

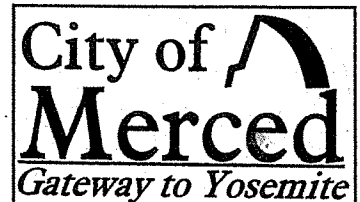
City of Merced Drinking Water Source Water Assessment 2003



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 its consumers.

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

Since the City of Merced only provides pumped groundwater to its 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 its 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

Assessment Summary

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Location Form
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Delineation of Ground Water Protection Zones
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Physical Barrier Effectiveness Checklist
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Data Sheet
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Inventory of Possible Contaminating Activities
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Ranking
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Map

Vulnerability Summary

District Name City of Merced District No. M4 County Merced
System Name MERCED, CITY OF System No. 2410009
Source Name WELL 01A - RAW Source No. 001 PS Code 2410009-001
Completed by Patrick Riggs Date March, 2003

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for the WELL 01A - RAW
of the MERCED, CITY OF water system in March, 2003

The source is considered most vulnerable to the following activities associated with contaminants detected in the water supply:

- Automobile- Gas stations
- Dry cleaners
- Known Contaminant Plumes

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

- Recreational area - surface water source
- Sewer collection systems
- 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

Source Location Information

System Info:		Number	2410009	Name	CITY OF MERCED	Record No:	1
Source Info:		Number	1A	Name			
		PSCode	2410009	StWellNo	2410009001		
Input By:		Person	PATRICK RIGGS	Date	3/27/2003 (mm/dd/yyyy)		
Location Information:		Latitude	37.314000	Horizontal Datum	NAD83		
		Longitude	-121.476000	Datum, if Other	NAVD'88		
Description/Comments:							
Method of Determination:		USGS	<input type="checkbox"/>	GPS	<input checked="" type="checkbox"/>	OtherMethod	<input type="checkbox"/>
		Method	Digital	Unit	Leica/530	Method	Other
		Scale	1:62500 (15 min)	Grade	Survey(eg.	If Other	
		Scale, if Other		Differential Correction	<input checked="" type="checkbox"/>	Accuracy	
		Map Published				Scale	
		Map Revised					

Delineation of Ground Water Protection Zones

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 01A - RAW Source No. 001 PS Code 2410009-001
 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 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	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

Physical Barrier Effectiveness (PBE)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 01A - RAW Source No. 001 PS Code 2410009-001
 Completed by CITY OF MERCED Date December, 2002

Parameter	Possible Points	This Source	Score
Type of Aquifer			
Confinement			
1. Unconfined, Semi-confined, Fractured Rock, Unknown Aquifer	0		
2. Confined	50	X	50
Pathways of Contamination (All Aquifers)			
Presence of Abandoned 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 distance)			
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		
Hydraulic Head (Confined Aquifers)			
What is the relationship in the hydraulic head between the confined aquifer and the overlying unconfined aquifer? (i.e. does the well flow under artesian conditions?)			
1. Head in confined aquifer is higher than head in unconfined aquifer under all conditions.	20	X	20
2. Head in confined aquifer is higher than head in unconfined aquifer under static conditions.	10		
3. Head in confined aquifer is lower than or same as head in unconfined aquifer under static conditions.	0		
4. Unknown	0		
Well Construction (All Aquifers)			
Sanitary Seal (Annular Seal) Depth			
<u>0</u> feet			
None of less than 20 feet	0		
Between 20 and 50 feet	6		
50 feet or greater	10		
Unknown	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 MERCED, CITY OFSystem No. 2410009Source Name WELL 01A - RAWSource No. 001PS Code 2410009-001

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	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)

<i>Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.</i>		
<i>* Indicates items required for Source Water Assessment</i>		
<i>** Indicates additional items required for assessments and Ground Water Rule</i>		
		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 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
DWR 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); 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 available, use N.A. if not applicable.		
* Indicates items required for Source Water Assessment		
** Indicates additional items required for assessments and Ground Water 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)		
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 69'-88' Clay	
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	3/27/2003	
Is the well metered? ("YES" or "NO")	YES	
Production (gallons per year)	111.51 MG (2002)	
Frequency of Use (hours/year)	846.8	
Typical pumping duration (hours/day)	2.32	
PUMP		
Make	Layne and Bowler	
Type	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.)	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: _____	
** 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)	Yes
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 consistently remains below Maximum Contaminant Levels (MCL's) and continues to decline year after	

Inventory of Possible Contaminating Activities (PCA Inventory)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 01A - RAW Source No. 001 PS Code 2410009-001
 Completed by Patrick Riggs Date December, 2002

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	*	Perchloroethylene plume identified.
Electrical/electronic manufacturing (H)	N	N	N		
Fleet/truck/bus terminals (H)	N	Y	Y		
Furniture repair/ manufacturing (H)	N	N	N		
Home 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 N Hwy 59.
Food processing (M)	N	N	N		
Funeral services/graveyards (M)	N	Y	Y		Funeral Home on Main Street. Graveyard on E. 13th St.
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		Misc. business locations

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 OFSystem No. 2410009Source Name WELL 01A - RAWSource No. 001PS Code 2410009-001

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 systems.
Utility stations - maintenance areas (H)	N	N	Y		Small automotive repair shops etc.
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		
Residential - high density (>1 house/0.5 acres) (M)	Y	Y	Y		
Swimming pools (M)	N	N	N		
Parks (M)	Y	Y	Y		Parks located throughout city.
Waste transfer/recycling stations (M)	N	Y	Y		Auto shop oil and battery recycling activities.
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)	Y	Y	Y		
Hotels, Motels (L)	N	N	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)	N	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 plume detected.

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 OFSystem No. 2410009Source Name WELL 01A - RAWSource No. 001PS Code 2410009-001

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other Activities					
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)	Y	Y	Y		Bear Creek stormwater receptor.
Underground storage tanks - Confirmed leaking tanks (VH)	N	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 slurry on 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 - active tanks (L)	N	N	N		
Above ground storage tanks (M)	Y	N	N		Convault above ground tank
Wells - Water supply (M)	Y	N	N		Two other wells at the station.
Construction/demolition staging areas (M)	N	N	N		
Contractor or government agency equipment storage yards (M)	Y	Y	N		Small Pub. Works Storage Yard in area. City supply yard nearby.
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	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	N	Y		Mercy Dominican Hospital.
Storm Drain Discharge Points (M)	Y	Y	Y		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		

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 OFSystem No. 2410009Source Name WELL 01A - RAWSource No. 001PS Code 2410009-001

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 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 irrigation 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

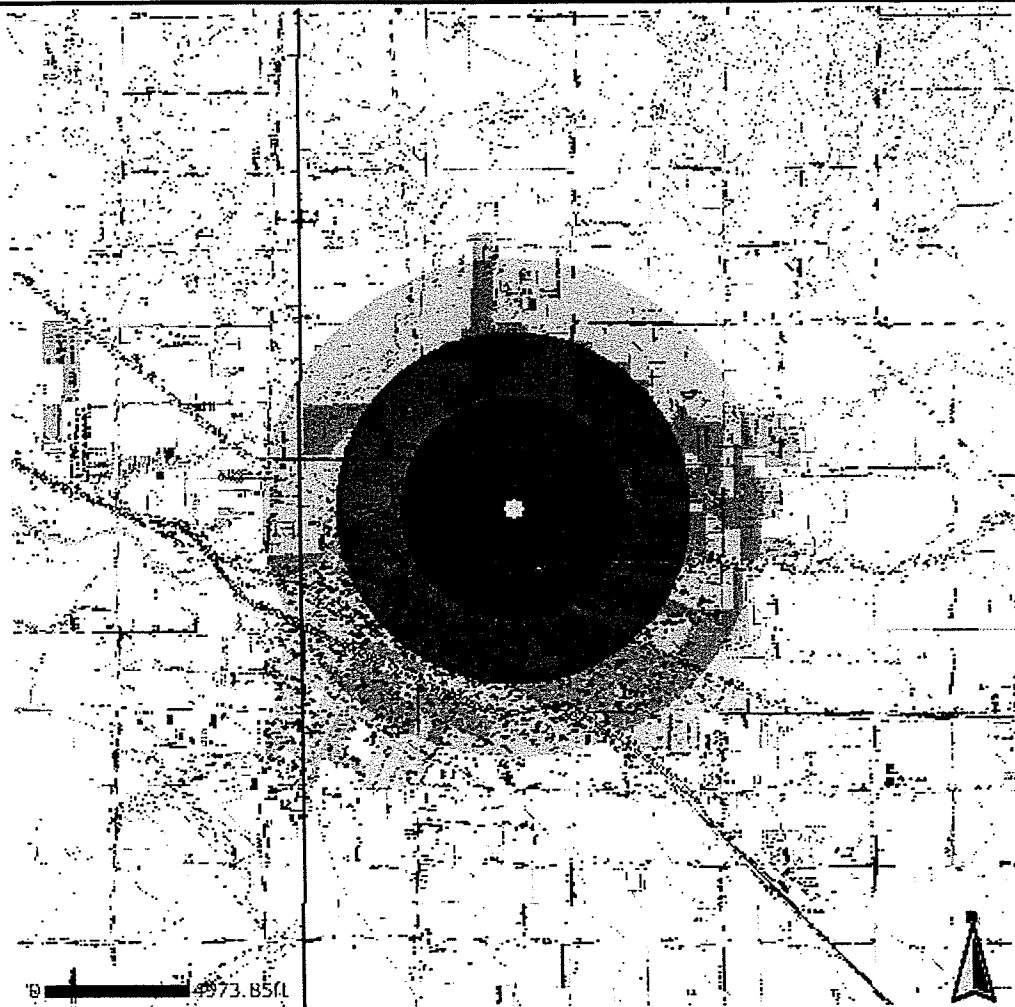
District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 01A - RAW Source No. 001 PS Code 2410009-001

Completed by Patrick Riggs Date March, 2003

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	Dry cleaners (VH)	*	7	5	1	13
A	Known Contaminant 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 Contaminant 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 Contaminant Plumes (VH)	*	7	1	1	9
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	11
A	Sewer collection systems (H, if in Zone A, otherwise L)		5	5	1	11
	Historic gas stations (VH)		7	3	1	11
B5	Underground storage tanks - Confirmed leaking tanks (VH)		7	3	1	11
A	Above ground storage tanks (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	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	Transportation corridors - Road Right-of-ways (herbicide use areas) (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	Historic gas stations (VH)		7	1	1	9
0	Underground storage tanks - Confirmed leaking tanks (VH)		7	1	1	9

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

DWSAP Ground Water Zone Interface



Well Position *	GPS'd	Longitude	Latitude
	Yes	-120.476	37.314

* Well location coordinates have been rounded to 3 decimal places due to security concerns.

Well Statistics	
Well Number	2410009001
Media Type	Porous Media
System Type	All Other System
Effective Porosity (n , decimal percent)	0.2
Screened Interval (H , feet)	33
Pumping Capacity (Q , gpm)	2200
Azimuth of Flow (a , degrees)	0 - No Translation

Radii Measures	
Defaults Used	No
R2	3862 ft
R5	6106 ft
R10	8635 ft



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Coding by Eric Lehmer
Mapping System produced using ESRI ArcIMS

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

Assessment Summary

District Name City of Merced District No. M4 County Merced
System Name MERCED, CITY OF System No. 2410009
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 Sierra 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Location Form
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Delineation of Ground Water Protection Zones
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Physical Barrier Effectiveness Checklist
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Data Sheet
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Inventory of Possible Contaminating Activities
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Ranking
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Map

Vulnerability Summary

District Name City of Merced District No. M4 County Merced
System Name MERCED, CITY OF System No. 2410009
Source Name WELL 01B - RAW Source No. 002 PS Code 2410009-002
Completed by Patrick Riggs Date March, 2003

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for the WELL 01B - RAW
of the MERCED, CITY OF water system in March, 2003

The source is considered most vulnerable to the following activities associated with contaminants detected in the water supply:

Historic gas stations

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

Dry cleaners

Known Contaminant Plumes

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

Source Location Information

System Info:

Number

2410009

Name

CITY OF MERCED

Record No: 3

Source Info:

Number

1B

Name

PSCode

2410009

SWellNo

2410009002

Person

PATRICK RIGGS

Date

3/31/2003 (mm/dd/yyyy)

Input By:

Location Information:

Latitude

37.314000

Longitude

-120.476000

Horizontal Datum

NAD83

Datum, if Other

Description/Comments:

Method of Determination:

USGS

☐

GPS

☒

OtherMethod

☐

Method

Unit

Leica/530

Method

Scale

Grade

Survey/eg.

If Other

Scale, if Other:

Differential Correction

☒

Accuracy

Scale

Map Published

Map Revised

Find

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Add

Edit

Delete

Save

Cancel

Exit

Help

Delineation of Ground Water Protection Zones

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 01B - RAW Source No. 002 PS Code 2410009-002
 Completed by dhs 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>2,200</u>	gallons/minute
	<u>3,549</u>	acre feet/year
	<u>154,587,400</u>	cubic feet/year
Effective Porosity	<u>0.20</u>	<input checked="" type="checkbox"/> Default Value
Screened Interval of Well	<u>33</u>	feet <input type="checkbox"/> 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

Physical Barrier Effectiveness (PBE)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 01B - RAW Source No. 002 PS Code 2410009-002
 Completed by Patrick Riggs Date March, 2003

Parameter	Possible Points	This Source	Score
Type of Aquifer			
Confinement			
1. Unconfined, Semi-confined, Fractured Rock, Unknown Aquifer	0		
2. Confined	50	X	50
Pathways of Contamination (All Aquifers)			
Presence of Abandoned 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 distance)			
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		
Hydraulic Head (Confined Aquifers)			
What is the relationship in the hydraulic head between the confined aquifer and the overlying unconfined aquifer? (i.e. does the well flow under artesian conditions?)			
1. Head in confined aquifer is higher than head in unconfined aquifer under all conditions.	20	X	20
2. Head in confined aquifer is higher than head in unconfined aquifer under static conditions.	10		
3. Head in confined aquifer is lower than or same as head in unconfined aquifer under static conditions.	0		
4. Unknown	0		
Well Construction (All Aquifers)			
Sanitary Seal (Annular Seal) Depth			
None of less than 20 feet	0		
<u>0</u> feet Between 20 and 50 feet	6		
50 feet or greater	10		
Unknown	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 MERCED, CITY OFSystem No. 2410009Source Name WELL 01B - RAWSource No. 002PS Code 2410009-002

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	X	5
	Unknown	0		

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

Maximum Score = 100

Score	<u>90</u>
Effectiveness	<u>High</u>

WELL DATA SHEET (Page 1 of 2)

Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.

* Indicates items required for Source Water Assessment

Indicates additional items required for assessments and Ground Water 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 01 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)	2410009002	
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)	176.59	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	
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)	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)	Fencing	
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	YES	
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	21'10" x 12'8" x 14"	
* 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	
Drilling Method	N.A.	
Depth of Bore Hole (feet below ground surface)	270'	
Casing Beginning Depth/Ending Depth(ft below surface); 2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	0/126'	
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)

<i>Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.</i>		
<i>* Indicates items required for Source Water Assessment</i>		
<i>** Indicates additional items required for assessments and Ground Water Rule</i>		
		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	
* 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)		
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)	62.72 MG (2002)	
Frequency of Use (hours/year)	1.3	
Typical pumping duration (hours/day)	474.5	
PUMP		
Make	Layne and Bowler	
Type	Constant Speed	
Size (hp)	125 HP	
* Capacity (gpm)	2416	
Depth to suction intake (ft below ground surface)	98'	
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	

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

Inventory of Possible Contaminating Activities (PCA Inventory)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 01B - RAW Source No. 002 PS Code 2410009-002

Completed by Patrick 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)	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		
Machine 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		Misc. business locations.

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 OFSystem No. 2410009Source Name WELL 01B - RAWSource No. 002PS Code 2410009-002

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		Small automotive repair shops.
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		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		
Campgrounds/ Recreational areas (L)	N	N	N		
Fire stations (L)	Y	Y	Y		
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		
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		
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 plume detected.
Military installations (VH)	N	N	N		

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 OFSystem No. 2410009Source Name WELL 01B - RAWSource No. 002PS Code 2410009-002

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 slurry on 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 active tanks (L)	N	N	N		
Above ground storage tanks (M)	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		
Hospitals (M)	Y	Y	Y		Mercy Dominican Hospital.
Storm Drain Discharge Points (M)	Y	N	Y		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		

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 OFSystem No. 2410009Source Name WELL 01B - RAWSource No. 002PS Code 2410009-002

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 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

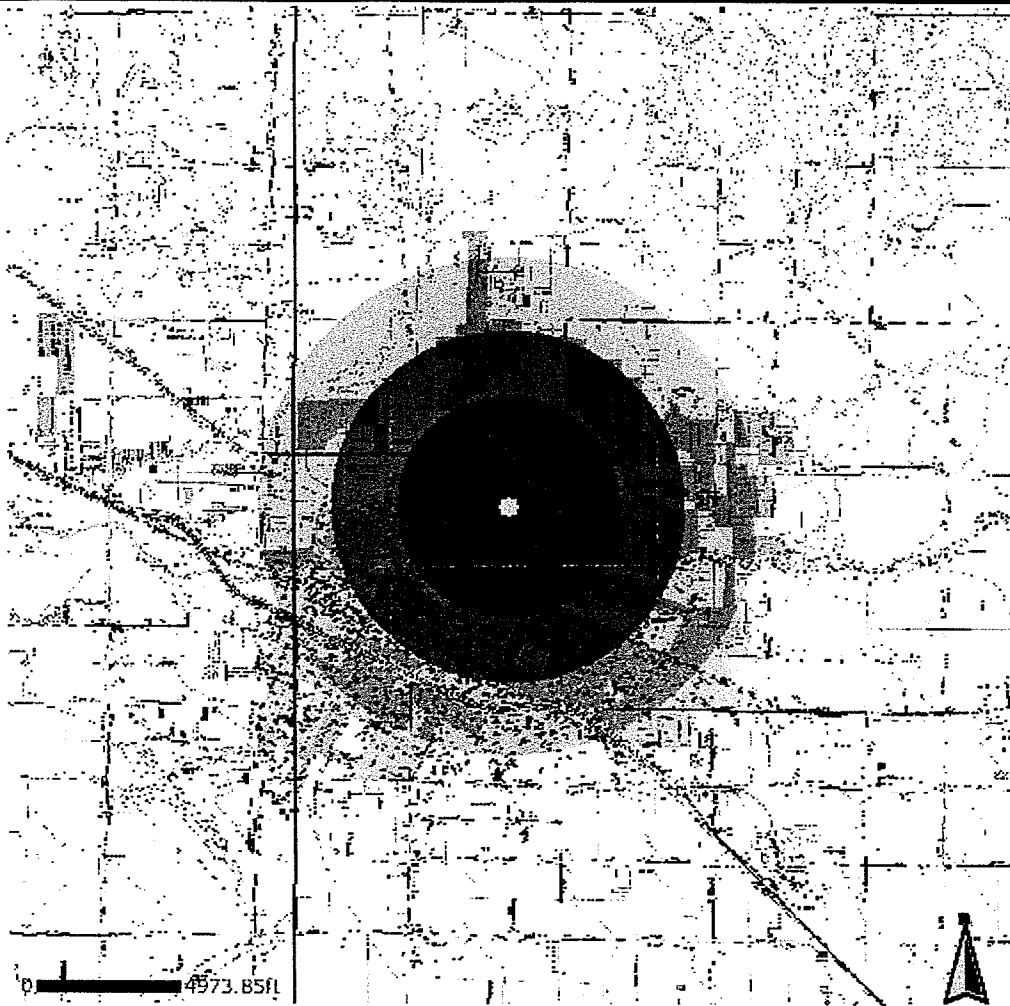
District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 01B - RAW Source No. 002 PS Code 2410009-002

Completed by Patrick Riggs Date March, 2003

Zone	PCA (Risk Ranking)	*	PCA Risk 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
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	Recreational area - surface water source (H)		5	5	1	11
A	Sewer collection systems (H, if in Zone A, otherwise L)		5	5	1	11
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
B5	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	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- 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
B10	Known Contaminant Plumes (VH)		7	1	1	9
B10	Underground storage tanks - Confirmed leaking tanks (VH)		7	1	1	9

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

DWSAP Ground Water Zone Interface



Well Position *	GPS'd	Longitude	Latitude
	Yes	-120.476	37.314
* Well location coordinates have been rounded to 3 decimal places due to security concerns.			

Well Statistics	
Well Number	2410009002
Media Type	Porous Media
System Type	All Other System
Effective Porosity (n , decimal percent)	.2
Screened Interval (H , feet)	33
Pumping Capacity (Q , gpm)	2200
Azimuth of Flow (a , degrees)	0 - No Translation

Radii Measures	
Defaults Used	No
R2	3862 ft
R5	6106 ft
R10	8635 ft



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Drinking Water Source Assessment

Water System

MERCED, CITY OF

Merced County

Water Source

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

Assessment Summary

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 01C - RAW Source No. 003 PS Code 2410009-003
 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 Sierra 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Location Form
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Delineation of Ground Water Protection Zones
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Physical Barrier Effectiveness Checklist
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Data Sheet
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Inventory of Possible Contaminating Activities
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Ranking
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Map

Vulnerability Summary

District Name City of Merced District No. M4 County Merced
System Name MERCED, CITY OF System No. 2410009
Source Name WELL 01C - RAW Source No. 003 PS Code 2410009-003
Completed by Patrick Riggs Date March, 2003

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for the WELL 01C - RAW
of the MERCED, CITY OF water system in March, 2003

The source is considered most vulnerable to the following activities associated with contaminants detected in the water supply:

Historic gas stations

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

Dry cleaners

Known Contaminant Plumes

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

Source Location Information

System Info:		Number	2410009	Name	CITY OF MERCED	Record No:	4
Source Info:		Number	1C	Name			
Input By:		PSCode	2410009	StWellNo	2410009003		
		Person	PATRICK RIGGS	Date	3/31/2003 (mm/dd/yyyy)		
Location Information:		Latitude	37.314000	Horizontal Datum	NAD83		
		Longitude	-120.476000	Datum, if Other			
Method of Determination:		USGS <input type="checkbox"/>		GPS <input checked="" type="checkbox"/>		OtherMethod <input type="checkbox"/>	
		Method		Unit	Leica/530	Method	
		Scale		Grade	Survey(eg.	If Other	
		Scale, if Other		Differential Correction	<input checked="" type="checkbox"/>	Accuracy	
		Map Published				Scale	
		Map Revised					
Description/Comments:							

Delineation of Ground Water Protection Zones

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 01C - RAW Source No. 003 PS Code 2410009-003
 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>2,200</u>	gallons/minute
	<u>3,549</u>	acre feet/year
	<u>154,587,400</u>	cubic feet/year
Effective Porosity	<u>0.20</u>	<input checked="" type="checkbox"/> Default Value
Screened Interval of Well	<u>33</u> feet	<input type="checkbox"/> 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

Physical Barrier Effectiveness (PBE)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 01C - RAW Source No. 003 PS Code 2410009-003
 Completed by Patrick Riggs Date March, 2003

Parameter	Possible Points	This Source	Score
Type of Aquifer			
Confinement			
1. Unconfined, Semi-confined, Fractured Rock, Unknown Aquifer	0		
2. Confined	50	X	50
Pathways of Contamination (All Aquifers)			
Presence of Abandoned 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 distance)			
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		
Hydraulic Head (Confined Aquifers)			
What is the relationship in the hydraulic head between the confined aquifer and the overlying unconfined aquifer? (i.e. does the well flow under artesian conditions?)			
1. Head in confined aquifer is higher than head in unconfined aquifer under all conditions.	20	X	20
2. Head in confined aquifer is higher than head in unconfined aquifer under static conditions.	10		
3. Head in confined aquifer is lower than or same as head in unconfined aquifer under static conditions.	0		
4. Unknown	0		
Well Construction (All Aquifers)			
Sanitary Seal (Annular Seal) Depth			
<u>0</u> feet			
None of less than 20 feet	0		
Between 20 and 50 feet	6		
50 feet or greater	10		
Unknown	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 MERCED, CITY OFSystem No. 2410009Source Name WELL 01C - RAWSource No. 003PS Code 2410009-003

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	X	5
	Unknown	0		

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

Maximum Score = 100

Score	<u>90</u>
Effectiveness	<u>High</u>

WELL DATA SHEET (Page 1 of 2)

<i>Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.</i>		
<i>* Indicates items required for Source Water Assessment</i>		
<i>* Indicates additional items required for assessments and Ground Water Rule</i>		
		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 01 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)	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	
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)	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); 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, use N.A. if not applicable.		
* Indicates items required for Source Water Assessment		
* Indicates additional items required for assessments and Ground Water 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); 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", "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)		
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	
Type	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	

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)	
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 consistently remains below Maximum Contaminant Levels (MCL's) and continues to decline each year.	

Inventory of Possible Contaminating Activities (PCA Inventory)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 01C - RAW Source No. 003 PS Code 2410009-003
 Completed by Patrick 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)	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		
Home 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		Misc. business locations.

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 OFSystem No. 2410009Source Name WELL 01C - RAWSource No. 003PS 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		Small automotive repair shops.
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		
Swimming pools (M)	N	N	N		
Parks (M)	Y	Y	Y		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		
Campgrounds/ Recreational areas (L)	N	N	N		
Fire stations (L)	Y	Y	Y		
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		
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		
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 plume detected.
Military installations (VH)	N	N	N		

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 OFSystem No. 2410009Source Name WELL 01C - RAWSource No. 003PS Code 2410009-003

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 slurry on 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 tanks (L)	N	N	N		
Above ground storage tanks (M)	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		
Hospitals (M)	Y	Y	Y		Mercy Dominican Hospital.
Storm Drain Discharge Points (M)	Y	N	Y		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		

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 OFSystem No. 2410009Source Name WELL 01C - RAWSource No. 003PS Code 2410009-003

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 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.

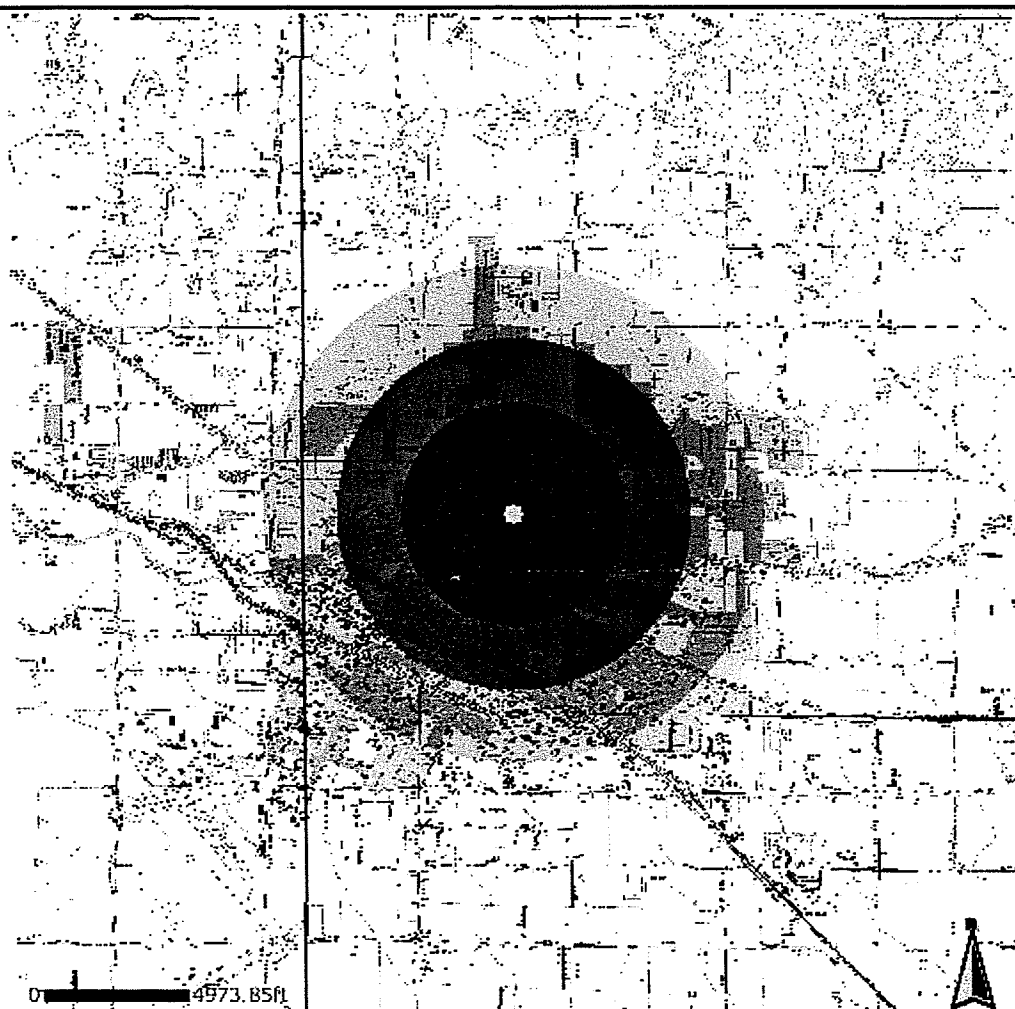
Vulnerability Ranking

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 01C - RAW Source No. 003 PS Code 2410009-003
 Completed by Patrick Riggs Date March, 2003

Zone	PCA (Risk 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
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	Recreational area - surface water source (H)		5	5	1	11
A	Sewer collection systems (H, if in Zone A, otherwise L)		5	5	1	11
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
	Underground storage tanks - Confirmed leaking tanks (VH)		7	3	1	11
A	Above ground storage tanks (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	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	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
0	Underground storage tanks - Confirmed leaking tanks (VH)		7	1	1	9

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

DWSAP Ground Water Zone Interface



Well Position *	GPS'd	Longitude	Latitude
	Yes	-120.476	37.314

* Well location coordinates have been rounded to 3 decimal places due to security concerns.

Well Statistics	
Well Number	2410009003
Media Type	Porous Media
System Type	All Other System
Effective Porosity (n , decimal percent)	.2
Screened Interval (H , feet)	33
Pumping Capacity (Q , gpm)	2200
Azimuth of Flow (a , degrees)	0 - No Translation

Radii Measures	
Defaults Used	No
R2	3862 ft
R5	6106 ft
R10	8635 ft



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Mapping System produced using [ESRI ArcIMS](#)

Drinking Water Source Assessment

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

Assessment Summary

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Location Form
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Delineation of Ground Water Protection Zones
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Physical Barrier Effectiveness Checklist
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Data Sheet
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Inventory of Possible Contaminating Activities
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Ranking
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Map

Vulnerability Summary

District Name City of Merced District No. M4 County Merced
System Name MERCED, CITY OF System No. 2410009
Source Name WELL 02A - RAW Source No. 004 PS Code 2410009-004
Completed by Patrick Riggs Date March, 2003

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for the WELL 02A - RAW
of the MERCED, CITY OF water system in March, 2003

The source is considered most vulnerable to the following activities associated with contaminants detected in the water supply:

- Dry cleaners
- Known Contaminant Plumes
- Underground storage tanks - Confirmed leaking tanks
- Chemical/petroleum pipelines
- Fertilizer, Pesticide/ Herbicide Application

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

- Automobile- Gas stations
- Historic gas stations

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

Source Location Information

Record No: 18

System Info: Number 2410009 Name CITY OF MERCED

Source Info: Number 2A Name

PSCode 2410009 SIWellNo 24100090004

Input By: Person PATRICK RIGGS Date 3/31/2003 (mm/dd/yyyy)

Location Information: Latitude 37.290000 Horizontal Datum NAD83

Longitude -120.452000 Datum, if Other

Description/Comments:

Method of Determination: USGS ☐ OtherMethod ☐

Method Leica/530

Scale Survey(eg.)

Scale, if Other: ☒ Differential Correction

Map Published

Map Revised

Find < > < > < > < > Add Edit Delete Save Cancel Exit Help

Delineation of Ground Water Protection Zones

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 02A - RAW Source No. 004 PS Code 2410009-004
 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 gallons/minute
3,549 acre feet/year
154,587,400 cubic feet/year

Effective Porosity 0.20 ☒ Default Value

Screened Interval of Well 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	4,864 Feet
Zone B10 - 10 Year TOT*	6,879 Feet	1,500 Feet	6,879 Feet

*TOT = Time of Travel

Physical Barrier Effectiveness (PBE)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 02A - RAW Source No. 004 PS Code 2410009-004

Completed by Patrick Riggs Date March, 2003

Parameter	Possible Points	This Source	Score
Type of Aquifer			
Confinement			
1. Unconfined, Semi-confined, Fractured Rock, Unknown Aquifer	0		
2. Confined	50	X	50
Pathways of Contamination (All Aquifers)			
Presence of Abandoned 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 distance)			
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		
Hydraulic Head (Confined Aquifers)			
What is the relationship in the hydraulic head between the confined aquifer and the overlying unconfined aquifer? (i.e. does the well flow under artesian conditions?)			
1. Head in confined aquifer is higher than head in unconfined aquifer under all conditions.	20	X	20
2. Head in confined aquifer is higher than head in unconfined aquifer under static conditions.	10		
3. Head in confined aquifer is lower than or same as head in unconfined aquifer under static conditions.	0		
4. Unknown	0		
Well Construction (All Aquifers)			
Sanitary Seal (Annular Seal) Depth			
None of less than 20 feet	0		
Between 20 and 50 feet	6		
50 feet or greater	10		
Unknown	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 MERCED, CITY OFSystem No. 2410009Source Name WELL 02A - RAWSource No. 004PS Code 2410009-004

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	X	5
	Unknown	0		

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

Maximum Score = 100

Score	<u>90</u>
Effectiveness	<u>High</u>

WELL DATA SHEET (Page 1 of 2)

Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.

* Indicates items required for Source Water Assessment

Indicates additional items required for assessments and Ground Water 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 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)	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	
* 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)	22' x12.8' x 12"	
* 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	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)

Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.

* Indicates items required for Source Water Assessment

Indicates additional items required for assessments and Ground Water 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 "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		
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)	99.17 MG (2002)	
Frequency of Use (hours/year)	751.9	
Typical pumping duration (hours/day)	2.06	
PUMP		
Make	Layne and Bowler	
Type	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: _____	
** 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)	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	

Inventory of Possible Contaminating Activities (PCA Inventory)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 02A - RAW Source No. 004 PS Code 2410009-004
 Completed by Patrick 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)	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		
Furniture repair/ manufacturing (H)	N	N	N		
Home manufacturing (H)	N	N	N		
Junk/scrap/salvage yards (H)	N	N	Y		Junk, pick-and-pull yard on Childs Ave.
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)	Y	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		Funeral home on Main Street, Graveyard on E. 13th St.
Hardware/lumber/parts stores (M)	N	N	N		
Appliance/Electronic Repair (L)	Y	N	N		Small appliance repair shop.
Office buildings/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 Contaminating Activities (PCA Inventory)

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

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 sewer 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		
Swimming pools (M)	N	N	N		
Parks (M)	Y	Y	Y		Parks throughout city.
Waste transfer/recycling stations (M)	N	N	N		
Apartments and condominiums (L)	Y	Y	Y		
Campgrounds/ Recreational 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/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		
Farm chemical distributor/ application service (H)	N	N	Y		

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 OFSystem No. 2410009Source Name WELL 02A - RAWSource No. 004PS Code 2410009-004

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	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		Agricultural 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		
Crops, nonirrigated (e.g., Christmas trees, grains, grass seeds, 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		
Underground storage tanks - Confirmed leaking tanks	Y	Y	Y	*	Several in city limits.

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 OFSystem No. 2410009Source Name WELL 02A - RAWSource No. 004PS Code 2410009-004

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other Activities					
(VH)					
Underground storage tanks - Decommissioned - inactive tanks (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		
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		
Transportation corridors - Freeways/state highways (M)	Y	Y	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	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

* = 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 OFSystem No. 2410009Source Name WELL 02A - RAWSource No. 004PS Code 2410009-004

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		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.

Vulnerability Ranking

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 02A - RAW Source No. 004 PS Code 2410009-004
 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
A	Underground storage tanks - Confirmed leaking tanks (VH)	*	7	5	1	13
A	Chemical/petroleum pipelines (H)	*	5	5	1	11
B5	Dry cleaners (VH)	*	7	3	1	11
B5	Known Contaminant Plumes (VH)	*	7	3	1	11
B5	Underground storage tanks - Confirmed leaking tanks (VH)	*	7	3	1	11
B5	Chemical/petroleum pipelines (H)	*	5	3	1	9
B10	Dry cleaners (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
B5	Fertilizer, Pesticide/ Herbicide Application (M)	*	3	3	1	7
B10	Chemical/petroleum pipelines (H)	*	5	1	1	7
B10	Fertilizer, Pesticide/ Herbicide Application (M)	*	3	1	1	5
A	Automobile- Gas stations (VH)		7	5	1	13
A	Historic gas stations (VH)		7	5	1	13
A	Agricultural Drainage (H in Zone A, otherwise M)		5	5	1	11
A	Automobile- Repair shops (H)		5	5	1	11
A	Pesticide/fertilizer/ petroleum storage & transfer areas (H)		5	5	1	11
A	Sewer collection systems (H, if 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	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
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	Parking lots/malls (>50 spaces) (M)		3	5	1	9
A	Parks (M)		3	5	1	9
	Storm Drain Discharge Points (M)		3	5	1	9

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

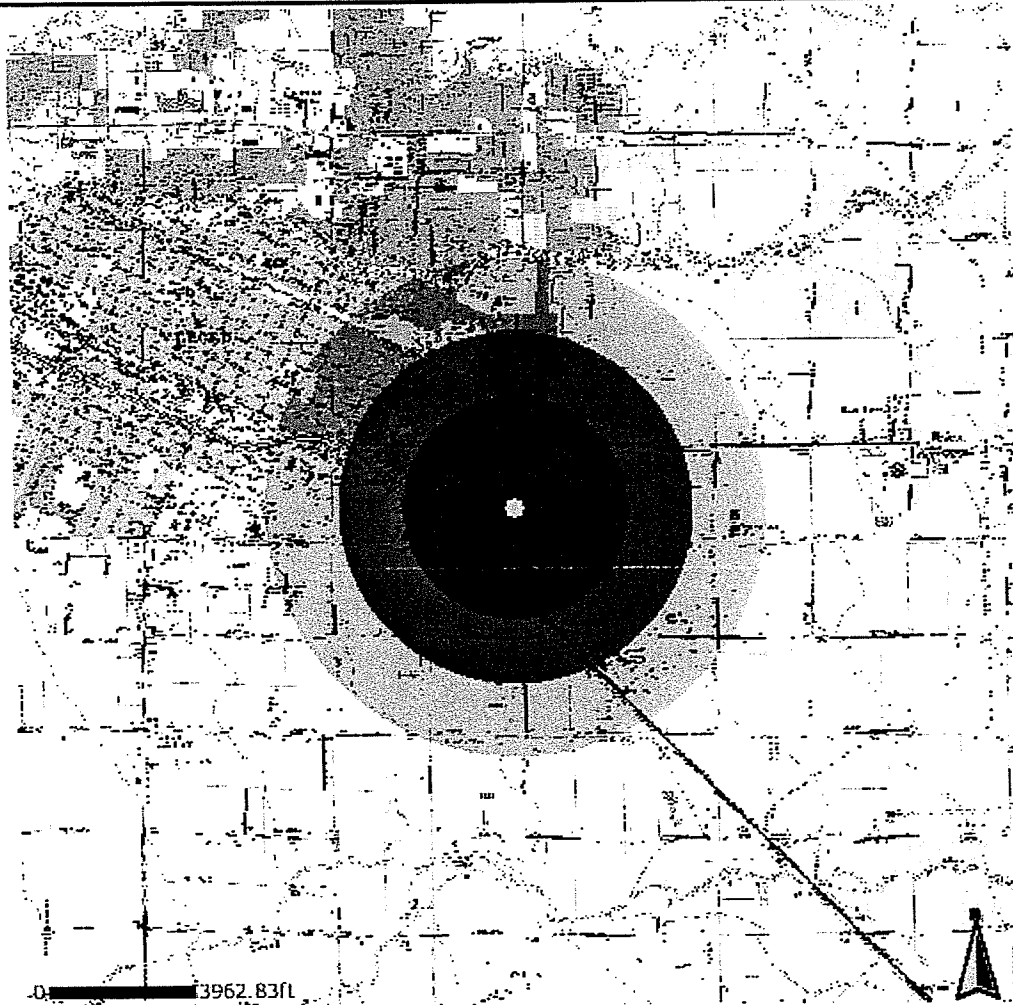
Vulnerability Ranking

System Name MERCED, CITY OFSystem No. 2410009Source Name WELL 02A - RAWSource No. 004PS 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
A	Transportation corridors - Freeways/state highways (M)		3	5	1	9
A	Transportation corridors - Railroads (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
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

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

DWSAP Ground Water Zone Interface



Well Position *	GPS'd	Longitude	Latitude
	Yes	-120.452	37.290

* Well location coordinates have been rounded to 3 decimal places due to security concerns.

Well Statistics	
Well Number	2410009004
Media Type	Porous Media
System Type	All Other System
Effective Porosity (n , decimal percent)	.2
Screened Interval (H , feet)	52
Pumping Capacity (Q , gpm)	2200
Azimuth of Flow (a , degrees)	0 - No Translation

Radii Measures	
Defaults Used	No
R2	3077 ft
R5	4865 ft
R10	6880 ft



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Coding by Eric Lehmer
Mapping System produced using ESRI ArcIMS

Drinking Water Source Assessment

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

Assessment Summary

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

Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Location Form
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Delineation of Ground Water Protection Zones
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Physical Barrier Effectiveness Checklist
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Data Sheet
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Inventory of Possible Contaminating Activities
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Ranking
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Map

Vulnerability Summary

District Name City of Merced District No. M4 County Merced
System Name MERCED, CITY OF System No. 2410009
Source Name WELL 02B - RAW Source No. 005 PS Code 2410009-005
Completed by Patrick Riggs Date March, 2003

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for the WELL 02B - RAW
of the MERCED, CITY OF water system in March, 2003

The source is considered most vulnerable to the following activities associated with contaminants detected in the water supply:

- Dry cleaners
- Known Contaminant Plumes
- Underground storage tanks - Confirmed leaking tanks
- Chemical/petroleum pipelines
- Fertilizer, Pesticide/ Herbicide Application

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

- Automobile- Gas stations
- Historic gas stations

Discussion of Vulnerability

City of Merced Well Station #2 houses three municipal groundwater wells. A 400,000 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

Source Location Information

Record No: 32

System Info: Number 2410009 Name CITY OF MERCED

Source Info: Number 2B Name

PSCode 2410009 SWellNo 2410009005

Input By: Person PATRICK RIGGS Date 4/1/2003 (mm/dd/yyyy)

Location Information:

Latitude 37.290000 Horizontal Datum NAD83

Longitude -120.452000 Datum, if Other

Description/Comments:

Method of Determination: ☐ USGS ☒ GPS ☐ OtherMethod

Method Leica/530

Scale Survey(eg.)

Scale, if Other: ☒ Differential Correction

Map Published

Map Revised

Accuracy

Scale

Find 14 < > >I Add Edit Delete Save Cancel Exit Help

Delineation of Ground Water Protection Zones

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 02B - RAW Source No. 005 PS Code 2410009-005
 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 gallons/minute
3,549 acre feet/year
154,587,400 cubic feet/year

Effective Porosity 0.20 ☒ Default Value

Screened Interval of Well 17 feet ☐ 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

Physical Barrier Effectiveness (PBE)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 02B - RAW Source No. 005 PS Code 2410009-005
 Completed by Patrick Riggs Date March, 2003

Parameter	Possible Points	This Source	Score
Type of Aquifer Confinement			
1. Unconfined, Semi-confined, Fractured Rock, Unknown Aquifer	0		
2. Confined	50	X	50
Pathways of Contamination (All Aquifers)			
Presence of Abandoned or Improperly Destroyed Wells			
1. Present within Zone A (2 year TOT distance)	Yes	0	
	No	5	X
	Unknown	0	
2. Present within Zone B5 (2 -5 year TOT distance)	Yes	0	
	No	3	X
	Unknown	0	
3. Present within Zone B10 (5-10 year TOT distance)	Yes	0	
	No	2	X
	Unknown	0	
Hydraulic Head (Confined Aquifers)			
What is the relationship in the hydraulic head between the confined aquifer and the overlying unconfined aquifer? (i.e. does the well flow under artesian conditions?)			
1. Head in confined aquifer is higher than head in unconfined aquifer under all conditions.	20	X	20
2. Head in confined aquifer is higher than head in unconfined aquifer under static conditions.	10		
3. Head in confined aquifer is lower than or same as head in unconfined aquifer under static conditions.	0		
4. Unknown	0		
Well Construction (All Aquifers)			
Sanitary Seal (Annular Seal) Depth	None of less than 20 feet	0	
<u>0</u> feet	Between 20 and 50 feet	6	
	50 feet or greater	10	
	Unknown	0	X
Surface Seal (concrete cap)	Not present or improperly constructed	0	
	Watertight, slopes away from well at least 2' laterally in all directions	4	X
	Unknown	0	

Physical Barrier Effectiveness (PBE)System Name MERCED, CITY OFSystem No. 2410009Source Name WELL 02B - RAWSource No. 005PS Code 2410009-005

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
	Unknown	0	
Security at well site	Not secure	0	
	Secure	5	X
	Unknown	0	

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

Maximum Score = 100

Score	<u>90</u>
Effectiveness	<u>High</u>

WELL DATA SHEET (Page 1 of 2)

<i>Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.</i>		
<i>* Indicates items required for Source Water Assessment</i>		
<i>* Indicates additional items required for assessments and Ground Water Rule</i>		
		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	
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	YES	
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	22' x 12.8' x 12"	
* 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	1950	
Drilling Method		
Depth of Bore Hole (feet below ground surface)	161'	
Casing Beginning Depth/Ending Depth(ft below surface); 2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	0/144'	
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, use N.A. if not applicable.		
* Indicates items required for Source Water Assessment		
* Indicates additional items required for assessments and Ground Water 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 "UNKNOWN")	144'	
Screened Interval Beginning Depth/Ending Depth (ft below surface); 2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	No Screen, foot valve to bottom of bore 144'-161'	
* Total length of screened interval (ft) (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)		
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")	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		
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)	80.91 MG (2002)	
Frequency of Use (hours/year)	613.2	
Typical pumping duration (hours/day)	1.68	
PUMP		
Make	Layne and Bowler	
Type	DWT	
Size (hp)	125 HP	
* Capacity (gpm)	2200	
Depth to suction intake (ft below ground surface)	144'	
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 (use additional sheets as necessary)		
Incomplete; 08/28/00; Amit Nijhawan		

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)	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	

Inventory of Possible Contaminating Activities (PCA Inventory)

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

Completed by Patrick 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)	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		
Furniture repair/ manufacturing (H)	N	N	N		
Machine manufacturing (H)	N	N	N		
Junk/scrap/salvage yards (H)	N	N	Y		Junk, pick-and-pull yard on Childs Ave.
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)	Y	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		Funeral home on Main Street, Graveyard on E. 13th St.
Hardware/lumber/parts stores (M)	N	N	N		
Appliance/Electronic Repair (L)	Y	N	N		Small appliance repair shop.
Office buildings/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 Contaminating Activities (PCA Inventory)

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

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 sewer 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		
or pools (M)	N	N	N		
Parks (M)	Y	Y	Y		Parks throughout city.
Waste transfer/recycling stations (M)	N	N	N		
Apartments and condominiums (L)	Y	Y	Y		
Campgrounds/ Recreational 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/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		
Farm chemical distributor/ application service (H)	N	N	Y		

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 OFSystem No. 2410009Source Name WELL 02B - RAWSource No. 005PS Code 2410009-005

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	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 seeds, 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		
Underground storage tanks - Confirmed leaking tanks	Y	Y	Y	*	Several in city limits.

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 OFSystem No. 2410009Source Name WELL 02B - RAWSource No. 005PS Code 2410009-005

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other Activities					
(VH)					
Underground storage tanks - Decommissioned - inactive tanks (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		
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		
Transportation corridors - Freeways/state highways (M)	Y	Y	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	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

* = 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 OFSystem No. 2410009Source Name WELL 02B - RAWSource No. 005PS Code 2410009-005

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		Used for UST investigations and PCE investigations.

Y = Yes N = No U = Unknown

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

Vulnerability Ranking

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 02B - RAW Source No. 005 PS Code 2410009-005
 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
A	Underground storage tanks - Confirmed leaking tanks (VH)	*	7	5	1	13
A	Chemical/petroleum pipelines (H)	*	5	5	1	11
B5	Dry cleaners (VH)	*	7	3	1	11
B5	Known Contaminant Plumes (VH)	*	7	3	1	11
B5	Underground storage tanks - Confirmed leaking tanks (VH)	*	7	3	1	11
B5	Chemical/petroleum pipelines (H)	*	5	3	1	9
B10	Dry cleaners (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
B5	Fertilizer, Pesticide/ Herbicide Application (M)	*	3	3	1	7
B10	Chemical/petroleum pipelines (H)	*	5	1	1	7
B10	Fertilizer, Pesticide/ Herbicide Application (M)	*	3	1	1	5
A	Automobile- Gas stations (VH)		7	5	1	13
A	Historic gas stations (VH)		7	5	1	13
A	Agricultural Drainage (H in Zone A, otherwise M)		5	5	1	11
A	Automobile- Repair shops (H)		5	5	1	11
A	Pesticide/fertilizer/ petroleum storage & transfer areas (H)		5	5	1	11
A	Sewer collection systems (H, if 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	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
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	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 contaminant potentially associated with this activity has been detected in the water supply.

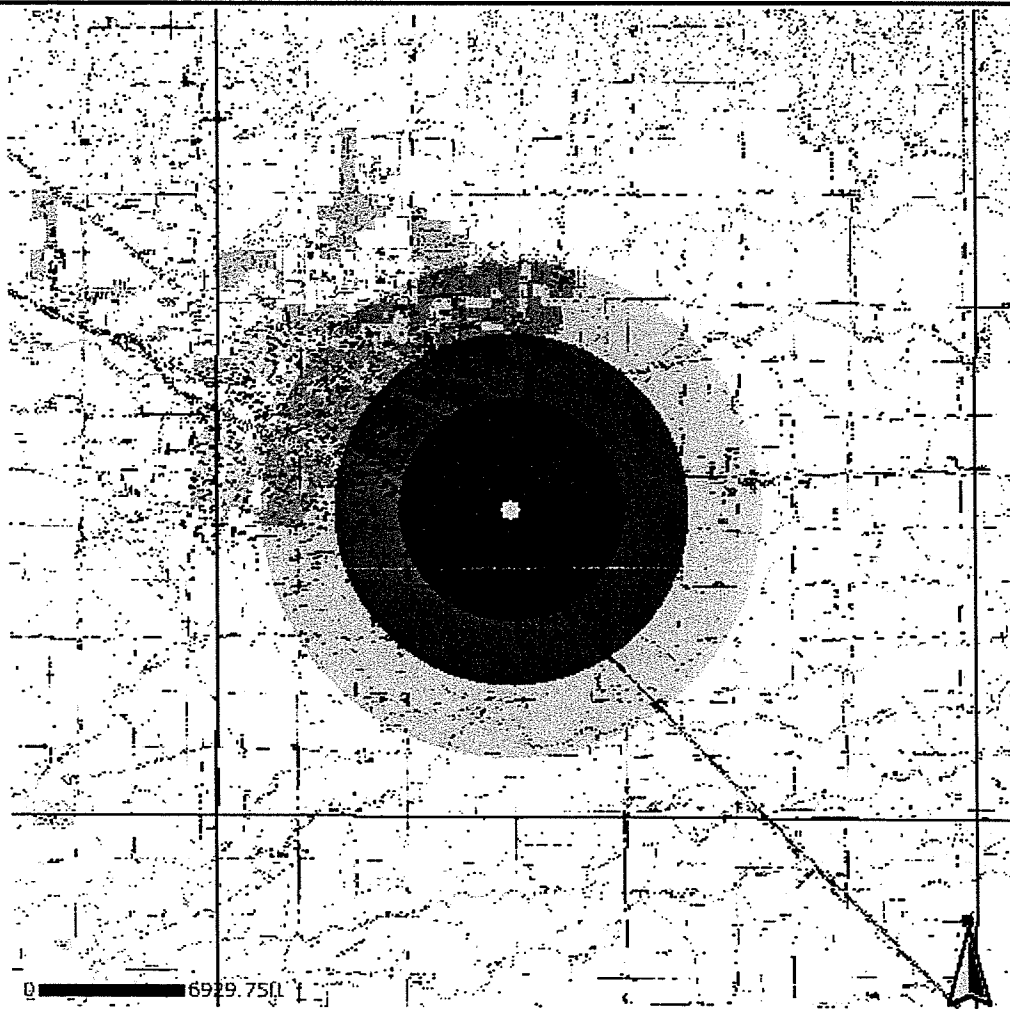
Vulnerability Ranking

System Name MERCED, CITY OFSystem No. 2410009Source Name WELL 02B - RAWSource No. 005PS 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
A	Transportation corridors - Freeways/state highways (M)		3	5	1	9
A	Transportation corridors - Railroads (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
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

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

DWSAP Ground Water Zone Interface



Well Position *	GPS'd	Longitude	Latitude
	Yes	-120.452	37.290
* Well location coordinates have been rounded to 3 decimal places due to security concerns.			

Well Statistics	
Well Number	2410009005
Media Type	Porous Media
System Type	All Other System
Effective Porosity (n , decimal percent)	.2
Screened Interval (H , feet)	17
Pumping Capacity (Q , gpm)	2200
Azimuth of Flow (a , degrees)	0 - No Translation

Radii Measures	
Defaults Used	No
R2	5381 ft
R5	8507 ft
R10	12031 ft



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Coding by Eric Lehmer
Mapping System produced using ESRI ArcIMS

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

Assessment Summary

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 02C - RAW Source No. 023 PS Code 2410009-023
 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 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Location Form
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Delineation of Ground Water Protection Zones
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Physical Barrier Effectiveness Checklist
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Data Sheet
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Inventory of Possible Contaminating Activities
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Ranking
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Map

Vulnerability Summary

District Name City of Merced District No. M4 County Merced
System Name MERCED, CITY OF System No. 2410009
Source Name WELL 02C - RAW Source No. 023 PS Code 2410009-023
Completed by Patrick Riggs Date March, 2003

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for the WELL 02C - RAW
of the MERCED, CITY OF water system in March, 2003

The source is considered most vulnerable to the following activities associated with contaminants detected in the water supply:

- Dry cleaners
- Known Contaminant Plumes
- Underground storage tanks - Confirmed leaking tanks
- Chemical/petroleum pipelines
- Fertilizer, Pesticide/ Herbicide Application

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

- Automobile- Gas stations
- Historic gas stations

Discussion of Vulnerability

City of Merced Well Station #2 houses three municipal groundwater wells. A 400,000 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

Source Location Information

Record No: 33

System Info: Number 2410009 Name CITY OF MERCED

Source Info: Number 2C Name

PSCode 2410009 SWellNo 2410009023

Person PATRICK RIGGS Date 4/1/2003 (mm/dd/yyyy)

Location Information: Latitude 37.290000 Horizontal Datum NAD83

Longitude -120.452000 Datum, if Other

Description/Comments:

Method of Determination: ☐ USGS ☐ OtherMethod

Method Leica/530

Scale Survey/eg

Scale, if Other: ☒ Differential Correction

Map Published ☒

Map Revised

Find	<	>	<	>	Add	Edit	Delete	Save	Cancel	Exit	Help
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Delineation of Ground Water Protection Zones

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 02C - RAW Source No. 023 PS Code 2410009-023
 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 gallons/minute
3,549 acre feet/year
154,587,400 cubic feet/year

Effective Porosity 0.20 ☒ Default Value

Screened Interval of Well 80 feet ☐ 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	3,921 Feet
Zone B10 - 10 Year TOT*	5,546 Feet	1,500 Feet	5,546 Feet

*TOT = Time of Travel

Physical Barrier Effectiveness (PBE)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 02C - RAW Source No. 023 PS Code 2410009-023
 Completed by Patrick Riggs Date March, 2003

Parameter	Possible Points	This Source	Score
Type of Aquifer			
Confinement			
1. Unconfined, Semi-confined, Fractured Rock, Unknown Aquifer	0		
2. Confined	50	X	50
Pathways of Contamination (All Aquifers)			
Presence of Abandoned 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 distance)			
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		
Hydraulic Head (Confined Aquifers)			
What is the relationship in the hydraulic head between the confined aquifer and the overlying unconfined aquifer? (i.e. does the well flow under artesian conditions?)			
1. Head in confined aquifer is higher than head in unconfined aquifer under all conditions.	20	X	20
2. Head in confined aquifer is higher than head in unconfined aquifer under static conditions.	10		
3. Head in confined aquifer is lower than or same as head in unconfined aquifer under static conditions.	0		
4. Unknown	0		
Well Construction (All Aquifers)			
Sanitary Seal (Annular Seal) Depth			
None of less than 20 feet	0		
<u>0</u> feet Between 20 and 50 feet	6		
50 feet or greater	10		
Unknown	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 MERCED, CITY OFSystem No. 2410009Source Name WELL 02C - RAWSource No. 023PS Code 2410009-023

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	X	5
	Unknown	0		

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

Maximum Score = 100

Score	<u>90</u>
Effectiveness	<u>High</u>

WELL DATA SHEET (Page 1 of 2)

<i>Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.</i>		
<i>* Indicates items required for Source Water Assessment</i>		
<i>** Indicates additional items required for assessments and Ground Water Rule</i>		
		Actual, Estimated or Default?
DATA SHEET GENERAL INFORMATION		
System Name	City of Merced	<i>from DHS database</i>
System Number	2410009	<i>from DHS database</i>
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	<i>from DHS database</i>
* 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	<i>City Surveyed 2002</i>
Longitude	-120.452	<i>City Surveyed 2002</i>
Ground Surface Elevation (ft above Mean Sea Level)	179.70	<i>City Surveyed 2002</i>
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		<i>from UC Davis</i>
DWR Ground Water Sub-basin		<i>from UC Davis</i>
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 Rotary	
Depth of Bore Hole (feet below ground surface)	685'	
Casing Beginning Depth/Ending Depth(ft below surface); 2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	0/680'	
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)

<i>Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.</i>		
<i>* Indicates items required for Source Water Assessment</i>		
<i>** Indicates additional items required for assessments and Ground Water Rule</i>		
		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); 2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	(370/385) (435/450) (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? ("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	
Type	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	

Inventory of Possible Contaminating Activities (PCA Inventory)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 02C - RAW Source No. 023 PS Code 2410009-023
 Completed by Patrick 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)	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		
Furniture repair/ manufacturing (H)	N	N	N		
Home manufacturing (H)	N	N	N		
Junk/scrap/salvage yards (H)	N	N	Y		Junk, pick-and-pull yard on Childs Ave.
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)	Y	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		Funeral home on Main Street, Graveyard on E. 13th St.
Hardware/lumber/parts stores (M)	N	N	N		
Appliance/Electronic Repair (L)	Y	N	N		Small appliance repair shop.
Office buildings/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 Contaminating Activities (PCA Inventory)

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

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 sewer 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		
for pools (M)	N	N	N		
Parks (M)	Y	Y	Y		Parks throughout city.
Waste transfer/recycling stations (M)	N	N	N		
Apartments and condominiums (L)	Y	Y	Y		
Campgrounds/ Recreational 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/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		
Farm chemical distributor/ application service (H)	N	N	Y		

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 OFSystem No. 2410009Source Name WELL 02C - RAWSource No. 023PS Code 2410009-023

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	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		Agricultural 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		
Crops, nonirrigated (e.g., Christmas trees, grains, grass, alfalfa, 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		
Underground storage tanks - Confirmed leaking tanks	Y	Y	Y	*	Several in city limits.

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 OFSystem No. 2410009Source Name WELL 02C - RAWSource No. 023PS Code 2410009-023

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other Activities					
(VH)					
Underground storage tanks - Decommissioned - inactive tanks (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		
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		
Transportation corridors - Freeways/state highways (M)	Y	Y	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	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

* = 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 OFSystem No. 2410009Source Name WELL 02C - RAWSource No. 023PS Code 2410009-023

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		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.

Vulnerability Ranking

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 02C - RAW Source No. 023 PS Code 2410009-023
 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
A	Underground storage tanks - Confirmed leaking tanks (VH)	*	7	5	1	13
A	Chemical/petroleum pipelines (H)	*	5	5	1	11
B5	Dry cleaners (VH)	*	7	3	1	11
B5	Known Contaminant Plumes (VH)	*	7	3	1	11
B5	Underground storage tanks - Confirmed leaking tanks (VH)	*	7	3	1	11
B5	Chemical/petroleum pipelines (H)	*	5	3	1	9
B10	Dry cleaners (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
B5	Fertilizer, Pesticide/ Herbicide Application (M)	*	3	3	1	7
B10	Chemical/petroleum pipelines (H)	*	5	1	1	7
B10	Fertilizer, Pesticide/ Herbicide Application (M)	*	3	1	1	5
A	Automobile- Gas stations (VH)		7	5	1	13
A	Historic gas stations (VH)		7	5	1	13
A	Agricultural Drainage (H in Zone A, otherwise M)		5	5	1	11
A	Automobile- Repair shops (H)		5	5	1	11
A	Pesticide/fertilizer/ petroleum storage & transfer areas (H)		5	5	1	11
A	Sewer collection systems (H, if 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	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
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	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 contaminant potentially associated with this activity has been detected in the water supply.

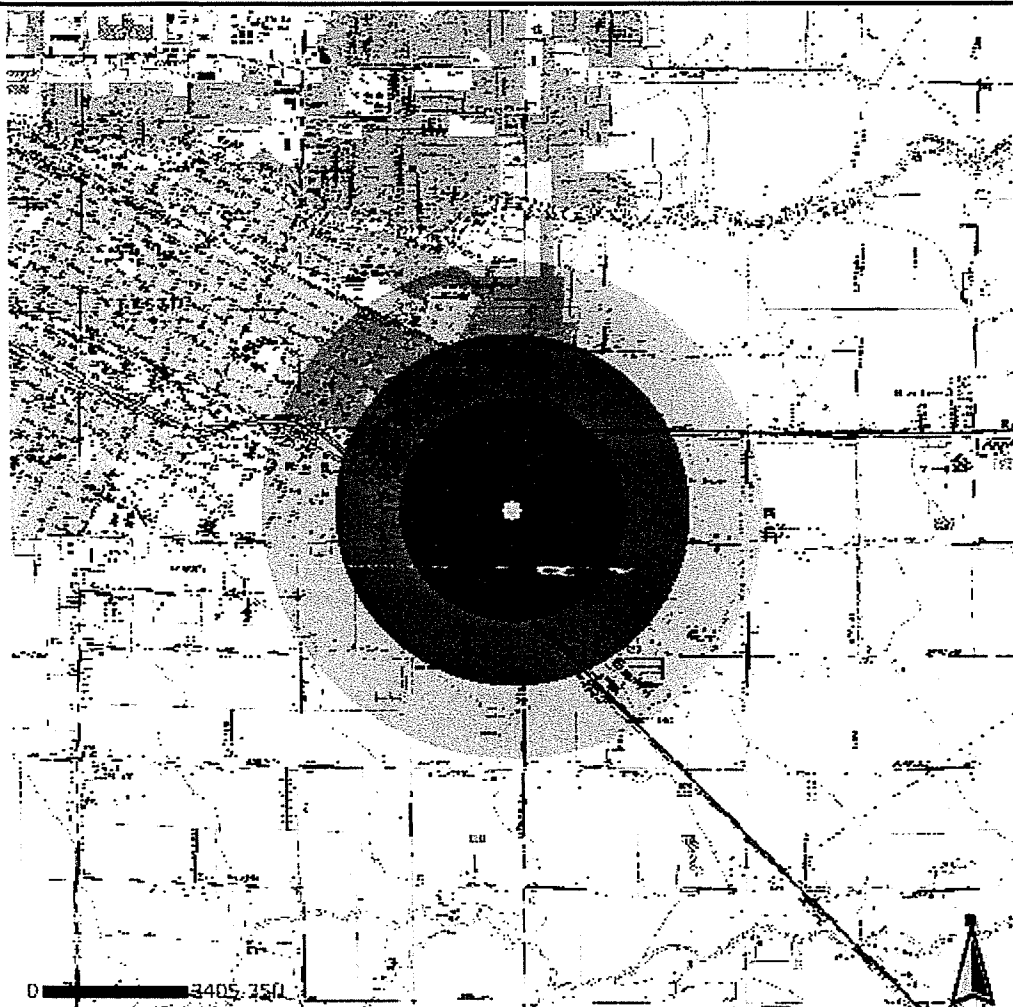
Vulnerability Ranking

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

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	Storm Water Detention Facilities (M)		3	5	1	9
A	Transportation corridors - Freeways/state highways (M)		3	5	1	9
A	Transportation corridors - Railroads (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
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

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

DWSAP Ground Water Zone Interface



Well Position *	GPS'd	Longitude	Latitude
	Yes	-120.452	37.290
* Well location coordinates have been rounded to 3 decimal places due to security concerns.			

Well Statistics	
Well Number	2410009023
Media Type	Porous Media
System Type	All Other System
Effective Porosity (n , decimal percent)	.2
Screened Interval (H , feet)	80
Pumping Capacity (Q , gpm)	2500
Azimuth of Flow (a , degrees)	0 - No Translation

Radii Measures	
Defaults Used	No
R2	2644 ft
R5	4180 ft
R10	5912 ft



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Coding by Eric Lehmer
Mapping System produced using ESRI ArcIMS

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

Assessment Summary

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 03C - RAW Source No. 008 PS Code 2410009-008
 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 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Location Form
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Delineation of Ground Water Protection Zones
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Physical Barrier Effectiveness Checklist
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Data Sheet
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Inventory of Possible Contaminating Activities
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Ranking
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Map

Vulnerability Summary

District Name City of Merced District No. M4 County Merced
System Name MERCED, CITY OF System No. 2410009
Source Name WELL 03C - RAW Source No. 008 PS Code 2410009-008
Completed by Patrick Riggs Date March, 2003

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for the WELL 03C - RAW
of the MERCED, CITY OF water system in March, 2003

The source is considered most vulnerable to the following activities associated with contaminants detected in the water supply:

- Dry cleaners
- Historic gas stations
- Known Contaminant Plumes
- Underground storage tanks - Confirmed leaking tanks
- Chemical/petroleum pipelines

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

- Automobile- Gas stations

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

Source Location Information

System Info:		Number	2410009	Name	CITY OF MERCED	Record No:	34
Source Info:		Number	3C	Name			
Input By:		PSCode	2410009	SWellNo	2410009008		
		Person	PATRICK RIGGS	Date	4/1/2003 (mm/dd/yyyy)		
Location Information:		Latitude	37.296000	Horizontal Datum	NAD83		
		Longitude	-120.486000	Datum, if Other			
Description/Comments:							
Method of Determination:		<input type="checkbox"/> USGS	<input checked="" type="checkbox"/> GPS	<input type="checkbox"/> OtherMethod			
		Method	Unit	Method			
		Scale	Grade	If Other			
		Scale, if Other:	Differential Correction <input checked="" type="checkbox"/>	Accuracy			
		Map Published		Scale			
		Map Revised					

Delineation of Ground Water Protection Zones

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 03C - RAW Source No. 008 PS Code 2410009-008
 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) 3,200 gallons/minute
5,162 acre feet/year
224,854,400 cubic feet/year

Effective Porosity 0.20 ☒ Default Value

Screened Interval of Well 72 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 Barrier Effectiveness (PBE)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 03C - RAW Source No. 008 PS Code 2410009-008
 Completed by Patrick Riggs Date March, 2003

Parameter	Possible Points	This Source	Score
Type of Aquifer			
Confinement			
1. Unconfined, Semi-confined, Fractured Rock, Unknown Aquifer	0		
2. Confined	50	X	50
Pathways of Contamination (All Aquifers)			
Presence of Abandoned 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 distance)			
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		
Hydraulic Head (Confined Aquifers)			
What is the relationship in the hydraulic head between the confined aquifer and the overlying unconfined aquifer? (i.e. does the well flow under artesian conditions?)			
1. Head in confined aquifer is higher than head in unconfined aquifer under all conditions.	20	X	20
2. Head in confined aquifer is higher than head in unconfined aquifer under static conditions.	10		
3. Head in confined aquifer is lower than or same as head in unconfined aquifer under static conditions.	0		
4. Unknown	0		
Well Construction (All Aquifers)			
Sanitary Seal (Annular Seal) Depth			
<u>0</u> feet			
None of less than 20 feet	0		
Between 20 and 50 feet	6		
50 feet or greater	10		
Unknown	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 MERCED, CITY OF System No. 2410009
 Source Name WELL 03C - RAW Source No. 008 PS Code 2410009-008

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	X	5
	Unknown	0		

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

Maximum Score = 100

Score	<u>90</u>
Effectiveness	<u>High</u>

WELL DATA SHEET (Page 1 of 2)

Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.

* Indicates items required for Source Water Assessment

** Indicates additional items required for assessments and Ground Water 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 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	

WELL DATA SHEET (Page 2 of 2)

Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.

* Indicates items required for Source Water Assessment

** Indicates additional items required for assessments and Ground Water 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")	502'	
Screened Interval Beginning Depth/Ending Depth (ft below surface); 2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	502'-574'	
* Total length of screened interval (ft) (default = 10% pump capacity in gpm) (or "UNKNOWN")	72'	
* 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)		
Static water level measurement: Date/Method		
Pumping water level (ft below ground surface)		
Pumping water level measurement: Date/Method		
WELL PRODUCTION		
Well Yield (gpm)	3200	
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)	773.08 MG (2002)	
Frequency of Use (hours/year)	4025.95	
Typical pumping duration (hours/day)	11.03	
PUMP		
Make	Byron Jackson	
Type	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: _____	
** 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	
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 aquifers protected by difineing clay layers from Perchloroethylene. These clay layers have consistantly demonstrated to be an effective physical barrier to PCE contamination.	

Inventory of Possible Contaminating Activities (PCA Inventory)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 03C - RAW Source No. 008 PS Code 2410009-008
 Completed by Patrick 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 vicinity.
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 homes.
Hardware/lumber/parts stores (M)	Y	Y	Y		

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 OFSystem No. 2410009Source Name WELL 03C - RAWSource No. 008PS Code 2410009-008

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Commercial/Industrial Activities					
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 systems in outer B10 zone.
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		
Ice storage (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		Parks located throughout city.
Waste transfer/recycling stations (M)	Y	Y	Y		Oil and battery recycling facilities.
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	*	Petroleum from former underground fuel tanks.
Historic waste dumps/ landfills (VH)	N	N	N		
Illegal activities/ unauthorized dumping (H)	N	N	N		

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 OFSystem No. 2410009Source Name WELL 03C - RAWSource No. 008PS Code 2410009-008

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 decommissioned.
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)	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	Y	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)	Y	Y	Y		

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 OFSystem No. 2410009Source Name WELL 03C - RAWSource No. 008PS Code 2410009-008

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other Activities					
Storm Water Detention Facilities (M)	N	N	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)	Y	Y	Y		Throughout city limits.
Veterinary offices/clinics (L)	Y	N	N		
Surface water - streams/ lakes/rivers (L)	N	N	Y		
Wells - monitoring, test holes (L)	Y	Y	Y		Throughout city limits.

Y = Yes N = No U = Unknown

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

Vulnerability Ranking

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 03C - RAW Source No. 008 PS Code 2410009-008
 Completed by Patrick Riggs Date March, 2003

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	Dry cleaners (VH)	*	7	5	1	13
A	Historic gas stations (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	Chemical/petroleum 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 Contaminant Plumes (VH)	*	7	3	1	11
B5	Underground storage tanks - Confirmed leaking tanks (VH)	*	7	3	1	11
B5	Chemical/petroleum pipelines (H)	*	5	3	1	9
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
B10	Chemical/petroleum pipelines (H)	*	5	1	1	7
A	Automobile- Gas stations (VH)		7	5	1	13
A	Automobile- Body shops (H)		5	5	1	11
A	Automobile- Repair shops (H)		5	5	1	11
A	Boat services/repair/ refinishing (H)		5	5	1	11
A	Photo processing/printing (H)		5	5	1	11
A	Sewer collection systems (H, if in Zone A, otherwise L)		5	5	1	11
A	Sewer collection systems (H, if in Zone A, otherwise L)		5	5	1	11
B5	Automobile- Gas stations (VH)		7	3	1	11
A	Above ground storage tanks (M)		3	5	1	9
A	Automobile- Car washes (M)		3	5	1	9
A	Hardware/lumber/parts stores (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 contaminant potentially associated with this activity has been detected in the water supply.

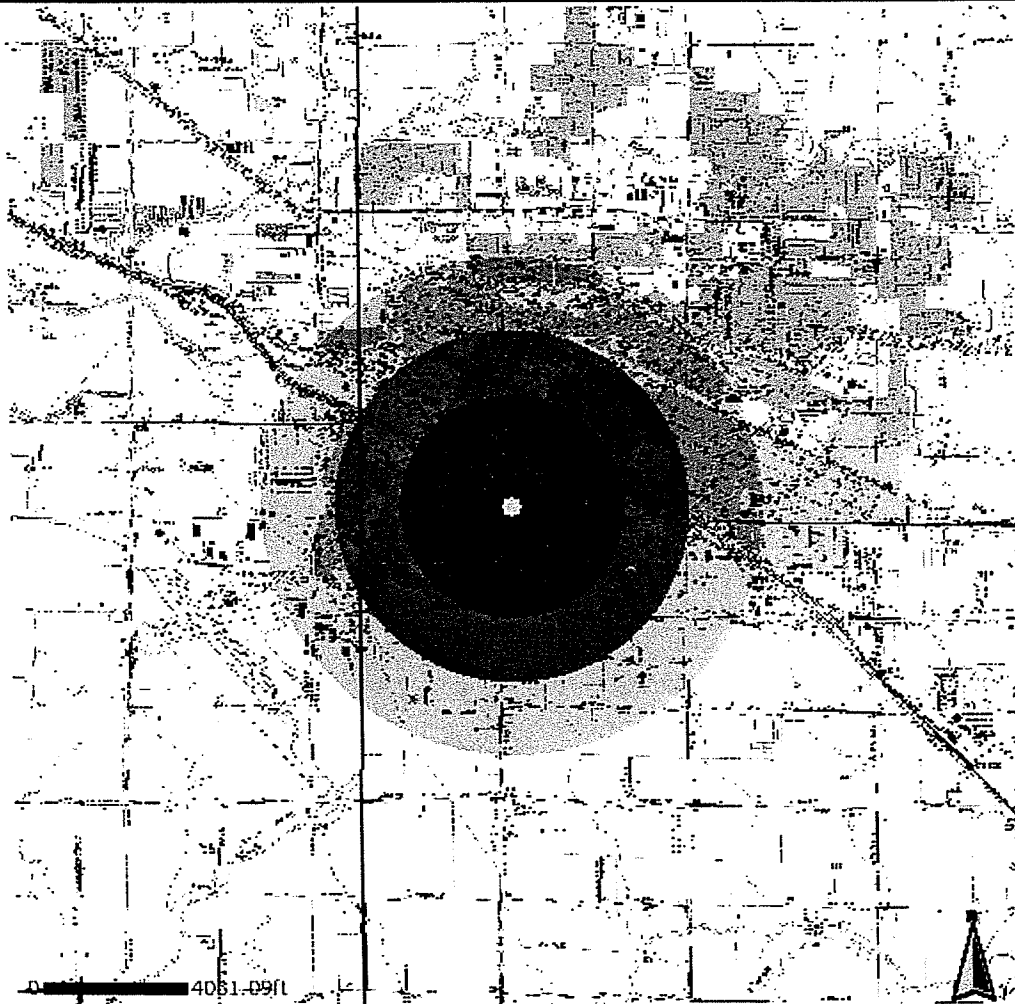
Vulnerability Ranking

System Name MERCED, CITY OFSystem No. 2410009Source Name WELL 03C - RAWSource No. 008PS Code 2410009-008

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	Parks (M)		3	5	1	9
A	Storm Drain Discharge Points (M)		3	5	1	9
A	Transportation corridors - Freeways/state highways (M)		3	5	1	9
A	Transportation corridors - Railroads (M)		3	5	1	9
A	Transportation corridors - Road Right-of-ways (herbicide use areas) (M)		3	5	1	9
A	Waste transfer/recycling stations (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	Boat services/repair/ refinishing (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

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

DWSAP Ground Water Zone Interface



Well Position *	GPS'd	Longitude	Latitude
	Yes	-120.486	37.296
* Well location coordinates have been rounded to 3 decimal places due to security concerns.			

Well Statistics	
Well Number	2410009008
Media Type	Porous Media
System Type	All Other System
Effective Porosity (n , decimal percent)	.2
Screened Interval (H , feet)	72
Pumping Capacity (Q , gpm)	3200
Azimuth of Flow (a , degrees)	0 - No Translation

Radii Measures	
Defaults Used	No
R2	3153 ft
R5	4984 ft
R10	7050 ft



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Coding by Eric Lehmer
Mapping System produced using ESRI ArcIMS

Drinking Water Source Assessment

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

Assessment Summary

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 05B - RAW Source No. 011 PS Code 2410009-011
 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 Sierra 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Location Form
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Delineation of Ground Water Protection Zones
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Physical Barrier Effectiveness Checklist
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Data Sheet
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Inventory of Possible Contaminating Activities
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Ranking
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Map

Vulnerability Summary

District Name City of Merced District No. M4 County Merced
System Name MERCED, CITY OF System No. 2410009
Source Name WELL 05B - RAW Source No. 011 PS Code 2410009-011
Completed by Patrick Riggs Date March, 2003

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for the WELL 05B - RAW
of the MERCED, CITY OF water system in March, 2003

The source is considered most vulnerable to the following activities associated with contaminants detected in the water supply:

- Dry cleaners
- Historic gas stations
- Known Contaminant Plumes
- Underground storage tanks - Confirmed leaking tanks
- Chemical/petroleum pipelines

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

- Automobile- Gas stations

Discussion of Vulnerability

City of Merced Well Station 5B is located near the center of town. Housed in a permanent 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

Source Location Information

System Info:		Number	2410009	Name	CITY OF MERCED	Record No:	35
Source Info:		Number	5B	Name			
Input By:		PSCode	2410009	StWellNo	2410009011		
		Person	PATRICK RIGGS	Date	4/1/2003 (mm/dd/yyyy)		
Location Information:		Latitude	37.304000	Horizontal Datum	NAD83		
		Longitude	-120.492000	Datum, if Other			
		Description/Comments:					
Method of Determination:		USGS	<input type="checkbox"/>	GPS	<input checked="" type="checkbox"/>	OtherMethod	<input type="checkbox"/>
		Method		Unit	Leica/530	Method	
		Scale		Grade	Survey(eg.	If Other	
		Scale, if Other:		Differential Correction	<input checked="" type="checkbox"/>	Accuracy	
		Map Published				Scale	
		Map Revised					

Delineation of Ground Water Protection Zones

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 05B - RAW Source No. 011 PS Code 2410009-011
 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) 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 45 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

Physical Barrier Effectiveness (PBE)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 05B - RAW Source No. 011 PS Code 2410009-011
 Completed by Patrick Riggs Date March, 2003

Parameter	Possible Points	This Source	Score
Type of Aquifer			
Confinement			
1. Unconfined, Semi-confined, Fractured Rock, Unknown Aquifer	0		
2. Confined	50	X	50
Pathways of Contamination (All Aquifers)			
Presence of Abandoned 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 distance)			
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		
Hydraulic Head (Confined Aquifers)			
What is the relationship in the hydraulic head between the confined aquifer and the overlying unconfined aquifer? (i.e. does the well flow under artesian conditions?)			
1. Head in confined aquifer is higher than head in unconfined aquifer under all conditions.	20	X	20
2. Head in confined aquifer is higher than head in unconfined aquifer under static conditions.	10		
3. Head in confined aquifer is lower than or same as head in unconfined aquifer under static conditions.	0		
4. Unknown	0		
Well Construction (All Aquifers)			
Sanitary Seal (Annular Seal) Depth			
None of less than 20 feet	0		
<u>0</u> feet Between 20 and 50 feet	6		
50 feet or greater	10		
Unknown	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 MERCED, CITY OFSystem No. 2410009Source Name WELL 05B - RAWSource No. 011PS Code 2410009-011

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	X	5
	Unknown	0		

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

Maximum Score = 100

Score	<u>90</u>
Effectiveness	<u>High</u>

WELL DATA SHEET (Page 1 of 2)

<i>Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.</i>		
<i>* Indicates items required for Source Water Assessment</i>		
<i>* Indicates additional items required for assessments and Ground Water Rule</i>		
		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 2002
Ground Surface Elevation (ft above Mean Sea Level)	168.91	City Surveyed 2002
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	

WELL DATA SHEET (Page 2 of 2)

<i>Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.</i>		
<i>* Indicates items required for Source Water Assessment</i>		
<i>* Indicates additional items required for assessments and Ground Water Rule</i>		
		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")	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) (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 (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)	23	
Depth to confining layer, if known (ft below ground)	197	
* 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)	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	
Type	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	

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)	
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 vicinity 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 detections 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 Contaminating Activities (PCA Inventory)

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

Completed by Patrick 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	*	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 corporation yards.
Furniture repair/ manufacturing (H)	N	N	N		
Food processing/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 large printing company.
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		
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 homes.
Hardware/lumber/parts stores (M)	Y	Y	Y		
Appliance/Electronic Repair (L)	Y	Y	Y		
Office buildings/complexes (L)	Y	Y	Y		

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 OFSystem No. 2410009Source Name WELL 05B - RAWSource No. 011PS Code 2410009-011

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Commercial/Industrial Activities					
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		
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		
Swimming 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		
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 and petroleum

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 OFSystem No. 2410009Source Name WELL 05B - RAWSource No. 011PS Code 2410009-011

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other Activities					
					hydrocarbons.
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)	Y	Y	Y		Bear Creek and MID canals.
Underground storage tanks - Confirmed leaking tanks (VH)	Y	Y	Y	*	
Underground storage tanks - Decommissioned - inactive tanks (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		
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	Y	Y		Both Municipal and private wells.
Construction/demolition staging areas (M)	N	N	N		
Contractor or government agency equipment storage yards (M)	Y	Y	Y		City, County and Caltrans corporation yards.
Dredging (M)	N	N	N		
Transportation corridors - Freeways/state highways (M)	Y	Y	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)	Y	Y	Y		Bear Creek and MID canal.
Storm Water Detention Facilities (M)	N	Y	Y		
Artificial Recharge Projects - Injection wells (potable water) (L)	N	N	N		

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 OFSystem No. 2410009Source Name WELL 05B - RAWSource No. 011PS Code 2410009-011

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		
Artificial Recharge Projects - Spreading Basins (non-potable water) (M)	N	N	N		
Medical/dental offices/clinics (L)	Y	Y	Y		
Veterinary offices/clinics (L)	Y	Y	Y		
Surface water - streams/ lakes/rivers (L)	Y	Y	Y		Bear Creek
Wells - monitoring, test holes (L)	Y	Y	Y		For monitoring PCE and UST investigations.

Y = Yes N = No U = Unknown

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

Vulnerability Ranking

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 05B - RAW Source No. 011 PS Code 2410009-011
 Completed by Patrick Riggs Date March, 2003

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	Dry cleaners (VH)	*	7	5	1	13
A	Historic gas stations (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	Chemical/petroleum 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 Contaminant Plumes (VH)	*	7	3	1	11
B5	Underground storage tanks - Confirmed leaking tanks (VH)	*	7	3	1	11
B5	Chemical/petroleum pipelines (H)	*	5	3	1	9
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
B10	Chemical/petroleum pipelines (H)	*	5	1	1	7
A	Automobile- Gas stations (VH)		7	5	1	13
A	Automobile- Body shops (H)		5	5	1	11
A	Automobile- Repair shops (H)		5	5	1	11
A	Boat services/repair/ refinishing (H)		5	5	1	11
A	Machine shops (H)		5	5	1	11
A	Photo processing/printing (H)		5	5	1	11
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	11
A	Sewer collection systems (H, if in Zone A, otherwise L)		5	5	1	11
A	Utility stations - maintenance areas (H)		5	5	1	11
B5	Automobile- Gas stations (VH)		7	3	1	11
A	Automobile- Car washes (M)		3	5	1	9
A	Contractor or government agency equipment storage yards (M)		3	5	1	9
A	Hardware/lumber/parts stores (M)		3	5	1	9

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

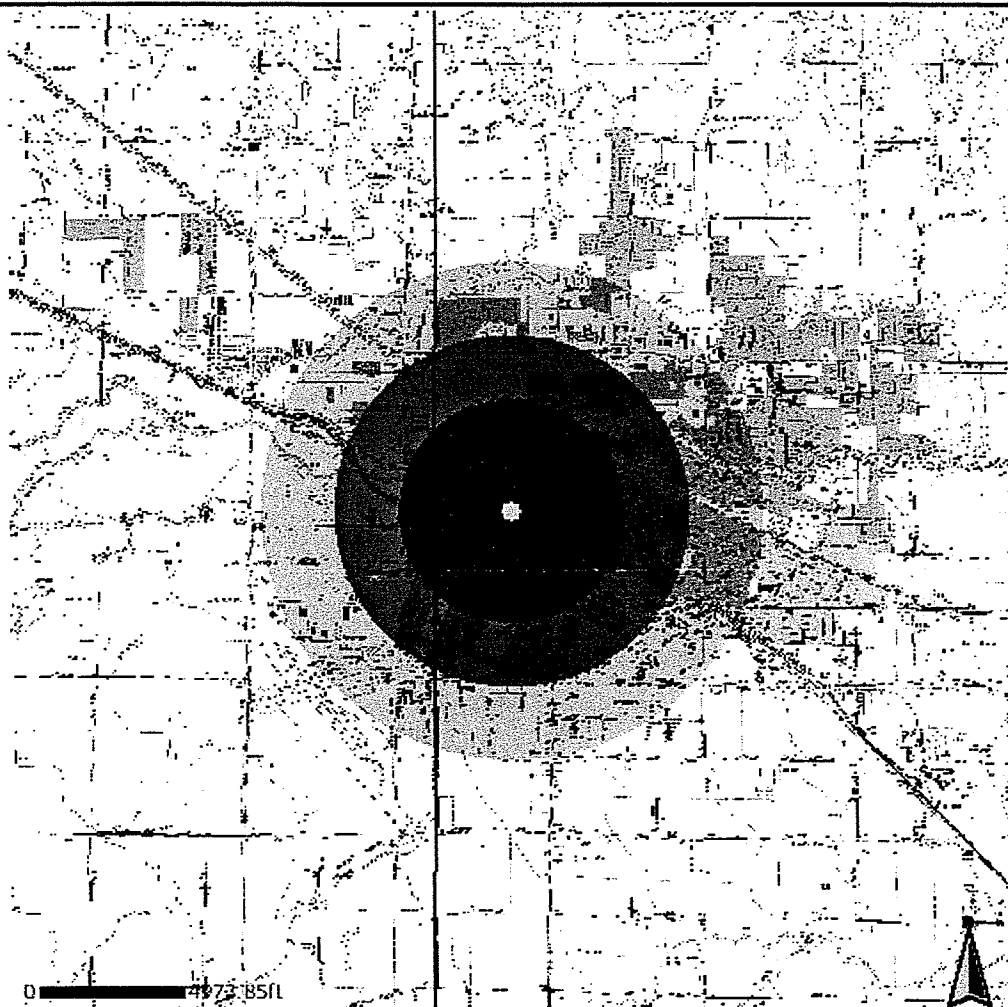
Vulnerability Ranking

System Name MERCED, CITY OFSystem No. 2410009Source Name WELL 05B - RAWSource No. 011PS Code 2410009-011

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
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	Transportation corridors - Freeways/state highways (M)		3	5	1	9
A	Transportation corridors - Railroads (M)		3	5	1	9
A	Transportation corridors - Road Right-of-ways (herbicide use areas) (M)		3	5	1	9
A	Waste transfer/recycling stations (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	Boat services/repair/ refinishing (H)		5	3	1	9
B5	Fleet/truck/bus terminals (H)		5	3	1	9
B5	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
B10	Automobile- Gas stations (VH)		7	1	1	9

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

DWSAP Ground Water Zone Interface



Well Position *	GPS'd	Longitude	Latitude
	Yes	-120.492	37.304

* Well location coordinates have been rounded to 3 decimal places due to security concerns.

Well Statistics	
Well Number	2410009011
Media Type	Porous Media
System Type	All Other System
Effective Porosity (n , decimal percent)	.2
Screened Interval (H , feet)	45
Pumping Capacity (Q , gpm)	3000
Azimuth of Flow (a , degrees)	0 - No Translation

Radii Measures	
Defaults Used	No
R2	3862 ft
R5	6106 ft
R10	8635 ft



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Coding by Eric Lehmer
Mapping System produced using ESRI ArcIMS

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

Assessment Summary

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 06 - RAW Source No. 012 PS Code 2410009-012
 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 Sierra 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Location Form
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Delineation of Ground Water Protection Zones
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Physical Barrier Effectiveness Checklist
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Data Sheet
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Inventory of Possible Contaminating Activities
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Ranking
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Map

Vulnerability Summary

District Name City of Merced District No. M4 County Merced
System Name MERCED, CITY OF System No. 2410009
Source Name WELL 06 - RAW Source No. 012 PS Code 2410009-012
Completed by Patrick Riggs Date March, 2003

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for the WELL 06 - RAW
of the MERCED, CITY OF water system in March, 2003

The source is considered most vulnerable to the following activities associated with contaminants detected in the water supply:

- Dry cleaners
- Historic gas stations
- Known Contaminant Plumes
- Underground storage tanks - Confirmed leaking tanks
- Wells - monitoring, test holes

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

- Automobile- Body shops
- Sewer collection systems
- Automobile- Gas stations

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

Source Location Information

Record No: 36

System Info: Number 2410009 Name CITY OF MERCED

Source Info: Number 6 Name

PSCode 2410009 SWellNo 2410009012

Input By: Person PATRICK RIGGS Date 4/1/2003 (mm/dd/yyyy)

Location Information: Latitude 37.288000 Horizontal Datum NAD83

Longitude -120.481000 Datum, if Other

Description/Comments:

Method of Determination: USGS ☐ GPS ☒ OtherMethod ☐

Method Leica/530

Scale Survey(eg.)

Scale, if Other: Differential Correction ☒

Map Published Accuracy

Map Revised Scale

Find

Exit

Cancel

Save

Delete

Edit

Add

Find

Find

Find

Find

Find

Find

Find

Find

Find

Delineation of Ground Water Protection Zones

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 06 - RAW Source No. 012 PS Code 2410009-012
 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>1,200</u>	gallons/minute
	<u>1,936</u>	acre feet/year
	<u>84,320,400</u>	cubic feet/year
Effective Porosity	<u>0.20</u>	<input checked="" type="checkbox"/> Default Value
Screened Interval of Well	<u>60</u>	feet <input type="checkbox"/> 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	3,344 Feet
Zone B10 - 10 Year TOT*	4,729 Feet	1,500 Feet	4,729 Feet

*TOT = Time of Travel

Physical Barrier Effectiveness (PBE)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 06 - RAW Source No. 012 PS Code 2410009-012
 Completed by Patrick Riggs Date March, 2003

Parameter	Possible Points	This Source	Score
Type of Aquifer			
Confinement			
1. Unconfined, Semi-confined, Fractured Rock, Unknown Aquifer	0		
2. Confined	50	X	50
Pathways of Contamination (All Aquifers)			
Presence of Abandoned 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 distance)			
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		
Hydraulic Head (Confined Aquifers)			
What is the relationship in the hydraulic head between the confined aquifer and the overlying unconfined aquifer? (i.e. does the well flow under artesian conditions?)			
1. Head in confined aquifer is higher than head in unconfined aquifer under all conditions.	20	X	20
2. Head in confined aquifer is higher than head in unconfined aquifer under static conditions.	10		
3. Head in confined aquifer is lower than or same as head in unconfined aquifer under static conditions.	0		
4. Unknown	0		
Well Construction (All Aquifers)			
Sanitary Seal (Annular Seal) Depth			
<u>0</u> feet			
None of less than 20 feet	0		
Between 20 and 50 feet	6		
50 feet or greater	10		
Unknown	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 MERCED, CITY OFSystem No. 2410009Source Name WELL 06 - RAWSource No. 012PS Code 2410009-012

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	X	5
	Unknown	0		

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

Maximum Score = 100

Score	<u>90</u>
Effectiveness	<u>High</u>

WELL DATA SHEET (Page 1 of 2)

Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.

* Indicates items required for Source Water Assessment

* Indicates additional items required for assessments and Ground Water 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 6	from DHS database
* 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 2002
Longitude	-120.481	City Surveyed 2002
Ground Surface Elevation (ft above Mean Sea Level)	167.82'	City Surveyed 2002
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)		
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)

Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.

* Indicates items required for Source Water Assessment

* Indicates additional items required for assessments and Ground Water 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")	203'	
Screened Interval Beginning Depth/Ending Depth (ft below surface); 2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	203'-263'	
* Total length of screened interval (ft) (default = 10% pump capacity in gpm) (or "UNKNOWN")	60'	
* 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 (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)	14'	
* 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)	1200	
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		
Make	Layne and Bowler	
Type	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	
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: _____	
** 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 discharge
Wellhead Riser? (yes or no); height above well	No
Other	

Inventory of Possible Contaminating Activities (PCA Inventory)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 06 - RAW Source No. 012 PS Code 2410009-012
 Completed by Patrick 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)	N	Y	Y		
Automobile- Gas stations (VH)	N	Y	Y		
Automobile- Repair shops (H)	N	Y	Y		
Boat services/repair/ refinishing (H)	N	N	Y		
Chemical/petroleum pipelines (H)	N	N	Y		
Chemical/petroleum processing/storage (VH)	N	N	N		
Dry cleaners (VH)	N	N	Y	*	PCE plume at the fringe of zone B10.
Electrical/electronic manufacturing (H)	N	N	N		
Fleet/truck/bus terminals (H)	N	N	N		
Furniture repair/ manufacturing (H)	N	N	N		
Food processing/manufacturing (H)	N	N	N		
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)	N	N	Y		Small operation developing.
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		County fair grounds and misc. commercial businesses.
Cement/concrete plants (M)	N	N	N		
Food processing (M)	N	N	N		
Funeral services/graveyards (M)	Y	Y	Y		Two graveyards and one funeral home.
Hardware/lumber/parts stores (M)	N	Y	Y		
Appliance/Electronic Repair (L)	N	N	Y		
Office buildings/complexes (L)	N	Y	Y		
Rental Yards (L)	N	N	Y		US Rental on 16th Street.

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 OFSystem No. 2410009Source Name WELL 06 - RAWSource No. 012PS Code 2410009-012

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Commercial/Industrial Activities					
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	Y	Y		
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	Y	Y		
Motor pools (M)	N	N	N		
Auto shops (M)	Y	Y	Y		
Waste transfer/recycling stations (M)	N	Y	Y		Oil and battery recycling facilities.
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	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)	N	Y	Y	*	Petroleum hydrocarbon.
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	Y	*	PCE and petroleum hydrocarbon.
Military installations (VH)	N	N	N		
Mineral processing operations - Historic (VH)	N	N	N		

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 OFSystem No. 2410009Source Name WELL 06 - RAWSource No. 012PS Code 2410009-012

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other Activities					
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		MID canals.
Underground storage tanks - Confirmed leaking tanks (VH)	N	N	Y	*	Petroleum hydrocarbon contamination.
Underground storage tanks - Decommissioned - inactive tanks (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		
Underground storage tanks - Upgraded and/or registered - active tanks (L)	N	N	N		
Underground storage tanks (M)	N	N	N		
Wells - Water supply (M)	N	N	Y		
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)	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	N	N		
Storm Drain Discharge Points (M)	Y	N	N		
Storm Water Detention Facilities (M)	N	N	Y		Catch basin.
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	N	N	N		

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 OFSystem No. 2410009Source Name WELL 06 - RAWSource No. 012PS 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		
Medical/dental offices/clinics (L)	N	N	Y		
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 petroleum hydrocarbon monitoring.

Y = Yes N = No U = Unknown

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

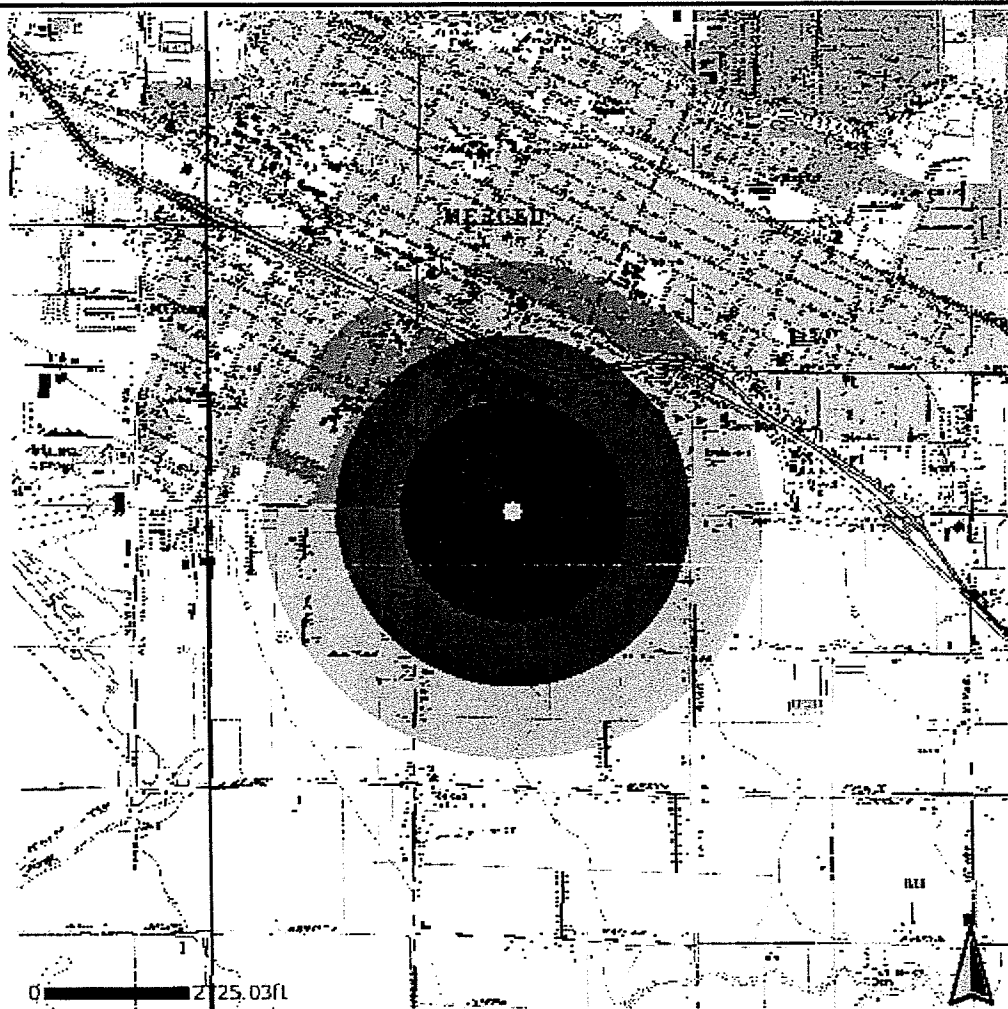
Vulnerability Ranking

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 06 - RAW Source No. 012 PS Code 2410009-012
 Completed by Patrick Riggs Date March, 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
A	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
A	Automobile- Body shops (H)		5	5	1	11
A	Sewer collection systems (H, if in Zone A, otherwise L)		5	5	1	11
A	Sewer collection systems (H, if in Zone A, otherwise L)		5	5	1	11
B5	Automobile- Gas stations (VH)		7	3	1	11
A	Funeral services/graveyards (M)		3	5	1	9
A	Hospitals (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	Transportation corridors - Freeways/state highways (M)		3	5	1	9
A	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

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

DWSAP Ground Water Zone Interface



Well Position *	GPS'd	Longitude	Latitude
	Yes	-120.481	37.288
* Well location coordinates have been rounded to 3 decimal places due to security concerns.			

Well Statistics

Well Number	2410009012
Media Type	Porous Media
System Type	All Other System
Effective Porosity (n , decimal percent)	.2
Screened Interval (H , feet)	60
Pumping Capacity (Q , gpm)	1200
Azimuth of Flow (a , degrees)	0 - No Translation

Radii Measures

Defaults Used	No
R2	2116 ft
R5	3343 ft
R10	4731 ft



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 Coding by Eric Lehmer
 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

Assessment Summary

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 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 Sierra 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Location Form
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Delineation of Ground Water Protection Zones
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Physical Barrier Effectiveness Checklist
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Data Sheet
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Inventory of Possible Contaminating Activities
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Ranking
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Map

Vulnerability Summary

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

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for the WELL 07A - RAW
of the MERCED, CITY OF water system in March, 2003

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

- Agricultural Drainage
- Farm chemical distributor/ application service
- Septic systems - low density
- Sewer collection systems
- Wells - Agricultural/ Irrigation

Discussion of Vulnerability

City 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

Source Location Information

Record No: 37

System Info: Number 2410009 Name CITY OF MERCED

Source Info: Number 7A Name

PSCode 2410009 SWellNo 2410009013

Input By: Person PATRICK RIGGS Date 4/1/203 (mm/dd/yyyy)

Location Information: Latitude 37.324000 Horizontal Datum NAD83

Longitude -120.444.000000 Datum, if Other

Description/Comments:

Method of Determination: USGS ☐ GPS ☒ OtherMethod ☐

Method Leica/530 Method

Scale Survey(eg.) If Other

Scale, if Other: Differential Correction ☒ Accuracy

Map Published Scale

Map Revised

Find < > >> Add Edit Delete Save Cancel Exit Help

Delineation of Ground Water Protection Zones

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 07A - RAW Source No. 013 PS Code 2410009-013
 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) 2,000 gallons/minute
3,226 acre feet/year
140,534,000 cubic feet/year

Effective Porosity 0.20 ☒ Default Value

Screened Interval of Well 93 feet ☐ Default Value

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

*TOT = Time of Travel

Physical Barrier Effectiveness (PBE)

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

Parameter	Possible Points	This Source	Score
Type of Aquifer			
Confinement			
1. Unconfined, Semi-confined, Fractured Rock, Unknown Aquifer	0		
2. Confined	50	X	50
Pathways of Contamination (All Aquifers)			
Presence of Abandoned 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 distance)			
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		
Hydraulic Head (Confined Aquifers)			
What is the relationship in the hydraulic head between the confined aquifer and the overlying unconfined aquifer? (i.e. does the well flow under artesian conditions?)			
1. Head in confined aquifer is higher than head in unconfined aquifer under all conditions.	20	X	20
2. Head in confined aquifer is higher than head in unconfined aquifer under static conditions.	10		
3. Head in confined aquifer is lower than or same as head in unconfined aquifer under static conditions.	0		
4. Unknown	0		
Well Construction (All Aquifers)			
Sanitary Seal (Annular Seal) Depth			
None of less than 20 feet	0		
<u>0</u> feet Between 20 and 50 feet	6		
50 feet or greater	10		
Unknown	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 MERCED, CITY OFSystem No. 2410009Source Name WELL 07A - RAWSource No. 013PS Code 2410009-013

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	X	5
	Unknown	0		

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

Maximum Score = 100

Score	<u>90</u>
Effectiveness	<u>High</u>

WELL DATA SHEET (Page 1 of 2)

Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.

* Indicates items required for Source Water Assessment

** Indicates additional items required for assessments and Ground Water 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 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); 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 available, use N.A. if not applicable.

* Indicates items required for Source Water Assessment

** Indicates additional items required for assessments and Ground Water 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'	
* 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)	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	
Type	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	
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: _____	
** Type of Sanitary Concern: _____	
** 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	

Inventory of Possible Contaminating Activities (PCA Inventory)

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

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		
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		
Parks (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		

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 OFSystem No. 2410009Source Name WELL 07A - RAWSource No. 013PS 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		
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		
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		
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		
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		
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	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

* = 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 OFSystem No. 2410009Source Name WELL 07A - RAWSource No. 013PS Code 2410009-013

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)	Y	Y	Y		
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)	N	N	N		
Transportation corridors - Railroads (M)	N	N	N		
Transportation corridors - Historic railroad right-of-ways	N	N	N		
Transportation corridors - Road Right-of-ways (herbicide use areas) (M)	Y	Y	Y		
Transportation corridors - Roads/ Streets (L)	N	N	N		
Hospitals (M)	N	N	N		
Storm Drain Discharge Points (M)	N	N	N		
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 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		
Veterinary offices/clinics (L)	N	N	N		
Surface water - streams/ lakes/rivers (L)	N	N	N		
Wells - monitoring, test holes (L)	Y	N	N		Onsite monitoring wells.

Y = Yes N = No U = Unknown

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

Vulnerability Ranking

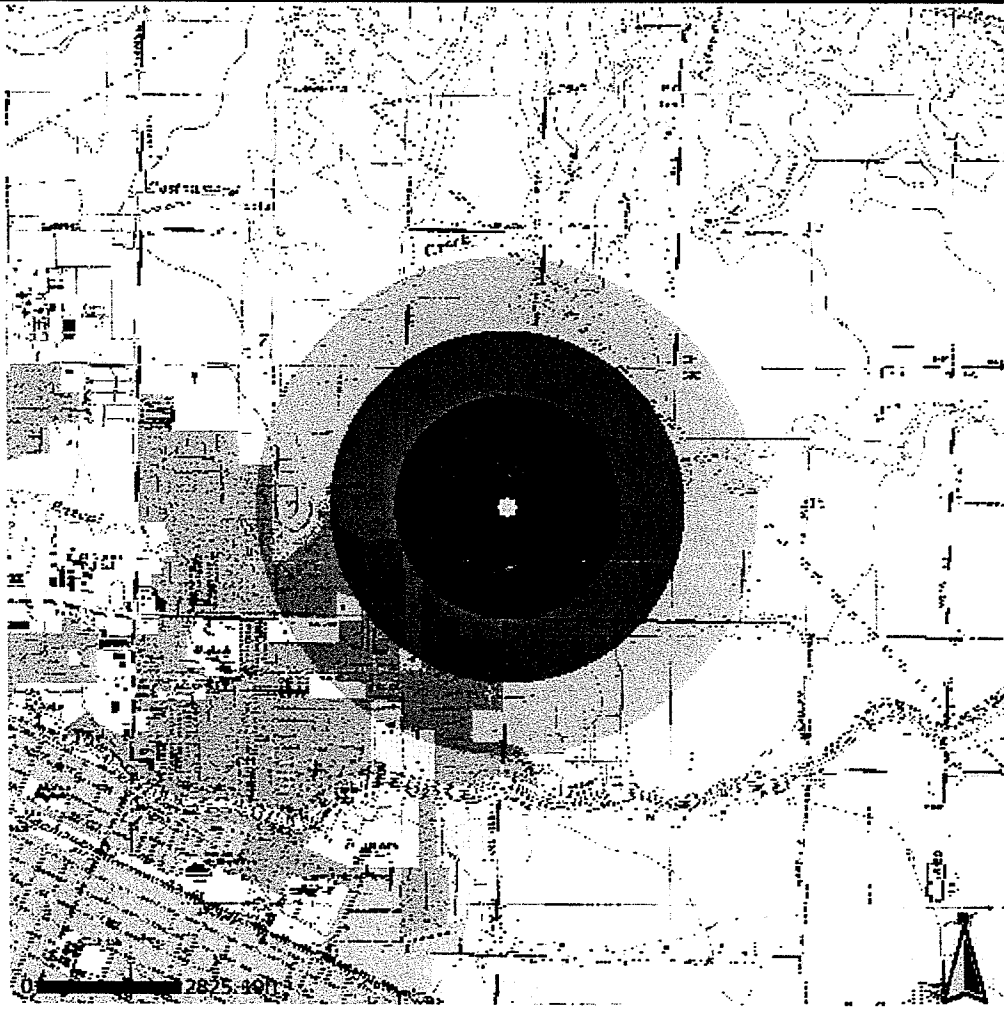
District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 07A - RAW Source No. 013 PS Code 2410009-013

Completed by Patrick Riggs Date March, 2003

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	Agricultural Drainage (H in Zone A, otherwise M)		5	5	1	11
A	Farm chemical distributor/ application service (H)		5	5	1	11
A	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
R5	Farm chemical distributor/ application service (H)		5	3	1	9
5	Wells - Agricultural/ Irrigation (H)		5	3	1	9

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

DWSAP Ground Water Zone Interface



Well Position *	GPS'd	Longitude	Latitude
	Yes	-120.444	37.324
* Well location coordinates have been rounded to 3 decimal places due to security concerns.			

Well Statistics

Well Number	2410009013
Media Type	Porous Media
System Type	All Other System
Effective Porosity (n , decimal percent)	.2
Screened Interval (H , feet)	93
Pumping Capacity (Q , gpm)	2000
Azimuth of Flow (a , degrees)	0 - No Translation

Radii Measures

Defaults Used	No
R2	2192 ft
R5	3468 ft
R10	4905 ft



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Coding by Eric Lehmer
Mapping System produced using ESRI 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

Assessment Summary

District Name City of Merced District No. M4 County Merced
System Name MERCED, CITY OF System No. 2410009
Source Name WELL 07B - RAW Source No. 014 PS Code 2410009-014
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 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Location Form
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Delineation of Ground Water Protection Zones
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Physical Barrier Effectiveness Checklist
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Data Sheet
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Inventory of Possible Contaminating Activities
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Ranking
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Map

Vulnerability Summary

District Name City of Merced District No. M4 County Merced
System Name MERCED, CITY OF System No. 2410009
Source Name WELL 07B - RAW Source No. 014 PS Code 2410009-014
Completed by Patrick Riggs Date March, 2003

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for the WELL 07B - RAW
of the MERCED, CITY OF water system in March, 2003

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

- Agricultural Drainage
- Farm chemical distributor/ application service
- Septic systems - low density
- Sewer collection systems
- Wells - Agricultural/ Irrigation

Discussion of Vulnerability

City 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

Source Location Information

Record No: 38

System Info: Number 2410009 Name CITY OF MERCED

Source Info: Number 7B Name

PSCode 2410009 SIWellNo 2410009022

Input By: Person PATRICK RIGGS Date 4/1/2003 (mm/dd/yyyy)

Location Information: Latitude 7.325000 Horizontal Datum NAD83

Longitude -120.444000 Datum, if Other

Description/Comments:

Method of Determination: USGS ☐ GPS ☒ OtherMethod ☐

Method Leica/530 Method

Scale Survey(eg. If Other

Scale, if Other: Differential Correction ☒ Accuracy

Map Published Scale

Map Revised

Find | < | > | > | Add | Edit | Delete | Save | Cancel | Exit | Help

Delineation of Ground Water Protection Zones

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 07B - RAW Source No. 014 PS Code 2410009-014
 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>2,200</u>	gallons/minute
	<u>3,549</u>	acre feet/year
	<u>154,587,400</u>	cubic feet/year
Effective Porosity	<u>0.20</u>	<input checked="" type="checkbox"/> Default Value
Screened Interval of Well	<u>92</u> feet	<input type="checkbox"/> 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

Physical Barrier Effectiveness (PBE)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 07B - RAW Source No. 014 PS Code 2410009-014

Completed by Patrick Riggs Date March, 2003

Parameter	Possible Points	This Source	Score
Type of Aquifer			
Confinement			
1. Unconfined, Semi-confined, Fractured Rock, Unknown Aquifer	0		
2. Confined	50	X	50
Pathways of Contamination (All Aquifers)			
Presence of Abandoned 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 distance)			
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		
Hydraulic Head (Confined Aquifers)			
What is the relationship in the hydraulic head between the confined aquifer and the overlying unconfined aquifer? (i.e. does the well flow under artesian conditions?)			
1. Head in confined aquifer is higher than head in unconfined aquifer under all conditions.	20	X	20
2. Head in confined aquifer is higher than head in unconfined aquifer under static conditions.	10		
3. Head in confined aquifer is lower than or same as head in unconfined aquifer under static conditions.	0		
4. Unknown	0		
Well Construction (All Aquifers)			
Sanitary Seal (Annular Seal) Depth			
<u>0</u> feet			
None of less than 20 feet	0		
Between 20 and 50 feet	6		
50 feet or greater	10		
Unknown	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 MERCED, CITY OFSystem No. 2410009Source Name WELL 07B - RAWSource No. 014PS Code 2410009-014

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	X	5
	Unknown	0		

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

Maximum Score = 100

Score	<u>90</u>
Effectiveness	<u>High</u>

WELL DATA SHEET (Page 1 of 2)

Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.

* Indicates items required for Source Water Assessment

** Indicates additional items required for assessments and Ground Water 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 7B	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	
* 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); 2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	0/266'	
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)

<i>Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.</i>		
<i>* Indicates items required for Source Water Assessment</i>		
<i>** Indicates additional items required for assessments and Ground Water Rule</i>		
		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 (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)		
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)	755.48 MG (2002)	
Frequency of Use (hours/year)	5723.2	
Typical pumping duration (hours/day)	15.68	
PUMP		
Make	Layne and Bowler	
Type	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: _____	
** 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	
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	

Inventory of Possible Contaminating Activities (PCA Inventory)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 07B - RAW Source No. 014 PS Code 2410009-014

Completed by Patrick Riggs Date March, 2003

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		
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		
Swimming pools (M)	N	N	N		
Parks (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 regulation ¹ (VH in Zone A, otherwise H)	N	N	N		
Animal Feeding Operations as defined in federal regulation ² (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		

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 OFSystem No. 2410009Source Name WELL 07B - RAWSource No. 014PS Code 2410009-014

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		
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		
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		
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		
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		
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	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

* = 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 OFSystem No. 2410009Source Name WELL 07B - RAWSource No. 014PS Code 2410009-014

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)	Y	Y	Y		
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)	N	N	N		
Transportation corridors - Railroads (M)	N	N	N		
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)	N	N	N		
Hospitals (M)	N	N	N		
Storm Drain Discharge Points (M)	N	N	N		
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 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		
Veterinary offices/clinics (L)	N	N	N		
Surface water - streams/ lakes/rivers (L)	N	N	N		
Wells - monitoring, test holes (L)	Y	N	N		Onsite monitoring wells.

Y = Yes N = No U = Unknown

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

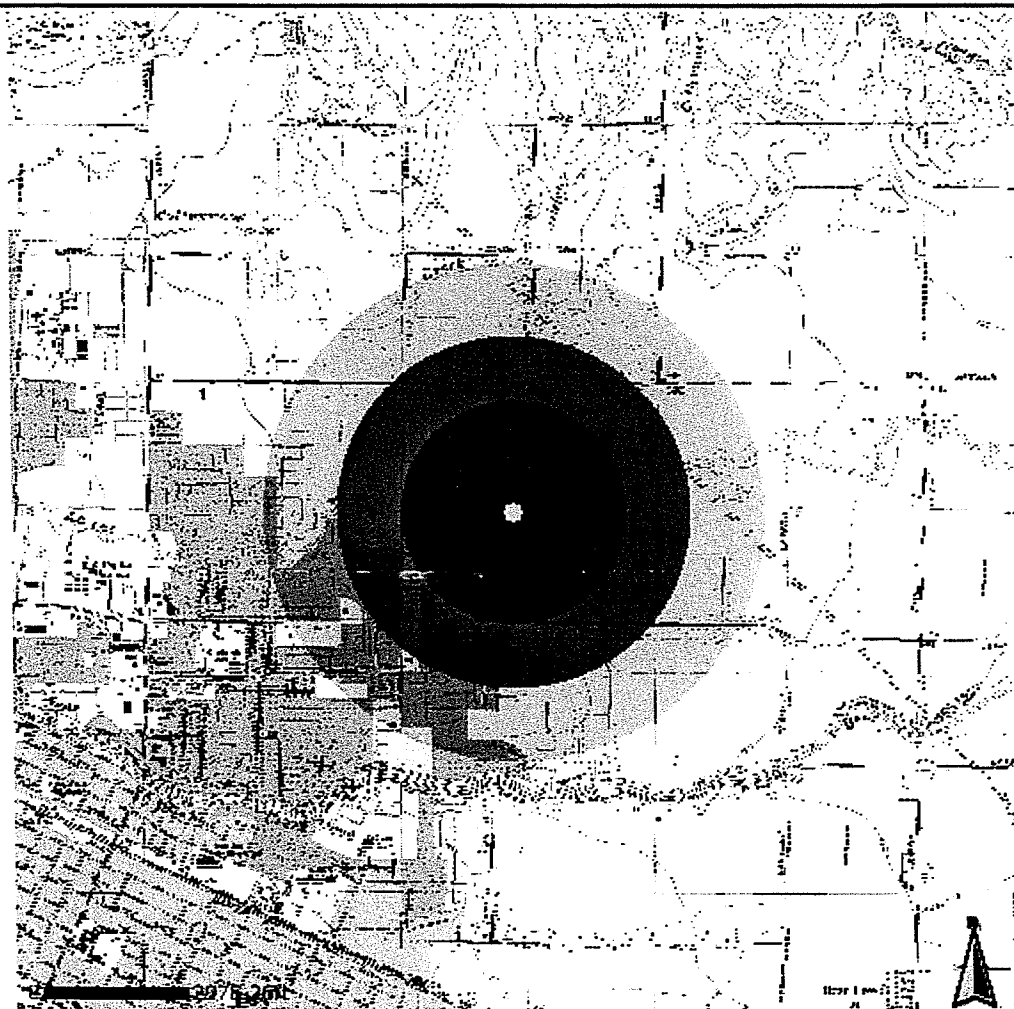
Vulnerability Ranking

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 07B - RAW Source No. 014 PS Code 2410009-014
 Completed by Patrick Riggs Date March, 2003

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	Agricultural Drainage (H in Zone A, otherwise M)		5	5	1	11
A	Farm chemical distributor/ application service (H)		5	5	1	11
A	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
B5	Farm chemical distributor/ application service (H)		5	3	1	9
5	Wells - Agricultural/ Irrigation (H)		5	3	1	9

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

DWSAP Ground Water Zone Interface



Well Position *	GPS'd	Longitude	Latitude
	Yes	-120.443	37.325

* Well location coordinates have been rounded to 3 decimal places due to security concerns.

Well Statistics	
Well Number	2410009022
Media Type	Porous Media
System Type	All Other System
Effective Porosity (n , decimal percent)	.2
Screened Interval (H , feet)	92
Pumping Capacity (Q , gpm)	2200
Azimuth of Flow (a , degrees)	0 - No Translation

Radii Measures	
Defaults Used	No
R2	2313 ft
R5	3658 ft
R10	5171 ft



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Coding by Eric Lehmer
Mapping System produced using ESRI ArcIMS

Drinking Water Source Assessment

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

Assessment Summary

District Name City of Merced District No. M4 County Merced
System Name MERCED, CITY OF System No. 2410009
Source Name WELL 07C Source No. 022 PS Code 2410009-022
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 Sierra 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

Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Location Form
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Delineation of Ground Water Protection Zones
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Physical Barrier Effectiveness Checklist
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Data Sheet
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Inventory of Possible Contaminating Activities
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Ranking
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Map

Vulnerability Summary

District Name City of Merced District No. M4 County Merced
System Name MERCED, CITY OF System No. 2410009
Source Name WELL 07C Source No. 022 PS Code 2410009-022
Completed by Patrick Riggs Date March, 2003

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for the WELL 07C
of the MERCED, CITY OF water system in March, 2003

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

- Agricultural Drainage
- Farm chemical distributor/ application service
- Septic systems - low density
- Sewer collection systems
- Wells - Agricultural/ Irrigation

Discussion of Vulnerability

City 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

Source Location Information

Record No: 39

System Info: Number 2410009 Name CITY OF MERCED

Source Info: Number 7C Name

PSCode 2410009 SWellNo 2410009014

Input By: Person PATRICK RIGGS Date 4/1/203 (mm/dd/yyyy)

Location Information: Latitude 37.325000 Horizontal Datum NAD83

Longitude -120.443000 Datum, if Other

Description/Comments:

Method of Determination: USGS ☐ GPS ☒ OtherMethod ☐

Method

Scale

Scale, if Other

Map Published

Map Revised

Unit Leica/530

Grade Survey(eg.

Differential Correction ☒

Accuracy

Scale

Find

Exit

Cancel

Save

Delete

Edit

Add

Help

Delineation of Ground Water Protection Zones

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 07C Source No. 022 PS Code 2410009-022
 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>2,800</u>	gallons/minute
	<u>4,517</u>	acre feet/year
	<u>196,747,600</u>	cubic feet/year
Effective Porosity	<u>0.20</u>	<input checked="" type="checkbox"/> Default Value
Screened Interval of Well	<u>135</u>	feet <input type="checkbox"/> 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	3,406 Feet
Zone B10 - 10 Year TOT*	4,816 Feet	1,500 Feet	4,816 Feet

*TOT = Time of Travel

Physical Barrier Effectiveness (PBE)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 07C Source No. 022 PS Code 2410009-022

Completed by Patrick Riggs Date March, 2003

Parameter	Possible Points	This Source	Score
Type of Aquifer			
Confinement			
1. Unconfined, Semi-confined, Fractured Rock, Unknown Aquifer	0		
2. Confined	50	X	50
Pathways of Contamination (All Aquifers)			
Presence of Abandoned 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 distance)			
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		
Hydraulic Head (Confined Aquifers)			
What is the relationship in the hydraulic head between the confined aquifer and the overlying unconfined aquifer? (i.e. does the well flow under artesian conditions?)			
1. Head in confined aquifer is higher than head in unconfined aquifer under all conditions.	20	X	20
2. Head in confined aquifer is higher than head in unconfined aquifer under static conditions.	10		
3. Head in confined aquifer is lower than or same as head in unconfined aquifer under static conditions.	0		
4. Unknown	0		
Well Construction (All Aquifers)			
Sanitary Seal (Annular Seal) Depth			
<u>0</u> feet			
None of less than 20 feet	0		
Between 20 and 50 feet	6		
50 feet or greater	10		
Unknown	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 MERCED, CITY OFSystem No. 2410009Source Name WELL 07CSource No. 022PS Code 2410009-022

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	X	5
	Unknown	0		

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

Maximum Score = 100

Score	<u>90</u>
Effectiveness	<u>High</u>

WELL DATA SHEET (Page 1 of 2)

<i>Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.</i>		
<i>* Indicates items required for Source Water Assessment</i>		
<i>* Indicates additional items required for assessments and Ground Water Rule</i>		
		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		
* Well Number or Name	Well 7C	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		
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	
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)	215'	
Distance to Abandoned Wells (ft)	None	
Distance to Surface Water (ft)	80'	
** 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)	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 (building, vault, none, etc.)	none	
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); 2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	0/266'	
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)

<i>Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.</i>		
<i>* Indicates items required for Source Water Assessment</i>		
<i>** Indicates additional items required for assessments and Ground Water Rule</i>		
		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")	335'	
Screened Interval Beginning Depth/Ending Depth (ft below surface); 2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	(335'-375') (450'-505') (560'-600')	
* Total length of screened interval (ft) (default = 10% pump capacity in gpm) (or "UNKNOWN")	135'	
* 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)	10'	
Depth to confining layer, if known (ft below ground)	22'	
* 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)	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		
Make	Peabody / Floway	
Type	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	
Pump to Waste capability? ("YES" or "NO")	YES	
Discharges to: (i.e., distribution system, storage, etc.)	Tank #7	

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)	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 Contaminating Activities (PCA Inventory)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 07C Source No. 022 PS Code 2410009-022

Completed by Patrick Riggs Date March, 2003

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		
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		
Parks (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 regulation ¹ (VH in Zone A, otherwise H)	N	N	N		
Animal Feeding Operations as defined in federal regulation ² (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		

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 OFSystem No. 2410009Source Name WELL 07CSource No. 022PS 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		
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		
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		
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		
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		
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	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

* = 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 OFSystem No. 2410009Source Name WELL 07CSource No. 022PS Code 2410009-022

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)	Y	Y	Y		
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)	N	N	N		
Transportation corridors - Railroads (M)	N	N	N		
Transportation corridors - Historic railroad right-of-ways	N	N	N		
Transportation corridors - Road Right-of-ways (herbicide use areas) (M)	Y	Y	Y		
Transportation corridors - Roads/ Streets (L)	N	N	N		
Hospitals (M)	N	N	N		
Storm Drain Discharge Points (M)	N	N	N		
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 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		
Veterinary offices/clinics (L)	N	N	N		
Surface water - streams/ lakes/rivers (L)	N	N	N		
Wells - monitoring, test holes (L)	Y	N	N		Onsite monitoring wells.

Y = Yes N = No U = Unknown

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

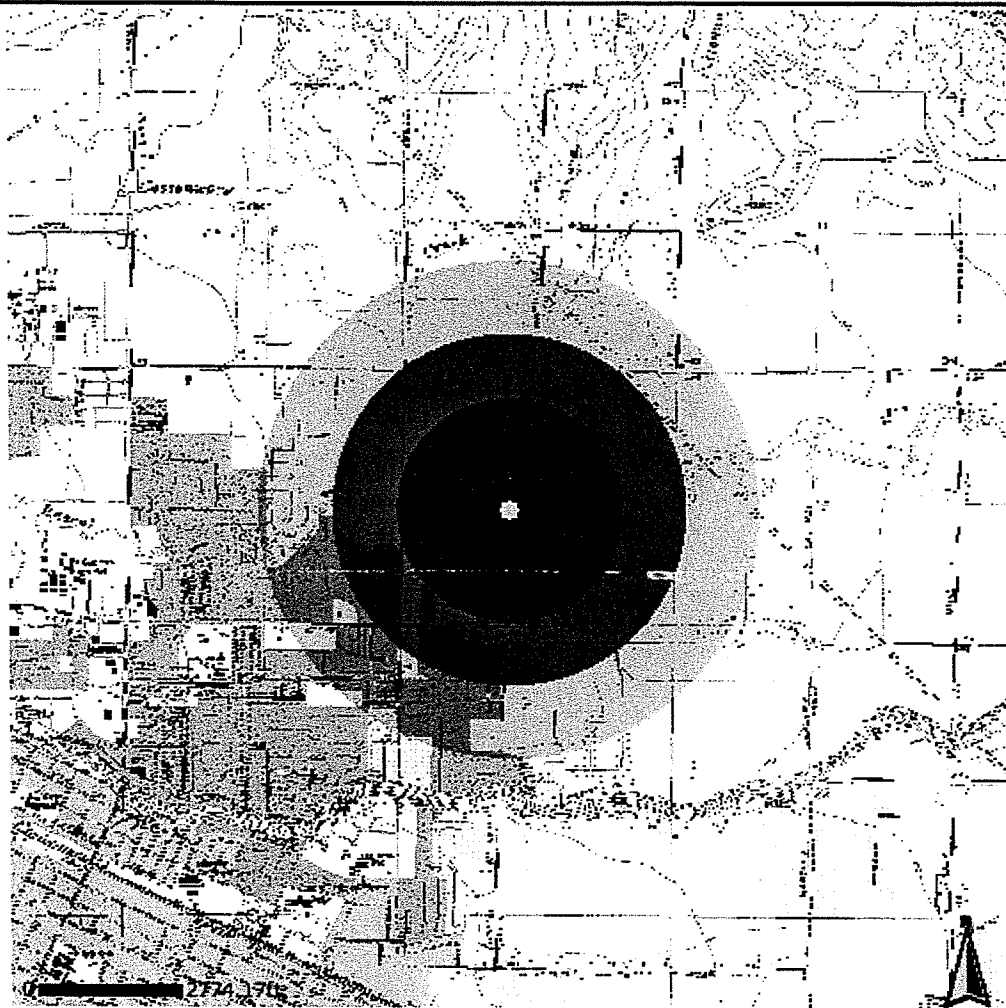
Vulnerability Ranking

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 07C Source No. 022 PS Code 2410009-022
 Completed by Patrick Riggs Date March, 2003

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	Agricultural Drainage (H in Zone A, otherwise M)		5	5	1	11
A	Farm chemical distributor/ application service (H)		5	5	1	11
A	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
B5	Farm chemical distributor/ application service (H)		5	3	1	9
B5	Wells - Agricultural/ Irrigation (H)		5	3	1	9

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

DWSAP Ground Water Zone Interface



Well Position *	GPS'd	Longitude	Latitude
	Yes	-120.444	37.325
* Well location coordinates have been rounded to 3 decimal places due to security concerns.			

Well Statistics	
Well Number	2410009014
Media Type	Porous Media
System Type	All Other System
Effective Porosity (n , decimal percent)	.2
Screened Interval (H , feet)	135
Pumping Capacity (Q , gpm)	2800
Azimuth of Flow (a , degrees)	0 - No Translation

Radii Measures	
Defaults Used	No
R2	2152 ft
R5	3405 ft
R10	4816 ft



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

Assessment Summary

District Name 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 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Location Form
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Delineation of Ground Water Protection Zones
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Physical Barrier Effectiveness Checklist
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Data Sheet
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Inventory of Possible Contaminating Activities
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Ranking
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Map

Vulnerability Summary

District Name 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 2410009-015
Completed by Patrick Riggs Date March, 2003

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for the WELL 08 - RAW
of the MERCED, CITY OF water system in March, 2003

The source is considered most vulnerable to the following activities associated with contaminants detected in the water supply:

- Dry cleaners
- Historic gas stations
- Known Contaminant Plumes
- Underground storage tanks - Confirmed leaking tanks
- Chemical/petroleum pipelines

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

- Agricultural Drainage
- Recreational area - surface water source
- Sewer collection systems
- Wells - Agricultural/ Irrigation

Discussion of Vulnerability

City of Merced Well Station #8 houses one municipal groundwater well 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

Source Location Information

Record No: 740

System Info: Number 2410009 Name CITY OF MERCED

Source Info: Number 8 Name

PSCode 2410009 SIWellNo 2410009015

Input By: Person PATRICK RIGGS Date 4/1/2003 (mm/dd/yyyy)

Location Information: Latitude 37.308000 Horizontal Datum NAD83

Longitude -120.504000 Datum, if Other

Description/Comments:

Method of Determination: USGS ☐ GPS ☒ OtherMethod ☐

Method Leica/530 Method

Scale Survey(eg. If Other

Scale, if Other: Differential Correction ☒ Accuracy

Map Published Scale

Map Revised

Find < > >> Add Edit Delete Save Cancel Exit Help

Delineation of Ground Water Protection Zones

District Name 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 2410009-015
 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) 2,000 gallons/minute

3,226 acre feet/year

140,534,000 cubic feet/year

Effective Porosity 0.20

☒ Default Value

Screened Interval of Well 192 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

Physical Barrier Effectiveness (PBE)

District Name 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 2410009-015

Completed by Patrick Riggs Date March, 2003

Parameter	Possible Points	This Source	Score
Type of Aquifer			
Confinement			
1. Unconfined, Semi-confined, Fractured Rock, Unknown Aquifer	0		
2. Confined	50	X	50
Pathways of Contamination (All Aquifers)			
Presence of Abandoned 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 distance)			
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		
Hydraulic Head (Confined Aquifers)			
What is the relationship in the hydraulic head between the confined aquifer and the overlying unconfined aquifer? (i.e. does the well flow under artesian conditions?)			
1. Head in confined aquifer is higher than head in unconfined aquifer under all conditions.	20	X	20
2. Head in confined aquifer is higher than head in unconfined aquifer under static conditions.	10		
3. Head in confined aquifer is lower than or same as head in unconfined aquifer under static conditions.	0		
4. Unknown	0		
Well Construction (All Aquifers)			
Sanitary Seal (Annular Seal) Depth			
<u>0</u> feet			
None of less than 20 feet	0		
Between 20 and 50 feet	6		
50 feet or greater	10		
Unknown	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 MERCED, CITY OFSystem No. 2410009Source Name WELL 08 - RAWSource No. 015PS Code 2410009-015

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	X	5
	Unknown	0		

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

Maximum Score = 100

Score	<u>90</u>
Effectiveness	<u>High</u>

WELL DATA SHEET (Page 1 of 2)

Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.

* Indicates items required for Source Water Assessment

** Indicates additional items required for assessments and Ground Water 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 08	from DHS database
* 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 2002
Longitude	-120.504	City Surveyed 2002
Ground Surface Elevation (ft above Mean Sea Level)	172.35	City Surveyed 2002
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		
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	1974	
Drilling Method	Rotary	
Depth of Bore Hole (feet below ground surface)	294'	
Casing Beginning Depth/Ending Depth(ft below surface); 2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	0/294'	
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)

<i>Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.</i>		
<i>* Indicates items required for Source Water Assessment</i>		
<i>* Indicates additional items required for assessments and Ground Water Rule</i>		
		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")	102'	
Screened Interval Beginning Depth/Ending Depth (ft below surface); 2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	102'-294'	
* Total length of screened interval (ft) (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 (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)	42'	
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)	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	
Type	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	
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: _____	
** 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)	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 No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 08 - RAW Source No. 015 PS Code 2410009-015

Completed by Patrick 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)	N	N	Y		
Automobile- Car washes (M)	N	N	N		
Automobile- Gas stations (VH)	N	N	Y		
Automobile- Repair shops (H)	N	N	N		
Boat services/repair/ refinishing (H)	N	Y	Y		
Chemical/petroleum 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 terminals (H)	N	N	N		
Furniture repair/ manufacturing (H)	N	N	N		
Home manufacturing (H)	N	N	N		
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)	N	N	Y		Industrial photo finishing facility on outer fringe of zone B10.
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		Industrial business park.
Cement/concrete plants (M)	N	N	N		
Food processing (M)	Y	Y	Y		Tomato processing and juice processing plants in area.
Funeral services/graveyards (M)	N	N	N		
Hardware/lumber/parts stores (M)	N	N	Y		Hardware store.
Appliance/Electronic Repair (L)	N	N	N		

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 OFSystem No. 2410009Source Name WELL 08 - RAWSource No. 015PS Code 2410009-015

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Commercial/Industrial Activities					
Office buildings/complexes (L)	Y	Y	Y		Industrial park.
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	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		
ousing - high density (>1 house/0.5 acres) (M)	Y	Y	Y		
Motor pools (M)	N	N	N		
Parks (M)	N	N	Y		
Waste transfer/recycling stations (M)	N	N	N		
Apartments and condominiums (L)	Y	Y	Y		
Campgrounds/ Recreational 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 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		

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 OFSystem No. 2410009Source Name WELL 08 - RAWSource No. 015PS Code 2410009-015

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Agricultural/Rural Activities					
Farm chemical distributor/ application service (H)	N	Y	Y		
Farm machinery repair (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 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)	N	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, grasses, 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)	N	Y	Y	*	UST site in B5 and B10 zones.
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	*	Petroleum hydrocarbons.
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)	Y	Y	Y		Bear Creek
Underground storage tanks - Confirmed leaking tanks (VH)	Y	Y	Y	*	

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 OFSystem No. 2410009Source Name WELL 08 - RAWSource No. 015PS Code 2410009-015

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other Activities					
Underground storage tanks - Decommissioned - inactive tanks (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		
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)	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)	N	N	N		
Storm Drain Discharge Points (M)	Y	Y	Y		Bear Creek.
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 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		
Veterinary offices/clinics (L)	N	N	N		
Surface water - streams/ lakes/rivers (L)	Y	Y	Y		Bear Creek and MID canals.
Wells - monitoring, test holes (L)	Y	Y	Y		Monitoring petroleum contamination.

Y = Yes N = No U = Unknown

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

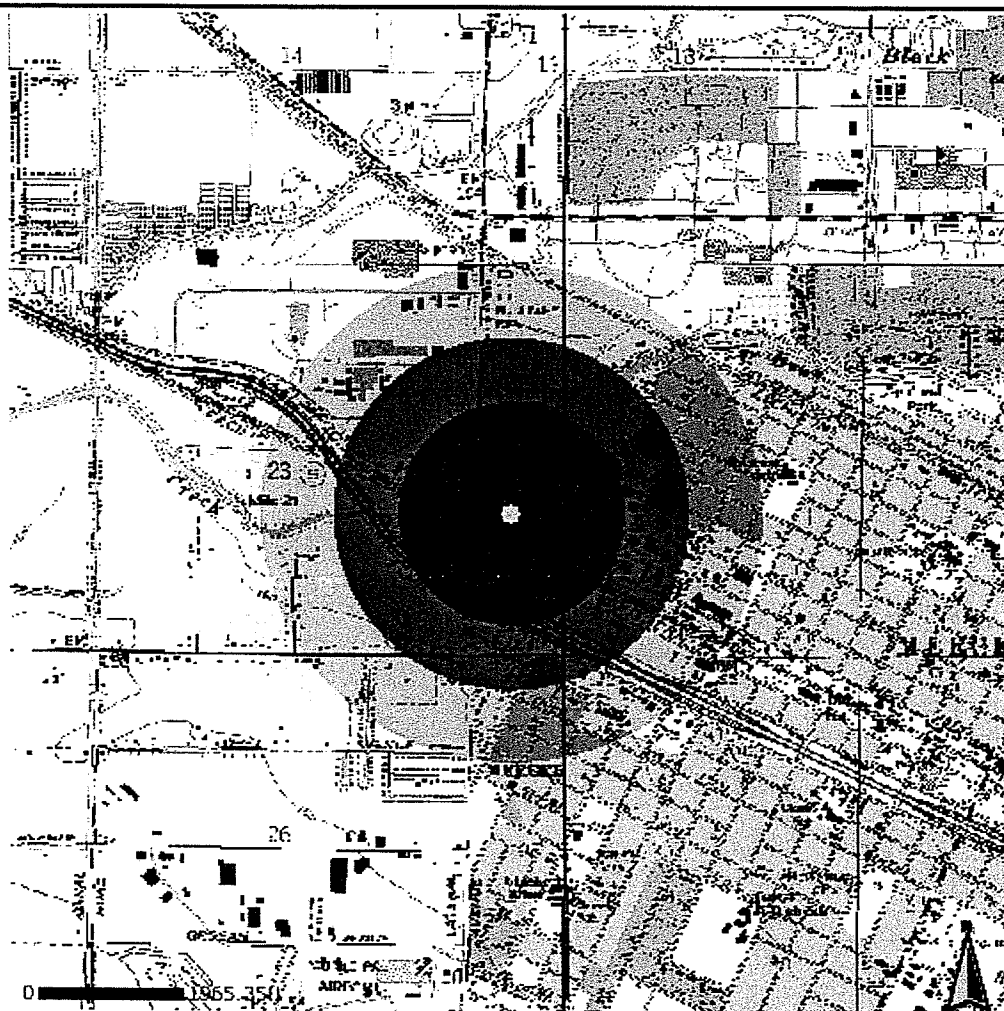
Vulnerability Ranking

District Name 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 2410009-015
 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
A	Underground storage tanks - Confirmed leaking tanks (VH)	*	7	5	1	13
B5	Historic gas stations (VH)	*	7	3	1	11
B5	Known Contaminant Plumes (VH)	*	7	3	1	11
B5	Underground storage tanks - Confirmed leaking tanks (VH)	*	7	3	1	11
B5	Chemical/petroleum pipelines (H)	*	5	3	1	9
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
B10	Chemical/petroleum pipelines (H)	*	5	1	1	7
	Agricultural Drainage (H in Zone A, otherwise M)		5	5	1	11
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	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	Fertilizer, Pesticide/ Herbicide Application (M)		3	5	1	9
A	Food processing (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
A	Transportation corridors - Freeways/state highways (M)		3	5	1	9
A	Transportation corridors - Railroads (M)		3	5	1	9
A	Transportation corridors - Road Right-of-ways (herbicide use areas) (M)		3	5	1	9
B5	Boat services/repair/ refinishing (H)		5	3	1	9
B5	Farm chemical distributor/ application service (H)		5	3	1	9
B5	Recreational area - surface water source (H)		5	3	1	9
B5	Wells - Agricultural/ Irrigation (H)		5	3	1	9
10	Automobile- Gas stations (VH)		7	1	1	9

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

DWSAP Ground Water Zone Interface



Well Position *	GPS'd	Longitude	Latitude
	Yes	-120.504	37.308
* Well location coordinates have been rounded to 3 decimal places due to security concerns.			

Well Statistics

Well Number	2410009015
Media Type	Porous Media
System Type	All Other System
Effective Porosity (n , decimal percent)	.2
Screened Interval (H , feet)	192
Pumping Capacity (Q , gpm)	2000
Azimuth of Flow (a , degrees)	0 - No Translation

Radii Measures

Defaults Used	No
R2	1526 ft
R5	2415 ft
R10	3412 ft



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Coding by Eric Lehmer

Mapping System produced using ESRI ArcIMS

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

Assessment Summary

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 09 - RAW Source No. 016 PS Code 2410009-016
 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 Sierra 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Location Form
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Delineation of Ground Water Protection Zones
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Physical Barrier Effectiveness Checklist
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Data Sheet
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Inventory of Possible Contaminating Activities
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Ranking
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Map

Vulnerability Summary

District Name City of Merced District No. M4 County Merced
System Name MERCED, CITY OF System No. 2410009
Source Name WELL 09 - RAW Source No. 016 PS Code 2410009-016
Completed by Patrick Riggs Date March, 2003

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for the WELL 09 - RAW
of the MERCED, CITY OF water system in March, 2003

The source is considered most vulnerable to the following activities associated with contaminants detected in the water supply:

Automobile- Gas stations

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

Chemical/petroleum pipelines
Home manufacturing
Photo processing/printing
Recreational area - surface water source
Sewer collection systems

Discussion of Vulnerability

City of Merced Well Station #9 houses one municipal groundwater well 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

Source Location Information

Record No: 41

System Info: Number 2410009 Name CITY OF MERCED

Source Info: Number 9 Name

PSCode 2410009 SWellNo 2410009016

Input By: Person PATRICK RIGGS Date 4/1/2003 (mm/dd/yyyy)

Location Information: Latitude 37.326000 Horizontal Datum NAD83

Longitude -120.488000 Datum, if Other

Description/
Comments:

Method of
Determination:

☐

USGS

☐

GPS

☒

OtherMethod

☐

Method

☐

Unit

☐

Grade

☐

Differential

☒

Correction

☐

Method

☐

If Other

☐

Scale

☐

Accuracy

☐

Scale

☐

Map Published

☐

Map Revised

☐

Find | I4 | < | > | < | > | Add | Edit | Delete | Save | Cancel | Exit | Help

Delineation of Ground Water Protection Zones

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 09 - RAW Source No. 016 PS Code 2410009-016
 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) 1,800 gallons/minute
2,904 acre feet/year
126,480,600 cubic feet/year

Effective Porosity 0.20 ☒ Default Value

Screened Interval of Well 136 feet ☐ Default Value

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	2,720 Feet
Zone B10 - 10 Year TOT*	3,847 Feet	1,500 Feet	3,847 Feet

*TOT = Time of Travel

Physical Barrier Effectiveness (PBE)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 09 - RAW Source No. 016 PS Code 2410009-016
 Completed by Patrick Riggs Date March, 2003

Parameter	Possible Points	This Source	Score
Type of Aquifer			
Confinement			
1. Unconfined, Semi-confined, Fractured Rock, Unknown Aquifer	0		
2. Confined	50	X	50
Pathways of Contamination (All Aquifers)			
Presence of Abandoned 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 distance)			
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		
Hydraulic Head (Confined Aquifers)			
What is the relationship in the hydraulic head between the confined aquifer and the overlying unconfined aquifer? (i.e. does the well flow under artesian conditions?)			
1. Head in confined aquifer is higher than head in unconfined aquifer under all conditions.	20	X	20
2. Head in confined aquifer is higher than head in unconfined aquifer under static conditions.	10		
3. Head in confined aquifer is lower than or same as head in unconfined aquifer under static conditions.	0		
4. Unknown	0		
Well Construction (All Aquifers)			
Sanitary Seal (Annular Seal) Depth			
<u>0</u> feet			
None of less than 20 feet	0		
Between 20 and 50 feet	6		
50 feet or greater	10		
Unknown	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 MERCED, CITY OFSystem No. 2410009Source Name WELL 09 - RAWSource No. 016PS Code 2410009-016

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	X	5
	Unknown	0		

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

Maximum Score = 100

Score	<u>90</u>
Effectiveness	<u>High</u>

WELL DATA SHEET (Page 1 of 2)

<i>Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.</i>		
<i>* Indicates items required for Source Water Assessment</i>		
<i>** Indicates additional items required for assessments and Ground Water Rule</i>		
		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 09	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)

<i>Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.</i>		
<i>* Indicates items required for Source Water Assessment</i>		
<i>* Indicates additional items required for assessments and Ground Water Rule</i>		
		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); 2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	(230-240) (280-290) (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? ("YES", "NO" or "UNKNOWN")	YES	
Thickness of confining layer, if known (ft)	100'-190'	
Depth to confining layer, if known (ft below ground)	90'	
* 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		
Make	Peabody / Floway	
Type	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: _____	
** 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)	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 No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 09 - RAW Source No. 016 PS Code 2410009-016

Completed by Patrick 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)	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		
Furniture repair/ manufacturing (H)	N	N	N		
Iron 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		
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	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		

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 OFSystem No. 2410009Source Name WELL 09 - RAWSource No. 016PS Code 2410009-016

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Commercial/Industrial Activities					
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		
Housing - high density (>1 house/0.5 acres) (M)	Y	Y	Y		
Motor pools (M)	N	N	N		
Parks (M)	Y	Y	Y		Parks throughout city.
Waste transfer/recycling stations (M)	N	N	N		
Apartments and condominiums (L)	Y	Y	Y		
Campgrounds/ Recreational areas (L)	N	N	N		
Fire stations (L)	N	Y	N		
RV Parks (L)	N	N	N		
Schools (L)	Y	Y	Y		Merced College, Merced High School.
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		
Farm machinery repair (H)	N	N	N		

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 OFSystem No. 2410009Source Name WELL 09 - RAWSource No. 016PS Code 2410009-016

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		
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	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)	N	N	N		
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)	Y	Y	Y		Black Rascal Creek.
Underground storage tanks - Confirmed leaking tanks (VH)	N	N	Y		UST site gained closure from RWQCB.
Underground storage tanks - Decommissioned - inactive tanks (L)	Y	N	N		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 OFSystem No. 2410009Source Name WELL 09 - RAWSource No. 016PS Code 2410009-016

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)	Y	N	N		Convault tank on well site.
Wells - Water supply (M)	N	N	Y		One city production well, misc. private wells.
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)	N	N	N		
Transportation corridors - Railroads (M)	N	Y	Y		
Transportation corridors - Historic railroad right-of-ways	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)	N	N	N		
Storm Drain Discharge Points (M)	Y	Y	Y		Black Rascal Creek receptor.
Storm Water Detention Facilities (M)	N	Y	Y		SW 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 clinics.
Veterinary offices/clinics (L)	N	N	N		
Surface water - streams/ lakes/rivers (L)	Y	Y	Y		Black Rascal Creek.
Wells - monitoring, test holes (L)	Y	Y	Y		Four at well site, Olive Ave for former petroleum plume.

Y = Yes N = No U = Unknown

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

Vulnerability Ranking

District Name City of Merced District No. M4 County Merced

System Name MERCED, CITY OF System No. 2410009

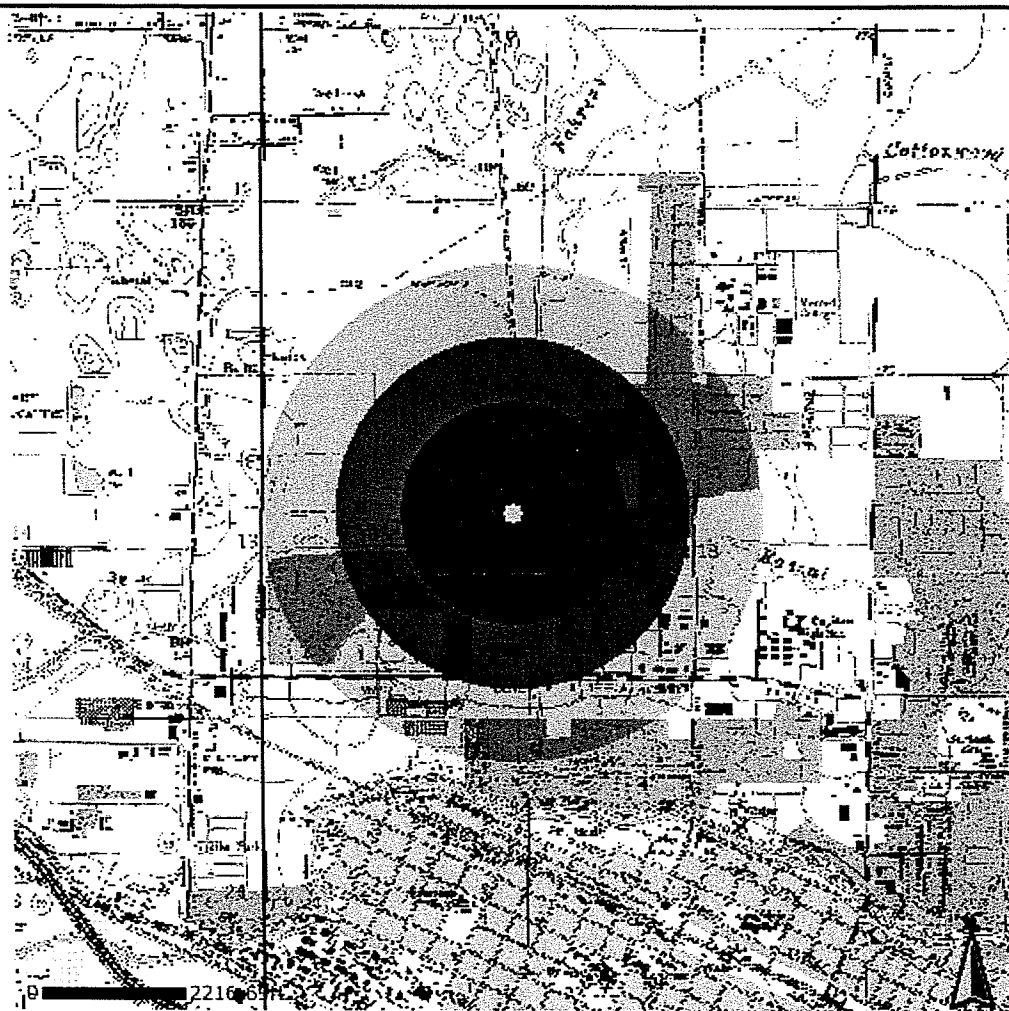
Source Name WELL 09 - RAW Source No. 016 PS Code 2410009-016

Completed by Patrick Riggs Date March, 2003

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	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/petroleum pipelines (H)		5	5	1	11
A	Home manufacturing (H)		5	5	1	11
A	Photo processing/printing (H)		5	5	1	11
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	11
A	Sewer collection systems (H, if in Zone A, otherwise L)		5	5	1	11
A	Above ground storage tanks (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	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	Transportation corridors - Road Right-of-ways (herbicide use areas) (M)		3	5	1	9
B5	Chemical/petroleum pipelines (H)		5	3	1	9
B5	Home manufacturing (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
B5	Wells - Agricultural/ Irrigation (H)		5	3	1	9
B10	Historic gas stations (VH)		7	1	1	9
B10	Underground storage tanks - Confirmed leaking tanks (VH)		7	1	1	9

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

DWSAP Ground Water Zone Interface



Well Position *	GPS'd	Longitude	Latitude
	Yes	-120.488	37.326
* Well location coordinates have been rounded to 3 decimal places due to security concerns.			

Well Statistics

Well Number	2410009016
Media Type	Porous Media
System Type	All Other System
Effective Porosity (n , decimal percent)	.2
Screened Interval (H , feet)	136
Pumping Capacity (Q , gpm)	1800
Azimuth of Flow (a , degrees)	0 - No Translation

Radii Measures

Defaults Used	No
R2	1719 ft
R5	2720 ft
R10	3848 ft



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Coding by Eric Lehmer

Mapping System produced using ESRI ArcIMS

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

Assessment Summary

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 10B - RAW Source No. 018 PS Code 2410009-018
 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 Sierra 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Location Form
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Delineation of Ground Water Protection Zones
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Physical Barrier Effectiveness Checklist
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Data Sheet
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Inventory of Possible Contaminating Activities
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Ranking
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Map

Vulnerability Summary

District Name City of Merced District No. M4 County Merced
System Name MERCED, CITY OF System No. 2410009
Source Name WELL 10B - RAW Source No. 018 PS Code 2410009-018
Completed by Patrick Riggs Date March, 2003

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for the WELL 10B - RAW
of the MERCED, CITY OF water system in March, 2003

The source is considered most vulnerable to the following activities associated with contaminants detected in the water supply:

Known Contaminant Plumes
Fertilizer, Pesticide/ Herbicide Application
Wells - monitoring, test holes

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

Agricultural Drainage
Septic systems - low density
Wells - Agricultural/ Irrigation

Discussion 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 arise.

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

Source Location Information

Record No: 42

System Info: Number 2410009 Name CITY OF MERCED

Source Info: Number 10B Name

PSCode 2410009 SWellNo 2410009018

Input By: Person PATRICK RIGGS Date 4/1/2003 (mm/dd/yyyy)

Location Information: Latitude 37.289000 Horizontal Datum NAD83

Longitude -120.424000 Datum, if Other

Description/Comments:

Method of Determination: USGS ☐ GPS ☒ OtherMethod ☐

Method Leica/530

Scale Survey/eg.

Scale, if Other: ☒ Differential Correction

Map Published Accuracy

Map Revised Scale

Find | < | > | Add | Edit | Delete | Save | Cancel | Exit | Help

Delineation of Ground Water Protection Zones

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 10B - RAW Source No. 018 PS Code 2410009-018
 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>3,000</u>	gallons/minute
	<u>4,839</u>	acre feet/year
	<u>210,801,000</u>	cubic feet/year
Effective Porosity	<u>0.20</u>	<input checked="" type="checkbox"/> Default Value
Screened Interval of Well	<u>475</u>	feet <input type="checkbox"/> Default Value

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

*TOT = Time of Travel

Physical Barrier Effectiveness (PBE)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 10B - RAW Source No. 018 PS Code 2410009-018
 Completed by Patrick Riggs Date March, 2003

Parameter	Possible Points	This Source	Score
Type of Aquifer			
Confinement			
1. Unconfined, Semi-confined, Fractured Rock, Unknown Aquifer	0		
2. Confined	50	X	50
Pathways of Contamination (All Aquifers)			
Presence of Abandoned 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 distance)			
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		
Hydraulic Head (Confined Aquifers)			
What is the relationship in the hydraulic head between the confined aquifer and the overlying unconfined aquifer? (i.e. does the well flow under artesian conditions?)			
1. Head in confined aquifer is higher than head in unconfined aquifer under all conditions.	20	X	20
2. Head in confined aquifer is higher than head in unconfined aquifer under static conditions.	10		
3. Head in confined aquifer is lower than or same as head in unconfined aquifer under static conditions.	0		
4. Unknown	0		
Well Construction (All Aquifers)			
Sanitary Seal (Annular Seal) Depth			
None of less than 20 feet	0		
Between 20 and 50 feet	6		
50 feet or greater	10		
Unknown	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 MERCED, CITY OFSystem No. 2410009Source Name WELL 10B - RAWSource No. 018PS Code 2410009-018

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	X	5
	Unknown	0		

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

Maximum Score = 100

Score	<u>90</u>
Effectiveness	<u>High</u>

WELL DATA SHEET (Page 1 of 2)

<i>Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.</i>		
<i>* Indicates items required for Source Water Assessment</i>		
<i>** Indicates additional items required for assessments and Ground Water Rule</i>		
		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 10B	from DHS database
* 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)	Standby	
WELL LOCATION		
Latitude	37.289	City Surveyed 2002
Longitude	-120.424	City Surveyed 2002
Ground Surface Elevation (ft above Mean Sea Level)	189.49	City Surveyed 2002
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)	
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")	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	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)

<i>Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.</i>		
<i>* Indicates items required for Source Water Assessment</i>		
<i>* Indicates additional items required for assessments and Ground Water Rule</i>		
		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) (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'	
* 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)	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)	52.35 MG (2002)	
Frequency of Use (hours/year)	730.0	
Typical pumping duration (hours/day)	2.0	
PUMP		
Make	Peabody / Floway	
Type	VFD	
Size (hp)	300 HP	
* Capacity (gpm)	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.)	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: _____	
** Type of Sanitary Concern: _____	
** Type of Sanitary Concern: _____	
** 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	

Inventory of Possible Contaminating Activities (PCA Inventory)

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

Completed by Patrick Riggs Date March, 2003

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)	N	N	N		
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		
ks (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)	N	Y	Y		
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		
Farm machinery repair (H)	N	N	N		

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 OFSystem No. 2410009Source Name WELL 10B - RAWSource No. 018PS Code 2410009-018

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		
Pesticide/fertilizer/ petroleum storage & transfer areas (H)	N	N	N		
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	*	Dibromochloropropane (DBCP) plume in area has impacted well.
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		
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		
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	*	DBCP plume, TCE plume impacting well.
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		
Underground storage tanks - Confirmed leaking tanks (VH)	N	N	N		
Underground storage tanks - Decommissioned - inactive	N	N	N		

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 OFSystem No. 2410009Source Name WELL 10B - RAWSource No. 018PS Code 2410009-018

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other Activities					
tanks (L)					
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)	N	N	N		
Transportation corridors - Railroads (M)	N	N	N		
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)	N	N	N		
Storm Drain Discharge Points (M)	Y	Y	Y		MID and irrigation canals.
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 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		
Veterinary offices/clinics (L)	N	N	N		
Surface water - streams/ lakes/rivers (L)	Y	Y	Y		MID and irrigation canals.
Wells - monitoring, test holes (L)	Y	Y	Y	*	Monitoring TCE and DBCP plume. Two on well site.

Y = Yes N = No U = Unknown

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

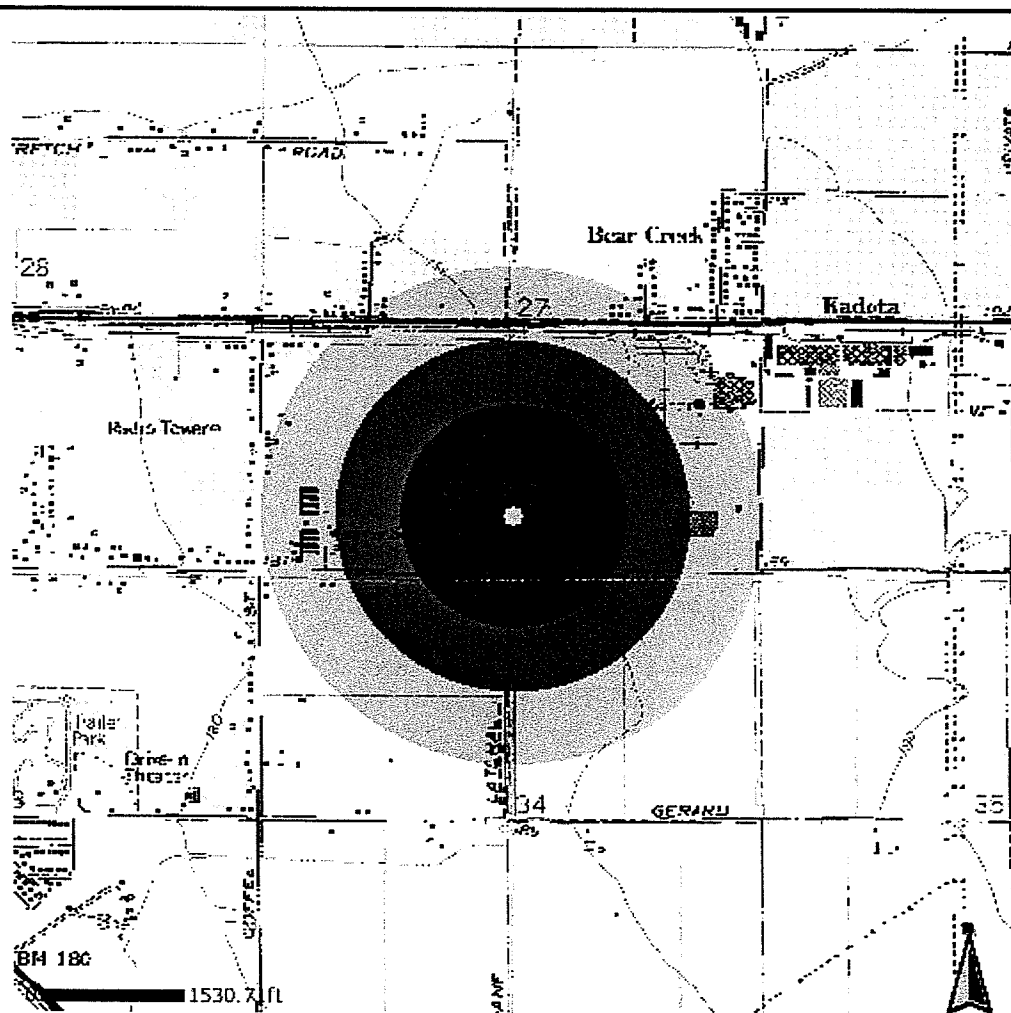
Vulnerability Ranking

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 10B - RAW Source No. 018 PS Code 2410009-018
 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
A	Fertilizer, Pesticide/ Herbicide Application (M)	*	3	5	1	9
B10	Known Contaminant Plumes (VH)	*	7	1	1	9
A	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
A	Agricultural Drainage (H in Zone A, otherwise M)		5	5	1	11
A	Septic systems - low density (<1/acre) (H 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	Housing - high density (>1 house/0.5 acres) (M)		3	5	1	9
A	Storm Drain Discharge Points (M)		3	5	1	9
A	Transportation corridors - Road Right-of-ways (herbicide use areas) (M)		3	5	1	9
B5	Wells - Agricultural/ Irrigation (H)		5	3	1	9

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

DWSAP Ground Water Zone Interface



Well Position *	GPS'd	Longitude	Latitude
	Yes	-120.424	37.289

* Well location coordinates have been rounded to 3 decimal places due to security concerns.

Well Statistics		Radii Measures	
Well Number	2410009018	Defaults Used	No
Media Type	Porous Media	R2	1188 ft
System Type	All Other System	R5	1880 ft
Effective Porosity (n , decimal percent)	.2	R10	2657 ft
Screened Interval (H , feet)	475		
Pumping Capacity (Q , gpm)	3000		
Azimuth of Flow (a , degrees)	0 - No Translation		



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Coding by Eric Lehmer
Mapping System produced using ESRI ArcIMS

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

District No.	M4
System No.	2410009
Source No.	019
PS Code	2410009-019

Assessment Summary

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 11 - RAW Source No. 019 PS Code 2410009-019
 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 Sierra 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Location Form
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Delineation of Ground Water Protection Zones
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Physical Barrier Effectiveness Checklist
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Data Sheet
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Inventory of Possible Contaminating Activities
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Ranking
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Map

Vulnerability Summary

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

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for the WELL 11 - RAW
of the MERCED, CITY OF water system in March, 2003

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

Automobile- Gas stations

Discussion of Vulnerability

City of Merced Well Station #11 houses one municipal groundwater well 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

Source Location Information

Record No: 43

Name CITY OF MERCED

2410009

System Info: Number

Name

11

Source Info: Number

StWellNo 2410009019

2410009

PSCode

Date 4/1/2003 (mm/dd/yyyy)

PATRICK RIGGS

Input By: Person

Horizontal Datum NAD83

37.331000

Latitude

Location Information:

Datum, if Other

-120.467000

Longitude

Description/Comments:

OtherMethod

USGS

Method of Determination:

Method

GPS

Scale

If Other

Unit

Scale, if Other

Accuracy

Grade

Map Published

Differential Correction

Map Revised

Scale

Leica/530

Survey(eg.

Help

Exit

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Delineation of Ground Water Protection Zones

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 11 - RAW Source No. 019 PS Code 2410009-019
 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) 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	3,462 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

Physical Barrier Effectiveness (PBE)

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

Parameter	Possible Points	This Source	Score
Type of Aquifer			
Confinement			
1. Unconfined, Semi-confined, Fractured Rock, Unknown Aquifer	0		
2. Confined	50	X	50
Pathways of Contamination (All Aquifers)			
Presence of Abandoned 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 distance)			
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		
Hydraulic Head (Confined Aquifers)			
What is the relationship in the hydraulic head between the confined aquifer and the overlying unconfined aquifer? (i.e. does the well flow under artesian conditions?)			
1. Head in confined aquifer is higher than head in unconfined aquifer under all conditions.	20	X	20
2. Head in confined aquifer is higher than head in unconfined aquifer under static conditions.	10		
3. Head in confined aquifer is lower than or same as head in unconfined aquifer under static conditions.	0		
4. Unknown	0		
Well Construction (All Aquifers)			
Sanitary Seal (Annular Seal) Depth			
<u>0</u> feet			
None of less than 20 feet	0		
Between 20 and 50 feet	6		
50 feet or greater	10		
Unknown	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 MERCED, CITY OFSystem No. 2410009Source Name WELL 11 - RAWSource No. 019PS Code 2410009-019

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	X	5
	Unknown	0		

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

Maximum Score = 100

Score	<u>90</u>
Effectiveness	<u>High</u>

WELL DATA SHEET (Page 1 of 2)

<i>Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.</i>		
<i>* Indicates items required for Source Water Assessment</i>		
<i>* Indicates additional items required for assessments and Ground Water Rule</i>		
		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 11	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); 2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	0/418'	
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, use N.A. if not applicable.		
* Indicates items required for Source Water Assessment		
* Indicates additional items required for assessments and Ground Water 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")	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)		
Static water level measurement: Date/Method		
Pumping water level (ft below ground surface)		
Pumping water level measurement: Date/Method		
WELL PRODUCTION		
Well Yield (gpm)	3000	
Well Yield Based On (i.e., pump test, etc.)	Meter	
Date measured	3/18/2003	
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	
Type	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: _____	
** 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)	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	

Inventory of Possible Contaminating Activities (PCA Inventory)

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

Completed by Patrick 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)	N	N	N		
Automobile- Car washes (M)	Y	N	N		
Automobile- Gas stations (VH)	Y	N	N		
Automobile- Repair shops (H)	N	N	N		
Boat services/repair/ refinishing (H)	N	N	N		
Chemical/petroleum pipelines (H)	Y	N	N		Commercial Gas Station.
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		
Furniture repair/ manufacturing (H)	N	N	N		
Home manufacturing (H)	Y	Y	Y		Several new neighborhoods under construction.
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		
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	N	N		Outdoor Mall in immediate vicinity.
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		
Appliance/Electronic Repair (L)	N	N	N		
Office buildings/complexes (L)	Y	N	N		Small office complex located in outdoor mall.

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 OFSystem No. 2410009Source Name WELL 11 - RAWSource No. 019PS 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		
Housing - high density (>1 house/0.5 acres) (M)	Y	Y	Y		
Swimming 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

* = 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 OFSystem No. 2410009Source Name WELL 11 - RAWSource No. 019PS 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		
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	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 seeds, 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)	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		
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		
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

* = 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 OFSystem No. 2410009Source Name WELL 11 - RAWSource No. 019PS Code 2410009-019

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)	N	N	N		
Transportation corridors - Railroads (M)	N	N	N		
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)	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 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		
Veterinary 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.

Y = Yes N = No U = Unknown

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

Vulnerability Ranking

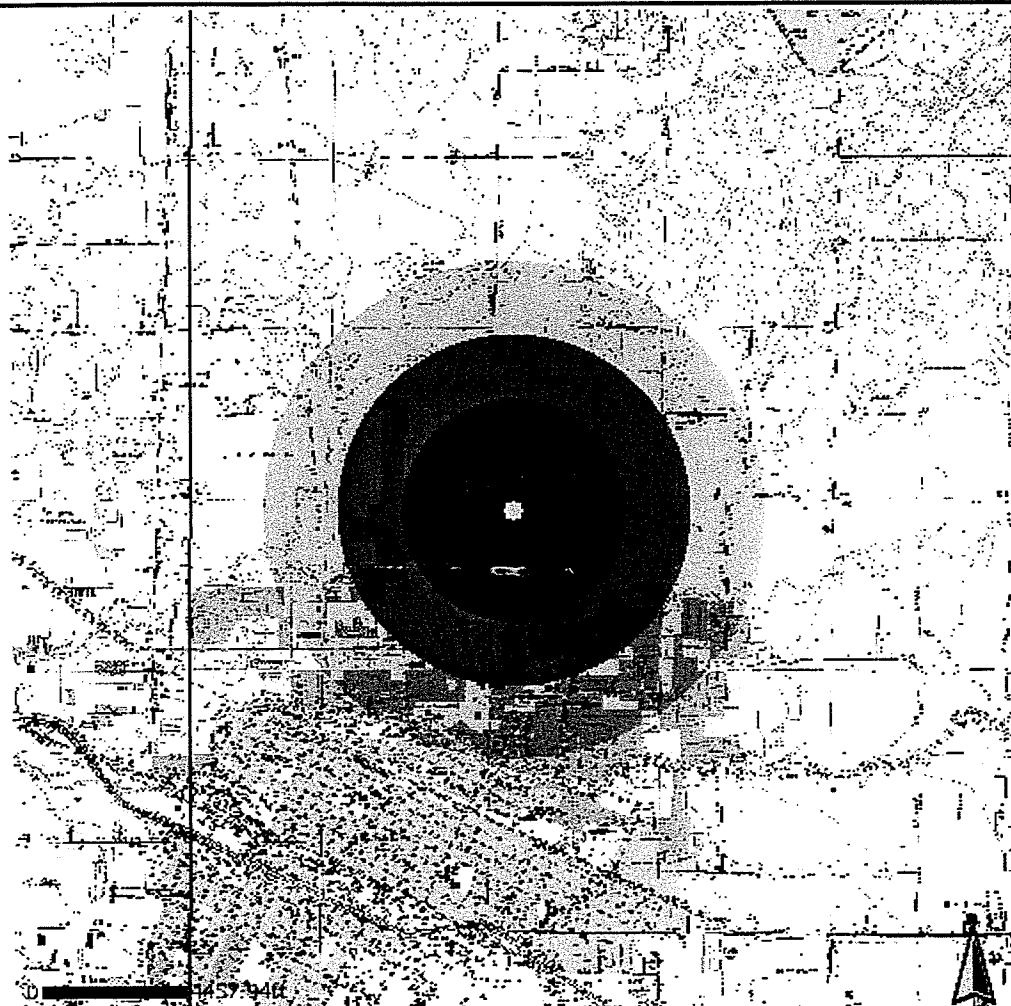
District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 11 - RAW Source No. 019 PS Code 2410009-019

Completed by Patrick Riggs Date March, 2003

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	Automobile- Gas stations (VH)		7	5	1	13
A	Chemical/petroleum pipelines (H)		5	5	1	11
A	Home manufacturing (H)		5	5	1	11
A	Photo processing/printing (H)		5	5	1	11
A	Sewer collection systems (H, if 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	Automobile- Car washes (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	Transportation corridors - Road Right-of-ways (herbicide use areas) (M)		3	5	1	9
B5	Home manufacturing (H)		5	3	1	9
B5	Photo processing/printing (H)		5	3	1	9
B5	Wells - Agricultural/ Irrigation (H)		5	3	1	9

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

DWSAP Ground Water Zone Interface



Well Position *	GPS'd	Longitude	Latitude
	Yes	-120.467	37.331
* Well location coordinates have been rounded to 3 decimal places due to security concerns.			

Well Statistics	
Well Number	2410009019
Media Type	Porous Media
System Type	All Other System
Effective Porosity (n , decimal percent)	.2
Screened Interval (H , feet)	56
Pumping Capacity (Q , gpm)	3000
Azimuth of Flow (a , degrees)	0 - No Translation

Radii Measures	
Defaults Used	No
R2	3461 ft
R5	5472 ft
R10	7739 ft



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Coding by Eric Lehmer
Mapping System produced using ESRI ArcIMS

Drinking Water Source Assessment

Water System

MERCED, CITY OF
Merced County

Water Source

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

Assessment Summary

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 2410009-020
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 Sierra 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Summary
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Location Form
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Delineation of Ground Water Protection Zones
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Physical Barrier Effectiveness Checklist
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Source Data Sheet
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Inventory of Possible Contaminating Activities
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Vulnerability Ranking
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Assessment Map

Vulnerability Summary

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 2410009-020
Completed by Patrick Riggs Date March, 2003

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for the WELL 13 - RAW
of the MERCED, CITY OF water system in March, 2003

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

- Agricultural Drainage
- Septic systems - low density
- Sewer collection systems
- Wells - Agricultural/ Irrigation

Discussion of Vulnerability

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

Source Location Information

System Info:		Number	<input type="text" value="2410009"/>	Name	<input type="text" value="CITY OF MERCED"/>	Record No:	<input type="text" value="44"/>
Source Info:		Number	<input type="text" value="13"/>	Name	<input type="text" value="2410009020"/>		
		PSCode	<input type="text" value="2410009"/>	StWellNo	<input type="text" value="2410009020"/>		
Input By:		Person	<input type="text" value="PATRICK RIGGS"/>	Date	<input type="text" value="4/1/2003 (mm/dd/yyyy)"/>		
Location Information:		Latitude	<input type="text" value="37.280000"/>	Horizontal Datum	<input type="text" value="NAD83"/>		
		Longitude	<input type="text" value="-120.436000"/>	Datum, if Other	<input type="text"/>		
		Description/ Comments:	<input type="text"/>				
Method of Determination:		USGS	<input type="checkbox"/>	GPS	<input checked="" type="checkbox"/>	OtherMethod	<input type="checkbox"/>
		Method	<input type="text"/>	Unit	<input type="text" value="Leica/530"/>	Method	<input type="text"/>
		Scale	<input type="text"/>	Grade	<input type="text" value="Survey(eg.)"/>	If Other	<input type="text"/>
		Scale, if Other	<input type="text"/>	Differential Correction	<input checked="" type="checkbox"/>	Accuracy	<input type="text"/>
		Map Published	<input type="text"/>			Scale	<input type="text"/>
		Map Revised	<input type="text"/>				

Delineation of Ground Water Protection Zones

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 2410009-020
 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>3,000</u>	gallons/minute
	<u>4,839</u>	acre feet/year
	<u>210,801,000</u>	cubic feet/year
Effective Porosity	<u>0.20</u>	<input checked="" type="checkbox"/> Default Value
Screened Interval of Well	<u>215</u>	feet <input type="checkbox"/> 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

Physical Barrier Effectiveness (PBE)

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 2410009-020
 Completed by Patrick Riggs Date March, 2003

Parameter	Possible Points	This Source	Score
Type of Aquifer			
Confinement			
1. Unconfined, Semi-confined, Fractured Rock, Unknown Aquifer	0		
2. Confined	50	X	50
Pathways of Contamination (All Aquifers)			
Presence of Abandoned 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 distance)			
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		
Hydraulic Head (Confined Aquifers)			
What is the relationship in the hydraulic head between the confined aquifer and the overlying unconfined aquifer? (i.e. does the well flow under artesian conditions?)			
1. Head in confined aquifer is higher than head in unconfined aquifer under all conditions.	20	X	20
2. Head in confined aquifer is higher than head in unconfined aquifer under static conditions.	10		
3. Head in confined aquifer is lower than or same as head in unconfined aquifer under static conditions.	0		
4. Unknown	0		
Well Construction (All Aquifers)			
Sanitary Seal (Annular Seal) Depth			
<u>0</u> feet			
None of less than 20 feet	0		
Between 20 and 50 feet	6		
50 feet or greater	10		
Unknown	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 MERCED, CITY OFSystem No. 2410009Source Name WELL 13 - RAWSource No. 020PS Code 2410009-020

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	X	5
	Unknown	0		

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

Maximum Score = 100

Score	<u>90</u>
Effectiveness	<u>High</u>

WELL DATA SHEET (Page 1 of 2)

Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.

* Indicates items required for Source Water Assessment

** Indicates additional items required for assessments and Ground Water 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		
* Well Number or Name	Well 13	
* 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 2002
Longitude	-120.436	City Surveyed 2002
Ground Surface Elevation (ft above Mean Sea Level)	186.12	City Surveyed 2002
Street Address	2890 Gerard Avenue	
Nearest Cross Street	Coffee	
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		from UC Davis
DWR Ground Water Sub-basin		from UC Davis
SANITARY CONDITIONS		
** 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		
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)	680'	
Casing Beginning Depth/Ending Depth(ft below surface); 2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	0/670'	
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)

Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.

* Indicates items required for Source Water Assessment

** Indicates additional items required for assessments and Ground Water 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); 2nd Screened Interval Beg. Depth/Ending Depth; 3rd Screened Interval, etc.	445'-660'	
* Total length of screened interval (ft) (default = 10% pump capacity in gpm) (or "UNKNOWN")	215'	
* 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 (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)	43'	
Depth to confining layer, if known (ft below ground)	386'	
* 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)	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	
Type	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: _____	
** 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)	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	

Inventory of Possible Contaminating Activities (PCA Inventory)

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 2410009-020

Completed by Patrick Riggs Date March, 2003

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		
Pools (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		
Farm machinery repair (H)	N	N	N		

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 OFSystem No. 2410009Source Name WELL 13 - RAWSource No. 020PS 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		
Pesticide/fertilizer/ petroleum storage & transfer areas (H)	N	N	N		
Agricultural Drainage (H in Zone A, otherwise M)	Y	Y	Y		MID irrigation canals. Agricultural drains.
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		
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		
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		
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		
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

* = 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 OFSystem No. 2410009Source Name WELL 13 - RAWSource No. 020PS Code 2410009-020

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		
Transportation 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		
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		
Veterinary offices/clinics (L)	N	N	N		
Surface water - streams/ lakes/rivers (L)	Y	Y	Y		Irrigation canals, agricultural drains.
Wells - monitoring, test holes (L)	Y	N	N		Four MW's located on station.

Y = Yes N = No U = Unknown

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

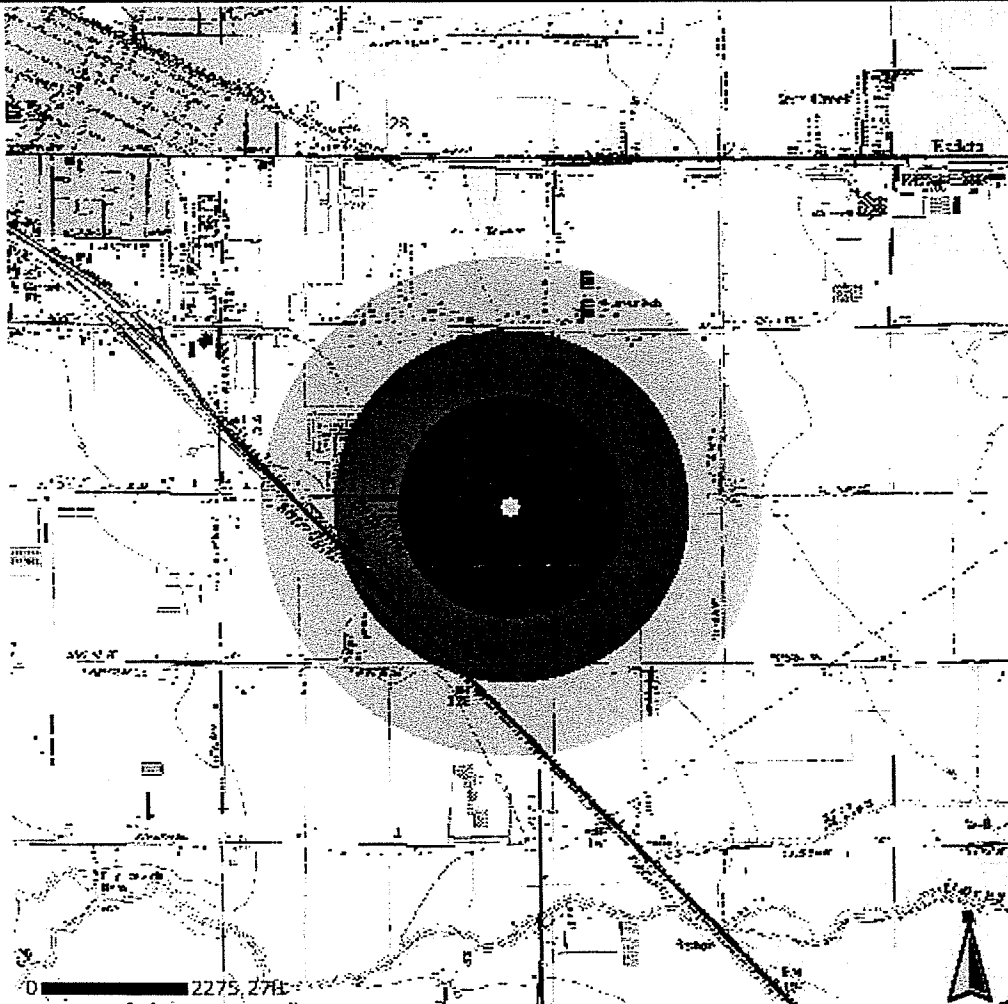
Vulnerability Ranking

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 2410009-020
 Completed by Patrick Riggs Date March, 2003

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	Agricultural Drainage (H in Zone A, otherwise M)		5	5	1	11
A	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	Transportation corridors - Freeways/state highways (M)		3	5	1	9
A	Transportation corridors - Road Right-of-ways (herbicide use areas) (M)		3	5	1	9
B5	Wells - Agricultural/ Irrigation (H)		5	3	1	9

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

DWSAP Ground Water Zone Interface



Well Position *	GPS'd	Longitude	Latitude
	Yes	-120.436	37.280
* Well location coordinates have been rounded to 3 decimal places due to security concerns.			

Well Statistics

Well Number	2410009020
Media Type	Porous Media
System Type	All Other System
Effective Porosity (n , decimal percent)	.2
Screened Interval (H , feet)	215
Pumping Capacity (Q , gpm)	3000
Azimuth of Flow (a , degrees)	0 - No Translation

Radii Measures

Defaults Used	No
R2	1765 ft
R5	2792 ft
R10	3950 ft



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Coding by Eric Lehmer
Mapping System produced using ESRI ArcIMS

Drinking Water Source Assessment

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

Assessment Summary

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 14 - RAW Source No. 021 PS Code 2410009-021
 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 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 ☒ No ☐ **Assessment Summary**
 Yes ☒ No ☐ **Vulnerability Summary**
 Yes ☒ No ☐ **Source Location Form**
 Yes ☒ No ☐ **Delineation of Ground Water Protection Zones**
 Yes ☒ No ☐ **Physical Barrier Effectiveness Checklist**
 Yes ☒ No ☐ **Source Data Sheet**
 Yes ☒ No ☐ **Inventory of Possible Contaminating Activities**
 Yes ☒ No ☐ **Vulnerability Ranking**
 Yes ☒ No ☐ **Assessment Map**

Vulnerability Summary

District Name City of Merced District No. M4 County Merced
System Name MERCED, CITY OF System No. 2410009
Source Name WELL 14 - RAW Source No. 021 PS Code 2410009-021
Completed by Patrick Riggs Date March, 2003

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for the WELL 14 - RAW
of the MERCED, CITY OF water system in March, 2003

The source is considered most vulnerable to the following activities associated with contaminants detected in the water supply:

- Airports - Maintenance/ fueling areas
- Automobile- Gas stations
- Dry cleaners
- Known Contaminant Plumes
- Chemical/petroleum pipelines
- Surface water - streams/ lakes/rivers
- Wells - monitoring, test holes

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

- Agricultural Drainage
- Boat services/repair/ refinishing
- Fleet/truck/bus terminals
- NPDES/WDR permitted discharges
- Sewer collection systems
- Utility stations - maintenance areas

Discussion of Vulnerability

City of Merced Well Station #14 houses one municipal groundwater well secured by fencing.

Vulnerability Summary

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

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

Source Location Information

Record No: 45

System Info: Number 2410009 Name CITY OF MERCED

Source Info: Number 14 Name

PSCode 2410009 SWellNo 2410009021

Input By: Person PATRICK RIGGS Date 4/1/2003 (mm/dd/yyyy)

Location Information: Latitude 37.295000 Horizontal Datum NAD83

Longitude -120.517000 Datum, if Other

Description/Comments:

Method of Determination: ☐ USGS ☒ GPS ☐ OtherMethod

Method Leica/530 Method

Scale Scale Grade Survey(eg. If Other

Scale, if Other Differential Correction ☒ Accuracy

Map Published Scale

Map Revised

Find 14 < > >I Add Edit Delete Save Cancel Exit Help

Delineation of Ground Water Protection Zones

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 14 - RAW Source No. 021 PS Code 2410009-021
 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>4,000</u>	gallons/minute
	<u>6,452</u>	acre feet/year
	<u>281,068,000</u>	cubic feet/year
Effective Porosity	<u>0.20</u>	<input checked="" type="checkbox"/> Default Value
Screened Interval of Well	<u>90</u>	feet <input type="checkbox"/> 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 Barrier Effectiveness (PBE)

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 14 - RAW Source No. 021 PS Code 2410009-021
 Completed by Patrick Riggs Date March, 2003

Parameter	Possible Points	This Source	Score
Type of Aquifer			
Confinement			
1. Unconfined, Semi-confined, Fractured Rock, Unknown Aquifer	0		
2. Confined	50	X	50
Pathways of Contamination (All Aquifers)			
Presence of Abandoned 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 distance)			
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		
Hydraulic Head (Confined Aquifers)			
What is the relationship in the hydraulic head between the confined aquifer and the overlying unconfined aquifer? (i.e. does the well flow under artesian conditions?)			
1. Head in confined aquifer is higher than head in unconfined aquifer under all conditions.	20	X	20
2. Head in confined aquifer is higher than head in unconfined aquifer under static conditions.	10		
3. Head in confined aquifer is lower than or same as head in unconfined aquifer under static conditions.	0		
4. Unknown	0		
Well Construction (All Aquifers)			
Sanitary Seal (Annular Seal) Depth			
None of less than 20 feet	0		
Between 20 and 50 feet	6		
50 feet or greater	10		
Unknown	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 MERCED, CITY OFSystem No. 2410009Source Name WELL 14 - RAWSource No. 021PS Code 2410009-021

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	X	5
	Unknown	0		

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

Maximum Score = 100

Score	<u>90</u>
Effectiveness	<u>High</u>

WELL DATA SHEET (Page 1 of 2)

<i>Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.</i>		
<i>* Indicates items required for Source Water Assessment</i>		
<i>** Indicates additional items required for assessments and Ground Water Rule</i>		
		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		
* Well Number or Name	Well 14	from DHS database
* 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 2002
Longitude	-120.517	City Surveyed 2002
Ground Surface Elevation (ft above Mean Sea Level)	159.28	City Surveyed 2002
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'	
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)

<i>Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.</i>		
<i>* Indicates items required for Source Water Assessment</i>		
<i>** Indicates additional items required for assessments and Ground Water Rule</i>		
		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		
* 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)		
Static water level measurement: Date/Method		
Pumping water level (ft below ground surface)		
Pumping water level measurement: Date/Method		
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	
Type	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	

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 No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 14 - RAW Source No. 021 PS Code 2410009-021

Completed by Patrick 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)	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.
Automotive repair/ manufacturing (H)	N	N	N		
Home manufacturing (H)	N	N	N		
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)	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)	Y	Y	Y		Municipal sewer system.
Parking lots/malls (>50 spaces) (M)	N	N	N		
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		
Appliance/Electronic Repair (L)	N	N	N		
Office buildings/complexes (L)	Y	Y	Y		

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 OFSystem No. 2410009Source Name WELL 14 - RAWSource No. 021PS Code 2410009-021

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)	Y	Y	Y	*	TCE, pesticides etc. RWQCB identified site.
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)	Y	Y	Y		City and County Corporation yards.
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		
Residential - high density (>1 house/0.5 acres) (M)	N	N	N		
Motor pools (M)	N	N	N		
Parks (M)	N	N	N		
Waste transfer/recycling stations (M)	Y	Y	Y		Oil and battery waste from Corporation yards.
Apartments and condominiums (L)	N	N	N		
Campgrounds/ Recreational areas (L)	N	N	N		
Fire stations (L)	Y	Y	Y		Airport Fire Station
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		

Y = Yes N = No U = Unknown

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Inventory of Possible Contaminating Activities (PCA Inventory)

System Name MERCED, CITY OFSystem No. 2410009Source Name WELL 14 - RAWSource No. 021PS Code 2410009-021

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Agricultural/Rural Activities					
Farm chemical distributor/ application service (H)	N	N	N		
Farm machinery repair (H)	N	N	N		
Septic systems - low density (<1/acre) (H in Zone A, otherwise L)	N	N	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)	Y	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)	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, sods, hay, pasture) (L) (includes drip-irrigated crops)	N	N	N		
Other Activities					
NPDES/WDR permitted discharges (H)	Y	Y	Y		Merced Airport NPDES SW permit.
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		
Illegal activities/ unauthorized dumping (H)	N	N	N		
Injection wells/ dry wells/ sumps (VH)	N	N	N		
Known Contaminant Plumes (VH)	Y	Y	Y	*	At Airport facility.
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		
Underground storage tanks - Confirmed leaking tanks (VH)	N	N	N		

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 OFSystem No. 2410009Source Name WELL 14 - RAWSource No. 021PS Code 2410009-021

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other Activities					
Underground storage tanks - Decommissioned - inactive tanks (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		
Underground storage tanks - Upgraded and/or registered - active tanks (L)	N	N	N		
Above ground storage tanks (M)	Y	Y	Y		Airport facility.
Wells - Water supply (M)	N	Y	Y		Irrigation wells.
Construction/demolition staging areas (M)	N	N	N		
Contractor or government agency equipment storage yards (M)	Y	Y	Y		City and County Corporation yards.
Dredging (M)	N	N	N		
Transportation corridors - Freeways/state highways (M)	N	Y	Y		
Transportation corridors - Railroads (M)	N	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)	N	N	N		
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 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		
Veterinary offices/clinics (L)	N	N	N		
Surface water - streams/ lakes/rivers (L)	Y	Y	Y	*	Irrigation canals and Black Rascal Creek, Bear Creek.

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 OFSystem No. 2410009Source Name WELL 14 - RAWSource No. 021PS Code 2410009-021

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.

Y = Yes N = No U = Unknown

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

Vulnerability Ranking

District Name City of Merced District No. M4 County Merced
 System Name MERCED, CITY OF System No. 2410009
 Source Name WELL 14 - RAW Source No. 021 PS Code 2410009-021
 Completed by Patrick Riggs Date March, 2003

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	Airports - Maintenance/ fueling areas (VH)	*	7	5	1	13
A	Known Contaminant Plumes (VH)	*	7	5	1	13
B5	Airports - Maintenance/ fueling areas (VH)	*	7	3	1	11
B5	Known Contaminant Plumes (VH)	*	7	3	1	11
B10	Airports - Maintenance/ 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 Contaminant Plumes (VH)	*	7	1	1	9
A	Surface water - streams/ lakes/ rivers (L)	*	1	5	1	7
A	Wells - monitoring, test holes (L)	*	1	5	1	7
B10	Chemical/petroleum pipelines (H)	*	5	1	1	7
B5	Surface water - streams/ lakes/ rivers (L)	*	1	3	1	5
B5	Wells - monitoring, test holes (L)	*	1	3	1	5
B10	Surface water - streams/ lakes/ rivers (L)	*	1	1	1	3
B10	Wells - monitoring, test holes (L)	*	1	1	1	3
A	Agricultural Drainage (H in Zone A, otherwise M)		5	5	1	11
A	Boat services/repair/ refinishing (H)		5	5	1	11
A	Fleet/truck/bus terminals (H)		5	5	1	11
A	NPDES/WDR permitted discharges (H)		5	5	1	11
A	Sewer collection systems (H, if 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	Utility stations - maintenance areas (H)		5	5	1	11
A	Above ground storage tanks (M)		3	5	1	9
A	Contractor or government agency equipment storage yards (M)		3	5	1	9
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	Storm Drain Discharge Points (M)		3	5	1	9
A	Storm Water Detention Facilities (M)		3	5	1	9

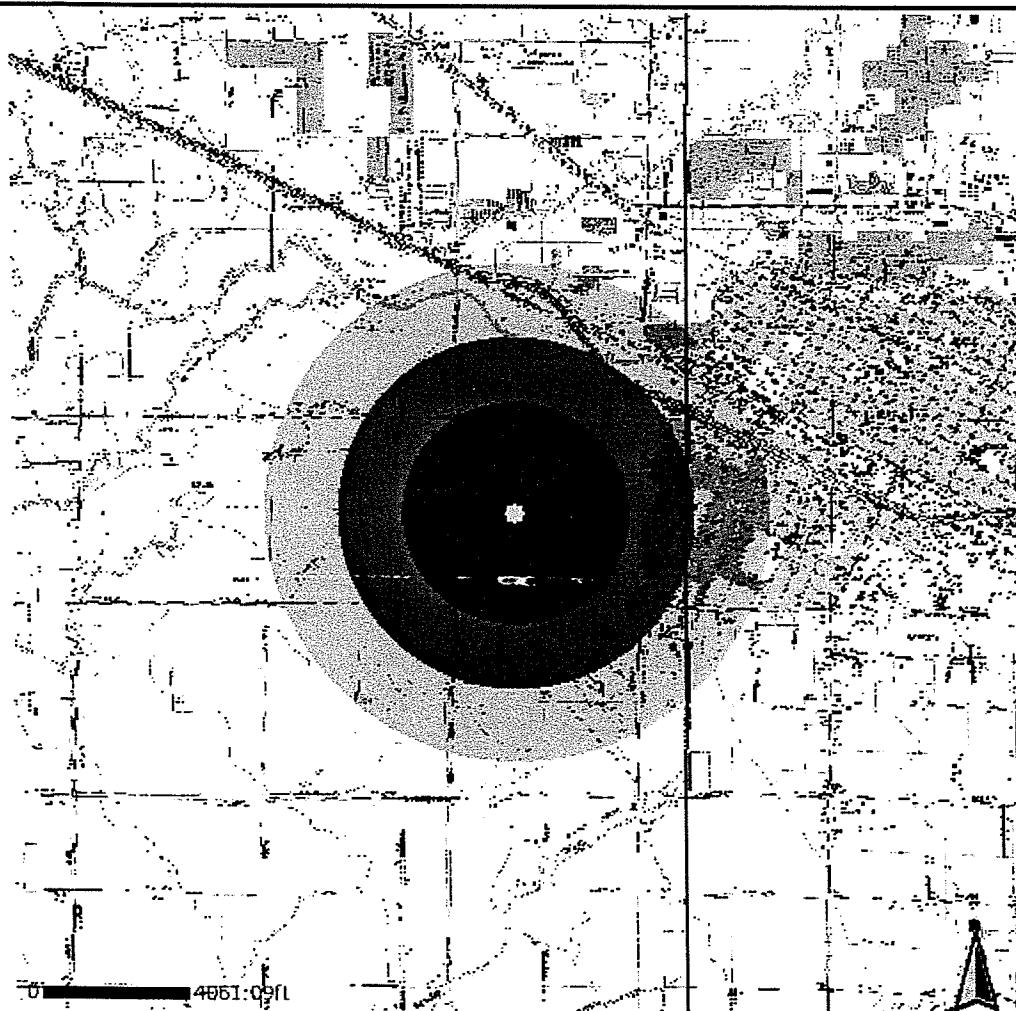
* = A contaminant potentially associated with this activity has been detected in the water supply.

Vulnerability RankingSystem Name MERCED, CITY OFSystem No. 2410009Source Name WELL 14 - RAWSource No. 021PS Code 2410009-021

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	Transportation corridors - Road Right-of-ways (herbicide use areas) (M)		3	5	1	9
A	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

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

DWSAP Ground Water Zone Interface



Well Position *	GPS'd	Longitude	Latitude
	Yes	-120.517	37.295
* Well location coordinates have been rounded to 3 decimal places due to security concerns.			

Well Statistics	
Well Number	2410009021
Media Type	Porous Media
System Type	All Other System
Effective Porosity (n , decimal percent)	.2
Screened Interval (H , feet)	90
Pumping Capacity (Q , gpm)	4000
Azimuth of Flow (a , degrees)	0 - No Translation

Radii Measures	
Defaults Used	No
R2	3153 ft
R5	4984 ft
R10	7050 ft



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