

Name G-16401
By DAVID RILEY
Address MEADOWS UTILITIES LLC
PO BOX 470
MOUNT HOOD OR 97041

Priority _____
County _____ WM# _____

RELATED FILES

DEVELOPMENT _____ Date _____
Completion _____
Extended to _____
Final Proof received _____
Proposed Cert. Mailed _____

Application No. G16401
Permit No. _____
Certificate No. _____

_____ Date _____
DENIED _____
MISFILED _____ Volume _____ Page _____
WITHDRAWN _____
CANCELLED _____

FEES PAID

Date	Amount	Receipt No.
3/7/05	500.00	73113
4/26/05	12.50	74197
cc of 4/27/05	10.00	77135
	Cert. Fee	

FEES REFUNDED

Date	Amount	Receipt No.

ASSIGNMENTS

Date	To Whom	Address
4/26/05	United States - UDDAFS	6780 Hwy 35, Mt Hood OR 97041
and	Meadows Utilities, LLC	PO Box 470, Mt Hood OR 97041

REMARKS

MAP LOCATION

File does not contain
a copy of the protest.
Unable to locate a
copy.

Please send me Proposed Final Order(s) for Water Right Application(s):

App # G-16401-MEADOWS UTILITIES App #

App # & US DEPT. OF AGRICULTURE App #

Name Friends of Mt Hood c/o Ralph Bluemers - CRAG

Address 917 SW Oak, Suite 417

Portland, OR 97205

Phone 503.525.2727

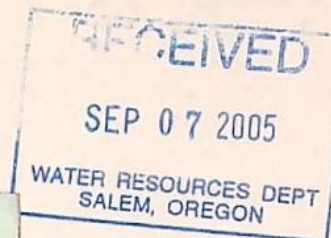
Return this form and your check (\$10 for each PFO) to:

OWRD, Water Rights Division - PFO Request

725 Summer Street, NE - Suite A

Salem OR 97301-1271

S:\groups\wr\support\pfo\$10ltr_rev03-22-04.wpd



STATE OF OREGON
WATER RESOURCES DEPARTMENT

725 Summer St. N.E. Ste. A

SALEM, OR 97301-4172

(503) 986-0900 / (503) 986-0904 (fax)

RECEIPT # **77135**

INVOICE #

RECEIVED FROM: Cascade Resources Advocacy

BY: Group

APPLICATION G16401

PERMIT

TRANSFER

CASH:

CHECK: #

OTHER: (IDENTIFY)



1409



TOTAL REC'D

\$10.00

1083 TREASURY 4170 WRD MISC CASH ACCT

0407 COPIES

\$

OTHER: (IDENTIFY)

\$

0243 I/S Lease

0244 Muni Water Mgmt. Plan

0245 Cons. Water

4270 WRD OPERATING ACCT

MISCELLANEOUS

0407 COPY & TAPE FEES

\$

0410 RESEARCH FEES

\$

0408 MISC REVENUE: (IDENTIFY) P.F.O.

\$10.00

TC162 DEPOSIT LIAB. (IDENTIFY)

\$

0240 EXTENSION OF TIME

\$

WATER RIGHTS:

0201 SURFACE WATER

EXAM FEE

\$

0202

RECORD FEE

\$

0203 GROUND WATER

\$

0204

\$

0205 TRANSFER

\$

WELL CONSTRUCTION

0218 WELL DRILL CONSTRUCTOR

EXAM FEE

\$

0219

LICENSE FEE

\$

LANDOWNER'S PERMIT

0220

\$

OTHER (IDENTIFY)

0536 TREASURY 0437 WELL CONST. START FEE

0211 WELL CONST START FEE

\$

CARD #

0210 MONITORING WELLS

\$

CARD #

OTHER (IDENTIFY)

0607 TREASURY 0467 HYDRO ACTIVITY LIC NUMBER

0233 POWER LICENSE FEE (FW/WRD)

\$

0231 HYDRO LICENSE FEE (FW/WRD)

\$

HYDRO APPLICATION

\$

TREASURY OTHER / RDX

FUND TITLE

OBJ. CODE VENDOR #

DESCRIPTION

\$

RECEIPT:

77135

DATED: 9/7/05

BY: Albin

FRENCH Dwight W * WRD

From: FRENCH Dwight W * WRD
Sent: Friday, May 03, 2019 2:16 PM
To: 'Howard, Elizabeth E.'
Subject: RE: Meadows Utilities Extension Applications G-16401 and S-86185

Elizabeth,

This email is in response to your letter of April 26, 2019. You requested a hold on applications G-16401 and S-86185. While I want to get these old applications processed to completion, I also recognize that it is necessary that other water right actions on some of the other Meadows Utilities rights be completed first. I appreciate that you and the Meadows Utilities team are working with us to move things forward and I look forward to helping you move those actions forward now and in the future.

On behalf of the Department, I find that your request for an administrative hold is both reasonable and necessary and grant the hold until October 23, 2019.

I'm printing a copy of this email, along with your letter, for both of these files.

Dwight

Dwight French

Water Right Services Division Administrator
Oregon Water Resources Department
dwight.w.french@oregon.gov
503-986-0819



Integrity + Service + Technical Excellence + Teamwork + Forward-Looking

April 26, 2019

Elizabeth E. Howard
Admitted in Oregon, Washington and
North Dakota
T: 503-796-2093
C: 503-312-8765
ehoward@schwabe.com

VIA E-MAIL

Dwight W. French
Oregon Water Resources Department
725 Summer St., NE, Suite A
Salem, OR 97301

RE: Meadows Utilities LLC: Request for Administrative Hold
Application G-16401 (Snowmaking) and Application S-86186 (Snowmaking)
Our File No.: 110069-141738

Dear Dwight:

I am writing on behalf of our client, Meadows Utilities, LLC (Meadows), to request that the Oregon Water Resources Department (OWRD) place applications G-16401 and S-86186 on administrative hold pending the outcome of applications to extend the completion date for Permits G-13388, S-54637 and R-12758 and a place of use transfer application for Certificate 48445. Meadows has provided OWRD with draft updated extension applications for S-54637 and R-12758 and previously submitted an extension application for G-13388, which is pending with OWRD at this time. Meadows will be filing a place of use transfer application for Certificate 48445 within the next 30 days.

Therefore, we are requesting that applications G-16401 and S-86186 be placed on administrative hold for 180 days, until October 23, 2019. At that time, we anticipate that Meadows will be able to advise OWRD of the results of the extension applications and the status of the transfer application. If those are still in process, Meadows may request that the administrative hold be continued or that the applications proceed through normal processing.

Thank you for your assistance in these requests and for OWRD's support of Meadows' efforts to make progress on resolving its various pending water right applications as expeditiously as possible.

RECEIVED BY OWRD

AUG 17 2017

August 15, 2017

SALEM, OR

Martha O. Pagel

Admitted in Oregon and Washington

T: 503-540-4260

mpagel@schwabe.com

VIA E-MAIL AND FIRST CLASS MAIL

Dwight French
Administrator, Water Rights & Adjudication
Division
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem OR 97301-1271

RE: Meadows Utilities LLC and Meadows North LLC - Continuation of
Administrative Hold Periods

Dear Dwight:

Thank you for your August 4, 2017, which confirmed an extension of the time periods for proceeding with various applications and actions that are currently pending before the Oregon Water Resources Department (OWRD) on behalf of Meadows Utilities LLC and Meadows North LLC (together, "Meadows"). As documented in prior correspondence, the applications and actions are implicated in a broader settlement effort relating to a proposed expansion of Meadows' ski operations and a land exchange with the U.S. Forest Service. Meadows very much appreciates OWRD's continued support for the settlement effort by authorizing the various extensions.

The purpose of this letter is to clarify one point raised in your August 4 letter, relating to the "submittal" of a Water Management and Conservation Plan ("WMCP"). Your letter explains that OWRD is no longer "approving" requests to delay submission of a WMCP, but is instead working with entities that have a submittal due to ensure a clear understanding of the potential consequences associated with a delay. In this case, we wish to confirm that Meadows did actually submit a WMCP on September 1, 2005, but further processing of the plan was suspended in connection with the settlement process. We look forward to further discussions with OWRD, when the time comes, to provide any updates that may be required before completing the OWRD review process.

Dwight French
August 15, 2017
Page 2

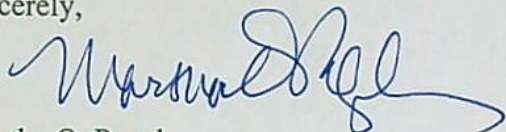
RECEIVED BY OWRD

AUG 17 2017

SALEM, OR

Thank you, again, for your continuing assistance in this matter.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Martha O. Pagel', with a long, sweeping horizontal line extending to the right.

Martha O. Pagel

MOP:kdo

cc: Matthew Drake
Steve Warila

PDX\110069\130923\MOP\21293929.1



Oregon

Kate Brown, Governor

G 16401

Water Resources Department

North Mall Office Building
725 Summer St NE, Suite A
Salem, OR 97301
Phone (503) 986-0900
Fax (503) 986-0904
www.wrd.state.or.us

August 4, 2017

Martha O. Pagel
Schwabe Willimason & Wyatt
530 Center Street, NE
Suite 400
Salem, OR 97301

RE: Meadows Utilities LLC and Meadows North LLC – Continuation of Admin. Holds

Dear Martha:

Thank you for responding to my request for additional information with your letter of April 12, 2017.

Your letter requests an administrative hold for the following applications and actions:

- Water Right Applications: G-16401 and S-86185
- Permit Extension Applications: Files S-69976 (permit S-53637), and R71657 (permit R-12758)
- Water Management and Conservation Plan Submittal

Water Right Applications G-16401 and S-86185:

Given your explanation of the situation, the Department finds that, consistent with OAR 690-310-0270(2) that a continued administrative hold for application S-86185 is both reasonable and necessary. The administrative hold provision of this rule does not apply to application G-16401. However, the Department agrees that, under the circumstances, it is appropriate to not move forward with a contested case hearing or final order at this time. We are hopeful, as you are, that a continued administrative hold will allow the parties to resolve the protest without the need of a contested case hearing. For both of these applications, the Department will not move forward with any processing until at least January 1, 2019.



Permit Extension Applications: Files S-69976 (permit S-53637), and R-71657 (permit R-12758)

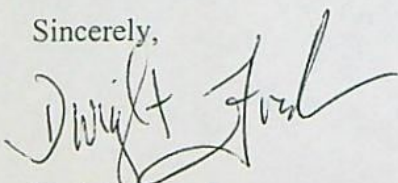
These two extension applications have been pending since 2005 when they were submitted. There is no mention of administrative holds in our extension processing rules or the governing statutes. However, given the circumstances explained in your recent letter, it seems appropriate to provide an additional delay in processing until at least January 1, 2019. After this date, the Department reserves the right to issue a proposed final order on these extension applications without further notice. We can discuss the timing of next steps in the event that protests are filed.

Water Management and Conservation Plan Submittal

The Department discovered, earlier this year, that allowing an entity additional time to submit a WMCP could, in some circumstances, cause misunderstandings about the status of a previously submitted and approved WMCP or the status of a condition that requires submittal and subsequent approval of a WMCP. In order to avoid future misunderstanding in this regard, we are no longer "approving" requests to delay submittal of a WMCP. Instead, we want to work with entities that have a WMCP due and make sure they understand the consequences, if any, of delays in submittal. We do understand that Mt. Hood Meadows want to avoid potential challenges that might arise if a plan were to be submitted and processed while the negotiations are proceeding. Please call me if you wish to discuss this item in more detail.

The Department understands that the issues that surround the potential land swap is a complex undertaking and wish the applicant well as they continue to proceed.

Sincerely,

A handwritten signature in black ink, appearing to read "Dwight French", with a stylized flourish at the end.

Dwight French

Water Right Services Division Administrator

Copies to files: G-16401; S-86185; S-69976; R71657

Patricia McCarty

From: Pagel, Martha <MPagel@SCHWABE.com>
Sent: Monday, December 02, 2013 2:03 PM
To: Dwight French
Cc: Patricia McCarty; Ralph Bloemers
Subject: Meadows Applications -- Administrative Hold

Hi Dwight,

Thanks again to you and Patricia for your assistance in getting the Meadows/Cooper Spur water right certificate signed last week. From Meadows' standpoint, this was an important step forward in the overall settlement process.

As we discussed when we met, this email is to confirm my understanding that the department is willing to re-instate the administrative hold for several other Meadows applications that are affected by a settlement agreement negotiated some time ago in connection with the proposed ski area expansion at Mt. Hood. The settlement agreement includes a proposed exchange of lands between Meadows and the U.S. Forest Service that has been progressing very slowly until this point. It is my understanding the Forest Service is now ready to proceed with an appraisal of the Cooper Spur property – a key element in the exchange process. The appraisal and concurrent NEPA review are scheduled to begin by March, 2014, with a 180-day statutory time period for completion.

After completion of the appraisal and NEPA, the remaining steps include: negotiating the final transaction terms and preparing Agreement to Transfer documents; completing final title work; actual deed transfer and closing. The Forest Service estimates these steps will take about 12 months after completion of the appraisal/NEPA process. The total process is expected to take about 2 more years.

Based on our conversation last week, I understand you are willing to place the pending applications back on administrative hold for a period of two years while the settlement and exchange processes continue. We will be happy to provide you with updates as may be requested.

The specific applications are:

- PM protest*
- 1) Water Right Applications G-16401 and S-86185 for snowmaking
 - 2) Permit Extension Applications S-69976, S-54637, R-71657 and R-12758
 - 3) Water Conservation and Management Plan review

Thanks again for your assistance. Please let me know if you have questions or need any additional information.

Martha

MARTHA O. PAGEL | Attorney at Law
SCHWABE, WILLIAMSON & WYATT
530 Center St. NE, Ste. 400, Salem, OR 97301
Direct: 503-540-4260 | Fax: 503-796-2900 | Cell: 503-507-7293 | Email: mpagel@schwabe.com
Assistant: Karen Donohue | Direct: 503-540-4262 | kdonohue@schwabe.com
Legal advisors for the future of your business®
www.schwabe.com



Oregon

Theodore R. Kulongoski, Governor

Water Resources Department
North Mall Office Building
725 Summer Street NE, Suite A
Salem, OR 97301-1271
503-986-0900
FAX 503-986-0904

MEADOWS UTILITIES LLC
ATTN: DAVID RILEY
PO BOX 470
MOUNT HOOD, OR 97041

February 6, 2014

USDA; FOREST SERVICE
ATTN: PERMIT ADMINISTRATOR
6780 HWY 35
MOUNT HOOD, OR 97041

Reference: Files **G-16401** and S-86185

Dear Applicants:

On December 2, 2013, the Water Resources Department received an email from your attorney, Martha Pagel, requesting a 2-year administrative hold on processing the above-referenced applications.

The Department has determined that an administrative hold is reasonable and necessary and has approved your request. The Department will not take any action on this application until December 6, 2015, unless you request we proceed sooner.

If you need to request additional time, your request will need to show justification for why additional time is reasonable and necessary, that substantial progress is being made towards being ready to proceed with application processing, and a specific time line which identifies when you anticipate being ready to continue with the application process.

If you have any questions, please contact Jeana Eastman at jeana.m.eastman@state.or.us or 503-986-0812.

Sincerely,

Dwight French
Water Right Services Division Administrator

cc: File
WM #3
Martha Pagel

Schwabe, Williamson & Wyatt, 530 Center St NE, STE 400, Salem OR 97301

Patricia McCarty

From: Patricia McCarty
Sent: Wednesday, December 04, 2013 10:08 AM
To: Ann Reece; Jeana Eastman; Lisa Jaramillo
Subject: FW: Meadows Applications -- Administrative Hold

Lisa, Ann and Jeana –

See below – Dwight will be approving a 2 year admin hold on the apps and extensions listed below. I have G-16401 and have noted that will get a hold. I'll try to follow up and confirm when Dwight agrees to the hold (don't know what form it will come in).

Patricia

From: Pagel, Martha [<mailto:MPagel@SCHWABE.com>]
Sent: Monday, December 02, 2013 2:03 PM
To: Dwight French
Cc: Patricia McCarty; Ralph Bloemers
Subject: Meadows Applications -- Administrative Hold

Hi Dwight,

Thanks again to you and Patricia for your assistance in getting the Meadows/Cooper Spur water right certificate signed last week. From Meadows' standpoint, this was an important step forward in the overall settlement process.

As we discussed when we met, this email is to confirm my understanding that the department is willing to re-instate the administrative hold for several other Meadows applications that are affected by a settlement agreement negotiated some time ago in connection with the proposed ski area expansion at Mt. Hood. The settlement agreement includes a proposed exchange of lands between Meadows and the U.S. Forest Service that has been progressing very slowly until this point. It is my understanding the Forest Service is now ready to proceed with an appraisal of the Cooper Spur property – a key element in the exchange process. The appraisal and concurrent NEPA review are scheduled to begin by March, 2014, with a 180-day statutory time period for completion.

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Based on our conversation last week, I understand you are willing to place the pending applications back on administrative hold for a period of two years while the settlement and exchange processes continue. We will be happy to provide you with updates as may be requested.

The specific applications are:

- 1) Water Right Applications G-16401 and S-86185 for snowmaking
- 2) Permit Extension Applications S-69976, S-54637, R-71657 and R-12758
- 3) Water Conservation and Management Plan review

Thanks again for your assistance. Please let me know if you have questions or need any additional information.

Patricia McCarty

From: Patricia McCarty
Sent: Tuesday, December 03, 2013 4:58 PM
To: Cindy Smith; Tom Paul
Subject: FW: A126183: Dismissal - Petitioner's Motion - Grant - No Money
Attachments: Dismissal - Petitioner's Motion - Grant - No Money.pdf

Dismissal of Meadows Utilities Court of Appeals case.

Patricia

From: Ralph Bloemers [<mailto:ralph@crag.org>]
Sent: Tuesday, December 03, 2013 4:25 PM
To: Martha Pagel; Patricia McCarty
Subject: Fwd: A126183: Dismissal - Petitioner's Motion - Grant - No Money

FYI - please send along a final copy of the signed certificate when you have a chance.
thanks,
Ralph

Begin forwarded message:

From: C-Track@ojd.state.or.us
Subject: A126183: Dismissal - Petitioner's Motion - Grant - No Money
Date: December 3, 2013 4:20:00 PM PST
To: ralph@crag.org

Please open the attached: Dismissal - Petitioner's Motion - Grant - No Money that has been issued by the court in case number A126183.

Please do not respond to this system-generated email notification, as this email address is for outbound messages only.

IN THE COURT OF APPEALS OF THE STATE OF OREGON

In the Matter of the Application for Extension of Time for Permit G13484.

MEADOWS UTILITIES, LLC,
Respondent,

v.

WATERWATCH OF OREGON, and NORTHWEST ENVIRONMENTAL DEFENSE
CENTER,
Respondents below,

and

WATER RESOURCES DEPARTMENT,
Respondent,

and

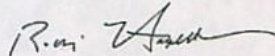
HOOD RIVER VALLEY RESIDENT COMMITTEE and FRIENDS OF MT. HOOD,
Petitioners.

A126183

ORDER OF DISMISSAL AND APPELLATE JUDGMENT

Petitioners have moved to dismiss the above-entitled judicial review to effectuate a Water Right Settlement Agreement. The motion is granted.

Judicial Review dismissed.



12/3/2013
4:15:17 PM

RICK T. HASELTON
CHIEF JUDGE, COURT OF APPEALS

DESIGNATION OF PREVAILING PARTY AND AWARD OF COSTS

Prevailing party: Respondent

☒ [X] No costs allowed

Appellate Judgment Effective Date: December 3, 2013

COURT OF APPEALS

c: Ralph O Bloemers
Martha O Pagel
Anna Marie Joyce

km

ORDER OF DISMISSAL AND APPELLATE JUDGMENT

REPLIES SHOULD BE DIRECTED TO: State Court Administrator, Records Section,
Supreme Court Building, 1163 State Street, Salem, OR 97301-2563

Patricia McCarty

From: Dwight French
Sent: Monday, December 02, 2013 2:22 PM
To: Lisa Jaramillo
Cc: Patricia McCarty
Subject: FW: Meadows Applications -- Administrative Hold

Lisa,
See Martha's #3 below. I want to approve Martha's request for a two year hold but I want to make sure I know what her #3 is about. Can you enlighten me? Do we have a pending plan from Meadows or are we expecting one that has been delayed (and might be delayed some more)?
Thanks,
Dwight

Dwight French
Water Right Services Division Administrator
503-986-0819

From: Pagel, Martha [<mailto:MPagel@SCHWABE.com>]
Sent: Monday, December 02, 2013 2:03 PM
To: Dwight French
Cc: Patricia McCarty; Ralph Bloemers
Subject: Meadows Applications -- Administrative Hold

Hi Dwight,

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Based on our conversation last week, I understand you are willing to place the pending applications back on administrative hold for a period of two years while the settlement and exchange processes continue. We will be happy to provide you with updates as may be requested.

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- 2) Permit Extension Applications S-69976, S-54637, R-71657 and R-12758
- 3) Water Conservation and Management Plan review

Thanks again for your assistance. Please let me know if you have questions or need any additional information.

Martha

MARTHA O. PAGEL | Attorney at Law
SCHWABE, WILLIAMSON & WYATT
530 Center St. NE, Ste. 400, Salem, OR 97301
Direct: 503-540-4260 | Fax: 503-796-2900 | Cell: 503-507-7293 | Email: mpagel@schwabe.com
Assistant: Karen Donohue | Direct: 503-540-4262 | kdonohue@schwabe.com
Legal advisors for the future of your business®
www.schwabe.com

To comply with IRS regulations, we are required to inform you that this message, if it contains advice relating to federal taxes, cannot be used for the purpose of avoiding penalties that may be imposed under federal tax law. Any tax advice that is expressed in this message is limited to the tax issues addressed in this message. If advice is required that satisfies applicable IRS regulations, for a tax opinion appropriate for avoidance of federal tax law penalties, please contact a Schwabe attorney to arrange a suitable engagement for that purpose.

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IN THE COURT OF APPEALS OF THE STATE OF OREGON

In the Matter of the Application for Extension)
of Time for Permit G13484)

CA No.: A126183

MEADOWS UTILITIES, LLC,

Respondent,

v.

WATERWATCH OF OREGON, and
NORTHWEST ENVIRONMENTAL
DEFENSE CENTER,

Respondents below,

and,

WATER RESOURCES DEPARTMENT,

Respondent,

and,

HOOD RIVER VALLEY RESIDENTS
COMMITTEE AND FRIENDS OF MT.
HOOD,

Petitioners.

**JOINT MOTION FOR DISMISSAL WITH
PREJUDICE TO EFFECTUATE
SETTLEMENT AGREEMENT**

Pursuant to ORAP 7.05, Petitioners Hood River Valley Residents Committee and Friends of Mt. Hood and Respondent Meadows Utilities, LLC file this joint motion for voluntary dismissal with prejudice, and without costs to any party, to effectuate a Water Right Settlement Agreement (the "Water Right Settlement") which was entered into by and between Hood River Valley Residents Committee, Friends of Mt. Hood (collectively, "Petitioners") and Respondent Meadows Utilities LLC, Meadows North, LLC and North Face Inn, LLC (collectively,

"Meadows"), together collectively, the "Parties." Respondent Oregon Water Resources Department does not oppose this motion.

Pursuant to the Water Right Settlement, the Parties agree that dismissal with prejudice of the pending petition for judicial review of an administrative order issued by OWRD in connection with Water Right Permit No. G-13494 does not create any precedent for future actions between and among the Parties and shall not be used by Meadows or any other entity or party on behalf of Meadows in any subsequent water right proceeding as evidence or an admission that Petitioners agree snowmaking is a use that falls within the designation of "commercial use."

DATED: November __, 2013.

Respectfully submitted,

Ralph O. Bloemers, OSB No. 984172
Crag Law Center
917 SW Oak Street, Suite 417
Portland, OR 97205
Tel: (503) 525-2727
Fax: (503) 296-5454
ralph@crag.org

*Attorney for Petitioners, Hood River Valley
Residents Committee and Friends of Mt.
Hood*

Martha Pagel
Michael T. Garone
Schwabe Williamson & Wyatt PC
530 Center St NE, Ste. 400
Salem OR 97301
Tel: (503) 540-4260
Fax: (503) 243-2687
mpagel@schwabe.com
*Of Attorneys for
Respondent Meadows Utilities, LLC*

CERTIFICATE OF FILING AND SERVICE

I certify that I filed the foregoing JOINT MOTION FOR DISMISSAL WITH PREJUDICE TO EFFECTUATE SETTLEMENT AGREEMENT with the Appellate Court Administrator via the CM/ECF system on November ___, 2013, and that I served a copy of the filing on the parties listed below by Email on November ___, 2013.

Martha Pagel
Schwabe Williamson & Wyatt PC
530 Center St NE, Ste. 400
Salem OR 97301
Tel: (503) 540-4260
Fax: (503) 243-2687
mpagel@schwabe.com
*Of Attorneys for
Respondent Meadows Utilities, LLC*

Denise G. Fjordbeck
DOJ Appellate Division
1162 Court St NE
Salem OR 97301
Tel: (503) 378-4402
Fax: (503) 378-6306
denise.fjordbeck@doj.state.or.us
Counsel for Respondent on Appeal

Michael T. Garone
Schwabe, Williamson & Wyatt PC
1211 SW 5th Ave., Ste. 1900
Portland OR, 97204
Tel: (503) 222-9981
Fax: (503) 796-2900
mgarone@schwabe.com
*Of Attorneys for Respondent Meadows
Utilities, LLC*

DATED: November ___, 2013.

Ralph O. Bloemers, OSB No. 984172
Crag Law Center
917 SW Oak Street, Suite 417
Portland, OR 97205
Tel: (503) 525-2727
Fax: (503) 296-5454
ralph@crag.org
*Attorney for Petitioners, Hood River Valley
Residents Committee and Friends of Mt.
Hood*



Oregon

John A. Kitzhaber, MD, Governor

Water Resources Department
North Mall Office Building
725 Summer Street NE, Suite A
Salem, OR 97301-1271
503-986-0900
FAX 503-986-0904

RECEIVED

AUG 17 2011

Schwabe, Williamson & Wyatt

August 15, 2011

Martha Pagel
Schwabe, Williamson & Wyatt
530 Center St. NE Suite 400
Salem, OR 97301

RE: Request for Administrative Hold on Meadows North LLC applications

Dear Ms. Pagel,

Thank you for providing additional information in support of the request by Meadows North LLC for additional time to complete actions intended to lead to a comprehensive settlement of matters related to the applications and WMCP listed below.

1. Water Right Applications G-16401 and S-86185 for Snowmaking.
2. Permit Extension Applications S-69976 (Permit S-53637), R-71657 (Permit R-12758).
3. Water Conservation and Management Plan Review.

The Department has determined that these applications and WMCP review need to be moved forward to the next step in processing. Caseworkers for each of these matters will resume processing the applications, and the WMCP staff will proceed with its work on the WMCP.

The contact for G-16401 and S-86185 is Jeana Eastman, and for S-69976 and R-71657 it is Ann Reece. Lisa Jaramillo will be the contact for the WMCP.

Sincerely,

Patricia McCarty
Protest Program Coordinator
503-986-0820

Patricia McCarty

From: Patricia McCarty
Sent: Thursday, March 24, 2011 4:11 PM
To: 'Pagel, Martha'
Subject: Meadows Utilities, LLC

Hi Martha,

I've spoken with Dwight and Tom about the February 3, 2011 request for further administrative hold on applications G-16401 and S-86185, extension applications for permits S-53637 and R-12758, and the WMCP review.

Both Tom and Dwight expressed discomfort and concern with additional administrative holds without further information from the applicant. If the applicant can explain why not proceeding on the surface water application, the extension applications and the WMCP review is reasonable and necessary, they would be willing to consider the requested hold. Can you provide the department with an explanation of the settlement agreements to date, the implementation to date, remaining issues, and whether the protestants are on track to agree to a full settlement of all issues? In addition, Tom and Dwight requested a "best guess" at a schedule and completion date for the negotiations that are now underway. Without this information, the department is inclined resume processing the applications, and allow the interested parties to engage in the administrative process.

Neither Tom nor Dwight suggested a deadline for the submission of this information, and I know you are working on other matters, so if I don't receive anything from you by May 31, 2011, I'll follow up with you then.

Sincerely,

Patricia McCarty
Protest Program Coordinator
Oregon Water Resources Department
(503) 986-0820

3/24/2011

Patricia McCarty

From: Ralph Bloemers <ralph@crag.org>
Sent: Tuesday, October 22, 2013 9:35 AM
To: Pagel, Martha
Cc: Patricia McCarty; Craig Kohanek
Subject: Re: Mtg to exchange sigs on cert for Permit G-13484 and withdrawal of Ct. of Appeals Case No. A126183

Yes

Crag Law Center
917 SW Oak St. Suite 417
Portland, OR 97205
Tel 503 525-2727

On Oct 22, 2013, at 8:45 AM, "Pagel, Martha" <MPagel@SCHWABE.com> wrote:

OK for me.

MARTHA O. PAGEL | Attorney at Law
SCHWABE, WILLIAMSON & WYATT
Direct: 503-540-4260 | Fax: 503-796-2900 | Cell: 503-507-7293 | Email: mpagel@schwabe.com

From: Patricia McCarty [<mailto:patricia.e.mccarty@state.or.us>]
Sent: Tuesday, October 22, 2013 8:43 AM
To: Pagel, Martha; Patricia McCarty; Ralph Bloemers
Cc: Craig Kohanek
Subject: RE: Mtg to exchange sigs on cert for Permit G-13484 and withdrawal of Ct. of Appeals Case No. A126183

November 13th at 10 -10:30 will have to be it, given Dwight's calendar. Please let me know when we can confirm that.

Thanks!

Patricia

From: Pagel, Martha [<mailto:MPagel@SCHWABE.com>]
Sent: Monday, October 21, 2013 5:26 PM
To: Ralph Bloemers; Patricia McCarty
Subject: RE: Mtg to exchange sigs on cert for Permit G-13484 and withdrawal of Ct. of Appeals Case No. A126183

Ralph and Patricia,

I could meet on the 13th, but not the 12th. Ralph's suggestion for 10 or 11 would be fine with me (my schedule is wide open so far.)

Martha

MARTHA O. PAGEL | Attorney at Law

SCHWABE, WILLIAMSON & WYATT

Direct: 503-540-4260 | Fax: 503-796-2900 | Cell: 503-507-7293 | Email: mpagel@schwabe.com

From: Ralph Bloemers [<mailto:ralph@crag.org>]

Sent: Monday, October 21, 2013 5:05 PM

To: Patricia McCarty

Cc: Pagel, Martha

Subject: Re: Mtg to exchange sigs on cert for Permit G-13484 and withdrawal of Ct. of Appeals Case No. A126183

Dear Patricia,

I am free on November 12 or 13th all day. I assume this meeting will be in Salem, in which case I would prefer to do so at 10 or 11 AM. I am still reviewing this proposed process for resolution with my clients, but at this point I am expecting they will approve. Thanks for your patience in hearing back from me.

Regards,
Ralph

Crag Law Center
917 SW Oak, Suite 417
Portland, Oregon 97205
Tel. 503.525.2727
Fax. 503.296.5454
email - ralph@crag.org

Protecting and defending the Pacific Northwest's natural legacy.

On Sep 23, 2013, at 3:28 PM, Patricia McCarty wrote:

Mr. Bloomers and Ms. Pagel,

Dwight French is available to sign the certificate for Permit G-13484 the following dates and times. Please let me know if you would like to confirm a meeting here at WRD for the signature exchange.

October 21st, 1-5
October 23rd, 3:30-5
October 24th, 3:30-5
October 25th, all day
October 31st, after 10
November 4th, after 11
November 12th, all day
November 13th, all day

Thank you,

Patricia McCarty
Protest Program Coordinator

Patricia McCarty

From: Pagel, Martha <MPagel@SCHWABE.com>
Sent: Tuesday, August 20, 2013 11:14 AM
To: Craig Kohanek
Cc: Langford, Shonee D.; Patricia McCarty
Subject: RE: Meadows/Cooper Spur Agreement

Thanks Craig – We appreciate the fast turn-around.

I reviewed the revised draft certificate and it looks like you covered all the issues. I will forward this to Meadows, and will discuss the next steps with CRAG to figure out how to address the department's position of not being willing to lift the stay. I'll get back to you and Patricia as soon as I can. We are still hoping to have a certificate issued by the end of August.

Thank you,
Martha

MARTHA O. PAGEL | Attorney at Law
SCHWABE, WILLIAMSON & WYATT
Direct: 503-540-4260 | Fax: 503-796-2900 | Cell: 503-507-7293 | Email: mpagel@schwabe.com

From: Craig Kohanek [mailto:ron.c.kohanek@state.or.us]
Sent: Tuesday, August 20, 2013 10:38 AM
To: Pagel, Martha
Subject: RE: Meadows/Cooper Spur Agreement

Martha,

I apologize for not having read your entire email before responding with an email to Shonee. Glad I Cc'd you though.

Craig

From: Pagel, Martha [mailto:MPagel@SCHWABE.com]
Sent: Tuesday, August 20, 2013 8:31 AM
To: Patricia McCarty
Cc: Craig Kohanek
Subject: RE: Meadows/Cooper Spur Agreement

Hi Patricia,

Thank you for checking on this. I'm disappointed that we can't get OWRD to lift the stay – especially since there has been such a long delay since we requested processing -- but I will work with Ralph Bloemers to try to make the necessary adjustments in our agreement. Shonee is out of the office for the rest of the week, so I'm copying Craig to ask that he please send me the corrected draft certificate as soon as possible. If there are further questions about the map, or any provisions of the certificate, please let me know. I'll be available and will make this a priority.

Thank you,
Martha

MARTHA O. PAGEL | Attorney at Law

SCHWABE, WILLIAMSON & WYATT

Direct: 503-540-4260 | Fax: 503-796-2900 | Cell: 503-507-7293 | Email: mpagel@schwabe.com

From: Patricia McCarty [<mailto:patricia.e.mccarty@state.or.us>]

Sent: Tuesday, August 20, 2013 8:18 AM

To: Pagel, Martha

Subject: RE: Meadows/Cooper Spur Agreement

Good morning,

I had a chance to talk with Dwight about the agreement and he's hoping that you and the petitioners can make an adjustment to the settlement agreement now that the COBU has been accepted and the certificate has been prepared for signature-once the details in it are correct, which Craig was working on yesterday (there is a description-map discrepancy, which I assume Craig is discussing with Shonee, but I know can be worked out. It seems that the agreement has produced what was intended and WRD will sign and issue the certificate - just as soon as possible, perhaps upon the filing of the paperwork for dismissal of the appeal?

Patricia

From: Pagel, Martha [<mailto:MPagel@SCHWABE.com>]

Sent: Monday, August 19, 2013 12:04 PM

To: MCCARTY Patricia E

Subject: Meadows/Cooper Spur Agreement

Patricia: I have attached a copy of the missing page from the settlement agreement. Paragraph 4 is the provision that calls for issuance of the certificate before the appeal is withdrawn. From this standpoint, it would still be best for us if OWRD would lift the stay and issue the certificate. The reasons for doing so are laid out in my letter to Phil. If the department is still uncomfortable with this approach, I will need to talk with Ralph Bloemers about how we can make an adjustment.

Thank you,
Martha

MARTHA O. PAGEL | Attorney at Law

SCHWABE, WILLIAMSON & WYATT

Direct: 503-540-4260 | Fax: 503-796-2900 | Cell: 503-507-7293 | Email: mpagel@schwabe.com

From: digitalsender@schwabe.com [<mailto:digitalsender@schwabe.com>]

Sent: Monday, August 19, 2013 1:00 PM

To: Pagel, Martha

Subject: Attached Image

To comply with IRS regulations, we are required to inform you that this message, if it contains advice relating to federal taxes, cannot be used for the purpose of avoiding penalties that may be imposed under federal tax law. Any tax advice that is expressed in this message is limited to the tax issues addressed in this message. If advice is required that satisfies applicable IRS regulations, for a tax opinion appropriate for avoidance of federal tax law penalties, please contact a Schwabe attorney to arrange a



Oregon

John A. Kitzhaber, MD, Governor

Water Resources Department

North Mall Office Building

725 Summer Street NE, Suite A

Salem, OR 97301-1271

503-986-0900

FAX 503-986-0904

file G-16401

COPY

August 15, 2011

Martha Pagel
Schwabe, Williamson & Wyatt
530 Center St. NE Suite 400
Salem, OR 97301

RE: Request for Administrative Hold on Meadows North LLC applications

Dear Ms. Pagel,

Thank you for providing additional information in support of the request by Meadows North LLC for additional time to complete actions intended to lead to a comprehensive settlement of matters related to the applications and WMCP listed below.

1. Water Right Applications G-16401 and S-86185 for Snowmaking.
2. Permit Extension Applications S-69976 (Permit S-53637), R-71657 (Permit R-12758).
3. Water Conservation and Management Plan Review.

The Department has determined that these applications and WMCP review need to be moved forward to the next step in processing. Caseworkers for each of these matters will resume processing the applications, and the WMCP staff will proceed with its work on the WMCP.

The contact for G-16401 and S-86185 is Jeana Eastman, and for S-69976 and R-71657 it is Ann Reece. Lisa Jaramillo will be the contact for the WMCP.

Sincerely,

Patricia McCarty

Patricia McCarty
Protest Program Coordinator
503-986-0820

Patricia McCarty

From: Pagel, Martha [MPagel@SCHWABE.com]
Sent: Thursday, September 01, 2011 3:57 PM
To: MCCARTY Patricia E
Cc: Ann Reece; Jeana Eastman; ralph bloemers; Lisa Jaramillo
Subject: Meadows North LLC
Attachments: 3437_001.pdf

Patricia:

I am writing in response to the attached letter you sent to me on August 15, 2011, regarding OWRD's decision to deny further extensions of the "administrative hold" process for various applications currently pending for my client, Meadows North LLC. The letter indicates OWRD has decided to move forward with processing the applications in due course, but it is not clear in the letter when such actions will resume.

I shared a copy of the letter with Ralph Bloemers, the lead attorney for interest groups that have been involved in the OWRD actions and other issues related to the broader on-going negotiations described in my prior letters to OWRD regarding the administrative hold request. I understand Mr. Bloemers is in the process of considering options and possible follow-up action on behalf of the interests he represents.

We therefore request that you, or the individual caseworkers responsible for any of the applications please let us know when you are ready to begin work any given file. It would be very helpful if you could provide an estimated timeline of when that might occur for the various applications.

Thank you for your assistance.

Martha

Martha O. Pagel
SCHWABE, WILLIAMSON & WYATT
Direct: 503-540-4260 | Fax: 503-796-2900 | Cell: 503-507-7293 | Email: mpagel@schwabe.com
<<mailto:youreemail@schwabe.com>>

>> <<3437_001.pdf>>

To comply with IRS regulations, we are required to inform you that this message, if it contains advice relating to federal taxes, cannot be used for the purpose of avoiding penalties that may be imposed under federal tax law.

9/2/2011

Patricia McCarty

From: ralphowen@hotmail.com on behalf of ralph bloemers [ralph@crag.org]
Sent: Tuesday, September 06, 2011 11:52 AM
To: Ann Reece; Pagel, Martha; patricia.e.mccarty@state.or.us
Cc: Jeana Eastman; Lisa Jaramillo
Subject: RE: Meadows North LLC

Dear Ann,

Please let us know when you finish with the current item in your queue. I would still like to discuss with you all the possibility of putting these on hold, or processing something and then putting them on hold. Both the Oregon Supreme Court and the Oregon Court of Appeals have collectively put three cases on hold until the settlement authorized by the United States Congress is implemented by the Forest Service. I plan to provide more details to you next week on how the settlement will affect these two applications.

If at all possible, my clients would like to spend minimal time on this matter and avoid potential moot/wasteful efforts processing these matters and allow time for the settlement process/implementation to play itself out.

Regards,
Ralph

Crag Law Center
917 SW Oak, Suite 417
Portland, Oregon 97205
Tel. 503.525.2727
www.crag.org

From: reeceal@wrd.state.or.us
To: MPagel@SCHWABE.com; Patricia.E.MCCARTY@state.or.us
CC: eastmajm@wrd.state.or.us; ralph@crag.org; jaramilj@wrd.state.or.us
Date: Tue, 6 Sep 2011 18:03:45 +0000
Subject: RE: Meadows North LLC

Martha,

The two Meadow Utilities (Permits R-12758 and S-53637) extension of time requests are next in my queue.

Best Regards,
Ann Reece

Water Rights Services Division
Oregon Water Resources Department
725 Summer St. NE Suite A
Salem, OR 97301
503-986-0827
reeceal@wrd.state.or.us

9/7/2011

From: Pagel, Martha [mailto:MPagel@SCHWABE.com]
Sent: Thursday, September 01, 2011 3:57 PM
To: MCCARTY Patricia E
Cc: Ann Reece; Jeana Eastman; ralph bloemers; Lisa Jaramillo
Subject: Meadows North LLC

Patricia:

I am writing in response to the attached letter you sent to me on August 15, 2011, regarding OWRD's decision to deny further extensions of the "administrative hold" process for various applications currently pending for my client, Meadows North LLC. The letter indicates OWRD has decided to move forward with processing the applications in due course, but it is not clear in the letter when such actions will resume.

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Thank you for your assistance.

Martha

Martha O. Pagel
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<<mailto:youremail@schwabe.com>>

>> <<3437_001.pdf>>

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NOTICE: This communication (including any attachments) may contain privileged or

9/7/2011



SCHWABE, WILLIAMSON & WYATT
ATTORNEYS AT LAW

Equitable Center, 530 Center St., NE, Suite 400, Salem, OR 97301 | Phone 503.540.4262 | Fax 503.399.1645 | www.schwabe.com

MARTHA O. PAGEL

Admitted in Oregon and Washington

Direct Line: Salem 503-540-4260; Portland 503-796-2872

E-Mail: mpagel@schwabe.com

October 8, 2012

BY HAND DELIVERY

Mr. Phil Ward
Director
Oregon Water Resources Department
725 Summer St NE Ste A
Salem, OR 97301-1271

RECEIVED

OCT 08 2012

WATER RESOURCES DEPT
SALEM, OREGON

Re: Water Right Permit No G-13494/Meadows Utilities LLC -- Court of Appeals
Case No. A126183
Our File No.: 110069/130923

Dear Director Ward:

The purpose of this letter is to advise the Oregon Water Resources Department ("OWRD") of a Water Right Settlement Agreement ("Water Right Settlement") entered into by my client, Meadows Utilities LLC (along with Meadows North LLC and North Face Inn, collectively "Meadows") and Petitioners Hood River Valley Residents Committee and Friends of Mt. Hood ("Petitioners") in the above-referenced permit extension proceeding that is currently pending before the Oregon Court of Appeals. The Parties also jointly request assistance from OWRD in implementing the Water Right Settlement by taking the necessary steps to allow for processing of a Claim of Beneficial Use ("COBU") in accordance with the Settlement Agreement. The original COBU and check for the processing fee is being hand-delivered under separate cover; a copy is enclosed for your convenience. A copy of the Water Right Settlement is also enclosed, and additional background and analysis in support of the joint request are provided below.

Portland, OR 503.222.9981 | Salem, OR 503.540.4262 | Bend, OR 541.749.4044
Seattle, WA 206.622.1711 | Vancouver, WA 360.694.7551 | Washington, DC 202.488.4302

PDX/110069/130923/MOP/9912063.2

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OCT 08 2012

WATER RESOURCES DEPT
SALEM, OREGON

Background:

Permit G-13494 authorizes use of 0.78 cfs of ground water from a well for "Commercial Use" at the Inn at Cooper Spur, which is owned by Meadows. In July 2004, OWRD issued a final order approving an extension of time until October 1, 2004, for Meadows to complete application of water to beneficial use under Permit G-13494. Shortly after, a petition for judicial review was filed with the Oregon Court of Appeals by the Petitioners. Pursuant to ORS 536.075(5), the filing of a petition for judicial review triggered an automatic "stay" of the extension order which can be removed by the Director of OWRD upon certain findings (as further described below). Since 2004, the water right extension has been held in abeyance and no further action has been taken by either the Court of Appeals or OWRD.

The delay in further action on the water right extension is tied to the resolution of other issues relating to a broader proposal by Meadows to develop additional resort and ski facilities on Mt. Hood. As you may recall, the Meadows development proposal triggered extensive opposition. However, following comprehensive negotiations that concluded in 2004, the interested parties entered into a Final Settlement Agreement that outlined a plan of action to allow limited development on Mt. Hood, provided that a number of conditions were met. One key element of this broader settlement plan was a proposal for federal legislation establishing permanent protection for additional wilderness on the north side of Mt. Hood, the designation of a watershed protection zone for the Crystal Springs Zone of Contribution, and direction to the Forest Service to complete a land exchange whereby Meadows would trade certain land and holdings on the north side of Mt. Hood for public land managed by the U. S. Forest Service in the Government Camp area.

After several years of effort, HR 146 was enacted by Congress and signed into law by President Obama in 2009. Since then, the parties to the broader settlement agreement have been working cooperatively with the Forest Service to proceed with the proposed land exchange. An important step in the land exchange process is the need to acquire an appraisal of the Cooper Spur property that will be acquired by the United States. The appraisal was scheduled to be completed in 2011, however due to a variety of reasons the Forest Service is still working towards this goal. In 2012, Meadows requested that Petitioners agree to resolve the ongoing dispute concerning the status of the water right permit to facilitate settlement. As described further below, the parties have now reached a settlement that will simplify the Forest Service's effort determine the value of the real property.

Meadow was concerned that the value of the Cooper Spur property as reflected in the appraisal might be significantly reduced without certainty concerning the status of the water right. Because Meadows had already completed development and full beneficial use of water within the timeframe specified under the 2004 permit extension, Meadows sought to submit its Claim of Beneficial Use and request issuance of a final certificate of water right as soon as possible. Petitioners opposed this course of action because of the unresolved issues raised in the petition for judicial review.



The Water Right Settlement provides a pathway for issuance of a water right certificate that resolves a specific dispute over the location of use by limiting the location to certain commercially-zone land at the Inn at Cooper Spur. Under the settlement plan, upon issuance by OWRD of a diminished certificate reflecting the reduced location of use, the Petitioners agree to withdraw the petition for judicial review currently pending before the Court of Appeals. The agreement also provides an alternative course of action if OWRD should find any deficiencies in the Claim of Beneficial Use that would prevent issuance of the certificate.

OWRD's assistance is needed to implement the Water Right Settlement by lifting the existing stay and thereby allowing the permit extension order to be implemented. Meadows will then be in a position to submit its Claim of Beneficial Use and Request for Certificate Issuance, based upon a site inspection that was conducted within the timeframe specified in the permit extension. As required under the settlement, Meadows will at the same time request that the location of use be reduced to the commercially-zoned tax lot 103.

Request to Lift the "Stay" and Proceed with Processing the Claim of Beneficial Use

ORS 536.075(5) provides that the department must stay the enforcement of any order that is the subject of a petition for judicial review unless the department determines that "substantial public harm" will result if the order is stayed. The parties to the Water Right Settlement believe the facts in this case warrant a finding of substantial public harm unless the order is stayed because of the potential loss of a significant public investment in the future of Mt. Hood.

For nearly a decade, the interested parties including conservation groups; landowners; local, state and federal agencies; and the members of Oregon's Congressional delegation have dedicated countless hours and resources to developing and implementing a comprehensive settlement plan for the future development of Mt. Hood. The plan resolves disputes over environmental, land use, water, and other resource protection concerns by providing a balance of resource protection and new recreational development. Implementation of the plan hinges on the completion of a land exchange between the Forest Service and Meadows. In order for the land exchange to move forward, an appraisal of Meadow's Cooper Spur property must be completed and resolving this dispute over water rights will simplify that process and allow it to move forward.

The water right permit extension order is a critical part of this comprehensive plan for the future of Mt. Hood. With OWRD's cooperation in lifting the stay and processing the Claim of Beneficial Use, both the Water Right Settlement and the broader settlement plan can move forward. Without this action, Meadows is unwilling to proceed with the appraisal, which, in turn, will threaten completion of the exchange. If that were to happen, the public would suffer substantial harm in the loss of certainty over the future of Mt. Hood as well in the loss of its considerable investment of time and resources to date in the development and implementation of the comprehensive settlement plan, including the enactment of HR 146.

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OCT 08 2012

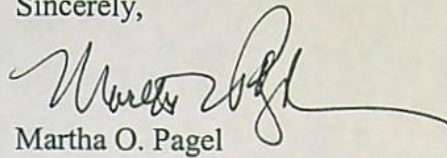
WATER RESOURCES DEPT
SALEM, OREGON

SW

Mr. Phil Ward
October 8, 2012
Page 4

The parties to the Water Right Settlement therefore jointly ask that you lift the stay and proceed with action on the Claim of Beneficial Use. If you have questions or need any additional information, please let us know.

Sincerely,



Martha O. Pagel

MOP:kdo
Enclosures

cc: (all w/encls.)
Matthew Drake
Ralph O. Bloemers, Esq.
Patricia McCarty, OWRD ✓
Craig Kohanek, OWRD

**CLAIM OF
BENEFICIAL USE
for Permits claiming more
than 0.1 cfs and All Transfers**



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

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OCT 08 2012

WATER RESOURCES DEPT
SALEM, OREGON

No fee is required for submitting this form for a transfer.

A fee of \$150 must accompany this form to be accepted for permits
with a priority date of July 9, 1987, or later. (ORS 536.050(1))

A separate form shall be completed for each permit.

In cases where a permit has been amended through the permit amendment process, a separate claim for the permit amendment is not required. Incorporate the permit amendment into the claim for the permit.

This form is subject to revision. **Begin each new claim** by checking for a new version of this form at:
http://www.wrd.state.or.us/OWRD/WR/cwre_info.shtml#.

The completion of this form is required by OAR 690-014-0100(1) and 690-014-0110(4).

Please type or print in dark ink. If this form is found to contain errors or omissions, it may be returned to you. **Every item must have a response.** If any requested information does not apply to the claim, insert "NA." **Do not delete or alter any section of this form unless directed by the form.** The Department may require the submittal of additional information from any water user or authorized agent.

If you have questions regarding the completion of this form, please call 503-986-0900 and ask for the Certificate Section.

The Department has a program that allows it to enter into a voluntary agreement with an applicant for expedited services. Under such an agreement, the applicant pays the cost to hire additional staff that would not otherwise be available. This program means a certificate may be issued in about a month. For more information on this program see
http://www.wrd.state.or.us/OWRD/mgmt_reimbursement_authority.shtml.

**SECTION 1
GENERAL INFORMATION**

1. File Information

APPLICATION # (G, R, S or T) G-14655	PERMIT # (IF APPLICABLE) G-13484	PERMIT AMENDMENT # (IF APPLICABLE) NA
---	-------------------------------------	--

2. Property Owner (current owner information)

APPLICANT/BUSINESS NAME Meadows Utilities, LLC		PHONE NO. 503-337-2222 x206	ADDITIONAL CONTACT NO. 503-991-1157
ADDRESS P O Box 470			
CITY Mt. Hood	STATE OR	ZIP 97041	E-MAIL

If the current property owner is not the permit or transfer holder of record, it is recommended that an assignment be filed with the Department. **The COBU must be signed by each permit or transfer holder of record.**

3. Permit or transfer holder of record (this may, or may not, be the current property owner)

PERMIT OR TRANSFER HOLDER OF RECORD		
Same as owner		
ADDRESS		
CITY	STATE	ZIP

ADDITIONAL PERMIT OR TRANSFER HOLDER OF RECORD		
ADDRESS		
CITY	STATE	ZIP

4. Date of Site Inspection: **Feb 25, 2003 & Aug 17, 2004**

5. Person(s) interviewed and description of their association with the project:

NAME	DATE	ASSOCIATION WITH THE PROJECT
Steve Wavila	Both days	Project Manager

6. County: **Hood River**

7. If any property described in the place of use of the permit or transfer final order is excluded from this report, identify the owner of record for that property (ORS 537.230(4)):

****Mark "NA" if there are no owners of property not included in this claim**

OWNER OF RECORD		
NA		
ADDRESS		
CITY	STATE	ZIP

ADDITIONAL OWNER OF RECORD		
ADDRESS		
CITY	STATE	ZIP

SECTION 2

SYSTEM DESCRIPTION

A. Points of Diversion/Appropriation

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OCT 08 2012

WATER RESOURCES DEPT
SALEM, OREGON

1. Point of diversion/appropriation name or number:

POINT OF DIVERSION/APPROPRIATION (POD/POA) NAME OR NUMBER (CORRESPOND TO MAP)	WELL LOG ID # FOR ALL WORK PERFORMED ON THE WELL (IF APPLICABLE)	WELL TAG # (IF APPLICABLE)
A well	HOOD 517 & 525	

Attach each well log available for the well (include the log for the original well and any subsequent alterations, reconstructions, or deepenings)

2. Point of diversion/appropriation source and, if from surface water, the tributary:

POD/POA NAME OR NUMBER	SOURCE	TRIBUTARY
A well	Ground Water	In Buck Creek Basin

3. Developed use(s), period of use, and rate for each use:

POD/POA NAME OR NUMBER	USES	IF IRRIGATION, LIST CROP TYPE	SEASON OR MONTHS WHEN WATER WAS USED	RATE OR VOLUME FOR USE (CFS, GPM, OR AF)
A well	Commercial		Year Round	0.78 cfs
Total Quantity of Water Used				0.78 cfs

4. Provide a general narrative description of the distribution works. This description must trace the water system from **each** point of diversion or appropriation to the place of use:

A submersible pump in the well with 4" buried PVC pipe to the place of use. There are individual pipes to the restaurant, hotel, cabins, hot tubs, the water source heat pump for all the buildings and a riser near the restaurant for snow making. It also provides fire protection.

SECTION 2

SYSTEM DESCRIPTION (B through H)

Are there multiple PODs or POAs? **NO**

If "YES" you will need to copy and complete Sections 2B through 2H for each POD/POA.

POD/POA Name or Number this section describes (only needed if there is more than one):

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WATER RESOURCES DEPT
SALEM, OREGON

Place of Use

1. Is the right for municipal use? **NO**

If "YES" the table below may be deleted.

TWP	RNG	MER	SEC	QQ	GLOT	DLC	USE	IF IRRIGATION, # PRIMARY ACRES	IF IRRIGATION, # SUPPLEMENTAL ACRES
2 S	10 E	WM	6	SW NE			Comm.		
2 S	10 E	WM	6	SE NE			Comm.		
2 S	10 E	WM	6	NW SE			Comm.		
Total Acres Irrigated								NA	NA

Reminder: The map associated with this claim must identify Donation Land Claims (DLC), Government Lots (GLOT), Quarter Quarters (QQ), and if for irrigation, the number of acres irrigated within each projected DLC, GLOT, and QQ.

C. Diversion and Delivery System Information

Provide the following information concerning the diversion and delivery system. Information provided must describe the equipment used to transport and apply the water from the point of diversion/appropriation to the place of use.

1. Is a pump used? **YES**

If "NO" items 2 through item 6 may be deleted.

2. Pump Information

MANUFACTURER	MODEL	SERIAL NUMBER	TYPE (CENTRIFUGAL, TURBINE OR SUBMERSIBLE)	INTAKE SIZE	DISCHARGE SIZE
Crown			Submersible	open	4"

3. Motor Information

MANUFACTURER	HORSEPOWER
Franklin Electric	30
Model 2366169020	

4. Theoretical Pump Capacity

HORSEPOWER	OPERATING PSI	LIFT FROM SOURCE TO PUMP *If a WELL, THE WATER LEVEL DURING PUMPING	LIFT FROM PUMP TO PLACE OF USE	TOTAL PUMP OUTPUT (IN CFS)
30	45	SWL 78, DD 64 = 142	Minus 50' +	0.825 cfs

5. Provide pump calculations:

Submersible at 80% efficiency. $7.04 \times \text{HP} / \text{total dynamic head. } 45 \text{ psi} = 114'$
 $7.04 \times 30 / 142 + 114 = 0.825 \text{ cfs.}$

6. Measured Pump Capacity (using meter if meter was present and system was operating)

INITIAL METER READING	ENDING METER READING	DURATION OF TIME OBSERVED	TOTAL PUMP OUTPUT (IN CFS)
		360 GPM	0.802 cfs

Reminder: For pump calculations use the reference information at the end of this document.

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7. Is the distribution system piped? **YES**

If "NO" items 8 through item 11 may be deleted.

8. Mainline Information

MAINLINE SIZE	LENGTH	TYPE OF PIPE	BURIED OR ABOVE GROUND
4"	2000'	PVC	Buried

9. Lateral or Handline Information

LATERAL OR HANDLINE SIZE	LENGTH	TYPE OF PIPE	BURIED OR ABOVE GROUND
2"	300' reel	Rubber	Above to snow machine

10. Sprinkler Information

SIZE	OPERATING PSI	SPRINKLER OUTPUT (GPM)	TOTAL NUMBER OF SPRINKLERS	MAXIMUM NUMBER USED	TOTAL SPRINKLER OUTPUT (CFS)
NA					

Reminder: For sprinkler output determination use the reference information at the end of this document.

11. Pivot Information

MANUFACTURER	MAXIMUM WETTED RADIUS	OPERATING PSI	TOTAL PIVOT OUTPUT (GPM)	TOTAL PIVOT OUTPUT (CFS)
NA				

12. Additional notes or comments related to the system:

They use the riser near the lodge to provide water to the snow making machine. The Wizard snow machine includes a John Deere (8.1 L) diesel DDC to a Cornell 6"x4" pump for additional pressure and a diesel generator. The snow machine is portable to provide snow cover for a sledding/inner-tubing hill near the restaurant and other locations. The water source heat pump and other uses at the facilities ran 170 to 200 GPM during the test. The snow machine used 160 GPM.

D. Groundwater Source Information (Well and Sump)

1. Is the appropriation from ground water (well or sump)? **YES**

If "NO", items 2 through 8 relating to this section may be deleted.

2. Describe the access port (type and location) or other means to measure the water level in the well:

A pipe plug in the well cap

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3. If well logs are not available, provide as much of the following information as possible:

CASING DIAMETER	CASING DEPTH	TOTAL DEPTH	COMPLETION DATE OF ORIGINAL WELL	COMPLETION DATES OF ALTERATIONS	WHO THE WELL WAS DRILLED FOR	WELL DRILLED BY
6"	200'	200.				

4. In addition to the information requested in item "3" above, provide any other information which may help the Department locate any well logs associated with this appropriation.

HARN 517 and HARN 525

5. Is the appropriation from a dug well (sump)? NO

If "NO", items 6 through 8 relating to this section may be deleted.

E. Storage

1. Does the distribution system include in-system storage (i.e. storage tank, bulge in system / reservoir) NO

If "NO", item 2 and 3 relating to this section may be deleted.

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SALEM, OREGON

F. Gravity Flow Pipe

(THE DEPARTMENT TYPICALLY USES THE HAZEN-WILLIAM'S FORMULA FOR A GRAVITY FLOW PIPE SYSTEM)

1. Does the system involve a gravity flow pipe? NO

If "NO", items 2 through 4 relating to this section may be deleted.

G. Gravity Flow Canal or Ditch

(THE DEPARTMENT TYPICALLY USES MANNING'S FORMULA FOR CANALS AND DITCHES)

1. Is a gravity flow canal or ditch used to convey the water as part of the distribution system? NO

If "NO", items 2 through 4 relating to this section may be deleted.

H. Reservoir

1. Does the claim involve a reservoir modified through a transfer? NO

Reminder: Complete this section if the reservoir right has been modified through the transfer process. If the claim is for a permitted reservoir use the Claim of Beneficial Use form for reservoirs.

If "NO", items 2 through 9 relating to this section may be deleted.

SECTION 3 CONDITIONS

All conditions contained in the permit, permit amendment, transfer final order, or any extension final order shall be addressed. Reports that do not address all performance related conditions will be returned.

1. Time Limits:

Permits, transfer final orders, and any extension final orders contain any or all of the following dates: the date when the actual construction work was to begin, the date when the construction was to be completed, and the date when the complete application of water to the proposed use was to be completed. These dates may be

Reminder: If a meter or approved measuring device was required, the COBU map must indicate the location of the device in relation to the point of diversion or appropriation.

b. Has a meter been installed? **YES**

c. Meter Information

POD/POA NAME OR #	MANUFACTURER	SERIAL #	CONDITION (WORKING OR NOT)	CURRENT METER READING	DATE INSTALLED
A well	McCrometer	Cover gone	Working		Prior to Feb, 2003
	Badger	3049072	New	350 gallons	Aug, 2004

8. Recording and reporting conditions

a. Is the water user required to report the water use to the Department? **NO**

If "NO", item 8b relating to this section may be deleted.

9. Fish Screening

a. Are any points of diversion required to be screened to prevent fish from entering the point of diversion? **NO**

If "NO", items 9b through 9e relating to this section may be deleted.

10. By-pass Devices

a. Are any points of diversion required to have a by-pass device to prevent fish from entering the point of diversion? **NO**

If "NO", items 10b and 10c relating to this section may be deleted.

11. Other conditions required by permit, permit amendment final order, extension final order, or transfer final order:

- a. Were there special well construction standards? **YES**
- b. Was submittal of a ground water monitoring plan required? **NO**
- c. Was the water user required to restore the riparian area if it was disturbed? **NO**
- d. Was a fishway required? **NO**
- e. Was submittal of a letter from an engineer required prior to storage of water? **NO**
- f. Was submittal of a water management and conservation plan required? **NO**
- g. Other conditions? **NO**

If "YES" to any of the above, identify the condition and describe the water user's actions to comply with the condition(s):

Condition #3 required production from no shallower than 35'. The well was sealed to 40' in December, 1979.

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SECTION 4 VARIATIONS

Include a description of variations from the permit, permit amendment final order, extension final order, or transfer final order. (i.e. *"The permit allowed three points of diversion. The water user only developed one of the points."* or *"The permit allowed 40.0 acres of irrigation. The water user only developed 10.0 acres."*)

No variations

SECTION 5 ATTACHMENTS

Provide a list of any additional documents you are attaching to this report:

ATTACHMENT NAME	DESCRIPTION
Claim map	map
Harn 517	Well log
Harn 525	Well log

SECTION 6 CLAIM SUMMARY

POD / POA NAME OR #	MAXIMUM RATE AUTHORIZED	CALCULATED THEORETICAL RATE BASED ON SYSTEM	AMOUNT OF WATER MEASURED	USE	# OF ACRES ALLOWED	# OF ACRES DEVELOPED
A well	0.78 cfs	0.825 cfs	0.802 cfs	commercial	NA	NA

SECTION 7 CLAIM OF BENEFICIAL USE MAP

The Claim of Beneficial Use Map must be submitted with this claim. Claims submitted without the Claim of Beneficial Use map will be returned. The map shall be submitted on poly film at a scale of 1" = 1320 feet, 1" = 400 feet, or the original full-size scale of the county assessor map for the location.

Provide a general description of the survey method used to prepare the map. Examples of possible methods include, but are not limited to, a traverse survey, GPS, or the use of aerial photos. If the basis of the survey is an aerial photo, provide the source, date, series and the aerial photo identification number.

I used a tax lot map and hand held GPS.

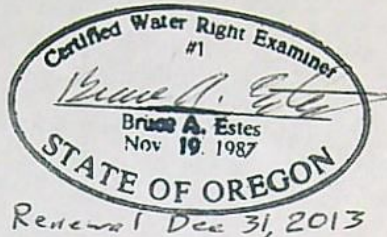
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SECTION 8
SIGNATURES

CWRE Statement, Seal and Signature

The facts contained in this Claim of Beneficial Use are true and correct to the best of my knowledge.

Seal and Signature



CWRE NAME Bruce A. Estes		PHONE NO. (541) 382-7391	ADDITIONAL CONTACT NO.
ADDRESS 60382 Arnold Mkt Rd			
CITY Bend	STATE OR	ZIP 97702	E-MAIL estessurveysllc@msn.com

Permit or Transfer Holder's of Record Signature or Acknowledgement

This Claim of Beneficial Use must be signed by each permit or transfer holder of record.

The facts contained in this Claim of Beneficial Use are true and correct to the best of my knowledge. I request that the Department issue a water right certificate.

SIGNATURE	PRINT OR TYPE NAME	DATE
	MATTHEW R. DRAKE	OCTOBER 1, 2012

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WATER RESOURCES DEPT
SALEM, OREGON

NOTICE TO WATER WELL CONTRACTOR

The original and first copy of this report are to be filed with the

WATER RESOURCES DEPARTMENT,
SALEM, OREGON 97310
within 30 days of the date
of well completion.

WATER WELL REPORT

HOOD
517

STATE OF OREGON

(Please type or print)

(Do not write above this line)

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DEC 13 1979

State Well No.

25/10E-6db

WATER RESOURCES DEPT

SALEM, OREGON

State Permit No.

(1) OWNER:

Name Cooper Spur Inn
Address 10755 Cooper Spur Road
Rt. Hood, Oregon 97041

(2) TYPE OF WORK (check):

New Well ☐ Deepening ☐ Reconditioning ☒ Abandon ☐

If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:

Rotary ☒ Driven ☐
Cased ☐ Jetted ☐
E ☐ Bored ☐

(4) PROPOSED USE (check):

Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(5) CASING INSTALLED:

Threaded ☐ Welded ☐

" Diam. from 1 ft. to 1 ft. Gage 1
" Diam. from 1 ft. to 1 ft. Gage 1
" Diam. from 1 ft. to 1 ft. Gage 1

(6) PERFORATIONS:

Perforated? ☐ Yes ☐ No.

Type of perforator used X
Size of perforations X in. by 1 in.
perforations from 1 ft. to 1 ft.
perforations from 1 ft. to 1 ft.
perforations from 1 ft. to 1 ft.

(7) SCREENS:

Well screen installed? ☐ Yes ☐ No

Manufacturer's Name X
Type X Model No. 1
Diam. 1 Slot size 3/8 from 1 ft. to 1 ft.
Diam. 1 Slot size 3/8 from 1 ft. to 1 ft.

(8) WELL TESTS:

Drawdown is amount water level is lowered below static level

Was a pump test made? ☒ Yes ☐ No If yes, by whom? OWNER
Yield: 75 gal./min. with 0 ft. drawdown after 24 hrs.

Boiler test gal./min. with ft. drawdown after hrs.
Artisan flow g.p.m.

Temperature of water 42° Depth artesian flow encountered 1 ft.

(9) CONSTRUCTION:

Well seal—Material used Cement grout & gal
Well sealed from land surface to 40 ft.
Diameter of well bore to bottom of seal 10 in.
Diameter of well bore below seal 10 in.
Number of sacks of cement used in well seal 18 sacks
How was cement grout placed? Tremied into annular bore
from 40 feet to land surface

Was a drive shoe used? ☐ Yes ☒ No Plugs 1 Size: location 1 ft.
Did any strata contain unusable water? ☒ Yes ☐ No
Type of water? SURFACE depth of strata 20 - 22'
Method of sealing strata off Pressure grouted
Was well gravel packed? ☐ Yes ☒ No Size of gravel: 1
Gravel placed from 1 ft. to 1 ft.

(10) LOCATION OF WELL: State Well #25/10E 6db

County Hood River Driller's well number 10 E. W.M.
NW 4 SE 4 Section 6 T. 2 S R. 10 E. W.M.
Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.

Depth at which water was first found 20 ft.
Static level 58 ft. below land surface. Date 12/14/79
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:

Diameter of well below casing

Depth drilled ft. Depth of completed well 173 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
Cement grout	0	12	
Gravel back fill in annular	12	40	
Brown clay, boulders & volcanic debris	0	22	
Compact brown sh (sandstone)	22	35	
Hard gray-black basalt	85	40 plus	
SURVEY OF WELL			
6" I. D. to 173 ft.			
Well head - 2 ft. above slab.			
Steel casing to 85' 6" I. D. x .250 wall,			
good condition - straight w/ deviation to			
Northeast approx. 1" / 50'. Pump went			
freely into well bore to 160'. 6" Well			
screen reported by supplier - 40 slot. One			
10' length. Four 5' lengths set at 85 - 95'			
115 - 120', 140 - 145', 165 - 170', approx.			
Screens set in w/peagravel, approx. 1/4"			
minus from 40 ft. to total depth.			

Work started 12/13/79 19 Completed 12/14/79 19
Date well drilling machine moved off of well 12/14/79 19

Drilling Machine Operator's Certification:

This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.

[Signed] Edmund H. Jansen Date 12/17/79 19
(Drilling Machine Operator)

Drilling Machine Operator's License No. 523

Water Well Contractor's Certification:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Name A. M. JANSSEN WELL DRILLING CO. INC.
(Person, firm or corporation) (Type or print)
Address 21075 SW Tolatin Valley Hwy. Aloha, Or.

[Signed] Edmund H. Jansen
(Water Well Contractor)

Contractor's License No. 79 Date 12/17/79 19

(USE ADDITIONAL SHEETS IF NECESSARY)

02-4568-119

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WATER RESOURCES DEPT
SALEM, OREGON

06/12/97 THU 14:08 FAX 5412982459

WEED & PEST/WATERMASTER

0008

The original and first copy of this report are to be filed with the

WATER WELL REPORT

SEE HOOD 517 000249

WATER RESOURCES DEPARTMENT

STATE OF OREGON

State Well No.

SALEM, OREGON 97310

within 30 days from the date of well completion.

AUG 01 1997 (Please type or print)

(Do not write above this line)

State Permit No.

WATER RESOURCES DEPT.

HOOD 525

(1) OWNER:

SALEM, OREGON

Name Dan DillardAddress COOPER SPUR IN
COOPER SPUR ORE

(2) TYPE OF WORK (check):

New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐

If abandonment, describe material and procedure in item 12.

(3) TYPE OF WELL:

Rotary ☒ Driven ☐
Cable ☐ Jetted ☐
Dug ☐ Bored ☐

(4) PROPOSED USE (check):

Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

CASING INSTALLED:

Threaded ☐ Welded ☒

6" Diam. from 0 ft. to 200 ft. Gage 250

" Diam. from ft. to ft. Gage

" Diam. from ft. to ft. Gage

PERFORATIONS:

Perforated? ☐ Yes ☒ NoType of perforator used #40 MESH

Size of perforations in. by in.

perforations from ft. to ft.

perforations from ft. to ft.

perforations from ft. to ft.

(7) SCREENS:

Well screen installed? ☒ Yes ☐ NoManufacturer's Name JOHNSON 5' ScreensType #40 mesh Model No.

Diam. 6" Slot size #4 Set from ft. to ft.

Diam. Slot size Set from ft. to ft.

(8) WELL TESTS:

Drawdown is amount water level is lowered below static level

Was a pump test made? ☒ Yes ☐ No If yes, by whom Monte's CompanyYield: 7.8 gal./min. with 27 ft. drawdown after 240 hrs.

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(10) LOCATION OF WELL:

County Hood River Driller's well number #791NW 1/4 SE 1/4 Section 6 T. 25 R. 10E W.M.

Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.

Depth at which water was first found 80 ft.Static level 67 ft. below land surface. Date 8/15/97

Artesian pressure lbs. per square inch. Date

(12) WELL LOG:

Diameter of well below casing 0Depth drilled 200 ft. Depth of completed well 200 ft.

Formation: Describe color, texture, grain size and structure of materials and show thickness and nature of each stratum and aquifer penetration with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata

MATERIAL	From	To	SWL
0-10 Top Soil fine clay			
Light Brown			
10-14 Large Rock Boulder dust			
gray 14-16 Light Brown			
gray 16-20 Hard S.S. with small pebbles			
Light Brown 20-25 Black			62
Basalt 25-102 Black			62
SAND 102-160 Basalt			62
160-175 SAND + GRAVEL			62
175-195 Basalt 145-160			62
SAND + GRAVEL			62
10' well screen installed	90-100		
5' well screen installed	120-125		
" " " "	145-150		
" " " "	170-175		
" " " "	195-200		

Work started 7/29 1997 Completed 8/7 1997Date well drilling machine moved off of well 8/7 1997

Drilling Machine Operator's Certification:

This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.

[Signed] [Signature] Date 8/15 1997

(Drilling Machine Operator)

Drilling Machine Operator's License No. 1373

Water Well Contractor's Certification:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Name (Person, firm or corporation) (Type or print)

Address (Type or print)

[Signed] (Water Well Contractor)

Contractor's License No. RECEIVED Date 10

(USE ADDITIONAL SHEETS IF NECESSARY)

SP-1140-119

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Cooper Spur Inn : 25/10E-6db

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WATER RESOURCES DEPT
SALEM, OREGONA. EXISTING WELL

TOP SOIL FIRM CLAY
LAKE ROCK
SAND
10" CONCRETE SOUT SBL 20'
M-20 SAND STONE

SILT

SAND

BASALT

SAND & GRAVEL

BASALT

SAND & GRAVEL

B. CORRECTIONS

0' GROUND LEVEL

10" Φ BORE HOLE OVER
EXISTING 6" Φ X .250 WALL
CASING X 40' TO IMPERMEABLE
BASALT LAYER. PRESSURE
GRANT TO GROUND LEVEL
TO SEAL.

BACK BASALT 35'-40'

NOTE: WELL CASING NEW

SWL 58'

3-7-77 6" 10 X .250
+2' TO 35'OWNER: DAN DILLARD
COOPER SPUR, ORCONTRACTOR: A.M. JANNSEN
WELL DRILLING CO.
ALOHA, OROPERATOR: PRESTON JANNSEN

WORK PERFORMED:

Dec. 13-14, 1979

ON site inspection by personnel of
WATER RESOURCES DEPT
Hood River County Switthia
Cooper Spur Inn

FW @ 173'

TALBOTT WONG & ASSOC. INC.
PORTLAND OREGON

DAN DILLARD
COOPER SPUR INN
WELL RECONDITIONING PROJECT

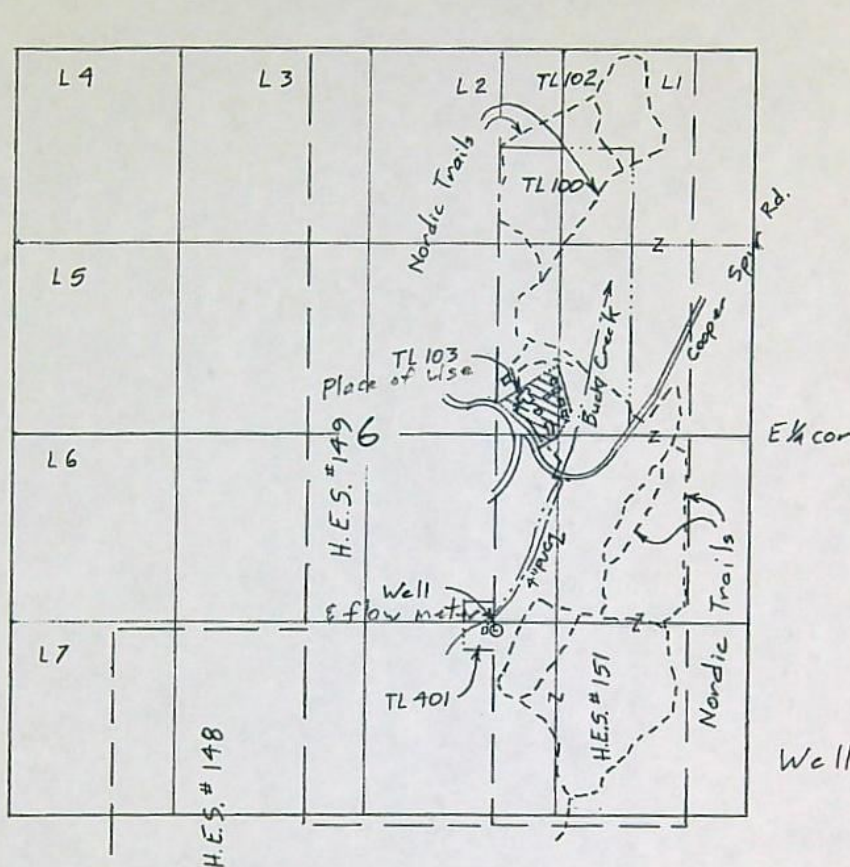
DATE	TIME	PERSON	REMARKS
DEC 13	10:00	PRESTON JANNSEN	WELL RECONDITIONING PROJECT

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WATER RESOURCES DEPT
SALEM, OREGON

TOWNSHIP 2 SOUTH, RANGE 10 EAST, W.M.



Scale 1" = 1320'
(4" = 1 mile)

Well located: 1370'S & 1740'W
from E 1/4 corner, section 6

Surveyed Feb 25, 2003
& Aug 17, 2004

App G-14655
Per G-13484

Claim of Beneficial Use Map
for
MEADOWS UTILITIES, LLC

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WATER RESOURCES DEPT
SALEM, OREGON

This map is for the purpose of
locating a water right only
and has no intent to provide
legal dimensions or the location
of property lines.



Renewal Dec 31, 2013

ESTES SURVEYS, LLC

PO Box 17518
Salem, OR 97306-7518
(503) 585-7599

60382 Arnold Rd
Bend, OR 97702
(541) 382-7391

Aug 1 - 1 Aug 2 2012

SHIP 2 SOUTH, RANGE 10 EAST, W.M.



Scale 1" = 1320'
(4" = 1 mile)

Well located: 1370'S & 1740'W
from Elk corner, section 6

Surveyed Feb 25, 2003
& Aug 17, 2004

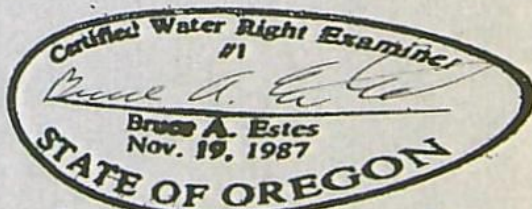
App G-14655
Per G-13484

Claim of Beneficial Use Map
for
MEADOWS UTILITIES, LLC

RECEIVED

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WATER RESOURCES DEPT
SALEM, OREGON



Renewal Dec 31, 2013

This map is for the purpose of
locating a water right only
and has no intent to provide
legal dimensions or the location
of property lines.

ESTES SURVEYS,

PO Box 17519
Salem, OR 97305-7519
(503) 585-7599

60382 Arnold Rd
Bend, OR 97702
(541) 382-7391

Amended Aug 2, 2012

ESTES SURVEYS, LLC

STATEMENT

60382 Arnold Mkt. Rd.

Bend, OR 97702

(541) 382-7391

Inn at Cooper Spur

c/o Schwabe, Williamson & Wyatt

530 Center St. NE, Suite 400

Salem, OR 97301

Attn: Martha Pagel

Please detach and return with your remittance—

\$ 230.00

Date	Hours	Remarks
		2 Aug 2012

Aug 1, 2012	2 3/4	Drafting & site report
-------------	-------	------------------------

2 3/4 hrs

 $2\frac{3}{4} \times \$80.00 = \220.00

expenses

mylar copy fee \$10.00

	\$220.00
+	10.00
	<u>\$230.00</u>

Total

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WATER RESOURCES DEPT
SALEM, OREGON

Water Right Settlement Agreement

Between

Meadows Utilities LLC, Meadows North LLC, and North Face Inn

and

Hood River Valley Residents Committee and Friends of Mt. Hood

This Water Right Settlement Agreement (Water Right Settlement), dated 7/25/12, is entered into by and between Hood River Valley Residents Committee, Friends of Mt. Hood (collectively, "Petitioners") and Meadows Utilities LLC, Meadows North LLC and North Face Inn (collectively, "Meadows"), together collectively, the "Parties."

I. Background

On July 26, 2004, the Oregon Water Resources Department ("OWRD") issued a Final Order on Reconsideration ("Final Order") approving an extension of time until October 1, 2004 for Meadows Utilities LLC ("Meadows") to complete application of water to beneficial use under Water Right Permit No. G-13494 ("Permit").

The Permit authorizes the use of up to 0.78 cubic feet per second (cfs) of ground water from a well for the stated purpose of "Commercial Use." The place of use stated on the Permit is described as: SW ¼ NE ¼ and SE ¼ NE ¼ of Section 6, Township 2 South, Range 10 East, W.M., which includes the location of the Inn at Cooper Spur on the north side of Mt. Hood ("Cooper Spur").

Following issuance of the Final Order, Meadows took steps prior to October 2004 to demonstrate complete application of water to beneficial use.

On July 27, 2004, Hood River Valley Residents Committee ("HRVRC") and Friends of Mt. Hood ("FOMH") together referred to as "Petitioners" filed a Petition for Judicial Review of the Final Order with the Oregon Court of Appeals (Case No. A126183).

On June 28, 2005, Meadows and the HRVRC, along with other parties, entered into a Final Settlement Agreement ("Settlement Agreement," including any amendments thereto) in connection with a proposal for additional development by Meadows on the north side of Mt. Hood. The Settlement Agreement included provisions for a trade of certain Meadows land and business holdings on the north side for land owned by the public and managed by the Forest Service in Government Camp. As a result of the Settlement Agreement, further action on the case and the Court of Appeals case were held in abeyance and the Final Order was stayed.

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In proceedings relating to the Final Order for the Permit extension, Petitioners FOMH and HRVRC had contested whether an extension should issue to allow Meadows more time to prove beneficial use of water for two primary reasons relating to the location of use and the type of use. Specifically Petitioners asserted that the location of use for the Permit should be limited to the commercially zoned land on Tax Lot 103 (2.84 acres of land), and should not include Tax Lots 100, 102, and 401, and that use of water for snowmaking purposes was not within the scope of "Commercial Use" as authorized under the Permit. Meadows asserted that the water right should attach to all four tax lots and disagreed with Petitioners assertions regarding the scope of Commercial Use.

Since 2004, the Petition for Judicial Review has been held in abeyance as a result of a joint request by the parties to provide time initially for negotiating, and subsequently for implementing the Settlement Agreement whereby Meadows would offer up its land on the north side in trade for public lands in Government Camp. If and when such land trade is completed, the undeveloped public land within the Cooper Spur Ski Area permit boundary would become protected as Wilderness under the 1964 Wilderness Act, and the private land within the Crystal Springs Watershed Zone of Contribution would be placed in a special management district to protect the water supply.

In 2011, a dispute arose concerning the potential effect of the status of the Permit and stayed judicial review proceedings in connection with an appraisal of the Cooper Spur property that was required for implementation of the Settlement Agreement. As a result of that dispute, Meadows took unilateral action to reactive the case and the parties entered into settlement discussions.

To facilitate continued efforts toward implementation of the Settlement Agreement, the Parties hereby agree to resolve the Permit dispute as follows and intend that this Water Right Settlement shall be incorporated into the Final Settlement Agreement as an amendment thereto:

II. Agreement

1. The parties to this Water Right Settlement agree that the Water Right Settlement will govern disposition of the pending Court of Appeals case and shall be incorporated into the Settlement Agreement as an amendment upon approval by all parties to the Settlement Agreement.

2. Pursuant to the terms of this Water Right Settlement as described further below, Petitioners agree not to challenge the use of the Permit for snowmaking as part of the "commercial use" authorized under the Permit and Meadows agrees to limit the location of use under the Permit to the commercially-zoned land contained within Tax Lot 103, provided that 1) Petitioners agree to this provision solely for purposes of compromise to resolve the Permit dispute and Meadows agrees that this compromise position does not constitute an admission by the Petitioners that snowmaking is a lawful commercial use; and 2) Petitioners' compromise shall not create any precedent and except as provided herein, this Water Right Settlement cannot be used by Meadows or any other entity or party on behalf of Meadows in any subsequent water right proceeding as evidence or an admission that Petitioners agree snowmaking is a use that falls within "commercial use."

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SALEM, OREGON

6. This Water Right Settlement may be signed in counterparts and shall be effective on the date last signed by the Parties:

HOOD RIVER VALLEY RESIDENTS COMMITTEE

By: [Signature]
Its: President
Date: July 19, 2012

FRIENDS OF MT. HOOD

By: [Signature]
Its: Chair
Date: July 25, 2012

MEADOWS UTILITIES LLC

By: _____
Its: _____
Date: _____

(Signatures continued on next page)

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WATER RESOURCES DEPT
SALEM, OREGON

6. This Water Right Settlement may be signed in counterparts and shall be effective on the date last signed by the Parties:

HOOD RIVER VALLEY RESIDENTS COMMITTEE

By: _____

Its: _____

Date: _____

FRIENDS OF MT. HOOD

By: _____

Its: _____

Date: _____

MEADOWS UTILITIES LLC

By: Marta L. Drake

Its: Member and Registered Agent

Date: July 23, 2012

(Signatures continued on next page)

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SALEM, OREGON

MEADOWS NORTH, LLC

By: Martha R. Drake, Secretary, Mt. Hood Meadows Dev. Corp.

Its: Member and Registered Agent

Date: July 23, 2012

NORTH FACE INN, LLC

By: Martha R. Drake, Member, Meadows North, LLC

Its: Member and Registered Agent

Date: July 23, 2012

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WATER RESOURCES DEPT
SALEM, OREGON

3. Within 10 days after full execution of this Water Right Settlement, the Parties shall jointly request that Case No. A126183 be held in abeyance or that the briefing schedule be further delayed to provide time for completion of steps described herein.

4. Within 30 days after full execution of this Water Right Settlement, Meadows at its sole expense, shall submit a Claim of Beneficial Use ("COBU") and request for certificate issuance to OWRD along with a request for expedited processing under reimbursement authority and a joint request on behalf of Meadows and Petitioners that OWRD remove the automatic "stay" of the Permit extension order under ORS 536.075(5). Meadows shall provide a copy of the COBU to the FOMH and the HRVRC at least five business days before filing the COBU with OWRD to confirm that the COBU is consistent with the terms of this Water Right Settlement. The COBU shall be based upon the uses observed during site inspections conducted by a Certified Water Rights Examiner on February 25, 2003 and August 17, 2004, provided that the COBU and request for certificate issuance shall limit the location of use to Tax Lot 103, which is within the area described in the Permit.

a. If OWRD determines the COBU demonstrates complete development and beneficial use of water for 0.78 cfs and issues a certificate of water right for that amount for use within TL 103, Petitioners shall not challenge the certificate and within 30 days of the certificate issuance shall withdraw the Petition for Judicial Review for Case No. A126183.

b. If for some unforeseen reason OWRD determines the COBU does not adequately demonstrate complete development and beneficial use of water under the Permit and does not issue the certificate, Meadows shall have the option to accept a final certificate of water right for any amount proposed for approval by OWRD or to withdraw the COBU and apply for a new permit extension. Any such extension application shall be for a period of time not to exceed one full season of winter use and any resulting COBU shall be subject to the location of use limitation provided in Section 2 of this Water Right Settlement. If Meadows elects to file an extension application as provided herein, Petitioners agree not to protest such an extension request by Meadows and to withdraw the Petition for Judicial Review for Case No. A12683. If the corrective action to demonstrate complete development and beneficial use of water requires additional documentation of snowmaking, Meadows shall provide advance notice to Petitioners, who shall have the option to be present when such snowmaking takes place. Thereafter, if Meadows seeks any additional extensions of the Permit, Petitioners, at their sole discretion, may participate in the permit extension proceedings in any manner and may assert any issues they deem appropriate, including the issues regarding location of use or use of water for snowmaking or other purposes.

5. After issuance of a final certificate of water right as provided in this Water Right Settlement, Meadows agrees to limit the location of use to the area of use described in the certificate for so long as the Settlement Agreement remains in place or until such time as the Cooper Spur property is conveyed to the United States pursuant to the exchange agreement described in the Settlement Agreement and the Amended Settlement Agreement; provided that if the Final Settlement Agreement is terminated and Meadows retains ownership of the Cooper Spur property, Meadows may at any time, at its sole discretion, seek to modify the location of use for the water right by filing a transfer application with OWRD and Petitioners may take, at their sole discretion, any steps they deem appropriate to challenge the transfer application.



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ATTORNEYS AT LAW

Equitable Center, 530 Center St., NE, Suite 400, Salem, OR 97301 | Phone 503.540.4262 | Fax 503.399.1645 | www.schwabe.com

MARTHA O. PAGEL

Admitted in Oregon and Washington

Direct Line: Salem 503-540-4260; Portland 503-796-2872

E-Mail: mpagel@schwabe.com

April 14, 2011

BY HAND DELIVERY

Patricia McCarty
Oregon Water Resources Department
725 Summer St NE Ste A
Salem, OR 97301-1271

Re: Meadows North LLC Applications -- Administrative Hold
Our File No.: 110069/141902

Dear Patricia:

I am writing in response to your request for additional information in support of a request by our client, Meadows North LLC ("Meadows"), to continue the "administrative hold" for several applications currently pending before the Oregon Water Resources Department ("OWRD").

Following is additional background and a status report on the on-going comprehensive settlement process:

Background

Nearly 10 years ago, Meadows began a process to secure authorization for expansion of the Inn at Cooper Spur and the Cooper Spur Ski Area on the north side of Mt. Hood. The proposed expansion ultimately will require approvals from a variety of government agencies at the local, state and federal levels. The matters currently pending before OWRD are related to the expansion, but comprise only one element of the complex proposal. Key stakeholders in the expansion process include Meadows, the U.S. Forest Service, Friends of Mt. Hood, WaterWatch of Oregon, the Oregon Chapter of the Sierra Club, the Hood River Valley Residents Committee, Oregon Wild, Oregon Nordic Club, Mazamas, Friends of Tilly Jane, Ptarmigans, Bark, the Governor's Office and Oregon's Congressional delegation.

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APR 14 2011

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About five years ago, Meadows and other stakeholders involved in the expansion controversy agreed to participate in a comprehensive settlement effort. Early settlement efforts focused primarily on land use and federal land management issues, and resulted in preliminary agreement reached in 2006. That agreement specified several contingencies that must occur in order to proceed to the next level of discussions. One major contingency was the need to obtain passage of federal legislation authorizing a land exchange with the Forest Service and providing wilderness protection for certain lands on Mt. Hood. That process took nearly three years, with legislation finally passed by Congress and signed into law in March, 2009. Although the law specified an 18-month period for completion of the land exchange by the Forest Service, the task has not yet been accomplished.

In order to move forward with the proposed exchange, the Forest Service must first complete a comprehensive environmental review process required under the National Environmental and Policy Act (NEPA). At this point, the Forest Service has published a "scoping notice" required under the NEPA process and has retained a consultant to prepare a draft Environmental Impact Statement (EIS).

Projected Timelines

As reported to you in my letter of February, 3, 2011, completion of the NEPA process is expected to take until mid-2013. This will provide time for the Forest Service, working its consultant and field staff, to develop data and prepare the reports necessary to support the draft and final EIS reports. We understand the Forest Service expects to release a draft EIS by the fall of this year, with further work to finalize the EIS in 2012-2013. In addition to completing the NEPA process, the Forest Service must obtain appraisals for the lands involved in the exchange.

Completion of the exchange process is needed to open the door for further negotiations on other details of the expansion plan, including resolution of disputes relating to water use. As a result, it is difficult to predict the total amount of time that will be required to finalize the agreements. However, the parties remain convinced that continued investment in the comprehensive settlement process is well worth the effort. Without additional time to pursue the settlement agreements, the parties would be forced to proceed with contested cases on the pending water right applications. The pending water management and conservation plan would be subject to judicial review by the Circuit Court in other than a contested case process.

Conclusion

We recognize that OWRD procedures do not contemplate what appears to be a request for indefinite continuation of an "administrative hold" process. We hope that the unusual nature of this project – given the significance of the resource land involved, coupled with the high level of investment and commitment by affected stakeholders to seek a comprehensive settlement plan – will convince the department to grant the requested additional time. We will be happy to continue providing annual progress reports and requests for continuation of the hold period.

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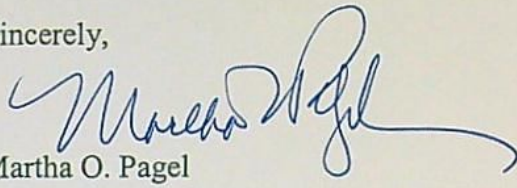
WATER RESOURCES DEPT
SALEM, OREGON

S&W

Patricia McCarty
April 14, 2011
Page 3

Thank you, again, for your on-going assistance. Please let me know if you need any additional information.

Sincerely,



Martha O. Pagel

MOP:kdo

cc: Matthew Drake
Ralph O. Bloemers, Esq.

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APR 14 2011

WATER RESOURCES DEPT
SALEM, OREGON



Patricia McCarty

From: Bill Fujii
Sent: Friday, February 25, 2011 11:03 AM
To: Martha Pagel (mpagel@schwabe.com)
Cc: Dwight French; Patricia McCarty
Subject: Meadow's Utility LLC
Contacts: Martha Pagel

I've got some suggestions about the Meadow's Utility LLC WMCP. The letter dated 2/3/11 requested an administrative hold to respond to our 2005 comments on the WMCP. In the past we've handled this under a separate letter from Field Services. Since Dwight is supervising the Water Management program now, I am suggesting that if we chose to grant this admin hold that the confirmation of the request cover the WMCP as well.

All that being said.....if there were not other independent issues, the trajectory of the WMCP process would have likely resulted in an approved WMCP in 2005 or 2006. Further, Meadows has been implementing the WMCP as far as I can tell (some of the upgrades include water conserving plumbing fixtures). I suggest that folks should be ready to give the Department a substantial response to the Department's comments - including progress since 2005.

Much of the plan will need to be revised - so some time in the future, it would be helpful to have a strategy to have the most efficient process for bringing the WMCP into a more normal schedule.....

Best Regards

Bill

*Craig ^{& WW} et al positioned to protest approval of plan
Martha can get them to backoff to avoid comm*

2/28/2011



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ATTORNEYS AT LAW

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MARTHA O. PAGEL

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E-Mail: mpagel@schwabe.com

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WATER RESOURCES DEPT
SALEM, OREGON

February 3, 2011

BY HAND DELIVERY

Dwight French
Administrator, Water Rights & Adjudication
Division
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301-1271

Re: Request for Administrative Hold to Pursue Settlement Negotiations
Our File No.: 110069/141738

Dear Dwight:

I am writing on behalf of our client, Meadows Utilities, LLC (Meadows), to request that the Oregon Water Resources Department (OWRD) once again extend the "administrative hold" period for the applications listed below. The administrative hold was previously approved through January 31, 2011, to allow time for continued comprehensive settlement negotiations among the parties.

As previously reported to you, the parties entered into a preliminary settlement agreement several years ago that required federal legislation. In 2009, the parties made significant progress with the approval by Congress of HR 146, which included provisions for a land exchange involving the U.S. Forest Service. During 2010, the parties began implementation of the legislation and continued with discussions on additional issues not included in the original settlement plan.

At this point, the negotiations are expected to continue until approximately June, 2013. This timeline corresponds to completion of procedural requirements associated with the land exchange. The procedural steps include compliance with the National Environmental and Policy Act (NEPA) and obtaining appraisals for the affected lands. I understand the Forest Service will begin field work this summer, with additional work in 2012, for the NEPA and appraisal process. Until these steps are completed, it is difficult to predict the amount of time that will be needed for the related negotiations.

Portland, OR 503.222.9981 | Salem, OR 503.540.4262 | Bend, OR 541.749.4044
Seattle, WA 206.622.1711 | Vancouver, WA 360.694.7551 | Washington, DC 202.488.4302

In recognition of the on-going nature of this process, we request an extension of the administrative hold until June 30, 2013.

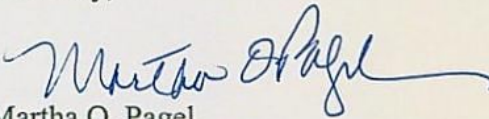
The specific pending applications or actions for which administrative hold is requested are as follows:

1. Water Right Applications G-16401 and S-86185 for Snowmaking.
2. Permit Extension Applications S-69976, S-54637, R-71657, R-12758.
3. Water Conservation and Management Plan Review

In addition to the above applications, an extension of time (Motion for Abatement) was approved by the Oregon Court of Appeals in June, 2009, regarding further proceedings in Case A 126183, (Judicial review of Permit Extension approval for G-13484, Cooper Spur Project). The Court has agreed to hold the case in abeyance "until 28 days following the resolution of the provisions of HR 146." This open-ended extension allows time for completion of the procedures described above.

Thank you for your assistance in this request. If you have questions or need any additional information from us, please let me know.

Sincerely,


Martha O. Pagel

MOP:kdo

cc: Patricia McCarty
Renee M. Moulun
Ralph O. Bloemers, Esq.
Matthew Drake

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SALEM, OREGON





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ATTORNEYS AT LAW

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MARTHA O. PAGEL

Admitted in Oregon and Washington

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E-Mail: mpagel@schwabe.com

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WATER RESOURCES DEPT
SALEM, OREGON

February 3, 2011

BY HAND DELIVERY

Dwight French
Administrator, Water Rights & Adjudication
Division
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301-1271

Re: Request for Administrative Hold to Pursue Settlement Negotiations
Our File No.: 110069/141738

Dear Dwight:

I am writing on behalf of our client, Meadows Utilities, LLC (Meadows), to request that the Oregon Water Resources Department (OWRD) once again extend the "administrative hold" period for the applications listed below. The administrative hold was previously approved through January 31, 2011, to allow time for continued comprehensive settlement negotiations among the parties.

As previously reported to you, the parties entered into a preliminary settlement agreement several years ago that required federal legislation. In 2009, the parties made significant progress with the approval by Congress of HR 146, which included provisions for a land exchange involving the U.S. Forest Service. During 2010, the parties began implementation of the legislation and continued with discussions on additional issues not included in the original settlement plan.

At this point, the negotiations are expected to continue until approximately June, 2013. This timeline corresponds to completion of procedural requirements associated with the land exchange. The procedural steps include compliance with the National Environmental and Policy Act (NEPA) and obtaining appraisals for the affected lands. I understand the Forest Service will begin field work this summer, with additional work in 2012, for the NEPA and appraisal process. Until these steps are completed, it is difficult to predict the amount of time that will be needed for the related negotiations.

Portland, OR 503.222.9981 | Salem, OR 503.540.4262 | Bend, OR 541.749.4044
Seattle, WA 206.622.1711 | Vancouver, WA 360.694.7551 | Washington, DC 202.488.4302

In recognition of the on-going nature of this process, we request an extension of the administrative hold until June 30, 2013.

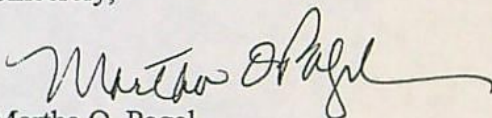
The specific pending applications or actions for which administrative hold is requested are as follows:

1. Water Right Applications G-16401 and S-86185 for Snowmaking.
2. Permit Extension Applications S-69976, S-54637, R-71657, R-12758.
3. Water Conservation and Management Plan Review

In addition to the above applications, an extension of time (Motion for Abatement) was approved by the Oregon Court of Appeals in June, 2009, regarding further proceedings in Case A 126183, (Judicial review of Permit Extension approval for G-13484, Cooper Spur Project). The Court has agreed to hold the case in abeyance "until 28 days following the resolution of the provisions of HR 146." This open-ended extension allows time for completion of the procedures described above.

Thank you for your assistance in this request. If you have questions or need any additional information from us, please let me know.

Sincerely,


Martha O. Pagel

MOP:kdo

cc: Patricia McCarty ✓
Renee M. Moulun
Ralph O. Bloemers, Esq.
Matthew Drake

RECEIVED

FEB 03 2011

WATER RESOURCES DEPT
SALEM, OREGON

SW



Oregon

Theodore R. Kulongoski, Governor

Water Resources Department
North Mall Office Building
725 Summer Street NE, Suite A
Salem, OR 97301-1266
503-986-0900
FAX 503-986-0904

February 5, 2010

*file copy
mailed 2-5-10*

Martha Pagel
Schwabe, Williamson & Wyatt
530 Center St. NE Suite 400
Salem, OR 97301

RE: Request for Administrative Hold to Pursue Settlement Negotiations

Dear Ms. Pagel,

Oregon Water Resources Department received your request for an administrative hold on January 6, 2010. The following applications have been placed on hold through January 31, 2011.

1. Water Right Applications G-16401 and S-86185 for Snowmaking.
2. Permit Extension Applications S-69976 (Permit S-53637), R-71657 (Permit R-12758).

Bill Fujii will be responding to the request to extend the hold on the Water Conservation and Management Plan Review.

Sincerely,

Patricia McCarty
Protest Program Coordinator
Water Rights Division
Oregon Water Resources Department
503-986-0820

Cc: Renee Moulun, ODOJ
Denise Fjordbeck, ODOJ
Ralph Bloemers, CRAG





SCHWABE, WILLIAMSON & WYATT
ATTORNEYS AT LAW

Equitable Center, 530 Center St., NE, Suite 400, Salem, OR 97301 | Phone 503.540.4262 | Fax 503.399.1645 | www.schwabe.com

MARTHA O. PAGEL

Admitted in Oregon and Washington

Direct Line: Salem 503-540-4260; Portland 503-796-2872

E-Mail: mpagel@schwabe.com

January 5, 2010

Dwight French
Administrator, Water Rights & Adjudication
Division
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301-1271

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JAN 06 2010

WATER RESOURCES DEPT
SALEM, OREGON

Re: Request for Administrative Hold to Pursue Settlement Negotiations
Our File No.: 110069/141738

Dear Dwight:

I am writing on behalf of our client, Meadows Utilities, LLC (Meadows), to request that the Oregon Water Resources Department (OWRD) extend the "administrative hold" currently in place for the applications listed below. The administrative hold was previously approved through January 31, 2010, to allow time for comprehensive settlement negotiations among the parties.

As previously reported to you, the parties entered in a preliminary settlement agreement several years ago that required federal legislation. During the past year, the parties made significant progress with the approval by Congress of HR 146 which was signed into law by the President on March 30, 2009. However, additional time is now required to implement certain provisions of the legislation. The parties are also continuing discussions on additional issues not included in the original settlement plan. Accordingly, we request additional time, until at least January 31, 2011 to continue the settlement effort.

The specific pending applications or actions for which administrative hold is requested are as follows:

1. Water Right Applications G-16401 and S-86185 for Snowmaking.
2. Permit Extension Applications S-69976, S-54637, R-71657, R-12758.
3. Water Conservation and Management Plan Review

Portland, OR 503.222.9981 | Salem, OR 503.540.4262 | Bend, OR 541.749.4044
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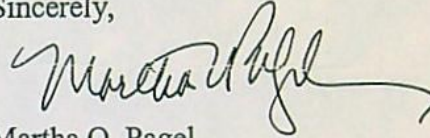
PDX/110069/141738/MOP/5482410.1

Dwight French
January 5, 2010
Page 2

In addition to the above applications, an extension of time (Motion for Abatement) was approved by the Oregon Court of Appeals in June, 2009, regarding further proceedings in Case A 126183, (Judicial review of Permit Extension approval for G-13484, Cooper Spur Project). The Court has agreed to hold the case in abeyance "until 28 days following the resolution of the provisions of HR 146." This open-ended extension allows time for completion of a land exchange required under the settlement plan.

Thank you for your assistance in this request. If you have questions or need any additional information from us, please let me know.

Sincerely,



Martha O. Pagel

MOP:kdo

cc: Patricia McCarty ✓
Renee M. Moulun
Ralph O. Bloemers, Esq.
Matthew Drake

RECEIVED

JAN 06 2010

WATER RESOURCES DEPT
SALEM, OREGON

S&W



Oregon

Theodore R. Kulongoski, Governor

Water Resources Department

North Mall Office Building
725 Summer Street NE, Suite A
Salem, OR 97301-1271
503-986-0900
FAX 503-986-0904

January 27, 2009

Martha Pagel
Schwabe, Williamson & Wyatt
530 Center St. NE Suite 400
Salem, OR 97301

RE: Request for Administrative Hold to Pursue Settlement Negotiations

Dear Ms. Pagel,

Oregon Water Resources Department received your request for an administrative hold on January 20, 2009. The following applications have been placed on hold through January 31, 2010.

1. Water Right Applications G-16401 and S-86185 for Snowmaking.
2. Permit Extension Applications S-69976 (Permit S-53637), R-71657 (Permit R-12758).

Sincerely,

Patricia McCarty
Protest Program Coordinator
Water Rights Division
Oregon Water Resources Department
503-986-0820

Cc: Renee Moulun, ODOJ
Denise Fjordbeck, ODOJ
Ralph Bloemers, CRAG

MARTHA O. PAGEL

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E-Mail: mpagel@schwabe.com

RECEIVED

JAN 20 2009

**WATER RESOURCES DEPT
SALEM, OREGON**

January 16, 2009

Dwight French
Administrator, Water Rights & Adjudication
Division
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301-1271

Re: Request for Administrative Hold to Pursue Settlement Negotiations
Our File No.: 110069/141738

Dear Dwight:

I am writing on behalf of our client, Meadows Utilities, LLC (Meadows), to request that the Oregon Water Resources Department (OWRD) extend the "administrative hold" currently in place for the applications listed below. The administrative hold was previously approved through January 31, 2009, to allow time for comprehensive settlement negotiations among the parties. At this point, the parties are still working on implementation of a preliminary settlement plan that requires federal legislation. They are also pursuing discussions on additional issues not included in the preliminary plan. Accordingly, we request additional time, until January 31, 2010 to continue the settlement effort.

The specific pending applications or actions for which administrative hold is requested are as follows:

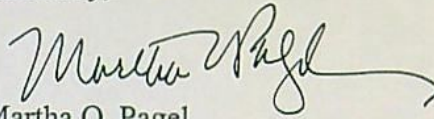
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2. Permit Extension Applications S-69976, S-54637, R-71657, R-12758.
3. Water Conservation and Management Plan Review

In addition to the above applications, an extension of time until April, 2009 was recently approved by the Oregon Court of Appeals regarding further proceedings in Case A 126183, (Judicial review of Permit Extension approval for G-13484, Cooper Spur Project).

Dwight French
January 16, 2009
Page 2

Thank you for your assistance in this request. If you have questions or need any additional information from us, please let me know.

Sincerely,


Martha O. Pagel

MOP:kdo

cc: Patricia McCarty
Renee M. Moulun
Ralph O. Bloemers, Esq.
Matthew Drake

RECEIVED

JAN 20 2009

WATER RESOURCES DEPT
SALEM, OREGON

EASTMAN Jeana M

From: Pagel, Martha <MPagel@SCHWABE.com>
Sent: Monday, December 02, 2013 2:08 PM
To: Jeana Eastman
Subject: FW: Meadows Applications -- Administrative Hold

Hi Jeana,

FYI – I am forwarding an email I sent to Dwight to confirm his agreement last week to put the Meadows' applications back on administrative hold. This includes the snowmaking applications that you have been working on. I expect Dwight will send out something internally to confirm this with the caseworkers, but I just wanted you to be aware of what is in the works.

Thanks for your patience and assistance,
Martha

MARTHA O. PAGEL | Attorney at Law
SCHWABE, WILLIAMSON & WYATT
Direct: 503-540-4260 | Fax: 503-796-2900 | Cell: 503-507-7293 | Email: mpagel@schwabe.com

From: Pagel, Martha
Sent: Monday, December 02, 2013 2:03 PM
To: Dwight French
Cc: Patricia McCarty; 'Ralph Bloemers'
Subject: Meadows Applications -- Administrative Hold

Hi Dwight,

Thanks again to you and Patricia for your assistance in getting the Meadows/Cooper Spur water right certificate signed last week. From Meadows' standpoint, this was an important step forward in the overall settlement process.

As we discussed when we met, this email is to confirm my understanding that the department is willing to re-instate the administrative hold for several other Meadows applications that are affected by a settlement agreement negotiated some time ago in connection with the proposed ski area expansion at Mt. Hood. The settlement agreement includes a proposed exchange of lands between Meadows and the U.S. Forest Service that has been progressing very slowly until this point. It is my understanding the Forest Service is now ready to proceed with an appraisal of the Cooper Spur property – a key element in the exchange process. The appraisal and concurrent NEPA review are scheduled to begin by March, 2014, with a 180-day statutory time period for completion.

After completion of the appraisal and NEPA, the remaining steps include: negotiating the final transaction terms and preparing Agreement to Transfer documents; completing final title work; actual deed transfer and closing. The Forest Service estimates these steps will take about 12 months after completion of the appraisal/NEPA process. The total process is expected to take about 2 more years.

Based on our conversation last week, I understand you are willing to place the pending applications back on administrative hold for a period of two years while the settlement and exchange processes continue. We will be happy to provide you with updates as may be requested.

The specific applications are:

- 1) Water Right Applications G-16401 and S-86185 for snowmaking
- 2) Permit Extension Applications S-69976, S-54637, R-71657 and R-12758
- 3) Water Conservation and Management Plan review

Thanks again for your assistance. Please let me know if you have questions or need any additional information.

Martha

MARTHA O. PAGEL | Attorney at Law
SCHWABE, WILLIAMSON & WYATT
530 Center St. NE, Ste. 400, Salem, OR 97301
Direct: 503-540-4260 | Fax: 503-796-2900 | Cell: 503-507-7293 | Email: mpagel@schwabe.com
Assistant: Karen Donohue | Direct: 503-540-4262 | kdonohue@schwabe.com
Legal advisors for the future of your business®
www.schwabe.com

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From: Pagel, Martha [<mailto:MPagel@SCHWABE.com>]
Sent: Thursday, November 07, 2013 9:14 AM
To: Jeana Eastman
Cc: Dwight French; Patricia McCarty
Subject: RE: S-86185, Meadows Utilities/USDAFS - touching base

Hi Jeana,

I'm sorry to be slow in getting back to you on this.

This is one of several Meadows applications that had been on "hold" for quite some time, pursuant to a settlement agreement between Meadows and the environmental groups that were opposing various projects. All the parties to that agreement would prefer to keep the application on "hold", but I think I will need to talk with Dwight to confirm whether the department is agreeable.

There is a meeting scheduled next week (Nov. 13, at 10) with Dwight, Patricia, Ralph Bloemers (the CRAG attorney) and me to discuss Meadows' water rights at Cooper Spur, and I'm hoping we can also take about the status of this and other pending applications that were previously on hold. So -- can we please touch bases again after that meeting?

Thanks,
Martha

MARTHA O. PAGEL | Attorney at Law
SCHWABE, WILLIAMSON & WYATT
Direct: 503-540-4260 | Fax: 503-796-2900 | Cell: 503-507-7293 | Email: mpagel@schwabe.com

From: Jeana Eastman [<mailto:jeana.m.eastman@state.or.us>]
Sent: Thursday, October 24, 2013 2:38 PM
To: Pagel, Martha
Subject: S-86185, Meadows Utilities/USDAFS - touching base

Hi Martha -

I want to touch base on S-86185, Meadows Utilities/USD AFS since it has been pending for a while now.

As you may recall, in 2005 Rod French from ODFW completed a Division 33 review (attached) and indicated further investigation would need to be completed before ODFW could accurately estimate the amount of impact the use would have on STE.

On 12/8/11 I emailed you to check on the status of the investigations/study required by ODFW but it appears that slipped through the cracks since I didn't hear back.

Was the study started/completed? Does the applicant still want to pursue this? Please let me know the status from the applicants end. If they want a hold, please let me know and I'll run that by management.

Thanks,



Oregon

Theodore R. Kulongoski, Governor

Water Resources Department

North Mall Office Building
725 Summer Street NE, Suite A
Salem, OR 97301-1266
503-986-0900
FAX 503-986-0904

May 8, 2008

Martha Pagel
Schwabe, Williamson & Wyatt
530 Center St. NE Suite 400
Salem, OR 97301

RE: Request for Administrative Hold to Pursue Settlement Negotiations

Dear Ms. Pagel,

Oregon Water Resources Department received your request for an administrative hold on May 2, 2009. The following applications and review have been placed on hold through January 31, 2009.

1. Water Right Applications G-16401 and S-86185 for Snowmaking.
2. Permit Extension Applications S-69976 (Permit S-53637), R-71657 (Permit R-12758).
3. Water Conservation and Management Plan Review.

Sincerely,

Patricia McCarty
Protest Program Coordinator
Water Rights Division
Oregon Water Resources Department
503-986-0820

MARTHA O. PAGEL

Admitted in Oregon and Washington

Direct Line: Salem 503-540-4260; Portland 503-796-2872

E-Mail: mpagel@schwabe.com

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MAY 02 2008

**WATER RESOURCES DEPT
SALEM, OREGON**

May 1, 2008

Dwight French
Administrator, Water Rights & Adjudication
Division
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301-1271

Re: Request for Administrative Hold to Pursue Settlement Negotiations
Our File No.: 110069/141738

Dear Dwight:

I am writing on behalf of our client, Meadows Utilities, LLC (Meadows), to request that the Oregon Water Resources Department (OWRD) extend the "administrative hold" previously in place for the applications listed below. As you may recall, the administrative hold was previously approved through January 31, 2008, to allow time for comprehensive settlement negotiations among the parties. At this point, the parties are still working on implementation of a preliminary settlement plan that requires federal legislation. They are also pursuing discussions on additional issues not included in the preliminary plan. Accordingly, we request additional time, until January 31, 2009, to continue the settlement effort.

The specific pending applications or actions for which administrative hold is requested are as follows:

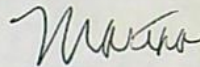
1. Water Right Applications G-16401 and S-86185 for Snowmaking.
2. Permit Extension Applications S-69976, S-54637, R-71657, R-12758.
3. Water Conservation and Management Plan Review

In addition to the above applications, we have recently joined in a motion filed by Ralph Bloemers to request an extension of time for further proceedings in Case A 126183, before the Oregon Court of Appeals (Judicial review of Permit Extension approval for G-13484, Cooper Spur Project).

Dwight French
May 1, 2008
Page 2

Thank you for your assistance in this request. If you have questions or need any additional information from us, please let me know.

Sincerely,



Martha O. Pagel

MOP:kdo

cc: Patricia McCarty ✓
Renee M. Moulun
Ralph O. Bloemers, Esq.
Matthew Drake

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MAY 02 2008

**WATER RESOURCES DEPT
SALEM, OREGON**





SCHWABE, WILLIAMSON & WYATT
ATTORNEYS AT LAW

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MAY 02 2008

WATER RESOURCES DEPT
SALEM, OREGON

Equitable Center, 530 Center St., NE, Suite 400, Salem, OR 97301 | Phone 503.540.4262 | Fax 503.399.1645 | www.schwabe.com

MARTHA O. PAGEL

Admitted in Oregon and Washington

Direct Line: Salem 503-540-4260; Portland 503-796-2872

E-Mail: mpagel@schwabe.com

May 1, 2008

Dwight French
Administrator, Water Rights & Adjudication
Division
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301-1271

Re: Request for Administrative Hold to Pursue Settlement Negotiations
Our File No.: 110069/141738

Dear Dwight:

I am writing on behalf of our client, Meadows Utilities, LLC (Meadows), to request that the Oregon Water Resources Department (OWRD) extend the "administrative hold" previously in place for the applications listed below. As you may recall, the administrative hold was previously approved through January 31, 2008, to allow time for comprehensive settlement negotiations among the parties. At this point, the parties are still working on implementation of a preliminary settlement plan that requires federal legislation. They are also pursuing discussions on additional issues not included in the preliminary plan. Accordingly, we request additional time, until January 31, 2009, to continue the settlement effort.

The specific pending applications or actions for which administrative hold is requested are as follows:

1. Water Right Applications G-16401 and S-86185 for Snowmaking.
2. Permit Extension Applications S-69976, S-54637, R-71657, R-12758.
3. Water Conservation and Management Plan Review

In addition to the above applications, we have recently joined in a motion filed by Ralph Bloemers to request an extension of time for further proceedings in Case A 126183, before the Oregon Court of Appeals (Judicial review of Permit Extension approval for G-13484, Cooper Spur Project).

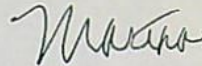
Portland, OR 503.222.9981 | Salem, OR 503.540.4262 | Bend, OR 541.749.4044
Seattle, WA 206.622.1711 | Vancouver, WA 360.694.7551 | Washington, DC 202.488.4302

PDX/110069/141738/MOP/2570756.1

Dwight French
May 1, 2008
Page 2

Thank you for your assistance in this request. If you have questions or need any additional information from us, please let me know.

Sincerely,



Martha O. Pagel

MOP:kdo

cc: Patricia McCarty
Renee M. Moulun
Ralph O. Bloemers, Esq.
Matthew Drake

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MAY 02 2008

WATER RESOURCES DEPT
SALEM, OREGON



Jeana Eastman

From: Jeana Eastman [Jeana.M.EASTMAN@wrđ.state.or.us]
Sent: Friday, January 20, 2006 12:24 PM
To: Bill Fujii (Bill Fujii); Doug Jones (dgjones@fs.fed.us)
Subject: Meadows Utilities LLC, Applications S-86185 and G-16401
Attachments: S86185.doc; G16401.doc; G16401.doc

Hi Gentlemen,

The Meadows surface water application, S-86185, for 1.1 CFS from East Fork Hood River is on hold until February 28, 2006. An Initial Review was completed on March 25, 2005, which I've attached. (Sorry for some funny characters – I converted the Word Perfect document to Word and did what I could to fix them but I wasn't able to fix the headers and footers).

You can view information on the file, including the administrative hold status and expiration date, on our webpage.

Go to: <http://oregon.gov/OWRD/>

Two-thirds down in the center of the page, you will see “Water Rights” with a brief description and a [more](#) button. Click [more](#).

You'll be directed to a page titled "Water Right Information Search". Click [Water Rights Information Query](#).

You'll be directed to a page titled "Water Rights Information Query". Type the application character and number and press return (or click "Search").

You'll be directed to a page titled "Water Rights Information Query Results". Under the column titled "Name" click details.

Just as an FYI, Meadows has also submitted a groundwater application, G-16401, for 0.11 CFS. An Initial Review was completed on May 6, 2005, and a Proposed Final Order was issued August 23, 2005; both documents are attached. On October 7, 2005, we received a protest from Friends of Mt Hood. This file is also on administrative hold until February 28, 2006.

Doug, I'll keep you in the loop on these applications.

Thanks,
-jeana

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Jeana Eastman						Oregon Water Resources Dept.					
Water Rights Caseworker						725 Summer St NE, Suite A					
Water Rights Section						Salem, OR 97301-1271					
Direct 503-986-0859						Front Desk 503-986-0800					
Fax 503-986-0901						http://oregon.gov/OWRD/					

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01/20/2006



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ATTORNEYS AT LAW

Equitable Center, 530 Center St., NE, Suite 400, Salem, OR 97301 | Phone 503.540.4262 | Fax 503.399.1645 | www.schwabe.com

MARTHA O. PAGEL

Admitted in Oregon and Washington

Direct Line: Salem 503-540-4260; Portland 503-796-2872

E-Mail: mpagel@schwabe.com

February 19, 2007

Dwight W. French
Administrator, Water Rights and Adjudication
Division
Oregon Water Resources Department
725 Summer St. SE, Suite A
Salem, OR 97301-11271

Re: Request for Administrative Hold to Pursue Settlement Negotiations
Our File No.: 110069/141738

Dear Dwight:

I am writing on behalf of our client, Meadows Utilities, LLC (Meadows), to request that the Oregon Water Resources Department (OWRD) extend the "administrative hold" previously in place for the applications listed below. The administrative hold action was previously approved through January 1, 2007, to allow time for comprehensive settlement negotiations among the parties. At this point, a preliminary settlement agreement has been reached; however, implementation of the settlement plan is contingent on federal legislation which is still being pursued. Accordingly, we request additional time, until January 31, 2008, to continue the settlement effort.

The specific pending applications or actions for which administrative hold is requested are as follows:

1. Water Right Applications G-16401 and S-86185 for Snowmaking.
2. Permit Extension Applications S-69976, S-54637, R-71657, R-12758.
3. Water Conservation and Management Plan Review

In addition to the above applications, we have recently joined in a motion filed by Ralph Bloemers to request an extension of time for further proceedings in Case A 126183, before the Oregon Court of Appeals (Judicial review of Permit Extension approval for G-13484, Cooper Spur Project).

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SALEM, OREGON


Portland, OR 503-222-9981 | Salem, OR 503-339-7712 | Bend, OR 541-749-4044
Seattle, WA 206-622-1711 | Vancouver, WA 360-694-7551 | Washington, DC 202-488-4302

PDX/110069/141738/MOP/1511507.1

Dwight W. French
February 19, 2007
Page 2

Thank you for your assistance in this request. If you have questions or need any additional information from us, please let me know.

Sincerely,



Martha O. Pagel

MOP:kd

cc: Mike Reynolds, OWRD ✓
Renee Moulun, DOJ
Ralph Bloemers, CRAG
Dave Riley, MUC

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FEB 21 2007

WATER RESOURCES DEPT
SALEM, OREGON



SCHWABE, WILLIAMSON & WYATT
ATTORNEYS AT LAW

1011 Liberty St. SE, Salem, OR 97302 | Phone 503-399-7712 | Fax 503-399-1645 | www.schwabe.com

MARTHA PAGEL

Direct Line: 503-540-4260 (New Number)

Cellular Phone: 503-507-7293

E-Mail: mpagel@schwabe.com

April 13, 2006

Dwight French
Administrator, Water Rights and Adjudication
Division
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301-1271

Re: Administrative Hold / Abatement of Proceedings for Settlement Negotiations
Our File No.: 110069/141738

Dear Dwight:

I am writing to confirm the status of various water right matters currently pending before the Oregon Water Resources Department (OWRD), involving our client, Meadows Utilities (Meadows). As originally described in my letter dated December 15, 2005, Meadows is engaged in comprehensive settlement negotiations that are intended to resolve disputed issues associated with these pending OWRD actions. At that time, we requested the pending OWRD matters be placed on administrative hold until the end of February, 2006. At this point, the parties are still involved in the settlement efforts and have requested a continuation of the department's administrative hold process.

As a result of e-mail correspondence during the past week, I understand OWRD has approved extension of the administrative hold through January 1, 2007 for the following pending applications:

Water Right Applications: G-16401 and S-86185 (Case Worker – Jeana Eastman)

Permit Extension Applications: S-69976/S-53637 and R-71657/R-12758 (Case Worker – Ann Reece)

In addition to the above applications, Meadows has submitted a Water Management and Conservation Plan (WMCP) for approval by OWRD, as required under a permit conditions. The WMCP action was included within the previous request for administrative hold and it is my

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APR 14 2006

WATER RESOURCES DEPT
SALEM, OREGON

Portland, OR 503-222-9981 | Salem, OR 503-399-7712 | Bend, OR 541-749-4044
Seattle, WA 206-622-1711 | Vancouver, WA 360-694-7551 | Washington, DC 202-488-4302

PDX/110069/141738/MOP/1411862.1

Dwight French
April 13, 2006
Page 2

understanding that the WCMP process will now remain on hold until January 1, 2007. This process is being coordinated in OWRD by Bill Fujii.

Finally, we note that Case A126183 is pending before the Oregon Court of Appeals. This action is an appeal by WaterWatch, et al (represented by Mr. Bloemers), of a permit extension granted to Meadows in connection with the Cooper Spur project (Permit G-13484). Although the appeal was filed in September, 2004, the case has not been briefed or argued because the parties have been engaged in a separate settlement process. At this point, a settlement agreement has been signed, but it includes several contingencies that are still in the process of unfolding. For this reason, the parties recently obtained the Court's approval to abate further action until August 1, 2006. This matter is being coordinated at OWRD by Mike Reynolds, in cooperation with Renee Moulun and Denise Fjordbeck, in the Attorney General's office.

In the interest of confirming a shared understanding of the status of these various actions, I am forwarding copies of this letter to the affected OWRD staff and attorneys.

Thank you, again, for your on-going assistance in supporting the parties' settlement efforts.

Sincerely,



Martha Pagel

MOP:kdo

cc: Tim Wallin
Ann Reece
Mike Reynolds
Bill Fujii ✓
Renee M. Moulun
Ralph O. Bloemers Esq.
David Riley

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APR 14 2006

**WATER RESOURCES DEPT
SALEM, OREGON**

SW

Jeana Eastman

From: Bill Fujii [William.H.FUJII@wrд.state.or.us]
Sent: Thursday, January 19, 2006 1:16 PM
To: 'Doug Jones'
Cc: Jeana EASTMAN
Subject: RE: Mt Hood Meadows

Will do, would you like snail mail or are word attachments to email ok?

I forgot to give you Jeana's contact information
(Jeana.M.EASTMAN@wrд.state.or.us)

-----Original Message-----

From: Doug Jones [mailto:dgjones@fs.fed.us]
Sent: Thursday, January 19, 2006 11:48 AM
To: Bill Fujii
Cc: Robert.L.WOOD@wrд.state.or.us; 'Bill Fujii'
Subject: RE: Mt Hood Meadows

Thanks Bill. Yes, please keep me in the loop with your side of things. I never have too much info when it comes to Meadows and its "Friends"!! The ski area works very well with us on their BMPs for various projects.

Re-vegetation takes longer there given the short growing season and our demand for native plants-only for restoration, but the place is in good shape. We have a great team here including hydro, soils and fish bio who help monitor all the activities. Meadows is always ready to work with us to protect all the resources on the mountain.

Doug Jones
Permit Specialist
Mt. Hood National Forest
6780 Hwy 35, Mt. Hood, OR 97041
541.352.6002 x682
Fax 541.352.7365
cell 503.708.3904
dgjones@fs.fed.us

"Bill Fujii"
<William.H.FUJII@
wrд.state.or.us>

01/19/2006 11:34
AM

To
'Doug Jones' <dgjones@fs.fed.us>
CC
<Robert.L.WOOD@wrд.state.or.us>,
'Bill Fujii'
<saalemfujii@comcast.net>
Subject
RE: Mt Hood Meadows

Doug -

Thanks for your reply. I think Mt Hood has asked to have the new permits put on

administrative hold at the moment. I am in a different division and don't have real time knowledge of the status. My role is reviewing their Water Management & Conservation Plan (WMCP).

You are probably aware of the Friends of Mt Hood. This public interest group has made comments on the WMCP. It was helpful that Meadows included Appendix A of the Ski Area Master Plan ROD. We really appreciated your inclusion of water issues throughout the document especially the language contained in items 11 & 16 of page A-6.

If you want your name be included in the contact list for the pending water rights applications please contact Jena Eastman, she is the caseworker for that file in our water rights division.

Let me know if you would like to be in the loop on the WMCP as well.

-----Original Message-----

From: Doug Jones [mailto:dgjones@fs.fed.us]
Sent: Wednesday, January 18, 2006 4:42 PM
To: Bill Fujii
Cc: Robert.L.WOOD@wrд.state.or.us; 'Bill Fujii'
Subject: RE: Mt Hood Meadows

Hi Gentlemen, Yes I would be the EA guy when the proposal comes our way. Nothing has been formally proposed yet. Any word on their new water rights application for 1.1 cfs from your agency?

Doug Jones
Permit Specialist
Mt. Hood National Forest
6780 Hwy 35, Mt. Hood , OR 97041
541.352.6002 x682
Fax 541.352.7365
cell 503.708.3904
dgjones@fs.fed.us

"Bill Fujii"
<William.H.FUJII@
wrд.state.or.us>

01/18/2006 03:06
PM

"'Bill Fujii'"
<saIemfujii@comcast.net>,
<Robert.L.WOOD@wrд.state.or.us>

To

cc

<dgjones@fs.fed.us>

Subject

RE: Mt Hood Meadows

Bob - I forgot to say that I think that Doug Jones is the contact person for the EA process.

From: Bill Fujii [mailto:saIemfujii@comcast.net]
Sent: Wednesday, January 18, 2006 1:36 PM
To: Robert.L.WOOD@wrд.state.or.us
Cc: William.H.FUJII@wrд.state.or.us; dgjones@fs.fed.us
Subject: Mt Hood Meadows

-->

Bob - This is just a FYI,

I suspect that you already know this but the forest service is doing an EA the Mt. Hood Meadows Ski Resort Snowmaking. The MHNH description is: The Mt. Hood Meadows ski area plans to install a snowmaking system that includes buried pipelines and electric cable, a 4 million gallon storage tank, and a 1.1 cfs water diversion from East Fork Hood River.

Doug Jones
541-352-6002
dgjones@fs.fed.us

G-16401
S-86185

Jeana Eastman

From: Jeana Eastman [Jeana.M.EASTMAN@wrd.state.or.us]
Sent: Wednesday, January 04, 2006 1:57 PM
To: 'Ralph Bloemers'
Cc: Lisa.J.Jaramillo@wrd.state.or.us
Subject: RE: Administrative Hold for Meadows Utilities

Hi Ralph,

I'm the caseworker for applications G-16401 and S-86185 and that is why I only referenced those file numbers in my letter approving the administrative hold. I believe the other files have had extensions submitted which means Lisa Jaramillo would be working on those files. I'm copying this e-mail to her so she can let you know the status.

Thanks,
-jeana

<>8<> <>8<> <>8<> <>8<> <>8<> <>8<> <>8<> <>8<> <>8<> <>8<> <>8<>	
Jeana Eastman	Oregon Water Resources Dept.
Water Rights Caseworker	725 Summer St NE, Suite A
Water Rights Section	Salem, OR 97301-1271
Direct 503-986-0859	Front Desk 503-986-0800
Fax 503-986-0901	http://oregon.gov/OWRD/

Messages to and from this e-mail address may be available to the public under Oregon law.

-----Original Message-----

From: Ralph Bloemers [mailto:ralph@crag.org]
Sent: Tuesday, January 03, 2006 12:16 PM
To: Pagel, Martha
Cc: Jeana Eastman; Dwight French; Dave Riley; chris@crag.org
Subject: Re: Administrative Hold for Meadows Utilities

Martha, thanks for the note. February may be ambitious but the parties are working on it.

Jeana, in your letter of December 27, 2005 you only reference two pending applications (G-16401 and S-86185). There were other applications referenced in Martha's letter that the parties have requested be put on hold. Please advise on the status of those applications.

Regards,
Ralph

Pagel, Martha wrote:

>Jeana: Thank you for your letter of December 27, 2005, which indicates
>approval of our recent request for an administrative hold on various
>pending applications for Meadows Utilities. In reviewing your letter, I
>realized that I had mistakenly asked for the hold period through January
>31, 2006, rather than February 28, 2006.

>
>In developing the administrative hold request, I coordinated with
>Attorney Ralph Bloemers, representing Friends of Mt. Hood, and agreed

01/05/2006

>with him to request administrative hold through February, rather than
>through January as proposed in an early draft of the letter.
>Unfortunately, I failed to make this correction in the final version of
>the letter that went to OWRD. Because we are already at the beginning
>of January, the parties will need additional time to proceed with
>settlement efforts. Therefore, we request that the hold period be
>extended through February 28, 2006. Please let me know if this e-mail
>will be sufficient, or if you will need to have another letter.

>
>Thanks for your help -- I'm sorry for the inconvenience.

>
>Martha

>
>
>
>
>
>
>
>
>Martha O. Pagel
>Schwabe Williamson & Wyatt
>1011 Liberty St. SE
>Salem, OR 97302
>503-399-7712
>fax 503-796-2900

>
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>is limited to the tax issues addressed in this message. If advice is required that satisfies
>applicable IRS regulations, for a tax opinion appropriate for avoidance of federal tax law
>penalties, please contact a Schwabe attorney to arrange a suitable engagement for that
purpose.

7-16401
S-86185

Jeana Eastman

From: Jeana Eastman [Jeana.M.EASTMAN@wrd.state.or.us]
Sent: Thursday, January 05, 2006 7:47 AM
To: 'Pagel, Martha'
Subject: RE: Administrative Hold for Meadows Utilities

Hi Martha,

The hold has been approved until February 2006, as you requested. I sent a letter relaying this via snail mail yesterday.

Thanks,
-jeana

<8> <8> <8> <8> <8> <8> <8> <8> <8> <8> <8>
Jeana Eastman Oregon Water Resources Dept.
Water Rights Caseworker 725 Summer St NE, Suite A
Water Rights Section Salem, OR 97301-1271
Direct 503-986-0859 Front Desk 503-986-0800
Fax 503-986-0901 <http://oregon.gov/OWRD/>

Messages to and from this e-mail address may be available to the public under Oregon law.

-----Original Message-----

From: Pagel, Martha [mailto:MPagel@SCHWABE.com]
Sent: Friday, December 30, 2005 1:40 PM
To: Jeana Eastman
Cc: Dwight French; Dave Riley; Ralph Bloemers
Subject: Administrative Hold for Meadows Utilities

Jeana: Thank you for your letter of December 27, 2005, which indicates approval of our recent request for an administrative hold on various pending applications for Meadows Utilities. In reviewing your letter, I realized that I had mistakenly asked for the hold period through January 31, 2006, rather than February 28, 2006.

In developing the administrative hold request, I coordinated with Attorney Ralph Bloemers, representing Friends of Mt. Hood, and agreed with him to request administrative hold through February, rather than through January as proposed in an early draft of the letter. Unfortunately, I failed to make this correction in the final version of the letter that went to OWRD. Because we are already at the beginning of January, the parties will need additional time to proceed with settlement efforts. Therefore, we request that the hold period be extended through February 28, 2006. Please let me know if this e-mail will be sufficient, or if you will need to have another letter.

Thanks for your help -- I'm sorry for the inconvenience.

Martha

01/05/2006

Martha O. Pagel
Schwabe Williamson & Wyatt
1011 Liberty St. SE
Salem, OR 97302
503-399-7712
fax 503-796-2900

(Please be advised that this e-mail and any files transmitted with it are confidential attorney-client communication or may otherwise be privileged or confidential and are intended solely for the individual or entity to whom they are addressed. If you are not the intended recipient, please do not read, copy or retransmit this communication but destroy it immediately. Any unauthorized dissemination, distribution or copying of this communication is strictly prohibited.)

To comply with IRS regulations, we are required to inform you that this message, if it contains advice relating to federal taxes, cannot be used for the purpose of avoiding penalties that may be imposed under federal tax law. Any tax advice that is expressed in this message is limited to the tax issues addressed in this message. If advice is required that satisfies applicable IRS regulations, for a tax opinion appropriate for avoidance of federal tax law penalties, please contact a Schwabe attorney to arrange a suitable engagement for that purpose.



Oregon

Theodore R. Kulongoski, Governor

Water Resources Department

North Mall Office Building
725 Summer Street NE, Suite A
Salem, OR 97301-1271
503-986-0900
FAX 503-986-0904

December 27, 2005

MEADOWS UTILITIES LLC
ATTN: DAVID RILEY
PO BOX 470
MOUNT HOOD, OR 97041

Reference: Meadows Utilities LLC Applications **G-16401** and S-86185

Dear Mr. Riley:

On December 15, 2005, the Water Resources Department received a request from your consultant, Martha Pagel, for an administrative hold on processing the above referenced applications.

The Department will not take any action on the applications until **January 31, 2006**, unless you request we proceed sooner. If you need to request additional time, you will need to show justification for why additional time is reasonable and necessary, that substantial progress is being made towards being ready to proceed with application processing, and a general time line, which identifies when you anticipate being ready to continue with the application process.

If you have any questions, please feel free to call me at 503-986-0859.

Sincerely,

Jeana Eastman
Water Rights Caseworker

cc: Schwabe, Williamson & Wyatt, Attn: Martha Pagel, 1011 Liberty St SE, Salem OR 97302
Cascade Resources Advisory Group, Ralph Bloemers, 917 SW Oak St, Suite 417, Portland OR 97205
Bob Wood, WM #3
File



Oregon

Theodore R. Kulongoski, Governor

Water Resources Department

North Mall Office Building
725 Summer Street NE, Suite A
Salem, OR 97301-1271
503-986-0900
FAX 503-986-0904

January 4, 2006

MEADOWS UTILITIES LLC
ATTN: DAVID RILEY
PO BOX 470
MOUNT HOOD, OR 97041

Reference: Meadows Utilities LLC Applications **G-16401** and S-86185

Dear Mr. Riley:

On December 27, 2005, the Water Resources Department approved an administrative hold on processing the above referenced applications until January 31, 2006, as requested by your consultant, Martha Pagel. Subsequently, Ms. Pagel discovered the requested date was in error and has notified the Department of the intended date, being February 28, 2006.

The Department will not take any action on the applications until **February 28, 2006**, unless you request we proceed sooner. If you need to request additional time, you will need to show justification for why additional time is reasonable and necessary, that substantial progress is being made towards being ready to proceed with application processing, and a general time line, which identifies when you anticipate being ready to continue with the application process.

If you have any questions, please feel free to call me at 503-986-0859.

Sincerely,

Jeana Eastman
Water Rights Caseworker

cc: Schwabe, Williamson & Wyatt, Attn: Martha Pagel, 1011 Liberty St SE, Salem OR 97302
Cascade Resources Advisory Group, Ralph Bloemers, 917 SW Oak St, Suite 417, Portland OR 97205
Bob Wood, WM #3
File

Jeana Eastman

From: Pagel, Martha [MPagel@SCHWABE.com]
Sent: Friday, December 30, 2005 1:40 PM
To: Jeana Eastman
Cc: Dwight French; Dave Riley; Ralph Bloemers
Subject: Administrative Hold for Meadows Utilities

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Thanks for your help -- I'm sorry for the inconvenience.

Martha

Martha O. Pagel
Schwabe Williamson & Wyatt
1011 Liberty St. SE
Salem, OR 97302
503-399-7712
fax 503-796-2900

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To comply with IRS regulations, we are required to inform you that this message, if it contains advice relating to federal taxes, cannot be used for the purpose of avoiding penalties that may be imposed under federal tax law. Any tax advice that is expressed in this message is limited to the tax issues addressed in this message. If advice is required that satisfies applicable IRS regulations, for a tax opinion appropriate for avoidance of federal tax law penalties, please contact a Schwabe attorney to arrange a suitable engagement for that purpose.

Jeana Eastman

From: Pagel, Martha [MPagel@SCHWABE.com]
Sent: Tuesday, October 11, 2005 1:21 PM
To: Jeana Eastman
Subject: RE: Meadows ground water application (G-16401)

Thank you!

-----Original Message-----

From: Jeana Eastman [mailto:Jeana.M.EASTMAN@wrд.state.or.us]
Sent: Tuesday, October 11, 2005 1:06 PM
To: Pagel, Martha
Subject: RE: Meadows ground water application (G-16401)

Hi Martha,

Mike Reynolds has the file and the protest. They will be available for your assistant. She's welcome to ask for me at the front desk.

thanks,
-jeana

◇8◇ ◇8◇ ◇8◇ ◇8◇ ◇8◇ ◇8◇ ◇8◇ ◇8◇ ◇8◇
Jeana Eastman Oregon Water Resource Dept.
Water Rights Caseworker 725 Summer St NE, Suite A
Water Rights Section Salem, OR 97301-1271
Direct 503.986.0859 Front Desk 503.986.0800
Fax 503.986.0902
<http://www.wrд.state.or.us>

-----Original Message-----

From: Pagel, Martha [mailto:MPagel@SCHWABE.com]
Sent: Tuesday, October 11, 2005 12:24 PM
To: Jeana Eastman
Subject: Meadows ground water application (G-16401)

Hi Jeana: I know that Friday was the deadline for protests on the Meadows ground water application for snowmaking. I understand that Ralph Bloemers filed a protest, but I don't know whether there are others. I have asked my secretary to go over to the WRD office sometime today or tomorrow to copy the protests --just wanted to give you a heads up that she will be coming over to be sure that the protests are available in the file -- Will that work?

Thanks.
Martha

Martha O. Pagel
Schwabe Williamson & Wyatt
1011 Liberty St. SE
Salem, OR 97302



SCHWABE, WILLIAMSON & WYATT
ATTORNEYS AT LAW

1011 Liberty St. SE, Salem, OR 97302 | Phone 503-399-7712 | Fax 503-399-1645 | www.schwabe.com

MARTHA O. PAGEL

Direct Line: Salem (503) 399-7712

E-Mail: mpagel@schwabe.com

December 14, 2005

RECEIVED

DEC 15 2005

WATER RESOURCES DEPT
SALEM, OREGON

Dwight W. French
Administrator, Water Rights and Adjudication
Division
Oregon Water Resources Department
725 Summer St. SE, Suite A
Salem, OR 97301-11271

Re: Request for Administrative Hold to Pursue Settlement Negotiations

Dear Dwight:

I am writing on behalf of our client, Meadows Utilities, LLC (Meadows), to request that the Oregon Water Resources Department (OWRD) place the following applications on "administrative hold" in order for Meadows to pursue comprehensive settlement negotiations with affected adverse parties.

The specific pending applications for which administrative hold is requested are as follows:

1. Water Right Application G-16401 (Snowmaking): The protest period for this new water right application ended on October 7, 2005.
2. Water Right Application S-86185 (Snowmaking): An initial review was completed, but the Proposed Final Order has not yet been issued.
3. Permit Extension Applications S-69976, S-54637, R-71657, R-12758: Extension applications have been filed, but proposed orders have not been issued.
4. Water Conservation and Management Plan: The public comment period ended on October 13, 2005; no further action has been taken.

Comments or protests have been filed in each of the above-listed matters by the Friends of Mt. Hood (FOMH), and the Applicant has agreed with FOMH to pursue comprehensive settlement discussions. The settlement process would begin in early November, 2005 and is expected to conclude by January 31, 2006 (unless that deadline is further extended by mutual agreement). To facilitate these efforts, the Applicant requests the above proceedings be placed

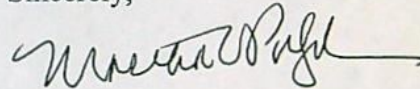
Dwight W. French
December 14, 2005
Page 2

on administrative hold until January 31, 2006. At that time, we hope the Applicant will be able to advise the department of settlement. If settlement has not been reached, the Applicant may request that the administrative hold be continued, or that the applications proceed through normal processing.

In addition to the above-listed matters, OWRD recently issued a Final Order approving a permit extension Meadows' Permit G-13388. A request for reconsideration was filed by FOMH on August 12, 2005. We understand that OWRD did not take action on these requests within 60 days of filing (by October 15, 2005), and that the request is therefore deemed denied. As a result, no further action is contemplated by OWRD with respect to this permit extension, and the permit is therefore not included in the request for administrative hold.

Thank you for your assistance in these requests, and for the department's support of settlement efforts. If you have questions or need additional information from us, please let me know.

Sincerely,



Martha O. Pagel

MOP:kd

cc: Mike Reynolds, OWRD
Renee Moulun, DOJ
Ralph Bloemers, CRAG
Dave Riley, MUC

Jeana Eastman

From: Ralph Bloemers [ralph@crag.org]
Sent: Monday, October 03, 2005 1:34 PM
To: renee.m.moulun@state.or.us; Dwight.W.FRENCH@wrd.state.or.us
Cc: chris@crag.org; 'Dave Riley'; Pagel, Martha; Mike.J.REYNOLDS@wrd.state.or.us; Juul, Lisa ; jeana.m.EASTMAN@wrd.state.or.us
Subject: Proposed Stipulation to Allow Mediation on All Pending Requests Meadows Utilities LLC

Dear Renee & Dwight,

As I discussed this Renee morning and as she suggested, I have put together a draft stipulation on all of the existing requests from Meadows Utilities, LLC to allow the parties to mediate. I will contact Dwight this afternoon (I will be free around 4:30) to discuss with him how OWRD can help the parties pursue an alternative dispute resolution process while halting all pending applications. The parties want to halt these matters yet preserve the ability to restart them, without prejudice to any party, if the dispute resolution process does not result in an amicable settlement that is agreeable to the parties. Thanks for your assistance with this matter.

Dave, Martha - I think the attached covers all of the pending new applications and extensions. Thanks Dave for being willing to take care of this in short order. This will give the Friends of Mt. Hood and Meadows Utilities the breathing room they need to be able to come together to do an assessment, but also allow the parties to restart the pending water rights processes in the event that the mediation is not successful.

Any of you are welcome to call me directly if you have any questions.

Given the pending deadlines, and the anticipated mediation, we are shooting to wrap this matter up by the end of the day tomorrow or early Wednesday morning.

Thanks,
Ralph
503.525.2727

10/03/2005

**Stipulation & Abatement of Proceedings
To Allow Meadows Utilities LLC and the Friends of Mt. Hood**

Meadows Utilities LLC and the Friends of Mt. Hood hereby stipulate to the abatement of all pending proceedings before the Oregon Water Resources Department to allow the parties to meet and assess the potential for successful alternative dispute resolution on the following water rights permits, as described below:

1. MUL has filed for an extension of the existing groundwater right Extension # G-13388 (G-12550 & S-50037, S-38081). OWRD issued a Final Order on June 13, 2005. FOMH sent a letter on June 17, 2005 seeking reconsideration of the Final Order. The OWRD did not respond to that request prior to and it was deemed on August 16, 2005, an appeal to the court of appeals on that request must be filed on or before October 15, 2005. Friends of Mt. Hood filed a petition for reconsideration on the final order within 60 days, on August 12, 2005 with A through D thereto, which was received by OWRD on August 12, 2005. The OWRD has not taken action on that petition for reconsideration. OWRD has until October 11, 2005 to take action, and an appeal to the Court of Appeals on or before December 10, 2005 if no action is taken. The parties request that OWRD issue a final order on October 7, 2005 and the parties stipulate that a petition for reconsideration or appeal shall be due within the ordinary time frame. If FOMH or MUL requires additional time to conduct the mediation, the parties shall contact OWRD to determine how to abate the proceedings.
2. MUL has filed for a new groundwater right # G-16401. FOMH has submitted comments on this request. The proposed final order was issued on August 23, 2005. The protest is due on October 7, 2005. The parties request that OWRD abate the proceedings, and provide that any protest within 12 business days after the parties notify the OWRD that the negotiations have terminated.
3. MUL has filed for an extension on its surface water right # S-69976 & # S-54637. FOMH has submitted comments on this request. OWRD has not issued a proposed final order. The parties request that OWRD abate the proceedings, and not issue a Proposed Final Order earlier than 12 business days after the parties notify the OWRD that the negotiations has terminated.
4. MUL has filed for new surface water right # S-86185. FOMH has submitted comments on this request. The parties request that OWRD abate the proceedings, and not issue a Proposed Final Order earlier than 12 business days after the parties notify the OWRD that the negotiations has terminated.
5. MUL has filed for an extension on the reservoir right # R-71657 & R-12758. FOMH has submitted comments on this request. The parties request that OWRD abate the proceedings, and not issue a Proposed Final Order earlier than 12 business days after the parties notify the OWRD that the negotiations has terminated.

DRAFT

6. MUL has filed a draft Water Conservation and Management Plan. Comments are due on the draft Water Conservation and Management Plan on October 13, 2005. The parties request that OWRD abate the proceedings, and only re-set the matter for comments to be submitted no earlier than 12 business days after the parties notify the OWRD that the negotiations has terminated.

Mailing List for PFO Copies

Application #G-16401

PFO Date August 23, 2005

Original mailed to applicants:

~~MEADOWS UTILITIES LLC~~
ATTN: DAVID RILEY
PO BOX 470
MOUNT HOOD, OR 97041

~~UNITED STATES DEPT. OF AGRICULTURE~~
FOREST SERVICE
ATTN: PERMIT ADMINISTRATOR
6780 HWY 35
MOUNT HOOD, OR 97041

Copies sent to:

- ~~1. WRD - File # G-16401~~
- ~~2. Water Availability: Ken Stahr~~

PFO and Map Copies sent to:

- ~~3. WRD - Watermaster # 3~~
- ~~4. Regional Manager: NCR~~

Copies Mailed
By: <u>PCB</u>
(SUPPORT STAFF)
on: <u>8/23/05</u>
(DATE)

Copies sent to Other Interested Persons (*CWRE, Agent, Well Driller, Commenter, etc.*)

- ~~1. Martha Pagel, Schwabe Williamson & Wyatt, 1011 Liberty St SE, Salem OR 97302~~

"\$10 LETTER" sent to Interested Persons who have not protested or paid for copies

- ~~1. Ivan Maluski, Oregon Chapter Sierra Club, 2950 SE Stark, #110, Portland OR 97214~~
- ~~2. Ralph Bloemers and Chris Winter, Cascade Resources Advocacy Group,
917 Sw Oak St, Suite 417, Portland OR 97205~~
- ~~3. Sue & Pat Hartford, 3580 Thompson Rd, Hood River OR 97031~~

↖ Pd. \$10 on 9/7/05 for cc
of PFO - JCB receipt # 77/35

Affected Landowners (include "Notice of Proposed Final Order--Affected Landowner"):

PFO CHECKLIST

Application g-16401 Name mendons PFO week 525
8/16/05

Shortcomings preventing PFO? Y / ☒ N Should process continue? ☒ Y / N

IR Date 5/16/05 Public Notice Date 5/16/05 Comments received? Y / N

Was additional information requested in the IR? Y / ☒ N If so, do we now have enough info to do the PFO? Y / N

Was the application filed after 10/23/99? ☒ Y / N (If not, add A date requirement)

B.O.R. or Doug Co. project Y / ☒ N Contract in file? N contract #

IR identifies as DEQ 303d? Y / N / ☒ NA Comments received? Y / N

Is second gw review necessary? Y / ☒ N NA Complete? Y / N

Water Availability OK / REDONE / ☒ NA

Have conflicts been addressed? Y / N / ☒ NA

Changes from IR determinations

Copy to

Fees	Base Fee	Water Amount (Q)
	\$100 / \$150	1 st CFS/AF
	\$250 / \$300	
		Addl @ +
	<u>300</u>	<u>200</u>
	(base)	(Q)
	+	=
		<u>500</u>
		(total exam fee)

EXAM FEE REQUIRED	<u>500</u>	RECORDING FEE REQUIRED	<u>\$175 / \$250</u>
EXAM FEE PAID	<u>- 500</u>	RECORDING FEE PAID	<u>- 0</u>
STILL OWED	<u>0</u>	STILL OWED	<u>250</u>

Name: Jeana Eastman

Date: 8/18/05

Peer Reviewer: Kerry

The purpose of this checklist is to be used as a working document by Department staff to aid in the production of the related Initial Review, Proposed Final Order, or Final Order. It is not intended to be a complete record of all factors which were considered to produce the document, nor is it intended to serve any purpose other than that stated above. The related Initial Review, Proposed Final Order, or Final Order is intended to stand alone as the record of factors considered in its production.

Appl: # G-16401

T.3S. R.9E. W.M.
HOOD RIVER COUNTY

SEE MAP 2S 9 1"=2000'

RECEIVED

MAR 07 2005

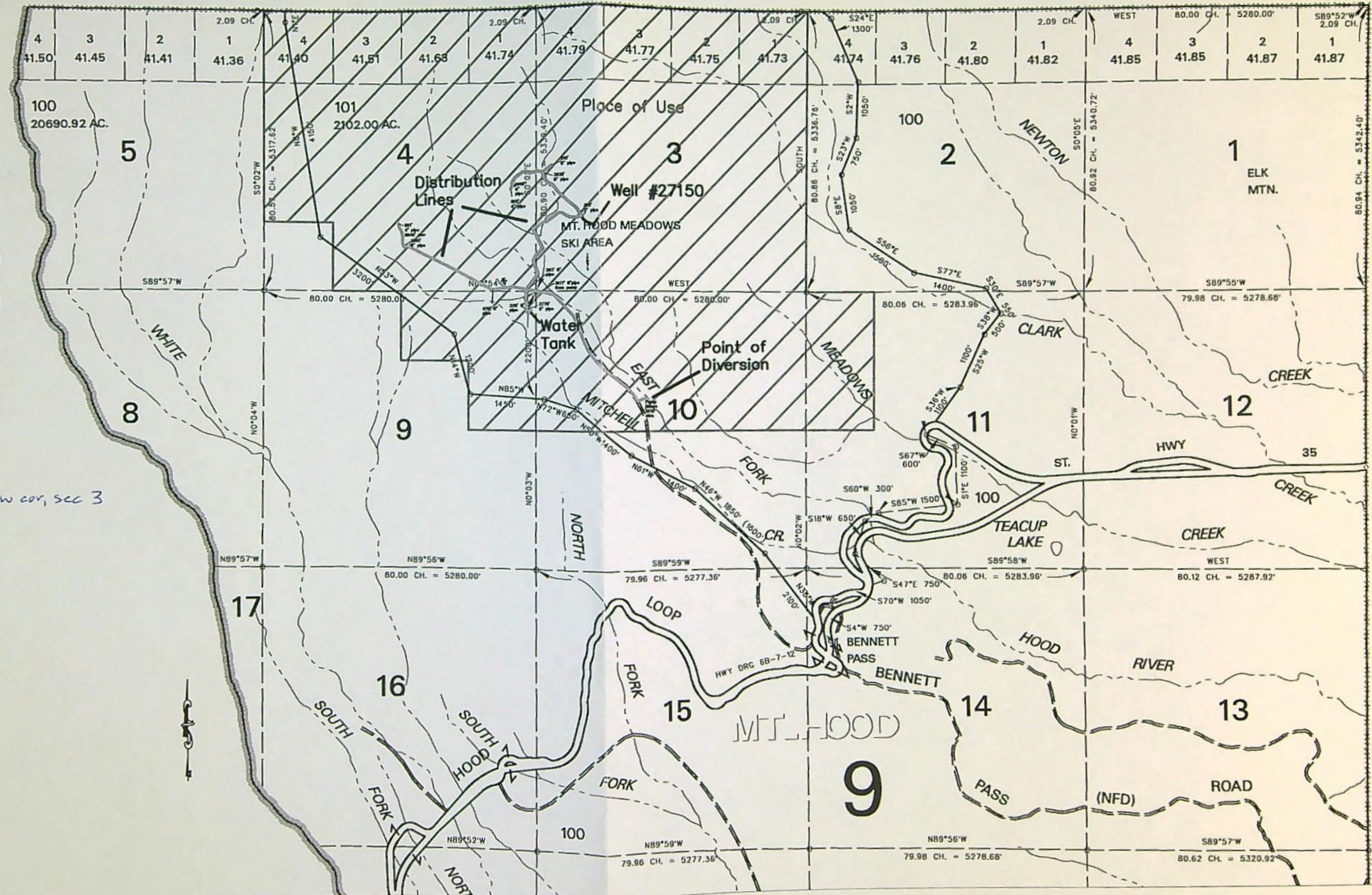
WATER RESOURCES DEPT
SALEM, OREGON

0 2000 4000
SCALE IN FEET

COUNTY

WORK COPY

well is 850' n, 1150' e fr sw cor, sec 3



IR CHECKLIST

App g-14401 Name mt hood

Use(s) ice (snow making) Priority Date(s) 3/7/05
(If quasi/muni, reviewed by Bill Fujii?)

Is the application complete? Y / N

Prohibited by ORS 538? Y / N If so, do not do an IR; return app & fees to applicant.

GW Review ☐ surface classification triggered ☐ Is there PSI? stream name _____

- ☐ will not ☒ will likely be available ...without injury... and/or within the capacity of the resource
- ☐ will, if properly conditioned, avoid injury to existing ground water rights or to the ground water resource
- ☐ Well located in GWLA or CGWA or T1N R3E Sec 20, 21, 28, 29? Y / N (If Y, include basin map noting POD)

WM Dist (NWR - 1 2 16 18 20) NCR 3 4 5 21) (ER - 6 8 9 10) (SCR - 11 12 17) (SWR - 13 14 15 19)
swr cc: dave jarrett

DIVISION 33 Y / N / NA ☐ Above Bonn ☐ If above, not allowed April 15 - September 30?
(If Y, attach basin map w/ pod) ☐ Below Bonn
☐ Statewide

SW Availability NA ☐ 80% live ☐ 50% storage _____ WID: _____

- ☐ wab in Lost River Basin? If so, use 7-13-04 table for watershed ID # 31420404.
- ☐ wab in Chehalem, Champoege, Mission or Case Creeks? If so, use 9-12-95 memo written by Dave Jarrett.

Is there a conflict? Y / N / NA _____

- ☐ If conflict, are rights from a different source?
- ☐ If supplemental, ☐ check for primary right on same land
- ☐ will this be making up a deficiency in rate?

Allowed under Basin Program Y / N Limitations? Y / N 690-504-0000 (1)

303D Y / N / NA IN GEOGRAPHIC UMATILLA Y / N BOTTLED WATER Y / N
(cc: DEQ Regional Manager) (cc: CTUIR) (cc: DOA Food Safety Division)

Rate _____ Rate Max _____ Req 50 gpm = 0.11 cfs

Duty _____ Season Allowed _____ Req 11/1 - 04/30 3/31

Land use approval OK needs approval county notified NA

B.O.R. or Doug Co. project Y / N contract # _____

Does the applicant intend to begin use within 5 years? Y / N
(If not, bring to supervisor's attention.)

Statement allowing someone to act as authorized agent? Y / N / NA

Conditions: _____

Small ≤ 0.1 CFS, ≤ 9.2 AF, Medium > 0.1 or < 1.5 CFS, > 9.2 or < 100 AF, Large ≥ 1.5 CFS, ≥ 100 AF
use at least Medium for: human consumption (SWW), siltcoos lake, livestock SWW, Galesville/BOR
uses that require Large: GW condition 7I, temp control (NU), gov. entity and tenmile lake
uses that require Large and totalizing flow meter: South Salem hills if use is irrigation and source is groundwater

App _____ Name _____

✓ Is the stream withdrawn? Y / N / NA season allowed _____

✓ Basin Maps have been checked Y / N River Mile _____

✓ SWW ABOVE WITHIN NO (if so, notify state parks & record app # in book) Name _____

✓ Is the use located within Oregon Streamflow Restoration Area? Y / N / NA

✓ Letter format Good Limited Bad Bad w/ HC Opportunity

✓ If Initial Review is negative, did you notify the applicant? Y / N / NA

✓ CWRE, representative, etc. to notify? Y / N _____

landowners

pages

✓ Addn'l info req'd? Y / N
(If Y, send certified)

✓ Attachments included? Y / N / NA

✓ Fees

Base Fee

Water Amount (Q)

\$100 / \$150
\$250 / \$300

1st CFS/AF

200

_____ Addl CFS/AF @ _____ + _____

300 +
(base)

200 = 500
(Q) (total exam fee)

requesting permit condition to not allow
use when str flows are 1.5 cfs or lower

EXAM FEE REQUIRED 500

EXAM FEE PAID - 500

STILL OWED 0

Name: Jeana Eastman Date: 5/2/05 Peer Reviewer: not

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Sections

TOWNSHIP	TWP_CHAR	RANGE	RNG_CHAR	SECTION	LINK1
3	S	9	E	3	Well Log Images

Records Found: 1

County

COUNTY	FIPS
Hood River	41027

Records Found: 1

Basins

BASIN_NUM	BASIN_NAME
4	Hood

Records Found: 1

WaterMaster Districts

WATERDIST	REGION	WMASTER	ADDRESS	CITY	ZIP	PHONE	EXT	FAX
3	NC	Robert Wood	Courthouse Annex B, Rm 218, 421 E 7th St	The Dalles	97058	541-298-4110		541-298-2459

Records Found: 1

WAB

GAGE	BASIN	LINK1	LINK2
30410509	4	Water Availability: 50% 80%	Flood Frequency Analysis

Records Found: 1

Groundwater Restricted Records Found: 0**Divison 33 Area**

DIV33
In a Div33 area

Records Found: 1

Rule 4D

RULE4D
In a Rule4D Area

Records Found: 1

Place of Use (Hood River) Records Found: 0

G-16401

WATER RESOURCES DEPARTMENT

DIVISION 504

HOOD BASIN PROGRAM

690-504-0000 Classifications

(1) The maximum economic development of this state, the attainment of the highest and best use of the waters of the Hood Basin and the attainment of an integrated and coordinated program for the benefit of the state as a whole will be furthered through utilization of the aforementioned waters only for domestic, livestock, municipal, irrigation, power development, **industrial**, mining, recreation, wildlife, fish life, pollution abatement uses, and the waters of the Hood Basin are hereby so classified with the following exceptions:

(NO EXCEPTIONS APPLY TO THIS APPLICATION)

WATER RESOURCES DEPARTMENT

DIVISION 500

BASIN PROGRAMS

690-500-0020 Definitions

Unless otherwise defined in a basin program, the following definitions apply in OAR Chapter 690, Divisions 501, 504 - 512, and 515 - 520 to any classification adopted prior to January 1, 1993:

(3) "Industrial Use" means the use of water for **commercial** water use or industrial water use as defined in OAR 690-011-0010.

Water Right Conditions
Tracking Slip

Groundwater/Hydrology Section

FILE ## G-16401

ROUTED TO: Water Rights

TOWNSHIP/

RANGE-SECTION: 35/9E-3cc

CONDITIONS ATTACHED? ☐ yes ☒ no

REMARKS OR FURTHER INSTRUCTIONS:

However, see special conditions
in permit G-13388 (file G-12550).

Reviewer: Michael Zwart

PUBLIC INTEREST REVIEW FOR GROUND WATER APPLICATIONS

TO: Water Rights Section

Date April 26, 2005

FROM: Ground Water/Hydrology Section Michael Zwart

Reviewer's Name

SUBJECT: Application G- 16401

Supersedes review of N/A

Date of Review(s)

PUBLIC INTEREST PRESUMPTION: GROUNDWATER

OAR 690-310-130 (1) *The Department shall presume that a proposed groundwater use will ensure the preservation of the public welfare, safety and health as described in ORS 537.525. Department staff review ground water applications under OAR 690-310-140 to determine whether the presumption is established. OAR 690-310-140 allows the proposed use be modified or conditioned to meet the presumption criteria. This review is based upon available information and agency policies in place at the time of evaluation.*

A. GENERAL INFORMATION: Applicant's Name: Meadows Utilities, LLC County: Hood River

A1. Applicant(s) seek(s) 0.111 cfs from one well(s) in the Hood Basin,
East Fork Hood River subbasin Quad Map: Mount Hood South

A2. Proposed use: commercial (snow making) Seasonality: November 1 to April 30

A3. Well and aquifer data (attach and number logs for existing wells; mark proposed wells as such under logid):

Well	Logid	Applicant's Well #	Proposed Aquifer*	Proposed Rate(cfs)	Location (T/R-S QQ-Q)	Location, metes and bounds, e.g. 2250' N, 1200' E fr NW cor S 36
1	HOOD 50137	M	Basalt	0.111	3S/9E-3 SW-SW	850' N, 1150' E fr SW cor S 3
2						
3						
4						
5						

* Alluvium, CRB, Bedrock

Well	Well Elev ft msl	First Water ft bls	SWL ft bls	SWL Date	Well Depth (ft)	Seal Interval (ft)	Casing Intervals (ft)	Liner Intervals (ft)	Perforations Or Screens (ft)	Well Yield (gpm)	Draw Down (ft)	Test Type
M	5460	317*	235.9	1/30/99	446	0-310	0-446	None	320-440	75	140	P

Use data from application for proposed wells.

A4. Comments: Aquifer tests refer to well as Well M; Application uses well ID L27150. Well elev. From aquifer test report. *Shallower water-bearing zones are all cased and sealed off.

A5. ☒ Provisions of the Hood Basin rules relative to the development, classification and/or management of ground water hydraulically connected to surface water ☐ are, or ☒ are not, activated by this application. (Not all basin rules contain such provisions.)

Comments:

A6. ☐ Well(s) # _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.

Name of administrative area: _____

Comments: _____

app # G 16401

B1. Based upon available data, I have determined that ground water* for the proposed use:

- a. ☐ is over appropriated, ☒ is not over appropriated, or ☐ cannot be determined to be over appropriated during any period of the proposed use. * This finding is limited to the ground water portion of the over-appropriation determination as prescribed in OAR 690-310-130;
- b. ☐ will not or ☒ will likely be available in the amounts requested without injury to prior water rights. * This finding is limited to the ground water portion of the injury determination as prescribed in OAR 690-310-130;
- c. ☐ will not or ☒ will likely to be available within the capacity of the ground water resource; or
- d. ☐ will, if properly conditioned, avoid injury to existing ground water rights or to the ground water resource:
- i. ☐ The permit should contain condition #(s) _____;
- ii. ☐ The permit should be conditioned as indicated in item 2 below.
- iii. ☐ The permit should contain special condition(s) as indicated in item 3 below;

- B2.
- a. ☐ **Condition** to allow ground water production from no deeper than _____ ft. below land surface;
 - b. ☐ **Condition** to allow ground water production from no shallower than _____ ft. below land surface;
 - c. ☐ **Condition** to allow ground water production only from the _____ ground water reservoir between approximately _____ ft. and _____ ft. below land surface;
 - d. ☐ **Well reconstruction** is necessary to accomplish one or more of the above conditions. The problems that are likely to occur with this use and without reconstructing are cited below. Without reconstruction, I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Ground Water Section.

Describe injury –as related to water availability– that is likely to occur without well reconstruction (interference w/ senior water rights, not within the capacity of the resource, etc):

- B3. Ground water availability remarks: Aquifer test results indicatie that the cone of depression is not areally extensive.
The lack of other ground-water development in the area indicates that the potential for injury is almost non-existent.

C. GROUND WATER/SURFACE WATER CONSIDERATIONS, OAR 690-09-040**C1. 690-09-040 (1): Evaluation of aquifer confinement:**

Well	Aquifer or Proposed Aquifer	Confined	Unconfined
M	Basalt rocks, likely QTz, below 310 feet	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: Information in file G-12550 and aquifer test reports included with this file.

C2. 690-09-040 (2) (3): Evaluation of distance to, and hydraulic connection with, surface water sources. All wells located a horizontal distance less than ¼ mile from a surface water source that produce water from an unconfined aquifer shall be assumed to be hydraulically connected to the surface water source. Include in this table any streams located beyond one mile that are evaluated for PSI.

Well	SW #	Surface Water Name	GW Elev ft msl	SW Elev ft msl	Distance (ft)	Hydraulically Connected?			Potential for Subst. Interfer. Assumed?	
						YES	NO	ASSUMED	YES	NO
M	1	East Fork Hood River	5224	5328	802	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
M	2	Meadows Creek	5224	5280	2000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
M	3	Mitchell Creek	5224	5380	2050	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: The aquifer is well below the nearest reaches of the river and other tributaries. Other information (head relationship, aquifer tests, previous review memos) also suggests a poor local hydraulic connection. Hydraulic connection is likely at some downstream reach of the river (see comments at C4a).

Water Availability Basin the well(s) are located within: E Fork Hood R > Hood R ab Dog R (30410509).

C3a. 690-09-040 (4): Evaluation of stream impacts for each well that has been determined or assumed to be hydraulically connected and less than 1 mile from a surface water source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that surface water source, and not lower SW sources to which the stream under evaluation is tributary. Compare the requested rate against the 1% of 80% natural flow for the pertinent Water Availability Basin (WAB). If Q is not distributed by well, use full rate for each well. Any checked ☒ box indicates the well is assumed to have the potential to cause PSI.

Well	SW #	Well < ¼ mile?	Qw > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Qw > 1% ISWR?	80% Natural Flow (cfs)	Qw > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

C3b. 690-09-040 (4): Evaluation of stream impacts by total appropriation for all wells determined or assumed to be hydraulically connected and less than 1 mile from a surface water source. Complete only if Q is distributed among wells. Otherwise same evaluation and limitations apply as in C3a above.

	SW #	Qw > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Qw > 1% ISWR?	80% Natural Flow (cfs)	Qw > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
		<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Comments: This section does not apply.

C4a. 690-09-040 (5): Estimated impacts on hydraulically connected surface water sources greater than one mile as a percentage of the proposed pumping rate. Limit evaluation to the effects that will occur up to one year after pumping begins. This table encompasses the considerations required by 09-040 (5)(a), (b), (c) and (d), which are not included on this form. Use additional sheets if calculated flows from more than one WAB are required.

Non-Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
(A) = Total Interf.													
(B) = 80 % Nat. Q													
(C) = 1 % Nat. Q													
(D) = (A) > (C)													
(E) = (A / B) x 100		%	%	%	%	%	%	%	%	%	%	%	%

(A) = total interference as CFS; (B) = WAB calculated natural flow at 80% exceed. as CFS; (C) = 1% of calculated natural flow at 80% exceed. as CFS; (D) = highlight the checkmark for each month where (A) is greater than (C); (E) = total interference divided by 80% flow as percentage.

Basis for impact evaluation: This section likely applies, since hydraulic connection is nearly certain with some downstream reach of the East Fork Hood River, likely below Sahalie Falls. However, the rocks comprising the aquifer are dipping away from the crest of Mount Hood at some unknown angle. Therefore, it is unclear where the bed of the river is likely to expose the water-bearing formations. It is inappropriate to use the Wozniak modification of the Hunt analytical model unless the distance can be better estimated.

C4b. 690-09-040 (5) (b) The potential to impair or detrimentally affect the public interest is to be determined by the Water Rights Section.

- C5. ☐ If properly conditioned, the surface water source(s) can be adequately protected from interference, and/or ground water use under this permit can be regulated if it is found to substantially interfere with surface water:
- i. ☐ The permit should contain condition #(s) _____;
 - ii. ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

C6. SW / GW Remarks and Conditions _____

References Used: File G-12550; aquifer test reports in this file; regional geologic map; Ground-Water Resources in the Hood Basin, Oregon, by Grady, 1983.

D. WELL CONSTRUCTION, OAR 690-200

- D1. Well #: M Logid: HOOD 50137
- D2. **THE WELL does not meet current well construction standards based upon:**
- a. ☐ review of the well log;
 - b. ☐ field inspection by _____;
 - c. ☐ report of CWRE _____;
 - d. ☐ other: (specify) _____
- D3. **THE WELL construction deficiency:**
- a. ☐ constitutes a health threat under Division 200 rules;
 - b. ☐ commingles water from more than one ground water reservoir;
 - c. ☐ permits the loss of artesian head;
 - d. ☐ permits the de-watering of one or more ground water reservoirs;
 - e. ☐ other: (specify) _____
- D4. **THE WELL construction deficiency is described as follows:** _____

- D5. **THE WELL**
- a. ☐ was, or ☐ was not constructed according to the standards in effect at the time of original construction or most recent modification.
 - b. ☐ I don't know if it met standards at the time of construction.
- D6. ☐ **Route to the Enforcement Section.** I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Enforcement Section and the Ground Water Section.

THIS SECTION TO BE COMPLETED BY ENFORCEMENT PERSONNEL

- D7. ☐ Well construction deficiency has been corrected by the following actions: _____

- _____, 200____.
- (Enforcement Section Signature)
- D8. ☐ **Route to Water Rights Section (attach well reconstruction logs to this page).**
-

Water Resources Department

MEMO

April 26, 2005

TO: Application G-16401

FROM: GW: Michael Zwart
(Reviewer's Name)

SUBJECT: **Scenic Waterway Interference Evaluation**

☐ Yes

The source of appropriation is within or above a Scenic Waterway

☒ No☐ Yes

Use the Scenic Waterway condition (Condition 7J).

☒ No

PREPONDERANCE OF EVIDENCE FINDING: (Check box only if statement is true)

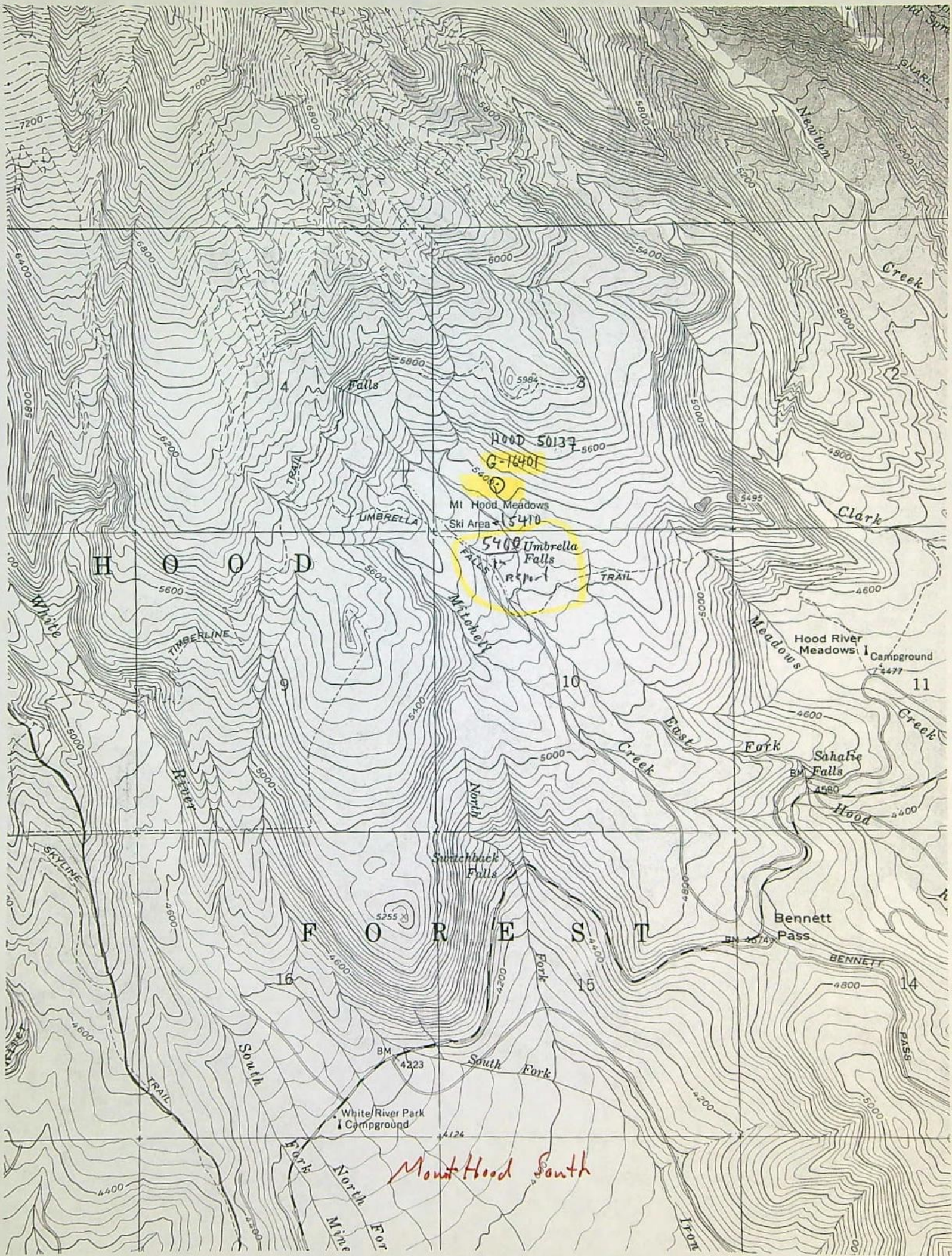
☒

At this time the Department is unable to find that there is a preponderance of evidence that the proposed use of ground water will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway in quantities necessary for recreation, fish and wildlife.

FLOW REDUCTION: (To be filled out only if Preponderance of Evidence box is not checked)

Exercise of this permit is calculated to reduce monthly flows in _____ Scenic Waterway by the following amounts expressed as a proportion of the consumptive use by which surface water flow is reduced.

[illegible]



Mount Hood South

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

START CARD # 111462

- ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER



MT HOOD MEADOWS OREGON LTD
HOOD RIVER COUNTY T3S R9E SEC.3 SW 1/4 SW 1/4 TAX LOT#101
WELL LOG

36728 S. Kropf Rd., Molalla, OR 97038 • Phone: (503) 829-2526 FAX (503) 829-7514

<u>MATERIAL</u>	<u>FROM</u>	<u>TO</u>
ash tan soft loose	0	8
boulder reddish brown	8	13
ash, sand, cinders, gravel angular & rubble grey-red-brown	13	28
boulder grey hard	28	33
boulders red brown & rubble	33	41
boulder grey hard	41	47
boulders red brown	52	61
boulders red	61	72
cinders red with boulders & debris	72	78
boulder red	78	80
cinders & gravel with small boulders red	80	89
sand & gravel angular coarse texture with boulders small	89	131
boulders grey hard	131	142
sand & gravel angular coarse texture with boulders small	142	156
boulders grey hard	156	162
basalt grey hard coarse texture heavy mineral deposits with intermittent fracturing	162	271
basalt grey soft very heavy mineral deposits	271	277
basalt grey soft pumicy	277	301
basalt layered hard & soft mutli colored brown & grey	301	317
basalt multi colored multi textured soft	317	361
basalt multi colored multi textured soft with finer matrix	361	387
basalt multi colored multi textured soft	387	447

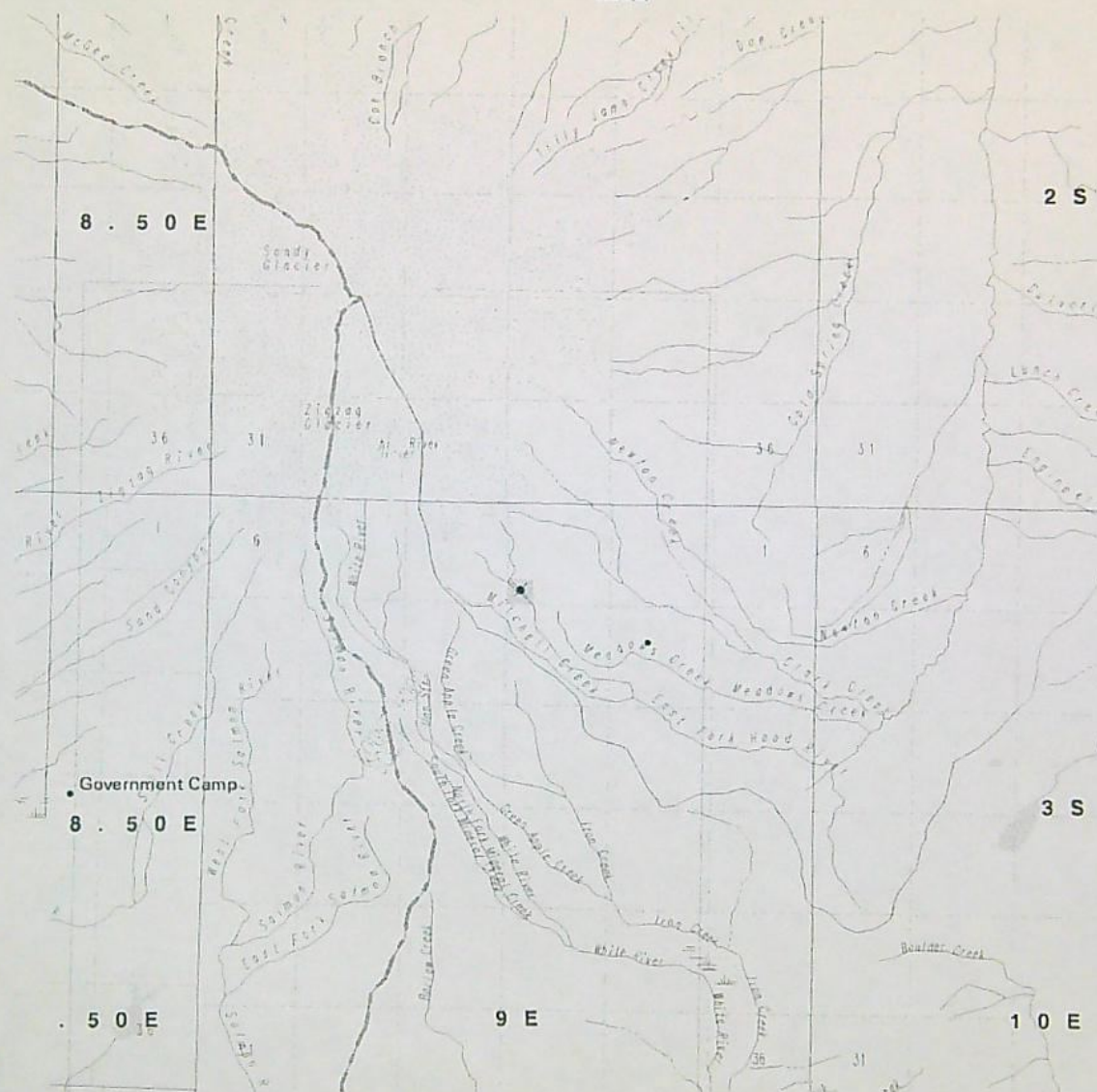
RECEIVED

OCT 30 1998

WATER RESOURCES DEPT.
SALEM, OREGON

Wells in the vicinity of application G 16401

- Application well(s) in this 1/4-1/4 section
- Well(s) identified in this section from OWRD's well log database within 1 mi. radius of application well(s)
- Well(s) identified in this 1/4-1/4 section from OWRD's well log database within 1 mi. radius of application well(s)
- Permitted well(s) in this 1/4-1/4 section within 1 mi. radius of application well(s)
- Conditioned, permitted well(s) in this 1/4-1/4 section within 5 mi. radius of application well(s)
- ▲ OWRD Observation well and well-id within 5 mi. radius of application well(s)
- Critical GW Area
- - - Regulated GW Area



WELL LOGS WITHIN 1 MILE OF APPLICATION G 16401

ABANDON: 0
 RECONDITIONED: 0
 REPAIRED: 0
 CONVERSION: 0
 DEEPENINGS: 0
 NEW CONSTRUCT: 2

COMMUNITY USE: 0
 DOMESTIC USE: 1
 INDUSTRIAL USE: 0
 INJECTION USE: 0
 IRRIGATION USE: 0
 THERMAL USE: 0
 LIVESTOCK USE: 0

PERMITTED WELLS WITHIN 1 MILE OF APPLICATION G 16401

\$RECNO	APPLICATION	PERMIT	CLAIM	LOC-QQ	USE_CODE
1	G	12550	G 13388	0 3.00S 9.00E 3SWSW	QM
1	R	71657	R 12248	0 3.00S 9.00E 3SWSW	QM
1	G	16401	0	0 3.00S 9.00E 3SWSW	CM
1	G	16401	0	0 3.00S 9.00E 3SWSW	CM

NO CONDITIONED WELLS WITHIN 1 MILE OF APPLICATION G 16401

APPLICATION G 16401 FALLS WITHIN THESE QUAD(S)

MOUNT HOOD SOUTH

Jeana Eastman

From: Jeana Eastman [Jeana.M.EASTMAN@wrд.state.or.us]
Sent: Monday, July 11, 2005 9:54 AM
To: Ralph Bloemers; lisa.j.juul@wrд.state.us
Cc: chris@crag.org; brian@crag.org
Subject: RE: Water Rights - Final Order and Proposed Final Orders - Status Request

Hi Ralph,

Meadows Utilities LLC new/pending applications, S-86185 and G-16401, are both ripe for a Proposed Final Order (PFO). I cannot anticipate when the PFO's will be issued. When they are issued, they will be on the Public Notice.

Thanks,
 -jeana

<><> <><> <><> <><> <><> <><> <><> <><> <><>	
Jeana Eastman	Oregon Water Resource Dept.
Water Rights Caseworker	725 Summer St NE, Suite A
Water Rights Section	Salem, OR 97301-1271
Direct 503.986.0859	Front Desk 503.986.0800
Fax 503.986.0902	http://www.wrд.state.or.us

-----Original Message-----

From: Ralph Bloemers [mailto:ralph@crag.org]
Sent: Sunday, July 10, 2005 2:15 PM
To: lisa.j.juul@wrд.state.us; jeana.M.EASTMAN@wrд.state.or.us
Cc: chris@crag.org; brian@crag.org
Subject: Water Rights - Final Order and Proposed Final Orders - Status Request

Dear Lisa and Jeana,

I am writing to find out the status of:

1. Motion for Reconsideration of Final Order on Extension on Application for Groundwater Right Number G-12250
2. Current Status on Applications for Extension of Time for S-53637 (Application S-69976), R-71657 (R-12758). What is the current status or anticipated date of a (Proposed) Final Order on these water rights
3. Current Status on New Applications for Surface and Groundwater Rights Application for Meadows Utilities, LLC, in Hood River County Oregon. What is the current status?

If there are any other outstanding applications from Meadows Utilities LLC please let us know. Please include all the recipients of this email message in your response, as I will be out of the office next week.

Thanks for your assistance,
 Ralph Bloemers

07/11/2005

Jeana Eastman

From: Dave Riley [driley@skihood.com]
Sent: Friday, July 08, 2005 3:43 PM
To: 'Chris Winter'
Cc: 'Daina Bambe'; 'Barbara Wilson'; 'Ralph Bloemers'; rod.a.french@state.or.us; lisa.j.juul@state.or.us; 'Jeana Eastman'; sokolanuta@ipns.com; 'Pagel, Martha'
Subject: RE: Mt. Hood Meadows Snowmaking Proposal

-->

Chris,

At this time it appears my efforts to work in good-faith with you and your clients on the front-end of our projects is actually making things worse. The more information I share, the more you twist it and mischaracterize it to use it against Mt. Hood Meadows and the agencies.

Again, thanks for sharing your response. I think we all understand where you stand.

> Dave

From: Chris Winter [mailto:chris@crag.org]
Sent: Friday, July 08, 2005 2:05 PM
To: 'Dave Riley'
Cc: 'Daina Bambe'; 'Barbara Wilson'; 'Ralph Bloemers'; rod.a.french@state.or.us; lisa.j.juul@state.or.us; 'Jeana Eastman'; sokolanuta@ipns.com; 'Pagel, Martha'
Subject: RE: Mt. Hood Meadows Snowmaking Proposal

Fair enough Dave, you are entitled to your opinion. I will admit one mistake - the surface lift is planned for the Dallas Bowl and not Super Bowl.

Other than that, this letter accurately reflects FOMH's perceptions about the background of this whole process and the possible resource impacts. You can dismiss those perceptions as mis-whatever, but in the end you will only reinforce the public's resolve to protect Mt. Hood with personal attacks. We are making every effort to be up front with you and the agencies about the public's concerns. I'm sorry to see you escalating conflict instead of addressing the public's substantive concerns.

07/11/2005

Chris Winter

CRAG

503.525.2725

-----Original Message-----

From: Dave Riley [mailto:driley@skihood.com]

Sent: Friday, July 08, 2005 12:36 PM

To: 'Chris Winter'

Cc: 'Daina Bambe'; 'Barbara Wilson'; 'Ralph Bloemers'; rod.a.french@state.or.us; lisa.j.juul@state.or.us; 'Jeana Eastman'; sokolanuta@ipns.com; 'Pagel, Martha'

Subject: RE: Mt. Hood Meadows Snowmaking Proposal

Chris,

Thank you for your response.

I have reviewed it and cannot believe the extensive mischaracterizations and misstatements of facts that are included in your letter. From the beginning to the end, it's wrong. It's absolutely amazing to me what you are willing to say to try and position your clients and influence agencies.

Dave Riley

Mt. Hood Meadows

From: Chris Winter [mailto:chris@crag.org]

Sent: Friday, July 08, 2005 11:39 AM

To: 'Dave Riley'

Cc: Daina Bambe; Barbara Wilson; 'Ralph Bloemers'; rod.a.french@state.or.us; lisa.j.juul@state.or.us; Jeana Eastman; sokolanuta@ipns.com

Subject: Mt. Hood Meadows Snowmaking Proposal

Dave -

I have attached the letter you requested setting forth Friends of Mt. Hood's position on Mt. Hood Meadows' latest proposal for construction of permanent snowmaking infrastructure this summer. Please let me know if you have questions or comments or would like to discuss the issues set forth in this letter. Thank you.

07/11/2005

Jeana Eastman

From: Chris Winter [chris@crag.org]
Sent: Friday, July 08, 2005 2:05 PM
To: 'Dave Riley'
Cc: 'Daina Bambi'; 'Barbara Wilson'; 'Ralph Bloemers'; rod.a.french@state.or.us; lisa.j.juul@state.or.us; 'Jeana Eastman'; sokolanuta@ipns.com; 'Pagel, Martha'
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Chris Winter
 CRAG
 503.525.2725

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Chris Winter

Cascade Resources Advocacy Group

917 SW Oak St.

Suite 417

Portland, OR 97205

ph 503.525.2725

fx 503.296.5454

chris@crag.org

Cascade Resources Advocacy Group defends the Pacific Northwest's environment through education, organizing and strategic litigation. CRAG is a non-profit law firm providing high-quality legal assistance to citizens and community groups working to protect healthy ecosystems and our quality of life. Please visit our website at www.crag.org to support us with a donation.

Jeana Eastman

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Cc: 'Daina Bambe'; 'Barbara Wilson'; 'Ralph Bloemers'; rod.a.french@state.or.us; lisa.j.juul@state.or.us; 'Jeana Eastman'; sokolanuta@ipns.com; 'Pagel, Martha'
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Subject: Mt. Hood Meadows Snowmaking Proposal

Dave -

I have attached the letter you requested setting forth Friends of Mt. Hood's position on Mt. Hood Meadows' latest proposal for construction of permanent snowmaking infrastructure this summer. Please let me know if you have questions or comments or would like to discuss the issues set forth in this letter. Thank you.

Chris Winter
Cascade Resources Advocacy Group
917 SW Oak St.
Suite 417
Portland, OR 97205
ph 503.525.2725
fx 503.296.5454
chris@crag.org

Cascade Resources Advocacy Group defends the Pacific Northwest's environment through education, organizing and strategic litigation. CRAG is a non-profit law firm providing high-quality legal assistance to citizens and community groups working to protect healthy ecosystems and our quality of life. Please visit our website at www.crag.org to support us with a donation.



Cascade Resources
ADVOCACY GROUP

CHRIS WINTER
ATTORNEY

503.525.2725
www.crag.org

July 8, 2005

VIA EMAIL AND FIRST CLASS MAIL

Mr. Dave Riley
Mt. Hood Meadows Ski Corp.
PO Box 470
Mt. Hood, OR 97041-0470

Re: 2005 Snowmaking Proposal

Dear Mr. Riley:

As you know, this office represents Friends of Mt. Hood ("FOMH") with respect to activities taking place at the Mt. Hood Meadows Ski Area ("MHM") on the public land of the Mt. Hood National Forest. This letter responds to a series of communications regarding MHM's proposal to construct a snowmaking system this summer.

I. Background

As you know, FOMH requested a meeting with MHM and the U.S. Forest Service ("Forest Service") in November of 2004 to inquire about construction projects planned for the Summer of 2005. The parties held that meeting on December 8, 2004. At that meeting, MHM and the Forest Service presented possible plans for a new ski patrol facility and possibly a new surface lift for the Super Bowl. Neither MHM nor the Forest Service mentioned a snowmaking proposal.

MHM then informed FOMH of its interest in constructing a snowmaking system during March of 2005. The parties met again on March 18, 2005, and FOMH was presented with a plan for a system designed to accommodate up to 40-45 snowmaking hydrants as well as a 1 million gallon water tank.

The Forest Service sent out a scoping letter dated April 5, 2005, proposing a project involving 10-15 snowmaking guns. In that letter, the Forest Service proposed to permit this project using a Categorical Exclusion ("CE") under the National Environmental Policy Act ("NEPA"). The Forest Service suggested that it would issue a draft Decision Memo by early June.

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The Forest Service also committed to take public comments on a draft Decision Memo before making that document final.

FOMH provided scoping comments on April 26, 2005. FOMH reiterated that it was not opposed to the concept of snowmaking but objected to the use of a CE to approve a large capital investment that is not included in the Master Plan for the ski area. FOMH also raised a number of resource concerns, including water usage and waste, sedimentation, impacts to wetlands and riparian reserves, impacts to soils, and the effects on upland habitat and species such as the spotted owl resulting from construction.

After FOMH submitted comments, MHM and FOMH engaged in a series of emails in an effort to communicate their positions on the issues. Faced with the unjustified accusation set forth in the May 9 email from Dave Riley, FOMH responded with a concrete offer including a "limited, interim snowmaking system" for next season along with a full NEPA process and amendment of the Master Plan during 2006 to determine whether a larger snowmaking system makes sense for the 2007 season. During our in person communications, FOMH specifically inquired as to whether the snowmaking system used last ski season could be expanded to include one or two more guns.

MHM then responded on June 3, 2005 with a proposal for the installation of permanent infrastructure this summer, including laying pipe and power lines to Eric's Corner and down to the base of Mt. Hood Express. MHM also proposed to significantly increase the scope of the permanent system, proposing a 4 million gallon water tank and adding distribution lines up North Canyon and up to the top of the Yellow Chair. MHM also proposed hooking up a pump to the groundwater well and using the groundwater for snowmaking, even though the water rights permit does not contemplate this significant additional consumptive use. According to MHM's proposal, the project would be segmented into two separate parts. Installation of permanent infrastructure would take place this summer under a CE and then an Environmental Assessment ("EA") would be prepared for the larger system next summer.

The parties then met at the ski area on June 17, 2005 to discuss the proposal and look at the site. At that meeting, it appeared that much of the construction that Meadows has proposed for this summer would take place either in wetlands or the riparian reserves adjacent to wetlands. FOMH expressed concerns about moving this project forward without adequate information on the location of the wetlands and their associated reserves under the Northwest Forest Plan. At that meeting, FOMH also committed to providing a written response to the proposal for the construction of permanent infrastructure this summer.

II. FOMH Position on Snowmaking

As FOMH stated several times during the meetings and correspondence, **FOMH is not opposed to the concept of snowmaking at Mt. Hood Meadows.** FOMH

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understands the ski area's financial interest in facilitating an early start date. The FOMH has hundreds of supporters, among them there are many individuals who enjoy downhill skiing on Mt. Hood at Timberline, Ski Bowl and Mt. Hood Meadows. FOMH is, however, opposed to fast tracking the construction of permanent infrastructure this summer without quantified and detailed information on the potentially significant resource impacts.

FOMH is opposed to MHM's most recent proposal for several key reasons:

1. **Process** – MHM has proposed to illegally segment the NEPA analysis into two separate parts (one this summer and one next summer). As FOMH has repeatedly stated, the snowmaking proposal needs to be considered as a unified whole during the NEPA process, and it must be incorporated into the Master Plan as a unified whole.

NEPA specifically prohibits the Forest Service from breaking up a larger project into its smaller component parts for purposes of public disclosure and analysis. 40 C.F.R. §1508.25. The purpose of the requirement is to ensure that the agency considers and discloses all of the project impacts before implementation. This case presents a text book example of improper segmentation, with a smaller project broken off from the larger proposal specifically for the purpose of moving it quickly through the public process on a CE. FOMH cannot agree to a public process that clearly violates the express language and intent of NEPA and its implementing regulations. FOMH again calls on the Forest Service and MHM to amend the Master Plan and consider this project in a unified proposal put to the public at one time.

2. **Resource impacts** – After spending quite a bit of time gathering and submitting scientific information to the Forest Service and the Water Resources Department, FOMH has become very concerned about the potential resource impacts resulting from this project. The Forest Service must analyze and disclose those impacts to the public before moving forward with the project. Perhaps most importantly, FOMH is concerned that there is inadequate water available to make snow. WRD has already indicated that it may not allow MHM to use water from the East Fork Hood River in December, January and April. There is also a serious question as to whether the water is available in January, February and March. Use of the existing groundwater water right may greatly increase the amount of consumptive use authorized in that permit. Scientific research obtained from the National Resource Conservation Service snow survey team indicates that snowmaking results in significant consumptive loss of water, threatening the health of the East Fork Hood River. For every gallon taken out, it is very possible that only half (or less) of that water will return to the system. Furthermore, once the water is converted

into snow, Meadows can no longer control the timing and release of that run off. Snowmaking does not equate to storage. Moreover, the existing ground water right has yet to be tapped. Therefore, the public and the agency are without any useful data to assess the impacts of this project on the ecosystem.

It was also quite clear from the site visit that the construction proposed this summer could impact wetlands high on the mountain. Neither the Forest Service nor Mt. Hood Meadows has performed an adequate wetland delineation for the proposed project area (despite repeated requests from FOMH). Neither MHM nor the Forest Service has provided any information on how this project could impact the hydrology of the mountain. The FOMH also has significant concerns about the impacts of constructing a 4 million gallon water tank. These issues simply cannot be addressed in a CE. We set forth our concerns in clear detail in the comments provided to the Forest Service and the Oregon Water Resources Department, and Mr. Rhodes, a professional hydrologist, echoed those concerns. MHM has yet to provide a response to the comments.

3. **Collaboration** - In the email of June 17, 2005, MHM expressed frustration that their so-called collaborative efforts have failed to convince FOMH that interim construction of permanent infrastructure is appropriate for this summer. Those accusations are off-base and misleading. As you remember, MHM initiated a conversation about potential mediation over a future Master Plan revision for Mt. Hood Meadows. FOMH communicated its willingness to enter into a mediation assessment to determine whether that process could produce a mutually beneficial negotiated resolution. After FOMH went through the effort of reaching a position on MHM's offer, MHM then proposed a last-minute snowmaking system to be approved on a CE. MHM subsequently abandoned the mediation process to focus solely on its snowmaking proposal. FOMH certainly does not view that process as open collaboration. In fact, MHM walked away from a structured collaboration in an effort to push through a last-minute project against the public's will.

Furthermore, FOMH made best efforts to collaborate by requesting a meeting in November of 2004 to learn of upcoming projects for this summer. MHM and the Forest Service said nothing of a snowmaking proposal at that meeting. Regardless of whether that omission was intentional or unintentional (and FOMH is willing to assume it was unintentional), MHM should be held accountable to the representations made in that meeting. The fact that MHM has now contradicted everything said in that meeting only reinforces FOMH's lack of trust in the representations made by the ski area.

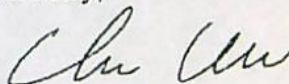
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In sum, FOMH is not opposed to a snowmaking system at MHM. FOMH is opposed to the blatantly illegal process put on the table to fast-track the project this summer. FOMH simply cannot agree to illegally segment a small part of the larger system for the specific purpose of avoiding the time required to conduct a proper analysis. By suggesting a segmented approach, MHM has predetermined FOMH's answer – of course the group cannot agree to a process that violates our nation's bedrock federal environmental laws.

FOMH has always been open to discussing whether the system used last ski season (with temporary hoses and no permanent infrastructure) could be expanded next ski season to accommodate an additional gun or two. This position is more than reasonable given the fact that this proposal was brought to the public far too late for an adequate analysis before this construction season.

FOMH hopes that you will consider their offer and make a true effort to engage the public. In the event that you and the Forest Service decide to push forward with an illegal analysis that segments the project into different parts, FOMH is prepared to aggressively defend the public interest in Mt. Hood. We look forward to hearing from you.

Sincerely,



Christopher Winter

cc: Ms. Daina Bambe, Mt. Hood National Forest
Ms. Barbara Wilson, Chair, Friends of Mt. Hood
Ms. Jeanna Eastman, Oregon Water Resources Department
Ms. Lisa Juul, Oregon Water Resources Department
Mr. Rod French, Oregon Department of Fish & Wildlife

Jeana Eastman

From: L E MEYER [lbethm@msn.com]
Sent: Thursday, July 07, 2005 4:34 PM
To: jeana.m.eastman@wrd.state.or.us
Cc: lbethm@msn.com
Subject: proposed snowmaking system on mt hood

I oppose Mt Hood Meadows proposal to construct a massive snowmaking system on Mt Hood.

Sincerely,

Laurie Meyer

g-16401
S-86185

Jeana Eastman

From: Beeblaqt@aol.com
Sent: Tuesday, July 12, 2005 12:38 PM
To: jeana.m.eastman@wrд.state.or.us
Subject: Concerning Mt.Hood Meadow

Dear Ms. Eastman,

I am concerned about Mt. Hood Meadows application for new water rights so that they may move forward with constructing a massive snowmaking system. I am urging you to examine their request very closely and carefully as it seems to me that more research needs to be done in order to determine the effects such a request would have on the environment. It also seems to me that Mt. Hood Meadows is aware of the possible detrimental effect on the environment or else they would have made their plans known to the Friends of Mt. Hood in their meeting early in the year. Instead they made no mention of it and are now trying to fast track the approval for the project with the Forest Service.

I have so many concerns about the environmental consequences this proposed project could have and you should too. Please do the research on the side effects of changing mother natures design. Do to global warming and climate change the flow of our waterways have been impacted, imagine what impact drawing more water during a time of year when the river is all ready running low will have! Our environment is taxed as it is and Oregon is making great progress at trying to keep our beautiful state pristine, I am concerned this is a step in the wrong direction.

We have always been heads above the rest of the nation at being progressive, let's not cave into Mt. Hood Meadows short sighted attempts to make more money!

Thank You,
Barbara J. Spear

Jeana Eastman

From: Sue Hartford [hartford@gorge.net]

Sent: Sunday, July 17, 2005 9:46 AM

To: Doug Jones; Jeana Eastman

Subject: Snowmaking at MHM

We just wanted to register our concern re. Mt. Hood Meadows' snowmaking proposal. We have lived in the mid-valley of Hood River for 25 years, and rely on Crystal Springs Water. We would like to see MHM respect respect this very valuable public resource and pure, uncontaminated water is a huge, valuable public resource to be protected. We have concerns that Mt. Hood and the Hood River could be adversely affected by MHM's proposal to provide minimum flows in the E. Fork, mostly from its sewage plant; that is is porposing the use of the additive "Sno-Max" with the possible side effect of having unwanted vegetation growth, that the snowmaking may result in up to 70% loss through evaporation, transpiration and sublimation.

Please scrutinize carefully the impact that MHM's proposal could have.....your time in making these considerations is very much appreciated.

Sue and Pat Hartford
3580 Thomsen Rd.
Hood River, OR 97031
Ph: (541)354-2789

Jeana Eastman

From: Nick Engelfried [nengel1@verizon.net]
Sent: Saturday, July 09, 2005 6:46 PM
To: jeana.m.eastman@wrd.state.or.us
Subject: Mt. Hood Meadows

Dear Jeana Eastman,

I am an Oregon citizen, concerned about the right of the people to the public water supply. I urge you to oppose the construction of a new showmaking system for the ski lift operator Mt. Hood Meadows. In an area where water shortages occur, the snowmaker would be a wasteful way to use a limited resource. Water should be allowed to provide maximum benefits for farmers, fisherman, and others who rely on it. It should not be set aside for special interests.

Sincerely,

Nick Engelfried



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Ralph Bloemers
Staff Attorney
503.525.2727
ralph@crag.org

June 8, 2005

Via Email to jeana.m.eastman@wrд.state.or.us

Via Fax and Regular Mail to

Ms. Jeana Eastman

Oregon Water Resources Department

North Mall Office Building

725 Summer Street NE, Suite A

Salem, OR 97301

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Re: Comments on New Groundwater Water Right for Snowmaking System -- Permit Application G-16401 & Related Surface Water Application -- S-86185, Extensions on Existing Groundwater (Application G-12550, Permit G-13398 and Application S- 69976, Permit S-53637) and Existing Reservoir Applications

Dear Ms. Eastman:

This letter provides the Friends of Mt. Hood's initial comments on the request submitted to the Oregon Water Resources Department ("WRD") by Meadows Utilities, LLC ("Meadows") for additional groundwater rights in the Hood River Basin. As you know, the Friends of Mt. Hood has commented on the surface water rights and on the two extension applications, one of which is for groundwater and the other for reservoir use.

The Friends of Mt. Hood is particularly concerned about the impacts of excessive water use and groundwater pumping on the East Fork of the Hood River. A comprehensive analysis of the water supply and effect of ground water withdrawals needs to be conducted in light of the most recent historical data on precipitation and stream flow. The WRD must determine the amount of consumptive loss from this use. The impacts on vegetation and wetlands must be considered. The Friends of Mt. Hood ask that the WRD ensure that the proposal preserves the public welfare, health and safety through further review and analysis of the potential for substantial interference with the minimum flows in the East Fork that protect fish, their habitat and recreation uses of the river.

Given the limited review conducted and limited information gathered by the WRD to date, these comments will be similarly brief. In addition, we request that the department also consider the comments and documentation submitted by Friends of Mt. Hood on the related new surface water application and the two extensions of time to

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perfect the existing groundwater and reservoir right permits. The Friends of Mt. Hood request that this new application be considered in light of the information in the water right file Application G-12550/S-69976 and the Final Order on that water right dated August 28, 1997, including the information that was removed from that file by Meadows' counsel Richard Whitman, once that information is recovered. The Friends of Mt. Hood has also included the findings of Jonathan J. Rhodes, a hydrologist who provided science-based comments on the previous groundwater and surface water application.

I. Land Use Approval Has Not Been Obtained.

Meadows has yet to obtain land use permission from the Forest Service under its master plan to construct a snowmaking system on public lands. In addition, the Forest Service has yet to conduct the basis analysis required by the safeguards contained in the National Environmental Policy Act and the National Forest Management Act.

Unless and until land use approval is obtained, the Water Resources Department would be providing an advisory opinion on whether the water right should be granted. Without the full information needed and required by Oregon Water Resources law, the Oregon Water Resources Department cannot proceed.

II. Comprehensive Consideration of Water Rights Applications.

Meadows has two existing water rights, one for groundwater and one for surface water. The Friends of Mt. Hood requests the WRD to take a comprehensive look at all the requests for public water and review the potential cumulative impacts from these withdrawals on the system. Meadows received a groundwater right (G-12550/S-69976) to appropriate groundwater. The WRD coordinated with a number of agencies to devise conditions for that permit, and given Meadows new water rights applications it appears that it would be impossible to comply with certain conditions in that old unused groundwater right if the new surface and groundwater rights are granted.

For example, the Final Order for the groundwater rights requires Meadows effluent to be diluted by a ratio of 1 part effluent to 20 parts dilution flow in the East Fork Hood River. In the Matter of Water Use Applications 69976, G12550 AND R71657 IN THE NAME OF MEADOWS WATER COMPANY, HOOD RIVER COUNTY, OREGON, dated August 28, 1997, Findings of Fact # 15. (hereinafter "August 28, 1997 Final Order"). The Final Order further states that sewage treatment plant operations can be regulated..."and done at times when little or no diversion is occurring upstream which would further reduce available dilution flows in the East Fork Hood River." A condition was added to the final permit to address these findings of fact. Now, with its new applications, Meadows proposes to augment the flows with wastewater. Unfortunately, the wastewater effluent already serves as mitigation for groundwater pumping in the vicinity.

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In its initial application for the new surface water right, Meadows proposed to provide a minimum streamflow of 1.5 cfs in the East Fork of the Hood River from the sewage treatment plant. However, the sewage treatment plant effluent is already being used as mitigation for the groundwater pumping proposed under Meadows' existing groundwater right. The sewage effluent limitations in the permit from the Department of Environmental Quality count on dilution from active flows in the headwaters of the East Fork of the Hood River. Although it is unclear, it appears that Meadows has changed its position in response to Friends of Mt. Hood's initial letter and now intends to leave a trickle of natural flow in the East Fork of the Hood River to mix with the effluent from its facility. However, the proposed minimum stream flow that Meadows plans to leave above the wastewater plant, and its ratio to the amount of effluent, must be substantively addressed by the Oregon Department of Environmental Quality, the Oregon Department of Fish and Wildlife and the Forest Service. Streamflows are already too low in the East Fork of the Hood River during the winter months to dilute the pollution from the sewage treatment plant. Testimony of Jon Rhodes at page 9.

With respect to this condition and many others, the Friends of Mt. Hood requests the WRD to analyze and consider the cumulative impact of the new surface water application and this new groundwater application. Meadows has not provided any data to identify the actual impact on the Hood River Basin from groundwater pumping in the Basin. The existing water rights have been largely unused and there is a serious question whether the existing withdrawals ensure minimum streamflows in the East Fork Hood River.

III. Consumptive Loss

The Friends of Mt. Hood has reviewed the WRD's initial review (IR) and that IR does not contain a determination regarding the amount of consumptive loss from snowmaking. As Friends of Mt. Hood has underscored in its comments on the surface water application, the use of this water for snowmaking is highly consumptive. The science simply does not support the view that snowmaking is equivalent to non-consumptive water storage.

The Friends of Mt. Hood have researched the issue of consumptive loss carefully, and that research confirms FOMH's comments on this particular issue. According to scientific studies on this issue, consumptive use must be measured at two different stages during the snowmaking process:

Initial loss: This is the consumptive water use which occurs during the actual snowmaking process due to evaporation and sublimation.

Watershed loss: This is the consumptive water loss that occurs from the time the man-made snow particle has fallen on the snowpack through spring melt. These losses are due to evapotranspiration and sublimation." *Estimated Loss from Man-Made Snow,*

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Mills, Eisel and Leaf. 54th Annual Meeting of the Western Snow Conference, Phoenix, Arizona, April 15-17, 1986. (Mills, et al.)

The WRD must address the significant losses from the proposed withdrawal to return flows. A description of the snowmaking process **does not** equate to a description or quantification of consumptive loss. The Friends of Mt. Hood requests the WRD to carefully review the scientific literature that was submitted along with the comments on the pending surface water withdrawal, which we summarize here.

The Mills et al study found the mean estimated Initial Loss from two different methodologies to be approximately 6 percent. However, the Watershed Loss estimates ranged between 7 to 33 percent. A loss of 20% was common, and that combined with the Initial Loss, would result in about a 26% loss of water. In other words, for every hundred gallons taken from the East Fork of the Hood River, at the very most, only 74 gallons would return to the river. Meadows' claim that snowmaking involves minimal consumptive loss is simply not true.

Another study found that: "...at least 22% and as much as 70% of the snowpack at this high elevation site may be lost to sublimation and, therefore, that the date of snowpack accumulation is critical to the runoff efficiency of high elevation snowpacks." *Where has all the snow gone? Snowpack Sublimation in Northern Arizona*, Avery, Dexter, Wier, Delinger, Tecle and Becker, 60th Annual Meeting of the Western Snow Conference, April 14-16, 1992, Snow King Resort, Jackson Hole Wyoming. (Avery et. al.) The earlier in the season that the snowpack accumulates, the greater the percent of snow water equivalent that is lost due to evapo-sublimation. Avery at 92. Given this scientific data, it is possible that for every 100 gallons of water that Meadows takes from the East Fork of the Hood River (or the interconnected groundwater system) only 50 gallons would return to the river system. The Friends of Mt. Hood have provided these studies to WRD for its review of the pending surface water application.

IV. Impact from Anthropogenic Global Warming & Climate Change on Peak Flows in the East Fork of the Hood River.

Another, and perhaps more troubling, scientifically documented development is that peak snowpack in the Cascade Mountains has been decreasing significantly during the past 6 decades. Snowpack records have been kept in the Cascades for 60 years and an analysis of long-term records show a dramatic downward trend in peak snowpack accumulations. Pattee, Scott, 2001, *Is peak snowpack in the North Cascades Mountains decreasing over time?*, pages 88-97, In: Proceedings, 69th Annual Meeting, Western Snow Conference, 17-19, April 2001, Sun Valley, Idaho.

The reason for the decrease in snowpack has been linked to anthropogenic climate change. According to scientists from the University of Washington, the Pacific Northwest is unusually vulnerable to a warming climate owing to its heavy reliance on

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snowpack for spring and summer run off. Phillip Mote and Alan Hamlet, Climate Impacts Group, University of Washington, *Anthropogenic Climate Change and Snow in the Pacific Northwest*, 69th Annual Meeting of the Western Snow Conference, 2001. That study estimated that Snoqualmie Pass, just east of Seattle, would see a reduction in ski season length (defined as the number of days when snow water equivalent exceeds 240mm) from 118 days for present climate to 87 days in the climate of 2020 and 58 days in the climate of 2040. Moreover, in a warmer climate, the study found that snowfed rivers like the Columbia and its major tributaries east of the Cascades see a shift in their hydrograph. Winter streamflow increases modestly, the spring runoff begins earlier in the year, and summer streamflow decreases markedly. The study found that these changes will have a profound and largely negative impact on the uses of water in the Northwest.

Governor Kulongoski has expressed a strong interest in addressing climate change. Contrary to that interest, this proposal would use vast amounts of energy for snowmaking to counter the effects of global warming and climate change. While this unsustainable over-consumptive response should be questioned for this contradiction and examined by the Forest Service and other agencies in the context of global warming, the key issue for the Water Resources Department is that any authorized water use must include conditions that respond to potentially drastic changes in watershed conditions due to climate change and global warming.

The potential for increase in peak flows, change of timing and other changes may exacerbate the problems caused by climate change in the Pacific Northwest. Any snowmaking proposal must try to mimic the historic variation, not the mean or the median, of snowmaking. Contrary to Meadows claim, the predictability and reliability of return water delivery to the system must be very well-considered as a condition to any diversion. Meadows pins its hopes on a Thanksgiving start date. The snowfall history of Mt. Hood does not support this position. The historical variation and norms must be factored into the equation.

V. Making Snow is Not Water Storage.

Meadows has not applied to store water, rather Meadows has made an application to draw water and convert it into snow. "Storage" means the retention or impoundment of surface or groundwater by natural and/or artificial means for public or private uses and benefits. OAR 690-400-0010 (15). Meadows is not seeking to store water by natural or artificial means, rather Meadows is seeking to withdraw water and then convert that water into snow across the landscape.

OAR 690-410-0080 allows storage facilities that would increase water management flexibility and control. However, this snowmaking plan does nothing to increase the flexibility and control over the timing of run-off. Once the snow is made, there is no way for Meadows to control the timing and amount of water delivery back

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into the system. Just as this ski area owner is trying to adjust to climate variation, the living organisms in the Hood River Basin will be trying to adapt to these changes. Additional snowmelt from Mt. Hood Meadows could raise the peak flow, cause temperature drops that would not naturally occur or artificially affect seasonal flow. The ecosystem may not be able to adjust to these changes in flow patterns.

Meadows has suggested that its proposal is encouraged by Water Resources Department rules because the water use would store water using natural means. The fact is that this is not an application to store water, and even if it were, the proposal seeks to use engineered structures to divert the water, run it through storage tanks and then make snow. The piping, water storage tank and snow blowing machines are not natural. The application is not for storage, and it cannot be considered an innovative natural process to store water. The applicants proposal does not involve a natural process, as is encouraged by OAR 690-410-0080(1)(c).

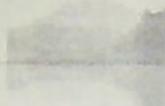
VI. Peak Flows & Aquatic Life

FOMH also has concerns about how this proposal would impact peak flows that are critical for triggering biological responses in fish and for maintaining stream habitat. The instream water rights, which are based on average flows, do not adequately capture the peak flows needed for this essential stream function. Protection of peak flows is especially important in this stream given the critical status of listed fish in the river system. The state would be violating law if it to take any action that would exacerbate this situation. Low flows have already been judged to constrain fish production in the East Fork of the Hood River. *Testimony of Jonathan J. Rhodes, p. 15.* These reductions in winter low flow occur during critical periods when stream icing occurs. *Id.* When stream icing occurs, fish mortality is typically caused. *Id.* The Friends of Mt. Hood requests WRD to obtain direct input from the Oregon Department of Fish & Wildlife, the Columbia River Intertribal Fish Commission and the Oregon Department of Environmental Quality.

Run-off from snowmaking may well increase peak flows in the spring, yet the timing of the run-off may not mean that there will be additional water in the summer months. Water "stored" in the form of snow may well increase peak flows during the spring run-off events. The likelihood of return flows at critical times is far less likely. How does this proposal provide any benefits for fish and ensure that it is not going to harm the minimum streamflow needs in the East Fork of the Hood River?

VII. Conclusion.

While the Friends of Mt. Hood understands Meadows interest in maximize their facilities, we do so with the desire that they approach the project in a balanced and environmentally friendly fashion. The Friends of Mt. Hood values minimal environmental impacts, serious evaluation of options and a sensible approach to this



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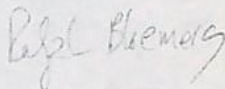
project. Vast amounts of resources have been put into protecting instream flows, considering the impact on the upper headwaters from groundwater and surface water withdrawals and protecting the basin from wastewater effluent. Sensible water planning and current safeguards do not permit allocations outside of the terms of the Hood Basin Plan. The Friends of Mt. Hood looks forward to seeing a complete explanation of any legal analysis that ignores the Hood Basin Plan and the current status of over-allocation in the Hood River Basin.

In addition, the Water Resources Department's safeguards call for land use compliance with respect to any new water right. Mt. Hood Meadows does not have permission from the Forest Service for this proposal, and appropriate review is needed to fully inform the WRD's response to Meadows' two new water rights and the two extensions on existing water rights.

The Friends of Mt. Hood looks forward to receiving a reasoned response from WRD to these issues, after informed consultation and specific input from the Department of Environmental Quality, the Oregon Department of Fish and Wildlife, and the United States Forest Service.

Please do not hesitate to call if you have any questions.

Sincerely,



Ralph O. Bloemers, Staff Attorney
Cascade Resources Advocacy Group
Counsel for Friends of Mt. Hood

cc: Doug Jones – United States Forest Service
Oregon Department of Fish & Wildlife

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TESTIMONY OF
JON RHODES, M. Sc.

1 I. QUALIFICATIONS

2 1. My name is Jon Rhodes. I am a professional hydrologist employed by the Columbia
3 River Inter-Tribal Fish Commission.

4 2. I received a Bachelor of Science degree in hydrology and water resources in 1981 from
5 the University of Arizona. In 1985, I received a Master of Science degree in hydrogeology from the
6 University of Nevada-Reno, where I investigated the seasonal delivery of nitrate by groundwater to a
7 stream in an alpine watershed. I received a degree for Candidacy for Doctor of Philosophy in forest
8 hydrology from the University of Washington in 1989. I have completed all requirements for my
9 doctorate except the dissertation, which is in progress.

10 3. Over the past three years with the Columbia River Inter-Tribal Fish Commission, I have
11 examined silvicultural, agricultural, roadbuilding, mining, and other activities that alter streamflow or
12 water quality. I have developed monitoring programs to measure changes in channel condition and
13 water quality caused by various land uses, and evaluated extant channel morphology and water quality
14 data. I have also served as a technical adviser on water quality monitoring as a member of several
15 technical committees addressing nonpoint source issues in the Columbia basin.

16 4. Prior to my current position, I worked for the University of Washington investigating
17 chemical weathering of bedrock by groundwater in a forested watershed. I have also been employed
18 as a consulting hydrologist for the Tahoe Regional Planning Association. I also worked for the U.S.
19 Geological Survey in Carson City, Nevada where I worked on the modelling of water quality and
20 nonpoint pollution in the Truckee River, Nevada. I also worked as a Research Assistant at the

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1 University of Nevada-Reno where my responsibilities included design of a water quality monitoring
2 network, analysis and interpretation of hydrologic and water quality data, and writing technical reports.

3 5. I have published several scientific papers in peer-reviewed science journals and have
4 co-authored numerous technical reports on my research findings. The subject of most of these papers
5 has been the effects of nonpoint sources on water quality as controlled by streamflow and seasonal
6 runoff generation mechanisms. I have delivered technical talks at regional and national conferences
7 concerning nonpoint sources of water pollution. I have also taught several university classes on
8 hydrology and water quality.

9 6. For the past three years, my work has focused on analyzing the effects of current and
10 proposed uses of land and water on nonpoint sources of pollution, water quality, channel morphology,
11 and anadromous fish habitat. Much of my work has involved the development of measures to protect
12 existing stream conditions from further degradation and to restore forested watersheds and their streams
13 consistent with the regional efforts to rebuild the anadromous fish runs of the Columbia River basin.

14 II. DOCUMENTS REVIEWED

15 7. I have reviewed Oregon Water Resource Department's (hereinafter: "OWRD") draft
16 staff report: Consideration of Formal Protest to Director's Preliminary Determination on Application
17 G-12550, Consideration of Formal Protest against Application 69976, dated March 23, 1992
18 (hereinafter: "OWRD Draft"), including all the attachments. I also reviewed the final staff report
19 Memorandum to the Water Resources Commission from OWRD Director Bill Young: Consideration
20 of Formal Protest to Director's Preliminary Determination on Application G-12550, Consideration of
21 formal Protest against Application 69976, dated April 24, 1992 (hereinafter: "OWRD, 1992"). I also
22 reviewed the Hood River Basin Salmon and Steelhead Production Plan written by the Oregon
23 Department of Fish and Wildlife and the Confederated Tribes of the Warm Springs Reservation of
24 Oregon (hereinafter: "ODFW and CTWS, 1990"). I reviewed Chapter 690, Division 9 of the Oregon

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1 Administrative Rules (hereinafter: "OAR-690-09") pertaining to groundwater interference with surface
2 water. I also reviewed the Geology and Geochemistry of Mt. Hood Volcano by Craig White
3 (hereinafter: "White, 1980"), Geology and Geothermal Resources of the Mount Hood Area, Oregon
4 edited by G. R. Priest and B.F. Vogt (hereinafter: "Priest and Vogt, 1982"), and Data From
5 Geothermal Wells Near Mount Hood Oregon, by J.H. Robison, L.S. Forcella, and M.W. Gannett
6 (hereinafter: "Robison et al., 1981"). I also reviewed other pertinent scientific literature. The list of
7 this literature is too lengthy to list here, so I have listed it separately and attached it to this
8 declaration.

9 III. SUMMARY

10 8. Water Right Application 69976 proposes the use of 0.48 cfs from two springs from
11 November 1 to May 30. Water Right Application G-12550 proposes the use 0.48 cfs from a well
12 throughout the year. The purpose of my review of OWRD's recommendations on these water rights
13 has been to evaluate the adequacy of the information on which the recommendations were based and
14 adequacy of the recommendations in protecting downstream aquatic resources and the public interest.

15 9. OWRD (1992) recommends that both applications be granted based, primarily, on the
16 following assumptions: 1) There is enough available instream flow to meet the instream water right
17 in the East Fork of the Hood River from November 1 through May 30; 2) Groundwater will be
18 withdrawn from a confined aquifer; 3) Groundwater withdrawals from a confined aquifer will not
19 substantially interfere with surface water; and 4) It is possible to assure, through well construction, that
20 groundwater-surface water interactions do not occur. I have concluded that all four of these
21 assumptions are not reasonably supported by data and are without any scientific merit.

22 10. Based on my review of available information I have concluded the following:

23 a) The use of Application 69976 will reduce EFHR flows contrary to the public interest
24 and harm fish and wildlife.

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1 b) The existing instream water right is not met during the summer months at the mouth
2 of the EFHR.

3 c) It has not been adequately determined that instream water rights are consistently met
4 at the mouth of the EFHR from November 1 through May 30. It is likely that the
5 existing instream water right is not met during winter low-flow periods.

6 d) More data collection on flows in the EFHR is needed to determine if water is
7 available during winter low flow periods, prior to granting water rights during the
8 winter, because there is no actual streamflow data from the mouth of the EFHR during
9 the winter months. Surface water and groundwater withdrawals during periods of
10 inadequate instream flow will adversely impact fish, water quality, and other aquatic
11 resources.

12 e) Flow gaging on the EFHR is also necessary to regulate junior water rights during
13 low flow periods.

14 f) The available information on the aquifers in the vicinity of the Mt. Hood Meadows
15 Ski Area (hereinafter: "MHMSA") is inadequate to determine if confined aquifers exist
16 in the area. It is not possible to reasonably determine if the aquifers in the project area
17 are confined or unconfined, given available data.

18 g) The degree of hydraulic connectivity between an aquifer and surface water is not
19 solely dependent on aquifer confinement. Confined aquifers are often directly
20 connected to streams and other surface water, especially in high relief, mountainous
21 terrain with sloping geologic strata, such as occurs in the area of the MHMSA.

22 h) The available hydrogeologic information is inadequate to determine if aquifers in the
23 MHMSA are in hydraulic connection with the stream system. The existing data do not
24 adequately support the OWRD's conclusion that there is limited potential for substantial

1 interference with surface water.

2 i) Although the data is insufficient to make a reasonable determination of the nature of
3 the aquifers in project area, the best available data (Priest and Vogt, 1982) actually
4 indicate that it is likely that the aquifer system in the project area is unconfined and in
5 hydraulic connection with the stream system.

6 j) More data is needed to determine the nature of the aquifers within the MHMSA and
7 their hydraulic connection to the stream system.

8 k) It is not possible, through well construction, to ensure there will be no interference
9 with surface water by groundwater pumping, if the pumped aquifer is hydraulically
10 connected to the stream system.

11 l) No effort was made to determine the effect of groundwater pumping on important
12 wetlands within the MHMSA. It is likely that groundwater pumping will adversely
13 effect these important wetland systems.

14 m) It is likely that these reductions in summer low flows will be in addition to
15 reductions in low flows that will occur if the ski area expands the developed area; the
16 Mt. Hood National Forest acknowledged that paving, compaction, and wetland
17 destruction are likely to reduce summer low flows in the ski area and downstream on
18 the EFHR (Mt. Hood National Forest Mt. Hood Meadows Ski Area Record Of
19 Decision (hereinafter: "ROD, 1991"), p. E - 3, 1991). The combined effect of these
20 likely, additional reductions in low flows associated with paving, wetland disruption,
21 and soil compaction should be considered in evaluating the applications. However, the
22 combined reductions in low flows have not been considered.

23 11. In aggregate, the treatment of the water applications and the formal protests, the
24 hydrologic conclusions are too cursory and insufficient to adequately address the likely effect of the

1 withdrawals on streamflow within the EFHR, fish, water quality, and downstream water rights. It is
2 likely that the two proposed withdrawals will reduce summer low flows, affect downstream water
3 rights, and adversely impact fish production in the EFHR. The evaluation of the applications has been
4 made with almost no reliance on data or other applicable case studies. Granting Applications G-12550
5 and 69776 is premature because the adequate information is lacking. There is a high level of
6 uncertainty involved with the assumed nature of the hydrology of the EFHR.

7 IV. DISCUSSION

8 A. Aquatic Resources and Beneficial Uses Affected By Surface Water Diversion
9 and Groundwater Pumping

10 12. Most of the analysis of water availability has focused on flow quantities at the mouth
11 of the EFHR. However, surface water and groundwater diversions in the MHMSA will not only affect
12 water quantities at the mouth of the EFHR, but rather from point of diversion down into the Hood
13 River. Groundwater pumping of the aquifers within the MHMSA will not only reduce streamflows but
14 also lower local water tables and alter subsurface flow pathways which is likely to affect the important
15 wetlands found within the MHMSA.

16 13. Coho, steelhead, and cutthroat trout are all found in the EFHR below Sahalie Falls (Mt.
17 Hood National Forest Environmental Analysis for the Gulch Chairlift (hereinafter: "EA"), p. 44).
18 Coho and winter steelhead use the EFHR below the Sahalie Falls for spawning and rearing (EA, p. 44);
19 fall chinook use the lower reaches of the EFHR and the EFHR is believed to be the one of the primary
20 destinations for the Hood River winter steelhead run (ODFW and CTWS, pp. 68, 111-112, 135-136,
21 Appendix D--Table 1, 1990). Existing information indicates that low summer flows throughout the
22 EFHR and downstream in the Hood River are major constraints to the production of coho salmon and
23 winter and summer steelhead (ODFW and CTWS, pp. 89, 114-115, 138, Appendix D--Table 1, 1990).
24 Low flows are also a major habitat constraint to the production of fall and spring chinook salmon, coho,

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1 and summer and winter steelhead in the Hood River (ODFW and CTWS, pp. 45, 49, 89, 114-115, 138,
2 Appendix D--Table 1, 1990). This an extremely serious situation because winter steelhead populations
3 are at very low levels. (ODFW and CTWS, p. 111, 1990). Inadequate holding water for adult and
4 juvenile coho, chinook, and steelhead is also a problem throughout the Hood River basin (ODFW and
5 CTWS, pp. 45, 49, 67, 89, 114, 138, Appendix D--Table 1, 1990).

6 14. The Oregon Department of Environmental Quality (hereinafter: "ODEQ") has made
7 the assessment that low flows in the Hood River are moderately impairing the beneficial use of the river
8 by cold-water fish, such as steelhead, coho, and chinook salmon (1988 Oregon Statewide Assessment
9 of Nonpoint Sources of Water Pollution (hereinafter: "ODEQ, 1989")). ODEQ (1989) notes that water
10 withdrawals in both the EFHR and Hood River are probable causes contributing to existing water
11 quality problems which are impairing the beneficial use of the streams by anadromous fish.

12 15. In an effort to rebuild the anadromous fish runs throughout the Columbia basin, the
13 Northwest Power Planning Council (hereinafter: "NPPC") and the agencies and Indian Tribes of the
14 Columbia Basin Fish and Wildlife authority funded the development of 31 Salmon and Steelhead
15 Subbasin Production Plans. These Plans were prepared by fisheries managers from a variety of state,
16 federal, and tribal organizations with extensive public review. These Plans summarize the management
17 goals and problems and opportunities associated with rebuilding the anadromous fish runs within the
18 specific subbasins. Notably, provision of high quality habitat and improved passage are two primary
19 objectives in rebuilding the Hood River fish runs (ODFW and CTWS, pp. 27-28, 1990). The primary
20 strategy to meet both of these objectives is enforcement of existing laws and especially the enforcement
21 of instream water rights (ODFW and CTWS, p. 28, 1990). Much of the basin fish habitat has already
22 been seriously degraded or lost entirely (ODFW and CTWS, pp. 23, 25-28, 67, 1990); habitat
23 enhancement via instream work is planned as part of the recommended strategies to rebuild the
24 anadromous fish stocks in the Hood River basin (ODFW and CTWS, pp. 134, 149, 153, 157, 1990).

1 Habitat improvement in the EFHR is expected to have potential to increase egg-to-smolt survival
2 (ODFW and CTWS, p. 23, 1990). Under the preferred strategy for rebuilding the coho salmon and
3 winter steelhead runs in the EFHR, about 12 miles of the EFHR will receive instream habitat
4 enhancement at a cost of \$14,000 per mile (ODFW and CTWS, pp. 127-128, 134, 149-150, 153,
5 1990). However, it was concluded that strict enforcement of all laws designed to protect and enhance
6 the fishery resource coupled with habitat enhancement is necessary to significantly increase the carrying
7 capacity of the drainage (ODFW and CTWS, pp. 26, 28, 1990). ODFW and CTWS (p. 119, 1990)
8 state that "Under current conditions, the implementation of all the preferred strategies designed to
9 increase runs of natural and hatchery winter steelhead will be necessary to prevent the winter steelhead
10 run from going extinct."

11 16. Efforts to rebuild the naturally sustaining summer and winter steelhead and spring
12 chinook runs in the Hood River basin include the supplementation of these populations via the Hood
13 River Production Project and the Pelton River Project (hereinafter: "HRPP" and "PLP") prepared by
14 CTWS and ODFW and approved by the NPPC in April 1992. The NPPC approval of the HRPP
15 authorized the Bonneville Power Administration (hereinafter: "BPA") to fund the HRPP and the PLP.
16 Both projects had been in the planning stage for three years, but are now in the implementation phase.
17 The investment of ratepayer dollars in these projects by BPA is considerable: the HRPP is expected
18 to cost about \$3.5 million over eight years and the PLP is expected to cost about \$223,380. Because
19 inadequate holding water and summer low flows already impede fish production and egg-to-smolt
20 survival (ODFW and CTWS, pp. 45, 49, 67, 89, 114, 138, Appendix D--Table 1, 1990), any
21 incremental reduction of flows in Hood River will serve to hamper the success of these supplementation
22 projects and reduce the return on BPA ratepayer investments in the projects.

23 17. Summer water temperatures are a concern for resident and anadromous fish production
24 in the EFHR and downstream in the Hood River (ODFW and CTWS, pp. 26, 1990). As virtually all

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1 available information indicates, water temperatures in parts of the EFHR will increase, during the
2 summer months, as flows are decreased (Theurer et al., 1984; Beschta et al., 1987), which will tend
3 to reduce fish production in the EFHR. Water temperatures in the Hood River basin already regularly
4 exceed optimal temperatures for steelhead and coho (ODFW and CTWS, p. 13, 16, 26, 1990). Data
5 in ODFW and CTWS (pp. 13, 16, 1990) indicate that water temperatures in the Hood River already
6 exceed 58°F regularly during the summer low-flow period. State water standards do not allow any
7 increases in water temperatures in the Hood River basin where water temperatures already meet or
8 exceed 58°F.

9 18. Streamflow in the EFHR below Umbrella Falls is used to dilute the sewage effluent
10 from the sewage treatment plant (hereinafter: "STP") at MHMSA. The current discharge permit for
11 the MHMSA STP requires that streamflow must be high enough to provide at least a 20:1 dilution of
12 effluent (Mt. Hood National Forest Final Environmental Impact Statement for the MHMSA (hereinafter:
13 "FEIS, 1991"), p. IV-45). The STP currently discharges sewage effluent at about 50 gpm, or about
14 0.11 cfs, for a few hours a day (FEIS, p. IV-45, 1991). Therefore, a minimum instantaneous flow of
15 at least 2.2 cfs is required to meet existing dilution requirement and discharge permit. These flow
16 conditions in the EFHR are not always met; streamflows at the STP were less than 2.2 cfs in 12 days
17 of January, 1990 (Declaration of Jack Douglas Smith, Ph.D., Exhibit M of Appeal by 1000 Friends
18 of Oregon, et al. to Regional Forester of the U.S. Forest Service Pacific Northwest Region In the
19 Matter of the Decision of Forest Supervisor M.S. Edrington Approving Expansion of the MHMSA
20 dated June 25, 1991 (hereinafter: "Smith, 1991"), p. 22). Streamflows are already too low in the
21 EFHR at times during the winter to dilute pollution from the STP (Smith, p. 13, 15, 22, 1991).

22 19. Separately, and in concert, these conditions make any reduction in summer low flows
23 in the EFHR extremely significant. The EFHR is already overappropriated during the summer months;
24 summertime low flows are a primary constraint to the fish production capability of the EFHR (ODFW

1 and CTWS, pp. 45, 49, 89, 114-115, 138, Appendix D--Table 1, 1990) and minimum instream flow
2 water rights are not met during the summer months (OWRD, 1992).

3 20. The wetlands in the MHMSA downslope from the proposed diversion and groundwater
4 pumping are extremely significant. The FEIS (p. IV-57, 1991) notes that these wetlands "...are
5 considered to function as systems having important hydrologic, wildlife habitat, scenic, and recreational
6 values..." In particular, the 28 acre wetland complex downslope of Umbrella Falls along the margins
7 of the EFHR, known as the "Stringer Meadows" area, has been extensively studied and deemed to be
8 especially significant and perform functions critical to the area's hydrology, water quality, and wildlife
9 (FEIS, pp. III-34, IV-57, 1991). In recognition of the high public interest and ecological values of the
10 Stringer Meadows wetland complex, the EPA proposed that the wetlands be included on the EPA
11 Region 10 Wetland Priority List (FEIS, pp. III-34, IV-58, 1991). Likewise, the FEIS also designated
12 approximately 110 acres of the wetland complex as a Special Interest Area, in recognition of the
13 exceedingly high wildlife and public interest values (FEIS, pp. IV-58, 1991). Any impacts to this
14 wetland complex are considered significant and activities which alter the hydraulic characteristics of
15 these wetlands are "...highly likely to impair their hydrologic function" (FEIS, IV-58, 1991).

16 B. Probable Effect of the Use of Application 69976 On EFHR Flows and the
17 Public Interest

18 21. Granting a permit for Application 69976 is unwarranted because it has not been
19 adequately determined that instream flow rights are met during winter periods. There is very limited
20 basis for the Draft's assertion that there is available surface water in the EFHR to meet both additional
21 upstream withdrawals and instream water rights during the November to May period. It is likely that
22 instream flow rights are not met during "freeze-up" periods during the winter. The use of Application
23 69976 will reduce streamflows at the mouth of the EFHR; this reduction during periods of inadequate
24 instream flow will prevent the exercise of the instream flow right. The use of the application will

1 reduce winter flows from point of diversion on down through the EFHR; during winter low flow
2 periods this will cause violations of current discharge permit for the STP, reduce water quality and
3 cause probable harm to the endemic fish in the EFHR. I also conclude that the surface water diversion
4 also poses a threat to local wetlands because the local hydrology and connectivity of surface water,
5 groundwater, and wetlands is unknown.

6 22. Both the OWRD Draft and OWRD (1992) acknowledge that actual streamflow in the
7 EFHR are unknown because the stream is ungaged. The OWRD Draft notes that its own estimates of
8 flows constitute nothing more than a "guess" (OWRD Draft, p. 4). However, streamflows at the mouth
9 of the EFHR have now been measured during July and August. The measured flows range from about
10 35 to 58 cfs (Steve Pribyl, pers. comm., ODFW biologist), well below the 100 cfs instream flow right
11 in existence for these months at the mouth of the EFHR.

12 23. The method used by OWRD to determine water availability in the EFHR mouth
13 probably provides a reasonable estimate of water availability during summer low flow periods but it is
14 likely to have limited accuracy during low flow periods in the winter. Although the OWRD did not
15 document the method used to estimate flows in the EFHR, I performed regression analysis on the
16 average monthly flows recorded at gages on the West Fork and Hood River mainstem (U.S. Geological
17 Survey Open File Report 90-118, Statistical Summaries of Streamflow Data in Oregon, 1988
18 (hereinafter: "USGS, 1988")) and the flows estimated for the EFHR as contained in both the OWRD
19 Draft and OWRD (1992) (OWRD Draft, Attachment 14; OWRD, Attachment 14, 1992). I also
20 performed a similar analysis of percent exceedance flows determined from the flow records at the West
21 Fork and Hood River stream gage records (USGS, pp. 155-156, 1988) and those estimated by OWRD
22 for the mouth of the EFHR (OWRD Draft, Attachment 14). The average and exceedance flows by
23 month estimated for the EFHR by OWRD are almost perfectly correlated with the corresponding
24 monthly average and exceedance flows determined from stream gage records at the West Fork and

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1 mainstem of the Hood River. Therefore, my analysis indicates that there is little doubt that the monthly
2 average and flow duration statistics estimated for the EFHR were developed via assumed relationships
3 between measured flows at the Hood River mainstem and West Fork gages downstream and flows
4 upstream as a function of drainage area, average precipitation, and water withdrawals. It is unlikely
5 that such a regression has been calibrated or verified for use in the Hood River watershed, in general,
6 or on the EFHR, in particular, because there is no data available for calibration or verification of the
7 estimation method.

8 24. This method of flow estimation is probably reasonable for periods during the summer
9 when the mechanisms generating flows (base flow and continuing melt of snow and glaciers) are similar
10 among the watersheds. However, the mechanisms generating flows during the mid-winter period
11 probably differ appreciably between the EFHR and the Hood River mainstem and West Fork. Both the
12 West Fork and the Hood River mainstem gages are located at a lower elevation and drain watersheds
13 with a lower average elevation than the EFHR. Both the West Fork and the mainstem watersheds
14 receive a larger portion of total precipitation as rain which is rapidly transformed into runoff than the
15 EFHR which has a larger percentage of total precipitation received as snow which may not appreciably
16 contribute to streamflow for months. During the same, frequent winter storms it is likely that a much
17 larger area of the West Fork and Hood River receive rain than the EFHR. Winter streamflows in the
18 West Fork and Hood River are continually pulsed by rain while streamflows in the EFHR may actually
19 drop during cold winter storms with a low snowline and low temperatures that cause snowmelt to cease.
20 It is probable that winter flows in the EFHR periodically drop at the same time that they are increased
21 in the West Fork and Hood River mainstem because the flow generation mechanisms respond differently
22 at different elevations. High elevation watersheds that predominantly receive precipitation in the form
23 of snow, such as many of the headwater tributaries of the EFHR, typically have winter low flows that
24 are almost as low as summer flows, due to the lack of runoff generated by snowmelt (Rhodes, 1985;

1 Fountain and Tangborn, 1985); in contrast, winter low flows are neither expected nor observed in the
2 West Fork and Hood River streamflow records (USGS, pp. 155-156, 1988). Because the watersheds
3 used to estimate EFHR flows are hydrologically dissimilar during the winter period, the EFHR winter
4 streamflows in the OWRD Draft and OWRD (1992) (Attachment 14) are probably overestimated.
5 Homogeneity of flow mechanisms is one of the most critical factors affecting the validity and accuracy
6 of estimating flows on ungaged watersheds from records on gaged streams (Dunne and Leopold, 1978).
7 The estimation method used typically breaks down in mountainous watersheds due to differences in
8 elevation and flow mechanisms (Dunne and Leopold, 1978).

9 25. The dissimilarity among gaged basins of differing elevations is illustrated by comparison
10 of flow records on the Dog River, a high elevation tributary of the EFHR, with the flow records from
11 the West Fork and Hood River mainstem. Although the Dog River watershed is relatively small, it is
12 likely to be fairly representative of many of the tributaries of the EFHR, and as representative of the
13 EFHR as the West Fork and Hood River mainstem watersheds. Regression analysis of streamflow data
14 from Dog River, Hood River mainstem, West Fork Hood River (USGS, p. 154, 1988) indicate that the
15 corresponding monthly average and percent exceedance flows from Dog River records are completely
16 uncorrelated with the corresponding flows on both the Hood River mainstem and West Fork.
17 Therefore, it is apparent that seasonal flow patterns of these streams differ considerably. This
18 difference is probably due primarily due to elevation effects such as a lower average mid-winter melt
19 rates and a greater fraction of precipitation received as snow in the Dog River watershed. This lack
20 of correspondence among flow patterns in the Dog River and the lower Hood River place the accuracy
21 of the water availability estimates for the EFHR in considerable doubt, especially because the seasonal
22 flow patterns of Dog River should be representative of many of the tributaries to the EFHR.

23 26. The Dog River streamflow records and flow duration statistics (USGS, p. 154, 1988)
24 also indicate that winter streamflows at the mouth of the EFHR may be inadequate to meet instream

1 flow rights during midwinter periods. I estimated the average and exceedance flows at the mouth of
2 EFHR by the same method apparently used in the Draft and OWRD (1992), except that I used the
3 records from Dog River (USGS, p. 154, 1988) rather than the data from the lower Hood River gages
4 (USGS, pp. 155-156, 1988) to estimate EFHR flows. Subject to the corrections for watershed area,
5 total precipitation and water withdrawals, the analysis indicated that the instream flow right at the mouth
6 of the EFHR is met or exceeded only about 35% of the time in December, about 65% of the time in
7 January, and 87% of the time in February (See Table in Attachment 1 to this Testimony). The Dog
8 River watershed may not be completely hydrologically similar to the EFHR, but it may be as reasonable
9 a representation as the lower Hood River. Therefore, this analysis casts considerable doubt that
10 instream flow rights are consistently met during the winter months at the mouth of the EFHR, even in
11 the absence of additional surface water and/or groundwater diversions.

12 27. Available flow data also indicate that the EFHR periodically has midwinter low flows
13 which approach summer low flows. The Dog River experienced its lowest monthly average flows
14 during the period of record in December and February of 1966 (USGS, p.154, 1988). Reported
15 streamflow data from the MHMSA STP indicate that streamflow there was at 1.2 cfs on January 31,
16 1990 and at 2 cfs or less on 12 days in January, 1990 (Smith, p. 22, 1991). By comparison, summer
17 low flows are estimated to be approximately 0.9 cfs at approximately the same location on the EFHR
18 (FEIS, p. III-16, 1991). These data indicate that the EFHR undergoes periods of winter low flows
19 during which instream flow rights may not be met.

20 28. Based on the foregoing analysis and data, I conclude that it has not been adequately
21 determined that water is consistently available in excess of the instream flow right at the mouth of the
22 EFHR during the midwinter period. Further, the existing data, professional experience, and the
23 foregoing analysis lead me to conclude that it is probable that instream flow rights are probably
24 periodically not met at the mouth of the EFHR in midwinter, in the even in the absence of any further

1 diversions from the stream, such as the use of Application 69976. I conclude that additional surface
2 water diversions during low flow periods during the midwinter will probably further reduce flows below
3 the instream water right, contrary to the public interest. I also conclude that existing surface water
4 availability during midwinter low flow periods has probably been overestimated in OWRD (1992).

5 29. I also conclude that the method used to estimate summer flows in the EFHR is probably
6 reasonable. Recent measurements of flow in the EFHR indicate that instream water rights are far from
7 being met in July and August. Therefore, I conclude that water is not generally not available in excess
8 of the instream flow right from June 1 to Oct. 30.

9 30. The use of Application 69976 would further reduce midwinter streamflows by an
10 additional 0.48 cfs. This reduction in flow is likely to harm downstream fisheries. Given the reported
11 low flows from the MHMSA STP it appears that the use of the application during low flow periods this
12 would reduce flows in the upper reaches of the EFHR to levels below those estimated to occur during
13 the summer; low flows of this magnitude have already been judged to constrain fish production in the
14 EFHR (ODFW and CTWS, Appendix D--Table 1, 1990). Further, these reductions in winter low flow
15 probably occur during a critical period, during cold snaps on the mountain. These cold snaps represent
16 periods when stream icing is most likely, other factors remaining equal. When stream icing occurs,
17 fish mortality is typically caused; anchor ice formation also smothers overwintering eggs in redds in
18 the stream beds (Platts, 1981). Stream icing in high elevation streams can be a significant source of
19 fish mortality (Boise National Forest Land Management Plan and Final Environmental Impact
20 Statement, p. B-33, 1990). Other factors remaining equal, the likelihood of stream icing increases with
21 decreasing flow, at sub-freezing temperatures. I conclude that the use of Application 69976 is likely
22 to cause harm to downstream fish because it would reduce winter low flows by about 24-40% within
23 the MHMSA during a period when streams are at a high risk of icing.

24 31. It is also apparent that existing streamflows reported at the MHMSA STP during winter

1 cold snaps are already frequently below the dilution requirement of the STP discharge permit (Smith,
2 pp. 15, 22, 1991). The use of Application 69976 will further reduce winter streamflows by about 0.48
3 cfs at the STP. This will not only exacerbate violations of the permit terms, it will also increase the
4 frequency of violations of the discharge permit dilution requirement and reduce downstream water
5 quality during low flow periods. Notably, turbidity will be increased below the STP as dilution flows
6 drop. Increased turbidity due to loss of dilution flows may harm fish and violate state water quality
7 standards downstream of the STP. Also, if the 0.48 cfs withdrawn under the use of Application 69976
8 is returned to the EFHR via the STP outfall, it will create the need for more dilution flows under the
9 existing permit, because it will have to be diluted by a factor of 20. For these reasons, I conclude that
10 flow decreases caused by the appropriation during winter low flow periods will harm the public interest.

11 32. The recommended permit conditions for the application are inadequate to protect water
12 quality, downstream fish from harm caused by incremental reductions in low flow or to assure that
13 instream flow rights are met at the mouth of the EFHR. First, although OWRD (1992) repeatedly
14 states that the water right for Application 69976 will be junior to instream water rights at the mouth of
15 the EFHR, there is currently no reliable means of measuring the instantaneous flow rate in the EFHR.
16 Thus, there will be no way to ensure that instream flow rights are met during times of upstream
17 appropriation at the MHMSA. Therefore, the instream flow right will not be enforceable. To remedy
18 this, a gage should be installed at the mouth of the EFHR. As discussed, existing stream gages on the
19 lower Hood River are not adequate to determine winter low flow magnitudes at the mouth of the EFHR.
20 The new gage should be used to measure flows continuously and interrupt upstream junior diversions
21 such as Application 69970 when flows at the mouth are found to be less than the instream water right.
22 Otherwise, the seniority of the instream water right is meaningless. Second, even if instream flow
23 rights are met there is no means to assure that flows adequate for fish and dilution of pollution will exist
24 below the MHMSA. To remedy this, the OWRD should condition the use of the Application 69976

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1 on the existence of adequate dilution flows at the STP. When flows at the STP are less than 2.2 cfs
2 (as required by the existing STP discharge permit), the use of Application 69970 should be prohibited.
3 This minimum flow value at the STP would also help provide some protection of downstream fisheries
4 during winter low flow periods.

5 C. Available Data is Inadequate to Reasonably Determine that Aquifers Proposed for
6 Pumping Are Confined

7 33. It has been suggested that the aquifer that is proposed as a source for application G-
8 12550 is "...probably confined..." (OWRD Draft, Attachment 15). However, the no reasonable
9 rationale or evidence for this assertion has been presented; indeed, Attachment 15 in the Draft does not
10 contain any indication of what, if any, data was used to determine that aquifers in the MHMSA might
11 be confined. However, given available data and scientific knowledge, the assertion that the aquifer is
12 confined is both unwarranted and unsupported.

13 34. Apparently, even the OWRD is unsure of the available data because in a memo dated
14 September 5, 1991, (Attachment 15) it was concluded that heads in applicable wells were within about
15 30 feet of the surface and that the aquifer was probably confined. In a memo dated April 6, 1991,
16 (Attachment 15) it was concluded that water levels in the Meadows Geothermal Well were about 97 feet
17 below the land surface and that either unsaturated materials or a confining layer separated the surface
18 water from groundwater. Neither of these interpretations of aquifer properties based on water level data
19 cited in the respective memos in Attachment 15 are supported by available data.

20 35. Some very limited geologic and hydrologic data do exist from a geothermal wells drilled
21 on the volcano during the 1980's. The OWRD apparently relied on data from two of the wells in
22 making its recommendations to grant Application G-12550. The Meadows Geothermal Well was drilled
23 approximately 0.5 mile downslope (Priest and Vogt, p. 35, 1982) of the well site proposed in
24 Application G-12550. Priest and Vogt (p. 35, 1982) give an elevation of approximately 5360 feet for

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1 the Meadows Geothermal Well, however, Robison et al. (p. 10, 1981) reports the well elevation to be
2 at about 5460 feet above sea level. The Pucci Geothermal Well was drilled at an elevation of about
3 5350 feet approximately 2.5 miles west of the proposed well site (Priest and Vogt, p. 35, 1982). Even
4 the data from the Meadows Geothermal Well may not be applicable to the site of the proposed well site
5 because the geology of the area is highly variable horizontally and in cross section (Priest and Vogt,
6 p. 6-12, 1982) as is typical for complex volcanic sequences. However, it is clear that the hydrologic
7 and geologic data from the Pucci Well is essentially irrelevant to hydrogeologic conditions existing at
8 the proposed G-12550 well site due to the distance involved and the spatial variability of the complex
9 volcanic geology. In Priest and Vogt (1982), the applicability of the hydrogeology data of the Pucci
10 Well to other areas is described as follows: "These data may not be applicable to other areas on the
11 volcano, where holes encountered high vertical permeability to depths of at least 300m..." (p. 13). I
12 concur with this assessment. Further, it is also noted in Priest and Vogt (p. 41, 1982) that well data
13 generally indicate that the shallow groundwater circulation on the volcano "...is variable from place to
14 place" and that although some data from the Pucci well indicate that part of the mountain has low
15 vertical permeability (a condition needed for confinement) in rocks below 200m, wells drilled in other
16 areas suggest high vertical permeability to depths of at least 300m (emphasis added). Confined aquifers
17 are not expected to be found where there is high vertical permeability (Davis and DeWiest, 1966;
18 Freeze and Cherry, 1979).

19 36. The hydrologic and geologic data from the Meadows Geothermal Well does not contain
20 any direct evidence of the existence of confined aquifers in the vicinity of the well. Rather, the limited
21 geologic data only weakly indicate that a confined aquifer could exist. While some of volcanic
22 lithologies described in the well log (Robison et al., 1981) can sometimes act as confining layers, they
23 also typically serve as highly permeable units that would not contribute to confinement (Davis and
24 DeWeist, 1966; Freeze and Cherry, 1979). Therefore, the geology data do not reasonably support the

1 assertion that the aquifer is confined. Even then, the geology from the Meadows Well is applicable
2 only to the immediate vicinity and at the depth of the geothermal well because complex volcanic
3 sequences are typically discontinuous and associated hydrogeology tends to be highly variable both
4 horizontally and vertically (Freeze and Cherry, 1978). Notably, the Applicant has failed to make any
5 mention of the variability of the volcanic geology or the dubious nature of spatially extrapolating very
6 limited borehole geology given the physical setting.

7 37. Water levels in confined aquifers often show indications of artesian head (Davis and
8 DeWeist, 1966). There is no evidence that artesian heads exist in local aquifers in the MHMSA which
9 might provide some indication that local aquifers could be confined. Water level data cited in OWRD
10 (1992) indicate that artesian heads were not found in the Meadows Geothermal Well. Therefore,
11 available water data indicate that it is unlikely that confined aquifers exist in the vicinity of the
12 Meadows Geothermal Well, because there is no indication of artesian water levels.

13 38. Even if artesian heads did exist, artesian water levels, alone, do not indicate that a
14 confined aquifer exists. Artesian water levels and well flow commonly occur in topographic
15 depressions in high relief terrain with unconfined aquifers (Freeze and Cherry, 1979). Notably, the
16 Meadows Geothermal Well appears to have been located in a topographic depression in high relief
17 terrain (Preist and Vogt, p. 3, 1982). Even if confinement in the area of the geothermal wells does
18 exist, it does not follow that a confined aquifer is present at the site of the proposed groundwater
19 withdrawal because of both the variable volcanic geology (Freeze and Cherry, 1979) and the distance
20 of the proposed well site from the geothermal wells. However, there is no water level data by which
21 to reasonably conclude that local aquifers are probably confined. In fact, available data indicates that
22 artesian heads, which are often found in confined aquifers, do not exist in the immediate vicinity of the
23 Meadows Geothermal Well.

24 39. The available data from the Meadows Well indicates that the local groundwater system

1 is unconfined. It is noted in Priest and Vogt (p. 38, 1982) that the temperature profiles with depth from
2 the Meadows Well indicate "...a uniform downward component of water flow in the aquifer" (p. 38)
3 because the water temperature profile with depth is concave. Bredehoeft and Papadopoulos (1965)
4 developed methods to determine the direction and rate of groundwater flow from temperature profiles.
5 Sorey (1971) provided field verification that water temperature profiles ~~are~~ were valid tools for
6 determining both flow direction and velocity of groundwater. Application of these methods to the
7 temperature profile of the Meadows Geothermal Well (Priest and Vogt, p. 39, 1982) does, indeed,
8 indicate that there is a downward component of groundwater flow. It is unlikely that uniform
9 downward flow would occur in a system with confined aquifers. This component of downward flow
10 also suggests strongly that the local groundwater is discharging elsewhere into some nearby surface
11 water system.

12 40. Given my review of available data, I conclude that the available data does not reasonably
13 support the assertion that confined aquifers exist in the area. Artesian water levels appear to be absent.
14 The available evidence indicates that unconfined rather than confined aquifers exist in the area because
15 there is a uniform, downward component to groundwater flow indicated by water temperature profiles.

16 D. Available Evidence Does Not Reasonably Support the Assertion that Local Groundwater
17 is Not Hydraulically Connected to the Surface Water System

18 41. There is no evidence to suggest that groundwater in the area of the proposed well is not
19 in hydrologic connection with the stream system. The assumption that confined aquifers are not
20 typically hydrologically connected to surface water systems is not valid. If a confined aquifer does exist
21 in the area, all that is necessary for there to be hydrologic connection is an intersection of the aquifer
22 with the stream system. Such a connection is likely and relatively common. Many artesian spring
23 systems are caused by the intersection of confined aquifers with the ground surface (Freeze and Cherry,
24 1979); such systems are relatively common in steep mountainous terrain with confined aquifers and

1 dipping geologic strata (Freeze and Cherry, 1979). Indeed, the methods recommended in OAR-690-09
2 to calculate stream depletion by groundwater pumping (Techniques of Water-Resources Investigation
3 of the U.S. Geological Survey, Ch. D1, Computation of Rate and Volume of Stream Depletion by
4 Wells by C.T. Jenkins, 1970 (hereinafter: "Jenkins, 1970")) were developed for application to confined
5 aquifers that intersect streams. Further, available hydrologic data indicate that there is a hydrologic
6 gradient towards the stream system and wetlands from the aquifer penetrated by the geothermal wells.

7 42. The water level in Meadows Geothermal Well do not indicate that there is an
8 unsaturated layer between the groundwater system and surface water system (the streams and
9 downstream wetlands). Rather, the data suggest that the groundwater and surface water systems are
10 probably in hydraulic connection. As mentioned, OWRD (1992) indicates that the water level in the
11 Meadows Geothermal Well is at about 97 feet below the land surface. The elevation of the Meadows
12 Geothermal Well is about 5460 feet (Robison et al., p. 10, 1981) or 5360 feet (Priest and Vogt, p. 35,
13 1982), so OWRD's determination of the water level puts the water level elevation at about 5260 to 5360
14 feet above sea level (depending on which reported well elevation is used). It appears that there is a
15 gradient from the groundwater towards the stream system, given either of these water level elevations.
16 There is a pronounced gradient from the measured water level towards the stream with a groundwater
17 level elevation of 5360 feet. About 0.25 mile downslope of the location of the Meadows Geothermal
18 Well, the stream is downgradient from a water level of 5260 feet. Therefore, the water level
19 determined by OWRD (1992), if correct, indicates that the gradient is from the aquifer towards the
20 stream and the wetlands downslope. Therefore, if the aquifer is in connection with the stream and
21 wetlands, the aquifer is providing baseflow as indicated by the water level data. To date there has been
22 no evaluation or consideration of the available evidence which indicates that a gradient appears to exist
23 between groundwater and the stream in the vicinity of the Meadows Geothermal Well. However, the

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1 data do not support that there is unsaturated layer separating the groundwater system from the surface
2 water system. Rather, the data indicate that a gradient exists between the groundwater system and the
3 stream. The existence of this gradient makes it likely that the systems are connected and are not
4 separated by an unsaturated zone.

5 43. Notably, the water level from the Meadows Geothermal Well was collected in August
6 (OWRD, 1992). It is likely that water levels are considerably closer to the surface earlier in the year
7 when snowmelt recharge is more actively recharging the aquifer. Shallow mountainous aquifers
8 typically have water levels which are considerably closer to the land surface during active snowmelt
9 than in the late summer period (Rhodes, 1985). The gradient from groundwater to surface water would
10 be greater when water levels are closer to the surface, during snowmelt. Therefore, given that the
11 water level in Meadows Geothermal Well was measured in August, it is likely that water levels in the
12 well are higher during the spring and that the gradient from the groundwater to the surface water system
13 is more pronounced during the snowmelt period.

14 44. The geology in the area of the proposed well site makes it likely that there is a
15 hydrologic connection between groundwater and streamflow. The permeability of volcanic deposits
16 tends to be greatest in the direction of the dip of the strata (Freeze and Cherry, 1979). The strata in
17 the area of the proposed well site generally dip to the southeast, toward the stream. This increases the
18 likelihood that there is a hydrologic connection between groundwater and the stream. The proximity
19 of a well to the stream has a strong influence on the degree of connectivity. Generally, the closer the
20 well is to a stream, the greater the likelihood of alteration of streamflow by groundwater withdrawals
21 (Freeze and Cherry, 1979). The proposed well site is only 300 feet from a branch of the EFHR
22 (OWRD, 1992)) making it highly likely that groundwater withdrawals will reduce streamflows.
23 Therefore, it is probable that there is some degree of connectivity between groundwater and surface
24 water given the local geology, terrain and location of the well. There is little credible basis for

1 assuming there is no hydrologic connection. As noted in the OWRD Draft, "...little is known about
2 the groundwater hydrology of the mountain..." (p. 4). Plainly, too little is known and the potential is
3 too great to reasonably state that there is no connection between groundwater and the stream system.

4 E. The Use of Application G-12550 Is Likely to Cause Substantial Interference With
5 Surface Water and Harm the Public Interest

6 45. As mentioned, it is likely that groundwater and surface water are hydraulically
7 connected in the area of the proposed location of the proposed well, given available water level data
8 and local geology. The proximity of the proposed well to a stream also makes it likely that the use of
9 Application G-12550 will cause reductions in streamflow. These reductions will are likely to adversely
10 affect downstream fish production. Reductions in streamflow during the summer and winter low flow
11 periods are likely to reduce flows at the mouth of the EFHR which are already inadequate to meet the
12 senior instream water right. Groundwater pumping is also likely to adversely effect important wetlands
13 in the area, contrary to the public interest.

14 46. I applied the methods recommended in OAR-690-09 (Jenkins, 1970) to determine the
15 rate of stream depletion under the assumption that the streams and the well will be hydraulically
16 connected. Although there considerable uncertainty regarding the aquifer properties, using reasonable
17 values from the published literature (aquifer transmissivity of 200 gallons/day/ft), I found that it was
18 likely that the groundwater pumping would derive more than 25% of its flow from the stream after 30
19 days of pumping. OAR-690-09 directs that when groundwater appropriations cause more than a 25%
20 depletion of streamflow when pumping is continued for 30 days, the well is assumed to have the
21 potential to cause substantial interference.

22 47. Notably, direct withdrawals of streamflow by pumping are not the only way in which
23 groundwater pumping reduces streamflows. When aquifers are in hydraulic connection with streams,
24 groundwater pumping also prevents recharging groundwater from entering the stream system.

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1 Streamflow is also lost as streamflow recharges the groundwater system after pumping has ceased.
2 Jenkins (1970) noted that in many cases, that streamflow losses after the cessation of groundwater
3 pumping ("residual effects") were greater than the direct losses incurred during pumping.

4 48. Concerns about the degree of hydraulic connection with the stream and groundwater are,
5 indeed, serious. If the aquifer and stream system are connected, the pumping of groundwater will
6 deplete streamflows in the EFHR throughout the year. Unlike the proposed surface water right, there
7 is no seasonal restriction on the proposed pumping of groundwater. Where connection is complete,
8 pumping from wells not only decreases baseflow contributions from groundwater, it actually removes
9 water from the stream channel. For instance, in the Methow Valley, it has been estimated via modeling
10 and hydrogeologic investigations that 90 to 98% of water pumped from a well less than 0.5 miles from
11 the Methow was comprised of water directly derived from streamflow (Golder and Assoc., 1991). A
12 similar situation is entirely possible in the EFHR headwaters.

13 49. Summer low flows in the EFHR and Hood River are already a serious constraint to fish
14 production for several important anadromous fish species, as previously discussed (ODFW and CTWS,
15 Appendix D, 1990). Reductions in streamflows in the summer period caused by groundwater pumping
16 will exacerbate these problems to the detriment of downstream fish production.

17 50. Reductions in groundwater flow to nearby streams caused by groundwater pumping will
18 also affect water quality in ways which are likely to adversely affect fish in the EFHR. Groundwater
19 temperature is typically near the average annual air temperature and is typically a source of cold water
20 during the summer which is important for maintaining temperatures desirable for fish production.
21 Reductions in groundwater inflows to streams caused by pumping can be expected to cause increased
22 summer water temperatures in the EFHR. Groundwater flows during the winter also provide a source
23 of relatively warm water which helps to maintain water temperatures desirable for fish production. This
24 relatively warm groundwater also helps prevent stream icing during winter low flow periods during cold

1 snaps. Reductions in groundwater inflows to streams caused by pumping during the winter can be
2 expected to cause decreased winter water temperatures in the headwaters of the EFHR which will
3 render these small streams more susceptible to icing events. Groundwater is also typically extremely
4 low in suspended sediments, so groundwater inflows dilute sediment concentrations. This dilution of
5 sediment loads by groundwater is important because high sediment loads during the summer months
6 is believed to be a major factor causing high egg-to-smolt mortality for anadromous fish in the EFHR
7 (ODFW and CTWS, p. 23, 1990). Reduced groundwater inflows caused by pumping can be expected
8 to increase sediment concentrations to the detriment of fish production downstream in the EFHR.

9 51. As mentioned, data indicate that there is already inadequate streamflow at the mouth of
10 the EFHR to meet the existing instream water right during the summer months. Reductions in
11 streamflows caused by groundwater pumping during the summer will exacerbate the problem.

12 52. It is also likely that groundwater pumping will adversely affect the Stringer Meadows
13 wetland complex downslope from the proposed well site. The FEIS (p. IV-51, 1991) states that
14 "Changes in drainage patterns, groundwater discharge and recharge, surface flow or water table levels
15 may result in dewatering and subsequent loss of some wetlands..." The hydrology of these wetlands
16 is complex and poorly understood; their interactions with surface flows and groundwater is uncertain
17 because specific information on the local hydrology is lacking (FEIS, p. IV-38, 1991). However, it
18 is believed that most of the groundwater system drains towards local streams and discharge points
19 (FEIS, p. IV-40, 1991), such as the Stringer Meadow wetland complex. Notably, this wetland complex
20 is located at an elevation of about 5200 ft which is downgradient of the approximate elevation of the
21 water level as determined by OWRD (1992) in the vicinity of the proposed well. Direct, long-term
22 impacts to area wetlands are likely to occur if there is any alteration of local drainage patterns (FEIS,
23 p. IV-59, 1991). Reductions in subsurface discharge to the wetlands could reduce discharge from the
24 wetlands to downstream areas (FEIS, p. IV-58). There is no doubt that the use of G-12550 will alter

1 subsurface flows and local groundwater drainage patterns upslope from these critically important
2 wetlands; therefore, I conclude based on the information available, that the proposed groundwater
3 withdrawals are likely to significantly and adversely affect the Stringer Meadows complex and the
4 public interest. The alteration of wetland function is made more likely because it is probable that the
5 upslope groundwater that will be pumped under the use of Application G-12550 is a significant source
6 of water for the wetlands because the estimated elevation of the groundwater level indicates that there
7 is a gradient between groundwater and the wetlands.

8 53. Interactions between surface water and groundwater can be complicated and difficult
9 to accurately predict. However, in its simplest form, the upper EFHR watershed can be adequately
10 modeled via conservation of mass principles. Conservation of mass requirements must be met. The
11 conservation of mass means that matter is neither created nor destroyed and that when inputs to a
12 system are less than outputs, storage within the system is decreased. In groundwater systems, decreases
13 in storage also generally decrease discharge to stream systems. Groundwater and surface water are
14 probably part of a runoff continuum that is typical of most mountain hydrologic systems. If this is the
15 case, any and all groundwater that is pumped and lost through consumptive use, represents the amount
16 of reduction in streamflow that will **ultimately** occur. Models and field studies can and should be used
17 to predict and refine these estimates. However, such studies and models can only estimate the
18 magnitudes and disposition of the streamflow reductions throughout the year. If the aquifer is in
19 connection with the surface water system, groundwater withdrawals will reduce streamflow (as even
20 more sophisticated models will predict since they, too, are based on conservation of mass principles).

21 F. Expansion Of the MHMSA Will Also Reduce Summer and Winter Low Flows

22 54. The use of Applications 69976 and G-12550 will not be the only activities in the
23 MHMSA that will act to decrease low flows. The planned expansion of the MHMSA is also expected
24 to significantly reduce streamflow especially during the summer period. Unfortunately, the combined

1 effect of these reductions have not been included in evaluating the effects of Applications 69976 and
2 G-12550 on downstream water rights and the public interest.

3 55. Flow reduction is assured under planned expansion of the MHMSA due to a number
4 of factors. First, substantial amounts of impervious surfaces will be introduced into the watersheds
5 in the project area (FEIS, p. IV-36, 1991). These impervious areas will preclude the recharge of the
6 local groundwater system by snowmelt and rain. As a result, the baseflow to streams from the
7 groundwater system during low flow periods will be reduced. Second, soil compaction is a likely
8 consequence of the implementation of all expansion alternatives (FEIS, pp. IV-24, -31, 1991).
9 Compaction not only reduces infiltration rates which increases direct surface runoff (FEIS, p. IV-24,
10 1991), it also reduces the water storage capacity of the soil profile by reducing porosity. The reduction
11 in water storage capacity in the soil will also serve to reduce baseflow during the summer low flow
12 period. This reduction in available storage also increases the amount of direct surface runoff, because
13 in most undisturbed, forested areas overland runoff is typically caused by profile saturation, rather than
14 the exceedance of infiltration rates (Dunne and Leopold, 1978). Third, some wetlands are also likely
15 to be directly and indirectly damaged by expansion (FEIS, p. IV-62, 1991). The wetlands are important
16 contributors of summer baseflow (FEIS, pp. III-28, IV-40, 1991). Fourth, road construction intercepts
17 subsurface flow (Megahan, 1972) which would otherwise contribute to baseflow.

18 56. These consequences of expansion, separately, and in concert, promise to greatly reduce
19 low flows both in the project area and downstream. While the FEIS made no quantitative assessment
20 of the effect of these factors on changes in low flow for any of the alternatives, the ROD did concede,
21 as part of the FEIS errata (ROD, p. E - 3), that low flows will be decreased by MHMSA expansion

22 57. The introduction of impervious areas to the project area is likely to cause significant
23 reductions in summer and fall low flow. In many mountainous areas, groundwater recharge during the
24 snowmelt period is an important component of summer baseflow for streams (Dunne and Leopold,

1 1978). However, precipitation falling on impervious surfaces will be rapidly shunted to streamflow as
2 surface runoff instead of recharging groundwater. The ROD (B - 8) states that under the preferred
3 alternative (Alt. P), impervious surfaces will cover about 166 acres with "100% buildout." Average
4 annual precipitation in the project ranges from about 65 inches to 140-170 inches over the project area
5 (ROD B -8); average annual precipitation in the MHMSA is approximately 90 inches/year (OWRD,
6 1965). Assuming that 40% of precipitation on the impervious areas is typically lost to
7 evapotranspiration or infiltrated to the soil elsewhere, the introduction of impervious surfaces results
8 in the direct loss of about 760 acre-feet/year of groundwater recharge to streamflow. Much of the
9 groundwater recharge lost to surface runoff from impervious areas would otherwise be stored and
10 recharged to the stream as baseflow during the low flow period. The amount of groundwater recharge
11 lost due to impervious surfaces is significant in terms of streamflow. For instance, if the estimated 760
12 acre-feet lost from recharge were to be recharged and then released from the groundwater system to
13 the streams at a steady rate, it is equivalent to approximately 4.2 cfs of baseflow to the project streams
14 for three months. By comparison, the combined annual low flow in the five watersheds draining the
15 MHMSA is only estimated to be 4.5 cfs (FEIS, p. III-16, 1991). Plainly, the loss of groundwater
16 recharge due to impervious areas is likely to be significant. The ultimate loss to streamflow may be
17 nearly as large as the combined summer streamflows in the five watersheds in the project area.
18 Clearly, then, the introduction of impervious surfaces will significantly reduce baseflow and low flows
19 in the EFHR. The estimation, given here, of groundwater recharge loss and subsequent loss of
20 streamflow is both simplistic and approximate. It is presented here only in order to make some estimate
21 of the likely impact to stream baseflow resulting from expansion. The analysis provided here is
22 premised on assumptions that are both explicitly listed and physically reasonable. The analysis also
23 provides at least some estimate of the likely magnitude of the impact of paving areas.

24 58. The effects of soil compaction and wetland disruption are caused by MHMSA expansion

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1 are likely to further decrease summer low flows in the EFHR. The FEIS (pp. III-28, IV-40, 1991)
2 repeatedly acknowledges that wetlands are important for baseflow augmentation. The FEIS concedes
3 that some wetlands will be directly lost with MHMSA expansion (FEIS, pp. IV-62, 1991).

4 59. These additional reductions in streamflow are significant and will be in addition to
5 reductions caused by the use of Applications 69976 and G-12550. However, these additional reductions
6 in streamflows have not been considered in evaluating the Applications. The combined effects of
7 MHMSA expansion on streamflows should be considered in evaluating Applications 69976 and G-
8 12550.

9 G. Well Construction Cannot Ensure That Substantial Interference Will Not Occur

10 60. It has been suggested that well construction may be able to mitigate for an erroneous
11 determination of the degree of hydraulic connection between surface and groundwater. However, well
12 construction does not control the degree to which the aquifer and stream system are connected. Careful
13 well design and construction can maintain the integrity of confining layers if, and only if, they do exist.
14 However, it otherwise has no effect on the degree of surface water interference caused by water
15 withdrawals. If the aquifer and the stream are in hydraulic connection, the well's construction cannot
16 negate surface water interference and the effects on downstream water quantities. Well construction
17 also cannot compensate for errors in judgment regarding the aquifer-surface water interactions.
18 However, better data and more complete information can temper poor assumptions. H.

19 Information Needed to Provide a Reasonable Basis For Granting or Denying the Water

20 Right Applications

21 61. It has not been credibly determined whether instream flow rights are actually being met
22 from November to May at the mouth of the EFHR. A monitoring program should be initiated to at
23 least provide some "spot" monitoring of streamflows for a full year, particularly in January-February.
24 There is no provision for the measurement of instream flows on the EFHR from which to adequately

1 regulate upstream surface and groundwater diversions. It is critical that a gaging station on the EFHR
2 be put in place to adequately determine if instream flow rights on the EFHR are being met year-round,
3 now and in the future. The surface water permit must be made conditional on meeting measured
4 instream flows at the mouth of the EFHR.

5 62. The degree of aquifer confinement and/or connection to surface water has not been
6 adequately determined. The degree of confinement of the aquifer is important to determine. However,
7 it is more important to determine the degree of hydraulic connection between aquifer and stream; that
8 is the "bottom line." There are several additional investigations that can be implemented in order to
9 reduce the uncertainty over groundwater/surface water interactions. One approach is to compare the
10 water chemistry of the aquifer proposed for pumping with that of the adjacent stream during the
11 baseflow period. A similar approach would be to inject tracers into the aquifer and monitor
12 downstream water chemistry. Another approach to determining the level of hydraulic connectivity is
13 through the analysis of stable environmental isotopes in both groundwater and streamflow (Space et al.,
14 1991). Another approach is to conduct aquifer tests, including the monitoring of observation wells and
15 stream flows. Such an approach can provide an indication of whether the aquifer is actually truly
16 confined or in hydraulic connection with the stream system (Freeze and Cherry, 1979). The monitoring
17 of observation wells can also provide an indication of the aquifer's level of connectivity. The water
18 levels in truly confined aquifers that are hydraulically isolated from stream systems do not undergo
19 seasonal water level fluctuations due to seasonal bank storage effects near streams. In short, there are
20 many approaches available to decreasing the uncertainty to an acceptable level. They have just not been
21 implemented. The various approaches vary in cost, but most can be implemented at a reasonable
22 cost.

23 V. CONCLUSION

24 63. Given the current level of uncertainty associated with the water right applications and

1 hydrology and hydrogeology of the EFHR, granting the water right permits would be premature. There
2 is currently no need to a rush a decision because an immediate need for additional water is not indicated
3 by the applicant. Additional investigations would not only reduce uncertainty but also improve the
4 content of future environmental assessments of the impacts on water resources caused by the ski area.

5 64. I my review of available information, I have concluded that the use of Application 69976
6 will reduce EFHR flows contrary to the public interest. This reduction in flows is likely to harm fish
7 and wildlife. I also conclude that the existing instream water right is not met during the summer
8 months at the mouth of the EFHR. I conclude that it has not been adequately determined that instream
9 water rights are consistently met at the mouth of the EFHR from November 1 through May

10 65. It is likely that the existing instream water right is not met during winter low-flow
11 periods. More data collection on flows in the EFHR is needed to determine if water is available during
12 winter low flow periods, prior to granting water rights during the winter, because there is no actual
13 streamflow data from the mouth of the EFHR during the winter months. Surface water and
14 groundwater withdrawals during periods of inadequate instream flow will adversely impact fish, water
15 quality, and other aquatic resources. Flow gaging on the EFHR is also necessary to regulate junior
16 water rights during low flow periods.

17 66. The available information on the aquifers in the vicinity of the Mt. Hood Meadows Ski
18 Area is inadequate to determine if confined aquifers exist in the area. It is not possible to reasonably
19 determine if the aquifers in the project area are confined or unconfined, given available data. However,
20 the existing data weakly indicates that local aquifers are unconfined.

21 67. The degree of hydraulic connectivity between an aquifer and surface water is not solely
22 dependent on aquifer confinement. Confined aquifers are often directly connected to streams and other
23 surface water, especially in high relief, mountainous terrain with sloping geologic strata, such as occurs
24 in the area of the MHMSA.

1 68. I have also concluded that the available hydrogeologic information is inadequate to
2 determine if aquifers in the MHMSA are in hydraulic connection with the stream system. The existing
3 data do not adequately support the conclusion that there is limited potential for substantial interference
4 with surface water. I also conclude that more data is needed to determine the nature of the aquifers
5 within the MHMSA and their hydraulic connection to the stream system.

6 69. I have also concluded that it is not possible, through well construction, to ensure there
7 will be no interference with surface water by groundwater pumping, if the pumped aquifer is
8 hydraulically connected to the stream system.

9 70. I have also concluded that the planned expansion of the MHMSA will significantly
10 reduce low flows in the EFHR especially in summer and fall. These reductions will be caused by
11 paving, compaction, and wetland destruction as acknowledged in the ROD (p. E - 3, 1991). These
12 additional sources of flow reduction should be considered in evaluating the applications. However, the
13 combined reductions in low flows have not been considered.

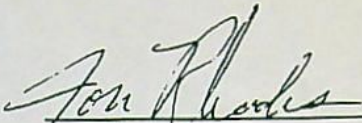
14 71. I also conclude that it is probable that groundwater pumping will adversely effect these
15 important wetland systems downgradient from the well site proposed for pumping in Application G-
16 12550. No effort has been made to determine the effect of groundwater pumping on important wetlands
17 within the MHMSA. Such an assessment should be made prior to making granting the permit to use
18 Application G-12550.

19 72. It is my professional opinion based on my training, experience and review of available
20 information that approval of the water right Applications 69776 and G-12550 would require the OWRD
21 to completely ignore the lack of applicable and adequate hydrologic and geologic data, the uncertainty
22 surrounding the hydrology issues, the probable impacts to water quality and downstream fisheries, as
23 well as the likely effects on downstream streamflows and instream water rights. The Applicant's
24 proposals to approve these applications are based on layer upon layer of unwarranted assumptions about

- 1 the hydrologic system. Given the degree of uncertainty, the approval of these applications is simply
- 2 not prudent.

I declare under penalty of perjury that I believe the foregoing is true and correct.

DATED 11/11/92.


Jon Rhodes

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RECEIVED
JUN 09 2005
WATER RESOURCES DEPT.
SALEM, OREGON

g-14401

Jeana Eastman

From: Ralph Bloemers [ralph@crag.org]
Sent: Wednesday, June 08, 2005 4:44 PM
To: Jeana Eastman
Cc: chris@crag.org; jbragar@lclark.edu; Pagel, Martha; us, dgjones@fs.fed.
Subject: Comments on Groundwater Right



"OMH - Comments
on Meadows' Gr...

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Thanks,
Ralph Bloemers



Cascade Resources
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Ralph Bloemers
Staff Attorney
503.525.2727
ralph@crag.org

June 8, 2005

Via Email to jeana.m.eastman@ wrd.state.or.us

Via Fax and Regular Mail to

Ms. Jeana Eastman
Oregon Water Resources Department
North Mall Office Building
725 Summer Street NE, Suite A
Salem, OR 97301

Re: Comments on New Groundwater Water Right for Snowmaking System -- Permit Application G-16401 & Related Surface Water Application -- S-86185, Extensions on Existing Groundwater (Application G-12550, Permit G-13398 and Application S- 69976, Permit S-53637) and Existing Reservoir Applications

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Given the limited review conducted and limited information gathered by the WRD to date, these comments will be similarly brief. In addition, we request that the department also consider the comments and documentation submitted by Friends of Mt. Hood on the related new surface water application and the two extensions of time to



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I. Land Use Approval Has Not Been Obtained.

Meadows has yet to obtain land use permission from the Forest Service under its master plan to construct a snowmaking system on public lands. In addition, the Forest Service has yet to conduct the basis analysis required by the safeguards contained in the National Environmental Policy Act and the National Forest Management Act.

Unless and until land use approval is obtained, the Water Resources Department would be providing an advisory opinion on whether the water right should be granted. Without the full information needed and required by Oregon Water Resources law, the Oregon Water Resources Department cannot proceed.

II. Comprehensive Consideration of Water Rights Applications.

Meadows has two existing water rights, one for groundwater and one for surface water. The Friends of Mt. Hood requests the WRD to take a comprehensive look at all the requests for public water and review the potential cumulative impacts from these withdrawals on the system. Meadows received a groundwater right (G-12550/S-69976) to appropriate groundwater. The WRD coordinated with a number of agencies to devise conditions for that permit, and given Meadows new water rights applications it appears that it would be impossible to comply with certain conditions in that old unused groundwater right if the new surface and groundwater rights are granted.

For example, the Final Order for the groundwater rights requires Meadows effluent to be diluted by a ratio of 1 part effluent to 20 parts dilution flow in the East Fork Hood River. In the Matter of Water Use Applications 69976, G12550 AND R71657 IN THE NAME OF MEADOWS WATER COMPANY, HOOD RIVER COUNTY, OREGON, dated August 28, 1997, Findings of Fact # 15. (hereinafter "August 28, 1997 Final Order"). The Final Order further states that sewage treatment plant operations can be regulated... "and done at times when little or no diversion is occurring upstream which would further reduce available dilution flows in the East Fork Hood River." A condition was added to the final permit to address these findings of fact. Now, with its new applications, Meadows proposes to augment the flows with wastewater. Unfortunately, the wastewater effluent already serves as mitigation for groundwater pumping in the vicinity.



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In its initial application for the new surface water right, Meadows proposed to provide a minimum streamflow of 1.5 cfs in the East Fork of the Hood River from the sewage treatment plant. However, the sewage treatment plant effluent is already being used as mitigation for the groundwater pumping proposed under Meadows' existing groundwater right. The sewage effluent limitations in the permit from the Department of Environmental Quality count on dilution from active flows in the headwaters of the East Fork of the Hood River. Although it is unclear, it appears that Meadows has changed its position in response to Friends of Mt. Hood's initial letter and now intends to leave a trickle of natural flow in the East Fork of the Hood River to mix with the effluent from its facility. However, the proposed minimum stream flow that Meadows plans to leave above the wastewater plant, and its ratio to the amount of effluent, must be substantively addressed by the Oregon Department of Environmental Quality, the Oregon Department of Fish and Wildlife and the Forest Service. Streamflows are already too low in the East Fork of the Hood River during the winter months to dilute the pollution from the sewage treatment plant. Testimony of Jon Rhodes at page 9.

With respect to this condition and many others, the Friends of Mt. Hood requests the WRD to analyze and consider the cumulative impact of the new surface water application and this new groundwater application. Meadows has not provided any data to identify the actual impact on the Hood River Basin from groundwater pumping in the Basin. The existing water rights have been largely unused and there is a serious question whether the existing withdrawals ensure minimum streamflows in the East Fork Hood River.

III. Consumptive Loss

The Friends of Mt. Hood has reviewed the WRD's initial review (IR) and that IR does not contain a determination regarding the amount of consumptive loss from snowmaking. As Friends of Mt. Hood has underscored in its comments on the surface water application, the use of this water for snowmaking is highly consumptive. The science simply does not support the view that snowmaking is equivalent to non-consumptive water storage.

The Friends of Mt. Hood have researched the issue of consumptive loss carefully, and that research confirms FOMH's comments on this particular issue. According to scientific studies on this issue, consumptive use must be measured at two different stages during the snowmaking process:

"Initial loss: This is the consumptive water use which occurs during the actual snowmaking process due to evaporation and sublimation.

Watershed loss: This is the consumptive water loss that occurs from the time the man-made snow particle has fallen on the snowpack through spring melt. These losses are due to evapotranspiration and sublimation." *Estimated Loss from Man-Made Snow,*



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Mills, Eisel and Leaf, 54th Annual Meeting of the Western Snow Conference, Phoenix, Arizona, April 15-17, 1986. (Mills, et al.)

The WRD must address the significant losses from the proposed withdrawal to return flows. A description of the snowmaking process **does not** equate to a description or quantification of consumptive loss. The Friends of Mt. Hood requests the WRD to carefully review the scientific literature that was submitted along with the comments on the pending surface water withdrawal, which we summarize here.

The Mills et al study found the mean estimated Initial Loss from two different methodologies to be approximately 6 percent. However, the Watershed Loss estimates ranged between 7 to 33 percent. A loss of 20% was common, and that combined with the Initial Loss, would result in about a 26% loss of water. In other words, for every hundred gallons taken from the East Fork of the Hood River, at the very most, only 74 gallons would return to the river. Meadows' claim that snowmaking involves minimal consumptive loss is simply not true.

Another study found that: "...at least 22% and as much as 70% of the snowpack at this high elevation site may be lost to sublimation and, therefore, that the date of snowpack accumulation is critical to the runoff efficiency of high elevation snowpacks." *Where has all the snow gone? Snowpack Sublimation in Northern Arizona*, Avery, Dexter, Wier, Delinger, Tecle and Becker, 60th Annual Meeting of the Western Snow Conference, April 14-16, 1992, Snow King Resort, Jackson Hole Wyoming. (Avery et. al.) The earlier in the season that the snowpack accumulates, the greater the percent of snow water equivalent that is lost due to evapo-sublimation. Avery at 92. Given this scientific data, it is possible that for every 100 gallons of water that Meadows takes from the East Fork of the Hood River (or the interconnected groundwater system) only 50 gallons would return to the river system. The Friends of Mt. Hood have provided these studies to WRD for its review of the pending surface water application.

IV. Impact from Anthropogenic Global Warming & Climate Change on Peak Flows in the East Fork of the Hood River.

Another, and perhaps more troubling, scientifically documented development is that peak snowpack in the Cascade Mountains has been decreasing significantly during the past 6 decades. Snowpack records have been kept in the Cascades for 60 years and an analysis of long-term records show a dramatic downward trend in peak snowpack accumulations. Pattee, Scott, 2001, *Is peak snowpack in the North Cascades Mountains decreasing over time?*, pages 88-97, In: Proceedings, 69th Annual Meeting, Western Snow Conference, 17-19, April 2001, Sun Valley, Idaho.

The reason for the decrease in snowpack has been linked to anthropogenic climate change. According to scientists from the University of Washington, the Pacific Northwest is unusually vulnerable to a warming climate owing to its heavy reliance on



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snowpack for spring and summer run off. Phillip Mote and Alan Hamlet, Climate Impacts Group, University of Washington, *Anthropogenic Climate Change and Snow in the Pacific Northwest*, 69th Annual Meeting of the Western Snow Conference, 2001. That study estimated that Snoqualmie Pass, just east of Seattle, would see a reduction in ski season length (defined as the number of days when snow water equivalent exceeds 240mm) from 118 days for present climate to 87 days in the climate of 2020 and 58 days in the climate of 2040. Moreover, in a warmer climate, the study found that snowfed rivers like the Columbia and its major tributaries east of the Cascades see a shift in their hydrograph. Winter streamflow increases modestly, the spring runoff begins earlier in the year, and summer streamflow decreases markedly. The study found that these changes will have a profound and largely negative impact on the uses of water in the Northwest.

Governor Kulongoski has expressed a strong interest in addressing climate change. Contrary to that interest, this proposal would use vast amounts of energy for snowmaking to counter the effects of global warming and climate change. While this unsustainable over-consumptive response should be questioned for this contradiction and examined by the Forest Service and other agencies in the context of global warming, the key issue for the Water Resources Department is that any authorized water use must include conditions that respond to potentially drastic changes in watershed conditions due to climate change and global warming.

The potential for increase in peak flows, change of timing and other changes may exacerbate the problems caused by climate change in the Pacific Northwest. Any snowmaking proposal must try to mimic the historic variation, not the mean or the median, of snowmaking. Contrary to Meadows claim, the predictability and reliability of return water delivery to the system must be very well-considered as a condition to any diversion. Meadows pins its hopes on a Thanksgiving start date. The snowfall history of Mt. Hood does not support this position. The historical variation and norms must be factored into the equation.

V. Making Snow is Not Water Storage.

Meadows has not applied to store water, rather Meadows has made an application to draw water and convert it into snow. "Storage" means the retention or impoundment of surface or groundwater by natural and/or artificial means for public or private uses and benefits. OAR 690-400-0010 (15). Meadows is not seeking to store water by natural or artificial means, rather Meadows is seeking to withdraw water and then convert that water into snow across the landscape.

OAR 690-410-0080 allows storage facilities that would increase water management flexibility and control. However, this snowmaking plan does nothing to increase the flexibility and control over the timing of run-off. Once the snow is made, there is no way for Meadows to control the timing and amount of water delivery back



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into the system. Just as this ski area owner is trying to adjust to climate variation, the living organisms in the Hood River Basin will be trying to adapt to these changes. Additional snowmelt from Mt. Hood Meadows could raise the peak flow, cause temperature drops that would not naturally occur or artificially affect seasonal flow. The ecosystem may not be able to adjust to these changes in flow patterns.

Meadows has suggested that its proposal is encouraged by Water Resources Department rules because the water use would store water using natural means. The fact is that this is not an application to store water, and even if it were, the proposal seeks to use engineered structures to divert the water, run it through storage tanks and then make snow. The piping, water storage tank and snow blowing machines are not natural. The application is not for storage, and it cannot be considered an innovative natural process to store water. The applicants proposal does not involve a natural process, as is encouraged by OAR 690-410-0080(1)(e).

VI. Peak Flows & Aquatic Life

FOMH also has concerns about how this proposal would impact peak flows that are critical for triggering biological responses in fish and for maintaining stream habitat. The instream water rights, which are based on average flows, do not adequately capture the peak flows needed for this essential stream function. Protection of peak flows is especially important in this stream given the critical status of listed fish in the river system. The state would be violating law if it to take any action that would exacerbate this situation. Low flows have already been judged to constrain fish production in the East Fork of the Hood River. *Testimony of Jonathan J. Rhodes, p. 15*. These reductions in winter low flow occur during critical periods when stream icing occurs. *Id.* When steam icing occurs, fish mortality is typically caused. *Id.* The Friends of Mt. Hood requests WRD to obtain direct input from the Oregon Department of Fish & Wildlife, the Columbia River Intertribal Fish Commission and the Oregon Department of Environmental Quality.

Run-off from snowmaking may well increase peak flows in the spring, yet the timing of the run-off may not mean that there will be additional water in the summer months. Water "stored" in the form of snow may well increase peak flows during the spring run-off events. The likelihood of return flows at critical times is far less likely. How does this proposal provide any benefits for fish and ensure that it is not going to harm the minimum streamflow needs in the East Fork of the Hood River?

VII. Conclusion.

While the Friends of Mt. Hood understands Meadows interest in maximize their facilities, we do so with the desire that they approach the project in a balanced and environmentally friendly fashion. The Friends of Mt. Hood values minimal environmental impacts, serious evaluation of options and a sensible approach to this



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project. Vast amounts of resources have been put into protecting instream flows, considering the impact on the upper headwaters from groundwater and surface water withdrawals and protecting the basin from wastewater effluent. Sensible water planning and current safeguards do not permit allocations outside of the terms of the Hood Basin Plan. The Friends of Mt. Hood looks forward to seeing a complete explanation of any legal analysis that ignores the Hood Basin Plan and the current status of over-allocation in the Hood River Basin.

In addition, the Water Resources Department's safeguards call for land use compliance with respect to any new water right. Mt. Hood Meadows does not have permission from the Forest Service for this proposal, and appropriate review is needed to fully inform the WRD's response to Meadows' two new water rights and the two extensions on existing water rights.

The Friends of Mt. Hood looks forward to receiving a reasoned response from WRD to these issues, after informed consultation and specific input from the Department of Environmental Quality, the Oregon Department of Fish and Wildlife, and the United States Forest Service.

Please do not hesitate to call if you have any questions.

Sincerely,

Ralph O. Bloemers, Staff Attorney
Cascade Resources Advocacy Group
Counsel for Friends of Mt. Hood

cc: Doug Jones – United States Forest Service
Oregon Department of Fish & Wildlife

g-16401

Jeana Eastman

From: Jeana Eastman [Jeana.M.EASTMAN@wrđ.state.or.us]
Sent: Thursday, June 09, 2005 10:34 AM
To: Ralph Bloemers
Subject: RE: Comments on Groundwater Right

Hi Ralph,

This is confirmation that I received your e-mail, the attached pdf document (7 pages), and a fax of the pdf document (7 pages) along with the testimony of Jon Rhodes (35 pages).

Thanks,
-jeana

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Jeana Eastman Oregon Water Resource Dept.
Water Rights Caseworker 725 Summer St NE, Suite A
Water Rights Section Salem, OR 97301-1271
Direct 503.986.0859 Front Desk 503.986.0800
Fax 503.986.0902 <http://www.wrđ.state.or.us>

-----Original Message-----

From: Ralph Bloemers [mailto:ralph@crag.org]
Sent: Wednesday, June 08, 2005 4:44 PM
To: Jeana Eastman
Cc: chris@crag.org; jbragar@lclark.edu; Pagel, Martha; us, dgjones@fs.fed.
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Ralph Bloemers
Staff Attorney
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June 8, 2005

Via Email to jeana.m.eastman@wrд.state.or.us

Via Fax and Regular Mail to

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Oregon Water Resources Department
North Mall Office Building
725 Summer Street NE, Suite A
Salem, OR 97301

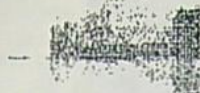
Re: Comments on New Groundwater Water Right for Snowmaking System -- Permit Application G-16401 & Related Surface Water Application -- S-86185, Extensions on Existing Groundwater (Application G-12550, Permit G-13398 and Application S- 69976, Permit S-53637) and Existing Reservoir Applications

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III. Consumptive Loss

The Friends of Mt. Hood has reviewed the WRD's initial review (IR) and that IR does not contain a determination regarding the amount of consumptive loss from snowmaking. As Friends of Mt. Hood has underscored in its comments on the surface water application, the use of this water for snowmaking is highly consumptive. The science simply does not support the view that snowmaking is equivalent to non-consumptive water storage.

The Friends of Mt. Hood have researched the issue of consumptive loss carefully, and that research confirms FOMH's comments on this particular issue. According to scientific studies on this issue, consumptive use must be measured at two different stages during the snowmaking process:

"Initial loss: This is the consumptive water use which occurs during the actual snowmaking process due to evaporation and sublimation.

Watershed loss: This is the consumptive water loss that occurs from the time the man-made snow particle has fallen on the snowpack through spring melt. These losses are due to evapotranspiration and sublimation." *Estimated Loss from Man-Made Snow,*



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Mills, Eisel and Leaf, 54th Annual Meeting of the Western Snow Conference, Phoenix, Arizona, April 15-17, 1986. (Mills, et al.)

The WRD must address the significant losses from the proposed withdrawal to return flows. A description of the snowmaking process **does not** equate to a description or quantification of consumptive loss. The Friends of Mt. Hood requests the WRD to carefully review the scientific literature that was submitted along with the comments on the pending surface water withdrawal, which we summarize here.

The Mills et al study found the mean estimated Initial Loss from two different methodologies to be approximately 6 percent. However, the Watershed Loss estimates ranged between 7 to 33 percent. A loss of 20% was common, and that combined with the Initial Loss, would result in about a 26% loss of water. In other words, for every hundred gallons taken from the East Fork of the Hood River, at the very most, only 74 gallons would return to the river. Meadows' claim that snowmaking involves minimal consumptive loss is simply not true.

Another study found that: "...at least 22% and as much as 70% of the snowpack at this high elevation site may be lost to sublimation and, therefore, that the date of snowpack accumulation is critical to the runoff efficiency of high elevation snowpacks." *Where has all the snow gone? Snowpack Sublimation in Northern Arizona*, Avery, Dexter, Wier, Delinger, Tecle and Becker, 60th Annual Meeting of the Western Snow Conference, April 14-16, 1992, Snow King Resort, Jackson Hole Wyoming. (Avery et al.) The earlier in the season that the snowpack accumulates, the greater the percent of snow water equivalent that is lost due to evapo-sublimation. Avery at 92. Given this scientific data, it is possible that for every 100 gallons of water that Meadows takes from the East Fork of the Hood River (or the interconnected groundwater system) only 50 gallons would return to the river system. The Friends of Mt. Hood have provided these studies to WRD for its review of the pending surface water application.

IV. Impact from Anthropogenic Global Warming & Climate Change on Peak Flows in the East Fork of the Hood River.

Another, and perhaps more troubling, scientifically documented development is that peak snowpack in the Cascade Mountains has been decreasing significantly during the past 6 decades. Snowpack records have been kept in the Cascades for 60 years and an analysis of long-term records show a dramatic downward trend in peak snowpack accumulations. Pattee, Scott, 2001, *Is peak snowpack in the North Cascades Mountains decreasing over time?*, pages 88-97, In: Proceedings, 69th Annual Meeting, Western Snow Conference, 17-19, April 2001, Sun Valley, Idaho.

The reason for the decrease in snowpack has been linked to anthropogenic climate change. According to scientists from the University of Washington, the Pacific Northwest is unusually vulnerable to a warming climate owing to its heavy reliance on



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snowpack for spring and summer run off. Phillip Mote and Alan Hamlet, Climate Impacts Group, University of Washington, *Anthropogenic Climate Change and Snow in the Pacific Northwest*, 69th Annual Meeting of the Western Snow Conference, 2001. That study estimated that Snoqualmie Pass, just east of Seattle, would see a reduction in ski season length (defined as the number of days when snow water equivalent exceeds 240mm) from 118 days for present climate to 87 days in the climate of 2020 and 58 days in the climate of 2040. Moreover, in a warmer climate, the study found that snowfed rivers like the Columbia and its major tributaries east of the Cascades see a shift in their hydrograph. Winter streamflow increases modestly, the spring runoff begins earlier in the year, and summer streamflow decreases markedly. The study found that these changes will have a profound and largely negative impact on the uses of water in the Northwest.

Governor Kulongoski has expressed a strong interest in addressing climate change. Contrary to that interest, this proposal would use vast amounts of energy for snowmaking to counter the effects of global warming and climate change. While this unsustainable over-consumptive response should be questioned for this contradiction and examined by the Forest Service and other agencies in the context of global warming, the key issue for the Water Resources Department is that any authorized water use must include conditions that respond to potentially drastic changes in watershed conditions due to climate change and global warming.

The potential for increase in peak flows, change of timing and other changes may exacerbate the problems caused by climate change in the Pacific Northwest. Any snowmaking proposal must try to mimic the historic variation, not the mean or the median, of snowmaking. Contrary to Meadows claim, the predictability and reliability of return water delivery to the system must be very well-considered as a condition to any diversion. Meadows pins its hopes on a Thanksgiving start date. The snowfall history of Mt. Hood does not support this position. The historical variation and norms must be factored into the equation.

V. Making Snow is Not Water Storage.

Meadows has not applied to store water, rather Meadows has made an application to draw water and convert it into snow. "Storage" means the retention or impoundment of surface or groundwater by natural and/or artificial means for public or private uses and benefits. OAR 690-400-0010 (15). Meadows is not seeking to store water by natural or artificial means, rather Meadows is seeking to withdraw water and then convert that water into snow across the landscape.

OAR 690-410-0080 allows storage facilities that would increase water management flexibility and control. However, this snowmaking plan does nothing to increase the flexibility and control over the timing of run-off. Once the snow is made, there is no way for Meadows to control the timing and amount of water delivery back



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into the system. Just as this ski area owner is trying to adjust to climate variation, the living organisms in the Hood River Basin will be trying to adapt to these changes. Additional snowmelt from Mt. Hood Meadows could raise the peak flow, cause temperature drops that would not naturally occur or artificially affect seasonal flow. The ecosystem may not be able to adjust to these changes in flow patterns.

Meadows has suggested that its proposal is encouraged by Water Resources Department rules because the water use would store water using natural means. The fact is that this is not an application to store water, and even if it were, the proposal seeks to use engineered structures to divert the water, run it through storage tanks and then make snow. The piping, water storage tank and snow blowing machines are not natural. The application is not for storage, and it cannot be considered an innovative natural process to store water. The applicants proposal does not involve a natural process, as is encouraged by OAR 690-410-0080(1)(e).

VI. Peak Flows & Aquatic Life

FOMH also has concerns about how this proposal would impact peak flows that are critical for triggering biological responses in fish and for maintaining stream habitat. The instream water rights, which are based on average flows, do not adequately capture the peak flows needed for this essential stream function. Protection of peak flows is especially important in this stream given the critical status of listed fish in the river system. The state would be violating law if it to take any action that would exacerbate this situation. Low flows have already been judged to constrain fish production in the East Fork of the Hood River. *Testimony of Jonathan J. Rhodes, p. 15.* These reductions in winter low flow occur during critical periods when stream icing occurs. *Id.* When stream icing occurs, fish mortality is typically caused. *Id.* The Friends of Mt. Hood requests WRD to obtain direct input from the Oregon Department of Fish & Wildlife, the Columbia River Intertribal Fish Commission and the Oregon Department of Environmental Quality.

Run-off from snowmaking may well increase peak flows in the spring, yet the timing of the run-off may not mean that there will be additional water in the summer months. Water "stored" in the form of snow may well increase peak flows during the spring run-off events. The likelihood of return flows at critical times is far less likely. How does this proposal provide any benefits for fish and ensure that it is not going to harm the minimum streamflow needs in the East Fork of the Hood River?

VII. Conclusion.

While the Friends of Mt. Hood understands Meadows interest in maximize their facilities, we do so with the desire that they approach the project in a balanced and environmentally friendly fashion. The Friends of Mt. Hood values minimal environmental impacts, serious evaluation of options and a sensible approach to this



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project. Vast amounts of resources have been put into protecting instream flows, considering the impact on the upper headwaters from groundwater and surface water withdrawals and protecting the basin from wastewater effluent. Sensible water planning and current safeguards do not permit allocations outside of the terms of the Hood Basin Plan. The Friends of Mt. Hood looks forward to seeing a complete explanation of any legal analysis that ignores the Hood Basin Plan and the current status of over-allocation in the Hood River Basin.

In addition, the Water Resources Department's safeguards call for land use compliance with respect to any new water right. Mt. Hood Meadows does not have permission from the Forest Service for this proposal, and appropriate review is needed to fully inform the WRD's response to Meadows' two new water rights and the two extensions on existing water rights.

The Friends of Mt. Hood looks forward to receiving a reasoned response from WRD to these issues, after informed consultation and specific input from the Department of Environmental Quality, the Oregon Department of Fish and Wildlife, and the United States Forest Service.

Please do not hesitate to call if you have any questions.

Sincerely,

Ralph O. Bloemers, Staff Attorney
Cascade Resources Advocacy Group
Counsel for Friends of Mt. Hood

cc: Doug Jones - United States Forest Service
Oregon Department of Fish & Wildlife

TESTIMONY OF
JON RHODES, M. Sc.

1 I. QUALIFICATIONS

2 1. My name is Jon Rhodes. I am a professional hydrologist employed by the Columbia
3 River Inter-Tribal Fish Commission.

4 2. I received a Bachelor of Science degree in hydrology and water resources in 1981 from
5 the University of Arizona. In 1985, I received a Master of Science degree in hydrogeology from the
6 University of Nevada-Reno, where I investigated the seasonal delivery of nitrate by groundwater to a
7 stream in an alpine watershed. I received a degree for Candidacy for Doctor of Philosophy in forest
8 hydrology from the University of Washington in 1989. I have completed all requirements for my
9 doctorate except the dissertation, which is in progress.

10 3. Over the past three years with the Columbia River Inter-Tribal Fish Commission, I have
11 examined silvicultural, agricultural, roadbuilding, mining, and other activities that alter streamflow or
12 water quality. I have developed monitoring programs to measure changes in channel condition and
13 water quality caused by various land uses, and evaluated extant channel morphology and water quality
14 data. I have also served as a technical adviser on water quality monitoring as a member of several
15 technical committees addressing nonpoint source issues in the Columbia basin.

16 4. Prior to my current position, I worked for the University of Washington investigating
17 chemical weathering of bedrock by groundwater in a forested watershed. I have also been employed
18 as a consulting hydrologist for the Tahoe Regional Planning Association. I also worked for the U.S.
19 Geological Survey in Carson City, Nevada where I worked on the modelling of water quality and
20 nonpoint pollution in the Truckee River, Nevada. I also worked as a Research Assistant at the

1 University of Nevada-Reno where my responsibilities included design of a water quality monitoring
2 network, analysis and interpretation of hydrologic and water quality data, and writing technical reports.

3 5. I have published several scientific papers in peer-reviewed science journals and have
4 co-authored numerous technical reports on my research findings. The subject of most of these papers
5 has been the effects of nonpoint sources on water quality as controlled by streamflow and seasonal
6 runoff generation mechanisms. I have delivered technical talks at regional and national conferences
7 concerning nonpoint sources of water pollution. I have also taught several university classes on
8 hydrology and water quality.

9 6. For the past three years, my work has focused on analyzing the effects of current and
10 proposed uses of land and water on nonpoint sources of pollution, water quality, channel morphology,
11 and anadromous fish habitat. Much of my work has involved the development of measures to protect
12 existing stream conditions from further degradation and to restore forested watersheds and their streams
13 consistent with the regional efforts to rebuild the anadromous fish runs of the Columbia River basin.

14 II. DOCUMENTS REVIEWED

15 7. I have reviewed Oregon Water Resource Department's (hereinafter: "OWRD") draft
16 staff report: Consideration of Formal Protest to Director's Preliminary Determination on Application
17 G-12550, Consideration of Formal Protest against Application 69976, dated March 23, 1992
18 (hereinafter: "OWRD Draft"), including all the attachments. I also reviewed the final staff report
19 Memorandum to the Water Resources Commission from OWRD Director Bill Young: Consideration
20 of Formal Protest to Director's Preliminary Determination on Application G-12550, Consideration of
21 formal Protest against Application 69976, dated April 24, 1992 (hereinafter: "OWRD, 1992"). I also
22 reviewed the Hood River Basin Salmon and Steelhead Production Plan written by the Oregon
23 Department of Fish and Wildlife and the Confederated Tribes of the Warm Springs Reservation of
24 Oregon (hereinafter: "ODFW and CTWS, 1990"). I reviewed Chapter 690, Division 9 of the Oregon

1 Administrative Rules (hereinafter: "OAR-690-09") pertaining to groundwater interference with surface
2 water. I also reviewed the Geology and Geochemistry of Mt. Hood Volcano by Craig White
3 (hereinafter: "White, 1980"), Geology and Geothermal Resources of the Mount Hood Area, Oregon
4 edited by G. R. Priest and B.F. Vogt (hereinafter: "Priest and Vogt, 1982"), and Data From
5 Geothermal Wells Near Mount Hood Oregon, by J.H. Robison, L.S. Forcella, and M.W. Gannett
6 (hereinafter: "Robison et al., 1981"). I also reviewed other pertinent scientific literature. The list of
7 this literature is too lengthy to list here, so I have listed it separately and attached it to this
8 declaration.

9 III. SUMMARY

10 8. Water Right Application 69976 proposes the use of 0.48 cfs from two springs from
11 November 1 to May 30. Water Right Application G-12550 proposes the use 0.48 cfs from a well
12 throughout the year. The purpose of my review of OWRD's recommendations on these water rights
13 has been to evaluate the adequacy of the information on which the recommendations were based and
14 adequacy of the recommendations in protecting downstream aquatic resources and the public interest.

15 9. OWRD (1992) recommends that both applications be granted based, primarily, on the
16 following assumptions: 1) There is enough available instream flow to meet the instream water right
17 in the East Fork of the Hood River from November 1 through May 30; 2) Groundwater will be
18 withdrawn from a confined aquifer; 3) Groundwater withdrawals from a confined aquifer will not
19 substantially interfere with surface water; and 4) It is possible to assure, through well construction, that
20 groundwater-surface water interactions do not occur. I have concluded that all four of these
21 assumptions are not reasonably supported by data and are without any scientific merit.

22 10. Based on my review of available information I have concluded the following:

23 a) The use of Application 69976 will reduce EFHR flows contrary to the public interest
24 and harm fish and wildlife.

1 b) The existing instream water right is not met during the summer months at the mouth
2 of the EFHR.

3 c) It has not been adequately determined that instream water rights are consistently met
4 at the mouth of the EFHR from November 1 through May 30. It is likely that the
5 existing instream water right is not met during winter low-flow periods.

6 d) More data collection on flows in the EFHR is needed to determine if water is
7 available during winter low flow periods, prior to granting water rights during the
8 winter, because there is no actual streamflow data from the mouth of the EFHR during
9 the winter months. Surface water and groundwater withdrawals during periods of
10 inadequate instream flow will adversely impact fish, water quality, and other aquatic
11 resources.

12 e) Flow gaging on the EFHR is also necessary to regulate junior water rights during
13 low flow periods.

14 f) The available information on the aquifers in the vicinity of the Mt. Hood Meadows
15 Ski Area (hereinafter: "MHMSA") is inadequate to determine if confined aquifers exist
16 in the area. It is not possible to reasonably determine if the aquifers in the project area
17 are confined or unconfined, given available data.

18 g) The degree of hydraulic connectivity between an aquifer and surface water is not
19 solely dependent on aquifer confinement. Confined aquifers are often directly
20 connected to streams and other surface water, especially in high relief, mountainous
21 terrain with sloping geologic strata, such as occurs in the area of the MHMSA.

22 h) The available hydrogeologic information is inadequate to determine if aquifers in the
23 MHMSA are in hydraulic connection with the stream system. The existing data do not
24 adequately support the OWRD's conclusion that there is limited potential for substantial

1 interference with surface water.

2 i) Although the data is insufficient to make a reasonable determination of the nature of
3 the aquifers in project area, the best available data (Priest and Vogt, 1982) actually
4 indicate that it is likely that the aquifer system in the project area is unconfined and in
5 hydraulic connection with the stream system.

6 j) More data is needed to determine the nature of the aquifers within the MHMSA and
7 their hydraulic connection to the stream system.

8 k) It is not possible, through well construction, to ensure there will be no interference
9 with surface water by groundwater pumping, if the pumped aquifer is hydraulically
10 connected to the stream system.

11 l) No effort was made to determine the effect of groundwater pumping on important
12 wetlands within the MHMSA. It is likely that groundwater pumping will adversely
13 effect these important wetland systems.

14 m) It is likely that these reductions in summer low flows will be in addition to
15 reductions in low flows that will occur if the ski area expands the developed area; the
16 Mt. Hood National Forest acknowledged that paving, compaction, and wetland
17 destruction are likely to reduce summer low flows in the ski area and downstream on
18 the EFHR (Mt. Hood National Forest Mt. Hood Meadows Ski Area Record Of
19 Decision (hereinafter: "ROD, 1991"), p. E - 3, 1991). The combined effect of these
20 likely, additional reductions in low flows associated with paving, wetland disruption,
21 and soil compaction should be considered in evaluating the applications. However, the
22 combined reductions in low flows have not been considered.

23 11. In aggregate, the treatment of the water applications and the formal protests, the
24 hydrologic conclusions are too cursory and insufficient to adequately address the likely effect of the

1 withdrawals on streamflow within the EFHR, fish, water quality, and downstream water rights. It is
2 likely that the two proposed withdrawals will reduce summer low flows, affect downstream water
3 rights, and adversely impact fish production in the EFHR. The evaluation of the applications has been
4 made with almost no reliance on data or other applicable case studies. Granting Applications G-12550
5 and 69776 is premature because the adequate information is lacking. There is a high level of
6 uncertainty involved with the assumed nature of the hydrology of the EFHR.

7 IV. DISCUSSION

8 A. Aquatic Resources and Beneficial Uses Affected By Surface Water Diversion
9 and Groundwater Pumping

10 12. Most of the analysis of water availability has focused on flow quantities at the mouth
11 of the EFHR. However, surface water and groundwater diversions in the MHMSA will not only affect
12 water quantities at the mouth of the EFHR, but rather from point of diversion down into the Hood
13 River. Groundwater pumping of the aquifers within the MHMSA will not only reduce streamflows but
14 also lower local water tables and alter subsurface flow pathways which is likely to affect the important
15 wetlands found within the MHMSA.

16 13. Coho, steelhead, and cutthroat trout are all found in the EFHR below Sahalie Falls (Mt.
17 Hood National Forest Environmental Analysis for the Gulch Chairlift (hereinafter: "EA"), p. 44).
18 Coho and winter steelhead use the EFHR below the Sahalie Falls for spawning and rearing (EA, p. 44);
19 fall chinook use the lower reaches of the EFHR and the EFHR is believed to be the one of the primary
20 destinations for the Hood River winter steelhead run (ODFW and CTWS, pp. 68, 111-112, 135-136,
21 Appendix D--Table 1, 1990). Existing information indicates that low summer flows throughout the
22 EFHR and downstream in the Hood River are major constraints to the production of coho salmon and
23 winter and summer steelhead (ODFW and CTWS, pp. 89, 114-115, 138, Appendix D--Table 1, 1990).
24 Low flows are also a major habitat constraint to the production of fall and spring chinook salmon, coho,

1 and summer and winter steelhead in the Hood River (ODFW and CTWS, pp. 45, 49, 89, 114-115, 138,
2 Appendix D--Table 1, 1990). This an extremely serious situation because winter steelhead populations
3 are at very low levels. (ODFW and CTWS, p. 111, 1990). Inadequate holding water for adult and
4 juvenile coho, chinook, and steelhead is also a problem throughout the Hood River basin (ODFW and
5 CTWS, pp. 45, 49, 67, 89, 114, 138, Appendix D--Table 1, 1990).

6 14. The Oregon Department of Environmental Quality (hereinafter: "ODEQ") has made
7 the assessment that low flows in the Hood River are moderately impairing the beneficial use of the river
8 by cold-water fish, such as steelhead, coho, and chinook salmon (1988 Oregon Statewide Assessment
9 of Nonpoint Sources of Water Pollution (hereinafter: "ODEQ, 1989")). ODEQ (1989) notes that water
10 withdrawals in both the EFHR and Hood River are probable causes contributing to existing water
11 quality problems which are impairing the beneficial use of the streams by anadromous fish.

12 15. In an effort to rebuild the anadromous fish runs throughout the Columbia basin, the
13 Northwest Power Planning Council (hereinafter: "NPPC") and the agencies and Indian Tribes of the
14 Columbia Basin Fish and Wildlife authority funded the development of 31 Salmon and Steelhead
15 Subbasin Production Plans. These Plans were prepared by fisheries managers from a variety of state,
16 federal, and tribal organizations with extensive public review. These Plans summarize the management
17 goals and problems and opportunities associated with rebuilding the anadromous fish runs within the
18 specific subbasins. Notably, provision of high quality habitat and improved passage are two primary
19 objectives in rebuilding the Hood River fish runs (ODFW and CTWS, pp. 27-28, 1990). The primary
20 strategy to meet both of these objectives is enforcement of existing laws and especially the enforcement
21 of instream water rights (ODFW and CTWS, p. 28, 1990). Much of the basin fish habitat has already
22 been seriously degraded or lost entirely (ODFW and CTWS, pp. 23, 25-28, 67, 1990); habitat
23 enhancement via instream work is planned as part of the recommended strategies to rebuild the
24 anadromous fish stocks in the Hood River basin (ODFW and CTWS, pp. 134, 149, 153, 157, 1990).

1 Habitat improvement in the EFHR is expected to have potential to increase egg-to-smolt survival
2 (ODFW and CTWS, p. 23, 1990). Under the preferred strategy for rebuilding the coho salmon and
3 winter steelhead runs in the EFHR, about 12 miles of the EFHR will receive instream habitat
4 enhancement at a cost of \$14,000 per mile (ODFW and CTWS, pp. 127-128, 134, 149-150, 153,
5 1990). However, it was concluded that strict enforcement of all laws designed to protect and enhance
6 the fishery resource coupled with habitat enhancement is necessary to significantly increase the carrying
7 capacity of the drainage (ODFW and CTWS, pp. 26, 28, 1990). ODFW and CTWS (p. 119, 1990)
8 state that "Under current conditions, the implementation of all the preferred strategies designed to
9 increase runs of natural and hatchery winter steelhead will be necessary to prevent the winter steelhead
10 run from going extinct."

11 16. Efforts to rebuild the naturally sustaining summer and winter steelhead and spring
12 chinook runs in the Hood River basin include the supplementation of these populations via the Hood
13 River Production Project and the Pelton River Project (hereinafter: "HRPP" and "PLP") prepared by
14 CTWS and ODFW and approved by the NPPC in April 1992. The NPPC approval of the HRPP
15 authorized the Bonneville Power Administration (hereinafter: "BPA") to fund the HRPP and the PLP.
16 Both projects had been in the planning stage for three years, but are now in the implementation phase.
17 The investment of ratepayer dollars in these projects by BPA is considerable: the HRPP is expected
18 to cost about \$3.5 million over eight years and the PLP is expected to cost about \$223,380. Because
19 inadequate holding water and summer low flows already impede fish production and egg-to-smolt
20 survival (ODFW and CTWS, pp. 45, 49, 67, 89, 114, 138, Appendix D--Table 1, 1990), any
21 incremental reduction of flows in Hood River will serve to hamper the success of these supplementation
22 projects and reduce the return on BPA ratepayer investments in the projects.

23 17. Summer water temperatures are a concern for resident and anadromous fish production
24 in the EFHR and downstream in the Hood River (ODFW and CTWS, pp. 26, 1990). As virtually all

1 available information indicates, water temperatures in parts of the EFHR will increase, during the
2 summer months, as flows are decreased (Theurer et al., 1984; Beschta et al., 1987), which will tend
3 to reduce fish production in the EFHR. Water temperatures in the Hood River basin already regularly
4 exceed optimal temperatures for steelhead and coho (ODFW and CTWS, p. 13, 16, 26, 1990). Data
5 in ODFW and CTWS (pp. 13, 16, 1990) indicate that water temperatures in the Hood River already
6 exceed 58°F regularly during the summer low-flow period. State water standards do not allow any
7 increases in water temperatures in the Hood River basin where water temperatures already meet or
8 exceed 58°F.

9 18. Streamflow in the EFHR below Umbrella Falls is used to dilute the sewage effluent
10 from the sewage treatment plant (hereinafter: "STP") at MHMSA. The current discharge permit for
11 the MHMSA STP requires that streamflow must be high enough to provide at least a 20:1 dilution of
12 effluent (Mt. Hood National Forest Final Environmental Impact Statement for the MHMSA (hereinafter:
13 "FEIS, 1991"), p. IV-45). The STP currently discharges sewage effluent at about 50 gpm, or about
14 0.11 cfs, for a few hours a day (FEIS, p. IV-45, 1991). Therefore, a minimum instantaneous flow of
15 at least 2.2 cfs is required to meet existing dilution requirement and discharge permit. These flow
16 conditions in the EFHR are not always met; streamflows at the STP were less than 2.2 cfs in 12 days
17 of January, 1990 (Declaration of Jack Douglas Smith, Ph.D., Exhibit M of Appeal by 1000 Friends
18 of Oregon, et al. to Regional Forester of the U.S. Forest Service Pacific Northwest Region In the
19 Matter of the Decision of Forest Supervisor M.S. Edrington Approving Expansion of the MHMSA
20 dated June 25, 1991 (hereinafter: "Smith, 1991"), p. 22). Streamflows are already too low in the
21 EFHR at times during the winter to dilute pollution from the STP (Smith, p. 13, 15, 22, 1991).

22 19. Separately, and in concert, these conditions make any reduction in summer low flows
23 in the EFHR extremely significant. The EFHR is already overappropriated during the summer months;
24 summertime low flows are a primary constraint to the fish production capability of the EFHR (ODFW

1 and CTWS, pp. 45, 49, 89, 114-115, 138, Appendix D--Table 1, 1990) and minimum instream flow
2 water rights are not met during the summer months (OWRD, 1992).

3 20. The wetlands in the MHMSA downslope from the proposed diversion and groundwater
4 pumping are extremely significant. The FEIS (p. IV-57, 1991) notes that these wetlands "...are
5 considered to function as systems having important hydrologic, wildlife habitat, scenic, and recreational
6 values..." In particular, the 28 acre wetland complex downslope of Umbrella Falls along the margins
7 of the EFHR, known as the "Stringer Meadows" area, has been extensively studied and deemed to be
8 especially significant and perform functions critical to the area's hydrology, water quality, and wildlife
9 (FEIS, pp. III-34, IV-57, 1991). In recognition of the high public interest and ecological values of the
10 Stringer Meadows wetland complex, the EPA proposed that the wetlands be included on the EPA
11 Region 10 Wetland Priority List (FEIS, pp. III-34, IV-58, 1991). Likewise, the FEIS also designated
12 approximately 110 acres of the wetland complex as a Special Interest Area, in recognition of the
13 exceedingly high wildlife and public interest values (FEIS, pp. IV-58, 1991). Any impacts to this
14 wetland complex are considered significant and activities which alter the hydraulic characteristics of
15 these wetlands are "...highly likely to impair their hydrologic function" (FEIS, IV-58, 1991).

16 B. Probable Effect of the Use of Application 69976 On EFHR Flows and the
17 Public Interest

18 21. Granting a permit for Application 69976 is unwarranted because it has not been
19 adequately determined that instream flow rights are met during winter periods. There is very limited
20 basis for the Draft's assertion that there is available surface water in the EFHR to meet both additional
21 upstream withdrawals and instream water rights during the November to May period. It is likely that
22 instream flow rights are not met during "freeze-up" periods during the winter. The use of Application
23 69976 will reduce streamflows at the mouth of the EFHR; this reduction during periods of inadequate
24 instream flow will prevent the exercise of the instream flow right. The use of the application will

1 reduce winter flows from point of diversion on down through the EFHR; during winter low flow
2 periods this will cause violations of current discharge permit for the STP, reduce water quality and
3 cause probable harm to the endemic fish in the EFHR. I also conclude that the surface water diversion
4 also poses a threat to local wetlands because the local hydrology and connectivity of surface water,
5 groundwater, and wetlands is unknown.

6 22. Both the OWRD Draft and OWRD (1992) acknowledge that actual streamflow in the
7 EFHR are unknown because the stream is ungaged. The OWRD Draft notes that its own estimates of
8 flows constitute nothing more than a "guess" (OWRD Draft, p. 4). However, streamflows at the mouth
9 of the EFHR have now been measured during July and August. The measured flows range from about
10 35 to 58 cfs (Steve Pribyl, pers. comm., ODFW biologist), well below the 100 cfs instream flow right
11 in existence for these months at the mouth of the EFHR.

12 23. The method used by OWRD to determine water availability in the EFHR mouth
13 probably provides a reasonable estimate of water availability during summer low flow periods but it is
14 likely to have limited accuracy during low flow periods in the winter. Although the OWRD did not
15 document the method used to estimate flows in the EFHR, I performed regression analysis on the
16 average monthly flows recorded at gages on the West Fork and Hood River mainstem (U.S. Geological
17 Survey Open File Report 90-118, Statistical Summaries of Streamflow Data in Oregon, 1988
18 (hereinafter: "USGS, 1988")) and the flows estimated for the EFHR as contained in both the OWRD
19 Draft and OWRD (1992) (OWRD Draft, Attachment 14; OWRD, Attachment 14, 1992). I also
20 performed a similar analysis of percent exceedance flows determined from the flow records at the West
21 Fork and Hood River stream gage records (USGS, pp. 155-156, 1988) and those estimated by OWRD
22 for the mouth of the EFHR (OWRD Draft, Attachment 14). The average and exceedance flows by
23 month estimated for the EFHR by OWRD are almost perfectly correlated with the corresponding
24 monthly average and exceedance flows determined from stream gage records at the West Fork and

1 mainstem of the Hood River. Therefore, my analysis indicates that there is little doubt that the monthly
2 average and flow duration statistics estimated for the EFHR were developed via assumed relationships
3 between measured flows at the Hood River mainstem and West Fork gages downstream and flows
4 upstream as a function of drainage area, average precipitation, and water withdrawals. It is unlikely
5 that such a regression has been calibrated or verified for use in the Hood River watershed, in general,
6 or on the EFHR, in particular, because there is no data available for calibration or verification of the
7 estimation method.

8 24. This method of flow estimation is probably reasonable for periods during the summer
9 when the mechanisms generating flows (base flow and continuing melt of snow and glaciers) are similar
10 among the watersheds. However, the mechanisms generating flows during the mid-winter period
11 probably differ appreciably between the EFHR and the Hood River mainstem and West Fork. Both the
12 West Fork and the Hood River mainstem gages are located at a lower elevation and drain watersheds
13 with a lower average elevation than the EFHR. Both the West Fork and the mainstem watersheds
14 receive a larger portion of total precipitation as rain which is rapidly transformed into runoff than the
15 EFHR which has a larger percentage of total precipitation received as snow which may not appreciably
16 contribute to streamflow for months. During the same, frequent winter storms it is likely that a much
17 larger area of the West Fork and Hood River receive rain than the EFHR. Winter streamflows in the
18 West Fork and Hood River are continually pulsed by rain while streamflows in the EFHR may actually
19 drop during cold winter storms with a low snowline and low temperatures that cause snowmelt to cease.
20 It is probable that winter flows in the EFHR periodically drop at the same time that they are increased
21 in the West Fork and Hood River mainstem because the flow generation mechanisms respond differently
22 at different elevations. High elevation watersheds that predominantly receive precipitation in the form
23 of snow, such as many of the headwater tributaries of the EFHR, typically have winter low flows that
24 are almost as low as summer flows, due to the lack of runoff generated by snowmelt (Rhodes, 1985;

1 Fountain and Tangborn, 1985); in contrast, winter low flows are neither expected nor observed in the
2 West Fork and Hood River streamflow records (USGS, pp. 155-156, 1988). Because the watersheds
3 used to estimate EFHR flows are hydrologically dissimilar during the winter period, the EFHR winter
4 streamflows in the OWRD Draft and OWRD (1992) (Attachment 14) are probably overestimated.
5 Homogeneity of flow mechanisms is one of the most critical factors affecting the validity and accuracy
6 of estimating flows on ungaged watersheds from records on gaged streams (Dunne and Leopold, 1978).
7 The estimation method used typically breaks down in mountainous watersheds due to differences in
8 elevation and flow mechanisms (Dunne and Leopold, 1978).

9 25. The dissimilarity among gaged basins of differing elevations is illustrated by comparison
10 of flow records on the Dog River, a high elevation tributary of the EFHR, with the flow records from
11 the West Fork and Hood River mainstem. Although the Dog River watershed is relatively small, it is
12 likely to be fairly representative of many of the tributaries of the EFHR, and as representative of the
13 EFHR as the West Fork and Hood River mainstem watersheds. Regression analysis of streamflow data
14 from Dog River, Hood River mainstem, West Fork Hood River (USGS, p. 154, 1988) indicate that the
15 corresponding monthly average and percent exceedance flows from Dog River records are completely
16 uncorrelated with the corresponding flows on both the Hood River mainstem and West Fork.
17 Therefore, it is apparent that seasonal flow patterns of these streams differ considerably. This
18 difference is probably due primarily due to elevation effects such as a lower average mid-winter melt
19 rates and a greater fraction of precipitation received as snow in the Dog River watershed. This lack
20 of correspondence among flow patterns in the Dog River and the lower Hood River place the accuracy
21 of the water availability estimates for the EFHR in considerable doubt, especially because the seasonal
22 flow patterns of Dog River should be representative of many of the tributaries to the EFHR.

23 26. The Dog River streamflow records and flow duration statistics (USGS, p. 154, 1988)
24 also indicate that winter streamflows at the mouth of the EFHR may be inadequate to meet instream

1 flow rights during midwinter periods. I estimated the average and exceedance flows at the mouth of
2 EFHR by the same method apparently used in the Draft and OWRD (1992), except that I used the
3 records from Dog River (USGS, p. 154, 1988) rather than the data from the lower Hood River gages
4 (USGS, pp. 155-156, 1988) to estimate EFHR flows. Subject to the corrections for watershed area,
5 total precipitation and water withdrawals, the analysis indicated that the instream flow right at the mouth
6 of the EFHR is met or exceeded only about 35% of the time in December, about 65% of the time in
7 January, and 87% of the time in February (See Table in Attachment I to this Testimony). The Dog
8 River watershed may not be completely hydrologically similar to the EFHR, but it may be as reasonable
9 a representation as the lower Hood River. Therefore, this analysis casts considerable doubt that
10 instream flow rights are consistently met during the winter months at the mouth of the EFHR, even in
11 the absence of additional surface water and/or groundwater diversions.

12 27. Available flow data also indicate that the EFHR periodically has midwinter low flows
13 which approach summer low flows. The Dog River experienced its lowest monthly average flows
14 during the period of record in December and February of 1966 (USGS, p.154, 1988). Reported
15 streamflow data from the MHMSA STP indicate that streamflow there was at 1.2 cfs on January 31,
16 1990 and at 2 cfs or less on 12 days in January, 1990 (Smith, p. 22, 1991). By comparison, summer
17 low flows are estimated to be approximately 0.9 cfs at approximately the same location on the EFHR
18 (FEIS, p. III-16, 1991). These data indicate that the EFHR undergoes periods of winter low flows
19 during which instream flow rights may not be met.

20 28. Based on the foregoing analysis and data, I conclude that it has not been adequately
21 determined that water is consistently available in excess of the instream flow right at the mouth of the
22 EFHR during the midwinter period. Further, the existing data, professional experience, and the
23 foregoing analysis lead me to conclude that it is probable that instream flow rights are probably
24 periodically not met at the mouth of the EFHR in midwinter, in the even in the absence of any further

1 diversions from the stream, such as the use of Application 69976. I conclude that additional surface
2 water diversions during low flow periods during the midwinter will probably further reduce flows below
3 the instream water right, contrary to the public interest. I also conclude that existing surface water
4 availability during midwinter low flow periods has probably been overestimated in OWRD (1992).

5 29. I also conclude that the method used to estimate summer flows in the EFHR is probably
6 reasonable. Recent measurements of flow in the EFHR indicate that instream water rights are far from
7 being met in July and August. Therefore, I conclude that water is not generally not available in excess
8 of the instream flow right from June 1 to Oct. 30.

9 30. The use of Application 69976 would further reduce midwinter streamflows by an
10 additional 0.48 cfs. This reduction in flow is likely to harm downstream fisheries. Given the reported
11 low flows from the MHMSA STP it appears that the use of the application during low flow periods this
12 would reduce flows in the upper reaches of the EFHR to levels below those estimated to occur during
13 the summer; low flows of this magnitude have already been judged to constrain fish production in the
14 EFHR (ODFW and CTWS, Appendix D--Table 1, 1990). Further, these reductions in winter low flow
15 probably occur during a critical period, during cold snaps on the mountain. These cold snaps represent
16 periods when stream icing is most likely, other factors remaining equal. When stream icing occurs,
17 fish mortality is typically caused; anchor ice formation also smothers overwintering eggs in redds in
18 the stream beds (Platts, 1981). Stream icing in high elevation streams can be a significant source of
19 fish mortality (Boise National Forest Land Management Plan and Final Environmental Impact
20 Statement, p. B-33, 1990). Other factors remaining equal, the likelihood of stream icing increases with
21 decreasing flow, at sub-freezing temperatures. I conclude that the use of Application 69976 is likely
22 to cause harm to downstream fish because it would reduce winter low flows by about 24-40% within
23 the MHMSA during a period when streams are at a high risk of icing.

24 31. It is also apparent that existing streamflows reported at the MHMSA STP during winter

1 cold snaps are already frequently below the dilution requirement of the STP discharge permit (Smith,
2 pp. 15, 22, 1991). The use of Application 69976 will further reduce winter streamflows by about 0.48
3 cfs at the STP. This will not only exacerbate violations of the permit terms, it will also increase the
4 frequency of violations of the discharge permit dilution requirement and reduce downstream water
5 quality during low flow periods. Notably, turbidity will be increased below the STP as dilution flows
6 drop. Increased turbidity due to loss of dilution flows may harm fish and violate state water quality
7 standards downstream of the STP. Also, if the 0.48 cfs withdrawn under the use of Application 69976
8 is returned to the EFHR via the STP outfall, it will create the need for more dilution flows under the
9 existing permit, because it will have to be diluted by a factor of 20. For these reasons, I conclude that
10 flow decreases caused by the appropriation during winter low flow periods will harm the public interest.

11 32. The recommended permit conditions for the application are inadequate to protect water
12 quality, downstream fish from harm caused by incremental reductions in low flow or to assure that
13 instream flow rights are met at the mouth of the EFHR. First, although OWRD (1992) repeatedly
14 states that the water right for Application 69976 will be junior to instream water rights at the mouth of
15 the EFHR, there is currently no reliable means of measuring the instantaneous flow rate in the EFHR.
16 Thus, there will be no way to ensure that instream flow rights are met during times of upstream
17 appropriation at the MHMSA. Therefore, the instream flow right will not be enforceable. To remedy
18 this, a gage should be installed at the mouth of the EFHR. As discussed, existing stream gages on the
19 lower Hood River are not adequate to determine winter low flow magnitudes at the mouth of the EFHR.
20 The new gage should be used to measure flows continuously and interrupt upstream junior diversions
21 such as Application 69970 when flows at the mouth are found to be less than the instream water right.
22 Otherwise, the seniority of the instream water right is meaningless. Second, even if instream flow
23 rights are met there is no means to assure that flows adequate for fish and dilution of pollution will exist
24 below the MHMSA. To remedy this, the OWRD should condition the use of the Application 69976

1 on the existence of adequate dilution flows at the STP. When flows at the STP are less than 2.2 cfs
2 (as required by the existing STP discharge permit), the use of Application 69970 should be prohibited.
3 This minimum flow value at the STP would also help provide some protection of downstream fisheries
4 during winter low flow periods.

5 C. Available Data is Inadequate to Reasonably Determine that Aquifers Proposed for
6 Pumping Are Confined

7 33. It has been suggested that the aquifer that is proposed as a source for application G-
8 12550 is "...probably confined..." (OWRD Draft, Attachment 15). However, the no reasonable
9 rationale or evidence for this assertion has been presented; indeed, Attachment 15 in the Draft does not
10 contain any indication of what, if any, data was used to determine that aquifers in the MHMSA might
11 be confined. However, given available data and scientific knowledge, the assertion that the aquifer is
12 confined is both unwarranted and unsupported.

13 34. Apparently, even the OWRD is unsure of the available data because in a memo dated
14 September 5, 1991, (Attachment 15) it was concluded that heads in applicable wells were within about
15 30 feet of the surface and that the aquifer was probably confined. In a memo dated April 6, 1991,
16 (Attachment 15) it was concluded that water levels in the Meadows Geothermal Well were about 97 feet
17 below the land surface and that either unsaturated materials or a confining layer separated the surface
18 water from groundwater. Neither of these interpretations of aquifer properties based on water level data
19 cited in the respective memos in Attachment 15 are supported by available data.

20 35. Some very limited geologic and hydrologic data do exist from a geothermal wells drilled
21 on the volcano during the 1980's. The OWRD apparently relied on data from two of the wells in
22 making its recommendations to grant Application G-12550. The Meadows Geothermal Well was drilled
23 approximately 0.5 mile downslope (Priest and Vogt, p. 35, 1982) of the well site proposed in
24 Application G-12550. Priest and Vogt (p. 35, 1982) give an elevation of approximately 5360 feet for

1 the Meadows Geothermal Well, however, Robison et al. (p. 10, 1981) reports the well elevation to be
2 at about 5460 feet above sea level. The Pucci Geothermal Well was drilled at an elevation of about
3 5350 feet approximately 2.5 miles west of the proposed well site (Priest and Vogt, p. 35, 1982). Even
4 the data from the Meadows Geothermal Well may not be applicable to the site of the proposed well site
5 because the geology of the area is highly variable horizontally and in cross section (Priest and Vogt,
6 p. 6-12, 1982) as is typical for complex volcanic sequences. However, it is clear that the hydrologic
7 and geologic data from the Pucci Well is essentially irrelevant to hydrogeologic conditions existing at
8 the proposed G-12550 well site due to the distance involved and the spatial variability of the complex
9 volcanic geology. In Priest and Vogt (1982), the applicability of the hydrogeology data of the Pucci
10 Well to other areas is described as follows: "These data may not be applicable to other areas on the
11 volcano, where holes encountered high vertical permeability to depths of at least 300m..." (p. 13). I
12 concur with this assessment. Further, it is also noted in Priest and Vogt (p. 41, 1982) that well data
13 generally indicate that the shallow groundwater circulation on the volcano "...is variable from place to
14 place" and that although some data from the Pucci well indicate that part of the mountain has low
15 vertical permeability (a condition needed for confinement) in rocks below 200m, wells drilled in other
16 areas suggest high vertical permeability to depths of at least 300m (emphasis added). Confined aquifers
17 are not expected to be found where there is high vertical permeability (Davis and DeWiest, 1966;
18 Freeze and Cherry, 1979).

19 36. The hydrologic and geologic data from the Meadows Geothermal Well does not contain
20 any direct evidence of the existence of confined aquifers in the vicinity of the well. Rather, the limited
21 geologic data only weakly indicate that a confined aquifer could exist. While some of volcanic
22 lithologies described in the well log (Robison et al., 1981) can sometimes act as confining layers, they
23 also typically serve as highly permeable units that would not contribute to confinement (Davis and
24 DeWiest, 1966; Freeze and Cherry, 1979). Therefore, the geology data do not reasonably support the

1 assertion that the aquifer is confined. Even then, the geology from the Meadows Well is applicable
2 only to the immediate vicinity and at the depth of the geothermal well because complex volcanic
3 sequences are typically discontinuous and associated hydrogeology tends to be highly variable both
4 horizontally and vertically (Freeze and Cherry, 1978). Notably, the Applicant has failed to make any
5 mention of the variability of the volcanic geology or the dubious nature of spatially extrapolating very
6 limited borehole geology given the physical setting.

7 37. Water levels in confined aquifers often show indications of artesian head (Davis and
8 DeWeist, 1966). There is no evidence that artesian heads exist in local aquifers in the MHMSA which
9 might provide some indication that local aquifers could be confined. Water level data cited in OWRD
10 (1992) indicate that artesian heads were not found in the Meadows Geothermal Well. Therefore,
11 available water data indicate that it is unlikely that confined aquifers exist in the vicinity of the
12 Meadows Geothermal Well, because there is no indication of artesian water levels.

13 38. Even if artesian heads did exist, artesian water levels, alone, do not indicate that a
14 confined aquifer exists. Artesian water levels and well flow commonly occur in topographic
15 depressions in high relief terrain with unconfined aquifers (Freeze and Cherry, 1979). Notably, the
16 Meadows Geothermal Well appears to have been located in a topographic depression in high relief
17 terrain (Preist and Vogt, p. 3, 1982). Even if confinement in the area of the geothermal wells does
18 exist, it does not follow that a confined aquifer is present at the site of the proposed groundwater
19 withdrawal because of both the variable volcanic geology (Freeze and Cherry, 1979) and the distance
20 of the proposed well site from the geothermal wells. However, there is no water level data by which
21 to reasonably conclude that local aquifers are probably confined. In fact, available data indicates that
22 artesian heads, which are often found in confined aquifers, do not exist in the immediate vicinity of the
23 Meadows Geothermal Well.

24 39. The available data from the Meadows Well indicates that the local groundwater system

1 is unconfined. It is noted in Priest and Vogt (p. 38, 1982) that the temperature profiles with depth from
2 the Meadows Well indicate "...a uniform downward component of water flow in the aquifer" (p. 38)
3 because the water temperature profile with depth is concave. Bredehoeft and Papadopoulos (1965)
4 developed methods to determine the direction and rate of groundwater flow from temperature profiles.
5 Sorey (1971) provided field verification that water temperature profiles ~~and~~ were valid tools for
6 determining both flow direction and velocity of groundwater. Application of these methods to the
7 temperature profile of the Meadows Geothermal Well (Priest and Vogt, p. 39, 1982) does, indeed,
8 indicate that there is a downward component of groundwater flow. It is unlikely that uniform
9 downward flow would occur in a system with confined aquifers. This component of downward flow
10 also suggests strongly that the local groundwater is discharging elsewhere into some nearby surface
11 water system.

12 40. Given my review of available data, I conclude that the available data does not reasonably
13 support the assertion that confined aquifers exist in the area. Artesian water levels appear to be absent.
14 The available evidence indicates that unconfined rather than confined aquifers exist in the area because
15 there is a uniform, downward component to groundwater flow indicated by water temperature profiles.

16 D. Available Evidence Does Not Reasonably Support the Assertion that Local Groundwater
17 is Not Hydraulically Connected to the Surface Water System

18 41. There is no evidence to suggest that groundwater in the area of the proposed well is not
19 in hydrologic connection with the stream system. The assumption that confined aquifers are not
20 typically hydrologically connected to surface water systems is not valid. If a confined aquifer does exist
21 in the area, all that is necessary for there to be hydrologic connection is an intersection of the aquifer
22 with the stream system. Such a connection is likely and relatively common. Many artesian spring
23 systems are caused by the intersection of confined aquifers with the ground surface (Freeze and Cherry,
24 1979); such systems are relatively common in steep mountainous terrain with confined aquifers and

1 dipping geologic strata (Freeze and Cherry, 1979). Indeed, the methods recommended in OAR-690-09
2 to calculate stream depletion by groundwater pumping (Techniques of Water-Resources Investigation
3 of the U.S. Geological Survey, Ch. D1, Computation of Rate and Volume of Stream Depletion by
4 Wells by C.T. Jenkins, 1970 (hereinafter: "Jenkins, 1970")) were developed for application to confined
5 aquifers that intersect streams. Further, available hydrologic data indicate that there is a hydrologic
6 gradient towards the stream system and wetlands from the aquifer penetrated by the geothermal wells.

7 42. The water level in Meadows Geothermal Well do not indicate that there is an
8 unsaturated layer between the groundwater system and surface water system (the streams and
9 downstream wetlands). Rather, the data suggest that the groundwater and surface water systems are
10 probably in hydraulic connection. As mentioned, OWRD (1992) indicates that the water level in the
11 Meadows Geothermal Well is at about 97 feet below the land surface. The elevation of the Meadows
12 Geothermal Well is about 5460 feet (Robison et al., p. 10, 1981) or 5360 feet (Priest and Vogt, p. 35,
13 1982), so OWRD's determination of the water level puts the water level elevation at about 5260 to 5360
14 feet above sea level (depending on which reported well elevation is used). It appears that there is a
15 gradient from the groundwater towards the stream system, given either of these water level elevations.
16 There is a pronounced gradient from the measured water level towards the stream with a groundwater
17 level elevation of 5360 feet. About 0.25 mile downslope of the location of the Meadows Geothermal
18 Well, the stream is downgradient from a water level of 5260 feet. Therefore, the water level
19 determined by OWRD (1992), if correct, indicates that the gradient is from the aquifer towards the
20 stream and the wetlands downslope. Therefore, if the aquifer is in connection with the stream and
21 wetlands, the aquifer is providing baseflow as indicated by the water level data. To date there has been
22 no evaluation or consideration of the available evidence which indicates that a gradient appears to exist
23 between groundwater and the stream in the vicinity of the Meadows Geothermal Well. However, the

1 data do not support that there is unsaturated layer separating the groundwater system from the surface
2 water system. Rather, the data indicate that a gradient exists between the groundwater system and the
3 stream. The existence of this gradient makes it likely that the systems are connected and are not
4 separated by an unsaturated zone.

5 43. Notably, the water level from the Meadows Geothermal Well was collected in August
6 (OWRD, 1992). It is likely that water levels are considerably closer to the surface earlier in the year
7 when snowmelt recharge is more actively recharging the aquifer. Shallow mountainous aquifers
8 typically have water levels which are considerably closer to the land surface during active snowmelt
9 than in the late summer period (Rhodes, 1985). The gradient from groundwater to surface water would
10 be greater when water levels are closer to the surface, during snowmelt. Therefore, given that the
11 water level in Meadows Geothermal Well was measured in August, it is likely that water levels in the
12 well are higher during the spring and that the gradient from the groundwater to the surface water system
13 is more pronounced during the snowmelt period.

14 44. The geology in the area of the proposed well site makes it likely that there is a
15 hydrologic connection between groundwater and streamflow. The permeability of volcanic deposits
16 tends to be greatest in the direction of the dip of the strata (Freeze and Cherry, 1979). The strata in
17 the area of the proposed well site generally dip to the southeast, toward the stream. This increases the
18 likelihood that there is a hydrologic connection between groundwater and the stream. The proximity
19 of a well to the stream has a strong influence on the degree of connectivity. Generally, the closer the
20 well is to a stream, the greater the likelihood of alteration of streamflow by groundwater withdrawals
21 (Freeze and Cherry, 1979). The proposed well site is only 300 feet from a branch of the EFHR
22 (OWRD, 1992)) making it highly likely that groundwater withdrawals will reduce streamflows.
23 Therefore, it is probable that there is some degree of connectivity between groundwater and surface
24 water given the local geology, terrain and location of the well. There is little credible basis for

1 assuming there is no hydrologic connection. As noted in the OWRD Draft, "...little is known about
2 the groundwater hydrology of the mountain..." (p. 4). Plainly, too little is known and the potential is
3 too great to reasonably state that there is no connection between groundwater and the stream system.

4 E. The Use of Application G-12550 Is Likely to Cause Substantial Interference With
5 Surface Water and Harm the Public Interest

6 45. As mentioned, it is likely that groundwater and surface water are hydraulically
7 connected in the area of the proposed location of the proposed well, given available water level data
8 and local geology. The proximity of the proposed well to a stream also makes it likely that the use of
9 Application G-12550 will cause reductions in streamflow. These reductions will are likely to adversely
10 affect downstream fish production. Reductions in streamflow during the summer and winter low flow
11 periods are likely to reduce flows at the mouth of the EFHR which are already inadequate to meet the
12 senior instream water right. Groundwater pumping is also likely to adversely effect important wetlands
13 in the area, contrary to the public interest.

14 46. I applied the methods recommended in OAR-690-09 (Jenkins, 1970) to determine the
15 rate of stream depletion under the assumption that the streams and the well will be hydraulically
16 connected. Although there considerable uncertainty regarding the aquifer properties, using reasonable
17 values from the published literature (aquifer transmissivity of 200 gallons/day/ft), I found that it was
18 likely that the groundwater pumping would derive more than 25% of its flow from the stream after 30
19 days of pumping. OAR-690-09 directs that when groundwater appropriations cause more than a 25%
20 depletion of streamflow when pumping is continued for 30 days, the well is assumed to have the
21 potential to cause substantial interference.

22 47. Notably, direct withdrawals of streamflow by pumping are not the only way in which
23 groundwater pumping reduces streamflows. When aquifers are in hydraulic connection with streams,
24 groundwater pumping also prevents recharging groundwater from entering the stream system.

1 Streamflow is also lost as streamflow recharges the groundwater system after pumping has ceased.
2 Jenkins (1970) noted that in many cases, that streamflow losses after the cessation of groundwater
3 pumping ("residual effects") were greater than the direct losses incurred during pumping.

4 48. Concerns about the degree of hydraulic connection with the stream and groundwater are,
5 indeed, serious. If the aquifer and stream system are connected, the pumping of groundwater will
6 deplete streamflows in the EFHR throughout the year. Unlike the proposed surface water right, there
7 is no seasonal restriction on the proposed pumping of groundwater. Where connection is complete,
8 pumping from wells not only decreases baseflow contributions from groundwater, it actually removes
9 water from the stream channel. For instance, in the Methow Valley, it has been estimated via modeling
10 and hydrogeologic investigations that 90 to 98% of water pumped from a well less than 0.5 miles from
11 the Methow was comprised of water directly derived from streamflow (Golder and Assoc., 1991). A
12 similar situation is entirely possible in the EFHR headwaters.

13 49. Summer low flows in the EFHR and Hood River are already a serious constraint to fish
14 production for several important anadromous fish species, as previously discussed (ODFW and CTWS,
15 Appendix D, 1990). Reductions in streamflows in the summer period caused by groundwater pumping
16 will exacerbate these problems to the detriment of downstream fish production.

17 50. Reductions in groundwater flow to nearby streams caused by groundwater pumping will
18 also affect water quality in ways which are likely to adversely affect fish in the EFHR. Groundwater
19 temperature is typically near the average annual air temperature and is typically a source of cold water
20 during the summer which is important for maintaining temperatures desirable for fish production.
21 Reductions in groundwater inflows to streams caused by pumping can be expected to cause increased
22 summer water temperatures in the EFHR. Groundwater flows during the winter also provide a source
23 of relatively warm water which helps to maintain water temperatures desirable for fish production. This
24 relatively warm groundwater also helps prevent stream icing during winter low flow periods during cold

1 snaps. Reductions in groundwater inflows to streams caused by pumping during the winter can be
2 expected to cause decreased winter water temperatures in the headwaters of the EFHR which will
3 render these small streams more susceptible to icing events. Groundwater is also typically extremely
4 low in suspended sediments, so groundwater inflows dilute sediment concentrations. This dilution of
5 sediment loads by groundwater is important because high sediment loads during the summer months
6 is believed to be a major factor causing high egg-to-smolt mortality for anadromous fish in the EFHR
7 (ODFW and CTWS, p. 23, 1990). Reduced groundwater inflows caused by pumping can be expected
8 to increase sediment concentrations to the detriment of fish production downstream in the EFHR.

9 51. As mentioned, data indicate that there is already inadequate streamflow at the mouth of
10 the EFHR to meet the existing instream water right during the summer months. Reductions in
11 streamflows caused by groundwater pumping during the summer will exacerbate the problem.

12 52. It is also likely that groundwater pumping will adversely affect the Stringer Meadows
13 wetland complex downslope from the proposed well site. The FEIS (p. IV-51, 1991) states that
14 "Changes in drainage patterns, groundwater discharge and recharge, surface flow or water table levels
15 may result in dewatering and subsequent loss of some wetlands..." The hydrology of these wetlands
16 is complex and poorly understood; their interactions with surface flows and groundwater is uncertain
17 because specific information on the local hydrology is lacking (FEIS, p. IV-38, 1991). However, it
18 is believed that most of the groundwater system drains towards local streams and discharge points
19 (FEIS, p. IV-40, 1991), such as the Stringer Meadow wetland complex. Notably, this wetland complex
20 is located at an elevation of about 5200 ft which is downgradient of the approximate elevation of the
21 water level as determined by OWRD (1992) in the vicinity of the proposed well. Direct, long-term
22 impacts to area wetlands are likely to occur if there is any alteration of local drainage patterns (FEIS,
23 p. IV-59, 1991). Reductions in subsurface discharge to the wetlands could reduce discharge from the
24 wetlands to downstream areas (FEIS, p. IV-58). There is no doubt that the use of G-12550 will alter

1 subsurface flows and local groundwater drainage patterns upslope from these critically important
2 wetlands; therefore, I conclude based on the information available, that the proposed groundwater
3 withdrawals are likely to significantly and adversely affect the Stringer Meadows complex and the
4 public interest. The alteration of wetland function is made more likely because it is probable that the
5 upslope groundwater that will be pumped under the use of Application G-12550 is a significant source
6 of water for the wetlands because the estimated elevation of the groundwater level indicates that there
7 is a gradient between groundwater and the wetlands.

8 53. Interactions between surface water and groundwater can be complicated and difficult
9 to accurately predict. However, in its simplest form, the upper EFHR watershed can be adequately
10 modeled via conservation of mass principles. Conservation of mass requirements must be met. The
11 conservation of mass means that matter is neither created nor destroyed and that when inputs to a
12 system are less than outputs, storage within the system is decreased. In groundwater systems, decreases
13 in storage also generally decrease discharge to stream systems. Groundwater and surface water are
14 probably part of a runoff continuum that is typical of most mountain hydrologic systems. If this is the
15 case, any and all groundwater that is pumped and lost through consumptive use, represents the amount
16 of reduction in streamflow that will ultimately occur. Models and field studies can and should be used
17 to predict and refine these estimates. However, such studies and models can only estimate the
18 magnitudes and disposition of the streamflow reductions throughout the year. If the aquifer is in
19 connection with the surface water system, groundwater withdrawals will reduce streamflow (as even
20 more sophisticated models will predict since they, too, are based on conservation of mass principles).

21 F. Expansion Of the MHMSA Will Also Reduce Summer and Winter Low Flows

22 54. The use of Applications 69976 and G-12550 will not be the only activities in the
23 MHMSA that will act to decrease low flows. The planned expansion of the MHMSA is also expected
24 to significantly reduce streamflow especially during the summer period. Unfortunately, the combined

1 effect of these reductions have not been included in evaluating the effects of Applications 69976 and
2 G-12550 on downstream water rights and the public interest.

3 55. Flow reduction is assured under planned expansion of the MHMSA due to a number
4 of factors. First, substantial amounts of impervious surfaces will be introduced into the watersheds
5 in the project area (FEIS, p. IV-36, 1991). These impervious areas will preclude the recharge of the
6 local groundwater system by snowmelt and rain. As a result, the baseflow to streams from the
7 groundwater system during low flow periods will be reduced. Second, soil compaction is a likely
8 consequence of the implementation of all expansion alternatives (FEIS, pp. IV-24, -31, 1991).
9 Compaction not only reduces infiltration rates which increases direct surface runoff (FEIS, p. IV-24,
10 1991), it also reduces the water storage capacity of the soil profile by reducing porosity. The reduction
11 in water storage capacity in the soil will also serve to reduce baseflow during the summer low flow
12 period. This reduction in available storage also increases the amount of direct surface runoff, because
13 in most undisturbed, forested areas overland runoff is typically caused by profile saturation, rather than
14 the exceedance of infiltration rates (Dunne and Leopold, 1978). Third, some wetlands are also likely
15 to be directly and indirectly damaged by expansion (FEIS, p. IV-62, 1991). The wetlands are important
16 contributors of summer baseflow (FEIS, pp. III-28, IV-40, 1991). Fourth, road construction intercepts
17 subsurface flow (Megahan, 1972) which would otherwise contribute to baseflow.

18 56. These consequences of expansion, separately, and in concert, promise to greatly reduce
19 low flows both in the project area and downstream. While the FEIS made no quantitative assessment
20 of the effect of these factors on changes in low flow for any of the alternatives, the ROD did concede,
21 as part of the FEIS errata (ROD, p. E - 3), that low flows will be decreased by MHMSA expansion

22 57. The introduction of impervious areas to the project area is likely to cause significant
23 reductions in summer and fall low flow. In many mountainous areas, groundwater recharge during the
24 snowmelt period is an important component of summer baseflow for streams (Dunne and Leopold,

1 1978). However, precipitation falling on impervious surfaces will be rapidly shunted to streamflow as
2 surface runoff instead of recharging groundwater. The ROD (B - 8) states that under the preferred
3 alternative (Alt. P), impervious surfaces will cover about 166 acres with "100% buildout." Average
4 annual precipitation in the project ranges from about 65 inches to 140-170 inches over the project area
5 (ROD B -8); average annual precipitation in the MHMSA is approximately 90 inches/year (OWRD,
6 1965). Assuming that 40% of precipitation on the impervious areas is typically lost to
7 evapotranspiration or infiltrated to the soil elsewhere, the introduction of impervious surfaces results
8 in the direct loss of about 760 acre-feet/year of groundwater recharge to streamflow. Much of the
9 groundwater recharge lost to surface runoff from impervious areas would otherwise be stored and
10 recharged to the stream as baseflow during the low flow period. The amount of groundwater recharge
11 lost due to impervious surfaces is significant in terms of streamflow. For instance, if the estimated 760
12 acre-feet lost from recharge were to be recharged and then released from the groundwater system to
13 the streams at a steady rate, it is equivalent to approximately 4.2 cfs of baseflow to the project streams
14 for three months. By comparison, the combined annual low flow in the five watersheds draining the
15 MHMSA is only estimated to be 4.5 cfs (FEIS, p. III-16, 1991). Plainly, the loss of groundwater
16 recharge due to impervious areas is likely to be significant. The ultimate loss to streamflow may be
17 nearly as large as the combined summer streamflows in the five watersheds in the project area.
18 Clearly, then, the introduction of impervious surfaces will significantly reduce baseflow and low flows
19 in the EFHR. The estimation, given here, of groundwater recharge loss and subsequent loss of
20 streamflow is both simplistic and approximate. It is presented here only in order to make some estimate
21 of the likely impact to stream baseflow resulting from expansion. The analysis provided here is
22 premised on assumptions that are both explicitly listed and physically reasonable. The analysis also
23 provides at least some estimate of the likely magnitude of the impact of paving areas.

24 58. The effects of soil compaction and wetland disruption are caused by MHMSA expansion

1 are likely to further decrease summer low flows in the EFHR. The FEIS (pp. III-28, IV-40, 1991)
2 repeatedly acknowledges that wetlands are important for baseflow augmentation. The FEIS concedes
3 that some wetlands will be directly lost with MHMSA expansion (FEIS, pp. IV-62, 1991).

4 59. These additional reductions in streamflow are significant and will be in addition to
5 reductions caused by the use of Applications 69976 and G-12550. However, these additional reductions
6 in streamflows have not been considered in evaluating the Applications. The combined effects of
7 MHMSA expansion on streamflows should be considered in evaluating Applications 69976 and G-
8 12550.

9 G. Well Construction Cannot Ensure That Substantial Interference Will Not Occur

10 60. It has been suggested that well construction may be able to mitigate for an erroneous
11 determination of the degree of hydraulic connection between surface and groundwater. However, well
12 construction does not control the degree to which the aquifer and stream system are connected. Careful
13 well design and construction can maintain the integrity of confining layers if, and only if, they do exist.
14 However, it otherwise has no effect on the degree of surface water interference caused by water
15 withdrawals. If the aquifer and the stream are in hydraulic connection, the well's construction cannot
16 negate surface water interference and the effects on downstream water quantities. Well construction
17 also cannot compensate for errors in judgment regarding the aquifer-surface water interactions.
18 However, better data and more complete information can temper poor assumptions. H.

19 Information Needed to Provide a Reasonable Basis For Granting or Denying the Water
20 Right Applications

21 61. It has not been credibly determined whether instream flow rights are actually being met
22 from November to May at the mouth of the EFHR. A monitoring program should be initiated to at
23 least provide some "spot" monitoring of streamflows for a full year, particularly in January-February.
24 There is no provision for the measurement of instream flows on the EFHR from which to adequately

1 regulate upstream surface and groundwater diversions. It is critical that a gaging station on the EFHR
2 be put in place to adequately determine if instream flow rights on the EFHR are being met year-round,
3 now and in the future. The surface water permit must be made conditional on meeting measured
4 instream flows at the mouth of the EFHR.

5 62. The degree of aquifer confinement and/or connection to surface water has not been
6 adequately determined. The degree of confinement of the aquifer is important to determine. However,
7 it is more important to determine the degree of hydraulic connection between aquifer and stream; that
8 is the "bottom line." There are several additional investigations that can be implemented in order to
9 reduce the uncertainty over groundwater/surface water interactions. One approach is to compare the
10 water chemistry of the aquifer proposed for pumping with that of the adjacent stream during the
11 baseflow period. A similar approach would be to inject tracers into the aquifer and monitor
12 downstream water chemistry. Another approach to determining the level of hydraulic connectivity is
13 through the analysis of stable environmental isotopes in both groundwater and streamflow (Space et al.,
14 1991). Another approach is to conduct aquifer tests, including the monitoring of observation wells and
15 stream flows. Such an approach can provide an indication of whether the aquifer is actually truly
16 confined or in hydraulic connection with the stream system (Freeze and Cherry, 1979). The monitoring
17 of observation wells can also provide an indication of the aquifer's level of connectivity. The water
18 levels in truly confined aquifers that are hydraulically isolated from stream systems do not undergo
19 seasonal water level fluctuations due to seasonal bank storage effects near streams. In short, there are
20 many approaches available to decreasing the uncertainty to an acceptable level. They have just not been
21 implemented. The various approaches vary in cost, but most can be implemented at a reasonable
22 cost.

23 V. CONCLUSION

24 63. Given the current level of uncertainty associated with the water right applications and

1 hydrology and hydrogeology of the EFHR, granting the water right permits would be premature. There
2 is currently no need to a rush a decision because an immediate need for additional water is not indicated
3 by the applicant. Additional investigations would not only reduce uncertainty but also improve the
4 content of future environmental assessments of the impacts on water resources caused by the ski area.

5 64. I my review of available information, I have concluded that the use of Application 69976
6 will reduce EFHR flows contrary to the public interest. This reduction in flows is likely to harm fish
7 and wildlife. I also conclude that the existing instream water right is not met during the summer
8 months at the mouth of the EFHR. I conclude that it has not been adequately determined that instream
9 water rights are consistently met at the mouth of the EFHR from November 1 through May

10 65. It is likely that the existing instream water right is not met during winter low-flow
11 periods. More data collection on flows in the EFHR is needed to determine if water is available during
12 winter low flow periods, prior to granting water rights during the winter, because there is no actual
13 streamflow data from the mouth of the EFHR during the winter months. Surface water and
14 groundwater withdrawals during periods of inadequate instream flow will adversely impact fish, water
15 quality, and other aquatic resources. Flow gaging on the EFHR is also necessary to regulate junior
16 water rights during low flow periods.

17 66. The available information on the aquifers in the vicinity of the Mt. Hood Meadows Ski
18 Area is inadequate to determine if confined aquifers exist in the area. It is not possible to reasonably
19 determine if the aquifers in the project area are confined or unconfined, given available data. However,
20 the existing data weakly indicates that local aquifers are unconfined.

21 67. The degree of hydraulic connectivity between an aquifer and surface water is not solely
22 dependent on aquifer confinement. Confined aquifers are often directly connected to streams and other
23 surface water, especially in high relief, mountainous terrain with sloping geologic strata, such as occurs
24 in the area of the MHMSA.

1 68. I have also concluded that the available hydrogeologic information is inadequate to
2 determine if aquifers in the MHMSA are in hydraulic connection with the stream system. The existing
3 data do not adequately support the conclusion that there is limited potential for substantial interference
4 with surface water. I also conclude that more data is needed to determine the nature of the aquifers
5 within the MHMSA and their hydraulic connection to the stream system.

6 69. I have also concluded that it is not possible, through well construction, to ensure there
7 will be no interference with surface water by groundwater pumping, if the pumped aquifer is
8 hydraulically connected to the stream system.

9 70. I have also concluded that the planned expansion of the MHMSA will significantly
10 reduce low flows in the EFHR especially in summer and fall. These reductions will be caused by
11 paving, compaction, and wetland destruction as acknowledged in the ROD (p. E - 3, 1991). These
12 additional sources of flow reduction should be considered in evaluating the applications. However, the
13 combined reductions in low flows have not been considered.

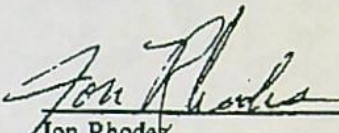
14 71. I also conclude that it is probable that groundwater pumping will adversely effect these
15 important wetland systems downgradient from the well site proposed for pumping in Application G-
16 12550. No effort has been made to determine the effect of groundwater pumping on important wetlands
17 within the MHMSA. Such an assessment should be made prior to making granting the permit to use
18 Application G-12550.

19 72. It is my professional opinion based on my training, experience and review of available
20 information that approval of the water right Applications 69776 and G-12550 would require the OWRD
21 to completely ignore the lack of applicable and adequate hydrologic and geologic data, the uncertainty
22 surrounding the hydrology issues, the probable impacts to water quality and downstream fisheries, as
23 well as the likely effects on downstream streamflows and instream water rights. The Applicant's
24 proposals to approve these applications are based on layer upon layer of unwarranted assumptions about

- 1 the hydrologic system. Given the degree of uncertainty, the approval of these applications is simply
- 2 not prudent.

I declare under penalty of perjury that I believe the foregoing is true and correct.

DATED 11/11/92


Jon Rhodes

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Jeana Eastman

From: Ivan Maluski [ivan.maluski@sierraclub.org]
Sent: Wednesday, June 08, 2005 2:24 PM
To: JEANA.M.EASTMAN@wrд.state.or.us
Cc: Ivan.Maluski@sierraclub.org
Subject: Fw: Sierra Club comments on Meadows' Snowmaking proposal

Not sure this went through.

Thanks

----- Original Message -----

From: Ivan Maluski
To: fs.fed.usJEANA.M.EASTMAN@wrд.state.or.us
Cc: dgjones@fs.fed.us
Sent: Wednesday, June 08, 2005 2:22 PM
Subject: Sierra Club comments on Meadows' Snowmaking proposal

June 8, 2005

Oregon Chapter Sierra Club
Re: Comments on Snowmaking Proposal & Requests for Public Water from the East Fork Hood River.
2950 SE Stark, #110

Portland, OR 97214
New Water Rights Applications & Extensions on Old Water Rights

- Water Rights Filed by Meadows Utilities, LLC for a Massive Snowmaking System on Mt. Hood (Applications: S-18865, **G-16401** and all current extensions of existing but unused water rights applications) & Proposal to Use a Categorical Exclusion for Constructing and Operating a Snowmaking without Existing Land Use Permission.

Dear Ms. Eastman and Mr. Jones,

The Oregon Chapter Sierra Club represents 24,000 Sierra Club members in Oregon. We support your efforts to carefully and thoughtfully manage our public resources. Our local constituents that enjoy the East Fork of the Hood River and these lands have been monitoring and reviewing the recent proposal by Mt. Hood Meadows to build a snowmaking system at their ski area.

The Oregon Chapter is very concerned about the Forest Service plan to avoid the most basic analysis required by the National Environmental Policy Act. That combined with the fact that Mt. Hood Meadows does not have permission to use the land for snowmaking under the current master plan is a plain violation of law. We urge the Forest Service to prepare the most basic NEPA document, an environmental assessment, to determine whether there are

06/09/2005

significant impacts, and if so, whether they can be address and how. Without land use permission, the Oregon Water Resources Department is wasting resources with a premature and rushed consideration of whether these water rights should be granted.

The Oregon Chapter is also concerned about the over-allocation situation in the Hood River Basin, and the impacts of an unsustainable use in the basin. Given the number of water rights at issue here, we request the Oregon Water Resources Department to undertake a comprehensive and fresh look at all the outstanding water rights and these requests for new water rights.

There is a known hydrologic connection in this closed basin. Take that in combination with the volume of the use, the timing of the use, the timing of run-off, the effects of global warming and climate change and an unpredictable maritime climate, it is imperative that the agencies take a comprehensive look at this request does not harm the East Fork of the Hood River.

The Sierra Club requests the Water Resources Department to consult with the Oregon Department of Fish and Wildlife and the Oregon Department of Environmental Quality. From the permit application for these water rights, it is unclear how much water is going to be left in the East Fork to be combined with the waste and effluent coming from Meadows facilities. The Clean Water act requirements must be met.

This proposal involves excessive groundwater pumping and a paucity of data on the actual impact when this amount of water is taken. The consumptive loss through sublimation of this use also needs to be scientifically examined and mapped out.

Local citizens have provided you with science-based information and we ask that you take the time to careful consider the options, do your homework, before approving a massive and unsustainable system.

The Club may well support Meadows making a limited amount of snow for skiing on the mountain, particularly if that snowmaking is needed to comply with their obligation to restore wetlands the company damaged on the mountain. There is no surface water is available in the Hood Basin, additional groundwater withdrawal may exacerbate that situation. We request that you consult the best available science, adhere to the applicable safeguards in state water resources and federal environmental law.

We look forward to learning about a dialogue with your office, local citizens, and the responsible agencies at the state and federal level.

Sincerely,

Ivan Maluski

Conservation Organizer

Oregon Chapter Sierra Club

503-238-0442, x304



Oregon Chapter Sierra Club
2950 SE Stark, #110
Portland, OR 97214

June 8, 2005

Re: Comments on Snowmaking Proposal & Requests for Public Water from the East Fork Hood River.

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We look forward to learning about a dialogue with your office, local citizens, and the responsible agencies at the state and federal level.

Sincerely,

Ivan Maluski
Conservation Organizer
Oregon Chapter Sierra Club
503-238-0442, x304

Oregon Water Resources Department
Water Rights Division

Water Rights Application
Number G-16401

Prior to the issuance of a permit, the Department must receive permit recording fees in the amount of \$250.00. Please include your application number on your check made out to the Oregon Water Resources Department. If this fee is not paid prior to **October 7, 2005**, issuance of a permit may be delayed.

Proposed Final Order

Summary of Recommendation: The Department recommends that the attached draft permit be issued with conditions.

Application History

On March 7, 2005, DAVID RILEY, on behalf of MEADOWS UTILITIES LLC, submitted an application to the Department. On April 28, 2005, the application was assigned to MEADOWS UTILITIES LLC and UNITED STATES DEPARTMENT OF AGRICULTURE, FOREST SERVICE. The application is for the following water use permit:

- Amount of Water: 0.11 CUBIC FOOT PER SECOND (CFS)
- Use of Water: COMMERCIAL USES
- Source of Water: WELL L27150 IN EAST FORK HOOD RIVER BASIN
- Area of Proposed Use: Hood River County within SECTION 3, SECTION 4, SECTION 9, SECTION 10 AND SECTION 11, TOWNSHIP 3 SOUTH, RANGE 9 EAST, W.M.

On May 6, 2005, the Department mailed the applicant notice of its Initial Review, determining that "*The use of 0.11 cubic foot per second from Well L27150 in East Fork Hood River Basin for commercial uses (to make snow) is allowable from November 1 through March 31 of each year.*" The applicant did not notify the Department to stop processing the application within 14 days of that date.

On May 10, 2005, the Department gave public notice of the application in its weekly notice. The public notice included a request for comments, and information for interested persons about both obtaining future notices and a copy of the proposed final order.

Within 30 days of the Department's public notice, written comments were received from Ralph Bloemers and Chris Winter, on behalf of Cascade Resources Advocacy Group, Ivan Maluski, on behalf of Oregon Chapter Sierra Club, and the public.

In reviewing applications, the Department may consider any relevant sources of information, including the following:

- comments by or consultation with another state agency
- any applicable basin program
- any applicable comprehensive plan or zoning ordinance
- the amount of water available
- the rate and duty for the proposed use
- pending senior applications and existing water rights of record
- designations of any critical groundwater areas
- the Scenic Waterway requirements of ORS 390.835
- applicable statutes, administrative rules, and case law
- any general basin-wide standard for flow rate and duty of water allowed
- the need for a flow rate and duty higher than the general standard
- any comments received

Findings of Fact

The Hood Basin Program allows COMMERCIAL USES.

WELL L27150 IN EAST FORK HOOD RIVER BASIN is not within or above a State Scenic Waterway.

The Groundwater Section finds, per OAR 390.835(9), there is not a preponderance of evidence that the proposed use of groundwater will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway in quantities necessary for recreation, fish and wildlife.

Groundwater Findings Under OAR 690-09

The Department determined, consistent with OAR 690-09-0040(4), that the proposed ground water use will not have the potential for substantial interference with the nearby surface water sources.

In making this determination, the Department considered whether:

- (a) There is a hydraulic connection from the proposed well(s) to any surface water sources.
- (b) The point of appropriation is a horizontal distance less than one-fourth mile from the surface water source;
- (c) The rate of appropriation is greater than five cubic feet per second, if the point of appropriation is a horizontal distance less than one mile from the surface water source;
- (d) The rate of appropriation is greater than one percent of the pertinent adopted minimum perennial streamflow or instream water right with a senior priority date, if one is applicable, or of the discharge that is equaled or exceeded 80 percent of

time, as determined or estimated by the Department, and if the point of appropriation is a horizontal distance less than one mile from the surface water source;

- (e) The ground water appropriation, if continued for a period of 30 days, would result in stream depletion greater than 25 percent of the rate of appropriation, if the point of appropriation is a horizontal distance less than one mile from the surface water source.

According to the Department's rules, the potential for substantial interference is assumed if (a) and either (b) or (c) or (d) or (e) are met. For this application, the Department determined that there is no potential for substantial interference, because either (a) is not met, or (b), (c), (d) or (e) are not met, or both.

An assessment of groundwater availability has been completed by the Department's Groundwater/Hydrology section. A copy of this assessment is in the file. The proposed use of groundwater will likely be available in the amounts requested without injury to prior rights and/or within the capacity of the resource.

The Department finds that the amount of water requested, 0.11 CFS, is an acceptable amount.

The proposed well is not within a designated critical ground water area.

Conclusions of Law

Under the provisions of ORS 537.621, the Department must presume that a proposed use will ensure the preservation of the public welfare, safety and health if the proposed use is allowed in the applicable basin program established pursuant to ORS 536.300 and 536.340 or given a preference under ORS 536.310(12), if water is available, if the proposed use will not injure other water rights and if the proposed use complies with rules of the Water Resources Commission.

The proposed use requested in this application is allowed in the Hood Basin Plan, or a preference for this use is granted under the provisions of ORS 536.310(12).

Water is available for the proposed use.

The proposed use will not injure other water rights.

The proposed use complies with other rules of the Water Resources Commission not otherwise described above.

The proposed use complies with the State Agency Agreement for land use.

No proposed flow rate and duty of water higher than the general basin-wide standard is needed.

For these reasons, the required presumption has been established.

Under the provisions of ORS 537.621, once the presumption has been established, it may be overcome by a preponderance of evidence that either:

- (a) One or more of the criteria for establishing the presumption are not satisfied; or
- (b) The proposed use would not ensure the preservation of the public welfare, safety and health as demonstrated in comments, in a protest . . . or in a finding of the department that shows:
 - (A) The specific aspect of the public welfare, safety and health under ORS 537.525 that would be impaired or detrimentally affected; and
 - (B) Specifically how the identified aspect of the public welfare, safety and health under ORS 537.525 would be impaired or be adversely affected.

In this application, all criteria for establishing the presumption have been satisfied, as noted above. The presumption has not been overcome by a preponderance of evidence that the proposed use would impair or be detrimental to the public interest.

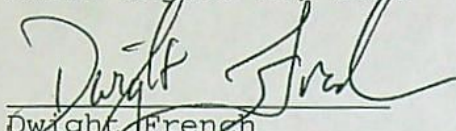
The Department therefore concludes that water is available in the amount necessary for the proposed use; the proposed use will not result in injury to existing water rights; and the proposed use would ensure the preservation of the public welfare, safety and health as described in ORS 537.525.

When issuing permits, ORS 537.628(1) authorizes the Department to include limitations and conditions which have been determined necessary to protect the public welfare, safety, and health. The attached draft permit is conditioned accordingly.

Recommendation

The Department recommends that the attached draft permit be issued with conditions.

DATED August 23, 2005


Dwight French
Water Rights Section Manager

*If you have any questions,
please check the information
box on the last page for the
appropriate names and
phone numbers.*

Protest Rights and Standing

Under the provisions of 537.621(7), you have the right to protest this proposed final order. Your protest must be in writing, and must include the following:

- Your name, address, and telephone number;
- A description of your interest in the proposed final order, and, if you claim to represent the public interest, a precise statement of the public interest represented;
- A detailed description of how the action proposed in this proposed final order would impair or be detrimental to your interest;
- A detailed description of how the proposed final order is in error or deficient, and how to correct the alleged error or deficiency;
- Any citation of legal authority to support your protest, if known; and
- If you are not the applicant, the protest fee of \$250 required by ORS 536.050 and proof of service of the protest upon the applicant.
- If you are the applicant, a statement of whether or not you are requesting a contested case hearing. If you do not request a hearing, the Department will presume that you do not wish to contest the findings of the proposed final order.
- If you do not protest this Proposed Final Order and if no substantive changes are made in the final order, you will not have an opportunity for judicial review, protest or appeal of the final order when it is issued.

Requests for Standing

Under the provisions of 537.621(6), persons other than the applicant who support a proposed final order may request standing for purposes of participating in any contested case proceeding on the proposed final order or for judicial review of a final order. A request for standing shall be in writing, include a statement that the requester supports the proposed final order, and a statement of how the requester would be harmed if the proposed final order is modified. The fee required at the time of submitting this request is \$50.00. If a hearing is scheduled, an additional fee of \$200.00 must be submitted along with a request for intervention. Forms to request standing are available from the Department.

Your protest or request for standing must be received in the Water Resources Department no later than **October 7, 2005**.

After the protest period has ended, the Director will either issue a final order or schedule a contested case hearing. The contested case hearing will be scheduled only if a protest has been submitted and if

- upon review of the issues, the director finds that there are significant disputes related to the proposed use of water, or
- the applicant requests a contested case hearing within 30 days after the close of the protest period.

This document was prepared by Jeana Eastman. If you have any questions about any of the statements contained in this document I am most likely the best person to answer your questions. You can reach me at 503-986-0859.

If you have questions about how to file a protest or if you have previously filed a protest and want to know the status, please contact Mike Reynolds at 503-986-0820.

If you have other questions about the Department or any of its programs please contact our Customer Service Group at 503-986-0801.

Address all other correspondence to:

Water Rights Section, Oregon Water Resources Department, 725 Summer St NE Ste A, Salem OR 97301-1271, Fax: 503-986-0901.

DRAFT

This is not a permit.
STATE OF OREGON

DRAFT

COUNTY OF HOOD RIVER

DRAFT PERMIT TO APPROPRIATE THE PUBLIC WATERS

THIS DRAFT PERMIT IS HEREBY ISSUED TO

UNITED STATES DEPT. OF AGRICULTURE
FOREST SERVICE
6780 HWY 35
MOUNT HOOD, OR 97041

MEADOWS UTILITIES LLC
PO BOX 470
MOUNT HOOD, OR 97041

The specific limits and conditions of the use are listed below.

APPLICATION FILE NUMBER: G-16401

SOURCE OF WATER: WELL L27150 IN EAST FORK HOOD RIVER BASIN

PURPOSE OR USE: COMMERCIAL USES (TO MAKE SNOW)

MAXIMUM RATE: 0.11 CUBIC FOOT PER SECOND

PERIOD OF USE: NOVEMBER 1 THROUGH MARCH 31

DATE OF PRIORITY: MARCH 7, 2005

WELL LOCATION: SW $\frac{1}{4}$ SW $\frac{1}{4}$, SECTION 3, T3S, R9E, W.M.; 850 FEET NORTH &
1150 FEET EAST FROM SW CORNER, SECTION 3

THE PLACE OF USE IS LOCATED AS FOLLOWS:

NE $\frac{1}{4}$ NE $\frac{1}{4}$
NW $\frac{1}{4}$ NE $\frac{1}{4}$
SW $\frac{1}{4}$ NE $\frac{1}{4}$
SE $\frac{1}{4}$ NE $\frac{1}{4}$
NE $\frac{1}{4}$ NW $\frac{1}{4}$
NW $\frac{1}{4}$ NW $\frac{1}{4}$
SW $\frac{1}{4}$ NW $\frac{1}{4}$
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SW $\frac{1}{4}$ SW $\frac{1}{4}$
SE $\frac{1}{4}$ SW $\frac{1}{4}$
NE $\frac{1}{4}$ SE $\frac{1}{4}$
NW $\frac{1}{4}$ SE $\frac{1}{4}$
SW $\frac{1}{4}$ SE $\frac{1}{4}$
SE $\frac{1}{4}$ SE $\frac{1}{4}$
SECTION 3

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 SECTION 4

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 SE ¼ NE ¼
 SECTION 9

NE ¼ NE ¼
 NW ¼ NE ¼
 SW ¼ NE ¼
 SE ¼ NE ¼
 NE ¼ NW ¼
 NW ¼ NW ¼
 SW ¼ NW ¼
 SE ¼ NW ¼
 SECTION 10

NW ¼ NW ¼
 SW ¼ NW ¼
 SECTION 11

TOWNSHIP 3 SOUTH, RANGE 9 EAST, W.M.

Measurement, recording and reporting conditions:

- A. Before water use may begin under this permit, the permittee shall install a meter or other suitable measuring device as approved by the Director. The permittee shall maintain the meter or measuring device in good working order.
- B. The permittee shall allow the watermaster access to the meter or measuring device; provided however, where the meter or measuring device is located within a private structure, the watermaster shall request access upon reasonable notice.

- C. The Director may require the permittee to keep and maintain a record of the amount (volume) of water used and may require the permittee to report water use on a periodic schedule as established by the Director. In addition, the Director may require the permittee to report general water use information, the periods of water use and the place and nature of use of water under the permit. The Director may provide an opportunity for the permittee to submit alternative reporting procedures for review and approval.

STANDARD CONDITIONS

If the number, location, source, or construction of any well deviates from that proposed in the permit application or required by permit conditions, this permit may not be valid.

If substantial interference with a senior water right occurs due to withdrawal of water from any well listed on this permit, then use of water from the well(s) shall be discontinued or reduced and/or the schedule of withdrawal shall be regulated until or unless the Department approves or implements an alternative administrative action to mitigate the interference. The Department encourages junior and senior appropriators to jointly develop plans to mitigate interferences.

The wells shall be constructed in accordance with the General Standards for the Construction and Maintenance of Water Wells in Oregon. The works shall be equipped with a usable access port, and may also include an air line and pressure gauge adequate to determine water level elevation in the well at all times.

Where two or more water users agree among themselves as to the manner of rotation in the use of water and such agreement is placed in writing and filed by such water users with the watermaster, and such rotation system does not infringe upon such prior rights of any water user not a party to such rotation plan, the watermaster shall distribute the water according to such agreement.

Prior to receiving a certificate of water right, the permit holder shall submit the results of a pump test meeting the department's standards, to the Water Resources Department. The Director may require water level or pump test results every ten years thereafter.

Failure to comply with any of the provisions of this permit may result in action including, but not limited to, restrictions on the use, civil penalties, or cancellation of the permit.

This permit is for the beneficial use of water without waste. The water user is advised that new regulations may require the use of best practical technologies or conservation practices to achieve this end.

By law, the land use associated with this water use must be in compliance with statewide land-use goals and any local acknowledged land-use plan.

The use of water shall be limited when it interferes with any prior surface or ground water rights.

Completion of construction and complete application of the water to the use shall be made on or before October 1, 2009. If the water is not completely applied before this date, and the permittee wishes to continue development under the permit, the permittee must submit an application for extension of time, which may be approved based upon the merit of the application.

Within one year after complete application of water to the proposed use, the permittee shall submit a claim of beneficial use, which includes a map and report, prepared by a Certified Water Rights Examiner (CWRE).

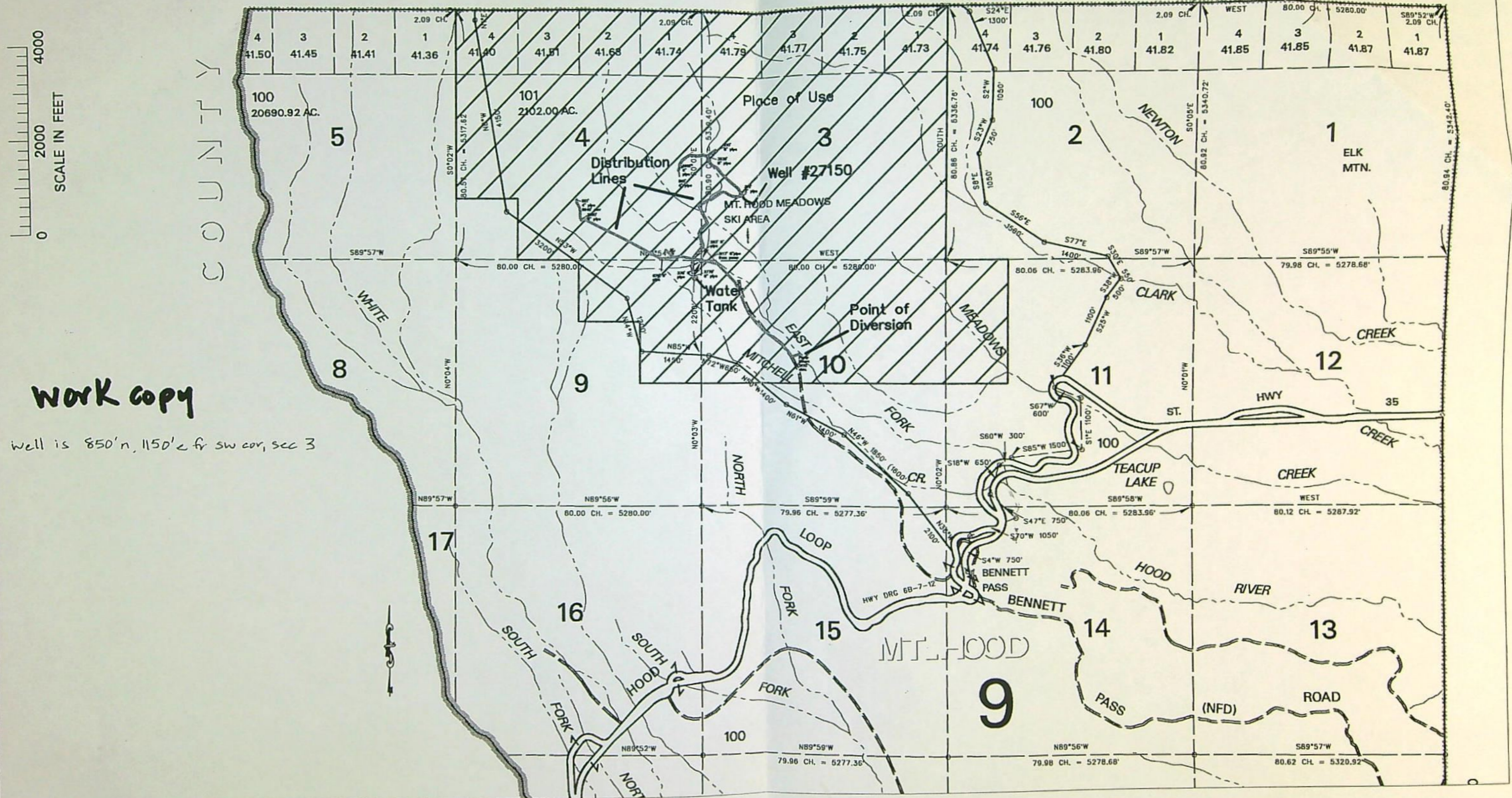
Issued _____, 2005

DRAFT - THIS IS NOT A PERMIT

Phillip C. Ward, Director
Water Resources Department

RECEIVED
MAR 07 2005
WATER RESOURCES DEPT
SALEM, OREGON

SEE MAP 2S 9

 $1'' = 2000'$ 

Means Utilities



Oregon

Theodore R. Kulongoski, Governor

Water Resources Department

North Mall Office Building
725 Summer Street NE, Suite A
Salem, OR 97301-1271
503-986-0900
FAX 503-986-0904

May 6, 2005

MEADOWS UTILITIES LLC
ATTN: DAVID RILEY
PO BOX 470
MOUNT HOOD, OR 97041

UNITED STATES DEPT. OF AGRICULTURE
FOREST SERVICE
6780 HWY 35
MOUNT HOOD, OR 97041

Reference: File G-16401

Dear Applicant:

THIS IS NOT A PERMIT AND IS SUBJECT TO CHANGE AT THE NEXT PHASE OF PROCESSING.

This letter is to inform you of the preliminary analysis of your water use permit application and to describe your options. In determining whether a water use permit application may be approved, the Department must consider the factors listed below, all of which must be favorable to the proposed use if it is to be allowed. Based on the information you have supplied, the Water Resources Department has made the following preliminary determinations:

Initial Review Determinations:

1. The proposed use is not prohibited by law or rule except where otherwise noted below.
2. The use of water from Well L27150 in East Fork Hood River Basin for commercial uses **is allowable** under OAR 690-504-0000(1), the Hood Basin Program.
3. The Department has determined, based upon OAR 690-09, that the proposed groundwater use will not have the potential for substantial interference with the nearest surface water source.

4. The Department has also determined, based upon available data, that the use of groundwater will likely be available in the amounts requested without injury to prior rights and/or within the capacity of the resource.

Summary of Initial Determinations

The use of 0.11 cubic foot per second from Well L27150 in East Fork Hood River Basin for commercial uses (to make snow) is allowable from November 1 through March 31 of each year.

Because of these favorable determinations, the Department can now move your application to the next phase of the water rights application review process. This phase is where public interest factors will be evaluated.

Please reference the application number when sending any correspondence regarding the conclusions of this initial review. Comments received within the comment period will be evaluated at the next phase of the process.

To Proceed With Your Application:

If you choose to proceed with your application, you do not have to notify the Department. Your application will automatically be placed on the Department's Public Notice to allow others the opportunity to comment. After the comment period the Department will complete a public interest review and issue a proposed final order.

Withdrawal Refunds:

If you choose not to proceed, you may withdraw your application and receive a refund (minus a \$50 processing charge per application.) To accomplish this you must notify the Department in writing by **Friday, May 20, 2005**. For your convenience you may use the enclosed "STOP PROCESSING" form.

If A Permit Is Issued It Will Likely Include The Following Conditions:

1. Measurement, recording and reporting conditions:
 - A. Before water use may begin under this permit, the permittee shall install a meter or other suitable measuring device as approved by the Director. The permittee shall maintain the meter or measuring device in good working order.
 - B. The permittee shall allow the watermaster access to the meter or measuring device; provided however, where the meter or measuring device is located within a private structure, the watermaster shall request access upon reasonable notice.

- C. The Director may require the permittee to keep and maintain a record of the amount (volume) of water used and may require the permittee to report water use on a periodic schedule as established by the Director. In addition, the Director may require the permittee to report general water use information, the periods of water use and the place and nature of use of water under the permit. The Director may provide an opportunity for the permittee to submit alternative reporting procedures for review and approval.

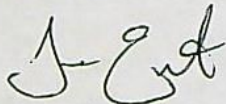
2. The priority date for this application is March 7, 2005.

The water source identified in your application may be affected by an Agricultural Water Quality Management Area Plan. These plans are developed by the Oregon Department of Agriculture (ODA) with the cooperation of local landowners and other interested stakeholders, and help to ensure that current and new appropriations of water are done in a way that does not adversely harm the environment. You are encouraged to explore ODA's Water Quality Program web site at http://www.oda.state.or.us/nrd/water_quality/index.html to learn more about the plans and how they may affect your proposed water use.

If you have any questions:

Questions about the status of your application, processing time lines, or your upcoming Proposed Final Order should be directed to our customer service staff at 503-986-0801. Feel free to call me at 503-986-0859 if you have any questions regarding the contents of this letter. Please have your application number available if you call. Address all other correspondence to: Water Rights Section, Oregon Water Resources Department, 725 Summer St NE Ste A, Salem OR 97301-1271, Fax: 503-986-0901.

Sincerely,



Jeana Eastman
Water Right Application Caseworker

enclosures: Application Process Description and Stop Processing Request Form

G-16401
wab 4-30410509
pou 4-30410509
gw B

APPLICATION FACT SHEET

Mail to: *Applicant, Watermaster, District Biologist (ODFW)*
If necessary, also mail to : *Regional Water quality manager (DEQ), and DOA*

Application File Number: G-16401

Applicant: DAVID RILEY for MEADOWS UTILITIES LLC, and U.S. DEPT. OF
AGRICULTURE, FOREST SERVICE

County: Hood River

Watermaster: 3

Priority Date: March 7, 2005

Source: WELL L27150 IN EAST FORK HOOD RIVER BASIN

Use: COMMERCIAL USES (TO MAKE SNOW)

Quantity: 0.11 CUBIC FOOT PER SECOND

Basin Name & Number: Hood, #4

Stream Index Reference: Volume 1 EAST FK HOOD R

Well Location: SWSW, SECTION 3, T3S, R9E, W.M.; 850 FEET NORTH & 1150 FEET EAST
FROM SW CORNER, SECTION 3

Place of Use:	NE ¼ NE ¼
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SECTION 11

TOWNSHIP 3 SOUTH, RANGE 9 EAST, W.M.

14 DAY STOP PROCESSING DEADLINE DATE: Friday, May 20, 2005

PUBLIC NOTICE DATE: Tuesday, May 10, 2005

30 DAY COMMENT DEADLINE DATE: Thursday, June 9, 2005

[illegible]



Oregon

Theodore R. Kulongoski, Governor

Water Resources Department

North Mall Office Building
725 Summer Street NE, Suite A
Salem, OR 97301-1271
503-986-0900
FAX 503-986-0904

April 28, 2005

Meadows Utilities, LLC
P.O. Box 470
Mt. Hood, Oregon 97041

Reference: Application S-86185 and Application G-16401

The assignment from Meadows Utilities, LLC to United States - UDDAFS and Meadows Utilities, LLC, has been recorded in the records of the Water Resources Department.

Our records have been changed accordingly and the original request is enclosed. Receipt number 74197 covering the recording fee of \$25.00 is also enclosed.

Per your instructions, the assignments were combined to facilitate assignment and reduce cost. Enclosed is your second check in the amount of \$25.00 that is being returned.

Sincerely,

Jerry Sauter
Water Rights Program Analyst

Enclosure: Receipt 74197, check

cc: Watermaster 3
United States - UDDAFS, attn: Permit Administrator
Data Center, OWRD
Mary Rohling
Gina Beaman
File

REQUEST FOR ASSIGNMENT

1. Meadows Utilities LLC

(Name of Applicant / Permit / Transfer Holder)

PO Box 470

(mailing address)

MT Hood

(City)

OR

(State)

97041

(Zip)

(503) 337-2222 x252

(Phone #)

CHECK ONE

☐ ...hereby assign **all my interest** in and to application/permit/transfer;

☐ ...hereby assign **all my interest** in and to a **portion** of application/permit/transfer;
(You must include a map showing the portion of the application/permit to be assigned.)

☒ ...hereby assign **a portion of my interest** in and to the **entire** application/permit/transfer;

Application # 6-16901 KS Permit # 5-86185 Transfer # _____

-OR-

GR Statement # _____ GR Certificate of Registration # _____

as filed in the office of the Water Resources Director, to:

co-applicant

① United States- USDAFS, ATTN: Permit Administrator 6780 Hwy 35 MT Hood, OR 97041
(Name of New Owner)

② Meadows Utilities LLC - PO Box 470 MT Hood, OR 97041 (503) 337-2222 x259
(mailing address) (City) (State) (Zip) (Phone #)

NOTE:

If there are other owners of the property described in this Application, Permit, Transfer or Certificate of Ground Water Registration, **you must provide a list of all other owners' names and mailing addresses and attach it to this form.**

I hereby certify that I have notified all other owners of the property described in this Application, Permit or Certificate of Registration of this request for assignment.

Witness my hand this 25th day of April, 2005.

Applicant/Permit holder [Signature] - President

Applicant/Permit holder _____

DO NOT WRITE IN THIS BOX

This certifies assignment and record change at Oregon Water Resources Department effective 8:00a.m. on date of receipt at Salem, Oregon.
Fee receipt # 74197
For Director by Jerry Santos, Program Analyst in Water Rights Division [Signature]

The completed "Request for Assignment" form must be submitted to the Department along with the appropriate recording fees:

- ♦ \$25 for the first page, and
- ♦ \$5 for **each additional page**.
[as required by ORS 536.050(1)(d)]

WATER RESOURCES DEPARTMENT

725 SUMMER STREET NE, SUITE A
SALEM, OREGON 97301-1271

RECEIVED

APR 26 2005

WATER RESOURCES DEPT
SALEM, OREGON

OK. AS/6/4
P.S. 4/28/2005



MT. HOOD
MEADOWS
SKI RESORT

March 8, 2005

Ms. Jeana Eastman
Water Resources Department
State of Oregon
725 Summer St. N.E., Suite A
Salem, OR 97301-4172

RECEIVED

MAR 10 2005

**WATER RESOURCES DEPT
SALEM, OREGON**

RE: Application file number – G 16401

Dear Jeana,

As a result of a meeting yesterday that I had with Rod French, District Fish Biologist, Mid-Columbia District, Oregon Department of Fish and Wildlife, I want to make two changes to the application referenced above.

- 1) Please change the period of use from November 1 – April 30, to November 1 – March 31 of each year.
- 2) Please add an additional restriction on this new water right that disallows withdrawal of water at the well ID #27150 (diversion point) as identified on the application when stream flows are 1.5 cfs or lower as measured from Mt. Hood Meadows monitoring station at the waste water treatment plant.

Please feel free to contact me if you have any questions. I can be reached at 503-337-2222 ext. 259. Thank you.

Sincerely,
Meadows Utilities LLC

Dave Riley
President

CC: Rod French, ODF&W, District Fish Biologist
Bobby Brunoe, Conf. Tribes of the Warm Springs, G.M. Natural Resources
Doug Jones, Hood River Ranger District, Permit Administrator
Gary Asbridge, Hood River Ranger District, Fish Biologist
Daina Bambe, Hood River Ranger District, District Ranger
Jerry Sauter, WRD
Dwight French, WRD
Chris Winter, CRAG



MT. HOOD
MEADOWS
SKI RESORT

March 8, 2005

Ms. Jeana Eastman
Water Resources Department
State of Oregon
725 Summer St. N.E., Suite A
Salem, OR 97301-4172

RE: Application file number - G 16401

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Meadows Utilities LLC

Dave Riley
President

CC: Rod French, ODF&W, District Fish Biologist
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Gary Asbridge, Hood River Ranger District, Fish Biologist
Daina Bambe, Hood River Ranger District, District Ranger
Jerry Sauter, WRD
Dwight French, WRD
Chris Winter, CRAG

DATE	INVOICE NO.	COMMENT	AMOUNT	NET AMOUNT
03/04/2005	030405	SNOWMAKING	500.00	500.00
RECEIVED MAR 07 2005 WATER RESOURCES DEPT SALEM, OREGON				
VENDOR NO.	OREG90	VENDOR NAME	OREGON WATER RESOURCES DEP	TOTAL
				500.00

DELUXE BUSINESS FORMS 1+800-32

61762V

STATE OF OREGON
WATER RESOURCES DEPARTMENT
 725 Summer St. N.E. Ste. A
 SALEM, OR 97301-4172
 (503) 986-0900 / (503) 986-0904 (fax)

RECEIPT # **73113** INVOICE # _____

RECEIVED FROM: Mt. Hood Meadows, Oreg., Ltd. APPLICATION G16401

BY: _____ PERMIT _____

CASH: ☐ CHECK: # 88108 OTHER: (IDENTIFY) ☐ TRANSFER _____

TOTAL REC'D \$ 500.00

1083 TREASURY 4170 WRD MISC CASH ACCT

0407 COPIES \$ _____

OTHER: (IDENTIFY) \$ _____

0243 I/S Lease _____ 0244 Muni Water Mgmt. Plan _____ 0245 Cons. Water _____

4270 WRD OPERATING ACCT

MISCELLANEOUS

0407 COPY & TAPE FEES \$ _____

0410 RESEARCH FEES \$ _____

0408 MISC REVENUE: (IDENTIFY) _____ \$ _____

TC162 DEPOSIT LIAB. (IDENTIFY) _____ \$ _____

0240 EXTENSION OF TIME \$ _____

WATER RIGHTS:

0201 SURFACE WATER EXAM FEE \$ _____ 0202 RECORD FEE \$ _____

0203 GROUND WATER \$ 500.00 0204 \$ _____

0205 TRANSFER \$ _____

WELL CONSTRUCTION

0218 WELL DRILL CONSTRUCTOR EXAM FEE \$ _____ 0219 LICENSE FEE \$ _____

LANDOWNER'S PERMIT 0220 \$ _____

OTHER (IDENTIFY) _____

0536 TREASURY 0437 WELL CONST. START FEE

0211 WELL CONST START FEE \$ _____ CARD # _____

0210 MONITORING WELLS \$ _____ CARD # _____

OTHER (IDENTIFY) _____

0607 TREASURY 0467 HYDRO ACTIVITY LIC NUMBER

0233 POWER LICENSE FEE (FWWRD) \$ _____

0231 HYDRO LICENSE FEE (FWWRD) \$ _____

HYDRO APPLICATION \$ _____

TREASURY OTHER / RDX

FUND _____ TITLE _____

OBJ. CODE _____ VENDOR # _____

DESCRIPTION \$ _____

RECEIPT: **73113**DATED: 3/7/05 BY: Linda Doe

Distribution - White Copy - Customer, Yellow Copy - Fiscal, Blue Copy - File, Buff Copy - Fiscal



Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem Oregon 97301-1271
(503) 986-0900
www.wrd.state.or.us

Application for a Permit to Use Ground Water

Please type or print in dark ink. If your application is found to be incomplete or inaccurate, we will return it to you. If any requested information does not apply to your application, insert "n/a." Please read and refer to the instructions when completing your application. A summary of review criteria and procedures that are generally applicable to these applications is available at www.wrd.state.or.us/publication/reports/index.shtml.

RECEIVED

MAR 07 2005

WATER RESOURCES DEPT
SALEM, OREGON

1. APPLICANT INFORMATION

A. Individuals

Applicant: _____
First Last

Mailing address: _____

City State Zip

Phone: _____
Home Work Other

*Fax: _____ *E-Mail address: _____

B. Organizations

(Corporations, associations, firms, partnerships, joint stock companies, cooperatives, public and municipal corporations)

Name of organization: MEADOWS UTILITIES LLC

Name and title of person applying: DAVID E. RILEY, PRESIDENT

Mailing address of organization: P.O. BOX 470

MT. HOOD OREGON 97041
City State Zip

Phone: 503-337-2222 EXT. 259 541-352-6870
Day Evening

*Fax: 503-337-2232 *E-Mail address: driley@skihood.com

* Optional information

For Department Use

App. No. G16401

Permit No. _____

Date _____

2. PROPERTY OWNERSHIP

Do you own all the land where you propose to divert, transport, and use water?

- ☐ Yes (Skip to section 3 "Ground water Development.")
- ☒ No (Please check the appropriate box below.)
- ☒ 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 irrigated and/or domestic use only (ORS 274.040).

RECEIVED

MAR 07 2005

WATER RESOURCES DEPT
SALEM, OREGON

List the names and mailing addresses of all affected landowners.

US Forest Service

Attn: Doug Jones

Hood River Ranger District

6780 Hwy. 35

MT. HOOD / PARKDALE

OREGON, 97041

3. GROUND WATER DEVELOPMENT

A. Well Information

Number of well(s): 1 - ID # 27150

Name of nearest surface water body: East Fork Hood River

Distance from well(s) to nearest stream or lake: 1) 802.03 feet

2) _____ 3) _____ 4) _____

If distance from surface water is less than one mile, indicate elevation difference between nearest surface water and well head. 1) 132.35 feet

2) _____ 3) _____ 4) _____

B. Well Characteristics

Wells must be constructed according to standards set by the Department for the construction and maintenance of water wells. If the well is already constructed, please enclose a copy of the well constructor's log and the well ID number, if available, for each well with this application. Identify each well with a number corresponding to the wells designated on the map and proceed to question F in this section of the form. If the well has not been constructed, or if you do not have a well log, please complete the following:

Well(s) will be constructed by: N/A - already constructed

Address: - See attached well log -

Completion date: _____

Please provide a description of your well development. (Attach additional sheets if needed.)

				Intervals casing is perforated (in feet)			Est. depth to water bearing stratum	Type of access port or measuring device	
		- SEE	ATTACHED			WELL	LOG	-	

Note: Well numbers in this listing must correspond to well locations(s) shown on accompanying map.

C. Artesian Flows

If your water well is flowing artesian, describe your water control and conservation works:

N/A

4. WATER USE

Please read the instruction booklet for more details on "type of use" definitions, how to express how much water you need and how to identify the water source you propose to use. You must fill out a supplemental form for some uses as they require specific information for that type of use.

A. Type(s) of Use(s)

See list of beneficial uses provided in the instructions.

- If your proposed use is **domestic**, indicate the number of households to be supplied with water: _____
- If your proposed use is **irrigation**, please attach **Form I**
- If your proposed use is **mining**, attach **Form R**
- If your proposed use is **municipal or quasi-municipal**, attach **Form M**
- ☒ If your proposed use is **commercial/industrial**, attach **Form Q**

RECEIVED

MAR 07 2005

WATER RESOURCES DEPT
SALMON, OREGON

MAR 07 2005

WATER RESOURCES DEPT
SALEM, OREGON

B. Amount of Water

Provide the production rate in gallons per minute (gpm) and the total annual amount of water you need from each well, from each source or aquifer, for each use. You do not need to provide source information if you are submitting a well log with your application.

Well No.	Source or Aquifer	Type of Use	Total rate of water requested (in gpm)	Total annual quantity (in gallons)	Production rate of well (in gpm)
27150	See attached LUZIER Analysis	Commercial - SNOWMAKING	50	13,832,000	50

C. Maximum Rate of Use Requested

What is the maximum, instantaneous rate of water that will be used? BUILT TO ACCOMMODATE "BULGES" IN THE SYSTEM.
(The fees for your application will be based on this amount.)

A) 50 GPM FROM WELL.

B) 4,800 GPM FROM WATER TANK/POUD

D. Period of Use

Indicate the time of year you propose to use the water: November 1 - April 30
(For seasonal uses like irrigation give dates when water use would begin and end, e.g. March 1-October 31.)

E. Acreage

If you will be applying water to land, please give the total number of acres where water will be applied or used: 1,768
(This number should be consistent with your application map.)

5. WATER MANAGEMENT

A. Diversion

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

☒ Pump (give horsepower and pump type): 15hp - submerged Grundfos Model 405150-37DS

☐ Other means (describe): _____

B. Transport

How will you transport water to your place of use?

☐ Ditch or canal (give average width and depth):

Width _____ Depth _____

Is the ditch or canal to be lined? ☐ Yes ☐ No

☒ Pipe (give diameter and total length):

Diameter 8" Length 8,219'
6" 6,583'
4" 1,336'
2" 531'

☐ Other (describe): _____

C. Application/Distribution Method

What equipment will you use to apply water to your place of use? SNOWMAKING MACHINES

Irrigation or land application method (check all that apply):

- | | | |
|--|--|---|
| <input type="checkbox"/> Flood | <input type="checkbox"/> High-pressure sprinkler | <input type="checkbox"/> Low pressure sprinkler |
| <input type="checkbox"/> Drip | <input type="checkbox"/> Water cannons | <input type="checkbox"/> Center pivot system |
| <input type="checkbox"/> Hand lines | <input type="checkbox"/> Wheel lines | |
| <input type="checkbox"/> Siphon tubes or gated pipe with furrows | | |
| <input checked="" type="checkbox"/> Other, describe <u>SNOWMAKING MACHINES</u> | | |

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Distribution method

- ☒ Direct pipe from source ☐ In-line storage (tank or pond) ☐ Open canal

D. Conservation

What methods will you use to conserve water? Why did you choose this distribution or application method? For example, if you are using sprinkler irrigation rather than drip irrigation, explain. If you need additional space, attach a separate sheet.

State-of-the-art SMI snowmaking machines are very efficient

6. PROJECT SCHEDULE

Indicate the anticipated dates that the following construction tasks should begin. If construction has already begun, or is completed, please indicate that date.

Proposed date construction will begin: May, 2005

Proposed date construction will be completed: October, 2006

Proposed date beneficial water use will begin: November, 2005

7. REMARKS

If you would like to clarify any information you have provided in the application, please do so here and reference the specific application question you are addressing.

WE RECOMMEND RESTRICTING THIS WATER RIGHT TO BE USED ONLY FOR SNOWMAKING AND
FURTHER RESTRICTED TO THE NON-IRRIGATION SEASON OF NOVEMBER - APRIL OF EACH
YEAR.

ALL THE WATER USED TO MAKE SNOW RETURNS TO THE STREAM WHEN THE SNOW MELTS

8. MAP REQUIREMENTS

The Department cannot process your application without accurate information showing the source of water and location of water use. You must include a map with this application form that clearly indicates the township, range, section, and quarter/quarter section of the proposed well location and place of use. The map must provide tax lot numbers. See the map guidelines sheet for detailed map specifications.

9. SIGNATURE

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 packet.
- I cannot legally use water until the Water Resources Department issues a permit to me.
- 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 canceled.
- The water use must be compatible with local comprehensive land use plans.
- Even if the Department issues a permit to me, I may have to stop using water to allow senior water right holders to get water they are entitled to, and

I swear that all information provided in this application is true and correct to the best of my knowledge:

Daniel E. Ruby President

Signature of Applicant (If more than one applicant, all must sign.)

3/6/05

Date

Before you submit your application be sure you have:

- Answered each question completely.
- Attached a legible map which includes township, range, section, quarter/quarter and tax lot number.
- Included a Land Use Information Form or receipt stub signed by a local official.
- Included the legal description of all the property involved with this application. You may supply a copy of the deed, land sales contract, or title insurance policy, to meet this requirement.
- Included a check payable to the Oregon Water Resources Department for the appropriate amount. The Department's fee schedule can be found at www.wrd.state.or.us or call (503) 986-0900.

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Oregon Water Resources Department

FORM Q
FOR COMMERCIAL AND INDUSTRIAL WATER USES

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1. Describe the goods and services you plan to provide:

MAN-MADE SNOW FOR SKI RESORT

HELPS OPEN AND KEEP OPEN THE SKI RESORT

2. How will the water be used?

100% FOR THE PRODUCTION OF SNOW

3. What is the maximum amount of water that will be used on any given day:

A) 50 gpm pumped from well
B) 4,800 gpm from tank/pond built to accommodate "BULGES" IN THE SYSTEM. ☐ cfs ☒ gpm

4. Are there periods of the day, week, month, or year that the water will not be used?
(e.g. no use December-March)

☐ No ☒ Yes If so, when? NO USE MAY 1 - OCTOBER 31

5. Is there a particular time or period of day, week, month, or year when the use of water is absolutely essential for the project to continue? (e.g. vegetable processing, Oct. 15-Nov. 15)

☐ No ☒ Yes If so, when? whenever it is cold enough to make snow

6. Are there periods of the day, week, month, or year where the amount of water used will be less than at peak times?

☐ No ☒ Yes If so, when? whenever it is too warm to make snow

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

START CARD # 111462

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER



MT HOOD MEADOWS OREGON LTD
HOOD RIVER COUNTY T3S R9E SEC.3 SW 1/4 SW 1/4 TAX LOT#101
WELL LOG

36728 S. Kropf Rd., Molalla, OR 97038 • Phone: (503) 829-2526 FAX (503) 829-7514

<u>MATERIAL</u>	<u>FROM</u>	<u>TO</u>
ash tan soft loose	0	8
boulder reddish brown	8	13
ash, sand, cinders, gravel angular & rubble grey-red-brown	13	28
boulder grey hard	28	33
boulders red brown & rubble	33	41
boulder grey hard	41	47
boulders red brown	52	61
boulders red	61	72
cinders red with boulders & debris	72	78
boulder red	78	80
cinders & gravel with small boulders red	80	89
sand & gravel angular coarse texture with boulders small	89	131
boulders grey hard	131	142
sand & gravel angular coarse texture with boulders small	142	156
boulders grey hard	156	162
basalt grey hard coarse texture heavy mineral deposits with intermittent fracturing	162	271
basalt grey soft very heavy mineral deposits	271	277
basalt grey soft pumicy	277	301
basalt layered hard & soft mutli colored brown & grey	301	317
basalt multi colored multi textured soft	317	361
basalt multi colored multi textured soft with finer matrix	361	387
basalt multi colored multi textured soft	387	447

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THE PLACE OF USE IS LOCATED AS FOLLOWS:

NE $\frac{1}{4}$
NW $\frac{1}{4}$
SE $\frac{1}{4}$
NE $\frac{1}{4}$ SW $\frac{1}{4}$
NW $\frac{1}{4}$ SW $\frac{1}{4}$
SE $\frac{1}{4}$ SW $\frac{1}{4}$
SECTION 4

ALL
SECTION 3

NE $\frac{1}{4}$ NE $\frac{1}{4}$
NW $\frac{1}{4}$ NE $\frac{1}{4}$
SE $\frac{1}{4}$ NE $\frac{1}{4}$
SECTION 9

NE $\frac{1}{4}$
NW $\frac{1}{4}$
SECTION 10

NW $\frac{1}{4}$ NW $\frac{1}{4}$
SW $\frac{1}{4}$ NW $\frac{1}{4}$
SECTION 11

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APPENDIX 'A'

HOOD RIVER MEADOWS WINTER SPORTS AREA

(MT. HOOD MEADOWS
SKI AREA SPECIAL
USE PERMIT AREA)

The revocable permit area is more properly described as follows:

Beginning at the section corner common to Sections 3, 4, 9, 10, T. 3 S., R. 9 E., W.M., located along side of the Umbrella Falls Trail No. 600 within the base area designated in the contiguous term permit.

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Thence south 2200 feet to a point on a ridge that is the southwesterly boundary of this area, and from which point a traverse of the exterior boundary of this area begins and continues in a clock-wise direction.

Thence N 78 degrees W - 1450' to the top of the ridge.

Thence N 14 degrees W - 1200' along top of ridge.

Thence N 53 degrees W - 3200' thru White River saddle to south leg of area triangle.

Thence N 08 degrees W - 4150' along south leg of area triangle

Thence N 01 degrees E - 2800' along south leg of area triangle.

Thence N 28 degrees W - 950' on south side of potential tramway point @8000 elevation.

Thence N 13 degrees W - 900' on south side of ridge above tramway point.

Thence N 01 degrees E - 400' across the Wy'East climbing route ridge to the edge of Newton-Clark glacier.

Thence N 19 degrees E - 1050' across Newton-Clark glacier.

Thence N 46 degrees E - 1100' across Newton-Clark glacier.

Thence S 58 degrees E - 500' to point of rocks which is directly above the ridge between Newton and Clark creeks.

Thence S 72 degrees E - 4350' along the ridge between Newton and Clark creeks.

Thence S 55 degrees E - 1150' along top of the ridge between Newton and Clark creeks.

Thence S 40 degrees E - 2800' along top of ridge between Newton and Clark creeks.

Thence S 51 degrees E - 3550' along same ridge.

Thence S 24 degrees E - 1300' along same ridge.

Thence S 02 degrees W - 1050' down point of ridge towards Clark creek.

Thence S 23 degrees W - 750' down ridge top towards Clark creek.

Thence S 08 degrees E - 1050' into bottom of Clark creek at a prominent fork of this canyon.

Thence S 56 degrees E - 1500' along Clark creek.

Thence S 77 degrees E - 1400' along Clark creek to Elk Meadows Trail North.

Thence S 30 degrees E - 550' along Elk Meadow Trail.

Thence S 15 degrees E - 3200' to the intersection of Hood River Meadows Road with State Highway 35.

Thence S 57 degrees W - 1400' along State Highway 35.

Thence S 79 degrees W - 1250' along State Highway 35.

Thence S 87 degrees W - 850' along State Highway 35.

Thence S 08 degrees E - 1050' along State Highway 35.

Thence S 57 degrees W - 750' along State Highway 35, to intersection of Mt. Hood Meadows access road.

Thence S 32 degrees W - 1150'

Thence N 55 degrees W - 1200'

Thence N 14 degrees W - 1050' to the Hood River District boundary.

Thence N 46 degrees W - 1850' along Hood River District boundary.

Thence N 61 degrees W - 1400' along Hood River District boundary.

Thence N 50 degrees W - 1400' along Hood River District boundary.

Thence N 78 degrees W - 650' along Hood River District boundary to the point of beginning.



LUZIER HYDROSCIENCES

2 Gershwin Court, Lake Oswego, Oregon 97035

Fax (503) 636-7664

(503) 636-1012

March 22, 1999

Mr. Steve Warila, P. E.
Mt. Hood Meadows
PO Box 470
Mt. Hood, Oregon 97041

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WATER RESOURCES DEPT
SALEM, OREGON

RE: 2ND AQUIFER TEST ANALYSIS, WELL-M (JAN. 30-FEB. 2, 1999)
(REF: OREGON WATER RIGHT APPLICATION G12250, MAY 23, 1991)

Dear Steve:

As you requested and with your assistance, a second 3-day aquifer test of production Well-M at 50 gpm was completed during the period Jan. 30 through Feb. 2, 1999. The first 3-day aquifer test at 50 gpm, was performed during the period October 13-19, 1998. The test results are documented in a Luzier Hydrosciences report dated January 20, 1999 (referenced below as LHS Report 1).

One of the conditions specified in the Final Order by Mize (1997) of the Oregon Water Resources Department (OWRD) required that a second pump test be conducted no earlier than 3 months and no later than 4 months after completion of Well-M (October 8, 1998). We have fully complied with the Final Order by completing the second pumping test prior to Feb. 8, 1999 (the 4-month deadline).

This letter is intended as a supplement to the LHS report of Jan. 20, 1999 because the aquifer response to pumping and the test findings, closely match those of the first aquifer test.

BACKGROUND-RECAP

Mt. Hood Meadows Water Company filed a water right application with OWRD on May 23, 1991 for a proposed water-supply well (Application G12250). The well was to be constructed in T3S, R9E - Section 3 (SW^{1/4}, SE^{1/4}) 850 feet north and 1,150 feet west of the southwest corner of Section 3 (Exhibit 1, LHS Report 1).

app # G 16401

well
location

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After a series of studies and Hearings, the MWC Application G12250 was approved (subject to various conditions) for quasi-municipal water use each year between August 1 and October 31 of up to 0.11 cfs (50 gpm) of which up to 0.055 cfs (25 gpm) may be used for erosion control (Mize, OWRD Administrative Law Judge, June, 1997, Final Order, p. 19).

WELL DRILLING HISTORY-RECAP

Westerberg Drilling, Inc. of Molalla, Oregon (an Oregon Licensed Water Well Contractor) completed the drilling of the MWC water supply Well-M during the period August 27 through October 8, 1998.

Well-M was drilled to a total depth of 447 feet (borehole sketch, Exhibit 2, LHS Report 1) with upper zones cased and cemented-off to a depth of 310 feet as generally required by the Final Order (Condition G1, p. 20). This condition was imposed to ensure that deeply confined aquifers below a basalt layer (Marker 4) at a depth of 289 feet in a nearby geothermal test hole (Well-G) would be the source of groundwater to Well-M (Final Order, Findings of Fact No. 58, Marker 4, p.11).

The deeper confined water-bearing zones, according to the driller's log (Exhibit 3, LHS Report 1) consist of several discrete basalt layers exposed in the wellbore from 310 to 445 feet. This section of the rock wellbore was completed with a gravel-packed 6-inch perforated casing extending to land surface (Exhibit 2, LHS Report 1).

Recorded static groundwater levels during drilling, dropped stepwise to deeper and deeper levels (33, 63, 109, and 231 feet) until the static water level stabilized at a depth of about 231 feet. Discrete upper level water-bearing zones with yields ranging from 10 to 100 gpm (depth range 72 to 156 feet) were cased and cemented-off to prevent leakage or commingling with the deeper confined groundwaters (Exhibit 2, LHS Report 1).

Three deep water-bearing zones were identified by the driller at depths between 317 and 345 feet with yields ranging from 10 to 45 gpm. The uniform static groundwater level of 231 feet (extending 79 feet above the bottom of the casing) in each deep zone suggests that the three water-bearing zones may be vertically interconnected and confined.

According to the driller's notes, during the final stages of well construction, the well was developed and cleaned by pumping for about 12 hours on September 25, 1998. Pumping rates ranged from about 40 to 97 gpm and averaged about 75 gpm during the last 3 hours with the pumping level at a depth of about 370 feet (drawdown 135 feet). Although the early test data is not amenable to formal analysis, it gives a 3 hour specific capacity value of 0.56 gpm per foot of drawdown.

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2ND AQUIFER TEST AND CLIMATOLOGICAL MONITORING

The second aquifer test of Well-M (top of casing elevation 5,460.35 feet) was conducted at a steady rate of 50 gpm for 3 days (January 30, 1999; 9:31 am start) to Feb. 2, 1999; (9:30 am shutdown). The drawdown, and recovery (Feb. 2 through Feb. 14) was monitored by data loggers at 1 to 4 minute intervals (attached Exhibits A, B, C, D, and E). Borehole temperatures (Exhibit A) were monitored at a depth of 369 feet in Well-M with a thermister in the 50 psi pressure transducer. Monitoring of pumping operations and flow was performed by Mt. Hood Meadows staff using the same pump and wellhead equipment still in place from the October, 1998 test (pump intake setting 383 feet).

Pretest monitoring of the nearby of Well-M and Geothermal Test hole (Well-G, 181 feet distant, top of casing elevation 5,475.99 feet) was started on the prior day (Jan. 29) at 1-minute intervals using 10 psi transducers and data loggers. The initial pretest static water-level in Well-M was 236.27 feet below top of casing on Jan. 29, 1999 and 235.91 feet at the start of the test on Jan. 30, 1999. For comparison, the static water-level at the start of Test 1 on October 13, 1998 was 231.5 feet or about 4.8 feet higher.

In Well-G, the pretest static water-level in the central 2-inch monitoring pipe was 235.07 feet below top of the 8-inch casing on Jan. 29, 1999. For comparison, the static water-level depth in Well-G in October, 1998 was 230.67 feet or about 4.4 feet higher than in January 1999.

The Well-G monitoring pipe was installed by the US Geological Survey in 1981 to a depth of 1,975 feet. The pipe was apparently capped at the bottom and filled to the top with water (a sealed stand-pipe) for the purpose of obtaining undisturbed geothermal temperature profiles at Mt. Hood. During the excavation of deep snow to gain access to the well on January 28, 1999, a 2-inch coupling support for the 2-inch central monitoring pipe was bumped and popped-off, causing the monitoring pipe to drop less than 1-inch below the casing cap. MWC staff added a new coupling and raised the pipe and restored it to its original position. A 2-inch access port was added by MWC staff to the casing cap of Well-G for access and monitoring of the annular space.

The annular space in Well-G on January 29, 1999 was found to contain apparent drilling mud at a depth of 188.92 feet. The mud in the annular space clogged the pressure transducer sensing element and prevented proper instrument response. Therefore, the transducer was removed and no further measurement of mud levels in annular space was attempted during the pumping test.

Other monitoring activities by Mt. Hood Meadows during the 2nd pumping test of Well-M included hourly measurements of climatological, water quality, and streamflow data at a downstream weir on the East Fork of the Hood River. The station is about 1 mile downslope from Well-M at an elevation of approximately 4,960 feet (i.e., 500 feet lower in

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elevation than the top of casing at Well-M, and about 53 feet lower than the bottom hole elevation in Well-M of 5,013 feet).

Exhibit F includes selected station parameters measured at the water quality station for the period Jan. 1 through Feb. 15, 1999. This graph indicates that air temperatures remained below freezing from mid-January through February 15, 1999. Consequently, streamflow temperatures remained close to freezing throughout the period of interest. Conversely, stream temperatures in October, 1998 were mostly higher (33 to 44 °F) in response to higher air temperatures and snowmelt (Exhibit 5, LHS Report 1). Streamflow during the 1999 test period was relatively stable at about 1.6 to 2.2 cfs and comparable to flow during the October, 1998 test period (1.8 to 2.6 cfs).

As with most streams, a low flow period had been developing during and following the mid-October, 1998 aquifer test period and extending into November (Exhibit 5, LHS Report 1). The 1999 data trends in Exhibit F suggest that a late winter low flow period developed starting in mid-January and extending into mid-February, 1999 due to extended freezing conditions and reduced groundwater recharge.

The findings of lower groundwater levels in January and February, 1999 at Well-M and Well-G by about 4 to 5 feet, suggests that the local Mt. Hood groundwater reservoir may reach its lowest level in late winter (say February) rather than in the fall which is typical for the valley aquifers of western Oregon.

GROUNDWATER TEMPERATURE CONSIDERATIONS

In the analysis of aquifer tests, corrections for the effect of water temperature on fluid viscosity are usually unnecessary and justifiably ignored. This is because the temperature of most aquifer systems does not depart greatly from the assumed "field" temperature of 60 °F on which most groundwater flow equations are based.

However, in special cases for example, such as in the use of Ranney Collectors which collect groundwater from beneath streams with seasonal temperature ranges of say 33°F to 80°F, the system pumping capacity may decrease by 50% during winter because of the increased viscosity of groundwater at low temperatures. In effect, cold groundwater (say at 36 °F) moves about 50% slower through an aquifer system and into pumping wells than warmer groundwater (say at 61 °F).

During the second aquifer test of Well-M, groundwater temperatures in the wellbore at a depth of 369 feet (Exhibit A) remained within a narrow range of about 36.8 °F to 37.1 °F. The slight temperature rise in the borehole during pumping is probably due to vertical groundwater movement and mixing effects from several contributing water-bearing zones open to the perforated casing (see Exhibit 2, LHS Report 1). Some addition of heat also may have originated from the pump motor which was cooled by flowing groundwater as it

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entered the pump intake at a depth of 383 feet. In any case, the undisturbed groundwater temperature in Well-M near the middle of the main production zone (310 to 445 feet) at a depth of 369 feet is about 36.9 °F. The water viscosity at this temperature is about 45% lower than the assumed standard for "field" conditions of 60 °F.

Geothermal temperature profiles measured in Well-G by the Oregon Department of Geology and Mineral Industries (DOGAMI) in 1981 (Exhibit G) confirm the recent temperature findings during the pumping of Well-M. The temperature curves show that cold groundwater circulation (about 36 °F to 46 °F) extends to a depth of at least 1,000 feet at the geothermal test site. The uppermost and coldest groundwater zone is uniformly cold (36 °F to 39 °F) to a depth of about 650 feet. Below a depth of 1,000 feet the rate of temperature increase is uniform at 7 °F per 100 feet of depth giving a bottom hole temperature of about 84.2 °F at a depth of 1,975 feet.

In general, the geothermal profiles demonstrate that regional groundwater movement through high elevation flank deposits of Mt. Hood to depths of more than 1,000 feet, is relatively slow because the groundwater is so cold (36 °F to 46 °F). Therefore, standard computations of groundwater flow and pumping influence effects discussed below and in LHS Report 1, have been adjusted to account for the presence of cold groundwaters.

AQUIFER TEST ANALYSIS, WELL-M TEST 2

The data from the second aquifer test of Well-M has been evaluated for Transmissivity (T) in several ways including specific capacity conversion, and analysis of semilog plots and curve matching methods.

After pumping Well-M for 72 hours at 50 gpm for 3 days, the pumping level had dropped to 348.3 feet from a static level of 235.91 feet (Vs 343.25 feet from a static level of 231.5 feet in Test 1). Total drawdown (112.42 feet) was essentially identical to the drawdown in Test 1 of 111.75 feet and the specific capacity of 0.45 gpm per foot of drawdown.

According to Luzier and Burt (1974) Hydrology of Basalt aquifers and Depletion of Groundwater in East-Central Washington (USGS Water-Supply Bulletin 33), a suitable specific capacity conversion constant to T (in gpd/ft) for basalt aquifers is 2,000. Therefore, for Well-M the indicated T for standard field conditions (60 °F) is about 895 gpd/ft. Semilog and curve matching plots of Test 2 show about the same results as in test 1 reported earlier for Test 1 (i.e., the Test 2 recovery slope in Exhibit E gives a T = 614 gpd/ft Vs the Test 1 recovery slope T=714 gpd/ft (prior LHS Exhibit 7).

The prior analysis of semilog plots and curve matching methods (Exhibits 6, 7, and 8 in LHS Report 1) showed uniformly low permeability values (T ranges from about 470 to 840 gpd/ft). As in the first test, the semilog recovery plot Exhibit E shows an acceleration in recovery rate after about 1,300 minutes when the rising water level had recovered by about

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50 feet (to a depth 298 feet) and had risen above the perforated and gravel-packed section of the 6-inch casing (top of gravel pack 310 feet).

As shown in the borehole sketch of Exhibit 2 (LHS Report 1) near the end of aquifer Test 2, the pumping level (depth 348.3 feet) had receded into the larger diameter gravel-packed 10-inch rock hole outside the 6-inch perforated casing. Gravel packs and water-bearing zones being porous, take extra time to recover, thereby slowing down the rate of recovery slightly. The change in borehole diameters and conditions, especially in low yield aquifers, may result in irregular data trends as in the nearly identical recovery curves of each aquifer test.

Despite the departure from ideal, uniform borehole conditions in Well-M, calculated permeability coefficients such as Transmissivity (T) from both aquifer tests are uniformly low and essentially identical, despite fall Vs winter conditions, and the use of multiple methods of analysis, i.e., Exhibits 6 through 8 (LHS Report 1) and the specific capacity conversions.

The semilog plots use a standard method of analysis described by Ferris and Others (1962) Theory of Aquifer tests, Groundwater Hydraulics (USGS Water-Supply Paper 1536-E) in which a straight line analysis ("Jacob's Method") for confined aquifers was used to compute the T as in LHS Report 1 (prior Exhibits 6, 7, and 8 -- the Theis curve matching analysis).

Based on a review of the duplicated analytical results of both tests, the Test 1 estimated Transmissivity of 828 gpd/ft (at 60 °F) has been confirmed and is internally consistent with results of the pumping Test 2 results. However, new findings and measurement of cold groundwater at Mt. Hood Meadows (above) shows that the effective Transmissivity should be corrected downward by about 45% or T= 455 gpd/ft (about 37 °F).

The lower value of (T) has been used to recalculate the estimated extent of the cone of depression for a storage coefficient of 0.006, expected operational pumping rates of 25 and 50 gpm for Well-M, and pumping periods of 3 days and 90 days (Exhibit H). The Theis Equation calculations (Ferris and Others, 1962, and Barker, 1977 USGS WRD Bulletin) are extremely conservative in that a basic assumption is that the aquifer is completely tight (no vertical leakage or recharge) and the aquifer is uniform and infinite in areal extent.

Storage coefficients are normally determined by measuring the response to pumping in distant observation wells. This was attempted in the second aquifer test by monitoring the nearby Geothermal Test Well-G at 1-minute intervals using a high resolution 10-psi transducer (Exhibits B and C). Measurable pumping response was not detected at all in the central monitoring pipe of Well-G. This may be because the monitoring pipe is totally isolated from natural groundwaters as intended by the USGS in 1980-81. More likely however, the central pipe is probably badly corroded and damaged, and open to deeper

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groundwaters at some depth below the bottom of Well-M between the depths 500 feet and 1,975 feet.

Evidence for Well-G interconnectivity with deep, natural groundwaters, is the similar lowering in seasonal groundwater-levels of about 4 to 5 feet in both Well-M and Well-G (page 4). The absence of a direct response in Well-G to pumping of Well-M, prevents a determination of the storage coefficient.

Exhibits B and C show a slight downward trend in water-levels of Well-G (dark blue line). The slight lowering of level in Well-G may be due to cross-bed leakage in response to pumping (a normal and expected leakage process at Mt. Hood). Alternatively, the slight lowering in level may be due borehole adjustments to the pipe movement and repairs just hours prior to installation of the transducers. The pretest rising trend in Well-M (Exhibits B and C, red line) is probably due to the first use and "weight stretching" of a new transducer cable suspended to a depth of 369 feet.

An estimated storage coefficient "S" must be chosen in order to calculate drawdowns and the estimated area of pumping influence near Well-M (Exhibit H). A storage coefficient of 0.0005 is typical for many confined aquifers, while an "S" of 0.0001 or lower is possible but less common. Larger storage coefficients such as 0.006 often prevail in leaky confined artesian basalt aquifers, particularly after long periods of seasonal pumping (Luzier and Burt, 1974).

The recalculated drawdown curves in Exhibit H show a range of possible configurations in the extent of drawdown caused by pumping Well-M at 50 gpm continuously for 3 days and 90 days, and 25 gpm for 90 days. A plot of 50 gpm/90 days drawdown at (60 °F) is included (from prior LHS Exhibit 9) for comparison of temperature effects on drawdown (dashed line Vs solid square symbols). In general, the curves show that most of the drawdown is probably confined to a radius of less than 1,200 feet if no leakage or recharge occurs and the aquifer is tightly confined. However, we know that recharge does occur as evident from the recovery of the well after it was pumped in each aquifer test, and the apparently prolific recharge conditions on Mt. Hood as suggested by the deep circulation of cold groundwater (Exhibit G).

Given the high mountain slope setting and the large supply of snowmelt, soil moisture, and cold groundwater in storage and circulating to depths of more than 1,000 feet (Exhibit G) it is likely that confined aquifers throughout the Mt. Hood slopes are readily recharged and slightly leaky. In other words, computed curves using the larger storage coefficient of $S = .006$, are probably representative of drawdown conditions that might reasonably be expected during continuous pumping of Well-M.

Pumping of most municipal wells is rarely continuous however, but instead is cyclic with rest periods when storage tanks are full. The rest periods provide time for the aquifer to

Mr. Steve Warila, P. E.
March 22, 1999
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MT. HOOD MEADOWS, PUMP TEST 2, WELL-M

be recharged and the drawdown cone shrinks accordingly. Therefore, the calculated drawdown curves of Exhibit H provide the worst case approach. This analysis suggests that measurable drawdown in the confined aquifer zone of Well-M under normal operating and recharge conditions, will be restricted to a radius of less than 800 feet.

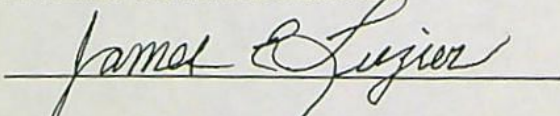
As in the first test, effects if any, of the second pumping test of Well-M on flow of the East Fork Hood River (Exhibit F) was not measurable or obvious for several reasons:

1. The pumped groundwater was removed from a deep, thick section of confined water-bearing basaltic flow layers that originated at high elevations and dip steeply down the mountain slope, possibly daylighting below Sahalie Falls at lower elevations (Final Order, Findings of Fact No. 58, p. 11).
2. The pumped groundwater in Test 2 was discharged to a thick winter blanket of snow covering nearby ground slopes of loose, rocky soils of high infiltration capacity. Some of the pumped groundwater was probably tied up as ice but most of the groundwater was probably returned to the shallow, upper groundwater reservoir where it slowly intermixes and will eventually be discharged as springs and direct inflow to the East Fork of the Hood River within a probable radius of about 850 to 2,000 feet southwest of Well-M.
3. A small proportion of the discharged groundwater probably finds its way back to the deep confined aquifer from which it was pumped.
4. The magnitude of time scales and climatological masking, and apparent high rates of recharge, are probably too great in terms of the small pumping rates, to identify or to measure any impacts within the river basin.
5. The presence of cold groundwater within the slope deposits of Mt. Hood slows down groundwater/surface water interactions and restricts the expansion of the cone of depression for any given pumping rate.

Please contact me if you have any questions.

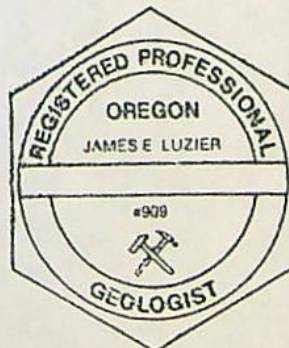
Sincerely,

LUZIER HYDROSCIENCES



James E. Luzier, P.G., Geohydrologist

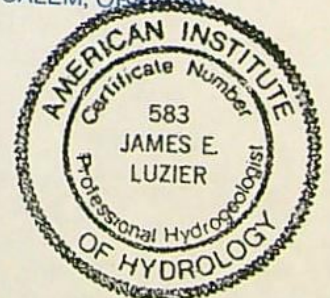
Attachments: Exhibits A through H



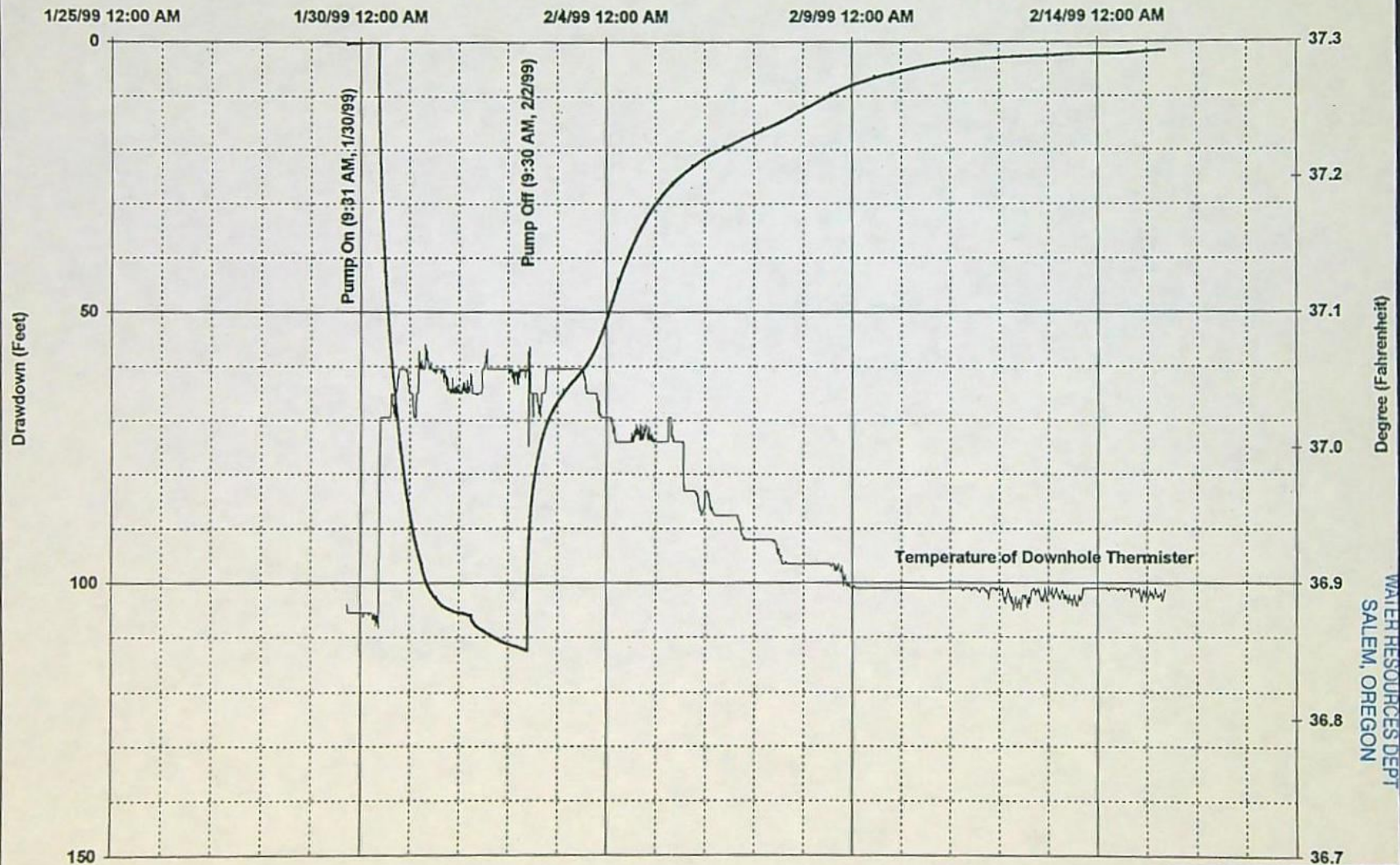
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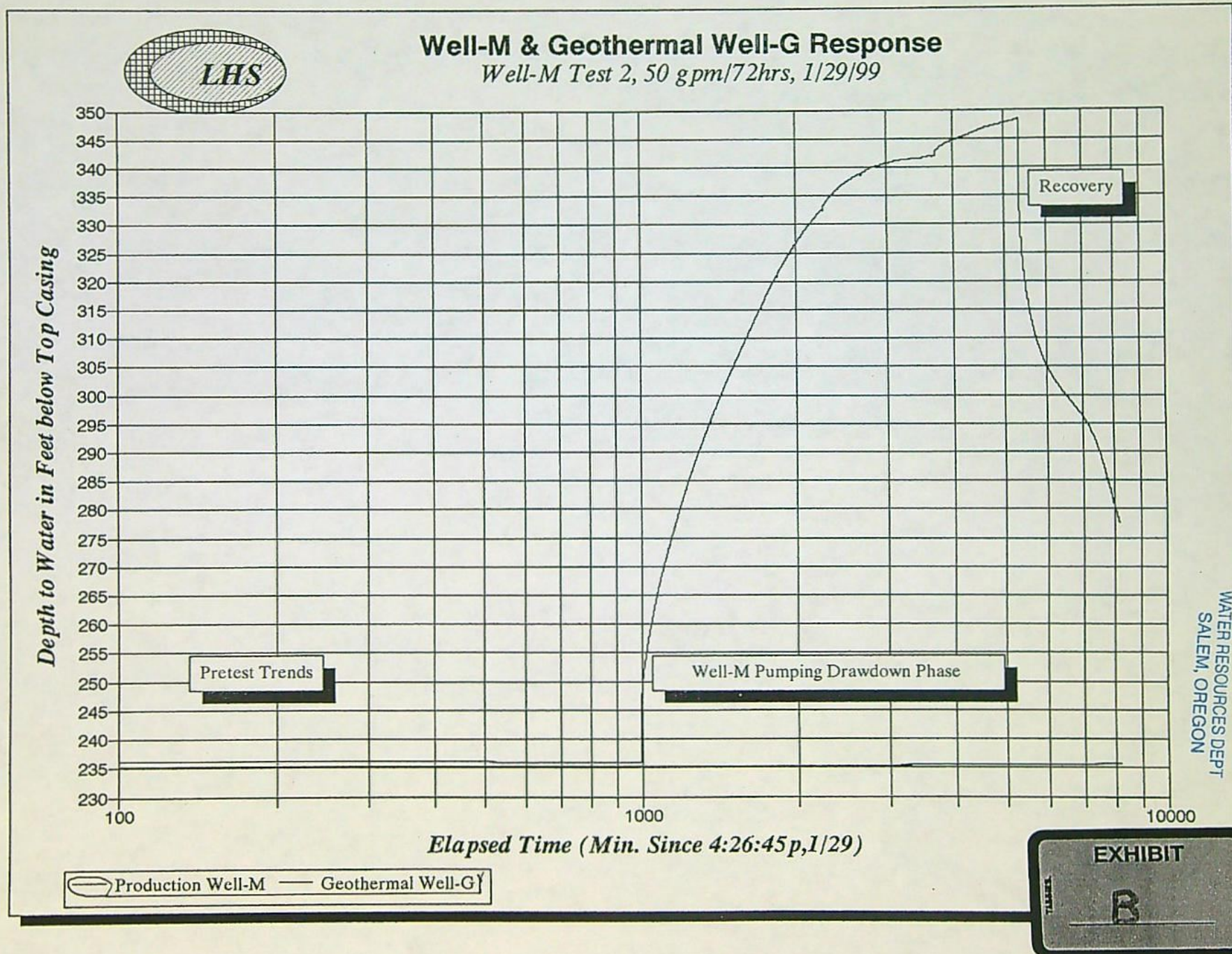
Mt.Hood Meadows Well-M Test 2 Response (2nd test @50gpm,3 days w.temp @369 ft)



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EXHIBIT
A



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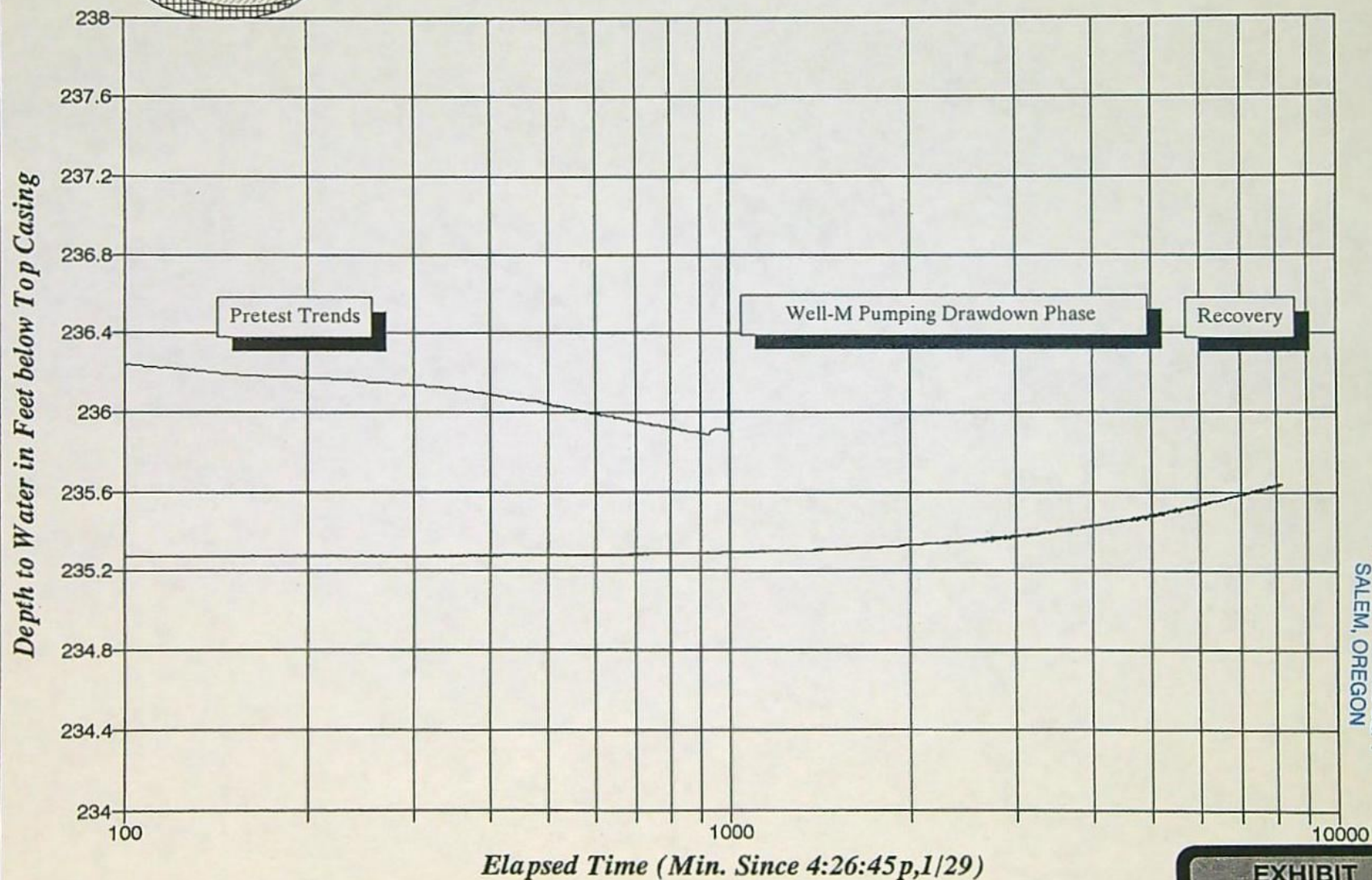
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Well-M & Geothermal Well-G Response

Well-M Test 2, 50 gpm/72hrs, 1/29/99



Production Well-M — Geothermal Well-G

EXHIBIT

C

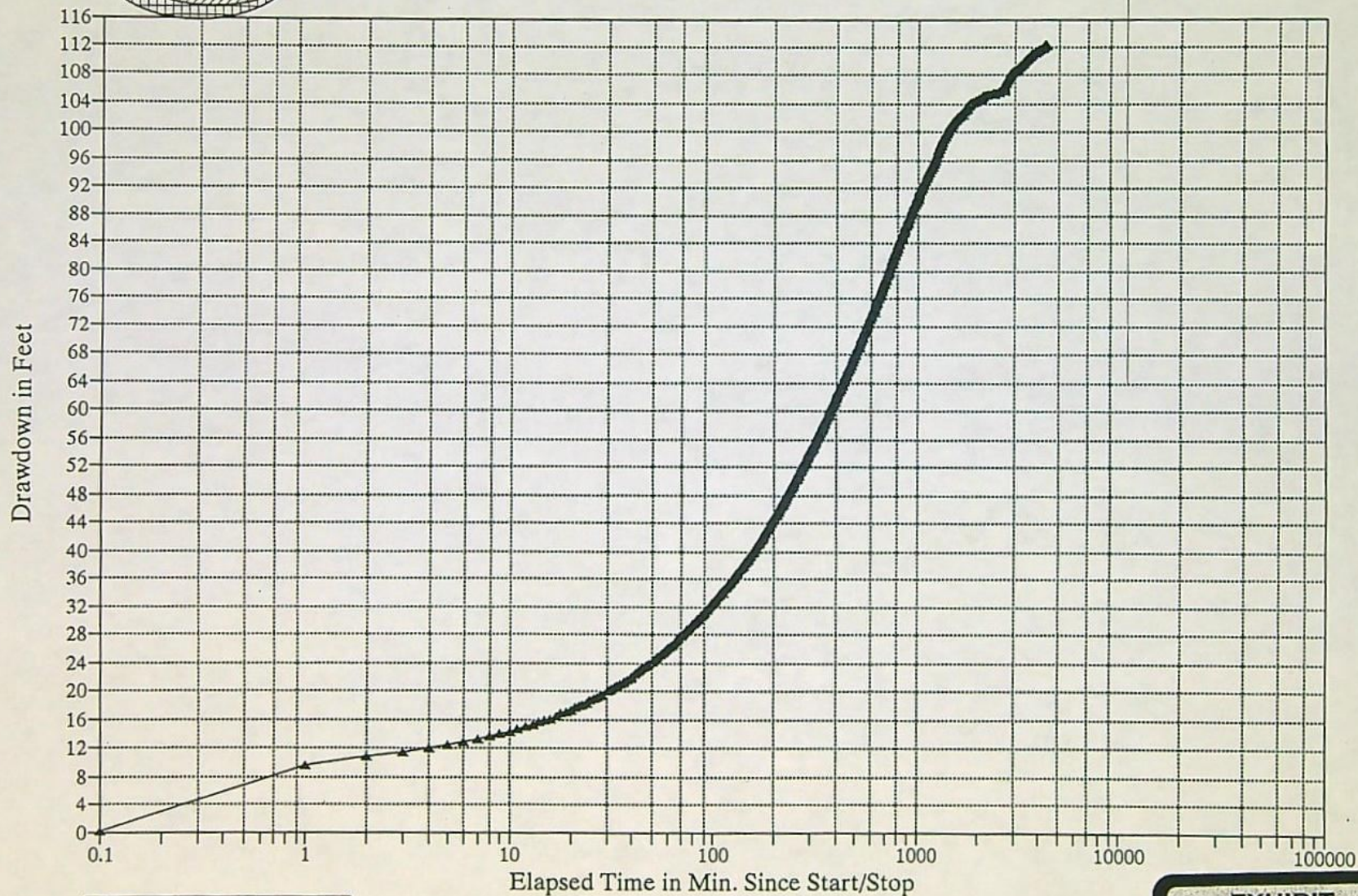
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MtHood Meadows Well-M, Test 2 Drawdown

(Test 2 @ 50gpm for 3 days, 1/30-2/2/99)



▲ Drawdown @ 50 gpm

EXHIBIT

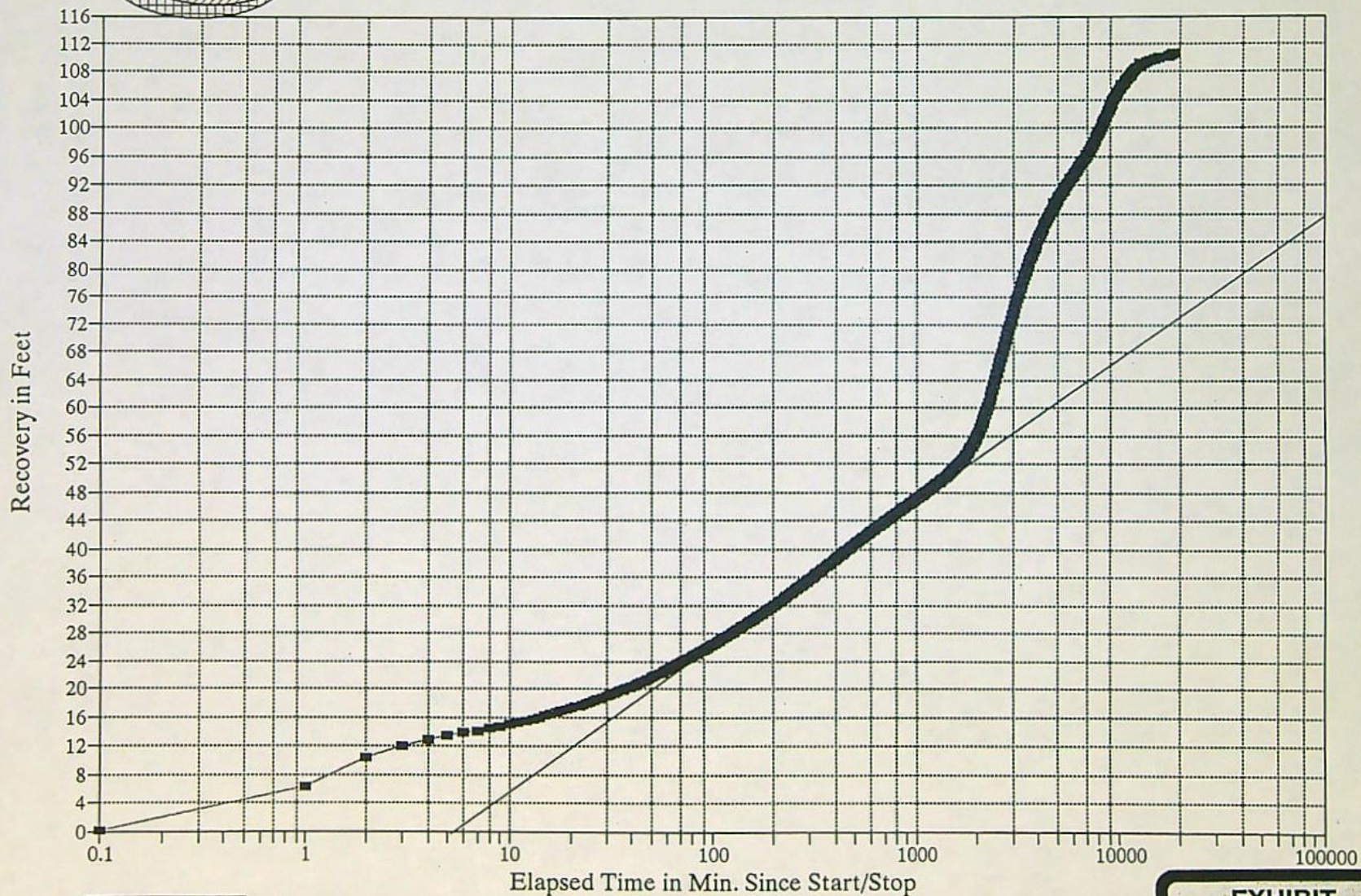
D

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MtHood Meadows Well-M, Test 2 Recovery

(Test 2 @ 50gpm for 3 days, 1/30-2/2/99)



■ Recovery

EXHIBIT

E

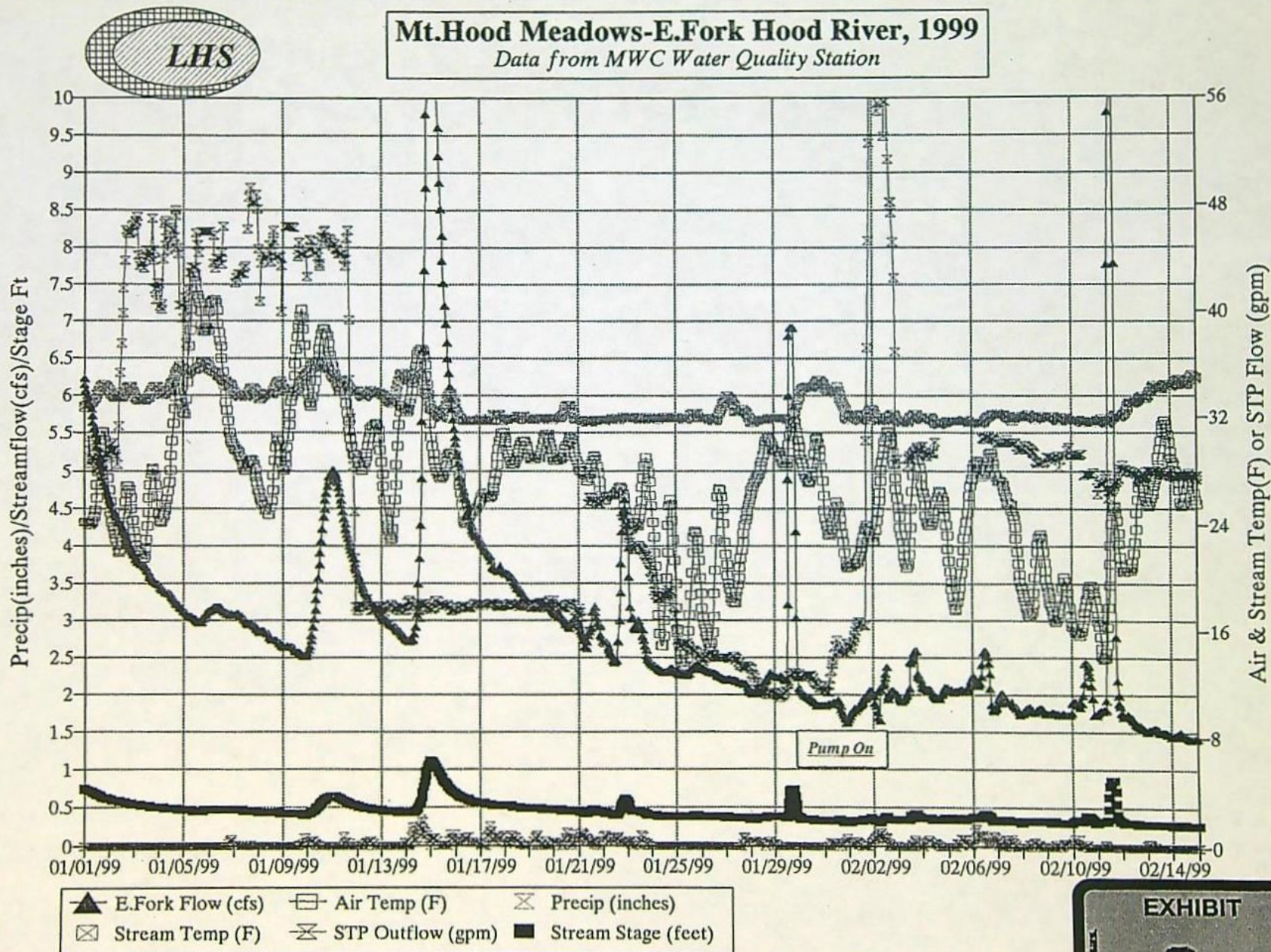
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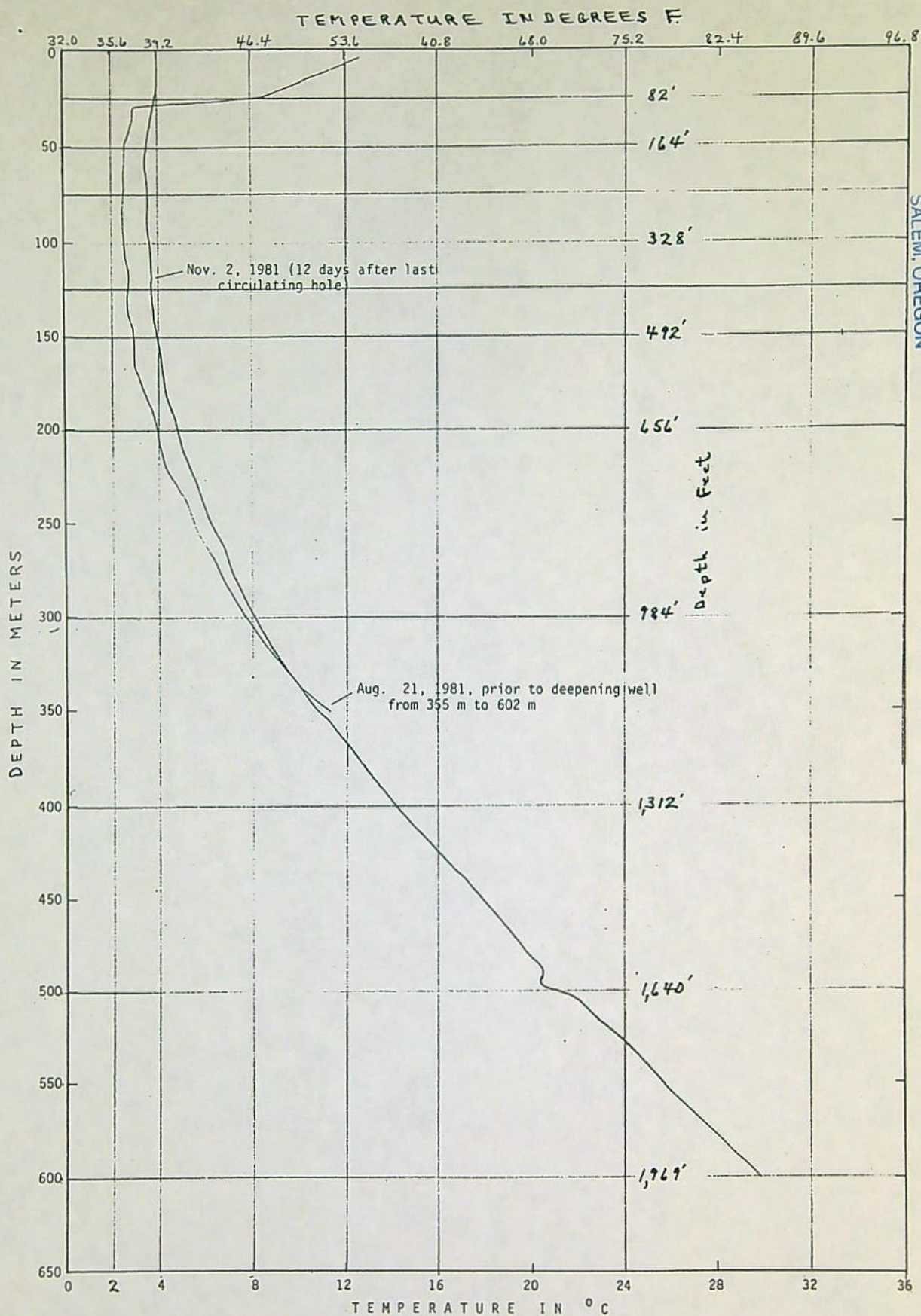
EXHIBIT

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Graph of temperature measurements in well 3S/9E-3cca. (Mt Hood Meadows Well-G)

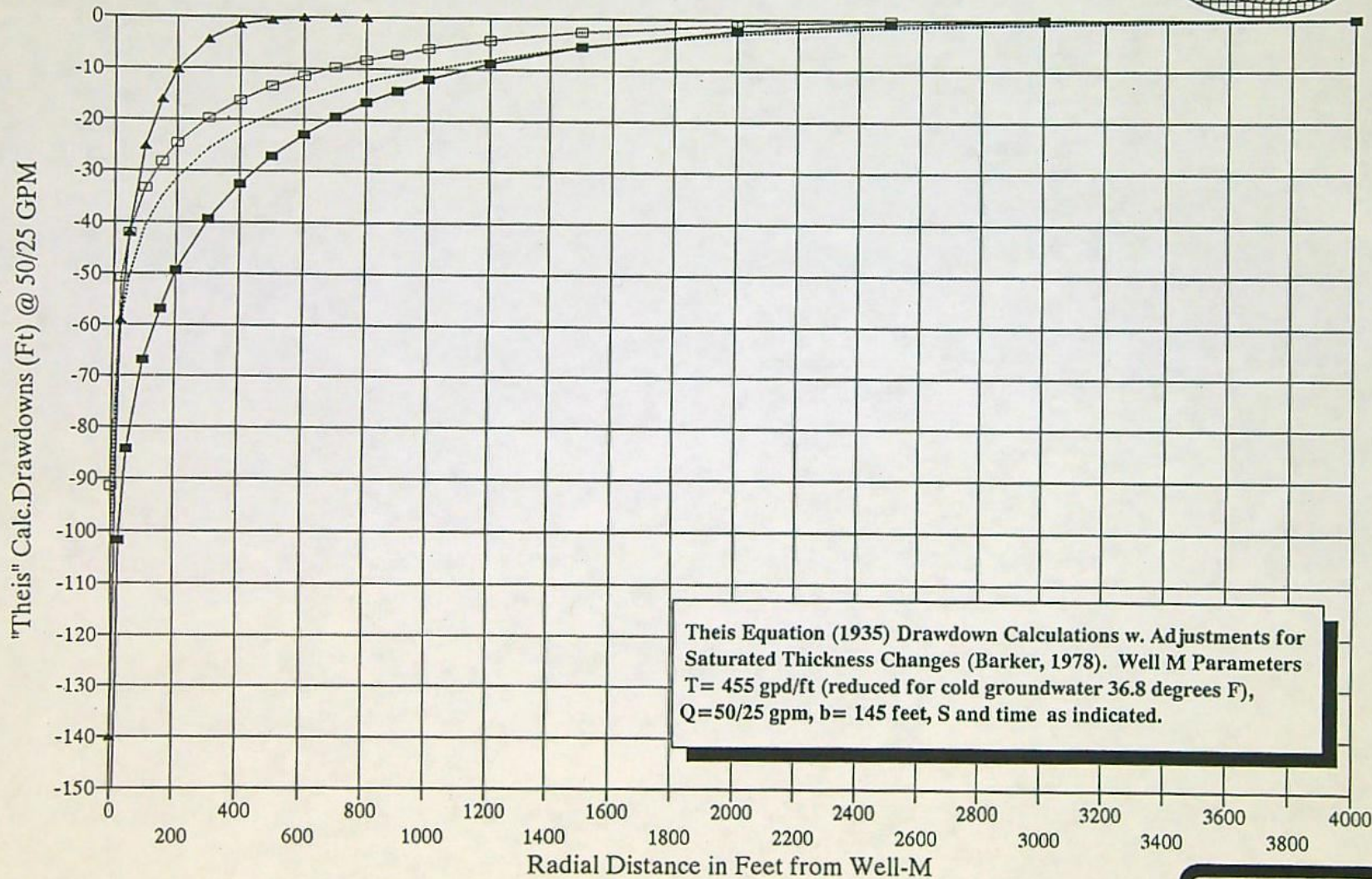
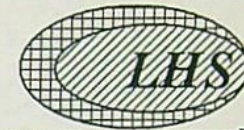
Mt. Hood Meadows site, Mt. Hood area, Oregon. 45°20'00" N. 121°39'36" W. Altitude approximately 1,665 meters (5,460 feet). Temperature measurements August 21, 1981 and November 2, 1981 by G.L. Black, Oregon Dept. Geol. & Min. Industries. (Modifications by Lucier Hydrosciences, March 1999)

EXHIBIT

G

Mt.Hood Meadows Well-M, Calc. Drawdowns

(Based on Well-M Tests of 10/98, 1/99)



▲ 50gpm, S=.006, 3Days ■ 50gpm, S=.006, 90Days □ 25gpm, S=.006, 90Days 50gpm/90days @ 60F

EXHIBIT

H

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2 Gershwin Court, Lake Oswego, Oregon 97035

Fax (503) 636-7664

(503) 636-1012

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WATER RESOURCES DEPT
SALEM, OREGON

Mr. Steve Warila, P. E.
Mt. Hood Meadows
PO Box 470
Mt. Hood, Oregon 97041

RE: AQUIFER TEST ANALYSIS, WELL-M, OCTOBER 13-19, 1998
(REF: OREGON WATER RIGHT APPLICATION G12250, MAY 23, 1991)

Dear Steve:

As you requested, I have completed the analysis of the pump test of Well-M performed by Westerberg Drilling Inc. and Mt. Hood Meadows Water Company (MWC) during the period October 13-19, 1998. One of the conditions specified in the Final Order by Oregon Water Resources Department (OWRD) required the performance of a second pump test to be conducted no earlier than 3 months and no later than 4 months after completion of the well (October 8, 1998). I have included recommendations for conducting the second test by February 8, 1999 (the 4-month deadline).

BACKGROUND

Mt. Hood Meadows Water Company filed a water right application with OWRD on May 23, 1991 for a proposed water-supply well (Application G12250). The well was to be constructed in T3S, R9E - Section 3 (SW^{1/4}, SE^{1/4}) 850 feet north and 1,150 feet west of the southwest corner of Section 3 (Exhibit 1).

After a series of studies and Hearings, the MWC Application G12250 was approved (subject to various conditions) for quasi-municipal water use each year between August 1 and October 31 of up to 0.11 cfs (50 gpm) of which up to 0.055 cfs (25 gpm) may be used for erosion control (Mize, OWRD Administrative Law Judge, June, 1997, Final Order, p. 19).

WELL DRILLING HISTORY

Westerberg Drilling, Inc. of Molalla, Oregon (an Oregon Licensed Water Well Contractor) completed the drilling of the MWC water supply well during the period August 27 through October 8, 1998.

app # G 16401

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Mt. HOOD MEADOWS, PUMP TEST 1, WELL-M

Well-M was drilled to a total depth of 447 feet (borehole sketch, Exhibit 2) with upper zones cased and cemented-off to a depth of 310 feet as generally required by the Final Order (Condition G1, p. 20). This condition was imposed to ensure that deeply confined aquifers below a basalt layer (Marker 4) at a depth of 289 feet in a nearby geothermal test hole (Well-G) would be the source of groundwater to Well-M (Final Order, Findings of Fact No. 58, Marker 4, p.11).

The deeper confined water-bearing zones, according to the driller's log (Exhibit 3) consist of several discrete basalt layers exposed in the wellbore from 310 to 445 feet. This section of the rock wellbore was completed with a gravel-packed 6-inch perforated casing extending to land surface (Exhibit 2).

Recorded static groundwater levels during drilling, dropped stepwise to deeper and deeper levels (33, 63, 109, and 231 feet) until the static water level stabilized at a depth of 231 feet. Discrete upper level water-bearing zones with yields ranging from 10 to 100 gpm (depth range 72 to 156 feet) were cased and cemented-off to prevent leakage or commingling with the deeper confined groundwaters (Exhibit 2).

Three deep water-bearing zones were identified by the driller at depths between 317 and 345 feet with yields ranging from 10 to 45 gpm. The uniform static groundwater level of 231 feet (extending 79 feet above the bottom of the casing) in each deep zone suggests that the three water-bearing zones may be vertically interconnected and confined.

According to the driller's notes, during the final stages of well construction, the well was developed and cleaned by pumping for about 12 hours on September 25, 1998. Pumping rates ranged from about 40 to 97 gpm and averaged about 75 gpm during the last 3 hours with the pumping level at a depth of about 370 feet (drawdown 135 feet). Although the early test data is not amenable to formal analysis, it gives a 3 hour specific capacity value of 0.56 gpm per foot of drawdown.

AQUIFER TEST AND CLIMATOLOGICAL MONITORING

The pumping test of Well-M (top of casing elevation 5,460.35 feet) was conducted at a steady rate of 50 gpm for 3 days (October 13 (3:00 pm start) to October 16 (3:30 pm shutdown). Recovery was monitored from October 16 through October 22 at variable but closely spaced intervals (see appended test data summary sheets and preliminary graphical plots). All monitoring of flow and groundwater level was performed manually using the same calibrated electric water-level sounder.

The nearby Geothermal Test hole (Well G, 181 feet distant, top of casing elevation 5,475.99 feet) was not measured until the end of the recovery period on October 22, 1998 at approximately 1:30 pm (see appended Mt. Hood Meadows interoffice documentation

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MT. HOOD MEADOWS, PUMP TEST 1, WELL-M

memo by Steve Warila). According to Mr. Warila, the water-level check measurement of 230.67 feet in the geothermal well was obtained in the central 2-inch galvanized monitoring pipe that may extend to a total depth of 1,972 feet (documentation on final construction details of Well-G is incomplete at this time; see appended log data and notes from USGS).

Other monitoring activities during the pumping test of Well-M included hourly measurements of climatological, water quality, and streamflow data at a downstream weir on the East Fork of the Hood River about 1 mile downslope from Well-M at elevation approximately 4,960 feet (i.e., 500 feet lower in elevation than the top of casing at Well-M, and about 53 feet lower than the bottom hole elevation in Well-M of 5,013 feet).

Exhibit 4 includes selected parameters measured at the water quality station for the calendar year through late November, 1998. This graph shows how important the rising air temperatures are as a driving force for producing snowmelt runoff, shallow recharge, and increased streamflow (1.5 to more than 24 cfs) with constantly varying temperatures (32 °F to more than 56 °F).

Exhibit 5 is an expanded view of the same data (with stream stage added) for the fall period in which the aquifer test was performed. As with most streams, a low flow period was developing during and following the mid-October aquifer test period and continued into November (Exhibit 5). The gradual streamflow recession in October of about 0.4 cfs (180 gpm) is caused by a rapidly diminishing supply of snowmelt at various elevations within the mountainous watershed of the East Fork Hood River.

The effects of the pumping test of Well-M at 50 gpm cannot be distinguished for several reasons:

1. The pumped groundwater was removed from a deep, thick section of confined water-bearing basaltic flow layers that originated at high elevations and dip steeply down the mountain slope, possibly daylighting below Sahalie Falls at lower elevations (Final Order, Findings of Fact No. 58, p. 11).
2. The pumped groundwater was discharged to a sprinkler system on nearby ground slopes of loose, rocky soils of high infiltration capacity. Some of the pumped groundwater was probably lost to evaporation but most of the groundwater was returned to the shallow, upper groundwater reservoir where it slowly intermixes and will eventually be discharged as springs and direct inflow to the East Fork of the Hood River within a probable radius of about 850 to 2,000 feet southwest of Well-M.
3. A small proportion of the discharged groundwater probably finds its way back to the deep confined aquifer from which it was pumped.

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MT. HOOD MEADOWS, PUMP TEST 1, WELL-M

4. The magnitude of time scales and climatological masking are probably too great in terms of the small pumping rates, to identify or to measure impacts.

AQUIFER TEST ANALYSIS

The aquifer test data from Well-M has been evaluated for Transmissivity (T) in several ways including specific capacity conversion, and analysis of semilog plots and curve matching methods.

After pumping Well-M for 72.5 hours at 50 gpm, the pumping level had dropped to 343.25 feet from a static level of 231.5 feet (see appended tabulations of test data). Total drawdown was therefore 111.75 feet and the specific capacity was 0.45 gpm per foot of drawdown. According to Luzier and Burt (1974) Hydrology of Basalt aquifers and Depletion of Groundwater in East-Central Washington (USGS Water-Supply Bulletin 33), a suitable specific capacity conversion constant to T (in gpd/ft) for basalt aquifers is 2,000. Therefore, for Well-M the indicated T is 895 gpd/ft.

Analysis of semilog plots and curve matching methods (Exhibits 6, 7, and 8) also show uniformly low permeability values (T ranges from about 470 to 840 gpd/ft). The semilog recovery plot shows an acceleration in recovery rate after about 1,300 minutes (21.7 hours after shutdown) when the rising water level had recovered by about 50 feet and had risen above the perforated and gravel-packed section of the 6-inch casing.

As shown in the borehole sketch of Exhibit 2, by the end of the aquifer test, the pumping level had receded into the larger diameter gravel-packed 10-inch rock hole outside the 6-inch perforated casing. Gravel packs take extra time to refill, thereby slowing down the rate of recovery slightly. The change in borehole diameters and conditions, especially in low yield aquifers, may result in irregular data trends as in the recovery curve of Exhibit 7.

However, despite the departure from ideal and uniform borehole conditions in Well-M, the calculated permeability coefficients such as Transmissivity (T) from the aquifer test are uniformly low and in the same ball park, despite the use of different methods of analysis shown in Exhibits 6 through 8, and the specific capacity conversion.

The semilog plots use a standard method of analysis described by Ferris and Others (1962) Theory of Aquifer tests, Groundwater Hydraulics (USGS Water-Supply Paper 1536-E) in which a straight line analysis ("Jacob's Method") for confined aquifers is used to compute the T as in Exhibits 6 and 7. Exhibit 8 is a Theis curve matching analysis of the test data using a commercial groundwater analysis computer program.

Based on a review of the analytical results, a Transmissivity of 828 gpd/ft (consistent with Exhibit 8 and the specific capacity data) has been used to calculate the extent of the cone of depression for various storage coefficient estimates for confined aquifers, pumping rates,

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and pumping periods using the Theis Equation (Exhibit 9). The Theis Equation (Ferris and Others, 1962, and Barker, 1977 USGS WRD Bulletin) calculations are extremely conservative in that a basic assumption is that the aquifer is completely tight (no vertical leakage or recharge) and the aquifer is perfectly uniform and infinite in areal extent.

Storage coefficients must be determined by measuring the response to pumping in distant observation wells. This was not attempted in the October test because the nearby Geothermal Well-G was noted in USGS publications as containing an isolated and bottom-capped, unperforated, central 2-inch pipe surrounded by drilling mud. The isolated pipe is normally filled with water for making deep temperature probe measurements. The single water-level measurement after the test by MWC was just a check to confirm that the 2-inch pipe was full of water. It was not full, and the deep water-level of 230.67 feet suggests that the central pipe may be corroded or damaged somewhere at depth and therefore may be open to deep aquifers and will be monitored during the next aquifer test of Well-M.

A storage coefficient of 0.0005 is typical for many confined aquifers, while 0.0001 is tighter and less common. Larger storage coefficients such as 0.006 often prevail in more leaky confined artesian basalt aquifers, particularly after long periods of seasonal pumping (Luzier and Burt, 1974).

The calculated drawdown curves in Exhibit 9 show a range of possible configurations in the extent of drawdown caused by pumping Well-M at 50 gpm continuously for 3 days and 90 days, and 25 gpm for 90 days. In general, the curves show that most of the drawdown is confined to a radius of less than 1,400 feet if no leakage or recharge occurs and the aquifer is tightly confined. However, we know that recharge does occur as evident from the recovery of the well after it was pumped in October.

Given the high mountain slope setting and the large supply of snowmelt, soil moisture, and groundwater in storage in higher level aquifers, it is likely that confined aquifers throughout the Mt. Hood slopes are readily recharged and slightly leaky. In other words, the larger storage coefficient curves using $S = .006$, are probably more representative of drawdown conditions that might reasonably be expected during continuous pumping of Well-M.

Pumping of most municipal wells is rarely continuous however, but instead is cyclic with rest periods when storage reservoirs are full. The rest periods provide time for the aquifer to be recharged and the drawdown cone shrinks accordingly. Therefore, the calculated drawdown curves of Exhibit 9 provide the worst case approach.

This analysis suggests that measurable drawdown in the confined aquifer zone of Well-M under normal operating conditions, will be restricted to a radius of less than 1,000 feet.

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MT. HOOD MEADOWS, PUMP TEST 1, WELL-M

RECOMMENDATIONS

1. The second pumping test required by the Final Order should be performed and recovery completed by about February 8, 1999.
2. If the above period is chosen, the wellheads will need to be excavated and exposed, equipment installed and checked, and the test started by about February 3, 1999 (assuming a 3 day test and 3 day recovery).
3. The second test should be designed in consultation with OWRD staff.
4. Preliminary plans for testing are as follows:
 - ☒ Use the same pump and flowmeter as in test 1 and provide for water disposal.
 - ☒ Prepare Well-G by adding an access port into the annular space for making measurements. Install two data loggers to monitor the 2-inch pipe levels and the annular space levels at 1-minute intervals starting prior to the pump test (as soon as access is provided) and continuing through and beyond to full recovery.
 - ☒ Install a data logger and an Electric sounder in Well-M. Record pre-test levels and pumping water-levels.
 - ☒ Record pumping rates (50 gpm) and selected water-quality parameters.
 - ☒ Consider with OWRD the possibility of a lower pumping rate (say 25 to 30 gpm) to maintain the pumping level above the bottom of the casing (for cleaner response data).

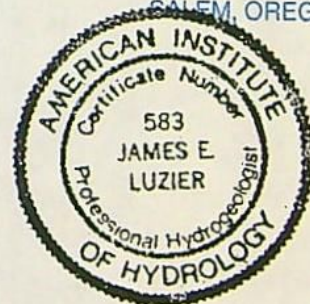
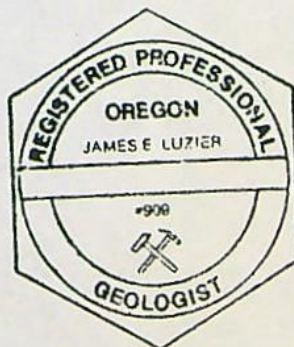
Please contact me if you have any questions or suggestions.

Sincerely,

LUZIER HYDROSCIENCES

James E. Luzier

James E. Luzier, P.G., Geohydrologist



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Attachments: Exhibits 1 through 9

Well-M Test data summaries and preliminary graphs

Well-G Selected pages 1, 10, 11, 12, from USGS Geothermal report.

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GRID N: 610003.218
GRID E: 1701245.652
LATITUDE: 45°20'02.381"
LONGITUDE: 121°39'42.485"

503
5475.99 Geothermal
WELL-G

502
5458.04
CNL

504 Main Well
5480.35
WELL-M

GRID N: 609852.793
GRID E: 1701344.840
LATITUDE: 45°20'00.910"
LONGITUDE: 121°39'41.049"



MT. HOOD
MEADOWS
SKI RESORT

Mt Hood Meadows

• WELL LOCATIONS

SW 12\01\98

W4130408 dwg

SIZE FSCM NO
SCALE: 1"=200'

DWG NO

REV

EXHIBIT

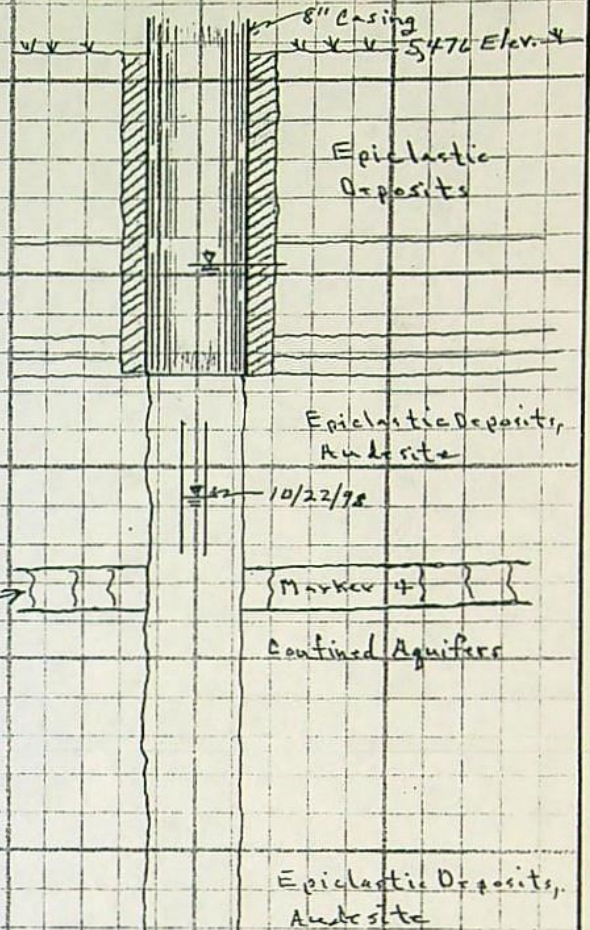
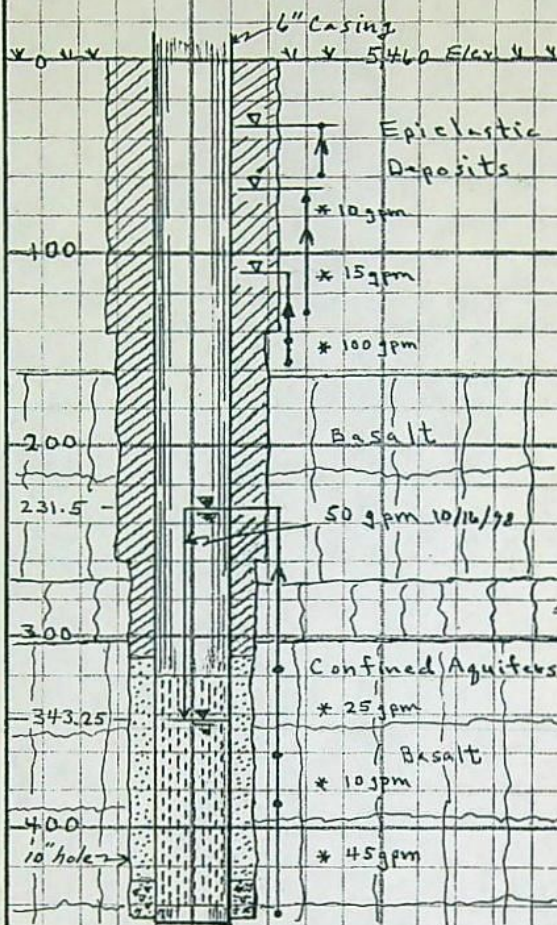


JOB NO. _____

SUBJECT Mt. Hood Meadows Wells
 BY J.E. Luzier DATE 12/26/98 SHEET of

Well-M (1998)

Well-G (1980)



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EXHIBIT

2

1,972 FL BH.

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START CARD # 111462

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

(9) LOCATION OF WELL by legal description:

County HOOD RIVER Latitude _____ Longitude _____
Township 3S N or S Range 9E E or W. WM.
Section 3 SW 1/4 SW 1/4
Tax Lot 101 Lot _____ Block _____ Subdivision _____
Street Address of Well (or nearest address) _____
MT HOOD MEADOWS SKI RESORT HWY 35

☒ New Well ☐ Deepening ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:

☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger
☐ Other

(4) PROPOSED USE:

☐ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Livestock ☒ Other

(5) BORE HOLE CONSTRUCTION:

Special Construction approval ☐ Yes ☒ No Depth of Completed Well 446 ft.
Explosives used ☐ Yes ☒ No Type _____ Amount _____

HOLE			SEAL			
Diameter	From	To	Material	From	To	Sacks or pounds
13 $\frac{1}{2}$	0	140	CEMENT	0	310	256 SACKS
11 $\frac{1}{2}$	140	260				
10	260	445				
6	445	447				

How was seal placed: Method ☐ A ☐ B ☒ C ☐ D ☐ E
☐ Other _____

Backfill placed from 428 ft. to 446 ft. Material BROKEN ROCK
Gravel placed from 310 ft. to 428 ft. Size of gravel PEA 3/8

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	6	+12	446	250	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Liner:	NONE				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Final location of shoe(s) 446

(7) PERFORATIONS/SCREENS:

(7) 125 Perforations Method MILL SLOT (SWIFT)

☒ Screens Type _____ Material _____

From	To	Slot size	Number	Diameter	Tel./pipe size	Casing	liner
320	340	1/8x3/8	468		(23/ft)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
340	440	1/8x3/8	1170		(12/ft) JEL	<input checked="" type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>

(8) WELL TESTS: Minimum testing time is 1 hour

☒ Pump ☐ Bailor ☒ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
80		440 IEL	1 hr.
→ 75	140	STEP Test	12 HR
50	115	Aguafer Test	72 HR

Temperature of water 44 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: _____

(10) STATIC WATER LEVEL:

231 ft. below land surface. Date 10-7-98
Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:

Depth at which water was first found APPROX. 33

From	To	Estimated Flow Rate	SWL
33	60	N/A	33
72	78	10 GPM	63
89	131	15 GPM	63
142	156	100 GPM	109
317	361	25 GPM	231

(12) WELL LOG:

Ground Elevation 5,460.35 (702) JCL

Material	From	To	SWL
(SEE ATTACHED SHEET)			
ADDITIONAL WATER BEARING ZONES:			
361 387	10 GPM		231
387 445	45 GPM		231

Weseroerg Drilling, Inc.
36728 S. Kropf Rd.
Medalla, OR 97038 RE

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WATER RESOURCES DEPT.
SALEM, OREGON

Date started 8-27-98 Completed 10-8-98

(unbonded) Water Well Constructor Certification:

I certify that the work I performed on the construction, 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.

Signed Ronald D. Ladd WWC Number 1487
Date 10-22-98

(bonded) Water Well Constructor Certification:

I accept responsibility for the construction, 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.

Signed Steve N. Stodol WWC Number 688
Date 10-22-98

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR

EXHIBIT

tal

 $\sqrt{2}$



MT HOOD MEADOWS OREGON LTD
HOOD RIVER COUNTY T3S R9E SEC.3 SW 1/4 SW 1/4 TAX LOT#101
WELL LOG

36728 S. Kropf Rd., Molalla, OR 97038 • Phone: (503) 829-2526 FAX (503) 829-7514

MATERIAL

	FROM	TO
ash tan soft loose	0	8
boulder reddish brown	8	13
ash, sand, cinders, gravel angular & rubble grey-red-brown	13	28
boulder grey hard	28	33
boulders red brown & rubble	33	41
boulder grey hard	41	47
boulders red brown	52	61
boulders red	61	72
cinders red with boulders & debris	72	78
boulder red	78	80
cinders & gravel with small boulders red	80	89
sand & gravel angular coarse texture with boulders small	89	131
boulders grey hard	131	142
sand & gravel angular coarse texture with boulders small	142	156
boulders grey hard	156	162
basalt grey hard coarse texture heavy mineral deposits with intermittent fracturing	162	271
basalt grey soft very heavy mineral deposits	271	277
basalt grey soft pumicy	277	301
basalt layered hard & soft mutli colored brown & grey	301	317
basalt multi colored multi textured soft	317	361
basalt multi colored multi textured soft with finer matrix	361	387
basalt multi colored multi textured soft	387	447

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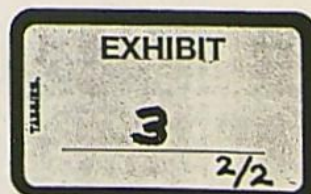
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SALEM, OREGON

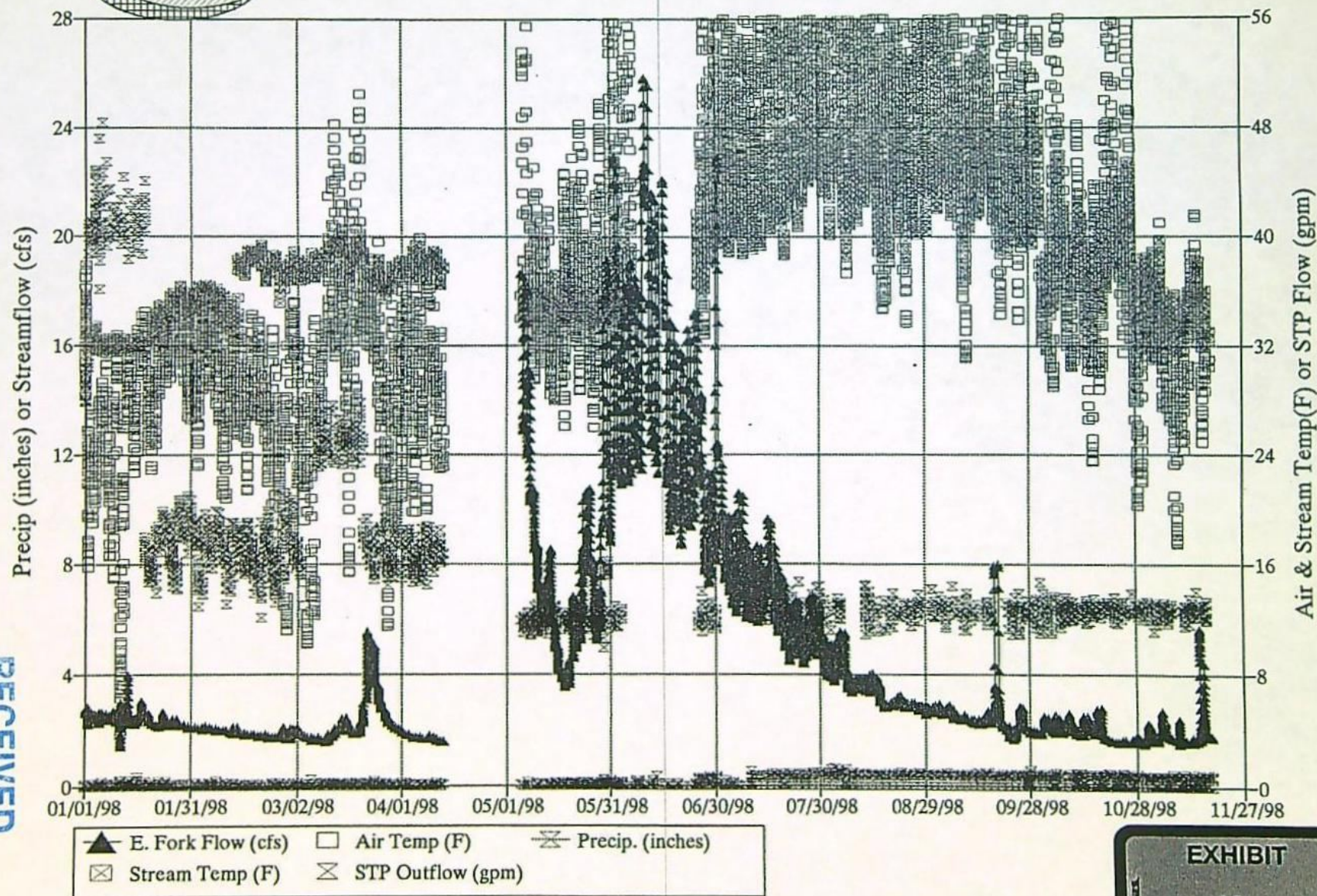
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Mt.Hood Meadows-E.Fork Hood River, 1998

Data from MWC Water Quality Station



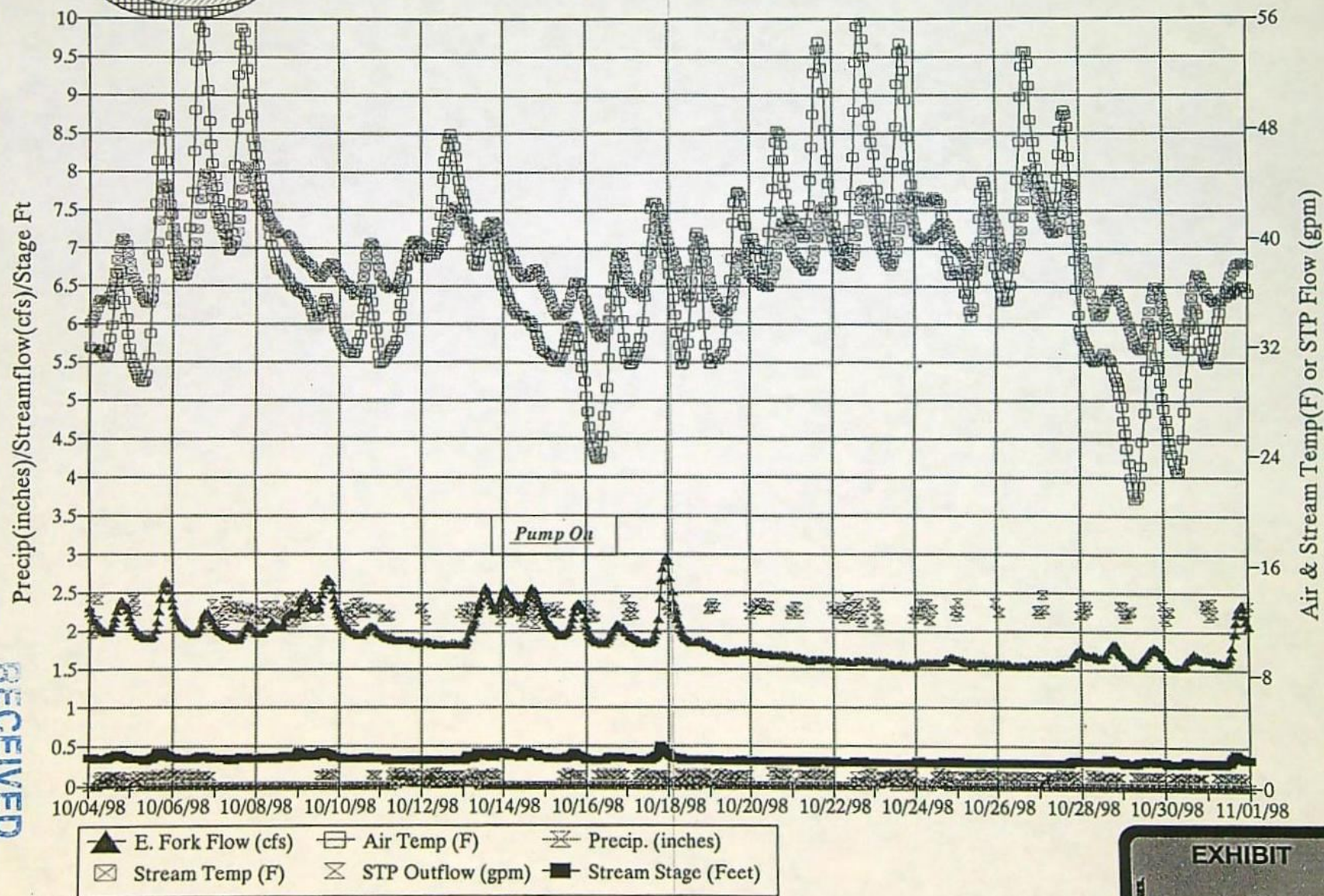
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Mt.Hood Meadows-E.Fork Hood River, 1998

Data from MWC Water Quality Station



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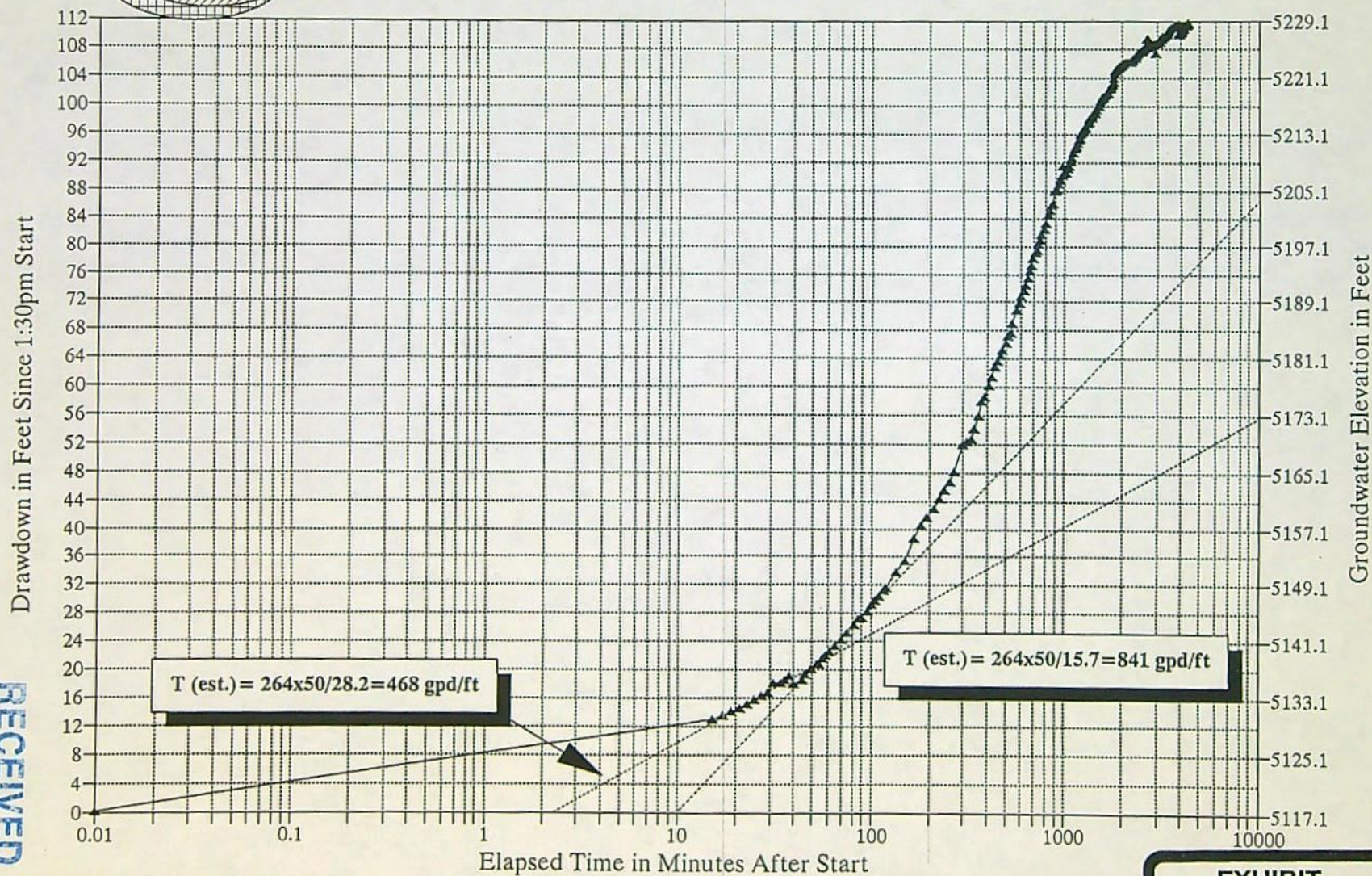
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5



MtHood Meadows Well-M, Test1 Drawdown

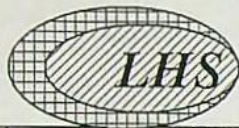
(Test 1 @50 gpm for 3 days, 10/13-16/98)



EXHIBIT

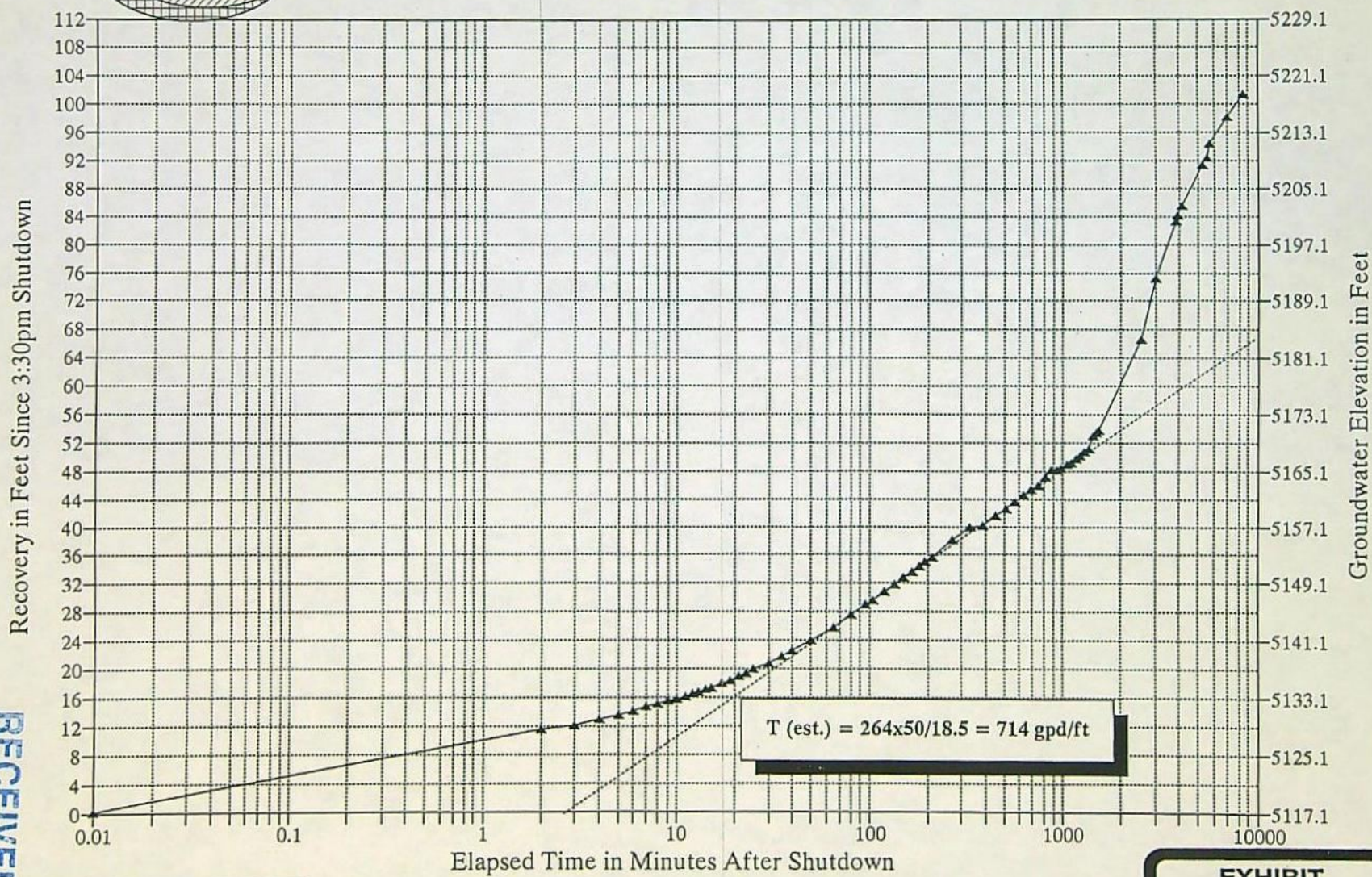
6

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MtHood Meadows Well-M, Test1 Recovery

(Test 1 @50 gpm for 3 days,10/13-16/98)



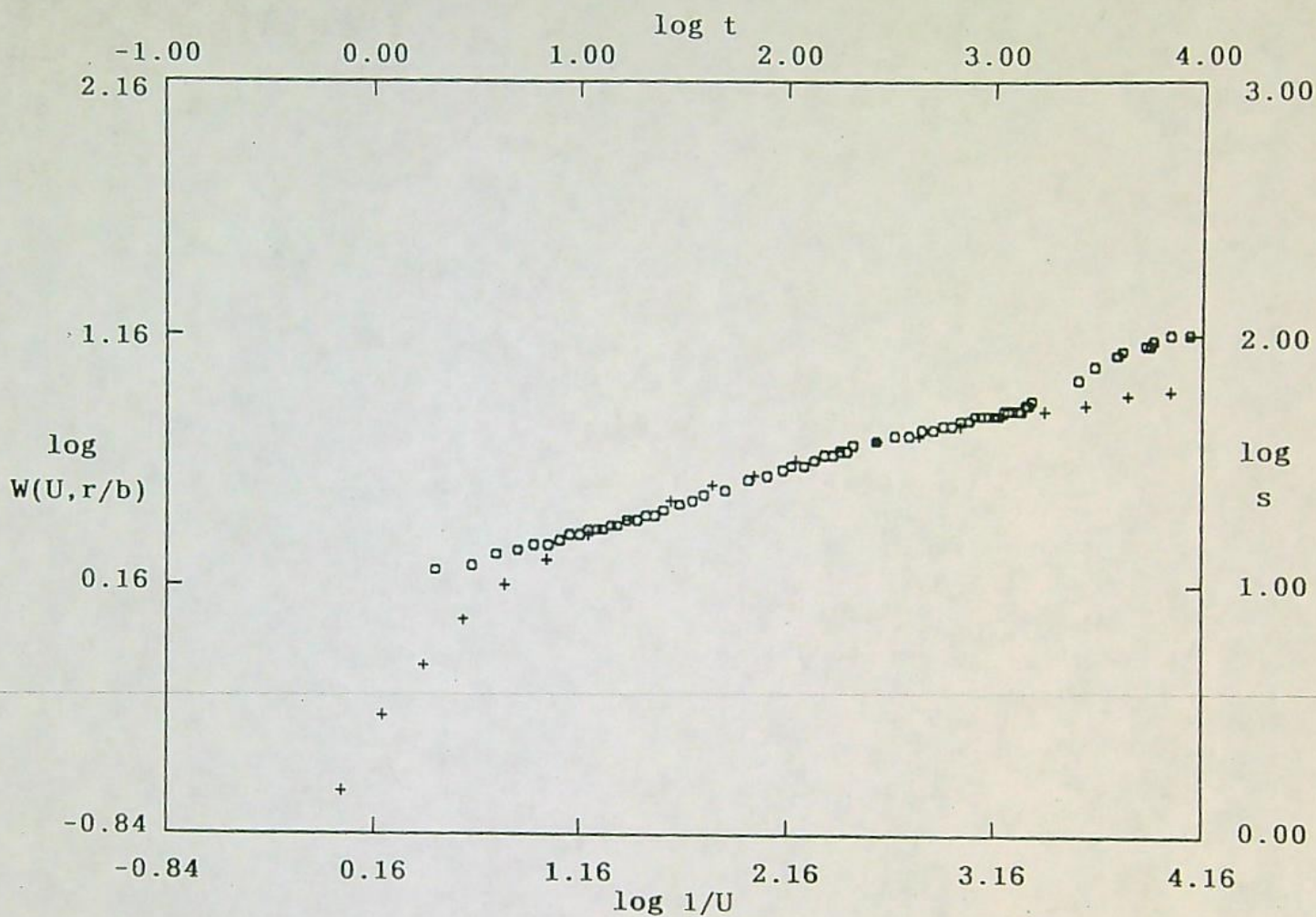
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7

THEIS FIT TEST 1 RECOVERY



o - Data

+ - Type Curve

Confined Leaky: $r/B = \text{Theis}$

SOLUTION

Transmissivity = $8.28\text{E}+002$ gal/day/ft

Aquifer Thick. = $1.45\text{E}+002$ ft

Hydraulic Cond. = $5.71\text{E}+000$ gal/day/sq ft

Storativity = $3.32\text{E}-001$

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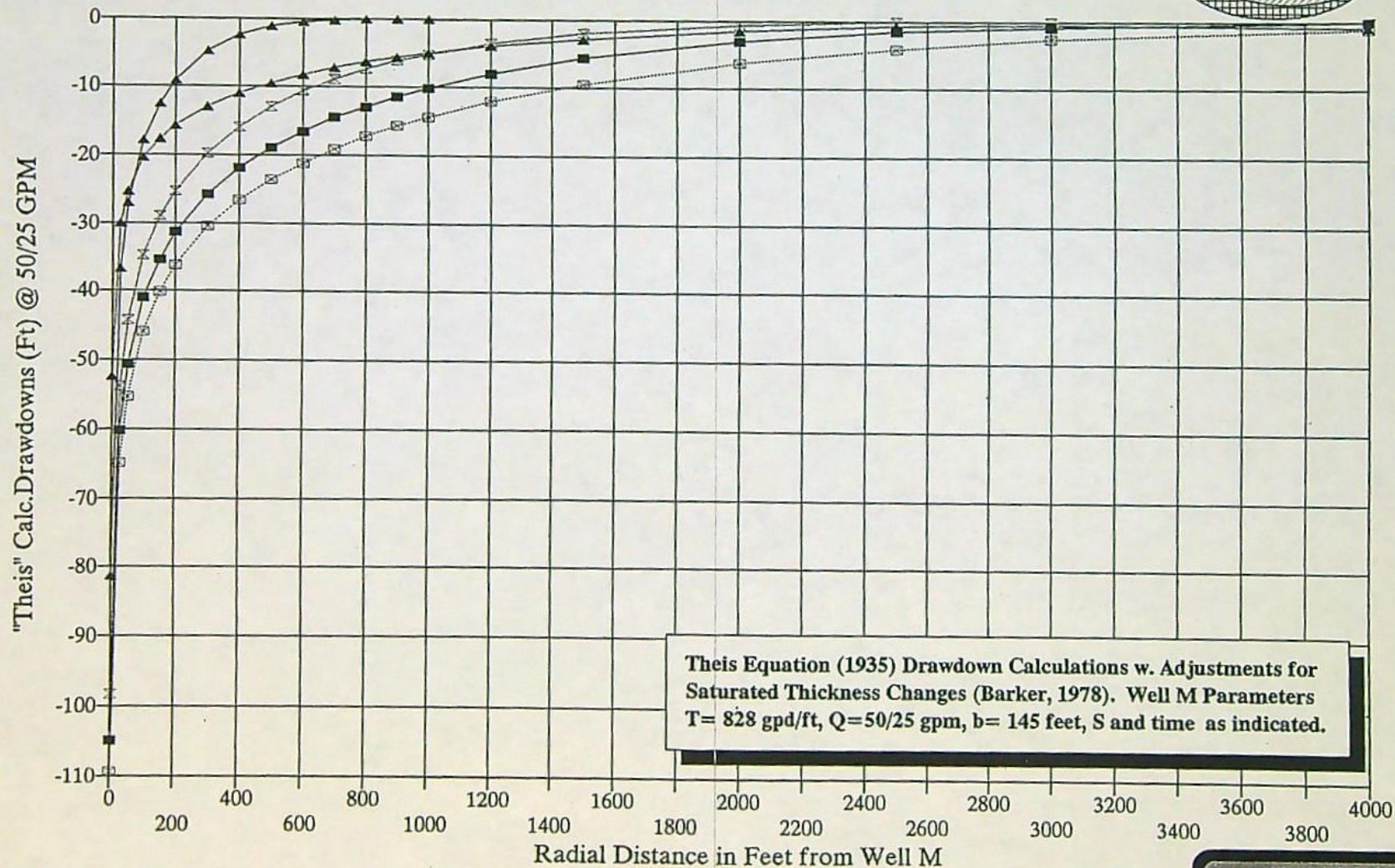
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8

Mt.Hood Meadows Well M -Calc. Drawdowns

(Based on Well M Test Data,10/13-19/98)



- ▲ 50gpm, $S = .006$, 3Days
- ⊗ 50gpm, $S = .0005$, 3Days
- ⊠ 50gpm, $S = .0001$, 3Days
- 50gpm, $S = .006$, 90Days
- ▲ 25gpm, $S = .006$, 90Days

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Oregon

John A. Kitzhaber, M.D., Governor

November 13, 1998

Shawn Ellis
David Evans and Associates
2828 SW Corbett Avenue
Portland, OR 97201

Luzie (11/18/98)
Water Resources Department
Commerce Building
158 12th Street NE
Salem, OR 97310-0210
(503) 378-3739
FAX (503) 378-8130

RE: Mt. Hood Meadows Pump Tests of Condition G5 (Permit G-13388)

Dear Shawn:

The captioned pump tests are conducted to determine aquifer properties, presence of flow boundaries in the aquifer, and well recovery characteristics. The first test was conducted in October 1998. I have talked with my supervisor, Fred Lissner, for his help to direct your efforts.

We do not expect the permittee (Mt Hood Meadows) to construct any monitoring wells specifically for the tests. We do expect attempts to use the existing geothermal well for such a purpose on the second test. This well has the potential to give information on the aquifer property of storativity.

The aquifer properties are transmissivity and storativity. Determining transmissivity is pretty straightforward from test data. However, if an observation well is not available or does not respond, I suggest that you use other means. For example, explore a range of possible storativity values in conjunction with drawdown/recovery response, well construction, stream location, and other data to infer a reasonable storativity.

Flow boundaries are the recharge and discharge type features that the cone of depression encounters. In this particular setting, you will want to give consideration to the possibility that surface water is detected in the pump test response. I understand that the creek was measured during the first test. Your analysis of that data should dictate whether you measure the creek on the second test.

Well recovery characteristics are simply the aquifer transmissivity and storativity from recovery data.

After you have thoroughly analyzed the data from the first test, you can propose the specifics of a second test for us to discuss.

Please contact me if you have questions.

Sincerely,
Don Miller
Donn Miller
Hydrogeologist

c: Steve Warilla
File G-12550

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DAVID EVANS AND ASSOCIATES, INC.

TELECOPY TRANSMITTAL

2828 SW Corbett Avenue

TO: Don Miller

FAX NO: 503-378-2496

Portland, Oregon 97201

PHONE NO: 503-378-3739 ext. 205

FIRM: Oregon Water Resources Dept.

OF PAGES: 13 (including transmittal)

Tel: 503.223.6663

FROM: Shawn Ellis, PE

PROJ. #: MTHM0004

Fax: 503.223.2701

DATE: October 20, 1998

REGARDING: Mount Hood Meadows - Pump Test

COPIES:

FAX NO:

ORIGINAL TO FOLLOW:

☐ REGULAR MAIL☐ OVERNIGHT MAIL☐ COURIER☒ N/A

COMMENTS:

The following pages contain the data collected during the pump test conducted on the Mount Hood Meadows well, as well as recovery data collected after pumping was stopped. I have also included plots of the drawdown data versus time on both arithmetic and semi-log scales.

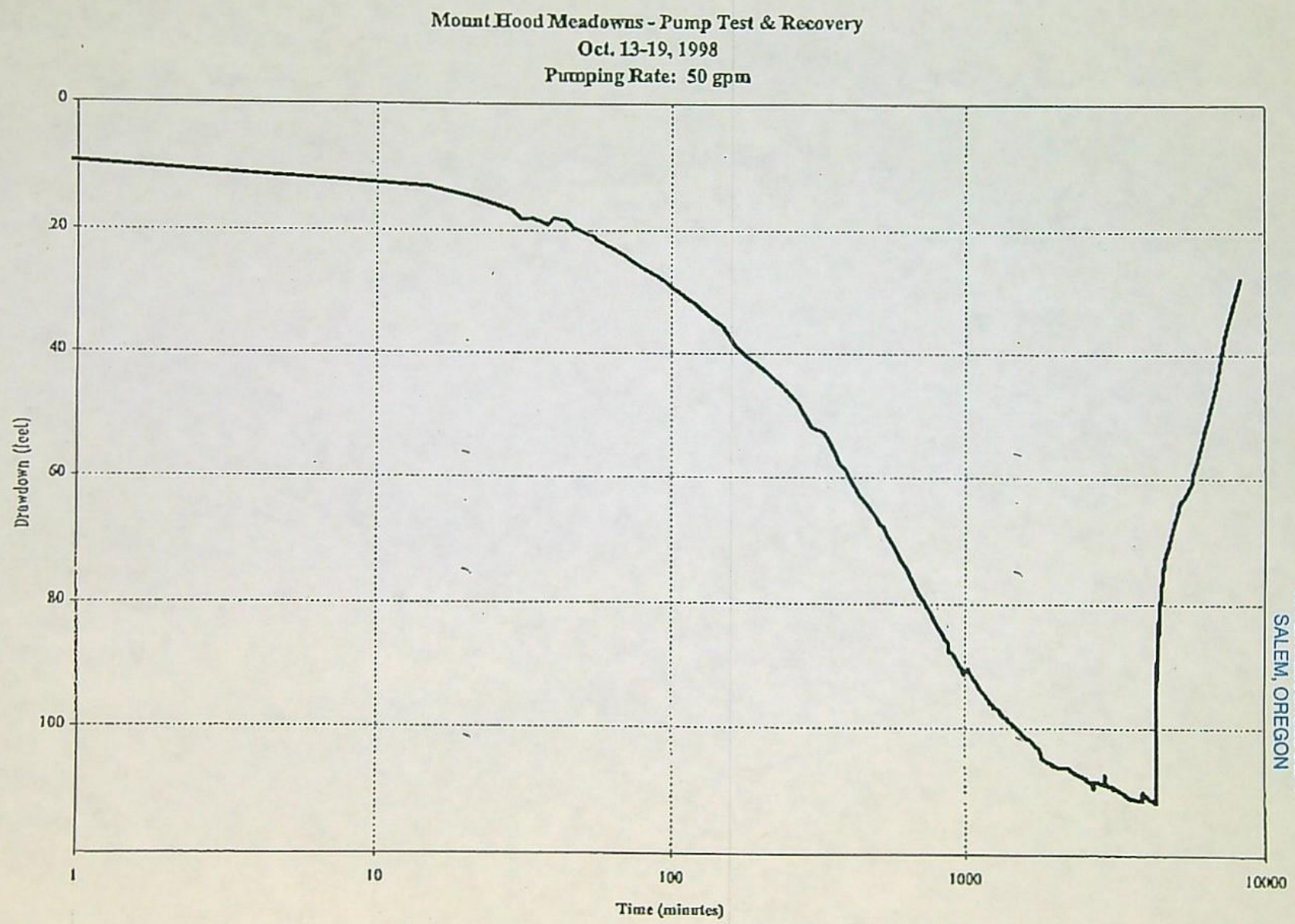
If you'd like to see other graphical representations, let me know. I can also email you the data file if you'd prefer.

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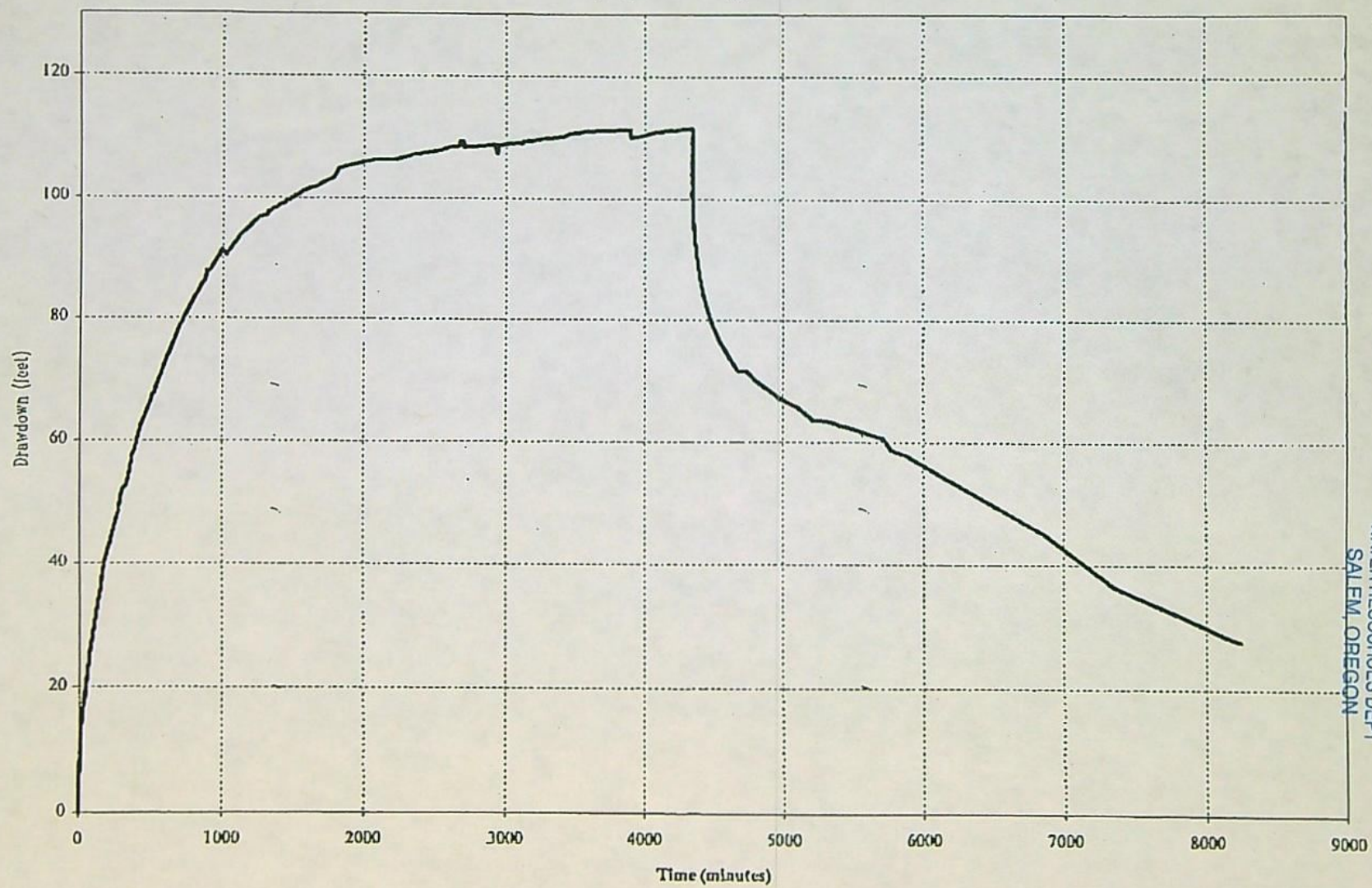
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Mount Hood Meadows - Pump Test & Recovery

Oct. 13-19, 1998

Pumping Rate: 50 gpm

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WATER RESOURCES DEPT
SALEM, OREGON

Mount Hood Meadows

Pump Test & Recovery Data

Pump Started: 10/13/98 at 15:00

Pump Stopped: 10/16/98 at 15:30

Recovery Recorded: 10/16/98 at 15:30 to 10/19/98 at 8:30

Pumping Rate: 50 gpm

Static WSEL: 231.5 feet depth

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WATER RESOURCES DEPT
SALEM, OREGON

Day	Time		Duration (minutes)	Drawdown WSEL (feet)	Depth to WSEL (feet)	Notes
	Hour	Min				
1	15	0	0.00	0.00	231.50	Pumping Started
1	15	15	15.00	13.00	244.50	50 gpm
1	15	17	17.00	13.67	245.17	50 gpm
1	15	19	19.00	14.17	245.67	50 gpm
1	15	21	21.00	14.67	246.17	50 gpm
1	15	23	23.00	15.25	246.75	50 gpm
1	15	25	25.00	15.83	247.33	50 gpm
1	15	27	27.00	16.38	247.88	50 gpm
1	15	29	29.00	16.88	248.38	50 gpm
1	15	31	31.00	18.29	249.79	50 gpm
1	15	34	34.00	18.17	249.67	50 gpm
1	15	36	36.00	18.67	250.17	50 gpm
1	15	38	38.00	19.17	250.67	50 gpm
1	15	40	40.00	18.08	249.58	50 gpm
1	15	44	44.00	18.50	250.00	50 gpm
1	15	46	46.00	19.50	251.00	50 gpm
1	15	49	49.00	20.17	251.67	50 gpm
1	15	52	52.00	20.75	252.25	50 gpm
1	15	54	54.00	20.88	252.38	50 gpm
1	15	56	56.00	21.66	253.16	50 gpm
1	15	58	58.00	22.00	253.50	50 gpm
1	16	1	61.00	22.58	254.08	50 gpm
1	16	5	65.00	23.33	254.83	50 gpm
1	16	10	70.00	24.25	255.75	50 gpm
1	16	15	75.00	25.33	256.83	50 gpm
1	16	22	82.00	26.42	257.92	50 gpm
1	16	27	87.00	27.17	258.67	50 gpm
1	16	30	90.00	27.50	259.00	50 gpm
1	16	35	95.00	28.25	259.75	50 gpm
1	16	40	100.00	29.17	260.67	50 gpm
1	16	45	105.00	29.83	261.33	50 gpm
1	16	50	110.00	30.50	262.00	50 gpm
1	16	55	115.00	31.25	262.75	50 gpm
1	17	0	120.00	31.75	263.25	50 gpm
1	17	15	135.00	33.92	265.42	50 gpm
1	17	30	150.00	35.50	267.00	50 gpm
1	17	45	165.00	38.67	270.17	50 gpm
1	18	0	180.00	40.50	272.00	50 gpm
1	18	15	195.00	41.67	273.17	50 gpm

40' LL, d = 2.72 = 51.88.

Mount Hood Meadows

Pump Test & Recovery Data

Pump Started: 10/13/98 at 15:00

Pump Stopped: 10/16/98 at 15:30

Recovery Recorded: 10/16/98 at 15:30 to 10/19/98 at 8:30

Pumping Rate: 50 gpm

Static WSEL: 231.5 feet depth

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WATER RESOURCES DEPT
SALEM, OREGON

Day	Time		Duration (minutes)	Drawdown WSEL (feet)	Depth to WSEL (feet)	Notes
	Hour	Min				
1	18	30	210.00	42.92	274.42	50 gpm
1	18	45	225.00	44.25	275.75	50 gpm
1	19	0	240.00	45.50	277.00	50 gpm
1	19	15	255.00	46.75	278.25	50 gpm
1	19	30	270.00	48.08	279.58	50 gpm
1	20	0	300.00	51.92	283.42	50 gpm
1	20	15	315.00	52.42	283.92	50 gpm
1	20	30	330.00	52.75	284.25	50 gpm
1	20	45	345.00	54.17	285.67	50 gpm
1	21	0	360.00	56.00	287.50	50 gpm
1	21	15	375.00	57.92	289.42	50 gpm
1	21	30	390.00	58.58	290.08	50 gpm
1	21	45	405.00	60.25	291.75	50 gpm
1	22	0	420.00	61.50	293.00	50 gpm
1	22	15	435.00	62.75	294.25	50 gpm
1	22	30	450.00	63.58	295.08	50 gpm
1	22	45	465.00	64.38	295.88	50 gpm
1	23	0	480.00	65.25	296.75	50 gpm
1	23	18	498.00	66.33	297.83	50 gpm
1	23	30	510.00	67.33	298.83	50 gpm
1	23	45	525.00	67.75	299.25	50 gpm
2	0	0	540.00	69.08	300.58	50 gpm
2	0	30	570.00	70.92	302.42	50 gpm
2	0	45	585.00	71.92	303.42	50 gpm
2	1	0	600.00	72.92	304.42	50 gpm
2	1	15	615.00	73.75	305.25	50 gpm
2	1	30	630.00	74.50	306.00	50 gpm
2	1	45	645.00	75.58	307.08	50 gpm
2	2	0	660.00	76.42	307.92	50 gpm
2	2	15	675.00	77.33	308.83	50 gpm
2	2	30	690.00	78.33	309.83	50 gpm
2	2	45	705.00	79.08	310.58	50 gpm
2	3	0	720.00	79.50	311.00	50 gpm
2	3	15	735.00	80.42	311.92	50 gpm
2	3	30	750.00	80.92	312.42	50 gpm
2	3	45	765.00	81.75	313.25	50 gpm
2	4	0	780.00	82.50	314.00	50 gpm
2	4	15	795.00	83.33	314.83	50 gpm
2	4	45	825.00	84.50	316.00	50 gpm

Mount Hood Meadows

Pump Test & Recovery Data

Pump Started: 10/13/98 at 15:00

Pump Stopped: 10/16/98 at 15:30

Recovery Recorded: 10/16/98 at 15:30 to 10/19/98 at 8:30

Pumping Rate: 50 gpm

Static WSEL: 231.5 feet depth

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WATER RESOURCES DEPT
SALEM, OREGON

Day	Time		Duration (minutes)	Drawdown WSEL (feet)	Depth to WSEL (feet)	Notes
	Hour	Min				
2	5	0	840.00	85.17	316.67	50 gpm
2	5	15	855.00	85.94	317.44	50 gpm
2	5	30	870.00	86.08	317.58	50 gpm
2	5	45	885.00	87.92	319.42	50 gpm
2	6	0	900.00	87.92	319.42	50 gpm
2	6	15	915.00	88.21	319.71	50 gpm
2	6	30	930.00	88.96	320.46	50 gpm
2	6	45	945.00	89.50	321.00	50 gpm
2	7	0	960.00	90.17	321.67	50 gpm
2	7	15	975.00	90.33	321.83	50 gpm
2	7	30	990.00	91.50	323.00	50 gpm
2	8	0	1020.00	90.50	322.00	50 gpm
2	8	15	1035.00	91.21	322.71	50 gpm
2	8	30	1050.00	91.50	323.00	50 gpm
2	8	45	1065.00	92.13	323.63	50 gpm
2	9	0	1080.00	92.50	324.00	50 gpm
2	9	15	1095.00	92.83	324.33	50 gpm
2	9	30	1110.00	93.50	325.00	50 gpm
2	9	47	1127.00	93.92	325.42	50 gpm
2	10	0	1140.00	94.25	325.75	50 gpm
2	10	15	1155.00	94.50	326.00	50 gpm
2	10	30	1170.00	94.83	326.33	50 gpm
2	10	45	1185.00	95.21	326.71	50 gpm
2	11	0	1200.00	95.50	327.00	50 gpm
2	11	15	1215.00	95.92	327.42	50 gpm
2	11	30	1230.00	96.25	327.75	50 gpm
2	11	45	1245.00	96.38	327.88	50 gpm
2	12	0	1260.00	96.83	328.33	50 gpm
2	12	15	1275.00	96.83	328.33	50 gpm
2	12	31	1291.00	97.00	328.50	50 gpm
2	12	45	1305.00	97.08	328.58	50 gpm
2	13	0	1320.00	97.67	329.17	50 gpm
2	13	15	1335.00	97.83	329.33	50 gpm
2	13	30	1350.00	98.17	329.67	50 gpm
2	13	45	1365.00	98.38	329.88	50 gpm
2	14	0	1380.00	98.38	329.88	50 gpm
2	14	16	1396.00	98.83	330.33	50 gpm
2	14	30	1410.00	99.00	330.50	50 gpm
2	14	45	1425.00	99.08	330.58	50 gpm

Top perforations
= 320'-34'

Static Port = 340'-440'

Mount Hood Meadows

Pump Test & Recovery Data

Pump Started: 10/13/98 at 15:00

Pump Stopped: 10/16/98 at 15:30

Recovery Recorded: 10/16/98 at 15:30 to 10/19/98 at 8:30

Pumping Rate: 50 gpm

Static WSEL: 231.5 feet depth

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WATER RESOURCES DEPT
SALEM, OREGON

Day	Time		Duration (minutes)	Drawdown WSEL (feet)	Depth to WSEL (feet)	Notes
	Hour	Min				
2	15	1	1441.00	99.25	330.75	50 gpm
2	15	15	1455.00	99.58	331.08	50 gpm
2	15	30	1470.00	99.67	331.17	50 gpm
2	15	45	1485.00	100.00	331.50	50 gpm
2	16	0	1500.00	100.08	331.58	50 gpm
2	16	15	1515.00	100.42	331.92	50 gpm
2	16	30	1530.00	100.50	332.00	50 gpm
2	16	45	1545.00	100.75	332.25	50 gpm
2	17	0	1560.00	101.00	332.50	50 gpm
2	17	15	1575.00	101.17	332.67	50 gpm
2	17	30	1590.00	101.33	332.83	50 gpm
2	17	45	1605.00	101.50	333.00	50 gpm
2	18	0	1620.00	101.67	333.17	50 gpm
2	18	15	1635.00	101.75	333.25	50 gpm
2	18	30	1650.00	101.83	333.33	50 gpm
2	18	45	1665.00	101.92	333.42	50 gpm
2	19	0	1680.00	102.08	333.58	50 gpm
2	19	15	1695.00	102.38	333.88	50 gpm
2	19	30	1710.00	102.50	334.00	50 gpm
2	19	45	1725.00	102.75	334.25	50 gpm
2	20	0	1740.00	102.92	334.42	50 gpm
2	20	15	1755.00	103.08	334.58	50 gpm
2	20	30	1770.00	103.21	334.71	50 gpm
2	20	45	1785.00	103.38	334.88	50 gpm
2	21	0	1800.00	104.08	335.58	50 gpm
2	21	15	1815.00	104.67	336.17	50 gpm
2	21	30	1830.00	105.00	336.50	50 gpm
2	21	45	1845.00	105.04	336.54	50 gpm
2	22	0	1860.00	105.21	336.71	50 gpm
2	22	15	1875.00	105.25	336.75	50 gpm
2	22	30	1890.00	105.33	336.83	50 gpm
2	22	45	1905.00	105.46	336.96	50 gpm
2	23	0	1920.00	105.50	337.00	50 gpm
2	23	15	1935.00	105.58	337.08	50 gpm
2	23	30	1950.00	105.67	337.17	50 gpm
2	23	45	1965.00	105.75	337.25	50 gpm
3	0	0	1980.00	105.88	337.38	50 gpm
3	0	15	1995.00	106.03	337.53	50 gpm
3	0	30	2010.00	106.04	337.54	50 gpm

Mount Hood Meadows

Pump Test & Recovery Data

Pump Started: 10/13/98 at 15:00

Pump Stopped: 10/16/98 at 15:30

Recovery Recorded: 10/16/98 at 15:30 to 10/19/98 at 8:30

Pumping Rate: 50 gpm

Static WSEL: 231.5 feet depth

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WATER RESOURCES DEPT
SALEM, OREGON

Day	Time		Duration (minutes)	Drawdown WSEL (feet)	Depth to WSEL (feet)	Notes
	Hour	Min				
3	0	45	2025.00	106.10	337.60	50 gpm
3	1	0	2040.00	106.13	337.63	50 gpm
3	1	15	2055.00	106.21	337.71	50 gpm
3	1	30	2070.00	106.33	337.83	50 gpm
3	1	45	2085.00	106.33	337.83	50 gpm
3	2	0	2100.00	106.33	337.83	50 gpm
3	2	15	2115.00	106.33	337.83	50 gpm
3	2	30	2130.00	106.33	337.83	50 gpm
3	2	45	2145.00	106.33	337.83	50 gpm
3	3	0	2160.00	106.33	337.83	50 gpm
3	3	15	2175.00	106.33	337.83	50 gpm
3	3	30	2190.00	106.33	337.83	50 gpm
3	3	45	2205.00	106.35	337.85	50 gpm
3	4	0	2220.00	106.35	337.85	50 gpm
3	4	15	2235.00	106.38	337.88	50 gpm
3	4	30	2250.00	106.52	338.02	50 gpm
3	4	45	2265.00	106.71	338.21	50 gpm
3	5	0	2280.00	106.79	338.29	50 gpm
3	5	15	2295.00	106.88	338.38	50 gpm
3	5	30	2310.00	106.96	338.46	50 gpm
3	5	45	2325.00	107.02	338.52	50 gpm
3	6	0	2340.00	107.17	338.67	50 gpm
3	6	15	2355.00	107.29	338.79	50 gpm
3	6	30	2370.00	107.29	338.79	50 gpm
3	6	45	2385.00	107.33	338.83	50 gpm
3	7	0	2400.00	107.38	338.88	50 gpm
3	7	15	2415.00	107.50	339.00	50 gpm
3	7	32	2432.00	107.58	339.08	50 gpm
3	7	45	2445.00	107.58	339.08	50 gpm
3	8	0	2460.00	107.58	339.08	50 gpm
3	8	15	2475.00	107.71	339.21	50 gpm
3	8	30	2490.00	107.71	339.21	50 gpm
3	8	45	2505.00	107.83	339.33	50 gpm
3	9	0	2520.00	107.88	339.38	50 gpm
3	9	15	2535.00	107.92	339.42	50 gpm
3	9	30	2550.00	108.04	339.54	50 gpm
3	9	45	2565.00	108.13	339.63	50 gpm
3	10	0	2580.00	108.25	339.75	50 gpm
3	10	15	2595.00	108.38	339.88	50 gpm

Mount Hood Meadows

Pump Test & Recovery Data

Pump Started: 10/13/98 at 15:00

Pump Stopped: 10/16/98 at 15:30

Recovery Recorded: 10/16/98 at 15:30 to 10/19/98 at 8:30

Pumping Rate: 50 gpm

Static WSEL: 231.5 feet depth

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WATER RESOURCES DEPT
SALEM, OREGON

Day	Time		Duration (minutes)	Drawdown WSEL (feet)	Depth to WSEL (feet)	Notes
	Hour	Min				
3	10	30	2610.00	108.50	340.00	50 gpm
3	10	45	2625.00	108.50	340.00	50 gpm
3	11	0	2640.00	108.50	340.00	50 gpm
3	11	15	2655.00	108.50	340.00	50 gpm
3	11	30	2670.00	108.63	340.13	50 gpm
3	11	45	2685.00	109.50	341.00	50 gpm
3	12	0	2700.00	109.50	341.00	50 gpm
3	12	15	2715.00	108.38	339.88	50 gpm
3	12	30	2730.00	108.63	340.13	50 gpm
3	12	45	2745.00	108.50	340.00	50 gpm
3	13	0	2760.00	108.50	340.00	50 gpm
3	13	15	2775.00	108.50	340.00	50 gpm
3	13	30	2790.00	108.50	340.00	50 gpm
3	13	45	2805.00	108.71	340.21	50 gpm
3	14	0	2820.00	108.71	340.21	50 gpm
3	14	15	2835.00	108.67	340.17	50 gpm
3	14	30	2850.00	108.67	340.17	50 gpm
3	14	45	2865.00	108.79	340.29	50 gpm
3	15	0	2880.00	108.83	340.33	50 gpm
3	15	15	2895.00	108.75	340.25	50 gpm
3	15	30	2910.00	108.92	340.42	50 gpm
3	15	45	2925.00	108.92	340.42	50 gpm
3	16	0	2940.00	107.50	339.00	50 gpm
3	16	15	2955.00	108.96	340.46	50 gpm
3	16	30	2970.00	108.83	340.33	50 gpm
3	16	45	2985.00	108.96	340.46	50 gpm
3	17	0	3000.00	108.96	340.46	50 gpm
3	17	15	3015.00	109.04	340.54	50 gpm
3	17	30	3030.00	109.13	340.63	50 gpm
3	17	45	3045.00	109.13	340.63	50 gpm
3	18	0	3060.00	109.13	340.63	50 gpm
3	18	15	3075.00	109.21	340.71	50 gpm
3	18	30	3090.00	109.25	340.75	50 gpm
3	18	45	3105.00	109.17	340.67	50 gpm
3	19	0	3120.00	109.17	340.67	50 gpm
3	19	15	3135.00	109.50	341.00	50 gpm
3	19	30	3150.00	109.50	341.00	50 gpm
3	19	45	3165.00	109.63	341.13	50 gpm
3	20	0	3180.00	109.50	341.00	50 gpm

Mount Hood Meadows

Pump Test & Recovery Data

Pump Started: 10/13/98 at 15:00

Pump Stopped: 10/16/98 at 15:30

Recovery Recorded: 10/16/98 at 15:30 to 10/19/98 at 8:30

Pumping Rate: 50 gpm

Static WSEL: 231.5 feet depth

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WATER RESOURCES DEPT
SALEM, OREGON

Day	Time		Duration (minutes)	Drawdown WSEL (feet)	Depth to WSEL (feet)	Notes
	Hour	Min				
3	20	15	3195.00	109.54	341.04	50 gpm
3	20	30	3210.00	109.63	341.13	50 gpm
3	21	0	3240.00	109.73	341.23	50 gpm
3	21	15	3255.00	109.85	341.35	50 gpm
3	21	30	3270.00	109.90	341.40	50 gpm
3	21	45	3285.00	109.92	341.42	50 gpm
3	22	0	3300.00	109.96	341.46	50 gpm
3	22	15	3315.00	109.98	341.48	50 gpm
3	22	30	3330.00	110.02	341.52	50 gpm
3	22	45	3345.00	110.04	341.54	50 gpm
3	23	0	3360.00	110.13	341.63	50 gpm
3	23	15	3375.00	110.17	341.67	50 gpm
3	23	30	3390.00	110.17	341.67	50 gpm
3	23	45	3405.00	110.21	341.71	50 gpm
4	0	0	3420.00	110.31	341.81	50 gpm
4	0	15	3435.00	110.40	341.90	50 gpm
4	0	30	3450.00	110.63	342.13	50 gpm
4	0	45	3465.00	110.71	342.21	50 gpm
4	1	0	3480.00	110.79	342.29	50 gpm
4	1	15	3495.00	110.81	342.31	50 gpm
4	1	30	3510.00	110.85	342.35	50 gpm
4	1	45	3525.00	110.90	342.40	50 gpm
4	2	0	3540.00	110.92	342.42	50 gpm
4	2	15	3555.00	111.00	342.50	50 gpm
4	2	30	3570.00	111.04	342.54	50 gpm
4	2	45	3585.00	111.13	342.63	50 gpm
4	3	0	3600.00	111.15	342.65	50 gpm
4	3	15	3615.00	111.15	342.65	50 gpm
4	3	30	3630.00	111.15	342.65	50 gpm
4	3	45	3645.00	111.17	342.67	50 gpm
4	4	0	3660.00	111.19	342.69	50 gpm
4	4	15	3675.00	111.19	342.69	50 gpm
4	4	30	3690.00	111.19	342.69	50 gpm
4	4	45	3705.00	111.21	342.71	50 gpm
4	5	0	3720.00	111.23	342.73	50 gpm
4	5	15	3735.00	111.27	342.77	50 gpm
4	5	30	3750.00	111.29	342.79	50 gpm
4	5	45	3765.00	111.29	342.79	50 gpm
4	6	0	3780.00	111.29	342.79	50 gpm

Mount Hood Meadows

Pump Test & Recovery Data

Pump Started: 10/13/98 at 15:00

Pump Stopped: 10/16/98 at 15:30

Recovery Recorded: 10/16/98 at 15:30 to 10/19/98 at 8:30

Pumping Rate: 50 gpm

Static WSEL: 231.5 feet depth

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WATER RESOURCES DEPT
SALEM, OREGON

Day	Time		Duration (minutes)	Drawdown WSEL (feet)	Depth to WSEL (feet)	Notes
	Hour	Min				
4	6	15	3795.00	111.31	342.81	50 gpm
4	6	30	3810.00	111.31	342.81	50 gpm
4	6	45	3825.00	111.35	342.85	50 gpm
4	7	0	3840.00	111.42	342.92	50 gpm
4	7	55	3895.00	111.35	342.85	50 gpm
4	8	0	3900.00	111.42	342.92	50 gpm
4	8	15	3915.00	110.08	341.58	50 gpm
4	8	30	3930.00	110.25	341.75	50 gpm
4	8	45	3945.00	110.29	341.79	50 gpm
4	9	0	3960.00	110.33	341.83	50 gpm
4	9	15	3975.00	110.38	341.88	50 gpm
4	9	30	3990.00	110.42	341.92	50 gpm
4	9	45	4005.00	110.50	342.00	50 gpm
4	10	0	4020.00	110.54	342.04	50 gpm
4	10	15	4035.00	110.75	342.25	50 gpm
4	10	30	4050.00	110.83	342.33	50 gpm
4	10	45	4065.00	110.92	342.42	50 gpm
4	11	0	4080.00	110.96	342.46	50 gpm
4	11	15	4095.00	111.04	342.54	50 gpm
4	11	30	4110.00	111.04	342.54	50 gpm
4	11	45	4125.00	111.08	342.58	50 gpm
4	12	0	4140.00	111.21	342.71	50 gpm
4	12	15	4155.00	111.25	342.75	50 gpm
4	12	30	4170.00	111.29	342.79	50 gpm
4	12	45	4185.00	111.33	342.83	50 gpm
4	13	0	4200.00	111.38	342.88	50 gpm
4	13	15	4215.00	111.29	342.79	50 gpm
4	13	30	4230.00	111.29	342.79	50 gpm
4	13	45	4245.00	111.38	342.88	50 gpm
4	14	0	4260.00	111.42	342.92	50 gpm
4	14	15	4275.00	111.50	343.00	50 gpm
4	14	30	4290.00	111.50	343.00	50 gpm
4	14	45	4305.00	111.50	343.00	50 gpm
4	15	0	4320.00	111.54	343.04	50 gpm
4	15	15	4335.00	111.67	343.17	50 gpm
10/16/98 4	15	30	4350.00	111.75	343.25	Pumping Stopped
4	15	32	4352.00	100.17	331.67	Recovery
4	15	33	4353.00	99.50	331.00	Recovery
4	15	34	4354.00	98.79	330.29	Recovery

Mount Hood Meadows

Pump Test & Recovery Data

Pump Started: 10/13/98 at 15:00

Pump Stopped: 10/16/98 at 15:30

Recovery Recorded: 10/16/98 at 15:30 to 10/19/98 at 8:30

Pumping Rate: 50 gpm

Static WSEL: 231.5 feet depth

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WATER RESOURCES DEPT
SALEM, OREGON

Day	Time		Duration (minutes)	Drawdown WSEL (feet)	Depth to WSEL (feet)	Notes
	Hour	Min				
4	15	35	4355.00	98.08	329.58	Recovery
4	15	36	4356.00	97.50	329.00	Recovery
4	15	37	4357.00	97.04	328.54	Recovery
4	15	38	4358.00	96.50	328.00	Recovery
4	15	39	4359.00	96.25	327.75	Recovery
4	15	40	4360.00	95.88	327.38	Recovery
4	15	41	4361.00	95.50	327.00	Recovery
4	15	42	4362.00	95.17	326.67	Recovery
4	15	43	4363.00	94.88	326.38	Recovery
4	15	44	4364.00	94.58	326.08	Recovery
4	15	45	4365.00	94.33	325.83	Recovery
4	15	47	4367.00	93.83	325.33	Recovery
4	15	49	4369.00	93.33	324.83	Recovery
4	15	51	4371.00	92.83	324.33	Recovery
4	15	53	4373.00	92.33	323.83	Recovery
4	15	55	4375.00	91.67	323.17	Recovery
4	16	0	4380.00	90.92	322.42	Recovery
4	16	5	4385.00	90.00	321.50	Recovery
4	16	10	4390.00	89.13	320.63	Recovery
4	16	20	4400.00	87.67	319.17	Recovery
4	16	35	4415.00	85.88	317.38	Recovery
4	16	50	4430.00	84.17	315.67	Recovery
4	17	5	4445.00	82.75	314.25	Recovery
4	17	15	4455.00	82.00	313.50	Recovery
4	17	30	4470.00	80.83	312.33	Recovery
4	17	45	4485.00	79.83	311.33	Recovery
4	18	0	4500.00	78.83	310.33	Recovery
4	18	15	4515.00	78.17	309.67	Recovery
4	18	30	4530.00	77.33	308.83	Recovery
4	18	45	4545.00	76.58	308.08	Recovery
4	19	0	4560.00	76.00	307.50	Recovery
4	20	0	4620.00	73.71	305.21	Recovery
4	21	0	4680.00	71.75✓	303.25✓	Recovery — 40' up = 5157.121
4	22	0	4740.00	71.69	303.19	Recovery
4	23	0	4800.00	70.27	301.77	Recovery
5	0	0	4860.00	69.19	300.69	Recovery
5	1	0	4920.00	68.19	299.69	Recovery
5	2	0	4980.00	67.21	298.71	Recovery
5	3	0	5040.00	66.42	297.92	Recovery

Mount Hood Meadows

Pump Test & Recovery Data

Pump Started: 10/13/98 at 15:00

Pump Stopped: 10/16/98 at 15:30

Recovery Recorded: 10/16/98 at 15:30 to 10/19/98 at 8:30

Pumping Rate: 50 gpm

Static WSEL: 231.5 feet depth

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WATER RESOURCES DEPT
SALEM, OREGON

Day	Time		Duration (minutes)	Drawdown WSEL (feet)	Depth to WSEL (feet)	Notes
	Hour	Min				
5	4	0	5100.00	65.71	297.21	Recovery
5	5	0	5160.00	64.60	296.10	Recovery
5	6	0	5220.00	63.50	295.00	Recovery
5	7	0	5280.00	63.50	295.00	Recovery
5	8	0	5340.00	63.33	294.83	Recovery
5	9	0	5400.00	62.83	294.33	Recovery
5	10	0	5460.00	62.50	294.00	Recovery
5	11	5	5525.00	62.00	293.50	Recovery
5	12	0	5580.00	61.58	293.08	Recovery
5	13	15	5655.00	61.00	292.50	Recovery
5	14	10	5710.00	60.67	292.17	Recovery
10/17/98	5	15	5775.00	58.75	290.25	Recovery
5	16	5	5825.00	58.33	289.83	Recovery
5	17	0	5880.00	57.92	289.42	Recovery
6	9	30	6870.00	45.00	276.50	Recovery
10/18/98	6	17	7350.00	36.50	268.00	Recovery
7	7	0	8160.00	28.38	259.88	Recovery
10/19/98	7	8	8250.00	27.67	259.17	Recovery
7	12	0	8460.00	26.25	257.75	Recovery
8	6	50	9590.00	20.33	251.83	Recovery
8	11	30	9870.00	19.33	250.83	Recovery
8	14	30	10050.00	17.42	248.92	Recovery
9	12	0	11340.00	13.50	245.00	Recovery
10/22/98	10	13	12870.00	10.25	241.75	S.W. meas. 10/22/98
					230.67	GeoWell 10/22/98, Elev

updates
J. E. L.



MT. HOOD MEADOWS INTEROFFICE MEMO

DATE: 10-22-98
TO: Files
FROM: Steve Warila
SUBJECT: Well monitoring

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WATER RESOURCES DEPT
SALEM, OREGON

On Oct. 22 1998 at 1:30pm at completion of the pump down test recovery period I made the following observations:

Main well water level	241.75'	GW elevation	5218.6'	5460.35' TGC? Map
Geothermal well level	230.67'	GW elevation	5245.32'	5475.99' TGC? Map
	11.08'			
	water level elevation diff.	26.72'		+ 15.64' GeoWell

W.D. station
± 4960 Map
J.E.L.

DATA FROM GEOTHERMAL TEST WELLS NEAR MOUNT HOOD, OREGON

by

J. H. Robison, L. S. Forcella, and M. W. Gannett

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WATER RESOURCES DEPT
SALEM, OREGON

EXPLANATION OF DATA

This report includes well specifications, drillers' logs, and temperature logs of geothermal test wells drilled at 7 sites near Mt. Hood Oregon. The wells were drilled in 1979 and 1980 under contract to the U.S. Geological Survey. The project, funded by the U.S. Department of Energy, was part of an interagency effort to determine the geothermal potential of Mt. Hood. The Agencies involved were U.S. Department of Energy, U.S. Forest Service, U.S. Geological Survey, and Oregon Department of Geology and Mineral Industries.

Locations of the Geological Survey wells are shown in figure 1. Also shown are locations of two deep geothermal test wells in the Old Maid Flat area that were drilled by other agencies. The numbering system for well identification is shown on figure 2.

Descriptions of lithology are based on examination of drill cuttings with the aid of a binocular microscope. Many of the surveys listed in table 1 were made by the authors, using wireline-logging equipment mounted in a small van; most of the surveys listed for the Pucci chairlift site were made by an oilfield service company. Temperature surveys shown in figures 3-9 were made with portable and van-mounted equipment employing thermistor probes that have an accuracy and precision of 0.01°C or better.

Twenty samples of drill cuttings from the Pucci chairlift well were submitted to the Geothermal Laboratory at Southern Methodist University, Dallas, Texas. Bulk or solid-component thermal conductivities were determined under the direction of Dr. David O. Blackwell; the values range from 3.90 to 5.21 mcal/cm. sec. °C.

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TABLE 1 -- Specifications and drillers' logs of wells (continued).

WATER RESOURCES DEPT
SALEM, OREGON

Generalized Lithology	Thick- ness (meters)	Depth (meters)
Pyroxene andesite, altered	7	550
Mudflow deposits: 60 percent lithic clasts, altered	23	573
Hornblende andesite	15	588
Mudflow deposits; lithic clasts, altered	13	601
Hornblende andesite, slightly altered	9	610

35/9E-3cca. Mt Hood Meadows site. Mount Hood South quadrangle (7.5'). Hood River County, Oregon. 45°20'00" N. 121°39'36" W. Alt. approx. 1,665 m (5,460 ft). Drilled in 1980 to 355 m (1,165 ft) by American Deep Drilling & Exploration, Oregon City, Oregon, using mud-rotary method.

Construction: 20.6-cm (8 1/8-in) inside diameter welded casing, surface to 50 m (165 ft) 5-cm (2-in) inside diameter tubing, surface to 352 m (1,155 ft), with sealed end. 20.0-cm (7 7/8-in) hole from 50 m (165 ft) to 355 m (1,165 ft).

Water level: Not determined; hole filled with drilling mud.

Logs and surveys:	Depth (m)
Lithology (see generalized below)	0 - 355
Temperature, Nov. 18, 1980 (max 11.6°C)	5 - 350
Gamma	3 - 355

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WATER RESOURCES DEPT
SALEM, OREGON

TABLE 1 -- Specifications and drillers' logs of wells (continued).

Generalized Lithology	Thick- ness (meters)	Depth (meters)	(feet)
Colluvium; andesite, rare basalt	4	4	13
Epiclastic debris; andesite, basalt; subangular to rounded; soft clay matrix	13	17	56
Porphyritic hypersthene andesite	7	24	79
Epiclastic debris; andesite, basalt, clay matrix; hematite stained	6	30	98 "82"
Porphyritic hypersthene andesite, partly fractured and oxidized <i>Marker 2 (Oxidized)</i>	15	45	148 "132" ②
Interflow of andesitic debris; oxidized	3	48	158 "142" ③
Porphyritic hypersthene andesite <i>Marker 3 (J.G.)</i>	→ 3	51	167 - Cased to 50 m 165' (8")
Epiclastic debris; andesite, some basalt	2	53	174 7 7/8" hole
Porphyritic hypersthene andesite	11	64	210 ↓
Epiclastic debris of basalt, andesite	6	72	236
Porphyritic hypersthene andesite	10	82	269 "253" <i>adjusted to well depth</i>
Basalt flow; brownish black, porphyritic <i>Marker 4 (J.G.)</i>	6	88	289 "273" <i>SEL</i>
Epiclastic debris; subround to subangular andesite and basalt fragments, with some pale orange clay	107	195	640 - "624"
Basalt flow; black, porphyritic	9	204	669 - "653"
Epiclastic debris; andesite and basalt	30	234	768
Porphyritic hypersthene andesite	15	249	817
Epiclastic debris; hematite weathering	7	256	840 - "824"
Basalt flow; dark gray, porphyritic	7	263	863 - "847"
Epiclastic debris; basalt and andesite	6	269	883
Porphyritic hypersthene andesite	10	279	915
Interflow zone of debris; hematite-stained	3	282	925

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WATER RESOURCES DEPT
SALEM, OREGON

TABLE 1 -- Specifications and drillers' logs of wells (continued).

Generalized Lithology	Thick- ness (meters)	Depth (meters)	(feet)
Basalt flow; grayish black, porphyritic, oxidized	8	290	951
Porphyritic hypersthene andesite; oxidized	11	301	988
Epiclastic debris; andesitic	32	333	1093
Epiclastic debris; basaltic	12	345	1132
Basalt flow; dark gray, porphyritic	3	348	1142
Epiclastic debris; basalt, with some andesite	7	355	1165

JEL

3S/9E-7dbb. Pucci chairlift site. Mount Hood South quadrangle (7.5').

Clackamas County, Oregon. 45°19' 18" N. 121°42'45" W. Alt. 1,629 m

(5,340 ft). In 1979 drilled to 274 m (900 ft) using air-rotary method

and to 610 m (2,002 ft) using mud-rotary method by Orvail Buckner Well

Drilling, Redmond, Oregon. In 1980 deepened to 1,220 m (4,003 ft) using
mud-rotary method by Holman Drilling Corp., Spokane, Washington; completed
Oct. 1980.

Construction: 26-cm (10 1/4-in) inside diameter welded casing, surface to
61 m (200 ft); cemented to surface. 20.6-cm (8 1/8-in) inside diameter
welded casing, surface to 189 m (620 ft). 15.6-cm (6 1/8-in) welded
casing, surface to 438 m (1,437 ft); suspended inside 15.6-cm casing with
casing hanger; packers in annulus between casing and hole at 948 m (3,110
ft), 1,030 m (3,380 ft), and 1,095 m (3,590 ft); slot perforation 1,098 m
(3,600 ft). 15.2-cm (6-in) open hole from 1,107 m (3,630 ft) to 1,220 m
(4,003 ft).

Water level in casing: 573 m (1,880 ft) below land surface, Nov. 25,
1980. During drilling, water level as shallow as 80 m (260 ft), as on Sept.

Standard Application "Completeness" Checklist

Minimum Requirements (OAR 690-310-040)

Application G 16401 County: Hood River
Priority Date: 3/7/05 Township: 35
Range: 9E
Use(s): Commercial - making snow Section: 3, 4, 9, 10, 11
POD $\frac{1}{4}$ $\frac{1}{4}$: _____
Rate: _____ POU $\frac{1}{4}$ $\frac{1}{4}$: _____

- ☒ Applicant/Organization Name, Mailing Address and Telephone Number. If applicant is other than a private landowner, Organizations section must be completed.
- ☒ Source listed
- ☒ Property ownership indicated? If applicant does not own all the land, is the affected landowner's name and mailing address listed? (Including: Lands, not owned by applicant, upon which the source is locatedor..... any Lands, not owned by applicant, which are crossed by the diversion works.) **NOTE:** An easement or agreement DOES NOT need to be submitted at this time, however a statement declaring the existence of written authorization or an easement permitting access to land crossed by the proposed ditch canal or other work is required at this time. Easement or agreement will be required before a permit will be issued.
- ☒ If a groundwater application...is the groundwater development section completed, including copies of well logs?
- ☒ Proposed Use of the water.... Is each proposed use identified?
- ☐ Has the appropriate "Supplemental Form" for each proposed use been completed, if applicable?
 - ☐ Form I (Irrigation) ☐ Form M (Municipal or Quasi-Municipal)
 - ☐ Form R (Mining) ☒ Form Q (Commercial or Industrial)
 - ☐ Spring Description Sheet (if source is a Spring)
- ☒ Amount of water from each source listed in GPM, CFS or AF?
- ☒ Acreage being proposed, if applicable.

- ☒ Season being requested by applicant.
- ☒ Water management section has been completed? If system has not been designed, the applicant may estimate this information.
- ☒ Resource protection system completed on Surface Water application?
- ☒ Are the dates of construction indicated? Proposed dates for the Beginning of construction, completion of construction, and complete application of water to the proposed use(s) If system already completed, applicant should indicate existing. Applicant may indicate in other than dates, these timelines.
- ☒ Is the application signed in ink by the applicant? If the application is in the name of an organization or corporation, the authorized agent with title or authority, must sign the application. If more than one applicant named, both/all must sign or application is incomplete.
- ☒ Legal description included? A copy of the deed, land sales contract or title insurance policy can provide this information. We cannot accept a copy of the tax bill.
- ☒ A completed Land-Use Form or receipt signed by the appropriate planning department officials enclosed? *N/A* Does the use on land-use form match the proposed use on the application? Date should be within 6 months.
- ☒ Does the map meet map requirements of OAR 690-310-050?

- ☒ Town, Range, Sec, ¼ ¼ and Tax Lot #
- ☒ Reference corner on map
- ☒ ¼ ¼'s clearly identified
- ☒ POU clearly identified location of place of use where water is to be used. ie: domestic, industrial stock, irr, etc.
- ☒ Other

- ☒ Scale of the Map, not less than 4" = 1 mile
- ☒ North Directional Symbol (not fatal if omitted)
- ☒ Location of each diversion point, well or dam
- ☒ Location Coordinates for each POD by reference to a recognized public land survey corner
- ☒ Number of acres per ¼ ¼, if Irrigation

☒ fees enclosed?

Base Fee \$ 300

Total Paid \$ 500.00

plus \$ 200

plus \$ _____

Total Amount of
Water Requested: 50 gpm

Total Exam Fee \$ 500.00

Total Exam Fee \$ 500.00

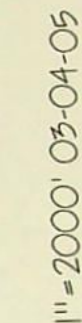
Recording Fee \$ 250.00

Completeness Check by: Connie

Date: 3/7/05

T.3S. R.9E. W.M.
HOOD RIVER COUNTY

RECEIVED
MAR 07 2005
WATER RESOURCES DEPT
SALEM, OREGON



Meadows Utilities LLC

121482

MT. HOOD MEADOWS, OREG., LLC

RECEIVED

OCT 08 2012

WATER RESOURCES DEPT
SALEM, OREGON

DATE	INVOICE NO.	COMMENT	AMOUNT	NET AMOUNT
8/20/2012	82012	CLAIM OF BENEFIC USE ON WELLS	150.00	150.00
VENDOR NO. ORWA10			TOTAL	150.00
VENDOR NAME Oregon Water Resources Dept				