United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
Great Plains Regional Office
115 Fourth Avenue S.E., Suite 400
Aberdeen, South Dakota 57401

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
DESCRM
MC-208

OCT 05 2011

MEMORANDUM

TO: Superintendent, Fort Berthold Agency

FROM: Regional Director, Great Plains Region

SUBJECT: Supplemental to Environmental Assessment

A Categorical Exclusion has been completed in compliance with the regulations of the National Environmental Policy Act (NEPA) of 1969, as amended. The proposed Supplemental Categorical Exclusion is for information tiering off of an existing Environmental Assessment for Enerplus Resources (USA) Corporation and authorizes Passive Seismic Emission Tomography (PSET) on the Hilo 148-94-23B-2H and TF/Kono 148-94-23B-3H well pad to monitor fracturing operations. No new surface disturbances will be associated with the proposed action.

All the necessary requirements of the National Environmental Policy Act have been completed. Attached for your files is a copy of the Categorical Exclusion.

If you have any questions, please call Marilyn Bercier, Regional Environmental Scientist, Division of Environment, Safety and Cultural Resources Management, at (605) 226-7656.

Attachment

cc: Tex Hall, Chairman, Three Affiliated Tribes (with attachment)
Elgin Crows Breast, THPO (with attachment)
Derek Enderud, BLM, Dickenson, ND (with attachment)
Joey Sheeley, SWCA (with attachment)
John Shelman, US Army Corps of Engineers
Jeffrey Hunt, Fort Berthold Agency

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EXCEPTION CHECKLIST FOR BIA CATEGORICAL EXCLUSIONS

Project: MicroSeismic PSET Array to Monitor Frac Operations Date: 10/3/2011

Nature of Proposed Action: Authorize MicroSeismic, Inc. (MSI) to deploy and retrieve field sensors and recorders to achieve passive seismic monitoring of hydraulic fracturing operations using Passive Seismic Emission Tomography (PSET) on the Hilo 148-94-23B-2H TF/Kona 148-94-23B-3H well pad on the Fort Berthold Indian Reservation. The MSI is non-invasive and has no footprint once complete.

Exclusion category and number: 516 DM 10.5 M (1)

Evaluation of Exceptions to use of Categorical Exclusion:

1. This action would have significant adverse effects on public health or safety. No X Yes_____
2. This action would have an adverse effect on unique geographical features, such as wetlands, wild or scenic rivers, refuges, floodplains, rivers placed on nationwide river inventory, or prime or unique farmlands. No X Yes_____
3. The action will have highly controversial environmental effects. No X Yes_____
4. The action will have highly uncertain environmental effects or involve unique or unknown environmental risks. No X Yes_____
5. This action will establish a precedent for future actions. No X Yes_____
6. This action is related to other actions with individually insignificant, but cumulatively significant environmental effects. No X Yes_____
7. This action will affect properties listed or eligible for listing in the National Register of Historic Places. No X Yes_____
8. This action will affect a species listed, or proposed to be listed as endangered or threatened. No X Yes_____

9. This action threatens to violate federal, state, local or tribal law or requirements imposed for protection of the environment. No _X_ Yes_____

10. This action will have a disproportionately high and adverse effect on low income or minority populations. No _X_ Yes_____

11. This action will limit access to, and ceremonial use of Indian sacred sites on federal lands by Indian religious practitioners, or significantly adversely affect the physical integrity of such sacred sites. No _X_ Yes_____

12. This action will contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area, or may promote the introduction, growth, or expansion of the range of such species. No _X_ Yes_____

A "yes" to any of the above exceptions will require that an EA be prepared.

NEPA Action - - - CE __X__ EA _____

Preparer's Name and Title: Jeffrey Davis, Environmental Protection Specialist

Regional Archeologist Concurrence with Item 7 Barbara B. Bernhardt

Concur: _____ Date: 10-3-2011
Regional Office/Agency Environmental Coordinator

Concur: _____ Date: 10-5-11
Regional Director/Superintendent

CATEGORICAL EXCLUSION

United States Bureau of Indian Affairs

Great Plains Regional Office
Aberdeen, South Dakota

Categorical Exclusion to Authorize the Use of a PSET Array to Monitor Hydraulic Fracturing Operations on the Hilo 148-94-23B-2H TF/Kona 148-94-23B-3H Well Pad

Fort Berthold Indian Reservation

September 2011

Prepared for:

MicroSeismic, Inc.
1300 West Sam Houston Parkway, Suite 200
Houston, TX 77074

For information contact:
Bureau of Indian Affairs, Great Plains Regional Office
Division of Environment, Safety and Cultural Resources Management
115 4th Avenue SE, Aberdeen, South Dakota 57401
(605) 226-7656

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1. Purpose and Need for the Proposed Action

The purpose of the proposed action is to authorize MicroSeismic, Inc. (MSI) to deploy and retrieve field sensors and recorders to achieve passive seismic monitoring of hydraulic fracturing operations using Passive Seismic Emission Tomography (PSET) on the Hilo 148-94-23B-2H TF/Kona 148-94-23B-3H well pad.

2. Authorities

Oil and gas exploration and development activities are conducted under authority of the Indian Mineral Leasing Act of 1938 (25 United States Code [USC] 396a, et seq.), the Indian Mineral Development Act of 1982 (25 USC 2101, et seq.), and the Energy Policy Act of 2005 (42 USC 15801, et seq.).

3. Legal Land Description for Proposed Action

The well pad is located in the NE¼ NW¼ of Section 23, Township (T) 148 North (N), Range (R) 94 West (W), Dunn County, North Dakota (Figure 1). The array cables will extend from the well pad into Sections 9–15, 20–28, and 34–36, T148N, R94W, and into Section 30, T148N, R93W.

4. Scope of Work for Proposed Action

MSI proposes to employ its FracStar surface monitoring service to effectively monitor the hydraulic fracture stimulation on the Enerplus Hilo/Kona well pad. The easily deployed FracStar service uses a radial array of surface-located geophone strings, customized for the specific area of interest. This approach eliminates the need for costly monitor wells.

Equipment would be staged on fee surface, approximately 0.75 mile southwest of the pad location (Figure 2). The staging area would occupy approximately 2 to 3 acres; other than placement of equipment, no surface disturbance is anticipated. The array size is determined by the true vertical depth of the area of interest; if the lateral to be monitored runs at approximately 15,000 feet, each radial arm would be approximately 10,000 feet. Each radial arm begins 1,000 feet *away* from the well site in order to avoid noise from the frac site (Figure 3). Each geophone (Figure 4) has an approximately 4-inch spike that is inserted into the ground and connected to the next geophone with a small cable. The geophones are placed in groups of 12 per location; each group will be approximately 110 feet apart for a total of approximately 1,086 geophones. The layout typically takes three days to set up and the geophones would be laid out by personnel on all-terrain vehicles (ATVs) or on foot. The geophones are connected by a small cable to a small MSI trailer (Figure 5) which houses only computer equipment and personnel (Figure 6) and functions as the central recording unit. This trailer is parked *away* from the drilling location, where the equipment is being staged, so as not to interfere with the frac operation and eliminate safety concerns related to having MSI personnel on the well pad.

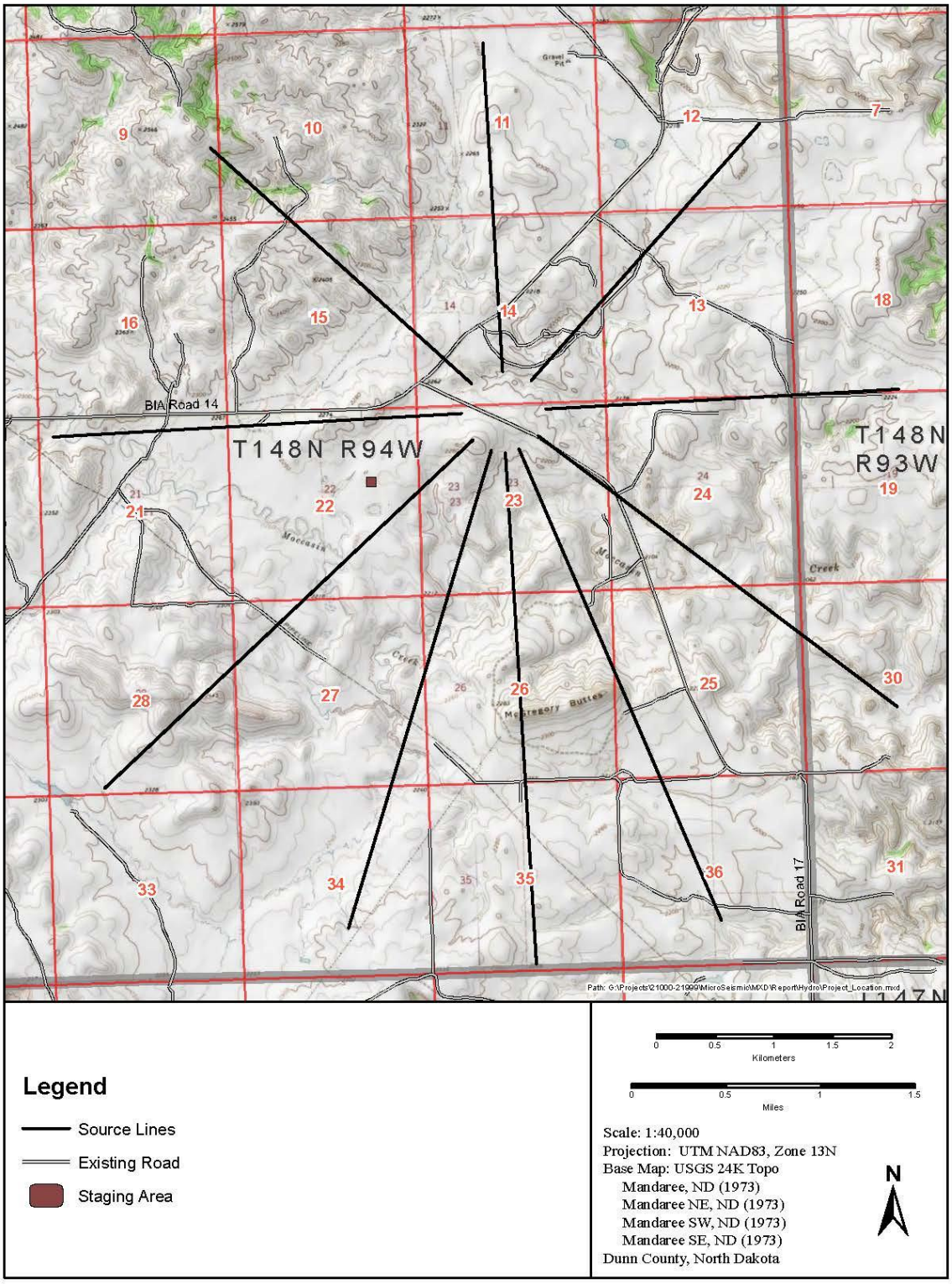

Figure 1. Location of the staging area and the PSET array originating from the Hilo 148-94-23B-2H TF/Kona 148-94-23B-3H well pad.

Figure 2. Example of equipment staging set-up.

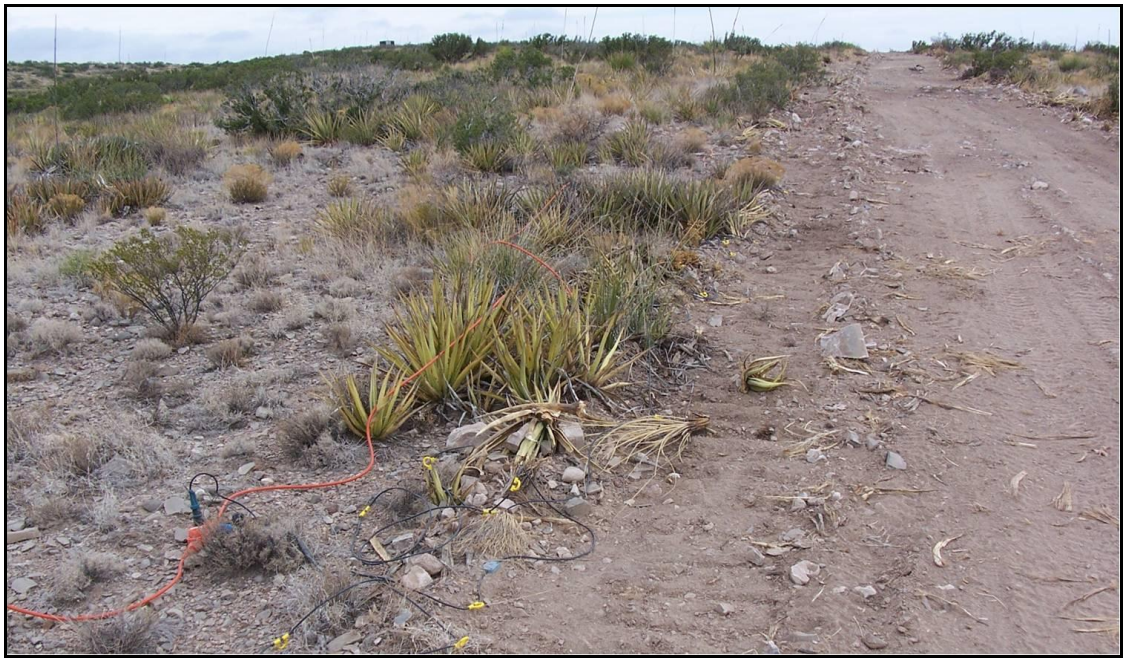

Figure 3. Example of radial arm location away from well site.

Figure 4. Example of a geophone.

Figure 5. MSI trailer parked at the equipment staging area.

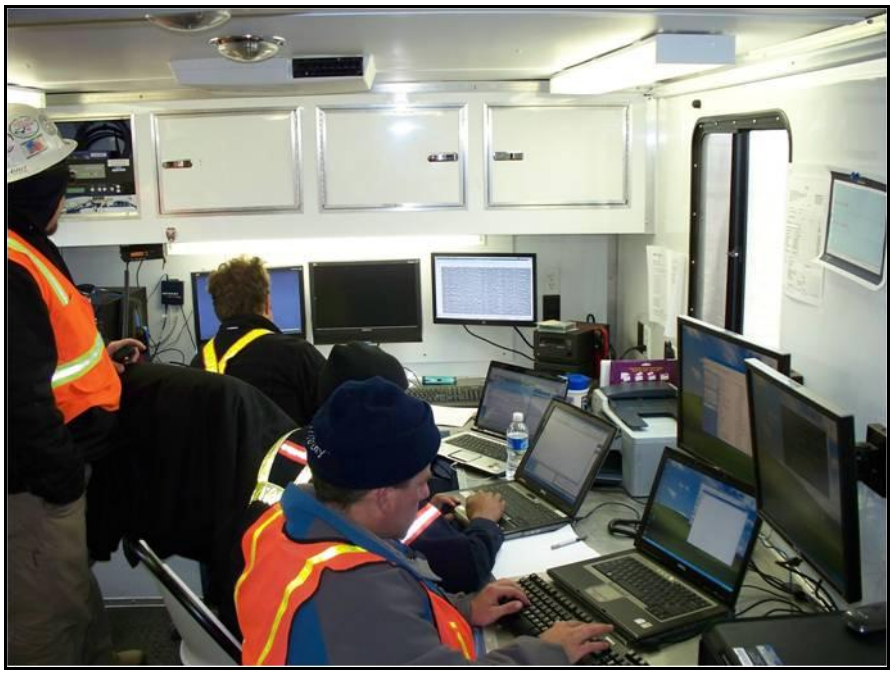

Figure 6. Personnel and equipment inside the MSI trailer.

The geophones remain on the surface as the frac is recorded. Once the frac is complete, all cabling and geophones are retrieved by personnel on ATVs or on foot, which typically takes three days. Once the equipment is retrieved, the trailer is removed and nothing is left on property.

The MSI FracStar is non-invasive and has no footprint once complete. Ground disturbance would be limited to the small holes created by the spikes used to hold the geophones in place and to minimal crushing of vegetation as the cables are laid on the surface, repaired if necessary, and retrieved after frac operations are completed. MSI would refrain from clearing any vegetation and would avoid disturbing any wetlands in the area of the array cables. There would be no additional surface disturbance.

5. Surveys for the Proposed Action

Darryl Turcotte (Bureau of Indian Affairs [BIA] – New Town) and Dr. Carson Murdy (BIA Archeologist – Aberdeen) confirmed that no on-the-ground surveys would be required for the proposed action. However, MSI has performed desktop analysis of wetlands for the proposed project area; potential reroutes have been detailed in Figure 7. MSI has verified that the array would cause minimal surface disturbance that would be limited to the small holes and minor crushing of vegetation as the array is set up, as described in Section 4.

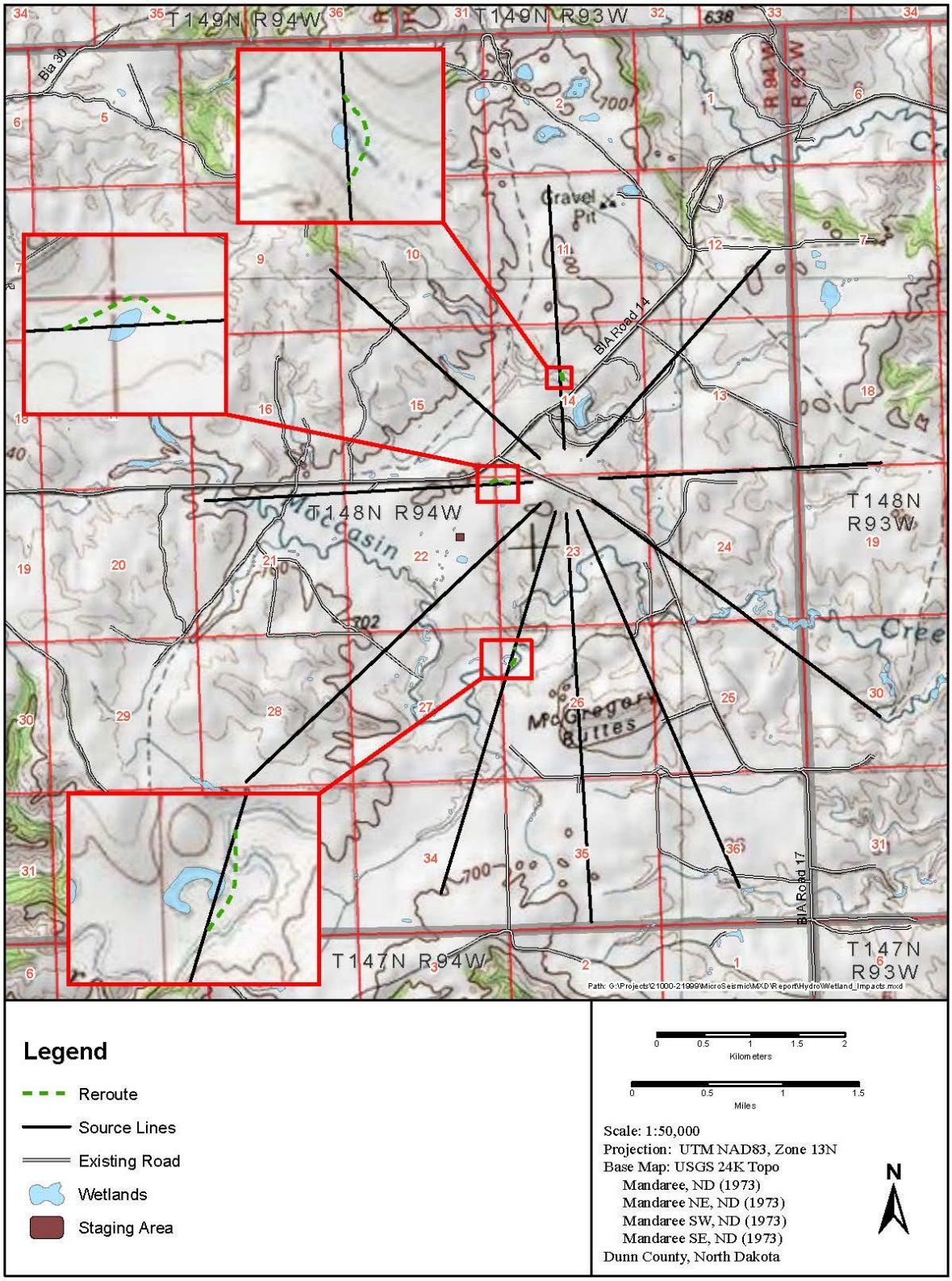

Figure 7. Map of array reroutes to avoid known wetlands.

6. Applicable National Environmental Policy Act Document(s)

None.

7. Other Relevant Documentation

Not applicable.

8. National Environmental Policy Act Adequacy Criteria

The proposed action is categorically excluded from further documentation under the National Environmental Policy Act in accordance with 516 DM 10.5 (M)(1). Data gathering activities such as inventories; soil and range surveys; timber cruising; geological, geophysical, archaeological, paleontological, and cadastral surveys; and Title 43 Code of Federal Regulations 46.210(e) Nondestructive data collection, inventory (including field, aerial, and satellite surveying and mapping), study, research, and monitoring activities.

This categorical exclusion is appropriate in this situation because there are no extraordinary circumstances potentially having effects that may significantly affect the environment.