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



WEATHERED LIMESTONE ALUMINUM CONCENTRATIONS (ug/l)

FIGURE 5.4-9

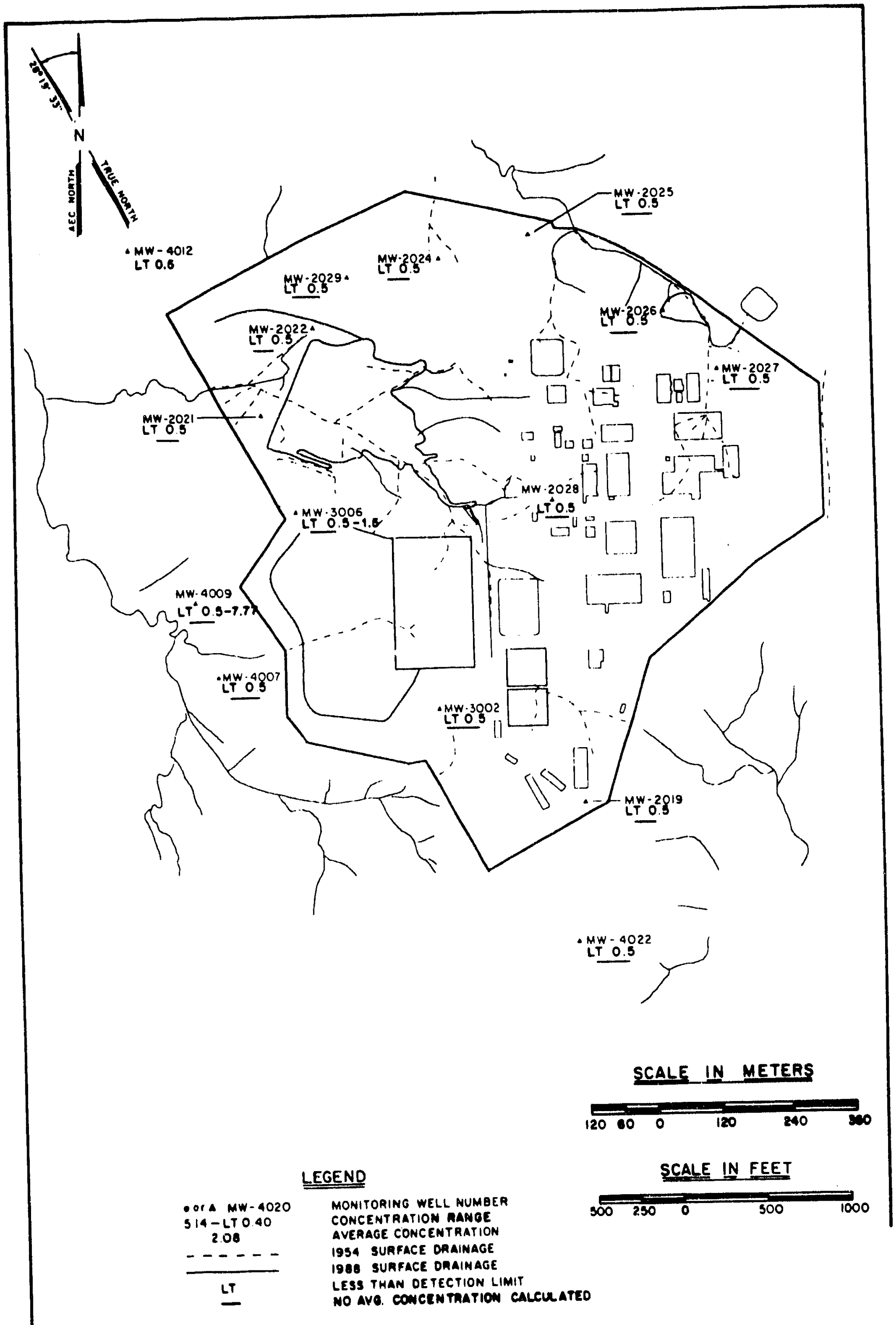
REPORT NO. DOE/OR/21548-074		EXHIBIT NO.:	A/CP/256/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE	11/91



WEATHERED LIMESTONE
2,4,6 - TRINITROTOLUENE
CONCENTRATIONS (ug/l)

FIGURE 5.4-10

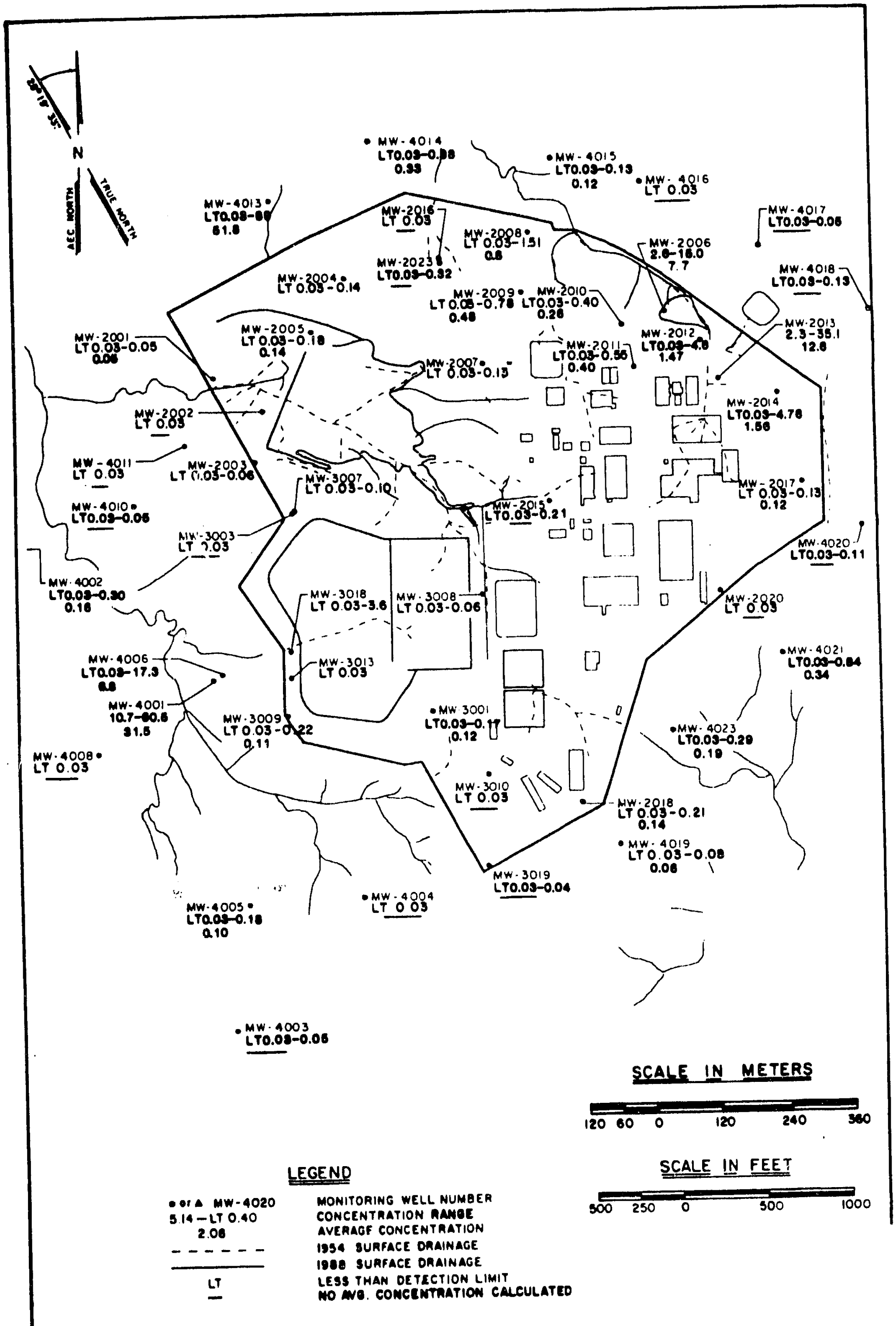
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/257/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



COMPETENT LIMESTONE 2,4,6 - TRINITROTOLUENE CONCENTRATIONS (ug/l)

FIGURE 5.4-11

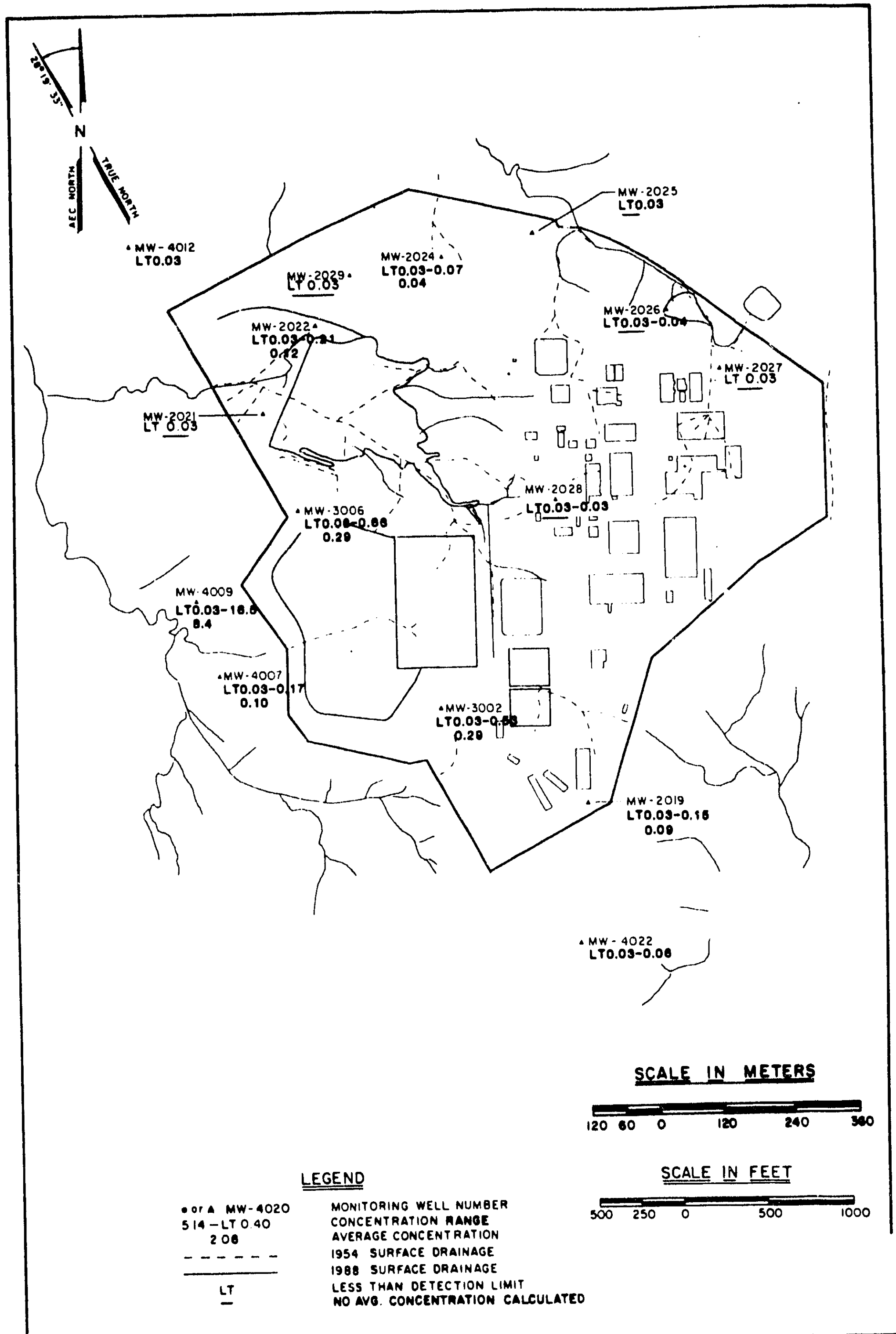
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/258/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



WEATHERED LIMESTONE
1,3,5 - TRINITROBENZENE
CONCENTRATIONS (ug/l)

FIGURE 5.4-12

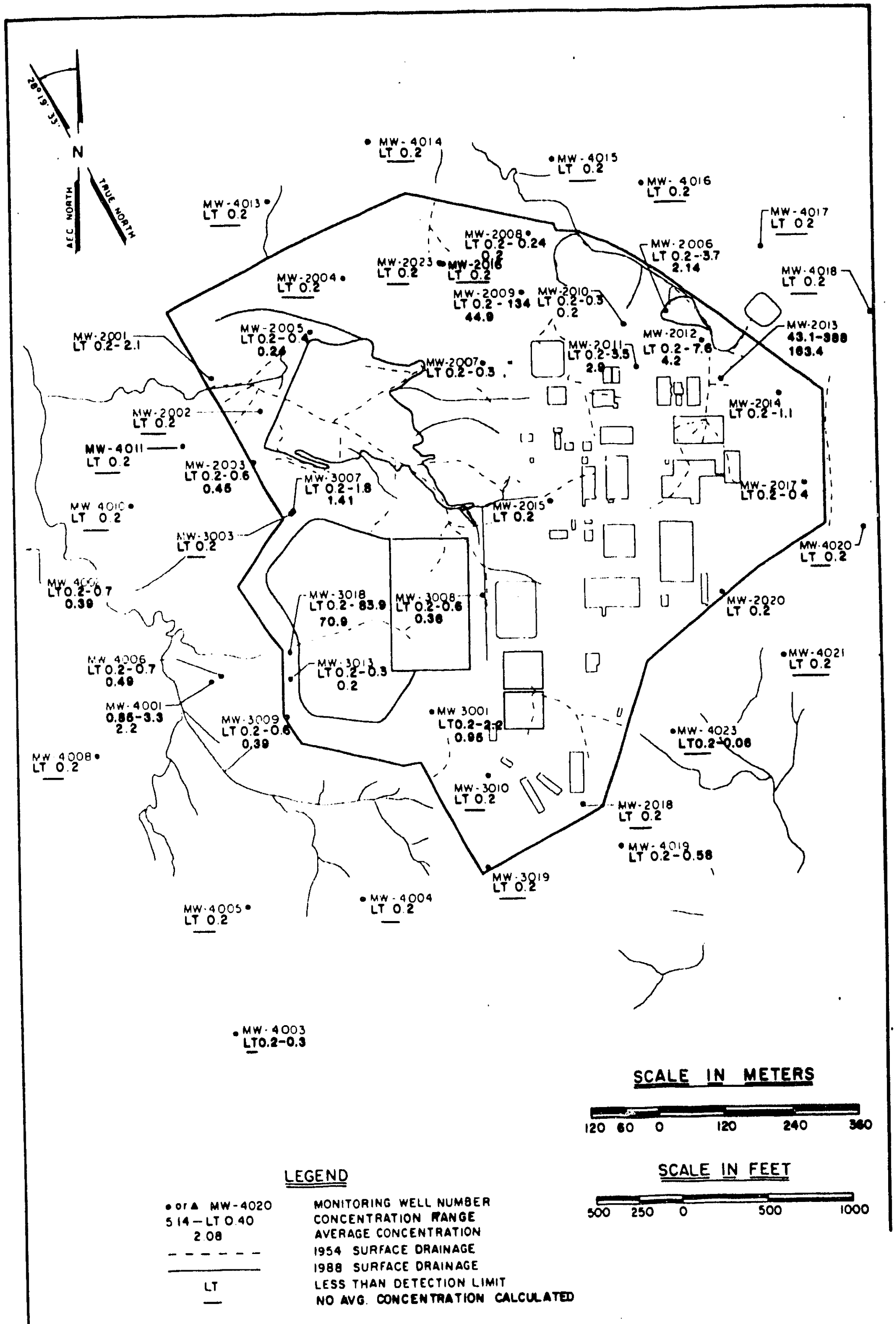
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/259/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



COMPETENT LIMESTONE 1,3,5 - TRINITROBENZENE CONCENTRATIONS (ug/l)

FIGURE 5.4-13

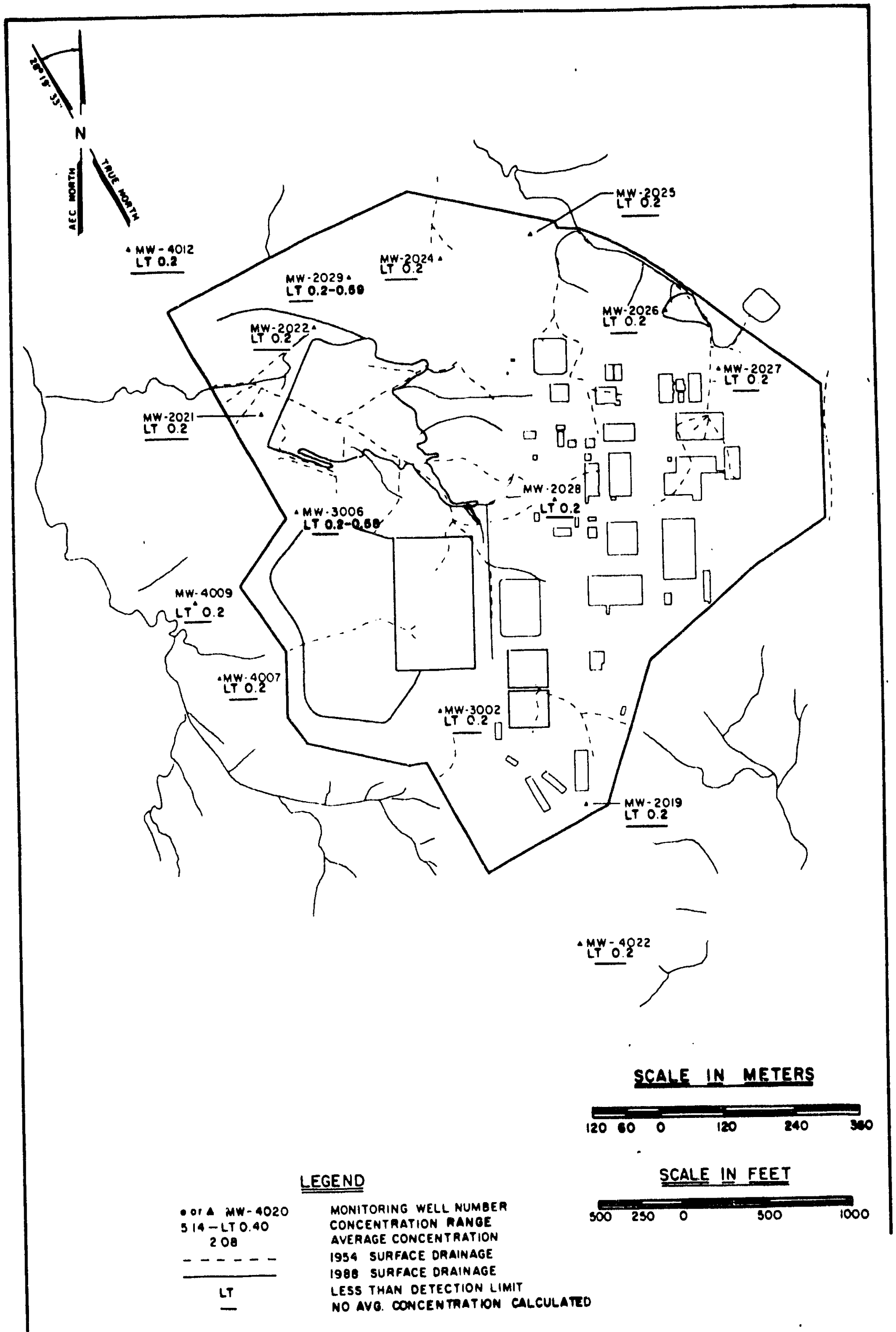
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/260/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



WEATHERED LIMESTONE 2,4 - DINITROTOLUENE CONCENTRATIONS (ug/l)

FIGURE 5.4–14

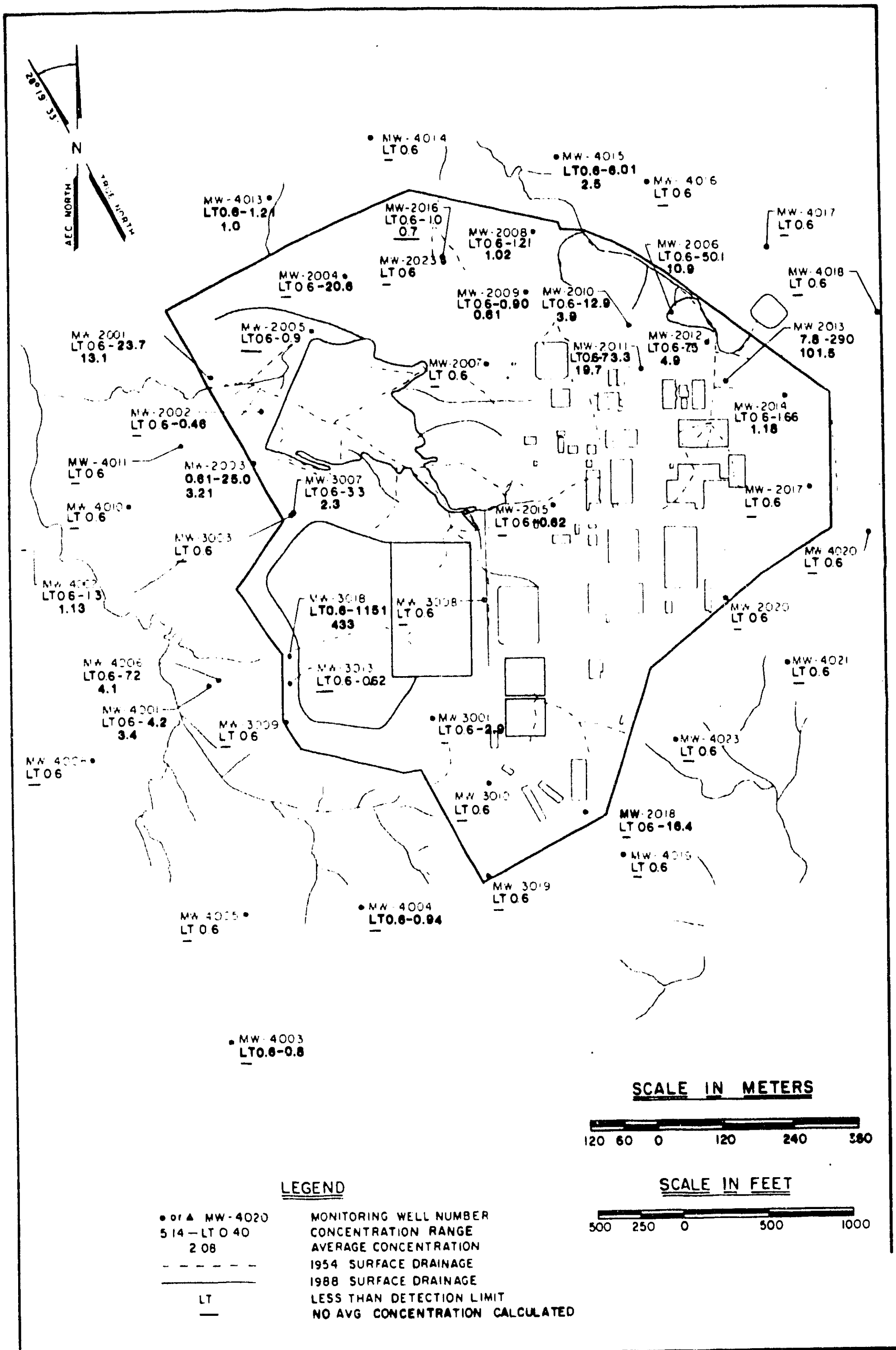
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/261/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



COMPETENT LIMESTONE
2,4 - DINITROTOLUENE
CONCENTRATIONS (ug/l)

FIGURE 5.4-15

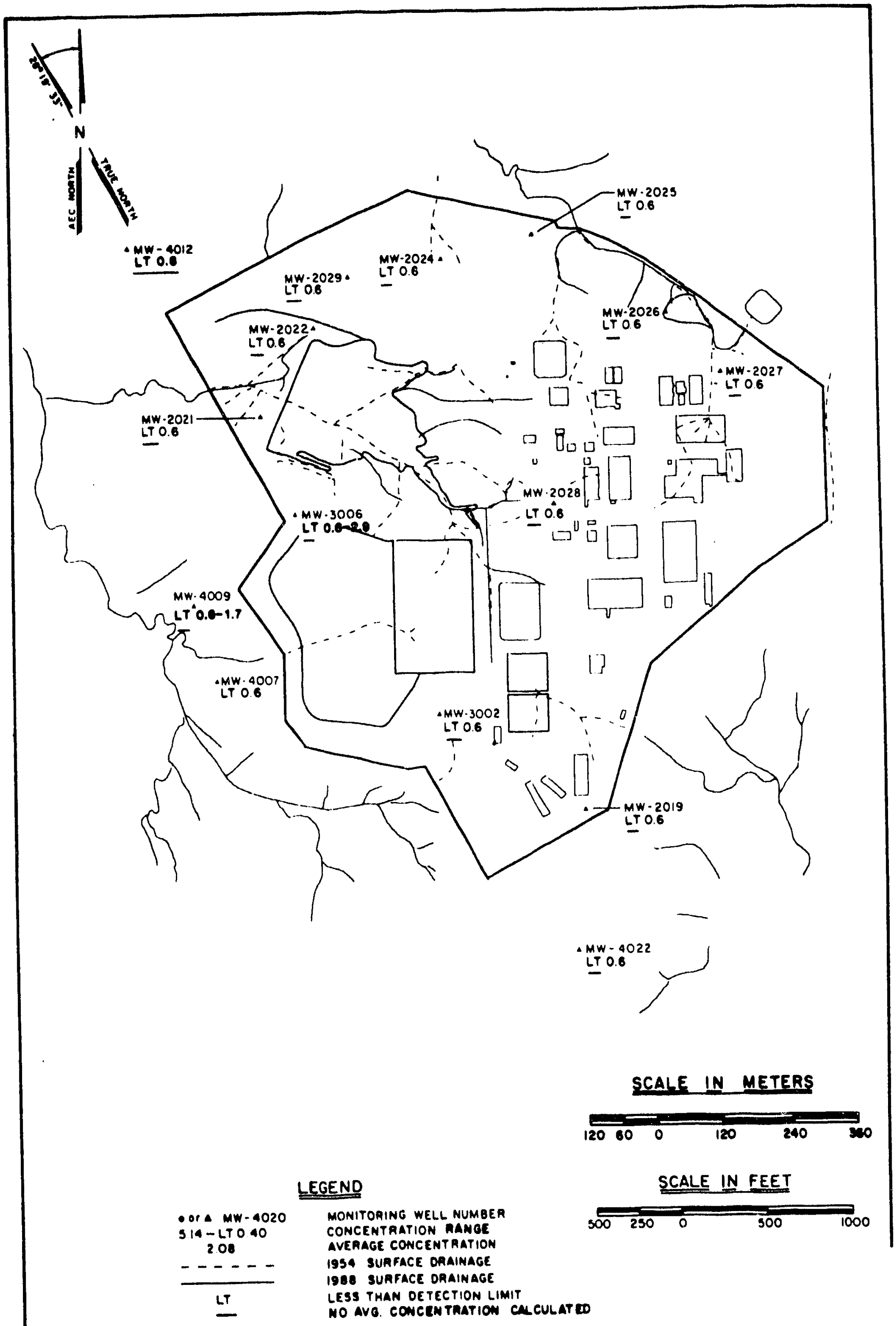
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/262/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



WEATHERED LIMESTONE 2,6 - DINITROTOLUENE CONCENTRATIONS (ug/l)

FIGURE 5.4-16

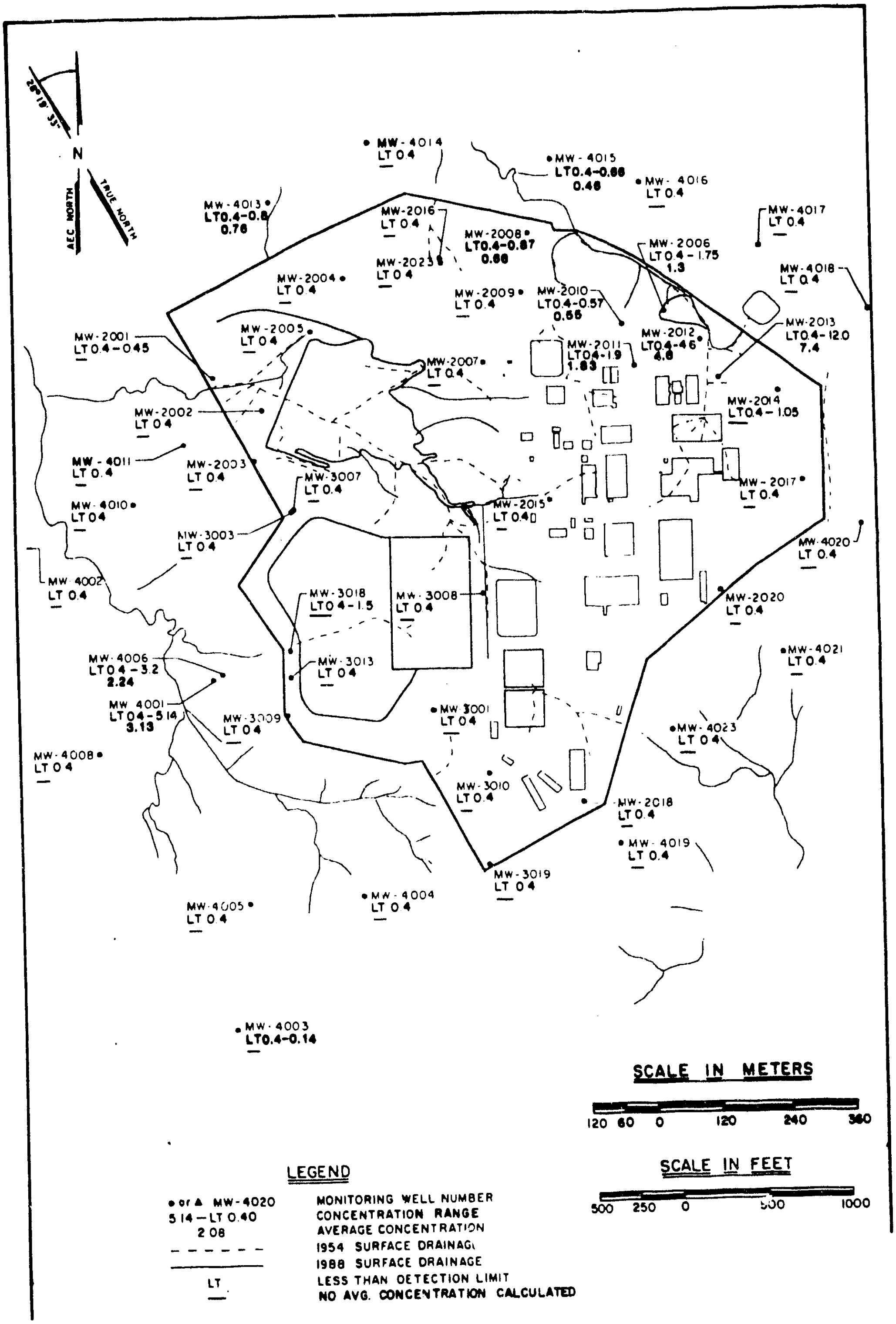
REPORT NO.:	DOE/OR/21548-074		EXHIBIT NO.:	A/CP/263/1191	
ORIGINATOR:	BLG	DRAWN BY:	GLN	DATE:	11/91



COMPETENT LIMESTONE
2,6 - DINITROTOLUENE
CONCENTRATIONS (ug/l)

FIGURE 5.4-17

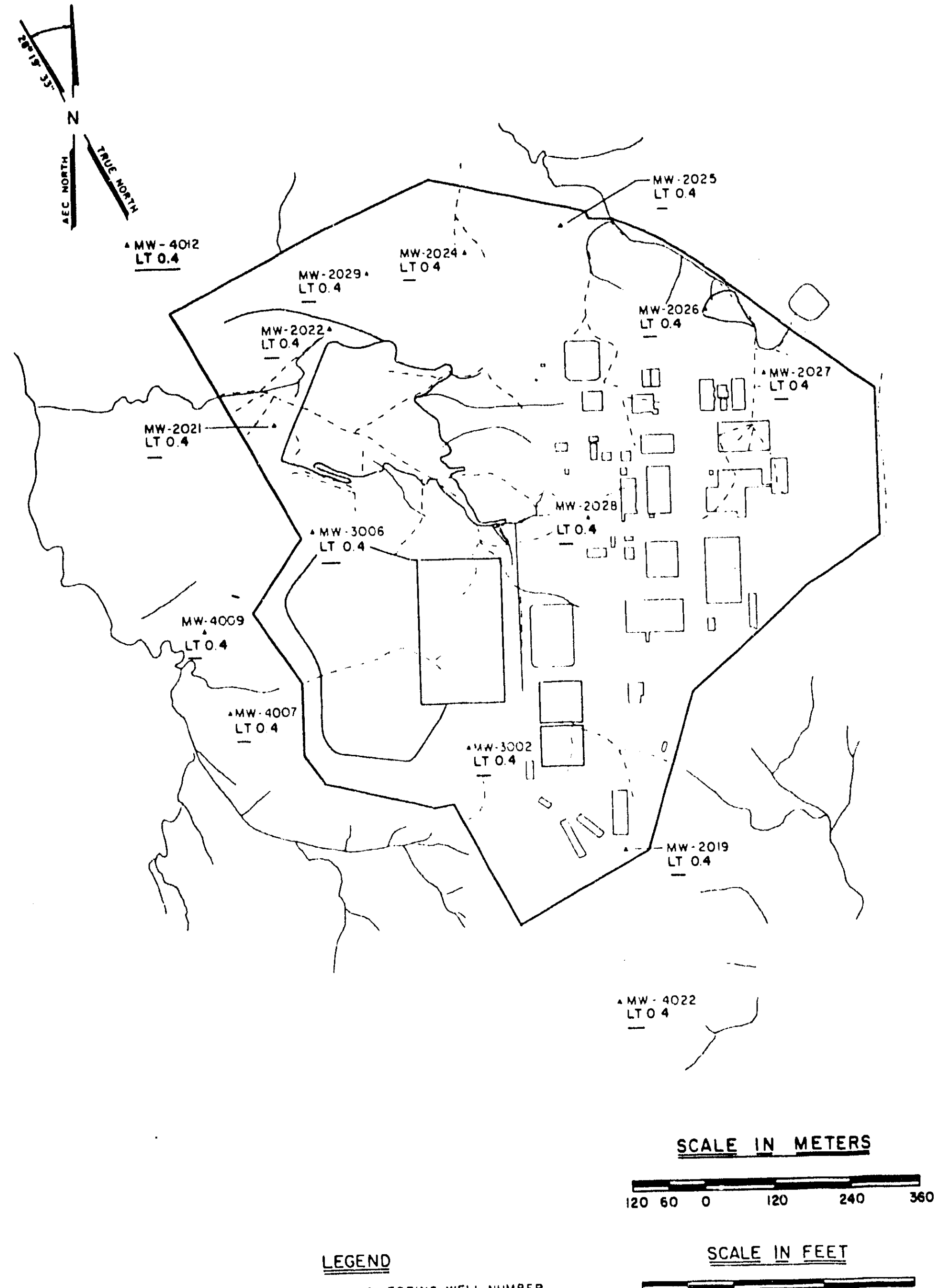
REPORT NO.:	DOE/OR/21548-074		EXHIBIT NO.:	A/CP/264/1191	
ORIGINATOR:	BLG	DRAWN BY:	GLN	DATE:	11/91



WEATHERED LIMESTONE 1,3 - DINITROBENZENE CONCENTRATIONS (ug/l)

FIGURE 5.4–18

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/265/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



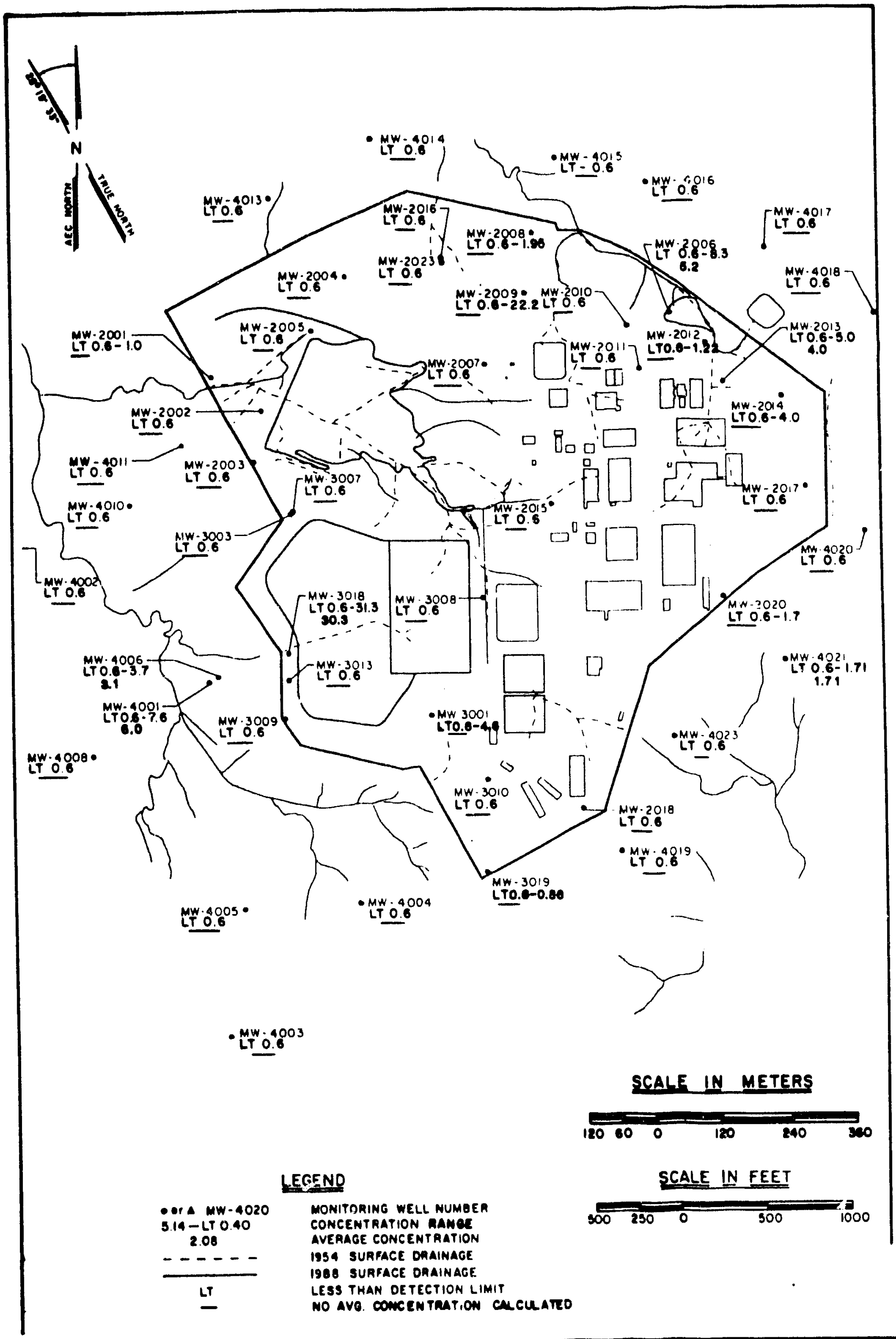
LEGEND

• or ▲ MW-4020	MONITORING WELL NUMBER
5.14 – LT 0.40	CONCENTRATION RANGE
2.08	AVERAGE CONCENTRATION
- - - - - -	1954 SURFACE DRAINAGE
———	1988 SURFACE DRAINAGE
LT	LESS THAN DETECTION LIMIT
—	NO AVG. CONCENTRATION CALCULATED

COMPETENT LIMESTONE 1,3 - DINITROBENZENE CONCENTRATIONS (ug/l)

FIGURE 5.4-19

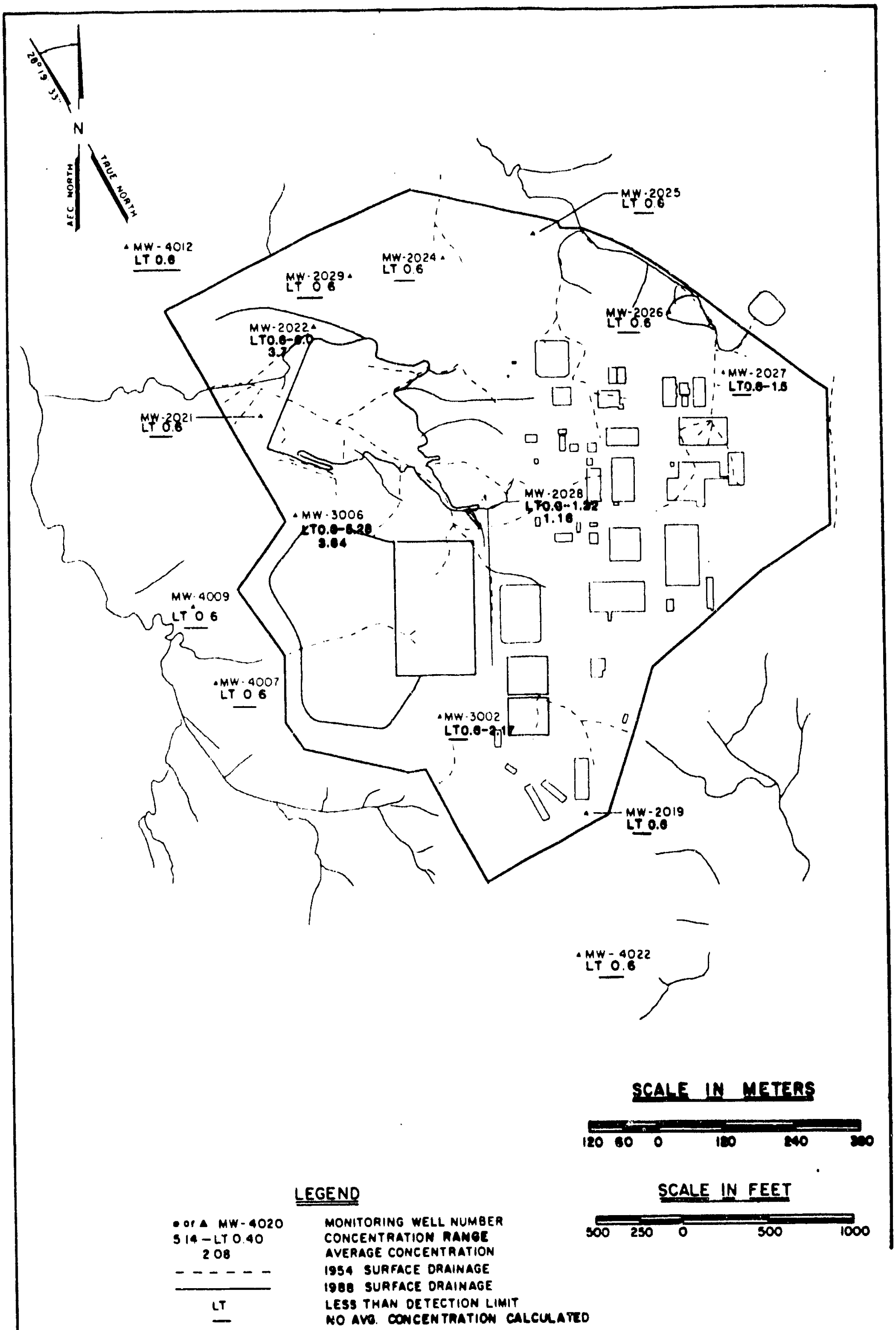
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/266/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



WEATHERED LIMESTONE NITROBENZENE CONCENTRATIONS (ug/l)

FIGURE 5.4-20

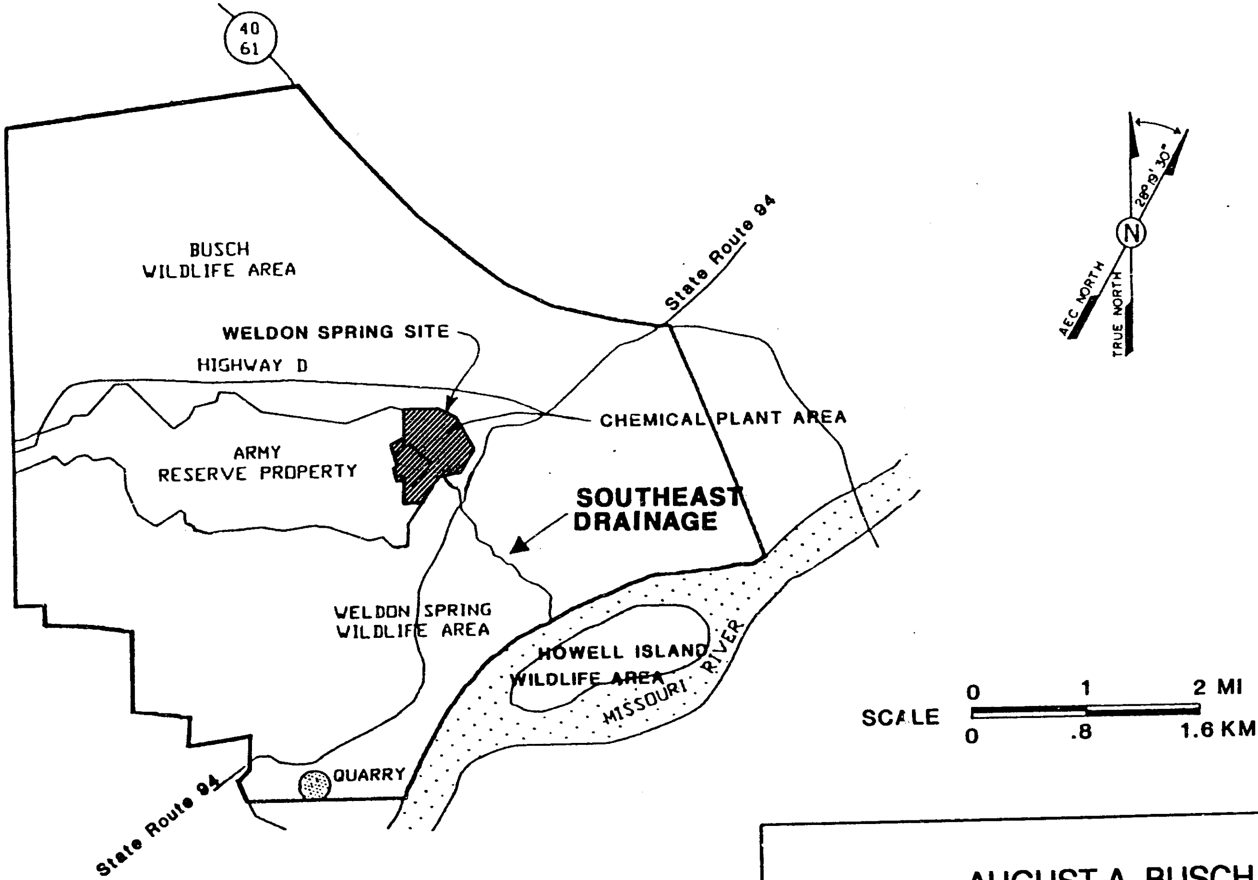
REPORT NO.:	DOE/OR/21548-074	EXHIBIT NO.:	A/CP/267/1191		
ORIGINATOR:	BLG	DRAWN BY:	GLN	DATE:	11/91



COMPETENT LIMESTONE NITROBENZENE CONCENTRATIONS (ug/l)

FIGURE 5.4-21

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/CP/268/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	

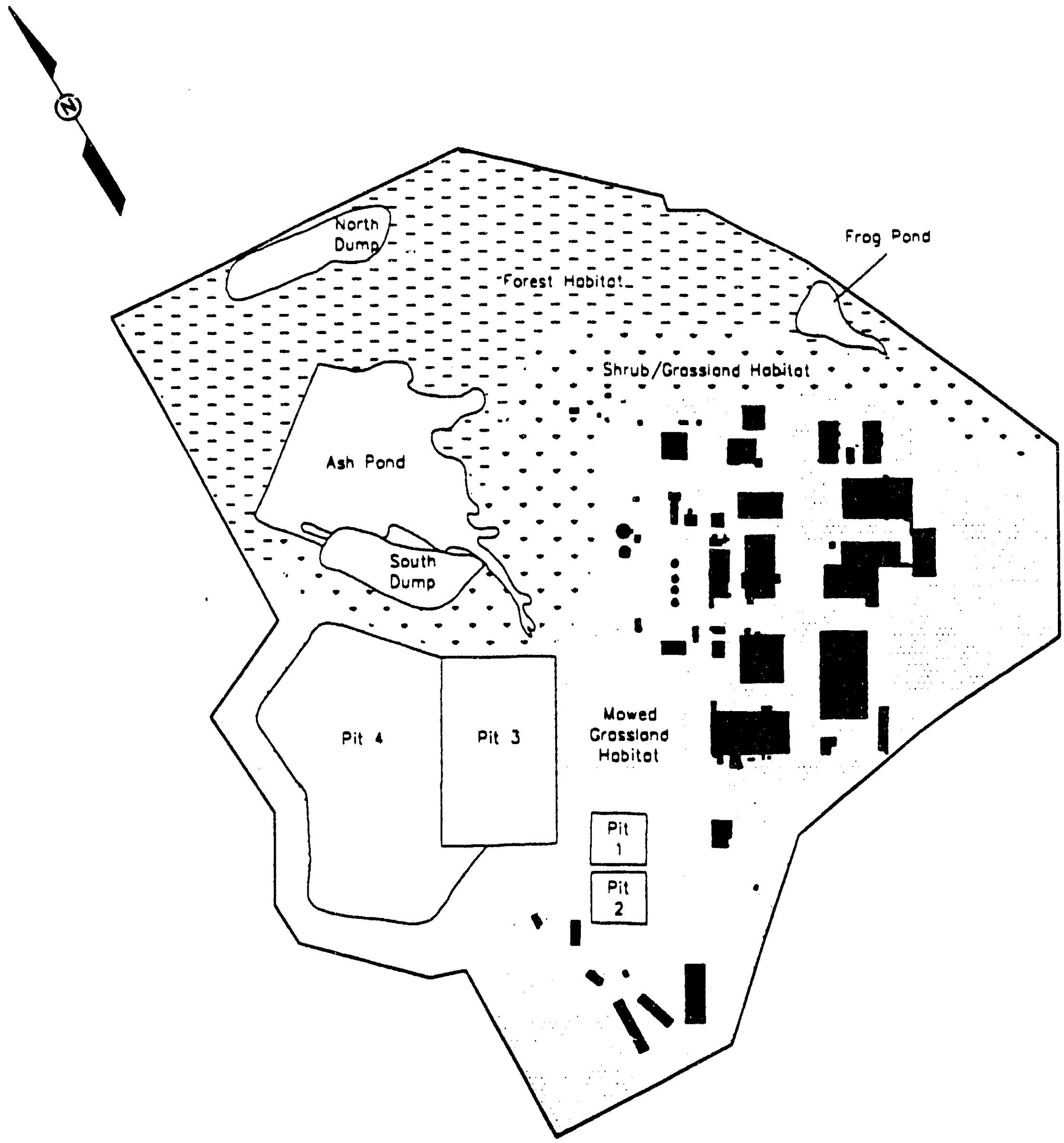


SOURCE: ORAU 1986b

AUGUST A. BUSCH
WILDLIFE COMPLEX

FIGURE 5.5-1

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/186/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



SOURCE: BASELINE ASSESSMENT FOR THE CHEMICAL PLANT AREA OF THE WELDON SPRING SITE DOE/OR/21548-091

0 500 1000 FT

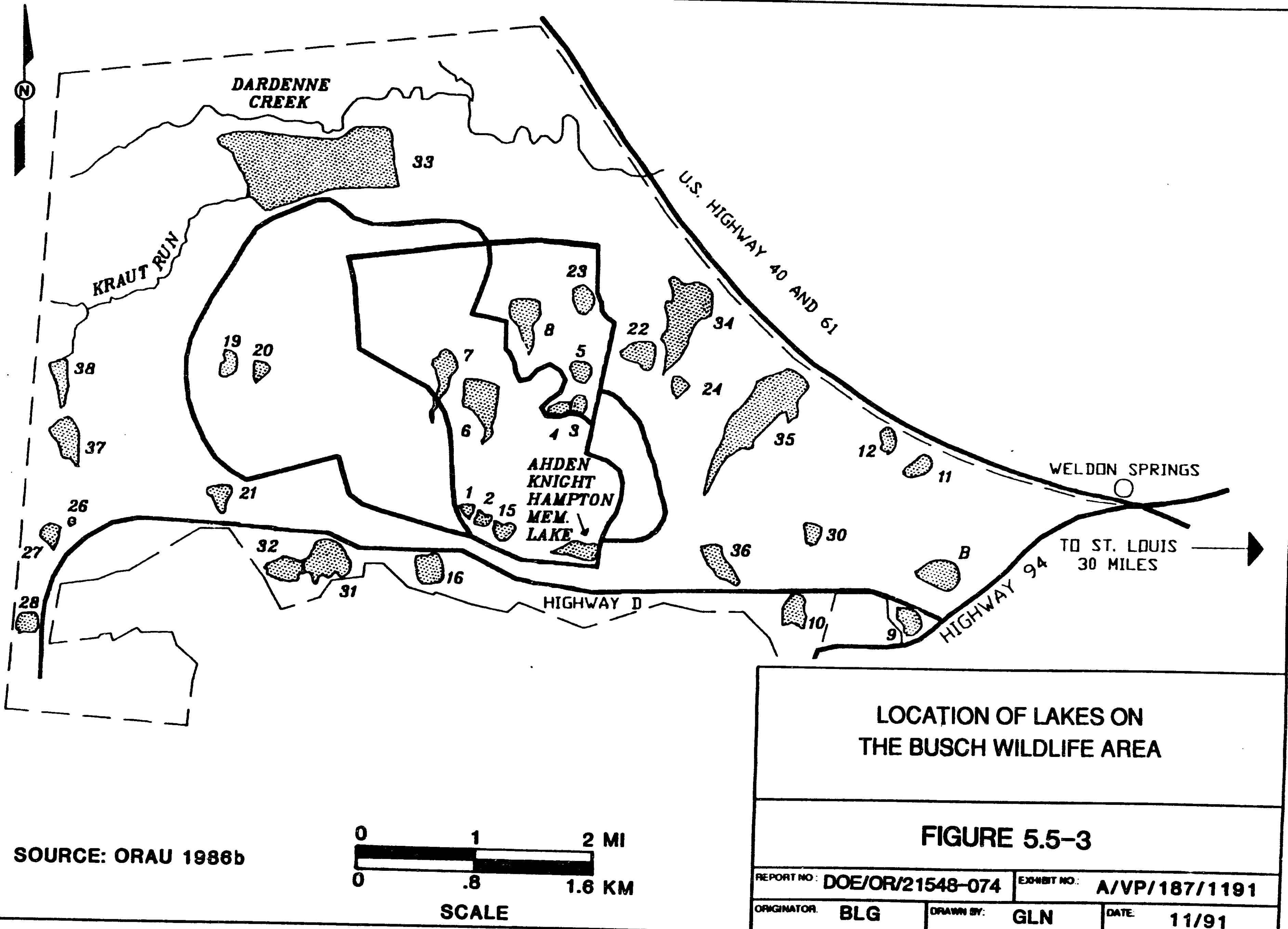
0 152.4 304.8 M

SCALE

TERRESTRIAL AND AQUATIC HABITATS AT THE WELDON SPRING SITE

FIGURE 5.5-2

REPORT NO. DOE/OR/21548-074			EXHIBIT NO.: A/CP/269/1191		
ORIGINATOR: BLG		DRAWN BY: GLN		DATE: 11/91	

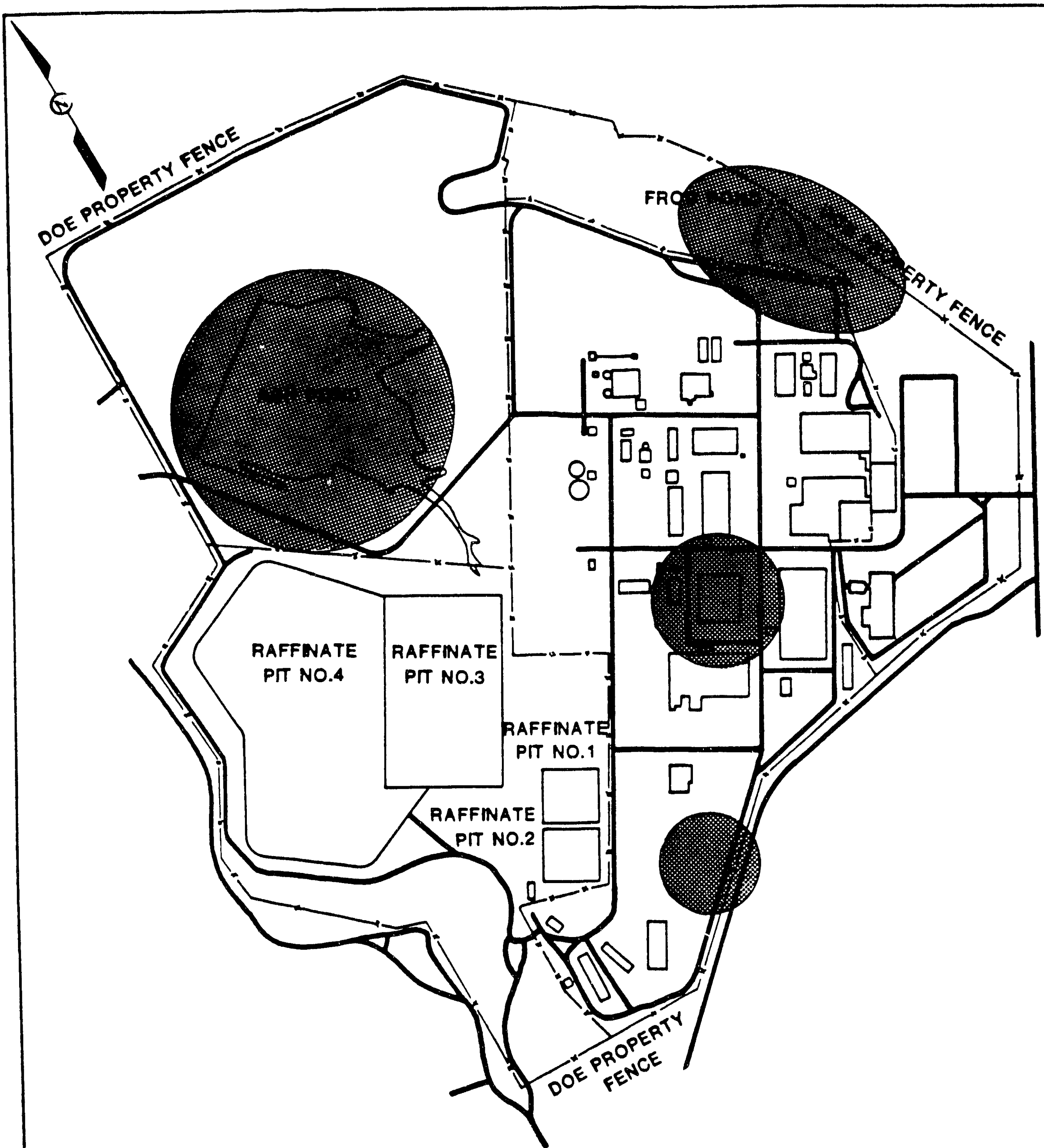


SOURCE: ORAU 1986b

LOCATION OF LAKES ON THE BUSCH WILDLIFE AREA

FIGURE 5.5-3

REPORT NO: DOE/OR/21548-074		EXHIBIT NO.: A/VP/187/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



SHADED AREAS INDICATE SAMPLING AREAS

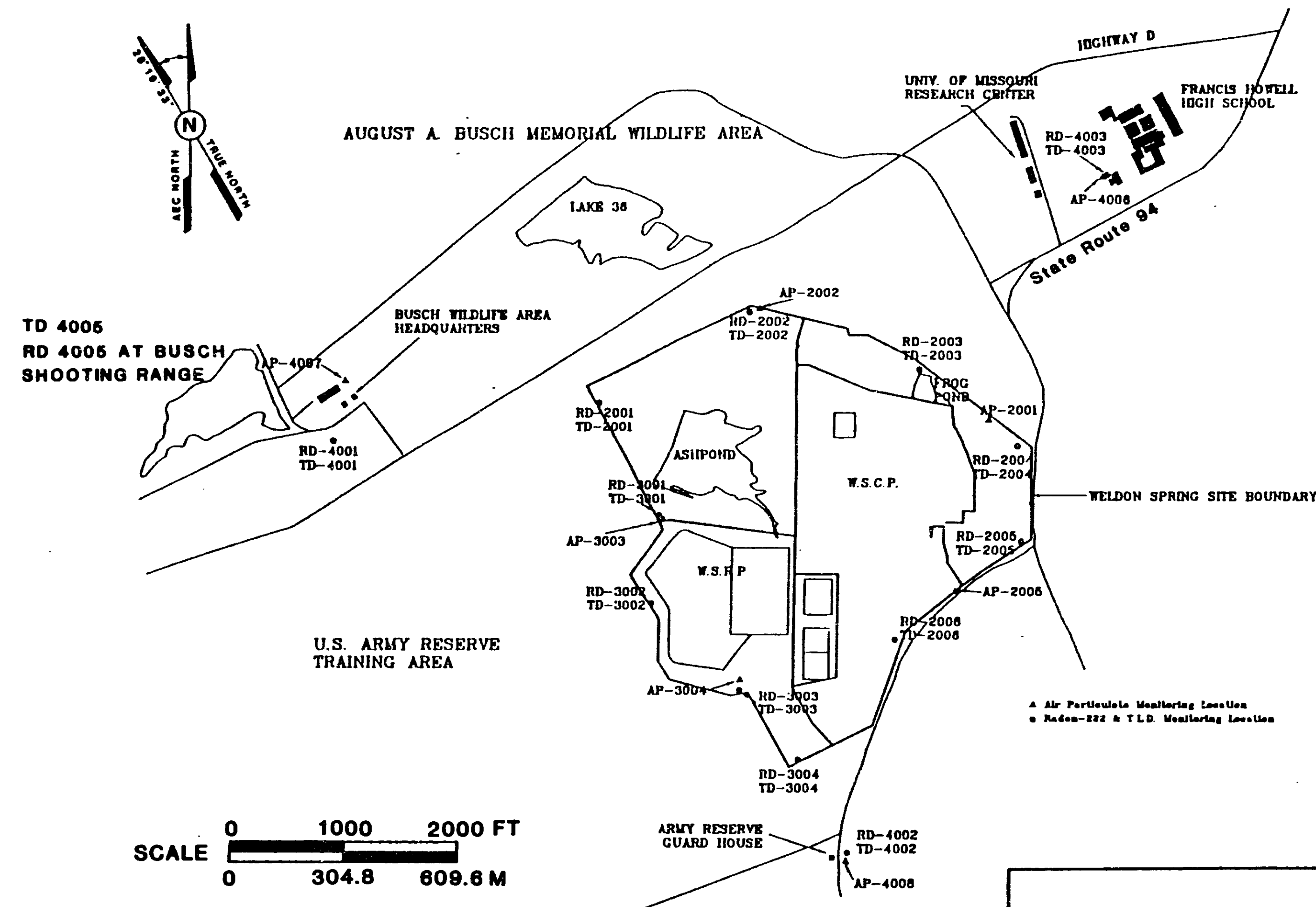
SCALE 0 500 1000 FT
0 152.4 304.8 M

SOURCE: MKF & JEG 1988x

SMALL MAMMAL SAMPLING AREAS AT THE WELDON SPRING SITE

FIGURE 5.5-4

REPORT NO.	DOE/OR/21548-074	EXHIBIT NO.	A/CP/270/1191		
ORIGINATOR	BLG	DRAWN BY	GLN	DATE	11/91



RD - RADON DETECTOR
TD - TLD (GAMMA) DETECTOR
AP - AIR PARTICULATE DETECTOR

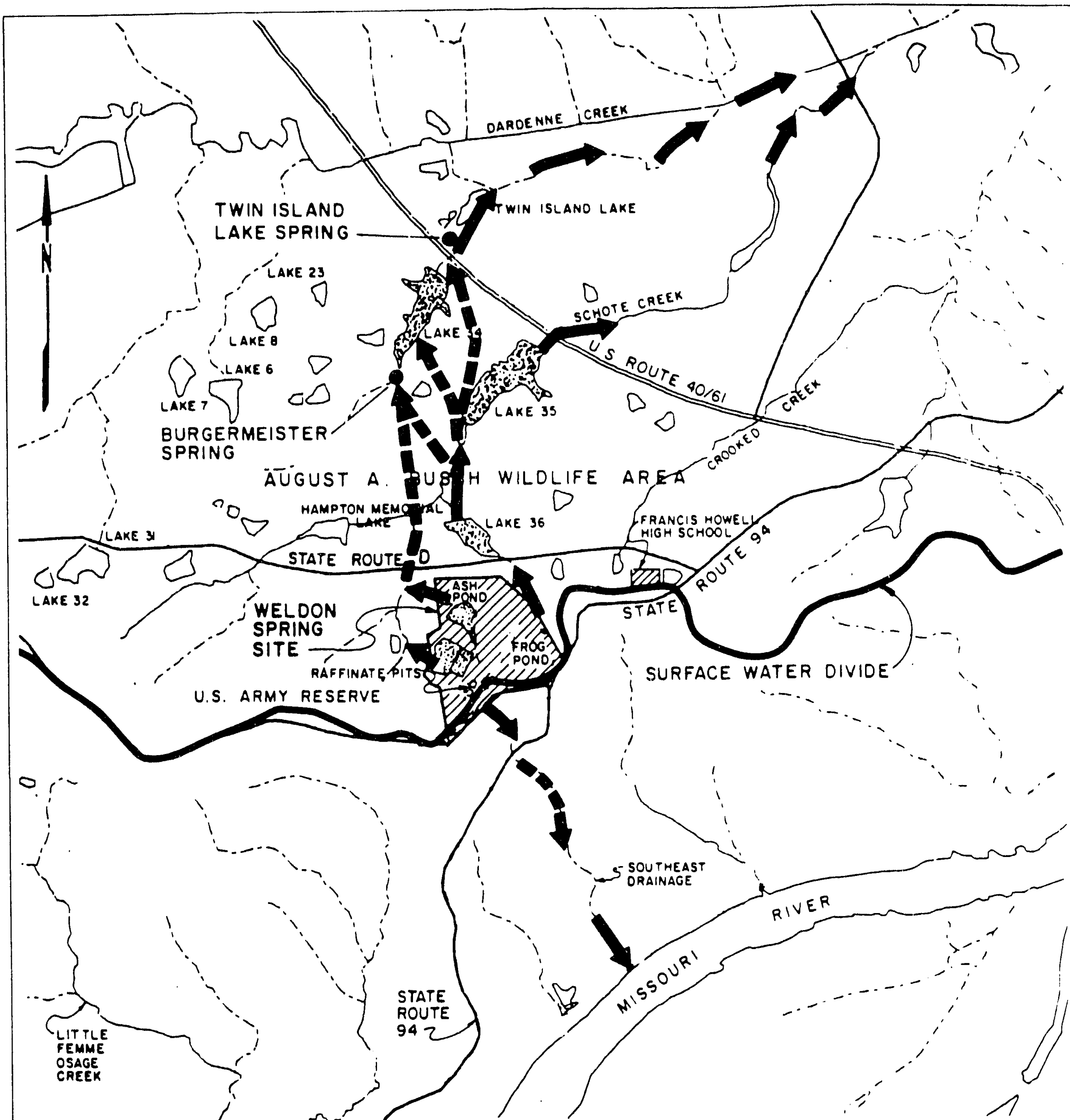
TD 4006
RD 4006 AT St CHARLES WATER TREATMENT PLANT

SOURCE: MKF & JEG 1988s

LOCATION OF
AIR MONITORING STATIONS

FIGURE 5.6-1

REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/VP/188/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



SCALE 0 3200 6400 FT
0 975.4 1950.7 M

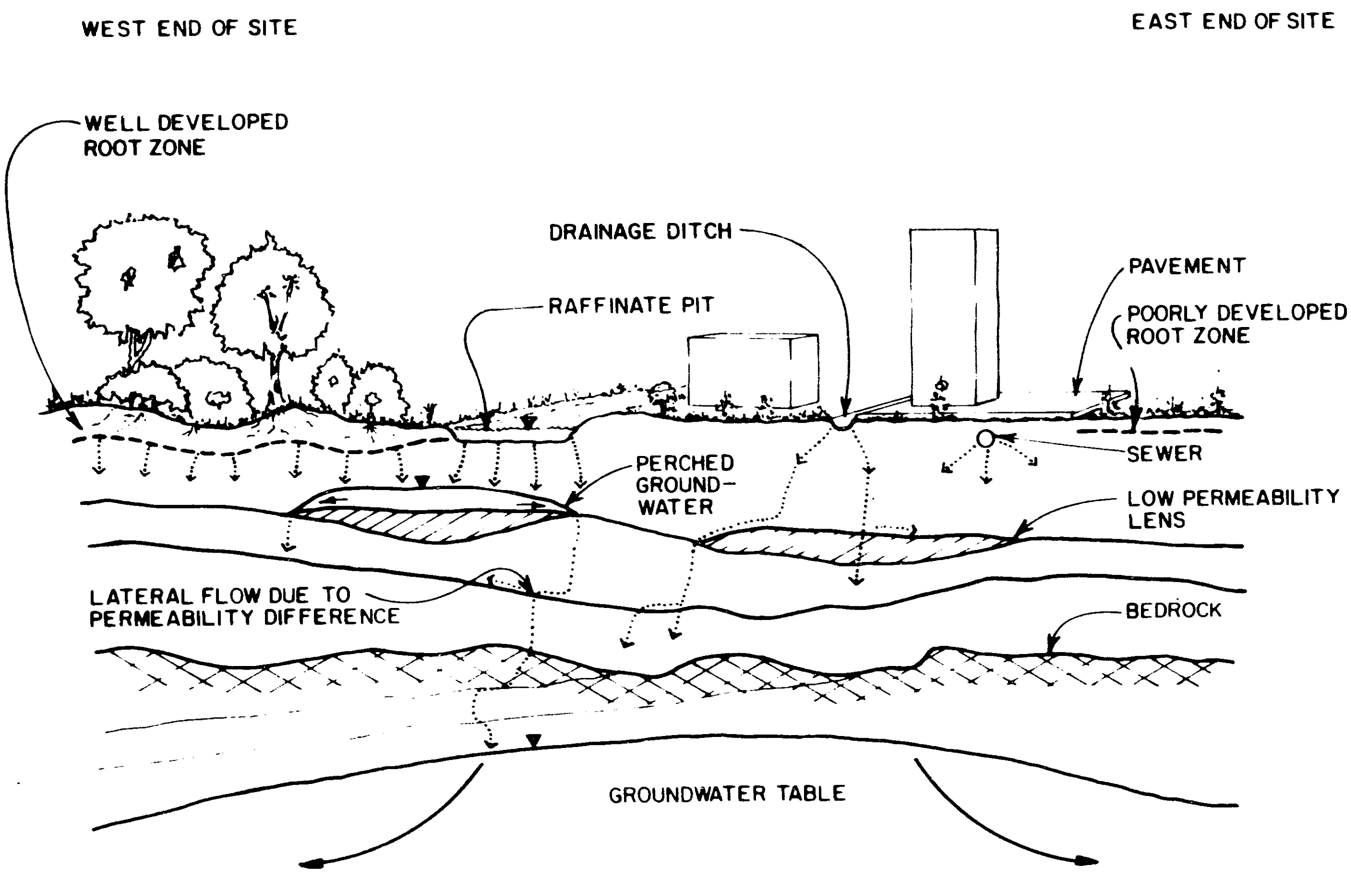
LEGEND:

- PRESENTLY CONTAMINATED WATER BODY
- SPRINGS
- SURFACE WATER FLOW PATH FROM THE WSS
- KNOWN GROUNDWATER FLOW PATH TO SPRING AT SURFACE
- CREEK OR DRAINAGE DITCH

SURFACE WATER FLOW PATHS FROM THE WSS

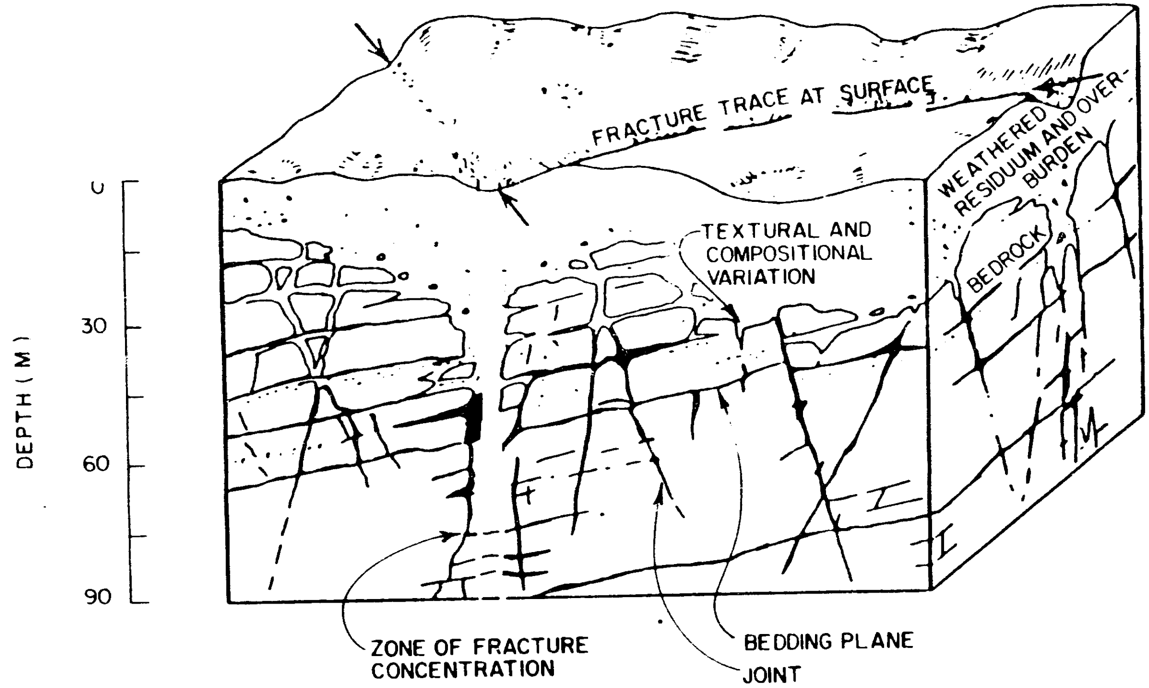
FIGURE 6.1-1

REPORT NO: DOE/OR/21548-074		EXHIBIT NO.: A/CP/189/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



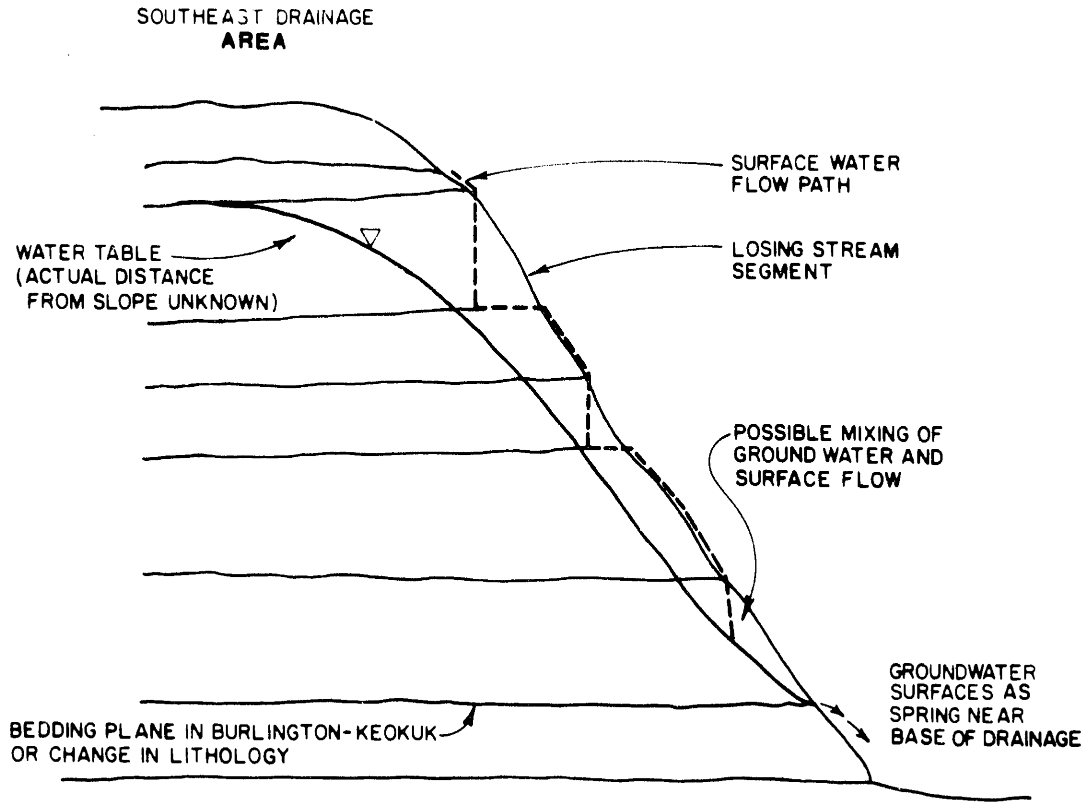
SCHEMATIC REPRESENTATION (NOT TO SCALE)

POSSIBLE FLOW PATHS IN THE VADOSE ZONE	
FIGURE 6.1-2	
REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/PI/239/1191
ORIGINATOR: BLG	DRAWN BY: GLN
DATE: 11/91	



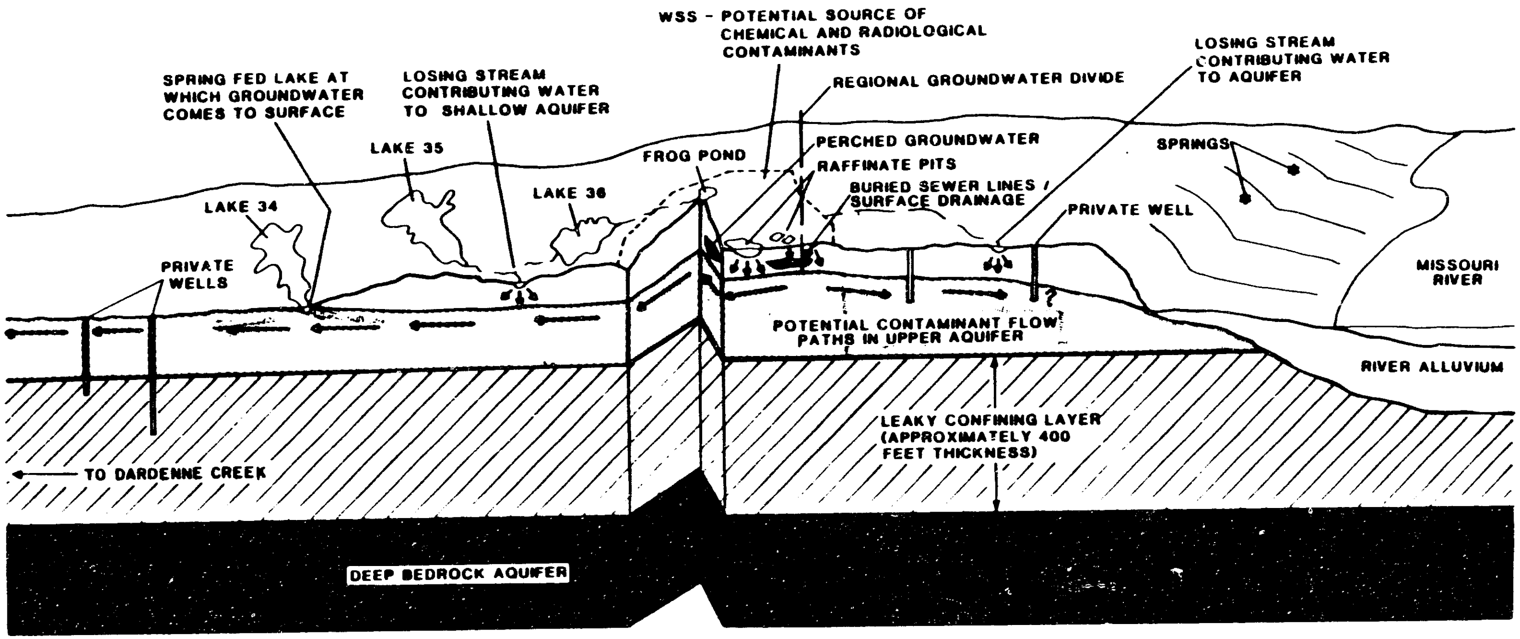
SEE SECTION 12 FOR CONVERSION FACTORS
SOURCE: Modified from Fetter 1988 (After Lattman & Parizek 1964)

PERMEABILITY ZONES IN FRACTURED CARBONATE ROCK			
FIGURE 6.1–3			
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/PI/240/1191	
ORIGINATOR: BLG	DRAWN BY: GLN		DATE: 11/91



SCHEMATIC SKETCH (NOT TO SCALE)

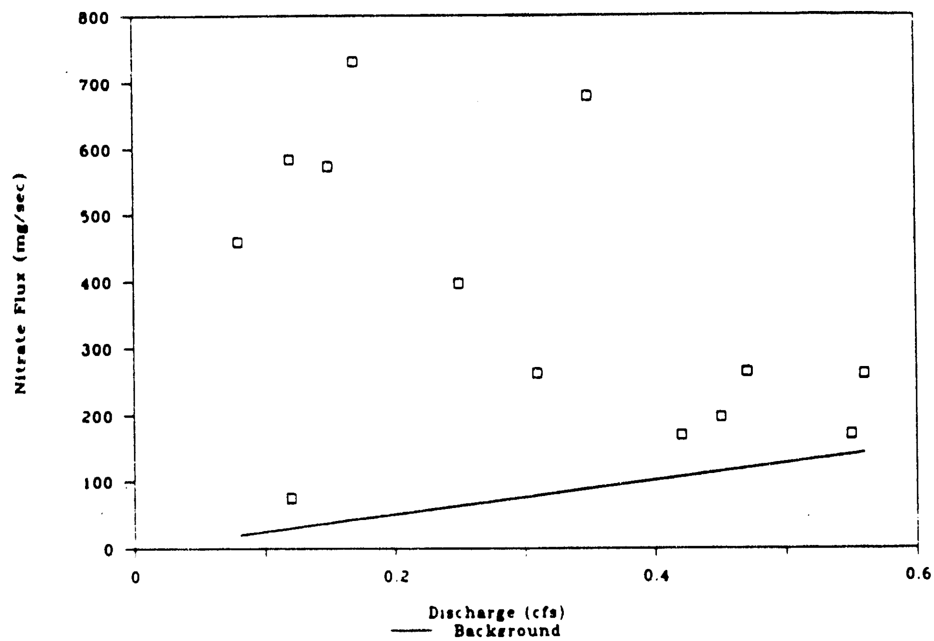
SURFACE WATER - GROUNDWATER RELATIONSHIP ALONG S.E. DRAINAGE EASEMENT			
FIGURE 6.1-4			
REPORT NO.: DOE/OR/21548-074		EXHIBIT NO.: A/PI/241/1191	
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91	



NOT TO SCALE

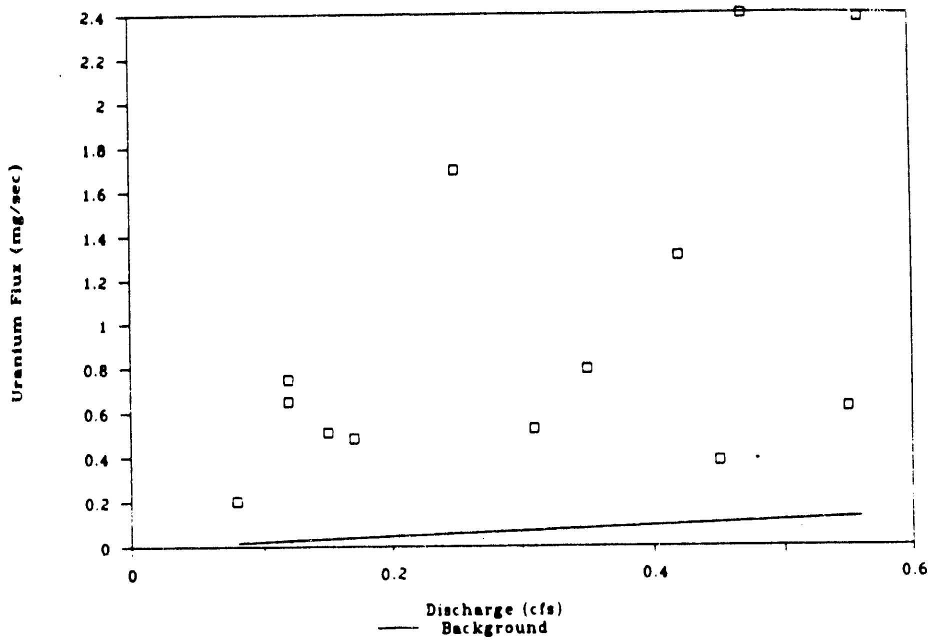
SOURCE : MKF AND JEG 1988† SEE SECTION 12 FOR CONVERSION FACTORS

SUBSURFACE FLOW PATHS	
FIGURE 6.1-5	
REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/PI/242/1191
ORIGINATOR: BLG	DRAWN BY: GLN	DATE: 11/91



SEE SECTION 12 FOR CONVERSION FACTORS

NITRATE FLUX AS A FUNCTION OF DISCHARGE AT BU?GERMEISTER SPRING	
FIGURE 6.3-1	
REPORT NO.: DOE/OR/21548-074	EXHIBIT NO.: A/PI/243/1191
ORIGINATOR: BLG	DRAWN BY: GLN
DATE: 11/91	



SEE SECTION 12 FOR CONVERSION FACTORS

URANIUM FLUX AS A FUNCTION OF DISCHARGE AT BURGERMEISTER SPRING

FIGURE 6.3-2

REPORT NO.:	DOE/OR/21548-074	EXHIBIT NO.:	A/PI/244/1191		
ORIGINATOR:	BLG	DRAWN BY:	GLN	DATE:	11/91

REMEDIAL INVESTIGATION REPORT

TABLES

TABLE 1.2-1 Previous Investigations

Reference	Date	Cont. Source Invest.	Soils & Vadose Zone Invest.	Surface Water & Sediment Invest.	Ground-water Invest.	Geol. Invest.	Geotech. & Geophys. Invest.	Meteorol. Invest.	Terrest./ Aquatic Bio. Invest.	Surface Feature Invest.	Human Pop. & Land Use Invest.
BNI	1983a			X	X			X			
BNI	1983b			X	X			X			
BNI	1983c					X	X				
BNI	1983d					X					
BNI	1984a			X	X			X			
BNI	1984b	X									
BNI	1984c	X				X					
BNI	1985a			X	X			X			
BNI	1985b	X									
BNI	1985c				X						
BNI	1986a			X				X			
BNI	1986b	X									
BNI	1986c			X	X			X			
BNI	1986d	X									
BNI	1987				X						
BGA	1984				X	X					
CAMPBELL	1987						X				
COXON	1985	X									
DEAN	1983a			X	X						
DEAN	1983b			X	X						
DEAN	1983c			X	X						

TABLE 1.2-1 Previous Investigations (Continued)

Reference	Date	Cont. Source Invest.	Soils & Vadose Zone Invest.	Surface Water & Sediment Invest.	Ground-water Invest.	Geol. Invest.	Geotech. & Geophys. Invest.	Meteorol. Invest.	Terrest./ Aquatic Bio. Invest.	Surface Feature Invest.	Human Pop. & Land Use Invest.
DEAN	1984a			X	X						
DEAN	1984b			X	X						
DEAN	1985			X	X						
DET.SCI.	1987						X				
EG & G	1977						X				
FISHEL	1944	X			X	X					
GSI	1988b						X				
REITZ	1964						X				
HOFFMAN	1988a				X						
HOFFMAN	1988b				X						
HOFFMAN	1989				X						
HOK	1976	X									
KLEE & EM	1986				X	X					
KLEE & EM	1987				X	X					
KLEE ETAL	1986				X	X					
KRUMMEL	1956					X					
LAW ENG.	1988						X				
LBL	1980a	X			X	X	X				
LBL	1980b				X						

TABLE 1.2-1 Previous Investigations (Continued)

Reference	Date	Cont. Source Invest.	Soils & Vadose Zone Invest.	Surface Water & Sediment Invest.	Ground-water Invest.	Geol. Invest.	Geotech. & Geophys. Invest.	Meteorol. Invest.	Terrest./Aquatic Bio. Invest.	Surface Feature Invest.	Human Pop. & Land Use Invest.
LAYNE	1985a				X						
LAYNE	1985b				X						
MKF & JEG	1986	X									
MKF & JEG	1987a	X									
MKF & JEG	1987c		X								
MKF & JEG	1987e	X									
MKF & JEG	1987f		X								
MKF & JEG	1987g		X								
MKF & JEG	1987h	X									
MKF & JEG	1987i	X									
MKF & JEG	1987j		X								
MKF & JEG	1987k		X								
MKF & JEG	1987m	X									
MKF & JEG	1987n		X								
MKF & JEG	1987o	X		X	X						
MKF & JEG	1987p	X									
MKF & JEG	1987q			X	X			X			
MKF & JEG	1987r			X	X			X			
MKF & JEG	1987s	X									

TABLE 1.2-1 Previous Investigations (Continued)

Reference	Date	Cont. Source Invest.	Soils & Vadose Zone Invest.	Surface Water & Sediment Invest.	Ground-water Invest.	Geol. Invest.	Geotech. & Geophys. Invest.	Meteorol. Invest.	Terrest./ Aquatic Bio. Invest.	Surface Feature Invest.	Human Pop. & Land Use Invest.
MKF & JEG	1987t					X					
MKF & JEG	1988a	X	X								
MKF & JEG	1988b	X									
MKF & JEG	1988c	X									
MKF & JEG	1988d	X									
MKF & JEG	1988e	X									
MKF & JEG	1988f	X									
MKF & JEG	1988g	X									
MKF & JEG	1988k		X								
MKF & JEG	1988l		X								
MKF & JEG	1988m	X									
MKF & JEG	1988p				X						
MKF & JEG	1988r		X								
MKF & JEG	1988s								X		
MKF & JEG	1988u		X								
MKF & JEG	1988v				X						
MKF & JEG	1988z		X								
MKF & JEG	1989a		X								
MKF & JEG	1989b	X									

TABLE 1.2-1 Previous Investigations (Continued)

Reference	Date	Cont. Source Invest.	Soils & Vadose Zone Invest.	Surface Water & Sediment Invest.	Ground-water Invest.	Geol. Invest.	Geotech. & Geophys. Invest.	Meteorol. Invest.	Terrest./ Aquatic Bio. Invest.	Surface Feature Invest.	Human Pop. & Land Use Invest.
MKF & JEG	1989c	X									
MKF & JEG	1989d	X									
MKF & JEG	1989e	X									
MKF & JEG	1989f										
MKF & JEG	1989h			X					X		
MKF & JEG	1989l								X		
MKF & JEG	1989m				X						
MKF & JEG	1989n		X								
MKF & JEG	1989o		X								
MKF & JEG	1989p			X	X				X		
MKF & JEG	1990b			X	X				X		
MKF & JEG	1991b			X					X		
MKF & JEG	1991c			X	X				X		
MKF & JEG	1991d										X
MKF & JEG	1992c				X	X	X				
MKF & JEG	1992d								X		
MOYLAN	1967					X					
NLO	1977	X									
ORAU	1986a		X								

TABLE 1.2-1 Previous Investigations (Continued)

Reference	Date	Cont. Source Invest.	Soils & Vadose Zone Invest.	Surface Water & Sediment Invest.	Ground-water Invest.	Geol. Invest.	Geotech. & Geophys. Invest.	Meteorol. Invest.	Terrest./ Aquatic Bio. Invest.	Surface Feature Invest.	Human Pop. & Land Use Invest.
ORAU	1986b		X								
ORNL	1979	X									
PENNAK	1976	X									
ROBERTS	1951				X						
RETA	1977	X	X								
RETA	1978	X									
SHELL	1985a			X				X			
SHELL	1985b			X				X			
SHELL	1985c			X				X			
SOIL	1988		X		X						
SURDEX	1987									X	
TSAI	1984	X			X						
UNC	1988										
US ARMY/COE	1955										
US ARMY	1969	X					X				
US ARMY	1976	X	X								
US DOE	1985	X									
US DOE	1987	X	X	X	X	X	X	X	X	X	X
US DOE	1989	X	X	X	X	X				X	

TABLE 1.2-1 Previous Investigations (Continued)

Reference	Date	Cont. Source Invest.	Soils & Vadose Zone Invest.	Surface Water & Sediment Invest.	Ground-water Invest.	Geol. Invest.	Geotech. & Geophys. Invest.	Meteorol. Invest.	Terrest./ Aquatic Bio. Invest.	Surface Feature Invest.	Human Pop. & Land Use Invest.
USGS	1987a			X	X						
USGS	1987b			X	X						
WESTON	1983						X				
WHITFIELD	1989					X					

TABLE 1.2-2 Interim Response Actions (IRAs)

1	REMOVE AND DISPOSE OF ELECTRICAL TRANSFORMERS AT THE SITE. APPROXIMATELY 49,205 L (13,000 GAL) OF PCB FLUIDS AND FLUSHING SOLUTIONS WERE REMOVED AND TRANSPORTED TO AN OFF-SITE LICENSED INCINERATION FACILITY; THE FLUSHED UNITS WERE THEN TRANSPORTED OFF-SITE TO A LICENSED DISPOSAL FACILITY. ELEVEN NON-PCB TRANSFORMERS WERE ALSO REMOVED. THIS REMOVAL ACTION WAS COMPLETED IN JULY 1988.
2	CONSTRUCT A CONTROL DIKE TO ISOLATE SURFACE WATER FROM CONTACT WITH THE CONTAMINATED AREAS OF THE SOUTH DUMP AND ASH POND. THIS WAS COMPLETED IN APRIL 1989.
3	CONSTRUCT A PAD (MATERIAL STAGING AREA) FOR STORAGE OF SLIGHTLY CONTAMINATED MATERIALS (DEBRIS, DISMANTLED BUILDINGS AND PIPING, ETC.). PHASE I OF THE STAGING AREA WILL CONSIST OF APPROXIMATELY 1.2 ha (3 ac) OF CLEARED GROUND. THE SURFACE WILL BE GRAVEL PAVED, AND THE PAD WILL CONTROL SURFACE RUNOFF USING A RECOMPACTED FINE-GRAINED SOIL LINER AND MEMBRANE LINED SUMP.
4	REMOVE CONTAMINATED SOIL FROM ARMY RESERVE PROPERTY NO. 7. A 3.3-M^2 (35-FT^2) AREA WAS EXCAVATED TO A DEPTH OF 30.48 CM (1 FT) AND THE EXCAVATED SOIL (ABOUT 1.2 m^3 [1.5 yd^3]) DEPOSITED INTO FIVE 55-GALLON DRUMS. THE FIVE DRUMS WERE PLACED IN BUILDING 434 OF THE WSCP FOR INTERIM STORAGE. THE EXCAVATION WAS BACKFILLED WITH SOIL FROM THE ARMY PROPERTY AND GRADED TO THE ORIGINAL ELEVATION. THE AREA WAS RADIOLOGICALLY SURVEYED BY AN INDEPENDENT CONTRACTOR TO CONFIRM THAT THE CLEANUP WAS EFFECTIVE. THIS ACTION WAS COMPLETED ON JANUARY 12, 1988.
5	REMOVE CONTAMINATED SOIL FROM FOUR LOCATIONS ON MISSOURI DEPARTMENT OF CONSERVATION PROPERTY; ONE ON THE BUSCH WILDLIFE AREA, NORTH OF THE RAFFINATE PITS AND CHEMICAL PLANT AREA (NO. 3); AND THREE ON THE WELDON SPRING WILDLIFE AREA, SOUTH OF THE RAFFINATE PITS AND CHEMICAL PLANT AREA (NO. 4, 5, 8). THE EXCAVATED SOIL (APPROXIMATELY 400m^3 [520yd^3]) WILL BE STORED IN A DESIGNATED, CONTROLLED ACCESS AREA AT THE CHEMICAL PLANT SITE UNTIL FINAL DISPOSITION.
6	DISMANTLE ALL OVERHEAD PIPING AT THE CHEMICAL PLANT SITE. TEN THOUSAND LINEAR METERS (33,000 LINEAR FEET) OF OVERHEAD PIPING AND 500 STRUCTURAL SUPPORTS, WHICH HOLD 4,000 LINEAR METERS (13,000 LINEAR FEET) OF ASBESTOS-CONTAINING MATERIAL, WILL BE REMOVED. THE ASBESTOS-CONTAINING MATERIAL WILL BE WRAPPED AND DISMANTLED. NONRADIOACTIVE ASBESTOS-CONTAINING MATERIAL WILL BE TRANSPORTED TO AN OFF-SITE LICENSED DISPOSAL FACILITY; RADIOACTIVE ASBESTOS-CONTAINING MATERIAL WILL BE STORED ON SITE UNTIL FINAL DISPOSITION IS DETERMINED. THIS ACTION WAS COMPLETED JUNE 1989.
7	CONSOLIDATE AND REMOVE CONTAINERIZED CHEMICALS AT THE CHEMICAL PLANT SITE. RADIOACTIVELY AND NONRADIOACTIVELY CONTAMINATED MATERIALS WILL BE CONSOLIDATED ON-SITE IN BUILDING 434 FOR FUTURE DISPOSITION.

TABLE 1.2-2 Interim Response Actions (IRAs) (Continued)

8	REMOVE ELECTRICAL POLES AND LINES AT THE CHEMICAL PLANT SITE. ALL DE-ENERGIZED EXTERIOR POWER AND TELEPHONE LINES (AN ESTIMATED 46,000 LINEAR METERS [150,000 LINEAR FEET] OF CABLE AND WIRE) AND 300 TIMBER POLES, THEIR CROSS BEAMS, AND SUPPORTS WERE REMOVED. THESE INACTIVE LINES AND POLES WERE DETERIORATING, AND MANY HAD FALLEN OR WERE IN DANGER OF FALLING TO THE GROUND. NONRADIOACTIVE MATERIAL WAS TRANSPORTED OFF-SITE FOR SALVAGE. RADIOACTIVE MATERIAL IS BEING STORED ON SITE ON CONCRETE SLAB 303. THIS REMOVAL ACTION WAS COMPLETED IN APRIL 1988.
9	CONSOLIDATE ALL LOOSE YARD DEBRIS IN AN ON-SITE STAGING AREA UNTIL FINAL DISPOSITION IS MADE. THE DEBRIS INCLUDES EQUIPMENT, VEHICLES, STRUCTURAL METAL WASTE AND BUILDING RUBBLE WASTE. THIS WASTE IS HIGHLY WEATHERED AND MAY HAVE EITHER FIXED OR REMOVABLE RADIOACTIVE CONTAMINATION. AN ESTIMATED 72,880 m^3 (95,160 yd^3) WILL BE CONSOLIDATED.
10	DISMANTLE THE SUPERSTRUCTURE OF BUILDING 409 (ADMINISTRATION). THE ASBESTOS INSULATION AND THE PCB-CONTAMINATED MATERIAL WAS REMOVED AND TRANSPORTED OFF-SITE TO LICENSED DISPOSAL FACILITIES. THE RADIOACTIVELY CONTAMINATED MATERIAL HAS BEEN STORED ON-SITE UNTIL FINAL DISPOSITION. INTERNAL EQUIPMENT, WALLS, AND THE SUPERSTRUCTURE WERE DISMANTLED AND TRANSPORTED TO AN OFF-SITE LICENSED DISPOSAL FACILITY OR SALVAGED, WHERE FEASIBLE. THIS ACTION WAS COMPLETED IN MARCH 1989.
11	DISMANTLE THE SUPERSTRUCTURE OF BUILDING 401 (STEAM PLANT). THE NONRADIOACTIVELY CONTAMINATED ASBESTOS TRANSITE PANELS FROM THE BUILDING WAS REMOVED AND TRANSPORTED TO AN OFF-SITE LICENSED DISPOSAL FACILITY. THE RADIOACTIVELY CONTAMINATED MATERIAL HAS BEEN STORED ON-SITE UNTIL FINAL DISPOSITION. STRUCTURAL STEEL WAS DISMANTLED AND TRANSPORTED TO AN OFF-SITE LICENSED DISPOSAL FACILITY OR SALVAGED, WHERE FEASIBLE. THIS ACTION WAS COMPLETED IN DECEMBER 1989.
12	CONSTRUCT A DIKE ON THE SOUTHEAST DRAINAGE CHANNEL. THE DIKE WILL IMPOUND AND CONTROL THE CONTAMINATED WATER CURRENTLY DISCHARGED FROM THE DRAINAGE AREA.
13	REMOVE CONTAMINATED SOIL FROM ARMY RESERVE VICINITY PROPERTIES NOS. 1, 2, AND 3. CONTAMINATED SOIL WILL BE REMOVED AND HAULED TO AN ON-SITE STAGING AREA AT THE CHEMICAL PLANT SITE. THE AFFECTED PROPERTIES WILL BE VERIFIED AND CERTIFIED THAT CLEANUP CRITERIA HAVE BEEN MET, AND THEN WILL BE BACKFILLED, REGRADED, AND RESEEDED.
15	DISMANTLE BUILDINGS 302 (MAGNESIUM BUILDING), 417 (PAINT SHOP), 427 (PRIMARY SEWAGE TREATMENT PLANT), 432 (MAIN SEWER SAMPLER), AND 433 (STORAGE BUILDING), AND SELECTED SEWERS. THESE BUILDINGS WILL BE DISMANTLED TO THE TOP OF FOUNDATION; FOUNDATION AND UNDERGROUND UTILITIES REMOVAL WILL NOT BE INCLUDED. NONRADIOACTIVE CHEMICALLY CONTAMINATED MATERIAL WILL BE TRANSPORTED TO OFF-SITE LICENSED DISPOSAL FACILITIES; RADIOACTIVE MATERIAL WILL BE STORED ON SITE.

TABLE 1.2-2 Interim Response Actions (IRAs) (Continued)

15	DISMANTLE BUILDINGS 435, 436 (STORAGE BUILDINGS), 437 (RECORDS RETENTION BUILDING), 438 (STORAGE BUILDING), AND UNDERGROUND TANKS. THESE BUILDINGS AND THEIR FOUNDATIONS WILL BE REMOVED TO ALLOW CONSTRUCTION OF THE TEMPORARY STORAGE AREA. NONRADIOACTIVELY AND RADIOACTIVELY MATERIAL WILL BE STORED ON SITE.
15	DISMANTLE BUILDINGS 104 (LIME STORAGE), 412 (ELECTRICAL SUBSTATION), 413 (COOLING TOWER AND PUMP HOUSE), AND 428 (FUEL GAS PLANT). THESE BUILDINGS WILL BE DISMANTLED TO THE TOP OF FOUNDATION; FOUNDATION AND UNDERGROUND UTILITIES REMOVAL WILL NOT BE INCLUDED. NONRADIOACTIVE CHEMICALLY CONTAMINATED MATERIAL WILL BE TRANSPORTED TO OFF-SITE LICENSED DISPOSAL FACILITIES; RADIOACTIVE MATERIAL WILL BE STORED ON SITE.
16	DISMANTLE BUILDING 408 (MAINTENANCE AND STORES). THE BUILDING WILL BE DISMANTLED TO THE TOP OF FOUNDATION; FOUNDATION AND UNDERGROUND UTILITIES REMOVAL WILL NOT BE INCLUDED. NONRADIOACTIVE CHEMICALLY CONTAMINATED MATERIAL WILL BE TRANSPORTED TO OFF-SITE LICENSED DISPOSAL FACILITIES; RADIOACTIVE MATERIAL WILL BE STORED ON SITE.
16	REMOVE THE ON-SITE RAILROAD RAIL, TIES, AND BALLAST. CONTAMINATED MATERIALS WILL BE STOCKPILED ON THE CHEMICAL PLANT PROPERTY UNTIL FINAL DISPOSITION.
16	DISMANTLE BUILDINGS 407 (LABORATORY) AND 431 (LABORATORY SEWER SAMPLER). THESE BUILDINGS WILL BE DISMANTLED TO THE TOP OF FOUNDATION; FOUNDATION AND UNDERGROUND UTILITIES REMOVAL WILL NOT BE INCLUDED. NONRADIOACTIVE CHEMICALLY CONTAMINATED MATERIAL WILL BE TRANSPORTED TO OFF-SITE LICENSED DISPOSAL FACILITIES; RADIOACTIVE MATERIAL WILL BE STORED ON-SITE.
16	DISMANTLE BUILDINGS 410 (SERVICES BUILDING) AND 430 (AMBULANCE GARAGE). THESE BUILDINGS WILL BE DISMANTLED TO THE TOP OF FOUNDATION; FOUNDATION AND UNDERGROUND UTILITIES REMOVAL WILL NOT BE INCLUDED. NONRADIOACTIVE CHEMICALLY CONTAMINATED MATERIAL WILL BE TRANSPORTED TO OFF-SITE LICENSED DISPOSAL FACILITIES; RADIOACTIVE MATERIAL WILL BE STORED ON SITE.
16	DISMANTLE BUILDINGS 109 (WEST DRUM STORAGE), 110 (EAST DRUM STORAGE), 202 (GREEN SALT TANK FARM), 406 (WAREHOUSE), 414 (SALVAGE BUILDING), AND 415 (PROCESS INCINERATOR). THESE BUILDINGS WILL BE DISMANTLED TO THE TOP OF FOUNDATION; FOUNDATION AND UNDERGROUND UTILITIES REMOVAL WILL NOT BE INCLUDED. NONRADIOACTIVE CHEMICALLY CONTAMINATED MATERIAL WILL BE TRANSPORTED TO OFF-SITE LICENSED DISPOSAL FACILITIES; RADIOACTIVE MATERIAL WILL BE STORED ON SITE.

TABLE 1.2-2 Interim Response Actions (IRAs) (Continued)

17 DISMANTLE THE WATER TOWER (BUILDING 426) AND SURFACE TANKS (429). THESE STRUCTURES WILL BE DISMANTLED TO THE TOP OF FOUNDATION; FOUNDATION AND UNDERGROUND UTILITIES REMOVAL WILL NOT BE INCLUDED. NONRADIOACTIVELY AND CONTAMINATED MATERIAL AND RADIOACTIVELY CONTAMINATED MATERIAL WILL BE STORED ON SITE.
18 DISMANTLE BUILDING 101 (FEED PREPARATION AND SAMPLING). THIS BUILDING WILL BE DISMANTLED TO THE TOP OF FOUNDATION; FOUNDATION AND UNDERGROUND UTILITIES REMOVAL WILL NOT BE INCLUDED. NONRADIOACTIVE CHEMICALLY CONTAMINATED MATERIAL WILL BE TRANSPORTED TO OFF-SITE LICENSED DISPOSAL FACILITIES; RADIOACTIVE MATERIAL WILL BE STORED ON SITE.
18 DISMANTLE BUILDINGS 102A AND B (REFINERY TANK FARM), 105 (TBP AND ETHER EXTRACTION), AND 106 (PROOF SAMPLER). THESE BUILDINGS WILL BE DISMANTLED TO THE TOP OF FOUNDATION; FOUNDATION AND UNDERGROUND UTILITIES REMOVAL WILL NOT BE INCLUDED. NONRADIOACTIVE CHEMICALLY CONTAMINATED MATERIAL WILL BE TRANSPORTED TO OFF-SITE LICENSED DISPOSAL FACILITIES; RADIOACTIVE MATERIAL WILL BE STORED ON SITE.
18 DISMANTLE BUILDING 103 (DIGESTION AND DENITRATION BUILDING). THIS BUILDING WILL BE DISMANTLED TO THE TOP OF FOUNDATION; FOUNDATION AND UNDERGROUND UTILITIES REMOVAL WILL NOT BE INCLUDED. NONRADIOACTIVE CHEMICALLY CONTAMINATED MATERIAL WILL BE TRANSPORTED TO OFF-SITE LICENSED DISPOSAL FACILITIES; RADIOACTIVE MATERIAL WILL BE STORED ON SITE.
18 DISMANTLE BUILDING 108 (NITRIC ACID RECOVERY). THIS BUILDING WILL BE DISMANTLED TO THE TOP OF FOUNDATION; FOUNDATION AND UNDERGROUND UTILITIES REMOVAL WILL NOT BE INCLUDED. NONRADIOACTIVE CHEMICALLY CONTAMINATED MATERIAL WILL BE TRANSPORTED TO OFF-SITE LICENSED DISPOSAL FACILITIES; RADIOACTIVE MATERIAL WILL BE STORED ON SITE.
18 DISMANTLE BUILDING 201 (GREEN SALT PLANT). THIS BUILDING WILL BE DISMANTLED TO THE TOP OF FOUNDATION; FOUNDATION AND UNDERGROUND UTILITIES REMOVAL WILL NOT BE INCLUDED. NONRADIOACTIVE CHEMICALLY CONTAMINATED MATERIAL WILL BE TRANSPORTED TO OFF-SITE LICENSED DISPOSAL FACILITIES; RADIOACTIVE MATERIAL WILL BE STORED ON SITE.
18 DISMANTLE BUILDINGS 301 (METALS PLANT) AND 303 (CHIP STORAGE). THESE BUILDINGS WILL BE DISMANTLED TO THE TOP OF FOUNDATION; FOUNDATION AND UNDERGROUND UTILITIES REMOVAL WILL NOT BE INCLUDED. NONRADIOACTIVE CHEMICALLY CONTAMINATED MATERIAL WILL BE TRANSPORTED TO OFF-SITE LICENSED DISPOSAL FACILITIES; RADIOACTIVE MATERIAL WILL BE STORED ON SITE.

TABLE 1.2-2 Interim Response Actions (IRAs) (Continued)

18	DISMANTLE BUILDINGS 403 (CHEMICAL PILOT PLANT), 404 (METALLURGICAL PILOT PLANT), AND 405A AND B (PILOT PLANTS AUXILLIARY). THESE BUILDINGS WILL BE DISMANTLED TO THE TOP OF FOUNDATION; FOUNDATION AND UNDERGROUND UTILITIES REMOVAL WILL NOT BE INCLUDED. NONRADIOACTIVE CHEMICALLY CONTAMINATED MATERIAL WILL BE TRANSPORTED TO OFF-SITE LICENSED DISPOSAL FACILITIES; RADIOACTIVE MATERIAL WILL BE STORED ON SITE.
19	THIS IRA INITIATES A DECONTAMINATION/TREATMENT FACILITY FOR THE SITE. EARLY TREATMENT PROCESSES WILL BE AIMED AT DECONTAMINATION OF BUILDING MATERIALS. ADDITIONAL PROCESSES (CRUSHING, SHREDDING, ETC.) CAN BE ADDED AS REQUIRED.
20	CONSTRUCT WASTEWATER TREATMENT PLANT FOR TREATMENT OF THE RAFFINATE PIT WATER AND THE CONTAMINATED WATER ON THE CHEMICAL PLANT PROPERTY. THIS WATER WILL BE COLLECTED, TREATED, AND THEN DISCHARGED AFTER VERIFYING THAT THE EFFLUENT MEETS RELEASE LIMITS TO BE ESTABLISHED IN CONJUNCTION WITH EPA REGION VII AND THE MISSOURI DNR. THE SYSTEM WILL BE DESIGNED WITH TWO TRAINS WHICH CONTINUOUSLY TREAT 440 M^3/D (115,200 GPD) AND 218 M^3/D (57,600 GPD), RESPECTIVELY. THE INITIAL WATER VOLUME TO BE TREATED IS ESTIMATED TO BE 950,000 M^3 (251,000,000 GAL).
21	CONSTRUCT WASTEWATER TREATMENT PLANT TO TREAT WATER IN THE QUARRY POND, WITHIN THE BULK MATERIAL IN THE QUARRY, AND STORM WATER FALLING ON THE QUARRY DURING EXHUMATION. THIS WATER WILL BE COLLECTED, TREATED, AND DISCHARGED AFTER VERIFYING THAT THE EFFLUENT MEETS RELEASE LIMITS TO BE ESTABLISHED IN CONJUNCTION WITH EPA REGION VII AND THE MISSOURI DNR. THE SYSTEM WILL BE DESIGNED TO TREAT 440 M^3/D (115,200 GPD). THE INITIAL VOLUME OF PONDED WATER TO BE TREATED IS ESTIMATED TO BE 11,000 M^3 (3,000,000 GAL).

TABLE 1.3-1 Chemicals Used in Former Explosives Production Facility and Uranium Feed Materials Processing Plant

TNT, DNT Production (chemicals used at site)	
Ammonia	Oleum (sulfuric acid)
Caustic soda	Toluene
Fuel oil	

Uranium Processing	
Nitric acid	Sodium zeolite
Sodium hydroxide	Sulfite
Sulfuric acid	Helium
Sodium carbonate	Hydraulic oil
Phosphate	Uranium metal
UNH (uranium amine)	Laboratory chemicals
UO_3 (uranyl oxide)	Perchloric acid
Uranium ore concentrate	Grease
Lime	Chlorine
Ether	Chromium phosphates
Ethylene glycol	Acid (misc.)
Tributyl phosphate	Benzene
Ferric nitrate	Corrosive resistant coating
Paint and catalysts	Epoxy paint and catalysts
Anhydrous hydrogen	Unspecified flammable materials
Ammonia	Hot die lube
Green salt (uranium tetrafluoride)	Linseed oil (boiled)
Hydrofluoric acid	Lubriplate
Hydrogen gas	Melcolene
Nitrogen gas	Metalube
Orange oxide (uranium oxide orange)	Methylene glycol
Propane	Methylisobutyl ketone
Caustic liquid	Motor oil
Magnesium	Paint
Graphite sheets	Paint solvents
Diesel fuel	Phenoline thinner
Fuel oil	Polyclad
Gasoline	Polyurethane paint
Hydrogen zeolite	Rustbond primer
Refrigeration brine	Tar

Source: MKF and JEG 1988l; reproduced from MKF and JEG 1989a

TABLE 1.3-2 Chemical Substances Analyzed in Water and Soil Investigations

Group	Chemical	Soil	Groundwater	Surface Water
Metals	Aluminum	X	X	X
	Antimony	X	X	X
	Arsenic	X	X	X
	Barium	X	X	X
	Cadmium	X	X	X
	Calcium	X	X	X
	Chromium	X	X	X
	Cobalt	X	X	X
	Copper	X	X	X
	Iron	X	X	X
	Lead	X	X	X
	Lithium	X	X	X
	Magnesium	X	X	X
	Manganese	X	X	X
	Mercury	X	X	X
	Nickel	X	X	X
	Potassium	X	X	X
	Selenium	X	X	X
	Sodium	X	X	X
	Thallium	X	X	X
	Vanadium	X	X	X
	Zinc	X	X	X
Anions	Chloride	X	X	X
	Fluoride	X	X	X
	Nitrate	X	X	X
	Sulfate	X	X	X
	Cyanide	--	X	--
Organics	Hexane	--	(a)	--
	Polynuclear aromatic hydrocarbons	(b)	--	--
	Polychlorinated biphenyls	(b)	(a)	--
	Pesticides	--	(a)	--
	Phenol	--	X	--
	Tributylphosphate	--	(a)	--
Nitroaromatics	2,4,6-Trinitrotoluene	X	X	(c)
	2,4-Dinitrotoluene	X	X	(c)
	2,6-Dinitrotoluene	X	X	(c)
	Nitrobenzene	X	X	(c)
	1,3,5-Trinitrobenzene	X	X	(c)
	1,3-Dinitrobenzene	X	X	(c)
Radionuclides	Uranium-238	(d)	X	X
	Radium-226	(d)	X	X
	Thorium-230	(d)	X	X
	Thorium-232	(d)	X	X
	Radon[e]	--	--	--
Other	Asbestos[f]	X	--	--

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TABLE 1.3-2 Chemical Substances Analyzed in Water and Soil Investigations (Continued)

Group	Chemical	Soil	Groundwater	Surface Water

Source: MKF and JEG 1987o and 1988l; reproduced from JEG 1989

[a] Groundwater samples were analyzed for volatile, acid or base-neutral organics.

[b] Analysis was performed in the Phase II soil investigation (MKF and JEG 1989a).

[c] Nitroaromatics were not measured at regular surface water sites but were measured in raffinate pit waters.

[d] Not included in Phase I Chemical Soils Report; reported in UNC 1988.

[e] Radon measurements were made as part of air monitoring program.

[f] In addition to soils, asbestos was measured in air monitoring program.

TABLE 1.3-3 Primary Contaminants for the Weldon Spring Site

Radiological Parameters	
Uranium-238	Gross alpha
Thorium-230	Gross beta
Thorium-232	Gamma radiation
Radium-226	

Organics	
Nitrobenzene	2,4,6-Trinitrotoluene (TNT)
2,4-Dinitrotoluene (2,4 DNT)	Polychlorinated biphenyls (PCBs)
2,6-Dinitrotoluene (2,6 DNT)	

Inorganics/Metals/Asbestos		
Chromium	Zinc	Sulfate
Lithium	Molybdenum	Fluoride
Magnesium	Arsenic	Asbestos
Nickel	Manganese	Nitrate
Vanadium	Barium	
Iron	Beryllium	
Lead		

TABLE 1.4-1 Laws and Orders Potentially Applicable or Relevant and Appropriate to the Weldon Spring Site Remedial Action Project

Federal Laws
Archaeological and Historic Preservation Act of 1974
Archaeological Resources Protection Act of 1979
Atomic Energy Act of 1954, as amended
Clean Air Act of 1963, as amended
Clean Water Act, as amended (also referred to as Federal Water Pollution Control Act of 1972, as amended)
Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended
Department of Energy Organization Act of 1977
Endangered Species Act of 1973, as amended
Fish and Wildlife Coordination Act of 1934, as amended
Hazardous Materials Transportation Act of 1974, as amended
National Environmental Policy Act of 1969, as amended
Noise Control Act of 1972
Noise Pollution and Abatement Act of 1970
Occupational Safety and Health Act of 1970
Safe Drinking Water Act of 1974
Soil and Water Resources Conservation Act of 1977
Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984
Superfund Amendments and Reauthorization Act of 1986
Toxic Substance Control Act of 1976
Uranium Mill Tailings Radiation Control Act of 1978

TABLE 1.4-1 Laws and Orders Potentially Applicable or Relevant and Appropriate to the Weldon Spring Site Remedial Action Project (Continued)

Executive Orders
Executive Order 11490, Assigning Emergency Preparedness Functions to Federal Departments and Agencies
Executive Order 11514, Protection and Enhancement of Environmental Quality
Executive Order 11738, Providing for Administration of the Clean Air Act and the Federal Water Pollution Control Act with Respect to Federal Contracts, Grants, or Loans
Executive Order 11807, Occupational Safety and Health Programs for Federal Employees
Executive Order 11988, Floodplain Management
Executive Order 11990, Protection of Wetlands
Executive Order 11991, Relating to the Protection and Enhancement of Environmental Quality
Executive Order 12088, Federal Compliance with Pollution Control Standards
Executive Order 12146, Management of Federal Legal Resources
Executive Order 12480, Superfund Implementing

Department of Energy Orders	
Order 1540.1	Materials Transportation and Traffic Management
Order 4240.1H	Designation of Major System Acquisition and Major Projects
Order 4320.1A	Site Development and Facility Utilization Planning
Order 4700.1	Project Management System
Order 5400.5	Radiation Protection of the Public and the Environment
Order 5440.1C	Implementation of the National Environmental Policy Act
Order 5480.1B	Environment, Safety, and Health Program for Department of Energy Operation
Order 5480.4	Environmental Protection, Safety, and Health Protection Standards
Order 5480.14	Comprehensive Environmental Response, Compensation, and Liability Act Program
Order 5481.1B	Safety Analysis Review System

TABLE 1.4-1 Laws and Orders Potentially Applicable or Relevant and Appropriate to the Weldon Spring Site Remedial Action Project (Continued)

Department of Energy Orders (Continued)	
Order 5482.1B	Environmental Protection, Safety, and Health Protection Appraisal Program
Order 5483.1A	Occupational Safety and Health Program for Government-Owned Contractor-Operated Facilities
Order 5484.1	Environmental Protection, Safety, and Health Protection Information Reporting Requirements
Order 5000.3	Unusual Occurrence Reporting System
Order 5500.2	Emergency Planning, Preparedness and Response for Operations
Order 5700.6C	Quality Assurance
Order 5820.2	Radioactive Waste Management

Missouri State Environmental Laws
Missouri Clean Water Act
Missouri Clean Air Act
Missouri Hazardous Waste Management Law
Missouri Solid Waste Management Law
Missouri Land Reclamation Act
Governor's Executive Order 82-19 on Flood Plain Management
Missouri 401 Water Quality Certification

TABLE 2.1-1 Quality Assurance Program Elements

QA Elements	Information Provided In
1. Title Page	EQAPjP[a]
2. Table of Contents	EQAPjP
3. Project Description	EQAPjP RI/FS -EIS Work Plan[b]
4. Project Organization and Responsibility	EQAPjP QAP[c] RI/FS-EIS Work Plan
5. Quality Assurance Objectives for Data Measurement	EQAPjP Sampling Plans
6. Sampling Procedures	EQAPjP SOPs[d] Sampling Plans
7. Sample and Document Custody	EQAPjP Sampling Plans SOPs Laboratory Procedures[e]
8. Calibration Procedures	EQAPjP SOPs Laboratory Procedures
9. Analytical Procedures	EQAPjP Laboratory Procedures
10. Data Reduction, Validation, and Reporting	Sampling Plans SOPs EQAPjP EDAP[f]
11. Internal Quality Control	EQAPjP QAP Sampling Plans SOPs Laboratory Procedures
12. Audits	EQAPjP QAP
13 Preventive Maintenance	EQAPjP Laboratory Procedures
14. Specific Routine Measures Used to Assess Data (Precision, Accuracy and, and Completeness)	EQAPjP Sampling Plans SOPs
15. Corrective Action	EQAPjP QAP
16. Quality Assurance Reports to Management	EQAPjP QAP

Notes:

[a] Environmental Quality Assurance Project Plan (QAMS 005/80)

[b] Work Plan for the Remedial Investigation and Feasibility Study-Environmental Impact Statement for the Weldon Spring Site, Weldon Spring, Missouri (ORNL 1988)

[c] Quality Assurance Program (NQA-1 1986)

[d] SOPs: Standard Operating Procedures

[e] Laboratory Procedures: Analytical Limits/Detection Methods

[f] Environmental Data Administration Plan

TABLE 2.3-1 Analytical Methods

Parameter	Water Method	Soil/Sediment Method
Acidity	EPA 305.1	EPA 305.1
Alkalinity	EPA 310.1	EPA 310.1
Asbestos	EPA Methodology	EPA Methodology
Carbonate/Bicarbonate	Standard Methods 203	Standard Methods 203
Chloride	EPA 325.1/325.3	EPA 325.1/325.3
Chlorinated Hydrocarbons	EPA 612	EPA 612
Chlorine, total residual	EPA 330.1	EPA 330.1
Conductance, specific	EPA 120.1	EPA 120.1
Corrosivity	EPA 1110	EPA 1110
Dissolved Oxygen	EPA 360.1	EPA 360.1
Dissolved Solids	EPA 160.1/160.2	EPA 160.1/160.2
Fluoride (distillation)	EPA 340.1	EPA 340.1
Fluoride (electrode)	EPA 340.2	EPA 340.2
Ignitability	EPA 1010/1020 160.2	EPA 1010/1020 160.2
Lithium	Standard Methods 317	Standard Methods 317
Mercury	EPA 245.1	EPA 245.1
Metals Only, EP Toxicity	EPA 1310	EPA 1310
Metals, total (CLP listing) ICP metals, Furnace metals	EPA 200 series	EPA 7000 series
Moisture Content	EPA 160.3	EPA 160.3
Nitrate	EPA 352.1	EPA 352.1
Nitrate + Nitrite	EPA 353.2	EPA 353.2
Nitrite	EPA 354.1	EPA 354.1
Nitroaromatics	EPA 609	EPA 609
Nitrogen series along with chloride, fluoride and sulfate may be analyzed utilizing the ion chromatograph method - EPA 300.0		
Nitrogen, ammonia	EPA 350.1	EPA 350.1
Phenols	EPA 420.1/604	EPA 420.1/604
Priority Pollutants BNAs	EPA 625	EPA 8250

TABLE 2.3-1 Analytical Methods (Continued)

Parameter	Water Method	Soil/Sediment Method
Volatiles	EPA 624	EPA 8240
Metals	EPA 200 series	EPA 7000 series
Pest/PCBs	EPA 608	EPA 8080
Cyanide	EPA 335.2	EPA 9010
Phenols	EPA 420.1	EPA 600/4-81-055
Radiological Parameters:		
Uranium-natural	EPA 908/ASTM	EPA 908/ASTM
Uranium-238	EPA 520/5-84-006	EPA 520/5-84-006
Radium-226	EPA 904	EPA 904
Radium-228	EPA 903.1	EPA 903.1
Thorium-230,232	EPA 00/07*	EERF 00.07[a]
Gross Alpha	EPA 900.0	EPA 900.0
Gross Beta	EPA 900.0	EPA 900.0
Reactivity	EPA 9010/9030	EPA 9010/9030
Sulfate	EPA 375.4/375.2	EPA 375.4/375.2
Suspended Solids	EPA 160.1/160.2	EPA 160.1/160.2
TNT, 2-4 and 2-6 DNT, nitrobenzene and trinitrobenzene	USATHAMA 8G	USATHAMA 8H
TOC, total Organic Carbon	EPA 415.1	EPA 415.1
Total Phosphorus	EPA 365.4	EPA 365.4
Total Solids	EPA 160.3	EPA 160.3

[a]EPA Eastern Environmental Radiological Facility

TABLE 2.5-1 Data Quality Assessments

Data Characteristic	Record	Criteria
Precision	Lab and field duplicates	Duplicate QC limits
Accuracy	Lab spiked results Lab control sample results	Spiked QC limits Lab control sample QC limits
Representativeness	Database	Outliers at the 99% confidence level
Completeness	Database	95% of acceptable data
Comparability	Database	QC limits at 99% confidence level for results of duplicate samples from different labs
Database Accuracy	Original lab data	99.5% accurate at 95% confidence level

TABLE 3.1-1 Summary of Contaminant Sources

SOURCE	CONTAMINANTS	AFFECTED MEDIA
Weldon Spring Ordnance Works	Nitroaromatic compounds	Soil Surface Water Groundwater
Chemical Plant Buildings & Facilities	Asbestos, PCBs, Uranium, Thorium, Radium, Metals	Soil Surface Water Groundwater
Raffinate Pit Area	Uranium, Thorium, Radium, Nitrate, Metals	Soil Surface Water Groundwater
Ash Pond Area (including south dump)	Nitroaromatic compounds, Uranium, Thorium, Radium, Nitrate	Soil Surface Water Groundwater
North Dump	Uranium	Soil
Frog Pond	Nitroaromatic compounds, Uranium, Thorium, Radium, Metals	Soil Surface Water
Southeast Drainage	Uranium, Thorium, Radium, Nitrate	Soil Surface Water

TABLE 3.4-1 Groundwater Sample Analysis and Preservation

Analytical Parameter	Sample Container	Sample Preservative Used by Lab
Total Organic Carbons	One 8-oz amber jug	H_2SO_4 to pH < 2.0 and refrigerated
Inorganics Nitrate Sulfate Fluoride Chloride Total Dissolved Solids	One 250-ml Plastic One 500-ml polyethylene plastic jug	refrigerated
Nitroaromatic Compounds 2,4,6-trinitrotoluene 2,4-dinitrotoluene 2,6-dinitrotoluene 1,3,5-trinitrobenzene 1,3-dinitrobenzene Nitrobenzene	One-gallon amber jug	refrigerated
Radiological Parameters Natural uranium Radium-226 Radium-228 Thorium-230 Thorium-232 Gross Alpha Gross Beta	One-gallon polyethylene plastic jug	HNO_3 or HCl to pH <2.0 and refrigerated

TABLE 3.7-1 Summary of Boreholes and Trenches Used in Database

	Source	Year	Number of Boreholes	Trenches	Number of Tests Performed
1.	Corps of Engineers	1954	11	0	1
2.	BNI	1982-1986	60	20	61
	BNI	1987	--	--	143
3.	PMC	1988-1990	81	51	788
	TOTAL	1954-1990	152	71	993

TABLE 3.7-2 Summary of Geotechnical Investigations

	COE 1954	Reitz 1963	BNI 1983	BNI 1986	PMC Chemical Plant	PMC Raffinate Pit 4	PMC Admin. Bldg.	PMC Borrow Sources
Number of Boreholes	11	12	26	34	18	6	5	
Number of Test Pits			15	5	21			30
LABORATORY TEST								
Moisture Content	83	70	75	25	112	16	11	20
Atterberg Limits	15	2	22	30	64	14	10	23
Compaction	1	2			18	2	1	14
Dry Unit Weight			59	33	49	10	8	14
Specific Gravity			20	32	34	3	3	13
Gradation			22	40	11	1		6
Sieve with Hydrometer					49	15	6	23
Unconfined Compression (undisturbed)	11							
Unconfined Compression (remolded)	5							
Direct Shear (UU,CU,CD)	5							
Consolidation	2				21		3	3
Permeability		3	5		41	1		11
Vane Shear Strength (Peak)		29						
Vane Shear Strength (cont.)		27						
Triaxial Shear Strength[a]								
(UU) Remolded		5			15		2	8
(CD) multi-stage			8					
(CD) multi-specimen			3					
(CU) multi-stage			5		12	5		4
(CU) multi-specimen			4					
Centrifuge Moisture Equivalent				20				
Cation Exchange Capacity				5	8			6
Distribution Ratio				5				
Shrinkage Limit					4		7	4

[a] CU = Consolidated, undrained
CD = Consolidated, drained
UU = Unconsolidated, undrained

TABLE 4.1-1 Major Buildings, Structures and Facilities at the Chemical Plant

Building or Area	Name/Function
101	Sampling Plant
102	Refinery Tank Farm
103	Digestion and Denitration
104	Lime Storage
105	Ether Extraction
106	Refinery Sewer Sampler
108	Nitric Acid Plant
109	West Drum Storage
110	East Drum Storage
201	Green Salt Building
202 (A&B)	Green Salt Tank Farm
301	Metals Building; Concrete Pad Storage Area and Drum Packaging Stations on South Side of Building
302	Magnesium Building
303	Foundation (only remaining structure)
401	Steam Plant; Coal Conveyor and Coal Yard North of Building 401; Smokestacks West of Building 401
403	Chemical Pilot Plant and Filter and Substation North of Buildings 403 and 404
404	Metal Pilot Plant
405 (A&B)	Pilot Plant Maintenance Building
406	Warehouse
407	Laboratory
408	Maintenance and Stores
409	Administration Building
410	Services Building
412	Electrical Substation
413	Cooling Tower and Pump House
414	Salvage Building
415	Process Incinerator
417	Paint Shop
426	Water Tower
427	Primary Sewage Treatment Plant
428	Fuel Gas Plant
429	Reserve Water Facilities
430	Ambulance Garage
431	Laboratory Sewer Sampler
432	Main Sewer Sampler
433-436	Storage Buildings
437	Records Retention Building
438	Storage Building
439	Fire Training Building
441	Cylinder Storage
443	Fire Training Storage Building

Source: ORNL 1988

TABLE 4.2-1 Precipitation

	Total Precipitation (inches)[a]				Snow, Sleet (inches)		
	Mean[b]	Max Monthly[b]	Min Monthly[b]	Max 24 hrs[b]	Mean[b]	Max Monthly[b]	Max 24 hrs[c]
Jan	1.74	5.47	0.04	1.89	5.0	27.2	11.2
Feb	2.26	6.33	0.23	2.81	4.3	12.2	8.3
Mar	3.07	6.15	0.75	2.95	3.8	20.0	10.0
Apr	3.72	8.29	1.26	2.40	0.2	4.0	6.1
May	3.98	8.47	1.30	2.70	0	0	T
Jun	3.93	12.32	0.45	4.50	0	0	0
Jul	4.27	10.57	0.39	3.86	0	0	0
Aug	2.66	6.62	0.10	2.54	0	0	0
Sep	2.97	8.19	0.10	2.88	0	0	0
Oct	2.70	7.46	0.30	3.39	0	0	T
Nov	2.69	7.13	0.33	2.75	1.5	11.0	10.3
Dec	2.52	8.20	0.07	3.40	2.4	26.5	12.0
Year	36.51	12.32	0.04	4.50	17.2	27.2	12.0

T = Trace

(a) Total precipitation includes water equivalent of snow/sleet.

(b) Based on data recorded at St. Charles for the period 1951 to 1986 (NOAA 1984 and 1981-1986).

(c) Based on data recorded at St. Louis for the period 1941 to 1970 (Ruffner 1978).

See Section 12 for SI conversion factors.

TABLE 4.2-2 Frequency of Extreme Precipitation

	Mean number of Days[a] Precipitation Equals or Exceeds		
	0.10 inch	0.50 inch	1.00 inch
Jan	4	1	0
Feb	4	1	0
Mar	6	2	1
Apr	7	2	1
May	7	3	1
Jun	6	2	1
Jul	6	3	1
Aug	5	2	1
Sep	5	2	1
Oct	5	2	1
Nov	5	1	1
Dec	4	1	1
Annual Total	64	22	10

[a]Based on data recorded at St. Charles for the period 1951 to 1980 (NOAA 1984).
See Section 12 for SI conversion factors.

TABLE 4.2-3 Temperatures

	Mean Temperatures (°F)[a]			Extreme Temperatures (°F)[a]	
	Daily Maximum	Daily Minimum	Monthly	Record Maximum	Record Minimum
Jan	38.4	18.8	28.6	75 +	-19
Feb	44.0	23.5	33.8	82	-13
Mar	54.1	32.6	43.4	88 +	-7
Apr	68.2	44.7	56.5	91 +	24
May	77.0	53.2	65.2	100 +	30 +
Jun	85.6	62.7	74.2	105 +	41 +
July	89.7	66.8	78.3	115 +	47 +
Aug	87.9	64.1	76.1	107	46 +
Sep	81.4	56.2	68.9	106 +	31
Oct	70.0	44.8	57.5	97	21 +
Nov	55.2	34.1	44.6	87 +	0 +
Dec	43.2	24.3	33.8	75 +	-13
Year	66.2	43.8	55.1	115	-19

(a) Based on data recorded at St. Charles for the period 1951 through 1986 (NOAA 1984; NOAA 1981-1986).

\+ Occurred on two or more dates.

See Section 12 for SI conversion factors.

TABLE 4.2-4 Frequency of Temperature Extremes[a]

Mean Number of Days

	Maximum is 90°F and above	Maximum is 32°F and below	Minimum is 32°F and below	Minimum is 0°F and below
Jan	0	11	27	3
Feb	0	6	23	1
Mar	0	1	16	0
Apr	0	0	3	0
May	2	0	0	0
Jun	10	0	0	0
July	16	0	0	0
Aug	14	0	0	0
Sep	6	0	0	0
Oct	1	0	3	0
Nov	0	1	14	0
Dec	0	6	25	1
Year	49	25	111	5

(a) Based on data recorded at St. Charles for the period 1951 through 1980 (NOAA 1984).

See Section 12 for SI conversion factors.

TABLE 4.2-5 Relative Humidity and Heat Stress Factors

	Relative Humidity (%)[a]				Heat Stress Factor[b]
	Midnight	6:00 am	Noon	6:00 pm	
Jan	76	81	64	68	-
Feb	75	79	60	63	-
Mar	73	80	57	58	-
Apr	70	77	54	53	-
May	75	82	56	55	O
Jun	78	84	57	56	f
July	78	86	57	56	f
Aug	80	89	57	58	f
Sep	83	91	60	63	O
Oct	76	84	55	60	-
Nov	78	84	62	68	-
Dec	81	85	69	74	-

(a) Relative humidity based on data recorded at St. Louis for the period 1941 to 1970 (Ruffner 1978).

(b) Heat Stress Factors for St. Louis (Rudloff 1981):
O Stress occurs occasionally and only for a short period during the daytime, generally in the afternoon.
f Stress occurs frequently; often for several hours in the daytime.

TABLE 4.2-6 Wind Speed and Direction[a]

	Mean Wind Speed (mph)	Prevailing Direction	Fastest Mile of Wind (mph)	Direction
Jan	10.2	NW	39	W
Feb	10.8	NW	46	NW
Mar	11.7	WNW	45	NE
Apr	11.4	WNW	45	W
May	9.5	S	42	SE
Jun	8.6	S	60	SE
July	7.7	S	40	NW
Aug	7.4	S	38	NW
Sep	8.0	S	39	SW
Oct	8.5	S	48	SW
Nov	9.9	S	41	S
Dec	10.2	WNW	44	W
Year	9.5	S	60	SE

(a) Based on data recorded at St. Louis for the period 1941 to 1970 (Ruffner 1978).

See Section 12 for SI conversion factors.

TABLE 4.2-7 Precipitation Recorded at the Weldon Spring Site

Month	Precipitation (inches)[a]					
	1983	1984	1985	1986	1987	1988
Jan	NA	0.83	0.08	NA	NA	0.99
Feb	NA	2.48	5.43	NA	0.39	2.35
Mar	NA	7.99	5.55	NA	3.58	3.02
Apr	3.35	9.84	3.31	NA	2.32	1.67
May	6.89	5.63	2.40	NA	1.88	1.33
Jun	4 25	1.18	6.81	NA	1.94	1.75
Jul	3.43	1.14	3.46	NA	5.05	6.56
Aug	5.47	1.93	4.65	NA	1.20	2.13
Sep	0.04*	2.24*	0.94	NA	2.56	1.15
Oct	3.31	6.14	2.64	NA	2.19	3.24
Nov	4.69	4.96	9.96	NA	4.40	6.54
Dec	2.05	6.02	2.40	NA	1.43	1.34
Year	--	**50.39**	**47.64**	--	--	**32.07**

(a) 1983-1985 data recorded at the raffinate pits (BNI 1986a) and 1987-1988 data recorded at the chemical plant (MKF and JEG 1989f).

NA Not available

* Partial data

-- Incomplete

See Section 12 for SI conversion factors.

TABLE 4.2-8 Temperatures Recorded at the Weldon Spring Site

	MONTHLY AVERAGE TEMPERATURE (°F)[a] 1983	1984	1985
Jan	NA	32.7	22.8
Feb	NA	44.2	30.2
Mar	NA	36.1	48.9
Apr	50.5	53.1	58.5
May	63.1	62.1	68.0
Jun	75.4	76.3	70.2
Jul	82.9	76.3	76.8
Aug	82.6	77.5	71.1
Sep	71.4	73.4*	68.2
Oct	61.2	60.3	60.8
Nov	50.9	44.4	45.0
Dec	24.1	41.4	27.0
Year	--	55.8	53.7

[a] Based on data recorded at the raffinate pits (Shell Engineering, Inc. 1985a).

NA Not available

* Partial data

-- Incomplete

See Section 12 for SI conversion factors.

TABLE 4.3-1 Borehole and Trench Numbering System

Letter Designation	Numbering System	Firm/Agency	
B-1	Borehole number - raffinate pit area	Bechtel National, Inc.	1983
B-15A	Replacement hole for B-15		
G-1	Borehole number - chemical plant area -geotechnical investigations	Bechtel National, Inc.	1986
GMW-3	Boreholes completed as a monitor well	Bechtel National, Inc.	1986
G-54-1 - G-54-11	Borehole number - chemical plant area	Corps of Engineers	1954
GT-2T-71	Test pit number - geotechnical investigations chemical plant area	PMC	1988
GT-31 - GT-36	Borehole number - geotechnical investigations raffinate pit no. 4	PMC	1988
GT-37 - GT-41	Borehole number - geotechnical investigations Admin. Bldg. area	PMC	1988
GT-42 - GT-57	Borehole number - geotechnical investigations chemical plant area	PMC	1988
AH-1	Angle borehole number - chemical plant area	PMC	1989
GTS-1 - GTS-7	Borehole number - temporary storage area	PMC	1989
GT-58P - GT-67P	Borehole number - chemical plant area - P added if hole completed as piezometer	PMC	1989
MW-2001	Monitor well number - within chemical plant area	PMC	1988-1989
MW-3001	Monitor well number - wells completed adjacent to the raffinate pit area	PMC	1988-1989
MW-4001	Monitor well number - wells completed outside Weldon Spring site area	PMC	1988-1989
PW-1	Pumping well number	PMC	1989
OB-2j	Observation well adjacent to pumping well	PMC	1989
T-1	Backhoe trench number	Bechtel National, Inc.	1986
TR-1	Trench number	Bechtel National, Inc.	1983
TPBS-1	Test pit number - borrow source area	PMC	1989
TPMS-1	Test pit number - materials storage area	PMC	1990

TABLE 4.3-2 Boreholes and Trenches Used in the Geologic Database

WSSRAP ID	Old ID	Northing[a] (ft)	Westing (ft)	Ground Elevation (ft)	Depth To Filter Top (ft)	Total Depth (ft)
B-1		99507.3	52283.3	638.9	17.5	21.5
B-10		99257.8	52044.6	665.8	22.3	25.6
B-12		100003.4	51968.9	663.6	27.8	30.0
B-13		99890.2	51545.7	663.8	0.0	27.0
B-14		99236.9	50965.7	653.5	13.7	21.8
B-15		99420.6	51025.4	663.9	0.0	30.0
B-15A		99410.5	51021.6	663.4	24.3	37.0
B-18		99218.8	50750.8	658.8	22.3	24.4
B-19		99596.7	50805.6	645.4	0.0	21.5
B-20		99597.6	50956.6	643.8	27.8	29.5
B-22		99931.7	51266.7	647.4	12.0	15.0
B-5		99235.3	50975.6	653.3	18.0	21.5
B-6		99050.0	51224.3	663.7	17.7	21.5
B-7		98764.4	51596.9	658.2	20.1	22.8
B-8		98750.8	51969.1	646.7	26.2	33.0
G-1		98473.2	50581.0	668.0	0.0	84.0
G-13		99521.0	50517.0	654.7	0.0	71.0
G-14		99199.0	49935.0	655.8	0.0	76.4
G-15		98924.0	50447.0	658.0	0.0	75.5
G-16		98051.0	51007.0	656.7	0.0	80.4
G-18		101350.0	52551.0	633.8	0.0	79.0
G-19		101700.0	51950.0	619.4	0.0	66.0
G-2		100449.9	50577.3	657.9	0.0	64.0
G-20		101850.0	50950.0	630.3	0.0	66.0
G-21		101336.0	52116.0	638.7	0.0	74.5
G-2A		100440.0	50578.1	658.0	0.0	83.0
G-3		101195.3	50948.6	654.0	0.0	88.2
G-4		101140.6	51295.6	644.0	0.0	81.0
G-5		100650.0	51250.0	635.9	0.0	73.0
G-54-1		99718.0	49700.0	657.0	0.0	28.8
G-54-10		100681.0	50603.0	661.6	0.0	67.7
G-54-11		100761.0	50601.0	659.6	0.0	64.0
G-54-2		100606.0	50167.0	659.0	0.0	46.5
G-54-3		101491.0	50635.0	630.0	0.0	24.5
G-54-4		101103.0	49872.0	640.3	0.0	26.8
G-54-5		100388.0	49872.0	656.0	0.0	36.4
G-54-6		99250.0	50583.0	660.0	0.0	47.0
G-54-7		99918.0	50370.0	664.5	0.0	52.5
G-54-8		100810.0	50838.0	654.4	0.0	63.6
G-54-9		100732.0	50510.0	659.6	0.0	65.4
G-6		100450.0	51150.0	639.7	0.0	67.0
G-7		101200.0	50450.0	633.3	0.0	64.0
G-8		100450.0	49900.0	655.3	0.0	75.0
G-9		100065.0	49905.0	656.0	0.0	76.0
GT-2T-71		100381.3	49131.3	654.7	0.0	12.0
GT-2T-72		100864.2	49426.0	639.4	0.0	12.0
GT-2T-73		99346.1	49908.1	656.2	0.0	12.0
GT-2T-74		100002.3	49862.6	655.7	0.0	12.0
GT-2T-75		100970.4	50218.3	650.0	0.0	12.0

[a] Atomic Energy Commission Coordinate System
See Section 12 for SI conversion factors.

TABLE 4.3-2 Boreholes and Trenches Used in the Geologic Database (Continued)

WSSRAP ID	Old ID	Northing[a] (ft)	Westing (ft)	Ground Elevation (ft)	Depth To Filter Top (ft)	Total Depth (ft)
GT-2T-76		99071.0	50508.2	660.6	0.0	12.0
GT-2T-77		99739.0	50636.7	649.9	0.0	12.0
GT-2T-78		100495.3	50768.8	657.6	0.0	12.0
GT-2T-79		101256.9	51188.4	650.3	0.0	12.0
GT-2T-80		98894.6	51404.7	661.1	0.0	12.0
GT-2T-81		98818.2	51869.6	664.7	0.0	12.0
GT-2T-82		100196.1	52173.4	638.3	0.0	11.0
GT-31		99119.3	52130.8	632.5	4.0	34.0
GT-32		99939.8	52126.5	641.3	3.0	24.0
GT-33		99901.6	52079.0	664.6	4.0	51.0
GT-34		99546.3	52202.1	663.8	4.0	54.5
GT-35		99115.1	52039.3	664.3	4.0	54.0
GT-36		98864.4	52006.5	663.2	3.5	47.8
GT-37	GT-2B37	99800.0	49522.0	657.0	0.0	24.0
GT-38	GT-2B38	99700.0	49570.0	657.7	0.0	26.5
GT-39	GT-2B39	99900.0	49470.0	656.7	0.0	22.5
GT-40	GT-2B40	99700.0	49470.0	657.4	0.0	23.0
GT-41	GT-2B41	99900.0	49570.0	55.9	0.0	21.5
GT-42		101206.0	50804.6	648.0	0.0	57.0
GT-43		100736.6	50786.1	654.2	0.0	78.5
GT-44		101030.8	49875.6	643.3	0.0	49.5
GT-45		100775.2	49344.2	645.0	0.0	41.5
GT-46		100364.8	49340.0	651.8	0.0	40.5
GT-47		100024.8	50128.9	660.3	0.0	55.5
GT-48		99353.0	50568.1	657.7	0.0	53.6
GT-49		98517.3	50560.8	665.3	0.0	29.5
GT-50		99223.0	50905.0	653.8	0.0	55.5
GT-51		99725.9	50758.5	646.1	0.0	49.9
GT-52		100577.0	50335.0	658.8	0.0	70.2
GT-53		100284.0	50781.0	655.5	0.0	42.5
GT-54		100618.0	49635.0	652.4	0.0	50.0
GT-55		100490.0	49937.0	655.6	0.0	53.0
GT-56		99689.0	49971.0	657.1	0.0	43.0
GT-57		100017.0	49739.0	654.7	0.0	36.5
AH-1		100017.0	49739.0	654.7	0.0	151.6
AH-2		100284.0	50781.0	655.5	0.0	165.0
GTS-1		98670.0	50978.0	665.3	0.0	39.8
GTS-2		98165.0	50800.0	665.8	0.0	37.3
GTS-3		98110.0	51075.0	654.0	0.0	31.5
GTS-4		98475.0	51250.0	651.5	0.0	27.5
GTS-5		98607.7	51245.8	662.6	0.0	37.0
GTS-6		98933.0	51035.7	665.3	0.0	47.0
GTS-7		98771.0	51381.8	662.1	0.0	44.5
GT-58P		100952.3	50055.2	653.0	30.5	60.9
GT-59		99905.7	49963.8	657.0	0.0	27.0

[a] Atomic Energy Commission Coordinate System

TABLE 4.3-2 Boreholes and Trenches Used in the Geologic Database (Continued)

WSSRAP ID	Old ID	Northing[a] (ft)	Westing (ft)	Ground Elevation (ft)	Depth To Filter Top (ft)	Total Depth (ft)
GT-60P		100388.4	50260.4	660.6	58.2	67.5
GT-61		100609.3	50679.2	658.1	0.0	59.5
GT-62		100062.4	50630.9	657.3	0.0	43.5
GT-63P		98626.1	51472.0	656.9	35.2	51.0
GT-64P		100053.1	52053.3	640.9	22.0	57.0
GT-65P		101533.0	51161.1	634.9	48.0	60.0
GT-66P		100814.7	49527.9	644.7	23.1	47.5
GT-67P		100196.8	49036.8	657.7	34.5	60.0
MW-2001	GMW-1	100857.7	52544.3	611.8	31.6	64.0
MW-2002	GMW-2/2A	100657.3	52249.8	623.8	31.7	64.0
MW-2003	GMW-3	100353.6	52299.1	637.0	41.5	64.0
MW-2004	GMW-4	101449.1	51753.4	642.9	54.3	77.0
MW-2005	GMW-5	101131.4	51951.6	635.6	50.0	81.0
MW-2006	GMW-6	101227.2	49849.7	634.1	27.0	71.0
MW-2007	GMW-7	100930.3	50932.1	651.9	62.3	99.0
MW-2008	GMW-8	101707.4	50654.1	622.8	34.0	63.0
MW-2009	GMW-9	101351.5	50699.1	636.3	27.2	58.6
MW-2010	GMW-10	101151.5	50100.1	643.0	37.2	64.0
MW-2011	GMW-11	100898.2	50032.5	653.3	36.6	79.0
MW-2012	GMW-12	101052.2	49641.6	634.9	29.3	69.5
MW-2013	GMW-13	100820.7	49538.3	645.4	31.3	75.0
MW-2014	GMW-14	100736.9	49189.9	647.4	37.0	64.0
MW-2015	GMW-15	100099.7	50550.5	657.4	47.3	86.0
MW-2016	B-3	101532.6	51176.7	635.7	62.7	150.5
MW-2017	GMW-17	100201.0	49049.9	657.7	30.0	69.0
MW-2018	GMW-18	98296.9	50381.6	661.5	37.4	69.0
MW-2019		98287.4	50391.3	661.5	103.0	116.3
MW-2020	B-4	99548.3	49549.1	655.5	36.5	119.6
MW-2021		100634.9	52263.2	624.6	96.3	111.0
MW-2022		101154.8	51945.6	636.1	112.0	128.0
MW-2023		101551.0	51140.9	635.7	68.5	91.8
MW-2024		101552.0	51186.0	635.0	0.0	149.6
MW-2025		101688.3	50648.9	622.3	94.0	108.6
MW-2026		101215.3	49861.1	631.0	105.5	118.0
MW-2027		100858.0	9546.5	646.6	105.5	120.5
MW-2028		100092.5	50543.0	657.8	116.0	131.2
MW-2029		101452.6	51734.1	643.4	89.0	101.3
MW-3001		98852.6	51262.4	664.3	52.7	90.0
MW-3002B		98856.6	51245.6	664.7	134.0	150.0
MW-3003		100046.0	52094.5	644.3	75.7	89.5
MW-3006		100048.7	52070.6	645.9	120.0	135.5
MW-3007	B-17	100043.4	52082.1	645.5	39.0	99.1
MW-3008	B-19A	99546.4	50954.3	645.1	39.0	101.0
MW-3009	B-21	98832.5	52123.2	644.3	45.0	99.4
MW-3010	B-23	98471.5	50936.4	665.0	52.5	90.7

[a] Atomic Energy Commission Coordinate System

TABLE 4.3-2 Boreholes and Trenches Used in the Geologic Database (Continued)

WSSRAP ID	Old ID	Northing[a] (ft)	Westing (ft)	Ground Elevation (ft)	Depth To Filter Top (ft)	Total Depth (ft)
MW-3011	B-24	99969.1	51635.2	649.2	20.0	23.5
MW-3013	W-2	98984.5	52116.3	--	--	22.0
MW-3015	W-4	99942.9	50999.5	--	--	20.0
MW-3016	W-5	99251.4	51501.9	--	--	32.5
MW-3017	W-7	99409.5	50982.0	--	--	35.0
MW-3018	B-2	99255.8	52139.6	630.9	18.8	29.6
MW-3019A		97937.0	50946.6	660.1	0.0	44.2
MW-3019B		97932.6	50945.5	660.1	70.0	84.3
MW-4001	GMW-16	99049.1	52567.2	621.1	25.0	41.8
MW-4002	B-9	99848.3	54284.6	632.5	41.0	84.7
MW-4003	B-11	96958.3	52458.6	669.7	51.0	106.2
MW-4004/4B		97749.0	51689.0	651.7	63.0	75.0
MW-4005		97709.9	52371.9	656.3	63.9	78.8
MW-4006	B-16	99084.0	52513.0	621.5	20.5	28.5
MW-4007		99069.4	52545.4	621.5	77.0	90.0
MW-4008		98668.7	53180.5	635.5	70.0	83.0
MW-4009		99516.7	52671.9	624.2	64.0	76.8
MW-4010		100102.7	53029.8	629.1	64.6	77.1
MW-4011		100457.6	52720.5	626.9	64.1	78.7
MW-4012		101642.0	53034.3	615.4	62.7	80.2
MW-4013		101916.0	52193.0	606.8	37.5	60.0
MW-4014		102267.3	51592.4	607.5	43.0	66.4
MW-4015		102150.1	50509.5	617.9	40.0	63.2
MW-4016		102002.9	49981.7	643.1	71.6	85.3
MW-4017		101611.9	49287.3	649.5	62.3	85.1
MW-4018		101233.4	48677.0	648.0	61.5	82.5
MW-4019	GMW-19	98062.7	50160.7	645.7	39.8	58.8
MW-4020		99932.8	48704.2	657.9	65.0	81.3
MW-4021		99169.9	49187.6	650.1	49.0	71.0
MW-4022		97459.7	50447.4	666.3	67.0	90.9
MW-4023		98718.5	49845.1	646.5	30.5	70.0
OB-2j		99129.6	50159.7	657.0	0.0	140.3
PW-1		101061.0	50145.2	647.2	46.4	90.3
PW-2		99112.6	50150.8	657.0	42.5	92.1
PW-3		100208.6	52104.2	638.6	45.5	86.0
T-1		100546.5	52437.5	624.0	0.0	15.0
T-2		100555.5	50662.0	657.5	0.0	15.0
T-3		98621.0	50844.0	665.8	0.0	15.0
T-4		98886.5	50427.0	657.1	0.0	15.0
T-6		101206.5	50411.0	638.0	0.0	16.0
TR-1		99519.8	50913.3	646.6	0.0	19.5
TR-2		99412.6	50918.0	648.1	0.0	21.0
TR-3		99058.9	50925.6	660.6	0.0	27.2
TR-4		98336.0	50922.0	666.3	0.0	22.1
TR-5		98952.5	51074.4	665.4	0.0	22.8

[a] Atomic Energy Commission Coordinate System

TABLE 4.3-2 Boreholes and Trenches Used in the Geologic Database (Continued)

WSSRAP ID	Old ID	Northing[a] (ft)	Westing (ft)	Ground Elevation (ft)	Depth To Filter Top (ft)	Total Depth (ft)
TR-6		98433.5	51235.2	652.5	0.0	21.1
TR-7		98561.8	51526.9	648.0	0.0	23.2
TR-8		98684.0	52020.1	643.1	0.0	21.5
TR-9		99623.8	52375.0	639.6	0.0	20.3
TR-10		100067.5	52035.7	645.9	0.0	19.5
TR-11		99993.4	51537.5	644.9	0.0	21.1
TR-12		99947.8	51081.1	644.6	0.0	21.4
TR-13		99441.5	52242.1	636.1	0.0	20.8
TR-14		98860.9	52085.4	644.3	0.0	21.0
TR-15		99425.9	50734.2	661.9	0.0	15.0
TPMS-1		TO BE ESTABLISHED			0.0	6.5
TPMS-2					0.0	6.0
TPMS-3					0.0	7.0
TPMS-4					0.0	6.5
TPMS-5					0.0	10.0
TPMS-6					0.0	7.5
TPMS-7					0.0	9.5
TPMS-8					0.0	14.5
TPMS-9					0.0	15.0
TPBS-1		1044071.3[b]	439552.7	641.3	0.0	14.1
TPBS-2		1043432.5	439939.9	655.7	0.0	12.1
TPBS-3		1044587.1	438279.9	657.3	0.0	12.2
TPBS-4		1043097.7	440349.6	660.2	0.0	12.0
TPBS-5		1042961.9	439583.2	646.3	0.0	12.3
TPBS-6		1042369.1	440854.6	661.2	0.0	12.6
TPBS-7		1042865.9	441172.7	672.0	0.0	12.5
TPBS-8		1043578.6	441516.2	662.6	0.0	11.9
TPBS-9		1041564.8	441008.7	661.1	0.0	12.2
TPBS-10		1041550.3	440675.9	661.9	0.0	15.2
TPBS-11		1041626.3	439988.4	652.8	0.0	13.2
TPBS-12		1041260.0	441332.7	656.7	0.0	12.1
TPBS-13		1042507.6	441939.5	655.4	0.0	13.5
TPBS-14		1042733.9	442161.4	649.6	0.0	11.8
TPBS-15		1040527.6	441017.9	650.4	0.0	12.9
TPBS-16		1041033.5	441024.2	652.5	0.0	13.1
TPBS-17		1041050.7	440432.9	646.6	0.0	12.4
TPBS-18		1041846.0	440354.3	645.8	0.0	12.2
TPBS-19		1042226.3	439982.0	645.0	0.0	11.8
TPBS-20		1042302.1	439213.0	630.8	0.0	8.9
TPBS-21		1035776.0	431284.0	529.5	0.0	12.3
TPBS-22		1035319.1	431048.3	517.3	0.0	5.6
TPBS-23		1034664.7	431132.3	515.2	0.0	13.1
TPBS-24		1034026.5	431092.6	504.0	0.0	11.6
TPBS-25		1033430.8	431094.9	503.3	0.0	12.5

[a] Atomic Energy Commission Coordinate System
[b] Missouri State Plane Coordinates

TABLE 4.3-2 Boreholes and Trenches Used in the Geologic Database (Continued)

WSSRAP ID	Old ID	Northing[a] (ft)	Westing (ft)	Ground Elevation (ft)	Depth To Filter Top (ft)	Total Depth (ft)
TPBS-26		1032969.4	431062.8	497.7	0.0	13.4
TPBS-27		1032350.8	431030.4	488.7	0.0	12.5
TPBS-28		1031686.4	430597.9	510.5	0.0	12.4
TPBS-29		1031532.0	430195.4	511.9	0.0	12.0
TPBS-30		1031340.5	429726.5	514.3	0.0	12.4

[a] Atomic Energy Commission Coordinate System
[b] Missouri State Plane Coordinates

TABLE 4.3-3 Summary of Laboratory Testing of Overburden Soil Samples (October 1988 to May 1989)

Overburden Unit	% of Grain Size				Atterberg Limit		Unified Soil Classif.	Specific Gravity	Unit Weight (lb/ft^3)		Moisture Content (%)
	Gravel	Sand	Silt	Clay	Liquid Limit	Plasticity Index			Dry	Wet	
Loess	0	2	68	30	41	22	CL	2.71	100	113	22.5
Ferrelview	0	5	60	35	48	31	CL-CH	2.68	101	124	23.0
Clay Till	1	19	40	40	52	36	CL-CH	2.71	108	128	19.8
Basal Till/ Clay Till	0[a]	26	39	35	37	20	CL	2.61	106	125	18.3
Residuum	28	24	48[b]		72	50	GC	2.79	88	118	22.9
Raffinate Pit Dike Fill	0	12	48	40	49	31	CL	2.63	102	125	20.8

Notes: 1. Values in table are average values based on available laboratory test results as of May 1989. (--) denotes result not available yet or no test was performed. Results from additional testing subsequent to May 1989 will be published in addendum or separate reports.

2. Average values were calculated using arithmetic mean method unless otherwise noted.

3. All tests are performed on disturbed or undisturbed samples.

(a) Gravel portions of the basal till usually not obtainable from conventional sampling methods used. Therefore, gradation values are for the non-gravel size particles.
(b) Silt and clay portion. No hydrometer test performed.

See Section 12 for SI conversion factors.

TABLE 4.3-3 Summary of Laboratory Testing of Overburden Soil Samples (October 1988 to May 1989) (Continued)

Overburden Unit	Hydraulic Conductivity (Permeability)[c] (cm/sec)	Consolidation	Coeff. of Consolidation (cm^2/sec)	Shear Strength: Total (from UU test)	Shear Strength: Effective (from CU test)
Loess	6.2×10^{-6}	$C_c = 0.144$[a] $C_r = 0.022$[b]	4.1×10^{-4}	c = 1160 psf Ø = 0	c = 240 psf Ø = 35°
Ferrelview Formation	8.9×10^{-8}	$C_c = 0.173$ C_r - 0.033	6.0×10^{-4}	c = 1380 psf Ø = 0	c = 250 psf Ø = 19°
Clay Till	2.6×10^{-8}	$C_c = 0.153$ $C_r = 0.042$	1.4×10^{-4}	c = 1140 psf Ø = 0	c = 110 psf Ø = 26°
Basal Till/Clay Till	3.8×10^{-8} [d]	-- --	--	c = 1060 psf Ø = 0	-- --
Residuum	5.0×10^{-8}	$C_c = 0.142$ $C_r = 0.052$	1.0×10^{-4}	--	c = 260 psf Ø = 15°
Raffinate Pit Dike Fill	--	-- --	--	--	c = 310 psf Ø = 17°

Note: See also notes shown on Page 1 of table.

[a] C_c = Virgin compression ratio

[b] C_r = Recompression ratio

[c] Values averaged using geometric mean method.

[d] Not indicative of basal till unit.

TABLE 4.3-4 Summary of Laboratory Testing of Overburden Soil Samples (from BNI 1987)

Unit	Statistic[a]	% of Grain Size: Gravel	Sand	Silt	Clay	Liquid Limit[b]	Plastic Index Classif.	Unified Soil (g/cm^3)	Specific Gravity (lb/ft^3)	Unit Weight (%): Dry	Wet	Moisture Content Equiv.	Centrifuge Moisture
Loess	Na	0	4.4	64	31.6	30	13	CL	2.58	98.8	110.0	--	--
	S	0	1.3	3	4.0	--	--	--	--	7.1	12.4	--	--
	N	5	5	5	5	1	1	1	1	6	6	0	0
Ferrelview Formation	Na	2.8	9.8	49.6	39.6	52.2	35.1	CL-CH	2.61	101.3	122.3	24.7	45.4
	S	4.1	5.5	6.9	10.9	7.8	7.5	--	0.07	12.4	9.4	0.6	8.5
	N	10	10	10	10	8	8	8	11	8	8	7	5
Clay Till	Na	0.4	22.4	31.7	45.6	50.3	34.2	CL	2.60	104.8	123.8	19.3	39.7
	S	1.0	4.5	2.4	4.5	10.5	8.4	--	0.09	4.4	7.0	3.0	5.7
	N	18	18	18	18	16	16	16	18	14	14	15	13
Basal Till	Na	10.7	18.7	39.8	30.8	41.6	23.6	GC-CL	2.45	99.8	118.6	20.9	38.5
	S	17.1	14.3	23.0	8.1	14.1	11.7	--	--	7.8	8.1	3.8	2.1
	N	6	6	6	6	5	5	5	1	5	5	3	2
Fill	Na	20	48	19	13			SH	2.45				
	S	--	--	--	--			--	--				
	N	1	1	1	1			1	1				

(a) Statistics given are: Na - mean; S = sample standard deviation; N = number of test results in computation of statistic
(b) Blanks indicate data of the type indicated were not available in the Bechtel National (1987) reference
(c) Void ratio = (specific gravity x unit weight of water -1)/dry unit weight
(d) Specific retention - centrifuge moisture equivalent x 0.80
(e) Specific yield = porosity - specific retention
(f) Saturation = (specific gravity x moistre content)/void ratio
(g) Activity = plastic index/percent of clay

Source: BNI 1987

TABLE 4.3-4 Summary of Laboratory Testing of Overburden Soil Samples (from BNI 1987) (Continued)

Unit	Statistic[a]	Void Ratio[c]	Porosity (%)	Specific Retention (%)[d]	Specific Yield (%)[e]	Saturation[f]	Activity[g]	Effective Cation Exch. Cap. (meq/100g)	Distribution Ratio (mg/1)
Loess	Na	--	--	--	--	--	--	--	--
	S	--	--	--	--	--	--	--	--
	N	--	--	--	--	--	--	0	0
Ferrelview Formation	Na	0.61	38	36	2	100	0.39	60.3	54.8
	S	--	--	--	--	--	--	0.1	9.7
	N	--	--	--	--	--	--	2	2
Clay Till	Na	0.55	35	32	3	91.2	0.75	69.0	34.2
	S	--	--	--	--	--	--	11.7	6.2
	N	---	--	--	--	--	--	2	2
Basal Till	Na	0.53	35	31	4	96.6	0.77	29.0	206
	S	--	--	--	--	--	--	--	--
	N	--	--	--	--	--	--	1	1
Fill	Na	--	--	--	--	--	--		
	S	--	--	--	--	--	--		
	N	--	--	--	--	--	--		

(a) Statistics given are: Na = mean; S = sample standard deviation; N = number of test results in computation of statistic
(b) Blanks indicate data of the type indicated were not available in the Bechtel National (1987) reference
(c) Void ratio = (specific gravity x unit weight of water -1)/dry unit weight
(d) Specific retention = centrifuge moisture equivalent x 0.80
(e) Specific yield = porosity - specific retention
(f) Saturation = (specific gravity x moisture content)/void ratio
(g) Activity = plastic index/percent of clay

See Section 12 for SI conversion factors.

TABLE 4.3-5 Summary of Rock Quality Designation (RQD)

	(Percentage of Core Runs in Given Range)				
Stratigraphic Unit	Very Poor	Poor	Fair	Good	Excellent[a]
Weathered Limestone	41	32	21	5	1
Competent Limestone	9	12	44	25	10

Note: [a]RQD designation are defined as follows:

Very Poor	0-25%
Poor	26-50%
Fair	51-75%
Good	76-90%
Excellent	91-100%

TABLE 4.4-1 Physical Properties of the Four Raffinate Pits

Pit Number	Surface Area, in Acres	Date Used	Altitude of Levee Top, in Feet Above Sea Level	Altitude of Pit Bottom, in Feet Above Sea Level	Design Capacity, in Million Cubic Feet	Actual Volume, in Million Cubic Feet	Altitude of Top of Sludge, in Feet Above Sea Level	Altitude of Spillway, in Feet Above Sea Level
1	1.2	1958-60	664	648	0.500	0.470	661	662 to process sewer
2	1.2	1958-60	664	648	0.500	0.470	661	662 to process sewer
3	8.4	1959-64	663	638-647	4.500	3.500	654-660	656 to process sewer
4	15.0	1964	663	628-650	12.000	1.500	[a]	656 to pit 3[b]

(a) Sludge unevenly distributed throughout the pit.

(b) Pit 4 was designed to flow into pit 3 but altitude of water has never reached this level in pit 4; however, water in pit 3 has flowed into pit 4.

See Section 12 for SI conversion factors.

Source: Kleeschulte and Emmett 1987

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TABLE 4.4-2 Drainage Areas of Surface Streams in the Vicinity of the Weldon Spring Site

	Stream Name/Location	Drainage Area (Acres)
A.	Schote Creek Drainage Basin	
	1. Frog Pond	52.7
	2. Lake 36	244
	3. Unnamed tributary that drains Lake 36 at junction with Schote Creek	276
	4. Ash Pond	60.1
	5. Raffinate pits 1, 2, 3 and 4 (closed basins)	26.7
	6. Unnamed tributary containing Ash Pond and raffinate pits areas	491
	7. Schote Creek above junction with unnamed tributary containing Ash Pond and raffinate pit areas	904
	8. Schote Creek at junction with unnamed tributary that drains Lake 36	1,700
	9. Lake 35	2,155
	10. Schote Creek at junction with Dardenne Creek	3,235
B.	Unnamed Tributary of Dardenne Creek	
	1. At Burgermeister Spring	356
	2. Lake 34	622
	3. At junction with Dardenne Creek	1,358
C.	Southeast Drainage	373

See Section 12 for SI conversion factors.

Sources: Surdex Corporation 1987 and USGS 1972 and 1982.

TABLE 4.4-3 Average Measured Flow Rate from NPDES Discharge Points in 1987 and Estimated Average Annual Runoff

Discharge Point	Drainage Area (Acres)	Average Measured[a] Flow Rate (1987) (gpm)	Percent of Precipitation as Runoff	Estimated Average Annnual Runoff Volume (Mgal/yr)
NP-0001/NP-0005	20.2	40	60	11.8
NP-0002	63.6	50	65	40.3
NP-0003	66.8	200	20	13.1
NP-0004	5.6	25	50	2.7

[a] Flows were measured when there was sufficient precipitation to cause consistent runoff

See Section 12 for SI conversion factors.

Source: MKF and JEG 1988s (with modified drainage areas of NP-0002 and NP-0003)

TABLE 4.4-4 Mean Daily Discharge for Burgermeister Spring, March 20, 1985 through April 30, 1986 (Mean Values in Cubic Feet per Second)

DAY	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
1	---	.49	.49	.12	.25	.19	.16	.10	.19	.48	.19	.20	.32	.19
2	---	.46	.49	.12	.23	.17	.12	.09	.23	.45	.18	.71	.31	.18
3	---	.44	.44	.13	.22	.14	.11	.09	.18	.41	.17	.69	.30	.17
4	---	.42	.40	.36	.21	.14	.11	.10	.12	.40	.16	.61	.29	.17
5	---	.53	.38	.53	.20	.13	.10	.09	.10	.39	.15	.51	.29	.16
6	---	.51	.38	.54	.19	.12	.10	.09	.09	.38	.14	.47	.27	.15
7	---	.49	.34	.60	.18	.11	.10	.09	.08	.37	.14	.47	.25	.15
8	---	.47	.30	.52	.16	.11	.10	.10	.08	.36	.13	.44	.24	.14
9	---	.44	.26	.46	.16	.11	.10	.09	.08	.38	.13	.40	.23	.14
10	---	.44	.24	.42	.15	.10	.09	.09	.08	.58	.12	.38	.22	.14
11	---	.48	.23	.55	.13	.10	.09	.11	.07	.70	.13	.37	.21	.14
12	---	.47	.21	.54	.12	.10	.09	.11	.07	.53	.13	.37	.42	.14
13	---	.45	.22	.50	.12	.10	.09	.09	.09	.47	.13	.34	.43	.14
14	---	.47	.35	.46	.12	.10	.09	.09	.40	.42	.13	.35	.38	.14
15	---	.47	.37	.46	.12	.10	.09	.08	.49	.40	.12	.34	.36	.13
16	---	.44	.30	.43	.12	.10	.09	.08	.51	.39	.12	.34	.36	.13
17	---	.43	.24	.53	.11	.09	.09	.08	.41	.38	.13	.38	.35	.13
18	---	.42	.19	.52	.11	.09	.11	.08	.60	.37	.13	.43	.35	.13
19	---	.41	.17	.47	.11	.10	.11	.08	.72	.36	.13	.44	.38	.13
20	.38	.40	.16	.43	.11	.11	.09	.07	.54	.36	.13	.39	.36	.13
21	.38	.39	.14	.43	.11	.10	.09	.07	.46	.35	.13	.36	.35	.23
22	.38	.38	.14	.42	.11	.09	.11	.07	.42	.36	.15	.36	.34	.37
23	.37	.38	.13	.41	.11	.12	.10	.08	.40	.35	.16	.35	.34	.28
24	.37	.38	.13	.40	.11	.15	.09	.08	.39	.33	.16	.34	.32	.34
25	.36	.38	.13	.40	.19	.14	.09	.07	.38	.31	.13	.34	.31	.20

TABLE 4.4-4 Mean Daily Discharge for Burgermeister Spring, March 20, 1985 through April 30, 1986 (Continued)
(Mean Values in Cubic Feet per Second)

DAY	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
26	.36	.36	.13	.38	.42	.12	.09	.07	.42	.29	.12	.34	.29	.13
27	.36	.35	.13	.37	.25	.10	.09	.07	.51	.27	.11	.34	.26	.12
28	.38	.33	.12	.35	.17	.09	.09	.07	.52	.26	.11	.33	.24	.12
29	.47	.31	.13	.32	.15	.13	.09	.08	.47	.24	.11	---	.23	.12
30	.67	.34	.13	.29	.12	.34	.10	.09	.44	.23	.10	---	.22	.12
31	.59	---	.12	---	.17	.24	---	.12	---	.21	.11	---	.20	---
Total	---	12.73	7.59	12.46	5.03	3.93	2.97	2.67	9.54	11.78	4.18	11.38	9.42	4.96
Mean	---	.42	.24	.42	.16	.13	.10	.09	.32	.38	.13	.41	.30	.17
Max	---	.53	.49	.60	.42	.34	.16	.12	.72	.70	.19	.71	.43	.37
Min	---	.31	.12	.12	.11	.09	.09	.07	.07	.21	.10	.20	.20	.12

See Section 12 for SI conversion factors.

Source: Kleeschulte et al. 1986

TABLE 4.4-5 Mean Daily Discharge for Wet-Weather Spring, March 20, 1985 through April 30, 1986
(Mean Values in Cubic Feet per Second)

DAY	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
1	---	2	1.2	.00	.00	.00	.00	.00	.00	1.5	.00	.38	.00	.00
2	---	1.1	1.5	.00	.00	.00	.00	.00	.00	1.1	.00	[a]3.7	.00	.00
3	---	.48	.63	.00	.00	.00	.00	.00	.00	.38	.00	[a]3.7	.00	.00
4	---	.30	.02	.95	.00	.00	.00	.00	.00	.14	.00	3.2	.00	.00
5	---	1.5	.00	1.5	.00	.00	.00	.00	.00	.06	.00	2.2	.00	.00
6	---	1.5	.00	[a]1.6	.00	.00	.00	.00	.00	.01	.00	2.0	.00	.00
7	---	1.3	.00	2.1	.00	.00	.00	.00	.00	.00	.00	2.0	.00	.00
8	---	1.1	.00	1.4	.00	.00	.00	.00	.00	.00	.00	1.6	.00	.00
9	---	.58	.00	.53	.00	.00	.00	.00	.00	.18	.00	1.1	.00	.00
10	---	.58	.00	.04	.00	.00	.00	.00	.00	[a]2.5	.00	.63	.00	.00
11	---	1.2	.00	1.6	.00	.00	.00	.00	.00	[a]3.5	.00	.26	.00	.00
12	---	1.1	.00	1.6	.00	.00	.00	.00	.00	2.2	.00	.02	1.2	.00
13	---	.69	.00	1.2	.00	.00	.00	.00	.00	1.4	.00	.00	.93	.00
14	---	1.2	.01	.48	.00	.00	.00	.00	1.2	.72	.00	.00	.20	.00
15	---	1.1	.00	.46	.00	.00	.00	.00	1.4	.30	.00	.00	.01	.00
16	---	.58	.00	.15	.00	.00	.00	.00	1.7	.18	.00	.00	.00	.00
17	---	.38	.00	[a]1.4	.00	.00	.00	.00	.18	.09	.00	.48	.00	.00
18	---	.17	.00	1.3	.00	.00	.00	.00	[a]2.7	.02	.00	1.3	.00	.00
19	---	.10	.00	.69	.00	.00	.00	.00	[a]3.6	.00	.00	1.3	.20	.00
20	.00	.04	.00	.15	.00	.00	.00	.00	1.9	.00	.00	.63	.01	.00
21	.00	.00	.00	.01	.00	.00	.00	.00	1.1	.00	.00	.26	.00	.03
22	.00	.00	.00	.00	.00	.00	.00	.00	.53	.00	.00	.10	.00	.02
23	.00	.00	.00	.00	.00	.00	.00	.00	.19	.00	.00	.02	.00	.00
24	.00	.00	.00	.02	.00	.00	.00	.00	.04	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.13	.00	.00	.00	.01	.00	.00	.00	.00	.00

TABLE 4.4-5 Mean Daily Discharge for Wet-Weather Spring, March 20, 1985 through April 30, 1986 (Continued)
(Mean Values in Cubic Feet per Second)

DAY	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
26	.00	.00	.00	.00	.01	.00	.00	.00	.51	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	1.9	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	1.9	.00	.00	.00	.00	.00
29	1.1	.00	.00	.00	.00	.18	.00	.00	1.4	.00	.00	---	.00	.00
30	3.0	.00	.00	.00	.00	.16	.00	.00	.92	.00	.00	---	.00	.00
31	2.6	---	.00	---	.00	.00	---	.00	---	.00	.00	---	.00	---
Total	---	17.00	3.36	17.18	.14	.34	.00	.00	21.18	14.28	.00	24.88	2.55	.05
Mean	---	.57	.11	.57	.00	.01	.00	.00	.71	.46	.00	.89	.08	.00
Max	---	2.0	1.5	2.1	.13	.18	.00	.00	3.6	3.5	.00	3.7	1.2	.03
Min	---	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

[a] Computed by correlating the mean daily gage height with the corresponding discharge.

See Section 12 for SI conversion factors.

Source: Kleeschulte et al. 1986

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TABLE 4.5-1 Lysimeter Installations

Lysimeter Number[a]	Depth Interval (ft.)			Monitoring Zone
3601	10.0	-	12.0	orange-gray, silty clay
3602	17.8	-	19.8	moist clay layer below 19 feet natural fracture at 19.3 feet
3603	23.75	-	25.75	chert layer
3604	5.0	-	7.0	silt layer above clay layer
3605	11.0	-	13.0	silt layer above clay layer
3606	14.5	-	16.5	silt layer above clay layer
3607	23.0	-	25.0	chert/clay
3608	3.5	-	5.5	clayey silt
3609	22.25	-	24.25	silt
3610	27.3	-	29.3	silty clay

[a]Lysimeter locations are shown in Figure 4.5-3

See Section 12 for SI conversion factors.

Source: UNC 1988

TABLE 4.5-2 Overburden Monitoring Well and Piezometer Construction Data

Number[a]	Old Number[a]	Ground Elevation (Feet)	Total Depth (Feet) BGL[b]	Top of Casing Elevation (Feet,NGVD)[c]	Casing Diameter (Inches)	Top of Filter Pack Elevation (Feet)	Top of Screen Elevation (Feet)	Screen Length (Feet)	Installed By / Date
B-1[d]		638.9	21.5	641.43	0.75	621.4	620.9	0.5	BNI / 1983
MW-3018	B-2	631.0	29.6	633.08	2	612.2	608.2	3.0	BNI / 1983
B-5[d]		653.3	21.5	654.44	0.75	635.3	635.0	0.5	BNI / 1983
B-6[d]		663.7	21.5	667.57	0.75	646.0	644.7	0.5	BNI / 1983
B-7[d]		658.2	22.8	659.20	0.75	638.1	637.5	0.5	BNI / 1983
B-8[d]		646.7	33.0	648.10	0.75	620.5	618.7	0.5	BNI / 1983
B-10[d]		665.8	25.6	667.10	0.75	643.6	642.5	0.5	BNI / 1983
B-12[d]		663.6	30.0	666.70	0.75	635.8	635.1	0.5	BNI / 1983
B-13		663.8	27.0	N/A	N/A	N/A	N/A	N/A	BNI / 1983
MW-3004	B-14	653.5	21.8	655.54	2	639.8	637.5	5.0	BNI / 1983
OW-3503	B-15A(MW-3005)	663.4	37.0	665.32	2	639.1	636.4	5.0	BNI / 1983
MW-4006[e]	B-16	621.5	28.5	623.06	2	601.0	600.0	5.0	BNI / 1983
B-18[d]		658.8	24.4	659.96	0.75	636.5	636.0	0.6	BNI / 1983
B-20[d]		643.8	29.5	645.24	0.75	616.0	615.3	0.5	BNI / 1983
B-22[d]		647.4	15.0	649.96	0.75	635.4	634.9	0.5	BNI / 1983
MW-3011	B-24	649.2	23.5	652.07	2	629.2	628.7	2.5	BNI / 1983
MW-3012[f]	W-1	N/A	33.0	N/A	4	N/A	N/A	1.0	LBL / 1980
MW-3013	W-2	641.5	22.0	642.10	4	N/A	620.5	1.0	LBL / 1980
MW-3014[f]	W-3	N/A	25.0	N/A	4	N/A	N/A	1.0	LBL / 1980
MW-3015	W-4	640.1	20.0	643.39	4	N/A	621.1	1.0	LBL / 1980
MW-3016	W-5	664.0	51.0	664.51	4	N/A	614.0	1.0	LBL / 1980
W-6[f]		N/A	32.5	N/A	4	N/A	N/A	1.0	LBL / 1980
MW-3017	W-7	649.8	35.0	651.98	4	N/A	615.8	1.0	LBL / 1980
OW-3501		N/A	12.0	N/A	2	N/A	N/A	10.0	UNC-GEOTECH / 1987
OW-3502		N/A	12.0	N/A	2	N/A	N/A	10.0	UNC-GEOTECH / 1987
OW-3508		N/A	53.5	N/A	2	N/A	N/A	5.0	PMC / 1988

[a]Locations are shown on Figure 4.5-4
[b]BGL - Below Ground Level
[c]NGVD-National Geodetic Vertical Datum of 1929

[d]Indicates piezometer, all others are overburden monitoring wells
[e]MW-4006 is included in the bedrock monitoring well network, see Section 4.6
[f]Abandoned. MW-3012 and MW-3014 were grouted in 1987

N/A Data not available

See Section 12 for SI conversion factors.

Sources: MKF and JEG 1988t; BNI 1984c and 1987; BGA 1984.

TABLE 4.5-3 Water Elevations Recorded in Overburden Monitoring Wells at the Weldon Spring Site

1987 - 1988

	Water Elevations (Ft, NVGD)									
Number[a]	02/12/87	02/23/87	03/20/87	04/09/87	04/29/87	05/11/87	07/14/87	11/19/87	10/29/88	12/01/88
MW-3004	636.65	636.65	633.88	643.88	641.10	640.21	637.24	637.84	-	-
OW-3503	635.15	-	635.39	-	651.93[b]	648.64[b]	-	-	-	-
MW-3011	dry	dry	639.34[c]	630.37[c]	628.53[c]	627.99[c]	dry	dry	dry	-
MW-3013	639.81	639.73	639.92	639.68	639.77	639.77	640.01	640.22	639.80	640.03
MW-3018	610.72	610.58	610.83	610.91	611.03	610.74	610.19	609.55	609.48	609.08

[a] Locations are shown on Figure 4.5-4. Wells MW-3015, MW-3016, and MW-3017 are dry.

[b] The high water levels detected at OW-3503 on 4/29/87 and 5/11/87 reflect a slug test performed at this well on 4/19/87.

[c] In March 1987, a slug test was performed at MW-3011 by adding water and monitoring the falling head. Recovery was extremely slow. The high water levels detected represent the slug test.

\- Not available

See Section 12 for SI conversion factors.

Source: Unpublished WSSRAP data sheets

TABLE 4.6-1 Monitoring Well Construction Data

Well Number	Old Name	Ground Elevation (Ft. NVGD)	Total Hole Depth (Ft.)	Top of Screen Elevation (Ft-NVGD)	Bottom of Screen Elevation (Ft-NVGD)	Top of Filter Pack Elevation (Ft-NVGD)	Top of Bedrock Elevation (Ft-NVGD)	Length of Screen (Ft.)
MW-2001	GMW-1	611.75	64.00	563.75	553.75	580.15	585.25	10.00
MW-2002/2A	GMW-2/2A	623.81	64.00	575.81	565.81	591.22	599.3	10.00
MW-2003	GMW-3	637.00	64.00	589.00	579.00	595.50	598.2	10.00
MW-2004	GMW-4	642.89	77.00	577.39	567.39	588.59	591.9	10.00
MW-2005	GMW-5	635.60	81.00	570.10	560.10	585.60	590.8	10.00
MW-2006	GMW-6	634.09	71.00	578.59	568.59	607.09	611.5	10.00
MW-2007	GMW-7	651.89	99.00	568.89	558.89	589.59	592.9	10.00
MW-2008	GMW-8	622.77	63.00	577.27	567.27	588.77	591.3	10.00
MW-2009	GMW-9	636.35	58.60	588.75	578.75	609.15	615.9	10.00
MW-2010	GMW-10	642.97	64.00	594.97	584.97	605.77	613.5	10.00
MW-2011	GMW-11	653.25	79.00	590.45	580.45	616.65	621.25	10.00
MW-2012	GMW-12	634.90	69.50	586.90	576.90	605.60	609.40	10.00
MW-2013	GMW-13	645.38	75.00	587.38	577.38	614.08	617.88	10.00
MW-2014	GMW-14	647.42	64.00	599.42	589.42	610.42	614.42	10.00
MW-2015	GMW-15	654.40	86.00	586.90	576.90	607.10	611.90	10.00
MW-2016	B-3	635.10	150.50	496.50	489.50	572.40	581.7	7.00
MW-2017	GMW-17	657.71	69.00	604.71	594.71	627.71	634.21	10.01
MW-2018	GMW-18	661.49	69.00	608.49	598.49	624.90	628.99	10.00
MW-2019[a]		645.66	116.30	539.66	529.66	542.66	631.9	10.00
MW-2020	B-4	655.36	119.60	618.96	535.86	618.96	637.46	83.10
MW-2021[a]		624.57	111.00	523.57	513.87	528.32	592.11	9.70
MW-2022[a]		636.08	128.00	520.18	510.18	524.08	585.60	10.00
MW-2023		635.68	91.82	565.18	545.18	567.18	581.7	20.00
MW-2024[a]		635.00	149.61	(b)	486.07	(b)	581.7	(b)
MW-2025[a]		622.35	108.60	525.45	515.45	528.35	588.77	10.00
MW-2026[a]		631.04	118.00	523.14	513.14	525.54	607.09	10.00
MW-2027[a]		646.63	120.50	536.33	526.33	541.13	617.88	10.00
MW-2028[a]		657.85	131.20	536.85	526.85	541.85	611.90	10.00
MW-2029[a]		643.44	101.30	522.14	542.14	554.44	592[c]	10.00
MW-2030	GT-58P	665.45	59.0	616.45	607.45	639.45	635.95	9.0
MW-2031[d]	GT-60P	662.08	67.5	604.58	595.58	603.88	604.08	9.0
MW-2032	GT-65P	635.81	58.6	587.21	578.21	592.31	587.31	9.0

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TABLE 4.6-1 Monitoring Well Construction Data (Continued)

Well Number	Old Name	Ground Elevation (Ft. NVGD)	Total Hole Depth (Ft.)	Top of Screen Elevation (Ft-NVGD)	Bottom of Screen Elevation (Ft-NVGD)	Top of Filter Pack Elevation (Ft-NVGD)	Top of Bedrock Elevation (Ft-NVGD)	Length of Screen (Ft.)
MW-2033	GT-66P	644.84	47.5	608.54	599.54	624.84	621.64	9.0
MW-2034	GT-67P	658.00	59.5	607.50	598.50	629.30	623.50	9.0
MW-3001		664.25	90.00	609.25	589.25	611.58	610.50	20.00
MW-3002[a]		664.72	150.00	527.22	517.32	530.72	610.	9.90
MW-3003		644.31	89.50	565.11	555.11	568.61	616.34	10.00
MW-3006[a]		645.90	135.50	521.90	510.90	525.90	616.34	11.00
MW-3008	B-19A	645.09	101.00	606.09	544.09	606.0	617.09	62.00
MW-3009	B-21	644.33	99.40	599.33	544.93	599.33	609.3	54.40
MW-3010	B-23	665.02	90.70	612.52	574.32	612.52	627.02	38.20
MW-3018[e]	B-2	631.04	29.60	608.24	605.24	612.24	606.99	3.00
MW-3019		662.00	84.30	588.30	578.30	592.00	625.1	10.00
MW-3022	GT-63P	655	51.0	615.30	606.30	623.0	609.50	9.0
MW-3023	GT-64P	645.86	57.0	607.86	598.86	623.86	623.86	9.0
MW-4001	GMW-16	621.74	41.80	592.74	582.74	596.74	606.99	10.00
MW-4002	B-9	632.72	84.70	591.72	548.02	591.72	606.5	43.70
MW-4003	B-11	669.86	106.20	618.86	563.66	618.86	646.86	55.20
MW-4004		651.66	75.00	586.86	576.86	588.66	628.16	10.00
MW-4005		656.35	78.80	587.95	577.95	592.45	626.35	10.00
MW-4006	B-16	621.45	28.50	599.95	594.95	600.95	602.67	5.00
MW-4007[a]		621.46	90.00	541.86	531.86	544.46	610[c]	10.00
MW-4008		635.46	83.00	562.66	552.66	565.46	603.1	10.00
MW-4009		624.22	76.80	557.62	547.62	560.22	605.22	10.00
MW-4010		629.08	77.10	562.18	552.18	564.48	613.38	10.00
MW-4011		626.90	78.70	561.10	551.10	562.80	596.42	10.00
MW-4012		615.42	80.20	550.12	540.12	552.72	582.42	10.00
MW-4013		606.85	60.00	567.55	547.55	569.35	571.75	20.00
MW-4014		607.50	66.40	562.70	542.70	564.50	565.5	20.00
MW-4015		617.88	63.20	574.83	554.83	577.88	604.88	20.00

TABLE 4.6-1 Monitoring Well Construction Data (Continued)

Well Number	Old Name	Ground Elevation (Ft. NVGD)	Total Hole Depth (Ft.)	Top of Screen Elevation (Ft-NVGD)	Bottom of Screen Elevation (Ft-NVGD)	Top of Filter Pack Elevation (Ft-NVGD)	Top of Bedrock Elevation (Ft-NVGD)	Length of Screen (Ft.)
MW-4016		643.13	85.30	569.43	559.43	571.53	613.13	10.00
MW-4017		649.47	85.10	585.17	565.17	587.17	609.47	20.00
MW-4018		648.03	82.50	583.53	573.53	586.53	604.0	10.00
MW-4019	GMW-19	645.36	58.83	645.36	645.36	605.53	625.16	10.00
MW-4020		657.86	81.30	591.06	581.06	592.86	621.86	10.00
MW-4021		650.06	71.00	599.26	579.26	601.06	623.56	20.00
MW-4022		666.31	90.90	597.51	577.51	599.31	631.31	20.00
MW-4023		646.48	70.00	613.48	593.48	615.98	617.6	20.00

(a) Deep well
(b) Data to be obtained
(c) Elevation approximate
(d) Abandoned 1991
(e) Overburden monitoring well

See Section 12 for SI conversion factors.
Source: Records compiled by site PMC personnel; Table 4.3-2.

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TABLE 4.6-2 Hydraulic Conductivity in Bedrock as Determined by Packer Tests

Borehole or Well		Test Interval Depths Below Top of Bedrock[a]			Strati-graphic Unit[b]	Depth to Groundwater from TOB(ft)[c]	Hydraulic Conductivity (cm/s)[d]
		[From 0 to 16.5 Feet Below Top of Bedrock]					
	G-3	1.4	to	12.1	W		1.4×10^{-3}
	G-7	0.0	to	5.9	W		2.2×10^{-3}
	G-18	5.6	to	11.6	W		8.5×10^{-3}
	G-20	7.5	to	13.5	W		1.9×10^{-3}
(MW-2003)	GMW-3	5.2	to	11.2	W	0.0	$<8.0 \times 10^{-7}$
(MW-2004)	GMW-4	1	to	7	W	8.1	$<9.3 \times 10^{-7}$
(MW-2009)	GMW-9	1.5	to	7.5	W	18.3	3.6×10^{-3}
(MW-2017)	GMW-17	2.1	to	8.1	W	25.0	4.7×10^{-3}
	G-4	5.8	to	16.5	W		1.1×10^{-3}
	G-5	5.3	to	11.3	W		$<6.4 \times 10^{-7}$
	G-13	1.6	to	7.5	W		5.0×10^{-3}
	G-19	0	to	8	W		8.0×10^{-3}
(MW-2001)	GMW-1	2.5	to	8.5	W	3.0 above	$<9.5 \times 10^{-7}$
	GMW-8	3.5	to	9.5	W	2.4	3.7×10^{-5}
(MW-2015)	GMW-15	4.8	to	10.7	W	8.2	9.1×10^{-3}
(MW-2007)	GMW-7	3	to	9	W	0.2 above	8.2×10^{-7}
						Mean Value =	3.0×10^{-3}
		[From 9 to 25.1 Feet Below Top of Bedrock]					
	G-1	8.7	to	19.4	W		1.0×10^{-3}
	G-2A	11.7	to	22.4	W		3.5×10^{-4}
	G-5	10	to	16	W		1.3×10^{-6}
	G-15	10	to	16.3	W		2.4×10^{-4}
	G-16	11	to	16.3	W		6.1×10^{-3}
	G-20	10.5	to	16.5	W		6.9×10^{-4}
(MW-2002)	GMW-2A	10.7	to	16.7	W	6.1	2.1×10^{-4}
(MW-2005)	GMW-4	2.6	to	21	W	3.0	$<3.9 \times 10^{-7}$
(MW-2006)	GMW-6	19.2	to	25.1	W	11.2	8.9×10^{-5}
	GMW-6	10.2	to	16.1	W		2.6×10^{-6}
(MW-2008)	GMW-8	16.4	to	22.4	W	2.4	3.9×10^{-5}
(MW-2013)	GMW-13	12.5	to	18.5	W	13.4	5.9×10^{-6}
(MW-2010)	GMW-10	10.5	to	16.5	W	13.1	2.1×10^{-3}
(MW-2014)	GMW-14	10	to	16	W	10.3	2.8×10^{-4}
(MW-2015)	GMW-15	16.8	to	23.2	W	8.2	5.2×10^{-5}
(MW-2018)	GMW-18	9.5	to	15.5	W	18.0	8.9×10^{-5}
	G-19	9.5	to	15.5	W		$<7.8 \times 10^{-7}$
	G-21	4.5	to	20.5	W		2.1×10^{-6}
						Mean Value =	6.5×10^{-4}

TABLE 4.6-2 Hydraulic Conductivity in Bedrock as Determined by Packer Tests (Continued)

Borehole or Well		Test Interval Depths Below Top of Bedrock[a]			Strati-graphic Unit[b]	Depth to Groundwater from TOB(ft)[c]	Hydraulic Conductivity (cm/s)[d]
		[From 18 to 40 Feet Below Top of Bedrock]					
	G-1	24.3	to	45.3	W		2.8×10^{-4}
	G-2A	22.2	to	32.9	C		1.2×10^{-4}
	G-9	28.5	to	38.5	C		3.6×10^{-6}
	G-14	26.5	to	38.9	W/C		$<3.5 \times 10^{-7}$
(MW-2001)	GMW-2A	27.3	to	33.3	W/C	3.0 above	$<6.8 \times 10^{-7}$
(MW-2012)	GMW-12	26.5	to	32.5	W	3.9	1.7×10^{-7}
(MW-2013)	GMW-13	34.5	to	40.5	C	13.4	5.2×10^{-6}
						Mean Value =	5.9×10^{-5}

[a] Depth of test interval below top of bedrock was determined by information in Table 4.6-1 and BNI 1987.

[b] W = Weathered Limestone; C = Competent Limestone

[c] Based on water levels obtained July 1987; water levels available for monitoring wells only.

[d] Values shown as "less than" were assumed to be at value for purpose of calculating means.

See Section 12 for SI conversion factors.

TABLE 4.6-3 Hydraulic Conductivity Values in Shallow Wells from In Situ Tests

Well No.	Test Interval Elevation (Ft NVGD)	Top of Competent Limestone Elevation (Ft NVGD)	Interval Tested[a] Below TOB[b] (Ft NVGD)	Mean Hydraulic Conductivity (cm/sec)
MW 2002 (GMW-2)	59 - 565	572.7	0 to 32.3	7.5×10^{-5}
MW 2005 (GMW-5)	585 - 560	568.70	0 to 15	2.1×10^{-5}
MW 2006 (GMW-6)	607 - 568.6	582	0 to 38.4	6.8×10^{-5}
MW 2008 (GMW-8)	588.8 - 567.3	571.5	0 to 21.4	5.9×10^{-5}
MW 2013 (GMW-13)	614.1 - 577.4	585.4	3.8 to 40.5	1.7×10^{-5}
MW 2015	607.1 - 577.4	587.0	4.8 to 35.0	1.2×10^{-4}
MW 2018 (GMW-18)		(c)	4.9 to 30.5	6.6×10^{-5}
MW-2023	567.18 - 545.18	570.7	16 to 38	9.1×10^{-6}
MW 3003		(c)	47.7 to 61.2	5.8×10^{-6}
MW 3019	592 - 578.3	581.8	33 to 47	5.4×10^{-5}
MW 4001 (GMW-16)		(c)	10.3 to 24.3	5.0×10^{-5}
MW 4004	588.7 - 576.9	588.7	39.5 to 51.3	6.3×10^{-6}
MW 4005		(c)	33.9 to 48.4	4.2×10^{-6}
MW 4008	565.5 - 552.7	578.1	45.8 to 58.6	1.0×10^{-5}
MW 4009	560.2 - 547.6	569.6	45 to 57.6	6.7×10^{-6}
MW 4010	564.5 - 552.2	558.3	48.9 to 61.2	5.0×10^{-6}
MW 4011	562.8 - 551.1	568.2	33.6 to 45.3	1.7×10^{-6}
MW 4012	552.7 - 540.1	554.7	29.7 to 42.3	4.5×10^{-6}
MW 4013	569.3 - 547.6	555.2	2.4 to 24.2	5.7×10^{-5}
MW 4014	564.5 - 542.7	553.3	7.9 to 29.7	1.0×10^{-3}
MW 4015	577.9 - 554.8	561.4	27 to 50.1	2.9×10^{-5}
MW 4016	571.5 - 559.4	568.9	41.6 to 53.7	4.1×10^{-5}
MW 4017	587.2 - 565.2	571.7	22.3 to 44.3	3.0×10^{-5}
MW 4018	586.6 - 573.6	575.0	21.5 to 34.5	3.0×10^{-5}
MW 4020	592.9 - 581.1	590.4	29 to 40.8	2.3×10^{-5}
MW 4021	601.1 - 579.3	582.1	22.5 to 44.3	3.9×10^{-5}
MW 4022	599.3 - 577.5	606.1	32 to 53.8	2.3×10^{-5}
MW 4023	616.0 - 593.5	587.5	2.5 to 25	7.8×10^{-5}
			Mean	6.37×10^{-6}

[a]Interval tested equals screen length plus filter pack

[b]TOB - Top of Weathered Limestone Unit

[c]Top of Competent Limestone below bottom of well

See Section 12 for SI conversion factors.

Source: Site PMC Personnel

TABLE 4.6-4 Hydraulic Conductivity Values in Paired Deep and Shallow Monitoring Wells from In Situ Tests

Well No.	Deep Well: Mean Hydraulic Conductivity (cm/sec)	Deep Well: Test Interval Below TOB (ft)	Well No.	Shallow Well: Mean Hydraulic Conductivity (cm/sec)	Shallow Well: Test Interval Below TOB (ft)
MW 2019	2.0×10^{-5}	86.3 to 99.3	MW 2018[a]	6.6×10^{-5}	44.9 to 30.5
MW 2021	2.4×10^{-5}	63.8 to 75.2	MW 2002	7.5×10^{-5}	0 to 32.3
MW 2022	4.1×10^{-5}	61.5 to 75.4	MW 2005[a]	2.1×10^{-5}	0 to 15
MW 2024	3.9×10^{-5}	63 to 73[b]	MW 2023	9.1×10^{-6}	16 to 38[b]
MW 2025	3.9×10^{-5}	60.4 to 73.3	MW 2008	5.9×10^{-5}	0 to 21.4
MW 2026	3.4×10^{-5}	81.6 to 94.8	MW 2006[a]	6.8×10^{-5}	0 to 38.4
MW 2027	1.4×10^{-5}	76.8 to 91.6	MW 2013	4.7×10^{-5}	3.8 to 40.5
MW 2028	1.7×10^{-5}	70.1 to 85.1	MW 2015	1.2×10^{-4}	4.8 to 35.0
MW 2029	1.7×10^{-6}	7.2 to 49.5	MW 2004	No Test	No Test
MW 3006	2.7×10^{-4}	90.4 to 105.5	MW 3003[a]	5.8×10^{-6}	48.0 to 61.2
Mean =	5×10^{-5}		Mean =	5.2×10^{-5}	

[a]Shallow well displaying lower hydraulic conductivity than its associated deep well

[b]Value approximate

See Section 12 for SI conversion factors.

Sources of Data: PMC records, Table 4.6-1

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TABLE 4.6-5 Comparison of Hydraulic Conductivity Values from Packer Tests and In Situ Tests

	Hydraulic Conductivity From Packer Tests		Hydraulic Conductivity From In Situ Tests	
Well No.	Test Interval(s) Below (TOB) (ft)	Value(s) (cm/sec)	Test Interval Below TOB (ft)	Value[a] (cm/sec)
MW 2006 (GMW-2)	10.7-16.7, 22.2-32.9	2.1×10^{-4}, 6.8×10^{-7}	0 - 32.3	3.03×10^{-6}
MW 2006 (GMW-6)	10.2-16.1, 19.2-25.1	2.6×10^{-6}, 8.9×10^{-5}	0 - 38.4	1.61×10^{-6}
MW 2008 (GMW-8)	16.4-22.4	3.8×10^{-5}	0 - 21.4	5.85×10^{-6}
MW 2013 (GMW-13)	12.5-18.5, 34.5-40.5	5.9×10^{-6}, 5.2×10^{-6}	3.8-40.5	1.6×10^{-6}
MW 2018 (GMW-18)	9.5-15.5	8.9×10^{-5}	4.9-30.5	4.62×10^{-6}

[a] Bouwer and Rice Method

See Section 12 for SI conversion factors.

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TABLE 4.6-6 Angled Borehole Packer Test Results

Drill Hole	Depth from Top of Bedrock (ft)	Average Hydraulic Conductivity (cm/sec)[a]
AH-1		
	3.8 - 12.6	9.3×10^{-4} [b]
	12.4 - 21.3	6.1×10^{-4}
	20.6 - 29.5	0
	29.2 - 46.8	$<1.16 \times 10^{-5}$ [c]
	46.7 - 64.1	$<3.60 \times 10^{-7}$ [c]
	64.0 - 81.5	8.4×10^{-6}
	79.7 - 100.6	$<6.60 \times 10^{-8}$ [c]
AH-2		
	4.2 - 12.7	8.7×10^{-4}
	11.5 - 21.4	1.7×10^{-4}
	21.0 - 30.0	4.0×10^{-7}
	29.9 - 47.3	$<8.4 \times 10^{-6}$ [c]
	47.2 - 74.7	$<1.9 \times 10^{-6}$ [c]
	64.6 - 82.0	1.0×10^{-6}
	81.8 - 100.7	2.1×10^{-5}

(a) Average of three tests, except where noted otherwise.

(b) Average of four tests.

(c) Value obtained from one test at pressure 70 to 90 psi. Two tests at lower pressure yielded indicated K=0; therefore, the average value is listed as less than the high-pressure test value.

See Section 12 for SI conversion factors.

Source of Data: Drill logs; PMC records

TABLE 4.6-7 Aquifer Parameters Determined from Pumping Tests

Well Number and Parameter	Cooper-Jacob Time-Drawdown Method[a]	Hantush Time-Drawdown Method[a]
PW-1[b]		
Transmissivity	20.2 gpd/ft (2.9 x 10^{-6} m^2/sec)	20 gpd/ft (2.8 x 10^{-6} m^2/sec)
Storativity	3.5 x 10^{-4}	1.7 x 10^{-4}
Hydraulic Conductivity	0.5 gpd/ft^2 (2.4 x 10^{-5} cm/sec)	0.5 gpd/ft^2 (2.4 x 10^{-5} cm/sec)
PW-2[c]		
Transmissivity	42 gpd/ft (6.0 x 10^{-6} m^2/sec)	38.5 gpd/ft (5.5 x 10^{-6} m^2/sec)
Storativity	8.6 x 10^{-4}	1.31 x 10^{-3}
Hydraulic Conductivity	1.0 gpd/ft^2 (5.0 x 10^{-5} cm/sec)	1.0 gpd/ft^2 (4.7 x 10^{-5} cm/sec)
PW-3[d]		
Transmissivity	18.2 gpd/ft (2.6 x 10^{-6} m^2/sec)	19 gpd/ft (2.7 x 10^{-6} m^2/sec)
Storativity	2.5 x 10^{-4}	4.01 x 10^{-4}
Hydraulic Conductivity	0.46 gpd/ft^2 (2.2 x 10^{-5} cm/sec)	0.5 gpd/ft^2 (2.4 x 10^{-5} cm/sec)
Mean Totals for Site:		
Transmissivity	26.8 gpd/ft (3.8 x 10^{-6} m^2/sec)	25.8 gpd/ft (3.7 x 10^{-6} m^2/sec)
Storativity	4.9 x 10^{-4}	6.3 x 10^{-4}
Hydraulic Conductivity	0.63 gpd/ft^2 (3.0 x 10^{-5} cm/sec)	0.7 gpd/ft^2 (3.3 x 10^{-5} cm/sec)

(a) Calculated Mean Values

(b) TOB elevation = 624.8 Ft. NVGD; Static Water level prior to testing = 600 Ft. NVGD.

(c) TOB elevation = 620.5 Ft. NVGD; Static Water level prior to testing = 611.5 Ft. NVGD.

(d) TOB elevation = 622.0 Ft. NVGD; Static Water level prior to testing = 599.3 Ft. NVGD.

See Section 12 for SI conversion factors.

Source: MKF and JEG 1990

TABLE 4.6-8 Water Level Elevations in Shallow and Deep Monitoring Wells

WELL NUMBER	WATER LEVEL ELEVATION (ft) July 23, 1988	December 1, 1988
Shallow Wells		
MW-2001	588.03	588.26
MW-2002/2A	593.05	592.89
MW-2003	597.78	597.58
MW-2004	583.69	583.47
MW-2005	587.85	587.57
MW-2006	599.58	599.62
MW-2007	592.89	592.65
MW-2008	588.57	588.08
MW-2009	597.39	595.88
MW-2010	599.96	601.41
MW-2011	600.79	600.80
MW-2012	604.38	604.72
MW-2013	604.24	604.94
MW-2014	603.93	603.21
MW-2015	600.62	603.37
MW-2016	(a)	(a)
MW-2017	605.22	618.76
MW-2018	614.93	610.60
MW-2019	575.68	574.05
MW-2020	(a)	(a)
MW-2023	568.26	584.93
MW-3001	612.51	(a)
MW-3003	597.77	597.72
MW-3008	610.37	(a)
MW-3009	606.71	605.63
MW-3010	612.13	(a)
MW-4001	602.09	603.39
MW-4002	569.06	572.60
MW-4003	612.99	611.20
MW-4005	609.51	608.54
MW-4008	597.14	596.86
MW-4009	594.14	594.04
MW-4010	589.10	589.08
MW-4011	590.02	589.92

TABLE 4.6-8 Water Level Elevations in Shallow and Deep Monitoring Wells (Continued)

WELL NUMBER	WATER LEVEL ELEVATION (ft) July 23, 1988	December 1, 1988
Shallow Wells		
MW-4012	570.49	570.99
MW-4013	560.51	560.50
MW-4014	561.37	561.36
MW-4015	581.41	581.13
MW-4016	589.71	589.43
MW-4017	593.31	591.42
MW-4018	597.70	597.25
MW-4019	611.77	611.10
MW-4020	605.10	594.13
MW-4021	607.75	607.32
MW-4022	596.74	592.86
MW-4023	614.77	612.48
Deep Wells		
MW-2021	588.68	589.00
MW-2022	585.61	585.66
MW-2024	567.67	568.05
MW-2025	583.81	583.40
MW-2026	587.40	587.22
MW-2027	594.32	592.00
MW-2028	595.48	595.27
MW-2029	582.55	582.50
MW-3002	(a)	(a)
MW-3006	590.09	590.30
MW-4007	595.79	595.61

[a]No measurement

See Section 12 for SI conversion factors.

Source of Data: records compiled by site PMC personnel

TABLE 4.6-9 Monitoring Well Dye Injection Results

Date	Well Number and Dye Type	Depth in Feet Below Top of Bedrock To Water Loss Zone (Elevation)	Static Water Elevation (Date)	Results, Remarks
3/83	B-4 (MW-2020) Rhodamine WT	8-9 (624 - 623)	616.3 (3/83)	No detection of dye.[a]
4/83	B-17 (MW-3007) Fluorescein	0 (616.5)	603.6 (4/83)	No detection of dye.[a]
4/88	MW-4016 Rhodamine WT	68-72 (575 - 571)	589 (7/88)	No detection of dye. Hole filled up with water during flushing.
4/88	MW-4018	3 (601)	597 (7/88)	No detection of dye attributable to test.[b] Hole readily accepted 2,500 gallons of flush water.
7/88	MW-4014 Pyranine[c]	0-4 (565.5 - 560.5)	561 (7/88)	No detection of dye. Well readily accepted 2,500 gallons flush water.
7/88	MW-4023 Tinopal[c]	Not available	614 (7/88)	No detection of dye. Flushing took four hours for 1,500 gallons with 30 feet of head.

(a) Burgermeister Spring was not included in sampling (MDNR 1989a).

(b) Dye was detected at Spring 5101. However, no background sample was obtained and the results are interpreted as unsuccessful.

(c) Dye is considered experimental (MDNR 1989a).

See Section 12 for SI conversion factors.

Source of Data: MDNR 1989b; Water level data from PMC records.

TABLE 4.6-10 Hydraulic Gradients and Hydraulic Conductivities and Resulting Range of Linear Velocities of Groundwater

Flow Path	Hydraulic Gradient	Hydraulic Conductivity (m/d)		Range of Linear Velocity (m/d)	
		Bouwer and Rice	Hvorslev	Bouwer and Rice	Hvorslev
MW-3003 to MW-2002	7.5×10^{-3}	3.5×10^{-2}	6.3×10^{-2}	3.3×10^{-2} to 1.8×10^{-3}	5.9×10^{-2} to 3.3×10^{-3}
MW-2013 to MW-4017	1.6×10^{-2}	3.3×10^{-2}	6.6×10^{-2}	6.6×10^{-2} to 3.6×10^{-3}	1.3×10^{-1} to 7.3×10^{-3}
OB2f to MW-4021	5.0×10^{-3}	3.1×10^{-2}	$.6 \times 10^{-2}$	1.9×10^{-2} to 1.1×10^{-3}	2.9×10^{-2} to 1.6×10^{-3}
MW-2018 to MW-4022	2.2×10^{-2}	3.8×10^{-2}	1.4×10^{-1}	1.0×10^{-1} to 5.7×10^{-3}	3.8×10^{-1} to 2.1×10^{-2}
MW-3006 to MW-2022[a]	4.0×10^{-3}	1.3×10^{-1}	1.4×10^{-1}	6.5×10^{-2} to 3.6×10^{-3}	7.0×10^{-2} to 3.9×10^{-3}
MW-2028 to MW-2024[a]	1.9×10^{-2}	2.5×10^{-2}	2.4×10^{-2}	5.9×10^{-2} to 3.3×10^{-3}	5.7×10^{-2} to 3.1×10^{-3}

[a] Flow path in the deeper portion of the Burlington-Keokuk aquifer.

See Section 12 for SI conversion factors.

TABLE 4.7-1 Population in the St. Louis Standard Metropolitan Statistical Area

County/City	1960	1970	% Change 1960-70	1980	% Change 1970-80	1990[b]	% Change 1980-90
<u>Missouri</u>							
St. Louis (city)	750,026	622,236	-17.0	452,804	-27.2	393,109	-13.2
St. Louis County[c]	703,532	951,353	+35.2	974,180	+ 2.4	989,900	+0.02
Franklin County	44,566	55,116	+23.7	71,233	+29.2	--	--
Jefferson County	66,377	105,248	+58.6	146,183	+38.9	--	--
St. Charles County	52,970	92,954	+75.5	144,107	+55.0	211,168	+46.5
<u>Illinois</u>							
Madison County	224,689	250,934	+11.7	247,691	-1.3	246,762	-0.4
St. Clair County	262,509	285,176	+ 8.6	267,531	-6.2	261,084	-2.4
Clinton County[a]	--	--	--	32,617	--	33,455	+2.6
Monroe County[a]	--	--	--	20,117	--	22,365	+11.2
St. Louis SMSA	2,104,669	2,410,884	+14.6	2,356,463	-2.3	2,157,843	-8.4

(a) Not included in the St. Louis Standard Metropolitan Statistical Area in 1960 and 1970.

(b) Preliminary Data

(c) Less St. Louis City

Source: Missouri State Census Data Center (1990)
DOE 1987

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TABLE 4.7-2 Population of the Region Surrounding the Weldon Spring Site, 1960-1990

City	1960	1970	% Change 1960-70	1980	% Change 1970-80	1990[a]	% Change 1980-90
Cottleville	NA	230	--	184	-20.0	464	+152.2
New Melle	NA	NA	--	168	--	191	+13.7
O'Fallon	3,770	7,018	+86.2	8,677	+23.6	17,443	+101.0
St. Charles City	21,189	31,834	+50.2	37,379	+17.4	50,404	+34.8
St. Peters	404	486	+20.3	17,029	+3,404	40,259	+136.4
Weldon Spring	--	--	--	609	--	755	+24.0
Weldon Spring Heights	--	--	--	144	--	97	-32.6
Wentzville	2,742	3,223	+17.5	3,193	-1.0	4570	+43.1
Lake St. Louis	--	--	--	3843	--	7518	+95.6
Dardenne Prairie	--	--	--	59	--	1078	+1,727.1

(a) Preliminary Data

Source: Missouri State Census Data Center (1990)
DOE 1987

TABLE 5.1-1 Potential Sources of Contaminants at the Weldon Spring Site

Nitrates

Nitric acid recovery plant (Area 100)
Digestion and denitration plant (Building 103)
Refinery tank farm (Area 102)
Spills from above areas
Process line and sewer leaks
Past management practices
Raffinate pits sludge
Nitric acid used in production of TNT/DNT
Spills and poor waste management practices during the World War II production effort

Sulfates

Raffinate pits sludges which contain sulfates
Sulfuric acid used in production of TNT/DNT

Fluoride

Green salt plant (Building 201)
Green salt farm (Area 202)
Metal pilot plant (Building 404)
Raffinate pits sludge

Metals

Metals plant (Building 301)	Magnesium
Magnesium building (Building 302)	Magnesium
Metal pilot plant (Building 404)	Lithium
Raffinate pits water	Chromium
Raffinate pits water	Nickel
Raffinate pits water	Vanadium

Organics

Metals plant (Building 301) tanks
Ordnance production—toluene storage tanks
Building 105-tributyl phosphate separation

Source: MKF and JEG 1987o

TABLE 5.1-2 Preliminary Listing of On-Site Tanks

AREA/BUILDING NUMBER	TANK DESCRIPTION	STATUS
101 (Concrete dock north of building)	Twenty-four tanks ranging in size from 200 gallons to 10,000 gallons. Constructed of agitated stainless steel. Originally used in digestion, denitration, and extraction processes. Placed on concrete dock during the Army decontamination and decommissioning activities in the late 1960s	No large amount of process material believed to be in tanks. Exterior scans indicate radiological contamination.
102 A and B Refinery Tank Farm	Seven 25,000-gallon tanks for storage of concentrated and dilute nitric acid. Two 19,000-gallon tanks for storage of caustic soda solution. One 19,000-gallon tank for storage of sulfuric acid. One 19,000-gallon tank for storage of hexane. One 19,000-gallon tank for storage of ether.	All tanks have been removed, except for one 25,000-gallon steel tank.
103 Digestion and Denitration Building	Two red tanks are in north portion of north half of building.	Previously sampled, tagged from containerized chemical inventory. Tanks are empty.
	Two sump-liquor hold tanks are on the south wall of northern section of the building.	Tank drains are open; no bulk materials remain.
	Five stainless steel tanks are in ore digestion section of north half of building.	Outlets are disconnected; no bulk materials remain.
	Two stainless steel tanks are in northwest ore digestion section.	Disconnected at bottom; mixers remain connected at top flanges. No bulk materials remain.
202 Green Salt Tank Farm	Ten 16,000-gallon carbon steel tanks: five for storage of anhydrous hydrofluoric acid (AHF); three for storage of 70% hydrofluoric acid (HF); two for storage of ammonia (NH_3).	Ammonia tanks have been removed. Two of three 70% HF tanks have been disconnected; modified process piping remains on the third. The AHF tanks still have connected process piping. HF system was emptied and neutralized, but some HF may remain in system.
301 Metals Plant	Tanks containing trichloroethylene and caustic soda.	Tanks still intact. Caustic soda system was inactivated to use one of its tanks for trichloroethylene.

TABLE 5.1-2 Preliminary Listing of On-Site Tanks (Continued)

AREA/BUILDING NUMBER	TANK DESCRIPTION	STATUS
403 Chemical Pilot Plant	One caustic potash tank.	Unknown
428 Gas Plant	Two 30,000-gallon tanks for storage of propane.	Exterior scans indicate radiological contamination.
429 Reserve Water Facility	One 70,000-gallon water storage tank.	Unknown

Note: Radiological characterization results are preliminary.

Source: MKF and JEG 1988o

See Section 12 for SI conversion factors.

TABLE 5.1-3 Summary of PCB Measurements

Building	Dates	Swipe Samples ($\mu g/100cm^2$) Total	<1	1-10	>10	Bulk Samples ($\mu g/g$) Total	<2	2-10	>10
104	01/89	4	2	2	0			None Taken	
109,110	06/87	1	1	0	0	1	0	0	1*
202	03/89	7	2	2	3	1	1	0	0
	05/89					1	1	0	0
302	06/87	1	1	0	0			None Taken	
	11/88	8	7	0	1			None Taken	
401	06/87	9	8	1	0	9	2	6	1
406	06/87	3	2	1	0			None Taken	
	03/89	13	2	5	6	2	2	0	0
407	06/87	10	8	0	2	2	0	0	2
	02/89	28	4	19	5	5	2	2	1
			Some Locations Resampled						
408	06/87	17	13	3	1	17	0	7	10
	02/89	17	1	8	8	2	1	0	1
409	11/87-01/88	26	6	13	7	40	4	1	35
410	06/87	7	5	1	1			None Taken	
	03/89	16	1	9	6	2	0	0	2
	10/88	5	5	0	0	0	0	0	0
412	01/89	6	0	2	4			None Taken	
413	06/87	1	0	1	0			None Taken	
	01/89	3	0	1	2			None Taken	
	03/89					1	1	0	0

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TABLE 5.1-3 Summary of PCB Measurements (Continued)

Building	Dates	Total	Swipe Samples ($\mu g/100cm^2$) <1	1-10	>10	Total	Bulk Samples ($\mu g/g$) <2	2-10	>10
414	06/87	1	1	0	0	3	0[a]	1	2
	03/89	5	0	3	2			None Taken	
	05/89	2	0	2	0				
415	03/89			None Taken		1	1	0	0
417	06/87			None Taken		3	0	1	2
	11/88	8	3	0	5			None Taken	
428	06/87	1	0	1	0			None Taken	
	12/88	3	0	3	0			None Taken	
430	06/87	1	1	0	0			None Taken	
431	02/89	1	0	0	1			None Taken	
432	11/88	1	1	0	0				
	12/88					1	0	0	1
433	06/87			None Taken		4	0	2	2
	11/88	8	8	0	0			None Taken	
434	06/87	1	1	0	0			None Taken	
	03/89	7	2	5	0	1	1	0	0
435	06/87	2	2	0	0			None Taken	
	12/88	6	2	2	2			None Taken	
436	06/87	1	1	0	0	2	0	2	0
	12/88	6	4	2	0			None Taken	
437	11/88	7	7	0	0			None Taken	

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TABLE 5.1-3 Summary of PCB Measurements (Continued)

Building	Dates	Swipe Samples ($\mu g/100cm^2$) Total	<1	1-10	>10	Bulk Samples ($\mu g/g$) Total	<2	2-10	>10
		One Sample Destroyed In Preparation							
438	06/87	1	0	1	0	None Taken			
	11/88	7	0	7	0	None Taken			
439	12/88	2	2	0	0				
	01/89					1	0	0	1
441	06/87	None Taken				1	0	1	0
	03/89	2	2	0	0	None Taken			
443	01/89	None Taken				2	2	0	0
		255	105	94	56	102	18	23	61

(a)Below detection limit

Notes: $1\ \mu g/100\ cm^2$ = approximate detection level
$10\ \mu g/100\ cm^2$ = EPA cleanup criterion for high-concentration PCB spills, non-restricted access areas

$2\ \mu g/g$ = approximate detection level
$10\ \mu g/g$ = EPA cleanup criterion for high-concentration PCB spills, non-restricted access areas

Sources: MKF and JEG 1987p, 1988c, 1989d

See Section 12 for SI conversion factors.

TABLE 5.1-4 Asbestos Content of Pipe Insulation on Overhead Utilities (All Samples Collected on 11/17-18/86)

Location	Location No. Fig. 5.1-5	Pipe Type	Results
NW Corner Bldg. 105	1	Steam	40-50%
		Ethylene Glycol	Not Analyzed
		Ethylene Glycol	Trace
		Ethylene Glycol	Not Analyzed
		Ethylene Glycol (elbow)	0-30%
		Ethylene Glycol	5-10%
		Ethylene Glycol	Not Analyzed
NE Corner Bldg. 105	2	Steam	45-50%
		Process	40%
		Process	20-30%
		Process	Not Analyzed
		Process	30%
		Process	Not Analyzed
		Ethylene Glycol	Not Analyzed
		Ethylene Glycol	Not Analyzed
SW Corner Bldg. 403	3	Steam	35-40%
		Ethylene Glycol	Not Analyzed
		Ethylene Glycol	1-2%
		Process	40-50%
		Process	10-20%
		Process	1-2%
		Process	10-20%
Bldg. 407-410	4	Ethylene Glycol	Not Analyzed
		Ethylene Glycol	Not Analyzed
		Process	20-30%
NE Corner Bldg. 201	5	Raffinate	25-30%
		Raffinate	20%
		Steam	20-30%
N. Center Bldg. 201	6	Process	25-30%
		Raffinate	40-60%
		Raffinate	20-30%
		Steam (elbow)	Trace
		Steam (elbow)	40-60%
NE Corner Bldg. 201	7	Raffinate	20-30%
SW Corner Bldg. 406	8	Steam	25-30%
W. Center Bldg. 414	9	Raffinate	50-60%
		Raffinate	20-30%
		Raffinate	30-50%
		Raffinate (elbow)	Not Analyzed
E. Center Bldg. 301	10	Steam	1-2%
		Steam	45-50%
		Steam	40-50%

Source: MKF and JEG 1987s

TABLE 5.1-5 Summary of Asbestos Measurements

			Approximate Asbestos Content				
Building	Dates	Number of Samples	<1%	1-10%	15-40%	25-55%	50-75%
101	08/86	3	0	0	2	1	0
202	03/89	10	7	2	0	1	0
302	11/88	6	5	1	0	0	0
401	08/86	2	0	0	2	0	0
	12/87	1	1	0	0	0	0
406	03/89	4	4	0	0	0	0
	04/89	11	7	4	0	0	0
407	08/86	2	2	0	0	0	0
	02-03/89	25	16	6	0	2	1
408	05/87	4	3	0	1	0	0
	02/89	12	7	3	0	0	2
	04/89	7	5	2	0	0	0
409	08/86	2	1	0	0	0	1
	12/87	5	5	0	0	0	0
410	08/86	3	3	0	0	0	0
	03/89	13	8	2	1	1	1
	04/89	30	26	4	0	0	0
412	12/88	10	8	1	0	0	1
414	03/89	3	2	0	0	1	0
415	03/89	2	2	0	0	0	0
417	11/88	9	9	0	0	0	0
430	03/89	2	1	0	0	1	0
	04/89	1	0	1	0	0	0

TABLE 5.1-5 Summary of Asbestos Measurements (Continued)

Building	Dates	Number of Samples	Approximate Asbestos Content <1%	1-10%	15-40%	25-55%	50-75%
433	11/88	6	6	0	0	0	0
435	11/88	1	1	0	0	0	0
436	11/88	8	8	0	0	0	0
437	11/88	10	7	1	0	2	0
438	12/88	7	7	0	0	0	0
		199	151	27	6	9	6

Sources: MKF and JEG 1986, 1988b, 1988o, 1989d

TABLE 5.1-6 Compilation of Asbestos Data, Samples Suspected of Radiological Contamination

DATE (1987)	LAB #	I.D. #	MASS grams	U-238 pCi/g	Ra-226 pCi/g	Th-232 pCi/g	K-40 pCi/g	COMMENTS
NOV. 06	212	IN-2049-1	128	4.6	<LLD	<LLD	<LLD	BLDG. 401 W. END-OUTSIDE ADJ TO N. STACK, LOOSE & EXPOSED INSULATION
NOV. 05	213	IN-2049-2	133	<LLD	<LLD	<LLD	<LLD	
NOV. 06	217	IN-2051-1	108	<LLD	<LLD	<LLD	<LLD	BLDG. 403-OUTSIDE NEAR ROOF ADJ TOP OF STAIRS W. SIDE OF BLDG. - BADLY DETERIORATED TAR PAPER
NOV. 06	218	IN-2051-2	145	<LLD	<LLD	<LLD	<LLD	
NOV. 09	219	IN-2051-3	122	<LLD	<LLD	<LLD	<LLD	
NOV. 03	220	IN-2052-1	107	<LLD	<LLD	<LLD	<LLD	PIPING ON OUTDOOR PIPE RACK ADJ TO ROAD BETWEEN BLDGS. 403 & 401 TAR PAPER POOR COND.-LOOSE INSULATION EXPOSED
NOV. 09	221	IN-2052-2	93	<LLD	0.5	<LLD	<LLD	
NOV. 10	222	IN-2052-3	91	<LLD	<LLD	<LLD	<LLD	
NOV. 11	223	IN-2053-1	136	12.7	1.1	0.6	<LLD	BLDG. 406-OUTSIDE-E. SIDE OF BLDG. AT SOUTH END OF OVERHANG-TAR PAPER POOR COND.-LOOSE INSULATION EXPOSED
NOV. 10	224	IN-2053-2	147	15.5	1.2	1	<LLD	
NOV. 10	225	IN-2053-3	127	10.6	<LLD	<LLD	<LLD	
NOV. 12	229	IN-2055-1a	80	9.1	<LLD	<LLD	<LLD	BLDG. 202 TOP OF BLDG. N. END EXPOSED INSULATION
NOV. 13	230	IN-2055-2a	83	7.8	<LLD	<LLD	<LLD	
NOV. 13	231	IN-2055-b	175	7.1	<1	<LLD	<LLD	
NOV. 17	235	IN-2057-1	87	<LLD	1.3	<LLD	<LLD	N OF #3 RAFFINATE PIT APPROX. 125' E OF DIKE BETWEEN R.P. #3 & R.P. #4-DETERIORATED METAL/CLOTH-EXPOSED INSULATION
NOV. 16	236	IN-2057-2	69	<LLD	1	<LLD	<LLD	
NOV. 16	237	IN-2057-3	100	<LLD	1	<LLD	<LLD	
NOV. 04	238	IN-2058-1	126	<LLD	<LLD	<LLD	<LLD	N OF #3 RAFFINATE PIT APPROX. 125' E OF DIKE BETWEEN R.P. #3 & R.P. #4-DETERIORATED METAL/CLOTH-EXPOSED INSULATION
NOV. 17	239	IN-2058-2	133	<LLD	<LLD	<LLD	<LLD	
NOV. 17	240	IN-2058-3	132	<LLD	<LLD	<LLD	<LLD	

TABLE 5.1-6 Compilation of Asbestos Data, Samples Suspected of Radiological Contamination (Continued)

DATE (1987)	LAB #	I.D. #	MASS grams	U-238 pCi/g	Ra-226 pCi/g	Th-232 pCi/g	K-40 pCi/g	COMMENTS
NOV. 04	247	IN-2061-1	79	<LLD	7.5	<LLD	<LLD	BLDG. 301 OUTSIDE-S.E. CORNER OF BLDG. (GROUND) BLDG. 301 INSULATION HAD FALLEN TO GROUND FROM O/H PIPE
NOV. 18	247	IN-2061-2	81	<LLD	<LLD	<LLD	<LLD	
NOV. 18	249	IN-2061-3	91	<LLD	<LLD	<LLD	<LLD	
NOV. 03	250	IN-2062-1	144	5	1.4	<LLD	<LLD	BLDG. 301 BLDG., 433 S. ROOM N. END J.M. "SUPEREX" BLOCK INSULATION OPENED BOX OF UNUSED INSULATION
NOV. 19	251	IN-2062-2	121	<LLD	1.9	<LLD	<LLD	
NOV. 19	252	IN-2062-3	139	<LLD	1.3	<LLD	<LLD	
NOV. 19	253	IN-2063-1	82	<LLD	<LLD	<LLD	<LLD	BLDG. 433, N. ROOM S.E. CORNER DETERIORATED & FALLEN INSULATION OPENED BOX OF UNUSED INSULATION
NOV. 19	254	IN-2062-2	91	8	<LLD	<LLD	7.2	
NOV. 05	255	IN-2062-3	91	<LLD	<LLD	<LLD	<LLD	

<LLD = Less than lower limit of detection

Source: MKF and JEG 1987m

See Section 12 for SI conversion factors.

TABLE 5.1-7 Compilation of Asbestos Data, Samples Not Suspected of Radiological Contamination

DATE (1987)	LAB #	I.D. #	MASS grams	U-238 pCi/g	Ra-226 pCi/g	Th-232 pCi/g	K-40 pCi/g	COMMENTS
NOV. 03	210	IN-2048-1	128	<LLD	<LLD	<LLD	<LLD	BLDG. 401 W. END-OUTSIDE
NOV. 05	213	IN-2049-2	133	<LLD	<LLD	<LLD	<LLD	ADJ TO N. STACK, TAR PAPER
NOV. 06	214	IN-2050-1	86	<LLD	<LLD	<LLD	<LLD	BLDG. 403-OUTSIDE NEAR
NOV. 05	215	IN-2050-2	81	<LLD	<LLD	<LLD	<LLD	ROOF ADJTOP OF STAIRS
NOV. 06	216	IN-2050-3	76	<LLD	<LLD	<LLD	<LLD	W. SIDE OF BLDG. - TAR PAPER/WOVEN CLOTH
NOV. 11	226	IN-2054-1	98	<LLD	<LLD	<LLD	<LLD	BLDG. 202-PIPE INSULATION
NOV. 12	227	IN-2054-2	79	<LLD	<LLD	<LLD	<LLD	FROM TOP OF ROOF W. SIDE
NOV. 12	228	IN-2054-3	91	<LLD	<LLD	<LLD	<LLD	OF BLDG. TAR PAPER
NOV. 13	232	IN-2056-1	70	<LLD	<LLD	<LLD	<LLD	BLDG. 406-N. OF RAFFINATE
NOV. 13	233	IN-2056-2	68	<LLD	<LLD	<LLD	<LLD	PIT - 40' E. OF DIKE
NOV. 16	234	IN-2056-3	57	<LLD	<LLD	<LLD	<LLD	BETWEEN R.P. #3 & R.P. #4 ALUMINUM WITH CLOTH LINER
NOV. 04	241	IN-2059-1	271	2.2	<1	1	<3	BLDG. 401, 2ND FLOOR
NOV. 17	242	IN-2059-2	256	2.1	<1	1.1	<LLD	WOVEN CANVAS MATERIAL
NOV. 18	243	IN-2059-3	263	<LLD	1	0.9	<LLD	STANDARD ASBESTOS MFG. & INSULATION CO.
NOV. 03	244	IN-2060-1	83	<LLD	<LLD	<LLD	<LLD	BLDG. 401, 2ND
NOV. 18	245	IN-2060-2	81	<LLD	<LLD	<LLD	<LLD	FLOOR - WOVEN CANVAS
NOV. 18	246	IN-2060-3	68	<LLD	<LLD	<LLD	<LLD	MATERIAL

< LLD = less than lower limit of detection

Source: MKF and JEG 1987m

See Section 12 for SI conversion factors.

TABLE 5.1-8 Weldon Spring Raffinate Pits Sludge Sample Radionuclide Activities

Radionuclide		Concentration in pCi/g-dry Pit No. 1	Pit No. 2	Pit No. 3	Pit No. 4
U-234	Low	410	310	380	9
	High	2,100	1,700	5,900	2,200
	Avg.	1,057	910	1,588	291.5
U-238	Low	280	280	350	9
	High	1,800	1,700	6,000	2,200
	Avg.	900	884	1,580	291.5
Th-230	Low	70	40	130	1.8
	High	4,400	33,000	270,000	2,900
	Avg.	1,541	26,673	32,896	737
Th-232	Low	1	1	2	0.8
	High	46	390	3,100	160
	Avg.	16	108	357	45
Ra-226	Low	930	270	86	0.8
	High	2,600	3,600	3,600	190
	Avg.	2,404	1,452	1,211	50
Ra-228	Low	8	100	20	5
	High	200	430	300	870
	Avg.	98	195	189	182
Pb-210	Low	1,100	480	260	5
	High	5,400	4,700	4,400	340
	Avg.	2,600	2,384	1,685	103
Po-210	Low	610	540	130	2
	High	5,400	4,400	4,000	350
	Avg.	2,587	2,119	1,597	70
Locations Sampled			3	3	1012
Total No. of Samples			7	9	2613

Source: MKF and JEG 1988i

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TABLE 5.1-9 Inorganic Anion and Water Quality Data for the Raffinate Pits

Date Sampled - April 24, 1987

	Parameter Concentration (mg/l)								
Location	Nitrate	Sulfate	Chloride	Fluoride	Hardness	TDS	TOC	Cyanide	Phenol
SW-3001 Pit 1	422	231	1.50	1.90	872	3160	12	0.032	<0.005
SW-3002 Pit 2	10.1	493	2.34	1.57	422	818	8	0.025	<0.005
SW-3003 Pit 3	947	704	3.37	4.84	2107	6390	6	0.027	<0.005
SW-3004 Pit 4	46.6	136	5.69	4.69	252	694	8	0.032	<0.005
U.S. EPA Primary/ Secondary Drinking Water Standard (mg/l)	10	250	250	0.2	500	500	[a]	0.2[b]	3.5[b]

[a] - No drinking water standard

[b] - Clean Water Act standard

TDS = Total dissolved solids

TOC = Total organic carbon

Source: MKF and JEG 1987o

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TABLE 5.1-10 Historical Concentrations of Inorganic Anions in Raffinate Pit Water and Sludge

Compound	Water (mg/l) 1987	1984[a]	1983[a]	1979[a]	1967[a]	Sludge (mg/kg dry) 1983
Pit 1						
Nitrate (as N)	422	652	697	---	5625	11,250
Sulfate	231	400	100	---	2300	400
Fluoride	1.9	2.5	1.1	---	---	23,000
Chloride	1.5	17	15	---	210	670
Pit 2						
Nitrate (as N)	10	204	---	---	8550	4050
Sulfate	493	990	460	---	3300	400
Fluoride	2.3	2.7	1	---	---	2500
Chloride	1.6	5.7	6	---	50	230
Pit 3						
Nitrate (as N)	947	1890	1485	2925	8325	4950
Sulfate	704	640	268	6203	2200	370
Fluoride	4.8	8.9	2.7	6	---	10,700
Chloride	3.4	25	20	37	90	300
Pit 4						
Nitrate (as N)	47	92	99	126	4725	495
Sulfate	136	150	70	140	2200	270
Fluoride	4.7	7.8	5.8	13	---	64,300
Chloride	5.7	7.720	7	10	90	50

[a] - DOE 1987

Source: MKF and JEG 1987o

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TABLE 5.1-11 Metals Concentrations in Raffinate Pit Water

Concentration (μg/l)

Pit	Date	Al	Sb	As	Ba	Be	B	Cd	Ca[a]	Cr	Co	Cu	Fe	Pb	Li	Mg[a]	Mn	Hg	Mo	Ni	Se	Ag	Sr	Tl	V	Zr
1	1983	---	---	100	<100	<1	<100	0.4	---	<1	28	111	12	<1	---	---	28	<1	---	<10	10	<1	---	---	---	70
	1984	30	---	6	90	12	---	<3	560	<1	<9	4	15	<1	140	26	9	<0.1	3000	<1	<1	<1	1400	---	3200	45
	1986	---	---	---	---	---	---	---	340	---	---	---	---	---	10	21	---	---	---	---	---	---	1000	---	---	--
	1987[b]	405	<60	22	<71	8	---	<0.5	254	85	<50	45	109	22	<50	15	17	<0.2	---	<11	<5	25	---	<5	2090	9
2	1983	---	---	90	<100	1	<100	0.2	---	<1	32	5	5	2	---	---	33	<1	---	20	<10	<1	---	---	---	40
	1984	40	---	15	72	8	---	<3	380	<1	<9	4	<9	<1	140	66	9	<0.1	7100	<1	<1	<1	780	---	2000	25
	1986	---	---	---	---	---	---	---	140	---	---	---	---	---	26	47	---	---	---	---	---	---	380	---	---	--
	1987[b]	279	102	38	<31	7	---	<0.5	106	83	<4	<12	220	<5	<50	41	<14	<0.2	---	48	<5	10	---	<5	1800	15
3	1979-80	---	---	---	---	---	---	---	1400	---	---	<1	---	---	---	440	---	---	---	---	---	---	---	---	---	--
	1979	31	---	---	186	<1	183	---	1396	<4	<8	27	56	---	6240	480	93	---	3940	7	---	3	5460	---	484	--
	1983	---	---	140	<100	1	<100	<0.1	---	<1	40	11	11	2	---	---	9	<1	---	<10	80	<1	---	---	---	50
	1984	30	---	4	170	<5	---	<10	880	<1	<30	7	<30	11	460	320	35	<0.1	3600	<1	<1	<1	2800	---	810	66
	1986	---	---	---	---	---	---	---	510	---	---	---	---	---	2700	290	---	---	---	---	---	---	1600	---	---	--
	1987[b]	517	395	<5	<86	<3	---	<0.5	260	194	<33	30	433	257	<50	196	33	<0.2	---	174	<5	40	---	<5	535	26
4	1979-80	---	---	---	---	---	---	---	---	---	---	<1	---	---	---	---	---	---	---	---	---	---	---	---	---	--
	1979	27	---	---	125	<4	91	---	15	<4	<4	<4	<4	---	689	34	<4	---	1040	<4	---	<3	122	---	181	--
	1983	---	---	20	100	<1	<100	0.3	---	<1	13	<1	74	4	---	---	7	<1	---	<10	<10	<1	---	---	---	10
	1984	10	---	2	100	---	---	<1	17	<1	<3	1	<3	17	660	52	7	<0.1	670	<1	<1	<1	190	---	79	5
	1986	---	---	---	---	---	---	---	18	---	---	---	---	---	590	49	---	---	---	---	---	---	180	---	---	--
	1987[b]	230	<60	<5	102	<1	---	<0.5	12	31	<4	19	101	358	<50	39	10	<0.2	---	33	<5	<8	---	<5	89	19

--- not sampled
[a] mg/l
[b] MKF and JEG 1987p

See Section 12 for SI conversion factors.

Source: Kleeschulte and Emmett 1987

TABLE 5.1-12 Radiological Test Results — Raffinate Pit Water

Date Sampled - April 24, 1987

Location No.	Pit No.	Activity +/- Error (pCi/l)						
		Gross Alpha	Gross Beta	Natural Uranium	Redium -226	Radium -228	Thorium -230	Thorium -232
SW-3001	1	200 +/-30	190 +/-70	45 +/-4	61 +/-7	<3	I	I
SW-3002	2	180 +/-30	210 +/-30	300 +/-30	28 +/-8	6 +/-2.7	13 +/-2	<6
SW-3003	3	150 +/-50	290 +/-60	130 +/-20	42 +/-10	32 +/-4	16 +/-2	<6
SW-3004	4	980 +/-100	1200 +/-300	2400 +/-300	3.4 +/-0.4	13 +/-6	<5	<5

I = Interference

Source: MKF and JEG 1987o

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TABLE 5.1-13 Summary of the Characteristics of the Raffinate Pits

Physical Characteristics

Pit Number	Construction Date	Pit Volume (yd^3)	Percent Filled	Surface Water[a] Volume (m^3)	Surface Area (hectares)
Pit 1	1958	18,500	97	<5,000	0.49
Pit 2	1958	18,500	103	<5,000	0.49
Pit 3	1959	166,700	78	19,000	3.4
Pit 4	1964	444,400	7	57,000	6.1

Waste Characteristics

Pit Number	Waste Volume (yd^3)	Weight Percent Solids	Wet Bulk Density (g/cm^3)	Solids Weight (MT)
Pit 1	17,900	27.6	1.19	5,900
Pit 2	19,000	29.4	1.22	6,800
Pit 3	129,200	27.3	1.20	42,000
Pit 4	30,200	25.3	1.18	9,010

[a]Surface water volume varies with season

See Section 12 for SI conversion factors.

Source: DOE 1987

TABLE 5.1-14 Raffinate Pit Sludge Anions Summary

	NITRITE μg/g	NITRATE μg/g	SULFATE μg/g	CHLORIDE μg/g	FLUORIDE μg/g
RAFFINATE PIT 1					
Lowest Value	113	7870	610	31	ND
Highest Value	1,640	63,207	7,460	296	26
Average	470	28,700	4,800	184	17
Standard Deviation	350	12,500	1,600	76	6
RAFFINATE PIT 2					
Lowest Value	ND	53	4,780	6	ND
Highest Value	688	76,695	7,683	87	20
Average	234	40,000	6,300	40	11
Standard Deviation	241	27,000	710	27	7
RAFFINATE PIT 3					
Lowest Value	44	5,580	ND	13	ND
Highest Value	715	161,000	7820	124	51
Average	294	29,000	3,600	49	25
Standard Deviation	190	27,000	2,500	25	12
RAFFINATE PIT 4					
Lowest Value	ND	ND	15	2	20
Highest Value	29	695	1800	26	165
Average	10	174	409	7	41
Standard Deviation	10	240	470	7	34

ND - Not Detected

Source: MKF and JEG 1989c

TABLE 5.1-15 Raffinate Pit Sludge Metals Summary

(All values $\mu g/g$)

METAL/	DETECTION LIMIT	PIT 1				PIT 2			
		MIN	MAX	AVG	STD DEV	MIN	MAX	AVG	STD DEV
Al	20	1,270	5,073	2,600	880	2,830	7,240	4,865.86	1,034.4
Sb	6	8.73	52.9	31.79	11.79	ND	39.3	17.45	8.5
As	1	41.2	675	387.62	186.98	255	983	554.48	222.38
Ba	20	ND	149	67.13	34.24	ND	77.8	49.06	13.63
Be	0.5	2.2	19	10.79	4.39	4.38	13.3	8.62	2.12
Cd	0.5	2.23	11.8	6.51	2.17	4.24	13.9	8.23	2.76
Ca	500	28,600	68,000	40,896.55	10,023.74	24,200	43,600	34,824.14	5,191.93
Cr	1	5.04	39.1	19.04	7.25	15.9	169	36.27	29.88
Co	5	ND	14.1	7.25	2.57	6.64	20.7	13.31	4.25
Cu	2.5	36.9	238	138.25	43.74	104	283	215	46.78
Fe	10	1,360	12,600	7,284.48	2,329.6	8,570	17,200	13,590.34	2,281.88
Pb	0.5	2.05	252	104.19	65.36	22.5	370	162.21	86.96
Li	5	ND	ND	N/A	N/A	ND	17.5	9.21	3.86
Mg	500	1,520	16,600	6,669.66	4,659.95	6,370	20,600	12,936.55	3,458.69
Mn	1.5	50.2	1,860	473.15	396.09	531	3,010	1,614.17	777.18
Hg	0.1	ND	0.15	0.15	0.01	ND	0.32	0.21	0.1
Mo	4.0	455	1520	987.41	285.64	450	1,600	873.62	321.68
Ni	4	12.2	30.4	19.94	5.38	16.8	66.3	30.57	8.83
K	500	ND	1470	876.2	289.07	ND	ND	N/A	N/A
Se	0.5	ND	75.5	21.59	16.15	ND	30.9	12.27	7.63
Ag	1	ND	4.22	2.36	1.24	ND	2.69	1.79	0.62
Na	500	2,580	8,020	5,305.52	1,826.48	531	5,630	2,992.28	1,751.06
Tl	1	ND	20.7	7.47	4.02	ND	7.36	3.38	1.92
V	5	817	7,800	4,092.66	1,739.15	1,280	5,650	3,111.03	1,091.19
Zn	2	41.6	1,580	240.33	317.48	61.4	247	138.54	45.32
Zr	20	ND	ND	N/A	N/A	ND	241	136.2	56.69

TABLE 5.1-15 Raffinate Pit Sludge Metals Summary (Continued)

(All values $\mu g/g$)

METAL/ DETECTION LIMIT		PIT 3				PIT 4			
		MIN	MAX	AVG	STD DEV	MIN	MAX	AVG	STD DEV
Al	20	2,160	13,900	5,460	2,772.48	ND	28,700	11,934.38	8,260.12
Sb	6	11	87.3	31.35	18	ND	36.5	13.26	10.5
As	1	105	1,060	352.46	224.85	3.14	665	101.68	191.58
Ba	20	ND	333	99.34	68.56	38.5	7,740	942.89	2,100
Be	0.5	2.48	25.4	8.21	5.79	ND	12.9	2.42	3.31
Cd	0.5	ND	321	15.12	61.16	ND	8.63	2.87	2.7
Ca	500	19,700	86,100	40,817.86	18,853.81	ND	40,100	11,842	10,311.68
Cr	1	ND	34.1	19.14	6.81	ND	22.9	16.04	3.79
Co	5	ND	13.6	8.44	2.82	ND	44.1	11.32	13.27
Cu	2.5	3.68	511	250.83	137.24	9.51	275	70.97	84.16
Fe	10	900	22,800	8,917.5	5,338.16	29.8	18,800	9,232.93	5,898.55
Pb	0.5	ND	644	168.39	130.68	1.12	158	26.03	38.95
Li	5	ND	122	32.85	32.83	ND	72.6	22.01	17.17
Mg	500	ND	17,110	8,398.46	3,569.54	ND	13,200	5,596.43	4,359.66
Mn	1.5	152	1,880	752.25	516.51	ND	1,010	233.28	238.81
Hg	0.1	0.24	15.4	3.74	4.3	ND	15	1.82	4.18
Mo	4.0	213	1,240	519.79	260.79	ND	293	62.81	73.58
Ni	4	16.7	8,790	389.54	1,647.97	11.2	134	32.66	37.96
K	500	ND	1,070	848.75	175.72	ND	1,340	989.58	270.17
Se	0.	3.1	81.1	24.87	21.85	ND	32.9	12.87	11.37
Ag	1	ND	4.97	2.27	1.38	ND	ND	N/A	N/A
Na	500	ND	23,800	6,854.44	4,394.29	ND	10,100	1,865	3,330.9
Tl	1	ND	14.9	7.8	3.76	ND	58	8.17	15.08
V	5	755	8,660	2,806.11	1,922.58	26	1,900	344.73	517.85
Zn	2	25.7	213	89.9	54.49	7.93	1,070	99.44	250.75
Zr	20	ND	1,120	329.34	256.81	ND	2,120	350.66	576.57

ND - Not Detected

TABLE 5.1-16 Raffinate Pit Radionuclide Contents Determined from the WSSRAP Project Management Contractor Study 1988

		Concentrations (pCi/g - wet)[a]			
Radionuclide		Pit 1	Pit 2	Pit 3	Pit 4
Total Uranium	low	620	340	110	10
	high	1200	680	1100	3400
	avg.	840	540	600	570
	std.	190	140	220	790
Thorium-230	low	12000	22000	3300	8
	high	34000	33000	28000	6800
	avg.	27000	27000	17000	2500
	std.	6200	3600	5700	2300
Radium-226	low	140	300	18	1
	high	1700	900	610	200
	avg.	840	540	320	72
	std.	420	200	150	58
Thorium-232[b]	low				4
	high				1400
	avg.				320
	std.				340
Radium-228[c]	low	19	56	9	4
	high	110	170	160	1400
	avg.	61	130	64	230
	std.	23	40	41	310
Thorium-228[c]	low	18	47	18	3
	high	120	160	200	1100
	avg.	60	100	91	300
	std.	35	37	44	310
Locations Sampled		3	3	9	19
Total No. Samples		9	5	41	22

(a) This table includes results of samples collected during the second phase of sampling.

(b) The Th-232 values for pits 1, 2, and 3 are not reported because they are considered erroneous due to interferences during laboratory analysis caused by high Th-230 concentrations (see Section 3.3.5 of DOE/OR/21548-062, Rev. 0).

(c) The analysis date for these samples was August 1988 for pit 3, September 1988 for pit 4, and October 1988 for pit 1 and pit 2.

Source: MKF and JEG 1989e

TABLE 5.1-17 Total Activity Inventory of Ra-226 per Pit at the Time of Sampling and at 200 Years and 1000 Years after Sampling

	Ra-226 (Ci)		
	Mid 1988	200 Years	1000 Years
Pit 1	14	48	160
Pit 2	10	48	170
Pit 3	39	210	740
Pit 4	2	8	26

TABLE 5.1-18 Average Concentration of Ra-226 per Pit at the Time of Sampling and at 200 Years and 1000 Years after Sampling

Ra-226 Concentration (pCi/g)

	Mid 1988	200 Years	1000 Years
Pit 1	840	3000	10000
Pit 2	540	2700	10000
Pit 3	320	1700	6200
Pit 4	76	290	1000

TABLE 5.1-19 Radiological Analyses Results (pCi/l) of Surface Water from the Weldon Spring Raffinate Pits Determined from WSSRAP Project Management Contractor Study 1989

	Pit 1	Pit 2	Pit 3	Pit 4	
				Surface	Bottom
Total Uranium	400 ± 40	600 ± 60	180 ± 20	2400 ± 300	2900 ± 300
Thorium-230	3 ± 0.6	2.3 ± 0.5	1.4 ± 0.5	1 ± 0.3	--[a]
Radium-226	35 ± 4	4.4 ± 0.2	54 ± 6	2.1 ± 0.1	2.9 ± 0.1
Lead-210	1.8 ± 0.9	<1	<1	<1	--[a]
Thorium-232	<1	<1	<1	<1	--[a]
Radium-228	2.5 ± 0.8	<2	25 ± 2	8.2 ± 1.1	--[a]
Thorium-228	<1	<1	<1	<1	--[a]

NOTE: Errors expressed at two standard deviations.

[a] = Not determined

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TABLE 5.1-20 Raffinate Pit Water Data — Metals

(All values $\mu g/l$)

METAL/ DETECTION LIMIT		TOTAL PIT 1 SW-3001-031789	PIT 2 SW-3002-031789	PIT 3 SW-3003-031789	PIT 4 SW-3004-031789	PIT 4 (BOTTOM) SW-3004-031789
Al	200	ND	ND	ND	496.2	510.2
Sb	60	ND	ND	65.1	ND	ND
As	10	12.7	111	ND	4.49	ND
Ba	200	ND	ND	ND	ND	ND
Be	5	ND	ND	ND	ND	ND
Cd	5	ND	ND	ND	ND	ND
Ca	5000	104400	26640	83720	10240	10020
Cr	10	ND	ND	ND	ND	ND
Co	50	ND	ND	ND	ND	ND
Cu	25	ND	ND	ND	ND	ND
Fe	100	ND	ND	ND	456.9	421.2
Pb	5	ND	ND	ND	ND	ND
Li	50	257.4	185.9	4462	492.9	496.7
Mg	5000	26020	37130	63820	33720	34310
Mn	15	ND	26	ND	15.9	17.5
Hg	0.2	ND	0.29	ND	ND	ND
Mo	4.0	2305	2743	3947	693.4	705.1
Ni	40	ND	ND	ND	ND	ND
K	5000	34050	17450	102300	16600	16600
Se	5	14.7	ND	220	7.46	7.88
Ag	10	ND	ND	ND	ND	ND
Na	5000	71980	134700	222400	164100	70360
Tl	10	ND	ND	ND	ND	ND
V	50	1360	747.9	ND	ND	ND
Zn	20	ND	ND	26.8	59.6	ND

ND - Not Detected
Source: MKF and JEG 1989c

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TABLE 5.1-20 Raffinate Pit Water Data — Metals (Continued)

(All Values μg/l)

METAL/ DETECTION LIMIT		FILTERED PIT 1 SW-3001-031789	FILTERED PIT 2 SW-3002-031789	FILTERED PIT 3 SW-3003-031789	FILTERED PIT 4 SW-3004-031789	FILTERED PIT 4 (BOTTOM) SW-3004-031789
Al	200	ND	ND	ND	ND	218.7
Sb	60	ND	ND	81.3	ND	ND
As	10	12.2	119	ND	ND	ND
Ba	200	ND	ND	ND	ND	ND
Be	5	ND	ND	ND	ND	ND
Cd	5	ND	ND	ND	ND	ND
Ca	5000	ND	27960	46100	10530	19500
Cr	10	ND	ND	ND	ND	ND
Co	50	ND	ND	ND	ND	ND
Cu	25	ND	ND	ND	ND	ND
Fe	100	ND	171.4	153.4	132	139.4
Pb	5	ND	ND	ND	ND	ND
Li	50	ND	181.5	4334	465.3	542.8
Mg	5000	ND	38420	34850	33420	39880
Mn	15	ND	ND	ND	ND	ND
Hg	0.2	ND	ND	ND	ND	ND
Mo	4.0	470.8	2851	4052	716.8	769.5
Ni	40	ND	ND	ND	49.1	ND
K	5000	ND	15590	107300	22320	14450
Se	5	18	ND	199	10.2	10.4
Ag	10	ND	ND	ND	ND	ND
Na	5000	70360	139900	116100	16100	185200
Tl	10	ND	ND	ND	ND	ND
V	50	266.7	775.4	ND	ND	ND
Zn	20	ND	ND	ND	41.5	31.8

ND - Not Detected
Source: MKF and JEG 1989c

TABLE 5.2-1 Statistical Summary of Background Soil Analysis[a] (Data in μg/g)

	No. Bkg Samples	Detection Limit (DL)	Statistical Calculations				
			Minimum[b]	Maximum	M[c]	S[d]	M+2S
Ag[e]	50	1.0	<1	13	3.0	2.0	7.0
Al	50	20.0	6,390	31,200	14,162.88	5,106.7	24,376.28
As	50	1.0	ND	33.2	11.61	7.1	25.81
Ba	50	20	75.8	1,520	208.78	203.63	616.04
Be	50	0.5	ND	3.02	1.21	0.5	2.21
Ca	50	500	1,430	7,940	2,849.08	1,084.86	5,018.8
Cd	50	0.5	ND	1.19	0.89	0.17	1.23
Cl[f]	250	1.5	0.5	14	4.4	2.6	9.6
Co	50	5.0	ND	50.1	12.35	6.89	26.13
Cr	50	1.0	12.1	61.8	22.81	8.43	39.67
Cu	50	2.5	8.5	36.4	15.52	5.14	25.8
Fl	50	1.3	ND	16.2	6.43	3.71	13.85
Fe	50	10	8,410	36,000	18,949.2	5,894.89	30,738.98
Hg	50	0.1	ND	0.16	0.15	0.01	0.17
K	50	500	ND	906	793.67	94.38	982.43
Li	50	5.0	ND	31.2	13.98	7.81	29.6
Mg	50	500	860	3,670	2,176	619.48	3,414.96
Mn	50	1.5	28.8	1,875	572.47	492.75	1,557.97
Mo	50	4.0	9.44	27.3	15.76	4.48	24.72
Na	50	500	ND	664	624.5	28.92	682.34
Ni	50	4.0	9.15	81.9	19.79	11.8	43.39
NO_2	50	0.5			(one value above DL, 1.55)		
NO_3	50	0.5	ND	155	13.14	29.36	71.86
Pb	50	0.5	6.11	76.3	22.17	10.47	43.11
Sb	50	6.0			(no values above DL)		
Se	50	0.5	ND	21.6	11.25	4.88	21.01
SO_4	50	1.0	ND	121	35.87	28.65	93.17
Tl	50	1.0	ND	19.5	8.18	4.44	17.06
V	50	5.0	12.2	70.8	34.91	9.99	54.89
Zn	50	2.0	16.5	144	38.11	19.99	78.09

(a) Based upon WSSRAP Phase II Soil Investigation.
(b) The meaning of data values below the detection limit are unknown.
(c) M = Mean
(d) S = Standard Deviation
(e) Upper background concentrations were determined as on-site arithmetic mean plus two standard deviations.
(f) IRA Soils Investigation 1986

TABLE 5.2-2 Soil Contaminant Concentrations Above Background

Location[a] Number	Depth	Conc.	Units	Parameter
1	0.0,7.0	200	µg/kg	Acetone
	0.0,7.0	52.0	µg/kg	Methylene Chloride
2	0.0,7.0	155	µg/kg	Acetone
	0.0,7.0	39.0	µg/kg	Methylene Chloride
3	0.0,7.0	51.0	µg/kg	Acetone
	0.0,7.0	0.13	µg/g	Mercury
	0.0,7.0	7.00	µg/kg	Methylene Chloride
	0.0,7.0	3040	µg/g	Potassium
	0.0,7.0	99.1	µg/g	Sulfate
4	0.0,7.0	80.0	µg/kg	Acetone
	0.0,7.0	39.0	µg/kg	Methylene Chloride
5	0.0,7.0	47.0	µg/kg	Acetone
	0.0,7.0	66.7	µg/g	Cobalt
	0.0,7.0	2130	µg/g	Manganese
	0.0,7.0	13.0	µg/kg	Methylene Chloride
	8.0,15.0	81.0	µg/kg	Acetone
	8.0,15.0	18.0	µg/kg	Methylene Chloride
6	0.0,2.0	6180	µg/g	Magnesium
	6.0,8.0	2.38	µg/g	1,3,5-Trinitrobenzene
	6.0,8.0	25900	µg/g	Aluminum
	6.0,8.0	4040	µg/g	Magnesium
	8.0,10.0	1.88	µg/g	1,3,5-Trinitrobenzene
	10.0,12.0	1.68	µg/g	1,3,5-Trinitrobenzene
7	0.0,2.0	3590	µg/g	Magnesium
	8.0,10.0	12.3	µg/g	Chloride
8	0.0,2.0	4350	µg/g	Magnesium
	2.0,4.0	3700	µg/g	Magnesium
	4.0,6.0	4080	µg/g	Magnesium
	6.0,8.0	44600	µg/g	Iron
	6.0,8.0	349	µg/g	Sulfate
	8.0,10.0	162	µg/g	Sulfate
	10.0,12.0	200	µg/g	Sulfate
	12.0,14.0	143	µg/g	Lead
	12.0,14.0	3820	µg/g	Magnesium
	12.0,14.0	2290	µg/g	Manganese
9	0.0,2.0	26.4	µg/g	Arsenic
	0.0,2.0	5360	µg/g	Calcium
	0.0,2.0	1030	µg/g	Potassium
	2.0,4.0	29.6	µg/g	Arsenic
	4.0,6.0	36.6	µg/g	Arsenic
	4.0,6.0	300	µg/g	Sulfate
	4.0,6.0	24.2	µg/g	Thallium
	6.0,8.0	30.1	µg/g	Arsenic
	8.0,10.0	10.2	µg/g	Chloride
	8.0,10.0	1590	µg/g	Potassium

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
10	0.0,2.0	29300	μg/g	Aluminum
	0.0,2.0	5970	μg/g	Magnesium
11	0.0,2.0	4440	μg/g	Magnesium
	2.0,4.0	3490	μg/g	Magnesium
12	2.0,4.0	3480	μg/g	Magnesium
	6.0,8.0	156	μg/g	Sulfate
	8.0,10.0	3620	μg/g	Magnesium
	10.0,12.0	3940	μg/g	Magnesium
	12.0,14.0	3810	μg/g	Magnesium
13	0.0,7.0	15000	μg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,7.0	670	μg/kg	Butylbenzylphthalate
	0.0,7.0	2700	μg/kg	Di-N-Butyl Phthalate
	0.0,7.0	8.00	μg/kg	Methylene Chloride
	0.0,7.0	235	μg/g	Sulfate
14	0.0,7.0	49.0	μg/kg	Acetone
	0.0,7.0	25.0	μg/kg	Methylene Chloride
	8.0,15.0	142	μg/kg	Acetone
	8.0,15.0	4.73	μg/g	Beryllium
	8.0,15.0	39.1	μg/g	Cobalt
	8.0,15.0	58600	μg/g	Iron
	8.0,15.0	2360	μg/g	Manganese
	8.0,15.0	50.0	μg/kg	Methylene Chloride
15	0.0,7.0	27.1	μg/g	Cobalt
	0.0,7.0	3180	μg/g	Manganese
16	0.0,7.0	45.0	μg/kg	Acetone
	0.0,7.0	1100	μg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,7.0	6750	μg/g	Calcium
	0.0,7.0	3720	μg/g	Magnesium
	0.0,7.0	12.0	μg/kg	Methylene Chloride
	0.0,7.0	1350	μg/g	Potassium
	0.0,7.0	128	μg/kg	Toluene
	8.0,15.0	55.0	μg/kg	Acetone
	8.0,15.0	1300	μg/kg	Bis (2-Ethylhexyl) Phthalate
	8.0,15.0	9.00	μg/kg	Methylene Chloride
	8.0,15.0	25.6	μg/g	Molybdenum
	8.0,15.0	25.0	μg/kg	Toluene
17	0.0,2.0	35.6	μg/g	Arsenic
	0.0,2.0	5775	μg/g	Calcium
	0.0,2.0	3742	μg/g	Magnesium
	0.0,2.0	1130	μg/g	Potassium
	2.0,4.0	34.1	μg/g	Arsenic
	2.0,4.0	3520	μg/g	Magnesium
	2.0,4.0	1420	μg/g	Potassium
	2.0,4.0	24.3	μg/g	Selenium

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
17 (cont.)	2.0,4.0	95.2	µg/g	Sulfate
	4.0,6.0	25400	µg/g	Aluminum
	4.0,6.0	50.5	µg/g	Arsenic
	4.0,6.0	3930	µg/g	Magnesium
	4.C,6.0	2140	µg/g	Potassium
	4.0,6.0	56.2	µg/g	Vanadium
	6.0,8.0	10.0	µg/g	Chloride
	6.0,8.0	1420	µg/g	Potassium
	8.0,10.0	5020	µg/g	Calcium
	8.0,10.0	14.7	µg/g	Chloride
	8.0,10.0	1360	µg/g	Potassium
	10.0,12.0	31.6	µg/g	Arsenic
	10.0,12.0	10.6	µg/g	Chloride
	10.0,12.0	1100	µg/g	Potassium
	16.0,18.0	1220	µg/g	Potassium
	18.0,20.0	27.4	µg/g	Arsenic
	18.0,20.0	28.2	µg/g	Selenium
18	0.0,2.0	2050	µg/g	Potassium
	2.0,4.0	39.5	µg/g	Arsenic
	2.0,4.0	6200	µg/g	Calcium
	2.0,4.0	2180	µg/g	Potassium
	4.0,6.0	129	µg/g	Arsenic
	4.0,6.0	25.7	µg/g	Molybdenum
	4.0,6.0	2500	µg/g	Potassium
	4.0,6.0	46.5	µg/g	Selenium
	4.0,6.0	57.5	µg/g	Vanadium
	6.0,8.0	35.6	µg/g	Arsenic
	6.0,8.0	1.73	µg/g	Cadmium
	6.0,8.0	26.8	µg/g	Cobalt
	6.0,8.0	1700	µg/g	Manganese
	6.0,8.0	1540	µg/g	Potassium
	6.0,8.0	26.3	µg/g	Selenium
	8.0,10.0	2100	µg/g	Potassium
	10.0,12.0	48.7	µg/g	Arsenic
	10.0,12.0	1760	µg/g	Potassium
	10.0,12.0	21.2	µg/g	Selenium
19	2.0,4.0	54.6	µg/g	Arsenic
	2.0,4.0	851	µg/g	Barium
	2.0,4.0	5890	µg/g	Calcium
	4.0,6.0	66.0	µg/g	Arsenic
	4.0,6.0	7740	µg/g	Calcium
	4.0,6.0	24.9	µg/g	Molybdenum
	4.0,6.0	1150	µg/g	Potassium
	6.0,8.0	51.8	µg/g	Arsenic
	6.0,8.0	1180	µg/g	Potassium
	8.0,10.0	74.6	µg/g	Arsenic
	8.0,10.0	1460	µg/g	Potassium
	10.0,12.0	80.8	µg/g	Arsenic
	12.0,14.0	88.3	µg/g	Arsenic

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
19 (cont.)	12.0,14.0	38.1	µg/g	Cobalt
	12.0,14.0	37100	µg/g	Iron
	12.0,14.0	60.1	µg/g	Lead
	12.0,14.0	6210	µg/g	Manganese
	12.0,14.0	79.8	µg/g	Vanadium
	14.0,16.0	25800	µg/g	Aluminum
	14.0,16.0	59.3	µg/g	Arsenic
	16.0,18.0	53.8	µg/g	Lithium
	18.0,20.0	99.9	µg/g	Arsenic
	18.0,20.0	39.8	µg/g	Chromium
	18.0,20.0	30.4	µg/g	Cobalt
	18.0,20.0	47700	µg/g	Iron
	18.0,20.0	87.4	µg/g	Lead
	18.0,20.0	121	µg/g	Vanadium
	20.0,22.0	59.17	µg/g	Arsenic
	20.0,22.0	12300	µg/g	Potassium
20	0.0,7.0	6.00	µg/kg	Methylene Chloride
	0.0,7.0	1250	µg/g	Potassium
21	0.0,2.0	15.0	µg/kg	Acetone
	0.0,2.0	1300	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,2.0	18.0	µg/kg	Methylene Chloride
	0.0,2.0	184	µg/g	Sulfate
	2.5,3.0	21.0	µg/kg	Acetone
	2.5,3.0	10.0	µg/kg	Beta-BHC
	2.5,3.0	900	µg/kg	Bis (2-Ethylhexyl) Phthalate
	2.5,3.0	13.0	µg/kg	Methylene Chloride
	4.5,5.0	1600	µg/kg	Bis (2-Ethylhexyl) Phthalate
	4.5,5.0	9.00	µg/kg	Methylene Chloride
22	0.0,7.0	530	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,7.0	11900	µg/g	Calcium
	0.0,7.0	3700	µg/g	Magnesium
	0.0,7.0	8.00	µg/kg	Methylene Chloride
	0.0,7.0	1350	µg/g	Potassium
23	0.0,0.5	870	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,0.5	0.15	µg/g	Mercury
	0.0,0.5	19.0	µg/kg	Methylene Chloride
	2.0,2.5	3300	µg/kg	Bis (2-Ethylhexyl) Phthalate
	2.0,2.5	1170	µg/g	Potassium
	4.5,5.0	560	µg/kg	Bis (2-Ethylhexyl) Phthalate
24	0.0,1.5	560	µg/kg	Aroclor-1254
	0.0,1.5	0.23	µg/g	Mercury
25	0.0,7.0	590	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,7.0	7860	µg/g	Calcium
	0.0,7.0	12.9	µg/g	Chloride
	0.0,7.0	1060	µg/g	Potassium

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
25 (cont.)	0.0,7.0	11.0	μg/kg	Toluene
	8.0,15.0	15.0	μg/kg	Acetone
	8.0,15.0	2000	μg/kg	Bis (2-Ethylhexyl) Phthalate
	8.0,15.0	6.00	μg/kg	Methylene Chloride
26	2.0,4.0	440	μg/kg	Bis (2-Ethylhexyl) Phthalate
	2.0,4.0	7940	μg/g	Calcium
	2.0,4.0	3670	μg/g	Magnesium
	2.0,4.0	1150	μg/g	Potassium
	4.0,6.0	2600	μg/kg	Bis (2-Ethylhexyl) Phthalate
	4.0,6.0	1940	μg/g	Potassium
	6.0,8.0	1640	μg/g	Potassium
	8.0,10.0	1740	μg/g	Potassium
27	0.0,7.0	24.0	μg/kg	Acetone
	0.0,7.0	1100	μg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,7.0	16300	μg/g	Calcium
	0.0,7.0	18.0	μg/kg	Methylene Chloride
28	0.0,0.5	17.0	μg/kg	Acetone
	0.0,0.5	2400	μg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,0.5	16000	μg/g	Calcium
	0.0,0.5	5270	μg/g	Magnesium
	0.0,0.5	39.0	μg/kg	Methylene Chloride
	0.0,0.5	1050	μg/g	Potassium
	2.0,2.5	16.0	μg/kg	Acetone
	2.0,2.5	267	μg/kg	Beta-BHC
	2.0,2.5	1700	μg/kg	Bis (2-Ethylhexyl) Phthalate
	2.0,2.5	15.0	μg/kg	Methylene Chloride
29	3.0,7.0	1400	μg/kg	Bis (2-Ethylhexyl) Phthalate
	3.0,7.0	3530	μg/g	Magnesium
	3.0,7.0	67.0	μg/kg	Methylene Chloride
	3.0,7.0	1520	μg/g	Potassium
	8.0,15.0	1700	μg/kg	Bis (2-Ethylhexyl) Phthalate
	8.0,15.0	13.0	μg/g	Chloride
	8.0,15.0	45.0	μg/kg	Methylene Chloride
	8.0,15.0	1300	μg/g	Potassium
30	0.0,0.5	1900	μg/kg	Acenaphthene
	0.0,0.5	3400	μg/kg	Anthracene
	0.0,0.5	8200	μg/kg	Benzo(A)Anthracene
	0.0,0.5	5100	μg/kg	Benzo(A)Pyrene
	0.0,0.5	4600	μg/kg	Benzo(B)Fluoranthene
	0.0,0.5	2100	μg/kg	Benzo(G,H,I)Perylene
	0.0,0.5	3900	μg/kg	Benzo(K)Fluoranthene
	0.0,0.5	400	μg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,0.5	6490	μg/g	Calcium
	0.0,0.5	8000	μg/kg	Chrysene
	0.0,0.5	820	μg/kg	Dibenzofuran
	0.0,0.5	11000	μg/kg	Fluoranthene

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
30 (cont.)	0.0,0.5	1600	μg/kg	Fluorene
	0.0,0.5	3200	μg/kg	Indeno(1,2,3-CD)Pyrene
	0.0,0.5	40.0	μg/kg	Methylene Chloride
	0.0,0.5	1015	μg/g	Potassium
	0.0,0.5	19400	μg/kg	Pyrene
	2.0,2.5	530	μg/kg	Bis (2-Ethylhexyl) Phthalate
	2.0,2.5	46.0	μg/kg	Methylene Chloride
	4.5,5.0	490	μg/kg	Bis (2-Ethylhexyl) Phthalate
	4.5,5.0	5280	μg/g	Calcium
	4.5,5.0	2210	μg/g	Manganese
	4.5,5.0	21.0	μg/kg	Methylene Chloride
	4.5,5.0	28.2	μg/g	Molybdenum
	4.5,5.0	1060	μg/g	Potassium
31	0.0,0.5	23.0	μg/kg	Acetone
	0.0,0.5	1300	μg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,0.5	1.39	μg/g	Cadmium
	0.0,0.5	10300	μg/g	Calcium
	0.0,0.5	1.05	μg/g	Mercury
	0.0,0.5	86.0	μg/kg	Methylene Chloride
	0.0,0.5	997	μg/g	Potassium
	2.0,2.5	700	μg/kg	Bis (2-Ethylhexyl) Phthalate
	2.0,2.5	0.14	μg/g	Mercury
	2.0,2.5	1060	μg/g	Potassium
	4.5,5.0	2400	μg/kg	Bis (2-Ethylhexyl) Phthalate
	4.5,5.0	1.69	μg/g	Cadmium
	4.5,5.0	8930	μg/g	Calcium
	4.5,5.0	30.3	μg/g	Copper
	4.5,5.0	37200	μg/g	Iron
	4.5,5.0	4310	μg/g	Magnesium
	4.5,5.0	59.0	μg/kg	Methylene Chloride
	4.5,5.0	1200	μg/g	Potassium
32	0.0,1.0	62.1	μg/g	Arsenic
	0.0,1.0	7470	μg/g	Calcium
	0.0,1.0	32.2	μg/g	Molybdenum
	0.0,1.0	1140	μg/g	Potassium
	0.0,1.0	119	μg/g	Sulfate
	0.0,1.0	70.6	μg/g	Vanadium
	2.0,2.5	19500	μg/g	Calcium
	2.0,2.5	42.9	μg/g	Chloride
	2.0,2.5	46.3	μg/g	Chromium
	2.0,2.5	290	μg/g	Sulfate
	4.5,5.0	5.09	μg/g	Beryllium
	4.5,5.0	14600	μg/g	Calcium
	4.5,5.0	14.5	μg/g	Chloride
	4.5,5.0	14700	μg/g	Magnesium
	4.5,5.0	2280	μg/g	Manganese
	4.5,5.0	61.1	μg/g	Nickel
	4.5,5.0	1400	μg/g	Potassium

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
33	0.0,1.0	324	µg/kg	Aroclor-1248
	0.0,1.0	625	µg/kg	Aroclor-1254
	0.0,1.0	354	µg/kg	Pyrene
	2.0,2.5	51300	µg/g	Calcium
	2.0,2.5	4190	µg/g	Magnesium
	4.5,5.0	10.0	µg/kg	Methylene Chloride
34	0.0,0.5	20.0	µg/kg	Acetone
	0.0,0.5	1200	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,0.5	630	µg/kg	Di-N-Butyl Phthalate
	0.0,0.5	28.0	µg/kg	Methylene Chloride
	2.0,4.0	15.0	µg/kg	Acetone
	2.0,4.0	3000	µg/kg	Bis (2-Ethylhexyl) Phthalate
	2.0,4.0	93.0	µg/kg	Methylene Chloride
	2.0,4.0	111	µg/g	Sulfate
	4.5,5.0	18.0	µg/kg	Acetone
	4.5,5.0	790	µg/kg	Bis (2-Ethylhexyl) Phthalate
	4.5,5.0	55.0	µg/kg	Methylene Chloride
35	0.0,2.0	930	µg/kg	Aroclor-1254
	4.0,6.0	9.00	µg/kg	Methylene Chloride
	6.0,8.0	8.00	µg/kg	Methylene Chloride
	8.0,10.0	7.00	µg/kg	Methylene Chloride
36	0.0,0.5	690	µg/kg	Aroclor-1254
	0.0,0.5	890	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,0.5	23900	µg/g	Calcium
	0.0,0.5	4030	µg/g	Magnesium
	0.0,0.5	1210	µg/g	Potassium
	2.0,2.5	31.0	µg/kg	Endosulfan I
	2.0,2.5	3480	µg/g	Magnesium
	2.0,2.5	27.0	µg/g	Molybdenum
	2.0,2.5	1080	µg/g	Potassium
	4.5,5.0	560	µg/kg	Bis (2-Ethylhexyl) Phthalate
	4.5,5.0	62800	µg/g	Calcium
	4.5,5.0	17800	µg/g	Magnesium
37	0.0,1.0	1100	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,1.0	157	µg/kg	Toluene
	2.0,2.5	14000	µg/kg	Bis (2-Ethylhexyl) Phthalate
	2.0,2.5	14.0	µg/kg	Methylene Chloride
	3.0,5.0	1100	µg/kg	Bis (2-Ethylhexyl) Phthalate
38	0.0,5.0	7400	µg/kg	Aroclor-1260
39	0.0,7.0	31600	µg/g	Calcium
	8.0,15.0	18.3	µg/g	Fluoride
40	0.0,7.0	17.0	µg/kg	Acetone
	0.0,7.0	25600	µg/g	Aluminum
	0.0,7.0	820	µg/kg	Bis (2-Ethylhexyl) Phthalate

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
40 (cont.)	0.0,7.0	16100	µg/g	Calcium
	0.0,7.0	4990	µg/g	Magnesium
	0.0,7.0	19.0	µg/kg	Methylene Chloride
	0.0,7.0	27.7	µg/g	Molybdenum
	0.0,7.0	1060	µg/g	Potassium
	0.0,7.0	121	µg/g	Sulfate
	0.0,7.0	122	µg/g	Zinc
	8.0,15.0	3900	µg/kg	Bis (2-Ethylhexyl) Phthalate
	8.0,15.0	16.0	µg/kg	Methylene Chloride
	16.0,17.0	32.7	µg/g	Chloride
41	0.0,0.7	43.0	µg/kg	Acetone
	0.0,0.7	9300	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,0.7	11900	µg/g	Calcium
	0.0,0.7	40.1	µg/g	Chromium
	0.0,0.7	4240	µg/g	Magnesium
	0.0,0.7	8.00	µg/kg	Methylene Chloride
	0.0,0.7	1710	µg/g	Potassium
	8.0,15.0	52.0	µg/kg	Acetone
	8.0,15.0	25060	µg/g	Aluminum
	8.0,15.0	1500	µg/kg	Bis (2-Ethylhexyl) Phthalate
	8.0,15.0	24.0	µg/kg	Methylene Chloride
	8.0,15.0	30.3	µg/g	Molybdenum
42	0.0,7.0	930	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,7.0	46.0	µg/kg	Methylene Chloride
	0.0,7.0	133	µg/g	Sulfate
	8.0,15.0	9900	µg/kg	Bis (2-Ethylhexyl) Phthalate
	8.0,15.0	19.0	µg/kg	Methylene Chloride
43	0.0,7.0	460	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,7.0	15900	µg/g	Calcium
	0.0,7.0	1830	µg/g	Sulfate
44	0.0,7.0	19.0	µg/kg	Acetone
	0.0,7.0	360	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,7.0	9150	µg/g	Calcium
	0.0,7.0	15.0	µg/kg	Methylene Chloride
45	0.0,0.5	3000	µg/kg	Aroclor-1260
	0.0,0.5	14900	µg/g	Calcium
	0.0,0.5	6890	µg/g	Magnesium
	0.0,0.5	1160	µg/g	Potassium
	4.5,5.0	100	µg/kg	Acetone
	4.5,5.0	6780	µg/g	Calcium
	4.5,5.0	3830	µg/g	Magnesium
	4.5,5.0	6.00	µg/kg	Methylene Chloride
	4.5,5.0	1660	µg/g	Potassium
46	2.0,4.0	3.45	µg/g	2,4-Dinitrotoluene

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
47	0.0,2.0	3730	µg/g	Magnesium
48	0.0,1.0	690	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,1.0	67800	µg/g	Calcium
	0.0,1.0	99.6	µg/g	Copper
	0.0,1.0	1100	µg/kg	Di-N-Butyl Phthalate
	0.0,1.0	61.3	µg/g	Lead
	0.0,1.0	30000	µg/g	Magnesium
	0.0,1.0	17.0	µg/kg	Methylene Chloride
	0.0,1.0	1590	µg/g	Potassium
	0.0,1.0	137	µg/g	Zinc
	2.0,2.5	99.0	µg/kg	Acetone
	2.0,2.5	9690	µg/g	Calcium
	2.0,2.5	4190	µg/g	Magnesium
	2.0,2.5	19.0	µg/kg	Methylene Chloride
	2.0,2.5	1330	µg/g	Potassium
	4.5,5.0	51.0	µg/kg	Acetone
	4.5,5.0	370	µg/kg	Bis (2-Ethylhexyl) Phthalate
	4.5,5.0	3460	µg/g	Magnesium
	4.5,5.0	18.0	µg/kg	Methylene Chloride
	4.5,5.0	1220	µg/g	Potassium
49	4.5,5.0	1620	µg/g	Potassium
50	2.0,2.5	53.0	µg/kg	Acetone
	4.5,5.0	34.0	µg/kg	Acetone
	4.5,5.0	1300	µg/kg	Aroclor-1254
	4.5,5.0	13900	µg/g	Calcium
	4.5,5.0	1210	µg/g	Potassium
51	0.0,2.0	3520	µg/g	Magnesium
	2.0,4.0	167	µg/g	Sulfate
	4.0,6.0	125	µg/g	Sulfate
52	0.0,0.5	5600	µg/g	Calcium
	0.0,0.5	234	µg/g	Sulfate
	2.0,2.5	345	µg/g	Sulfate
	4.5,5.0	560	µg/kg	Bis (2-Ethylhexyl) Phthalate
53	2.0,2.5	0.12	µg/g	Mercury
	2.0,2.5	128	µg/g	Sulfate
54	0.0,0.5	1370	µg/g	Potassium
	2.0,2.5	380	µg/kg	Bis (2-Ethylhexyl) Phthalate
	2.0,2.5	1350	µg/g	Potassium
55	0.0,2.0	5040	µg/g	Magnesium
	2.0,4.0	238	µg/g	Sulfate
56	4.0,5.0	22.0	µg/kg	Carbondisulfide

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
57	0.0,1.0	1300	μg/kg	Aroclor-1260
	4.5,5.0	390	μg/kg	Aroclor-1260
58	0.0,7.0	30.0	μg/kg	Acetone
	0.0,7.0	2220	μg/g	Manganese
	0.0,7.0	6.00	μg/kg	Methylene Chloride
	0.0,7.0	1320	μg/g	Potassium
59	5.0,7.0	30.0	μg/kg	Acetone
	5.0,7.0	5500	μg/g	Calcium
	5.0,7.0	59.2	μg/g	Chromium
	5.0,7.0	0.98	μg/g	Mercury
	5.0,7.0	10.0	μg/kg	Methylene Chloride
	5.0,7.0	146	μg/g	Sulfate
60	2.0,2.5	720	μg/kg	Bis (2-Ethylhexyl) Phthalate
	2.0,2.5	24100	μg/g	Calcium
	2.0,2.5	3760	μg/g	Magnesium
	2.0,2.5	9.00	μg/kg	Methylene Chloride
	2.0,2.5	1430	μg/g	Potassium
	4.5,5.0	1700	μg/kg	Bis (2-Ethylhexyl) Phthalate
	4.5,5.0	11.8	μg/g	Chloride
	4.5,5.0	10.0	μg/kg	Methylene Chloride
61	1.0,1.5	60.0	μg/kg	Acetone
	1.0,1.5	550	μg/kg	Bis (2-Ethylhexyl) Phthalate
	1.0,1.5	5.64	μg/g	Cadmium
	1.0,1.5	77200	μg/g	Calcium
	1.0,1.5	256	μg/g	Copper
	1.0,1.5	21.9	μg/g	Fluoride
	1.0,1.5	46990	μg/g	Iron
	1.0,1.5	192	μg/g	Lead
	1.0,1.5	10200	μg/g	Magnesium
	1.0,1.5	0.19	μg/g	Mercury
	1.0,1.5	21.0	μg/kg	Methylene Chloride
	1.0,1.5	25.4	μg/g	Molybdenum
	1.0,1.5	1700	μg/g	Potassium
	1.0,1.5	333	μg/g	Sulfate
	1.0,1.5	63.0	μg/kg	Trichloroethene
	1.0,1.5	1000	μg/g	Zinc
	2.0,2.5	56.0	μg/kg	Acetone
	2.0,2.5	110.1	μg/g	Molybdenum
	2.0,2.5	2920	μg/g	Potassium
	2.0,2.5	232	μg/g	Sulfate
	2.0,2.5	250	μg/kg	Trichloroethene
	4.5,5.0	66.0	μg/kg	Acetone
	4.5,5.0	16.8	μg/g	Fluoride
	4.5,5.0	15.0	μg/kg	Methylene Chloride
	4.5,5.0	3940	μg/g	Potassium
	4.5,5.0	110	μg/g	Sulfate
	4.5,5.0	29.0	μg/kg	Trichloroethene

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
62	0.0,7.0	27	µg/kg	1,2-Dichloroethene (TOTAL)
	0.0,7.0	24700	µg/g	Aluminum
	0.0,7.0	27.7	µg/g	Copper
63	0.0,0.5	810	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,0.5	6.00	µg/kg	Methylene Chloride
	2.0,2.5	360	µg/kg	Bis (2-Ethylhexyl) Phthalate
64	0.0,0.5	11100	µg/g	Calcium
	0.0,0.5	3760	µg/g	Magnesium
	2.0,2.5	630	µg/kg	Bis (2-Ethylhexyl) Phthalate
	2.0,2.5	0.13	µg/g	Mercury
	4.5,5.0	1100	µg/kg	Bis (2-Ethylhexyl) Phthalate
	4.5,5.0	19.3	µg/g	Fluoride
65	0.0,7.0	118	µg/g	Sulfate
	8.0,15.0	153	µg/g	Sulfate
66	0.0,7.0	2.19	µg/g	Cadmium
	0.0,7.0	233	µg/g	Sulfate
	8.0,15.0	20.1	µg/g	Fluoride
67	0.0,7.0	6.00	µg/kg	Methylene Chloride
	0.0,7.0	5.65	µg/g	Nitrite
	8.0,15.0	20.3	µg/g	Fluoride
68	8.0,15.0	5300	µg/g	Calcium
	8.0,15.0	14.0	µg/kg	Methylene Chloride
	0.0,7.0	14.2	µg/	Chloride
	0.0,7.0	144	µg/g	Sulfate
69	2.0,2.5	1140	µg/g	Barium
	2.0,2.5	5290	µg/g	Calcium
	2.0,2.5	995	µg/g	Potassium
	4.0,5.0	26100	µg/g	Aluminum
	4.0,5.0	25.9	µg/g	Molybdenum
	4.0,5.0	1480	µg/g	Potassium
70	0.0,0.5	2800	µg/kg	Aroclor-1260
	0.0,0.5	9660	µg/g	Calcium
	0.0,0.5	4700	µg/g	Magnesium
	0.0,0.5	1470	µg/g	Potassium
	4.5,5.0	5490	µg/g	Calcium
	4.5,5.0	280	µg/kg	Methylene Chloride
71	0.0,0.5	19600	µg/g	Calcium
	0.0,0.5	5340	µg/g	Magnesium
	0.0,0.5	0.11	µg/g	Mercury
	0.0,0.5	23.2	µg/kg	Methylene Chloride
	0.0,0.5	1380	µg/g	Potassium
	2.0,2.5	183	µg/g	Nitrate

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
71 (cont.)	2.0,2.5	139	µg/g	Sulfate
	4.5,5.0	26200	µg/g	Aluminum
	4.5,5.0	5190	µg/g	Barium
	4.5,5.0	2460	µg/g	Manganese
	4.5,5.0	28.5	µg/g	Molybdenum
	4.5,5.0	556	µg/g	Nitrate
	4.5,5.0	1260	µg/g	Potassium
	4.5,5.0	67.1	µg/g	Vanadium
72	0.0,1.0	9360	µg/g	Calcium
	0.0,1.0	3590	µg/g	Magnesium
	2.0,2.5	2.13	µg/g	Cadmium
	4.0,5.0	5320	µg/g	Calcium
	4.0,5.0	0.11	µg/g	Mercury
73	0.0.0.5	7240	µg/g	Calcium
	0.0,0.5	26.8	µg/g	Copper
	0.0,0.5	5060	µg/g	Potassium
	2.0,2.5	4500	µg/g	Potassium
	4.5,5.0	4840	µg/g	Potassium
74	0.0,1.0	1100	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,1.0	22100	µg/g	Calcium
	0.0,1.0	4640	µg/g	Magnesium
	0.0,1.0	6.00	µg/kg	Methylene Chloride
	0.0,1.0	2210	µg/g	Potassium
75	0.0,0.5	3500	µg/kg	Aroclor-1260
	0.0,0.5	11500	µg/g	Calcium
	0.0,0.5	4060	µg/g	Magnesium
	0.0,0.5	1220	µg/g	Potassium
	0.0,0.5	79.0	µg/kg	Toluene
76	0.0,0.5	6970	µg/g	Calcium
	0.0,0.5	16.0	µg/kg	Methylene Chloride
	2.0,3.5	29600	µg/g	Aluminum
	2.0,3.5	25.1	µg/g	Chloride
	2.0,3.5	15.0	µg/kg	Methylene Chloride
	2.0,3.5	26.6	µg/g	Molybdenum
	2.0,3.5	1180	µg/g	Potassium
	4.5,5.0	34700	µg/g	Aluminum
	4.5,5.0	27.0	µg/g	Chloride
	4.5,5.0	8.00	µg/kg	Methylene Chloride
	4.5,5.0	31.0	µg/g	Molybdenum
	4.5,5.0	1230	µg/g	Potassium
77	1.0,1.5	26600	µg/g	Aluminum
	1.0,1.5	8170	µg/g	Calcium
	1.0,1.5	26.7	µg/g	Molybdenum
	1.0,1.5	1020	µg/g	Potassium
	3.0,3.5	1050	µg/g	Potassium

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
77 (cont.)	5.5,6.0	31200	μg/g	Aluminum
	5.5,6.0	29.5	μg/g	Molybdenum
	5.5,6.0	1520	μg/g	Potassium
78	1.0,1.5	15500	μg/g	Calcium
	1.0,1.5	44.6	μg/g	Fluoride
	3.0,4.0	28600	μg/g	Aluminum
	3.0,4.0	39.9	μg/g	Chromium
	3.0,4.0	27.1	μg/g	Molybdenum
	5.5,6.0	24400	μg/g	Aluminum
	5.5,6.0	970	μg/kg	Bis (2-Ethylhexyl) Phthalate
	5.5,6.0	1020	μg/g	Potassium
79	0.0,0.5	27.0	μg/kg	Acetone
	0.0,0.5	2350	μg/g	Manganese
	0.0,0.5	129	μg/g	Sulfate
	0.0,0.5	23.0	μg/kg	Toluene
	2.0,2.5	26200	μg/g	Aluminum
	2.0,2.5	27.0	μg/g	Copper
	2.0,2.5	4410	μg/g	Magnesium
	2.0,2.5	30.4	μg/g	Molybdenum
	4.5,5.0	9240	μg/g	Calcium
	4.5,5.0	4750	μg/g	Magnesium
80	0.0,0.5	10300	μg/g	Calcium
	0.0,0.5	146	μg/g	Sulfate
	0.0,0.5	251	μg/g	Zinc
	2.0,2.5	56200	μg/g	Calcium
	2.0,2.5	18700	μg/g	Magnesium
	2.0,2.5	1470	μg/g	Potassium
	2.0,2.5	103	μg/g	Sulfate
	2.0,2.5	78.5	μg/g	Zinc
	4.5,5.0	1160	μg/g	Potassium
	4.5,5.0	154	μg/g	Sulfate
81	0.0,2.0	6.00	μg/kg	Methylene Chloride
	2.0,4.0	180	μg/kg	Aroclor-1254
	2.0,4.0	11.0	μg/kg	Methylene Chloride
	4.0,6.0	32.0	μg/kg	Acetone
	4.0,6.0	20.0	μg/kg	Methylene Chloride
82	0.0,2.0	2030	μg/g	Manganese
	0.0,2.0	726	μg/g	Sulfate
83	0.0,0.5	25300	μg/g	Aluminum
	0.0,0.5	340	μg/kg	Aroclor-1254
	0.0,0.5	25900	μg/g	Calcium
	0.0,0.5	6680	μg/g	Magnesium
	0.0,0.5	19.0	μg/kg	Methylene Chloride
	0.0,0.5	1360	μg/g	Potassium
	2.0,2.5	12.0	μg/kg	Methylene Chloride

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
83 (cont.)	2.0,2.5	248	µg/g	Sulfate
	4.5,5.0	460	µg/kg	Bis (2-Ethylhexyl) Phthalate
	4.5,5.0	8.00	µg/kg	Methylene Chloride
84	2.0,2.5	54.4	µg/g	Chromium
	2.0,2.5	20.0	µg/kg	Methylene Chloride
	2.0,2.5	162	µg/g	Sulfate
	3.5,5.0	5070	µg/g	Calcium
	3.5,5.0	22.0	µg/kg	Methylene Chloride
85	2.0,2.5	16.0	µg/kg	Methylene Chloride
	2.0,2.5	345	µg/g	Sulfate
	4.5,5.0	32.0	µg/kg	Acetone
	4.5,5.0	530	µg/kg	Bis (2-Ethylhexyl) Phthalate
	4.5,5.0	15.3	µg/g	Chloride
	4.5,5.0	8.00	µg/kg	Methylene Chloride
86	1.0,2.0	20800	µg/g	Calcium
	1.0,2.0	2.11	µg/g	Mercury
	3.0,4.5	52400	µg/g	Calcium
	3.0,4.5	7200	µg/g	Magnesium
	3.0,4.5	8.00	µg/kg	Methylene Chloride
	3.0,4.5	1040	µg/g	Potassium
87	8.0,15.0	5200	µg/g	Calcium
	8.0,15.0	20.2	µg/g	Fluoride
	8.0,15.0	1390	µg/g	Potassium
	16.0,17.0	19.2	µg/g	Fluoride
88	4.5,5.0	42.6	µg/g	Chloride
89	8.0,15.0	10.9	µg/g	Chloride
	8.0,15.0	427	µg/g	Nitrate
90	0.0,7.0	26500	µg/g	Calcium
	0.0,7.0	5840	µg/g	Magnesium
	0.0,7.0	0.18	µg/g	Mercury
	0.0,7.0	8.00	µg/kg	Methylene Chloride
	0.0,7.0	29.0	µg/g	Molybdenum
	0.0,7.0	1770	µg/g	Potassium
	8.0,15.0	17.4	µg/g	Fluoride
91	0.0,7.0	35.0	µg/kg	Carbondisulfide
	0.0,7.0	0.12	µg/g	Mercury
	0.0,7.0	1310	µg/g	Potassium
92	0.0,0.5	8.00	µg/kg	Methylene Chloride
	2.0,3.0	9820	µg/g	Calcium
	2.0,3.0	55.1	µg/g	Chromium
	2.0,3.0	10.0	µg/kg	Methylene Chloride
	2.0,3.0	278	µg/g	Sulfate

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
92 (cont.)	4.5,5.0	48.0	µg/kg	Acetone
	4.5,5.0	660	µg/kg	Bis (2-Ethylhexyl) Phthalate
	4.5,5.0	13.2	µg/g	Chloride
	4.5,5.0	57.7	µg/g	Chromium
	4.5,5.0	11.0	µg/kg	Methylene Chloride
93	0.0,0.5	8590	µg/g	Calcium
	0.0,0.5	38.0	µg/kg	Methylene Chloride
	0.0,0.5	203	µg/g	Sulfate
	2.0,2.5	140	µg/kg	Acetone
	2.0,2.5	400	µg/kg	Bis (2-Ethylhexyl) Phthalate
	2.0,2.5	8690	µg/g	Calcium
	2.0,2.5	69.2	µg/g	Chromium
	2.0,2.5	23.0	µg/kg	Methylene Chloride
	2.0,2.5	47.9	µg/g	Nickel
	4.5,5.0	890	µg/kg	Bis (2-Ethylhexyl) Phthalate
	4.5,5.0	9.00	µg/kg	Methylene Chloride
94	0.0,7.0	9030	µg/g	Calcium
	0.0,7.0	3440	µg/g	Magnesium
	8.0,15.0	17.4	µg/g	Fluoride
95	0.0,7.0	930	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,7.0	9.85	µg/g	Chloride
	0.0,7.0	2150	µg/g	Manganese
	0.0,7.0	1220	µg/g	Potassium
	0.0,7.0	290	µg/g	Sulfate
	8.0,15.0	29200	µg/g	Aluminum
	8.0,15.0	57.7	µg/g	Arsenic
	8.0,15.0	2800	µg/kg	Bis (2-Ethylhexyl) Phthalate
	8.0,15.0	1130	µg/g	Potassium
	16.0,23.0	2.62	µg/g	Beryllium
	16.0,23.0	44.3	µg/g	Nickel
	16.0,23.0	1020	µg/g	Potassium
96	0.0,2.0	45.2	µg/g	Arsenic
	0.0,2.0	1.46	µg/g	Cadmium
	0.0,2.0	10700	µg/g	Calcium
	0.0,2.0	79.7	µg/g	Chromium
	0.0,2.0	73.8	µg/g	Copper
	0.0,2.0	31700	µg/g	Iron
	0.0,2.0	3850	µg/g	Magnesium
	0.0,2.0	43.8	µg/g	Nickel
	0.0,2.0	1560	µg/g	Potassium
	0.0,2.0	28.4	µg/g	Selenium
	0.0,2.0	287	µg/g	Sulfate
	2.0,4.0	29400	µg/g	Aluminum
	2.0,4.0	43.0	µg/g	Arsenic
	2.0,4.0	2.25	µg/g	Cadmium
	2.0,4.0	45.0	µg/g	Chromium
	2.0,4.0	87.6	µg/g	Copper

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
96 (cont.)	2.0,4.0	3850	µg/g	Magnesium
	2.0,4.0	1800	µg/g	Potassium
	2.0,4.0	221	µg/g	Sulfate
	4.0,6.0	1.79	µg/g	Cadmium
	4.0,6.0	29600	µg/g	Calcium
	4.0,6.0	11.1	µg/g	Chloride
	4.0,6.0	73.1	µg/g	Copper
	4.0,6.0	1150	µg/g	Potassium
	6.0,8.0	11.0	µg/g	Chloride
	6.0,8.0	73.9	µg/g	Chromium
	6.0,8.0	39.0	µg/g	Copper
	6.0,8.0	19.1	µg/g	Fluoride
	6.0,8.0	1120	µg/g	Potassium
	8.0,10.0	44.1	µg/g	Arsenic
	8.0,10.0	37.6	µg/g	Copper
	8.0,10.0	3690	µg/g	Magnesium
	8.0,10.0	1450	µg/g	Potassium
	10.0,12.0	33.6	µg/g	Arsenic
	10.0,12.0	7840	µg/g	Calcium
	10.0,12.0	1110	µg/g	Potassium
	10.0,12.0	24.9	µg/g	Selenium
	10.0,12.0	3060	µg/g	Sulfate
	10.0,12.0	376	µg/g	Vanadium
	12.0,14.0	25800	µg/g	Aluminum
	12.0,14.0	36.2	µg/g	Arsenic
	12.0,14.0	185	µg/g	Chromium
	12.0,14.0	66.0	µg/g	Copper
	12.0,14.0	93.3	µg/g	Nickel
	12.0,14.0	27.2	µg/g	Selenium
	14.0,16.0	42100	µg/g	Aluminum
	14.0,16.0	69.3	µg/g	Arsenic
	14.0,16.0	60.1	µg/g	Chromium
	14.0,16.0	57.3	µg/g	Copper
	14.0,16.0	32400	µg/g	Iron
	14.0,16.0	1390	µg/g	Potassium
	14.0,16.0	32.6	µg/g	Selenium
	14.0,16.0	62.9	µg/g	Vanadium
	16.0,18.0	25700	µg/g	Aluminum
	16.0,18.0	35.6	µg/g	Arsenic
	16.0,18.0	2.97	µg/g	Cadmium
	16.0,18.0	102	µg/g	Chromium
	16.0,18.0	156	µg/g	Copper
	16.0,18.0	59.0	µg/g	Nickel
	16.0,18.0	475	µg/g	Sulfate
	18.0,20.0	31900	µg/g	Aluminum
	18.0,20.0	50.6	µg/g	Arsenic
	18.0,20.0	11.5	µg/g	Chloride
	18.0,20.0	44.1	µg/g	Chromium
	18.0,20.0	72.7	µg/g	Copper
	18.0,20.0	1570	µg/g	Potassium
	18.0,20.0	21.6	µg/g	Selenium

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
96 (cont.)	18.0,20.0	124	µg/g	Sulfate
	18.0,20.0	58.9	µg/g	Vanadium
	20.0,22.0	30900	µg/g	Aluminum
	20.0,22.0	68.4	µg/g	Arsenic
	20.0,22.0	2.00	µg/g	Cadmium
	20.0,22.0	41.7	µg/g	Chromium
	20.0,22.0	70.6	µg/g	Copper
	20.0,22.0	1460	µg/g	Potassium
	20.0,22.0	25.7	µg/g	Selenium
	20.0,22.0	164	µg/g	Sulfate
	20.0,22.0	56.7	µg/g	Vanadium
97	0.0,7.0	8.00	µg/kg	Methylene Chloride
	8.0,15.0	25600	µg/g	Calcium
	8.0,15.0	3900	µg/g	Magnesium
	8.0,15.0	0.13	µg/g	Mercury
	8.0,15.0	14.0	µg/kg	Methylene Chloride
	8.0,15.0	1720	µg/g	Potassium
98	0.0,7.0	39.0	µg/kg	Acetone
	0.0,7.0	14.4	µg/g	Fluoride
	0.0,7.0	8.00	µg/kg	Methylene Chloride
	0.0,7.0	142	µg/g	Sulfate
	8.0,15.0	61.0	µg/kg	Acetone
	8.0,15.0	29.9	µg/g	Fluoride
	8.0,15.0	0.13	µg/g	Mercury
	8.0,15.0	9.00	µg/kg	Methylene Chloride
	16.0,19.0	23.2	µg/g	Fluoride
99	2.0,2.5	1300	µg/kg	Aroclor-1254
	2.0,2.5	9590	µg/g	Calcium
	2.0,2.5	4650	µg/g	Magnesium
	2.0,2.5	6.00	µg/kg	Methylene Chloride
	2.0,2.5	1370	µg/g	Potassium
	2.0,2.5	4800	µg/kg	Trichloroethene
	4.0,5.5	1600	µg/kg	1,2-Dichloroethene (TOTAL)
	4.0,5.5	120	µg/kg	Acetone
	4.0,5.5	24800	µg/g	Aluminum
	4.0,5.5	1.52	µg/g	Cadmium
	4.0,5.5	9980	µg/g	Calcium
	4.0,5.5	63.4	µg/g	Chromium
	4.0,5.5	4830	µg/g	Magnesium
	4.0,5.5	7.00	µg/kg	Methylene Chloride
	4.0,5.5	1560	µg/g	Potassium
	4.0,5.5	320	µg/kg	Trichloroethene
	6.5,7.0	6200	µg/kg	1,2-Dichloroethene (TOTAL)
	6.5,7.0	54.0	µg/kg	Acetone
	6.5,7.0	30.0	µg/kg	Trichloroethene
	6.5,7.0	56.3	µg/g	Vanadium

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
100	1.5,3.0	180	µg/kg	1,2-Dichloroethene (TOTAL)
	1.5,3.0	5830	µg/g	Calcium
	1.5,3.0	2.65	µg/g	Nitrite
	1.5,3.0	148	µg/g	Sulfate
	4.5,5.0	120	µg/kg	Acetone
	4.5,5.0	5160	µg/g	Calcium
	4.5,5.0	1900	µg/g	Manganese
	4.5,5.0	36.0	µg/kg	Methylene Chloride
	4.5,5.0	1120	µg/g	Potassium
	6.0,6.5	29.0	µg/kg	Acetone
	6.0,6.5	26.9	µg/g	Copper
101	0.0,7.0	1010	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,7.0	1340	µg/g	Potassium
102	0.0,7.0	81.1	µg/g	Arsenic
	0.0,7.0	26700	µg/g	Calcium
	0.0,7.0	3430	µg/g	Magnesium
	0.0,7.0	0.18	µg/g	Mercury
	0.0,7.0	7.00	µg/kg	Methylene Chloride
	0.0,7.0	28.1	µg/g	Molybdenum
	0.0,7.0	687	µg/g	Nitrate
	0.0,7.0	1080	µg/g	Potassium
	0.0,7.0	183	µg/g	Sulfate
	8.0,15.0	70.1	µg/g	Arsenic
	8.0,15.0	3490	µg/kg	Bis (2-Ethylhexyl) Phthalate
	8.0,15.0	5100	µg/g	Calcium
	8.0,15.0	11.3	µg/g	Chloride
	8.0,15.0	9.00	µg/kg	Methylene Chloride
	8.0,15.0	25.6	µg/g	Molybdenum
	8.0,15.0	3830	µg/g	Nitrate
	8.0,15.0	3.27	µg/g	Nitrite
	8.0,15.0	932	µg/g	Sodium
	8.0,15.0	274	µg/g	Sulfate
	16.0,17.0	9.76	µg/g	Chloride
	16.0,17.0	3380	µg/g	Nitrate
	16.0,17.0	2.11	µg/g	Nitrite
	16.0,17.0	221	µg/g	Sulfate
103	0.0,7.0	699	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,7.0	5720	µg/g	Calcium
	0.0,7.0	29.6	µg/g	Copper
	0.0,7.0	3460	µg/g	Magnesium
	0.0,7.0	29.6	µg/g	Molybdenum
	0.0,7.0	1100	µg/g	Potassium
	0.0,7.0	142	µg/g	Sulfate
	8.0,15.0	69.5	µg/g	Arsenic
	8.0,15.0	190	µg/g	Nitrate
	8.0,15.0	149	µg/g	Sulfate
	16.0,17.0	11.1	µg/g	Chloride
	16.0,17.0	452	µg/g	Nitrate

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
104	0.0,1.0	5390	µg/g	Calcium
	0.0,1.0	42 8	µg/g	Chromium
	0.0,1.0	1070	µg/g	Potassium
	0.0,2.0	39.5	µg/g	Arsenic
	0.0,2.0	2.61	µg/g	Cadmium
	0.0,2.0	63.1	µg/g	Copper
	0.0,2.0	3590	µg/g	Magnesium
	0.0,2.0	1640	µg/g	Potassium
	0.0,2.0	346	µg/g	Sulfate
	2.0,3.0	24800	µg/g	Aluminum
	2.0,3.0	1500	µg/kg	Bis (2-Ethylhexyl) Phthalate
	2.0,3.0	24.8	µg/g	Molybdenum
	2.0,3.0	1290	µg/g	Potassium
	2.0,4.0	28900	µg/g	Aluminum
	2.0,4.0	46.2	µg/g	Arsenic
	2.0,4.0	1.37	µg/g	Cadmium
	2.0,4.0	39.7	µg/g	Chromium
	2.0,4.0	36.3	µg/g	Copper
	2.0,4.0	1060	µg/g	Potassium
	2.0,4.0	232	µg/g	Sulfate
	4.0,5.0	820	µg/kg	Bis (2-Ethylhexyl) Phthalate
	4.0,5.0	29.1	µg/g	Molybdenum
	4.0,5.0	1120	µg/g	Potassium
	4.0,6.0	31800	µg/g	Aluminum
	4.0,6.0	50.1	µg/g	Arsenic
	4.0,6.0	51.6	µg/g	Chromium
	4.0,6.0	65.1	µg/g	Copper
	4.0,6.0	4180	µg/g	Magnesium
	4.0,6.0	2000	µg/g	Potassium
	4.0,6.0	21.4	µg/g	Selenium
	4.0,6.0	62.7	µg/g	Vanadium
	6.0,8.0	27900	µg/g	Aluminum
	6.0,8.0	52.7	µg/g	Arsenic
	6.0,8.0	2.09	µg/g	Cadmium
	6.0,8.0	101	µg/g	Chromium
	6.0,8.0	74.0	µg/g	Copper
	6.0,8.0	4590	µg/g	Magnesium
	6.0,8.0	53.2	µg/g	Nickel
	6.0,8.0	2060	µg/g	Potassium
	6.0,8.0	22.6	µg/g	Selenium
	6.0,8.0	22.9	µg/g	Thallium
	6.0,8.0	57.7	µg/g	Vanadium
	8.0,10.0	36.3	µg/g	Arsenic
	8.0,10.0	2.36	µg/g	Cadmium
	8.0,10.0	6020	µg/g	Calcium
	8.0,10.0	95.6	µg/g	Chromium
	8.0,10.0	87.9	µg/g	Copper
	8.0,10.0	3590	µg/g	Magnesium
	8.0,10.0	59.5	µg/g	Nickel
	8.0,10.0	1470	µg/g	Potassium
	10.0,12.0	21500	µg/g	Calcium

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
104 (cont.)	10.0,12.0	49.8	µg/g	Copper
	10.0,12.0	4470	µg/g	Magnesium
	10.0,12.0	1600	µg/g	Potassium
	12.0,14.0	26.5	µg/g	Arsenic
	12.0,14.0	1.92	µg/g	Cadmium
	12.0,14.0	12600	µg/g	Calcium
	12.0,14.0	59.5	µg/g	Copper
	12.0,14.0	36400	µg/g	Iron
	12.0,14.0	3580	µg/g	Magnesium
	12.0,14.0	4760	µg/g	Manganese
	12.0,14.0	1520	µg/g	Potassium
	12.0,14.0	29.0	µg/g	Selenium
	14.0,16.0	28600	µg/g	Aluminum
	14.0,16.0	48.8	µg/g	Arsenic
	14.0,16.0	3.02	µg/g	Cadmium
	14.0,16.0	45.6	µg/g	Chromium
	14.0,16.0	82.2	µg/g	Copper
	14.0,16.0	3960	µg/g	Magnesium
	14.0,16.0	1530	µg/g	Potassium
	16.0,18.0	24500	µg/g	Aluminum
	16.0,18.0	37.1	µg/g	Arsenic
	16.0,18.0	2.94	µg/g	Cadmium
	16.0,18.0	65.7	µg/g	Copper
	16.0,18.0	3850	µg/g	Magnesium
	16.0,18.0	1600	µg/g	Potassium
	16.0,18.0	21.2	µg/g	Selenium
	18.0,20.0	28.6	µg/g	Arsenic
	18.0,20.0	3.11	µg/g	Beryllium
	18.0,20.0	2.08	µg/g	Cadmium
	18.0,20.0	53.4	µg/g	Copper
	18.0,20.0	1300	µg/g	Potassium
	20.0,22.0	30.0	µg/g	Arsenic
	20.0,22.0	34.1	µg/g	Copper
	20.0,22.0	1050	µg/g	Potassium
105	0.0,2.0	1090	µg/g	Potassium
	0.0,2.0	327	µg/g	Sulfate
	2.0,4.0	202	µg/g	Sulfate
	6.0,8.0	1080	µg/g	Potassium
	8.0,10.0	3470	µg/g	Magnesium
	8.0,10.0	1540	µg/g	Potassium
	10.0,12.0	48.9	µg/g	Arsenic
	10.0,12.0	22.4	µg/g	Selenium
	10.0,12.0	65.9	µg/g	Vanadium
	12.0,14.0	26.4	µg/g	Arsenic
	12.0,14.0	1030	µg/g	Potassium
	14.0,16.0	29.1	µg/g	Arsenic
	14.0,16.0	2.33	µg/g	Beryllium
	14.0,16.0	60.4	µg/g	Cobalt
	14.0,16.0	1050	µg/g	Potassium
	16.0,18.0	24.1	µg/g	Thallium

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
106	0.0,2.0	441	µg/g	Sulfate
	2.0,4.0	28.2	µg/g	Arsenic
	2.0,4.0	25.3	µg/g	Molybdenum
	2.0,4.0	1440	µg/g	Potassium
	2.0,4.0	137	µg/g	Sulfate
	4.0,6.0	27.8	µg/g	Arsenic
	4.0,6.0	1060	µg/g	Potassium
	6.0,8.0	24400	µg/g	Aluminum
	6.0,8.0	48.6	µg/g	Arsenic
	6.0,8.0	6740	µg/g	Calcium
	6.0,8.0	4270	µg/g	Magnesium
	6.0,8.0	27.4	µg/g	Molybdenum
	6.0,8.0	2060	µg/g	Potassium
	6.0,8.0	56.8	µg/g	Vanadium
107	0.0,1.5	520	µg/kg	2-Methylnaphthalene
	0.0,1.5	370	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,1.5	0.16	µg/g	Mercury
	0.0,1.5	1040	µg/g	Potassium
	0.0,1.5	82.9	µg/g	Zinc
	2.0,2.5	0.19	µg/g	Mercury
108	0.0,1.0	4600	µg/kg	2-Methylnaphthalene
	0.0,1.0	410	µg/kg	Benzo(A)Anthracene
	0.0,1.0	118	µg/g	Chromium
	0.0,1.0	390	µg/kg	Chrysene
	0.0,1.0	1900	µg/kg	Dibenzofuran
	0.0,1.0	580	µg/kg	Fluoranthene
	0.0,1.0	1800	µg/kg	Naphthalene
	0.0,1.0	46.9	µg/g	Nickel
	0.0,1.0	640	µg/kg	Pyrene
	2.0,3.5	710	µg/kg	2-Methylnaphthalene
	4.5,5.0	53.3	µg/g	Chromium
109	0.0,1.0	64.9	µg/g	Arsenic
	0.0,1.0	533	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,1.0	15000	µg/g	Calcium
	0.0,1.0	0.19	µg/g	Mercury
	0.0,1.0	1520	µg/g	Potassium
	0.0,1.0	93.2	µg/g	Sulfate
	2.0,2.5	60.2	µg/g	Arsenic
	2.0,2.5	2.56	µg/g	Cadmium
	2.0,2.5	1590	µg/g	Manganese
	2.0,2.5	0.28	µg/g	Mercury
	2.0,2.5	1135	µg/g	Potassium
	4.5,5.0	79.5	µg/g	Arsenic
	4.5,5.0	3880	µg/g	Magnesium
	4.5,5.0	0.31	µg/g	Mercury
	4.5,5.0	31.5	µg/g	Molybdenum
	4.5,5.0	1570	µg/g	Potassium
	4.5,5.0	180	µg/g	Sulfate

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
110	0.0,0.5	20100	µg/g	Calcium
	0.0,0.5	19300	µg/g	Magnesium
	0.0,0.5	0.36	µg/g	Mercury
	2.0,2.5	346	µg/kg	Bis (2-Ethylhexyl) Phthalate
	2.0,2.5	12200	µg/g	Calcium
	2.0,2.5	11.1	µg/g	Chloride
	2.0,2.5	0.37	µg/g	Mercury
	2.0,2.5	14.1	µg/kg	Methylene Chloride
	4.5,5.0	30.1	µg/kg	Acetone
	4.5,5.0	445	µg/kg	Bis (2-Ethylhexyl) Phthalate
	4.5,5.0	3850	µg/g	Magnesium
	4.5,5.0	0.25	µg/g	Mercury
	4.5,5.0	31.3	µg/kg	Methylene Chloride
	4.5,5.0	273	µg/g	Nickel
	4.5,5.0	1320	µg/g	Potassium
111	0.0,0.5	6110	µg/g	Calcium
	0.0,0.5	32.8	µg/g	Cobalt
	0.0,0.5	3640	µg/g	Magnesium
	0.0,0.5	2150	µg/g	Manganese
	0.0,0.5	11.0	µg/kg	Methylene Chloride
	0.0,0.5	84.4	µg/g	Nickel
	0.0,0.5	1160	µg/g	Potassium
	0.0,0.5	294	µg/g	Sulfate
	2.0,3.5	0.11	µg/g	Mercury
	2.0,3.5	13.0	µg/kg	Methylene Chloride
	4.5,5.0	0.18	µg/g	Mercury
	4.5,5.0	8.00	µg/kg	Methylene Chloride
112	0.0,2.0	27.0	µg/kg	Acetone
	0.0,2.0	78.0	µg/kg	Methylene Chloride
	2.0,4.0	30.0	µg/kg	Acetone
	2.0,4.0	24.0	µg/kg	Methylene Chloride
	4.0,6.0	37.0	µg/kg	Acetone
	4.0,6.0	22.0	µg/kg	Methylene Chloride
	6.0,8.0	41.0	µg/kg	ETHYL BENZENE
	6.0,8.0	26.0	µg/kg	Methylene Chloride
	6.0,8.0	15.0	µg/kg	Toluene
	6.0,8.0	27.0	µg/kg	Xylenes, Total
113	0.0,2.0	33.9	µg/g	Arsenic
	0.0,2.0	3930	µg/g	Magnesium
	0.0,2.0	2480	µg/g	Potassium
	0.0,2.0	259	µg/g	Sulfate
	2.0,4.0	25400	µg/g	Aluminum
	2.0,4.0	40.4	µg/g	Arsenic
	2.0,4.0	3940	µg/g	Magnesium
	2.0,4.0	2420	µg/g	Potassium
	2.0,4.0	26.0	µg/g	Selenium
	2.0,4.0	60.6	µg/g	Vanadium
	4.0,6.0	40.4	µg/g	Arsenic

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
113 (cont.)	4.0,6.0	11.4	µg/g	Chloride
	4.0,6.0	1020	µg/g	Potassium
	6.0,8.0	10.0	µg/g	Chloride
	6.0,8.0	204	µg/g	Sulfate
	8.0,10.0	30.5	µg/g	Arsenic
	8.0,10.0	3810	µg/g	Magnesium
	8.0,10.0	2190	µg/g	Potassium
	8.0,10.0	31.8	µg/g	Selenium
	10.0,12.0	26.2	µg/g	Arsenic
	10.0,12.0	5390	µg/g	Calcium
	10.0,12.0	1140	µg/g	Potassium
	12.0,14.0	32.1	µg/g	Arsenic
	12.0,14.0	6320	µg/g	Calcium
	14.0,16.0	28.3	µg/g	Arsenic
	14.0,16.0	1250	µg/g	Potassium
	16.0,18.0	2.96	µg/g	Beryllium
	16.0,18.0	53.3	µg/g	Nickel
	16.0,18.0	1700	µg/g	Potassium
	18.0,20.0	29.5	µg/g	Arsenic
	18.0,20.0	1.25	µg/g	Cadmium
	18.0,20.0	1210	µg/g	Potassium
	20.0,22.0	28.9	µg/g	Arsenic
	20.0,22.0	11900	µg/g	Calcium
	20.0,22.0	1630	µg/g	Potassium
114	0.0,2.0	1200	µg/kg	Aroclor-1254
	0.0,2.0	63300	µg/g	Calcium
	0.0,2.0	0.33	µg/g	Mercury
	0.0,2.0	14.0	µg/kg	Methylene Chloride
	2.5,3.0	27200	µg/g	Aluminum
	2.5,3.0	93.4	µg/g	Arsenic
	2.5,3.0	1.35	µg/g	Cadmium
	2.5,3.0	26.7	µg/g	Copper
	2.5,3.0	4090	µg/g	Magnesium
	2.5,3.0	63.0	µg/kg	Methylene Chloride
	2.5,3.0	37.9	µg/g	Molybdenum
	2.5,3.0	1870	µg/g	Potassium
	2.5,3.0	217	µg/g	Sulfate
	2.5,3.0	55.7	µg/g	Vanadium
	4.5,5.0	11.0	µg/kg	Acetone
	4.5,5.0	71.7	µg/g	Arsenic
	4.5,5.0	3780	µg/g	Magnesium
	4.5,5.0	8.00	µg/kg	Methylene Chloride
	4.5,5.0	29.1	µg/g	Molybdenum
	4.5,5.0	1590	µg/g	Potassium
115	0.0,1.5	45.1	µg/g	Chromium
	0.0,1.5	3570	µg/g	Magnesium
	0.0,1.5	1370	µg/g	Potassium
	3.5,5.0	126	µg/g	Chromium
	3.5,5.0	3600	µg/g	Magnesium

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
115 (cont.)	3.5,5.0	71.3	µg/g	Nickel
	3.5,5.0	1300	µg/g	Potassium
116	0.0,1.0	16.0	µg/kg	Acetone
	0.0,1.0	12300	µg/kg	Aroclor-1254
	0.0,1.0	2430	µg/kg	Benzidine
	0.0,1.0	2.40	µg/g	Cadmium
	0.0,1.0	12500	µg/g	Calcium
	0.0,1.0	0.32	µg/g	Mercury
	0.0,1.0	8.00	µg/kg	Methylene Chloride
	2.0,2.5	21.0	µg/kg	Acetone
	2.0,2.5	26400	µg/g	Aluminum
	2.0,2.5	4290	µg/g	Magnesium
	2.0,2.5	0.26	µg/g	Mercury
	2.0,2.5	6.00	µg/kg	Methylene Chloride
	2.0,2.5	34.2	µg/g	Molybdenum
	2.0,2.5	1850	µg/g	Potassium
	2.0,2.5	240	µg/g	Sulfate
	4.0,5.0	0.21	µg/g	Mercury
	4.0,5.0	1390	µg/g	Potassium
	4.0,5.0	812	µg/g	Sodium
	4.0,5.0	140	µg/g	Sulfate
117	0.0,1.0	65200	µg/g	Calcium
	0.0,1.0	8240	µg/g	Magnesium
	0.0,1.0	6.00	µg/kg	Methylene Chloride
	0.0,1.0	278	µg/g	Zinc
	2.0,2.5	22.0	µg/kg	Acetone
	2.0,2.5	36400	µg/g	Aluminum
	2.0,2.5	115.0	µg/g	Arsenic
	2.0,2.5	13.6	µg/g	Chloride
	2.0,2.5	44.1	µg/g	Chromium
	2.0,2.5	27.1	µg/g	Copper
	2.0,2.5	33300	µg/g	Iron
	2.0,2.5	4738	µg/g	Magnesium
	2.0,2.5	0.16	µg/g	Mercury
	2.0,2.5	8.00	µg/kg	Methylene Chloride
	2.0,2.5	45.9	µg/g	Molybdenum
	2.0,2.5	2620	µg/g	Potassium
	2.0,2.5	72.1	µg/g	Vanadium
	4.5,5.0	29.0	µg/kg	Acetone
	4.5,5.0	87.0	µg/g	Arsenic
	4.5,5.0	11.0	µg/g	Chloride
	4.5,5.0	4480	µg/g	Magnesium
	4.5,5.0	16.0	µg/kg	Methylene Chloride
	4.5,5.0	33.1	µg/g	Molybdenum
	4.5,5.0	2050	µg/g	Potassium
118	0.0,7.0	0.41	µg/g	Mercury
	0.0,7.0	11.0	µg/kg	Methylene Chloride

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
119	0.0,7.0	1840	μg/g	Potassium
120	0.0,1.0	12.0	μg/kg	Acetone
	0.0,1.0	74300	μg/g	Calcium
	0.0,1.0	26.1	μg/g	Copper
	0.0,1.0	10200	μg/g	Magnesium
	0.0,1.0	21.0	μg/kg	Methylene Chloride
	2.0,2.5	117.0	μg/g	Arsenic
	2.0,2.5	1.32	μg/g	Cadmium
	2.0,2.5	5060	μg/g	Calcium
	2.0,2.5	33500	μg/g	Iron
	2.0,2.5	3610	μg/g	Magnesium
	2.0,2.5	9.00	μg/kg	Methylene Chloride
	2.0,2.5	33.9	μg/g	Molybdenum
	2.0,2.5	2150	μg/g	Potassium
	2.0,2.5	118	μg/g	Sulfate
	2.0,2.5	64.9	μg/g	Vanadium
	4.0,5.0	28400	μg/g	Aluminum
	4.0,5.0	99.7	μg/g	Arsenic
	4.0,5.0	35800	μg/g	Iron
	4.0,5.0	4260	μg/g	Magnesium
	4.0,5.0	0.17	μg/g	Mercury
	4.0,5.0	10.0	μg/kg	Methylene Chloride
	4.0,5.0	38.6	μg/g	Molybdenum
	4.0,5.0	2230	μg/g	Potassium
	4.0,5.0	65.5	μg/g	Vanadium
121	0.0,7.0	150	μg/kg	Acetone
	0.0,7.0	200	μg/kg	Methylene Chloride
	8.0,15.0	130	μg/kg	Acetone
	8.0,15.0	20.8	μg/g	Fluoride
	8.0,15.0	200	μg/kg	Methylene Chloride
122	0.0,0.5	219000	μg/g	Calcium
	0.0,0.5	9610	μg/g	Magnesium
	0.0,0.5	0.24	μg/g	Mercury
	0.0,0.5	6.59	μg/kg	Methylene Chloride
	2.0,2.5	392	μg/kg	Bis (2-Ethylhexyl) Phthalate
	2.0,2.5	12900	μg/g	Calcium
	2.0,2.5	25.0	μg/g	Chloride
	2.0,2.5	20.2	μg/kg	Methylene Chloride
	2.0,2.5	1400	μg/g	Potassium
	2.0,2.5	220	μg/g	Sulfate
	4.5,5.0	333	μg/kg	Bis (2-Ethylhexyl) Phthalate
	4.5,5.0	25.5	μg/g	Chloride
	4.5,5.0	4190	μg/g	Magnesium
	4.5,5.0	0.22	μg/g	Mercury
	4.5,5.0	11.1	μg/kg	Methylene Chloride
	4.5,5.0	1340	μg/g	Potassium
	4.5,5.0	232	μg/g	Sulfate

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
123	0.0,7.0	110	µg/kg	Methylene Chloride
	8.0,15.0	16.8	µg/g	Fluoride
124	0.0,7.0	26600	µg/g	Aluminum
	0.0,7.0	19.0	µg/kg	Methylene Chloride
	0.0,7.0	25.7	µg/g	Molybdenum
	0.0,7.0	1590	µg/g	Potassium
125	0.0,2.0	1440	µg/g	Potassium
	2.0,4.0	4040	µg/g	Magnesium
	2.0,4.0	1700	µg/g	Potassium
	4.0,6.0	1160	µg/g	Potassium
	8.0,10.0	27300	µg/g	Aluminum
	8.0,10.0	25.3	µg/g	Molybdenum
126	0.0,2.0	1190	µg/g	Potassium
	2.0,4.0	93.5	µg/g	Sulfate
	4.0,6.0	31.1	µg/g	Cobalt
	8.0,10.0	27600	µg/g	Aluminum
	8.0,10.0	26.9	µg/g	Arsenic
	8.0,10.0	1030	µg/g	Potassium
	10.0,12.0	33600	µg/g	Aluminum
	10.0,12.0	37.1	µg/g	Arsenic
	10.0,12.0	29.4	µg/g	Molybdenum
	10.0,12.0	1410	µg/g	Potassium
127	0.0,2.0	1070	µg/g	Potassium
	4.0,6.0	43.9	µg/g	Lead
128	0.0,2.0	19600	µg/g	Calcium
	2.0,4.0	26.6	µg/g	Arsenic
	2.0,4.0	17900	µg/g	Calcium
	2.0,4.0	100	µg/g	Sulfate
	4.0,6.0	35000	µg/g	Aluminum
	4.0,6.0	29.4	µg/g	Arsenic
	4.0,6.0	33.1	µg/g	Molybdenum
	4.0,6.0	1250	µg/g	Potassium
	4.0,6.0	98.3	µg/g	Sulfate
	6.0,8.0	26100	µg/g	Aluminum
	6.0,8.0	32.7	µg/g	Arsenic
	6.0,8.0	25.4	µg/g	Molybdenum
129	0.0,2.0	1280	µg/g	Potassium
	2.0,4.0	31.6	µg/g	Arsenic
	2.0,4.0	35.4	µg/g	Cobalt
	2.0,4.0	1670	µg/g	Potassium
	2.0,4.0	128	µg/g	Sul.ate
	2.0,4.0	56.0	µg/g	Vanadium
	4.0,6.0	6890	µg/g	Calcium
	4.0,6.0	1270	µg/g	Potassium
	4.0,6.0	178	µg/g	Sulfate

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
129 (cont.)	6.0,8.0	25300	µg/g	Aluminum
	6.0,8.0	1020	µg/g	Potassium
	8.0,10.0	25900	µg/g	Aluminum
	8.0,10.0	985	µg/g	Potassium
130	0.0,7.0	320	µg/kg	Acetone
	0.0,7.0	15400	µg/g	Calcium
	0.0,7.0	14.1	µg/g	Chloride
	0.0,7.0	4770	µg/g	Magnesium
	0.0,7.0	0.20	µg/g	Mercury
	0.0,7.0	51.0	µg/kg	Methylene Chloride
131	0.0,2.0	9140	µg/g	Calcium
	2.0,4.0	1130	µg/g	Potassium
	2.0,4.0	129	µg/g	Sulfate
	6.0,8.0	25800	µg/g	Aluminum
	6.0,8.0	26.9	µg/g	Arsenic
	8.0,10.0	25200	µg/g	Aluminum
132	0.0,1.0	866	µg/kg	2-Methylnaphthalene
	0.0,1.0	7.00	µg/kg	Methylene Chloride
	4.5,5.0	153	µg/g	Sulfate
133	0.0,2.0	34900	µg/g	Aluminum
	0.0,2.0	41.500	µg/g	Chromium
	0.0,2.0	27.400	µg/g	Cobalt
	0.0,2.0	3810	µg/g	Magnesium
	0.0,2.0	27.000	µg/g	Molybdenum
	0.0,2.0	996.000	µg/g	Potassium
	0.0,2.0	30.0	µg/g	Selenium
	0.0,2.0	58.700	µg/g	Vanadium
	2.0,4.0	305.000	µg/g	Chromium
	2.0,4.0	159	µg/g	Nickel
	4.0,6.0	26500	µg/g	Aluminum
	4.0,6.0	14.7	µg/g	Fluoride
	6.0,8.0	30200	µg/g	Aluminum
	8.0,10.0	26.8	µg/g	Selenium
134	0.0,7.0	62.5	µg/kg	Acetone
	0.0,7.0	375	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,7.0	10.8	µg/g	Chloride
	0.0,7.0	0.17	µg/g	Mercury
	0.0,7.0	47.5	µg/kg	Methylene Chloride
135	0.0,7.0	25300	µg/g	Aluminum
	0.0,7.0	4280	µg/g	Magnesium
	0.0,7.0	120	µg/kg	Methylene Chloride
	0.0,7.0	28.1	µg/g	Molybdenum
	0.0,7.0	59.1	µg/g	Vanadium

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
136	0.0,7.0	1560	µg/g	Manganese
	0.0,7.0	14.0	µg/kg	Methylene Chloride
	0.0,7.0	111	µg/g	Sulfate
	8.0,15.0	6.00	µg/kg	Methylene Chloride
137	0.0,0.5	33.0	µg/kg	Acetone
	0.0,0.5	28500	µg/g	Aluminum
	0.0,0.5	1880000	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,0.5	14100	µg/g	Calcium
	0.0,0.5	4050	µg/g	Magnesium
	0.0,0.5	1840	µg/g	Manganese
	0.0,0.5	9.00	µg/kg	Methylene Chloride
	0.0,0.5	2520	µg/g	Potassium
	0.0,0.5	67.6	µg/g	Vanadium
	2.0,2.5	51.0	µg/kg	Acetone
	2.0,2.5	27500	µg/g	Aluminum
	2.0,2.5	620	µg/kg	Bis (2-Ethylhexyl) Phthalate
	2.0,2.5	3650	µg/g	Magnesium
	2.0,2.5	12500	µg/g	Manganese
	2.0,2.5	15.0	µg/kg	Methylene Chloride
	2.0,2.5	2160	µg/g	Potassium
	2.0,2.5	60.5	µg/g	Vanadium
	2.0,3.0	3650	µg/g	Magnesium
	4.5,5.0	50.0	µg/kg	Acetone
	4.5,5.0	150	µg/kg	Heptachlor
138	0.0,7.0	48.0	µg/kg	Acetone
	0.0,7.0	11.4	µg/g	Chloride
	0.0,7.0	1750	µg/g	Manganese
	0.0,7.0	140	µg/kg	Methylene Chloride
	8.0,15.0	67.0	µg/kg	Acetone
	8.0,15.0	29100	µg/g	Aluminum
	8.0,15.0	0.12	µg/g	Mercury
	8.0,15.0	190	µg/kg	Methylene Chloride
	8.0,15.0	1160	µg/g	Potassium
	8.0,15.0	14.4	µg/g	Total Organic Halogens
139	0.0,7.0	14.0	µg/kg	Methylene Chloride
	0.0,7.0	2910	µg/g	Nitrate
	0.0,7.0	782	µg/g	Sodium
	0.0,7.0	102	µg/g	Sulfate
	8.0,15.0	10.0	µg/kg	Methylene Chloride
	8.0,15.0	1390	µg/g	Nitrate
140	0.0,7.0	22.0	µg/kg	Acetone
	0.0,7.0	42.5	µg/g	Chromium
	0.0,7.0	18.0	µg/kg	Methylene Chloride
	8.0,15.0	39.0	µg/kg	Acetone
	8.0,15.0	44.0	µg/g	Arsenic
	8.0,15.0	10.0	µg/kg	Methylene Chloride
	16.0,23.0	22.0	µg/kg	Acetone

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
140 (cont.)	16.0,23.0	73.0	µg/g	Arsenic
	16.0,23.0	689	µg/g	Barium
	16.0,23.0	4.88	µg/g	Beryllium
	16.0,23.0	10600	µg/g	Calcium
	16.0,23.0	71.2	µg/g	Cobalt
	16.0,23.0	3260	µg/g	Manganese
	16.0,23.0	7.00	µg/kg	Methylene Chloride
	16.0,23.0	34.1	µg/g	Molybdenum
	16.0,23.0	116	µg/g	Nickel
	16.0,23.0	166	µg/g	Nitrate
	16.0,23.0	95.2	µg/g	Zinc
141	0.0,7.0	110	µg/kg	Acetone
	0.0,7.0	27300	µg/g	Aluminum
	0.0,7.0	14.0	µg/g	Fluoride
	0.0,7.0	180	µg/kg	Methylene Chloride
	0.0,7.0	26.5	µg/g	Molybdenum
	0.0,7.0	57.6	µg/g	Vanadium
	8.0,15.0	33800	µg/g	Aluminum
	8.0,15.0	2.51	µg/g	Beryllium
	8.0,15.0	21.2	µg/g	Fluoride
	8.0,15.0	31000	µg/g	Iron
	8.0,15.0	130	µg/kg	Methylene Chloride
	8.0,15.0	33.7	µg/g	Molybdenum
142	0.0,7.0	33.0	µg/kg	Acetone
	0.0,7.0	28.0	µg/kg	Chloroform
	0.0,7.0	47.0	µg/kg	Methylene Chloride
143	0.0,7.0	26.0	µg/kg	Acetone
	0.0,7.0	42.0	µg/kg	Chloroform
	0.0,7.0	110	µg/kg	Methylene Chloride
	0.0,7.0	107	µg/g	Sulfate
144	0.0,7.0	600	µg/kg	Acetone
	0.0,7.0	37.0	µg/g	Arsenic
	0.0,7.0	260	µg/kg	Methylene Chloride
	0.0,7.0	158	µg/g	Sulfate
	0.0,7.0	138	µg/kg	Toluene
145	0.0,7.0	12.9	µg/g	Chloride
	0.0,7.0	48.7	µg/g	Cobalt
	0.0,7.0	2730	µg/g	Manganese
	0.0,7.0	0.18	µg/g	Mercury
	0.0,7.0	186	µg/g	Sulfate
146	0.0,2.0	28900	µg/g	Aluminum
	0.0,2.0	3930	µg/g	Magnesium
	0.0,2.0	1690	µg/g	Manganese
	2.0,4.0	26900	µg/g	Aluminum
	6.0,8.0	31800	µg/g	Aluminum

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
146 (cont.)	6.0,8.0	31300	µg/g	Iron
	6.0,8.0	54.5	µg/g	Lead
	6.0,8.0	1620	µg/g	Manganese
	6.0,8.0	248	µg/g	Sulfate
	8.0,10.0	26700	µg/g	Aluminum
	8.0,10.0	262	µg/g	Sulfate
147	0.0,2.0	1500	µg/g	Barium
	0.0,2.0	6370	µg/g	Magnesium
	0.0,2.0	290	µg/g	Sulfate
	2.0,4.0	10.6	µg/g	Chloride
	2.0,4.0	587	µg/g	Sulfate
	6.0,8.0	34800	µg/g	Aluminum
148	0.0,2.0	3540	µg/g	Magnesium
149	2.0,4.0	187	µg/g	Sulfate
150	0.0,2.0	1930	µg/g	Manganese
	4.0,6.0	142	µg/g	Sulfate
	8.0,10.0	30000	µg/g	Aluminum
151	0.0,2.0	3320	µg/g	Manganese
	2.0,4.0	1440	µg/g	Sulfate
	4.0,6.0	1.88	µg/g	1,3,5-Trinitrobenzene
	4.0,6.0	3.17	µg/g	2,4-Dinitrotoluene
	4.0,6.0	2800	µg/g	Manganese
	4.0,6.0	162	µg/g	Sulfate
	6.0,8.0	1.70	µg/g	1,3,5-Trinitrobenzene
	6.0,8.0	6.31	µg/g	2,4-Dinitrotoluene
	6.0,8.0	36000	µg/g	Aluminum
	6.0,8.0	3790	µg/g	Magnesium
	8.0,10.0	0.95	µg/g	2,4-Dinitrotoluene
	8.0,10.0	666	µg/g	Barium
152	0.0,2.0	255	µg/g	Lead
	0.0,2.0	4200	µg/g	Magnesium
	0.0,2.0	186	µg/g	Sulfate
	2.0,4.0	840	µg/g	Sulfate
	4.0,6.0	24900	µg/g	Aluminum
	4.0,6.0	1590	µg/g	Barium
	6.0,8.0	26500	µg/g	Aluminum
153	0.0,7.0	40.0	µg/kg	Chloroform
	0.0,7.0	92.0	µg/kg	Methylene Chloride
154	0.0,7.0	66.0	µg/kg	Acetone
	0.0,7.0	15400	µg/g	Calcium
	0.0,7.0	7.00	µg/kg	Methylene Chloride
	0.0,7.0	1.51	µg/g	Nitrite
	8.0,15.0	1430	µg/g	Potassium

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
154 (cont.)	16.0,22.0	71.0	µg/kg	Acetone
	16.0,22.0	13.9	µg/g	Fluoride
155	0.0,1.0	60.0	µg/g	Lead
	0.0,1.0	3800	µg/g	Magnesium
	0.0,1.0	1420	µg/g	Sulfate
156	0.0,7.0	14.0	µg/kg	Acetone
	0.0,7.0	14.0	µg/kg	Methylene Chloride
	8.0,15.0	2.60	µg/g	Nitrite
157	0.0,7.0	40.1	µg/g	Copper
	0.0,7.0	3600	µg/g	Potassium
158	0.0,1.0	1900	µg/g	Lead
159	0.0,7.0	375	µg/kg	Acetone
	0.0,7.0	0.13	µg/g	Mercury
	0.0,7.0	247	µg/g	Sulfate
	8.0,15.0	73.0	µg/kg	Acetone
	8.0,15.0	1.31	µg/g	Cadmium
	8.0,15.0	23.0	µg/kg	Methylene Chloride
160	0.0,2.0	2180	µg/g	Manganese
	2.0,4.0	1.21	µg/g	1,3,5-Trinitrobenzene
	2.0,4.0	647	µg/g	2,4,6-Trinitrotoluene
	4.0,6.0	2.02	µg/g	2,4,6-Trinitrotoluene
161	0.0,2.0	52.7	µg/g	Chromium
	2.0,4.0	28.2	µg/g	Arsenic
	4.0,6.0	35.6	µg/g	Arsenic
	4.0,6.0	35800	µg/g	Calcium
	4.0,6.0	42.6	µg/g	Chromium
	6.0,8.0	28.9	µg/g	Arsenic
162	0.0,7.0	21.0	µg/kg	Acetone
	0.0,7.0	5470	µg/g	Calcium
	0.0,7.0	0.20	µg/g	Mercury
	8.0,15.0	61.0	µg/g	Arsenic
	8.0,15.0	5200	µg/g	Calcium
	8.0,15.0	0.12	µg/g	Mercury
163	0.0,1.0	52.1	µg/g	Lead
	0.0,1.0	2590	µg/g	Sulfate
164	0.0,2.0	6280	µg/g	Magnesium
	8.0,10.0	34000	µg/g	Iron
165	0.0,2.0	24600	µg/g	Aluminum
	0.0,2.0	16.1	µg/g	Chloride
	0.0,2.0	18.2	µg/g	Fluoride

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
165 (cont.)	0.0,2.0	4630	µg/g	Magnesium
	0.0,2.0	2.90	µg/g	Nitrite
	0.0,2.0	1610	µg/g	Potassium
	0.0,2.0	187	µg/g	Sulfate
	2.0,4.0	3520	µg/g	Magnesium
	2.0,4.0	28.6	µg/g	Nitrite
	2.0,4.0	176	µg/g	Sulfate
	4.0,6.0	1810	µg/g	Manganese
	4.0,6.0	10.2	µg/g	Nitrite
	6.0,8.0	1.52	µg/g	Nitrite
	6.0,8.0	1010	µg/g	Potassium
166	0.0,2.0	15900	µg/g	Calcium
	0.0,2.0	21.3	µg/g	Fluoride
	0.0,2.0	3800	µg/g	Magnesium
	0.0,2.0	1010	µg/g	Potassium
	2.0,4.0	4070	µg/g	Magnesium
	2.0,4.0	4.44	µg/g	Nitrite
	2.0,4.0	136	µg/g	Sulfate
	4.0,6.0	3560	µg/g	Magnesium
	8.0,10.0	113	µg/g	Sulfate
167	0.0,7.0	17.0	µg/kg	Acetone
	0.0,7.0	9.00	µg/kg	Methylene Chloride
	8.0,15.0	25.0	µg/kg	Acetone
	8.0,15.0	430	µg/kg	Bis (2-Ethylhexyl) Phthalate
	8.0,15.0	21.6	µg/g	Fluoride
	8.0,15.0	6.00	µg/kg	Methylene Chloride
	16.0,17.0	20.5	µg/g	Fluoride
168	4.0,6.0	181	µg/g	Sulfate
169	0.0,2.0	291	µg/g	Sulfate
	2.0,4.0	260	µg/g	Sulfate
170	2.0,4.0	188	µg/g	Sulfate
	4.0,6.0	28.6	µg/g	2,4,6-Trinitrotoluene
	4.0,6.0	262	µg/g	Sulfate
	6.0,7.0	5.66	µg/g	1,3,5-Trinitrobenzene
	6.0,7.0	2.34	µg/g	2,4,6-Trinitrotoluene
	6.0,7.0	1.84	µg/g	2,4-Dinitrotoluene
	6.0,7.0	143	µg/g	Sulfate
171	0.0,1.5	37600	µg/g	Iron
	0.0,1.5	161	µg/g	Sulfate
172	0.0,2.0	24800	µg/g	Aluminum
173	2.0,4.0	201	µg/g	Sulfate
	4.0,6.0	125	µg/g	Sulfate

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
174	0.0,7.0	35000	µg/g	Aluminum
	0.0,7.0	560	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0.0,7.0	0.15	µg/g	Mercury
	0.0,7.0	11.0	µg/kg	Methylene Chloride
	0.0,7.0	409	µg/g	Sulfate
	8.0,15.0	25.0	µg/kg	Acetone
	8.0,15.0	35057	µg/g	Aluminum
	8.0,15.0	3687	µg/g	Magnesium
	8.0,15.0	0.44	µg/g	Mercury
175	0.0,7.0	43.8	µg/kg	Acetone
	0.0,7.0	92.1	µg/kg	Methylene Chloride
	0.0,7.0	1100	µg/g	Potassium
176	0.0,7.0	8.00	µg/kg	Methylene Chloride
	8.0,15.0	30.0	µg/kg	Acetone
	8.0,15.0	25900	µg/g	Aluminum
	8.0,15.0	1.44	µg/g	Cadmium
	8.0,15.0	81.59	µg/g	Lead
	8.0,15.0	16.0	µg/kg	Methylene Chloride
	8.0,15.0	27.4	µg/g	Molybdenum
	8.0,15.0	142	µg/g	Nitrate
177	0.0,7.0	27.0	µg/kg	Acetone
	0.0,7.0	28.0	µg/kg	Methylene Chloride
	0.0,7.0	259	µg/g	Sulfate
178	0.0,7.0	21.0	µg/kg	Acetone
	0.0,7.0	9.00	µg/kg	Methylene Chloride
	0.0,7.0	162	µg/g	Sulfate
179	0.0,7.0	13.0	µg/kg	Acetone
	0.0,7.0	39.5	µg/g	Arsenic
	0.0,7.0	13.0	µg/kg	Methylene Chloride
	8.0,15.0	26.0	µg/kg	Acetone
	8.0,15.0	30.0	µg/g	Arsenic
180	0.0,7.0	15.0	µg/kg	Acetone
	8.0,15.0	10.2	µg/kg	Acetone
	8.0,15.0	11.3	µg/kg	Methylene Chloride
181	0.0,1.0	5910	µg/g	Magnesium
182	4.0,6.0	1.73	µg/g	2,6-Dinitrotoluene
	4.0,6.0	103	µg/g	Sulfate
183	2.0,4.0	210	µg/g	Sulfate
	4.0,6.0	115	µg/g	Sulfate

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
184	0.0,7.0	22.0	μg/kg	Acetone
	0.0,7.0	54.5	μg/g	Arsenic
	0.0,7.0	2320	μg/g	Potassium
185	0.0,7.0	61.0	μg/kg	Acetone
	0.0,7.0	35.0	μg/kg	Methylene Chloride
	0.0,7.0	1110	μg/g	Potassium
	8.0,15.0	82.0	μg/kg	Acetone
	8.0,15.0	25100	μg/g	Aluminum
	8.0,15.0	530	μg/kg	Bis (2-Ethylhexyl) Phthalate
	8.0,15.0	240	μg/kg	Methylene Chloride
	8.0,15.0	1160	μg/g	Potassium
186	0.0,7.0	8.00	μg/kg	Methylene Chloride
	0.0,7.0	1460	μg/g	Potassium
187	0.0,1.0	747	μg/g	Lead
	0.0,1.0	1.88	μg/g	Nitrite
188	0.0,7.0	1.29	μg/g	Cadmium
	0.0,7.0	41.0	μg/kg	Methylene Chloride
189	0.0,7.0	31.0	μg/kg	Acetone
	0.0,7.0	26.6	μg/g	Arsenic
	0.0,7.0	8.00	μg/kg	Methylene Chloride
	0.0,7.0	99.0	μg/kg	Toluene
190	0.0,2	7.69	μg/g	Silver
	0.0,2.0	15500	μg/g	Calcium
	0.0,2.0	120	μg/g	Chromium
	0.0,2.0	85.9	μg/g	Copper
	0.0,2.0	14.6	μg/g	Fluoride
	0.0,2.0	111	μg/g	Lead
	0.0,2.0	3850	μg/g	Magnesium
	0.0,2.0	37.0	μg/g	Molybdenum
	0.0,2.0	177	μg/g	Nickel
	0.0,2.0	250	μg/g	Zinc
	2.0,3.0	1.69	μg/g	Cadmium
	2.0,3.0	28700	μg/g	Calcium
	2.0,3.0	83.3	μg/g	Chromium
	2.0,3.0	239	μg/g	Copper
	2.0,3.0	83800	μg/g	Iron
	2.0,3.0	337	μg/g	Lead
	2.0,3.0	3890	μg/g	Magnesium
	2.0,3.0	35.1	μg/g	Molybdenum
	2.0,3.0	92.7	μg/g	Nickel
	2.0,3.0	47.1	μg/g	Selenium
	2.0,3.0	356	μg/g	Sulfate
	2.0,3.0	949	μg/g	Zinc

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
191	0.0,7.0	41.0	µg/kg	Acetone
	0.0,7.0	33.7	µg/g	Arsenic
	0.0,7.0	4700	µg/kg	Di-N-Butyl Phthalate
	0.0,7.0	43500	µg/g	Iron
	0.0,7.0	1.02	µg/g	Mercury
	0.0,7.0	26.0	µg/kg	Methylene Chloride
	0.0,7.0	267	µg/g	Sulfate
	8.0,15.0	30.0	µg/kg	Acetone
	8.0,15.0	32300	µg/g	Aluminum
	8.0,15.0	32300	µg/g	Iron
	8.0,15.0	14.0	µg/kg	Methylene Chloride
	8.0,15.0	33.4	µg/g	Molybdenum
	8.0,15.0	71.2	µg/g	Nickel
	8.0,15.0	1550	µg/g	Potassium
	8.0,15.0	182	µg/g	Zinc
192	0.0,1.0	4230	µg/g	Magnesium
	0.0,1.0	1.66	µg/g	Nitrite
193	4.0,6.0	12600	µg/g	Calcium
	4.0,6.0	74.0	µg/g	Chromium
	4.0,6.0	57.1	µg/g	Copper
	4.0,6.0	106	µg/g	Lead
	4.0,6.0	50.6	µg/g	Nickel
	4.0,6.0	232	µg/g	Sulfate
	4.0,6.0	215	µg/g	Zinc
	6.0,8.0	44.3	µg/g	Chromium
	6.0,8.0	74.4	µg/g	Nickel
	6.0,8.0	129	µg/g	Sulfate
194	0.0,7.0	24.0	µg/kg	Acetone
	0.0,7.0	42.0	µg/kg	Methylene Chloride
195	0.0,2.0	28.4	µg/g	Arsenic
	0.0,2.0	9800	µg/g	Calcium
	0.0,2.0	67.5	µg/g	Copper
	0.0,2.0	99.5	µg/g	Lead
	0.0,2.0	22.9	µg/g	Selenium
	0.0,2.0	175	µg/g	Sulfate
	0.0,2.0	424	µg/g	Zinc
196	2.0,4.0	25400	µg/g	Aluminum
	2.0,4.0	132.6	µg/g	Arsenic
	2.0,4.0	2.01	µg/g	Cadmium
	2.0,4.0	45100	µg/g	Calcium
	2.0,4.0	76.7	µg/g	Chromium
	2.0,4.0	68.4	µg/g	Cobalt
	2.0,4.0	84700	µg/g	Iron
	2.0,4.0	124	µg/g	Lead
	2.0,4.0	3580	µg/g	Magnesium
	2.0,4.0	2170	µg/g	Manganese

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
196 (cont.)	2.0,4.0	116	µg/g	Molybdenum
	2.0,4.0	118	µg/g	Nickel
	2.0,4.0	1098	µg/g	Sodium
	2.0,4.0	341	µg/g	Sulfate
	2.0,4.0	80.2	µg/g	Thallium
	2.0,4.0	1050	µg/g	Zinc
	4.0,6.0	42.5	µg/g	Arsenic
	4.0,6.0	327	µg/g	Sulfate
197	2.0,4.0	25.9	µg/g	Arsenic
	2.0,4.0	51.0	µg/g	Chromium
	2.0,4.0	145	µg/g	Sulfate
	6.0,8.0	40.4	µg/g	Cobalt
198	0.0,7.0	43.0	µg/kg	Methylene Chloride
	0.0,7.0	108	µg/g	Sulfate
	8.0,15.0	17.0	µg/kg	Acetone
	8.0,15.0	3.02	µg/g	Cadmium
	8.0,15.0	11.0	µg/kg	Methylene Chloride
199	0.0,1.5	470	µg/kg	Aroclor-1254
	0.0,1.5	18.0	µg/kg	Beta-BHC
	0.0,1.5	6.00	µg/kg	Methylene Chloride
	0.0,1.5	25.0	µg/g	Molybdenum
	2.0,2.5	27.0	µg/g	Molybdenum
	4.5,5.0	10.0	µg/kg	Methylene Chloride
	4.5,5.0	26.0	µg/g	Molybdenum
200	0.0,7.0	2400	µg/g	Manganese
	0.0,7.0	7.00	µg/kg	Methylene Chloride
	8.0,14.0	58.7	µg/g	Chromium
	8.0,14.0	33.9	µg/g	Molybdenum
201	8.0,15.0	1.28	µg/g	Cadmium
202	0.0,7.0	31.0	µg/kg	Acetone
	0.0,7.0	0.16	µg/g	Mercury
	8.0,15.0	14.4	µg/g	Fluoride
	8.0,15.0	11.0	µg/kg	Methylene Chloride
	16.0,17.0	14.4	µg/g	Fluoride
203	4.0,6.0	219	µg/g	Sulfate
	6.0,8.0	332	µg/g	Sulfate
	8.0,10.0	282	µg/g	Sulfate
	10.0,12.0	99.5	µg/g	Sulfate
	18.0,20.0	100	µg/g	Lead
	18.0,20.0	2500	µg/g	Manganese
204	8.0,10.0	72.9	µg/g	Lead
	8.0,10.0	127	µg/g	Sulfate
	10.0,12.0	248	µg/g	Sulfate

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
205	0.0,2.0	7100	μg/g	Calcium
	0.0,2.0	21.8	μg/g	Selenium
	4.0,6.0	34.0	μg/g	Arsenic
	4.0,6.0	21.1	μg/g	Selenium
	14.0,16.0	40700	μg/g	Iron
	16.0,18.0	73.5	μg/g	Lead
206	0.0,7.0	8980	μg/g	Calcium
	0.0,7.0	4150	μg/g	Magnesium
	0.0,7.0	7.00	μg/kg	Methylene Chloride
	0.0,7.0	24.8	μg/g	Molybdenum
	0.0,7.0	1030	μg/g	Potassium
207	0.0,7.0	1.46	μg/g	Cadmium
	0.0,7.0	7.00	μg/kg	Methylene Chloride
	0.0,7.0	183	μg/g	Sulfate
208	0.0,7.0	15.0	μg/kg	Methylene Chloride
	0.0,7.0	294	μg/g	Sulfate
209	0.0,2.0	58.8	μg/g	Lead
	2.0,4.0	25900	μg/g	Aluminum
	2.0,4.0	1740	μg/g	Manganese
	6.0,8.0	110	μg/g	Sulfate
	8.0,10.0	6.34	μg/g	2,4,6-Trinitrotoluene
	8.0,10.0	27700	μg/g	Aluminum
	8.0,10.0	49800	μg/g	Iron
	8.0,10.0	69.0	μg/g	Lead
	8.0,10.0	2700	μg/g	Manganese
	10.0,12.0	33500	μg/g	Aluminum
	10.0,12.0	39200	μg/g	Iron
	10.0,12.0	97.6	μg/g	Sulfate
	12.0,14.0	2.36	μg/g	2,4,6-Trinitrotoluene
210	2.0,4.0	185	μg/g	Lead
	2.0,4.0	172	μg/g	Sulfate
	4.0,6.0	2470	μg/g	Manganese
	8.0,10.0	44900	μg/g	Iron
	8.0,10.0	84.6	μg/g	Lead
	8.0,10.0	4080	μg/g	Manganese
211	0.0,7.0	14.0	μg/kg	Methylene Chloride
	0.0,7.0	105	μg/g	Sulfate
	8.0,15.0	17.4	μg/g	Fluoride
212	8.0,15.0	15.3	μg/g	Fluoride
	8.0,15.0	0.11	μg/g	Mercury
	16.0,17.0	15.6	μg/g	Fluoride
213	0.0,7.0	41.0	μg/kg	Acetone
	0.0,7.0	1.40	μg/g	Cadmium

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
213 (cont.)	0.0,7.0	40400	μg/g	Calcium
	0.0,7.0	4020	μg/g	Magnesium
	0.0,7.0	7.00	μg/kg	Methylene Chloride
	0.0,7.0	226	μg/g	Sulfate
	12.0,15.0	48.0	μg/kg	Acetone
	12.0,15.0	1.50	μg/g	Cadmium
	12.0,15.0	51.6	μg/g	Lead
	12.0,15.0	2390	μg/g	Manganese
	12.0,15.0	6.00	μg/kg	Methylene Chloride
214	4.0,6.0	85600	μg/g	Aluminum
	6.0,8.0	1630	μg/g	Manganese
215	0.0,7.0	27.0	μg/kg	Acetone
	0.0,7.0	20.0	μg/kg	Chloroform
	0.0,7.0	72.0	μg/kg	Methylene Chloride
216	0.0,7.0	29.3	μg/g	Molybdenum
	0.0,7.0	118	μg/g	Sulfate
217	0.0,1.0	125	μg/g	Lead
218	2.0,4.0	98.5	μg/g	Sulfate
219	6.0,8.0	175	μg/g	Sulfate
220	0.0,1.0	57.8	μg/g	Lead
221	0.0,2.0	214	μg/g	Lead
	0.0,2.0	1630	μg/g	Manganese
	4.0,6.0	54.6	μg/g	Lead
222	2.0,4.0	104	μg/g	Sulfate
	4.0,6.0	255	μg/g	Sulfate
	6.0,8.0	38500	μg/g	Iron
	6.0,8.0	123	μg/g	Sulfate
223	8.0,10.0	12.0	μg/kg	Acetone
	8.0,10.0	34.7	μg/g	Arsenic
	8.0,10.0	1.83	μg/g	Cadmium
	8.0,10.0	16.3	μg/g	Fluoride
	8.0,10.0	0.18	μg/g	Mercury
	8.0,10.0	6.00	μg/kg	Methylene Chloride
	8.0,10.0	152	μg/g	Nitrate
	8.0,10.0	14.2	μg/g	Nitrite
	8.0,10.0	107	μg/g	Zinc
224	0.0,7.0	33.0	μg/kg	Acetone
	8.0,15.0	35.0	μg/kg	Acetone
	8.0,15.0	35000	μg/g	Aluminum
	8.0,15.0	91.8	μg/g	Arsenic
	8.0,15.0	2.47	μg/g	Beryllium

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
224 (cont.)	8.0,15.0	3.19	µg/g	Cadmium
	8.0,15.0	7800	µg/g	Calcium
	8.0,15.0	44.5	µg/g	Cobalt
	8.0,15.0	32.9	µg/g	Copper
	8.0,15.0	35500	µg/g	Iron
	8.0,15.0	5120	µg/g	Magnesium
	8.0,15.0	2260	µg/g	Manganese
	8.0,15.0	42.0	µg/kg	Methylene Chloride
	8.0,15.0	43.1	µg/g	Molybdenum
	8.0,15.0	119	µg/g	Nickel
	8.0,15.0	1370	µg/g	Potassium
	8.0,15.0	816	µg/g	Sodium
	8.0,15.0	56.5	µg/g	Vanadium
	8.0,15.0	180	µg/g	Zinc
225	0,2	13600	µg/g	Calcium
	2,4	30000	µg/g	Aluminum
	2,4	21.1	µg/g	Fluoride
	2,4	3490	µg/g	Magnesium
	2,4	33.5	µg/g	Molybdenum
	4,6	17.6	µg/g	Fluoride
	4,6	0.15	µg/g	Mercury
	6,8	9.61	µg/g	Chloride
	6,8	19.6	µg/g	Fluoride
	6,8	0.19	µg/g	Mercury
226	2,4	12.7	µg/g	Chloride
	2,4	163	µg/g	Sulfate
	4,6	19.3	µg/g	Chloride
	6,8	13.0	µg/g	Chloride
	6,8	14.8	µg/g	Fluoride
227	0,2	1.50	µg/g	Cadmium
	0,2	3610	µg/g	Magnesium
	2,4	0.15	µg/g	Mercury
	4,6	25500	µg/g	Aluminum
	4,6	1.30	µg/g	Cadmium
	4,6	27.5	µg/g	Cobalt
	4,6	1770	µg/g	Manganese
	4,6	0.14	µg/g	Mercury
	4,6	35.5	µg/g	Molybdenum
	4,6	65.1	µg/g	Vanadium
	6,8	87.4	µg/g	Arsenic
	6,8	0.13	µg/g	Mercury
228	2,4	127	µg/g	Sulfate
	4,6	15.6	µg/g	Fluoride
	4,6	0.16	µg/g	Mercury
	4,6	136	µg/g	Sulfate
	6,8	9.87	µg/g	Chloride
	6,8	0.20	µg/g	Mercury

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
228 (cont.)	8,10	0.18	µg/g	Mercury
	10,12	0.21	µg/g	Mercury
229	0,2	550	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0,2	17.0	µg/kg	Methylene Chloride
	2,4	1300	µg/kg	Bis (2-Ethylhexyl) Phthalate
	2,4	25.7	µg/g	Chloride
	2,4	10.0	µg/kg	Methylene Chloride
	2,4	707	µg/g	Sodium
	2,4	327	µg/g	Sulfate
	4,6	900	µg/kg	Bis (2-Ethylhexyl) Phthalate
	4,6	48.7	µg/g	Chloride
	4,6	430	µg/kg	Di-N-Butyl Phthalate
	4,6	18.0	µg/kg	Methylene Chloride
	6,8	1200	µg/kg	Bis (2-Ethylhexyl) Phthalate
	6,8	12.0	µg/kg	Chloroethane
	6,8	540	µg/kg	Di-N-Butyl Phthalate
	6,8	16.2	µg/g	Fluoride
	6,8	12.0	µg/kg	Methylene Chloride
230	6,8	21.4	µg/g	Fluoride
	8,10	0.21	µg/g	Mercury
231	0,2	0.19	µg/g	Mercury
	2,4	36.5	µg/g	Copper
	2,4	0.20	µg/g	Mercury
	2,4	140	µg/g	Sulfate
	4,6	64.0	µg/g	Chromium
	4,6	0.14	µg/g	Mercury
	4,6	106	µg/g	Sulfate
	6,8	750	µg/kg	Bis (2-Ethylhexyl) Phthalate
	6,8	0.17	µg/g	Mercury
	8,10	600	µg/kg	Bis (2-Ethylhexyl) Phthalate
	8,10	60.0	µg/g	Vanadium
	10,12	430	µg/kg	Bis (2-Ethylhexyl) Phthalate
	10,12	45.3	µg/g	Chloride
	10,12	0.15	µg/g	Mercury
	12,14	550	µg/kg	Bis (2-Ethylhexyl) Phthalate
	12,14	0.11	µg/g	Mercury
	14,16	0.14	µg/g	Mercury
232	0,2	2.22	µg/g	Cadmium
	2,4	3.30	µg/g	1,3,5-Trinitrobenzene
	2,4	3.37	µg/g	1,3-Dinitrobenzene
	2,4	3.44	µg/g	2,4,6-Trinitrotoluene
	2,4	2.52	µg/g	Cadmium
	2,4	69.5	µg/g	Copper
	2,4	3.77	µg/g	Nitrobenzene
	4,6	2.24	µg/g	Cadmium
	4,6	834	µg/g	Nitrate

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
233	0,2	2300	µg/kg	Butylbenzylphthalate
	0,2	2600	µg/kg	Di-N-Butyl Phthalate
	0,2	0.20	µg/g	Mercury
	2,4	2700	µg/kg	Butylbenzylphthalate
	2,4	3900	µg/kg	Di-N-Butyl Phthalate
	2,4	0.39	µg/g	Mercury
	2,4	141	µg/g	Nitrate
	4,6	1600	µg/kg	Bis (2-Ethylhexyl) Phthalate
	4,6	3700	µg/kg	Di-N-Butyl Phthalate
	4,6	400	µg/kg	Di-N-Octyl Phthalate
	4,6	1300	µg/kg	Diethylphthalate
	4,6	1280	µg/g	Nitrate
	6,8	910	µg/kg	Bis (2-Ethylhexyl) Phthalate
	6,8	2700	µg/kg	Di-N-Butyl Phthalate
	6,8	900	µg/kg	Diethylphthalate
	6,8	1350	µg/g	Nitrate
	8,10	1400	µg/kg	Bis (2-Ethylhexyl) Phthalate
	8,10	900	µg/kg	Butylbenzylphthalate
	8,10	3900	µg/kg	Di-N-Butyl Phthalate
	8,10	540	µg/kg	Di-N-Octyl Phthalate
	8,10	1100	µg/kg	Diethylphthalate
	8,10	1290	µg/g	Nitrate
	10,12	1200	µg/g	Nitrate
	12,14	1600	µg/kg	Di-N-Butyl Phthalate
	12,14	1100	µg/g	Nitrate
	14,16	2.50	µg/g	Beryllium
	14,16	69.8	µg/g	Cobalt
	14,16	2900	µg/kg	Di-N-Butyl Phthalate
234	0,2	2.23	µg/g	1,3,5-Trinitrobenzene
	0,2	3.76	µg/g	1,3-Dinitrobenzene
	0,2	571	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0,2	2700	µg/kg	Butylbenzylphthalate
	0,2	14700	µg/g	Calcium
	0,2	5000	µg/kg	Di-N-Butyl Phthalate
	0,2	3830	µg/g	Magnesium
	0,2	0.23	µg/g	Mercury
	2,4	400	µg/kg	Bis (2-Ethylhexyl) Phthalate
	2,4	1400	µg/kg	Butylbenzylphthalate
	2,4	5500	µg/kg	Di-N-Butyl Phthalate
	2,4	0.21	µg/g	Mercury
	2,4	129	µg/g	Sulfate
	4,6	430	µg/kg	Bis (2-Ethylhexyl) Phthalate
	4,6	1400	µg/kg	Butylbenzylphthalate
	4,6	7900	µg/kg	Di-N-Butyl Phthalate
	4,6	0.19	µg/g	Mercury
	4,6	25.2	µg/g	Molybdenum
	6,8	450	µg/kg	Bis (2-Ethylhexyl) Phthalate
	6,8	630	µg/kg	Butylbenzylphthalate
	6,8	7000	µg/kg	Di-N-Butyl Phthalate
	6,8	0.19	µg/g	Mercury

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
234 (cont.)	8,10	7200	μg/kg	Di-N-Butyl Phthalate
	8,10	0.17	μg/g	Mercury
	10,12	1300	μg/kg	Butylbenzylphthalate
	10,12	5900	μg/kg	Di-N-Butyl Phthalate
	10,12	0.20	μg/g	Mercury
	12,14	1700	μg/kg	Butylbenzylphthalate
	12,14	4600	μg/kg	Di-N-Butyl Phthalate
	12,14	0.16	μg/g	Mercury
	14,16	2100	μg/kg	Butylbenzylphthalate
	14,16	54.9	μg/g	Chloride
	14,16	3200	μg/kg	Di-N-Butyl Phthalate
	14,16	0.18	μg/g	Mercury
235	0,2	26.3	μg/g	Arsenic
	0,2	14000	μg/g	Calcium
	0,2	4260	μg/g	Magnesium
	0,2	0.14	μg/g	Mercury
	2,4	31300	μg/g	Iron
	2,4	0.17	μg/g	Mercury
	2,4	26.9	μg/g	Molybdenum
	2,4	71.3	μg/g	Vanadium
	4,6	15.4	μg/g	Fluoride
	4,6	0.11	μg/g	Mercury
	6,8	67.5	μg/g	Copper
	6,8	14.7	μg/g	Fluoride
	6,8	0.19	μg/g	Mercury
	8,10	80.0	μg/g	Copper
	8,10	0.13	μg/g	Mercury
	10,12	51.7	μg/g	Chromium
	10,12	110	μg/g	Copper
	10,12	0.15	μg/g	Mercury
236	0,2	9.77	μg/g	Chloride
	0,2	170	μg/g	Sulfate
	2,4	25.5	μg/g	Chloride
	2,4	237	μg/g	Sulfate
	4,6	30.1	μg/g	Chloride
	4,6	0.12	μg/g	Mercury
	6,8	26.0	μg/g	Chloride
	6,8	14.2	μg/g	Fluoride
237	0,0.5	1400	μg/g	Potassium
	4,6	14.6	μg/g	Chloride
	4,6	18.6	μg/g	Fluoride
238	0,3	2.80	μg/g	1,3,5-Trinitrobenzene
	0,3	307	μg/g	2,4,6-Trinitrotoluene
	0,3	13.8	μg/g	2,4-Dinitrotoluene
	0,3	2.89	μg/g	Cadmium
	0,3	68.0	μg/g	Lead
	0,3	2.30	μg/g	Nitrobenzene

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
238 (cont.)	0,3	980	μg/g	Sodium
	0,3	210	μg/g	Sulfate
	3,5	1.90	μg/g	1,3,5-Trinitrobenzene
	3,5	3.43	μg/g	Cadmium
	3,5	43.5	μg/g	Lead
	3,5	72.4	μg/g	Nitrate
	3,5	1060	μg/g	Potassium
	3,5	1000	μg/g	Sodium
	3,5	282	μg/g	Sulfate
	5,8	1.20	μg/g	1,3,5-Trinitrobenzene
	5,8	2.34	μg/g	Cadmium
	5,8	1.00	μg/g	Mercury
	5,8	1700	μg/g	Potassium
	5,8	707	μg/g	Sodium
	5,8	190	μg/g	Sulfate
	8,13	3.48	μg/g	Cadmium
	8,13	16.8	μg/g	Chloride
	8,13	65.3	μg/g	Lead
	8,13	10.2	μg/g	Silver
	8,13	276	μg/g	Sulfate
239	1,2	2.20	μg/g	1,3,5-Trinitrobenzene
	1,2	17.2	μg/g	2,4,6-Trinitrotoluene
	1,2	3.00	μg/g	2,4-Dinitrotoluene
	1,2	3.16	μg/g	Cadmium
	1,2	968	μg/g	Sodium
	2,3	3.70	μg/g	1,3,5-Trinitrobenzene
	2,3	13.7	μg/g	2,4,6-Trinitrotoluene
	2,3	2.20	μg/g	2,4-Dinitrotoluene
	2,3	3.00	μg/g	Cadmium
	2,3	19.0	μg/g	Fluoride
	2,3	1400	μg/g	Sodium
240	0,2	28.2	μg/g	Arsenic
	0,2	0.69	μg/g	Mercury
	0,2	136	μg/g	Sulfate
	2,4	0.12	μg/g	Mercury
	2,4	1540	μg/g	Sulfate
	4,6	22.5	μg/g	Chloride
	4,6	0.13	μg/g	Mercury
	6,8	0.17	μg/g	Mercury
241	1.5,2.5	1.40	μg/g	2,4-Dinitrotoluene
	1.5,2.5	2.59	μg/g	Cadmium
	1.5,2.5	984	μg/g	Sodium
	1.5,2.5	139	μg/g	Sulfate
	2.5,3	2.30	μg/g	2,4-Dinitrotoluene
	2.5,3	3.93	μg/g	Cadmium
	2.5,3	1230	μg/g	Potassium
	2.5,3	1050	μg/g	Sodium
	2.5,3	114	μg/g	Sulfate

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
242	0,0.5	15.4	µg/g	Chloride
	0,0.5	1040	µg/g	Potassium
	0.5,2	30.4	µg/g	Chloride
	0.5,2	14.1	µg/g	Fluoride
	0.5,2	1100	µg/g	Potassium
	4,6	26.9	µg/g	Chloride
	4,6	24.3	µg/g	Fluoride
	4,6	1150	µg/g	Potassium
243	1,1.5	4.00	µg/g	1,3,5-Trinitrobenzene
	1,1.5	52.4	µg/g	2,4,6-Trinitrotoluene
	1,1.5	7.60	µg/g	2,4-Dinitrotoluene
	1,1.5	2.67	µg/g	Cadmium
	1,1.5	46.7	µg/g	Lead
	1,1.5	1240	µg/g	Potassium
	1,1.5	1050	µg/g	Sodium
	1,1.5	367	µg/g	Sulfate
	2,4	3.30	µg/g	1,3,5-Trinitrobenzene
	2,4	0.85	µg/g	2,4-Dinitrotoluene
	2,4	2.75	µg/g	Cadmium
	2,4	450	µg/g	Nitrate
	2,4	823	µg/g	Sodium
	2,4	487	µg/g	Sulfate
244	0,2	11500	µg/g	Calcium
	0,2	4360	µg/g	Magnesium
	0,2	0.22	µg/g	Mercury
	2,4	1.40	µg/g	2,4,6-Trinitrotoluene
	2,4	18400	µg/g	Calcium
	2,4	0.15	µg/g	Mercury
	2,4	116	µg/g	Sulfate
	4,6	15700	µg/g	Calcium
	4,6	126	µg/g	Lead
	4,6	0.48	µg/g	Mercury
	10,12	19.3	µg/g	Fluoride
245	0.5,2	3.52	µg/g	Cadmium
	0.5,2	36900	µg/g	Calcium
	0.5,2	8840	µg/g	Magnesium
	2,4	4.06	µg/g	Cadmium
	2,4	29.2	µg/g	Cobalt
	2,4	26.1	µg/g	Copper
	2,4	19.2	µg/g	Fluoride
	2,4	723	µg/g	Sodium
	4,6	2.05	µg/g	Cadmium
	4,6	19.3	µg/g	Fluoride
246	0,0.5	5.87	µg/g	Cadmium
	0,0.5	48000	µg/g	Calcium
	0,0.5	56.9	µg/g	Lead
	0,0.5	194000	µg/g	Magnesium

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
246 (cont.)	0,0.5	9.61	µg/g	Silver
	0.5,2	6.64	µg/g	Cadmium
	0.5,2	87400	µg/g	Calcium
	0.5,2	43.5	µg/g	Lead
	0.5,2	24400	µg/g	Magnesium
	0.5,2	8.24	µg/g	Silver
	2,4	3.19	µg/g	2,4-Dinitrotoluene
	2,4	123000	µg/g	Aluminum
	2,4	2.45	µg/g	Cadmium
	2,4	1.00	µg/g	Mercury
	2,4	3.55	µg/g	Nitrobenzene
	4,6	2.40	µg/g	Cadmium
	6,10	4.00	µg/g	Cadmium
	6,10	6850	µg/g	Calcium
	6,10	82.0	µg/g	Zinc
	10,20	2.27	µg/g	Cadmium
	20,24	2.79	µg/g	Cadmium
247	0,2	2.66	µg/g	Cadmium
	2,4	2.86	µg/g	Cadmium
	2,4	772	µg/g	Sodium
	4,6	1.49	µg/g	Cadmium
	4,6	112.0	µg/g	Lead
	4,6	710	µg/g	Sodium
	4,6	153	µg/g	Sulfate
248	0,0.5	3.61	µg/g	Cadmium
	0,0.5	21300	µg/g	Calcium
	0,0.5	60.2	µg/g	Lead
	0,0.5	5010	µg/g	Magnesium
	0,0.5	1300	µg/g	Potassium
	0,0.5	492	µg/g	Zinc
	0.5,2	164000	µg/g	Aluminum
	0.5,2	2.89	µg/g	Cadmium
	0.5,2	6380	µg/g	Calcium
	2,4	147000	µg/g	Aluminum
	2,4	2.66	µg/g	Cadmium
	4,6	2.00	µg/g	Cadmium
	4,6	11000	µg/g	Magnesium
	6,10	3.11	µg/g	Beryllium
	6,10	6.46	µg/g	Cadmium
	6,10	55.0	µg/g	Chromium
	6,10	39.6	µg/g	Cobalt
	6,10	55700	µg/g	Iron
	6,10	44.0	µg/g	Lead
	6,10	9800	µg/g	Magnesium
	6,10	3750	µg/g	Manganese
	6,10	90.5	µg/g	Vanadium
	10,14	161000	µg/g	Aluminum
	10,14	2.50	µg/g	Beryllium
	10,14	4.50	µg/g	Cadmium

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
248 (cont.)	10,14	6190	µg/g	Calcium
	10,14	2550	µg/g	Manganese
	10,14	80.0	µg/g	Nickel
	10,14	80.0	µg/g	Zinc
249	0,0.5	6.76	µg/g	Cadmium
	0,0.5	53500	µg/g	Calcium
	0,0.5	41.0	µg/g	Chromium
	0,0.5	27.0	µg/g	Copper
	0,0.5	131	µg/g	Lead
	0,0.5	13000	µg/g	Magnesium
	0,0.5	50.0	µg/g	Nickel
	0,0.5	13.2	µg/g	Silver
	0,0.5	139	µg/g	Zinc
	0.5,2	5.51	µg/g	Beryllium
	0.5,2	2.80	µg/g	Cadmium
	0.5,2	9.61	µg/g	Chloride
	2,4	3.14	µg/g	1,3,5-Trinitrobenzene
	2,4	3.29	µg/g	2,4,6-Trinitrotoluene
	2,4	2.97	µg/g	2,4-Dinitrotoluene
	2,4	3.46	µg/g	2,6-Dinitrotoluene
	2,4	4.11	µg/g	Cadmium
	2,4	16700	µg/g	Calcium
	2,4	28.9	µg/g	Chloride
	2,4	26.9	µg/g	Cobalt
	2,4	4080	µg/g	Magnesium
	2,4	2460	µg/g	Manganese
	2,4	58.9	µg/g	Nickel
	2,4	3.50	µg/g	Nitrobenzene
	2,4	711	µg/g	Sodium
	4,6	2.65	µg/g	Cadmium
	4,6	21.8	µg/g	Chloride
	4,6	14.7	µg/g	Fluoride
250	0,2	1.40	µg/g	Cadmium
	0,2	46000	µg/g	Calcium
	0,2	13.9	µg/g	Fluoride
	0,2	11500	µg/g	Magnesium
	0,2	0.13	µg/g	Mercury
	2,4	17.7	µg/g	Fluoride
	4,6	18.9	µg/g	Fluoride
	4,6	0.13	µg/g	Mercury
	6,8	2.90	µg/g	Beryllium
	6,8	14.8	µg/g	Fluoride
	6,8	0.14	µg/g	Mercury
251	0,2	468	µg/kg	Aroclor-1248
	0,2	750	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0,2	26600	µg/g	Calcium
	0,2	26.0	µg/g	Copper
	0,2	4800	µg/kg	Di-N-Butyl Phthalate

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
251 (cont.)	0,2	440	μg/kg	Diethylphthalate
	0,2	0.31	μg/g	Mercury
	0,2	104.2	μg/g	Sulfate
	2,4	570	μg/kg	Bis (2-Ethylhexyl) Phthalate
	2,4	7900	μg/kg	Di-N-Butyl Phthalate
	2,4	3120	μg/g	Manganese
	4,6	600	μg/kg	Bis (2-Ethylhexyl) Phthalate
	4,6	880	μg/kg	Butylbenzylphthalate
	4,6	1200	μg/kg	Di-N-Butyl Phthalate
	4,6	2020	μg/g	Manganese
	6,8	2200	μg/kg	Bis (2-Ethylhexyl) Phthalate
	6,8	17000	μg/kg	Di-N-Butyl Phthalate
	8,10	27.5	μg/g	Cobalt
	8,10	3480	μg/g	Manganese
	8,10	66.2	μg/g	Vanadium
	10,12	2700	μg/kg	Di-N-Butyl Phthalate
252	0,2	27.1	μg/g	Molybdenum
	2,4	35.1	μg/g	Copper
	2,4	113	μg/g	Sulfate
	4,6	0.29	μg/g	Mercury
	6,8	26.0	μg/g	Copper
	6,8	0.30	μg/g	Mercury
253	0,2	6510	μg/g	Calcium
254	0,2	6420	μg/g	Calcium
	0,2	0.12	μg/g	Mercury
	2,4	18500	μg/g	Calcium
	2,4	5110	μg/g	Magnesium
	2,4	514	μg/g	Sulfate
	4,6	263	μg/g	Sulfate
	6,8	5500	μg/g	Calcium
	6,8	112	μg/g	Sulfate
255	0,0.5	2.09	μg/g	Cadmium
	0.5,2	2.83	μg/g	Cadmium
	2,4	2.24	μg/g	Cadmium
	4,6	2.42	μg/g	Cadmium
	4,6	17.0	μg/g	Chloride
	4,6	14.0	μg/g	Fluoride
256	1,2	5.03	μg/g	Cadmium
	1,2	37300	μg/g	Calcium
	1,2	13800	μg/g	Magnesium
	1,2	79.7	μg/g	Zinc
	2,4	1.95	μg/g	Cadmium
	2,4	509	μg/g	Sulfate
	4,6	2.23	μg/g	Cadmium
	4,6	7030	μg/g	Calcium
	4,6	329	μg/g	Sulfate

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
257	0,0.5	13.6	µg/g	Chloride
	0,0.5	1020	µg/g	Potassium
	0.5,2	6060	µg/g	Calcium
	0.5,2	28.0	µg/g	Cobalt
	2,4	24500	µg/g	Aluminum
	2,4	28.0	µg/g	Chloride
	2,4	19.8	µg/g	Fluoride
	2,4	0.50	µg/g	Mercury
	2,4	1140	µg/g	Sodium
	2,4	167	µg/g	Sulfate
	4,6	35.5	µg/g	Chloride
	4,6	16.0	µg/g	Fluoride
258	0,0.5	1560	µg/g	Potassium
	0.5,2	159	µg/g	Sulfate
	2,4	24.6	µg/g	Chloride
	2,4	684	µg/g	Sodium
	4,6	10.8	µg/g	Chloride
	4,6	18.8	µg/g	Fluoride
259	0,4	0.63	µg/g	1,3,5-Trinitrobenzene
	0,4	1.00	µg/g	1,3-Dinitrobenzene
	0,4	1.34	µg/g	2,4,6-Trinitrotoluene
	0,4	0.83	µg/g	2,4-Dinitrotoluene
	0,4	1.57	µg/g	2,6-Dinitrotoluene
	0,4	26.9	µg/g	Chloride
	0,4	0.52	µg/g	Mercury
	0,4	1.60	µg/g	Nitrobenzene
	0,4	95.5	µg/g	Sulfate
	4,8	0.68	µg/g	1,3,5-Trinitrobenzene
	4,8	1.07	µg/g	1,3-Dinitrobenzene
	4,8	1.43	µg/g	2,4,6-Trinitrotoluene
	4,8	0.89	µg/g	2,4-Dinitrotoluene
	4,8	1.68	µg/g	2,6-Dinitrotoluene
	4,8	17.8	µg/g	Fluoride
	4,8	0.47	µg/g	Mercury
	4,8	1.72	µg/g	Nitrobenzene
	4,8	1300	µg/g	Potassium
	8,12	0.70	µg/g	1,3,5-Trinitrobenzene
	8,12	1.10	µg/g	1,3-Dinitrobenzene
	8,12	1.47	µg/g	2,4,6-Trinitrotoluene
	8,12	0.92	µg/g	2,4-Dinitrotoluene
	8,12	1.72	µg/g	2,6-Dinitrotoluene
	8,12	14.0	µg/g	Fluoride
	8,12	0.21	µg/g	Mercury
	8,12	1.76	µg/g	Nitrobenzene
	8,12	1020	µg/g	Potassium
	8,12	104	µg/g	Sulfate
260	0,0.5	3.17	µg/g	Cadmium
	0,0.5	17700	µg/g	Calcium

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
260 (cont.)	0,0.5	56.4	µg/g	Lead
	0,0.5	1680	µg/g	Potassium
	0.5,2	2.49	µg/g	Cadmium
	0.5,2	16700	µg/g	Calcium
	0.5,2	14.7	µg/g	Fluoride
	0.5,2	46.9	µg/g	Lead
	0.5,2	901	µg/g	Sodium
	0.5,2	199	µg/g	Sulfate
	2,4	3.63	µg/g	Cadmium
	2,4	28.7	µg/g	Cobalt
	2,4	68.1	µg/g	Lead
	2,4	1670	µg/g	Manganese
	2,4	7.63	µg/g	Silver
	4,6	0.65	µg/g	1,3,5-Trinitrobenzene
	4,6	15.8	µg/g	Chloride
261	0,0.5	2.46	µg/g	Cadmium
	0,0.5	9200	µg/g	Calcium
	0,0.5	339	µg/g	Zinc
	0.5,2	3.95	µg/g	Cadmium
	0.5,2	30500	µg/g	Calcium
	0.5,2	53.6	µg/g	Lead
	0.5,2	3520	µg/g	Magnesium
	0.5,2	10.9	µg/g	Silver
	2,4	2.75	µg/g	Cadmium
	2,4	110	µg/g	Sulfate
	4,6	3.92	µg/g	Cadmium
	4,6	106	µg/g	Cobalt
	4,6	71.1	µg/g	Lead
	6,10	2.10	µg/g	Cadmium
	6,10	14.0	µg/g	Fluoride
	10,20	2.80	µg/g	Beryllium
	10,20	4.11	µg/g	Cadmium
	10,20	5350	µg/g	Calcium
	10,20	31.0	µg/g	Cobalt
	10,20	54.0	µg/g	Lead
	10,20	62.0	µg/g	Nickel
262	0.5,2	9.0	µg/g	Silver
	8,9	3.20	µg/g	Cadmium
	8,9	44.7	µg/g	Lead
	8,9	4550	µg/g	Manganese
	8,9	710	µg/g	Sodium
263	0,0.5	180000	µg/g	Calcium
	0,0.5	27.0	µg/g	Copper
	0,0.5	5700	µg/g	Magnesium
	0,0.5	1400	µg/g	Sodium
	0,0.5	84.0	µg/g	Zinc
	0.5,2	185000	µg/g	Calcium
	2,4	3.92	µg/g	Cadmium

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
263 (cont.)	2,4	14.1	µg/g	Chloride
	2,4	15.2	µg/g	Fluoride
	4,6	3.60	µg/g	Cadmium
	4,6	11.0	µg/g	Chloride
	4,6	4540	µg/g	Manganese
	4,6	718	µg/g	Sodium
264	0,0.5	5.23	µg/g	Beryllium
	0,0.5	3.45	µg/g	Cadmium
	0,0.5	1570	µg/g	Manganese
	0.5,2	3.42	µg/g	Cadmium
	0.5,2	1110	µg/g	Potassium
	2,4	2.39	µg/g	Cadmium
	4,6	2.50	µg/g	Cadmium
	4,6	9.77	µg/g	Chloride
	4,6	115	µg/g	Lead
	4,6	94.2	µg/g	Sulfate
265	0,2	270	µg/kg	Aroclor-1254
	0,2	1.50	µg/g	Cadmium
	0,2	0.11	µg/g	Mercury
	4,6	36.0	µg/g	Cobalt
	4,6	27.0	µg/g	Molybdenum
	8,10	3.00	µg/g	Beryllium
	8,10	5260	µg/g	Calcium
	8,10	750	µg/kg	Diethylphthalate
	8,10	32100	µg/g	Iron
	8,10	25.3	µg/g	Molybdenum
	8,10	67.2	µg/g	Nickel
266	0,2	0.15	µg/g	Mercury
	2,4	0.12	µg/g	Mercury
	4,6	25500	µg/g	Aluminum
	4,6	5400	µg/g	Calcium
	4,6	32.0	µg/g	Molybdenum
	6,8	5270	µg/g	Calcium
	6,8	30800	µg/g	Iron
	6,8	28.4	µg/g	Molybdenum
	6,8	96.4	µg/g	Nitrate
	6,8	84.7	µg/g	Zinc
	8,10	2.78	µg/g	Beryllium
267	0,2	240	µg/kg	Aldrin
	0,2	670	µg/kg	Bis (2-Ethylhexyl) Phthalate
	0,2	31.9	µg/g	Molybdenum
	0,2	1670	µg/g	Potassium
	2,4	70.0	µg/kg	Aldrin
	2,4	380	µg/kg	Bis (2-Ethylhexyl) Phthalate
	2,4	1060	µg/g	Potassium
	4,6	1660	µg/kg	Aldrin
	4,6	370	µg/kg	Bis (2-Ethylhexyl) Phthalate

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
267 (cont.)	6,8	610	μg/kg	Bis (2-Ethylhexyl) Phthalate
	6,8	26.0	μg/g	Molybdenum
	8,10	740	μg/kg	Bis (2-Ethylhexyl) Phthalate
	10,12	20.0	μg/kg	Aldrin
	10,12	660	μg/kg	Bis (2-Ethylhexyl) Phthalate
268	6,8	0.13	μg/g	Mercury
	6,8	55.8	μg/g	Vanadium
269	0,2	26.8	μg/g	Molybdenum
	0,2	1060	μg/g	Potassium
	2,4	3730	μg/g	Magnesium
	2,4	1280	μg/g	Potassium
	2,4	148	μg/g	Sulfate
	6,8	1.30	μg/g	Cadmium
	6,8	27.1	μg/g	Cobalt
	6,8	25.2	μg/g	Molybdenum
270	0,2	0.11	μg/g	Mercury
	0,2	123	μg/g	Sulfate
	2,4	150	μg/g	Sulfate
271	0.5,2	2.43	μg/g	Cadmium
	0.5,2	0.27	μg/g	Mercury
	2,4	2.34	μg/g	Cadmium
	2,4	0.27	μg/g	Mercury
	4,6	3.02	μg/g	Cadmium
	4,6	10500	μg/g	Calcium
	4,6	787	μg/g	Sodium
	6,10	3.80	μg/g	Cadmium
	6,10	842	μg/g	Sodium
	10,14	2.96	μg/g	1,3,5-Trinitrobenzene
	10,14	2.94	μg/g	2,4-Dinitrotoluene
	10,14	1.60	μg/g	Cadmium
	10,14	1.35	μg/g	Mercury
	10,14	92.7	μg/g	Nitrate
	14.3,16	3.58	μg/g	Cadmium
	14.3,16	29.5	μg/g	Cobalt
	14.3,16	1.31	μg/g	Mercury
272	0,0.5	2.22	μg/g	Cadmium
	0,0.5	34500	μg/g	Calcium
	0.5,2	3.51	μg/g	Cadmium
	0.5,2	29000	μg/g	Calcium
	0.5,2	3920	μg/g	Magnesium
	0.5,2	100.0	μg/g	Zinc
	2,4	2.35	μg/g	Cadmium
	2,4	35000	μg/g	Calcium
	4,6	2.40	μg/g	Cadmium
	4,6	34900	μg/g	Calcium

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
272 (cont.)	4,6	1090	µg/g	Potassium
	4,6	141	µg/g	Sulfate
273	2,4	1.04	µg/g	2,4-Dinitrotoluene
	6,8	97.7	µg/g	Sulfate
274	0,2	11900	µg/g	Calcium
	0,2	4140	µg/g	Magnesium
	0,2	33.1	µg/g	Molybdenum
	0,2	1390	µg/g	Potassium
	0,2	97.8	µg/g	Sulfate
	2,4	15800	µg/g	Calcium
	2,4	4860	µg/g	Magnesium
	2,4	24.9	µg/g	Molybdenum
	2,4	1440	µg/g	Potassium
	8,10	29.3	µg/g	Molybdenum
275	0,0.5	2.10	µg/g	Cadmium
	0,0.5	182	µg/g	Zinc
	0.5,2	3.43	µg/g	Cadmium
	0.5,2	12800	µg/g	Calcium
	0.5,2	30.0	µg/g	Copper
	0.5,2	44.6	µg/g	Lead
	2,4	10.5	µg/g	Cadmium
	2,4	9300	µg/g	Calcium
	2,4	42.0	µg/g	Chromium
	2,4	35.0	µg/g	Cobalt
	2,4	34.0	µg/g	Copper
	2,4	82200	µg/g	Iron
	2,4	43034	µg/g	Lead
	2,4	1400	µg/g	Potassium
	2,4	341	µg/g	Sulfate
	2,4	337	µg/g	Zinc
	4,6	3.74	µg/g	Cadmium
	4,6	20600	µg/g	Calcium
	4,6	3900	µg/g	Magnesium
	4,6	193	µg/g	Sulfate
	4,6	83.0	µg/g	Zinc
276	0,0.5	2.31	µg/g	Cadmium
	0,0.5	37400	µg/g	Calcium
	0,0.5	1070	µg/g	Potassium
	0.5,2	3.41	µg/g	Cadmium
	0.5,2	30800	µg/g	Iron
	0.5,2	1600	µg/g	Potassium
	0.5,2	59.0	µg/g	Vanadium
	2,4	2.40	µg/g	Cadmium
	4,6	29.0	µg/g	Cobalt
	4,6	2550	µg/g	Manganese
	4,6	365	µg/g	Sulfate

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
277	0,2	5910	μg/g	Calcium
	0,2	1030	μg/g	Potassium
	2,4	1410	μg/g	Potassium
	2,4	124	μg/g	Sulfate
	4,6	1090	μg/g	Potassium
	4,6	144	μg/g	Sulfate
278	0,2	35.2	μg/g	Arsenic
	0,2	740	μg/kg	Bis (2-Ethylhexyl) Phthalate
	0,2	1360	μg/g	Potassium
	2,4	1480	μg/g	Potassium
	4,6	880	μg/kg	Bis (2-Ethylhexyl) Phthalate
	4,6	1030	μg/g	Potassium
	4,6	164	μg/g	Sulfate
	6,8	340	μg/kg	Bis (2-Ethylhexyl) Phthalate
	6,8	1000	μg/g	Potassium
	8,10	18.0	μg/kg	Aldrin
	8,10	26200	μg/g	Aluminum
	8,10	540	μg/kg	Bis (2-Ethylhexyl) Phthalate
	8,10	33.6	μg/g	Molybdenum
	8,10	1370	μg/g	Potassium
	10,12	1600	μg/kg	Bis (2-Ethylhexyl) Phthalate
	10,12	1400	μg/g	Potassium
	12,14	520	μg/kg	Bis (2-Ethylhexyl) Phthalate
	12,14	49.2	μg/g	Cobalt
	12,14	31.8	μg/g	Copper
	12,14	1470	μg/g	Potassium
279	0,0.5	4.27	μg/g	Cadmium
	0,0.5	7640	μg/g	Calcium
	0,0.5	27.1	μg/g	Copper
	0,0.5	98.7	μg/g	Sulfate
	0,0.5	224	μg/g	Zinc
	0.5,2	2.63	μg/g	Beryllium
	0.5,2	3.97	μg/g	Cadmium
	0.5,2	6490	μg/g	Calcium
	0.5,2	46.0	μg/g	Copper
	0.5,2	180	μg/g	Zinc
	2,4	1.31	μg/g	Cadmium
	2,4	613	μg/g	Sulfate
	4,6	2.56	μg/g	Cadmium
	4,6	100	μg/g	Sulfate
	6,9	3.32	μg/g	Cadmium
	6,9	63.0	μg/g	Vanadium
280	0,0.5	2.23	μg/g	Cadmium
	0,0.5	6300	μg/g	Calcium
	0.5,2	3.03	μg/g	Cadmium
	0.5,2	5780	μg/g	Calcium
	0.5,2	2020	μg/g	Manganese
	0.5,2	0.11	μg/g	Mercury

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
280 (cont.)	2,4	3.79	μg/g	Cadmium
	2,4	34.5	μg/g	Cobalt
	4,6	2.69	μg/g	Cadmium
281	0.5,2	3.92	μg/g	Cadmium
	0.5,2	40.5	μg/g	Cobalt
	0.5,2	1670	μg/g	Manganese
	0.5,2	1020	μg/g	Potassium
	2,4	3.20	μg/g	Cadmium
	2,4	17.0	μg/g	Fluoride
	2,4	772	μg/g	Sodium
	4,6	2.34	μg/g	Cadmium
	4,6	14.0	μg/g	Fluoride
	4,6	740	μg/g	Sodium
	6,8	2.26	μg/g	Cadmium
	6,8	785	μg/g	Sodium
	6,8	148	μg/g	Sulfate
	8,12	2.42	μg/g	Cadmium
	12,16	2.42	μg/g	Beryllium
	12,16	3.68	μg/g	Cadmium
	12,16	37.8	μg/g	Cobalt
	12,16	1910	μg/g	Manganese
	12,16	82.6	μg/g	Nickel
282	0,0.5	3.42	μg/g	Cadmium
	0,0.5	8360	μg/g	Calcium
	0,0.5	101	μg/g	Zinc
	0.5,2	4.89	μg/g	Cadmium
	0.5,2	35900	μg/g	Calcium
	0.5,2	464	μg/g	Copper
	0.5,2	1700	μg/g	Lead
	0.5,2	5850	μg/g	Magnesium
	0.5,2	573	μg/g	Zinc
	2,4	4.81	μg/g	Cadmium
	2,4	28.3	μg/g	Cobalt
	2,4	27.8	μg/g	Copper
	2,4	31500	μg/g	Iron
	2,4	4430	μg/g	Magnesium
	2,4	1150	μg/g	Potassium
	4,6	3.78	μg/g	Cadmium
	4,6	95.0	μg/g	Sulfate
283	0,0.5	2.60	μg/g	Cadmium
	0,0.5	6720	μg/g	Calcium
	0,0.5	1040	μg/g	Potassium
	0.5,2	3.50	μg/g	Cadmium
	0.5,2	13.9	μg/g	Fluoride
	0.5,2	3500	μg/g	Magnesium
	0.5,2	1010	μg/g	Potassium
	2,4	1.57	μg/g	Cadmium
	2,4	14.4	μg/g	Fluoride

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
283 (cont.)	2,4	1250	µg/g	Potassium
	2,4	715	µg/g	Sodium
	2,4	136	µg/g	Sulfate
	4,6	2.47	µg/g	Cadmium
	4,6	780	µg/g	Sodium
	6,10	2.47	µg/g	Cadmium
284	0,0.5	3972	µg/g	Barium
	0,0.5	3.42	µg/g	Cadmium
	0,0.5	6200	µg/g	Calcium
	0,0.5	1340	µg/g	Potassium
	0.5,2	1490	µg/g	Barium
	0.5,2	3.61	µg/g	Cadmium
	0.5,2	48.6	µg/g	Chloride
	0.5,2	1650	µg/g	Potassium
	2,4	2.40	µg/g	Cadmium
	2,4	42.6	µg/g	Chloride
	2,4	29.0	µg/g	Cobalt
	2,4	1780	µg/g	Manganese
	2,4	720	µg/g	Sodium
	4,6	2.40	µg/g	Cadmium
	4,6	70.1	µg/g	Chloride
	6,10	2.58	µg/g	Cadmium
	6,10	46.7	µg/g	Chloride
	6,10	30.8	µg/g	Fluoride
	13,15	26900	µg/g	Aluminum
	13,15	3.79	µg/g	Beryllium
	13,15	3.80	µg/g	Cadmium
	13,15	37.9	µg/g	Cobalt
	13,15	17.6	µg/g	Fluoride
	13,15	81.0	µg/g	Nickel
	13,15	990	µg/g	Potassium
	13,15	97.4	µg/g	Zinc
285	0,0.5	3.18	µg/g	Cadmium
	0,0.5	14600	µg/g	Calcium
	0,0.5	9.72	µg/g	Chloride
	0,0.5	54.5	µg/g	Lead
	0.5,2	4.00	µg/g	Cadmium
	0.5,2	29.0	µg/g	Cobalt
	0.5,2	58.0	µg/g	Lead
	0.5,2	1860	µg/g	Manganese
	2,4	4.40	µg/g	Cadmium
	2,4	15.5	µg/g	Fluoride
	2,4	48.0	µg/g	Lead
	2,4	3790	µg/g	Magnesium
	2,4	1180	µg/g	Potassium
	4,6	2.22	µg/g	Cadmium
	4,6	700	µg/g	Sodium
	4,6	159	µg/g	Sulfate

TABLE 5.2-2 Soil Contaminant Concentrations Above Background (Continued)

Location[a] Number	Depth	Conc.	Units	Parameter
286	5,6	3.55	µg/g	Cadmium
	5,6	36200	µg/g	Calcium
	5,6	8580	µg/g	Magnesium
	5,6	101	µg/g	Sulfate
	6,8	2.04	µg/g	Cadmium
	8,10	2.71	µg/g	Cadmium
	10,12	2.93	µg/g	Cadmium
	10,12	86.3	µg/g	Nitrate
	10,12	683	µg/g	Sodium
	12,16	3.13	µg/g	Cadmium
	12,16	43.6	µg/g	Nickel
	12,16	145	µg/g	Nitrate
287	0,0.5	2.40	µg/g	Cadmium
	0,0.5	6100	µg/g	Calcium
	0,0.5	48.0	µg/g	Copper
	0,0.5	1100	µg/g	Lead
	0,0.5	71.0	µg/g	Lithium
	0,0.5	1110	µg/g	Potassium
	0.5,2	32.3	µg/g	2,4,6-Trinitrotoluene
	0.5,2	2.29	µg/g	Cadmium
	0.5,2	7000	µg/g	Calcium
	0.5,2	585	µg/g	Lead
	2,4	3.42	µg/g	Cadmium
	2,4	13300	µg/g	Calcium
	2,4	285	µg/g	Lead
	2,4	990	µg/g	Potassium
	4,6	2.32	µg/g	Cadmium
	4,6	10500	µg/g	Calcium
	4,6	127	µg/g	Lead
288	0,0.5	2.20	µg/g	Cadmium
	0,0.5	1760	µg/g	Manganese
	0.5,2	2.57	µg/g	Cadmium
	0.5,2	5840	µg/g	Calcium
	0.5,2	26.3	µg/g	Cobalt
	0.5,2	2920	µg/g	Manganese
	2,4	2.77	µg/g	Cadmium
	2,4	26.8	µg/g	Cobalt
	4,6	1.98	µg/g	Cadmium

[a] Location number corresponds to number presented on Figures 5.2-1 through 5.2-31.

TABLE 5.2-3 Borehole and Surface Soil Sample Locations Not Shown On Plate 2

Sample Location Not Shown	Region	Zone	Common Location	Depth of Above-Reference Level Concentrations (feet)	Comments
501	1	1	242	3.0	
732	1	1	243	1.0+	
233	3	4		0.0	35 feet west of Location 234
717	3	4		0.5+	14 feet west of Location 234 and 2 feet north
729	3	4		0.0	60 feet east and 19 feet south Location 239
704	4	None	137	0.0	
703	4	None		0.0	245 feet west of Location 138 and 88 feet south
426	4	1		1.5+	10 feet east and 21 feet south of Location 414
692	4	2	698	0.5	
693	4	2	416	1.0+	
701	4	2		0.5	16 feet north of Location 415
687	4	4	419	1.5+	
681	4	3	354	0.5	
674	4	4	340	2.0+	
680	4	4	356	2.0+	
348	4	4		0.5	7 feet west of Location 349 and 23 feet north
675	4	4	342	0.0	
678	4	4	350	0.0	
764	4	5		0.5+	20 feet west and 0 feet south of Location 106
765	4	5		0.5+	0 feet east and 20 feet north of Location 106
695	5	4	125	0.0	
689	5	6		0.0	6 feet east of Location 207 and 1 foot north
412	5	8		2.0	19 feet north of Location 213
413	5	8		0.0	4 feet south of Location 213 and 1 foot east
684	5	8	213	0.5+	
679	6	None	202	0.5+	5 feet south and 50 feet east of Location 202
706	6	6		0.5+	25 feet north and 41 feet west of Location 160
601	8	4	370	1.0	
604	8	None	369	0.0	5 feet west of Location 369
608	8	4	372	0.0	
619	8	4	374	0.0	
632	8	None		0.0	10 feet south of Location 379

See Section 12 for SI conversion factors.

TABLE 5.2-3 Borehole and Surface Soil Sample Locations Not Shown On Plate 2 (Continued)

Sample Location Not Shown	Region	Zone	Common Location	Depth of Above-Reference Level Concentrations (feet)	Comments
633	8	None	380	0.0	
634	8	None	383	0.0	
636	8	None		0.0	50 feet west of Location 637
637	8	None		0.0	50 feet south of Location 386
638	8	None		0.0	50 feet west of Location 639
639	8	None	635	0.0	50 feet north an d125 feet west of Location 635
642	8	None	386	0.0	
625	8	2	377	1.0	
615	8	3	373	0.5	
612	8	3		1.0+	50 feet south of Location 373
611	8	3		0.5+	50 feet south and 50 feet west of Location 373
606	8	4		0.5+	50 feet west of Location 371
607	8	4	371	0.5+	
600	8	4		0.5	50 feet west of Location 370
667	9	1	329	0.0	
310	9	1		0.5	15 feet south and 43 feet east of Location 309
664	9	1	503	0.5	
659	9	1	399	0.0	
656	9	1	398	0.0	
651	9	1	290	0.0	
650	9	1	288	0.0	
647	9	1	273	0.0	2 feet west of Location 273
641	9	1		0.0	37 feet east and 24 feet south of Location 267
265	9	1		0.5	37 feet east and 24 feet south of Location 267
653	9	2	294	8.0	1 foot south of Location 294
655	10	9	170	0.5+	
657	10	10			75 feet east and 0 feet south of Location 768
654	10	11		0.5+	22 feet south and 50 feet east of Location 430
763	10	14		0.0	25 feet south and 50 feet east of Location 761
762	10	14		0.0	25 feet east and 25 feet south of Location 761

TABLE 5.2-3 Borehole and Surface Soil Sample Locations Not Shown On Plate 2 (Continued)

Sample Location Not Shown	Region	Zone	Common Location	D[illegible]h of Above-Reference Level Concentrations (feet)	Comments
387	11	None		0.0	19 feet south and 7 feet west of Location 422
643	11	None		0.0	55 feet south and 50 feet east of Location 422
644	11	None		0.0	35 feet south and 55 feet east of Location 422
645	11	None		0.0	30 feet south and 25 feet west of Location 422
646	11	None		0.0	22 feet south and 25 feet west of Location 422
648	11	1		0.0	20 feet north and 235 feet west of Location 422
375	11	2	622	0.0	389 feet west and 500 feet south of Location 388
750	None	None		1.5+	Outside northern site boundary along drainage from Frog Pond
751	None	None		0.0	Outside northern site boundary along drainage from Frog Pond
752	None	None		1.5+	Outside northern site boundary along drainage from Frog Pond
753	None	None		0.5+	Outside northern site boundary along drainage from Frog Pond
754	None	None		1.5+	Outside northern site boundary along drainage from Frog Pond
755	None	None		0.5+	Outside northern site boundary along drainage from Frog Pond
767	10	14		1.0+	220 feet south and 310 feet west of Location 758

TABLE 5.2-4 Summary of Estimated Areas, Depths, and Volumes in Zones

Region	Zone	Area (ft^2)	Depth (ft)	Volume (cy)
1	1	65,491	3.0	7,277
	2	17,015	0.5	315
3	1	25,757	1.0	954
	2	5,000	1.0	185
	3	9,348	0.5	173
	4	36,885	4.0	5,464
4	1	7,525	5.0	1,394
	2	305,791	0.5	5,663
	3	55,408	0.5	1,026
	4	182,290	2.5	16,879
	5	7,621	0.5	141
	6	47,820	0.5	886
5	1	16,156	1.0	898
	2	117,033	0.5	2,167
	3	6,597	4.0	977
	4	26,486	0.5	490
	5	51,908	1.5	2,884
	6	27,683	0.5	513
	7	9,606	0.5	178
	8	23,349	2.0	1,730
	9	183	11.0	75
	10	938	0.5	17
	11	2,505	1.0	92
6	1	20,667	0.5	383
	2	65,947	1.0	2,442
	3	8,955	2.0	663
	4	40,379	0.5	748
	5	24,466	0.5	453
	6	5,851	0.5	108
8	1	16,380	0.5	303
	2	16,475	2.0	1,220
	3	29,000	1.0	1,075
	4	31,847	0.5	590
9	1	277,350	0.5	5,136
	2	18,539	8.0	5,493
10	1	11,175	1.0	414
	2	14,552	0.5	270
	3	8,636	1.0	320
	4	2,533	0.5	47
	5	12,819	1.5	712
	6	16,233	4.0	2,405
	7	5,688	0.5	105
	8	10,042	1.0	372
	9	16,384	2.0	1,214
	10	23,050	1.0	854
	11	56,156	1.0	2,080
10	12	4,904	1.0	182
	13	3,099	0.5	115

TABLE 5.2-4 Summary of Estimated Areas, Depths, and Volumes in Zones (Continued)

Region	Zone	Area (ft^2)	Depth (ft)	Volume (cy)
	14	11,162	0.5	207
11	1	91,321	0.5	1,691
	2	46,938	0.5	869
TOTAL		1,938,943 (44.5 acres)		80,849

See Section 12 for SI conversion factors.

Notes:
1) Regions 2 and 7 do not contain zones
2) Zone areas, depths and boundaries are based on reference-level concentrations created for presentation purposes only. Some of these parameters will most likely change if site-specific guidelines to be be determined later differ from reference-level concentrations.

TABLE 5.2-5 Summary of Contamination on Vicinity Property DA 1

Location	Volume m^3	Volume (yd^3)	Average U-238 Concentration (pCi/g)
Buried Mound	317	(415)	676
Northern and Western Mound Perimeter	337	(440)	75
Exterior one	138	(180)	22
Along Railroad Tracks	85	(111)	38
Drainage Ditch	15	(19)	NE
TOTAL	892	(1165)	281[a]

[a]Volume - weighted average

NE - Not estimated

See Section 12 for SI conversion factors.

Source: MKF and JEG 1987j

TABLE 5.2-6 Summary of Contamination on Vicinity Property DA 2

Location	Volume m^3	Volume (yd^3)	Average U-238 Concentration (pCi/g)
Zone 1	31		20
Zone 2	26		18
Zone 3	50		96
Zone 4	71		26
Zone 5[a]	6		76
	—		—
TOTAL	141	(184)	45 [b]

[a]Average Ra-226 concentration of 18 pCi/g

[b]Volume - weighted average

See Section 12 for SI conversion factors.

Source: MKF and JEG 1987f

TABLE 5.2-7 Summary of Vicinity Property Estimated Areas, Depths, Volumes, and Average Primary Contaminant Concentrations

Vicinity Property Identification	Area m^2 (ft^2)	Average depth cm (ft)	Volume m^3 (yd^3)	Primary Contaminant	Average Concentration pCi/g
DA 1	1,808 (19,458)	49 (1.6)	892 (1,165)	U-238	281
DA 2	699 (7,533)	20 (0.7)	141 (182)	U-238	45
DA 3	77 (825)	46 (1.5)	35 (46)	U-238	62
DA 4[a]	---	---	---	---	---
DA 5	743 (8,000)	91 (3)	680 (889)	Ra-226	<30
DA 6	613 (6,600)	91 (3)	560 (733)	[b]	[b]
DA 7[c]	3.3 (35)	30 (1)	1 (1.5)	Ra-226	38
DOC 1[c]	167 (1,800)	46 (1.5)[d]	76 (100)[d]	[b]	[b]
DOC 2[c]	[b]	[b]	[b]	Ra-226	82
DOC 3	10.4 (114)	72 (2.4)	7.7 (10)	U-238	208
DOC 4	628 (6,766)	30 (1)	193 (251)	Ra-226	113
DOC 5	5[d] (54)	15[d] (0.5)	1[d] (1)	Th-230	59
DOC 6	1 (9)	76 (2.5)	1 (1)	[b]	[b]
DOC 7[a]	---	---	---	---	---
DOC 8[c]	2.4 (27)	63 (2)	1.5 (2)	Ra-226	63
DOC 9[c] (Femme Osage Slough)	---	---	---	---	---
DOC 10	0.5 (5)	30 (1)	0.2 (0.2)	Th-230	36
Southeast Drainage	11,150 (120,000)	61 (2)	6,800 (8,900)	[b]	[b]
Total[e]	15,735 (169,364)	---	9,311 (12,180)		

[a] Included in southeast drainage data
[b] Not estimated
[c] Remediated
[d] Estimated
[e] Totals do not include previously remediated areas

TABLE 5.3-1 Summary of Chemical Analyses of Surface Water and Springs[a]

Chemical	Detection Level (DL)	Water Quality Standard	Background SW-2007	Distribution in Surface Water and Springs
1,3,5-trinitrobenzene	0.03 µg/l	(NS)	Z	Detected above DL for SW-2008 and SP-5201
1,3-dinitrobenzene	0.4 µg/l	(NS)	Z	Detected above DL for PS-5201
Nitrobenzene	0.6 µg/l	(NS)	Z	No data above DL
2,4,6-trinitrotoluene	0.5 µg/l	(NS)	Z	Detected above DL for several springs
2,4-dinitrotoluene	0.2 µg/l	0.17 µg/l (R)	Z	Detected above DL for several SW sampling locations and one SP sampling location
2,6-dinitrotoluene	0.6 µg/l	0.0068 µg/l (R)	Z	Detected above DL for several SW and SP sampling locations
Alpha radiation	5 pCi/l	(NS)	3.5 pCi/l	Data above standard for several SW and SP sampling locations
Beta	6 pCi/l	(NS)	7.6 pCi/l	Data above DL for most SW and 4 SP sampling locations; no standard
Silver	10 µg/l	50 µg/l (P)	LT DL	One measurement above bkg, SW-2010, below std
Aluminum	200 µg/l	(NS)	LT DL	Data above DL in some surface waters and springs
Arsenic	10 µg/l	50 µg/l (P)	N/A	No data above standard
Barium	200 µg/l	1000 µg/l (P)	N/A	No data above standard
Beryllium	5 µg/l	0.0068 µg/l (C)	LT DL	No data above DL
Calcium	5 mg/l	(NS)	52 mg/l	No standard for comparison
Cadmium	5 µg/l	10 µg/l (P)	LT DL	One measurement above DL, SP-6306, below std
Chloride	0.25 mg/l	250 mg/l (S)	23.8 mg/l	One measurement above standard, SW-2011
Cobalt	10 µg/l	(NS)	LT DL	No data above DL
Chromium	10 µg/l	50 µg/l (P)	2 µg/l	No data above standard
Copper	25 µg/l	1000 µg/l (S)	LT DL	One measurement above DL, SP-6304, below std
Fluoride	0.25 mg/l	2 mg/l (S)	0.34 mg/l	No data above standard
Iron	100 µg/l	300 µg/l (S)	570 µg/l	Data widely varied; few data above standard
Mercury	0.2 µg/l	2 µg/l (P)	LT DL	No data above DL
Potassium	5 mg/l	(NS)	1.9 mg/l	No standard for comparison
Lithium	50 µg/l	(NS)	50 µg/l	No standard; no data above DL
Magnesium	5 mg/l	(NS)	9.4 mg/l	No standard for comparison
Manganese	15 µg/l	50 µg/l (S)	319 µg/l	Data vary widely; few data above standard
Molybdenum	13 µg/l	(NS)	N/A	No standard for comparison; few data above DL
Sodium	5 mg/l	(NS)	11.5 mg/l	No standard for comparison
Nickel	40 µg/l	13.4 µg/l (C)	LT DL	One measurement above std, SP-5603

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TABLE 5.3-1 Summary of Chemical Analyses of Surface Water and Springs[(a)] (Continued)

Chemical	Detection Level (DL)	Water Quality Standard	Background SW-2007	Distribution in Surface Water and Springs
Nitrate	0.1 mg/l	44 mg/l (P)	1.6 mg/l	Data above std in some surface waters and springs
Lead	5 μg/l	500 μg/l (P)	LT DL	Few data above DL; no data above standard
Radium-226	1 pCi/l	5.0 pCi/l (M)	LT DL	No data above DL
Radium-228	1 pCi/l	5.0 pCi/l (M)	LT DL	One measurement above DL, SP-5306, below std
Antimony	60 μg/l	146 μg/l (C)	LT DL	No data above standard
Selenium	5 μg/l	10 μg/l (P)	LT DL	No data above DL
Sulfate	1 mg/l	150 mg/l (MS)	38 mg/l	Data above bkg; no data above standard
Thorium-230	1 pCi/l	(NS)	1.1 pCi/l	One measurement above bkg, SW-2008, no std
Thorium-232	1 pCi/l	(NS)	LT DL	No data above DL
Tellurium	10 μg/l	13 μg/l (C)	LT DL	No data above DL
Total Organic Carbons	1 mg/l	(NS)	3.5 mg/l	Data vary widely; no standard for comparison
Uranium Total	1 pCi/l	(NS)	1 pCi/l	Data in most SW and some SP sampling locations above background
Vanadium	50 μg/l	(NS)	LT DL	No standard; no data above DL
Zinc	20 μg/l	5000 μg/l (S)	9 μg/l	Few data above DL; no data above standard

(a) Based upon WSSRAP surface water, NPDES, and springs monitoring data through first quarter 1990; subject to change based upon results of validation of these data.

(R) Recommended Criteria, ORNL 1987
(P) Primary Drinking Water Standard, 40 CFR 141
(S) Secondary Drinking Water Standard, 40 CFR 143
(M) Maximum Contaminant Levels for Community Water Systems, 40 CFR 144
(C) EPA Quality Criteria for Water 1986, Water and Fish Ingestion
(MS) Missouri State Drinking Water Standard
(NS) No standard available for comparison

N/A Not applicable because of inadequate data
Z Zero; not expected to exist in nature
DL Analytical detection limit generally reported
LT DL Less than detection limit value
SW Surface water
SP Spring
std Water quality standard
bkg Background

TABLE 5.3-2 Analyses of Uranium (pCi/l) as Presented in Figures 5.3-2 and 5.3-3[a]

SAMPLE LOCATION	DETECT/ ANALYSES[b]	VALUE PRESENTED ON MAPS[a]			STANDARD DEVIATION
		MINIMUM	MAXIMUM	MEAN	
NP-0001	15/17	ND[c]	1200.00	505.60	307.97
NP-0002	59/64	ND	1500.00	147.04	197.04
NP-0003	25/25	16.00	3500.00	1081.53	1034.89
NP-0004	11/14	ND	9.80	6.33	2.34
NP-0005	21/23	ND	1200.00	436.43	264.62
SP-5101	0/1	ND	ND	NA[d]	NA
SP-5201	0/5	ND	ND	NA	NA
SP-5202	1/1	1.10	1.10	NA	NA
SP-5203	3/6	ND	11.00	4.98	5.21
SP-5204	0/1	ND	ND	NA	NA
SP-5205	1/1	1.90	1.90	NA	NA
SP-5206	1/1	2.90	2.90	NA	NA
SP-5207	1/1	3.30	3.30	NA	NA
SP-5301	11/11	80.00	578.00	309.91	142.73
SP-5302	8/8	96.00	515.00	311.88	144.26
SP-5303	9/9	95.00	312.00	223.89	65.87
SP-5304	8/8	39.40	244.00	125.05	59.54
SP-5306	0/1	ND	ND	NA	NA
SP-5401	0/1	ND	ND	NA	NA
SP-5402	0/1	ND	ND	NA	NA
SP-5403	0/1	ND	ND	NA	NA
SP-5405	0/1	ND	ND	NA	NA
SP-5501	0/2	ND	ND	NA	NA
SP-5502	0/1	ND	ND	NA	NA
SP-5503	2/3	ND	6.80	4.25	3.61
SP-5601	0/2	ND	ND	NA	NA
SP-5602	0/1	ND	ND	NA	NA
SP-5603	0/2	ND	ND	NA	NA
SP-5604	0/1	ND	ND	NA	NA
SP-6301	19/19	13.60	160.00	66.37	40.19
SP-6302	6/6	10.00	90.00	39.13	30.84
SP-6303	6/8	ND	5.80	3.30	1.85
SP-6304	1/1	1.40	1.40	NA	NA
SP-6306	5/8	ND	12.90	6.44	4.87
SP-6307	0/1	ND	ND	NA	NA
SP-6308	0/1	ND	ND	NA	NA
SP-6501	0/2	ND	ND	NA	NA
SP-6601	1/2	ND	1.10	NA	NA
SW-2001	13/14	ND	4.30	2.46	1.25
SW-2002	8/8	6.40	240.00	104.70	91.69
SW-2003	13/13	8.00	69.00	18.28	15.76
SW-2004	14/14	8.90	39.00	20.93	8.25
SW-2005	14/14	4.10	53.72	16.51	12.29
SW-2006	5/14	ND	4.40	2.07	1.50
SW-2007	2/14	ND	1.80	1.45	0.49
SW-2010	5/5	5.40	3200.00	1354.68	1491.09
SW-2011	4/4	28.56	319.00	216.39	129.31
SW-2012	1/1	11.20	11.20	NA	NA

TABLE 5.3-2 Analyses of Uranium (pCi/l) as Presented in Figures 5.3-2 and 5.3-3 (Continued)

SAMPLE LOCATION	DETECT/ ANALYSES[b]	VALUE PRESENTED ON MAPS[a] MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
SW-3001	3/3	198.00	405.00	275.80	112.67
SW-3002	3/3	570.00	2312.00	1350.67	884.94
SW-3003	3/3	57.00	2580.00	947.00	1416.13
SW-3004	3/3	202.00	2700.00	1420.67	1250.10

(a) The data summarized in this table and presented on maps reflect data from the fourth quarter of 1988 to the first quarter of 1990.

(b) Does not include QA data, duplicates and matrix spikes.

(c) Not detected

(d) Not applicable

TABLE 5.3-3 Analyses of Nitrate (mg/l) as Presented in Figures 5.3-5 and 5.3-6

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
NP-0001	13/19	ND[c]	7.90	4.29	1.75
NP-0002	25/34	ND	698.00	49.15	165.50
NP-0003	22/30	ND	9010.00	728.00	2212.99
NP-0004	13/17	ND	373.00	30.20	103.01
NP-0005	25/28	ND	2060.00	206.41	553.26
SP-5101	1/1	1.50	1.50	NA [d]	NA
SP-5201	4/4	0.15	2.20	0.89	0.92
SP-5202	1/1	4.00	4.00	NA	NA
SP-5203	4/4	0.50	53.80	14.10	26.47
SP-5204	1/1	1.30	1.30	NA	NA
SP-5205	0/1	ND	ND	NA	NA
SP-5206	1/1	2.50	2.50	NA	NA
SP-5207	1/1	2.50	2.50	NA	NA
SP-5301	6/6	1.50	35.40	12.42	12.89
SP-5302	4/4	2.00	31.30	14.84	13.78
SP-5303	4/4	3.00	17.60	9.30	6.07
SP-5304	5/5	1.85	9.10	5.17	3.07
SP-5306	1/1	0.70	0.70	NA	NA
SP-5401	0/1	ND	ND	NA	NA
SP-5402	1/1	0.20	0.20	NA	NA
SP-5403	1/1	1.70	1.70	NA	NA
SP-5405	1/1	0.70	0.70	NA	NA
SP-5501	2/2	2.50	2.60	2.55	0.07
SP-5502	1/1	0.30	0.30	NA	NA
SP-5503	2/2	2.30	2.70	2.50	0.28
SP-5601	2/2	0.90	0.90	0.90	0.00
SP-5602	1/1	1.80	1.80	NA	NA
SP-5603	2/2	0.40	0.84	0.62	0.31
SP-5604	1/1	5.40	5.40	NA	NA
SP-6301	15/16	ND	10200.00	739.81	2617.87
SP-6302	3/3	15.00	15.60	15.27	0.31
SP-6303	6/6	7.40	66.60	36.77	25.16
SP-6304	1/1	6.00	6.00	NA	NA
SP-6306	6/7	ND	14.50	4.22	5.22
SP-6307	1/1	2.60	2.60	NA	NA
SP-6308	0/1	ND	ND	NA	NA
SP-6501	2/2	3.00	3.70	3.35	0.49
SP-6601	2/2	3.80	5.50	4.65	1.20
SW-2001	8/9	ND	6.90	3.30	2.25
SW-2002	4/5	ND	4.00	1.62	1.59
SW-2003	5/10	ND	3.00	1.39	0.97
SW-2004	10/10	0.70	8.90	3.87	2.67
SW-2005	7/9	ND	1.50	0.64	0.45
SW-2006	3/10	ND	0.90	0.42	0.42
SW-2007	7/9	ND	5.00	2.80	1.58
SW-2010	3/5	ND	48.60	18.80	25.81
SW-2011	2/4	ND	0.79	0.70	0.13
SW-2012	0/1	ND	ND	NA	NA

TABLE 5.3-3 Analyses of Nitrate (mg/l) as Presented in Figures 5.3-5 and 5.3-6 (Continued)

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
SW-3001	3/3	248.00	1668.00	1052.00	728.43
SW-3002	0/3	ND	ND	NA	NA
SW-3003	3/3	19.60	3700.00	1851.53	1840.26
SW-3004	3/3	0.25	7240.00	2413.51	4179.87

[a] Does not include QA data, duplicates, and matrix spikes.

[b] The data summarized in this table and presented on maps reflect data from the fourth quarter of 1988 to the first quarter of 1990.

[c] Not detected.

[d] Not applicable.

TABLE 5.3-4 Analyses of 2,4,6-Trinitrotoluene (μg/l) as Presented in Figures 5.3-8 and 5.3-9

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
NP-0002	0/14	ND [c]	ND	NA [d]	NA
NP-0003	0/9	ND	ND	NA	NA
NP-0004	2/10	ND	7.45	4.13	4.70
NP-0005	0/10	ND	ND	NA	NA
SP-5201	7/8	ND	77.10	22.34	25.04
SP-5202	0/1	ND	ND	NA	NA
SP-5203	0/2	ND	ND	NA	NA
SP-5204	0/1	ND	ND	NA	NA
SP-5205	0/1	ND	ND	NA	NA
SP-5301	0/6	ND	ND	NA	NA
SP-5302	0/3	ND	ND	NA	NA
SP-5303	5/5	11.90	110.00	35.34	41.95
SP-5304	3/4	ND	4.80	2.35	2.12
SP-5306	0/1	ND	ND	NA	NA
SP-5401	0/1	ND	ND	NA	NA
SP-5402	0/1	ND	ND	NA	NA
SP-5403	0/1	ND	ND	NA	NA
SP-5405	0/1	ND	ND	NA	NA
SP-5501	0/2	ND	ND	NA	NA
SP-5502	0/1	ND	ND	NA	NA
SP-5503	1/1	0.61	0.61	NA	NA
SP-5601	0/2	ND	ND	NA	NA
SP-5602	1/1	1.80	1.80	NA	NA
SP-5603	0/2	ND	ND	NA	NA
SP-5604	0/1	ND	ND	NA	NA
SP-6301	2/14	ND	0.30	0.18	0.18
SP-6302	2/5	ND	0.11	0.08	0.05
SP-6303	4/7	ND	3.30	2.02	1.26
SP-6304	0/1	ND	ND	NA	NA
SP-6306	0/8	ND	ND	NA	NA
SP-6307	0/1	ND	ND	NA	NA
SP-6308	0/1	ND	ND	NA	NA
SP-6501	0/2	ND	ND	NA	NA
SP-6601	0/2	ND	ND	NA	NA
SW-2001	0/3	ND	ND	NA	NA
SW-2002	0/2	ND	ND	NA	NA
SW-2003	0/2	ND	ND	NA	NA
SW-2004	0/2	ND	ND	NA	NA
SW-2005	0/2	ND	ND	NA	NA
SW-2006	0/2	ND	ND	NA	NA
SW-2007	0/2	ND	ND	NA	NA
SW-2010	0/4	ND	ND	NA	NA
SW-2011	1/3	ND	1.76	NA	NA

(a) Does not include QA data, duplicates and matrix spikes.

(b) The data summarized in this table and presented on maps reflect data from the fourth quarter of 1988 to the first quarter of 1990.

(c) Not detected.

(d) Not applicable.

TABLE 5.3-5 Analyses of 1,3,5-Trinitrobenzene (µg/l) as Presented in Figures 5.3-8 and 5.3-9

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
NP-0001	1/11	ND	0.84	NA	NA
NP-0002	2/14	ND	1.42	0.81	0.86
NP-0003	0/9	ND	ND	NA	NA
NP-0004	2/10	ND	0.65	0.35	0.43
NP-0005	0/10	ND	ND	NA	NA
SP-5201	7/8	ND	3.26	1.40	1.04
SP-5202	0/1	ND	ND	NA	NA
SP-5203	0/2	ND	ND	NA	NA
SP-5204	0/1	ND	ND	NA	NA
SP-5205	0/1	ND	ND	NA	NA
SP-5301	0/6	ND	ND	NA	NA
SP-5302	0/4	ND	ND	NA	NA
SP-5303	2/6	ND	0.47	0.35	0.18
SP-5304	1/4	ND	0.42	NA	NA
SP-5306	0/1	ND	ND	NA	NA
SP-5401	0/1	ND	ND	NA	NA
SP-5402	0/1	ND	ND	NA	NA
SP-5403	0/1	ND	ND	NA	NA
SP-5405	0/1	ND	ND	NA	NA
SP-5501	0/2	ND	ND	NA	NA
SP-5502	0/1	ND	ND	NA	NA
SP-5503	0/1	ND	ND	NA	NA
SP-5601	0/2	ND	ND	NA	NA
SP-5602	0/1	ND	ND	NA	NA
SP-5603	0/2	ND	ND	NA	NA
SP-5604	0/1	ND	ND	NA	NA
SP-6301	1/14	ND	0.02	NA	NA
SP-6302	0/5	ND	ND	NA	NA
SP-6303	2/7	ND	0.23	0.17	0.08
SP-6304	0/1	ND	ND	NA	NA
SP-6306	0/8	ND	ND	NA	NA
SP-6307	0/1	ND	ND	NA	NA
SP-6308	0/1	ND	ND	NA	NA
SP-6501	0/2	ND	ND	NA	NA
SP-6601	0/2	ND	ND	NA	NA
SW-2001	0/3	ND	ND	NA	NA
SW-2002	0/2	ND	ND	NA	NA
SW-2003	0/2	ND	ND	NA	NA
SW-2004	0/2	ND	ND	NA	NA
SW-2005	0/2	ND	ND	NA	NA
SW-2006	0/2	ND	ND	NA	NA
SW-2007	0/2	ND	ND	NA	NA
SW-2010	0/4	ND	ND	NA	NA
SW-2011	1/3	ND	4.97	NA	NA

(a) Does not include QA data, duplicates, and matrix spikes.

(b) The data summarized in this table and presented on maps reflect data from the fourth quarter of 1988 to the first quarter of 1990.

(c) Not detected.

(d) Not applicable.

TABLE 5.3-6 Analyses of 2,4-Dinitrotoluene (μg/l) as Presented in Figures 5.3-8 and 5.3-9

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
NP-0002	0/14	ND [c]	ND	NA [d]	NA
NP-0003	0/9	ND	ND	NA	NA
NP-0004	0/10	ND	ND	NA	NA
NP-0005	0/10	ND	ND	NA	NA
SP-5201	1/8	ND	1.73	NA	NA
SP-5202	0/1	ND	ND	NA	NA
SP-5203	0/2	ND	ND	NA	NA
SP-5204	0/1	ND	ND	NA	NA
SP-5205	0/1	ND	ND	NA	NA
SP-5301	0/6	ND	ND	NA	NA
SP-5302	1/4	ND	0.89	NA	NA
SP-5303	2/6	ND	11.00	6.22	6.77
SP-5304	0/4	ND	ND	NA	NA
SP-5306	0/1	ND	ND	NA	NA
SP-5401	0/1	ND	ND	NA	NA
SP-5402	0/1	ND	ND	NA	NA
SP-5403	0/1	ND	ND	NA	NA
SP-5405	0/1	ND	ND	NA	NA
SP-5501	0/2	ND	ND	NA	NA
SP-5502	0/1	ND	ND	NA	NA
SP-5503	0/1	ND	ND	NA	NA
SP-5601	0/2	ND	ND	NA	NA
SP-5602	1/1	0.50	0.50	NA	NA
SP-5603	0/2	ND	ND	NA	NA
SP-5604	0/1	ND	ND	NA	NA
SP-6301	5/15	ND	1.44	0.71	0.44
SP-6302	2/5	ND	1.42	1.01	0.58
SP-6303	0/7	ND	ND	NA	NA
SP-6304	0/1	ND	ND	NA	NA
SP-6306	0/8	ND	ND	NA	NA
SP-6307	0/1	ND	ND	NA	NA
SP-6308	0/1	ND	ND	NA	NA
SP-6501	0/2	ND	ND	NA	NA
SP-6601	0/2	ND	ND	NA	NA
SW-2001	0/3	ND	ND	NA	NA
SW-2002	0/2	ND	ND	NA	NA
SW-2003	1/2	ND	0.58	NA	NA
SW-2004	0/2	ND	ND	NA	NA
SW-2005	0/2	ND	ND	NA	NA
SW-2006	1/2	ND	0.06	NA	NA
SW-2007	0/2	ND	ND	NA	NA
SW-2010	0/4	ND	ND	NA	NA
SW-2011	0/3	ND	ND	NA	NA

(a) Does not include QA data, duplicates, and matrix spikes.

(b) The data summarized in this table and presented on maps reflect data from the fourth quarter of 1988 to the first quarter of 1990.

(c) Not detected.

(d) Not applicable.

TABLE 5.3-7 Analyses of 2,6-Dinitrotoluene (μg/l) as Presented in Figures 5.3-8 and 5.3-9

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
NP-0002	0/14	ND[c]	ND	NA[d]	NA
NP-0003	0/9	ND	ND	NA	NA
NP-0004	0/10	ND	ND	NA	NA
NP-0005	0/10	ND	ND	NA	NA
SP-5201	4/8	ND	1.26	0.81	0.45
SP-5202	0/1	ND	ND	NA	NA
SP-5203	0/2	ND	ND	NA	NA
SP-5204	0/1	ND	ND	NA	NA
SP-5205	0/1	ND	ND	NA	NA
SP-5301	0/6	ND	ND	NA	NA
SP-5302	0/4	ND	ND	NA	NA
SP-5303	2/6	ND	11.00	5.81	7.35
SP-5304	1/4	ND	0.40	NA	NA
SP-5306	0/1	ND	ND	NA	NA
SP-5401	0/1	ND	ND	NA	NA
SP-5402	0/1	ND	ND	NA	NA
SP-5403	0/1	ND	ND	NA	NA
SP-5405	0/1	ND	ND	NA	NA
SP-5501	0/2	ND	ND	NA	NA
SP-5502	0/1	ND	ND	NA	NA
SP-5503	0/1	ND	ND	NA	NA
SP-5601	0/2	ND	ND	NA	NA
SP-5602	1/1	3.50	3.50	NA	NA
SP-5603	0/2	ND	ND	NA	NA
SP-5604	0/1	ND	ND	NA	NA
SP-6301	6/15	ND	17.60	3.62	6.86
SP-6302	1/5	ND	0.53	NA	NA
SP-6303	3/7	ND	0.59	0.38	0.19
SP-6304	0/1	ND	ND	NA	NA
SP-6306	0/8	ND	ND	NA	NA
SP-6307	0/1	ND	ND	NA	NA
SP-6308	0/1	ND	ND	NA	NA
SP-6501	0/2	ND	ND	NA	NA
SP-6601	0/2	ND	ND	NA	NA
SW-2001	0/3	ND	ND	NA	NA
SW-2002	0/2	ND	ND	NA	NA
SW-2003	0/2	ND	ND	NA	NA
SW-2004	0/2	ND	ND	NA	NA
SW-2005	0/2	ND	ND	NA	NA
SW-2006	0/2	ND	ND	NA	NA
SW-2007	0/2	ND	ND	NA	NA
SW-2010	0/4	ND	ND	NA	NA
SW-2011	1/3	ND	0.39	NA	NA

[a] Does not include QA data, duplicates, and matrix spikes.

[b] The data summarized in this table and presented on maps reflect data from the fourth quarter of 1988 to the first quarter of 1990.

[c] Not detected.

[d] Not applicable.

TABLE 5.3-8 Analyses of 1,3-Dinitrobenzene (μg/l) as Presented in Figures 5.3-8 and 5.3-9

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
NP-0001	0/11	ND [c]	ND	NA[d]	NA
NP-0002	0/14	ND	ND	NA	NA
NP-0003	0/9	ND	ND	NA	NA
NP-0004	0/10	ND	ND	NA	NA
NP-0005	0/10	ND	ND	NA	NA
SP-5201	3/8	ND	1.21	0.85	0.32
SP-5202	0/1	ND	ND	NA	NA
SP-5203	0/2	ND	ND	NA	NA
SP-5204	0/1	ND	ND	NA	NA
SP-5205	0/1	ND	ND	NA	NA
SP-5301	0/6	ND	ND	NA	NA
SP-5302	0/4	ND	ND	NA	NA
SP-5303	1/6	ND	0.81	NA	NA
SP-5304	0/4	ND	ND	NA	NA
SP-5306	0/1	ND	ND	NA	NA
SP-5401	0/1	ND	ND	NA	NA
SP-5402	0/1	ND	ND	NA	NA
SP-5403	0/1	ND	ND	NA	NA
SP-5405	0/1	ND	ND	NA	NA
SP-5501	0/2	ND	ND	NA	NA
SP-5502	0/1	ND	ND	NA	NA
SP-5503	0/1	ND	ND	NA	NA
SP-5601	0/2	ND	ND	NA	NA
SP-5602	0/1	ND	ND	NA	NA
SP-5603	0/2	ND	ND	NA	NA
SP-5604	0/1	ND	ND	NA	NA
SP-6301	1/14	ND	0.18	NA	NA
SP-6302	0/5	ND	ND	NA	NA
SP-6303	1/7	ND	0.45	NA	NA
SP-6304	0/1	ND	ND	NA	NA
SP-6306	0/8	ND	ND	NA	NA
SP-6307	0/1	ND	ND	NA	NA
SP-6308	0/1	ND	ND	NA	NA
SP-6501	0/2	ND	ND	NA	NA
SP-6601	0/2	ND	ND	NA	NA
SW-2001	0/3	ND	ND	NA	NA
SW-2002	0/2	ND	ND	NA	NA
SW-2003	0/2	ND	ND	NA	NA
SW-2004	0/2	ND	ND	NA	NA
SW-2005	0/2	ND	ND	NA	NA
SW-2006	1/2	ND	0.27	NA	NA
SW-2007	0/2	ND	ND	NA	NA
SW-2010	0/4	ND	ND	NA	NA
SW-2011	0/3	ND	ND	NA	NA

[a] Does not include QA data, duplicates, and matrix spikes.

[b] The data summarized in this table and presented on maps reflect data from the fourth quarter of 1988 to the first quarter of 1990.

[c] Not detected.

[d] Not applicable.

TABLE 5.3-9 Analyses of Nitrobenzene (μg/l) as Presented in Figures 5.3-8 and 5.3-9

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
NP-0001	0/11	ND [c]	ND	NA [d]	NA
NP-0002	0/14	ND	ND	NA	NA
NP-0003	0/9	ND	ND	NA	NA
NP-0004	0/10	ND	ND	NA	NA
NP-0005	0/10	ND	ND	NA	NA
SP-5201	1/8	ND	1.39	NA	NA
SP-5202	0/1	ND	ND	NA	NA
SP-5203	0/2	ND	ND	NA	NA
SP-5204	0/1	ND	ND	NA	NA
SP-5205	0/1	ND	ND	NA	NA
SP-5301	0/6	ND	ND	NA	NA
SP-5302	0/5	ND	ND	NA	NA
SP-5303	1/6	ND	0.87	NA	NA
SP-5304	0/4	ND	ND	NA	NA
SP-5306	0/1	ND	ND	NA	NA
SP-5401	0/1	ND	ND	NA	NA
SP-5402	0/1	ND	ND	NA	NA
SP-5403	0/1	ND	ND	NA	NA
SP-5405	0/1	ND	ND	NA	NA
SP-5501	0/2	ND	ND	NA	NA
SP-5502	0/1	ND	ND	NA	NA
SP-5503	0/1	ND	ND	NA	NA
SP-5601	0/2	ND	ND	NA	NA
SP-5602	0/1	ND	ND	NA	NA
SP-5603	0/2	ND	ND	NA	NA
SP-5604	0/1	ND	ND	NA	NA
SP-6301	0/14	ND	ND	NA	NA
SP-6302	0/4	ND	ND	NA	NA
SP-6303	1/7	ND	0.39	NA	NA
SP-6304	0/1	ND	ND	NA	NA
SP-6306	0/8	ND	ND	NA	NA
SP-6307	0/1	ND	ND	NA	NA
SP-6308	0/1	ND	ND	NA	NA
SP-6501	0/2	ND	ND	NA	NA
SP-6601	0/2	ND	ND	NA	NA
SW-2001	0/3	ND	ND	NA	NA
SW-2002	0/2	ND	ND	NA	NA
SW-2003	0/2	ND	ND	NA	NA
SW-2004	0/2	ND	ND	NA	NA
SW-2005	0/2	ND	ND	NA	NA
SW-2006	0/2	ND	ND	NA	NA
SW-2007	0/2	ND	ND	NA	NA
SW-2010	0/4	ND	ND	NA	NA
SW-2011	0/3	ND	ND	NA	NA

[a] Does not include QA data, duplicates, and matrix spikes.

[b] The data summarized in this table and presented on maps reflect data from the fourth quarter of 1988 to the first quarter of 1990.

[c] Not detected.

[d] Not applicable.

TABLE 5.4-1 Analysis of Total Constituents (Dissolved and Suspended) in Water from Raffinate Pits, Lysimeters, and Overburden Monitoring Wells

	Raffinate Pits 1, 2, 3, 4[a]				Lysimeters[b]						Monitoring Wells[c]	
	SW3001	SW3002	SW3003	SW3004	LYS3602	LYS3603	LYS3605	LYS3606	LYS3607	LYS3608	MW3013	MW3018
Depth	Surface	Surface	Surface	Surface	19.8 ft	25.7 ft	13.0 ft	16.5 ft	25.0 ft	5.5 ft	22.2 ft	29.6 ft
Date Sampled	4/87	4/87	4/87	4/87	9/87	9/87	9/87	9/87	9/87	9/87	3/88	6/88
Ca, mg/l	254	105.7	260.5	11.6	50.4	220	134.5	93.5	158	401	131	NA
Mg, mg/l	15.4	40.8	1965	39.4	9.28	65.4	26.2	12.3	35.7	239	40.2	NA
Na, mg/l	388	113	900	172	144	225	56.3	143	188	1073	12.0	NA
K, mg/l	28.4	14.3	78.2	15.2	3.74	2.13	7.8	4.08	3.37	8.67	5.54	NA
Fe, mg/l	0.109	0.22	0.433	0.101	0.068	2.0	16.22	2.76	0.137	4.52	0.664	NA
Al, µg/l	405	279	517	230	67	110	126	72	149	383	493	NA
As, µg/l	22	38	5	LT10[d]	13	LT10	LT10	LT10	LT10	LT10	LT10	NA
Cd, µg/l	0.5	LT5	LT5	LT5	LT5	15	LT5	LT5	LT5	45	LT5	NA
Cr, µg/l	85	83	194	31	20	63	47	38	48	152	LT10	NA
Cu, µg/l	45	12	30	19	14	23	21	13	21	49	11	NA
Ni, µg/l	11	48	174	33	13	109	92	56	43	385	LT40	NA
Pb, µg/l	22	LT5	257	358	LT5	45	56	6	LT5	220	LT5	NA
Sb, µg/l	LT60	102	395	LT60	LT60	70	59	40	42	240	LT60	NA
V, µg/l	2090	1800	5354	89	260	65	82	81	148	147	22	NA
Zn, µg/l	9	15	26	19	6	100	48	20	39	407	22	NA
Mn, µg/l	17	14	33	10	28	2410	2520	580	320	13500	71	NA
Ag, µg/l	25	10	40	8	LT10	12	11	4	11	50	LT10	NA
Ba, µg/l	71	31	86	102	55	190	73	116	112	118	34	NA
Be, µg/l	8	7	3	LT1	LT5	LT5	1	LT5	2	5	LT5	NA
Co, µg/l	LT4	LT4	33	LT4	50	45	24	13	12	186	LT50	NA
Hg, µg/l	LT0.2	LT0.2	LT0.2	LT0.2	LT0.2	LT0.2	LT0.2	LT0.2	LT0.2	LT0.2	LT0.2	NA
Li, µg/l	LT50	LT50	LT50	LT50	96	100	211	100	LT50	88	LT50	NA
Se, µg/l	LT5	LT5	LT5	LT5	LT5	LT5	LT5	LT5	LT5	LT5	LT5	NA
NO_3, mg/l	1869	44.7	4194	206.4	58.7	217	4.5	27.0	983	8976	6.4	7.4
SO_4, mg/l	231	493	704	136	127	145	765	155	172	803	230	122
Cl, mg/l	1.5	2.34	3.37	5.69	22.7	52.8	83.1	57.2	37.6	47.9	2.10	42.7
F, mg/l	1.9	1.57	4.84	4.69	2.2	2.0	1.10	1.10	1.3	LT0.25	0.7	0.5
HCO_3[e] mg/l	2991	179	6668	550	445	1515	1143	519	1804	14959	360	NC[f]

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TABLE 5.4-1 Analysis of Total Constituents (Dissolved and Suspended) in Water from Raffinate Pits, Lysimeters, and Overburden Monitoring Wells (Continued)

	Raffinate Pits 1, 2, 3, 4[a]				Lysimeters[b]						Monitoring Wells[c]	
	SW3001	SW3002	SW3003	SW3004	LYS3602	LYS3603	LYS3605	LYS3606	LYS3607	LYS3608	MW3013	MW3018
Depth	Surface	Surface	Surface	Surface	19.8 ft	25.7 ft	13.0 ft	16.5 ft	25.0 ft	5.5 ft	22.2 ft	29.6 ft
Date Sampled	4/87	4/87	4/87	4/87	9/87	9/87	9/87	9/87	9/87	9/87	3/88	6/88
pH	8.6	9.4	8.5	9.2	8.0[g]	8.0[g]	8.0[g]	7.2[g]	8.0[g]	7.0[g]	7.7	7.0
Eh, mV[h]	-63	89	-84	42	-31	-117	-69	-56	-48	-31	-74	NC
Utot[i]	45	300	130	2400	11	9.2	130	84	6.4	10	5	3.2
Ra-226[i]	61	28	42	3.4	LT1	LT1	LT1	LT1	LT1	LT1	LT1.09	LT1
Ra-228[i]	LT3	6	32	13	NA[j]	NA	NA	NA	NA	NA	NA	NA
Th-230[i]	NA	13	16	LT5	LT1	LT1	LT1	LT1	LT1	LT1	LT1	LT1
Th-232[i]	NA	LT6	LT6	LT5	LT1	LT1	LT1	LT1	LT1	LT1	LT1	LT1
Alpha[i]	200	180	150	980	NA	NA	NA	NA	NA	NA	NA	NA
Beta[i]	190	210	290	1200	NA	NA	NA	NA	NA	NA	NA	NA

(a) Refer to Section 4.4 for figure
(b) Refer to Section 4.5 for figure
(c) Refer to Section 5.4 for figure
(d) LT = less than detection limit
(e) Estimated by assuming that the missing anion to achieve a cation and anion balance is bicarbonate and equilibrium between calcite and the groundwater chemistry
(f) NC = not calculated
(g) Estimated by assuming equilibrium between bicarbonate/carbonate and calcite
(h) Estimated by assuming equilibrium between ferric hydroxide and the groundwater chemistry
(i) pCi/l
(j) NA = constituent not analyzed

See Section 12 for SI conversion factors.

TABLE 5.4-2 Summary of Chemical Analyses of Groundwater[a]

Chemical	Detection Level (DL)	Water Quality Standard	Background App. D	Distribution in Groundwater
1,3,5-TNB	0.03 μg/l	NS[b]	Z[c]	Detected in groundwater on and off site
1,3-TNB	0.4 μg/l	NS	Z	Detected in groundwater on and off site
NB	0.6 μg/l	NS	Z	Detected in groundwater on and off site
2,4,6-TNT	0.5 μg/l	NS	Z	Detected in groundwater on and off site
2,4-DNT	0.2 μg/l	0.17 μg/l[d]	Z	Detected in groundwater on and off site
2,6-DNT	0.6 μg/l	0.0068 μg/l[d]	Z	Detected in groundwater on and off site
Alpha	5 pCi/l	15 pCi/l[e]	N/A[f]	No data above standard
Beta	8 pCi/l	NS	N/A	Seven measurements above DL[g]; no standard
Ag	10 μg/l	50 μg/l[h]	N/A	No data above standard
Al	200 μg/l	NS	150 μg/l	Data above bkg[i] near raff. pits and SE 1/4 site
As	10 μg/l	50 μg/l[h]	N/A	One value above DL, MW 4022, below standard
Ba	200 μg/l	1000 μg/l[h]	mN/A	Two measurements above standard, MW 3009
Be	5 μg/l	0.0068 μg/l[j]	N/A	No data above DL
Ca	5 μg/l	NS	N/A	No standard for comparison
Cd	5 μg/l	10 μg/l[h]	N/A	Three measurements above DL; MW 2003, 3007, 3008
Cl	0.25 mg/l	250 mg/l[k]	N/A	Mean of measurements in MW 2006 below standard
Co	50 μg/l	NS	N/A	No data above DL
Cr	10 μg/l	50 μg/l[h]	55 μg/l	Data from near raff. pits & Frog Pond above bkg
Cu	25 μg/l	1000 μg/l[k]	20 μg/l	Few data above DL; no data above standard
CYN	0.01 mg/l	200 μg/l[j]	N/A	No data above DL
F	0.25 mg/l	2 mg/l[k]	N/A	Few data from near raff. pits above standard
Fe	100 μg/l	300 μg/l[k]	N/A	Data widely varied; few data above standard
Hg	0.2 μg/l	2 μg/l[h]	N/A	No data above standard; few data above DL
K	5 mg/l	NS	N/A	No standard for comparison
Li	50 μg/l	NS	N/A	No standard; few data near raff. pits above DL
Mg	5 mg/l	NS	N/A	No standard for comparison
Mn	15 μg/l	50 μg/l[k]	N/A	Data vary widely; few data above standard
Mo	13 μg/l	NS	N/A	No standard; higher values near raff. pits

TABLE 5.4-2 Summary of Chemical Analyses of Groundwater (Continued)

Chemical	Detection Level (DL)	Water Quality Standard	Background App. D	Distribution in Groundwater
Na	5 mg/l	NS	N/A	No standard for comparison
Ni	40 μg/l	13.4 μg/l[j]	65 μg/l	Data above standard on and off site
NO3	0.1 mg/l	44 mg/l[h]	9 mg/l	Data above standard on and off site
Pb	5 μg/l	500 μg/l[h]	N/A	Few data above DL; no data above standard
Phenol	0.01 mg/l	3.5 mg/l[j]	N/A	No data above DL]
Ra-226	1 pCi/l	5.0 pCi/l[e]	N/A	Two measurements above DL]
Sb	60 μg/l	146 μg/l[j]	N/A	Two data values raff. pits above standard
Se	5 μg/l	10 μg/l[h]	N/A	One value above standard, MW 4022
SO4	1 mg/l	150 mg/l[l]	55 mg/l	Many data above standard
Th-230	1 pCi/l	NS	N/A	Few data above DL; no standard for comparison
Th-232	1 pCi/l	NS	N/A	Few data above DL; no standard for comparison
Tl	10 μg/l	13 μg/l[j]	N/A	One value above standard, MW 4022
TOC	1 mg/l	NS	N/A	Data vary widely; no standard for comparison
UTot	2 pCi/l	NS	5.5 pCi/l	Data near raff. pits and in WSCP above bkg
V	50 μg/l	NS	N/A	Few data near raffinate pits above DL
Zn	20 μg/l	5000 μg/l[k]	45 μg/l	Few data above bkg; no data above standard

(a) Based upon WSSRAP Groundwater Monitoring Data through First Quarter 1990; subject to change based upon results of validation of these data.
(b) NS = No standard available for comparison
(c) Z = Zero; not expected to exist in nature
(d) Recommended Criteria, ORNL 1987
(e) Maximum Contaminant Levels for Community Water Systems, 40 CFR 144
(f) N/A = Not applicable because of inadequate data
(g) DL = Analytical detection limit generally reported
(h) Primary Drinking Water Standard, 40 CFR 141
(i) bkg = Background
(j) EPA Quality Criteria for Water 1986; Water and Fish Ingestion
(k) Secondary Drinking Water Standard, 40 CFR 143
(l) Missouri State Drinking Water Standard

TABLE 5.4-3 Analyses of Uranium (pCi/l) as Presented in Figures 5.4-1 and 5.4-2

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b]			STANDARD DEVIATION
		MINIMUM	MAXIMUM	AVERAGE	
MW-2001	5/10	ND [c]	2.40	1.64	0.48
MW-2002	1/3	ND	5.30	NA [d]	NA
MW-2003	8/10	ND	3.60	2.64	0.69
MW-2004	9/10	ND	5.90	2.46	1.36
MW-2005	6/10	ND	2.40	1.65	0.48
MW-2006	7/10	ND	2.40	1.50	0.48
MW-2007	7/9	ND	7.70	4.49	1.85
MW-2008	6/10	ND	3.60	2.15	0.88
MW-2009	8/9	ND	4.20	2.72	0.77
MW-2010	5/10	ND	2.00	1.50	0.35
MW-2011	1/10	ND	2.10	NA	NA
MW-2012	2/10	ND	2.30	1.65	0.92
MW-2013	5/10	ND	2.60	1.56	0.66
MW-2014	6/9	ND	3.90	1.91	1.08
MW-2015	8/10	ND	8.40	3.59	1.99
MW-2016	2/6	ND	1.20	1.15	0.07
MW-2017	10/10	3.70	15.00	7.12	3.38
MW-2018	10/11	ND	4.20	3.30	0.71
MW-2019	6/6	0.68	3.50	2.51	0.96
MW-2020	10/10	4.10	29.80	16.06	8.61
MW-2021	4/5	ND	3.00	2.75	0.38
MW-2022	3/5	ND	2.30	1.72	0.51
MW-2023	4/5	ND	4.08	2.77	0.99
MW-2024	1/5	ND	1.36	NA	NA
MW-2025	4/4	1.36	1.90	1.64	0.22
MW-2026	5/5	1.60	4.40	2.44	1.19
MW-2027	3/5	ND	2.60	1.73	0.97
MW-2028	4/5	ND	11.00	5.48	4.33
MW-2029	4/5	ND	2.80	1.79	0.81
MW-3001	2/6	ND	3.40	3.00	0.57
MW-3002	5/5	1.20	7.80	3.42	2.53
MW-3003	5/5	9.52	17.00	13.66	3.75
MW-3006	4/6	ND	2.72	1.96	0.68
MW-3007	5/6	ND	7.40	5.40	1.53
MW-3008	9/9	2.40	9.10	6.04	2.12
MW-3009	10/10	3.90	60.00	36.32	19.86
MW-3010	10/10	1.20	3.60	2.21	0.83

TABLE 5.4-3 Analyses of Uranium (pCi/l) as Presented in Figures 5.4-1 and 5.4-2 (Continued)

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
MW-3013	9/9	2.00	33.00	7.12	9.86
MW-3018	5/5	3.20	5.30	4.64	0.86
MW-3019	4/4	5.50	9.52	7.56	1.65
MW-4001	5/7	ND	1.50	1.18	0.19
MW-4002	3/7	ND	1.50	1.01	0.49
MW-4003	1/5	ND	1.70	NA	NA
MW-4004	4/4	1.90	4.30	2.93	1.17
MW-4005	5/5	1.00	3.00	1.97	0.72
MW-4006	0/5	ND	ND	NA	NA
MW-4007	5/5	0.68	3.40	1.62	1.04
MW-4008	4/5	ND	4.08	3.12	0.97
MW-4009	4/4	1.40	3.40	2.15	0.87
MW-4010	4/4	2.50	5.40	4.02	1.31
MW-4011	4/5	ND	4.40	3.15	0.85
MW-4012	4/4	1.30	3.50	2.41	0.95
MW-4013	3/5	ND	1.80	1.60	0.20
MW-4014	0/5	ND	ND	NA	NA
MW-4015	3/5	ND	1.60	1.35	0.25
MW-4016	5/5	4.60	5.44	4.99	0.38
MW-4017	5/5	1.40	3.40	2.56	0.82
MW-4018	4/5	ND	2.30	1.84	0.43
MW-4019	9/9	1.50	5.20	2.81	1.34
MW-4020	5/5	13.00	28.00	21.26	7.05
MW-4021	5/5	2.90	18.00	10.22	5.37
MW-4022	4/5	ND	16.70	6.98	6.59
MW-4023	4/5	ND	3.20	2.48	0.51

[a] Does not include QA data, duplicates and matrix spikes.

[b] The data summarized in this table and presented on maps reflect data through the first quarter of 1990.

[c] Not detected.

[d] Not applicable.

TABLE 5.4-4 Analyses of Nitrate (mg/l) as Presented in Figures 5.4-3 and 5.4-4

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b]			STANDARD DEVIATION
		MINIMUM	MAXIMUM	AVERAGE	
MW-2001	11/11	6.50	50.20	29.81	12.46
MW-2002	3/3	1010.00	3580.00	2024.33	1367.85
MW-2003	11/11	1380.00	3940.00	2780.55	707.43
MW-2004	11/11	0.80	5.30	3.36	1.27
MW-2005	9/10	ND [c]	529.00	162.26	145.24
MW-2006	11/11	0.64	36.30	23.70	12.25
MW-2007	1/9	ND	0.30	NA [d]	NA
MW-2008	9/9	3.60	32.10	18.18	8.06
MW-2009	8/8	5.30	8.80	7.52	1.31
MW-2010	11/11	1.00	5.70	3.81	1.44
MW-2011	10/10	0.80	26.50	18.84	9.12
MW-2012	10/10	0.50	4.00	1.73	1.24
MW-2013	10/10	0.90	4.40	2.94	1.05
MW-2014	9/9	2.20	10.40	8.37	2.43
MW-2015	9/9	0.75	1.80	1.33	0.33
MW-2016	2/6	ND	2490.00	1666.00	1165.31
MW-2017	10/10	0.90	7.20	3.47	2.35
MW-2018	10/10	1.51	4.10	2.29	0.72
MW-2019	3/7	ND	1.00	0.87	0.12
MW-2020	10/10	0.50	5.20	2.40	1.75
MW-2021	0/5	ND	ND	NA	NA
MW-2022	0/5	ND	ND	NA	NA
MW-2023	4/6	ND	1.30	0.53	0.53
MW-2024	0/5	ND	ND	NA	NA
MW-2025	0/4	ND	ND	NA	NA
MW-2026	1/5	ND	0.50	NA	NA
MW-2027	4/5	ND	0.53	0.31	0.16
MW-2028	1/5	ND	6.10	NA	NA
MW-2029	1/5	ND	0.11	NA	NA
MW-3001	6/6	129.00	2150.00	908.83	713.45
MW-3002	2/5	ND	0.20	0.19	0.01
MW-3003	3/4	ND	2170.00	2035.00	143.09
MW-3006	2/5	ND	4.00	2.65	1.91
MW-3007	5/5	2650.00	5560.00	4254.00	1044.81
MW-3008	9/9	597.00	6010.00	4611.78	1636.69
MW-3009	9/9	16.70	10846.00	1637.56	3523.07
MW-3010	8/8	4.10	13.90	7.23	4.19

TABLE 5.4-4 Analyses of Nitrate (mg/l) as Presented in Figures 5.4-3 and 5.4-4 (Continued)

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
MW-3013	7/7	6.40	15.50	11.03	3.70
MW-3018	4/4	7.40	1150.00	451.53	545.01
MW-3019	3/4	ND	0.59	0.38	0.20
MW-4001	6/6	56.00	182.00	139.33	43.20
MW-4002	7/7	7.40	26.70	13.68	6.85
MW-4003	5/5	2.99	2100.00	422.52	937.74
MW-4004	6/6	0.50	2.30	1.49	0.71
MW-4005	6/6	0.98	8.70	5.03	3.09
MW-4006	5/5	18.80	30.30	22.50	4.54
MW-4007	0/5	ND	ND	NA	NA
MW-4008	1/5	ND	3.20	NA	NA
MW-4009	3/4	ND	0.60	0.44	0.14
MW-4010	5/6	ND	1.30	0.60	0.52
MW-4011	4/5	ND	133.00	87.53	47.37
MW-4012	3/5	ND	0.55	0.34	0.21
MW-4013	4/5	ND	657.00	499.00	124.35
MW-4014	4/4	7.90	14.30	11.18	3.02
MW-4015	5/5	1.30	22.40	9.54	8.25
MW-4016	0/5	ND	ND	NA	NA
MW-4017	5/5	0.47	3.40	2.15	1.08
MW-4018	5/5	1.30	9.70	7.24	3.38
MW-4019	9/9	0.34	177.00	20.26	58.78
MW-4020	3/5	ND	5.50	2.46	2.74
MW-4021	1/6	ND	1.40	NA	NA
MW-4022	5/6	ND	3.00	1.39	1.29
MW-4023	6/6	7.33	28.90	19.84	8.85

[a] Does not include QA data, duplicates and matrix spikes.

[b] The data summarized in this table and presented on maps reflect data through the first quarter of 1990.

[c] Not detected.

[d] Not applicable.

TABLE 5.4-5 Analyses of Sulfate (mg/l) as Presented in Figures 5.4-5 and 5.4-6

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
MW-2001	11/11	4.40	22.50	7.97	5.63
MW-2002	3/3	95.00	198.00	160.67	57.05
MW-2003	10/10	70.00	298.00	200.57	84.50
MW-2004	12/12	1.90	6.70	3.07	1.63
MW-2005	10/10	2.30	7.00	3.41	1.42
MW-2006	9/10	ND [c]	52.50	40.86	9.52
MW-2007	9/9	14.10	17.90	15.70	1.25
MW-2008	9/9	9.10	795.00	131.47	252.93
MW-2009	9/9	38.20	193.00	100.77	39.86
MW-2010	11/11	27.50	56.80	39.65	9.32
MW-2011	10/10	8.60	51.20	18.52	14.42
MW-2012	9/9	51.00	111.00	69.36	19.17
MW-2013	11/11	11.90	52.00	28.04	10.39
MW-2014	8/8	27.10	40.00	33.69	3.71
MW-2015	9/9	84.70	158.00	108.02	21.52
MW-2016	8/8	30.30	112.00	43.58	28.63
MW-2017	10/10	462.00	1830.00	775.30	408.30
MW-2018	11/11	9.30	18.80	10.63	2.73
MW-2019	7/7	7.80	22.60	16.37	6.09
MW-2020	10/10	144.00	336.00	236.40	76.68
MW-2021	5/5	12.00	25.10	15.36	5.48
MW-2022	5/5	12.50	17.80	14.74	2.19
MW-2023	6/6	22.10	55.40	31.30	13.04
MW-2024	5/5	23.20	38.60	32.98	5.89
MW-2025	4/4	16.10	18.70	16.90	1.23
MW-2026	5/5	11.90	13.70	13.18	0.77
MW-2027	4/4	10.50	14.90	12.68	1.81
MW-2028	5/5	95.70	117.00	109.14	8.17
MW-2029	5/5	16.60	27.10	23.22	4.12
MW-3001	6/6	19.80	53.90	27.65	13.22
MW-3002	4/5	ND	19.50	19.30	0.22
MW-3003	5/5	153.00	232.00	187.80	29.15
MW-3006	6/6	29.40	80.40	57.35	20.81
MW-3007	5/5	24.40	866.00	284.70	341.97
MW-3008	9/9	11.40	100.00	49.21	28.42
MW-3009	8/8	33.20	71.90	49.40	14.46

TABLE 5.4-5 Analyses of Sulfate (mg/l) as Presented in Figures 5.4-5 and 5.4-6 (Continued)

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
MW-3010	9/9	6.30	23.80	11.43	6.73
MW-3013	8/8	230.00	915.00	672.38	237.38
MW-3018	3/3	122.00	187.00	160.33	34.03
MW-3019	4/4	5.20	10.30	7.45	2.16
MW-4001	7/7	50.10	159.00	77.19	37.24
MW-4002	7/7	15.00	28.70	21.13	5.31
MW-4003	5/5	27.60	36.00	30.80	3.35
MW-4004	6/6	25.10	35.20	29.25	3.40
MW-4005	6/6	16.10	22.00	18.98	2.26
MW-4006	6/6	31.30	129.00	49.63	38.91
MW-4007	5/5	3.00	14.80	10.92	4.80
MW-4008	5/5	12.20	16.90	14.86	1.78
MW-4[illegible]	5/5	12.90	39.00	23.10	10.90
MW-4010	6/6	24.10	42.70	29.37	7.00
MW-4011	5/5	45.80	52.40	49.32	2.76
MW-4012	5/5	39.90	57.50	48.36	6.47
MW-4013	5/5	43.20	67.70	55.62	9.41
MW-4014	5/5	21.50	36.10	27.58	5.48
MW-4015	4/5	ND	18.60	10.23	6.30
MW-4016	5/5	11.60	52.00	27.40	15.72
MW-4017	5/5	5.10	10.20	8.06	2.14
MW-4018	5/5	8.20	18.90	12.86	3.92
MW-4019	9/9	7.00	11.50	9.15	1.41
MW-4020	5/5	121.00	181.00	142.70	23.67
MW-4021	6/6	51.70	343.00	261.62	106.00
MW-4022	6/6	32.30	70.90	52.55	15.34
MW-4023	6/6	23.50	285.00	112.82	88.96

(a) Does not include QA data, duplicates and matrix spikes.

(b) The date summarized in this table and presented on maps reflect data through the first quarter of 1990.

(c) Not detected.

TABLE 5.4-6 Analyses of Chromium (μg/l) as Presented in Figure 5.4-7

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
MW-2001	1/3	ND [c]	34.00	NA [d]	NA
MW-2002	1/2	ND	61.00	NA	NA
MW-2003	2/3	ND	91.00	58.00	46.67
MW-2004	2/3	ND	131.00	86.50	62.93
MW-2005	1/2	ND	75.00	NA	NA
MW-2006	2/3	ND	36.00	26.50	13.44
MW-2007	1/3	ND	22.00	NA	NA
MW-2008	1/3	ND	40.00	NA	NA
MW-2009	1/3	ND	15.00	NA	NA
MW-2010	2/3	ND	72.00	50.00	31.11
MW-2011	1/3	ND	15.00	NA	NA
MW-2012	1/2	ND	39.00	NA	NA
MW-2013	1/3	ND	22.00	NA	NA
MW-2014	1/3	ND	40.00	NA	NA
MW-2015	1/3	ND	46.00	NA	NA
MW-2016	1/1	31.00	31.00	NA	NA
MW-2017	1/3	ND	37.00	NA	NA
MW-2018	1/3	ND	35.00	NA	NA
MW-2019	0/1	ND	ND	NA	NA
MW-2020	2/3	ND	121.00	84.00	52.33
MW-2021	0/1	ND	ND	NA	NA
MW-2022	0/1	ND	ND	NA	NA
MW-2023	1/1	10.50	10.50	NA	NA
MW-2024	0/1	ND	ND	NA	NA
MW-2026	0/1	ND	ND	NA	NA
MW-2027	0/1	ND	ND	NA	NA
MW-2028	0/1	ND	ND	NA	NA
MW-2029	0/1	ND	ND	NA	NA
MW-3001	0/1	ND	ND	NA	NA
MW-3002	0/1	ND	ND	NA	NA
MW-3003	0/1	ND	ND	NA	NA
MW-3006	1/1	37.20	37.20	NA	NA
MW-3007	2/2	35.00	133.00	84.00	69.30
MW-3008	2/3	ND	137.00	94.50	60.10
MW-3009	1/3	ND	45.00	NA	NA
MW-3010	1/3	ND	25.00	NA	NA

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TABLE 5.4-6 Analyses of Chromium ($\mu g/l$) as Presented in Figure 5.4-7 (Continued)

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
MW-3013	1/3	ND	79.00	NA	NA
MW-3019	0/1	ND	ND	NA	NA
MW-4001	1/3	ND	40.00	NA	NA
MW-4002	1/3	ND	29.00	NA	NA
MW-4003	1/1	34.00	34.00	NA	NA
MW-4004	0/1	ND	ND	NA	NA
MW-4005	0/1	ND	ND	NA	NA
MW-4006	1/2	ND	26.00	NA	NA
MW-4007	0/1	ND	ND	NA	NA
MW-4008	0/1	ND	ND	NA	NA
MW-4009	1/1	10.20	10.20	NA	NA
MW-4010	0/1	ND	ND	NA	NA
MW-4011	0/1	ND	ND	NA	NA
MW-4013	0/1	ND	ND	NA	NA
MW-4014	0/1	ND	ND	NA	NA
MW-4015	0/1	ND	ND	NA	NA
MW-4016	0/1	ND	ND	NA	NA
MW-4017	0/1	ND	ND	NA	NA
MW-4018	0/1	ND	ND	NA	NA
MW-4019	2/3	ND	27.00	22.35	6.58
MW-4020	1/1	24.10	24.10	NA	NA
MW-4021	1/1	14.40	14.40	NA	NA
MW-4022	1/1	16.80	16.80	NA	NA
MW-4023	1/1	29.40	29.40	NA	NA

[a] Does not include QA data, duplicates and matrix spikes.

[b] The data summarized in this table and presented on maps reflect data through the first quarter of 1990.

[c] Not detected.

[d] Not applicable.

TABLE 5.4-7 Analyses of Nickel (μg/l) as Presented in Figure 5.4-8

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b]			STANDARD DEVIATION
		MINIMUM	MAXIMUM	AVERAGE	
MW-2001	0/3	ND [c]	ND	NA [d]	NA
MW-2002	0/2	ND	ND	NA	NA
MW-2003	0/2	ND	ND	NA	NA
MW-2004	1/2	ND	57.80	NA	NA
MW-2005	1/2	ND	52.00	NA	NA
MW-2006	2/3	ND	45.00	44.00	1.41
MW-2007	1/3	ND	54.00	NA	NA
MW-2008	1/3	ND	88.00	NA	NA
MW-2009	0/2	ND	ND	NA	NA
MW-2010	3/3	43.00	172.00	109.00	64.55
MW-2011	0/2	ND	ND	NA	NA
MW-2012	0/1	ND	ND	NA	NA
MW-2013	0/2	ND	ND	NA	NA
MW-2014	0/3	ND	ND	NA	NA
MW-2015	1/3	ND	50.00	NA	NA
MW-2016	0/1	ND	ND	NA	NA
MW-2017	1/3	ND	60.00	NA	NA
MW-2018	0/3	ND	ND	NA	NA
MW-2019	0/1	ND	ND	NA	NA
MW-2020	1/3	ND	40.40	NA	NA
MW-2021	0/1	ND	ND	NA	NA
MW-2022	0/1	ND	ND	NA	NA
MW-2023	0/1	ND	ND	NA	NA
MW-2024	0/1	ND	ND	NA	NA
MW-2026	0/1	ND	ND	NA	NA
MW-2027	0/1	ND	ND	NA	NA
MW-2028	0/1	ND	ND	NA	NA
MW-2029	0/1	ND	ND	NA	NA
MW-3001	0/1	ND	ND	NA	NA
MW-3002	0/1	ND	ND	NA	NA
MW-3003	1/1	45.90	45.90	NA	NA
MW-3006	0/1	ND	ND	NA	NA
MW-3007	1/2	ND	100.00	NA	NA
MW-3008	1/3	ND	107.00	NA	NA
MW-3009	1/3	ND	48.00	NA	NA
MW-3010	0/3	ND	ND	NA	NA

TABLE 5.4-7 Analyses of Nickel (μg/l) as Presented in Figure 5.4-8 (Continued)

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
MW-3013	1/3	ND	60.00	NA	NA
MW-3019	0/1	ND	ND	NA	NA
MW-4001	0/3	ND	ND	NA	NA
MW-4002	0/3	ND	ND	NA	NA
MW-4003	0/1	ND	ND	NA	NA
MW-4004	0/1	ND	ND	NA	NA
MW-4005	0/1	ND	ND	NA	NA
MW-4006	0/2	ND	ND	NA	NA
MW-4007	0/1	ND	ND	NA	NA
MW-4008	0/1	ND	ND	NA	NA
MW-4009	0/1	ND	ND	NA	NA
MW-4010	0/1	ND	ND	NA	NA
MW-4011	0/1	ND	ND	NA	NA
MW-4013	0/1	ND	ND	NA	NA
MW-4014	1/1	82.70	82.70	NA	NA
MW-4015	0/1	ND	ND	NA	NA
MW-4016	0/1	ND	ND	NA	NA
MW-4017	0/1	ND	ND	NA	NA
MW-4018	0/1	ND	ND	NA	NA
MW-4019	0/3	ND	ND	NA	NA
MW-4020	0/1	ND	ND	NA	NA
MW-4021	0/1	ND	ND	NA	NA
MW-4022	0/1	ND	ND	NA	NA
MW-4023	1/1	44.70	44.70	NA	NA

(a) Does not include QA data, duplicates and matrix spikes.

(b) The data summarized in this table and presented on maps reflect data through the first quarter of 1990.

(c) Not detected.

(d) Not applicable.

TABLE 5.4-8 Analyses of Aluminum (μg/l) as Presented in Figure 5.4-9

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
MW-2001	0/2	ND [c]	ND	NA [d]	NA
MW-2002	1/2	ND	244.00	NA	NA
MW-2003	2/3	ND	517.00	396.50	170.41
MW-2004	0/2	ND	ND	NA	NA
MW-2005	0/3	ND	ND	NA	NA
MW-2006	0/2	ND	ND	NA	NA
MW-2007	0/2	ND	ND	NA	NA
MW-2008	0/2	ND	ND	NA	NA
MW-2009	0/2	ND	ND	NA	NA
MW-2010	0/2	ND	ND	NA	NA
MW-2011	0/2	ND	ND	NA	NA
MW-2012	0/2	ND	ND	NA	NA
MW-2013	0/3	ND	ND	NA	NA
MW-2014	0/2	ND	ND	NA	NA
MW-2015	0/3	ND	ND	NA	NA
MW-2017	0/3	ND	ND	NA	NA
MW-2018	0/3	ND	ND	NA	NA
MW-2019	0/1	ND	ND	NA	NA
MW-2020	0/3	ND	ND	NA	NA
MW-2021	0/1	ND	ND	NA	NA
MW-2022	0/1	ND	ND	NA	NA
MW-2023	0/1	ND	ND	NA	NA
MW-2024	0/1	ND	ND	NA	NA
MW-2026	0/1	ND	ND	NA	NA
MW-2027	0/1	ND	ND	NA	NA
MW-2028	0/1	ND	ND	NA	NA
MW-2029	0/1	ND	ND	NA	NA
MW-3001	0/1	ND	ND	NA	NA
MW-3002	0/1	ND	ND	NA	NA
MW-3003	0/1	ND	ND	NA	NA
MW-3006	0/1	ND	ND	NA	NA
MW-3007	1/2	ND	344.00	NA	NA
MW-3008	2/3	ND	382.00	305.50	108.19
MW-3009	0/3	ND	ND	NA	NA
MW-3010	0/2	ND	ND	NA	NA
MW-3013	3/3	234.00	493.00	342.33	134.59

TABLE 5.4-8 Analyses of Aluminum (μg/l) as Presented in Figure 5.4-9 (Continued)

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b]			STANDARD DEVIATION
		MINIMUM	MAXIMUM	AVERAGE	
MW-3019	0/1	ND	ND	NA	NA
MW-4001	0/2	ND	ND	NA	NA
MW-4002	1/2	ND	290.00	NA	NA
MW-4004	0/1	ND	ND	NA	NA
MW-4005	1/1	665.00	665.00	NA	NA
MW-4006	1/1	358.00	358.00	NA	NA
MW-4007	0/1	ND	ND	NA	NA
MW-4008	0/1	ND	ND	NA	NA
MW-4009	0/1	ND	ND	NA	NA
MW-4010	0/1	ND	ND	NA	NA
MW-4011	0/1	ND	ND	NA	NA
MW-4013	0/1	ND	ND	NA	NA
MW-4014	0/1	ND	ND	NA	NA
MW-4015	0/1	ND	ND	NA	NA
MW-4016	0/1	ND	ND	NA	NA
MW-4017	0/1	ND	ND	NA	NA
MW-4018	0/1	ND	ND	NA	NA
MW-4019	1/2	ND	1350.00	NA	NA
MW-4020	0/1	ND	ND	NA	NA
MW-4021	0/1	ND	ND	NA	NA
MW-4022	0/1	ND	ND	NA	NA
MW-4023	0/1	ND	ND	NA	NA

(a) Does not include QA data, duplicates and matrix spikes.

(b) The data summarized in this table and presented on maps reflect data through the first quarter of 1990.

(c) Not detected.

(d) Not applicable.

TABLE 5.4-9 Analyses of 2,4,6-Trinitrotoluene (μg/l) as Presented in Figures 5.4-10 and 5.4-11

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
MW-2001	0/10	ND [c]	ND	NA [d]	NA
MW-2002	1/3	ND	0.60	NA	NA
MW-2003	0/10	ND	ND	NA	NA
MW-2004	0/10	ND	ND	NA	NA
MW-2005	0/10	ND	ND	NA	NA
MW-2006	2/10	ND	0.78	0.71	0.11
MW-2007	0/9	ND	ND	NA	NA
MW-2008	1/10	ND	0.62	NA	NA
MW-2009	1/9	ND	7.10	NA	NA
MW-2010	3/10	ND	1.70	0.96	0.64
MW-2011	8/10	ND	4.20	2.83	0.77
MW-2012	9/10	ND	1.80	1.06	0.39
MW-2013	10/10	2.28	64.90	22.98	22.91
MW-2014	3/9	ND	2.33	1.91	0.38
MW-2015	0/10	ND	ND	NA	NA
MW-2016	0/6	ND	ND	NA	NA
MW-2017	0/10	ND	ND	NA	NA
MW-2018	0/10	ND	ND	NA	NA
MW-2019	0/6	ND	ND	NA	NA
MW-2020	0/10	ND	ND	NA	NA
MW-2021	0/4	ND	ND	NA	NA
MW-2022	0/5	ND	ND	NA	NA
MW-2023	0/6	ND	ND	NA	NA
MW-2024	0/5	ND	ND	NA	NA
MW-2025	0/4	ND	ND	NA	NA
MW-2026	0/5	ND	ND	NA	NA
MW-2027	0/5	ND	ND	NA	NA
MW-2028	0/5	ND	ND	NA	NA
MW-2029	0/5	ND	ND	NA	NA
MW-3001	1/6	ND	18.00	NA	NA
MW-3002	0/5	ND	ND	NA	NA
MW-3003	0/5	ND	ND	NA	NA
MW-3006	1/6	ND	1.50	NA	NA
MW-3007	0/6	ND	ND	NA	NA
MW-3008	0/9	ND	ND	NA	NA
MW-3009	0/10	ND	ND	NA	NA
MW-3010	0/9	ND	ND	NA	NA

TABLE 5.4-9 Analyses of 2,4,6-Trinitrotoluene (μg/l) as Presented in Figures 5.4-10 and 5.4-11 (Continued)

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
MW-3013	0/9	ND	ND	NA	NA
MW-3018	3/5	ND	27.50	13.50	12.12
MW-3019	0/4	ND	ND	NA	NA
MW-4001	5/6	ND	1.75	1.50	0.22
MW-4002	4/7	ND	2.70	1.65	0.99
MW-4003	0/5	ND	ND	NA	NA
MW-4004	0/6	ND	ND	NA	NA
MW-4005	0/6	ND	ND	NA	NA
MW-4006	1/6	ND	1.20	NA	NA
MW-4007	0/5	ND	ND	NA	NA
MW-4008	0/5	ND	ND	NA	NA
MW-4009	1/5	ND	7.77	NA	NA
MW-4010	0/5	ND	ND	NA	NA
MW-4011	0/5	ND	ND	NA	NA
MW-4012	0/5	ND	ND	NA	NA
MW-4013	0/5	ND	ND	NA	NA
MW-4014	0/5	ND	ND	NA	NA
MW-4015	0/5	ND	ND	NA	NA
MW-4016	0/5	ND	ND	NA	NA
MW-4017	0/5	ND	ND	NA	NA
MW-4018	0/5	ND	ND	NA	NA
MW-4019	0/9	ND	ND	NA	NA
MW-4020	0/5	ND	ND	NA	NA
MW-4021	0/7	ND	ND	NA	NA
MW-4022	0/5	ND	ND	NA	NA
MW-4023	0/6	ND	ND	NA	NA

(a) Does not include QA data, duplicates and matrix spikes.

(b) The data summarized in this table and presented on maps reflect data through the first quarter of 1990.

(c) Not detected.

(d) Not applicable.

TABLE 5.4-10 Analyses of 1,3,5-Trinitrobenzene (μg/l) as Presented in Figures 5.4-12 and 5.4-13

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
MW-2001	2/10	ND [c]	0.05	0.05	0.00
MW-2002	1/3	ND	0.02	NA [d]	NA
MW-2003	1/10	ND	0.06	NA	NA
MW-2004	1/10	ND	0.14	NA	NA
MW-2005	2/10	ND	0.18	0.14	0.06
MW-2006	10/10	2.60	16.00	7.69	4.63
MW-2007	1/9	ND	0.13	NA	NA
MW-2008	6/11	ND	1.51	0.79	0.51
MW-2009	2/9	ND	0.78	0.48	0.42
MW-2010	3/10	ND	0.40	0.26	0.18
MW-2011	4/10	ND	0.55	0.40	0.20
MW-2012	7/9	ND	4.56	1.47	1.41
MW-2013	10/10	2.30	35.10	12.58	11.40
MW-2014	8/9	ND	4.76	1.56	1.64
MW-2015	1/10	ND	0.21	NA	NA
MW-2016	0/6	ND	ND	NA	NA
MW-2017	2/10	ND	0.13	0.12	0.01
MW-2018	2/10	ND	0.21	0.14	0.11
MW-2019	3/6	ND	0.15	0.09	0.06
MW-2020	0/10	ND	ND	NA	NA
MW-2021	0/4	ND	ND	NA	NA
MW-2022	2/5	ND	0.21	0.12	0.13
MW-2023	1/6	ND	0.32	NA	NA
MW-2024	2/5	ND	0.07	0.04	0.03
MW-2025	0/4	ND	ND	NA	NA
MW-2026	1/5	ND	0.04	NA	NA
MW-2027	0/5	ND	ND	NA	NA
MW-2028	1/5	ND	0.03	NA	NA
MW-2029	0/5	ND	ND	NA	NA
MW-3001	4/5	ND	0.17	0.12	0.07
MW-3002	2/5	ND	0.53	0.29	0.34
MW-3003	0/5	ND	ND	NA	NA
MW-3006	3/6	ND	0.63	0.29	0.30
MW-3007	1/6	ND	0.10	NA	NA
MW-3008	1/9	ND	0.06	NA	NA

TABLE 5.4-10 Analyses of 1,3,5-Trinitrobenzene (μg/l) as Presented in Figures 5.4-12 and 5.4-13 (Continued)

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
MW-3009	3/10	ND	0.22	0.11	0.10
MW-3010	0/9	ND	ND	NA	NA
MW-3013	0/9	ND	ND	NA	NA
MW-3018	1/5	ND	3.60	NA	NA
MW-3019	1/4	ND	0.04	NA	NA
MW-4001	7/7	10.70	60.50	31.47	22.23
MW-4002	2/6	ND	0.30	0.16	0.20
MW-4003	1/5	ND	0.05	NA	NA
MW-4004	0/6	ND	ND	NA	NA
MW-4005	2/6	ND	0.18	0.10	0.11
MW-4006	6/6	1.30	17.30	6.77	6.76
MW-4007	2/5	ND	0.17	0.10	0.11
MW-4008	0/5	ND	ND	NA	NA
MW-4009	2/5	ND	16.50	8.39	11.48
MW-4010	1/6	ND	0.05	NA	NA
MW-4011	0/5	ND	ND	NA	NA
MW-4012	0/5	ND	ND	NA	NA
MW-4013	4/5	ND	89.00	51.58	25.43
MW-4014	2/5	ND	0.38	0.33	0.08
MW-4015	3/5	ND	0.13	0.12	0.02
MW-4016	0/5	ND	ND	NA	NA
MW-4017	1/5	ND	0.05	NA	NA
MW-4018	1/5	ND	0.13	NA	NA
MW-4019	2/9	ND	0.08	0.08	0.00
MW-4020	1/5	ND	0.11	NA	NA
MW-4021	3/8	ND	0.84	0.34	0.43
MW-4022	1/5	ND	0.06	NA	NA
MW-4023	2/6	ND	0.29	0.19	0.15

(a) Does not include QA data, duplicates and matrix spikes.

(b) The data summarized in this table and presented on maps reflect data through the first quarter of 1990.

(c) Not detected.

(d) Not applicable.

TABLE 5.4-11 Analyses of 2,4-Dinitrotoluene (μg/l) as Presented in Figures 5.4-14 and 5.4-15

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
MW-2001	1/10	ND [c]	2.10	NA [d]	NA
MW-2002	0/3	ND	ND	NA	NA
MW-2003	8/10	ND	0.60	0.45	0.15
MW-2004	0/10	ND	ND	NA	NA
MW-2005	2/10	ND	0.40	0.24	0.23
MW-2006	2/10	ND	3.70	2.14	2.21
MW-2007	1/9	ND	0.30	NA	NA
MW-2008	2/10	ND	0.24	0.19	0.08
MW-2009	3/9	ND	134.00	44.90	77.16
MW-2010	1/10	ND	0.30	NA	NA
MW-2011	2/10	ND	3.53	2.87	0.94
MW-2012	5/10	ND	7.60	4.18	3.34
MW-2013	9/9	43.10	388.00	163.40	119.67
MW-2014	2/9	ND	1.10	0.74	0.52
MW-2015	0/10	ND	ND	NA	NA
MW-2016	0/6	ND	ND	NA	NA
MW-2017	1/10	ND	0.40	NA	NA
MW-2018	0/10	ND	ND	NA	NA
MW-2019	0/5	ND	ND	NA	NA
MW-2020	0/10	ND	ND	NA	NA
MW-2021	0/4	ND	ND	NA	NA
MW-2022	0/5	ND	ND	NA	NA
MW-2023	0/6	ND	ND	NA	NA
MW-2024	0/5	ND	ND	NA	NA
MW-2025	0/4	ND	ND	NA	NA
MW-2026	0/5	ND	ND	NA	NA
MW-2027	0/5	ND	ND	NA	NA
MW-2028	0/5	ND	ND	NA	NA
MW-2029	1/5	ND	0.59	NA	NA
MW-3001	4/6	ND	2.20	0.95	0.86
MW-3002	0/5	ND	ND	NA	NA
MW-3003	0/5	ND	ND	NA	NA
MW-3006	1/6	ND	0.58	NA	NA
MW-3007	4/6	ND	1.80	1.41	0.38
MW-3008	3/9	ND	0.63	0.36	0.29
MW-3009	3/10	ND	0.60	0.39	0.28
MW-3010	0/9	ND	ND	NA	NA

TABLE 5.4-11 Analyses of 2,4-Dinitrotoluene (μg/l) as Presented in Figures 5.4-14 and 5.4-15 (Continued)

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
MW-3013	1/9	ND	0.30	NA	NA
MW-3018	3/5	ND	83.90	70.87	22.57
MW-3019	0/4	ND	ND	NA	NA
MW-4001	7/7	0.85	3.27	2.20	0.90
MW-4002	3/7	ND	0.70	0.39	0.27
MW-4003	1/5	ND	0.30	NA	NA
MW-4004	0/6	ND	ND	NA	NA
MW-4005	0/6	ND	ND	NA	NA
MW-4006	3/6	ND	0.70	0.49	0.19
MW-4007	0/5	ND	ND	NA	NA
MW-4008	0/5	ND	ND	NA	NA
MW-4009	0/5	ND	ND	NA	NA
MW-4010	0/5	ND	ND	NA	NA
MW-4011	0/5	ND	ND	NA	NA
MW-4012	0/5	ND	ND	NA	NA
MW-4013	0/5	ND	ND	NA	NA
MW-4014	0/5	ND	ND	NA	NA
MW-4015	0/5	ND	ND	NA	NA
MW-4016	0/5	ND	ND	NA	NA
MW-4017	0/5	ND	ND	NA	NA
MW-4018	0/5	ND	ND	NA	NA
MW-4019	1/9	ND	0.58	NA	NA
MW-4020	0/5	ND	ND	NA	NA
MW-4021	0/7	ND	ND	NA	NA
MW-4022	0/5	ND	ND	NA	NA
MW-4023	1/6	ND	0.06	NA	NA

(a) Does not include QA data, duplicates and matrix spikes.

(b) The data summarized in this table and presented on maps reflect data through the first quarter of 1990.

(c) Not detected.

(d) Not applicable.

TABLE 5.4-12 Analyses of 2,6-Dinitrotoluene (μg/l) as Presented in Figures 5.4-16 and 5.4-17

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b]			STANDARD DEVIATION
		MINIMUM	MAXIMUM	AVERAGE	
MW-2001	2/10	ND [c]	23.70	13.05	15.06
MW-2002	1/3	ND	0.46	NA [d]	NA
MW-2003	10/10	0.61	25.00	3.21	7.66
MW-2004	1/10	ND	20.60	NA	NA
MW-2005	1/10	ND	0.90	NA	NA
MW-2006	9/10	ND	50.10	10.91	15.52
MW-2007	0/9	ND	ND	NA	NA
MW-2008	4/10	ND	1.21	1.02	0.14
MW-2009	4/8	ND	0.90	0.61	0.30
MW-2010	4/10	ND	12.90	3.87	6.02
MW-2011	9/10	ND	73.30	19.66	24.67
MW-2012	2/10	ND	7.52	4.88	3.74
MW-2013	10/10	7.83	290.00	101.46	95.60
MW-2014	5/9	ND	1.66	1.16	0.39
MW-2015	1/9	ND	0.62	NA	NA
MW-2016	1/6	ND	1.00	NA	NA
MW-2017	0/10	ND	ND	NA	NA
MW-2018	1/10	ND	16.40	NA	NA
MW-2019	0/6	ND	ND	NA	NA
MW-2020	0/10	ND	ND	NA	NA
MW-2021	0/4	ND	ND	NA	NA
MW-2022	0/5	ND	ND	NA	NA
MW-2023	0/6	ND	ND	NA	NA
MW-2024	0/5	ND	ND	NA	NA
MW-2025	0/4	ND	ND	NA	NA
MW-2026	0/5	ND	ND	NA	NA
MW-2027	0/5	ND	ND	NA	NA
MW-2028	0/5	ND	ND	NA	NA
MW-2029	0/5	ND	ND	NA	NA
MW-3001	1/6	ND	2.90	NA	NA
MW-3002	0/5	ND	ND	NA	NA
MW-3003	0/5	ND	ND	NA	NA
MW-3006	1/6	ND	2.90	NA	NA
MW-3007	5/6	ND	3.30	2.32	0.68
MW-3008	0/9	ND	ND	NA	NA
MW-3009	0/10	ND	ND	NA	NA
MW-3010	0/9	ND	ND	NA	NA

TABLE 5.4-12 Analyses of 2,6-Dinitrotoluene ($\mu g/l$) as Presented in Figures 5.4-16 and 5.4-17 (Continued)

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b]			STANDARD DEVIATION
		MINIMUM	MAXIMUM	AVERAGE	
MW-3013	1/9	ND	0.62	NA	NA
MW-3018	4/5	ND	1150.00	751.75	296.29
MW-3019	0/4	ND	ND	NA	NA
MW-4001	6/7	ND	4.20	3.35	0.80
MW-4002	2/7	ND	1.30	1.13	0.25
MW-4003	1/5	ND	0.80	NA	NA
MW-4004	1/6	ND	0.94	NA	NA
MW-4005	0/6	ND	ND	NA	NA
MW-4006	5/6	ND	7.22	4.14	1.82
MW-4007	0/5	ND	ND	NA	NA
MW-4008	0/5	ND	ND	NA	NA
MW-4009	1/5	ND	1.70	NA	NA
MW-4010	0/5	ND	ND	NA	NA
MW-4011	0/5	ND	ND	NA	NA
MW-4012	0/5	ND	ND	NA	NA
MW-4013	3/5	ND	1.21	1.00	0.28
MW-4014	0/5	ND	ND	NA	NA
MW-4015	4/5	ND	6.01	2.52	2.38
MW-4016	0/5	ND	ND	NA	NA
MW-4017	0/5	ND	ND	NA	NA
MW-4018	0/5	ND	ND	NA	NA
MW-4019	0/9	ND	ND	NA	NA
MW-4020	0/5	ND	ND	NA	NA
MW-4021	0/7	ND	ND	NA	NA
MW-4022	0/5	ND	ND	NA	NA
MW-4023	1/6	ND	0.02	NA	NA

(a) Does not include QA data, duplicates and matrix spikes.

(b) The data summarized in this table and presented on maps reflect data through the first quarter of 1990.

(c) Not detected

(d) Not applicable

TABLE 5.4-13 Analyses of 1,3-Dinitrobenzene (μg/l) as Presented in Figures 5.4-18 and 5.4-19

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b]			STANDARD DEVIATION
		MINIMUM	MAXIMUM	AVERAGE	
MW-2001	1/10	ND [c]	0.45	NA [d]	NA
MW-2002	0/3	ND	ND	NA	NA
MW-2003	0/10	ND	ND	NA	NA
MW-2004	0/10	ND	ND	NA	NA
MW-2005	0/10	ND	ND	NA	NA
MW-2006	3/10	ND	1.75	1.30	0.69
MW-2007	0/9	ND	ND	NA	NA
MW-2008	6/11	ND	0.87	0.66	0.16
MW-2009	0/9	ND	ND	NA	NA
MW-2010	3/10	ND	0.57	0.55	0.02
MW-2011	2/10	ND	1.90	1.83	0.10
MW-2012	2/10	ND	4.60	4.60	0.00
MW-2013	4/10	ND	12.00	7.41	4.96
MW-2014	1/9	ND	1.05	NA	NA
MW-2015	0/10	ND	ND	NA	NA
MW-2016	0/6	ND	ND	NA	NA
MW-2017	0/10	ND	ND	NA	NA
MW-2018	0/10	ND	ND	NA	NA
MW-2019	0/6	ND	ND	NA	NA
MW-2020	0/10	ND	ND	NA	NA
MW-2021	0/4	ND	ND	NA	NA
MW-2022	0/5	ND	ND	NA	NA
MW-2023	0/6	ND	ND	NA	NA
MW-2024	0/5	ND	ND	NA	NA
MW-2025	0/4	ND	ND	NA	NA
MW-2026	0/5	ND	ND	NA	NA
MW-2027	0/5	ND	ND	NA	NA
MW-2028	0/5	ND	ND	NA	NA
MW-2029	0/5	ND	ND	NA	NA
MW-3001	0/6	ND	ND	NA	NA
MW-3002	0/5	ND	ND	NA	NA
MW-3003	0/5	ND	ND	NA	NA
MW-3006	0/6	ND	ND	NA	NA
MW-3007	0/6	ND	ND	NA	NA
MW-3008	0/9	ND	ND	NA	NA
MW-3009	0/10	ND	ND	NA	NA
MW-3010	0/9	ND	ND	NA	NA

TABLE 5.4-13 Analyses of 1,3-Dinitrobenzene (μg/l) as Presented in Figures 5.4-18 and 5.4-19 (Continued)

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
MW-3013	0/9	ND	ND	NA	NA
MW-3018	1/5	ND	1.50	NA	NA
MW-3019	0/4	ND	ND	NA	NA
MW-4001	5/7	ND	5.14	3.13	1.29
MW-4002	0/7	ND	ND	NA	NA
MW-4003	1/5	ND	0.14	NA	NA
MW-4004	0/6	ND	ND	NA	NA
MW-4005	0/6	ND	ND	NA	NA
MW-4006	4/6	ND	3.20	2.24	0.81
MW-4007	0/5	ND	ND	NA	NA
MW-4008	0/5	ND	ND	NA	NA
MW-4009	0/5	ND	ND	NA	NA
MW-4010	0/6	ND	ND	NA	NA
MW-4011	0/5	ND	ND	NA	NA
MW-4012	0/5	ND	ND	NA	NA
MW-4013	2/5	ND	0.80	0.76	0.06
MW-4014	0/5	ND	ND	NA	NA
MW-4015	2/5	ND	0.66	0.46	0.29
MW-4016	0/5	ND	ND	NA	NA
MW-4017	0/5	ND	ND	NA	NA
MW-4018	0/5	ND	ND	NA	NA
MW-4019	0/9	ND	ND	NA	NA
MW-4020	0/5	ND	ND	NA	NA
MW-4021	0/7	ND	ND	NA	NA
MW-4022	0/5	ND	ND	NA	NA
MW-4023	0/6	ND	ND	NA	NA

[a] Does not include QA data, duplicates and matrix spikes.

[b] The data summarized in this table and presented on maps reflect data through the first quarter of 1990.

[c] Not detected.

[d] Not applicable.

TABLE 5.4-14 Analyses of Nitrobenzene (μg/l) as Presented in Figures 5.4-20 and 5.4-21

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
MW-2001	1/10	ND [c]	1.00	NA [d]	NA
MW-2002	0/3	ND	ND	NA	NA
MW-2003	0/10	ND	ND	NA	NA
MW-2004	0/10	ND	ND	NA	NA
MW-2005	0/10	ND	ND	NA	NA
MW-2006	3/10	ND	8.30	5.20	3.37
MW-2007	0/9	ND	ND	NA	NA
MW-2008	1/10	ND	1.95	NA	NA
MW-2009	1/9	ND	22.20	NA	NA
MW-2010	0/10	ND	ND	NA	NA
MW-2011	0/10	ND	ND	NA	NA
MW-2012	1/10	ND	1.22	NA	NA
MW-2013	3/10	ND	5.04	3.95	1.86
MW-2014	1/9	ND	4.00	NA	NA
MW-2015	0/10	ND	ND	NA	NA
MW-2016	0/6	ND	ND	NA	NA
MW-2017	0/10	ND	ND	NA	NA
MW-2018	0/10	ND	ND	NA	NA
MW-2019	0/6	ND	ND	NA	NA
MW-2020	1/10	ND	1.70	NA	NA
MW-2021	0/4	ND	ND	NA	NA
MW-2022	2/5	ND	6.00	3.70	3.26
MW-2023	0/6	ND	ND	NA	NA
MW-2024	0/5	ND	ND	NA	NA
MW-2025	0/4	ND	ND	NA	NA
MW-2026	0/5	ND	ND	NA	NA
MW-2027	1/5	ND	1.46	NA	NA
MW-2028	2/5	ND	1.22	1.16	0.09
MW-2029	0/5	ND	ND	NA	NA
MW-3001	1/6	ND	4.60	NA	NA
MW-3002	1/5	ND	2.17	NA	NA
MW-3003	0/5	ND	ND	NA	NA
MW-3006	2/6	ND	5.28	3.64	2.32
MW-3007	0/6	ND	ND	NA	NA
MW-3008	0/9	ND	ND	NA	NA

TABLE 5.4-14 Analyses of Nitrobenzene (μg/l) as Presented in Figures 5.4-20 and 5.4-21 (Continued)

SAMPLE LOCATION	DETECT/ ANALYSES[a]	VALUE PRESENTED ON MAPS[b] MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
MW-3009	0/10	ND	ND	NA	NA
MW-3010	0/9	ND	ND	NA	NA
MW-3013	0/9	ND	ND	NA	NA
MW-3018	3/5	ND	31.30	30.30	0.87
MW-3019	1/4	ND	0.86	NA	NA
MW-4001	4/8	ND	7.64	5.97	1.44
MW-4002	0/7	ND	ND	NA	NA
MW-4003	0/5	ND	ND	NA	NA
MW-4004	0/6	ND	ND	NA	NA
MW-4005	0/6	ND	ND	NA	NA
MW-4006	4/6	ND	3.71	3.12	0.52
MW-4007	0/5	ND	ND	NA	NA
MW-4008	0/5	ND	ND	NA	NA
MW-4009	0/5	ND	ND	NA	NA
MW-4010	0/6	ND	ND	NA	NA
MW-4011	0/5	ND	ND	NA	NA
MW-4012	0/5	ND	ND	NA	NA
MW-4013	0/5	ND	ND	NA	NA
MW-4014	0/5	ND	ND	NA	NA
MW-4015	1/5	ND	0.41	NA	NA
MW-4016	0/5	ND	ND	NA	NA
MW-4017	0/5	ND	ND	NA	NA
MW-4018	0/5	ND	ND	NA	NA
MW-4019	0/9	ND	ND	NA	NA
MW-4020	0/5	ND	ND	NA	NA
MW-4021	2/7	ND	1.71	1.71	0.00
MW-4022	0/5	ND	ND	NA	NA
MW-4023	0/6	ND	ND	NA	NA

[a] Does not include QA data, duplicates and matrix spikes.

[b] The data summarized in this table and presented on maps reflect data through the fourth quarter of 1988.

[c] Not detected.

[d] Not applicable.

TABLE 5.5-1 Vegetation Surveyed at the Weldon Spring Chemical Plant Area

Alfalfa
American elm
American plum
American sycamore
Beauty berry
Bellwort
Black locust
Box elder
Broad-leaved arrowhead
Broad-leaved cattail
Canada rush
Common cattail
Common dandelion
Common milkweed
Common mullein
Common sunflower
Common thistle
Cut-leaved water horehound
Daisy fleabane
Dodder
Eastern cottonwood
Eastern red cedar
Flowering dogwood
Goldenrod
Green ash
Ground cherry
Hackberry
Hedge bindweed
Hog peanut
Honey locust
Horse nettle
Horseweed
Ironweed
Mountain bluegrass
Nodding foxtail
Panic grass
Paper mulberry
Partridge pea
Pawpaw
Persimmon
Plantain
Poison ivy
Pokeweed
Post oak
Queen Anne's lace
Ragweed
Ranunculus
Red clover
Red-tip grass
Redbud
Rosa sp.
Roughleaf dogwood
Sassafras
Scurfy pea
Sedge
Shagbark hickory
Shingle oak
Short-leaved pine
Skullcap
Slender nettle
Smooth hedge nettle
Smooth sumac
Spanish needles
Spotted touch-me-not
Stinging nettle
Sugar maple
Swamp smartweed
Sweetgum
Tall eriogonum (bluestem)
Tartarian honeysuckle
Thoroughwort
Tickseed sunflower
Trailing bush clover
Trumpet creeper
Virginia creeper
White avens
White sweet clover
Wild grape
Willow
Yarrow
Yellow rocket
Yellow sweet clover

TABLE 5.5-2 Bird and Waterfowl Species Observed at the Weldon Spring Chemical Plant Area

American coot
American crow
American goldfinch
American kestrel
American robin
American wigeon
Barn swallow
Belted kingfisher
Black-capped chickadee
Blue jay
Blue-winged teal
Bobwhite quail
Bufflehead
Canada goose
Canvasback
Cedar waxwing
Common nighthawk
Common snipe
Dark-eyed junco
Downy woodpecker
Eastern bluebird
Eastern kingbird
Eastern meadowlark
European starling
Field sparrow
Great blue heron
Great crested flycatcher
Great-horned owl
Green-backed heron
Hairy woodpecker
Hooded merganser
House sparrow
Killdeer
Lesser scoup
Mallard
Meadowlark
Mockingbird
Mourning dove
Nighthawk
Northern cardinal
Northern flicker
Northern oriole
Northern shoveler
Nothern pintail
Pied-billed grebe
Pileated woodpecker
Red-headed woodpecker
Red-tailed hawk
Red-winged blackbird
Ring-necked duck
Rock dove
Ruby-throated hummingbird
Ruddy duck
Spotted sandpiper
Tufted titmouse
White-crowned sparrow
White-throated sparrow
Wild turkey
Wood duck
Yellow-billed cuckoo
Yellow-rumped warbler

Table 5.5-3 List of Birds Observed During the Haul Road Ecological Survey June 24-28, 1991

Common Name/(Scientific Name)	Total Seen	Relative Abundance	Breeding Status	Habitat Type
Turkey vulture (*Cathartes aura*)	1	ca	O	F
Red-tailed hawk (*Buteo jamaicensis*)	1	ca	O	W
American kestrel (*Falco sparverius*)	2	u	O	W
American woodcock (*Scolopax minor*)	1	ca	O	W
Northern bobwhite (*Colinus virginianus*)	15	c	R	O
Rock dove (*Columba livia*)	2	u	R	F
Mourning dove (*Zenaida macroura*)	7	c	R	O,W
Yellow-billed cuckoo (*Coccyzus americanus*)	9	c	C	W
Eastern screech owl (*Otus asio*)	2	u	R	W
Barred owl (*Strix varia*)	4	c	R	W
Whip-poor-will (*Caprimulgus vociferus*)	1	ca	R	O,W,F
Chimney swift (*Chaetura pelagica*)	14	c	R	O,F
Ruby-throated hummingbird (*Archilochus colubris*)	1	ca	O	O
Belted kingfisher (*Ceryle alcyon*)	1	ca	O	W,F
Red-headed woodpecker (*Melanerpes erythrocephalus*)	3	u	R	W
Red-bellied woodpecker (*Melanerpes carolinus*)	1	ca	R	W
Northern flicker (*Colaptes auratus*)	12	c	R	W
Downy woodpecker (*Picoides pubescens*)	3	u	R	W
Hairy woodpecker (*Picoides villosus*)	3	u	R	W
Pileated woodpecker (*Dryocopus pileatus*)	3	u	R	W
Eastern wood-pewee (*Contopus virens*)	3	u	R	O,W
Eastern phoebe (*Sayornis phoebe*)	1	ca	R	W
Great crested flycatcher (*Myiarchus crinitus*)	3	u	R	O,W
Eastern kingbird (*Tyrannus tyrannus*)	3	u	R	W
Northern rough-winged swallow (*Stelgidopteryx serripennis*)	5	c	R	O
Blue jay (*Cyanocitta cristata*)	29	c	R	O,W
American crow (*Corvus brachyrhynchos*)	9	c	R	O,W
Black-capped chickadee (*Parus atricapillus*)	1	ca	R	W
Carolina chickadee (*Parus carolinensis*)	5	c	R	W
Tufted titmouse (*Parus bicolor*)	21	c	R	W

Table 5.5-3 List of Birds Observed During the Haul Road Ecological Survey June 24-28, 1991 (Continued)

Common Name/(Scientific Name)	Total Seen	Relative Abundance	Breeding Status	Habitat Type
White-breasted nuthatch (*Sitta carolinensis*)	6	c	R	W
House wren (*Troglodytes aedon*)	3	u	C	W
Blue-gray gnatcatcher (*Polioptila caerulea*)	1	ca	R	W
Eastern bluebird (*Sialia sialis*)	7	c	R	O
Wood thrush (*Hylocichla mustelina*)	16	c	R	W
American robin (*Turdus migratorius*)	13	c	C	O,W
Gray catbird (*Dumetella carolinensis*)	4	c	R	W
Northern mockingbird (*Mimus polyglottos*)	2	u	R	O
European starling (*Sturnus vulgaris*)	5	c	R	F
White-eyed vireo (*Vireo griseus*)	1	ca	R	W
Red-eyed vireo (*Vireo olivaceus*)	3	u	R	W
Blue-winged warbler (*Vermivora pinus*)	6	c	R	W
Yellow warbler (*Dendroica petechia*)	8	c	R	W
Yellow-throated warbler (*Dendroica dominica*)	1	ca	R	W
American redstart (*Setophaga ruticilla*)	1	ca	R	W
Ovenbird (*Seiurus aurocapillus*)	4	c	R	W
Kentucky warbler (*Oporornis formosus*)	3	u	R	W
Common yellowthroat (*Geothlypis trichas*)	4	c	R	W
Yellow-breasted chat (*Icteria virens*)	6	c	R	O,W
Summer tanager (*Piranga rubra*)	15	c	R	O,W
Scarlet tanager (*Piranga olivacea*)	6	c	R	O,W
Northern cardinal (*Cardinalis cardinalis*)	16	c	C	O,W
Rose-breasted grosbeak (*Pheucticus ludovicianus*)	3	u	R	O,W
Blue grosbeak (*Guiraca caerulea*)	2	u	R	W
Indigo bunting (*Passerina cyanea*)	6	c	R	O,W
Rufous-sided towhee (*Pipilo erythrophthalmus*)	8	c	R	O,W
Chipping sparrow (*Spizella passerina*)	1	ca	O	O
Field sparrow (*Spizella pusilla*)	7	c	R	O

Table 5.5-3 List of Birds Observed During the Haul Road Ecological Survey June 24-28, 1991 (Continued)

Common Name/(Scientific Name)	Total Seen	Relative Abundance	Breeding Status	Habitat Type
Grasshopper sparrow (*Ammodramus savannarum*)	2	u	R	O
Eastern meadowlark (*Sturnella magna*)	2	u	R	O
Common grackle (*Quiscalus quiscula*)	60	c	O	O,F
Brown-headed cowbird (*Molothrus ater*)	37	c	R	O,W,F
Orchard oriole (*Icterus spurius*)	9	c	R	O,W
Northern oriole (*Icterus galbula*)	17	c	R	O,W
American goldfinch (*Carduelis tristis*)	4	c	R	O,W

NOTES:
Abundance Status. This scale is relative only to this survey.

- c = common species seen or heard more than 4 times.
- u = uncommon species seen or heard 2 to 3 times.
- ca = casual species was seen or heard only once.

Breeding Status

- C = Confirmed Breeder. Presence of an active nest, newly fledged or flightless young, adult carrying nest matter or carrying food for young.
- R = Probable Breeder. Present during the breeding within normal range during breeding season, males singling or defending a territory.
- O = Possible Breeder. Present during the breeding season within normal range but no direct evidence of breeding activity was observed.

Habitat Type

- W = Mixed deciduous woodland.
- O = Old successional field.
- F = Bird seen flying overhead, not in any one habitat.

TABLE 5.5-4 List of Mammals Found in the Weldon Spring Wildlife Area

Common Name	Genus and Species
Opossum	*Didelphis virginiana*
Eastern Mole	*Scalopus aquaticus*
Big Brown Bat	*Eptesicus fuscus*
Eastern Cottontail Rabbit	*Sylvilagus floridanus*
Eastern Chipmunk	*Tamias striatus*
Woodchuck	*Marmota monax*
Eastern Gray Squirrel	*Sciurus carolinensis*
Fox Squirrel	*Sciurus niger*
Southern Flying Squirrel	*Glaucomys volans*
Beaver	*Castor canadensis*
Western Harvest Mouse	*Reithrodontomys megalotis*
Deer Mouse	*Peromyscus maniculatus*
White-footed Mouse	*Peromyscus leucopus*
Prairie Vole	*Microtus ochrogaster*
Muskrat	*Ondatra zibethicus*
House Mouse	*Mus musculus*
Coyote	*Canis latrans*
Red Fox	*Vulpes vulpes*
Gray Fox	*Urocyon cinereoargenteus*
Raccoon	*Proycon lotor*
Striped Skunk	*Mephitis mephitis*
White-tailed Deer	*Ococoileus virginianus*

Source: Herron 1991b

TABLE 5.5-5 List of Reptiles and Amphibians Found in the Weldon Spring Wildlife Area

Name	Genus and Species
Ringed Salamander	*Ambystoma annulatum*
Spotted Salamander	*Ambystoma maculatum*
Smallmouth Salamander	*Ambystoma texanum*
Eastern Tiger Salamander	*Ambystoma tigrinum tigrinum*
Central Newt	*Notophthalmus viridescens louisianensis*
Slimy Salamander	*Plethodon glutinosus glutinosus*
Eastern American Toad	*Bufo americanus americanus*
Fowler's Toad	*Bufo woodhousei fowleri*
Blanchard's Cricket Frog	*Acris crepitans blanchardi*
Northern Spring Peeper	*Hyla crucifer crucifer*
Eastern Gray Treefrog	*Hyla versicolor*
Western Chorus Frog	*Pseudacris triseriata triseriata*
Plains Leopard Frog	*Rana blairi*
Bullfrog	*Rana catesbeiana*
Green Frog	*Rana clamitans melanota*
Pickerel Frog	*Rana palustric*
Southern Leopard Frog	*Rana sphenocephala*
Wood Frog	*Rana sylvatica*
Common Snapping Turtle	*Chelydra serpentina serpentina*
Western Painted Turtle	*Chrysemys picta bellii*
Three-toed Box Turtle	*Terrapene carolina triunguis*
Ornate Box Turtle	*Terrapene ornata ornata*
Red-eared Slider	*Trachemys scripta elegans*
Midland Smooth Softshell	*Trionyx muticus muticus*
Northern Fence Lizard	*Sceloporus undulatus hyacinthinus*
Five-lined Skink	*Eumeces fasciatus*
Broadhead Skink	*Eumeces laticeps*
Ground Skink	*Scincella lateralis*
Six-lined Racerunner	*Cnemidophorus sexlineatus sexlineatus*
Western Slender Glass Lizard	*Ophisaurus attenuatus attenuatus*
Western Worm Snake	*Carphophis amoenus vermis*
Eastern Yellowbelly Racer	*Coluber constrictor flaviventris*
Prairie Ringneck Snake	*Diadophis punctatus arnyi*
Black Rat Snake	*Elaphe obsoleta obsoleta*
Eastern Hognose Snake	*Heterodon platyrhinos*
Prairie Kingsnake	*Lampropeltis calligaster calligaster*
Speckled Kingsnake	*Lampropeltis getulus holbrooki*
Diamondback Water Snake	*Nerodia rhombifer rhombifer*
Northern Water Snake	*Nerodia sipedon sipedon*
Rough Green Snake	*Opheodrys aestivus*
Midland Brown Snake	*Storeria dekayi wrightorum*
Northern Redbelly Snake	*Storeria occipitomaculata occipitomaculata*
Western Ribbon Snake	*Thamnophis proximus proximus*
Eastern Garter Snake	*Thamnophis sirtalis sirtalis*
Western Earth Snake	*Virginia valeriae elegans*
Osage Copperhead	*Agkistrodon contortrix phaeogaster*
Timber Rattlesnake	*Crotalus horridus*

Source: Herron 1991b

TABLE 5.5-6 Threatened, Endangered, or Special Concern Species Reported from St. Charles County, Missouri, and Potentially Occurring on or near the Weldon Spring Site

SPECIES	STATUS FEDERAL[a]	STATE[b]
Plants		
Starwort (variety)	T	Endangered
Rose turtlehead	3C	Endangered
Arrow arum	--	Rare
Star duckweed	--	Rare
Bugseed (variety)	--	Watch List
Adder's tongue fern (variety)	--	Watch List
Salt meadow grass (variety)	--	Undetermined
Fish		
Pallid sturgeon	E	Endangered
Pugnose minnow	--	Watch List
Sturgeon chub	C2	Rare
Sicklefin chub	C2	Rare
Alligator gar	--	Rare
Brown bullhead	--	Rare
Alabama shad	--	Rare
Starhead topminnow	--	Watch List
Western sand darter	--	Watch List
Paddlefish	3C	Watch List
Reptiles and Amphibians		
Western fox snake	--	Endangered
Eastern massauga rattlesnake	C2	Endangered
Western smooth green snake	--	Endangered
Wood frog	--	Rare
Northern crawfish frog	--	Watch List
Blanding's turtle	--	Endangered
Alligator snapping turtle	C2	Rare
Mammals		
Long-tailed weasel	--	Rare

TABLE 5.5-6 Threatened, Endangered, or Special Concern Species Reported from St. Charles County, Missouri, and Potentially Occurring on or near the Weldon Spring Site (Continued)

SPECIES	STATUS FEDERAL[a]	STATUS STATE[b]
Birds		
Bald eagle (winter)	E	Endangered
Peregrine falcon	E	Extirpated[c]
Interior least tern	E	Endangered
Cooper's hawk	--	Rare
Northern harrier	--	Endangered
Sharp-shinned hawk (winter)	--	Rare
Osprey	--	Extirpated
Barn owl	--	Rare
Snowy egret	--	Endangered
Bachman's sparrow	C2	Endangered
American bittern	--	Endangered
Yellow-headed blackbird	--	Rare
Red-shouldered hawk	--	Watch List
Black-crowned night heron	--	Rare
Little blue heron	--	Rare
Mississippi kite	--	Rare
Upland sandpiper	--	Watch List
Henslow's sparrow	--	Rare
Pied-billed grebe	--	Rare

(a) C2 = federal candidate for listing as a threatened/endangered species
3C = former federal candidate species
E = Endangered
T = Threatened

(b) Special concern species include those classified by the state as rare, on the watch list, or status undetermined
Watch list = species of possible concern for which the Missouri Department of Conservation is seeking further information; this does not imply that these species are imperiled.
Undetermined = possibly rare/endangered but insufficient information is available to determine the proper status.

(c) Extirpated = formerly occurred as a regular breeding species but no longer reproduces in Missouri

Sources: Dickneite 1988; MDOC 1990; Hlohowskyj 1990; MDOC 1991

TABLE 5.5-7 Vertebrate Species Sampled at the Weldon Spring Site

Birds	Mammals	Fish	Reptiles	Amphibians
American kestrel	Eastern cottontail	Green sunfish	Prairie kingsnake	Bull frog
Red-tailed hawk	House mouse		Western box turtle	Cricket frog
Rock dove	Muskrat		Common snapping turtle	Leopard frog
Canada goose	Opossum			
Wood duck	Other mice			
Mallard	Raccoon			
	Short-tailed shrew			
	Squirrel			

Source: RETA 1977, MKF and JEG 1990
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TABLE 5.5-8 Distribution of Uranium, Thorium and Radium-226 in the Frog Pond System

Sample	U-Nat. µg/g	U-235 µCi/g	U-238 µg/g	Th-230 µCi/g	Th-232 µCi/g	(Ac228) Th-232 µg/g	Ra-226 µCi/g
Sediment	338	7E-6	473	1.4E-5	9.7E-7	13.3±6.0	<5.1E-6
Water	1.2	4E-8	1.42	-	-	13.3±0.24	3.2E-7(±1.3)
Invertebrates	1.7	<2E-5	<1,280	<1.2E-7	<7.3E-8	<105	<8.2E-7
Cattail Roots	1.6(±0.3)	<1.2E-5	723	<7E-8	1.4E-6(±1.0)	106(±90)	<5.9E-7
Sagittaria Roots	-	1.0E-5(±0.6)	728(±670)	-	-	67(±38)	3.3E-6(±0.73)
Algae	10(±6.7)	8.0E-6(±3.0)	642(±252)	4.9E-6(±0.7)	8.4E-7(±0.87)	227(±89)	<3.9E-7
Frogs	2(±0.85)	<1.2E-6	<75	<7E-8	<7E-8	<8	<7.6E-7
Frog Skeletons	<2	<2.9E-6	<281	8.9E-8(±6.9)	<7E-8	<30	<3.9E-7
Soil	-	3.4E-6(±1.3)	37	-	-	24(±5)	<3.1E-6
Smartweed Aerial	45(±8)	4.6E-7(±0.5)	<60(±25)	1.2E-6(±0.24)	4.3E-7(±1.7)	10.5(±2)	<4.7E-7
Goldenrod Aerial	3.4(±0.95)	<1.7E-6	<13	<7E-8	<7E-8	<1.4	1.8E-7(±0.8)
Mice	-	<3.3E-6	<207	<9E-8	<7E-8	<22	<9.2E-6
Shrews	-	<4.2E-5	<2,800	<8.2E-7	<6.5E-7	<226	<1.3E-4
Raccoon							
GI Tract	13.3(±0.5)	2.5E-7(±2.1)	<17.1	6.4E-7(±1.2)	4.5E-7(±1.1)	<1.4	<1.8E-7
Bone	2.1(±0.5)	<2.1E-7	<13	-	-	<1.4	1.2E-6(±0.6)
Kidney	0.84(±0.06)	3.6E-7(±3.1)	<37	4.9E-5(±4.3)	<8E-8	<3.4	<2.3E-6
Remainder	<1	<1.1E-7	<13	-	<7E-8	<1.2	-
Opossum							
GI Tract	-	2.5E-7(±2.2)	<13	3.5E-5(±3.0)	-	<1.4	<9.2E-6
Bone	<1	<4.7E-7	<32	–	<7E-8	<2.6	<1.4E-6
Kidney	-	<4.4E-6	<54	-	-	<6.3	<9.3E-6
Remainder	<1	<1.03E-7	<13	<7E-8	<7E-8	<1.2	<9.3E-6

Source: Modified from RETA 1978

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TABLE 5.5-9 Natural Uranium Concentrations in Fish and Water Bodies of the Busch Wildlife Area

	nat-U in water[a] (pCi/l)	Fish Type	nat-U in fish[b] (pCi/g)
Lake 34	18-33	Bluegill*	0.06
		Tiger Musky	0.008
		Channel Catfish	0.005
		Grass Carp	0.005
Lake 25	8-21	Largemouth Bass	0.005
		Channel Catfish	0.002
Lake 36	9-53	Largemouth Bass	0.005
		Channel Catfish	0.002
Femme Osage Slough	8-47	Bluegill*	0.02
		Carp	0.012
		Buffalo	0.009
Background (Little Dixie Lake)	--	Bluegill*	0.02
		Largemouth Bass	0.005
		Channel Catfish	0.009

* Bluegill were not filleted; they were decapitated, eviscerated and scaled

Source: (a) DOE 1987c
(b) deRoos, C. 1984

TABLE 5.5-10 Radiological Concentrations in Fish Biota

Location		Radium 226 (pCi/g)	Thorium 230 (pCi/g)	Thorium 232 (pCi/g)	Total Uranium[a] 1987 (pCi/g)	Total Uranium[a] 1989/1990 (pCi/g)	Total Uranium[a] 1991 (pCi/g)
(Detection limit = 0.001 unless noted in parentheses)							
Frog Pond	Sunfish Cakes	ND (0.1)	ND (0.2)	ND (0.07)	ND (0.1)		
Lake 34	Bass Fillets				ND (0.01)	ND	0.010
	Bass Whole					0.024	0.003
	Catfish Fillets						ND
	Catfish Whole					ND	ND
	Crappie Fillets				ND (0.01)		
	Sunfish Cakes	ND (0.01)	ND (0.2)	ND (0.05)	ND (0.01)	0.04	0.010
	Sunfish Fillets				ND (0.01)	ND	0.004
	Sunfish Whole					0.036	0.057
Lake 35	Bass Fillets				ND (0.01)	0.005	0.072
	Bass Whole					0.027[b]	0.014
	Catfish Fillets				ND (0.02)	ND	0.030
	Catfish Livers						0.070
	Catfish Whole					0.544[b]	0.009
	Crappie Cakes					0.012	0.003
	Crappie Fillets				ND (0.02)	0.004[b]	0.006
	Crappie Whole					0.035	ND
	Sunfish Cakes	ND (0.3)	ND (0.03)	ND (0.1)	ND (0.02)	0.040	0.049
	Sunfish Fillets					0.006[b]	0.016
	Sunfish Whole					0.282	ND (0.004)
Lake 36	Bass Fillets				ND (0.01)	0.008[b]	0.005
	Bass Whole					0.303	0.003
	Catfish Fillets				ND (0.01)	0.018	0.016
	Catfish Whole					1.863	0.004
	Crappie Cakes						0.021
	Crappie Fillets					0.005	0.014
	Crappie Whole					0.075	0.009
	Sunfish Cakes	ND (0.003)	ND (0.06)	ND (0.02)	ND (0.01)		0.204
	Sunfish Fillets				ND (0.01)	0.041	0.029
	Sunfish Whole					0.529	0.351
Lake 33	Bass Fillets						0.003
	Bass Whole						0.002
	Carp Fillets						0.002
	Carp Whole						0.002
	Crappie Cakes						0.002
	Crappie Fillets						0.003
	Crappie Whole						0.007
	Sunfish Cakes						ND
	Sunfish Fillets						ND
	Sunfish Whole						0.004

TABLE 5.5-10 Radiological Concentrations in Fish Biota (Continued)

Location		Radium 226 (pCi/g)	Thorium 230 (pCi/g)	Thorium 232 (pCi/g)	Total Uranium[a] 1987 (pCi/g)	1989/1990 (pCi/g)	1991 (pCi/g)
(Detection limit = 0.001 unless noted in parentheses)							
Lake 37	Bass Fillets				ND (0.02)	ND	ND
	Bass Whole					ND	0.007
	Catfish Fillets					0.003	
	Catfish Whole					0.013	0.003
	Sunfish Cakes	ND (0.2)	ND (0.2)	ND (0.3)	ND (0.01)		0.002
	Sunfish Fillets					ND	0.003
	Sunfish Whole					ND	0.009

[a] 1989 = Uranium-234 concentration included in total uranium

[b] 2 samples; all other data based on 1 sample.

TABLE 5.5-11 Biouptake PCB Results for Fish

	CONCENTRATIONS (ppm)							
Sample # Detection Limit	Aroclor 1016 (0.04)	Aroclor 1221 (0.06)	Aroclor 1232 (0.04)	Aroclor 1242 (0.05)	Aroclor 1248 (0.04)	Aroclor 1254 (0.04)	Aroclor 1260 (0.04)	COMMENTS
<u>Lake 37:</u>								
BG-3706-1087	ND	ND	ND	ND	ND	ND	ND	4 bass, 5 sunfish (800 g)
<u>Lake 36:</u>								
BG-3606-1187	ND	ND	ND	ND	ND	ND	ND	2 bass, 2 sunfish, 2 crappie (800 g)
<u>Lake 35:</u>								
BG-3506-1087	ND	ND	ND	ND	ND	ND	ND	2 bass, 4 sunfish, 6 crappie (800 g)
<u>Lake 34:</u>								
BG-3406-1087	ND	ND	ND	ND	ND	ND	ND	1 bass, 2 sunfish, 4 crappie (800 g)

ND = Not detected

TABLE 5.5-12 Biouptake CLP Metals Results for Fish Mixed Species Composite Samples

CONCENTRATION (μg/g)

Sample #	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn
Det. Limits[a]	20	6	1	20	0.5	0.5	500	1	5	2.5	10	0.5	5	500	1.5	0.1	4	500	0.5	1	500	1	5	2
Lake 36[b]																								
BG-3606-1087	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11.7	4.2	ND	ND	ND	0.16	ND	3530	ND	ND	510	ND	ND	9.5
Lake 34[c]																								
BG-3406-1087	ND	ND	ND	ND	ND	ND	1050	2.98	ND	ND	24.2	4.0	ND	ND	ND	0.27	ND	3190	ND	ND	ND	ND	ND	12.3
Det. Limits[d]	20	4.1	1	20	0.3	0.5	500	0.3	0.7	2.5	10	3.6	5	500	1.5	0.1	1.4	500	6.4	0.3	500	1	0.4	2
Lake 37[e]																								
BG-3706-1087	ND	ND	13.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.23	ND	3423	ND	ND	--	9.1	ND	11.3
Lake 35[f]																								
BG-3506-1087	ND	ND	13.6	ND	ND	ND	ND	ND	ND	ND	50.7	ND	ND	ND	2.1	0.24	ND	2666	ND	ND	--	9.4	ND	9.44

ND = Not Detected
-- = Analysis not performed

(a) Detection limits for Lakes 34 and 36.
(b) Sample made up of 2 bass, 2 sunfish, and 2 crappie (800 g).
(c) Sample made up of 1 bass, 2 sunfish, and 4 crappie (800 g).
(d) Detection limits for Lakes 35 and 37.
(e) Sample made up of 4 bass and 5 sunfish (800 g).
(f) Sample made up of 2 bass, 4 sunfish, and 6 crappie (800 g).

TABLE 5.5-13 Comparison of Bioaccumulation Factors (B.F.) for Uranium

Area	Species	Gilbert B.F.	NCRP B.F.	WSSRAP B.F.
Frog Pond	Sunfish Cakes	2.0	0.7 - 38	0.23
Lake 34	Bass Fillets	2.0	0.5 - 0.7	0.59
	Bass Whole	2.0	0.5 - 0.7	0.15
	Catfish Fillets	2.0	0.7 - 38	0.008
	Catfish Whole	2.0	0.7 - 38	0.008
	Crappie Fillets	2.0	0.5 - 0.7	0.076
	Sunfish Cakes	2.0	0.7 - 38	0.167
	Sunfish Fillets	2.0	0.7 - 38	0.40
	Sunfish Whole	2.0	0.7 - 38	0.348
Lake 35	Bass Fillets	2.0	0.5 - 0.7	1.132
	Bass Whole	2.0	0.5 - 0.7	0.728
	Catfish Fillets	2.0	0.7 - 38	0.556
	Catfish Livers	2.0	0.7 - 38	1.931
	Catfish Whole	2.0	0.7 - 38	10.93
	Crappie Cakes	2.0	0.5 - 0.7	0.201
	Crappie Fillets	2.0	0.5 - 0.7	0.231
	Crappie Whole	2.0	0.5 - 0.7	0.648
	Sunfish Cakes	2.0	0.7 - 38	1.089
	Sunfish Fillets	2.0	0.7 - 38	0.375
	Sunfish Whole	2.0	0.7 - 38	5.259
Lake 36	Bass Fillets	2.0	0.5 - 0.7	0.034
	Bass Whole	2.0	0.5 - 0.7	0.970
	Catfish Fillets	2.0	0.7 - 38	0.073
	Catfish Whole	2.0	0.7 - 38	5.925
	Crappie Cakes	2.0	0.5 - 0.7	0.98
	Crappie Fillets	2.0	0.5 - 0.7	0.046
	Crappie Whole	2.0	0.5 - 0.7	0.198
	Sunfish Cakes	2.0	0.7 - 38	0.663
	Sunfish Fillets	2.0	0.7 - 38	0.177
	Sunfish Whole	2.0	0.7 - 38	4.190

• B.F. are average concentrations and non-detects at lower limit of detection.

Adapted from Gilbert, et al. 1985 and NCRP 1985

TABLE 5.5-14 Small Mammal Radiological Results

		CONCENTRATIONS (pCi/g)			
Sample #	Matrix	Total Uranium	Thorium 230	Thorium 232	Radium 226
ASH POND AREA					
BG-AP20-1287	Rabbit Tissue	ND (0.02)	ND (0.03)	ND (0.01)	ND (0.01)
	Rabbit Bone	ND (0.3)	ND (0.1)	ND (0.4)	ND (0.1)
WSCP AREA					
BG-IT20-021188	Rabbit Tissue	ND (0.4)	ND (1)	ND (1)	--
	Rabbit Bone	ND (0.08)	ND (1)	ND (1)	--
BG-CP20-021188	Rabbit Tissue	ND (0.04)	ND (1)	ND (1)	--
	Rabbit Bone	ND (0.05)	ND (1)	ND (1)	--
FROG POND AREA					
BG-FP21-1287	Squirrel Tissue	ND (0.09)	ND (0.05)	ND (0.01)	ND (0.01)
	Squirrel Bone	ND (0.03)	ND (0.07)	ND (0.05)	ND (0.07)

ND = Not Detected (detection limits in parentheses)

TABLE 5.5-15 Raffinate Pit 4 Biota Radionuclide Concentrations (pCi/g)

	#	Radium 226	Radium 228	Thorium 227	Thorium 228	Thorium 230	Thorium 232	Uranium 232,234	Uranium 235	Uranium 238
Waterfowl										
Wood Duck - Flesh	1	ND (0.001)	ND (0.006)	0.239	ND (0.011)	0.009	ND (0.001)	0.003	ND (0.001)	0.003
Wood Duck - Flesh	1	ND (0.001)	0.025	0.238	ND (0.021)	0.030	ND (0.002)	0.008	ND (0.001)	0.006
Wood Duck - Flesh	1	0.002	0.028	0.800	ND (0.102)	ND (0.007)	ND (0.007)	0.002	ND (0.001)	0.002
Goose - Flesh	1	ND (0.001)	ND (0.004)	0.014	ND (0.002)	0.010	ND (0.001)	0.002	ND (0.001)	0.002
Goose - Organs	1	0.006	ND (0.003)	0.037	0.008	0.483	0.008	0.054	ND (0.001)	0.056
Mallard - Organs	1	0.026	0.030	0.061	0.022	0.040	ND (0.001)	0.053	0.005	0.057
Mallard - Flesh	1	0.001	ND (0.002)	0.061	ND (0.011)	ND (0.001)	ND (0.001)	0.005	ND (0.001)	0.005
Composite Ducks - Organs	3	0.028	ND (0.007)	0.086	ND (0.018)	0.170	ND (0.002)	0.315	0.020	0.334
Reptiles										
Snapping Turtle - Skin	1	0.043	0.074	NA	0.013	0.500	0.005	NA	NA	0.068
Snapping Turtle - Muscle	1	0.007	0.031	NA	0.008	0.013	ND (0.001)	NA	NA	0.007
Snapping Turtle - Bones	1	3.89	4.05	NA	7.170	1.130	ND (0.200)	NA	NA	0.007
Snapping Turtle - Organs	1	0.015	0.023	NA	0.018	0.043	ND (0.001)	NA	NA	0.060

Detection Limits in Parenthesis ( )
NA = not analyzed
# = number of individuals in sample

TABLE 5.5-16 Bioaccumulation Factors for Raffinate Pit 4 Biota

	RADIUM 226	RADIUM 228	THORIUM 228	THORIUM 230	THORIUM 232	TOTAL URANIUM
Wood Duck - Flesh	0.016	0.366	3.929	0.261	0.313	0.0022
Wood Duck - Flesh	0.016	3.049	7.500	0.870	0.625	0.0053
Wood Duck - Flesh	0.066	3.415	36.429	0.101	2.188	0.0015
Goose - Flesh	0.016	0.244	0.714	0.290	0.313	0.0015
Goose - Organs	0.197	0.183	5.714	14.000	5.000	0.0344
Mallard - Organs	0.855	3.659	15.714	1.159	0.313	0.0366
Mallard - Flesh	0.033	0.122	3.929	0.014	0.313	0.0034
Composite Ducks - Organs	0.921	0.427	6.429	4.928	0.625	0.2118
Snapping Turtle - Skin	1.414	9.024	9.286	14.493	3.125	0.0430
Snapping Turtle - Muscle	0.230	3.780	5.714	0.377	0.313	0.0044
Snapping Turtle - Bones	127.961	493.902	5121.429	32.754	62.500	0.4427
Snapping Turtle - Organs	0.493	2.805	12.857	1.246	0.313	0.0379
Average Water Concentration (pCi/l)	30.4	8.2	1.4	34.5	1.6	1581

TABLE 5.6-1 Radon Measurements at the Weldon Spring Site in 1989[a]

Location I.D.	1st Quarter pCi/l	2nd Quarter pCi/l	3rd Quarter pCi/l	4th Quarter pCi/l	Annual Average[b] pCi/l	Annual Average[b] Std. Dev.	Percent of Guideline[c]
QUARRY							
RD-1001	1.0	1.5	2.0	1.5	1.5	0.2	32
RD-1002	1.8	1.3	1.3	2.1	1.6	0.2	35
RD-1003	4.7	0.8	1.3	1.6	2.1	0.4	52
RD-1004	1.1	0.5	0.7	1.2	0.8	0.1	8
RD-1005	1.8	0.7	0.8	1.3	1.1	0.2	18
RD-1006	0.4	0.4	0.7	1.1	0.6	0.1	-
CHEMICAL PLANT							
RD-2001	0.7	0.4	0.4	0.7	0.5	0.1	-
RD-2002	0.5	0.4	0.6	0.6	0.5	0.1	-
RD-2003	0.6	0.4	1.1	0.6	0.6	0.1	-
RD-2004	0.3	0.4	0.8	0.6	0.5	0.1	-
RD-2005	0.3	0.3	0.5	0.5	0.4	0.1	-
RD-2006	0.4	0.5	0.7	0.7	0.6	0.1	-
RAFFINATE PITS							
RD-3001	0.6	0.3	0.5	0.6	0.5	0.1	-
RD-3002	0.3	0.3	0.5	0.6	0.4	0.1	-
RD-3003	0.3	0.4	0.7	0.6	0.5	0.1	-
RD-3004	0.3	0.4	0.7	0.4	0.4	0.1	-
OFF SITE							
RD-4001[d]	0.3	0.4	1.2	0.5	0.6	0.1	-
RD-4002	0.3	0.3	0.4	0.3	0.3	0.1	-
RD-4003	0.3	0.3	0.8	0.3	0.4	0.1	-
RD-4004[d]	0.4	0.3	0.4	0.6	0.4	0.1	-
RD-4005[d]	0.6	0.4	0.6	0.4	0.5	0.1	-
RD-4006[d]	1.3	0.4	0.8	0.5	0.7	0.2	-

[a] RESULTS INCLUDE NATURAL BACKGROUND
[b] DUE TO ROUNDING THE AVERAGED QUARTERLY DATA MAY NOT EQUAL THE ANNUAL AVERAGE
[c] THE DOE CONCENTRATION GUIDELINE FOR Rn-222 IS 3pCi/l (ANNUAL AVERAGE ABOVE BACKGROUND) FOR UNCONTROLLED AREAS.
[d] DENOTES BACKGROUND STATION

See Figure 5.6-1

TABLE 5.6-2 Gamma Radiation Exposure Rate Monitoring Results[a] (mR/year)

LOCATION I.D.	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL TOTAL[b]	2 ST DEV
QUARRY						
TD-1001	27	TE[c]	21	25	98	7
TD-1002	27	TE[c]	16	18	80	6
TD-1003	23	TE[c]	17	22	82	8
TD-1004	22	TE[c]	16	18	75	15
TD-1005	23	TE[c]	17	21	80	16
TD-1006	20	TE[c]	15	19	71	11
CHEMICAL PLANT						
TD-2001	18	TE[c]	13	22	71	7
TD-2002	20	TE[c]	15	17	68	8
TD-2003	26	TE[c]	13	20	79	20
TD-2004	20	TE[c]	14	18	69	11
TD-2005	18	TE[c]	13	16	62	4
TD-2006	18	TE[c]	15	20	70	11
RAFFINATE PITS						
TD-3001	20	TE[c]	15	20	73	12
TD-3002	16	TE[c]	11	15	56	7
TD-3003	18	TE[c]	14	18	67	6
TD-3004	18	TE[c]	15	15	65	10
OFF SITE						
TD-4001[d]	21	TE[c]	15	21	75	12
TD-4002	15	TE[c]	11	13	52	7
TD-4003	18	TE[c]	12	14	59	10
TD-4004[d]	-	TE[c]	-	17	70	3
TD-4005[d]	17	TE[c]	-	16	66	7
TD-4006[d]	17	TE[c]	14	16	62	6

[a]RESULTS INCLUDE NATURAL BACKGROUND
[b]DUE TO ROUNDING THE SUMMED QUARTERLY DATA MAY NOT EQUAL THE ANNUAL TOTAL.
[c]TE = TRANSPORTATION EXPOSURE - NOT REPORTED
[d]DENOTES BACKGROUND STATION

See Figure 5.6-1

TABLE 5.6-3 Radiological Air Particulate Results 1989

MONITOR IDENTIFICATION NUMBER	AIR PARTICULATE TYPE	ANNUAL AVG. CONCENTRATION (1E-15 μCi/ml)	STANDARD DEVIATION	NUMBER OF VALUES ABOVE LLD
AP-2001	COARSE	<1.60	--	1
	FINE	<2.67	1.30	36
AP-2002	COARSE	<1.60	--	0
	FINE	<2.88	1.63	41
AP-3003	COARSE	<1.52	--	1
	FINE	<3.28	1.72	40
AP-3004	COARSE	<1.59	0.60	3
	FINE	<3.60	5.24	38
AP-2005	COARSE	<1.60	--	1
	FINE	<3.14	1.53	40
AP-4006	COARSE	<1.62	0.97	8
	FINE	<3.37	1.64	41
AP-4007[a]	COARSE	<1.62	0.35	5
	FINE	<2.87	1.11	34
AP-4008	COARSE	<1.60	0.94	4
	FINE	<3.27	1.48	43
AP-1009	ALL	<4.27	1.81	30
AP-1010	ALL	<4.36	1.75	30
AP-4011[a]	ALL	<3.83	1.58	30

[a] INDICATES BACKGROUND MONITOR STATION

TABLE 5.6-4 Asbestos Monitoring Results for 1988-1989 (Phase Contrast Microscopy)

1988

Sampling Location	Concentration (f/cm^2)[a][b] Min	Max	Average	No. of Samples
Site Perimeter	<0.0005	0.038	0.004	85
FHHS[c]	<0.0005	0.013	0.0024	52

1989

Sampling Location	Concentration (f/cm^2) Min	Max	Average	No. of Samples
Site Perimeter	<0.0005	0.007	0.001	103
FHHS[c]	<0.0005	0.017	0.001	186

Notes:

[a] f/cm^2 = fibers per cubic centimeter of air

[b] For those samples with fiber concentrations less than the limit of detection, the limit of detection was used to calculate the overall average fiber concentration.

[c] FHHS = Francis Howell High School

TABLE 6.2-1 Chemical Properties of Nitroaromatics[a]

	Nitrotoluene 1,4,6-TNT	2,4-DNT	2,6-DNT	Nitrobenzene 1,3,5-TNB	3,5-DNB	NB
Solubility (mg/1)	155	270	300	350	360	1900[b]
Vapor Pressure (torr)	1.00E-04	1.30E-03	1.80E-02	2.20E-04	3.90E-03	1.50E-01[b]
Sorption Partition Coefficient (K_{oc})	190	87	100	520	64	No data[b]
Volatilization (half-life days)	990	410	140	130	500	8[b]
Photolysis (half-life days)	4[c]	1.8-11.5	0.17	[d]	[d]	133[e]

[a] All data taken from Spanggord et al. 1980 unless otherwise noted.

[b] EPA 1979

[c] Burlinson et al. 1973 found a 75% loss of TNT from 120-130 ppm "pink water" in four days.

[d] No data reported since photolysis is not considered an important fate of nitrobenzenes.

[e] Simmons and Zepp 1986 estimate.