

# Application for a Permit to Use Ground Water



Oregon Water Resources Department  
725 Summer Street NE, Suite A  
Salem, Oregon 97301-1266  
(503) 986-0900  
www.wrd.state.or.us

## SECTION 1: APPLICANT INFORMATION AND SIGNATURE

### Applicant Information

NAME BOGDAN CACEU		PHONE (HM) 503-771-7659	
PHONE (WK)	CELL		FAX
ADDRESS 6722 SE REED COLLEGE PLACE			
CITY PORTLAND	STATE OR	ZIP 97202	E-MAIL* BCACEU@GMAIL.COM

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### Organization Information

NAME		PHONE	FAX
ADDRESS		CELL	
CITY	STATE	ZIP	E-MAIL*

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### Agent Information – The agent is authorized to represent the applicant in all matters relating to this application.

AGENT / BUSINESS NAME		PHONE	FAX
ADDRESS		CELL	
CITY	STATE	ZIP	E-MAIL*

Note: Attach multiple copies as needed

\* By providing an e-mail address, consent is given to receive all correspondence from the department electronically. (paper copies of the final order documents will also be mailed.)

### By my signature below I confirm that I understand:

- I am asking to use water specifically as described in this application.
- Evaluation of this application will be based on information provided in the application.
- I cannot use water legally until the Water Resources Department issues a permit.
- Oregon law requires that a permit be issued before beginning construction of any proposed well, unless the use is exempt. Acceptance of this application does not guarantee a permit will be issued.
- If I get a permit, I must not waste water.
- If development of the water use is not according to the terms of the permit, the permit can be cancelled.
- The water use must be compatible with local comprehensive land-use plans.
- Even if the Department issues a permit, I may have to stop using water to allow senior water-right holders to get water to which they are entitled.

 I (we) affirm that the information contained in this application is true and accurate.

Applicant Signature

**Bogdan Caceu**  
Print Name and title if applicable

**2/5/2013**  
Date

For Department Use		
App. No. <u>G-17626</u>	Permit No. _____	Date _____

**SECTION 2: PROPERTY OWNERSHIP**

Please indicate if you own all the lands associated with the project from which the water is to be diverted, conveyed, and used.

- Yes
  - There are no encumbrances.
  - This land is encumbered by easements, rights of way, roads or other encumbrances.
- No
  - I have a recorded easement or written authorization permitting access.
  - I do not currently have written authorization or easement permitting access.
  - Written authorization or an easement is not necessary, because the only affected lands I do not own are state-owned submersible lands, and this application is for irrigation and/or domestic use only (ORS 274.040).
  - Water is to be diverted, conveyed, and/or used only on federal lands.

List the names and mailing addresses of all affected landowners (*attach additional sheets if necessary*).

\_\_\_\_\_

**SECTION 3: WELL DEVELOPMENT**

WELL NO.	NAME OF NEAREST SURFACE WATER	IF LESS THAN 1 MILE:	
		DISTANCE TO NEAREST SURFACE WATER	ELEVATION CHANGE BETWEEN NEAREST SURFACE WATER AND WELL HEAD
POLK 53022	North Fork Ash Creek	1740 feet	180 feet
POLK 53096	North Fork Ash Creek	2010 feet	205 feet
Sump-well	North Fork Ash Creek	1550 feet	90 feet
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Please provide any information for your existing or proposed well(s) that you believe may be helpful in evaluating your application. For existing wells, describe any previous alteration(s) or repair(s) not documented in the attached well log or other materials (*attach additional sheets if necessary*).

Existing wells (POLK 53022 and POLK 53096) have not been altered since they were drilled. The sump-well was excavated in August 2012 (a hole with a 30' diameter and 7' deep). Max groundwater flow is estimated at 3 GPM based on rate at which hole filled with groundwater. Test pumping out of sump-well showed recovery rate around 1 to 1.5 GPM (most likely reduced by increased hydrostatic pressure and seepage).

**SECTION 3: WELL DEVELOPMENT, CONTINUED**

Source (aquifer), if known: \_\_\_\_\_

Total maximum rate requested: 9.6 GPM (each well will be evaluated at the maximum rate unless you indicate well-specific rates and annual volumes in the table below).

The total maximum rate requested is 9.6 GPM because the sump-well can support short periods of pumping at that maximum rate from the large volume of water (approximately 37,500 gallons) effectively stored in the sump-well hole that currently measures 30' in diameter and 7' deep. Pumping is done with solar-powered pumps that on average work only from 8 AM to 4 PM. Total maximum rate requested would not put stress on the wells. Applicant is mindful of conservation practices. Applicant has submitted to Bill Fujii at OWRD a detailed Water Resources Feasibility Study, which was partly funded by a grant from OWRD.

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OWNER'S WELL NAME OR NO.	PROPOSED	EXISTING	WELL ID (WELL TAG) NO.* OR WELL LOG ID**	FLOWING ARTESIAN	CASING DIAMETER	CASING INTERVALS (IN FEET)	PERFORATED OR SCREENED INTERVALS (IN FEET)	SEAL INTERVALS (IN FEET)	MOST RECENT STATIC WATER LEVEL & DATE (IN FEET)	PROPOSED USE			
										SOURCE AQUIFER***	TOTAL WELL DEPTH	WELL-SPECIFIC RATE (GPM)	ANNUAL VOLUME (ACRE-FEET)
"South well"	<input type="checkbox"/>	<input checked="" type="checkbox"/>	POLK 53022	<input type="checkbox"/>	6"	25'	10-110' & 187-287'	23'	15' on 12/18/2009		287'	3 GPM	0.75 AF
"North well"	<input type="checkbox"/>	<input checked="" type="checkbox"/>	POLK 53096	<input type="checkbox"/>	6"	35'	0-57' & 117-158'	34'	59' on 9/10/2010		198'	1 GPM	0.75 AF
"Sump well"	<input type="checkbox"/>	<input checked="" type="checkbox"/>	none	<input type="checkbox"/>	n/a	n/a	n/a	n/a	0' on 1/22/2013		7'	3 GPM	2 AF

Complete the table below. If this is an existing well, the following information may be found on the applicable well log. (If a well log is available, please submit it in addition to completing the table.) If this is a proposed well, or well-modification, consider consulting with a licensed well driller, geologist, or certified water right examiner.

- \* Licensed drillers are required to attach a Department-supplied Well Tag, with a unique Well ID or Well Tag Number to all new or newly altered wells. Landowners can request a Well ID for existing wells that do not have one. The Well ID is intended to serve as a unique identification number for each well.
- \*\* A well log ID (e.g. MARI 1234) is assigned by the Department to each log in the agency's well log database. A separate well log is required for each subsequent alteration of the well.
- \*\*\* Source aquifer examples: Troutdale Formation, gravel and sand, alluvium, basalt, bedrock, etc.

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**SECTION 4: WATER USE**

USE	PERIOD OF USE	ANNUAL VOLUME (ACRE-FEET)
Storage from wells & sump-well	November 1 - June 30	2 AF
Pond Maintenance from wells & sump-well	January 1 - December 31	3 AF

**Exempt Uses:** Please note that 15,000 gallons per day for single or group **domestic** purposes and 5,000 gallons per day for a single **industrial or commercial** purpose are exempt from permitting requirements.

**For irrigation use only:**

Please indicate the number of primary and supplemental acres to be irrigated (*must match map*).

Primary: 30 Acres Supplemental: n/a Acres

List the Permit or Certificate number of the underlying primary water right(s): \_\_\_\_\_

Indicate the maximum total number of acre-feet you expect to use in an irrigation season: 3 AF

- If the use is **municipal or quasi-municipal**, attach **Form M**
  - If the use is **domestic**, indicate the number of households: \_\_\_\_\_
- If the use is **mining**, describe what is being mined and the method(s) of extraction: \_\_\_\_\_

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**SECTION 5: WATER MANAGEMENT**

**A. Diversion and Conveyance**

What equipment will you use to pump water from your well(s)?

Pump (give horsepower and type):

Grundfos solar-powered pumps: 3 SQF-2 model in the two deep wells, with maximum flow of 3 GPM, and 11 SQF-2 model in the sump-well, with max flow of 9.6 GPM

Other means (describe):

In a second phase, a pond might be constructed south of the sump-well, at a lower elevation, to collect groundwater from the sump-well by gravity flow, for storage and later use for irrigation.

Provide a description of the proposed means of diversion, construction, and operation of the diversion works and conveyance of water:

The second phase construction of a pond and pipe for the conveyance of groundwater from the sump-well to the pond, will be designed by HBH Engineers (firm that helped Applicant with the Water Resources Feasibility Study mentioned above). This second phase might be implemented in 2016 or later.

**B. Application Method**

What equipment and method of application will be used? (e.g., drip, wheel line, high-pressure sprinkler)

A highly efficient, low water-loss irrigation system combining drip emitters and micro-jets.

**C. Conservation**

Please describe why the amount of water requested is needed and measures you propose to: prevent waste; measure the amount of water diverted; prevent damage to aquatic life and riparian habitat; prevent the discharge of contaminated water to a surface stream; prevent adverse impact to public uses of affected surface waters.

Applicant is mindful of conservation practices, some of which have been implemented for the past three growing seasons: the use of a low water-loss irrigation system; manual cultivation around orchard trees in order to break capillarity; the use of mulch mats and materials around orchard trees to conserve moisture.

**SECTION 6: STORAGE OF GROUND WATER IN A RESERVOIR**

If you would like to store ground water in a reservoir, complete this section (*if more than one reservoir, reproduce this section for each reservoir*).

Reservoir name: Tanks (two connected above-ground tanks)

Acreage inundated by reservoir: 0.15 acre

Use(s): Irrigation

Volume of Reservoir (acre-feet): 1 AF

Dam height (feet, if excavated, write "zero"): 15.5' (However, this is not a dam; it is an above-ground, field-erected tank built from corrugated steel panels bolted together, with internal flexible membranes - a blanket and a 0.5 mm liner - and covered with an anti-algae fabric cover that significantly reduces evaporation and keeps water clean.)

Reservoir name: Phase 2 pond

Acreage inundated by reservoir: 0.35 acre

Use(s): Irrigation

Volume of Reservoir (acre-feet): 2 AF

Dam height (feet, if excavated, write "zero"): zero (excavated - see attached preliminary plans)

*Note: If the dam height is greater than or equal to 10.0' above land surface AND the reservoir will store 9.2 acre feet or more, engineered plans and specifications must be approved prior to storage of water.*

**SECTION 7: USE OF STORED GROUND WATER FROM THE RESERVOIR**

If you would like to use stored ground water from the reservoir, complete this section (*if more than one reservoir, reproduce this section for each reservoir*).

Annual volume (acre-feet): 1 AF (from Tanks)

USE OF STORED GROUND WATER	PERIOD OF USE
Irrigation	March 1 - October 31

Annual volume (acre-feet): 2 AF (from Phase 2 pond)

USE OF STORED GROUND WATER	PERIOD OF USE
Irrigation	March 1 - October 31

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**SECTION 8: PROJECT SCHEDULE**

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Date construction will begin: Started already (wells have been constructed)

Date construction will be completed: Anticipated to be completed well within 5 years from permit issuance

Date beneficial water use will begin: As soon as permit is issued

**SECTION 9: WITHIN A DISTRICT**

Check here if the point of diversion or place of use are located within or served by an irrigation or other water district.

Irrigation District Name	Address	
City	State	Zip

**SECTION 10: REMARKS**

Use this space to clarify any information you have provided in the application (*attach additional sheets if necessary*).

Applicant currently holds Ground Water Permit G-16630 for irrigation on the 30 acres subject to the current Application. The current Permit will be cancelled upon the issuance of the new Permit. The current Application is meant to update the situation to include two new points of diversion (well POLK 53096 and a sump-well that does not have a number), and to include the possibility of storing groundwater in above-ground, field-erected tanks (two connected tanks) and, in a second phase, in an open pond, for later use for irrigation.

The total maximum rate requested is 9.6 GPM, although the maximum rate for each well is 3 GPM at most, because the sump-well can support short periods of pumping at 9.6 GPM. Indeed, a large volume of water (approximately 37,500 gallons) collects in the sump-well hole that currently measures 30' in diameter and 7' deep. Pumping at the maximum rate would be done for short periods of time, because pumping will be done with a solar-powered pump that on average works only from 8 AM to 4 PM and could only pump a maximum of 5,565 GPD (in July, when the solar PV panels perform the best). Furthermore, pumping at this maximum rate would only be required for a handful of days each season. Therefore, pumping from the sump-well at a maximum rate of 9.6 GPM would not put stress on the sump-well. (The 9.6 GPM maximum rate is based on a pump specs report prepared by Sippel Well Drilling with software from the pump manufacturer, Grundfos. This report is attached.)

The solar-powered pumps in the two deep wells will be limited to less than 3 GPM, so as not to overdraw on the limited storage and low recovery rate of the deep wells. Applicant is mindful of conservation practices and of the need to pump in a manner that would not stress the wells or sump-well.

For more detail about Applicant's planning and careful use of limited water resources, a detailed 50-page Water Resources Feasibility Study report is available for review if needed. The report, partly funded by a grant from OWRD, was submitted by Applicant to Bill Fujii at OWRD.

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SALEM, OR

# Land Use Information Form



Oregon Water Resources Department  
725 Summer Street NE, Suite A  
Salem, Oregon 97301-1266  
(503) 986-0900  
www.wrd.state.or.us

pd. 1-22-2013  
Rec # 11376

Applicant: BOGDAN CACEU  
First Last

Mailing Address: 6722 SE REED COLLEGE PLACE

PORTLAND OR 97202 Daytime Phone: 503 771-7659  
City State Zip

## A. Land and Location

Please include the following information for all tax lots where water will be diverted (taken from its source), conveyed (transported), and/or used or developed. Applicants for municipal use, or irrigation uses within irrigation districts may substitute existing and proposed service-area boundaries for the tax-lot information requested below.

Township	Range	Section	¼ ¼	Tax Lot #	Plan Designation (e.g., Rural Residential/RR-5)	Water to be:			Proposed Land Use:
8S	5W	6	NWSE SWSE NESE SESE	1800	FF	<input checked="" type="checkbox"/> Diverted	<input checked="" type="checkbox"/> Conveyed	<input checked="" type="checkbox"/> Used	ORCHARD
						<input type="checkbox"/> Diverted	<input type="checkbox"/> Conveyed	<input type="checkbox"/> Used	
						<input type="checkbox"/> Diverted	<input type="checkbox"/> Conveyed	<input type="checkbox"/> Used	
						<input type="checkbox"/> Diverted	<input type="checkbox"/> Conveyed	<input type="checkbox"/> Used	

List all counties and cities where water is proposed to be diverted, conveyed, and/or used or developed:

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## B. Description of Proposed Use

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Type of application to be filed with the Water Resources Department:

- Permit to Use or Store Water
- Limited Water Use License
- Water Right Transfer
- Allocation of Conserved Water
- Permit Amendment or Ground Water Registration Modification
- Exchange of Water

Source of water:  Reservoir/Pond  Ground Water  Surface Water (name) \_\_\_\_\_

Estimated quantity of water needed: 9.6 gpm  cubic feet per second  gallons per minute  acre-feet

Intended use of water:  Irrigation  Commercial  Industrial  Domestic for \_\_\_\_\_ household(s)  
 Municipal  Quasi-Municipal  Instream  Other \_\_\_\_\_

Briefly describe:

GROUNDWATER WILL BE STORED & USED FOR IRRIGATION OF ORCHARD.

**Note to applicant:** If the Land Use Information Form cannot be completed while you wait, please have a local government representative sign the receipt at the bottom of the next page and include it with the application filed with the Water Resources Department.

See bottom of Page 3. →

## For Local Government Use Only

The following section must be completed by a planning official from each county and city listed unless the project will be located entirely within the city limits. In that case, only the city planning agency must complete this form. This deals only with the local land-use plan. Do not include approval for activities such as building or grading permits.

**Please check the appropriate box below and provide the requested information**

- Land uses to be served by the proposed water uses (including proposed construction) are allowed outright or are not regulated by your comprehensive plan. Cite applicable ordinance section(s): PCZO 138.040(A)
- Land uses to be served by the proposed water uses (including proposed construction) involve discretionary land-use approvals as listed in the table below. (Please attach documentation of applicable land-use approvals which have already been obtained. Record of Action/land-use decision and accompanying findings are sufficient.) **If approvals have been obtained but all appeal periods have not ended, check "Being pursued."**

Type of Land-Use Approval Needed (e.g., plan amendments, rezones, conditional-use permits, etc.)	Cite Most Significant, Applicable Plan Policies & Ordinance Section References	Land-Use Approval:	
		<input type="checkbox"/> Obtained <input type="checkbox"/> Denied	<input type="checkbox"/> Being Pursued <input type="checkbox"/> Not Being Pursued
<b>RECEIVED BY OWRD</b>		<input type="checkbox"/> Obtained <input type="checkbox"/> Denied	<input type="checkbox"/> Being Pursued <input type="checkbox"/> Not Being Pursued
<b>FEB 06 2013</b>		<input type="checkbox"/> Obtained <input type="checkbox"/> Denied	<input type="checkbox"/> Being Pursued <input type="checkbox"/> Not Being Pursued
<b>SALEM, OR</b>		<input type="checkbox"/> Obtained <input type="checkbox"/> Denied	<input type="checkbox"/> Being Pursued <input type="checkbox"/> Not Being Pursued

Local governments are invited to express special land-use concerns or make recommendations to the Water Resources Department regarding this proposed use of water below, or on a separate sheet.

*Any vegetation removal or earth work in or adjacent to a wetland or floodplain may require a land use permit. The proposal reviewed, as indicated by the applicant, would not be in or adjacent to a wetland or floodplain.*

Name: Gerald Sorke Title: Planning Manager

Signature: *[Signature]* Phone: 503 623 9237 Date: 1/22/13

Government Entity: Polk County, OR

**Note to local government representative:** Please complete this form or sign the receipt below and return it to the applicant. If you sign the receipt, you will have 30 days from the Water Resources Department's notice date to return the completed Land Use Information Form or WRD may presume the land use associated with the proposed use of water is compatible with local comprehensive plans.

**Receipt for Request for Land Use Information**

Applicant name: \_\_\_\_\_

City or County: \_\_\_\_\_ Staff contact: \_\_\_\_\_

Signature: \_\_\_\_\_ Phone: \_\_\_\_\_ Date: \_\_\_\_\_



Title No. 200828293

Escrow No. 200828293

## EXHIBIT 'A'

Legal Description:

Beginning at a point 21.12 chains East of the Northwest corner of the Donation Land Claim of John Nichols and, Claim No. 46, Not. No. 2288, in Township 8 South, Range 5 West of the Willamette Meridian in Polk County Oregon; running thence East 10.60 chains; thence South 53.25 chains; thence West 5.50 chains; thence North 10.82 chains; thence South 88° West along the center of the County Road 5.11 chains; thence North 42.63 chains to the point of beginning.

Subject to:

Taxes for the fiscal year 2007-2008, a lien in an amount to be determined, but not yet payable.

Regulations, including levies, liens, assessments, rights of way and easements of Polk County Soil and Water Conservation District. (There are no unpaid levies, liens or assessments as of the date herein.)

Easement as delineated or dedicated on the recorded plat,

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**FEB 06 2013**

**SALEM, OR**

# POLK 53022

STATE OF OREGON  
 WATER SUPPLY WELL REPORT  
 (as required by ORS 537.765)

WELL I.D. # L 98386

START CARD # 1009047

Instructions for completing this report are on the last page of this form.

(1) LAND OWNER Well Number NW  
 Name Bogdan Caceu  
 Address 6722 SE Reed College Place  
 City Portland State Or Zip 97202

(2) TYPE OF WORK  New Well  
 Deepening  Alteration (repair/recondition)  Abandonment  Conversion

(3) DRILL METHOD **RECEIVED BY OWRD**  
 Rotary Air  Rotary Mud  Cable  Auger  Cable Mud  
 Other \_\_\_\_\_

(4) PROPOSED USE FEB 06 2013  
 Domestic  Community  Industrial  Irrigation  
 Thermal  Injection  Livestock  Other \_\_\_\_\_  
**SALEM, OR**

(5) BORE HOLE CONSTRUCTION Special Construction:  Yes  No  
 Depth of Completed Well 287 ft.  
 Explosives used:  Yes  No Type \_\_\_\_\_ Amount \_\_\_\_\_

BORE HOLE			SEAL			
Diameter	From	To	Material	From	To	Sacks or Pounds
10"	0	23	bentonite	0	23	12 sacks
8"	23	287				

How was seal placed: Method  A  B  C  D  E  
 Other bentonite poured dry and hydrated  
 Backfill placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Material \_\_\_\_\_  
 Gravel placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Size of gravel \_\_\_\_\_

(6) CASING/LINER

Casing/Liner	Diameter	From	To	Gauge	SEAL			
					Steel	Plastic	Welded	Threaded
Casing: 6"	+1	24	.250	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Liner: 4"	-1	287	#160	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Drive Shoe used  Inside  Outside  None  
 Final location of shoe(s) 24

(7) PERFORATIONS/SCREENS

Perforations Method skillsaw  
 Screens Type \_\_\_\_\_ Material DVC

From	To	Slot Size	Number	Diameter	Tele/pipe size	Casing	Liner
10	110	6"	120	1/8"	4"	<input type="checkbox"/>	<input checked="" type="checkbox"/>
187	287	6"	120	1/8"	4"	<input type="checkbox"/>	<input checked="" type="checkbox"/>

(8) WELL TESTS: Minimum testing time is 1 hour  
 Pump  Bailor  Air  Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
3	N/A	287	1hr

Temperature of water 52 Depth Artesian Flow Found \_\_\_\_\_  
 Was a water analysis done?  Yes By whom \_\_\_\_\_  
 Did any strata contain water not suitable for intended use?  Too little  
 Salty  Muddy  Odor  Colored  Other \_\_\_\_\_  
 Depth of strata: H2O 400us **RECEIVED**  
**DEC 23 2009**

(9) LOCATION OF WELL (legal description)  
 County Polk  
 Tax Lot 1800 Lot \_\_\_\_\_  
 Township 8 S Range 5 W WM  
 Section 6 NW 1/4 SE 1/4

Lat \_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ " or \_\_\_\_\_ (degrees or decimal)  
 Long \_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ " or \_\_\_\_\_ (degrees or decimal)

Street Address of Well (or nearest address) East of 2557 Liberty Rd.  
Dallas, Or 97338

(10) STATIC WATER LEVEL  
15 ft. below land surface. Date 12-18-09  
 \_\_\_\_\_ ft. below land surface. Date \_\_\_\_\_  
 Artesian pressure \_\_\_\_\_ lb. per square inch Date \_\_\_\_\_

(11) WATER BEARING ZONES  
 Depth at which water was first found 26

From	To	Estimated Flow Rate	SWL
26	30	2	15
212	220	1	15

(12) WELL LOG Ground Elevation \_\_\_\_\_

Material	From	To	SWL
Topsoil	0	1	
Clay, brown	1	3	
Shale, brown	3	17	
Claystone, grey, med	17	26	
Claystone, grey, fractured, hard	26	50	15
Claystone, grey, med	50	105	15
Claystone, grey, med, fractured	105	112	15
Claystone, grey, med/hard	112	212	15
Claystone, grey, med/hard w/ occ. fractures	212	255	15
Claystone grey, med/hard w/occ. hard stringers	255	295	15

Dickerson Well Drilling, Inc.  
 (503)623-2664

Date Started 12-14-09 Completed 12-18-09

(unbonded) Water Well Constructor Certification  
 I certify that the work I performed on the construction, deepening, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

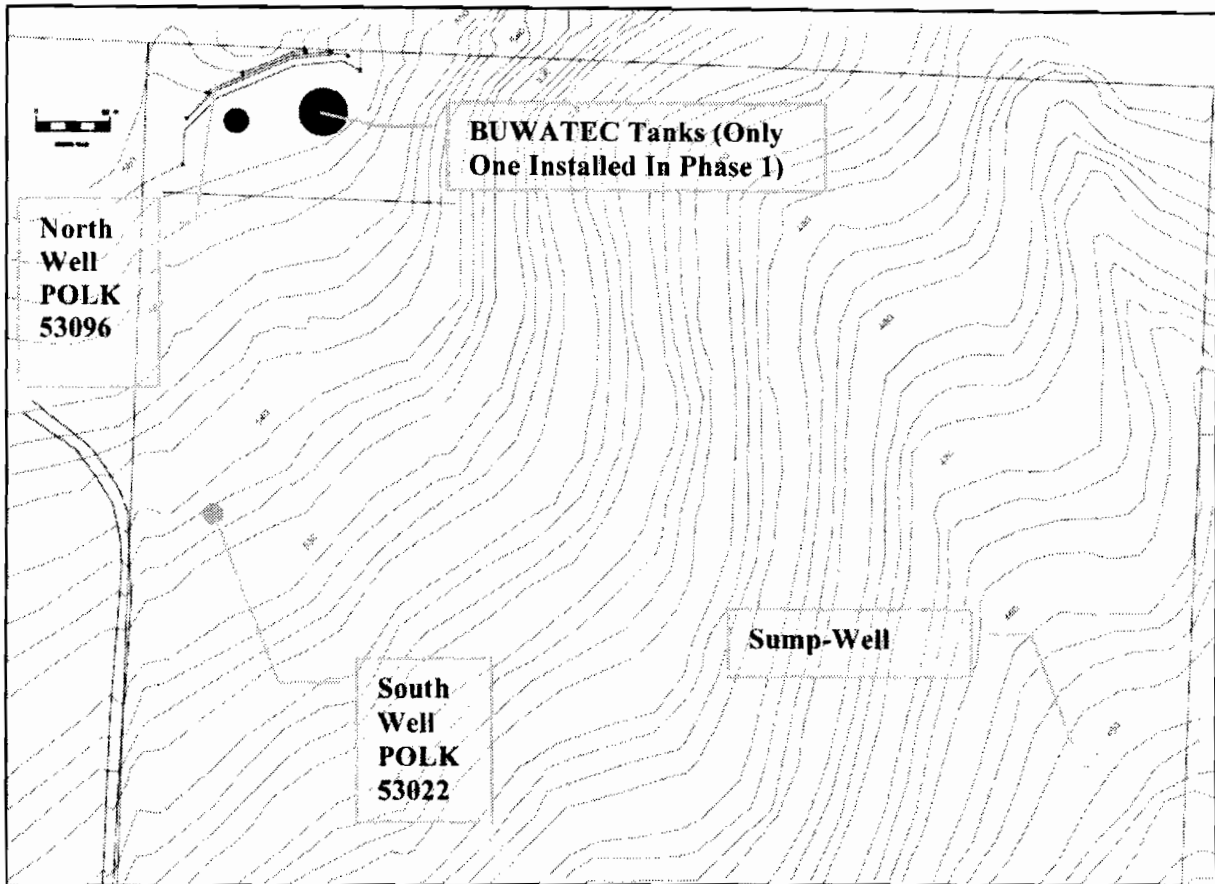
WWC Number 1574 Date 12-19-09  
 Signed [Signature]

(bonded) Water Well Constructor Certification  
 I accept responsibility for the construction, deepening, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

WWC Number 1571 Date 12-19-09  
 Signed [Signature]

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**Tanks (two connected above-ground, field-erected tanks)**



Two tanks are shown: one tank will be installed in Phase 1, and a second, larger tank, might be installed in Phase 2. Total maximum storage in the two tanks will be 1 AF.

The tanks are 15.5'. They are built from corrugated steel panels bolted together, with internal flexible membranes - a blanket and a 0.5 mm liner - and covered with an anti-algae fabric cover that significantly reduces evaporation and keeps water clean.

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**FEB 06 2013**

**SALEM, OR**

G-17626

# POLK 53096

STATE OF OREGON  
 WATER SUPPLY WELL REPORT  
 (as required by ORS 537.765)

WELL I.D. # L 104629

START CARD # 1011385

Instructions for completing this report are on the last page of this form.

(1) LAND OWNER Well Number W  
 Name Bogdan Cacou  
 Address 6722 SE Reed College Place  
 City Portland State Or Zip 97202

(2) TYPE OF WORK  New Well  
 Deepening  Alteration (repair/recondition)  Abandonment  Conversion

(3) DRILL METHOD RECEIVED BY OWRD  
 Rotary Air  Rotary Mud  Cable  Auger  Cable Mud  
 Other \_\_\_\_\_

(4) PROPOSED USE FEB 06 2013  
 Domestic  Community  Industrial  Irrigation  
 Thermal  Injection  Livestock  SALEM, OR

(5) BORE HOLE CONSTRUCTION Special Construction:  Yes  No  
 Depth of Completed Well 198 ft.  
 Explosives used:  Yes  No Type \_\_\_\_\_ Amount \_\_\_\_\_

BORE HOLE			SEAL			Sacks or Pounds
Diameter	From	To	Material	From	To	
10"	0	34	bentonite	0	34	18.5 sacks
6"	34	198				

How was seal placed: Method  A  B  C  D  E  
 Other bentonite poured dry and hydrated

Backfill placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Material \_\_\_\_\_  
 Gravel placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Size of gravel \_\_\_\_\_

(6) CASING/LINER

Casing/Liner	Diameter	From	To	Gauge	Material			
					Steel	Plastic	Welded	Threaded
Casing: 6"	+1	34	.250	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Liner: 4"	57	117	#160	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4"	158	198	#160	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Drive Shoe used  Inside  Outside  None  
 Final location of shoe(s) 34'

(7) PERFORATIONS/SCREENS  
 Perforations Method skillsaw  
 Screens Type \_\_\_\_\_ Material DVC

From	To	Slot Size	Number	Diameter	Tele/pipe size	Casing	Liner
0	57	6"	30	1/8"	4"	<input type="checkbox"/>	<input checked="" type="checkbox"/>
117	158	6"	30	1/8"	4"	<input type="checkbox"/>	<input checked="" type="checkbox"/>

(8) WELL TESTS: Minimum testing time is 1 hour  
 Pump  Bailer  Air  Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
1 gpm	N/A	198'	1hr

Temperature of water 52 Depth Artesian \_\_\_\_\_  
 Was a water analysis done?  Yes By whom \_\_\_\_\_  
 Did any strata contain water not suitable for intended use?  100 little  
 Salty  Muddy  Odor  Colored  Other \_\_\_\_\_  
 Depth of strata: H20 440us

(9) LOCATION OF WELL (legal description)  
 County Polk  
 Tax Lot 1800 Lot \_\_\_\_\_  
 Township 8 S Range 5 W WM  
 Section 6 NW 1/4 SE 1/4

Lat \_\_\_\_\_ " or \_\_\_\_\_ (degrees or decimal)  
 Long \_\_\_\_\_ " or \_\_\_\_\_ (degrees or decimal)

Street Address of Well (or nearest address) East of 2557 Liberty Rd.

(10) STATIC WATER LEVEL  
59 ft. below land surface. Date 9-10-10  
 \_\_\_\_\_ ft. below land surface. Date \_\_\_\_\_  
 Artesian pressure \_\_\_\_\_ lb. per square inch Date \_\_\_\_\_

(11) WATER BEARING ZONES  
 Depth at which water was first found 62

From	To	Estimated Flow Rate	SWL
62	64	1/2 gpm	59
75	77	1/2 gpm	59

(12) WELL LOG Ground Elevation \_\_\_\_\_

Material	From	To	SWL
Topsoil	0	1/2	
Shale, orange, yellow	1/2	13	
Shale, brown	13	21	
Claystone, grey, med	21	29	
Claystone, grey, fractured	29	31	
Claystone, grey, med	31	50	
Claystone, grey, fractured	50	55	
Claystone, grey, med/hard w/hard stringers	55	115	59
Claystone, grey, fractured	115	118	59
Claystone, grey, med, fractured	118	140	59
Claystone, grey, fractured	140	141	59
Claystone, grey, med	141	198	59

\*water witch claimed 150' 25gpm

Date Started 9-8-10 Completed 9-9-10

(unbonded) Water Well Constructor Certification  
 I certify that the work I performed on the construction, deepening, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

WWC Number 1574 Date 9-11-10  
 Signed [Signature]

(bonded) Water Well Constructor Certification  
 I accept responsibility for the construction, deepening, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

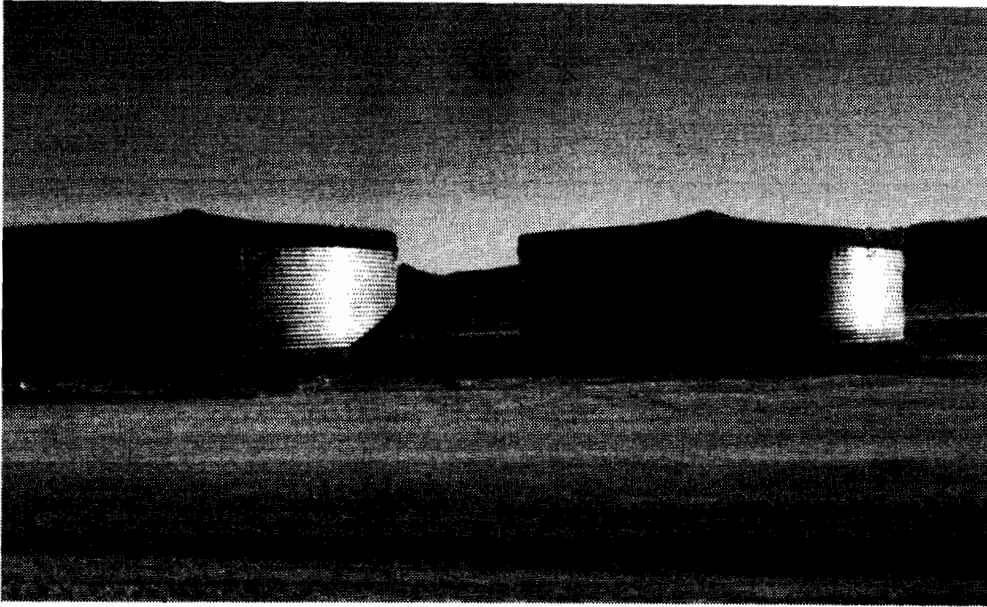
WWC Number 1571 Date 9-11-10  
 Signed [Signature]

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WATER RESOURCES DEPT  
 SALEM, OREGON

G-17626

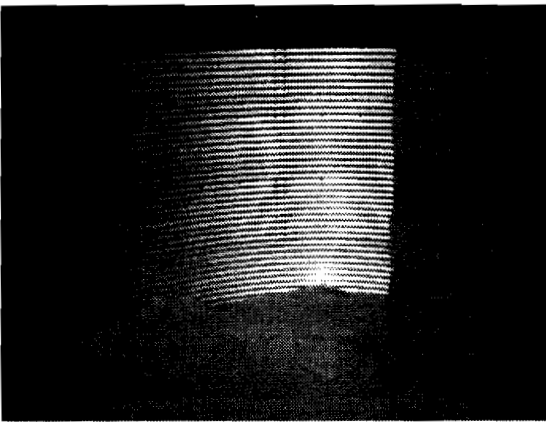


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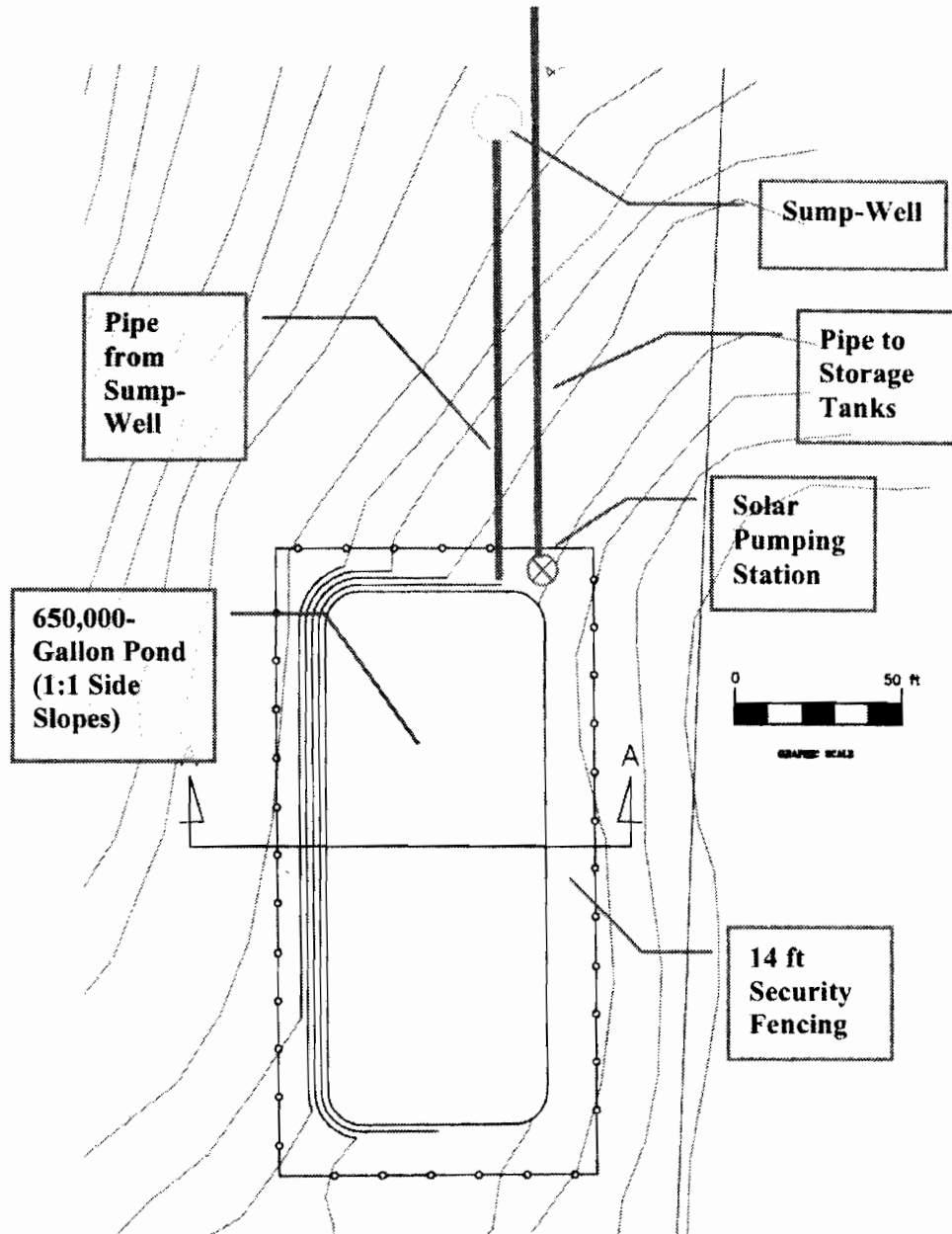
*Field-Erected Storage Tanks from Dutch Company BUWATEC*



*Installation of BUWATEC Tanks (Panels, Sand-base, Blanket, Liner & Pipe)*

G-17626

## Phase 2 Pond



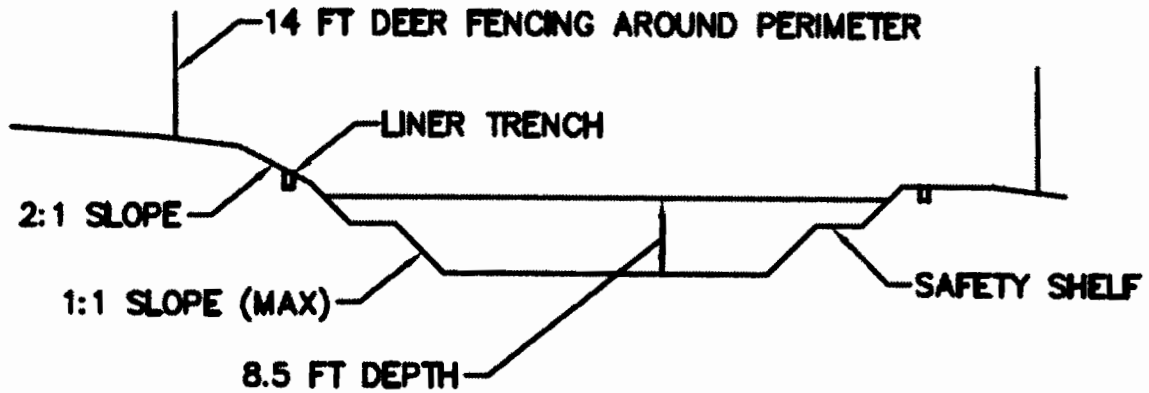
"Phase 2 Pond" - 650,000-gallon Irrigation Storage Pond near Sump-Well (1:1 Max Side Slope, Fenced)

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**POND CROSS-SECTION A-A**

*"Phase 2 Pond" - 650,000-gallon Irrigation Storage Pond Cross-Section*

Pond would be constructed as an excavated hole, as opposed to a pond requiring a dam, with 1:1 side slopes, and 14-foot high fencing all around it to prevent wildlife and humans from entering the pond area (as well as a 3-foot "safety shelf" and ladders at the pond edges, in case humans do enter the pond – see Figures above). Such an option would reduce the footprint of the pond to about 10,200 square feet. This would also reduce evaporation. This design would allow the pond to be located near the sump-well, which would supply the groundwater to be stored in the pond.

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# 96078029 11 SQF-2

## Input - summary

Water volume (max): 4755 US GPD  
 Peak month: July  
 Head: 150 ft  
 Sun tracking: No (fixed)  
 Solar data location: Salem, Oregon (44.9N, 123.0W)  
 Data Source: NREL : 24232

## Products

Pump: 11 SQF-2, 1 x 96078029  
 Solar module: 12 x GF 80  
 Junction/control box: CU 200, 1 x 96467801, IO 101, 1 x 96481502

## Sizing results - summary

### Typical performance at radiation 800 W/m<sup>2</sup>

Flow: 9.5 US GPM  
 Friction loss: 2.3 ft  
 Total head: 152.0 ft  
 Total cable loss: 1.5 %

## Overall result and price

Total water production per year: 1381000 gal  
 Avg. water production per day: 3783 gal  
 Peak flow: 9.47 US GPM  
 System price: On request

## Cables and pipes:

Solar module cable (pump - solar array)  
 Length: 100 ft  
 Size: Any (AWG)  
 Pipe Length: 1100 ft  
 Pipe diameter: 2" SCH 40

## Solar module configuration:

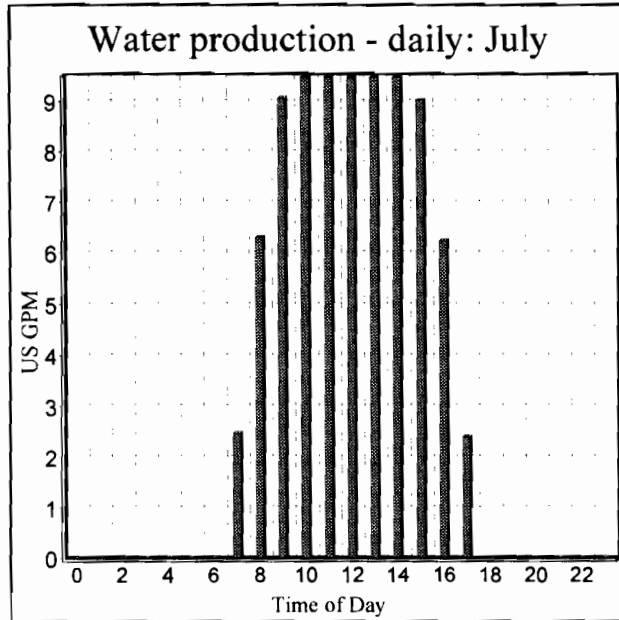
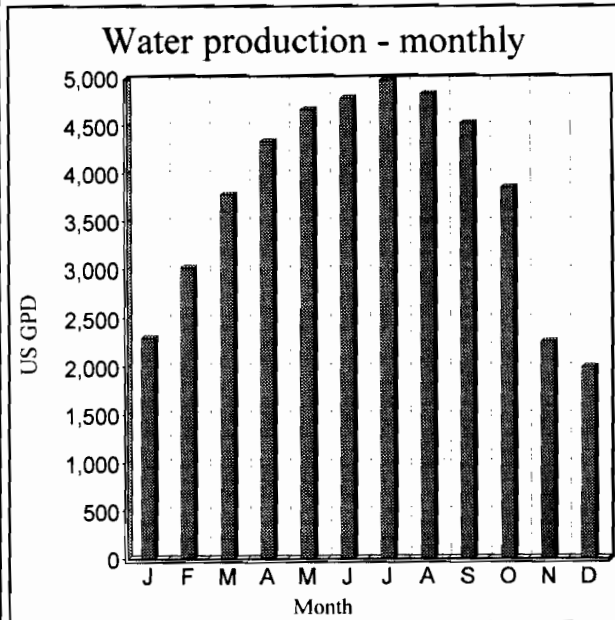
Number of solar modules in series: 4, in parallel: 3  
 Solar array rated power: 0.96 kWp  
 Solar array rated volts: 133.2 V  
 Sun tracking: No (fixed)

## System performance - monthly average

	January	February	March	April	May	June	July	August	September	October
Water production [US GPD]	2301	3017	3785	4340	4672	4789	4976	4834	4530	3856
Radiation tilt [kWh/m <sup>2</sup> day]	2.6	3.4	4.3	5.1	5.6	5.9	6.6	6.4	6.0	4.5
Tilt angle [deg.]	44	44	44	44	44	44	44	44	44	44

## AC power (backup) - water production

Required minimum output effect  
 AC 115 V: Produces: 9.42 US GPM  
 AC 230 V: Produces: 9.42 US GPM



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**96078029 11 SQF-2**

**Input**

Solar data location: Salem, Oregon (44.9N, 123.0W)

Solar module cable (pump - solar array)

Length: 100 ft

Water volume (max): 4755 US GPD

Size: Any (AWG)

Peak month: July

Cable loss max: 2 %

Head: 150 ft

Dynamic water level: 0 ft

Static lift above ground: 492 ft

Pipe Length: 1100 ft

Pipe diameter: 2" SCH 40

Sun tracking: No (fixed)

	January	February	March	April	May	June	July	August	September	October
Tilt angle [deg.]	44	44	44	44	44	44	44	44	44	44

Basic Orientation: 0 deg.

Reflection (surface): 0.20% (Dry grass)

Solar module type: GF 80

Number of solar modules:

Pump type pre-selected:

Pump outlet: NPT

Level switch option: No

Junction/control box: CU 200 + IO 101 (115V)

**Products**

Pump: 11 SQF-2, 1 x 96078029

Solar module: 12 x GF 80

Junction/control box: CU 200, 1 x 96467801, IO 101, 1 x 96481502

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# Minimum Requirements Checklist

Minimum Requirements (OAR 690-310-0040, OAR 690-310-0050 & ORS 537.615)

## Include this checklist with the application

**Check that each of the following items is included.** The application will be returned if all required items are not included. If you have questions, please call the Water Rights Customer Service Group at (503) 986-0900.

- SECTION 1: applicant information and signature
- SECTION 2: property ownership
- SECTION 3: well development
- SECTION 4: water use
- SECTION 5: water management
- SECTION 6: storage of groundwater in a reservoir
- SECTION 7: use of stored groundwater from the reservoir
- SECTION 8: project schedule
- SECTION 9: within a district
- SECTION 10: remarks

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### Attachments:

- Land Use Information Form with approval and signature (*must be an original*) or signed receipt
- Provide the legal description of: (1) the property from which the water is to be diverted, (2) any property crossed by the proposed ditch, canal or other work, and (3) any property on which the water is to be used as depicted on the map. Example: A copy of the deed, land sales contract or title insurance policy.
- Fees - Amount enclosed: \$ 2,250<sup>-</sup>  
See the Department's Fee Schedule at [www.oregon.gov/owrd](http://www.oregon.gov/owrd) or call (503) 986-0900.

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### Provide a map and check that each of the following items is included:

- Permanent quality and drawn in ink
- Even map scale not less than 4" = 1 mile (example: 1" = 400 ft, 1" = 1320 ft, etc.)
- North Directional Symbol
- Township, Range, Section, Quarter/Quarter, Tax Lots
- Reference corner on map
- Location of each well, and/or dam if applicable, by reference to a recognized public land survey corner (distances north/south and east/west). Each well must be identified by a unique name and/or number.
- Indicate the area of use by Quarter/Quarter and tax lot clearly identified
- Number of acres per Quarter/Quarter and hatching to indicate area of use if for primary irrigation, supplemental irrigation, or nursery
- Location of main canals, ditches, pipelines or flumes (if well is outside of the area of use)
- Other \_\_\_\_\_