Y/SUB/94-99069C/Y15/9

COMPREHENSIVE MONITORING REPORT FOR UNDERGROUND STORAGE TANK 2331-U AT BUILDING 9201-1

OAK RIDGE Y-12 PLANT
OAK RIDGE, TENNESSEE
FACILITY ID #0-010117

July, 1994

Environmental Management Department
Health, Safety, Environment,
and Accountability Organization

Prepared by

Science Applications International Corporation
Under Subcontract 22B-99069C
for the
Oak Ridge Y-12 Plant
Oak Ridge, Tennessee 37831

Managed by

Martin Marietta Energy Systems, Inc.
for the
U.S. Department of Energy
Under Contract No. DE-AC05-84OR21400

94-047MS/072994

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DISCLAIMER

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LIST OF ACRONYMS

BGL	below ground level
BTEX	benzene, toluene, ethylbenzene, and xylenes
BTOC	below top of casing
CAP	Corrective Action Plan
GRO	gasoline range organic
LEL	lower explosive limit
MSL	mean sea level
TDEC	Tennessee Department of Environment and Conservation
TPH	total petroleum hydrocarbon
TWA	time weighted average
UEFPC	Upper East Fork Poplar Creek
UST	underground storage tank

SIGNATURE PAGE

I certify under penalty of law, including but not limited to penalties for perjury, that the information contained in this report and on any attachments, is true, accurate, and complete to the best of my knowledge, information, and belief. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for intentional violations.

See Attached Certification		
Owner/Operator (Print)	Signature	Date
William D Keefer	William D. Keefer / TN3328	7/27/94
P.E. or P.G. (Print)	Signature TN Lic./Reg. #	Date

If a P.E. signs this report, please indicate the area of expertise.

(Print or Type)

(P.E./P.G. Stamp/Seal)

County of Anderson State of Tennessee

Subscribed and Sworn to before me this

29th day of July, 19 94.

Kimberly D. Mitchell
Notary Public

My Commission expires: Sept. 23rd, 97 (Notary Seal)

CERTIFICATION STATEMENT FOR THE COMPREHENSIVE MONITORING REPORT FOR THE UNDERGROUND STORAGE TANK 2331-U, AT BUILDING 9201-1

I certify that this document and all enclosures were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

U.S. Department of Energy
Owner and Operator

By:

R.J. Spence
Department of Energy, Y-12 Site Manager

8/23/94
Date Signed

Teresa L. Nelson
10-28-97

Martin Marietta Energy Systems, Inc.
Co-Operator

By:

D.J. Bostock
Martin Marietta Energy Systems, Inc.
Vice President and Y-12 Plant Manager

8/15/94
Date Signed

Teresa L. Nelson
10-28-97 NOTARY

(Stamp/Seal)

Note: Both signatures have been notarized per requirements.

1. INTRODUCTION

1.1 Purpose and Scope

The purpose of this document is to present potentiometric, groundwater quality and vapor monitoring data required for comprehensive monitoring of underground storage tank (UST) 2331-U at the Building 9201-1 Site. Comprehensive monitoring has been conducted at the site as part of a Monitoring Only program approved by the Tennessee Department of Environment and Conservation (TDEC) based on review and approval of Site Ranking (Site Ranking Form approved May 23, 1994). Site Status Monitoring will be conducted semiannually. Comprehensive monitoring and preparation of this report have been conducted in accordance with the requirements of the TDEC Rule 1200-1-15 and the TDEC *UST Reference Handbook, Second Edition* (TDEC 1994).

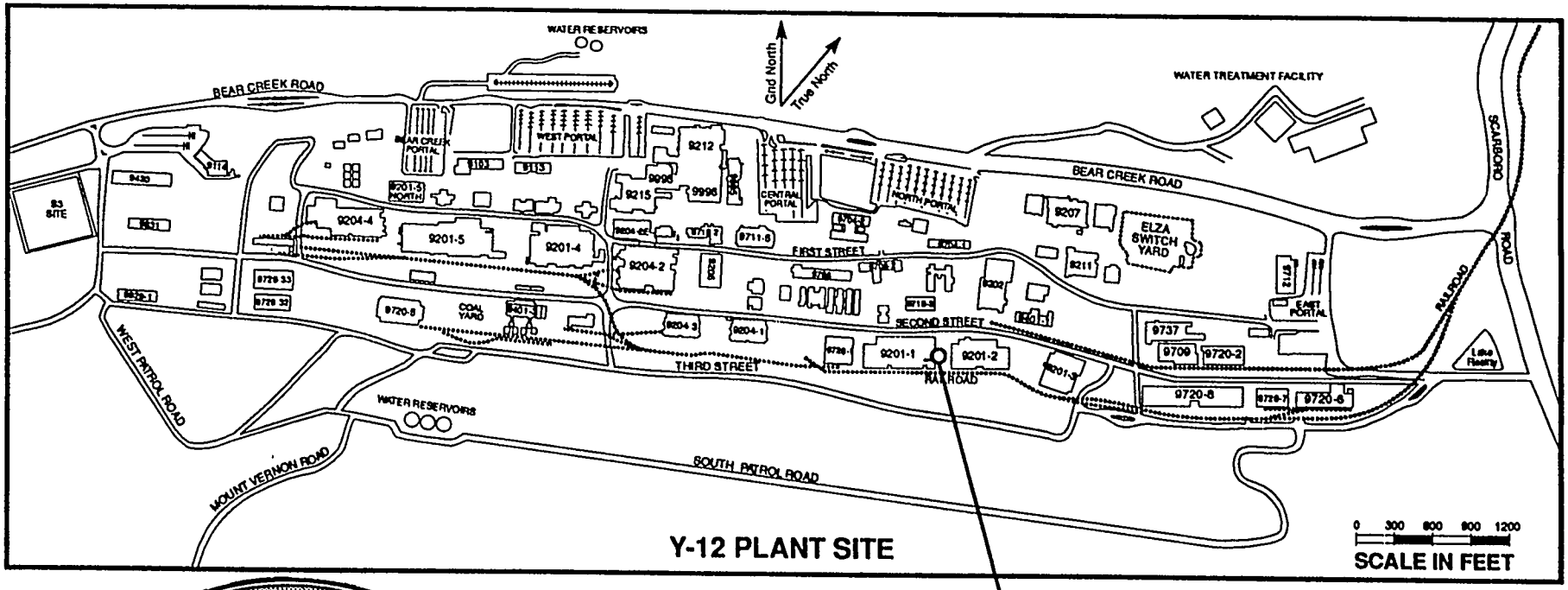
This document is organized into three sections. Section 1 presents introductory information relative to the site including the regulatory initiative and a site description. Section 2 includes the results of sampling of monitoring wells GW-193, GW-657, GW-707, GW-708, GW-808, GW-809, and GW-810. Section 3 presents data from vapor monitoring conducted in subsurface utilities present at the site.

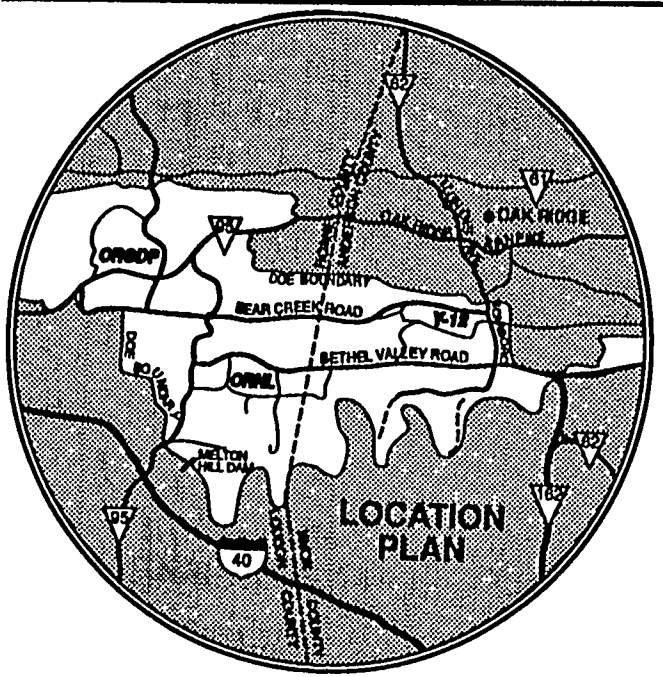
1.2 Site Description

The Building 9201-1 Site is located within the south central portion of the Oak Ridge Y-12 Plant in Oak Ridge, Tennessee (Figure 1-1). This area is within the Exclusion Zone of the Y-12 Plant, which is access restricted. The site is generally defined as the area directly south of the concrete ramp/loading dock (Figure 1-2). The site was previously the location of an underground gasoline storage tank used to fuel gasoline-powered equipment in the area. The tank has been excavated and removed from the site.

The UST was a 560-gallon gasoline tank that was suspected of leaking in 1988. Tightness testing confirmed that the tank was leaking; the tank was subsequently excavated and removed. An Initial Site Characterization and Environmental Assessment identified the presence of petroleum contamination above applicable Closure Action Levels. A Corrective Action Plan (CAP) was prepared and approved and Baseline Monitoring was performed in support of corrective action. However, site ranking indicated that contaminant concentrations were sufficiently low and exposure limited in extent to qualify for a monitoring only program in lieu of active remediation.

The topography of the Building 9201-1 Site gently decreases in elevation from north to south across the facility. A surface water drainage groundwater divide coincident with the trace of Upper East Fork Poplar Creek (UEFPC) lies approximately 230 ft south of the site. Given the nature of the surface topography at the Building 9201-1 Site, any petroleum product contamination resulting from past operations would be expected to migrate south/southeast away from the source area.





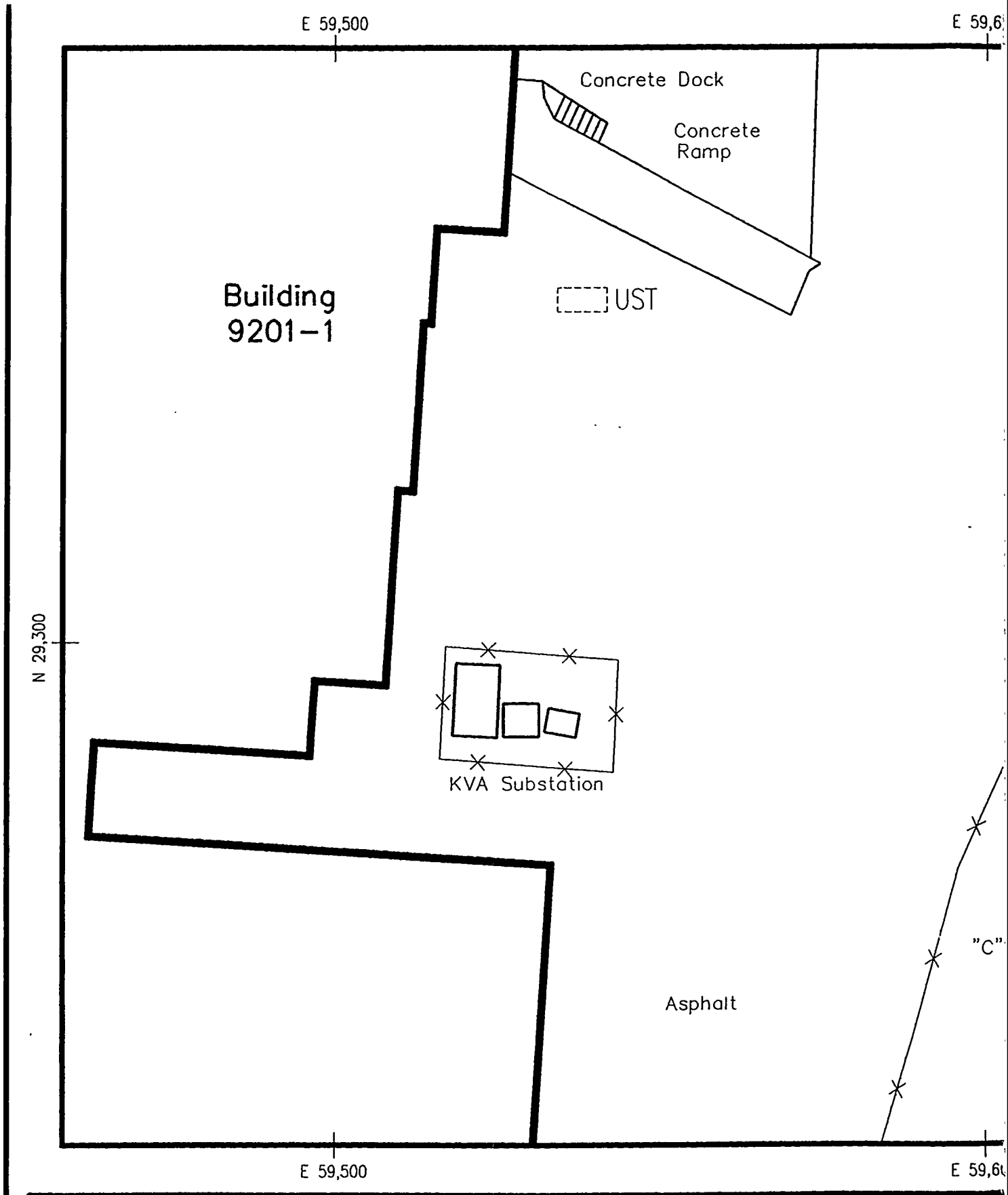
BUILDING 9201-1 SITE

FIGURE 1-1

MARTIN MARIETTA ENERGY SYSTEMS, INC.
ENVIRONMENTAL MANAGEMENT DEPARTMENT

LOCATION OF THE BUILDING 9201-1 SITE AT THE Y-12 PLANT

1-031792-077



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0 5 10 20 40

SCALE: 1" = 20'

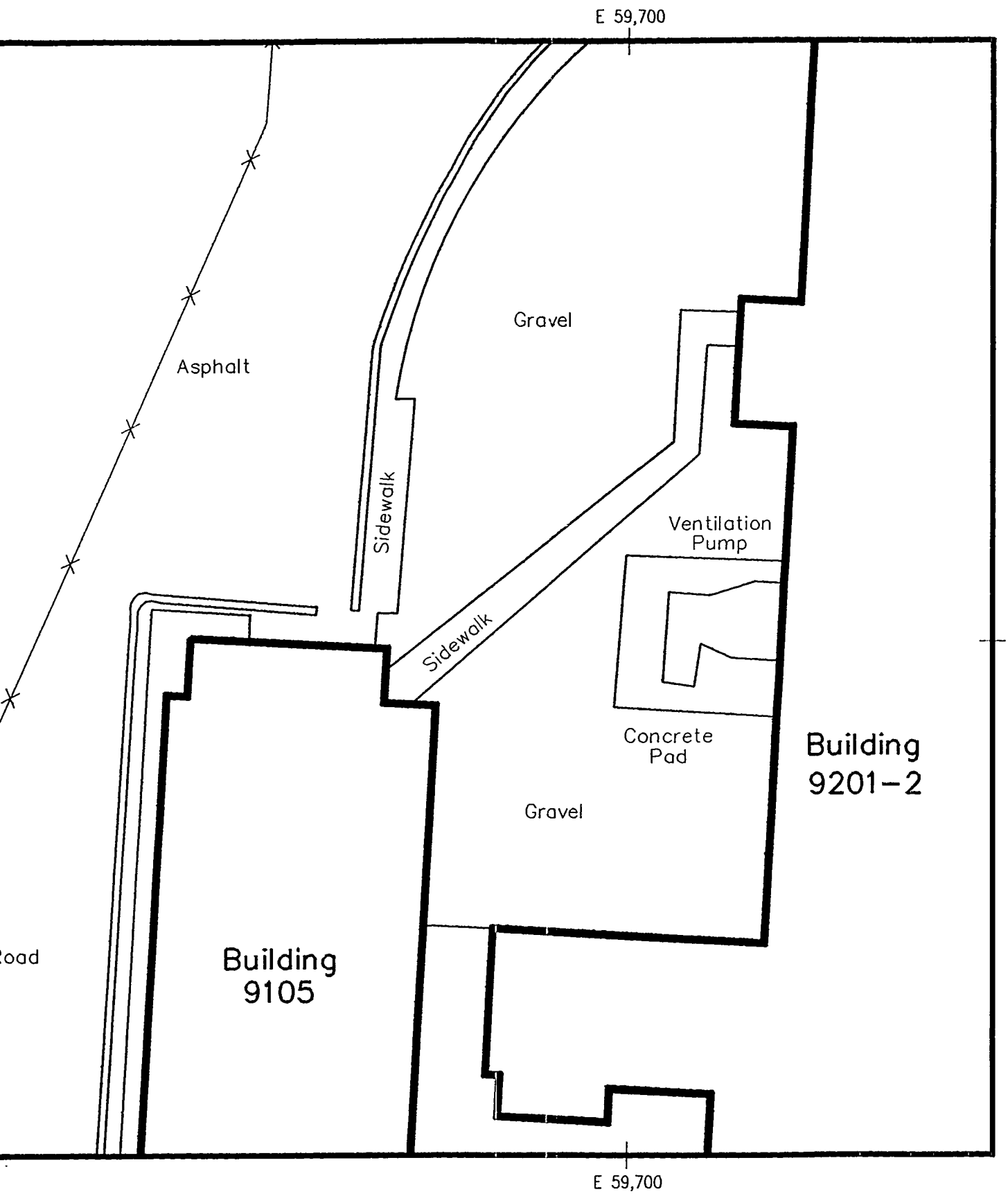
Y-12 PLANT NORTH

REV. 1 - 7/28/94 SAIC FILE: 93021R1/DWGS/734SITE

Legend

Building

Fence



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Environmental Management Department

FIGURE 1-2

Building 9201-1 Site
Site Map

2. GROUNDWATER MONITORING

2.1 Groundwater Measurement, Sample Collection, and Analysis

2.1.1 Well Locations

Seven wells have been sampled as part of the Site Status Monitoring program for the site. These wells include GW-193, GW-657, GW-707, GW-708, GW-808, GW-809, and GW-810. The locations of these wells are presented in Figure 2-1. Well installation reports and construction details for monitoring wells GW-193, GW-657, GW-707, and GW-708 are presented in the CAP for the Site [*Corrective Action Plan for Underground Storage Tank 2331-U at the Building 9201-1 Site, Appendix C*, Y/SUB-92-99928C/3 (Energy Systems 1992)]. Well installation reports and construction details for monitoring wells GW-808, GW-809, and GW-810 that were installed in July 1993 are presented in the Corrective Action Baseline Report for the Site [*Corrective Action Baseline Report for Underground Storage Tank 2331-U, Building 9201-1, Appendix A*, Y/SUB/94-99069C/Y15/2 (Energy Systems 1994)].

2.1.2 Groundwater Measurement and Sampling

Groundwater level measurement and sampling of the monitoring wells at the Building 9201-1 Site occurred on June 21, 1994. Each well was purged of three well volumes prior to sampling. Field measurement of pH, conductivity, temperature, and dissolved oxygen was conducted during purging to ensure representativeness for sampling. No measurable free product was encountered during water level measurement or sampling in any of these wells. However, an oily sheen and odor were observed during purging and sampling of wells GW-193 and GW-708.

2.1.3 Sample Analysis

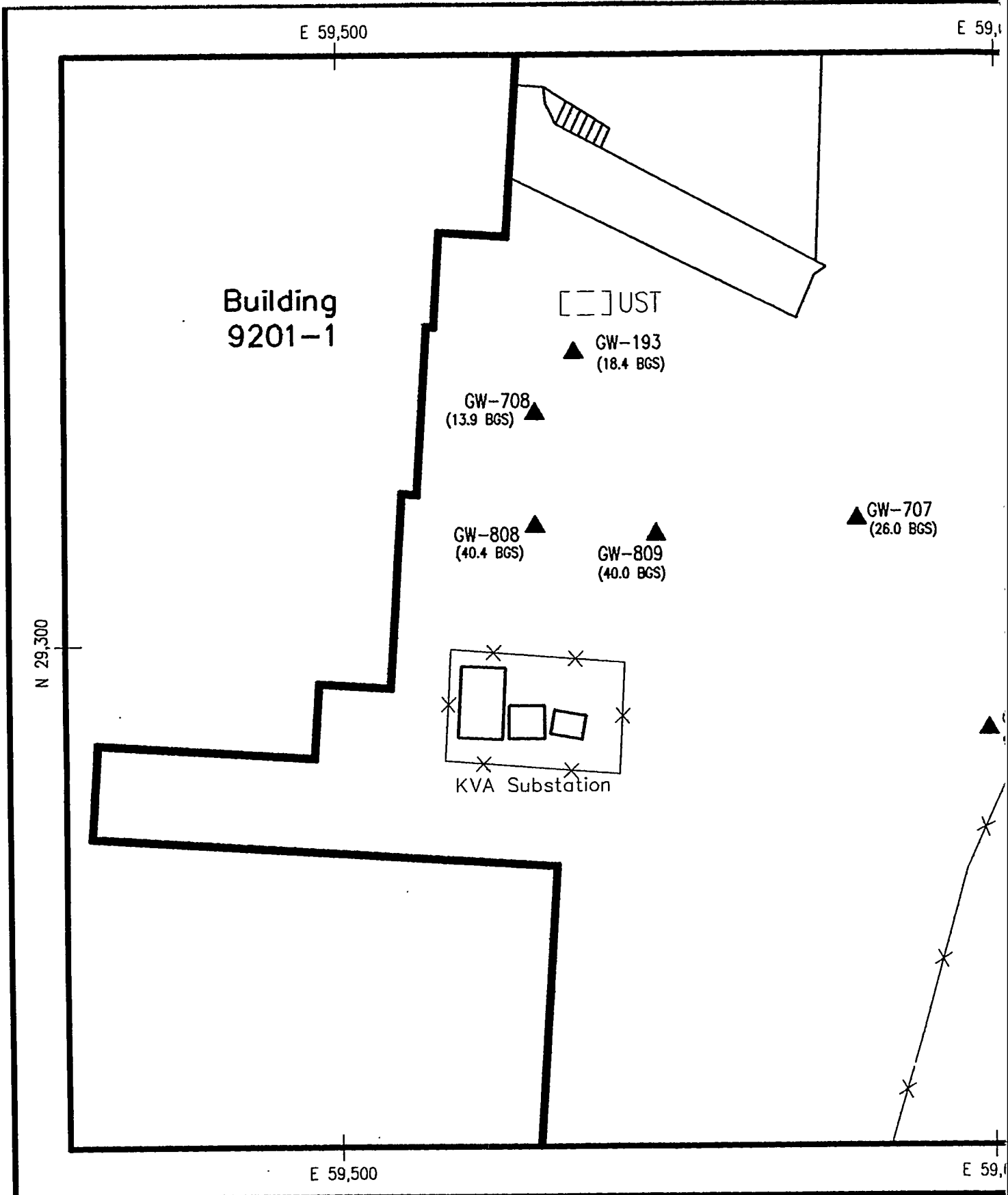
Groundwater samples were analyzed for total petroleum hydrocarbons for gasoline range organics (TPH-GRO), and for benzene, toluene, ethylbenzene, and xylenes (BTEX).

2.2 Potentiometric Data

Potentiometric data for monitoring wells at the Building 9201-1 site from the comprehensive monitoring sampling event (June 1994) and from the last round of monitoring conducted for corrective action baseline reporting (December 1993) are presented in Table 2-1. Figures 2-2 and 2-3 present potentiometric contour maps from these two periods of sampling. These figures indicate an irregular potentiometric surface with locally variable groundwater flow directions. However, the general flow direction, depicted for both periods of measurement, is from north to south across the site.

2.3 Groundwater Analytical Data

Analytical data for groundwater sampled at the site during comprehensive monitoring, corrective action baseline sampling and the last four rounds of 1993 Upper East Fork Poplar Creek Hydrogeologic Regime Groundwater Quality Assessment Sampling are presented in Table 2-2. Laboratory analytical sheets for samples collected during Comprehensive Monitoring are presented in Appendix A. Delineation of the horizontal extent of benzene and TPH-GRO contamination in groundwater is based on Comprehensive Monitoring results, and is presented in Figures 2-4 and 2-5 (respectively). Also presented in these figures are the maximum concentrations of TPH and BTX in soil, determined during the Site Investigation, July 1990 (Energy Systems 1992).



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0 5 10 20 40

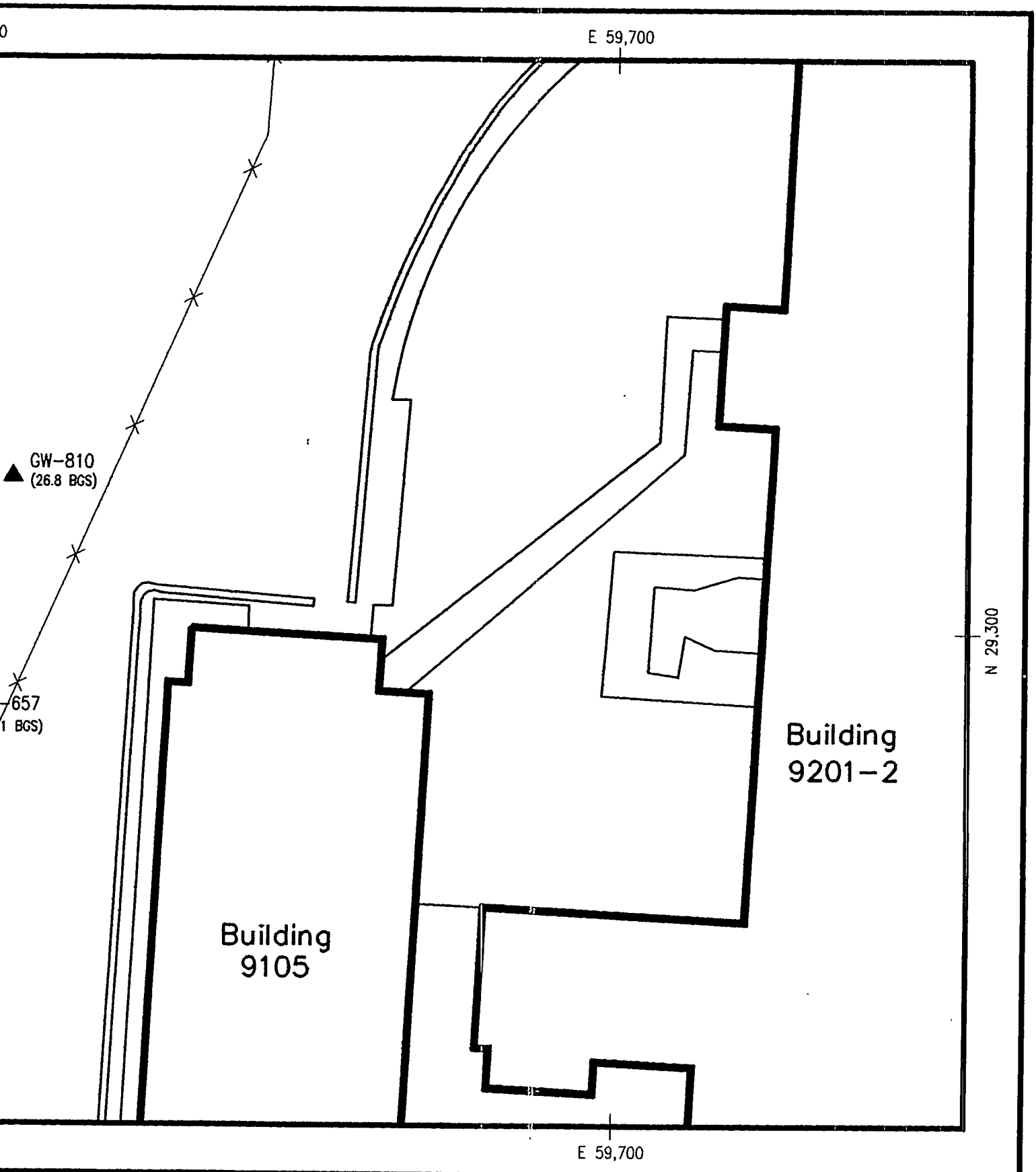
SCALE: 1" = 20'

Y-12 PLANT NORTH

REV. 1 - 7/28/94 SAIC FILE: 93021R1/DWGS/734MON

Legend

▲ GW-193 (18.4 BGS) Groundwater Total Depth



itoring Well Location
w Ground Surface (BGS)

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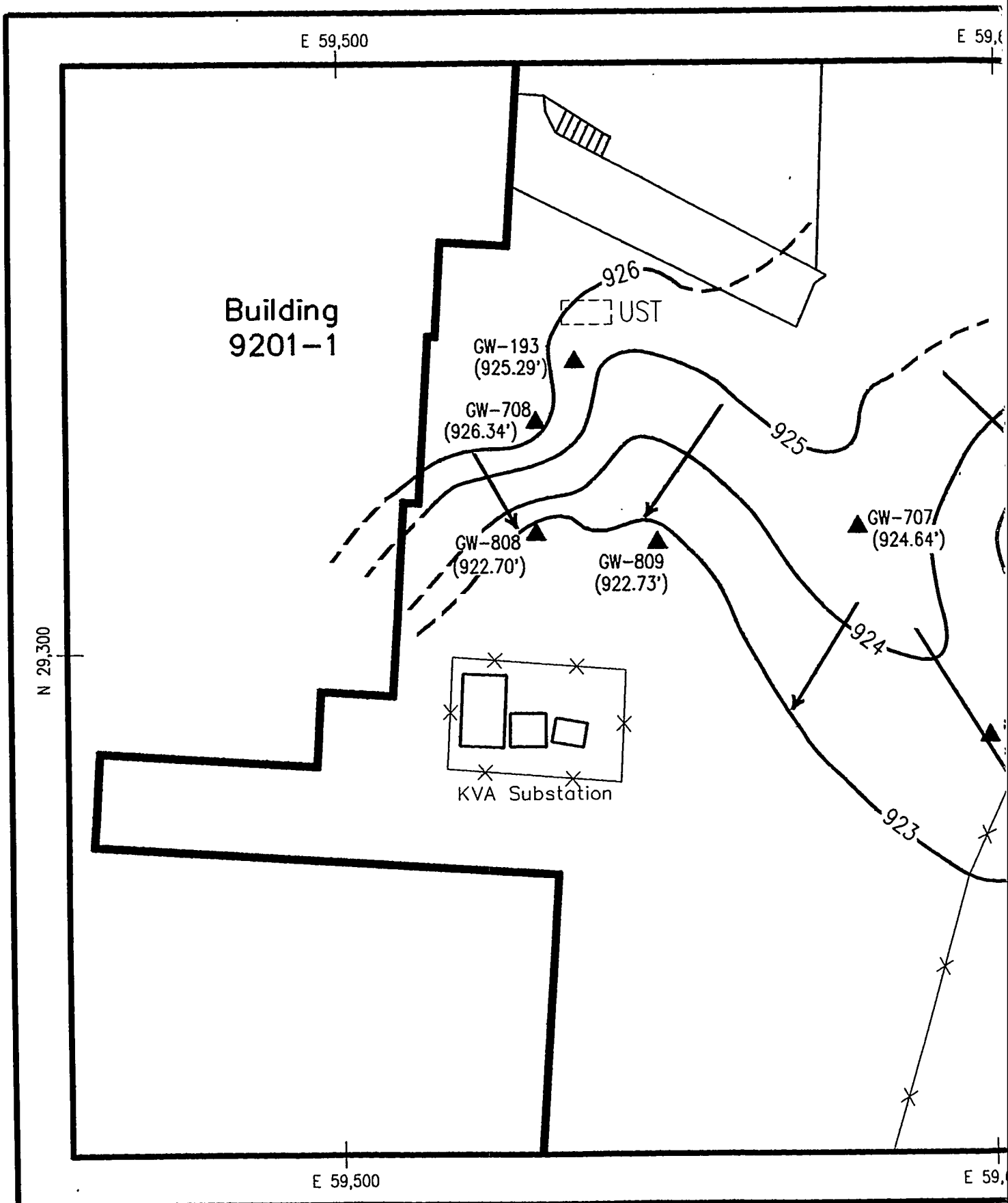
FIGURE 2-1

Building 9201-1 Site
Monitoring Well Location Map

Table 2-1. Water level measurements at the Building 9201-1 Site for the periods of December 1993 and June 1994

Monitoring well number	Date measured	Total well depth (ft) (BGL)	Top of casing (ft) (MSL)	Top of casing to water depth (ft) (BTOC)	Potentiometric surface (ft) (MSL)
GW-193	12/18/93	18.4	934.00	8.71	925.29
	6/21/94	18.4	934.00	8.20	925.80
GW-657	12/18/93	17.1	930.53	6.96	923.57
	6/21/94	17.1	930.53	6.90	923.63
GW-707	12/18/93	26.0	930.91	6.22	924.69
	6/21/94	26.0	930.91	5.70	925.21
GW-708	12/18/93	13.9	930.87	4.53	926.34
	6/21/94	13.9	930.87	4.60	926.27
GW-808	12/18/93	40.4	930.75	8.05	922.70
	6/21/94	40.4	930.75	7.87	922.88
GW-809	12/18/93	40.0	931.04	8.31	922.73
	6/21/94	40.0	931.04	8.46	922.58
GW-810	12/18/93	26.8	931.44	8.67	922.77
	6/21/94	26.8	931.44	9.69	921.75

Notes:
BGL - below ground level
MSL - mean sea level
BTOC - below top of casing



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SCALE: 1" = 20'

REV. 1 – 7/28/94 SAIC FILE: 93021R1/DWGS/734POT

Y-12 PLANT NORTH

Legend

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924 Inferred Groundw Contour Line (Fe

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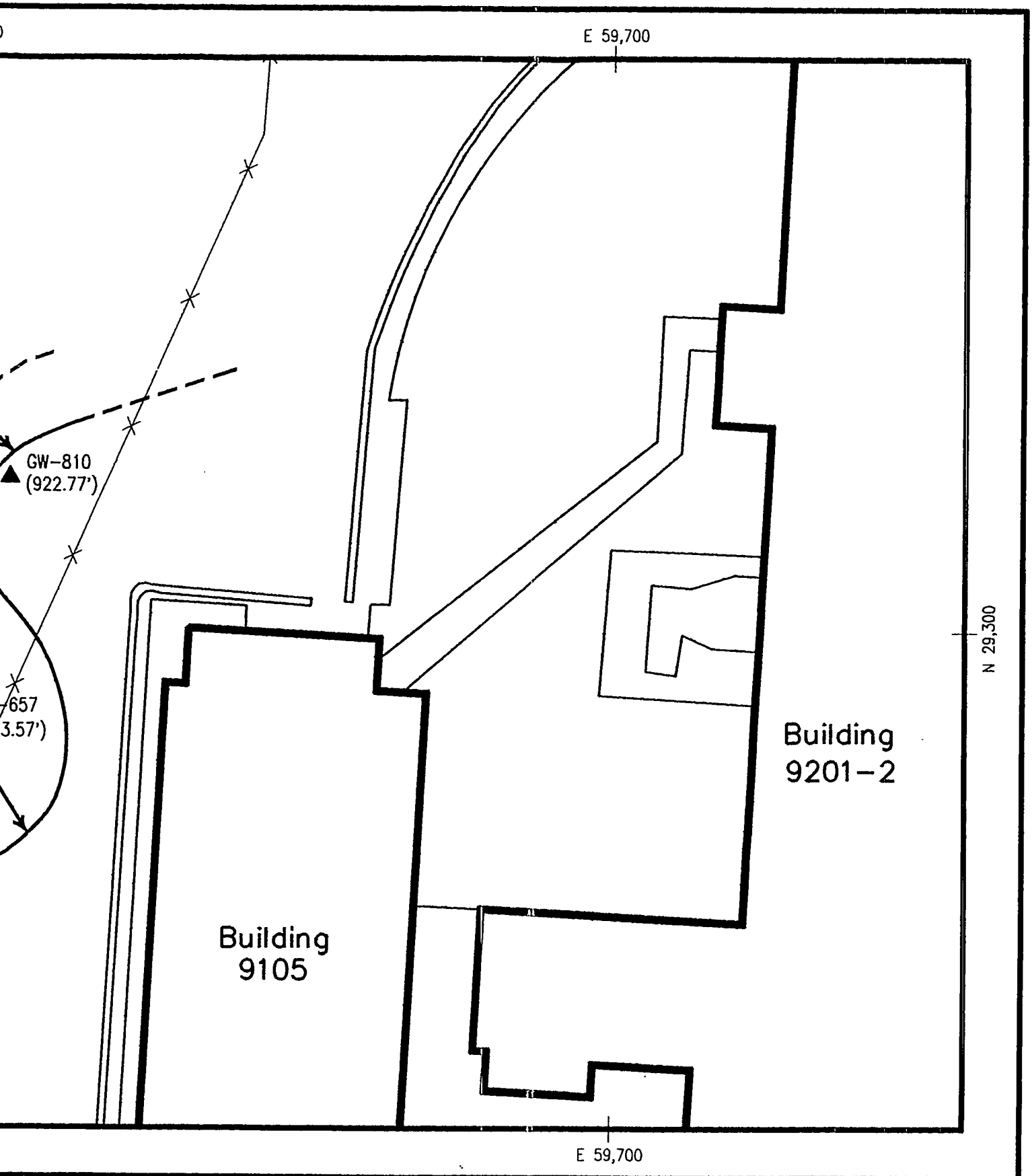

ometric Contour
L)
Potentiometric
above MSL)
ter Flow Direction

▲GW-193 Groundwater Monitoring Well Locations

(925.29') Water Level Measurement Dec. 1993

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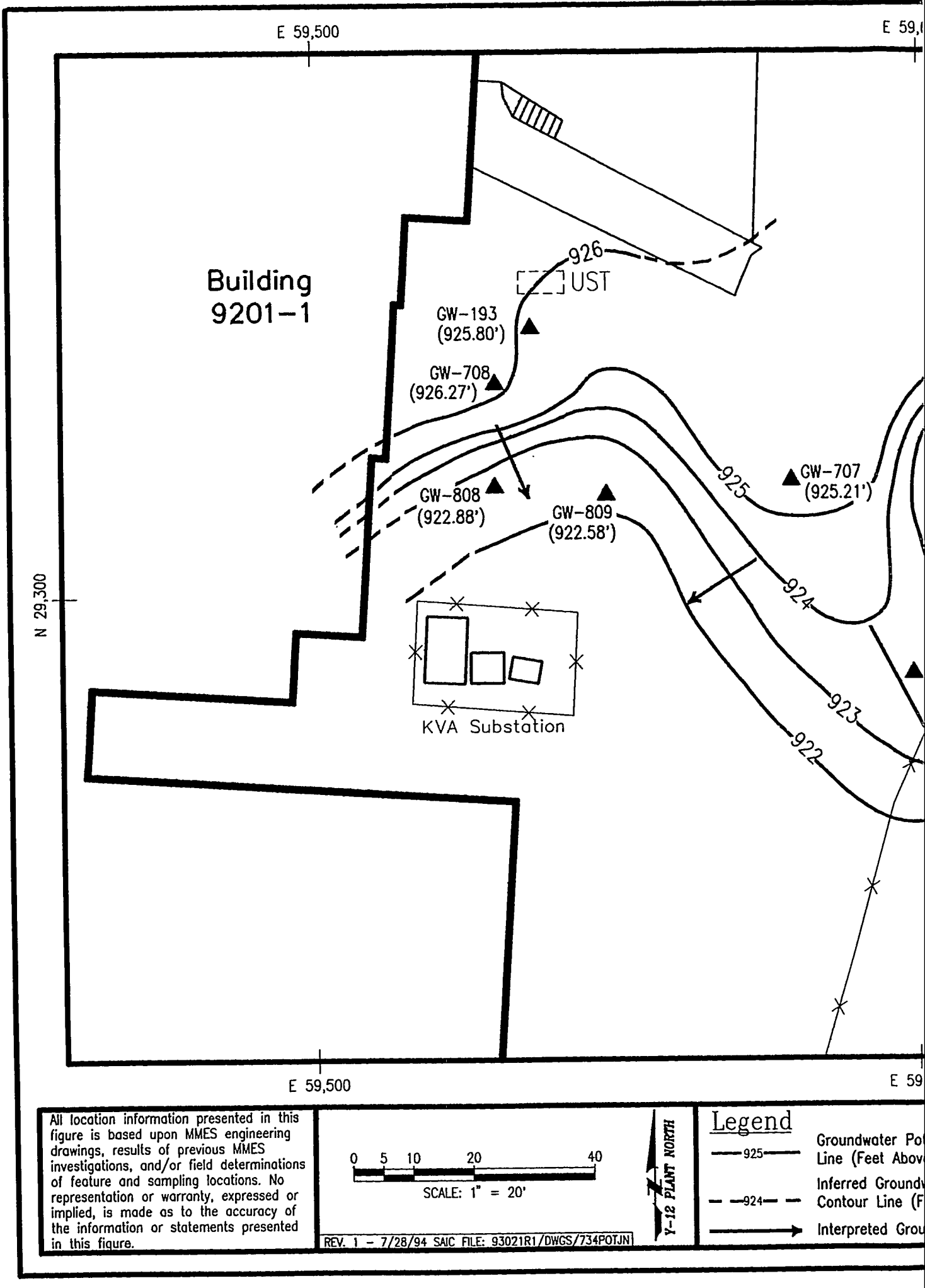
Environmental Management Department

FIGURE 2-2

Building 9201-1 Site
Groundwater Potentiometric
Contour Map Dec. 1993


E 59,500
E 59,
Building
9201–1
926
UST
GW–193
(925.80')
GW–708
(926.27')
GW–808
(922.88')
GW–809
(922.58')
GW–707
(925.21')
925
924
923
922
KVA Substation
N 29,300
E 59,500
E 59
All location information presented in this figure is based upon MMES engineering drawings, results of previous MMES investigations, and/or field determinations of feature and sampling locations. No representation or warranty, expressed or implied, is made as to the accuracy of the information or statements presented in this figure.
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Y-12 PLANT NORTH
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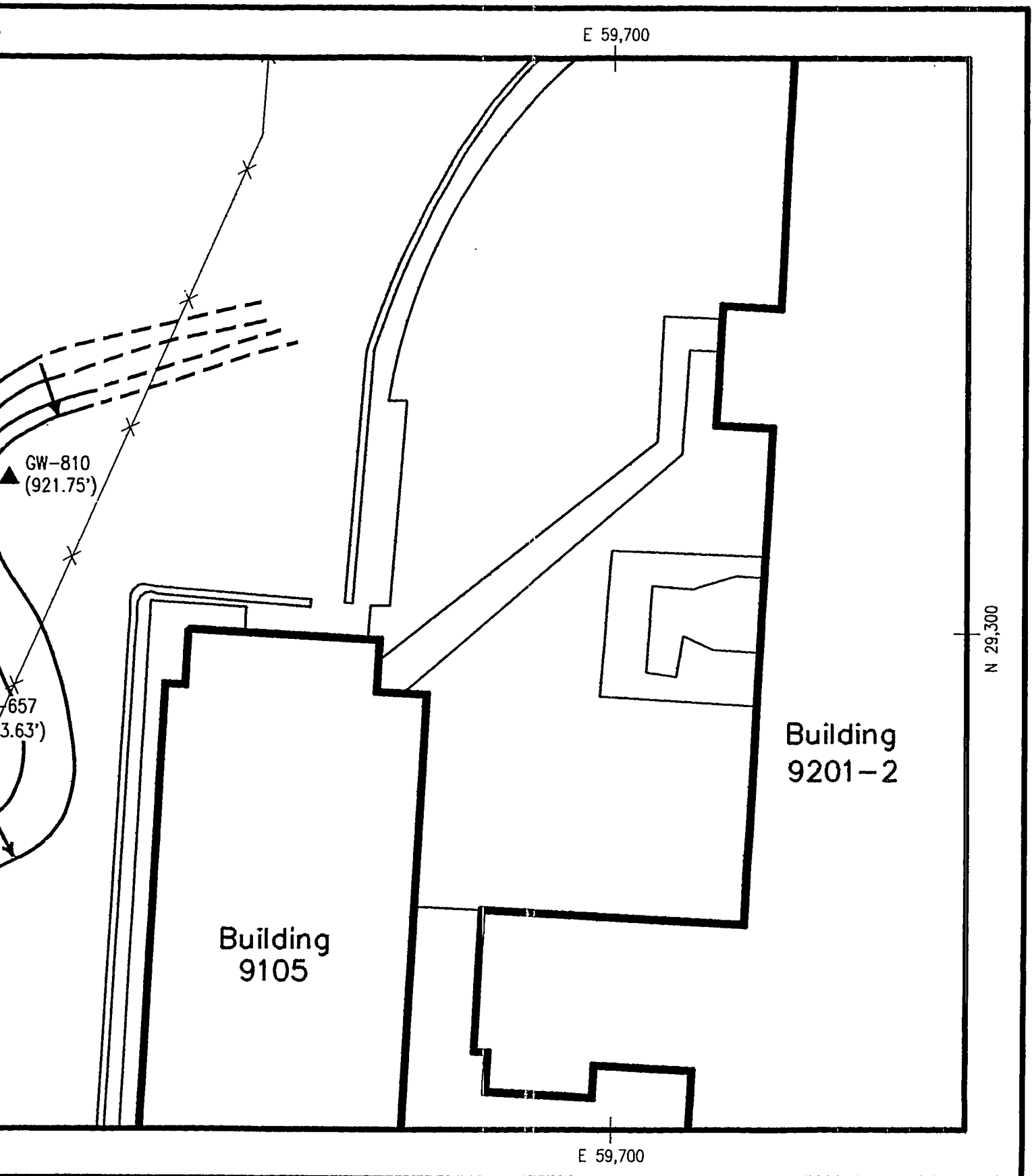

ometric Contour
L)
Potentiometric
Above MSL)
ter Flow Direction

▲GW-193 Groundwater Monitoring Well Locations

(925.29') Water Level Measurement June 1994

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Environmental Management Department

FIGURE 2-3

Building 9201-1 Site
Groundwater Potentiometric
Contour Map JUNE 1994

Table 2-2. Analytical results for groundwater samples collected during comprehensive monitoring, baseline sampling, and 1993 groundwater quality assessment sampling

Sampling event	Sampling date	TPH-GRO[1] (ppm)	Benzene (ppm)	Ethylbenzene (ppm)	Toluene (ppm)	Xylenes (ppm)
			GW-193			
Comprehensive monitoring	6-21-94	*4.100	0.420	0.400	0.200	0.480
Baseline sampling	11-2-93	*5.50	*1.68E[2]	0.575	0.235	0.353
1993 Qtr 4	11-18-93	*3.223	*2.800	0.450	0.700	0.580
1993 Qtr 3	9-23-93	*3.566	*1.200	0.520	0.100	0.300
1993 Qtr 2	6-22-93	*12.300	*1.400	0.740	0.075	0.320
1993 Qtr 1	3-11-93	*5.600	*2.200	0.790	0.370	0.680
			GW-657			
Comprehensive monitoring	6-21-94	0.100U[3]	0.010U	0.010U	0.010U	0.010U
Baseline sampling	11-2-93	<0.100	<0.001	<0.001	<0.001	<0.001
1993 Qtr 4	11-15-93	0.0049	0.005U	0.005U	0.005U	0.005U
1993 Qtr 3	9-21-93	0.160	0.005U	0.005U	0.005U	0.005U
1993 Qtr 2	6-18-93	NA[4]	0.005U	0.005U	0.005U	0.005U
1993 Qtr 1	3-10-93	0.0033	0.005U	0.005U	0.005U	0.005U
			GW-707			
Comprehensive monitoring	6-21-94	0.042J[5]	0.002J	0.010U	0.010U	0.001J
Baseline sampling[6]	11-2-93	<0.100	<0.001	<0.001	<0.001	<0.001
1993 Qtr 4	11-18-93	0.0103	0.005U	0.005U	0.005U	0.005U
1993 Qtr 3	9-27-93	0.0126	0.005U	0.005U	0.005U	0.005U
1993 Qtr 2	6-23-93	0.1080	0.005U	0.005U	0.005U	0.005U
1993 Qtr 1	3-11-93	0.0730	0.005U	0.005U	0.005U	0.005U
			GW-708			
Comprehensive monitoring	6-21-94	*5.300	*0.980	0.620	0.110	0.690
Baseline sampling[6]	11-2-93	*7.50	*0.900	0.800	0.095	1.575
1993 Qtr 4	11-12-93	*5.995	*0.780	0.670	0.098	1.800
1993 Qtr 3	9-21-93	*8.408	*1.100	0.720	0.120	2.400
1993 Qtr 2	6-18-93	*10.215	*1.200	0.620	0.120	2.600
1993 Qtr 1	3-10-93	*11.428	*0.870	0.300	0.150	2.500
			GW-808			
Comprehensive monitoring	6-21-94	0.012J	0.010U	0.010U	0.010U	0.006J
Baseline sampling	11-2-93	0.140	<0.001	0.016	<0.001	0.111
			GW-809			
Comprehensive monitoring	6-21-94	0.010	0.010U	0.010U	0.010U	0.010U
Baseline sampling	11-2-93	<0.100	0.001	0.003	0.001	0.016
			GW-810			
Comprehensive monitoring	6-21-94	0.021J	0.010U	0.010U	0.010U	0.010U
Baseline sampling	11-2-93	0.190	0.001	0.019	0.001	0.136

[1]TPH-GRO - Total Petroleum Hydrocarbons-Gasoline Range Organics.

[2]E - Benzene exceeded calibration range.

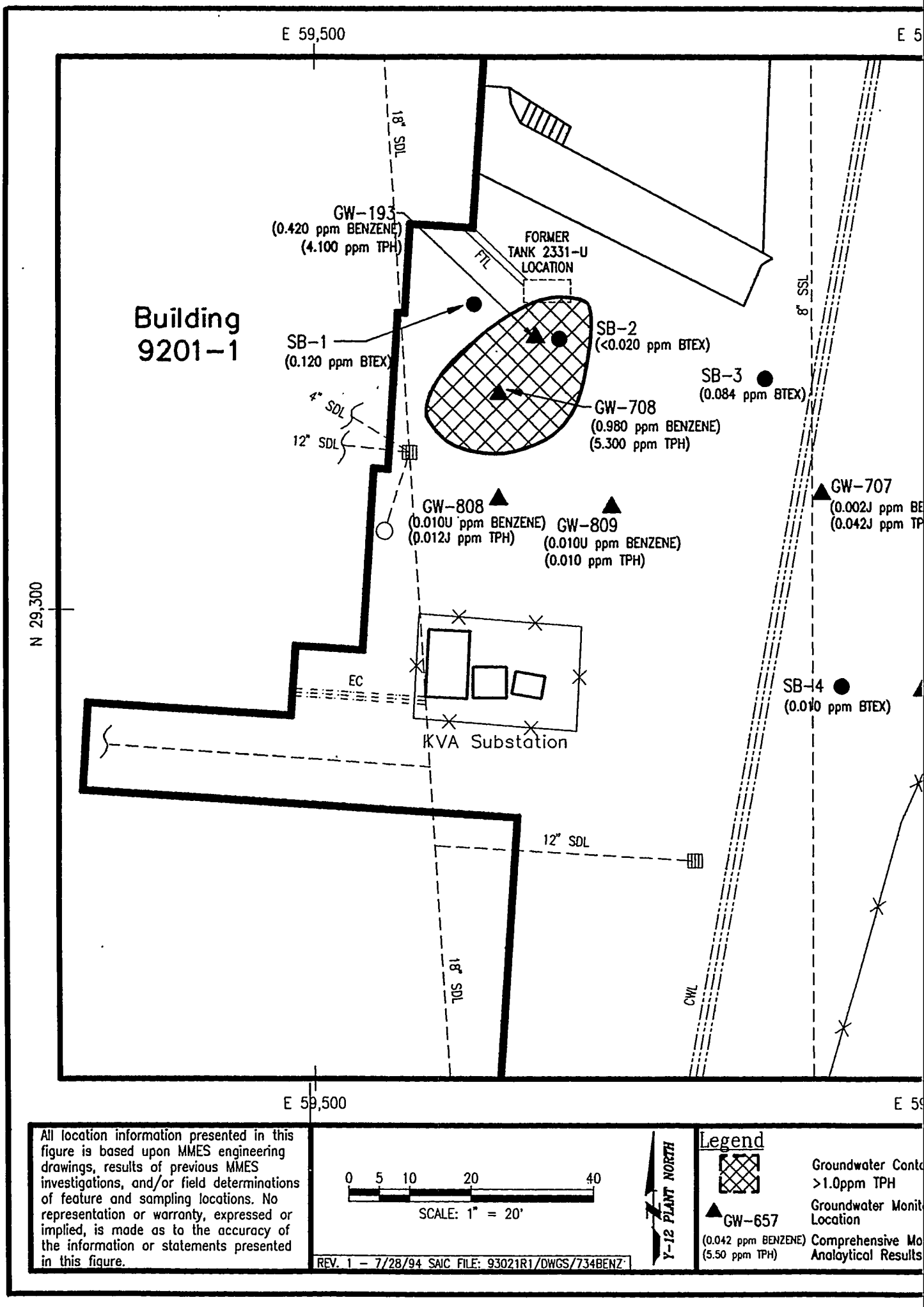
[3]U - Contaminant was not detected above quantition limit during the analysis.

[4]NA - No analysis performed for the contaminant.

[5]J - Value estimated for contaminant.

[6]Sample identification error suspected. Baseline sample results for wells GW-707 and GW-708 have been transposed to correct this error.

*Denotes contamination above the applicable closure action levels for the site.


E 59,500
E 5
18" SDL
GW-193
(0.420 ppm BENZENE)
(4.100 ppm TPH)
FORMER
TANK 2331-U
LOCATION
FIL
8" SSL
Building
9201-1
SB-1
(0.120 ppm BTEX)
SB-2
(<0.020 ppm BTEX)
SB-3
(0.084 ppm BTEX)
4" SDL
12" SDL
GW-708
(0.980 ppm BENZENE)
(5.300 ppm TPH)
GW-707
(0.002J ppm BE
(0.042J ppm TP
GW-808
(0.010U ppm BENZENE)
(0.012J ppm TPH)
GW-809
(0.010U ppm BENZENE)
(0.010 ppm TPH)
N 29,300
EC
SB-4
(0.010 ppm BTEX)
KVA Substation
12" SDL
18" SDL
CWL
E 59,500
E 5
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SCALE: 1" = 20'
Y-12 PLANT NORTH
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Legend
Groundwater Conta
>1.0ppm TPH
Groundwater Monit
Location
GW-657
(0.042 ppm BENZENE)
(5.50 ppm TPH)
Comprehensive Mo
Analaytical Results

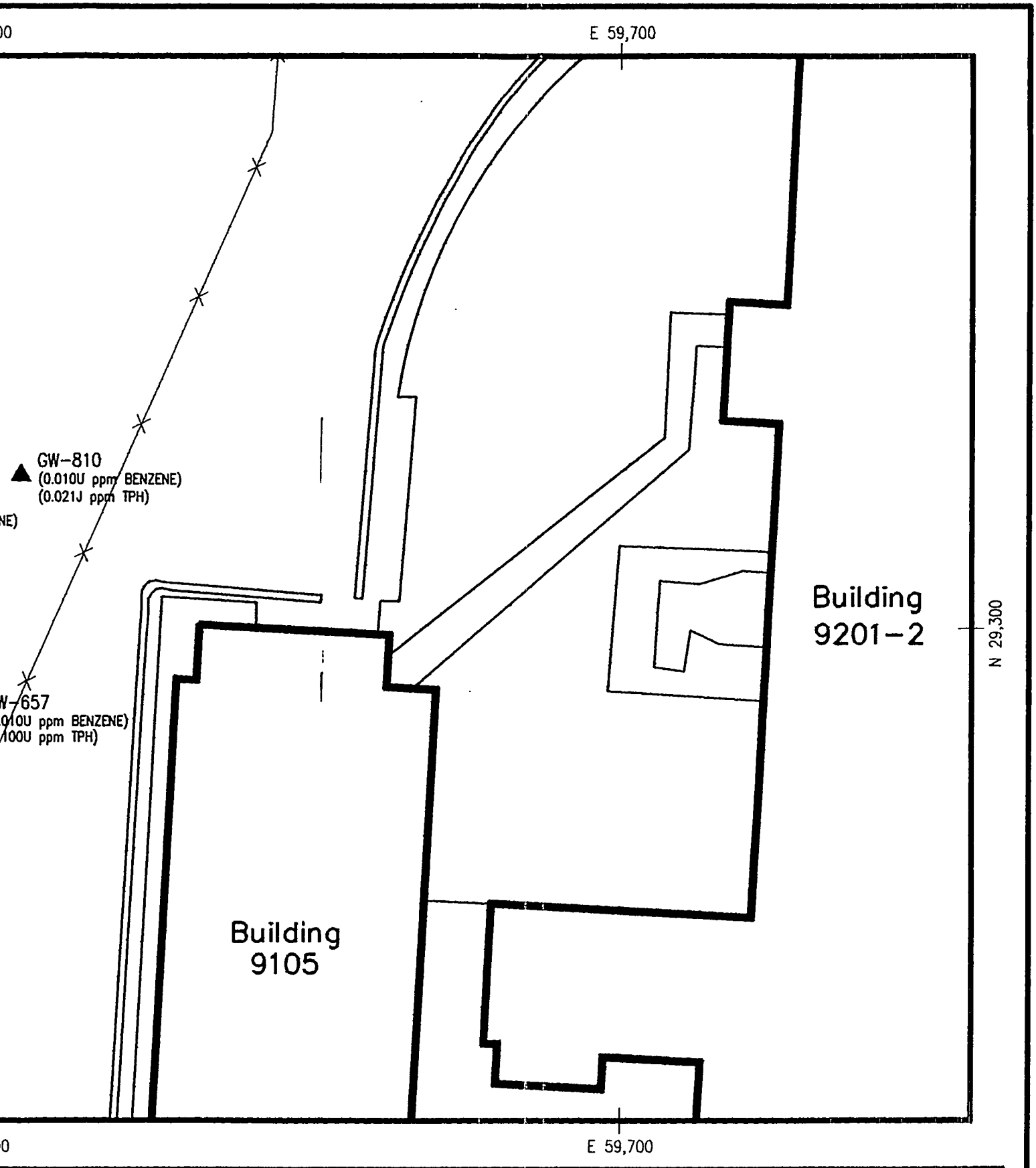

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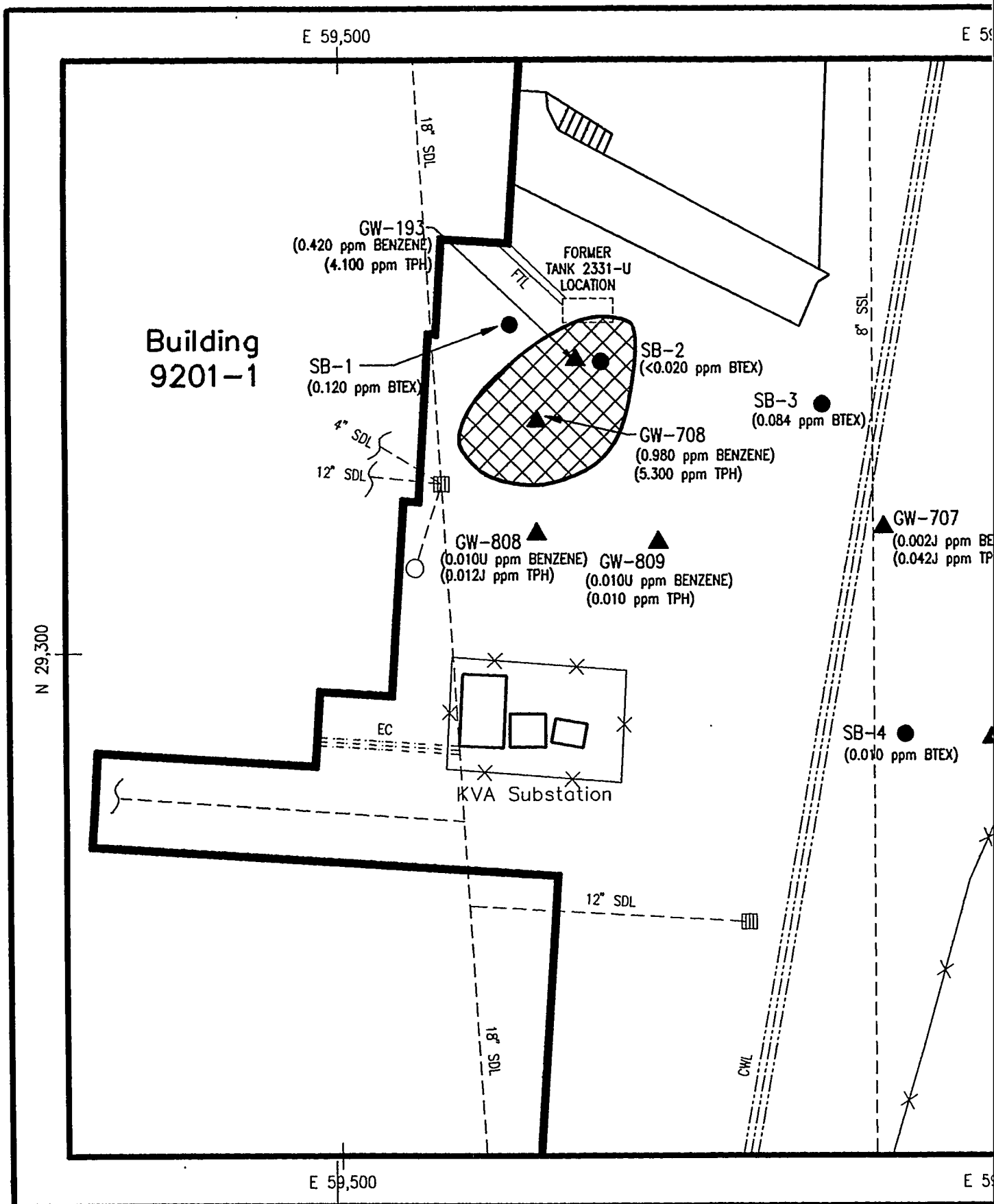
FIGURE 2-4

Building 9201-1 Site
Horizontal Extent of Benzene
Contamination in Groundwater



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0 5 10 20 40

SCALE: 1" = 20'

Y-12 PLANT NORTH

REV. 1 – 7/28/94 SAIC FILE: 93021R1/DWGS/734TPH

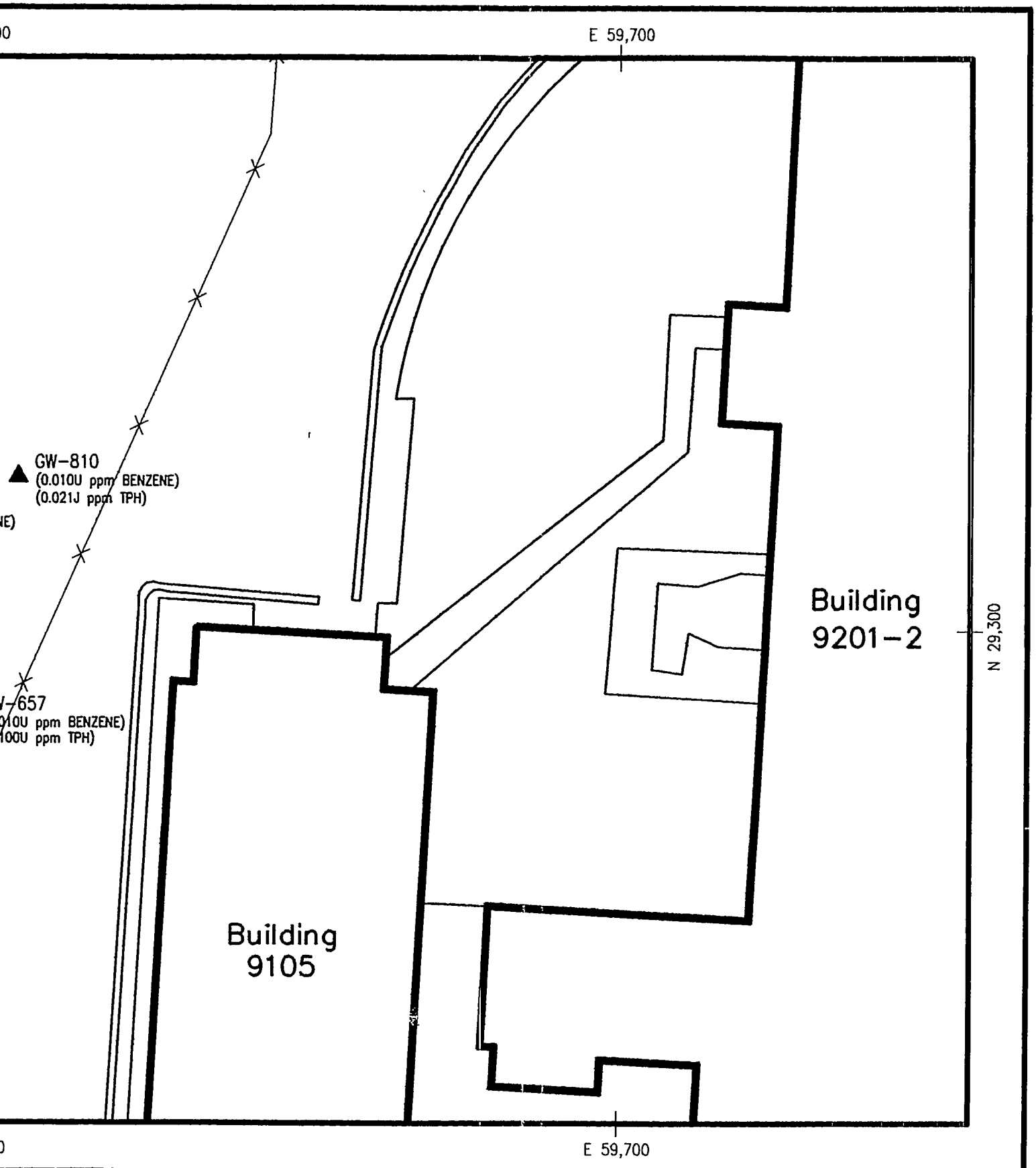
Legend

Groundwater Conto
>1.0ppm TPH

GW-657
(0.042 ppm BENZENE)
(5.50 ppm TPH)

Groundwater Monit
Location

Comprehensive Mo
Analaytical Results



	SB-4 (0.021 ppm BTEX)	Soil Boring Location Site Investigation Analytical Results	FTL	Fuel Transfer Line
			CWL	Chilled Water Line
			EC	Electrical Conduit
			SDL	Underground Storm-water Drainage Line
			SSL	Sanitary Under-ground Sewer Line

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Environmental Management Department

FIGURE 2-5

Building 9201-1 Site
Horizontal Extent of TPH
Contamination in Groundwater

Figures 2-4 and 2-5 illustrate contamination in monitoring wells GW-193 and GW-708 above the TDEC nondrinking water Closure Action Limits of 0.07 ppm benzene and 1.0 ppm TPH. Both of these wells have historically produced values in excess of these closure limits. Comprehensive monitoring analytical results for GW-707, which has also historically produced elevated levels of benzene and TPH, are substantially below the closure action limits. These results indicate a reduction in the horizontal area of groundwater contamination as defined by the November 1993 Baseline data. Analytical results for GW-808, GW-809, GW-810, and GW-657 show no contamination greater than the Closure Action Limits and decreased levels of contamination relative to the Baseline results. These data indicate that groundwater contamination (above the Closure Action Limits) has not migrated downgradient to the location of these wells, and suggests the degradation of contaminants within the plume as defined by the Baseline data.

3. VAPOR MONITORING

3.1 Monitoring Methods and Locations

Vapor monitoring as part of the Comprehensive Monitoring Program was conducted on June 28, 1994. Seven access points along subsurface stormwater and sewer drainage lines that cross the site were monitored. However, none of the subsurface utilities present at the site crosses the groundwater plume defined by the most recent data. The locations of vapor monitoring locations are illustrated in Figure 3-1.

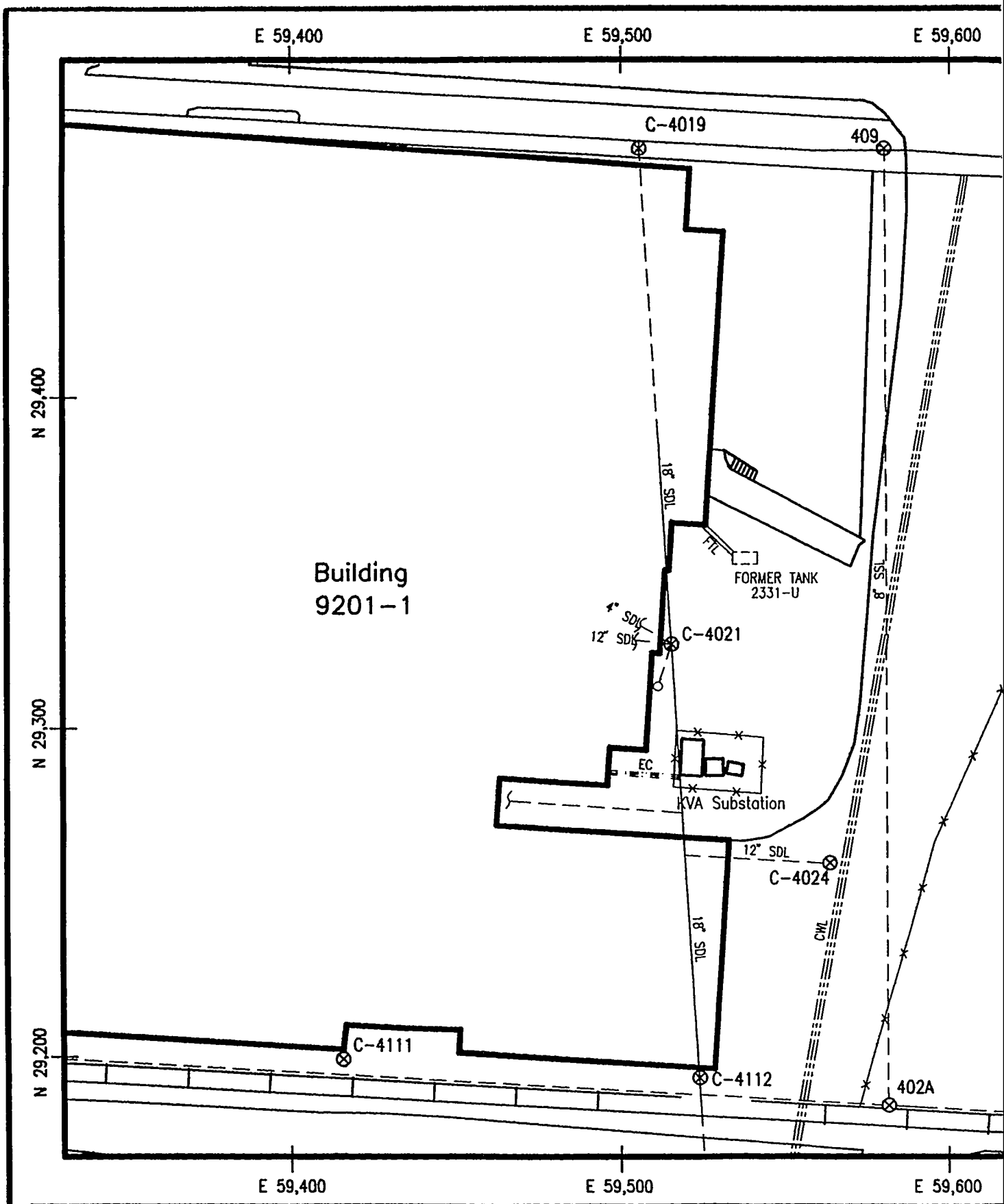
At each location, organic vapors were monitored using direct reading instruments. Organic vapors were monitored using a Thermo Environmental™ organic vapor meter. Oxygen, lower explosive limit (LEL), hydrogen sulfide, and carbon monoxide were monitored using a Gastech Fourrunner™.

3.2 Vapor Monitoring Results

The results of vapor monitoring at the Building 9201-1 Site are presented in Table 3-1. Measured oxygen percentages are within the range of normal air concentrations. LEL readings of 0% indicate that an explosion hazard does not exist within any of the monitored utilities. Monitoring results for both hydrogen sulfide and carbon monoxide reveal levels well below the time weighted average (TWA) exposure limits of 10 ppm and 35 ppm (respectively) (American Conference of Governmental Industrial Hygienists 1993-1994). With the exception of monitoring results for locations C-4021 and C-4112, organic vapor readings are equal to background readings. Organic vapor readings for C-4021 and C-4112 of up to 0.3 ppm and 0.5 ppm (respectively) over background are considered insignificant, but may be due to the presence of petroleum contamination or other organic compounds (naturally occurring or man-made) at the site. However, the non-discriminatory nature of the organic vapor meter used in monitoring does not allow specific identification of the source.

Table 3-1. Vapor monitoring results for the Building 9201-1 Site

Sampling location	O_2 %	LEL %	H_2S (ppm)	CO (ppm)	Organic vapors (ppm)	Background organic vapors (ppm)
402-A	20.9	0	0.0	1	0.1–0.3	0.1–0.3
409	21.0	0	0.0	0	0.0–0.1	0.1–0.3
C-4019	20.9	0	0.0	1	0.0–0.1	0.0–0.1
C-4021	21.0	0	0.0	0	0.1–0.3	0.0–0.1
C-4112	20.9	0	0.0	0	0.1–0.5	0.0–0.3
C-4111	20.9	0	0.0	0	0.1	0.0–0.1
C-4024	20.8	0	0.0	1	0.0–0.1	0.1



All location information presented in this figure is based upon MMES engineering drawings, results of previous MMES investigations, and/or field determinations of feature and sampling locations. No representation or warranty, expressed or implied, is made as to the accuracy of the information or statements presented in this figure.

0 20 40 80

SCALE: 1" = 40'

Y-12 PLANT NORTH

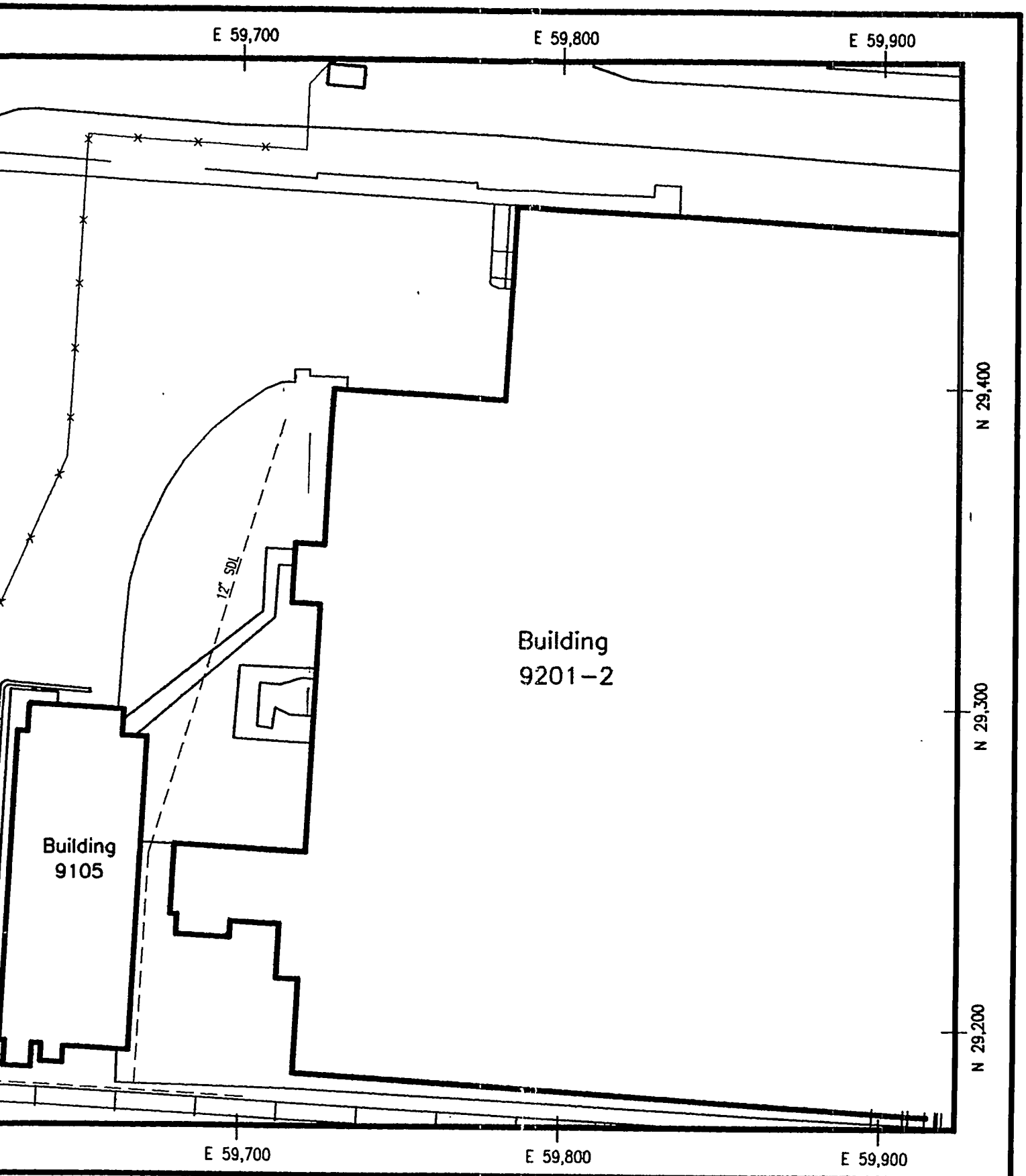
REV. 1 - 7/28/94 SAIC FILE: 93021R1/DWGS/734VAPOR

Legend

FTL Fuel Transfer L

CWL Chilled Water L

EC Electrical Cond



— SDL — Underground Stormwater Drainage Line

— SSL — Sanitary Underground Sewer Line

⊗ Vapor Monitoring Location

Martin Marietta Energy Systems, Inc.
Environmental Management Department

FIGURE 3–1

Building 9201–1 Site
Vapor Monitoring Sampling
Location Map

REFERENCES

American Conference of Governmental Industrial Hygienists 1993-1994. *The 1993-1994 Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices*, ISDN: 1-882417-03-8.

Energy Systems (Martin Marietta Energy Systems, Inc.) 1992. *Corrective Action Plan for Underground Storage Tank 2331-U at the Building 9201-1 Site*, Y/SUB-92-99928C/3.

Energy Systems 1994. *Corrective Action Baseline Report for Underground Storage Tank 2331-U, Building 9201-1*, Y/SUB/94-99069C/Y15/2.

TDEC (Tennessee Department of Environment and Conservation) 1994. *Underground Storage Tank Reference Handbook*, Second Edition.

OFFICIAL REPORT

07/13/94 08:11:46 Y-12 ANALYTICAL SERVICES ORGANIZATION

SUBMITTER	ADDRESS	CUSTOMER ID	REQ NO	SAMPLE NO	MTC	STATUS
Ingram, Edward Micha	Building 9115 MS 8219			E941720000	8601	APPROVED

DATE SAMPLED: 06/21/94 11:20:00 DATE NEEDED: 07/21/94 LOCATION: 808 CHARGE #: S2205F26
DATE RECEIVED: 06/22/94 DATE COMPLETED: 07/01/94 PROJECT CODE: CASE: U03130
SAMPLER: 029776 SAMPLE DESCRIPTION: GRAB FINAL APPROVAL: L. T. Emerson

COMMENTS:

TEST: GRO TPH Gasoline Range Organics Including BTEX REPLICATE: 1 STATUS: APPROVED
PREP MTH: PROC MTH: SW846 8020 PHASE: TIME ANALYZED: 06/27/94 09:27:00 APPROVER: E030124
COMMENTS:

Bldg 9201-1
Facility ID# 0-010117

GRO Quantitation Limit 100 ug/L
BTEX Quantitation Limit 10 ug/L per compound

CAS NUMBER	DETERMINATION	DT	RESULT	CONFIDENCE	UNIT
	Gasoline Range Organics		12 J		ug/L
71432	Benzene		10 U		ug/L
100414	Ethylbenzene		10 U		ug/L
108883	Toluene		10 U		ug/L
1330207	Xylene		6 J		ug/L

*** LAST PAGE ***

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7/13/94 08:22:25 Y-12 ANALYTICAL SERVICES ORGANIZATION PAGE 1 OF 1

UBMITTER	ADDRESS	CUSTOMER ID	REQ NO	SAMPLE NO	MTC	STATUS
ngram, Edward Micha	Building 9115 MS 8219			E941720002	8601	APPROVED

ATE SAMPLED: 06/21/94 14:05:00 DATE NEEDED: 07/21/94 LOCATION: 809 CHARGE #: S2205F26
ATE RECEIVED: 06/22/94 DATE COMPLETED: 07/01/94 PROJECT CODE: CASE: U03130
AMPLER: 029776 SAMPLE DESCRIPTION: GRAB FINAL APPROVAL:

OMMENTS:

EST: GRO TPH Gasoline Range Organics Including BTEX REPLICATE: 1 STATUS: APPROVED
REP MTH: PROC MTH: SW846 8020 PHASE: TIME ANALYZED: 06/27/94 10:05:00 APPROVER: E030124
OMMENTS:

Bldg 9201-1
Facility ID# 0-010117

GRO Quantitation Limit 100 ug/L
BTEX Quantitation Limit 10 ug/L per compound

AS NUMBER	DETERMINATION	DT	RESULT	CONFIDENCE	UNIT
	Gasoline Range Organics		10 J		ug/L
1432	Benzene		10 U		ug/L
00414	Ethylbenzene		10 U		ug/L
08883	Toluene		10 U		ug/L
330207	Xylene		10 U		ug/L

*** LAST PAGE ***

OFFICIAL REPORT

07/13/94 08:22:35 Y-12 ANALYTICAL SERVICES ORGANIZATION

SUBMITTER	ADDRESS	CUSTOMER ID	REQ NO	SAMPLE NO	MTC	STATUS
ngram, Edward Micha	Building 9115 MS 8219			E941720003	8601	APPROVED

DATE SAMPLED: 06/21/94 14:20:00 DATE NEEDED: 07/21/94 LOCATION: 810 CHARGE #: S2205F26
DATE RECEIVED: 06/22/94 DATE COMPLETED: 07/01/94 PROJECT CODE: CASE: U03130
SAMPLER: 029776 SAMPLE DESCRIPTION: GRAB FINAL APPROVAL: L. T. Emerson

COMMENTS:

TEST: GRO TPH Gasoline Range Organics Including BTEX REPLICATE: 1 STATUS: APPROVED
PREP MTH: PROC MTH: SW846 8020 PHASE: TIME ANALYZED: 06/27/94 10:41:00 APPROVER: E030124
COMMENTS:

Bldg 9201-1
Facility ID# 0-010117

GRO Quantitation Limit 100 ug/L
BTEX Quantitation Limit 10 ug/L per compound

CAS NUMBER	DETERMINATION	DT	RESULT	CONFIDENCE	UNIT
	Gasoline Range Organics		21 J		ug/L
71432	Benzene		10 U		ug/L
00414	Ethylbenzene		10 U		ug/L
08883	Toluene		10 U		ug/L
330207	Xylene		10 U		ug/L

*** LAST PAGE ***

OFFICIAL REPORT

7/13/94 08:22:40 Y-12 ANALYTICAL SERVICES ORGANIZATION

UBMITTER	ADDRESS	CUSTOMER ID	REQ NO	SAMPLE NO	MTC	STATUS
ngram, Edward Micha	Building 9115 MS 8219			E941720004	8601	APPROVED

ATE SAMPLED: 06/21/94 15:30:00 DATE NEEDED: 07/21/94 LOCATION: 657 CHARGE #: S2205F26
ATE RECEIVED: 06/22/94 DATE COMPLETED: 07/01/94 PROJECT CODE: CASE: U03130
AMPLER: 029776 SAMPLE DESCRIPTION: GRAB FINAL APPROVAL:

OMMENTS:

EST: GRO TPH Gasoline Range Organics Including BTEX REPLICATE: 1 STATUS: APPROVED
REP MTH: PROC MTH: SW846 8020 PHASE: TIME ANALYZED: 06/27/94 11:18:00 APPROVER: E030124
OMMENTS:

Bldg 9201-1
Facility ID# 0-010117

GRO Quantitation Limit 100 ug/L
BTEX Quantitation Limit 10 ug/L per compound

AS NUMBER	DETERMINATION	DT	RESULT	CONFIDENCE	UNIT
	Gasoline Range Organics		100 U		ug/L
1432	Benzene		10 U		ug/L
00414	Ethylbenzene		10 U		ug/L
08883	Toluene		10 U		ug/L
330207	Xylene		10 U		ug/L

*** LAST PAGE ***

OFFICIAL REPORT

7/13/94 08:22:45 Y-12 ANALYTICAL SERVICES ORGANIZATION

JBMITTER	ADDRESS	CUSTOMER ID	REQ NO	SAMPLE NO	MTC	STATUS
ngram, Edward Micha	Building 9115 MS 8219			E941720005	8601	APPROVED

ATE SAMPLED: 06/21/94 15:00:00 DATE NEEDED: 07/21/94 LOCATION: 708 CHARGE #: S2205F26
ATE RECEIVED: 06/22/94 DATE COMPLETED: 07/01/94 PROJECT CODE: CASE: U03130
AMPLER: 029776 SAMPLE DESCRIPTION: GRAB FINAL APPROVAL:

OMMENTS:

EST: GRO TPH Gasoline Range Organics Including BTEX REPLICATE: 1 STATUS: APPROVED
REP MTH: PROC MTH: SW846 8020 PHASE: TIME ANALYZED: 06/28/94 14:09:00 APPROVER: E030124
OMMENTS:

Bldg 9201-1
Facility ID# 0-010117

GRO Quantitation Limit 100 ug/L
BTEX Quantitation Limit 10 ug/L per compound

AS NUMBER	DETERMINATION	DT	RESULT	CONFIDENCE	UNIT
	Gasoline Range Organics		5300		ug/L
1432	Benzene		980		ug/L
00414	Ethylbenzene		620		ug/L
08883	Toluene		110		ug/L
530207	Xylene		690		ug/L

*** LAST PAGE ***

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07/13/94 08:22:51 Y-12 ANALYTICAL SERVICES ORGANIZATION PAGE 1 OF 1

SUBMITTER	ADDRESS	CUSTOMER ID	REQ NO	SAMPLE NO	MTC	STATUS
Ingram, Edward Micha	Building 9115 MS 8219			E941720006	8601	APPROVED

DATE SAMPLED: 06/21/94 16:55:00 DATE NEEDED: 07/21/94 LOCATION: 707 CHARGE #: S2205F26
DATE RECEIVED: 06/22/94 DATE COMPLETED: 07/01/94 PROJECT CODE: CASE: U03130
SAMPLER: 029776 SAMPLE DESCRIPTION: GRAB FINAL APPROVAL: L. T. Emerson

COMMENTS:

TEST: GRO TPH Gasoline Range Organics Including BTEX REPLICATE: 1 STATUS: APPROVED
PREP MTH: PROC MTH: SW846 8020 PHASE: TIME ANALYZED: 06/27/94 17:29:00 APPROVER: E030124
COMMENTS:

Bldg 9201-1
Facility ID# 0-010117

GRO Quantitation Limit 100 ug/L
BTEX Quantitation Limit 10 ug/L per compound

CAS NUMBER	DETERMINATION	DT	RESULT	CONFIDENCE	UNIT
	Gasoline Range Organics		42 J		ug/L
71432	Benzene		2 J		ug/L
100414	Ethylbenzene		10 U		ug/L
108883	Toluene		10 U		ug/L
1330207	Xylene		1 J		ug/L

*** LAST PAGE ***

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)7/13/94 08:22:56 Y-12 ANALYTICAL SERVICES ORGANIZATION PAGE 1 OF 1

SUBMITTER	ADDRESS	CUSTOMER ID	REQ NO	SAMPLE NO	MTC	STATUS
Ingram, Edward Micha	Building 9115 MS 8219			E941720007	8601	APPROVED

)ATE SAMPLED: 06/21/94 16:40:00 DATE NEEDED: 07/21/94 LOCATION: 193 CHARGE #: S2205F26
)ATE RECEIVED: 06/22/94 DATE COMPLETED: 07/01/94 PROJECT CODE: CASE: U03130
SAMPLER: 029776 SAMPLE DESCRIPTION: GRAB FINAL APPROVAL:

:OMMENTS:

'EST: GRO TPH Gasoline Range Organics Including BTEX REPLICATE: 1 STATUS: APPROVED
)REP MTH: PROC MTH: SW846 8020 PHASE: TIME ANALYZED: 06/27/94 16:53:00 APPROVER: E030124
:OMMENTS:

Bldg 9201-1
Facility ID# 0-010117

GRO Quantitation Limit 100 ug/L
BTEX Quantitation Limit 10 ug/L per compound

:AS NUMBER	DETERMINATION	DT	RESULT	CONFIDENCE	UNIT
	Gasoline Range Organics		4100		ug/L
'1432	Benzene		420		ug/L
100414	Ethylbenzene		400		ug/L
108883	Toluene		200		ug/L
1330207	Xylene		480		ug/L

*** LAST PAGE ***

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)7/13/94 08:23:02 Y-12 ANALYTICAL SERVICES ORGANIZATION PAGE 1 OF 1

SUBMITTER	ADDRESS	CUSTOMER ID	REQ NO	SAMPLE NO	MTC	STATUS
ngram, Edward Micha	Building 9115 MS 8219			E941720008	8601	APPROVED

'ATE SAMPLED: 06/21/94 06:30:00 DATE NEEDED: 07/21/94 LOCATION: T.B. CHARGE #: S2211601
'ATE RECEIVED: 06/22/94 DATE COMPLETED: 07/01/94 PROJECT CODE: CASE: SQT001
'AMPLER: 029776 SAMPLE DESCRIPTION: GRAB FINAL APPROVAL:

:OMMENTS:

EST: GRO TPH Gasoline Range Organics Including BTEX REPLICATE: 1 STATUS: APPROVED
'REP MTH: PROC MTH: SW846 8020 PHASE: TIME ANALYZED: 06/27/94 08:47:00 APPROVER: E030124
:OMMENTS:

Bldg 9201-1
Facility ID# 0-010117

GRO Quantitation Limit 100 ug/L
BTEX Quantitation Limit 10 ug/L per compound

AS NUMBER	DETERMINATION	DT	RESULT	CONFIDENCE	UNIT
	Gasoline Range Organics		100 U		ug/L
'1432	Benzene		10 U		ug/L
00414	Ethylbenzene		10 U		ug/L
08883	Toluene		10 U		ug/L
330207	Xylene		10 U		ug/L

EST: VOA624 Volatile Organics by GC/MS (EPA 624) REPLICATE: 1 STATUS: CANCELLED
REP MTH: PROC MTH: EPA 624 PHASE: TIME ANALYZED: APPROVER:
THIS TEST WAS CANCELLED

DOE Y-12 PLANT CHAIN OF CUSTODY FORM

№ 20418

SAMPLER: (Signature)			Dept.		Building/Phone									
G. L. Dutzler			2366		9207/4 9496									
REQUISITION NUMBER	SAMPLING DATE	SAMPLING TIME	COMP.	GRAB	SAMPLE LOCATION	NO. OF CONTAINERS	WATER	OIL	SOIL	SOLVENT	SLUDGE	OTHER	REMARKS
Alpha 1	6/21/94	1120		✓	GW-808	4	✓						E94172 0000
		1405		✓	GW-809	4	✓						E94172 0002
		1420		✓	GW-810	4	✓						E94172 0003
		1500		✓	GW-708	4	✓						E94172 0005
		1530		✓	GW-657	4	✓						E94172 0004
		1655		✓	GW-707	4	✓						E94172 0006
		1640		✓	GW-193	4	✓						E94172 0007
↓	↓	0630		✓	Bldg 9207 TRIP BLANK	2	✓						E94172 0008

UCN-15487 (2 10-84)

Signatures Required on Back

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Date / Time	Dept.	Building	Phone
J. L. Sitzler	4/27/94 0705	D.R Thompson	4/27/94 0705	7222	9207	14347
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Date / Time	Dept.	Building	Phone
Relinquished By. (Signature)	Date / Time	Received By: (Signature)	Date / Time	Dept.	Building	Phone
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Date / Time	Dept.	Building	Phone
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Date / Time	Dept.	Building	Phone
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Date / Time	Dept.	Building	Phone

REMARKS:

RETURN TO: **ENVIRONMENTAL MONITORING, 9704-1, MS - 1, 4-3980.**

9201-1 CMR
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E.C. Leming/J.D. Harless

U. S. DEPARTMENT OF ENERGY

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