

RECEIVED

MAR 15 2024

MINERALS & MINING PROGRAM

March 11, 2024

Roberta Hudson  
Department of Agriculture and Natural Resources  
Minerals and Mining Program  
Joe Foss Building  
523 East Capitol Avenue  
Pierre, SD 57501-3182

RE: Clean Nuclear Energy Corp. Uranium Exploration Permit

Dear Mrs. Hudson,

Clean Nuclear Energy Corp. is submitting a Uranium Exploration Permit Application for the Chord Project located within the State lands in Section 36, Township 7S, Range 2E, Black Hills Meridian. The program consists of uranium exploration drilling from existing roads and overland travel.

Included in this application are the following:

- Certificate of Applicant
- Uranium Exploration Permit Application Form
- A plan of reclamation pursuant to Section 9
- A topographic map pursuant to Section 10
- A fee of \$500 pursuant to Section 18 in check form
- Written consultation with landowner (SD Office of School and Public Lands)
- Written consultation with the NRCS
- Mineral Lease and MOU Between Clean Nuclear Energy and Cowboy Exploration

If there are any questions or concerns, please contact me as Clean Nuclear Energy Corp. is committed to exceptional environmental stewardship by meeting or exceeding all statutes and regulations.

Regards,

Mike Blady  
Clean Nuclear Energy Corp.  
503-905 Pender St. W  
Vancouver, British Columbia, Canada  
+1 604-720-3474  
mikeblady@gmail.com

Attachments

Department of Agriculture and Natural Resources  
Minerals and Mining Program  
523 East Capitol Avenue  
Pierre, South Dakota 57501-3182  
605 773-4201; Fax: 605 773-5286

**URANIUM EXPLORATION PERMIT**

Pursuant to SDCL 45-6D

**RECEIVED**  
**MAR 15 2024**  
**MINERALS & MINING PROGRAM**

Operator's name: Clean Nuclear Energy Corp.

Mailing address: 503-905 Pender St. W  
Vancouver, British Columbia, Canada

Telephone: 604-720-3474

Local address: N/A

Telephone:

**PAID**

**\$500**

Resident agent (if out-of-state corporation): CT Corporation System

Resident agent address: 319 S Coteau St  
Pierre, SD 57501

Resident agent telephone: 605-988-6654

Legal description of the area to be explored by Section, Township, and Range:

Section 36, Township 7 S, Range 2 E, Black Hills Meridian

County: Fall River

Provide a brief description of the type of uranium exploration to be conducted. Include a complete description of methods and a list of other minerals to be explored:

Clean Nuclear Energy Corp. will explore for roll-front uranium deposits in the project area. Drilling will be completed from existing roads and trails to the extent practicable, though overland travel between closely spaced drillsites would be required. It is anticipated that drilling will be completed using a truck mounted mud rotary rig (typical small water well rig). Support vehicles will include a 2,000 gallon water truck, drill pipe – supply truck, and two personnel transportation trucks all requiring one or two trips daily. The project would include up to 50 drill platforms, with vertical exploration holes to a maximum depth of 213 m (700 ft). Each drill hole will require approximately two weeks to complete and abandon. Drilling will occur on a 18.3 m by 18.3 m (60 ft by 60 ft) drill pad with 335 m<sup>2</sup> (0.08 acres) or less of disturbance per site. A recirculation mud pit measuring approximately 3.05 m x 1.52 m x 1.83 m (10 ft x 5 ft x 6 ft) will be excavated on each site. See the attached topographic and aerial photo map.

Date exploration will commence: July 1, 2024

What legal authority does the operator have to conduct exploration on the above-described land? Include a copy if available.

Deed  Lease  US Forest Service Permit  Pending US Forest Service Permit  Other



**INSTRUCTIONS:**

Please reference SDCL 45-6D. This permit must be accompanied by:

1. A plan of reclamation pursuant to Section 9.
2. A topographic map pursuant to Section 10.
3. A fee of \$500 payable to the Department of Agriculture and Natural Resources pursuant to Section 18.
4. A surety in an amount to be determined by the department pursuant to Section 19.
5. Any written landowner consultations giving alternative preferences for the reclamation of the affected land pursuant to Section 16.

Before a hearing on this uranium permit can be conducted by the SD Board of Minerals and Environment, the operator must submit the following:

1. A copy of the affidavit of publication of notice pursuant to Section 12.
2. Proof of filing a copy of the permit with the Register of Deeds pursuant to Section 11.

Applicant affirms that the surface owner has been notified of the proposed uranium exploration and that said surface owner is aware of his rights to compensation for damages to property pursuant to SDCL 34A. Applicant hereby affirms that the uranium exploration will be conducted pursuant and subject to the provisions of SDCL 45-6D, and all regulations promulgated thereunder, that he will grant access to the SD Board of Minerals and Environment or its agents to the area under notice from the date of the notice and thereafter to assure compliance with the provisions of SDCL 45-6D.

*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.*

Mr. B.G.  
Signature

Date: Feb. 20 / 2024

Title: Director

STATE OF British Columbia (province)

COUNTY OF Kelowna (city)

On this 20<sup>th</sup> day of February, 2024, before me personally appeared

Mike Blady, who acknowledged himself to be the Director  
(Title)

for Clean Nuclear Energy Corp. and that he is authorized to execute the Uranium Exploration  
(Operator)

Permit for the purposes contained therein.

[Signature]  
Notary Public  
**KEITH INMAN**  
Barrister & Solicitor  
#301 - 1665 Ellis Street  
Kelowna, BC V1Y 2B3  
Phone: (250) 762-2108

My Commission Expires: N/A

SEAL

**FOR DEPARTMENT USE ONLY**

DATE APPROVED: \_\_\_\_\_ BOND AMOUNT: \_\_\_\_\_ PERMIT NUMBER: \_\_\_\_\_  
Chairman, SD Board of Minerals & Environment

Renewals: 1st Date: \_\_\_\_\_ 2nd Date: \_\_\_\_\_ 3rd Date: \_\_\_\_\_



STATE OF SOUTH DAKOTA  
BEFORE THE SECRETARY OF

THE DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES

IN THE MATTER OF THE )  
APPLICATION OF )

Clean Nuclear Energy Corp. )

CERTIFICATION OF )  
APPLICANT )

STATE OF South Dakota )

COUNTY OF Fall River )

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

I have read and understand South Dakota Codified Law Section 1-41-20 which 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 involving 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; or
- (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."

I certify pursuant to 1-41-20, that as an applicant, officer, director, partner, or resident general manager of the activity or facility for which the application has been made that I; a) have not intentionally misrepresented a material fact in applying for a permit; b) have not been convicted of a felony or other crime of moral turpitude; c) have not habitually and intentionally violated environmental laws of any state or the United States which have caused significant and material environmental damage; (d) have not had any permit revoked under the environmental laws of any state or the United States; or e) have not otherwise demonstrated through clear and convincing evidence of previous actions that I lack the necessary good character and competency to reliably carry out the obligations imposed by law upon me. I also certify that this application does not substantially duplicate an application by the same applicant denied within the past five years which denial has not been reversed by a court of competent jurisdiction. Further;

"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 20<sup>th</sup> day of February, 2024.

Applicant (print) Mike Blady

M. Blady  
Applicant (signature)

Subscribed and sworn before me this 20<sup>th</sup> day of February, 2024.

[Signature]  
Notary Public (signature)  
**KEITH INMAN**  
Barrister & Solicitor  
#301 - 1665 Ellis Street  
Kelowna, BC V1Y 2B3  
Phone: (250) 762-2108

My commission expires: N/A

(SEAL)

**PLEASE ATTACH ANY ADDITIONAL INFORMATION NECESSARY TO DISCLOSE ALL FACTS AND DOCUMENTS PERTAINING TO SDCL 1-41-20 (1) (a) THROUGH (e). ALL VIOLATIONS MUST BE DISCLOSED, BUT WILL NOT AUTOMATICALLY RESULT IN THE REJECTION OF AN APPLICATION**



Pursuant to SDCL 45-6D-9

RECEIVED

MAR 15 2024

MINERALS & MINING PROGRAM

Operator's name: Clean Nuclear Energy Corp.

In preparing this reclamation plan, please address each item in detail, following SDCL 45-6D-9. Also, refer to the reclamation standards outlined in SDCL 45-6D-33 through 45-6D-39, and the state's hole plugging regulations as detailed in ARSD 74:11.

1. Describe the type of reclamation the operator proposes to achieve in the reclamation of the affected land.

After drilling is completed at the drill sites, the pad will be recontoured (if needed), seeded, and mulched during final reclamation. Final reclamation of the drill sites and staging area will include the following elements:

- Drill holes will be sealed and reclaimed in accordance with ARSD 74:11:08 and SDCL 45-6D-33 through 45-6D-34.
- Drill sites will be recontoured to eliminate excessive rutting regardless of the pre-project condition.
- Drill fluids will be contained in recirculation pits to allow solids to settle and fluids to infiltrate /evaporate. Pits will be backfilled with excavation materials and any excess materials spread evenly on the pad.
- Overly compacted areas at the drill sites that are not located on an active roadbed will be roughed either manually or mechanically to enhance seeding viability and minimize erosion.
- Clean Nuclear will initiate revegetation as soon as possible (i.e., not to exceed 6 months) after termination of ground disturbing activities.

2. Provide a proposed timetable for seeding and replanting indicating when and how the reclamation plan will be implemented. Such timetable shall be developed after consulting with the County District Conservationist as to the nature of the soils and native vegetation in the area of the proposed operation. These recommendations shall be followed, if any are provided, and copies of all correspondence shall be provided to the Department.

Seeding will take place after recontouring, and re-grading of disturbed areas is completed during early spring (prior to May 15). Seedings would be done on a clean, smooth, weed free seedbed using a grass drill.

Clean Nuclear Energy will control all noxious weeds on areas impacted by exploration drilling throughout operations and through 1 year post-reclamation. Weeds would be clipped before they compete against the seeding for moisture and light.

All reclamation processes, seed mixes, seasonal constraints and timing and guidance will be based on South Dakota Natural Resources Conservation Service (NRCS) Conservation Practice Standard (CPS) Critical Area Planting Code 342 as suggested by the local NRCS requirements and recommendations, per 45-6C-16. Reseeding of the reclaimed sites would be conducted if the initial reclamation is not successful. The seed mix for reseeding drill pad sites consists of local native species and was developed based on recommendations by the local NRCS office. The reclamation seed mixture is listed in Table 1 below and attached on a NRCS Seeding Plan Tool Form.

**Table 1. Reclamation Seed Mix Table: Recommended by NRCS**

Species	Percent in Mixture
Sideoats grama	10%
Western wheatgrass ( <i>Pascopyrum smithii</i> )	50%
Blue grama	5%
Green needlegrass	15%
Slender wheatgrass ( <i>Elymus trachycaulus</i> )	10%
Purple prairie clover	2%
Little bluestem	8%

Application Rate: 14 Pounds Live Seed/Acre

3. Describe how the reclamation plan will rehabilitate the affected land.

The goal of the reclamation plan is to rehabilitate and restore the affected lands to grazing habitat. Planting grass would control erosion and protect the soil. Grassland communities are expected to develop as reclamation matures, which would support grazing and provide support to the wildlife in the area. It is anticipated that an aggressive noxious weed control program will benefit each drill platform as well.



4. Describe the anticipated temporary and permanent plugging and capping procedures to be used. Please refer to SDCL 45-6D-33 through 45-6D-35 and the state's hole plugging regulations as detailed in ARSD 74:11.

Clean Nuclear commits to following all of the South Dakota laws and statues concerning drill hole plugging and abandonment and would install a full cement grout where needed, such as in any instance where aquifer cross contamination is possible. All of the exploration drill holes will be plugged in accordance with Administrative Rules of South Dakota (ARSD) 74:11:08 and South Dakota Codified Law (SDCL) 45-6D-33 through 45-6D-34. The drill holes are planned to penetrate the Inyan Kara Group rocks, which are water-bearing units or aquifers in some locations of the Black Hills. If an aquifer is penetrated, the completed exploration drill holes will be plugged from bottom to top using bentonite grout, which complies with the requirements of ARSD 74:11:08:05 and ARSD 74:11:08:05:01 (i.e., requirements for plugging exploration drill holes that penetrate single unconfined aquifers and confined or multiple aquifers). If a confined aquifer is penetrated, the weight of the bentonite grout column would be either sufficient to overcome formation pressure or the hole will be plugged using cement grout. The collar elevations of the planned holes are higher than the static water level to be encountered in the exploration holes; therefore, no natural artesian discharge from drill holes is anticipated.

Records regarding aquifers encountered during drilling and the plugging methods used will be recorded and retained for each exploration hole and those records would be provided to the South Dakota Department of Agriculture and Natural Resources (DANR) at the end of exploration. All exploration drill holes are planned to be plugged immediately upon completion while the drill rig is still on the site. If a drill hole temporarily needs to remain open, a temporary surface plug will be emplaced. If a hole needs to remain open for more than 30 days, Clean Nuclear Energy Corp. will apply for an alternate plugging schedule to temporarily keep the hole open.

5. Provide the estimated cost of implementing and completing the proposed reclamation. Also, provide the estimated cost of plugging and sealing each test hole.

Clean Nuclear Energy will reclaim, recontour, reseed disturbance to any drill sites as described above as well as budget for monitoring and weed control. Estimated reclamation costs are \$2,400/platform for reclamation and monitoring. Costs of plugging and sealing each test hole are estimated to be ~ \$25/m. Clean Nuclear Energy will post a surety bond with the State of South Dakota (SDCL 45-6D-19).

***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.***

*M. Blj*

Date: Feb 20/2024

Signature

Title: Director

original signature page  
but fixed SDCL numbers.  
copy w/ fixed also attached.



4. Describe the anticipated temporary and permanent plugging and capping procedures to be used. Please refer to SDCL 45-6D-33 through 45-6D-35 and the state's hole plugging regulations as detailed in ARSD 74:11.

Clean Nuclear commits to following all of the South Dakota laws and statutes concerning drill hole plugging and abandonment and would install a full cement grout where needed, such as in any instance where aquifer cross contamination is possible. All of the exploration drill holes will be plugged in accordance with Administrative Rules of South Dakota (ARSD) 74:11:08 and South Dakota Codified Law (SDCL) 45-6D-33 through 45-6D-34. The drill holes are planned to penetrate the Inyan Kara Group rocks, which are water-bearing units or aquifers in some locations of the Black Hills. If an aquifer is penetrated, the completed exploration drill holes will be plugged from bottom to top using bentonite grout, which complies with the requirements of ARSD 74:11:08:05 and ARSD 74:11:08:05:01 (i.e., requirements for plugging exploration drill holes that penetrate single unconfined aquifers and confined or multiple aquifers). If a confined aquifer is penetrated, the weight of the bentonite grout column would be either sufficient to overcome formation pressure or the hole will be plugged using cement grout. The collar elevations of the planned holes are higher than the static water level to be encountered in the exploration holes; therefore, no natural artesian discharge from drill holes is anticipated.

Records regarding aquifers encountered during drilling and the plugging methods used will be recorded and retained for each exploration hole and those records would be provided to the South Dakota Department of Agriculture and Natural Resources (DANR) at the end of exploration. All exploration drill holes are planned to be plugged immediately upon completion while the drill rig is still on the site. If a drill hole temporarily needs to remain open, a temporary surface plug will be emplaced. If a hole needs to remain open for more than 30 days, Clean Nuclear Energy Corp. will apply for an alternate plugging schedule to temporarily keep the hole open.

5. Provide the estimated cost of implementing and completing the proposed reclamation. Also, provide the estimated cost of plugging and sealing each test hole.

Clean Nuclear Energy will reclaim, recontour, reseed disturbance to any drill sites as described above as well as budget for monitoring and weed control. Estimated reclamation costs are \$2,400/platform for reclamation and monitoring. Costs of plugging and sealing each test hole are estimated to be ~ \$25/m. Clean Nuclear Energy will post a surety bond with the State of South Dakota (SDCL 45-6D-19).

***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.***

M. Blj  
Signature

Date: Feb 20/2024

Title: Director



RECEIVED  
MAR 15 2024  
MINERALS & MINING PROGRAM

**From:** [Greenfield, Brock](#)  
**To:** [Crystal Hocking](#); [timothy7171973@gmail.com](mailto:timothy7171973@gmail.com)  
**Cc:** [Mike Blady](#); [Holt, Kyle](#); [Nagel, Justin](#); [Finck, Caleb](#)  
**Subject:** RE: Clean Nuclear Exploration Project - Sec 36/T7S/R2E - Reclamation Consultation  
**Date:** Friday, March 8, 2024 3:33:22 PM

---

**This Message Is From an External Sender**

This message came from outside your organization.

[Report Suspicious](#)

Ms. Hocking,

We've reviewed the reclamation plan submitted to our office by Clean Nuclear Energy Corp. We noted several references to SDCL 45-6C, a chapter that pertains to mineral exploration. Since this project is specifically for uranium exploration, SDCL 45-6D would be the appropriate chapter to refer to.

While it doesn't specifically apply to the reclamation plan, if more insight could be provided on the relationship between Cowboy Exploration/RESPEC/Clean Nuclear Energy/Basin Uranium, we would certainly appreciate some clarification. Most notably, in our research we discovered that Clean Nuclear Energy is a wholly owned subsidiary of Basin Uranium. It appears that Basin is not registered with the SD Secretary of State, while Clean Nuclear filed its registration with the SOS in January of 2024. The paperwork transmitted to our office in February implies that when Cowboy (through Mr. John Glasscock) sought the subsurface lease, they were acting as an agent of Clean Nuclear. We are trying to gain a handle on the situation that is unlike anything my relatively new team has dealt with to-date.

Thank you.

Bock Greenfield  
Commissioner, SD Office of School & Public Lands



RECEIVED  
MAR 15 2024  
MINERALS & MINING PROGRAM

**From:** [Crystal Hocking](#)  
**To:** [timothy7171973@gmail.com](mailto:timothy7171973@gmail.com)  
**Cc:** [Mike Blady](#); [Greenfield, Brock](#); [Holt, Kyle](#); [Nagel, Justin](#); [Finck, Caleb](#)  
**Subject:** Clean Nuclear Exploration Project - Sec 36/T7S/R2E - Reclamation Consultation  
**Date:** Wednesday, March 6, 2024 1:24:00 PM  
**Attachments:** [TimothyAllen\\_CoverLetterandReclamationPlan\\_030624.pdf](#)

---

Mr. Allen,

I appreciate your time earlier. As discussed, I'm providing you a copy of the reclamation plan associated with Clean Nuclear Energy's proposed uranium exploration drilling project on State School Lands in Section 36, T7S, R2E (attached).

**Please confirm you have received and reviewed this information.**

If you have any questions, feel free to email or call me. I've also cc'd the folks from the Office of School and Public Lands as well as the head of Clean Nuclear Energy.

Cheers,  
Crystal

Crystal M. Hocking, PE, PG  
*Project Geologist*

**RESPEC**  
3824 Jet Drive  
Rapid City, SD 57703  
605.394.6451 office  
605.431.7416 cell  
[respec.com](http://respec.com)



RECEIVED

MAR 15 2024

MINERALS & MINING PROGRAM

**From:** [Faulkner, Mitch - FPAC-NRCS, SD](#)  
**To:** [Crystal Hocking](#)  
**Cc:** [Humbrecht, Bradley - FPAC-NRCS, SD](#)  
**Subject:** RE: [External Email]Basin Uranium - Consultation with Local Conservation District for Reclamation Plan  
**Date:** Tuesday, January 23, 2024 8:36:56 AM  
**Attachments:** [Basin Uranium Soils Map.pdf](#)  
[Basin Uranium Seeding Plan.pdf](#)

**This Message Is From an External Sender**

This message came from outside your organization.

[Report Suspicious](#)

Hello Crystal,

Find attached the seeding plan I made for the Basin Uranium Fall River Co project. It is calculated for the 50 ac (49.5 according to web soil survey) area of likely impact. I also included a list of named varieties of plant materials SD NRCS recommends. See also the origin guides for common seed listed within the seeding plan, and a critical area seeding guideline document with recommendations from NRCS. Finally I attached the Web Soil Survey soils/ecological sites map and information I used to design the seeding.

If you have any questions or need adjustments made please let me know.

Thanks

Mitch Faulkner  
Area Rangeland Management Specialist  
USDA-NRCS  
Belle Fourche, SD  
Cell: (605) 519-1446

---

**From:** Crystal Hocking <crystal.hocking@respec.com>  
**Sent:** Monday, January 15, 2024 11:38 AM  
**To:** Faulkner, Mitch - FPAC-NRCS, SD <mitch.faulkner@usda.gov>  
**Subject:** [External Email]Basin Uranium - Consultation with Local Conservation District for Reclamation Plan

**External Email**

If this message comes from an **unexpected sender** or references a **vague/unexpected topic**;

Use caution before clicking links or opening attachments.

Please send any concerns or suspicious messages to: [Spam.Abuse@usda.gov](mailto:Spam.Abuse@usda.gov)

Mitch,

Basin Uranium is preparing for submittal of an Exploration Notices of Interest ("EXNI") Application with the South Dakota Department of Agriculture and Natural Resources ("DANR"). Basin would request consultation on a recommended seed mixture to be utilized under the reclamation plan that



will be submit as part of the EXNI application, per SDCL 45-6C-8(2).

The proposed project is located in Section 36, Township 7 S, Range 2 E in Fall River County and as shown on the attached site map. I've also included the soil report created from the NRCS website.

Thank you for your time as it pertains to this matter and your assistance. Should you need any further information, please contact me.

Cheers,  
Crystal

Crystal M. Hocking, PE, PG  
*Project Geologist*

**RESPEC**

3824 Jet Drive  
Rapid City, SD 57703  
605.394.6451 office  
[respec.com](http://respec.com)

Confidentiality Notice: This E-mail and any attachments is covered by the Electronic Communications Privacy Act, 18 U.S.C. & 2510-2524, is confidential and may be legally privileged. If you are not the intended recipient, you are hereby notified that any retention, dissemination, or copying of this communication is strictly prohibited. Please reply to the sender that you have received the message in error, and permanently delete the original and destroy any copy, including printed copies of this email and any attachments thereto.

This electronic message contains information generated by the USDA solely for the intended recipients. Any unauthorized interception of this message or the use or disclosure of the information it contains may violate the law and subject the violator to civil or criminal penalties. If you believe you have received this message in error, please notify the sender and delete the email immediately.



SEEDING PLAN

MINERALS & MINING PROGRAM

MLRA

Producer **Basin Uranium** Conservation District: **Fall River** **60A**

Program **CTA** Practice No. **342** Practice Name: **Critical Area Seeding**

CI or Referral No. **NA** Contract # **NA**

Resource Concern (CPPE Impact) Purpose:  
**342- Stabilize areas with existing or expected high rates of soil erosion by wind or water**

PLANNED		
Tract		Seedbed Preparation
Field	NA	Clean, smooth, weed free seedbed will be prepared
Acres	50.00	
Group or Site	Critical Area Group	
Site	Loamy or Silty Texture	Have the past 3 years of Herbicide Carryover been considered?
Date to be Planted	Early Spring Prior to 5/15	No
Alternative planting dates		Protection Provided
Seeding Equipment	Special Grass Drill	Clip weeds before they compete for moisture and light
Companion Crop		

PLANNED						
Species * **	max % or Rating	1/ Select Improved Variety (recommended) or select common seed (see note below)	Percent in Mixture	Pure Live Seeds (PLS) per square foot	Pure Live Seed (PLS) lbs/ac Needed	Pure Live Seed (PLS) lbs Required
Sideoats grama			10.0	3.75	0.79	39.65
Western wheatgrass			50.0	15.00	10.98	548.89
Blue grama			5.0	2.25	0.13	6.53
Green needlegrass			15.0	5.63	1.36	68.06
Slender wheatgrass			10.0	2.55	0.23	11.49
Purple prairie clover			2.0	0.75	0.11	5.63
Little bluestem			8.0	3.00	0.46	22.85

**To meet SD NRCS Standards Please Note:**

1/ Improved varieties recommended above have no restrictions on their origin.  
 1/ Origin of Common grass seed must be ND, SD, NE, MT, WY, MN, or IA. Exception: Smooth Bromegrass any locale.  
 1/ Common Native forbs and legumes will originate or be grown in (USA): ND, SD, NE, MT, IA, WY, ID, WA, OR, MN, WI, and (CAN): AB, BC, MB, ON, SK.

- Seed test must be completed according to SD Seed laws (see link below) and no more than 9 months prior to the date planted.
- All legumes must be pre-inoculated. Producer will provide all seed tags to NRCS [Legume inoculants](#)
- Tetrazolium (TZ) tests may be used as a substitute for germination tests ONLY for Green Needlegrass
- For Alfalfa Salinity tolerance use F or G from the web site link ---> [Alfalfa Variety Ratings](#)

\* Pubescent wheatgrass and Intermediate wheatgrass are the same species and can be substituted for one another at any time.  
 \*\* Thickspike wheatgrass may be substituted for western wheatgrass if the later is not available but only west of the Missouri River.  
 To calculate the amount needed multiply the western wheatgrass seeding rate by .72

SD Seed Laws [Codified Laws Statute 38-12A](#) Seed testing [SD state seed-lab](#)

LOCATION MAP


Tract  
See Map

Planning Assistance By: Mitch Faulkner 1/22/2024  
Name Date)

Plan Meets SD Standards (if no explain) Yes  No



The seedling plan was developed from recommendations based on the NRCS Soil Survey and South Dakota Field Office Technical Guide.

Critical Area Group: **Loamy or Silty Texture**  
 This seedling is planned in Major Land Resource Area (MLRA): **60A**  
 Varieties/Cultivars that are approved for South Dakota include:  
 Common Name:



Sidekick grama Bully Northern Iowa Germplasm	Central Iowa Germplasm Pura	Common Southern Iowa Germplasm	Kicker Talker
Western wheatgrass Arriba Recovery	Barton Reborn	Common Reborn	Fiddler Wash
Blue grama Bad River	Bridger	Common	
Green needlegrass AC Midland Escarpment	Common	Common	
Standard wheatgrass AC Front Escarpment (Standard) Common Pura	AC Spring Escarpment (Standard) Silver Reborn	Adrian Frontier	AEC Midland Pura
Purple prairie clover Barnack	Common	Karen	
Little bluestem Badlands Escarpment Common	Blue Tara	Casper Northern Iowa Germplasm	Central Iowa Germplasm Southern Iowa Germplasm



## Guidance for Critical Area Planting (342)

The following is an excerpt from RANGE TECHNICAL NOTE NO. 4 PERENNIAL VEGETATION ESTABLISHMENT GUIDE.  
[SD/Range Tech Note 4.pdf](#)

### 14. GUIDANCE FOR CRITICAL AREA PLANTING (342)

Seeding of a critical area may take place at any time of the year as long as a reasonable expectation of a successful seeding establishment is expected.

#### Site Preparation:

Follow guidance for seedbed preparation (Section 2 above) and the additional following criteria.

If necessary, divert offsite water away from the critical area. This may require a permanent conservation practice, or in other instances, a temporary measure that will be effective during the period of establishment.

Where practical, grade to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and anchoring. Cabling of equipment to prevent rollover may be necessary on some slopes such as newly constructed dams.

On construction sites where the exposed and underlying soil material will not support adequate vegetation, minimum topsoil dressing of six inches will be applied as part of construction.

After construction is complete, the seedbed will be worked to a depth of three to five inches to break up compacted areas and permit rapid root development. Drag or pack to break up large clods and firm the seedbed.

Where slopes are steeper than 1.5:1, use some means other than vegetation to stabilize slopes.

#### Species Selection:

Allowable species will be selected from Table 7 for the appropriate MLRA.

Between 50 to 75% of the mixture will be made up of sod forming species. Grass mixtures may include all native species, all introduced species, or a mixture of native and introduced species. Mixing smooth brome grass, Kentucky bluegrass, and/or crested wheatgrass with native species is not recommended.

When smooth brome is to be seeded in a mixture, do not include more than 10% of other native or introduced species for early establishment.

Single species may be used on saline or wet areas (Table 7).

Do not select aggressive species such as smooth brome grass when the adjacent area is dominated by native species.

When quick growth and/or protection of a critical area is needed, a quick establishing grass can be added in addition to the selected permanent seeding mixture. Use either slender wheatgrass or annual ryegrass. Slender wheatgrass can be used statewide and annual rye grass can be used in MLRAs 102A, 102B, 102C, 53B, 53C, 55B, 55C, 63B, 66, and 62. Add a maximum of three PLS lbs./ac of slender wheatgrass or a maximum of two PLS lbs./ac of annual ryegrass to the selected full seeding.

#### Conventional Seeding:

Seeding activities will follow recommendations found elsewhere in this technical note unless otherwise stated in this section. Seeding rates will be 1.5 times those recommended in Table 2 when using a drill (recommended rate multiplied by 1.5).

When possible, drilling will be accomplished perpendicular to the slope. On grassed waterways, drilling will follow a serpentine pattern.

#### Broadcasting:

Many critical area plantings are too steep or too small to efficiently and safely utilize a drill. In these cases, seed may be broadcast and incorporated by harrowing, packing, or raking by hand. When broadcast seeding, increase the seeding rates found in Table 2 by two times (recommended rate multiplied by two).

#### Hydroseeding:

On sites that are too steep for regular equipment to operate, the use of a hydro seeder is an acceptable alternative. Seed, fertilizer, and mulch materials will be applied in one operation. Limit the application of 150 lbs. of solids per 100 gallons of water. If a legume seed is included in the mixture, any lime or fertilizer should be applied separately. A second trip may also be needed to apply an asphalt emulsion to long fiber mulches.

When using hydroseeding technique, increase seeding rates found in Table 2 by a factor of two (recommended rate multiplied by two).



**Sodding:**

Sod may be used on areas requiring immediate cover to prevent erosion. The sod should be in strips or blocks of native grass mixture, switchgrass, prairie cordgrass, reed canary grass, or other suitable grasses. Bluegrass sod is to be used only when the area is irrigated and is desired for aesthetic purposes. Sod materials are to be taken from solid, thick growing stands.

Sod will be cut in strips of uniform width and to a uniform thickness of at least three inches for tall grass and ½ to 1½ inches for short grasses. Lay sod within 24 hours after it was cut.

Sod strips should be carefully placed in rows across (at right angles) to the direction of slope. The sod strips will be placed together tightly so that no open joints are left between the strips or between the end of strips. Joints between the end strips will be staggered. Any spaces between the joints will be filled with topsoil and all edges covered with topsoil at least two inches deep. The edge of the sod at the top of slopes will be turned under and a layer of soil compacted over the edge so as to conduct surface water over and onto the top of the sod. The sod will be well tramped to help it remain in place.

**Fertilizing:**

Do not fertilize predominantly warm-season grass seeding unless the soil material is very infertile.

Thoroughly mix all fertilizer into the upper three to five inches of the soil during final seedbed preparation.

Apply fertilizer based on the recommendations from a soil test or apply 30 to 40 lbs. of actual Nitrogen (N) and 40 to 60 lbs. of Phosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>) per ac. Ten to 15 tons of manure per ac may be used in lieu of the commercial fertilizer and will also increase organic matter.

On medium textured soils, the addition of 5 to 10 lbs. of zinc per ac may speed up growth.

**Mulching:**

All mulching will be done in accordance with the SD CPS for Mulching (484). Mulching of critical area plantings is required for any of the following conditions:

Where seeding cannot be accomplished during the approved seeding periods and a cover crop is not used;

On grassed waterways, where a cover crop or companion crop is not used, and seeding is placed on a bare seedbed, and the design velocity is more than 2.5 ft per second;

Where a grassed waterway is established at the time of terrace construction, and the channel slope is 2% or greater;

On slopes 3:1 or steeper that are 10 ft or more in vertical height or longer than 20 ft; on cut south and west facing slopes; On all saline and alkaline areas.

Drill grass in the prepared seedbed, immediately prior to mulching or at the next suitable seeding period after mulching.

**Management of Critical Areas During and After Establishment:**

Weeds will be controlled as described elsewhere in this technical note. All use will be excluded until vegetation is well established.

Mow grassed waterways for hay annually after establishment. Other critical areas may be mowed as needed for stand maintenance.

Fertilize as necessary to maintain stand.

Inspect critical areas each spring and following heavy rain. Reshape and reseed eroded areas promptly. Reinforce grass seeding where stands are thin.

Manage any grazing use to ensure long-term survival of the stand.

Lift tillage implements and shut off sprayers when crossing critical areas. Do not till parallel to grassed waterways.

Avoid vehicular travel on critical areas.

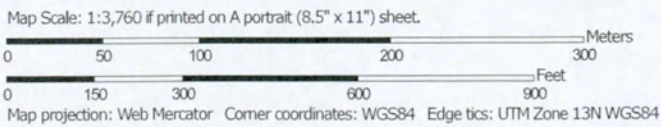
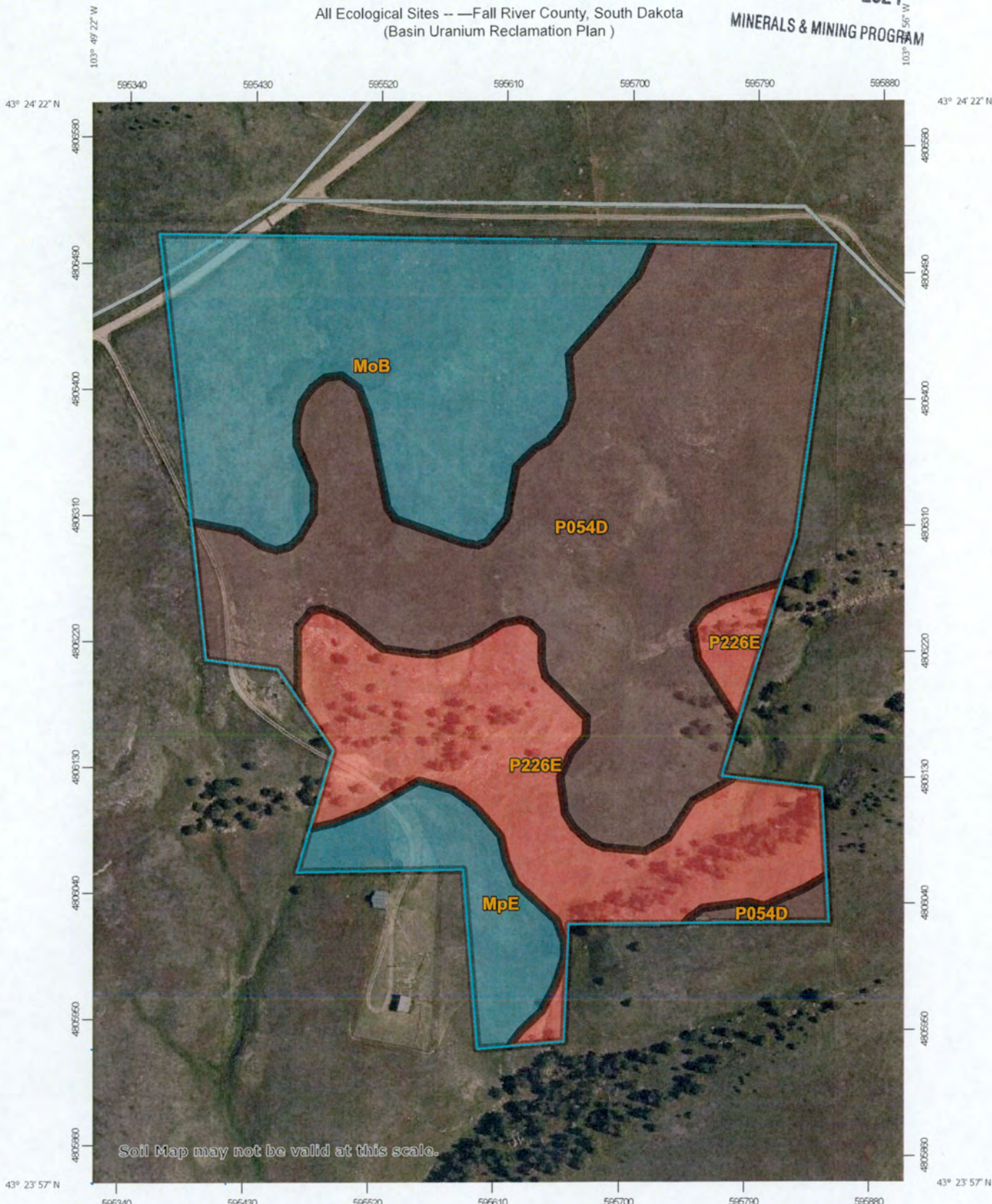
**Providing Food, Cover, and Shelter for Wildlife:**

Wildlife habitat should be considered when developing critical area planting plans and species selection. For plant species to improve wildlife habitat, refer to the SD CPS Upland Wildlife Habitat Management (645).























RECEIVED  
MAR 15 2024  
MINERALS & MINING PROGRAM

All Ecological Sites -- Fall River County, South Dakota  
(Basin Uranium Reclamation Plan)





### MAP LEGEND

- Area of Interest (AOI)**
  -  Area of Interest (AOI)
- Background**
  -  Aerial Photography
- Soils**
  - Soil Rating Polygons**
    -  R060AY012SD
    -  R061XN024SD
    -  R061XY029SD
    -  Not rated or not available
  - Soil Rating Lines**
    -  R060AY012SD
    -  R061XN024SD
    -  R061XY029SD
    -  Not rated or not available
  - Soil Rating Points**
    -  R060AY012SD
    -  R061XN024SD
    -  R061XY029SD
    -  Not rated or not available
- Water Features**
  -  Streams and Canals
- Transportation**
  -  Rails
  -  Interstate Highways
  -  US Routes
  -  Major Roads
  -  Local Roads

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Fall River County, South Dakota  
Survey Area Data: Version 27, Sep 12, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 8, 2022—Jun 21, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



RECEIVED

MAR 15 2024

## All Ecological Sites —

MINERALS &amp; MINING PROGRAM

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
MoB	Minnequa silt loam, 2 to 6 percent slopes	Minnequa (90%)	R060AY012SD — Thin Upland	13.4	27.0%
		Midway (5%)	R060AY017SD — Shallow Clay		
		Pierre (5%)	R060AY011SD — Clayey 13-16" P.Z.		
MpE	Minnequa-Midway silty clay loams, 6 to 25 percent slopes	Minnequa (50%)	R060AY012SD — Thin Upland	3.3	6.6%
		Midway (40%)	R060AY017SD — Shallow Clay		
		Penrose (5%)	R060AY024SD — Shallow Loamy		
		Pierre (3%)	R060AY011SD — Clayey 13-16" P.Z.		
		Shingle (2%)	R060AY024SD — Shallow Loamy		
P054D	Butche-Boneek, dry complex, 3 to 15 percent slopes	Butche, FSL surf. (55%)	R061XN024SD — Shallow Loamy-North (18-22" PZ)	22.3	45.0%
		Boneek, dry, bedrock substratum (30%)	R061XS010SD — Loamy-South (16-18" PZ)		
		Mathias (8%)	R061XY029SD — Stony Hills		
		Rock outcrop, sandstone (7%)	R061XY999SD — Non-site		
P226E	Mathias, very stony-Samsil-Rock outcrop complex, 15 to 30 percent slopes	Mathias (50%)	R061XY029SD — Stony Hills	10.6	21.3%
		Samsil (20%)	R060AY017SD — Shallow Clay		
		Butche (15%)	R061XS024SD — Shallow Loamy-South (16-18" PZ)		
		Rock outcrop, sandstone (15%)	R061XY999SD — Non-site		
<b>Totals for Area of Interest</b>				<b>49.5</b>	<b>100.0%</b>