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June 1, 2004

Mr. Jay Engstrom
Idaho Department of Commerce and Labor
P.O. Box 83720
Boise, ID 83720-0093

RE: Rangen, Inc.
Applications for Aquifer Mitigation Assistance Grants

Dear Mr. Engstrom:

Rangen, Inc. operates an aquaculture facility with water rights in the Thousand Springs Reach. Like other springs in the Thousand Springs complex, the source of Rangen's water rights, the Curren Tunnel, has been in decline. Out of total rights for approximately 76 cfs, Rangen is currently receiving only approximately 10 cfs. This is far below the minimum necessary for the operation of Rangen's facility.

Rangen's water rights are senior in priority to many of the ground water rights on the Eastern Snake Plain Aquifer, which is hydrologically connected to the Thousand Springs and Curren Tunnel. As a result of the continuing decline in the water from the Curren Tunnel, Rangen was compelled in September 2003 to initiate a call for water to protect its senior rights. Rangen's call resulted in a February order from the Department of water resources curtailing junior ground water use in Water District 130 after April 1, 2004.

In an effort to avoid the harsh impact that the Director's order would have had on those subject to curtailment and to protect Rangen's interests and continuing operations, Rangen actively participated in the negotiation of the Eastern Snake Plain Aquifer Mitigation, Recovery and Restoration Agreement for 2004. This Agreement prevented the curtailment ordered by the Director and gave all parties a one year opportunity to seek more permanent solutions.

Rangen is fully committed to finding a long term solution to the situation that resulted in the Director's February 2004 order. Any water that can be developed at Rangen's facility will benefit not only Rangen, but also many other water users. Those junior ground water users above Rangen's facility that might be subject to curtailment

would be less likely to face future curtailment. Because Rangen's aquaculture use is nonconsumptive, any water developed for the facility will flow through and be available for use by water users below the facility.

As part of the ongoing effort to find long term solutions Rangen is evaluating several potential options for augmenting water supplies for the Rangen aquaculture facility. The initial list of options includes the following:

1. Divert Curren Tunnel water currently used for agricultural irrigation to the Rangen facility.
2. Withdraw water from a vertical well (or wells) located at the Rangen facility;
3. Construct a horizontal well (or wells) near the Curren Tunnel and at an elevation below the Curren Tunnel;
4. Augment Curren Tunnel flows using water from Weatherby Springs/Hoagland Tunnel;
5. Reduce, if present, downward vertical flow through existing wells in the area upgradient of the Curren Tunnel;
6. Treat and re-use water from the Rangen aquaculture facility.

Under this cover letter, Rangen is submitting applications for financial assistance as part of the Aquifer Mitigation Assistance Grant Program for the first three of these options.

The first application consists of piping water from the Sandy pipeline (constructed in 2003) to a small portion of land owned by Walter and Margaret Candy. The second proposal consists of evaluating the feasibility of withdrawing water from a vertical well located below the canyon rim at the Rangen facility. The third application proposes an evaluation of the feasibility of constructing a horizontal well located near, but below, the Curren Tunnel. The advantages of each of these potential projects, if successful, are that they would provide additional water for the Rangen facility, which would benefit both upgradient ground water users and downstream surface water users.

The fourth option, consisting of piping approximately 0.7 cfs (originating from the Hoagland Tunnel) to the Rangen facility prior to use for irrigation was found to be infeasible. It was originally believed that there might be as much as 4 or 5 cfs of spring water from this source that was not being utilized for aquaculture prior to being used for irrigation. Further research showed that only 0.7 cfs was potentially available, that it was only available at certain times, and that it was contemplated as part of a similar plan in a more proximate aquaculture facility. We believe that the fifth option – evaluation of potential downward flow in wells upgradient of the Curren Tunnel – has merit, and may be best accomplished by the Idaho Department of Water Resources. The sixth option, consisting of pump-back and treatment of water within the Rangen facility, also may have merit. Rangen is currently investigating the feasibility of this option.

Thank you for your assistance. If you have any questions, please contact me or our technical consultants SPF Water Engineering, LLC.

Very truly yours,

MAY, SUDWEEKS & BROWNING, LLP

J. Justin May

Enclosures
cc: Wayne Courtney

Eastern Snake Plain Aquifer Mitigation Program

APPLICATION FOR FINANCIAL ASSISTANCE TO EVALUATE THE FEASIBILITY OF GROUND WATER PUMPING AT THE RANGEN AQUACULTURE FACILITY

Submitted to:

The Idaho Department of Commerce and Labor
Division of Economic Development
P.O. Box 83720
Boise, ID 83720-0093

Submitted by:

Rangen, Inc.
P.O. Box 706
Buhl, ID 83316

June 1, 2004

Table of Contents

List of Figures

List of Tables

ESPAM ASSISTANCE GRANT APPLICATION

Applicant: Rangen, Inc. Phone: 208-543-6421

Address: P.O. Box 706, Buhl, ID 83316

Application Prepared By: SPF Water Engineering, LLC Phone: (208) 383-4140

Address: 600 East River Park Lane, Suite 105, Boise, ID 83706

Technical Service Provider: SPF Water Engineering, LLC Phone: (208) 383-4140

Address: 600 East River Park Lane, Suite 105, Boise, ID 83706

Water Right Number(s): 36-15501, 36-02551, 36-07694

Amount of Water Supply Reduction: Approximately 80%

PROJECT FINANCING OVERVIEW:

ESPAM:	$ 51,097
Private:	$
Federal:	$
Other:	$
TOTAL:	$ 51,097

DESCRIBE PRIVATE/FEDERAL/OTHER MATCHING FUNDS:

BRIEF PROJECT DESCRIPTION:
Evaluate feasibility of ground water pumping for water supply augmentation at the Rangen, Inc. aquaculture facility

APPLICATION CERTIFICATION: The data in this application is true and correct. The undersigned has the authority to submit this application on behalf of the Applicant and will comply with all required certifications, laws, and regulations if the application is approved and selected for funding.

Name: (typed) J. Wayne Courtney Title: Executive Vice President

Signature: Date: 6/1/2004

Name: (typed) May, Sudweeks & Browning Title: Attorneys for Rangen, Inc.

Signature: Date:

ESPAM ASSISTANCE GRANT APPLICATION

Applicant: Rangen, Inc. Phone: 208-543-6421

Address: P.O. Box 706, Buhl, ID 83316

Application Prepared By: SPF Water Engineering, LLC Phone: (208) 383-4140

Address: 600 East River Park Lane, Suite 105, Boise, ID 83706

Technical Service Provider: SPF Water Engineering, LLC Phone: (208) 383-4140

Address: 600 East River Park Lane, Suite 105, Boise, ID 83706

Water Right Number(s): 36-15501, 36-02551, 36-07694

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Name: (typed) J. Wayne Courtney Title: Executive Vice President

Signature: Date:

Name: (typed) May, Sudweeks & Browning Title: Attorneys for Rangen, Inc.

Signature: Date: 6-1-04

ATTACHMENT A - BUDGET

Grantee: Rangen, Inc. Project No.:

Project: Evaluation of ground water pumping for water supply augmentation at the Rangen aquaculture facility

LINE ITEMS	AMOUNTS				
	ESPAM Grant	Private	Federal	Other	Total
Construction and Project Improvement	$27,500				$27,500
Professional/Engineering Fees	$15,081				$15,081
Contingency	$8,516				$8,516
Total Costs	$51,097	$	$	$	$ 51,097

1) Project Description

a) Background

Rangen, Inc. ("Rangen") is one of the largest suppliers of high-yield, low waste feeds for the aquaculture industry. Rangen conducts on-going nutrition research to improve aquaculture feeds and husbandry practices. Rangen feeds are then tested in its aquaculture facility near Hagerman, Idaho to measure performance under practical conditions.

The Rangen aquaculture facility (Figure 1) is located in Gooding County approximately 3 miles from Hagerman, Idaho. The primary water source for the Rangen facility (Table 1) is spring discharge from the Curren Tunnel[1]. This is one of many springs in the Milner to King Hill reach of the Snake River (Figure 2) that collectively form a primary discharge area for the Eastern Snake River Plain (ESRP) aquifer.

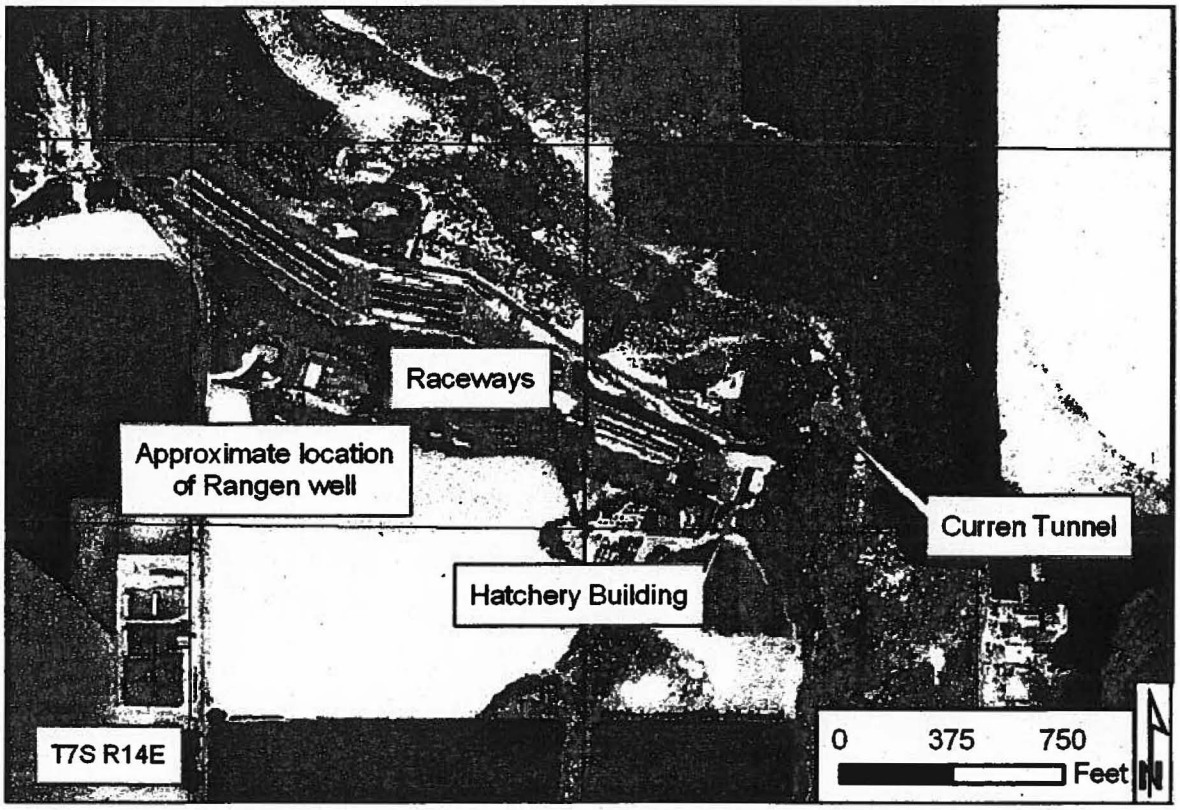

Figure 1: Rangen aquaculture facility.

[1] Also known as the Martin-Curren Tunnel.

Number	Priority Date	Decreed Date	Source	Maximum Diversion Rate	Maximum Diversion Volume
36-135A	Apr 1 1908	Aug 27 2001	Martin-Curren Tunnel	0.050	0.000
36-15501	Jul 1 1957	Dec 29 1997	Springs	1.460	0.000
36-2551	Jul 13 1962	Dec 29 1997	Martin-Curren Tunnel	48.540	0.000
36-10269	Aug 5 1976	Nov 22 1996	Ground Water	0.040	0.000
36-7694	Apr 12 1977	Dec 29 1997	Springs	26.000	0.000
36-8048	Dec 21 1981	Aug 27 2001	Ground Water	0.410	80.800
36-134B	Oct 9 1884	Aug 27 2001	Martin-Curren Tunnel	0.090	0.000

Table 1: Rangen water rights.

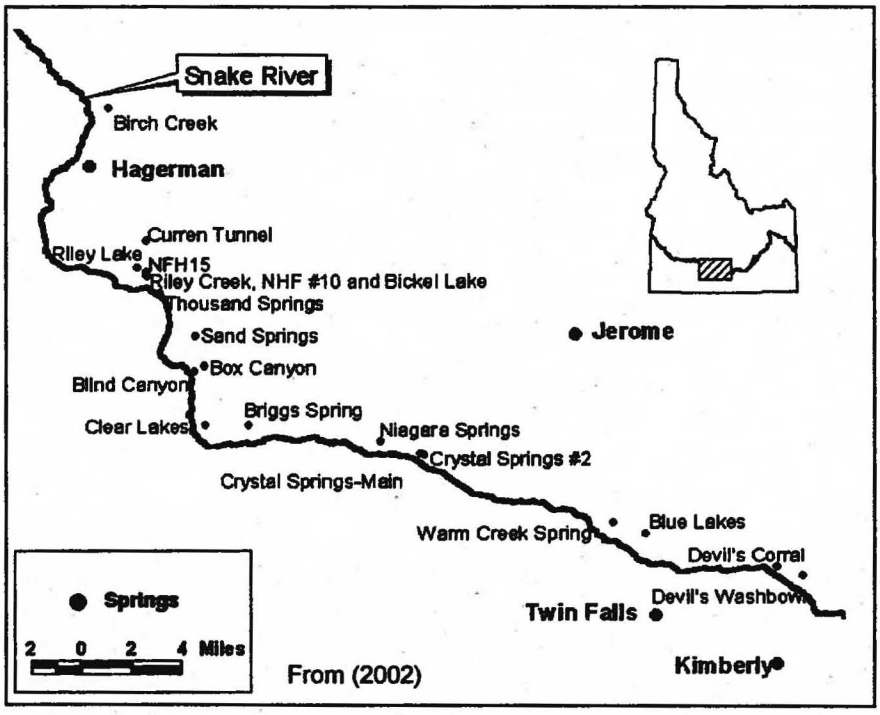

Figure 2: Major springs in the Milner to King Hill reach of the Snake River.

Numerous springs in the Milner – King Hill reach have experienced decreased flows in recent years (Bendixsen, 1995; Johnson et al., 2002). Average annual diversion rates (based on average monthly diversions) to the Rangen facility from the Curren Tunnel were over 50 cfs during the 1960s and early 1970s, but have decreased to less than 15 cfs in recent years (Figure 3).

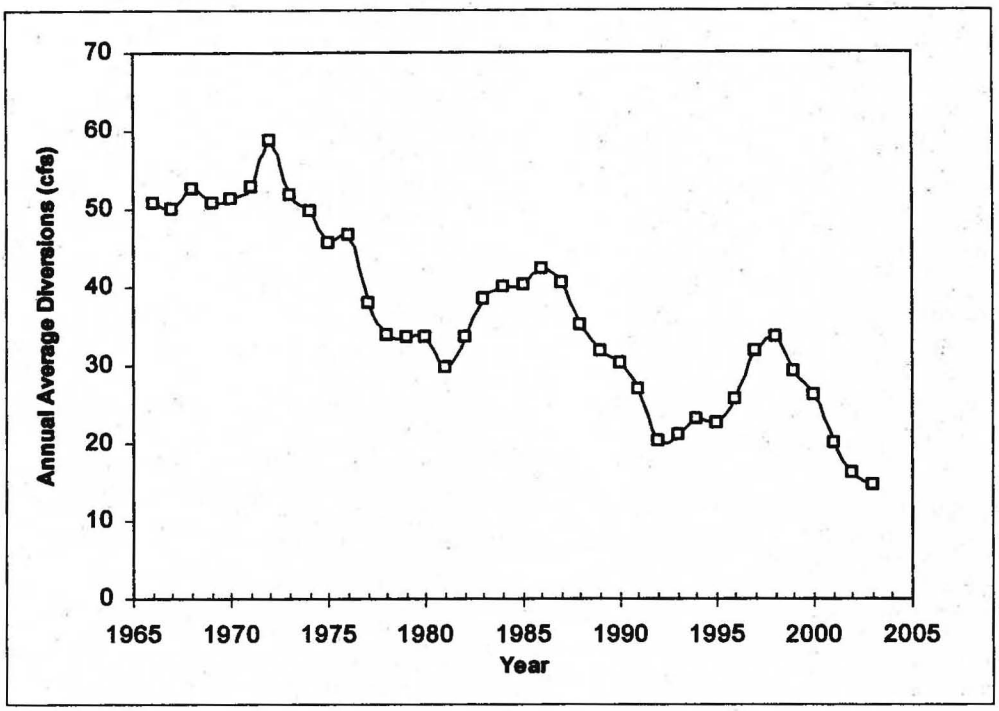

Figure 3: Average annual discharge rates from the Rangen, Inc., Aquaculture Facility.

The Curren Tunnel draws water from a pillow lava facies of the Malad Basalt (Johnson et al., 2002). Review of a geologic cross section (Figure 5) of the vicinity of the Curren Tunnel (Figure 4) compiled by Covington and Weaver (1989) suggests that discharge at the Current Tunnel may be controlled, in part, by clay zones associated with the Yahoo Clay or varying permeability characteristics of the Malad Basalt.

b) Project Description

One alternative for increasing spring flows to the Rangen facility would be to construct one or more vertical production wells at the Rangen facility to withdraw ground water for hatchery uses. Such a strategy would be successful if a well was highly productive with a relatively small amount of lift.

One domestic well is present southwest of the Rangen facility (Figure 1)[2]. The lithologic description (Figure 6) indicates penetration of this well through approximately 80 feet of clay – presumably Yahoo Clay (Figure 5). It appears that the primary water-bearing zone (which is likely the Banbury Basalt – see Figure 5) was encountered at a depth of approximately 265 feet.

[2] A second domestic well appears to exist adjacent to the Rangen facility, but a driller's report for this well was not available in IDWR's online database. The lithologic description in this well (and any other nearby well) may influence the scope and nature of this project.

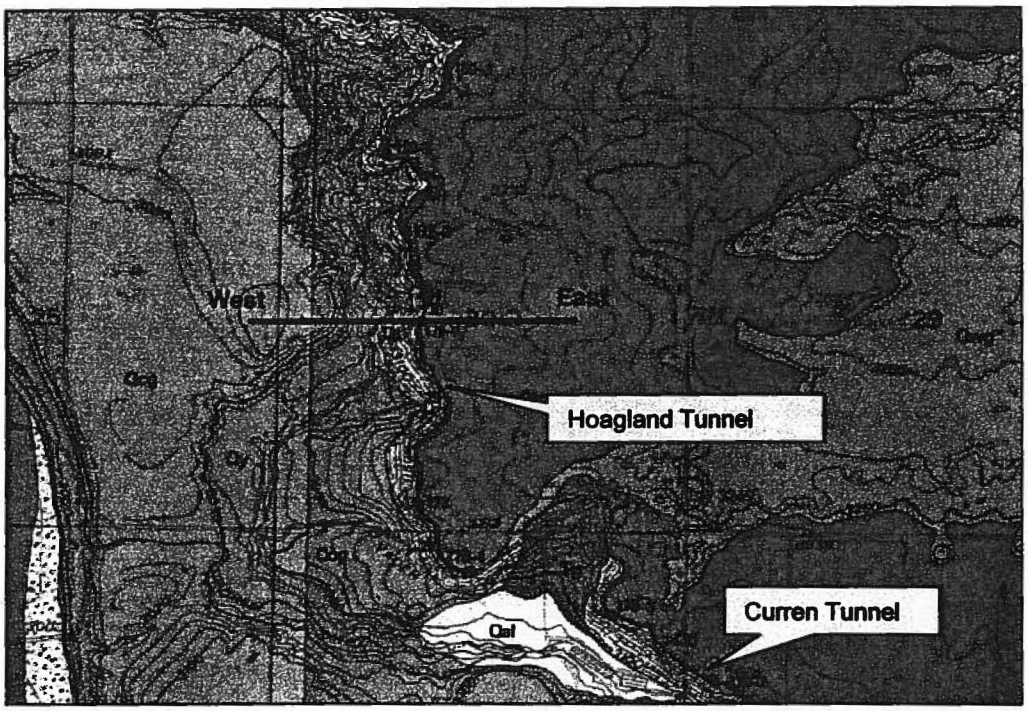

Figure 4: Approximate location of cross section shown in Figure 5 (adapted from Covington and Weaver, 1989).

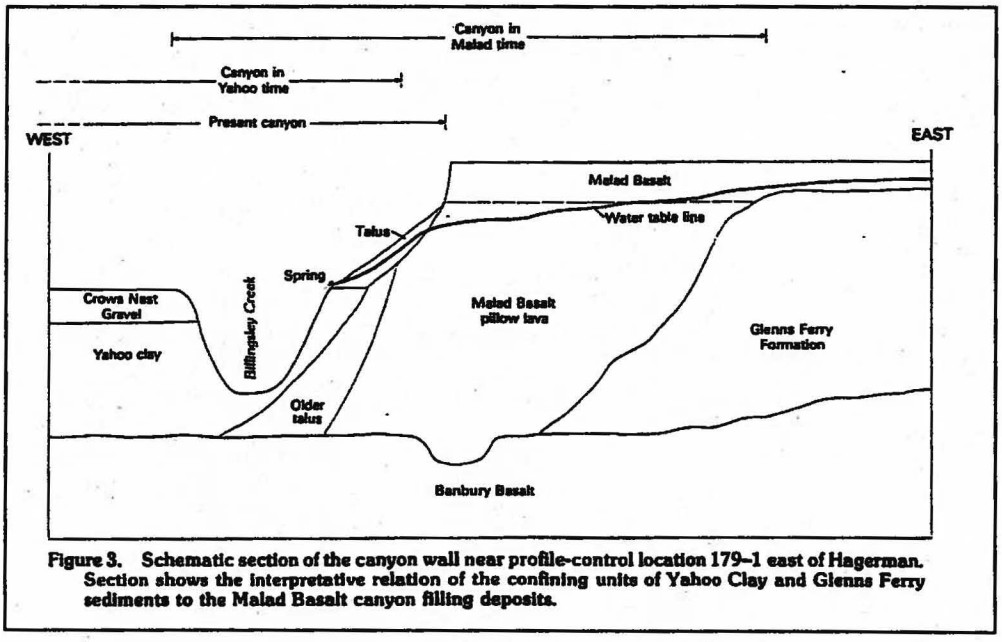

Figure 3. Schematic section of the canyon wall near profile-control location 179–1 east of Hagerman. Section shows the interpretative relation of the confining units of Yahoo Clay and Glenns Ferry sediments to the Malad Basalt canyon filling deposits.

Figure 5: Schematic cross section just north of Hoagland Tunnel/Weatherby Spring (from Covington and Weaver, 1989).

The static water level was noted at 112 feet below ground surface in the Rangen domestic well, which approximates the discharge elevations of lower springs near the National Fish Hatchery. This depth to water, if encountered in a new Rangen facility well, may represent an infeasible lift for large amounts of water.

However, the control on water levels in this area are not well understood. Water levels at the Curren Tunnel (apparently drawing from the Malad Basalt) are much greater than those in the Rangen domestic well (presumably drawing from the Banbury Basalt). The degree of hydraulic connection between upper zones in the Malad Basalt supplying water to the Curren Tunnel and this lower Banbury Basalt aquifer is unclear. The upper aquifer may be somewhat perched in this area, or controlled by other factors limiting vertical water movement. Water levels in the proposed well area may reflect the water level at the Rangen domestic well or possibly water levels associated with the upgradient Malad Basalt.

The driller's report for the Rangen domestic well indicates one zone between 93 and 102 feet in which the driller lost return air or water. There is a chance that productive zones and ground water levels may be closer to ground surface at a location closer to the canyon rim than those indicated in the Rangen well driller's report. This project consists of the construction of a test well at the Rangen facility near the canyon rim to test this hypothesis.

2) Purpose and Objectives

The purpose of this proposed project is to provide increased flow to the Rangen aquaculture facility. The general objective is to evaluate the feasibility of a vertical production well located within the Rangen facility. Specific objectives include the following:

a. Drill a vertical test well below the canyon rim within the Rangen aquaculture facility, evaluate subsurface lithology and hydrogeologic characteristics in the test well based on drill cuttings, drilling resistance, test pumping, water level measurements, etc.
b. Evaluate the feasibility of a larger-diameter production well based on test-drilling results.

3) Project Tasks

a) Well Construction and testing

This task will begin with a comprehensive search for drillers' reports for wells in the immediate vicinity of the Rangen facility. Review of any additional available logs may influence the tasks outlined below.

USE TYPEWRITER OR BALL POINT PEN

State Idaho
Department of Water Resources

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name Rangen, Inc.

Address Hagerman, Idaho

Owner's Permit No.

2. NATURE OF WORK

☑ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☑ Domestic ☐ Irrigation ☐ Test ☐ Other (specify type)

☐ Municipal ☐ Industrial ☐ Stock ☐ Waste Disposal or Injection

4. METHOD DRILLED

☑ Cable & ☐ Rotary ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole ____ inches Total depth 278 feet

Casing schedule: ☑ Steel ☐ Concrete

Thickness	Diameter	From	To
.250 inches	6 5/8 inches	+1 feet	±56 feet
.156 inches	5 9/16 inches	+1 feet	±213 feet
inches	inches	feet	feet
inches	inches	feet	feet
inches	inches	feet	feet

Was casing drive shoe used? ☑ Yes ☐ No

Was a packer or seal used? ☐ Yes ☑ No

Perforated? ☐ Yes ☑ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation ____ inches by ____ inches

Number	From	To
perforations	feet	feet
perforations	feet	feet
perforations	feet	feet

Well screen installed? ☐ Yes ☑ No

Manufacturer's name

Type Model No.

Diameter Slot size Set from feet to feet

Diameter Slot size Set from feet to feet

Gravel packed? ☐ Yes ☑ No Size of gravel

Placed from feet to feet

Surface seal depth 16 Material used in seal ☐ Cement grout ☑ Puddling clay ☐ Well cuttings

Sealing procedure used ☐ Slurry pit ☐ Temporary surface casing ☑ Overbore to seal depth

6. LOCATION OF WELL

Sketch map location must agree with written location.

Subdivision Name

Lot No. Block No.

County Twin Falls Gooding

NW NE SE ¼ Sec. 31 T. 7S N/S, R. 14EBM E/W

7. WATER LEVEL

Static water level 112 feet below land surface

Flowing? ☐ Yes ☒ No G.P.M. flow

Temperature ° F. Quality

Artesian closed in pressure p.s.i.

Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☒ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped
Approx 33	None	3

9. LITHOLOGIC LOG 46128

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	0	48	Sand		X
	48	82	Clay w/greyish white basalt		
8/6	82	93	Hard Gray Basalt		
6	93	102	Broken Gray Basalt lost return		
	102	139	Hard w/lava breaks		
	139	160	Soft Clay Brown /broken Gray basalt		
	160	171	Soft Gray Clay		
	171	181	Broken Gray Basalt w/gray clay		
	181	192	Soft Gray Clay		X
6/5	192	216	Soft Gray Clay w/sand	X	
5	216	220	Soft gray Clay/Broken Gray Basalt		
	220	236	Hard Black Basalt		
5/6	236	241	Gray Soft Lava		
6	241	248	Hard Gray Lava		
	248	256	Soft Brown Lava		
	256	265	Hard Gray Basalt		
	265	266	Sand		X
	266	270	Dark Gray Med Hard Lava	X	
	270	278	Gray Broken Lava	X	

10.

Work started 6/12/76 finished 8/5/76

11. DRILLERS CERTIFICATION

Firm Name SMITH DRILLING & PUMP CO., INC. Firm No. 11

Address 128 West Avenue A, Jerome Date 8/12/76

Signed by (Firm Official)

and

(Operator)

USE ADDITIONAL SHEETS IF NECESSARY FORWARD THE WHITE COPY TO THE DEPARTMENT

Figure 6: Driller's report for Rangen domestic well.

Well construction will include the following subtasks:

- Selection of drilling location
- Preparation of well design documents
- Solicitation of drilling bids
- Drilling supervision
- Geophysical logging
- Hydraulic gradient testing
- Aquifer testing

The criteria for selecting a drilling location will include proximity to the canyon rim, proximity to the Rangen raceways and/or hatchery building, and the presence of a sufficient work area. The test well will be constructed in an 8-inch diameter borehole drilled using an air-rotary rig. The test well may extend to a depth of approximately 300 ft (similar to the depth of the Rangen domestic well). Occasional pumping and water level checks will be done after the borehole has encountered saturated conditions.

A camera survey, geophysical logging, and/or borehole flow measurements will be conducted in each well prior to well completion (if possible). This information will be used to complete these wells as monitoring wells. Completed as a monitoring well, the test well would provide long-term, dedicated water level information in the Rangen vicinity.

A geologist will be on-site during drilling to monitor drill cuttings, fluid levels, and aquifer testing. The test well location will be estimated using a global positioning system device; a top-of-casing elevation will be surveyed to a known point.

A second domestic well appears to exist adjacent to the Rangen facility, but a driller's report for this well was not available in IDWR's online database. The lithologic description in this well log may influence the scope of this project.

b) Evaluate Feasibility of a Vertical Production Well

The feasibility of a vertical production well will be evaluated on the basis of test-well results. Primary feasibility criteria are potential production rates and pumping lift. The assessment also will include a brief discussion of possible impacts to other water users by withdrawals in a production well at the Rangen facility.

An aquifer test will be conducted if warranted based on production potential and depth to water. Possible monitoring points include the Range domestic well and the Curren Tunnel.

c) Summary Report

A summary report will completed following test well construction and testing. The report will include a drilling description, detailed well logs, lithologic descriptions, camera survey and/or geophysical interpretations, and other data. The summary

report will provide a discussion of the feasibility of augmenting the water supply for the Rangen facility by pumping water from vertical wells.

4) Project Schedule

A tentative project schedule is shown in Table 2. The schedule assumes a start time of August 2004.

	Tentative Schedule				
Task	Aug 2004	Sep 2004	Oct 2004	Nov 2004	Dec 2004
a) Create well specifications, obtain drilling bids, construct test wells, evaluate hydrogeologic characteristics	x	x	x		
b) Evaluate Feasibility of Horizontal Well; develop horizontal well construction plan			x	x	
c) Submit Final Report					x

Table 2: Tentative project schedule.

5) Potential Benefits and Risks

a) Potential Benefits

A successful production well (defined by high production volume and a small pumping lift) could provide much-needed water to the Rangen facility. Such a well could be used to augment water from the Curren Tunnel.

b) Potential Risks or Constraints

There are several potential risks associated with this project. The first is that test drilling does not reveal a promising zone into which to drill a production well. The second risk is that a promising zone is identified, but the production well, if constructed, is unable to produce a sufficient amount of water at an acceptable pumping lift. A third risk is that a productive zone with an acceptable pumping lift is identified, but Rangen is unable to obtain a permit to produce water from the well. Similarly, if permitted, water from the new well may have a new priority date. Finally, substantial ground water withdrawals from this area may have an effect on local water levels or discharges from other springs.

6) Cost Details

Preliminary costs for this project are shown in Table 3. These costs are greater than general well-drilling costs because of the presence of an on-site engineer/geologist during drilling and testing, and pre- and post-drilling analyses.

Task	SubTasks	Engineering Costs	Construction and Indirect Costs	Total Costs
a) Well Construction				
	Prepare well design specifications	1,080		1,080
	Obtain, review bids	740		740
	Drilling supervision	4,230		4,230
	Lithologic descriptions	1,424		1,424
	Geophysical interpretation	960		960
	Travel Expenses		625	625
	Subtotal	**$8,834**	**$625**	**$9,059**
	Estimated Contractor Costs			
	Drilling subcontractor (assume 300' at $75 per foot).		22,500	22,500
	Test pumping upon completion		5,000	5,000
	Subtotal		**$27,500**	**$27,500**
b) Evaluate Feasibility of Production Well				
	Analysis	1,734		1,734
	Presentation with client, discussion with Interim Committee	1,600		1,600
	Summary Report	2,688		2,688
	Subtotal	**$6,022**		**$6,022**
Subtotal				**$42,581**
Contingency				$8,516
Total				**$51,097**

Table 3: Budget details

7) Summary Discussion

This proposed project consists of constructing a vertical test well to determine feasibility of a production well near the Rangen aquaculture site. A successful production well may replace a portion of diminished flows that are constraining the Rangen aquaculture operation. Increasing flows to the Rangen facility would provide a major benefit to other water users that may be affected by decreased flows to the Rangen facility. Any additional flows through the Rangen facility would benefit users downstream of the Rangen facility.

The success of a test well or subsequent production well is not guaranteed. Test drilling may not indicate productive target for a production well. Potential targets based on test drilling may or may not result in a successful production well. A successful well may have adverse impacts on surrounding water levels or spring discharge.

8) References

Bendixsen, S., 1995. Summary of Ground Water Conditions at the Curren Tunnel near Hagerman, Idaho, Idaho Department of Water Resources (Draft Report).

Covington, H.R. and Weaver, J.N., 1989. Geologic Map and Profiles of the North Wall of the Snake River Canyon, Bliss, Hagerman, and Tuttle Quadrangles, Idaho. U.S. Geological Survey, Miscellaneous Investigations Series, Regional Aquifer System Analysis Program.

Johnson, G.S. et al., 2002. Spring discharge along the Milner to King Hill Reach of the Snake River, Idaho Water Resources Research Institute.