

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

RECEIVED

APR 30 2004

Department of Water Resources

A. GENERAL INFORMATION

1. Owner: BLM Permit No. 51-7262
Phone No. 384-3340
Current Address: 3948 Development Ave. Boise, Id. 83705
2. Accompanied by: Jerry Taylor EXAM. DATE: 6/7/91
Address: same Phone No. same
Relationship to Permit Holder: Range Conservationist Re-Exam Date: 10/28/93
3. Source: Jep Trail Spring tributary to sinks

B. OVERLAP REVIEW

1. Other water rights with same place of use: none
_____ ☐ Copies Attached
2. Other water rights with same point of diversion: none
_____ ☐ Copies Attached ☐ Copies of Field Exam's Attached

C. SYSTEM DESCRIPTION

1. **Diversion System Diagram:** Indicate all major components and distances between components. Indicate weir size/ditch size/pipe i.d. as applicable. ☐ Alternative diagram attached

Scale: 1" = _____

2. ☒ Copy of U.S.G.S. Quadrangle Attached ☐ Aerial Photo Attached
Showing location(s) of point(s) of diversion and (required for irrigation of 10 acres or more).
place(s) of use (required).
☒ Photo of Diversion and System Attached
(required for all but single household domestic groundwater, and stockwater).

System Description (continued)

3. Narrative: Description (As operating at time of measurement. Indicate pressure, number of sprinklers, etc.)

* system consists of a spring flowing into a headbox, then being piped through 225' ~~300'~~ of 1.5" PVC pipeline to 2 500 gallon troughs via gravity flow.

☐ See Remarks on page 4 for continuation

4.

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size

*Code to correspond with No. on map and aerial photo

5. Point(s) of Diversion:

Ident. No.	Gov't. Lot	1/4	1/4	1/4	Sec.	Twp.	Rge.	County	Method of Determination/Remarks
*	A	NE	SW	SW	19	14S	5E	Owyhee	7.5' U.S.G.S. To PO.
		NW							

6. Place(s) of Use:

Indicate Method of Determination Same as P/D

Twp.	Rge.	Sec.	NE 1/4				NW 1/4				SW 1/4				SE 1/4				Totals
			NE 1/4	NW 1/4	SW 1/4	SE 1/4	NE 1/4	NW 1/4	SW 1/4	SE 1/4	NE 1/4	NW 1/4	SW 1/4	SE 1/4	NE 1/4	NW 1/4	SW 1/4	SE 1/4	
14S	5E	19											S						
													W						
													10A						

* per 10/28/93 interview by SL.
(by 4/16/04)

Do not use this space

D. FLOW MEASUREMENTS

☐ Additional Data Sheets Attached

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date

2. Measurements:

Theoreticals - see below

(by 4/16/04)

E. FLOW CALCULATIONS

☒ Additional Computation Sheets Attached

1. Measured Method: *- Pipeflow Computation Spreadsheet: .035 cfs*
- US Army Corp of Eng, Exh VII-4 dated 4/7/1981
Expected flow rates for gravity flow pipe systems: .0357 cfs
2. Alternate Method for Checking Purposes: *.12 cfs based on 500 head of cattle* *allow .04 cfs*

F. PUMP EFFICIENCY DATA (Optional)

Discharge Pressure: _____ psi x 2.31 = _____ ft (1); Dynamic pumping level: _____ ft (2)

Total Head: (1) + (2) = _____ (3) ; Flow rate: _____ cfs (4)

Water HP: (3) x (4) ÷ 8.8 = _____ (5)

Meter Input KW: 3.6 x _____ KH x _____ CTR or _____ MULT x _____ PTR x _____ N/ _____ T = _____ (6)

Meter Input HP: (6) x 1.34 = _____ (7)

Panel Input KW: _____ Ave PF x _____ Ave Volts x _____ Ave Amps x .001732 = _____ (6)

Panel Input HP: (6) x 1.34 = _____ (7) Efficiency: (5)/(7) x 100 = _____ %

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$ _____

$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 =$ _____

$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} =$ _____

2. Volume Calculations for Other Uses:

$\frac{(500)(262)(12)}{325850} = 4.79$ *4.8 afa = $V_{req.}$*

$(.12)(262)(1.9835) = 62.9$ *afa = $V_{div.}$*

*Since $V_{req.} < V_{div.}$,
recommendation
is 4.8 afa.*

H. REMARKS AND OVERLAP REVIEW ANALYSIS

~~.12 cfs is based on number of range cattle (500). I did not use the wildlife component for calculating cfs.~~

Source is known locally as Jeep Trail Spring

NOTE: (1) Permit approved for stock through 11/31 but now only has 30 days. Allow period to 12/1 based on original error not corrected in approval process. ~~8/13/91~~

(2) To limit flow, would need to perform capacity analysis on 1" PVC pipe per PVC Handbook. OTHERWISE, ALLOW PERMIT RATE OF FLOW

I. RECOMMENDATIONS

Recommended Amounts

Beneficial Use	Period of Use		Rate of Diversion Q (cfs)	Annual Volume V (afa)
	From	To		
Wildlife	1/1	12/31	.04 ~~to~~ cfs	4.8 afa
Stock water	3/15	~~4/31~~ 12/1	.04 ~~to~~ cfs	4.8 afa
Totals:			.04 ~~.22~~ cfs	4.8 afa

2. Recommended Amendments

- ☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None
☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☐ Other

J. AUTHENTICATION

Field Examiner's Name SARA West
Signature S.Y. West
Certification Date 6/12/91
Field Report Preparation Date 6/12/91

CONSULTANT SEAL

K. Licensing recommendation shall be prepared by an Idaho Department of Water Resources employee on a computer printout attached hereto.

51-7262 RE-EXAM NOTES

-FL 3/17/04

(originals from 10/28/93 Attached)

Site visit per 10/15/91 directions.

Located system, see maps.

pld NW SWSW } Lot 4 519 145 56
pln SWSW }

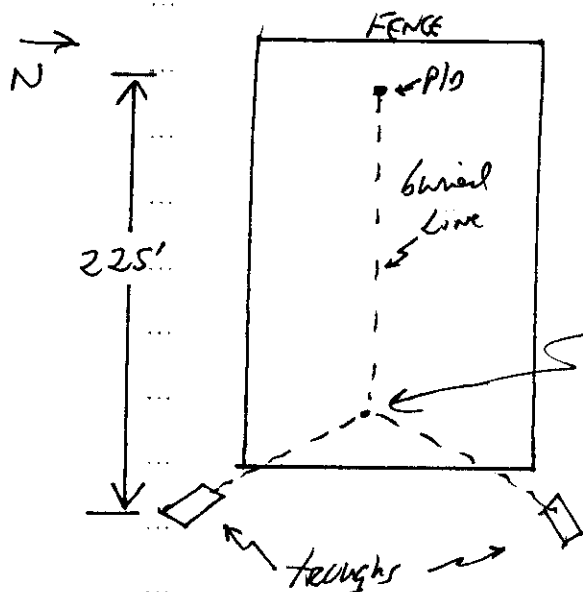
Diversions

3' long 24" wide upland culvert spring box,
1 1/2" internal diam. pvc pipe runs @ 225' to
2 troughs.

troughs not in service now (winterized).
culvert @ 2/3 full of water.

Photos

- ① Horiz. shot - pld culvert, troughs outside of fence in background
- ② Vertical shot - of same things.



Spring area fenced in,
culvert collects water,
gravity feeds line to troughs.

2 air vent pipes seen not too far
from troughs.

Source AKA Jeep Trail Spring

Est. Q

PVC pipe e 225' (ok assume single unbroken
piece w/o valves etc.)

e 1 1/2" i.d.

e 1% slope* (measured with clinometer,
a personal piece of equipment I have)

is it $\leq .04$ f/s ? } fee 3/17/04 corr. memo
 $> .04$ f/s ? } e exam fee + license
renewal/stine.

* from p/d to troughs

51-7262

10/28/93

Directions - see conv. memo

P/D new swm
P/H swm

- 24" 3' long expandable culvert = spring box
- has 1 1/2" pvc line in bottom * (i.d.)
- culvert ~ 2/3 full of water
- to 2 stock tanks but not in service now (winterized)

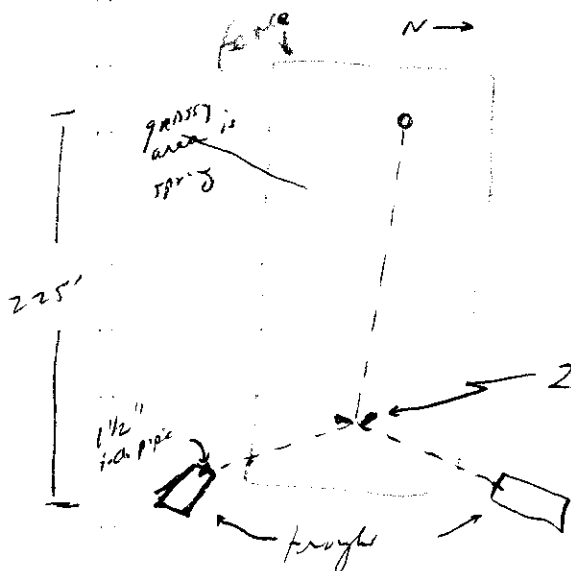
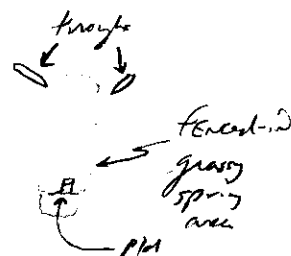
Slope - climatic notes from pld to troughs $\approx$ 1 to 2 %
length road $\approx$ 225 ft,

use PC program to calc. flow capacity.

Photos

1) P/D culvert, 2 troughs, is behind (green)

2) Same type photo but vent. shot



For Flow Est purposes, since apparent split in main is v. close to dist. away from pld that troughs are, ok to treat as if mainline $\approx$ 225'

- Spring it tries, to many's ch... but sinks per file

MAY NEED to give Blm chance to
pay Exam fee.....

CONVERSATION MEMORANDUM

DATE 3/17/04
FILE 57-7262

NAME OF PARTY _____

EMPLOYEE JR

RE: Exam Fee 1988 Prop filing

NO fee paid

Per attached standards in 1988:

Stock - Exempt from fee

Wildlife - Not " " " } unless have tagged

total - not " " " } wildlife same as stock,
in which case fee wa.

Apply those standards unless can show wildlife is exempt.

Even then, 2 exemptions totaling more than .04 cfs need fee?

Suggest

1) Theoretical Q per 1993 re-exam info.

2) If $Q \leq .04$ cfs, license:

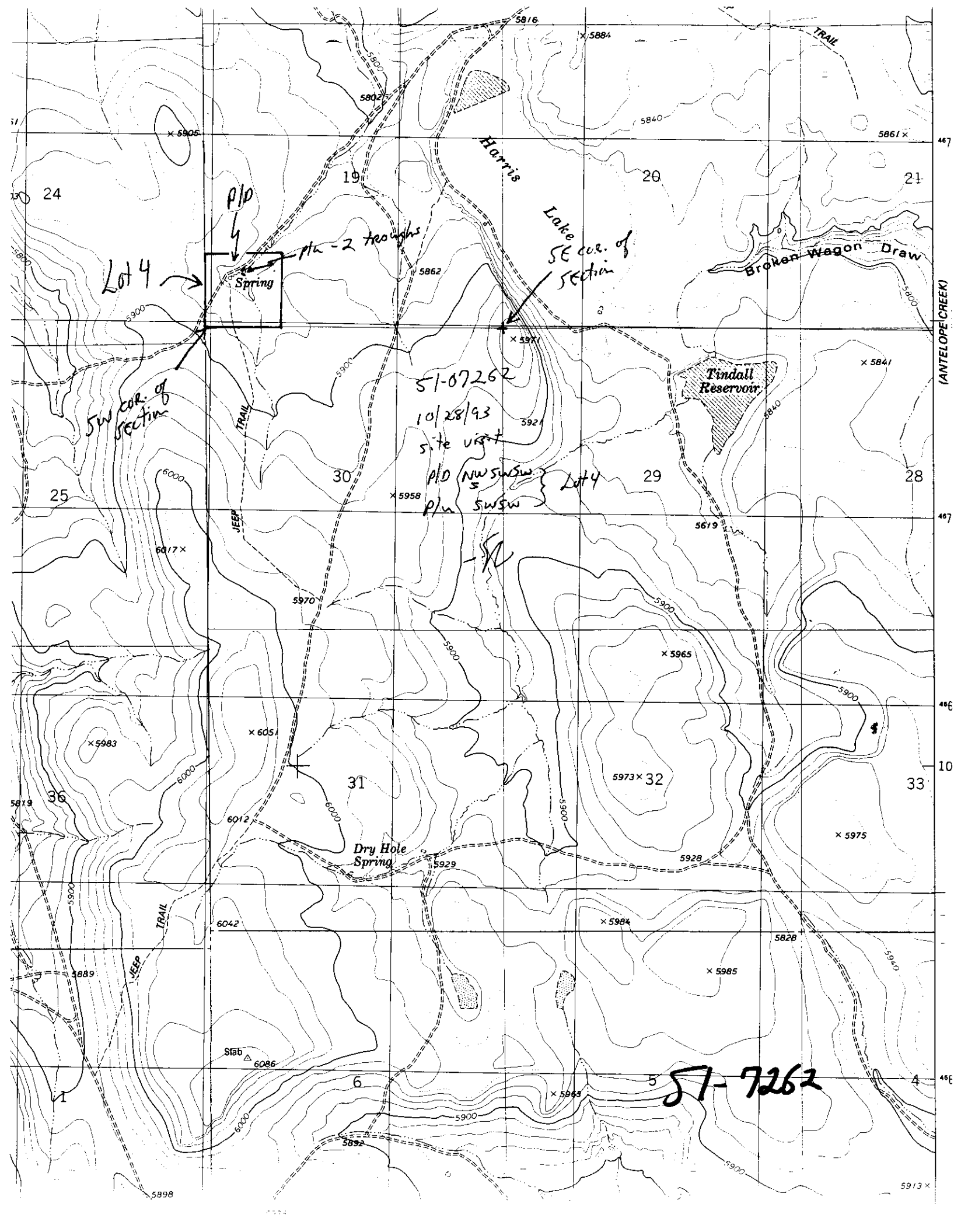
$$\text{stock} = \text{wildlife} = \text{total} * \text{cfs}$$

3) If $Q > .04$ cfs, license:

a) $\text{stock} = \text{wildlife} = \text{total} * \text{cfs}$ } assumes pay
OR b) $\text{stock}^* + \text{wildlife}^* = \text{total sum} - \text{cfs}$ } correct 1988
Exam fee first

c) without fee paid, limit to #2 solution

* = Estimated Q per their measurement



Lot 4

P/D

Spring

pln - 2 troughs

Harris

Lake SE cor. of section

Broken Wagon Draw

Tindall Reservoir

51-07262

10/28/93

site visit

P/D NW SW SW
P/D SW SW

Lot 4

31

Dry Hole Spring

Stab 6086

51-7262

Pipeflow Computation Spreadsheet (DRT 12/31/1992)

Data Entered By: Lori Graves

Project: Flow Computation for BLM 51-7262

Given: See Data Table

Compute head losses with the Williams and Hazen Formula:
 $f = 0.2083 * (100 / \text{roughness})^{1.85} * ((\text{cfs} * 448.8)^{1.852} / \text{ID}^{4.8655} * \text{Length} / 100)$

To Find: Compute the Rate of Flow

Data Table

Total Head: 2.25 feet

Pressure Req'd: 0.00 psi

Available Head: 2.25 feet

Pipe Roughness: 150.00 Note: pvc = 150, smooth and straight pipe = 140
 aluminum - joint length 20' = 125, joint length
 30' = 130, joint length 40' = 132, joint length
 50' = 134, new riveted steel = 100
 old riveted steel = 100, old cast iron = 95,
 old pipes in poor condition = 60 to 80

Inside Diameter in Inches	Equivalent Length in Feet	Unit Head Loss	Total Head Loss from Pipe Friction	Head Loss per 100 ft
1.50	225.00	5.05		2.25
1.00	0.00	0.00		
1.00	0.00	0.00		
			5.05	

Rate of Flow: 0.035 CFS

US Army Corp of Engineers

EXHIBIT VII-4 ESTIMATING PIPELINE FLOW RATES

MEMORANDUM

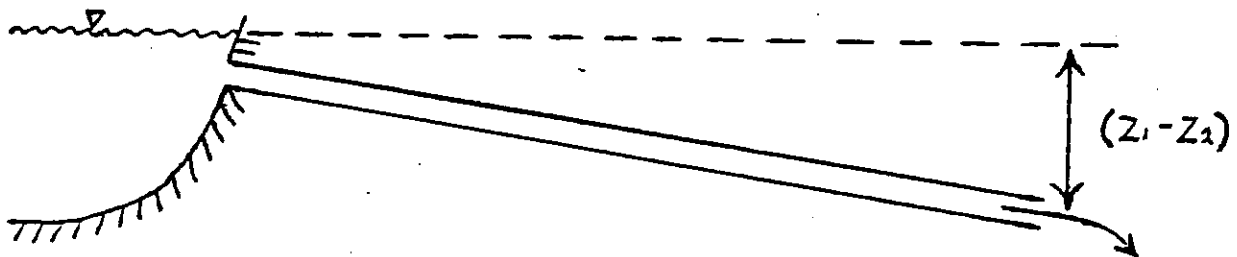
TO: Missoula Field Office Personnel

FROM: Robert G. Arrington

DATE: April 7, 1981

SUBJECT: Expected Flow Rates (GPM) For Gravity Flow Pipe Systems

Q.) What kind of flow rates can be expected for gravity flood systems using PVC pipe with varying elevation, pipe diameter, and pipe length?



$$\frac{V_1^2}{2g} + \frac{P_1}{\rho} + Z_1 = \frac{V_2^2}{2g} + \frac{P_2}{\rho} + Z_2 + h_{L_{1,2}}$$

$$(Z_1 - Z_2) = \frac{V_2^2}{2g} + h_{L_{1,2}}$$

$$\text{where } h_{L_{1,2}} = \left(\frac{1.816}{C_h}\right)^{1.852} \left(\frac{L}{D^{1.167}}\right) (V^{1.852}) + (K_{\text{ENTRANCE}}) \left(\frac{V^2}{2g}\right)$$

$$\text{let } C_h = 150 \quad K_{\text{ENTRANCE}} = 0.5 \quad g = 32.2 \text{ fps}$$

therefore

$$(Z_1 - Z_2) = \frac{V^2}{2g} + (.5) \left(\frac{V^2}{2g}\right) + \left(\frac{1.816}{150}\right)^{1.852} \left(\frac{L}{D^{1.167}}\right) (V^{1.852})$$

$$(Z_1 - Z_2) = (.0232919)(V^2) + (.0002816) \left(\frac{L}{D^{1.167}}\right) (V^{1.852})$$

Referring to the charts, it is noticed that for any particular combination of pipe diameter, pipe length, and elevation difference that two values are given. The top value is the expected flow rate in gallons per minute (gpm). The figure in parenthesis is the velocity of the water inside the pipe in feet per second (fps).

The American Society of Agricultural Engineers recommends in standard ASAE S376 that the design water velocity in a pipeline when operating at system capacity should not exceed five feet per second. The reason for the recommendation is to try to prevent excessive pressures which may exceed the bursting pressure for the pipe when sudden changes are made to the system; such as closing a valve or suddenly increasing the capacity or velocity in the line.

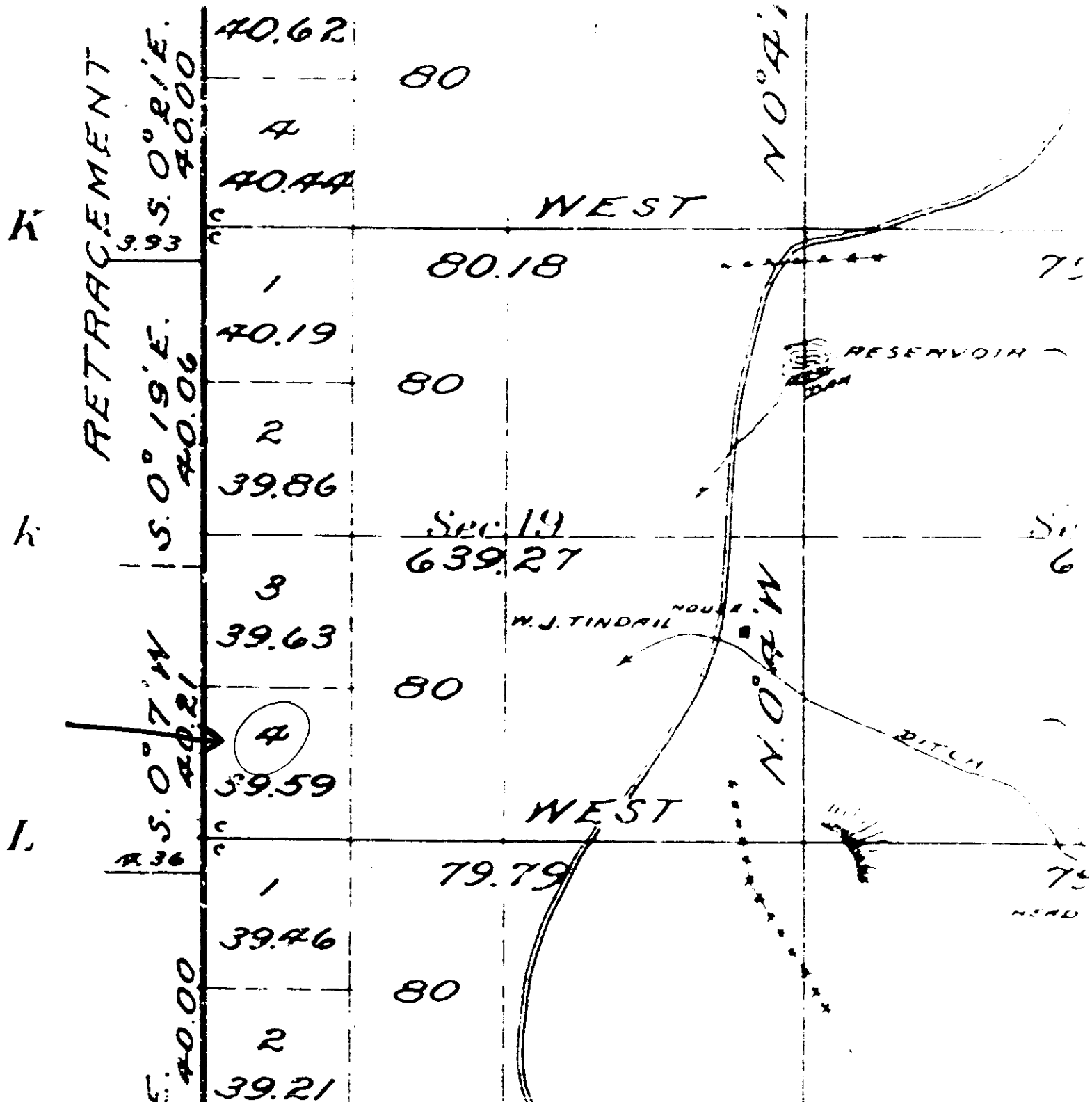
225' PVC length:
 1% Rise = 2.25' Total head
 1.5" PVC (inside dia)
 $Q = \sim 16 \text{ gpm} = .035 \text{ cfs}$

FLOW RATE (GPM) FOR GRAVITY FLOOD SYSTEMS USING PVC PIPE

Vertical Drop (ft)	Inside Diameter: 1½ inches 225'						
	L=50ft	L=100ft	L=200ft ✓	L=300ft	L=500ft	L=1000ft	L=2000ft
1	13.7 (2.5)	9.9 (1.8)	7.1 (1.3)	5.6 (1.02)	4.2 (0.77)	2.9 (0.53)	2.0 (0.37)
5	32.1 (5.84)	23.4 (4.26)	16.5 (3.0)	13.2 (2.4)	10.1 (1.84)	7.0 (1.28)	4.8 (0.88)
10		33.8 (6.14)	23.8 (4.33)	19.2 (3.5)	14.7 (2.67)	10.1 (1.85)	7.0 (1.27)
15			29.5 (5.36)	23.9 (4.35)	18.2 (3.32)	12.6 (2.3)	8.7 (1.58)
20			34.5 (6.28)	27.9 (5.07)	21.3 (3.88)	14.7 (2.68)	10.1 (1.85)
25				31.5 (5.73)	24.1 (4.38)	16.6 (3.03)	11.5 (2.09)
30				34.8 (6.32)	26.6 (4.83)	18.3 (3.34)	12.7 (2.31)
40					31.0 (5.64)	21.4 (3.9)	14.8 (2.69)
50					35.0 (6.36)	24.2 (4.4)	16.6 (3.03)
65						27.9 (5.07)	19.2 (3.49)
80						31.2 (5.67)	21.5 (3.91)
100						35.2 (6.4)	24.3 (4.41)

2.25' →

51-7262
 7145 ASE
 519



51-7262



P/D
NWSWSW Gov't 4
S19 T14S R5E