Drinking Water Source Assessment

Water System

Sebastopol, City of

Sonoma County

Water Source

WELL 02

Assessment Date

November, 1998

California Department of Health Services
Drinking Water Field Operations Branch
DHS Sonoma District

District No.	**18**
System No.	**4910011**
Source No.	**001**
PS Code	**06N/09W-02C01 M**

Assessment Summary

District Name DHS Sonoma District **District No.** 18 **County** Sonoma

System Name Sebastopol, City of **System No.** 4910011

Source Name WELL 02 **Source No.** 001 **PS Code** 06N/09W-02C01 M

Completed by Leah Walker **Date** November, 1998

Description of System and Source

The Sebastopol water system is located in Sonoma County and serves the City of Sebastopol. There are approximately 2,675 service connections serving a population of 7,575.

The City of Sebastopol obtains all of its water from underground wells that draw water from depths between 130 to 690 feet below ground. There are currently five wells, all located within the City limits along a major transportation corridor, Highway 116. The wells are located 1,300 feet or more to the west of a perennial waterway known as the Laguna de Santa Rosa, which is a major tributary to the Russian River.

Well 02, the subject of this assessment, was constructed in 1934, the oldest of the City's wells. It is 600 feet deep and produces approximately 480 gallons per minute.

Previous studies have determined that the principal recharge area for the Sebastopol wells is from the portion of the Wilson Grove Formation (formerly known as the Merced Formation) in the rolling hills west of the City. There is some additional recharge from the east.

Land use in the vicinity of the wells includes municipal, industrial, residential, and commercial activities within the City limits. The protection zones and recharge areas extend into the rural areas just outside the City.

Assessment Procedures

The assessment of the source WELL 02 was conducted by the California Department of Health Services in conjunction with the City of Sebastopol as a demonstration of the Drinking Water Source Assessment and Protection (DWSAP) program. The City was fortunate to have several studies conducted regarding their water supplies and the ground water resources in the area. This information included a map of the recharge area and approximate flow directions. This information was the basis for using the Modified Calculated Fixed Radius delineation method.

Due to the relative proximity of the five wells, the protection zones for the wells overlap. The City and DHS chose to define one set of larger zones that encompasses the protection zones for all five wells. The PCA inventory and vulnerability ranking portions of the assessment were conducted for the larger combined zones, and not for each well separately.

The following sources of information were used in the assessment: DHS water system files, City files, City personnel, CUPA (Certified Unified Program Agency) records, and previous studies.

Procedures used to conduct the assessment included: meetings with the City to conduct the inventory, and file reviews.

Discussion of Vulnerability

One of the five wells (Well 05) in the City's drinking water system is currently shut down due to contamination by tetrachloroethylene (PCE). Another well (04) has shown very low levels of petroleum products (1,2-DCA, Benzene, and MTBE), but is still on-line though the use is limited. The most likely source of contamination of the wells is commercial activities (dry cleaners and gas stations) within the City limits. Due to the loss of production capacity, the City recently constructed a new well (07) at substantial cost.

Assessment Summary

System Name Sebastopol, City of **System No.** 4910011

Source Name WELL 02 **Source No.** 001 **PS Code** 06N/09W-02C01 M

Contents of this Assessment

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

Vulnerability Summary

District Name DHS Sonoma District **District No.** 18 **County** Sonoma

System Name Sebastopol, City of **System No.** 4910011

Source Name WELL 02 **Source No.** 001 **PS Code** 06N/09W-02C01 M

Completed by Leah Walker **Date** November, 1998

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

A source water assessment was conducted for the **WELL 02**

of the **Sebastopol, City of** water system in **November, 1998** .

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
Underground storage tanks - Confirmed leaking tanks

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

Chemical/petroleum processing/storage
Historic gas stations
Metal plating/ finishing/fabricating
Plastics/synthetics producers
Septic systems - high density

A copy of the complete assessment may be viewed at:

DHS Sonoma District Office
50 D Street, Suite 200
Santa Rosa, CA 95404

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

District Engineer
707-576-2145

Delineation of Ground Water Protection Zones

District Name DHS Sonoma District **District No.** 18 **County** Sonoma

System Name Sebastopol, City of **System No.** 4910011

Source Name WELL 02 **Source No.** 001 **PS Code** 06N/09W-02C01 M

Completed by Leah Walker **Date** November, 1998

Method Used to Delineate Protection Zones

1. Calculated Fixed Radius

X 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)	**480**	gallons/minute	
	774	acre feet/year	
	33,728,160	cubic feet/year	
Effective Porosity	**0.15**	%	☐ Default Value
Screened Interval of Well	**268**	feet	☐ Default Value

Direction of Ground Water Flow	**90.00**	degrees

Protection Zone	Calculated Value	Minimum Value	Base Radius	Direction	Modified Distance
Zone A - 2 Year TOT*	731 Feet	600 Feet	731 Feet	upgradient	**1,096** Feet
				downgradient	**365** Feet
Zone B5 - 5 Year TOT*	1,156 Feet	1,000 Feet	1,156 Feet	upgradient	**1,733** Feet
				downgradient	**578** Feet
Zone B10 - 10 Year TOT*	1,634 Feet	1,500 Feet	1,634 Feet	upgradient	**2,451** Feet
				downgradient	**817** Feet

Physical Barrier Effectiveness (PBE)

District Name DHS Sonoma District **District No.** 18 **County** Sonoma

System Name Sebastopol, City of **System No.** 4910011

Source Name WELL 02 **Source No.** 001 **PS Code** 06N/09W-02C01 M

Completed by Leah Walker **Date** November, 1998

Parameter		Possible Points	This Source	Score
Type of Aquifer **Confinement**				
1. Unconfined, Semi-confined, Fractured Rock, Unknown Aquifer		0	X	0
2. Confined		50		
Aquifer Material (Unconfined Aquifers) **Type of material within aquifer**				
1. Porous Media (Interbedded sands, silts, clays, gravels) with continuous clay layer minimum 25' thick above water table within Zone A		20		
2. Porous Media (Interbedded sands, silts, clays, gravels)		10	X	10
3. Fractured rock (Low Physical Barrier Effectiveness - no further questions required)		0		
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		
	Unknown	0	X	0
2. Present within Zone B5 (2 -5 year TOT distance)	Yes	0		
	No	3		
	Unknown	0	X	0
3. Present within Zone B10 (5-10 year TOT distance)	Yes	0		
	No	2		
	Unknown	0	X	0
Static Water Conditions (Unconfined Aquifers)				
Depth to Static Water (DTW) 116 feet	0 to 20 feet	0		
	20 to 50 feet	2		
	50 to 100 feet	6		
	Greater than 100 feet	10	X	10
	Unknown	0		
Well Operation (Unconfined Aquifers)				
Depth to Uppermost Perforations (DUP) 332 feet				
Maximum Pumping Rate of Well (Q) 480 gallons/minute				
Length of Screened Interval (H) 268 feet				
	Less than 5	0		
[DUP - DTW / Q/H] 120.60	Between 5 and 10	5		
	Greater than 10	10	X	10
	Unknown	0		

Physical Barrier Effectiveness (PBE)

System Name Sebastopol, City of **System No.** 4910011

Source Name WELL 02 **Source No.** 001 **PS Code** 06N/09W-02C01 M

Parameter		Possible Points	This Source	Score
Well Construction (All Aquifers)				
Sanitary Seal (Annular Seal) Depth **0** feet	None or 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		
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 = 70

Score **40**

Effectiveness **Moderate**

WELL DATA SHEET

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*	
System Name	City of Sebastopol
System Number	4910011
Source of Information	Permit No. 02-92-018; Richard C. Slade & Associates, March 1996 Report
Collected by	S. Creviston
Date	5/28/1998
* Well Number or Name	Well 02
* DHS Source Identification Number (FRDS Code)	4910011-001
State Well Number	
Date drilled	1934
Well Status (Active, Standby, Inactive)	Active
Location (Address)	Corner of Calder and Jewell
* Neighborhood (Commercial/Industrial, Residential/Municipal, Agricultural/Rural, Other) (list all that apply)	Residential/Municipal
Distance to: Sewer Line or Sewage Disposal	70 ft
Distance to: Other Wells (Active)	
Distance to: Other Wells (Abandoned)	
Size of controlled area around well (square feet)	Lot size: 8,000 ft2
* Type of access control to well site (i.e., fencing, building, etc.)	Concrete block house
Site plan on file? (yes or no)	Yes
DWR Ground Water Basin	Sonoma County Basin
DWR Ground Water Sub-basin	Santa Rosa Plain
* Within 100 year flood plain? (yes or no)	No
* Drainage away from well? (yes or no)	Yes
Enclosure/Housing: Type	Concrete block house
Condition	Good
Pit depth (if any)	NA
Floor (material)	Concrete
Well Construction Drilling Method	
Depth of Bore Hole (feet below ground surface)	600 ft
Finished Well Depth (feet below ground surface)	600 ft
Casing Depth (feet below ground surface)	200 ft
Casing Diameter	10 in
Casing Material	Steel
Conductor casing depth (ft below ground surface)	N.A.
Conductor casing diameter	N.A.
Conductor casing material	N.A.
Additional casing depth (if applicable)	600 ft
Additional casing diameter (if applicable)	14 in
Additional casing material (if applicable)	Steel
* Depth to highest perforations (ft below ground surface)	332 ft
* Total length of screened interval	?268 ft? 41 ft?
* Sanitary sealed (Annular Seal) (yes or no)	Unknown
* Depth of Annular Seal (ft)	
* Surface Seal (Concrete slab) (yes or no)	Yes
* Dimensions of concrete slab (ft)	14' x 27'

WELL DATA SHEET

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*	
Gravel pack, Depth to top (ft below ground surface)	
Total length of gravel pack (ft)	
* Aquifer Materials (ie, sands, silts, clays, gravel, rocks, fractured rock, or combination)	Sands, silts, clays, gravels
* Confining layer (Impervious Strata) above aquifer? (yes, no or not sure)	No
Thickness of confining layer, if known (ft)	N.A.
Depth to confining layer (ft below ground surface)	N.A.
Sanitary Seal terminate in impervious stata? (yes or no)	N.A.
* Water Levels (Current): Static (ft below ground surface)	24 ft (high 7/76) – 128 ft (low 9/91)
Water Levels (When pumping) (ft below ground surface)	145 ft
Well Yield (gpm)	550 gpm
Well Yield Based On (i.e. pump test, etc.)	Pump tests, size of pump
Date measured	Bi-Monthly
Production (gallons per year)	87,249,200 gallons/year
Pump: Make	Johnston Pump
Pump Type	Turbine
* Pump Capacity, gpm	550 gpm
Depth to suction intake (ft below ground surface)	250'
Lubrication Type	Turbine Oil
Power	60 hp, 3-phase, 60 cycles, 460 V, 1800 rpr
Auxiliary power (yes or no)	Yes
Operation controlled by (i.e. level in tank, system demand, pressure, etc.)	Level in Pleasant Hill Tanks
Pump to Waste capability (yes or no)	yes
Discharges to (i.e. distribution system, storage, etc.)	10 inch water main
Frequency of Use (hours/year)	2,737 hours/year
Typical pumping duration (hours/day)	7.5 hrs/day
DWR Well log on file? (yes or no)	No
Remarks and Defects (use additional sheets if necessary)	

Drinking Water Source Assessment and Protection (DWSAP) Program

Inventory of Possible Contaminating Activities (PCA Inventory)

District Name DHS Sonoma District **District No.** 18 **County** Sonoma

System Name Sebastopol, City of **System No.** 4910011

Source Name WELL 02 **Source No.** 001 **PS Code** 06N/09W-02C01 M

Completed by Leah Walker **Date** May, 1998

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Commercial/Industrial					
Automobile- Body shops (H)	Y	N	N		
Automobile- Car washes (M)	Y	N	N		
Automobile- Gas stations (VH)	Y	N	N	*	1,2-DCA Well 4
Automobile- Repair shops (H)	Y	N	N		
Boat services/repair/ refinishing (H)	Y	N	N		Inland Marine
Chemical/petroleum pipelines (H)	U	U	U		
Chemical/petroleum processing/storage (VH)	Y	N	N		R&S bulk plant
Dry cleaners (VH)	Y	N	N	*	PCE Well 5
Electrical/electronic manufacturing (H)	N	Y	N		Depot Street
Fleet/truck/bus terminals (H)	Y	Y	N		Car dealers?
Furniture repair/ manufacturing (H)	Y	N	Y		
Home manufacturing (H)	N	N	N		
Junk/scrap/salvage yards (H)	Y	N	N		Creekside Industrial
Machine shops (H)	N	N	Y		
Metal plating/ finishing/fabricating (VH)	Y	Y	Y		West Valley welding, P&L, cannery
Photo processing/printing (H)	Y	Y	N		Seb. Times, 258 Petaluma, South Point, Wine Press
Plastics/synthetics producers (VH)	Y	N	N		
Research laboratories (H)	N	N	N		
Wood preserving/treating (H)	N	N	Y		Miller Door
Wood/pulp/paper processing and mills (H)	N	N	N		
Lumber processing and manufacturing (H)	U	U	U		Not on original PCA inventory
Sewer collection systems (H, if in Zone A, otherwise L)	Y	Y	Y		
Parking lots/malls (>50 spaces) (M)	Y	Y	Y		Burnett, High St, Vet's, Plaza, Theatre
Cement/concrete plants (M)	N	N	N		
Food processing (M)	Y	Y	Y		VacuDry, Speas, Cherry Foods, Barlow
Funeral services/graveyards (M)	Y	N	N		Parent-Sorenson
Hardware/lumber/parts stores (M)	Y	Y	Y		Columbo, hardware store, lumber yard

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System Name Sebastopol, City of **System No.** 4910011

Source Name WELL 02 **Source No.** 001 **PS Code** 06N/09W-02C01 M

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Commercial/Industrial					
Appliance/Electronic Repair (L)	Y	N	N		
Office buildings/complexes (L)	Y	Y	N		
Rental Yards (L)	N	Y	N		
RV/mini storage (L)	Y	N	N		mini-storage
Residential/Municipal					
Airports - Maintenance/ fueling areas (VH)	N	N	N		
Landfills/dumps (VH)	N	N	N		
Railroad yards/ maintenance/ fueling areas (H)	Y	Y	Y		historic
Septic systems - high density (>1/acre) (VH if in Zone A, otherwise M)	Y	Y	Y		Lynch Rd, St. Helena, Pearl Ct
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)	Y	Y	N		chlorinators, Fircrest, Kelly, VacuDry
Golf courses (M)	N	N	N		
Housing - high density (>1 house/0.5 acres) (M)	Y	Y	Y		
Motor pools (M)	Y	N	N		
Parks (M)	N	Y	N		
Waste transfer/recycling stations (M)	Y	N	Y		Fircrest, safeway
Apartments and condominiums (L)	Y	Y	Y		
Campgrounds/ Recreational areas (L)	N	N	Y		
Fire stations (L)	N	Y	N		
RV Parks (L)	N	N	N		
Schools (L)	N	Y	N		
Hotels, Motels (L)	U	U	U		Not on original PCA inventory
Agricultural/Rural					
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	N	N	N		

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Inventory of Possible Contaminating Activities (PCA Inventory)

System Name Sebastopol, City of **System No.** 4910011

Source Name WELL 02 **Source No.** 001 **PS Code** 06N/09W-02C01 M

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Agricultural/Rural					
H)					
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	N	N		Frizelle Enos
Farm machinery repair (H)	U	U	U		
Septic systems - low density (<1/acre) (H in Zone A, otherwise L)	Y	Y	Y		
Lagoons / liquid wastes (H)	N	Y	N		VacuDry
Machine shops (H)	N	Y	N		VacuDry, Rental yard
Pesticide/fertilizer/ petroleum storage & transfer areas (H)	U	U	U		
Agricultural Drainage (H in Zone A, otherwise M)	U	U	U		Not on original PCA inventory
Wells - Agricultural/ Irrigation (H)	U	U	U		
Managed Forests (M)	N	N	N		
Crops, irrigated (Berries, hops, mint, orchards, sod, greenhouses, vineyards, nurseries, vegetable) (M)	N	N	Y		Cooper Rd
Fertilizer, Pesticide/ Herbicide Application (M)	U	U	U		
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	Y		
Other					
NPDES/WDR permitted discharges (H)	U	U	U		
Underground Injection of Commercial/Industrial Discharges (VH)	N	N	N		
Historic gas stations (VH)	Y	N	N		
Historic waste dumps/ landfills (VH)	U	U	U		
Illegal activities/ unauthorized dumping (H)	U	U	U		
Injection wells/ dry wells/ sumps (VH)	U	U	U		
Known Contaminant Plumes (VH)	Y	Y	N	*	1,2 DCA, PCE
Military installations (VH)	N	N	N		

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Source Name WELL 02 **Source No.** 001 **PS Code** 06N/09W-02C01 M

PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other					
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)	U	U	U		
Salt Water Intrusion (H)	N	N	N		
Recreational area - surface water source (H)	N	N	N		
Underground storage tanks - Confirmed leaking tanks (VH)	Y	Y	Y	*	1,2-DCA Royal Petroleum, Shell
Underground storage tanks - Decommissioned - inactive tanks (L)	Y	Y	Y		
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)	U	U	U		
Underground storage tanks - Upgraded and/or registered - active tanks (L)	Y	Y	Y		
Above ground storage tanks (M)	N	Y	N		fire station
Wells - Water supply (M)	Y	Y	Y		
Construction/demolition staging areas (M)	U	U	U		
Contractor or government agency equipment storage yards (M)	N	Y	N		plaza (historic)
Dredging (M)	N	N	N		
Transportation corridors - Freeways/state highways (M)	Y	Y	Y		
Transportation corridors - Railroads (M)	N	N	N		
Transportation corridors - Historic railroad right-of-ways (M)	Y	Y	Y		
Transportation corridors - Road Right-of-ways (herbicide use areas) (M)	Y	Y	Y		bike path
Transportation corridors - Roads/ Streets (L)	Y	Y	Y		
Hospitals (M)	Y	Y	N		
Storm Drain Discharge Points (M)	U	U	U		
Storm Water Detention Facilities (M)	U	U	U		

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System Name Sebastopol, City of **System No.** 4910011

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PCA (Risk Ranking)	PCA in Zone A	PCA in Zone B5	PCA in Zone B10	*	Comments
Other					
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**	N		
Veterinary offices/clinics (L)	N	N	**Y**		
Surface water - streams/ lakes/rivers (L)	**Y**	**Y**	**Y**		Calder Cr, Witter Cr
Wells - monitoring, test holes (L)	**Y**	**Y**	**Y**		

Y = Yes N = No U = Unknown

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Drinking Water Source Assessment and Protection (DWSAP) Program

Vulnerability Ranking

District Name DHS Sonoma District **District No.** 18 **County** Sonoma

System Name Sebastopol, City of **System No.** 4910011

Source Name WELL 02 **Source No.** 001 **PS Code** 06N/09W-02C01 M

Completed by Leah Walker **Date** November, 1998

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	Automobile- Gas stations (VH)	*	7	5	3	15
A	Dry cleaners (VH)	*	7	5	3	15
A	Known Contaminant Plumes (VH)	*	7	5	3	15
A	Underground storage tanks - Confirmed leaking tanks (VH)	*	7	5	3	15
B5	Known Contaminant Plumes (VH)	*	7	3	3	13
B5	Underground storage tanks - Confirmed leaking tanks (VH)	*	7	3	3	13
B10	Underground storage tanks - Confirmed leaking tanks (VH)	*	7	1	3	11
A	Chemical/petroleum processing/storage (VH)		7	5	3	15
A	Historic gas stations (VH)		7	5	3	15
A	Metal plating/ finishing/fabricating (VH)		7	5	3	15
A	Plastics/synthetics producers (VH)		7	5	3	15
A	Septic systems - high density (>1/acre) (VH if in Zone A, otherwise M)		7	5	3	15
A	Automobile- Body shops (H)		5	5	3	13
A	Automobile- Repair shops (H)		5	5	3	13
A	Boat services/repair/ refinishing (H)		5	5	3	13
A	Farm chemical distributor/ application service (H)		5	5	3	13
A	Fleet/truck/bus terminals (H)		5	5	3	13
A	Furniture repair/ manufacturing (H)		5	5	3	13
A	Junk/scrap/salvage yards (H)		5	5	3	13
A	Photo processing/printing (H)		5	5	3	13
A	Railroad yards/ maintenance/ fueling areas (H)		5	5	3	13
A	Septic systems - low density (<1/acre) (H in Zone A, otherwise L)		5	5	3	13
A	Sewer collection systems (H, if in Zone A, otherwise L)		5	5	3	13
A	Sewer collection systems (H, if in Zone A, otherwise L)		5	5	3	13
B5	Metal plating/ finishing/fabricating (VH)		7	3	3	13
A	Automobile- Car washes (M)		3	5	3	11
A	Drinking water treatment plants (M)		3	5	3	11
A	Food processing (M)		3	5	3	11
A	Funeral services/graveyards (M)		3	5	3	11

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

Vulnerability Ranking

System Name Sebastopol, City of **System No.** 4910011

Source Name WELL 02 **Source No.** 001 **PS Code** 06N/09W-02C01 M

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
A	Hardware/lumber/parts stores (M)		3	5	3	11
A	Hospitals (M)		3	5	3	11
A	Housing - high density (>1 house/0.5 acres) (M)		3	5	3	11
A	Motor pools (M)		3	5	3	11
A	Parking lots/malls (>50 spaces) (M)		3	5	3	11
A	Transportation corridors - Freeways/state highways (M)		3	5	3	11
A	Transportation corridors - Historic railroad right-of-ways (M)		3	5	3	11
A	Transportation corridors - Road Right-of-ways (herbicide use areas) (M)		3	5	3	11
A	Waste transfer/recycling stations (M)		3	5	3	11
A	Wells - Water supply (M)		3	5	3	11
B5	Electrical/electronic manufacturing (H)		5	3	3	11
B5	Fleet/truck/bus terminals (H)		5	3	3	11
B5	Lagoons / liquid wastes (H)		5	3	3	11
B5	Machine shops (H)		5	3	3	11
B5	Photo processing/printing (H)		5	3	3	11
B5	Railroad yards/ maintenance/ fueling areas (H)		5	3	3	11
B10	Metal plating/ finishing/fabricating (VH)		7	1	3	11
A	Historic waste dumps/ landfills (VH)		7	0	3	10
A	Injection wells/ dry wells/ sumps (VH)		7	0	3	10
B5	Historic waste dumps/ landfills (VH)		7	0	3	10
B5	Injection wells/ dry wells/ sumps (VH)		7	0	3	10
B10	Historic waste dumps/ landfills (VH)		7	0	3	10
B10	Injection wells/ dry wells/ sumps (VH)		7	0	3	10
A	Apartments and condominiums (L)		1	5	3	9
A	Appliance/Electronic Repair (L)		1	5	3	9
A	Medical/dental offices/clinics (L)		1	5	3	9
A	Office buildings/complexes (L)		1	5	3	9
A	RV/mini storage (L)		1	5	3	9
A	Surface water - streams/ lakes/rivers (L)		1	5	3	9
A	Transportation corridors - Roads/ Streets (L)		1	5	3	9
A	Underground storage tanks - Decommissioned - inactive tanks (L)		1	5	3	9
A	Underground storage tanks - Upgraded and/or registered - active tanks		1	5	3	9

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Vulnerability Ranking

System Name Sebastopol, City of **System No.** 4910011

Source Name WELL 02 **Source No.** 001 **PS Code** 06N/09W-02C01 M

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
	(L)					
A	Wells - monitoring, test holes (L)		1	5	3	9
B5	Above ground storage tanks (M)		3	3	3	9
B5	Contractor or government agency equipment storage yards (M)		3	3	3	9
B5	Drinking water treatment plants (M)		3	3	3	9
B5	Food processing (M)		3	3	3	9
B5	Hardware/lumber/parts stores (M)		3	3	3	9
B5	Hospitals (M)		3	3	3	9
B5	Housing - high density (>1 house/0.5 acres) (M)		3	3	3	9
B5	Parking lots/malls (>50 spaces) (M)		3	3	3	9
B5	Parks (M)		3	3	3	9
B5	Septic systems - high density (>1/acre) (VH if in Zone A, otherwise M)		3	3	3	9
B5	Transportation corridors - Freeways/state highways (M)		3	3	3	9
B5	Transportation corridors - Historic railroad right-of-ways (M)		3	3	3	9
B5	Transportation corridors - Road Right-of-ways (herbicide use areas) (M)		3	3	3	9
B5	Wells - Water supply (M)		3	3	3	9
B10	Furniture repair/ manufacturing (H)		5	1	3	9
B10	Machine shops (H)		5	1	3	9
B10	Railroad yards/ maintenance/ fueling areas (H)		5	1	3	9
B10	Wood preserving/treating (H)		5	1	3	9
A	Agricultural Drainage (H in Zone A, otherwise M)		5	0	3	8
A	Chemical/petroleum pipelines (H)		5	0	3	8
A	Farm machinery repair (H)		5	0	3	8
A	Illegal activities/ unauthorized dumping (H)		5	0	3	8
A	Lumber processing and manufacturing (H)		5	0	3	8
A	NPDES/WDR permitted discharges (H)		5	0	3	8
A	Pesticide/fertilizer/ petroleum storage & transfer areas (H)		5	0	3	8
A	Underground storage tanks - Not yet upgraded or registered tanks (H)		5	0	3	8
A	Wells - Agricultural/ Irrigation (H)		5	0	3	8
A	Wells - Oil, Gas, Geothermal (H)		5	0	3	8
B5	Chemical/petroleum pipelines (H)		5	0	3	8
B5	Farm machinery repair (H)		5	0	3	8

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Vulnerability Ranking

System Name Sebastopol, City of **System No.** 4910011

Source Name WELL 02 **Source No.** 001 **PS Code** 06N/09W-02C01 M

Zone	PCA (Risk Ranking)	*	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
B5	Illegal activities/ unauthorized dumping (H)		5	0	3	8
B5	Lumber processing and manufacturing (H)		5	0	3	8
B5	NPDES/WDR permitted discharges (H)		5	0	3	8
B5	Pesticide/fertilizer/ petroleum storage & transfer areas (H)		5	0	3	8
B5	Underground storage tanks - Not yet upgraded or registered tanks (H)		5	0	3	8
B5	Wells - Agricultural/ Irrigation (H)		5	0	3	8
B5	Wells - Oil, Gas, Geothermal (H)		5	0	3	8
B10	Chemical/petroleum pipelines (H)		5	0	3	8
B10	Farm machinery repair (H)		5	0	3	8
B10	Illegal activities/ unauthorized dumping (H)		5	0	3	8
B10	Lumber processing and manufacturing (H)		5	0	3	8
B10	NPDES/WDR permitted discharges (H)		5	0	3	8
B10	Pesticide/fertilizer/ petroleum storage & transfer areas (H)		5	0	3	8
B10	Underground storage tanks - Not yet upgraded or registered tanks (H)		5	0	3	8
B10	Wells - Agricultural/ Irrigation (H)		5	0	3	8
B10	Wells - Oil, Gas, Geothermal (H)		5	0	3	8

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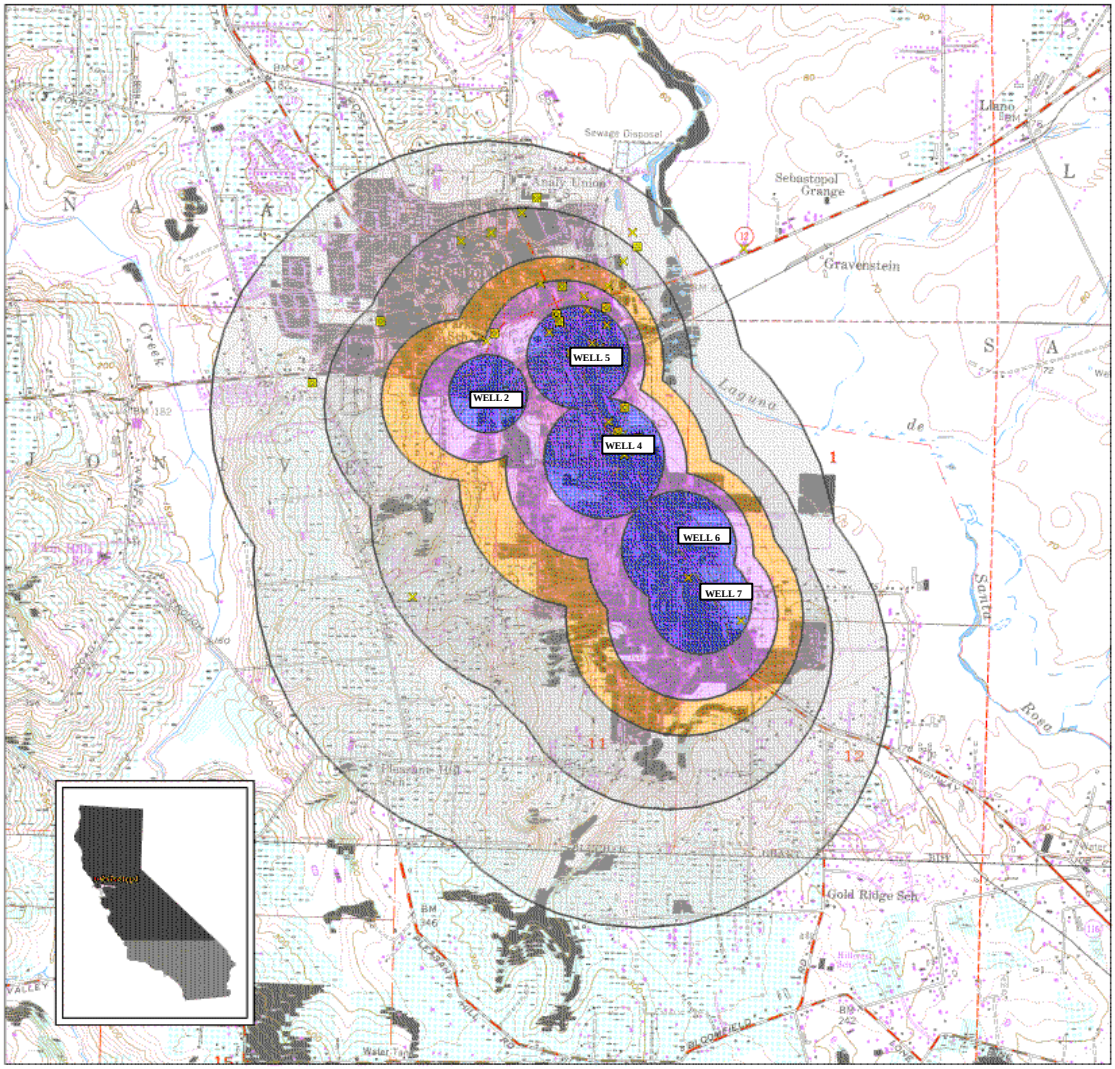
Drinking Water Source Assessment and Protection Program

Control Zone Delineation

City of Sebastopol, California



Zone A – Direct Protection Zone
Zone B5 – Inner Protection Zone
Zone B10 – Outer Protection Zone
Buffer Zone 20
Buffer Zone 50

Drinking Water Wells
Active Toxic Site Investigations
Closed Toxic Sites

500 0 500 1000 1500 2000
Feet

Polygon boundaries and point locations are approximate.

Sources of Information
1) Drinking Water Source Assessment and Protection Program – California Department of Health Services.
2) USGS 7.5 minute topographic quadrangles.
3) McLaren Environmental Engineering, May 1985, City of Sebastopol Potential Groundwater Impacts From Regional Waste Water Disposal Facilities.
4) FEMA Study for City of Sebastopol, 1994, Flood Profiles / Laguna De Santa Rosa.
5) Norris, R.M., 1990, Geology of California, John Wiley and Sons, Inc.

EPA Region 9 GIS Center

July 26, 1998