

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 87-10575
Exam Date: 03/23/2021

1. Current Owner:
COPE R GALE JR 3930 MOSCOW MOUNTAIN RD MOSCOW ID 83843-8114
2. Accompanied by: Cope Gale JR
Phone No: 208-669-0995
Address: Same as above
Relationship to permit Holder: Permit holder

3. **SOURCE:**
GNAT CREEK

Tributary
SOUTH FORK PALOUSE RIVER

Method of Determination: Arcmap and DRG

B. OVERLAP REVIEW

1. Other water rights with the same place of use: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
87-10573	SPRING	DOMESTIC, STOCKWATER	PERMIT – IN PROCESS LICENSING REVIEW

Comments: 87-10573 is a permit currently being licensed in conjunction with this permit, is for the same applicant and beneficial uses as this permit, but uses spring water as the source. Condition X35 was incorporated in the permit approval process, and will be carried forward to licensing in order to mitigate overlap concerns between rights 87-10573 & 87-10575.

2. Other water rights with the same point-of-diversion: NO Overlap

C. DIVERSION AND DELIVERY SYSTEM1. **LOCATION OF POINT(S) OF DIVERSION:**

GNAT CREEK NE¼ NW¼, Sec. 24, Twp 40N, Rge 05W, B.M. LATAH County

Method of Determination: GPS located intake pipe in Gnat Creek; located at -116°54.669, 46°48.030.

PLACE OF USE: DOMESTIC and STOCKWATER

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
40N	05W	24					X												

Method of Determination: Field exam and Arcmap aerial imagery.

3.

Delivery System Diagram Attached (required). Indicate all major components and distances between components.
☒ Indicate weir size/pipe as applicable.

☒

Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.

☒

Aerial Photo Attached (required for irrigation of 10+ acres).

☒

Photo of Diversion and System Attached

4.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
1 INCH INTAKE PIPE IN CREEK					

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
NONE						

2. Measurements: 1 inch screened intake pipe in creek routed direct to subterranean culvert catch basin without a place to perform a flow measurement. A Manning Equation was utilized to derive a flow measurement using the following factors: 1 inch diameter plastic pipe, 50 feet elevation rise, and 240 feet of run. The resulting diversion rate equals **0.03 cfs**, which is recommended for licensing purposes.

E. FLOW CALCULATIONS

☒ Additional Computation Sheets Attached

Measured Method: A Manning Equation was utilized to derive a flow measurement using the following factors: 1 inch diameter plastic pipe, 50 feet elevation rise, and 240 feet of run. The resulting diversion rate equals **0.03 cfs**,

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation: N/A

2. Volume Calculations for Other Uses:

Domestic annual volume = 1 home x 1.2 af = **1.2 af**

Stockwater annual volume = 12 chickens x 0.1 gpd x 365 days = 438 gal per year / 325,850 gal per af = 0.0013 af = **0.1 af**, considering department rounding standards.

G. NARRATIVE/REMARKS/COMMENTS

Field exam conducted on 3/23/2021 with the applicant, Cope R Gale Jr., showed diversion from Gnat Creek for domestic and stockwater beneficial uses. At the POD, the applicant has installed a screened 1 inch black poly pipe in a pooling area within the creek. From the POD, the 1 inch pipe routes down channel running in the creek for a distance, and connects to a subterranean 2 ft x 4 ft long culvert cistern buried vertically in the ground which also captures water from a spring. The applicant uses both a spring source associated with right 87-10575 and this right, with water co-mingling in the cistern prior to being routed to a nearby home for domestic use and external frost free hydrant use for landscape watering & stockwater use.

Due to the pipe installation from POD to culvert cistern, flow measurements were unable to be taken. A Manning Equation was utilized to derive a flow measurement using the following factors: 1 inch diameter plastic pipe, 50 feet elevation rise, and 240 feet of run. The resulting diversion rate equals **0.03 cfs**, which is recommended for licensing purposes. The applicant's permit was approved for a diversion rate of 0.04 cfs, but is limited to the Manning Equation flow capacity derived at time of the field exam, which equals 0.03 cfs. This diversion rate is applied to the domestic use, and 0.02 cfs diversion rate is applied to stockwater use, but each beneficial use is not additive in nature.

A small shed/pump station was constructed over the culvert cistern, incorporating a pressure tank and 1 inch service line that routes to the home. There is also a frost free hydrant is used via the 1 inch poly pipe, but it was winterized at time of field exam. The applicant stated the spring (87-10573) runs constant all winter and into mid-summer, where it starts to slow down and not keep up with demands. The applicant then opens a hose bib allowing Gnat Creek water to enter the cistern and supplement the spring source for both domestic and stockwater use(s). The season of use is recommended to remain 1/1 to 12/31, as the applicant has the capability to use creek water all year regardless of the spring water's seasonal capacity. Condition X35 was incorporated when licensing this permit, to mitigate overlap concerns between rights 87-10573 & 87-10575.

During the field exam, the domestic and stockwater POU was observed and photographed to show proof of beneficial use. Due to a thick tree canopy in the area, Arcmap aerial imagery does not clearly illustrate the applicant's beneficial uses. A two story home is situated between the roadway and Gnat Creek. Approximately 25 yards from the home is a small chicken coop with 12 chickens. The applicant stated gallon buckets of water are collected from the house and walked down to water the chickens daily throughout the year. There is a small area of landscaping and lawn that was snow covered at time of exam, which the applicant's keeps green throughout summer months via frost free hydrant and hose to sprinkler. The domestic annual volume recommended for licensing equals **1.2 af**. The annual volume for stockwater recommended equals $12 \text{ chickens} \times 0.1 \text{ gpd} \times 365 \text{ days} = 438 \text{ gal per year} / 325,850 \text{ gal per af} = 0.0013 \text{ af} = \mathbf{0.1 \text{ af}}$, considering department rounding standards. The maximum diversion volume for licensing purposes equals **1.3 af**.

Condition 029 was removed, as the intake pipe has a mesh screen installed on it. Condition X02 was removed from the permit during licensing review. Condition X35 was updated to reflect accurate diversion rate and diversion volume following the field exam. All other conditions on the permit will be carried forward to the license. Overlap concerns: 87-10573 is a permit currently being licensed in conjunction with this permit, is for the same applicant and beneficial uses as this permit, but uses spring water as the source. Condition X35 was incorporated in the permit approval process, and will be carried forward to licensing in order to mitigate overlap concerns between rights 87-10573 & 87-10575.

Have conditions of permit approval been met? X Yes No

H. RECOMMENDATIONS

1. Recommended Amounts

<u>Beneficial Use</u>	<u>Period of Use</u>	<u>Rate of Diversion</u>	<u>Annual Volume</u>
STOCKWATER	01/01 to 12/31	0.02 CFS	0.1 AF
DOMESTIC	01/01 to 12/31	0.03 CFS	1.2 AF

Totals: 0.03 CFS 1.3 AF

2. Recommended Amendments

 Change P.D. as reflected above Add P.D. as reflected above X None

 Change P.U. as reflected above Add P.U. as reflected above X None

I. AUTHENTICATION

Luke Bates - Water Resource Agent

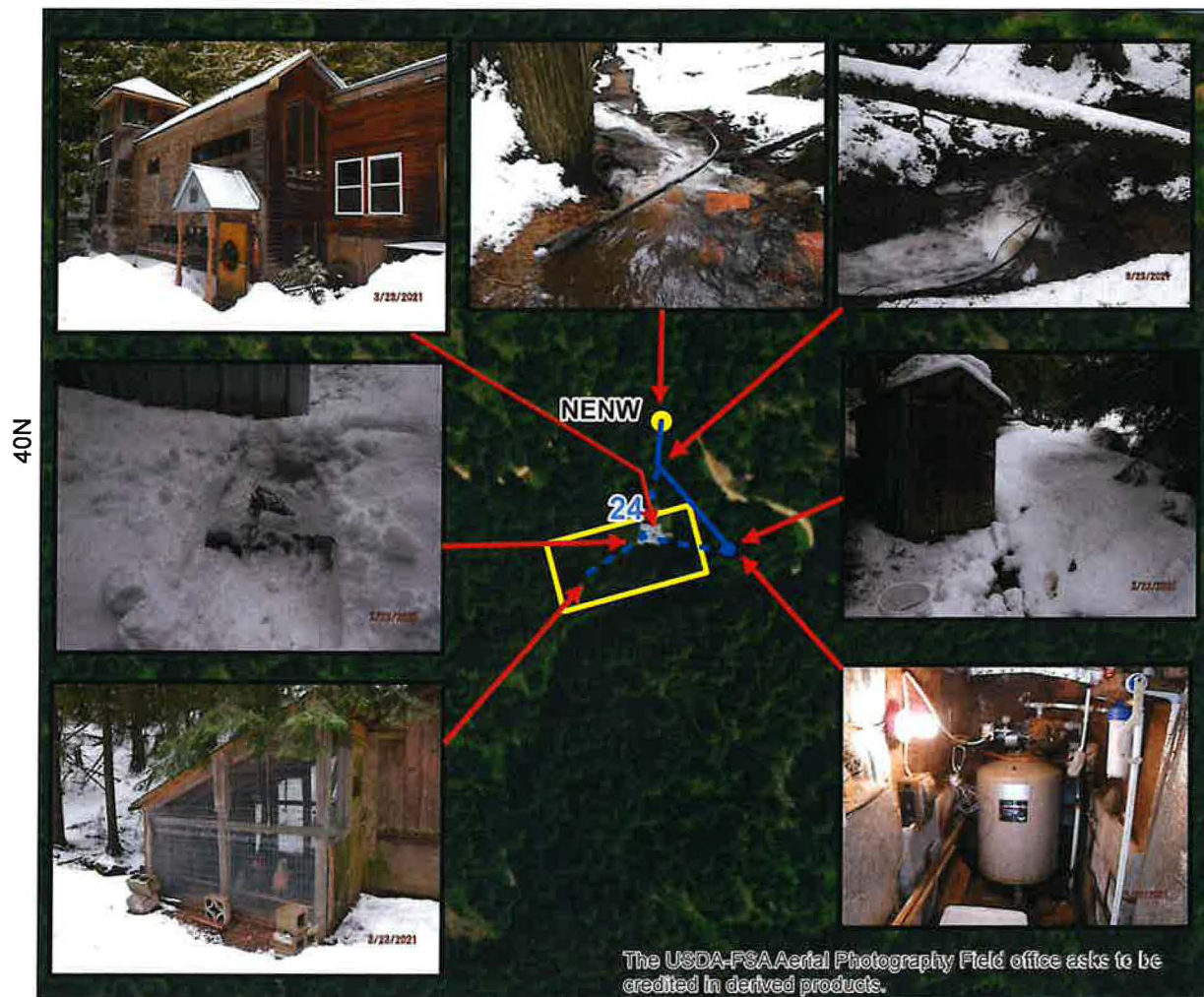
Field Examiner's Name *L. Bates* Date 4/2/2021

Reviewer *Adi Finkel* Date 5/21/2021

State of Idaho
Department of Water Resources
Attachment to Field Exam
87-10575

DOMESTIC and STOCKWATER system diagram.

05W



- Point of Diversion
- Place Of Use Boundary
- Townships
- PLS Sections
- Quarter Quarters

0 0.035 0.07 0.14 Miles



87-10575

FLOW MEASUREMENT

Manning's Equation Calculator for Flow Rate in a Circular Conduit Flowing Full

S = 0.2083 ft/ft

n = 0.009 manning's coefficient

d = 1.0 pipe diameter (inches)

D = 0.08 pipe diameter (feet)

r = 0.04 pipe radius (feet)

A = 0.01 area (ft²)

WP = 0.26 wetted perimeter (ft)

R = 0.02 hydraulic radius (ft)

Q = 0.03 flow rate (CFS)

Channel Slope

Slope Options



Manual Entry



Slope Calculator

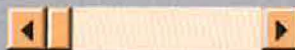
Slope Calculator

Rise = 50 feet

Run = 240 feet

Slope, S = 0.2083 ft/ft

Pipe Material, (n):

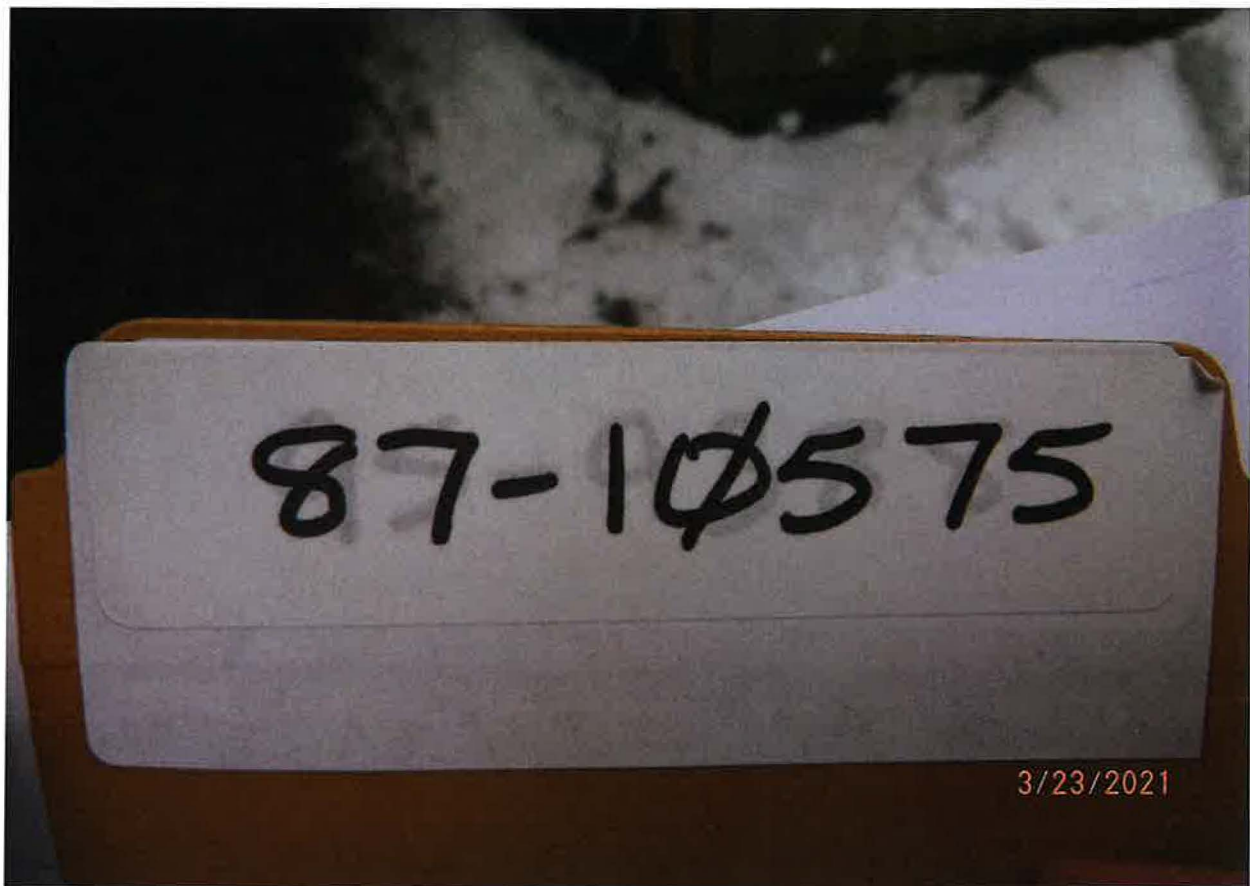


plastic (pvc, abs)

Pipe Diameter (inches)



1.0 inches



FIELD EXAM DATE – 3/23/2021



POD – GNAT CREEK; 1 INCH SCREENED POLY PIPE IN CREEK



AT POD, 1 INCH PIPE ROUTES DOWN STREAM TO PRESSURE TANK AND FROST FREE HYDRANT





SMALL CISTERN FILLED BY EITHER SPRING WATER (87-10573) OR GNAT CREEK WATER BY FAUCET VALVE



WATER FROM CISTERN ROUTED TO POU VIA PRESSURE TANK AND POLY PIPE



DOMESTIC POU



DOMESTIC POU – EXTERNAL USE BY FROST FREE HYDRANT



STOCKWATER POU

