# City of Merced Drinking Water Source Water Assessment 2003



This report is a comprehensive information source of drinking water supplied to the citizens of the City of Merced. The main focus of this report is to establish the vulnerability to our source of drinking water to outside industrial, commercial and agricultural activities. If there are any questions about this report, please direct them to the below email address, or fax number.

1776 Grogan Avenue Merced, CA 95340 Phone: 209-385-6817 Fax: 209-385-6222 Email: riggsp@cityofmerced.org



The City of Merced has compiled this comprehensive Drinking Water Source Water Assessment Report at the request of the State Department of Health Services. It provides information about all sources of drinking water provided to you, the Consumer.

Each section provides information on one of the eighteen drinking water production wells the City operates to provide safe, quality drinking water to it's consumers.

The information provided for each drinking water source includes detailed information about the well that helps establish it's vulnerability to possible contaminating activities such as, agricultural, industrial and commercial.

Since the City of Merced only provides pumped groundwater to it's consumers, it is vulnerable to pollution from any of these activities. Therefore, information as to the depth of the wells, pumping rate, and location of the underground water bearing aquifer the water is drawn from is extremely important to assess it's vulnerability to pollution.

This report clarifies geographically how close any of these Possible Contaminating Activities (PCA's) are presently taking place and, helps prevent introduction of any new PCA's within close proximity to your drinking water sources by establishing "delineation zones", or distance barriers.

This Assessment was completed by: Patrick Riggs City of Merced Public Works Environmental Control Division



## **Drinking Water Source Assessment**

Water System

MERCED, CITY OF Merced County

Water Source

### WELL 01A - RAW

Assessment Date

March, 2003

California Department of Health Services Drinking Water Field Operations Branch City of Merced

 District No.
 M4

 System No.
 2410009

 Source No.
 001

 PS Code
 2410009-001

Assessme	ent Summary				
<b>District Name</b>	City of Merced	District No. M4	County	Merced	
ystem Name	MERCED, CITY OF			Systen	n No. <u>2410009</u>
Source Name	WELL 01A - RAW	Source No	001	PS Code	2410009-001
Completed by	Patrick Riggs	Date	March,	2003	

#### **Description of System and Source**

The City of Merced water system is located in Merced County and serves the Merced City and part of the bordering Merced County. There are approximately 17,125 service connections serving a population of 63,000.

The only drinking water source for the City of Merced water system is groundwater wells. The recharge area for the source includes hundreds of square miles originating from the Eastern Seirra Nevada foothills and mountain range. General land use is agricultural | urban | residential | undeveloped etc.

#### **Assessment Procedures**

The assessment of the source WELL 01A - RAW was conducted by the City of Merced Environmental Control Office. The following sources of information were used in the assessment: Water system files, DHS files.

Procedures used to conduct the assessment include: Assistance from DHS jurisdictional office, Turbo Swap program for data input.

#### **Contents of this Assessment**

Yes X	No 🗌	Assessment Summary
Yes 🗶	No 🗌	Vulnerability Summary
Yes X	No 🗌	Source Location Form
Yes X	No 🗌	Delineation of Ground Water Protection Zones
Yes X	No 🗌	Physical Barrier Effectiveness Checklist
Yes X	No 🗌	Source Data Sheet
Yes X	No 🗌	Inventory of Possible Contaminating Activities
Yes X	No 🗌	Vulnerability Ranking
Yes 🕱	No 🗍	Assessment Map

					New York Contract of the second of
Vulnerab	ility Summary				
District Name	City of Merced	District No. <u>M4</u>	County	Merced	
ystem Name	MERCED, CITY OF			System No.	2410009
Source Name	WELL 01A - RAW	Source No.	001	PS Code24	10009-001
Completed by	Patrick Riggs	Date	March,	2003	
THE FOL	LOWING INFORMATION MUS	T BE INCLUDED IN THE SYS	TEM CONSU	MER CONFIDENCE REF	PORT
	s considered most vulnerat nants detected in the water		es associat	ed	
	Automobile- Gas statio Dry cleaners	ons			
	Known Contaminant P s considered most vulneral ected contaminants:		ies not asso	ociated	
- * «.	Recreational area - su Sewer collection syste				

Historic gas stations

Underground storage tanks - Confirmed leaking tanks

### **Discussion of Vulnerability**

City of Merced Well Station #1 houses three municipal groundwater wells. One of these three wells has maintained a detection of Perchloroethylene (PCE) below the CCR Title 22 drinking water MCL. Well #1C ranges from 2.3µg/L to ND depending on the time of year and demand. It is monitored monthly to ensure these levels do not rise to action levels.

A copy of the complete assessment may be viewed at:

Public Works Environmental Control Division 1776 Grogan Avenue Merced, CA 95340

You may request a summary of the assessment be sent to you by contacting:

Patrick Riggs Environmental Control Officer II 209-385-6817 209-384-7772 (fax) riggsp@cityofmerced.org

System into.					JEU Seru			
Source Info: NI	Number	1A	Name	e bere statistic strategic statistics i second		and the second		
	PSCode	2410009	a de las disertes en a la	StV	StWellNo 2410009001	009001		
Input By: Pe	Person	PATRICK RIGGS	liges	Date		3/27/2003 (mm/dd/yyyy)	(مریمی)	
Location Information:	io:	Latitude		37.314000		Horizontal Datum	NAD83	
		Longitude		-121.476000		Datum, if Other	NAVD:88	
	Des Cor	Description/ Comments:						
Method of	USGS				GPS	۲	OtherMethod	
ion:	Method	Digital		1	ŧ	Leica/530	Method	Other
<b>9</b>	Scale	1:62500(15 mln)	5/m(n)	ľ	Grade	Survey(eg.	If Other	
Scale, if Other	Other :				Differential	2	Acouracy	L
Map <sup>r</sup> F Map I	Map Published Map Revised	ĒĹ			COTRECTION		Scale	
	+		PPP	Edit	Delete	Save	Cancel Ext	it   Help

· ·

 $\bigcirc$ 

 $\bigcirc$ 

Ó

### Delineation of Ground Water Protection Zones

District Name	City of Merced	District No	County	Merced		
System Name	MERCED, CITY OF		N	Syster	n No	2410009
Source Name	WELL 01A - RAW	Source No.	001	PS Code	241	0009-001
Completed by	Patrick Riggs	Date	March, 2	2003		

Method Used to Delineate Protection Zones

### X 1. Calculated Fixed Radius

- 2. Modified Calculated Fixed Radius (Attach documentation for direction of ground water flow.)
- 3. More Detailed Methods
- 4. Arbitrary Fixed Radius (For use only by or permission of DHS)

Maximum Pumping Rate of Well (Q)	2,200 gallons/minute
	3,549 acre feet/year
	154,587,400 cubic feet/year
Effective Porosity	0.20 Default Value
Screened Interval of Well	33 feet Default Value

Protection Zone	Calculated Value	Minimum Value	Radius of Protection Zone
Zone A - 2 Year TOT*	3,861 Feet	600 Feet	<b>3,861</b> Feet
Zone B5 - 5 Year TOT*	6,106 Feet	1,000 Feet	<b>6,106</b> Feet
Zone B10 - 10 Year TOT*	8,635 Feet	1,500 Feet	<b>8,635</b> Feet

\*TOT = Time of Travel

District Name City of Merced	District No.		ty Merced		<u></u>
		M4 Coun			
System Name <u>MERCED, CITY OF</u>					10009
Source Name WELL 01A - RAW	Source	No. 001	PS Code	241000	9-001
Completed by CITY OF MERCED		Date Dece	ember, 2002		
arameter			Possible Points	This Source	Score
ype of Aquifer Confinement		-			
1. Unconfined, Semi-confined, Fractured Rock	, Unknown Aquifer		0		
2. Confined	··· ···		50	X	50
Pathways of Contamination (All Aquif Presence of Abandoned or Improperly Des			· · · · ·	14	• .
1. Present within Zone A (2 year TOT distance	e) Yes		0		
	No		5	X	5
	Unknowr	1	0		
2. Present within Zone B5 (2 -5 year TOT dist	ance) Yes		0		· .
	No		3	X	3
	Unknowr	<u>1</u>	0		
3. Present within Zone B10 (5-10 year TOT d	istance) Yes		0		
	No		2	X	2
	Unknowr	n	0		
ydraulic Head (Confined Aquifers) What is the relationship in the hydraulic he the overlying unconfined aquifer? (i.e. doe 1. Head in confined aquifer is higher than hea	s the well flow under ar	tesian condition	ns?) 20	x	20
conditions.		A. (powers) = 10		<b>^</b>	20
<ol> <li>Head in confined aquifer is higher than hea conditions.</li> </ol>	d in unconfined aquifer ur	nder static	10		
<ol><li>Head in confined aquifer is lower than or sa under static conditions.</li></ol>	me as head in unconfined	d aquifer	0		
4. Unknown			0		
Well Construction (All Aquifers)					
Sanitary Seal (Annular Seal) Depth	None of less than 20 fe	eet	0		
<b>0</b> feet	Between 20 and 50 fee	et	6		
	50 feet or greater		10		
-	Unknown		0	X	0
			0		
Surface Seal (concrete cap)	Not present or imprope	erly constructed			
Surface Seal (concrete cap)	Not present or imprope Watertight, slopes awa at least 2' laterally in a	ay from well	4	x	4

### **Physical Barrier Effectiveness (PBE)**

System Name	MERCED, CITY OF			Syste	em No. <u>2410009</u>
ource Name	WELL 01A - RAW	Source No.	001	PS Code	2410009-001
Surce Maine			001		<u></u>

arameter		Possible Points	This Source	Score
Well Construction (All Aquifers)co	ontinued			
Flooding potential at well site	Subject to localized flooding (i.e. in low area or unsealed pit or vault) or within 100 year flood plain	0		
	Not subject to flooding	1	X	1
	Unknown	0		
Security at well site	Not secure	0		
	Secure	5	X	5
	Unknown	0		

Score	Effectiveness
0 to 35	Low
36 to 69	Moderate
70 to 100	High
L	

Maximum Score = 100

Score	90
Effectiveness _	High

### WELL DATA SHEET (Page 1 of 2)

Complete as much information as possible. Leave blank if information is not av	ailable, use N.A. if not applicab	le.
* Indicates items required for Source Water Assessment		<u> </u>
** Indicates additional items required for assessments and Ground Wa	ter Rule	
		Actual, Estimated or
1		Default?
DATA SHEET GENERAL INFORMATION		
System Name	City of Merced	from DHS database
System Number	2410009	from DHS database
Source of Information (well log, DHS/County files, system, etc)	well log, system files	
Organization Collecting Information (DHS, County, System, other)	System	
Date Information Collected/Updated	3/17/2003	
WELL IDENTIFICATION		
* Well Number or Name	Well 01 A	from DHS database
* DHS Source Identification Number (FRDS ID No.)		
DWR Well Log on File? ("YES" or "NO")	YES	
State Well Number (from DWR)	2410009001	
Well Status (Active, Standby, Inactive)	Active	
WELL LOCATION		
Latitude	37.314	City Surveyed 2002
Longitude	-120.476	City Surveyed 2002
Ground Surface Elevation (ft above Mean Sea Level)	175.73	City Surveyed 2002
Street Address	477 Lawrence Dr.	
Nearest Cross Street	Bear Creek	
City	Merced	
County	Merced	
* Neighborhood/Surrounding Area (see Note 1)	Re, Mu.	
Site plan on file? ("YES" or "NO")	NO	
DWR Ground Water Basin		from UC Davis
WR Ground Water Sub-basin		from UC Davis
SANITARY CONDITIONS		
** Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)	65'	
Distance to Active Wells (ft)	120'	
Distance to Abandoned Wells (ft)	None	
Distance to Surface Water (ft)	1000'	
** Size of controlled area around well (square feet)	117,612 (approx.)	
* Type of access control to well site (fencing, building, etc)	Fencing	
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	YES	
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	10' x 10' x 10"	
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")	Unknown	
* Drainage away from well? ("YES" or "NO")	YES	
ENCLOSURE/HOUSING		
Enclosure Type (building, vault, none, etc.)	Building (corrugated steel	)
Floor material	Concrete	
Located in Pit? ("YES" or "NO")	NO	
Pit depth (feet) (if applicable)	N.A.	
WELL CONSTRUCTION		
Date drilled	1951, Redrilled in 1959	
Drilling Method	Cable	
Depth of Bore Hole (feet below ground surface)	243'	
Casing Beginning Depth/Ending Depth(ft below surface);	0/474	
2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	0/174'	
Casing Diameter (inches); 2nd Casing Diameter; 3rd Casing, etc.	20"	
Casing Material; 2nd Casing Material; 3rd Casing, etc.	Steel	

### WELL DATA SHEET (Page 2 of 2)

Complete as much information as possible. Leave blank if information is not ava	ilable, use N.A. if not applica	able.
* Indicates items required for Source Water Assessment		
** Indicates additional items required for assessments and Ground Wate	er Rule	
		Actual, Estimated or Default?
WELL CONSTRUCTION (continued)		
Conductor casing used? ("YES", "NO" or "UNKNOWN") (See Note 2)	YES	
Conductor casing removed? ("YES", "NO" or "UNKNOWN")	NO	· · · · · · · · · · · · · · · · · · ·
* Depth to highest perforations/screens (ft below surface) (or		
"UNKNOWN")	141'	
Screened Interval Beginning Depth/Ending Depth (ft below surface);	····	
2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	141' - 174'	
* Total length of screened interval (ft)		
(default = 10% pump capacity in gpm) (or "UNKNOWN")	33'	
* Annular Seal?("YES", "NO" or "UNKNOWN") (See Note 3)	NO	
* Depth of Annular Seal (ft)	NO	
Material of Annular Seal (cement grout, bentonite, etc.)		
Gravel pack, Depth to top (ft below ground surface)		
Total length of gravel pack (ft)	and the second	
AQUIFER		
* Aquifer Materials		
(list all that apply: sand, silt, clay, gravel, rock, fractured rock)	sand, clay, silt	
* Effective porosity (decimal percent) ( <i>default = 0.2</i> ) (or "UNKNOWN")	UNKNOWN	
* Confining layer (Impervious Strata) above aquifer?	UNRICOVI	
("YES", "NO" or "UNKNOWN")	YES 69'-88' Clay	
Thickness of confining layer, if known (ft)	1 <u>23 09-00 01ay</u>	
Depth to confining layer, if known (ft below ground)	69'-88'	
* Static water level (ft below ground surface)	09-00	
Static water level measurement: Date/Method		
[Pumping water level (ft below ground surface)		
Pumping water level measurement: Date/Method		
WELL PRODUCTION		
Well Yield (gpm)	2200	
Well Yield Based On (i.e., pump test, etc.)	Meter	
Date measured	3/27/2003	
Is the well metered? ("YES" or "NO")		
Production (gallons per year)	111.51 MG (2002)	
Frequency of Use (hours/year)	846.8	
Typical pumping duration (hours/day)	2.32	
PUMP	۷.۵۷	
Make	Layne and Bowler	
Туре	Constant Speed	
Size (hp)	125 HP	
* Capacity (gpm)	2200	
Depth to suction intake (ft below ground surface)	141'	
Lubrication Type	Oil	
Type of Power: (i.e., electric, diesel, etc.)	Diesel Generator	_
Auxiliary power available? ("YES" or "NO")	YES	
Operation controlled by: (i.e., level in tank, pressure, etc.)	Pressure	_
Pump to Waste capability? ("YES" or "NO")	YES	
Discharges to: (i.e., distribution system, storage, etc.)		
Discharges to. (i.e., distribution system, storage, etc.)	Tank #1	

### **Remarks and Defects**

Well Data Sheet Supplement	
REMARKS AND DEFECTS	
(Use or note these items as appropriate)	
(** indicates items pertinent to Ground Water Rule)	
Distance (ft) to other sanitary concerns:	
** Type of Sanitary Concern: <u>NONE</u>	-
** Type of Sanitary Concern:	_
** Type of Sanitary Concern:	-
** Type of Sanitary Concern:	-
** Type of Sanitary Concern:	
Raw Water Quality concerns? (Yes or No)	Yes
** Microbiological (coliform)	No
Chemicals	Perchloroethylene
Other (list)	
** Continuous Chlorination provided? (Yes or No)	Yeş
Condition of enclosure or housing	Good
Pit Drained? (if applicable)	
Pitless Adaptor? Make and Model	
Height of pump base (inches)	10"
Casing Vent? (yes or no)	Yes
Air/Vacuum Release? (yes or no)	Yes
Sampling Taps? (yes or no)	Yes
Location of sampling taps	Pump Discharge
Wellhead Riser? (yes or no); height above well	No
Other	

**Comments:** Although Perchloroethylene has been detected in one of the three wells at this production well site, the detection level concentration consistantly remains below Maximum Contaminant Levels (MCL's) and continues to decline year after

Inventory	of Possible Contam	inating	<b>g</b> Activ	vities (I	PC	A Inventory)
District Name	City of Merced	District N	lo. M4	Count	y _	Merced
System Name	MERCED, CITY OF					System No. 2410009
Source Name	WELL 01A - RAW	S	ource No.	001		PS Code2410009-001
Completed by	Patrick Riggs		Date	Decer	nbe	er, 2002
PCA (Risk Rankin	g)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Commercial/I	ndustrial Activities					
Automobile- Body s	hops (H)	N	Y	Y		
Automobile- Car wa		N	Y	Y		
Automobile- Gas st		N	Y	Y	*	UST RWQCB sites thruoghout city limits.
Automobile- Repair	shops (H)	N	Y	Y		
Boat services/repai	r/ refinishing (H)	N	N	Y		
Chemical/petroleun	n pipelines (H)	N	N	N		
Chemical/petroleun	n processing/storage (VH)	N	N	N		
Dry cleaners (VH)		Y	Y	Y	*	Perchloroethylene plume identified.
Electrical/electronic	manufacturing (H)	N	N	N		
Fleet/truck/bus tern	ninals (H)	N	Y	Y		
niture repair/ ma	anufacturing (H)	N	N	N		
mome manufacturir	ng (H)	N	N	N		
Junk/scrap/salvage	yards (H)	N	N	N		
Machine shops (H)		N	N	Y		
Metal plating/ finish	ing/fabricating (VH)	N	N	N		
Photo processing/p	printing (H)	N	Y	Y		Small photo processing shops.
Plastics/synthetics	producers (VH)	N	N	N		
Research laborator	ies (H)	N	N	N		
Wood preserving/tr	reating (H)	N	N	N	1	
Wood/pulp/paper p	processing and mills (H)	N	N	N		
Lumber processing	and manufacturing (H)	N	N	Y		Lumber yard on 16th Street
	vstems (H, if in Zone A, otherwise L)	Y	Y	Y	1	Municipal collection system.
Parking lots/malls (	(>50 spaces) (M)	Y	Y	Y	1	
Cement/concrete p	lants (M)	N	N	Y	$\Box$	Located on N Hwy 59.
Food processing (	M)	N	N	N	1	
Funeral services/g		N	Y	Y		Funeral Home on Main Street. Graveyard on E. 13th St.
Hardware/lumber/p	parts stores (M)	N	Y	Y	1	Misc. commercial shops
Appliance/Electron		N	Y	Y	$\top$	Misc. commercial shops
Office buildings/co		Y	Y	Y	+	Misc. business locations

Y = Yes N = No U = Unknown

#### Inventory of Possible Contaminating Activities (PCA Inventory) System No. 2410009 System Name MERCED, CITY OF 2410009-001 001 Source No. PS Code Jource Name WELL 01A - RAW PCA in PCA in PCA in Zone A Zone B5 Zone B10 Comments PCA (Risk Ranking) **Commercial/Industrial Activities** Y US Rentals on 16th Street. Rental Yards (L) Υ N Y Y RV/mini storage (L) Ν **Residential/Municipal Activities** Airports - Maintenance/ fueling areas (VH) N Ν N Ν Landfills/dumps (VH) Ν Ν Railroad yards/ maintenance/ fueling areas (H) N Ν Ν Septic systems - high density (>1/acre) (VH if in Zone A, N Ν Ν otherwise M) Y Sewer collection systems (H, if in Zone A, otherwise L) Υ Y Municipal collection systems. Y Small automotive repair shops etc. Utility stations - maintenance areas (H) N Ν Ν Wastewater treatment plants (VH in Zone A, otherwise H) Ν Ν Drinking water treatment plants (M) Ν Ν Ν Golf courses (M) Ν Ν N ising - high density (>1 house/0.5 acres) (M) Υ Y Υ Ν Ν wotor pools (M) Ν Y Υ Parks located throughout city. Υ Parks (M) Y Y Auto shop oil and battery recycling Waste transfer/recycling stations (M) N activities. Apartments and condominiums (L) Y Y Υ Campgrounds/ Recreational areas (L) Ν N Ν Fire stations (L) Y Y Υ RV Parks (L) Ν N Ν Y Y Schools (L) Υ Y Hotels, Motels (L) Ν N **Other Activities** Ν NPDES/WDR permitted discharges (H) Ν Ν Underground Injection of Commercial/Industrial Ν Ν Ν **Discharges (VH)** Υ Historic gas stations (VH) Υ Ν Historic waste dumps/ landfills (VH) Ν Ν Ν Illegal activities/ unauthorized dumping (H) N Ν Ν Injection wells/ dry wells/ sumps (VH) Ν N Ν own Contaminant Plumes (VH) γ Υ Y Perchloroethylene plume detected.

Y = Yes N = No U = Unknown

#### Inventory of Possible Contaminating Activities (PCA Inventory) System No. 2410009 System Name MERCED, CITY OF 2410009-001 ource Name WELL 01A - RAW Source No. 001 PS Code PCA in PCA in PCA in \* Zone B5 Zone B10 Comments Zone A PCA (Risk Ranking) Other Activities Military installations (VH) Ν Ν Ν Ν Mining operations - Historic (VH) Ν Ν Mining operations - Active (VH) Ν Ν Ν Mining - Sand/Gravel (H) Ν Ν Ν Wells - Oil, Gas, Geothermal (H) Ν Ν Ν Salt Water Intrusion (H) Ν Ν N Y Y Recreational area - surface water source (H) Υ Bear Creek stormwater receptor. UST sites throughout city from Gas Underground storage tanks - Confirmed leaking tanks γ Υ N Service Stations. (VH)Tanks filled with inert sand slurry on site Y Ν N Underground storage tanks - Decommissioned - inactive tanks (L) for B/U Generator Underground storage tanks - Non-regulated tanks (tanks Ν N Ν smaller than regulatory limit) (H) Underground storage tanks - Not yet upgraded or Ν Ν Ν registered tanks (H) erground storage tanks - Upgraded and/or registered Ν Ν Ν active tanks (L) Convault above ground tank Υ Above ground storage tanks (M) Ν N Two other wells at the station. Wells - Water supply (M) Y Ν N Construction/demolition staging areas (M) Ν N Ν Y Small Pub. Works Storage Yard in area. Contractor or government agency equipment storage Υ Ν City supply yard nearby. yards (M) N Ν Dredging (M) Ν Transportation corridors - Freeways/state highways (M) Ν Ν Ν Y Y Transportation corridors - Railroads (M) Throughout city limits. Ν Transportation corridors - Historic railroad right-of-ways Ν N Ν (M) Y Transportation corridors - Road Right-of-ways (herbicide Y Y use areas) (M) Y Y Υ Transportation corridors - Roads/ Streets (L) Mercy Dominican Hospital. Υ Hospitals (M) Υ Ν Y Bear Creek Canal. Storm Drain Discharge Points (M) Y Y Storm Water Detention Facilities (M) Ν N Ν Artificial Recharge Projects - Injection wells (potable Ν Ν Ν water) (L) ficial Recharge Projects - Injection wells (non-potable Ν Ν Ν

Y = Yes N = No U = Unknown

### Inventory of Possible Contaminating Activities (PCA Inventory)

System Name MERCED, CITY OF					System No.	2410009
burce Name	Source No001			_ PS Code24	10009-001	
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments	
Other Activities						
water) (M)						
Artificial Recharge Projects - Spreading Basins (potable water) (L)	· N	N	N			
Artificial Recharge Projects - Spreading Basins (non-potable water) (M)	N	N	N			
Medical/dental offices/clinics (L)	Y	Y	Y		Mercy Dominican Ho dental clinics in proxi	•
Veterinary offices/clinics (L)	N	N	N			
Surface water - streams/ lakes/rivers (L)	Y	Y	Y		Bear Creek, MID irrig	ation canals.
Wells - monitoring, test holes (L)	Y	Y	Y		One on station, seve "R" Street.	ral off station on

### Vulnerability Ranking

District Name City of Merced District No. M4 County Merced									
ંડ	vstem Name	MERCED, CITY OF				Syster	m No	2410009	
S	ource Name	WELL 01A - RAW	Source No	0	<u>01</u> F	S Code	2410	410009-001	
Co	ompleted by	Patrick Riggs	Date _	N	larch, 2003	<u></u>			
Zone	PCA (Risk R	anking)		*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score	
А	Dry cleaners	(VH)		*	7	5	1	13	
Α	Known Cont	aminant Plumes (VH)		*	7	5	1	13	
B5	Automobile-	Gas stations (VH)		*	7	3	1	11	
B5	Dry cleaners	(VH)		*	7	3	1	11	
B5	Known Cont	aminant Plumes (VH)		*	7	3	1	11	
B10	Automobile-	Gas stations (VH)		*	• 7	1	1	9	
B10	Dry cleaners	; (VH)		*	7	1	1	9	
B10	Known Cont	aminant Plumes (VH)		*	7	1	1	9	
A	Recreationa	I area - surface water source (H)			5	5	1	11	
A	Sewer collect	ction systems (H, if in Zone A, other	wise L)		5	5	1	11	
A	Sewer collect	ction systems (H, if in Zone A, other	wise L)		5	5	1	11	
$\overline{()}$	Historic gas	stations (VH)	<u></u>		7	3	1	11	
B5	Undergroun	d storage tanks - Confirmed leaking	i tanks (VH)		7	3	1	11	
A	Above grou	nd storage tanks (M)			3	5	1	9	
A	Contractor of	or government agency equipment st	orage yards (M)		3	5	1	9	
A	Hospitals (N	1)			3	5	1	9	
A	Housing - h	gh density (>1 house/0.5 acres) (M	)		3	5	1	9	
A	Parking lots	/malls (>50 spaces) (M)			3	5	1	9	
A	Parks (M)				3	5	1	9	
A	Storm Drain	Discharge Points (M)	<u> </u>		3	5	1	9	
A	Transportat	ion corridors - Road Right-of-ways (	herbicide use areas) (M)		3	5	1	9	
A	Wells - Wat	er supply (M)			3	5	1	9	
B5	Automobile- Body shops (H)			5	3	1	9		
B5	Automobile- Repair shops (H)			5	3	1	9		
B5	Fleet/truck/	bus terminals (H)	and the second		5	3	1	9	
B5	Photo proce	essing/printing (H)			5	3	1	9	
B5	Recreationa	al area - surface water source (H)			5	3	1	9	
B10	Historic gas	stations (VH)	ti and a start and a start a st		7	1	1	9	
0	Undergrour	nd storage tanks - Confirmed leakin	g tanks (VH)		7	1	1	9	



© Information Center for the Environment
 Coding by Eric Lehmer
 Mapping System produced using ESRI ArcIMS

http://dwsap.ice.ucdavis.edu/swap/print.asp?spotX=-42035.6233238326&spotY=-78097.1C... 3/12/2003

## **Drinking Water Source Assessment**

Water System

MERCED, CITY OF Merced County

Water Source

### WELL 01B - RAW

Assessment Date

March, 2003

California Department of Health Services Drinking Water Field Operations Branch City of Merced

> District No. M4 System No. 2410009 Source No. 002 PS Code 2410009-002

Assessme	ent Summary				
<b>District Name</b>	City of Merced	District No	County	Merced	
System Name	MERCED, CITY OF			Systen	n No. <u>2410009</u>
Source Name	WELL 01B - RAW	Source No	002	PS Code	2410009-002
Completed by	Patrick Riggs	Date	March,	2003	

#### **Description of System and Source**

The City of Merced water system is located in Merced County and serves the Merced City and part of the bordering Merced County. There are approximately 17,125 service connections serving a population of 63,000.

The only drinking water source for the City of Merced water system is groundwater wells. The recharge area for the source includes hundreds of square miles originating from the Eastern Seirra Nevada foothills and mountain range. General land use is agricultural | urban | residential | undeveloped etc.

#### **Assessment Procedures**

The assessment of the source WELL 01B - RAW was conducted by the City of Merced Environmental Control Office. The following sources of information were used in the assessment: Water system files, DHS files.

Procedures used to conduct the assessment include: Assistance from DHS jurisdictional office, Turbo Swap program for data input.

#### **Contents of this Assessment**

Yes X	No 🗌	Assessment Summary
Yes 🗶	No 🗌	Vulnerability Summary
Yes X	No 🗌	Source Location Form
Yes X	No 🗌	Delineation of Ground Water Protection Zones
Yes X	No 🗌	Physical Barrier Effectiveness Checklist
Yes X	No 🗌	Source Data Sheet
Yes X	No 🗌	Inventory of Possible Contaminating Activities
Yes X	No 🗌	Vulnerability Ranking
Yes X	No 🗌	Assessment Map

Vulnerab	oility Summary				
District Name	City of Merced	District No. <u>M4</u>	County	Merced	- No
ystem Name Source Name	MERCED, CITY OF WELL 01B - RAW	Source No.	002	Systen PS Code	n No. <u>2410009</u> 2410009-002
Completed by	Patrick Riggs	Date	March, 2	2003	
THE FOL	LOWING INFORMATION MUST	BE INCLUDED IN THE SYSTI	EM CONSU	MER CONFIDEN	CE REPORT
	s considered most vulnerab nants detected in the water	-	s associat	ed	
	Historic gas stations s considered most vulnerat ected contaminants:	ble to the following activitie	es not asso	ociated	
	Dry cleaners Known Contaminant Pl Underground storage t	umes anks - Confirmed leaking t	tanks		

#### scussion of Vulnerability

City of Merced Well Station #1 houses three municipal groundwater wells. One of these three wells has maintained a detection of Perchloroethylene (PCE) below the CCR Title 22 drinking water MCL. Well #1C ranges from 2.3µg/L to ND depending on the time of year and demand. It is monitored monthly to ensure these levels do not rise to action levels.

A copy of the complete assessment may be viewed at:

Public Works Environmental Control Division 1776 Grogan Avenue Merced, CA 95340

You may request a summary of the assessment be sent to you by contacting:

Patrick Riggs Environmental Control Officer II 209-385-6817 209-384-7772 (fax) riggsp@cityofmerced.org



Delineatio	n of Ground Wate	r Protection Zone	es			
<b>District Name</b>	City of Merced	District No	County	Merced		
System Name	MERCED, CITY OF			System	n No.	2410009
Source Name	WELL 01B - RAW	Source No	002	PS Code	241	0009-002
Completed by	dhs	Date	March, 2	2003		

### Method Used to Delineate Protection Zones

### X 1. Calculated Fixed Radius

- 2. Modified Calculated Fixed Radius (Attach documentation for direction of ground water flow.)
- 3. More Detailed Methods
- 4. Arbitrary Fixed Radius (For use only by or permission of DHS)

Maximum Pumping Rate of Well (Q)	2,200 3,549 154,587,400	gallons/minute acre feet/year cubic feet/year
Effective Porosity	0.20	Default Value
Screened Interval of Well	<b>33</b> fee	t Default Value

Protection Zone	Calculated Value	Minimum Value	Radius of Protection Zone
Zone A - 2 Year TOT*	3,861 Feet	600 Feet	<b>3,861</b> Feet
Zone B5 - 5 Year TOT*	6,106 Feet	1,000 Feet	6,106 Feet
Zone B10 - 10 Year TOT*	8,635 Feet	1,500 Feet	8,635 Feet

\*TOT = Time of Travel

District Name	City of Merced	District No. <u>M4</u> Cour	nty Merced		
System NameMERCED, CITY OF		· · · · · · · · · · · · · · · · · · ·	Syst	tem No. 24	10009
Source Name	WELL 01B - RAW	Source No002	PS Code	241000	
Completed by	Patrick Riggs	DateMarc	ch, 2003		·····
Parameter			Possible Points	This Source	Score
ype of Aquife Confinement	r				
1. Unconfined, S	Semi-confined, Fractured Rock, U	nknown Aquifer	0		
2. Confined			50	X	50
	ontamination (All Aquifer bandoned or Improperly Destro				
1. Present withi	n Zone A (2 year TOT distance)	Yes	0		
		No	5	Х	5
		Unknown	0		
2. Present within	n Zone B5 (2 -5 year TOT distan	ce) Yes	0		
		No	3	<u> </u>	3
······································		Unknown	0		
3. Present within	n Zone B10 (5-10 year TOT dista	·	0		
		No	2	<u> </u>	2
		Unknown	0		
What is the relation the overlying u	d (Confined Aquifers) ationship in the hydraulic head nconfined aquifer? (i.e. does t ined aquifer is higher than head in	between the confined aquifer and he well flow under artesian condition	15?)		
conditions.	ned aquifer is higher than head in	-	20	X	20
conditions.	<del></del>		10		
3. Head in confi under static c	ned aquifer is lower than or same conditions.	e as head in unconfined aquifer	0		
4. Unknown		······	0		
Well Construct	ion (All Aquifers)				
Sanitary Seal (	Annular Seal) Depth	None of less than 20 feet	0		
	feet	Between 20 and 50 feet	6		
		50 feet or greater	10		
		Unknown	0	X	0
<u> </u>	concrete cap)	Not present or improperly constructed	0		
Surface Seal (				<u> </u>	+
Surface Seal (		Watertight, slopes away from well at least 2' laterally in all directions	4	X	4

### Physical Barrier Effectiveness (PBE)

System Name <u>MERCED, CITY O</u>	F	Syst	em No2	410009	
Source Name WELL 01B - RAW	Source No. 002	PS Code	24100	10009-002	
Parameter	Possible Points	This Source	Score		
Well Construction (All Aquifers)	continued				
Flooding potential at well site	Subject to localized flooding (i.e. in low area or unsealed pit or vault) or within 100 year flood plain	0			
	Not subject to flooding	1	X	1	
· · · ·	Unknown	0		-	
Security at well site	Not secure	0			
	Secure	5	Х	5	
	Unknown	0			

Score	Effectiveness
0 to 35	Low
36 to 69	Moderate
70 to 100	High

Maximum Score = 100

Score	90
Effectiveness	High

### WELL DATA SHEET (Page 1 of 2)

Indicates additional items required for assessments and Ground Wate	er Rule	
		Actual, Estimated
		or Default?
DATA SHEET GENERAL INFORMATION		
System Name	City of Merced	from DHS databas
System Number	2410009	from DHS databas
Source of Information (well log, DHS/County files, system, etc)	well log, system files	
Organization Collecting Information (DHS, County, System, other)	System	
Date Information Collected/Updated	3/17/2003	
WELL IDENTIFICATION	0/11/2000	
* Well Number or Name	Wellow 8	from DHS databas
* DHS Source Identification Number (FRDS ID No.)		
DWR Well Log on File? ("YES" or "NO")	YES	
State Well Number (from DWR)	2410009002	
Well Status (Active, Standby, Inactive)	Active	
Latitude	37.314	City Surveyed 20
Longitude	-120.476	City Surveyed 20
Ground Surface Elevation (ft above Mean Sea Level)	176.59	City Surveyed 20
Street Address	477 Lawrence Dr.	City Surveyed 20
Nearest Cross Street	Bear Creek	
	Merced	
City	Merced	
County	Re, Mu.	
* Neighborhood/Surrounding Area <i>(see Note 1)</i> Site plan on file? ("YES" or "NO")	NO	
WR Ground Water Basin		from UC Davis
DWR Ground Water Sub-basin		from UC Davis
SANITARY CONDITIONS		INIT OC DAVIS
** Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)	53'	
Distance to Active Wells (ft)	120'	
Distance to Abandoned Wells (ft)	None	
Distance to Surface Water (ft)	1000'	
** Size of controlled area around well (square feet)	87,480 (approx.)	
* Type of access control to well site (fencing, building, etc) * Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	Fencing YES	-
	21'10" x 12'8" x 14"	
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in) * Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")		
* Drainage away from well? ("YES" or "NO")	YES	
ENCLOSURE/HOUSING	165	1
	building (corrugated stee	
Enclosure Type (building, vault, none, etc.) Floor material	Concrete	<u> </u>
Located in Pit? ("YES" or "NO")	NO	
Pit depth (feet) (if applicable)	<u> </u>	
WELL CONSTRUCTION	N.A.	
Date drilled	1951	
Drilling Method	N.A.	
	270'	
Depth of Bore Hole (feet below ground surface)	210	
Casing Beginning Depth/Ending Depth(ft below surface);	0/126'	
2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	20"	
Casing Diameter (inches); 2nd Casing Diameter; 3rd Casing, etc. Casing Material; 2nd Casing Material; 3rd Casing, etc.	Steel	

. . .

### WELL DATA SHEET (Page 2 of 2)

Complete as much information as possible. Leave blank if information is not available	ailable, use N.A. if not applic	cable.
* Indicates items required for Source Water Assessment		
** Indicates additional items required for assessments and Ground Wate	r Rule	
		Actual, Estimated
		or Default?
WELL CONSTRUCTION (continued)		
Conductor casing used? ("YES", "NO" or "UNKNOWN") (See Note 2)	YES	
Conductor casing removed? ("YES", "NO" or "UNKNOWN")	NO	
* Depth to highest perforations/screens (ft below surface) (or		
"UNKNOWN")	98'	
Screened Interval Beginning Depth/Ending Depth (ft below surface);		
2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	98'-126'	
* Total length of screened interval (ft)		
(default = 10% pump capacity in gpm) (or "UNKNOWN")	28'	
* Annular Seal?("YES", "NO" or "UNKNOWN") (See Note 3)	UNKNOWN	
* Depth of Annular Seal (ft)		
Material of Annular Seal (cement grout, bentonite, etc.)		
Gravel pack, Depth to top (ft below ground surface)		
Total length of gravel pack (ft)		
AQUIFER		
* Aquifer Materials		
(list all that apply: sand, silt, clay, gravel, rock, fractured rock)	sand, clay, silt	4
* Effective porosity (decimal percent) (default = 0.2) (or "UNKNOWN")	UNKNOWN	
* Confining layer (Impervious Strata) above aquifer?		
("YES", "NO" or "UNKNOWN")	YES	
Thickness of confining layer, if known (ft)	19'	
Depth to confining layer, if known (ft below ground)	69'-88'	
* Static water level (ft below ground surface)	09-88	
Static water level measurement: Date/Method		
Pumping water level (ft below ground surface)		
Pumping water level measurement: Date/Method		
WELL PRODUCTION		
Well Yield (gpm)	2200	
Well Yield Based On (i.e., pump test, etc.)	Meter	
Date measured	3/17/2003	
Is the well metered? ("YES" or "NO")	YES	
Production (gallons per year)		
Frequency of Use (hours/year)	62.72 MG (2002) 1.3	
Typical pumping duration (hours/day)		
PUMP	474.5	
Make	Lours and Douder	
	Layne and Bowler	
Type Size (hp)	Constant Speed 125 HP	
* Capacity (gpm)		
Depth to suction intake (ft below ground surface)	2416	
	98'	
Lubrication Type	Oil Dissel Conceptor	
Type of Power: (i.e., electric, diesel, etc.)	Diesel Generator	
Auxiliary power available? ("YES" or "NO")	YES	
Operation controlled by: (i.e., level in tank, pressure, etc.)	Pressure	
Pump to Waste capability? ("YES" or "NO")	YES	
Discharges to: (i.e., distribution system, storage, etc.)	Tank #1	

### **Remarks and Defects**

Well Data Sheet Supplement	· ·
REMARKS AND DEFECTS	
(Use or note these items as appropriate)	
(** indicates items pertinent to Ground Water Rule)	
Distance (ft) to other sanitary concerns:	
** Type of Sanitary Concern: NONE	
** Type of Sanitary Concern:	_
Raw Water Quality concerns? (Yes or No)	Yes
** Microbiological (coliform)	
Chemicals	Perchloroethylene
Other (list)	
** Continuous Chlorination provided? (Yes or No)	Yes
Condition of enclosure or housing	Good
Pit Drained? (if applicable)	
Pitless Adaptor? Make and Model	
Height of pump base (inches)	14"
Casing Vent? (yes or no)	Yes
Air/Vacuum Release? (yes or no)	Yes
Sampling Taps? (yes or no)	Yes
Location of sampling taps	Pump Discharge
Wellhead Riser? (yes or no); height above well	No
Other	
Other	

**Comments:** Although Perchloroethylene has been detected in one of the three wells at this production well site, the detection level concentration consistantly remains below Maximum Contaminant Levels (MCL's) and continues to decline each year.

~ . 

Inventory of Possible Contan	ninating	<b>y Activ</b>	vities (l	<b>PC</b>	;A Inventory)
District NameCity of Merced	District No. <u>M4</u> County		Merced		
System Name MERCED, CITY OF					System No. <u>2410009</u>
Source Name WELL 01B - RAW	Sc	ource No.	002		PS Code 2410009-002
Completed byPatrick Riggs		Date	March	i, 20	003
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Commercial/Industrial Activities					
Automobile- Body shops (H)	N	Y	Y		
Automobile- Car washes (M)	N	Y	Y		
Automobile- Gas stations (VH)	N	Y	Y		UST RWQCB sites throughout city limits.
Automobile- Repair shops (H)	N	Y	Y		
Boat services/repair/ refinishing (H)	N	N	Y		
Chemical/petroleum pipelines (H)	N	N	N		
Chemical/petroleum processing/storage (VH)	N	N	N		
Dry cleaners (VH)	Y	Y	Y		Source of PCE plume.
Electrical/electronic manufacturing (H)	N	N	N		
Fleet/truck/bus terminals (H)	N	Y	Y		
Furniture repair/ manufacturing (H)	N	N	N		
ne manufacturing (H)	N	N	N		
Junk/scrap/salvage yards (H)	N	N	N		
Machine shops (H)	N	N	Y		
Metal plating/ finishing/fabricating (VH)	N	N	N		
Photo processing/printing (H)	N	Y	Y		Small photo processing shops.
Plastics/synthetics producers (VH)	N	N	N		
Research laboratories (H)	N	N	N		
Wood preserving/treating (H)	N	N	N		
Wood/pulp/paper processing and mills (H)	N	N	N		
Lumber processing and manufacturing (H)	N	N	Y		Lumber yard on 16th Street.
Sewer collection systems (H, if in Zone A, otherwise L)	Y	Y	Y		Municipal collection system.
Parking lots/malls (>50 spaces) (M)	Y	Y	Y		
Cement/concrete plants (M)	N	N	Y		Located on North Hwy. 59.
Food processing (M)	N	N	N		
Funeral services/graveyards (M)	N	Y	Y		Funeral Home on Main Street, Graveyard on 13th Street.
Hardware/lumber/parts stores (M)	N	Y	Y		Misc. commercial shops.
Appliance/Electronic Repair (L)	N	Y	Y		Misc. commercial shops.
Office buildings/complexes (L)	Y	Y	Y	1	Misc. business locations.

Y = Yes N = No U = Unknown

### Inventory of Possible Contaminating Activities (PCA Inventory)

System Name	MERCED, CITY OF					System No. 2410009
Source Name	WELL 01B - RAW	So	ource No.	002		PS Code2410009-002
PCA (Risk Rankin	g)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Commercial/I	ndustrial Activities					
Rental Yards (L)		N	Y	Y		US Rentals on 16th Street.
RV/mini storage (L)	)	N	Y	Y		
Residential/N	lunicipal Activities					
Airports - Maintena	nce/ fueling areas (VH)	N	N	N		
Landfills/dumps (V	H)	N	N	N		
Railroad yards/ ma	intenance/ fueling areas (H)	N	N	N		
Septic systems - hi otherwise M)	gh density (>1/acre) (VH if in Zone A,	N	N	N		· · ·
Sewer collection sy	vstems (H, if in Zone A, otherwise L)	Y	Y	Y		Municipal collection system.
Utility stations - ma	intenance areas (H)	N	N	Y		Small automotive repair shops.
Wastewater treatm	ent plants (VH in Zone A, otherwise H)	N	N	N		
Drinking water trea	tment plants (M)	N	N	N		
Golf courses (M)		N	N	N		
Housing - high der	sity (>1 house/0.5 acres) (M)	Y	Y	Y		
or pools (M)		N	N	N		
Parks (M)		Y	Y	Y		Parks located throughout city.
Waste transfer/rec	ycling stations (M)	N	Y	Y		Auto shop oil/battery recycling facilities.
Apartments and co	ondominiums (L)	Y	Y	Y		
Campgrounds/ Re	creational areas (L)	N	N	N		
Fire stations (L)	·····	Y	Y	Y		
RV Parks (L)		N	N	N	1	
Schools (L)		Y	Y	Y		
Hotels, Motels (L)		N	N	Y		
Other Activit	ies					
NPDES/WDR per	nitted discharges (H)	N	N	N		
Underground Inject Discharges (VH)	tion of Commercial/Industrial	N	N	N		
Historic gas statio	ns (VH)	N	Y	Y	*	
Historic waste dur	nps/ landfills (VH)	N	N	N	Γ	
Illegal activities/ u	nauthorized dumping (H)	N	N	N	$\top$	
Injection wells/ dry	v wells/ sumps (VH)	N	N	N	1	
Known Contamina	ant Plumes (VH)	Y	Y	Y	$\uparrow$	Perchloroethylene plume detected.
Military installation	is (VH)	N	N	N		

### Inventory of Possible Contaminating Activities (PCA Inventory)

Source No.

System Name	MERCED, CITY OF

Source Name WELL 01B - RAW

\_\_\_\_\_\_ O02\_\_\_\_ PS Code \_\_\_\_

System No. <u>2410009</u> ode <u>2410009-002</u>

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other Activities					
Mining operations - Historic (VH)	N	N	N		
Mining operations - Active (VH)	N	N	N		
Mining - Sand/Gravel (H)	N	N	N		
Wells - Oil, Gas, Geothermal (H)	N	N	N		
Salt Water Intrusion (H)	N	N	N		
Recreational area - surface water source (H)	Y	Y	Y		Bear Creek is a storm water receptor.
Underground storage tanks - Confirmed leaking tanks (VH)	Y	Y	Y		UST sites throughout city from Gas Service Stations.
Underground storage tanks - Decommissioned - inactive tanks (L)	Y	N	N		Tanks filled with inert sand slurryon site for B/U Generator.
Underground storage tanks - Non-regulated tanks (tanks smaller than regulatory limit) (H)	N	N	N		
Underground storage tanks - Not yet upgraded or registered tanks (H)	N	N	N		
Underground storage tanks - Upgraded and/or registered rtive tanks (L)	N	N	N		
	Y	N	N		Convault above ground storage tank on site.
Wells - Water supply (M)	Y	Y	Y		Other city water wells in proximity.
Construction/demolition staging areas (M)	N	N	N		
Contractor or government agency equipment storage yards (M)	Y	Y	N		Public Works supply yard in proximity.
Dredging (M)	N	N	N		
Transportation corridors - Freeways/state highways (M)	N	N	N		
Transportation corridors - Railroads (M)	N	Y	Y		Throughout city limits.
Transportation corridors - Historic railroad right-of-ways (M)	N	Y	Y		Throughout city limits.
Transportation corridors - Road Right-of-ways (herbicide use areas) (M)	N	N	N		
Transportation corridors - Roads/ Streets (L)	Y	Y	Y	1	
Hospitals (M)	Y	Y	Y	$\square$	Mercy Dominican Hospital.
Storm Drain Discharge Points (M)	Y	N	Y	$\square$	Bear Creek Canal.
Storm Water Detention Facilities (M)	N	N	N		
Artificial Recharge Projects - Injection wells (potable water) (L)	N	N	N		
Artificial Recharge Projects - Injection wells (non-potable	N	N	N	1	

Y = Yes N = No U = Unknown

Inventor	PCA Inventory)					
System Name	MERCED, CITY OF				System No2410009	
Source Name	WELL 01B - RAW	Se	ource No.	002	PS Code2410009-002	
PCA (Risk Rankin	ig)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	* Comments	
Other Activiti	es					
water) (M)	and the second					
Artificial Recharge water) (L)	Projects - Spreading Basins (potable	N	N	N		
Artificial Recharge (non-potable water	Projects - Spreading Basins ) (M)	N	N	N		
Medical/dental offic	ces/clinics (L)	Y	Y	Y	Mercy Dominican Hospital with small Dental Clinics in proximity.	
Veterinary offices/c	clinics (L)	N	N	N		
Surface water - stre	eams/ lakes/rivers (L)	Y	Y	Y	Bear Creek, MID canals.	
Wells - monitoring,	test holes (L)	Y	Y	Y	One on station, several off station on	

"R" street.

District Name         Clip of Merced         District No. M4         County         Merced           System Name         MERCED, CITY QF         System No.         2410009           Source Name         WELL 01B - RAW         Source No.         002         PS Code         2410009-002           Completed by         Patrick Riggs         Date         March, 2003             Zons         PCA (Risk Ranking)         +         PCA Risk         Zone         Points         Points         Points         Points         Score           B5         Historic gas stations (VH)         +         7         3         1         11         9           A         Dry cleaners (VH)         +         7         5         1         133           A         Known Contaminant Plumes (VH)         7         5         1         111           A         Sever collection systems (H, If n Zone A, otherwise L)         5         5         1         111           A         Sever collection systems (H, If n Zone A, otherwise L)         5         5         1         111           B5         Housing - Name (MH)         7         3         1         111           B5         Dry cleaners (VH)         <	Vulnerability Ranking								
System Name         MERCED, CITY OF         Source No.         002         PS Code         2410009           Source Name         WELL 01B - RAW         Source No.         002         PS Code         2410009-002           Completed by         Patrick Riggs         Date         March, 2003           Zone         PCA (Risk Ranking)         *         PCA Risk         Zone         PBE         Vulnerability           B5         Historic gas stations (VH)         *         7         3         1         11           B10         Historic gas stations (VH)         *         7         5         1         133           A         Dry cleaners (VH)         7         5         1         131           A         Underground storage tanks - Confirmed leaking tanks (VH)         7         5         1         111           A         Bever collection systems (H, if In Zone A, otherwise L)         5         5         1         111           B5         Automobile- Gas stations (VH)         7         3         1         111           B5         Automobile- Gas stations (VH)         7         3         1         111           B5         Automobile- Gas stations (VH)         7         3         1	District Name City of Merced		District No. M4	с	ounty Me	rced		,	
Source Name         WELL 01B - RAW         Source No.         002         PS Code         2410009-002           Completed by         Patrick Riggs         Date         March, 2003           Zone         PCA (Risk Ranking)         *         PCA Risk Points         Zone Petrick Rings         Petrick Ranking           E5         Historic gas stations (VH)         *         7         3         1         11           B10         Historic gas stations (VH)         *         7         3         1         11           B10         Historic gas stations (VH)         *         7         3         1         11           B10         Historic gas stations (VH)         *         7         5         1         133           A         Known Contaminant Plumes (VH)         .         7         5         1         111           A         Sever collection systems (H, if ni Zone A, otherwise L)         .         5         5         1         111           B5         Day cleaners (VH)         .         7         3         1         111           B5         Day cleaners (VH)         .         7         3         1         111           B5         Underground storage tanks. Confirmed le	Sj	ystem Name	MERCED, CITY OF		_			m No.	2410009
Zone         PCA (Risk Ranking)         *         PCA Risk Points         Points         PBE Points         Vulnerability Score           B5         Historic gas stations (VH)         *         7         3         1         11           B10         Historic gas stations (VH)         *         7         1         1         9           A         Dry cleaners (VH)         *         7         5         1         133           A         Known Contaminant Plumes (VH)         7         5         1         133           A         Underground storage tanks - Confirmed leaking tanks (VH)         7         5         1         133           A         Recreational area - surface water source (H)         5         5         1         111           A         Sewer collection systems (H, if in Zone A, otherwise L)         5         5         1         111           B5         Automobile- Gas stations (VH)         7         3         1         111           B5         Underground storage tanks (VH)         7         3         1         111           B5         Underground storage tanks (VH)         7         3         1         11           B6         Underground storage tanks (M)         <	S	ource Name	WELL 01B - RAW	Source No.	C	0 <u>02</u> F	S Code	2410	
Zone         PCA (Risk Ranking)         *         Points         Points         Score           B5         Historic gas stations (VH)         *         7         3         1         111           B10         Historic gas stations (VH)         *         7         1         1         9           A         Dry cleaners (VH)         *         7         5         1         133           A         Known Contaminant Plumes (VH)         .         7         5         1         131           A         Underground storage tanks - Confirmed leaking tanks (VH)         .         7         5         1         111           A         Sever collection systems (H, if n Zone A, otherwise L)         .         5         5         1         111           B5         Automobile- Gas stations (VH)         .         7         3         1         111           B5         Known Contaminant Plumes (VH)         .         7         3         1         111           B6         Underground storage tanks - Confirmed leaking tanks (VH)         .         7         3         1         111           B6         Noderground storage tanks - Confirmed leaking tanks (VH)         .         3         5         1<	Completed by Patrick Riggs Date March, 2003								
B10       Historic gas stations (VH)       *       7       1       1       9         A       Dry cleaners (VH)       7       5       1       13         A       Dry cleaners (VH)       7       5       1       13         A       Underground storage tanks - Confirmed leaking tanks (VH)       7       5       1       11         A       Becreational area - surface water source (H)       5       5       1       111         A       Sewer collection systems (H, if in Zone A, otherwise L)       5       5       1       111         A       Sewer collection systems (H, if in Zone A, otherwise L)       5       5       1       111         B5       Automobile- Gas stations (VH)       7       3       1       111         B5       Dry cleaners (VH)       7       3       1       111         B5       Automobile- Gas stations (VH)       7       3       1       111         B5       Note ground storage tanks - Confirmed leaking tanks (VH)       7       3       1       111         B6       Underground storage tanks - Confirmed leaking tanks (VH)       3       5       1       9         A       Contractor or government agency equipment storage yards (M)<	Zone	PCA (Risk F	Ranking)		*		1		
A         Dry cleaners (VH)         7         5         1         13           A         Known Contaminant Plumes (VH)         7         5         1         13           A         Underground storage tanks - Confirmed leaking tanks (VH)         7         5         1         13           A         Underground storage tanks - Confirmed leaking tanks (VH)         7         5         1         11           A         Recreational area - surface water source (H)         5         5         1         111           A         Sewer collection systems (H, if in Zone A, otherwise L)         5         5         1         111           B         Automobile- Gas stations (VH)         7         3         1         111           B5         Automobile- Gas stations (VH)         7         3         1         111           B5         Moderground storage tanks - Confirmed leaking tanks (VH)         7         3         1         111           B5         Underground storage tanks - Confirmed leaking tanks (VH)         7         3         1         111           B6         Underground storage tanks (M)         3         5         1         91           A         Contractor og overnment agency equipment storage yards (M) <td< td=""><td>B5</td><td colspan="4">Historic gas stations (VH)</td><td>7</td><td>3</td><td>1</td><td>11</td></td<>	B5	Historic gas stations (VH)				7	3	1	11
A         Known Contaminant Plumes (VH)         7         5         1         13           A         Underground storage tanks - Confirmed leaking tanks (VH)         7         5         1         13           A         Recreational area - surface water source (H)         5         5         1         11           A         Sewer collection systems (H, if in Zone A, otherwise L)         5         5         1         111           A         Sewer collection systems (H, if in Zone A, otherwise L)         5         5         1         111           B5         Automobile- Gas stations (VH)         7         3         1         111           B5         Dry cleaners (VH)         7         3         1         111           B5         Mown Contaminant Plumes (VH)         7         3         1         111           B5         Mown Contaminant Plumes (VH)         7         3         1         111           B5         Underground storage tanks - Confirmed leaking tanks (VH)         7         3         1         111           Contractor or government agency equipment storage yards (M)         3         5         1         91           A         Hospitals (M)         3         5         1         91 </td <td>B10</td> <td colspan="4">Historic gas stations (VH)</td> <td>7</td> <td>1</td> <td>1</td> <td>9</td>	B10	Historic gas stations (VH)				7	1	1	9
A         Underground storage tanks - Confirmed leaking tanks (VH)         7         5         1         13           A         Recreational area - surface water source (H)         5         5         1         11           A         Sewer collection systems (H, if in Zone A, otherwise L)         5         5         1         111           A         Sewer collection systems (H, if in Zone A, otherwise L)         5         5         1         111           B5         Automobile- Gas stations (VH)         7         3         1         111           B5         Dry cleaners (VH)         7         3         1         111           B5         Known Contaminant Plumes (VH)         7         3         1         111           R5         Underground storage tanks - Confirmed leaking tanks (VH)         7         3         1         111           R5         Underground storage tanks (M)         3         5         1         91           A         Hospitals (M)         3         5         1         91           A         Hospitals (M)         3         5         1         91           A         Hospitals (M)         3         5         1         91           A	А	Dry cleaners (VH)				7	5	1	13
A         Recreational area - surface water source (H)         5         5         1         111           A         Sewer collection systems (H, If in Zone A, otherwise L)         5         5         1         111           A         Sewer collection systems (H, If in Zone A, otherwise L)         5         5         1         111           B5         Automobile- Gas stations (VH)         7         3         1         111           B5         Dry cleaners (VH)         7         3         1         111           B5         Known Contaminant Plumes (VH)         7         3         1         111           B5         Underground storage tanks - Confirmed leaking tanks (VH)         7         3         1         111           A         Above ground storage tanks (M)         3         5         1         9           A         Contractor or government agency equipment storage yards (M)         3         5         1         9           A         Housing - high density (>1 house/0.5 acres) (M)         3         5         1         9           A         Housing - high density (>1 house/0.5 acres) (M)         3         5         1         9           A         Housing - high density (>1 house/0.5 acres) (M)         3	А	Known Contaminant Plumes (VH)				7	5	1	13
A         Sewer collection systems (H, if in Zone A, otherwise L)         5         5         1         111           A         Sewer collection systems (H, if in Zone A, otherwise L)         5         5         1         111           B5         Automobile- Gas stations (VH)         7         3         1         111           B5         Dry cleaners (VH)         7         3         1         111           B5         Known Contaminant Plumes (VH)         7         3         1         111           B5         Known Contaminant Plumes (VH)         7         3         1         111           B5         Underground storage tanks - Confirmed leaking tanks (VH)         7         3         1         111           B5         Contractor or government agency equipment storage yards (M)         3         5         1         9           A         Housing - high density (>1 house/0.5 acres) (M)         3         5         1         9           A         Housing - high density (>1 house/0.5 acres) (M)         3         5         1         9           A         Parking lots/malls (>50 spaces) (M)         3         5         1         9           A         Parks (M)         3         5         1	А	Underground	Underground storage tanks - Confirmed leaking tanks (VH)				5	1	13
A       Sewer collection systems (H, if in Zone A, otherwise L)       5       5       1       11         B5       Automobile- Gas stations (VH)       7       3       1       11         B5       Dry cleaners (VH)       7       3       1       11         B5       Known Contaminant Plumes (VH)       7       3       1       11         P5       Underground storage tanks - Confirmed leaking tanks (VH)       7       3       1       11         P5       Underground storage tanks - Confirmed leaking tanks (VH)       7       3       1       11         P4       Hospitals (M)       3       5       1       9         A       Contractor or government agency equipment storage yards (M)       3       5       1       9         A       Hospitals (M)       3       5       1       9         A       Parking lots/malls (>50 spaces) (M)	А	Recreational area - surface water source (H)				5	5	1	11
B5       Automobile- Gas stations (VH)       7       3       1       111         B5       Dry cleaners (VH)       7       3       1       111         B5       Known Contaminant Plumes (VH)       7       3       1       111         B5       Known Contaminant Plumes (VH)       7       3       1       111         B5       Underground storage tanks - Confirmed leaking tanks (VH)       7       3       1       111         P5       Underground storage tanks - Confirmed leaking tanks (VH)       7       3       1       111         P5       Underground storage tanks - Confirmed leaking tanks (VH)       7       3       1       111         P5       Underground storage tanks - Confirmed leaking tanks (VH)       3       5       1       9         A       Contractor or government agency equipment storage yards (M)       3       5       1       9         A       Housing - high density (>1 house/0.5 acres) (M)       3       5       1       9         A       Housing - high density (>1 house/0.5 acres) (M)       3       5       1       9         A       Parking lots/mails (>50 spaces) (M)       3       5       1       9         A       Storm Drain Discharg	А	Sewer collection systems (H, if in Zone A, otherwise L)				5	5	1	11
B5       Dry cleaners (VH)       7       3       1       11         B5       Known Contaminant Plumes (VH)       7       3       1       11         P5       Underground storage tanks - Confirmed leaking tanks (VH)       7       3       1       11         P5       Underground storage tanks - Confirmed leaking tanks (VH)       7       3       1       11         P5       Underground storage tanks - Confirmed leaking tanks (VH)       7       3       1       11         P4       Contractor or government agency equipment storage yards (M)       3       5       1       9         A       Hospitals (M)       3       5       1       9         A       Housing - high density (>1 house/0.5 acres) (M)       3       5       1       9         A       Housing - high density (>1 house/0.5 acres) (M)       3       5       1       9         A       Housing - high density (>1 house/0.5 acres) (M)       3       5       1       9         A       Parking lots/malls (>50 spaces) (M)       3       5       1       9         A       Storm Drain Discharge Points (M)       3       5       1       9         B5       Automobile- Repair shops (H)       5	А	Sewer collection systems (H, if in Zone A, otherwise L)				5	5	1	11
B5         Known Contaminant Plumes (VH)         7         3         1         11           P5         Underground storage tanks - Confirmed leaking tanks (VH)         7         3         1         11           P5         Underground storage tanks (M)         3         5         1         9           A         Contractor or government agency equipment storage yards (M)         3         5         1         9           A         Contractor or government agency equipment storage yards (M)         3         5         1         9           A         Hospitals (M)         3         5         1         9           A         Housing - high density (>1 house/0.5 acres) (M)         3         5         1         9           A         Housing - high density (>1 house/0.5 acres) (M)         3         5         1         9           A         Parking lots/malls (>50 spaces) (M)         3         5         1         9           A         Parking lots/malls (>50 spaces) (M)         3         5         1         9           A         Storm Drain Discharge Points (M)         3         5         1         9           B5         Automobile- Repair shops (H)         5         3         1         9<	B5	Automobile- Gas stations (VH)				7	3	1	11
P5         Underground storage tanks - Confirmed leaking tanks (VH)         7         3         1         11           Above ground storage tanks (M)         3         5         1         9           A         Contractor or government agency equipment storage yards (M)         3         5         1         9           A         Contractor or government agency equipment storage yards (M)         3         5         1         9           A         Hospitals (M)         3         5         1         9           A         Hospitals (M)         3         5         1         9           A         Housing - high density (>1 house/0.5 acres) (M)         3         5         1         9           A         Parking lots/malls (>50 spaces) (M)         3         5         1         9           A         Parks (M)         3         5         1         9           A         Storm Drain Discharge Points (M)         3         5         1         9           A         Wells - Water supply (M)         3         5         1         9           B5         Automobile- Repair shops (H)         5         3         1         9           B5         Fleet/truck/bus terminals (H)<	B5	Dry cleaners (VH)				7	3	1	11
Above ground storage tanks (M)         3         5         1         9           A         Contractor or government agency equipment storage yards (M)         3         5         1         9           A         Contractor or government agency equipment storage yards (M)         3         5         1         9           A         Hospitals (M)         3         5         1         9           A         Housing - high density (>1 house/0.5 acres) (M)         3         5         1         9           A         Housing - high density (>1 house/0.5 acres) (M)         3         5         1         9           A         Parking lots/malls (>50 spaces) (M)         3         5         1         9           A         Parks (M)         3         5         1         9           A         Storm Drain Discharge Points (M)         3         5         1         9           A         Wells - Water supply (M)         3         5         1         9           B5         Automobile- Body shops (H)         5         3         1         9           B5         Fleet/truck/bus terminals (H)         5         3         1         9           B5         Photo processing/printing	B5	Known Contaminant Plumes (VH)				7	3	1	11
A         Contractor or government agency equipment storage yards (M)         3         5         1         9           A         Hospitals (M)         3         5         1         9           A         Housing - high density (>1 house/0.5 acres) (M)         3         5         1         9           A         Housing - high density (>1 house/0.5 acres) (M)         3         5         1         9           A         Parking lots/malls (>50 spaces) (M)         3         5         1         9           A         Parks (M)         3         5         1         9           A         Parks (M)         3         5         1         9           A         Storm Drain Discharge Points (M)         3         5         1         9           A         Wells - Water supply (M)         3         5         1         9           B5         Automobile- Body shops (H)         5         3         1         9           B5         Automobile- Repair shops (H)         5         3         1         9           B5         Fleet/truck/bus terminals (H)         5         3         1         9           B5         Recreational area - surface water source (H)	-P5	Underground storage tanks - Confirmed leaking tanks (VH)				7	3	1	11
A         Hospitals (M)         3         5         1         9           A         Hospitals (M)         3         5         1         9           A         Housing - high density (>1 house/0.5 acres) (M)         3         5         1         9           A         Parking lots/malls (>50 spaces) (M)         3         5         1         9           A         Parks (M)         3         5         1         9           A         Parks (M)         3         5         1         9           A         Parks (M)         3         5         1         9           A         Storm Drain Discharge Points (M)         3         5         1         9           A         Wells - Water supply (M)         3         5         1         9           B5         Automobile- Body shops (H)         5         3         1         9           B5         Fleet/truck/bus terminals (H)         5         3         1         9           B5         Photo processing/printing (H)         5         3         1         9           B5         Recreational area - surface water source (H)         5         3         1         9      <		Above ground storage tanks (M)				3	5	1	9
A         Housing - high density (>1 house/0.5 acres) (M)         3         5         1         9           A         Parking lots/malls (>50 spaces) (M)         3         5         1         9           A         Parking lots/malls (>50 spaces) (M)         3         5         1         9           A         Parks (M)         3         5         1         9           A         Parks (M)         3         5         1         9           A         Storm Drain Discharge Points (M)         3         5         1         9           A         Wells - Water supply (M)         3         5         1         9           B5         Automobile- Body shops (H)         5         3         1         9           B5         Automobile- Repair shops (H)         55         3         1         9           B5         Fleet/truck/bus terminals (H)         5         3         1         9           B5         Photo processing/printing (H)         5         3         1         9           B5         Recreational area - surface water source (H)         5         3         1         9           B10         Automobile- Gas stations (VH)         7 <td< td=""><td>А</td><td colspan="3">Contractor or government agency equipment storage yards (M)</td><td></td><td>3</td><td>5</td><td>1</td><td>9</td></td<>	А	Contractor or government agency equipment storage yards (M)				3	5	1	9
A         Parking lots/malls (>50 spaces) (M)         3         5         1         9           A         Parks (M)         3         5         1         9           A         Parks (M)         3         5         1         9           A         Parks (M)         3         5         1         9           A         Storm Drain Discharge Points (M)         3         5         1         9           A         Wells - Water supply (M)         3         5         1         9           B5         Automobile- Body shops (H)         5         3         1         9           B5         Automobile- Repair shops (H)         5         3         1         9           B5         Fleet/truck/bus terminals (H)         5         3         1         9           B5         Photo processing/printing (H)         5         3         1         9           B5         Recreational area - surface water source (H)         5         3         1         9           B10         Automobile- Gas stations (VH)         7         1         1         9           B10         Dry cleaners (VH)         7         1         1         9	А	Hospitals (M)				3	5	1	9
A       Parks (M)       3       5       1       9         A       Storm Drain Discharge Points (M)       3       5       1       9         A       Wells - Water supply (M)       3       5       1       9         B5       Automobile- Body shops (H)       5       3       1       9         B5       Automobile- Repair shops (H)       5       3       1       9         B5       Automobile- Repair shops (H)       5       3       1       9         B5       Fleet/truck/bus terminals (H)       5       3       1       9         B5       Photo processing/printing (H)       5       3       1       9         B5       Recreational area - surface water source (H)       5       3       1       9         B10       Automobile- Gas stations (VH)       7       1       1       9         B10       Dry cleaners (VH)       7       1       1       9         B10       Known Contaminant Plumes (VH)       7       1       1       9	А	Housing - high density (>1 house/0.5 acres) (M)				3	5	1	9
A         Storm Drain Discharge Points (M)         3         5         1         9           A         Wells - Water supply (M)         3         5         1         9           B5         Automobile- Body shops (H)         5         3         1         9           B5         Automobile- Repair shops (H)         5         3         1         9           B5         Automobile- Repair shops (H)         5         3         1         9           B5         Fleet/truck/bus terminals (H)         5         3         1         9           B5         Photo processing/printing (H)         5         3         1         9           B5         Recreational area - surface water source (H)         5         3         1         9           B10         Automobile- Gas stations (VH)         7         1         1         9           B10         Known Contaminant Plumes (VH)         7         1         1         9	Α	Parking lots/malls (>50 spaces) (M)				3	5	1	9
A       Wells - Water supply (M)       3       5       1       9         B5       Automobile- Body shops (H)       5       3       1       9         B5       Automobile- Repair shops (H)       5       3       1       9         B5       Automobile- Repair shops (H)       5       3       1       9         B5       Fleet/truck/bus terminals (H)       5       3       1       9         B5       Photo processing/printing (H)       5       3       1       9         B5       Recreational area - surface water source (H)       5       3       1       9         B10       Automobile- Gas stations (VH)       7       1       1       9         B10       Dry cleaners (VH)       7       1       1       9         B10       Known Contaminant Plumes (VH)       7       1       1       9	Α	Parks (M)				3	5	1	9
B5         Automobile- Body shops (H)         5         3         1         9           B5         Automobile- Repair shops (H)         5         3         1         9           B5         Automobile- Repair shops (H)         5         3         1         9           B5         Fleet/truck/bus terminals (H)         5         3         1         9           B5         Photo processing/printing (H)         5         3         1         9           B5         Recreational area - surface water source (H)         5         3         1         9           B10         Automobile- Gas stations (VH)         7         1         1         9           B10         Dry cleaners (VH)         7         1         1         9           B10         Known Contaminant Plumes (VH)         7         1         1         9	А	Storm Drain Discharge Points (M)				3	5	1	9
B5         Automobile- Repair shops (H)         5         3         1         9           B5         Fleet/truck/bus terminals (H)         5         3         1         9           B5         Photo processing/printing (H)         5         3         1         9           B5         Recreational area - surface water source (H)         5         3         1         9           B10         Automobile- Gas stations (VH)         7         1         1         9           B10         Dry cleaners (VH)         7         1         1         9           B10         Known Contaminant Plumes (VH)         7         1         1         9	А	Wells - Water supply (M)				3	5	1	9
B5Fleet/truck/bus terminals (H)5319B5Photo processing/printing (H)5319B5Recreational area - surface water source (H)5319B10Automobile- Gas stations (VH)7119B10Dry cleaners (VH)7119B10Known Contaminant Plumes (VH)7119	B5	Automobile- Body shops (H)				5	3	1	9
B5Photo processing/printing (H)5319B5Recreational area - surface water source (H)5319B10Automobile- Gas stations (VH)7119B10Dry cleaners (VH)7119B10Known Contaminant Plumes (VH)7119	B5	Automobile- Repair shops (H)				5	3	1	9
B5Recreational area - surface water source (H)5319B10Automobile- Gas stations (VH)7119B10Dry cleaners (VH)7119B10Known Contaminant Plumes (VH)7119	B5	Fleet/truck/bus terminals (H)				5	3	1	9
B10Automobile- Gas stations (VH)7119B10Dry cleaners (VH)7119B10Known Contaminant Plumes (VH)7119	B5	Photo processing/printing (H)				5	3	1	9
B10         Dry cleaners (VH)         7         1         1         9           B10         Known Contaminant Plumes (VH)         7         1         1         9	B5	Recreational area - surface water source (H)				5	3	1	9
B10   Known Contaminant Plumes (VH)   7   1   1   9	B10	Automobile- Gas stations (VH) 7 1 1				9			
	B10	Dry cleaners (VH) 7 1				1	9		
P10       Underground storage tanks - Confirmed leaking tanks (VH)       7       1       1       9	B10	Known Contaminant Plumes (VH)			7	1	1	9	
	P10	Underground storage tanks - Confirmed leaking tanks (VH) 7 1 1					9 ·		



© Information Center for the Environment Coding by Eric Lehmer Mapping System produced using ESRI ArcIMS Water System

MERCED, CITY OF

Merced County

### <u>Water Source</u> WELL 01C - RAW

Assessment Date

March, 2003

California Department of Health Services Drinking Water Field Operations Branch City of Merced

 District No.
 M4

 System No.
 2410009

 Source No.
 003

 PS Code
 2410009-003

Assessme	ent Summary					
<b>District Name</b>	City of Merced	District NoM4	County	Merced		
System Name	MERCED, CITY OF			System No2410009		
Source Name	WELL 01C - RAW	Source No	003	PS Code	2410009-003	
Completed by	Patrick Riggs	Date	March, 2	2003		

### **Description of System and Source**

The City of Merced water system is located in Merced County and serves the Merced City and part of the bordering Merced County. There are approximately 17,125 service connections serving a population of 63,000.

The only drinking water source for the City of Merced water system is groundwater wells. The recharge area for the source includes hundreds of square miles originating from the Eastern Seirra Nevada foothills and mountain range. General land use is agricultural | urban | residential | undeveloped etc.

#### **Assessment Procedures**

The assessment of the source WELL 01C - RAW was conducted by the City of Merced Environmental Control Office. The following sources of information were used in the assessment: Water system files, DHS files.

Procedures used to conduct the assessment include: Assistance from DHS jurisdictional office, Turbo Swap program for data input.

#### **Contents of this Assessment**

Yes X	No 🗌	Assessment Summary			
Yes 🗶	No 📋	Vulnerability Summary			
Yes 🗶	No 🗌	Source Location Form			
Yes X	No 🗌	<b>Delineation of Ground Water Protection Zones</b>			
Yes X	No 🗌	Physical Barrier Effectiveness Checklist			
Yes X	No 🗌	Source Data Sheet			
Yes X	No 🔲	Inventory of Possible Contaminating Activities			
Yes X	No 🗌	Vulnerability Ranking			
Yes 🔀	No 🗍	Assessment Map			
Dimining Male	a Source Assessment and T	otection (DrioAr) i Togiai			
---------------	---	-------------------------------	------------	------------------	---------------
Vulnerab	oility Summary				
District Name	City of Merced MERCED, CITY OF	District No	County	Merced Syster	n No. 2410009
Source Name	WELL 01C - RAW	Source No	003	PS Code	2410009-003
Completed by	Patrick Riggs	Date	March, 2	2003	
THE FO	LLOWING INFORMATION MUST	BE INCLUDED IN THE SYSTE		MER CONFIDEN	
	CED, CITY OF	e to the following activities			larch, 2003
	nants detected in the water s	•			
	Historic gas stations s considered most vulnerabl ected contaminants:	e to the following activitie	s not asso	ociated	
	Dry cleaners Known Contaminant Plu				

## ບເຮັດແຮຣion of Vulnerability

City of Merced Well Station #1 houses three municipal groundwater wells. One of these three wells has maintained a detection of Perchloroethylene (PCE) below the CCR Title 22 drinking water MCL. Well #1C ranges from 2.3µg/L to ND depending on the time of year and demand. It is monitored monthly to ensure these levels do not rise to action levels.

A copy of the complete assessment may be viewed at:

Public Works Environmental Control Division 1776 Grogan Avenue Merced, CA 95340

You may request a summary of the assessment be sent to you by contacting:

Patrick Riggs Environmental Control Officer II 209-385-6817 209-384-7772 (fax) riggsp@cityofmerced.org



# Delineation of Ground Water Protection Zones

District Name	City of Merced	District No	County	Merced		
System Name	MERCED, CITY OF			Syster	n No	2410009
Source Name	WELL 01C - RAW	Source No	003	PS Code	241	10009-003
Completed by	Patrick Riggs	Date	March, 2	2003		

**Method Used to Delineate Protection Zones** 

## X 1. Calculated Fixed Radius

- 2. Modified Calculated Fixed Radius (Attach documentation for direction of ground water flow.)
- 3. More Detailed Methods
- 4. Arbitrary Fixed Radius (For use only by or permission of DHS)

Maximum Pumping Rate of Well (Q)	2,200 3,549 154,587,400	gallons/minute acre feet/year cubic feet/year
Effective Porosity	0.20	Default Value
Screened Interval of Well	<b>33</b> feet	Default Value

Protection Zone	Calculated Value	Minimum Value	Radius of Protection Zone
Zone A - 2 Year TOT*	3,861 Feet	600 Feet	3,861 Feet
Zone B5 - 5 Year TOT*	6,106 Feet	1,000 Feet	6,106 Feet
Zone B10 - 10 Year TOT*	8,635 Feet	1,500 Feet	8,635 Feet

\*TOT = Time of Travel

20<sup>-0</sup>

Physical B	Barrier Effectivene	ss (PBE)				
<b>District Name</b>	City of Merced	District No. <u>M4</u> Cour	nty Merced			
System Name	MERCED, CITY OF		S	System No. 2410009		
Source Name	WELL 01C - RAW	Source No. 003	PS Cod	ie 24100	09-003	
Completed by	Patrick Riggs	Date Mar	ch, 2003			
Parameter			Possible Points	e This Source	Score	
<b>Type of Aquife</b> Confinement	r					
1. Unconfined, S	Semi-confined, Fractured Rock, Un	known Aquifer	0			
2. Confined	- · · · · · · · · · · · · · · · · · · ·		50	X	50	
	ontamination (All Aquifers pandoned or Improperly Destroy					
1. Present within	n Zone A (2 year TOT distance)	Yes	0			
		No	5	<u> </u>	5	
		Unknown	0			
2. Present within Zone B5 (2 -5 year TOT dista			0			
		No	3	<u> </u>	3	
		Unknown	0			
3. Present within	n Zone B10 (5-10 year TOT dista		0			
		No Unknown	2	<u> </u>	2	
What is the rela	• •	between the confined aquifer and ne well flow under artesian conditio	ns?)			
1. Head in confi conditions.	ined aquifer is higher than head in	unconfined aquifer under all	20	x	20	
2. Head in confi conditions.	ined aquifer is higher than head in	unconfined aquifer under static	10			
3. Head in confi under static o	ined aquifer is lower than or same conditions.	as head in unconfined aquifer	0			
4. Unknown			0			
Well Construct	tion (All Aquifers)					
Sanitary Seal (	(Annular Seal) Depth	None of less than 20 feet	0			
	<b>0</b> feet E	Between 20 and 50 feet	6			
		50 feet or greater	10			
		Jnknown	0	X	0	
Surface Seal (	(concrete cap)	Not present or improperly constructed	0			
		Watertight, slopes away from well at least 2' laterally in all directions	4	X	4	
		Unknown	0			

# **Physical Barrier Effectiveness (PBE)**

System Name <u>MERCED, CITY OF</u>		Syst	tem No	10009	
Source Name WELL 01C - RAW	Source No003	PS Code2410009-003_			
Parameter		Possible Points	This Source	Score	
Well Construction (All Aquifers)co	ontinued				
Flooding potential at well site	Subject to localized flooding (i.e. in low area or unsealed pit or vault) or within 100 year flood plain	0			
	Not subject to flooding	1	X	1	
	Unknown	0			
Security at well site	Not secure	0			
	Secure	5	X	5	
	Unknown	0			

S

Maximum Score = 100

Score	90
Effectiveness	High

# WELL DATA SHEET (Page 1 of 2)

Complete as much information as possible. Leave blank if information is not as	vailable, use N.A. if not applicab	le.
* Indicates items required for Source Water Assessment		
* Indicates additional items required for assessments and Ground Wa	ter Rule	
		Actual, Estimated or
		Default?
DATA SHEET GENERAL INFORMATION		
System Name	City of Merced	from DHS database
System Number	2410009	from DHS database
Source of Information (well log, DHS/County files, system, etc)	well log, system files	
Organization Collecting Information (DHS, County, System, other)	System	ĸ
Date Information Collected/Updated	3/17/2003	
WELL IDENTIFICATION		
* Well Number or Name	Well Dife	from DHS database
* DHS Source Identification Number (FRDS ID No.)		
DWR Well Log on File? ("YES" or "NO")	YES	
State Well Number (from DWR)	2410009003	
Well Status (Active, Standby, Inactive)	Active	
WELL LOCATION		
Latitude	37.314	City Surveyed 2002
Longitude	-120.476	City Surveyed 2002
Ground Surface Elevation (ft above Mean Sea Level)	176.33	City Surveyed 2002
Street Address	477 Lawrence Dr.	
Nearest Cross Street	Bear Creek	
City	Merced	l
County	Merced	
* Neighborhood/Surrounding Area (see Note 1)	Re, Mu.	
Site plan on file? ("YES" or "NO")	NO	
DWR Ground Water Basin	NO	free UO Deute
DWR Ground Water Sub-basin		from UC Davis
SANITARY CONDITIONS		from UC Davis
	251	
** Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)	35'	
Distance to Active Wells (ft)	120'	
Distance to Abandoned Wells (ft)	None	
Distance to Surface Water (ft)	800'	
** Size of controlled area around well (square feet)	87,480 (approx)	
* Type of access control to well site (fencing, building, etc)	Fencing	
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	YES	
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	10' x 10' x 11"	
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")	UNKNOWN	
* Drainage away from well? ("YES" or "NO")	YES	
ENCLOSURE/HOUSING		
Enclosure Type (building, vault, none, etc.)	Building (corrugated steel	)
Floor material	Concrete	
Located in Pit? ("YES" or "NO")	NO	
Pit depth (feet) (if applicable)	N.A.	
WELL CONSTRUCTION		
Date drilled	1953	
Drilling Method	N.A.	
Depth of Bore Hole (feet below ground surface)	230'	
Casing Beginning Depth/Ending Depth(ft below surface);	0/450	
2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	0/156'	
Casing Diameter (inches); 2nd Casing Diameter; 3rd Casing, etc.	20"	-
Casing Material; 2nd Casing Material; 3rd Casing, etc.	Steel	

# WELL DATA SHEET (Page 2 of 2)

Complete as much information as possible. Leave blank if information is not available	ilable, use N.A. if not applica	able.
* Indicates items required for Source Water Assessment	<u>11</u>	
* Indicates additional items required for assessments and Ground Wate	er Rule	
	· · · · · · · · · · · · · · · · · · ·	Actual, Estimated or
		Default?
WELL CONSTRUCTION (continued)		
Conductor casing used? ("YES", "NO" or "UNKNOWN") (See Note 2)	YES	
Conductor casing removed? ("YES", "NO" or "UNKNOWN")	NO	
* Depth to highest perforations/screens (ft below surface) (or "UNKNOWN")	123'	
Screened Interval Beginning Depth/Ending Depth (ft below surface);	102 156	
2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	123'-156'	
* Total length of screened interval (ft)		
(default = 10% pump capacity in gpm) (or "UNKNOWN")	33'	
* Annular Seal?("YES", "NO" or "UNKNOWN") (See Note 3)	NO	
* Depth of Annular Seal (ft)	· · · · · · · · · · · · · · · · · · ·	
Material of Annular Seal (cement grout, bentonite, etc.)	······································	
Gravel pack, Depth to top (ft below ground surface)		
Total length of gravel pack (ft)	**************************************	
AQUIFER		
* Aquifer Materials		
(list all that apply: sand, silt, clay, gravel, rock, fractured rock)	sand, clay, silt	
* Effective porosity (decimal percent) (default = 0.2) (or "UNKNOWN")	UNKNOWN	
* Confining layer (Impervious Strata) above aquifer?	YES	
("YES", "NO" or "UNKNOWN")		
Thickness of confining layer, if known (ft)	19'	
Depth to confining layer, if known (ft below ground)	69'-88'	
Static water level (ft below ground surface)		
Static water level measurement: Date/Method		
Pumping water level (ft below ground surface)		
Pumping water level measurement: Date/Method		
WELL PRODUCTION		
Well Yield (gpm)	2200	
Well Yield Based On (i.e., pump test, etc.)	Meter	
Date measured	3/17/2003	
Is the well metered? ("YES" or "NO")	YES	
Production (gallons per year)	164.27 MG (2002)	
Frequency of Use (hours/year)	3.41	
Typical pumping duration (hours/day)	1244.65	
PUMP		
Make	Byron Jackson	
Туре	Constant Speed	
Size (hp)	125 HP	
* Capacity (gpm)	2200	
Depth to suction intake (ft below ground surface)	123'	
Lubrication Type	Oil	
Type of Power: (i.e., electric, diesel, etc.)	Diesel Generator	
Auxiliary power available? ("YES" or "NO")	YES	
Operation controlled by: (i.e., level in tank, pressure, etc.)	Pressure	· · · · · · · · · · · · · · · · · · ·
Pump to Waste capability? ("YES" or "NO")	YES	
Discharges to: (i.e., distribution system, storage, etc.)	Tank #1	
Distance de la lier, alouindulon ofotoin, otorago, oto.		

Well Data Sheet Supplement	
REMARKS AND DEFECTS	
(Use or note these items as appropriate)	
(** indicates items pertinent to Ground Water Rule)	
Distance (ft) to other sanitary concerns:	
** Type of Sanitary Concern: <u>NONE</u>	_
** Type of Sanitary Concern:	•
** Type of Sanitary Concern:	-
** Type of Sanitary Concern:	-
** Type of Sanitary Concern:	-
Raw Water Quality concerns? (Yes or No)	Yes
** Microbiological (coliform)	
Chemicals	Perchloroethylene
Other (list)	
** Continuous Chlorination provided? (Yes or No)	Yes
Condition of enclosure or housing	Good
Pit Drained? (if applicable)	
Pitless Adaptor? Make and Model	
Height of pump base (inches)	11"
Casing Vent? (yes or no)	Yes
Air/Vacuum Release? (yes or no)	Yes
Sampling Taps? (yes or no)	Yes
Location of sampling taps	Pump Discharge
Wellhead Riser? (yes or no); height above well	No
Other	

Comments: Although Perchloroethylene has been detected in this well, the detection level concentration consistantly remains below Maximum Contaminant Levels (MCL's) and continues to decline each year.

District Name City of Merced	District N	o. <u>M4</u>	Count	у	Merced
System Name MERCED, CITY OF					System No. 2410009
Source Name WELL 01C - RAW	Sc	ource No.	003		<b>PS Code</b> 2410009-003
Completed by Patrick Riggs		Date	March	n, 20	003
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Commercial/Industrial Activities					
Automobile- Body shops (H)	N	Y	Y		
Automobile- Car washes (M)	N	Y	Y		
Automobile- Gas stations (VH)	N	Ŷ	Y		UST RWQCB sites throughout city limits.
Automobile- Repair shops (H)	N	Y	Y		
Boat services/repair/ refinishing (H)	N	N	Y		
Chemical/petroleum pipelines (H)	N	N	N		
Chemical/petroleum processing/storage (VH)	N	N	N		
Dry cleaners (VH)	Y	Y	Y		Source of PCE plume.
Electrical/electronic manufacturing (H)	N	Ň	N		
Fleet/truck/bus terminals (H)	N	Y	Y		
niture repair/ manufacturing (H)	N	N	N		
me manufacturing (H)	N	N	N		
Junk/scrap/salvage yards (H)	N	N	N		
Machine shops (H)	N	N	Y		
Metal plating/ finishing/fabricating (VH)	N	N	N		
Photo processing/printing (H)	N	Y	Y		Small photo processing shops.
Plastics/synthetics producers (VH)	N	N	N		·
Research laboratories (H)	N	N	N		
Wood preserving/treating (H)	N	N	N		
Wood/pulp/paper processing and mills (H)	N	N	N		
Lumber processing and manufacturing (H)	N	N	Y	Γ	Lumber yard on 16th Street.
Sewer collection systems (H, if in Zone A, otherwise L)	Y	Y	Y		Municipal collection system.
Parking lots/malls (>50 spaces) (M)	Y	Y	Y	1	
Cement/concrete plants (M)	N	N	Y	1	Located on North Hwy. 59.
Food processing (M)	N	N	N	1	
Funeral services/graveyards (M)	N	Y	Y		Funeral Home on Main Street, Graveyard on 13th Street.
Hardware/lumber/parts stores (M)	N	Y	Y	$\square$	Misc. commercial shops.
Appliance/Electronic Repair (L)	N	Y	Y	†	Misc. commercial shops.
Office buildings/complexes (L)	Y	Y	Y	1	Misc. business locations.

Y = Yes N = No U = Unknown

Inventory of Possible Contaminating Activities (PCA Inventory)						
System Name MERCED, CITY OF					System No. 2410009	
ource Name WELL 01C - RAW	S	ource No.	003		PS Code 2410009-003	
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments	
Commercial/Industrial Activities						
Rental Yards (L)	N	Y	Y		US Rentals on 16th Street.	
RV/mini storage (L)	N	Y	Y			
Residential/Municipal Activities						
Airports - Maintenance/ fueling areas (VH)	N	N	N			
Landfills/dumps (VH)	N	N ·	N			
Railroad yards/ maintenance/ fueling areas (H)	N	N	N			
Septic systems - high density (>1/acre) (VH if in Zone A, otherwise M)	N	N	N		· · · · · · · · · · · · · · · · · · ·	
Sewer collection systems (H, if in Zone A, otherwise L)	Y	Y	Y		Municipal collection system.	
Utility stations - maintenance areas (H)	N	N	Y	ŀ	Small automotive repair shops.	
Wastewater treatment plants (VH in Zone A, otherwise H)	N	N	N			
Drinking water treatment plants (M)	N	N	Ν.			
Golf courses (M)	N	N	N			
Pousing - high density (>1 house/0.5 acres) (M)	Y	Y	Y			
or pools (M)	N	N	N ·			
Parks (M)	· Y	Y	Y	$\square$	Parks located throughout city.	
Waste transfer/recycling stations (M)	N	Y	Y		Auto shop oil/battery recycling facilities.	
Apartments and condominiums (L)	Y	Y	Y	1		
Campgrounds/ Recreational areas (L)	N	N	N	1		
Fire stations (L)	Y	Y.	Y	1		
RV Parks (L)	N	N	N			
Schools (L)	Y	Y	Y			
Hotels, Motels (L)	N	N	Y			
Other Activities						
NPDES/WDR permitted discharges (H)	N	N	N	1		
Underground Injection of Commercial/Industrial Discharges (VH)	N	N	N			
Historic gas stations (VH)	N	Y	Y	*		
Historic waste dumps/ landfills (VH)	N	N	N	$\top$		
Illegal activities/ unauthorized dumping (H)	N	N	N	$\top$		
Injection wells/ dry wells/ sumps (VH)	N	N	N	+		
Known Contaminant Plumes (VH)	Y	Y	Y	$\uparrow$	Perchloroethylene plume detected.	
* *litary installations (VH)	N	N	N	+		

Y = Yes N = No U = Unknown

#### Inventory of Possible Contaminating Activities (PCA Inventory) System Name MERCED, CITY OF System No. 2410009 Source Name WELL 01C - RAW 003 2410009-003 Source No. PS Code PCA in PCA in PCA in PCA (Risk Ranking) Zone A Zone B5 Zone B10 Comments Other Activities Mining operations - Historic (VH) Ν Ν Ν Mining operations - Active (VH) Ν Ν Ν Mining - Sand/Gravel (H) Ν Ν Ν Wells - Oil, Gas, Geothermal (H) Ν Ν Ν Salt Water Intrusion (H) Ν Ν Ν Recreational area - surface water source (H) Y Υ Bear Creek is a storm water receptor. Y Underground storage tanks - Confirmed leaking tanks Y Y Y UST sites throughout city from Gas (VH)Service Stations. Underground storage tanks - Decommissioned - inactive Y Ν Ν Tanks filled with inert sand slurryon site tanks (L) for B/U Generator. Underground storage tanks - Non-regulated tanks (tanks Ν Ν Ν smaller than regulatory limit) (H) Underground storage tanks - Not yet upgraded or N Ν Ν registered tanks (H) Underground storage tanks - Upgraded and/or registered Ν Ν Ν tive tanks (L) Above ground storage tanks (M) Y N Ν Convault above ground storage tank on site. Wells - Water supply (M) Y Y Y Other city water wells in proximity. Construction/demolition staging areas (M) Ν Ν Ν Contractor or government agency equipment storage Υ Y N Public Works supply yard in proximity. yards (M) Dredging (M) Ν Ν Ν Transportation corridors - Freeways/state highways (M) Ν Ν Ν Transportation corridors - Railroads (M) Υ Υ Throughout city limits. Ν Transportation corridors - Historic railroad right-of-ways Y Y Throughout city limits. Ν (M) Transportation corridors - Road Right-of-ways (herbicide Ν N Ν use areas) (M) Transportation corridors - Roads/ Streets (L) Y Y Y Hospitals (M) Υ Y Υ Mercy Dominican Hospital. Storm Drain Discharge Points (M) Υ Y Bear Creek Canal. Ν Storm Water Detention Facilities (M) Ν Ν Ν Artificial Recharge Projects - Injection wells (potable N N N water) (L) ificial Recharge Projects - Injection wells (non-potable N Ν N

Y = Yes N = No U = Unknown

# Inventory of Possible Contaminating Activities (PCA Inventory)

System Name MERCED, CITY OF			·		System No2410009
ource Name <u>WELL 01C - RAW</u>	S	ource No.	003		_ PS Code2410009-003
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other Activities					
water) (M)		1			
Artificial Recharge Projects - Spreading Basins (potable water) (L)	N	N	N		
Artificial Recharge Projects - Spreading Basins (non-potable water) (M)	N	N	N		
Medical/dental offices/clinics (L)	Y	Y	Y		Mercy Dominican Hospital with small Dental Clinics in proximity.
Veterinary offices/clinics (L)	N	N	N		
Surface water - streams/ lakes/rivers (L)	Y	Y	Y		Bear Creek, MID canals.
Wells - monitoring, test holes (L)	Y	Y	Y		One on station, several off station on "R" street.

Y = Yes N = No U = Unknown \* = A contaminant potentially associated with this activity has been detected in the water supply.

# Vulnerability Ranking

Di	istrict Name	City of Merced	District No. M4	_ C	ounty <u>Me</u>	rced		
Sy	stem Name	MERCED, CITY OF	· · · · · · · · · · · · · · · · · · ·			Syste	m No.	2410009
S	ource Name	WELL 01C - RAW	Source No	0	<u>03</u> F	PS Code	2410	009-003
Co	ompleted by	Patrick Riggs	Date _	N	larch, 2003	······································		
Zone	PCA (Risk i	Ranking)		*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
B5 _	Historic gas	stations (VH)		*	7	3	1	11
B10	Historic gas	stations (VH)		*	7	1	1	9
Α	Dry cleaners	s (VH)			7	5	1	13
А	Known Con	aminant Plumes (VH)			7	5	1	13
А	Undergroun	d storage tanks - Confirmed leakin	g tanks (VH)		7	5	1	13
А	Recreationa	ll area - surface water source (H)			5	5	1	11
A	Sewer colle	ction systems (H, if in Zone A, othe	erwise L)		5	5	1	11
A	Sewer colle	ction systems (H, if in Zone A, othe	erwise L)		5	5	1	11
B5	Automobile	- Gas stations (VH)			7	3	1	11
B5	Dry cleaner	s (VH)			7	3	1	11
B5	Known Con	taminant Plumes (VH)			7	3	1	11
$\overline{()}$	Undergrour	nd storage tanks - Confirmed leakir	ig tanks (VH)		7	3	1	11
Ā	Above grou	nd storage tanks (M)			3	5	1	9
A	Contractor	or government agency equipment	storage yards (M)		3	5	1	9
A	Hospitals (I	M)			3	5	1	9
Α	Housing - h	igh density (>1 house/0.5 acres) (I	M)		3	5	1	9
A	Parking lots	s/malls (>50 spaces) (M)			3	5	1	9
Α	Parks (M)				3	5	1	9
A	Storm Drai	n Discharge Points (M)			3	5	1	9
A	Wells - Wa	ter supply (M)			3	5	1	9
B5	Automobile	- Body shops (H)			5	3	1	9
B5	Automobile	e- Repair shops (H)			5	3	1	9
B5	Fleet/truck	/bus terminals (H)			5	3	1	9
B5	Photo proc	essing/printing (H)			5	3	1	9
B5	Recreation	al area - surface water source (H)			5	3	1	9
B10	Automobile	e- Gas stations (VH)			7	1	1	9
B10	Dry cleane	rs (VH)			7	1	1	9
B10	Known Co	ntaminant Plumes (VH)			7	1	1	9
( )	Undergrou	nd storage tanks - Confirmed leak	ng tanks (VH)		7	1	1	9



© Information Center for the Environment Coding by <u>Eric Lehmer</u> Mapping System produced using <u>ESRI</u> ArcIMS

mhtml:file://C:\Documents%20and%20Settings\riggsp\Desktop\Deliniation%20Zones\Well% 3/14/2003

Water System

MERCED, CITY OF Merced County

Water Source WELL 02A - RAW

Assessment Date March, 2003

California Department of Health Services Drinking Water Field Operations Branch City of Merced

 District No.
 M4

 System No.
 2410009

 Source No.
 004

 PS Code
 2410009-004

Assessme	ent Summary				
District Name	City of Merced	District No	County	Merced	
ystem Name	MERCED, CITY OF			System	No. <u>2410009</u>
Source Name	WELL 02A - RAW	Source No	004	PS Code	2410009-004
Completed by	Patrick Riggs	Date	March,	2003	

## **Description of System and Source**

The City of Merced water system is located in Merced County and serves the Merced City and part of the bordering Merced County. There are approximately 17,125 service connections serving a population of 63,000.

The only drinking water source for the City of Merced water system is groundwater wells. The recharge area for the source includes hundreds of square miles originating from the Eastern Seirra Nevada foothills and mountain range. General land use is agricultural | urban | residential | undeveloped etc.

### **Assessment Procedures**

The assessment of the source WELL 02A - RAW was conducted by the City of Merced Environmental Control Office. The following sources of information were used in the assessment: Water system files, DHS files.

Procedures used to conduct the assessment include: Assistance from DHS jurisdictional office, Turbo Swap program for data input.

## **Contents of this Assessment**

Yes X	No 🗌	Assessment Summary
Yes 🗶	No 🗌	Vulnerability Summary
Yes 🗶	No 🗌	Source Location Form
Yes X	No 🗌	<b>Delineation of Ground Water Protection Zones</b>
Yes X	No 📋	Physical Barrier Effectiveness Checklist
Yes X	No 🗌	Source Data Sheet
Yes X	No 🗌	Inventory of Possible Contaminating Activities
Yes X	No 🗌	Vulnerability Ranking
Yes X	No 🗌	Assessment Map

vuneral	oility Summary				
District Name	City of Merced	District No	County	Merced	
ystem Name	MERCED, CITY OF	· · · · · · · · · · · · · · · · · · ·		System	No. <u>2410009</u>
Source Name	WELL 02A - RAW	Source No	004	PS Code	2410009-004
Completed by	Patrick Riggs	Date _	March,	2003	
THE FO	LLOWING INFORMATION MUST	BE INCLUDED IN THE SYST	EM CONSU		CE REPORT
A source wa					1 0000
			water	system in M	arch 2003
of the <u>MER</u>	CED, CITY OF				arch, 2003
of the <u>MER</u>	CED, CITY OF is considered most vulnerable inants detected in the water s	e to the following activitie			arch, 2003
of the <u>MER</u>	is considered most vulnerable inants detected in the water s Dry cleaners	e to the following activitie supply:			arch, 2003
of the <u>MER</u>	is considered most vulnerable inants detected in the water s Dry cleaners Known Contaminant Plu	e to the following activitie supply: imes	es associat		arch, 2003
of the <u>MER</u>	is considered most vulnerable inants detected in the water s Dry cleaners Known Contaminant Plu Underground storage ta	e to the following activitie supply: Imes nks - Confirmed leaking	es associat		arch, 2003
of the <u>MER</u>	is considered most vulnerable inants detected in the water s Dry cleaners Known Contaminant Plu	e to the following activitie supply: imes nks - Confirmed leaking elines	es associat		arch, 2003
of the <u>MER</u> The source with contam	is considered most vulnerable inants detected in the water s Dry cleaners Known Contaminant Plu Underground storage ta Chemical/petroleum pipe	e to the following activitie supply: Imes nks - Confirmed leaking elines bicide Application	es associat tanks	ted	arch, 2003
of the <u>MER</u> The source with contam	is considered most vulnerable inants detected in the water s Dry cleaners Known Contaminant Plu Underground storage ta Chemical/petroleum pipe Fertilizer, Pesticide/ Her is considered most vulnerabl	e to the following activitie supply: mes nks - Confirmed leaking elines bicide Application le to the following activitie	es associat tanks	ted	arch, 2003

## **Discussion of Vulnerability**

City of Merced Well Station #2 houses three municipal groundwater wells with a 400,000 gallon storage tank onsite in a secured compound.

A copy of the complete assessment may be viewed at:

Public Works Environmental Control Division 1776 Grogan Avenue Merced, CA 95340

You may request a summary of the assessment be sent to you by contacting:

Patrick Riggs Environmental Control Officer II 209-385-6817 209-384-7772 (fax) riggsp@cityofmerced.org



# Delineation of Ground Water Protection Zones

District Name	City of Merced	District No. <u>M4</u>	County	Merced	· · · · · · · · · · · · · · · · · · ·	www.andit
System Name	MERCED, CITY OF WELL 02A - RAW		004	Syster	n No	2410009
Source Name		Source No		PS Code	241	0009-004
Completed by	Patrick Riggs	Date	March, 2	2003		

**Method Used to Delineate Protection Zones** 

## X 1. Calculated Fixed Radius

- 2. Modified Calculated Fixed Radius (Attach documentation for direction of ground water flow.)
- 3. More Detailed Methods
- 4. Arbitrary Fixed Radius (For use only by or permission of DHS)

Maximum Pumping Rate of Well (Q)	<u>2,200</u> <u>3,549</u> 154,587,400	gallons/minute acre feet/year cubic feet/year
Effective Porosity Screened Interval of Well	0.20 52 feet	Default Value

Protection Zone	Calculated Value	Minimum Value	Radius of Protection Zone
Zone A - 2 Year TOT*	3,076 Feet	600 Feet	3,076 Feet
Zone B5 - 5 Year TOT*	4,864 Feet	1,000 Feet	<b>4,864</b> Feet
Zone B10 - 10 Year TOT*	6,879 Feet	1,500 Feet	6,879 Feet

\*TOT = Time of Travel

 $\left( \right)$ 

Physical E	Barrier Effectivene	<u> (PBE)</u>				
District Name	City of Merced	District No. M4	County	Merced	<u></u>	
System Name	MERCED, CITY OF			Syst	tem No. <u>24</u>	10009
Source Name	WELL 02A - RAW	Source No	004	PS Code	241000	9-004
Completed by	Patrick Riggs	Date	March,	2003		
arameter				Possible Points	This Source	Score
ype of Aquifer Confinement	r					
1. Unconfined, S	emi-confined, Fractured Rock, Ur	nknown Aquifer		0		
2. Confined				50	X	50
	ontamination (All Aquifers andoned or Improperly Destroy					
1. Present within	n Zone A (2 year TOT distance)	Yes		0		
		No		5	X	5
		Unknown		0	-	
2. Present within	n Zone B5 (2 -5 year TOT distand	ce) Yes		0		
		No		3	<u>X</u>	3
		Unknown		0		L
3. Present within	n Zone B10 (5-10 year TOT dista			0		
		<u>No</u>		2	X	2
		Unknown		0		
What is the relative overlying u	d (Confined Aquifers) ationship in the hydraulic head nconfined aquifer? (i.e. does the ined aquifer is higher than head ir	he well flow under artesian o		20	X	20
conditions.				20	^	20
<ol><li>Head in confi conditions.</li></ol>	ned aquifer is higher than head ir	n unconfined aquifer under stat	liC	10		
3. Head in confi under static o	ned aquifer is lower than or same conditions.	e as head in unconfined aquife	r	0		
4. Unknown				0		
Well Construct	ion (All Aquifers)					
Sanitary Seal	(Annular Seal) Depth	None of less than 20 feet		0		
	feet	Between 20 and 50 feet		6		
		50 feet or greater		10		
		Unknown		0	X	<u> </u>
·	(concrete cap)	Not present or improperly con	structed	0		
Surface Seal (				1	1	
Surface Seal (		Watertight, slopes away from at least 2' laterally in all direction		4	X	4

# Physical Barrier Effectiveness (PBE)

System Name	MERCED, CITY OF			System No	2410009
ource Name	WELL 02A - RAW	Source No	004	PS Code	2410009-004

arameter		Possible Points	This Source	Score
Well Construction (All Aquifers)co	ontinued			
Flooding potential at well site	Subject to localized flooding (i.e. in low area or unsealed pit or vault) or within 100 year flood plain	0		*
	Not subject to flooding	1	X	1
	Unknown	0		
Security at well site	Not secure	0		
	Secure	5	Х	5
	Unknown	0		

Score	Effectiveness
0 to 35	Low
36 to 69	Moderate
70 to 100	High

Maximum Score = 100

Score	90
Effectiveness	High

# WELL DATA SHEET (Page 1 of 2)

Complete as much information as possible. Leave blank if information is not a	vailable, use N.A. if not applica	ble.
* Indicates items required for Source Water Assessment		
Indicates additional items required for assessments and Ground Wate	er Rule	
		Actual, Estimated
		or Default?
DATA SHEET GENERAL INFORMATION		
System Name	City of Merced	from DHS database
System Number	2410009	from DHS database
Source of Information (well log, DHS/County files, system, etc)	well log, system files	
Organization Collecting Information (DHS, County, System, other)	System	
Date Information Collected/Updated	3/17/2003	
WELL IDENTIFICATION		
* Well Number or Name	WEILOZ &	from DHS database
* DHS Source Identification Number (FRDS ID No.)		
DWR Well Log on File? ("YES" or "NO")	YES	
State Well Number (from DWR)	2410009004	
Well Status (Active, Standby, Inactive)	Active	
WELL LOCATION		
Latitude	37.29	City Surveyed 2002
Longitude	-120.452	City Surveyed 2002
Ground Surface Elevation (ft above Mean Sea Level)	179.82	City Surveyed 2002
Street Address	60 Parsons Avenue	
Nearest Cross Street	Childs Avenue	
City	Merced	
County	Merced	
* Neighborhood/Surrounding Area (see Note 1)	Re, Mu	
Site plan on file? ("YES" or "NO")	NO	
JWR Ground Water Basin		from UC Davis
DWR Ground Water Sub-basin		from UC Davis
SANITARY CONDITIONS		
** Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)	300'	
Distance to Active Wells (ft)	60'	
Distance to Abandoned Wells (ft)	None	
Distance to Surface Water (ft)	None	
** Size of controlled area around well (square feet)	24,000	
	Fencing	
* Type of access control to well site <i>(fencing, building, etc)</i> * Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	YES	
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	22' x12.8' x 12"	
	UNKNOWN	
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")	YES	
* Drainage away from well? ("YES" or "NO")		
ENCLOSURE/HOUSING	building (corrugated Stee	N)
Enclosure Type (building, vault, none, etc.)	Concrete	<u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>
Floor material		
Located in Pit? ("YES" or "NO")	NO	
Pit depth (feet) (if applicable)	N.A.	
WELL CONSTRUCTION	4050	
Date drilled	1950	
Drilling Method		
Depth of Bore Hole (feet below ground surface)	251'	
Casing Beginning Depth/Ending Depth(ft below surface); 2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	0/184'	
Casing Diameter (inches); 2nd Casing Diameter; 3rd Casing, etc.	20"	
Casing Material; 2nd Casing Material; 3rd Casing, etc.	Steel	

# WELL DATA SHEET (Page 2 of 2)

Indicates additional items required for assessments and Ground Water	Rule	
	Traio	Actual, Estimated
		or Default?
WELL CONSTRUCTION (continued)	W 114 W 21	
Conductor casing used? ("YES", "NO" or "UNKNOWN") (See Note 2)	UNKNOWN	
Conductor casing removed? ("YES", "NO" or "UNKNOWN")	UNKNOWN	
* Depth to highest perforations/screens (ft below surface) (or "UNKNOWN")	132'	
Screened Interval Beginning Depth/Ending Depth (ft below surface); 2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	132'-184'	
* Total length of screened interval (ft) (default = 10% pump capacity in gpm) (or "UNKNOWN")	52'	
* Annular Seal?("YES", "NO" or "UNKNOWN") (See Note 3)	YES (surface only)	
* Depth of Annular Seal (ft)	UNKNOWN	
Material of Annular Seal (cement grout, bentonite, etc.)		
Gravel pack, Depth to top (ft below ground surface)	No Gravel Pack	
Total length of gravel pack (ft)	· · · · · · · · · · · · · · · · · · ·	
AQUIFER		
* Aquifer Materials (list all that apply: sand, silt, clay, gravel, rock, fractured rock)	sand, clay, silt	
* Effective porosity (decimal percent) (default = 0.2) (or "UNKNOWN")	UNKNOWN	
* Confining layer (Impervious Strata) above aquifer? ("YES", "NO" or "UNKNOWN")	YES	
Thickness of confining layer, if known (ft)	52'	
Depth to confining layer, if known (ft below ground)	10'-62'	
Static water level (ft below ground surface)		
Static water level measurement: Date/Method	***********	
Pumping water level (ft below ground surface)		
Pumping water level measurement: Date/Method WELL PRODUCTION		
	2200	
Well Yield (gpm) Well Yield Based On (i.e., pump test, etc.)	Meter	
Date measured	3/17/2003	
Is the well metered? ("YES" or "NO")	YES	
Production (gallons per year)	99.17 MG (2002)	
Frequency of Use (hours/year)	751.9	
Typical pumping duration (hours/day)	2.06	
PUMP		
Make	Layne and Bowler	
Туре	Constant Speed	
Size (hp)	125 HP	
* Capacity (gpm)	2470	
Depth to suction intake (ft below ground surface)	132'	
Lubrication Type	Oil	
Type of Power: (i.e., electric, diesel, etc.)	Diesel Generator	
Auxiliary power available? ("YES" or "NO")	YES	
Operation controlled by: (i.e., level in tank, pressure, etc.)	Pressure	
Pump to Waste capability? ("YES" or "NO")	YES	
Discharges to: (i.e., distribution system, storage, etc.)	Tank#2	

# **Remarks and Defects**

Well Data Sheet Supplement	
REMARKS AND DEFECTS	
(Use or note these items as appropriate)	
(** indicates items pertinent to Ground Water Rule)	
Distance (ft) to other sanitary concerns:	
** Type of Sanitary Concern: <u>NONE</u>	
** Type of Sanitary Concern:	
Raw Water Quality concerns? (Yes or No)	No
** Microbiological (coliform)	
Chemicals	
Other (list)	
** Continuous Chlorination provided? (Yes or No)	Yes
Condition of enclosure or housing	Good
Pit Drained? (if applicable)	
Pitless Adaptor? Make and Model	
Height of pump base (inches)	12"
Casing Vent? (yes or no)	Yes
Air/Vacuum Release? (yes or no)	Yes
Sampling Taps? (yes or no)	Yes
Location of sampling taps	Pump Discharge
Wellhead Riser? (yes or no); height above well	No
Other	

Inventor	y of Possible Contam	Inating	Activ	vities (I	PC	A Inventory)
District Name	City of Merced	District N		County		Merced
stem Name	MERCED, CITY OF	•	<u></u>			System No. 2410009
Source Name	WELL 02A - RAW	Sc	ource No.	004		PS Code 2410009-004
Completed by	Patrick Riggs	·····	Date	March	20	
					, 20	
PCA (Risk Rankin	ng)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Commercial/I	ndustrial Activities					
Automobile- Body	shops (H)	N	N	Y		
Automobile- Car w	ashes (M)	N	Y	Y		
Automobile- Gas s	tations (VH)	Y	Y	Y		
Automobile- Repai	r shops (H)	Y	Y	Y		
Boat services/repa	ir/ refinishing (H)	N	N	N		
Chemical/petroleu	m pipelines (H)	Y	Y	Y	*	Commercial Gas Stations.
Chemical/petroleu	m processing/storage (VH)	N	N	N		
Dry cleaners (VH)		N	Y	Y	*	Previously in zone A, closed now. Existing PCE plume.
Electrical/electroni	ic manufacturing (H)	N	N	N		
Fleet/truck/bus ter	minals (H)	N	N	N		
iture repair/ m	nanufacturing (H)	N	N	N		
home manufactur	ing (H)	N	N	N		
Junk/scrap/salvag	e yards (H)	N	N	Y	Τ	Junk, pick-and-pull yard on Childs Ave.
Machine shops (H	))	N	N	N	Γ	
Metal plating/ finis	hing/fabricating (VH)	N	N	N		
Photo processing	/printing (H)	N	N	N		
Plastics/synthetics	s producers (VH)	N	N	N		
Research laborate	ories (H)	N	N	N		
Wood preserving	/treating (H)	N	N	N	Τ	
Wood/pulp/paper	processing and mills (H)	N	N	N		
Lumber processir	ng and manufacturing (H)	N	N	N		
Sewer collection	systems (H, if in Zone A, otherwise L)	Y	Y	Y	Ι	Municipal sewer system.
Parking lots/malls	s (>50 spaces) (M)	Y	Y	Y		Commercial business lots.
Cement/concrete	plants (M)	N	N	N		
Food processing	(M)	N	N	N		
Funeral services/	/graveyards (M)	N	N	Y		Funeral home on Main Street, Graveyard on E. 13th St.
Hardware/lumber	r/parts stores (M)	N	N	N	1	
Appliance/Electro	onic Repair (L)	Y	N	N		Small appliance repair shop.
Office buildings/c	complexes (L)	Y	Y	Y		Small business shops.
					_	

Y = Yes N = No U = Unknown

\* = A contaminant potentially associated with this activity has been detected in the water supply.

----

Inventory	of Possible Contami	nating	<b>y Activ</b>	<b>vities (</b>	PC	A Inventory)
System Name	MERCED, CITY OF					System No. 2410009
	WELL 02A - RAW	So	ource No.	004		PS Code2410009-004
PCA (Risk Ranking	)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Commercial/In	dustrial Activities					
Rental Yards (L)		N	N	N		
RV/mini storage (L)		N	Y	Y		
Residential/M	unicipal Activities					
Airports - Maintenan	ice/ fueling areas (VH)	N	N	N		
Landfills/dumps (VH	)	N	N	N		
Railroad yards/ main	ntenance/ fueling areas (H)	N	N	N		
Septic systems - hig otherwise M)	h density (>1/acre) (VH if in Zone A,	N	Y	Y		Residential systems outside city sewer service.
Sewer collection sys	stems (H, if in Zone A, otherwise L)	Y	Y	Y	1	Municipal sewer systems.
Utility stations - mai	ntenance areas (H)	Y	N	N	1	
Wastewater treatme	ent plants (VH in Zone A, otherwise H)	N	N	N		
Drinking water treat	ment plants (M)	N	N	N		
Golf courses (M)		N	N	N		
Linusing - high dens	sity (>1 house/0.5 acres) (M)	Y	Y	Y		
or pools (M)		N	N	N	1	
Parks (M)		Y	Y	Y		Parks throughout city.
Waste transfer/recy	cling stations (M)	N	N	N		
Apartments and cor	ndominiums (L)	Y	Y	Y		
Campgrounds/ Rec	reational areas (L)	N	N	N		
Fire stations (L)		Y	N	N		
RV Parks (L)		N	N	N		
Schools (L)		Y	Y	Y		
Hotels, Motels (L)		Y	Y	Y		
Agricultural/R	Rural Activities					
Grazing (> 5 large a Zone A, otherwise	animals or equivalent per acre) (H in M)	N	N	Y		Cattle farm.
	nal Feeding Operations (CAFOs) as egulation1 (VH in Zone A, otherwise	N	N	Y		
	perations as defined in federal Zone A, otherwise H)	N	N	Y		
Other Animal operation	ations (H in Zone A, otherwise M)	N	N	N		
Farm chemical dist	tributor/ application service (H)	N	N	Y	T	

Y = Yes N = No U = Unknown

(

#### Inventory of Possible Contaminating Activities (PCA Inventory) System Name System No. 2410009 MERCED, CITY OF ource Name WELL 02A - RAW 004 2410009-004 Source No. PS Code \_ PCA in PCA in PCA in PCA (Risk Ranking) Zone A Zone B5 Zone B10 Comments **Agricultural/Rural Activities** Farm machinery repair (H) Ν Ν Ν Septic systems - low density (<1/acre) (H in Zone A, Υ Y Residential without access to city sewer Ν otherwise L) system. Lagoons / liquid wastes (H) Ν Ν Ν Machine shops (H) Ν Ν Ν Pesticide/fertilizer/ petroleum storage & transfer areas (H) Y Y Υ Gasoline service stations. Agricultural Drainage (H in Zone A, otherwise M) Υ Y Υ Agrigultural drainage and MID canal water. Wells - Agricultural/ Irrigation (H) Ν Y Y Farm irrigation in area. Managed Forests (M) Ν Ν Ν Crops, irrigated (Berries, hops, mint, orchards, sod, Y Y Plum and Almond orchards. Ν greenhouses, vineyards, nurseries, vegetable) (M) \* Fertilizer, Pesticide/ Herbicide Application (M) Y Υ N Dibromochloropropane (DBCP) detected in area. Sewage sludge/biosolids application (M) Ν Ν N s, nonirrigated (e.g., Christmas trees, grains, grass Ν Ν Ν seeds, hay, pasture) (L) (includes drip-irrigated crops) Other Activities NPDES/WDR permitted discharges (H) Ν Ν N Underground Injection of Commercial/Industrial Ν Ν Ν **Discharges (VH)** Historic gas stations (VH) Υ Y Υ Historic waste dumps/ landfills (VH) Ν Ν Ν Illegal activities/ unauthorized dumping (H) Ν Ν Ν Injection wells/ dry wells/ sumps (VH) Ν Ν Ν Known Contaminant Plumes (VH) Y \* Y Υ Perchloroethylene from former commercial Dry Cleaner. Military installations (VH) Ν Ν Ν Mining operations - Historic (VH) Ν Ν Ν Mining operations - Active (VH) Ν Ν Ν Mining - Sand/Gravel (H) Ν Ν N Wells - Oil, Gas, Geothermal (H) N Ν Ν Salt Water Intrusion (H) Ν Ν Ν Recreational area - surface water source (H) Ν N Ν \* 'erground storage tanks - Confirmed leaking tanks Υ Y γ Several in city limits.

Y = Yes N = No U = Unknown

System Name <u>MERCED, CITY OF</u>					System No2410009
Source Name WELL 02A - RAW	S	ource No.	004		PS Code2410009-004
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other Activities					
					· · · · · · · · · · · · · · · · · · ·
Inderground storage tanks - Decommissioned - inactive anks (L)	N	N	N		
Jnderground storage tanks - Non-regulated tanks (tanks smaller than regulatory limit) (H)	N	N	N		
Jnderground storage tanks - Not yet upgraded or egistered tanks (H)	N	N	N		
Underground storage tanks - Upgraded and/or registered active tanks (L)	N	N	N		
Above ground storage tanks (M)	N	N	N		
Wells - Water supply (M)	Y	N	Y		
Construction/demolition staging areas (M)	N	N	N		
Contractor or government agency equipment storage yards (M)	Y	N	N		Cal Trans yard in area.
Dredging (M)	N	N	N		
nsportation corridors - Freeways/state highways (M)	Y	Y	Y		
nansportation corridors - Railroads (M)	Y	Y	Y		
Transportation corridors - Historic railroad right-of-ways (M)	N	N	N		
Transportation corridors - Road Right-of-ways (herbicide use areas) (M)	Y	Y	Y		
Transportation corridors - Roads/ Streets (L)	Y	N	Y		
Hospitals (M)	Y	N	Y		
Storm Drain Discharge Points (M)	Y	Y	Y		
Storm Water Detention Facilities (M)	Y	Y	Y		Catch basins in area
Artificial Recharge Projects - Injection wells (potable water) (L)	Ň	N	N		
Artificial Recharge Projects - Injection wells (non-potable water) (M)	N	N	N		
Artificial Recharge Projects - Spreading Basins (potable water) (L)	N	N	N		
Artificial Recharge Projects - Spreading Basins (non-potable water) (M)	N	N	N		
Medical/dental offices/clinics (L)	N	Y	Y	Τ	Small office facilities.
Veterinary offices/clinics (L)	N	N	Y		
Surface water - streams/ lakes/rivers (L)	N	N	N		

Y = Yes N = No U = Unknown

#### Inventory of Possible Contaminating Activities (PCA Inventory) System Name MERCED, CITY OF System No. 2410009 Source Name WELL 02A - RAW Source No. 004 PS Code 2410009-004 PCA in PCA in PCA in PCA (Risk Ranking) \* Zone A Zone B5 Zone B10 Comments **Other Activities** Wells - monitoring, test holes (L) Y Y Y Used for UST investigations and PCE investigatons.

Y = Yes N = No U = Unknown \* = A contaminant potentially associated with this activity has been detected in the water supply.

Ċ

### ....

Vi	Ilnerabi	lity Ranking						
D	istrict Name	City of Merced	_ District NoM4	_ Co	ounty Me	rced		
િડ્	ystem Name	MERCED, CITY OF				Syste	m No	2410009
S	ource Name	WELL 02A - RAW	Source No	0	04 F	PS Code	2410	009-004
C	ompleted by	Patrick Riggs	Date _	M	arch, 2003	÷.		
Zone	PCA (Risk F	Ranking)		*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
А	Known Cont	aminant Plumes (VH)		*	7	5	1	13
А	Underground	d storage tanks - Confirmed leaking tan	ks (VH)	*	7	5	1	13
Α	Chemical/pe	troleum pipelines (H)		*	5	5	1	11
B5	Dry cleaners	; (VH)	9997 9778 7878 - 197740 - 19774074 - 1	*	7	3	1	11
B5	Known Cont	aminant Plumes (VH)		*	7	3	1	_ 11
B5	Undergroun	d storage tanks - Confirmed leaking tan	ks (VH)	*	7	3	1	11
B5	Chemical/pe	troleum pipelines (H)		*	5	3	1	9
B10	Dry cleaners	s (VH)		*	. 7	1	1	9
B10	Known Cont	aminant Plumes (VH)		*	7	1	1	9
B10	Undergroun	d storage tanks - Confirmed leaking tar	iks (VH)	*	7	1	1	9
B5	Fertilizer, Pe	esticide/ Herbicide Application (M)	<u></u>	*	3	3	1	7
<u>`0</u>	Chemical/pe	etroleum pipelines (H)		*	5	1	1	7
`в10	Fertilizer, Pe	esticide/ Herbicide Application (M)		*	3	1	1	5
А	Automobile-	Gas stations (VH)			7	5	1	13
А	Historic gas	stations (VH)	· · · · · · · · · · · · · · · · · · ·		7	5	1	13
А	Agricultural	Drainage (H in Zone A, otherwise M)			5	5	1	11
А	Automobile-	Repair shops (H)			5	5	1	11
Α	Pesticide/fe	rtilizer/ petroleum storage & transfer are	eas (H)		5	5	1	11
А	Sewer colle	ction systems (H, if in Zone A, otherwis	e L)		5	5	1	11
Α	Sewer colle	ction systems (H, if in Zone A, otherwis	e L)		5	5	1	11
A	Utility statio	ns - maintenance areas (H)			5	5	1	11
B5	Automobile	- Gas stations (VH)			7	3	1	11
B5	Historic gas	stations (VH)	_ · · · · · · · ·		7	3	1	11
A	Contractor	or government agency equipment stora	ge yards (M)		3	5	1	9
A	Hospitals (N	<b>Л)</b>	1 to		3	5	1	9
A	Housing - h	igh density (>1 house/0.5 acres) (M)		1	3	5	1	9
A	Parking lots	s/malls (>50 spaces) (M)	· · · · · · · · · · · · · · · · · · ·	1	3	5	1	9
A	Parks (M)		· · · · · · · · ·	1	3	5	1	9
7	Storm Drair	n Discharge Points (M)		1	3	5	1	9

# **Vulnerability Ranking**

(

System Name	MERCED, CITY OF			System	No. 2410009	
Source Name	WELL 02A - RAW	Source No.	004	PS Code	2410009-004	

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	Storm Water Detention Facilities (M)		3	5	1	9
А	Transportation corridors - Freeways/state highways (M)		3	5	1	9
Α	Transportation corridors - Railroads (M)		3	5	1	9
А	Transportation corridors - Road Right-of-ways (herbicide use areas) (M)		3	5	1	9
Α	Weils - Water supply (M)		3	5	1	9
B5	Automobile- Repair shops (H)		5	3	1	9
B5	Pesticide/fertilizer/ petroleum storage & transfer areas (H)	1	5	3	1	9
B5	Wells - Agricultural/ Irrigation (H)		5	3	1	9
B10	Automobile- Gas stations (VH)	1	7	1	1	9
B10	Historic gas stations (VH)		7	1	1	9
						4



© Information Center for the Environment Coding by Eric Lehmer Mapping System produced using ESRI ArcIMS

mhtml:file://C:\Documents%20and%20Settings\riggsp\Desktop\Deliniation%20Zones\WEll% 3/12/2003

Water System

MERCED, CITY OF Merced County

Water Source

# WELL 02B - RAW

Assessment Date

March, 2003

California Department of Health Services Drinking Water Field Operations Branch City of Merced

 District No.
 M4

 System No.
 2410009

 Source No.
 005

 PS Code
 2410009-005

<b>District Name</b>	City of Merced	District No. M4	County	Merced	
System Name	MERCED, CITY OF			System	n No. <u>2410009</u>
Source Name	WELL 02B - RAW	Source No	005	PS Code	2410009-005

## **Description of System and Source**

The City of Merced water system is located in Merced County and serves the Merced City and part of the bordering Merced County. There are approximately 17,125 service connections serving a population of 63,000.

The only drinking water source for the City of Merced water system is groundwater wells. The recharge area for the source includes hundreds of square miles originating from the Eastern Seirra Nevada foothills and mountain range. General land use is agricultural | urban | residential | undeveloped etc.

### Assessment Procedures

The assessment of the source WELL 02B - RAW was conducted by the City of Merced Environmental Control Office. The following sources of information were used in the assessment: Water system files, DHS files.

Procedures used to conduct the assessment include: Assistance from DHS jurisdictional office, Turbo Swap program for data input.

## **Contents of this Assessment**

in it

Yes X	No 🗌	Assessment Summary
Yes X	No 🗌	Vulnerability Summary
Yes 🗶	No 🗌	Source Location Form
Yes X	No 🗌	Delineation of Ground Water Protection Zones
Yes X	No 🗌	Physical Barrier Effectiveness Checklist
Yes X	No 🗌	Source Data Sheet
Yes X	No 🗌	Inventory of Possible Contaminating Activities
Yes X	No 🗌	Vulnerability Ranking
Yes X	No 🗌	Assessment Map

Drinking Wate					11-12-12-12-12-12-12-12-12-12-12-12-12-1	24200 A 442 C 4 4 4 4 4			
Vulnerat	bility Summary								
District Name ystem Name Source Name	City of Merced MERCED, CITY OF WELL 02B - RAW	District No.	<u>M4</u>	County		Sys	tem Nc		2410009
Completed by			Date	March, 2					
-	LLOWING INFORMATION MUST	BE INCLUDED IN TH			MER CO	NFID	ENCE	REP	ORT
	ter assessment was conduct	ed for the _ <b>WEL</b>			system	in	Marc	ch, 2	2003
	is considered most vulnerable in ants detected in the water s	-	activities	associat	ted				
with contam		supply: Imes Inks - Confirmed I elines bicide Applicatior	leaking ta	anks		t			
with contam	inants detected in the water s Dry cleaners Known Contaminant Plu Underground storage ta Chemical/petroleum pip Fertilizer, Pesticide/ Her is considered most vulnerabl	supply: Imes Inks - Confirmed I elines bicide Application le to the following	leaking ta	anks		1			

Public Works Environmental Control Division 1776 Grogan Avenue Merced, CA 95340

You may request a summary of the assessment be sent to you by contacting:

Patrick Riggs Environmental Control Officer II 209-385-6817 209-384-7772 (fax) riggsp@cityofmerced.org


<b>District Name</b>	City of Merced	District No. M4	County	Merced		
System Name	MERCED, CITY OF			Syster	n No	2410009
Source Name	WELL 02B - RAW	Source No	005	PS Code	241	0009-005
Completed by	Patrick Riggs	Date	March,	2003		

#### Method Used to Delineate Protection Zones

# X 1. Calculated Fixed Radius

- 2. Modified Calculated Fixed Radius (Attach documentation for direction of ground water flow.)
- 3. More Detailed Methods

.

4. Arbitrary Fixed Radius (For use only by or permission of DHS)

Maximum Pumping Rate of Well (Q)	2,200 3,549 154,587,400	gallons/minute acre feet/year cubic feet/year
Effective Porosity	0.20	Default Value
Screened Interval of Well	<b>17</b> fee	t Default Value

Protection Zone	Calculated Value	Minimum Value	Radius of Protection Zone
Zone A - 2 Year TOT*	5,380 Feet	600 Feet	5,380 Feet
Zone B5 - 5 Year TOT*	8,507 Feet	1,000 Feet	8,507 Feet
Zone B10 - 10 Year TOT*	12,030 Feet	1,500 Feet	12,030 Feet

\*TOT = Time of Travel

Drinking Water Source Accessment and Protection (DM/SAP) Program

· ·········	arrier Effectiv	veness	(PBE)						
District Name	ity of Merced		District No. M4	County	Merced				
System Name	MERCED, CITY OF				System No. 2410009				
Jource Name	VELL 02B - RAW		Source No	005	PS Code	241000	9-005		
Completed by	Patrick Riggs		Date	March,	2003				
Parameter	, <u>, , , , , , , , , , , , , , , , , , </u>				Possible Points	This Source	Score		
Type of Aquifer Confinement									
1. Unconfined, Sei	mi-confined, Fractured F	ock, Unknow	n Aquifer		0				
2. Confined	· · · · · · · · · · · · · · · · · · ·		an a transmission and the second s		50	X	50		
Presence of Aba	ntamination (All Ac ndoned or Improperly	Destroyed W							
1. Present within	Zone A (2 year TOT dis	tance)	Yes		0		<u> </u>		
			No		5 0	X	5		
<u> </u>			Unknown Yes		0				
2. Present within a	Zone B5 (2 -5 year TOT	distance)	No		3	X	3		
			Unknown		0				
3 Present within	3. Present within Zone B10 (5-10 year TOT distance) Yes				0				
J. FIESCHLWIUHH		/ ustance)	No	·	2	X	2		
			Unknown		0				
What is the relat the overlying un	confined aquifer? (i.e.	c head betwe does the we	een the confined aquife Il flow under artesian c onfined aquifer under all		20	x	20		
2. Head in confine conditions.	ed aquifer is higher than	head in unco	onfined aquifer under stat	ic	10				
3. Head in confine under static co		or same as he	ead in unconfined aquifer	•	0				
4 11-1					0				
4. Unknown						1			
4. Unknown Well Construction	on (All Aquifers)	<u></u>							
Well Construction	on (All Aquifers) nnular Seal) Depth	None	of less than 20 feet		0	·			
Well Construction	·····		of less than 20 feet een 20 and 50 feet		6				
Well Construction	nnular Seal) Depth	Betwee 50 fee	een 20 and 50 feet et or greater						
Well Construction	nnular Seal) Depth	Betwe	een 20 and 50 feet et or greater		6	X			
Well Construction	nnular Seal) Depth	Betwee 50 fee Unkno	een 20 and 50 feet et or greater	structed	6 10	X	0		
Well Construction	nnular Seal) Depth	Betwee 50 fee Unkno Not pr Wate	een 20 and 50 feet et or greater own	vell	6 10 0	X			

# Physical Barrier Effectiveness (PBE)

System Name	MERCED, CITY OF	Syst	em No2	2410009 10009-005	
ource Name WELL 02B - RAW		Source No005	PS Code		
Parameter			Possible Points	This Source	Score
Well Construct	tion (All Aquifers)—contin	nued			
Flooding potential at well site		Subject to localized flooding (i.e. in low area or unsealed pit or vault) or within 100 year flood plain	0		
		Not subject to flooding	1	X	1
		Unknown	0		
Security at well site		Not secure	0		
		Secure	5	X	5
		Unknown	0		

Score	Effectiveness
0 to 35	Low
36 to 69	Moderate
70 to 100	High

Maximum Score = 100

Score	90
Effectiveness	High

# WELL DATA SHEET (Page 1 of 2)

Complete as much information as possible. Leave blank if information is not a	vailable, use N.A. if not applica	ble.
* Indicates items required for Source Water Assessment		
* Indicates additional items required for assessments and Ground Wate	er Rule	
		Actual, Estimated
		or Default?
DATA SHEET GENERAL INFORMATION		
System Name	City of Merced	from DHS database
System Number	2410009	from DHS database
Source of Information (well log, DHS/County files, system, etc)	well log, system files	
Organization Collecting Information (DHS, County, System, other)	System	
Date Information Collected/Updated	3/17/2003	
WELL IDENTIFICATION		
* Well Number or Name	Well 02 B	from DHS database
* DHS Source Identification Number (FRDS ID No.)		
DWR Well Log on File? ("YES" or "NO")	YES	
State Well Number (from DWR)	2410009005	
Well Status (Active, Standby, Inactive)	Active	
WELL LOCATION		
Latitude	37.29	City Surveyed 2002
Longitude	-120.452	City Surveyed 2002
Ground Surface Elevation (ft above Mean Sea Level)	179.94	City Surveyed 2002
Street Address	60 Parsons Avenue	
Nearest Cross Street	Childs Avenue	
City	Merced	
County	Merced	
* Neighborhood/Surrounding Area (see Note 1)	Re, Mu	
Site plan on file? ("YES" or "NO")	NO	
DWR Ground Water Basin		from UC Davis
DWR Ground Water Sub-basin		from UC Davis
SANITARY CONDITIONS		
** Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)	300'	
Distance to Active Wells (ft)	60'	
Distance to Abandoned Wells (ft)	None	
Distance to Surface Water (ft)	None	-
** Size of controlled area around well (square feet)	24,000	
* Type of access control to well site (fencing, building, etc)	Fencing	
	YES	
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	22' x 12.8' x 12"	
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	UNKNOWN	
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")	YES	
* Drainage away from well? ("YES" or "NO")	165	
ENCLOSURE/HOUSING	huilding (portugated atop	N
Enclosure Type (building, vault, none, etc.)	building (corrugated stee	<u> </u>
Floor material	Concrete	
Located in Pit? ("YES" or "NO")	NO	
Pit depth (feet) (if applicable)	N.A.	
WELL CONSTRUCTION	4050	
Date drilled	1950	
Drilling Method		
Depth of Bore Hole (feet below ground surface)	161'	
Casing Beginning Depth/Ending Depth(ft below surface);	0/144'	
2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.		
Casing Diameter (inches); 2nd Casing Diameter; 3rd Casing, etc.	20"	
Casing Material; 2nd Casing Material; 3rd Casing, etc.	Steel	

## WELL DATA SHEET (Page 2 of 2)

Indicates items required for Source Water Assessment		
* Indicates additional items required for assessments and Ground Wate	r Rule	
		Actual, Estimated
		or Default?
WELL CONSTRUCTION (continued)		
Conductor casing used? ("YES", "NO" or "UNKNOWN") (See Note 2)	Unknown	
Conductor casing removed? ("YES", "NO" or "UNKNOWN")	Unknown	
Depth to highest perforations/screens (ft below surface) (or	4 4 41	
UNKNOWN")	144'	
Screened Interval Beginning Depth/Ending Depth (ft below surface);	No Screen, foot valve to	
2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	bottom of bore 144'-161'	
Total length of screened interval (ft)	471	
(default = 10% pump capacity in gpm) (or "UNKNOWN")	17'	
Annular Seal?("YES", "NO" or "UNKNOWN") (See Note 3)	Unknown	
Depth of Annular Seal (ft)		
Material of Annular Seal (cement grout, bentonite, etc.)		
Gravel pack, Depth to top (ft below ground surface)	······································	
Fotal length of gravel pack (ft)		
Aquifer Materials		
Adulter Materials (list all that apply: sand, silt, clay, gravel, rock, fractured rock)	sand, clay, silt	
* Effective porosity (decimal percent) (default = 0.2) (or "UNKNOWN")	Unknown	
Confining layer (Impervious Strata) above aquifer?		
("YES", "NO" or "UNKNOWN")	Unknown	
Thickness of confining layer, if known (ft)	52'	
Depth to confining layer, if known (ft below ground)	10'-62'	
* Static water level (ft below ground surface)		
Static water level measurement: Date/Method	-	
Pumping water level (ft below ground surface)		
Pumping water level measurement: Date/Method		
WELL PRODUCTION		
	2200	
Well Yield (gpm) Well Yield Based On (i.e., pump test, etc.)	Meter	
	3/17/2003	
Date measured Is the well metered? ("YES" or "NO")	YES	
	80.91 MG (2002)	
Production (gallons per year)	613.2	
Frequency of Use (hours/year)	1.68	
Typical pumping duration (hours/day) PUMP	1.00	
	Layne and Bowler	
Make	DWT	
Туре	125 HP	
Size (hp)	2200	
* Capacity (gpm)	144'	
Depth to suction intake (ft below ground surface)	Oil	
Type of Power: (i.e., electric, diesel, etc.)	Diesel Generator YES	
Auxiliary power available? ("YES" or "NO")		
Operation controlled by: (i.e., level in tank, pressure, etc.)	Pressure	
Pump to Waste capability? ("YES" or "NO")	YES	
Discharges to: (i.e., distribution system, storage, etc.) REMARKS AND DEFECTS (use additional sheets as necessary)	Tank#2	
	1	1

# **Remarks and Defects**

Well Data Sheet Supplement	
REMARKS AND DEFECTS	
(Use or note these items as appropriate)	
(** indicates items pertinent to Ground Water Rule)	· · · · · · · · · · · · · · · · · · ·
Distance (ft) to other sanitary concerns:	
** Type of Sanitary Concern: <u>NONE</u>	
** Type of Sanitary Concern:	-
Raw Water Quality concerns? (Yes or No)	No
** Microbiological (coliform)	
Chemicals	
Other (list)	
** Continuous Chlorination provided? (Yes or No)	Yes
Condition of enclosure or housing	Good
Pit Drained? (if applicable)	
Pitless Adaptor? Make and Model	
Height of pump base (inches)	12"
Casing Vent? (yes or no)	Yes
Air/Vacuum Release? (yes or no)	Yes
Sampling Taps? (yes or no)	Yes
Location of sampling taps	Pump Discharge
Wellhead Riser? (yes or no); height above well	No
Other	

Ć

## Drinking Water Source Assessment and Protection (DWSAP) Program

Inventory of Possible Conta	<u>, , , , , , , , , , , , , , , , , , , </u>				
District Name City of Merced	District N	o. <u>M4</u>	_ County	/	Merced
vstem Name <u>MERCED, CITY OF</u>					System No. <u>2410009</u>
Source Name WELL 02B - RAW	Sc	ource No	005		_ PS Code2410009-005
Completed by Patrick Riggs		Date	March	1, 2C	)03
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Commercial/Industrial Activities					
Automobile- Body shops (H)	N	N	Y		
Automobile- Car washes (M)	N	Y	Y		
Automobile- Gas stations (VH)	Y	Y	Y		
Automobile- Repair shops (H)	Y	Y	Y		
Boat services/repair/ refinishing (H)	N	'N	N		
Chemical/petroleum pipelines (H)	Y	Y	Y	*	Commercial Gas Stations.
Chemical/petroleum processing/storage (VH)	N	N	N		
Dry cleaners (VH)	N	Y	Y	*	Previously in zone A, closed now. Existing PCE plume.
Electrical/electronic manufacturing (H)	N	N	N		
Fleet/truck/bus terminals (H)	N	N	N		
Timiture repair/ manufacturing (H)	N	N	N		
ne manufacturing (H)	N	N	N		
Junk/scrap/salvage yards (H)	N	N	Y		Junk, pick-and-pull yard on Childs Av
Machine shops (H)	N	N	N		
Metal plating/ finishing/fabricating (VH)	N	N	N		
Photo processing/printing (H)	N	N	N		
Plastics/synthetics producers (VH)	N	N	N		
Research laboratories (H)	N	N	N		
Wood preserving/treating (H)	N	N	N		
Wood/pulp/paper processing and mills (H)	N	N	N		
Lumber processing and manufacturing (H)	N	N	N		
Sewer collection systems (H, if in Zone A, otherwise	L) <b>Y</b>	Y	Y		Municipal sewer system.
Parking lots/malls (>50 spaces) (M)	Y	Y	Y		Commercial business lots.
Cement/concrete plants (M)	N	N	N		
Food processing (M)	N	N	N		
Funeral services/graveyards (M)	N	N	Y	ŀ	Funeral home on Main Street, Graveyard on E. 13th St.
Hardware/lumber/parts stores (M)	N	N	N	Τ	
Appliance/Electronic Repair (L)	Y	N	N		Small appliance repair shop.
Office buildings/complexes (L)	Y	Y	Y	Τ	Small business shops.

Y = Yes N = No U = Unknown

\* = A contaminant potentially associated with this activity has been detected in the water supply.

\_

System Name MERCED, CITY OF					
Source Name <u>WELL 02B - RAW</u>	S	ource No.	005		_ PS Code2410009-005
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Commercial/Industrial Activities					
Rental Yards (L)	N	N	N		
RV/mini storage (L)	N	Y	Y		
Residential/Municipal Activities					
Airports - Maintenance/ fueling areas (VH)	N	N	N		
Landfills/dumps (VH)	N	N	N		
Railroad yards/ maintenance/ fueling areas (H)	N	N	N		· · · · ·
Septic systems - high density (>1/acre) (VH if in Zone A, otherwise M)	N	Y	Y		Residential systems outside city sewe service.
Sewer collection systems (H, if in Zone A, otherwise L)	Y	Y	Y		Municipal sewer systems.
Utility stations - maintenance areas (H)	Y	N	N		
Wastewater treatment plants (VH in Zone A, otherwise H)	N	N	N		
Drinking water treatment plants (M)	N	N	N		
Golf courses (M)	N	N	N		
Housing - high density (>1 house/0.5 acres) (M)	Y	Y	Y	1	
or pools (M)	N	N	N		
Parks (M)	Y	Y	Y	1	Parks throughout city.
Waste transfer/recycling stations (M)	N	N	N	Τ	
Apartments and condominiums (L)	Y	Y	Y		
Campgrounds/ Recreational areas (L)	N	N	N	T	
Fire stations (L)	Y	N	N	Τ	
RV Parks (L)	N	N	N		
Schools (L)	Y	Y	Y		
Hotels, Motels (L)	Y	Y	Y	Τ	
Agricultural/Rural Activities					
Grazing (> 5 large animals or equivalent per acre) (H in Zone A, otherwise M)	N	N	Y		Cattle farm.
Concentrated Animal Feeding Operations (CAFOs) as defined in federal regulation1 (VH in Zone A, otherwise H)	N	N	Y		
Animal Feeding Operations as defined in federal regulation2 (VH in Zone A, otherwise H)	N	N	Y		
Other Animal operations (H in Zone A, otherwise M)	N	N	N	T	
Farm chemical distributor/ application service (H)	N	N	Y	Τ	

Y = Yes N = No U = Unknown

# Inventory of Possible Contaminating Activities (PCA Inventory) System Name MERCED, CITY OF System No. 2410009 3ource Name WELL 02B - RAW Source No. 005 PS Code 2410009-005 PCA (Risk Ranking) PCA in Zone A PCA in Zone B5 PCA in Zone B10 \* Comments

PCA (Risk Ranking)	Zone A	Zone B5	Zone B10	*	Comments
Agricultural/Rural Activities			-		
Farm machinery repair (H)	N	N	N		
Septic systems - low density (<1/acre) (H in Zone A, otherwise L)	N	Y	Y		Residential without access to city sewer system.
Lagoons / liquid wastes (H)	N	N	N		
Machine shops (H)	N	N	N		
Pesticide/fertilizer/ petroleum storage & transfer areas (H)	Y	Y	Y		Gasoline service stations.
Agricultural Drainage (H in Zone A, otherwise M)	Y	Y	Y		Agrigultural drainage and MID canal water.
Wells - Agricultural/ Irrigation (H)	N	Y	Y		Farm irrigation in area.
Managed Forests (M)	N	N	N		
Crops, irrigated (Berries, hops, mint, orchards, sod, greenhouses, vineyards, nurseries, vegetable) (M)	N	Y	Y		Plum and Almond orchards.
Fertilizer, Pesticide/ Herbicide Application (M)	N	Y	Y	*	Dibromochloropropane (DBCP) detected in area.
Sewage sludge/biosolids application (M)	N	N	N		
ps, nonirrigated (e.g., Christmas trees, grains, grass eds, hay, pasture) (L) (includes drip-irrigated crops)	N	N	N		
Other Activities					
NPDES/WDR permitted discharges (H)	N	N	N		
Underground Injection of Commercial/Industrial Discharges (VH)	N	N	N		
Historic gas stations (VH)	Y	Y	Y		
Historic waste dumps/ landfills (VH)	N	N	N	1	
Illegal activities/ unauthorized dumping (H)	N	N	N		
Injection wells/ dry wells/ sumps (VH)	N	N	N	1	
Known Contaminant Plumes (VH)	Y	Y	Y	*	Perchloroethylene from former commercial Dry Cleaner.
Military installations (VH)	N	N	N		
Mining operations - Historic (VH)	N	N	N		
Mining operations - Active (VH)	N	N	N		
Mining - Sand/Gravel (H)	N	N	N		
Wells - Oil, Gas, Geothermal (H)	N	N	N		
Salt Water Intrusion (H)	N	N	N	T	
Recreational area - surface water source (H)	N	N	N	Τ	
derground storage tanks - Confirmed leaking tanks	Y	Y	Y	*	Several in city limits.

Y = Yes N = No U = Unknown

Inventory of Possible Contam	matill	j AUN	11162		A IIIVCIILUIYJ
System Name MERCED, CITY OF					System No241000
Source Name	S	ource No.	005		PS Code 2410009-00
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other Activities					
VH)					
Jnderground storage tanks - Decommissioned - inactive anks (L)	N	N	N		
Underground storage tanks - Non-regulated tanks (tanks smaller than regulatory limit) (H)	N	N	N		
Underground storage tanks - Not yet upgraded or registered tanks (H)	N	N	N		
Jnderground storage tanks - Upgraded and/or registered • active tanks (L)	N	N	N		
Above ground storage tanks (M)	N	N	N		
Wells - Water supply (M)	Y	N	Y		
Construction/demolition staging areas (M)	N	N	N		
Contractor or government agency equipment storage yards (M)	Y	N	N		Cal Trans yard in area.
Dredging (M)	N	N	N		
ansportation corridors - Freeways/state highways (M)	Y	Y	Y		
ansportation corridors - Railroads (M)	Y	Y	Y		
Transportation corridors - Historic railroad right-of-ways (M)	N	N	N		
Transportation corridors - Road Right-of-ways (herbicide use areas) (M)	Y	Y	Y		
Transportation corridors - Roads/ Streets (L)	Y	N	Y		
Hospitals (M)	Y	N	Y		
Storm Drain Discharge Points (M)	Y	Y	Y		
Storm Water Detention Facilities (M)	Y	Y	Y		Catch basins in area
Artificial Recharge Projects - Injection wells (potable water) (L)	N	N	N		
Artificial Recharge Projects - Injection wells (non-potable water) (M)	N	N	N		
Artificial Recharge Projects - Spreading Basins (potable water) (L)	N	N	N		
Artificial Recharge Projects - Spreading Basins (non-potable water) (M)	N	N	N		
Medical/dental offices/clinics (L)	N	Y	Y		Small office facilities.
Veterinary offices/clinics (L)	N	N	Y		
Surface water - streams/ lakes/rivers (L)	N	N	N		

Y = Yes N = No U = Unknown

# Inventory of Possible Contaminating Activities (PCA Inventory)

System Name Source Name	MERCED, CITY OF WELL 02B - RAW	S(	ource No.	005	Syster PS Code	n No. <u>2410009</u> 2410009-005
PCA (Risk Rankin	ng)	PCA in Zone A		PCA in Zone B10	* Comments	
Other Activiti	es					
Wells - monitoring,	test holes (L)	Y	Y	Y	Used for UST investigatons.	investigations and PCE

 $\bigcirc$ 

v.u	Inclass	lity Ranking							
<u> </u>	strict Name	City of Merced	District No. <u>M4</u>	_ Co	ounty <u>Me</u>	rced			
1	stem Name	MERCED, CITY OF				Syste		2410009	
S	Source Name <u>WELL 02B - RAW</u> Source No.				<u>05</u> P	S Code	2410009-005		
Cc	ompleted by	Patrick Riggs	Date _	M	arch, 2003				
Zone	PCA (Risk F	lanking)		*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score	
A	Known Cont	aminant Plumes (VH)		*	7	5	1	13	
Α	Underground	storage tanks - Confirmed leaking tank	ks (VH)	*	7	5	1	13	
А	Chemical/pe	troleum pipelines (H)		*	5	5	1	11	
B5	Dry cleaners	s (VH)		*	7	3	1	11	
B5	Known Cont	aminant Plumes (VH)		*	7	3	1	11	
B5	Undergroun	d storage tanks - Confirmed leaking tan	ks (VH)	*	7	3	1	11	
B5	Chemical/pe	troleum pipelines (H)		*	5	3	1	9	
B10	Dry cleaners	s (VH)		*	7	1	1	9	
B10	Known Cont	aminant Plumes (VH)		*	7	1	1	9	
B10	Undergroun	d storage tanks - Confirmed leaking tan	ks (VH)	*	7	1	1	9	
B5	Fertilizer, Pe	esticide/ Herbicide Application (M)		*	3	3	1	7	
-10	Chemical/pe	etroleum pipelines (H)		*	5	1	1	7	
<u>ار -</u>	Fertilizer, P	esticide/ Herbicide Application (M)		*	3	1	1	5	
А	Automobile	Gas stations (VH)			7	5	1	13	
А	Historic gas	stations (VH)			7	5	1	13	
Α	Agricultural	Drainage (H in Zone A, otherwise M)			5	5	1	11	
Α	Automobile	- Repair shops (H)			5	5	1	11	
A	Pesticide/fe	rtilizer/ petroleum storage & transfer are	eas (H)		5	5	1	11	
Α	Sewer colle	ction systems (H, if in Zone A, otherwise	e L)		5	5	1	11	
A	Sewer colle	ction systems (H, if in Zone A, otherwise	e L)		5	5	1	11	
А	Utility statio	ns - maintenance areas (H)			5	5	1	11	
B5	Automobile	- Gas stations (VH)			7	3	1	11	
B5	Historic gas	s stations (VH)			7	3	1	11	
Α	Contractor	or government agency equipment storage	ge yards (M)		3	5	1	9	
A	Hospitals (I	И)			3	5	1	9	
Α	Housing - t	igh density (>1 house/0.5 acres) (M)			3	5	1	9	
A	Parking lot	s/malls (>50 spaces) (M)			3	5	1	9	
A	Parks (M)				3	5	1	9	
A	Storm Drai	n Discharge Points (M)	······································		3	5	1	9	

# **Vulnerability Ranking**

Ć

System Name	MERCED, CITY OF			System	No. 2410009
Source Name	WELL 02B - RAW	Source No	005	PS Code	2410009-005

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	Storm Water Detention Facilities (M)		3	5	1	9
А	Transportation corridors - Freeways/state highways (M)		3	5	1	9
А	Transportation corridors - Railroads (M)	1	3	5	1	9
А	Transportation corridors - Road Right-of-ways (herbicide use areas) (M)		3	5	1	9
Α	Wells - Water supply (M)		3	5	1	9
B5	Automobile- Repair shops (H)		5	3	1	9
B5	Pesticide/fertilizer/ petroleum storage & transfer areas (H)	1	5	3	1	9
B5	Wells - Agricultural/ Irrigation (H)		5	3	1	9
B10	Automobile- Gas stations (VH)		7	1	1	9
B10	Historic gas stations (VH)		7	1	1	9
				-	1	



© Information Center for the Environment Coding by <u>Eric Lehmer</u> Mapping System produced using <u>ESRI</u> ArcIMS

mhtml:file://C:\Documents%20and%20Settings\riggsp\Desktop\Deliniation%20Zones\Well% 3/14/2003

# **Drinking Water Source Assessment**

Water System

MERCED, CITY OF Merced County

Water Source WELL 02C - RAW

Assessment Date

March, 2003

California Department of Health Services Drinking Water Field Operations Branch City of Merced

 District No.
 M4

 System No.
 2410009

 Source No.
 023

 PS Code
 2410009-023

Drinking Water Source Assessment and Protection (DWSAP) Program

District Name	City of Merced	District No. M4	County	Merced	
System Name	MERCED, CITY OF			System N	lo. <u>2410009</u>
Source Name	WELL 02C - RAW	Source No.	023	PS Code	2410009-023

#### **Description of System and Source**

The City of Merced water system is located in Merced County and serves the Merced City and part of the bordering Merced County. There are approximately 17,125 service connections serving a population of 63,000.

The only drinking water source for the City of Merced water system is groundwater wells. The recharge area for the source includes hundreds of square miles originating from the Eastern Seirra Nevada foothills and mountain range. General land use is agricultural | urban | residential | undeveloped etc.

#### **Assessment Procedures**

The assessment of the source WELL 02C - RAW was conducted by the City of Merced Environmental Control Office. The following sources of information were used in the assessment: Water system files, DHS files.

Procedures used to conduct the assessment include: Assistance from DHS jurisdictional office, Turbo Swap program for data input.

#### **Contents of this Assessment**

Yes X	No 🗌	Assessment Summary
Yes 🗶	No 🗌	Vulnerability Summary
Yes X	No 🗌	Source Location Form
Yes X	No 🗌	<b>Delineation of Ground Water Protection Zones</b>
Yes X	No 🗌	Physical Barrier Effectiveness Checklist
Yes X	No 🗌	Source Data Sheet
Yes X	No 🗌	Inventory of Possible Contaminating Activities
Yes X	No 🗌	Vulnerability Ranking
Yes X	No 🗌	Assessment Map

Drinking Wate	er Source Assessment and Prote	ection (DWSAP) Program	<i>n</i>			THE R. March 10, 1997 (1997)
Vulnerat	bility Summary					
District Name	City of Merced	District No. M4	County	Merced		
ystem Name	MERCED, CITY OF			s	ystem No.	2410009
Source Name	WELL 02C - RAW	Source No	023	PS Cod	de	2410009-023
Completed by	Patrick Riggs	Date	March,	2003		
THE FO	LLOWING INFORMATION MUST BE	INCLUDED IN THE SYSTE		MER CONF	IDENCE R	EPORT
A source wa	ter assessment was conducted	for the _WELL 02C -				
of the <u>MER</u>	CED, CITY OF		_ water s	system in	March	n, 2003
The source i	ICED, CITY OF is considered most vulnerable to inants detected in the water sup	o the following activitie			<u>Marcl</u>	<u>1, 2003</u>
The source i	is considered most vulnerable to	o the following activities oply: es s - Confirmed leaking t nes	s associat		<u>Marci</u>	<u>1, 2003</u>
The source is with contam	is considered most vulnerable to inants detected in the water sup Dry cleaners Known Contaminant Plume Underground storage tanks Chemical/petroleum pipelir	o the following activities oply: es s - Confirmed leaking t nes side Application	s associal anks	ted	<u>Marc</u>	<u>1, 2003</u>
The source is with contam	is considered most vulnerable to inants detected in the water sup Dry cleaners Known Contaminant Plume Underground storage tanks Chemical/petroleum pipelir Fertilizer, Pesticide/ Herbio is considered most vulnerable t	o the following activities oply: es s - Confirmed leaking t nes side Application	s associal anks	ted	<u>Marci</u>	<u>1, 2003</u>
The source is with contam	is considered most vulnerable to inants detected in the water sup Dry cleaners Known Contaminant Plume Underground storage tanks Chemical/petroleum pipelin Fertilizer, Pesticide/ Herbio is considered most vulnerable to tected contaminants: Automobile- Gas stations	o the following activities oply: es s - Confirmed leaking t nes side Application	s associal anks	ted	<u>Marc</u>	<u>1, 2003</u>

Public Works Environmental Control Division 1776 Grogan Avenue Merced, CA 95340

You may request a summary of the assessment be sent to you by contacting:

Patrick Riggs Environmental Control Officer II 209-385-6817 209-384-7772 (fax) riggsp@cityofmerced.org



erene y

Delineati	on of Ground Wate	r Protection Zone	9 <b>5</b>			
District Name	e City of Merced	District No. <u>M4</u>	County	Merced		
System Name	MERCED, CITY OF	· · · · · · · · · · · · · · · · · · ·		Syster	m No. <u>24</u>	10009
Source Name	WELL 02C - RAW	Source No	023	PS Code	2410009	9-023
Completed b	y Patrick Riggs	Date	March,	2003		

#### **Method Used to Delineate Protection Zones**

## X 1. Calculated Fixed Radius

- 2. Modified Calculated Fixed Radius (Attach documentation for direction of ground water flow.)
- 3. More Detailed Methods
- 4. Arbitrary Fixed Radius (For use only by or permission of DHS)

Maximum Pumping Rate of Well (Q)	2,200 3,549 154,587,400	gallons/minute acre feet/year cubic feet/year
Effective Porosity	0.20	Default Value
Screened Interval of Well	80fee	Default Value

Protection Zone	Calculated Value	Minimum Value	Radius of Protection Zone
Zone A - 2 Year TOT*	2,480 Feet	600 Feet	2,480 Feet
Zone B5 - 5 Year TOT*	3,921 Feet	1,000 Feet	<b>3,921</b> Feet
Zone B10 - 10 Year TOT*	5,546 Feet	1,500 Feet	5,546 Feet

\*TOT = Time of Travel

Drinking Water Source Assessment and Protection (DWSAP) Program

(

District Name	Barrier Effectivenes: City of Merced		ounty	Merced			
-	· · · · · · · · · · · · · · · · · · ·		ounty		stem No 2410000		
	MERCED, CITY OF	• • • •		System No. <u>2410009</u> PS Code 2410009-023			
Source Name	WELL 02C - RAW	Source No0	23	PS Code	241000	9-023	
Completed by	Patrick Riggs	Date	<i>l</i> larch,	2003			
Parameter				Possible Points	This Source	Score	
<b>Sype of Aquifer</b> Confinement							
1. Unconfined, Se	emi-confined, Fractured Rock, Unkno	own Aquifer		0			
2. Confined				50	X	50	
	ontamination (All Aquifers) andoned or Improperly Destroyed	Wells					
1. Present within	a Zone A (2 year TOT distance)	Yes		0			
		No		5	X	5	
		Unknown		0	· · · · · · · · · · · · · · · · · · ·		
2. Present within	Zone B5 (2 -5 year TOT distance)	Yes		0			
		No		3	<b>X</b>	3	
		Unknown		0			
3. Present within	Zone B10 (5-10 year TOT distance)	)Yes		0			
		No		2	<b>X</b>	2	
		Unknown		0			
What is the rela the overlying u	d (Confined Aquifers) tionship in the hydraulic head beth nconfined aquifer? (i.e. does the winned aquifer is higher than head in un	vell flow under artesian cond		9			
conditions.	ned aquiter is nigher than head in un			20	X	20	
2. Head in confir conditions.	ned aquifer is higher than head in uno	confined aquifer under static		10			
3. Head in confi under static c	ned aquifer is lower than or same as onditions.	head in unconfined aquifer		0			
4. Unknown				0			
Well Construct	ion (All Aquifers)						
Sanitary Seal (	Annular Seal) Depth Non	e of less than 20 feet		0			
	0 feet Betw	veen 20 and 50 feet		6			
	50 fc	eet or greater		10			
	Unk	nown		0	X	0	
Surface Seal (	concrete cap) Not	present or improperly construc	ted	0			
			1				
		ertight, slopes away from well east 2' laterally in all directions		4	X	4	

#### **Physical Barrier Effectiveness (PBE)** System Name System No. 2410009 MERCED, CITY OF 2410009-023 Source Name WELL 02C - RAW 023 PS Code Source No. Possible This Score **Parameter** Points Source Well Construction (All Aquifers)-continued Flooding potential at well site Subject to localized flooding (i.e. in 0 low area or unsealed pit or vault) or within 100 year flood plain 1 Not subject to flooding 1 Х Unknown 0 Not secure 0 Security at well site 5 Secure Х 5 0 Unknown

	Score	Effectiveness
	0 to 35	Low
	36 to 69	Moderate
	70 to 100	High
L		

Maximum Score = 100

Score	90
Effectiveness	High

# WELL DATA SHEET (Page 1 of 2)

* Indicates items required for Source Water Assessment		
** Indicates additional items required for assessments and Ground Wate	er Rule	
		Actual, Estimate
		or Default?
DATA SHEET GENERAL INFORMATION		
System Name	City of Merced	from DHS databa
System Number	2410009	from DHS databa
Source of Information (well log, DHS/County files, system, etc)	well log, system files	
Organization Collecting Information (DHS, County, System, other)	System	
Date Information Collected/Updated	3/17/2003	
WELL IDENTIFICATION		
* Well Number or Name	Well 02.C	from DHS databa
* DHS Source Identification Number (FRDS ID No.)		
DWR Well Log on File? ("YES" or "NO")	YES	
State Well Number (from DWR)	2410009023	
Well Status (Active, Standby, Inactive)	Active	
WELL LOCATION		
Latitude	37.290	City Surveyed 20
Longitude	-120.452	City Surveyed 20
Ground Surface Elevation (ft above Mean Sea Level)	179.70	City Surveyed 20
Street Address	60 Parsons Avenue	
Nearest Cross Street	Childs Avenue	
City	Merced	
County	Merced	
* Neighborhood/Surrounding Area (see Note 1)	Re, Mu.	
Site plan on file? ("YES" or "NO")	NO	
DWR Ground Water Basin		from UC Davis
DWR Ground Water Sub-basin		from UC Davis
SANITARY CONDITIONS		
** Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)	300'	
Distance to Active Wells (ft)	109'	
Distance to Abandoned Wells (ft)	None	
Distance to Surface Water (ft)	None	
** Size of controlled area around well (square feet)	24,000	
* Type of access control to well site (fencing, building, etc)	Fencing	
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	YES	
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	48' x 56' x 17"	
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")	UNKNOWN	
* Drainage away from well? ("YES" or "NO")	YES	
ENCLOSURE/HOUSING		
Enclosure Type (building, vault, none, etc.)	None	
Floor material		
Located in Pit? ("YES" or "NO")	NO	
Pit depth (feet) (if applicable)		
WELL CONSTRUCTION		
Date drilled	1991	
Drilling Method	Reverse Rotery	
Depth of Bore Hole (feet below ground surface)	685'	
Casing Beginning Depth/Ending Depth(ft below surface);	0/680'	
2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.		
Casing Diameter (inches); 2nd Casing Diameter; 3rd Casing, etc.	18"	
Casing Material; 2nd Casing Material; 3rd Casing, etc.	Carbon Steel	

# WELL DATA SHEET (Page 2 of 2)

Complete as much information as possible. Leave blank if information is not av	ailable, use N.A. if not applic	cable.
* Indicates items required for Source Water Assessment		
** Indicates additional items required for assessments and Ground Wate	r Rule	
		Actual, Estimated or Default?
WELL CONSTRUCTION (continued)		
Conductor casing used? ("YES", "NO" or "UNKNOWN") (See Note 2)	UNKNOWN	
Conductor casing removed? ("YES", "NO" or "UNKNOWN")		
* Depth to highest perforations/screens (ft below surface) (or		
"UNKNOWN")	370'	
Screened Interval Beginning Depth/Ending Depth (ft below surface);	(370/385) (435/450)	
2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	(610/635) (650/675)	
* Total length of screened interval (ft)		
(default = 10% pump capacity in gpm) (or "UNKNOWN")	80'	
* Annular Seal?("YES", "NO" or "UNKNOWN") (See Note 3)	YES	
* Depth of Annular Seal (ft)	350'	
Material of Annular Seal (cement grout, bentonite, etc.)	cement (5 sac)	
Gravel pack, Depth to top (ft below ground surface)	250'	
Total length of gravel pack (ft)	435'	
AQUIFER		
* Aquifer Materials		
(list all that apply: sand, silt, clay, gravel, rock, fractured rock)	sand, clay, silt	
* Effective porosity (decimal percent) (default = 0.2) (or "UNKNOWN")	UNKNOWN	
* Confining layer (Impervious Strata) above aquifer?	VEC	
("YES", "NO" or "UNKNOWN")	YES	
Thickness of confining layer, if known (ft)	52'	
Depth to confining layer, if known (ft below ground)	10'-62'	
* Static water level (ft below ground surface)		
Static water level measurement: Date/Method		
Pumping water level (ft below ground surface)		
Pumping water level measurement: Date/Method		
WELL PRODUCTION		
Well Yield (gpm)	2500	
Well Yield Based On (i.e., pump test, etc.)	Meter	
Date measured	3/17/2003	
Is the well metered? ("YES" or "NO")	YES	
Production (gallons per year)	566.08 MG (2002)	
Frequency of Use (hours/year)	3774.1	
Typical pumping duration (hours/day)	10.34	
PUMP		
Make	Peabody / Floway	
Туре	300	
Size (hp)	300 HP	
* Capacity (gpm)	2500	
Depth to suction intake (ft below ground surface)	370'	
Lubrication Type	Oil	
Type of Power: (i.e., electric, diesel, etc.)	Diesel Generator	
Auxiliary power available? ("YES" or "NO")	YES	
Operation controlled by: (i.e., level in tank, pressure, etc.)	Pressure	
Pump to Waste capability? ("YES" or "NO")	YES	
Discharges to: (i.e., distribution system, storage, etc.)	Tank#02	

# **Remarks and Defects**

Well Data Sheet Supplement	
REMARKS AND DEFECTS	
(Use or note these items as appropriate)	
(** indicates items pertinent to Ground Water Rule)	
Distance (ft) to other sanitary concerns:	
** Type of Sanitary Concern: <u>NONE</u>	
** Type of Sanitary Concern:	·
** Type of Sanitary Concern:	
** Type of Sanitary Concern:	
** Type of Sanitary Concern:	
Raw Water Quality concerns? (Yes or No)	No
** Microbiological (coliform)	
Chemicals	
Other (list)	
** Continuous Chlorination provided? (Yes or No)	
Condition of enclosure or housing	No enclosure
Pit Drained? (if applicable)	
Pitless Adaptor? Make and Model	
Height of pump base (inches)	17"
Casing Vent? (yes or no)	Yes
Air/Vacuum Release? (yes or no)	Yes
Sampling Taps? (yes or no)	Yes
Location of sampling taps	Pump Discharge
Wellhead Riser? (yes or no); height above well	No
Other	
Raw Water Quality concerns? (Yes or No)         ** Microbiological (coliform)         Chemicals         Other (list)         ** Continuous Chlorination provided? (Yes or No)         Condition of enclosure or housing         Pit Drained? (if applicable)         Pitless Adaptor? Make and Model         Height of pump base (inches)         Casing Vent? (yes or no)         Air/Vacuum Release? (yes or no)         Sampling Taps? (yes or no)         Location of sampling taps         Wellhead Riser? (yes or no); height above well	No enclosure 17" Yes Yes Yes Pump Discharge

Ć

#### ourse Accessment and Protection (DWSAP) Program - 1-: 14/-4

	Drinking water Source Assessment and Protection (D#SAF) Program							
Inventor	y of Possible Contami	nating	Activ	ities (I	20	A inventory)		
<b>District Name</b>	City of Merced	District N	o. <u>M4</u>	County	/ _!	Merced		
/stem Name	MERCED, CITY OF					System No. <u>2410009</u>		
Source Name	WELL 02C - RAW	Sc	ource No.	023		PS Code2410009-023		
Completed by	Patrick Riggs		Date	March	, 20	003		
PCA (Risk Rankir	ng)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments		
Commercial/	ndustrial Activities							
Automobile- Body	shops (H)	N	N	Y				
Automobile- Car w	ashes (M)	N	Y	Y				
Automobile- Gas s	tations (VH)	Y	Y	Y				
Automobile- Repai	ir shops (H)	Y	Y	Y				
Boat services/repa	ir/ refinishing (H)	N	N	N				
Chemical/petroleu	m pipelines (H)	Y	Y	Y	*	Commercial Gas Stations.		
Chemical/petroleu	m processing/storage (VH)	N	N	N				
Dry cleaners (VH)		N	Y	Y	*	Previously in zone A, closed now. Existing PCE plume.		
Electrical/electron	ic manufacturing (H)	N	N	N				
Fleet/truck/bus ter	minals (H)	N	N	N				
niture repair/ n	nanufacturing (H)	N	N	N				
Some manufactur	ing (H)	N	N	N				
Junk/scrap/salvag	je yards (H)	N	N	Y		Junk, pick-and-pull yard on Childs Ave.		
Machine shops (H	ł)	N	N	N				
Metal plating/ finis	shing/fabricating (VH)	N	N	N				
Photo processing	/printing (H)	N	N	N	Τ			
Plastics/synthetic	s producers (VH)	N	N	N				
Research laborat	ories (H)	N	N	N				
Wood preserving	/treating (H)	N	N	N				
Wood/pulp/paper	processing and mills (H)	N	N	N				
Lumber processi	ng and manufacturing (H)	N	N	N				
Sewer collection	systems (H, if in Zone A, otherwise L)	Y	Y	Y	Τ	Municipal sewer system.		
Parking lots/malls	s (>50 spaces) (M)	Y	Y	Y		Commercial business lots.		
Cement/concrete	plants (M)	N	N	N				
Food processing	(M)	N	N	N				
Funeral services	/graveyards (M)	N	N	Y		Funeral home on Main Street, Graveyard on E. 13th St.		
Hardware/lumbe	r/parts stores (M)	N	N	N	T			
Appliance/Electro	onic Repair (L)	Y	N	N	T	Small appliance repair shop.		
Office buildings/	complexes (L)	Y	Y	Ŷ		Small business shops.		

```
U = Unknown
Y = Yes
           N = No
```

Drinking Water Source Assessment and Protection (DWSAP) Program

Inventory	of Possible Contami	inating	<b>y</b> Activ	vities (	PC	CA Inventory)
System Name	MERCED, CITY OF					System No2410009
Source Name	WELL 02C - RAW	S	ource No.	023		_ PS Code2410009-023
PCA (Risk Ranking	3)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Commercial/Ir	ndustrial Activities					
Rental Yards (L)	· · · · · · · · · · · · · · · · · · ·	N	N	N		
RV/mini storage (L)		N	Y	Y	·	1
Residential/M	unicipal Activities					
Airports - Maintenar	nce/ fueling areas (VH)	N	N	N		
Landfills/dumps (VH	D .	N	N	N		
Railroad yards/ main	ntenance/ fueling areas (H)	N	N	N		· · · · · · · · · · · · · · · · · · ·
Septic systems - hig otherwise M)	h density (>1/acre) (VH if in Zone A,	N	Y	Y		Residential systems outside city sewer service.
Sewer collection sys	stems (H, if in Zone A, otherwise L)	Y	Y	Y		Municipal sewer systems.
Utility stations - mai	ntenance areas (H)	Y	N	N		
Wastewater treatme	ent plants (VH in Zone A, otherwise H)	N	N	N		
Drinking water treat	ment plants (M)	N	N	N		· ·
Golf courses (M)		N	N	N		
Housing - high dens	sity (>1 house/0.5 acres) (M)	Y	Y	Y		
tor pools (M)		N	N	N		· ·
Parks (M)		Y	Y	Y		Parks throughout city.
Waste transfer/recy	cling stations (M)	N	N	N		
Apartments and cor	ndominiums (L)	Y	Y	Y	Τ	
Campgrounds/ Rec	reational areas (L)	N	N	N		
Fire stations (L)		Y	N	N		
RV Parks (L)		N	N	N	1	
Schools (L)		Y	Y	Y		
Hotels, Motels (L)		Y	Y	Y		
Agricultural/F	Rural Activities					
Grazing (> 5 large a Zone A, otherwise I	animals or equivalent per acre) (H in M)	N	N	Y		Cattle farm.
	al Feeding Operations (CAFOs) as egulation1 (VH in Zone A, otherwise	N	N	Y		
	erations as defined in federal Zone A, otherwise H)	N	N	Y		
Other Animal operation	ations (H in Zone A, otherwise M)	N	N	N		
	ributor/ application service (H)	N	N	Y	1	

Y = Yes N = No U = Unknown

#### Drinking Water Source Assessment and Protection (DWSAP) Program Inventory of Possible Contaminating Activities (PCA Inventory) System No. 2410009 System Name MERCED, CITY OF 023 PS Code 2410009-023 Source No. PCA in PCA in PCA in \* PCA (Risk Ranking) Zone A Zone B5 Zone B10 Comments **Agricultural/Rural Activities** Farm machinery repair (H) Ν Ν Ν Septic systems - low density (<1/acre) (H in Zone A v V Residential without access to city sewer ...

Septic systems - low density (<1/acre) (H in Zone A, otherwise L)	N	Y	Y		Residential without access to city sewer system.
Lagoons / liquid wastes (H)	N	N	N		
Machine shops (H)	N	N	N		
Pesticide/fertilizer/ petroleum storage & transfer areas (H)	Y	Y	Y		Gasoline service stations.
Agricultural Drainage (H in Zone A, otherwise M)	Y	Y	Y		Agrigultural drainage and MID canal water.
Wells - Agricultural/ Irrigation (H)	N	Y	Y		Farm irrigation in area.
Managed Forests (M)	N	N	N		
Crops, irrigated (Berries, hops, mint, orchards, sod, greenhouses, vineyards, nurseries, vegetable) (M)	N	Y	Y		Plum and Almond orchards.
Fertilizer, Pesticide/ Herbicide Application (M)	N	Y	Y	*	Dibromochloropropane (DBCP) detected in area.
Sewage sludge/biosolids application (M)	N	N	N	1	
pps, nonirrigated (e.g., Christmas trees, grains, grass Jeeds, hay, pasture) (L) (includes drip-irrigated crops)	N	N	N		
Other Activities					
NPDES/WDR permitted discharges (H)	N	N	N		
Underground Injection of Commercial/Industrial Discharges (VH)	N	N	N		
Historic gas stations (VH)	Y	Y	Y		
Historic waste dumps/ landfills (VH)	N	N	N	)	·····
Illegal activities/ unauthorized dumping (H)	N	N	N		
Injection wells/ dry wells/ sumps (VH)	N	N	N		
Known Contaminant Plumes (VH)	Y	Y	Y	*	Perchloroethylene from former commercial Dry Cleaner.
Military installations (VH)	N	N	N		
Mining operations - Historic (VH)	N	N	N		
Mining operations - Active (VH)	N	N	N		
Mining - Sand/Gravel (H)	N	N	N		
Wells - Oil, Gas, Geothermal (H)	N	N	N		· ·
Salt Water Intrusion (H)	N	N	N		
Recreational area - surface water source (H)	N	N	N	1	
nderground storage tanks - Confirmed leaking tanks	Y	Y	Y	*	Several in city limits.

Y = Yes N = NoU = Unknown

#### Inventory of Possible Contaminating Activities (PCA Inventory) System Name System No. MERCED, CITY OF 2410009 Source Name WELL 02C - RAW Source No. 023 2410009-023 PS Code PCA in PCA in PCA in PCA (Risk Ranking) Zone A Zone B5 Zone B10 Comments **Other Activities** (VH) Underground storage tanks - Decommissioned - inactive Ν Ν N tanks (L) Underground storage tanks - Non-regulated tanks (tanks Ν N Ν smaller than regulatory limit) (H) Underground storage tanks - Not yet upgraded or Ν Ν Ν registered tanks (H) Underground storage tanks - Upgraded and/or registered Ν Ν Ν - active tanks (L) Above ground storage tanks (M) N Ν Ν Wells - Water supply (M) Υ Ν Υ Construction/demolition staging areas (M) Ν Ν Ν Contractor or government agency equipment storage Y Ν Ν Cal Trans yard in area. yards (M) Dredging (M) Ν Ν Ν ansportation corridors - Freeways/state highways (M) Υ Y Y ansportation corridors - Railroads (M) Y Y Y Transportation corridors - Historic railroad right-of-ways N Ν Ν (M) Transportation corridors - Road Right-of-ways (herbicide Y Y Υ use areas) (M) Transportation corridors - Roads/ Streets (L) Y Y Ν Hospitals (M) Y Y Ν Storm Drain Discharge Points (M) Y Y Y Storm Water Detention Facilities (M) Υ Y Y Catch basins in area Artificial Recharge Projects - Injection wells (potable Ν Ν Ν water) (L) Artificial Recharge Projects - Injection wells (non-potable Ν Ν N water) (M) Artificial Recharge Projects - Spreading Basins (potable Ν Ν Ν water) (L) Artificial Recharge Projects - Spreading Basins Ν Ν Ν (non-potable water) (M) Medical/dental offices/clinics (L) Y Υ Small office facilities. N Veterinary offices/clinics (L) Y Ν Ν Surface water - streams/ lakes/rivers (L) Ν Ν

U = Unknown Y = Yes N = No

= A contaminant potentially associated with this activity has been detected in the water supply.

Ν

# Inventory of Possible Contaminating Activities (PCA Inventory)

System Name	MERCED, CITY OF				Syster	n No. <u>2410009</u>
Source Name	WELL 02C - RAW	So	ource No.	023	PS Code	2410009-023
PCA (Risk Rankin	g)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	* Comments	
Other Activitie	es					
Wells - monitoring,	test holes (L)	Y	Y	Y	Used for UST investigatons.	investigations and PCE

(

#### Drinking Water Source .

Pesticide/fertilizer/ petroleum storage & transfer areas (H)

Sewer collection systems (H, if in Zone A, otherwise L)

Sewer collection systems (H, if in Zone A, otherwise L)

Α

А

А

	inting Water	Source Assessment and Protec	tion (DWSAP)	Prograi	n				
Vı	ılnerabi	lity Ranking							
D	istrict Name	City of Merced	District No.	M4	С	ounty Me	erced		
S	ystem Name	MERCED, CITY OF			_		Syste	em No.	2410009
S	ource Name	WELL 02C - RAW	Sour	ce No	(	) <u>23                                    </u>	- PS Code	241	0009-023
Ċ	ompleted by	Patrick Riggs		Date _	N	larch, 2003	,		
Zone	PCA (Risk R	anking)			*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
Α	Known Conta	aminant Plumes (VH)			*	7	5	1	13
Α	Underground	l storage tanks - Confirmed leaking ta	nks (VH)		*	7	5	1	13
А	Chemical/pe	troleum pipelines (H)			*	5	5	1	11
B5	Dry cleaners	(VH)			*	7	3	1	11
B5	Known Conta	aminant Plumes (VH)			*	7	3	1	11
B5	Underground	l storage tanks - Confirmed leaking ta	nks (VH)		*	7	. 3	1	11
B5	Chemical/per	troleum pipelines (H)			*	5	3	1	9
B10	Dry cleaners	(VH)			*	7	1	1	9
B10	Known Conta	aminant Plumes (VH)			*	7	1	1	9
B10	Underground	l storage tanks - Confirmed leaking ta	nks (VH)		*	7	1	1	· 9
B5	Fertilizer, Pe	sticide/ Herbicide Application (M)			*	3	3	1	7
₽10	Chemical/pe	troleum pipelines (H)			*	5	1	1	7
۰ <u>،</u>	Fertilizer, Pe	sticide/ Herbicide Application (M)			*	3	1	1	5
Α	Automobile-	Gas stations (VH)				7	5	1	13
Α	Historic gas	stations (VH)	NG <sup>1</sup>			7	5	1	13
Α	Agricultural E	Drainage (H in Zone A, otherwise M)				5	5	1	11
Α	Automobile-	Repair shops (H)				5	5	1	11

				E	
Α	Utility stations - maintenance areas (H)	5	5	1	11
B5	Automobile- Gas stations (VH)	7	3	1	11
B5	Historic gas stations (VH)	7	3	1	11
Α	Contractor or government agency equipment storage yards (M)	3	5	1	9
А	Hospitals (M)	3	5	1	9
Α	Housing - high density (>1 house/0.5 acres) (M)	3	5	1	9
Α	Parking lots/malls (>50 spaces) (M)	3	5	1	9
А	Parks (M)	3	5	1	9
Α	Storm Drain Discharge Points (M)	3	5	1	9
				<b>├</b> ───	

5

5

5

5

5

5

1

- 1

1

11

11

11

# Vulnerability Ranking

System Name	MERCED, CITY OF			System	No. 2410009	
Source Name	WELL 02C - RAW	Source No	023	PS Code	2410009-023	

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
Α	Storm Water Detention Facilities (M)		3	5	1	9
Α	Transportation corridors - Freeways/state highways (M)		3	5	1	9
Α	Transportation corridors - Railroads (M)		3	5	1	9
Α	Transportation corridors - Road Right-of-ways (herbicide use areas) (M)		3	5	1	9
Α	Wells - Water supply (M)		3	5	1	9
B5	Automobile- Repair shops (H)		5	3	1	9
B5	Pesticide/fertilizer/ petroleum storage & transfer areas (H)		5	3	1	9
B5	Wells - Agricultural/ Irrigation (H)		5	3	1	9
B10	Automobile- Gas stations (VH)		7	1	1	9
B10	Historic gas stations (VH)		7	1	1	9
					1	1



© Information Center for the Environment Coding by <u>Eric Lehmer</u> Mapping System produced using <u>ESRI</u> ArcIMS

mhtml:file://C:\Documents%20and%20Settings\riggsp\Desktop\Deliniation%20Zones\Well% 3/14/2003

# **Drinking Water Source Assessment**

Water System

MERCED, CITY OF Merced County

Water Source WELL 03C - RAW

Assessment Date

March, 2003

California Department of Health Services Drinking Water Field Operations Branch City of Merced

 District No.
 M4

 System No.
 2410009

 Source No.
 008

 PS Code
 2410009-008

Drinking Water Source Assessment and Protection (DWSAP) Program

<b>District Name</b>	City of Merced	District No. <u>M4</u>	County	Merced	
System Name	MERCED, CITY OF			System	No. 2410009
Source Name	WELL 03C - RAW	Source No	800	PS Code	2410009-008

#### **Description of System and Source**

The City of Merced water system is located in Merced County and serves the Merced City and part of the bordering Merced County. There are approximately 17,125 service connections serving a population of 63,000.

The only drinking water source for the City of Merced water system is groundwater wells. The recharge area for the source includes hundreds of square miles originating from the Eastern Seirra Nevada foothills and mountain range. General land use is agricultural | urban | residential | undeveloped etc.

#### **Assessment Procedures**

The assessment of the source WELL 03C - RAW was conducted by the City of Merced Environmental Control Office. The following sources of information were used in the assessment: Water system files, DHS files.

Procedures used to conduct the assessment include: Assistance from DHS jurisdictional office, Turbo Swap program for data input.

#### **Contents of this Assessment**

Yes 🗙	No 🗌	Assessment Summary
Yes 🗶	No 🗌	Vulnerability Summary
Yes 🗶	No 🗌	Source Location Form
Yes X	No 🗌	<b>Delineation of Ground Water Protection Zones</b>
Yes X	No 🗌	Physical Barrier Effectiveness Checklist
Yes X	No 🗌	Source Data Sheet
Yes X	No 🗌	Inventory of Possible Contaminating Activities
Yes 🗶	No 🗌	Vulnerability Ranking
Yes 🗶	No 🗌	Assessment Map

#### Drinking Water Source Assessment and Protection (DWSAP) Program

Dimining Male		Totection (Direction) Trogram		والمتحقق والمحمور والمحرور المراجع المحمور والمحمور والمحمور والمحمور والمحمور والمحمور والمحمور	
Vulnerab	ility Summary				
<b>District Name</b>	City of Merced	District No. M4	County	Merced	<u></u>
ystem Name	MERCED, CITY OF			System No.	2410009
Source Name	WELL 03C - RAW	Source No	008	PS Code24	410009-008
Completed by	Patrick Riggs	Date	March,	2003	
THE FOL	LOWING INFORMATION MUS	T BE INCLUDED IN THE SYSTI	EM CONSU	MER CONFIDENCE RE	PORT
The source is	CED, CITY OF s considered most vulneral nants detected in the wate	ble to the following activitie r supply:		system in <u>March</u> , ted	. 2003
	Dry cleaners				
	Historic gas stations				
	Known Contaminant P	iumes tanks - Confirmed leaking f	lanks		
	Chemical/petroleum pi				
	• •	ble to the following activitie	es not ass	ociated	
	Automobile- Gas statio	ons			

### **Discussion of Vulnerability**

City of Merced Well Station #3 houses one municipal groundwater well. A 300,000 gallon storage tank is onsite secured by fencing.

A copy of the complete assessment may be viewed at:

Public Works Environmental Control Division 1776 Grogan Avenue Merced, CA 95340

You may request a summary of the assessment be sent to you by contacting:

Patrick Riggs Environmental Control Officer II 209-385-6817 209-384-7772 (fax) riggsp@cityofmerced.org


Delineatio	n of Ground Wate	r Protection Zone	es			
<b>District Name</b>	City of Merced	District No. <u>M4</u>	County	Merced		
System Name	MERCED, CITY OF			Syster	n No	2410009
Source Name	WELL 03C - RAW	Source No	008	PS Code	241	0009-008
Completed by	Patrick Riggs	Date	March, 2	2003		

#### Method Used to Delineate Protection Zones

### X 1. Calculated Fixed Radius

- 2. Modified Calculated Fixed Radius (Attach documentation for direction of ground water flow.)
- 3. More Detailed Methods
- 4. Arbitrary Fixed Radius (For use only by or permission of DHS)

Maximum Pumping Rate of Well (Q)	3,200 5,162 224,854,400	gallons/minute acre feet/year cubic feet/year
Effective Porosity	0.20	Default Value
Screened Interval of Well	<b>72</b> feet	Default Value

Protection Zone	Calculated Value	Minimum Value	Radius of Protection Zone
Zone A - 2 Year TOT*	3,153 Feet	600 Feet	3,153 Feet
Zone B5 - 5 Year TOT*	4,985 Feet	1,000 Feet	4,985 Feet
Zone B10 - 10 Year TOT*	7,050 Feet	1,500 Feet	7,050 Feet

\*TOT = Time of Travel

(

Physical E	Barrier Effectiveness	<u>s (PBE)</u>					
District Name	City of Merced	District No. <u>M4</u>	County	Merced			
System Name	MERCED, CITY OF			System No. 2410009			
Jource Name	WELL 03C - RAW	Source No	008	PS Code	241000	9-008	
Completed by	Patrick Riggs	Date	March,	2003			
Parameter	****			Possible Points	This Source	Score	
Type of Aquifer Confinement	· · · · · · · · · · · · · · · · · · ·						
1. Unconfined, Se	emi-confined, Fractured Rock, Unkno	wn Aquifer		0			
2. Confined				50	Х	50	
	ontamination (All Aquifers) andoned or Improperly Destroyed \	Wells					
1. Present within	Zone A (2 year TOT distance)	Yes		0			
		No		5	X	5	
	··	Unknown		0			
2. Present within Zone B5 (2 -5 year TOT distant		Yes		0		<u> </u>	
		No		3	<u> </u>	3	
	Unknown						
3. Present within Zone B10 (5-10 year TOT distance)				0			
		<u>No</u>		2	<u>X</u>	2	
		Unknown		0		<u> </u>	
That is the relation the overlying un	d (Confined Aquifers) tionship in the hydraulic head betw nconfined aquifer? (i.e. does the w	ell flow under artesian cor		p			
conditions.	ned aquifer is higher than head in unc			20	X	20	
2. Head in confir conditions.	ned aquifer is higher than head in unc	confined aquifer under static		10			
3. Head in confir under static c	ned aquifer is lower than or same as h onditions.	nead in unconfined aquifer	<u></u>	0			
4. Unknown		···· ·· ···		0			
Well Constructi	on (All Aquifers)						
Sanitary Seal (A	Annular Seal) Depth None	e of less than 20 feet		0			
	0 feet Betw	een 20 and 50 feet		6			
		et or greater		10			
	Unkr	างพท		0	X	0	
Surface Seal (c	concrete cap) Not	present or improperly constru	ucted	0			
		ertight, slopes away from we ast 2' laterally in all direction		4	X	4	
	Unki	nown		0			

## Physical Barrier Effectiveness (PBE)

System NameMERCED, CITY OF	System No2410009				
Source Name WELL 03C - RAW	Source No008	PS Code	2410009-008		
Parameter		Possible Points	This Source	Score	
Well Construction (All Aquifers)co	ontinued				
Flooding potential at well site	Subject to localized flooding (i.e. in low area or unsealed pit or vault) or within 100 year flood plain	0			
	Not subject to flooding	1	Х	1	
	Unknown	0			
Security at well site	Not secure	0			
	Secure	5	X	5	
	Unknown	0			

_	Effectiveness	Score
	Low	0 to 35
	Moderate	36 to 69
	High	70 to 100

Maximum Score = 100

Score	90
Effectiveness .	High

### WELL DATA SHEET (Page 1 of 2)

WELL DATA SHEET (Pa		-,,
Complete as much information as possible. Leave blank if information is not a	vailable, use N.A. if not applica	able.
* Indicates items required for Source Water Assessment		
** Indicates additional items required for assessments and Ground Wat	er Rule	
		Actual, Estimated
		or Default?
DATA SHEET GENERAL INFORMATION		the second se
System Name	City of Merced	from DHS database
System Number	2410009	from DHS database
Source of Information (well log, DHS/County files, system, etc)	well log, system files	
Organization Collecting Information (DHS, County, System, other)	System	
Date Information Collected/Updated	3/17/2003	
WELL IDENTIFICATION		
* Well Number or Name	Well 03 C	from DHS database
* DHS Source Identification Number (FRDS ID No.)		
DWR Well Log on File? ("YES" or "NO")	YES	
State Well Number (from DWR)	2410009008	
Well Status (Active, Standby, Inactive)	Active	
WELL LOCATION		
Latitude	37.296	City Surveyed 2002
Longitude	-120.486	City Surveyed 2002
Ground Surface Elevation (ft above Mean Sea Level)	169.12	City Surveyed 2002
Street Address	511 West 12th Street	
Nearest Cross Street	Canal Street	
City	Merced	
County	Merced	
* Neighborhood/Surrounding Area (see Note 1)	Re, Mu.	
Site plan on file? ("YES" or "NO")	NO	
DWR Ground Water Basin		from UC Davis
DWR Ground Water Sub-basin		from UC Davis
SANITARY CONDITIONS		
** Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)	75'	
Distance to Active Wells (ft)		
Distance to Abandoned Wells (ft)	27'	
Distance to Surface Water (ft)		
** Size of controlled area around well (square feet)	16,380 (approx.)	
* Type of access control to well site (fencing, building, etc)	Fencing	
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	YES	
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	4' x 4' x 19"	
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")	UNKNOWN	
* Drainage away from well? ("YES" or "NO")	YES	
ENCLOSURE/HOUSING		
Enclosure Type (building, vault, none, etc.)	None	
Floor material		
Located in Pit? ("YES" or "NO")	NO	
Pit depth (feet) (if applicable)		
WELL CONSTRUCTION		
Date drilled	1987	
Drilling Method		
Depth of Bore Hole (feet below ground surface)	594	
Casing Beginning Depth/Ending Depth(ft below surface);		
2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	0/574'	
Casing Diameter (inches); 2nd Casing Diameter; 3rd Casing, etc.	20"	
Casing Material; 2nd Casing Material; 3rd Casing, etc.	Steel	
וטמשווע אומנכוומו, בווע טמשווע אומנכוומו, שוע טמשווע, בנט.		

### WELL DATA SHEET (Page 2 of 2)

WELL DAIA SHEEI (Pag		abla
Complete as much information as possible. Leave blank if information is not ava	allable, use N.A. If not applic	
* Indicates items required for Source Water Assessment	D./.	
** Indicates additional items required for assessments and Ground Water	r Rule	Actual Estimated
		Actual, Estimated
•		or Default?
WELL CONSTRUCTION (continued)		
Conductor casing used? ("YES", "NO" or "UNKNOWN") (See Note 2)	YES	
Conductor casing removed? ("YES", "NO" or "UNKNOWN")	NO	
* Depth to highest perforations/screens (ft below surface) (or	502'	
"UNKNOWN")		
Screened Interval Beginning Depth/Ending Depth (ft below surface);	502'-574'	
2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.		
* Total length of screened interval (ft)	72'	
(default = 10% pump capacity in gpm) (or "UNKNOWN")		
* Annular Seal?("YES", "NO" or "UNKNOWN") (See Note 3)	YES	
* Depth of Annular Seal (ft)	350'	
Material of Annular Seal (cement grout, bentonite, etc.)	Cement	
Gravel pack, Depth to top (ft below ground surface)	350'	
Total length of gravel pack (ft)	234'	
AQUIFER		
* Aquifer Materials		
(list all that apply: sand, silt, clay, gravel, rock, fractured rock)	sand, clay, silt	
* Effective porosity (decimal percent) (default = 0.2) (or "UNKNOWN")	UNKNOWN	
* Confining layer (Impervious Strata) above aquifer?		
("YES", "NO" or "UNKNOWN")	YES	
Thickness of confining layer, if known (ft)	12'	
Depth to confining layer, if known (ft below ground)	488'	
* Static water level (ft below ground surface)		and a standard and a Standard and a standard and a standard a stand Standard a standard a s
Static water level measurement: Date/Method		
Pumping water level (ft below ground surface)		
Pumping water level measurement: Date/Method	<u> </u>	Contraction of the second sec second second sec
WELL PRODUCTION		alihana di dalah di pada da ana manangka di s
Well Yield (gpm)	3200	
Weil Field (gpm) Well Yield Based On (i.e., pump test, etc.)	Meter	
Date measured	3/17/2003	
	YES	
Is the well metered? ("YES" or "NO") Production (gallons per year)	773.08 MG (2002)	
	4025.95	
Frequency of Use (hours/year)	11.03	
Typical pumping duration (hours/day)	11.03	
PUMP	Duran Jackson	
Make	Byron Jackson	
Туре	Constant Speed	
Size (hp)	300 HP	
* Capacity (gpm)	3200	
Depth to suction intake (ft below ground surface)	502'	
Lubrication Type	Oil	
Type of Power: (i.e., electric, diesel, etc.)	Diesel Generator	
Auxiliary power available? ("YES" or "NO")	YES	
Operation controlled by: (i.e., level in tank, pressure, etc.)	Pressure	
Pump to Waste capability? ("YES" or "NO")	YES	
Discharges to: (i.e., distribution system, storage, etc.)	Tank#03	

### **Remarks and Defects**

Well Data Sheet Supplement	
REMARKS AND DEFECTS	
(Use or note these items as appropriate)	
(** indicates items pertinent to Ground Water Rule)	
Distance (ft) to other sanitary concerns:	
** Type of Sanitary Concern: <u>NONE</u>	
** Type of Sanitary Concern:	
Raw Water Quality concerns? (Yes or No)	Yes
** Microbiological (coliform)	
Chemicals	Perchloroethylene
Other (list)	
** Continuous Chlorination provided? (Yes or No)	Yes
Condition of enclosure or housing	
Pit Drained? (if applicable)	
Pitless Adaptor? Make and Model	
Height of pump base (inches)	19"
Casing Vent? (yes or no)	yes
Air/Vacuum Release? (yes or no)	yes
Sampling Taps? (yes or no)	yes
Location of sampling taps	Pump Discharge
Wellhead Riser? (yes or no); height above well	no
Other	

**Comments:** Perchloroethylene (PCE) is present in groundwater monitoring wells located at the well site. However, no detections of PCE have been made in the production well water to date. The well has been reconstructed on two other occasions in order to tap into deeper aquifiers protected by difineing clay layers from Perchloroethylene. These clay layers have consistantly demonstrated to be an effective physical barrier to PCE contamination.

District Name _ City of Merced	District N	o. <u>M4</u>	_ County	y	Merced
System Name MERCED, CITY OF	-		_		System No. 2410009
Source Name <u>WELL 03C - RAW</u>	Sc	ource No.	008		PS Code 2410009-008
Completed byPatrick Riggs	Date March, 2003				
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Commercial/Industrial Activities					
Automobile- Body shops (H)	Y	Y	Y		
Automobile- Car washes (M)	Y	Y	Y		
Automobile- Gas stations (VH)	Y	Y	Y		
Automobile- Repair shops (H)	Y	Y	Y		
Boat services/repair/ refinishing (H)	Y	Y	Y		
Chemical/petroleum pipelines (H)	Y	Y	Y	*	Leaking under gas stations. UST cleanup efforts underway.
Chemical/petroleum processing/storage (VH)	N	N	N		
Dry cleaners (VH)	Y	Y	Y	*	Perchloroethylene plume from commercial Dry Cleaners.
Electrical/electronic manufacturing (H)	N	N	N		
Fleet/truck/bus terminals (H)	N	Y	Y		City and County corporation yards in zone B10.
Furniture repair/ manufacturing (H)	N	N	N		
Home manufacturing (H)	N	N	N		
Junk/scrap/salvage yards (H)	N	N	Y		Junkyard in vacinity.
Machine shops (H)	N	N	Y		Small job shops.
Metal plating/ finishing/fabricating (VH)	N	N	N		-
Photo processing/printing (H)	Y	Y	Y		Small shop developing, One large idustry (Quebacor)
Plastics/synthetics producers (VH)	N	N	N		
Research laboratories (H)	N	N	N		
Wood preserving/treating (H)	N	N	N		
Wood/pulp/paper processing and mills (H)	N	N	'N		
Lumber processing and manufacturing (H)	N	N	N		
Sewer collection systems (H, if in Zone A, otherwise L)	Y	Y	Y		Municipal sewer system.
Parking lots/malls (>50 spaces) (M)	Y	Y	Y		Commercial businesses, industrial in zone B10.
Cement/concrete plants (M)	N	N	N		
Food processing (M)	N	N	N		
Funeral services/graveyards (M)	N	Y	Y		Two graveyards and two funeral home
Hardware/lumber/parts stores (M)	Y	Y	Y		

Y = Yes N = No U = Unknown

System Name MERCED, CITY OF					Syster	n No. <u>2410009</u>
ource Name WELL 03C - RAW	S	ource No	008		_ PS Code	2410009-008
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments	
<b>Commercial/Industrial Activities</b>						
Appliance/Electronic Repair (L)	Y	Y	Y			
Office buildings/complexes (L)	N	Y	Y		·····	
Rental Yards (L)	Y	N	N			
RV/mini storage (L)	N	N	N			
Residential/Municipal Activities						
Airports - Maintenance/ fueling areas (VH)	N	N	N			
Landfills/dumps (VH)	N	N	N			
Railroad yards/ maintenance/ fueling areas (H)	N	N	N			
Septic systems - high density (>1/acre) (VH if in Zone A, otherwise M)	N	N	Y		Septic system	ns in outer B10 zone.
Sewer collection systems (H, if in Zone A, otherwise L)	Y	Y	Y		Municipal se	wer system.
Utility stations - maintenance areas (H)	N	N	N	$\square$		
Wastewater treatment plants (VH in Zone A, otherwise H)	N	N	N	1		
Drinking water treatment plants (M)	N	N	N	1		<u> </u>
i courses (M)	N	N	N			
Housing - high density (>1 house/0.5 acres) (M)	Y	Y	Y			
Motor pools (M)	N	N	N			
Parks (M)	Y	Y	Y	1	Parks locate	d throughout city.
Waste transfer/recycling stations (M)	Y	Y	Y		Oil and batte	ry recycling facilities.
Apartments and condominiums (L)	Y	Y	Y			
Campgrounds/ Recreational areas (L)	N	N	N			
Fire stations (L)	Y	Y	Y		1	
RV Parks (L)	N	N	N			
Schools (L)	N	Y	Y			Wannensen
Hotels, Motels (L)	Y	Y	Y			
Other Activities						
NPDES/WDR permitted discharges (H)	N	N	N			1997 11 11 11 11 11 11 11 11 11 11 11 11 11
Underground Injection of Commercial/Industrial Discharges (VH)	N	N	N			, <u>, , , , , , , , , , , , , , , , , , </u>
Historic gas stations (VH)	Y	Y	Y	*	Petroleum fr tanks.	om former uderground fue
Historic waste dumps/ landfills (VH)	N	N	N			·······
Illegal activities/ unauthorized dumping (H)	N	N	N			· · · · · · · · · · · · · · · · · · ·
		ł			- <b>-</b>	

Y = Yes N = No U = Unknown

System Name MERCED, CITY OF					System No. 2410009
ource Name WELL 03C - RAW	So	ource No	008		_ PS Code2410009-008
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other Activities					
Injection wells/ dry wells/ sumps (VH)	N	N	N		
Known Contaminant Plumes (VH)	Y	Y	Y	*	Perchloroethylene and petroleum hydrocarbon.
Military installations (VH)	N	N	N		
Mining operations - Historic (VH)	N	N	N		
Mining operations - Active (VH)	N	N	N		
Mining - Sand/Gravel (H)	N	N	N		
Wells - Oil, Gas, Geothermal (H)	N	N	N		· · · · · · · · · · · · · · · · · · ·
Salt Water Intrusion (H)	N	N	N		
Recreational area - surface water source (H)	N	Y	Y		Bear Creek and MID canals.
Underground storage tanks - Confirmed leaking tanks (VH)	Y	Y	Y	*	Identified and being investigated
Underground storage tanks - Decommissioned - inactive tanks (L)	Y	N	N		One tank at well site decomissioned.
Underground storage tanks - Non-regulated tanks (tanks iller than regulatory limit) (H)	N	N	N		
Underground storage tanks - Not yet upgraded or registered tanks (H)	N	N	N		
Underground storage tanks - Upgraded and/or registered - active tanks (L)	N	N	N		
Above ground storage tanks (M)	Y	N	N		Convault tank at well site for BU generator.
Wells - Water supply (M)	Y	N	N		
Construction/demolition staging areas (M)	N	N	N		
Contractor or government agency equipment storage yards (M)	N	Y	Y		City and Count corporation yards.
Dredging (M)	N	N	N		
Transportation corridors - Freeways/state highways (M)	Y	. <b>Y</b>	Y		
Transportation corridors - Railroads (M)	Y	Y	Y		
Transportation corridors - Historic railroad right-of-ways (M)	N	N	N		
Transportation corridors - Road Right-of-ways (herbicide use areas) (M)	Y	Y	Y		
Transportation corridors - Roads/ Streets (L)	Y	Y	Y		
Hospitals (M)	Y	Y	Y	+	
Storm Drain Discharge Points (M)	Ý	Y Y	Y	+	
	<b>•</b>		<b>_</b>	_	

Y = Yes N = No U = Unknown

#### System Name System No. 2410009 MERCED, CITY OF WELL 03C - RAW Source Name 008 2410009-008 Source No. PS Code PCA in PCA in PCA in PCA (Risk Ranking) \* Zone A Zone B5 Zone B10 Comments **Other Activities** Storm Water Detention Facilities (M) N Υ Ν Artificial Recharge Projects - Injection wells (potable N Ν Ν water) (L) Artificial Recharge Projects - Injection wells (non-potable Ν Ν Ν water) (M) Artificial Recharge Projects - Spreading Basins (potable Ν Ν Ν water) (L) Artificial Recharge Projects - Spreading Basins Ν Ν Ν (non-potable water) (M) Medical/dental offices/clinics (L) Y Y Y Throughout city limits. Veterinary offices/clinics (L) Y Ν Ν Surface water - streams/ lakes/rivers (L) Y Ν Ν Wells - monitoring, test holes (L) Y Y Y Throughout city limits.

Di	istrict Name	City of Merced	District NoM4	_ c	ounty <u>Me</u>	erced	<u></u>	
Sy	System Name MERCED, CITY OF					Syste	m No	2410009
Se	ource Name	WELL 03C - RAW	Source No	C	<u>)08</u>	PS Code	2410	800-008
Ca	ompleted by	Patrick Riggs	Date	N	larch, 2003			
Zone	PCA (Risk F	lanking)		*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	Dry cleaners	(VH)		*	7	5	1	13
Α	Historic gas	stations (VH)		*	7	5	1	13
Α	Known Cont	aminant Plumes (VH)		*	7	. 5	1	13
Α	Underground	d storage tanks - Confirmed leakir	ng tanks (VH)	*	7	5	1	13
Α	Chemical/pe	troleum pipelines (H)		*	5	5	1	11
B5	Dry cleaners	(VH)		*	7	3	1	11
B5	Historic gas	stations (VH)		*	7	3	1	11
B5	Known Cont	aminant Plumes (VH)		*	7	3	1	11
B5	Undergroun	d storage tanks - Confirmed leaki	ng tanks (VH)	*	7	3	1	11
B5	Chemical/pe	troleum pipelines (H)		*	5	3	1	9
B10	Dry cleaners	s (VH)		*	7	1	1	9
10	Historic gas	stations (VH)		*	7	1	1	9
10 ت	Known Cont	aminant Plumes (VH)		*	7	1	1	9
B10	Undergroun	d storage tanks - Confirmed leaki	ng tanks (VH)	*	7	1	1	9
B10	Chemical/pe	etroleum pipelines (H)		*	5	1	1	7
Α	Automobile-	Gas stations (VH)			7	5	1	13
Α	Automobile-	Body shops (H)			5	5	1	11
Α	Automobile-	Repair shops (H)			5	5	1	11
Α	Boat service	es/repair/ refinishing (H)			5	5	1	11
А	Photo proce	essing/printing (H)			5	5	1	11
Α	Sewer colle	ction systems (H, if in Zone A, oth	erwise L)		5	5	1	11
Α	Sewer colle	ction systems (H, if in Zone A, oth	erwise L)		5	5	1	11
B5	Automobile-	Gas stations (VH)			7	3	1	11
А	Above grou	nd storage tanks (M)			3	5	1	9
А	Automobile	Car washes (M)			3	5	1	9
А	Hardware/lu	imber/parts stores (M)			3	5	1	9
А	Hospitals (N	٨)			3	5	1	9
А	Housing - h	igh density (>1 house/0.5 acres)	(M)		3	5	1	9
Ą	Parking lots	/malls (>50 spaces) (M)	· · · · · · · · · · · · · · · · · · ·	1	3	5	1	9

# Vulnerability Ranking System Name MERCED CITY OF Statement

System Name	MERCED, CITY OF	System No. <u>2410009</u>			
Source Name	WELL 03C - RAW	Source No	008	PS Code	2410009-008
1. I.			1 1	1	· · · · · · · · · · · · · · · · · · ·

PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
Parks (M)		3	5	1	9
Storm Drain Discharge Points (M)		3	5	1	9
Transportation corridors - Freeways/state highways (M)		3	5	1	9
Transportation corridors - Railroads (M)		3	5	1	9
Transportation corridors - Road Right-of-ways (herbicide use areas) (M)		3	5	1	9
Waste transfer/recycling stations (M)	1	3	5	1	9
Wells - Water supply (M)		3	5	1	9
Automobile- Body shops (H)		5	3	1	9
Automobile- Repair shops (H)		5	3	1	9
Boat services/repair/ refinishing (H)		5	3	1	9
Fleet/truck/bus terminals (H)		5	3	1	9
Photo processing/printing (H)		5	3	1	9
Recreational area - surface water source (H)		5	3	1	9
Automobile- Gas stations (VH)	-	7	1	1	9
	Parks (M) Storm Drain Discharge Points (M) Transportation corridors - Freeways/state highways (M) Transportation corridors - Railroads (M) Transportation corridors - Road Right-of-ways (herbicide use areas) (M) Waste transfer/recycling stations (M) Wells - Water supply (M) Automobile- Body shops (H) Automobile- Repair shops (H) Boat services/repair/ refinishing (H) Fleet/truck/bus terminals (H) Photo processing/printing (H) Recreational area - surface water source (H)	PCA (Risk Ranking)Parks (M)Storm Drain Discharge Points (M)Transportation corridors - Freeways/state highways (M)Transportation corridors - Railroads (M)Transportation corridors - Railroads (M)Waste transfer/recycling stations (M)Wells - Water supply (M)Automobile- Body shops (H)Boat services/repair/ refinishing (H)Fleet/truck/bus terminals (H)Photo processing/printing (H)Recreational area - surface water source (H)	PCA (Risk Ranking)*PointsParks (M)33Storm Drain Discharge Points (M)3Transportation corridors - Freeways/state highways (M)3Transportation corridors - Railroads (M)3Transportation corridors - Road Right-of-ways (herbicide use areas) (M)3Waste transfer/recycling stations (M)3Wells - Water supply (M)3Automobile- Body shops (H)5Boat services/repair / refinishing (H)5Fleet/truck/bus terminals (H)5Photo processing/printing (H)5Recreational area - surface water source (H)5	PCA (Risk Ranking)*PointsPointsParks (M)35Storm Drain Discharge Points (M)135Transportation corridors - Freeways/state highways (M)135Transportation corridors - Railroads (M)135Transportation corridors - Railroads (M)135Transportation corridors - Road Right-of-ways (herbicide use areas) (M)35Waste transfer/recycling stations (M)135Wells - Water supply (M)135Automobile- Body shops (H)153Boat services/repair/ refinishing (H)53Fleet/truck/bus terminals (H)53Photo processing/printing (H)53Recreational area - surface water source (H)153	PCA (Risk Ranking)*PointsPointsParks (M)351Storm Drain Discharge Points (M)3351Transportation corridors - Freeways/state highways (M)3351Transportation corridors - Railroads (M)3351Transportation corridors - Road Right-of-ways (herbicide use areas) (M)3351Waste transfer/recycling stations (M)43551Wells - Water supply (M)3511Automobile- Body shops (H)5311Boat services/repair/ refinishing (H)5311Fleet/truck/bus terminals (H)5311Photo processing/printing (H)5311Recreational area - surface water source (H)531





Water System

MERCED, CITY OF Merced County

Water Source

### WELL 05B - RAW

Assessment Date

March, 2003

California Department of Health Services Drinking Water Field Operations Branch City of Merced

 District No.
 M4

 System No.
 2410009

 Source No.
 011

 PS Code
 2410009-011

District Name	City of Merced	District No. M4	County	Merced	
System Name	MERCED, CITY OF			Systen	n No. 2410009
Source Name	WELL 05B - RAW	Source No	011	PS Code	2410009-011

#### **Description of System and Source**

The City of Merced water system is located in Merced County and serves the Merced City and part of the bordering Merced County. There are approximately 17,125 service connections serving a population of 63,000.

The only drinking water source for the City of Merced water system is groundwater wells. The recharge area for the source includes hundreds of square miles originating from the Eastern Seirra Nevada foothills and mountain range. General land use is agricultural | urban | residential | undeveloped etc.

#### **Assessment Procedures**

The assessment of the source WELL 05B - RAW was conducted by the City of Merced Environmental Control Office. The following sources of information were used in the assessment: Water system files, DHS files.

Procedures used to conduct the assessment include: Assistance from DHS jurisdictional office, Turbo Swap program for data input.

### **Contents of this Assessment**

Yes X	No 🗌	Assessment Summary
Yes X	No 🗌	Vulnerability Summary
Yes X	No 🗌	Source Location Form
Yes X	No 🗌	<b>Delineation of Ground Water Protection Zones</b>
Yes X	No 🗌	Physical Barrier Effectiveness Checklist
Yes X	No 🗌	Source Data Sheet
Yes X	No 🗌	Inventory of Possible Contaminating Activities
Yes X	No 🗌	Vulnerability Ranking
Yes 🗶	No 📋	Assessment Map

Vulnerab	ility Summary				
District Name	City of Merced	District No	County	Merced	
ystem Name	MERCED, CITY OF	· · · · · · · · · · · · · · · · · · ·		System I	No. <u>2410009</u>
Source Name	WELL 05B - RAW	Source No	011	PS Code	2410009-011
Completed by	Patrick Riggs	Date	March,	2003	
THE FO	LOWING INFORMATION MUS	T BE INCLUDED IN THE SYSTE	EM CONSU		e report
	s considered most vulnera nants detected in the wate	ble to the following activitie	s associat	ed	
With Containin		i supply.			
	Dry cleaners Historic gas stations				
	Known Contaminant F	lumes			
	Underground storage Chemical/petroleum p	tanks - Confirmed leaking t ipelines	anks		
	s considered most vulnera	ble to the following activitie	s not asso	ociated	
	Automobile- Gas stati	ons			

### **Discussion of Vulnerability**

City of Merced Well Station 5B is located near the center of town. Housed in a perminant building structure for security.

A copy of the complete assessment may be viewed at:

Public Works Environmental Control Division 1776 Grogan Avenue Merced, CA 95340

You may request a summary of the assessment be sent to you by contacting:

Patrick Riggs Environmental Control Officer II 209-385-6817 209-384-7772 (fax) riggsp@cityofmerced.org



Delineatio	n of Ground Wate	r Protection Zone	es				
District Name	City of Merced	District No. <u>M4</u>	County	Merced			
System Name	MERCED, CITY OF			Syster	n No	2410009	
Source Name	WELL 05B - RAW	Source No	011	PS Code		2410009-011	
Completed by	Patrick Riggs	Date	March, 2	2003			

#### **Method Used to Delineate Protection Zones**

### X 1. Calculated Fixed Radius

- 2. Modified Calculated Fixed Radius (Attach documentation for direction of ground water flow.)
- 3. More Detailed Methods
- 4. Arbitrary Fixed Radius (For use only by or permission of DHS)

Maximum Pumping Rate of Well (Q)	<u> </u>	gallons/minute acre feet/year cubic feet/year
Effective Porosity	0.20	Default Value
Screened Interval of Well	<b>45</b> feet	Default Value

Protection Zone	Calculated Value	Minimum Value	Radius of Protection Zone
Zone A - 2 Year TOT*	3,861 Feet	600 Feet	<b>3,861</b> Feet
Zone B5 - 5 Year TOT*	6,106 Feet	1,000 Feet	<b>6,106</b> Feet
Zone B10 - 10 Year TOT*	8,635 Feet	1,500 Feet	8,635 Feet

\*TOT = Time of Travel

Ć

District Name (	City of Merced	District No. M4 County	Merced		
	MERCED, CITY OF			tem No. 24	10009
		Source No. 011	PS Code	241000	
	WELL 05B - RAW	Source No011		241000	9-011
Completed by	Patrick Riggs	Date March	, 2003		
Parameter			Possible Points	This Source	Score
Type of Aquifer Confinement					
1. Unconfined, Se	mi-confined, Fractured Rock, Unkr	nown Aquifer	0		
2. Confined			50	X	50
	ntamination (All Aquifers) andoned or Improperly Destroyed	Wells			
1. Present within	Zone A (2 year TOT distance)	Yes	0		
		No	5	Х	5
	· · · · · · · · · · · · · · · · · · ·	Unknown	0		
2. Present within Zone B5 (2 -5 year TOT distance)		Yes	0		
		No	3	X	3
		Unknown	0	L	
3. Present within Zone B10 (5-10 year TOT distance)			0		
		No	2	X	2
		Unknown	0		
What is the relat the overlying un		well flow under artesian conditions	3)		
conditions.	ed aquifer is higher than head in u	-	20	X	20
2. Head in confin conditions.	ed aquifer is higher than head in u	nconfined aquifer under static	10		
<ol> <li>Head in confined aquifer is lower than or same as head in unconfined aquifer under static conditions.</li> </ol>			0		
		4. Unknown			
under static co			0		
under static co 4. Unknown	on (All Aquifers)	A	0		
under static cc 4. Unknown Well Construction	on (All Aquifers)	ne of less than 20 feet	0		
under static cc 4. Unknown Well Construction	on (All Aquifers) Annular Seal) DepthNo	ne of less than 20 feet tween 20 and 50 feet			
under static cc 4. Unknown Well Construction	on (All Aquifers) Annular Seal) Depth No 0 feet Be		0		
under static cc 4. Unknown Well Construction	on (All Aquifers) Annular Seal) Depth No 0 feet Be 50	tween 20 and 50 feet	0 6	x	
under static cc 4. Unknown Well Construction	on (All Aquifers) Annular Seal) Depth No 0 feet Be 50 Un	tween 20 and 50 feet feet or greater	0 6 10	X	0
under static cc 4. Unknown Well Constructio Sanitary Seal (A	on (All Aquifers) Annular Seal) Depth No 0 feet Be 50 Un oncrete cap) No Wa	tween 20 and 50 feet feet or greater known	0 6 10 0	x x x	0

## **Physical Barrier Effectiveness (PBE)**

System Name	MERCED, CITY OF			Systen	n No. <u>24</u>	10009
Source Name	WELL 05B - RAW	Source No	011	PS Code	241000	9-011

arameter		Possible Points	This Source	Score
Vell Construction (All Aquifers)co	ontinued			
Flooding potential at well site	Subject to localized flooding (i.e. in low area or unsealed pit or vault) or within 100 year flood plain	0		
	Not subject to flooding	1	X	1
	Unknown	0		
Security at well site	Not secure	0		
	Secure	5	Х	5
	Unknown	0		

Score	Effectiveness
0 to 35	Low
36 to 69	Moderate
70 to 100	High

Maximum Score = 100

Score	90
Effectiveness	High

### WELL DATA SHEET (Page 1 of 2)

Complete as much information as possible. Leave blank if information is not an * Indicates items required for Source Water Assessment		
* Indicates additional items required for assessments and Ground Wate	er Rule	
		Actual, Estimated
		or Default?
DATA SHEET GENERAL INFORMATION		
System Name	City of Merced	from DHS database
System Number	2410009	from DHS database
Source of Information (well log, DHS/County files, system, etc)	well log, system files	
Organization Collecting Information (DHS, County, System, other)	System	
Date Information Collected/Updated	3/20/2003	
WELL IDENTIFICATION		
* Well Number or Name	Well 5 B	from DHS database
* DHS Source Identification Number (FRDS ID No.)		
DWR Well Log on File? ("YES" or "NO")	YES	
State Well Number (from DWR)	2410009011	
Well Status (Active, Standby, Inactive)	Active	
WELL LOCATION		
Latitude	37.304	City Surveyed 2002
Longitude	-120.492	City Surveyed 200
Ground Surface Elevation (ft above Mean Sea Level)	168.91	City Surveyed 200
Street Address	1632 "R" Street	
Nearest Cross Street	16th Street	
City	Merced	
County	Merced	
* Neighborhood/Surrounding Area (see Note 1)	Mu, Co	
Site plan on file? ("YES" or "NO")	NO	
DWR Ground Water Basin		from UC Davis
DWR Ground Water Sub-basin		from UC Davis
SANITARY CONDITIONS		
** Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)	50'	
Distance to Active Wells (ft)		
Distance to Abandoned Wells (ft)	15'	
Distance to Surface Water (ft)		
** Size of controlled area around well (square feet)	2,500	
* Type of access control to well site (fencing, building, etc)	building (slumpstone)	
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	YES	
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	4' x 4' x 18"	
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")	UNKNOWN	
* Drainage away from well? ("YES" or "NO")	YES	
ENCLOSURE/HOUSING		
Enclosure Type (building, vault, none, etc.)	Slumpstone	
Floor material	Concrete	
Located in Pit? ("YES" or "NO")	NO	
Pit depth (feet) (if applicable)		
WELL CONSTRUCTION		
Date drilled	1987	
Drilling Method	Reverse Rotary	
Depth of Bore Hole (feet below ground surface)	575'	
Casing Beginning Depth/Ending Depth(ft below surface);		
2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	0/546'	
Casing Diameter (inches); 2nd Casing Diameter; 3rd Casing, etc.	18"	
Casing Material; 2nd Casing Material; 3rd Casing, etc.	Steel	

Ç.

### WELL DATA SHEET (Page 2 of 2)

* Indicates items required for Source Water Assessment		
* Indicates additional items required for assessments and Ground Water	r Rule	
		Actual, Estimated or Default?
WELL CONSTRUCTION (continued)		· · · · · · · · · · · · · · · · · · ·
Conductor casing used? ("YES", "NO" or "UNKNOWN") (See Note 2)	YES	
Conductor casing removed? ("YES", "NO" or "UNKNOWN")	NO	
* Depth to highest perforations/screens (ft below surface) (or		
	428'	
Screened Interval Beginning Depth/Ending Depth (ft below surface);		
2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	(428-442) (495-526)	
* Total length of screened interval (ft)	4 51	
(default = 10% pump capacity in gpm) (or "UNKNOWN")	45'	
Annular Seal?("YES", "NO" or "UNKNOWN") (See Note 3)	YES	
Depth of Annular Seal (ft)	270'	
Material of Annular Seal (cement grout, bentonite, etc.)	Cement Grout	
Gravel pack, Depth to top (ft below ground surface)	270' - 575'	
Total length of gravel pack (ft)	305'	
AQUIFER		
* Aquifer Materials	sand, clay, silt	
(list all that apply: sand, silt, clay, gravel, rock, fractured rock)	Sand, Clay, Sit	
* Effective porosity (decimal percent) (default = 0.2) (or "UNKNOWN")	UNKNOWN	
* Confining layer (Impervious Strata) above aquifer? ("YES", "NO" or "UNKNOWN")	YES	
Thickness of confining layer, if known (ft)	23	1
Depth to confining layer, if known (ft below ground)	197	
Static water level (ft below ground surface)		್ರಾಲ್, ಪ್ರದೇಶನ ಕರ್ಷನ್ ಶ್ರೀ ಸಂಶೇಷ ಸಂಶೇಷ ಸಂಶೇಷ ಸ್ಥಳು ಸ್ಥಳ ಸಂಶೇಷ ಸಂಶೇಷ ಸಂಶೇಷ ಸಂಶೇಷ ಸ್ಥಳ ಸಂಶೇಷ
Static water level measurement: Date/Method		
Pumping water level (ft below ground surface)		a ang panginang pang pang pang pang pang pang pang
Pumping water level measurement: Date/Method		
WELL PRODUCTION		
Well Yield (gpm)	3000	
Well Yield Based On (i.e., pump test, etc.)	Meter	
Date measured	3/17/2003	
Is the well metered? ("YES" or "NO")	YES	
Production (gallons per year)	282.62 MG (2002)	
Frequency of Use (hours/year)	3776.8	
Typical pumping duration (hours/day)	10.32	
PUMP		
Make	Peabody Floway	
Туре	DWT	
Size (hp)	300 HP	
* Capacity (gpm)	3000	
Depth to suction intake (ft below ground surface)	428'	
Lubrication Type	Oil	
Type of Power: (i.e., electric, diesel, etc.)	Diesel Generator	
Auxiliary power available? ("YES" or "NO")	YES	
Operation controlled by: (i.e., level in tank, pressure, etc.)	Pressure	
Pump to Waste capability? ("YES" or "NO")	YES	
Discharges to: (i.e., distribution system, storage, etc.)	Distribution System	

Well Data Sheet Supplement	
REMARKS AND DEFECTS	
(Use or note these items as appropriate)	
(** indicates items pertinent to Ground Water Rule)	
Distance (ft) to other sanitary concerns:	
** Type of Sanitary Concern: <u>NONE</u>	
** Type of Sanitary Concern:	
Raw Water Quality concerns? (Yes or No)	Yes
** Microbiological (coliform)	
Chemicals	Petroleum Hydrocarbons
Other (list)	Perchloroethylene
** Continuous Chlorination provided? (Yes or No)	Yes
Condition of enclosure or housing	Good
Pit Drained? (if applicable)	
Pitless Adaptor? Make and Model	
Height of pump base (inches)	18"
Casing Vent? (yes or no)	Yes
Air/Vacuum Release? (yes or no)	Yes
Sampling Taps? (yes or no)	Yes
Location of sampling taps	Pump Discharge
Wellhead Riser? (yes or no); height above well	
Other	

**Comments:** Perchloroethylene (PCE) and Petroleum Hydrocarbon plumes have been detected in the immediate vacinity of the well site. The well has been reconstructed once due to PCE contamination. Since this reconstruction, there have been no detections of the chemical. To date, there have been no dectections of Petroleum Hydrocarbon contamination as well. The reconstruction of the well to tap into clay layer protected confined aquifers have been an effective barrier to these chemicals as monthly testing have demonstrated.

Inventory of Possible Contam	matility	j AGUN	nues (I		A IIIventoiyj		
District Name City of Merced	ty of Merced District No.		County		Merced		
System Name MERCED, CITY OF					System No. 2410009		
Source Name WELL 05B - RAW	Source		ource No. 011		PS Code2410009-011		
Completed by Patrick Riggs		Date	March	, 20	003		
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments		
Commercial/Industrial Activities							
Automobile- Body shops (H)	Y	Y	Y				
Automobile- Car washes (M)	Y	Y	Y				
Automobile- Gas stations (VH)	Y	Y	Y				
Automobile- Repair shops (H)	Y	Y	Y				
Boat services/repair/ refinishing (H)	Y	Y	Y		-		
Chemical/petroleum pipelines (H)	Y	Y	Y	*	UST sites identified by the RWQCB.		
Chemical/petroleum processing/storage (VH)	N	N	N				
Dry cleaners (VH)	Y	Y	Y	*	Perchloroethylene identified plumes.		
Electrical/electronic manufacturing (H)	N	N	N				
Fleet/truck/bus terminals (H)	N	Y	Y		City, County, Caltrans corportation yards.		
Furniture repair/ manufacturing (H)	N	N	N				
me manufacturing (H)	N	N	N				
Junk/scrap/salvage yards (H)	N	N	Y		Junkyard in zone.		
Machine shops (H)	Y	Y	Y		Small job shops.		
Metal plating/ finishing/fabricating (VH)	N	N	N				
Photo processing/printing (H)	Y	Y	Y		Small processing stations and one larg printing company.		
Plastics/synthetics producers (VH)	N	N	N				
Research laboratories (H)	N	N	N	1			
Wood preserving/treating (H)	N	N	N		· · · · · · · · · · · · · · · · · · ·		
Wood/pulp/paper processing and mills (H)	N	N	N	Γ			
Lumber processing and manufacturing (H)	N	N	N				
Sewer collection systems (H, if in Zone A, otherwise L)	Y	Y	Y	Γ	Municipal sewer system.		
Parking lots/malls (>50 spaces) (M)	Y	Y	Y				
Cement/concrete plants (M)	N	N	N				
Food processing (M)	N	N	Y		Tomato processing plant.		
Funeral services/graveyards (M)	N	Y	Y		Two graveyards and two funeral home		
Hardware/lumber/parts stores (M)	Y	Y	Y	Τ			
Appliance/Electronic Repair (L)	Y	Y	Y				
Office buildings/complexes (L)	Y	Y	Y	Τ			

Y = Yes N = No U = Unknown

System Name MERCED, CITY OF					System No. 2410009
Source Name	Sc	ource No.	011		PS Code2410009-011
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
<b>Commercial/Industrial Activities</b>					
Rental Yards (L)	Y	N	N		
RV/mini storage (L)	N	N	N		
Residential/Municipal Activities					
Airports - Maintenance/ fueling areas (VH)	N	N	N		
Landfills/dumps (VH)	N	N	N		
Railroad yards/ maintenance/ fueling areas (H)	N	N	N		** ************************************
Septic systems - high density (>1/acre) (VH if in Zone / otherwise M)	А, N	N	Y		
Sewer collection systems (H, if in Zone A, otherwise L)	Y	Y	Y		Municipal sewer system.
Utility stations - maintenance areas (H)	Y	N	N		PG&E yard.
Wastewater treatment plants (VH in Zone A, otherwise	H) N	N	N		
Drinking water treatment plants (M)	N	N	N		
Golf courses (M)	N	N	N		
Housing - high density (>1 house/0.5 acres) (M)	Y	Y	Y		
or pools (M)	N	N	N		
Parks (M)	Y	Y	Y		
Waste transfer/recycling stations (M)	Y	Y	Y		
Apartments and condominiums (L)	Y	Y	Y		
Campgrounds/ Recreational areas (L)	N	N	N		
Fire stations (L)	Y	Y	Y		
RV Parks (L)	N	N	N		
Schools (L)	N	Y	Y		
Hotels, Motels (L)	Y	Y	Y		
Other Activities					
NPDES/WDR permitted discharges (H)	N	N	N		
Underground Injection of Commercial/Industrial Discharges (VH)	N	N	N		
Historic gas stations (VH)	Y	Y	Y	*	UST sites under RWQCB cleanup program.
Historic waste dumps/ landfills (VH)	N	N	N	1	
Illegal activities/ unauthorized dumping (H)	N	N	N		
Injection wells/ dry wells/ sumps (VH)	N	N	N	$\square$	
Known Contaminant Plumes (VH)	Y	Y	Y	*	Perchloroethylene and petroleum

Y = Yes N = No U = Unknown

#### Inventory of Possible Contaminating Activities (PCA Inventory) System Name System No. 2410009 MERCED, CITY OF Source Name **WELL 05B - RAW** Source No. 011 2410009-011 PS Code PCA in PCA in PCA in PCA (Risk Ranking) Zone A Zone B5 Zone B10 Comments Other Activities hydrocarbons. Military installations (VH) Ν Ν Ν Mining operations - Historic (VH) Ν N Ν Mining operations - Active (VH) Ν Ν Ν Mining - Sand/Gravel (H) Ν Ν Ν Wells - Oil, Gas, Geothermal (H) N Ν Ν Salt Water Intrusion (H) Ν N Ν Recreational area - surface water source (H) Y Y Y Bear Creek and MID canals. Underground storage tanks - Confirmed leaking tanks Y Y Y \* (VH)Underground storage tanks - Decommissioned - inactive Ν Ν Ν tanks (L) Underground storage tanks - Non-regulated tanks (tanks Ν Ν Ν smaller than regulatory limit) (H) Underground storage tanks - Not yet upgraded or Ν Ν Ν vistered tanks (H) inderground storage tanks - Upgraded and/or registered Ν Ν N - active tanks (L) Above ground storage tanks (M) Ν Ν Ν Wells - Water supply (M) Υ Υ Y Both Municipal and private wells. Construction/demolition staging areas (M) Ν Ν Ν Contractor or government agency equipment storage Y Y Υ City, County and Caltrans corporation yards (M) yards. Dredging (M) Ν Ν Ν Transportation corridors - Freeways/state highways (M) Y Y Y Transportation corridors - Railroads (M) Y Y Y Transportation corridors - Historic railroad right-of-ways Ν Ν Ν (M) Transportation corridors - Road Right-of-ways (herbicide Y Y Y use areas) (M) Transportation corridors - Roads/ Streets (L) Υ Υ Y Hospitals (M) Υ Y Υ Storm Drain Discharge Points (M) Y Y Y Bear Creek and MID canal. Storm Water Detention Facilities (M) Y Y Ν Artificial Recharge Projects - Injection wells (potable Ν N Ν water) (L)

Y = Yes N = No U = Unknown

System Name MERCED, CITY OF					System No.	2410009
Source Name WELL 05B - RAW	S	Source No011		_ PS Code2	410009-011	
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments	
Other Activities						
Artificial Recharge Projects - Injection wells (non-potable water) (M)	N	N	N			
Artificial Recharge Projects - Spreading Basins (potable water) (L)	N	N	N			<del>лана , продоковы</del>
Artificial Recharge Projects - Spreading Basins (non-potable water) (M)	N	N	N			₩. · / #P.
Medical/dental offices/clinics (L)	Y	Y	Y			
Veterinary offices/clinics (L)	Y	Y	Y			
Surface water - streams/ lakes/rivers (L)	Y	Y	Y	1	Bear Creek	
Wells - monitoring, test holes (L)	Y	Y	Y		For monitoring PCE investigations.	and UST

(

Vi	ulnerabi	lity Ranking						
D	District Name	City of Merced	District No. M4	C	ounty Me	erced		
s	ystem Name	MERCED, CITY OF				Syste	m No.	2410009
S	Source Name	WELL 05B - RAW	Source No	0	<u>11 </u> I	PS Code	2410	009-011
С	ompleted by	Patrick Riggs	Date _	N	larch, 2003			
Zone	PCA (Risk F	Ranking)		*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
А	Dry cleaners	s (VH)		*	7	5	1	13
Α	Historic gas	stations (VH)	, , <u>, , , , , , , , , , , , , , , , , </u>	*	7	5	1	13
A	Known Cont	aminant Plumes (VH)		*	7	5	1	13
A	Underground	d storage tanks - Confirmed leaking	g tanks (VH)	*	7	5	1	13
А	Chemical/pe	troleum pipelines (H)	·	*	5	5	1	11
B5	Dry cleaners	; (VH)		*	7	3	1	. 11
B5	Historic gas	stations (VH)		*	7	3	1	11
B5	Known Cont	aminant Plumes (VH)		*	7	3	1	11
B5	Underground	d storage tanks - Confirmed leakin	g tanks (VH)	*	7	3	1	11
B5	Chemical/pe	troleum pipelines (H)		*	5	3	1	9
B10	Dry cleaners	; (VH)		*	7	1	. 1	9
- 10	Historic gas	stations (VH)		*	7	1	1	9
10 ـــــ	Known Cont	aminant Plumes (VH)	······································	*	7	1	1	9
B10	Underground storage tanks - Confirmed leaking tanks (VH)			*	7	1	1	9
B10	Chemical/pe	troleum pipelines (H)	en al fallado de la falla de la construcción de la construcción de la construcción de la construcción de la con	*	5	1	1	7
Α	Automobile-	Gas stations (VH)			7	5	1	13
Α	Automobile-	Body shops (H)			5	5	1	11
A	Automobile-	Repair shops (H)			5	5	1	11
Α	Boat service	s/repair/ refinishing (H)			5	5	1	11
A	Machine sho	ops (H)			5	5	1	11
A	Photo proce	ssing/printing (H)			5	5	1	11
A	Recreationa	l area - surface water source (H)			5	5	1	11
A	Sewer colle	ction systems (H, if in Zone A, othe	erwise L)		5	5	1	11
Α	Sewer colle	ction systems (H, if in Zone A, othe	erwise L)		5	5	1	11
A	Utility station	ns - maintenance areas (H)		1	5	5	1	11
B5	Automobile-	Gas stations (VH)			7	3	1	11
Α	Automobile-	Car washes (M)			3	5	1	9
A	Contractor of	or government agency equipment s	torage yards (M)		3	5	1	9
~~ <b>A</b>	Hardware/lu	mber/parts stores (M)	***********		3	5	1	9
				+		+	-t	

B10

Automobile- Gas stations (VH)

#### Vulnerability Ranking System Name MERCED, CITY OF System No. 2410009 Source Name WELL 05B - RAW Source No. 011 PS Code 2410009-011 PCA Risk Zone PBE Vulnerability Zone \* PCA (Risk Ranking) **Points Points** Points Score А Hospitals (M) 3 5 1 9 Α Housing - high density (>1 house/0.5 acres) (M) 3 1 5 9 Parking lots/malls (>50 spaces) (M) А 1 3 5 9 Α Parks (M) 3 5 1 9 А Storm Drain Discharge Points (M) 3 5 1 9 А Transportation corridors - Freeways/state highways (M) 3 5 1 9 Α Transportation corridors - Railroads (M) 3 5 1 9 Transportation corridors - Road Right-of-ways (herbicide use areas) (M) А 3 1 5 9 А Waste transfer/recycling stations (M) 3 5 1 9 А Wells - Water supply (M) 3 5 1 9 **B5** Automobile- Body shops (H) 5 3 1 9 B5 Automobile- Repair shops (H) 5 3 1 9 B5 Boat services/repair/ refinishing (H) 1 5 3 9 B5 Fleet/truck/bus terminals (H) 5 1 3 9 Machine shops (H) 5 3 1 9 **B5** Photo processing/printing (H) 5 3 1 9 B5 Recreational area - surface water source (H) 5 3 1 9

7

1

1

9



© Information Center for the Environment Coding by <u>Eric Lehmer</u> Mapping System produced using <u>ESRI</u> ArcIMS

mhtml:file://C:\Documents%20and%20Settings\riggsp\Desktop\Deliniation%20Zones\Well% 3/13/2003

# **Drinking Water Source Assessment**

Water System

MERCED, CITY OF

Merced County

Water Source WELL 06 - RAW

Assessment Date

March, 2003

California Department of Health Services Drinking Water Field Operations Branch City of Merced

> District No. M4 System No. 2410009 Source No. 012 PS Code 2410009-012

Assessme	ent Summary				
<b>District Name</b>	City of Merced	District No4	County	Merced	
System Name	MERCED, CITY OF			System	No. <u>2410009</u>
Source Name	WELL 06 - RAW	Source No	012	PS Code	2410009-012
Completed by	Patrick Riggs	Date	March, 2	2003	

#### **Description of System and Source**

The City of Merced water system is located in Merced County and serves the Merced City and part of the bordering Merced County. There are approximately 17,125 service connections serving a population of 63,000.

The only drinking water source for the City of Merced water system is groundwater wells. The recharge area for the source includes hundreds of square miles originating from the Eastern Seirra Nevada foothills and mountain range. General land use is agricultural | urban | residential | undeveloped etc.

#### **Assessment Procedures**

The assessment of the source WELL 06 - RAW was conducted by the City of Merced Environmental Control Office. The following sources of information were used in the assessment: Water system files, DHS files.

Procedures used to conduct the assessment include: Assistance from DHS jurisdictional office, Turbo Swap program for data input.

#### **Contents of this Assessment**

Yes X	No 🗌	Assessment Summary
Yes 🗶	No 🗌	Vulnerability Summary
Yes 🗶	No 🗌	Source Location Form
Yes X	No 🗌	Delineation of Ground Water Protection Zones
Yes X	No 🗌	Physical Barrier Effectiveness Checklist
Yes X	No 🗌	Source Data Sheet
Yes X	No 🗌	Inventory of Possible Contaminating Activities
Yes X	No 🗌	Vulnerability Ranking
Yes 🔀	No 🗌	Assessment Map

<b>District Name</b>	City of Merced	District No. M4	County	Merced	
) ystem Name	MERCED, CITY OF	<u></u>	•	System	No. 2410009
Source Name	WELL 06 - RAW	Source No.	012	PS Code	
Completed by	Patrick Riggs	Date	March,	2003	
THE FO	LOWING INFORMATION MUS	T BE INCLUDED IN THE SYS	TEM CONSU	MER CONFIDENC	E REPORT
of the MER	CED, CITY OF		water s	system in <u>Ma</u>	arch, 2003
The source is	CED, CITY OF s considered most vulnerat nants detected in the water	ble to the following activi			arch, 2003
The source is	s considered most vulnerat nants detected in the water Dry cleaners Historic gas stations Known Contaminant Pl	ole to the following activi r supply: lumes anks - Confirmed leakin	ties associat		arch, 2003
The source is with contamin	s considered most vulnerat nants detected in the water Dry cleaners Historic gas stations Known Contaminant Pl Underground storage t	ble to the following activi r supply: lumes anks - Confirmed leakin t holes	ties associat g tanks	ted	<u>arch, 2003</u>
The source is with contamin	s considered most vulnerat nants detected in the water Dry cleaners Historic gas stations Known Contaminant Pl Underground storage t Wells - monitoring, test s considered most vulneral	ble to the following activi r supply: lumes anks - Confirmed leakin t holes ble to the following activi ps	ties associat g tanks	ted	<u>arch, 2003</u>

### **Discussion of Vulnerability**

City of Merced Well Station #6 houses one municipal groundwater well. This well is primarily used for backup system operation and it typically in a standby mode.

A copy of the complete assessment may be viewed at:

Public Works Environmental Control Division 1776 Grogan Avenue Merced, CA 95340

You may request a summary of the assessment be sent to you by contacting:

Patrick Riggs Environmental Control Officer II 209-385-6817 209-384-7772 (fax) riggsp@cityofmerced.org



Ê	elineatio	n of Ground Wate	r Protection Zone	<b>9</b> 5			
	District Name	City of Merced	District No4	County	Merced		
, )	System Name	MERCED, CITY OF			System No. 2410009		
****	Source Name	WELL 06 - RAW	Source No	012	PS Code	241	0009-012
	Completed by	Patrick Riggs	Date	March, 2	2003		

**Method Used to Delineate Protection Zones** 

### X 1. Calculated Fixed Radius

- 2. Modified Calculated Fixed Radius (Attach documentation for direction of ground water flow.)
- 3. More Detailed Methods
- 4. Arbitrary Fixed Radius (For use only by or permission of DHS)

Maximum Pumping	Rate of Well (Q)	1,20 1,93 84,320,40	<u>36</u>	gallons/mi acre feet/y cubic feet	year
E	Effective Porosity	0.20		X	Default Value
Screene	d Interval of Well	60	feet		Default Value

Protection Zone	Calculated Value	Minimum Value	Radius of Protection Zone
Zone A - 2 Year TOT*	2,115 Feet	600 Feet	2,115 Feet
Zone B5 - 5 Year TOT*	3,344 Feet	1,000 Feet	<b>3,344</b> Feet
Zone B10 - 10 Year TOT*	4,729 Feet	1,500 Feet	4,729 Feet

\*TOT = Time of Travel

.

<b>Physical Barrier Effectiv</b>	eness	(PBE)				
District Name City of Merced		District No. M4	County	Merced		
System Name MERCED, CITY OF			•	Syst	10009	
Source Name WELL 06 - RAW		Source No	PS Code 2410009-012			
Completed by Patrick Riggs		Date	March,	2003		
Parameter				Possible Points	This Source	Score
<b>Type of Aquifer</b> Confinement						
1. Unconfined, Semi-confined, Fractured Rod	ck, Unknow	n Aquifer		0		
2. Confined	····	······································		50	X	50
Pathways of Contamination (All Aqu Presence of Abandoned or Improperly De		elis				
1. Present within Zone A (2 year TOT distant	nce)	Yes		0		
		No		5	X	5
······································		Unknown		0		
2. Present within Zone B5 (2 -5 year TOT di	istance)	Yes		0		
	-	No		3	X	3
		Unknown		0		
3. Present within Zone B10 (5-10 year TOT	distance)	Yes		0		
		No		2	X	2
		Unknown		0		
<ul> <li>'ydraulic Head (Confined Aquifers)</li> <li>What is the relationship in the hydraulic h the overlying unconfined aquifer? (i.e. do</li> <li>Head in confined aquifer is higher than he</li> </ul>	nead betwe	I flow under artesian o	er and conditions?			
conditions.				20	Х	20
<ol> <li>Head in confined aquifer is higher than head in unconfined aquifer under static conditions.</li> </ol>				10	- -	
<ol> <li>Head in confined aquifer is lower than or same as head in unconfined aquifer under static conditions.</li> </ol>				0		
4. Unknown						
Well Construction (All Aquifers)						
Sanitary Seal (Annular Seal) Depth	None c	of less than 20 feet		0		1
0 feet	Betwee	en 20 and 50 feet		6	· · · · · · · · · · · · · · · · · · ·	
	50 feet	or greater		10		
	Unknow	wn	<u> </u>	0	X	0
Surface Seal (concrete cap)	Not pre	esent or improperly cons	structed	0		
		······				
		ight, slopes away from v t 2' laterally in all direction		4	X	4
## Physical Barrier Effectiveness (PBE)

System Name <u>MERCED, CITY OF</u>		Syst	tem No	10009	
ource Name WELL 06 - RAW	Source No012	PS Code2410009-012			
Parameter		Possible Points	This Source	Score	
Well Construction (All Aquifers)co	ontinued				
Flooding potential at well site	Subject to localized flooding (i.e. in low area or unsealed pit or vault) or within 100 year flood plain	0			
	Not subject to flooding	1	X	1	
	Unknown	0			
Security at well site	Not secure	0			
	Secure	5	Х	5	
	Unknown	0			

Score	Effectiveness
0 to 35	Low
36 to 69	Moderate
70 to 100	High
	0 to 35 36 to 69

Maximum Score = 100

Score	90
Effectiveness	High

### WELL DATA SHEET (Page 1 of 2)

* Indicates items required for Source Water Assessment		
* Indicates additional items required for assessments and Ground Wat		
		Actual, Estimated
	-	or Default?
DATA SHEET GENERAL INFORMATION		
System Name	City of Merced	from DHS databas
System Number	2410009	from DHS databa
Source of Information (well log, DHS/County files, system, etc)	well log, system files	
Organization Collecting Information (DHS, County, System, other)	System	
Date Information Collected/Updated	3/17/2003	
WELL IDENTIFICATION		
* Well Number or Name	Well 6	from DHS databa
* DHS Source Identification Number (FRDS ID No.)		
DWR Well Log on File? ("YES" or "NO")	YES	
State Well Number (from DWR)	2410009012	
Well Status (Active, Standby, Inactive)	Active	
WELL LOCATION		
Latitude	37.288	City Surveyed 20
Longitude	-120.481	City Surveyed 20
Ground Surface Elevation (ft above Mean Sea Level)	167.82'	City Surveyed 20
Street Address	32 East Childs	
Nearest Cross Street	"G" Street	
City	Merced	
County	Merced	
* Neighborhood/Surrounding Area (see Note 1)	Re	
Site plan on file? ("YES" or "NO")	NO	
DWR Ground Water Basin		from UC Davis
DWR Ground Water Sub-basin		from UC Davis
SANITARY CONDITIONS		
** Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)	15'	
Distance to Active Wells (ft)		1
Distance to Abandoned Wells (ft)	None	
Distance to Surface Water (ft)		
** Size of controlled area around well (square feet)	3,780	
* Type of access control to well site (fencing, building, etc)	fencing	
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	YES	
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	9'10.5" x 17'9.5" x 7.5"	
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")	UNKNOWN	
* Drainage away from well? ("YES" or "NO")	YES	
ENCLOSURE/HOUSING		
Enclosure Type (building, vault, none, etc.)	building (corrugated steel	)
Floor material	Concrete	
Located in Pit? ("YES" or "NO")	NO	
Pit depth (feet) (if applicable)		
WELL CONSTRUCTION		
Date drilled	1961	
Drilling Method	Cable	
Depth of Bore Hole (feet below ground surface)	264'	
Casing Beginning Depth/Ending Depth(ft below surface);		
2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	0/198'	
Casing Diameter (inches); 2nd Casing Diameter; 3rd Casing, etc.	14.5"	
Casing Material; 2nd Casing Material; 3rd Casing, etc.	Steel	

### WELL DATA SHEET (Page 2 of 2)

Indicates items required for Source Water Assessment * Indicates additional items required for assessments and Ground Water	r Rule	
	i luic	Actual, Estima
		or Default?
WELL CONSTRUCTION (continued)		
Conductor casing used? ("YES", "NO" or "UNKNOWN") (See Note 2)	YES	
Conductor casing removed? ("YES", "NO" or "UNKNOWN")	NO	
Depth to highest perforations/screens (ft below surface) (or	0001	·
UNKNOWN")	203'	
Screened Interval Beginning Depth/Ending Depth (ft below surface);	0001 0001	
2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	203'-263'	
* Total length of screened interval (ft)	60'	
(default = 10% pump capacity in gpm) (or "UNKNOWN")	80	
* Annular Seal?("YES", "NO" or "UNKNOWN") (See Note 3)	NO	
* Depth of Annular Seal (ft)		
Material of Annular Seal (cement grout, bentonite, etc.)		
Gravel pack, Depth to top (ft below ground surface)	198'	
Total length of gravel pack (ft)	66'	
AQUIFER		
* Aquifer Materials	sand, clay, silt	
(list all that apply: sand, silt, clay, gravel, rock, fractured rock)		
* Effective porosity (decimal percent) (default = 0.2) (or "UNKNOWN")	UNKNOWN	
* Confining layer (Impervious Strata) above aquifer?	YES	
("YES", "NO" or "UNKNOWN")		
Thickness of confining layer, if known (ft)	12'	
Depth to confining layer, if known (ft below ground)	14'	the state of the s
* Static water level (ft below ground surface)	· · · · · · · · · · · · · · · · · · ·	Name and a start of the star
Static water level measurement: Date/Method		
Pumping water level (ft below ground surface)		(1) A standard and the second standard of the second standard of the second standard of the second standard of the second standard standard of the second standard stand Standard standard s Standard standard stand Standard standard stand Standard standard stan Standard standard stand Standard standard stand Standar
Pumping water level measurement: Date/Method WELL PRODUCTION		
	1200	
Well Yield (gpm) Well Yield Based On (i.e., pump test, etc.)	Meter	
Date measured	3/17/2003	
Is the well metered? ("YES" or "NO")	YES	
Production (gallons per year)	279.74 MG (2002)	
Frequency of Use (hours/year)	3883.6	
Typical pumping duration (hours/day)	10.64	
PUMP	10.04	
Make	Layne and Bowler	
Туре	Constant Speed	
Size (hp)	125 HP	
* Capacity (gpm)	2293	
Depth to suction intake (ft below ground surface)	203'	
Lubrication Type	Oil	
Type of Power: (i.e., electric, diesel, etc.)	Diesel Generator	
Auxiliary power available? ("YES" or "NO")	YES	
Operation controlled by: (i.e., level in tank, pressure, etc.)	Pressure	
Pump to Waste capability? ("YES" or "NO")	YES	

## **Remarks and Defects**

Well Data Sheet Supplement		
REMARKS AND DEFECTS	······································	
(Use or note these items as appropriate)		
(** indicates items pertinent to Ground Water Rule)		
Distance (ft) to other sanitary concerns:		
** Type of Sanitary Concern:		
** Type of Sanitary Concern:		
** Type of Sanitary Concern:		
** Type of Sanitary Concern:		
** Type of Sanitary Concern:		
Raw Water Quality concerns? (Yes or No)	No	
** Microbiological (coliform)		
Chemicals		
Other (list)		
** Continuous Chlorination provided? (Yes or No)		
Condition of enclosure or housing	Good	
Pit Drained? (if applicable)		
Pitless Adaptor? Make and Model		
Height of pump base (inches)	7.5"	
Casing Vent? (yes or no)	yes	
Air/Vacuum Release? (yes or no)	yes	
Sampling Taps? (yes or no)	yes	
Location of sampling taps pump dischar		
Wellhead Riser? (yes or no); height above well	No	
Other		

r"

	y of Possible Contam	a a se a	an and the second state		26	A Inventory)
District Name	City of Merced	District N		Count		Merced
ystem Name	MERCED, CITY OF				-	System No. 2410009
Source Name	WELL 06 - RAW	S	ource No.	012		PS Code 2410009-012
Completed by	Patrick Riggs		Date	March	1, 20	003
PCA (Risk Rankin	ıg)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Commercial/I	ndustrial Activities					
Automobile- Body	shops (H)	Y	Y	Y		
Automobile- Car wa	ashes (M)	N	Y	Y		
Automobile- Gas st	tations (VH)	N	Y	Y		
Automobile- Repair	r shops (H)	N	Y	Y		
Boat services/repa	ir/ refinishing (H)	• N	N	Y		· · · · · · · · · · · · · · · · · · ·
Chemical/petroleur	n pipelines (H)	N	N	Y		
Chemical/petroleur	m processing/storage (VH)	N	N	N		
Dry cleaners (VH)		N	N	Y	*	PCE plume at the fringe of zone B10.
Electrical/electroni	c manufacturing (H)	N	N	N		
Fleet/truck/bus terr	minals (H)	N	N	N		
Furniture repair/ m	anufacturing (H)	N	N	N		
ne manufacturi	ng (H)	N	N	N		
Junk/scrap/salvage	e yards (H)	N	N	N		
Machine shops (H)	)	N	N	N		
Metal plating/ finisl	hing/fabricating (VH)	N	N	N	1	
Photo processing/	printing (H)	N	N	Y		Small operation developing.
Plastics/synthetics	producers (VH)	N	N	N		
Research laborato	ries (H)	N	N	N		
Wood preserving/t	reating (H)	N	N	N		
Wood/pulp/paper	processing and mills (H)	N	N	N		
Lumber processing	g and manufacturing (H)	N	N	N		
Sewer collection s	ystems (H, if in Zone A, otherwise L)	Y	Y	Y	1	Municipal sewer system.
Parking lots/malls	(>50 spaces) (M)	Y	Y.	Y		County fair grounds and misc. commercial businesses.
Cement/concrete	plants (M)	N	N	N		
Food processing (	M)	N	N	N		
Funeral services/g	graveyards (M)	Y	Y	Y		Two graveyards and one funeral home.
Hardware/lumber/	parts stores (M)	N	Y	Y	+	
Appliance/Electron		N	N	Y	1	
Office buildings/co	omplexes (L)	N	Y	Y	1	
Rental Yards (L)		N	N	Y	$\uparrow$	US Rental on 16th Street.
		1			1	

#### Drinking Water Source Assessment and Protection (DWSAP) Program Page 2 Inventory of Possible Contaminating Activities (PCA Inventory) System Name MERCED, CITY OF System No. 2410009 <u>WELL 06 - RAW</u> Source Name Source No. 012 PS Code 2410009-012 PCA in PCA in PCA in PCA (Risk Ranking) Zone B5 Zone A Zone B10 Comments **Commercial/Industrial Activities** RV/mini storage (L) Ν Ν Ν **Residential/Municipal Activities** Airports - Maintenance/ fueling areas (VH) Ν Ν Ν Landfills/dumps (VH) Ν Ν Ν Railroad yards/ maintenance/ fueling areas (H) N Ν Ν Septic systems - high density (>1/acre) (VH if in Zone A, Y Ν Y otherwise M) Sewer collection systems (H, if in Zone A, otherwise L) Y Y Y Municipal sewer system. Utility stations - maintenance areas (H) Ν Ν Ν Wastewater treatment plants (VH in Zone A, otherwise H) Ν Ν Ν Drinking water treatment plants (M) Ν N Ν Golf courses (M) Ν Ν Ν Housing - high density (>1 house/0.5 acres) (M) Υ Y Ν Motor pools (M) Ν Ν Ν iks (M) Υ Y Y Waste transfer/recycling stations (M) Y γ Oil and battery recycling facilities. Ν Apartments and condominiums (L) Y Y Ν Campgrounds/ Recreational areas (L) Ν Ν Ν Fire stations (L) Ν Y Ν RV Parks (L) Ν Ν Ν Schools (L) Ν Ν Ν Hotels, Motels (L) Y Ν Ν Other Activities NPDES/WDR permitted discharges (H) Ν Ν Ν Underground Injection of Commercial/Industrial Ν Ν Ν **Discharges (VH)** \* Historic gas stations (VH) Υ γ Petroleum hydrocarbon. Ν Historic waste dumps/ landfills (VH) Ν N Ν Illegal activities/ unauthorized dumping (H) Ν Ν Ν Injection wells/ dry wells/ sumps (VH) N Ν Ν

Military installations (VH)
Ining operations - Historic (VH)

Known Contaminant Plumes (VH)

Y = Yes N = No U = Unknown

\* = A contaminant potentially associated with this activity has been detected in the water supply.

Ν

Ν

Ν

Ν

N

Ν

γ

Ν

N

PCE and petroleum hydrocarbon.

### Inventory of Possible Contaminating Activities (PCA Inventory)

System Name	MERCED, CITY OF					System No. 2410009
Source Name	WELL 06 - RAW	Sc	ource No.	012		PS Code2410009-012
PCA (Risk Rankin	g)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other Activitie	es					
Mining operations -	Active (VH)	N	N	N		
Mining - Sand/Grav	el (H)	N	N	N		
Wells - Oil, Gas, Ge	eothermal (H)	N	N	N		
Salt Water Intrusion	ו (H)	N	N	N		
Recreational area -	surface water source (H)	N	Y	Y		MID canais.
Underground storag	ge tanks - Confirmed leaking tanks	N	N	Y	*	Petroleum hydrocarbon contamination.
Underground storag tanks (L)	ge tanks - Decommissioned - inactive	N	_ N	N		· · · · · · · · · · · · · · · · · · ·
Underground storage smaller than regular	ge tanks - Non-regulated tanks (tanks tory limit) (H)	N	N	N		
Underground storag	ge tanks - Not yet upgraded or )	N	N	N		
Underground storag	ge tanks - Upgraded and/or registered	N	N	N		
ove ground stora	age tanks (M)	N	N	N	<b> </b>	
vvells - Water supp	ly (M)	N	N	Y		
Construction/demo	lition staging areas (M)	N	N	N		
Contractor or gover yards (M)	mment agency equipment storage	N	N	N		
Dredging (M)		N	N	N	1	
Transportation corr	idors - Freeways/state highways (M)	Y	Y	Y		
Transportation corr	idors - Railroads (M)	Y	Y	Y		
Transportation corr (M)	idors - Historic railroad right-of-ways	N	N	N		
Transportation corruse areas) (M)	idors - Road Right-of-ways (herbicide	Y	Y	Y		
Transportation corr	idors - Roads/ Streets (L)	Y	Y	Y	1.	
Hospitals (M)		Y	N	N	$\square$	
Storm Drain Discha	Y	N	N	<u>†</u>		
Storm Water Deter	N	N	Y	$\uparrow$	Catch basin.	
Artificial Recharge water) (L)	N	N	N			
Artificial Recharge water) (M)	Projects - Injection wells (non-potable	N	N	N		
tificial Recharge	Projects - Spreading Basins (potable	N	N	N		

Y = Yes N = No U = Unknown

## Inventory of Possible Contaminating Activities (PCA Inventory)

System Name <u>MERCED, CITY OF</u>					System	No. 2410009
Source Name	Source No		012		_ PS Code	2410009-012
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments	
Other Activities						
water) (L)						
Artificial Recharge Projects - Spreading Basins (non-potable water) (M)	N	N	N			114
Medical/dental offices/clinics (L)	N	N	Y			1997-1994, A. J.
Veterinary offices/clinics (L)	N	Y	N			
Surface water - streams/ lakes/rivers (L)	Y	Y	Y		MID canals.	
Wells - monitoring, test holes (L)	Y	Y	Y	*	PCE plume and monitoring.	petroleum hydrocarbon

1. Sectored to	Inerability Ranking	···				
	strict Name _ City of Merced District No. M4	<u> </u>	ounty Me	rced		
	stem Name MERCED, CITY OF	_ 0		Syste	 m No.	2410000
. 1	Durce Name WELL 06 - RAW Source No.	0	12 F	PS Code		2410009 0009-012
C	Date Date	N	larch, 2003			
Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
B5	Historic gas stations (VH)	*	7	3	1	11
B10	Dry cleaners (VH)	*	7	1	1	9
B10	Historic gas stations (VH)	*	7	1	1	9
B10	Known Contaminant Plumes (VH)	*	7	1	1	9
B10	Underground storage tanks - Confirmed leaking tanks (VH)	*	7	1	1	9
А	Wells - monitoring, test holes (L)	*	1	5	1	7
B5	Wells - monitoring, test holes (L)	*	1	3	1	5
B10	Wells - monitoring, test holes (L)	*	1	1	1	3
А	Automobile- Body shops (H)		5	5	1	11
Α	Sewer collection systems (H, if in Zone A, otherwise L)		5	5	1	11
Α	Sewer collection systems (H, if in Zone A, otherwise L)		5	5	1	11
5	Automobile- Gas stations (VH)		7	3	1	11
<u> </u>	Funeral services/graveyards (M)		3	5	1	9
Α	Hospitals (M)		3	5	1	9
A	Parking lots/malls (>50 spaces) (M)		3	5	1	9
Α	Parks (M)		3	5	1	9
Α	Storm Drain Discharge Points (M)		3	5	1	9
Α	Transportation corridors - Freeways/state highways (M)		3	5	1	9
Α	Transportation corridors - Railroads (M)		3	5	1	9
A	Transportation corridors - Road Right-of-ways (herbicide use areas) (M)		3	5	1	· 9
B5	Automobile- Body shops (H)		5	3	1	9
B5	Automobile- Repair shops (H)		5	3	1	9
B5	Recreational area - surface water source (H)		5	3	1	9
B10	Automobile- Gas stations (VH)		7	1	1	9
			+	·		

Ć





© Information Center for the Environment Coding by <u>Eric Lehmer</u>

Mapping System produced using ESRI ArcIMS

## **Drinking Water Source Assessment**

Water System

MERCED, CITY OF Merced County

Water Source

## WELL 07A - RAW

Assessment Date

March, 2003

California Department of Health Services Drinking Water Field Operations Branch City of Merced

 District No.
 M4

 System No.
 2410009

 Source No.
 013

 PS Code
 2410009-013

Assessme	ent Summary				
<b>District Name</b>	City of Merced	District No. M4	County	Merced	
System Name	MERCED, CITY OF			Syster	n No. <u>2410009</u>
Source Name	WELL 07A - RAW	Source No	013	PS Code	2410009-013
Completed by	Patrick Riggs	Date	March,	2003	

#### **Description of System and Source**

The City of Merced water system is located in Merced County and serves the Merced City and part of the bordering Merced County. There are approximately 17,125 service connections serving a population of 63,000.

The only drinking water source for the City of Merced water system is groundwater wells. The recharge area for the source includes hundreds of square miles originating from the Eastern Seirra Nevada foothills and mountain range. General land use is agricultural | urban | residential | undeveloped etc.

#### **Assessment Procedures**

The assessment of the source WELL 07A - RAW was conducted by the City of Merced Environmental Control Office. The following sources of information were used in the assessment: Water system files, DHS files.

Procedures used to conduct the assessment include: Assistance from DHS jurisdictional office, Turbo Swap program for data input.

#### **Contents of this Assessment**

Yes X	No 🗌	Assessment Summary
Yes 🗶	No 🗌	Vulnerability Summary
Yes X	No 🗌	Source Location Form
Yes X	No 🗌	<b>Delineation of Ground Water Protection Zones</b>
Yes X	No 🗌	Physical Barrier Effectiveness Checklist
Yes X	No 🗌	Source Data Sheet
Yes X	No 🗌	Inventory of Possible Contaminating Activities
Yes X	No 🗌	Vulnerability Ranking
Yes 🗶	No 🗌	Assessment Map

	er Source Assessment and Pr	Olection (DWSAF) Program				
Vulnerab	bility Summary					
<b>District Name</b>	City of Merced	District No. M4	County	Merced		
ystem Name	MERCED, CITY OF			System	No.	2410009
Source Name	WELL 07A - RAW	Source No	013	PS Code	24_	10009-013
Completed by	Patrick Riggs	Date	March, 2	2003		
THE FO	LLOWING INFORMATION MUST	BE INCLUDED IN THE SYSTE			CE REP	ORT
	er assessment was conduct CED, CITY OF	ed for the <b>WELL 07A</b> - I		ystem in <b>M</b>	arch, :	2003
	s considered most vulnerable ected contaminants:	e to the following activities	s not asso	ciated		
	Agricultural Drainage Farm chemical distributo Septic systems - low der Sewer collection system Wells - Agricultural/ Irrig	nsity s				
Discussion o	of Vulnerability					
(1) (m m) (	Well Station #7 houses three n	nunicipal groundwater wells.	A 500,000	) gallon storage	tank is	onsite

A copy of the complete assessment may be viewed at:

Public Works Environmental Control Division 1776 Grogan Avenue Merced, CA 95340

You may request a summary of the assessment be sent to you by contacting:

Patrick Riggs Environmental Control Officer II 209-385-6817 209-384-7772 (fax) riggsp@cityofmerced.org



### **Delineation of Ground Water Protection Zones**

<b>District Name</b>	City of Merced	District No	County	Merced			
System Name	MERCED, CITY OF			Syster	n No	2410009	
Source Name	WELL 07A - RAW	Source No	013	PS Code	241	0009-013	
Completed by	Patrick Riggs	Date	March, 2	2003			

Method Used to Delineate Protection Zones

#### X 1. Calculated Fixed Radius

- 2. Modified Calculated Fixed Radius (Attach documentation for direction of ground water flow.)
- 3. More Detailed Methods
- 4. Arbitrary Fixed Radius (For use only by or permission of DHS)

Maximum Pumping Rate of Well (Q)	<u>    2,000                              </u>	gallons/minute acre feet/year
	140,534,000	cubic feet/year
Effective Porosity	0.20	Default Value
Screened Interval of Well	<b>93</b> fee	t Default Value

Protection Zone	Calculated Value	Minimum Value	Radius of Protection Zone
Zone A - 2 Year TOT*	2,193 Feet	600 Feet	<b>2,193</b> Feet
Zone B5 - 5 Year TOT*	3,468 Feet	1,000 Feet	<b>3,468</b> Feet
Zone B10 - 10 Year TOT*	4,904 Feet	1,500 Feet	<b>4,904</b> Feet

\*TOT = Time of Travel

(

District Name	City of Merced	District No. M4	County	Merced		
System Name	MERCED, CITY OF			Syst	em No. 24	10009
	WELL 07A - RAW	Source N	lo. 013	PS Code	241000	
Completed by	Patrick Riggs	D	ate March,	2003		
Parameter				Possible Points	This Source	Score
ype of Aquifer Confinement						
1. Unconfined, Se	emi-confined, Fractured Rock, L	Jnknown Aquifer		0		
2. Confined				50	X	50
	ontamination (All Aquife andoned or Improperly Destro					ya ya ya ku ta ta ku ku
1. Present within	Zone A (2 year TOT distance)	Yes		0		
		No		5	Χ	5
- · ·		Unknown	-	0	<u></u>	
2. Present within	Zone B5 (2 -5 year TOT distant	nce) Yes		0		
		No		3	X	3
		Unknown		0		
<ol><li>Present within</li></ol>	Zone B10 (5-10 year TOT dist			0		
		No	***************************************	2	X	2
·		Unknown		0		
What is the rela the overlying ur	d (Confined Aquifers) tionship in the hydraulic head nconfined aquifer? (i.e. does	the well flow under arte	sian conditions?	Ŋ	-	
conditions.	ned aquifer is higher than head	-		20	X	20
2. Head in confin conditions.	ed aquifer is higher than head	in unconfined aquifer und	er static	10		
3. Head in confir under static co	ned aquifer is lower than or sam onditions.	e as head in unconfined a	quifer	0		
4. Unknown				0		
Well Constructi	on (All Aquifers)					
Sanitary Seal (/	Annular Seal) Depth	None of less than 20 fee		0		
	feet	Between 20 and 50 feet		6		
		50 feet or greater		10		
				0	X	0
· · · · · · · · · · · · · · · · · · ·		Unknown				
Surface Seal (c	concrete cap)	Unknown Not present or improper	constructed	0		
Surface Seal (c	concrete cap)		from well	0 4	x	4

## Physical Barrier Effectiveness (PBE)

System Name	MERCED, CITY OF			System	No. 2410009	
Source Name	WELL 07A - RAW	Source No.	013	PS Code	2410009-013	

Parameter		Possible Points	This Source	Score
Well Construction (All Aquifers)c	ontinued			
Flooding potential at well site	Subject to localized flooding (i.e. in low area or unsealed pit or vault) or within 100 year flood plain	0	<u></u>	
	Not subject to flooding	1	X	1
	Unknown	0		
Security at well site	Not secure	0		
	Secure	5	X	5
	Unknown	0		

Score	Effectiveness
0 to 35	Low
36 to 69	Moderate
70 to 100	High

Maximum Score = 100

Score	90
Effectiveness	High

## WELL DATA SHEET (Page 1 of 2)

* Indicates items required for Source Water Assessment		cable.
** Indicates additional items required for assessments and Ground Wate	er Rule	
	T	Actual, Estimated
		or Default?
DATA SHEET GENERAL INFORMATION		
System Name	City of Merced	from DHS database
System Number	2410009	from DHS database
Source of Information (well log, DHS/County files, system, etc)	well log, system files	
Organization Collecting Information (DHS, County, System, other)	System	
Date Information Collected/Updated	3/17/2003	
WELL IDENTIFICATION	- <b>-</b>	
* Well Number or Name	Well 7A	from DHS database
* DHS Source Identification Number (FRDS ID No.)		
DWR Well Log on File? ("YES" or "NO")	YES	
State Well Number (from DWR)	2410009013	
Well Status (Active, Standby, Inactive)	Active	
WELL LOCATION		
Latitude	37.324	City Surveyed 2002
Longitude	-120.444	City Surveyed 2002
Ground Surface Elevation (ft above Mean Sea Level)	186.94'	City Surveyed 2002
Street Address	3362 McKee Road	
Nearest Cross Street	El Portal Road	
City	Merced	
County	Merced	
* Neighborhood/Surrounding Area (see Note 1)	Ru-Re	
Site plan on file? ("YES" or "NO")	NO	
DWR Ground Water Basin		from UC Davis
DWR Ground Water Sub-basin		from UC Davis
SANITARY CONDITIONS		
** Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)	170'	
Distance to Active Wells (ft)	66'	
Distance to Abandoned Wells (ft)	None	
Distance to Surface Water (ft)	20'	
** Size of controlled area around well (square feet)	34,000 (approx.)	
* Type of access control to well site (fencing, building, etc)	fencing	
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	YES	
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	18' x 14' x 9"	
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")	Unknown	
* Drainage away from well? ("YES" or "NO")	YES	
ENCLOSURE/HOUSING		
Enclosure Type (building, vault, none, etc.)	Steel	
Floor material	Concrete	
Located in Pit? ("YES" or "NO")	NO	
Pit depth (feet) (if applicable)		
WELL CONSTRUCTION		
Date drilled	1963	
Drilling Method	UNKNOWN	
Depth of Bore Hole (feet below ground surface)	344'	
Casing Beginning Depth/Ending Depth(ft below surface);	0/0601	
2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	0/268'	
Casing Diameter (inches); 2nd Casing Diameter; 3rd Casing, etc.	20"	
Casing Material; 2nd Casing Material; 3rd Casing, etc.	Steel	

.

### WELL DATA SHEET (Page 2 of 2)

Complete as much information as possible. Leave blank if information is not av	ailable, use N.A. if not applic	able.
Indicates items required for Source Water Assessment		
** Indicates additional items required for assessments and Ground Wate	r Rule	
		Actual, Estimated or Default?
WELL CONSTRUCTION (continued)		
Conductor casing used? ("YES", "NO" or "UNKNOWN") (See Note 2)	UNKNOWN	
Conductor casing removed? ("YES", "NO" or "UNKNOWN")		
* Depth to highest perforations/screens (ft below surface) (or		
"UNKNOWN")	175'	
Screened Interval Beginning Depth/Ending Depth (ft below surface);		
2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	175'-268'	
* Total length of screened interval (ft)		
(default = 10% pump capacity in gpm) (or "UNKNOWN")	93'	
* Annular Seal?("YES", "NO" or "UNKNOWN") (See Note 3)	UNKNOWN	
* Depth of Annular Seal (ft)		
Material of Annular Seal (cement grout, bentonite, etc.)		
Gravel pack, Depth to top (ft below ground surface)		
Total length of gravel pack (ft)		
AQUIFER		
* Aquifer Materials		
(list all that apply: sand, silt, clay, gravel, rock, fractured rock)	sand, clay, silt	
* Effective porosity (decimal percent) (default = 0.2) (or "UNKNOWN")	Unknown	
* Confining layer (Impervious Strata) above aquifer?		
("YES", "NO" or "UNKNOWN")	YES	
Thickness of confining layer, if known (ft)	11'	
Depth to confining layer, if known (ft below ground)	10'	
1* Static water level (ft below ground surface)		a second the change of the second second second the second second second second second second second second se Second and second s Second second s Second second
Static water level measurement: Date/Method	· · · · · · · · · · · · · · · · · · ·	and a second second Second second
Pumping water level (ft below ground surface)		(1) And the second s Second second s Second second se
Pumping water level measurement: Date/Method		المراجع المراجع المراجع المراجع المراجع المراجع المراجع
WELL PRODUCTION		
Well Yield (gpm)	2000	*****
Well Yield Based On (i.e., pump test, etc.)	Meter	
Date measured	3/17/2003	
Is the well metered? ("YES" or "NO")	YES	
Production (gallons per year)	614.91 MG (2002)	
Frequency of Use (hours/year)	5128.25	
Typical pumping duration (hours/day)	14.05	
PUMP		
Make	Layne and Bowler	
Туре	Constant Speed	
Size (hp)	125 HP	
* Capacity (gpm)	2595	
Depth to suction intake (ft below ground surface)	175'	
Lubrication Type	Oil	
Type of Power: (i.e., electric, diesel, etc.)	Diesel Generator	
Auxiliary power available? ("YES" or "NO")	YES	
Operation controlled by: (i.e., level in tank, pressure, etc.)	Pressure	·····
Pump to Waste capability? ("YES" or "NO")	YES	
Pump to Waste capability? ("YES" or "NO") Discharges to: (i.e., distribution system, storage, etc.)		

## **Remarks and Defects**

Well Data Sheet Supplement	
REMARKS AND DEFECTS	
(Use or note these items as appropriate)	
(** indicates items pertinent to Ground Water Rule)	
Distance (ft) to other sanitary concerns:	
** Type of Sanitary Concern:	_
** Type of Sanitary Concern:	-
Raw Water Quality concerns? (Yes or No)	yes
** Microbiological (coliform)	
Chemicals	
Other (list)	Nitrate
** Continuous Chlorination provided? (Yes or No)	yes
Condition of enclosure or housing	good
Pit Drained? (if applicable)	
Pitless Adaptor? Make and Model	
Height of pump base (inches)	9"
Casing Vent? (yes or no)	yes
Air/Vacuum Release? (yes or no)	yes
Sampling Taps? (yes or no)	yes
Location of sampling taps	Pump Discharge
Wellhead Riser? (yes or no); height above well	
Other	

Ć

Inventory of Possible Contam	inating	Activ	vities (l	PC	A Inventory)
District NameCity of Merced	District N	o. M4	Count	y	Merced
System Name MERCED, CITY OF	•			-	System No. 2410009
Source Name WELL 07A - RAW	So	urce No.	013		PS Code2410009-013
Completed by Patrick Riggs		Date	March	, 20	003
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Residential/Municipal Activities					
Airports - Maintenance/ fueling areas (VH)	N	N	N		
Landfills/dumps (VH)	N	N	N		···· ·····
Railroad yards/ maintenance/ fueling areas (H)	N	N	N		
Septic systems - high density (>1/acre) (VH if in Zone A, otherwise M)	N	Y	Y		
Sewer collection systems (H, if in Zone A, otherwise L)	Y	Y	Y		
Utility stations - maintenance areas (H)	N	N	N		
Wastewater treatment plants (VH in Zone A, otherwise H)	N	N	N	<b> </b>	
Drinking water treatment plants (M)	N	N	N		
Golf courses (M)	N	N	N		
Housing - high density (>1 house/0.5 acres) (M)	Y	Y	Y		
*4otor pools (M)	N	N	N		
.rks (M)	N	N	Y		
Waste transfer/recycling stations (M)	N	N	N		
Apartments and condominiums (L)	N	N	N		
Campgrounds/ Recreational areas (L)	N	N	N		
Fire stations (L)	Y	N	N		
RV Parks (L)	N	N	N		
Schools (L)	N	N	N	<u> </u>	· · · · · · · · · · · · · · · · · · ·
Hotels, Motels (L)	N	N	N		
Agricultural/Rural Activities					
Grazing (> 5 large animals or equivalent per acre) (H in Zone A, otherwise M)	N	N	N		
Concentrated Animal Feeding Operations (CAFOs) as defined in federal regulation1 (VH in Zone A, otherwise H)	N	N	N		
Animal Feeding Operations as defined in federal regulation2 (VH in Zone A, otherwise H)	N	N	N		
Other Animal operations (H in Zone A, otherwise M)	N	N	N	1	
Farm chemical distributor/ application service (H)	Y	Y	Y	$\uparrow$	
Farm machinery repair (H)	N	N	N	1	······································

Y = Yes N = No U = Unknown

## Inventory of Possible Contaminating Activities (PCA Inventory)

System Name <u>MERCED, CITY OF</u>	<u></u>				System	
Source Name <u>WELL 07A - RAW</u>	So	ource No	013		PS Code	2410009-013
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments	
Agricultural/Rural Activities						
Septic systems - low density (<1/acre) (H in Zone A, otherwise L)	Y	Y	Y			
Lagoons / liquid wastes (H)	N	N	N			<u>, , , , , , , , , , , , , , , , , , , </u>
Machine shops (H)	N	N	N			
Pesticide/fertilizer/ petroleum storage & transfer areas (H)	U	U	U			<u> </u>
Agricultural Drainage (H in Zone A, otherwise M)	Y	Y	Y			
Wells - Agricultural/ Irrigation (H)	Y	Y	Y			
Managed Forests (M)	N	N	N			
Crops, irrigated (Berries, hops, mint, orchards, sod, greenhouses, vineyards, nurseries, vegetable) (M)	Y	Y	Y			
Fertilizer, Pesticide/ Herbicide Application (M)	Y	Y	Y		Annan an	
Sewage sludge/biosolids application (M)	N	N	N			
Crops, nonirrigated (e.g., Christmas trees, grains, grass seeds, hay, pasture) (L) (includes drip-irrigated crops)	N	N	N			
her Activities						
NPDES/WDR permitted discharges (H)	N	N	N			
Underground Injection of Commercial/Industrial Discharges (VH)	N	N	N			an a
Historic gas stations (VH)	N	N	N			
Historic waste dumps/ landfills (VH)	N	N	N			
Illegal activities/ unauthorized dumping (H)	N	N	N			
Injection wells/ dry wells/ sumps (VH)	N	N	N			······································
Known Contaminant Plumes (VH)	N	N	N			
Military installations (VH)	N	N	N	T		······································
Mining operations - Historic (VH)	N	N	N	1		
Mining operations - Active (VH)	N	N	N			······································
Mining - Sand/Gravel (H)	N	N	N			
Wells - Oil, Gas, Geothermal (H)	N	N	N			
Salt Water Intrusion (H)	N	N	N			
Recreational area - surface water source (H)	N	N	Y		MID canals	
Underground storage tanks - Confirmed leaking tanks (VH)	N	N	N			, , , , , , , , , , , , , , , , , , ,
Underground storage tanks - Decommissioned - inactive tanks (L)	N	N	N			<u>,a a tari ang ng n</u>

## Inventory of Possible Contaminating Activities (PCA Inventory)

System Name	MERCED, CITY OF					System	No. <u>24100</u>	09
Source Name	WELL 07A - RAW	So	ource No.	013		_ PS Code	2410009-01	3
PCA (Risk Rankin	g)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments		
Other Activiti	es							
Underground storage smaller than regula	ge tanks - Non-regulated tanks (tanks tory limit) (H)	N	N	N				
Underground storage registered tanks (H	ge tanks - Not yet upgraded or )	N	N	N				
Underground storage - active tanks (L)	ge tanks - Upgraded and/or registered	N	N	N		· ·	sante.	
Above ground stora	age tanks (M)	N	N	N				
Wells - Water supp	ly (M)	Y	Y	Y				
Construction/demo	lition staging areas (M)	N	N	N				
Contractor or gover yards (M)	mment agency equipment storage	N	N	N		1		
Dredging (M)		N	N	N				
Transportation corr	idors - Freeways/state highways (M)	N	N	N			- <b></b>	
Transportation corr	idors - Railroads (M)	N	N	N				
Transportation corr	idors - Historic railroad right-of-ways	N	N	N				
use areas) (M)	idors - Road Right-of-ways (herbicide	Y	Y	Y				
Transportation corr	idors - Roads/ Streets (L)	N	N	N			a 50	
Hospitals (M)		N	N	N				
Storm Drain Discha	arge Points (M)	N	N	N				
Storm Water Deter	ntion Facilities (M)	N	N	N				
Artificial Recharge water) (L)	Projects - Injection wells (potable	N	N	N				
Artificial Recharge water) (M)	Projects - Injection wells (non-potable	N	N	N				
Artificial Recharge water) (L)	Projects - Spreading Basins (potable	N	N	N				
Artificial Recharge (non-potable water	Projects - Spreading Basins ) (M)	N	N	N				
Medical/dental office	ces/clinics (L)	N	N	N	1		······	
Veterinary offices/c	clinics (L)	N	N	N	1			
Surface water - str	eams/ lakes/rivers (L)	N	N	N	1			
Wells - monitoring,	, test holes (L)	Y	N	Ň		Onsite monitor	ing wells.	

Y = Yes N = No U = Unknown

## **Vulnerability Ranking**

District Name	City of Merced	District No. M4	County	Merced		
System Name	MERCED, CITY OF			System	n No.	2410009
Source Name	WELL 07A - RAW	Source No	013	PS Code	24	10009-013
Completed by	Patrick Riggs	Date	March, 2	2003		

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
А	Agricultural Drainage (H in Zone A, otherwise M)		5	5	1	11
А	Farm chemical distributor/ application service (H)		5	5	1	11
Α	Septic systems - low density (<1/acre) (H in Zone A, otherwise L)		5	5	1	11
A	Sewer collection systems (H, if in Zone A, otherwise L)		5	5	1	11
A	Wells - Agricultural/ Irrigation (H)		5	5	1	11
A	Crops, irrigated (Berries, hops, mint, orchards, sod, greenhouses, vineyards, nurseries, vegetable) (M)		3	5	1	9
A	Fertilizer, Pesticide/ Herbicide Application (M)		3	5	1	9
A	Housing - high density (>1 house/0.5 acres) (M)		3	5	1	9
A	Transportation corridors - Road Right-of-ways (herbicide use areas) (M)		3	5	1	9
A	Wells - Water supply (M)		3	5	1	9
- <b>P</b> 5	Farm chemical distributor/ application service (H)	1	5	3	1	9
<u></u>	Wells - Agricultural/ Irrigation (H)		5	3	1	9
					+	



© Information Center for the Environment Coding by <u>Eric Lehmer</u> Mapping System produced using <u>ESRI</u> ArcIMS

## **Drinking Water Source Assessment**

Water System

MERCED, CITY OF Merced County

Water Source

### WELL 07B - RAW

Assessment Date

March, 2003

California Department of Health Services Drinking Water Field Operations Branch City of Merced

> District No. M4 System No. 2410009 Source No. 014 PS Code 2410009-014

Assessme	ent Summary				
<b>District Name</b>	City of Merced	District No	County	Merced	
System Name	MERCED, CITY OF			Systen	n No. <u>2410009</u>
Source Name	WELL 07B - RAW	Source No	014	PS Code	2410009-014
Completed by	Patrick Riggs	Date	March, 2	2003	

#### **Description of System and Source**

The City of Merced water system is located in Merced County and serves the Merced City and part of the bordering Merced County. There are approximately 17,125 service connections serving a population of 63,000.

The only drinking water source for the City of Merced water system is groundwater wells. The recharge area for the source includes hundreds of square miles originating from the Eastern Seirra Nevada foothills and mountain range. General land use is agricultural | urban | residential | undeveloped etc.

#### **Assessment Procedures**

The assessment of the source WELL 07B - RAW was conducted by the City of Merced Environmental Control Office. The following sources of information were used in the assessment: Water system files, DHS files.

Procedures used to conduct the assessment include: Assistance from DHS jurisdictional office, Turbo Swap program for data input.

#### **Contents of this Assessment**

Yes X	No 🗌	Assessment Summary
Yes 🔀	No 🗌	Vulnerability Summary
Yes X	No 🗌	Source Location Form
Yes X	No 🗌	<b>Delineation of Ground Water Protection Zones</b>
Yes X	No 🗌	Physical Barrier Effectiveness Checklist
Yes X	No 🗌	Source Data Sheet
Yes X	No 🗌	Inventory of Possible Contaminating Activities
Yes X	No 🗌	Vulnerability Ranking
Yes X	No 🗌	Assessment Map

District Name	City of Merced	District No. <u>M4</u>	County	Merced		en
System Name	MERCED, CITY OF			Syst	em No	2410009
Source Name	WELL 07B - RAW	Source No	014	PS Code	24	10009-014
Completed by	Patrick Riggs	Date _	March,	2003		
A source wa	ALLOWING INFORMATION MUST E Iter assessment was conducted to the second of the second		RAW			
A source wa of the _ <b>MEF</b>	iter assessment was conducte RCED, CITY OF	ed for the <u>WELL 07B -</u>	RAW water s	ystem in _		
A source wa of the _ <b>MEF</b> The source	iter assessment was conducte	ed for the <u>WELL 07B -</u>	RAW water s	ystem in _		
A source wa of the _ <b>MEF</b> The source	iter assessment was conducte <b>RCED, CITY OF</b> is considered most vulnerable rected contaminants: Agricultural Drainage	ed for the <u>WELL 07B -</u>	RAW water s	ystem in _		
A source wa of the _ <b>MEF</b> The source	iter assessment was conducte <b>RCED, CITY OF</b> is considered most vulnerable sected contaminants: Agricultural Drainage Farm chemical distributo	ed for the <u>WELL 07B -</u> e to the following activitie or/ application service	RAW water s	ystem in _		
A source wa of the _ <b>MEF</b> The source	iter assessment was conducte <b>RCED, CITY OF</b> is considered most vulnerable rected contaminants: Agricultural Drainage	ed for the <u>WELL 07B -</u> e to the following activitie or/ application service nsity	RAW water s	ystem in _		

A copy of the complete assessment may be viewed at:

Public Works Environmental Control Division 1776 Grogan Avenue Merced, CA 95340

You may request a summary of the assessment be sent to you by contacting:

Patrick Riggs Environmental Control Officer II 209-385-6817 209-384-7772 (fax) riggsp@cityofmerced.org



# Delineation of Ground Water Protection Zones

1	District Name	City of Merced	District NoM4	County	Merced			
<u> </u>	System Name	MERCED, CITY OF			Systen	n No	2410009	
· · · · ·	Source Name	WELL 07B - RAW	Source No	014	PS Code	241	10009-014	_
(	Completed by	Patrick Riggs	Date	March, 2	2003			

**Method Used to Delineate Protection Zones** 

### X 1. Calculated Fixed Radius

- 2. Modified Calculated Fixed Radius (Attach documentation for direction of ground water flow.)
- 3. More Detailed Methods
- 4. Arbitrary Fixed Radius (For use only by or permission of DHS)

Maximum Pumping Rate of Well (Q)	2,200 3,549 154,587,400	gallons/minute acre feet/year cubic feet/year
Effective Porosity	0.20	Default Value
Screened Interval of Well	92_ feet	Default Value

····*	Protection Zone	Calculated Value	Minimum Value	Radius of Protection Zone
	Zone A - 2 Year TOT*	2,313 Feet	600 Feet	2,313 Feet
	Zone B5 - 5 Year TOT*	3,657 Feet	1,000 Feet	3,657 Feet
	Zone B10 - 10 Year TOT*	5,171 Feet	1,500 Feet	5,171 Feet

\*TOT = Time of Travel

District Name City	rrier Effectivenes		<b>***</b>	Marcad	- ALTERNATION - THE WEIGHT OF LIGHT STUDY AND A	ar na mana kata (1997) (1996) (1997)
	of Merced	District No. <u>M4</u>	County	Merced		
	RCED, CITY OF			Syst	tem No. <u>24</u>	10009
Source Name WE	LL 07B - RAW	Source No	014	PS Code	241000	9-014
Completed by Pat	rick Riggs	Date	March,	2003		
Parameter				Possible Points	This Source	Score
ype of Aquifer Confinement						
1. Unconfined, Semi-	confined, Fractured Rock, Unkr	nown Aquifer		0		
2. Confined	·····			50	Х	50
	mination (All Aquifers)	l Wells			dan an Change Chily (	
1. Present within Zor	ne A (2 year TOT distance)	Yes		0		
		No		5	X	5
	· · · · · · · · · · · · · · · · · · ·	Unknown		0		
2. Present within Zon	e B5 (2 -5 year TOT distance)	Yes		0		
		No		3	X	3
		Unknown		0		
3. Present within Zon	ne B10 (5-10 year TOT distance	e)Yes		0		
		No		2	X	2
		Unknown		0		
What is the relation the overlying uncon	onfined Aquifers) ship in the hydraulic head be ifined aquifer? (i.e. does the aquifer is higher than head in u	well flow under artesian co		ř		
conditions.			<u> </u>	20	X	20
2. Head in confined a conditions.	aquifer is higher than head in ur	nconfined aquifer under static		10		
3. Head in confined a under static condit	aquifer is lower than or same as tions.	head in unconfined aquifer		0		
				0		
4. Unknown						
4. Unknown Well Construction (	All Aquifers)					1
		ne of less than 20 feet		0		
Well Construction (	lar Seal) Depth Nor	ne of less than 20 feet ween 20 and 50 feet		0		
Well Construction (	ilar Seal) Depth Nor <b>0</b> feet Bet			4		
Well Construction (	lar Seal) Depth Nor 0 feet Bet 50	ween 20 and 50 feet		6	X	0
Well Construction (	Ilar Seal) Depth Nor 0 feet Bet 50 Unl	ween 20 and 50 feet feet or greater	ucted	6 10	X	0
Well Construction ( Sanitary Seal (Annu	Ilar Seal) Depth Nor 0 feet Bet 50 Unl rete cap) Nor Wa	ween 20 and 50 feet feet or greater known	ell	6 10 0	X X X	0

## **Physical Barrier Effectiveness (PBE)**

System Name	MERCED, CITY OF	System No. 2410009			
Source Name	WELL 07B - RAW	Source No. 014	PS Code	241000	)9-014
Parameter			Possible Points	This Source	Score
Well Construct	tion (All Aquifers)cont	linued			
Flooding potential at well site		Subject to localized flooding (i.e. in low area or unsealed pit or vault) or within 100 year flood plain	0		
		Not subject to flooding	1	X	1
		Unknown	0		
Security at we	ll site	Not secure	0		
		Secure	5	X	5
		Unknown	0		

Score	Effectiveness
0 to 35	Low
36 to 69	Moderate
70 to 100	High

Maximum Score = 100

Score	90
Effectiveness _	High

Page 2

### WELL DATA SHEET (Page 1 of 2)

Complete as much information as possible. Leave blank if information is not a	vailable, use N.A. if not applic	able.
* Indicates items required for Source Water Assessment		
** Indicates additional items required for assessments and Ground Wat	er Rule	
		Actual, Estimated or Default?
DATA SHEET GENERAL INFORMATION		
System Name	City of Merced	from DHS database
System Number	2410009	from DHS database
Source of Information (well log, DHS/County files, system, etc)	well log, system files	
Organization Collecting Information (DHS, County, System, other)	System	· · · · · · · · · · · · · · · · · · ·
Date Information Collected/Updated	3/17/2003	
WELL IDENTIFICATION		
* Well Number or Name	Well 78	from DHS database
* DHS Source Identification Number (FRDS ID No.)		
DWR Well Log on File? ("YES" or "NO")	YES	
State Well Number (from DWR)	2410009022	
Well Status (Active, Standby, Inactive)	Active	
WELL LOCATION		
Latitude	37.325	City Surveyed 2002
Longitude	-120.443	City Surveyed 2002
Ground Surface Elevation (ft above Mean Sea Level)	186.77'	City Surveyed 2002
Street Address	3362 McKee Road	
Nearest Cross Street	El Portal Road	
City	Merced	
County	Merced	
* Neighborhood/Surrounding Area (see Note 1)	Ru/Re	
Site plan on file? ("YES" or "NO")	NO	
DWR Ground Water Basin		from UC Davis
DWR Ground Water Sub-basin		from UC Davis
SANITARY CONDITIONS		
** Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)	160'	
Distance to Active Wells (ft)	66'	
Distance to Abandoned Wells (ft)	None	
Distance to Surface Water (ft)	20'	
** Size of controlled area around well (square feet)	34,000 (approx.)	
* Type of access control to well site (fencing, building, etc)	fencing	e
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	YES	
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	18' x 10' x 9"	
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")	UNKNOWN	
* Drainage away from well? ("YES" or "NO")	YES	
ENCLOSURE/HOUSING		
Enclosure Type (building, vault, none, etc.)	Steel	
Floor material	Concrete	·
Located in Pit? ("YES" or "NO")	NO	
Pit depth (feet) (if applicable)		
WELL CONSTRUCTION		
Date drilled	1963	
Drilling Method	UNKNOWN	
Depth of Bore Hole (feet below ground surface)	339'	
Casing Beginning Depth/Ending Depth(ft below surface);	0/266'	
2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.		
Casing Diameter (inches); 2nd Casing Diameter; 3rd Casing, etc.	20"	
Casing Material; 2nd Casing Material; 3rd Casing, etc.	Steel	

,

## WELL DATA SHEET (Page 2 of 2)

Complete as much information as possible. Leave blank if information is not av	ailable, use N.A. if not applic	able.
* Indicates items required for Source Water Assessment		
** Indicates additional items required for assessments and Ground Wate	r Rule	
		Actual, Estimated or Default?
WELL CONSTRUCTION (continued)	······································	
Conductor casing used? ("YES", "NO" or "UNKNOWN") (See Note 2)	UNKNOWN	
Conductor casing removed? ("YES", "NO" or "UNKNOWN")		
* Depth to highest perforations/screens (ft below surface) (or		
"UNKNOWN")	174'	
Screened Interval Beginning Depth/Ending Depth (ft below surface);		
2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	174'-266'	
* Total length of screened interval (ft)		
(default = 10% pump capacity in gpm) (or "UNKNOWN")	92'	
* Annular Seal?("YES", "NO" or "UNKNOWN") (See Note 3)	UNKNOWN	
* Depth of Annular Seal (ft)		**************************************
Material of Annular Seal (cement grout, bentonite, etc.)		
Gravel pack, Depth to top (ft below ground surface)		
Total length of gravel pack (ft)		
AQUIFER		
* Aquifer Materials	aand alay ailt	
(list all that apply: sand, silt, clay, gravel, rock, fractured rock)	sand, clay, silt	
* Effective porosity (decimal percent) (default = 0.2) (or "UNKNOWN")	UNKNOWN	
* Confining layer (Impervious Strata) above aquifer? ("YES", "NO" or "UNKNOWN")	YES	
Thickness of confining layer, if known (ft)	10'	·······
Depth to confining layer, if known (ft below ground)	22'	
* Static water level (ft below ground surface)		د در این میکند. در این از در میکند و میکند و میکند از میکند و میکند. در این از در میکند و میکند و میکند و میکند و میکند و میکند. و میکند و میکند و میکند و میکند و میکند و میکند و م
Static water level measurement: Date/Method		perturbative production of the set of the
Pumping water level (ft below ground surface)		الم المرحلة المراجعة المراجعة المراجعة المراجعة الم المراجعة المراجعة الم
Pumping water level measurement: Date/Method		الم معالم المعالم المع المعالي معالم المعالم ا المعالم المعالم المعالم المعالم المعالم
WELL PRODUCTION		
Well Yield (gpm)	2200	
Well Yield Based On (i.e., pump test, etc.)	Meter	
Date measured	3/17/2003	
Is the well metered? ("YES" or "NO")	YES	
Production (gallons per year)	755.48 MG (2002)	
Frequency of Use (hours/year)	5723.2	
Typical pumping duration (hours/day)	15.68	
PUMP		
Make	Layne and Bowler	
	Constant Speed	
Size (hp)	125 HP	
* Capacity (gpm)	2649	
Depth to suction intake (ft below ground surface)	174'	
Lubrication Type	Oil	
Type of Power: (i.e., electric, diesel, etc.)	Diesel Generator	
Auxiliary power available? ("YES" or "NO")	YES	
Operation controlled by: (i.e., level in tank, pressure, etc.)	Pressure	
Pump to Waste capability? ("YES" or "NO")	YES	
Discharges to: (i.e., distribution system, storage, etc.)	Distribution System	

## **Remarks and Defects**

Well Data Sheet Supplement	
REMARKS AND DEFECTS	
(Use or note these items as appropriate)	
(** indicates items pertinent to Ground Water Rule)	
Distance (ft) to other sanitary concerns:	
** Type of Sanitary Concern:	
Raw Water Quality concerns? (Yes or No)	yes
** Microbiological (coliform)	
Chemicals	
Other (list)	Nitrate
** Continuous Chlorination provided? (Yes or No)	yes
Condition of enclosure or housing	good
Pit Drained? (if applicable)	
Pitless Adaptor? Make and Model	
Height of pump base (inches)	9"
Casing Vent? (yes or no)	yes
Air/Vacuum Release? (yes or no)	yes
Sampling Taps? (yes or no)	yes
Location of sampling taps	Pump Discharge
Wellhead Riser? (yes or no); height above well	
Other	

Inventor	y of Possible Contami	nating	<b>j</b> Activ	vities (I	20	A Invento	<b>Y</b> )	
District Name			o. M4	County	,	Merced		
System Name	MERCED, CITY OF				_	System No	· 2410009	
Source Name	WELL 07B - RAW	Sc	ource No.	014		PS Code	2410009-014	
Completed by	Patrick Riggs		Date March, 2		, 20	003		
PCA (Risk Rankin	ıg)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments		
Residential/M	Iunicipal Activities							
Airports - Maintena	nce/ fueling areas (VH)	N	N	N			,	
Landfills/dumps (V	Н)	N	N	N				
Railroad yards/ ma	intenance/ fueling areas (H)	N	N	N			<u></u>	
Septic systems - hi otherwise M)	gh density (>1/acre) (VH if in Zone A,	N	Y	Y			, , <u>, , , , , , , , , , , , , , , , , </u>	
Sewer collection sy	vstems (H, if in Zone A, otherwise L)	Y	Y	Y				
Utility stations - ma	iintenance areas (H)	N	N	N		h <u>w</u>		
Wastewater treatm	ent plants (VH in Zone A, otherwise H)	N	N	N				
Drinking water trea	tment plants (M)	N	N	N				
Golf courses (M)		N	N	N				
Housing - high den	sity (>1 house/0.5 acres) (M)	Y	Y	Y				
ntor pools (M)		N	N	N				
rks (M)		N	N	Y				
Waste transfer/rec	ycling stations (M)	N	N	N				
Apartments and co	ondominiums (L)	N	N	N				
Campgrounds/ Re	creational areas (L)	N	N	N				
Fire stations (L)		Y	N	N				
RV Parks (L)		N	N	N			<u> </u>	
Schools (L)	· · · · · · · · · · · · · · · · · · ·	N	N	N				
Hotels, Motels (L)		N	N	N				
Agricultural/	Rural Activities							
Grazing (> 5 large Zone A, otherwise	animals or equivalent per acre) (H in M)	N	N	N				
	nal Feeding Operations (CAFOs) as regulation1 (VH in Zone A, otherwise	N	N	N				
-	perations as defined in federal Zone A, otherwise H)	N	N	N			<u></u>	
Other Animal operations (H in Zone A, otherwise M)		N	N	N	$\uparrow$		<u></u>	
Farm chemical distributor/ application service (H)		Y	Y	Y	1			
Farm machinery repair (H)		N	N	N	$\uparrow$		· · · · · · · · · · · · · · · · · · ·	
·					-+			

Y = Yes N = No U = Unknown
Inventor	y of Possible Contami	nating	<b>y Activ</b>	vities (l	<b>PC</b>	CA Inventory)
System Name	MERCED, CITY OF					System No2410009
Source Name	WELL 07B - RAW	So	ource No	014		PS Code2410009-014
PCA (Risk Rankin	ig)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Agricultural/F	Rural Activities					
Septic systems - lo otherwise L)	w density (<1/acre) (H in Zone A,	Y	Y	Y		
Lagoons / liquid wa	astes (H)	N	N	N		
Machine shops (H)	l	N	N	N		
Pesticide/fertilizer/	petroleum storage & transfer areas (H)	U	U	U		
Agricultural Draina	ge (H in Zone A, otherwise M)	Y	Y	Y		
Wells - Agricultura	al/ Irrigation (H)	Y	Y	Y		
Managed Forests (	(M)	N	N	N		
	erries, hops, mint, orchards, sod, yards, nurseries, vegetable) (M)	Y	Y	Y		
Fertilizer, Pesticide	e/ Herbicide Application (M)	Y	Y	Y		
Sewage sludge/bio	osolids application (M)	N	N	N		
	d (e.g., Christmas trees, grains, grass e) (L) (includes drip-irrigated crops)	N	N	N		
her Activit	ies					
DES/WDR perr	nitted discharges (H)	N	N	N		
Underground Inject Discharges (VH)	tion of Commercial/Industrial	N	N	N		
Historic gas station	ns (VH)	N	N	N		
Historic waste dun	nps/ landfills (VH)	N	N	N		
Illegal activities/ u	nauthorized dumping (H)	N	N	N		
Injection wells/ dry	v wells/ sumps (VH)	- N	N	N		
Known Contamina	int Plumes (VH)	N	N	N		
Military installation	ns (VH)	N	N	N		
Mining operations	- Historic (VH)	N	N	N	1	
Mining operations	- Active (VH)	N	N	N		
Mining - Sand/Gra	ivel (H)	N	N	N	1	
Wells - Oil, Gas, O	Geothermal (H)	N	N	N	1	
Salt Water Intrusion	on (H)	N	N	N	$\uparrow$	
Recreational area	- surface water source (H)	N	N	Y	$\uparrow$	MID canals
Underground stor (VH)	age tanks - Confirmed leaking tanks	N	N	N		
Underground stor tanks (L)	age tanks - Decommissioned - inactive	N	N	N		
					-	

Y = Yes N = No U = Unknown

Inventor	y of Possible Contam	inating	<b>j Activ</b>	<b>/ities</b> (	PC	CA Inventory	)
System Name	MERCED, CITY OF					System No.	2410009
Source Name	WELL 07B - RAW	S	ource No.	014		PS Code24	10009-014
PCA (Risk Rankin	g)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments	
Other Activiti	es						
Underground stora smaller than regula	ge tanks - Non-regulated tanks (tanks tory limit) (H)	N	N	N			
Underground stora registered tanks (H	ge tanks - Not yet upgraded or )	N	N	N			
Underground stora - active tanks (L)	ge tanks - Upgraded and/or registered	N	N	N			
Above ground stora	age tanks (M)	N	N	N			
Wells - Water supp	iy (M)	Y	Y	Y			
Construction/demo	lition staging areas (M)	N	N	N	ļ	· · · · · · · · · · · · · · · · · · ·	
Contractor or gover yards (M)	mment agency equipment storage	N	N	N			
Dredging (M)		N	N	N			
Transportation corr	idors - Freeways/state highways (M)	N	N	N			
Transportation corr	idors - Railroads (M)	N	N	N			
Transportation corr	idors - Historic railroad right-of-ways	N	N	N			
ansportation con use areas) (M)	idors - Road Right-of-ways (herbicide	Y	Y	Y			
Transportation corr	idors - Roads/ Streets (L)	N	N	N		· · · · · · · · · · · · · · · · · · ·	·······
Hospitals (M)		N	N	N			
Storm Drain Discha	arge Points (M)	N	N	N			
Storm Water Deter	ntion Facilities (M)	N	N	N			
Artificial Recharge water) (L)	Projects - Injection wells (potable	N	N	N			
Artificial Recharge water) (M)	Projects - Injection wells (non-potable	N	N	N			
water) (L)	Projects - Spreading Basins (potable	N	N	N			
(non-potable water		N	N	N			
Medical/dental office	ces/clinics (L)	N	N	N			
Veterinary offices/	clinics (L)	N	N	N			
Surface water - str	eams/ lakes/rivers (L)	N	N	N	<b> </b>		······································
Wells - monitoring	, test holes (L)	Y	N	N	1	Onsite monitoring w	ells.

	ining Mater	Source Assessment and Fro	lection (DWSAF) Program	"				
νι	Ilnerabi	lity Ranking						
D	istrict Name	City of Merced	District No. M4	_ C	ounty <u>Me</u>	rced		
Sj	stem Name	MERCED, CITY OF				Syste	m No.	2410009
S	ource Name	WELL 07B - RAW	Source No	0	<u>14 </u> F	PS Code	2410	0009-014
C	ompleted by	Patrick Riggs	Date _	N	larch, 2003	1	······	
Zone	PCA (Risk F	Ranking)		*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
А	Agricultural I	Drainage (H in Zone A, otherwise N	M)		5	5	1	11
А	Farm chemic	cal distributor/ application service (	H)		5	5	1	11
А	Septic syste	ms - low density (<1/acre) (H in Zo	ne A, otherwise L)		5	5	1	11
А	Sewer collec	tion systems (H, if in Zone A, othe	rwise L)		5	5	1	11
A	Wells - Agri	cultural/ Irrigation (H)			5	5	1	11
Α		ted (Berries, hops, mint, orchards, urseries, vegetable) (M)	sod, greenhouses,		3	5	1	9
Α	Fertilizer, Pe	esticide/ Herbicide Application (M)			3	5	1	9
Α	Housing - hi	gh density (>1 house/0.5 acres) (N	1)		3	5	1	9
Α	Transportati	on corridors - Road Right-of-ways	(herbicide use areas) (M)		3	5	1	9
Α	Wells - Wat	er supply (M)			3	5	1	9
<b>B</b> 5	Farm chemi	cal distributor/ application service (	(H)		5	3	1	9
5	Wells - Agri	icultural/ Irrigation (H)			5	3	1	9

Ċ



© Information Center for the Environment Coding by <u>Eric Lehmer</u> Mapping System produced using <u>ESRI</u> ArcIMS

mhtml:file://C:\Documents%20and%20Settings\riggsp\Desktop\Deliniation%20Zones\Well% 3/14/2003

Water System

MERCED, CITY OF

Merced County

Water Source WELL 07C

Assessment Date

March, 2003

California Department of Health Services Drinking Water Field Operations Branch City of Merced

> District No. M4 System No. 2410009 Source No. 022 PS Code 2410009-022

Assessme	ent Summary					
District Name	City of Merced	District NoM4	County	Merced		
System Name	MERCED, CITY OF			System	No	2410009
Source Name	WELL 07C	Source No	022	PS Code	24	10009-022
Completed by	Patrick Riggs	Date	March, 2	2003		

#### **Description of System and Source**

The City of Merced water system is located in Merced County and serves the Merced City and part of the bordering Merced County. There are approximately 17,125 service connections serving a population of 63,000.

The only drinking water source for the City of Merced water system is groundwater wells. The recharge area for the source includes hundreds of square miles originating from the Eastern Seirra Nevada foothills and mountain range. General land use is agricultural | urban | residential | undeveloped etc.

#### **Assessment Procedures**

The assessment of the source WELL 07C - RAW was conducted by the City of Merced Environmental Control Office. The following sources of information were used in the assessment: Water system files, DHS files.

Procedures used to conduct the assessment include: Assistance from DHS jurisdictional office, Turbo Swap program for data input.

#### **Contents of this Assessment**

Assessment Summary
Vulnerability Summary
Source Location Form
<b>Delineation of Ground Water Protection Zones</b>
Physical Barrier Effectiveness Checklist
Source Data Sheet
Inventory of Possible Contaminating Activities
Vulnerability Ranking
Assessment Map

Vulnerab	ility Summary				
District Name	City of Merced	District No. <u>M4</u>	County	Merced	
ystem Name	MERCED, CITY OF			System N	lo. <u>2410009</u>
Source Name	WELL 07C	Source No	022	PS Code	2410009-022
Completed by	Patrick Riggs	Date	March,	2003	
THE FOL	LOWING INFORMATION MUS	T BE INCLUDED IN THE SYSTE		MER CONFIDENCE	REPORT
of the MER	CED, CITY OF		water s	system in <u>Mai</u>	<u>rch, 2003</u>
	s considered most vulnera ected contaminants:	ble to the following activitie	s not asso	ociated	
	Agricultural Drainage				·
		utor/ application service			
	Septic systems - low of	•			
	Sewer collection syste				

Wells - Agricultural/ Irrigation

### **Discussion of Vulnerability**

ity of Merced Well Station #7 houses three municipal groundwater wells. A 500,000 gallon storage tank is onsite secured by fencing.

A copy of the complete assessment may be viewed at:

Public Works Environmental Control Division 1776 Grogan Avenue Merced, CA 95340

You may request a summary of the assessment be sent to you by contacting:

Patrick Riggs Environmental Control Officer II 209-385-6817 209-384-7772 (fax) riggsp@cityofmerced.org



## **Delineation of Ground Water Protection Zones**

 <b>District Name</b>	City of Merced	District No	County	Merced			
System Name	MERCED, CITY OF			Syster	n No	2410009	
 Source Name	WELL 07C	Source No	022	PS Code	241	0009-022	
Completed by	Patrick Riggs	Date	March, 2	2003		·····	

Method Used to Delineate Protection Zones

### X 1. Calculated Fixed Radius

- 2. Modified Calculated Fixed Radius (Attach documentation for direction of ground water flow.)
- 3. More Detailed Methods
- 4. Arbitrary Fixed Radius (For use only by or permission of DHS)

Maximum Pumping Rate of Well (Q)	<u> </u>	gallons/minute acre feet/year cubic feet/year
Effective Porosity	0.20	X Default Value
Screened Interval of Well	<b>135</b> feet	Default Value

Protection Zone	Calculated Value	Minimum Value	Radius of Protection Zone
Zone A - 2 Year TOT*	2,154 Feet	600 Feet	2,154 Feet
Zone B5 - 5 Year TOT*	3,406 Feet	1,000 Feet	<b>3,406</b> Feet
Zone B10 - 10 Year TOT*	4,816 Feet	1,500 Feet	4,816 Feet

\*TOT = Time of Travel

Dhive load Barrier Effectiven				
Physical Barrier Effectivene				
District Name City of Merced	District No. <u>M4</u> County	Merced		
System Name <u>MERCED, CITY OF</u>		Syst	tem No. <u>24</u>	10009
Source Name	Source No022	PS Code	241000	9-022
Completed byPatrick Riggs	Date March	, 2003		·····
Parameter		Possible Points	This Source	Score
Type of Aquifer Confinement				
1. Unconfined, Semi-confined, Fractured Rock, Ur	nknown Aquifer	0		
2. Confined		50	X	50
Pathways of Contamination (All Aquifers Presence of Abandoned or Improperly Destroy				
1. Present within Zone A (2 year TOT distance)	Yes	0		
	No	5	X	5
	Unknown	0		
2. Present within Zone B5 (2 -5 year TOT distance	e) Yes	0		
	No	3	X	3
	Unknown	0		
3. Present within Zone B10 (5-10 year TOT dista	nce) Yes	0		
	No	2	X	2
	Unknown	0		
ydraulic Head (Confined Aquifers) What is the relationship in the hydraulic head the overlying unconfined aquifer? (i.e. does the 1. Head in confined aquifer is higher than head in	ne well flow under artesian conditions	3)		
conditions.		20	X	20
<ol><li>Head in confined aquifer is higher than head in conditions.</li></ol>	unconfined aquifer under static	10		
<ol><li>Head in confined aquifer is lower than or same under static conditions.</li></ol>	as head in unconfined aquifer	0		
4. Unknown		0		
Well Construction (All Aquifers)				
Sanitary Seal (Annular Seal) Depth	None of less than 20 feet	0		
<b>0</b> feet E	Between 20 and 50 feet	6		
	50 feet or greater	10		1
(	Jnknown	0	X	0
Surface Seal (concrete cap)	Not present or improperly constructed	0		
	Natertight, slopes away from well at least 2' laterally in all directions	4	X	4

# **Physical Barrier Effectiveness (PBE)**

System Name <u>MERCED, CITY OF</u>	-	Syst	tem No	2410009
Source Name WELL 07C	Source No022	PS Code	2410	009-022
Parameter		Possible Points	This Source	Score
Well Construction (All Aquifers)co	ontinued			
Flooding potential at well site	Subject to localized flooding (i.e. in low area or unsealed pit or vault) or within 100 year flood plain	0		
	Not subject to flooding	1	Х	1
	Unknown	0		
Security at well site	Not secure	0		
	Secure	5	Х	5
	Unknown	0		

Effectiveness
Low
Moderate
High

Maximum Score = 100

Score	90
Effectiveness _	High

### WELL DATA SHEET (Page 1 of 2)

Complete as much information as possible. Leave blank if information is not a	vailable, use N.A. if not applic	able.
* Indicates items required for Source Water Assessment		
* Indicates additional items required for assessments and Ground Wat	er Rule	
	-	Actual, Estimated or Default?
DATA SHEET GENERAL INFORMATION		
System Name	City of Merced	from DHS database
System Number	2410009	from DHS database
Source of Information (well log, DHS/County files, system, etc)	well log, system files	
Organization Collecting Information (DHS, County, System, other)	System	
Date Information Collected/Updated	3/18/2003	
WELL IDENTIFICATION	0/10/2000	
* Well Number or Name	Well 7G	from DHS database
* DHS Source Identification Number (FRDS ID No.)		
DWR Well Log on File? ("YES" or "NO")	YES	
State Well Number (from DWR)	2410009014	
Well Status (Active, Standby, Inactive)	Active	
WELL LOCATION	7.00170	
Latitude	37.325	City Surveyed 2002
Longitude	-120.444	City Surveyed 2002
Ground Surface Elevation (ft above Mean Sea Level)	185.74	City Surveyed 2002
Street Address	3362 McKee Road	City Surveyed 2002
Nearest Cross Street	El Portal Road	
City		
County	Merced	
* Neighborhood/Surrounding Area (see Note 1)	Merced Ru/Re	
Site plan on file? ("YES" or "NO")		
DWR Ground Water Basin	NO	
DWR Ground Water Sub-basin		from UC Davis
SANITARY CONDITIONS		from UC Davis
** Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)	400	
Distance to Active Wells (ft)	160'	
Distance to Abandoned Wells (ft)	215'	
Distance to Surface Water (ft)	None	
** Size of controlled area around well (square feet)	80'	
* Type of access control to well site (foreing building stal	34,000 (approx.)	
* Type of access control to well site <i>(fencing, building, etc)</i> * Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	fencing	
	YES	
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	4'10" x 4'8" x 16"	
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")	UNKNOWN	
* Drainage away from well? ("YES" or "NO")	YES	
ENCLOSURE/HOUSING		
Enclosure Type <i>(building, vault, none, etc.)</i> Floor material	none	
	Concrete	
Located in Pit? ("YES" or "NO")	NO	-
Pit depth (feet) (if applicable)		
WELL CONSTRUCTION		
Date drilled	1963	
Drilling Method	UNKNOWN	
Depth of Bore Hole (feet below ground surface)	339'	
Casing Beginning Depth/Ending Depth(ft below surface);	0/266'	
2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.		
Casing Diameter (inches); 2nd Casing Diameter; 3rd Casing, etc.	20"	
Casing Material; 2nd Casing Material; 3rd Casing, etc.	Steel	

,

Ć

### WELL DATA SHEET (Page 2 of 2)

<ul> <li>Indicates items required for Source Water Assessment</li> <li>Indicates additional items required for assessments and Ground Wate</li> </ul>	r Pulo	
		Actual Entime
		Actual, Estima
WELL CONSTRUCTION (continued)		or Default?
Conductor casing used? ("YES", "NO" or "UNKNOWN") (See Note 2)		
Conductor casing used? ("YES", "NO" or "UNKNOWN") (See Note 2)	UNKNOWN	
* Depth to highest perforations/screens (ft below surface) (or	······································	
"UNKNOWN")	335'	
Screened Interval Beginning Depth/Ending Depth (ft below surface);	(335'-375') (450'-505')	
2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	(560'-600')	
* Total length of screened interval (ft)	(560-600)	
(default = 10% pump capacity in gpm) (or "UNKNOWN")	135'	
* Annular Seal?("YES", "NO" or "UNKNOWN") (See Note 3)		
* Depth of Annular Seal (ft)	UNKNOWN	
Material of Annular Seal (cement grout, bentonite, etc.)		
Gravel pack, Depth to top (ft below ground surface)		_
Total length of gravel pack (ft)	· · · · · · · · · · · · · · · · · · ·	
AQUIFER		
* Aquifer Materials		
(list all that apply: sand, silt, clay, gravel, rock, fractured rock)	sand, clay, silt	
* Effective porosity (decimal percent) (default = 0.2) (or "UNKNOWN")		
* Confining layer (Impervious Strata) above aguifer?	UNKNOWN	
("YES", "NO" or "UNKNOWN")	YES	
Thickness of confining layer, if known (ft)	10'	_
Depth to confining layer, if known (ft below ground)	22'	
* Static water level (ft below ground surface)		al and a california a surviv
Static water level measurement: Date/Method		ار و بر از بار از از این و بود وی از از این از ا این از از این وی
Pumping water level (ft below ground surface)		(a) A second se Second second seco
Pumping water level measurement: Date/Method	······································	and and a standard set of the s NATE AND A STANDARD SET OF THE STANDA
WELL PRODUCTION		
Well Yield (gpm)	2800	
Well Yield Based On (i.e., pump test, etc.)	Meter	
Date measured	3/18/2003	
Is the well metered? ("YES" or "NO")	YES	-
Production (gallons per year)	878.79 MG (2002)	
Frequency of Use (hours/year)	5230.45	
Typical pumping duration (hours/day)	14.33	··-
PUMP	11.00	
Make	Peabody / Floway	
Туре	Constant Speed	
Size (hp)	300	
* Capacity (gpm)	2649	-
Depth to suction intake (ft below ground surface)	355'	
Lubrication Type	Oil	
Type of Power: (i.e., electric, diesel, etc.)	Diesel Generator	
Auxiliary power available? ("YES" or "NO")	YES	
Operation controlled by: (i.e., level in tank, pressure, etc.)	Pressure	
	1 1000010	1

# **Remarks and Defects**

Well Data Sheet Supplement	
REMARKS AND DEFECTS	
(Use or note these items as appropriate)	
(** indicates items pertinent to Ground Water Rule)	
Distance (ft) to other sanitary concerns:	
** Type of Sanitary Concern:	······································
** Type of Sanitary Concern:	
Raw Water Quality concerns? (Yes or No)	yes
** Microbiological (coliform)	
Chemicals	
Other (list)	Nitrate
** Continuous Chlorination provided? (Yes or No)	yes
Condition of enclosure or housing	
Pit Drained? (if applicable)	
Pitless Adaptor? Make and Model	
Height of pump base (inches)	16"
Casing Vent? (yes or no)	yes
Air/Vacuum Release? (yes or no)	yes
Sampling Taps? (yes or no)	yes
Location of sampling taps	Pump Discharge
Wellhead Riser? (yes or no); height above well	
Other	

Inventory of Possible Contam	inating			PC	A Invent	ory)	
District NameCity of Merced	District N		Count		Merced		
System NameMERCED, CITY OF					System	No.	2410009
Source Name WELL 07C	So	ource No.	022		PS Code		0009-022
Completed byPatrick Riggs		Date	March	n, 20	003		
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments		
Residential/Municipal Activities				i			
Airports - Maintenance/ fueling areas (VH)	N	N	N				
Landfills/dumps (VH)	N	N	N				
Railroad yards/ maintenance/ fueling areas (H)	N	N	N				
Septic systems - high density (>1/acre) (VH if in Zone A, otherwise M)	N	Y	Y				
Sewer collection systems (H, if in Zone A, otherwise L)	Y	Y	Y				
Utility stations - maintenance areas (H)	N	N	N				
Wastewater treatment plants (VH in Zone A, otherwise H)	N	N	N	•			
Drinking water treatment plants (M)	N	N	N				
Golf courses (M)	N	N	N			·	
Housing - high density (>1 house/0.5 acres) (M)	Y	Y	Y				
Motor pools (M)	N	N	N				
rks (M)	N	N	Y				
Waste transfer/recycling stations (M)	N	N	N				
Apartments and condominiums (L)	N	N	N				
Campgrounds/ Recreational areas (L)	N	N	N				
Fire stations (L)	Y	N	N				
RV Parks (L)	N	N	N				
Schools (L)	N	N	N				
Hotels, Motels (L)	N	N	N				
Agricultural/Rural Activities							
Grazing (> 5 large animals or equivalent per acre) (H in Zone A, otherwise M)	N	N	N				
Concentrated Animal Feeding Operations (CAFOs) as defined in federal regulation1 (VH in Zone A, otherwise H)	N	N	N				
Animal Feeding Operations as defined in federal regulation2 (VH in Zone A, otherwise H)	N	N	N				
Other Animal operations (H in Zone A, otherwise M)	N	N	N				
Farm chemical distributor/ application service (H)	Y	Y	Y		·····		
Farm machinery repair (H)	N	N	N				urra

Y = Yes N = No U = Unknown

# Inventory of Possible Contaminating Activities (PCA Inventory)

System Name MERCED, CITY OF					System	No. <u>2410009</u>
ource Name WELL 07C	So	ource No.	022		_ PS Code	2410009-022
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments	
Agricultural/Rural Activities						
Septic systems - low density (<1/acre) (H in Zone A, otherwise L)	Y	Y	Y			<b>4</b> 00,000 - 100,000
Lagoons / liquid wastes (H)	N	N	N			
Machine shops (H)	N	N	N			
Pesticide/fertilizer/ petroleum storage & transfer areas (H)	U	U	U			
Agricultural Drainage (H in Zone A, otherwise M)	Y	Y	Y			
Wells - Agricultural/ Irrigation (H)	Y	Y	Y			
Managed Forests (M)	N	N	N			
Crops, irrigated (Berries, hops, mint, orchards, sod, greenhouses, vineyards, nurseries, vegetable) (M)	Y	Y	Y			<b>Warren</b>
Fertilizer, Pesticide/ Herbicide Application (M)	Y	Y	Y			MANYPESING
Sewage sludge/biosolids application (M)	N	N	N			
Crops, nonirrigated (e.g., Christmas trees, grains, grass seeds, hay, pasture) (L) (includes drip-irrigated crops)	N	N	N			
her Activities						
NPDES/WDR permitted discharges (H)	N	N	N			•
Underground Injection of Commercial/Industrial Discharges (VH)	N	N	N			P10-1
Historic gas stations (VH)	N	N	N			
Historic waste dumps/ landfills (VH)	N	N	N			·
Illegal activities/ unauthorized dumping (H)	N	N	N			<u></u>
Injection wells/ dry wells/ sumps (VH)	N	N	N			
Known Contaminant Plumes (VH)	N	N	N			
Military installations (VH)	N	N	N			
Mining operations - Historic (VH)	N	N	N			
Mining operations - Active (VH)	N	N	N			<u> </u>
Mining - Sand/Gravel (H)	N	N	N	1		
Wells - Oil, Gas, Geothermal (H)	N	N	N	Ĩ		
Salt Water Intrusion (H)	N	N	N			
Recreational area - surface water source (H)	N	N	Y		MID canals	·····
Underground storage tanks - Confirmed leaking tanks (VH)	N	N	N			
Underground storage tanks - Decommissioned - inactive tanks (L)	N	N	N			
				-		

Y = Yes N = No U = Unknown

# Inventory of Possible Contaminating Activities (PCA Inventory)

System Name	MERCED, CITY OF					System No. 2410009
Source Name	WELL 07C	Sc	ource No.	022		PS Code2410009-022
PCA (Risk Rankin	g)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other Activitie	es					
Underground storage smaller than regula	ge tanks - Non-regulated tanks (tanks tory limit) (H)	N	N	N		
Underground storage registered tanks (H	ge tanks - Not yet upgraded or )	N	N	N		
Underground storag	ge tanks - Upgraded and/or registered	N	N	N		
Above ground store	age tanks (M)	N	N	N		
Wells - Water supp	ly (M)	Y	Y	Y		
Construction/demo	lition staging areas (M)	N	N	N		
Contractor or gover yards (M)	mment agency equipment storage	N	N	N		
Dredging (M)		N	N	N		
Transportation corr	idors - Freeways/state highways (M)	N	N	N		
Transportation corr	idors - Railroads (M)	N	N	N		
Transportation corr	idors - Historic railroad right-of-ways	N	N	N		
Transportation corr use areas) (M)	idors - Road Right-of-ways (herbicide	Y	Y	Y		
Transportation corr	idors - Roads/ Streets (L)	N	N	N		
Hospitals (M)		N	N	N		
Storm Drain Discha	arge Points (M)	N	N	N		
Storm Water Deter	ntion Facilities (M)	N	N	N		
Artificial Recharge water) (L)	Projects - Injection wells (potable	N	N	N		
Artificial Recharge water) (M)	Projects - Injection wells (non-potable	N	N	N		
Artificial Recharge water) (L)	Projects - Spreading Basins (potable	N	N	N		
Artificial Recharge (non-potable water	Projects - Spreading Basins ) (M)	N	N	N		
Medical/dental office	ces/clinics (L)	N	N	N	1	
Veterinary offices/	clinics (L)	N	N	N	1	
Surface water - str	eams/ lakes/rivers (L)	N	N	N	1	
Wells - monitoring	, test holes (L)	Y	N	N		Onsite monitoring wells.

# **Vulnerability Ranking**

<b>District Name</b>	City of Merced	District No. M4	County	Merced		
System Name	MERCED, CITY OF			Syster	n No.	2410009
Source Name	WELL 07C	Source No.	022	PS Code	24	10009-022
Completed by	Patrick Riggs	Date	March, 2	2003		

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
А	Agricultural Drainage (H in Zone A, otherwise M)		5	5	1	11
А	Farm chemical distributor/ application service (H)		5	5	1	11
Α	Septic systems - low density (<1/acre) (H in Zone A, otherwise L)		5	5	1	11
А	Sewer collection systems (H, if in Zone A, otherwise L)		5	5	1	11
Α	Wells - Agricultural/ Irrigation (H)		5	5	1	· 11
A	Crops, irrigated (Berries, hops, mint, orchards, sod, greenhouses, vineyards, nurseries, vegetable) (M)		3	5	1	9
A	Fertilizer, Pesticide/ Herbicide Application (M)		3	5	1	9
А	Housing - high density (>1 house/0.5 acres) (M)		3	5	1	9
Α	Transportation corridors - Road Right-of-ways (herbicide use areas) (M)		3	5	1	9
A	Wells - Water supply (M)		3	5	1	9
-R5	Farm chemical distributor/ application service (H)		5	3	1	9
5	Wells - Agricultural/ Irrigation (H)		5	3	1	9
				<u> </u>	Į	



© Information Center for the Environment Coding by <u>Eric Lehmer</u> Mapping System produced using <u>ESRI</u> ArcIMS

# **Drinking Water Source Assessment**

Water System

MERCED, CITY OF Merced County

Water Source

# WELL 08 - RAW

Assessment Date

March, 2003

California Department of Health Services Drinking Water Field Operations Branch City of Merced

> District No. M4 System No. 2410009 Source No. 015 PS Code 2410009-015

Assessme	ent Summary				
<b>District Name</b>	City of Merced	District No. M4	County	Merced	
System Name	MERCED, CITY OF			System	n No. <u>2410009</u>
Source Name	WELL 08 - RAW	Source No.	015	PS Code	2410009-015
Completed by	Patrick Riggs	Date	March,	2003	

#### **Description of System and Source**

The City of Merced water system is located in Merced County and serves the Merced City and part of the bordering Merced County. There are approximately 17,125 service connections serving a population of 63,000.

The only drinking water source for the City of Merced water system is groundwater wells. The recharge area for the source includes hundreds of square miles originating from the Eastern Seirra Nevada foothills and mountain range. General land use is agricultural | urban | residential | undeveloped etc.

#### **Assessment Procedures**

The assessment of the source WELL 08 - RAW was conducted by the City of Merced Environmental Control Office. The following sources of information were used in the assessment: Water system files, DHS files.

Procedures used to conduct the assessment include: Assistance from DHS jurisdictional office, Turbo Swap program for data input.

### **Contents of this Assessment**

Yes X	No 🗌	Assessment Summary
Yes 🗶	No 🗌	Vulnerability Summary
Yes X	No 🗌	Source Location Form
Yes X	No 🗌	<b>Delineation of Ground Water Protection Zones</b>
Yes X	No 🗌	Physical Barrier Effectiveness Checklist
Yes X	No 🗌	Source Data Sheet
Yes X	No 🗌	Inventory of Possible Contaminating Activities
Yes 🗶	No 🗌	Vulnerability Ranking
Yes 🗶	No 🗌	Assessment Map

#### Water Source - 4-nd Droi

istrict Name	City of Merced	District No. M4	County	Merced		
System Name			County		stem No.	2440000
Source Name	MERCED, CITY OF WELL 08 - RAW	Source No.	015	Sy PS Code		2410009
		· · · · · · · · · · · · · · · · · · ·			<u>-</u>	410003-013
Completed by	Patrick Riggs	Date	March, 2	2003		
THE FO	LLOWING INFORMATION MUS	T BE INCLUDED IN THE SYST	EM CONSU	MER CONFIL		EPORT
						•
A source wat	ter assessment was conduc	cted for the <u>WELL 08 - R</u>	AW			
of the MER	CED, CITY OF	Ander 1 - R. C. S. C.	_ water s	system in	March	, 2003
	s considered most vulnerat inants detected in the water	-	s associat	ed		
	Dry cleaners					
	Historic gas stations					
	Known Contaminant Pl	lumes				
	Underground storage t	anks - Confirmed leaking t	anks			
	Chemical/petroleum pi	pelines				
	is considered most vulneral ected contaminants:	ble to the following activitie	es not asso	ociated		
	Agricultural Drainage					
	Agricultural Drainage					
	Recreational area - su	rface water source				
	Recreational area - su Sewer collection syste	ms				
	Recreational area - su	ms				
) iscussion o	Recreational area - sur Sewer collection syste Wells - Agricultural/ Ir	ms				
	Recreational area - su Sewer collection syste	ms rigation	ecured by fe	encing.		
	Recreational area - su Sewer collection syste Wells - Agricultural/ In	ms rigation	ecured by fe	encing.		
City of Merced	Recreational area - su Sewer collection syste Wells - Agricultural/ In	ms rigation nunicipal groundwater well se	ecured by fe	encing.		
City of Merced	Recreational area - sur Sewer collection syste Wells - Agricultural/ In of Vulnerability Well Station #8 houses one r	ms rigation nunicipal groundwater well se	cured by fe	encing.		
City of Merced	Recreational area - sur Sewer collection syste Wells - Agricultural/ In of Vulnerability Well Station #8 houses one r Well Station #8 houses one r Public Works Environr 1776 Grogan Avenue	ms rigation municipal groundwater well se ay be viewed at:	cured by fe	encing.		
City of Merced	Recreational area - sur Sewer collection syste Wells - Agricultural/ In of Vulnerability I Well Station #8 houses one r e complete assessment ma Public Works Environr	ms rigation municipal groundwater well se ay be viewed at:	cured by fe	encing.		
City of Merced	Recreational area - sur Sewer collection syste Wells - Agricultural/ In of Vulnerability Well Station #8 houses one r Well Station #8 houses one r Public Works Environr 1776 Grogan Avenue	ms rigation nunicipal groundwater well se ay be viewed at: nental Control Division				
City of Merced	Recreational area - sur Sewer collection syste Wells - Agricultural/ In of Vulnerability Well Station #8 houses one r Well Station #8 houses one r Public Works Environr 1776 Grogan Avenue Merced, CA 95340	ms rigation nunicipal groundwater well se ay be viewed at: nental Control Division				
City of Merced	Recreational area - sur Sewer collection syste Wells - Agricultural/ In <b>of Vulnerability</b> Well Station #8 houses one r Well Station #8 houses one r Public Works Environr 1776 Grogan Avenue Merced, CA 95340 quest a summary of the ass Patrick Riggs Environmental Control	ms rigation nunicipal groundwater well se ay be viewed at: mental Control Division sessment be sent to you b				
A copy of th	Recreational area - sur Sewer collection syste Wells - Agricultural/ In <b>of Vulnerability</b> Well Station #8 houses one r Well Station #8 houses one r Public Works Environr 1776 Grogan Avenue Merced, CA 95340 quest a summary of the ass Patrick Riggs	ms rigation nunicipal groundwater well se ay be viewed at: mental Control Division sessment be sent to you b				



## **Delineation of Ground Water Protection Zones**

	<b>District Name</b>	City of Merced	District No	County	Merced		
	System Name	MERCED, CITY OF			Systen	n No. <u>2410009</u>	
· · · ·	Source Name	WELL 08 - RAW	Source No	015	PS Code	2410009-015	
	Completed by	Patrick Riggs	Date	March, 2	2003		

#### **Method Used to Delineate Protection Zones**

### X 1. Calculated Fixed Radius

- 2. Modified Calculated Fixed Radius (Attach documentation for direction of ground water flow.)
- 3. More Detailed Methods
- 4. Arbitrary Fixed Radius (For use only by or permission of DHS)

Maximum	Pumping Rate of Well (Q)	2,00 3,22 140,534,00	26	gallons/minute acre feet/year cubic feet/year	
	Effective Porosity Screened Interval of Well	0.20	feet	Default Value	

Protection Zone	Calculated Value	Minimum Value	Radius of Protection Zone
Zone A - 2 Year TOT*	1,526 Feet	600 Feet	1,526 Feet
Zone B5 - 5 Year TOT*	2,413 Feet	1,000 Feet	2,413 Feet
Zone B10 - 10 Year TOT*	3,413 Feet	1,500 Feet	3,413 Feet

\*TOT = Time of Travel

(

	City of Merced	District No County	Merced	·	
System Name	MERCED, CITY OF		Sys	tem No. 24	10009
Source Name	WELL 08 - RAW	Source No. 015	PS Code	241000	
Completed by	Patrick Riggs	Date March	, 2003		
Parameter			Possible Points	This Source	Score
Type of Aquife Confinement					
1. Unconfined, S	Semi-confined, Fractured Rock, Unkno	own Aquifer	0		
2. Confined			50	X	50
	Contamination (All Aquifers) bandoned or Improperly Destroyed	Wells	-		
1. Present with	in Zone A (2 year TOT distance)	Yes	0		
		No	5	Х	5
		Unknown	0		
2. Present within Zone B5 (2 -5 year TOT distance)		Yes	0		
		No	3	X	3
		Unknown	0		
<ol><li>Present withi</li></ol>	in Zone B10 (5-10 year TOT distance	) Yes	0		
,		<u>No</u>	2	X	2
		Unknown	0		
What is the rel the overlying u	nd (Confined Aquifers) ationship in the hydraulic head beth inconfined aquifer? (i.e. does the v fined aquifer is higher than head in un	vell flow under artesian conditions	<b>?)</b> 20	x	20
2. Head in confi conditions.	ined aquifer is higher than head in uno	confined aquifer under static	10		
0 11	ined aquifer is lower than or same as conditions.	head in unconfined aquifer	0		
3. Head in confi under static o			0		1
<ol> <li>Head in confi under static of</li> <li>Unknown</li> </ol>			0		
under static o 4. Unknown	tion (All Aquifers)				
under static of 4. Unknown Well Construct	tion (All Aquifers)	e of less than 20 feet	0		
under static o 4. Unknown Well Construct	t <b>ion (All Aquifers)</b> (Annular Seal) Depth Non	e of less than 20 feet veen 20 and 50 feet			
under static o 4. Unknown Well Construct	t <b>ion (All Aquifers)</b> (Annular Seal) Depth Non <b>0</b> feet Betw		0		
under static of 4. Unknown Well Construct	t <b>ion (All Aquifers)</b> (Annular Seal) Depth Non <b>0</b> feet Betw 50 fe	veen 20 and 50 feet	0	X	0
under static o 4. Unknown Well Construct	tion (All Aquifers) (Annular Seal) Depth Non 0 feet Betw 50 fe Unk	veen 20 and 50 feet eet or greater	0 6 10	X	0
under static of 4. Unknown Well Construct Sanitary Seal (	tion (All Aquifers) (Annular Seal) Depth Non 0 feet Betw 50 fe Unk (concrete cap) Not Wat	veen 20 and 50 feet eet or greater nown	0 6 10 0	X	0

# **Physical Barrier Effectiveness (PBE)**

System Name <u>MERCED, CITY OF</u>		Syst	tem No	2410009
Source Name WELL 08 - RAW	Source No. 015	PS Code	2410	009-015
Parameter		Possible Points	This Source	Score
Well Construction (All Aquifers)co	ontinued			
Flooding potential at well site	Subject to localized flooding (i.e. in low area or unsealed pit or vault) or within 100 year flood plain	0		
	Not subject to flooding	1	Х	1
	Unknown	0		
Security at well site	Not secure	0		
	Secure	5	Х	5
	Unknown	0		

Score	Effectiveness	
0 to 35	Low	
36 to 69	Moderate	
70 to 100	High	
 		_

Maximum Score = 100

Score	90
Effectiveness	High

Page 2

### WELL DATA SHEET (Page 1 of 2)

Complete as much information as possible. Leave blank if information is not a * Indicates items required for Source Water Assessment	available, use N.A. if not applic	adie.
** Indicates additional items required for assessments and Ground Wa		
indicates additional items required for assessments and Ground wa		Actual Fatimates
		Actual, Estimated
DATA SHEET GENERAL INFORMATION		or Default?
System Name		
	City of Merced	from DHS databas
System Number	2410009	from DHS databas
Source of Information (well log, DHS/County files, system, etc)	well log, system files	
Organization Collecting Information (DHS, County, System, other)	System	
Date Information Collected/Updated	3/17/2003	
WELL IDENTIFICATION		
* Well Number or Name	Well 08	from DHS databa
* DHS Source Identification Number (FRDS ID No.)		
DWR Well Log on File? ("YES" or "NO")	YES	
State Well Number (from DWR)	2410009015	
Well Status (Active, Standby, Inactive)	Active	
WELL LOCATION		
Latitude	37.308	City Surveyed 20
Longitude	-120.504	City Surveyed 20
Ground Surface Elevation (ft above Mean Sea Level)	172.35	City Surveyed 20
Street Address	1520 W/N Bear Creek	
Nearest Cross Street	Hwy 59	
City	Merced	
County	Merced	
* Neighborhood/Surrounding Area (see Note 1)	Ru/Re	
Site plan on file? ("YES" or "NO")	NO	
DWR Ground Water Basin		from UC Davis
DWR Ground Water Sub-basin		from UC Davis
SANITARY CONDITIONS	-	
** Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)	175'	
Distance to Active Wells (ft)		
Distance to Abandoned Wells (ft)	200'	
Distance to Surface Water (ft)	100'	-
** Size of controlled area around well (square feet)	1485 (approx.)	
* Type of access control to well site (fencing, building, etc)	fencing	
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	YES	
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	4' x 4' x 18"	
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")	UNKNOWN	
* Drainage away from well? ("YES" or "NO")	YES	
ENCLOSURE/HOUSING	1L3	
Enclosure Type (building, vault, none, etc.)	Chaol	
Floor material	Steel	
Located in Pit? ("YES" or "NO")	Concrete	
Pit depth (feet) (if applicable)	NO	
WELL CONSTRUCTION		
Date drilled	1974	
Drilling Method	Rotary	
Depth of Bore Hole (feet below ground surface)	294'	
Casing Beginning Depth/Ending Depth(ft below surface);	0/294'	
2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.		
Casing Diameter (inches); 2nd Casing Diameter; 3rd Casing, etc.	18"	
Casing Material; 2nd Casing Material; 3rd Casing, etc.	Steel	

### WELL DATA SHEET (Page 2 of 2)

* Indicates items required for Source Water Assessment	Dula	
* Indicates additional items required for assessments and Ground Water	Rule	Actual, Estima
		or Default?
WELL CONSTRUCTION (continued)		
Conductor casing used? ("YES", "NO" or "UNKNOWN") (See Note 2)	YES	
Conductor casing removed? ("YES", "NO" or "UNKNOWN")	NO	
Depth to highest perforations/screens (ft below surface) (or		
'UNKNOWN")	102'	
Screened Interval Beginning Depth/Ending Depth (ft below surface);	4001 00 41	
2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	102'-294'	
* Total length of screened interval (ft)	192'	
(default = 10% pump capacity in gpm) (or "UNKNOWN")	192	
* Annular Seal?("YES", "NO" or "UNKNOWN") (See Note 3)	YES	
* Depth of Annular Seal (ft)	92'	
Material of Annular Seal (cement grout, bentonite, etc.)		
Gravel pack, Depth to top (ft below ground surface)		
Total length of gravel pack (ft)		
AQUIFER		
* Aquifer Materials	sand, clay, silt	
(list all that apply: sand, silt, clay, gravel, rock, fractured rock)		
* Effective porosity (decimal percent) ( <i>default = 0.2</i> ) (or "UNKNOWN")	Unknown	
* Confining layer (Impervious Strata) above aquifer?	YES	
("YES", "NO" or "UNKNOWN")		
Thickness of confining layer, if known (ft)	10'	
Depth to confining layer, if known (ft below ground) Static water level (ft below ground surface)	42'	and and the second s
Static water level (it below ground sunace)		
Pumping water level (ft below ground surface)		(1) A strangent and a strain of the strai
Pumping water level (it below ground surface)		
WELL PRODUCTION		
Well Yield (gpm)	2000	
Well Yield Based On (i.e., pump test, etc.)	Meter	
Date measured	3/17/2003	
Is the well metered? ("YES" or "NO")	YES	
Production (gallons per year)	614.55 MG (2002)	
Frequency of Use (hours/year)	5124.6	
Typical pumping duration (hours/day)	14.04	
PUMP		
Make	Layne and Bowler	
Туре	Constant Speed	
Size (hp)	125 HP	
* Capacity (gpm)	2270	
Depth to suction intake (ft below ground surface)	102'	
Lubrication Type	Oil	
Type of Power: (i.e., electric, diesel, etc.)	electric	
Auxiliary power available? ("YES" or "NO")	NO	
Operation controlled by: (i.e., level in tank, pressure, etc.)	Pressure	
Pump to Waste capability? ("YES" or "NO")	YES	

# **Remarks and Defects**

Well Data Sheet Supplement	
REMARKS AND DEFECTS	
(Use or note these items as appropriate)	
(** indicates items pertinent to Ground Water Rule)	
Distance (ft) to other sanitary concerns:	
** Type of Sanitary Concern:	
Raw Water Quality concerns? (Yes or No)	no
** Microbiological (coliform)	
Chemicals	
Other (list)	
** Continuous Chlorination provided? (Yes or No)	
Condition of enclosure or housing	good
Pit Drained? (if applicable)	
Pitless Adaptor? Make and Model	
Height of pump base (inches)	18"
Casing Vent? (yes or no)	yes
Air/Vacuum Release? (yes or no)	yes
Sampling Taps? (yes or no)	yes
Location of sampling taps	Pump Discharge
Wellhead Riser? (yes or no); height above well	
Other	

niventory	of Possible Contam	maung	J ACUN	nues (I		<b>SA INVENTORY</b>		
District Name	City of Merced	District N	o. <u>M4</u>	County	/	Merced		
System Name	MERCED, CITY OF					System No. 2410009		
Source Name	WELL 08 - RAW	S	ource No.	015		_ PS Code2410009-015		
Completed by	Patrick Riggs		Date	March	i, 20	003		
PCA (Risk Ranking	3)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments		
Commercial/Ir	ndustrial Activities							
Automobile- Body sl	hops (H)	N	N	Y				
Automobile- Car wa	shes (M)	N	N	N		The second se		
Automobile- Gas sta	ations (VH)	N	N	Y				
Automobile- Repair	shops (H)	N	N	N				
Boat services/repair	/ refinishing (H)	. N	Y	Y		· · · · · · · · · · · · · · · · · · ·		
Chemical/petroleum	ı pipelines (H)	N	Y	Y	*	Petroleum contamination in shallow unconfined aquifer.		
Chemical/petroleum	processing/storage (VH)	N	N	N		· · · · · · · · · · · · · · · · · · ·		
Dry cleaners (VH)		N	N	Y	*	Perchloroethylene plume located on fringe of zone B10.		
Electrical/electronic	manufacturing (H)	N	N	N				
Fleet/truck/bus term	iinals (H)	N	N	N				
niture repair/ ma	nufacturing (H)	N	N	N				
Home manufacturin	ig (H)	N	N	N				
Junk/scrap/salvage	yards (H)	N	N	N				
Machine shops (H)		N	N	N				
Metal plating/ finish	ing/fabricating (VH)	N	N	N		· · · · · · · · · · · · · · · · · · ·		
Photo processing/p	rinting (H)	N	N	Y		Industrial photo finishing facility on out fringe of zone B10.		
Plastics/synthetics	producers (VH)	N	N	N	1			
Research laborator	ies (H)	N	N	N				
Wood preserving/tr	eating (H)	N	N	N	1	· · · · · · · · · · · · · · · · · · ·		
Wood/pulp/paper p	rocessing and mills (H)	N	N	N				
Lumber processing	and manufacturing (H)	N	N	N	1			
Sewer collection sy	stems (H, if in Zone A, otherwise L)	Y	Y	Y	1	Municipal sewer system.		
Parking lots/malls (	>50 spaces) (M)	Y	Y	Y	<u> </u>	Industrial business park.		
Cement/concrete p	lants (M)	N	N	N	1			
Food processing (N	Л)	Y	Y	Y		Tomato processing and juice processing plants in area.		
Funeral services/gr	aveyards (M)	N	N	N	1			
Hardware/lumber/p	arts stores (M)	N	N	Y		Hardware store.		
Appliance/Electron	ic Repair (L)	N	N	N				

```
Y = Yes
            N = No
                      U = Unknown
```

	y of Possible Contami		a des reits and a diffe	ana manganaki salaki da				
System Name			· · · · · · · · · · · · · · · · · · ·			System No. 241000		
Source Name	WELL 08 - RAW	So	ource No.	015		_ PS Code	2410009-015	
PCA (Risk Rankin	g)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments		
Commercial/I	ndustrial Activities							
Office buildings/cor	mplexes (L)	Y	Y	Y		Industrial park.		
Rental Yards (L)		N	N	N			<u></u>	
RV/mini storage (L	)	N	N	N			10 - 2047 V.V.	
Residential/N	Iunicipal Activities							
Airports - Maintena	nce/ fueling areas (VH)	N	N	N				
Landfills/dumps (V	H)	N	N	N				
Railroad yards/ ma	intenance/ fueling areas (H)	N	N	N				
Septic systems - h otherwise M)	igh density (>1/acre) (VH if in Zone A,	N	Y	Y				
Sewer collection sy	ystems (H, if in Zone A, otherwise L)	Y	Y	Y	1			
Utility stations - ma	aintenance areas (H)	N	N	N				
Wastewater treatm	nent plants (VH in Zone A, otherwise H)	N	N	N				
Drinking water trea	tment plants (M)	N	N	N	1			
Golf courses (M)		N	N	N				
using - high der	nsity (>1 house/0.5 acres) (M)	Y	Y	Y				
Motor pools (M)		N	N	N				
Parks (M)		N	N	Y				
Waste transfer/rec	cycling stations (M)	N	N	N				
Apartments and co	ondominiums (L)	Y	Y	Y				
Campgrounds/ Re	creational areas (L)	N	N	N				
Fire stations (L)		N	N	N				
RV Parks (L)		N	N	N				
Schools (L)		N	N	N				
Hotels, Motels (L)		N	N	N				
Agricultural/	Rural Activities							
Grazing (> 5 large Zone A, otherwise	animals or equivalent per acre) (H in M)	N	N	N				
	nal Feeding Operations (CAFOs) as regulation1 (VH in Zone A, otherwise	N	N	N				
-	perations as defined in federal Zone A, otherwise H)	N	N	N				
	rations (H in Zone A, otherwise M)	N	N	N	╧	1		

Y = Yes N = No U = Unknown

"autor

Inventory of Possible Contaminating Activities (PCA Inventory)									
System NameMERCED, CITY OF						System No. 2410009			
Source Name	S	ource No.	015		PS Code2410009-015				
PCA (Risk Rankin	g)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments			
Agricultural/R	Rural Activities								
Farm chemical dist	ributor/ application service (H)	N	Y	Y					
Farm machinery re	pair (H)	N	N	N		· · · · · · · · · · · · · · · · · · ·			
Septic systems - low density (<1/acre) (H in Zone A, otherwise L)		N	Y	Y					
Lagoons / liquid wastes (H)		N	N	N		·····			
Machine shops (H)		N	N	N					
Pesticide/fertilizer/	petroleum storage & transfer areas (H)	N	N	N		· · · · · · · · · · · · · · · · · · ·			
Agricultural Drainag	ge (H in Zone A, otherwise M)	Y	Y	Y					
Wells - Agricultura	I/ Irrigation (H)	Y	Y	Y					
Managed Forests (	M)	N	N	N					
Crops, irrigated (Berries, hops, mint, orchards, sod, greenhouses, vineyards, nurseries, vegetable) (M)		N	Y	Y					
Fertilizer, Pesticide	/ Herbicide Application (M)	Y	Y	Y					
Sewage sludge/bio	solids application (M)	N	N	N					
Crops, nonirrigated (e.g., Christmas trees, grains, grass ds, hay, pasture) (L) (includes drip-irrigated crops)		N	N	N					
Other Activiti	es								
NPDES/WDR perm	nitted discharges (H)	N	N	N					
Underground Injec Discharges (VH)	tion of Commercial/Industrial	N	N	N					
Historic gas station	ns (VH)	N	Y	Y	*	UST site in B5 and B10 zones.			
Historic waste durr	nps/ landfills (VH)	N	N	N					
Illegal activities/ ur	nauthorized dumping (H)	N	N	N					
Injection wells/ dry	wells/ sumps (VH)	N	N	N	1	· · · · · · · · · · · · · · · · · · ·			
Known Contamina	nt Plumes (VH)	Y	Y	Y	*	Petroleum hydrocarbons.			
Military installations (VH)		N	N	N	1				
Mining operations - Historic (VH)		N	N	N					
Mining operations - Active (VH)		N	N	N	1				
Mining - Sand/Gravel (H)		N	N	N					
Wells - Oil, Gas, Geothermal (H)		N	N	N	1				
Salt Water Intrusion (H)		N	N	N	1				
Recreational area - surface water source (H)		Y	Y	Y	1	Bear Creek			
Underground stora (VH)	age tanks - Confirmed leaking tanks	Y	Y	Y	*				

#### Inventory of Possible Contaminating Activities (PCA Inventory) System Name MERCED, CITY OF System No. 2410009 WELL 08 - RAW Source Name Source No. 015 2410009-015 PS Code PCA in PCA in PCA in \* PCA (Risk Ranking) Zone A Zone B5 Zone B10 Comments Other Activities Underground storage tanks - Decommissioned - inactive Ν Ν Ν tanks (L) Underground storage tanks - Non-regulated tanks (tanks Ν Ν Ν smaller than regulatory limit) (H) Underground storage tanks - Not yet upgraded or Ν Ν Ν registered tanks (H) Underground storage tanks - Upgraded and/or registered Ν Ν N - active tanks (L) Above ground storage tanks (M) Ν N Ν Wells - Water supply (M) N Ν Ν Construction/demolition staging areas (M) N Ν Ν Contractor or government agency equipment storage N Ν Ν yards (M) Dredging (M) Ν Ν Ν Transportation corridors - Freeways/state highways (M) γ Y Y nsportation corridors - Railroads (M) Y Y Y ansportation corridors - Historic railroad right-of-ways Ν Ν Ν (M) Transportation corridors - Road Right-of-ways (herbicide Y Y Y use areas) (M) Transportation corridors - Roads/ Streets (L) Y Y Y Hospitals (M) Ν Ν Ν Storm Drain Discharge Points (M) Y Y Y Bear Creek. Storm Water Detention Facilities (M) Ν Ν Ν Artificial Recharge Projects - Injection wells (potable Ν Ν Ν water) (L) Artificial Recharge Projects - Injection wells (non-potable Ν Ν Ν water) (M) Artificial Recharge Projects - Spreading Basins (potable Ν Ν Ν water) (L) Artificial Recharge Projects - Spreading Basins N Ν Ν (non-potable water) (M) Medical/dental offices/clinics (L) N N Ν Veterinary offices/clinics (L) Ν Ν Ν Surface water - streams/ lakes/rivers (L) Y Υ Bear Creek and MID canals. Υ Wells - monitoring, test holes (L) Y Y Y Monitoring petroleum contamination.

Y = Yes N = No U = Unknown

# **Vulnerability Ranking**

<b>District Name</b>	City of Merced	District No. M4	County	Merced		
System Name	MERCED, CITY OF			System No.		2410009
Source Name	WELL 08 - RAW	Source No	015	PS Code	24	10009-015
Completed by	Patrick Riggs	Date	March, 2	2003		

A         Known Contaminant Plumes (VH)         *         7         5         1           A         Underground storage tanks - Confirmed leaking tanks (VH)         *         7         3         1           B5         Historic gas stations (VH)         *         7         3         1           B5         Known Contaminant Plumes (VH)         *         7         3         1           B5         Underground storage tanks - Confirmed leaking tanks (VH)         *         7         3         1           B5         Chemical/petroleum pipelines (H)         *         5         3         1           B10         Dry cleaners (VH)         *         7         1         1           B10         Inderground storage tanks - Confirmed leaking tanks (VH)         *         7         1         1           B10         Underground storage tanks - Confirmed leaking tanks (VH)         *         7         1         1           B10         Chemical/petroleum pipelines (H)         *         7         1         1           B10         Chemical/petroleum pipelines (H)         *         5         1         1           A gereational area - surface water source (H)         5         5         1         1	Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
B5         Historic gas stations (VH)         *         7         3         1           B5         Known Contaminant Plumes (VH)         *         7         3         1           B5         Underground storage tanks - Confirmed leaking tanks (VH)         *         7         3         1           B5         Chemical/petroleum pipelines (H)         *         5         3         1           B10         Dry cleaners (VH)         *         7         1         1           B10         Historic gas stations (VH)         *         7         1         1           B10         Historic gas stations (VH)         *         7         1         1           B10         Underground storage tanks - Confirmed leaking tanks (VH)         *         7         1         1           B10         Underground storage tanks - Confirmed leaking tanks (VH)         *         7         1         1           B10         Underground storage tanks - Confirmed leaking tanks (VH)         *         7         1         1           B10         Chemical/petroleum pipelines (H)         *         5         5         1           A         Agricultural Drainage (H in Zone A, otherwise M)         5         5         1	Α	Known Contaminant Plumes (VH)	*	7	5	1	13
B5         Known Contaminant Plumes (VH)         *         7         3         1           B5         Underground storage tanks - Confirmed leaking tanks (VH)         *         7         3         1           B5         Chemical/petroleum pipelines (H)         *         5         3         1           B10         Dry cleaners (VH)         *         7         1         1           B10         Historic gas stations (VH)         *         7         1         1           B10         Known Contaminant Plumes (VH)         *         7         1         1           B10         Underground storage tanks - Confirmed leaking tanks (VH)         *         7         1         1           B10         Underground storage tanks - Confirmed leaking tanks (VH)         *         7         1         1           B10         Chemical/petroleum pipelines (H)         *         5         1         1           Agricultural Drainage (H in Zone A, otherwise M)         5         5         1         1           A Recreational area - surface water source (H)         5         5         1         1           A Sewer collection systems (H, if in Zone A, otherwise L)         5         5         1           A Wells - Agricu	Α	Underground storage tanks - Confirmed leaking tanks (VH)	*	7	5	1	13
B5         Underground storage tanks - Confirmed leaking tanks (VH)         *         7         3         1           B5         Chemical/petroleum pipelines (H)         *         5         3         1           B10         Dry cleaners (VH)         *         7         1         1           B10         Historic gas stations (VH)         *         7         1         1           B10         Known Contaminant Plumes (VH)         *         7         1         1           B10         Underground storage tanks - Confirmed leaking tanks (VH)         *         7         1         1           B10         Chemical/petroleum pipelines (H)         *         5         1         1           B10         Chemical/petroleum pipelines (H)         *         5         5         1           A         Agricultural Drainage (H in Zone A, otherwise M)         5         5         1         1           A         Sewer collection systems (H, if in Zone A, otherwise L)         5         5         1           A         Sewer collection systems (H, if in Zone A, otherwise L)         5         5         1           A         Wells - Agricultural / Irrigation (H)         5         5         1           A	B5	Historic gas stations (VH)	*	7	3	1	11
B5         Chemical/petroleum pipelines (H)         *         5         3         1           B10         Dry cleaners (VH)         *         7         1         1           B10         Historic gas stations (VH)         *         7         1         1           B10         Known Contaminant Plumes (VH)         *         7         1         1           B10         Underground storage tanks - Confirmed leaking tanks (VH)         *         7         1         1           B10         Chemical/petroleum pipelines (H)         *         5         1         1           B10         Chemical/petroleum pipelines (H)         *         5         1         1           Agricultural Drainage (H in Zone A, otherwise M)         5         5         1         1           A Recreational area - surface water source (H)         5         5         1         1           A Sewer collection systems (H, if in Zone A, otherwise L)         5         5         1           A         Sewer collection systems (H, if in Zone A, otherwise L)         5         5         1           A         Wells - Agricultural / Irrigation (M)         3         5         1         1           A         Podiprocessing (M) <td< td=""><td>B5</td><td>Known Contaminant Plumes (VH)</td><td>*</td><td>7</td><td>3</td><td>1</td><td>11</td></td<>	B5	Known Contaminant Plumes (VH)	*	7	3	1	11
B10         Dry cleaners (VH)         *         7         1         1           B10         Historic gas stations (VH)         *         7         1         1           B10         Known Contaminant Plumes (VH)         *         7         1         1           B10         Underground storage tanks - Confirmed leaking tanks (VH)         *         7         1         1           B10         Underground storage tanks - Confirmed leaking tanks (VH)         *         7         1         1           B10         Chemical/petroleum pipelines (H)         *         5         1         1           Agricultural Drainage (H in Zone A, otherwise M)         5         5         1         1           A Recreational area - surface water source (H)         5         5         1         1           A Sewer collection systems (H, if in Zone A, otherwise L)         5         5         1           A Wells - Agricultural/ Irrigation (H)         5         5         1           A Vells - Agricultural/ Irrigation (M)         3         5         1           A Foot processing (M)         3         5         1           A Housing - high density (>1 house/0.5 acres) (M)         3         5         1           A Transpor	B5	Underground storage tanks - Confirmed leaking tanks (VH)	*	7	3	1	11
B10         Historic gas stations (VH)         *         7         1         1           B10         Known Contaminant Plumes (VH)         *         7         1         1           B10         Underground storage tanks - Confirmed leaking tanks (VH)         *         7         1         1           B10         Underground storage tanks - Confirmed leaking tanks (VH)         *         7         1         1           B10         Chemical/petroleum pipelines (H)         *         5         1         1           Agricultural Drainage (H in Zone A, otherwise M)         5         5         1         1           A         Recreational area - surface water source (H)         5         5         1           A         Sewer collection systems (H, if in Zone A, otherwise L)         5         5         1           A         Sewer collection systems (H, if in Zone A, otherwise L)         5         5         1           A         Wells - Agricultural/ Irrigation (H)         5         5         1           A         Wells - Agricultural/ Irrigation (M)         3         5         1           A         Fortilizer, Pesticide/ Herbicide Application (M)         3         5         1           A         Food processing (M) <td>B5</td> <td>Chemical/petroleum pipelines (H)</td> <td>*</td> <td>5</td> <td>3</td> <td>1</td> <td>9</td>	B5	Chemical/petroleum pipelines (H)	*	5	3	1	9
B10         Known Contaminant Plumes (VH)         *         7         1         1           B10         Underground storage tanks - Confirmed leaking tanks (VH)         *         7         1         1           B10         Chemical/petroleum pipelines (H)         *         5         1         1           B10         Chemical/petroleum pipelines (H)         *         5         1         1           Agricultural Drainage (H in Zone A, otherwise M)         5         5         1         1           A         Recreational area - surface water source (H)         5         5         1           A         Sewer collection systems (H, if in Zone A, otherwise L)         5         5         1           A         Sewer collection systems (H, if in Zone A, otherwise L)         5         5         1           A         Sewer collection systems (H, if in Zone A, otherwise L)         5         5         1           A         Wells - Agricultural/ Irrigation (H)         5         5         1           A         Wells - Agricultural/ Irrigation (M)         3         5         1           A         Fertilizer, Pesticide/ Herbicide Application (M)         3         5         1           A         Food processing (M)         3	B10	Dry cleaners (VH)	*	7	1	1	9
B10Underground storage tanks - Confirmed leaking tanks (VH)*711B10Chemical/petroleum pipelines (H)*511Agricultural Drainage (H in Zone A, otherwise M)551ARecreational area - surface water source (H)551ASewer collection systems (H, if in Zone A, otherwise L)551ASewer collection systems (H, if in Zone A, otherwise L)551ASewer collection systems (H, if in Zone A, otherwise L)551AWells - Agricultural/ Irrigation (H)551AFertilizer, Pesticide/ Herbicide Application (M)351AFood processing (M)351AHousing - high density (>1 house/0.5 acres) (M)351AParking lots/malls (>50 spaces) (M)351AStorm Drain Discharge Points (M)351ATransportation corridors - Freeways/state highways (M)351ATransportation corridors - Road Right-of-ways (herbicide use areas) (M)351B5Boat services/repair/ refinishing (H)531B5Recreational area - surface water source (H)531B5Wells - Agricultural/ Irrigation (H)531	B10	Historic gas stations (VH)	*	- 7	1	1	9
B10Chemical/petroleum pipelines (H)*511Agricultural Drainage (H in Zone A, otherwise M)551ARecreational area - surface water source (H)551ASewer collection systems (H, if in Zone A, otherwise L)551ASewer collection systems (H, if in Zone A, otherwise L)551ASewer collection systems (H, if in Zone A, otherwise L)551AWells - Agricultural/ Irrigation (H)551AWells - Agricultural/ Irrigation (M)351AFood processing (M)351AFood processing (M)351AParking lots/malls (>50 spaces) (M)351AStorm Drain Discharge Points (M)351ATransportation corridors - Freeways/state highways (M)351ATransportation corridors - Road Right-of-ways (herbicide use areas) (M)351B5Boat services/repair/ refinishing (H)531B5Recreational area - surface water source (H)531B5Wells - Agricultural/ Irrigation (H)531	B10	Known Contaminant Plumes (VH)	*	7	1	1	9
Agricultural Drainage (H in Zone A, otherwise M)551ARecreational area - surface water source (H)551ASewer collection systems (H, if in Zone A, otherwise L)551ASewer collection systems (H, if in Zone A, otherwise L)551ASewer collection systems (H, if in Zone A, otherwise L)551AWells - Agricultural/ Irrigation (H)551AFertilizer, Pesticide/ Herbicide Application (M)351AFood processing (M)351AHousing - high density (>1 house/0.5 acres) (M)351AParking lots/malls (>50 spaces) (M)351AStorm Drain Discharge Points (M)351ATransportation corridors - Freeways/state highways (M)351ATransportation corridors - Realiroads (M)351ATransportation corridors - Road Right-of-ways (herbicide use areas) (M)351B5Boat services/repair/ refinishing (H)531B5Farm chemical distributor/ application service (H)531B5Wells - Agricultural/ Irrigation (H)531	B10	Underground storage tanks - Confirmed leaking tanks (VH)	*	7	· 1	1	9
ARecreational area - surface water source (H)551ASewer collection systems (H, if in Zone A, otherwise L)551ASewer collection systems (H, if in Zone A, otherwise L)551ASewer collection systems (H, if in Zone A, otherwise L)551AWells - Agricultural/ Irrigation (H)551AWells - Agricultural/ Irrigation (H)351AFertilizer, Pesticide/ Herbicide Application (M)351AFood processing (M)351AHousing - high density (>1 house/0.5 acres) (M)351AParking lots/malls (>50 spaces) (M)351AStorm Drain Discharge Points (M)351ATransportation corridors - Freeways/state highways (M)351ATransportation corridors - Railroads (M)351ATransportation corridors - Road Right-of-ways (herbicide use areas) (M)351B5Boat services/repair/ refinishing (H)531B5Recreational area - surface water source (H)531B5Wells - Agricultural/ Irrigation (H)531	B10	Chemical/petroleum pipelines (H)	*	5	1	1	7
ASewer collection systems (H, if in Zone A, otherwise L)551ASewer collection systems (H, if in Zone A, otherwise L)551AWells - Agricultural/ Irrigation (H)551AWells - Agricultural/ Irrigation (H)351AFertilizer, Pesticide/ Herbicide Application (M)351AFood processing (M)351AFood processing (M)351AHousing - high density (>1 house/0.5 acres) (M)351AParking lots/malls (>50 spaces) (M)351AStorm Drain Discharge Points (M)351ATransportation corridors - Freeways/state highways (M)351ATransportation corridors - Railroads (M)351BBoat services/repair/ refinishing (H)531B5Farm chemical distributor/ application service (H)531B5Wells - Agricultural/ Irrigation (H)531	( )	Agricultural Drainage (H in Zone A, otherwise M)		5	5	1	11
ASewer collection systems (H, if in Zone A, otherwise L)551AWells - Agricultural/ Irrigation (H)551AFertilizer, Pesticide/ Herbicide Application (M)351AFood processing (M)351AFood processing (M)351AHousing - high density (>1 house/0.5 acres) (M)351AParking lots/malls (>50 spaces) (M)351AStorm Drain Discharge Points (M)351AStorm Drain Discharge Points (M)351ATransportation corridors - Freeways/state highways (M)351ATransportation corridors - Road Right-of-ways (herbicide use areas) (M)351B5Boat services/repair/ refinishing (H)531B5Recreational area - surface water source (H)531B5Wells - Agricultural/ Irrigation (H)531	Ă.	Recreational area - surface water source (H)		5	5	1	11
AWells - Agricultural/ Irrigation (H)551AFertilizer, Pesticide/ Herbicide Application (M)351AFood processing (M)351AHousing - high density (>1 house/0.5 acres) (M)351AHousing - high density (>1 house/0.5 acres) (M)351AParking lots/malls (>50 spaces) (M)351AStorm Drain Discharge Points (M)351ATransportation corridors - Freeways/state highways (M)351ATransportation corridors - Railroads (M)351ATransportation corridors - Road Right-of-ways (herbicide use areas) (M)351B5Boat services/repair/ refinishing (H)531B5Recreational area - surface water source (H)531B5Wells - Agricultural/ Irrigation (H)531	A	Sewer collection systems (H, if in Zone A, otherwise L)		5	5	1	11
AFertilizer, Pesticide/ Herbicide Application (M)351AFood processing (M)351AHousing - high density (>1 house/0.5 acres) (M)351AParking lots/malls (>50 spaces) (M)351AParking lots/malls (>50 spaces) (M)351AStorm Drain Discharge Points (M)351ATransportation corridors - Freeways/state highways (M)351ATransportation corridors - Realroads (M)351ATransportation corridors - Road Right-of-ways (herbicide use areas) (M)351B5Boat services/repair/ refinishing (H)531B5Recreational area - surface water source (H)531B5Wells - Agricultural/ Irrigation (H)531	A	Sewer collection systems (H, if in Zone A, otherwise L)		5	5	1	11
AFood processing (M)351AHousing - high density (>1 house/0.5 acres) (M)351AParking lots/malls (>50 spaces) (M)351AStorm Drain Discharge Points (M)351AStorm Drain Discharge Points (M)351ATransportation corridors - Freeways/state highways (M)351ATransportation corridors - Railroads (M)351ATransportation corridors - Road Right-of-ways (herbicide use areas) (M)351B5Boat services/repair/ refinishing (H)531B5Farm chemical distributor/ application service (H)531B5Recreational area - surface water source (H)531B5Wells - Agricultural/ Irrigation (H)531	A	Wells - Agricultural/ Irrigation (H)		5	5	1	11
AHousing - high density (>1 house/0.5 acres) (M)351AParking lots/malls (>50 spaces) (M)351AStorm Drain Discharge Points (M)351AStorm Drain Discharge Points (M)351ATransportation corridors - Freeways/state highways (M)351ATransportation corridors - Railroads (M)351ATransportation corridors - Railroads (M)351ATransportation corridors - Road Right-of-ways (herbicide use areas) (M)351B5Boat services/repair/ refinishing (H)531B5Farm chemical distributor/ application service (H)531B5Recreational area - surface water source (H)531B5Wells - Agricultural/ Irrigation (H)531	Α	Fertilizer, Pesticide/ Herbicide Application (M)		3	5	1	.9
AParking lots/malls (>50 spaces) (M)351AStorm Drain Discharge Points (M)351ATransportation corridors - Freeways/state highways (M)351ATransportation corridors - Railroads (M)351ATransportation corridors - Railroads (M)351ATransportation corridors - Road Right-of-ways (herbicide use areas) (M)351B5Boat services/repair/ refinishing (H)531B5Farm chemical distributor/ application service (H)531B5Recreational area - surface water source (H)531B5Wells - Agricultural/ Irrigation (H)531	Α	Food processing (M)		3	5	1	9
AStorm Drain Discharge Points (M)351ATransportation corridors - Freeways/state highways (M)351ATransportation corridors - Railroads (M)351ATransportation corridors - Road Right-of-ways (herbicide use areas) (M)351B5Boat services/repair/ refinishing (H)531B5Farm chemical distributor/ application service (H)531B5Recreational area - surface water source (H)531B5Wells - Agricultural/ Irrigation (H)531	A	Housing - high density (>1 house/0.5 acres) (M)		3	5	1	9
ATransportation corridors - Freeways/state highways (M)351ATransportation corridors - Railroads (M)351ATransportation corridors - Road Right-of-ways (herbicide use areas) (M)351B5Boat services/repair/ refinishing (H)531B5Farm chemical distributor/ application service (H)531B5Recreational area - surface water source (H)531B5Wells - Agricultural/ Irrigation (H)531	A	Parking lots/malls (>50 spaces) (M)		3	5	1	9
ATransportation corridors - Railroads (M)351ATransportation corridors - Road Right-of-ways (herbicide use areas) (M)351B5Boat services/repair/ refinishing (H)531B5Farm chemical distributor/ application service (H)531B5Recreational area - surface water source (H)531B5Wells - Agricultural/ Irrigation (H)531	Α	Storm Drain Discharge Points (M)		3	5	1	9
ATransportation corridors - Road Right-of-ways (herbicide use areas) (M)351B5Boat services/repair/ refinishing (H)531B5Farm chemical distributor/ application service (H)531B5Recreational area - surface water source (H)531B5Wells - Agricultural/ Irrigation (H)531	Α	Transportation corridors - Freeways/state highways (M)		3	5	1	9
B5Boat services/repair/ refinishing (H)531B5Farm chemical distributor/ application service (H)531B5Recreational area - surface water source (H)531B5Wells - Agricultural/ Irrigation (H)531	A	Transportation corridors - Railroads (M)		3	5	1	9
B5Farm chemical distributor/ application service (H)531B5Recreational area - surface water source (H)531B5Wells - Agricultural/ Irrigation (H)531	A	Transportation corridors - Road Right-of-ways (herbicide use areas) (M)		3	5	1	9
B5Recreational area - surface water source (H)531B5Wells - Agricultural/ Irrigation (H)531	B5	Boat services/repair/ refinishing (H)		5	3	1	9
B5   Wells - Agricultural/ Irrigation (H)   5   3   1	B5	Farm chemical distributor/ application service (H)		5	3	1	9
	B5	Recreational area - surface water source (H)		5	3	1	9
10 Automobile Gas stations (/H)	B5	Wells - Agricultural/ Irrigation (H)	1	5	3	1	9
	10	Automobile- Gas stations (VH)		7	1	1	9



© Information Center for the Environment Coding by <u>Eric Lehmer</u> Mapping System produced using <u>ESRI</u> ArcIMS

mhtml:file://C:\Documents%20and%20Settings\riggsp\Desktop\Deliniation%20Zones\Well% 3/13/2003

# **Drinking Water Source Assessment**

Water System

MERCED, CITY OF Merced County

Water Source WELL 09 - RAW

Assessment Date

March, 2003

California Department of Health Services Drinking Water Field Operations Branch City of Merced

> District No. M4 System No. 2410009 Source No. 016 PS Code 2410009-016
| Assessme             | ent Summary     |             |          |         |                      |
|----------------------|-----------------|-------------|----------|---------|----------------------|
| <b>District Name</b> | City of Merced  | District No | County   | Merced  |                      |
| System Name          | MERCED, CITY OF |             |          | Systen  | n No. <u>2410009</u> |
| Source Name          | WELL 09 - RAW   | Source No   | 016      | PS Code | 2410009-016          |
| Completed by         | Patrick Riggs   | Date        | March, 2 | 2003    |                      |

#### **Description of System and Source**

The City of Merced water system is located in Merced County and serves the Merced City and part of the bordering Merced County. There are approximately 17,125 service connections serving a population of 63,000.

The only drinking water source for the City of Merced water system is groundwater wells. The recharge area for the source includes hundreds of square miles originating from the Eastern Seirra Nevada foothills and mountain range. General land use is agricultural | urban | residential | undeveloped etc.

#### **Assessment Procedures**

The assessment of the source WELL 09 - RAW was conducted by the City of Merced Environmental Control Office. The following sources of information were used in the assessment: Water system files, DHS files.

Procedures used to conduct the assessment include: Assistance from DHS jurisdictional office, Turbo Swap program for data input.

### **Contents of this Assessment**

Yes X	No 🗌	Assessment Summary
Yes 🗶	No 🗌	Vulnerability Summary
Yes 🗶	No 🗌	Source Location Form
Yes X	No 🗌	<b>Delineation of Ground Water Protection Zones</b>
Yes X	No 🗌	Physical Barrier Effectiveness Checklist
Yes X	No 🗌	Source Data Sheet
Yes 🔀	No 🗌	Inventory of Possible Contaminating Activities
Yes X	No 🗌	Vulnerability Ranking
Yes 🗶	No 🗌	Assessment Map

Drinking Wate	r Source Assessment and F	Protection (DWSAP) Program	n		
Vulnerab	ility Summary				
District Name	City of Merced	District No. M4	County	Merced	<u></u>
<b>Ystem Name</b>	MERCED, CITY OF			System	No. <u>2410009</u>
Source Name	WELL 09 - RAW	Source No	016	PS Code	2410009-016
Completed by	Patrick Riggs	Date	March, 2	2003	
THE FOL	LOWING INFORMATION MUST	T BE INCLUDED IN THE SYSTE			CE REPORT
A source wat	er assessment was conduc	cted for the <u>WELL 09 - R</u>			
of the MER	CED, CITY OF	-	_ water s	system in	arch, 2003
with any dete	ected contaminants: Chemical/petroleum pi Home manufacturing Photo processing/print Recreational area - su	ing			
	Sewer collection system				
iscussion o	f Vulnerability				
	•	nunicipal groundwater well se	cured by fe	encing.	
A copy of the	e complete assessment ma	av be viewed at			
	•	mental Control Division			
You may red	quest a summary of the as	sessment be sent to you by	/ contactir	ng:	
	Patrick Riggs Environmental Contro 209-385-6817 209-384-7772 (fax) riggsp@cityofmerced				

Ċ

ar [2410009 le [2410006 PATRIC Lattude Comments: dd d dd d dd d dd d dd d dd d dd d dd	2410009 Name CITY OF MERCED Record No: 41.	Name	2410009 2410009016 2410009016	PATRICK RIGGS Date 4/1/2003 (mm/dd/)////	Lattude A37.326000 Horizontal Datum NAD83	Longitude T	8.	GPS V OtherMethod	Unit Leica/530 Method	Grade Survey(eg. If Other	Accuracy Corriection	Scale	
--	--	------	-------------------------------	--	---	-------------	----	-------------------	-----------------------	---------------------------	-------------------------	-------	--

Delineatio	n of Ground Wate	r Protection Zone	es			
<b>District Name</b>	City of Merced	District NoM4	County	Merced		
System Name	MERCED, CITY OF			Syster	n No	2410009
Source Name	WELL 09 - RAW	Source No	016	PS Code	241	10009-016
Completed by	Patrick Riggs	Date	March,	2003		

### Method Used to Delineate Protection Zones

## X 1. Calculated Fixed Radius

- 2. Modified Calculated Fixed Radius (Attach documentation for direction of ground water flow.)
- 3. More Detailed Methods
- 4. Arbitrary Fixed Radius (For use only by or permission of DHS)

Maximum Pumping Rate of Well (Q)	<u>1,800</u> 2,904 126,480,600	gallons/minute acre feet/year cubic feet/year
Effective Porosity	0.20	Default Value
Screened Interval of Well	<b>136</b> feet	Default Value

-1	Protection Zone	Calculated Value	Minimum Value	Radius of Protection Zone
	Zone A - 2 Year TOT*	1,721 Feet	600 Feet	1,721 Feet
	Zone B5 - 5 Year TOT*	2,720 Feet	1,000 Feet	<b>2,720</b> Feet
	Zone B10 - 10 Year TOT*	3,847 Feet	1,500 Feet	<b>3,847</b> Feet

\*TOT = Time of Travel

District Name City of N	Merced	District No. M4 Cou	nty Merced			
· · · · ·	ED, CITY OF	44/10/2014/9/10/2014/9/10/2014	-	System No. 24		
	09 - RAW	Source No. 016		241000	10009	
·····						
Completed by Patrick	Riggs	Date <u>Ma</u>	rch, 2003			
Parameter			Possible Points	This Source	Score	
ype of Aquifer Confinement						
1. Unconfined, Semi-confi	ined, Fractured Rock, Unk	nown Aquifer	0			
2. Confined	·		50	X	50	
Pathways of Contamin Presence of Abandoned	nation (All Aquifers) d or Improperly Destroye	d Wells				
1. Present within Zone A	(2 year TOT distance)	Yes	0			
		No	5	X	5	
		Unknown	0			
2. Present within Zone Ba	5 (2 -5 year TOT distance)	) <u>Yes</u>	0			
		<u>No</u>	3	X	3	
		Unknown	0			
3. Present within Zone B10 (5-10 year TOT distance) Yes			0			
		No	2	X	2	
	and the second	Unknown	0			
the overlying unconfine	o in the hydraulic head be a aquifer? (i.e. does the	etween the confined aquifer and well flow under artesian condition	ons?)			
conditions.	· · ·	inconfined aquifer under all	20	x	20	
2. Head in confined aquif conditions.	er is higher than head in u	nconfined aquifer under static	10			
3. Head in confined aquifunder static conditions		s head in unconfined aquifer	0			
4. Unknown			0			
					1	
4. Unknown Well Construction (All A	Aquifers)					
		one of less than 20 feet	0			
Well Construction (All A Sanitary Seal (Annular S	Seal) Depth No	one of less than 20 feet tween 20 and 50 feet	0			
Well Construction (All A Sanitary Seal (Annular S	Seal) Depth No					
Well Construction (All A Sanitary Seal (Annular S	Seal) Depth No feet Be 50	tween 20 and 50 feet	6	x	0	
Well Construction (All A Sanitary Seal (Annular S	Seal) Depth No feet Be 50 Ur	tween 20 and 50 feet feet or greater	6 10 0	X	0	
Well Construction (All A Sanitary Seal (Annular S 0	Seal) Depth No feet Be 50 Ur cap) No W	tween 20 and 50 feet feet or greater known	6 10 0	X	0	

# Physical Barrier Effectiveness (PBE)

System Name		System No. 2410009			
ource Name WELL 09 - RAW	Source No016	PS Code	241000	0009-016	
Parameter		Possible Points	This Source	Score	
Well Construction (All Aquifers)co	ontinued				
Flooding potential at well site	Subject to localized flooding (i.e. in low area or unsealed pit or vault) or within 100 year flood plain	0			
	Not subject to flooding	1	X	1	
	Unknown	0			
Security at well site	Not secure	0			
	Secure	5	Х	5	
	Unknown	0			

Score	Effectiveness
0 to 35	Low
36 to 69	Moderate
70 to 100	High

Maximum Score = 100

Score	90
Effectiveness	<u> </u>

## WELL DATA SHEET (Page 1 of 2)

Complete as much information as possible. Leave blank if information is not a	vailable, use N.A. if not applic	able.
* Indicates items required for Source Water Assessment		
** Indicates additional items required for assessments and Ground Wat	ter Rule	
		Actual, Estimated or Default?
DATA SHEET GENERAL INFORMATION		
System Name	City of Merced	from DHS database
System Number	2410009	from DHS database
Source of Information (well log, DHS/County files, system, etc)	well log, system files	
Organization Collecting Information (DHS, County, System, other)	System	
Date Information Collected/Updated	3/17/2003	····
WELL IDENTIFICATION		
* Well Number or Name	Mailog	from DHS database
* DHS Source Identification Number (FRDS ID No.)		
DWR Well Log on File? ("YES" or "NO")	YES	
State Well Number (from DWR)	2410009016	
Well Status (Active, Standby, Inactive)	Active	
WELL LOCATION		
Latitude	37.326	City Surveyed 2002
Longitude	-120.488	City Surveyed 2002
Ground Surface Elevation (ft above Mean Sea Level)	171.77	City Surveyed 2002
Street Address	3391 "R" Street	
Nearest Cross Street	Buena Vista	
City	Merced	
County	Merced	
* Neighborhood/Surrounding Area (see Note 1)	Ru/Re	
Site plan on file? ("YES" or "NO")	NO	
DWR Ground Water Basin		from UC Davis
DWR Ground Water Sub-basin		from UC Davis
SANITARY CONDITIONS		
** Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)	>100'	
Distance to Active Wells (ft)	·····	
Distance to Abandoned Wells (ft)	None	·····
Distance to Surface Water (ft)		
** Size of controlled area around well (square feet)	3,780	
* Type of access control to well site (fencing, building, etc)	fencing	
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	YES	
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	4' x 4' x 18"	
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")	UNKNOWN	
* Drainage away from well? ("YES" or "NO")	YES	·····
ENCLOSURE/HOUSING		
Enclosure Type (building, vault, none, etc.)	building	
Floor material	Concrete	
Located in Pit? ("YES" or "NO")	NO	
Pit depth (feet) (if applicable)		***
WELL CONSTRUCTION		
Date drilled	1985	
Drilling Method	UNKNOWN	
Depth of Bore Hole (feet below ground surface)	482'	
Casing Beginning Depth/Ending Depth(ft below surface);		
2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	0/482'	
Casing Diameter (inches); 2nd Casing Diameter; 3rd Casing, etc.	20"	
Casing Material; 2nd Casing Material; 3rd Casing, etc.	Steel	

-

## WELL DATA SHEET (Page 2 of 2)

Complete as much information as possible. Leave blank if information is not available	ailable, use N.A. if not applic	able.
* Indicates items required for Source Water Assessment		
* Indicates additional items required for assessments and Ground Wate	r Rule	
		Actual, Estimated or Default?
WELL CONSTRUCTION (continued)		
Conductor casing used? ("YES", "NO" or "UNKNOWN") (See Note 2)	UNKNOWN	
Conductor casing removed? ("YES", "NO" or "UNKNOWN")		
* Depth to highest perforations/screens (ft below surface) (or		
"UNKNOWN")	230'	
Screened Interval Beginning Depth/Ending Depth (ft below surface);	(230-240) (280-290)	
2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	(360-480)	
* Total length of screened interval (ft)		
(default = 10% pump capacity in gpm) (or "UNKNOWN")	136'	
* Annular Seal?("YES", "NO" or "UNKNOWN") (See Note 3)	YES	·····
* Depth of Annular Seal (ft)	80'	
Material of Annular Seal (cement grout, bentonite, etc.)	cement	
Gravel pack, Depth to top (ft below ground surface)	UNKNOWN	
Total length of gravel pack (ft)		
AQUIFER		
* Aquifer Materials	·	
(list all that apply: sand, silt, clay, gravel, rock, fractured rock)	sand, clay, silt	
* Effective porosity (decimal percent) (default = 0.2) (or "UNKNOWN")	UNKNOWN	
* Confining layer (Impervious Strata) above aquifer?	ONNOVIN	
("YES", "NO" or "UNKNOWN")	YES	
Thickness of confining layer, if known (ft)	100'-190'	
Depth to confining layer, if known (ft below ground)	90'	
1* Static water level (ft below ground surface)		
Static water level measurement: Date/Method		
Pumping water level (ft below ground surface)		
Pumping water level measurement: Date/Method		
WELL PRODUCTION		
Well Yield (gpm)	1800	
Well Yield Based On (i.e., pump test, etc.)	Meter	·
Date measured	3/17/2003	
Is the well metered? ("YES" or "NO")	YES	
Production (gallons per year)	504.2 MG (2002)	
Frequency of Use (hours/year)	4668.35	
Typical pumping duration (hours/day)	12.79	
PUMP	12.79	
Make	Boobody / Elowoy	
Туре	Peabody / Floway Constant Speed	
Size (hp)	200 HP	
* Capacity (gpm)	2100	
Depth to suction intake (ft below ground surface)	230'	
Lubrication Type	Oil	
Type of Power: (i.e., electric, diesel, etc.)		
	Diesel Generator	
Auxiliary power available? ("YES" or "NO")	YES	
Operation controlled by: (i.e., level in tank, pressure, etc.)	Pressure	
Pump to Waste capability? ("YES" or "NO")	YES	
Discharges to: (i.e., distribution system, storage, etc.)	Distribution System	

# **Remarks and Defects**

Well Data Sheet Supplement	
REMARKS AND DEFECTS	
(Use or note these items as appropriate)	
(** indicates items pertinent to Ground Water Rule)	
Distance (ft) to other sanitary concerns:	
** Type of Sanitary Concern:	
Raw Water Quality concerns? (Yes or No)	no
** Microbiological (coliform)	
Chemicals	
Other (list)	
** Continuous Chlorination provided? (Yes or No)	
Condition of enclosure or housing	good
Pit Drained? (if applicable)	
Pitless Adaptor? Make and Model	
Height of pump base (inches)	18"
Casing Vent? (yes or no)	yes
Air/Vacuum Release? (yes or no)	yes
Sampling Taps? (yes or no)	yes
Location of sampling taps	Pump Discharge
Wellhead Riser? (yes or no); height above well	
Other	

District Name City of Merced	District N	o. M4	Count	y	Merced
System Name MERCED, CITY OF	-		_		System No. 2410009
Source Name WELL 09 - RAW	Sc	ource No.	016		<b>PS Code</b> 2410009-016
Completed by Patrick Riggs		Date	March	20	003
				.,	
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Commercial/Industrial Activities					
Automobile- Body shops (H)	N	N	N		
Automobile- Car washes (M)	N	N	N		
Automobile- Gas stations (VH)	Y	Y	Y	*	Small petroleum plume, gained site closure from RWQCB.
Automobile- Repair shops (H)	N	N	N		
Boat services/repair/ refinishing (H)	N	N	N		
Chemical/petroleum pipelines (H)	Y	Y	Y		At local Gas Service Stations.
Chemical/petroleum processing/storage (VH)	N	N	N		
Dry cleaners (VH)	N	N	N		
Electrical/electronic manufacturing (H)	N	N	N		
Fleet/truck/bus terminals (H)	N	N	N		
Eumiture repair/ manufacturing (H)	N	N	N		
ne manufacturing (H)	Y	Y	Y		New construction in area.
Junk/scrap/salvage yards (H)	N	N	N		
Machine shops (H)	N	N	N		
Metal plating/ finishing/fabricating (VH)	N	N	N		
Photo processing/printing (H)	Y	Y	Y		Small photo shops.
Plastics/synthetics producers (VH)	N	N	N	Γ	
Research laboratories (H)	N	N	N		
Wood preserving/treating (H)	N	N	N		
Wood/pulp/paper processing and mills (H)	N	N	N		
Lumber processing and manufacturing (H)	N	N	N		
Sewer collection systems (H, if in Zone A, otherwise L)	Y	Y	Y		Municipal sewer system.
Parking lots/malls (>50 spaces) (M)	Y	Y	Y		Mall and commercial businesses.
Cement/concrete plants (M)	N <sup>·</sup>	N	N		
Food processing (M)	N	N	N		
Funeral services/graveyards (M)	N	N	N		
Hardware/lumber/parts stores (M)	N	N	N		
Appliance/Electronic Repair (L)	N	N	N		
Office buildings/complexes (L)	Y	Y	Y		Small office complexes.
Rental Yards (L)	N	N	N	Τ	

Y = Yes N = No U = Unknown

#### Inventory of Possible Contaminating Activities (PCA Inventory) System No. System Name 2410009 MERCED, CITY OF WELL 09 - RAW PS Code \_ 2410009-016 Source Name Source No. 016 PCA in PCA in PCA in Zone B10 PCA (Risk Ranking) Zone A Zone B5 Comments **Commercial/Industrial Activities** RV/mini storage (L) Ν Ν Ν **Residential/Municipal Activities** Airports - Maintenance/ fueling areas (VH) Ν Ν Ν Landfills/dumps (VH) Ν Ν Ν Railroad yards/ maintenance/ fueling areas (H) Ν Ν Ν Septic systems - high density (>1/acre) (VH if in Zone A, Ν Ν Ν otherwise M) Sewer collection systems (H, if in Zone A, otherwise L) Y Y Y Municipal sewer system. Utility stations - maintenance areas (H) N Ν Ν Wastewater treatment plants (VH in Zone A, otherwise H) Ν Ν Ν Drinking water treatment plants (M) Ν Ν Ν Golf courses (M) Ν N Ν Housing - high density (>1 house/0.5 acres) (M) Υ Υ Υ Motor pools (M) Ν Ν Ν ks (M) Υ Y Υ Parks throughout city. Waste transfer/recycling stations (M) Ν Ν Ν Apartments and condominiums (L) Y Y Y Campgrounds/ Recreational areas (L) Ν Ν Ν Fire stations (L) Y Ν Ν RV Parks (L) Ν Ν Ν Schools (L) Υ Υ Υ Merced College, Merced High School. Hotels, Motels (L) Ν Ν Ν **Agricultural/Rural Activities** Grazing (> 5 large animals or equivalent per acre) (H in Ν Ν Ν Zone A, otherwise M) Concentrated Animal Feeding Operations (CAFOs) as Ν Ν Ν defined in federal regulation1 (VH in Zone A, otherwise H) Animal Feeding Operations as defined in federal Ν Ν Ν regulation2 (VH in Zone A, otherwise H) Other Animal operations (H in Zone A, otherwise M) Ν Ν Ν Farm chemical distributor/ application service (H) Ν Ν Ν Farm machinery repair (H) Ν N Ν

Y = Yes N = No U = Unknown

# Inventory of Possible Contaminating Activities (PCA Inventory)

System Name MERCED, CITY OF					System No. 2410009
Source Name	S	ource No.	016		PS Code2410009-016
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Agricultural/Rural Activities					
Septic systems - low density (<1/acre) (H in Zone A, otherwise L)	N	Y	Y		
Lagoons / liquid wastes (H)	N	N	N		
Machine shops (H)	N	N	N		
Pesticide/fertilizer/ petroleum storage & transfer areas (H)	N	N	N		
Agricultural Drainage (H in Zone A, otherwise M)	N	Y	Y		
Wells - Agricultural/ Irrigation (H)	N	Y	Y		
Managed Forests (M)	N	N	N		
Crops, irrigated (Berries, hops, mint, orchards, sod, greenhouses, vineyards, nurseries, vegetable) (M)	N	N	N		
Fertilizer, Pesticide/ Herbicide Application (M)	Y	Y	Y	-	
Sewage sludge/biosolids application (M)	N	N	N		
Crops, nonirrigated (e.g., Christmas trees, grains, grass seeds, hay, pasture) (L) (includes drip-irrigated crops)	N	N	N		
Activities					
DES/WDR permitted discharges (H)	N	N	N		
Underground Injection of Commercial/Industrial Discharges (VH)	N	N	N		
Historic gas stations (VH)	N	N	Y		
Historic waste dumps/ landfills (VH)	N	N	N	Ī	
Illegal activities/ unauthorized dumping (H)	N	N	N		
Injection wells/ dry wells/ sumps (VH)	N	N	N		
Known Contaminant Plumes (VH)	N	N	N		
Military installations (VH)	N	N	N	$\square$	
Mining operations - Historic (VH)	N	N	N		
Mining operations - Active (VH)	N	N	N		
Mining - Sand/Gravel (H)	N	N	N		
Wells - Oil, Gas, Geothermal (H)	N	N	N	$\uparrow$	
Salt Water Intrusion (H)	N	N	N	1	
Recreational area - surface water source (H)	Y	Y	Y		Black Rascal Creek.
Underground storage tanks - Confirmed leaking tanks (VH)	N	N	Y	1	UST site gained closure from RWQCB
Underground storage tanks - Decommissioned - inactive tanks (L)	Y	N	N	1	UST on well site decommissioned.

Y = Yes N = No U = Unknown \* = A contaminant potentially associated with this activity has been detected in the water supply.

#### Inventory of Possible Contaminating Activities (PCA Inventory) System Name MERCED, CITY OF System No. 2410009 Source Name WELL 09 - RAW Source No. 016 2410009-016 PS Code PCA in PCA in PCA in PCA (Risk Ranking) Zone A Zone B5 Zone B10 Comments **Other Activities** Underground storage tanks - Non-regulated tanks (tanks Ν Ν Ν smaller than regulatory limit) (H) Underground storage tanks - Not yet upgraded or N Ν N registered tanks (H) Underground storage tanks - Upgraded and/or registered Ν Ν Ν - active tanks (L) Above ground storage tanks (M) Υ Convault tank on well site. Ν Ν Wells - Water supply (M) Ν Y One city production well, misc. pivate Ν wells. Construction/demolition staging areas (M) Ν Ν Ν Contractor or government agency equipment storage Ν Ν Ν yards (M) Dredging (M) Ν Ν Ν Transportation corridors - Freeways/state highways (M) Ν Ν Ν Transportation corridors - Railroads (M) Y Y Ν nsportation corridors - Historic railroad right-of-ways Ν Ν Ν Transportation corridors - Road Right-of-ways (herbicide Y Y Y use areas) (M) Transportation corridors - Roads/ Streets (L) Y Υ Υ Hospitals (M) N Ν Ν Storm Drain Discharge Points (M) Y Y Y Black Rascal Creek receptor. Storm Water Detention Facilities (M) Υ Υ SW catch basins in area. Ν Artificial Recharge Projects - Injection wells (potable Ν N N water) (L) Artificial Recharge Projects - Injection wells (non-potable N Ν Ν water) (M) Artificial Recharge Projects - Spreading Basins (potable Ν Ν Ν water) (L) Artificial Recharge Projects - Spreading Basins Ν Ν Ν (non-potable water) (M) Medical/dental offices/clinics (L) γ Y Small office clinics. Ν Veterinary offices/clinics (L) N Ν Ν Surface water - streams/ lakes/rivers (L) Y Y Y Black Rascal Creek. Y Wells - monitoring, test holes (L) γ γ Four at well site, Olive Ave for former petroleum plume.

Y = Yes N = No U = Unknown

#### exercise and Drotestian (DMOAD) D Deinleine Mater On

Vu	ulnerabi	lity Ranking			5			-
D	istrict Name	City of Merced	District No. M4	C	ounty Me	rced		
S	ystem Name	MERCED, CITY OF				Syste	m No.	2410009
S	ource Name	WELL 09 - RAW	Source No	0	<u>16</u> F	S Code	2410	009-016
C	ompleted by	Patrick Riggs	Date _	M	larch, 2003			
Zone	PCA (Risk F	Ranking)		*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
Α	Automobile-	Gas stations (VH)		*	7	5	1	13
B5	Automobile-	Gas stations (VH)		*	7	3	1	11
B10	Automobile-	Gas stations (VH)	·	*	7	1	1	9
A	Chemical/pe	troleum pipelines (H)			5	5	1	11
A	Home manu	facturing (H)			5	5	1	11
Α	Photo proce	ssing/printing (H)			5	5	1	11
Α	Recreationa	l area - surface water source (H)	······		5	5	1	11
Α	Sewer collect	ction systems (H, if in Zone A, other	vise L)		- 5	5	1	11
A	Sewer colled	ction systems (H, if in Zone A, other	vise L)		5	5	1	11
A	Above grour	nd storage tanks (M)			3	5	1	9
A	Fertilizer, Pe	esticide/ Herbicide Application (M)			3	5	1	9
~	Housing - hi	gh density (>1 house/0.5 acres) (M)		1	3	5	1	9
	Parking lots	/malis (>50 spaces) (M)			3	5	1	9
A	Parks (M)				3	5	1	9
Α	Storm Drain	Discharge Points (M)			3	5	1	9
Α	Transportati	on corridors - Road Right-of-ways (I	nerbicide use areas) (M)		3	5	1	9
B5	Chemical/pe	etroleum pipelines (H)		1	5	3	1	9
B5	Home manu	ifacturing (H)	· · · · · · · · · · · · · · · · · · ·		5	3	1	9
B5	Photo proce	essing/printing (H)			5	3	1	9
B5	Recreationa	Il area - surface water source (H)		1	5	3	1	9
B5	Wells - Agr	icultural/ Irrigation (H)			5	3	1	9
B10	Historic gas	stations (VH)	anan yanan dalama dalama yang barang sang sang sang sang sang sang sang s		7	1	1	9
B10	Undergroun	d storage tanks - Confirmed leaking	tanks (VH)		7	1	1	9

C



© Information Center for the Environment Coding by <u>Eric Lehmer</u> Mapping System produced using <u>ESRI</u> ArcIMS

mhtml:file://C:\Documents%20and%20Settings\riggsp\Desktop\Deliniation%20Zones\Well% 3/14/2003

# **Drinking Water Source Assessment**

Water System

MERCED, CITY OF Merced County

Water Source WELL 10B - RAW

Assessment Date

March, 2003

California Department of Health Services Drinking Water Field Operations Branch City of Merced

 District No.
 M4

 System No.
 2410009

 Source No.
 018

 PS Code
 2410009-018

District Name	City of Merced	District No. M4	County	Merced		
System Name	MERCED, CITY OF			System	n No	2410009
Source Name	WELL 10B - RAW	Source No.	018	PS Code	241	0009-018

### **Description of System and Source**

The City of Merced water system is located in Merced County and serves the Merced City and part of the bordering Merced County. There are approximately 17,125 service connections serving a population of 63,000.

The only drinking water source for the City of Merced water system is groundwater wells. The recharge area for the source includes hundreds of square miles originating from the Eastern Seirra Nevada foothills and mountain range. General land use is agricultural | urban | residential | undeveloped etc.

#### **Assessment Procedures**

The assessment of the source WELL 10B - RAW was conducted by the City of Merced Environmental Control Office. The following sources of information were used in the assessment: Water system files, DHS files.

Procedures used to conduct the assessment include: Assistance from DHS jurisdictional office, Turbo Swap program for data input.

## **Contents of this Assessment**

Yes 🗶	No 🗌	Assessment Summary
Yes X	No 🗌	Vulnerability Summary
Yes 🗶	No 🗌	Source Location Form
Yes X	No 🗌	<b>Delineation of Ground Water Protection Zones</b>
Yes X	No 🗌	Physical Barrier Effectiveness Checklist
Yes X	No 🗌	Source Data Sheet
Yes X	No 🗌	Inventory of Possible Contaminating Activities
Yes X	No 🗌	Vulnerability Ranking
Yes 🔀	No 🗌	Assessment Map

	er Source Assessment and F	TOLECIION (DWSAF)	JUgran				<u> </u>
Vulnerab	oility Summary						
District Name System Name Source Name	City of Merced MERCED, CITY OF WELL 10B - RAW	District NoN		County 018	Merced System PS Code		2410009 0009-018
Completed by	Patrick Riggs		Date	March, 2	2003		
THE FO	LLOWING INFORMATION MUST	BE INCLUDED IN THE	SYSTE	M CONSU	MER CONFIDENC	E REP	ORT
The source is	CED, CITY OF s considered most vulnerab	•			system in <b>_Ma</b> ed		
The source i	nants detected in the water Known Contaminant Plu Fertilizer, Pesticide/ He Wells - monitoring, test s considered most vulnerab ected contaminants:	umes rbicide Application holes	ctivities	s not asso	ociated		
• • •	Agricultural Drainage Septic systems - low de Wells - Agricultural/ Irr	•					
Discussion o	of Vulnerability						

City of Merced Well Station #10B houses one municipal groundwater well secured by fencing. Well is presently in the process of replacement due to groundwater contamination. The new well site is approximately 50% complete as of 3/14/03 and is scheduled for completion on or before June of 2003. Well 10B is not operated unless emergency water requirements arrise.

A copy of the complete assessment may be viewed at:

Public Works Environmental Control Division 1776 Grogan Avenue Merced, CA 95340

You may request a summary of the assessment be sent to you by contacting:

Patrick Riggs Environmental Control Officer II 209-385-6817 209-384-7772 (fax) riggsp@cityofmerced.org

System Info:	Number	2410009	Name	CITY OF MERCED	0	<ul> <li>Manual Control of States and Stat States and States and Sta States and States and Stat</li></ul>		Record No:	<b>10:</b> 42
Source Info:	Number	10B	Name			<ul> <li>B. Sama and S. S Sama and S. Sama and S. Sa Sama and Sama and Sama Sama and Sama and Sama and Sama and Sa Sama and Sama and S</li></ul>			
	PSCode	2410009		StWell	StWellNo 2410009018	009018	F		
Input By:	Person	PATRICK RIGGS	liges	Date	<b>F</b>	4/1/2003 (mm/dd/yyyy)	الالالالاليكة		
Location Information:	mation:	Latitude		37.289000	년 년	Horizontal Datum	NAD83		
				-120.424000	Datur	Datum, if Other			
	ÖÖ	Description/ Comments:			000		1.000		
Method of	nses	]			015 5	5			
Determination:	. Method			1	Į	Leica/530	Met	Method	
	Scale			1	Grade	Survey(eg.	Ê.	lf Other	(a) A second s second second s second second sec
Scale	Scale, if Other :				Differential	2	Aco	Accuracy	
M	Map Published	L					Scale	L_	
N	Map Revised								
Find	-		add 1	I Edit I Delete	Delete	Save	Save I Cancel	Ext	Hab

.

## **Delineation of Ground Water Protection Zones**

<b>District Name</b>	City of Merced	District No	County	Merced	
System Name	MERCED, CITY OF	-		Syster	m No. <u>2410009</u>
Source Name	WELL 10B - RAW	Source No	018	PS Code	2410009-018
Completed by	Patrick Riggs	Date	March, 2	2003	

**Method Used to Delineate Protection Zones** 

## X 1. Calculated Fixed Radius

- 2. Modified Calculated Fixed Radius (Attach documentation for direction of ground water flow.)
- 3. More Detailed Methods
- 4. Arbitrary Fixed Radius (For use only by or permission of DHS)

Maximum Pumping Rate of Well (Q)	<u> </u>	gallons/minute acre feet/year
	210,801,000	cubic feet/year
Effective Porosity	0.20	Default Value
Screened Interval of Well	<b>475</b> feet	Default Value

Protection Zone	Calculated Value	Minimum Value	Radius of Protection Zone
Zone A - 2 Year TOT*	1,189 Feet	600 Feet	<b>1,189</b> Feet
Zone B5 - 5 Year TOT*	1,879 Feet	1,000 Feet	<b>1,879</b> Feet
Zone B10 - 10 Year TOT*	2,658 Feet	1,500 Feet	2,658 Feet

\*TOT = Time of Travel

Physical <b>B</b>	Barrier Effective	ness	(PBE)				
District Name	City of Merced		District No. M4	County	Merced		
System Name	MERCED, CITY OF				Syst	em No. 24	10009
	WELL 10B - RAW		Source No.	018	PS Code	241000	
Completed by Patrick Riggs Date March, 2				2003			
Parameter					Possible Points	This Source	Score
Type of Aquifer Confinement							<u></u>
1. Unconfined, Se	emi-confined, Fractured Rock	, Unknowi	n Aquifer		0		
2. Confined					50	X	50
	ontamination (All Aquif andoned or Improperly Des		ells			n an	
1. Present within	Zone A (2 year TOT distance	ce)	Yes		0		
		-	No		5	Х	5
·····			Unknown		0		
2. Present within	Zone B5 (2 -5 year TOT dist	tance)	Yes		0		
		_	No		3	X	3
	·		Unknown		0		
3. Present within Zone B10 (5-10 year TOT distance) Yes				0			
		-	No		2	<u>X</u>	2
			Unknown		0		
What is the related the overlying un	I (Confined Aquifers) tionship in the hydraulic he iconfined aquifer? (i.e. doe ned aquifer is higher than hea	s the well	I flow under artesian c	r and onditions?	20	<b>x</b>	20
	ed aquifer is higher than head	d in uncon	fined aquifer under stati	ic	10		
3. Head in confin under static co	ed aquifer is lower than or sa onditions.	ime as hea	ad in unconfined aquifer		0		
4. Unknown					0		
Well Construction	on (All Aquifers)						
Sanitary Seal (A	Annular Seal) Depth	None o	f less than 20 feet		0		
	feet	Betwee	n 20 and 50 feet		6	<u></u>	
	_	50 feet	or greater		10		
		Unknov	vn		0	X	0
Surface Seal (co	oncrete cap)	Not pre	sent or improperly cons	tructed	0		
Wate			ght, slopes away from w		4	X	4
		at least	2' laterally in all direction	ons	· ·		

## **Physical Barrier Effectiveness (PBE)**

System Name	MERCED, CITY OF				Syste	m No.	2410009
Source Name	WELL 10B - RAW	So	ource No.	018	PS Code	24	10009-018

arameter	Possible Points	This Source	Score	
Vell Construction (All Aquifers)co	ontinued			
Flooding potential at well site	Subject to localized flooding (i.e. in low area or unsealed pit or vault) or within 100 year flood plain	0		
	Not subject to flooding	1	X	1
	Unknown	0		
Security at well site	Not secure	0		
	Secure	5	X	5
	Unknown	0		

Score	Effectiveness
0 to 35	Low
36 to 69	Moderate
70 to 100	High

Maximum Score = 100

Score	90
Effectiveness .	High

## WELL DATA SHEET (Page 1 of 2)

* Indicates items required for Source Water Assessment		
** Indicates additional items required for assessments and Ground Wat	er Rule	
		Actual, Estimated
		or Default?
DATA SHEET GENERAL INFORMATION		
System Name	City of Merced	from DHS databa
System Number	2410009	from DHS databa
Source of Information (well log, DHS/County files, system, etc)	well log, system files	
Organization Collecting Information (DHS, County, System, other)	System	
Date Information Collected/Updated	3/17/2003	
WELL IDENTIFICATION		
* Well Number or Name	Well 108	from DHS databa
* DHS Source Identification Number (FRDS ID No.)		
DWR Well Log on File? ("YES" or "NO")	YES	
State Well Number (from DWR)	24100090018	
Well Status (Active, Standby, Inactive)		
WELL LOCATION	Standby	
Latitude	07.000	04.0
	37.289	City Surveyed 20
Longitude	-120.424	City Surveyed 20
Ground Surface Elevation (ft above Mean Sea Level)	189.49	City Surveyed 20
Street Address	3516 Childs Avenue	
Nearest Cross Street	Coffee	
City	Merced	
County	Merced	-
* Neighborhood/Surrounding Area (see Note 1)	A, Ru, Co, Re	
Site plan on file? ("YES" or "NO")	UNKNOWN	
DWR Ground Water Basin		from UC Davis
DWR Ground Water Sub-basin		from UC Davis
SANITARY CONDITIONS		
** Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)	>50'	
Distance to Active Wells (ft)	>1000'	
Distance to Abandoned Wells (ft)	None (redrilled deeper)	4
Distance to Surface Water (ft)	>1000'	
** Size of controlled area around well (square feet)	13,770	
* Type of access control to well site (fencing, building, etc)	fencing	
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	YES	
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	4' x 4' x 17"	
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")		
* Drainage away from well? ("YES" or "NO")	UNKNOWN	
	YES	
Enclosure Type (building, vault, none, etc.)	building	
Floor material	Concrete	
Located in Pit? ("YES" or "NO")	NO	
Pit depth (feet) (if applicable)		
WELL CONSTRUCTION		
Date drilled	1987	
Drilling Method	UNKNOWN	
Depth of Bore Hole (feet below ground surface)	830'	
Casing Beginning Depth/Ending Depth(ft below surface);		
2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	0/830'	
Casing Diameter (inches); 2nd Casing Diameter; 3rd Casing, etc.	20"	
Casing Material; 2nd Casing Material; 3rd Casing, etc.	Steel	

## WELL DATA SHEET (Page 2 of 2)

Complete as much information as possible. Leave blank if information is not av	ailable, use N.A. if not appli	cable.
* Indicates items required for Source Water Assessment		
* Indicates additional items required for assessments and Ground Wate	r Rule	
		Actual, Estimated or Default?
WELL CONSTRUCTION (continued)		
Conductor casing used? ("YES", "NO" or "UNKNOWN") (See Note 2)	UNKNOWN	
Conductor casing removed? ("YES", "NO" or "UNKNOWN")		
* Depth to highest perforations/screens (ft below surface) (or "UNKNOWN")	355'	
Screened Interval Beginning Depth/Ending Depth (ft below surface); 2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	355'-830'	
* Total length of screened interval (ft)	475'	
(default = 10% pump capacity in gpm) (or "UNKNOWN")	475	
* Annular Seal?("YES", "NO" or "UNKNOWN") (See Note 3)	YES	
* Depth of Annular Seal (ft)	263'	
Material of Annular Seal (cement grout, bentonite, etc.)	cement / bentonite	
Gravel pack, Depth to top (ft below ground surface)	253'-850'	
Total length of gravel pack (ft)	597'	
AQUIFER	· ·	
* Aquifer Materials (list all that apply: sand, silt, clay, gravel, rock, fractured rock)	sand, clay, silt	
* Effective porosity (decimal percent) (default = 0.2) (or "UNKNOWN")	UNKNOWN	
* Confining layer (Impervious Strata) above aquifer?		
("YES", "NO" or "UNKNOWN")	YES	
Thickness of confining layer, if known (ft)	67'	
Depth to confining layer, if known (ft below ground)	293'	a subscript dependences and the second second
Static water level (ft below ground surface)     Static water level measurement: Date/Method	· · · · · · · · · · · · · · · · · · ·	Construction Construction and Construction and Construction and Construction and Construction and Construction Construction and Construction and Construction and Construction and Construction and Construction Construction and Construction and Construction and Construction and Construction and Construction Construction and Construction and Constr
	· · · · · · · · · · · · · · · · · · ·	
Pumping water level (ft below ground surface)		n a travenska filia og skonstanska filinska se stanska se mana se stanska fili som se stanska fili som se stans Sepanska pod trajenska fili som se stanska se stanska fili som se stanska fili som se stanska fili som se stans 1999 – Tana se stanska
Pumping water level measurement: Date/Method		
	<u> </u>	
Well Yield (gpm)	3000	
Well Yield Based On (i.e., pump test, etc.) Date measured	Meter 3/18/2003	
Is the well metered? ("YES" or "NO")		
Production (gallons per year)	YES	
Frequency of Use (hours/year)	52.35 MG (2002) 730.0	
Typical pumping duration (hours/day)	<u></u>	
PUMP	2.0	
Make	Dechady / Elevier	
	Peabody / Floway	
Type Size (hp)	VFD 300 HP	
* Capacity (gpm)	300 HP 3000	
Depth to suction intake (ft below ground surface)	355'	
Lubrication Type	Oil	
Type of Power: (i.e., electric, diesel, etc.)	Diesel Generator	
Auxiliary power available? ("YES" or "NO")	YES	
Operation controlled by: (i.e., level in tank, pressure, etc.)		
Pump to Waste capability? ("YES" or "NO")	Pressure YES	
Discharges to: (i.e., distribution system, storage, etc.)		
Discharges to. (i.e., distribution system, storage, etc.)	Distribution System	

(

# **Remarks and Defects**

Well Data Sheet Supplement	
REMARKS AND DEFECTS	
(Use or note these items as appropriate)	
(** indicates items pertinent to Ground Water Rule)	
Distance (ft) to other sanitary concerns:	
** Type of Sanitary Concern:	
Raw Water Quality concerns? (Yes or No)	yes
** Microbiological (coliform)	
Chemicals	DBCP, TCE
Other (list)	
** Continuous Chlorination provided? (Yes or No)	yes
Condition of enclosure or housing	yes
Pit Drained? (if applicable)	
Pitless Adaptor? Make and Model	
Height of pump base (inches)	17"
Casing Vent? (yes or no)	yes
Air/Vacuum Release? (yes or no)	yes
Sampling Taps? (yes or no)	yes
Location of sampling taps	Pump Discharge
Wellhead Riser? (yes or no); height above well	
Other	

Drinking Water S uree Ac \_ acomont ם ה 41 \_

Drinking wate	r Source Assessment and Protect	ion (DWS	AP) Prog	ram			
Inventory	of Possible Contami	inating	<b>j Activ</b>	<b>/ities</b> (	PC	A Invent	tory)
District Name	City of Merced	District N	lo. M4	Count	v	Merced	
System Name	MERCED, CITY OF				-	System	No. 2410009
Source Name	WELL 10B - RAW	S	ource No.	018		PS Code	2410009-018
			-				
Completed by	Patrick Riggs		_ Date	March	<u>1, 2(</u>	003	· · · · · · · · · · · · · · · · · · ·
		1		1			
PCA (Risk Ranking	3)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments	
Residential/M	unicipal Activities						
Airports - Maintenan	ice/ fueling areas (VH)	N	N	N			
Landfills/dumps (VH	)	N	N	N			
Railroad yards/ main	ntenance/ fueling areas (H)	N	N	N			
Septic systems - hig otherwise M)	h density (>1/acre) (VH if in Zone A,	N	N	N			
Sewer collection sys	stems (H, if in Zone A, otherwise L)	N	N	N			
Utility stations - mail	ntenance areas (H)	N	N	N			
Wastewater treatme	ent plants (VH in Zone A, otherwise H)	N	N	N			
Drinking water treat	ment plants (M)	N	N	N			
Golf courses (M)		N	N	N			
Housing - high dens	ity (>1 house/0.5 acres) (M)	Y	Y	Y			
Motor pools (M)		N	N	N			·
ks (M)	· · · · ·	N	N	N			
Waste transfer/recy	cling stations (M)	N	N	N			
Apartments and cor	ndominiums (L)	N	N	N			
Campgrounds/ Reci	reational areas (L)	N	N	N			
Fire stations (L)		N	N	N			
RV Parks (L)		N	N	N			
Schools (L)		N	Y	Y			
Hotels, Motels (L)		N	N	N			
Agricultural/R	ural Activities						
Grazing (> 5 large a Zone A, otherwise N	nimals or equivalent per acre) (H in /l)	N	N	N			
	al Feeding Operations (CAFOs) as egulation1 (VH in Zone A, otherwise	N	N	N			Aur
	erations as defined in federal Cone A, otherwise H)	N	N	N			
Other Animal opera	tions (H in Zone A, otherwise M)	N	N	N	$\square$		
Farm chemical distr	ibutor/ application service (H)	N	N	N	1		<u> </u>
Farm machinery rep	pair (H)	N	N	N	$\square$		<u> </u>
r .			+		- <b>I</b>		

U = Unknown Y = Yes N = No

#### Inventory of Possible Contaminating Activities (PCA Inventory) System No. System Name MERCED, CITY OF 2410009 Source Name WELL 10B - RAW Source No. 018 PS Code 2410009-018 PCA in PCA in PCA in \* PCA (Risk Ranking) Zone A Zone B5 Zone B10 Comments Agricultural/Rural Activities Septic systems - low density (<1/acre) (H in Zone A, Y Y Υ otherwise L) Lagoons / liquid wastes (H) Ν Ν Ν Machine shops (H) Ν N Ν Pesticide/fertilizer/ petroleum storage & transfer areas (H) Ν Ν Ν Y Y Agricultural Drainage (H in Zone A, otherwise M) Υ Wells - Agricultural/ Irrigation (H) Y Y Y Managed Forests (M) Ν Ν Ν Crops, irrigated (Berries, hops, mint, orchards, sod, Y Y Y greenhouses, vineyards, nurseries, vegetable) (M) Y \* Fertilizer, Pesticide/ Herbicide Application (M) Y Y Dibromochloropropane (DBCP) plume in area has impacted well. Sewage sludge/biosolids application (M) Ν Ν Ν Crops, nonirrigated (e.g., Christmas trees, grains, grass Ν Ν N seeds, hay, pasture) (L) (includes drip-irrigated crops) ther Activities NPDES/WDR permitted discharges (H) Ν Ν Ν Underground Injection of Commercial/Industrial Ν Ν Ν Discharges (VH) Historic gas stations (VH) Ν Ν Ν Historic waste dumps/ landfills (VH) N Ν N Illegal activities/ unauthorized dumping (H) Ν Ν Ν Injection wells/ dry wells/ sumps (VH) Ν Ν N Known Contaminant Plumes (VH) Y Y Y \* DBCP plume, TCE plume impacting well. Military installations (VH) Ν Ν Ν Mining operations - Historic (VH) N Ν Ν Mining operations - Active (VH) Ν Ν Ν Mining - Sand/Gravel (H) Ν Ν Ν Wells - Oil, Gas, Geothermal (H) Ν Ν Ν Salt Water Intrusion (H) Ν N Ν Recreational area - surface water source (H) Ν N Ν Underground storage tanks - Confirmed leaking tanks Ν Ν Ν (VH)derground storage tanks - Decommissioned - inactive Ν Ν Ν

Y = Yes N = No U = Unknown

System Name	MERCED, CITY OF					System	No. 2410009
ource Name	WELL 10B - RAW	S	ource No.	018		PS Code	2410009-018
PCA (Risk Rankir	ng)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments	
Other Activiti	es						
tanks (L)							······································
Underground stora smaller than regula	ige tanks - Non-regulated tanks (tanks atory limit) (H)	N	N	N			
Underground stora registered tanks (H	age tanks - Not yet upgraded or I)	N	N	N			
Underground stora - active tanks (L)	age tanks - Upgraded and/or registered	N	N	N			
Above ground stor	age tanks (M)	N	N	N			
Wells - Water sup	ply (M)	N	N	N			
Construction/demo	olition staging areas (M)	N	N	N			·
Contractor or gove yards (M)	ernment agency equipment storage	N	N	N			
Dredging (M)		N	N	N			
Transportation cor	rridors - Freeways/state highways (M)	N	N	N			
Transportation cor	rridors - Railroads (M)	N	N	N			
isportation col	rridors - Historic railroad right-of-ways	N	N	N			
Transportation coluse areas) (M)	rridors - Road Right-of-ways (herbicide	Y	Y	Y			
Transportation co	rridors - Roads/ Streets (L)	Y	Y	Y			
Hospitals (M)		N	N	N			
Storm Drain Disch	narge Points (M)	Y	Y	Y		MID and irriga	ation canals.
Storm Water Dete	ention Facilities (M)	N	N	N			
Artificial Recharge water) (L)	e Projects - Injection wells (potable	N	N	N			
Artificial Recharge water) (M)	e Projects - Injection wells (non-potable	N	N	N			
Artificial Recharge water) (L)	e Projects - Spreading Basins (potable	N	N	N			анантана ал остана се
Artificial Recharge (non-potable wate	e Projects - Spreading Basins er) (M)	N	N	N			
Medical/dental of	fices/clinics (L)	N	N	N		<u> </u>	· · · · · · · · · · · · · · · · · · ·
Veterinary offices	clinics (L)	N	N	N			
Surface water - s	treams/ lakes/rivers (L)	Y	Y	Y		MID and irrig	ation canals.
Wells - monitorin	g, test holes (L)	Y	Y	Y	*	Monitoring To on well site.	CE and DBCP plume. Tw

Y = Yes N = No U = Unknown

Vi	Inerability Ranking								
Ď	istrict Name City of Merced District No. M4	_ c	ounty <u>Me</u>	rced					
S	stem Name MERCED, CITY OF			Syste	m No.	2410009			
S	ource Name Source No.	0	<u>18</u> F	S Code	2410	009-018			
C	Completed by Patrick Riggs Date March, 2003								
Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score			
A	Known Contaminant Plumes (VH)	*	7	5	1	13			
B5	Known Contaminant Plumes (VH)	*	7	3	1	11			
Α	Fertilizer, Pesticide/ Herbicide Application (M)	*	3	5	1	9			
B10	Known Contaminant Plumes (VH)	*	7	1	1	9			
Ą	Wells - monitoring, test holes (L)	*	1	5	1	7			
B5	Fertilizer, Pesticide/ Herbicide Application (M)	*	3	3	1	7			
B5	Wells - monitoring, test holes (L)	*	1	3	1	5			
B10	Fertilizer, Pesticide/ Herbicide Application (M)	*	3	1	1	5			
B10	Wells - monitoring, test holes (L)	*	1	1	1	3			
Α	Agricultural Drainage (H in Zone A, otherwise M)		5	5	1	11			
Α	Septic systems - low density (<1/acre) (H in Zone A, otherwise L)		5	5	1	11			
(	Wells - Agricultural/ Irrigation (H)		5	5	1	11			
A	Crops, irrigated (Berries, hops, mint, orchards, sod, greenhouses, vineyards, nurseries, vegetable) (M)		3	5	1	9			
A	Housing - high density (>1 house/0.5 acres) (M)		3	5	1	9			
Α	Storm Drain Discharge Points (M)		3	5	1	9			
Α	Transportation corridors - Road Right-of-ways (herbicide use areas) (M)		3	5	1	9			
B5	Wells - Agricultural/ Irrigation (H)		5	3	1	9			
			1	t	1				

()



© Information Center for the Environment Coding by <u>Eric Lehmer</u> Mapping System produced using <u>ESRI</u> ArcIMS

 $mhtml: file: //C: \verb|Documents\%20and\%20Settings\riggsp\Desktop\Deliniation\%20Zones\Well\% 3/14/2003$ 

# **Drinking Water Source Assessment**

Water System

**MERCED, CITY OF** 

Merced County

Water Source

## WELL 11 - RAW

Assessment Date

March, 2003

California Department of Health Services Drinking Water Field Operations Branch City of Merced

<b>District</b> No.	M4	
System No.	2410009	,
Source No.	019	
<b>PS Code</b>	2410009-019	:

District Name	City of Merced	District No. M4	County	Merced	
System Name	MERCED, CITY OF			System No241000	
Source Name	WELL 11 - RAW	Source No	019	PS Code	2410009-019

#### **Description of System and Source**

The City of Merced water system is located in Merced County and serves the Merced City and part of the bordering Merced County. There are approximately 17,125 service connections serving a population of 63,000.

The only drinking water source for the City of Merced water system is groundwater wells. The recharge area for the source includes hundreds of square miles originating from the Eastern Seirra Nevada foothills and mountain range. General land use is agricultural | urban | residential | undeveloped etc.

#### **Assessment Procedures**

The assessment of the source WELL 11 - RAW was conducted by the City of Merced Environmental Control Office. The following sources of information were used in the assessment: Water system files, DHS files.

Procedures used to conduct the assessment include: Assistance from DHS jurisdictional office, Turbo Swap program for data input.

### **Contents of this Assessment**

Yes X	No 🗌	Assessment Summary
Yes 🗶	No 🗌	Vulnerability Summary
Yes 🗶	No 🗌	Source Location Form
Yes X	No 🗌	<b>Delineation of Ground Water Protection Zones</b>
Yes X	No 🗌	Physical Barrier Effectiveness Checklist
Yes X	No 🗌	Source Data Sheet
Yes 🔀	No 🗌	Inventory of Possible Contaminating Activities
Yes X	No 🗌	Vulnerability Ranking
Yes 🗶	No 🗌	Assessment Map

and Protection (DWSA D) Drogram

District Name	City of Merced	District No. M4	County	Merced		
ystem Name	MERCED, CITY OF		eeuny		stem No.	2410009
Source Name	WELL 11 - RAW	Source No	019	PS Code		410009-019
completed by	Patrick Riggs	Date	March,	2003		
THE FOI	LOWING INFORMATION MUS	ST BE INCLUDED IN THE SYST		MER CONFII	DENCE RE	PORT
A source wat	er assessment was condu	ucted for the <u>WELL 11 - R</u>	AW			
of the <u>MER</u>	CED, CITY OF		_ water s	system in	<u>March</u> ,	2003
	s considered most vulnera	able to the following activitie	s not asso	ociated		
	ected contaminants:	Ū				
		Ū				
with any dete	ected contaminants:	Ū			a. 1	
with any dete scussion o	ected contaminants: Automobile- Gas statio <b>f Vulnerability</b>	Ū	ecured by t	fencing.		
with any dete scussion o	ected contaminants: Automobile- Gas statio <b>f Vulnerability</b>	ons e municipal groundwater well s	ecured by f	fencing.		
with any dete scussion o	ected contaminants: Automobile- Gas station <b>f Vulnerability</b> Well Station #11 houses one e complete assessment ma	ons e municipal groundwater well s ay be viewed at:	ecured by 1	fencing.		
with any dete scussion o	ected contaminants: Automobile- Gas station <b>f Vulnerability</b> Well Station #11 houses one e complete assessment ma Public Works Environi 1776 Grogan Avenue	ons e municipal groundwater well s ay be viewed at: mental Control Division	ecured by t	fencing.		
with any dete scussion o	ected contaminants: Automobile- Gas station <b>f Vulnerability</b> Well Station #11 houses one e complete assessment ma Public Works Environi	ons e municipal groundwater well s ay be viewed at: mental Control Division	ecured by t	fencing.		
with any dete scussion o Sity of Merced A copy of the	ected contaminants: Automobile- Gas station of Vulnerability Well Station #11 houses one e complete assessment ma Public Works Environ 1776 Grogan Avenue Merced, CA 95340	ons e municipal groundwater well s ay be viewed at: mental Control Division		-		
with any dete scussion o Sity of Merced A copy of the	ected contaminants: Automobile- Gas station <b>f Vulnerability</b> Well Station #11 houses one we complete assessment ma Public Works Environi 1776 Grogan Avenue Merced, CA 95340 quest a summary of the as Patrick Riggs	ons e municipal groundwater well s ay be viewed at: mental Control Division		-		
with any dete scussion o Sity of Merced A copy of the	ected contaminants: Automobile- Gas station <b>f Vulnerability</b> Well Station #11 houses one e complete assessment ma Public Works Environ 1776 Grogan Avenue Merced, CA 95340 quest a summary of the as Patrick Riggs Environmental Contro	ons e municipal groundwater well s ay be viewed at: mental Control Division		-		
with any dete scussion o Sity of Merced A copy of the	ected contaminants: Automobile- Gas station of Vulnerability Well Station #11 houses one Well Station #11 houses one Public Works Environin 1776 Grogan Avenue Merced, CA 95340 Quest a summary of the as Patrick Riggs Environmental Contro 209-385-6817	ons e municipal groundwater well s ay be viewed at: mental Control Division		-		
with any dete scussion o Sity of Merced A copy of the	ected contaminants: Automobile- Gas station <b>f Vulnerability</b> Well Station #11 houses one e complete assessment ma Public Works Environ 1776 Grogan Avenue Merced, CA 95340 quest a summary of the as Patrick Riggs Environmental Contro	ons e municipal groundwater well s ay be viewed at: mental Control Division ssessment be sent to you by		-		



er J

#### **Delineation of Ground Water Protection Zones City of Merced** County Merced **District Name** District No. M4 System No. 2410009 System Name MERCED, CITY OF Source Name Source No. 019 PS Code 2410009-019 WELL 11 - RAW March, 2003 Completed by Patrick Riggs Date

**Method Used to Delineate Protection Zones** 

## X 1. Calculated Fixed Radius

- 2. Modified Calculated Fixed Radius (Attach documentation for direction of ground water flow.)
- 3. More Detailed Methods
- 4. Arbitrary Fixed Radius (For use only by or permission of DHS)

Maximum Pumping Rate of Well (Q)	3,000         gallons/minute           4,839         acre feet/year           210,801,000         cubic feet/year
Effective Porosity	0.20 Default Value
Screened Interval of Well	56 feet Default Value

Protection Zone	Calculated Value	Minimum Value	Radius of Protection Zone
Zone A - 2 Year TOT*	3,462 Feet	600 Feet	<b>3,462</b> Feet
Zone B5 - 5 Year TOT*	5,473 Feet	1,000 Feet	5,473 Feet
Zone B10 - 10 Year TOT*	7,740 Feet	1,500 Feet	7,740 Feet

\*TOT = Time of Travel

Ć

<b>Physical Barrie</b>	er Effectiveness	; (PBE)					
District Name City of M		District No. M4	County	Merced			
	ED, CITY OF		-	Syst	10009		
\	11 - RAW	Source No.	019			0009-019	
				March, 2003			
Completed by Patrick	Riggs	Date	March,	2003			
Parameter				Possible Points	This Source	Score	
<b>Fype of Aquifer</b> Confinement							
1. Unconfined, Semi-confi	ined, Fractured Rock, Unknow	wn Aquifer		0			
2. Confined				50	X	50	
Pathways of Contamin Presence of Abandonec	nation (All Aquifers) d or Improperly Destroyed V	Vells					
1. Present within Zone A	(2 year TOT distance)	Yes		0			
		No		5	X	5	
		Unknown		0			
2. Present within Zone B	5 (2 -5 year TOT distance)	Yes		0			
		No		3	<u> </u>	3	
		Unknown		0			
3. Present within Zone B	10 (5-10 year TOT distance)	Yes		0			
		No		2	<b>X</b>	2	
		Unknown		0			
the overlying unconfine	o in the hydraulic head betw ed aquifer? (i.e. does the w	ell flow under artesian c		<b>p</b>			
<ol> <li>Head in confined aquifer is higher than head in unconfined aquifer under all conditions.</li> </ol>				20	x	20	
<ol><li>Head in confined aquifer is higher than head in unconfined aquifer under static conditions.</li></ol>				10			
<ol> <li>Head in confined aquifer is lower than or same as head in unconfined aquifer under static conditions.</li> </ol>				0			
4. Unknown				0			
Well Construction (All	Aquifers)						
Sanitary Seal (Annular S	Seal) Depth None	of less than 20 feet		0			
0	feet Betw	een 20 and 50 feet		6			
	50 fe	et or greater		10			
	Unkn	Iown		0	X		
Surface Seal (concrete	cap) Not p	present or improperly cons	tructed	0		1	
•	Wate	ertight, slopes away from w	/ell	4	x		
	at lea	ast 2' laterally in all direction	nis –		1		
## Physical Barrier Effectiveness (PBE)

System Name	MERCED, CITY OF			Syste	em No. <u>2410009</u>
Source Name	WELL 11 - RAW	Source	e No. <u>019</u>	PS Code	2410009-019

arameter	Possible Points	This Source	Score	
Nell Construction (All Aquifers)co	ontinued			
Flooding potential at well site	Subject to localized flooding (i.e. in low area or unsealed pit or vault) or within 100 year flood plain	0		
	Not subject to flooding	1	Х	1
· · · ·	Unknown	0		
Security at well site	Not secure	0		
	Secure	5	Х	5
	Unknown	0		

Score	Effectiveness
0 to 35	Low
36 to 69	Moderate
70 to 100	High

Maximum Score = 100

Score	90
Effectiveness	High

### WELL DATA SHEET (Page 1 of 2)

Complete as much information as possible. Leave blank if information is not a * Indicates items required for Source Water Assessment		<i></i>
* Indicates additional items required for assessments and Ground Wa	ter Rule	
		Actual, Estimated
		or Default?
DATA SHEET GENERAL INFORMATION		
System Name	City of Merced	from DHS database
System Number	2410009	from DHS database
Source of Information (well log, DHS/County files, system, etc)	well log, system files	
Organization Collecting Information (DHS, County, System, other)	System	
Date Information Collected/Updated	3/17/2003	
WELL IDENTIFICATION		
* Well Number or Name	Weilfield	from DHS database
* DHS Source Identification Number (FRDS ID No.)		
DWR Well Log on File? ("YES" or "NO")	YES	
State Well Number (from DWR)	2410009019	
Well Status (Active, Standby, Inactive)	Active	· · · · · ·
WELL LOCATION		
Latitude	37.331	City Surveyed 2002
Longitude	-120.467	City Surveyed 2002
Ground Surface Elevation (ft above Mean Sea Level)	180.68	City Surveyed 2002
Street Address	346 E. Yosemite Avenue	
Nearest Cross Street	"G" Street	
City	Merced	
County	Merced	
* Neighborhood/Surrounding Area (see Note 1)	Re, A, Ru, Re, Co	
Site plan on file? ("YES" or "NO")	NO	
DWR Ground Water Basin		from UC Davis
DWR Ground Water Sub-basin		from UC Davis
SANITARY CONDITIONS		
** Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)	>50'	
Distance to Active Wells (ft)	>1000'	
Distance to Abandoned Wells (ft)	None	
Distance to Surface Water (ft)	>1000'	
** Size of controlled area around well (square feet)	1500 (approx.)	
* Type of access control to well site (fencing, building, etc)	fencing	
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	YES	
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	4' x 4' x 16.5"	
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")	UNKNOWN	
* Drainage away from well? ("YES" or "NO")	YES	
ENCLOSURE/HOUSING		
Enclosure Type (building, vault, none, etc.)	Steel	
Floor material	Concrete	
Located in Pit? ("YES" or "NO")	NO	
Pit depth (feet) (if applicable)		
WELL CONSTRUCTION		
Date drilled	1987	
Drilling Method	UNKNOWN	
Depth of Bore Hole (feet below ground surface)	430'	
Casing Beginning Depth/Ending Depth(ft below surface);	0/418'	
2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.		
Casing Diameter (inches); 2nd Casing Diameter; 3rd Casing, etc.	20"	
Casing Material; 2nd Casing Material; 3rd Casing, etc.	Steel	

### WELL DATA SHEET (Page 2 of 2)

* Indicates items required for Source Water Assessment		
* Indicates additional items required for assessments and Ground Water	r Rule	
		Actual, Estimate
		or Default?
WELL CONSTRUCTION (continued)		
Conductor casing used? ("YES", "NO" or "UNKNOWN") (See Note 2)	UNKNOWN	
Conductor casing removed? ("YES", "NO" or "UNKNOWN")		
* Depth to highest perforations/screens (ft below surface) (or "UNKNOWN")	266'	
Screened Interval Beginning Depth/Ending Depth (ft below surface); 2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	(266'-292') (368'-398')	
* Total length of screened interval (ft) (default = 10% pump capacity in gpm) (or "UNKNOWN")	56'	
* Annular Seal?("YES", "NO" or "UNKNOWN") (See Note 3)	YES	
* Depth of Annular Seal (ft)	225'	
Material of Annular Seal (cement grout, bentonite, etc.)	cement	
Gravel pack, Depth to top (ft below ground surface)	UNKNOWN	
Total length of gravel pack (ft)	UNKNOWN	
AQUIFER		
* Aquifer Materials (list all that apply: sand, silt, clay, gravel, rock, fractured rock)	sand, clay, silt	
* Effective porosity (decimal percent) (default = 0.2) (or "UNKNOWN")	UNKNOWN	
* Confining layer (Impervious Strata) above aquifer? ("YES", "NO" or "UNKNOWN")	YES	
Thickness of confining layer, if known (ft)	29'	
Depth to confining layer, if known (ft below ground)	336'	
* Static water level (ft below ground surface)		الا المراجع ال المراجع المراجع المراجع المراجع المراجع
Static water level measurement: Date/Method		د المراجع مع المراجع الم المراجع المراجع المراجع المراجع المراجع
Pumping water level (ft below ground surface)		a de la servicia de la compositiva de Regiona de presentada de la compositiva de la compositiva de la compositiva de la compositiva de la compositiva La compositiva de la compositiva da compositiva da compositiva de la compositiva de la compositiva de la composi
Pumping water level measurement: Date/Method		Comparison and a second secon second second sec
WELL PRODUCTION		
Well Yield (gpm)	3000	
Well Yield Based On (i.e., pump test, etc.)	Meter	
Date measured	3/18/2003	·····
Is the well metered? ("YES" or "NO")	YES	
Production (gallons per year)	842.22 MG (2002)	
Frequency of Use (hours/year)	19.23	
Typical pumping duration (hours/day)	7018.95	
PUMP		
Make	Peabody Floway	
Туре	VFD	
Size (hp)	300 HP	
* Capacity (gpm)	3000	
Depth to suction intake (ft below ground surface)	266'	
Lubrication Type	Oil	
Type of Power: (i.e., electric, diesel, etc.)	Diesel Generator	
Auxiliary power available? ("YES" or "NO")	YES	
Operation controlled by: (i.e., level in tank, pressure, etc.)	Pressure	
Pump to Waste capability? ("YES" or "NO")	YES	
Discharges to: (i.e., distribution system, storage, etc.)	Distribution System	

## **Remarks and Defects**

Well Data Sheet Supplement	
REMARKS AND DEFECTS	
(Use or note these items as appropriate)	
(** indicates items pertinent to Ground Water Rule)	
Distance (ft) to other sanitary concerns:	
** Type of Sanitary Concern:	
Raw Water Quality concerns? (Yes or No)	no
** Microbiological (coliform)	
Chemicals	
Other (list)	
** Continuous Chlorination provided? (Yes or No)	
Condition of enclosure or housing	good
Pit Drained? (if applicable)	
Pitless Adaptor? Make and Model	
Height of pump base (inches)	16.5"
Casing Vent? (yes or no)	yes
Air/Vacuum Release? (yes or no)	yes
Sampling Taps? (yes or no)	yes
Location of sampling taps	Pump Discharge
Wellhead Riser? (yes or no); height above well	
Other	

<b>District Name</b>	City of Merced	District N	o. M4	County	/	Merced			
System Name	MERCED, CITY OF			_		System No. 2410009			
Source Name	WELL 11 - RAW	Sc	ource No.	019		PS Code2410009-019			
Completed by	Patrick Riggs		Date	March	, 20	003			
PCA (Risk Rankin	g)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments			
Commercial/I	ndustrial Activities								
Automobile- Body s	hops (H)	N	N	N					
Automobile- Car wa	ashes (M)	Y	N	N					
Automobile- Gas st	ations (VH)	Y	N	N					
Automobile- Repair	shops (H)	N	N	N					
Boat services/repai	r/ refinishing (H)	N	N	N					
Chemical/petroleur	n pipelines (H)	Y	N	N		Commercial Gas Station.			
Chemical/petroleur	n processing/storage (VH)	N	N	N					
Dry cleaners (VH)		N	N	N					
Electrical/electronic	c manufacturing (H)	N	N	N					
Fleet/truck/bus terr	ninals (H)	N	N	N					
Furniture repair/ m	anufacturing (H)	N	N	N					
me manufacturi	ng (H)	Y	Y	Y		Several new neighborhoods under construction.			
Junk/scrap/salvage	e yards (H)	N	N	N					
Machine shops (H)	17 Conservation and A	N	N	N					
Metal plating/ finist	ning/fabricating (VH)	N	N	N					
Photo processing/	printing (H)	Y	Y	Y					
Plastics/synthetics	producers (VH)	N	N	N					
Research laborato	ries (H)	N	N	N					
Wood preserving/t	reating (H)	N	N	N					
Wood/pulp/paper	processing and mills (H)	N	N	N					
Lumber processing	g and manufacturing (H)	N	N	N					
Sewer collection s	ystems (H, if in Zone A, otherwise L)	Y	Y	Y		Municipal sewer system.			
Parking lots/malls	(>50 spaces) (M)	Y	N	N		Outdoor Mall in immediate vacinity.			
Cement/concrete	plants (M)	N	N	N					
Food processing (	M)	N	N	N					
Funeral services/g	raveyards (M)	N	N	N					
Hardware/lumber/	parts stores (M)	N	N	N					
Appliance/Electror	nic Repair (L)	N	N	N					
Office buildings/co	omplexes (L)	Y	N	N		Small office complex located in outdo mall.			

Y = Yes N = No U = Unknown

System Name MERCED, CITY OF					System No. 2410	009
ource Name WELL 11 - RAW	S	ource No.	019		PS Code 2410009-	019
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments	
Commercial/Industrial Activities						
Rental Yards (L)	N	N	N			
RV/mini storage (L)	N	N	N			
Residential/Municipal Activities						
Airports - Maintenance/ fueling areas (VH)	N	N	N			
Landfills/dumps (VH)	N	N	N			
Railroad yards/ maintenance/ fueling areas (H)	N	N	N			
Septic systems - high density (>1/acre) (VH if in Zone A, otherwise M)	N	N	N			
Sewer collection systems (H, if in Zone A, otherwise L)	Y	Y	Y		Municipal sewer system.	
Utility stations - maintenance areas (H)	N	N	N	,		
Wastewater treatment plants (VH in Zone A, otherwise H)	N	N	N		· · · · · · · · · · · · · · · · · · ·	
Drinking water treatment plants (M)	N	N	N		· · · · · · · · · · · · · · · · · · ·	
Golf courses (M)	N	N	N			
vising - high density (>1 house/0.5 acres) (M)	Y	Y	Y			
vor pools (M)	N	N	N			
Parks (M)	N	Y	Y			
Waste transfer/recycling stations (M)	N	N	N			
Apartments and condominiums (L)	N	Y	Y			
Campgrounds/ Recreational areas (L)	N	N	N			
Fire stations (L)	N	N	Y			
RV Parks (L)	N	N	N			
Schools (L)	N	N	N			
Hotels, Motels (L)	N	N	N			
Agricultural/Rural Activities						
Grazing (> 5 large animals or equivalent per acre) (H in Zone A, otherwise M)	N	N	N			
Concentrated Animal Feeding Operations (CAFOs) as defined in federal regulation1 (VH in Zone A, otherwise H)	N	N	N			
Animal Feeding Operations as defined in federal regulation2 (VH in Zone A, otherwise H)	N	N	N			
Other Animal operations (H in Zone A, otherwise M)	N	N	N			
Farm chemical distributor/ application service (H)	N	N	N			

Y = Yes N = No U = Unknown

System Name MERCED, CITY OF				System No. 2410009		
ource Name WELL 11 - RAW	So	ource No.	019		_ PS Code	2410009-019
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments	
Agricultural/Rural Activities						
Farm machinery repair (H)	N	N	N			
Septic systems - low density (<1/acre) (H in Zone A, otherwise L)	N	N	Y			
agoons / liquid wastes (H)	N	N	N			
Machine shops (H)	N	N	N			
Pesticide/fertilizer/ petroleum storage & transfer areas (H)	N	N	N			
Agricultural Drainage (H in Zone A, otherwise M)	N	Y	Y			· · ·
Wells - Agricultural/ Irrigation (H)	N	Y	Y			
Managed Forests (M)	N	N	N			
Crops, irrigated (Berries, hops, mint, orchards, sod, greenhouses, vineyards, nurseries, vegetable) (M)	N	N	Y			
Fertilizer, Pesticide/ Herbicide Application (M)	N	N	Y			
Sewage sludge/biosolids application (M)	N	N	N			
Crops, nonirrigated (e.g., Christmas trees, grains, grass	N	N	N			
other Activities						
NPDES/WDR permitted discharges (H)	N	N	N			
Underground Injection of Commercial/Industrial Discharges (VH)	N	N	N			
Historic gas stations (VH)	N	N	N	$\uparrow$		
Historic waste dumps/ landfills (VH)	N	N	N			
Illegal activities/ unauthorized dumping (H)	N	N	N			
Injection wells/ dry wells/ sumps (VH)	N	N	N	Τ		
Known Contaminant Plumes (VH)	N	N	N	Τ		······································
Military installations (VH)	N	N	N	Τ		
Mining operations - Historic (VH)	N	N	N	T		<u> </u>
Mining operations - Active (VH)	N	N	N	1		
Mining - Sand/Gravel (H)	N	N	N			
Wells - Oil, Gas, Geothermal (H)	N	N	N	1		
Salt Water Intrusion (H)	N	N	N	Τ		
Recreational area - surface water source (H)	N	N	N	╞		
Underground storage tanks - Confirmed leaking tanks (VH)	N	N	N			
Inderground storage tanks - Decommissioned - inactive ks (L)	N	N	N			

N = No U = Unknown Y = Yes

#### Drinking Water Source Assessment and Protection (DWSAP) Program Page 4 Inventory of Possible Contaminating Activities (PCA Inventory) System Name System No. 2410009 MERCED, CITY OF 2410009-019 Source Name WELL 11 - RAW Source No. 019 PS Code PCA in PCA in PCA in \* PCA (Risk Ranking) Zone A Zone B5 Zone B10 Comments **Other Activities** Underground storage tanks - Non-regulated tanks (tanks Ν Ν N smaller than regulatory limit) (H) Underground storage tanks - Not yet upgraded or Ν Ν Ν registered tanks (H) Underground storage tanks - Upgraded and/or registered Ν Ν Ν - active tanks (L) Above ground storage tanks (M) Ν Ν Ν Wells - Water supply (M) N Ν Ν Construction/demolition staging areas (M) Ν Ν Ν Contractor or government agency equipment storage Ν Ν Ν yards (M) Dredging (M) Ν Ν Ν Transportation corridors - Freeways/state highways (M) Ν Ν Ν

Transportation corridors - Railroads (M)	N	N	N	
nsportation corridors - Historic railroad right-of-ways	N	N	N	
Fransportation corridors - Road Right-of-ways (herbicide use areas) (M)	Y	Y	Y	
Transportation corridors - Roads/ Streets (L)	Y	Y	Y	
Hospitals (M)	N	N	N	
Storm Drain Discharge Points (M)	N	N	Y	
Storm Water Detention Facilities (M)	N	Y	Y	SW Catch basins and irrigation canals.
Artificial Recharge Projects - Injection wells (potable vater) (L)	N	N	N	
Artificial Recharge Projects - Injection wells (non-potable vater) (M)	N	N	N	
Artificial Recharge Projects - Spreading Basins (potable vater) (L)	N	N	N	
Artificial Recharge Projects - Spreading Basins non-potable water) (M)	N	N	N	
Medical/dental offices/clinics (L)	N	N	N	
/eterinary offices/clinics (L)	N	N	N	
Surface water - streams/ lakes/rivers (L)	N	Y	Y	MID canals and irrigation canals.
Wells - monitoring, test holes (L)	Y	N	N	Four MW's located on well site.

Vı	Inerability Ranking					
D	istrict Name City of Merced District No. M4	_ c	ounty <u>Me</u>	rced		
ંડ	stem Name MERCED, CITY OF			Syste	m No.	2410009
S	ource Name <u>WELL 11 - RAW</u> Source No.	0	<u>19</u> F	PS Code	2410	009-019
C	ompleted by Patrick Riggs Date	N	larch, 2003			
Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
Α	Automobile- Gas stations (VH)		7	5	1	13
Α	Chemical/petroleum pipelines (H)		5	5	1	11
Α	Home manufacturing (H)		5	5	1	11
A	Photo processing/printing (H)		5	5	1	11
Α	Sewer collection systems (H, if in Zone A, otherwise L)		5	5	1	11
Α	Sewer collection systems (H, if in Zone A, otherwise L)		5	5	1	11
Α	Automobile- Car washes (M)		3	5	1	9
Α	Housing - high density (>1 house/0.5 acres) (M)		3	5	1	9
Α	Parking lots/malls (>50 spaces) (M)		3	5	1	9
А	Transportation corridors - Road Right-of-ways (herbicide use areas) (M)		3	5	1	9
B5	Home manufacturing (H)		5	3	. 1	9
5	Photo processing/printing (H)		5	3	1	9
<b></b>	Wells - Agricultural/ Irrigation (H)		5	3	1	9

 $\bigcirc$ 





© Information Center for the Environment Coding by <u>Eric Lehmer</u> Mapping System produced using <u>ESRI</u> ArcIMS

# **Drinking Water Source Assessment**

Water System

MERCED, CITY OF Merced County

<u>Water Source</u> WELL 13 - RAW

Assessment Date

March, 2003

California Department of Health Services Drinking Water Field Operations Branch City of Merced

 District No.
 M4

 System No.
 2410009

 Source No.
 020

 PS Code
 2410009-020

District Name	City of Merced	District No. M4	County	Merced		
System Name	MERCED, CITY OF			System	No	2410009
Source Name	WELL 13 - RAW	Source No.	020	PS Code	24	10009-020

### Description of System and Source

The City of Merced water system is located in Merced County and serves the Merced City and part of the bordering Merced County. There are approximately 17,125 service connections serving a population of 63,000.

The only drinking water source for the City of Merced water system is groundwater wells. The recharge area for the source includes hundreds of square miles originating from the Eastern Seirra Nevada foothills and mountain range. General land use is agricultural | urban | residential | undeveloped etc.

#### **Assessment Procedures**

The assessment of the source WELL 13 - RAW was conducted by the City of Merced Environmental Control Office. The following sources of information were used in the assessment: Water system files, DHS files.

Procedures used to conduct the assessment include: Assistance from DHS jurisdictional office, Turbo Swap program for data input.

#### **Contents of this Assessment**

Yes X	No 🗌	Assessment Summary
Yes 🗶	No 🗌	Vulnerability Summary
Yes X	No 🗌	Source Location Form
Yes X	No 🗌	<b>Delineation of Ground Water Protection Zones</b>
Yes X	No 🗌	Physical Barrier Effectiveness Checklist
Yes X	No 🗌	Source Data Sheet
Yes X	No 🗌	Inventory of Possible Contaminating Activities
Yes X	No 🗌	Vulnerability Ranking
Yes X	No 🗌	Assessment Map

Vulnerab	ility Summary					
District Name System Name	City of Merced MERCED, CITY OF	District No. <u>M4</u>	County	Merced	stem No.	2410000
Source Name	WELL 13 - RAW	Source No	020	PS Code	_	2410009 10009-020
Completed by	Patrick Riggs	Date	March, 2	2003		
THE FOL	LOWING INFORMATION MUST	BE INCLUDED IN THE SYSTI		MER CONFIL	DENCE REF	PORT
	er assessment was conduc CED, CITY OF	cted for the <u>WELL 13 - R</u>		system in	March,	2003
	considered most vulnerab cted contaminants:	le to the following activitie	s not asso	ciated		
	Agricultural Drainage Septic systems - low de Sewer collection system	•				

### **Discussion of Vulnerability**

City of Merced Well Station #13 houses three municipal groundwater wells secured by fencing. Well station is located next to Pioneer Elementry School.

A copy of the complete assessment may be viewed at:

Public Works Environmental Control Division 1776 Grogan Avenue Merced, CA 95340

You may request a summary of the assessment be sent to you by contacting:

Patrick Riggs Environmental Control Officer II 209-385-6817 209-384-7772 (fax) riggsp@cityofmerced.org



### Delineation of Ground Water Protection Zones

<b>District Name</b>	City of Merced	District No. M4	County	Merced	<u></u>	
System Name	MERCED, CITY OF			Syster	m No	2410009
Source Name	WELL 13 - RAW	Source No	020	PS Code	241	0009-020
Completed by	Patrick Riggs	Date	March, 2	2003		

Method Used to Delineate Protection Zones

### X 1. Calculated Fixed Radius

- 2. Modified Calculated Fixed Radius (Attach documentation for direction of ground water flow.)
- 3. More Detailed Methods
- 4. Arbitrary Fixed Radius (For use only by or permission of DHS)

Maximum Pumping Rate of Well (Q)	<u>3,000</u> 4,839	gallons/minute acre feet/year
	210,801,000	cubic feet/year
Effective Porosity	0.20	Default Value
Screened Interval of Well	<b>215</b> fee	t Default Value

Protection Zone	Calculated Value	Minimum Value	Radius of Protection Zone
Zone A - 2 Year TOT*	1,767 Feet	600 Feet	1,767 Feet
Zone B5 - 5 Year TOT*	2,793 Feet	1,000 Feet	2,793 Feet
Zone B10 - 10 Year TOT*	3,950 Feet	1,500 Feet	3,950 Feet

\*TOT = Time of Travel

<b>District Name</b>	City of Merced	District No. M4	County	Merced		
System Name	MERCED, CITY OF		·		em No. 24	10009
Source Name	WELL 13 - RAW	Source No.	020	PS Code	241000	
Completed by	Patrick Riggs		· · · · · · · · · · · · · · · · · · ·			
		Date	March,	2003		
Parameter				Possible Points	This Source	Score
Type of Aquife Confinement						
1. Unconfined,	Semi-confined, Fractured Rock, U	nknown Aquifer		0		
2. Confined				50	X	50
Pathways of ( Presence of A	Contamination (All Aquifers	i) ed Wells			- 1994	
	nin Zone A (2 year TOT distance)	Yes		0		
		No		5	X	5
		Unknown		0		
2. Present with	nin Zone B5 (2 -5 year TOT distand	e) Yes		0		
		No		3	X	3
		Unknown		0		
3. Present with	nin Zone B10 (5-10 year TOT dista	nce) Yes		0		
		No		2	Х	2
		Unknown		0		
What is the re the overlying	ad (Confined Aquifers) elationship in the hydraulic head unconfined aquifer? (i.e. does the fined aquifer is higher than head in	ne well flow under artesian con	nd ditions?	)20	x	20
2. Head in con conditions.	fined aquifer is higher than head in	unconfined aquifer under static		10		
3. Head in con under static	fined aquifer is lower than or same conditions.	as head in unconfined aquifer		0		
4. Unknown				0		
H. UNKNOWN						<u> </u>
4. Unknown Well Construct	ction (All Aquiters)			0		
Well Construc		lone of less than 20 feet				+
Well Construc	(Annular Seal) Depth	None of less than 20 feet Between 20 and 50 feet		6		
Well Construc	(Annular Seal) Depth			6 10		
Well Construc	(Annular Seal) Depth	Between 20 and 50 feet			x	0
Well Construc Sanitary Seal	I (Annular Seal) Depth	Between 20 and 50 feet 50 feet or greater	cted	10 0	X	0
Well Construc Sanitary Seal	(Annular Seal) Depth	Between 20 and 50 feet 50 feet or greater Jnknown		10	X	0

### **Physical Barrier Effectiveness (PBE)**

#### System Name MERCED, CITY OF

System No. 2410009 Source Name WELL 13 - RAW PS Code \_\_\_\_\_2410009-020 Source No. 020

Parameter		Possible Points	This Source	Score
Well Construction (All Aquifers)co	ontinued			
Flooding potential at well site	Subject to localized flooding (i.e. in low area or unsealed pit or vault) or within 100 year flood plain	0		
	Not subject to flooding	1	X	1
	Unknown	0		
Security at well site	Not secure	0		
	Secure	5	Х	5
	Unknown	0		

Score	Effectiveness
0 to 35	Low
36 to 69	Moderate
70 to 100	High

Maximum Score = 100

Score	90
Effectiveness	High

### WELL DATA SHEET (Page 1 of 2)

* Indicates items required for Source Water Assessment		
** Indicates additional items required for assessments and Ground Wate	er Rule	
		Actual, Estimated or Default?
DATA SHEET GENERAL INFORMATION		
System Name	City of Merced	from DHS database
System Number	2410009	from DHS database
Source of Information (well log, DHS/County files, system, etc)	well log, system files	$ \begin{array}{l} \mathcal{A}_{\mathcal{G}} : f_{\mathcal{G}} : $
Organization Collecting Information (DHS, County, System, other)	System	
Date Information Collected/Updated	3/18/2003	المراجع من المراجع الم المراجع المراجع المراجع المراجع المراجع
WELL IDENTIFICATION		
' Well Number or Name	Well (3	4
* DHS Source Identification Number (FRDS ID No.)		
DWR Well Log on File? ("YES" or "NO")	YES	
State Well Number (from DWR)	2410009020	- · · · · · · · · · · · · · · · · · · ·
Well Status (Active, Standby, Inactive)	Active	
WELL LOCATION		
Latitude	37.28	City Surveyed 200
Longitude	-120.436	City Surveyed 200
Ground Surface Elevation (ft above Mean Sea Level)	186.12	City Surveyed 200
Street Address	2890 Gerard Avenue	
Nearest Cross Street	Coffee	an at a second se
City	Merced	(a) and a second sec
County	Merced	[10] A. S.
* Neighborhood/Surrounding Area (see Note 1)	Re, Ru, A, Co	(20) A set of the s
Site plan on file? ("YES" or "NO")	NO	[10] T. S. M. M. S. M. M. S. M. Markelli, M. M. Wang, and M. S. M. M. Markelli, "A strain of the
DWR Ground Water Basin		form UC Davis
DWR Ground Water Sub-basin		form UC Davis
SANITARY CONDITIONS		Ionn CO Davis
** Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)	184'	
Distance to Active Wells (ft)	>1000'	
Distance to Abandoned Wells (ft)	>200'	
Distance to Surface Water (ft)	>1000'	
** Size of controlled area around well (square feet)	24,192 (approx.)	
* Type of access control to well site (fencing, building, etc)	fencing	
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	YES	
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	4.6' x 4' x 30.25"	
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")	UNKNOWN	
* Drainage away from well? ("YES" or "NO")	YES	
ENCLOSURE/HOUSING	1	
Enclosure Type (building, vault, none, etc.)	Steel	
Floor material	Concrete	
Located in Pit? ("YES" or "NO")	NO	
Pit depth (feet) (if applicable)		
	N.A.	
	1000	
WELL CONSTRUCTION	1990	
Date drilled		
Date drilled Drilling Method	0001	
Date drilled Drilling Method Depth of Bore Hole (feet below ground surface)	680'	
Date drilled Drilling Method Depth of Bore Hole (feet below ground surface) Casing Beginning Depth/Ending Depth(ft below surface);	680' 0/670'	
Date drilled Drilling Method Depth of Bore Hole (feet below ground surface)	1	

\_\_\_\_\_

(

Ć

### WELL DATA SHEET (Page 2 of 2)

Complete as much information as possible. Leave blank if information is not av	ailable. use N.A. if not applic	able.
* Indicates items required for Source Water Assessment		
** Indicates additional items required for assessments and Ground Wate	r Rule	
		Actual, Estimated or Default?
WELL CONSTRUCTION (continued)		
Conductor casing used? ("YES", "NO" or "UNKNOWN") (See Note 2)	UNKNOWN	
Conductor casing removed? ("YES", "NO" or "UNKNOWN")		
* Depth to highest perforations/screens (ft below surface) (or "UNKNOWN")	445'	
Screened Interval Beginning Depth/Ending Depth (ft below surface);	445'-660'	· · · · · · · · · · · · · · · · · · ·
2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc. * Total length of screened interval (ft)		
	215'	
(default = 10% pump capacity in gpm) (or "UNKNOWN")		
* Annular Seal?("YES", "NO" or "UNKNOWN") (See Note 3)	YES	
* Depth of Annular Seal (ft)	440'	
Material of Annular Seal (cement grout, bentonite, etc.)	cement	
Gravel pack, Depth to top (ft below ground surface)		
Total length of gravel pack (ft)		
AQUIFER		
* Aquifer Materials	sand, clay,silt	
(list all that apply: sand, silt, clay, gravel, rock, fractured rock)		
* Effective porosity (decimal percent) (default = 0.2) (or "UNKNOWN")	UNKNOWN	
* Confining layer (Impervious Strata) above aquifer? ("YES", "NO" or "UNKNOWN")	YES	
Thickness of confining layer, if known (ft)	43'	
Depth to confining layer, if known (ft below ground)	386'	
* Static water level (ft below ground surface)		ار این میکند. به این میکند این این این این این میکند به این میکند این و میکند. به این میکند این این میکند این میکند این این میکند این این میکند.
Static water level measurement: Date/Method		(a) A set of the se
Pumping water level (ft below ground surface)		nater fallen er sener forste en den sener er følste er forste forste en som State og er sener er er state sener er sener er sener er sener er som er sener er sener er sener er sener er se State og er sener er sener er sener og er sener e
Pumping water level measurement: Date/Method		الم المراجع الم المحمد المحمد المراجع المراجع المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد ال المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد
WELL PRODUCTION		
Well Yield (gpm)	3000	
Well Yield Based On (i.e., pump test, etc.)	Meter	·····
Date measured	3/18/2003	
Is the well metered? ("YES" or "NO")	YES	
Production (gallons per year)	684.6 MG (2002)	
Frequency of Use (hours/year)	24	
Typical pumping duration (hours/day)	8760	
PUMP		
Make	Peabody / Floway	
Туре	VFD	
Size (hp)	300 HP	
* Capacity (gpm)	2500 gpm	
Depth to suction intake (ft below ground surface)	445'	
Lubrication Type	Water	
Type of Power: (i.e., electric, diesel, etc.)	Diesel Generator	
Auxiliary power available? ("YES" or "NO")	YES	
Operation controlled by: (i.e., level in tank, pressure, etc.)	Pressure	
Pump to Waste capability? ("YES" or "NO")	YES	
Discharges to: (i.e., distribution system, storage, etc.)	Distribution System	

*.* 

## **Remarks and Defects**

Well Data Sheet Supplement	
REMARKS AND DEFECTS	
(Use or note these items as appropriate)	
(** indicates items pertinent to Ground Water Rule)	
Distance (ft) to other sanitary concerns:	
** Type of Sanitary Concern:	· · · · · · · · · · · · · · · · · · ·
** Type of Sanitary Concern:	
Raw Water Quality concerns? (Yes or No)	no
** Microbiological (coliform)	
Chemicals	
Other (list)	
** Continuous Chlorination provided? (Yes or No)	yes
Condition of enclosure or housing	good
Pit Drained? (if applicable)	
Pitless Adaptor? Make and Model	
Height of pump base (inches)	30.25"
Casing Vent? (yes or no)	yes
Air/Vacuum Release? (yes or no)	yes
Sampling Taps? (yes or no)	yes
Location of sampling taps	Pump Discharge
Wellhead Riser? (yes or no); height above well	
Other	

Ć.

Drinking Water Source ------. ..... 

Dhinking water Source Assessment and Protect	tion (DWS)	AP) Prog	ram			
Inventory of Possible Contami	inating	<b>y Activ</b>	vities (	P(	CA Inventory)	
District Name _ City of Merced	District N	lo. M4	Count	y	Merced	
System Name MERCED, CITY OF			_		System No. 2410009	
Source Name WELL 13 - RAW	Sc	ource No.	020		PS Code 2410009-020	-
Completed by Patrick Riggs	· · · · · · · · · · · · · · · · · · ·					_
Completed by Patrick Riggs		Date	March	1, 20	J03	
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments	
Residential/Municipal Activities						
Airports - Maintenance/ fueling areas (VH)	N	N	N			
Landfills/dumps (VH)	N	N	N			
Railroad yards/ maintenance/ fueling areas (H)	N	N	N			
Septic systems - high density (>1/acre) (VH if in Zone A, otherwise M)	N	N .	N			
Sewer collection systems (H, if in Zone A, otherwise L)	Y	Y	Y		Municipal sewer system.	
Utility stations - maintenance areas (H)	N	N	N			
Wastewater treatment plants (VH in Zone A, otherwise H)	N	N	N -			
Drinking water treatment plants (M)	N	N	N			
Golf courses (M)	N	N	N			
Housing - high density (>1 house/0.5 acres) (M)	N	N	N			
Motor pools (M)	N	N	N			
iks (M)	N	N	N			
Waste transfer/recycling stations (M)	N	N	N			
Apartments and condominiums (L)	N	N	N			
Campgrounds/ Recreational areas (L)	N	N	N			
Fire stations (L)	N	N	N			
RV Parks (L)	N	N	N			
Schools (L)	Y	N	N			
Hotels, Motels (L)	N	N	N			
Agricultural/Rural Activities						
Grazing (> 5 large animals or equivalent per acre) (H in Zone A, otherwise M)	N	N	N			
Concentrated Animal Feeding Operations (CAFOs) as defined in federal regulation1 (VH in Zone A, otherwise H)	N	N	N			
Animal Feeding Operations as defined in federal regulation2 (VH in Zone A, otherwise H)	N	N	N			
Other Animal operations (H in Zone A, otherwise M)	N	N	N			
Farm chemical distributor/ application service (H)	N	N	N	1		
Farm machinery repair (H)	N	N	N			
		4		+		

Y = Yes N = No U = Unknown

# Inventory of Possible Contaminating Activities (PCA Inventory)

System Name MERCED, CITY OF	System No241000					
Source Name WELL 13 - RAW	So	ource No.	020		_ PS Code	2410009-020
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments	······
Agricultural/Rural Activities			- -			
Septic systems - low density (<1/acre) (H in Zone A, otherwise L)	Y	Y	Y			
Lagoons / liquid wastes (H)	N	N	N			
Machine shops (H)	N	N	N			internation in the second s
Pesticide/fertilizer/ petroleum storage & transfer areas (H)	N	N	N			
Agricultural Drainage (H in Zone A, otherwise M)	Y	Y	Y		MID irrigation drains.	canals. Agricultural
Wells - Agricultural/ Irrigation (H)	Y	Y	Y			
Managed Forests (M)	N	N	N			
Crops, irrigated (Berries, hops, mint, orchards, sod, greenhouses, vineyards, nurseries, vegetable) (M)	Y	Y	Y			
Fertilizer, Pesticide/ Herbicide Application (M)	Y	Y	Y			· · · · · · · · · · · · · · · · · · ·
Sewage sludge/biosolids application (M)	N	N	N			
Crops, nonirrigated (e.g., Christmas trees, grains, grass seeds, hay, pasture) (L) (includes drip-irrigated crops)	N	N	N			
ther Activities						
NPDES/WDR permitted discharges (H)	N	N	N	1		
Underground Injection of Commercial/Industrial Discharges (VH)	N	N	N			
Historic gas stations (VH)	N	N	N .			
Historic waste dumps/ landfills (VH)	N	N	N		T	<u></u>
Illegal activities/ unauthorized dumping (H)	N	N	N			<u></u>
Injection wells/ dry wells/ sumps (VH)	N	N	N			· · · · · · · · · · · · · · · · · · ·
Known Contaminant Plumes (VH)	N	N	N			<u></u>
Military installations (VH)	N	N	N			······································
Mining operations - Historic (VH)	N	N	N			<u> </u>
Mining operations - Active (VH)	N	N	N	1		
Mining - Sand/Gravel (H)	N	N	N	1		
Wells - Oil, Gas, Geothermal (H)	N	N	N	1		. 4 - 6 VI
Salt Water Intrusion (H)	N	N	N	T		
Recreational area - surface water source (H)	N	N	N			
Underground storage tanks - Confirmed leaking tanks (VH)	N	N	N			
Underground storage tanks - Decommissioned - inactive \ks (L)	N	N	N			

Y = Yes N = No U = Unknown

# Inventory of Possible Contaminating Activities (PCA Inventory)

System Name <u>MERCED, CITY OF</u>					System No. 2410009		
Source Name WELL 13 - RAW	Se	ource No.	020		PS Code2410009-020		
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments		
Other Activities							
Underground storage tanks - Non-regulated tanks (tanks smaller than regulatory limit) (H)	N	N	N				
Underground storage tanks - Not yet upgraded or registered tanks (H)	N	N	N				
Underground storage tanks - Upgraded and/or registered - active tanks (L)	N	N	N				
Above ground storage tanks (M)	N	N	N				
Wells - Water supply (M)	N	N	N				
Construction/demolition staging areas (M)	N	N	N				
Contractor or government agency equipment storage yards (M)	N	N	N		· ·		
Dredging (M)	N	N	N		·		
Transportation corridors - Freeways/state highways (M)	Y	Y	Y				
Transportation corridors - Railroads (M)	N	Y	Y				
Transportation corridors - Historic railroad right-of-ways	N	N	N				
ansportation corridors - Road Right-of-ways (herbicide use areas) (M)	Y	Y	Y				
Transportation corridors - Roads/ Streets (L)	Y	· Y	Y				
Hospitals (M)	N	N	N				
Storm Drain Discharge Points (M)	N	N	N	1			
Storm Water Detention Facilities (M)	N	Y	Y				
Artificial Recharge Projects - Injection wells (potable water) (L)	N	N	N				
Artificial Recharge Projects - Injection wells (non-potable water) (M)	N	N	N				
Artificial Recharge Projects - Spreading Basins (potable water) (L)	N	N	N				
Artificial Recharge Projects - Spreading Basins (non-potable water) (M)	N	N	N				
Medical/dental offices/clinics (L)	N	N	N	1			
Veterinary offices/clinics (L)	N	N	N	1			
Surface water - streams/ lakes/rivers (L)	Y	Y	Y	$\top$	Irrigation canals, agricultural drains.		
Wells - monitoring, test holes (L)	Y	N	N	╈	Four MW's located on station.		
				-			

 $\bigcirc$ 

C

		Course Assessment and Flot	ecuon (DNSAF) Flogia					
νι	ulnerabi	lity Ranking						
D	District Name	City of Merced	District No. M4	C	ounty Me	erced		
S <u>!</u>	ystem Name	MERCED, CITY OF				Syste	em No.	2410009
S	ource Name	WELL 13 - RAW	Source No.	0	20	- PS Code	241	0009-020
C	ompleted by	Patrick Riggs	Date	N	larch, 2003	3		
Zone	PCA (Risk R	lanking)		*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
Α	Agricultural [	Drainage (H in Zone A, otherwise M	)		5	5	1	11
Α	Septic syster	ms - low density (<1/acre) (H in Zor	ne A, otherwise L)		5	5	1	11
A	Sewer collec	tion systems (H, if in Zone A, other	wise L)		5	5	1	. 11
А	Wells - Agri	cultural/ Irrigation (H)	• • • • • • • • • • • • • • • • • • •		5	5	1	11
Α		ted (Berries, hops, mint, orchards, s urseries, vegetable) (M)	sod, greenhouses,		3	5	1	. 9
А	Fertilizer, Pe	sticide/ Herbicide Application (M)			3	5	1	9
А	Transportatio	on corridors - Freeways/state highw	vays (M)		3	5	1	9
А	Transportatio	on corridors - Road Right-of-ways (	herbicide use areas) (M)		3	.5	1	9
B5	Wells - Agri	cultural/ Irrigation (H)			5	3	1	9



© Information Center for the Environment Coding by <u>Eric Lehmer</u> Mapping System produced using <u>ESRI</u> ArcIMS

mhtml:file://C:\Documents%20and%20Settings\riggsp\Desktop\Deliniation%20Zones\Well% 3/14/2003

Water System

MERCED, CITY OF Merced County

Water Source

### WELL 14 - RAW

Assessment Date

March, 2003

California Department of Health Services Drinking Water Field Operations Branch City of Merced

 District No.
 M4

 System No.
 2410009

 Source No.
 021

 PS Code
 2410009-021

Assessme	ent Summary				
<b>District Name</b>	City of Merced	District No	County	Merced	
System Name	MERCED, CITY OF			System	n No. 2410009
Source Name	WELL 14 - RAW	Source No	021	PS Code	2410009-021
Completed by	Patrick Riggs	Date	March, 2	2003	

### **Description of System and Source**

The City of Merced water system is located in Merced County and serves the Merced City and part of the bordering Merced County. There are approximately 17,125 service connections serving a population of 63,000.

The only drinking water source for the City of Merced water system is groundwater wells. The recharge area for the source includes hundreds of square miles originating from the Eastern Seirra Nevada foothills and mountain range. General land use is agricultural | urban | residential | undeveloped etc.

#### **Assessment Procedures**

The assessment of the source WELL 14 - RAW was conducted by the City of Merced Environmental Control Office. The following sources of information were used in the assessment: Water system files, DHS files.

Procedures used to conduct the assessment include: Assistance from DHS jurisdictional office, Turbo Swap program for data input.

#### **Contents of this Assessment**

Yes X	No 🗌	Assessment Summary
Yes 🗶	No 🗌	Vulnerability Summary
Yes X	No 🗌	Source Location Form
Yes X	No 🗌	<b>Delineation of Ground Water Protection Zones</b>
Yes X	No 🗌	Physical Barrier Effectiveness Checklist
Yes X	No 🗌	Source Data Sheet
Yes X	No 🗌	Inventory of Possible Contaminating Activities
Yes X	No 🗌	Vulnerability Ranking
Yes 🗶	No 🗌	Assessment Map

Vulnerab	ility Summary					
District Name	City of Merced	District No.	M4	County	Merced	
System Name	MERCED, CITY OF				Syste	em No. <u>2410009</u>
Source Name	WELL 14 - RAW	Sour	ce No	021	PS Code _	2410009-021
Completed by	Patrick Riggs		Date _	March, 2	2003	
THE FOL	LOWING INFORMATION MUS	T BE INCLUDED IN T	HE SYSTI	EM CONSUM	MER CONFIDE	NCE REPORT
A source wat	er assessment was condu	cted for the <u>WEL</u>	<u>L 14 - R</u>	AW		
of the MER	CED, CITY OF			water s	ystem in _	March, 2003
	s considered most vulnera nants detected in the wate		activitie	s associat	ed	
	Airports - Maintenance Automobile- Gas static Dry cleaners Known Contaminant P Chemical/petroleum pi Surface water - strean Wells - monitoring, tes	e/ fueling areas ons flumes ipelines ns/ lakes/rivers				
	s considered most vulnera		activitie	s not asso	ciated	
	Agricultural Drainage Boat services/repair/ r Fleet/truck/bus termina NPDES/WDR permitte Sewer collection syste Utility stations - mainte	als ed discharges ems				
Discussion o	f Vulnerability					
City of Merced	Well Station #14 houses one	e municipal groundwa	ter well s	ecured by f	encing.	

Drinking Wate	er Source Assessment and Pro	otection (DWSAP) Progra	<b>m</b>			Page 2
Vulnerab	oility Summary					
System Name	MERCED, CITY OF			System	1 No	2410009
Source Name	WELL 14 - RAW	Source No.	021	PS Code	241	10009-021

A copy of the complete assessment may be viewed at:

Public Works Environmental Control Division 1776 Grogan Avenue Merced, CA 95340

You may request a summary of the assessment be sent to you by contacting:

Patrick Riggs Environmental Control Officer II 209-385-6817 209-384-7772 (fax) riggsp@cityofmerced.org



Delineatio	n of Ground Wate	r Protection Zon	es			
<b>District Name</b>	City of Merced	District NoM4	County	Merced		
System Name	MERCED, CITY OF			Syster	n No.	2410009
Source Name	WELL 14 - RAW	Source No	021	PS Code	241	10009-021
Completed by	Patrick Riggs	Date	March, 2	2003		

#### **Method Used to Delineate Protection Zones**

### X 1. Calculated Fixed Radius

- 2. Modified Calculated Fixed Radius (Attach documentation for direction of ground water flow.)
- 3. More Detailed Methods
- 4. Arbitrary Fixed Radius (For use only by or permission of DHS)

Maximum Pumping Rate of Well (Q)	4,000	gallons/minute
	6,452	acre feet/year
	281,068,000	cubic feet/year
Effective Porosity	0.20	Default Value
Screened Interval of Well	90 feet	Default Value

Protection Zone	Calculated Value	Minimum Value	Radius of Protection Zone
Zone A - 2 Year TOT*	3,153 Feet	600 Feet	3,153 Feet
Zone B5 - 5 Year TOT*	4,985 Feet	1,000 Feet	<b>4,985</b> Feet
Zone B10 - 10 Year TOT*	7,050 Feet	1,500 Feet	<b>7,050</b> Feet

\*TOT = Time of Travel

	rier Effectivene						
	of Merced	District No. <u>M4</u> County	·	·····			
System Name MER	CED, CITY OF		Syst	System No. 2410009			
Source Name WEL	L 14 - RAW	Source No021	PS Code	241000	9-021		
Completed by Patri	ck Riggs	Date March	n, 2003	<u></u>			
Parameter			Possible Points	This Source	Score		
<b>Type of Aquifer</b> Confinement							
1. Unconfined, Semi-co	onfined, Fractured Rock, Un	known Aquifer	0				
2. Confined			50	Х	50		
	nination (All Aquifers ned or Improperly Destroy			rathe shipney tit			
1. Present within Zone	A (2 year TOT distance)	Yes	0				
		No	5	X	5		
	· · ·	Unknown	0				
2. Present within Zone	B5 (2 -5 year TOT distanc	e) <u>Yes</u>	0				
		No	3	X	3		
		Unknown	0				
3. Present within Zone	nce) Yes	0					
		No	2	X	2		
······································		Unknown	0				
the overlying unconfi	hip in the hydraulic head I ned aquifer? (i.e. does th	between the confined aquifer and ne well flow under artesian conditions unconfined aquifer under all	-	~			
conditions.		·	20	X	20		
<ol><li>Head in confined aq conditions.</li></ol>	uifer is higher than head in	unconfined aquifer under static	10				
<ol> <li>Head in confined aq under static condition</li> </ol>	uifer is lower than or same ons.	as head in unconfined aquifer	0				
4. Unknown			0				
Well Construction (A	II Aquifers)						
Sanitary Seal (Annula	ar Seal) Depth N	ione of less than 20 feet	0				
	0 feet E	Between 20 and 50 feet	6				
		0 feet or greater	10				
	5		0	X	0		
		Jnknown					
Surface Seal (concre	L	Jnknown Not present or improperly constructed	0				
	te cap) N			x	4		

 $\bigcirc$ 

### Physical Barrier Effectiveness (PBE)

System Name MERCED, CITY OF System No. 2410009 021 PS Code 2410009-021 Source Name WELL 14 - RAW Source No.

Parameter		Possible Points	This Source	Score
Well Construction (All Aquifers)co	ontinued			
Flooding potential at well site	Subject to localized flooding (i.e. in low area or unsealed pit or vault) or within 100 year flood plain	0		
	Not subject to flooding	1	X	1
	Unknown	0		
Security at well site	Not secure	0		
	Secure	5	X	5
	Unknown	0		

Score	Effectiveness
0 to 35	Low
36 to 69	Moderate
70 to 100	High

Maximum Score = 100

Score	90
Effectiveness	High

### WELL DATA SHEET (Page 1 of 2)

* Indicates items required for Source Water Assessment		
** Indicates additional items required for assessments and Ground Wat	ter Rule	
		Actual, Estimate
		or Default?
DATA SHEET GENERAL INFORMATION		
System Name	City of Merced	from DHS databa
System Number	2410009	from DHS databa
Source of Information (well log, DHS/County files, system, etc)	well log, system files	
Organization Collecting Information (DHS, County, System, other)	System	
Date Information Collected/Updated	3/18/2003	
WELL IDENTIFICATION		9
* Well Number or Name	Well 14	from DHS databa
* DHS Source Identification Number (FRDS ID No.)		
DWR Well Log on File? ("YES" or "NO")	YES	
State Well Number (from DWR)	2410009021	
Well Status (Active, Standby, Inactive)	Active	
WELL LOCATION		
Latitude	37.295	City Surveyed 20
Longitude	-120.517	City Surveyed 20
Ground Surface Elevation (ft above Mean Sea Level)	159.28	City Surveyed 20
Street Address	2110 Wardrobe Avenue	
Nearest Cross Street	Grogan Avenue	
City	Merced	
County	Merced	
* Neighborhood/Surrounding Area (see Note 1)	Re, Ru, A, Co	
Site plan on file? ("YES" or "NO")	NO	
DWR Ground Water Basin		form UC Davis
DWR Ground Water Sub-basin		form UC Davis
SANITARY CONDITIONS		
** Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)	92'	
Distance to Active Wells (ft)	>1000'	
Distance to Abandoned Wells (ft)		
Distance to Surface Water (ft)	>1000'	
** Size of controlled area around well (square feet)	8,100	
* Type of access control to well site (fencing, building, etc)	fencing	
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	YES	
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	4'8" x 4' x 18"	
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")	UNKNOWN	
* Drainage away from well? ("YES" or "NO")	YES	
ENCLOSURE/HOUSING		
Enclosure Type (building, vault, none, etc.)	Steel	
Floor material	Concrete	
Located in Pit? ("YES" or "NO")	NO	
Pit depth (feet) (if applicable)	N.A.	
WELL CONSTRUCTION		
Date drilled	1990	
Drilling Method		
Depth of Bore Hole (feet below ground surface)	375'	1
Casing Beginning Depth/Ending Depth(ft below surface);		
2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	0/370'	
Casing Diameter (inches); 2nd Casing Diameter; 3rd Casing, etc.	12"	
Casing Material; 2nd Casing Material; 3rd Casing, etc.	Steel	

### WELL DATA SHEET (Page 2 of 2)

Complete as much information as possible. Leave blank if information is not ava * Indicates items required for Source Water Assessment	ailable, use N.A. if not appli	cable.
** Indicates additional items required for assessments and Ground Water	r Dula	
	r Ruie	Actual Entimated
		Actual, Estimated or Default?
WELL CONSTRUCTION (continued)		
Conductor casing used? ("YES", "NO" or "UNKNOWN") (See Note 2)	YES	
Conductor casing removed? ("YES", "NO" or "UNKNOWN")	NO	
* Depth to highest perforations/screens (ft below surface) (or		
"UNKNOWN")	271'	
Screened Interval Beginning Depth/Ending Depth (ft below surface);		
2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	271'-365'	
* Total length of screened interval (ft)		
(default = 10% pump capacity in gpm) (or "UNKNOWN")	94'	
* Annular Seal?("YES", "NO" or "UNKNOWN") (See Note 3)	YES	
* Depth of Annular Seal (ft)	271'	
Material of Annular Seal (cement grout, bentonite, etc.)	cement	
Gravel pack, Depth to top (ft below ground surface)	230'	
Total length of gravel pack (ft)	150'	
AQUIFER	100	
* Aquifer Materials		
(list all that apply: sand, silt, clay, gravel, rock, fractured rock)	sand, clay, silt	
* Effective porosity (decimal percent) (default = 0.2) (or "UNKNOWN")	UNKNOWN	
* Confining layer (Impervious Strata) above aquifer?	· · ·	
("YES", "NO" or "UNKNOWN")	YES	
Thickness of confining layer, if known (ft)	25'	
Depth to confining layer, if known (ft below ground)	167'	
* Static water level (ft below ground surface)		an al an an ann an
Static water level measurement: Date/Method		The second se
Pumping water level (ft below ground surface)	· · · · · · · · · · · · · · · · · · ·	2. So the state of the state
Pumping water level measurement: Date/Method		Comparison of Comparison (Comparison Comparison Comparison), and an experimental comparison of Comparison (Comparison), and an experimental comparison (Comparison) and
WELL PRODUCTION		
Well Yield (gpm)	4000	
Well Yield Based On (i.e., pump test, etc.)	Meter	
Date measured	3/17/2003	
Is the well metered? ("YES" or "NO")	YES	
Production (gallons per year)	342.5 MG (2002)	
Frequency of Use (hours/year)	5190.3	
Typical pumping duration (hours/day)	14.22	
PUMP		
Make	Peabody / Floway	
Туре	VFD	
Size (hp)	300 HP	
* Capacity (gpm)	3800 gpm	
Depth to suction intake (ft below ground surface)	275'	
Lubrication Type	Water	
Type of Power: (i.e., electric, diesel, etc.)	Diesel Generator	
Auxiliary power available? ("YES" or "NO")	YES	
Operation controlled by: (i.e., level in tank, pressure, etc.)	Pressure	
Pump to Waste capability? ("YES" or "NO")	YES	
Discharges to: (i.e., distribution system, storage, etc.)	Distribution System	

 $\bigcap$ 

 $( \$ 

## **Remarks and Defects**

Well Data Sheet Supplement	
REMARKS AND DEFECTS	
(Use or note these items as appropriate)	
(** indicates items pertinent to Ground Water Rule)	
Distance (ft) to other sanitary concerns:	
** Type of Sanitary Concern:	
** Type of Sanitary Concern:	_
** Type of Sanitary Concern:	
** Type of Sanitary Concern:	
** Type of Sanitary Concern:	
Raw Water Quality concerns? (Yes or No)	no
** Microbiological (coliform)	
Chemicals	
Other (list)	
** Continuous Chlorination provided? (Yes or No)	yes
Condition of enclosure or housing	good
Pit Drained? (if applicable)	
Pitless Adaptor? Make and Model	
Height of pump base (inches)	18"
Casing Vent? (yes or no)	yes
Air/Vacuum Release? (yes or no)	yes
Sampling Taps? (yes or no)	yes
Location of sampling taps	Pump Discharge
Wellhead Riser? (yes or no); height above well	
Other	·

(

Inventory of Possible Contaminating Activities (PCA Inventory)								
District Name City of Merced	District N	o. M4	Count	y	Merced			
System Name <u>MERCED, CITY OF</u>				_	System No. 2410009			
Source Name WELL 14 - RAW	Sc	ource No.	021		PS Code2410009-021			
Completed by Patrick Riggs		Date	March	n, 2(	003			
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments			
<b>Commercial/Industrial Activities</b>								
Automobile- Body shops (H)	N	N	Y					
Automobile- Car washes (M)	N	N	Y					
Automobile- Gas stations (VH)	·N	N	Y	*	UST site in zone.			
Automobile- Repair shops (H)	N	N	Y					
Boat services/repair/ refinishing (H)	Y	Y	Y		Malabu and Centurian Boats.			
Chemical/petroleum pipelines (H)	N	N.	Y	*	Service Station pipelines.			
Chemical/petroleum processing/storage (VH)	N	N	N					
Dry cleaners (VH)	N	N	Y	*	PCE and Petroleum plumes in zone B10.			
Electrical/electronic manufacturing (H)	N	N	N					
Fleet/truck/bus terminals (H)	Y	Y	N		City and County Corporation Yards in immediate area.			
miture repair/ manufacturing (H)	N	N	N	 	<u> </u>			
Home manufacturing (H)	N	N	N	$\left  \right $				
Junk/scrap/salvage yards (H)	N	N	N	<b> </b>				
Machine shops (H)	N	N	N					
Metal plating/ finishing/fabricating (VH)	N	N	N	<u> </u>				
Photo processing/printing (H)	N	N	N					
Plastics/synthetics producers (VH)	N	N	N					
Research laboratories (H)	N	N	N					
Wood preserving/treating (H)	N	N	N					
Wood/pulp/paper processing and mills (H)	N	N	N	1	· · · · · · · · · · · · · · · · · · ·			
Lumber processing and manufacturing (H)	N	N	N					
Sewer collection systems (H, if in Zone A, otherwise L)	Y	Y	Y		Municipal sewer system.			
Parking lots/malls (>50 spaces) (M)	N	N	N	1	1			
Cement/concrete plants (M)	N	N	N	†				
Food processing (M)	N	N	N					
Funeral services/graveyards (M)	N	N	N					
Hardware/lumber/parts stores (M)	N	N	N	$\uparrow$				
Appliance/Electronic Repair (L)	N	N	N					
Office buildings/complexes (L)	Y	Y	Y					

Y = Yes N = No U = Unknown

#### Drinking Water Source Assessment and Protection (DWSAP) Program Page 2 Inventory of Possible Contaminating Activities (PCA Inventory) System Name System No. MERCED, CITY OF 2410009 Source Name WELL 14 - RAW 021 2410009-021 Source No. PS Code PCA in PCA in PCA in PCA (Risk Ranking) Zone B5 Zone B10 Zone A Comments **Commercial/Industrial Activities** Rental Yards (L) Ν Ν Ν RV/mini storage (L) N Ν Ν **Residential/Municipal Activities** Airports - Maintenance/ fueling areas (VH) Y Y \* TCE, pesticides etc. RWQCB identified Y site. Landfills/dumps (VH) Ν Ν Ν Railroad yards/ maintenance/ fueling areas (H) Ν Ν Ν Septic systems - high density (>1/acre) (VH if in Zone A, Ν Ν Ν otherwise M) Sewer collection systems (H, if in Zone A, otherwise L) Y Y Υ Municipal sewer system. Utility stations - maintenance areas (H) Υ Υ Y City and County Corporation yards. Wastewater treatment plants (VH in Zone A, otherwise H) Ν Ν Ν Drinking water treatment plants (M) Ν Ν Ν Golf courses (M) N N Ν using - high density (>1 house/0.5 acres) (M) Ν N Ν Motor pools (M) Ν Ν Ν Parks (M) Ν Ν Ν Waste transfer/recycling stations (M) Y Y Y Oil and battery waste from Corporation vards. Apartments and condominiums (L) Ν Ν Ν Campgrounds/ Recreational areas (L) Ν Ν Ν Fire stations (L) Y Y Υ Airport Fire Station RV Parks (L) Ν N Ν Schools (L) Ν Ν N Hotels, Motels (L) Ν Ν Ν Agricultural/Rural Activities Grazing (> 5 large animals or equivalent per acre) (H in Ν Ν Ν Zone A, otherwise M) Concentrated Animal Feeding Operations (CAFOs) as Ν Ν Ν defined in federal regulation1 (VH in Zone A, otherwise H) Animal Feeding Operations as defined in federal Ν Ν Ν regulation2 (VH in Zone A, otherwise H)

 other Animal operations (H in Zone A, otherwise M)

Y = Yes N = No U = Unknown

= A contaminant potentially associated with this activity has been detected in the water supply.

Ν

Ν

Ν

#### Inventory of Possible Contaminating Activities (PCA Inventory) System Name MERCED, CITY OF System No. 2410009 Source Name WELL 14 - RAW 021 Source No. 2410009-021 PS Code PCA in PCA in PCA in PCA (Risk Ranking) Zone A Zone B5 Zone B10 Comments **Agricultural/Rural Activities** Farm chemical distributor/ application service (H) Ν Ν Ν Farm machinery repair (H) N Ν Ν Septic systems - low density (<1/acre) (H in Zone A. Y Ń Ν otherwise L) Lagoons / liquid wastes (H) N N Ν Machine shops (H) Ν Ν Ν Pesticide/fertilizer/ petroleum storage & transfer areas (H) Ν Ν Ν Agricultural Drainage (H in Zone A, otherwise M) Y Y Y Wells - Agricultural/ Irrigation (H) Y Υ Ν Managed Forests (M) Ν Ν Ν Crops, irrigated (Berries, hops, mint, orchards, sod, Y Y Y greenhouses, vineyards, nurseries, vegetable) (M) Fertilizer, Pesticide/ Herbicide Application (M) Y Υ Ý Sewage sludge/biosolids application (M) Ν Ν Ν Crops, nonirrigated (e.g., Christmas trees, grains, grass Ν Ν Ν eds, hay, pasture) (L) (includes drip-irrigated crops) **Other Activities** NPDES/WDR permitted discharges (H) Y Y Υ Merced Airport NPDES SW permit. Underground Injection of Commercial/Industrial Ν Ν Ν **Discharges (VH)** Historic gas stations (VH) Ν Ν Ν Historic waste dumps/ landfills (VH) Ν Ν Ν Illegal activities/ unauthorized dumping (H) Ν Ν Ν Injection wells/ dry wells/ sumps (VH) Ν N Ν Known Contaminant Plumes (VH) \* Υ Υ Y At Airport facility. Military installations (VH) Ν N Ν Mining operations - Historic (VH) N Ν Ν Mining operations - Active (VH) Ν Ν Ν Mining - Sand/Gravel (H) Ν Ν Ν Wells - Oil, Gas, Geothermal (H) Ν Ν Ν . Salt Water Intrusion (H) Ν Ν Ν Recreational area - surface water source (H) Ν Ν Ν Underground storage tanks - Confirmed leaking tanks Ν Ν Ν (VH)

Y = Yes N = No U = Unknown

#### Inventory of Possible Contaminating Activities (PCA Inventory) System Name MERCED, CITY OF System No. 2410009 Source Name WELL 14 - RAW Source No. 021 2410009-021 PS Code PCA in PCA in PCA in PCA (Risk Ranking) Zone A Zone B5 Zone B10 Comments **Other Activities** Underground storage tanks - Decommissioned - inactive Ν Ν Ν tanks (L) Underground storage tanks - Non-regulated tanks (tanks Ν Ν Ν smaller than regulatory limit) (H) Underground storage tanks - Not yet upgraded or Ν Ν Ν registered tanks (H) Underground storage tanks - Upgraded and/or registered Ν Ν Ν - active tanks (L) Above ground storage tanks (M) Υ Y Y Airport facility. Wells - Water supply (M) Y Y Ν Irrigation wells. Construction/demolition staging areas (M) Ν Ν Ν Contractor or government agency equipment storage Υ Y Y City and County Corporation yards. yards (M) Dredging (M) Ν Ν Ν Transportation corridors - Freeways/state highways (M) Υ γ Ν Insportation corridors - Railroads (M) Y Y Ν ransportation corridors - Historic railroad right-of-ways Ν Ν Ν (M) Transportation corridors - Road Right-of-ways (herbicide Y Y Υ use areas) (M) Transportation corridors - Roads/ Streets (L) Y Y Y Hospitals (M) Ν Ν Ν Storm Drain Discharge Points (M) Y Y Y Airport collection station. Storm Water Detention Facilities (M) Y Y Y SW catch basin. Artificial Recharge Projects - Injection wells (potable Ν Ν Ν water) (L) Artificial Recharge Projects - Injection wells (non-potable Ν Ν Ν water) (M) Artificial Recharge Projects - Spreading Basins (potable Ν Ν Ν water) (L) Artificial Recharge Projects - Spreading Basins Ν Ν Ν (non-potable water) (M) Medical/dental offices/clinics (L) Ν Ν Ν Veterinary offices/clinics (L) Ν N Ν Surface water - streams/ lakes/rivers (L) \* Y Y Y Irrigation canals and Black Rascal Creek, Bear Creek.

Y = Yes N = No U = Unknown

# Inventory of Possible Contaminating Activities (PCA Inventory)

System Name <u>MERCED, CITY OF</u>					System No. 2410009
Source Name WELL 14 - RAW	Se	ource No.	021		PS Code2410009-021
PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other Activities					
Wells - monitoring, test holes (L)	Y	Y	Y	*	For monitoring groundwater contamination at Airport.

D	istrict Name	City of Merced	District No. M4	_ C	ounty Me	rced			
્ર ડ્ર	vstem Name	MERCED, CITY OF				Syste	m No.	2410009	
S	ource Name	WELL 14 - RAW	Source No	0	) <u>21</u> F	S Code	2410	0009-021	
Co	ompleted by	Patrick Riggs	Date _	N	larch, 2003				
Zone	PCA (Risk R	anking)		* .	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score	
А	Airports - Ma	intenance/ fueling areas (VH)		*	7	5	1	. 13	
А	Known Conta	aminant Plumes (VH)		*	7	5	1	13	
B5	Airports - Ma	intenance/ fueling areas (VH)		*	7	3	1	11	
B5	Known Conta	aminant Plumes (VH)		*	7	3	1	11	
B10	Airports - Ma	intenance/ fueling areas (VH)		*	7	1	1	9	
B10	Automobile-	Gas stations (VH)		*	7	1	1	9	
B10	Dry cleaners	(VH)		*	7	1	1	9	
B10	Known Conta	aminant Plumes (VH)		*	7	1	1	9	
А	Surface wate	er - streams/ lakes/rivers (L)		*	1	5	1	7	
А	Wells - moni	toring, test holes (L)		*	1	5	1	7	
B10	Chemical/pe	troleum pipelines (H)		*	5	1	1	7	
~~5	Surface wate	er - streams/ lakes/rivers (L)	111-111-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	*	1	3	1	5	
<u></u> 5	Wells - moni	toring, test holes (L)		*	1	3	1	5	
B10	Surface wate	er - streams/ lakes/rivers (L)	, <u>1870-000 (00000000000000000000000000000000</u>	*	1	1	1	3	
B10	Wells - moni	toring, test holes (L)		*	1	1	1	3	
А	Agricultural I	Drainage (H in Zone A, otherwise M)			5	5	1	11	
Α	Boat service	s/repair/ refinishing (H)	ur and and a second and a second s		5	5	1	11	
А	Fleet/truck/b	us terminals (H)			5	5	1	11	
А	NPDES/WD	R permitted discharges (H)	· · · · · · · · · · · · · · · · · · ·		5	5	1	11	
А	Sewer collect	tion systems (H, if in Zone A, otherw	rise L)		5	5	1	11	
А	Sewer collect	tion systems (H, if in Zone A, otherw	rise L)		5	5	1	11	
A	Utility statior	is - maintenance areas (H)			5	5	1	11	
А	Above grour	id storage tanks (M)			3	5	1	9	
А	Contractor o	r government agency equipment sto	rage yards (M)		3	5	1	9	
A		ted (Berries, hops, mint, orchards, so urseries, vegetable) (M)	od, greenhouses,		3	5	1	9	
A	Fertilizer, Pe	sticide/ Herbicide Application (M)			3	5	1	9	
A	Storm Drain	Discharge Points (M)			3	5	1	9	
Α	Storm Wate	r Detention Facilities (M)	- WHATEL AL-1-P	1	3	5	1	.9	

## Vulnerability Ranking

(

System Name	MERCED, CITY OF			Syste	m No2410009
Source Name	WELL 14 - RAW	Source No.	021	PS Code	2410009-021

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
А	Transportation corridors - Road Right-of-ways (herbicide use areas) (M)		3	5	1	9
А	Waste transfer/recycling stations (M)		3	5	1	9
B5	Boat services/repair/ refinishing (H)		5	3	1	9
B5	Fleet/truck/bus terminals (H)		5	3	1	9
B5	NPDES/WDR permitted discharges (H)		5	3	1	9
B5	Utility stations - maintenance areas (H)		5	3	1	9
B5	Wells - Agricultural/ Irrigation (H)		5	3	1	9



© Information Center for the Environment Coding by <u>Eric Lehmer</u> Mapping System produced using <u>ESRI</u> ArcIMS