	(Susce	Ground Wa eptibility As Ve	ter Contaminations sessment Survey sesion 2.1b	on [,] Form	503
IMPORTANT!	Please compl (well, wellfic Photocopy as	lete one form fo eld, spring) use s necessary.	or each ground water d in your water syster	source n.	RECEIVED JUN 1 5 1994
PART I: Syster	n Information		,		DEPARTMENT OF HEALTH DIVISION OF DRINKING WATER
Well owner/manager	SHAWN	A Hodges	5		
Water system name :	The ri	Meadows	Water Com	nany	
County: Thurs	ton		,		
Water system number:	8778	4 Q	Source number: _	50#3	•
Well depth:3	20	(ft.) (From	WFI form)		
Source name:	1ell #3			·······	
WA well identification	tag number:			,	
well r	ot tagged				
Number of connection	s: <u>90</u>	0	Population served	270	0
Township:/ <i>E</i>	³ N		Range:/ (V	-
Section:13			1/4 1/4 Section: _	NĘ	SE
Latitude/longitude (if a	vailable):		/		
How was lat./long. det	ermined?				
globa other:	l positioning d	evice	survey to	pographic ma	ар
* Please refer t	o Assistance P	acket for detail	s and explanations of	all questions	in Parts II through V.
PART II: Well C	onstruction an	nd Source Info	rmation		
1) Date well originally	constructed:	<u>2 1 1818:</u>	month/day/year		
last r	econstruction:	517184	/month/day/year		

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information unavailable

page I

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well driller unknown		· .
Drilled: rotary bored X cable (percussion)	Dug	
Other: spring(s) lateral collector (Ranney)	₩	
driven jetted other:	:	
Additional comments:		
4) Well report available? XES (attach copy to form) NO	<u>al 1997 - Children an Andrean Children an Andrean</u>	
If no well log is available, please attach any other records documenting y logs, "as built" sheets, engineering reports, well reconstruction logs.	vell construction;	e.g. bori
70	-	
5) Average pumping rate: \underline{IB} (gallons/min) Source of information: \underline{WFI}	·	
5) Average pumping rate:(gallons/min) Source of information: <i>WFI</i> If not documented, how was pumping rate determined?		
5) Average pumping rate:(gallons/min) Source of information: WFI If not documented, how was pumping rate determined? Pumping rate unknown		
 5) Average pumping rate: <u>IB</u> (gallons/min) Source of information: <u>WFI</u> If not documented, how was pumping rate determined? Pumping rate unknown 6) Is this source treated? <i>NO</i> If so, what type of treatment: 		
 5) Average pumping rate: <u>IB</u> (gallons/min) Source of information: <u>WFI</u> If not documented, how was pumping rate determined? Pumping rate unknown 6) Is this source treated? <i>NO</i> If so, what type of treatment: disinfection filtration carbon filter air stripper otherwise carbon filter air stripper 	1er	
 5) Average pumping rate:	ner treatment):	
 5) Average pumping rate:	ner treatment):	

.

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

20 ft 20-50 ft 20-50 ft 100-200 ft X > 200 ft

____ information unavailable ('<' means less than; '>' means greater than)

2) Depth to ground water (static water level):

20 ft 20-50 ft 50-100 ft X > 100 ft

____ flowing well/spring (artesian)

How was water level determined?

 \underline{X} well log _____ other: ______

____ depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

_____ psi (pounds per square inch) or feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: ____ YES ___ NO

5) Wellhead elevation (height above mean sea level): 265 (ft)

How was elevation determined? _____ topographic map X Drilling/Well Log _____ altimeter

____ other: _____

information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

_X_____ evidence of a confining layer in well log

no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the bottom of the lowest confining layer? $XYES _ NO$

____ information unavailable

7) Sanitary setback:

en e	
	V
) Wellhead construction:	
Wellhead enclosed in a wellhouse	· .
controlled access (describe):	n she and summing a summary and a strategy of a st
and a sub-state of the state of the	and a start of the
other uses for wellhouse (describe):	
no wellhead control	
)) Surface seal: X. 18 ft	
< 18 ft (no Department of Ecology approval)	('<' means less than)
< 18 ft (Approved by Ecology, include docume	ntation) ('<' means less than)
> 18 ft	('> ' means greater than
depth of seal unknown	
no surface seal	

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	. ((· · ·	. ,	
PART IV:	Mapping Your Gr	ound Water Resou	rce		•		
1) Annual v	volume of water pumped	: 18.2mil (gallon	is)				
₩ Hov	w was this determined?	· ·	•				
۸ ۰	meter		•	. ·			
<u>,</u> <u>χ</u>	estimated: X pumpin	g rate (<u>789p</u>	n 4680gpH.).	- -		
	pump c other: <u>Calculated</u>	apacity (Mater K) Ceadings		RA	••
~	· . ·	SYEAR AND	ERAGE	54.6 Mi	l gal pun	1 3 dun 99	eer f
2) "Calcula (see	ted Fixed Radius" estim	ate of ground water	movement:	18:2	Mil Aug	galycar	- -
6 m	onth ground water trave	el time :	440	(tt)			
l ye	ear ground water travel	time :	620	(ft)			
5 ye	ear ground water travel	time:	1390)(ft)			
10	year ground water travel	time:	1970	(ft)	•		
Info	rmation available on ler	ngth of screened/ope	en interval?		·		
	YES I	NO	• •			·	
Len	gth of screened/open in	terval: <u> </u>	(ft)		· .		
3) Is there a boundary?	i river, lake, pond, strea	um, or other obvious NO (mark and iden	s surface water b ntify on map).	oody within the	e 6 month time	of travel	
4) Is there a month time	of travel boundary?	YES	$\sum_{i=1}^{i}$ NO (mark :	r holding pone and identify or	i located within in map).	the 6	
Con	nments:				· · ·		
- Petrophysics and a state of a state of a state		æ.vææææ.		• • • • • • • • • • • • • • • • • • •			
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	7	· .					
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PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five year ground water travel time:

· · ·	⁶ month	1 year	5 year	unknown
likely pesticide application	X	<u> </u>	\times	
stormwater injection wells		\. . <u></u>		· · · · · · · · · · · · · · · · · · ·
other injection wells	after the survey survey survey and		q.m	
abandoned ground water well	·			
landfills, dumps, disposal areas				
known hazardous materials clean-up site	مەربىيە بىر		<u> </u>	
water system(s) with known quality problems				······
population density > 1 house/acre	<u> </u>	X	<u>X</u>	· · ·
residences commonly have septic tanks	<u> </u>	X	X	·
Wastewater treatment lagoons	******************************	، 		
sites used for land application of waste	•		•	

Mark and identify on map any of the risks listed above which are located within the 6 month time of travel boundary? (Please include a map of the wellhead and time of travel areas with this form. Please locate and mark any of the following.)

If other recorded or potential sources of ground water contamination exist within the ten year time of travel circular zone around your water supply, please describe:

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed on assessment, MCLs are listed in assistance package.)

A. <u>Nitrate</u> : (Nitrate MCL = 10 mg/l)	<u>YES</u>	<u>NO</u>
Results greater than MCL	a	\mathbf{X}
< 2 mg/liter nitrate	K	<u></u>
2–5 mg/liter nitrate		X
> 5 mg/liter nitrate		\mathbf{X}
Nitrate sampling records unavailable		
B. <u>VOCs</u> : (VOC detection level 0.5 ug/l or 0.0005 mg/l.)	<u>YES</u>	<u>NO</u>
Results greater than MCL or SAL		X
VOCs detected at least once		$\underline{\times}$
VOCs never detected	sZ	\times
VOC sampling records unavailable		
C. <u>EDB/DBCP</u> :	<u>YES</u>	<u>NO</u>
(EDB MCL = 0.05 ug/l or 0.00005 mg/l . DBCP MCL = 0.2 ug/l or 0.0002 mg/l .)		
EDB/DBCP detected below MCL at least once	<u></u>	<u> </u>
EDB/DBCP detected above MCL at least once		<u> </u>
EDB/DBCP never detected	- \/ -	<u> </u>
EDB/DBCP tests required but not yet completed	V	
EDB/DBCP tests not required		
D. Other SOCs (Pesticides):	YES	<u>NO</u>
Other SOCs detected		\underline{X}
(pesticides and other synthetic organic chemicals)		
Other SOC tests performed but none detected		
(list test methods in comments	•	
Uther SOC tests not performed		

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here:

.

E. Bacterial contamination:

YES NO

Any bacterial detection(s) in the past $\underline{3}$ years in samples taken from the source (not distribution sampling records).

Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source.

____ Source sampling records for bacteria unavailable

Part VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for theses sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10 year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

YES X NO

Describe with references to map produced in Part IV:

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?



<u>_____</u> NO

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

X YES

___ NO

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

___ YES _______ NO

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within...

	•	YES	NO	unknown
< 6 month travel time	•		X	· · ·
6 month-1 year travel time			X	
1–5 year travel time	•		X	
5–10 year travel time		. 	<u>X</u> .	· · · · ·

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within...

		YES NO	unknöv
< 1 year travel time		<u> </u>	
1-5 year travel time		<u> </u>	······
5-10 year travel time		<u> </u>	· :

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

Suggestions and Comments

Did you attend one of the susceptibility workshops?	YES	_Д №	
Did you find it useful?	YES	NO	
Did you seek outside assistance to complete the assessment	?	_ YES	NO

This form and instruction packet are still in the process of development. Your comments, suggestions and questions will help us upgrade and improve this assessment form. If you found particular sections confusing or problematic please let us know. How could this susceptibility assessment be improved or made clearer? Did the instruction package help you find the information needed to complete the assessment? How much time did it take you to complete the form? Were you able to complete the assessment without additional/outside expertise? Do you feel the assessment was valuable as a learning experience? Any other comments or constructive criticisms you have would be appreciated.

10.......

- THE MENDINS WELL	NO 3 LETTENCE		
File Original and First Copy with Department of Ecology Copy With WATER WE	LL REPORT S Configuration N	0,	
Third Copy - Driller's Copy STATE OF W	ASHINGTON Permit No.	1Z-26	«ZS\1
(1) OWNER: Name GRAYS HAIZBOR ENTERPRISES	Address 2312 POCIFIC AVE DLYN	1PIA	»
(2) LOCATION OF WELL: County THURSTON COU	NTY NEW SIEWsee 13 T. 15	3N., R.	W.W.M.
Bearing and distance from section or subdivision corner $430'$ W. A	ND 70'S. OF E'LA LORNERS	シモレ	13
(3) PROPOSED USE: Domestic √ Industrial □ Municipal □	(10) WELL LOG:		
Irrigation 🗌 Test Well 🗍 Other	Formation: Describe by color, character, size of material	and stru	cture, and
(1) TYPE OF WORK, Owner's number of well TIN2	stratum penetrated, with at least one entry for each ch	ange of j	ormation.
(4) IIIE OF WORK. (if more than one)	MATERIAL	FROM	TO J
(Deepened) the Cable - Driven	GRAULLARD PAN		1.17
Reconditioned Rotary Jetted	GRAY SAND BIG CARRLES	1/2	115
(5) DIMENSIONS: Diameter of well	GRAYCEMENTED GRAVEL	65	82
Drilled	CIRAY SAND GRAVELLITHE	82	91
(6) CONSTRUCTION DETAILS:	<u>GRAY HARD PAN</u>	91	95_
Casing installed: 2 " Diam. from A tt. to 3401/1.	CRAY SANDY RAUNA CRAVE	99	101
Threaded [] "Diam. from	CRAY HARD PAN	101	106
Welded X	GRAY HARD PANSOMEGOBE	111	121
Perforations: Yes 🗆 No 🖗	GRAY SAND COBBLES S	122	138
Type of perforator used	BROWN CLAYBOUNDGRAVEL	138	175
size of perforations in. by it. to ft.	BROWNHARD PAN DOLIERS	175	201
perforations from	REAMINSAND RAI RAI PROVINT	201	929
perforations from It, to It,	BROWNSANDLITTUE WIFF	852	858
Screens: Yes X No D A HACAN	BROWH HARDPAN	25-8	865
Manufacturer's Name $(\Psi, I, \Psi, I, S, C, M)$	BROWN CEMENTED GRAVEL	\$45	870
U. Diam. Slot size 4.0. from 3.0.9. ft. to 3.9-014t.	BROWN HARD PAN	270	275
Diam	DRAWNSAND GRAVEL WATER	2/2	303
Gravel packed: Yes 🗆 No 🖌 Size of gravel:	BOTTOM OUT BROWN HAAD PAN	-26-2	<u> </u>
Gravel placed from ft. to ft.	- DEEPEN	3	
Surface seal: Yes X No D To what depth? f.		30	E H
Material used in seal <i>E.E.N.T.O.N.I.T.E</i>	CRHUSAND GRAVEL MATER	307	3091
Did any strata contain unusable water? Yes No K	RATTON OUT BROWN HARD PAN	309	3200
Method of sealing strata off			
(7) PUMP: Manufacturer's Name 110 Day 19 WST	<u></u>		
Туре: НР		 	<u> </u>
(8) WATER LEVELS: Land-surface elevation Z/aS			
Static level 239 ft. below top of well Date 5/11/24			1
Artesian pressure			
Artesian water is controlled by			
(9) WELL TESTS: Drawdown is amount water level is	MORIA ALL	MAY	
Was a pump test made? Yes 🗹 No 🗌 If yes, by whom?	Work startedA		P. 3 19. 8.4.
Yield: 44 gal./min. with 57 ft. drawdown after 4 hrs.	WELL DRILLER'S STATEMENT:		
	This well was drilled under my jurisdiction	and this	report is
Passenery data (time taken as zero when nump turned off) (water level	and to the best of my knowledge and benef.		C .
measured from well top to water level)	NAME KAY MICHELL D	RILLI	NC
A UU Z9(.0)	(Person, firm, or corporation) (Type or p	print)
4:01 270.01	Address ISOSE LAWN 7837 MARI	INWA	H\$3
4:00 239.0	Poli ma Dica		
Date of test	[Signed]	••••••	••••••
Artesian flowg.p.m. Date	1 6831 MA4	9	. OIL
Temperature of water	Lacense No		, 19. <i>.a.</i> .7

(USE ADDITIONAL SHEETS IF NECESSARY)

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SO-3 Appendix E: Tables For Calculating The Fixed Radii Of Protective Circles Around A Water Source

	18.20	mil	11 ft sere	ened
SCREENED				
\cdot INTERVAL = 10 ft		TIME O	FTRAVEL	
Annual Volume	6 month	1 yr	5 yrs	10 yrs
pumped (GAL)	(radius in feet)	(radius in feet)	(radius in feet)	(radius in feet)
<u>≤ 5,000,000</u>	220	310	700	980
10,000,000	310	440	980	1,390
20,000,000	440	620	1,390	1,970
50,000,000	÷700	980	2,200	3,110
100,000,000	980	1,390	3,110	4,400
250,000,000	1,550	2,200	4,920	0,930
500,000,000	2,200	3,110	6,950	9,830
SCREENED				
INTERVAL = 25 ft		TIME O	F TRAVEL	
Annual Volume	6 month	l yr	5 yrs	10 yrs
pumped (GAL)	(radius in feet)	(radius in feet)	(radius in feet)	(radius in feet)
≤ 5,000,000	140	200	440	620
10,000,000	200	280	620	880
20,000,000	280	390	880	1,240
50,000,000	440	620	1,390	1,970
100,000,000	620	880	1,970	2,780
250,000,000	980	1,390	3,110	4,400
500,000,000	1,390	1,970	4,400	6,220
			-	
SCREENED				
INTERVAL = 50 ft		TIME C	OF TRAVEL	
Annual Volume	6 month	l yr	5 yrs	10 yrs
' pumped (GAL)	(radius in feet)	(radius in feet)	(radius in feet)	(radius in feet)
≤ 5,000,000	100	140	310	440
10,000,000	140	200	440	620
20,000,000	200	280	620	880
50,000,000	310	440	980	1,390
- 100,000,000 · z c	440	620	1,390	1,970
250,000,000	•• 700	- 980	2,200	3,110
500,000,000	980	1,390	3,110	4,400
				ء مر المانية المراجع المانية المراجع المانية المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع
SCREENED				
INTERVAL = 75 ft		TIME	OF TRAVEL	
Annual Volume	6 month	l yr	5 yrs	10 yrs
pumped (GAL)	(radius in feet)	(radius in feet)	(radius in feet)	(radius in feet)
≤ 5,000,000	80	110	250	360
10,000,000	110	160	360	510
20,000,000	160	230	510	720
50,000,000	250	360	800	1,140
100,000,000	360	510	1,140	1.610
250,000,000	570	800	1.800	2,540

Appendices to Susceptibility Assessment Form 2.1b

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Ground Water Contamination Susceptibility Assessment Survey Form Version 2.1b

IMPORTANT!

Please complete one form for each ground water source (well, wellfield, spring) used in your water system. Photocopy as necessary. RECEIVED

JUN 1 5 1994

DEPARTMENT OF HEALTH DIVISION OF DRINKING WATER

PART I: System Information

Well owner/manager :SHAWA	LA Hodges
Water system name : <u>Meadows</u> L	Nater Company
County: Thurston	
Water system number: <u>87784 Q</u>	Source number: $50^{\pm c/}$
Well depth: <u>293</u> (ft.) (F	rom WFI form)
Source name: $Well # 4$	
WA well identification tag number:	
well not tagged	
Number of connections:	Population served: 2200
Township: / & / /	Range:/ <i>W</i>
Section:/ .3	1/4 1/4 Section: <u>NE SE</u>
Latitude/longitude (if available):	/
How was lat./long. determined?	
global positioning device	survey topographic map

* Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

 Date well originally constructed: <u>IO / 22/83 month/day/year</u> last reconstruction: <u>/ / month/day/year</u> information unavailable

2) Wall dillary Ray M	CG:11 Wall C	alling		;
2) wen driner		<u></u>		;
· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		Langet	
well driller unknown				· .
3) Type of well:		· · ·		
Drilled: rotary	bored X cable (per	cussion)Dug		
Other: spring(s)	lateral collector (Ranney)	· · · · · · · · · · · ·		
driven	jettedother:			
Additional comments:			· .	
4) Well report available? X YES (att	tach copy to form) NO			
If no well log is available, plea logs, "as built" sheets, enginee	ase attach any other records doc ering reports, well reconstructio	umenting well constru n logs.	iction; e.g. boring	
5) Average pumping rate: / E	32(gallor	s/min)		
Source of information:	UFI			
If not documented, how was po	umping rate determined?	·		
Pumping rate unknown		4.81.61		
$\frac{1}{2}$ Tumping fact unknown (6) is this source treated?				
If so, what type of treatment:				
disinfection filtration	a carbon filter air strip	per other		
Purpose of treatment (describe	materials to be removed or con	trolled by treatment):		
	· · · · · · · · · · · · · · · · · · ·	· ·		
7) If source is chlorinated, is a chlorin	e residual maintained: YES	NO	•	
Residual level:	_ (At the point closest to the sou	urce.)		
	Survey Form Ver. 2.1b			
	page 2			

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

20 ft 20-50 ft 50-100 ft 100-200 ft X > 200 ft

_____ information unavailable ('<' means less than; '>' means greater than)

2) Depth to ground water (static water level):

20 ft 20-50 ft 50-100 ft X > 100 ft

____ flowing well/spring (artesian)

How was water level determined?

<u>X</u> well log ____ other: _____

____ depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

_____ psi (pounds per square inch)

or ____ feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: ____YES ___NO

5) Wellhead elevation (height above mean sea level): 245 (ft)

How was elevation determined? _____ topographic map X Drilling/Well Log _____ altimeter

____ other:

_____ information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

_X

evidence of a confining layer in well log

no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the bottom of the lowest confining layer? YES NO

information unavailable

7) Sanitary setback:

< 100 ft*	100-120 ft 120-200 ft	> 200 ft		·	r
* if less t	han 100 ft describe the site co	naltions:	x	· . -	•
		• :		· · ·	,
				,	Γ.
8) Wellhead construction	•				
X wellhead	enclosed in a wellhouse	۱ -			
controlled	d access (describe):	- • • • • • • • • • • • • • • • • • • •	an a	*•	
other use	s for wellhouse (describe):				
no wellhe	ead control		<u> </u>		
9) Surface seal: <u>X</u> 18 ft					•
< 18 ft (no	Department of Ecology appro	oval) ('<' me	ana less than)		
< 18 ft (App	proved by Ecology, include do	cumentation) ('<' me	ans less than)		
> 18 ft		('> ' me	ans greater than)		
depth of seal	unknown		· .		
no surface se	eal				
10) Annual rainfall (inch	es per year):	•	•		
< 10 in/yr	10-25 in/yr	X > 25 in/yr			ık.
				• •	
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		(
	PART IV: Mapping Your Ground Water Resource		۰.		
,	1) Annual volume of water pumped: <u>43,1</u> (gallons)				
•	How was this determined?				
, , ,	meter				,
· .	X estimated: X pumping rate (1829, pm 10920	<u>g</u> pH			
•	pump capacity (<u>·</u>)	•		
1	other: <u>AlculateD From Hour Meter</u> 24 Jun 91 19192 Hes MTR Be 13 Jun 94 31032 Hes MTR R 2) "Calculated Fixed Radius" estimate of ground water movement: (see Instruction Packet)	ldgs	total HA 129292 2 43.1 Mi	es 11840 300 gal :- 1 gal Aug	HRS BYRS
1	6 month ground water travel time :	00 (t	t)	 	
•	1 year ground water travel time :	<u>BO(f</u>	t)		
١.	5 year ground water travel time: $2\sqrt{2}$.	<u>00 (f</u>	t)		•
	10 year ground water travel time: 3,11	<u>0 (f</u>	t)		
	Information available on length of screened/open interval?				
	YESNO	•	• •		
	Length of screened/open interval:(ft)				
	 3) Is there a river, lake, pond, stream, or other obvious surface water boundary?YESNO (mark and identify on map) 4) Is there a stormwater and/or wastewater facility, treatment lagoor month time of travel boundary?YESNO (mark and identify on map) 	er body with a, or holding	n the 6 month pond located v	time of travel vithin the 6	
			ry on mapy.		
		- -			
		· <u>····································</u>			
				•	
				· -	
	Survey Form Ver. 2.1b page 5				
	Survey Form Ver. 2.1b page 5				
	Survey Form Ver. 2.1b page 5				

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five year ground water travel time:

ÿ	•	6 month	1 year	5 year	unknown
likely pesticide application		<u></u>	X	<u> </u>	
stormwater injection wells		-		s .	
other injection wells			<u></u>		
abandoned ground water well			·		
landfills, dumps, disposal areas					
known hazardous materials clean-up site			B		
water system(s) with known quality problems					
population density > 1 house/acre		X	<u>_</u> K	<u>×</u>	<u></u>
residences commonly have septic tanks		_X_	$\underline{\times}$	$\underline{\times}$	
Wastewater treatment lagoons		<u> </u>		_,	
sites used for land application of waste					·

Mark and identify on map any of the risks listed above which are located within the 6 month time of travel boundary? (Please include a map of the wellhead and time of travel areas with this form. Please locate and mark any of the following.)

If other recorded or potential sources of ground water contamination exist within the ten year time of travel circular zone around your water supply, please describe:

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed on assessment, MCLs are listed in assistance package.)

A. <u>Nitrate</u> : (Nitrate MCL = 10 mg/l)	<u>YES</u>	<u>NO</u>
Results greater than MCL	/	<u> </u>
< 2 mg/liter nitrate	\mathbf{V}	
2-5 mg/liter nitrate		×
> 5 mg/liter nitrate		$\underline{\times}$
Nitrate sampling records unavailable		
B. <u>VOCs</u> : (VOC detection level 0.5 ug/l or 0.0005 mg/l.)	YES	NO
Results greater than MCL or SAL		<u> </u>
VOCs detected at least once		<u>, ×</u> ,
VOCs never detected	+	<u> </u>
VOC sampling records unavailable		
C. <u>EDB/DBCP</u> :	YES	<u>NO</u>
(EDB MCL = 0.05 ug/l or 0.00005 mg/l . DBCP MCL = 0.2 ug/l or 0.0002 mg/l .)		
EDB/DBCP detected below MCL at least once		<u> </u>
EDB/DBCP detected above MCL at least once	/	/ <u>×</u>
EDB/DBCP never detected		$\underline{\times}$
EDB/DBCP tests required but not yet completed		
EDB/DBCP tests not required		
D. Other SOCs (Pesticides):	<u>YES</u>	<u>NO</u>
Other SOCs detected		\underline{X}
(pesticides and other synthetic organic chemicals)		
Other SOC tests performed but none detected		
(list test methods in comments		
Other SOC tests not performed		

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here:

E. Bacterial contamination:

Any bacterial detection(s) in the past <u>3</u> years in samples taken from the source (not distribution sampling records).

Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source.

Source sampling records for bacteria unavailable

Part VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for theses sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10 year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

___ YES

Describe with references to map produced in Part IV:

___ NO

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

YES

X NO

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

 \prec YES

NO

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

_ YES 📈 NO

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within...

	YES	NO	unknown
< 6 month travel time	· ·	X	
6 month-1 year travel time	• •	\mathbf{X}	
1~5 year travel time		$\underline{\times}$	······································
5–10 year travel time		·	\mathbf{X}

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within...

	YES NO unknown
< 1 year travel time	<u> </u>
1–5 year travel time	<u> </u>
5–10 year travel time	<u> </u>

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

· · · ·	• •		
Did you attend one of the susceptibility workshops?	YES	NO	
Did you find it useful?	YES	NO	
Did you seek outside assistance to complete the assess	ment?	_ YES	NO

This form and instruction packet are still in the process of development. Your comments, suggestions and questions will help us upgrade and improve this assessment form. If you found particular sections confusing or problematic please let us know. How could this susceptibility assessment be improved or made clearer? Did the instruction package help you find the information needed to complete the assessment? How much time did it take you to complete the form? Were you able to complete the assessment without additional/outside expertise? Do you feel the assessment was valuable as a learning experience? Any other comments or constructive criticisms you have would be appreciated.

.

Suggestions and Comments

/			504			
File Original an. First Copy with Department of Ecology Second Copy — Owner's Copy	WATER WE	LL REPORT	A	pplication No	1	
	STATE OF W	ASHINGTON	P	ermit No94	- 26	251
(1) OWNER: Name (3.1024) 5 19401 (33)	LUECTAN	Address 23.12	PALIFIC &	will , un	<u>~~</u>	
(2) LOCATION OF WELL: County	PURSION 2		VE 14 Sec.	13 T/8N	N., R	LAW.M.
Bearing and distance from section or subdivision col	rner Aprilux St	LU EDST BE	THE E 14	WUNGE	<u> >eC</u>	13
(3) PROPOSED USE: Domestic X Indus	trial [] Municipal []	(10) WELL LOC	X:			
		show thickness of aqu stratum penetrated, u	ifers and the kind and oth at least one entry	hature of the s	a structu material ge of for	in each mation.
(4) TYPE OF WORK: Owner's number of (if more than one).	well # 9		MATERIAL	F	ROM	то
Deepened	Cable G Driven	BROWNCL	AY BOUNDC	RAVES	0	10
Reconditioned	Rotary 📋 Jetted 📋	CARAY HA	RDFAN		0	109
(5) DIMENSIONS: Diameter of well Drilled <u>99</u> ft. Depth of completed	well <u>199</u> tt	GRAY SAND	GRAVEL	VEL Q	10	90 98
(6) CONSTRUCTION DETAILS.		BROWN	EATCLAY			140
(b) CONSTRUCTION DETAILS:	~ · · · 004.	GRAY CL	AY	4	20	170
Threaded Diam. from	(1 II. 10	<u>GRAY</u> SI	ANDGRAV	BL 1	30	147
Weided 5	ft. to ft.	BRAWNS	HALYCOM	P +	47	177
Perforations: Yes 🔲 No 🔂		P. RNY HA	RD RAN	a	02	44.8
Type of perforator used		BROWN	LAY	Charter of provide and provide	98	330
Size of perforations	by 11. 1t. to 1t.	BROWN H	ARDYAN	<u> </u>	30	3.40
perforations from	ft. to ft.	BROWNSAN	CAU	/	149	244
performing from		GRAY HA	RDBAN	de d	3 50	310
Screens: Yest No DAHNSON	V .	URAN SAI	VD GRAVEL		268	9.79
Type STANCESS Mo	del No	CIRAY CORS	E SAND GRAVE	LWAIER &	3-74	193
DiamSlot aize	75911. to 2.85911.	DAILON G		W FAG		
	A AND A AND AND AND AND AND AND AND AND					······
Gravel packed: Yes No K Size of	gravel:		<u>`</u>			
	10		- de la			
Material used in seal	depth?					
Did any strata contain unusable water	7 Yes No					
Type of water? Depth of Method of sealing strate off	of strata		S HEU	EVF	$\Omega +$	
(7) DIIMD.			1 de la compañía de l			
(1) FUMIT: Manufacturer's Name				8 1983		
(0) WATTER Land-surface elev	ation 74		0004000			ź,
(8) WATER LEVELS: above mean sea is	evel.			VI OF ECOLO	GY - 17	مر م .
Artesian pressure 2.11. 51hbs. per square inc	h Date		0001111201	REGIONAL DE	FICE	
Artesian water is controlled by((Cap, valve, etc.)	······				
(9) WELL TESTS: Drawdown is amou	nt water level is				00	
Was a pump test made? Yes H No I If yes, by v	whom? CAPCITY VHP	Work started		npleted	J.J.	., 19
Yield: gal./min. with ft. drawdo	wn after hrs.	WELL DRILLE	R'S STATEMEN	(T :		
	<u> </u>	This well was	drilled under my ju	irisdiction and	d this re	eport is
Recovery data (time taken as zero when pump tu	irned off) (water level			16/511	h R	77.51
measured from well top to water level) Time Water Level Time water Level	Time Water Level	NAME TO Y	MCGILL	VYECL	- VR6	2417
			erson, nrm, or corpora		e or prin או	
		Address	/NA-N // /	v un 2 A	<u>////</u>	с. <u></u> т.4
Date of test	•••••••••••	Isternada Ro	4 Mcs	Fill		
Bailer testgal./min, withft. drawo	lown afterhrs.	[eiRuga]t.y	(Well	Driller)		
Temperature of water	sis made? Yes 🗌 No 🗍	License No. 23	3. Це р	ate. NOV	3	, 19 S 3
		1			-	

Appendix E: Tables For Calculating The Fixed Radii Of Protective Circles Around A Water Source

4	3.1 m.1	17' scree.	ned	
SCREENED	in a second second second second	TIME OF	TRAVEL	
\cdot INTERVAL = 10 ft			- IKAVEE	10
Annual Volume	6 month	1 yr) yrs	(molius in feet)
pumped (GAL)	(radius in feet)	(radius in feet)	(radius in feet)	
≤ 5,000,000	220	310	700	1 200
10,000,000	310	440	980	1,390
20,000,000	440	020	1,390	2 1 10
50,000,000	- 700	980	2,200	3,110
100,000,000	980	1,390	3,110	4,400
250,000,000	-1,550	2,200	4,920	0,930
500,000,000	2,200	3,110 [0,950	9,030
SCREENED				
INTERVAL = 25 ft		TIME O	F TRAVEL	
Annual Volume	6 month	l yr	5 yrs	10 yrs
pumped (GAL)	(radius in feet)	(radius in feet)	(radius in feet)	(radius in feet)
≤ 5,000,000	140	200	440	620
10,000,000	200	280	620	880
20,000,000	280	390	880	1,240
50,000,000	440	620	1,390	1,970
100.000.000	620	880	1,970	2,780
250,000,000	980	1,390	3,110	4,400
500.000.000	1.390	1,970	4,400	6,220
			·	
SCREENED	T			
SCREENED		TIME C	F TRAVEL	
INTERVAL = 50 ft	Constant	1	5 405	10 yrs
Annual Volume	6 month	I yr (radius is faat)	(radius in feet)	(radius in feet)
pumped (GAL)			310	440
10,000,000	100	200	440	620
	140	200	620	880
20,000,000	200	440	020	1 390
100,000,000	310	620	1 300	1.970
250,000,000	440	020	2 200	3,110
<u> </u>	100	1 200	2,200	4 400
500.000.000	980	1,390	5,110	1,100
SCREENED				
INTERVAL = 75 ft		TIME (JF TRAVEL	
Annual Volume	6 month	l yr	5 yrs	10 yrs
pumped (GAL)	(radius in feet)	(radius in feet)	(radius in feet)	(radius in feet)
≤ 5,000,000	80	110	250	360
10,000,000	110	160	360	510
20,000,000	160	230	510	720
50,000,000	250	360	800	1,140
100,000,000	360	510	1,140	1.610
250,000,000	570	800	1,800	2.540
500.000.000	800	- 1,140	2,540	3,590

50-4

Appendices to Susceptibility Assessment Form 2.1b 21

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Ground Water Contamination Susceptibility Assessment Survey Form Version 2.1b

IMPORTANT! Please complete one form for each ground water source (well, wellfield, spring) used in your water system. Photocopy as necessary.

RECEIVED

JUN 1 5 1994

PART I: System Information

Well owner/manager : Silos on N	DEPARTMENT OF HEALTH DIVISION OF DRINKING WATER
Well Owner/manager . OHAWNA 197	Dages
Water system name : <u>The Meadows</u>	Water Company
County: Thurston	y z
Water system number: <u>87784</u> Q	Source number: $50^{\pm}5$
Well depth: <u>336</u> (ft.) (From	WFI form)
Source name: <u>Well #5</u>	· ·
WA well identification tag number:	· ·
well not tagged	
Number of connections:	Population served: 2700
Township:/ 8 /V	Range: / UU
Section:/ 3	1/4 1/4 Section: <u>NE SE</u>
Latitude/longitude (if available):	/
How was lat./long. determined?	·
global positioning device	survey topographic map

* Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: <u>///24/86</u> month/day/year last reconstruction: <u>/</u>_/_ month/day/year _____ information unavailable

2) Well driller: Roy Mc Gill Well Drilling		
		(
well driller unknown		
3) Type of well:		•
Drilled:rotarybored 📈 cable (percussion) Dug	. .	
Other: spring(s) lateral collector (Ranney)	an e	
driven jetted other:		•
Additional comments:		
· · · · · · · · · · · · · · · · · · ·		
4) Well report available? XYES (attach copy to form) NO	· 2	
If no well log is available, please attach any other records documenting well construction logs, "as built" sheets, engineering reports, well reconstruction logs.	tion; e.g. bori	ng
5) Average pumping rate: <u>30</u> (gallons/min)		
Source of information: WFI	uture ti	
If not documented, how was pumping rate determined?		
Pumping rate unknown		
6) Is this source treated? NO		
If so, what type of treatment:		
disinfection filtration carbon filter air stripper other	•	·
Purpose of treatment (describe materials to be removed or controlled by treatment):		
7) If source is chlorinated, is a chlorine residual maintained:YESNO		
Residual level: (At the point closest to the source.)		

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

20 ft 20-50 ft 50-100 ft 100-200 ft X > 200 ft

____ information unavailable ('<' means less than; '> ' means greater than)

2) Depth to ground water (static water level):

- < 20 ft _ 20-50 ft _ 50-100 ft X > 100 ft

____ flowing well/spring (artesian)

How was water level determined?

____ depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

_____ psi (pounds per square inch) or

____ feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: ____YES ____NO

5) Wellhead elevation (height above mean sea level): $\frac{253}{(ff)}$

How was elevation determined? _____ topographic map X Drilling/Well Log _____ altimeter

____ other: _

_____ information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

evidence of a confining layer in well log

no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the bottom of the lowest confining layer?

____ information unavailable

7) Sanitary setback:

7

Wellhead construction:	<u></u>
wellhead enclosed in a wellhouse	
controlled access (describe):	
other uses for wellhouse (describe):	
no wellhead control	
) Surface seal: 18 ft	
< 18 ft (no Department of Ecology approval)	('<' means less than)
< 18 ft (Approved by Ecology, include documentation)	('<' means less than)
X > 18 ft	('>' means greater than
depth of seal unknown	
no surface seal	· · · ·
	· · ·

PART IV: Mapping Your Ground Water Resource 1) Annual volume of water pumped: Z_O	•	
<pre>() Annual volume of water pumpel: <u>TO</u><u>r</u>ⁿ(gallons) How was this determined? </pre>		PART IV: Mapping Your Ground Water Resource
How was this determined?		1) Annual volume of water pumped: 7.0 mil (gallons)
<pre></pre>		How was this determined?
▲ estimated:		meter
		$\underline{\times}$ estimated: $\underline{\times}$ pumping rate (<u>30pm 1800 gpt</u>)
		pump capacity ()
1 1		other: Calculated from Hour Meter Readings
2) "Calculated Fixed Radius" estimate of ground water movement: (see Instruction Packet). 7.0 mil gal/re Avg. 6 month ground water travel time :		13 Jungy 16302:4 " " " Toppal= 21,000,600 gal - 34
6 month ground water travel time :		2) "Calculated Fixed Radius" estimate of ground water movement: (see Instruction Packet) 7.0 mil gallie Aug
0 moning ground water travel time:		6 month ground upter travel time 310 (4)
1 year ground water travel time :	•	$\frac{3}{440}$
5 year ground water travel time:		I year ground water travel time : (ft)
10 year ground water travel time:		5 year ground water travel time: 700 (ft)
Information available on length of screened/open interval? YESNO Length of screened/open interval:9(ft) 3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary?YESNO (mark and identify on map). 4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary?YESNO (mark and identify on map). Comments: 	•	10 year ground water travel time: $10^{3} - 90^{-1}$ (ft)
YESNO Length of screened/open interval:9(ft) 3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary?YESNO (mark and identify on map). 4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary?YESNO (mark and identify on map). Comments:		Information available on length of screened/open interval?
Length of screened/open interval; (ft) 3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? YES NO (mark and identify on map). 4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES NO (mark and identify on map).		YES NO
3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? 4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES NO (mark and identify on map). Comments:		Langth of screened/open interval: 9 (ft)
Comments:		3) Is there a river lake nond stream or other obvious surface water body within the 6 month time of travel
Survey Form Ver. 2.1b page 5		 3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary?YESX NO (mark and identify on map). 4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary?YESX NO (mark and identify on map).
Survey Form Ver. 2.1b page 5		 3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary?YESX NO (mark and identify on map). 4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary?YESX NO (mark and identify on map). Comments:
Survey Form Ver. 2.1b page 5		 3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary?YESX NO (mark and identify on map). 4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary?YESX NO (mark and identify on map). Comments:
Survey Form Ver. 2.1b page 5		 3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary?YESX NO (mark and identify on map). 4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary?YESXNO (mark and identify on map). Comments:
Survey Form Ver. 2.1b page 5		 3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary?YESX NO (mark and identify on map). 4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary?YESX NO (mark and identify on map). Comments:
Survey Form Ver. 2.1b page 5		 3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary?YESNO (mark and identify on map). 4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary?YESXNO (mark and identify on map). Comments:
Survey Form Ver. 2.1b page 5		 3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary?YESNO (mark and identify on map). 4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary?YESNO (mark and identify on map). Comments:
	·	 3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary?YESX NO (mark and identify on map). 4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary?YESX NO (mark and identify on map). Comments:
		 3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary?YESNO (mark and identify on map). 4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary?YESNO (mark and identify on map). Comments:
		 3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary?YESNO (mark and identify on map). 4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary?YESNO (mark and identify on map). Comments:
		 3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary?YESNO (mark and identify on map). 4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary?YESNO (mark and identify on map). Comments:

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five year ground water travel time:

	6 month	1 year	5 year	unknown
likely pesticide application	<u> </u>	X	<u> </u>	······
stormwater injection wells			`	-
other injection wells		. <u></u>	Survey	. I
abandoned ground water well		ná da faite de server e		
landfills, dumps, disposal areas	<u> </u>	e-todo in the		
known hazardous materials clean-up site		<u></u>		
water system(s) with known quality problems	<u></u>			
population density > 1 house/acre	X	$\underline{\vee}$	×	
residences commonly have septic tanks	<u></u>	<u>×</u>	<u>X</u>	·
Wastewater treatment lagoons		· <u></u>		editoria de la companya de la compa
sites used for land application of waste				

Mark and identify on map any of the risks listed above which are located within the 6 month time of travel boundary? (Please include a map of the wellhead and time of travel areas with this form. Please locate and mark any of the following.)

If other recorded or potential sources of ground water contamination exist within the ten year time of travel circular zone around your water supply, please describe:

15

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed on assessment, MCLs are listed in assistance package.)

A. <u>Nitrate</u> : (Nitrate MCL = 10 mg/l)	YES	<u>NO</u>
Results greater than MCL	·	· <u> </u>
< 2 mg/liter nitrate	¥/	
2-5 mg/liter nitrate	· .	X
> 5 mg/liter nitrate		<u></u>
Nitrate sampling records unavailable		
B. <u>VOCs</u> : (VOC detection level 0.5 ug/l or 0.0005 mg/l.)	<u>YES</u>	<u>NO</u>
Results greater than MCL or SAL		<u>X</u> -
VOCs detected at least once	/	X
VOCs never detected	\checkmark	<u></u>
VOC sampling records unavailable		
C. <u>EDB/DBCP</u> :	<u>YES</u>	<u>NO</u>
(EDB MCL = $0.05 \text{ ug/l or } 0.00005 \text{ mg/l}$, DBCP MCL = $0.2 \text{ ug/l or } 0.0002 \text{ mg/l}$.)		
EDB/DBCP detected below MCL at least once		<u> </u>
EDB/DBCP detected above MCL at least once	_/	<u>×</u>
EDB/DBCP never detected	\checkmark	$\underline{\times}$
EDB/DBCP tests required but not yet completed		
EDB/DBCP tests not required		
D. Other SOCs (Pesticides):	YES	<u>NO</u>
Other SOCs detected		X
(pesticides and other synthetic organic chemicals)		7
Other SOC tests performed but none detected		
(list test methods in comments		
Other SOC tests not performed		

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here:

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,

E. Bacterial contamination:

Any bacterial detection(s) in the past $\underline{3}$ years in samples taken from the source (not distribution sampling records).

Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source.

____ Source sampling records for bacteria unavailable

Part VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for theses sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10 year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

____ YES

Describe with references to map produced in Part IV:

X NO

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

YES

X NO

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

X YES

___ NO

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

___ YES ___ X NO

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within...

			UTRIEDWH
	· ,	\underline{X}	· · · ·
		$\underline{\times}$	
		\mathbf{X}	
· · ·	-	<u> X</u>	·

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within...

	• *			· · · · · ·	YES	NO	unknow
< 1 year travel time						X	· ····
1-5 year travel time		:				X	
5-10 year travel time			••••	· ·		X	

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

Suggestions and Comments

Did you attend one of the susceptibility workshops?	YE	s <u></u> ≱a	NO
Did you find it useful?	YE	si	NO
Did you seek outside assistance to complete the assessment	17 _	YES	NO

This form and instruction packet are still in the process of development. Your comments, suggestions and questions will help us upgrade and improve this assessment form. If you found particular sections confusing or problematic please let us know. How could this susceptibility assessment be improved or made clearer? Did the instruction package help you find the information needed to complete the assessment? How much time did it take you to complete the form? Were you able to complete the assessment without additional/outside expertise? Do you feel the assessment was valuable as a learning experience? Any other comments or constructive criticisms you have would be appreciated.

		505	
File Original and First Copy with Department of Ecology Second Copy — Owner's Copy	R WELL REPORT	Application N	ło,
Third Copy — Driller's Copy STAT	E OF WASHINGTON	Permit No.	12-26623F
(1) OWNER: Name HODGES HOMES, I	NC Address ZILI	STATE ST OLV	MPIA WO 98
(2) LOCATION OF WELL: County THURS	TON	E SE K Sen 13 m 1	8 IW
Bearing and distance from section or subdivision corner \pm 4	00' ~ 100' S OF E	44 LORNER SET 13	, TAN RIU
(3) PROPOSED USE: Domestic Industrial Mun	icipal		
Irrigation [] Test Well [] Othe	r 🔲 Formation: Describe by	color, character, size of materia	l and structure. and
(4) TYPE OF WORK: Owner's number of well # 5	stratum penetrated, wit	ers and the kind and nature of t h at least one entry for each cl	he material in each lange of formation.
New well Method: Dug [] B	ored	ATERIAL	FROM TO
Perpende Cable A D	riven D Gray Sann	dy Grave/	0 10
	GYAN CLOW	Bound Grovel	20 30
(5) DIMENSIONS: Diameter of well	inches. Gray Hard	pan2	30 39
	Same		39 74
(6) CONSTRUCTION DETAILS: ±3	29' Brown Clayf	ound Gravel Coshla	74 80
Casing installed: Diam. trom	Big th. Blue Soude	Gravel (140 ton)	98 122
Welded	the Brown Have	Pan Big Boldys	122 137
Perforations:l	LE. Browne Cl	ay Bound Gravel	137 143
Type of perforator used	Same		143 177
SIZE of perforations in. by	in. Some Ho	ind pan	182 182
perforations from ft. to	A Brown Cem	enter Gravel	197 705
perforations from	# Same		205 130
Screens: Yes No TI A	Same		230 245
Manufacturer's Name JOHNSON	Brown Ca	ry and Grayn	246 268
Diam, Lidd Slot size 15 from 2.4.7 ft to 2	34+ Brown Hay	d Pan	290 300
Diam	the Brown San	1 dy Gravel (water)	300 303
Gravel packed: Yes I No the Size of gravel:	Brown Clay	Bound Grave	303 311
Gravel placed from ft. to	tt. Little weet	Big Cobbles	211 719
Surface seal: Yes No T To what depth? 9	" Brown Squ	rdy Gravel (Wotor)	319 329
Material used in seal BENTANITE	Brown Ja	nd (water)	329 336
Did any strata contain unusable water? Yes	No D P Hand		
Method of sealing strata off	Dallomest	OVE	
(7) PUMP: Manufacturer's Name	Brown	Hard Pan	
Туре:			
(8) WATER LEVELS: Land-surface elevation 7 25	3',	100	
Static level ZZ6-712 ft. below top of well Date 11/2	4/86	NO 02	
Artesian pressure	****************	110-	
(Cap, valve, etc.)		<i>N</i>	
(9) WELL TESTS: Drawdown is amount water level i lowered below static level	8	5	11 746 7
Was a pump test made? Yes 🕅 No 🗌 If yes, by whom? Mc C	WORK Started, T.I.k.	Completed	0.0
rield: // gai./min. with 24 [it. drawdown after (hrs. WELL DRILLER	S STATEMENT:	
i) ir ii	" This well was dri true to the best of i	illed under my jurisdiction a ny knowledge and belief.	and this report is
Recovery data (time taken as zero when pump turned off) (wat measured from well top to water level)	er level D	MAGE IL LAL	In mil
Time Water Level Time Water Level Time Water	Level NAME TOY	frm or corneration)	11 Drill
$\frac{1}{7}$ $\frac{235}{244}$ $\frac{10}{14}$ $\frac{226-10''}{271}$		Montile AAla	い井 うっ
4 228	Address.	II FUX LITU VVa	4 <u> </u>
Date of test	[Signed] Rot	+ mu fill	
Bailer testft. drawdown after	hrs,	(Well Driller)	
Temperature of water	No D License NoQ	6	6 19.8.6
	1		

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Appendix E: Tables For Calculating The Fixed Radii Of Protective Circles Around A Water Source

SCREENED	TIME OF TRAVEL				
INTERVAL = 10 ft	C marker 1		<u> </u>	10 10	
Annual Volume	0 monun	i yr (mdius in feet)	Jyrs (radius in feet)	(radius in feet)	
	220		700	980	
10,000,000	310	440	980	1.390	
20,000,000	440	620	1,390	1.970	
50,000,000	700	980	2.200	3,110	
100.000.000	980	1,390	3.110	4,400	
2.50.000.000	1.550	2,200	4,920	6,950	
500.000.000	2,200	3.110	6,950	9,830	
SCREENED					
INTERVAL = 25 ft		TIME C	OF TRAVEL		
Annual Volume	6 month	l yr	5 yrs	IU yrs	
pumped (GAL)	(radius in feet)	(radius in feet)	(radius in reet)		
≤ 5,000,000	140	200	440	880	
10,000,000	200	280	020	1 240	
20,000,000	280	590	1 200	1,240	
50,000,000	440	020	1,390	2 780	
250,000,000	020	1 200	3,110	4 400	
<u>200,000,000</u>	980	1,390	4 400	6.220	
300,000,000	1,390	1,970		0,220	
SCREENED	T				
SCREENED INTERVAL = 50 ft		TIME	OF TRAVEL	·	
Annual Volume	6 month	1 yr	5 yrs	10 yrs	
' pumped (GAL)	(radius in feet)	(radius in feet)	(radius in feet)	(radius in feet)	
⊴⊲≤ 5,000,000	100	140	310	440	
10,000,000	140	200	440	· 620	
20,000,000	200	280	620	880	
50,000,000	310	440	980	1,390	
100,000,000 Hz -	440	620	1,390	1,970	
	700	980	2,200	2,110	
500,000,000	980	1,390	3,110	<u> 4,400</u>	
(
SCREENED		·*** 4**	OF TRAVET		
INTERVAL = 75 ft		IIME	UF IRAVEL	10	
Annual Volume	6 month	l yr	5 yrs	IU YTS (radius in fast)	
pumped (GAL)	(radius in feet)	(radius in feet)	(radius in reet)		
≤ 5,000,000	80	110	220	510	
10,000,000	110	100	500	720	
20,000,000	100	230	800	1 140	
50,000,000	230	510	1 140	1.610	
100,000,000	570		1,140	2.540	
200,000,000	2/0	1 140	2 540	3.590	
500,000,000	1 800	1,140	1 4.340		

7 mill g'screened

Appendices to Susceptibility Assessment Form 2.1b 21

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JUN 1 5 1994

Ground Water Contamination Susceptibility Assessment Survey Form Version 2.1b

IMPORTANT! Please complete one form for each ground water source (well, wellfield, spring) used in your water system. Photocopy as necessary.

PART I: System Information

Photocopy as necessary.		DEPARTMENT OF USA
PART I: System Information		DIVISION OF DRINKING WATER
Well owner/manager :	Isteve cole	
Water system name : <u>The Meadows</u>	Water Company	
County: Thurston		
Water system number: <u>87784</u> Q	Source number: $50^{\pm}6$	99-11
Well depth:	WFI form)	
Source name:		
WA well identification tag number:		
well not tagged		
Number of connections: 900	Population served:2 200	<u>) </u>
Township:18 /\/	Range:/ <i>W</i>	
Section:13	1/4 1/4 Section: <u>NE</u> <u>SE</u>	
Latitude/longitude (if available):	/	
How was lat./long. determined?		
global positioning device	survey topographic map	

* Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: 3/30/89 month/day/year

> ___ / ___ / ___ month/day/year last reconstruction:

information unavailable

	ll driller: <u> </u>	ling Bros	Deill	ing, Inc.				
		· · ·	<u></u>	<u> </u>				
					· · · · · · · · · · · · · · · · · · ·			
	well drille	er unknown					•	
3) Typ	e of well:		, ,					
	Drilled:	X rotary	bored	cable (percuss	ion) Dug		•	
	Other:	spring(s)	lateral coll	ector (Ranney)		.). (
		driven	jetted	other:	· · · · ·			
	Additional con	mments:	•				·. ·	
			· · · · · · · · · · · · · · · · · · ·	•				
5) Ave	logs, "as built trage pumping r	" sheets, engineeri rate: <u>186</u>	ng reports, we	Il reconstruction lo (gallons/m	gs. iin)			(
	Source of info	ormation:						
	If not docume	nted, how was pun	nping rate dete	ermined?	·			•
	Pumping r	ate unknown						
6) Is th	his source treate	ed? NO		· .				
	If so, what typ	pe of treatment:						
	disinfecti	on filtration	carbon filt	er air stripper	other			
	Purpose of tre	atment (describe n	naterials to be	removed or control	led by treatment):		· .	
	•							•
		······			•			
	• •					_ .		
	ource is chlorin	ated, is a chlorine	residual mainta	ained: YES	NO	_		

i

•

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

X well log _____ other: ______

____ depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

_____ psi (pounds per square inch)

or _____ feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: ____YES ___NO

5) Wellhead elevation (height above mean sea level): $\frac{245}{100}$ (ft)

How was elevation determined? _____ topographic map _____ Drilling/Well Log _____ altimeter

other:

____ information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

evidence of a confining layer in well log

no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the **bottom** of the **lowest confining layer**? <u>YES</u> <u>NO</u>

____ information unavailable

7) Sanitary setback:

	•		· · ·		
·.			· · · · · · · · · · · · · · · · · · ·	·····	· <u>····································</u>
	anata kata panang ang kita tan situ pananana kata ang kata ang sa	and a star of the start of the	: 	n det tope dansme vormi dorige tiler	
Wellhead constr	uction:			• •	
X we	llhead enclosed in	a wellhouse	· .		
CO	ntrolled access (des	eribe):		• • •	-
otl	ter uses for wellhow	use (describe):		<u></u>	
no	wellhead control	<u>, 1</u>			
Surface seal:					
< 18	ft (no Department	of Ecology app	oval)	('<' means	less than)
< 18	ft (Approved by Ec	ology, include d	ocumentation)	(′<′ means	less thân)
> 18	ft			('> ' means	greater than)
depth	of seal unknown				
no sur	face seal				
)) Annual rainfal	l (inches per year):		· ·		
,	in/vr 1	0–25 in/yr	X > 25 in/y	r	
< 10	·····				
< 10	···· , ··· . ··· ·	• . •			
< 10	····· . · · · · · · · · · · · · · · · ·	• •• •			

	(
	D A mouth webures of water number of the limit
	1) Annual volume of water pumped: <u>A vici</u> (gallons)
	How was this determined?
	meter
	X estimated: X pumping rate (1869pm 11160gp f)f
	pump capacity ()
	_ other: Calculated from Hours Mater Readings
	2) "Calculated Fixed Radius" estimate of ground water movement: 72,299,999 totalgod - 31
	(see Instruction Packet) 2401 M.1 gal/VR AV9,
	6 month ground water travel time : 700 (ft)
	1 year ground water travel time : 980 (ft)
	5 year ground water travel time: <u>Z200</u> (ft)
	10 year ground water travel time: <u>3/10</u> (ft)
	Information available on length of screened/open interval?
	χ yes No
	Length of screened/open interval:(ft)
	3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel
	boundary?YESNO (mark and identify on map).
	4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6
	month time of travel boundary?YES X NO (mark and identify on map).
	Comments:
٠	
	e de la construcción de la constru La construcción de la construcción d
	Survey Form Ver. 2.1b
	page 5

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five year ground water travel time:

1 15 20

	6 month	1 year	5 year	unknown
likely pesticide application	<u> </u>	<u>×</u>	X	
stormwater injection wells		: <u>}</u>	:	·
other injection wells	• • • • • • •		<u> </u>	
abandoned ground water well	<u> </u>	•		
landfills, dumps, disposal areas				
known hazardous materials clean-up site				·
water system(s) with known quality problems				
population density > 1 house/acre	X	<u>X</u> .	<u>×</u>	·
residences commonly have septic tanks	<u>×.</u>	<u>×</u>	X	
Wastewater treatment lagoons	,	,	- 	
sites used for land application of waste		6	۰ ۵۰	

Mark and identify on map any of the risks listed above which are located within the 6 month time of travel boundary? (Please include a map of the wellhead and time of travel areas with this form. Please locate and mark any of the following.)

If other recorded or potential sources of ground water contamination exist within the ten year time of travel circular zone around your water supply, please describe:

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed on assessment, MCLs are listed in assistance package.)

A. <u>Nitrate</u> : (Nitrate MCL = 10 mg/l)	<u>YES NO</u>
Results greater than MCL	X
< 2 mg/liter nitrate	
2-5 mg/liter nitrate	
> 5 mg/liter nitrate	<u> </u>
Nitrate sampling records unavailable	· · · ·
B. VOCs: (VOC detection level 0.5 ug/l or 0.0005 mg/l.)	<u>YES NO</u>
Results greater than MCL or SAL	<u> </u>
VOCs detected at least once	
VOCs never detected	× ×
VOC sampling records unavailable	
C. <u>EDB/DBCP</u> :	<u>YES</u> <u>NO</u>
(EDB MCL = $0.05 \text{ ug/l or } 0.00005 \text{ mg/l}$. DBCP MCL = $0.2 \text{ ug/l or } 0.00005 \text{ mg/l}$.	002 mg/l.)
EDB/DBCP detected below MCL at least once	<u> </u>
EDB/DBCP detected above MCL at least once	
EDB/DBCP never detected	X
EDB/DBCP tests required but not yet completed	
EDB/DBCP tests not required	
D. Other SOCs (Pesticides):	<u>YES NO</u>
Other SOCs detected	$ \ge \lambda $
(pesticides and other synthetic organic chemicals)	
Other SOC tests performed but none detected	
Outer boe tests performed but some detected	
Other SOC tests not performed	

performed, but no SOCs detected, list test methods here:

E. Bacterial contamination:

Any bacterial detection(s) in the past $\underline{3}$ years in samples taken from the source (not distribution sampling records).

Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source.

____ Source sampling records for bacteria unavailable

Part VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for theses sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10 year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

_ YES ___ NO

Describe with references to map produced in Part IV:

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

__ YES 📃 🖄 NO

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?



3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

____YES ___XNO

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within...

	YES	NO	unknown
< 6 month travel time		<u>X</u> ,	
6 month-1 year travel time	·	X	
1-5 year travel time		X	
5–10 year travel time	·		\leq

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within...

			YES NO unknown
< 1 year travel time			<u> </u>
1-5 year travel time		•	<u> </u>
5-10 year travel time			<u> </u>

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

Suggestions and Comments

NO

Did you attend one of the susceptibility workshops?	YES	NO
Did you find it useful?	YES	NO
Did you seek outside assistance to complete the assessme	ent?	YES

This form and instruction packet are still in the process of development. Your comments, suggestions and questions will help us upgrade and improve this assessment form. If you found particular sections confusing or problematic please let us know. How could this susceptibility assessment be improved or made clearer? Did the instruction package help you find the information needed to complete the assessment? How much time did it take you to complete the form? Were you able to complete the assessment without additional/outside expertise? Do you feel the assessment was valuable as a learning experience? Any other comments or constructive criticisms you have would be appreciated.



File Original and First Copy with Department of Ecology Second Copy-Owner's Copy Third Copy-Driller's Copy

'ATER WELL REPOR'.

Start Card No. 021581

STATE OF WASHINGTON

	(((((((((((((((((((Water Right Permit No.		-
(1)	OWNER: Name Meadow Water Co.	Addrass 819 Hamlin Lane SE, Oly	mpia	
(2)	LOCATION OF WELL: County_Thurston	<u>NE x SE x sec 13 t 1</u>	8 N. R.	IW W.M
(2=)	STREET ADDDRESS OF WELL (or nearest address) South of sc	hool, below water tank		
(3)	PROPOSED USE: Domestic Industrial Municipal	(10) WELL LOG OF ABANDONMENT PROCEDU	RE DESC	RIPTION
(4)	TYPE OF WORK: Owner's number of well 50 #6	thickness of aquifers and the kind and nature of the material ar with at least one entry for each change of information.	id structure, ach stratum	and show penetrated
	Abandoned 🗋 New well 🖄 Method: Dug 🔲 Bored 🗆	MATERIAL	FROM	то
	Reconditioned Cable Cabl	clay fill brown	0	9
(5)	DIMENSIONS:	sand gravel comented N20 areas	9	08
(5)	inches.	clay	00	97
	Drited feet. Depth of completed wellft.	clay (peat?) brown	100	117
(6)	CONSTRUCTION DETAILS:	sand, gravel, cemented brown	117	148
	Casing installed: 0" • Diam. from +1 ft. to 310 ft.	sand, gravel, silt tan	148	164
	Welded King * Diam. from ft. to ft.	sand, gravel, cobbles tan	164	170
	Threaded* Diam. fromft. toft.	sand, gravel (loose) brown	170	180
	Perforations: Yes NoK	coarse sand, gravel brown	180	200
	Type of perforator used	sand, gravel (cemented) brown	200	220
	SIZE of perforations in. by in.	silty sand, gravel brown	220,	286
	perforations from ft. to ft.	coarse sand tan	286	294
	perforations from ft. to ft.	sand, gravel (cemented) brown	294	308
	perforations from ft. to ft.	hard layer (boulder?) black	309	309
	Screens: Yester NoL	sand, gravel, water brown	309	325
	Telescoping, stainless			
	Nodel No	very tight formation and difficult	drill	ing
	$\frac{811}{1}$ T slot size . 50 (cm 314 m - 319 m	entire distance. Hole stayed open	below	
	$\frac{8'' T}{60} = \frac{60}{319} = \frac{1}{60} = 1$	casing 4 to 5'.	27	
	0 1 .00 515 1L 3.524 IE	<u>a</u>	ř.	
	Gravel placed fromft. toft.		<u> </u>	
	Surface seel: Yes X No To what depth? 18+ tt. Material used in seal dry bentonite	\sim		
	Did any strata contain unusable water? Yes 🔀 No			
	Type of water? insufficiant Depth of strate 60-100	KING BROS DRILLING, INC.	· ·	
•	Method of sealing strate offCasing	106 E. MAGNOLIA		
(7)	PUMP: Manufacturer's Name	CENTRALIA, WA 98531	ļļ	
	Type: H D	(208) 736-7220	<u> </u>	
(0)	WATED LEVELC. Land-surface elevation	#KINGBDI 124DC	<u> </u>	
(0)	above mean sea level 3/30/89			
	Artesian pressure			
	Artesian water is controlled by			
	(Cap, valve, etc.))	Work started 3-1-89 19 Completed 3-3	J-89	·
(9)	WELL TESTS: Drawdown is amount water level is lowared below static level	voix atarrag		, 19
	Yield: gal./min. with ft. drawdown after bre	WELL CONSTRUCTOR CERTIFICATION:		
		I constructed and/or accept responsibility for cons	itruction of	this well,
	U U U U D	Materials used and the information reported above	are true to	itandards. 5 mv best
	Recovery data (time taken as zero when pump turned off) (water level measured from well too to water level)	knowledge and belief.		,
	Time Water Level Time Water Level Time Water Level	KING BROS DETLING INC		
		(PERSON, FIRM, OR CORPORATION)	(TYPE O	R PRINT
		PO BOX 376 CENTRALTA U	A DRE?	21
		Address 10 DOX 570, CENTRALIA, W	a. 2000	<u> </u>
		Cun Cun	755	2
	Baller test gal./min. with ft. drawdown after hrs.	(Vigned) VILL Conse (WELL DRILLER)	No	
	Airtest $100+$ gal./min. with stem set at 310 ft. for 3 hrs.	Registration g 12/11/00		
	Artealan flow g.p.m. Date	No Date Date		
	Temperature of water Was a chemical analysis made? Yes No	(USE ADDITIONAL SHEETS IF NECES	SARY	

(USE ADDITIONAL SHEETS IF NECESSARY)

Appendix E: Tables For Calculating The Fixed Radii Of Protective Circles Around A Water Source .

24	1.1 million	10'		
SCREENED	S Elux → x → x → x → x → x → x → x → x → x →			
\cdot INTERVAL = 10 ft		TIME O	F TRAVEL	
Annual Volume	6 month	l yr	5 yrs	10 yrs
pumped (GAL)	(radius in feet)	(radius in feet)	(radius in feet)	(radius in feet)
≤ 5,000,000	220	310	700	<u>980 ·</u>
10,000,000	310	440	980	1,390
20,000,000	440	620	1,390	1,970
50,000,000	700	980	2,200	3,110
100,000,000	980	1,390	3,110	4,400
250,000,000	1,550	2,200	4,920	6,950
500,000,000	2,200	3,110	6,950	9,830
		 Contra de Contra de Contra En de Contra de		
SCREENED				
INTERVAL = 25 fr		TIME O	F TRAVEL	
Annual Volume	6 month	1 vr	5 yrs	10 vrs .
pumped (GAL)	(radius in feet)	(radius in feet)	(radius in feet)	(radius in feet)
< 5.000.000	140	200	440	620
10.000.000	200	280	620	880
20.000.000	280	390	880	1,240
50.000.000	440	620	1.390	1,970
100.000.000	620	880	1.970	2,780
250.000.000	980	1,390	3,110	4,400
500.000.000	1,390	1,970	4,400	6,220
				······································
SCREENED	1			
DITERNED		TIME C	F TRAVEL	
INTERVAL = 50 II	C	1	F ma I	10 105
Annual Volume	6 month	1 yr	J yrs (mdius in feet)	(radius in feet)
pulliped (GAL)				440
<u> </u>	100	200	440	620
20,000,000	200	200	620	880
50,000,000	200	200	020	1 390
	310	440	1 200	1 970
	440	020	2 200	3 110
500,000,000	1 700	1 200	2,200	4 400
500,000,000	980	1,390	5,110	, 100
1 7				
SCREENED				
INTERVAL = 75 ft		TIME	JF TRAVEL	
Annual Volume	6 month	1 yr	5 yrs	10 yrs
pumped (GAL)	(radius in feet)	(radius in feet)	(radius in feet)	(radius in feet)
<u>≤</u> 5,000,000	80	110	250	360
10,000,000	110	160	360	510
20,000,000	160	230	510	720
50,000,000	250	360	800	1,140
100,000,000	360	510	1,140	1,610
250,000,000	570	800	1,800	2,540
W	<u> 200</u>	1 140	2 540	1 3.590

1 101 I .

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Appendices to Susceptibility Assessment Form 2.1b 21

APPENDIX K – System Basic Components for Use with Operation and Maintenance Activities

SYJTEM BASIC COMPONENTS FOR USE WITH J&M ACTIVITIES

Company System Name PWSID# County Well Well Yeld Pump Cap Pump Riser Pipe Wells Source# Diameter Depth SWL PWL GPM GPM Set at Size 1	Wirə Sizə
Well Well Pump Pump Riser Pipe Wells Source# Diameter Depth SWL PWL GPM GPM Set at Size 1 1 1 1 1 1 1 1 1 2 1 1 1 1 1 1 1 1	Wire Size
Weils Source# Diameter Depth SWL PWL GPM GPM Set at Size 1 <	Size
4	
5	
6	
Well Pump(s) Types Manufacturer GPM HP Model S/N Volts Phase Date Code	3
Electrical Controls Type Manufacturer Quantity Model Volts Phase	
Pump Control Box	
Pressure Switch	
Mag Starter/Contactor	
Pump Motor Protection	
Simplex Panel	
Duplex Panel	
Floats	
Relays	
Alternators	
Booster Pump	
Tanks Type Application (Pressure, Storage, Contact) Type App	

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	(Bladder, Reservol	r, Epoxy/lined, Galvanized	i) r				[
1						9				
2						10				
3						11				
4						12				
5						13				
6						14				
7						15				
8	L				· · · · · · · · · · · · · · · · · · ·] 10		Tyme/Model	Manufacturer	Quantity
Hydrants	Location	Type/Model	Manufacturer		Quantity]	Location	Typermodel	manufacturer	
						-				
	L		- -	l		1	L	1		
Distribution Valves	· · · · · · · · · · · · · · · · · · ·	- 1. 1. 1]				
			<u></u>	l	L	1		1	1	
Vacuum Breakers		· · · · · · · · · · · · · · · · · · ·		T						
						-				
Water Meters	L	L				-				
5/8 × 3/4			T	Τ	I			2		
1 Inch										
larner			· ·							
Motor sottors			1			_				
Meter actors				1						
				1		1				
		<u> </u>								
				1						
Source Meters	Location	Type/Model	Manufacturer		Size	Date Installed				
		-								
Treatment		Type/Model	Manufacturer							
					H&R Waterwo	orks, Inc.				

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]				
Metering Pumps	Type/Model	Manufacturer]					
Record Drawings/Maps Available Yes No			GPS Coo	rd]	Sec, Rng, Twshp		
Water Rights	Acre Feet	Flow Rate		Permlt#		Certificate #]	
Hydraulic Analysis	Completed Y/N]	If so Date]			
SERVICE FREQUENCY	Maintenance/Service	Checklist							
EXTERIOR					Condition	Date Checked	1		
Qiriy	Exterior clean and brus	sh cut down							
Qtriy .	Knock down webs, nes	sts, etc							
Semi Annual	Clean off roof, gutters								
Semi Annual	Condition of fence and	gates							
Annual	Check mast and bldg o	connection, ground							
Annual	Condition of Paint Rep	paint Now? YES N	10				J		
POWER SUPPL	Ŷ				-	Checked at:	-	Select One	1
Quarterly	Volts	Off				Main/Disconnect			
Quarterly	Volts	Start			_	Starter/Contactor			
Quarterly	Volts	Run				Pressure Switch			
	Amps		B/L1	Y/L2	R	Control Box			
Quarterly		Start				Well Head			
Quarterly		Run				Other			
	Ohms		B/L1	Y/L2	R	~			
Quarterly -		Start							
Quarterly		Run		<u> </u>	<u> </u>				

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	ELECTRIC	ок	Open	Grounded				
Annuai	Power supply line							
Annual	Above Ground wiring							
Annual	Wiring to Well Head							
Annual	Down well wiring							
Quarterly	Motor windings				Other Motors			
Monthly	Start Capacilor				-			
Monthly	Run Capacitor							
Monthly	Relay							
Monthly	Starting switch							
Monthly	Wiring & Connections							
	Float #1 NO or NC							
	Float #2 NO or NC							
	Float #3 NO or NC							
	HYDRAULIC		ок		Replace			
Monthly	Pressure Gauge							
Monthly	Pressure Switch							
			Cut in PSI	1	Cut Out PSI			
Semi-Annual	Pressure Switch Setting	#1						
		#2						
		#3						
		#4						
		#5						
Seml-Annual	Tank Precharge	#1	#2	#3	#4	#5	#6	1
		#7	#8	#9	#10	#11	#12	٦
						<u> </u>	L	

Semi annual	Pressure Tank
Monthly	Line Check Valves
Annual	Foot valve/strainer
Monthly	Jet Assembly
Monthly	Suction Pipe/ Pump Inlet
Monthly	Air Volume Control

<u> </u>	Repair	Replace	
L			

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									•
Monthly	Whitewater Unit								•
Monthly	Snifter Valves		*****					·	
Monthly	Site Glass								
Monthly	Reed Switch								
Annual	Ball Valves					_			
Annual	Well Cap & Seal			l					
Quarterly	Reservoir Floats		;						
					•				
	Hydrants/Blowoffs		Date Serv	lced	Operating Condition		Locate Lines Visil	ole on Road	
Quarterly		r		1			F		1
Source Meter Readings Before Blow	voff			Source Meter Rea	ting After Blowoff		L		J
	Street Valves	Turns to Open/Clo	088		Lid Painted	Rocks Removed		Date Serviced	
Semi-Annual									
Frequency Required	Treatment	Media Type		IMPORTANT- The	se units are under press	ure, use care in serv	leing		
		L]					
Quarterly	Dechlorination/Drainage Check			Dechlor Basket an	d Tabs in place and drainly	eld operational			
Questadu	Notating Ruman and Unan			Special Fillings?					
Quarterry	matering Fumps and mas			Special Fidings (
						•			
	Free Standing Reservoirs				Date Completed				
Annual	Hose down exterior				Data Completed				
Every Five Years	Clean Tank Interlor								
Questadu									·
Qualienty	Check Hatches for security and fit								

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I SERIES - 6-INCH



Pump Size: 1-1/2 x 2 x 6 L

Model: B1-1/2T_L



^{*}NPSH data shown is at maximum speed

WIDGEON BOOSTER #2

BERKELEY[®] CP/CB Series General Purpose Cast Iron Centrifugal Pumps

PUMP PERFORMANCE

HIGH HEAD



MEDIUM HEAD



NOTE: Dotted lines indicate performance reduction at high suction lift.

PUMP PERFORMANCE (Capacity in Gallons Per Minute)

	Disch Pres	narge sure	Dynamic Suction Lift				
HP	PSI	Feet Head	5′	10'	15'	20'	25'
1/2	10	23.1	-	34	32	29	26
	20	46.2	25	21	18	15	11
	30	69.3	10	-	1	-	-
3/4	10	23.1	Ι	Ι	42	39	37
	20	46.2	35	32	30	28	26
	30	69.3	24	22	19	15	10
1	20	46.2	48	46	45	43	40
	30	69.3	38	35	31	28	25
	40	92.4	23	20	15	Ι	Ι
1-1/2	20	46.2	62	60	58	55	52
	30	69.3	50	48	44	40	37
	40	92.4	37	32	29	22	-
2	20	46.2	71	68	66	62	60
	30	69.3	60	57	52	59	45
	40	92.4	45	40	36	31	24
	50	115.5	22	15	-	-	-
2-1/2	20	46.2	81	79	76	74	71
	30	69.3	69	67	63	60	56
	40	92.4	56	51	47	44	38
	50	115.5	33	30	22	15	-

Tested and rated in accordance with Water Systems Council Standards.

NOTE: Pumps installed with a PRO-Source[®] tank require a 100 PSI relief valve. Pumps with a conventional tank require a 75 PSI relief valve. Relief valve must be capable of relieving entire flow of pump at relief pressure.

FORFIRE BOOSTERS (TUPICAL 3)

Pump Size: 1-1/2 x 2 x 6 L

Model: B1-1/2T_L



Pump Size: 2 x 2-1/2 x 6 M

Model: B2T_M

FOX FINE BOUSTER #4

