REPORT DOCUMENTATION PAGE	Form Approved OMB No. 0704-0188
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for rev gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regard collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Proje	rewing instructions, searching existing data source ding this burden estimate or any other aspect of th information Operations and Reports, 1215 Jefferso ct (0704-0188), Washington, DC 20503,
1. AGENCY USE ONLY (Leave blank) 2. REPORT DATE 3. REPORT TYPE AND 04/00/90	DATES COVERED
4. TITLE AND SUBTITLE REPORT OF FIELD INVESTIGATIONS ASSESSMENT AND PROPOSED DECISION DOCUMENT FOR THE NORTHWEST BOUNDARY SYSTEM, SHORT-TERM IMPROVEMENTS, INTERIM RESPONSE ACTION, RMA	5. FUNDING NUMBERS
6. AUTHOR(S)	
7 PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)	8. PERFORMING ORGANIZATION
MORRISON KNUDSEN CORPORATION DENVER, CO	REPORT NUMBER
	90142R01
9. SPONSORING/MONITORING AGENCY NAME AND ADD (ESS(ES) HOLME, ROBERTS & OWEN DENVER, CO	10. SPONSORING/MONITORING AGENCY REPORT NUMBER
The Supplementary Notes	900119 007
12. DISTRIBUTION / AVAILABILITY STATEMENT APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED	YOUIN CODE
 12a. DISTRIBUTION / AVAILABILITY STATEMENT APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED 13. ABSTRACT (Maximum 200 words) RECENT FIELD INVESTIGATIONS IDENTIFIED A SMALL ALLUVIAL ON NORTHEAST OF THE EXISTING NORTHWEST BOUNDARY SYSTEM THAT PROGROUND WATER TO FLOW AROUND THE SLURRY WALL. SAMPLES FROM THE DLDRN AT LEVELS ABOVE THE ARAR'S FOR THE NORTH BOUNDARY SYSTEM INTERIM RESPONSE ACTION IS TO MITIGATE THE BYPASS OF CONTAMI GROUND WATER BY EXTENDING THE NUBS. THE EXTENSION IS TO UTIN TO CONSTRUCT THE EXISTING SYSTEM (DEWATERING WELLS, RECHARGE SLURRY WALL). THE TREATMENT OF EXTRACTED GROUND WATER WILL EXISTING TREATMENT PLANT. THIS COMBINED ASSESSMENT AND DECISION DOCUMENT DEOUDDED 	CHANNEL IMMEDIATELY DVIDES A PATHWAY FOR HIS CHANNEL CONTAINED TEM. A IMPROVEMENTS INATED ALLUVIAL LIZE METHODS EMPLOYED & WELLS, AND/OR A BE PERFORMED BY THE
 123. DISTRIBUTION / AVAILABILITY STATEMENT APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED 13. ABSIRACT (MAXIMUM 200 WORD) RECENT FIELD INVESTIGATIONS IDENTIFIED A SMALL ALLUVIAL ON NORTHEAST OF THE EXISTING NORTHWEST BOUNDARY SYSTEM THAT PROGROUND WATER TO FLOW AROUND THE SLURRY WALL. SAMPLES FROM THE DLDRN AT LEVELS ABOVE THE ARAR'S FOR THE NORTH BOUNDARY SYSTEM INTERIM RESPONSE ACTION IS TO MITIGATE THE BYPASS OF CONTAMI GROUND WATER BY EXTENDING THE NUBS. THE EXTENSION IS TO UTIN TO CONSTRUCT THE EXISTING SYSTEM (DEWATERING WELLS, RECHARGE SLURRY WALL). THE TREATMENT OF EXTRACTED GROUND WATER WILL EXISTING TREATMENT PLANT. THIS COMBINED ASSESSMENT AND DECISION DOCUMENT PROVIDES I 1. FIELD INVESTIGATIONS INCLUDING BORELOGS AND GRAIN SI 2. HYDROGEOLOGY OF THE AREA 3. GROUND WATER QUALITY AND LEVEL 	CHANNEL IMMEDIATELY DVIDES A PATHWAY FOR HIS CHANNEL CONTAINED TEM. A IMPROVEMENTS INATED ALLUVIAL LIZE METHODS EMPLOYED E WELLS, AND/OR A BE PERFORMED BY THE INFORMATION ON: ZE REPORTS
 122. DISTRIBUTION / AVAILABILITY STATEMENT APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED 13. ABSTRACT (MAXIMUM 200 WORG) RECENT THEID INVESTIGATIONS IDENTIFIED A SMALL ALLUVIAL ON NORTHEAST OF THE EXISTING NORTHWEST BOUNDARY SYSTEM THAT PROGROUND WATER TO FLOW AROUND THE SLURRY WALL. SAMPLES FROM THE DLDRN AT LEVELS ABOVE THE ARAR'S FOR THE NORTH BOUNDARY SYSTEM THAT PROGROUND WATER TO FLOW AROUND THE SLURRY WALL. SAMPLES FROM THE OBJECTIVE OF THE NORTHWEST BOUNDARY SYSTEM SHORT TERM INTERIM RESPONSE ACTION IS TO MITIGATE THE BYPASS OF CONTAMING GROUND WATER BY EXTENDING THE NWBS. THE EXTENSION IS TO UTIL TO CONSTRUCT THE EXISTING SYSTEM (DEWATERING WELLS, RECHARGE SLURRY WALL). THE TREATMENT OF EXTRACTED GROUND WATER WILL EXISTING TREATMENT PLANT. THIS COMBINED ASSESSMENT AND DECISION DOCUMENT PROVIDES IN 1. FIELD INVESTIGATIONS INCLUDING BORELOGS AND GRAIN SI 2. HYDROGEOLOGY OF THE AREA GROUND WATER QUALITY AND LEVEL 	CHANNEL IMMEDIATELY OVIDES A PATHWAY FOR HIS CHANNEL CONTAINED TEM. A IMPROVEMENTS INATED ALLUVIAL LIZE METHODS EMPLOYED E WELLS, AND/OR A BE PERFORMED BY THE INFORMATION ON: ZE REPORTS
 123. DISTRIBUTION / AVAILABILITY STATEMENT APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED 13. ABSIRACT MARKING 200 WOODS INORTHEAST OF THE EXISTING NORTHWEST BOUNDARY SYSTEM THAT PROGROUND WATER TO FLOW AROUND THE SLURRY WALL. SAMPLES FROM THE DLDRN AT LEVELS ABOVE THE ARAR'S FOR THE NORTH BOUNDARY SYSTEM SHORT TERM INTERIM RESPONSE ACTION IS TO MITIGATE THE BYPASS OF CONTAMI GROUND WATER BY EXTENDING THE NOBS. THE EXTENSION IS TO UTIL TO CONSTRUCT THE EXISTING SYSTEM (DEWATERING WELLS, RECHARGE SLURRY WALL). THE TREATMENT OF EXTRACTED GROUND WATER WILL EXISTING TREATMENT PLANT. THIS COMBINED ASSESSMENT AND DECISION DOCUMENT PROVIDES I 1. FIELD INVESTIGATIONS INCLUDING BORELOGS AND GRAIN SI 2. HYDROGEOLOGY OF THE AREA GROUND WATER QUALITY AND LEVEL 	A25. DISTRIBUTION CODE CHANNEL IMMEDIATELY OVIDES A PATHWAY FOR HIS CHANNEL CONTAINED TEM. A IMPROVEMENTS INATED ALLUVIAL LIZE METHODS EMPLOYED E WELLS, AND/OR A BE PERFORMED BY THE INFORMATION ON: ZE REPORTS 15. NUMBER OF PAGES 16. PRICE CODE

ł

Prescribed by ANSI Std. 239-18

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS FOR THE NORTHWEST BOUNDARY SYSTEM, SHORT-TERM IMPROVEMENTS, INTERIM RESPONSE ACTION

1. Introduction

The objectives of this IRA are discussed elsewhere in this document. This IRA will be implemented prior to the final remediation to be undertaken in the context of the Onpost Operable Unit ROD. This IRA is a short-term action which will not include changes to the components of the current treatment system which treat the groundwater pumped into that system prior to its reinjection. The treatment components of this system will be evaluated during a subsequent phase of the evaluation of the NWBS.

2. Location-Specific ARARs

Location-specific requirements set restrictions on activities, depending on the characteristics of the site or the immediate environment, and function like action-specific requirements. Alternative remedial actions may be restricted or precluded, depending on the location or characteristics of the site and the requirements that apply to it.

Paragraph 44.2 of the Federal Facility Agreement provides that "wildlife habitat(s) shall be preserved and managed as necessary to protect endangered species of wildlife to the extent required by the Endangered Species Act (16 U.S.C. 1531 <u>et seq.</u>), migratory birds to the extent required by the Migratory Bird Treaty Act (16 U.S.C. 703 <u>et seq.</u>), and bald eagles to the extent required by the Bald Eagle Protection Act, 16 U.S.C. 688 <u>et seq</u>."

While this provision is not an ARAR, the statutes themselves are applicable to this IRA and will be complied with. Based on where any extension to this treatment system will be located the Army believes that this IRA will have no adverse impact on any endangered species or migratory birds or on the protection of wildlife habitats. Coordination will be maintained with the U.S. Fish and Wildlife Service to ensure that no such adverse impact arises from implementation of this IRA.

The provisions of 40 CFR 6.302(a) and (b) regarding construction that would have an adverse impact on wetlands or be within a flood plain are considered relevant and appropriate to apply in the context of this IRA. Based upon where any extension to this system will be located the Army believes that there will be no adverse impact on wetlands from the construction related to any extension of this system. Coordination will be maintained with the U.S. Fish and Wildlife Service to ensure that any such adverse impacts are avoided or mitigated.

··· •

01st

đ

Availability George Availa and/any

S209402

The regulations at 40 CFR 230 were reviewed and determined not to be applicable within the context of this IRA because on discharge of dredged or fill material into waters of the United States is contemplated. Because these regulations address only the disposal of such materials into waters of the United States, which is not contemplated, they are not considered to be relevant and appropriate to apply in the context of this IRA.

The regulations at 33 CFR 320-330 were reviewed and determined to be neither applicable nor relevant and appropriate because the IRA does not involve any of the activities, or similar to the activities, intended to be controlled by these regulations as defined in 33 CFR §320.1(b).

3. <u>Action-Specific ARARs</u>

<u>Description</u>

Performance, design, or other action-specific requirements set controls or restrictions on activities related to the management of hazardous substances, pollutants, or contaminants. These action-specific requirements may specify particular performance levels, actions, or technologies as well as specific levels (or a methodology for setting specific levels) for discharged or residual chemicals.

Construction of Treatment System

<u>Air Emissions</u>

On the remote possibility that there may be air emissions during the course of the construction of any extension of this treatment system, the Army has reviewed all potential ambient or chemical-specific air emission requirements. As a result of this review, the Army found that there are, at present, no National or State ambient air quality standards currently applicable or relevant and appropriate to any of the volatile or semivolatile chemicals in the ground water found in the area in which construction is contemplated.

In the context of this IRA, there is only a very remote chance of any release of volatiles or semivolatiles and, even if such a release did occur, it would only be intermittent and of very brief duration (because the activity that produced the release would be stopped and modified appropriately if a significant air emission was detected by the contractor's air monitoring specialist). The Army has significant experience with the construction of extraction and reinjection wells, virtually identical to those which would be constructed pursuant to any expansion of the NWBS, and has not experienced any problems from air emissions during construction of such facilities. This IRA does not contemplate extensive construction of wells, therefore

··· :

almost eliminating any chance of air emissions during construction. The construction of other facilities, including any piping and related material, is not expected to involve excavation at depths which could result in release of volatile organics, making any ambient air quality standards neither relevant nor appropriate to this construction activity. Monitoring will be conducted pursuant to the site-specific Health and Safety Plan to ensure that construction activities do not result in releases of volatile organics which could adversely impact ambient air quality.

The site-specific Health and Safety Plan will adequately address these concerns. This plan to be developed for use in this IRA will detail the site monitoring program and define any operational modifications to be implemented in the event monitoring detects specific levels of such emissions. This plan is developed after the actual construction site has been chosen and is based upon site-specific information. It will be available for review later in the IRA process.

The National Emissions Standards for Hazardous Air Pollutants (NESHAPS) were evaluated to determine whether they were applicable or relevant and appropriate to apply in the context of construction of this IRA. These standards were not considered applicable because they apply to stationary sources of these pollutants, not to construction activity. They were not considered relevant and appropriate because they were developed for manufacturing processes, which are significantly dissimilar to the short-term construction activity contemplated by this IRA.

The provisions of 40 CFR 50.6 will be considered relevant and appropriate. This standard is not applicable because it addresses Air Quality Control Regions, which are areas significantly larger than and different from the area of concern in this IRA. Pursuant to this regulation, there will be no particulate matter transported by air from the site that is in excess of 50 micrograms per cubic meter (annual geometric mean) and 150 micrograms per cubic meter (maximum 24-hour concentration) will not be exceeded more than once per year.

Worker Protection

The provision of 29 CFR 1910.120 are applicable to workers at the site because these provisions specifically address hazardous substance response operations under CERCLA. The final

rule is found at 54 FR 9294 (March 6, 1989) and becomes effective on March 6, 1990.

3

General Construction Activities

The following performance, design, or other action-specific State ARARs have ben preliminarily identified by the Army as applicable to this portion of the IRA and more stringent than any applicable or relevant and appropriate Federal standard, requirement, criterion, or limitation:

Colorado Air Pollution Control Commission Regulation No. 1, 5 CCR 1001-3, Part III(D)(2)(b), Construction Activities:

a. Applicability - Attainment and Nonattainment Areas

b. General Requirement

Any owner or operator engaged in clearing or leveling of land or owner or operator of land that has been cleared of greater than one (1) acre in nonattainment areas for which fugitive particulate emissions will be emitted shall be required to use all available and practical methods which are technologically feasible and economically reasonable in order to minimize such emissions, in accordance with the requirements of Section III.D. of this regulation.

c. Applicable Emission Limitation Guideline

Both the 20% opacity and the no off-property transport emission limitation guidelines shall apply to construction activities; except that with respect to sources or activities associated with construction for which there are separate requirements set forth in this regulation, the emission limitation guidelines there specified as applicable to such sources and activities shall be evaluated for compliance with the requirements of Section III.D. of this regulation. (Cross Reference: Subsections e. and f. of Section III.D.2 of this regulation).

d. Control Measures and Operating Procedures

Control measures or operational procedures to be employed may include but are not necessarily limited to planting vegetation cover, providing synthetic cover, watering, chemical stabilization, furrows, compacting, minimizing disturbed area in the winter, wind breaks, and other methods or techniques.

Colorado Ambient Air Quality Standards, 5 CCR 1001-14, Air Quality Regulation A, Diesel-Powered Vehicle Emission Standards for Visible Pollutants:

a. No person shall emit or cause to be emitted into the atmosphere from any diesel-powered vehicle any air

.

contaminant, for a period greater than 10 consecutive seconds, which is of such a shade or density as to obscure an observer's vision to a degree in excess of 40% opacity, with the exception of Subpart B below.

b. No person shall emit or cause to be emitted into the atmosphere from any naturally aspirated diesel-powered vehicle of over 8,500 lbs gross vehicle weight rating operated above 7,000 feet (mean sea level), any air contaminant for a period greater than 10 consecutive seconds, which is of such a shade or density as to obscure an observer's vision to a degree in excess of 50% opacity.

c. Diesel-powered vehicles exceeding these requirements shall be exempt for a period of 10 minutes, if the emissions are a direct result of a cold engine start-up and provided the vehicle is in a stationary position.

d. This standard shall apply to motor vehicles intended, designed, and manufactured primarily for use in carrying passengers or cargo on roads, streets, and highways.

Colorado Noise Abatement Statute, C.R.S. Section 25-12-103:

a. Each activity to which this article is applicable shall be conducted in a manner so that any noise produced is not objectionable due to intermittence, beat frequency, or shrillness. Sound levels of noise radiating from a property line at a distance of twenty-five feet or more therefrom in excess of the db(A) established for the following time periods and zones shall constitute prima facie evidence that such noise is a public nuisance:

Zone	7:00 a.m. to <u>next 7:00 p.m.</u>	7:00 p.m. to <u>next_7:00 a.m.</u>
Residential	55 db(A)	50 db(A)
Commercial	60 db(A)	55 db(A)
Light Industrial	$70 \mathrm{db}(A)$	65 db(A)
Industrial	80 db(A)	75 db(A)

b. In the hours between 7:00 a.m. and the next 7:00 p.m., the noise levels permitted in subsection (1) of this section may be increased by ten db(A) for a period of not to exceed fifteen minutes in any one-hour period.

c. Periodic, impulsive, or shrill noises shall be considered a public nuisance when such noises are at a sound level of five db(A) less than those listed in Subpart (a) of this section.

5

·-- : : :

d. Construction projects shall be subject to the maximum permissible noise levels specified for industrial zones for the period within which construction is to be completed pursuant to any applicable construction permit issued by proper authority or, if no time limitation is imposed, for a reasonable period of time for completion of the project.

e. For the purpose of this article, measurements with sound level meters shall be made when the wind velocity at the time and place of such measurement is not more than five miles per hour.

f. In all sound level measurements, consideration shall be given to the effect of the ambient noise level created by the encompassing noise of the environment from all sources at the time and place of such sound level measurements.

In substantive fulfillment of Colorado Air Pollution Control Commission Regulation No. 1, this IRA will employ the specified methods for minimizing emission from fuel burning equipment and construction activities. In substantive fulfillment of Colorado's Diesel-Powered Vehicle Emission Standards, no diesel motor vehicles associated with the construction shall be operated in a manner that will produce emissions in excess of those specified in these standards.

The noise levels pertinent for construction activity provided in C.R.S. Section 25-12-103 will be attained in accordance with this applicable Colorado statute.

Wetlands Implications

Through estimation of the general area where a system would be located, the Army does not believe that any wetlands could be adversely affected. However, until a final design is selected and a final siting decision made, it cannot be definitively determined that no impact on wetlands will occur. If the final site selection and/or design results in an impact on wetlands, the Army will review the regulatory provisions concerning wetlands impact and other appropriate guidance, and will proceed in a manner consistent with those provisions. Coordination will be maintained with the U.S. Fish and Wildlife Service concerning any potential impacts on wetlands.

Land Disposal Restrictions and Removal of Soil

There are no action-specific ARARs that pertain to the excavation of soil during the construction of this treatment system.

EPA is currently developing guidance concerning the Land Disposal Restrictions (LDR) and their implication in CERCLA

actions. While guidance is limited, the Army has not determined that any waste subject to LDR will be present in the soil which may be removed during the construction and implementation of this IRA. Further guidance is likely to be developed prior to the implementation of this IRA and the Army will review such guidance as it is received. If it is determined that a waste subject to LDR is present in the soils to be removed during construction and implementation of this IRA, the Army will act in a manner consistent with EPA guidance then in effect for the management of such as the context of CERCLA cleanup actions.

Although the current guidance concerning removal of soil from the area where any treatment system expansion is expected to be located is a TBC, not an ARAR, it will be performed in accordance with the procedures set forth in the Task No. 32 Technical Plan, Sampling Waste Handling (November 1987), and EPA's July 12, 1985, memorandum regarding "EPA Region VIII Procedure for Handling of Materials from Drilling, Trench Excavation and Decontamination during CERCLA RI/FS Operations at the Rocky Mountain Arsenal." In general, any soils generated by excavation during the course of this IRA, either at surface or subsurface, will be returned to the location from which they originated (i.e., last out, first in). Any materials remaining after completion of backfilling that are suspected of being contaminated (based on field screening techniques) will be properly stored, sampled, analyzed, and ultimately disposed as CERCLA hazardous wastes, as appropriate.

For material determined to be hazardous waste, substantive RCRA provisions are applicable to their management. These substantive provisions include but are not limited to: 40 CFR Part 262 (Subpart C, Pre-Transport Requirements), 40 CFR part 263 (Transporter Standards), and 40 CFR Part 264 (Subpart I, Container Storage). The specific substantive standards applied will be determined by the factual circumstances of the accumulation, storage, or disposal techniques actually applied to any such material.

4. <u>Compliance with the Other Environmental Laws</u>

As is evident from the various portions of this document, this IRA was prepared in substantive compliance with CFR 1502.16 (the regulations implementing the National Environmental Policy Act of 1969).

7

··· :

REPORT OF FIELD INVESTIGATIONS, ASSESSMENT, AND PROPOSED DECISION DOCUMENT FOR THE NORTHWEST BOUNDARY SYSTEM SHORT-TERM IMPROVEMENTS INTERIM RESPONSE ACTION, RMA

Prepared by MK-Environmental Services Denver, Colorado 80203

Prepared for Shell Oil/Holme Roberts & Owen Denver, Colorado 80203

April 1990

TABLE OF CONTENTS

<u>Sect</u>	ion																					<u>P</u>	<u>age</u>
EXEC	UTIVE	SUMMARY	t.,	•	•	•	•	• •	••	•	•	•	•	•	•	•	•	•	•	•	•	•	iv
1.0	INTR	ODUCTIO	۱.,	•	•	•	•	• •	•	•	•	•	•	•	•	•	•	•	•	•	•	•	1
2.0	SITE	DESCRI	TION	ι.	•	•	•	• •	•	•	•	•	•	•	•	•	•	•	•	•	•	•	3
	2.1	BACKGR	DUND.	•	•	•	•	• •		•	٠	•	•	•	•	•	•	•	•	•	•	•	3
	2.2	RECENT INVEST	HYDF (GATI	ROGI	EOL 5.	og •	ıc	4A •	1D	WA'	rei •	ι, γ	2U <i>F</i>		[T]	۲ •	•	•	•	•	•	•	3
	2.3	HYDROGI	EOLOG	ξΥ.	•	•	•	•	• •	•	•	•	•	•	•	•	•	•	•	•	•	•	5
	2.4	NATURE	AND	EX	FEN	Т	OF	СС	ONT	AM	I NA	AT I	101	1.	•	•	•	•	•	•	•	•	9
		2.4.1 2.4.2 2.4.3	Chlc Diel Othe	dr: dr: er (for in Con	m • ta	mi:	nar	 	•	• •	• •	•	•	• •	•	• •	• •	•	•	•	• •	10 11 13
3.0	OBJE	CTIVE O	F THE	e nv	VBS	s	HO	RT-	-TE	RM	II	191	ROI	7E1	1EI	VT S	5.	•	•	•	•	•	14
4.0	SELE	CTED NWI	BS SE	IOR	r-T	ER	M	IMI	PRO	VEI	MEI	TI	5.	•	•	•	•	•	•	•	•		15
5.0	SCHE	DULE .	• • •	•	•	•	•	•		٠	•	•	•	•	•	•	•	•	•	•	•	•	17
6.0	REFE	RENCES	•••	•	٠	•	•	•	•••	•	•	•	•	•	•	•	•	•	•	•	•	•	18

APPENDICES

l

Ĩ

ļ

04/12/90

LIST OF FIGURES

Following Page

Figure	1-1	Location Map of Northwest Boundary System	1
Figure	2-1	Well Location Map	3
Figure	2-2	Bedrock Surface Map	6
Figure	2-3	Contour Map of the Water Table, February 1990	6
Figure	2-4	Thickness of Saturated Alluvium, February 1990	7
Figure	2-5	Geologic Cross-Section A-A'	7
Figure	2-6	Geologic Cross-Section B-B'	8
Figure	2-7	Distribution of Chloroform in Groundwater, ug/l, February 1990	10
Figure	2-8	Distribution of Dieldrin in Groundwater, ug/l, February 1990	11
Figure	2-9	Dieldrin Concentration vs. Time, Well 37332	12
Figure	2-10	Other Groundwater Contaminants, ug/l, February 1990	13

LIST OF TABLES

Table	2–1	Borehole and Monitoring Well Construction Details	3
Table	2-2	NWBS Area Aquifer Test Results	9

04/12/90

Ņ

LIST OF APPENDICES

Appendix	A	Borehole Logs and Well Construction Data
Appendix	в	MK-ES Survey Data
		 Table B-1 MK-ES Survey of New Wells Table B-2 MK-ES Survey of Existing Wells
Appendix	С	NWBS Water Level Measurements in Alluvial Monitoring Wells, February 12 and 13, 1990
Appendix	D	Results of Physical Properties Testing of Soil Samples
Appendix	Е	Analytical Data QA/QC
		 Table E-1 NWBS Analytical Program Certified Reporting Limits (CRLs) and Methods

Appendix F Analytical Data

1

04/12/90

-iii-

EXECUTIVE SUMMARY

By agreement of the Organizations and the State (OAS), the accelerated process for the Northwest Boundary System (NWBS) Short-Term Improvements calls for a combined report comprised of technical data obtained from recent field investigations, and a narrowly scoped Assessment/Decision Document. This combined report is intended to fill those requirements.

The recent field investigations identified a small alluvial channel immediately northeast of the existing NWBS that provides a pathway for alluvial groundwater to flow around the existing NWBS slurry wall. Groundwater flow through this channel is low, expected to be less than 20 gallons per minute. Samples from this recently discovered channel contained dieldrin at levels up to 0.368 ug/l, which is above the ARAR of 0.12 ug/l for the North Boundary System. Consequently, a northern extension of the NWBS across the newly found alluvial channel is proposed under the NWBS Short-Term Improvements. The extension will use methods employed to construct the existing system (i.e., extraction wells, recharge wells, and/or a slurry wall). Treatment of the extracted groundwater will be performed by the existing treatment plant. Shell, as Lead Party, shall design and implement the extension. An abbreviated Implementation Document for the extension will be issued by July 1, 1990. Construction is to be completed by November 30, 1990.

The recent field investigations did not show contaminated groundwater exceeding the ARAR levels for the North Boundary System to be bypassing the southern end of the existing NWBS. Consequently, the proposed NWBS Short-Term Improvements do not include a southern extension to the NWBS.

04/12/90

1.0 <u>INTRODUCTION</u>

Section 22 of the Federal Facility Agreement (FFA) (1989) identifies and describes the assessment and implementation of Interim Response Actions (IRAs) at the Rocky Mountain Arsenal (RMA). Paragraph 22.1(b)(ii) of the FFA provides for the assessment, selection, and implementation of any appropriate improvements to the Northwest Boundary System (NWBS) as necessary. The NWBS is located primarily in Section 22 of the RMA (Figure 1-1).

In light of data reported in the Comprehensive Monitoring Program Annual Ground Water Report for 1988 (Stollar 1989) showing low level contamination in the alluvial groundwater may be migrating from the RMA in the vicinity of the NWBS, the Organizations and the State (OAS) have determined that it is timely, appropriate, and beneficial to accelerate a field investigation, assessment, and extension(s) of the NWBS in the alluvium, if warranted by the assessment. Consequently, the OAS have agreed to divide the NWBS Improvements IRA into a first phase (the NWBS Short-Term Improvements) and a later phase (the NWBS Long-Term Improvements). Shell shall be the Lead Party for the NWBS Short-Term Improvements. The Army shall be the Lead Party for the NWBS Long-Term Improvements.

Any extension of the alluvial intercept system implemented under the NWBS Short-Term Improvements will utilize methods employed to construct the existing system (i.e., extraction wells, recharge wells, and/or a slurry wall; and use of the existing treatment plant). Any remaining aspects of the IRA remain within the scope of the NWBS Long-Term Improvements.

04/12/90

-1-



As outlined in the letter from the U.S. Army, the OAS have agreed that the NWBS Short-Term Improvements will proceed on an accelerated schedule and will follow an abbreviated process. The NWBS Long-Term Improvements will follow the usual IRA process outlined in the FFA. For the NWBS Short-Term Improvements, this combined report, comprised of technical data obtained from Shell's recent field investigations, and a condensed Assessment/Decision process, is distributed to the OAS to fulfill the requirements for appropriate review and comment on this portion of the overall IRA.

This report (a) presents results of the recent NWBS field investigation, (b) provides the rationale for whether an extension to the NWBS is recommended under the NWBS Short-Term Improvements, (c) indicates the objective of the NWBS Short-Term Improvements, and (d) establishes a deadline for completion of construction of the NWBS Short-Term Improvements.

04/12/90

2.0 <u>SITE DESCRIPTION</u>

Section 2.0 provides a summary of the physical setting of the Northwest Boundary System and presents the results of recent field investigations conducted for the purpose of assessing the need for NWBS Short-Term Improvements. Additional information on site characteristics of the NWBS is provided in USACE (1986), Ebasco (1989), ESE (1989), and PMRMA (1989).

2.1 BACKGROUND

In 1980, a groundwater surveillance program by RMA and the U.S. Army Corps of Engineers identified a narrow contaminant plume in the alluvial groundwater leaving RMA to the north of Section 22. The Northwest Boundary Containment/Treatment System (NWBS) was completed in October 1984 to prevent offpost migration of contaminants in the alluvial groundwater.

Recent Army investigations (Stollar 1989 and ESE 1989) indicated that low level organic groundwater contaminants may be flowing around the ends of the boundary system and migrating offpost. A field investigation was conducted by Shell in early 1990 to determine whether contaminant bypass is occurring, and if so, to determine its nature and extent. A description of this investigation follows in Section 2.2.

2.2 RECENT HYDROGEOLOGIC AND WATER QUALITY INVESTIGATIONS

Twelve alluvial monitoring wells and one aquifer-test well were installed during the recent field investigation. Figure 2-1 shows the locations of the new and existing monitoring wells, the NWBS extraction and recharge wells, four aquifer test wells, and two cross-sections. Table 2-1 is a summary of construction

04/12/90



TABLE 2-1 BOREHOLE AND MONITORING WELL CONSTRUCTION DETAILS

Well ID	Surface <u>Elevation (ft msl)</u>	Total Depth Drilled (ft)	Depth to Bedrock (ft)	Depth to Groundwater (ft from surface)	Screened <u>Interval (ft)</u>
22501 (cluster) 22507 (cluster)	5121.66 5121.65	55.0 40.0	54.0 Nde	29.30 29.32	39.5 - 55.0 24.0 - 39.5
22502	5132.90	50.3	47.0	41.08	34.8 - 50.3
22503-A (dry hole)	5134.49	35.0	30.0	I	I
22504	5136.71	30.0	29.3	29.59	24.5 - 30.0
22505	5141.58	40.0	37.0	33.55	29.5 - 40.0
22506	5146.06	40.0	39.0	38.60	34.25 - 39.75
27501 (cluster) 27506	5129.68 5129.36	59.0 45.0	54.0 Nde	33.40 33.23	44.0 - 54.5 28.2 - 43.7
27502	5126.25	45.0	41.0	31.60	28.0 - 43.5
27503 (cluster) 27504	5127.30 5127.37	59.0 48.0	56.0 Nde	34.37 34.43	46.2 - 56.7 29.9 - 45.4
27505	5130.15	45.0	50.5*	34.62	28.5 - 44.0
27507	5127.67	49.0	45.5	34.01	32.75 - 48.8

All well locations have been surveyed. See appendix A for borehole logs and additional well construction details. NOTE:

NDE = Not Deep Enough msl = mean sea level

*Bedrock depth is from Well 27009

details for the new wells. Appendix A contains the borehole logs and well construction information for the new wells.

At three well locations, paired cluster wells were installed where the saturated alluvial thickness was greater than 15 feet. Well 27505 was installed adjacent to existing Well 27009 to create a nested pair. In the remaining wells, the entire alluvial saturated zone was screened. The alluvium was unsaturated at proposed location 22503-A; therefore, a well was not installed.

A pumping test was conducted in Well 27507, installed near existing Wells 27085 and 27006. The pumped groundwater was piped to the NWBS for treatment.

Recent survey data for the newly installed wells and for 91 existing wells located near the NWBS are included in Tables B-1 and B-2, respectively, in Appendix B. Water levels measured in 105 alluvial monitoring wells during the recent investigation are tabulated in Appendix C.

A total of five soil samples were collected from three boreholes (27501, 27502, and 27503) for physical properties testing (grainsize analyses and Atterberg Limits). Appendix D contains the results of these physical tests.

Ten of the new wells and 17 existing alluvial monitoring wells (identified on Figure 2-1) were sampled in February 1990 using standard RMA procedures as discussed in the Shell Letter Technical Plan (1989). Of the two new monitoring wells not sampled, Well 22502 was installed for hydrogeologic information only, and an inadequate volume of water for sampling was present in Well 22504. Analyses were performed for those analyte groups

04/12/90

-4-

containing organic contaminants reported to exist near the NWBS by recent Army investigations (Task 25 and the Comprehensive Monitoring Program). The analyte groups included organochlorine pesticides, halogenated and aromatic volatiles, diisopropylmethyl phosphonate (DIMP), dimethylmethyl phosphonate (DMMP), and dibromochloropropane (DBCP). Environmental Science and Engineering Laboratory (ESE) of Englewood, Colorado analyzed the samples using PM/RMA-certified methods.

Evaluation of the analytical and field QC data indicate that sampling procedures were adequate and the results were reproducible. A discussion of analytical data quality control/quality assurance, including the list of analytes and certified reporting limits, for the recent investigation is provided in Appendix E. Analytical data are tabulated in Appendix F.

2.3 <u>HYDROGEOLOGY</u>

Regional geologic and hydrologic conditions at the RMA have been discussed in detail in previous reports (May 1982, MKE 1988, and Ebasco 1989) and are not repeated here. The two pertinent stratigraphic units underlying the northwest boundary are the Quaternary Alluvium and Late Cretaceous to Early Tertiary Denver Formation. The alluvium ranges in thickness from 30 to 65 feet and is comprised of clay, sand, and gravel. The alluvial aquifer consists primarily of very coarse-grained sand, gravelly sand, and gravel of the Broadway, Channel Fill, and Louviers stratigraphic units as described in MKE (1988), and generally is highly permeable. The alluvium is underlain by relatively impermeable claystone and siltstone and low permeability sandstone of the Denver Formation.

04/12/90

-5-

Figure 2-2 is a contour map of the top of the Denver Formation. Numerous erosional paleochannels were incised in the bedrock surface prior to deposition of the alluvium. In Section 27, a major channel trends north, then northwest and intersects the southwestern part of the boundary system in Section 22. The northeastern end of the NWBS slurry wall is keyed into a small bedrock high that is part of a low-relief terrace in the bedrock.

In the recent investigation, a channel located immediately to the northeast of the bedrock high was found. This channel is identified with an arrow on Figure 2-2 and trends northwest, then west, splitting into two smaller channels. One of the smaller channels trends southwest to the area between the NWBS slurry wall and recharge wells. The second channel continues west crossing the RMA boundary.

The water table in the alluvium beneath the NWBS varies from about 30 to 40 feet below the ground surface. As shown on the contour map of the water table measured in February 1990 (Figure 2-3), regional flow is ultimately to the northwest; however, localized flow pathways near the NWBS are varied and complex. то the east and southeast of the NWBS, groundwater flow in the alluvium is confined to bedrock channels. Between these channels, the Denver Formation protrudes above the water table, creating extensive areas where the alluvium is unsaturated. Within the bedrock channels, the hydraulic gradients are generally steep (typically between 0.02 and 0.05 ft/ft) because the groundwater flows over the sloping bedrock surface within a thin saturated zone. To the south, west, and northwest of the NWBS, the hydraulic gradients are flatter by roughly an order of magnitude (0.002 to 0.007 ft/ft) and the alluvial aquifer is much thicker and quite permeable. Most of the groundwater flow converges on the existing NWBS extraction system; however, in the

04/12/90

-6-





western portion of Section 27, Section 28, and to the northeast of the slurry wall in Section 22, portions of the groundwater flow around the NWBS.

As shown on Figure 2-4, extensive areas of unsaturated alluvium exist near the NWBS where the bedrock is shallow. Erosional channels cut into these bedrock highs contain saturated alluvium 10 feet thick or less. Groundwater flows in the alluvium are probably small in these thin channels. As the bedrock elevation decreases to the west, the saturated alluvium thickens to over 50 feet offpost in Section 21. Most of the groundwater flow into the NWBS comes from south of the boundary system in Section 27.

Near the southwest end of the NWBS, the saturated zone varies from about 10 to 30 feet thick. Figure 2-5 is a cross-section illustrating the geology southwest of the boundary system. A small location map is included on Figure 2-5 and the location of the cross-section is shown in more detail on Figure 2-1. A confining clay layer overlies the coarse-grained alluvial aquifer and the potentiometric surface rises slightly above the base of the clay near the boundary system. At Well 27502, the saturated alluvium thins over a bedrock high, and at cluster wells 27506 and 27501, the lower part of the aquifer consists of lower permeability material. Hence, the aquifer is less transmissive as reflected in the shape of the contours on the water table map (Figure 2-3).

Northeast of the slurry wall, the alluvium lies on a bedrock terrace. As shown on Figure 2-4, the alluvial saturated thickness ranges up to 10 feet. Groundwater enters this area from the east through a narrow channel. Although some of the groundwater flow in this channel is intercepted by the boundary system, the recent investigations identified another channel

04/12/90

-7-





located just to the northeast of the end of the slurry wall. This recently identified channel trends northwest, then west, bypassing the slurry wall. This channel is 400-500 feet wide with a maximum estimated saturated thickness of about 5 feet. Groundwater bypassing the slurry wall through this channel flows into the area between the slurry wall and the recharge wells, and may also flow offpost near Wells 37332 and 37386.

Figure 2-6 illustrates the geology at the northeast end of the slurry wall. The location of this cross-section is shown on Figure 2-6 and in more detail on Figure 2-1. Newly installed Well 22505 is probably located near the deepest part of the recently identified channel, penetrating approximately 3.5 feet of saturated alluvium. Coarse gravel was encountered at the base of the alluvium in this well. During well development and sampling, the well produced 3 to 4 gallons per minute (gpm) without dewatering. Therefore, the saturated zone is permeable but thin. Groundwater flow through this channel is expected to be under 20 gpm.

Along the slurry wall, a reverse hydraulic gradient was measured in three of the four pairs of monitoring wells straddling the wall. However, a normal gradient with a head difference of 2.1 feet was measured in the well pair on the northeastern end of the wall (Wells 22071 and 22072). As shown on Figure 2-6, Well 22071 is located on the slope below the bedrock terrace to the northeast. The nearest extraction well (22315) is 250 feet away at the base of the bedrock slope. Army borehole DH82-8, located between Wells 22315 and 22071, was drilled in 1982 and was a dry hole. Therefore, there may not be an effective hydraulic connection between Wells 22315 and 22071. Thus, extraction Well 22315 probably has little or no ability to create a reverse

04/12/90

-8-



gradient along approximately the last 300 feet of the slurry wall.

Aquifer tests have been conducted by the Army in Wells W-4, W-5, and NW-11, and by Shell in Well 27507 during the recent investigation. Test results are summarized in Table 2-2 and the locations of the test wells are shown on Figure 2-1. Test results produced estimates of aquifer transmissivity ranging from 30,000 to 471,778 gallons per day per foot (gpd/ft), hydraulic conductivity estimates varying from 1.2 to 9.7 x 10⁻¹ cm/sec, and storativity estimates of 0.085 to 0.25.

2.4 NATURE AND EXTENT OF CONTAMINATION

Soil and groundwater quality data collected by the Army in the NWBS area were compiled and presented in the North Central Study Area Report (Ebasco 1989). Groundwater quality data were also presented in the Comprehensive Monitoring Program (CMP) Report for 1988 (Stollar 1989) and the Task 25 Draft Final Report (ESE 1989). The CMP provides routine groundwater monitoring of wells near the NWBS on an annual or semi-annual basis.

The 1988 CMP maps show low parts-per-billion (measured in micrograms per liter) concentrations of benzene, chlorobenzene, chloroform, dieldrin, diisopropylmethyl phosphonate (DIMP), and trichloroethene (TCE) in groundwater offpost near the NWBS. A review of historical data indicates that of these six contaminants, only chloroform and dieldrin were consistently detected. Detections of the remaining four compounds were sporadic and are of questionable reliability.

To help resolve questions about the historical data, obtain water quality data from wells not included in the CMP, and collect data

04/12/90

· -9-

TABLE 2-2. NWBS AREA AQUIFER TEST RESULTS

<u>Well ID (source)</u>	Transmissivity (gpd/ft)	Aquifer Thickness (ft)	Hydraulic Conductivity (cm/sec)	<u>Storativity</u>
W-4 (USCOE 1986)	210,228	25.0	4.0×10^{-1}	0.085
W-5 (USCOE 1986)	33,213	8.5	2.1×10^{-1}	0.25
NW-11 (May 1982)	340,585-471,778	23.0	7.0-9.7 x 10 ⁻	¹ N/A
27507*	30,000-60,000	11.5	1.2-2.5 x 10 ⁻	1 N/A

*Pumping test analysis is preliminary

N/A = Not Available

R

for the newly installed wells, a sampling program of alluvial wells was conducted by MK-Environmental Services in February 1990. Examination of all available groundwater data indicate that the majority of contaminants approaching the northwest boundary of RMA are intercepted and removed by the NWBS. However, very low concentrations of chloroform and dieldrin are bypassing the boundary system and migrating offpost as discussed in Sections 2.4.1 and 2.4.2.

One objective of the recent field investigation was to determine whether representative samples may be obtained from the older monitoring wells having only partially penetrating screens. Since historical CMP data were used in this investigation, verifying the validity of the data from these wells was important. Based on recent cluster well data for chloroform and dieldrin presented below, it appears that reasonably representative samples were obtained from these wells.

2.4.1 Chloroform

Figure 2-7 shows the distribution of detectable chloroform in groundwater. The chloroform plume flows from the south in Section 27. Most of the detectable chloroform plume is intercepted by the NWBS; however, a small portion is not. No chloroform was detected in the newly found alluvial channel northeast of the NWBS.

Essentially no difference in the concentration of chloroform was found in cluster wells 22501 and 22507 near the thickest part of the alluvial aquifer in Section 22. Therefore, no vertical concentration gradient is indicated for the chloroform plume near the NWBS.

04/12/90



Because chloroform is only partially removed by the NWBS granulated activated carbon treatment plant, chloroform bypassing the southwestern end of the boundary system is lower in concentration than the water re-injected in the recharge wells. Although chloroform was detected offpost, the concentrations detected on both sides of the NWBS are substantially below the ARAR for the North Boundary System IRA of 100 ug/l for total trihalomethanes.

2.4.2 <u>Dieldrin</u>

Figure 2-8 shows the distribution of dieldrin in groundwater collected from wells near the NWBS. Two dieldrin plumes separated by an uncontaminated area appear to be flowing from the south in Section 27. The CMP data indicate that the highest concentrations of dieldrin are found in the plume intercepted by the NWBS.

Along the western boundary of Section 27, a narrow plume flows offpost. Within this plume, concentrations measured in February 1990 were within a narrow range, between 0.0756 and 0.106 ug/l, and were below the proposed ARAR of 0.12 ug/l for the North Boundary System IRA. No change in the concentration of dieldrin in this plume is indicated by the recent data.

At cluster well locations, no significant vertical concentration gradients of dieldrin were detected, although slightly higher dieldrin concentrations were detected in the upper part of the alluvial aquifer. A representative sample was probably not obtained from cluster well 27501 because of dilution by potable water added during well installation. Therefore, the measured value for this well of less than the certified reporting limit (CRL) of 0.0539 ug/l should be disregarded.

04/12/90

-11-



On the northeastern end of the NWBS, dieldrin concentrations within the newly found channel located northeast of the NWBS range from 0.130 to 0.368 ug/l. Samples from the offpost wells were below the CRL. This was unexpected since offpost migration on the northeastern end of the NWBS is indicated by the hydrogeologic data. Apparently, a significant decrease in the concentration of dieldrin in offpost Well 37332 has occurred since it was sampled in October of 1988.

Figure 2-9 is a plot of dieldrin concentration versus time for offpost Well 37332. Preliminary October 1989 CMP data confirmed the recent decrease in dieldrin concentration in Well 37332. The concentration has fluctuated through time, indicating bypass has occurred but may have been intermittent. Prior to the recent sampling program, between 1986 and 1988, dieldrin concentrations above 0.12 ug/l were consistently detected.

Examination of NWBS flow data revealed that injection rates in recharge wells located near Well 37332 were increased briefly in 1985 and again in 1989 and 1990. These increased injection rates corresponded to significant decreases in dieldrin concentration to below the CRL in Well 37332. Although it can be concluded that increased injection caused the decreases in concentration in this well, it is unknown whether offpost migration is prevented. The increased injection rates could either 1) divert the plume away from the monitoring well but allow dieldrin to migrate offpost, 2) dilute the plume to below the CRL, or 3) deflect the plume between the slurry wall and recharge wells toward the NWBS extraction wells to the southwest.

04/12/90

-12-


2.4.3 Other Contaminants

The only other groundwater contaminants reported in this investigation were single, isolated hits of endrin, dichlorodiphenyltrichoroethane (PPDDT), and DIMP. Figure 2-10 shows the well locations and concentrations for these isolated reports, all of which were below the ARARs for the North Boundary System IRA. The endrin (Well 27009) and PPDDT (Well 27085) reports were from cluster wells located immediately adjacent to wells in which these analytes are below the CRLs. Since it is apparent for chloroform and dieldrin that vertical concentration gradients were not significant, these reports may be false detections. Neither compound has been detected in these wells during previous sampling events. DIMP was reported in newly installed Well 22506 but not in any nearby wells.



3.0 OBJECTIVE OF THE NWBS SHORT-TERM IMPROVEMENTS

The objective of the NWBS Short-Term Improvements is to mitigate the bypass of alluvial groundwater known to be contaminated by organic compounds above the ARAR levels for the North Boundary System IRA by extending the NWBS groundwater interception system. Any extension is to utilize methods employed to construct the existing system (i.e., extraction wells, recharge wells, and/or a slurry wall). The treatment of extracted groundwater will be performed by the existing treatment plant.

04/12/90

4.0 <u>SELECTED NWBS SHORT-TERM IMPROVEMENTS</u>

As shown in Section 2.4 of this report, no groundwater containing contaminants above the ARARs for the North Boundary System IRA appears to be bypassing the southern end of the NWBS. Consequently, the NWBS Short-Term Improvements will focus on a northern extension of the NWBS.

An alluvial channel carrying groundwater contaminated with levels of dieldrin above the North Boundary System ARAR level has been located slightly north of the existing NWBS. Recent data downgradient from the channel do not show any offpost groundwater to be contaminated with dieldrin at detectable levels. The selected strategy for the NWBS Short-Term Improvements consists of extending the existing NWBS across the recently identified channel. The extension will be accomplished utilizing technologies currently employed in the NWBS (i.e., extraction wells, recharge wells, and/or a slurry wall). Treatment of extracted groundwater will be performed by the existing treatment The selected strategy is consistent with the continued plant. long-term operation and function of the NWBS.

As shown in Section 2.3, the recently discovered alluvial channel is approximately 500 feet wide and has a maximum saturated thickness of at least 3.5 feet. Flow through the small channel is not expected to be more than 20 gallons per minute at a maximum. Recent water quality data within this alluvial channel show concentrations of dieldrin between 0.130 and 0.368 ug/l. Recent downgradient offpost water quality data do not show dieldrin concentrations above the 0.0539 ug/l CRL. The ARAR for dieldrin for the North Boundary System is 0.12 ug/l. Treatment of the incremental groundwater from the proposed system extension

04/12/90

-15-

is not expected to degrade the performance of the NWBS treatment plant.

Due to the accelerated nature of this phase of the NWBS IRA, a definitive cost estimate of the selected strategy has not been performed. However, a scope estimate indicates that construction costs will not exceed \$750,000.

The recommended NWBS Short-Term Improvements extension of the NWBS to intercept the alluvial groundwater that may flow around the north end of the existing NWBS will reduce the spread of contamination, and is therefore expected to be consistent with the Final Response Action.

04/12/90

-16-

5.0 <u>SCHEDULE</u>

Consistent with the agreement of the Organizations and State, the Draft Implementation Document for the NWBS Short-Term Improvements will be completed by July 1, 1990. Construction of the proposed NWBS Short-Term Improvements is scheduled to be completed by November 30, 1990.

04/12/90

6.0 <u>REFERENCES</u>

Ebasco Services, Inc. (Ebasco), 1989. Final Remedial Investigation Report, Volume XI, North Central Study Area, Version 3.3. Julv. RIC #89024R02 Environmental Science and Engineering, Inc. (ESE), 1989. Boundary Control Systems Assessment Remedial Investigation Draft Final Report, Version 2.2. November. Task Number 25. Federal Facility Agreement (FFA) Between the United States and Shell Oil Company. February 1989. RIC #82295R01 May, J. H., 1982. Regional Groundwater Study of Rocky Mountain Arsenal, Denver, Colorado: U.S. Army Corps of Engineers Waterways Experiment Station. Vicksburg, Mississippi. Morrison-Knudsen Engineers, Inc. (MKE), 1988. Geology of the Rocky Mountain Arsenal, Adams County, Colorado. Prepared for Holme Roberts and Owen. Denver, Colorado. Program Manager, Rocky Mountain Arsenal (PMRMA), Technical Operations Division, 1989. Rocky Mountain Arsenal Northwest Boundary Containment/Treatment System Operational Assessment Report, FY88, Draft Final Report. September. Shell Oil Company (Shell), 1989. Letter Technical Plan for Fieldwork Proposed for the Northwest Boundary Containment System (NWBCS) Interim Response Action (IRA). December. Stollar, R. L. and Associates, Inc. (Stollar), 1989. Comprehensive Monitoring Program Annual Ground Water Report for 1988, Final Report. June.

U.S. Army Corps of Engineers (USACE), 1986. Construction Foundation Report, Northwest Boundary, RMA Containment/Treatment System. March.

04/12/90

-18-

APPENDIX A

1

Borehole Logs and Well Construction Data

Bor	ehol	e/V	Vell N	lo.	:	22501	Proj	ject/Task No's. : <u>NWBCS IRA/</u>
-		Dat	e Star	τες	בי בר קר	$\frac{1-51-10}{2}$	-	Date Completed :
Drill	ling In	ispe	ctor :		<u>D:</u>	<u>Charles</u>		
Dril	ling C	omp	any :		Geo	technical Servi	ces, I	<u>nc.</u>
Surv Loca	eyed tion :	N E	19123 21744	81.8	36 .02	Surv Eleva	eyed tion : T	GS <u>5121.66</u> ft. OC <u>5123.68</u> ft.
Total Stati	Depth c Wate	Drille r Lev	el Dept	<u>55</u> h::	5.0 TOC, R-20	<u>ft.</u> Drillir <u>31.49</u> ft. -90	ю Туре	: <u>Hollow-Stem Augen</u> Mobile B-57 Drillnig
Ian	Sam form	ple atio	n		Co	Well nstruction		Subsurface Information
Depth Below Ground Surface (ft.)	Blow Count/ Feed Pressure	Sample Type	Sample Depth/% Recovery	Well	Schematic	M aterial Description	Borehole Schematic	Lithologic and Hydrologic Description
				-				NOTE: Lithologic Log is From
			· · · · · · · · · · · · · · · · · · ·		Í	protective Casing set in grant w/consister	· · · · · · · · · · · · · · · · · · ·	Bore 397.
	a and a construction of					540.		Sand, Clayey; It brown to brown, me dense, moist.
- - - -				4		-Blank 4"ID PVC		Sand, silty; It brown to white, Cal medium dense, slightly moist to m
		a deservado en a construiente en esta defenser antigamenta a construiente en esta de la construiente de la construiente de la construiente de la construiente e			F	sch 40 W/ f/ush-threader joints		Sant Mayey - It hnown medium
= = 10		рурна, с солоний ийн 1991 - С., солоний ийн 1992 - С., солоний ийн	a a managang kanang kanang Kanang kanang			Grout		dense, slightly moist to moist.
	· · · · · · · · · · · · · · · · · · ·					Pontland Type I w/4% bentonite	· 	Clay, silty and sandy; 1t. brown, stiff, moist
- /5			n na			<u> </u>		Sand siltu
						Bonehole diameter		
-20						10.5".		Clay, tr. of sand; It. brown-gnay brown, moist
	n a mana a magné servere na Ano terrene				F			
		second and second as a second		r - 5 - 1		7		

Borehole/Well No. : 2250/ Project/Task No's. : MWBCS IRA/3800

Date Started : 1-3-90

Date Completed : 1-31-90

Sample Information	Well Construction	Subsurface Information
Depth Below Ground Surface (ft.) Blow Count/ Feed Pressure Sample Depth/% Recovery	Well Schematic Material Description	Borehole Schematic Lithologic Aydrologic Description
	27:0 Bentanite pellets Wh 29.5 BGL 2-20-90 32.0 32.0 32.0 Collapse - Natural 39.5 Sand Pack - - - - - - - - - - - - -	Sand and Gravel; It. brown, medium dense; Stimoist to morist; Clay, little sitt, tr. sand; It. gray tobrown, stiff, high plasticity, free water in fractures; moist. Sand and Gravel; It. brown, med. dense; Sand; trace of gravel Sand; trace of gravel Sand; trace of gravel Sand; trace of gravel Clayse of clay at 48 ft. Soo Gravel at 30 ft Top of Denver Fr. @ 54.0 Shightly moist.

Page No. : 20f2

Bo	rehol	e/V	Veli N	lo. :		22502	Proj	ect/Task No's. : <u>IRA/380</u>
•		Dat	e Star	ted :		2-6-90		Date Completed :7-27-90
Dril	ling In	spe	ctor :	<u></u> E	<u>3. C</u>	harles		
Dril	ling C	omp	any :		peot	cchnical Ser	vices, -	<u>Inc.</u>
Sun	reyed					Surve	eyed	
Loca	ation :	N	191962	5.65	·	Eleva	tion:	$GS = \frac{5/32.90}{5.25} ft.$
		E _ª	<u>x1757</u> -	50.00	_		T	
Tota Stat	I Depth	Drille r L ev/	el Denti	<u> </u>	<u>), 3</u> ,24	ft. Drillin ToC ft.	g Type	Mobile B-57 Drill Ra
Slat	ic wate	Lev	сі рері	3-	-1-9	0		
lı	Sam _i form	ple atior	٦	C)on	Well struction		Subsurface Information
ЭW (.)	4	be				c		, <u>5</u>
d d e (f	Coun	'e Ty	ery ery	natio		ial iptio	ole natic	ogic iptic
oun oun	ow (Idme	apth Spth	ell		ater escr	oreh	rthol vdro escr
รัยอั	שֿתָק	Š	3 Q Q Q	Š ŭ	5	ΣĞ	й Й	<u>ה</u> בים ב
	ster					8" Stopl	a success a construction of the second s	
	र्ट नु				-1	protective casing	i in a di araa animaan ii ii	
	Ble	- Handdonad (Mr. 19. 19. 19. 19.				set in grout		
_ 0_						W/ concrete pag.		Ground Surface
	n An an				1			S = 1 = 1 + 1 / 4 + 7
		· · · · · ·	- 		1	-Blank		Jana, Silly; 17. Drown to Ian, the to med grained sand slipmon
-5					\square	4"ID PVC		to dry.
_		: 			-	sch. 40 w/		
			,		\square	joints.	ļj, ļ	
	·							
10	1 mar 1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m 1	رج بر	-	[]	4	-Gront	. E	
		# 11		$\left - \right $		Portland TypeI		
_		$\zeta_{\mathbf{z}}$		日		w/7% bentonite		
- 15		······		\square	1			
						алан түрөөрүүн түрөөсэг алаасаасаасаа айсан туроос оо соотоо Т		
				$\square $	ľ	2-Bovehole		Clay, silty, sandy in places;
	and a first of the second second second		· · · · · · · · · · · · · · · · · · ·		I	diameter	/ i /	It brown, stiff, slow
-20				口	Η	10.5"	1.1	zones, sli moist.
	10.000 (0.000) (0.000) (0.000)				D		./i	
		-					·	Coanse sond and granules in clayat
	0.70	:					1.0%	

Во	reho	le/\ Da	Well te Sta	No. : . rted : _	22502 2-6-90	Project/Task No's. : <u>IRA</u> <u>3800</u> Date Completed : <u>2-27-90</u>				
Sample Well Information Construction							Subsurface Information			
Depth Below Ground Surface (ft.)	Depth Below Ground Surface (ft.) Blow Count/ Feed Pressure		Sample Depth/% Recovery	Well Schematic	Material Description	Borehole Schematic	Lithologic and Hydrologic Description			
-35 	6/10/19 18" 8" 8/7/25 18" 12/3355 18"	Split spoon and Cuttings Cuttings Splith S			Pentonite Pellets (Holeplug) 31.0 51.0 51.0 51.0 51.0 51.0 51.0 53.0 Collapse 33.0 Collapse 34.8 Well Screen 0.020"slots 4"PVC, sch. 40 w/ flush threaded joints. VwL 41.24 B6L 3/1/90 Sand Pack (10-20 Sand) 49.8 50.3 (Bottom plug) TD 50.3		Sand, Silty; It. brown to tan, occasional Sand, Caliche zones, sti. moist Sand, Silty; It. brown, arkosic, Coarse to very coarse grained, Small granite pebbles, angular- sand and pebbles, sli, moist to dry; Sand, Silty; It. brown to gray, arkosic, coarse grained w/occasional pebbles to 1"dia., Artially cemented, Saturated. 47.0 Top of Denver Fm @ 47.0. Sandstone, some clay; Coarse grained. With claystone fragments, iron stained, partially cemented, slimoist - no free water.			

A-4

Page No. : _ 20f2

Borehole/N Dat Drilling Inspe	Well No. : :: <td::< td=""> <td::< td=""></td::<></td::<>	22503-A (Dry hole) 2-1-90 Charles	_ Proj	Date Completed :
Drilling Comp Surveyed Location : N E Total Depth Drille Static Water Lev	Dany: <u>Geo</u> 192624.45 2176500.29 ed: <u>35</u> el Depth: N	<u>echnical Service</u> Eleva ft. Drillin ft.	eyed ation : 0 Ti ng Type	GS <u>5134.49</u> ft. OC <u>NA</u> ft. : <u>Hollow-Stem Auger</u> <u>Mobile B-57 Drill Rig</u>
Sample Information	n Ca	Well onstruction		Subsurface Information
Depth Below Ground Surface (ft.) Blow Count/ Feed Pressure Sample Type	Sample Depth/% Recovery Well Schematic	Material Description	Borehole Schematic	Lithologic and Hydrologic Description
				Note: Hole was dry and wa grouted to surface.
		Z-Grout Partland TypeI W/ 470 bentonite gel.		Sand, silty; It. brown, fine grain dry. Sand, clayey; It. brown, fine grain low clay conterit, dry. Clay; It. gray, leached soilzone, caliche, occ. pebbles, dry. Clay, sitty; brown, stiff, slimois Sand and Gravel, V. Coarse gr. sam granules to pebbles 2"dia., dr

Page No. : _/ot ~2____

Bo	rehol	e/\ Dat	Vell I te Sta	No. : <u>-</u> rted : _	22563-A (Dry hole) 2-1-90	_ Project/Task No's. : TRA / 3900 _ Date Completed : 2-6-90					
	Sample Well Information Construction						Subsurface Information				
Depth Below Ground Surface (ft.)	Surface (ft.) Slow Count/ Feed Pressure Sample Type Sample Depth/% Recovery		Sample Depth/% Recovery	Well Schematic	M aterial Description	Borehole Schematic	Lithologic and Hydrologic Description				
- 30	Blow cts.	Cuthings		Hole			Lange cobbles, 5"dia., dry * Broke drivehead in lange rocks at 2?! Gravel, some clay; reasize gravel, dry, Top of Denver Fm. @ 30,0				
	20/7/13 8#	Split Spon		n-A	TD 35:0		Claystone, Olive green w/ some irion staming, weathered from = 30-31', hard, dry, unweithered = From 31-35' Moisture at 36' = not enough for alluvial well. =				
		···· · · · · · · · · · · · · · · · · ·					Hole was dry and was grouted to surface				
		· · · · · · · · · · · · · · · · · · ·									
		· · · · · · · · · · · · · · · · · · ·									
	,	·····									

Page No. : 2072

I

A-6

Bor	ehol	e/V	Veli N	0. :	22504	Proj	ect/Task No's. : IRA /3800
-		Date	e Star	ted :	2-11-90		Date Completed : $\underline{\neg} \overline{-1/-90}$
Drill	ing In	spe	ctor :	<u>B</u> ,	Charles		
Dril	ling C	omp	any :	Geo	technical Servic	es, In	<u>pC.</u>
Surv	eyed				Surve	eyed	
Loca	tion :	N _	9298	•47	Eleva	tion:	GS <u>5136.71</u> ft.
		E _	217650	25.7		T	0C <u>5138,46</u> ft.
Total	Depth	Drille	ed :	30	$\frac{0}{2127}$ ft. Drillin	ıg Type	: Hollow-Sten Auger
Stati	c Wate	r Lev	el Depti	$1:\frac{100}{2\cdot 2}$	<u>3,57</u> ft. 23-90		Mobile B-3/ Initing
	Sam	ple			Well		Subsurface Information
In	form	atior	3	C	onstruction	 	I
elow (ft.)	unt/	Type	~~~	tic	tion	e tic	ic dic tion
ind Brd Brd	v Co	ple	ple th/:	emá	eria	ema	olog criplo
Dep	Blov Free	San	Sam Dep Rec	Well Sch	Mat Des	Bor Sch	and Des Des
-							
					8" Steel		
					protective casing		
					set in grout		
-			85			1. 1	Clay sandy dkbm, anganic, moist
-		and and a survey	مى بويور يە	H			
_			: 	$H_{\rm F}$	Blank 4"ID	· · · · · · · · · · · · · · · · · · ·	Sand; Silty; Tan, V.tine gr., dry
			· · · · · · · · · · · · · · · · · · ·		PVC, sch40, flush-threaded its	<u> </u>	
- 3		, 		+[
-				\neg	Partland TUSAT	o : /.	Clay, Sandy; It brown To brown
-] F	w/470 bentonite	1.0	vebble /2"dia. Sli. moist.
= 10		S S		JF	ુ લુઘે.		
	angenariana e caja mananana e	#	ay yaya ay kasa yaya	4[- Ramhole	1.0/	
	1 			1	dra. 10.5."	1	
-		\sim		JE		• /.	
- 15			1			000	
_ /~					Bentonite	0000	Gravel-small pebbles 2 die.
_		· · · · · · · · · · · · · · · · · · ·			Hole slue	00,00	well rounded, ary.
_						0. : .	Sand and gravel; med. to V. coarse
- 20	· · · · · · · · · · · · · · · · · · ·				20.0		small peobles 1/2"to 2"dia.
				0	Formation	·/···	
-				•	-4 22.5		Sand, Clayer: med. gr. sand, moist
-	- ex-de				- C Sand Dark	1.1	

A-7

Page No. : _/6+2_

Borehole/W	II No. :	_22504
------------	----------	--------

Project/Task No's. : NWBCS IRA/3800

Date Started : _ 2-17-90

}

Date Completed : $2^{-17} \cdot 90$

Ir	Sam nform	ple atio	n	Co	Well nstruction	Subsurface Information				
Ground Surface (ft.)	Blow Count/ Feed Pressure	Sample Type	Sample Depth/% Recovery	Well Schematic	M aterial Description	Borehole Schematic	Lithologic and Hydrologic Description			
-30	31/50 12"	Split spoon Cuthing.			- Well screen 0.020 * slots 4" PVC 2 Sand puck (10-20) 2 WL 29.37 BGL 2-23-90 29.5 30.0 (Bottom plue) TD 30.0		Sand and gravel; It. brown, med gr. sand, 2"dia peoples., moist. Gravel, clasts to 3"dia. Top of Denver Frn @ 29.23 Sittstone and claystone; finely interlaminated, sittstone alove green, claystone blue-grun w/ mon staining; dry to slightly moist.			
							Well was dry after installation, but had water a few days later:			
· · · · · · · · · · · · · · · · · · ·										
	· · · · · · · · · · · · · · · · · · ·									

Bo	rehol	e/Y	Veli N	0.:_	22505	Pro	ject/Task No's. :/3800
-		Dat	e Star	ted :	2-17-90		Date Completed : ~?-)8-90
Dril	ling Ir	ISPO	ctor :	<u> </u>	Charles		
Dril	ling C	omp	oany :	<u> </u>	technical Servi	res,I	nc.
Surv	veyed				Surve	eyed	
Loca	ition :	N _	93124	69	Eleva	tion :	GS <u>5141,58</u> ft.
		Ε_	21/66	<u> </u>		Т	$OC _ 5/43.38 ft.$
Tota	l Depth	Drille	el Dentk	40.0 . Tar 3	ft. Drillin	д Туре	Mobile B-57 Bulling
3181			ет рери	<u>ا. اور د</u> م-۲	0-90		
	Sam	ple		•	Well		Subsurface Information
	Torm			Co	nstruction		Г
th Below Ind ace (ft.)	r Count/ J sure	ple Type	ple h/% very	ematic	rial ription	<i>hole</i> matic	logic ologic ription
Depi	Blon Feet Pres	Sam	Sam Dept Rec	Well	Mate Desc	Bore	Lithc and Desc
-							
				5	-8" Steel	-	
					protective Casing		
					w/concrete pad	· ····· ·· ···	Ground Surtees
	n el la constant une comme des la			НŢ			
	n agus		and country is at a first to	1+			Sand sittle. It brown if fine analy
				1E	Blank		loose, dry to sli moist.
-5			-	1-	4 ID FVC		9
-	1997 - 19		· · · · · · · · · · · · · · · · · · ·	11	w/ flush - threaded	1.1	Clayin matrix @ 6-8-
_				$+ \square$	jønts		
		3			2-Grout		
=""		1		+	Portland Type I		
-		5		1 -	w/4% bentonite		Sand Clauser: It haven in Fride an
-							to silt, firm, slimoist.
-15			·	+	- Borcholc	1:1	
- : :	na no annann - conaidheil 1 - br fair M	age 1997, 1 - 1987,		1 -	ala. 10.5		Clay Sandy · It hnown occ. sma
				+		/	pebbles, stiff, slimoist.
					19.0		
- 20					Bentonite		
		· · · · · · · · · · · · · · · · · · ·			Perlets (Holephy)	· · · · ·	Sand and Gravel; course gr. sand
-					and general access of a constant of	.0 .0.	small pebbles 1/2 to 1" dia., mois
- 1	1			15 N	· • • • •		

Page No.: 10f2

A-9

Во	reho	le/!	Well	No. :	22505	_ Proj	ject/Task No's. : IRA 3800				
-		Dat	te Sta	irted :	2-17-70	-	Date Completed :/8-10				
lı	Sam nform	ple atio	n	C	Well onstruction		Subsurface Information				
Depth Below Ground Surface (ft.)	Blow Count/ Feed Pressure	Sample Type	Sample Depth/% Recovery	Well Schematic	M aterial Description	Borehole Schematic	Lithologic and Hydrologic Description				
$-\frac{3}{40}$	29/11/12 18" 7/20/32 16" 26/37/47 18" 13/37/47 18"	Split Spoon and Cuttings			27.5 27.5 27.5 29.5 WL 33.35 86L <u>V</u> _2=20=90 Well screen 0.020 slots 4"PVC sch.40 Sand Pack (10-20 sand) 39.5 40.0 (Bottom plug) TD 40.0		Sand and File Gravel, sli. silty: fine to very coarse gr. sand // // // // // // // // // // // // //				

Page No. : 2 of 2

Boi	rehol	e/V	Veil N	0. :	22506	Proj	ject/Task No's. : <u>IRA</u> /3800
-		Dat	e Starl	ed:	2-18-90		Date Completed : $2 - 18 - 90$
Dril	ling In	spe	ctor :	B	Charles		
Dril	ling C	omp	any :	Ge	estechnical Ser	rvices, Ir	<u>¢.</u>
Surv	eyed				Su	rveyed	
Loca	ition :	N	193269	1.17 5.50	Ele	vation :	GS 5146.06 ft.
		E _<		<u>م م رو</u>		۱۱ ۱۳۰۰ - ۲۰۰۰	Hollow Stor August
Tota Stati	i Depth ic Wate	Drille r Lev	el Depth	: TOC	<u> </u>	uing type	Mobile B-57 Drill rig
				2	-20-90		0
lr	Sam form	ple atio:	n	С	Well construction		Subsurface Information
r) W	ţ	,pe			ş	6	6 5
d d f f	Cour	le T,	ey ey	nati	ial iptic	natic	logic iptic
epth roun urfac	low eed ress	amp	eptho	'ell chei	later escr	oreh chei	ithol bydro lesci
ଦ୍ୱର		Ś	30K	2 S		N B I	1 <i>6</i> 70
					8" Steel		
			: : 		protective cas	sing	
-					w/concrete f	ad	Ground Surface
				H			
-	l - Nacional I a contractionation for he 				H_{21}		dry to slightly moist.
_				-4	Hank 4"TD PVC		
-5	· :			1	Sch.40		Clay, silty, sandy, It, brown, stil
-					w/flush threaded		dry to slightly moist,
_	ang ng sa	ningen sin sin sin sin sin sin sin sin sin si			joints		Sand silty. It tan, y fine an sand
		<u>হ</u> হ		4	er-Grout		dense, dry,
-				1	w/42 bentoni	9 L /	Sult sondy clayer, It tants It has
		2		1	gel.		dense, dry to slightly moist.
-		~		1	- Russials		
_ 15				11	dia. 10.5	5" 1.1	
				-1		0/.1.	Clay, sandy, silty; It. brown, s
				11			10 SOTI, occasional peobles, m
-20		•		- [0	
_				11	$\int \Omega $	· · · ·	
					~~···		
_					Bentonite		

A-11

Page No. : 1 0 f 2

Borehole/Well No. : <u>225</u>

6 Project/Task No's. : NWBCS / 3800

Date Started : _______

Date Completed : ________

Sam Inform	iple nation		Co	Well nstruction		Subsurface Information
Ueptin Below Ground Surface (ft.) Blow Count/ Feed Pressure	Sample Type	sample Depth/% Recovery	Well Schematic	Material Description	Borehole Schematic	Lithologic and Hydrologic Description
-30 -30 -30 -35 12" -40 10/13/14 18"	Split Spoon and Cuthings			Bentanite pellets 27.0 - Formation Collapse 32.5 Sand pack (10-20) 34.25 Well screen 0.020" Slots 4" PVC sch.40 UL 37.85 BGL 2-20-90 39.25 (Bottom phy) TD 40.0		Sand and Fine Gravel, It. brown, V. Coarse gr. sand, pebbles to 2"dia., moist Sand and Gravel, It. brown, V. coarse sand, pebbles to 3"dia., moist. Sand and Gravel, sitty; tan to tt. brown, V. coarse sand, ped gravel and pebbles to 1/2"dia., Slightly moist. Top of Denver Fm. @ 39.0 Claystone; blue-gray w/ Irion staining, fragmented and fractured, moderately so ft, dry.

A-12

•		Dat	e Star	ted :	1	-3/-90		Date Completed : 2^{-1-90}
Dril	lina In	SDe	ctor :	B	. (<i>Chanles</i>		
Dril	lina C	omr	any :	Geo	tect	inical Services	Inc.	
		k	· -				wod	
Loca	tion :	Ν	191232	3.91		Elevat	tion: (35 5121.65 ft.
		Ε_	21744	86.98	8		тс	DC 5123.58 ft.
Tota	l Depth	Drille	ed: _4	0.0		ft. Drillin	g Type :	Hollow-Stem Augen
Stati	c Wate	r Lev	el Dept	h : <u>To(</u>	<u>23</u> -1-	90 ft.		Mobile B-57 Drill rig
	Sam	ple		~		Well		Subsurface Information
In 	form	atio	n	C	01	nstruction		
10W	int/	Jype		ic	2	uo	ic	
n Be rce	Col	l əlc	ole h∕% very	mai		rial	hole	logi ripti
irou urfa	Slow Feed	am	am) Sept	Vell		Nate Jesc	sore.	itho ind iydri iesc
100	444	v)	274		,	7	~~~~	しょう
-		-	сонцу, цадарани и какон полонология (10) (10 м 10)	ere adores a subject to a subject to a subject to a		-8" Steel	we see a second we have a second s	
-					5	protective cosing		
-						set in grout		
-						W/ Concrele pao.		Ground Surface
•	ana hata data tahun na anatan k		· · · · · · · · · · · · · · · · · · ·	H	1		· · · · · · · · · · · · · · · · · · ·	NOTE: See Well 22501
				$H_{\rm el}$	\mathbb{H}			to- lithologic description.
-					늰	-Blank	a a se a	wells 22501 and 22507
- 5	i adaman mada ana ana i					4"ID PVC		are affired in the aparts
			· · · · · · · · · · · · · · · · · · ·	_		sch.40 w/		
-	n, A		e namenak a seere en			tlush-threaded		
						$\mathcal{O}_{\mathcal{I}} \mathcal{O}_{\mathcal{I}}$		
- 10			 	-	E	Dathant Tap +		
			· ·			W/4% bentonite	·	
-					4	gel.		
						n-Borehole		
. '3	i i i i i i					oliameter 10.5."		
-						17.0	·	
-	, , , , , , , , , , , , , , , , , , ,					Bentonite		
-20		a and at the second				Pellets		
. ~ ~ ~								
- :	- - -					21.8		
						~		
-	1					<u>'</u>	and a second	

|--|

7 Project/Task No's. : NWBLS IRA/3800

Date Started : 1-31-90

Date Completed : <u>2-1-90</u>

AD AD AD AD AD AD AD AD AD AD	S Infe	iample ormatio	n	Co	Well nstruction	Subsurface Information					
$\frac{1}{2} = -\frac{Well Sovien}{0.020 \text{"Slot};} \qquad NOTE: See Well 22.501 \frac{1}{2} = -\frac{4^{\prime\prime} PVC_{3} \text{ sch. 40}}{100 \text{ch. 5} \text{ firsh-threaded}} \qquad \frac{1}{2} = -\frac{1}{3} \text{ firsh-threaded}} = -\frac{1}{3} firsh-threade$	Ground Surface (ft.) Blow Count/	Feed Pressure Sample Type	Sample Depth/% Recovery	Well Schematic	M aterial Description	Borehole Schematic	Lithologic and Hydrologic Description				
			↓ ₩∟ 29.19 862 2-1-90		- Well screen 0.020" slots, 4" PVC sch. 40 flush=threaded joints 2-Sand pack (10-20 sand) 39.0 39.5 (Bottom plug) -TD 40.0		NOTE: See Well 22501				

Page No. : _______

Dril Dril	lim 1-							
Dril		1874	ctor ·	- -	B. (Charles	-	
Din	ling C	.opo	anv :		Sent	packning Service	nes T	nC.
A		~	, ai y .			<u> </u>	<u> /</u>	
	reyed	N	18948	1.35	5	Eleva	eyea tion :	GS 5129.68 ft.
2000		Ε _	21734	34.4	49		Т	oc 5131.58 ft.
Tota	l Depth	Drille	ed:	59	7.0	ft. Drillin	ng Type	: Hollow-Stem Auger-
Stati	ic Wate	r Lev	el Depti	$h:\frac{T}{2}$	-12-	<u>35.3</u> 0 ft. 90		Mobile B-57 Drill Rig
	Sam	ple				Well		Subsurface Information
lr.	nform	atio	n	(Con	nstruction		
9low (.ft.)	unt/	Type	<u></u>			ion	e tic	ion ion
th B ind ace	r Co J sure	ple	ple th/9		eme	erial cript	ema:	ologi cripti
Dep	Blow Fee Pres	Sam	Sam Dep	Well	Sch	Mate	Bore Sch	Lithu Hydd Des
_	1					811		
-	cles .					Steel		
-	Sin Sur				TH	Casing set		
_	No K				Ш	Cuticrete pad		Ground Surface
					H	ματοριατικό το τη	· · · ·	$S \downarrow 2 \downarrow 4 \downarrow 5 1$
			- A-A - A - A - A - A - A - A - A - A -	Ð	Ħ	: ; ; ; ; , , , , , , , , , , , , , , , ,		occasional small Aebbles dru.
		8		4	1	Portland Tures		
5		4'11		1		w/4% hentont		
-		5 U		1	И	gel.	ŀ	with silty sand zones.
-		 		十,	H	Blank 4"	· /	
-			· i	4		ID, PK	1.	
/0	13/13/18	plit	and the second	1	IJ	seh 40		Clay, sandy; It. brown, ShFF,
_		v) (7	······ •					white caliched zones, a tewsma
_			-	7	-	~ Dorehole Jiameter		provins, singuing privites
- 15		Sinte	· · · · ·	1	1	ĩ0.5."	·./	
-		" "		1			$\langle \cdot \rangle$	
		\sim			И		$\langle \cdot \rangle$	
		i i anarri anna sao s			4			
- 20	8/6/11	1100		1	П	· · · · · · · · · · · · · · · · · · ·	<u>:</u>	Clay, sandy; olive brown, soft, mo
	7	うう	612	1	D		موموم	Sand; It. brown w/mon staining
	· · ·	ş		1			$\langle \mathcal{A} \rangle$	med to coarse grained, w/small
1 State 1 Stat		*			. JJ		10 0	PEODIES POPTIN SONIED, SILANTIN MO

71

Page No.: 10+2

Bo	rehol	e/\ Dat	Veli I te Sta	No . rteo	• • d :	27501 1-18-90	Project/Task No's.: <u>NWBCS_IRA/3800</u> Date Completed : <u>1-24-90</u>				
	Sample Well Information Construction						Subsurface Information				
Depth Below Ground Surface (ft.)	Blow Count/ Feed Pressure	Feed Fressure Sample Type Sample Depth/% Recovery		Feed Pressure Sample Type Sample Depth/% Recovery Vell		Schematic	Material Description	Borehole Schematic	Lithologic and Hydrologic Description		
40		Cuthings Split Cuthings Sport Cuthings				Growt WL 33.3 BGL (2-12-90) The stand of the stand WL 33.3 BGL (2-12-90) The stand for the stand We stand for the stand for the stand Sand the stand for the stand f		Sand, gnavely; Coarse grained, moist Clay, sandy; It. brown, moist Sandy clay grading to clayey send, grading to Sand. Sand; Coarse grained to granules; organic matter and iron staining Sand, gnavel, and clay. Are gravel. Sand and gravel, silty; It. brown to granules and small pebbles, saturated Sand, Clayey, It. brown, Coarse grained sand, wet. Sand and gravel, Clayey, wet. Top of Denver Fm @ 54.0' Claystone, silty; blue-gray, ony. NOTE: Due to Flowing Sand problems during well installation, approx.			
						TD 59-0	-16	NOTE: Due to Flowing Sand proble during well installation, approx. 400 gallons of potable water we added to install screen + casing. Low permeability of the formation opposite the screened interval prevented recovery of the total amount of water a			

Boi	eho l	e/V	Veli N	lo. : _	27502	Pro	ject/Task No's. : <u>NWBCS ZRA/3</u>
-		Dat	e Star	ted : _	1-26-90		Date Completed :/-26-%
Dril	ling Ir	1 Spe	ctor :	<u> </u>	Charles		
Dril	ling C	omp	any :	Geot	echnical Service	s, Inc	·
Surv	eved	-	-		Surve	eved	
Loca	tion :	N	19007	9.79	Eleva	tion :	GS <u>5126.25</u> ft.
		Е 🗳	21739	59.14	-	Т	oc <u>512784</u> ft.
Tota	l Depth	Drille	ed:	45,0	ft. Drillin	g Type	: <u>Hollow-stem auger</u>
Stati	c Wate	r Lev	el Depti	h: <u>Toc</u> , 1-2	<u>33,09</u> ft. 6-90		MODILE B-57 Dall ry
	Sam	ple			Weli		
In	form	atio	n	Co	nstruction		Subsurface Information
оw (.)	ut/	ьqү		S	8	6	5
d d Se (i	Cour	le T]	e7%	nati	ial iptic	ole nati	ogic iptic
epth roun irfa(ow bee	dwe	epthe	ell cher	ater escr	oreh	ad of sector
NO D	פֿעַכ	Ŝ	Э Ď Ю	2 S S	ΣĞ	a v b	<u> </u>
	i do e principal				Steel Austantin	and a second	
	1			-K	casing set	·	
		1 mm			the trans and	· ····································	
					<u>concrete paa.</u>		Ground Surface
	ny ny nanatana any amin'ny amin		· · · · · · · · · · · · · · · · · · ·	ΗĽ		• • •	
				$H \downarrow$			Dand, Bilty; It to med brown, fine
- 5				11	- RIAL 4"		granules and small pebbles, dry to
	(and the second of the second se			15	ID PVC		slightlymoist.
-				1-	Sch. 40 Flush-threaded	- 10	
		·····	and for finite	45	joints.		
- 10		3	1 martine a 111 Martine - 111 M	1-	· · · · · · · · · · · · · · · · · · ·		Sand Navour have machine
		, F			Grout	1:1	small pebbles and Caliche zones, sli mi
_		5		$+ \Box$	w/42 pontant		grading to
- , _		~		1 -	jet	· ·	ciay, silly and sondy; brown, slinoist.
=/3				10			
		• 100-a an an -			e - Borchole	1/.1	Clay silty to cande 1 Fizz
-		17 Napas a a a a a a			10.5"		Sand grains, more caliche zone
-20				$+\Box$			slightlymoist
_					ал булаат на так на		
					22.5		Clay, silty ; med. brown, soft,
_					Bentonite		greasy texture, moist
					Delle Ic		

Boreho	le/We Date	ell I Stai	No. : _ rted : _	27502 1-26-90	Proj	ject/Task No's. : <u>NWBCS IRA/3800</u> Date Completed : <u>1-26-90</u>
Sam Inform	ple ation		Co	Well nstruction		Subsurface Information
Depth Below Ground Surface (ft.) Blow Count/ Feed Pressure	Sample Type Sample	Depth/% Recovery	Well Schematic	M aterial Description	Borehole Schematic	Lithologic and Hydrologic Description
				25.5 28.0 Z WL 31.1 BGL 1-26-90 Well Screen 0.020" Slots, 4"PVC, sch40 Flush threaded joints Sand pack (10-20 sand) 43.0 43.5 (Bottom plug) TD 45'		Clay, sitty; med brown, suft, moist Gravel; peasize to small pebbles, dry to slightly moist. Clay, sitty; brown, stiff, slimoist Sand and gravel, slightly silty; vicourse grained sand and small pebbles, poorly sorted, arkosic sand and granite pebbles, saturated. Top of Denver Fm @ 41.0 Claystone; blue gray. Sandstone, silty; olive green, vifine grained, we'll sorted, moist but not saturated.

Bor	ehol	e/Y	Veli N	lo. : _	27503	Pro	ject/Task No's. : <u>NWBCS IRA/38</u>	
-		Dat	e Star	ted : _	1-26-90	-	Date Completed :724-90	
Drill	ing Ir	ispe	ctor :	<u> </u>	<u>Charles</u>			
Drill	ing C	omp	oany :	<u> </u>	Stechnical Derv	nces, 1	<u>nc.</u>	
	eyed tion :	N	190679	.07	Surv Eleva	eyed tion :	GS 5127.30 ft.	
2000		Ε_	21744	89.09	-	т	OC 5129.08 ft.	
Total	Depth	Drille	ed :	59.0	<u> </u>	ng Type	: Hollow-Stem auger-	
Statio	c Wate	r Lev	el Depti	h: <u>ToC,</u> 1-30	<u>362</u> 6 ft. 0-90		Mobile B-57 Drill rig	
ln:	Sam	ple		Co	Well		Subsurface Information	
3 ~		e						
Belo f e (ft.	ine ire	e Ty	وم م م	natic	al ptior	ole natic	gic ogic ptior	
spth ound irfac	ow C bed essu	Idme	ecov	ell chen	ateri escri	oreh	tholc d scri	
000	שֿעמ	Š	3 Q K	N'S	¥ά	a s	ĎĨŝĽ	
-					-8" Steel			
				F	protective casing	· · · · · · · · · · · · · · · · · · ·		
					w/ concrete pad.		Ground Surface	
							Sond silty . It himson fine to med	
				41			grained, dry to slightly moist,	
			1	1 in	-Blank4"			
	l Maria a contra descritor			$+ \Box$	Sch.40	11	Sand due and the city have	
-	4				+ lush-threaded		med. grained, sli, noist to motist.	
		- nage-basis, -, M.St., S.ebasis	an - 19 Ani, 19 Ani Ani 19 Ani 19 Ani	1-	· · · · · · · · · · · · · · · · · · ·	t Ú	J J	
= 10 =	,,,,	\$			Postland TINGT	<u> </u>		
		H v			w/ 4% bentinite	/ .	Clay, sandy grading To silty; IT. Dr Fine analysing sand is crassional grand	
-		ک ا		+	gel.	i/i	sliff, slightlymoist, caliche	
三/5		,		11		\cdot	Zones 13-15 .	
-				17	diameter		Clay, silty to sandy; brown, stiff Thir	
				16	10.5″	<u>/:</u> /	Lance layers, sing sing sing sing sing sing sing sing	
20	· · · · · · · · ·							
				45		1	Clay, silty; brown, soft, moist	
				1-		'./		

A-17

Page No.: <u>/ of 2</u>

Borehole/Well No. : 27503 Project/Task No's. : MUBCS IRA 3800 Date Started : 1-26-90

-

Date Completed : _______

 Ir	Sam	ple atior	n	Co	Well nstruction		Subsurface Information
Depth Below Ground Surface (ft.)	Blow Count/ Feed Pressure	Sample Type	Sample Depth/% Recovery	Well Schematic	Material Description	Borehole Schematic	Lithologic and Hydrologic Description
	2/2/11 18" 2/2/11 18" 3/3/7 18" 3/3/5 18" 3/3/5 18"	Split Spear and Cuttings			- Grout WL 34.26 BGL - 1/30/90 34.5 Bentonite pellets 37.5 Formation Collapse 44.0 46.2 Well screen 0.020" slots, 4"PVC, sch.40, Flush-threaded joints Sand pack (10-20 sand) 56.2 56.7 (Bottom plug) TD 39.0		Clay, Silty; brown, Soft to firm to stiff, moist Sand and gravel; v. coarse grained sand, granules and Small pebbles to 1"dia., dry to slimoist. Clay, silty; brown, soft, muist. Sand, clayey to silty; 1t brown with iron staining in clayey zones fine to coarse grained sand saturated to moist in clayey zones fine to coarse grained sand saturated to moist in clayey zones fine to coarse grained with small yebbles to 12"dia., well sonted, saturated. Sand, Clayey; It. gray to brown to rust horizontal inon staining, fine grained well sonted, excellent aquifer, saturated. Top of Denver Frn. @ 56' Claystone, blue-gray, hard.
					A-	-20	

Page No. : 2012

-	Date Sta	arted :	1-30-90	-	Date Completed : $\frac{1-30-90}{2}$
Drilling I	nspector	. <u>B</u> .	Charles		
Drilling	Company	: <u>Ge</u>	technical Serv	ices, I	nc.
Surveyed			Surv	eyed	
Location :	N 1906	87.00	_ Eleva	tion:	GS <u>5127.37</u> ft.
	E <u>~1/44</u>	107.02	-	T	0C <u>J27.33</u> ft.
Total Dept Static Wat	h Drilled:_ er Level De	0th : <u>Toc</u>	$\frac{0}{36\rho^2}$ ft. Drilling	ng Type	Mobile B-57 Drilling
		-3(5-90		σ
San Inform	nple nation	C	Well Instruction		Subsurface Information
if in	be	6	s		., <u>S</u>
Cour	le Tj /%	/ery nati	ial iptic	ole natic	ogic logic iptio
epti irour urfa urfa iress ress	amp amp epti	Vell Cche	fater	toret	ithol Ndro lesci
	S 511	2 20	<0	N PP	
			8"Steel		
			protective casing	,	
			w/Concrete pad		Ground Surface
		H I		· .	
		ΠH			lithologic description.
		HL	-Rlank		Wells 27503 and
<u> </u>	· · · · · · · · · · · · · · · · · · ·		A"ID PVC	i anna sia - Anna I I - Anna - Anna	7 ft. apart.
		HF	sch40, w/		
			joints.	· · · · · · · · · · · · · · ·	
E-10	a ar an thugan an thu and a star and a star a star a star a	HF			
	ан байн хараг нэ уйн нь төрөгт нэ төр төрөгөд нэрэгэд нэрэгэд нэ тэрэгээ Эмэг байн арагаас нэ төрөг		front D	· · · · · · · · · · · · ·	
	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	HF	w/4% bentonite	/ /	
		PE	ge!	10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
		HF			
		Πŀ	Borehole		
	1 1 1 1	HF	10.3"	· ·····	
=_20		Пŀ		· · · · · · · ·	
			22 5		
	· · · · · · · · · · · · · · · · · · ·				

A-21

Page No. : 10+2

.

Borehole/Well No. : 27504 Project/Task No's. : NWBCS IRA/3800

 Date Started :
 1-30-90
 Date Completed :
 1-30-90

ADD ADD <th>Sam Inform</th> <th>ple ation</th> <th>Co</th> <th>Well nstruction</th> <th colspan="6">Subsurface Information</th>	Sam Inform	ple ation	Co	Well nstruction	Subsurface Information					
Bentwite pellets 27.5 27.5 10^{-1} lithologic description 27.5 10^{-1} lithologic description 27.5 10^{-1} lithologic description 27.5 10^{-1} lithologic description 10^{-1} litho	Depth Below Ground Surface (ft.) Blow Count/ Feed Pressure	Sample Type Sample Depth/%	well Schematic	M aterial Description	<i>Borehole</i> Schematic	Lithologic and Hydrologic Description				
				Bentavite pellets 27.5 29.9 Well Screen, 0.020 "Slots, 4" PVC, Sch40, w/flush-threaded joints. Sand pack (10-20 sand) 44.9 45.4 (Bottom plug) TD 48.0		NOTE - See Well 22503 for lithologic description				

Page No. : ______

Bo	rehol	e/V	Neil N	lo. :	2/505	_ Pro	ject/Task No's. : <u>NWBCS IRA/</u>	
-		Dat	e Star	ted :	1-17-90		Date Completed :	
Dril	ling lr	spe	ctor :	$_\mathcal{B}$. Charles			
Dril	ling C	omp	any :	_Ge	otechnical Servic	es In	<u>c.</u>	
Surv	reved	-	-		Surv	, eved		
Loca	ation :	n /	8972:	3.24	Eleva	ation :	GS <u>5/30.15</u> ft.	
		E _	2173/4	Q.36	_	T	roc <u>\$131.64</u> ft.	
Tota	I Depth	Drille	ed :	<u>45.</u>	<u>c</u> ft. Drilli	ng Type	: Hollow-Stem Auger-	
Stat	ic wate	r Lev	el Dept	n : <u>12</u> 1-1	<u>, 36.1</u> ft. 1-90		TOBLIE D-37 DAIL Rig	
	Sam	ple			Well		Subsurface Information	
	Torm							
lelow (ft.)	ount) e	Typ	82	ntic	tion	e	dic dic tion	
th B und face	w Cc d ssur	oldr	th/	l emé	eria	ehol	olog	
Sun Dep	Bloi Fee Pre:	San	San Dep Rec	Wel	Mat Des	Bor Sch	Lith Bes Des	
-	20	ng se spectrum i s					Location is 8.5'S of Well 27,	
	(ung		······		8		Lithologic log is from 27009.	
-	100				Casing set in	4		
	Ŕ				grout with		Ground Surface	
				11	concrete pad			
;			en on grand and a second	ΗH	Growt	1.	Sand, Clayey; Finito med. grained	
					Portland Type I	, -	moist. Interbedded with sondy cl	
- 5	30/15			11	w/ 4% bentonit	ē · ·		
_		200	: 	16	Jer	·		
_		Š	-		Blank 4"	-7.		
- 10	40/12"	X		17	DVA QT	/		
_	- 4 	"Jol	(n. 117)(nood +0)-0(010)0 (0(0110)	11	Sch to			
-	· · · · · · · · · · · · · · · · · · ·	V 1		11	- Borehole		Sand, Clean; fire to med, granie	
-				1 K	Diameter		moist, dense	
	ידו/רי				1 0.5.			
_				11	1			
-				11	1	X :/.	Class sandy slightly aclassicate.	
- 		1		11		1.1	moist.	
	- 					-/		
-				11	1	-/-		
-	//				24.0	0 · 0	Sand and Gravel, V. Coanse grain	
	30/12	1						

· Doto St	No.: 27305	Project/Task No's. : <u>NWBCS/3800</u> Date Completed : 1-17-90			
Sample	Well Construction	Subsurface Information			
Ground Surface (ft.) Blow Count/ Feed Pressure Sample Depth/% Recoverv	Well Schematic Schematic Material Description	Borehole Schematic Lithologic Aydrologic Description			
35 $33/12-30$ $77/12-35$ $33/12-40$ $23/12-45$ $23/12-45$ $23/12-50$ $18/12$	Bentovita tellets 26.5 28.5 28.5 28.5 28.5 2.2 28.5 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2	 O Sand and Gravel; V. coarse grained sand; Clean; Clay, Sandy; rinterbedded sand; Clay, Sandy; rinterbedded sand; and clay layers. Sand is coarse; grained and Sand, v. coarse grained; Sand and gravel, moist to wet; Sand w/ some Gravel; V. coarse; grained Sand; pea gravel; dense; Wet; Sand, Clayey; inferred from; Sand, Clayey; inferred from; Sampling; well; 2709; Very; Slow recovery; after pumping; Top of Denver 250; 5'; Claystone; blue gray, dry; Well; We			

A-24

Page No. : 2012

Boi	rehol	e/V	Veli N	lo. :	21506	Proj	ect/Task No's. : <u>NWBCS IRA/380</u>
•		Dat	e Star	ted :	$\frac{1-\alpha 5-70}{\alpha 1}$		Date Completed :
Dril	ling In	spe	ctor :	_ <u>J</u> S.	Charles		
Dril	ling C	omp	any:	Geot	echnical Servic	es, Ir	<u> 20. </u>
Surv	eyed		Dodg		Surve	yed	
Loca	tion :		84460 21734	2.21	Elevat	tion:	$GS _ 5127.26 \text{ ft.} \\ cc _ 5130 \ 96 \text{ ft} $
		<u>د</u>		01.00		-	
Tota Stati	l Depth	Drille r L ov	el Denti	h.Tac	<u> </u>	g lype	Mobile B-57 Duill Rich
อเลเ			ет рери	(2-12	-90)		
	Sam	ple			Well		Subsurface Information
Ir	oforma	ation)	Col	nstruction		
10 M	int/	Type		ic	uo	ic	ion c
Se Ce	Cor	l en	16 Ve7 Ve7	mat	ripti	hole mat	ilogi Jogi
epti Irfa	low eed ress	JWE	amp epti eco	che	late esci	oreh Shen	nd esc.
<u> 2 9 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 </u>	<i><u>a</u></i> <i>ič</i>	Ś	30K	ŠŠ	۵۶	ũ Ņ	<u>D</u> IBL
		Angung Participan International Social		nan dia kaominina minina dia minina minina dia minina dia minina dia minina dia minina dia minina dia minina di	8" Stal NJJ	- companies of one can and one one	
-			:		Casing set		
-					in grout with	· · · · · · · · · · · · · · · · · · ·	
-					Concrete pad		Ground Surface
-			: 	ŦŦ			NOTE · SAA WOUL 27.501
- :			••• •••••		Grout	- National Marca	For lithologic description.
- · · · · · · · · · · · · · · · · · · ·			: 1	- 4	Portland Type I		Wells 27501 and 27506
-5					w/4% bentonite		are approx. 20 teet apart.
-				\Box		100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
-							
			name de la constante de la cons		Borehde		
- 10				$\Box \vdash$	diameter-	1 m 11 f 1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m	
-	9999 (· · · · · · · · · · · · · · · · · · ·	$\neg \Box$	C.U		
				\neg	Blank		
				<u>14</u>	4"ID, PVC,	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
- 15					seh.40		
			; 	$+\Box$	· · · · · · · · · · · · · · · · · · ·		
				44	· · · · · · · · · · · · · · · · · · ·	: 	
-				\square		····· · · · · · · · · · · · · · · · ·	
-20			2	$+ \square$			
•				$+ \square$	00 >		
-		., .,			Rentanto		
					ANDERTHING		

ļ

Page No. : 10 7 2

Boreh	ole/Well No. :_	27506	Proje
-	Date Started :_	1-25-90	

Project/Task No's. : <u>NWBCS IRA/38</u>00

Date Completed : ______

Sample Information				Co	Well nstruction	Subsurface Information				
Depth Below Ground Surface (ft.) Blow Count/	Ground Ground Surface (ft.) Blow Count/ Feed Pressure Sample Type		Depth/% Recovery	Well Schematic	Material Description	Borehole Schematic	Lithologic and Hydrologic Description			
					25.5 28.2 well screen 0.020" slots, 4" PVC, Sch 40 Sand pack (10-20 sand) 43.2 43.7 (Batton plug) TD 45.0	26	NOTE: See Well 27501 for			
					A-	ab	Page No. : <u> </u>			

ROI	renoi	e/ V Dat	veil N e Star	i 0. ted	■ :	3-19-90	Proj	Date Completed : <u>3-19-90</u>
Dril	lina Ir	ISDe	ctor :	-	B. (Chanles		• • • • • • • • • • • • • • • • • • •
Dril	lina C	omr	anv :		Beot	Technical Service	xes,I	Înc.
Sur	oved					Surve	wed	
Loca	ntion :	N	1903	23.	82	Eleva	tion :	GS <u>512767</u> ft.
		Е _	21/364	10	<u> ~/_</u>		- T	$OC = \frac{5}{2} \frac{5}{2} \frac{5}{2} \frac{5}{2} \frac{1}{2} \frac{1}{2}$
Tota Stati	l Depth ic Wate	Drille r Lev	el Depti	4 <u>7</u> . h:[TOC	<u></u> ft. Drillin <u>_36.0</u> ft.	g Type	Mobile B-61 Drill rig
					3-2	0-90		0
Ir	Sam form	ple atioi	n		Co	Well nstruction		Subsurface Information
th Below Ind ace (ft.)	v Count/ d sure	ple Type	ple th/% overy		ematic	erial cription	shole ematic	ologic rologic cription
Dep Groi Surf	Blov Fee Pres	San	Rec Dep Rec San	Well	Sch	Mata Des	Bore	Lith Hyd Des
-					-			
		; 	· · · · · ·		Ľ	18" Steel protective normal		
				T		set in grant	4	
						p/concrete pad.		Ground Surface
				Ħ	Ħ		. /	
		:		4		Rlank	· /-	Clay, Sandy; med. brown, soft, moist
				7		4"ID, PVC	//	
	want a state the second of the		·	-	F	sch.40, w/	: ./	
					-	t Insh-threaded	/.	Stiff, slightly moist.
				4	C	J	(. : /	1 2 3
E-10	: :			1		Grout		
-		۲ م				Portland Type I		Clay, sandy; It. bnown, soft to
		4		4	F	w/4% bentomite gel.	/.	firm, slightly moist.
	н на од на селото с З	\sum_{r}						
E				\downarrow				
E				4		diameter		Silt, sandy; Tan, V. time grained sand
E]	-	10.5."		and clayey silt zones dry.
20				\neg				
				1				Dand, silty; It-med, brown, time+
		·		T			1.11	inea. grance, surmoist,
E I							and the factor of the	a na sa n

A-27

Page No. : 1 of 2
Borehole/	Well No.	<u>: 27507</u>
-----------	----------	----------------

-

Project/Task No's. : NWBCS IRA/3403

Date Started : _______90____

Date Completed : _______

i.	Sam nform	ple atio	n	Co	Well nstruction		Subsurface Information
Depth Below Ground Surface (ft.)	Blow Count/ Feed Pressure	Sample Type	Sample Depth/% Recovery	Well Schematic	M aterial Description	Borehole Schematic	Lithologic and Hydrologic Description
	2/6/14 18"	Split Spoon and Cuttings			Graut 26:0 Bentonite Pellets (Holeplug) 30:0 32:1 Adapter- 32:75 vwc 34:0 BGL 32:75 vwc 34:0 BGL S=20-90 Well Geneen, 0:036 "Continuous slots, 4" PVC Centain Teed snap-joints. Sand pack (8-12 sand)		Sand and gravel; silty; coarse grained sand, pebbles to 2"die., moist. Sand, v. silty; 1t. brown, fine to med. grained, weakly comented, slimoist. Sond and gravel; V. coarse gr. sand, pebbles 'A"dia, dry to V. sli. moist. Clay, slightly sandy; gray, mottled, iron stain, soft, moist. Sand and Gravel; V. coarse sand, 'A"dia pebbles, saturated Clay, silty and sandy; gray to brown, iron staining, very soft, moist. Sand and Gravel, sli. silty; irôn staining,
-45 	7/30/15 14 **				48.5 Bottom plug) - TD 49.5		V. COanse sand, 2 "dia Pebbles, saturated. Top of Denver Fm. @ 45.5 Sandstone, slightly silty; alive green, fine grained, well sorted, abundant heavy minerals, uncemented, wet. Sittstone; tanto green, friable.

APPENDIX B

MK-ES Survey Data

Î

- Table B-1 MK-ES Survey of New Wells
 Table B-2 MK-ES Survey of Existing Wells

TABLE B-1 MK-ES SURVEY OF NEW WELLS

====== COGO ====== Friday March 16. 1990 7:40 AM

Description: ALL NORTHWEST BOUNDARY WELL LOCATION FILES COMBINED

FROM TYPE	BEARING	DISTANCE	то	NORTHING	EASTING
IST POINTS					
POINT	NORTHING	EASTING		ELEVATION	DESCR
1	189481.354	2173434.493		5129.680	WELL 27501
2	0.000	0.000		5131.580	27501 TOC
3	190079.786	2173959.137		5126.250	WELL 27502
4	0.000	0.000		5127.840	27502 TOC
5	190679.073	2174489.086		5127.300	WELL 27503
6	0.000	0.000		5129.080	27503 TOC
7	190687.000	2174484.222		5127.370	WELL 27504
8	0.000	0.000		5129.330	27504 TOC
9	189723.238	2173142.355		5130.150	WELL 27505
10	0.000	0.000		5131.640	27505 TOC
11	189460.207	2173437.859		5129.360	WELL 27506
12	0.000	0.000		5130.960	27506 TOC
13	191231.857	2174480.015		5121.660	WELL 22501
14	0.000	0.000		5123.680	22501 TOC
15	191965.648	2175950.002		5132.900	WELL 22502
16	0.000	0.000		5135.060	22502 TOC
17	192624.445	2176500.294		5134.490	22503 DRY
19	192981.469	2176505.716		5136.710	WELL 22504
20	0.000	0.000		5138.460	22504 TOC
21	193124.686	2176635.171		5141.580	WELL 22505
22	0.000	0.000		5143.380	22505 TOC
23	193269.167	2176765.561		5146.060	WELL 22506
24	0.000	0.000		5147.800	22506 TOC
25	191238.907	2174486.892		5121.650	WELL 22507
26	0.000	0.000		5123.580	22507 TOC

Description: COORDINATES FOR THE NEW WELL AT NORTHWEST BOUNDARY AND TWO NEARBY WELLS

FROM TYPE	BEARIN	G DISTANCE	TO	NORTHING	EASTING
LIST POINTS POINT	NORTHING	EASTING		ELEVATION	DESCR
1	190316.477	2173659.893			27085
2 3	190323.821	2173644.631		5127.670	27507
4	0.000	0.000		5129.610	27507 TUC
Coordinates	stored	Thursday March	29.	1990 6	:39 AM

1,

	Top of
<u>Well ID</u>	<u>PVC Casing (ft msl)</u>
22003	5124.80
22004	5137.41
22005	5129.06
22007	5146.96
22008	5132.78
22009	5124.08
22010	5124.77
22015	5132.71
22016	5131.86
22017	5132.18
22018	5126.57
22019	5123.18
22020	5123.30
22021	5143.54 E122.62
22022	5123.03
22023	5123 89
22025	5156 82
22026	5123.37
22033	5123.03
22034	5123.18
22035	5125.25
22036	5126.45
22037	5123.53
22038	5123.58
22039	5123.56
22040	5123.97
22041	5122.87
22042	5124.28
22043	5120.10
22044	5128 00
22049	5147.70
22050	5143.18
22051	5137.42
22052	5136.16
22053	5137.85

04/12/90

B-2

<u>Well ID</u>	Top of <u>PVC Casing (ft msl)</u>
22056 22057 22059 22060 22061 22062 22063 22064 22065 22066 22067 22069 22070 22071 22072 22071 22072 22075 22076 22076 22077 22078	5127.00 5124.46 5134.11 5136.95 5126.63 5130.15 5127.57 5132.04 5129.99 5132.02 5131.24 5134.30 5133.73 5135.42 5135.42 5135.30 5133.83 5131.56 5126.35 5124.41 5125.22
27002 27003 27004 27005 27006 27007 27008 27009 27010 27011 27044 27062 27063 27064 27065 27066 27066 27068 27068 27069 27070 27071 27071 27072 27086 28002	5136.43 5146.03 5127.85 5129.98 5130.11 5129.74 5132.05 5133.96 5128.30 5130.03 5136.04 5135.63 5131.97 5134.00 5133.48 5132.87 5133.68 5133.68 5133.68 5133.68 5133.68 5133.68 5133.68 5133.68 5133.68 5133.68 5133.68 5133.68 5133.68 5133.68 5133.68 5133.68 5133.68 5133.68 5133.68 5133.60 5134.25 5134.95 5132.81 5128.03

04/12/90

i

B-3

	Top of
<u>Well ID</u>	<u>PVC Casing (ft msl)</u>

28003	5134.64
28004	5141.11
28005	5136.25
28006	5135.27
28007	5135.99
28008	5138.03
28009	5132.88
28023	5134.30
28024	5134.29
28025	5134.78
28026	5134.70

Note: msl = mean sea level

04/12/90

Í

APPENDIX C

NWBS Water Level Measurements in Alluvial Monitoring Wells February 12 and 13, 1990

ĺ

APPENDIX C

NWBS WATER LEVEL MEASUREMENTS IN ALLUVIAL MONITORING WELLS FEBRUARY 12 AND 13, 1990

<u>Well ID</u>	TOC Elevation (ft msl)	Depth to <u>Water (ft)</u>	Water Level <u>Elevation (ft msl)</u>
Well ID 22003 22004 22005 22007 22008 22009 22010 22015 22016 22017 22018 22019 22020 22034 22035 22040 22042 22043 22044 22045 22044 22045 22049 22050 DF 22051 22052 22053 22057 22059	TOC Elevation (ft msl) 5124.80* 5137.41 5129.06* 5146.96 5132.78 5124.08* 5124.08* 5124.77* 5132.71* 5131.86* 5132.18* 5123.18* 5123.18* 5123.18* 5123.30* 5123.18* 5123.30* 5123.18* 5123.25* 5123.97* 5124.28* 5126.16* 5141.16 5128.99* 5147.70 5143.18* 5137.42* 5137.42* 5127.00* 5124.46* 5134.11	Depth to Water (ft) 32.60 30.97 36.48 39.12 40.51 32.80 32.41 39.84 39.24 39.58 33.74 31.60 31.43 31.22 33.00 32.22 34.68 34.17 33.80 37.60 37.70 36.67 45.58 44.43 45.40 34.39 31.67 41 45	Water Level Elevation (ft msl) 5092.20 5106.44 5092.58 5107.84 5092.27 5091.28 5092.36 5092.87 5092.62 5092.62 5092.60 5092.83 5091.58 5091.58 5091.96 5092.25 5091.75 5089.60 5091.99 5107.36 5091.39 5110.40 5106.51 5091.84 5091.73 5092.45 5092.61 5092.79
22060 22061 22062 22063 22064 22065 22066 22067 22069	5136.95 5126.63* 5130.15* 5127.57 5132.04* 5129.99* 5132.02* 5131.24*	32.50 35.09 38.86 36.88 41.35 39.04 40.49 38.81	5092.66 5104.45 5091.54 5091.29 5090.69 5090.69 5090.95 5091.53 5092.43
22009	5134.30*	43.06	5091.24

04/05/90

1

C-1

<u>Well ID</u>	TOC Elevation (ft_msl)	Depth to Water Level <u>Water (ft) Elevation (</u> ft msl
22070 22071 22072 22073 22075 22076 22077 22078 22501 22502 22504 22504 22505 22506 22506	5133.73 5135.42 5135.30 5133.83* 5131.56* 5126.35* 5124.41* 5125.22* 5123.68 5135.06 5138.46 5143.38 5147.80 5123.58	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$
27002 27003 27004 27005 27006 27007 27009 27010 27011 27044 27045 27053 27062 27063 27064 27066 27070 27071 27072 27073 27074 27075 27076 27077 27078 27078 27085	5136.43* 5146.03 5127.85* 5129.98* 5130.11 5129.74* 5133.96 5128.30 5130.03 5136.04 5138.23 NS 5157.21 NS 5135.63* 5131.97* 5134.00* 5132.87* 5134.25 5134.95* 5134.95* 5132.81 5145.44 NS 5145.83 NS 5145.90* 5145.34 NS 5144.22 NS 5129.00 NS	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
27086 27501 27502 27503 27504 27505 27506 27506	5128.03 5131.58 5127.84 5129.08 5129.33 5131.64 5130.96 5129.61	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$

04/05/90

C-2

<u>Well ID</u>	TOC Elevation (ft_msl)	Depth to <u>Water (ft)</u>	Water Level <u>Elevation (ft_msl)</u>
28002	5127.80*	31.54	5096.26
28003	5134.64*	38.07	5096.57
28004	5141.11*	44.10	5097.01
28005	5136.25*	38.74	5097.51
28006	5135.27*	37.33	5097.94
28007	5135.99*	37.72	5098.27
28008	5138.03*	39.54	5098.49
28009	5132.88*	33.65	5099.23
28011	5139.99 NS	40.27	5099.72
28023	5134.30*	36.26	5098.04
28024	5134.29*	36.25	5098.04
	5106 BE WE	24.25	5000 40
3/330	5126.75 NS	34.35	5092.40
3/331	5126.79 NS	34.22	5092.57
3/332	5136.58 NS	45.13	5091.45
3/333	5129.24 NS	37.05	5092.19
37334	5133.04 NS	41.15	5091.89
37335	5122.71 NS	33.40	5089.31
37382	5123.40 NS	34.63	5088.77
37385	5116.70 NS	31.81	5084.89
37386	5134.20 NS	43.08	5091.12

NOTES: All wells were surveyed by MK-ES unless noted otherwise

DF = Denver Formation

NS = Not surveyed by MK-ES

*MK-ES TOC elevation was different than elevation listed in RMA database. Most discrepancies were a few tenths of a foot or less

msl = mean sea level

04/05/90

APPENDIX D

Results of Physical Properties Testing of Soil Samples











	SAMPLE	SAMPLE	SAMPLE	WATER	DEN	SITY	GION		INCONFINED	ATTERBERG	SUCS	*	
SAMPLE IDENTIFICATION	DEPTH (f)	YG (II)	HGT. (n)	CONTENT (%)	WET (pot)	DRY	RATIO	5 IS IS	QU STRAIN (18f) (%)		- IEST	rass #200 Sieve	CLASSIFICATION
27501	0' - 5'									33.1 12.75	20.4	51.0	Clay, very sandy, silty (CL)
27501	5' - 10'									36.8 11.6	25.2	54.4	Clay, very sandy, silty (CL)
27502	0' - 10'									22.6 15.3	7.3	27.1	Sand, silty and clayey (SC-SM)
27503	0' - 5'									23.0 16.5	6.5	29.1	Sandy, silty and clayey (SC-SM)
27503	5' - 10'									29.6 11.1	18.5	47.1	Sand, clayey, slightly silty (SC)
								·			<u>,</u>		
					- <u></u>								
								<u></u>					
		.	.	-		j			 		Project	Northw	st Boundary
G						<i>л</i> °.		AHY TES	2 ເ		Locatio	Rocky	Aountain Arsenal, Colorado
						•) -)	L	Job No.	6	3BD17 Date February 12, 1990

D**-6**

Form 211 12/88

APPENDIX E

Analytical Data QA/QC

• Table E-1 NWBS Analytical Program Certified Reporting Limits (CRLs) and Methods

APPENDIX E

ANALYTICAL DATA QA/QC

A total of 27 monitoring wells were sampled in February 1990 and analyzed for organochlorine pesticides (OCPs), aromatic and halogenated volatiles, DIMP, DMMP, and DBCP. PM/RMA-certified analytical methods were used; the analyte list, certified reporting limits, and method numbers are shown on Table E-1. Appendix F contains the analytical data.

Evaluation of the analytical and field QC data indicates that sampling procedures were adequate and the results reproducible. No sample extraction or analysis holding times were exceeded; thus, only the sample dates are included in Appendix F.

Laboratory control samples for aldrin and hexachlorocyclopentadiene (CL6CP) experienced low recoveries due to a laboratory glassware problem. The method was considered out of control for aldrin and "hex"; however, natural matrix spike recoveries from two well samples were 114 and 103 percent for aldrin and 70 and 41 percent for "hex." These recoveries are within acceptable ranges; therefore, the analytical results for aldrin and "hex" for the well samples do not appear to have been affected and are considered valid.

Laboratory quality control data were approved for all other analytes by the laboratory and are not included here. A discussion of the field quality control program is included in the paragraphs below.

Field quality control samples collected included duplicate samples (2), field blanks (2), rinse blanks (2), trip blanks (8), 04/12/90

E-1

TABLE E-1NWBS ANALYTICAL PROGRAM CERTIFIED REPORTING LIMITS
(CRLS) AND METHODS

<u>ANALYTE</u>	<u>CRL (ug/l)</u>	<u>METHOD</u>
ALDRN CL6CP CLDAN DLDRN ENDRN I SODR PPDDE PPDDT	0.0830 0.0830 0.152 0.0539 0.0600 0.0560 0.0460 0.0590	MM8A
111TCE 112TCE 11DCLE 12DCD4 12DCCE 12DCLE 13DMB BCHPD C6H6 CCL4 CD2CL2 CHCL3 CLC6H5 DBCP DCPD DMDS ETBD10 ETC6H5 MEC6H5 MEC6H5 MIBK TCLEE TRCLE XYLEN	2.4 1.6 1.4 2.6 3.2 0.72 2.9 1.8 2.7 4.9 5.2 1.7 1.8 5.6 3.7 3.7 2.3 2.4 3.5 1.2 2.9 2.0 2.4	UU8
DIMP DMMP	10.1 16.3	QQ8
DBCP	0.130	Q8

and natural matrix spikes (all samples for volatiles and 2 samples for the remaining analytes). Duplicate, rinse blank, and natural matrix spike samples were analyzed for all of the contaminants listed above. Field and trip blanks were analyzed for volatiles only.

Of the two duplicate samples collected, one was from Well 22505 and one was from Well 27503. In Well 22505, dieldrin was the only analyte detected; concentrations were 0.325 ug/l and 0.334 ug/l for the sample and duplicate, respectively. The relative percent difference is 2.7 percent and is excellent agreement.

Chloroform was detected in Well 27503 in concentrations of less than 1.7 ug/l and 1.9 ug/l for the sample and duplicate, respectively. This well is located very close to the edge of the detectable chloroform plume; thus, sample variability is possible. The concentration of chloroform measured in adjacent cluster well 27504 was less than 1.7 ug/l.

No detections were reported for the two field blanks.

Chloroform was reported in rinse blank sample 27503R with a concentration of 2.2 ug/l. The concentration of chloroform for the sample and duplicate for Well 27503 were reported as less than 1.7 ug/l and 1.9 ug/l, respectively. The higher concentration of chloroform reported in the rinse blank was probably caused by the presence of chloroform or free chlorine in the potable water used for decontamination.

Dieldrin was detected in rinse blank sample 22506R with a concentration of 0.0807 ug/l. The concentration of dieldrin reported for Well 22506 was 0.130 ug/l.

04/12/90

E-2

Bladder and submersible pumps were used for well purging and sampling. Apparently, an inadequate volume of potable and/or deionized water were pumped through the sampling equipment during decontamination, prior to preparation of the rinse blanks. However, the decontamination procedures in conjunction with the higher volumes pumped during well purging and sampling were adequate to provide valid results for the well samples. The distributions of chloroform and dieldrin for this investigation were consistent with historical distributions reported in the CMP and Task 25.

Methylene chloride (CH2CL2) was detected in trip blank 27072T with a concentration of 16 ug/l. Within the same batch of samples, methylene chloride was also reported for four samples ranging in concentration from 12 to 18 ug/l. Methylene chloride has not been detected in any other well samples; therefore, these reported detections are probably due to contamination within the laboratory procedure and are not valid for Wells 27006, 27011, 27072, and 27085.

Natural matrix spikes analyzed for volatiles exhibited excellent recoveries, ranging from 79 to 130 percent. The three volatile compounds used to spike the samples were 1,2-dichloroethane-D4 (12 DCD4), methylene chloride-D2 (CD2CL2), and ethylbenzene-D10 (ETBD10). Average recoveries for these three compounds were 100.8, 107, and 92.5 percent, respectively. Natural matrix spike recoveries for OCPs ranged from 38 to 118 percent, averaging 95 percent. The lower recoveries were exhibited for chlordane and hexachlorocyclopentadiene (CL6CP) but were within an acceptable range. Recoveries for DIMP, DMMP, and DBCP varied from 97 to 110 percent.

04/12/90

E-3

APPENDIX F

Î

Ì

Analytical Data

Final Data Report for MKE Sampling Programs

The data presented herein has been forwarded to USATHAMA for review, approval, and upload into the RMA Database. The concentration values presented herein are correct for moisture, dilution, accuracy, and number of significant figures. Please note, however, that this data has not been formally approved by USATHAMA and is subject to change.

Flagging Code Descriptions: FC field: (D) duplicate (C) confirmed (R) analyte not certified (U) unconfirmed (G) quantitation questionable QC field: (F) field blank (M) method blank (N) natural matrix spike (R) rinse blank (S) standard spike (T) trip blank

Pertinent Installation Restoration Data Management System Information: INSTALLATION: RK LABORATORY: ED FILE: CGW PROGRAM: LMK

F- 1

Final Data Report for MKE Sampling Programs

Site Identification: WELL 22015

X

Sample Da	<u>ate</u> : 02/	21/90					
Depth(ft): 0.	0 <u>Sam</u>	pling '	ſechni	que	: P	
Method:	UU8 Numbers	CCD004	Tab	Mumba	~ .	MV NIMDA	ц л
Analysis	Number:	GSR004	Lab	Numbe	<u> </u>	MK-NWD	F 4
Test							
Name	Correcte	d Value	Units	FC QC	oc	Spike	
111TCE	LT	2.4	UGL				
112TCE	LT	1.6	UGL				
11DCLE		1.4	UGL				
12DCE		3.2	UGL				
12DCLE	LT	0.72	UGL				
I 3DMB	LT	2.9	UGL				
BCHPD	L'I'	1.8	UGL				
	L L TTT	4.7					
		4.9	UGL	D			
CHZCLZ CHCL3	MD	28		r			
СЬСБИБ	T. T	1 8					
DBCP	T.T	5.6	UGL				
DCPD		3.7	UGL				
DMDS	LT	3.7	UGL				
ETC6H5	LT	2.4	UGL				
MEC6H5	LT	3.5	UGL				
MIBK	LT	1.2	UGL				
TCLEE	LT	2.9	UGL				
TRCLE	LT	2.0	UGL				
XYLEN	LT	2.4	UGL				
12DCD4		9.8	UGL	N		10.000	
CD2CL2		11.	UGL	N		10.000	
ETBD10		9.6	UGL	N		10.000	
Mathad	11110						
Method:	008 Numbers	CERODE	Tab	Numbo		MIZ NIGTO	40
Analysis	Number:	GSR005		Numbe	<u> </u>	IIV-IAMD+	† 7
Test							
Name	Correcte	d Value	Units	FC OC	oc	Spike	
12DCD4		8.5	UGL	N		10.000	
CD2CL2		10.	UGL	N		10.000	
ETBD10		8.8	UGL	N		10.000	
111TCE	LT	2.4	UGL	Т			
112TCE	LT	1.6	UGL	т			
11DCLE	LT	1.4	UGL	Т			
12DCE	LT	3.2	UGL	т			
12DCLE	LT	0.72	UGL	Т			
13DMB	LT	2.9	UGL	T			
BCHPD	LT	1.8	UGL	Т			
C6H6	LΤ	2.7	UGL	Т			

Final Data Report for MKE Sampling Programs

Site Identification: WELL 22015

Sample Date: 02/21/90 Depth(ft): 0.0 Sampling Technique: P Method: UU8							
Analysis	Number:	GSR005	Lab	Num	ber	::	MK-NWB#9
Test Name	Correcte	d Value	<u>Units</u>	<u>FC</u>	QC	QC	Spike
CCL4 CH2CL2 CHCL3 CLC6H5 DBCP DCPD DMDS ETC6H5 MEC6H5 MIBK TCLEE TRCLE XYLEN	LT ND LT LT LT LT LT LT LT LT LT	4.9 5.0 1.7 1.8 5.6 3.7 3.7 2.4 3.5 1.2 2.9 2.0 2.4	UGL UGL UGL UGL UGL UGL UGL UGL UGL UGL	R	TTTTTTTTTTTT		
<u>Method</u> : Analysis	QQ8 Number:	QAI007	Lab 1	Numl	ber	:	MK-NWB#4
Test <u>Name</u>	Correcte	d Value	<u>Units</u> H	FC (QC	QC	Spike
DIMP DMMP	LT LT	10.1 16.3	UGL UGL				
<u>Method</u> : Analysis	Q8 Number:	QKP007	Lab N	Numb	ber	:	MK-NWB#4
Test Name	Correcte	d Value	<u>Units</u> <u>F</u>	FC Ç	<u>2C</u>	QC	Spike
DBCP	LT	0.130	UGL				

MK-Environmental Services F- 3

Final Data Report for MKE Sampling Programs

Site Identification: WELL 22015

Sample Da Depth(ft Method:	ate: 0:): MM8A	2/21/90 0.0 <u>Sam</u>	pling	rect	nic	lne	: P
Analysis	Number	: QLG007	Lab	Nun	ibei	<u>r</u> :	MK-NWB#4
Test Name	Correct	ted Value	Units	FC	QC	QC	Spike
ALDRN	LT	0.0830	UGL				
CL6CP	LT	0.0830	UGL				
CLDAN	LT	0.152	UGL				
DLDRN		0.193	UGL	С			
ENDRN	LT	0.0600	UGL				
ISODR	LT	0.0560	UGL				
PPDDE	LT	0.0460	UGL				
PPDDT	LT	0.0590	UGL				

Final Data Report for MKE Sampling Programs

sice iden	CILICACIO	<u>II: WELL</u>	22045					
Sample D Depth(ft Method:	ate: 02/): 0.	26/90 0 <u>Sam</u>	pling 1	reci	nnic	que	: В	
Analysis	Number	0001120	Lab	Mur	nhai	- •	K-NWB#36	
Analysis	Number.	330003		INUI	ube i	_ •	V-MUD#00	
Test	Corrocto	d Value	tinite	FC	00	00	Spike	
Name	COLLECLE	u varue	UNICS	<u>r C</u>	<u>v</u> c	<u>yc</u>	SPIKE	
111TCE	T.T	2.4	UGI.					
112TCE	— – Г.Т	1 6	UGI.					
11DCLF	т.т.	1 4	UGL					
12000	101 T m	2 2	UGL					
	ы. t т	0 7 2						
	т ш	2 0	UGL					
TSDUB	LT.	2.9	UGL					
BCHPD	LT	1.8						
Сбнб		2.1	UGL					
CCL4	LT	4.9	UGL					
CH2CL2	ND	5.0	UGL	R				
CHCL3	LT	1.7	UGL					
CLC6H5	LT	1.8	UGL					
DBCP	LT	5.6	UGL					
DCPD	LT	3.7	UGL					
DMDS	LT	3.7	ÚGL					
ETC6H5	LT	2.4	UGL					
MEC6H5	L'T	3.5	UGL					
MTBK	<u>г.</u> т	1 2	UGI.					
TCLEE	т.т.	2 9	UGL					
TRCLE	T.TT	2 0	UGL					
VVIEN		2.0						
		0.0	UGL		NT	1		
		3.0	UGL		IN NT	-		
		9.7	UGL		N	-		
ELBDIO		8./	UGL		N	1	10.000	
Method	008							
<u>Appluc</u> ic	Number	01/01/	tab	N711.00	hor		V NIMD#26	
Anarysis	Number:	QARU14	Lab	Nun	iber	•	V-IMP#20	
Tect								
Namo	Corroctor	a Value	Unite	FC	00	00	Snike	
IVAILLE	COLLECCEC	varue	UNICS	<u>r</u> C	<u>v</u> c	<u>v</u> c_	SPIKE	
DIMP	T.T	10.1	UGI.					
DMMP		16.3	UGL					

Site Identification: WELL 22049

Final Data Report for MKE Sampling Programs

Site Identification: WELL 22049

02/26/90 Sample Date: Sampling Technique: B Depth(ft): 0.0 Method: Q8 Analysis Number: QKQ021 Lab Number: K-NWB#36 Test Corrected Value Units FC QC QC Spike Name DBCP 0.130 UGL LTMethod: MM8A Analysis Number: QLJ014 Lab Number: K-NWB#36 Test Name Corrected Value Units FC QC QC Spike ALDRN LT0.0830 UGL CL6CP LT0.0830 UGL LT0.152 UGL CLDAN 0.346 UGL С DLDRN ENDRN LT0.0600 UGL 0.0560 LTUGL ISODR LT 0.0460 UGL PPDDE 0.0590 UGL LTPPDDT

MK-Environmental Services

F- 6

Site Iden	tification	: WELL	22060			
Sample Date: 02/22/90 Depth(ft): 0.0 Sampling Technique: P Method: UU8						
Analysis	Number:	GSR006	Lab	Nun	nber:	K-NWB#10
Test Name	Corrected	Value	Units	FC] Spike
111TCE 112TCE 11DCLE 12DCLE 12DCLE 13DMB BCHPD C6H6 CCL4 CH2CL2 CHCL3 CLC6H5 DBCP DCPD DMDS ETC6H5 MEC6H5 MEC6H5 MIBK TCLEE TRCLE XYLEN	LT LT LT LT LT LT LT LT LT LT	$\begin{array}{c} 2.4\\ 1.6\\ 1.4\\ 3.2\\ 0.72\\ 2.9\\ 1.8\\ 2.7\\ 4.9\\ 5.0\\ 1.7\\ 1.8\\ 5.6\\ 3.7\\ 3.7\\ 2.4\\ 3.5\\ 1.2\\ 2.9\\ 2.0\\ 2.4\\ 1.2\\ 1.2\\ 1.2\\ 1.2\\ 1.2\\ 1.2\\ 1.2\\ 1.2$	UGL UGL UGL UGL UGL UGL UGL UGL UGL UGL	R		
12DCD4 CD2CL2		9.7 12.	UGL UGL		N N	10.000 10.000
ETBD10		8.7	UGL		N	10.000
Method: Analysis	UU8 Number:	GSR009	Lab	Nun	<u>ber</u> :	K-NWB#14
Test Name	Corrected	Value	<u>Units</u>	FC		C Spike
12DCD4 CD2CL2 ETBD10 111TCE 112TCE 11DCLE 12DCE 12DCLE 13DMB BCHPD C6H6	LT LT LT LT LT LT LT LT	10. 11. 9.5 2.4 1.6 1.4 3.2 0.72 2.9 1.8 2.7	UGL UGL UGL UGL UGL UGL UGL UGL UGL		N N N T T T T T T T T T	10.000 10.000 10.000

Final Data Report for MKE Sampling Programs

Site	Identi	fication:	WELL	22060

Sample Da	ate: 02/	22/90					
Depth(ft): 0.	0 Sam	pling 1	ſecł	nnid	que	: P
Method:	UU8						
Analysis	Number:	GSR009	Lab	Nur	nbe	r:	K-NWB#14
						-	
Test							
Name	Correcte	d Value	Units	FC	QC	QC	Spike
CCL4	LT	4.9	UGL		т		
CH2CL2	ND	5.0	UGL	R	т		
CHCL3	LT	1.7	UGL		т		
CLC6H5	LT	1.8	UGL		T		
DBCP	LT	5.6	UGL		т		
DCPD	LT	3.7	UGL		т		
DMDS	LT	3.7	UGL		т		
ETC6H5	LT	2.4	UGL		т		
MEC6H5	LT	3.5	UGL		Т		
MIBK	LT	1.2	UGL		т		
TCLEE	LT ·	2.9	UGL		т		
TRCLE	LT	2.0	UGL		Т		
XYLEN	LT	2.4	UGL		т		
Method:	QQ8						
Analysis	Number:	QAI012	Lab	Nur	nbei	r:	K-NWB#10
Test							
Name	Correcte	d Value	Units	FC	QC	QC	Spike
DIMP	LT	10.1	UGL				
DMMP	LT	16.3	UGL				
<u>Method</u> :	Q8						
<u>Analysis</u>	Number:	QKP012	Lab	Nur	nbei	<u>c</u> :	K-NWB#10
Test							
Name	Correcte	d Value	<u>Units</u>	FC	<u>QC</u>	QC	Spike
DBCP	LT	0.130	UGL				

MK-Environmental Services F-8

Final Data Report for MKE Sampling Programs

Site Identification: WELL 22060

Sample Da Depth(ft	<u>ate</u> : 01	2/22/90 0.0 <u>Sam</u> j	oling 1	Technique	: P
Method: Analysis	MM8A Number	: QLG012	Lab	Number:	K-NWB#10
Test					
Name	Correct	ted Value	Units	<u>FC QC QC</u>	Spike
ALDRN	LT	0.0830	UGL		
CL6CP	LT	0.0830	UGL		
CLDAN	LT	0.152	UGL		
DLDRN		0.368	UGL	С	
ENDRN	LT	0.0600	UGL		
ISODR	LT	0.0560	UGL		
PPDDE	LT	0.0460	UGL		
PPDDT	LT	0.0590	UGL		

Final Data Report for MKE Sampling Programs

Site Identification: WELL 22071

E

Sample Da	ate: 02/2	22/90				
Depth(ft): 0.0 Sampling Technique: P						
Method:	បប8					
Analysis	Number:	GSR007	Lab	Nu	mber:	K-NWB#11
Test						
Name	Corrected	d Value	Units	FC	QC Q	C Spike
111TCE	LT	2.4	UGL			
112TCE	LT	1.6	UGL			
11DCLE	LT	1.4	UGL			
12DCE	LT	3.2	UGL			
12DCLE	LT	0.72	UGL			
13DMB	LT	2.9	UGL			
BCHPD	LT	1.8	UGL			
С6н6	LT	2.7	UGL			
CCL4	LT	4.9	UGL			
CH2CL2	ND	5.0	UGL	R		
CHCL3	LT	1.7	UGL			
CLC6H5	LT	1.8	UGL			
DBCP	LT	5.6	UGL			
DCPD	LT	3.7	UGL			
DMDS	LT	3.7	UGL			
ETC6H5	LT	2.4	UGL			
MEC6H5	LT	3.5	UGL			
MIBK	LT	1.2	UGL			
TCLEE	LT	2.9	UGL			
TRCLE	LT	2.0	UGL			
XYLEN	LT	2.4	UGL			
12DCD4		11.	UGL		N	10.000
CD2CL2		11.	UGL		N	10.000
ETBD10		10.	UGL		N	10.000
Methoa	QQ8		- 1			
Analysis	Number:	QA1013	Lab	NU	mber:	K-NMB#II
Tort						
Name	Corrector	d Value	Unite	FC		C Snike
Mame			Units	<u> </u>		C DPIKE
DIMP	LT	10.1	UGL			
DMMP		16.3	UGL			

MK-Environmental Services F-10

Final Data Report for MKE Sampling Programs

<u>Dree raen</u>	CITICACIO		22011				
Sample Da Depth(ft Method: Analysis	ate: 02/): 0. QQ8 Number:	22/90 0 <u>Sam</u> QAI014	pling ' Lab	<u>Num</u>	niq ber	<u>ue</u> :	: P K-NWB#12
Test Name	Correcte	d Value	Units	FC	QC	QC	Spike
DIMP DMMP		108. 138.	UGL UGL		N N	10 12	05.000 26.000
Method: Analysis	Q8 Number:	QKP013	Lab	Num	ber	:	K-NWB#11
Test Name	Correcte	d Value	Units	FC	<u>QC</u>	QC	Spike
DBCP	LT	0.130	UGL				
<u>Method:</u> Analysis	Q8 Number:	QKP014	Lab	Num	ber	:	K-NWB#12
Test <u>Name</u>	Corrected	d Value	Units	FC	QC	QC	Spike
DBCP		1.07	UGL		N		1.080
Method: Analysis	MM8A Number:	QLG013	Lab	Num	ber	:	K-NWB#11
Test Name	Corrected	d Value	<u>Units</u>	FC		QC	Spike
ALDRN CL6CP CLDAN DLDRN ENDRN I SODR PPDDE PPDDT	LT 0 LT 0 LT 0 LT 0 LT 0 LT 0 LT 0 LT 0 LT 0	.0830 .0830).152).527 .0600 .0560 .0460	UGL UGL UGL UGL UGL UGL UGL UGL	С			

Site Identification: WELL 22071

MK-Environmental Services F-11

Final Data Report for MKE Sampling Programs

Site Identification: WELL 22071

Sample Da Depth(ft Method: Analysis	ate: 02/22/90): 0.0 <u>Sam</u> MM8A Number: QLG015	pling Tec Lab Nu	hnique mber:	: P K-NWB#12
Test Name	Corrected Value	Units FC		Spike
ALDRN	0.641	UGL	N	0.563
CL6CP	0.390	UGL	N	0.563
CLDAN	2.13	UGL	N	5.550
DLDRN	0.602	UGL	N	0.563
ENDRN	0.661	UGL	N	0.563
ISODR	0.566	UGL	N	0.563
PPDDE	0.541	UGL	N	0.563
PPDDT	0.583	UGL	N	0.563

Final Data Report for MKE Sampling Programs

Site Identification: WELL 22072

Sample Da Depth(ft	ate: 02/	22/90 0 Sam	pling	Tecl	hnid	que	: P
Method:	បប8					*	
Analysis	Number:	GSR010	Lab	Nui	mbe	<u>r</u> :	K-NWB#15
Toct							
Name	Corrected	d Value	Units	FC	oc	oc	Snike
<u>ivanc</u>			011100	<u> </u>	<u>v</u> .	<u>x</u> u	opine
111TCE	LT	2.4	UGL		F		
112TCE	LT	1.6	UGL		F		
11DCLE	LT	1.4	UGL		F		
12DCE	LT	3.2	UGL		F		
12DCLE	LT	0.72	UGL		F		
13DMB	LT	2.9	UGL		F		
BCHPD	LT	1.8	UGL		F		
Сбнб	LT	2.7	UGL		F		
CCL4	LT	4.9	UGL		F		
CH2CL2	ND	5.0	UGL	R	F		
CHCL3	LT	1.7	UGL		F		
CLC6H5	LT	1.8	UGL		F		
DBCP	LT	5.6	UGL		F		
DCPD	LT	3.7	UGL		F		
DMDS	LT	3.7	UGL		F		
ETC6H5	LT	2.4	UGL		F		
MEC6H5	LT	3.5	UGL		F		
MIBK	LT	1.2	UGL		F		
TCLEE	LT	2.9	UGL		F		
TRCLE	LT	2.0	UGL		F		
XYLEN	LT	2.4	UGL		F		
12DCD4		10.	UGL		Ν	1	0.000
CD2CL2		12.	UGL		N	1	.0.000
ETBD10		8.9	UGL		N	1	0.000
Method:	UU8						
Analysis	Number:	GSR008	Lab	Nun	nber	:	K-NWB#13
—							
Test	a	1			~ ~	~ ~	a 11 -
Name	Corrected	<u>Value</u>	Units	FC	<u>QC</u>	QC	Spike
111000	T 177	2 4	TICT				
	1.1. T m	2.4					
		1 4					
	ц. Гар	1.4 2.7					
	ці t m	3.4 0.72					
	ьľ tm	0.14	UGL				
TODUR	ьт г.т	4.7	UGL				
BCHPD	ьт тт	1.0	UGL				
СБНБ	LT T	4.1	UGL				
CCL4	L'I'	4.9	UGL	-			
CH2CL2	ND	5.0	UGL	R			
CHCL3	LΤ	1./	UGL				
Final Data Report for MKE Sampling Programs

Dice iden		<u>.</u>	22072		
Sample Da Depth(ft Method: Analysis	ate: 02/): 0. UU8 Number:	22/90 0 <u>Sam</u> GSR008	pling Te Lab I	echnique: Number:	: P K-NWB#13
Test <u>Name</u>	Correcte	d Value	<u>Units</u> 1	FC QC QC	Spike
CLC6H5 DBCP DCPD DMDS ETC6H5 MEC6H5 MIBK TCLEE TRCLE TRCLE XYLEN 12DCD4 CD2CL2 ETBD10	LT LT LT LT LT LT LT LT LT	1.8 5.6 3.7 2.4 3.5 1.2 2.9 2.0 2.4 11. 9.9 10.	UGL UGL UGL UGL UGL UGL UGL UGL UGL UGL	N 1 N 1 N 1	L0.000 L0.000 L0.000
<u>Method:</u> Analysis	QQ8 Number:	QAI015	Lab 1	Number:	K-NWB#13
Test <u>Name</u>	Correcte	d Value	<u>Units</u>	FC QC QC	Spike
DIMP DMMP	LT LT	$10.1 \\ 16.3$	UGL UGL		
Method: Analysis	Q8 Number:	QKP015	Lab 1	Number:	K-NWB#13
Test Name	Correcte	d Value	Units 1	FC QC QC	Spike
DBCP	LT	0.130	UGL		

Site Identification: WELL 22072

MK-Environmental Services F-14

Final Data Report for MKE Sampling Programs

Sample Da Depth(ft Method:	ate: 0)): MM8A	2/22/90 0.0 <u>Sam</u> . OIG014	pling '	<u>Techni</u>	que r.	: Р к_мив#13
Anarysis	Number	· ÖÜGOIA		Numbe	<u> </u>	V-MMD#T2
Test Name	Correc	ted Value	<u>Units</u>	FC QC	QC	Spike
ALDRN	LT	0.0830	UGL			
CL6CP	LT	0.0830	UGL			
CLDAN	LT	0.152	UGL			
DLDRN		0.306	UGL	С		
ENDRN	LT	0.0600	UGL			
ISODR	LT	0.0560	UGL			
PPDDE	LT	0.0460	UGL			
PPDDT	LT	0.0590	UGL			

••

Final Data Report for MKE Sampling Programs

Site Iden	tificatior	<u>n</u> : WELL	22501					
Sample D Depth(ft Method: Analysis	ate: 02/2): 0.(UU8 Number:	26/90) <u>Sam</u> GSU003	pling Lab	Tec Nu	<u>hni</u>	<u>que</u>	: P K-NWB	±24
	·······					-		
Test <u>Name</u>	Corrected	l Value	<u>Units</u>	FC	<u>QC</u>	QC	Spike	
111TCE 112TCE 12DCLE 12DCLE 12DCLE 13DMB BCHPD C6H6 CCL4 CH2CL2 CHCL3 CLC6H5 DBCP DCPD DMDS ETC6H5 MEC6H5 MEC6H5 MEC6H5 MIBK TCLEE TRCLE XYLEN 12DCD4 CD2CL2 ETBD10	LT LT LT LT LT LT LT LT LT LT LT LT LT L	$\begin{array}{c} 2.4\\ 1.6\\ 1.4\\ 3.2\\ 0.72\\ 2.9\\ 1.8\\ 2.7\\ 4.9\\ 5.0\\ 3.1\\ 1.8\\ 5.6\\ 3.7\\ 3.1\\ 1.8\\ 5.6\\ 3.7\\ 3.7\\ 2.4\\ 3.5\\ 1.2\\ 2.9\\ 2.0\\ 2.4\\ 9.7\\ 11.\\ 10. \end{array}$	UGL UGL UGL UGL UGL UGL UGL UGL UGL UGL	R	N N N	1	0.000	
<u>Method</u> : Analysis	UU8 Number:	GSU006	Lab	Nur	nber	:	K-NWB#	:33
Test Name	Corrected	Value	Units	FC	QC	QC	Spike	
111TCE 112TCE 11DCLE 12DCLE 12DCLE 13DMB BCHPD C6H6 CCL4 CH2CL2 CHCL3	LT LT LT LT LT LT LT LT LT LT	2.4 1.6 1.4 3.2 0.72 2.9 1.8 2.7 4.9 5.0 1.7	UGL UGL UGL UGL UGL UGL UGL UGL UGL UGL	R	내 내 내 내 내 내 내 내 내			

MK-Environmental Services F-16

1

Final Data Report for MKE Sampling Programs

Sample Date: 02/26/90 Depth(ft): 0.0 Sampling Technique: P								
Method: Analysis	UU8 Number:	GSU006	Lab	Number:	K-NWB#33			
Test Name	Correcte	d Value	Units	FC QC C	<u>C Spike</u>			
CLC6H5 DBCP DCPD DMDS ETC6H5 MEC6H5 MIBK TCLEE TRCLE TRCLE XYLEN 12DCD4 CD2CL2 ETBD10	LT LT LT LT LT LT LT LT	1.8 5.6 3.7 3.7 2.4 3.5 1.2 2.9 2.0 2.4 11. 12. 11.	UGL UGL UGL UGL UGL UGL UGL UGL UGL UGL	F F F F F F F F N N N	10.000 10.000 10.000			
<u>Method:</u> Analysis	QQ8 Number:	QAK005	Lab	Number:	K-NWB#24			
Test Name	Correcte	d Value	Units	FC QC Q	C Spike			
DIMP DMMP	LT LT	10.1 16.3	UGL UGL					
<u>Method:</u> Analysis	Q8 Number:	QKQ012	Lab	Number:	K-NWB#24			
Test Name	Correcte	d Value	Units	FC QC Q	C Spike			
DBCP	LT	0.130	UGL					

Final Data Report for MKE Sampling Programs

Site Identification: WELL 22501

Sample Da	$\frac{\text{ate:}}{1}$	2/26/90 0 0 Sam	nling M	Tecl	nnid	nie	P
Method: Analysis	MM8A Number	: QLJ005	Lab	Nur	nbe	<u>r:</u> :	K-NWB#24
Test Name	Correc	ted Value	<u>Units</u>	FC	QC	QC	Spike
ALDRN CL6CP CLDAN DLDRN ENDRN I SODR PPDDE	LT LT LT LT LT LT	0.0830 0.0830 0.152 0.0539 0.0600 0.0560 0.0460	UGL UGL UGL UGL UGL UGL				

Final Data Report for MKE Sampling Programs

Sample D	$\frac{\text{ate}}{1}$: 02/	26/90 0 Sam	nling	Tec	hni		• •
Method:	UU8 0.		ipiting	160		jue	• •
Analysis	Number:	GSS010	Lab	Nu	mbe	<u>c</u> :	K-NWB#25
Test							
Name	Correcte	d Value	Units	FC	<u>QC</u>	QC	Spike
111TCE	LT	2.4	UGL	D			
112TCE	LT	1.6	UGL	D			
11DCLE	LT	1.4	UGL	D			
12DCE	LT	3.2	UGL	D			
12DCLE	LT	0.72	UGL	D			
13DMB	LT	2.9	UGL	D			
BCHPD	LT	1.8	UGL	D			
Сбнб	LT	2.7	UGL	D			
CCL4	LT	4.9	UGL	D			
CH2CL2	ND	5.0	UGL	R			
CHCL3	LT	1.7	UGL	D			
CLC6H5	LT	1.8	UGL	D			
DBCP	LT	5.6	UGL	D			
DCPD	LT	3.7	UGL	D			
DMDS	LT	3.7	UGL	D			
ETC6H5	LT	2.4	UGL	D			
MEC6H5	LT	3.5	UGL	D			
MIBK	LT	1.2	UGL	D			
TCLEE	LT	2.9	UGL	D			
TRCLE	LT	2.0	UGL	D			
XYLEN	LT	2.4	UGL	D			
12DCD4		12.	UGL	D	Ν	1	.0.000
CD2CL2		12.	UGL	D	Ν	1	10.000
ETBD10		9.6	UGL	D	N	1	0.000
Method:	8UU						
Analysis	Number:	GSS011	Lab	Nur	nber	:	K-NWB#26
Test							
Name	Corrected	l Value	<u>Units</u>	<u>FC</u>	<u>QC</u>	<u>QC</u>	Spike
111TCE	LT	2.4	UGL				
112TCE	LT	1.6	UGL				
11DCLE	LT	1.4	UGL				
12DCE	LT	3.2	UGL				
12DCLE	LT	0.72	UGL				
13DMB	LT	2.9	UGL				
BCHPD	LT	1.8	UGL				
С6Н6	LT	2.7	UGL				
CCL4	LT	4.9	UGL				
CH2CL2	ND	5.0	UGL	R			
CHCL3	LT	1.7	UGL				

Final Data Report for MKE Sampling Programs

Site Identification: WELL 22505

Sample Da Depth(ft Method:	ate: 02/): 0. UU8	26/90 0 <u>Sam</u>	pling Technique: P
Analysis	Number:	GSS011	Lab Number: K-NWB#26
Test Name	Correcte	d Value	<u>Units FC QC QC Spike</u>
CLC6H5 DBCP DCPD DMDS ETC6H5 MEC6H5 MIBK TCLEE TRCLE TRCLE XYLEN 12DCD4 CD2CL2 ETBD10	LT LT LT LT LT LT LT LT	1.8 5.6 3.7 2.4 3.5 1.2 2.9 2.0 2.4 12. 10. 9.8	UGL UGL UGL UGL UGL UGL UGL UGL UGL UGL
Method: Analysis	QQ8 Number:	QAK006	Lab Number: K-NWB#25
Test Name	Correcte	d Value	<u>Units FC QC QC Spike</u>
DIMP DMMP	LT LT	10.1 16.3	UGL D UGL D
<u>Method</u> : Analysis	QQ8 Number:	QAK007	Lab Number: K-NWB#26
Test Name	Correcte	d Value	<u>Units FC QC QC Spike</u>
DIMP	LT LT	10.1	UGL UGL

MK-Environmental Services F-20

Final Data Report for MKE Sampling Programs

<u>Site Iden</u>	tificat	ion: WELL	22505				
Sample D Depth(<u>ft</u> Method:	<u>ate</u> : 0): 08	2/26/90 0.0 <u>Sam</u>	pling	Tec	<u>hni</u>	que	: P
Analysis	Number	CKQUI3	Lab	Nu	mbe	<u>r</u> :	K-NWB#25
Test N ame	Correc	ted Value	Units	FC	QC	QC	Spike
DBCP	LT	0.130	UGL	D			
Method: Analysis	Q8 Number	: QKQ014	Lab	Nui	mber	<u>:</u> :	K-NWB#26
Test Name	Correc	ted Value	Units	FC	<u>QC</u>	QC	Spike
DBCP	LT	0.130	UGL				
<u>Method:</u> Analysis	MM8A Number	: QLJ006	Lab	Nur	nber	:	K-NWB#25
Test Name	Correc	ted Value	Units	FC	QC	QC	Spike
ALDRN CL6CP CLDAN DLDBN	LT LT LT	0.0830 0.0830 0.152 0.334	UGL UGL UGL UGL	D D D D			
ENDRN	LT	0.0600	UGL	D			
ISODR	LT	0.0560	UGL	D			
PPDDE	LT	0.0460	UGL	D			
PPDDT	LT	0.0590	UGL	D			
<u>Method</u> : Analysis	MM8A Number	: QLJ007	Lab	Nun	nber	_ :	K-NWB#26
Test							
Name	Correct	ted Value	<u>Units</u>	FC	<u>QC</u>	QC	Spike
AT.DRM	ד. ידי	0 0830	UCI				
CL6CP	T.T	0.0830	UGL				
CLDAN	LT	0.152	ŬGL				
DLDRN		0.325	UGL	С			
ENDRN	LT	0.0600	UGL				
ISODR	LT	0.0560	UGL				
PPDDE	LT	0.0460	UGL				
PPDDT	LT	0.0590	UGL				

Final Data Report for MKE Sampling Programs

Site Identification: WELL 22506

S	ample Da	ate: 02/2	26/90	nling	meel	hni	~	. P	
M	eptn(it			pring	rec	mre	Jue	:	
Ā	nalysis	Number:	GSS012	Lab	Nui	nbei	<u>r</u> :	K-NWB#	28
Т	est								
N	ame	Corrected	<u>d Value</u>	<u>Units</u>	FC	<u>QC</u>	QC	Spike	
1	2DCD4		10.	UGL		N		10.000	
Ē	D2CL2		11.	UGL		N		0.000	
Ē	TBD10		8.5	UGL		N	-	0.000	
ī	11TCE	LT	2.4	UGL		R	•		
ī	12TCE	— <u>-</u> Г.Т	1.6	UGL		R			
ī	1DCLE	 LT	1 4	UGL.		R			
ī	2DCE	T.T	3 2	UGL		R			
1	2DCLE	T.T	0 72	UGL		R			
1	3DMB	L T	2 9			Ð			
÷ p	CHOD	T TT	1 9	UGL		D			
2	СПГ <i>D</i> 6н6	T.TT	27			Ð			
č	CT.4		1 9			D			
č	H2CL2		5 0	UGL	Ð	P			
č	HCL3	L.T.	1 7	UGL	К	D			
Č	псыр Гсенг		1 8	UGL		D			
n	BCP	L T	5 6	UGL		5			
n D		U I T	3.0			Ð			
D D	MDS		3.7			D			
ਹ 'ਚ	TCGUS		2 1			л р			
M	FC6H5		2.4			л Б			
1.1 M			1 2			л П			
1.1	IDN	T TT	$\frac{1.2}{2.0}$	UGL		R D			
			2.9	UGL		R			
L V	RULE		2.0			R			
А	ILEN	<u>۲</u> ۲	2.4	065		R			
M	ethod:	8UU							
A	nalysis	Number:	GSU004	Lab	Nur	nber	::	K-NWB#	27
T	est								
N	ame	Corrected	l Value	Units	FC	<u>QC</u>	QC	Spike	
1	11TCE	t.T	2.4	UGI.					
ĩ	12TCE		1 6	UGL					
1	1DCLE	T. TT	1 1	UGL					
1		T.97	2 2	UGL					
1		T. TT	0 72						
± 1		ы. Т. Т.	2 0						
-	מאטכ	LT LT	2.7 1 Q						
2	CHED GUG	ы. t.vr	2 7						
		1 m 1 m	4.1						
			4.7		Ð				
	HCL3	ыD Г.Т	1 7		Г				
· · · ·		لل لسل		UUU					

Final Data Report for MKE Sampling Programs

Sample Da Depth(ft	ate: 02/): 0.	26/90 0 <u>Sam</u>	pling '	Tec	hnid	que	: P	
<u>Method:</u> Analysis	UU8 Number:	GSU004	Lab	Nu	mbe	<u>r</u> :	K-NWB	#27
Test <u>Name</u>	Correcte	d Value	<u>Units</u>	FC	<u>QC</u>	QC	Spike	
CLC6H5 DBCP DCPD DMDS ETC6H5 MEC6H5 MIBK TCLEE TRCLE TRCLE XYLEN 12DCD4 CD2CL2 ETBD10	LT LT LT LT LT LT LT LT LT	1.8 5.6 3.7 2.4 3.5 1.2 2.9 2.0 2.4 9.1 11. 9.4	UGL UGL UGL UGL UGL UGL UGL UGL UGL UGL		N N N	1 1 1	10.000 10.000 10.000	
Method: Analysis	UU8 Number:	GSU007	Lab	Nur	nber	:	K-NWB‡	‡34
Test <u>Name</u>	Corrected	d Value	<u>Units</u>	FC	QC	<u>oc</u>	Spike	
12DCD4 CD2CL2 ETBD10 111TCE 112TCE 11DCLE 12DCLE 12DCLE 13DMB BCHPD C6H6 CCL4 CH2CL2 CHCL3 CLC6H5 DBCP DCPD DMDS ETC6H5 MEC6H5 MIBK TCLEE	LT LT LT LT LT LT LT LT LT LT LT LT LT L	10. $11.$ 9.3 2.4 1.6 1.4 3.2 0.72 2.9 1.8 2.7 4.9 5.0 1.7 1.8 5.6 3.7 3.7 2.4 3.5 1.2 2.9	UGL UGL UGL UGL UGL UGL UGL UGL UGL UGL	R	X X H H H H H H H H H H H H H H H H H H	1 1 1 1	L0.000 L0.000 L0.000	

Final Data Report for MKE Sampling Programs

Site Identification: WELL 22506 02/26/90 Sample Date: Depth(ft): 0.0 Sampling Technique: Ρ Method: UU8 Analysis Number: GSU007 Lab Number: K-NWB#34 Test Corrected Value Units FC QC QC Spike Name TRCLE LT2.0 UGL т т XYLEN LT. 2.4 UGL 8QQ Method: K-NWB#27Analysis Number: QAK008 Lab Number: Test Corrected Value Units FC QC QC Spike Name DIMP 43.3 UGL DMMP LT16.3 UGL Method: 008 Analysis Number: QAK009 Lab Number: K-NWB#28 Test Name Corrected Value Units FC QC QC Spike 10.1 LTR DIMP UGL 16.3 DMMP LTUGL R 08 Method: Analysis Number: QKQ015 K-NWB#27Lab Number: Test Corrected Value Units FC QC QC Spike Name DBCP LT0.130 UGL Method: 80 Analysis Number: QKQ016 Lab Number: K-NWB#28 Test Corrected Value Name Units FC QC QC Spike 0.130 DBCP LTUGL R

MK-Environmental Services

F-24

Final Data Report for MKE Sampling Programs

Sample Date: 02/26/90 Depth(ft): 0.0 Sampling Technique: P								
Method:	MM8A							
Analysis	Number	: QLJ008	Lab	Nu	nbeı	::	K-NWB#27	
						-		
Test								
Name	Correct	ted Value	Units	FC	QC	QC	Spike	
ALDRN	LT	0.0830	UGL					
CL6CP	LT	0.0830	UGL					
CLDAN	LT	0.152	UGL					
DLDRN		0.130	UGL	С				
ENDRN	LT	0.0600	UGL					
ISODR	LT	0.0560	UGL .					
PPDDE	LT	0.0460	UGL					
PPDDT	LT	0.0590	UGL					
<u>Method</u> :	MM8A							
<u>Analysis</u>	Number:	QLJ009	Lab	Nur	<u>aber</u>	:	K-NWB#28	
— ,								
Test	a . 1	1 1			~ ~	~ ~	- · ·	
Name	Correct	ced Value	Units	\underline{FC}	<u>QC</u>	<u>QC</u>	Spike	
ALDRN	\mathbf{LT}	0.0830	UGL		R			
CL6CP	LT	0.0830	UGL		R			
CLDAN		0.152	UGL		R			
DLDRN		0.0807	UGL	С	R			
ENDRN	LT	0.0600	UGL	•	R			
ISODR	LT	0.0560	UGL		R			
PPDDE	LT	0.0460	UGL		R			
PPDDT	LT	0.0590	UGL		R			

Final Data Report for MKE Sampling Programs

Site Identification: WELL 22507

Sample Da	ate: 02/2	26/90					
Depth(ft)): 0.0) <u>Sam</u>	pling 🗅	ſecł	nniqu	<u>1e</u> :	: P
Method:	UU8						
<u>Analysis</u>	Number:	GSS013	Lab	Nur	nber:		K-NWB#29
Moat							
Namo	Corrected	aufeV f	Unite	FC	00 0	C	Snike
Mame	COLLECCEC	varue	<u></u>	<u> </u>	<u>xc</u> y	20	opine
111TCE	LT	2.4	UGL				
112TCE	LT	1.6	UGL				
11DCLE	LT	1.4	UGL				
12DCE	LT	3.2	UGL				
12DCLE	LT	0.72	UGL				
13DMB	LT	2.9	UGL				
BCHPD	LT	1.8	UGL				
Сбнб	LT	2.7	UGL				
CCL4	LT	4.9	UGL				
CH2CL2	ND	5.0	UGL	R			
CHCL3		3.0	UGL				
CLC6H5	LT	1.8	UGL				
DBCP	LT	5.6	UGL				
DCPD	LT	3.7	UGL				
DMDS	LT	3.7	UGL				
ETC6H5	LT	2.4	UGL				
MEC6H5	LT	3.5	UGL				
MIBK	LT	1.2	UGL				
TCLEE	LT	2.9	UGL				
TRCLE	LT	2.0	UGL				
XYLEN	LT	2.4	UGL				
12DCD4		11.	UGL		N		10.000
CD2CL2		11.	UGL		N		10.000
ETBD10		8.8	UGL		Ν		10.000
	~~ ^						
Methoa:	QQ8 Numbers	0.0 10 10	r a b	NT			
Analysis	Number:	QAKUIU	Lab	NUI	mber	:	K-NWD#29
Test							
Name	Corrected	d Value	Units	FC	oc d	oc	Spike
				<u> </u>	<u> </u>	<u> </u>	_
DIMP	LT	10.1	UGL				
DMMP	LT	16.3	UGL				

MK-Environmental Services F-26

Final Data Report for MKE Sampling Programs

Site Identification: WELL 22507

Sample Da	ate: 02	2/26/90			
Depth(ft): (0.0 Sam	pling 1	Technique	: P
Method:	Q8				
Analysis	Number	: QKQ017	Lab	Number:	K-NWB#29
Test					
Name	Correct	ed Value	Units	FC QC QC	Spike
DBCP	LT	0.130	UGL		
Method:	MM8A				
Analysis	Number:	QLJ010	Lab	Number:	K-NWB#29
Test					
Name	Correct	ed Value	<u>Units</u>	FC QC QC	Spike
ALDRN	LT	0.0830	UGL		
CL6CP	LT	0.0830	UGL		
CLDAN	LT	0.152	UGL		
DLDRN	LT	0.0539	UGL		
ENDRN	LT	0.0600	UGL		
ISODR	LT	0.0560	UGL		
PPDDE	LT	0.0460	UGL		
PPDDT	LT	0.0590	UGL		

MK-Environmental Services F-27

Final Data Report for MKE Sampling Programs

<u>Site Ident</u>	ification	WELL	2/003				
Sample Da Depth(ft)	ate: 02/2): 0.0	20/90 Sami	oling 1	rech	nnic	lue	: P
<u>Methoa</u> :	000		- 1				
Analysis	Number:	GSR003	Lab	Nun	nbei	::	MK-NWB#1
Test Name 111TCE 112TCE 11DCLE 12DCE 12DCLE	Corrected LT LT LT LT LT LT	2.4 1.6 1.4 3.2 0.72	Units UGL UGL UGL UGL UGL	FC	QC	QC	Spike
13DMB	I.T	29	UGI.				
всирр		1 8	UGL				
CCHE		2 7					
	51 51	4.7					
		4.9	UGL	-			
CHZCLZ	ND	5.0	UGL	ĸ			
CHCL3		1./	UGL				
CLC6H5	LT	1.8	UGL				
DBCP	LT	5.6	UGL				
DCPD	LT	3.7	UGL				
DMDS	LT	3.7	UGL				
ETC6H5	LT	2.4	UGL				
MEC6H5	LT	3.5	UGL				
MIBK	LT	1.2	UGL				
TCLEE	LT	2.9	UGL				
TRCLE	LT	2.0	UGL				
XYLEN	LT	2.4	UGL				
120004		9.6	UGL		N		10.000
		12	UGL		N		
		<u>4</u> 2.	UCI		N	•	
FIPDIO		9.2	095		TA	•	10.000
Method: Analysis	QQ8 Number:	QAI005	Lab	Nur	nbe	<u>r</u> :	MK-NWB#1
Test							
Namo	Corrector	Value	Unite	FC	00	00	Snike
Manie	COLLECTED	varue	011115	<u> </u>	<u>vc</u>	<u>v</u> c	DDIVE
DIMP	LT	10.1	UGL				
Dunt		- U • J	000				

I

Final Data Report for MKE Sampling Programs

Site Iden	tificat	ion: WELL	27003			
Sample D. Depth(ft Method:	<u>ate</u> : 0): 08	2/20/90 0.0 <u>Sam</u>	pling	Techni	que	: P
Analysis	Number	: QKP005	Lab	Numbe	: :	MK-NWB#1
Test Name	Correc	ted Value	Units	FC QC	<u>oc</u>	Spike
DBCP	LT	0.130	UGL			
Method: Analysis	MM8A Number	: QLG005	Lab	Number	<u>:</u> :	MK-NWB#1
Test Name	Correct	ted Value	Units	FC QC	QC	Spike
ALDRN	LT	0.0830	UGL			
CL6CP	LT	0.0830	UGL			
CLDAN	LT	0.152	UGL			
DLDRN		0.0827	UGL	С		
ENDRN	LT	0.0600	UGL			
ISODR	LT	0.0560	UGL			
PPDDE	LT	0.0460	UGL			
PPDDT	LT	0.0590	UGL			

Final Data Report for MKE Sampling Programs

Site Iden	tification	n: WELL	27006				
Sample Da	ate: 02/2	21/90					
Depth(ft): 0.() Sam	pling 7	recl	nnic	lne	: P
Analysis	Number:	GSQ005	Lab	Nui	nbei	::	MK-NWB#5
						-	
Test	Corrector		11-1-6-0	БC	00	00	Spike
Name	Corrected	value	Units	<u>FC</u>	<u>QC</u>		Spike
111TCE	LT	2.4	UGL				
112TCE	LT	1.6	UGL				
11DCLE	LT	1.4	UGL				
12DCE	LT	3.2	UGL				
12DCLE	\mathbf{LT}	0.72	UGL				
13DMB	LT	2.9	UGL				
BCHPD	LT	1.8	UGL				
Сбнб	LT	2.7	UGL				
CCL4	LT	4.9	UGL				
CH2CL2		14.	UGL	R			
CHCL3	LT	1.7	UGL				
CLC6H5	LT	1.8	UGL				
DBCP	LT	5.6	UGL				
DCPD	LT	3.7	UGL				
DMDS	LT	3.7	UGL				
ETC6H5	LT	2.4	UGL				
MEC6H5	LT	3.5	UGL				
MIBK	LT	1.2	UGL				
TCLEE	LT	2.9	UGL				
TRCLE	LT	2.0	UGL				
XYLEN	LT	2.4	UGL				
12DCD4		11.	UGL		N		10.000
CD2CL2		11.	UGL		N		10.000
ETBD10		10.	UGL		N		10.000
Method:	008						
Analysis	Number:	QAI008	Lab	Nur	nber	::	MK-NWB#5
Test							
Name	Corrected	Value	Unite	FC	00	00	Snike
1407116		<u>varue</u>	0111 65	<u> </u>	<u>xc</u>		ODIVE
DIMP	LT	10.1	UGL				
DMMP	LT	16.3	UGL				

MK-Environmental Services F-30

Î

Ĝ

Í,

Sample Da	ate: 02	2/21/90			
Depth(ft)): C	0.0 Sam	pling '	<u> Technique</u>	: P
Method:	Q8				
Analysis	Number:	QKP008	Lab	Number:	MK-NWB#5
Test					
Name	Correct	ed Value	<u>Units</u>	FC QC QC	Spike
DBCP	LT	0.130	UGL		
W = b b = d .	MM () 3				
Methoa:	MM8A	01 00 00	Tab	Numbers	MV NIMD # 5
Analysis	Number:	QLG008	Lab	Number:	MV-NMP#2
Toct					
Name	Correct	ed Value	Units	FC OC OC	Spike
Name	COTTect	eu varue	<u></u>	<u> </u>	opine
ALDRN	LT	0.0830	UGL		
CL6CP		0.0830	UGL		
CLDAN	LT	0.152	UGL		
DLDRN		0.0756	UGL	С	
ENDRN	LT	0.0600	UGL		
ISODR	LT	0.0560	UGL		
PPDDE	LT	0.0460	UGL		
PPDDT	LT	0.0590	UGL		

Final Data Report for MKE Sampling Programs

Site Identification: WELL 27009

Sample Da Depth(ft Method:	ate: 02/): 0. UU8	26/90 0 <u>Sam</u>	pling 1	<u>recl</u>	<u>nnic</u>	que	: B
Analysis	Number:	GSS014	Lab	Nu	nbei	<u> </u>	K-NWB#30
Test Name	Correcte	d Value	Units	FC	QC	QC	Spike
111TCE 112TCE 11DCLE 12DCE 12DCLE 13DMB BCHPD C6H6 CCL4 CH2CL2 CHCL3	LT LT LT LT LT LT LT LT LT LT	2.4 1.6 1.4 3.2 0.72 2.9 1.8 2.7 4.9 5.0 1.7	UGL UGL UGL UGL UGL UGL UGL UGL UGL	R			
CLC6H5 DBCP DCPD DMDS ETC6H5 MEC6H5 MIBK TCLEE TRCLE XYLEN 12DCD4 CD2CL2 ETBD10	LT LT LT LT LT LT LT LT LT	1.8 5.6 3.7 2.4 3.5 1.2 2.9 2.0 2.4 12. 9.7 9.0	UGL UGL UGL UGL UGL UGL UGL UGL UGL UGL		N N N		10.000 10.000 10.000
<u>Method</u> : Analysis	QQ8 Number:	QAK011	Lab	Nur	nbeı	<u>:</u> :	K-NWB#30
Test <u>Name</u>	Corrected	d Value	<u>Units</u>	FC	<u>QC</u>	QC	Spike
DIMP DMMP	LT LT	10.1 16.3	UGL UGL				

MK-Environmental Services F-32

Final Data Report for MKE Sampling Programs

Site Identification: WELL 27009

Sample Da Depth(ft	ate: 02	2/26/90).0 <u>Sam</u>	pling '	<u>rechnique</u>	: В
Analysis	Number:	QKQ018	Lab	Number:	K-NWB#30
Test <u>Name</u>	<u>Correct</u>	ed Value	Units	FC QC QC	Spike
DBCP	LT	0.130	UGL		
Method: Analysis	MM8A Number:	QLJ011	Lab	Number:	K-NWB#30
Test Name	Correct	ed Value	<u>Units</u>	FC QC QC	Spike
ALDRN	LT	0.0830	UGL		
CL6CP	LT	0.0830	UGL		
CLDAN	LT	0.152	UGL		
DLDRN		0.0793	UGL	С	
ENDRN		0.118	UGL	С	
ISODR	LT	0.0560	UGL		
PPDDE	LT	0.0460	UGL		
PPDDT	LT	0.0590	UGL		

MK-Environmental Services F-33

Final Data Report for MKE Sampling Programs

Site Identification: WELL 27011

Sample Da	ate: 02/	21/90					
Depth(ft): 0.	0 Sam	pling '	recl	hnig	lne	: P
Method:	UU8						
Analysis	Number:	GSQ006	Lab	Nur	nber	:	MK-NWB#6
						-	
Test							
Name	Correcte	<u>d Value</u>	<u>Units</u>	FC	<u>QC</u>	<u>QC</u>	Spike
111TCE	LT	2.4	UGL				
112TCE	LT	1.6	UGL				
LIDCLE	LT	1.4	UGL				
12DCE	LT	3.2	UGL				
12DCLE	LT	0.72	UGL				
13DMB	LT	2.9	UGL				
BCHPD	LT	1.8	UGL				
Сбнб	LT	2.7	UGL				
CCL4	LT	4.9	UGL				
CH2CL2		14.	UGL	R			
CHCL3	LT	1.7	UGL				
CLC6H5	LT	1.8	UGL				
DBCP	LT	5.6	UGL				
DCPD	LT	3.7	UGL				
DMDS	LT	3.7	UGL				
ETC6H5	LT	2.4	UGL				
MEC6H5	LT	3.5	UGL				
MIBK	LT	1.2	UGL				
TCLEE	LT	2.9	UGL				
TRCLE	LT	2.0	UGL				
XYLEN	LT	2.4	UGL				
12DCD4		11.	UGL		Ν		10.000
CD2CL2		12.	UGL		Ν		10.000
ETBD10		8.7	UGL		Ν		10.000
	000						
Methoa:	<u>V</u> <u>U</u> 8 Numbers	0.0.00	T a la				
Analysis	Number:	QAIUU9	Lab	NUI	nper		MK-NWB#0
Test							
Name	Corrected	d Value	Unite	FC	ററ	റ്റ	Snike
<u>Munic</u>	001160060	<u> </u>	<u>011103</u>	<u></u>	<u>v</u> c	<u>v</u> c	<u></u>
DIMP	LT	10.1	UGL				
DMMP	LT	16.3	UGL				

MK-Environmental Services F-34

Final Data Report for MKE Sampling Programs

Site Identification: WELL 27011

Sample Da	ate: 02	21/90			
Depth(ft): 0	0.0 Sam	pling 🗅	Fechnique	: P
Method:	Q8				
Analysis	Number:	QKP009	Lab	Number:	MK-NWB#6
Test					
Name	Correct	ed Value	Units	FC QC QC	Spike
DBCP	LT	0.130	UGL		
Method:	MM8A				
Analysis	Number:	QLG009	Lab	Number:	MK-NWB#6
Test		• •			
Name	Correct	ed Value	<u>Units</u>	FC QC QC	Spike
ALDRN	LT	0.0830	UGL		
CL6CP	LT	0.0830	UGL		
CLDAN	LT	0.152	UGL		
DLDRN	LT	0.0539	UGL		
ENDRN	LT	0.0600	UGL		
ISODR	LT	0.0560	UGL		
PPDDE	LT	0.0460	UGL		
PPDDT	LT	0.0590	UGL		

MK-Environmental Services F-35

Final Data Report for MKE Sampling Programs

Site Iden	tification	: WELL	27072		
Sample Da Depth(ft Method:	ate: 02/2): 0.0 UU8	0/90 <u>Sam</u> r	oling 1	lechniqu	<u>1e</u> : P
Analysis	Number:	GSQ003	Lab	Number:	MK-NWB#2
Test Name	Corrected	Value	<u>Units</u>	FC QC Q	QC Spike
111TCE 112TCE 12DCLE 12DCLE 12DCLE 13DMB BCHPD C6H6 CCL4 CH2CL2 CHCL3 CLC6H5 DBCP DCPD DMDS ETC6H5 MEC6H5 MEC6H5 MIBK TCLEE TRCLE XYLEN 12DCD4 CD2CL2 ETBD10	LT LT LT LT LT LT LT LT LT LT	2.4 1.6 1.4 3.2 0.72 2.9 1.8 2.7 4.9 18. 4.7 1.8 5.6 3.7 3.7 2.4 3.5 1.2 2.9 2.0 2.4 11. 12. 10.	UGL UGL UGL UGL UGL UGL UGL UGL UGL UGL	R N N N	10.000 10.000 10.000 10.000
Nothod.		200			101000
Analysis	Number:	GSQ004	Lab	Number:	MK-NWB#3
Test <u>Name</u>	Corrected	Value	<u>Units</u>	<u>FC QC Q</u>	QC Spike
12DCD4 CD2CL2 ETBD10 111TCE 112TCE 11DCLE 12DCE 12DCLE 13DMB BCHPD C6H6	LT LT LT LT LT LT LT LT	11. 13. 9.1 2.4 1.6 1.4 3.2 0.72 2.9 1.8 2.7	UGL UGL UGL UGL UGL UGL UGL UGL UGL UGL	N N T T T T T T T	10.000 10.000 10.000

MK-Environmental Services F-36

Sample D. Depth(ft	$\frac{ate:}{02}$	20/90 0 <u>Sam</u>	pling ^r	ſecl	nni	que	: P
Analysis	Number:	GSQ004	Lab	Nur	nbe	<u>r</u> :	MK-NWB#3
Test			• •				
Name	Correcte	d Value	Units	<u>FC</u>	<u>QC</u>	QC	Spike
CCL4 CH2CL2	LT	4.9 16.	UGL UGL	R	T T		
CHCL3	LT	1.7	UGL		T		
CLC6H5	LT	1.8	UGL		Т		
DBCP	LT	5.6	UGL		т		
DCPD	LT	3.7	UGL		T		
DMDS	LT	3.7	UGL		Т		
ETC6H5	LT	2.4	UGL		Т		
мес6н5	LT	3.5	UGL		Т		
MIBK	LT	1.2	UGL		т		
TCLEE	LT	2.9	UGL		Т		
TRCLE	LT	2.0	UGL		T		
XYLEN	LT	2.4	UGL		т		
<u>Method:</u> Analysis	QQ8 Number:	QAI006	Lab	Nun	nber	:	MK-NWB#2
Test Name	Correcte	d Value	Units	FC	<u>QC</u>	QC	Spike
DIMP DMMP	LT LT	10.1 16.3	UGL UGL				
<u>Method</u> : Analysis	Q8 Number:	QKP006	Lab	Num	lber		MK-NWB#2
Test							
Name	Correcte	d Value	Units	FC	<u>QC</u>	QC	Spike
DBCP	LT	0.130	UGL				

Final Data Report for MKE Sampling Programs

Site Identification: WELL 27072

Sample Da Depth(ft) Method: Analysis	ate: 0:): MM8A Number	2/20/90 0.0 <u>Sam</u> : QLG006	pling <u>t</u> Lab	<u>rech</u> Nuf	nic	<u>que</u> :	: P MK-NWB#2
Test Name	Correct	ted Value	Units	FC	QC	<u>QC</u>	Spike
ALDRN CL6CP CLDAN DLDRN ENDRN ISODR PPDDE PPDDT	LT LT LT LT LT LT LT	$\begin{array}{c} 0.0830 \\ 0.0830 \\ 0.152 \\ 0.107 \\ 0.0600 \\ 0.0560 \\ 0.0460 \\ 0.0590 \end{array}$	UGL UGL UGL UGL UGL UGL UGL	С			

MK-Environmental Services F-38

Final Data Report for MKE Sampling Programs

Sample Date: 02/21/90 Depth(ft): 0.0 Sampling Technique: P							
Method:	, UII8						
Analysis	Number:	GSQ007	Lab	Nur	nbei	<u>:</u> :	MK-NWB#7
Test							
Name	Correcte	d Value	Units	FC	QC	QC	Spike
111TCE	LT	2.4	UGL				
112TCE	LT	1.6	UGL				
11DCLE	LT	1.4	UGL				
12DCE	LT	3.2	UGL				
12DCLE	LT	0.72	UGL				
13DMB	LT	2.9	UGL				
BCHPD	LT	1.8	UGL				
С6Н6	LT	2.7	UGL				
CCL4	LT	4.9	UGL				
CH2CL2		12.	UGL	R			
CHCL3	LT	1.7	UGL				
CLC6H5	LT	1.8	UGL				
DBCP	LT	5.6	UGL				
DCPD	LT	3.7	UGL				
DMDS	LT	3.7	UGL				
ETC6H5	LT	2.4	UGL				
MEC6H5	LT	3.5	UGL				
MIBK	LT	1.2	UGL				
TCLEE	LT	2.9	UGL				
TRCLE	LT	2.0	UGL				
XYLEN	LT	2.4	UGL				
12DCD4		11.	UGL		Ν	1	10.000
CD2CL2		10.	UGL		Ν	1	.0.000
ETBD10		9.6	UGL		Ν	1	.0.000
Method:	008						
Analysis	Number:	QAI010	Lab	Nun	nber	:	MK-NWB#7
						-	
Test							
Name	Corrected	d Value	Units	FC	QC	QC	Spike
DIMP	LT	10.1	UGL				
DWWR	ЪТ	TD.7	ՍԵԼ				

Final Data Report for MKE Sampling Programs

Site Identification: WELL 27085 Sample Date: 02/21/90 Depth(ft): 0.0 Sampling Technique: P Method: Q8 Analysis Number: QKP010 Lab Number: MK-NWB#7 Test Name Corrected Value Units FC QC QC Spike DBCP LT 0.130 UGL Method: MM8A Analysis Number: QLG010 Lab Number: MK-NWB#7 Test Name Corrected Value Units FC QC QC Spike ALDRN LT0.0830 UGL CL6CP LT0.0830 UGL CLDAN LT0.152 UGL DLDRN 0.0923 UGL С ENDRN LT0.0600 UGL ISODR LT0.0560 UGL PPDDE LT0.0460 UGL 0.0770 PPDDT UGL С

MK-Environmental Services

F-40

Sample D	ate: 02/	21/90					
Depth(ft	$\overline{):}$ 0.	0 Sam	pling '	<u> Teci</u>	nnic	que	: P
Method:	UU8				_		
Analysis	Number:	GSQ008	Lab	Nur	nbei	<u>:</u> :	MK-NWB#8
m e e e							
Name	Correcto	d Value	IInite	FC	00	00	Spike
Wante	COLLECCE	u varue		<u>rc</u>	<u>v</u> c	<u>v</u> c	SPIKE
111TCE	LT	2.4	UGL				
112TCE	LT	1.6	UGL				
11DCLE	LT	1.4	UGL				
12DCE	LT	3.2	UGL				
12DCLE	LT	0.72	UGL				
13DMB	LT	2.9	UGL				
BCHPD	LT	1.8	UGL				
С6Н6	LT	2.7	UGL				
CCL4	LT	4.9	UGL				
CH2CL2	ND	5.0	UGL	R			
CHCL3	LT	1.7	UGL				
CLC6H5	LT	1.8	UGL				
DBCP	LT	5.6	UGL				
DCPD	LT	3.7	UGL				
DMDS	LT	3.7	UGL				
ETC6H5	LT	2.4	UGL				
MEC6H5	LT	3.5	UGL				
MIBK	LT	1.2	UGL				
TCLEE	LT	2.9	UGL				
TRCLE	LT	2.0	UGL				
XYLEN	LT	2.4	UGL				
12DCD4		10.	UGL		N	1	.0.000
CD2CL2		11.	UGL		N]	.0.000
ETBD10		9.2	UGL		Ν	1	.0.000
Method:	008						
Analysis	Number:	OAI011	Lab	Num	ber	:	MK-NWB#8
		×				-	
Test							
Name	Corrected	d Value	Units	FC	<u>QC</u>	QC	Spike
AMTO	ידיי	10 1	UCI				
DMMP	LT	16.3	UGL				

Final Data Report for MKE Sampling Programs

Site Identification: WELL 27086 02/21/90 Sample Date: 0.0 Depth(ft): Sampling Technique: P Method: Q8 Analysis Number: QKP011 Lab Number: MK-NWB#8 Test Corrected Value Units FC QC QC Spike Name DBCP LT 0.130 UGL Method: MM8A Analysis Number: QLG011 Lab Number: MK-NWB#8 Test Name Corrected Value Units FC QC QC Spike ALDRN LT0.0830 UGL CL6CP LT0.0830 UGL CLDAN LT0.152 UGL DLDRN LT0.0539 UGL LT0.0600 ENDRN UGL ISODR LT0.0560 UGL PPDDE LT0.0460 UGL 0.0590

UGL

MK-Environmental Services F-42

PPDDT

LT

Final Data Report for MKE Sampling Programs

Site Identification: WELL 27501

Sample Date: 02/26/90 Depth(ft): 0.0 Sampling Technique: P Method: UU8							
Analysis	Number:	GSS015	Lab	Nur	nbei	<u>:</u> :	K-NWB#31
Test Name	Correcte	d Value	Units	FC	QC	QC	Spike
111TCE 112TCE 11DCLE 12DCLE 12DCLE 13DMB BCHPD C6H6 CCL4 CH2CL2 CHCL3 CLC6H5 DBCP DCPD DMDS ETC6H5 MEC6H5 MIBK TCLEE TRCLE XYLEN 12DCD4	LT LT LT LT LT LT LT LT LT LT LT LT LT L	$\begin{array}{c} 2.4\\ 1.6\\ 1.4\\ 3.2\\ 0.72\\ 2.9\\ 1.8\\ 2.7\\ 4.9\\ 5.0\\ 1.7\\ 1.8\\ 5.6\\ 3.7\\ 2.4\\ 3.5\\ 1.2\\ 2.9\\ 2.0\\ 2.4\\ 9.0\end{array}$	UGL UGL UGL UGL UGL UGL UGL UGL UGL UGL	R	Ν	1	0.000
ETBD10		8.5	UGL UGL		N	1	0.000
Method: Analysis	QQ8 Number:	QAK012	Lab	Nun	ibe r	:	K-NWB#31
Test Name	Corrected	d Value	<u>Units</u>	FC	<u>QC</u>	QC	Spike
DIMP DMMP	LT LT	10.1	UGL UGL				

MK-Environmental Services F-43

Final Data Report for MKE Sampling Programs

Site Identification: WELL 27501

Sample Date: 02/26/90 Depth(ft): 0.0 Sampling Technique: P Method: 08							
Analysis	Number:	QKQ019	Lab	Number:	K-NWB#31		
Test Name	Correct	ed Value	<u>Units</u>	<u>FC QC QC</u>	Spike		
DBCP	LT	0.130	UGL				
Method: Analysis	MM8A Number:	QLJ012	Lab	Number:	K-NWB#31		
Test <u>Name</u>	Correct	ed Value	<u>Units</u>	FC QC QC	Spike		
ALDRN	LT	0.0830	UGL				
CL6CP	LT	0.0830	UGL				
CLDAN	LT	0.152	UGL				
DLDRN	LT	0.0539	UGL				
ENDRN	LT	0.0600	UGL				
ISODR	LT	0.0560	UGL				
PPDDE	LT	0.0460	UGL				
PPDDT	LT	0.0590	UGL				

Final Data Report for MKE Sampling Programs

Site Identification: WELL 27502

Sample D	<u>ate:</u> 02/	23/90					
Depth(ft): 0.	0 <u>Sam</u>	pling '	<u> </u>	nnic	lne	: P
<u>Method</u> :	UU8						
Analysis	Number:	GSS003	Lab	Nu	nber	<u>:</u> :	K-NWB#16
Tect							
Name	Correcte	d Value	Unite	FC	oc	or	Snike
Mame	COLLECCE	<u>u varue</u>	011105	<u>rc</u>	<u>vc</u>	<u>v</u> c	opike
111TCE	LT	2.4	UGL				
112TCE	\mathtt{LT}	1.6	UGL				
11DCLE	LT	1.4	UGL				
12DCE	LT	3.2	UGL				
12DCLE	LT	0.72	UGL				
13DMB	LT	2.9	UGL				
BCHPD	LT	1.8	UGL				
Сбнб	LT	2.7	UGL				
CCL4	LT	4.9	UGL				
CH2CL2	ND	5.0	UGL	R			
CHCL3	LT	1.7	UGL				
CLC6H5	LT	1.8	UGL				
DBCP	ĹT	5.6	UGL				
DCPD	LT	3.7	UGL				
DMDS	LT	3.7	UGL				
ETC6H5	LT	2.4	UGL				
МЕС6Н5	LT	3.5	UGL				
MIBK	LT	1.2	UGL				
TCLEE	LT	2.9	UGL				
TRCLE	LT	2.0	UGL				
XYLEN	LT	2.4	UGL				
12DCD4		8.3	UGL		N	1	0.000
CD2CL2		9.3	UGL		N	1	.0.000
ETBD10		7.9	UGL		N	1	.0.00
Method:	008						
Analysis	Number:	0AJ005	Lab	Num	ber	:	K-NWB#16
						•	
Test							
Name	Corrected	d Value	Units	FC	<u>QC</u>	QC	Spike
DIMP	LT	10.1	UGL				
DMMP	LT	16.3	UGL				

MK-Environmental Services

F-45

Final Data Report for MKE Sampling Programs

Site Iden	tification: WELL	27502	
Sample Da Depth(ft	ate: 02/23/90): 0.0 <u>Sam</u>	pling Tech	nique: P
Analysis	Number: QAJ006	Lab Num	nber: K-NWB#17
Test <u>Name</u>	Corrected Value	<u>Units</u> FC	QC QC Spike
DIMP DMMP	88.2 99.7	UGL UGL	N 84.100 N 101.000
<u>Method</u> : Analysis	Q8 Number: QKQ005	Lab Num	<u>aber:</u> K-NWB#16
Test <u>Name</u>	Corrected Value	Units FC	QC QC Spike
DBCP	LT 0.130	UGL	
Method: Analysis	Q8 Number: QKQ006	Lab Num	nber: K-NWB#17
Test Name	Corrected Value	Units FC	<u>QC</u> <u>QC</u> Spike
DBCP	1.05	UGL	N 1.080
Method: Analysis	MM8A Number: QLI005	Lab Num	nber: K-NWB#16
Test <u>Name</u>	Corrected Value	Units FC	QC QC Spike
ALDRN CL6CP CLDAN DLDRN ENDRN I SODR PPDDE	LT 0.0830 LT 0.0830 LT 0.152 LT 0.0539 LT 0.0600 LT 0.0560 LT 0.0460	UGL UGL UGL UGL UGL UGL UGL	
PPDDT	LT 0.0590	UGL	

MK-Environmental Services F-46

Final Data Report for MKE Sampling Programs

Sample Da Depth(ft) Method: Analysis	ate: 02/23/90): 0.0 <u>Sam</u> MM8A <u>Number</u> : QLI006	pling Te Lab N	<u>chnique</u> : umber:	: P K-NWB#17
Test Name	Corrected Value	<u>Units</u> F	c <u>QC</u> QC	Spike
ALDRN	0.578	UGL	N	0.563
CL6CP	0.227	UGL	N	0.563
CLDAN	1.80	UGL	N	1.550
DLDRN	0.635	UGL	N	0.563
ENDRN	0.622	UGL	N	0.563
ISODR	0.490	UGL	N	0.563
PPDDE	0.518	UGL	N	0.563
PPDDT	0.569	UGL	N	

Final Data Report for MKE Sampling Programs

Site Identification: WELL 27503

Sample Date: 02/23/90 Depth(ft): 0.0 Sampling Technique: P							
Method: Analysis	UU8 Number:	GSS004	Lab	Nu	mber	:	K-NWB#18
Test Name	Corrected	l Value	<u>Units</u>	FC	QC	QC	Spike
111TCE 112TCE 11DCLE 12DCLE 12DCLE 13DMB BCHPD C6H6 CCL4 CH2CL2 CHCL3 CLC6H5 DBCP DCPD DMDS ETC6H5 MEC6H5 MEC6H5 MEC6H5 MEC6H5 MIBK TCLEE TRCLE XYLEN 12DCD4 CD2CL2 ETBD10	LT LT LT LT LT LT LT LT LT LT LT LT LT L	$\begin{array}{c} 2.4 \\ 1.6 \\ 1.4 \\ 3.2 \\ 0.72 \\ 2.9 \\ 1.8 \\ 2.7 \\ 4.9 \\ 5.0 \\ 1.7 \\ 1.8 \\ 5.6 \\ 3.7 \\ 2.4 \\ 3.5 \\ 1.2 \\ 2.9 \\ 2.0 \\ 2.4 \\ 9.7 \\ 10. \\ 8.7 \end{array}$	UGL UGL UGL UGL UGL UGL UGL UGL UGL UGL	R	N N N		10.000 10.000 10.000 10.000
Method: Analysis	UU8 Number:	GSS005	Lab	Nui	mber	:	K-NWB#19
Test Name	Corrected	<u>Value</u>	Units	FC	QC	QC	Spike
12DCD4 CD2CL2 ETBD10 111TCE 112TCE 11DCLE 12DCE 12DCLE 13DMB BCHPD C6H6	LT LT LT LT LT LT LT	$ \begin{array}{c} 10.\\ 10.\\ 8.5\\ 2.4\\ 1.6\\ 1.4\\ 3.2\\ 0.72\\ 2.9\\ 1.8\\ 2.7\\ \end{array} $	UGL UGL UGL UGL UGL UGL UGL UGL UGL UGL		N N R R R R R R R R R R R	1	L0.000 L0.000 L0.000

MK-Environmental Services F-48

Final Data Report for MKE Sampling Programs

Sample Date: 02/23/90 Depth(ft): 0.0 Sampling Technique: Ρ Method: UU8 Analysis Number: GSS005 K-NWB#19 Lab Number: Test Units FC QC QC Spike Name Corrected Value 4.9 CCL4 \mathbf{LT} UGL R 5.0 CH2CL2 ND UGL R R 2.2 CHCL3 UGL R CLC6H5 LT1.8 UGL R DBCP \mathbf{LT} 5.6 UGL R DCPD LT3.7 UGL R LT3.7 UGL R DMDS 2.4 ETC6H5 LTUGL R 3.5 MEC6H5 LTUGL R MIBK LT1.2 UGL R 2.9 TCLEE LTUGL R TRCLE LT2.0 UGL R XYLEN LT2.4 UGL R Method: **UU8** Analysis Number: GSS008 Lab Number: K-NWB#22Test Name Corrected Value Units FC QC QC Spike 111TCE LT2.4 UGL D 112TCE 1.6 LTUGL D 11DCLE LT1.4 UGL D 12DCE LT3.2 UGL D 0.72 12DCLE LTUGL D 2.9 13DMB LTUGL D BCHPD 1.8 UGL LTD C6H6 LT2.7 UGL D 4.9 CCL4 LTUGL D 5.0 CH2CL2 ND UGL R 1.9 CHCL3 UGL D CLC6H5 LT1.8 UGL D LT5.6 UGL DBCP D DCPD LT3.7 UGL D DMDS \mathbf{LT} 3.7 UGL D LT2.4 ETC6H5 UGL D MEC6H5 LT3.5 UGL D LT 1.2 MIBK UGL D 2.9 TCLEE LTUGL D 2.0 TRCLE LTUGL D 2.4 XYLEN LTUGL D 12DCD4 9.6 UGL D Ν 10.000

Site Identification: WELL 27503

F-49
Final Data Report for MKE Sampling Programs

Site Identification: WELL 27503 02/23/90 Sample Date: Depth(ft): 0.0 Sampling Technique: P Method: UU8 Analysis Number: GSS008 Lab Number: K-NWB#22 Test Name Corrected Value Units FC QC QC Spike CD2CL2 10. UGL D Ν 10.000 ETBD10 9.3 10.000 UGL D Ν Method: 800 Analysis Number: QAJ011 Lab Number: K-NWB#22 Test Name Corrected Value Units FC QC QC Spike DIMP LT10.1 UGL D DMMP LT16.3 UGL D Method: 800 Analysis Number: QAJ007 Lab Number: K-NWB#18 Test Name Corrected Value Units FC QC QC Spike 10.1 DIMP LTUGL 16.3 DMMP LTUGL Method: 008 Analysis Number: QAJ008 Lab Number: K-NWB#19Test Corrected Value Units FC QC QC Spike Name DIMP LT10.1 UGL R DMMP \mathbf{LT} 16.3 UGL R Method: 08 Analysis Number: QKQ011 Lab Number: K-NWB#22 Test Corrected Value Name Units FC QC QC Spike 0.130 DBCP LT UGL D

MK-Environmental Services

F-50

Final Data Report for MKE Sampling Programs

Sample Da Depth(ft	<u>ate</u> : 0	2/23/90 0.0 <u>Sam</u>	pling	Tec	hnid	que	: P
Method: Analysis	Q8 Number	: QKQ007	Lab	Nu	mbe	<u>r</u> :	K-NWB#18
Test Name	Correc	ted Value	<u>Units</u>	FC	QC	QC	Spike
DBCP	LT	0.130	UGL				
<u>Method:</u> Analysis	Q8 Number	: QKQ008	Lab	Nu	mbe	<u>r</u> :	K-NWB#19
Test Name	Correc	ted Value	<u>Units</u>	FC	<u>QC</u>	QC	Spike
DBCP	LT	0.130	UGL		R		
Method: Analysis	MM8A Number	: QLI011	Lab	Nur	nber	:	K-NWB#22
Test <u>Name</u>	Correct	ted Value	<u>Units</u>	FC	QC	QC	Spike
ALDRN	LT	0.0830	UGL	D			
CL6CP	LT	0.0830	UGL	D			
CLDAN	LT	0.152	UGL	D			
DLDRN	LT	0.0539	UGL	D			
ENDRN	LT	0.0600	UGL	D			
ISODR	LT	0.0560	UGL	D			
PPDDE	LT	0.0460	UGL	Ð			
PPDDT	LT	0.0590	UGL	D			
Method:	MM8A						
Analysis	Number	QLI007	Lab	Nun	nber	:	K-NWB#18
Test							
Name	Correct	ed Value	<u>Units</u>	FC	<u>QC</u>	QC	Spike
ALDRN	LT	0.0830	UGL				
CL6CP	LT	0.0830	UGL				
CLDAN	LT	0.152	UGL				
DLDRN	LT	0.0539	UGL				
ENDRN	LT	0.0600	UGL				
ISODR	LT	0.0560	UGL				
PPDDE	LT	0.0460	UGL				
PPDDT	LT	0.0590	UGL				

Final Data Report for MKE Sampling Programs

Sample Da Depth(ft Method: Analysis	ate: 0.): MM8A Number	2/23/90 0.0 <u>Sam</u> : QLI008	pling T Lab	<u>Pechnique</u> Number:	: _Р К-NWB#19
Test Name	Correc	ted Value	<u>Units</u>	FC QC QC	Spike
ALDRN	LT	0.0830	UGL	R	
CL6CP	LT	0.0830	UGL	R	
CLDAN	LT	0.152	UGL	R	
DLDRN	LT	0.0539	UGL	R	
ENDRN	LT	0.0600	UGL	R	
ISODR	LT	0.0560	UGL	R	
PPDDE	LT	0.0460	UGL	R	
PPDDT	LT	0.0590	UGL	R	

Final Data Report for MKE Sampling Programs

Site Iden	tification	: WELL	27504				
Sample Da Depth(ft Method:	ate: 02/2): 0.0 UU8	3/90 <u>Sam</u>	pling 7	ſec	hniq	ue: P	
Analysis	Number:	GSS006	Lab	Nu	mber	: K-N	WB#20
Test Name	Corrected	Value	<u>Units</u>	FC	QC	QC Spi	<u>ke</u>
111TCE 112TCE 11DCLE 12DCE 12DCLE 13DMB BCHPD C6H6 CCL4 CH2CL2 CHCL3 CLC6H5 DBCP DCPD DMDS ETC6H5 MEC6H5	LT LT LT LT LT LT LT LT LT LT	2.4 1.6 1.4 3.2 0.72 2.9 1.8 2.7 4.9 5.0 1.7 1.8 5.6 3.7 3.7 2.4 3.5	UGL UGL UGL UGL UGL UGL UGL UGL UGL UGL	R			
MIBK TCLEE TRCLE XYLEN 12DCD4 CD2CL2 ETBD10	LT LT LT LT	1.2 2.9 2.0 2.4 10. 11. 9.0	UGL UGL UGL UGL UGL UGL UGL		N N N	10.0 10.0 10.0	0 0 0 0 0 0
Method: Analysis	UU8 Number:	GSS009	Lab	Nur	<u>aber</u> :	K-N	WB#23
Test Name	Corrected	Value	<u>Units</u>	FC		QC Spil	ke
12DCD4 CD2CL2 ETBD10 111TCE 112TCE 11DCLE 12DCLE 12DCLE 13DMB BCHPD C6H6	LT LT LT LT LT LT LT LT	11. 12. 10. 2.4 1.6 1.4 3.2 0.72 2.9 1.8 2.7	UGL UGL UGL UGL UGL UGL UGL UGL UGL UGL		NNTTTTTT	10.00	000000000000000000000000000000000000000

Final Data Report for MKE Sampling Programs

Site Identification: WELL 27504

Sample Da Depth(ft Method:	$\frac{\text{ate:}}{02}$	23/90 0 <u>Sam</u>	pling 1	Fec	hni	que	: P
Analysis	Number:	GSS009	Lab	Nu	mbe	<u>r</u> :	K-NWB#23
Test							
Name	Correcte	d Value	Units	<u>FC</u>	<u>QC</u>	QC	Spike
CCL4 CH2CL2 CHCL3 CLC6H5	LT ND LT LT	4.9 5.0 1.7 1.8	UGL UGL UGL UGL	R	T T T		
DBCP DCPD DMDS ETC6H5		3.7 3.7 2.4	UGL UGL UGL		T T T T		
MEC6H5 MIBK TCLEE	LT LT LT	3.5 1.2 2.9	UGL UGL UGL		T T T		
TRCLE XYLEN	LT LT	2.0	UGL UGL		T T		
Method: Analysis	QQ8 Number:	QAJ009	Lab	Nu	nbe	<u>r</u> :	K-NWB#20
Test <u>Name</u>	Correcte	d Value	Units	FC	QC	QC	Spike
DIMP DMMP	LT LT	10.1 16.3	UGL UGL				
<u>Method</u> : Analysis	Q8 Number:	QKQ009	Lab	Nui	nbe	<u>r</u> :	K-NWB#20
Test Name	Correcte	d Value	Units	FC	<u>QC</u>	QC	Spike
DBCP	LT	0.130	UGL				

Final Data Report for MKE Sampling Programs

Sample Da Depth(ft) Method: Analysis	Ate: 02 MM8A Number	2/23/90).0 <u>Sam</u> j : QLI009	oling 1 Lab	Technique Number:	: P K-NWB#20
Test	G		TT = 1 + =	50 00 00	C adha
Name	Correct	ted value	Units	<u>FC QC QC</u>	Spike
ALDRN	LT	0.0830	UGL		
CL6CP	LT	0.0830	UGL		
CLDAN	LT	0.152	UGL		
DLDRN	LT	0.0539	UGL		
ENDRN	LT	0.0600	UGL		
ISODR	LT	0.0560	UGL		
PPDDE	LT	0.0460	UGL		
PPDDT	LT	0.0590	UGL		

Final Data Report for MKE Sampling Programs

Site Identification: WELL 27505

Sample Da Depth(ft)	ate: 02/2): 0.0	23/90) <u>Sam</u>	pling 1	recl	nnic	lne	: P
Method:	UU8						
Analysis	Number:	GSS007	Lab	Nur	nbei	<u>:</u> :	K-NWB#21
m							
Test	0	3 **= 1	*****		~~	~~	Caile
Name	Corrected	<u>i value</u>	Units	FC	<u>QC</u>	QC	Spike
111TCE	LT	2.4	UGL				
112TCE	LT	1.6	UGL				
11DCLE	LT	1.4	UGL				
12DCE	LT	3.2	UGL				
12DCLE	LT	0.72	UGL				
13DMB	LT	2.9	UGL				
BCHPD	L.T	1.8	UGL				
Сбиб	L.T	2.7	UGL				
CCT.4	т.т т.т	4.9	UGL				
CH2CL2	ND	5.0	UGL	R			
CHCL3	ι. Τ	1.7	UGL				
CLC6H5	ст Т.Т	1.8	UGL				
DRCP	L.T	5 6	UGL				
	1.T	3.0	UGL				
DCID		3 7					
ETC6H5	L.T	2 4					
месби5		3 5	UGL				
MECONJ		1 2	UGL				
TIDE		2 9					
TRCLEE		2.0	UGL				
VVIEN	ι.m	2.0	UGL				
	T 1	10	UGL		N		10 000
		11			N		10.000
		···· 0 7	UGL		LN NT		10.000
ETBDIU		0./	065		11		10.000
Method:	008						
Analysis	Number:	0AJ010	Lab	Nu	mbe	r:	K-NWB#21
Test							
Name	Corrected	d Value	Units	FC	QC	QC	Spike
	- <u> </u>						
DIMP	LT	10.1	UGL				
DMMP	LT	16.3	UGL				

MK-Environmental Services F-56

Final Data Report for MKE Sampling Programs

Site Identification: WELL 27505

Sample Da	<u>ate</u> : 02	/23/90	-14	Deebedouse	• P
Deptn(It): 0	.0 <u>Sam</u>	pling	rechnique	: P
Analysis	Number:	QKQ010	Lab	Number:	K-NWB#21
Test Name	Correct	ed Value	Unite		Snike
<u>tvame</u>	COLLECC	eu varue			DDIKE
DBCP	LT	0.130	UGL		
<u>Method:</u> Analysis	MM8A Number:	QLI010	Lab	Number:	K-NWB#21
Test					
Name	<u>Correct</u>	ed Value	<u>Units</u>	FC QC QC	Spike
ALDRN	LT	0.0830	UGL		
CL6CP	LT	0.0830	UGL		
CLDAN	LT	0.152	UGL		
DLDRN		0.106	UGL	С	
ENDRN	LT	0.0600	UGL		
ISODR	LT	0.0560	UGL		
PPDDE	LT	0.0460	UGL		
PPDDT	LT	0.0590	UGL		

Final Data Report for MKE Sampling Programs

Site Iden	tification	: WELL	27506				
Sample Da Depth(ft Method:	ate: 02/20): 0.0 UU8	5/90 <u>Sam</u> r	oling T	lect	nniç	lue	: P
Analysis	Number:	GSU005	Lab	Nur	nber	:	K-NWB#32
Test Name	Corrected	Value	<u>Units</u>	FC	QC	QC	Spike
111TCE $112TCE$ $12DCLE$ $12DCLE$ $12DCLE$ $13DMB$ $BCHPD$ $C6H6$ $CCL4$ $CH2CL2$ $CHCL3$ $CLC6H5$ $DBCP$ $DCPD$ $DMDS$ $ETC6H5$ $MIBK$ $TCLEE$ $TRCLE$ $XYLEN$ $12DCD4$ $CD2CL2$ $ETBD10$	LT LT LT LT LT LT LT LT LT LT LT LT LT L	$\begin{array}{c} 2.4\\ 1.6\\ 1.4\\ 3.2\\ 2.9\\ 1.8\\ 2.7\\ 4.9\\ 5.0\\ 1.7\\ 1.8\\ 5.6\\ 3.7\\ 2.4\\ 3.5\\ 1.2\\ 2.9\\ 2.0\\ 4.9\\ 2.0\\ 2.4\\ 9.9\\ 12.2\\ 9.2\end{array}$	UGL UGL UGL UGL UGL UGL UGL UGL UGL UGL	R	N N N		L0.000 L0.000 L0.000
						-	
Method: Analysis	Number: (GSU008	Lab	Nur	nber	:	K-NWB#35
Test Name	Corrected	Value	Units	FC	<u>QC</u>	QC	Spike
12DCD4 CD2CL2 ETBD10 111TCE 112TCE 11DCLE 12DCE 12DCLE 13DMB BCHPD C6H6	LT LT LT LT LT LT LT LT	9.5 11. 8.9 2.4 1.6 1.4 3.2 0.72 2.9 1.8 2.7	UGL UGL UGL UGL UGL UGL UGL UGL UGL		N N T T T T T T T	1	L0.000 L0.000 L0.000

MK-Environmental Services F-58

Final Data Report for MKE Sampling Programs

Site Identification: WELL 27506 02/26/90 Sample Date: Depth(ft): 0.0 Sampling Technique: Ρ Method: UU8 GSU008 Analysis Number: Lab Number: K-NWB#35Test Name Corrected Value Units FC QC QC Spike 4.9 CCL4 UGL т LT5.0 CH2CL2 ND UGL R т CHCL3 LT1.7 UGL т CLC6H5 1.8 Т LTUGL 5.6 Т DBCP LT UGL DCPD LT3.7 UGL т т DMDS LT3.7 UGL т ETC6H5 LT2.4 UGL 3.5 MEC6H5 LTUGL T MIBK LT1.2 UGL Т LT2.9 UGL Т TCLEE 2.0 UGL Т TRCLE LTXYLEN LT 2.4 UGL T Method: QQ8 Analysis Number: QAK013 Lab Number: K-NWB#32 Test Units FC QC QC Spike Corrected Value Name DIMP LT 10.1 UGL. DMMP LT16.3 UGL Method: 08 Analysis Number: QKQ020 Lab Number: K-NWB#32Test Corrected Value Units FC QC QC Spike Name LT0.130 UGL DBCP

F-59

Final Data Report for MKE Sampling Programs

Site Identification: WELL 27506

Sample Da Depth(ft Method: Analysis	ate: 0): MM8A Number	2/26/90 0.0 <u>Sam</u> : QLJ013	pling ' Lab	Tech Nui	nnio	que r:	: P K-NWB#32
Test							
Name	Correc	ted Value	<u>Units</u>	FC	<u>QC</u>	QC	Spike
ALDRN CL6CP	LT LT	0.0830 0.0830	UGL UGL				
CLDAN DLDRN	LT	0.152 0.0959	UGL UGL	с			
ENDRN	LT	0.0600	UGL				
ISODR	LT	0.0560	UGL				
PPDDE	LT	0.0460	UGL				
PPDDT	LT	0.0590	UGL				

Final Data Report for MKE Sampling Programs

Site Iden	tification	n: WELL	37330					
Sample D Depth(ft	ate: 02/2): 0.0	28/90) <u>Sam</u>	pling '	Tec	hniq	ue	: P	
Analysis	Number:	GSV003	Lab	Nu	mber	:	K-NWB#4()
Test Name	Corrected	d Value	Units	FC	QC	QC	Spike	
111TCE 112TCE 11DCLE 12DCLE 12DCLE 13DMB BCHPD C6H6 CCL4 CH2CL2 CHCL3 CLC6H5 DBCP DCPD DMDS ETC6H5 MEC6H5 MIBK TCLEE TRCLEE TRCLEE XYLEN 12DCD4 CD2CL2	LT LT LT LT LT LT LT LT LT LT LT LT LT L	$\begin{array}{c} 2.4\\ 1.6\\ 1.4\\ 3.2\\ 0.72\\ 2.9\\ 1.8\\ 2.7\\ 4.9\\ 5.0\\ 11.\\ 1.8\\ 5.6\\ 3.7\\ 3.7\\ 2.4\\ 3.5\\ 1.2\\ 2.9\\ 2.0\\ 2.4\\ 9.0\\ 11. \end{array}$	UGL UGL UGL UGL UGL UGL UGL UGL UGL UGL	R	NNN	1111	0.000	
ETBD10		8.7	UGL		N	1	.0.00	
Method: Analysis	UU8 Number:	GSV006	Lab	Nun	<u>iber</u>	:	K-NWB#43	ł
Test Name	Corrected	Value	<u>Units</u>	FC	<u>QC</u>	<u>2C</u>	Spike	
12DCD4 CD2CL2 ETBD10 111TCE 112TCE 11DCLE 12DCE 12DCLE 13DMB BCHPD C6H6	LT LT LT LT LT LT LT LT	11. 11. 10. 2.4 1.6 1.4 3.2 0.72 2.9 1.8 2.7	UGL UGL UGL UGL UGL UGL UGL UGL UGL		NNTTTTTT	1 1 1	0.000 0.000 0.000	

Final Data Report for MKE Sampling Programs

Site Identification: WELL 37330

Sample D	ate: 02/	/28/90					
Depth(ft	$\overline{)}$: 0.	.0 Sam	pling !	reci	hni	que	: P
Method:	UU8		*			*	
Analysis	Number:	GSV006	Lab	Nu	mbe	<u>r</u> :	K-NWB#43
						-	
Test	6				~ ~	~ ~	
Name	Correcte	ed Value	Units	FC	<u>QC</u>	<u>QC</u>	Spike
CCL4	LT	4.9	UGL		т		
CH2CL2	ND	5.0	UGL	R	Т		
CHCL3	LT	1.7	UGL		т		
CLC6H5	LT	1.8	UGL		т		
DBCP	LT	5.6	UGL		т		
DCPD	LT	3.7	UGL		т		
DMDS	LT	3.7	UGL		Т		
ETC6H5	LT	2.4	UGL		т		
MEC6H5	LT	3.5	UGL		т		
MIBK	LT	1.2	UGL		т		
TCLEE	LT	2.9	UGL		т		
TRCLE	LT	2.0	UGL		т		
XYLEN	LT	2.4	UGL		т		
Method:	QQ8						
Analysis	Number:	QAL007	Lab	Nur	nbei	::	K-NWB#40
						-	
Test							
Name	Correcte	d Value	Units	<u>FC</u>	<u>QC</u>	<u>QC</u>	Spike
DIMP	T.T	10.1	UGI.				
DMMP	LT	16.3	UGL				
Method:	Q8						
Analysis	Number:	QKR007	Lab	Nur	nbeı	::	K-NWB#40
	<u> </u>					-	
Test							
Name	Correcte	d Value	Units	FC	<u>QC</u>	QC	Spike
DRCD	τm	0 1 2 0	UCI				
DBCF	L, L	0.130	190				

Final Data Report for MKE Sampling Programs

Site Ident	ificati	ion: WELL	37330		
Sample Da Depth(ft) Method: Analysis	te: 02 : 02 MM8A Number:	2/28/90).0 <u>Sam</u> j : QLK007	pling 1 Lab	Technique Number:	: P K-NWB#40
Test Name	Correct	ed Value	Units	FC QC QC	Spike
ALDRN	LT	0.0830	UGL		
CL6CP	LT	0.0830	UGL		
CLDAN	LT	0.152	UGL		
DLDRN	LT	0.0539	UGL		
ENDRN	LT	0.0600	UGL		
ISODR	LT	0.0560	UGL		
PPDDE	LT	0.0460	UGL		
PPDDT	T.T	0.0590	UGL		

Final Data Report for MKE Sampling Programs

Site Identification: WELL 37331

Sample Da	ate: 02/	28/90					
Depth(ft): 0.	0 Sam	pling '	rech	nniq	ue	: P
Method:	UU8				_		
Analysis	Number:	GSV004	Lab	Nun	nber	:	K-NWB#41
Test							
Name	Correcte	d Value	Unite	FC	00	00	Sniko
Name	correcte	u varue	Units	<u>r</u> C	<u>QC</u>	<u>vc</u>	SPIKE
111TCE	LT	2.4	UGL				
112TCE	LT	1.6	UGL				
11DCLE	LT	1.4	UGL				
12DCE	LT	3.2	UGL				
12DCLE	LT	0.72	UGL				
13DMB	LT	2.9	UGL				
BCHPD	LT	1.8	UGL				
СбНб	LT	2.7	UGL				
CCL4	LT	4.9	UGL				
CH2CL2	ND	5.0	UGL	R			
CHCL3		12.	UGL				
CLC6H5	LT	1.8	UGL				
DBCP	LT	5.6	UGL				
DCPD	LT	3.7	UGL				
DMDS	LT	3.7	UGL				
ETC6H5	LT	2.4	UGL				
МЕС6Н5	LT	3.5	UGL				
MIBK	LT	1.2	UGL				
TCLEE	LT	2.9	UGL				
TRCLE	LT	2.0	UGL				
XYLEN	LT	2.4	UGL				
12DCD4		12.	UGL		N		10.000
CD2CL2		12.	UGL		Ν	-	L0.000
ETBD10		10.	UGL		Ν		L0.000
Mathada	008						
Applucic	Vyvo Nymbor:	0.0 1 0.0 9	Tab	NT	har		
Anarysis	Number:	QALUUO	Lab	Ivuii	iber		K-NWD#41
Test							
Name	Correcte	d Value	Units	FC	QC	QC	Spike
					<u> </u>		
DIMP	LT	10.1	UGL				
DMMP	LT	16.3	UGL				

Final Data Report for MKE Sampling Programs

Sample Da	ate: 02	2/28/90			
Depth(ft): (0.0 Sam	pling [Technique	: P
Method:	Q8				
Analysis	Number	QKR008	Lab	Number:	K-NWB#41
Test					
Name	Correct	ced Value	Units	FC QC QC	Spike
DBCD	τm	0 130	UCI		
DBCF	11	0.130	0.9.1		
Method:	MM8A				
Analysis	Number:	QLK008	Lab	Number:	K-NWB#41
~., <u></u>					
Test					
Name	Correct	ed Value	<u>Units</u>	FC QC QC	Spike
	T (TT)	0 0020			
ALDRN	ьт - —	0.0830	UGL		
CL6CP	ГЛ,	0.0830	UGL		
CLDAN	LT	0.152	UGL		
DLDRN	LT	0.0539	UGL		
ENDRN	LT	0.0600	UGL		
ISODR	LT	0.0560	UGL		
PPDDE	LT	0.0460	UGL		
PPDDT	LT	0.0590	UGL		

Final Data Report for MKE Sampling Programs

Site Identification: WELL 37332

Sample Date: 02/27/90 Depth(ft): 0.0 Sampling Technique: P							
Method:	UU8						
Analysis	Number:	GSU010	Lab	Nu	mbe	<u>r</u> :	K-NWB#37
— .							
Test		***	****		~~	~~	
Name	Corrected	value	Units	FC	<u>QC</u>	QC	Spike
111765	<u>ተ.</u> ሞ	24	UGT.				
112TCE	цт Г.Т	1.6	UGL				
11DCLE	T.T	1.4	UGL				
12DCE	LT	3.2	UGL				
12DCLE	LT	0.72	UGL				
13DMB	T.T	2.9	UGI.				
BCHPD	τ.T	1.8	UGL				
Сбнб	т.т	2.7	UGL				
CCL4	T.T	4.9	UGL				
CH2CL2	ND	5.0	UGL	R			
CHCL3		13.	UGL				
CLC6H5	LT	1.8	UGL				
DBCP	LT	5.6	UGL				
DCPD	LT	3.7	UGL				
DMDS	LT	3.7	UGL				
ETC6H5	 ԼT	2.4	UGL				
MEC6H5	LT	3.5	UGL				
MIBK	LT	1.2	UGL				
TCLEE	т.т	2.9	UGL.				
TRCLE	 ር.ጥ	2.0	UGL				
XYLEN	L.T	2.4	UGL				
12DCD4		11.	UGL		N		10.000
CD2CL2		11.	UGL		N		10.000
ETBD10		8.9	UGL		N		10.000
					••	•	
Method:	UU8						
Analysis	Number:	GSU012	Lab	Nu	mbeı	::	K-NWB#39
Test							
Name	Corrected	Value	Units	FC	QC	QC	Spike
						•	
12DCD4		9.6	UGL		Ν		10.000
CD2CL2		10.	UGL		Ν		10.000
ETBD10		9.5	UGL		Ν	•	10.000
111TCE	LT	2.4	UGL		Т		
112TCE	LT	1.6	UGL		Т		
11DCLE	\mathtt{LT}	1.4	UGL		т		
12DCE	LT	3.2	UGL		Т		
12DCLE	LT	0.72	UGL		Т		
13DMB	LT	2.9	UGL		т		
BCHPD	LT	1.8	UGL		Т		
Сбнб	LT	2.7	UGL		Т		

MK-Environmental Services F-66

Sample D	Sample Date: 02/27/90						
Depth(ft): 0.	.0 <u>Sam</u>	pling :	<u>rec</u> l	nni	que	: P
Method:	008	00.0010	• • •				
Analysis	Number:	GSU012	Lab	NUI	npe	<u>r</u> :	K-NWB#39
Test							
Name	Correcte	ed Value	Units	FC	QC	QC	Spike
	II III yu						
CCL4	LT	4.9	UGL		Т		
CH2CL2	ND	5.0	UGL	R	т		
CHCL3	LT	1.7	UGL		т		
CLC6H5	LT	1.8	UGL		\mathbf{T}		
DBCP	LT	5.6	UGL		т		
DCPD	LT	3.7	UGL		т		
DMDS	LT	3.7	UGL		т		
ETC6H5	LT	2.4	UGL		т		
MEC6H5	LT	3.5	UGL		Т		
MIBK	LT	1.2	UGL		Т		
TCLEE	LT	2.9	UGL		Т		
TRCLE	LT	2.0	UGL		Т		
XYLEN	LT	2.4	UGL		т		
M = 4 h = -1 .							
Methoa:	008	017005	• - 1-		. 1	_	
Analysis	Number:	QAL005	Lab	NUN	ipei	::	K-NWB#3/
Teet							
Name	Correcte	d Value	Unite	FC	ററ	ററ	Snike
Ivance			0111 05	<u> </u>	<u>×</u> -	<u>v</u> .	<u>opike</u>
DIMP	LT	10.1	UGL				
DMMP	LT	16.3	UGL				
	<u></u>						
Method:	Vo Number	OWDOOF	Tab	NT			W NET # 27
Analysis	Numper:	QKKUUD		nun	iber	-	V-NMD#2\
Test							
Name	Correcte	d Value	Units	FC	oc	ос	Spike
				<u> </u>	<u> </u>	<u>~~</u> _	
DBCP	LT	0.130	UGL				

Final Data Report for MKE Sampling Programs

Site Identification: WELL 37332

Sample D Depth(ft	<u>ate</u> :):	02/27/90 0.0 Sam	pling Technique: P	
Method:	MM82	·		
Analysis	Numh	per: QLK005	Lab Number: K-NW	IB#37
Test				
Name	Cori	ected Value	Units FC QC QC Spik	e
ALDRN	\mathtt{LT}	0.0830	UGL	
CL6CP	\mathtt{LT}	0.0830	UGL	
CLDAN	\mathtt{LT}	0.152	UGL	
DLDRN	LT	0.0539	UGL	
ENDRN	\mathbf{LT}	0.0600	UGL	
ISODR	\mathbf{LT}	0.0560	UGL	
PPDDE	LT	0.0460	UGL	
PPDDT	LT	0.0590	UGL	

MK-Environmental Services F-68

Final Data Report for MKE Sampling Programs

Site Identificatio : WELL 37333

Sample Date: 02/28/90 Depth(ft): 0.0 Sampling Technique: P							
Analysis	Number:	GSV005	Lab	Nur	nbei	r :	K-NWB#42
<u></u>		001000	<u></u>			-	
Test							
Name	Correcte	d Value	<u>Units</u>	FC	QC	QC	Spike
111TCE	T.ጥ	24	UGL.				
112TCE	LT	1.6	UGL				
11DCLE		1.4	UGL				
12DCE	LT	3.2	UGL				
12DCLE	LT	0.72	UGL				
13DMB	LT	2.9	UGL				
BCHPD	LT	1.8	UGL				
Сбнб	LT	2.7	UGL				
CCL4	LT	4.9	UGL				
CH2CL2	ND .	5.0	UGL	R			
CHCL3		13.	UGL				
CLC6H5	LT	1.8	UGL				
DBCP	LT	5.6	UGL				
DCPD		3.7	UGL				
DMDS		3.7	UGL				
ETC6H5	LT	2.4	UGL				
MEC6H5	LT	3.5	UGL				
MIBK	LT	1.2	UGL				
TCLEE	LT	2.9	UGL				
TRCLE	LT	2.0	UGL				
XYLEN	LT	2.4	UGL				
12DCD4		11.	UGL		N	1	0.000
CD2CL2		10.	UGL		N	1	0.000
ETBD10		9.4	UGL		N	1	0.000
Method:	800						
Analysis	Number:	QAL009	Lab	Num	ber	:	K-NWB#42
·····			<u> </u>			•	
Test							
Name	Correcte	d Value	Units	FC	QC	QC	Spike
DIMP	LT	10.1	UGL				
DMMP	LT	16.3	UGL				

Final Data Report for MKE Sampling Programs

Site Identification: WELL 37333

Sample Da Depth(ft) Method: Analysis	ate: 02): 0 Q8 Number:	2/28/90 0.0 <u>Sam</u> j QKR009	oling 1 Lab	<u>rechnique</u> Number:	: P K-NWB#42
Test Name	Correct	ed Value	Units	FC QC QC	Spike
DBCP	LT	0.130	UGL		
<u>Method</u> : Analysis	MM8A Number:	QLK009	Lab	Number:	K-NWB#42
Test <u>Name</u>	Correct	ed Value	Units	<u>FC QC QC</u>	Spike
ALDRN	LT	0.0830	UGL		
CLDAN	LT	0.152	UGL		
DLDRN	LT	0.0539	UGL		
ENDRN	LT	0.0600	UGL		
ISODR	LT	0.0560	UGL		
PPDDE	LT	0.0460	UGL		
PPDDT	LT	0.0590	UGL		

Final Data Report for MKE Sampling Programs

site lden	tiricatio	u: Merr	3/334				
Sample D Depth(ft	<u>ate</u> : 02/): 0.	27/90 0 <u>Sa</u> m	pling '	<u>Te</u> cl	nnic	que	: P
Method:	UU8						
Analysis	Number	GSU011	Lab	Nur	nhei	r•	K-NWB#38
<u>111102 y 51 5</u>	Number .	000011	<u></u>			-	N NND#50
Test	Correcto	- Telve	****	PC	00	~~	Crike
Name	Correcte	u value	Unics	<u>rC</u>	<u>vc</u>	<u>QC</u>	Spike
111TCE 112TCE	LT LT	2.4	UGL UGL				
11DCLF	ר. ידי	1 1	UGL				
13000							
	L T	3.4	065				
12DCLE	LT	0.72	UGL				
13DMB	LT	2.9	UGL				
BCHPD	LT	1.8	UGL				
C6H6	LT	2.7	UGL				
CCL4	L.T	4.9	UGL				
CH2CL2	ND	5.0	UGL	R			
CHCL3	T.T	1 7	UGL	•			
CLC6H5	ы. т.т	1 8	UGL				
DBCB	т т	5 6					
DBCF		5.0	UGL				
DCPD		3./	UGL				
DMDS	LT	3.1	UGL				
ETC6H5	LT	2.4	UGL				
MEC6H5	LT ·	3.5	UGL				
MIBK	LT	1.2	UGL				
TCLEE	LT	2.9	UGL				
TRCLE	LT	2.0	UGL				
XYLEN	LT	2.4	UGL				
12DCD4		9.6	UGL		N	1	L0.000
CD2CL2		10	UGL		N	1	0.000
		<u>a</u> a			NT	1	
		0.9	OGL		14	-	10.000
Method:	QQ8						
Analysis	Number:	QAL006	Lab	Num	ber	:	K-NWB#38
						-	
Test							
Name	Corrected	l Value	Units	FC	oc	OC	Spike
				<u> </u>	<u> </u>	<u>× ~</u>	
DIMP	ьт	10.1	UGI.				
DMMP	 1.T	16.3	UGL				

. . . . WETT 27224 S

Final Data Report for MKE Sampling Programs

Site Identification: WELL 37334

Sample Da	ate: 02	2/27/90).0 <u>Sam</u> j	oling 1	Technique	: P
Analysis	Number:	QKR006	Lab	Number:	K-NWB#38
Test Name	Correct	ed Value	<u>Units</u>	FC QC QC	Spike
DBCP	LT	0.130	UGL		
Method: Analysis	MM8A Number	QLK006	Lab	Number:	K-NWB#38
Test <u>Name</u>	Correct	ed Value	Units	FC QC QC	Spike
ALDRN CL6CP CLDAN DLDRN ENDRN ISODR PPDDE PPDDT	LT LT LT LT LT LT LT	0.0830 0.0830 0.152 0.0903 0.0600 0.0560 0.0460 0.0590	UGL UGL UGL UGL UGL UGL UGL	с	