

SURFACE WATER REGISTRATION CHECKLIST

(received after July 18, 1990)

CHECK BASIN MAP DEK NAME Malheur Lk # 12 UNADJUDICATED AREA ? yes
RECEIPT # 95362 S W R NUMBER 167
CHECK ENCLOSURES sec PRELIMINARY DATA BASE ENTRY DWP
ACKNOWLEDGEMENT LETTER RLC ENTER ON STREAM INDEX _____
CHECK QUADRANGLE MAP _____ CHECK GLO PLATS _____
WATERMASTER CHECKLIST _____ PUBLIC NOTICE PUBLICATION SO SW

FORM REVIEW

_____ blanks filled in
_____ signed
_____ date received stamped

MAP REVIEW

source and trib
 diversion point location
 conveyances (pipes, ditch, etc.)
 place of use
 scale
 township, range, section
 north arrow
 CWRE stamp
 disclaimer
_____ date survey was performed
 P.O.B. of survey
 dimensions and capacity of diversion system
 "beneficial use" type title
 "permanent-quality" paper

WATER RIGHT RECORD CHECK _____ FIELD INSPECTION _____
FINAL FILE REVIEW _____ FINAL DATA BASE ENTRY _____
ENTER ON PLAT CARDS _____

June 13, 1994

JAMES F GOSSON
580 S STATE ST
SUTHERLIN OR 97479

RE: SWR-167

Dear Jim,

This will acknowledge the receipt of the additional information to support the pre-1909 vested water right claim in the name of ALVORD RANCH you returned with corrections and completions. I have added the map to the file. Thank you for your attention to this matter. If you have any questions, please give me a call.

Sincerely,



Don Knauer
Adjudication Specialist

J:\W\S\C\1\SWR-0167.003



Commerce Building
158 12th Street NE
Salem, OR 97310-0210
(503) 378-3739
FAX (503) 378-8130

July 22, 1993

WATER
RESOURCES
DEPARTMENT

JAMES F GOSSON
580 S STATE ST
SUTHERLIN OR 97479

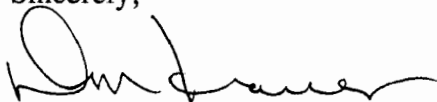
re : SWR-167 Alvord Ranch

Dear Jim,

I have completed my initial review of the map and supplemental sheets you submitted in support of the pre-1909 vested water right claim. I have copied a few of the supplemental sheets and highlighted a couple of the items. There are some corrections or completions that I determined need to be made. Would you take a look and see what you think? The map appears to meet all of the requirements of statutes and administrative rules.

If you have any questions, please give me a call.

Sincerely,



Don Knauer
Adjudication Specialist

J:\W\SI\CV\1\SWR-0167.002



3850 Portland Rd NE
Salem, OR 97310
(503) 378-3739
FAX (503) 378-8130

January 22, 1993

ALVORD RANCH
HC 77 BOX 50
PRINCETON OR 97721

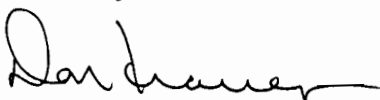
Dear MR DAVIS,

This will acknowledge that your Surface Water Registration Statement in the name of ALVORD RANCH has been received by our office. The fees in the amount of \$12936.00 have been received and our receipt #95362 is enclosed. Your registration statement has been numbered SWR-167.

Our office will review your form and map in the near future. If necessary we will schedule a meeting with you that will include a site inspection. If there are problems with your form we are usually able to take care of them during our visit. We will be able to answer any questions you might have about the adjudication process at that time.

Please feel free to contact this office if you have any questions.

Sincerely,



Don Knauer
Adjudication Specialist

\$ 12336- / SWR 167

Enclosure

C:\WP51\SWR\CLAIMANT\SWR-0167.001



3850 Portland Rd NE
Salem, OR 97310
(503) 378-3739
FAX (503) 378-8130

STATE OF OREGON
WATER RESOURCES DEPARTMENT
 3850 PORTLAND ROAD NE
 SALEM, OR 97310
 378-8455/378-8130 (FAX)

RECEIVED FROM: Tom J. Davis Livestock
 BY: _____

APPLICATION	
PERMIT	
TRANSFER	

CASH: CHECK: # 92-6 OTHER: (IDENTIFY)

TOTAL REC'D \$ 12,936.00

12336⁰⁰

*FR
 SWR-167*

01-00-0 WRD MISC CASH ACCT

842.010	ADJUDICATIONS	\$ <u>12,936.00</u>
831.087	PUBLICATIONS/MAPS	\$
830.650	PARKING FEES Name/month	\$
_____	OTHER: (IDENTIFY)	\$

02-00-0 FEDERAL FUNDS

_____	OTHER: (IDENTIFY)	\$
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03-00-0 WRD OPERATING ACCT

MISCELLANEOUS:

840.001	COPY FEES	\$
850.200	RESEARCH FEES	\$
880.109	MISC REVENUE: (IDENTIFY)	\$
520.000	OTHER (P-6): (IDENTIFY)	\$

WATER RIGHTS:

842.001	SURFACE WATER	\$	842.002	RECORD FEE	\$
842.003	GROUND WATER	\$	842.004		\$
842.005	TRANSFER	\$	842.006		\$

WELL CONSTRUCTION

842.022	WELL DRILL CONSTRUCTOR	\$	842.023	LICENSE FEE	\$
842.016	WELL DRILL OPERATOR	\$	842.019		\$
_____	LANDOWNER'S PERMIT	\$	842.024		\$

06-00-0 WELL CONST START FEE

842.013	WELL CONST START FEE	\$	CARD #	
_____	MONITORING WELLS	\$	CARD #	

45-00-0 LOTTERY PROCEEDS

864.000	LOTTERY PROCEEDS	\$
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07-00-0 HYDRO ACTIVITY

842.011	POWER LICENSE FEE(FW/WRD)	LIC NUMBER	\$
842.115	HYDRO LICENSE FEE(FW/WRD)		\$

_____	HYDRO APPLICATION	\$
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RECEIPT # 95362 DATED: 12-23-92 BY: P. Smith

RECEIVED

JUN 13 1994

580 South State Street
Sutherlin, Oregon 97479

JAMES E. GOSSON Consulting Engineer

WATER RESOURCES DEPT.
SALEM, OREGON

(503) 459-2243

CIVIL ENGINEER
LAND SURVEYOR
WATER RIGHTS EXAMINER

June 8, 1994

Oregon Water Resources Department
Commerce Building
158 12th Street, N.E.
Salem, Oregon 97310

Attention: Don Knauer

Re: SWR167 Alvord Ranch

Dear Don,

This letter is in response to your letter of July 22, 1993.

Supplemental Sheet #2

This sheet has been modified as follows:

The amount claimed from Big Alvord Creek is decreased from 81.45 cfs to 81.35 cfs, and the amount claimed from spring #16 for irrigation is 0.10 cfs. The total amount claimed for irrigation remains unchanged at 290.90 cfs.

Supplemental Sheet #6

The location of spring #5 has been corrected, describing it as being within Township 34 South, Range 35 East.

The location of spring #16 has been corrected, describing it as being within the northeast 1/4 of the northeast 1/4 of Section 5.

Supplemental Sheet #7

The location of spring #30 has been corrected, describing it as being within Section 28.

Supplemental Sheet #8

Spring #51 has been added.

Supplemental Sheet #11

Little Alvord Creek, describing stock use in Section 4, Township 34 South, Range 34 East, has been deleted.

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JUN 13 1994

WATER RESOURCES DEPT.
SALEM, OREGON


Alvord Ranch
June 8, 1994
Page 2

Supplemental Sheet #12

The claim to irrigation in Section 29, Township 34 South, Range 34 East, from Dry Creek, has been deleted.

Please contact me if you have any questions.

Very truly yours



James F. Gosson

Enclosures

JFG/p

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 JUN 13 1994

WATER RESOURCES DEPT
 SALEM, OREGON

Historically, the beginning of the season varies from January 15 to March 15, with the season ending September 30. The season of use associated with this claim is from January 15 through September 30. The rate of withdrawal associated with this claim is 1/40 cfs per acre from January 15 to June 15, thence 1/80 cfs per acre to September 30. The duty of water associated with this claim is 3.0 acre feet per acre per irrigation season. The amount of water claimed for irrigation from January 15 to June 15 is 290.90 cfs, and the amount of water claimed for irrigation from June 15 through September 30 is 145.45 cfs.

CLAIMED RATES AND AREAS OF USE

SOURCE	%	CFS
MOSQUITO	20	58.18
WILLOW	7	20.36
COTTONWOOD	20	58.18
BIG ALVORD	28	81.35
LITTLE ALVORD	15	43.64
PIKE	7	20.36
INDIAN	3	8.73
SPRING #16	0	0.10
TOTAL	100	290.90

DOMESTIC

The domestic use is year round. The source of water for domestic use is a spring. A gravity pipeline delivers the water to the place of use. The use includes two families, a wash house for bathing, a guest house, and a cook house.

BATHING

The bathing use is year round. The sources of water are two naturally occurring hot springs known as the Alvord Hot Springs. Water is gathered by underground pipelines and delivered by gravity to a concrete bathing pool enclosed by a bath house. The amount of water claimed for this use is 0.056 cfs.

The total amount of water claimed is 291.032 cfs, being 0.056 cfs for stockwater; 290.90 cfs for irrigation, 0.020 cfs for domestic related use, and 0.056 cfs for bathing.

RECEIVED

JUN 13 1994

WATER RESOURCES DIVISION
SALEM, OREGON

SUPPLEMENTAL SHEET #6
REGISTRATION STATEMENT
PRE-1909 VESTED WATER RIGHT CLAIM
IN THE NAME OF ALVORD RANCH

SOURCE	USE	GPM OR CFS	1/4 1/4	T	R	S	REMARKS
SPRING #1	STOCK	2 GPM	SW NE	33S	34E	24	EST FLOW, DRY 9/91
SPRING #2	STOCK	3 GPM	NE NW	33S	35E	30	EST FLOW
SPRING #3	STOCK	3 GPM	SW SE	33S	34E	26	EST FLOW, DRY 9/91
SPRING #4	STOCK	1 GPM	SW SE	33S	34E	26	"
SPRING #5	STOCK	3 GPM	NW NW	34S	35E	6	MEASURED SEPT 1991
SPRING #6	STOCK	2 GPM	SE NE	33S	35E	31	EST FLOW
SPRING #7	STOCK	1 GPM	NW NW	33S	34E	36	DRY, 9/91
SPRING #8	STOCK	2 GPM	SE NW	33S	34E	35	EST FLOW
SPRING #9	STOCK	2 GPM	SE NW	33S	34E	35	EST FLOW
SPRING #10	STOCK	1/3 GPM	SW NE	33S	34E	36	MEASURED 9/91
SPRING #11	STOCK	1/3 GPM	SW NE	33S	34E	36	" "
SPRING #12	STOCK	1 GPM	SW NE	33S	34E	36	" "
SPRING #13	STOCK	1 GPM	SE SW	33S	34E	35	" "
SPRING #14	STOCK	1 GPM	SE SW	33S	34E	35	" "
SPRING #15	STOCK	1 GPM	SW SW	33S	34E	36	DRY ON DRY YEARS
SPRING #16	DOM, STOCK, IRRIGATION		NE NE	34S	34E	5	2 DOM WASHHOUSE, COOK HSE, 1 GUEST HSE, STOCK & IRR.
SPRING #17	STOCK	1/2 GPM	NE NE	34S	34E	2	EST FLOW DRY 9/91
SPRING #18	STOCK	1/2 GPM	SW NE	34S	34E	2	MEASURED 9/91
SPRING #19	STOCK	1 GPM	NW SE	34S	34E	4	MEASURED 9/91
SPRING #20	STOCK	1 GPM	NW SE	34S	34E	4	" "
SPRING #21	STOCK	3 GPM	NE SE	34S	34E	2	" "
SPRING #22	STOCK	3 GPM	SW SW	34S	34E	2	" "
SPRING #23	STOCK	1 GPM	SE NW	34S	34E	11	" "

RECEIVED

JUN 13 1994

WATER RESOURCES DIVISION
SALEM, OREGON

SUPPLEMENTAL SHEET #7
REGISTRATION STATEMENT
PRE-1909 VESTED WATER RIGHT CLAIM
IN THE NAME OF ALVORD RANCH

SOURCE	USE	GPM OR CFS	1/4 1/4	T	R	S	REMARKS
SPRING #24	STOCK	1/2 GPM	NE NE	34S	34E	15	EST FLOW DRY 9/91
SPRING #25	STOCK	1/2 GPM	NW SE	34S	34E	15	" "
SPRING #26	STOCK	1/2 GPM	SE SW	34S	34E	15	" "
SPRING #27	STOCK	1 GPM	SW SE	34S	34E	21	MEASURED 9/91
SPRING #28	STOCK	1 GPM	SE NW	34S	34E	28	EST FLOW DRY 9/91
SPRING #29	STOCK	1 GPM	SW NE	34S	34E	28	" "
SPRING #30	STOCK	1 GPM	SW SW	34S	34E	28	MEASURED 9/91
SPRING #31	STOCK	1/2 GPM	NE NW	34S	34E	33	" "
SPRING #32	STOCK, BATH	10 GPM	SW NE	34S	34E	32	EST 5/92
SPRING #33	STOCK	5 GPM	SE NE	34S	34E	32	EST 11/92
SPRING #34	STOCK, BATH	15 GPM	NW SE	34S	34E	32	EST 5/92
SPRING #35	STOCK	1 GPM	SW NE	34S	34E	15	EST FLOW DRY 9/91
SPRING #36	STOCK	?	NW SW	34S	34E	28	
SPRING #37	STOCK	3 GPM	NW SW	34S	34E	1	MEASURED 9/91
SPRING #38	STOCK	?	SE SW	34S	34E	2	
SPRING #39	STOCK	?	SE SW	34S	34E	2	
SPRING #40	STOCK	?	NW NW	34S	34E	12	
SPRING #41	STOCK	?	SE SE	34S	34E	11	
SPRING #42	STOCK	?	NW NW	34S	34E	14	
SPRING #43	STOCK	?	SE NE	34S	34E	15	
SPRING #44	STOCK	?	SE NE	34S	34E	15	
SPRING #45	STOCK	?	NE SE	34S	34E	15	
SPRING #46	STOCK	?	SW SE	34S	34E	15	

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SUPPLEMENTAL SHEET #11
 SURFACE WATER REGISTRATION STATEMENT
 PRE-1909 VESTED WATER RIGHT CLAIM
 IN THE NAME OF ALVORD RANCH

WATER RIGHT
 SALIDA, CALIF.

SOURCE	TRIBUTARY TO	USE	T	R	S
COTTONWOOD CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	35
COTTONWOOD CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	36
UN-NAMED STREAM #7	COTTONWOOD CREEK	STOCK	33S	34E	27
UN-NAMED STREAM #7	COTTONWOOD CREEK	STOCK	33S	34E	34
UN-NAMED STREAM #7	COTTONWOOD CREEK	STOCK	33S	34E	35
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK	34S	34E	4
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	3
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	2
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	1
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	10
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	11
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	12
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	13
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	14
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	15
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	35E	7
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	35E	18
UN-NAMED STREAM #8	LITTLE ALVORD CREEK	STOCK	34S	34E	4
UN-NAMED STREAM #8	LITTLE ALVORD CREEK	STOCK	34S	34E	3
UN-NAMED STREAM #9	LITTLE ALVORD CREEK	STOCK	34S	34E	4
UN-NAMED STREAM #9	LITTLE ALVORD CREEK	STOCK	34S	34E	9
UN-NAMED STREAM #10	LITTLE ALVORD CREEK	STOCK	34S	34E	9

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JUN 13 1994

WATER DIVISION
SALEM, OR

SUPPLEMENTAL SHEET #12
SURFACE WATER REGISTRATION STATEMENT
PRE-1909 VESTED WATER RIGHT CLAIM
IN THE NAME OF ALVORD RANCH

SOURCE	TRIBUTARY TO	USE	T	R	S
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK	34S	34E	9
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK	34S	34E	16
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	3
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	10
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	11
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	13
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	14
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	15
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	21
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	22
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	23
UN-NAMED STREAM #11	ALVORD DEPRESSION	STOCK	34S	34E	16
UN-NAMED STREAM #12	UN-NAMED STREAM #11	STOCK	34S	34E	16
UN-NAMED STREAM #13	UN-NAMED STREAM #11	STOCK	34S	34E	16
PIKE CREEK	ALVORD DEPRESSION	STOCK	34S	34E	20
PIKE CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	21
PIKE CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	28
DRY CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	28
DRY CREEK	ALVORD DEPRESSION	STOCK	34S	34E	29
UN-NAMED STREAM #14	DRY CREEK	STOCK	34S	34E	29
INDIAN CREEK	ALVORD DEPRESSION	STOCK	34S	34E	29
INDIAN CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	28
INDIAN CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	33

WORK COPY

DE 22 1992

WATER RESOURCES DIVISION
SALEM, OREGON

SUPPLEMENTAL SHEET #1
SURFACE WATER REGISTRATION STATEMENT
IN THE NAME OF ALVORD RANCH

The ranch supports approximately 2500 to 3000 head of beef cattle, 50 to 100 head of sheep, 10 to 15 saddle horses, 11.635.6 acres of irrigated acreage, two domestic, including water for a cook house, a wash house, a guest house, and water from natural hot water springs for bathing.

The irrigated acreage is primarily flood irrigated hay and pasture. A small amount of lawn and garden sprinkler irrigation exists around the houses.

Stockwater

The stockwater use is year round. Stock take water directly from the streams and springs. One man-made diversion for stock use (from spring #16) pre-dates February 24, 1909 and consists of a buried pipeline to a stock tank northeasterly of the barn as shown on the accompanying map.

Assuming daily consumption amounts of:

12 gallons/day for beef cattle

12 gallons/day for horses

2 gallons/day for sheep

the daily usage is: (12)(3000) = 36,000 gallons/day

(12)(15) = 180 gallons/day

(2)(100) = 200 gallons/day

Total = 36,380 gallons/day = 25.3 gpm

The amount of stockwater claimed is 0.056 cfs.

Irrigation

The natural watercourses run through the ranch property, so the ranch is subject to the behavior of the streams. This behavior varies from devastating flood damage to drought, depending upon the weather.

Practically all of the irrigation is by flood irrigation and sub-irrigation from lateral ditches.

DEC 24 1992

SUPPLEMENTAL SHEET #2 - ALVORD RANCH

Historically, the beginning of the season varies from January 15 to March 15, with the season ending September 30. The season of use associated with this claim is from January 15 through September 30. The rate of withdrawal associated with this claim is 1/40 cfs per acre from January 15 to June 15, thence 1/80 cfs per acre to September 30. The duty of water associated with this claim is 3.0 acre feet per acre per irrigation season. The amount of water claimed for irrigation from January 15 to June 15 is 290.90 cfs, and the amount of water claimed for irrigation from June 15 through September 30 is 145.45 cfs.

CLAIMED RATES AND AREAS OF USE

?
LITTLE WILLOW
UNNAMED STREAM #4
DRY CR
?

SOURCE	%	CFS
MOSQUITO	20	58.18
WILLOW	7	20.36
COTTONWOOD	20	58.18
BIG ALVORD	28	81.45
LITTLE ALVORD	15	43.64
PIKE	7	20.36
INDIAN	3	8.73
SPRING #16		
TOTAL	100	290.90

DOMESTIC

The domestic use is year round. The source of water for domestic use is a spring. A gravity pipeline delivers the water to the place of use. The use includes two families, a wash house for bathing, a guest house, and a cook house.

BATHING

The bathing use is year round. The sources of water are two naturally occurring hot springs known as the Alvord Hot Springs. Water is gathered by underground pipelines and delivered by gravity to a concrete bathing pool enclosed by a bath house. The amount of water claimed for this use is 0.056 cfs. The total amount of water claimed is 291.032 cfs, being 0.056 cfs for stockwater; 290.90 cfs for irrigation, 0.020 cfs for domestic related use, and 0.056 cfs for bathing.

DEC 2 1988

SUPPLEMENTAL SHEET #3
ALVORD RANCH
ANALYSIS OF THE DELIVERY SYSTEM FROM SPRING #16

Elevation of spring #16: 4560
Elevation of lower house: 4172
Elevation of upper house: 4200
Elevation of Stock tank: 4185

The pipeline consists of three sizes and types of pipe. The upper portion being 4" x 4100' of steel, the center portion being 2 1/2" x 2500' of P.V.C., and the lower portion being 1" x 300' of P.V.C.

SEE ATTACHED CALCULATION SHEETS

The amount of water claimed from spring #16 is 0.102 cfs, being 0.02 cfs for the domestic related uses described in this claim, 0.01 cfs for stockwater, and 0.102 cfs for the irrigation of 4.0 acres of lawn, garden and pasture, all in the SW 1/4 of the NE 1/4 of Section 3, Township 34 South, Range 34 East, W.m., Harney County.

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DEC 22 1992

WATER RESOURCES DEP
SALEM, OREGON

SUPPLEMENTAL SHEET #4
ALVORD RANCH

USING THE COMPOUND PIPE RELATIONSHIP OF $H = H_{F_1} + H_{F_2} + H_{F_3} + \frac{V_3^2}{2g}$

WHERE: $H_F = f \frac{L}{D} \frac{V^2}{2g}$

THEN: $H = f_1 \frac{L_1}{D_1} \frac{V_1^2}{2g} + f_2 \frac{L_2}{D_2} \frac{V_2^2}{2g} + f_3 \frac{L_3}{D_3} \frac{V_3^2}{2g} + \frac{V_3^2}{2g}$

PLACE OF USE:

LOWER HOUSE AREA, COOKHOUSE, WASHHOUSE,
IRRIGATED AREA, GUEST HOUSE

THEN:

$H = 4560 - 4170 = 390 \text{ FT.}$

$L_1 = 4100 \text{ FT.}$

$D_1 = 0.33 \text{ FT.}$

$L_2 = 2200 \text{ FT.}$

$D_2 = 0.208 \text{ FT.}$

$L_3 = 300 \text{ FT. (estimated)}$

$D_3 = 0.083 \text{ FT. (estimated)}$

THEN: $390 = f_1 \frac{4100}{0.33} \frac{V_1^2}{2g} + f_2 \frac{2200}{0.208} \frac{V_2^2}{2g} + f_3 \frac{300}{0.083} \frac{V_3^2}{2g} + \frac{V_3^2}{2g}$

ASSUMING $f_1 = 0.027$

ASSUMING $f_2 = 0.027$

ASSUMING $f_3 = 0.027$

SINCE $A_1 = 0.0873 \text{ FT.}^2$

SINCE $A_2 = 0.0341 \text{ FT.}^2$

SINCE $A_3 = 0.0055 \text{ FT.}^2$

THEN

$A_1 = \frac{0.0873}{0.0055} = 15.87 A_3$

$A_2 = \frac{0.0341}{0.0055} = 6.20 A_3$

SUPPLEMENTAL SHEET #5
ALVORD RANCH

DEC 22 1992

WATER RESOURCES DEPT.
SALEM, OREGON

IF $Q = AV$
THEN

$$V_1 - \frac{V_3}{15.87} = 0.063V_3, \text{ so } V_1^2 = 0.0040V_3^2$$

$$V_2 - \frac{V_3}{6.20} = 0.161V_3, \text{ so } V_2^2 = 0.0259V_3^2$$

THEN

$$390 - (5.157)(0.0040V_3^2) + (4.434)(0.0259V_3^2) + 1.5248V_3^2$$

$$390 - 0.0206V_3^2 + 0.1148V_3^2 + 1.5248V_3^2$$

$$390 - 1.6602V_3^2$$

$$V_3^2 = 390 / 1.6602 = 234.9$$

$$V_3 = 15.32 \text{ FT./SEC.}$$

$$V_2 = (0.161)(15.32) = 2.47 \text{ FT./SEC.}$$

$$V_1 = (0.063)(15.32) = 0.96 \text{ FT./SEC.}$$

$$Q_1 - A_1V_1 = (0.0873)(0.96) = 0.084 \text{ cfs}$$

$$Q_2 - A_2V_2 = (0.0341)(2.47) = 0.084 \text{ cfs}$$

$$Q_3 - A_3V_3 = (0.0055)(15.32) = 0.084 \text{ cfs}$$

$$f_1 = 0.026$$

$$f_2 = 0.022$$

$$f_3 = 0.018$$

THEN

$$390 - (0.026)(191V_1^2) + (0.022)(164.2V_2^2) + (0.018)(55.9V_3^2) + 0.0155V_3^2$$

$$390 - 4.966V_1^2 + 3.612V_2^2 + 1.006V_3^2 + 0.0155V_3^2$$

$$390 - 4.966V_1^2 + 3.612V_2^2 + 1.021V_3^2$$

$$390 = (4.966)(0.004V_3^2) + (3.612)(0.0259V_3^2) + 1.021V_3^2$$

$$390 = 0.0199V_3^2 + 0.0936V_3^2 + 1.021V_3^2$$

$$390 = 1.1345V_3^2$$

$$V_3^2 = 343.78$$

$$V_3 = 18.54 \text{ FT./SEC.}$$

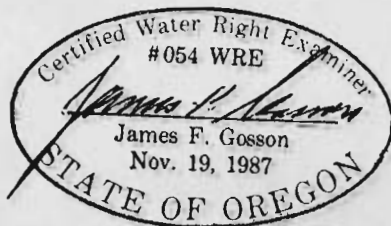
$$V_2 = (0.161)(18.54) = 2.98 \text{ FT./SEC.}$$

$$V_1 = (0.063)(18.54) = 1.17 \text{ FT./SEC.}$$

$$Q_1 - A_1V_1 = (0.0873)(1.17) = 0.102 \text{ cfs}$$

$$Q_2 - A_2V_2 = (0.0341)(2.98) = 0.102 \text{ cfs}$$

$$Q_3 - A_3V_3 = (0.0055)(18.54) = 0.102 \text{ cfs}$$



SUPPLEMENTAL SHEET #6
 REGISTRATION STATEMENT
 PRE-1909 VESTED WATER RIGHT CLAIM
 IN THE NAME OF ALVORD RANCH

DEC 22 1992

WATER RESOURCES DEPT.
 SALEM, OREGON

SOURCE	USE	GPM OR CFS	1/4 1/4	T	R	S	REMARKS
SPRING #1	STOCK	2 GPM	SW NE ✓	33S	34E	24	EST FLOW, DRY 9/91
SPRING #2	STOCK	3 GPM	NE NW ✓	33S	35E	30	EST FLOW
SPRING #3	STOCK	3 GPM	SW SE ✓	33S	34E	26	EST FLOW, DRY 9/91
SPRING #4	STOCK	1 GPM	SW SE ✓	33S	34E	26	"
* SPRING #5	STOCK	3 GPM	NW NW ✓	33 34S	34 35E	6	MEASURED SEPT 1991
SPRING #6	STOCK	2 GPM	SE NE ✓	33S	35E	31	EST FLOW
SPRING #7	STOCK	1 GPM	NW NW ✓	33S	34E	36	DRY, 9/91
SPRING #8	STOCK	2 GPM	SE NW ✓	33S	34E	35	EST FLOW
SPRING #9	STOCK	2 GPM	SE NW ✓	33S	34E	35	EST FLOW
SPRING #10	STOCK	1/3 GPM	SW NE ✓	33S	34E	36	MEASURED 9/91
SPRING #11	STOCK	1/3 GPM	SW NE ✓	33S	34E	36	" "
SPRING #12	STOCK	1 GPM	SW NE ✓	33S	34E	36	" "
SPRING #13	STOCK	1 GPM	SE SW ✓	33S	34E	35	" "
SPRING #14	STOCK	1 GPM	SE SW ✓	33S	34E	35	" "
SPRING #15	STOCK	1 GPM	SW SW ✓	33S	34E	36	DRY ON DRY YEARS
* SPRING #16	DOM, STOCK, IRRIGATION		NE NW NE	34S	34E	54	2 DOM WSHHSE, COOK HSE, 1 GST HSE, STOCK & IRR. EST FLOW
SPRING #17	STOCK	1/2 GPM	NE NE ✓	34S	34E	2	EST FLOW, DRY 9/91
SPRING #18	STOCK	1/2 GPM	SW NE ✓	34S	34E	2	MEASURED 9/91
SPRING #19	STOCK	1 GPM	NW SE ✓	34S	34E	4	MEASURED 9/91
SPRING #20	STOCK	1 GPM	NW SE ✓	34S	34E	4	" "
SPRING #21	STOCK	3 GPM	NE SE ✓	34S	34E	2	" "
SPRING #22	STOCK	3 GPM	SW SW ✓	34S	34E	2	" "
SPRING #23	STOCK	1 GPM	SE NW ✓	34S	34E	11	" "

1992
 RES DE
 LEGON

SUPPLEMENTAL SHEET #7
 REGISTRATION STATEMENT
 PRE-1909 VESTED WATER RIGHT CLAIM
 IN THE NAME OF ALVORD RANCH

SOURCE	USE	GPM OR CFS	1/4 1/4	T	R	S	REMARKS
SPRING #24	STOCK	1/2 GPM	NE NE ✓	34S	34E	15	EST FLOW, DRY 9/91
SPRING #25	STOCK	1/2 GPM	NW SE ✓	34S	34E	15	" "
SPRING #26	STOCK	1/2 GPM	SE SW ✓	34S	34E	15	" "
SPRING #27	STOCK	1 GPM	SW SE ✓	34S	34E	21	MEASURED 9/91
SPRING #28	STOCK	1 GPM	SE NW ✓	34S	34E	28	EST FLOW, DRY 9/91
SPRING #29	STOCK	1 GPM	SW NE ✓	34S	34E	28	" "
* SPRING #30	STOCK	1 GPM	SW SW ✓	34S	34E	28 30	MEASURED 9/91
SPRING #31	STOCK	1/2 GPM	NE NW ✓	34S	34E	33	" "
SPRING #32	STOCK, BATH	10 GPM	SW NE ✓	34S	34E	32	EST 5/92
SPRING #33	STOCK	5 GPM	SE NE ✓	34S	34E	32	EST 11/92
SPRING #34	STOCK, BATH	15 GPM	NW SE ✓	34S	34E	32	EST 5/92
SPRING #35	STOCK	1 GPM	SW NE ✓	34S	34E	15	EST FLOW DRY 9/91
SPRING #36	STOCK	1 GPM	NW SW ✓	34S	34E	28	ESTIMATED
SPRING #37	STOCK	3 GPM	NW SW ✓	34S	34E	1	MEASURED 9/91
SPRING #38	STOCK	1/2 GPM	SE SW ✓	34S	34E	2	ESTIMATED
SPRING #39	STOCK	1 GPM	SE SW ✓	34S	34E	2	ESTIMATED
SPRING #40	STOCK	1 GPM	NW NW ✓	34S	34E	12	ESTIMATED
SPRING #41	STOCK	1 GPM	SE SE ✓	34S	34E	11	ESTIMATED
SPRING #42	STOCK	1 GPM	NW NW ✓	34S	34E	14	ESTIMATED
SPRING #43	STOCK	1 GPM	SE NE ✓	34S	34E	15	ESTIMATED
SPRING #44	STOCK	1 GPM	SE NE ✓	34S	34E	15	ESTIMATED
SPRING #45	STOCK	1 GPM	NE SE ✓	34S	34E	15	ESTIMATED
SPRING #46	STOCK	1 GPM	SW SE ✓	34S	34E	15	ESTIMATED

DEC 22 1992

LAND RESOURCES DE
SALEM, OREGON

SUPPLEMENTAL SHEET #9
SURFACE WATER REGISTRATION STATEMENT
PRE-1909 VESTED WATER RIGHT CLAIM
IN THE NAME OF ALVORD RANCH

SOURCE	TRIBUTARY TO	USE	T	R	S
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK	33S	34E	11
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK	33S	34E	13
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK	33S	34E	14
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	24
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	25
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	36
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	35E	19
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	35E	30
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	35E	31
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	35E	32
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	35E	5
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	35E	6
UN-NAMED STREAM #1	MOSQUITO CREEK	STOCK	33S	34E	11
UN-NAMED STREAM #1	MOSQUITO CREEK	STOCK	33S	34E	14
UN-NAMED STREAM #1	MOSQUITO CREEK	STOCK	33S	34E	13
UN-NAMED STREAM #2	UN-NAMED STREAM #1	STOCK	33S	34E	14
UN-NAMED STREAM #3	WILLOW CREEK	STOCK	33S	34E	13
UN-NAMED STREAM #3	WILLOW CREEK	STOCK	33S	34E	14
WILLOW CREEK	ALVORD DEPRESSION	STOCK	33S	34E	14
WILLOW CREEK	ALVORD DEPRESSION	STOCK	33S	34E	13
WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	23
WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	24
WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	25

DEC 22 1992

SUPPLEMENTAL SHEET #10
 SURFACE WATER REGISTRATION STATEMENT
 PRE-1909 VESTED WATER RIGHT CLAIM
 IN THE NAME OF ALVORD RANCH

WASCO COUNTY, OREGON

SOURCE	TRIBUTARY TO	USE	T	R	S
WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	35E	19
WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	35E	30
WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	35E	31
WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	35E	32
LITTLE WILLOW CREEK	ALVORD DEPRESSION	STOCK	33S	34E	22
LITTLE WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	23
LITTLE WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	24
LITTLE WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	26
LITTLE WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	25
LITTLE WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	35
LITTLE WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	36
LITTLE WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	35E	30
UN-NAMED STREAM #4	ALVORD DEPRESSION	STOCK	33S	34E	22
UN-NAMED STREAM #4	ALVORD DEPRESSION	STOCK	33S	34E	23
UN-NAMED STREAM #4	ALVORD DEPRESSION	STOCK	33S	34E	26
UN-NAMED STREAM #4	ALVORD DEPRESSION	STOCK, IRR	33S	34E	25
UN-NAMED STREAM #5	UN-NAMED STREAM #4	STOCK	33S	34E	22
UN-NAMED STREAM #5	UN-NAMED STREAM #4	STOCK	33S	34E	23
UN-NAMED STREAM #6	UN-NAMED STREAM #4	STOCK	33S	34E	22
UN-NAMED STREAM #6	UN-NAMED STREAM #4	STOCK	33S	34E	23
COTTONWOOD CREEK	ALVORD DEPRESSION	STOCK	33S	34E	27
COTTONWOOD CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	26

SUPPLEMENTAL SHEET #11
 SURFACE WATER REGISTRATION STATEMENT
 PRE-1909 VESTED WATER RIGHT CLAIM
 IN THE NAME OF ALVORD RANCH

SOURCE	TRIBUTARY TO	USE	T	R	S
COTTONWOOD CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	35
COTTONWOOD CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	36
UN-NAMED STREAM #7	COTTONWOOD CREEK	STOCK	33S	34E	27
UN-NAMED STREAM #7	COTTONWOOD CREEK	STOCK	33S	34E	34
UN-NAMED STREAM #7	COTTONWOOD CREEK	STOCK	33S	34E	35
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK	34S	34E	4
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	3
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	2
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	1
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	10
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	11
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	12
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	13
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	14
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	15
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	35E	7
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	35E	18
UN-NAMED STREAM #8	LITTLE ALVORD CREEK	STOCK	34S	34E	4
UN-NAMED STREAM #8	LITTLE ALVORD CREEK	STOCK	34S	34E	3
UN-NAMED STREAM #9	LITTLE ALVORD CREEK	STOCK	34S	34E	4
UN-NAMED STREAM #9	LITTLE ALVORD CREEK	STOCK	34S	34E	9
UN-NAMED STREAM #10	LITTLE ALVORD CREEK	STOCK	34S	34E	9
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK	34S	34E	4

20

DEC 20 1997

SUPPLEMENTAL SHEET #12
SURFACE WATER REGISTRATION STATEMENT
PRE-1909 VESTED WATER RIGHT CLAIM
IN THE NAME OF ALVORD RANCH

SOURCE	TRIBUTARY TO	USE	T	R	S
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK	34S	34E	9
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK	34S	34E	16
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	3
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	10
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	11
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	13
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	14
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	15
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	21
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	22
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	23
UN-NAMED STREAM #11	ALVORD DEPRESSION	STOCK	34S	34E	16
UN-NAMED STREAM #12	UN-NAMED STREAM #11	STOCK	34S	34E	16
UN-NAMED STREAM #13	UN-NAMED STREAM #11	STOCK	34S	34E	16
PIKE CREEK	ALVORD DEPRESSION	STOCK	34S	34E	20
PIKE CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	21
PIKE CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	28
DRY CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	28
DRY CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	29
UN-NAMED STREAM #14	DRY CREEK	STOCK	34S	34E	29
INDIAN CREEK	ALVORD DEPRESSION	STOCK	34S	34E	29
INDIAN CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	28
INDIAN CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	33

200

JAMES F. GOSSON Consulting Engineer

580 South State Street
Sutherlin, Oregon 97479

CIVIL ENGINEER
LAND SURVEYOR
WATER RIGHTS EXAMINER

(503) 459-2243

January 29, 1993

Oregon Water Resources Department
3850 Portland Road, N.E.
Salem, Oregon 97310

RECEIVED
FEB - 1 1993
WATER RESOURCES DEPT
SALEM, OREGON

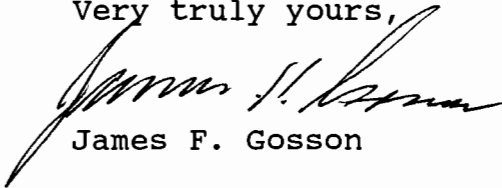
Attention: Adjudication Section

Re: Alvord Ranch

Enclosed is a mylar Registration Statement Map portraying the claimed irrigated acreage, surface water sources, etc. pertaining to the main ranch.

Please contact me if you have any questions.

Very truly yours,


James F. Gosson

Enclosures

cc: Alvord Ranch

JFG/p

CIVIL ENGINEER
LAND SURVEYOR
WATER RIGHTS EXAMINER

(503) 459-2243

December 19, 1992

Oregon Water Resources Department
3850 Portland Road, N.E.
Salem, Oregon 97310
Adjudication Section

DEC 22 1992
WATER RESOURCES DEPT.
SALEM, OREGON

Attention: Donald Knauer

Re: Vested Water Right Claims (ALVORD RANCH)

Dear Mr. Knauer,

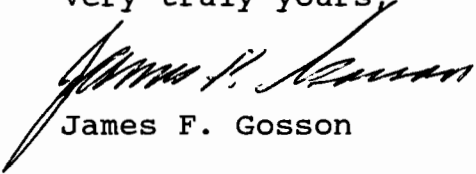
As agent for the Alvord Ranch, enclosed are:

3 Surface Water Registration Statement Claim Forms with
supplemental sheets,
2 Surface Water Registration Statement Claim Maps,
Check in the amount of \$12,936.00 payable to the
Oregon Water Resources Department.

The third map is in the final phase of preparation and will be
forwarded to your department immediately upon its completion.

Additional information and evidence relative to the claims will be
forthcoming.

Very truly yours,


James F. Gosson

cc: Alvord Ranch

Enclosures

JFG/p

DEC 22 1992
WATER RESOURCES DIVISION
SALEM, OREGON

SUPPLEMENTAL SHEET #1
SURFACE WATER REGISTRATION STATEMENT
IN THE NAME OF ALVORD RANCH

The ranch supports approximately 2500 to 3000 head of beef cattle, 50 to 100 head of sheep, 10 to 15 saddle horses, 11.635.6 acres of irrigated acreage, two domestic, including water for a cook house, a wash house, a guest house, and water from natural hot water springs for bathing.

The irrigated acreage is primarily flood irrigated hay and pasture. A small amount of lawn and garden sprinkler irrigation exists around the houses.

Stockwater

The stockwater use is year round. Stock take water directly from the streams and springs. One man-made diversion for stock use (from spring #16) pre-dates February 24, 1909 and consists of a buried pipeline to a stock tank northeasterly of the barn as shown on the accompanying map.

Assuming daily consumption amounts of:

12 gallons/day for beef cattle
12 gallons/day for horses
2 gallons/day for sheep
the daily usage is: (12)(3000) = 36,000 gallons/day
 (12)(15) = 180 gallons/day
 (2)(100) = 200 gallons/day

Total = 36,380 gallons/day = 25.3 gpm

The amount of stockwater claimed is 0.056 cfs.

Irrigation

The natural watercourses run through the ranch property, so the ranch is subject to the behavior of the streams. This behavior varies from devastating flood damage to drought, depending upon the weather.

Practically all of the irrigation is by flood irrigation and sub-irrigation from lateral ditches.

DEC 27 1997

SUPPLEMENTAL SHEET #2 - ALVORD RANCH

Historically, the beginning of the season varies from January 15 to March 15, with the season ending September 30. The season of use associated with this claim is from January 15 through September 30. The rate of withdrawal associated with this claim is 1/40 cfs per acre from January 15 to June 15, thence 1/80 cfs per acre to September 30. The duty of water associated with this claim is 3.0 acre feet per acre per irrigation season. The amount of water claimed for irrigation from January 15 to June 15 is 290.90 cfs, and the amount of water claimed for irrigation from June 15 through September 30 is 145.45 cfs.

CLAIMED RATES AND AREAS OF USE

SOURCE	%	CFS
MOSQUITO	20	58.18
WILLOW	7	20.36
COTTONWOOD	20	58.18
BIG ALVORD	28	81.45
LITTLE ALVORD	15	43.64
PIKE	7	20.36
INDIAN	3	8.73
SPRING #16		
TOTAL	100	290.90

DOMESTIC

The domestic use is year round. The source of water for domestic use is a spring. A gravity pipeline delivers the water to the place of use. The use includes two families, a wash house for bathing, a guest house, and a cook house.

BATHING

The bathing use is year round. The sources of water are two naturally occurring hot springs known as the Alvord Hot Springs. Water is gathered by underground pipelines and delivered by gravity to a concrete bathing pool enclosed by a bath house. The amount of water claimed for this use is 0.056 cfs. The total amount of water claimed is 291.032 cfs, being 0.056 cfs for stockwater; 290.90 cfs for irrigation, 0.020 cfs for domestic related use, and 0.056 cfs for bathing.

DEC 21 1977

SUPPLEMENTAL SHEET #3
ALVORD RANCH
ANALYSIS OF THE DELIVERY SYSTEM FROM SPRING #16

Elevation of spring #16:	4560
Elevation of lower house:	4172
Elevation of upper house:	4200
Elevation of Stock tank:	4185

The pipeline consists of three sizes and types of pipe. The upper portion being 4" x 4100' of steel, the center portion being 2 1/2" x 2500' of P.V.C., and the lower portion being 1" x 300' of P.V.C.

SEE ATTACHED CALCULATION SHEETS

The amount of water claimed from spring #16 is 0.102 cfs, being 0.02 cfs for the domestic related uses described in this claim, 0.01 cfs for stockwater, and 0.102 cfs for the irrigation of 4.0 acres of lawn, garden and pasture, all in the SW 1/4 of the NE 1/4 of Section 3, Township 34 South, Range 34 East, W.m., Harney County.

SUPPLEMENTAL SHEET #4
ALVORD RANCH

DEC 23 1992

SALES, ALBANY

USING THE COMPOUND PIPE RELATIONSHIP OF $H = H_{F_1} + H_{F_2} + H_{F_3} + \frac{V_3^2}{2g}$

WHERE: $H_F = f \frac{L}{D} \frac{V^2}{2g}$

THEN: $H = f_1 \frac{L_1}{D_1} \frac{V_1^2}{2g} + f_2 \frac{L_2}{D_2} \frac{V_2^2}{2g} + f_3 \frac{L_3}{D_3} \frac{V_3^2}{2g} + \frac{V_3^2}{2g}$

PLACE OF USE:

LOWER HOUSE AREA, COOKHOUSE, WASHHOUSE,
IRRIGATED AREA, GUEST HOUSE

THEN:

$H = 4560 - 4170 = 390$ FT.

$L_1 = 4100$ FT.

$D_1 = 0.33$ FT.

$L_2 = 2200$ FT.

$D_2 = 0.208$ FT.

$L_3 = 300$ FT. (estimated)

$D_3 = 0.083$ FT. (estimated)

THEN: $390 = f_1 \frac{4100}{0.33} \frac{V_1^2}{2g} + f_2 \frac{2200}{0.208} \frac{V_2^2}{2g} + f_3 \frac{300}{0.083} \frac{V_3^2}{2g} + \frac{V_3^2}{2g}$

ASSUMING $f_1 = 0.027$

ASSUMING $f_2 = 0.027$

ASSUMING $f_3 = 0.027$

SINCE $A_1 = 0.0873$ FT.²

SINCE $A_2 = 0.0341$ FT.²

SINCE $A_3 = 0.0055$ FT.²

THEN

$A_1 = \frac{0.0873}{0.0055} = 15.87 A_3$

$A_2 = \frac{0.0341}{0.0055} = 6.20 A_3$

SUPPLEMENTAL SHEET #5
ALVORD RANCH

DEC 24 1987

IF $Q = AV$
THEN

$$V_1 = \frac{V_3}{15.87} = 0.063V_3, \text{ so } V_1^2 = 0.0040V_3^2$$

$$V_2 = \frac{V_3}{6.20} = 0.161V_3, \text{ so } V_2^2 = 0.0259V_3^2$$

THEN

$$390 = (5.157)(0.0040V_3^2) + (4.434)(0.0259V_3^2) + 1.5248V_3^2$$

$$390 = 0.0206V_3^2 + 0.1148V_3^2 + 1.5248V_3^2$$

$$390 = 1.6602V_3^2$$

$$V_3^2 = 390 / 1.6602 = 234.9$$

$$V_3 = 15.32 \text{ FT./SEC.}$$

$$V_2 = (0.161)(15.32) = 2.47 \text{ FT./SEC.}$$

$$V_1 = (0.063)(15.32) = 0.96 \text{ FT./SEC.}$$

$$Q_1 = A_1V_1 = (0.0873)(0.96) = 0.084 \text{ cfs}$$

$$Q_2 = A_2V_2 = (0.0341)(2.47) = 0.084 \text{ cfs}$$

$$Q_3 = A_3V_3 = (0.0055)(15.32) = 0.084 \text{ cfs}$$

$$f_1 = 0.026$$

$$f_2 = 0.022$$

$$f_3 = 0.018$$

THEN

$$390 = (0.026)(191V_1^2) + (0.022)(164.2V_2^2) + (0.018)(55.9V_3^2) + 0.0155V_3^2$$

$$390 = 4.966V_1^2 + 3.612V_2^2 + 1.006V_3^2 + 0.0155V_3^2$$

$$390 = 4.966V_1^2 + 3.612V_2^2 + 1.021V_3^2$$

$$390 = (4.966)(0.004V_3^2) + (3.612)(0.0259V_3^2) + 1.021V_3^2$$

$$390 = 0.0199V_3^2 + 0.0936V_3^2 + 1.021V_3^2$$

$$390 = 1.1345V_3^2$$

$$V_3^2 = 343.78$$

$$V_3 = 18.54 \text{ FT./SEC.}$$

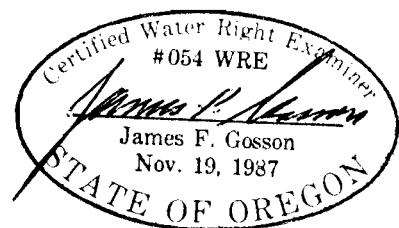
$$V_2 = (0.161)(18.54) = 2.98 \text{ FT./SEC.}$$

$$V_1 = (0.063)(18.54) = 1.17 \text{ FT./SEC.}$$

$$Q_1 = A_1V_1 = (0.0873)(1.17) = 0.102 \text{ cfs}$$

$$Q_2 = A_2V_2 = (0.0341)(2.98) = 0.102 \text{ cfs}$$

$$Q_3 = A_3V_3 = (0.0055)(18.54) = 0.102 \text{ cfs}$$



SUPPLEMENTAL SHEET #6
REGISTRATION STATEMENT
PRE-1909 VESTED WATER RIGHT CLAIM
IN THE NAME OF ALVORD RANCH

SOURCE	USE	GPM OR CFS	1/4 1/4	T	R	S	REMARKS
SPRING #1	STOCK	2 GPM	SW NE	33S	34E	24	EST FLOW, DRY 9/91
SPRING #2	STOCK	3 GPM	NE NW	33S	35E	30	EST FLOW
SPRING #3	STOCK	3 GPM	SW SE	33S	34E	26	EST FLOW, DRY 9/91
SPRING #4	STOCK	1 GPM	SW SE	33S	34E	26	"
SPRING #5	STOCK	3 GPM	NW NW	33S	34E	6	MEASURED SEPT 1991
SPRING #6	STOCK	2 GPM	SE NE	33S	35E	31	EST FLOW
SPRING #7	STOCK	1 GPM	NW NW	33S	34E	36	DRY, 9/91
SPRING #8	STOCK	2 GPM	SE NW	33S	34E	35	EST FLOW
SPRING #9	STOCK	2 GPM	SE NW	33S	34E	35	EST FLOW
SPRING #10	STOCK	1/3 GPM	SW NE	33S	34E	36	MEASURED 9/91
SPRING #11	STOCK	1/3 GPM	SW NE	33S	34E	36	" "
SPRING #12	STOCK	1 GPM	SW NE	33S	34E	36	" "
SPRING #13	STOCK	1 GPM	SE SW	33S	34E	35	" "
SPRING #14	STOCK	1 GPM	SE SW	33S	34E	35	" "
SPRING #15	STOCK	1 GPM	SW SW	33S	34E	36	DRY ON DRY YEARS
SPRING #16	DOM, STOCK, IRRIGATION		NW NE	34S	34E	4	2 DOM WSHHSE, COOK HSE, 1 GST HSE, STOCK & IRR. EST FLOW
SPRING #17	STOCK	1/2 GPM	NE NE	34S	34E	2	EST FLOW, DRY 9/91
SPRING #18	STOCK	1/2 GPM	SW NE	34S	34E	2	MEASURED 9/91
SPRING #19	STOCK	1 GPM	NW SE	34S	34E	4	MEASURED 9/91
SPRING #20	STOCK	1 GPM	NW SE	34S	34E	4	" "
SPRING #21	STOCK	3 GPM	NE SE	34S	34E	2	" "
SPRING #22	STOCK	3 GPM	SW SW	34S	34E	2	" "
SPRING #23	STOCK	1 GPM	SE NW	34S	34E	11	" "

SUPPLEMENTAL SHEET #7
REGISTRATION STATEMENT
PRE-1909 VESTED WATER RIGHT CLAIM
IN THE NAME OF ALVORD RANCH

SOURCE	USE	GPM OR CFS	1/4 1/4	T	R	S	REMARKS
SPRING #24	STOCK	1/2 GPM	NE NE	34S	34E	15	EST FLOW, DRY 9/91
SPRING #25	STOCK	1/2 GPM	NW SE	34S	34E	15	" "
SPRING #26	STOCK	1/2 GPM	SE SW	34S	34E	15	" "
SPRING #27	STOCK	1 GPM	SW SE	34S	34E	21	MEASURED 9/91
SPRING #28	STOCK	1 GPM	SE NW	34S	34E	28	EST FLOW, DRY 9/91
SPRING #29	STOCK	1 GPM	SW NE	34S	34E	28	" "
SPRING #30	STOCK	1 GPM	SW SW	34S	34E	30	MEASURED 9/91
SPRING #31	STOCK	1/2 GPM	NE NW	34S	34E	33	" "
SPRING #32	STOCK, BATH	10 GPM	SW NE	34S	34E	32	EST 5/92
SPRING #33	STOCK	5 GPM	SE NE	34S	34E	32	EST 11/92
SPRING #34	STOCK, BATH	15 GPM	NW SE	34S	34E	32	EST 5/92
SPRING #35	STOCK	1 GPM	SW NE	34S	34E	15	EST FLOW DRY 9/91
SPRING #36	STOCK	1 GPM	NW SW	34S	34E	28	ESTIMATED
SPRING #37	STOCK	3 GPM	NW SW	34S	34E	1	MEASURED 9/91
SPRING #38	STOCK	1/2 GPM	SE SW	34S	34E	2	ESTIMATED
SPRING #39	STOCK	1 GPM	SE SW	34S	34E	2	ESTIMATED
SPRING #40	STOCK	1 GPM	NW NW	34S	34E	12	ESTIMATED
SPRING #41	STOCK	1 GPM	SE SE	34S	34E	11	ESTIMATED
SPRING #42	STOCK	1 GPM	NW NW	34S	34E	14	ESTIMATED
SPRING #43	STOCK	1 GPM	SE NE	34S	34E	15	ESTIMATED
SPRING #44	STOCK	1 GPM	SE NE	34S	34E	15	ESTIMATED
SPRING #45	STOCK	1 GPM	NE SE	34S	34E	15	ESTIMATED
SPRING #46	STOCK	1 GPM	SW SE	34S	34E	15	ESTIMATED

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SUPPLEMENTAL SHEET #9
SURFACE WATER REGISTRATION STATEMENT
PRE-1909 VESTED WATER RIGHT CLAIM
IN THE NAME OF ALVORD RANCH

SOURCE	TRIBUTARY TO	USE	T	R	S
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK	33S	34E	11
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK	33S	34E	13
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK	33S	34E	14
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	24
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	25
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	36
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	35E	19
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	35E	30
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	35E	31
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	35E	32
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	35E	5
MOSQUITO CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	35E	6
UN-NAMED STREAM #1	MOSQUITO CREEK	STOCK	33S	34E	11
UN-NAMED STREAM #1	MOSQUITO CREEK	STOCK	33S	34E	14
UN-NAMED STREAM #1	MOSQUITO CREEK	STOCK	33S	34E	13
UN-NAMED STREAM #2	UN-NAMED STREAM #1	STOCK	33S	34E	14
UN-NAMED STREAM #3	WILLOW CREEK	STOCK	33S	34E	13
UN-NAMED STREAM #3	WILLOW CREEK	STOCK	33S	34E	14
WILLOW CREEK	ALVORD DEPRESSION	STOCK	33S	34E	14
WILLOW CREEK	ALVORD DEPRESSION	STOCK	33S	34E	13
WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	23
WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	24
WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	25

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SUPPLEMENTAL SHEET #10
SURFACE WATER REGISTRATION STATEMENT
PRE-1909 VESTED WATER RIGHT CLAIM
IN THE NAME OF ALVORD RANCH

SOURCE	TRIBUTARY TO	USE	T	R	S
WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	35E	19
WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	35E	30
WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	35E	31
WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	35E	32
LITTLE WILLOW CREEK	ALVORD DEPRESSION	STOCK	33S	34E	22
LITTLE WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	23
LITTLE WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	24
LITTLE WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	26
LITTLE WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	25
LITTLE WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	35
LITTLE WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	36
LITTLE WILLOW CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	35E	30
UN-NAMED STREAM #4	ALVORD DEPRESSION	STOCK	33S	34E	22
UN-NAMED STREAM #4	ALVORD DEPRESSION	STOCK	33S	34E	23
UN-NAMED STREAM #4	ALVORD DEPRESSION	STOCK	33S	34E	26
UN-NAMED STREAM #4	ALVORD DEPRESSION	STOCK, IRR	33S	34E	25
UN-NAMED STREAM #5	UN-NAMED STREAM #4	STOCK	33S	34E	22
UN-NAMED STREAM #5	UN-NAMED STREAM #4	STOCK	33S	34E	23
UN-NAMED STREAM #6	UN-NAMED STREAM #4	STOCK	33S	34E	22
UN-NAMED STREAM #6	UN-NAMED STREAM #4	STOCK	33S	34E	23
COTTONWOOD CREEK	ALVORD DEPRESSION	STOCK	33S	34E	27
COTTONWOOD CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	26

SUPPLEMENTAL SHEET #11
 SURFACE WATER REGISTRATION STATEMENT
 PRE-1909 VESTED WATER RIGHT CLAIM
 IN THE NAME OF ALVORD RANCH

SOURCE	TRIBUTARY TO	USE	T	R	S
COTTONWOOD CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	35
COTTONWOOD CREEK	ALVORD DEPRESSION	STOCK, IRR	33S	34E	36
UN-NAMED STREAM #7	COTTONWOOD CREEK	STOCK	33S	34E	27
UN-NAMED STREAM #7	COTTONWOOD CREEK	STOCK	33S	34E	34
UN-NAMED STREAM #7	COTTONWOOD CREEK	STOCK	33S	34E	35
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK	34S	34E	4
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	3
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	2
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	1
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	10
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	11
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	12
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	13
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	14
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	15
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	35E	7
BIG ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	35E	18
UN-NAMED STREAM #8	LITTLE ALVORD CREEK	STOCK	34S	34E	4
UN-NAMED STREAM #8	LITTLE ALVORD CREEK	STOCK	34S	34E	3
UN-NAMED STREAM #9	LITTLE ALVORD CREEK	STOCK	34S	34E	4
UN-NAMED STREAM #9	LITTLE ALVORD CREEK	STOCK	34S	34E	9
UN-NAMED STREAM #10	LITTLE ALVORD CREEK	STOCK	34S	34E	9
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK	34S	34E	4

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SUPPLEMENTAL SHEET #12
SURFACE WATER REGISTRATION STATEMENT
PRE-1909 VESTED WATER RIGHT CLAIM
IN THE NAME OF ALVORD RANCH

SOURCE	TRIBUTARY TO	USE	T	R	S
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK	34S	34E	9
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK	34S	34E	16
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	3
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	10
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	11
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	13
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	14
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	15
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	21
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	22
LITTLE ALVORD CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	23
UN-NAMED STREAM #11	ALVORD DEPRESSION	STOCK	34S	34E	16
UN-NAMED STREAM #12	UN-NAMED STREAM #11	STOCK	34S	34E	16
UN-NAMED STREAM #13	UN-NAMED STREAM #11	STOCK	34S	34E	16
PIKE CREEK	ALVORD DEPRESSION	STOCK	34S	34E	20
PIKE CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	21
PIKE CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	28
DRY CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	28
DRY CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	29
UN-NAMED STREAM #14	DRY CREEK	STOCK	34S	34E	29
INDIAN CREEK	ALVORD DEPRESSION	STOCK	34S	34E	29
INDIAN CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	28
INDIAN CREEK	ALVORD DEPRESSION	STOCK, IRR	34S	34E	33

