

Department of Environment and Natural Resources  
Minerals and Mining Program  
Joe Foss Building  
523 East Capitol Avenue  
Pierre, South Dakota 57501-3182  
Telephone: (605) 773-4201 Fax: (605) 773-5286

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MAR 05 2014

MINERALS & MINING PROGRAM

APPLICATION FOR  
SMALL SCALE MINING PERMIT

Pursuant to SDCL 45-6B:  
Relating to Mineral Extraction in  
Operations Affecting Less Than  
10 Acres Per Year & Removing  
Less Than 25,000 Tons Per Year

Operator's Name: American Colloid Company

Mailing address:

P.O. Box 2010  
Belle Fourche, SD 57717

Telephone:

(605) 892-7150

Name and address of surface owner: (Enter additional owners on last page)

Sharon Kudlock and Kenneth N. Kudlock Family  
Trust  
11052 Kudlock Lane  
Belle Fourche, SD 57717

Legal description of affected land:

Portions of Sec 12, T9N R1E  
Portions of Sec 7 and Sec 18, T9N R2E

County: Butte

Minerals to be mined:

NA - Equipment transport road

Size of affected land (acres):

6

Estimated acres disturbed per year:

6

Estimated tonnage mined per year: 0

Estimated tons of ore per year: 0

Overburden/waste tons per year: 0

Physical address:

2870 Forbes Avenue  
Hoffman Estates, IL 60192

Telephone:

(800) 426-1275

Fax:

(847) 851-1275

Name and address of mineral owner: (Enter additional owners on last page)

Bob Shear  
17819 Prairie Winds Lane  
Belle Fourche, SD 57717

Name and address of operator's resident agent (if operator is an out-of-state corporation):

Proposed starting date:

Upon permit approval

Proposed completion date:

April 2014

Estimated working days per year:

Road use will be limited and occasional

Estimated duration of operation (years): 15

Reclamation type:

Rangeland for livestock grazing



RECORDED

**INSTRUCTIONS** (Reference SDCL 45-6B)

This application must be accompanied by:

1. A narrative description of the type of mining operation proposed and how it will be conducted pursuant to Section 54 (7). This should include a description of the initial work to develop the operation and a description of the workings during the operation.
2. A narrative description of the measures to be taken to comply with the operating and reclamation requirements of SDCL 45-6B-37 through 45-6B-46 pursuant to Section 54 (9).
3. A map showing information sufficient to locate the affected land, including existing and proposed roads or access routes to be used in connection with the mining pursuant to Section 54 (5).
4. A wildlife survey pursuant to Section 54 (8).
5. A fee of \$100.00 pursuant to Section 55.
6. A list of the names and addresses of the land-owners of the affected land.

Before a hearing on the permit may be conducted by the SD Board of Minerals and Environment, the applicant must submit the following materials:

1. Certified mail receipts confirming mailing of notice to all surface owners and lessees pursuant to Section 17.
2. A copy of the affidavit of publication of notice pursuant to Section 16.
3. Proof of filing a copy of the application with the Register of Deeds pursuant to Section 15.
4. A surety in an amount to be determined by the department pursuant to Section 20 and 55.
5. A copy of instruments of consultation from all surface landowners, if different than the owner of the minerals, including written receipt of the operating and reclamation plans pursuant to Section 12 and 13.

STATE OF South Dakota

COUNTY OF Butte

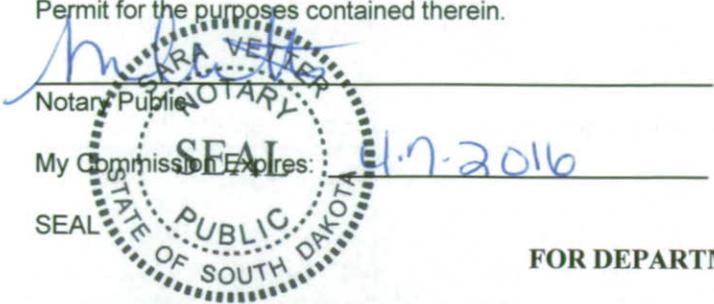
On this 4 day of March

2014, before me personally appeared Lyndon Bucher who

acknowledged himself to be the Environmental Spvr. (Title)

for American Colloid Comp. and that (Operator)

he is authorized to execute the Application for Small Scale Mining Permit for the purposes contained therein.



Applicant hereby affirms that the mining will be conducted pursuant to SDCL 45-6B, or any regulations promulgated thereunder; that he will grant access to the Board of Minerals and Environment or its agents to the area under application from the date of the application and during the life of the permit as is necessary to assure compliance with SDCL 45-6B.

*I declare and affirm under the penalties of perjury that this claim (petition, application, information) has been examined by me, and to the best of my knowledge and belief, is in all things true and correct.*

Lyndon Bucher  
Signature

Environmental Spvr  
Title

3/4/14  
Date

**FOR DEPARTMENT USE ONLY**

DATE APPROVED:      BOND AMOUNT:      PERMIT NUMBER:

\_\_\_\_\_  
Chairman, SD Board of Minerals & Environment

Enter additional surface and mineral owners

Name and address of surface owner:

Steve and Renee McAmis  
P.O. Box 754  
Belle Fourche, SD 57717

Name and address of mineral owner:

Sharon Kudlock  
11052 Kudlock Lane  
Belle Fourche, SD 57717

Kristin Carrico  
1014 Kingsbury St.  
Belle Fourche, SD 57717

Department of Environment and Natural Resources  
Minerals and Mining Program  
523 East Capitol Avenue  
Pierre, SD 57501-3182  
Telephone: (605) 773-4201 Fax: (605) 773-5286

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STATE OF SOUTH DAKOTA  
BEFORE THE SECRETARY OF  
THE DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

IN THE MATTER OF THE )  
APPLICATION OF Small Scale Mine Permit )

CERTIFICATION OF  
APPLICANT

STATE OF South Dakota )  
COUNTY OF Butte ) SS

I, Lyndon Bucher, the applicant in the above matter after being duly sworn upon oath hereby certify the following information in regard to this application:

South Dakota Codified Laws Section 1-40-27 provides:

*"The secretary may reject an application for any permit filed pursuant to Titles 34A or 45, including any application by any concentrated swine feeding operation for authorization to operate under a general permit, upon making a specific finding that:*

*(1) The applicant is unsuited or unqualified to perform the obligations of a permit holder based upon a finding that the applicant, any officer, director, partner, or resident general manager of the facility for which application has been made:*

- (a) Has intentionally misrepresented a material fact in applying for a permit;*
- (b) Has been convicted of a felony or other crime of moral turpitude;*
- (c) Has habitually and intentionally violated environmental laws of any state or the United States which have caused significant and material environmental damage;*
- (d) Has had any permit revoked under the environmental laws of any state or the United States;*
- (e) Has otherwise demonstrated through clear and convincing evidence of previous actions that the applicant lacks the necessary good character and competency to reliably carry out the obligations imposed by law upon the permit holder; or*

*(2) The application substantially duplicates an application by the same applicant denied within the past five years which denial has not been reversed by a court of competent jurisdiction. Nothing in this subdivision may be construed to prohibit an applicant from submitting a new application for a permit previously denied, if the new application represents a good faith attempt by the applicant to correct the deficiencies that served as the basis for the denial in the original application.*



All applications filed pursuant to Titles 34A and 45 shall include a certification, sworn to under oath and signed by the applicant, that he is not disqualified by reason of this section from obtaining a permit. In the absence of evidence to the contrary, that certification shall constitute a prima facie showing of the suitability and qualification of the applicant. If at any point in the application review recommendation, or hearing process, the secretary finds the applicant has intentionally made any material misrepresentation of fact in regard to this certification, consideration of the application may be suspended and the application may be rejected as provided for under this section.

Applications rejected pursuant to this section constitute final agency action upon that application and may be appealed to circuit court as provided for under chapter 1-26."

Pursuant to SDCL 1-40-27, I certify that I have read the forgoing provision of state law, and that I am not disqualified by reason of that provision from obtaining the permit for which application has been made.

I declare and affirm under the penalties of perjury that this claim (petition, application, information) has been examined by me, and to the best of my knowledge and belief, is in all things true and correct.

Dated this 4 day of March, 2014.

[Signature]  
Applicant

Subscribed and sworn before me this 4 day of March, 2014.

[Signature]  
Notary Public

My commission expires: 4.7.2016



**PLEASE ATTACH SHEET DISCLOSING ALL FACTS PERTAINING TO  
SDCL 1-40-27 (1)(a) THROUGH (e).  
ALL VIOLATIONS MUST BE DISCLOSED, BUT WILL NOT  
AUTOMATICALLY RESULT IN THE REJECTION OF AN APPLICATION.**



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## **American Colloid Company**

P.O. Box 2010

Belle Fourche, SD 57717

Phone: 605-892-6950

Fax: 605-892-3178

# **Kudlock/McAmis Small Scale Mining Permit for access road**

Portions of Section 12 T.9N R.1E

Portions of Sections 7, 18 12 T.9N R.2E

Butte County, South Dakota

February, 2014

Approval Date \_\_\_\_\_

## KUDLOCK-MCAMIS SMALL SCALE MINING PERMIT

### MINING AND RECLEMATION PLAN

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**I. Consent & Easement Forms**



AMERICAN COLLOID COMPANY

Permitting & Reclamation Department  
P.O. Box 2010 • Belle Fourche, South Dakota 57717  
(605) 892.6950 • Fax (605) 892.3178

February 11, 2014

Bureau of Land Management  
South Dakota Field Office  
310 Roundup Street  
Belle Fourche, SD 57717-1698

Attention: Marian Atkins

Re: Adjacent landowner consultation

The South Dakota Department of Environment & Natural Resources will be reviewing the application for small scale mining permit for access road on the Kudlock and McAmis lands in portions Sec 12, T9N, R1E and Sec 18, T9N, R2E, Butte County.

The State requires that we advise adjoining surface landowners of our plans and supply them with a copy of the proposed Mining and Reclamation Plan. Enclosed is the Kudlock-McAmis plan for your files. Also included is a topographical map showing the permit area.

Please call me at 892-7160 or email me at [nick.semenza@coloid.com](mailto:nick.semenza@coloid.com) if you have any questions.

Sincerely,

Nick Semenza  
Environmental Specialist

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**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:  
 BUREAU OF LAND MANAGEMENT  
 SOUTH DAKOTA FIELD OFFICE  
 310 ROUNDUP ST  
 BELLE FOURCHE, SD 57717

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature  
 X *[Handwritten Signature]*  Agent  Addressee

B. Received by (Printed Name) *[Handwritten Name]* C. Date of Delivery *[Handwritten Date]*

D. Is delivery address different from item 1?  Yes  
 If YES, enter delivery address below:  No

3. Service Type  
 Certified Mail  Express Mail  
 Registered  Return Receipt for Merchandise  
 Insured Mail  C.O.D.

4. Restricted Delivery? (Extra Fee)  Yes

2. Article Number  
 (Transfer from service label) **7011 1570 0002 9148 8026**

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**BUTTE COUNTY  
DIRECTOR OF EQUALIZATION & PLANNING  
BUTTE COUNTY COURT HOUSE**

Mailing Address  
839 5<sup>th</sup> Avenue  
Belle Fourche, SD 57717

LETTER DATED WRONG.  
LETTER SENT 1/3/2014  
SEE POSTMARKED  
ENVELOPE

*MJD 3/3/2014*

Phone (605) 892-3950  
Fax (605) 892-0240  
Email: polly@buttesd.org

March 22, 2013

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American Colloid Company  
Permitting & Reclamation Department  
Nick Seimenza  
Po Box 2010  
Belle Fourche, SD 57717

Nick,

Thank you for your letter Dated December 19, 2013 regarding permitting in Butte County, SD

Currently there isn't any Zoning or permitting requirements pertaining to the construction and operation of the proposed road; located approximately 3 miles west of Belle Fourche and ½ mile north of US Highway 212. Legal description of NE4SW4 SEC 12, T09N, R01E ; SE4SW4SEC12, T09N, R01E; SW4SE4 SEC 12, T09N, R01E; SE4SE4 SEC12, T09N, R01E; SW4SW4 SEC07, T09N, R02E; NW4NW4 SEC18, T09N, R02E. I have also contacted the Butte County Highway Superintendent Don Adams and he is not aware of anything further that you would need to do, pertaining to County Ordinances.

If you have any further questions please give me a call at 605-892-3950

Thank you,



Polly Odle, CAA  
Director  
Butte County Equalization/Planning

DIRECTOR OF EQUALIZATION  
839 5th Avenue  
BELLE FOURCHE, SD 57717



American Colloid Company  
Permitting & Reclamation Dept  
Nick Seimenza  
PO Box 2010  
Belle Fourche, SD 57717

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5771705010





AMERICAN COLLOID COMPANY

Permitting & Reclamation Department  
P.O. Box 2010 • Belle Fourche, South Dakota 57717  
(605) 892.6950 • Fax (605) 892.3178

December 19, 2013

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Polly Odle  
Planning Director  
Butte County Planning Department  
839 5th Ave.  
Belle Fourche, SD 57717

RE: Zoning ordinance requirements a for Small Scale Mine Permit access road in Butte County

Ms. Odle:

American Colloid is in the process of applying for a Small Scale Mining Permit, the Kudlock-McAmis Small Scale Mining Permit for access road, to construct 1.1 mile long, 35-foot wide, access road, located on private property, for moving equipment between two adjacent mine permit areas. The road will be used for hauling equipment only and will not be used for hauling bentonite. The road may be used for up to 15 years after which it will be reclaimed as rangeland.

The proposed road is approximately 3 miles west of Belle Fourche and ½ mile north of U.S. Highway 212. The legal description of the land is portions of the following:

NE ¼ SW ¼ Sec12, T09N, R01E  
SE ¼ SW ¼ Sec12, T09N, R01E  
SW ¼ SE ¼ Sec12, T09N, R01E

SE ¼ SE ¼ Sec12, T09N, R01E  
SW ¼ SW ¼ Sec07, T09N, R02E  
NW ¼ NW ¼ Sec18, T09N, R02E

As per South Dakota Administrative rule 74:29:02:02 pertaining to local zoning requirements, are there any ordinances or requirements in Butte County pertaining to the construction and operation of the described road? Please respond in writing so we that have a record in our mine permit package.

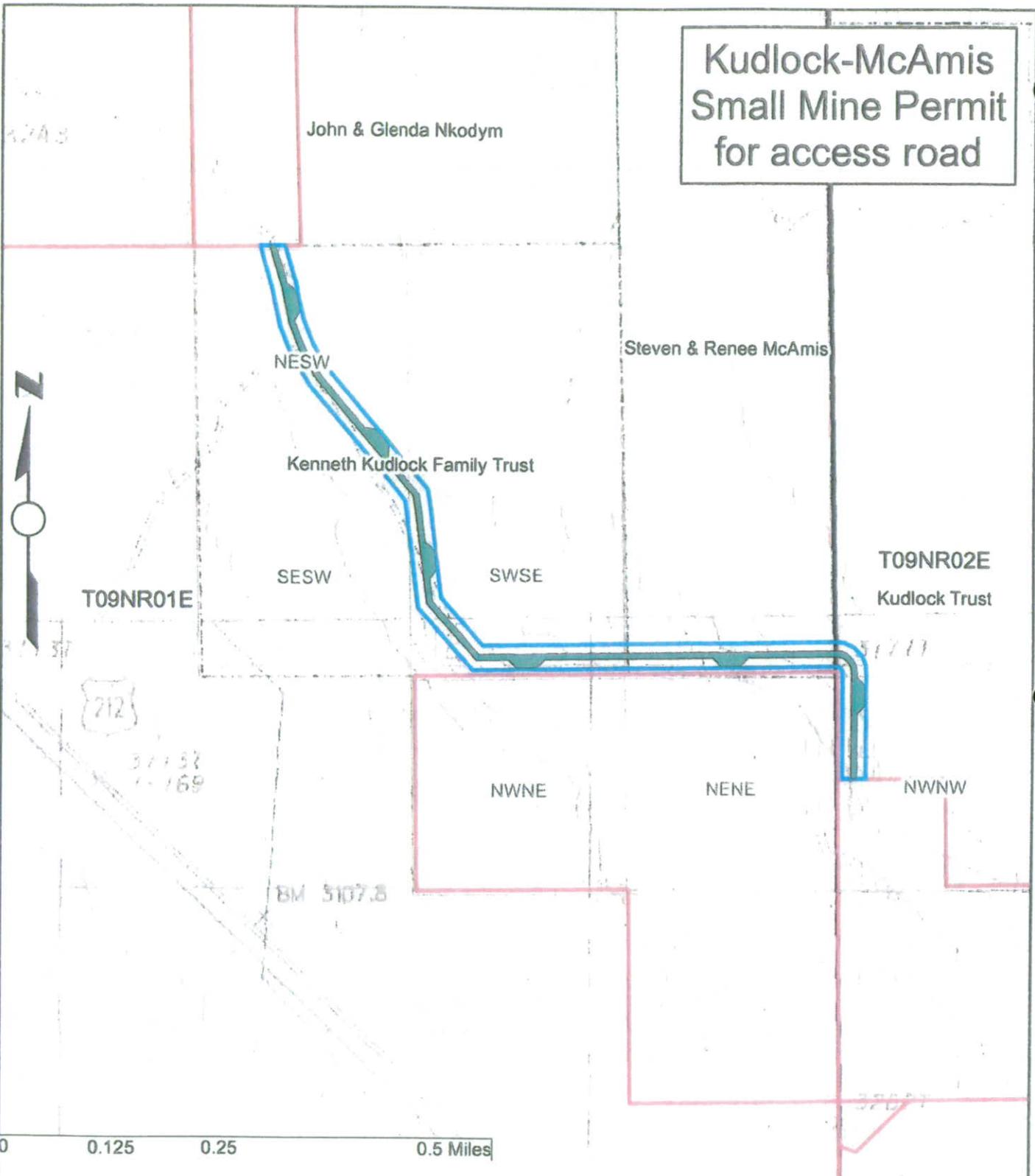
Thank you for your assistance in this matter.

Cordially,

  
Nick Semenza  
Environmental Specialist

Enclosures: 1 map

# Kudlock-McAmis Small Mine Permit for access road



**Legend**

- Quarters selection
- Proposed Small Scale Mining Permit boundary for access road = 20.6 acres
- Proposed disturbance at access road (35' width) = 6.0 acres
- Permit Boundaries
- Affected land owners
- Township

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United States Department of Agriculture



Natural Resources Conservation Service  
1837 5<sup>th</sup> Ave S  
Belle Fourche, SD 57717

*Helping People  
Help the Land*

Phone: (605) 892-3368, Ext. 3  
Fax: 855-254-6028

December 31, 2013

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Dear Nick:

I have reviewed and approve the seeding mix to be used on the reclamation for the Kudlock-McAmis ground.

Please contact me at (605) 892-3368, Ext. 3 if you need further clarification on this matter.

Thank you.

Sincerely,

A handwritten signature in blue ink that reads "Sarah Eggebo".

Sarah Eggebo  
District Conservationist  
Belle Fourche Field Office

December 20, 2013

Sarah L. Eggebo  
District Conservationist  
USDA-NRCS  
1837 5<sup>th</sup> Avenue  
Belle Fourche, SD 57717



AMERICAN COLLOID COMPANY

Permitting & Reclamation Department  
P O. Box 2010 • Belle Fourche, South Dakota 57717  
(605) 892.6950 • Fax (605) 892.3178

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RE: Kudlock-McAmis Small Scale Mining Permit for access road

Ms. Eggebo:

American Colloid is in the process of applying for a Small Scale Mining Permit, the Kudlock-McAmis Small Scale Mining Permit for access road, to construct 1.1 mile long, 35-foot wide, access road, located on the Kudlock and McAmis lands northwest of Belle Fourche. As part of the process, DENR requires that we consult with your office regarding the proposed seed mix to be used during reclamation and the weed control plan

The seed mix that we propose to use would be same as used on the adjacent Kudlock and Shear/Clarkson East permit areas where post-operation land use is for livestock grazing:

<u>Species</u>	<u>Lbs. Pure Live Seed/Acre</u>
Pubescent wheatgrass	5.0
Western wheatgrass	4.0
Slender wheatgrass	2.0
Streambank wheatgrass	2.0
Green needlegrass	2.0
Yellow sweetclover	0.5
Cicer milkvetch	0.5
Winter wheat nurse crop	10.0

As far as the weed control plan, we follow the Guidelines for Noxious Weed Control as published by the Cooperative Extension Service (see enclosed copy). ACC performs our own weed spraying in South Dakota.

Consultation can be in the form of a letter stating that you reviewed and approved the seed mix along with the weed control plan. Enclosed is our self-addressed, postage paid envelope.

Please call me at (605)892-7160 if you have any questions. Thank you.

Cordially,

Nick Semenza  
Environmental Specialist

Enclosures: Noxious Weed Controls 2011

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### SURFACE OWNER CONSENT FORM

Sharon Kudlock and the Kenneth N. Kudlock Family Trust hold the surface rights to the following lands where American Colloid Company (ACC) will be applying for a Small Scale Mining Permit for an access road with the State of South Dakota:

Township 9 North, Range 1 East

Section 12:

SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>

NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>

NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>

Township 9 North, Range 2 East

Section 7:

SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>

Section 18:

W<sup>1</sup>/<sub>2</sub>W<sup>1</sup>/<sub>2</sub>NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>

\*35' wide corridor passing through the above lands

located in Butte County, South Dakota

We have received the reclamation plan, including the proposed seed mix, which has been recommended by the local NRCS office <sup>for use on</sup> ACC mine sites. We hereby approve of the said plan and seed mix and the post-operation land use which will be rangeland for livestock grazing.

Dated this 11<sup>th</sup> day of February, 2014.

Sharon Kudlock  
Sharon Kudlock  
Surface Owner

Kenneth N. Kudlock Family Trust  
for Kenneth N. Kudlock Family Trust  
Sharon Kudlock, Trustee  
By: Sharon Kudlock, Trustee

SURFACE OWNER CONSENT FORM

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Steven and Renee McAmis hold the surface rights to the following lands where American Colloid Company (ACC) will be applying for a Small Scale Mining Permit for an access road with the State of South Dakota:

Township 9 North, Range 1 East

Section 12:

S $\frac{1}{2}$ S $\frac{1}{2}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$

\*35' wide corridor passing through the above lands

located in Butte County, South Dakota

We have received the reclamation plan, including the proposed seed mix, which has been recommended by the local NRCS office on ACC mine sites. We hereby approve of the said plan and seed mix and the post-operation land use which will be rangeland for livestock grazing.

Dated this 3 day of Feb., 2014.



Steve McAmis



Renee McAmis



AMERICAN COLLOID COMPANY

Permitting & Reclamation Department  
P.O. Box 2010 • Belle Fourche, South  
Dakota 57717  
(605) 892.6950 • Fax (605) 892.3178

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Sharon Kudlock  
243 Oak Ridge Rd  
Spearfish, SD 57783

RE: Operation/reclamation plan and seed mix for the Kudlock-McAmis Small Scale Mining Permit for access road

Dear Ms. Kudlock:

American Colloid is in the process of applying for a Small Scale Mining Permit identified as the Kudlock-McAmis Small Scale Mining Permit for access road. The project consists of constructing a 1.1 mile long, 35-foot wide, access road, located on the Kudlock and McAmis lands northwest of Belle Fourche. As part of the process, the South Dakota Department of Environment and Natural Resources requires that we consult land owners regarding the operation/reclamation plan and proposed seed mix to be used during reclamation.

The seed mix that we propose to use had been approved by the NRCS and would be the same as on the seed mix on the adjoining Kudlock and Shear/Clarkson East mine permit areas where post-operation land use is for livestock grazing:

<u>Species</u>	<u>Lbs. Pure Live Seed/Acre</u>
Pubescent wheatgrass	5.0
Western wheatgrass	4.0
Slender wheatgrass	2.0
Streambank wheatgrass	2.0
Green needlegrass	2.0
Yellow sweetclover	0.5
Cicer milkvetch	0.5
Winter wheat nurse crop	10.0

If you approve of the operation/reclamation plan and seed mix listed above, please sign and date the enclosed agreement and return in the self-addressed, postage paid envelope.

Please call me at (605) 892-7160 if you have any questions. Thank you.

Cordially,

Nick Semenza  
Environmental Specialist

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P.O. Box 2010 • Belle Fourche, South  
Dakota 57717  
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Steven and Renee McAmis  
P.O. Box 754  
Belle Fourche, SD 57717

RE: Operation/reclamation plan and seed mix for the Kudlock-McAmis Small Scale Mining Permit for access road

Dear Mr. and Mrs. McAmis:

American Colloid is in the process of applying for a Small Scale Mining Permit identified as the Kudlock-McAmis Small Scale Mining Permit for access road. The project consists of constructing a 1.1 mile long, 35-foot wide, access road, located on the Kudlock and McAmis lands northwest of Belle Fourche. As part of the process, the South Dakota Department of Environment and Natural Resources requires that we consult land owners regarding the operation/reclamation plan and proposed seed mix to be used during reclamation.

The seed mix that we propose to use had been approved by the NRCS and would be the same as on the seed mix on the adjoining Kudlock and Shear/Clarkson East mine permit areas where post-operation land use is for livestock grazing:

<u>Species</u>	<u>Lbs. Pure Live Seed/Acre</u>
Pubescent wheatgrass	5.0
Western wheatgrass	4.0
Slender wheatgrass	2.0
Streambank wheatgrass	2.0
Green needlegrass	2.0
Yellow sweetclover	0.5
Cicer milkvetch	0.5
Winter wheat nurse crop	10.0

If you approve of the operation/reclamation plan and seed mix listed above, please sign and date the enclosed agreement and return in the self-addressed, postage paid envelope.

Please call me at (605) 892-7160 if you have any questions. Thank you.

Cordially,

Nick Semenza  
Environmental Specialist



**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

PMB 2020  
JOE FOSS BUILDING  
523 EAST CAPITOL  
PIERRE, SOUTH DAKOTA 57501-3182

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**NOTICE OF DETERMINATION OF  
SPECIAL, EXCEPTIONAL, CRITICAL, OR UNIQUE LANDS  
AMERICAN COLLOID COMPANY**

The Department of Environment and Natural Resources has made its determination regarding a Notice of Intent to Operate and Request for Determination of Special, Exceptional, Critical, or Unique Lands from American Colloid Company, PO Box 2010, Belle Fourche, South Dakota 57717. The Notice of Intent to Operate was submitted as required under ARSD 74:29:10 for purposes of requesting the department to determine whether the lands potentially affected by the mining operation are eligible for inclusion on the preliminary list of special, exceptional, critical, or unique lands.

The Notice of Intent to Operate involves construction of an access road between two permitted bentonite mines located approximately six miles northwest of Belle Fourche, SD. The legal description is Portions of Section 12; T9N-R1E and Portions of Sections 7 and 8; T9N-R2E, Butte County. The road will be about 1.1 miles in length and constructed along an existing two-track trail. The road will only be used occasionally to move mine equipment at any time of the year. The road will be reclaimed unless the landowner wants it to remain as a two-track trail.

In accordance with ARSD 74:29:10:08 and 74:29:10:09, the department has determined that the lands described in the Notice of Intent to Operate do not constitute special, exceptional, critical, or unique lands. This determination is based on the on-site inspection of the proposed lands to be affected, examination of the established preliminary list, consultation with other agencies, and evaluating information provided with the Notice of Intent to Operate. In addition, no nominating petitions pertaining to the lands described in the Notice of Intent were filed with the department.

The lands described in the Notice of Intent to Operate are considered cleared from special, exceptional, critical, or unique characteristics in accordance with ARSD 74:29:10:15. This clearance will remain in effect for seven years. If a mine permit application is not submitted within the seven-year period, the Board of Minerals and Environment may declare the clearance void and the lands may be reevaluated.

American Colloid Company may appeal the department's determination by filing a petition for a contested case hearing pursuant to SDCL 1:26 within seven days after receipt of the determination. The hearing on the appeal shall be confined to the determination of the lands as special exceptional, critical, or unique and whether an environmental impact statement and socioeconomic study will be required.

Persons desiring further information may contact Eric Holm, Minerals and Mining Program, at (605) 773-4201.

Steven M. Pirner  
Secretary  
Department of Environment and Natural Resources

December 16, 2013

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MINERALS & MINING PROGRAM

## II. Introduction

*SDCL 45-6B-54 (7)*

American Colloid Company (ACC) is applying for a small scale mining permit (the Kudlock/McAmis Small Scale Mining Permit) to build an access road between the Shear/Clarkson East Permit #471 and the Kudlock Permit #469 mine sites.

The road will be about 1.1 miles in length and will eliminate the need for ACC to load scrapers and dozers onto trailers and truck them down Highway 212 when moving from site to site, a time consuming and costly task (the cost to ACC is several thousand dollars each time the equipment is moved by truck and trailer on the highway). Road use will be limited and occasional and will not be year round although it could occur at any time of the year.

The small scale permit will cover 20.6 acres on private land in Section 12, Township 9 North Range 1 East and Sections 7 and 18 Township 9 North Range 2 East, Butte County, South Dakota. See the *Legal Descriptions* page in the Land Ownership section of this document for additional information.

Surface ownership is private (Sharon Kudlock and Kenneth N. Kudlock Family Trust and Steve and Renee McAmis) and mineral ownership is private (Bob Shear, Sharon Kudlock, and Norman Durr)

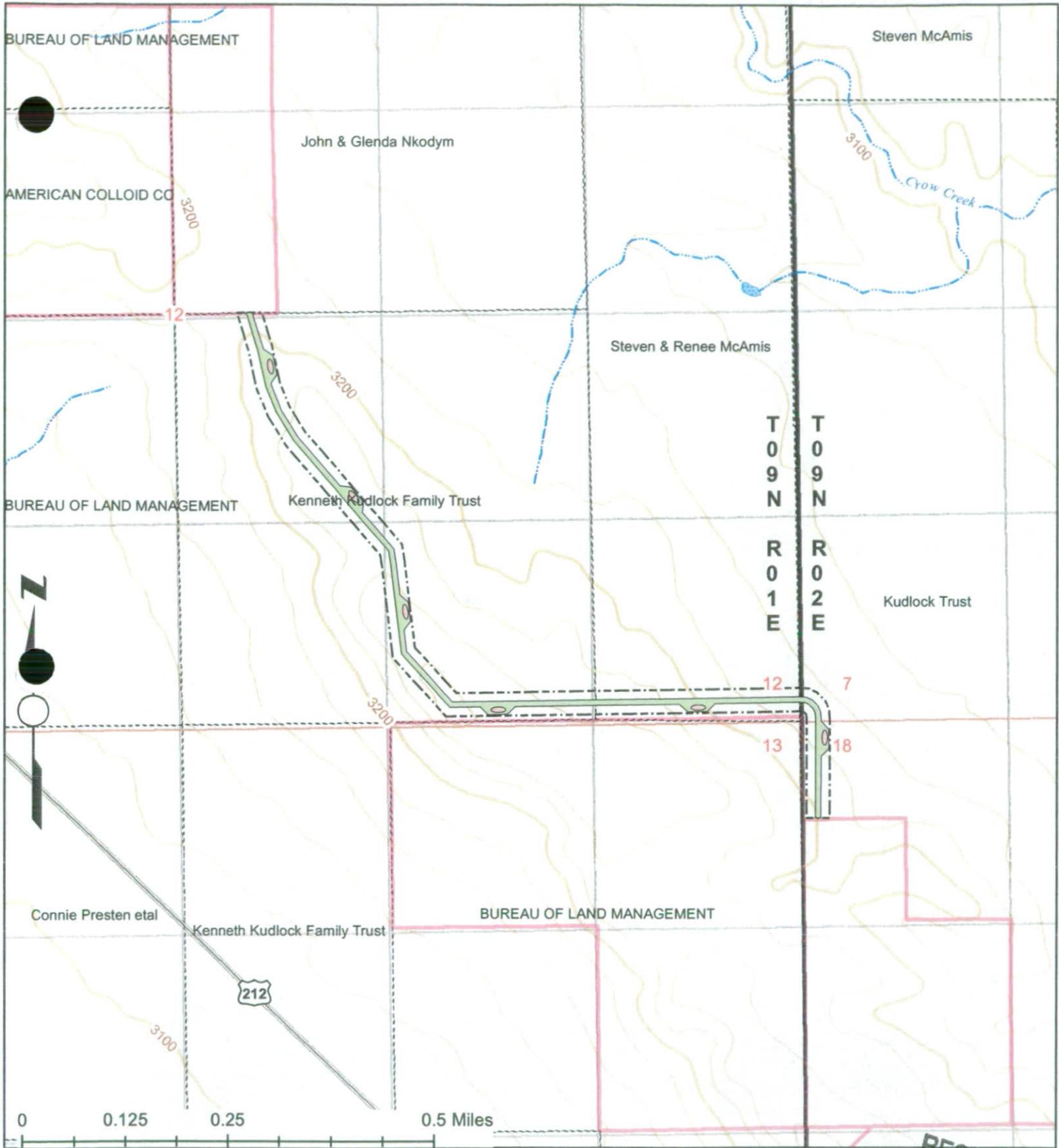
The location is 6-7 miles northwest of Belle Fourche and approximately ½ mile north of Highway 212.

Actual affected acreage will be about 6 acres for a 35'-wide access road and associated topsoil piles.

Topsoil will be stripped and placed in temporary stockpiles along the road. The road will be bladed to have a 15'-wide top and 10'-wide ditches with 3h:1v slopes that will contain water runoff along the roadway. If necessary, culverts will be placed to allow flow to continue in its natural drainage.

The road will be constructed along an existing two-track trail and across pasture land and will be used for moving mining equipment (scrapers and dozers and sometimes dozers on trailers) between the Shear/Clarkson East and Kudlock mine sites but will **not** be used for hauling bentonite. The length of use of the road could be up to 15 years, depending on customer clay needs at the associated mine sites.

Following its use as a mine access road, the road will be reclaimed unless the landowners request that it remain as a two-track trail. In that case, the road will be reduced in width, and the edges reclaimed and seeded.



**Legend**

-  Disturbance Boundary (35' width) = 6.0 acres
-  Adjacent Permit Boundaries
-  Township
-  Ownership
-  Section
-  Stream: Intermittent
-  Soil Stockpiles
-  NHD Waterbody
-  Quarter-Quarters

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MAP: PERMIT AREA  
AMERICAN COLLOID COMPANY  
P.O. Box 2010, Belle Fourche, SD 57517  
(605) 892 - 6950

Kudlock-McAmis Small Scale Mine Permit for access road  
Sec 12/13, T09N, R01E & Sec 7/18, T09N, R02E  
Butte County, South Dakota

Author: NJS	APPROVED BY: ACC
SCALE: 1:10,000	CONTOUR INTERVAL: 20'
DATE: 2/28/2014	DATE REVISED:
FILE: P:\BELLE FOURCHE\Users\Nick\Kudlock-McAmis Access Road.mxd	

### III. Proposed Mining and Reclamation Plan

Following is information necessary to address the South Dakota Codified Laws 45-6B-4 to 45-6B-9 inclusive; 45-6B-15, 45-6B-32, 45-6B-33, 45-6B-33.1; 45-6B-37 through 45-6B-46 inclusive; 45-6B-91; and 45-6B-92;

#### A. Local zoning requirements

*SDCL 45-6B-4*  
*ARSD 74:29:02:02*

The Butte County Planning Director has stated that there are no ordinances in Butte County pertaining to mining operations nor is there any permitting process or zoning (see document in Consent & Easement Forms section).

#### B. Previously mined land--Reclamation not required for surface mining

*SDCL 45-6B-8*

No bentonite mining has previously occurred on the Kudlock/McAmis Small Scale permit lands.

#### C. Previously mined land--Reclamation not required for underground mining

*SDCL 45-6B-9*  
*ARSD 74:29:07:17*

There have been no underground mines on the Kudlock/McAmis Small Scale Permit lands.

#### D. Copy of application filed with department and register of deeds--Public inspection

*SDCL 45-6B-15*

Copies of the application and attachments are on file at the Butte County Register of Deeds Office, Belle Fourche, SD and SD DENR, Office of Minerals and Mining, Pierre, SD for public viewing.

#### E. Grant of permit if application in compliance with law--Grounds for denial

*SDCL 45-6B-32*

- 1) After review by the DENR and Office of Minerals and Mining, the bond calculations will be set and ACC will secure a reclamation bond.
- 2) The fee of \$100.00 is attached to the enclosed permit application.

- 3) The proposed reclamation plan and future land use are in compliance with County, State, and Federal laws.
- 4) The road operation will not adversely affect the stability of any significant, valuable, and permanent man-made structure located within two hundred feet of the affected land.
- 5) There are no county ordinances pertaining to mining operations and there is no county permitting process or zoning for ACC's bentonite operation.
- 6) The proposed road operation and reclamation will be carried out in conformance with State laws regulating mined land reclamation.
- 7) ACC is not in violation of the provisions of this chapter.
- 8) The land is suitable for mining operations; however no mining will occur on the permit lands.

**F. Unsuitable land--No permit issued**

*SDCL 45-6B-33*

- 1) Reclamation of the proposed affected land is physically and economically feasible, as demonstrated on ACC's other mine sites.
- 2) If erosion/sediment deposition becomes a concern, ACC may install erosion control devices such as sediment fences, straw bales, and small catch basins.
- 3) The land is not considered to be Special, Exceptional Critical, or Unique as provided in SDDENR correspondence dated December 16, 2013 located in the Consent & Easement Forms section of this document.
- 4) The permit lands will be used for an access road with only shallow surface disturbance. Ground water will not be impacted.
- 5) Threatened or endangered species will not be jeopardized. Baseline information gathered during field surveys did not reveal any concerns about detrimental impacts to threatened or endangered species. See the December 16, 2013 SDDENR approval letter for the Determination of Special, Exceptional or Unique Lands in the Consent & Easement Forms Section of this document
- 6) No adverse socio economic impacts are anticipated from the proposed road operation as neither ACC's work force nor will other community workforces be affected.

**G. Grading SDCL**

*SDCL 45-6B-37*

*ARSD 74:29:07:03*

*ARSD 74:29:07:04*

Slopes will be graded and contoured to blend in with surrounding topography with a D-9 Caterpillar and Caterpillar patrol/blade. Reclaimed land will be structurally stable. No slopes will be steeper than 5:1 which will be easily traversable by livestock.

Final grading will be approximately 15 years from permit approval.

**H. Refuse Disposal**

*SDCL 45-6B-38  
ARSD 74:29:07:05*

Trash should not be generated from the road operation. Any waste oil and filters from equipment will be collected and recycled or disposed of according to State and Federal regulations. Any other refuse will be hauled away from site for disposal at an approved facility.

**I. Revegetation**

*SDCL 45-6B-39  
ARSD 74:29:02:10  
ARSD 74:29:07:06*

Areas affected by ACC's road operations will be reclaimed and reseeded as soon as possible. Topsoil and subsoil will be distributed over all areas where removed. Seeding will be done with ACC's modified chisel plow seeder.

In areas where soil compaction is significant, seeding will be preceded by ripping with a caterpillar patrol/blade. Ripping and seeding operations will be done along with the contour or perpendicular to the prevailing winds whenever possible. Generally, seeding will take place between October 1 and May 1. While late fall is the preferred planting season, weather conditions will largely dictate the actual time of seeding. Reseeding or interseeding efforts will be considered after three consecutive years of evidence that the initial seeding attempt has failed or sooner than three years if needed to stabilize any erosional feature.

The approved seed mix is the same as that utilized for the adjacent Kudlock and Shear/Clarkson permit areas will be utilized. The seed mix was developed based on consultation with the landowners and the local NRCS office. The following seed mix will be used:

<u>Species</u>	<u>Lbs. Pure Live Seed/Acre</u>
Pubescent wheatgrass	5.0
Western wheatgrass	4.0
Slender wheatgrass	2.0
Streambank wheatgrass	2.0
Green needlegrass	2.0
Yellow sweetclover	0.5
Cicer milkvetch	0.5
Winter wheat nurse crop	10.0

The use of these plant species should result in a diverse, effective, and long lasting vegetation community that is capable of self-regeneration and provides as much or more cover than the natural vegetation of the area.

Pubescent wheatgrass is a sod-forming, introduced, perennial grass that is well adapted to clay soils. It tolerates a wide range of precipitation, temperature, and elevation, and stays green in the summer months. It is used primarily for permanent seeding in rangeland.

Western wheatgrass is a long-lived, sod forming, drought resistant perennial native grass. It is one of the first grasses to grow on the range in the spring. The grass cures well on the stem and retains its protein content which provides for good winter grazing.

Slender wheatgrass is a perennial native bunchgrass with a fibrous root system. Seedlings are strong and easily established. It is drought tolerant, moderately salt tolerant, and very cold tolerant.

Streambank wheatgrass is a sod-forming perennial native grass. It is drought resistant and moderately tolerant to saline or alkaline soils. It has strong rhizomes and spreads rapidly to form good ground cover. It offers excellent protection against soil erosion.

Green needlegrass is a long-lived perennial native grass. It has short awns which are not harmful to livestock, and it is a valuable component of the native range. It grows to a height of 1½ to 3 feet and it produces a good yield of forage that is palatable and nutritious early in the season.

These grasses have been proven to be very successful in local area reclamation efforts.

Yellow sweetclover is a biennial legume which is distributed throughout the United States on a variety of soils and moisture sites. This species has the ability to produce seed even when the plants are very short and can improve soil conditions. In addition to being a nitrogen fixer, its taproot opens up the subsoil, increasing aeration and water penetration. In addition, the roots break down and decay rapidly at maturity which produces a high amount of organic matter. Yellow sweetclover has historically established relatively well on reclaimed lands in bentonite country.

Cicer milkvetch is a long-lived perennial legume that may be slow to establish but produces an abundance of palatable forage. It is a drought tolerant nitrogen fixer that is best adapted to medium to clayey soil textures.

ACC has used winter wheat as a nurse crop since 1986. The nurse crop concept works well in controlling erosion and weed invasion. Within three years after initial seeding, little evidence is seen of wheat as the perennial grasses become established.

To increase diversity on the reclaimed land, available native forbs will be added to the seed mix each year. Depending on cost and availability, some of the species that may be used include: purple prairie clover, white prairie clover, western yarrow, and annual wild sunflower.

If necessary, ACC will fence reclaimed sites to restrict livestock grazing until vegetative cover is re-established.

ACC will use the "extended reference area" concept of evaluating revegetation success. The reclaimed land will be compared to adjoining undisturbed land which will be representative of the pre-road conditions.

**J. Topsoil Management**

*SDCL 45-6B-40  
ARSD 74:29:07:07*

The identification and proper management of the topsoil/subsoil resource is essential to the success of revegetation. Kudlock-McAmis road access permit area is located between the Kudlock and Shear/Clarkson permit areas along a ridgeline with similar NRCS soil mapping as the adjoining permit areas. Site specific soil information was extrapolated from that of the adjacent permit areas. The adjacent Kudlock and Shear/Clarkson permit areas were thoroughly mapped and classified in accordance with the standards of the National Cooperative Soil Survey. Soils studies were performed in 2001 for the Kudlock Permit and in 2006 for the Shear/Clarkson East. Lab analyses were conducted by Inter-Mountain Laboratories, Inc., Sheridan, WY. The

The permit area is characterized by Lohmiller clay on the south end and Twotop clay on the north. Salvage depths for both these soils is anticipated to be 22 inches; 10 inches of topsoil and 12 inches of subsoil. All available topsoil and subsoil will be salvaged during mining activity and respread during reclamation activities. An estimated 17,750 cubic yards of usable soil will be salvaged over the entire area to be affected.

Topsoil and subsoil piles will be marked with signs reading "TOPSOIL" and "SUBSOIL" and will be seeded if in place for more than one year. There will be no temporary distribution of topsoil.

Fertilizers or soil amendments will not be used on the respreads soils.

No large objects such as trees or large rocks occur on the permit area.

**K. Hydrologic Balance**

*SDCL 45-6B-41  
ARSD 74:29:02:11  
ARSD 74:29:07:08  
ARSD 74:29:07:09  
ARSD 74:29:07:10  
ARSD 74:29:07:11  
ARSD 74:29:07:27*

The Kudlock-McAmis access road permit area is along a ridgeline. Potential surface water within the permit area consists of ephemeral drainages in which surface flow is minimal and confined to periods of snow melt or rainfall.

Watersheds will be minimally affected during operations. The road will be bladed to have a 15'-wide top and 10'-wide ditches with 3:1 slopes that will contain water runoff along the roadway. Culverts will be necessary at SE $\frac{1}{4}$  SW $\frac{1}{4}$  SE $\frac{1}{4}$  and S $\frac{1}{2}$  SE $\frac{1}{4}$  SE $\frac{1}{4}$  of, Section 12. Culverts may be necessary at other points along the road to allow flow to continue in its natural drainage, and this will be determined during road construction.

Erosion and sediment control structures such as sediment fences, straw bales, and small catch basins will be placed where necessary. Reclamation operations will include removal of temporary diversion systems and re-establishment of through drainages as appropriate. No permanent surface impoundments will be created during the final reclamation of the road.

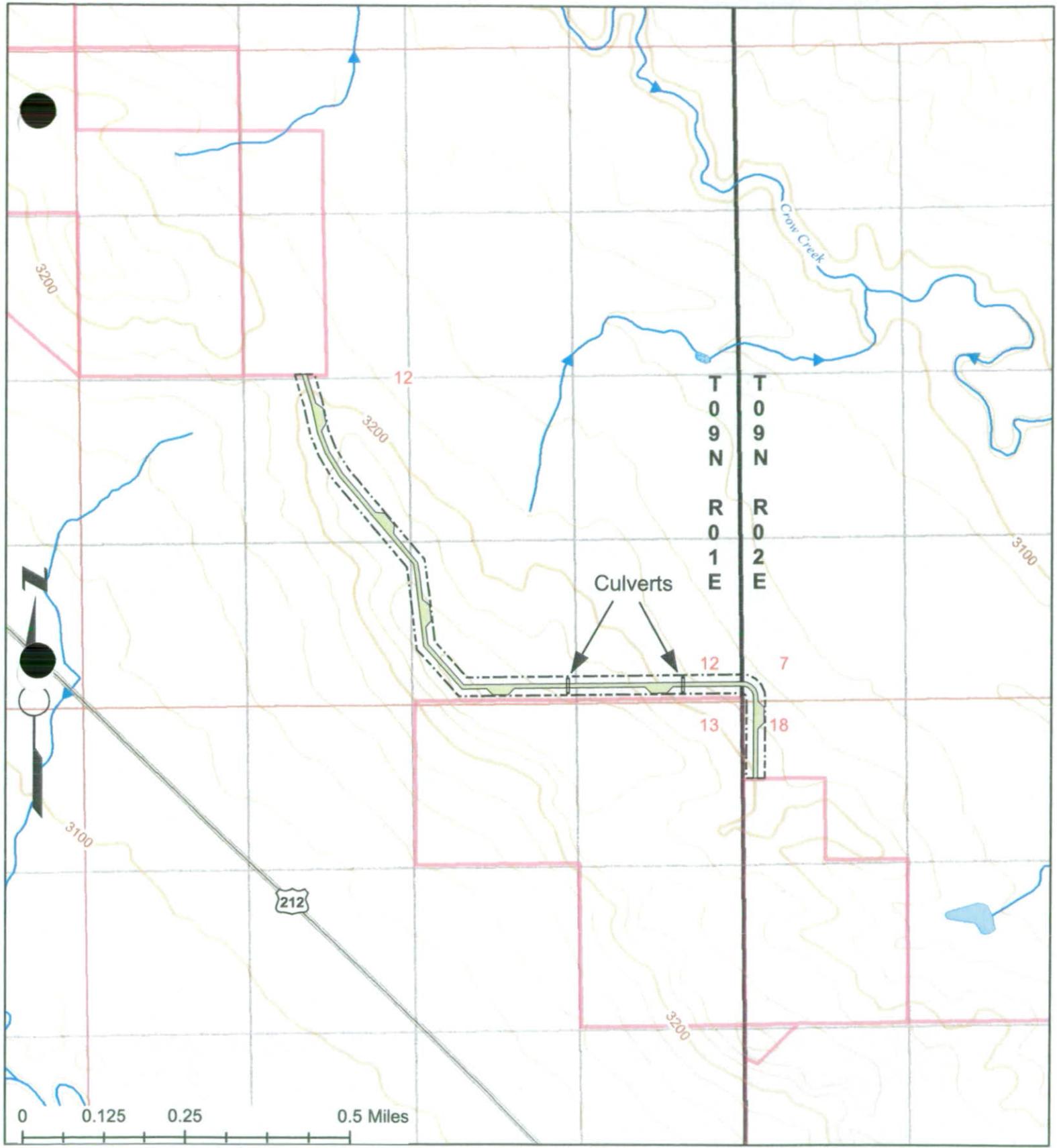
The surface water hydrology for the permit area is characterized by a relatively flat ridgeline atop relatively flat to moderately steep terrain with weak ephemeral drainages. Surface flow is minimal and confined to periods of rainfall or snowmelt.

There are no wetland features within the permit area.

At its nearest point, the road will be approximately 2700 feet from Crow Creek. Crow Creek is classified as marginal for warm water fish life propagation; however, baseline water samples show that total suspended solids (TSS) exceed the standards for a marginal warm water fishery. The high TSS levels may be attributed to active erosion along the streambank and livestock use.

Ground water will not be impacted.

A search was conducted of water rights in the area (through the South Dakota DENR Water Rights Program), and no water rights were found on the Kudlock-McAmis permit area.



- Legend**
- Disturbance Boundary (35' width) = 6.0 acres
  - Pond: Intermittent
  - Permit boundary = 20.6 acres
  - Pond: Perennial
  - Adjacent Permit Boundaries
  - Stream/River: Intermittent
  - Culverts
  - Township
  - Section
  - Quarter-Quarters

MAP: Hydrologic Map

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AMERICAN COLLOID COMPANY  
P.O. Box 2010, Belle Fourche, SD 57717  
(605) 892 - 6950

MINERALS & MINING PROGRAM

Kudlock-McAmis Small Scale Mine Permit for additional road  
Sec 12/13, T09N, R01E & Sec 7/18, T09N, R02E  
Butte County, South Dakota

Author: NJS	APPROVED BY: ACC
SCALE: 1:12,500	CONTOUR INTERVAL: 20'
DATE: 3/3/2014	DATE REVISED:
FILE: P:\BELLE FOURCHE\Users\Nick\Kudlock-McAmis Access Road Hydrologic	

**L. Sides, Subsidence, or Damage Protection**

*SDCL 45-6B-42*  
*ARSD 74:29:07:16*

No mining activity will be conducted in the permit area.

**M. Spoil Piles, Weeds**

*SDCL 45-6B-43*  
*ARSD 74:29:07:14*  
*ARSD 74:29:07:15*

No mining will be conducted in the permit area so no spoil piles will be present.

All affected land will be stabilized and protected to effectively control wind and water erosion. Stabilization efforts will include reduction of reclaimed slopes to at least 5h:1v and the seeding of respread soil as soon as possible.

Dust will be controlled by road watering.

If infestations of noxious weeds appear during the road operation or reclamation, control will follow the guidelines for noxious weed control as published by the Cooperative Extensions Office, SDSU, Brookings, SD and upon recommendations of the Butte County Extension Office, Butte County Weed Board. See Weed Control Section.

**N. Landowner Consultation, Reclamation Type Development**

*SDCL 45-6B-44*  
*ARSD 74:29:06*

Lands affected by the road on the Kudlock-McAmis Road Permit (approximately 6.0 acres) will be reclaimed to rangeland for livestock grazing which is the primary pre-road land use unless the landowners request that it remain a two-track trail.

See surface owner consultation and approval of reclamation plan in Legals & Ownership Section of this document.

**O. Reclamation Choices, Operator Requirements**

*SDCL 45-6B-45*  
*ARSD 74:29:07:01*  
*ARSD 74:29:07:18*  
*ARSD 74:29:07:19*  
*ARSD 74:29:07:20*  
*ARSD 74:29:07:21*

*ARSD 74:29:07:22*  
*ARSD 74:29:07:23*  
*ARSD 74:29:07:24*  
*ARSD 74:29:07:25*  
*ARSD 74:29:07:26*

Lands affected by this operation will be reclaimed to rangeland for livestock grazing, unless the landowners request that it remain as a two-track trail. In that case, the road will be reduced in width, and the edges reclaimed and seeded. To this end, the reclaimed land will be contoured to blend in with the surrounding topography, and no slope will be left steeper than 5:1 (H:V) which will be easily traversed by livestock. The topsoil will be replaced by rubber-tired scrapers then bladed in preparation for seeding. Seeding will be completed with a chisel plow seeder in early spring or fall, using the seed mix previously described. If necessary, the reclaimed lands will be fenced at ACC's expense to prohibit livestock use of the land until vegetation cover is reestablished.

The seed mix which approved by the landowners and the NRCS should maintain or increase the livestock carry capacity of the reclaimed lands. Based on the type of range sites, range conditions, and plant species observed on the native land, the suggested livestock stocking rate should be the same or higher in the reclaimed lands. See surface owner consultation and approval of reclamation plan in Legals & Ownership Section of this document and NRCS consultation and approval of the seed mix in the Consent & Easement Forms section of this document.

Reclamation will rehabilitate the affected land to a condition that meets the selected postmining land use of livestock grazing or use as a 2-track road.

All reclamation required by the approved reclamation plan will be completed prior to final and full bond release.

**P. Reclamation Timetable**

*SDCL 45-6B-46*  
*ARSD 74:29:08:01*  
*ARSD 74:29:08:02*

The length of use of the road could be up to 15 years, depending on customer clay needs at the associated mine sites. Reclamation will be carried out to completion with reasonable diligence. Topsoiled areas will be seeded in early spring or fall after the topsoil respread. All disturbance areas will be able to be revegetated.

Interim reclamation will be initiated on affected land if no further disturbance is scheduled to occur on that land within two years. Interim reclamation will be completed within one year thereafter. Where revegetation is required in the interim reclamation plan, seeding shall be done at the earliest favorable planting time. All affected lands requiring interim reclamation will be stabilized and made visually and functionally compatible with the surrounding area by regarding, recontouring, revegetating, and implementing other measures, as necessary, to effectively control

drainage and erosion. Interim reclamation will be conducted in accordance with the general and specific reclamation requirements.

Concurrent reclamation will not be conducted as no mining is occurring in this permit area.

**Q. Postclosure Plan**

*SDCL 45-6B-91*

- 1) Treatment of tailings – does not apply
- 2) ACC will fence the reclamation if necessary to restrict livestock grazing and allow vegetation to become established. Revegetation will be monitored and reseeding or interseeding efforts will be considered after three consecutive years of evidence that the initial seeding attempt has failed. However, if erosion problems become evident due to lack of vegetation during the three-year evaluation period, efforts to stabilize erosion, including reseeding, will commence as soon as field conditions allow.
- 3 and 4) Reclaimed areas will be inspected regularly by ACC personnel to monitor revegetation success and any erosional concerns. Active erosional features will be corrected.

**R. Critical Resources**

*SDCL 45-6B-92*

Critical resources should not be affected:

- 1) NO critical wildlife habitat has been identified in the proposed permit. No threatened or endangered species, or other species of concern, reside on or rely on the area (Thunderbird Wildlife Consulting, Inc. and ACC – see Wildlife section). Bald eagle roost sites which are located along Crow Creek northeast of the Kudlock-McAmis permit will be approximately 3¼ miles from ACC's road operation and will not be impacted by the activity.
- 2) The permit area is on a ridgeline drained by ephemeral drainages. ACC will install straw bales, straw waddles, or sediment fences as needed to control erosion and prevent sedimentation.

The road will be approximately ¾ miles from Crow Creek. Crow Creek is classified as marginal for warm water fish life propagation; however, baseline water samples show that total suspended solids (TSS) exceed the standards for a marginal warm water fishery. The high TSS levels may be attributed to active erosion along the Streambank and livestock use.

- 3) The permit area supports vegetation communities similar to the adjoining Kudlock and Shear/Clarkson East permit areas. The vegetation surveys on the adjoining Kudlock and

Shear/Clarkson East permit areas not identify any unique vegetation communities or species, nor were any observed on the proposed permit.

There are no riparian zones in the permit area.

- 4) Sources of drinking water are not found on the proposed permit as confirmed through a SD DENR Water Rights Program search in December, 2013.
- 5) Road use will be occasional and limited. Visual impacts of the road operation as viewed from Highway 212 should be minimal. Road operation activities may attract attention from passing motorists and ranchers in the area but should not dominate the scene.
- 6) The permit area has soil types included in the adjoining Kudlock and Shear/Clarkson East permit areas. The soil information for the adjoining Kudlock and Shear/Clarkson East permit areas did not reveal any unique properties of the soils extrapolated to the proposed permit area. The permit area does not contain any highly erosive or low vegetation potential soils
- 7) The South Dakota State Historical Society has reviewed the Cultural Resources Inventory and no significant resources were identified. See Archaeology Section of the *Request for Determination of Special, Exceptional, Critical or Unique Lands* for more information.
- 8) Dust suppression will be accomplished by water spraying to minimize dust.

The nearest residents to the Kudlock-McAmis Permit are the Steve McAmis' who live approximately 1 mile east of the permit area; the McAmis' have been advised of ACC's proposed road operation and signed an adjoining landowner's consent form. See documents in legals and ownership section of this document.

- 9) Noise levels generated by ACC's mining and hauling operations are within acceptable ranges. Noise level measurements are taken periodically by MSHA, and no citations have been issued to ACC for exceeding noise limits. ACC received no complaints from homeowners in the area during past mining operations on the Kudlock Large Scale mining permit.
- 10) The South Dakota Department of Environmental and Natural Resources has determined that the proposed permit area does not have special, exceptional, critical or unique status See letter *Notice of Determination of Special, Exceptional, Critical, or Unique Lands American Colloid Company*, December 16, 2013 in the Consent & Easement Forms section of this document

**S. General requirements for determination of reclamation type**

*ARSD 74:29:06:02*

ACC's reclamation efforts and successes can be observed on nearby South Dakota Permits #6, #458, #459, #461, and #463 and on nearby permit #620 in Wyoming. Reclaimed land is released

from bond by the respective state's environmental agency upon evaluation of vegetation cover and proven ability to support the identified land use. In 1995 162.5 acres in South Dakota Permit #6 were released from bond. In 1999 43.2 acres in permit #6, 10.3 acres in Permit #458, and 11.7 acres in Permit # 459 were released. In 2000, 78.9 acres in permit #6 were released. In 2001, 127.7 acres in Permit #461 were released. In 2007, 104 acres in permit #463 were released.

This illustrates that ACC's reclamation goals are obtainable and the company is dedicated to reclamation success.

The primary land use on the proposed permit has been for rangeland livestock grazing for many years. The present surface owners and adjoining landowners agree that livestock grazing will be the primary post-road land use

Seeding will be with the seed mix approved by the landowners and the NRCS as presented in the Revegetation Section.

ACC secures a reclamation surety bond or letter of credit before operation activity begins on a new permit, and this ensures that reclamation will be completed. Bond calculations take into consideration the number or acres that will be disturbed, soil volumes, and the cost of topsoiling and seeding. These costs are calculated based on the previous year's reclamation costs.

Topsoiled areas will be seeded the first fall after topsoil is replaced unless seeding cannot occur because of weather conditions. It is anticipated road construction will begin upon permit approval. The anticipated road life is 15-years. After the road is no longer needed the land will be reclaimed. If necessary, the reclaimed land will be fenced at ACC's expense which will restrict livestock use of the land until vegetation cover is re-established and able to meet the post-road land use.

#### **T. Minimizing Adverse Impacts**

*ARSD 74:29:07:02*

- 1) During road construction, a total of 6 acres will be disturbed. Topsoil and subsoil will be stripped and placed in temporary stockpiles.
- 2) Road use will be occasional and limited. Visual impacts of the road operation as viewed from Highway 212 should be minimal. Road operation activities may attract attention from passing motorists and ranchers in the area but should not dominate the scene.
- 3) Surface water resources on the proposed permit consist of ephemeral drainages. There are no perennial or intermittent drainages or wetland features on the permit lands.
  - a. No drinking water wells are located on the permit and, as confirmed through a SD DENR Water Rights program search in December, 2013. Groundwater will not be affected during road operations.

- 4) Primary access to the Kudlock-McAmis Permit lands will be from existing ranch trails and roads. Access can be controlled at the highway approaches in Section 11 and Section 18 on private land, if necessary.
- 5) Baseline information gathered during wildlife field studies for the permit area and of the adjacent Kudlock and Shear/Clarkson East permit areas does not reveal any concerns or detrimental impacts to Threatened or Endangered plant or wildlife species.
- 6) The temporary topsoil/subsoil placement areas will be situated to facilitate reclamation and to minimize environmental impacts. No waste dumps or spoils piles will be created.
- 7) No mine waste or spoils will be created in the permit area.
- 8) No buildings, processing plants, or other facilities will be constructed, used, or improved for this operation.
- 9) Road operations planning is coordinated with reclamation planning.

**U. Roads and railroad spurs**

*ARSD 74:29:07:12*

- 1-4) Roads will not be constructed in riparian zones and no streams will be crossed. There are no riparian zones or streams within the permit area.
- 5) If necessary, drainage control structures such as hay bales or silt fences will be installed to control runoff and to minimize erosion and possible sedimentation.
- 6) If necessary, culverts will be installed at prominent drainage ways. Culverts will be protected from erosion by rock, concrete, riprap, or other approved means. Culverts and drainage pipes will be constructed and maintained to avoid plugging, collapsing, or erosion at inlets and outlets.
- 7) Trees and vegetation will be cleared only to the width necessary to maintain slope stability and to serve traffic needs.
- 8) Access and haul road drainage structures will be routinely maintained.
- 9) Other transport facilities and utilities will be constructed and maintained to control degradation of water quality and quantity.
- 10) An applicant may request in writing that a road be permitted to remain unreclaimed if the surface landowner or a local, state, or federal agency requests that the road or spur remain unreclaimed and agrees to be responsible for future maintenance. ACC will furnish proof of such a request if one is made.

**V. Buildings and structures**

*ARSD 74:29:07:13*

No buildings, processing plants, or other facilities will be constructed, used, or improved for this operation.

**W. Requirements for specific types of reclamation**

*ARSD 74:29:07:18*

ACC personnel have several years of experience in developing mining and reclamation plans. Mining and reclamation success is exemplified on ACC's existing mine sites (South Dakota Permits #6, #458, #459, #461, #463)

**X. Rangeland**

*ARSD 74:29:07:20(1)*

Pre-mine land use on the Kudlock-McAmis permit area has been primarily for livestock grazing, and with the concurrence of the landowners, the NRCS, and adjoining landowners, reclamation (approximately 6 acres) will restore the land to rangeland for livestock grazing. Slopes will not exceed 5h:1v and will be easily traversable by livestock.

The seed mix which has been approved by the landowners and the NRCS should maintain or increase livestock carrying capacity on the reclaimed lands. Based on the type of range sites, range condition, and the plant cover observed on the native land, the suggested livestock stocking rate should be the same or higher on the reclaimed lands.

#### IV. Legal Description

The following legal descriptions identify lands under private ownership included in this permit allowing the development of an access road between the Shear/Clarkson East and the Kudlock mine sites. The road will be used for moving mine equipment between the mine sites but will not be used for hauling bentonite, nor will any mining occur under this permit.

The permit encompasses a 150' wide corridor including a 35' wide access road and associated soil stockpiles. The permit consists of 20.6 acres of which 6.0 acres are disturbance.

##### Township 9 North, Range 1 East, Butte County, South Dakota

###### *Kudlock ownership:*

###### Section 12

A portion of the NE  $\frac{1}{4}$  SE  $\frac{1}{4}$

A portion of the NE  $\frac{1}{4}$  SE  $\frac{1}{4}$  SE  $\frac{1}{4}$

A portion of the SW  $\frac{1}{4}$  SE  $\frac{1}{4}$

###### *McAmis ownership*

A portion of the S  $\frac{1}{2}$  S  $\frac{1}{2}$  SE  $\frac{1}{4}$  SE  $\frac{1}{4}$

##### Township 9 North, Range 2 East, Butte County, South Dakota

###### *Kudlock ownership*

###### Section 7:

A portion of the SW  $\frac{1}{4}$  SW  $\frac{1}{4}$  SW  $\frac{1}{4}$  SW  $\frac{1}{4}$

###### Section 18"

A portion of the NW  $\frac{1}{4}$  NW  $\frac{1}{4}$  NW  $\frac{1}{4}$

## V. Metes and Bounds

Commencing at the rock marker at the west quarter corner of Section 12, Township 9 North, Range 1 East, Butte County, SD,

Thence North 89 degrees, 10 minutes, 38 seconds East a distance of 1,807.29 feet which is the point of beginning of an access road corridor which lies 75' on either side of the following described centerline:

Thence South 16 degrees, 47 minutes, 12 seconds East a distance of 245.84 feet  
Thence South 12 degrees, 1 minute, 1 second East a distance of 237.09 feet  
Thence South 21 degrees, 59 minutes, 11 seconds East a distance of 174.14 feet  
Thence South 31 degrees, 28 minutes, 54 seconds East a distance of 206.62 feet  
Thence South 40 degrees, 22 minutes, 7 seconds East a distance of 776.56 feet  
Thence South 41 degrees, 20 minutes, 38 seconds East a distance of 160.48 feet  
Thence South 8 degrees, 46 minutes, 53 seconds East a distance of 93.23 feet  
Thence South 7 degrees, 1 minute, 39 seconds East a distance of 575.37 feet  
Thence South 42 degrees, 10 minutes, 38 seconds East a distance of 451.55 feet  
Thence North 89 degrees, 9 minutes, 30 seconds East a distance of 2,250.66 feet  
Thence South 83 degrees, 49 minutes, 0 seconds East a distance of 26.12 feet  
Thence South 63 degrees, 43 minutes, 21 seconds East a distance of 34.40 feet  
Thence South 44 degrees, 45 minutes, 51 seconds East a distance of 42.14 feet  
Thence South 24 degrees, 17 minutes, 50 seconds East a distance of 38.64 feet  
Thence South 4 degrees, 7 minutes, 57 seconds East a distance of 48.06 feet  
Thence South 0 degrees, 0 minutes, 44 seconds West a distance of 630.79 feet to the end point in the NW4NW4, Section 18, T9N, R2E, totaling 5,991.69 feet in length.

## VI. Weed Control Plan

Noxious weeds are non-native species that are a concern to South Dakota land owners and managers. They can seriously impact the native plant community.

The South Dakota noxious weed list contains the following species (South Dakota Department of Agriculture):

Leafy spurge (*Euphorbia esula*)  
Canada thistle (*Cirsium arvense*)  
Perennial sow thistle (*Sonchus arvensis*)  
Hoary cress (*Cardaria draba*)  
Russian knapweed (*Centaurea repens*)  
Purple loosestrife (*Lythrum salicaria*)  
Salt cedar (*Tamarix aphylla* *T. chinensis* *T. gallica* *T. parviflora* and *T. ramosissima*)

In addition, the following weeds may be locally noxious or pests in certain counties in South Dakota:

Absinth wormwood (*Artemisia absinthium*)  
Black henbane (*Hyoscyamus niger*)  
Bull thistle (*Cirsium vulgare*)  
Chicory (*Cichorium intybus*)  
Common Burdock (*Arctium minus*)  
Common mullein (*Verbascum thapsus*)  
Common tansy (*Tanacetum vulgare*)  
Dalmatian toadflax (*Linaria dalmatica*)  
Diffuse knapweed (*Centaurea diffusa*)  
Field Bindweed (*Convolvulus arvensis*)  
Giant Knotweed (*Polygonum sachalinense*)  
Houndstongue (*Cynoglossum officinale*)  
Musk thistle (*Carduus nutans*)  
Ox Eye Daisy (*Leucanthemum vulgare*)  
Phragmites (*Phragmites australis*)  
Plumeless thistle (*Carduus acanthoides*)  
Poison Hemlock (*Conium maculatum*)  
Puncturevine (*Tribulus terrestris*)  
Scotch thistle (*Onopordum acanthium*)  
Spotted knapweed (*Centaurea maculosa*)  
Sulfur cinquefoil (*Potentilla*)  
St. Johnswort (*Hypericum perforatum*)  
Yellow toadflax (*Linaria vulgaris*)

If infestations of noxious weeds appear during ACC's road operations or on the reclamation, ACC will contract out the services of a licensed professional weed sprayer. Control will follow

the guidelines for noxious weed control as published by the Cooperative Extensive Service (SDSU) and upon recommendations by the Butte County Weed Board.

## **VII. Spill Prevention Plan and Spill Contingency Plan**

American Colloid Company (ACC) has a detailed Spill Prevention, Control and Countermeasure (SPCC) plan for the mine sites and processing plants. To briefly summarize the document:

Fuel will be delivered to the mine sites and stored in mobile tanks that will be relocated as necessary as mining equipment moves. Containment berms will be constructed around the mobile fuel tanks which will be located in areas where topsoil has been removed, thereby creating a secondary containment basin. If a spill were to occur, mine personnel are instructed to make sure the site is safe, stop additional spillage, ensure containment of spilled materials, and contact the company's environmental representative. The cleanup process would be completed with appropriate earth-moving equipment depending on the size of the spill. Disposal of contaminated material would be coordinated by ACC environmental personnel at an approved landfarm in accordance with State and Federal regulations.

In the event of a spill, ACC environmental personnel will contact the SD DENR.

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MINERALS & MINING PROGRAM

**AMERICAN COLLOID COMPANY  
KUDLOCK/MCAMIS SMALL SCALE MINING PERMIT  
WILDLIFE BASELINE REPORT**



Submitted to:

American Colloid Company  
Permitting and Reclamation Department  
P.O. Box 2010  
Belle Fourche, SD 57717

Prepared by:

Thunderbird Wildlife Consulting  
5303 Van Ripper St.  
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January 2014

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APPENDIX I: Potential and Observed Vertebrate Species in the Wildlife Baseline Survey Area

APPENDIX II: Resumes of Key Personnel for Thunderbird Wildlife Consulting, Inc.

MAP 1. Wildlife Features and Wildlife Survey Area

## INTRODUCTION

American Colloid Company (ACC) is applying for the Kudlock/McAmis Small Scale Mining Permit (hereafter, Kudlock/McAmis) to build an access road between the Kudlock Permit #469 and Shear/Clarkson East Permit #471 mine sites. The proposed new road will be constructed primarily along an existing two-track trail and used for moving heavy mining equipment (primarily scrapers and dozers) between the two mine sites. This will eliminate the need for ACC to load heavy equipment onto trailers and truck them along U.S. Highway 212 when moving from site to site. The new access road will not be used for hauling bentonite.

The project area is located approximately 6-7 miles northwest of Belle Fourche, Butte County, South Dakota (SD) and approximately 0.5 mile north of Highway 212. The Small Scale Mining Permit will cover approximately 20.6 acres on private land. The new access road will be about 1.1 miles long and 35 feet wide; actual affected acreage will be about 6 acres for the road and associated topsoil piles.

As part of the permitting process, Ms. J. Pharr (ACC) met with Mr. S. Michals with the SD Department of Game, Fish, and Parks (SDGFP) and Ms. G. McKee (Thunderbird Wildlife Consulting, Inc. [TWC]) in April 2013 to conduct a site visit and finalize the wildlife study plan for the project. During that meeting, it was agreed that, due to the overlap between the proposed access road and previous wildlife surveys conducted for the Kudlock and Shear/Clarkson permits (on file with SDGFP), existing wildlife data from those areas would be incorporated into the Kudlock/McAmis baseline document, with new surveys required only for nesting raptors and bald eagle (*Haliaeetus leucocephalus*) winter roost sites. ACC had already conducted winter roost surveys prior to the project meeting in April 2013; TWC was contracted to complete surveys for nesting raptors that year.

The permit area for the Kudlock/McAmis project is described below. Survey methods and results are presented by animal group. Wildlife habitats found in the project area are described in a general manner based on previous vegetation baseline surveys for adjacent projects and information provided in the Kudlock/McAmis Special and Unique Report prepared by qualified ACC personnel. Surveys for nesting raptors were conducted by G. McKee and J. Ottinger (both with TWC). Their resumes are provided as an attachment to this report.

## PERMIT AREA DESCRIPTION

The Kudlock/McAmis project lies approximately 6-7 miles northwest of Belle Fourche, SD, in southwestern Butte County. This area is at the western edge of South Dakota, where the northern fringe of the Black Hills gives way to mixed grass and sage prairie typical of the semi-arid Northern Great Plains. The Kudlock/McAmis permit area (access road) follows an existing ridge line that trends northwest to southeast. The topography in the immediate area gently slopes to the northeast and southwest of that ridge line. Elevations in the area range from approximately 3,080 to 3,240 feet above sea level (Map 1).

The proposed access road itself is located approximately 0.5 mile north of, and roughly parallel to, U.S. Highway 212 (Map 1). The access road will be constructed primarily along an existing two-track trail in Section 12, Township (T) 9 North (N), Range (R) 1 East (E) and Sections 7 and 18, T9N, R2E. The Small Scale Mining Permit will cover about 20.6 acres on private land. The new access road will be about 1.1 miles long and 35 feet wide; actual affected acreage will be about 6 acres for the road and associated topsoil piles.

As noted, the road will be constructed primarily along an existing two-track trail across pasture land. It will be used for moving heavy mining equipment (primarily scrapers and dozers, sometimes dozers on trailers) between the existing Kudlock and Shear/Clarkson mine sites; the road will not be used for hauling bentonite. As a result, road use will be limited and occasional. Although continuous use will not occur year-round, transport of heavy equipment along the road could occur at any time of the year. The expected duration of use is up to 15 years, depending on clay demand and operations at the associated mine sites. Following its use as a mine access road, the road will be reclaimed unless the landowners request that it remain as a two-track trail. In that case, the road will be reduced in width and the edges will be reclaimed and seeded using appropriate methods and seed mixes.

The Kudlock/McAmis permit area is comprised entirely of an upland mixed-grass prairie community similar in species composition, diversity, and total cover to that found on adjoining lands. Vegetation mapping and cover sampling was performed for the overlapping Kudlock Permit #469 in 2001 and Shear/Clarkson East Permit #471 in 2006. Results from those efforts are representative of plant species and cover seen along the proposed access road (see the *Habitat Mapping* subsection under *Results*, below).

The Kudlock/McAmis permit area and adjacent lands are under private ownership. Undisturbed lands in the permit area are managed primarily for moderate cattle grazing during a few weeks in the summer. A variety of unimproved (two-track) roads pass through the permit area and surrounding 1.0-mile perimeter. As noted, the proposed access road largely follows an existing two-track road.

The project area is drained to the north and south by Crow Creek and Middle Creek, respectively, and their tributaries, all of which are part of the Belle Fourche watershed. All creeks in the area are intermittent. The Belle Fourche River flows year-round approximately 3.0 miles south of the project area. Surface water resources consist of weak ephemeral drainages at both ends of the road that may contain run-off during precipitation events or snow melt. All ponds in the vicinity are typically dry by late summer.

## **METHODS**

As noted, the only surveys required specifically for the Kudlock/McAmis project targeted bald eagle winter roosts and nesting raptors. Details for those surveys are provided below. The remaining survey methods summarize efforts conducted for previous overlapping baseline inventories associated with the adjacent Kudlock and Shear/Clarkson mine sites. The full baseline documents for those projects are on file with the SDGFP.

A potential vertebrate species list for the Kudlock/McAmis survey area (permit area and 1.0-mile perimeter) was developed based on previous survey results and potential species lists associated with baseline documents prepared for the overlapping Kudlock and Shear/Clarkson projects. TWC biologists visited the Kudlock/McAmis project area repeatedly during 2013 while conducting surveys for nesting raptors. Personnel with ACC also made numerous site visits during 2013 while conducting winter roost surveys and other project-related work. All personnel maintained a list of wildlife species observed in the survey area during each trip. Species were identified with the aid of field guides and other literature including, but not limited to, Robbins et al. (1966), Burt and Grossenheider (1976), Jones et al. (1983), Clark and Stromberg (1987), Peterson 1990, South Dakota Ornithological Union (1991), Stokes and Stokes (1996), and Kiesow (2006).

## **HABITAT MAPPING**

General wildlife habitats overlapping the proposed Kudlock/McAmis permit area were mapped in the field during original baseline surveys conducted for the adjacent mines. Habitats were described in terms of physical and vegetative characteristics, in keeping with classifications identified by ACC environmental staff during their vegetation sampling. Special emphasis was placed on documenting any high value, unusual, or critical wildlife habitats.

## **MAMMALS**

No surveys for mammalian species were required for the Kudlock/McAmis project. The information below presents survey methods employed during previous baseline inventories conducted for the adjacent Kudlock and Shear/Clarkson permit areas.

### **Big Game**

Big game use of the general area was determined through a combination of specific ground surveys and incidental sightings conducted and recorded in winter 2001-2002, and seasonally from October 2004 to October 2006. Additional incidental observations were made by ACC environmental personnel. Data recorded by all personnel typically included the species and number of animals seen, as well as their general location. TWC biologists also noted habitat use, herd activity, and sex and age composition, when possible. The cumulative tabulation of these observations over the multi-year survey period provided information on the primary species using the area throughout the year, their habitat affinities, and the general level of use.

### **Small Mammals**

Small mammal trapping occurred in September 2001 and June 2006 for previous baseline surveys associated with the Kudlock and Shear/Clarkson mines, respectively. Trapping targeted four primary habitats across the combined area: mixed-prairie grassland, prairie dog colony, rough breaks (sagebrush-grassland mix), and sagebrush-shrubland. One to three trap lines were established in each habitat type, depending on its prevalence in the project area.

Each trap line consisted of 20 stations spaced at 15-meter intervals, and included a total of 35 traps: 20 Sherman live traps (7.6 X 8.9 X 22.9 cm, 1 per station), 10 Museum Special snap traps (1 at even numbered stations), and 5 pitfall traps (stations 1, 5, 10, 15, and 20). Live traps

were baited with a mixture of bird seed, rolled oats, peanut butter, and bacon grease. A mix of peanut butter and bird seed was used for snap traps. Nesting material (jumbo cotton balls) was placed in all live and pitfall traps.

Each trap line was maintained for three consecutive days and nights. Traps were set out in the morning at the start of each trapping session. Each line was checked for three subsequent evenings and mornings, beginning with the evening of the set day. Traps were re-baited as necessary throughout the trapping period and picked up on the third morning, after the final check. Total trap nights (total traps/line x number of lines/habitat x 3 nights) ranged from 210 to 420, depending on the habitat type and project area.

All animals captured were identified to species, aged, and sexed. The physical condition of live-trapped animals was noted. To allow for identification of recaptures, individuals caught in live traps were marked by clipping the tip of a single toe (for smaller species) or using a permanent marker under the larger species' chins prior to release.

### **Lagomorphs**

Nocturnal spotlight driving surveys for lagomorphs (hares and rabbits) were conducted for the original baseline projects on two consecutive nights in September or early October of the respective survey years. The survey routes covered approximately 3 to 7 miles, depending on the size of the project area. The same general route was followed when multiple surveys were conducted within the same area. Surveys began at least 30 minutes after sunset. Each night, a biologist drove along the route at approximately 5 miles per hour (mph) while continuously sweeping a spotlight back and forth across the path to search for animals. The route was run in reverse on the second night during each round to maximize observations across the area. Data collected included species, number of animals, general location, and habitat. Local landowners, sheriffs, and game wardens were contacted prior to conducting all spotlight surveys.

### **Other Mammals**

The occurrence of mammals such as predators and furbearers within the combined survey area was documented through incidental observation and periodic searches for sign during site visits. Personnel also watched for bats over water bodies as opportunities arose.

## AVIFAUNA

The only avian surveys required for the Kudlock/McAmis project were for bald eagle winter roosts and nesting raptors. Information for other species presented below describes survey methods employed during previous baseline inventories conducted for the adjacent Kudlock and Shear/Clarkson permit areas.

### Raptors

Raptor use of the Kudlock/McAmis survey area (permit area and 1.0-mile perimeter) was documented through both specific surveys and opportunistic observation throughout 2013. ACC personnel conducted surveys for bald eagle winter roost sites in January and February that year (see the *Bald Eagle* sub-section under *Species of Concern*, below).

TWC biologists searched for and monitored raptor nests in the survey area on May 2 and 12, June 5 and 17, and July 8 and 17, 2013. ACC staff also watched for and monitored raptor nests on April 4, May 7 and 9, and June 6 and 13. Repeated severe weather events (e.g., snow storms and heavy rains) precluded access to the survey area for most of April, either directly or indirectly by creating impassable travel conditions. Guidelines recommended by Rosenfield et al. (2007) were followed to prevent nest abandonment, damage to eggs, or injury to young. Nests were not approached on foot prior to June. All previously identified nests were checked at least once during the breeding season.

New nests were located by slowly flying over the riparian corridor along Crow Creek or driving throughout the survey area and stopping frequently to examine typical nesting habitat. A high-wing Cessna 182 was used for the May 2 aerial nest search; the flight was initiated due to continued difficulties accessing the area on the ground. Flight speed and altitude were 80-85 mph and 100-300 feet above ground level, respectively. Rough breaks and riparian corridors were accessed on foot following the May 2 flight to ground-truth nest locations. Biologists also watched for adult raptors while conducting other surveys. Areas where individuals or pairs were repeatedly seen were thoroughly searched for nests. All active nests were monitored until the pair's breeding attempt failed or young fledged.

All raptor nest locations were plotted on 1:24,000 topographic maps both visually and using a hand-held Garmin® Etrex global positioning system (GPS) receiver. The condition

(intact, no longer present) and status (active, inactive, alternate, etc.) of nests, and production of young at active nests, were recorded.

### **Game Birds**

No grouse leks are present in or within 1.0 mile of the Kudlock/McAmis permit area. However, one greater sage-grouse (*Centrocercus urophasianus*) lek (Middle Creek) has been documented approximately 1.5-2.0 miles west-northwest of the permit area (Map 1); the exact location of the lek has shifted slightly over the years but has remained in the same general area. In addition to monitoring conducted during the Kudlock and Shear/Clarkson baseline projects, the Middle Creek lek was also included in baseline surveys conducted for ACC's Dobesh permitting project in 1998. ACC personnel and volunteers from the Northern Hills Bird Club also have voluntarily monitored the lek in many years. As a result, the Middle Creek lek has been checked for spring activity at least once during 15 of the last 16 years (1998-2013). ACC also conducted searches for new grouse leks in the vicinity of the permit area during many of those years. Searches were conducted by slowing driving through the area and stopping frequently to look and listen for displaying grouse and other game birds. Binoculars and a spotting scope were used to scan the proposed permit areas and surrounding lands.

Although not required for the Kudlock/McAmis project, lek monitoring and searches were conducted by ACC staff and volunteers with the Northern Hills Bird Club in 2013. Those surveys were conducted on March 2, 6, 11, and 21. All surveys were conducted per SDGFP protocols (i.e., early mornings with favorable weather conditions).

Walking surveys for upland game bird broods along shallow draws and winter grouse use were also conducted during previous baseline surveys overlapping the Kudlock/McAmis project area. Grouse sightings and the presence/absence of evidence such as feathers and droppings were recorded during each survey. In addition to those targeted efforts, biologists and ACC personnel recorded any incidental observations of game birds during site visits conducted each year. Data collected included species, number of birds seen, location, habitat, and activity, with sex and age details recorded when possible.

### **Breeding Birds**

Surveys for breeding birds, primarily passerines, were conducted using belt transects established in the primary habitats across the initial Kudlock and Shear/Clarkson survey areas: mixed-prairie grassland, prairie dog colony, rough breaks (sagebrush-grassland mix), and sagebrush-shrubland. As noted, the previous Kudlock baseline area was comprised almost entirely of mixed-prairie grassland habitat. One or two transects were established in each habitat type, depending on its prevalence in the project area. Each transect was 100 meters wide by 1,000 meters long.

Each transect was surveyed on three consecutive mornings in late May 2001 or early June 2006, depending on the project. To reduce bias, surveys started in a different transect and/or habitat type each morning. All surveys began no sooner than 30 minutes before sunrise and were completed within 3 hours after sunrise. Surveys were only conducted only under favorable weather conditions (dry, little, or light wind).

During the surveys, one observer walked the centerline of each transect and recorded all birds seen and heard within the belt (50 meters on each side). Binoculars and pre-survey reviews of bird songs were used to aid with identification by sight and sound, respectively. Each individual was recorded by species, and family groups and flocks were also noted. Birds seen merely flying over transects (flyovers) and those observed or heard beyond the survey boundaries were noted as incidentals but were not included in the data analysis. Exceptions were made for species such as swallows, turkey vultures (*Carthartes aura*), and other primarily aerial species.

### **Waterfowl**

Waterfowl and shorebird surveys were conducted on all ponds in and within 0.5-mile of the Kudlock and Shear/Clarkson permit areas throughout their respective baseline survey periods. Surveys were conducted using binoculars and a spotting scope to view ponds from a distance and avoid flushing the birds. All birds were identified by species, sex, and age.

### **Other Avian Observations**

The occurrence of all avian species observed within the combined survey area (permit areas and 1.0-mile perimeters) was documented through seasonal reconnaissance during both

previous baseline periods. Extra efforts were made to include areas with special habitat features such as water bodies that might attract specific species (e.g., waterfowl, shorebirds, amphibians, etc.). A species list was maintained for the duration of each baseline inventory. Information gathered in this manner was used to supplement knowledge of avian communities and habitat associations in and near the permit areas.

### **AMPHIBIANS AND REPTILES**

The presence of amphibians and reptiles was documented through habitat-specific searches and opportunistic sightings. During spring and summer, when these species are most active, a biologist walked along creek banks and inspected rocky outcrops looking and listening for amphibians and reptiles. All observations of these species were recorded throughout the baseline periods.

### **SPECIES OF CONCERN**

The only surveys for vertebrate species of concern required for the Kudlock/McAmis project were for bald eagle winter roosts. Information for other species presented below describes survey methods employed during previous baseline inventories conducted for the adjacent Kudlock and Shear/Clarkson permit areas. However, biologists and ACC personnel watched for all federally listed species (endangered, threatened, candidate, petitioned, proposed), as well as species listed by the SD Natural Heritage Program (SDNHP 2013) during all site visits. Data collected included notes on species, number of individuals, location, habitat use, sex/age (when possible), and activity.

#### **Bald Eagle**

Surveys for bald eagle winter roost sites in or within 1.0 mile of the the Kudlock/McAmis permit area were conducted on January 13 and 25, and February 8 and 19, 2013. Similar winter surveys also were conducted for previous baseline projects, and often included the same habitats and/or sites as the 2013 surveys. Surveys occurred at least three times in each survey year, with a minimum of one week between efforts in a given year. Searches for winter roosts were conducted by slowly driving through the survey area and stopping often to scan the trees along Crow Creek using binoculars and a spotting scope; that riparian corridor represents the only

potential roost habitat (trees) in the survey area. All surveys were conducted from 30 minutes before to 1 hour after sunrise, or from 1 hour before to 30 minutes after sunset. Survey efforts included a mix of morning and evening searches to maximize the opportunity for observing eagles. In addition to these specific searches, personnel recorded all incidental bald eagle sightings within the survey area throughout each baseline period.

## **RESULTS**

Appendix I presents a list of vertebrate species that could potentially reside in the Kudlock/McAmis vicinity or pass through during migration. Species actually observed in the general project vicinity (not necessarily in the specific Kudlock/McAmis survey area) over time are noted. Details regarding previous sighting records were provided in the original baseline documents for the Kudlock and Shear/Clarkson projects, on file with the SDGFP. Appendix II includes resumes for G. McKee and J. Ottinger, with TWC, who conducted nesting raptor surveys and/or prepared the baseline report for the project.

## **HABITAT MAPPING**

As noted, targeted vegetation mapping and cover sampling was performed for the overlapping Kudlock Permit #469 in 2001 and Shear/Clarkson East Permit #471 in 2006. Results from those efforts are representative of plant species and cover seen along the proposed access road route. A vegetation summary for the area also is included in the Kudlock/McAmis Special and Unique Report. All reports are on file with the SDGFP. The following provides a general description of typical mixed-grass prairie communities in the Kudlock/ McAmis area.

### **Mixed-grass Prairie**

The Kudlock/McAmis permit area is comprised entirely of an upland mixed-grass prairie community similar in species composition, diversity, and total cover to that found on adjoining lands. For example, absolute canopy cover in the Kudlock area averaged 30.6%, with 44.2% litter and rock, and 42.4% bare ground. In the Shear/Clarkson East area, absolute canopy cover averaged 27.9%, with 52.4% litter and rock, and 30.6% bare ground. Short to mid-grasses dominate the mixed-grass prairie community. Dominant grass species in these areas include western wheatgrass (*Elymus smithii*), wheatgrass species, Japanese brome (*Bromus japonicus*),

buffalo grass (*Buchloe dactyloides*), blue grama (*Bouteloua gracilis*), prairie junegrass (*Koeleria macrantha*), and green needlegrass (*Stipa viridula*), all common grasses on native rangeland. Numerous common forbs also are widely distributed throughout the prairie grassland including, but not limited to, American vetch (*Vicia americana*), scarlet gaura (*Gaura coccinea*), phlox (*Phlox* spp.), and common dandelion (*Taraxacum officinale*). No black-tailed prairie dog (*Cynomys ludovicianus*) colonies are present in or within 1.0 mile of the proposed access road (Map 1). Pricklypear cactus (*Opuntia polyacantha*) was nearly absent in this habitat type during the initial baseline inventories.

## **MAMMALS**

No surveys for mammalian species were required for the Kudlock/McAmis project. The information below presents a summary of survey results from previous baseline inventories conducted for the adjacent Kudlock and Shear/Clarkson permit areas.

### **Big Game**

Three big game species were documented in the vicinity of the Kudlock/McAmis area during previous baseline surveys conducted for adjacent projects: pronghorn (*Antilocapra americana*), mule deer (*Odocoileus hemionus*), and white-tailed deer (*O. virginianus*). The pronghorn was the most common big game species in the area during those surveys, though none were particularly abundant.

Pronghorn are an upland species of sagebrush rangelands and dry grassland areas of the western United States (Sundstrom et al. 1973, Jones et al. 1983). Western South Dakota is at the eastern edge of this species' current range. Mule deer are found in a wide variety of habitats in the western United States. They inhabit brushy and wooded areas, open plains and broken country, and also can be found in riparian areas and near agricultural fields (Jones et al. 1983, Clark and Stromberg 1987). White-tailed deer also occur in a wide variety of habitat types throughout western South Dakota, but they prefer dense deciduous riparian communities, forest edges, and vegetation next to croplands (Jones et al. 1983). They are rarely seen in the open plains.

The number of pronghorn sightings made in the general Kudlock/McAmis area during previous baseline projects ranged from 79 to 290 (refer to previous baseline documents for

specific details, on file with SDGFP). Most sightings occurred in the 1.0-mile perimeter for each property. Pronghorn herd size in the general area during that period ranged from 1 to 140, but averaged approximately 15 animals per herd. Few large (50 or more animals) herds were observed. Those larger groups were recorded between November and February each year, when animals are often banded together. Few fawns also were seen during previous survey periods, averaging approximately 3 young per sighting (n=36). As expected, fresh droppings and tracks also were encountered throughout those baseline surveys.

Habitat use varied by area during previous baseline inventories. At Kudlock, the majority (81%) of pronghorn were observed in grassland, which is not surprising since that area is comprised almost entirely of that habitat type. At Shear/Clarkson, pronghorn appeared to seek out sagebrush-shrubland habitats (64%) despite the somewhat limited occurrence of that habitat type in the permit area itself. Most (28%) remaining animals in the Shear/Clarkson area were in mixed-grass prairie. Most pronghorn sightings occurred on sagebrush flats about 0.5 mile southwest of the ridge where the access road will be located. It is not surprising that pronghorn would concentrate in sagebrush-shrubland areas where available, as sagebrush is important to this species, particularly in the winter (Sundstrom et al. 1973, Fitzgerald et al. 1994). Other habitats where pronghorn were observed during that period included agricultural (plowed fields), the cottonwood riparian corridor along Crow Creek, bottomland, and bare ground. The latter three habitat types were restricted to the 1.0-mile survey perimeter.

Few mule deer were observed during the survey period at either property, with even fewer white-tailed deer sightings. Only 28 deer herds (22 mule deer, 6 white-tailed deer) were recorded in the previous survey areas over the multi-year baseline period. All deer were seen in the respective 1.0-mile perimeters of the previous baseline survey areas, usually in or immediately adjacent to the riparian corridor along Crow Creek. That corridor is at least 0.75 mile northeast of the Kudlock/McAmis permit area. Although white-tailed deer clearly range into the area, they are more commonly found along the Belle Fourche River and in the forests of the Black Hills, at least 3.0 miles south of the proposed road corridor.

Big game results for the previous Kudlock and Shear/Clarkson projects were similar in most ways to those of ACC's earlier Dobesh baseline inventory (1998) conducted approximately 1.75 miles southwest of the Kudlock/McAmis project area. Results from all three efforts indicate that pronghorn were by far the most abundant big game species in the area, which would

be expected given the habitat characteristics (mixed sagebrush-grassland prairies with limited trees) in each location. Likewise, most big game observations occurred outside the actual permitting boundaries themselves. Pronghorn were more abundant in sagebrush habitats during the Dobesh and Shear/Clarkson surveys, whereas they were most often recorded in grassland in the Kudlock area. However, the latter property was heavily (92%) dominated by mixed-prairie grassland.

### Small Mammals

Three species of small mammals were captured during previous baseline surveys in the general project area: the deer mouse (*Peromyscus maniculatus*), thirteen-lined ground squirrel (*Spermophilis tridecemlineatus*), and northern grasshopper mouse (*Onychomys leucogaster*). The grasshopper mouse was only caught in the Shear/Clarkson area. All captures occurred in either the live traps or snap traps; the pitfall traps were not productive.

Overall capture frequency during the previous Kudlock (2001) and Shear/Clarkson (2006) baselines ranged from 7.94 to 10.0 captures/100 trap-nights, respectively. Both capture rates were lower than for ACC's Dobesh expansion in 1998, which was approximately 13.9 animals/100 trap nights. Capture rates for the latter two projects could have been affected by various factors, such as normal variations in the population cycle, extreme heat during the summer trapping session at Shear/Clarkson, and the persistent interference of cattle with some trap lines at Kudlock.

For all previous baseline projects, the deer mouse was the most ubiquitous and abundant small mammal captured. It was the only species trapped in all habitats during all sampling efforts, and accounted for 83-88% of total captures in all years. The thirteen-lined ground squirrel was the only other small mammal trapped during all three survey efforts. Both are common species in western South Dakota and throughout the general region.

In general, habitats with the greatest structural diversity and/or vegetative density at the previous project sites had higher capture rates than more homogenous habitats such as grassland. However, in all three survey years, cattle grazing in less diverse grassland areas inadvertently tripped numerous traps and likely affected capture rates at all three properties.

### Lagomorphs

Two lagomorph species were observed in the Kudlock/McAmis area during previous baseline inventories: the white-tailed jackrabbit (*Lepus townsendii*) and cottontail (*Sylvilagus* spp.). Jackrabbits far outnumbered cottontails during each baseline survey period. Most individuals were observed in grassland habitats during each survey.

Results from previous surveys conducted in the Kudlock/McAmis area indicated that lagomorph populations were highly variable over the years. Those results were similar to long-term (1987-2013) survey data from coal mines in nearby northeast Wyoming (numerous baseline and annual reports on file with the Wyoming Department of Environmental Quality-Land Quality Division). Both datasets suggest that lagomorph populations in the region follow typical population cycling observed in other Leporid populations (Keith 1983). For example, periodic declines in the Wyoming population have been attributed to Tularemia, a disease known to infect lagomorph populations once they reach a certain threshold.

### Other Mammals

Several other common mammalian species were observed during surveys conducted in the vicinity of the Kudlock/McAmis area over the years (Appendix 1). At least two red fox (*Vulpes vulpes*) dens were documented in the area, with young confirmed at one site. Red foxes were seen outside the breeding season, as well. A bobcat (*Felis rufus*) kitten was discovered in a former raptor tree nest along Crow Creek northwest of the Kudlock/McAmis area one year. Although coyotes (*Canis latrans*) were recorded only once, they were likely more common than they appeared to be. Raccoons (*Procyon lotor*) and their tracks, porcupines (*Erethizon dorsatum*), and evidence of beavers (*Castor canadensis*) all were documented in the cottonwood-riparian corridor along Crow Creek, north of the Kudlock/McAmis area. Striped skunks (*Mephitis mephitis*) were observed during fall spotlight surveys for lagomorphs in two different years. Badgers (*Taxidea taxus*) were seen infrequently, but evidence of their digging was found at multiple locations in the general area. Fresh diggings by pocket gophers (*Thomomys* spp.) also were present throughout the area.

## AVIFAUNA

The only avian surveys required for the Kudlock/McAmis project were for bald eagle winter roosts and nesting raptors. The information below presents a summary of survey results from previous baseline inventories conducted for the adjacent Kudlock and Shear/Clarkson permit areas.

### Raptors

Several raptor species have been documented in the general project area over the years (Appendix I). Most of those species are summer breeders or year-round residents in western South Dakota (South Dakota Ornithological Union 1991). No trees are present in the Kudlock/McAmis permit area, thus no suitable nesting habitat for any species other than ground nesters is available there. Suitable habitat for tree-nesting species is present in the relatively sparse cottonwood corridor along Crow Creek, which is approximately 0.75-1.0 mile northeast of and essentially parallel to the permit area (Map 1). As discussed above, the proximity of the Kudlock/McAmis project area to the two preceding baseline projects has provided both TWC biologists and, particularly, ACC staff with the opportunity to informally monitor known raptor nests in the area for multiple years between and following targeted baseline surveys.

Five raptor nest sites have been documented in the 1.0-mile survey area for the Kudlock/McAmis access road project since the original Kudlock baseline inventory was conducted in 2001 (Map 1). Only two of the five nests were physically present in 2013. None of the five nest sites were active in 2013.

Only one raptor nest site falls within the 0.5-mile annual monitoring area: a ferruginous hawk (*Buteo regalis*) ground nest, located on a ridge knob south and beyond view of the proposed access road (FH nest, Map 1). Ferruginous hawks fledged three young from this nest in 2010, when it was discovered, but no activity has been documented at the nest site since then. This species is tracked by the SDNHP. The only other sighting of this species in the general vicinity occurred in January 2005 as an incidental observation.

The remaining four nest sites are located in the cottonwood corridor along Crow Creek, at least 0.75 mile north-northeast of the Kudlock/McAmis permit area (Map 1). All four nests were used by red-tailed hawks (*Buteo jamaicensis*) and/or great horned owls (*Bubo virginianus*), depending on the year. Great horned owls do not build their own nests, relying instead on the

availability of existing stick nests or sufficiently large nooks in tree trunks or limbs to safely lay their eggs.

Most of the raptor sightings documented in the Kudlock/McAmis area over the last several years were associated with species nesting in that vicinity. However, other non-nesting raptor species were observed incidentally in the area over time (Appendix I). Of those, only the bald eagle was seen with any frequency, and those sightings were restricted to the winter months (see the *Bald Eagle* sub-section under *Species of Concern*, below). Raptor species that were recorded foraging in or passing over the survey area included the golden eagle (*Aquila chrysaetos*), American kestrel (*Falco sparverius*), northern harrier (*Circus cyaneus*), prairie falcon (*Falco mexicanus*), and turkey vulture. The bald eagle and prairie falcon are tracked by SDNHP, and will be discussed under *Species of Concern*, below.

As described previously, potential nesting habitat for anything other than ground-nesting raptors is extremely limited in the Kudlock/McAmis project area. Additionally, the trees along Crow Creek in the immediate vicinity already support nesting raptors in some years. Golden eagles have historically nested elsewhere along Crow Creek, beyond the 1.0-mile survey perimeter for this project. American kestrels do not compete with the larger raptor species for food or nest sites, and could potentially nest in a vacant tree cavity without much disruption to existing birds. Northern harriers are ground-nesters, and could potentially occupy bottomland or patches of tall grass or weedy vegetation. However, all sightings of this species recorded in the area over the last several years were of individual adults, with no courtship flights or defensive behavior exhibited. Turkey vultures nest in a variety of situations, including rock crevices, abandoned buildings, and hollow logs. Potential habitat is present, but the paucity of vulture sightings over the last several years indicates that this species is not likely to find a special attraction to the project area.

### **Game Birds**

The Kudlock/McAmis project is within the known range of several game bird species, including the gray partridge (*Perdix perdix*), ring-necked pheasant (*Phasianus colchicus*), sage-grouse, sharp-tailed grouse (*Tympanuchus phasianellus*), mourning dove (*Zenaida macroura*), and wild turkey (*Meleagris gallopavo*) (SDOU 1991). None of these species are common in the

project area and few, if any, sightings were recorded there during previous baseline surveys or other incidental work in the area.

As noted, no grouse or grouse leks have been documented in or within 1.0 mile of the Kudlock/McAmis permit area. The nearest lek is the Middle Creek sage-grouse lek, located approximately 1.5-2.0 miles west-northwest of the permit area (Map 1). The lek is on the far side of a railroad and U.S. Highway 212. Due to its proximity to all three recent ACC projects (Dobesh, Kudlock, and Shear/Clarkson), the Middle Creek lek has been monitored at least once during 15 the last 16 years (1998-2013).

The highest count ever documented by TWC or ACC at this lek was 10 displaying males in 2003. However, average annual attendance since then was only three males per year; no more than six males were recorded over the last 10 years. With such consistently low counts, the Middle Creek lek is not a likely source for birds to use as a starting point to expand into new areas, including the Kudlock/McAmis project area.

The only upland game bird species documented with any regularity over time was the mourning dove. Doves were primarily seen and heard in the cottonwood-riparian corridor along Crow Creek, though a few individuals were occasionally observed elsewhere in the general area. Landowners in the area have occasionally seen wild turkeys along Crow Creek, including hens with broods, though few sightings occurred within the 1.0-mile perimeter for the Kudlock/McAmis project. No other species of upland game birds or sign were recorded in that area to date.

### **Breeding Birds**

Data from belt transects were used to calculate species richness and relative abundance for habitats sampled within previous baseline survey areas; detailed survey results from those efforts are provided in the respective baseline reports, on file with the SDGFP. Species richness represented the number of species recorded in each habitat over the sampling period. Relative abundance was defined as the number of birds observed per transect per survey day in each habitat type.

Eleven (11) avian species were recorded within belt transects sampled during previous baseline surveys conducted for the Kudlock and Shear/Clarkson permits, with 10 additional species recorded as flyovers. All habitats sampled held at least six species, with seven recorded

in the grassland transects in the Kudlock baseline area. Relative abundance in grassland transects across the two surveys also was similar.

The same three species were most prevalent in both project areas (in descending order): horned lark (*Eremophila alpestris*), western meadowlark (*Sturnella neglecta*), and vesper sparrow (*Pooecetes gramineus*). Those were the only species to occur in all habitats sampled during the two baseline periods. The grasshopper sparrow (*Ammodramus savannarum*) and killdeer (*Charadrius vociferus*) also were documented during both baseline survey efforts.

### **Other Avian Observations**

Overall, 60 avian species were recorded in the general vicinity of the Kudlock/McAmis area during previous baseline surveys (Appendix I). Some wide-flying species like turkey vultures, falcons (*Falco* spp.), swallows (*Hirundo* spp.), and American crows (*Corvus brachyrhynchos*) were recorded in a variety of habitats as they passed over the survey areas.

Several avian species were predictably associated with the riparian corridor along Crow Creek north of the Kudlock/McAmis permit area, and with the various small stock reservoirs scattered throughout the area. Species found only in those habitats included waterfowl, warblers, woodpeckers, and other species associated primarily with water and/or trees.

### **AMPHIBIANS AND REPTILES**

Only two species of amphibians were recorded during previous baseline surveys conducted for ACC in recent years: the boreal chorus frog (*Pseudacris triseriata*) and northern leopard frog (*Rana pipiens*) (Appendix I). Sightings were restricted to Crow Creek and some ponds in the outer perimeter of the general survey area, though not necessarily in the 1.0-mile perimeter for the Kudlock/McAmis project itself.

Two species of reptiles also were recorded in the vicinity of the Kudlock/McAmis area during previous baseline inventories (Appendix I). However, as with the amphibians, both occurred in the surrounding area. The only evidence of reptiles in the Kudlock/McAmis area itself was an approximately 4-foot long snake shed that was found in NE¼ NE¼ Section 12, T9N, R1E during a previous baseline survey. Actual sightings were limited to a pond located outside the 1.0-mile perimeter for the current project area. Western painted turtles (*Chrysemys picta*) and a western plains garter snake (*Thamnophis radix*) were observed at that pond.

## **SPECIES OF CONCERN**

### **SDNHP Tracked Species**

Prior to initiating field surveys for all baseline inventories, TWC reviewed current lists of federal and state rare, threatened, or endangered (T&E) vertebrate species, as well as other vertebrate species tracked by the SDNHP that could occur as permanent or seasonal residents in or within 1.0 mile of the respective permit areas. Range and habitat information were used to identify those species. A listing by the SDNHP is often an indication of possible concern, and the need for more information on a species' range and habitat requirements within the state of South Dakota. In addition, many SDNHP species are not actually rare; some are merely at the edge of their natural range. The specific codes associated with species on the SDNHP list are clearly explained there, and thus are not repeated in this document. Special status species observed in the general vicinity of the Kudlock/McAmis area during previous or more recent survey efforts are identified in Appendix I.

Twelve (12) vertebrate species currently tracked by the SDNHP (2013) were documented in the general vicinity of the Kudlock/McAmis permit during previous baseline surveys conducted at adjacent properties in recent years and/or targeted searches completed in 2013. All 12 were avian species, and most sightings consisted of golden and bald eagles related to known nest sites or winter habitat use in the vicinity, respectively. Other species tracked under this program and recorded at least once over time were the great blue heron (*Ardea herodias*), black-crowned night heron (*Nycticorax nycticorax*), common merganser (*Mergus merganser*), ferruginous hawk, prairie falcon, sage-grouse, long-billed curlew (*Numenius americanus*), black tern (*Chlidonias niger*), burrowing owl (*Athene cunicularia*), northern mockingbird (*Mimus polyglottos*). The sage-grouse is also a candidate for listing under the federal Endangered Species Act (ESA). That species was discussed under *Game Birds*, above. Most raptors were addressed in the *Raptors* or *Bald Eagle* sections of this report.

Great blue herons were recorded in the general area on two occasions, with sightings separated by lengthy periods. Both heron observations occurred at ponds near Crow Creek and outside the Kudlock/McAmis permit area. One sighting was made in July 2005 and the other in May 2007. The prairie falcon was documented during baseline surveys conducted for the Shear/Clarkson project. However, this species was observed only twice during that multi-year survey

period. Individual prairie falcons were recorded as they soared over the area in August 2004 and again in June 2005. Neither falcon landed in the area.

The remaining SDNHP species recorded in the general project area were each observed only once during the multi-year survey period. In mid-March 2005, a group of 48 common mergansers was swimming with other waterfowl on a large pond in SE¼ NW¼ Section 34, T10N, R1E, outside the Kudlock/McAmis survey area. No mergansers were seen there again during repeated spring site visits conducted annually through 2007. One mockingbird was seen flying over a grassy ridge in NE¼ NE¼ Section 11, T9N, R1E in early June 2006, near the western edge of the Kudlock/McAmis 1.0-mile perimeter. The bird did not land in the project area itself, and no mockingbirds were observed in the area again. The most notable encounter with a non-raptor SDNHP species occurred in late June 2006. One long-billed curlew exhibited defensive (calling) behavior during a pedestrian survey for other species of interest. The bird called for several minutes and seemed to focus on a draw in SW¼ SW¼ Section 35, T10N, R1E, beyond the Kudlock/McAmis survey area. A biologist searched the area briefly for obvious signs of nesting, and then left to watch from a distance to prevent unintentional harm to any young that might be in the area. However, after several minutes, the curlew settled down and wandered off to forage. Despite lingering observations, no nest or fledged young were confirmed at the site.

### **Bald Eagle**

The USFWS removed (delisted) the bald eagle from protection under the Endangered Species Act in July 2007 (Federal Register, 9 July 2007). However, this species continues to be protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Bald eagles also are listed as a state threatened species for South Dakota.

Bald eagles forage for large carcasses in the open country of the Kudlock/McAmis project area or fish in open water along the Belle Fourche River during the day. As noted in the above *Raptors* section, eagles also occasionally roost in the trees along Crow Creek. Two regular roost sites have been identified along the creek during previous baseline surveys, but both were outside the 1.0-mile perimeter for the Kudlock/McAmis permit. In addition to Crow Creek, bald eagles roost along the Belle Fourche River approximately 3.0 miles south of the

current project area. No bald eagles were recorded in the Kudlock/McAmis survey area (permit area and 1.0-mile perimeter) during targeted surveys conducted in 2013.

Over the past 20 years, ACC staff and others have reported an increase in the number of bald eagles seen in the vicinity of Belle Fourche, SD and nearby Colony, Wyoming. During the mid-1980s, bald eagles were seldom seen in that area, whereas they have become a more common winter visitor in recent years (J. Pharr, ACC, personal communication).

## CONCLUSIONS

The Kudlock/McAmis Small Scale Mining Permit encompasses approximately 20.6 acres, though only about 6 acres (29%) of that area will be disturbed by ACC during road construction. No significant impacts to wildlife are anticipated from disturbing and reclaiming these lands. The habitats in the proposed permit area are typical of the region, and no special, exceptional, critical, or unique wildlife features or habitats are present. The site currently is subject to periodic human and livestock activity associated with normal ranching operations. The nearest regular disturbance consists of active bentonite mining east and west of the project area.

Despite the limited vegetative variety in the general survey area, it supports a wide array of wildlife species. Multi-year baseline surveys conducted for adjacent permits demonstrated that wildlife abundance and diversity is typical of the mixed-grass prairie community that dominates the area. That habitat is augmented by scattered stands of sagebrush, and the presence of water and trees in the general vicinity. However, as these important features are outside the Kudlock/McAmis permit boundary, road enhancement and/or construction will not disturb them.

No big game concentrations were documented within the Kudlock/McAmis survey area or the surrounding 1.0-mile perimeter during previous baseline surveys conducted for adjacent projects. Only small numbers of pronghorn were regularly seen in the area itself, with even fewer deer present. The grassland forage within the property is characterized by common species, and the area is not considered as critical habitat for pronghorn. Small stands of sagebrush-shrubland occur on the southern side of the ridge on which the new access road will be built; no sagebrush will be disturbed by the proposed project. All deer recorded in the general area were seen in the outer perimeter of the respective survey areas, mostly in the narrow treed corridor along Crow Creek. That area also will not be impacted by road construction. As a

result, it is unlikely that big game populations as a whole will be irreparably harmed by the proposed Kudlock/McAmis project.

No game bird leks or other important seasonal habitats exist in the Kudlock/McAmis permit area, and no evidence was found during previous baseline surveys to indicate that any game bird species other than mourning doves regularly use the area. The nearest known sage-grouse lek is located 1.5-2.0 miles west-northwest and beyond view of the proposed road corridor. That lek has historically been attended by a very small population of males, and sagebrush habitat is more prevalent in the vicinity of the lek than in the Kudlock/McAmis area. All habitat disturbances from this project will occur in upland grassland habitat that lacks adequate shrub cover to attract nesting sage-grouse (Gregg et al. 1994). No reports of other grouse species using the Kudlock/McAmis area exist, and the other species (turkeys and mourning doves) of game birds that occasionally use the area focus their activities in the riparian corridor along Crow Creek, which will not be disturbed by the proposed project. Therefore, the Kudlock/McAmis access road is not likely to disrupt important breeding, nesting, or winter foraging activities for sage-grouse or other upland game birds.

Only one raptor nest has been documented within the 0.5-mile annual monitoring area for the Kudlock/McAmis project (Map 1). That ferruginous hawk ground nest was active in 2010, but has been inactive since then. Four raptor nests of common species are present in the cottonwood stands that line Crow Creek. All four nests are near the outer edge of the 1.0-mile perimeter, and beyond the buffer distances (0.125 mile-0.25 mile) typically considered adequate to protect these species from disturbance during the nesting season (U.S. Fish and Wildlife Service 2009). That corridor represents the only suitable raptor nesting habitat in the area for tree-nesting species. Although ground-nesting birds such as northern harriers have been seen in the project area, they are not common residents. Additionally, this species typically nests in taller vegetation than typically occurs within the permit area; such habitat offers more protection for ground nests. Such vegetation is most common in the drainages and around the pond edges that lie outside of the permit area boundary.

Winter roosting habitat for bald eagles also is present along Crow Creek; the bald eagle is a state listed threatened species. Although a few eagles have been documented roosting along the creek during recent winters, no regular roosts have been identified within 1.0 mile of the

Kudlock/McAmis permit area. Additionally, the riparian corridor is a minimum of 0.75 mile from the proposed project area.

With the delisting of the bald eagle and documented absence of sage-grouse in the project area, no federally threatened or endangered species reside in or rely on the Kudlock/McAmis area. One SDNHP species (the golden eagle) does reside in the general project area year-round. However, that species is not common in the Kudlock/McAmis area, and the only known golden eagle nest in the vicinity is well beyond the recommended buffer distance of 0.5 mile; the nest is outside the 1.0-mile perimeter for the current project. All other SDNHP species have rarely been documented in the general area, and never within the Kudlock/McAmis permit area itself.

### QUALIFICATIONS

TWC is considered by SDGFP as an authorized wildlife contractor (S. Michals, personal communication to ACC). Previous projects conducted by TWC and/or its current principal biologist (G. McKee) in South Dakota include:

- American Colloid's Dobesh Property Baseline Wildlife Report (Powder River Eagle Studies 1998)
- American Colloid's Kudlock Property Baseline Wildlife Report (TWC 2002)
- American Colloid's Shear/Clarkson Permitting Project Baseline Wildlife Report (TWC 2007)
- Powertech (USA) Inc.'s Dewey-Burdock Project Wildlife Baseline (ICF Jones & Stokes 2009)
- American Colloid's Davis Permitting Project Baseline Wildlife Report (TWC-Jones & Stokes 2009)

All of these projects were conducted under the general umbrella of TWC, though the company name varied over time as ownership changed. Ms. G. McKee supervised all but the Dobesh project; she was a participating biologist on that project. Resumes for G. McKee and J. Ottinger, both with TWC, are provided in Appendix II. As noted, these were the biologists who conducted raptor nest surveys for the Kudlock/McAmis project in 2013.

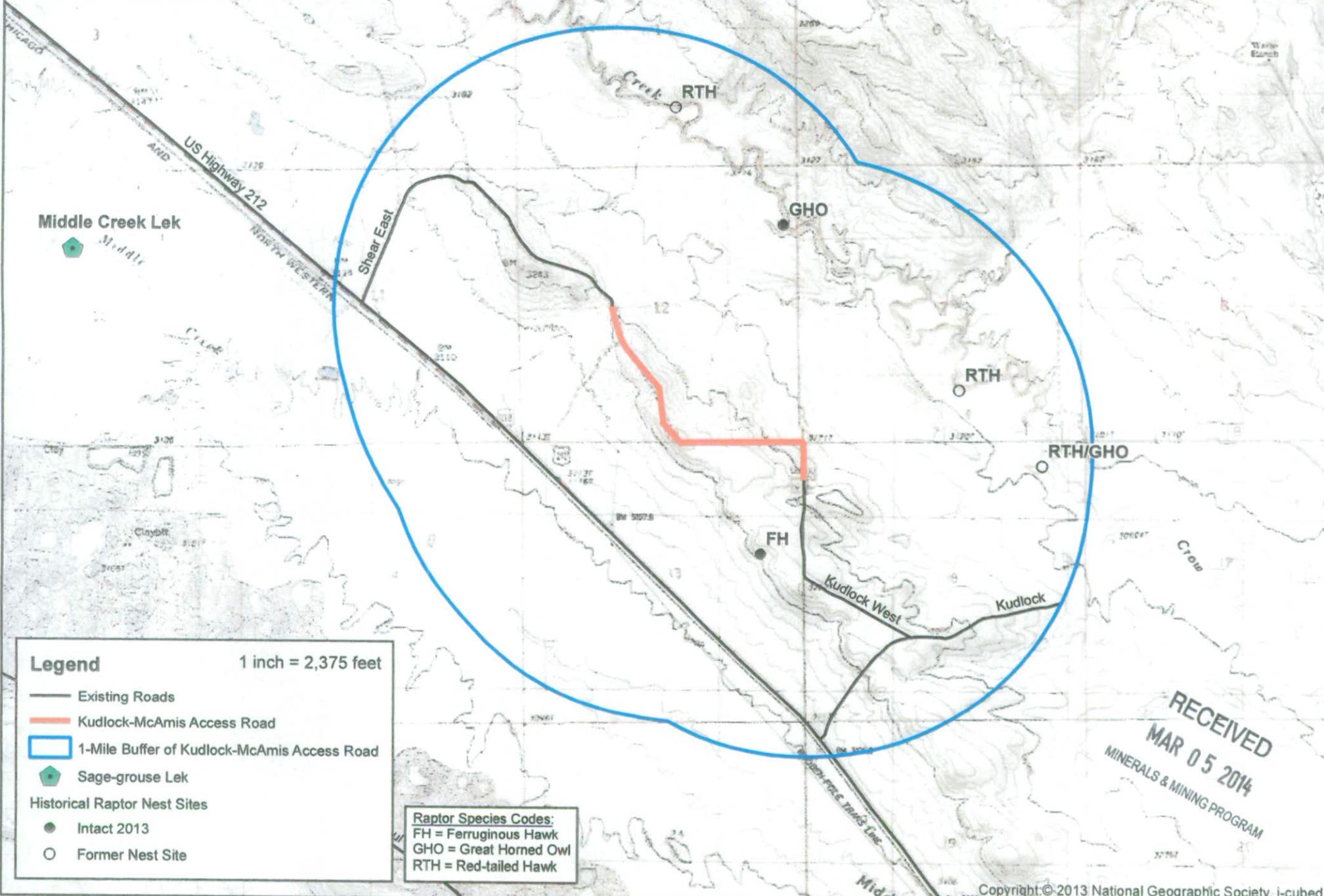
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T9N R1E T9N R2E



**Legend**

1 inch = 2,375 feet

- Existing Roads
- Kudlock-McAmis Access Road
- 1-Mile Buffer of Kudlock-McAmis Access Road
- ⬢ Sage-grouse Lek
- Historical Raptor Nest Sites
  - Intact 2013
  - Former Nest Site

**Raptor Species Codes:**  
FH = Ferruginous Hawk  
GHO = Great Horned Owl  
RTH = Red-tailed Hawk

RECEIVED  
MAR 05 2014  
MINERALS & MINING PROGRAM

RECEIVED  
MAR 05 2014  
MINERALS & MINING PROGRAM

AMERICAN COLLOID COMPANY'S  
KUDLOCK/MCAMIS SMALL SCALE MINING PERMIT

WILDLIFE BASELINE REPORT

APPENDIX I

Potential and Observed Vertebrate Species in the  
Wildlife Baseline Survey Area

KUDLOCK/MCAMIS WILDLIFE BASELINE REPORT  
 POTENTIAL<sup>1</sup> AND OBSERVED MAMMALIAN SPECIES LIST

<u>Common Name</u>	<u>Scientific Name</u>	<u>Recorded In K/M Vicinity<sup>2</sup></u>
<b><u>INSECTIVORES</u></b>		
Masked shrew	<i>Sorex cinereus</i>	---
<b>Merriam's shrew</b>	<b><i>Sorex merriami</i></b>	---
Vagrant shrew	<i>Sorex vagrans</i>	---
<b><u>BATS</u></b>		
Small-footed myotis	<i>Myotis ciliolabrum</i>	---
<b>Long-eared myotis</b>	<b><i>Myotis evotis</i></b>	---
<b>Northern myotis</b>	<b><i>Myotis septentrionalis</i></b>	---
Little brown myotis	<i>Myotis lucifugus</i>	---
Long-legged myotis	<i>Myotis volans</i>	---
Hoary bat	<i>Lasiurus cinereus</i>	---
Red bat	<i>Lasiurus borealis</i>	---
<b>Silver-haired bat</b>	<b><i>Lasionycteris noctivagans</i></b>	---
Big brown bat	<i>Eptesicus fuscus</i>	---
<b>Townsend's big-eared bat</b>	<b><i>Plecotus townsendii</i></b>	---
<b><u>HARES AND RABBITS</u></b>		
Desert cottontail	<i>Sylvilagus audubonii</i>	---
Mountain cottontail	<i>Sylvilagus nuttallii</i>	---
Cottontail species	<i>Sylvilagus</i> spp.	X
Eastern cottontail	<i>Sylvilagus floridanus</i>	---
Black-tailed jackrabbit	<i>Lepus californicus</i>	---
White-tailed jackrabbit	<i>Lepus townsendii</i>	X
<b><u>RODENTS</u></b>		
Least chipmunk	<i>Tamias minimus</i>	---
Thirteen-lined ground squirrel	<i>Spermophilus tridecemlineatus</i>	X
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>	X
Yellow-bellied marmot	<i>Marmota flaviventris</i>	---
Northern pocket gopher	<i>Thomomys talpoides</i>	X
Plains pocket gopher	<i>Geomys bursarius</i>	---
Olive-backed pocket mouse	<i>Perognathus fasciatus</i>	---
Silky pocket mouse	<i>Perognathus flavus</i>	---
Hispid pocket mouse	<i>Perognathus hispidus</i>	---
Plains pocket mouse	<i>Perognathus flavescens</i>	---
Ord's kangaroo rat	<i>Dipodomys ordii</i>	---
Western harvest mouse	<i>Reithrodontomys megalotis</i>	---
Plains harvest mouse	<i>Reithrodontomys montanus</i>	---
Deer mouse	<i>Peromyscus maniculatus</i>	X
White-footed mouse	<i>Peromyscus leucopus</i>	---
Northern grasshopper mouse	<i>Onychomys leucogaster</i>	X
Bushy-tailed woodrat	<i>Neotoma cinerea</i>	---
Long-tailed vole	<i>Microtus longicaudus</i>	---
Prairie vole	<i>Microtus ochrogaster</i>	---
Meadow vole	<i>Microtus pennsylvanicus</i>	---
<b>Sagebrush vole</b>	<b><i>Lemmiscus curtatus</i></b>	---

KUDLOCK/MCAMIS WILDLIFE BASELINE REPORT  
 POTENTIAL<sup>1</sup> AND OBSERVED MAMMALIAN SPECIES LIST

<u>Common Name</u>	<u>Scientific Name</u>	<u>Recorded In K/M Vicinity<sup>2</sup></u>
<u>RODENTS, cont.</u>		
Muskrat	<i>Ondatra zibethicus</i>	---
Norway rat	<i>Rattus norvegicus</i>	---
House mouse	<i>Mus musculus</i>	---
<b>Meadow jumping mouse</b>	<b><i>Zapus hudsonius campestris</i></b>	---
Western jumping mouse	<i>Zapus princeps</i>	---
Porcupine	<i>Erethizon dorsatum</i>	X
Beaver	<i>Castor canadensis</i>	X
<u>CARNIVORES</u>		
Coyote	<i>Canis latrans</i>	X
<b>Swift fox</b>	<b><i>Vulpes velox</i></b>	---
Red fox	<i>Vulpes vulpes</i>	X
Gray fox	<i>Urocyon cinereoargenteus</i>	---
Raccoon	<i>Procyon lotor</i>	X
Ermine	<i>Mustela erminea</i>	---
Long-tailed weasel	<i>Mustela frenata</i>	---
<b>Black-footed ferret</b>	<b><i>Mustela nigripes</i></b>	---
Least weasel	<i>Mustela nivalis</i>	---
Mink	<i>Mustela vison</i>	---
Badger	<i>Taxidea taxus</i>	X
<b>Plains spotted skunk</b>	<b><i>Spilogale putorius interrupta</i></b>	---
Striped skunk	<i>Mephitis mephitis</i>	X
<b>Mountain lion</b>	<b><i>Felis concolor</i></b>	---
Bobcat	<i>Felis rufus</i>	X
<u>UNGULATES</u>		
Elk	<i>Cervus elaphus</i>	---
Mule deer	<i>Odocoileus hemionus</i>	X
White-tailed deer	<i>Odocoileus virginianus</i>	X
Pronghorn	<i>Antilocapra americana</i>	X

<sup>1</sup> POTENTIAL OCCURRENCE—List derived from range and habitat information in Burt and Grossenheider (1976), Jones et al. (1983), and Clark and Stromberg (1987).

<sup>2</sup> RECORDED IN VICINITY—Animal or sign observed at least once by TWC biologists or ACC environmental personnel during the previous Kudlock and/or Shear/Clarkson baseline inventories, in the vicinity of the Kudlock/McAmis project area.

**Bold** species are tracked by the S.D. Natural Heritage Program – South Dakota Department of Game, Fish and Parks (retrieved from SDGFP website 10/7/2013).

KUDLOCK/MCAMIS WILDLIFE BASELINE REPORT  
POTENTIAL<sup>1</sup> AND OBSERVED AVIAN SPECIES LIST

<u>Common Name</u>	<u>Scientific Name</u>	<u>Recorded In K/M Vicinity<sup>2</sup></u>
<b><u>LOONS</u></b>		
<b>Common loon</b>	<b><i>Gavia immer</i></b>	---
<b><u>GREBES</u></b>		
<b>Horned grebe</b>	<b><i>Podiceps auritus</i></b>	---
Eared grebe	<i>Podiceps nigricollis</i>	---
Western grebe	<i>Aechmophorus occidentalis</i>	---
Pied-billed grebe	<i>Podilymbus podiceps</i>	---
<b><u>PELICANS</u></b>		
<b>American white pelican</b>	<b><i>Pelecanus erythrorhynchos</i></b>	---
<b><u>CORMORANTS</u></b>		
Double-crested cormorant	<i>Phalacrocorax auritus</i>	---
<b><u>HERONS</u></b>		
<b>Great blue heron</b>	<b><i>Ardea herodias</i></b>	X
<b>Black-crowned night heron</b>	<b><i>Nycticorax nycticorax</i></b>	X
American bittern	<i>Botaurus lentiginosus</i>	---
<b>Green-backed heron</b>	<b><i>Butorides virescens</i></b>	---
<b>White-faced ibis</b>	<b><i>Plegadis chihi</i></b>	---
<b><u>SWANS, GEESE, AND DUCKS</u></b>		
Canada goose	<i>Branta canadensis</i>	X
Snow goose	<i>Chen caerulescens</i>	---
Ross's goose	<i>Chen rossii</i>	---
Mallard	<i>Anas platyrhynchos</i>	X
Gadwall	<i>Anas strepera</i>	X
Northern pintail	<i>Anas acuta</i>	X
Green-winged teal	<i>Anas crecca</i>	---
Blue-winged teal	<i>Anas discors</i>	X
Cinnamon teal	<i>Anas cyanoptera</i>	---
American wigeon	<i>Anas americana</i>	X
Northern shoveler	<i>Anas clypeata</i>	---
Wood duck	<i>Aix sponsa</i>	---
Redhead	<i>Aythya americana</i>	X
Ring-necked duck	<i>Aythya collaris</i>	---
Canvasback	<i>Aythya valisineria</i>	---
Lesser scaup	<i>Aythya affinis</i>	---
Greater scaup	<i>Aythya marila</i>	---
<b>Bufflehead</b>	<b><i>Bucephala albeola</i></b>	---
Common goldeneye	<i>Bucephala clangula</i>	---
Barrow's goldeneye	<i>Bucephala islandica</i>	---
Ruddy duck	<i>Oxyura jamaicensis</i>	---
<b>Hooded merganser</b>	<b><i>Lophodytes cucullatus</i></b>	---
<b>Common merganser</b>	<b><i>Mergus merganser</i></b>	X
Red-breasted merganser	<i>Mergus serrator</i>	---

KUDLOCK/MCAMIS WILDLIFE BASELINE REPORT  
POTENTIAL<sup>1</sup> AND OBSERVED AVIAN SPECIES LIST

<u>Common Name</u>	<u>Scientific Name</u>	<u>Recorded In K/M Vicinity<sup>2</sup></u>
<u>SWANS, GEESE, AND DUCKS, cont.</u>		
Tundra swan	<i>Cygnus columbianus</i>	---
<u>DIURNAL RAPTORS</u>		
Turkey vulture	<i>Cathartes aura</i>	X
<b>Osprey</b>	<b><i>Pandion haliaetus</i></b>	---
<b>Bald eagle</b>	<b><i>Haliaeetus leucocephalus</i></b>	X
Northern harrier	<i>Circus cyaneus</i>	X
<b>Sharp-shinned hawk</b>	<b><i>Accipiter striatus</i></b>	---
<b>Cooper's hawk</b>	<b><i>Accipiter cooperii</i></b>	---
<b>Northern goshawk</b>	<b><i>Accipiter gentilis</i></b>	---
Red-tailed hawk	<i>Buteo jamaicensis</i>	X
<b>Swainson's hawk</b>	<b><i>Buteo swainsoni</i></b>	---
<b>Ferruginous hawk</b>	<b><i>Buteo regalis</i></b>	X
Rough-legged hawk	<i>Buteo lagopus</i>	---
<b>Golden eagle</b>	<b><i>Aquila chrysaetos</i></b>	X
American kestrel	<i>Falco sparverius</i>	X
<b>Merlin</b>	<b><i>Falco columbarius</i></b>	---
<b>Peregrine falcon</b>	<b><i>Falco peregrinus</i></b>	---
Gyr falcon	<i>Falco rusticolus</i>	---
<b>Prairie falcon</b>	<b><i>Falco mexicanus</i></b>	X
<u>GALLINACEOUS BIRDS</u>		
Plains sharp-tailed grouse	<i>Tympanuchus phasianellus</i>	---
<b>Greater Sage-grouse</b>	<b><i>Centrocercus urophasianus</i></b>	X
Ring-necked pheasant	<i>Phasianus colchicus</i>	---
Gray partridge	<i>Perdix perdix</i>	---
Wild turkey	<i>Meleagris gallopavo</i>	X
<u>CRANES, RAILS, AND COOTS</u>		
Sandhill crane	<i>Grus canadensis</i>	X
Sora	<i>Porzana carolina</i>	---
American coot	<i>Fulica americana</i>	X
Virginia rail	<i>Rallus limicola</i>	---
<u>SHOREBIRDS, GULLS, AND TERNS</u>		
American avocet	<i>Recurvirostra americana</i>	---
Semipalmated plover	<i>Charadrius semipalmatus</i>	---
Killdeer	<i>Charadrius vociferus</i>	X
<b>Mountain plover</b>	<b><i>Charadrius montanus</i></b>	---
<b>Piping plover</b>	<b><i>Charadrius melodus</i></b>	---
Lesser golden plover	<i>Pluvialis dominica</i>	---
Black-bellied plover	<i>Pluvialis squatarola</i>	---
<b>Black-necked stilt</b>	<b><i>Himantopus mexicanus</i></b>	---
Marbled godwit	<i>Limosa fedoa</i>	---
Hudsonian godwit	<i>Limosa haemastica</i>	---
<b>Long-billed curlew</b>	<b><i>Numenius americanus</i></b>	X

KUDLOCK/MCAMIS WILDLIFE BASELINE REPORT  
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<u>Common Name</u>	<u>Scientific Name</u>	<u>Recorded In K/M Vicinity<sup>2</sup></u>
<u>SHOREBIRDS, GULLS, AND TERNS, cont.</u>		
Upland sandpiper	<i>Bartramia longicauda</i>	X
Greater yellowlegs	<i>Tringa melanoleuca</i>	---
Lesser yellowlegs	<i>Tringa flavipes</i>	X
Solitary sandpiper	<i>Tringa solitaria</i>	---
Buff-breasted sandpiper	<i>Tryngites subruficollis</i>	---
Willet	<i>Catoptrophorus semipalmatus</i>	---
Spotted sandpiper	<i>Actitis macularia</i>	X
Wilson's phalarope	<i>Phalaropus tricolor</i>	X
Red-necked phalarope	<i>Phalaropus lobatus</i>	---
Common snipe	<i>Gallinago gallinago</i>	---
Short-billed dowitcher	<i>Limnodromus griseus</i>	---
Long-billed dowitcher	<i>Limnodromus scolopaceus</i>	---
Red knot	<i>Calidris canutus</i>	---
Semipalmated sandpiper	<i>Calidris pusilla</i>	---
Western sandpiper	<i>Calidris mauri</i>	---
Least sandpiper	<i>Calidris minutilla</i>	---
Baird's sandpiper	<i>Calidris bairdii</i>	---
Pectoral sandpiper	<i>Calidris melanotos</i>	---
Sanderling	<i>Calidris alba</i>	---
White-rumped sandpiper	<i>Calidris fuscicollis</i>	---
Stilt sandpiper	<i>Micropalama himantopus</i>	---
Gull species	<i>Larus spp.</i>	X
Herring gull	<i>Larus argentatus</i>	---
<b>California gull</b>	<b><i>Larus californicus</i></b>	---
Ring-billed gull	<i>Larus delawarensis</i>	---
Franklin's gull	<i>Larus pipixcan</i>	---
Bonaparte's gull	<i>Larus philadelphia</i>	---
Forster's tern	<i>Sterna forsteri</i>	---
<b>Caspian tern</b>	<b><i>Sterna caspia</i></b>	---
<b>Common tern</b>	<b><i>Sterna hurundo</i></b>	---
<b>Black tern</b>	<b><i>Childonias niger</i></b>	X
<u>PIGEONS AND DOVES</u>		
Rock dove	<i>Columba livia</i>	---
Mourning dove	<i>Zenaida macroura</i>	X
<u>CUCKOOS</u>		
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	---
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	---
<u>OWLS</u>		
<b>Barn owl</b>	<b><i>Tyto alba</i></b>	---
<b>Northern saw-whet owl</b>	<b><i>Aegolius acadicus</i></b>	---
<b>Long-eared owl</b>	<b><i>Asio otus</i></b>	---
Short-eared owl	<i>Asio flammeus</i>	---
Great horned owl	<i>Bubo virginianus</i>	X

KUDLOCK/MCAMIS WILDLIFE BASELINE REPORT  
POTENTIAL<sup>1</sup> AND OBSERVED AVIAN SPECIES LIST

<u>Common Name</u>	<u>Scientific Name</u>	<u>Recorded In K/M Vicinity<sup>2</sup></u>
<u>OWLS, cont.</u>		
<b>Burrowing owl</b>	<b><i>Athene cunicularia</i></b>	<b>X</b>
Snowy owl	<i>Nyctea scandiaca</i>	---
Eastern screech-owl	<i>Otus asio</i>	---
Western screech-owl	<i>Otus kennicottii</i>	---
<u>GOATSUCKERS</u>		
Common nighthawk	<i>Chordeiles minor</i>	---
<b>Common poorwill</b>	<b><i>Phalaenoptilus nuttallii</i></b>	---
<u>KINGFISHERS</u>		
Belted kingfisher	<i>Megaceryle alcyon</i>	---
<u>WOODPECKERS</u>		
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	X
Hairy woodpecker	<i>Picoides villosus</i>	---
Downy woodpecker	<i>Picoides pubescens</i>	---
Northern flicker	<i>Colaptes auratus</i>	X
<u>FLYCATCHERS</u>		
Western wood pewee	<i>Contopus sordidulus</i>	---
Western flycatcher	<i>Empidonax difficilis</i>	---
Least flycatcher	<i>Empidonax minimus</i>	---
Dusky flycatcher	<i>Empidonax oberholseri</i>	---
Cordilleran flycatcher	<i>Empidonax occidentalis</i>	---
Willow flycatcher	<i>Empidonax trailii</i>	---
Eastern phoebe	<i>Sayornis phoebe</i>	---
Say's phoebe	<i>Sayornis saya</i>	---
Western kingbird	<i>Tyrannus verticalis</i>	X
Eastern kingbird	<i>Tyrannus tyrannus</i>	X
<b>Cassin's kingbird</b>	<b><i>Tyrannus vociferans</i></b>	---
<u>LARKS</u>		
Horned lark	<i>Eremophila alpestris</i>	X
<u>SWALLOWS</u>		
Violet-green swallow	<i>Tachycineta thalassina</i>	---
Tree swallow	<i>Tachycineta bicolor</i>	---
Purple martin	<i>Progne subis</i>	---
Bank swallow	<i>Riparia riparia</i>	---
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>	---
Cliff swallow	<i>Hirundo pyrrhonota</i>	X
Barn swallow	<i>Hirundo rustica</i>	X

KUDLOCK/MCAMIS WILDLIFE BASELINE REPORT  
 POTENTIAL<sup>1</sup> AND OBSERVED AVIAN SPECIES LIST

<u>Common Name</u>	<u>Scientific Name</u>	<u>Recorded In K/M Vicinity<sup>2</sup></u>
<u>JAYS, MAGPIES, AND CROWS</u>		
Blue jay	<i>Cyanocitta cristata</i>	---
Pinyon jay	<i>Gymnorhinus cyanocephalus</i>	---
<b>Clark's nutcracker</b>	<b><i>Nucifraga columbiana</i></b>	---
Black-billed magpie	<i>Pica pica</i>	---
American crow	<i>Corvus brachyrhynchos</i>	X
<u>CHICKADEE</u>		
Black-capped chickadee	<i>Parus atricapillus</i>	---
<u>CREEPERS</u>		
Brown creeper	<i>Certhia americana</i>	---
<u>NUTHATCHES</u>		
Red-breasted nuthatch	<i>Sitta canadensis</i>	---
White-breasted nuthatch	<i>Sitta carolinensis</i>	---
<b>Pygmy nuthatch</b>	<b><i>Sitta pygmaea</i></b>	---
<u>WRENS</u>		
Rock wren	<i>Salpinctes obsoletus</i>	X
House wren	<i>Troglodytes aedon</i>	---
Marsh wren	<i>Cistothorus palustris</i>	---
<u>THRUSHES</u>		
<b>Veery</b>	<b><i>Catharus fuscescens</i></b>	---
Hermit thrush	<i>Catharus guttatus</i>	---
Swainson's thrush	<i>Catharus ustulatus</i>	---
Ruby-crowned kinglet	<i>Regulus calendula</i>	---
Golden-crowned kinglet	<i>Regulus satrapa</i>	---
Mountain bluebird	<i>Sialia currucoides</i>	---
Western bluebird	<i>Sialia mexicana</i>	---
Townsend's solitaire	<i>Myadestes townsendi</i>	---
American robin	<i>Turdus migratorius</i>	X
<u>MIMIC THRUSHES</u>		
<b>Northern mockingbird</b>	<b><i>Mimus polyglottos</i></b>	X
Gray catbird	<i>Dumetella carolinensis</i>	---
Brown thrasher	<i>Toxostoma rufum</i>	X
<b>Sage thrasher</b>	<b><i>Oreoscoptes montanus</i></b>	---
<u>PIPITS</u>		
American pipit	<i>Anthus rubescens</i>	---
<b>Sprague's pipit</b>	<b><i>Anthus spragueii</i></b>	---
<u>WAXWINGS</u>		
Cedar waxwing	<i>Bombycilla cedrorum</i>	---
Bohemian waxwing	<i>Bombycilla garrulus</i>	---

KUDLOCK/MCAMS WILDLIFE BASELINE REPORT  
POTENTIAL<sup>1</sup> AND OBSERVED AVIAN SPECIES LIST

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<b><u>SHRIKES</u></b>		
Northern shrike	<i>Lanius excubitor</i>	---
Loggerhead shrike	<i>Lanius ludovicianus</i>	X
<b><u>STARLINGS</u></b>		
European starling	<i>Sturnus vulgaris</i>	X
<b><u>VIREOS</u></b>		
Solitary vireo	<i>Vireo solitarius</i>	---
Warbling vireo	<i>Vireo gilvus</i>	---
Red-eyed vireo	<i>Vireo olivaceus</i>	---
<b><u>WARBLERS</u></b>		
Tennessee warbler	<i>Vermivora peregrina</i>	---
Orange-crowned warbler	<i>Vermivora celata</i>	---
Chestnut-sided warbler	<i>Dendroica pensylvanica</i>	---
Black-throated warbler	<i>Dendroica caerulescens</i>	---
Yellow warbler	<i>Dendroica petechia</i>	X
Yellow-rumped warbler	<i>Dendroica coronata</i>	---
Yellow-throated warbler	<i>Dendroica dominica</i>	---
Blackpoll warbler	<i>Dendroica striata</i>	---
<b>Black-and-white warbler</b>	<b><i>Mniotilta varia</i></b>	---
American redstart	<i>Setophaga ruticilla</i>	---
Ovenbird	<i>Seiurus aurocapillus</i>	---
Northern waterthrush	<i>Seiurus noveboracensis</i>	---
MacGillivray's warbler	<i>Oporornis tolmiei</i>	---
Common yellowthroat	<i>Geothlypis trichas</i>	---
Wilson's warbler	<i>Wilsonia pusilla</i>	---
Yellow-breasted chat	<i>Icteria virens</i>	---
<b><u>TANAGERS</u></b>		
Western tanager	<i>Piranga ludoviciana</i>	---
<b><u>GROSBEAKS AND BUNTINGS</u></b>		
Black-headed grosbeak	<i>Pheucticus melanocephalus</i>	---
Rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>	---
Blue grosbeak	<i>Guiraca caerulea</i>	---
Lazuli bunting	<i>Passerina amoena</i>	---
Indigo bunting	<i>Passerina cyanea</i>	---
Dickcissel	<i>Spiza americana</i>	---
<b><u>TOWHEES, SPARROWS, JUNCOS, AND LONGSPURS</u></b>		
Spotted towhee	<i>Pipilo maculatus</i>	---
Green-tailed towhee	<i>Pipilo chlorurus</i>	---
American tree sparrow	<i>Spizella arborea</i>	---
Chipping sparrow	<i>Spizella passerina</i>	---
Clay-colored sparrow	<i>Spizella pallida</i>	---
<b>Brewer's sparrow</b>	<b><i>Spizella breweri</i></b>	---

KUDLOCK/MCAMIS WILDLIFE BASELINE REPORT  
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<u>Common Name</u>	<u>Scientific Name</u>	<u>Recorded In K/M Vicinity<sup>2</sup></u>
<u>TOWHEES, SPARROWS, JUNCOS, AND LONGSPURS, cont.</u>		
Field sparrow	<i>Spizella pusilla</i>	---
Vesper sparrow	<i>Poocetes gramineus</i>	X
Lark sparrow	<i>Chondestes grammacus</i>	X
Sage sparrow	<i>Amphispiza belli</i>	---
Lark bunting	<i>Calamospiza melanocorys</i>	X
Savannah sparrow	<i>Passerculus sandwichensis</i>	---
<b>Baird's sparrow</b>	<b><i>Ammodramus bairdii</i></b>	---
Grasshopper sparrow	<i>Ammodramus savannarum</i>	X
Fox sparrow	<i>Passerella iliac</i>	---
Song sparrow	<i>Melospiza melodia</i>	---
Lincoln's sparrow	<i>Melospiza lincolni</i>	---
White-throated sparrow	<i>Zonotrichia albicollis</i>	---
White-crowned sparrow	<i>Zonotrichia leucophrys</i>	---
Harris' sparrow	<i>Zonotrichia querula</i>	---
Dark-eyed junco	<i>Junco hyemalis</i>	---
<b>McCown's longspur</b>	<b><i>Calcarius mccownii</i></b>	---
Lapland longspur	<i>Calcarius lapponicus</i>	---
Chestnut-collared longspur	<i>Calcarius ornatus</i>	X
Snow bunting	<i>Plectrophenax nivalis</i>	---
Bobolink	<i>Dolichonyx oryzivorus</i>	---
<u>BLACKBIRDS, MEADOWLARKS, AND ORIOLES</u>		
Red-winged blackbird	<i>Agelaius phoeniceus</i>	X
Western meadowlark	<i>Sturnella neglecta</i>	X
<b>Eastern meadowlark</b>	<b><i>Sturnella magna</i></b>	---
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	X
Brewer's blackbird	<i>Euphagus cyanocephalus</i>	X
Common grackle	<i>Quiscalus quiscula</i>	X
Brown-headed cowbird	<i>Molothrus ater</i>	X
Orchard oriole	<i>Icterus spurius</i>	X
Bullock's oriole	<i>Icterus bullockii</i>	---
Baltimore oriole	<i>Icterus galbula</i>	---
<u>FINCHES</u>		
Gray-crowned rosy finch	<i>Leucosticte tephrocotis</i>	---
Pine grosbeak	<i>Pinicola enucleator</i>	---
Purple finch	<i>Carpodacus purpureus</i>	---
<b>Cassin's finch</b>	<b><i>Carpodacus cassinii</i></b>	---
House finch	<i>Carpodacus cassinii</i>	---
Red crossbill	<i>Loxia curvirostra</i>	---
White-winged crossbill	<i>Loxia leucoptera</i>	---
Common redpoll	<i>Carduelis flammea</i>	---
Hoary redpoll	<i>Carduelis hornemanni</i>	---
Pine siskin	<i>Carduelis pinus</i>	---
American goldfinch	<i>Carduelis tristis</i>	---
Evening grosbeak	<i>Coccothraustes vespertinus</i>	---

KUDLOCK/MCAMIS WILDLIFE BASELINE REPORT  
POTENTIAL<sup>1</sup> AND OBSERVED AVIAN SPECIES LIST

<u>Common Name</u>	<u>Scientific Name</u>	<u>Recorded In K/M Vicinity<sup>2</sup></u>
<u>WEAVER FINCHES</u> House sparrow	<i>Passer domesticus</i>	---

<sup>1</sup> POTENTIAL OCCURRENCE—List derived from range and habitat information in Robbins et al. (1966), Petersen (1990), and Stokes and Stokes (1996). The species listed include those that might pass through the Kudlock/McAmis vicinity during migration.

<sup>2</sup> RECORDED IN VICINITY—Bird or sign observed at least once by TWC biologists or ACC environmental personnel during the previous Kudlock and/or Shear/Clarkson baseline inventories, in the vicinity of the Kudlock/McAmis project area.

**Bold** species are tracked by the S.D. Natural Heritage Program – South Dakota Department of Game, Fish and Parks (retrieved from SDGFP website 10/7/2013).

KUDLOCK/MCAMIS WILDLIFE BASELINE REPORT  
 POTENTIAL<sup>1</sup> AND OBSERVED AMPHIBIAN AND REPTILE SPECIES LIST

<u>Common Name</u>	<u>Scientific Name</u>	<u>Recorded In K/M Vicinity<sup>2</sup></u>
<b><u>SALAMANDERS</u></b>		
Tiger salamander	<i>Ambystoma tigrinum</i>	---
<b><u>FROGS AND TOADS</u></b>		
Plains spadefoot	<i>Scaphiopus bombifrons</i>	---
Woodhouse's toad	<i>Bufo woodhousei</i>	---
Great plains toad	<i>Bufo cognatus</i>	---
Boreal chorus frog	<i>Pseudacris triseriata</i>	X
Northern leopard frog	<i>Rana pipiens</i>	X
<b><u>TURTLES</u></b>		
Western painted turtle	<i>Chrysemys picta</i>	X
Western spiny softshell	<i>Trionyx spiniferus</i>	---
Common snapping turtle	<i>Chelydra serpentina</i>	---
<b><u>LIZARDS</u></b>		
<b>Sagebrush lizard</b>	<b><i>Sceloporus graciosus</i></b>	---
Eastern short-horned lizard	<i>Phrynosoma douglassi</i>	---
<b><u>SNAKES</u></b>		
Plains hognose snake	<i>Heterodon nasicus</i>	---
Eastern yellowbelly racer	<i>Coluber constrictor</i>	---
Bullsnake	<i>Pituophis melanoleucas</i>	---
Pale milk snake	<i>Lampropeltis triangulum</i>	---
Wandering garter snake	<i>Thamnophis elegans</i>	---
Western plains garter snake	<i>Thamnophis radix</i>	X
Common garter snake	<i>Thamnophis sirtalis</i>	---
Prairie rattlesnake	<i>Crotalus viridis</i>	---
<b>Smooth green snake</b>	<b><i>Liochlorophis vernalis</i></b>	---

<sup>1</sup> POTENTIAL OCCURRENCE—List derived from range and habitat information in Baxter and Stone (1985), Stebbins (1966), and Kiesow (2006).

<sup>2</sup> RECORDED IN VICINITY—Animal or sign observed at least once by TWC biologists or ACC environmental personnel during the previous Kudlock and/or Shear/Clarkson baseline inventories, in the vicinity of the Kudlock/McAmis project area.

**Bold** species are tracked by the S.D. Natural Heritage Program – South Dakota Department of Game, Fish and Parks (retrieved from SDGFP website 10/7/2013).

REFERENCES FOR KUDLOCK/MCAMIS  
WILDLIFE BASELINE REPORT POTENTIAL AND OBSERVED SPECIES LISTS (APPENDIX I)

MAMMALS:

- Burt, W.H. and R.P. Grossenheider. 1976. A field guide to the mammals. Houghton Mifflin Company, Boston, MA. 284pp.
- Clark, T.W. and M.R. Stromberg. 1987. Mammals in Wyoming. Univ. of Kansas, Museum of Natural History, Lawrence, KS. 214pp.
- Jones Jr., J.K, D.M. Armstrong, R.S. Hoffmann, and C. Jones. 1983. Mammals of the northern Great Plains. University of Nebraska Press, Lincoln, NE.

AVIAN:

- Peterson, R.T. 1990. A field guide to western birds. Houghton Mifflin Co., Boston. 309pages.
- Robbins, C.S., B. Bruun, and H.S. Zim. 1966. Birds of North America: a guide to field identification. Golden Press, New York. 340pp.
- Stokes, D.W., and Stokes, L.Q. 1996. Field guide to birds: western region. Little, Brown and Co., New York.

AMPHIBIANS AND REPTILES:

- Baxter, G.T. and M.D. Stone. 1985. Amphibians and Reptiles of Wyoming. Wyoming Game and Fish Dept. Second Edition. 137pp.
- Kiesow, A.M. 2006. Field Guide to Amphibians and Reptiles of South Dakota. South Dakota Game, Fish and Parks. Pierre, SD.
- Stebbins, R.C. 1966. A field guide to western reptiles and amphibians. Houghton Mifflin Company, Boston. 279pp.

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AMERICAN COLLOID COMPANY'S  
KUDLOCK/MCAMIS SMALL SCALE MINING PERMIT

WILDLIFE BASELINE REPORT

APPENDIX II

Resumes of Key Personnel for  
Thunderbird Wildlife Consulting, Inc.

## GWYN MCKEE

Gwyn is the President of and Principal Wildlife Biologist for Thunderbird Wildlife Consulting, Inc. She serves as a primary contact for both the energy industry and regulators (local, state, federal) in the Northern Great Plains regarding project requirements and design, impact assessment, and mitigation strategies. Projects range from small, single-day site assessments to large, multi-year efforts. Gwyn prepares and/or reviews technical reports and documents used by agencies during the permitting process, including contributing to and/or managing environmental impact statements (EISs) and environmental assessments (EAs). She also occasionally serves as a peer review referee or co-author for professional journals, or an invited speaker at professional meetings.

Gwyn manages a staff of biologists that provides wildlife inventory, monitoring, and other consulting services to several energy clients. She has extensive experience conducting aerial and ground surveys for a wide variety of wildlife species in the Northern Great Plains, Midwest, and the Alaskan wilderness. In addition, her specialized experience includes: raptor ecology and mitigation; trapping, radio-marking, and tracking various grouse and raptor species; and conducting clearance surveys for black-footed ferrets and swift fox.

Her recent relevant experience includes: data collection, resource assessments, impact analyses, and/or project management for multiple Bureau of Land Management (BLM) and US Forest Service (USFS) National Environmental Policy Act (NEPA) documents; mitigation planning and implementation; and participation in development of a joint Candidate Conservation Agreement with Assurances/Candidate Conservation Agreement (CCAA/CCA) for the greater sage-grouse and seven other species of concern in northeast Wyoming. Gwyn is well versed in the regulatory processes associated with the Endangered Species Act, Migratory Bird Treaty Act, and Bald and Golden Eagle Protection Act. Her service on numerous local and statewide boards has further enhanced her knowledge and expertise regarding impact analysis and mitigation options for terrestrial habitats and species.

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- **Years of Professional Experience**

Total: 27 years

With TWC: 20 years

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- **Current Location**

Gillette, Wyoming

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- **Education**

MS, Wildlife Management/  
Ecology, University of  
Missouri, Columbia, 1995

BS, Wildlife Management,  
University of Missouri,  
Columbia, 1982

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- **Professional Standing(s)  
and Certifications**

Considered a Qualified Third  
Party NEPA Contractor by  
the BLM, USFS, and USFWS

Considered a Qualified Wildlife  
Biologist by the USFWS,  
USFS, BLM, WGFD, SDGFP,  
and MFWP

Published author/co-author in,  
and peer reviewer for,  
professional journals

Member of The Wildlife Society &  
Raptor Research Foundation

Black-footed ferret surveys,  
USFWS

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## PROJECT EXPERIENCE

### EISs and EAs, Casper High Plains District Office—BLM, WY and Douglas Ranger District—USFS, WY

Principal Biologist/Project Manager. Third-party Project Manager for a recently completed coal lease EIS with the BLM High Plains District Office in Casper, Wyoming and for multiple coal-related EAs and an EIS with the USFS Douglas Ranger District in Douglas, Wyoming. For all projects, coordinated and led all agency assigned aspects of the process from initial kick-off meetings through printing of the final documents, including: regular communications with resource specialists (internal and subcontractors), agency project managers, and project applicants; identifying and addressing data gaps (either directly or by engaging internal or subcontractor resource specialists); and either reviewing/co-editing (BLM) or preparing/editing (USFS) the entire document to ensure completeness and “one-voice”, among others. Collected and/or supervised collection of wildlife field data for all projects following current agency protocols and prepared the associated resource assessments and impact analyses (i.e., text and maps) for NEPA documents, including any necessary supporting summary reports.

#### EIS/EA Project Manager List:

North Antelope Rochelle Mine: Mackey Road Relocation-USFS EIS, Campbell County, WY 2013

Antelope Mine: Plant Expansion (Railroad Spur)-USFS EA, Converse County, WY 2013

School Creek Mine: Ancillary Facilities—USFS EA, Campbell County, WY 2012

Buckskin Mine: Hay Creek II Coal Lease by Application—BLM EIS, Campbell County, WY 2011 (BLM plans to use EIS as future template for coal projects)

North Antelope Rochelle Mine North Pit 69kV Power Line Relocation and School Creek Mine 69kV Power Line Spur-USFS EA, Campbell County, WY 2010

North Antelope Rochelle Mine: Antelope Road Relocation-USFS EA, Campbell County, WY 2009

Also provided wildlife resource text and impact analyses for six (6) additional BLM coal EISs and one (1) additional BLM coal EA, and reviewed wildlife text and analysis prepared by a different contractor for one (1) BLM coal EIS (2000-present). These projects are not listed above but are available on the BLM Wyoming NEPA web link for the Casper region.

**NEPA-Related Documents: Buffalo, Lander, and Casper Field Offices—BLM, WY; Buffalo Field Office—USFWS, WY; Douglas Ranger District—USFS, WY; Nuclear Regulatory Commission-WY, SD; Rural Utility Services-WY**

Principal Biologist/Data Collection and Impact Analysis

Collects relevant field data and prepares and/or reviews text and maps used in numerous NEPA support documents such as Biological Assessments, Biological Evaluations, Management Indicator Species appraisals, and Technical and Environmental Reports. These documents are incorporated into permit application packages submitted to the BLM, USFWS, USFS, Nuclear Regulatory Commission, and Rural Utility Services for a variety of energy-related and utility projects. (2000 to present)

**Surface Mine Wildlife Monitoring and Reporting—WY, SD, MT**

Principal Biologist/Data Collection and Reporting

Gwyn designs, manages, and conducts baseline wildlife inventories and annual wildlife monitoring at new and existing surface mines, respectively, and for expansions of existing mine properties. The overall coverage area has included more than 700 mi<sup>2</sup> at multiple surface coal, bentonite, and gold mines and in situ uranium projects in Wyoming, South Dakota, and Montana. Surveys encompass a variety of terrestrial vertebrates, including threatened and endangered and sensitive species (USFWS, BLM, USFS, and WGFD species), big game, lagomorphs, small mammal trapping, raptors, sage-grouse and other upland game birds, waterfowl, shorebirds, songbirds, and herptiles. Annual and baseline reports are submitted to federal and state agencies as part of permit application or amendment packages. (1994-present)

**Impact Assessments, and Mitigation Planning and Implementation for Terrestrial Wildlife—WY, SD, MT**

Principal Biologist/Data Collection and Impact Analysis

Gwyn routinely prepares USFWS-approved Avian Monitoring and Mitigation Plans for surface coal operators in northeast Wyoming, and similar mitigation plans for other energy-related projects in Wyoming, Montana, and South Dakota. She develops, modifies, and/or implements specific mitigation measures designed to minimize or mitigate impacts on wildlife from a wide variety of surface mine and utility projects. Recent special projects include management of sage-grouse telemetry projects in the Powder River and Big Horn basins, and prairie dog translocations to recreate mountain plover nesting habitat at a surface coal mine in northeast Wyoming. Gwyn also works with a group of private landowners as both a field biologist and in an advisory role during their ongoing development of a landscape-scale CCAA/CCA for the greater sage-grouse and seven other vertebrate species of concern in northeast Wyoming. These efforts have contributed to numerous state, regional, and national awards for the project proponents. (2000-present)

**Electric Transmission and Distribution Projects—Powder River Energy Corporation (primary contractor) and Basin Electric (subcontractor), Powder River Basin, Wyoming**

Principal Biologist/Data Collection, Reporting, and Impact Analysis. Manage and conduct biological inventories, habitat assessments, monitoring, and mitigation projects for T&E species and other vertebrates of concern for various transmission and distribution line projects for two electric coops operating in northeast Wyoming. Project size has ranged from 0.5 to 75 right-of-way miles. Develop and implement mitigation strategies for active and inactive raptor nests during and post construction. Prepare technical reports (including impact assessments) and mitigation plans; obtain, implement, and manage necessary state and federal permits. (2002 to present)

**Sage-grouse Research—North Antelope Rochelle Mine, Campbell and Weston Counties, Wyoming**

Principal Biologist/Project Manager. Captured, radio-collared, and tracked greater sage-grouse for voluntary, multi-year project in southern Campbell County and southwestern Weston County, Wyoming. This project provided current data regarding the home range, survival, nesting success, and general habitat use of grouse in a landscape heavily impacted by coal mining and oil and gas development. Efforts were expanded onto nearby private lands to assist ranchers with proactive management practices for this species. Results were summarized annually in a technical report provided to all interested entities (corporate, government) in the region. (2004-2008; project on-going and expanded under ICF)

**Black-tailed Prairie Dog Translocations for Mountain Plover Habitat Mitigation—Antelope Coal Mine, Converse County, Wyoming**

Principal Biologist/Project Manager. Initiated and implemented a project to create mountain plover habitat in reclamation to mitigate the loss of habitat during surface coal mining. Constructed burrow chambers in artificial prairie dog colonies covering approximately 10 non-contiguous acres. Translocated 138 prairie dogs (males, females, juveniles) into the colonies over 5-year period; project is ongoing. Monitor prairie dog presence, reproduction, and expansion in the colonies annually, and survey for mountain plovers. This project garnered four state awards and one national award for the Antelope Coal Mine, including the Excellence in Surface Coal Mining & Reclamation National Award from the Office of Surface Mining in 2003. (2000-present)

**Breeding Bird Surveys and Aerial Raptor Nest Searches—Thunder Basin Grasslands Prairie Ecosystem Association (Association), Powder River Basin, Wyoming**

Managed and conducted annual breeding bird surveys at multiple properties for members of the Association using point count and belt transect methods. Conducted aerial raptor nest searches in targeted years. Project areas encompassed a sizeable portion of northern Converse County. Prepared maps and technical reports summarizing survey results for targeted project areas and incorporating results from comparable survey efforts elsewhere in the region. (2009-2012)

**Black-footed Ferret Surveys—Multiple Clients (Coal, Pipelines, Railroad), Wyoming and Montana**

Senior Biologist/Project Manager. Supervised and conducted snow tracking and spotlight surveys for black-footed ferrets prior to potential habitat disturbance. Projects have included surface coal and bentonite mines, natural gas pipelines, CO<sub>2</sub> pipelines, a railroad, and a coal-fired power plant in Wyoming and southeast Montana. Related survey work includes mapping prairie dog colonies and determining burrow density, coordinating with federal regulating agencies, and report preparation. USFWS certified for black-footed ferret surveys. (1994-2004; surveys no longer required in NE Wyoming by early 2004)

**Swift Fox Surveys—National Forest System Lands, NE Wyoming**

Principal Biologist/Project Manager. Considered by the USFS as qualified to conduct track plate and nocturnal spotlight surveys for swift fox. Projects have included clearance surveys for overhead power line projects and surface coal mines on the TBNG in northeast Wyoming. Survey efforts and results were fully documented in the Biological Evaluations submitted to the Douglas Ranger District of the USFS. In addition to conducting the surveys, efforts included coordinating with the USFS, the local WGFD game warden, and the local Sheriff's Department to notify all relevant parties of spotlighting activity. (2002-present, as required)

**Road and Utility (Water/Sewer) Projects and Water Treatment Plant—Northeast Wyoming**

Supervised and conducted all required wildlife surveys and habitat assessments for vertebrate T&E species and other wildlife species of concern prior to construction of various water, sewer (collection and trunk lines), road, and water treatment plant projects in the cities of Gillette and Pine Haven in northeast Wyoming. Prepared summary reports and maps for submittal to state and federal regulators. (1994-present)

**Coal Bed Natural Gas Biological Inventories—Multiple Clients, Powder River Basin, Wyoming**

Principal Biologist/Project Manager. Supervised and conducted biological inventories, habitat assessments, wildlife inventories and monitoring, and mitigation projects for coal bed natural gas developments in northeast Wyoming. Target species included bald eagles, sage-grouse, raptors, mountain plovers, prairie dogs, and a variety of other BLM special-status species. Prepared appropriate reports for agency review. BLM used report format as model for other contractors to follow. (2002-2004)

**Stormwater Management—Natural Gas Clients, Powder River Basin, Wyoming**

Conducted pre-construction wildlife clearance surveys as well as monitoring for all phases of pipeline construction to document proper use of stormwater management structures and post-construction revegetation. Prepared stormwater plans, installed and maintained stormwater control structures. (2007-2008)

### Other Related Experience (1980-present)

Worked for and with various organizations across multiple states: trapped more than 150 migrating and resident raptors of 7 species using 5 different methods; banded more than 300 raptors; radio-collared/tracked more than 50 raptors; reintroduced more than 100 raptors; identified/counted more than 1,350 migrating raptors of 17 species over 5 volunteer days; raptor rehabilitation, rearing, reintroduction, flight training, handling (eagles, vultures, hawks, falcons, accipiters, owls); trapped, banded, collared, radio-tracked more than 70 prairie grouse of 2 species; time-budget observations of nesting bald and golden eagles; vegetation sampling using various techniques in habitats ranging from the Northern Great Plains to the boreal forest of central Alaska; basic water chemistry and aquatic invertebrate sampling. Assisted local electric cooperative with creating voluntary raptor and sage-grouse protection plans. Currently assisting local group of property owners with development of a landscape scale joint CCAA/CCA for the greater sage-grouse and seven other species of concern encompassing six counties in northeast Wyoming and southeast Montana.

### PUBLICATIONS AND PRESENTATIONS (in descending order)

- Fedy, B.C., K.E. Doherty, C.L. Aldridge, M. O'Donnell, J.L. Beck, B. Bedrosian, M.J. Holloran, G.D. Johnson, N.W. Kaczor, C.P. Kirol, C.A. Mandich, D. Marshall, G. McKee, C. Olson, A. Pratt, and C.C. Swanson. 2013. Habitat Prioritization Across Large Landscapes, Multiple Seasons, and Novel Areas: An Example Using Greater Sage-Grouse in Wyoming (in review).
- McKee, G., P. Griswold, and M. O'Rourke. 2013. Sustaining Raptor Populations at the North Antelope Rochelle Mine in Northeast Wyoming. Oral Presentation to be given at the 2013 National Meeting of the American Society of Mining and Reclamation, Laramie, WY Reclamation Across Industries, June 1-6, 2013. R.I. Barnhisel (Ed.) Published by ASMR, 3134 Montavesta Rd., Lexington, KY 40502.
- McKee, G. 2010. Long-term Trends for Nesting Raptors and Prey Populations Relative to the Effects of Surface Coal Mining on Nesting Raptors in Northeast Wyoming. Invited presentation for the annual Raptor Research Foundation meeting. September 2010. Ft. Collins, CO.
- \_\_\_\_\_. 2007. Wildlife Mitigation Techniques at Surface Coal Mines in Northeast Wyoming. National meeting of American Society of Mining and Reclamation. June 2007. Gillette, WY.
- \_\_\_\_\_. 2007. Nesting Issues and Solutions. Invited presentation for 6th Avian Electrocutation & Collision Prevention Workshop. February 2007. Albuquerque, NM.
- \_\_\_\_\_. 2006. Nesting Issues and Solutions. Invited presentation for 11th International ESMO Symposium. October 2006. Albuquerque, NM.
- \_\_\_\_\_. 2006. Raptor Identification, Mitigation, and Regulation in Northeast Wyoming. Presentation at the Avian Protection Plan Public Forum hosted by Powder River Energy Corporation. March 2006. Gillette, WY.
- \_\_\_\_\_. 2006. Wildlife Issues in Reclamation. Presentation for a course on Reclamation Basics in the State of Wyoming at the Gillette Campus of the Sheridan Community College. February 2006. Gillette, WY.

- McKee, G., K.M. Clayton, H.R. Postovit, and B.C. Postovit. 2001. Long-term trends of wildlife use in native and reclaimed habitats in the Powder River Basin of northeastern Wyoming. Paper presented at the Interactive forum on surface-mining reclamation approaches to bond release: wildlife habitat construction and wildlife use of reclaimed lands in the arid and semi-arid west. August 2001. Gillette, WY.
- Clayton, K.M., G. McKee, B.C. Postovit, and H.R. Postovit. 2001. Consequences of mining, reclamation, and mitigation for raptors in the Powder River Basin of Wyoming. Paper presented at the Interactive forum on surface-mining reclamation approaches to bond release: wildlife habitat construction and wildlife use of reclaimed lands in the arid and semi-arid west. August 2001. Gillette, WY.
- McKee, G., M.R. Ryan, and L.M. Mechlin. 1998. Predicting greater prairie-chicken nest success from vegetation and landscape characteristics. *Journal of Wildlife Management* 62 (1): 314-321.
- McKee, G. 1995. Ecology of greater prairie-chickens in relation to habitat characteristics in southwestern Missouri. M.S. Thesis, University of Missouri-Columbia. Columbia, MO.
- Marshall, J.D., C.H. Hager, and G. McKee. 1986. The barn owl egg: weight loss characters, fresh weight prediction and incubation period. *Raptor Research*. Vol. 20, #3-4: 108-112

### PEER REVIEWER ARTICLES

I have served as a peer reviewer for the following articles submitted to professional journals for publication.

- Atamian, M.T., Sedinger, J.S., Heaton, J.S. 2008. Landscape level assessment of brood-rearing habitat for greater sage-grouse in east-central Nevada. *Journal of Wildlife Management* 00 (0): 000-000 (to be published). Reviewed January 2008.
- Nguyen, L.P., Nol, E., Abraham, K.F. 2007. Using digital photographs to evaluate the effects of egg crypsis on survival of artificial and natural semipalmated plover nests. *Journal of Wildlife Management* 00 (0): 000-000 (to be published). Reviewed December 2006.
- Gregg, M.A., Dunbar, M.R., Crawford, J.A. 2006. Use of implanted radio transmitters to estimate survival of greater sage-grouse chicks. *Wildlife Society Bulletin* 00 (0): 000-000. Reviewed August 2005.
- Niemuth, N.D. Published year unknown. Characteristics of landscapes harboring primary and secondary populations of Greater Prairie-Chickens in Wisconsin. *American Midland Naturalist* 00 (0): 000-000. Reviewed February 2004.

## JENNIFER OTTINGER

3215 S. Newport Street • Denver, Colorado 80224 • 303-229-9615 • ottingerjr@yahoo.com

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### PROFILE

#### Wildlife Biologist

Skilled field biologist and wildlife project manager with extensive experience in conducting wildlife assessments and evaluations for a variety of scientific, regulatory, and commercial applications. Hands-on experience in designing and implementing databases, compiling complex data, and generating reports on such issues as industrial impact mitigation and regulatory compliance. Broad knowledge of issues affecting raptor nesting and migration. Accomplished in representing conservation and natural history topics to the public and in managing access to viewing points and closed areas to minimize impact to wildlife while maintaining public support for conservation. Very strong analytical, writing, presentation, and interpersonal communication skills.

**Wildlife Surveys & Assessments • Raptor Nest Monitoring • Wildlife Inventories  
Migration Monitoring • Database Design • Report Generation • Data Management  
Banding • Wildlife Productivity & Habitat Use • Radio-telemetry Tracking • Writing  
Editing • Data Analysis • Problem Solving • Public Outreach • Presentations**

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### PROFESSIONAL EXPERIENCE

#### THUNDERBIRD WILDLIFE CONSULTING, INC.

JANUARY 2005–PRESENT

##### Wildlife Biologist – FTE 2005–2008 & On-call hourly since 2009

Conduct biological assessments and comprehensive surveys in the field on a project basis for a variety of commercial and industrial clients. Monitor raptor nests, inventory wildlife populations, and implement mitigation measures for raptors at sites operated by the coal mining, coal bed natural gas, and electrical transmission and distribution industries.

Work extensively in the field conducting ground and aerial surveys for sage-grouse leks, big game, bald eagle roosts, and raptor nests.

Conduct breeding bird point counts in a variety of different habitats to monitor population changes.

Trap and track sage-grouse populations using radio telemetry technologies.

Utilize such technologies as GPS, AutoCAD, ArcView 9.2, and various databases to contribute to Environmental Impact Statement (EIS) documents and detailed biological assessments and evaluations.

#### DELMARVA ORNITHOLOGICAL SOCIETY / HAWKWATCH INTERNATIONAL

#### HAWK RIDGE BIRD OBSERVATORY/ COASTAL VIRGINIA WILDLIFE OBSERVATORY

#### IDAHO BIRD OBSERVATORY / CHIMNEY ROCK HAWK WATCH

1995–2012

##### Raptor Migration Specialist

Conduct daily raptor migration counts and educate visitors on raptor identification, also assist with raptor and owl banding at various watch sites. Compile data daily and enter into database applications to generate reports.

Delmarva Ornithological Society, Cape Henlopen State Park, DE, September – November 2012

HawkWatch International, Smith Point, TX, August – November 2009, 2010

Hawk Ridge Bird Observatory, Duluth, MN, September – October 2008

HawkWatch International, Florida Keys, September – November 2004

Coastal Virginia Wildlife Observatory, Kiptopeke State Park, VA, September – December 2003

Idaho Bird Observatory, Boise, ID, August – November 1997

Chimney Rock Hawk Watch, Martinsville, NJ, August – November 1995, 1998

#### ARIZONA GAME & FISH DEPARTMENT

1995–2013

##### Wildlife Consultant

Monitor bald eagle nests throughout the state, assist with banding of nestlings, public education on bald eagle ecology, and enforce closures of breeding areas.

Analyze habitat use and behavioral data, enter observations into database application, and generate annual breeding area reports.

Led site watches in February–May 1995–1997, 2001, 2004, 2009–2013.

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**JENNIFER OTTINGER**

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**WESTERN ECOSYSTEMS TECHNOLOGY, INC**

MAY–SEPTEMBER 2011

**Wildlife Biologist**

Performed avian use surveys for wind energy development projects in southern California.  
Conducted point counts and breeding bird transects in desert and pine forest habitats.  
Assessed California condor activity through raptor counts and radio telemetry.  
Evaluated bat populations using AnaBat Systems and performed material roost surveys.  
Carried out post-construction avian mortality surveys at wind farms.

**ROCKY MOUNTAIN BIRD OBSERVATORY**

JUNE–AUGUST 1997 / JUNE–AUGUST 2009

**Goshawk Field Technician, 2009**

Performed broadcast acoustical transect surveys for northern goshawks in appropriate habitats.  
Navigated to survey plots and call stations using quad maps and GPS equipment.  
Entered data into database and generated field reports.

**Research Assistant, 1997**

Searched for and monitored passerine nests and conducted breeding bird point counts.

**HAWK MOUNTAIN SANCTUARY**

FEBRUARY 1998–JULY 2000

**Research Technician**

Monitored seasonal hawk migration and managed data for the Hawk Migration Association of North America.  
Edited and produced various scientific publications on raptor migration.  
Administered a Web-based database of raptor migration in North America (HawkCount).  
Trained and supervised interns and volunteers in hawk identification and data collection.  
Conducted kestrel breeding studies, banded nestlings, maintained a complex nest database, and tracked kestrels utilizing radio telemetry.

**UNITED STATES PEACE CORPS**

JUNE 2001–APRIL 2002

**Volunteer**

Assisted in developing a community garden in a local village. Completed 3 months of intensive training in local culture, language, and environmental education.

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**EDUCATION**

**COLORADO STATE UNIVERSITY**

**B.S. IN ZOOLOGY, 1993**  
**Minor: Microbiology**

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**AFFILIATIONS**

Raptor Research Foundation, Hawk Mountain Sanctuary, Hawk Ridge Bird Observatory, Hawk Migration Association of North America, Golden Key National Honor Society, Who's Who Among Professionals

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**PUBLICATIONS**

- **Co-author**
- Bildstein, K. L., J. Zalles, J. Ottinger, and K. McCarty. 2000. Conservation biology of the world's migratory raptors: status and strategies. Pages 573-590 in R. D. Chancellor and B.-U. Meyburg, eds. *Raptors at Risk*. WWGBP, Berlin, Germany.
- McCarty, K., K. Arnold, J. Ottinger, and K. L. Bildstein. 2000. HMANA data at Hawk Mountain Sanctuary: an update through January 2000. *HMANA Hawk Migration Studies* 25(2): 30-39.
- Ottinger, J., and K. L. Bildstein. 2000. Spring raptor migration summary 2000. *Pennsylvania Birds* 14(2): 94-96.
- Ottinger, J., and K. L. Bildstein. 2000. Autumn raptor migration summary 1999. *Pennsylvania Birds* 13(4): 190-196.
- McCarty, K. M., M. Farhoud, J. Ottinger, L. J. Goodrich, and K. L. Bildstein. 1999. Spring migration at Hawk Mountain Sanctuary, 1969-1998. *Pennsylvania Birds* 13(1): 11-15.
- Ottinger, J., and K. L. Bildstein. 1997. HMANA data at Hawk Mountain Sanctuary: an update through early December 1996. *HMANA Migration Studies* 22(2): 11-14.

• **Associate Editor**

Bildstein, K. L., and D. Klem, Jr., eds. 2001. *Hawkwatching in the Americas*. Hawk Migration Association of North America, North Wales, Pennsylvania, USA.

Zalles, J. I. and Bildstein, K. L., eds. 2000. *Raptor Watch: A global directory of raptor migration sites*. Cambridge, UK: BirdLife International; and Kempton, PA, USA: Hawk Mountain Sanctuary (BirdLife Conservation Series No. 9).

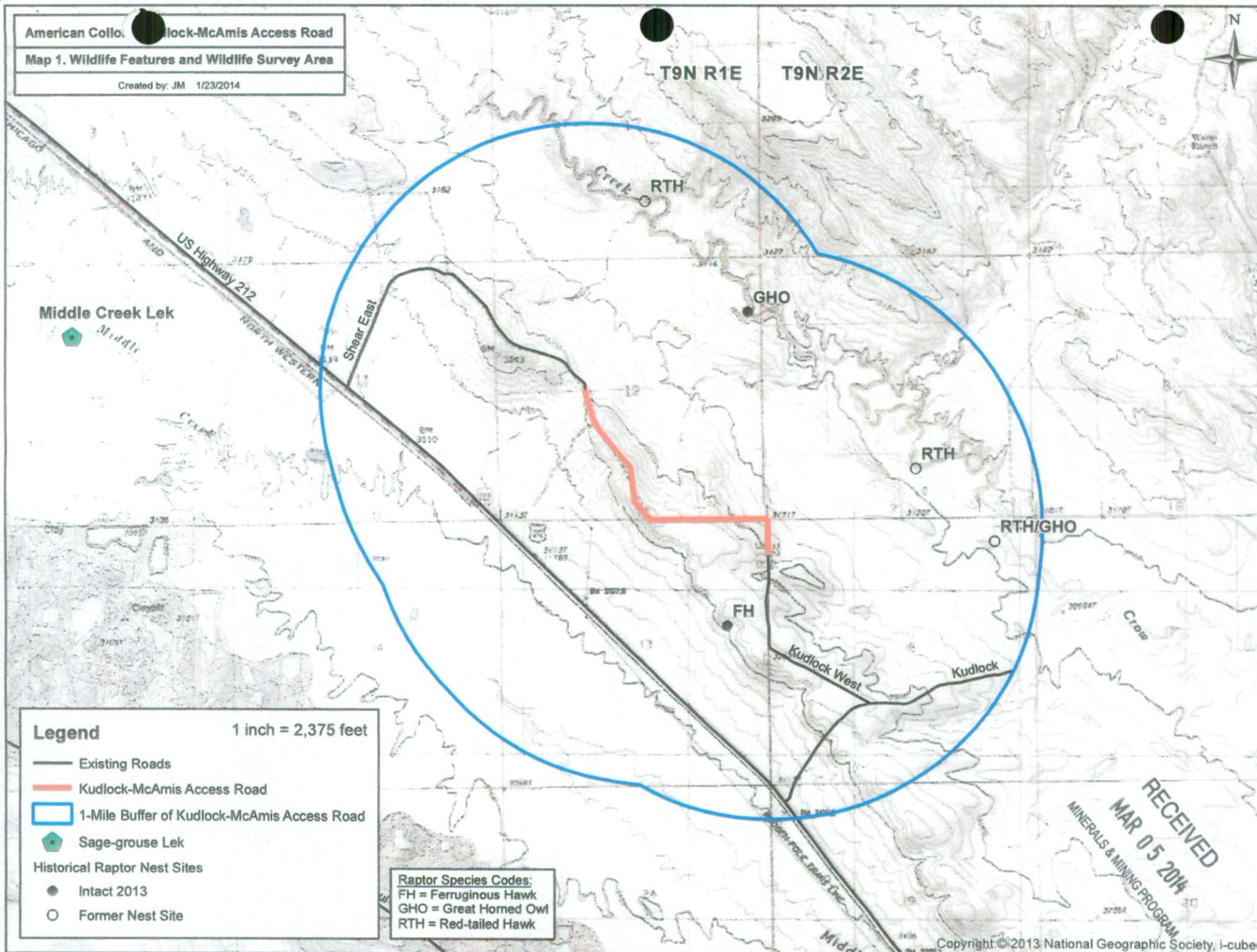
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**PRESENTATIONS**

Bildstein, K. L., J. Zalles, and J. Ottinger. 1999. Moving targets: using migration watchsites to monitor populations of the world's migratory raptors. 3rd Eurasian conference of the Raptor Research Foundation, Mikulov, Czech Republic.

Ottinger, J. (co-authors K. M. McCarty, M. Farhoud, L. J. Goodrich, and K. L. Bildstein). 1998. Spring migration at Hawk Mountain Sanctuary, 1969-1998. Raptor Research Foundation meeting, Ogden, Utah.



**Legend**

1 inch = 2,375 feet

- Existing Roads
- Kudlock-McAmis Access Road
- 1-Mile Buffer of Kudlock-McAmis Access Road
- ◆ Sage-grouse Lek
- Historical Raptor Nest Sites
  - Intact 2013
  - Former Nest Site

Raptor Species Codes:  
FH = Ferruginous Hawk  
GHO = Great Horned Owl  
RTH = Red-tailed Hawk

RECEIVED  
MAR 05 2014  
MINERALS & MINING PROGRAM

#483



AMERICAN COLLOID COMPANY

Permitting & Reclamation Department  
P.O. Box 2010 • Belle Fourche, South Dakota 57717  
(605) 892.6950 • Fax (605) 892.3178

March 4, 2014

Eric Holm, Natural Resources Engineer  
Minerals and Mining Program  
Dept. of Environment & Natural Resources  
Joe Foss Building, 523 E. Capitol  
Pierre, SD 57501-3181

RECEIVED  
MAR 05 2014  
MINERALS & MINING PROGRAM

Re: Small Scale Mining Permit Application, Kudlock/McAmis Small Scale Mining Permit

Dear Eric:

Enclosed are the small mine permit application, adjudication information, wildlife baseline data, mine and reclamation plan and supporting information for the Kudlock/McAmis Small Scale Mining Permit for access road. The permit fee is being mailed to you under separate cover.

Also enclosed is documentation from the Butte County Register of Deeds Office and the local NRCS office that the above materials that the above materials have been received in their offices.

Please call me at (605) 892-7160 or email me at [nick.semenza@colloid.com](mailto:nick.semenza@colloid.com) if you have any questions or require further information during the permit review process.

Sincerely,

A handwritten signature in black ink, appearing to read 'Nick Semenza', is written over a printed name.

Nick Semenza  
Environmental Specialist

Enclosures

- CC: Roger Gross, Greg Fuller, Brian Harms, Lyndon Bucher – ACC  
Raymond Sowers, Division of Resource Conservation & Forestry, Pierre, SD  
Stan Michals, Department of Game, Fish, and Parks, Rapid City, SD  
Michael Fosha, Department of Tourism, Archaeological Research Center, Rapid City, SD  
Bill Chalcraft, Department of Health, Pierre, SD  
Sarah Eggebo, District Conservationist, Belle Fourche, SD



AMERICAN COLLOID COMPANY

Permitting & Reclamation Department  
P.O. Box 2010 • Belle Fourche, South Dakota 57717  
(605) 892.6950 • Fax (605) 892.3178

March 4, 2014

Polly Odle  
Planning Director  
Register of Deeds  
839 5th Ave.  
Belle Fourche, SD 57717

RECEIVED  
MAR 05 2014  
MINERALS & MINING PROGRAM

**Re: Kudlock/McAmis – Small Scale Mining Permit for access road**

Dear Polly:

American Colloid Company is submitting a small scale mining permit application to the South Dakota Dept. of Environment and Natural Resources, Pierre, SD

Enclosed is a copy of the package which contains adjudication information, wildlife baseline data, mine and reclamation plan, and supporting information.

Please have these documents available in your office for public viewing.

Sincerely

Nick Semenza  
Environmental Specialist

Enclosure

**The Butte County Register of Deeds Office has the above information available for public viewing.**

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date



AMERICAN COLLOID COMPANY

Permitting & Reclamation Department  
P.O. Box 2010 • Belle Fourche, South Dakota 57717  
(605) 892.6950 • Fax (605) 892.3178

March 4, 2014

Sarah Eggebo  
District Conservationist  
Natural Resource Conservation Service  
1837 5th Avenue  
Belle Fourche, SD 57717

RECEIVED  
MAR 05 2014  
MINERALS & MINING PROGRAM

**Re: Kudlock/McAmis – Small Scale Mining Permit for access road**

Dear Sarah:

American Colloid Company is submitting a small scale mining permit application to the South Dakota Dept. of Environment and Natural Resources, Pierre, SD

Enclosed is a copy of the package which contains adjudication information, wildlife baseline data, mine and reclamation plan, and supporting information.

Please have these documents available in your office for public viewing.

Sincerely

Nick Semenza  
Environmental Specialist

Enclosure

**The Natural Resource Conservation Service Office has received the above material.**

Signature

3-4-14

Date