

WATER PERMIT NO. 1708-1

Name of Applicant: Wayne Besler

Address: 14281 Bixby Rd., Bison SD 57620

Phone: 605 244-5507

Amount of Water Claimed: 104 acre-feet

Total Acres: NA

Source of Water Supply: runoff

Water to be used for: fish & wildlife propagation & livestock water

County: Perkins

Type of Waste Disposal System:

Location: 12 miles southwest of Bison

PRIORITY Date Received: 12-2-99

Fee: \$150

Corrected Application Received: 1-7-00

Period of Annual Use: January 1 – December 31

Remarks: Restore an old dam

Diversion Point: NW ¼ NE ¼

Sec 12-T16N-R12E

Water Impounded: N ½ NE ¼ Sec 12-
T16N-R12E

Depth of Well: NA

Well Driller: :

Remarks:

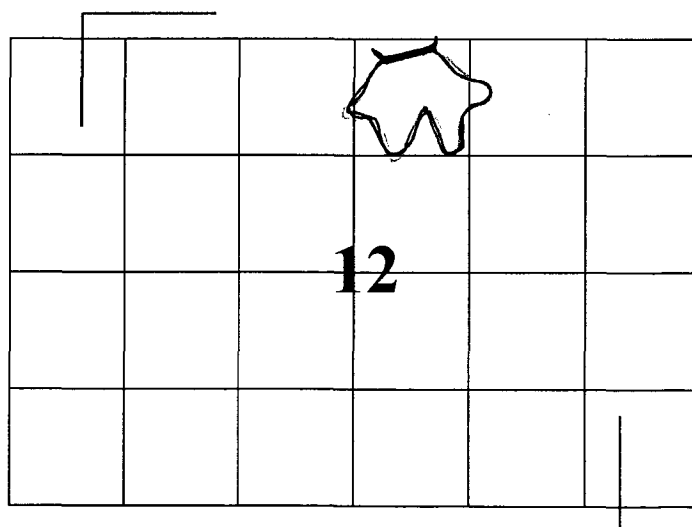
Type of Map: topo

Prepared by: Bruce Schoonover, USFWS

Reviewed and the Number Assigned on: 1-10-00

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____



SOUTH DAKOTA
WATER PERMIT NO. 1708-1

Date of first receipt of application December 2, 1999.

Date of return to applicant for corrections, amendments or changes December 8, 1999.

Date of receipt of corrected application January 10, 2000.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 1708-1 to Wayne Besler, 14281 Bixby Rd, Bison SD 57620 authorizing the reconstruction of the dam and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 1708-1 authorizes impoundment of 104 acre-feet of water from runoff by restoring a dam located in the NW 1/4 NE 1/4 Section 12 with water impounded in the N 1/2 NE 1/4, SW 1/4 NE 1/4, NE 1/4 NW 1/4 Section 12; all in T16N-R12E.
2. The water appropriated shall be used for the purpose of providing water for fish and wildlife propagation and livestock water and may not exceed the amount of water needed for beneficial use.
3. The water is to be used during the following described annual period: January 1 – December 31.
4. The date of approval of Permit No. 1708-1 is March 13, 2000.
5. The date from which applicant may claim right is December 2, 1999.
6. One-fifth of the construction is to be completed on or before September 13, 2002.
7. All construction is to be completed on or before March 13, 2005.
8. Water is to be put to beneficial use on or before March 13, 2009.
9. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATIONS

1. Water Permit No. 1708-1 authorizes a dam with storage capacity of 104 acre feet of water and sufficient water annually to maintain the water level to the outlet elevation.
2. Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.

WATER MANAGEMENT BOARD

By: Garland Erbele

Garland Erbele, Chief Engineer
Water Rights Program

Department of Environment and Natural Resources

APR 10 2000

date



FORM 2: Application for uses other than irrigation
(type or print)

Mail to:
Water Rights Division
Joe Foss Building
523 E Capitol
Pierre SD 57501-3181
605 773-3352

No. 1708-1 Hydrologic Unit 10130305
Basin Moreau River
Newspaper The Bison Courier, Bison, SD
(office use only)



Application For Permit To Appropriate Water Within The State Of South Dakota

Check use of water:

☐ Municipal ☐ Suburban Housing ☐ Recreational ☐ Institutional
☐ Rural Water System ☐ Commercial ☒ Fish & Wildlife ☐ Geothermal Heat
☐ Domestic ☐ Industrial ☒ Other livestock water
(over 18 gpm)

Type of Application: ☒ New ☐ Vested Right (Use predates Mar 2, 1955) ☐ Future Use Reservation
(check one) ☐ Place to Beneficial Use Water Reserved by Future Use Permit No. _____
☐ Amendment/Correction to Permit No. _____

Description of amendment/correction: (i.e. change diversion point(s), add diversion point(s), change use, etc.) _____

1. Name of Applicant Wayne Besler Phone 605-244-5507
(check one) ☐ Owner ☐ Tenant/lessee
Mailing Address 14281 Bixby Rd. Bison State SD 57620
(Street, RR, or Box) (City) (Zip Code)

2. Amount of water claimed _____ *CFS or _____ **GPM 104 ***AF
(*Cubic Feet per Second) (**Gallons per Minute) (**Acre Feet - storage capacity of dam/dugout or annual use if applicable)

3. Source of water supply runoff

4. Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W)
NW 1/4 NE 1/4 SEC 12 T16N-R12E Water Impounded: N1/2 NE1/4, SW1/4 NE1/4,
NE1/4 NW1/4 sec. 12-T16N-R12E County Perkins

5. County or counties where water will be used Perkins

6. Annual period during which water is to be used January through December 31

7. Give a description of the project. When available include any preliminary engineering report or other reports or information that will help explain the project. (Attach sheet if more space is needed)

Restore old silted in dam by raising top of dam 8' and establishing new natural spillway.

Attachments: Attach Form 2A if diversion is from a well or dugout, or if storage of water is proposed. Attach map and any other technical information. (see instructions)

STATE OF SOUTH DAKOTA)

County of Perkins)^{ss}

I, WAYNE BESLER, the applicant, certify that I have read this application, have examined the attached map and that the matters stated are true and that I intend, and am able to complete the necessary construction.

Signed Wayne Besler

Subscribed and sworn to before me this 1 day of December 19 99

My Commission Expires February 6, 2005

Bruce Schoonover
Notary Public

Supplemental Information

(type or print in ink)

1. Well Information - Proposed Construction

- a) Drill Hole Diameter _____ Depth _____
- b) Casing Type _____ Diameter _____ Thickness _____
- c) Screen Type _____ Diameter _____ Thickness _____
- d) Gravel Pack Thickness _____ Length of Gravel Pack _____
- e) Depth to Top of Water Bearing Material _____
- f) Depth to Water (ground surface to water level) _____
- g) Distance to nearest existing domestic well:
On applicants property _____ On property owned by others _____

2. Wastewater Disposal System Information

- a) Type of System (i.e. septic tank, drain field) _____
- b) System Capacity (gallons) _____ c) Year Constructed _____
- d) Connected to the City of _____ Sanitary System.

3. Dugout Information

- a) Surface Dimensions _____ Depth _____
- b) Depth to water (ground surface to water level) _____

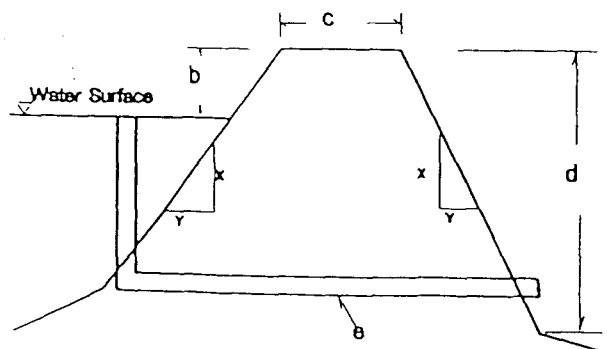
4. Water Storage Dams

If the proposed water use system contains one or more storage dams, please furnish the information requested below for each dam. The locations of the dams need to be shown on the map submitted with the application.

- a) If a private engineering firm or government agency was involved in the design of this dam, please give their name and address:

U.S. Fish and Wildlife Service
423 Hatchery Circle
Spearsfish, SD 57783-2643

- b) Freeboard 3'
- c) Crest Width 12'
Crest Length 582'
- d) Height 16.1'
- e) Primary Outlet Capacity n/a
If pipe, diameter _____
- f) Secondary Spillway Capacity 420 CFS
Spillway Width 75'
- g) X & Y Slope
Upstream 3:1
Downstream 2:1
- h) Surface Area of Impoundment 22 Ac
- i) Storage 104 Acre Feet
- j) Drainage Area Above Dam 313 Acres



**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 1708-1, Wayne Besler**

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Program, Department of Environment and Natural Resources concerning Water Permit Application No. 1708-1, Wayne Besler, 14281 Bixby Road, Bison SD 57620.

The Chief Engineer is recommending APPROVAL of Application No. 1708-1 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) it is in the public interest with the following qualifications:

1. Water Permit No. 1708-1 authorizes a dam with storage capacity of 104 acre feet of water and sufficient water annually to maintain the water level to the outlet elevation.
2. Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.

See report on application for additional information.



Garland Erbele, Chief Engineer
February 11, 2000

REPORT ON
WATER PERMIT APPLICATION NO. 1708-1
Wayne Besler
February 8, 2000

Water Permit Application No. 1708-1 has been filed by Wayne Besler to impound 104 acre-feet of water from runoff by restoring an existing dam located in the NW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 12-T16N-R12E, in Perkins County. The application also requests impoundment of sufficient water to maintain water at the outlet elevation. The water will be used for fish and wildlife production and livestock watering.

Discussion:

The restored dam will be classified as a small size, Category 3, Low Hazard dam. The dam restoration project has been designed by the Natural Resources Conservation Service (NRCS). The plans and specifications have been reviewed and will be approved; however, restoration of the dam can not begin until Water Permit Application No. 1708-1 is approved.

The Besler Dam will be 16 feet high with a normal storage capacity of 104 acre-feet with a reservoir level at the primary spillway elevation, and a maximum storage capacity of 204 acre-feet with a reservoir level at the top of dam elevation. A dam of this size and hazard classification is required to have a minimum spillway design capable of passing a 50-year frequency event.

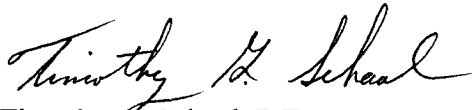
The dam has a drainage area of 0.49 square miles. A 50-year frequency event for this drainage area produces a peak runoff of approximately 467 cfs. A 100-year frequency event produces a peak of approximately 618 cfs. The dam is designed to have a 60 foot wide natural earth spillway with 3 feet of available freeboard. The 60 foot wide spillway will have a capacity of approximately 810 cfs.

The annual yield for this drainage area with an 80 percent chance of occurrence, or 8 out of 10 years, is expected to be 7 acre-feet. The annual yield with a 50 percent chance of occurrence, or 1 out of 2 years, is expected to be 17 acre-feet and the annual yield with a 10 percent chance, or 1 out of 10 years, is expected to be 65 acre-feet.

The Besler Dam is located in the NW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 12-T16N-R12E on an unnamed tributary of Rabbit Creek about 1.5 miles upstream of its confluence with Rabbit Creek. There are no existing Water Permits/Rights located on the unnamed tributary between the proposed dam and Rabbit Creek. The nearest permit below the dam would be Water Right No. 782-1, held by Burdine & Sons, Inc. This permit is located three to five miles below the confluence of the unnamed tributary, and appropriates 2.25 cfs from Rabbit Creek to irrigate 445 acres of lands. Approval of Water Permit Application No. 1708-1 should not have any adverse effect on Water Right No. 782-1.

Conclusions:

1. Water Permit Application No. 1708-1 should be approved since unappropriated water is available and approval should not have any adverse effect on existing Water Permits/Rights.
2. If approved, the low flow bypass requirement for downstream domestic use should be a qualification on Water Permit Application No. 1708-1.



Timothy G. Schaal, P.E.
Natural Resources Engineer III

Approved by:



Gale N. Selken, P.E.
Natural Resources Engineer IV

RECEIPT

Water Rights Program

South Dakota Department of Environment and Natural Resources

No 416342

Pierre,

January 10,

2000

RECEIVED OF US Fish & Wildlife Service, P.O. Box 247, Brookings, SD 57006
the following amount in fees for services rendered as provided for by law:

Fee for Application for Permit No. <u>1708-1</u> to Appropriate Water, to construct and to put water to beneficial use _____	150	00
Fee for Application for Permit No. _____ to Appropriate Water, for Future Use _____		
Fee to retain Future Use Permit No. _____ after period of seven years.		
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. <u>1708-1</u>	50	00
Fee for Filing Transfer Form _____		
Fee for Filing Extension Request _____		
Fee for _____		

(Any Other Work Provided by Law)	Total	200 00

By


Chief Engineer

Harland Ervick

EFM-2 ESTIMATING RUNOFF AND PEAK DISCHARGE

VERSION 1.10

Client : WAYNE BESLER
County : PERKINS
Practice: DAM REPAIR

State: SD

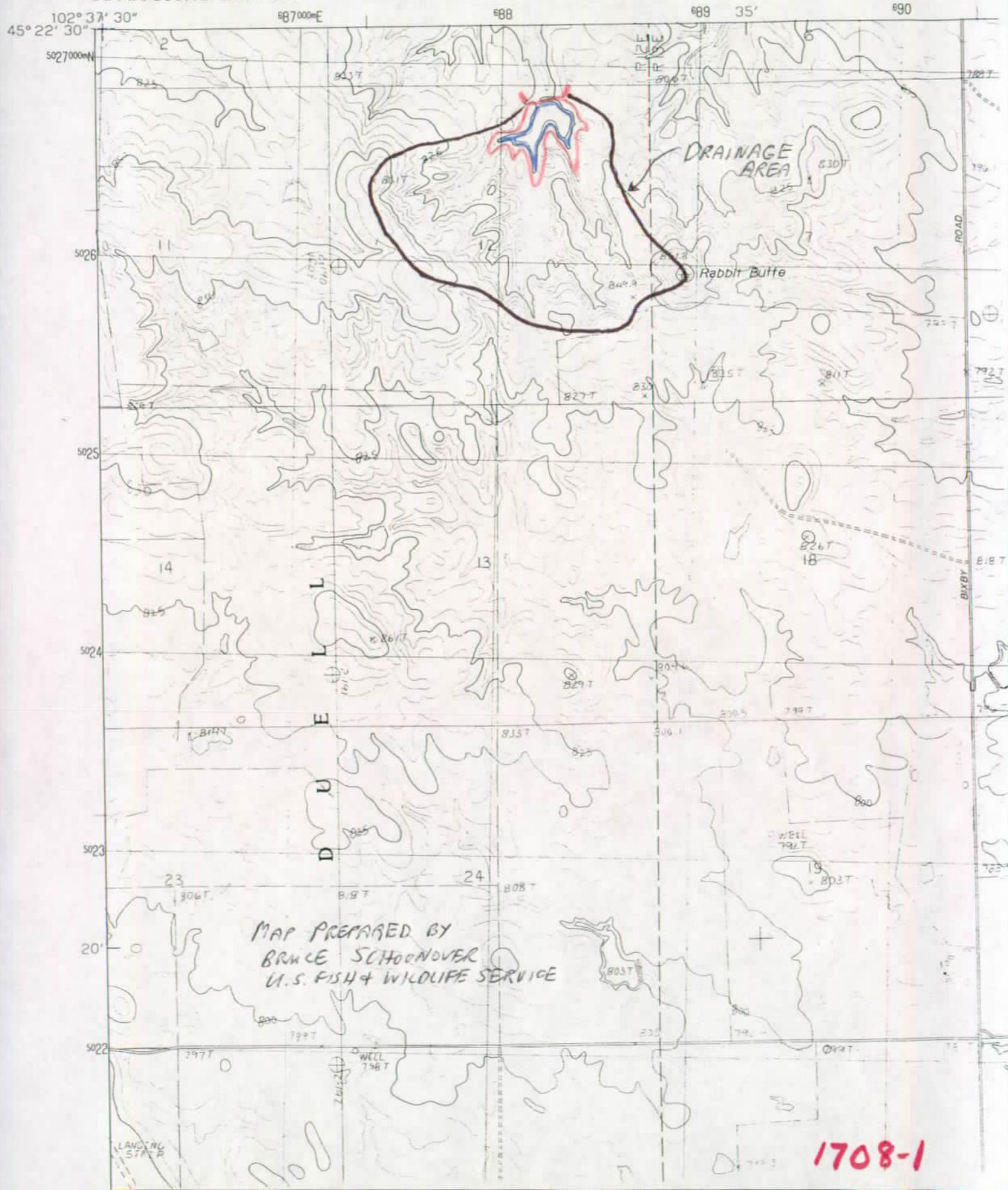
By: TDV
Checked: _____Date: 11-29-99
Date: _____

Drainage Area : 313 Acres
Curve Number : 80
Watershed Length : 4500 Feet
Watershed Slope : 10 Percent
Time of Concentration: .558 Hours
Rainfall Type : II

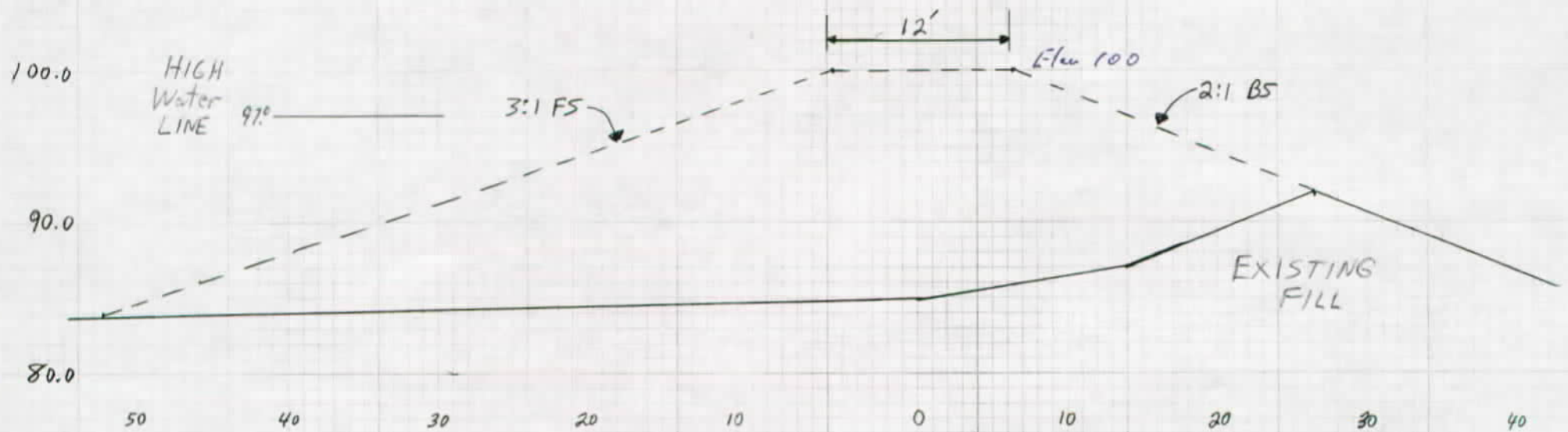
Storm Number	1	2
Frequency (yrs)	2	25
24-Hr Rainfall (in)	2.0	3.6
Ia/P Ratio	0.25	0.14
Runoff (in)	0.56	1.72
Unit Peak Discharge (cfs/acre/in)	0.678	0.754
Peak Discharge (cfs)	119	405

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

— OLD POND
— NEW POND



CROSS SECTION AT DEEPEST FILL



1DAMS2 XEQ 01/21/** STRUCTURE SITE ANALYSIS COMPUTER PROGRAM
REV 01/01/90 SCS TECHNICAL RELEASE 48, (USER MANUAL) DATED JAN.
1990

TIME 11:27:04

***** THIS PROGRAM IS IN TEST STATUS *****

***** 80-80 LIST OF INPUT DATA *****

DAMS2	01/01/90	WAYNE BESLER	PERKINS CO. SD
STRUCTURE	Flint	MULTI-PURPOSE DAM	
		0	0.0
		6	32.4
		13.2	104.0
		29.6	650.0
ENDTABLE			
WSDATA	2A101 AC	80 313	.56
PDIRECT	1.0	2.0	3.6
POOLDATA	ELEV	13.2	13.2
ESCREST	ELEV	13.2	
ESDATA	01	50	0.03 3 0.035 5.0
BTMWIDTH	FEET	60	
COMMENT			
COMMENT	ESH- 25YR 24HR STORM & FBH- 25YR 24HR STORM		
COMMENT			
GO, DESIGN	TYPE2	24	TYPE2 378 24
ENDJOB			

***** MESSAGE - DRAINAGE AREA FROM WSDATA CONTROL BEING CONVERTED FROM
ACRES TO SQUARE MILES FOR COMPUTATION PURPOSES.

1DAMS2 XEQ 01/21/**
REV 01/01/90 ER PERKINS CO. SD WSID =
WAYNE BE

ESH- 25YR 24HR STORM & FBH- 25YR 24HR STORM

1DAMS2 -----

XEQ 01/21/** ER PERKINS CO. SD
WSID= WAYNE BE
REV 01/01/90 MULTI-PURPOSE DAM
SUBW= 01
TIME 11:27:04 SITE = Flint PASS= 1
PAGE= 1

***** BASIC DATA *****

HUMID- SUBHUMID CLIMATE AREA DESIGN CLASS A1 =LT
3000

STORM DISTRIBUTION-PSH 24 HOUR TYPE II RAINFALL DISTRIBUTION

STORM DISTRIBUTION ESH...24 HOUR TYPE II RAINFALL DISTRIBUTION

PRECIP.-	P-PS1 DAY	P-PS10 DAY	P-ES	P-FB
	2.00	.00	3.60	3.60
WSDATA-	CN	DA-SM	TC/L	-/H
	80.00	.49	.56	.00
SITEDATA-	PERM POOL	CREST PS	FP SED	QRF
	13.20	13.20	.00	.00
	BASEFLOW	INITIAL EL	EXTRA VOL.	
	.00	.00	.00	
PSDATA-	NO. COND.	COND L	D/W	-/H
	.00	.00	.00	.00
	PS N	KE	WEIR L	TW EL
	.000	.00	.00	.00

	2ND STG	ORF H	ORF L	START ES
	.00	.00	.00	.00
CRESTS-	ES1	ES2	ES3	ES4
ES5	13.20	.00	.00	.00
.00				
EMG DATA-	SIDE SLOPE	EXIT N	EXIT SLOPE	
	3.00	.035	.050	
EMG DATA-	ES TYPE	ES LENGTH	ES ENTRANCE N	
	1	50	.030	
BTM WIDTH-	BW1	BW2	BW3	BW4
BW5	60.00	.00	.00	.00
.00				

***** NOTE - THIS IS ONLY A PRELIMINARY EMG RATING CURVE OF
 DISCHARGE/FT. OF WIDTH AND DOES NOT INCLUDE SIDESLOPE CORRECTION OR
 REVISED RATING USING ACTUAL EMG. CONFIGURATION.

EMG ID CODE	01	ELEVATION INCREMENT (FT)=	
1.000			
DISCHARGES-Q1	Q2	Q3	Q4
2.177	7.222	14.080	22.436
Q5	Q6	Q7	Q8
31.983	42.623	54.218	66.737
Q9	Q10	Q11	Q12
80.111	94.210	109.077	124.678

1DAMS2 -----

 XEQ 01/21/** ER PERKINS CO. SD
 WSID= WAYNE BE
 REV 01/01/90 MULTI-PURPOSE DAM
 SUBW= 01

$$\begin{aligned}
 7.2 \times 60 &= \underline{\underline{432 \text{ cfs}}} \\
 Q &= C L H^{3/2} \\
 &= (2.6)(60)^{1.5} \\
 &= \underline{\underline{441 \text{ cfs}}}
 \end{aligned}$$

TIME 11:27:04
PAGE= 2

SITE = Flint

PASS= 1

PERM POOL	13.20 FT	104.0 ACFT	.00 AC	.0 CFS
CREST PS	13.20 FT	104.0 ACFT	.00 AC	.0 CFS
SED ACCUM	13.20 FT	104.0 ACFT	.00 AC	.0 CFS
STARTING E	13.20 FT	104.0 ACFT	.00 AC	.0 CFS

1DAMS2 -----

XEQ 01/21/** ER

PERKINS CO. SD

WSID= WAYNE BE

REV 01/01/90 MULTI-PURPOSE DAM

SUBW= 01

TIME 11:27:04

SITE = Flint

PASS= 1

PAGE= 3

ES CREST	13.20 FT	104.0 ACFT	.00 AC	.0 CFS
PS STORAGE	.0 ACFT	BETWEEN ES CREST AND SED ACCUM		
ELEVATIONS				
STARTING E	13.20 FT	104.0 ACFT	.00 AC	.0 CFS

ELEVATION OF LOW POINT IS ZERO. NO CRITERIA CHECK MADE FOR
STRUCTURE CLASSIFICATION

SCS-ESH	D= 24.00 HR	P= 3.60 IN	Q= 1.72 IN	DA =
.49 SM	TC= .56 HR	CN= 80.00	VOL= 44.7 ACFT	

Qes PEAK = 377.9 CFS, AT 12.1 HRS.

SCS-FBH	D= 24.00 HR	P= 3.60 IN	Q= 1.72 IN	DA =
.49 SM	TC= .56 HR	CN= 80.00	VOL= 44.7 ACFT	

PEAK = 377.9 CFS, AT 12.1 HRS.

***** MESSAGE - EMERGENCY SPILLWAY RATING EXTRAPOLATED ABOVE ELEVATION 21.40

ROUTED ES RESULTS ACFT	BTM WIDTH FT	MAX ELEV FT	VOL-MAX ACFT	AREA-MAX AC	EMG. HP FT	VOL-
SCS-ESH 20.1	60.0	13.80	124.1	.0	.60	
PEAK - CFS DISCHARGE =		Q-PS .0	Q-ES 80.5	Q-TOT 80.5		
		CRITICAL DEPTH FT	CRITICAL VELOCITY FT/SEC	CRITICAL SLOPE-S/C FT/FT	25% OF S/C FT/FT	
EMERGENCY SPILLWAY----		.38	3.47	.025	.034	
		DURATION FLOW HRS	ATTACK OE/B ACFT/FT	SUMMATION VEL**2 DELTA T (FT/SEC)**2 HRS		
EMERGENCY SPILLWAY----		30.7	.7	147.6		

***** MESSAGE - ES378 CRITERIA USED BUT EMERGENCY SPILLWAY NOT BASED ON RETARDANCE.

***** MESSAGE - EXIT CHANNEL VELOCITY EXCEEDS THEORETICAL LIMIT OF .03 FT/SEC

EXIT CHANNEL FLOW SUPERCRITICAL: MAX VELOCITY= 4.29 FT/SEC
EXIT SLOPE = .050 FT/FT
FLOW DEPTH = .308

ROUTED ES RESULTS ACFT	BTM WIDTH FT	MAX ELEV FT	VOL-MAX ACFT	AREA-MAX AC	EMG. HP FT	VOL-
---------------------------------	-----------------	----------------	-----------------	----------------	---------------	------

SCS-FBH 60.0 13.80 124.1 .0 .60
20.1

PEAK - CFS Q-PS Q-ES Q-TOT
DISCHARGE = .0 80.5 80.5

 CRITICAL CRITICAL CRITICAL 25% OF
 DEPTH VELOCITY SLOPE-S/C S/C
EMERGENCY FT FT/SEC FT/FT FT/FT
SPILLWAY---- .38 3.47 .025 .034

 DURATION ATTACK SUMMATION
 FLOW OE/B VEL**2 DELTA T
EMERGENCY HRS ACFT/FT (FT/SEC)**2 HRS
SPILLWAY---- 30.7 .7 147.6

***** MESSAGE - ES378 CRITERIA USED BUT EMERGENCY SPILLWAY NOT BASED
ON RETARDANCE.

***** MESSAGE - EXIT CHANNEL VELOCITY EXCEEDS THEORETICAL
LIMIT OF .03 FT/SEC

EXIT CHANNEL FLOW SUPERCRITICAL: MAX VELOCITY= 4.29 FT/SEC
EXIT SLOPE = .050 FT/FT
FLOW DEPTH = .308

***** WARNING - USER SUPPLIED RATING CURVE DID NOT MEET CRITERIA FOR
MINIMUM FLOW THROUGH EMERGENCY SPILLWAY (166.57
CFS).

***** ES378 RUN - MINIMUM DEPTH, CREST EMG TO TOP OF DAM IS 2.00 FT
NEW TOP OF DAM ELEVATION = 15.20

ROUTED ES RESULTS ACFT MINIMUM ES 66.6	BTM WIDTH FT	MAX ELEV FT	VOL-MAX ACFT	AREA-MAX AC	EMG. HP FT	VOL-
	60.0	15.20	170.6	.0	2.00	

PEAK - CFS	Q-PS	Q-ES	Q-TOT
DISCHARGES =	.0	498.4	498.4

	CRITICAL	CRITICAL	CRITICAL	25% OF
	DEPTH	VELOCITY	SLOPE-S/C	S/C
EMERGENCY	FT	FT/SEC	FT/FT	FT/FT
SPILLWAY----	1.26	6.19	.017	.023

1DAMS2.....JOB NO. 1 COMPLETE

WAYNE BE ER PERKINS CO. SD

0 SUBWATERSHED(S) ANALYZED

1 STRUCTURE(S) ANALYZED

2 HYDROGRAPHS ROUTED AT LOWEST SITE

0 TRIALS TO OBTAIN BOTTOM WIDTH FOR SPECIFIED VELOCITY(S)

DAMS2.....COMPUTATIONS COMPLETE

1	SUMMARY TABLE 1	DAMS2 VERSION
01/01/90		

WATERSHED ID	RUN DATE
RUN TIME	
-----	-----

WAYNE BE	01/21/**
11:27:04	

```

>>> SITE SUBWS SUBWS DA CURVE TC TOTAL DA TYPE STRUC
<<<
      ID ID (SQ MI) NO. (HRS) (SQ MI) DESIGN CLASS
      ----
      Flint 01 .49 80. .56 .49 378CR A1

PASS DIA/ ES CREST BTM MAX MAX YARDAGE OE/B* EXIT*
TYPE NO. WIDTH ELEV WIDTH HP ELEV EMB VELOCITY
HYD (IN/FT) (FT) (FT) (FT) (FT) (CY) (AF/FT) (FT/SEC)
-----
      1 .0 13.20 60.00 2.00 15.20 0. .7 4.29
MINIMUM ES

```

* OE/B AND EXIT VELOCITY ARE BASED ON THE ROUTED HYDROGRAPH AND WILL NOT RELATE TO THE MAX. ELEV. (TOP OF DAM), WHICH IS SET BY MINIMUM DESIGN CRITERIA.

DAMS2.....SUMMARY TABLE 1 COMPLETED

SCS DAMS2 VERSION 01/01/90
WAYNE BE FILES

INPUT = BESLER.DAT
OUTPUT = BESLER.OUT

DATED 01/21/**

11:27:04

Note: Using 24hr-25yr Freeboard Hydrograph storm with emergency spillway at El 13.2 top of dam would need to be El 15.2. However, dam was staked to top elevation of 16.2. Therefore, dam has 1 more foot of height for wave protection.

Water Permit Application #1708-1 Wayne Bessler

Top of Dam Elev. - 100
Spillway Elev. - 97
D/S Toe Elev. - 84

Ht. = 16 ft.

Cat. 3 - Low Hazard Dam

Existing silted in dam being
Raised 8 ft & new spillway

Normal Storage Capacity = 104 Ac.-ft.
Max Storage Capacity = 204 Ac.-ft.

Max. Capacity x Ht. = 204 x 16 = 3264 > 3000 $\therefore$ 50 year
Min. Spillway Design

From USGS WRI 80-80 "Tech. for Est Flood Peaks ... in SD"

DA = 0.49 mi.²
Slope = 300 ft/mi.
Si = 2.50

$$Q_{50} = 106 A^{.63} S^{.45} S_i^{-.69}$$

$$= 106 (.49)^{.63} (300)^{.45} (2.50)^{-.69}$$

$$= 106 (0.638) (13.02) (0.53)$$

$$= \underline{467 \text{ cfs}}$$

$$Q_{100} = 132 A^{.65} S^{.46} S_i^{-.67}$$

$$= 132 (.49)^{.65} (300)^{.46} (2.50)^{-.67}$$

$$= 132 (0.629) (13.79) (0.54)$$

$$= \underline{618 \text{ cfs}}$$

Spillway Flow

$$Q = C L H^{3/2}$$

$$= 2.6 (60)^{1.5} C = 2.6$$

$$= 810 \text{ cfs} \quad H = 3$$

Section 74:02:08:09

1. Topo Map - OK
2. Dam Axis Profile - N/A - OK
3. Dam X-Sec. - OK
4. Area - Capacity - OK
5. Outlet Details - N/A - OK
6. Rating Curve - OK
7. Spillway Details - OK
8. Specs - std NRCS - OK
9. EPP - N/A Cat 3 - OK

NRCS Annual Yield

DA = 313 Ac, CN = 80, ISO = 2.0

$$80\% \text{ chance} = 0.26$$

$$0.26 \times 3^{1/2} = \underline{7 \text{ Ac.-Ft}}$$

$$50\% \text{ chance} = 0.64$$

$$0.64 \times 3^{1/2} = \underline{17 \text{ Ac.-Ft.}}$$

$$10\% \text{ chance} = 2.50$$

$$2.50 \times 3^{1/2} = \underline{65 \text{ Ac.-Ft.}}$$



December 8, 1999

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

US Fish & Wildlife Service
ATTN: Sandy
PO Box 247
Brookings SD 57006

Dear Sandy:

In reference to my phone call, enclosed is an invoice for the **Wayne Besler** water permit application. This application requests storage of 104 acre-feet of water located in the NE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 12-T15N-R12E, Perkins County.

If you have any questions, please contact me.

Sincerely,

Karen Schlaak

Karen Schlaak
Water Rights Program
605 773-3352

enclosure



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

*** INVOICE ***

Invoice No. 2020-8-12/09/99

US Fish & Wildlife Service
P.O. Box 247
Brookings, SD 57006

RE: Water Permit Application for Wayne Besler, Bison, SD

Application Fee:	\$150.00
License Fee:	<u>\$ 50.00</u>

PLEASE PAY THIS AMOUNT:

\$200.00

Karen Schlaak

Karen Schlaak
Environmental Scientist
Water Rights Program
(605) 773-3352

Tim,

Find attached the
additional information
you requested for the
Wayne Bestler water right
application in Perkins Co.

Let me know if I
can be of further help.

Thank you.



Bruce Schoonover
605/642-7730



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

February 15, 2000

Wayne Besler
14281 Bixby Road
Bison, SD 57620

Dear Mr. Besler:

We have reviewed the plans and specifications for your dam restoration project located in the NW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 12-T16N-R12E, in Perkins County. The plans and specifications as submitted are approved. Approval of the plans and specifications does not authorize restoration of the dam. The restoration may not begin until Water Permit Application No. 1708-1 is approved.

Our review was to determine compliance with the requirements of the Water Management Board Safety of Dams Rules, Chapter 74:02:08. Approval of these plans and specifications does not release you, as owner of the dam, from the responsibility for operating and maintaining the dam in good repair to ensure the safety of the dam.

The Besler Dam will be classified as a small size Category 3, Low Hazard dam with a dam height of 16 feet and a normal storage capacity of 104 acre-feet and a maximum storage capacity of 204 acre-feet.

If you have any questions, please feel free to contact us.

Sincerely,

Gale N. Selken, P.E.
Natural Resources Engineer IV
for Garland Erbele, Chief Engineer
Water Rights Program
(605) 773-3352

c: Tom Ver Helst, NRCS, Belle Fourche
Bruce Schoonover, USFWS, Spearfish



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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PIERRE, SOUTH DAKOTA 57501-3181
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NOTE: TO BE SURE OF PUBLICATION ON
THE CORRECT DATES, CONTACT
THE NEWSPAPER RIGHT AWAY.

February 15, 2000

Wayne Besler
14281 Bixby Rd.
Bison, SD 57620

Dear Mr. Besler:

Water Permit Application No. 1708-1 for fish and wildlife propagation, and livestock watering has been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice of hearing has been sent to the Publisher of the Bison Courier printed at Bison, SD (Ph # (605) 244-7199). For your information, a copy of the notice, the recommendation of the Chief Engineer and a report on the application are enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

Be sure to contact the above newspaper to authorize publication of your Notice of Hearing and to arrange for payment. Early contact with the paper can eliminate delays. The publisher has been instructed to publish your notice once each week for two consecutive weeks with the last publication to occur twenty days before the board meeting. The newspaper has been instructed to send us the Proof of Publication. We must receive Proof of Publication before action can be taken on the application.

Sincerely,

Eric Gronlund
Natural Resources Engineer
(605) 773-3352

enclosures

NOTE: If you plan to contest any part of the Chief Engineer's recommendation, you must file a petition pursuant to the procedures outlined in the attached notice of hearing. The Water Management Board will then consider your concerns during a hearing on the application.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

February 15, 2000

The Bison Courier
Box 429
Bison, SD 57620-0429

ATTENTION: Legal Public Notice

Enclosed is a Notice of Hearing on Application No. 1708-1 to Appropriate Water to be published twice. Please publish the first notice on February 24, 2000, with the second publication 7 days later.

The applicant must verify to you that the notice is to be published, before you make the first publication. **Please BILL the APPLICANT for the cost of publication.** The APPLICANT is Wayne Besler, 14281 Bixby Rd., Bison, SD 57620 (Ph # (605) 244-5507).

Please send the Water Rights Program the first publication immediately. The publication is checked for accuracy so any corrections can be made in the second publication. You may use the form below or fax a copy of the first publication. Any fax should be sent to the attention of Karen Schlaak at (605) 773-4068. Publication errors can invalidate the public notice.

After the second publication, **please send us an affidavit or use the enclosed Proof of Publication form.** The applicant pays the cost of publication, but the Water Rights Program records require an affidavit or Proof of Publication. Delays in receiving the affidavit can be costly to the applicant.

Sincerely,

Eric Gronlund
Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

-----CU T HERE-----

No. 1708-1

TO: Eric Gronlund
Water Rights Program
Joe Foss Building
Pierre SD 57501-3181

Date _____

We are in receipt of your letter of February 15, 2000, enclosing Notice of Hearing to Appropriate Water by Application No. 1708-1 which was first published in our issue of _____. **ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.**

Name

Newspaper

Instruction to Newspaper - Publish first Notice on February 24, 2000, with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF APPLICATION NO. 1708-1 to Appropriate Water

Notice is given that Wayne Besler, 14281 Bixby Road, Bison, SD 57260 has filed an application for a water permit to impound 104 acre-feet of water from runoff by restoring a dam located in the NW 1/4 NE 1/4 Section 12 with water impounded in the N 1/2 NE 1/4, SW 1/4 NE 1/4, NE 1/4 NW 1/4 Section 12; all in T16N-R12E. This application requests impoundment of sufficient water to maintain water at the outlet elevation and is to be used to provide habitat for fish and wildlife propagation and livestock water.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 1708-1 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. In accordance with SDCL 46-2A-23, the Chief Engineer will act on the application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the Chief Engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider the application. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by March 13, 2000.

The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. Contact Eric Gronlund at the above Water Rights Program address to request copies of information pertaining to this application. Nettie H. Myers, Secretary, Department of Environment and Natural Resources.

PUBLISHER'S AFFIDAVIT OF PUBLICATION

STATE OF SOUTH DAKOTA

SS

COUNTY OF PERKINS

Marsha Veal, of said County and State, being duly sworn, on oath says: THE BISON COURIER is a weekly newspaper of general circulation, printed and published in Bison, in said County and State and has been such newspaper during the times hereinafter mentioned; that the said BISON COURIER is a legal newspaper and has been in existence for more than one year immediately preceding the first publication herein mentioned; and has more than 200 bonafide subscribers; that I, the undersigned, am Office Manager, of said newspaper, and in charge of the advertising department thereof, and have personal knowledge of all facts stated in this affidavit; and that the advertisement headed

Notice of Application
No. 1708-1
to Appropriate Water

a printed copy of which is hereto attached, was printed and published in said newspaper for 2 successive issues, the first publication being on the 24 day of Feb., 20 00 and the last publication on the 2 day of March, 20 00 that \$ 36.97 being the full amount of the fee for publication of the annexed notice insures solely to the benefit of the publishers of the said newspaper; that no arrangement or understanding for a division thereof has been made with any person and that no part thereof has been agreed to be paid to any other person whomsoever.

Marsha Veal

Subscribed and sworn to before me this 24 day of March 20 00

Lynnda Peck

Notary Public, Perkins County

My commission expires:

7-18-2002

NOTICE OF APPLICATION NO. 1708-1

to Appropriate Water

Notice is given that Wayne Besler, 14281 Bixby Road, Bison, SD 57620 has filed an application for a water permit to impound 104 acre-feet of water from runoff by restoring a dam located in the NW1/4NE1/4 Section 12 with water impounded in the N1/2NE1/4, SW1/4NE1/4, NE1/4NW1/4 Section 12; all in T16N-R12E. This application requests impoundment of sufficient water to maintain water at the outlet elevation and is to be used to provide habitat for fish and wildlife propagation and livestock water.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 1708-1 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. In accordance with SDCL 46-2A-23, the Chief Engineer will act on the application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the Chief Engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider the application. Notice of the hearing will be given to the applicant and any person filing a petition.

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The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. Contact Eric Gronlund at the above Water Rights Program address to request copies of information pertaining to this application. Nettie H. Myers, Secretary, Department of Environment and Natural Resources.





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

APR 10 2000

Wayne Besler
14281 Bixby Rd.
Bison, SD 57620

Dear Mr. Besler:

Enclosed is Water Permit No. 1708-1 authorizing construction of your water diversion system and beneficial use of the water, not exceeding the limits as specified in the Water Permit.

Form 10, *Notice of Completion of Works and Application of Water to Beneficial Use*, is enclosed. Please return this completed form after you have finished the system and have put the water to beneficial use. An investigation can then be scheduled so the water license may be issued, thus completing the acquisition of a water right.

An informational sheet *Common Water Right Questions?* is also enclosed. This sheet is intended to answer some of the questions associated with obtaining and keeping a water right.

Sincerely,

Garland Erbele, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures

Permit No. 1708-1
Moreau River - Water District

Report Of Examination Of Works And/Or Application of Water To Beneficial Use

TO: Chief Engineer, Water Rights Program, DENR, Foss Bldg., Pierre, SD 57501

I have this day, **November 19, 2003**, made a thorough examination of the water use system constructed by **Wayne Besler** of **14281 Bixby Road** holder of Permit No. **1708-1**, bearing the priority of **December 2, 1999** authorizing the storage of **104** acre-feet of the waters of **runoff** for **fish & wildlife propagation and livestock water** purposes, in **Perkins** County.

I have to report on the conditions of the same as follows:

A. Works used to divert the water:

A 16 foot high reconstructed earthen dam with a normal storage capacity of 104 acre-feet

B. Works used to transport water to place of use:

N/A

C. Works used to apply water to beneficial use:

A 16 foot high reconstructed earthen dam with a normal storage capacity of 104 acre-feet

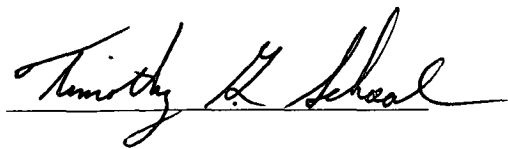
The system is in the following condition **good**. The point of diversion is located **200 feet south & 1700 feet west of the NE corner of Sec. 12-T16N-R12E (NW ¼ NE ¼) (45.37167, -102.596654)**. The works are capable of storing **104** acre-feet of water which is to be used for **fish & wildlife propagation and livestock water**. Water has been put to beneficial use to the maximum extent as follows:

A 16 foot high reconstructed earthen dam with a normal storage capacity of 104 acre-feet

and the license should be issued for **104** acre-feet of storage.

Applicable permit qualifications have been complied with: Yes **X**

Exceptions to compliance are: **none** Date Report Completed: **February 17, 2004**



Timothy G. Schaal, P.E.
Natural Resources Engineer Specialist
DENR, Water Rights Program

REPORT ON INSPECTION OF PERMIT NO. 1708-1

DATE OF INSPECTION: November 19, 2003

NAME & ADDRESS OF INSPECTION CONTACT/ Brad Besler

RELATIONSHIP TO PERMIT HOLDER, IF APPLICABLE: son

NAME & ADDRESS OF PERMIT HOLDER: Wayne Besler, 14281 Bixby Road, Bison, SD 57620

DIVERSION POINT LEGAL LOCATION: 200 feet south and 1700 feet west of the NE corner of Sec. 12-T16N-R12E (NW ¼ NE ¼) (45.37167, -102.596654).

DAM INFORMATION:

- 1) Height to crest 16 feet
- 2) Height to primary spillway 13 feet
- 3) Height to secondary spillway N/A feet
- 4) Crest width 12 feet
- 5) Crest length 582 feet
- 6) Spillway length XXX feet
- 7) Spillway width 60 feet
- 8) Approx. storage (Normal) 104 acre-feet
- 9) Approx. storage (Maximum) 204 acre-feet
- 10) Date constructed: Fall 2000

PERMIT QUALIFICATIONS AND REGULATIONS:

- 1) Soil and water permit lands agree with lands being irrigated and lands listed on permit N/A
- 2) Special qualifications to permit being abided by yes
- 3) All structures, wells and lands on map yes
- 4) Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period N/A

A topographic map of Section 12-T16N-R12E. The map features a grid with a central square labeled "Center of Sec. 12-T16N-R12E". A blue-shaded area is located in the upper right quadrant of the grid. A north arrow is positioned in the upper left quadrant. A scale bar at the bottom indicates distances of 0, 0.25, 0.5, and 1 mile. Contour lines are visible throughout the map, and a "Rabbit" label is present on the right side.



Timothy G. Schaal, P.E. 2/17/04
Natural Resources Engineer Specialist
DENR, Water Rights Program

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 1708-1

(1) Wayne Besler, 14281 Bixby Road, Bison SD 57620 made Application No. 1708-1, December 2, 1999 for a water permit to impound 104 acre feet of water from runoff, Perkins County, South Dakota for fish and wildlife propagation and livestock watering purposes. Permit No. 1708-1, with a priority date of December 2, 1999 was approved March 13, 2000 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before March 13, 2005 and for the application to beneficial use of water on or before March 13, 2009.

(2) The water supply system has been completed and water applied to beneficial use in accordance with South Dakota State Law. Pursuant to South Dakota Codified Law 46-5-30.1, the holder and/or owner of Water Right No. 1708-1 is issued a license, bearing a priority date of December 2, 1999, to impound 104 acre feet of water.

The location of the storage dam (spillway) is 200 feet south and 1,700 feet west of the northeast corner of Section 12-T16N-R12E (NW ¼ NE ¼).

(3) This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Permit No. 1708-1, including the following now applicable qualifications:

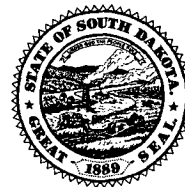
- Water Permit No. 1708-1 authorizes a dam with storage capacity of 104 acre feet of water and sufficient water annually to maintain the water level to the outlet elevation.
- Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.

Garland Erbele

Garland Erbele, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

APR 23 2004

date





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

APR 23 2004

1708-1
1749-1
1720-1
1721-1

Wayne Besler
14281 Bixby Rd
Bison SD 57620

Dear Mr. Besler:

Enclosed are Water License Nos. 1708-1, 1749-1, 1720-1 & 1721-1. This is the final water right document completing your process of obtaining a Water Right.

As long as you use the water beneficially, as stated in the Water License, State Water Laws provide that you have a continuing right to use the water.

Sincerely,

Garland Erbele, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures