MWD
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

September 29, 1992

To: Board of Directors (Water Problems Committee--Information)

From: General Manager

Subject: Los Angeles Department of Water and Power Headworks Spreading Grounds Pilot Study Progress Report

Report

The use of reclaimed municipal wastewater for groundwater recharge could provide additional supplies for future demands. The acceptability of groundwater recharge with reclaimed water is dependent on the health effects that may result from the possible introduction of pathogens and trace organics into groundwater that may serve as a domestic supply. At the November 1990 meeting, your Board authorized the General Manager to participate with the Los Angeles Department of Water and Power (LADWP) in conducting the Headworks Spreading Grounds Pilot Study (Study). The two-year Study was designed to assess health issues and to obtain operational criteria for groundwater recharge with reclaimed water. The results of the first year of operation are summarized in this letter and described in more detail in the attached progress report.

Under Phase I of the Study, LADWP constructed the necessary facilities to divert one cubic-foot per second (cfs) from the Los Angeles River (LAR) water, which contains predominantly reclaimed water from the Tillman Reclamation Plant, to the Headworks Spreading Grounds as shown in Figure 1. LADWP also constructed four monitoring wells and one extraction well down gradient of the Headworks Spreading Grounds to monitor the movement and extraction of the diverted flow. The extraction well is operated at a rate of 1.5 cfs to ensure complete recovery of the diverted flow.

Under Phase II of the Study, from July 1991 to June 1992, LADWP spread approximately 200 acre-feet (AF) of LAR water and extracted approximately 300 AF from the extraction well. Both the spread water and the extracted water were sampled and analyzed frequently for over 180 water quality constituents. The sample results indicate that the extracted groundwater complies with all drinking

water standards. In fact, there was a marked improvement in the microbiological quality and a significant reduction in the organic content of the extracted water compared to the spread water.

The Study is continuing on schedule and is anticipated to be complete in June, 1993. Metropolitan contributed $408,000 towards the joint study; the cost of the Study to date is about $1,150,000.

Board Committee Assignment

This letter is referred to the Water Problems Committee pursuant to its duty to study, advise, and make recommendations with regard to water conservation, reclamation, reuse and underground storage of water and the use thereof imposed by Administrative Code Section 2481 (i).

Recommendation

For information only.

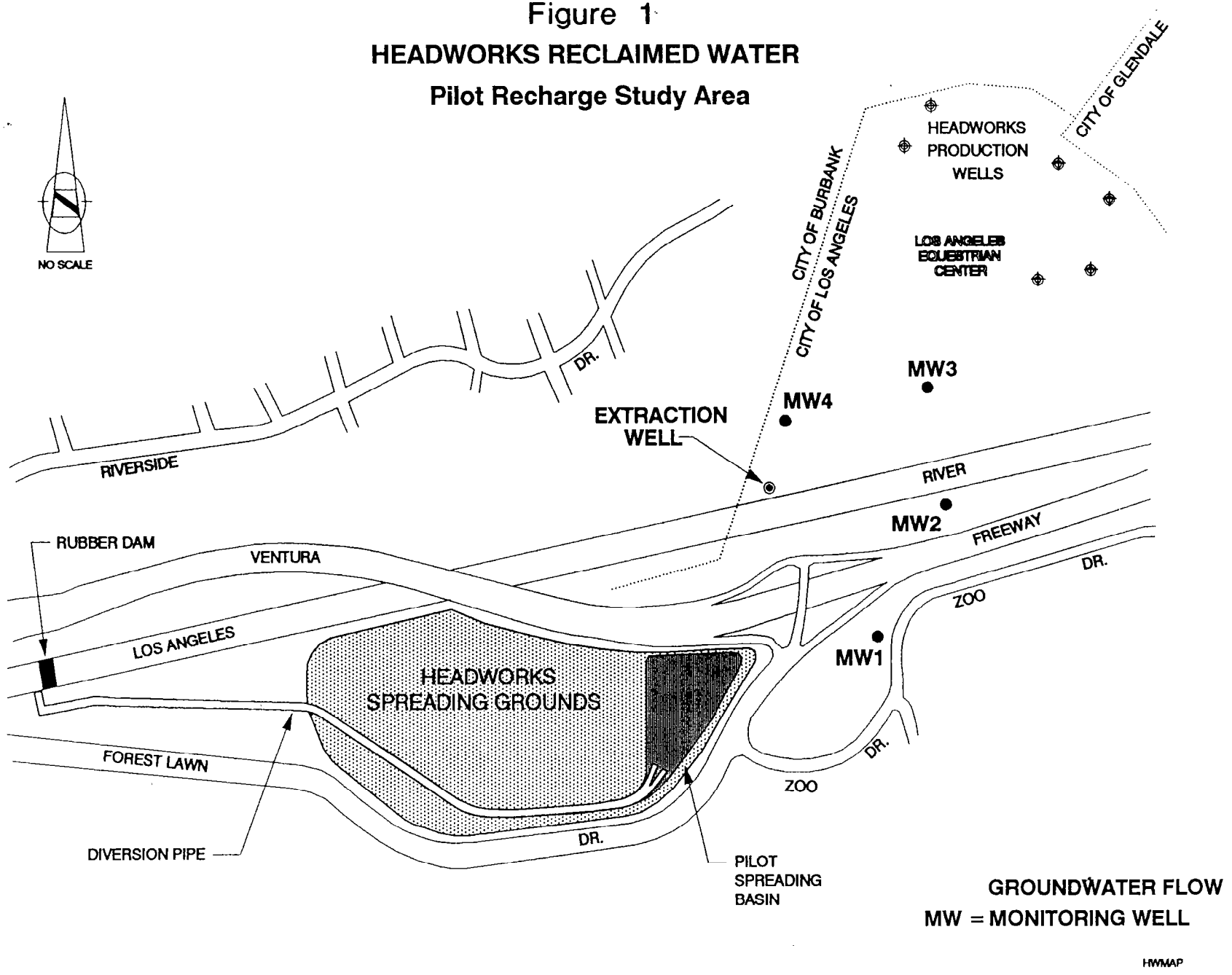
Carl Boronkay

BW:gn

Figure 1

HEADWORKS RECLAIMED WATER

Pilot Recharge Study Area



Los Angeles Department of Water & Power

Headworks Reclaimed Water Pilot Recharge Study

First Progress Report

August 1992

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August 1992

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Headworks Reclaimed Water Pilot Recharge Study
First Progress Report

Abstract

In this study, the feasibility of using the Los Angeles River (LAR) water containing mostly reclaimed water from the Tillman Reclamation Plant to recharge the San Fernando Valley Groundwater Basin is investigated. The impact of the recharge operation on the quality of the groundwater in the basin is being evaluated. If the results prove promising, a new source of water supply could be developed from the full-scale implementation of this project.

The results of the first year of this two-year pilot study funded jointly by the Los Angeles Department of Water and Power and the Metropolitan Water District of Southern California is presented in this report.

Approximately 1 cfs of the LAR water is diverted and spread on a 2-day wet and 5-day dry cycle. The spread water is then extracted from an extraction well about 700 feet downgradient.

Groundwater flow analysis coupled with chloride monitoring, a non-reactive indigenous tracer, shows the spread water has reached the extraction well. Results of a comprehensive water quality analysis showed the extracted water complied with all drinking water standards. Complete removal of coliform bacteria was noticed following the spreading operation. Results also showed the quality of the extracted water was not influenced by the spread water quality.

Based on the information gathered during the first year of the pilot study, Granular Activated Carbon (GAC) filtration is not necessary to meet drinking water standards. The total cost of the study to date is $1,145,000 (Appendix 1).

The spread water is then extracted at a constant flow rate of 0.45 cfs through an extraction well. This well is located approximately 700 feet downgradient from the spreading grounds. Continuous pumping of the extraction well at a flow rate of 0.45 cfs results in a 1.5 to 1 ratio of water extracted to water spread, increasing the possibility of capturing all the groundwater originating from the spreading basin (Figure 4).

In addition to the extraction well, four monitoring wells are used to oversee the quality and the movement of the spread water. Figures 5 through 9 show the well logs of the extraction well and four monitoring wells.

Since the beginning of the project, approximately 200 acre-feet of the LAR water has been spread in the project area (Table 1). During the same period, approximately 300 acre-feet of water was pumped at the extraction well, 1.5 times the spread water volume.

In anticipation of the possible need for the further treatment of the extracted water, a GAC filter was pilot tested. For this reason, a 3-gpm flow rate was diverted from the extraction well discharge line into a GAC filter containing 165 pounds of activated carbon. The GAC filter provided 15 minutes of empty bed contact time.

Water Quality Monitoring Requirements

The operation of this pilot project required two permits from the California Regional Water Quality Control Board (RWQCB):

1. A discharge permit to monitor the quality of the LAR water as it is spread, and
2. A NPDES permit, to monitor the quality of the extracted water as it is discharged back to the LAR.

In addition to these requirements, the Department agreed to further analyze for all drinking water constituents regulated under the Title 22 of the California Administrative Code.

Table 2 lists the frequency of chemical and biological constituents monitored during the

first year of the pilot project. The constituent limits set by the RWQCB for the extracted water are listed in Table 3.

Results

1. Groundwater Movement

Continuous pumping of the extraction well at the flow rate of 0.45 cfs resulted in 5.2 feet of head differential between the spreading location and the extraction well (Figure 4) by December 1991, approximately 6 months after spreading began. Continuous pumping of the extraction well since then has generally resulted in a higher head differential (Figure 10). The head differential was about 6.9 feet as of May.

In order to gain knowledge about the spread water travel time, Darcey's velocity was estimated using information on the hydraulic grade, distance and permeability. A permeability value of 200 feet per day (K_X = 200 ft/day) was utilized. This value was obtained from an ongoing groundwater study of the area. This study is being funded by the U.S. EPA under the Superfund provision.

Based on 5.2 feet of head differential, a distance of 700 feet between the spreading basin and the extraction well, and a permeability of 200 feet/day, a velocity of 1.5 ft/day was calculated. Considering an effective porosity of 0.20 (obtained from the Superfund Study) in the project area, an actual velocity (i.e., pore velocity) of 7.4 ft/day was estimated under the pumping condition of the extraction well.

Based on this velocity, it would take approximately 95 days for the spread water to reach the extraction well. It should be noted that the travel time becomes shorter as pumping continues and higher head differential is developed. It is now estimated to be about 70 days.

2. Water Quality

Analytical results from the June 1991 to June 1992 sampling period showed the quality of LAR water generally complied with the established standards with the exception of coliform bacteria. Testing results of coliform bacteria in the extraction well, however, were negative indicating their effective removal by the soil formations (Figure 11). Removal of fecal coliform bacteria is accomplished by filtration process occurring near the soil surface.

Analysis of water quality data from the LAR, extracted water, and the four monitoring wells showed no adverse impact of the LAR water on the quality of the groundwater extracted from the basin (Table 4).

Ammonia was also completely removed from the spread water. Its concentration ranged from 5.22 to 21.90 mg/L in the spread water. Removal of ammonia is related to its oxidation through the process of nitrification accomplished by nitrifying bacteria. This removal mechanism is characteristic of short cycle spreading operations which allows the maintenance of an aerobic environment needed for the nitrification process to occur. The end product of the process is nitrate. Removal of nitrate in soil can occur through such mechanisms as adsorption by clay and organic matter as well as by ion exchange with clay minerals.

The intensity of the spread water color was reduced on average by 85 percent, from 33.33 color units in the spread water to 5 color units in the extracted water, well below the State Secondary MCL for drinking water.

The organic content of the water represented by such parameters as BOD_5 (Biochemical Oxygen Demand) and TOC (Total Organic Carbon) were reduced during the spreading operation by 93 percent and 86 percent, respectively (Table 4). Their average concentrations in the extracted water were 1.0 mg/L and 1.6 mg/L, respectively. Removal of such organics as chloroform, trichloroethane, bentazon, and dieldrin were 55 percent, 43 percent, 88 percent and 97 percent, respectively. Removal of trace organics such as those mentioned above by soil have

been demonstrated elsewhere, including in Whittier Narrows[1]. Three mechanisms have been reported for the removal of such organics as those mentioned above-- they are: adsorption, volatilization, and biodegradation. At this point, the predominant mechanism of removal of these chemicals at the Headworks Spreading Grounds is not clear.

Chloride (a non reactive constituent), was reduced by 47 percent from an average of 127 mg/L in the LAR water to an average concentration of 67 mg/L in the extracted water. This reduction appears to occur through dilution by groundwater in the basin.

Monitoring of other constituents listed in Table 4 showed either non detectable levels or well below MCL standards. Comparison of the spread water and the extracted water reveals a significant degree of water quality improvement indicated by the percent reduced column in Table 4. In calculating the average values, the detection limit of the constituents were utilized instead of zero for non detected cases. This will yield a conservative estimate of the water quality improvement when the average values are compared.

Certain water quality constituents showed higher concentrations in the extracted water compared with the spread water (Table 5). Notable among these constituents is tetrachloroethane (PCE) showing an average concentration of 2.09 in the extracted water versus 0.22 in the spread water. PCE was first detected in the San Fernando Groundwater Basin in 1980. This emergence of PCE and other trace organics listed in Table 5 in the extraction well is due to the movement of these already existing chemicals within the groundwater basin resulted fdue to pumping activities. In spite of detection of these trace organics, however, their levels are well below the MCL standards.

Table 6 lists the concentration of monitored constituents in the spread water (i.e., LAR) and in the extracted water before and after the spreading. For comparison, the maximum contaminant level (MCL) along with detection limit of each monitored constituent are also listed. As can be seen from Table 6, the extracted water meets the drinking water standards and the spreading of the LAR water has not adversely impacted the quality of the groundwater in the

[1] Nellor, M.H. et al., "Health Effects Study", Final Report, Sanitation District of Los Angeles County, March 1984.

basin. Tables 7 and 8 list the constituents monitored in the groundwater before and after spreading occurred along with their concentration ranges.

Extracted water showed compliance with all drinking water standards except for a few inorganics/physical constituents (i.e., conductivity, total dissolved solids, and sulfate). The slightly higher than recommended drinking water levels of these constituents were independent of the spreading operation due to high background concentrations of these constituents. Figure 11 shows the percent compliance of the spread water and the extracted water with drinking water standards during the course of the monitoring.

The background quality of the groundwater before and after spreading is depicted in Figure 12. As can be seen from this figure, there is no change in compliance frequency between the pre and post spreading operation.

Due to high quality of the extracted water, the presence of the GAC filter showed minimal improvement in the extracted water quality (Figure 13).

Concentrations of such constituents as chloride, turbidity and Total Organic Carbon (TOC) in the extracted water as was mentioned earlier were significantly lower than those in LAR water. Figures 14 through 16 show the concentration profiles of these constituents over the period of the monitoring.

Chloride is a non-reactive constituent often used as a tracer in groundwater studies. Because of the travel time between the spreading grounds and the extraction well (approximately 95 days), a 3-month adjustment was applied to the chloride profile of Figure 17. The chloride levels of the extracted water generally increases and decreases with increases and decreases in the levels of chloride in the LAR. This confirms that the spread water has reached the extraction well. Chloride levels will continue to be monitored to verify this association.

Conclusion

From the groundwater data, chloride profile, and travel time estimate, it is believed that the spread water of the LAR has reached the extraction well located approximately 700 feet downgradient.

Water quality data confirms the compliance of extracted groundwater with all drinking water standards. A clear improvement in microbial quality of the extracted water was noticed from the effective removal of coliform bacteria. Also, a significant reduction in the organic contents of the spread water was noticed in the extracted water.

Based on the water quality results during the first year of the monitoring, no adverse water quality impact has been noticed due to the spreading operation. Water quality data also showed that GAC filtration is not necessary to meet drinking water standards.

Appendix 1

Project Cost

The project cost includes the construction cost of the wells (i.e., a 20-inch extraction well equipped with a submersible pump and four 4-inch monitoring wells), construction of the diversion structure and pipeline, plus the sampling and analysis of water samples during the first year of the operation. The break down of the cost elements are listed in the following Table:

Construction	552,000
Labor & Administration	401,000
Subtotal:	$ 953,000
Chemical Analysis:	
Priority Pollutants	88,000
Drinking Water Standards	61,000
Coliform Bacteria	10,000
Discharge Constituents	11,000
Sampling and Well Purging	22,000
Subtotal:	$ 192,000
Total:	$ 1,145,000

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hwks1.doc

Figure 1

Headworks Reclaimed Water Pilot Recharge Study
Los Angeles River and Tillman Seasonal Flow Rates

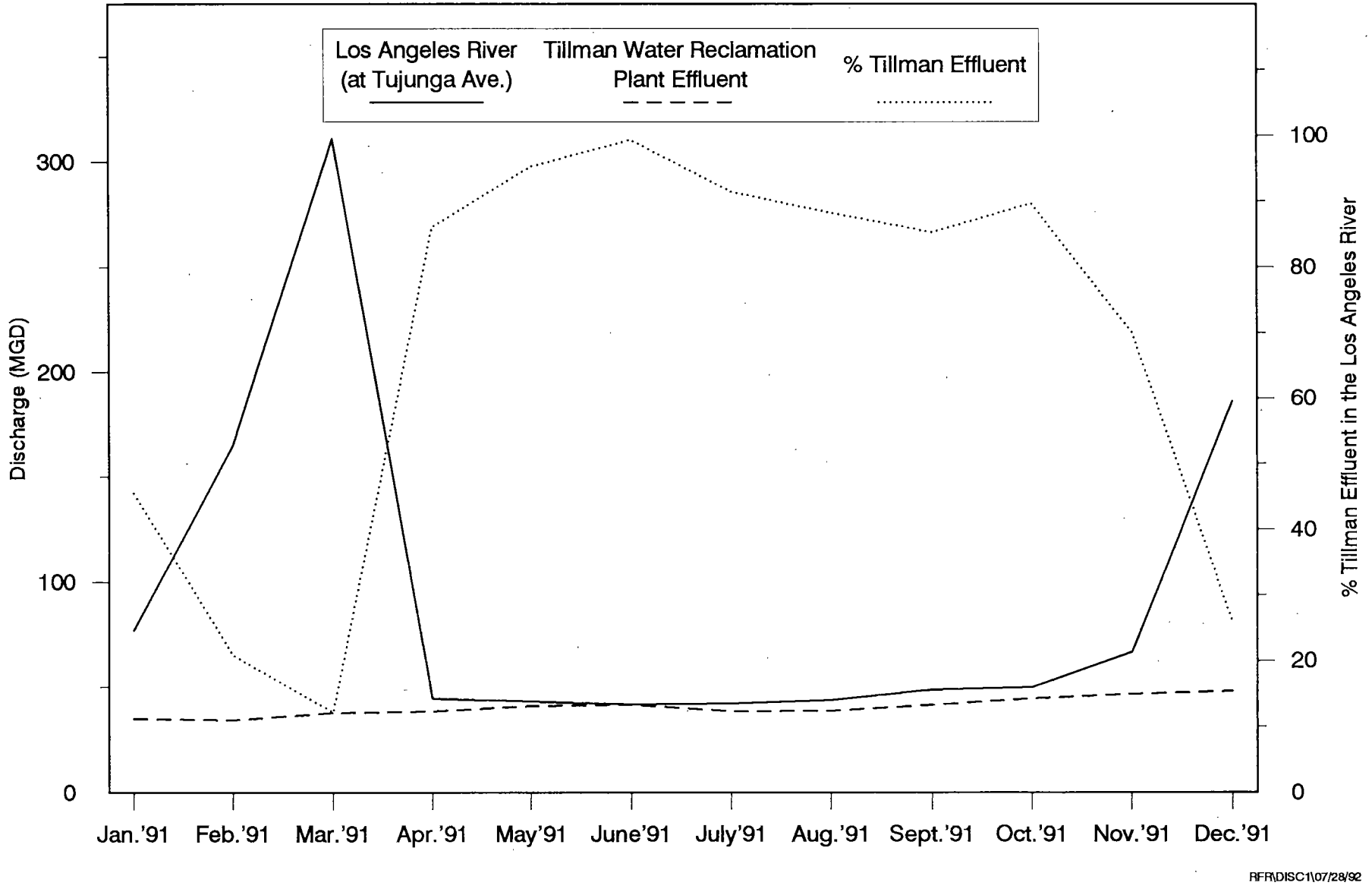

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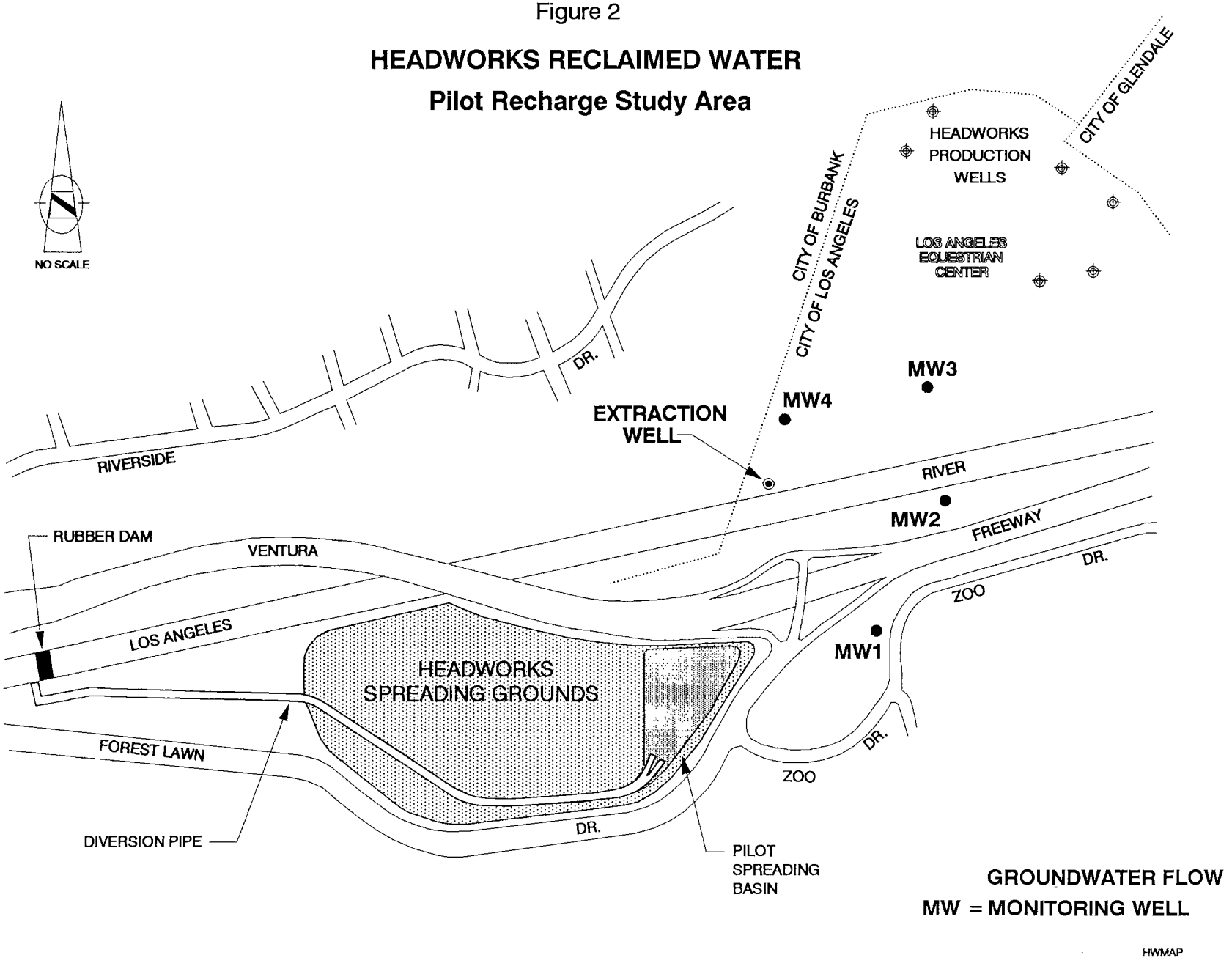
Figure 2

HEADWORKS RECLAIMED WATER

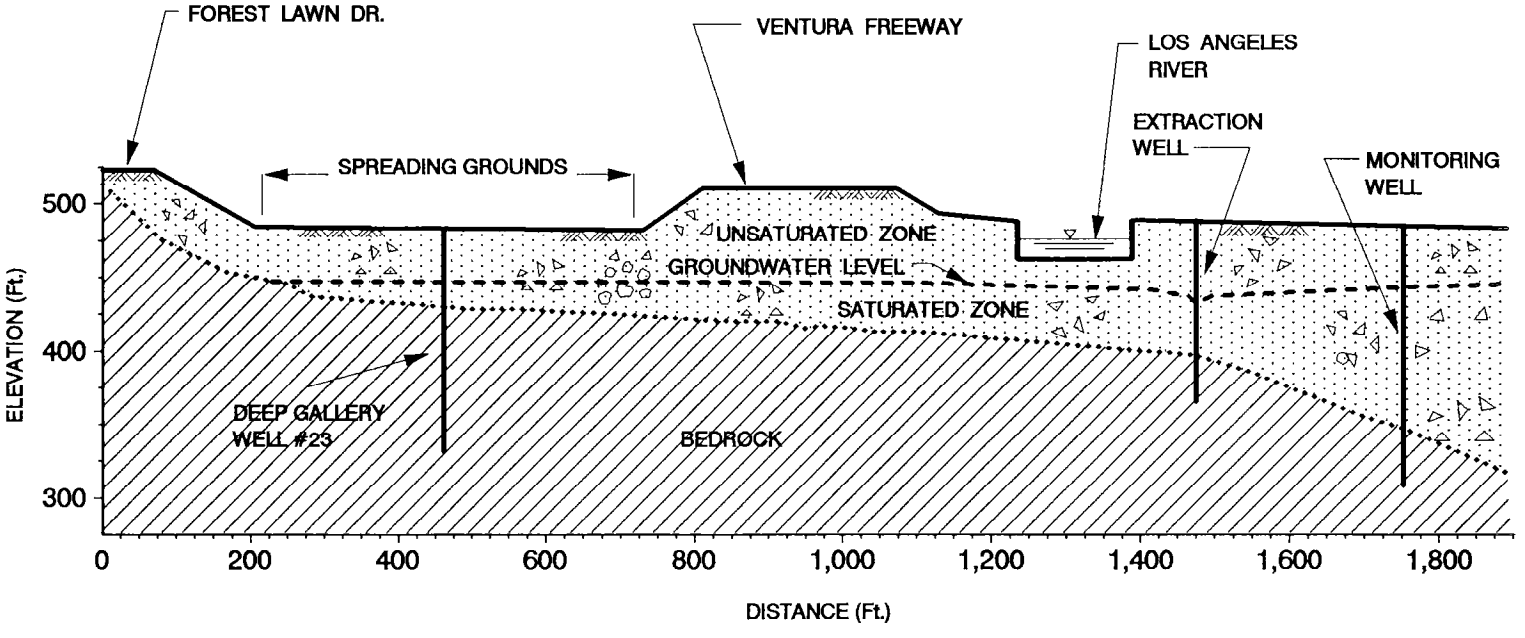
Pilot Recharge Study Area



HWMAP

Figure 3

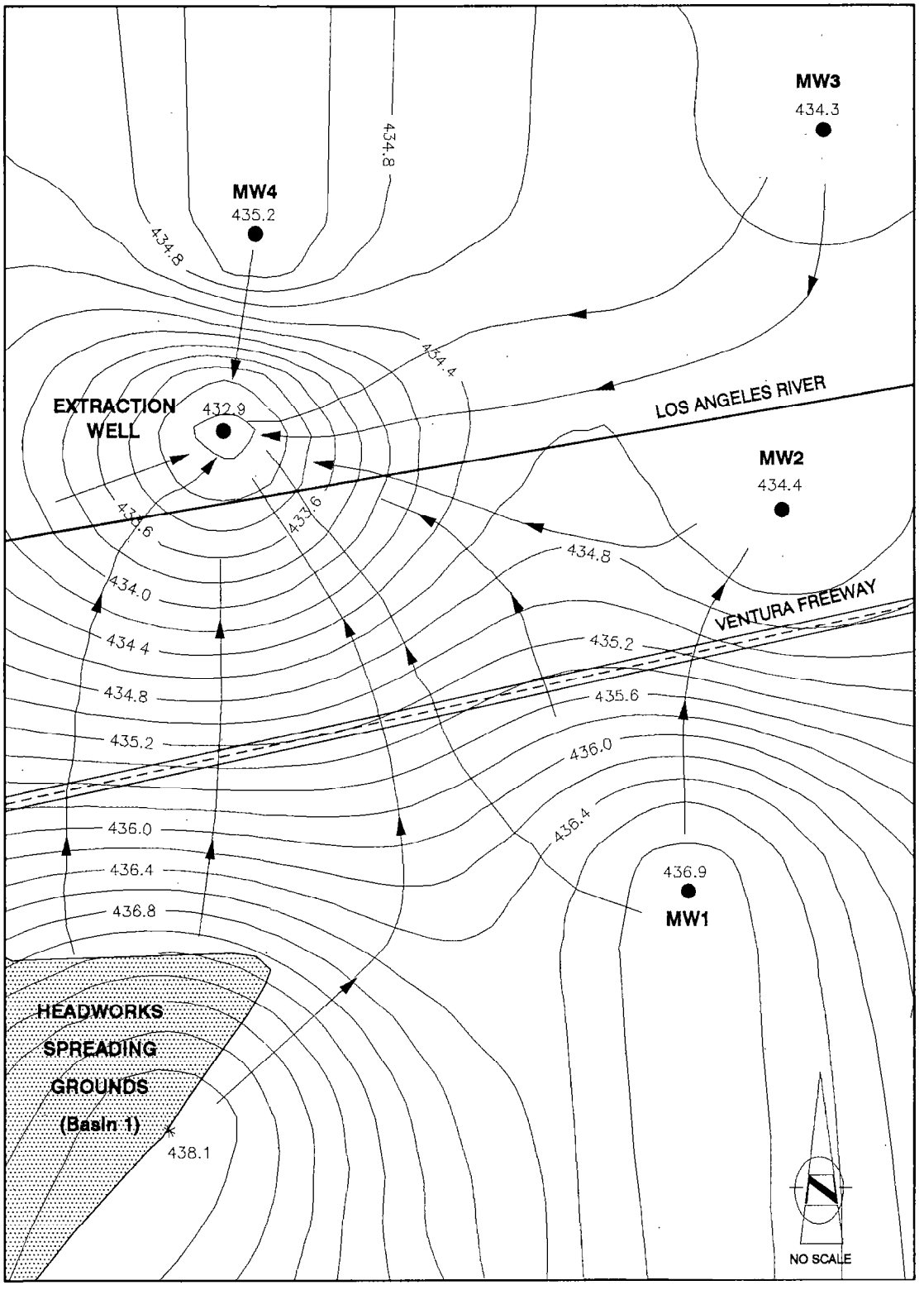
SITE CROSS-SECTION



reclm2

Figure 4

GROUND WATER FLOW PATTERN IN THE PROJECT AREA



→ DIRECTION OF GROUNDWATER FLOW

MW = MONITORING WELL

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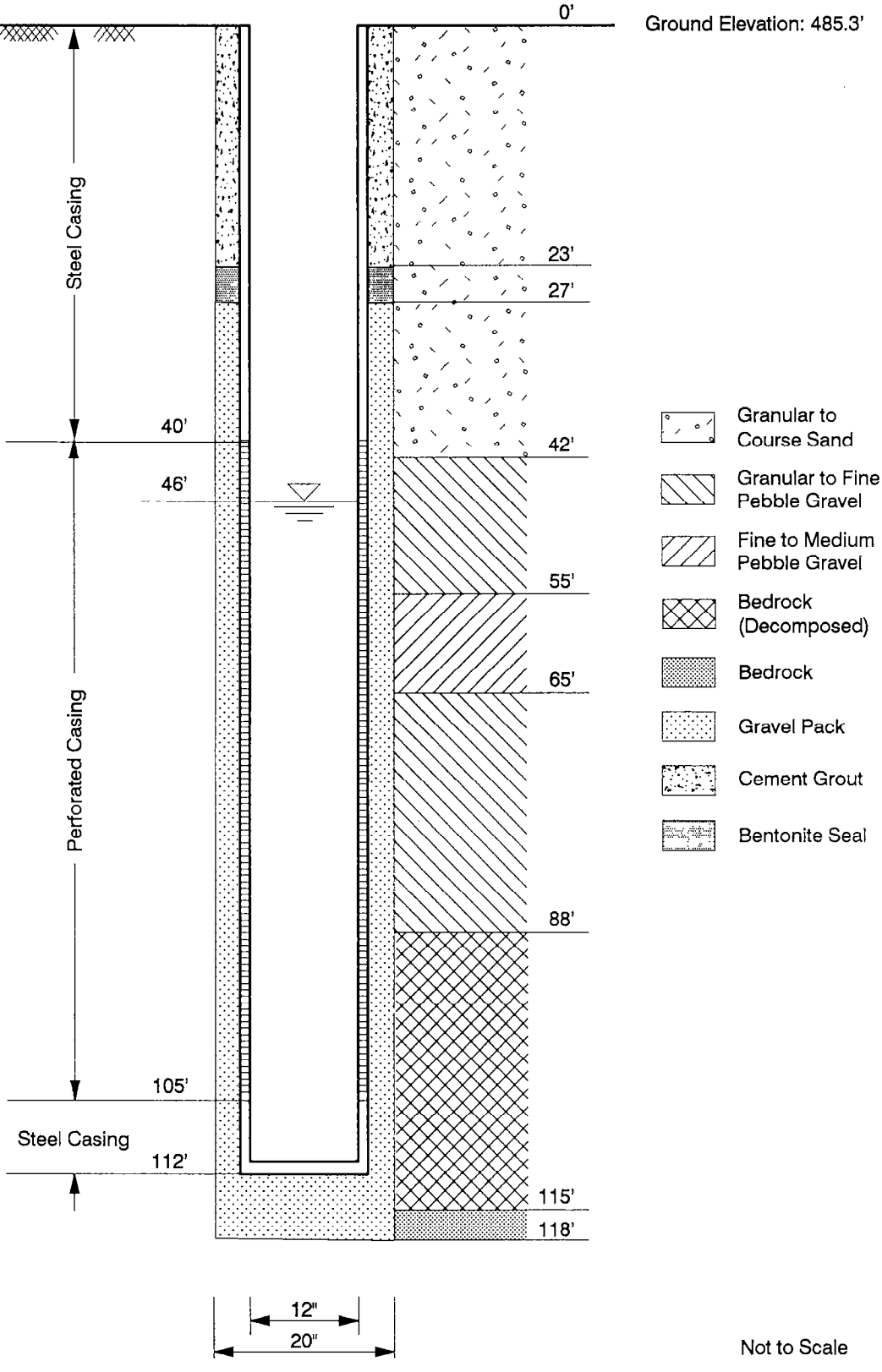
Figure 5

LOS ANGELES DEPT. OF WATER & POWER

HEADWORKS RECLAIMED WATER PILOT RECHARGE STUDY

WELL LOG OF EXTRACTION WELL



Not to Scale

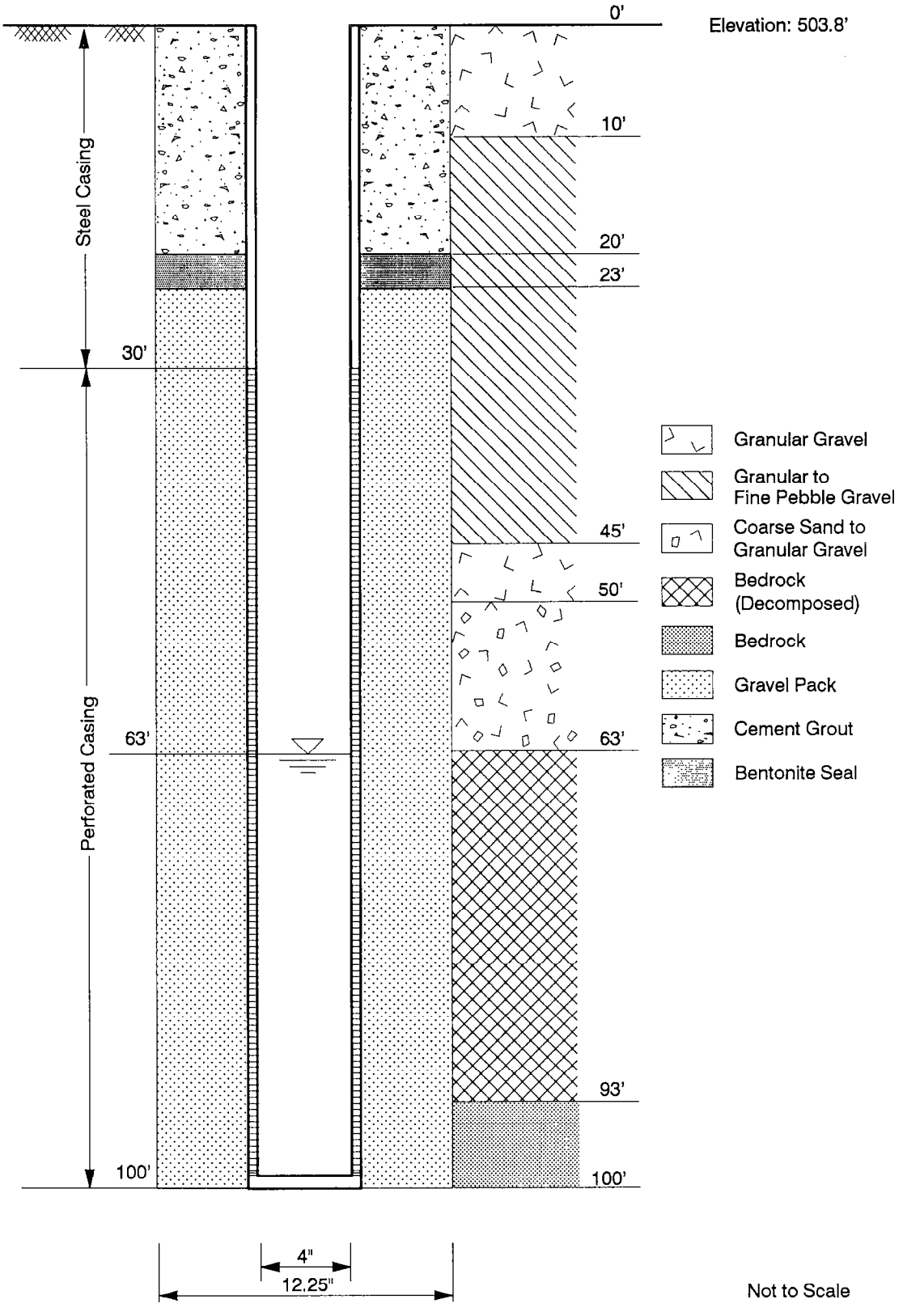
EWLOG-1

Figure 6

LOS ANGELES DEPT. OF WATER & POWER

HEADWORKS RECLAIMED WATER PILOT RECHARGE STUDY

WELL LOG OF MONITORING WELL # 1



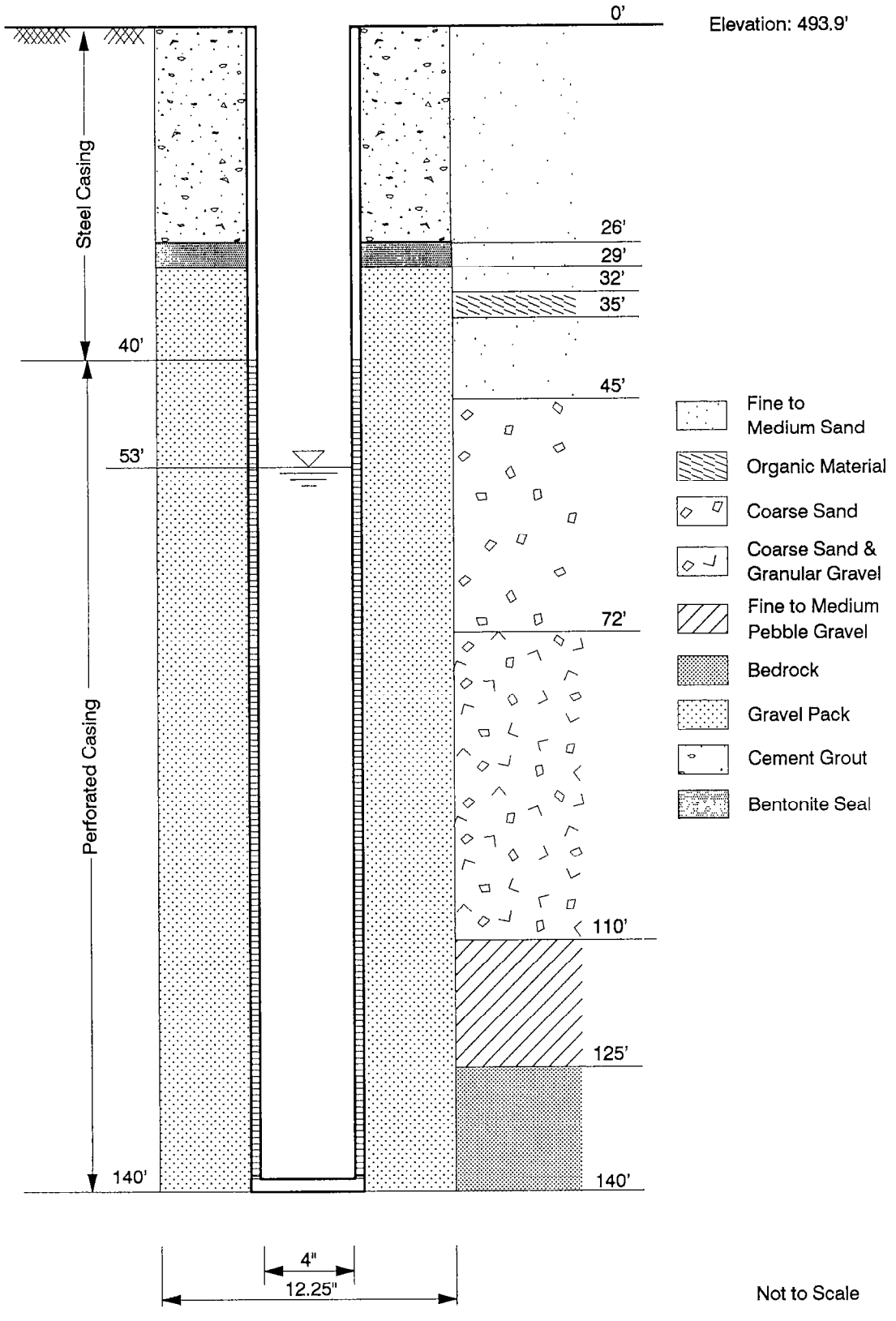
MW1LOG-1

Figure 7

LOS ANGELES DEPT. OF WATER & POWER

HEADWORKS RECLAIMED WATER PILOT RECHARGE STUDY

WELL LOG OF MONITORING WELL # 2

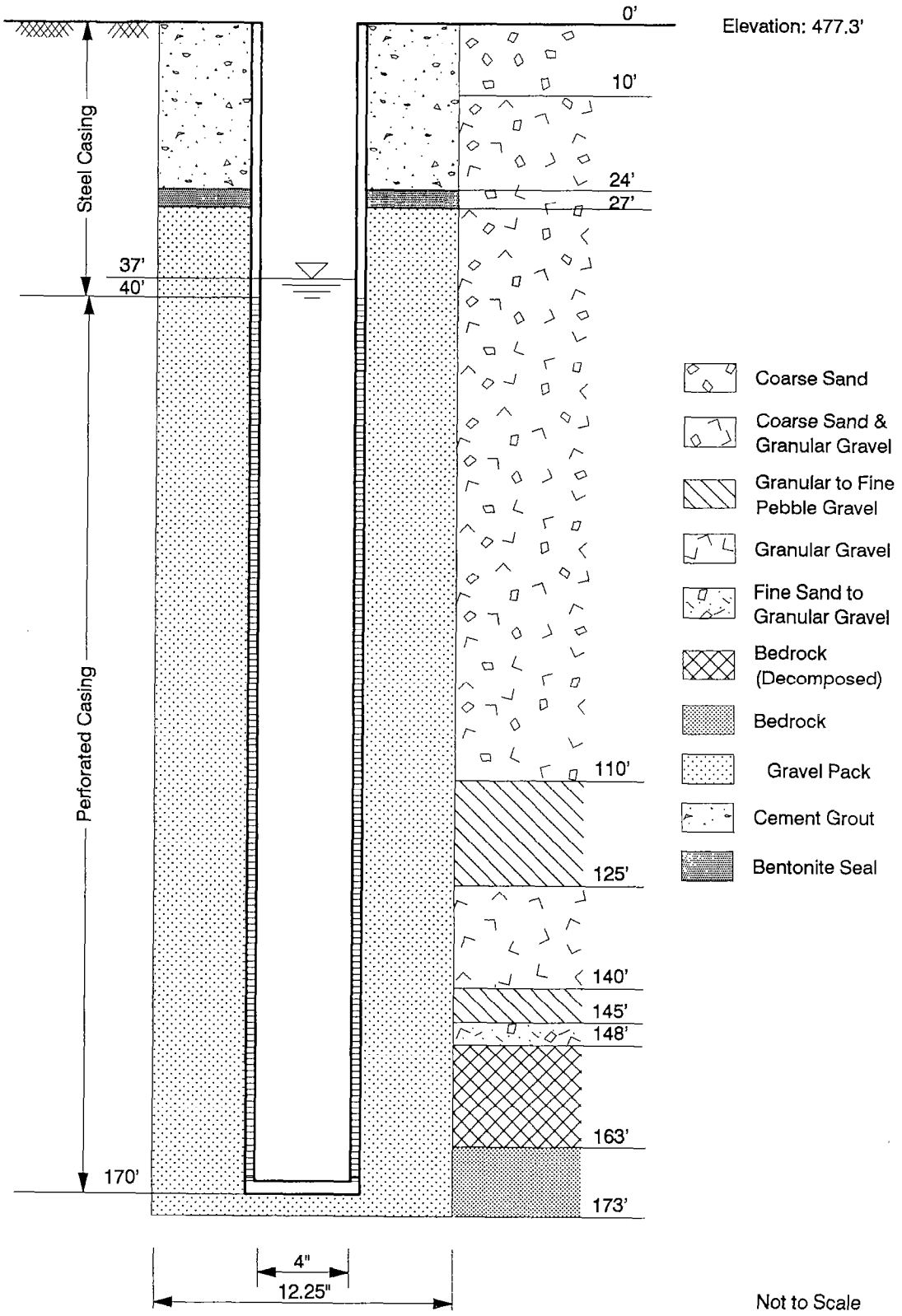


MW2LOG-1

Figure 8

LOS ANGELES DEPT. OF WATER & POWER
HEADWORKS RECLAIMED WATER PILOT RECHARGE STUDY

WELL LOG OF MONITORING WELL # 3



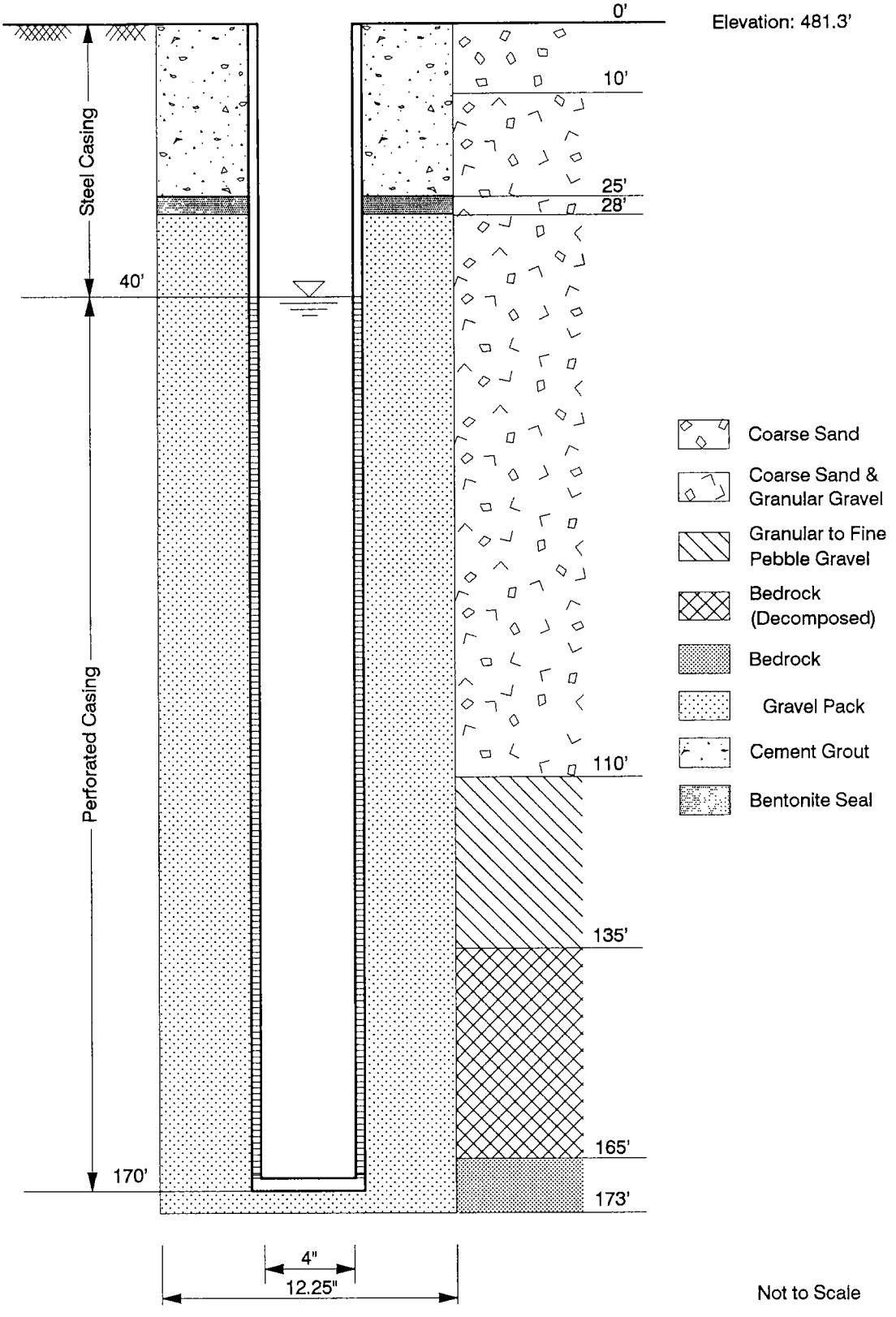
MW3LOG-1

Figure 9

LOS ANGELES DEPT. OF WATER & POWER

HEADWORKS RECLAIMED WATER PILOT RECHARGE STUDY

WELL LOG OF MONITORING WELL # 4



Not to Scale

MW4LOG-1

Figure 10

Headworks Reclaimed Water Pilot Recharge Study

Groundwater Elevation Difference Between Spread and Extracted Water

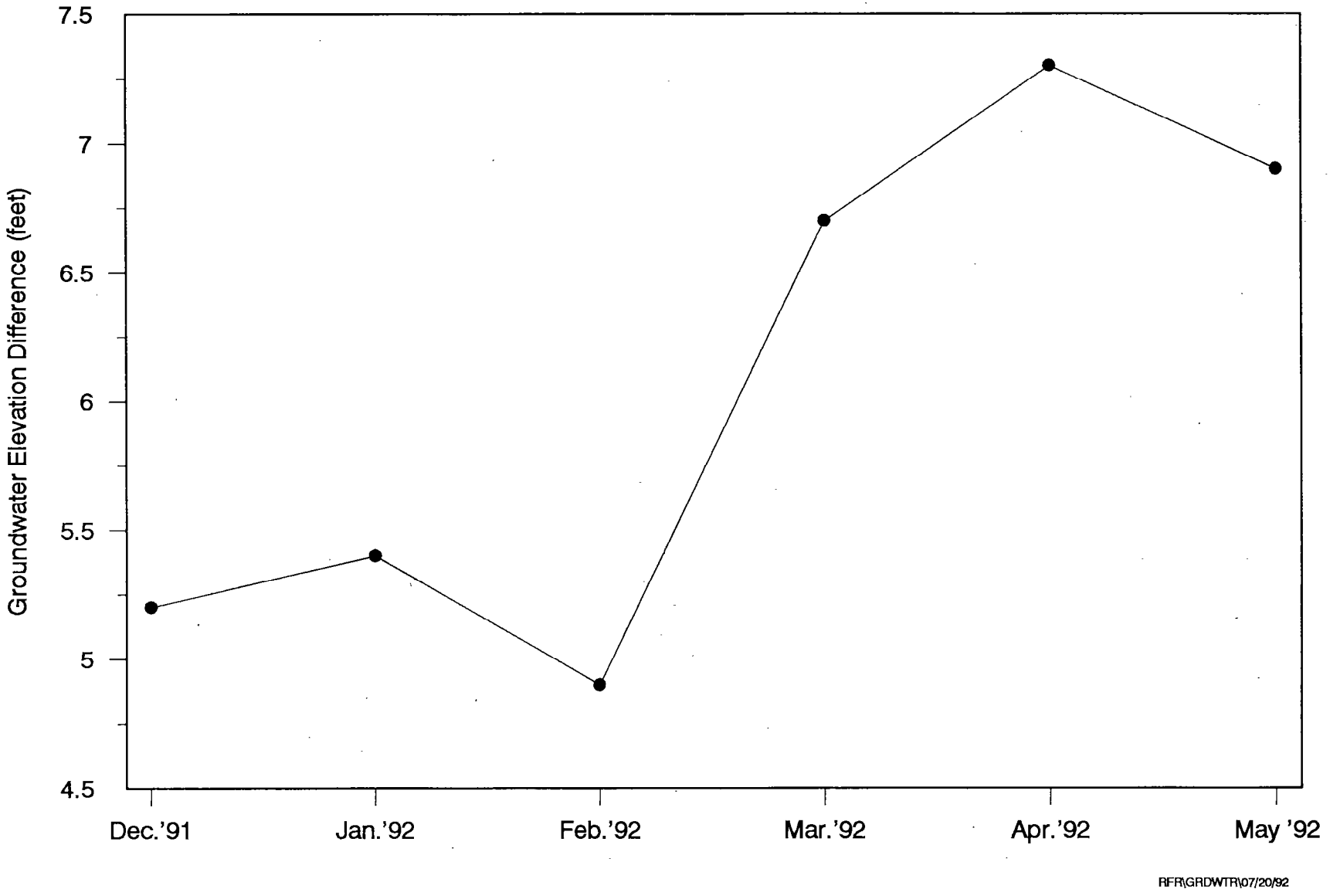


Figure 11

Drinking Water Compliance in Spread Water and Extracted Water

(October 1991 to June 1992)

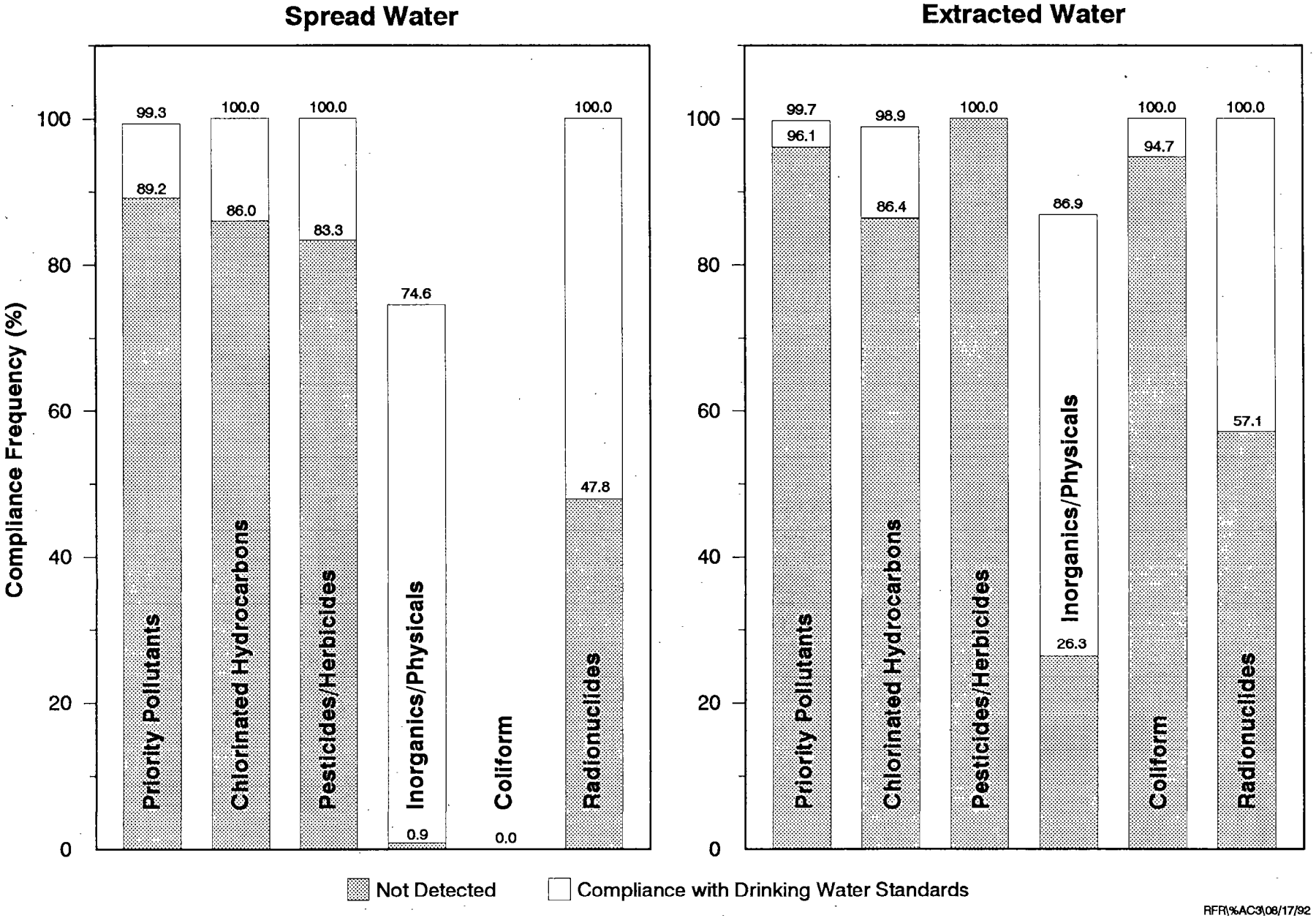


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Figure 12

Drinking Water Compliance in Extracted Water Before and After Spreading

(June 1991 to June 1992)

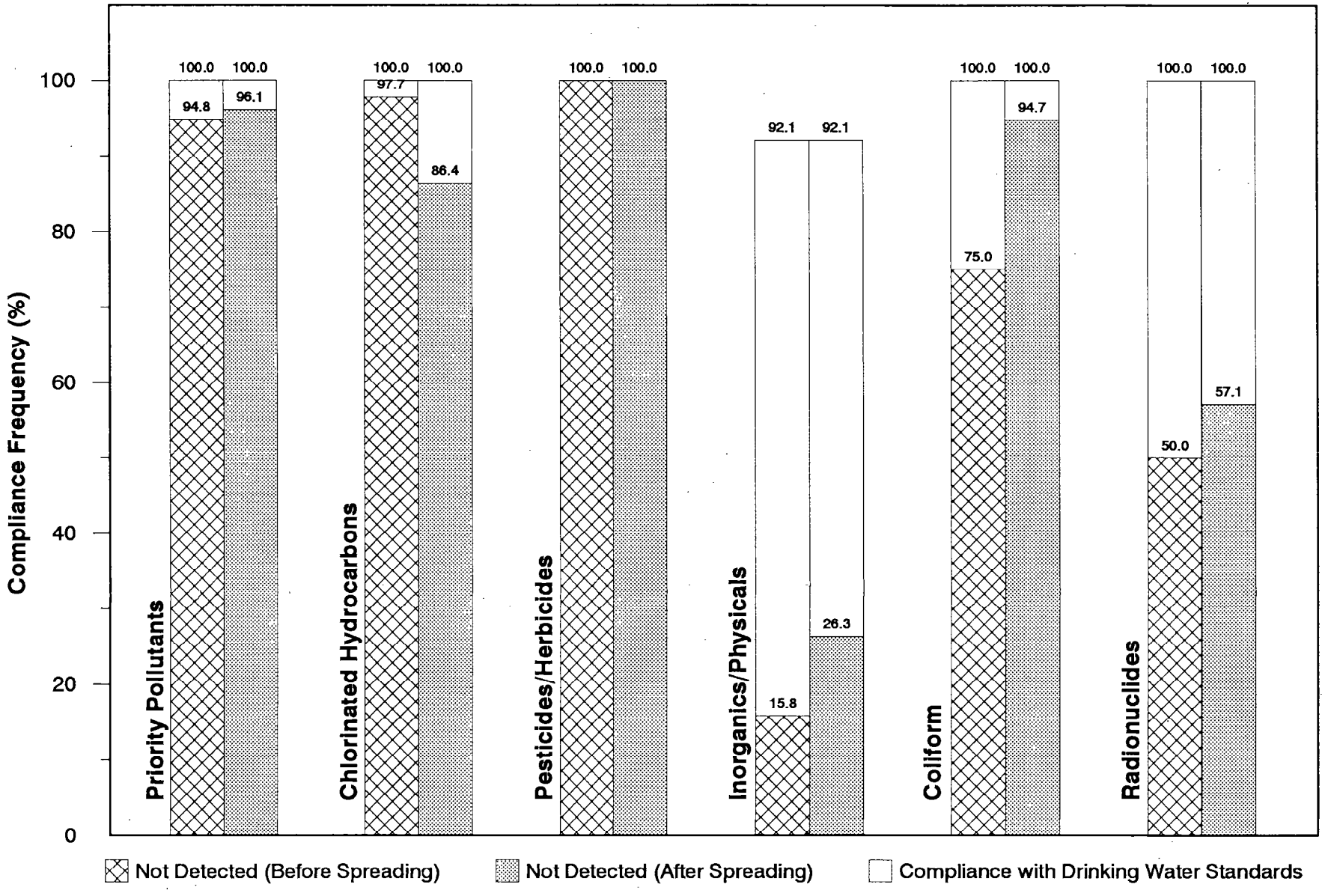

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Figure 13

Drinking Water Compliance in Extracted Water and GAC Effluent

(October 1991 to June 1992)

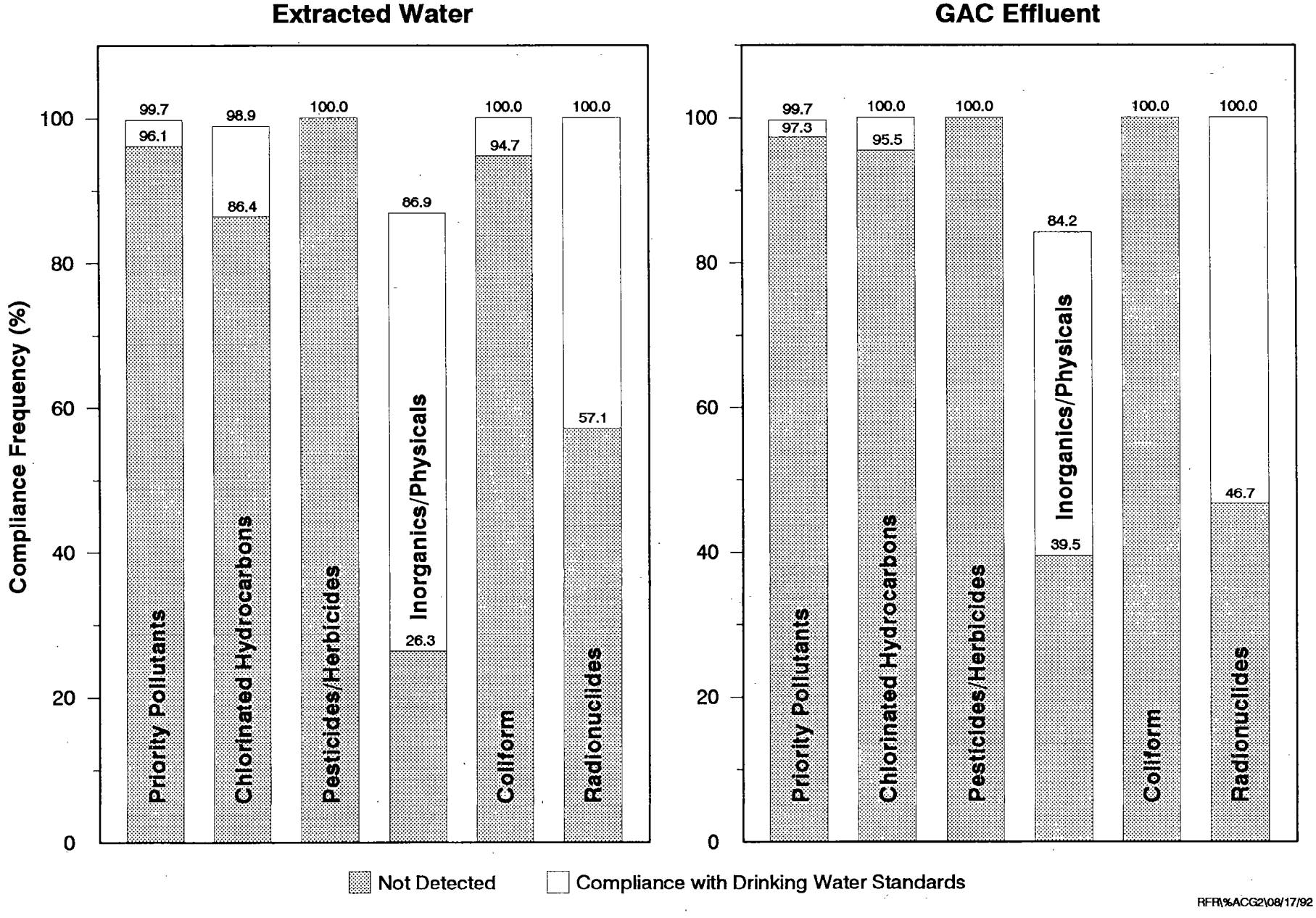

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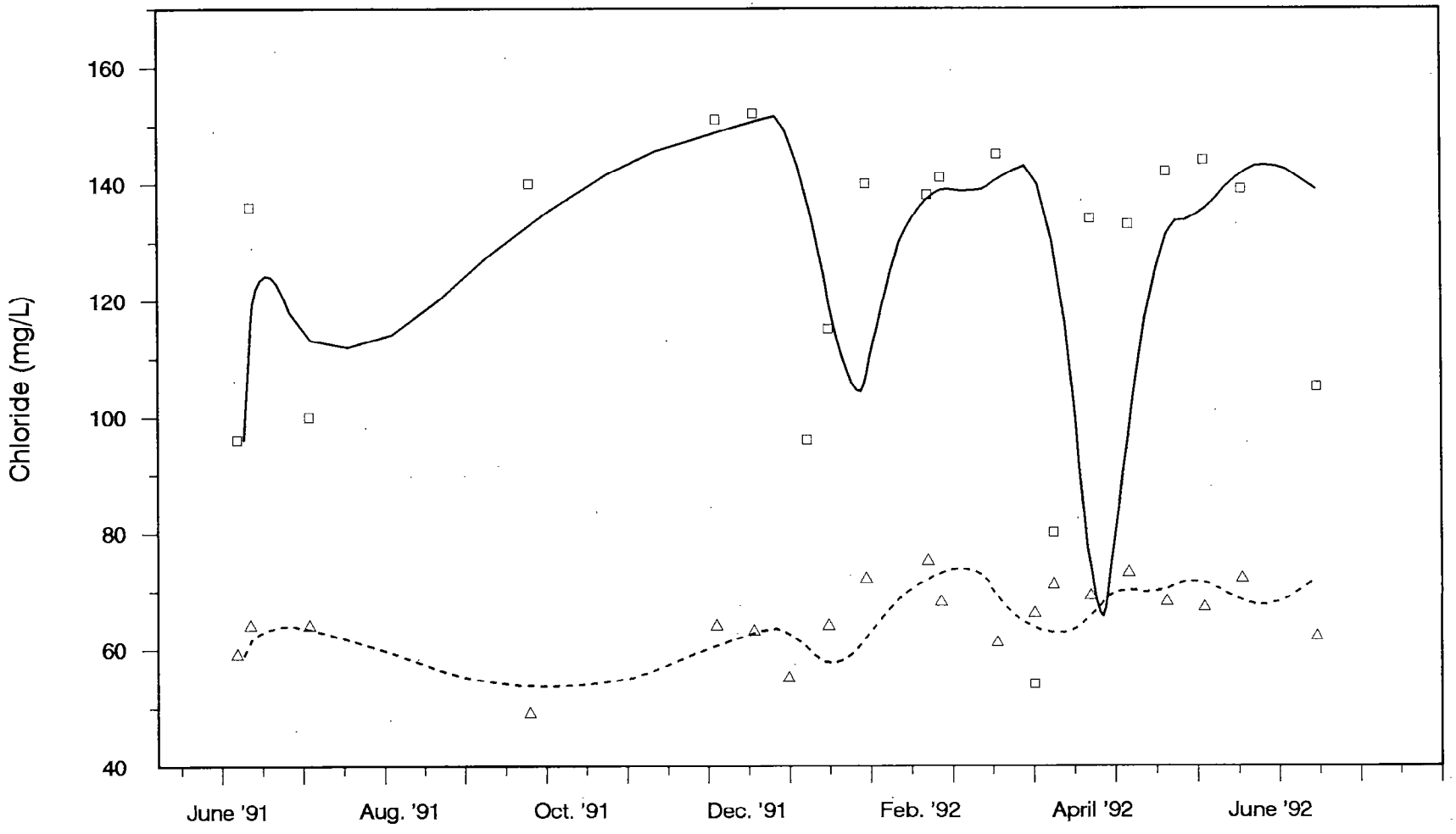
Figure 14

Headworks Reclaimed Water Pilot Recharge Study

Chloride at the Extraction Well & Los Angeles River

(December 1991 to June 1992)



	Range	Average
Los Angeles River	54 to 152	125
Extration Well	49 to 75	65

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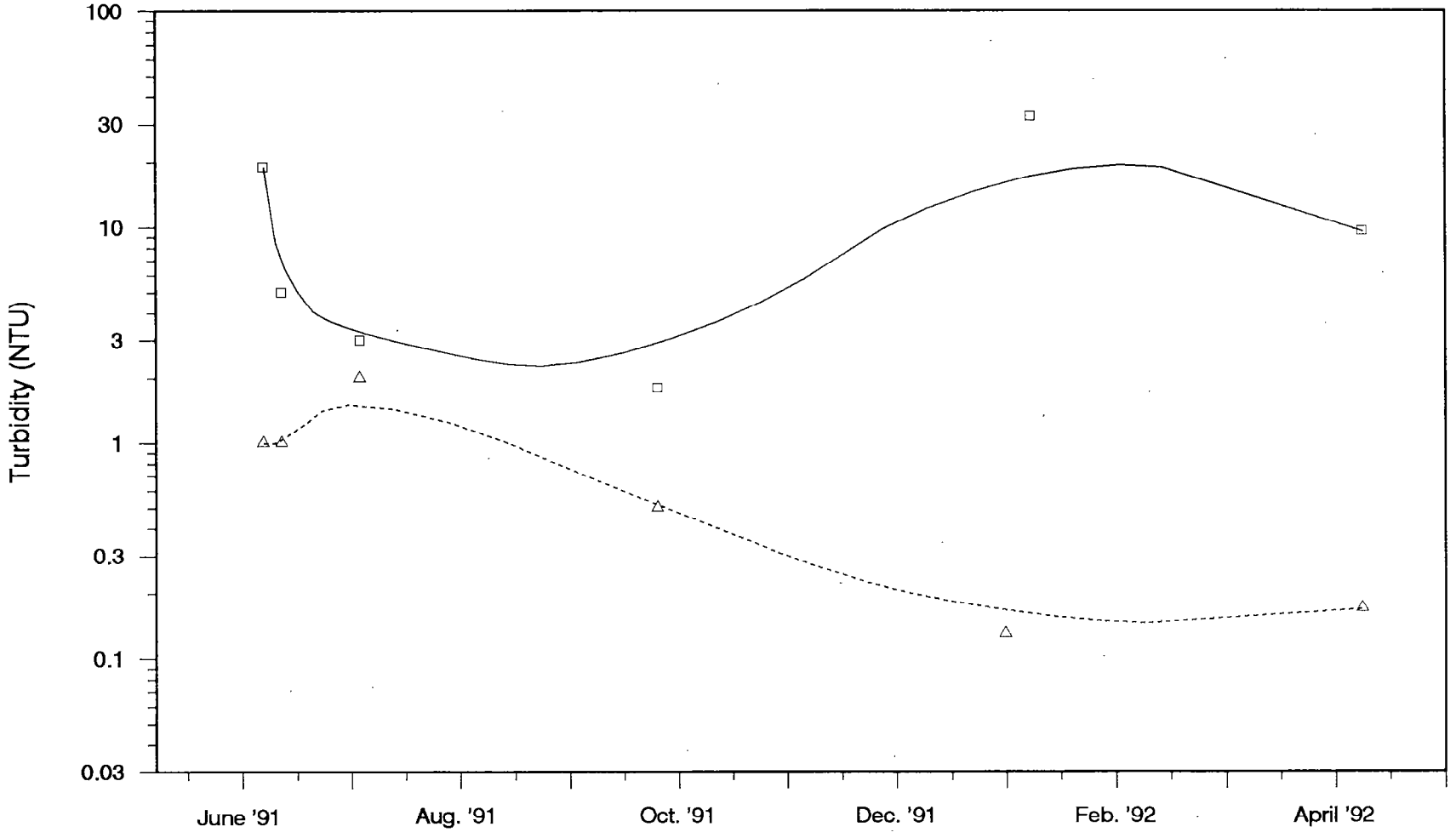
Figure 15

Headworks Reclaimed Water Pilot Recharge Study

Turbidity at the Extraction Well & Los Angeles River

(December 1991 to April 1992)



	Range	Average
Los Angeles River	1.8 to 32.6	11.8
Extration Well	0.13 to 2	0.8

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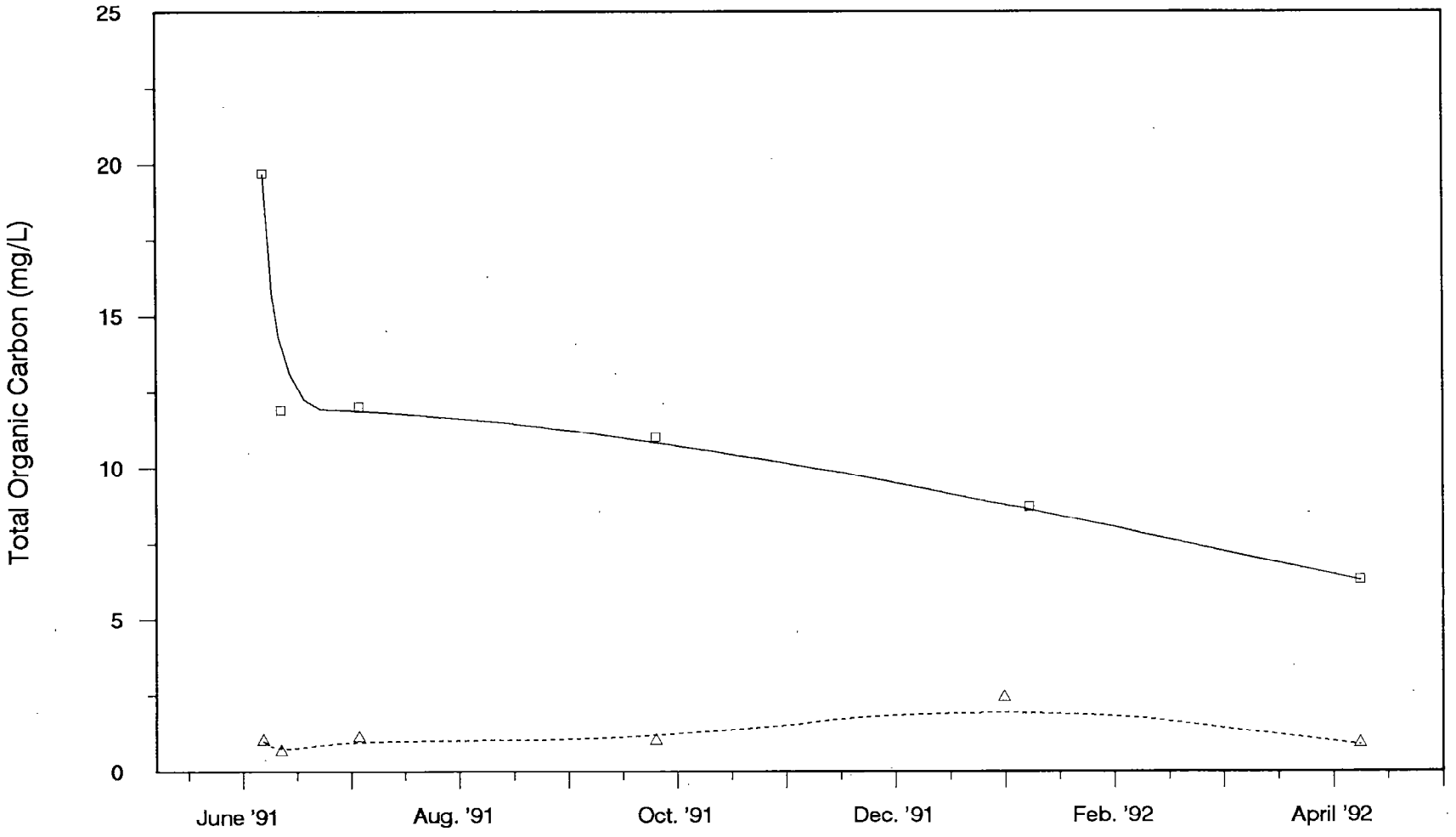
Figure 16

Headworks Reclaimed Water Pilot Recharge Study

Total Organic Carbon at the Extraction Well & Los Angeles River

(December 1991 to April 1992)



	Range	Average
Los Angeles River	6.3 to 19.7	11.6
Extration Well	0.7 to 2.4	1.2

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Goal

The goal of this pilot study is to investigate the feasibility of using Los Angeles River (LAR) water, containing mostly reclaimed water from the Tillman Reclamation Plant, to recharge the San Fernando Valley Groundwater Basin. This is achieved through extensive water quality monitoring of the LAR water and its impact on the quality of the extracted groundwater. If the result of this pilot study proves promising, a request will be made to the RWQCB to implement recharge using LAR and withdrawal for potable purposes. This project was jointly funded by the Los Angeles Department of Water and Power (Department) and the Metropolitan Water District of Southern California.

Operation

The spreading operation commenced on July 2, 1991. Approximately 1 cfs of the LAR water, containing the reclaimed water from the Tillman Reclamation Plant, is being cyclically diverted into the Headworks Spreading Grounds. The Tillman Reclamation Plant located approximately 7 miles upstream of the spreading area, discharges about 40 MGD of the tertiary treated effluent into the LAR. This discharge constitutes more than 90 percent of the total LAR flow rate during dry seasons (i.e., from April to November)(Figure 1). The water is diverted by inflating a rubber dam in the LAR. The spreading operation is carried out on a 2-day wet and 5-day dry cycle except during heavy rains when the turbidity of the LAR water is high . The spreading is halted during rainfall to avoid spreading of the storm water. Urban storm runoff may contain significant quantities of oils, greases, and pesticides which could adversely affect the quality of the extracted water. Also, the high turbidity of the LAR would leave a sediment deposit of fine particles on the spreading basin, which may cause reduced permeability . The diverted flow is conveyed by gravity through a galvanized steel pipe to the eastern portion of the spreading grounds, to an area of about 1 acre (Figures 2 and 3).

Figure 17

Headworks Reclaimed Water Pilot Recharge Study
Chloride Levels in the Spread and Extracted Water with 3-Month Adjustment

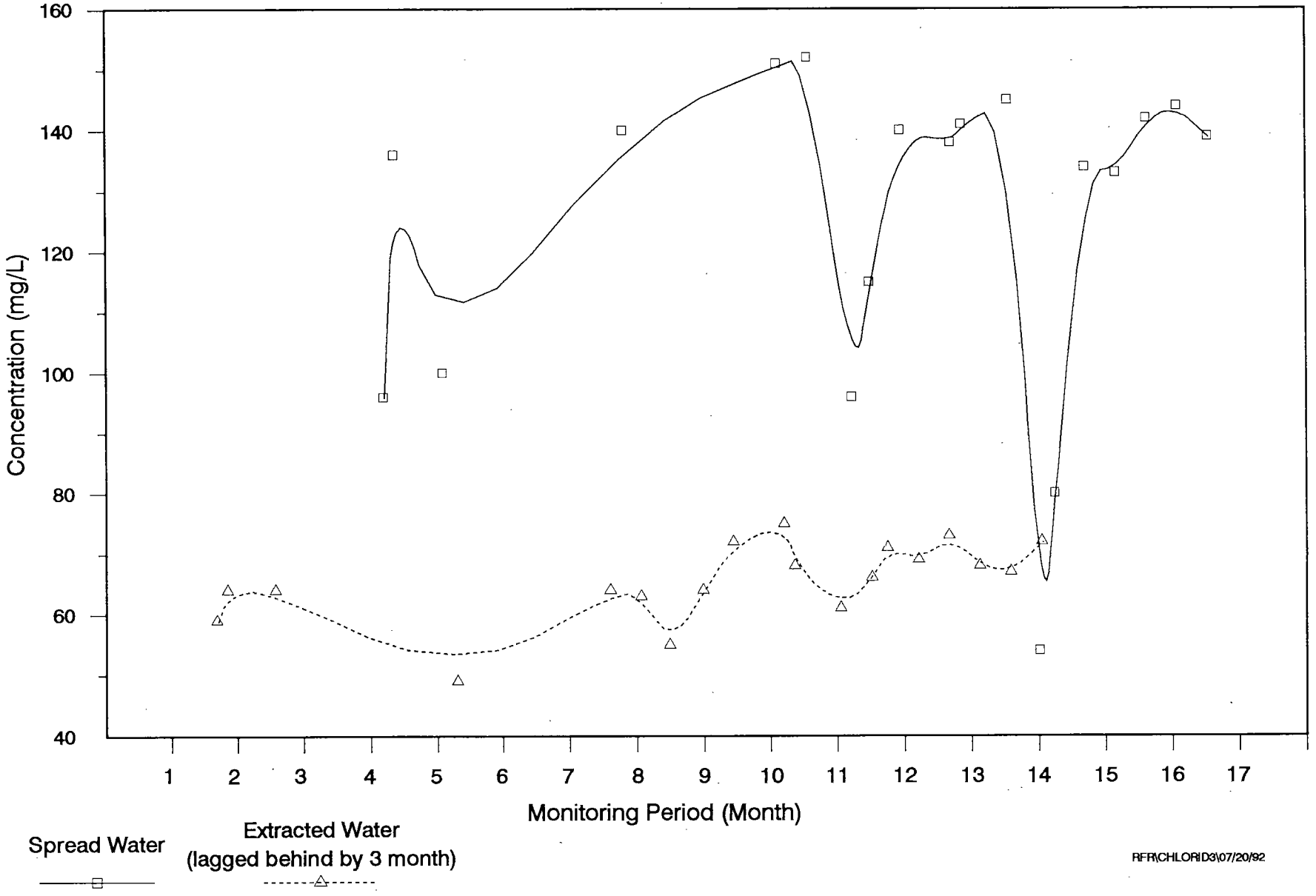

Table 1

Department of Water & Power
Headworks Reclaimed Water Pilot Recharge Study
Records of Spread & Pumped Water

Date	Volume (Acre-Ft)		*Ratio
	Spread	Pumped	
First Quarter Total (July to September '91)	51.65	70.61	1.37
Second Quarter Total (October to December '91)	44.79	76.15	1.70
Third Quarter Total (January to March '92)	32.42	73.97	2.28
03/30/92 to 04/05/92	3.52	5.96	1.69
04/06/92 to 04/12/92	3.67	5.91	1.61
04/13/92 to 04/19/92	7.78**	5.99	0.77
04/20/92 to 04/26/92	4.39	6.01	1.37
April	19.36	23.87	1.23
04/27/92 to 05/03/92	8.94**	5.95	0.67
05/04/92 to 05/10/92	3.21	5.64	1.76
05/11/92 to 05/17/92	7.91**	6.01	0.76
05/18/92 to 05/24/92	4.23	6.54	1.55
05/25/92 to 05/31/92	8.04**	5.84	0.73
May	32.33	29.98	0.93
06/01/92 to 06/07/92	6.94	6.01	0.87
06/08/92 to 06/14/92	7.80**	5.95	0.76
06/15/92 to 06/21/92	3.84	5.93	1.54
06/22/92 to 06/28/92	4.42	5.92	1.34
June	23.00	23.81	1.03
Fourth Quarter Total (April to June '92)	74.69	77.66	1.04
First Year of Study (July '91 to June '92)	203.55	298.39	1.47

* Volume pumped divided by volume spread
** Includes make-up for not spreading (rain or maintenance)

Table 2

Monitoring Frequency Set by the Regional Water Quality Control Board

for the First Year

Location	Frequency			
	Priority Pollutants	Drinking Water Standards	Coliform	Discharge Standards
Spread Water	Quarterly	Quarterly	Quarterly	Quarterly
Extracted Water	Biweekly	Quarterly	Biweekly	Quarterly
GAC Effluent	Monthly	Monthly	Monthly	None
4 Monitoring Wells	Quarterly	Quarterly	Biweekly	None

Table 3

Discharge Limits Set by the Regional Water Quality Control Board for Extracted Water

Constituents	Unit	Maximum Discharge Limitations
Temperature	(°F)	NL[1]
Total Dissolved Solids	mg/L	950
Total Suspended Solids	mg/L	150
Total Settleable Solids	mL/L/hr	0.3
Oil & Grease	mg/L	15
Biochemical Oxygen Demand (BOD_5 20°C)	mg/L	60
Chloride	mg/L	150
Sulfate	mg/L	300
Nitrate + Nitrite (N)	mg/L	8
pH	unit	NL
Turbidity	NTU	150

[1] No limit

Table 4

Comparison of Water Quality Between Spread and Extracted Water Constituents at Reduced Concentrations in the Extracted Water

Constituents	Maximum Contaminant Level	DL	Spread Water (June 1991) Avg.$	Min.	Max.	n	Extracted Water After Spreading § (October 1991 to June 1992) Avg.$	Min.	Max.	n	Percent Reduced §§
Total Coliform (MPN/100mL)	#	2.2	22012	16000	160000	2 (8)	2.57	9.20	9.20	1 (19)	100
Fecal Coliform (MPN/100mL)	#	2.2	755	2945	3000	2 (8)	2.20	2.20	2.20	1 (19)	100
Ammonia (mg/L)	NS	0.05	13.97	5.22	21.90	6 (6)	ND			0 (2)	100
Gamma BHC (ug/L)	0.2 **	0.0002	0.02	0.01	0.05	4 (6)	ND			0 (19)	99
Turbidity (N.T.U)	0.5 *	0.1	11.83	1.80	32.60	6 (6)	0.15	0.13	0.17	2 (2)	99
Alpha BHC (ug/L)	0.7 AL	0.0002	0.01	0.01	0.08	2 (6)	ND			0 (19)	99
Iron (mg/L)	0.3 *	0.007	0.32	0.07	1.07	6 (6)	ND			0 (2)	98
Manganese (mg/L)	0.05 ***	0.001	0.039	0.013	0.073	6 (6)	ND			0 (2)	97
Dieldrin (ug/L)	0.05 AL	0.0005	0.02	0.02	0.07	3 (6)	ND			0 (19)	97
Nitrite (N) (mg/L)	1 **	0.01	0.32	0.08	0.75	5 (6)	ND			0 (2)	97
Heptachlor Epoxide (ug/L)	0.01 *	0.0004	0.01	0.00	0.03	3 (6)	ND			0 (19)	96
Alpha Endosulfan (I) (ug/L)	NS	0.0004	0.01	0.02	0.03	2 (6)	ND			0 (19)	95
Biochemical Oxygen Demand (mg/L)	NS	1	13.67	4.00	20.00	6 (6)	1.00	1.00	1.00	1 (2)	93
Total Suspended Solids (mg/L)	NS	1	26.37	2.00	99.00	6 (6)	2.00	3.00	3.00	1 (2)	92
Aluminum (mg/L)	1 *	0.02	0.26	0.09	0.80	5 (6)	ND			0 (2)	92
DOC (mg/L)	NS	0.05	8.19	5.32	9.40	6 (6)	0.71	0.67	0.74	2 (2)	91
Zinc (mg/L)	5 ***	0.002	0.045	0.017	0.063	6 (6)	0.005	0.002	0.026	15 (19)	89
Bentazon (ug/L)	18 *	0.06	0.51	0.66	2.13	2 (6)	ND			0 (2)	88
4,4'-DDT (ug/L)	NS	0.0007	0.01	0.03	0.03	1 (6)	ND			0 (19)	88
4,4'-DDE (ug/L)	NS	0.0006	0.005	0.01	0.02	2 (6)	ND			0 (19)	88
TOC (mg/L)	NS	0.05	11.60	6.29	19.70	6 (6)	1.65	0.89	2.40	2 (2)	86
Color (Color Unit)	15 ***	5	33.33	20.00	50.00	6 (6)	5.00	5.00	5.00	2 (2)	85
Heptachlor (ug/L)	0.01 *	0.0005	0.002	0.01	0.01	1 (6)	ND			0 (19)	79
Endrin (ug/L)	0.2 *	0.0007	0.002	0.01	0.01	1 (6)	ND			0 (19)	70
Cyanide (mg/L)	0.2 **	0.01	0.03	0.01	0.05	6 (6)	ND			0 (19)	63
MBAS (mg/L)	0.5 ***	0.1	0.27	0.10	0.50	6 (6)	ND			0 (2)	63
2,4,5-TP (ug/L)	10 *	0.05	0.13	0.11	0.45	2 (6)	ND			0 (2)	60
Odor (T.O.N.)	3 *	2	4.50	4.00	5.00	6 (6)	2.00	2.00	2.00	2 (2)	56
Chloroform (ug/L)	##	0.08	1.11	1.04	1.61	5 (6)	0.50	0.30	3.18	8 (19)	55
Total Settleable Solids (mL/L/hr)	NS	0.1	0.22	0.40	0.50	2 (6)	ND			0 (2)	54
Chloride (mg/L)	250 [500-600]	1.0	127.00	54.00	152.00	15 (15)	67.00	55.00	75.00	15 (15)	47
2,4-D (ug/L)	100 *	0.24	0.43	0.41	0.81	3 (6)	ND			0 (2)	44
Trichloroethene (ug/L)	5 *	0.07	0.15	0.30	0.32	2 (6)	0.09	0.36	0.36	1 (19)	43
Copper (mg/L)	1 *	0.006	0.015	0.006	0.028	6 (6)	0.010	0.006	0.036	15 (19)	38
Fluoride (mg/L)	1.4 - 2.4 *	0.05	0.59	0.35	0.80	6 (6)	0.37	0.30	0.44	2 (2)	37
2,4,5-T (ug/L)	NS	0.04	0.06	0.07	0.13	2 (6)	ND			0 (2)	34
Oil & Grease (mg/L)	NS	1	1.50	1.00	3.00	3 (6)	ND			0 (2)	33
Strontium-90 (pCi/L)	8 *	0.5	0.74	1.70	1.70	1 (5)	ND			0 (1)	32
1,1,1-Trichloroethane (ug/L)	200 *	0.09	0.14	0.15	0.25	3 (6)	0.10	0.23	0.23	1 (19)	32
Mercury (mg/L)	0.002 *	0.0002	0.0008	0.0002	0.0038	3 (6)	0.0006	0.0075	0.0075	1 (19)	27
Arsenic (mg/L)	0.05 *	0.006	0.008	0.006	0.016	3 (6)	ND			0 (19)	27
Lead (mg/L)	0.05 *	0.028	0.033	0.040	0.045	2 (6)	ND			0 (19)	15
Nickel (mg/L)	0.1 **	0.015	0.02	0.02	0.02	3 (6)	ND			0 (19)	12
Gross Beta (pCi/L)	50 *	3	11.33	4.00	17.00	6 (6)	10.00	8.00	12.00	2 (2)	12
pH (pH Unit)	6.5 - 8.5 ***	0.01	7.98	7.28	8.68	6 (6)	7.09	7.05	7.13	2 (2)	11
Cadmium (mg/L)	0.01 *	0.003	0.0033	0.0030	0.0042	3 (6)	0.0030	0.0030	0.0033	4 (19)	8
Chromium (mg/L)	0.05 *	0.012	0.013	0.013	0.015	2 (6)	ND			0 (19)	5

Table 4 (cont'd)

Comparison of Water Quality Between Spread and Extracted Water Constituents at Reduced Concentrations in the Extracted Water

Constituents	Maximum Contaminant Level	DL	Spread Water (June 1991)				Extracted Water After Spreading § (October 1991 to June 1992)				Percent Reduced §§
			Avg.$	Min.	Max.	n	Avg.$	Min.	Max.	n	
Temperature (Field) (degrees C)	NS	0.1	20.87	15.60	24.20	3 (6)	19.95	18.70	21.20	2 (2)	4
Sulfate (mg/L)	250 [500-600]	1.0	259.00	142.00	438.00	15 (15)	253.00	216.00	283.00	15 (15)	2

* State MCL as of July 1992.

** Fedral MCL as of July 1992.

*** State Secondary MCL, more stringent than Primary MCL.

§ Considering three months travel time between the spreading ground and the extraction well.

DL = Detection Limit

n = Number of detected samples.

( ) = Number refers to the total number of samples analyzed.

$ For non-detected results, the analytical detection limits were used in the average calculations.

§§ Percent change was calculated from the comparison of two average values.

No MCL (water has not been disenfected).

Total trihalomethanes MCL within distribution system is 100 µg/L (annual average).

ND = Not detected.

NS = No MCL standard.

AL = Action level; unregulated constituent .

[] = number shows the State designated upper short term range level;
number outside of the box brackets is Maximum Recommended Level.

Table 5

Comparison of Water Quality Between Spread and Extracted Water Constituents at Higher Concentrations in the Extracted Water

Constituents	Maximum Contaminant Level	DL	Spread Water (June 1991) Avg.$	Min.	Max.	n	Extracted Water After Spreading § (October 1991 to June 1992) Avg.$	Min.	Max.	n	Percent Reduced §§
Toluene (ug/L)	1 ***	0.14	0.14	0.11	0.11	1 (6)	ND			0 (19)	-4
Gross Alpha (pCi/L)	15 *	2	3.33	3.00	4.00	5 (6)	3.50	5.00	5.00	1 (2)	-5
Conductivity (umho/cm)	900 [1600-2200]	1	1008	711	1130	6 (6)	1110	1020	1200	2 (2)	-10
1,2-Dichloroethane (ug/L)	0.5 *	0.39	ND			0 (6)	0.45	1.47	1.47	1 (19)	-15
Total Dissolved Solids (mg/L)	500 [1000-1500]	1	645.33	438.00	804.00	6 (6)	747.00	738.00	756.00	2 (2)	-16
Bromodichloromethane (ug/L)	NS	0.04	0.20	0.11	0.54	5 (6)	0.24	1.57	2.23	2 (19)	-18
Beryllium (mg/L)	0.004 **	0.0003	0.0005	0.0017	0.0017	1 (6)	0.0008	0.0014	0.0021	7 (19)	-55
Barium (mg/L)	1 *	0.01	0.032	0.021	0.053	6 (6)	0.067	0.065	0.068	2 (2)	-107
Selenium (mg/L)	0.01 *	0.002	0.003	0.002	0.007	4 (6)	0.008	0.003	0.015	17 (19)	-123
Nitrate (N) (mg/L)	10 *	0.1	3.03	0.70	6.60	6 (6)	7.10	6.20	8.00	2 (2)	-134
Dibromochloromethane (ug/L)	##	0.03	0.13	0.09	0.28	4 (6)	0.37	0.76	2.23	4 (19)	-177
Chlorodibromomethane (ug/L)	##	0.03	0.13	0.09	0.28	4 (6)	0.40	0.76	0.76	1 (2)	-200
Bromoform (ug/L)	##	0.02	ND			0 (6)	0.07	1.01	1.01	1 (19)	-261
Tetrachloroethene (ug/L)	5 *	0.04	0.22	0.18	0.56	4 (6)	2.09	1.13	4.02	17 (19)	-866

* State MCL as of July 1992.

** Fedral MCL as of July 1992.

*** State Secondary MCL, more stringent than Primary MCL.

§ Considering three months travel time between the spreading ground and the extraction well.

DL = Detection Limit

n = Number of detected samples.

( ) = Number refers to the total number of samples analyzed.

$ For non-detected results, the analytical detection limits were used in the average calculations.

§§ Percent change was calculated from the comparison of two average values.

Total trihalomethanes MCL within distribution system is 100 µg/L (annual average).

ND = Not detected.

NS = No MCL standard.

[] = number shows the State designated upper short term range level;
number outside of the box brackets is Maximum Recommended Level.

Water Quality of Spread Water and Extracted Water Before and After Spreading

Constituents	Maximum Contaminant Level	DL	Spread Water (June 1991 to June 1992)				Extracted Water								
							Before Spreading (June of 1991)				After Spreading § (Oct. of 1991 to June of 1992)				Percent
			Avg.$	Min.	Max.	n	Avg.$	Min.	Max.	n	Avg.$	Min.	Max.	n	Change $$
Chlorodibromomethane (ug/L)	##	0.03	0.13	0.09	0.28	4 (6)	ND			0 (2)	0.40	0.76	0.76	1 (2)	1217
Dibromochloromethane (ug/L)	##	0.03	0.13	0.09	0.28	4 (6)	ND			0 (2)	0.37	0.76	2.23	4 (19)	1118
Chloroform (ug/L)	##	0.08	1.11	1.04	1.61	5 (6)	ND			0 (2)	0.50	0.30	3.18	8 (19)	528
Bromodichloromethane (ug/L)	NS	0.04	0.20	0.11	0.54	5 (6)	ND			0 (2)	0.24	1.57	2.23	2 (19)	489
Bromoform (ug/L)	##	0.02	ND			0 (6)	ND			0 (2)	0.07	1.01	1.01	1 (19)	-261
Beryllium (mg/L)	0.004 **	0.0003	0.0005	0.0017	0.0017	1 (6)	ND			0 (2)	0.0008	0.0014	0.0021	7 (19)	176
Selenium (mg/L)	0.01 *	0.002	0.003	0.002	0.007	4 (6)	0.0034	0.0047	0.0047	1 (2)	0.0076	0.0027	0.0147	17 (19)	126
TOC (mg/L)	NS	0.05	11.60	6.29	19.70	6 (6)	0.83	0.66	1.00	2 (2)	1.65	0.89	2.40	2 (2)	98
DOC (mg/L)	NS	0.05	8.19	5.32	9.40	6 (6)	0.44	0.30	0.57	2 (2)	0.71	0.67	0.74	2 (2)	62
Mercury (mg/L)	0.002 *	0.0002	0.0008	0.0002	0.0038	3 (6)	0.0004	0.0002	0.0006	2 (2)	0.0006	0.0075	0.0075	1 (19)	46
Gross Beta (pCi/L)	50 *	3	11.33	4.00	17.00	6 (6)	7.50	12.00	12.00	1 (2)	10.00	8.00	12.00	2 (2)	33
Trichloroethene (ug/L)	5 *	0.07	0.15	0.30	0.32	2 (6)	ND			0 (2)	0.09	0.36	0.36	1 (19)	22
Nitrate (N) (mg/L)	10 *	0.1	3.03	0.70	6.60	6 (6)	6.00	5.50	6.50	2 (2)	7.10	6.20	8.00	2 (2)	18
Total Coliform (MPN/100mL)	#	2.2	22012	16000	160000	2 (8)	2.20	2.20	2.20	1 (2)	2.57	9.20	9.20	1 (19)	17
1,2-Dichloroethane (ug/L)	0.5 *	0.39	ND			0 (6)	ND			0 (2)	0.45	1.47	1.47	1 (19)	15
Chloride (mg/L)	250 [500-600]	1.0	127.00	54.00	152.00	15 (15)	61.50	59.00	64.00	2 (2)	67.00	55.00	75.00	15 (15)	9
1,1,1-Trichloroethane (ug/L)	200 *	0.09	0.14	0.15	0.25	3 (6)	ND			0 (2)	0.10	0.23	0.23	1 (19)	8
Fluoride (mg/L)	1.4 - 2.4 *	0.05	0.59	0.35	0.80	6 (6)	0.35	0.30	0.40	2 (2)	0.37	0.30	0.44	2 (2)	6
pH (pH Unit)	6.5 - 8.5 ***	0.01	7.98	7.28	8.68	6 (6)	7.11	7.08	7.14	2 (2)	7.09	7.05	7.13	2 (2)	0
Cadmium (mg/L)	0.01 *	0.003	0.0033	0.0030	0.0042	3 (6)	0.0032	0.0033	0.0033	1 (2)	0.0030	0.0030	0.0033	4 (19)	-4
Total Dissolved Solids (mg/L)	500 [1000-1500	1	645.33	438.00	804.00	6 (6)	830.00	796.00	864.00	2 (2)	747.00	738.00	756.00	2 (2)	-10
Sulfate (mg/L)	250 [500-600]	1.0	259.00	142.00	438.00	15 (15)	295.00	279.00	311.00	2 (2)	253.00	216.00	283.00	15 (15)	-14
Barium (mg/L)	1 *	0.01	0.032	0.021	0.053	6 (6)	0.080	0.075	0.084	2 (2)	0.067	0.065	0.068	2 (2)	-16
Conductivity (umho/cm)	900 [1600-2200	1	1008	711	1130	6 (6)	1350.00	1310.00	1390.00	2 (2)	1110.00	1020.00	1200.00	2 (2)	-18
Chromium (mg/L)	0.05 *	0.012	0.013	0.013	0.015	2 (6)	0.015	0.018	0.018	1 (2)	ND			0 (19)	-20
Odor (T.O.N.)	3 *	2	4.50	4.00	5.00	6 (6)	2.50	2.00	3.00	2 (2)	2.00	2.00	2.00	2 (2)	-20
Strontium-90 (pCi/L)	8 *	0.5	0.74	1.70	1.70	1 (5)	0.65	0.80	0.80	1 (2)	ND			0 (1)	-23
Oil & Grease (mg/L)	NS	1	1.50	1.00	3.00	3 (6)	1.50	1.00	2.00	2 (2)	ND			0 (2)	-33
Lead (mg/L)	0.05 *	0.028	0.033	0.040	0.045	2 (6)	0.045	0.044	0.046	2 (2)	ND			0 (19)	-38
Gross Alpha (pCi/L)	15 *	2	3.33	3.00	4.00	5 (6)	7.50	6.00	9.00	2 (2)	3.50	5.00	5.00	1 (2)	-53
Tetrachloroethene (ug/L)	5 *	0.04	0.22	0.18	0.56	4 (6)	4.61	4.40	4.81	2 (2)	2.09	1.13	4.02	17 (19)	-55
Zinc (mg/L)	5 ***	0.002	0.045	0.017	0.063	6 (6)	0.013	0.008	0.018	2 (2)	0.005	0.002	0.026	15 (19)	-62
Biochemical Oxygen Demand (mg/L)	NS	1	13.67	4.00	20.00	6 (6)	3.00	3.00	3.00	2 (2)	1.00	1.00	1.00	1 (2)	-67
Total Suspended Solids (mg/L)	NS	1	26.37	2.00	99.00	6 (6)	8.00	5.00	11.00	2 (2)	2.00	3.00	3.00	1 (2)	-75
Copper (mg/L)	1 *	0.006	0.015	0.006	0.028	6 (6)	0.042	0.021	0.063	2 (2)	0.010	0.006	0.036	15 (19)	-77
Turbidity (N.T.U)	0.5 *	0.1	11.83	1.80	32.60	6 (6)	1.00	1.00	1.00	2 (2)	0.15	0.13	0.17	2 (2)	-85

Water Quality of Spread Water and Extracted Water Before and After Spreading

Constituents	Maximum Contaminant Level	DL	Spread Water (June 1991 to June 1992)				Extracted Water								
							Before Spreading (June of 1991)				After Spreading § (Oct. of 1991 to June of 1992)				Percent
			Avg.$	Min.	Max.	n	Avg.$	Min.	Max.	n	Avg.$	Min.	Max.	n	Change $$
Manganese (mg/L)	0.05 ***	0.001	0.039	0.013	0.073	6 (6)	0.0070	0.0044	0.0095	2 (2)	ND			0 (2)	-86
Iron (mg/L)	0.3 *	0.007	0.32	0.07	1.07	6 (6)	0.090	0.082	0.097	2 (2)	ND			0 (2)	-92
Temperature (Field) (degrees C)	NS	0.1	20.87	15.60	24.20	3 (6)	NS			0 (2)	19.95	18.70	21.20	2 (2)	NS
1,1,1,2-Tetrachloroethane (ug/L)	1 *	0.37	ND			0 (6)	ND			0 (2)	ND			0 (2)	
1,1,2,2-Tetrachloroethane (ug/L)	1 *	0.23	ND			0 (6)	ND			0 (2)	ND			0 (19)	
1,1,2-Trichloroethane (ug/L)	32 *	0.31	ND			0 (6)	ND			0 (2)	ND			0 (19)	
1,1-Dichloroethane (ug/L)	5 *	0.15	ND			0 (6)	ND			0 (2)	ND			0 (19)	
1,1-Dichloroethene (ug/L)	6 *	0.03	ND			0 (6)	ND			0 (2)	ND			0 (19)	
1,1-Dichloropropene (ug/L)	NS	0.06	ND			0 (6)	ND			0 (2)	ND			0 (19)	
1,2,3-Trichloropropane (ug/L)	NS	0.42	ND			0 (6)	ND			0 (2)	ND			0 (2)	
1,2,4-Trichlorobenzene (ug/L)	70 **	0.31	ND			0 (6)	ND			0 (2)	ND			0 (19)	
1,2-Dibromoethane (ug/L)	0.02 *	0.007	ND			0 (6)	ND			0 (2)	ND			0 (2)	
1,2-Dichlorobenzene (ug/L)	600 **	0.04	ND			0 (6)	ND			0 (2)	ND			0 (19)	
1,2-Dichloropropane (ug/L)	5 *	0.3	ND			0 (6)	ND			0 (2)	ND			0 (19)	
1,2-Diphenylhydrazine (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
1,3-Dichlorobenzene (ug/L)	130 AL	0.32	ND			0 (6)	ND			0 (2)	ND			0 (19)	
1,3-Dichloropropane (ug/L)	NS	0.19	ND			0 (6)	ND			0 (2)	ND			0 (2)	
1,4-Dichlorobenzene (ug/L)	5 *	0.36	ND			0 (6)	ND			0 (2)	ND			0 (19)	
2,2-Dichloropropane (ug/L)	NS	0.11	ND			0 (6)	ND			0 (2)	ND			0 (2)	
2,4,5-T (ug/L)	NS	0.04	0.06	0.07	0.13	2 (6)	ND			0 (2)	ND			0 (2)	
2,4,5-TP (ug/L)	10 *	0.05	0.13	0.11	0.45	2 (6)	ND			0 (2)	ND			0 (2)	
2,4,6-Trichlorophenol (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
2,4-D (ug/L)	100 *	0.24	0.43	0.41	0.81	3 (6)	ND			0 (2)	ND			0 (2)	
2,4-Dichlorophenol (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
2,4-Dimethylphenol (ug/L)	400 AL	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
2,4-Dinitrophenol (ug/L)	NS	25.0	ND			0 (6)	ND			0 (2)	ND			0 (19)	
2,4-Dinitrotoluene (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
2,6-Dinitrotoluene (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
2-Chloroethyl Vinyl Ether (ug/L)	NS	0.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
2-Chloronaphthalene (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
2-Chlorophenol (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
2-Chlorotoluene (ug/L)	NS	0.21	ND			0 (6)	ND			0 (2)	ND			0 (2)	
2-Nitrophenol (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
3,3'-Dichlorobenzidine (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
4,4'-DDD (ug/L)	NS	0.0007	ND			0 (6)	ND			0 (2)	ND			0 (19)	
4,4'-DDE (ug/L)	NS	0.0006	0.005	0.01	0.02	2 (6)	ND			0 (2)	ND			0 (19)	

Water Quality of Spread Water and Extracted Water Before and After Spreading

Constituents	Maximum Contaminant Level	DL	Spread Water (June 1991 to June 1992)				Extracted Water								
							Before Spreading (June of 1991)				After Spreading § (Oct. of 1991 to June of 1992)				Percent
			Avg.$	Min.	Max.	n	Avg.$	Min.	Max.	n	Avg.$	Min.	Max.	n	Change $$
4,4'-DDT (ug/L)	NS	0.0007	0.01	0.03	0.03	1 (6)	ND			0 (2)	ND			0 (19)	
4,6-Dinitro-o-Cresol (ug/L)	NS	25.0	ND			0 (6)	ND			0 (2)	ND			0 (19)	
4-Bromophenyl Phenyl Ether (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
4-Chlorophenyl Phenyl Ether (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
4-Chlorotoluene (ug/L)	NS	0.23	ND			0 (6)	ND			0 (2)	ND			0 (2)	
4-Nitrophenol (ug/L)	NS	25.0	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Acenaphthene (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Acenaphthylene (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Acrolein (ug/L)	NS	0.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Acrylonitrile (ug/L)	NS	0.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Aldrin (ug/L)	NS	0.0004	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Alpha BHC (ug/L)	0.7 AL	0.0002	0.01	0.01	0.08	2 (6)	ND			0 (2)	ND			0 (19)	
Alpha Endosulfan (I) (ug/L)	NS	0.0004	0.01	0.02	0.03	2 (6)	ND			0 (2)	ND			0 (19)	
Alpha-Chlordane (ug/L)	0.1 *	0.0001	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Aluminum (mg/L)	1 *	0.02	0.26	0.09	0.80	5 (6)	ND			0 (2)	ND			0 (2)	
Ammonia (mg/L)	NS	0.05	13.97	5.22	21.90	6 (6)	ND			0 (2)	ND			0 (2)	
Anthracene (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Antimony (mg/L)	0.006 **	0.025	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Arsenic (mg/L)	0.05 *	0.006	0.008	0.006	0.016	3 (6)	ND			0 (2)	ND			0 (19)	
Atrazine (ug/L)	3 *	1	ND			0 (6)	ND			0 (2)	ND			0 (2)	
Bentazon (ug/L)	18 *	0.06	0.51	0.66	2.13	2 (6)	ND			0 (2)	ND			0 (2)	
Benzene (ug/L)	1 *	0.13	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Benzidine (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Benzo (g,h,i) Perylene (ug/L)	NS	12.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Benzo(a) Anthracene (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Benzo(a) Pyrene (ug/L)	0.2 **	12.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Benzo(b) Fluoranthene (ug/L)	NS	12.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Benzo(k) Fluoranthene (ug/L)	NS	12.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Beta BHC (ug/L)	0.3 AL	0.0004	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Beta Endosulfan (II) (ug/L)	NS	0.0005	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Bis(2-Chloroethoxy) Methane (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Bis(2-Chloroethyl) Ether (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Bis(2-Chloroisopropyl) Ether (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Bis(2-Ethylhexyl) Phthalate (ug/L)	4 *	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Bromobenzene (ug/L)	NS	0.34	ND			0 (6)	ND			0 (2)	ND			0 (2)	
Bromochloromethane (ug/L)	NS	0.15	ND			0 (6)	ND			0 (2)	ND			0 (2)	

Water Quality of Spread Water and Extracted Water Before and After Spreading

Constituents	Maximum Contaminant Level	DL	Spread Water (June 1991 to June 1992)				Extracted Water								
							Before Spreading (June of 1991)				After Spreading § (Oct. of 1991 to June of 1992)				Percent
			Avg.$	Min.	Max.	n	Avg.$	Min.	Max.	n	Avg.$	Min.	Max.	n	Change $$
Bromomethane (ug/L)	NS	0.14	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Butyl Benzyl Phthalate (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Carbon Tetrachloride (ug/L)	0.5 *	0.05	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Chlorobenzene (ug/L)	30 *	0.26	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Chloroethane (ug/L)	NS	0.17	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Chloromethane (ug/L)	NS	0.18	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Chrysene (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Cis-1,2-Dichloroethene (ug/L)	6 *	0.19	ND			0 (6)	ND			0 (2)	ND			0 (2)	
Cis-1,3-Dichloropropene (ug/L)	0.5 *	0.21	ND			0 (6)	ND			0 (2)	ND			0 (2)	
Color (Color Unit)	15 ***	5	33.33	20.00	50.00	6 (6)	5.00	5.00	5.00	2 (2)	5.00	5.00	5.00	2 (2)	
Cyanide (mg/L)	0.2 **	0.01	0.03	0.01	0.05	6 (6)	ND			0 (2)	ND			0 (19)	
DBCP (ug/L)	0.2 ***	0.007	ND			0 (6)	ND			0 (2)	ND			0 (2)	
Delta BHC (ug/L)	NS	0.0002	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Di-N-Butyl Phthalate (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Di-N-Octyl Phthalate (ug/L)	NS	12.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Dibenzo (a,h) Anthracene (ug/L)	NS	12.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Dibromomethane (ug/L)	NS	0.27	ND			0 (6)	ND			0 (2)	ND			0 (2)	
Dichlorodifluoromethane (ug/L)	NS	0.13	ND			0 (6)	ND			0 (2)	ND			0 (2)	
Dieldrin (ug/L)	0.05 AL	0.0005	0.02	0.02	0.07	3 (6)	ND			0 (2)	ND			0 (19)	
Diethyl Phthalate (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Dimethyl Phthalate (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
EDB (ug/L)	0.02 *	0.007	ND			0 (6)	ND			0 (2)	ND			0 (2)	
Endosulfan Sulfate (ug/L)	NS	0.001	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Endrin (ug/L)	0.2 *	0.0007	0.002	0.01	0.01	1 (6)	ND			0 (2)	ND			0 (19)	
Endrin Aldehyde (ug/L)	NS	0.0004	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Ethylbenzene (ug/L)	680 *	0.08	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Fecal Coliform (MPN/100mL)	#	2.2	755	2945	3000	2 (8)	ND			0 (2)	2.20	2.20	2.20	1 (19)	
Fluoranthene (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Fluorene (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Gamma BHC (ug/L)	0.2 **	0.0002	0.02	0.01	0.05	4 (6)	ND			0 (2)	ND			0 (19)	
Gamma-Chlordane (ug/L)	0.1 *	0.0002	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Heptachlor (ug/L)	0.01 *	0.0005	0.002	0.01	0.01	1 (6)	ND			0 (2)	ND			0 (19)	
Heptachlor Epoxide (ug/L)	0.01 *	0.0004	0.01	0.00	0.03	3 (6)	ND			0 (2)	ND			0 (19)	
Hexachlorobenzene (ug/L)	1 **	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Hexachlorobutadiene (ug/L)	NS	0.1	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Hexachlorocyclopentadiene (ug/L)	50 **	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	

Water Quality of Spread Water and Extracted Water Before and After Spreading

Constituents	Maximum Contaminant Level	DL	Spread Water (June 1991 to June 1992)				Extracted Water								
							Before Spreading (June of 1991)				After Spreading § (Oct. of 1991 to June of 1992)				Percent
			Avg.$	Min.	Max.	n	Avg.$	Min.	Max.	n	Avg.$	Min.	Max.	n	Change $$
Hexachloroethane (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Indeno(1,2,3-cd) Pyrene (ug/L)	NS	12.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Isophorone (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
MBAS (mg/L)	0.5 ***	0.1	0.27	0.10	0.50	6 (6)	ND			0 (2)	ND			0 (2)	
Methylene Chloride (ug/L)	5 **	0.39	ND			0 (6)	ND			0 (2)	ND			0 (19)	
N-Nitrosodi-N-Propylamine (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
N-Nitrosodimethylamine (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
N-Nitrosodiphenylamine (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Naphthalene (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Nickel (mg/L)	0.1 **	0.015	0.02	0.02	0.02	3 (6)	ND			0 (2)	ND			0 (19)	
Nitrite (N) (mg/L)	1 **	0.01	0.32	0.08	0.75	5 (6)	ND			0 (2)	ND			0 (2)	
Nitrobenzene (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
p-Chloro-m-Cresol (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
PCB-1016 (ug/L)	0.5 **	0.0008	ND			0 (6)	ND			0 (2)	ND			0 (19)	
PCB-1221 (ug/L)	0.5 **	0.001	ND			0 (6)	ND			0 (2)	ND			0 (19)	
PCB-1232 (ug/L)	0.5 **	0.002	ND			0 (6)	ND			0 (2)	ND			0 (19)	
PCB-1242 (ug/L)	0.5 **	0.001	ND			0 (6)	ND			0 (2)	ND			0 (19)	
PCB-1248 (ug/L)	0.5 **	0.0002	ND			0 (6)	ND			0 (2)	ND			0 (19)	
PCB-1254 (ug/L)	0.5 **	0.001	ND			0 (6)	ND			0 (2)	ND			0 (19)	
PCB-1260 (ug/L)	0.5 **	0.0004	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Pentachlorophenol (ug/L)	1 **	25.0	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Phenanthrene (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Phenol (ug/L)	5 AL	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Pyrene (ug/L)	NS	2.5	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Silver (mg/L)	0.05 *	0.007	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Simazine (ug/L)	10 *	3	ND			0 (6)	ND			0 (2)	ND			0 (2)	
TCDD (pg/L)	0.00003 **	8.0	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Thallium (mg/L)	0.002 **	0.02	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Thiobencarb (ug/L)	1 *	0.49	ND			0 (6)	ND			0 (2)	ND			0 (2)	
Toluene (ug/L)	1 ***	0.14	0.14	0.11	0.11	1 (6)	ND			0 (2)	ND			0 (19)	
Total Settleable Solids (mL/L/hr)	NS	0.1	0.22	0.40	0.50	2 (6)	ND			0 (2)	ND			0 (2)	
Toxaphene (ug/L)	5 *	0.003	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Trans-1,2-Dichloroethene (ug/L)	10 *	0.06	ND			0 (6)	ND			0 (2)	ND			0 (19)	
Trans-1,3-Dichloropropene (ug/L)	0.5 *	0.32	ND			0 (6)	ND			0 (2)	ND			0 (2)	
Trichlorofluoromethane (ug/L)	150 *	0.15	ND			0 (6)	ND			0 (2)	ND			0 (2)	
Tritium (pCi/L)	20000 *	500	ND			0 (6)	ND			0 (2)	ND			0 (2)	

Water Quality of Spread Water and Extracted Water Before and After Spreading

Constituents	Maximum Contaminant Level	DL	Spread Water (June 1991 to June 1992)				Extracted Water								
							Before Spreading (June of 1991)				After Spreading § (Oct. of 1991 to June of 1992)				Percent
			Avg.$	Min.	Max.	n	Avg.$	Min.	Max.	n	Avg.$	Min.	Max.	n	Change $$
Vinyl Chloride (ug/L)	0.5 *	0.06	ND			0 (6)	ND			0 (2)	ND			0 (19)	

* State MCL as of July 1992.

** Fedral MCL as of July 1992.

*** State Secondary MCL, more stringent than Primary MCL.

§ Considering three months travel time between the spreading ground and the extraction well.

n = Number of detected samples.

( ) = Number refers to the total number of samples analyzed.

$ For non-detected results, the analytical detection limits were used in the average calculations.

$$ Percent change was calculated from the comparison of two average values.

No MCL (water has not been disenfected).

Total trihalomethanes MCL within distribution system is 100 µg/L (annual average).

DL = Detection level.

ND = Not detected.

NS = No MCL standard.

AL = Action level; unregulated constituent .

[] = number shows the State designated upper short term range level;
number outside of the box brackets is Maximum Recommended Level.

Table 7

Water Quality Tabulation of the Extraction Well and the Monitoring Wells

Before Spreading

(June 1991 §)

Constituents	Maximum Contaminant	Extraction Well			Monitoring Well # 1			Monitoring Well # 2			Monitoring Well # 3			Monitoring Well # 4		
		Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.
Conductivity (umho/cm)	900 [1600-2200]	1350	1310	1390	1505	1460	1550	1420	1380	1460	1255	1200	1310	1315	1260	1370
Total Dissolved Solids (mg/L)	500 [1000-1500]	830	796	864	979	948	1010	910	880	940	794	756	832	848	804	892
Sulfate (mg/L)	250 [500-600]	295	279	311	351.5	337	366	312.5	301	324	286.5	271	302	308.5	294	323
Chloride (mg/L)	250 [500-600]	61.5	59	64	73	68	78	58	56	60	62	60	64	62	61	63
Total Suspended Solids (mg/L)	NS	8	5	11	56.5	8	105	13.5	8	19	11	7	15	19	13	25
Gross Beta (pCi/L)	50 *	7.5	12	12	10.5	7	14	9.5	9	10	11	7	15	7.5	6	9
Gross Alpha (pCi/L)	15 *	7.5	6	9	7.5	6	9	8	7	9	9	6	12	8	7	9
pH (pH Units)	6.5 - 8.5 ***	7.11	7.08	7.14	7.16	7.13	7.19	6.955	6.92	6.99	7.12	7.1	7.14	7.11	7.09	7.13
Nitrate (N) (mg/L)	10 *	6	5.5	6.5	14.2	11.4	17	7.75	7.3	8.2	4.75	4	5.5	3.2	1.5	4.9
Color (Color Units)	15 ***	5	5	5	7.5	5	10	5	5	5	5	5	5	5	5	5
Tetrachloroethene (ug/L)	5 *	4.61	4.40	4.81	ND			0.88	0.85	0.91	1.19	1.07	1.30	0.90	0.79	1.00
Biochemical Oxygen Demand (mg/L)	NS	3	3	3	3	2	4	3.5	3	4	3.5	3	4	3	3	3
Odor (T.O.N.)	3 *	2.5	2	3	3	2	4	6	5	7	4.5	4	5	5	4	6
Total Coliform (MPN/100mL)	#	2.20	2.20	2.20	5.70	9.20	9.20	ND			3.65	5.10	5.10	ND		
Oil & Grease (mg/L)	NS	1.5	1	2	ND			1.5	2	2	1.5	2	2	1.5	1	2
Turbidity (N.T.U)	0.5 *	1	1	1	42	4	80	1.5	1	2	6.5	1	12	3	1	5
TOC (mg/L)	NS	0.83	0.66	1.00	1.50	1.03	1.97	0.91	0.80	1.02	0.88	0.85	0.90	1.00	0.65	1.34
Strontium-90 (pCi/L)	8 *	0.65	0.8	0.8	ND			ND			1.25	2	2	ND		
DOC (mg/L)	NS	0.44	0.30	0.57	0.91	0.69	1.12	0.52	0.46	0.58	0.45	0.36	0.54	0.31	0.23	0.38
Fluoride (mg/L)	1.4 - 2.4 *	0.35	0.3	0.4	0.25	0.2	0.3	0.25	0.2	0.3	0.4	0.4	0.4	0.4	0.4	0.4
Iron (mg/L)	0.3 *	0.090	0.082	0.097	1.166	0.202	2.130	0.064	0.029	0.098	0.362	0.237	0.487	0.466	0.119	0.813
Barium (mg/L)	1 *	0.08	0.08	0.08	0.08	0.07	0.09	0.05	0.05	0.05	0.08	0.08	0.08	0.07	0.07	0.07
Lead (mg/L)	0.05 *	0.045	0.044	0.046	0.034	0.040	0.040	0.039	0.050	0.050	ND			0.040	0.030	0.050
Copper (mg/L)	1 *	0.042	0.021	0.063	ND			ND			0.007	0.007	0.007	ND		
Chromium (mg/L)	0.05 *	0.015	0.018	0.018	0.018	0.023	0.023	0.014	0.016	0.016	0.014	0.015	0.015	0.013	0.014	0.014
Zinc (mg/L)	5 ***	0.013	0.008	0.018	0.048	0.026	0.070	0.018	0.013	0.023	0.006	0.005	0.008	0.009	0.007	0.011
Manganese (mg/L)	0.05 ***	0.007	0.004	0.010	0.268	0.230	0.306	0.022	0.012	0.032	0.043	0.031	0.056	0.021	0.014	0.027
Selenium (mg/L)	0.01 *	0.003	0.005	0.005	ND			0.003	0.004	0.004	ND			ND		
Cadmium (mg/L)	0.01 *	0.003	0.003	0.003	ND			0.003	0.003	0.003	ND			ND		
Mercury (mg/L)	0.002 *	0.0004	0.0002	0.0006	0.0004	0.0003	0.0004	0.0013	0.0006	0.0020	0.0014	0.0005	0.0022	0.0004	0.0005	0.0005
Temperature (Field) (degrees C)	NS	NS			NS			NS			NS			NS		
Fecal Coliform (MPN/100mL)	#	ND			ND			ND			ND			ND		
Chloroform (ug/L)	##	ND			0.28	0.28	0.28	ND			ND			ND		

Table 7 (cont'd)

Water Quality Tabulation of the Extraction Well and the Monitoring Wells

Before Spreading

(June 1991 §)

Constituents	Maximum Contaminant	Extraction Well			Monitoring Well # 1			Monitoring Well # 2			Monitoring Well # 3			Monitoring Well # 4		
		Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.
1,2-Dichloroethane (ug/L)	0.5 *	ND			ND			ND			ND			ND		
Chlorodibromomethane (ug/L)	##	ND			0.485	0.46	0.51	ND			ND			ND		
Dibromochloromethane (ug/L)	##	ND			0.49	0.46	0.51	ND			ND			ND		
Bromodichloromethane (ug/L)	NS	ND			0.19	0.18	0.19	ND			ND			ND		
1,1,1-Trichloroethane (ug/L)	200 *	ND			ND			ND			ND			ND		
Trichloroethene (ug/L)	5 *	ND			ND			ND			0.82	0.69	0.95	ND		
Bromoform (ug/L)	##	ND			0.47	0.45	0.48	ND			ND			ND		
Beryllium (mg/L)	0.004 **	ND			ND			ND			ND			ND		
Ammonia (mg/L)	NS	ND			0.055	0.06	0.06	0.07	0.09	0.09	0.175	0.3	0.3	0.075	0.1	0.1
Nickel (mg/L)	0.1 **	ND			0.023	0.022	0.023	0.016	0.017	0.017	0.019	0.016	0.021	ND		
Nitrite (N) (mg/L)	1 **	ND			0.01	0.01	0.01	ND			ND			ND		
Chlorobenzene (ug/L)	30 *	ND			ND			ND			ND			ND		
Aluminum (mg/L)	1 *	ND			ND			ND			0.21	0.16	0.25	0.21	0.10	0.31
Arsenic (mg/L)	0.05 *	ND			ND			0.007	0.007	0.007	ND			ND		
1,1,1,2-Tetrachloroethane (ug/L)	1 *	ND			ND			ND			ND			ND		
1,1,2,2-Tetrachloroethane (ug/L)	1 *	ND			ND			ND			ND			ND		
1,1,2-Trichloroethane (ug/L)	32 *	ND			ND			ND			ND			ND		
1,1-Dichloroethane (ug/L)	5 *	ND			ND			ND			ND			ND		
1,1-Dichloroethene (ug/L)	6 *	ND			ND			ND			ND			ND		
1,1-Dichloropropene (ug/L)	NS	ND			ND			ND			ND			ND		
1,2,3-Trichloropropane (ug/L)	NS	ND			ND			ND			ND			ND		
1,2,4-Trichlorobenzene (ug/L)	70 **	ND			ND			ND			ND			ND		
1,2-Dibromoethane (ug/L)	0.02 *	ND			ND			ND			ND			ND		
1,2-Dichlorobenzene (ug/L)	600 **	ND			ND			ND			ND			ND		
1,2-Dichloropropane (ug/L)	5 *	ND			ND			ND			ND			ND		
1,2-Diphenylhydrazine (ug/L)	NS	ND			ND			ND			ND			ND		
1,3-Dichlorobenzene (ug/L)	130 AL	ND			ND			ND			ND			ND		
1,3-Dichloropropane (ug/L)	NS	ND			ND			ND			ND			ND		
1,4-Dichlorobenzene (ug/L)	5 *	ND			ND			ND			ND			ND		
2,2-Dichloropropane (ug/L)	NS	ND			ND			ND			ND			ND		
2,4,5-T (ug/L)	NS	ND			ND			ND			ND			ND		
2,4,5-TP (ug/L)	10 *	ND			ND			ND			ND			ND		
2,4,6-Trichlorophenol (ug/L)	NS	ND			ND			ND			ND			ND		

Table 7 (cont'd)

Water Quality Tabulation of the Extraction Well and the Monitoring Wells

Before Spreading

(June 1991 §)

Constituents	Maximum Contaminant	Extraction Well			Monitoring Well # 1			Monitoring Well # 2			Monitoring Well # 3			Monitoring Well # 4		
		Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.
2,4-D (ug/L)	100 *	ND			ND			ND			ND			ND		
2,4-Dichlorophenol (ug/L)	NS	ND			ND			ND			ND			ND		
2,4-Dimethylphenol (ug/L)	400 AL	ND			ND			ND			ND			ND		
2,4-Dinitrophenol (ug/L)	NS	ND			ND			ND			ND			ND		
2,4-Dinitrotoluene (ug/L)	NS	ND			ND			ND			ND			ND		
2,6-Dinitrotoluene (ug/L)	NS	ND			ND			ND			ND			ND		
2-Chloroethyl Vinyl Ether (ug/L)	NS	ND			ND			ND			ND			ND		
2-Chloronaphthalene (ug/L)	NS	ND			ND			ND			ND			ND		
2-Chlorophenol (ug/L)	NS	ND			ND			ND			ND			ND		
2-Chlorotoluene (ug/L)	NS	ND			ND			ND			ND			ND		
2-Nitrophenol (ug/L)	NS	ND			ND			ND			ND			ND		
3,3'-Dichlorobenzidine (ug/L)	NS	ND			ND			ND			ND			ND		
4,4'-DDD (ug/L)	NS	ND			ND			ND			ND			ND		
4,4'-DDE (ug/L)	NS	ND			ND			ND			ND			ND		
4,4'-DDT (ug/L)	NS	ND			ND			ND			ND			ND		
4,6-Dinitro-o-Cresol (ug/L)	NS	ND			ND			ND			ND			ND		
4-Bromophenyl Phenyl Ether (ug/L)	NS	ND			ND			ND			ND			ND		
4-Chlorophenyl Phenyl Ether (ug/L)	NS	ND			ND			ND			ND			ND		
4-Chlorotoluene (ug/L)	NS	ND			ND			ND			ND			ND		
4-Nitrophenol (ug/L)	NS	ND			ND			ND			ND			ND		
Acenaphthene (ug/L)	NS	ND			ND			ND			ND			ND		
Acenaphthylene (ug/L)	NS	ND			ND			ND			ND			ND		
Acrolein (ug/L)	NS	ND			ND			ND			ND			ND		
Acrylonitrile (ug/L)	NS	ND			ND			ND			ND			ND		
Aldrin (ug/L)	NS	ND			ND			ND			ND			ND		
Alpha BHC (ug/L)	0.7 AL	ND			ND			ND			ND			ND		
Alpha Endosulfan (I) (ug/L)	NS	ND			ND			ND			ND			ND		
Alpha-Chlordane (ug/L)	0.1 *	ND			ND			ND			ND			ND		
Anthracene (ug/L)	NS	ND			ND			ND			ND			ND		
Antimony (mg/L)	0.006 **	ND			ND			ND			ND			ND		
Atrazine (ug/L)	3 *	ND			ND			ND			ND			ND		
Bentazon (ug/L)	18 *	ND			ND			ND			ND			ND		
Benzene (ug/L)	1 *	ND			ND			ND			ND			ND		

Table 7 (cont'd)

Water Quality Tabulation of the Extraction Well and the Monitoring Wells

Before Spreading

(June 1991 §)

Constituents	Maximum Contaminant	Extraction Well			Monitoring Well # 1			Monitoring Well # 2			Monitoring Well # 3			Monitoring Well # 4		
		Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.
Benzidine (ug/L)	NS	ND			ND			ND			ND			ND		
Benzo (g,h,i) Perylene (ug/L)	NS	ND			ND			ND			ND			ND		
Benzo(a) Anthracene (ug/L)	NS	ND			ND			ND			ND			ND		
Benzo(a) Pyrene (ug/L)	0.2 **	ND			ND			ND			ND			ND		
Benzo(b) Fluoranthene (ug/L)	NS	ND			ND			ND			ND			ND		
Benzo(k) Fluoranthene (ug/L)	NS	ND			ND			ND			ND			ND		
Beta BHC (ug/L)	0.3 AL	ND			ND			ND			ND			ND		
Beta Endosulfan (II) (ug/L)	NS	ND			ND			ND			ND			ND		
Bis(2-Chloroethoxy) Methane (ug/L)	NS	ND			ND			ND			ND			ND		
Bis(2-Chloroethyl) Ether (ug/L)	NS	ND			ND			ND			ND			ND		
Bis(2-Chloroisopropyl) Ether (ug/L)	NS	ND			ND			ND			ND			ND		
Bis(2-Ethylhexyl) Phthalate (ug/L)	4 *	ND			ND			ND			ND			ND		
Bromobenzene (ug/L)	NS	ND			ND			ND			ND			ND		
Bromochloromethane (ug/L)	NS	ND			ND			ND			ND			ND		
Bromomethane (ug/L)	NS	ND			ND			ND			ND			ND		
Butyl Benzyl Phthalate (ug/L)	NS	ND			ND			ND			ND			ND		
Carbon Tetrachloride (ug/L)	0.5 *	ND			ND			ND			ND			ND		
Chloroethane (ug/L)	NS	ND			ND			ND			ND			ND		
Chloromethane (ug/L)	NS	ND			ND			ND			ND			ND		
Chrysene (ug/L)	NS	ND			ND			ND			ND			ND		
Cis-1,2-Dichloroethene (ug/L)	6 *	ND			ND			ND			ND			ND		
Cis-1,3-Dichloropropene (ug/L)	0.5 *	ND			ND			ND			ND			ND		
Cyanide (mg/L)	0.2 **	ND			ND			ND			ND			ND		
DBCP (ug/L)	0.2 ***	ND			ND			ND			ND			ND		
Delta BHC (ug/L)	NS	ND			ND			ND			ND			ND		
Di-N-Butyl Phthalate (ug/L)	NS	ND			ND			ND			ND			ND		
Di-N-Octyl Phthalate (ug/L)	NS	ND			ND			ND			ND			ND		
Dibenzo (a,h) Anthracene (ug/L)	NS	ND			ND			ND			ND			ND		
Dibromomethane (ug/L)	NS	ND			ND			ND			ND			ND		
Dichlorodifluoromethane (ug/L)	NS	ND			ND			ND			ND			ND		
Dieldrin (ug/L)	0.05 AL	ND			ND			ND			ND			ND		
Diethyl Phthalate (ug/L)	NS	ND			ND			ND			ND			ND		
Dimethyl Phthalate (ug/L)	NS	ND			ND			ND			ND			ND		

Table 7 (cont'd)

Water Quality Tabulation of the Extraction Well and the Monitoring Wells

Before Spreading

(June 1991 §)

Constituents	Maximum Contaminant	Extraction Well			Monitoring Well # 1			Monitoring Well # 2			Monitoring Well # 3			Monitoring Well # 4		
		Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.
EDB (ug/L)	0.02 *	ND			ND			ND			ND			ND		
Endosulfan Sulfate (ug/L)	NS	ND			ND			ND			ND			ND		
Endrin (ug/L)	0.2 *	ND			ND			ND			ND			ND		
Endrin Aldehyde (ug/L)	NS	ND			ND			ND			ND			ND		
Ethylbenzene (ug/L)	680 *	ND			ND			ND			ND			ND		
Fluoranthene (ug/L)	NS	ND			ND			ND			ND			ND		
Fluorene (ug/L)	NS	ND			ND			ND			ND			ND		
Gamma BHC (ug/L)	0.2 **	ND			ND			ND			ND			ND		
Gamma-Chlordane (ug/L)	0.1 *	ND			ND			ND			ND			ND		
Heptachlor (ug/L)	0.01 *	ND			ND			ND			ND			ND		
Heptachlor Epoxide (ug/L)	0.01 *	ND			ND			ND			ND			ND		
Hexachlorobenzene (ug/L)	1 **	ND			ND			ND			ND			ND		
Hexachlorobutadiene (ug/L)	NS	ND			ND			ND			ND			ND		
Hexachlorocyclopentadiene (ug/L)	50 **	ND			ND			ND			ND			ND		
Hexachloroethane (ug/L)	NS	ND			ND			ND			ND			ND		
Indeno(1,2,3-cd) Pyrene (ug/L)	NS	ND			ND			ND			ND			ND		
Isophorone (ug/L)	NS	ND			ND			ND			ND			ND		
MBAS (mg/L)	0.5 ***	ND			ND			ND			ND			ND		
Methylene Chloride (ug/L)	5 **	ND			ND			ND			ND			ND		
N-Nitrosodi-N-Propylamine (ug/L)	NS	ND			ND			ND			ND			ND		
N-Nitrosodimethylamine (ug/L)	NS	ND			ND			ND			ND			ND		
N-Nitrosodiphenylamine (ug/L)	NS	ND			ND			ND			ND			ND		
Naphthalene (ug/L)	NS	ND			ND			ND			ND			ND		
Nitrobenzene (ug/L)	NS	ND			ND			ND			ND			ND		
p-Chloro-m-Cresol (ug/L)	NS	ND			ND			ND			ND			ND		
PCB-1016 (ug/L)	0.5 **	ND			ND			ND			ND			ND		
PCB-1221 (ug/L)	0.5 **	ND			ND			ND			ND			ND		
PCB-1232 (ug/L)	0.5 **	ND			ND			ND			ND			ND		
PCB-1242 (ug/L)	0.5 **	ND			ND			ND			ND			ND		
PCB-1248 (ug/L)	0.5 **	ND			ND			ND			ND			ND		
PCB-1254 (ug/L)	0.5 **	ND			ND			ND			ND			ND		
PCB-1260 (ug/L)	0.5 **	ND			ND			ND			ND			ND		
Pentachlorophenol (ug/L)	1 **	ND			ND			ND			ND			ND		

Table 7 (cont'd)

Water Quality Tabulation of the Extraction Well and the Monitoring Wells

Before Spreading

(June 1991 §)

Constituents	Maximum Contaminant	Extraction Well			Monitoring Well # 1			Monitoring Well # 2			Monitoring Well # 3			Monitoring Well # 4		
		Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.
Phenanthrene (ug/L)	NS	ND			ND			ND			ND			ND		
Phenol (ug/L)	5 AL	ND			ND			ND			ND			ND		
Pyrene (ug/L)	NS	ND			ND			ND			ND			ND		
Silver (mg/L)	0.05 *	ND			ND			ND			ND			ND		
Simazine (ug/L)	10 *	ND			ND			ND			ND			ND		
TCDD (pg/L)	0.00003 **	ND			ND			ND			ND			ND		
Thallium (mg/L)	0.002 **	ND			ND			ND			ND			ND		
Thiobencarb (ug/L)	1 *	ND			ND			ND			ND			ND		
Toluene (ug/L)	1 ***	ND			ND			ND			ND			ND		
Total Settleable Solids (mL/L/hr)	NS	ND			ND			ND			ND			ND		
Toxaphene (ug/L)	5 *	ND			ND			ND			ND			ND		
Trans-1,2-Dichloroethene (ug/L)	10 *	ND			ND			ND			ND			ND		
Trans-1,3-Dichloropropene (ug/L)	0.5 *	ND			ND			ND			ND			ND		
Trichlorofluoromethane (ug/L)	150 *	ND			ND			ND			ND			ND		
Tritium (pCi/L)	20000 *	ND			ND			ND			ND			ND		
Vinyl Chloride (ug/L)	0.5 *	ND			ND			ND			ND			ND		

* State MCL as of July 1992.

** Fedral MCL as of July 1992.

*** State Secondary MCL, more stringent than Primary MCL.

§ Considering three months travel time between the spreading ground and the extraction well.

$ For non-detected results, the analytical detection limits were used in the average calculations.

No MCL (water has not been disenfected).

Total trihalomethanes MCL within distribution system is 100 ug/L (annual average).

ND = Not detected.

NS = No MCL standard.

AL = Action level; unregulated constituent .

[] = number shows the State designated upper short term range level;
number outside of the box brackets is Maximum Recommended Level.

Table 8

Water Quality Tabulation of the Extraction Well and the Monitoring Wells

After Spreading

(October 1991 to June 1992 §)

Constituents	Maximum Contaminant	Extraction Well			Monitoring Well # 1			Monitoring Well # 2			Monitoring Well # 3			Monitoring Well # 4		
		Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.
Conductivity (umho/cm)	900 [1600-2200]	1110	1020	1200	1405	1270	1540	1137.5	995	1280	1095	1030	1160	1215	1180	1250
Total Dissolved Solids (mg/L)	500 [1000-1500]	747	738	756	1035	1030	1040	760	680	840	720	720	720	818	790	846
Sulfate (mg/L)	250 [500-600]	253	216	283	393.5	388	399	254.5	247	262	244	214	274	272	247	297
Chloride (mg/L)	250 [500-600]	67	55	75	59	57	61	79	68	90	63	61	65	61	58	64
Total Suspended Solids (mg/L)	NS	2	3	3	5	5	5	2	2	2	45	45	45	14	14	14
Gross Beta (pCi/L)	50 *	10	8	12	7	6	8	6.5	10	10	12	6	18	46	15	77
Gross Alpha (pCi/L)	15 *	3.5	5	5	4	4	4	4.5	4	5	8	5	11	11.5	7	16
pH (pH Units)	6.5 - 8.5 ***	7.09	7.05	7.13	7.09	6.97	7.21	7.12	7.01	7.23	7.29	7.21	7.37	7.2	7.14	7.26
Nitrate (N) (mg/L)	10 *	7.1	6.2	8	14.6	14.4	14.8	7.1	6.4	7.8	4.85	4.7	5	4.35	4.1	4.6
Color (Color Units)	15 ***	5	5	5	5	5	5	5	5	5	7.5	5	10	5	5	5
Tetrachloroethene (ug/L)	5 *	2.09	1.13	4.02	ND			0.19	0.33	0.33	2.26	1.42	3.10	0.68	0.62	0.73
Biochemical Oxygen Demand (mg/L)	NS	1	1	1	ND			ND			ND			ND		
Odor (T.O.N.)	3 *	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Total Coliform (MPN/100mL)	#	2.57	9.20	9.20	ND			ND			ND			ND		
Oil & Grease (mg/L)	NS	ND			ND			ND			ND			ND		
Turbidity (N.T.U)	0.5 *	0.15	0.13	0.17	0.92	0.92	0.92	0.27	0.27	0.27	9.5	9.5	9.5	3.5	3.5	3.5
TOC (mg/L)	NS	1.65	0.89	2.40	0.88	1.70	1.70	1.58	0.96	2.20	1.16	0.61	1.70	1.04	0.58	1.50
Strontium-90 (pCi/L)	8 *	ND			ND			ND			ND			0.8	0.8	0.8
DOC (mg/L)	NS	0.71	0.67	0.74	0.63	1.20	1.20	0.72	0.65	0.78	0.57	0.53	0.60	0.30	0.54	0.54
Fluoride (mg/L)	1.4 - 2.4 *	0.37	0.3	0.44	0.25	0.21	0.29	0.295	0.26	0.33	0.43	0.36	0.5	0.43	0.36	0.5
Iron (mg/L)	0.3 *	ND			0.035	0.019	0.051	0.008	0.009	0.009	0.104	0.090	0.118	0.035	0.018	0.053
Barium (mg/L)	1 *	0.07	0.07	0.07	0.09	0.08	0.09	0.04	0.04	0.04	0.08	0.08	0.09	0.07	0.07	0.08
Lead (mg/L)	0.05 *	ND			ND			ND			ND			ND		
Copper (mg/L)	1 *	0.010	0.006	0.036	ND			ND			ND			ND		
Chromium (mg/L)	0.05 *	ND			ND			ND			ND			ND		
Zinc (mg/L)	5 ***	0.005	0.002	0.026	0.020	0.016	0.025	0.006	0.005	0.007	0.003	0.004	0.004	0.003	0.003	0.003
Manganese (mg/L)	0.05 ***	ND			0.199	0.196	0.201	0.002	0.004	0.004	0.012	0.004	0.020	0.004	0.004	0.004
Selenium (mg/L)	0.01 *	0.008	0.003	0.015	0.007	0.006	0.009	0.011	0.011	0.011	0.009	0.008	0.011	0.012	0.011	0.014
Cadmium (mg/L)	0.01 *	0.003	0.003	0.003	0.003	0.003	0.003	ND			0.003	0.003	0.003	ND		
Mercury (mg/L)	0.002 *	0.0006	0.0075	0.0075	0.0003	0.0003	0.0003	ND			ND			0.0003	0.0004	0.0004
Temperature (Field) (degrees C)	NS	19.95	18.7	21.2	18.6	18.6	18.6	18.5	18.5	18.5	21.8	21.8	21.8	18.5	18.5	18.5
Fecal Coliform (MPN/100mL)	#	2.2	2.2	2.2	ND			ND			ND			ND		
Chloroform (ug/L)	##	0.50	0.30	3.18	0.13	0.18	0.18	0.27	0.46	0.46	0.47	0.85	0.85	ND		

Table 8 (cont'd)

Water Quality Tabulation of the Extraction Well and the Monitoring Wells

After Spreading

(October 1991 to June 1992 §)

Constituents	Maximum Contaminant	Extraction Well			Monitoring Well # 1			Monitoring Well # 2			Monitoring Well # 3			Monitoring Well # 4		
		Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.
1,2-Dichloroethane (ug/L)	0.5 *	0.45	1.47	1.47	0.26	0.13	0.13	ND			0.60	0.80	0.80	ND		
Chlorodibromomethane (ug/L)	##	0.395	0.76	0.76	ND			ND			0.225	0.42	0.42	ND		
Dibromochloromethane (ug/L)	##	0.37	0.76	2.23	ND			ND			0.23	0.42	0.42	ND		
Bromodichloromethane (ug/L)	NS	0.24	1.57	2.23	0.10	0.16	0.16	ND			0.56	1.07	1.07	ND		
1,1,1-Trichloroethane (ug/L)	200 *	0.10	0.23	0.23	ND			ND			ND			ND		
Trichloroethene (ug/L)	5 *	0.09	0.36	0.36	ND			ND			3.38	6.68	6.68	ND		
Bromoform (ug/L)	##	0.07	1.01	1.01	ND			ND			0.31	0.59	0.59	ND		
Beryllium (mg/L)	0.004 **	0.0008	0.0014	0.0021	ND			ND			ND			ND		
Ammonia (mg/L)	NS	ND			ND			ND			ND			ND		
Nickel (mg/L)	0.1 **	ND			ND			ND			ND			ND		
Nitrite (N) (mg/L)	1 **	ND			ND			ND			ND			ND		
Chlorobenzene (ug/L)	30 *	ND			0.215	0.17	0.17	0.185	0.11	0.11	ND			ND		
Aluminum (mg/L)	1 *	ND			0.05	0.08	0.08	ND			0.21	0.39	0.39	ND		
Arsenic (mg/L)	0.05 *	ND			ND			ND			ND			ND		
1,1,1,2-Tetrachloroethane (ug/L)	1 *	ND			ND			ND			ND			ND		
1,1,2,2-Tetrachloroethane (ug/L)	1 *	ND			ND			ND			ND			ND		
1,1,2-Trichloroethane (ug/L)	32 *	ND			ND			ND			ND			ND		
1,1-Dichloroethane (ug/L)	5 *	ND			ND			ND			ND			ND		
1,1-Dichloroethene (ug/L)	6 *	ND			ND			ND			ND			ND		
1,1-Dichloropropene (ug/L)	NS	ND			ND			ND			ND			ND		
1,2,3-Trichloropropane (ug/L)	NS	ND			ND			ND			ND			ND		
1,2,4-Trichlorobenzene (ug/L)	70 **	ND			ND			ND			ND			ND		
1,2-Dibromoethane (ug/L)	0.02 *	ND			ND			ND			ND			ND		
1,2-Dichlorobenzene (ug/L)	600 **	ND			ND			ND			ND			ND		
1,2-Dichloropropane (ug/L)	5 *	ND			ND			ND			ND			ND		
1,2-Diphenylhydrazine (ug/L)	NS	ND			ND			ND			ND			ND		
1,3-Dichlorobenzene (ug/L)	130 AL	ND			ND			ND			ND			ND		
1,3-Dichloropropane (ug/L)	NS	ND			ND			ND			ND			ND		
1,4-Dichlorobenzene (ug/L)	5 *	ND			ND			ND			ND			ND		
2,2-Dichloropropane (ug/L)	NS	ND			ND			ND			ND			ND		
2,4,5-T (ug/L)	NS	ND			ND			ND			ND			ND		
2,4,5-TP (ug/L)	10 *	ND			ND			ND			ND			ND		
2,4,6-Trichlorophenol (ug/L)	NS	ND			ND			ND			ND			ND		

Table 8 (cont'd)

Water Quality Tabulation of the Extraction Well and the Monitoring Wells

After Spreading

(October 1991 to June 1992 §)

Constituents	Maximum Contaminant	Extraction Well			Monitoring Well # 1			Monitoring Well # 2			Monitoring Well # 3			Monitoring Well # 4		
		Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.
2,4-D (ug/L)	100 *	ND			ND			ND			ND			ND		
2,4-Dichlorophenol (ug/L)	NS	ND			ND			ND			ND			ND		
2,4-Dimethylphenol (ug/L)	400 AL	ND			ND			ND			ND			ND		
2,4-Dinitrophenol (ug/L)	NS	ND			ND			ND			ND			ND		
2,4-Dinitrotoluene (ug/L)	NS	ND			ND			ND			ND			ND		
2,6-Dinitrotoluene (ug/L)	NS	ND			ND			ND			ND			ND		
2-Chloroethyl Vinyl Ether (ug/L)	NS	ND			ND			ND			ND			ND		
2-Chloronaphthalene (ug/L)	NS	ND			ND			ND			ND			ND		
2-Chlorophenol (ug/L)	NS	ND			ND			ND			ND			ND		
2-Chlorotoluene (ug/L)	NS	ND			ND			ND			ND			ND		
2-Nitrophenol (ug/L)	NS	ND			ND			ND			ND			ND		
3,3'-Dichlorobenzidine (ug/L)	NS	ND			ND			ND			ND			ND		
4,4'-DDD (ug/L)	NS	ND			ND			ND			ND			ND		
4,4'-DDE (ug/L)	NS	ND			ND			ND			ND			ND		
4,4'-DDT (ug/L)	NS	ND			ND			ND			ND			ND		
4,6-Dinitro-o-Cresol (ug/L)	NS	ND			ND			ND			ND			ND		
4-Bromophenyl Phenyl Ether (ug/L)	NS	ND			ND			ND			ND			ND		
4-Chlorophenyl Phenyl Ether (ug/L)	NS	ND			ND			ND			ND			ND		
4-Chlorotoluene (ug/L)	NS	ND			ND			ND			ND			ND		
4-Nitrophenol (ug/L)	NS	ND			ND			ND			ND			ND		
Acenaphthene (ug/L)	NS	ND			ND			ND			ND			ND		
Acenaphthylene (ug/L)	NS	ND			ND			ND			ND			ND		
Acrolein (ug/L)	NS	ND			ND			ND			ND			ND		
Acrylonitrile (ug/L)	NS	ND			ND			ND			ND			ND		
Aldrin (ug/L)	NS	ND			ND			ND			ND			ND		
Alpha BHC (ug/L)	0.7 AL	ND			ND			ND			ND			ND		
Alpha Endosulfan (I) (ug/L)	NS	ND			ND			ND			ND			ND		
Alpha-Chlordane (ug/L)	0.1 *	ND			ND			ND			ND			ND		
Anthracene (ug/L)	NS	ND			ND			ND			ND			ND		
Antimony (mg/L)	0.006 **	ND			ND			ND			ND			ND		
Atrazine (ug/L)	3 *	ND			ND			ND			ND			ND		
Bentazon (ug/L)	18 *	ND			ND			ND			ND			ND		
Benzene (ug/L)	1 *	ND			ND			ND			ND			ND		

Table 8 (cont'd)

Water Quality Tabulation of the Extraction Well and the Monitoring Wells

After Spreading

(October 1991 to June 1992 §)

Constituents	Maximum Contaminant	Extraction Well			Monitoring Well # 1			Monitoring Well # 2			Monitoring Well # 3			Monitoring Well # 4		
		Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.
Benzidine (ug/L)	NS	ND			ND			ND			ND			ND		
Benzo (g,h,i) Perylene (ug/L)	NS	ND			ND			ND			ND			ND		
Benzo(a) Anthracene (ug/L)	NS	ND			ND			ND			ND			ND		
Benzo(a) Pyrene (ug/L)	0.2 **	ND			ND			ND			ND			ND		
Benzo(b) Fluoranthene (ug/L)	NS	ND			ND			ND			ND			ND		
Benzo(k) Fluoranthene (ug/L)	NS	ND			ND			ND			ND			ND		
Beta BHC (ug/L)	0.3 AL	ND			ND			ND			ND			ND		
Beta Endosulfan (II) (ug/L)	NS	ND			ND			ND			ND			ND		
Bis(2-Chloroethoxy) Methane (ug/L)	NS	ND			ND			ND			ND			ND		
Bis(2-Chloroethyl) Ether (ug/L)	NS	ND			ND			ND			ND			ND		
Bis(2-Chloroisopropyl) Ether (ug/L)	NS	ND			ND			ND			ND			ND		
Bis(2-Ethylhexyl) Phthalate (ug/L)	4 *	ND			ND			ND			ND			ND		
Bromobenzene (ug/L)	NS	ND			ND			ND			ND			ND		
Bromochloromethane (ug/L)	NS	ND			ND			ND			ND			ND		
Bromomethane (ug/L)	NS	ND			ND			ND			ND			ND		
Butyl Benzyl Phthalate (ug/L)	NS	ND			ND			ND			ND			ND		
Carbon Tetrachloride (ug/L)	0.5 *	ND			ND			ND			ND			ND		
Chloroethane (ug/L)	NS	ND			ND			ND			ND			ND		
Chloromethane (ug/L)	NS	ND			ND			ND			ND			ND		
Chrysene (ug/L)	NS	ND			ND			ND			ND			ND		
Cis-1,2-Dichloroethene (ug/L)	6 *	ND			ND			ND			ND			ND		
Cis-1,3-Dichloropropene (ug/L)	0.5 *	ND			ND			ND			ND			ND		
Cyanide (mg/L)	0.2 **	ND			ND			ND			ND			ND		
DBCP (ug/L)	0.2 ***	ND			ND			ND			ND			ND		
Delta BHC (ug/L)	NS	ND			ND			ND			ND			ND		
Di-N-Butyl Phthalate (ug/L)	NS	ND			ND			ND			ND			ND		
Di-N-Octyl Phthalate (ug/L)	NS	ND			ND			ND			ND			ND		
Dibenzo (a,h) Anthracene (ug/L)	NS	ND			ND			ND			ND			ND		
Dibromomethane (ug/L)	NS	ND			ND			ND			ND			ND		
Dichlorodifluoromethane (ug/L)	NS	ND			ND			ND			ND			ND		
Dieldrin (ug/L)	0.05 AL	ND			ND			ND			ND			ND		
Diethyl Phthalate (ug/L)	NS	ND			ND			ND			ND			ND		
Dimethyl Phthalate (ug/L)	NS	ND			ND			ND			ND			ND		

Table 8 (cont'd)

Water Quality Tabulation of the Extraction Well and the Monitoring Wells

After Spreading

(October 1991 to June 1992 §)

Constituents	Maximum Contaminant	Extraction Well			Monitoring Well # 1			Monitoring Well # 2			Monitoring Well # 3			Monitoring Well # 4		
		Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.
EDB (ug/L)	0.02 *	ND			ND			ND			ND			ND		
Endosulfan Sulfate (ug/L)	NS	ND			ND			ND			ND			ND		
Endrin (ug/L)	0.2 *	ND			ND			ND			ND			ND		
Endrin Aldehyde (ug/L)	NS	ND			ND			ND			ND			ND		
Ethylbenzene (ug/L)	680 *	ND			ND			ND			ND			ND		
Fluoranthene (ug/L)	NS	ND			ND			ND			ND			ND		
Fluorene (ug/L)	NS	ND			ND			ND			ND			ND		
Gamma BHC (ug/L)	0.2 **	ND			ND			ND			ND			ND		
Gamma-Chlordane (ug/L)	0.1 *	ND			ND			ND			ND			ND		
Heptachlor (ug/L)	0.01 *	ND			ND			ND			ND			ND		
Heptachlor Epoxide (ug/L)	0.01 *	ND			ND			ND			ND			ND		
Hexachlorobenzene (ug/L)	1 **	ND			ND			ND			ND			ND		
Hexachlorobutadiene (ug/L)	NS	ND			ND			ND			ND			ND		
Hexachlorocyclopentadiene (ug/L)	50 **	ND			ND			ND			ND			ND		
Hexachloroethane (ug/L)	NS	ND			ND			ND			ND			ND		
Indeno(1,2,3-cd) Pyrene (ug/L)	NS	ND			ND			ND			ND			ND		
Isophorone (ug/L)	NS	ND			ND			ND			ND			ND		
MBAS (mg/L)	0.5 ***	ND			ND			ND			ND			ND		
Methylene Chloride (ug/L)	5 **	ND			ND			ND			ND			ND		
N-Nitrosodi-N-Propylamine (ug/L)	NS	ND			ND			ND			ND			ND		
N-Nitrosodimethylamine (ug/L)	NS	ND			ND			ND			ND			ND		
N-Nitrosodiphenylamine (ug/L)	NS	ND			ND			ND			ND			ND		
Naphthalene (ug/L)	NS	ND			ND			ND			ND			ND		
Nitrobenzene (ug/L)	NS	ND			ND			ND			ND			ND		
p-Chloro-m-Cresol (ug/L)	NS	ND			ND			ND			ND			ND		
PCB-1016 (ug/L)	0.5 **	ND			ND			ND			ND			ND		
PCB-1221 (ug/L)	0.5 **	ND			ND			ND			ND			ND		
PCB-1232 (ug/L)	0.5 **	ND			ND			ND			ND			ND		
PCB-1242 (ug/L)	0.5 **	ND			ND			ND			ND			ND		
PCB-1248 (ug/L)	0.5 **	ND			ND			ND			ND			ND		
PCB-1254 (ug/L)	0.5 **	ND			ND			ND			ND			ND		
PCB-1260 (ug/L)	0.5 **	ND			ND			ND			ND			ND		
Pentachlorophenol (ug/L)	1 **	ND			ND			ND			ND			ND		

Table 8 (cont'd)

Water Quality Tabulation of the Extraction Well and the Monitoring Wells

After Spreading

(October 1991 to June 1992 §)

Constituents	Maximum Contaminant	Extraction Well			Monitoring Well # 1			Monitoring Well # 2			Monitoring Well # 3			Monitoring Well # 4		
		Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.	Avg.$	Min.	Max.
Phenanthrene (ug/L)	NS	ND			ND			ND			ND			ND		
Phenol (ug/L)	5 AL	ND			ND			ND			ND			ND		
Pyrene (ug/L)	NS	ND			ND			ND			ND			ND		
Silver (mg/L)	0.05 *	ND			ND			ND			ND			ND		
Simazine (ug/L)	10 *	ND			ND			ND			ND			ND		
TCDD (pg/L)	0.00003 **	ND			ND			ND			ND			ND		
Thallium (mg/L)	0.002 **	ND			ND			ND			ND			ND		
Thiobencarb (ug/L)	1 *	ND			ND			ND			ND			ND		
Toluene (ug/L)	1 ***	ND			ND			ND			ND			ND		
Total Settleable Solids (mL/L/hr)	NS	ND			ND			ND			ND			ND		
Toxaphene (ug/L)	5 *	ND			ND			ND			ND			ND		
Trans-1,2-Dichloroethene (ug/L)	10 *	ND			ND			ND			ND			ND		
Trans-1,3-Dichloropropene (ug/L)	0.5 *	ND			ND			ND			ND			ND		
Trichlorofluoromethane (ug/L)	150 *	ND			ND			ND			ND			ND		
Tritium (pCi/L)	20000 *	ND			ND			ND			ND			ND		
Vinyl Chloride (ug/L)	0.5 *	ND			ND			ND			ND			ND		

* State MCL as of July 1992.

** Fedral MCL as of July 1992.

*** State Secondary MCL, more stringent than Primary MCL.

§ Considering three months travel time between the spreading ground and the extraction well.

$ For non-detected results, the analytical detection limits were used in the average calculations.

No MCL (water has not been disenfected).

Total trihalomethanes MCL within distribution system is 100 ug/L (annual average).

ND = Not detected.

NS = No MCL standard.

AL = Action level; unregulated constituent .

[] = number shows the State designated upper short term range level;
number outside of the box brackets is Maximum Recommended Level.