

ATTACHMENT NO. THREE  
EMP WORK PLAN



# County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING

Alan Weaver, DIRECTOR

February 1, 2006

RECEIVED

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RWQCB-CVR  
FRESNO, CALIF.

Mr. Dane Johnson, Supervising Engineering Geologist  
California Regional Water Quality Control Board  
1685 'E' Street  
Fresno, CA 93721

Dear Dane:

SUBJECT: Evaluation Monitoring Program (EMP) Work Plan, American Avenue  
Disposal Site, Fresno County

This EMP letter work plan is submitted in response to the Regional Water Quality Control Board (RWQCB) March 4, 2005 letter *Review of Evaluation Monitoring Plan Workplan and Revised Water Quality Protection Standard, American Avenue Landfill, Fresno County* and in compliance with Waste Discharge Requirements Order No. R5-2005-0067, Evaluation Monitoring Specification F.2. and Provision G.13.c.1). This work plan also incorporates discussions with RWQCB staff during our January 11, 2006 meeting on the EMP.

## INTRODUCTION

The American Avenue Disposal Site (AA) is an active, 440-acre permitted Class III municipal solid waste disposal facility located approximately 5 miles southwest of the City of Kerman, Fresno County, California. The site is also described as being located in Township 14 South, Range 17 East, Sections 32 and 33, Mount Diablo Baseline and Meridian (Figure 1). The site is owned by the County of Fresno and operated by the Fresno County Department of Public Works and Planning, Resources Division.

The 440-acre facility is comprised of three disposal areas: Phase I (30 acres), which is an inactive, unlined disposal area; Phase II (160 acres), an active disposal area consisting of eight lined modules; and Phase III (250 acres), in which the first lined module is currently being constructed but has not yet accepted waste (Figure 2).

The site is located in a generally flat topographic region of the San Joaquin Valley. Native ground surface elevation at the site is approximately 185 feet above mean sea level and slopes to the southwest at approximately 5 feet per mile. Based upon previous drilling and subsurface investigations at the site, geologic materials beneath

## RESOURCES DIVISION

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the site are comprised of predominantly silty sand with discontinuous layers of clay, sandy clay, and clayey sands.

The depth to first encountered groundwater beneath the site is approximately 135 feet and flows generally to the southeast at a gradient of approximately 0.0025 feet per foot. Reportedly, the hydraulic conductivity of geologic materials beneath the site ranges from approximately  $1 \times 10^{-3}$  cm/sec to  $1 \times 10^{-5}$  cm/sec.

The site receives an average of 8.6 inches of precipitation per year as measured at the Mendota Dam and the City of Madera weather stations. The mean evaporation for the site area is 81.9 inches per year based on measurements at the same weather stations.

#### Previous EMP Work

An EMP work plan; prepared by Camp, Dresser & McKee, Inc. (CDM) and dated April 30, 1998; was submitted to the RWQCB in response to Cleanup and Abatement Order No. 98-702 issued by the RWQCB due to the detection of volatile organic compounds (VOCs) in groundwater monitoring wells at the site. Three additional groundwater monitoring wells; background well BMW-2, detection well DMW-11, and evaluation well EMW-12; were installed as part of the EMP in July 1998 (Figure 2). The EMP work plan was subsequently amended in a letter dated April 14, 1999 in response to comments from the RWQCB. Four semi-annual groundwater monitoring events were conducted as part of the EMP. A final EMP report and proposed Water Quality Protection Standard (WQPS); prepared by CDM and dated February 8, 2001; was submitted to the RWQCB on February 22, 2001. In their review letter dated February 20, 2002; the RWQCB deemed the EMP and WQPS incomplete and required submittal of a revised WQPS and a work plan to complete the EMP.

A May 15, 2002 transmittal to the RWQCB submitted a revised WQPS and proposed a work plan and time schedule to complete the EMP. The proposed work plan included: 1) Installation of a landfill gas extraction system in the Phase I and Phase II areas; 2) Completion of clean-closure of the Phase I area; and 3) Continued evaluation monitoring to assess the effects of the landfill gas extraction system and clean-closure activity on the groundwater degradation plume.

In their March 4, 2005 review of this submittal, RWQCB staff approved the revised WQPS and noted the proposed landfill gas extraction system and clean-closure activity are adequate means of source control. However, RWQCB staff deemed that delaying completion of the EMP to assess the effects of the landfill gas extraction system and clean-closure activity on the groundwater degradation plume was inappropriate. A schedule for completion of the EMP was incorporated in recent WDRs Order No. R5-2005-0067 for the American Avenue Municipal Solid Waste Landfill, adopted by the RWQCB on April 29, 2005.

### Groundwater Monitoring Network

The locations of groundwater monitoring wells at the site are depicted on Figure 2. Groundwater monitoring wells BMW-1 and DMW-1 thru DMW-10 were installed in 1987 as part of the Solid Waste Assessment Test for the site. Due to the close 250-foot spacing between wells DMW-1 thru DMW-10, only the even numbered wells (DMW-2, 4, 6, 8, and 10) are currently sampled.

As discussed above, BMW-2, DMW-11, and EMW-12 were installed as part of the EMP in July, 1998. Wells DMW-13 thru DMW-20 were installed later due to development of the Phase II area.

Monitoring wells BMW-3 and DMW-21 thru DMW-25 were installed in 2005 as part of the Phase III development. The initial sampling of these new wells took place in September 2005. These wells will be sampled on a quarterly basis, for the 5-year list of constituents of concern, for a period of one year prior to the RWQCB approving disposal of waste in the Phase III area.

### DISCUSSION

This section will present recent data gathered from groundwater monitoring and sampling of wells at the site, including the six new wells installed in 2005. This information was presented to RWQCB staff during our meeting regarding the EMP on January 11, 2006.

#### Groundwater Flow

Groundwater elevation data from the six new wells was collected on September 20, 2005. This data was combined with the most recent data from the remaining wells at the site collected on August 2, 2005 and a groundwater elevation contour map was generated (Figure 3). It is understood that there are limitations to utilizing the data from different dates approximately seven weeks apart. However, this was the first information available from the six new wells and we believe it is a reasonable approximation of the groundwater surface elevations beneath the site at that time. This new information indicates that the groundwater flow direction is generally to the southeast, which is consistent with previous determinations.

#### Inorganic Constituents

The water quality protection standard for the site sets the criteria by which evidence of a possible release of waste constituents to groundwater is determined. For inorganic monitoring parameters, this criterion is set as any result exceeding the inter-well tolerance limit as determined by the statistical computer program SANITAS. Inorganic

constituents which exceeded the inter-well tolerance limit during the first semi-annual period 2005 included:

- Bicarbonate (tolerance limit 392 mg/L): Samples DMW-2, DMW-10, DMW-11, DMW-12, DMW-16, and DMW-17 through DMW-20 contained bicarbonate at concentrations ranging from 420 to 510 mg/L.
- Calcium (tolerance limit 265.6 mg/L): Sample DMW-2 contained calcium at concentration of 280 mg/L.
- Chloride (tolerance limit 455.2 mg/L): Samples DMW-11 and DMW-16 contained chloride at concentrations of 470 and 488 mg/L, respectively.
- Magnesium (tolerance limit 48.13 mg/L): Samples DMW-2, DMW-12, and DMW-16 contained magnesium at concentrations ranging from 50 to 56 mg/L.
- Sodium (tolerance limit 227.9 mg/L): Samples DMW-17 and DMW-18 contained chloride at concentrations of 270 and 260 mg/L, respectively.

Please note that these concentrations exceed their respective tolerance limits for each constituent by a relatively small margin. In addition, for each constituent above, we compared the first semi-annual period 2005 tolerance limit to the concentration found in each of the six new monitoring wells. Those results that exceed their respective inter-well tolerance limits are shown on Table 1 and depicted on Figure 4. This data indicates that water quality in new background well BMW-3 exceeds the tolerance limit for bicarbonate, calcium, and magnesium. Since the location of well BMW-3 is considered to be cogradient but still representative of background water quality and that its location is closer to the landfill waste footprint than the approved cogradient background well BMW-2 (see Figure 4), some or all of the statistical exceedences may not be valid evidence of a release and suggests that they are actually due to local variations in groundwater quality at the site.

#### Organic Constituents

Volatile organic compounds (VOCs) have been periodically detected in site groundwater monitoring wells at low concentrations, all below primary MCLs established by the State for public drinking water systems. The WQPS for anthropogenic organic compounds establishes that tentative evidence of a release exists when one organic constituent is detected at or above the practical quantitation limit (PQL) or if two constituents are detected at "trace" level concentrations defined as being at or above the method detection limit (MDL) but below the PQL.

Results of laboratory analysis of samples for routine VOCs collected during 2005 at the site are depicted on Figure 4. VOC results for all detection monitoring wells at the site include results from the first and second semi-annual period sampling events. The second semi-annual period 2005 detection monitoring report is currently in preparation.

Results for the six new wells (BMW-3 and DMW-21 through DMW-25) are from the third and fourth quarter 2005 sampling events. These six wells are being sampled for the 5-year COC list on a quarterly basis to establish groundwater quality baseline prior to waste being discharged into the Phase III area. The locations of DMW-21 through DMW-25, along a north-south line approximately 2,100 feet east of the Phase I area and being to the east and southeast (down gradient) of the detection wells where VOCs have been detected, allows use of data from these wells to be incorporated into the EMP investigation.

Several of the VOC detections are for a single constituent detected at a trace level concentration and, therefore, does not constitute tentative evidence of a release of waste constituents. Please note that many of the constituents detected in the detection monitoring system wells during the first semi-annual period 2005 at trace level concentrations and are not detected again in the second semi-annual period 2005 sampling event. Wells which exhibited this include BMW-1, DMW-10, and DMW-15. This suggests that either the detection may be a false positive or, if the detection is valid, that the well may be very near the zero concentration line for that constituent in groundwater.

Ethanol was detected at a concentration above the PQL in the new wells DMW-21 and DMW-22 during the third quarter 2005 sampling event. However, it was also detected, albeit at a significantly lower concentration, in the travel blank. In addition, this was the initial sampling of these new wells and ethanol was not detected in these two wells during the next sampling event in the fourth quarter 2005. The location of these two wells is co-gradient of any waste disposal areas and ethanol is not a constituent that has been associated with prior VOC detections in other wells at the site. This suggests that the detection of ethanol in these wells is either a false positive or not related to landfill activities.

The only wells that had detections of organic constituents which constituted tentative evidence of a release both semi-annual sampling events in 2005 are DMW-6, DMW-8, DMW-14, and DMW-25. Wells in which no VOCs were detected along the southern portion of the site during either sampling event include DMW-11, DMW-12, and DMW-16 through DMW-20 (Figure 4).

The VOC constituents that are detected most often include 1, 2-dichloropropane; 1, 2, 3-trichloropropane; trichlorofluoromethane; and dichlorodifluoromethane. These constituents and the low concentrations at which they are detected, generally less than 2  $\mu\text{g/L}$ , suggests an origin related to landfill gas. In addition, the detection of these constituents in wells DMW-13 and DMW-14, located up gradient of the unlined Phase I area (Figure 4), also suggests migration of these constituents as landfill gas.

A landfill gas collection and control system (LFGCCS), consisting of 34 LFG extraction wells and an enclosed flare, was installed into the Phase I area and in Modules 1-4 of

the Phase II area and brought online on May 1, 2003. An expansion of the LFGCCS, consisting of the installation of 32 additional LFG extraction wells in Modules 5-8 of the Phase II area, was brought online with the existing system on December 29, 2005. The installation and operation of the LFGCCS may also help reduce the LFG related VOCs detected in groundwater. As an additional note, the reclamation of the Phase I area is now tentatively scheduled to begin in 2007.

### PROPOSED EMP WORK PLAN

Data presented above suggests that the existing groundwater well monitoring system at the site is adequate to define the extent of any release of waste constituents to groundwater. However, we recognize that the new wells installed in 2005 have only been sampled twice. Therefore, to complete the EMP we propose the following:

1. To continue quarterly sampling of the six new wells (DMW-21 through 25 and BMW-3) for the 5-year COC list on a quarterly basis through the third quarter 2006.
2. Continue semi-annual monitoring of the existing detection monitoring well network in compliance with the WDRs.
3. After the third quarter 2006 groundwater sampling data is generated, perform an analysis of the data from all wells for the prior year and generate a report addressing if statistical evidence for inorganic constituents is actually due to a release or is due to natural variation in the groundwater quality at the site and define the extent of possible organic waste constituents in groundwater. The report will also address if, based upon the analysis, any additional subsurface investigative work is warranted. This report would be submitted to the RWQCB on or before October 1, 2006.

Please contact Daniel Carlson at (559) 262-4259 if you have any questions or comments regarding this work plan.

Sincerely,

*Francis J. Coward*

for Marion L. Miller  
Resources Manager

MLM:DLC:ef  
G:\4360Resources\Carlson\Landfills\American Avenue\EMP 2006\RWQCB AA EMP Work Plan 2006.doc  
2/1/06

Enclosures

c: Randy Reyes, County of Fresno, Environmental Health System  
Francis Coward, Principal Engineer, County of Fresno  
Daniel Carlson, Senior Engineer, County of Fresno

**TABLE 1**  
**Inter-Well Tolerance Limit Exceedance Summary**  
American Avenue Disposal Site

<u>Constituent</u>	<u>Well</u>	<u>Date</u>	<u>Limit*</u> (mg/L)	<u>Observed</u> (mg/L)
Bicarbonate	BMW - 3	09/21/05	392	420
		12/20/05	392	420
	DMW - 2	02/02/05	392	510
	DMW - 10	02/03/05	392	420
	DMW - 11	02/08/05	392	510
	DMW - 12	02/07/05	392	450
	DMW - 16	02/08/05	392	420
	DMW - 17	02/08/05	392	470
	DMW - 18	02/09/05	392	460
	DMW - 19	02/09/05	392	430
	DMW - 20	02/07/05	392	460
	DMW - 21	09/20/05	392	450
		12/20/05	392	450
	DMW - 22	09/20/05	392	520
		12/20/05	392	440
	DMW - 23	09/20/05	392	480
		12/20/05	392	470
	DMW - 24	09/20/05	392	430
Calcium	BMW - 3	09/21/05	265.6	280
		12/20/05	265.6	270
	DMW - 2	02/02/05	265.6	280
Chloride	DMW - 11	02/08/05	455.2	470
	DMW - 16	02/08/05	455.2	488
Magnesium	BMW - 3	09/21/05	48.13	55
		12/20/05	48.13	53
	DMW - 2	02/02/05	48.13	56
	DMW - 12	02/07/05	48.13	50
	DMW - 16	02/08/05	48.13	50
	DMW - 23	09/20/05	48.13	52
		12/20/05	48.13	49

\*Inter-well tolerance limits derived from 1st semi-annual period 2005 statistical analysis

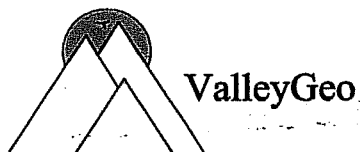
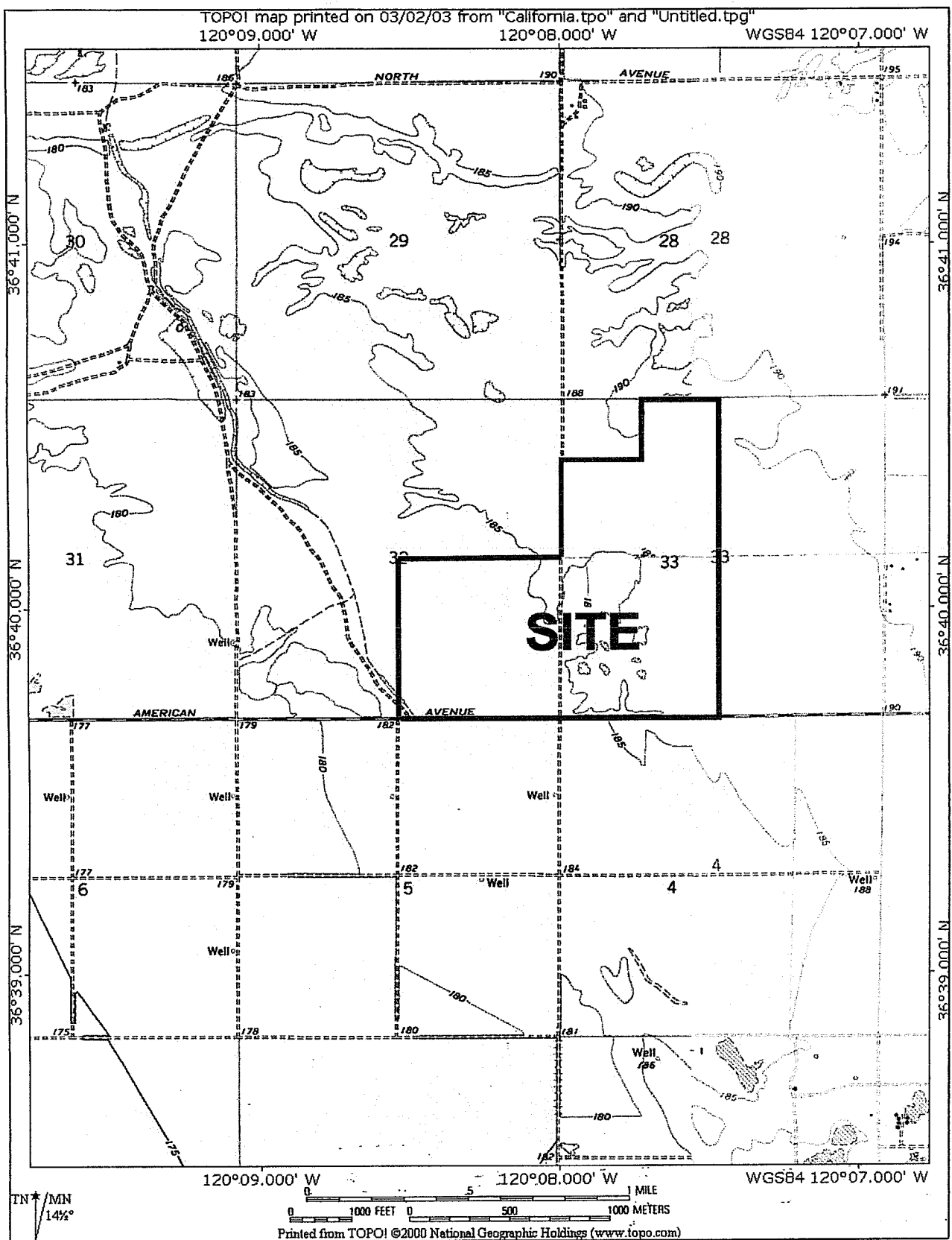


**TABLE 1**  
**Inter-Well Tolerance Limit Exceedance Summary**  
 American Avenue Disposal Site

<u>Constituent</u>	<u>Well</u>	<u>Date</u>	<u>Limit</u> (mg/L)	<u>Observed</u> (mg/L)
Sodium	DMW - 11	02/08/05	227.9	280
	DMW - 17	02/08/05	227.9	270
	DMW - 18	02/09/05	227.9	260
	DMW - 22	09/20/05	227.9	240
		12/20/05	227.9	250
Sulfate	DMW - 21	12/20/05	200	200
	DMW - 22	09/20/05	200	220
		12/20/05	200	250

\*Inter-well tolerance limits derived from 1st semi-annual period 2005 statistical analysis

Note: Data for detection monitoring wells for the second semi-annual period 2005 not yet available. Report is currently in preparation.



American Avenue Disposal Site  
Fresno County, California

Site Location Map

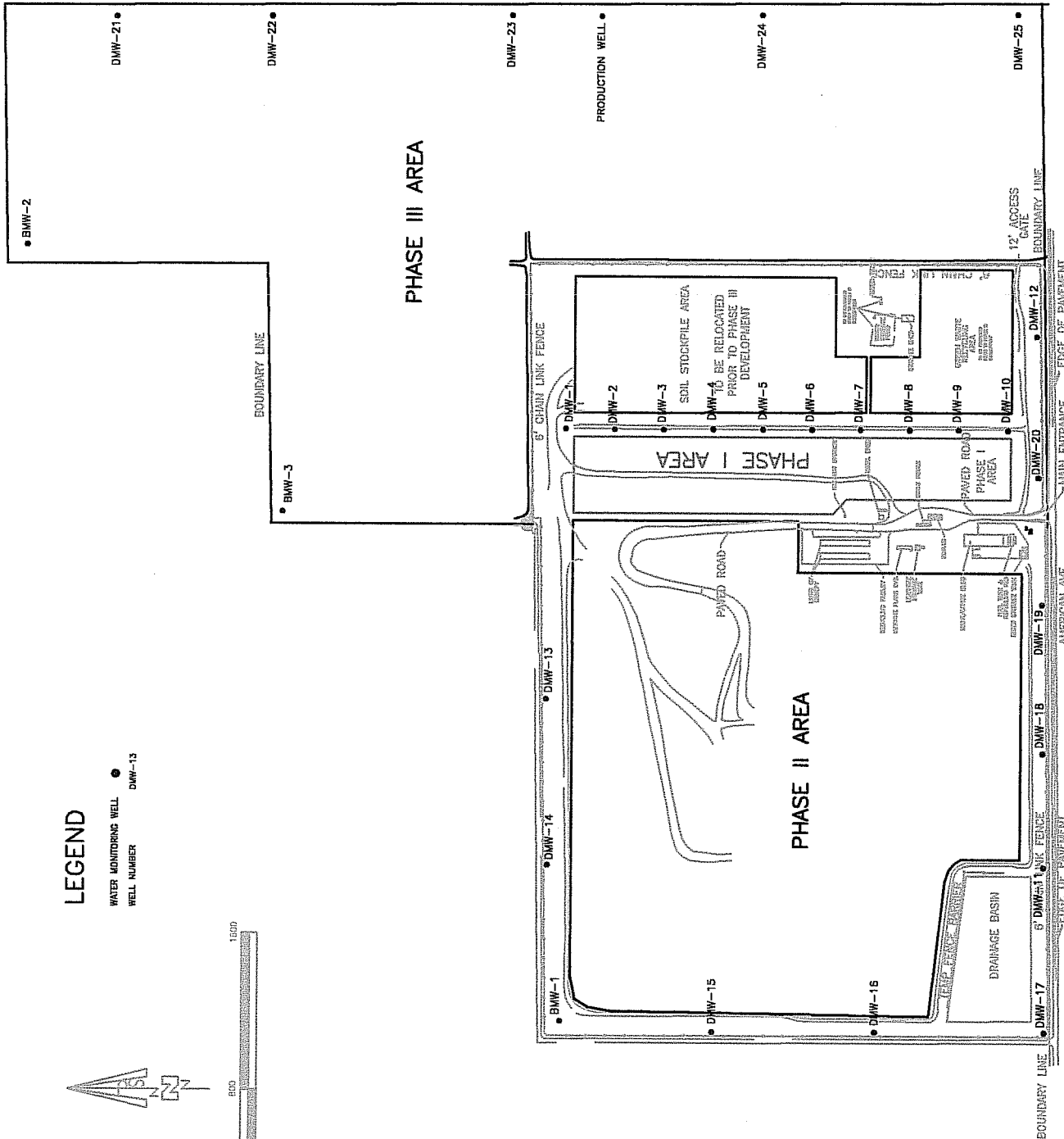
FIGURE

1



# LEGEND

WATER MONITORING WELL  
WELL NUMBER



DRAWN BY: JERAM EMMISON 01/29/2002  
EDITED BY: JERAM EMMISON 01/29/2002  
REVISED:

GROUNDWATER  
MONITORING WELLS

AMERICAN AVENUE DISPOSAL SITE

DEPARTMENT OF PUBLIC WORKS  
& PLANNING  
RESOURCE DIVISION

SCALE: 1" = 800'

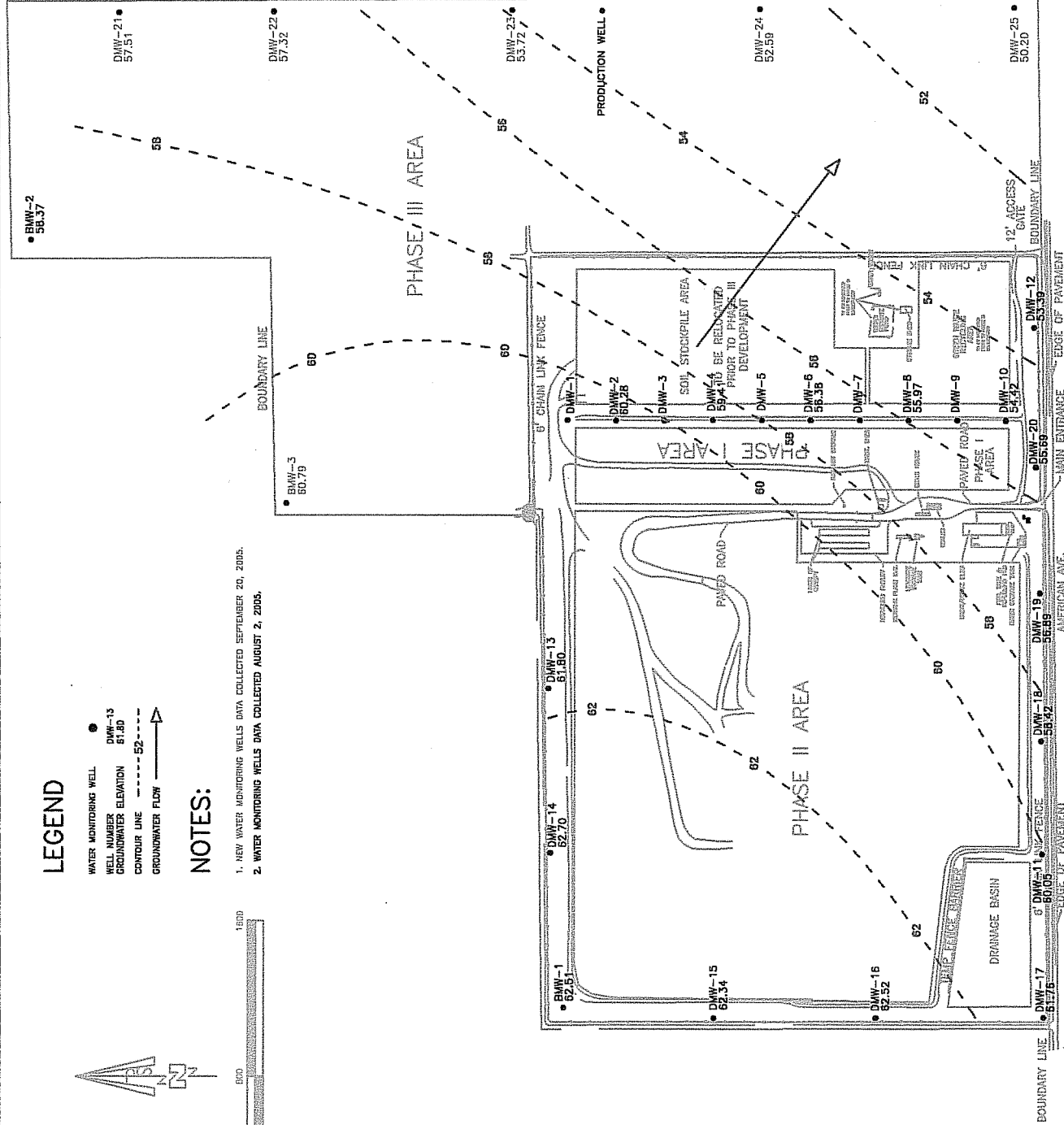
FIGURE: 2

# LEGEND

- WATER MONITORING WELL
- WELL NUMBER
- GROUNDWATER ELEVATION
- CONTOUR LINE
- GROUNDWATER FLOW

## NOTES:

1. NEW WATER MONITORING WELLS DATA COLLECTED SEPTEMBER 20, 2005.
2. WATER MONITORING WELLS DATA COLLECTED AUGUST 2, 2005.



GROUNDWATER  
CONTOUR MAP

AMERICAN AVENUE DISPOSAL SITE

DEPARTMENT OF PUBLIC WORKS  
& PLANNING  
RESOURCES DIVISION

SCALE: 1" = 800'

FIGURE: 3

DRAWN BY: JERAM EMMERSON 01/30/2006  
EDITED BY: JERAM EMMERSON 01/30/2006  
REVISIONS



## LEGEND

WATER MONITORING WELL ●  
WELL NUMBER DMW-13

## NOTES:

1. ALL DATA MEASUREMENTS HAVE UNITS mg/L.
2. ALL WELLS WITHOUT DATA WERE BELOW THE INTER-WELL TOLERANCE LIMITS. WELLS DMW-1, -3, -5, -7, AND -9 WERE NOT SAMPLED.

## DATA SOURCES:

INORGANICS - 1st Semi-Annual Period 2005  
INORGANICS - 3rd QTR 2005  
INORGANICS - 4th QTR 2005

● BMW-2

DMW-21

INORGANIC - 3rd QTR 2005				
Inter-well Tolerance Limits				
DMW-21				
CONSTITUENT	DATE	LIMIT	OBSERV.	
Bicarbonate	09-20-2005	392	392	450
INORGANIC - 4th QTR 2005				
Inter-well Tolerance Limits				
DMW-21				
CONSTITUENT	DATE	LIMIT	OBSERV.	
Bicarbonate	12-20-2005	392	392	450
Sulfate	12-20-2005	250	250	250

DMW-22

INORGANIC - 3rd QTR 2005				
Inter-well Tolerance Limits				
DMW-22				
CONSTITUENT	DATE	LIMIT	OBSERV.	
Bicarbonate	09-20-2005	392	392	520
Sodium	09-20-2005	227.9	227.9	240
Sulfate	09-20-2005	250	250	250
INORGANIC - 4th QTR 2005				
Inter-well Tolerance Limits				
DMW-22				
CONSTITUENT	DATE	LIMIT	OBSERV.	
Bicarbonate	12-20-2005	392	392	450
Sodium	12-20-2005	227.9	227.9	250
Sulfate	12-20-2005	250	250	250

DMW-23

INORGANIC - 3rd QTR 2005				
Inter-well Tolerance Limits				
DMW-23				
CONSTITUENT	DATE	LIMIT	OBSERV.	
Bicarbonate	09-20-2005	392	392	480
Magnesium	09-20-2005	48.13	48.13	52
INORGANIC - 4th QTR 2005				
Inter-well Tolerance Limits				
DMW-23				
CONSTITUENT	DATE	LIMIT	OBSERV.	
Bicarbonate	12-20-2005	392	392	470
Magnesium	12-20-2005	48.13	48.13	49

● PRODUCTION WELL

DMW-24

INORGANIC - 3rd QTR 2005				
Inter-well Tolerance Limits				
DMW-24				
CONSTITUENT	DATE	LIMIT	OBSERV.	
Bicarbonate	09-20-2005	392	392	430

DMW-25

INORGANIC - 1st Semi-Annual Period 2005				
Inter-well Tolerance Limits				
DMW-25				
CONSTITUENT	DATE	LIMIT	OBSERV.	
Bicarbonate	02-02-2005	392	392	510
Calcium	02-02-2005	235.6	235.6	250
Magnesium	02-02-2005	48.13	48.13	56

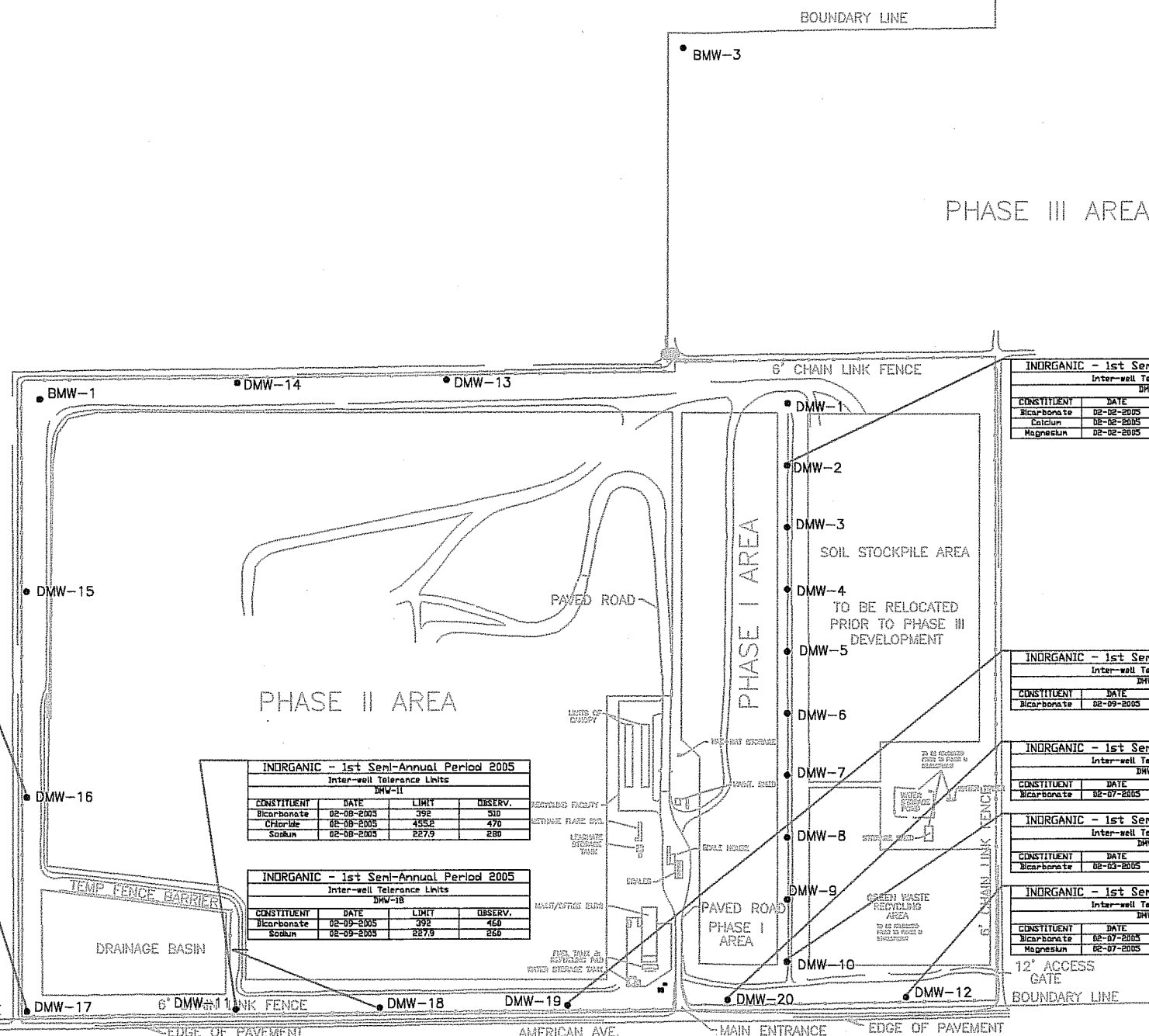
INORGANIC - 1st Semi-Annual Period 2005				
Inter-well Tolerance Limits				
DMW-19				
CONSTITUENT	DATE	LIMIT	OBSERV.	
Bicarbonate	02-09-2005	392	392	430

INORGANIC - 1st Semi-Annual Period 2005				
Inter-well Tolerance Limits				
DMW-20				
CONSTITUENT	DATE	LIMIT	OBSERV.	
Bicarbonate	02-07-2005	392	392	450

INORGANIC - 1st Semi-Annual Period 2005				
Inter-well Tolerance Limits				
DMW-10				
CONSTITUENT	DATE	LIMIT	OBSERV.	
Bicarbonate	02-03-2005	392	392	420

INORGANIC - 1st Semi-Annual Period 2005				
Inter-well Tolerance Limits				
DMW-12				
CONSTITUENT	DATE	LIMIT	OBSERV.	
Bicarbonate	02-07-2005	392	392	450
Magnesium	02-07-2005	48.13	48.13	50

12' ACCESS GATE  
BOUNDARY LINE



INORGANIC - 1st Semi-Annual Period 2005				
Inter-well Tolerance Limits				
DMW-15				
CONSTITUENT	DATE	LIMIT	OBSERV.	
Bicarbonate	02-08-2005	392	392	420
Chloride	02-08-2005	455.2	455.2	488
Magnesium	02-08-2005	48.13	48.13	50

INORGANIC - 1st Semi-Annual Period 2005				
Inter-well Tolerance Limits				
DMW-17				
CONSTITUENT	DATE	LIMIT	OBSERV.	
Bicarbonate	02-09-2005	392	392	470
Sodium	02-09-2005	227.9	227.9	270

INORGANIC - 1st Semi-Annual Period 2005				
Inter-well Tolerance Limits				
DMW-11				
CONSTITUENT	DATE	LIMIT	OBSERV.	
Bicarbonate	02-08-2005	392	392	510
Chloride	02-08-2005	455.2	455.2	488
Sodium	02-08-2005	227.9	227.9	280

INORGANIC - 1st Semi-Annual Period 2005				
Inter-well Tolerance Limits				
DMW-18				
CONSTITUENT	DATE	LIMIT	OBSERV.	
Bicarbonate	02-09-2005	392	392	450
Sodium	02-09-2005	227.9	227.9	260

DRAWN BY: BRIAN EMERSON  
EDITED BY: BRIAN EMERSON  
REVISIONS: 01/30/2006  
DATE: 01/30/2006

GROUNDWATER INORGANIC INTER-WELL  
TOLERANCE LIMIT EXCEEDENCES

AMERICAN AVENUE DISPOSAL SITE

DEPARTMENT OF PUBLIC WORKS  
& PLANNING  
RESOURCES DIVISION

SCALE: 1" = 600'

FIGURE: 4



## LEGEND

WATER MONITORING WELL ●  
WELL NUMBER DMW-13

## NOTES:

1. ALL DATA MEASUREMENTS HAVE UNITS  $\mu\text{g/L}$ .
2. ALL VALUES WITH "J" ARE TRACE VALUES, RESULTS WHICH ARE BETWEEN THE MDL AND THE PQL.
3. ALL WELLS WITHOUT DATA WERE NON-DETECT (ND) FOR VOCs. WELLS DMW-1, -3, -5, -7, AND -9 WERE NOT SAMPLED.

## DATA SOURCES:

ORGANICS - 1st Semi-Annual Period 2005  
ORGANICS - 2nd Semi-Annual Period 2005  
ORGANICS - 3rd QTR 2005  
ORGANICS - 4th QTR 2005

ORGANICS - 1st Semi-Annual Period 2005		
DMW-14		
CONSTITUENT	RESULT	PQL
1,2-Dichloropropane	0.73	0.5
1,2,3-Trichloropropane	2.6	1.0
ORGANICS - 2nd Semi-Annual Period 2005		
DMW-14		
CONSTITUENT	RESULT	PQL
1,2-Dichloropropane	0.62	0.5
1,2,3-Trichloropropane	2.1	1.0

ORGANICS - 1st Semi-Annual Period 2005		
BMW-1		
CONSTITUENT	RESULT	PQL
1,2,3-Trichloropropane	0.72J	1.0
ORGANICS - 2nd Semi-Annual Period 2005		
BMW-1		
CONSTITUENT	RESULT	PQL
1,2,3-Trichloropropane	ND	1.0

ORGANICS - 1st Semi-Annual Period 2005		
DMW-15		
CONSTITUENT	RESULT	PQL
1,2-Dichloropropane	0.19J	0.5
ORGANICS - 2nd Semi-Annual Period 2005		
DMW-15		
CONSTITUENT	RESULT	PQL
1,2-Dichloropropane	ND	0.5

ORGANICS - 1st Semi-Annual Period 2005		
DMW-13		
CONSTITUENT	RESULT	PQL
1,2-Dichloropropane	0.35J	0.5
ORGANICS - 2nd Semi-Annual Period 2005		
DMW-13		
CONSTITUENT	RESULT	PQL
1,2-Dichloropropane	ND	1.0
1,2,3-Trichloropropane	1.0	1.0

PHASE III AREA

● BMW-2

DMW-21

ORGANICS - 3rd QTR 2005		
DMW-21		
CONSTITUENT	RESULT	PQL
Ethanol	1100	250
ORGANICS - 4th QTR 2005		
DMW-21		
CONSTITUENT	RESULT	PQL
Ethanol	ND	250

DMW-22

ORGANICS - 3rd QTR 2005		
DMW-21		
CONSTITUENT	RESULT	PQL
Ethanol	3800	250
Methyl Isobutyl Ketone	6.2J	20.0
ORGANICS - 4th QTR 2005		
DMW-21		
CONSTITUENT	RESULT	PQL
Ethanol	3800	250
Methyl Isobutyl Ketone	ND	20.0

DMW-23

ORGANICS - 1st Semi-Annual Period 2005		
DMW-2		
CONSTITUENT	RESULT	PQL
Tetrachloroethene	0.13J	0.5
Trichlorofluoromethane	0.24J	0.5
ORGANICS - 2nd Semi-Annual Period 2005		
DMW-2		
CONSTITUENT	RESULT	PQL
Tetrachloroethene	ND	0.5
Trichlorofluoromethane	ND	0.5

● PRODUCTION WELL

ORGANICS - 1st Semi-Annual Period 2005		
DMW-6		
CONSTITUENT	RESULT	PQL
1,2-Dichloropropane	1.0	0.5
1,2,3-Trichloropropane	2.2	1.0
ORGANICS - 2nd Semi-Annual Period 2005		
DMW-6		
CONSTITUENT	RESULT	PQL
1,2-Dichloropropane	0.83	0.5
1,2,3-Trichloropropane	2.1	1.0

● DMW-24

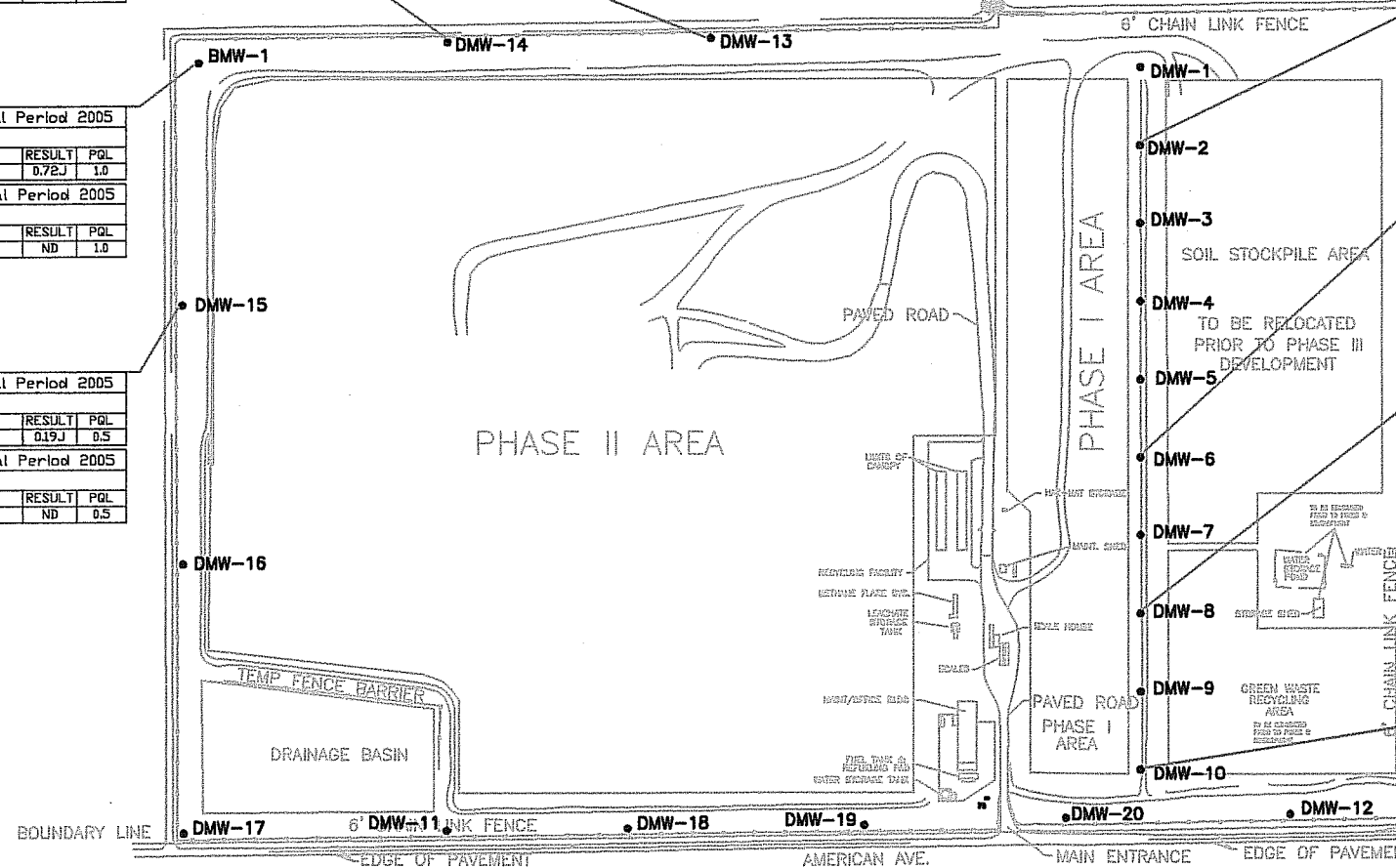
ORGANICS - 1st Semi-Annual Period 2005		
DMW-8		
CONSTITUENT	RESULT	PQL
1,1-Dichloroethane	0.78	0.5
cis-1,2-Dichloroethene	0.23J	0.5
Methylene Chloride	0.10J	1.0
Tetrachloroethene	0.48J	0.5
Trichloroethene	0.32J	0.5
Trichlorofluoromethane	0.64	0.5

ORGANICS - 2nd Semi-Annual Period 2005		
DMW-8		
CONSTITUENT	RESULT	PQL
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	1.0
Methylene Chloride	ND	0.5
Tetrachloroethene	ND	0.5
Trichloroethene	ND	0.5
Trichlorofluoromethane	0.60	0.5

ORGANICS - 1st Semi-Annual Period 2005		
DMW-10		
CONSTITUENT	RESULT	PQL
Trichlorofluoromethane	0.15J	0.5
ORGANICS - 2nd Semi-Annual Period 2005		
DMW-10		
CONSTITUENT	RESULT	PQL
Trichlorofluoromethane	ND	0.5

DMW-25

ORGANICS - 3rd QTR 2005		
DMW-21		
CONSTITUENT	RESULT	PQL
Dichlorodifluoromethane	2.0	0.5
ORGANICS - 4th QTR 2005		
DMW-21		
CONSTITUENT	RESULT	PQL
Dichlorodifluoromethane	2.8	0.5



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REVISED:

GROUNDWATER  
ORGANIC ANALYSIS

AMERICAN AVENUE DISPOSAL SITE

DEPARTMENT OF PUBLIC WORKS  
& PLANNING  
RESOURCES DIVISION

SCALE: 1" = 600'

FIGURE: 5