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SECOR
International Incorporated

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October 5, 1999
Project No. 077.41840.001

Re: Conceptual Site Model
MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Dear Ms. Schrader and Mr. Cochran:

This document was prepared by SECOR International Incorporated (at the request of Chevron Products Company) for the internal use of the Alaska Railroad Company and Chevron. The purpose of this document is to provide a Conceptual Site Model for current conditions at the Minnie Street Land Users Group (MSLUG) site.

Site Overview:

The site is within the Alaska Railroad industrial area of Fairbanks, Alaska. Land use is primarily industrial including railroad facilities, bulk fuel terminals, gasoline stations, and miscellaneous light industrial, and warehousing. Land users include federal, state, and private parties. The area has been utilized for industrial activities for approximately 70 years. MSLUG is located adjacent to and between both the Chena River and the Noyes Slough within the Tanana River Valley.

Non-MSLUG Investigations and Remedial Efforts:

Numerous investigations have taken place regarding separate properties within the MSLUG site boundaries. No attempt is made herein to directly review these efforts for the following reasons: 1) MSLUG's focus is on groundwater quality, 2) extensive monitoring of groundwater levels and quality have been conducted by MSLUG since 1993, 3) previous non-MSLUG efforts have been reviewed and summarized by the USGS on behalf of MSLUG, 4) the historical non-MSLUG groundwater data are of limited value in obtaining an overall picture as sampling events were not coordinated between sites, and 5) the efforts by MSLUG since 1993 provide sufficient information to assess current groundwater conditions. MSLUG groundwater monitoring data are summarized below in the section entitled *Groundwater Conditions*.

Over 30 sources or potential sources of contamination have been removed from service. Individual remedial efforts of note include the removal of petroleum product facilities from

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both the Texaco Bulk Plant and the Petroleum Sales properties and the removal of over 10,000 gallons of separate phase hydrocarbons (SPH) from groundwater at the Saupe Enterprises/Former Chevron Bulk Terminal property.

Typical degradation products of petroleum hydrocarbons and chlorinated solvents have been reported at the site suggesting that biodegradation is occurring. Additionally, the USGS has performed laboratory and field studies showing that biodegradation can occur under existing site conditions.

Stratigraphy:

Stratigraphy at the site consists primarily of gravelly sands and sandy gravels with discontinuous silt lenses. Depth to groundwater at the site has historically ranged from approximately 11 to 22 feet below ground surface. The site is characterized by surface soils derived from alluvial-plain deposits. The site is underlain by the Chena Alluvium which consists of braided Tanana River deposits of Quaternary age. Within the study area, the Chena Alluvium extends to depths of more than 400 feet. The general stratigraphy consists of alternating layers and lenses of unconsolidated sandy gravels and gravelly sands, overlain by up to 15 feet of gray silt (Pewe and others, 1976). Well logs in the USGS Ground-Water Site Inventory database indicate that in the vicinity of the site, there are no areally extensive confining units present within the Chena Alluvium.

Groundwater conditions:

Depth to groundwater at the site has historically ranged from approximately 11 to 22 feet below ground surface. Groundwater flow at the site is predominantly to the west at a gradient ranging from approximately 0.0006 to 0.0009. According to the USGS, the vertical gradient is primarily in the upward direction in the range of 0.004. Groundwater flow and levels are effected seasonally by the nearby surface water bodies, the Chena River and the Noyes Slough. Peak river flows are observed as a result of spring snowmelt runoff and as a result of late-summer precipitation. Groundwater level data presented on Figure 1 (Groundwater Elevation Contour Map, 8/30/93 – 9/1/93) appears to reflect such influence as well as likely pumping effects. Both the river stages and the groundwater levels have generally been lowest in the winter and highest after the snow melt. Localized variations in groundwater flow direction away from or towards the surface water bodies has been observed. The USGS has reported that the dominant influence on groundwater flow at the site is the Chena River. Historical MSLUG groundwater data is summarized in the attached tables and figures.

Groundwater has been extracted from several known locations – likely effecting groundwater flow in the vicinity. Sourdough Express, located in the central part of the study area, and the Fairbanks Daily News-Miner both pump groundwater for nonpotable uses. Additionally, groundwater was extracted and remediated at the Saupe Enterprises/Former Chevron Bulk Plant site from October 1986 through at least September 1990 (no system data was available for the period from September 1990 through 1995). Pumping from gravel pits in the area likely have, in the opinion of the USGS, influenced groundwater flow at the site to an even greater degree. Water was pumped from a gravel pit to the west of Fairbanks in the summers of 1989 and 1990. Pumping from another gravel pit to the north of the site and south of Noyes Slough in the past could have also influenced groundwater flow in the area.

MSLUG and its consultants have monitored groundwater quality since 1993. Groundwater contaminants include petroleum hydrocarbons and chlorinated hydrocarbons. Generally, contaminant levels have decreased over time. The attached tables and figures were compiled using available MSLUG data. The data suggests that petroleum and chlorinated constituents are defined to low to nondetect levels in each direction and that concentrations have generally declined over time. Actual measured definition to nondetect levels has not been achieved in every direction for each analyte, however, that level of detail is not considered to be necessary for the following reasons: 1) the primary direction in which analytes (in particular petroleum hydrocarbons) have not been defined to nondetect is to the east (upgradient); gradient in this area is consistent and groundwater impact is not reasonably anticipated to overcome the gradient and spread to the east, 2) certain analytes (benzene and diesel range petroleum hydrocarbons [DRPH] in the vicinity of AR-47, and DRPH in the vicinity of AR-100 and AR-102) have not been defined cross-gradient in one direction [north and south, respectively] and downgradient to nondetect levels; however, measured levels at these locations are relatively low and these analytes are defined to nondetect levels short distances cross-gradient in the other direction and have been defined short distances downgradient of much higher concentrations of the same analytes elsewhere at the site. Historical MSLUG groundwater data are summarized in the attached tables and figures.

Separate phase hydrocarbons (SPH) have been measured in groundwater at the Saupe Enterprises/Former Chevron Bulk Terminal property up to 2.75 feet in thickness (10/14/86). SPH has been measured in the same area three times by MSLUG since 1993 at thicknesses up to 0.26 feet. Current measured level (April 1999) is 0.03 feet. SPH has been defined to "nondetect" (0.00') levels adjacent to this location.

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Sensitive Receptors:

Three Fairbanks Municipal Utility System (MUS) water supply wells (Wells 1A, 2A, and 3A) are located south of the Chena River and are operated by the MUS facility. They have not been reported to be impacted and do not appear to be threatened. MUS also operates a fire-suppression well (fire well #4) located to the northwest of the Alaska Railroad Depot and immediately south of Phillips Field Road. This well is part of the MUS central water-distribution system located at the MUS power plant, but is not currently in use (as of 1996). No other sensitive receptors in the general vicinity of the MSLUG impacted groundwater have been reported. It is assumed, but not stated explicitly in the USGS reports, that a thorough search of public records was performed to identify other sensitive receptors. It is possible that the Chena River and the Noyes Slough, as surface water bodies, may be considered as sensitive receptors. Based on current data, neither water body appears to be significantly threatened (though low levels [just above detection levels of 100 ug/l] of DRPH are reported approximately 150 feet to 200 feet from the Chena River in wells AR-100 and AR-102, adjacent to a nondetect well, AR-101).

Recommendations:

- Continue annual monitoring (at least until the SPH is gone). Cessation of monitoring would, of course, have to take place after the performance of a risk assessment.

- Perform risk assessment. In order to be successful in the risk assessment, delineation of benzene to nondetect levels downgradient (west) of well AR-47 may be necessary. Collection of certain risk based analytical parameters such as total organic carbon in soil may also be necessary.

If there are any questions regarding the contents of this letter, please call us at (916) 364-1880.

Sincerely,

SECOR International Incorporated

Roger Hoffmore
Roger Hoffmore
Project Geologist

for
Greg Barclay
Principal Geologist

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Attachments:

Table 1 - Groundwater Monitoring Data
Table 2 - Groundwater Analytical Results (Petroleum Hydrocarbons - GRPH, DRPH, BTEX, MtBE)
Table 3 - Groundwater Analytical Results (Volatile Organic Compounds other than Petroleum Hydrocarbons)
Table 4 - Groundwater Analytical Results (Inorganic Water Quality)
Figure 1 - Groundwater Elevation Contour Map, 8/30/93 – 9/1/93
Figure 2 - Groundwater Elevation Contour Map, 4/19/96
Figure 3 - Groundwater Elevation Contour Map, 4/12/99
Figure 4 - Dichlorobromomethane Concentration Contour Map, 8/30/93 – 9/9/93
Figure 5 - 1,1-Dichloroethane & 1,2-Dichloroethane Concentration Contour Map, 8/30/93 – 9/9/93
Figure 6 - Chloroform Concentration Contour Map, 8/30/93 – 9/9/93
Figure 7 - Benzene Concentration Contour Map, 8/30/93 – 9/9/93
Figure 8 - Tetrachloroethylene Concentration Contour Map, 8/30/93 – 9/9/93
Figure 9 - Trichlorofluoromethane Concentration Contour Map, 8/30/93 – 9/9/93
Figure 10 – 1,1,1-Trichloroethane Concentration Contour Map, 8/30/93 – 9/9/93
Figure 11 - Dichlorodifluoromethane Concentration Contour Map, 8/30/93 – 9/9/93
Figure 12 - Trichloroethylene Concentration Contour Map, 8/30/93 – 9/9/93
Figure 13 – Cis-1,2-Dichloroethane Concentration Contour Map, 8/30/93 – 9/9/93
Figure 14 - Benzene Concentration Contour Map, 4/19/96
Figure 15 - MtBE Concentration Contour Map, 4/19/96
Figure 16 – 1,2-Dichloroethane Concentration Contour Map, 4/19/96
Figure 17 - Tetrachloroethene Concentration Contour Map, 4/19/96
Figure 18 - Benzene Concentration Contour Map, 4/12/99
Figure 19 - GRPH Concentration Contour Map, 4/12/99
Figure 20 - DRPH Concentration Contour Map, 4/12/99
Figure 21 – SPH Thickness Contour Map, 4/12/99

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-3	5/28/93	440.62	16.01		424.61
	7/16/93		14.15		426.47
	8/31/93		17.52		423.10
	4/6/94		18.54		422.08
	5/16/94		17.66		422.96
	6/15/94		18.13		422.49
	7/15/94		16.59		424.03
	7/29/94		17.11		423.51
	8/15/94		17.44		423.18
	9/15/94		17.58		423.04
	9/21/94		17.64		422.98
	10/20/94		18.14		422.48
AR-4	8/16/93	439.69	16.23		423.46
	8/27/93		16.00		423.69
	8/31/93		16.12		423.57
	9/14/93		15.76		423.93
	4/6/94		17.18		422.51
	7/29/94		15.72		423.97
	9/22/94		16.40		423.29
	4/11/95		17.50		422.19
AR-7	7/16/93	440.08	17.61		422.47
	8/16/93		17.45		422.63
	9/1/93		17.32		422.76
	4/6/94		18.30		421.78
	7/29/94		16.93		423.15
	9/22/94		17.57		422.51
	4/11/95		18.71		421.37
	4/19/96		18.74		421.34
	4/11/97		19.49	0.26	420.59
	4/16/98		19.88	0.26	420.20
	4/12/99		19.36	0.03	420.72
AR-8	4/19/96	440.19	18.19		422.00
	4/11/97		18.74		421.45
	4/16/98		19.10		421.09
	4/12/99		18.79		421.40

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-15	7/16/93	440.81	17.70		423.11
	5/16/94		17.68		423.13
AR-16	8/16/93	437.32	14.22		423.10
	9/16/93		13.86		423.46
AR-19	5/28/93	434.91	11.98		422.93
	6/25/94		11.47		423.44
	7/15/94		12.62		422.29
	7/21/94		12.55		422.36
	8/5/94		13.30		421.61
	8/12/94		13.37		421.54
	8/15/94		13.10		421.81
	8/26/94		13.20		421.71
	9/1/94		13.15		421.76
	9/8/94		13.27		421.64
	9/15/94		13.28		421.63
	9/29/94		13.49		421.42
	10/6/94		13.63		421.28
AR-20	5/28/93	434.99	11.90		423.09
	7/1/93		13.42		421.57
	7/17/93		13.68		421.31
	8/16/93		13.20		421.79
	6/15/94		14.39		420.60
	6/25/94		11.49		423.50
	7/15/94		12.55		422.44
	7/21/94		12.54		422.45
	8/5/94		13.22		421.77
	8/12/94		13.36		421.63
	8/15/94		13.09		421.90
	8/26/94		13.19		421.80
	9/1/94		13.15		421.84
	9/8/94		13.26		421.73
	9/15/94		13.26		421.73
	9/29/94		13.48		421.51
	10/6/94		13.61		421.38
AR-25	5/28/93	442.44	17.27		425.17
	8/11/93		18.72		423.72

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-25	8/16/93	442.44	18.86		423.58
(cont.)	8/26/93		18.69		423.75
	8/31/93		18.77		423.67
	9/8/93		18.12		424.32
	9/14/93		18.42		424.02
	10/8/93		17.98		424.46
	10/14/93		18.12		424.32
	10/19/93		17.07		425.37
	11/16/93		18.82		423.62
	12/21/93		18.96		423.48
	1/18/94		19.45		422.99
	2/25/94		19.47		422.97
	3/15/94		19.69		422.75
	3/31/94		19.78		422.66
	4/5/94		19.74		422.70
	4/19/94		19.96		422.48
	5/16/94		18.84		423.60
	6/3/94		18.34		424.10
	6/15/94		19.37		423.07
	7/1/94		16.13		426.31
	7/15/94		17.79		424.65
	7/28/94		18.33		424.11
	8/15/94		18.70		423.74
	9/1/94		18.75		423.69
	9/15/94		18.86		423.58
	9/21/94		18.91		423.53
	9/29/94		19.06		423.38
	10/17/94		19.41		423.03
	11/15/94		19.42		423.02
	12/21/94		19.66		422.78
	1/18/95		19.84		422.60
	2/17/95		19.95		422.49
	3/17/95		20.13		422.31
	4/11/95		20.06		422.38
	4/13/95		20.04		422.40
	5/16/95		18.12		424.32
AR-26	8/31/93	440.25	16.86		423.39
	9/15/93		16.52		423.73
	9/29/93		15.62		424.63

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-26	11/16/93	440.25	16.99		423.26
(cont.)	12/21/93		17.23		423.02
	1/18/94		17.58		422.67
	2/25/94		17.71		422.54
	3/15/94		17.85		422.40
	4/6/94		17.81		422.44
	4/19/94		18.10		422.15
	5/16/94		16.96		423.29
	6/6/94		17.44		422.81
	6/15/94		17.48		422.77
	7/15/94		15.94		424.31
	7/28/94		16.48		423.77
	8/15/94		16.80		423.45
	9/15/94		16.95		423.30
	9/21/94		17.02		423.23
	10/17/94		17.53		422.72
	4/11/95		18.12		422.13
AR-27	8/28/93	441.51	18.02		423.49
	8/31/93		18.10		423.41
	9/14/93		17.82		423.69
	12/21/93		18.70		422.81
	2/3/94		18.81		422.70
	2/25/94		18.87		422.64
	3/15/94		18.99		422.52
	4/5/94		19.27		422.24
	4/19/94		19.24		422.27
	5/16/94		18.19		423.32
	6/6/94		18.63		422.88
	6/15/94		18.65		422.86
	7/15/94		17.12		424.39
	7/28/94		17.70		423.81
	9/15/94		18.13		423.38
	9/21/94		18.23		423.28
	10/17/94		18.65		422.86
AR-34	5/28/93	440.59	18.02		422.57
	6/30/93		18.10		422.49
	7/17/93		17.82		422.77
	8/16/93		18.70		421.89

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-35	7/17/93	439.37	15.80		423.57
	8/16/93		15.57		423.80
	9/1/93		15.40		423.97
	7/29/94		15.00		424.37
AR-37	8/16/93	441.28	17.52		423.76
	8/28/93		17.25		424.03
	9/15/93		16.99		424.29
	4/21/94		18.72		422.56
	5/16/94		17.50		423.78
	6/15/94		18.15		423.13
	7/15/94		16.43		424.85
	8/15/94		17.50		423.78
	9/15/94		17.66		423.62
AR-38	5/28/93	440.73	15.98		424.75
	8/28/93		17.46		423.27
	8/31/93		17.52		423.21
	9/14/93		17.24		423.49
	4/6/94		18.46		422.27
	8/8/94		17.25		423.48
	9/21/94		17.64		423.09
AR-41	8/27/93	441.42	18.16		423.26
	8/31/93		18.20		423.22
	9/14/93		17.95		423.47
AR-42	8/16/93	439.93	16.20		423.73
	8/28/93		15.90		424.03
	8/30/93		14.03		425.90
	8/31/93		14.01		425.92
	9/14/93		15.66		424.27
	7/21/94		15.53		424.40
	7/29/94		15.69		424.24
	8/15/94		16.28		423.65
	9/15/94		16.43		423.50
	9/21/94		16.52		423.41

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-43	5/28/93	439.89	14.60		425.29
	7/17/93		16.52		423.37
	8/16/93		16.16		423.73
	9/14/93		15.62		424.27
	9/16/93		15.48		424.41
	6/15/94		16.90		422.99
	7/15/94		15.16		424.73
	8/15/94		16.23		423.66
	9/15/94		16.39		423.50
AR-44	5/28/93	439.68	14.33		425.35
	8/1/93		15.90		423.78
	8/28/93		15.09		424.59
	8/31/93		15.80		423.88
	9/14/93		15.90		423.78
	4/6/94		16.89		422.79
	6/3/94		16.58		423.10
	7/29/94		15.41		424.27
	9/22/94		16.22		423.46
	4/11/95		17.27		422.41
	4/19/96		17.40		422.28
	4/11/97		17.87		421.81
	4/16/98		18.25		421.43
	4/12/99		17.92		421.76
AR-47	5/28/93	438.07	13.48		424.59
	6/30/93		14.75		423.32
	8/16/93		15.05		423.02
	8/27/93		14.89		423.18
	8/30/93		14.18		423.89
	4/5/94		16.06		422.01
	4/19/94	439.81	18.02		421.79
	5/16/94		16.88		422.93
	6/15/94		17.37		422.44
	7/15/94		15.81		424.00
	7/28/94		16.39		423.42
	8/15/94		16.67		423.14
	9/15/94		16.81		423.00
	9/21/94		16.85		422.96

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-47	10/17/94	439.81	17.32		422.49
(cont.)	4/11/95		18.04		421.77
	4/19/96		18.15		421.66
	4/11/97		18.72		421.09
	4/16/98		19.06		420.75
	4/12/99		18.78		421.03
AR-49	7/9/93	439.31	15.01		424.30
	7/21/93		16.45		422.86
	7/28/93		16.53		422.78
	8/5/93		16.63		422.68
	8/11/93		16.07		423.24
	8/16/93		16.04		423.27
	8/27/93		15.99		423.32
	8/31/93		16.09		423.22
	9/15/93		15.78		423.53
	9/29/93		14.85		424.46
	10/8/93		15.31		424.00
	10/14/93		15.45		423.86
	10/19/93		15.48		423.83
	11/4/93		15.82		423.49
	11/16/93		16.21		423.10
	12/1/93		15.92		423.39
	12/21/93		16.55		422.76
	1/18/94		16.86		422.45
	2/3/94		16.92		422.39
	2/8/94		16.98		422.33
	2/25/94		16.98		422.33
	3/15/94		17.11		422.20
	3/31/94		17.21		422.10
	4/5/94		17.17		422.14
	4/19/94		17.34		421.97
	5/16/94		16.22		423.09
	6/3/94		16.69		422.62
	6/15/94		16.74		422.57
	7/1/94		13.56		425.75
	7/15/94		15.14		424.17
	7/29/94		15.72		423.59
	8/15/94		16.03		423.28

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-49	9/1/94	439.31	16.05		423.26
(cont.)	9/15/94		16.17		423.14
	9/21/94		16.24		423.07
	9/29/94		16.35		422.96
	10/17/94		16.68		422.63
	10/20/94		16.73		422.58
	11/15/94		16.81		422.50
	12/21/94		17.08		422.23
	1/18/95		17.18		422.13
	2/17/95		17.34		421.97
	3/17/95		17.48		421.83
	4/11/95		17.42		421.89
	4/13/95		17.35		421.96
	5/16/95		15.48		423.83
AR-51	8/16/93	436.86	13.81		423.05
	8/27/93		13.60		423.26
	8/31/93		13.69		423.17
AR-52	5/28/93	438.53	14.15		424.38
	7/16/93		15.82		422.71
	8/16/93		15.74		422.79
	8/26/93		16.60		421.93
	9/14/93		15.37		423.16
	11/17/93		15.78		422.75
	12/21/93		16.05		422.48
	1/18/94		16.30		422.23
	2/25/94		16.40		422.13
	3/15/94		16.54		421.99
	4/19/94		16.74		421.79
	5/16/94		15.75		422.78
	6/15/94		16.12		422.41
	7/15/94		14.74		423.79
	8/15/94		15.43		423.10
	9/15/94		15.56		422.97
	10/17/94		16.03		422.50
AR-53	5/28/93	440.42	15.79		424.63
	6/30/93		17.05		423.37
	7/16/93		17.47		422.95

Groundwater has been extracted from several known locations – likely effecting groundwater flow in the vicinity. Sourdough Express, located in the central part of the study area, and the Fairbanks Daily News-Miner both pump groundwater for nonpotable uses. Additionally, groundwater was extracted and remediated at the Saupe Enterprises/Former Chevron Bulk Plant site from October 1986 through at least September 1990 (no system data was available for the period from September 1990 through 1995). Pumping from gravel pits in the area likely have, in the opinion of the USGS, influenced groundwater flow at the site to an even greater degree. Water was pumped from a gravel pit to the west of Fairbanks in the summers of 1989 and 1990. Pumping from another gravel pit to the north of the site and south of Noyes Slough in the past could have also influenced groundwater flow in the area.

MSLUG and its consultants have monitored groundwater quality since 1993. Groundwater contaminants include petroleum hydrocarbons and chlorinated hydrocarbons. Generally, contaminant levels have decreased over time. The attached tables and figures were compiled using available MSLUG data. The data suggests that petroleum and chlorinated constituents are defined to low to nondetect levels in each direction and that concentrations have generally declined over time. Actual measured definition to nondetect levels has not been achieved in every direction for each analyte, however, that level of detail is not considered to be necessary for the following reasons: 1) the primary direction in which analytes (in particular petroleum hydrocarbons) have not been defined to nondetect is to the east (upgradient); gradient in this area is consistent and groundwater impact is not reasonably anticipated to overcome the gradient and spread to the east, 2) certain analytes (benzene and diesel range petroleum hydrocarbons [DRPH] in the vicinity of AR-47, and DRPH in the vicinity of AR-100 and AR-102) have not been defined cross-gradient in one direction [north and south, respectively] and downgradient to nondetect levels; however, measured levels at these locations are relatively low and these analytes are defined to nondetect levels short distances cross-gradient in the other direction and have been defined short distances downgradient of much higher concentrations of the same analytes elsewhere at the site. Historical MSLUG groundwater data are summarized in the attached tables and figures.

Separate phase hydrocarbons (SPH) have been measured in groundwater at the Saupe Enterprises/Former Chevron Bulk Terminal property up to 2.75 feet in thickness (10/14/86). SPH has been measured in the same area three times by MSLUG since 1993 at thicknesses up to 0.26 feet. Current measured level (April 1999) is 0.03 feet. SPH has been defined to "nondetect" (0.00') levels adjacent to this location.

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-55	6/30/93	439.16	15.74		423.42
	7/16/93		16.16		423.00
	8/16/93		16.13		423.03
	8/26/93		15.99		423.17
	9/14/93		15.80		423.36
	11/24/93		16.16		423.00
	12/21/93		16.35		422.81
	1/18/94		16.62		422.54
	2/25/94		16.71		422.45
	3/15/94		16.84		422.32
	4/19/94		17.03		422.13
	5/16/94		16.12		423.04
	6/15/94		16.48		422.68
	7/15/94		15.11		424.05
	8/15/94		15.80		423.36
	9/15/94		15.94		423.22
	10/17/94		16.39		422.77
AR-56	5/28/93	441.08	15.71		425.37
	6/30/93		17.00		424.08
	7/9/93		17.32		423.76
	7/17/93		16.81		424.27
	7/21/93		17.07		424.01
	7/28/93		17.65		423.43
	8/5/93		17.76		423.32
	8/16/93		17.41		423.67
	8/26/93		17.23		423.85
	8/31/93		17.30		423.78
	9/8/93		16.69		424.39
	9/14/93		17.03		424.05
	11/4/93		18.02		423.06
	11/24/93		17.36		423.72
	12/21/93		17.59		423.49
	1/18/94		17.91		423.17
	3/15/94		18.15		422.93
	4/19/94		18.36		422.72
	5/16/94		17.38		423.70
	6/15/94		17.84		423.24
	7/15/94		16.35		424.73

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-56	8/15/94	441.08	17.16		423.92
	9/15/94		17.32		423.76
	10/17/94		17.81		423.27
AR-57	5/28/93	439.59	14.51		425.08
	7/17/93		16.19		423.40
	8/26/93		15.99		423.60
	4/19/94		17.99		421.60
	5/16/94		16.55		423.04
	7/15/94		17.14		422.45
	8/15/94		15.86		423.73
	9/15/94		16.04		423.55
AR-58	5/28/93	440.31	15.53		424.78
	6/30/93		16.83		423.48
	7/16/93		17.14		423.17
	8/16/93		17.22		423.09
	8/26/93		17.06		423.25
	8/31/93		17.14		423.17
	9/14/93		17.02		423.29
	10/14/93		16.64		423.67
	10/19/93		16.66		423.65
	11/24/93		17.43		422.88
	12/21/93		17.34		422.97
	1/18/94		17.56		422.75
	2/25/94		17.62		422.69
	3/15/94		17.69		422.62
	4/5/94		17.71		422.60
	4/19/94		17.86		422.45
	5/16/94		17.20		423.11
	6/15/94		18.40		421.91
	7/15/94		16.35		423.96
	7/28/94		16.68		423.63
	8/15/94		16.73		423.58
	9/15/94		16.87		423.44
	9/21/94		16.94		423.37
	10/17/94		17.29		423.02

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-59	5/28/93	440.10	15.48		424.62
	6/30/93		16.74		423.36
	7/9/93		16.43		423.67
	7/16/93		17.02		423.08
	7/21/93		17.12		422.98
	7/28/93		17.19		422.91
	8/5/93		17.29		422.81
	8/11/93		16.97		423.13
	8/16/93		17.13		422.97
	8/26/93		16.99		423.11
	8/31/93		17.05		423.05
	9/8/93		16.50		423.60
	9/14/93		16.87		423.23
	9/16/93		16.84		423.26
	9/29/93		15.98		424.12
	10/8/93		16.51		423.59
	11/17/93		17.11		422.99
	12/1/93		16.81		423.29
	12/21/93		17.31		422.79
	1/18/94		17.56		422.54
	2/3/94		17.62		422.48
	2/8/94		17.65		422.45
	2/25/94		17.61		422.49
	3/15/94		17.74		422.36
	3/31/94		17.82		422.28
	4/19/94		17.87		422.23
	5/16/94		17.15		422.95
	6/3/94		17.33		422.77
	6/15/94		17.33		422.77
	7/1/94		14.61		425.49
	7/15/94		16.19		423.91
	8/15/94		16.64		423.46
	9/1/94		16.71		423.39
	9/15/94		16.78		423.32
	9/29/94		16.94		423.16
	10/17/94		17.21		422.89
	11/15/94		17.40		422.70
	12/21/94		17.62		422.48
	1/18/95		17.78		422.32

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-59	2/17/95	440.10	17.95		422.15
(cont.)	3/17/95		18.11		421.99
	4/13/95		17.99		422.11
	5/16/95		16.16		423.94
AR-62	6/15/94	438.61	14.87		423.74
	7/15/94		13.17		425.44
	8/15/94		14.24		424.37
AR-64	5/28/93	438.18	12.39		425.79
	7/1/93		13.74		424.44
	7/17/93		14.28		423.90
	8/16/93		14.07		424.11
	7/15/94		13.08		425.10
	8/15/94		14.07		424.11
	9/15/94		14.27		423.91
AR-65	5/28/93	437.84	12.08		426.10
	7/17/93		13.99		424.19
	8/16/93		13.59		424.59
	7/15/94		12.65		425.53
	8/15/94		13.75		424.43
	9/15/94		13.88		424.30
AR-68	6/30/93	436.62	14.50		422.12
	7/9/93		15.74		420.88
	7/16/93		15.15		421.47
	7/21/93		15.11		421.51
	7/28/93		15.20		421.42
	8/5/93		15.25		421.37
	8/11/93		14.54		422.08
	8/16/93		14.66		421.96
	8/26/93		14.53		422.09
	9/2/93		14.42		422.20
	9/7/93		13.94		422.68
	9/8/93		13.93		422.69
	9/14/93		14.08		422.54
	9/16/93		14.11		422.51
	9/29/93		13.47		423.15
	10/14/93		13.71		422.91

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-68	10/19/93	436.62	13.81		422.81
(cont.)	11/4/93		14.30		422.32
	11/16/93		14.99		421.63
	12/1/93		14.96		421.66
	12/21/93		15.40		421.22
	12/22/93		15.34		421.28
	1/18/94		15.86		420.76
	2/3/94		15.99		420.63
	2/8/94		16.18		420.44
	2/25/94		16.08		420.54
	3/3/94		16.23		420.39
	3/15/94		16.11		420.51
	3/30/94		16.24		420.38
	4/19/94		16.45		420.17
	5/16/94		14.89		421.73
	6/3/94		15.41		421.21
	6/15/94		15.51		421.11
	6/27/94		13.02		423.60
	7/1/94		12.34		424.28
	7/11/94		13.11		423.51
	7/15/94		13.69		422.93
	8/5/94		14.35		422.27
	8/15/94		14.53		422.09
	9/1/94		14.55		422.07
	9/15/94		14.59		422.03
	9/29/94		14.92		421.70
	10/17/94		15.31		421.31
	10/20/94		15.35		421.27
	11/15/94		16.01		420.61
	12/21/94		16.03		420.59
	1/18/95		16.08		420.54
	2/16/95		16.30		420.32
	3/1/95		16.44		420.18
	3/14/95		16.46		420.16
	3/17/95		16.43		420.19
	4/13/95		16.26		420.36
	5/16/95		14.01		422.61

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-69	5/28/93	434.44	10.98		423.46
	8/16/93		12.49		421.95
	8/26/93		12.65		421.79
	9/1/93		12.33		422.11
AR-75	5/28/93	437.87	13.72		424.15
	8/28/93		14.85		423.02
	8/31/93		15.00		422.87
	9/15/93		14.54		423.33
AR-76	6/30/93	436.92	13.36		423.56
	7/17/93		13.92		423.00
	8/28/93		13.42		423.50
	4/11/95		14.99		421.93
	4/19/96		15.03		421.89
	4/16/98		15.99		420.93
	4/12/99		15.62		421.30
AR-79	8/30/93	434.81	12.33		422.48
	9/8/93		12.34		422.47
	9/14/93		11.92		422.89
	4/6/94		14.18		420.63
	4/19/94		14.32		420.49
	5/16/94		12.78		422.03
	6/15/94		13.37		421.44
	7/15/94		11.52		423.29
	7/28/94		12.09		422.72
	8/15/94		12.40		422.41
	9/15/94		12.60		422.21
	9/21/94		12.65		422.16
AR-81	8/31/93	437.09	13.88		423.21
	4/11/95		14.11		422.98
	4/19/96		15.31		421.78
	4/11/97		15.88		421.21
	4/16/98		16.22		420.87
	4/16/98		16.22		420.87
	4/12/99		NM		--

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-84	7/1/93	438.51	13.85		424.66
	7/17/93		14.39		424.12
	8/16/93		14.18		424.33
	9/14/93		14.18		424.33
AR-97	7/16/93	440.97	19.95		421.02
	4/21/94		21.25		419.72
	5/16/94		19.66		421.31
	6/15/94		20.03		420.94
	7/15/94		18.13		422.84
	8/15/94		18.99		421.98
	9/1/94		19.20		421.77
	9/15/94		19.42		421.55
	9/30/94		19.69		421.28
	10/17/94		20.02		420.95
	12/21/94		20.64		420.33
	1/18/95		20.77		420.20
	2/16/95		20.95		420.02
	3/17/95		21.10		419.87
	4/13/95		20.93		420.04
	5/16/95		18.83		422.14
AR-100	9/14/93	440.82	17.56		423.26
	9/28/93		16.52		424.30
	9/30/93		16.79		424.03
	10/19/93		17.22		423.60
	11/16/93		18.35		422.47
	12/1/93		18.26		422.56
	12/21/93		19.04		421.78
	1/18/94		19.24		421.58
	2/3/94		19.28		421.54
	2/8/94		19.36		421.46
	2/25/94		19.38		421.44
	3/15/94		19.51		421.31
	3/31/94		19.66		421.16
	4/5/94		19.65		421.17
	4/19/94		19.83		420.99
	4/28/94		18.48		422.34
	5/13/94		18.33		422.49

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-100	5/16/94	440.82	18.18		422.64
(cont.)	5/27/94		18.60		422.22
	6/3/94		18.88		421.94
	6/9/94		18.70		422.12
	6/15/94		18.87		421.95
	6/22/94		16.92		423.90
	6/25/94		15.95		424.87
	7/1/94		15.12		425.70
	7/8/94		16.18		424.64
	7/15/94		17.19		423.63
	7/21/94		17.42		423.40
	7/29/94		17.57		423.25
	8/5/94		17.82		423.00
	8/12/94		18.11		422.71
	8/15/94		18.12		422.70
	8/26/94		18.18		422.64
	9/1/94		18.10		422.72
	9/8/94		18.24		422.58
	9/15/94		18.27		422.55
	9/21/94		18.38		422.44
	9/29/94		18.51		422.31
	10/6/94		18.62		422.20
	10/17/94		18.95		421.87
	11/3/94		19.06		421.76
	11/10/94		19.16		421.66
	11/15/94		19.17		421.65
	12/2/94		19.31		421.51
	12/9/94		19.35		421.47
	12/21/94		19.47		421.35
	1/18/95		19.50		421.32
	2/16/95		19.65		421.17
	3/17/95		19.81		421.01
	4/10/95		19.72		421.10
	4/13/95		19.66		421.16
	5/16/95		17.78		423.04
	5/22/95		18.26		422.56
	4/19/96		19.91		420.91
	4/11/97		21.64		419.18
	4/16/98		21.78		419.04
	4/12/99		21.48		419.34

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-101	9/14/93	440.70	17.42		423.28
	9/28/93		16.39		424.31
	9/30/93		16.67		424.03
	10/19/93		17.09		423.61
	11/16/93		18.22		422.48
	12/1/93		18.02		422.68
	12/21/93		18.85		421.85
	1/18/94		19.04		421.66
	2/3/94		19.08		421.62
	2/8/94		19.17		421.53
	2/25/94		19.19		421.51
	3/15/94		19.31		421.39
	3/31/94		19.44		421.26
	4/5/94		19.44		421.26
	4/19/94		19.50		421.20
	4/28/94		18.30		422.40
	5/13/94		18.19		422.51
	5/16/94		18.03		422.67
	5/27/94		18.46		422.24
	6/3/94		18.73		421.97
	6/9/94		18.58		422.12
	6/15/94		18.74		421.96
	6/22/94		16.74		423.96
	6/25/94		15.83		424.87
	7/1/94		15.00		425.70
	7/8/94		16.03		424.67
	7/15/94		17.04		423.66
	7/21/94		17.28		423.42
	7/29/94		17.42		423.28
	8/12/94		17.95		422.75
	8/15/94		17.96		422.74
	8/26/94		18.01		422.69
	9/1/94		17.94		422.76
	9/6/94		18.07		422.63
	9/15/94		18.10		422.60
	9/21/94		18.22		422.48
	9/29/94		18.34		422.36
	10/6/94		18.44		422.26
	10/17/94		18.77		421.93

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-101	11/3/94	440.70	18.86		421.84
(cont.)	11/10/94		18.95		421.75
	11/15/94		18.96		421.74
	12/2/94		19.12		421.58
	12/9/94		19.15		421.55
	12/21/94		19.26		421.44
	1/18/95		19.29		421.41
	2/16/95		19.45		421.25
	3/17/95		19.60		421.10
	4/10/95		19.52		421.18
	4/13/95		19.47		421.23
	5/16/95		17.62		423.08
	4/19/96		19.74		420.96
	4/11/97		20.97		419.73
	4/16/98		20.60		420.10
	4/12/99		20.79		419.91
AR-102	9/14/93	440.92	17.70		423.22
	9/28/93		16.61		424.31
	9/30/93		16.93		423.99
	10/19/93		17.35		423.57
	11/16/93		18.48		422.44
	12/1/93		18.42		422.50
	12/21/93		19.23		421.69
	1/18/94		19.43		421.49
	2/3/94		19.56		421.36
	2/8/94		19.53		421.39
	2/25/94		19.55		421.37
	3/15/94		19.69		421.23
	3/31/94		19.82		421.10
	4/5/94		19.80		421.12
	4/19/94		19.98		420.94
	4/28/94		18.58		422.34
	5/13/94		18.46		422.46
	5/16/94		18.27		422.65
	5/27/94		18.73		422.19
	6/3/94		19.02		421.90
	6/9/94		18.85		422.07
	6/15/94		19.01		421.91
	6/22/94		17.07		423.85

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-102	6/25/94	440.92	16.04		424.88
(cont.)	7/1/94		15.21		425.71
	7/8/94		16.29		424.63
	7/15/94		17.32		423.60
	7/21/94		17.55		423.37
	7/29/94		17.69		423.23
	8/5/94		17.95		422.97
	8/12/94		18.25		422.67
	8/15/94		18.26		422.66
	8/26/94		18.31		422.61
	9/1/94		18.24		422.68
	9/8/94		18.37		422.55
	9/15/94		18.41		422.51
	9/21/94		18.52		422.40
	9/29/94		18.65		422.27
	10/6/94		18.76		422.16
	10/17/94		19.09		421.83
	11/3/94		19.22		421.70
	11/10/94		19.33		421.59
	11/15/94		19.33		421.59
	12/2/94		19.51		421.41
	12/9/94		19.51		421.41
	12/21/94		19.62		421.30
	1/18/95		19.66		421.26
	2/16/95		19.81		421.11
	3/17/95		19.96		420.96
	4/10/95		19.88		421.04
	4/13/95		19.82		421.10
	5/16/95		17.92		423.00
	5/22/95		18.40		422.52
	4/19/96		20.04		420.88
	4/11/97		21.25		419.67
	4/16/98		21.39		419.53
	4/12/99		21.10		419.82
AR-103	9/1/93	440.79	15.18		425.61
	9/7/93		14.47		426.32
	9/14/93		16.74		424.05
	10/19/93		16.35		424.44
	11/16/93		17.26		423.53

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-103	12/1/93	440.79	16.82		423.97
(cont.)	12/21/93		17.56		423.23
	1/18/94		18.04		422.75
	2/3/94		18.10		422.69
	2/8/94		18.12		422.67
	2/25/94		18.18		422.61
	3/15/94		18.35		422.44
	3/31/94		18.43		422.36
	4/5/94		18.42		422.37
	4/19/94		18.63		422.16
	5/16/94		17.30		423.49
	5/27/94		17.73		423.06
	6/3/94		17.98		422.81
	6/15/94		18.01		422.78
	7/1/94		14.29		426.50
	7/15/94		16.19		424.60
	7/28/94		16.95		423.84
	8/15/94		17.31		423.48
	9/1/94		17.33		423.46
	9/15/94		17.49		423.30
	9/21/94		17.59		423.20
	10/17/94		17.10		423.69
	11/15/94		17.99		422.80
	12/21/94		18.31		422.48
	1/18/95		18.46		422.33
	3/17/95		18.76		422.03
	4/10/95		18.70		422.09
	4/13/95		18.72		422.07
	5/16/95		16.64		424.15
	4/19/96		18.71		422.08
	4/11/97		19.31		421.48
	4/16/98		19.71		421.08
	4/12/99		19.37		421.42
AR-104	9/1/93	440.31	14.68		425.63
	9/7/93		14.12		426.19
	9/14/93		17.42		422.89
	10/8/93		16.95		423.36
	10/19/93		16.14		424.17
	11/16/93		17.93		422.38

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-104	12/21/93	440.31	18.34		421.97
(cont.)	1/18/94		18.55		421.76
	2/3/94		18.63		421.68
	2/8/94		18.71		421.60
	2/25/94		18.70		421.61
	3/15/94		18.81		421.50
	3/31/94		18.93		421.38
	4/5/94		18.92		421.39
	4/19/94		19.05		421.26
	5/16/94		17.88		422.43
	6/3/94		18.29		422.02
	6/15/94		18.33		421.98
	7/1/94		15.47		424.84
	7/15/94		16.72		423.59
	7/28/94		17.37		422.94
	8/15/94		17.58		422.73
	9/15/94		17.70		422.61
	9/21/94		17.75		422.56
	10/17/94		18.20		422.11
	11/15/94		18.55		421.76
	12/21/94		18.76		421.55
	1/18/95		18.85		421.46
	2/16/95		18.99		421.32
	3/17/95		19.13		421.18
	4/13/95		19.01		421.30
	5/16/95		17.19		423.12
AR-105	9/1/93	441.49	15.77		425.72
	9/7/93		14.99		426.50
	9/14/93		17.92		423.57
	11/16/93		18.61		422.88
	12/21/93		19.05		422.44
	1/18/94		19.47		422.02
	2/25/94		19.58		421.91
	3/15/94		19.74		421.75
	3/31/94		19.84		421.65
	4/19/94		20.03		421.46
	5/16/94		18.49		423.00
	6/15/94		19.22		422.27
	7/15/94		17.53		423.96

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-105	8/15/94	441.49	18.50		422.99
(cont.)	9/15/94		18.65		422.84
	10/17/94		19.34		422.15
AR-106	9/1/93	438.74	13.44		425.30
	9/7/93		12.79		425.95
	11/16/93		16.53		422.21
	12/21/93		17.06		421.68
	1/18/94		17.29		421.45
	2/25/94		17.44		421.30
	3/15/94		17.55		421.19
	4/19/94		18.86		419.88
	5/16/94		16.48		422.26
	6/15/94		17.02		421.72
	7/15/94		15.33		423.41
	8/15/94		16.21		422.53
	9/15/94		16.34		422.40
	10/20/94		16.94		421.80
	4/10/95		17.77		420.97
	4/19/96		17.96		420.78
	4/11/97		NM		--
	4/16/98		NM		--
	4/12/99		NM		--
AR-107	9/14/93	438.74	16.37		422.37
	10/19/93		16.35		422.39
	11/16/93		17.30		421.44
	12/21/93		17.62		421.12
	1/18/94		18.27		420.47
	2/25/94		18.48		420.26
	3/15/94		18.50		420.24
	4/5/94		18.79		419.95
	4/6/94		18.79		419.95
	5/16/94		17.23		421.51
	6/15/94		17.81		420.93
	7/1/94		14.38		424.36
	7/15/94		16.02		422.72
	7/29/94		16.37		422.37
	8/15/94		16.79		421.95
	9/15/94		16.97		421.77

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-107	9/21/94	438.74	17.09		421.65
(cont.)	10/17/94		17.64		421.10
	12/21/94		18.33		420.41
AR-108	9/1/93	438.40	15.48		422.92
	9/14/93		15.07		423.33
	10/19/93		14.76		423.64
	11/16/93		15.75		422.65
	12/21/93		16.26		422.14
	1/18/94		16.41		421.99
	2/25/94		16.56		421.84
	3/15/94		16.72		421.68
	4/6/94		16.75		421.65
	4/19/94		17.05		421.35
	5/16/94		15.62		422.78
	6/15/94		16.26		422.14
	7/15/94		14.58		423.82
	7/29/94		15.05		423.35
	8/15/94		15.44		422.96
	9/15/94		15.59		422.81
	9/21/94		15.68		422.72
	10/17/94		16.18		422.22
	11/15/94		16.47		421.93
	12/21/94		16.69		421.71
	1/18/95		16.68		421.72
	2/16/95		16.90		421.50
	3/7/95		16.96		421.44
	4/11/95		16.91		421.49
	4/13/95		16.95		421.45
	5/16/95		15.12		423.28
	4/19/96		17.19		421.21
	4/11/97		17.80		420.60
	4/16/98		17.90		420.50
	4/12/99		17.71		420.69
AR-109	9/14/93	441.94	18.66		423.28
	10/8/93		18.33		423.61
	10/19/93		18.52		423.42
	11/16/93		18.85		423.09
	12/21/93		19.18		422.76

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-109	1/18/94	441.94	19.34		422.60
(cont.)	2/25/94		19.45		422.49
	3/15/94		19.58		422.36
	4/19/94		19.78		422.16
	5/16/94		18.94		423.00
	6/15/94		19.22		422.72
	7/15/94		18.07		423.87
	8/15/94		18.51		423.43
	9/15/94		18.65		423.29
	10/17/94		19.09		422.85
AR-110	9/14/93	436.62	13.40		423.22
	10/8/93		13.05		423.57
	10/19/93		13.20		423.42
	11/16/93		13.55		423.07
	12/21/93		13.77		422.85
	1/18/94		13.97		422.65
	2/25/94		14.02		422.60
	3/15/94		14.11		422.51
	4/19/94		14.27		422.35
	5/16/94		13.59		423.03
	6/15/94		13.77		422.85
	7/15/94		13.76		422.86
	8/15/94		13.11		423.51
	9/15/94		13.25		423.37
	10/17/94		13.63		422.99
AR-111	9/14/93	441.16	17.86		423.30
	9/28/93		16.81		424.35
	9/30/93		17.10		424.06
	10/19/93		17.53		423.63
	11/16/93		18.61		422.55
	12/1/93		18.41		422.75
	12/21/93		19.25		421.91
	1/18/94		19.47		421.69
	2/3/94		19.49		421.67
	2/8/94		19.57		421.59
	2/25/94		19.58		421.58
	3/15/94		19.71		421.45
	3/31/94		19.86		421.30

Table 1
Groundwater Monitoring Data

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Measured & Sampled	Measuring Point Elevation (feet)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)
AR-111	4/19/94	441.16	20.02		421.14
(cont.)	4/28/94		18.70		422.46
	5/13/94		18.60		422.56
	5/16/94		18.42		422.74
	5/27/94		18.85		422.31
	6/3/94		19.13		422.03
	6/9/94		19.00		422.16
	6/15/94		19.15		422.01
	6/22/94		17.13		424.03
	6/25/94		16.24		424.92
	7/1/94		15.40		425.76
	7/8/94		16.44		424.72
	7/15/94		17.42		423.74
	7/21/94		17.69		423.47
	8/5/94		18.11		423.05
	8/12/94		18.38		422.78
	8/15/94		18.39		422.77
	8/26/94		18.44		422.72
	9/1/94		18.36		422.80
	9/8/94		18.50		422.66
	9/15/94		18.52		422.64
	9/21/94		18.63		422.53
	9/29/94		18.75		422.41
	10/6/94		18.86		422.30
	10/17/94		19.21		421.95
	11/3/94		19.3		421.86
	11/10/94		19.37		421.79
	11/15/94		19.37		421.79
	12/2/94		19.52		421.64
	12/9/94		19.51		421.65
	12/21/94		19.66		421.50
	1/18/95		19.72		421.44
	2/16/95		19.85		421.31
	3/17/95		20.02		421.14
	4/10/95		19.94		421.22
	4/13/95		19.89		421.27
	5/16/95		18.03		423.13
	5/22/95		18.49		422.67

NM = Not Monitored

Table 2
Groundwater Analytical Results
(Petroleum Hydrocarbons - GRPH, DRPH, BTEX, MtBE)

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Sampled	GRPH (ug/l)	DRPH (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Xylenes (ug/l)	MtBE (ug/l)
AR-3	8/31/93	--	--	<0.2	<0.2	<0.2	<0.2	--
	4/6/94	--	--	**6.3**	<0.2	<0.2	<0.2	<0.2
	7/29/94	--	--	**0.7**	<0.2	<0.2	<0.2	<0.2
	9/21/94	--	--	**1.8**	<0.2	<0.2	<0.2	<0.2
AR-4	8/31/93	--	--	<0.2	<0.2	<0.2	<0.2	--
	4/6/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	7/29/94	--	--	<0.2	<0.2	<0.2	<0.2	**0.4**
	9/22/94	--	--	<0.2	<0.2	<0.2	<0.2	**0.5**
	4/11/95	--	--	<0.2	<0.2	<0.2	<0.2	**1.5**
AR-7	9/1/93	--	--	**560**	**1,900**	**450**	**3,000**	--
	4/6/94	--	--	**630**	**3,800**	**950**	**5,900**	<0.2
	7/29/94	--	--	**1,400**	**4,400**	**1,200**	**6,100**	<100
	9/22/94	--	--	**1,000**	**3,600**	**1,100**	**5,700**	<0.2
	4/11/95	--	--	**980**	**1,800**	**1,000**	**5,300**	<200
	4/19/96	--	--	**1,500**	**1,200**	**1,000**	**5,900**	**28**
	4/19/96	--	--	**1,500**	**1,200**	**1,100**	**6,200**	**33**
	4/11/97		Not Sampled - 0.26' of Separate Phase Hydrocarbons Observed					
	4/16/98		Not Sampled - 0.26' of Separate Phase Hydrocarbons Observed					
	4/12/99		Not Sampled - 0.03' of Separate Phase Hydrocarbons Observed					
AR-8	9/1/93	--	--	**5.9**	**0.2**	<0.2	**0.2**	--
	4/11/95	--	--	**0.3**	<0.2	<0.2	**0.3**	<0.2
	4/19/96	--	--	0.74	<0.50	<0.50	<1.0	<0.50
	4/11/97	<50	**390**	<0.50	<0.50	<0.50	<1.0	--
	4/11/97	<50	**482**	<0.50	<0.50	<0.50	<1.0	--
	4/16/98	<50	**219**	<0.50	<0.50	<0.50	<1.0	--
	4/12/99	<50	**447**	<0.50	<0.50	<0.50	<1.0	--
AR-25	8/31/93	--	--	<0.2	<0.2	<0.2	<0.2	--
	4/5/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	7/28/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	9/21/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	4/11/95	--	--	--	--	--	--	--

Table 2
Groundwater Analytical Results
(Petroleum Hydrocarbons - GRPH, DRPH, BTEX, MtBE)

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Sampled	GRPH (ug/l)	DRPH (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Xylenes (ug/l)	MtBE (ug/l)
AR-26	8/31/93	--	--	**28**	<0.2	<0.2	**9.7**	--
	4/6/94	--	--	**34**	<0.2	**20**	**26**	<0.2
	7/28/94	--	--	**21**	<0.2	<0.2	**8.2**	<0.2
	9/21/94	--	--	**29**	<0.2	**17**	**17**	<0.2
	4/11/95	--	--	--	--	--	--	--
AR-27	8/31/93	--	--	<0.2	<0.2	<0.2	<0.2	--
	4/5/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	7/28/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	9/21/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
AR-35	9/1/93	--	--	**1,500**	**2,000**	<0.2	**2,000**	--
	7/29/94	--	--	**2,300**	**6,400**	<100	**3,400**	<100
AR-38	8/31/93	--	--	<0.2	<0.2	<0.2	<0.2	--
	4/6/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	8/8/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	9/21/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
AR-42	8/31/93	--	--	<0.2	<0.2	<0.2	<0.2	--
	7/29/94	--	--	**18.7**	**0.2**	**1.7**	**0.3**	<0.2
	9/21/94	--	--	**5.0**	<0.2	<0.2	<0.2	<0.2
AR-44	8/31/93	--	--	**780**	**1,800**	**600**	**3,000**	--
	4/6/94	--	--	**750**	**4,100**	**1,100**	**6,900**	<20
	7/29/94	--	--	**860**	**3,200**	**360**	**3,450**	<100
	9/22/94	--	--	**430**	**2,100**	**560**	**4,000**	<5
	4/11/95	--	--	**1,800**	**7,200**	**900**	**5,500**	<20
	4/19/96	--	--	NS	NS	NS	NS	NS
	4/11/97	**40,300**	**5,040**	**917**	**6,690**	**813**	**4,820**	--
	4/16/98	**53,100**	**3,730**	**1,240**	**10,900**	**1,460**	**8,510**	--
	4/12/99	**48,300**	**10,400**	**710**	**8,490**	**1,470**	**8,490**	--
	4/12/99	**52,600**	**7,910**	**830**	**9,750**	**1,550**	**8,860**	--
AR-47	8/30/93	--	--	<0.2	<0.2	<0.2	<0.2	--
	4/5/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	7/28/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	9/21/94	--	--	**0.3**	<0.2	<0.2	**0.3**	<0.2

Table 2
Groundwater Analytical Results
(Petroleum Hydrocarbons - GRPH, DRPH, BTEX, MtBE)

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Sampled	GRPH (ug/l)	DRPH (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Xylenes (ug/l)	MtBE (ug/l)
AR-47(cont.)	4/11/95	--	--	<0.2	**0.3**	<0.2	<0.2	<0.2
	4/19/96	--	--	**76**	<0.50	<0.50	<1.0	<0.50
	4/11/97	<50	**988**	**15**	<0.50	<0.50	<1.0	--
	4/16/98	<50	**342**	<0.50	<0.50	<0.50	<1.0	--
	4/12/99	<50	**580**	**6.71**	<0.50	<0.50	<1.0	--
AR-49	8/31/93	--	--	<0.2	<0.2	<0.2	**0.9**	--
	4/5/94	--	--	**25**	**0.6**	**6**	**16**	<0.2
	7/29/94	--	--	**4.4**	<0.2	**0.3**	**0.7**	<0.2
	9/21/94	--	--	**22**	**0.3**	**7.2**	**16**	<0.2
	4/11/95	--	--	--	--	--	--	--
AR-58	8/31/93	--	--	**0.2**	<0.2	<0.2	<0.2	--
	4/5/94	--	--	**0.4**	<0.2	<0.2	<0.2	<0.2
	7/28/94	--	--	**0.6**	<0.2	<0.2	<0.2	<0.2
	9/21/94	--	--	**0.6**	<0.2	<0.2	<0.2	<0.2
AR-76	9/1/93	--	--	**3.3**	**6.8**	**0.2**	**3.7**	--
	4/11/95	--	--	**3.7**	**<0.2**	**2.2**	**22**	<0.2
	4/19/96	--	--	**4.5**	<0.80	**17**	**88**	**2.4**
	4/11/97	NS	NS	NS	NS	NS	NS	--
	4/16/98	**536**	**6,020**	**2.22**	**1.44**	**3.17**	**29**	--
	4/12/99	<2,500	**11,600**	<25	<25	<25	<50	--
AR-79	8/30/93	--	--	<0.2	<0.2	<0.2	<0.2	--
	4/6/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	7/28/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	9/21/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
AR-81	8/31/93	--	--	**150**	**6.2**	**110**	**300**	--
	4/11/95	--	--	**78**	**2.8**	**83**	**210**	<0.2
	4/19/96	--	--	**46**	**0.96**	**12**	**110**	**4.6**
	4/11/97	**908**	**3,580**	**17.1**	**0.729**	**24.8**	**45.9**	--
	4/16/98	**580**	**2,630**	**11.40**	**1.26**	**15.4**	**30.4**	--
	4/16/98	**482**	**1,930**	**10.80**	<1.25	**14.1**	**22.7**	--
	4/12/99	NS	NS	NS	NS	NS	NS	--
AR-100	9/1/93	--	--	<0.2	<0.2	<0.2	<0.2	--
	4/5/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2

Table 2
Groundwater Analytical Results
(Petroleum Hydrocarbons - GRPH, DRPH, BTEX, MtBE)

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Sampled	GRPH (ug/l)	DRPH (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Xylenes (ug/l)	MtBE (ug/l)
AR-100	7/29/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
(cont.)	9/21/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	4/10/95	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	4/19/96	--	--	<0.50	<0.50	<0.50	<1.0	<0.50
	4/11/97	<50	**177**	<0.50	<0.50	<0.50	<1.0	--
	4/16/98	<50	<100	<0.50	<0.50	<0.50	<1.0	--
	4/12/99	<50	**147**	<0.50	**0.808**	<0.50	**1.63**	--
AR-101	9/9/93	--	--	**0.6**	**0.6**	<0.2	**0.6**	--
	4/5/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	7/29/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	9/21/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	4/10/95	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	4/19/96	--	--	<0.50	<0.50	<0.50	<1.0	<0.50
	4/11/97	<50	**5,310**	<0.50	**9.71**	<0.50	<1.0	--
	4/16/98	<50	<100	<0.50	<0.50	<0.50	<1.0	--
	4/12/99	<50	<100	<0.50	<0.50	<0.50	<1.0	--
AR-102	9/1/93	--	--	<0.2	<0.2	<0.2	<0.2	--
	4/5/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	7/29/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	9/21/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	4/10/95	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	4/19/96	--	--	NS	NS	NS	NS	NS
	4/11/97	<50	**197**	<0.50	<0.50	<0.50	<1.0	--
	4/16/98	<50	<100	<0.50	<0.50	<0.50	<1.0	--
	4/12/99	<50	**141**	<0.50	<0.50	<0.50	<1.0	--
AR-103	9/1/93	--	--	**0.3**	<0.2	<0.2	<0.2	--
	4/5/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	7/28/94	--	--	<0.2	<0.2	<0.2	**0.2**	<0.2
	9/21/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	4/10/95	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	4/19/96	--	--	<0.50	<0.50	<0.50	<1.0	<0.50
	4/11/97	<50	**156**	<0.50	<0.50	<0.50	<1.0	--
	4/16/98	<50	<100	<0.50	<0.50	<0.50	<1.0	--
	4/12/99	<50	<100	<0.50	<0.50	<0.50	<1.0	--

Table 2
Groundwater Analytical Results
(Petroleum Hydrocarbons - GRPH, DRPH, BTEX, MtBE)

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Sampled	GRPH (ug/l)	DRPH (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Xylenes (ug/l)	MtBE (ug/l)
AR-104	9/1/93	--	--	<0.2	<0.2	<0.2	<0.2	--
	4/5/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	7/28/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	9/21/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
AR-106	9/1/93	--	--	**0.3**	**0.5**	<0.2	**0.3**	--
	4/10/95	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	4/19/96	--	--	<0.50	<0.50	<0.50	<1.0	<0.50
	4/11/97	NS	NS	NS	NS	NS	NS	--
	4/16/98	NS	NS	NS	NS	NS	NS	--
	4/12/99	NS	NS	NS	NS	NS	NS	--
AR-107	9/9/93	--	--	<0.2	<0.2	<0.2	<0.2	--
	4/6/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	7/29/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
	9/21/94	--	--	<0.2	<0.2	<0.2	<0.2	<0.2
AR-108	9/1/93	--	--	**13**	**0.3**	<0.2	<0.2	--
	4/6/94	--	--	**6.9**	<0.2	<0.2	<0.2	<0.2
	7/29/94	--	--	**23.4**	<0.2	<0.2	<0.2	<0.2
	9/21/94	--	--	**50**	**0.2**	<0.2	<0.2	**0.2**
	4/11/95	--	--	**3.7**	<0.2	<0.2	<0.2	**0.8**
	4/19/96	--	--	NS	NS	NS	NS	NS
	4/11/97	<50	**3,140**	<0.50	<0.50	<0.50	<1.0	--
	4/16/98	<50	**1,070**	<0.50	<0.50	<0.50	<1.0	--
	4/12/99	<50	**1,310**	<0.50	<0.50	<0.50	<1.0	--

ug/l = micrograms per liter
-- = Not Analyzed
NS = Not Sampled
GRPH = gasoline range petroleum hydrocarbons by EPA Method 8015
DRPH = diesel range petroleum hydrocarbons by EPA Method 8015
MtBE = methyl tert-butyl ether by EPA Methods 8010 (in 1993 through 1995) and 8020 (in 1996)

Table 4
Groundwater Analytical Results
(Inorganic Water Quality)

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Sampled	Alkalinity (mg/l as $CaCO^3$)	Hardness (mg/l as $CaCO^3$)	Temp. (°C)	pH	Conductivity (uMhos/cm)	Fluoride (mg/l)	Chloride (mg/l)	Nitrate mg/l as N	Phosphate (mg/l as P)	Sulfate (mg/l)	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Potassium (mg/l)	Dissolved Iron (mg/l)	Total Iron (mg/l)
AR-4	4/11/95	207	215	NA	NA	NA	NA	7.31	0.16	<0.05	27.9	62.8	14.2	10.6	5.19	0.46	0.67
AR-7	4/19/96	NA	NA	6.2	7.24	535	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AR-8	4/19/96	NA	NA	6.8	7.55	418	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/11/97	NA	NA	5.1	7.0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/16/98	NA	NA	4.0	7.1	519	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/12/99	NA	NA	2.7	7.1	561	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AR-25	8/31/93	380	NA	6.9	6.50	779	0.09	8.81	3.21	<0.05	49	115	30	10.6	6.04	NA	NA
	4/5/94	419	469	NA	NA	NA	NA	12.9	5.25	<0.05	73.2	132	33.8	13.4	6.48	NA	NA
	7/28/94	351	375	NA	NA	NA	NA	11.2	0.07	<0.05	56.1	104	27.9	11.2	6.80	NA	NA
	9/21/94	364	401	NA	NA	NA	NA	9.84	3.45	<0.05	62.5	114	28.2	16.8	6.54	NA	NA
	4/11/95	417	477	NA	NA	NA	NA	6.13	5.35	<0.05	71.2	142	29.6	12.6	6.97	0.49	0.54
AR-26	4/11/95	865	876	NA	NA	NA	NA	2.27	<0.02	<0.05	26.4	161	115	14.6	11	5.37	6.45
AR-42	8/31/93	175	NA	5.9	6.60	415	0.1	2.76	0.43	<0.05	25.9	50.1	13.1	5.45	2.9	NA	NA
	7/29/94	165	193	NA	NA	NA	NA	3.04	<0.02	<0.05	25.3	52.6	15	5.52	3.48	NA	NA
	9/21/94	179	180	NA	NA	NA	NA	2.9	<0.02	<0.05	15	50.1	13.4	5.57	3.55	NA	NA
AR-44	4/11/95	NA	445	NA	NA	NA	NA	NA	NA	NA	NA	136	25.5	19.5	8.78	1.36	4.46
	4/11/97	NA	NA	8.3	7.0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/16/98	NA	NA	6.5	7.1	515	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/12/99	NA	NA	4.3	6.4	830	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table 4
Groundwater Analytical Results
(Inorganic Water Quality)

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Sampled	Alkalinity (mg/l as $CaCO^3$)	Hardness (mg/l as $CaCO^3$)	Temp. (°C)	pH	Conductivity (uMhos/cm)	Fluoride (mg/l)	Chloride (mg/l)	Nitrate mg/l as N	Phosphate (mg/l as P)	Sulfate (mg/l)	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Potassium (mg/l)	Dissolved Iron (mg/l)	Total Iron (mg/l)
AR-47	8/30/93	229	NA	9.3	6.40	509	0.35	10.2	4.41	<0.05	12.7	68.1	16.8	14.6	10.1	NA	NA
	4/5/94	100	196	NA	NA	NA	NA	32.2	28.9	<0.05	48.2	58.4	12.1	14.2	16.5	NA	NA
	7/28/94	189	254	NA	NA	NA	NA	14.3	15.9	<0.05	42.7	69.0	19.9	14.9	12.2	NA	NA
	9/21/94	198	270	NA	NA	NA	NA	19.8	18.1	<0.05	30.5	72.7	21.5	17.6	9.59	NA	NA
	4/19/96	NA	NA	8.2	6.71	570	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/11/97	NA	NA	5.9	7.0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/16/98	NA	NA	2.6	5.9	528	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/12/99	NA	NA	1.9	6.0	588	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AR-49	4/5/94	400	322	NA	NA	NA	NA	7.35	0.07	<0.05	2.4	86.9	25.6	11.7	5.91	NA	NA
AR-56	8/31/93	253	NA	6.5	6.73	527	0.11	7.28	0.54	<0.05	32.6	81.2	17.9	14.1	5.37	NA	NA
AR-58	8/31/93	229	NA	5.6	6.51	540	0.1	16.5	0.75	<0.05	45.4	76.9	26.4	6.26	4.92	NA	NA
	4/5/94	253	268	NA	NA	NA	NA	10.7	0.08	<0.05	36.0	69.8	22.7	6.81	4.41	NA	NA
	7/28/94	228	243	NA	NA	NA	NA	9.59	0.19	<0.05	40.3	65	19.7	8.23	5.10	NA	NA
	9/21/94	253	282	NA	NA	NA	NA	12.5	0.34	<0.05	42.8	74.7	23.1	8.76	3.61	NA	NA
AR-59	8/31/93	645	NA	3.8	6.42	1480	0.08	7.65	13.8	<0.05	191	187	82.3	8.87	7.43	NA	NA
AR-76	4/11/95	NA	276	NA	NA	NA	NA	NA	NA	NA	NA	79.8	18.7	10.8	6.19	8.90	9.50
	4/19/96	NA	NA	6.3	6.54	492	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/16/98	NA	NA	3.9	7.0	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/12/99	NA	NA	1.9	6.6	567	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table 4
Groundwater Analytical Results
(Inorganic Water Quality)

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Sampled	Alkalinity (mg/l as $CaCO^3$)	Hardness (mg/l as $CaCO^3$)	Temp. (°C)	pH	Conductivity (uMhos/cm)	Fluoride (mg/l)	Chloride (mg/l)	Nitrate mg/l as N	Phosphate (mg/l as P)	Sulfate (mg/l)	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Potassium (mg/l)	Dissolved Iron (mg/l)	Total Iron (mg/l)
AR-79	8/30/93	365	NA	3.7	6.87	745	0.1	20.2	<0.02	0.05	37.2	132	10.9	9.49	5.76	NA	NA
	4/6/94	376	404	NA	NA	NA	NA	19.9	0.66	<0.05	51.8	117	27.2	9.25	6.42	NA	NA
	7/28/94	357	368	NA	NA	NA	NA	17	<0.02	<0.05	37.3	107	24.5	9.6	6.87	NA	NA
	9/21/94	353	397	NA	NA	NA	NA	15.5	0.14	<0.05	37	118	24.8	10.6	5.36	NA	NA
AR-81	4/19/96	NA	NA	8.6	6.72	614	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/11/97	NA	NA	5.5	7.0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/16/98	NA	NA	2.6	6.9	742	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AR-100	9/1/93	163	NA	5.1	7.09	329	0.17	4.6	<0.02	<0.05	17.8	43.7	9.97	10	4.06	NA	NA
	4/5/94	150	126	NA	NA	NA	NA	1.53	<0.02	<0.05	14.2	36.5	8.44	4.86	3.38	NA	NA
	7/29/94	152	144	NA	NA	NA	NA	9.58	<0.02	<0.05	18.1	41.3	9.94	10.6	6.34	NA	NA
	9/21/94	163	148	NA	NA	NA	NA	3.18	<0.02	<0.05	17.2	43.3	9.6	5.78	3.65	NA	NA
	4/19/96	NA	NA	8.1	6.68	323	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/11/97	NA	NA	5.1	7.0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/16/98	NA	NA	3.7	7.2	386	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/12/99	NA	NA	3.5	6.8	414	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AR-101	9/9/93	144	NA	4.6	7.08	289	0.1	1.79	<0.02	<0.05	12.6	39.1	8.36	5.01	3.74	NA	NA
	4/5/94	140	123	NA	NA	NA	NA	1.32	<0.02	<0.05	11.9	36.4	7.72	4.34	3.39	NA	NA
	7/29/94	128	127	NA	NA	NA	NA	1.15	<0.02	<0.05	11.4	37.1	8.26	4.97	3.88	NA	NA
	9/21/94	125	135	NA	NA	NA	NA	1.82	<0.02	<0.05	12.9	39.8	8.61	4.4	3.49	NA	NA
	4/10/95	140	130	NA	NA	NA	NA	1.48	<0.02	<0.05	12.3	38.2	8.38	5.59	3.78	5.44	8.18
	4/19/96	NA	NA	6.1	7.0	286	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/11/97	NA	NA	5.6	7.0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table 4
Groundwater Analytical Results
(Inorganic Water Quality)

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

Sample Name	Date Sampled	Alkalinity (mg/l as $CaCO^3$)	Hardness (mg/l as $CaCO^3$)	Temp. (°C)	pH	Conductivity (uMhos/cm)	Fluoride (mg/l)	Chloride (mg/l)	Nitrate mg/l as N	Phosphate (mg/l as P)	Sulfate (mg/l)	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Potassium (mg/l)	Dissolved Iron (mg/l)	Total Iron (mg/l)
AR-101	4/16/98	NA	NA	4.8	7.2	4.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(cont.)	4/12/99	NA	NA	3.2	6.9	440	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AR-102	9/1/93	305	NA	8.1	6.78	665	0.15	19.4	0.14	<0.05	37.5	89	21.4	28.9	6.42	NA	NA
	4/5/94	341	330	NA	NA	NA	NA	16.7	0.07	<0.05	40.6	90.9	24.9	21.4	6.09	NA	NA
	7/29/94	307	368	NA	NA	NA	NA	14.1	0.16	<0.05	38.2	109	23.3	19.8	7.27	NA	NA
	9/21/94	325	340	NA	NA	NA	NA	17.4	0.16	<0.05	40.8	96.7	24	21.9	4.82	NA	NA
	4/10/95	301	312	NA	NA	NA	NA	6.26	0.04	<0.05	37.6	89.1	21.8	17	5.98	NA	NA
	4/11/97	NA	NA	5.3	7.0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/16/98	NA	NA	5.2	7.0	573	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/12/99	NA	NA	4.3	6.7	539	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AR-103	9/1/93	577	NA	5.7	6.51	1020	0.09	3.84	11.8	<0.05	25	147	40.4	19.7	17.7	NA	NA
	4/5/94	569	549	NA	NA	NA	NA	4.62	12.4	<0.05	32.8	148	43.6	10.5	15.3	NA	NA
	7/28/94	533	587	NA	NA	NA	NA	23.3	21	<0.05	59	163	43.8	13.1	18.8	NA	NA
	9/21/94	593	541	NA	NA	NA	NA	14.7	9.8	<0.05	39.8	151	39.8	29.9	13.6	NA	NA
	4/19/96	NA	NA	7.6	6.63	1082	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/11/97	NA	NA	5.9	7.0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/16/98	NA	NA	3.6	6.5	1006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/12/99	NA	NA	3.6	6.2	1059	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AR-104	9/1/93	363	NA	4.7	6.69	689	0.1	11	0.39	<0.05	28.8	124	24.7	9.23	6.34	NA	NA
	4/5/94	343	357	NA	NA	NA	NA	10.4	0.83	<0.05	39.1	104	23.6	9.61	6.67	NA	NA
	7/28/94	306	357	NA	NA	NA	NA	8.27	5.75	<0.05	44.9	106	22.3	9.19	7.33	NA	NA
	9/21/94	298	365	NA	NA	NA	NA	8.53	3.4	<0.05	42.2	108	23.1	10.8	4.71	NA	NA

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Table 4
Groundwater Analytical Results
(Inorganic Water Quality)

MSLUG Site
Alaska Railroad Industrial Area
Fairbanks, Alaska

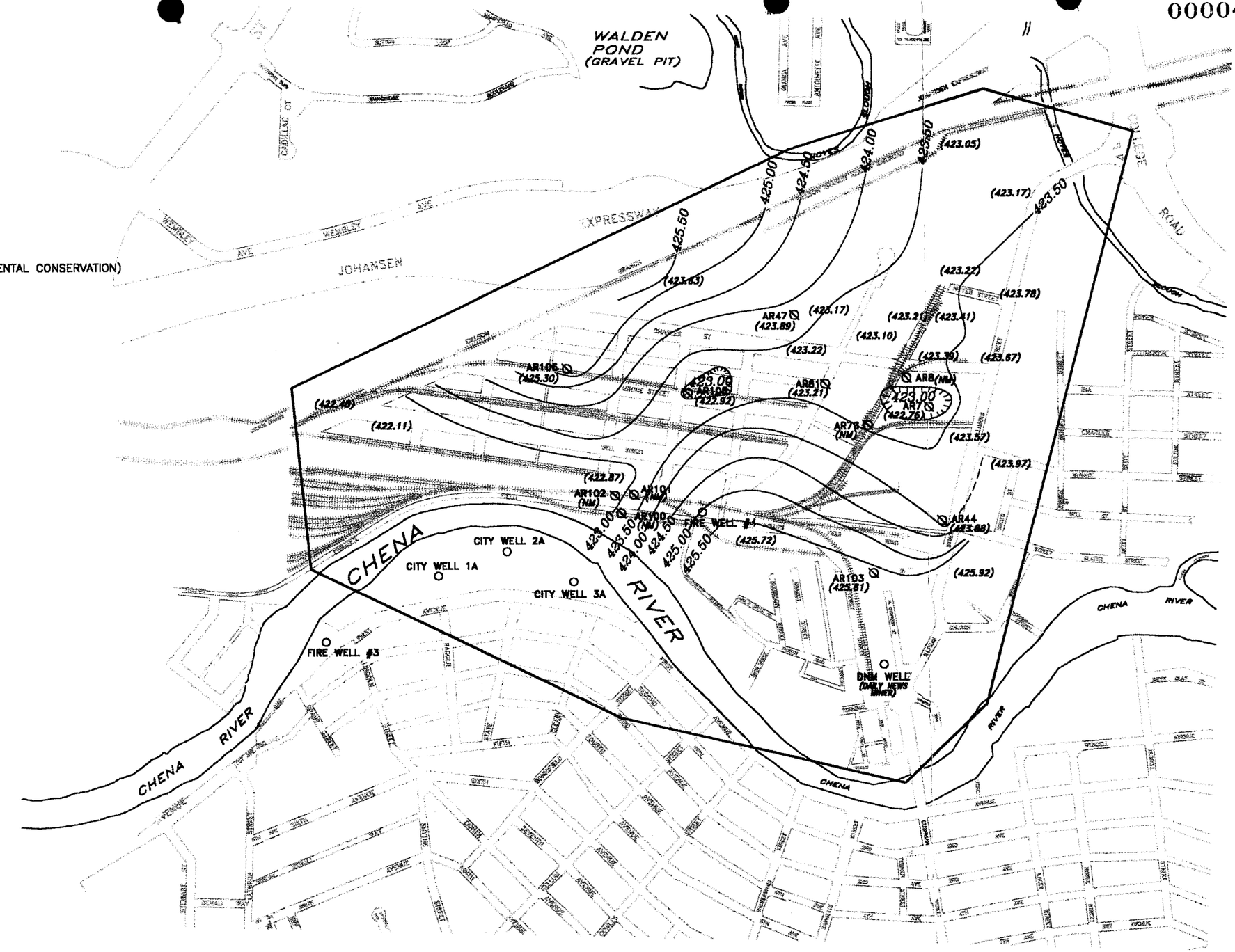
Sample Name	Date Sampled	Alkalinity (mg/l as $CaCO^3$)	Hardness (mg/l as $CaCO^3$)	Temp. (°C)	pH	Conductivity (uMhos/cm)	Fluoride (mg/l)	Chloride (mg/l)	Nitrate mg/l as N	Phosphate (mg/l as P)	Sulfate (mg/l)	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Potassium (mg/l)	Dissolved Iron (mg/l)	Total Iron (mg/l)
AR-105	9/1/93	646	NA	4.9	6.90	753	0.21	259	4.28	<0.05	57.8	304	22.2	212	8.62	NA	NA
AR-106	4/19/96	NA	NA	5.6	6.14	607	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AR-108	9/1/93	231	NA	4.8	6.86	417	0.1	3.91	<0.02	<0.05	5.99	66.6	14.4	6.36	4.44	NA	NA
	4/6/94	244	229	NA	NA	NA	NA	4.16	<0.02	<0.05	7.78	66.3	15.4	5.15	4.65	NA	NA
	7/29/94	221	208	NA	NA	NA	NA	5.23	<0.02	<0.05	5.18	60.4	13.9	5.87	5.04	NA	NA
	9/21/94	203	206	NA	NA	NA	NA	5.81	<0.02	<0.05	5.76	60.8	13.1	6.15	3.35	NA	NA
	4/11/95	236	230	NA	NA	NA	NA	2.59	<0.02	<0.05	6.91	67.4	15	6.07	4.98	4.41	5.73
	4/11/97	NA	NA	7.1	7.0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/16/98	NA	NA	5.8	6.9	632	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/12/99	NA	NA	2.7	6.9	637	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AR-111	9/1/93	154	NA	4.6	7.00	316	0.11	2.61	<0.02	<0.05	14.5	42.1	9.3	5.21	3.53	NA	NA
MUS	9/1/93	184	NA	NA	6.71	NA	0.12	3.25	<0.02	<0.05	12.1	52.2	11.4	5.98	3.65	NA	NA
DNM	9/2/93	185	NA	NA	6.96	392	0.13	1.66	<0.02	13.8	7.61	44	9.17	24.5	13.1	NA	NA

mg/l = milligrams per liter
NA = Not Analyzed
MUS = Municipal Utilities System
DNM = Daily News-Miner

000041

LEGEND:

- AR47 — GROUNDWATER MONITORING WELL
- 425.00 — GROUNDWATER ELEVATION CONTOUR IN FEET, 8/30/93 – 9/1/93
- (425.61) — GROUNDWATER ELEVATION IN FEET, 8/30/93 – 9/1/93
- (NM) — NOT MEASURED
- GRADIENT 0.0008 — APPROXIMATE GROUNDWATER FLOW DIRECTION
- ENVIRONMENTAL ASSESSMENT AREA (AS DEFINED BY ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION)



0 500 1000
APPROXIMATE SCALE FEET

SECOR International Incorporated

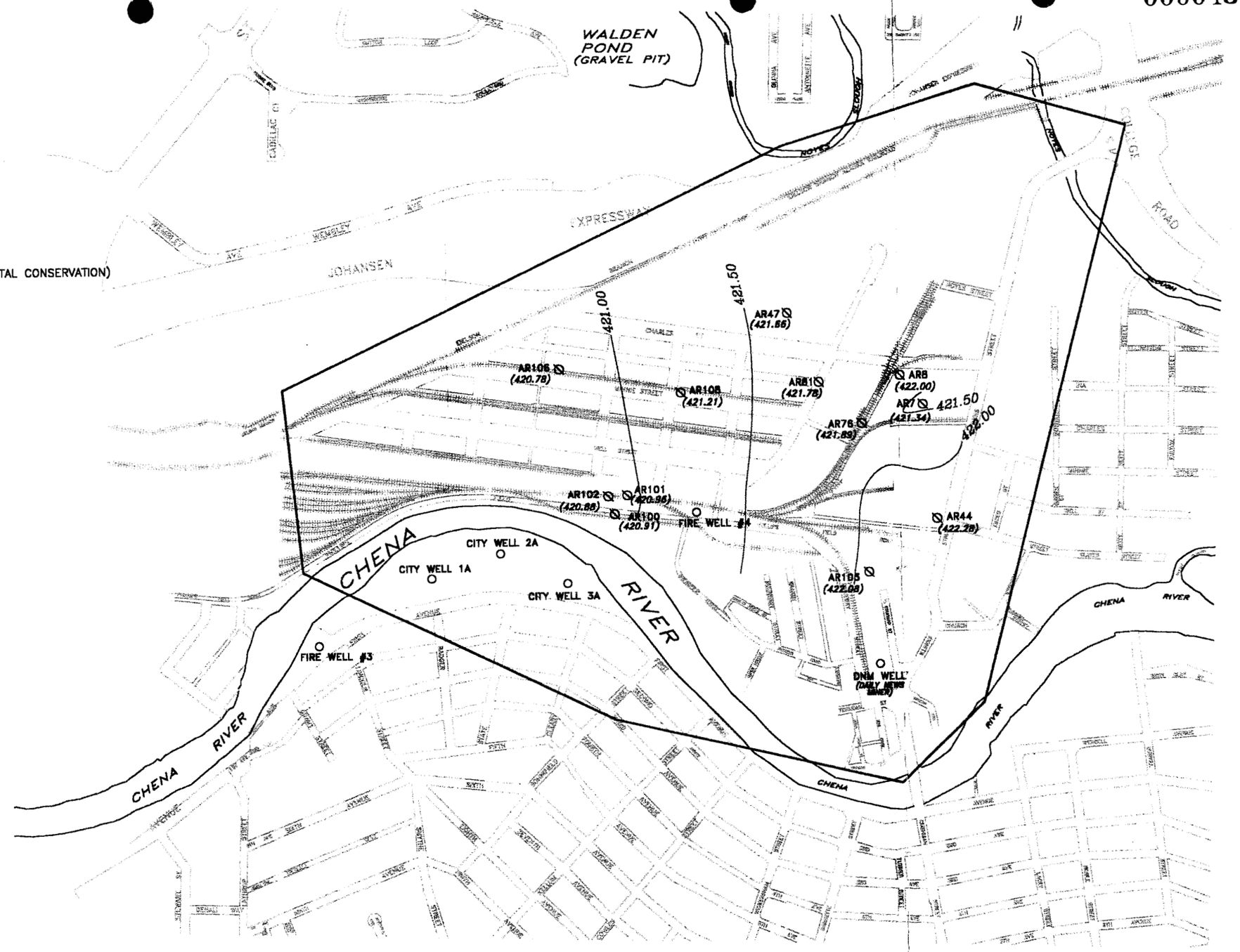
DRAWN	TJZ
APPR	RKH
DATE	13SEP99
JOB NO.	077.41840.001

FIGURE 1
MSLUG SITE
ALASKA RAILROAD INDUSTRIAL AREA
FAIRBANKS, ALASKA

GROUNDWATER ELEVATION CONTOUR MAP, 8/30/93 – 9/1/93

LEGEND:

- AR47 — GROUNDWATER MONITORING WELL
- 422.00 — GROUNDWATER ELEVATION CONTOUR IN FEET, 4/19/96
- (421.40) — GROUNDWATER ELEVATION IN FEET, 4/19/96
- (NM) — NOT MEASURED
- GRADIENT 0.0006 — APPROXIMATE GROUNDWATER FLOW DIRECTION
- ENVIRONMENTAL ASSESSMENT AREA (AS DEFINED BY ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION)



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APPROXIMATE SCALE FEET

SECOR International Incorporated

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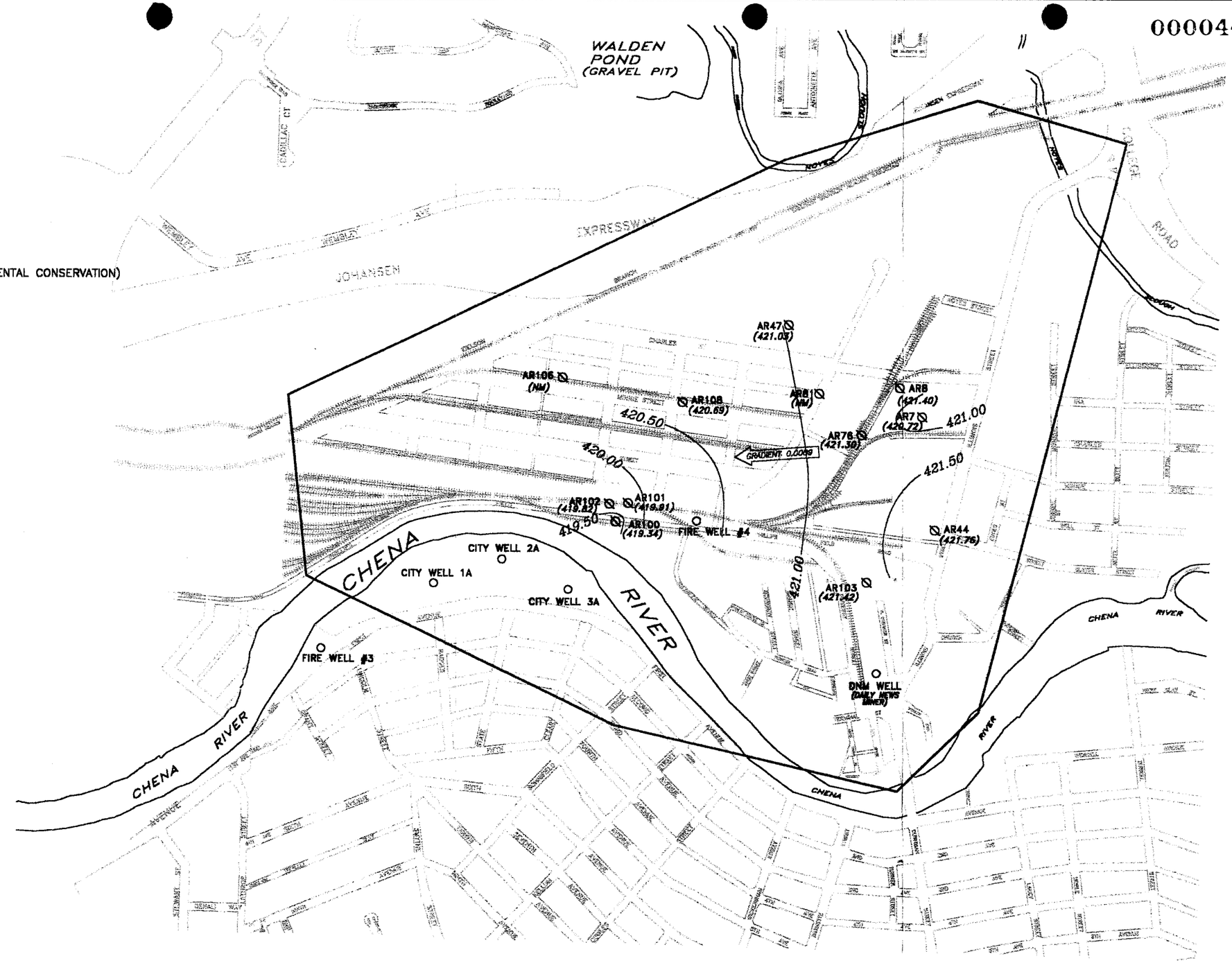
APPR	RKH
DATE	13SEP99
JOB NO.	077.41840.001

FIGURE 2
MSLUG SITE
ALASKA RAILROAD INDUSTRIAL AREA
FAIRBANKS, ALASKA

GROUNDWATER ELEVATION CONTOUR MAP, 4/19/96

LEGEND:

- AR47 — GROUNDWATER MONITORING WELL
- 420.00 — GROUNDWATER ELEVATION CONTOUR IN FEET, 4/12/99
- (419.82) — GROUNDWATER ELEVATION IN FEET, 4/12/99
- (NM) — NOT MEASURED
- GRADIENT 0.0009 — APPROXIMATE GROUNDWATER FLOW DIRECTION
- ENVIRONMENTAL ASSESSMENT AREA (AS DEFINED BY ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION)



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APPROXIMATE SCALE FEET

SECOR International Incorporated	DRAWN TJZ APPR RKH DATE 13SEP99 JOB NO. 077.41840.001	FIGURE 3 MSLUG SITE ALASKA RAILROAD INDUSTRIAL AREA FAIRBANKS, ALASKA GROUNDWATER ELEVATION CONTOUR MAP, 4/12/99

LEGEND:

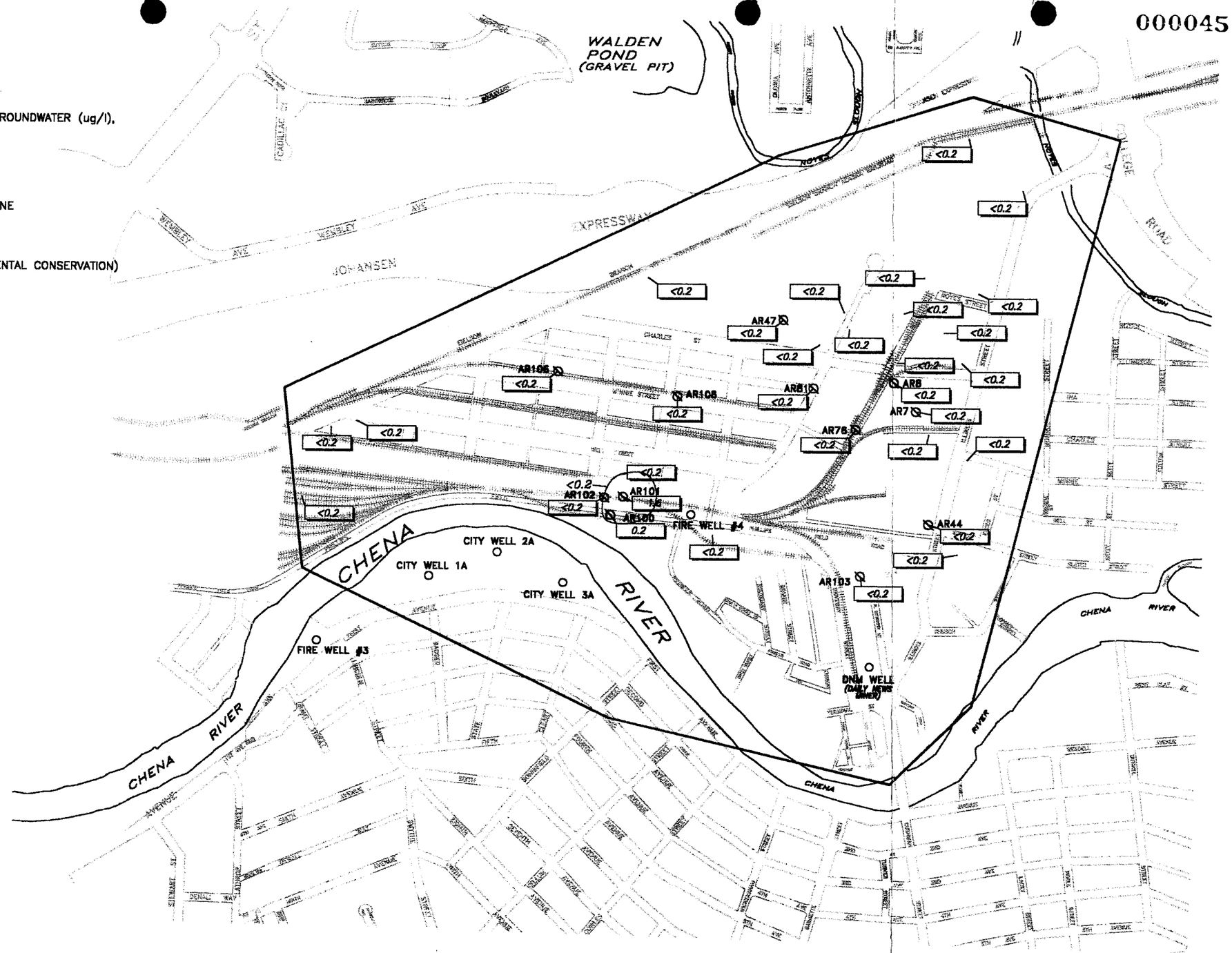
AR47 — GROUNDWATER MONITORING WELL

<0.2 — CONCENTRATION OF DICHLOROBROMOMETHANE IN GROUNDWATER (ug/l), 8/30/93 TO 9/9/93

< — NOT DETECTED AT OR ABOVE THE STATED LABORATORY REPORTING LIMIT

<0.2 — CONCENTRATION CONTOUR OF DICHLOROBROMOMETHANE IN GROUNDWATER (ug/l), 8/30/93 – 9/9/93

ENVIRONMENTAL ASSESSMENT AREA (AS DEFINED BY ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION)



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APPROXIMATE SCALE FEET

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FIGURE 4
MSLUG SITE
ALASKA RAILROAD INDUSTRIAL AREA
FAIRBANKS, ALASKA

DICHLOROBROMOMETHANE CONCENTRATION CONTOUR MAP, 8/30/93 – 9/9/93

LEGEND:

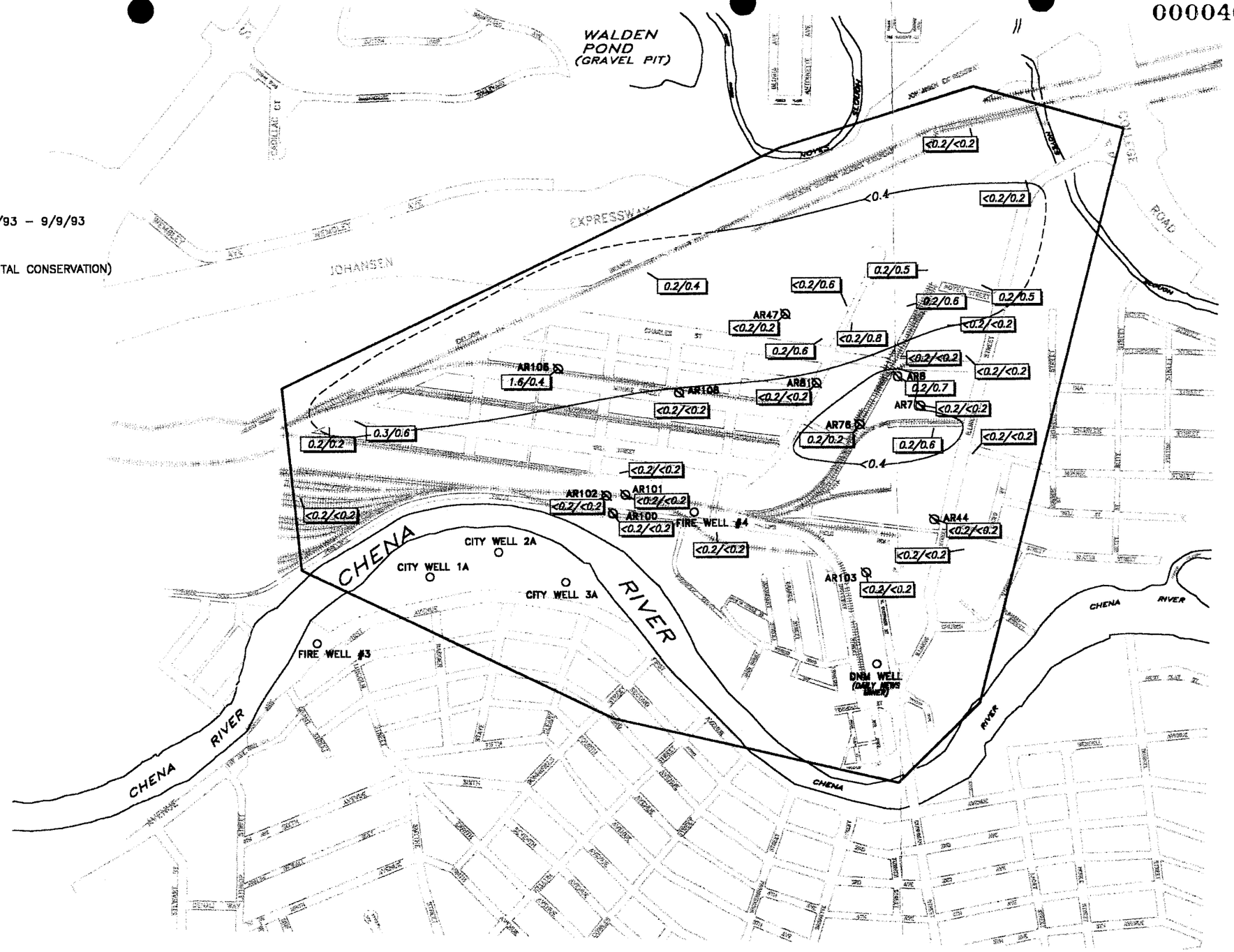
AR47 — GROUNDWATER MONITORING WELL

<0.2/<0.2 — CONCENTRATION OF 1,1-DICHLOROETHANE/ 1,2-DICHLOROETHANE IN GROUNDWATER (ug/l), 8/30/93 TO 9/9/93

< — NOT DETECTED AT OR ABOVE THE STATED LABORATORY REPORTING LIMIT

<0.4 — CONCENTRATION CONTOUR OF 1,1-DICHLOROETHANE/ 1,2-DICHLOROETHANE IN GROUNDWATER (ug/l), 8/30/93 – 9/9/93

— ENVIRONMENTAL ASSESSMENT AREA (AS DEFINED BY ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION)



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APPROXIMATE SCALE FEET

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JOB NO.	077.41840.001

FIGURE 5
MSLUG SITE
ALASKA RAILROAD INDUSTRIAL AREA
FAIRBANKS, ALASKA

1,1-DICHLOROETHANE & 1,2-DICHLOROETHANE CONCENTRATION CONTOUR MAP, 8/30/93 – 9/9/93

LEGEND:

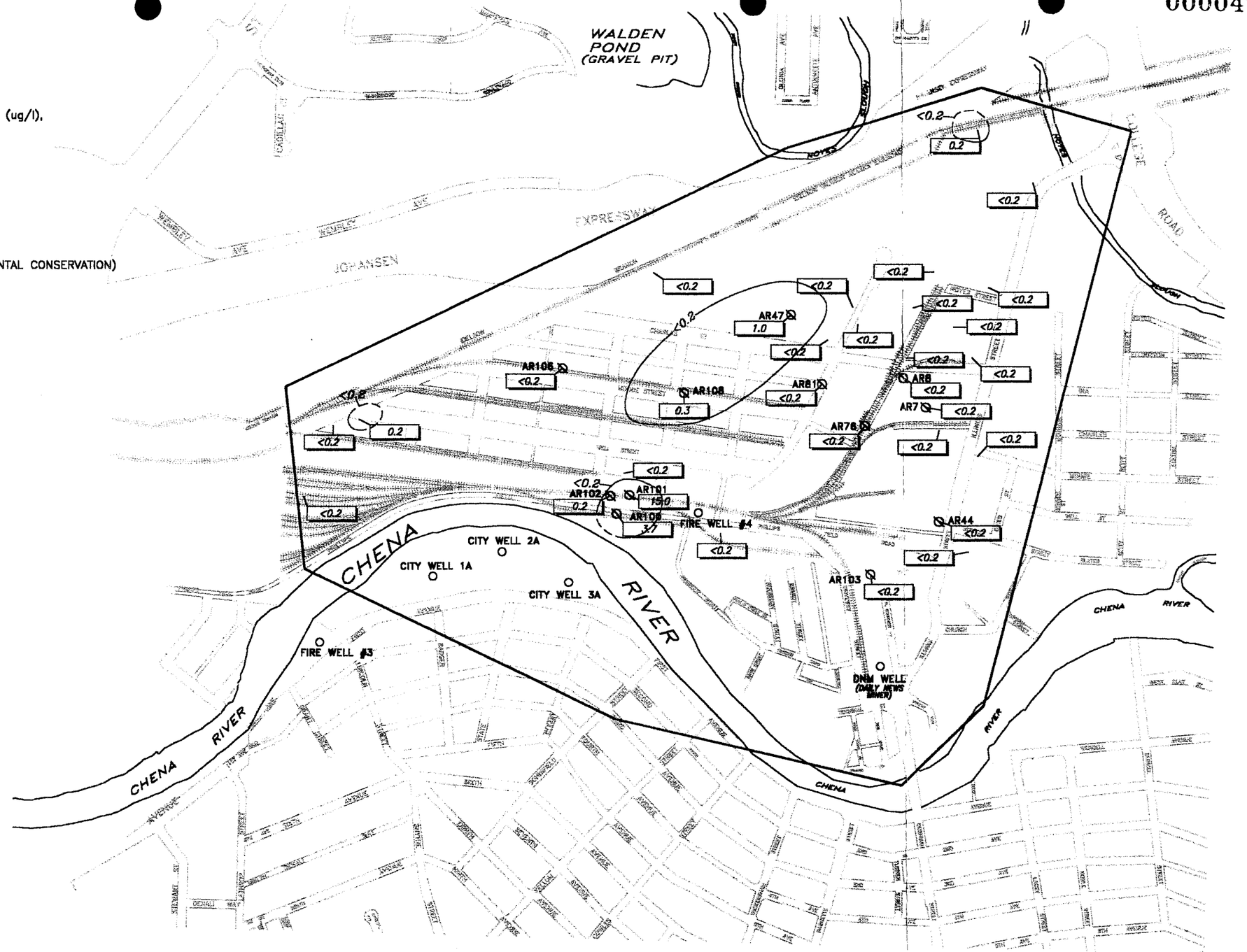
AR47 — GROUNDWATER MONITORING WELL

<0.2 — CONCENTRATION OF CHLOROFORM IN GROUNDWATER (ug/l), 8/30/99 TO 9/9/93

< — NOT DETECTED AT OR ABOVE THE STATED LABORATORY REPORTING LIMIT

<0.2 — CONCENTRATION CONTOUR OF CHLOROFORM IN GROUNDWATER (ug/l), 8/30/93 – 9/9/93

— ENVIRONMENTAL ASSESSMENT AREA (AS DEFINED BY ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION)



0 500 1000
APPROXIMATE SCALE FEET

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DATE	13SEP99
JOB NO.	077.41840.001

FIGURE 6
MSLUG SITE
ALASKA RAILROAD INDUSTRIAL AREA
FAIRBANKS, ALASKA

CHLOROFORM CONCENTRATION CONTOUR MAP, 8/30/93 – 9/9/93

LEGEND:

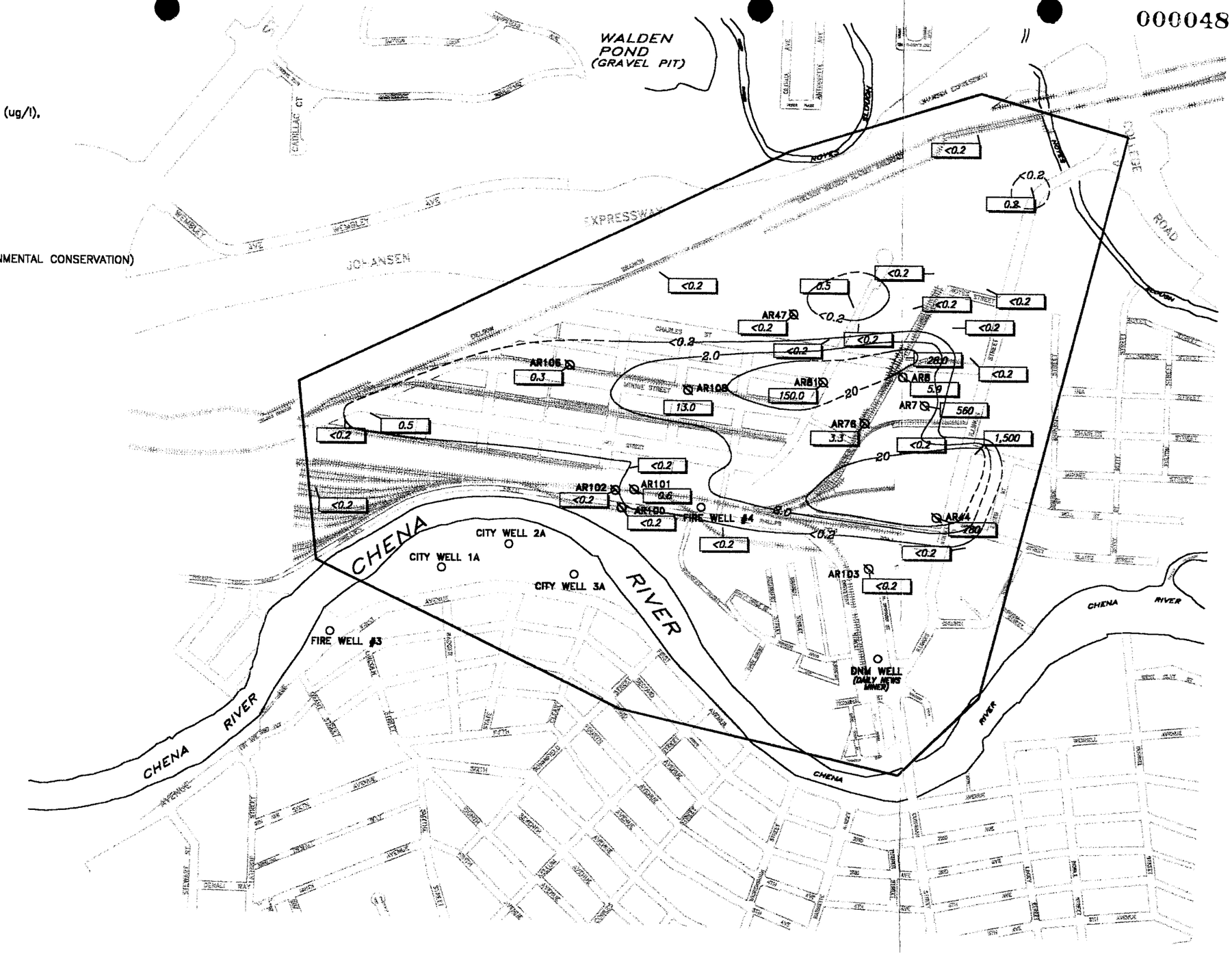
AR47 — GROUNDWATER MONITORING WELL

<0.2 — CONCENTRATION OF BENZENE IN GROUNDWATER (ug/l), 8/30/93 TO 9/9/93

< — NOT DETECTED AT OR ABOVE THE STATED LABORATORY REPORTING LIMIT

<0.2 — CONCENTRATION CONTOUR OF BENZENE IN GROUNDWATER (ug/l), 8/30/93 – 9/9/93

— ENVIRONMENTAL ASSESSMENT AREA (AS DEFINED BY ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION)



0 500 1000
APPROXIMATE SCALE FEET

SECOR International Incorporated	DRAWN TJZ APPR RKH DATE 13SEP99 JOB NO. 077.41840.001	FIGURE 7 MSLUG SITE ALASKA RAILROAD INDUSTRIAL AREA FAIRBANKS, ALASKA BENZENE CONCENTRATION CONTOUR MAP, 8/30/93 – 9/9/93

LEGEND:

AR47 — GROUNDWATER MONITORING WELL

<0.2 — CONCENTRATION OF TETRACHLOROETHYLENE IN GROUNDWATER (ug/l), 8/30/93 TO 9/9/93

< — NOT DETECTED AT OR ABOVE THE STATED LABORATORY REPORTING LIMIT

<0.2 — CONCENTRATION CONTOUR OF TETRACHLOROETHYLENE IN GROUNDWATER (ug/l), 8/30/93 – 9/9/93

— ENVIRONMENTAL ASSESSMENT AREA (AS DEFINED BY ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION)

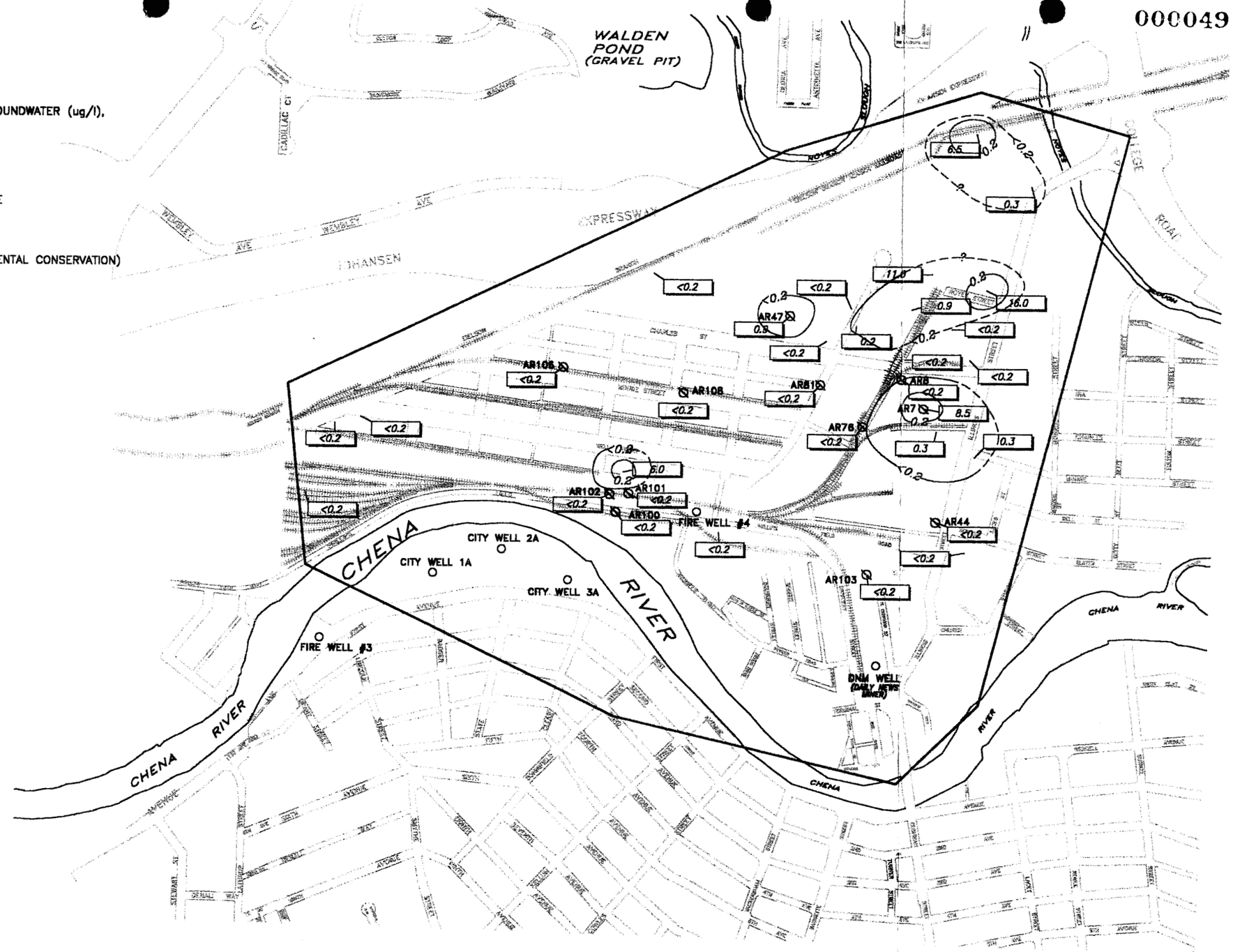


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FIGURE 8
MSLUG SITE
ALASKA RAILROAD INDUSTRIAL AREA
FAIRBANKS, ALASKA

TETRACHLOROETHYLENE CONCENTRATION CONTOUR MAP, 8/30/93 – 9/9/93

LEGEND:

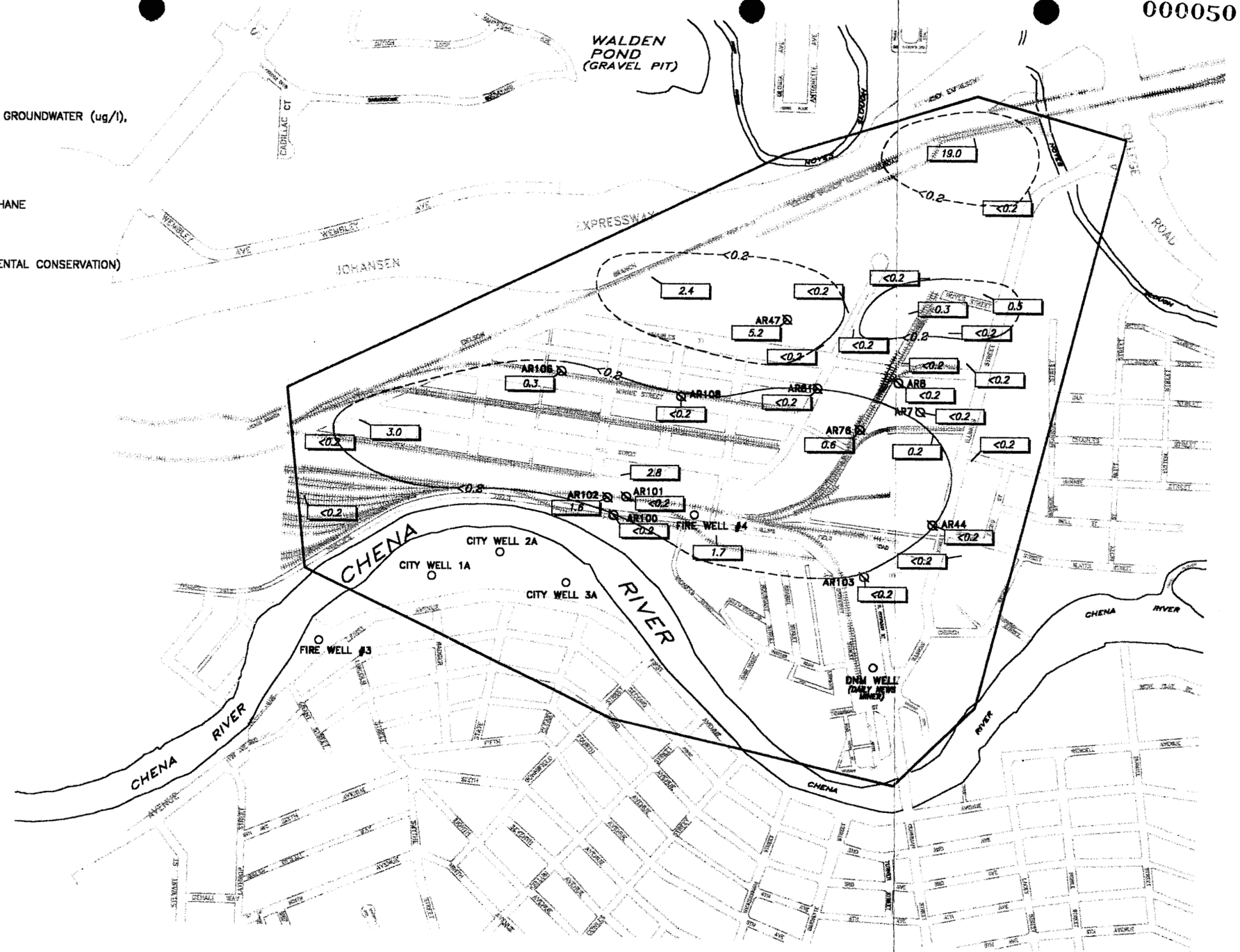
AR47 — GROUNDWATER MONITORING WELL

<0.2 — CONCENTRATION OF TRICHLOROFLUOROMETHANE IN GROUNDWATER (ug/l), 8/30/93 TO 9/9/93

< — NOT DETECTED AT OR ABOVE THE STATED LABORATORY REPORTING LIMIT

<0.2 — CONCENTRATION CONTOUR OF TRICHLOROFLUOROMETHANE IN GROUNDWATER (ug/l), 8/30/93 – 9/9/93

— ENVIRONMENTAL ASSESSMENT AREA (AS DEFINED BY ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION)



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APPROXIMATE SCALE FEET

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DATE	13SEP99
JOB NO.	077.41840.001

FIGURE 9
MSLUG SITE
ALASKA RAILROAD INDUSTRIAL AREA
FAIRBANKS, ALASKA
TRICHLOROFLUOROMETHANE CONCENTRATION CONTOUR MAP, 8/30/93 – 9/9/93

LEGEND:

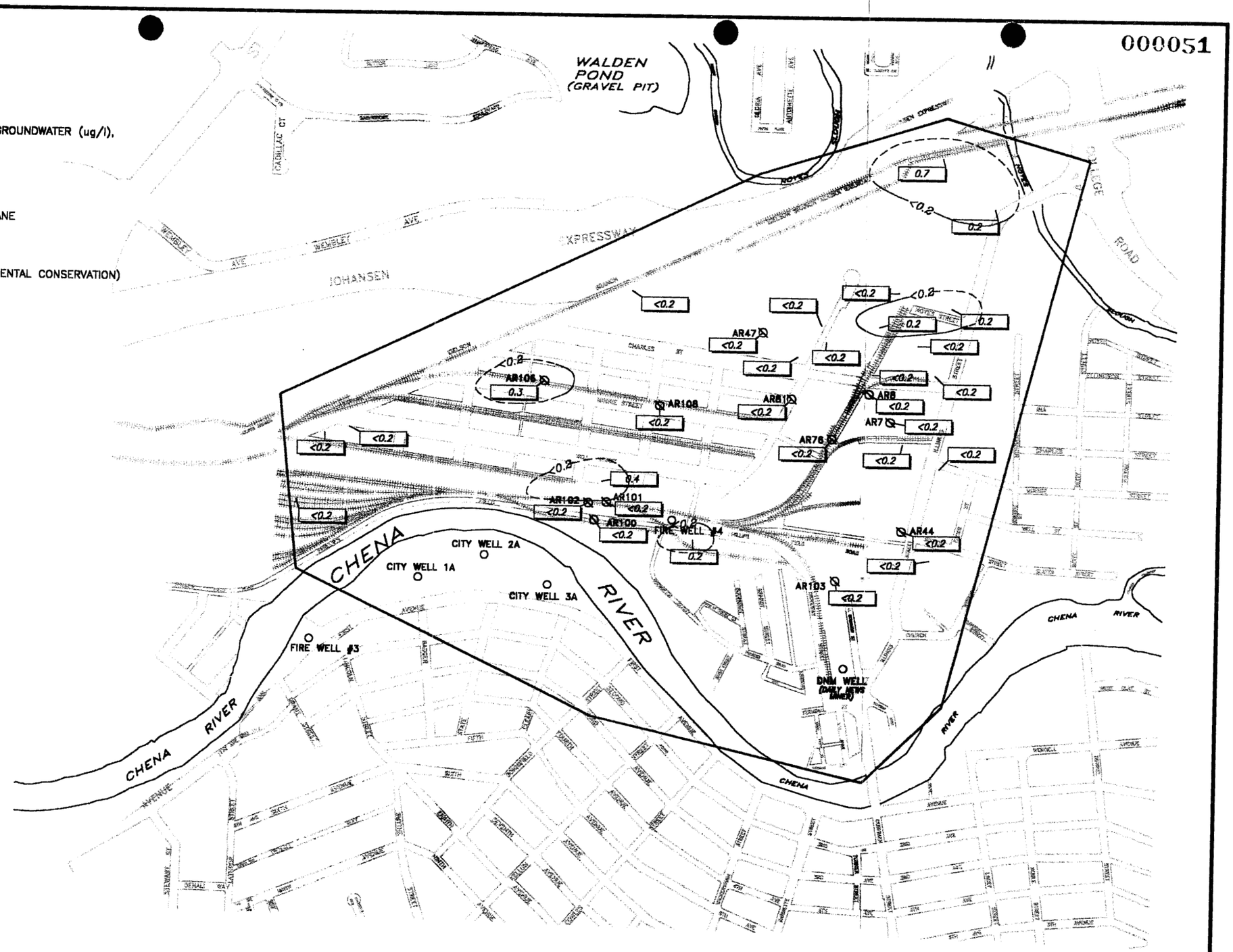
AR47 GROUNDWATER MONITORING WELL

<0.2 — CONCENTRATION OF 1,1,1-TRICHLOROETHANE IN GROUNDWATER (ug/l), 8/30/93 TO 9/9/93

< — NOT DETECTED AT OR ABOVE THE STATED LABORATORY REPORTING LIMIT

<0.2 — CONCENTRATION CONTOUR OF 1,1,1-TRICHLOROETHANE IN GROUNDWATER (ug/l), 8/30/93 – 9/9/93

— ENVIRONMENTAL ASSESSMENT AREA (AS DEFINED BY ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION)



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APPROXIMATE SCALE FEET

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JOB NO.	077.41840.001

FIGURE 10
MSLUG SITE
ALASKA RAILROAD INDUSTRIAL AREA
FAIRBANKS, ALASKA

1,1,1-TRICHLOROETHANE CONCENTRATION CONTOUR MAP, 8/30/93 – 9/9/93

LEGEND:

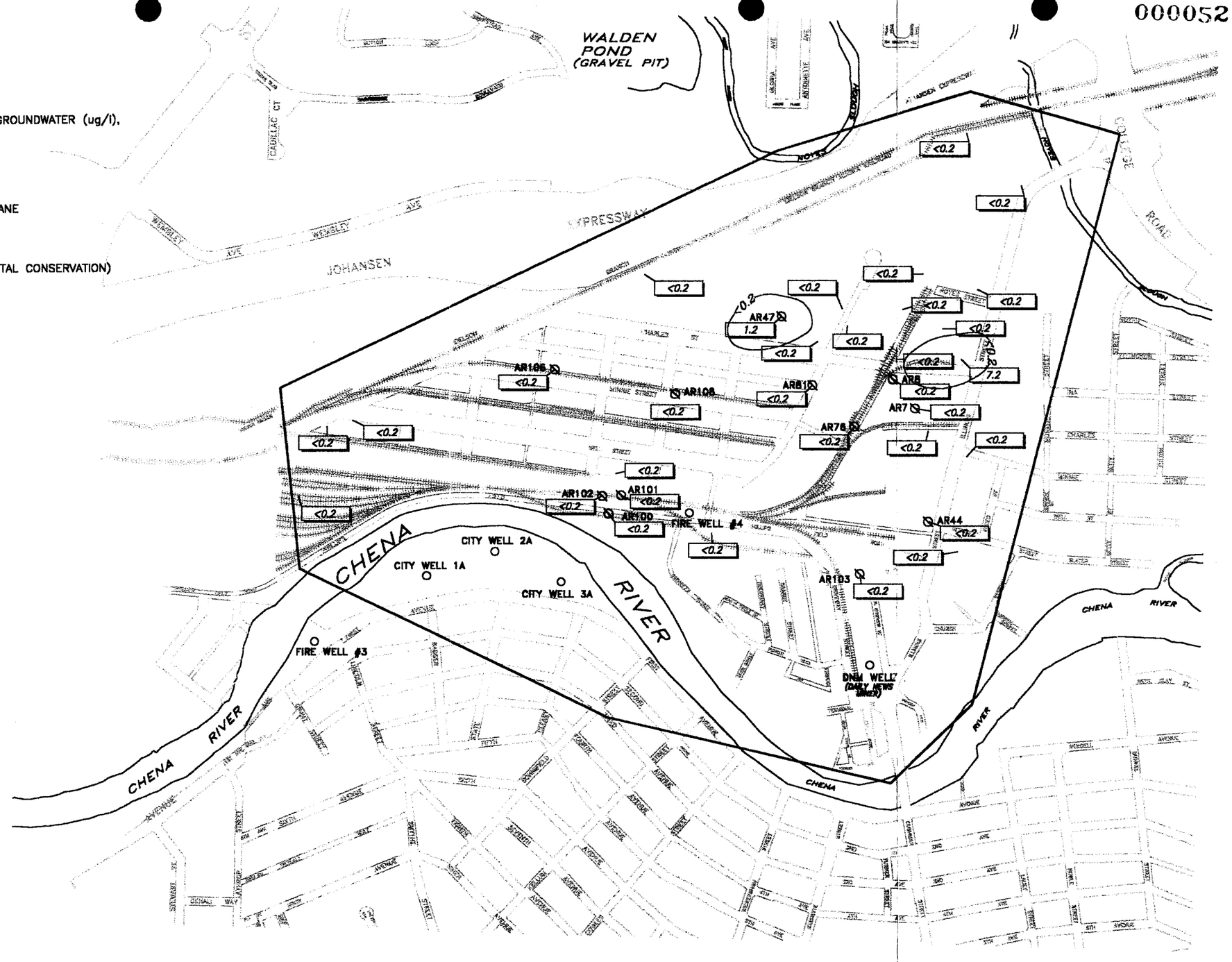
AR47 — GROUNDWATER MONITORING WELL

<0.2 — CONCENTRATION OF DICHLORODIFLUOROMETHANE IN GROUNDWATER (ug/l), 8/30/93 TO 9/9/93

< — NOT DETECTED AT OR ABOVE THE STATED LABORATORY REPORTING LIMIT

<0.2 — CONCENTRATION CONTOUR OF DICHLORODIFLUOROMETHANE IN GROUNDWATER (ug/l), 8/30/93 – 9/9/93

ENVIRONMENTAL ASSESSMENT AREA (AS DEFINED BY ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION)



0 500 1000
APPROXIMATE SCALE FEET

SECOR International Incorporated

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DATE	13SEP99
JOB NO.	077.41840.001

FIGURE 11
MSLUG SITE
ALASKA RAILROAD INDUSTRIAL AREA
FAIRBANKS, ALASKA

DICHLORODIFLUOROMETHANE CONCENTRATION CONTOUR MAP, 8/30/93 – 9/9/93

LEGEND:

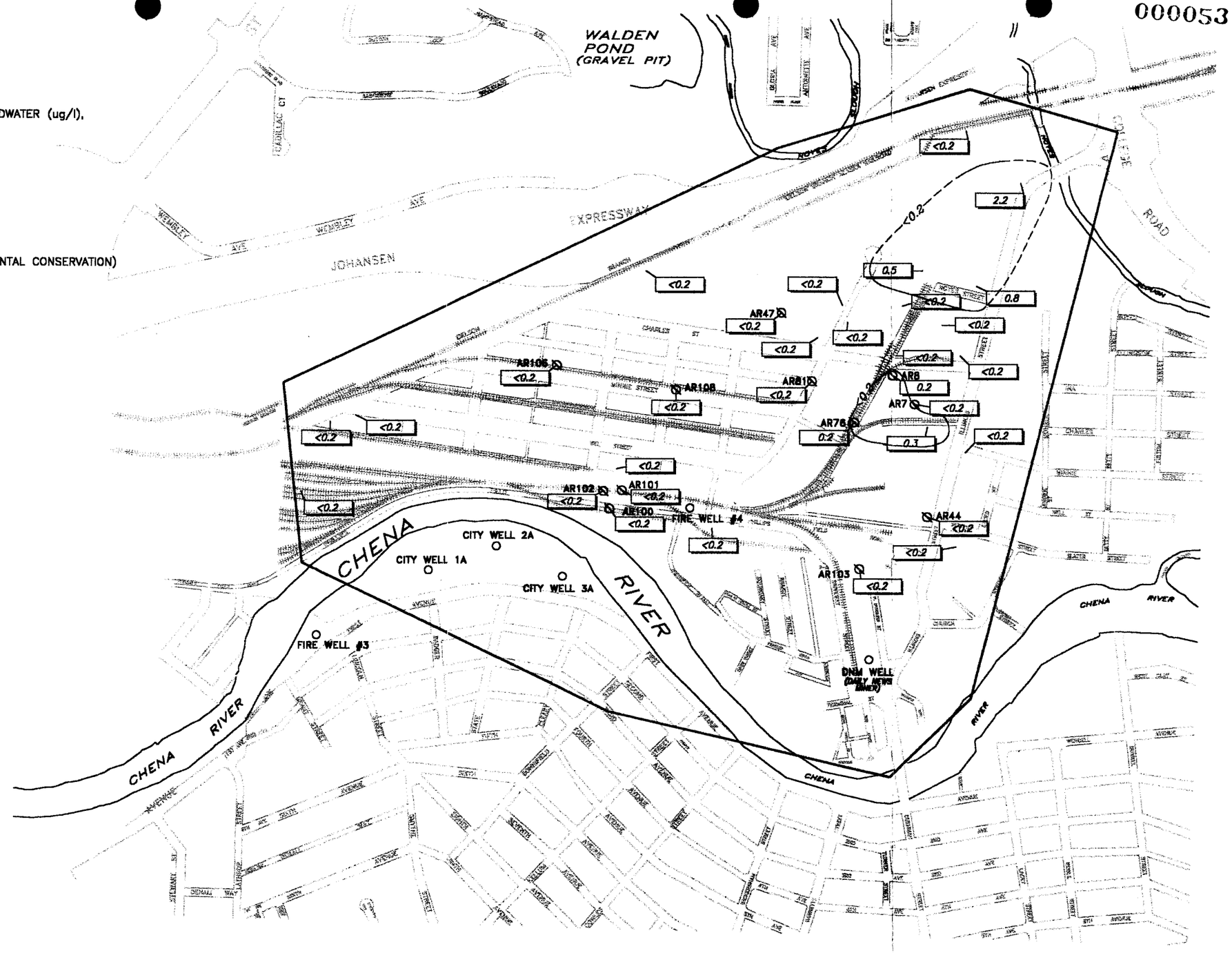
AR47 — GROUNDWATER MONITORING WELL

<0.2 — CONCENTRATION OF TRICHLOROETHYLENE IN GROUNDWATER (ug/l), 8/30/93 TO 9/9/93

< — NOT DETECTED AT OR ABOVE THE STATED LABORATORY REPORTING LIMIT

<0.2 — CONCENTRATION CONTOUR OF TRICHLOROETHYLENE IN GROUNDWATER (ug/l), 8/30/93 – 9/9/93

— ENVIRONMENTAL ASSESSMENT AREA (AS DEFINED BY ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION)



0 500 1000
APPROXIMATE SCALE FEET

SECOR International Incorporated

DRAWN	TJZ
APPR	RKH
DATE	13SEP99
JOB NO.	077.41840.001

FIGURE 12
MSLUG SITE
ALASKA RAILROAD INDUSTRIAL AREA
FAIRBANKS, ALASKA

TRICHLOROETHYLENE CONCENTRATION CONTOUR MAP, 8/30/93 – 9/9/93

LEGEND:

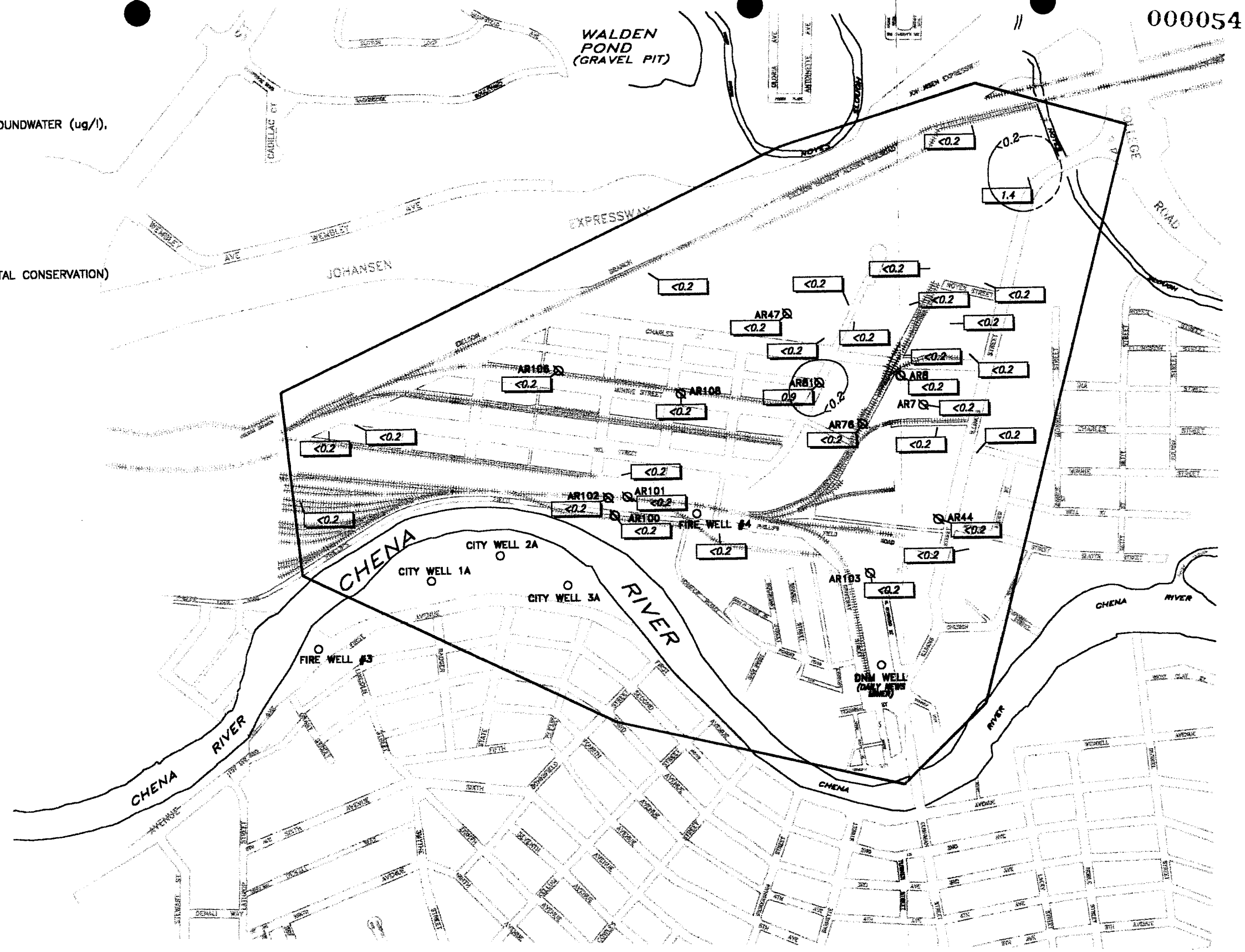
AR47 GROUNDWATER MONITORING WELL

<0.2 — CONCENTRATION OF Cis-1,2-DICHLOROETHENE IN GROUNDWATER (ug/l), 8/30/93 TO 9/9/93

< — NOT DETECTED AT OR ABOVE THE STATED LABORATORY REPORTING LIMIT

<0.2 — CONCENTRATION CONTOUR OF DICHLOROETHENE IN GROUNDWATER (ug/l), 8/30/93 – 9/9/93

— ENVIRONMENTAL ASSESSMENT AREA (AS DEFINED BY ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION)



0 500 1000
APPROXIMATE SCALE FEET

SECOR International Incorporated

DRAWN	TJZ
APPR	RKH
DATE	13SEP99
JOB NO.	077.41840.001

FIGURE 13
MSLUG SITE
ALASKA RAILROAD INDUSTRIAL AREA
FAIRBANKS, ALASKA
Cis-1,2-DICHLOROETHANE CONCENTRATION CONTOUR MAP, 8/30/93 – 9/9/93

LEGEND:

AR47 — GROUNDWATER MONITORING WELL

<0.2 — CONCENTRATION OF BENZENE IN GROUNDWATER (ug/l), 4/19/96

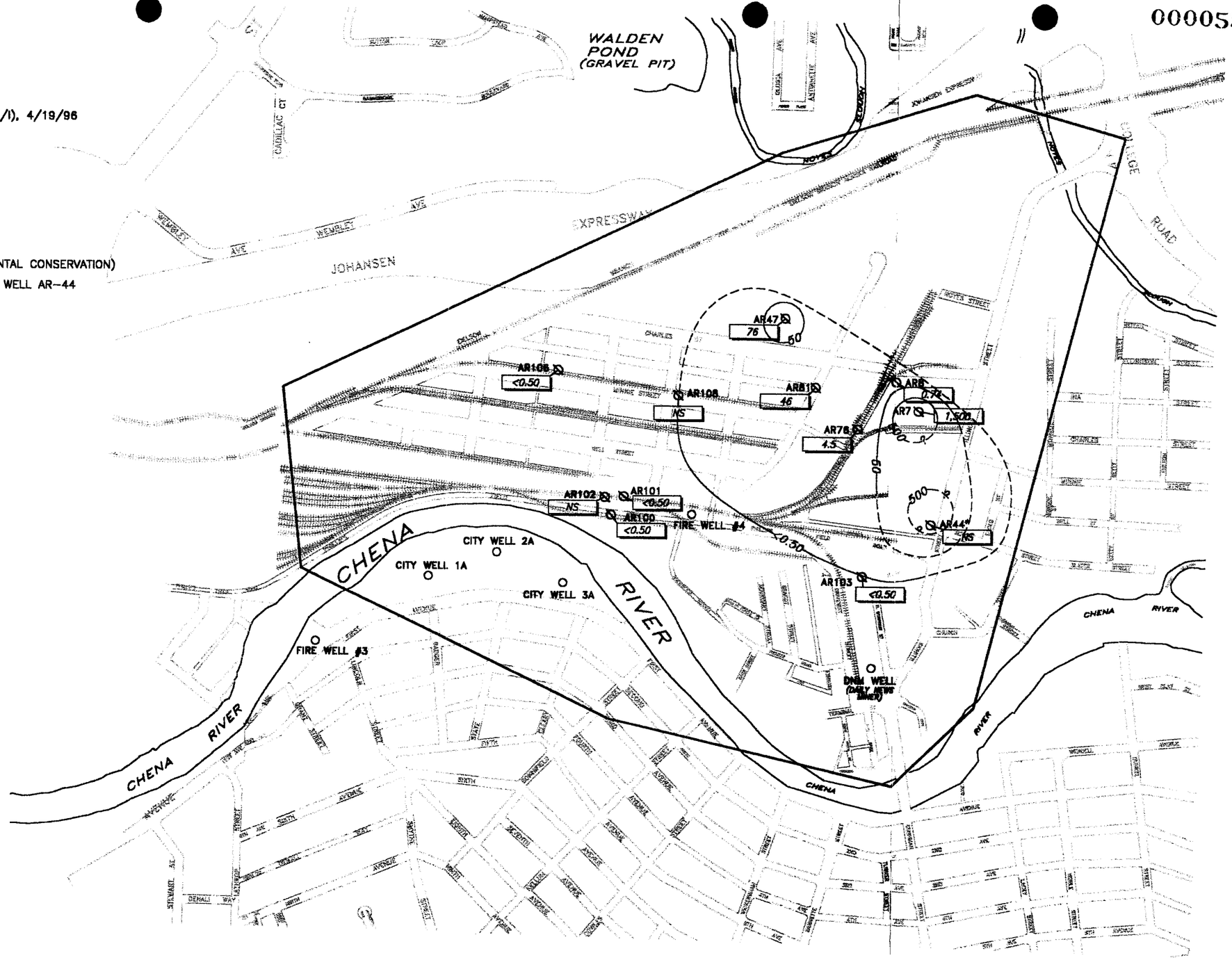
< — NOT DETECTED AT OR ABOVE THE STATED LABORATORY REPORTING LIMIT

NS — NOT SAMPLED

50 — CONCENTRATION CONTOUR OF BENZENE IN GROUNDWATER (ug/l), 4/19/96

— ENVIRONMENTAL ASSESSMENT AREA (AS DEFINED BY ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION)

* NOTE: CONCENTRATON CONTOURS IN THE VICINITY OF WELL AR-44 ARE BASED ON HISTORICAL CONCENTRATIONS



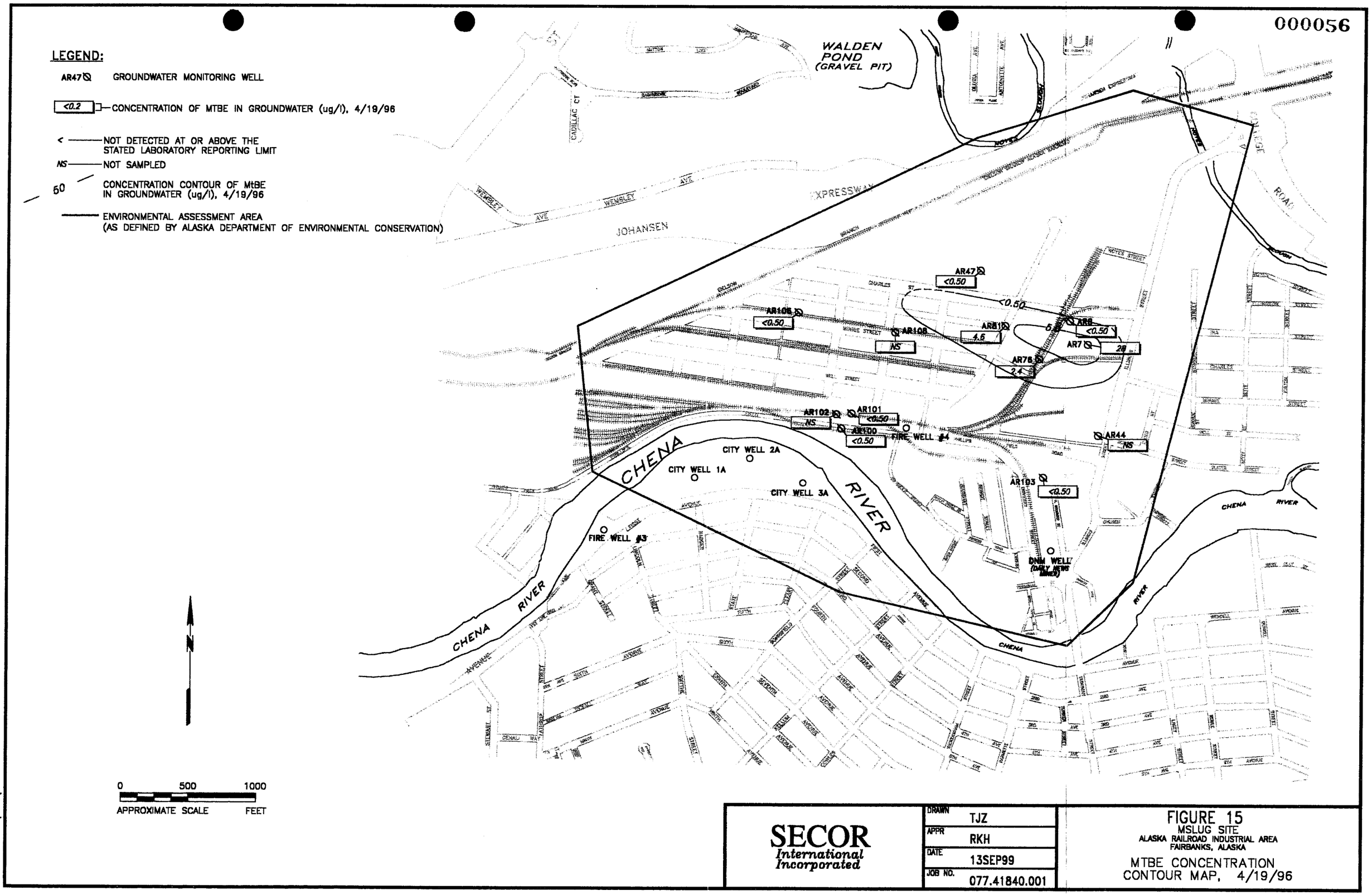
0 500 1000
APPROXIMATE SCALE FEET

SECOR International Incorporated

DRAWN	TJZ
APPR	RKH
DATE	13SEP99
JOB NO.	077.41840.001

FIGURE 14
MSLUG SITE
ALASKA RAILROAD INDUSTRIAL AREA
FAIRBANKS, ALASKA

BENZENE CONCENTRATION MAP, 4/19/96



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DRAWN	TJZ
APPR	RKH
DATE	13SEP99
JOB NO.	077.41840.001

FIGURE 15
MSLUG SITE
ALASKA RAILROAD INDUSTRIAL AREA
FAIRBANKS, ALASKA

MTBE CONCENTRATION CONTOUR MAP, 4/19/96

LEGEND:

AR47 — GROUNDWATER MONITORING WELL

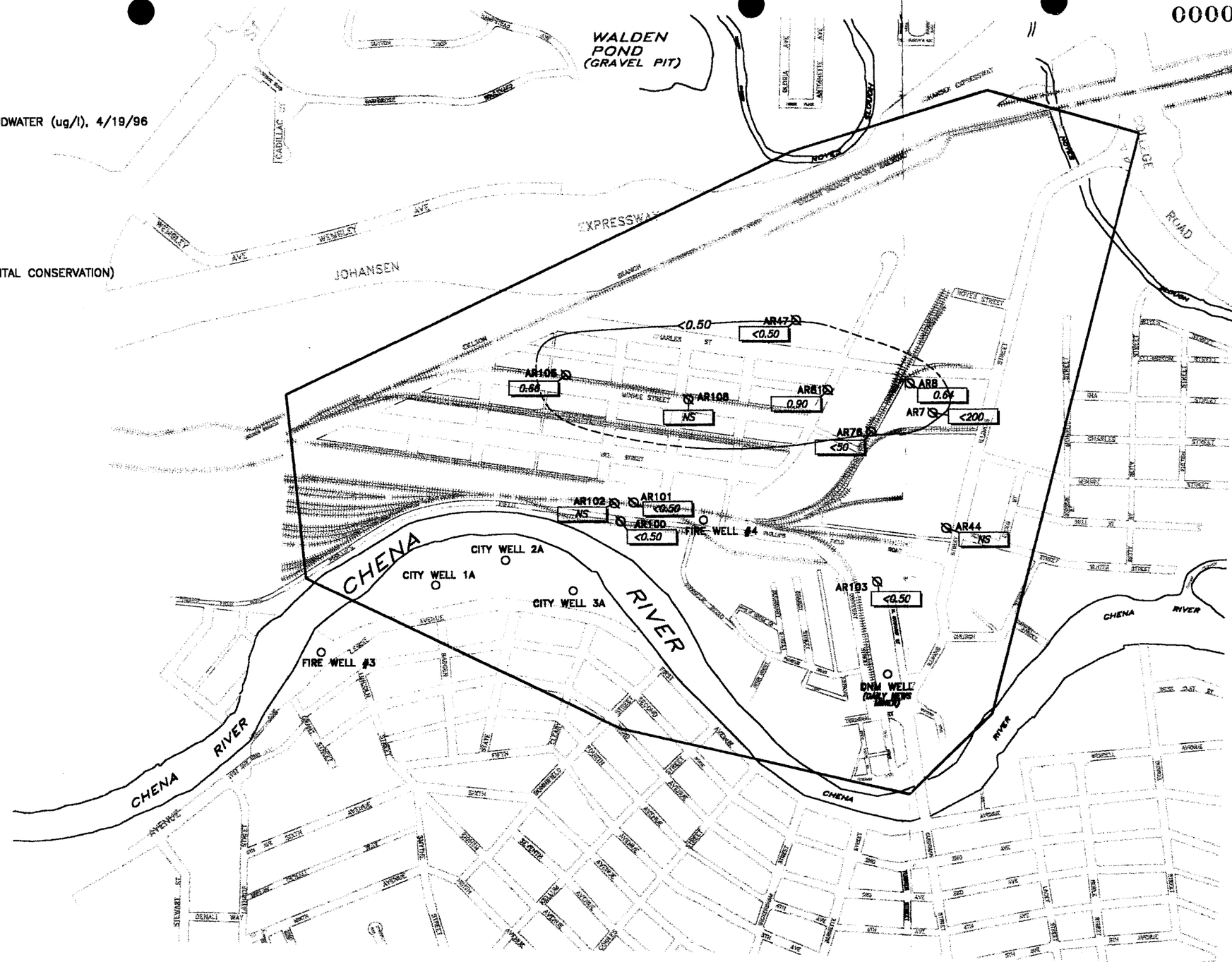
<0.2 — CONCENTRATION OF 1,2-DICHLOROETHANE IN GROUNDWATER (ug/l), 4/19/96

< — NOT DETECTED AT OR ABOVE THE STATED LABORATORY REPORTING LIMIT

NS — NOT SAMPLED

<0.50 — CONCENTRATION CONTOUR OF 1,2-DICHLOROETHANE IN GROUNDWATER (ug/l), 4/19/96

— ENVIRONMENTAL ASSESSMENT AREA (AS DEFINED BY ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION)



N

0 500 1000
APPROXIMATE SCALE FEET

SECOR International Incorporated

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APPR	RKH
DATE	13SEP99
JOB NO.	077.41840.001

FIGURE 16
MSLUG SITE
ALASKA RAILROAD INDUSTRIAL AREA
FAIRBANKS, ALASKA
1,2-DICHLOROETHANE CONCENTRATION CONTOUR MAP, 4/19/96

LEGEND:

AR47 — GROUNDWATER MONITORING WELL

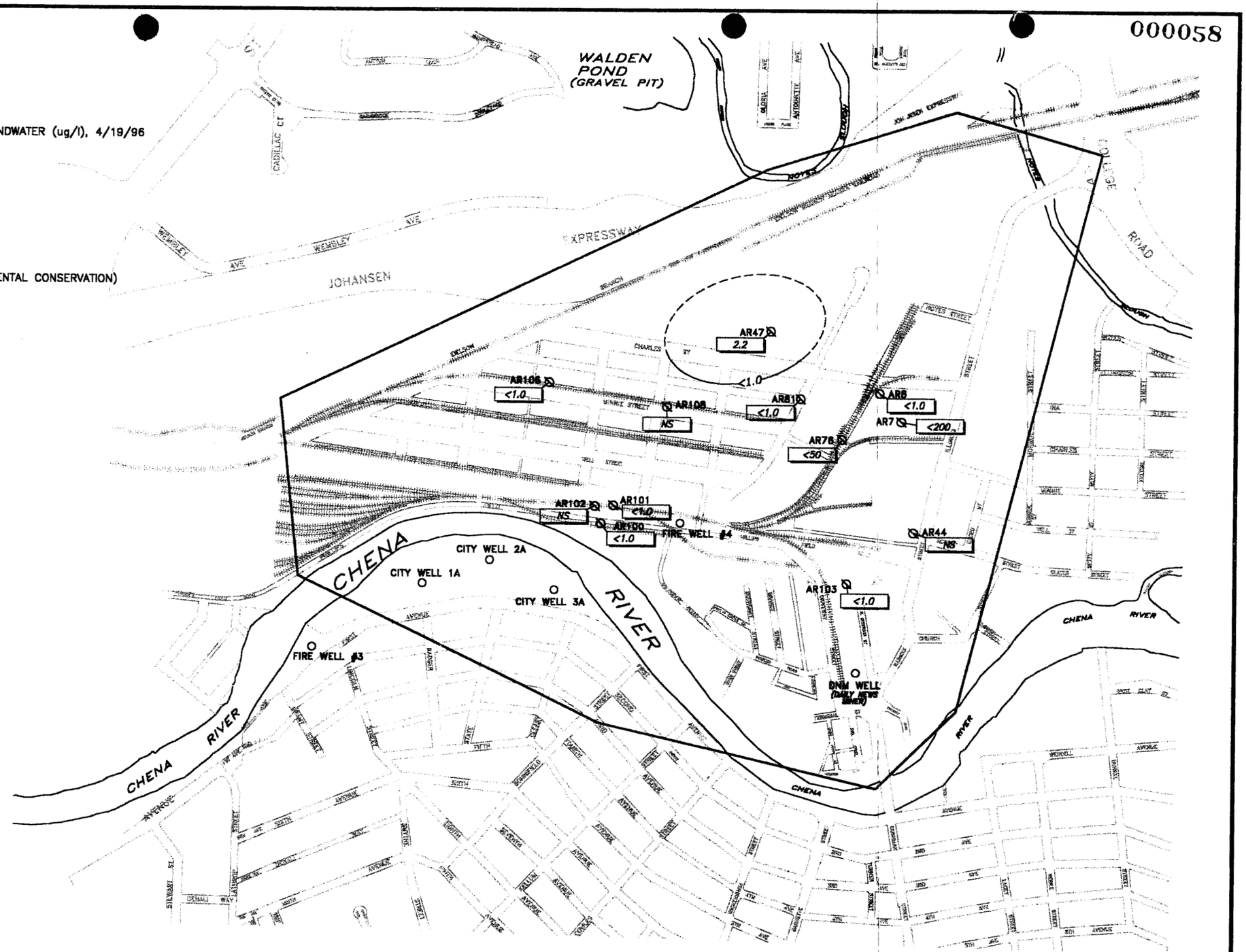
<1.0 — CONCENTRATION OF TETRACHLOROETHENE IN GROUNDWATER (ug/l), 4/19/96

< — NOT DETECTED AT OR ABOVE THE STATED LABORATORY REPORTING LIMIT

NS — NOT SAMPLED

<0.1 — CONCENTRATION CONTOUR OF TETRACHLOROETHENE IN GROUNDWATER (ug/l), 4/19/96

— ENVIRONMENTAL ASSESSMENT AREA (AS DEFINED BY ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION)



0 500 1000
APPROXIMATE SCALE FEET

SECOR International Incorporated

DRAWN	TJZ
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DATE	13SEP99
JOB NO.	077.41840.001

FIGURE 17
MSLUG SITE
ALASKA RAILROAD INDUSTRIAL AREA
FAIRBANKS, ALASKA

TETRACHLOROETHENE CONCENTRATION CONTOUR MAP, 4/19/96

LEGEND:

AR47 — GROUNDWATER MONITORING WELL

<0.2 — CONCENTRATION OF BENZENE IN GROUNDWATER (ug/l), 4/12/99

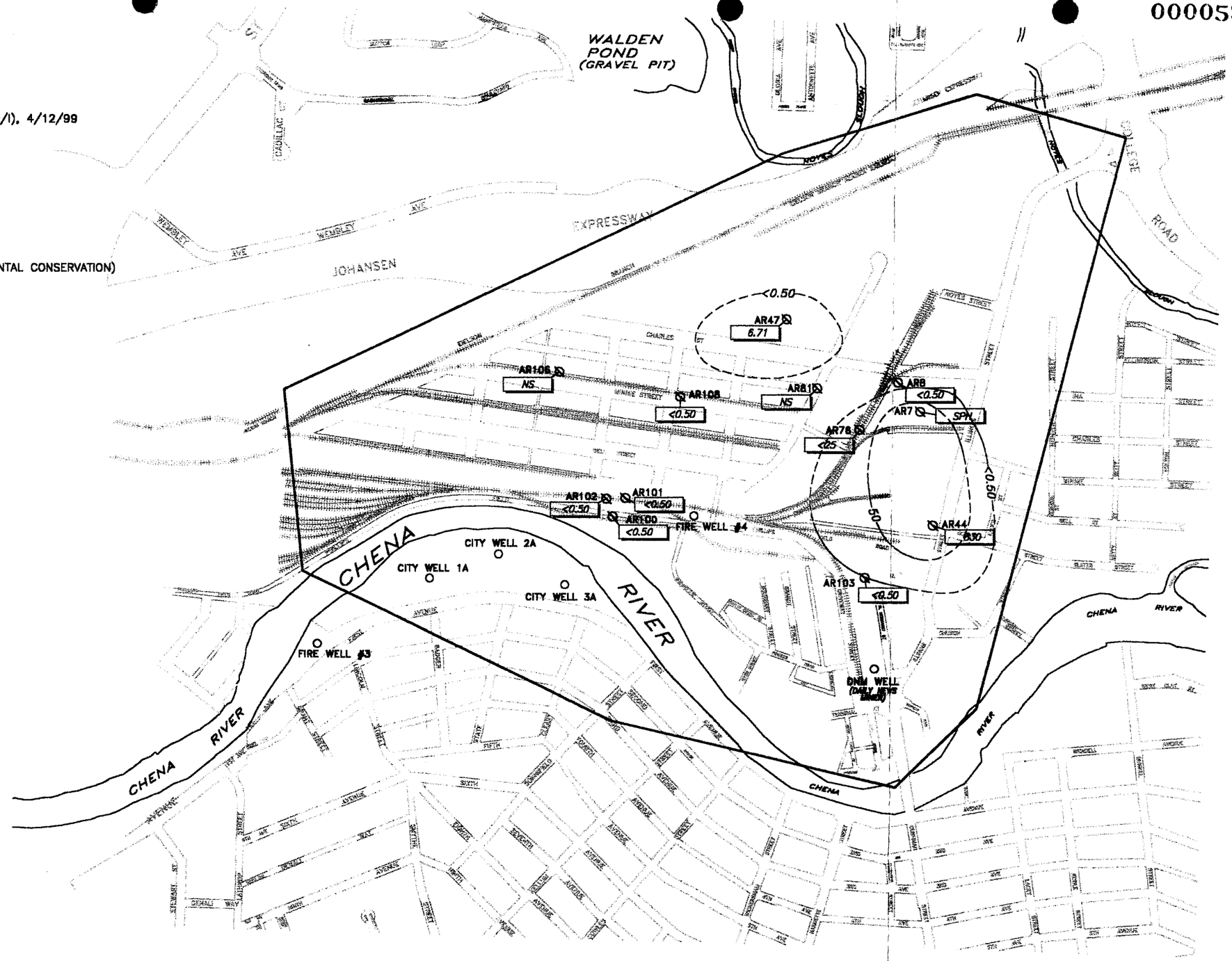
< — NOT DETECTED AT OR ABOVE THE STATED LABORATORY REPORTING LIMIT

NS — NOT SAMPLED

<0.50 — CONCENTRATION CONTOUR OF BENZENE IN GROUNDWATER (ug/l), 4/12/99

— ENVIRONMENTAL ASSESSMENT AREA (AS DEFINED BY ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION)

SPH — SEPARATE PHASE HYDROCARBONS OBSERVED (NOT SAMPLED)



0 500 1000
APPROXIMATE SCALE FEET

SECOR International Incorporated

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DATE	13SEP99
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FIGURE 18
MSLUG SITE
ALASKA RAILROAD INDUSTRIAL AREA
FAIRBANKS, ALASKA

BENZENE CONCENTRATION CONTOUR MAP, 4/12/99

LEGEND:

AR47 — GROUNDWATER MONITORING WELL

<0.2 — CONCENTRATION OF GRPH IN GROUNDWATER (ug/l), 4/12/99

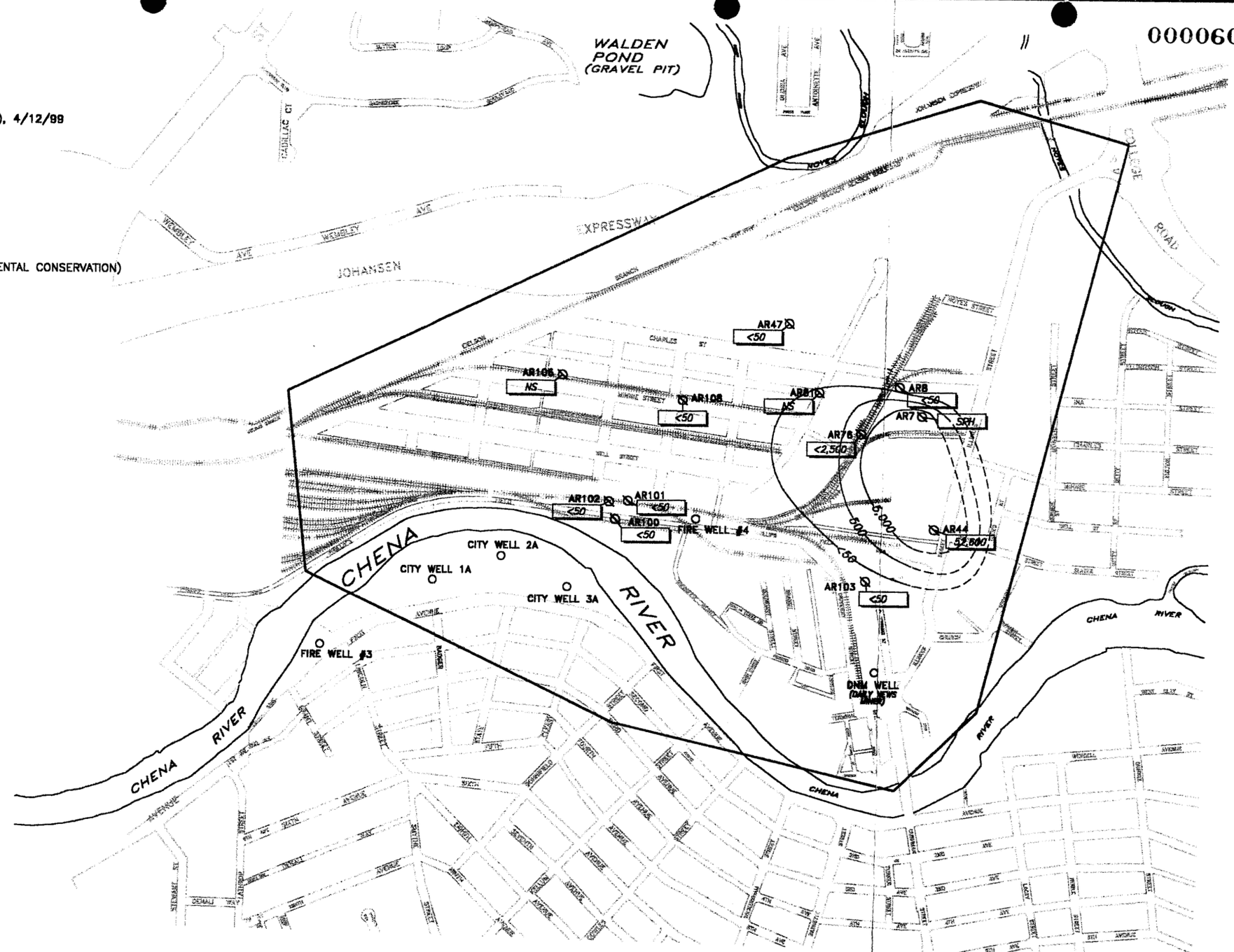
< — NOT DETECTED AT OR ABOVE THE STATED LABORATORY REPORTING LIMIT

NS — NOT SAMPLED

500 — CONCENTRATION CONTOUR OF GRPH IN GROUNDWATER (ug/l), 4/12/99

ENVIRONMENTAL ASSESSMENT AREA (AS DEFINED BY ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION)

SPH — SEPARATE PHASE HYDROCARBONS OBSERVED (NOT SAMPLED)



0 500 1000
APPROXIMATE SCALE FEET

SECOR International Incorporated

DRAWN	TJZ
APPR	RKH
DATE	13SEP99
JOB NO.	077.41840.001

FIGURE 19
MSLUG SITE
ALASKA RAILROAD INDUSTRIAL AREA
FAIRBANKS, ALASKA

GRPH CONCENTRATION CONTOUR MAP, 4/12/99

LEGEND:

AR47 — GROUNDWATER MONITORING WELL

<0.2 — CONCENTRATION OF DRPH IN GROUNDWATER (ug/l), 4/12/99

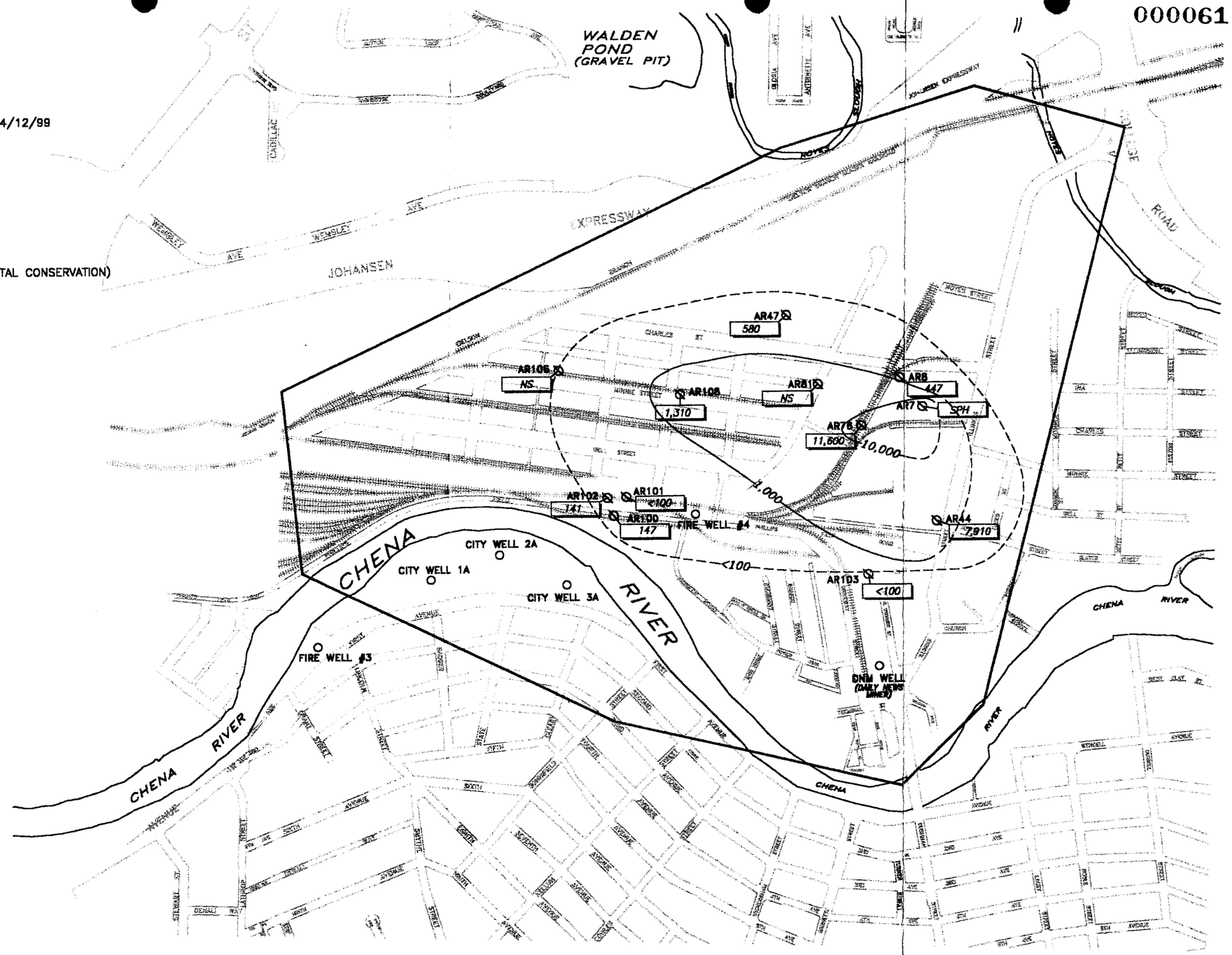
< — NOT DETECTED AT OR ABOVE THE STATED LABORATORY REPORTING LIMIT

NS — NOT SAMPLED

<100 — CONCENTRATION CONTOUR OF DRPH IN GROUNDWATER (ug/l), 4/12/99

— ENVIRONMENTAL ASSESSMENT AREA (AS DEFINED BY ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION)

SPH — SEPARATE PHASE HYDROCARBONS (NOT SAMPLED)



0 500 1000
APPROXIMATE SCALE FEET

SECOR International Incorporated	DRAWN TJZ
	APPR RKH
	DATE 13SEP99
	JOB NO. 077.41840.001

FIGURE 20
MSLUG SITE
ALASKA RAILROAD INDUSTRIAL AREA
FAIRBANKS, ALASKA

DRPH CONCENTRATION CONTOUR MAP, 4/12/99

LEGEND:

AR47 — GROUNDWATER MONITORING WELL

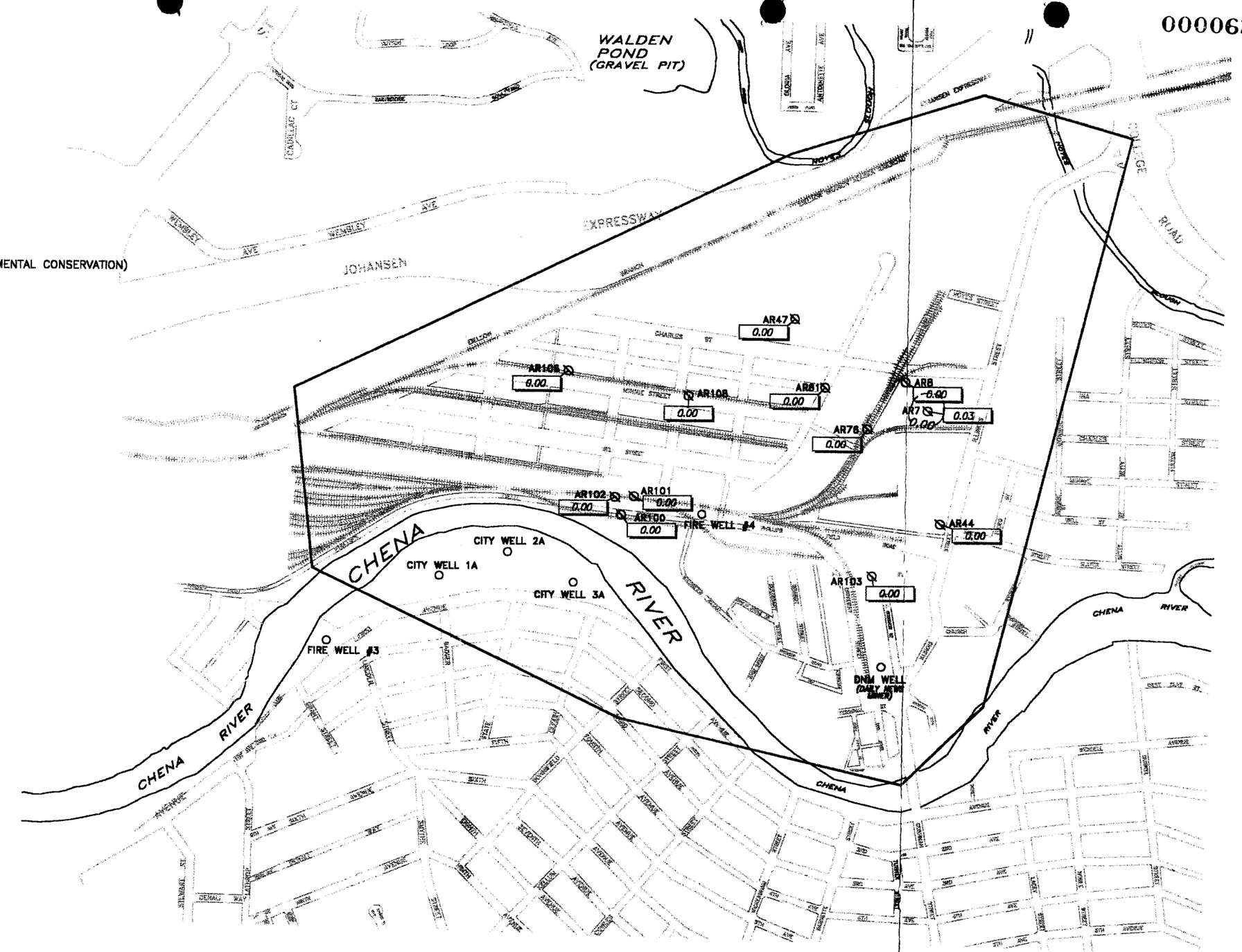
0.03 — (SPH) SEPARATE PHASE HYDROCARBON LEVEL IN FEET, 4/12/99

< — NOT DETECTED AT OR ABOVE THE STATED LABORATORY REPORTING LIMIT

ND — NO DATA

<0.00 — SPH THICKNESS CONTOUR IN FEET, 4/12/99

— ENVIRONMENTAL ASSESSMENT AREA (AS DEFINED BY ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION)



0 500 1000
APPROXIMATE SCALE FEET

SECOR International Incorporated	DRAWN TJZ
	APPR RKH
	DATE 13SEP99
	JOB NO. 077.41840.001

FIGURE 21
MSLUG SITE
ALASKA RAILROAD INDUSTRIAL AREA
FAIRBANKS, ALASKA

SPH THICKNESS CONTOUR MAP, 4/12/99