ENVIRONMENTAL ASSESSMENT
WY-010-EA07-5
Grant Geophysical/Nance Petroleum Corp.
BLM Case No: WYW-162902

Murphy Dome
3-D Seismic Survey

October 2006

BLM

Worland Field Office

MISSION STATEMENT

It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

TABLE OF CONTENTS

DECISION RECORD AND FINDING OF NO SIGNIFICANT IMPACT 6

I. DECISION 6
II. FINDING OF NO SIGNIFICANT IMPACT 6
III. ALTERNATIVES CONSIDERED 6
IV. RATIONALE 6
V. COMPLIANCE AND MONITORING 6
VI. APPEALS 7

ENVIRONMENTAL ASSESSMENT -- WY-010-EA07-5 8

1.0 INTRODUCTION 9

1.1 General Geophysical Exploration (Seismic) Methodology 9
1.2 Purpose and Need 9
1.3 Decisions to be Made 10
1.3.1 Scope of This Analysis 10
1.3.2 Decision to Be Made 10
1.3.3 Regulatory Procedure 10
1.4 Conformance with Land Use Plan 11
1.4.1 Legal and Administrative Framework 11
1.5 SCOPING AND PUBLIC INVOLVEMENT 12

2.0 ALTERNATIVES, INCLUDING THE PROPOSED ACTION 13

2.1 Introduction 13
2.2 Alternative 1 (Proposed Action) 13
2.2.1 Planning Surveys and Pre-approval Actions 13
2.2.2 Proposed Action 13
2.2.2.1 Project Activity Plan and Schedule 13
2.2.2.2 Workforce 13
2.2.3 Source Generation 14
2.2.4 Summary of Estimated Disturbances 14
2.2.5 Data Acquisition 15
2.2.6 Demobilization 16
2.2.7 Support Operations 16
2.3 Alternative 2 (Proposed Action with additional Conditions of Approval (COA's)) 16
2.4 Alternative 3 (No Action) 16

3.0 AFFECTED ENVIRONMENT 17

3.1 Location and Land Ownership 17
3.2 Geology 17
3.3 Hydrology 17
3.3.1 Surface Water 17
3.3.2 Riparian Areas 17
3.4 Soils and Vegetation 17
3.4.1 Soils-- 17
3.4.2 Vegetation 18
3.4.2.1 Potential Plant Communities 18
3.4.2.2 Invasive Species 18
3.5 Range 18
3.6 Wildlife 19
3.6.1 Big Game 19
3.6.2 Sage Grouse 19
3.6.3 Prairie Dogs 19

3.6.4 Fisheries *19*
3.7 THREATENED OR ENDANGERED SPECIES 20
3.7.1 Threatened, Endangered, Candidate, and BLM Sensitive -- Plant Species *20*
3.7.2 Threatened and Endangered -- Wildlife *20*
3.8 RECREATION AND VISUAL RESOURCES 20
3.8.1 Recreation *20*
3.8.2 Visual Resources *20*
3.9 CULTURAL AND HISTORICAL RESOURCES 20
3.10 SOCIOECONOMICS 20
3.11 HEALTH AND SAFETY 21

4.0 ENVIRONMENTAL CONSEQUENCES 22

4.0.1 Mandatory Critical Elements *22*
4.1 LAND USE 22
4.1.1 Alternative 1 (Proposed Action) *22*
4.1.2 Alternative 2 (Proposed Action with COA's) *23*
4.1.3 Alternative 3 (No Action) *23*
4.2 GEOLOGY 23
4.2.1 Alternative 1 (Proposed Action) *23*
4.2.2 Alternative 2 (Proposed Action with COA's) *23*
4.2.3 Alternative 3 (No Action) *23*
4.3 HYDROLOGY 23
4.3.1 Alternative 1 (Proposed Action) *23*
4.3.2 Alternative 2 (Proposed Action with COA's) *23*
4.3.3 Alternative 3 (No Action) *24*
4.4 SOILS AND VEGETATION 24
4.4.1 Alternative 1 (Proposed Action) *24*
4.4.2 Alternative 2 (Proposed Action with COA's) *24*
4.4.3 Alternative 3 (No Action) *24*
4.5 RANGE 24
4.5.1 Alternative 1 (Proposed Action) *24*
4.5.2 Alternative 2 (Proposed Action with COA's) *25*
4.5.3 Alternative 3 (No Action) *25*
4.6 WILDLIFE 25
4.6.1 Alternative 1 (Proposed Action) *25*
4.6.2 Alternative 2 (Proposed Action with COA's) *25*
4.6.3 Alternative 3 (No Action) *26*
4.7 RECREATION AND VISUAL RESOURCES 26
4.7.1 Alternative 1 (Proposed Action) *26*
4.7.2 Alternative 2 (Proposed Action with COA's) *26*
4.7.3 Alternative 3 (No Action) *26*
4.8 CULTURAL AND HISTORICAL RESOURCES 26
4.8.1 Alternative 1 (Proposed Action) *26*
4.8.2 Alternative 2 (Proposed Action with COA's) *26*
4.8.3 Alternative 3 (No Action) *26*
4.9 SOCIOECONOMICS 26
4.9.1 Alternative 1 (Proposed Action) *26*
4.9.2 Alternative 2 (Proposed Action with COA's) *26*
4.9.3 Alternative 3 (No Action) *27*
4.10 HAZARDOUS MATERIALS; PUBLIC HEALTH AND SAFETY 27
4.10.1 Alternative 1 (Proposed Action) *27*
4.10.2 Alternative 2 (Proposed Action with COA's) *27*
4.10.3 Alternative 3 (No Action) *28*
4.11 CUMULATIVE IMPACTS 28
4.12 RESIDUAL IMPACTS 28

5.0 CONSULTATION AND COORDINATION 29

5.1 LIST OF PREPARERS 29
5.2 PERSONS/AGENCIES CONSULTED 29
5.3 SCOPING COMMENTS 29

CONDITIONS OF APPROVAL 43

LAND USE 43
HYDROLOGY 43
SOILS AND VEGETATION 43
RANGE 43
WILDLIFE 44
RECREATION AND VISUAL RESOURCES 44
CULTURAL AND HISTORICAL RESOURCES 44
HAZARDOUS MATERIALS; PUBLIC HEALTH AND SAFETY 44

TABLES, MAPS, FIGURES

PHOTO 1: VIBROSEIS BUGGY 14
TABLE 2.1 ASSOCIATED DISTURBANCE – PROPOSED ACTION 15
ILLUSTRATION 1: ILLUSTRATION OF BUGGY FORMATION ALTERNATIVES 15
TABLE 4.1 MANDATORY CRITICAL ELEMENTS 22
TABLE 4.2 SEED MIX 24
TABLE 5.1 LIST OF PREPARERS 29
MAP 1: TOPOGRAPHIC VIEW OF PROJECT AREA WITH SOURCE POINTS AND RECEIVER LINES 30
MAP 2: TOPOGRAPHIC VIEW OF PROJECT AREA 31
MAP 3: MURPHY DOME OIL FIELD BOUNDARY 32
MAP 4: LAND OWNERSHIP 33
MAP 5: SOILS AND ECOLOGICAL SITES 34
MAP 6: SOIL SUSCEPTIBILITY RATING 35
MAP 7: ALLOTMENT BOUNDARY WITH FENCE LET-DOWN POINTS 36
MAP 8: PRIMARY VEGETATION TYPES 37
MAP 9: RIPARIAN AREAS ON BLM LANDS 38
MAP 10: WILDLIFE HABITAT AREAS – BIG GAME 39
MAP 11: WILDLIFE HABITAT AREAS – RAPTORS AND SAGE GROUSE 40
MAP 12: WILDLIFE HABITAT AREAS – PRAIRIE DOG TOWNS 41
MAP 13: VRM BOUNDARIES 42

DECISION RECORD and FINDING OF NO SIGNIFICANT IMPACT

for the
Murphy Dome 3-D Seismic Survey

I. DECISION

It is my decision to approve the associated Notice of Intent to Conduct Geophysical Operations, as described as Alternative 2 of Environmental Assessment No. WY-010-EA07-5, and to include those measures proposed by Grant Geophysical on behalf of Nance Petroleum Corp. This Authorization will be granted subject to the Conditions of Approval and Terms and Conditions as attached.

II. FINDING OF NO SIGNIFICANT IMPACT

I have reviewed the attached environmental assessment including the explanation and resolution of any potentially significant environmental impacts. I have determined that the proposed action will not have any significant impacts on the human environment and that an EIS is not required. I find that implementation of the proposed action would not result in unnecessary or undue degradation of the Public Lands. I have determined that the proposed action is in conformance with the appropriate approved land use plans. It is my decision to implement the proposed action, as modified by the recommended mitigation.

III. ALTERNATIVES CONSIDERED

The Environmental Assessment (EA) for the Project considered three alternatives. Alternative 1, the "Proposed Action" alternative, assessed and disclosed the projected effects of Grant Geophysical/Nance Petroleum's proposal as detailed in the "Proposed Action" portion of the environmental assessment.

The "Proposed Action with Conditions of Approval" (2) alternative assess the proposed action, BLM staff specialists input, and the comments received during the scoping process. It was felt that certain Conditions of Approval were necessary and proper to provide adequate protection of the surface and subsurface. For the purpose of analysis, the Conditions of Approval are part of this alternative.

The "No Action" (3) alternative assessed the effects of not implementing any portion of the proposal. Under the No Action Alternative, the WFO analyzed the effects of a denial of any further development associated with this project. This alternative provides a benchmark, enabling the decision-maker to compare the magnitude of the environmental effects of the alternatives.

IV. RATIONALE

Alternative 2 was chosen as being the most environmentally sound alternative.

Public participation, consultation, and coordination have occurred. The BLM issued a scoping notice on September 1, 2006, allowing a 30-day public scoping prior to preparation of the EA. All issues brought forth during scoping have been considered in the preparation of the EA. Scoping comments are summarized in Appendix B. Compared to the Alternative 3 (No Action Alternative) and Alternative 1 (Proposed Action Alternative); Alternative 2 best meets the standards and direction of the various guiding laws, regulations, and directives that apply in this matter, including the *Federal Land Policy and Management Act* (43 USC 35). Alternative 2 best meets decisions from, and is in conformance with the Washakie RMP and current national energy policy. This project, when implemented with conditions of approval as described, will result in minimal short term impacts and no long term impacts to the environment. Authorization will allow the proponent to collect geophysical information to assist in the location and extraction of oil and/or natural gas resources.

V. COMPLIANCE AND MONITORING

Designated Bureau of Land Management personnel will monitor and review project operations as needed to ensure that mitigation measure are in compliance with the terms and conditions of the exploration permit. Operations can

be suspended during any portion of the project when, in the judgment of the BLM Authorized Officer, any contractor hired by Grant Geophysical or Nance Petroleum Corp. have not complied with any terms or conditions described in the approved NOI and Special Conditions of Approval to be applied.

VI. APPEALS

This decision may be appealed to the Interior Board of Land Appeals, Office of the Secretary, in accordance with the regulations contained in 43 CFR, Part 4 and the enclosed Form 1842-1. If an appeal is taken, your notice of appeal must be filed in the BLM Worland Field Office, P.O. Box 119, 101 S 23rd St, Worland, Wyoming 82401, within 30 days of the date that notice of this decision. The appellant has the burden of proof showing that the decision appealed from is in error.

If you wish to file a petition pursuant to regulation 43 CFR 4.21 (58 FR 4939, January 19, 1993) or 43 CFR 2804.1 or 43 CFR 2884.1 for a stay of the effectiveness of this decision during the time that your appeal is being reviewed by the Board, the petition for a stay must accompany your notice of appeal. A petition for a stay is required to show sufficient justification based on the standards listed below. Copies of the notice of appeal and petition for a stay must also be submitted to each party named in this decision and to the Interior Board of Land Appeals and to the Office of the Solicitor (see 43 CFR 4.413); Rocky Mountain Region; 755 Parfet Street, Suite 151; Lakewood, Colorado 80215; at the same time the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.

Standards for Obtaining a Stay**{**tc \l3 "Standards for Obtaining a Stay**}**

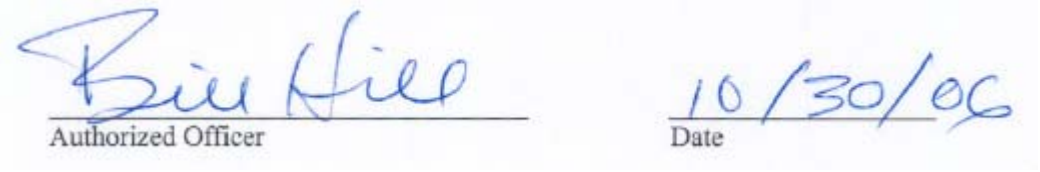
Except as otherwise provided by law or other pertinent regulation, a petition for a stay of a decision pending appeal shall show sufficient justification based on the following standards:

(1) the relative harm to the parties if the stay is granted or denied;

(2) the likelihood of the appellant's success on the merits;

(3) the likelihood of immediate and irreparable harm if the stay is not granted; and

(4) whether the public interest favors granting the stay.



Attachments --
EA – WY-010-EA07-5
Conditions of Approval

United States Department of the Interior
Bureau of Land Management
Worland Field Office
P.O. Box 119
Worland, WY 82401

Environmental Assessment -- WY-010-EA07-5

Applicant: Grant Geophysical/Nance Petroleum Corp.

Case No.: WYW-162902

Location: Hot Springs and Washakie Counties, WY

Township	Range	Sections
43 N	91W	4, 5, 6, 7, 8, 9, 17, 18,
43N	92W	1, 2, 3, 12,
44N	91W	31, 32,
44N	92W	25, 26, 35, 27, 33, 34

Field: Murphy Dome Oil Field,

Type of Operations: 3-D Vibroseis

Ownership: Federal

October 30, 2006

1.0 INTRODUCTION

This Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. This EA is tiered to the Bureau of Land Management (BLM) Washakie Resource Area (WRA) Resource Management Plan (RMP)**,** associated environmental analyses and decision documents.

A 3-Dimensional (3D) geophysical exploration operations on both BLM-administered, State, and private lands is being proposed, this EA is being prepared to evaluate effects on all federal lands in the potentially affected area.

1.1 General Geophysical Exploration (Seismic) Methodology

The general technique of the geophysical exploration operation proposed is referred to as seismic reflection method. This method utilizes an energy source that sends acoustic energy into the earth. This energy is reflected from subsurface layers and recorded at the surface with instruments (geophones) used to transform seismic energy into electrical impulses. A computer then processes the data and creates an image of the subsurface geology.
Energy sources for seismic waves usually consist of specialized trucks equipped with metal pads that vibrate the ground (vibroseis method) or by detonating subsurface explosive charges that have been loaded into a drilled hole 3-4 inches in diameter (shothole method). Shotholes may vary in depth from 30 to 60 feet. Energy source points are typically spaced approximately 220 feet apart. The above described seismic exploration method, when carried out with source point locations and geophones arranged along the same linear aspect is commonly referred to as 2-Dimensional (2D) seismic exploration.

New technology has allowed for the development of a higher definition survey referred to as 3-Dimensional seismic exploration (3D). With a higher concentration of receivers, and energy source points laid out in a grid pattern, data collected from 3D geophysical exploration operation has at least four distinct advantages over a 2D geophysical exploration operation.
1. It more accurately depicts the subsurface reservoir's structural geology.
2. It more accurately depicts reservoir distribution and quality.
3. It provides more information about the reservoir's fluid content.
4. It allows for much more detailed and quantitative interpretations of the reservoir.

The effectiveness and value of a 3D survey is the generation of a relatively continuous image of subsurface conditions in essentially all dimensions. To illustrate, contrast the information provided by a two-dimensional (2D) survey. A 2D survey produces an image of a vertical slice directly beneath only the seismic line. Two dimensions are represented, the vertical dimension and the horizontal dimension beneath the line. Conditions between lines must be interpolated. Three-dimensional data allows reliable interpretation of stratigraphy, depths, and subtle contrasts in rock quality and trends in these characteristics for essentially every subsurface position within the entire survey area. Three-dimensional surveys are necessarily more intensive, with a greater number of source points and receiver locations than 2D surveys. As a result, certain critical “density” of data must be achieved to provide the interpretive advantages of the 3D survey. Source line orientation is dictated by topography. The depth of desired imaging generally dictates the distance between source lines and the distance between receiver lines. Imaging shallower formations requires more closely spaced lines. The distance between individual source point and receiver locations controls the resolution and detail of the 3D images generated by the survey. See final project map for source point and receiver point locations for this survey (page 30).

To effectively generate 3D seismic data that can be of value, it is imperative that the geophones (receiver points) are laid out and recording simultaneously across a large area. This simultaneous recording over a relatively large area is the very basis of 3D seismic methodology. As described above, this is totally different than layout required for 2D geophysical exploration. It is not reasonable to mobilize, drill, shoot, and record on only a small portion of a project area with 3D methodology, as the data would be of little value relative to three dimensional mapping of underground structure.

1.2 Purpose and Need

Nance Petroleum Corporation has submitted a plan to conduct a three-dimensional (3-D) vibroseis geophysical prospect in and around the Murphy Dome Oil Field. The objective of the project is to determine structural and

reservoir characteristics in the area. The results of this geophysical exploration operation are expected to provide the applicant with a high-resolution image of potential hydrocarbon bearing reservoirs underlying the project area. Grant Geophysical has filed a *Notice of Intent (NOI) to Conduct Oil and Gas Geophysical Exploration Operations* on behalf of Nance Petroleum Corp., requesting authorization to conduct seismic exploration operations on federal lands, for lands managed by the BLM.

1.3 Decisions to be Made

1.3.1 Scope of This Analysis

Scope consists of the range of actions, alternatives, and impact to be considered (40 CFR 1508.25). The scope of this analysis is limited to geophysical exploration using the 3D seismic reflection method in Washakie, and Hot Springs Counties, covering 13.62 square miles utilizing up to four Buggy Vibrators.

This analysis is limited to geophysical exploration operations. Analysis of land availability for oil and gas leasing and the land specific leasing decisions were made in previous decisions by the Worland Field Office, Washakie RMP; and are therefore outside the scope of this analysis. Applications for permits to drill (APDs), or potential development of oil and gas fields and ancillary facilities (i.e. compressor stations, pipelines, etc) in the project area are also beyond the scope of this EA and will not be addressed or discussed, as such actions would require separate NEPA analysis.

Discussion and analysis was limited only to the factors relevant to the decision. Although the EA displays some programmatic restrictions on other crucial wildlife areas during crucial periods (i.e. - Sage Grouse Breeding Season), the discussion and analysis was limited to the effects of geophysical exploration operations on habitat components potentially affected by the proposal. This was because no geophysical exploration operations would occur in the affected areas during these critical seasonal periods.

1.3.2 Decision to Be Made

Given the purpose and need for this project, the Worland Field Office of the Bureau of Land Management, will review the proposed action and the other alternatives in order to make the following decisions:
• Whether to implement the proposed action, an alternative to the proposed action, or the no action alternative. The decision will be documented in a Decision Record.
• Whether to prepare an environmental impact statement. If the environmental analysis indicates to the authorized officer that impacts associated with the alternatives are not significant, then a Finding of No Significant Impact (FONSI) would be issued, (40 CFR 1508.13) that allows the action to proceed without preparing an environmental impact statement.

Before BLM may make these decision, the National Environmental Policy Act of 1969 requires the preparation of an Environmental Assessment to assess and disclose the potential environmental effects and determine whether or not these impacts could be “significant”, as the term is used in NEPA.

1.3.3 Regulatory Procedure

The regulatory procedure for allowing geological prospecting (geophysical exploration) on federal lands is the same whether the applicant holds leases on those lands or not. This procedure requires the project applicant to file a *Notice of Intent and Authorization to Conduct Oil and Gas Geophysical Exploration Operations* (BLM Form 3150-4) with the appropriate surface management agency. Geophysical exploration operations authorized under this procedure are limited only to land in federal ownership. **There is no right of entry or occupancy for geophysical prospecting on private or state land via this authorizing procedure – even if the subsurface minerals under those lands are federally-owned.**

Authorization to allow geophysical exploration on lands in federal ownership (both leased and non-leased) can be permitted to individuals or companies other than a leaseholder. If any or all of the proposed geophysical exploration operations would occur on leases held by the applicant (or party who contracts a geophysical company to conduct a survey), then the following would apply:
1. Fees are not charged for the portions of the geophysical exploration operation occurring on leases.
2. Conducting the geophysical exploration operation is an exercise of lease rights. Essentially, the land owner has input on how the geophysical exploration operation can be done; however, they cannot refuse to allow the

geophysical exploration operation to proceed.

1.4 Conformance with Land Use Plan

Name of Plan: Washakie Resource Management Plan **Date Approved:** September 2, 1988

Remarks:
This plan has been reviewed to determine if the proposed action conforms to the land use plan as required by 43 CFR 1610.5. The Washakie RMP provides that the about 1.6 million acres of BLM-administered mineral estate is open to oil and gas leasing consideration. Approximately 11,200 acres of federal mineral estate in the Spanish Point Karst ACEC will be closed to leasing. About 86,100 acres of BLM-administered mineral estate are open to leasing consideration with a "no surface occupancy" stipulation. Approximately 985,600 acres of federal mineral estate would be leased with seasonal restrictions to protect important wildlife habitat. The rest of the Planning area is subject to standard lease terms and conditions, and seasonal or other requirements.

The mitigation measures developed via this environmental assessment are in compliance with the applicable resource management plan. The BLM portion of the project area, located within Worland Field Office jurisdiction, is subject to the Washakie Resource Area (WRA) Resource Management Plan (RMP) and Record of Decision (ROD), approved in September 1988. The plan and decisions were reviewed, and a determination was made that this proposal conforms to land use plan decisions, guidelines, terms, and conditions, as required by Federal Land Policy and Management Act (FLPMA) 43 CFR 1600.

The Proposed Action would be in conformance with the RMPs' objectives to maintain or enhance opportunities for mineral exploration, while providing protection of other resource values. The "No Action" alternative would not be in conformance with this objective, unless it were demonstrated through this EA that the proposal would cause unnecessary or undue degradation to the public lands, threaten a violation of another law, or result in other unacceptable impacts.

The development of this project would not affect the achievement of the Wyoming Standards for Healthy Rangelands (August 1997). The project design features developed via this EA, and implemented as Conditions of Approval are in compliance with all relevant resource management plan decisions contained within the Washakie Resource Area RMP ROD.

1.4.1 Legal and Administrative Framework

Federally owned oil and gas resources are managed by the U.S. Department of the Interior under the authority of the Mineral Leasing Act of 1920, as amended. Other congressional actions amplify and extend this base authority. The Federal Land Policy and Management Act of 1976 specifies that public lands are to be managed in a manner that recognizes the need for a domestic source of minerals and declares congressional policy that federal lands be managed recognizing the need for implementation of the Mining and Minerals Policy Act of 1970.

Authority for geophysical prospecting on BLM-administered public lands is contained in the Mineral Leasing Act of February 25, 1920, Title 30 Chapter 3A, as amended, and the Code of Federal Regulations 43 CFR 3150. Other relevant guidance includes BLM Manual 3150 and BLM Handbook 3150.

In May 2001, the President's National Energy Policy Development Group issued recommendations for developing and implementing a comprehensive long-term strategy to promote dependable, affordable, and environmentally sound energy for the future. At the same time the President issued Executive Order 13212, "Actions to Expedite Energy-Related Projects", in which agencies are ordered to

> *"…take other actions as necessary to accelerate the completion of such projects, while maintaining safety, public health and environmental protections."*

The Federal Land Policy and Management Act (FLPMA) (43 USC 1701.102 (a)(7)) dircts BLM to manage public lands

"…in a manner which recognizes the Nation's need for domestic sources of mineral, food, timber and fiber from the public lands including implementation of the Mining and Minerals Policy Act of 1970 (84 Stat. 1876, 30 USC 21a) as it pertains to the public lands…"

The use of public lands and federal mineral estate for the development of reliable domestic sources of energy is consistent with the recommendations of the Energy Policy Development Group and Executive Order 13212 and FLPMA. The RMP provide for environmentally sensitive development of oil and gas resources and completion of energy development and transmission projects while maintaining public health and safety, and, ensuring compliance with applicable laws and regulations.

Required protective measures, best management practices (BMPs), or Conditions of Approval of the NOI, relative to the BLM lands, pertain to protection of all lands that may be potentially affected by the activity on federal lands. As an example, offsets from springs, wells, or other water sources would be required even if the sources are on adjacent non-federal land.

1.5 SCOPING AND PUBLIC INVOLVEMENT

Scoping is an important part of the National Environmental Policy Act (NEPA) process and is used to determine the scope of issues to be addressed and for identifying the key issues related to a proposed action (40 CFR 1500.7). The scoping process can involve federal, state, and local government agencies, resource specialists, industry representatives, local interest groups, and members of the public. Scoping is an interdisciplinary process.

A *Notice of Intent and Authorization to Conduct Oil and Gas Geophysical Exploration Operations* was received in the Worland Field Office for this project on October 27, 2005. A scoping notice was made available on the Wyoming BLM and Worland Field Office internet web-sites. The notice was also sent to persons or groups who may have an expressed interest in oil and gas operations areas managed by the Worland Field Office.

Issues identified during the scoping process are further analyzed in the affected environment and environmental consequences sections of this document. Mitigation measures have been established to address these concerns. Staff specialists have also reviewed the proposal and identified impacts and appropriate mitigation measures.

The following Worland Field Office personnel reviewed or have been contacted with regard to this EA and Record of Decision.

Name	Title
Mike Bies	Archaeologist
Mark Bollack	Archaeologist
Tom Ball	Wildlife Biologist
Jeff Johnson	Recreation Specialist
Teryl Shryack	Range Management Specialist
Alberta Settle	Civil Engineer
Carol Sheaff	Realty Specialist
Karen Hepp	T&E Plant Specialist
Steve Kiracofe	Soil Scientist
Mark Dallon	Hydrologist
Chet Wheeless	Fisheries Biologist

2.0 ALTERNATIVES, INCLUDING THE PROPOSED ACTION

2.1 Introduction

Grant Geophysical, on behalf of Nance Petroleum Corp., has submitted a Notice of Intent and Authorization to Conduct Oil and Gas Geophysical Exploration Operations on BLM administered lands. The 3D geophysical seismic survey of the Murphy Dome area, is approximately 13.62 square miles (8716.8 acres) in size and occupies portions of townships T43-44N; R91-92W, Hot Springs, and Washakie Counties, Wyoming. The project area outlines an existing oil field. The Murphy Dome oil field was discovered in 1949. Within the Murphy Dome Oil Field there are currently 33 producing wells, 1 shut-in well, 44 plugged and abandoned wells, 3 spudded wells and 3 additional wells permitted for drilling. (Wyoming Oil & Gas Conservation Commission records available via the internet at http://wogcc.state.wy.us.)

The proposed seismic survey would facilitate development of a 3D image of the geologic structure and stratigraphy underlying the project area. The exploratory seismic survey would involve: a) the generation of ground vibration utilizing buggy vibroseis methods, and b) the recording of reflected sound waves and patterns arising from the different underground geologic strata.

Approximately fifty-eight (58) percent (5055 ac.) of the project area consists of Bureau of Land Management (BLM) administered lands. Approximately thirty-one (31) percent (2702 ac.) of the project area consists of private lands, and approximately eleven (11) percent (959 ac.) of the project area consists of State of Wyoming lands. Analysis of the proposed action only pertains to those lands administered by the BLM.

2.2 Alternative 1 (Proposed Action)

PLAN OF OPERATIONS

2.2.1 Planning Surveys and Pre-approval Actions

To accurately define the extent and locations of project activities, a land survey crew has located and placed temporary markers at receiver and source points using a high-accuracy global positioning system (GPS). The survey crew has established and flagged the receiver and source point locations and travel routes between them. This work was completed on foot and from ATV's. The survey activities are designed to conform with the criteria for "Casual Use" under BLM regulations governing onshore oil and gas geophysical exploration (43 C.F.R. § 3150.0-5(b)). Vehicles bringing surveyors to and from the project area remain on existing roads and trails.

Archaeologists have then followed the land surveyors to identify potential sites or areas of concern for cultural resources that may be affected by implementing the seismic survey source points and overland access routes for vehicles. Identified sites/areas of potential concern for cultural resources would be flagged for avoidance according to BLM-approved criteria. The archaeology results for the proposed action would be provided to the land surveyors and means of avoidance of any archaeological resources would be determined, and the survey location markers and designated access routes would be relocated.

2.2.2 Proposed Action

The proposed ground-vibration "shot lines" are laid out in an east-west array, oriented perpendicularly to the receiver lines. Shot lines will be placed parallel, approximately 800 feet apart, with source points spaced approximately 311 feet apart along the source line. This ideal configuration may be modified due to topographic constraints, archaeological sites and other obstacles or sensitive areas. There will be approximately 1568 source points. The recording of seismic information will involve parallel lines of receiver (geophone) stations laid out in an NE-SW orientation. The parallel lines will ideally be spaced at approximately 885 feet apart (approximately 3921). Ideal receiver locations may also be modified due to topographic constraints on access.

2.2.2.1 Project Activity Plan and Schedule

The proposed action is scheduled to begin November 5, 2006. Source generation and recording is expected to take about 15-20 days.

2.2.2.2 Workforce

Recording of seismic data will be conducted with a field crew of approximately 30 people. Equipment will be

deployed by helicopter to reduce the impact to the environment along the receiver lines. Crews of 4-5 people will walk the lines deploying cables, geophones and boxes at the assigned locations. Up to 4 buggy mounted vibrators will be utilized during daylight recording operations.

2.2.3 Source Generation

Vibratory buggies would be used as the preferred energy source. Four vibrator buggies, traveling in either a staggered formation or, "Flying V" formation, would travel bumper-to-bumper (approximately 10-15 feet apart), stopping to shake at each surveyed source point in sequence and in context with the overall source generation plan. The "Flying V" is formed by two front vibrator buggies side by side and two trailing vibrator buggies each offset to the outside approximately one half vehicle width. A staggered formation would not employ the "Flying V" formation but would stagger tracks as much as is practicable. The net effect of these formations is vehicle track surface impact is spread out minimizing surface damage and providing quicker recovery time. Due to topographic constraints and other considerations, staggering and/or the Flying V formation may not be feasible in some areas and may be modified to an inline or modified staggered formation when necessary. Minor adjustments to the formation may be made as necessary during the course of the project in order to minimize surface disturbance or as directed by the BLM. On existing roads and trails, the vibrator buggies would travel in an inline bumper to bumper formation. A vibrator scout on an ATV may be utilized to assist the vibrators.

To generate ground vibration waves, a buggy vibrator would lower a 7X4-foot metal pad onto the surface at a pressure of approximately 15 psi. The buggy vibrator would then cause the pad to pulse or shake and thus generate a series of ground vibrations. Modern vibrator electronics provide force control on the 7x4-foot metal pad resulting in consistent ground contact minimizing surface disturbance and compaction. Duration and frequency of buggy vibrator shaking would range from a few seconds to several minutes at each vibrator source point location. Each 4-wheel drive buggy vibrator would weigh about 62,500 pounds, and each tire would be approximately three feet wide. Contact pressures would be about 28 psi. No additional clearing or grading of the existing roads and trails are proposed.

Photo 1: Vibroseis Buggy

2.2.4 Summary of Estimated Disturbances

Existing roads and trails will be utilized for access as much as possible and when operationally feasible. Short-term surface disturbance as a direct result of the seismic survey operations including all-terrain vehicles and buggy vibrator to source locations are illustrated in Table 2.1. Staging areas would be located entirely on private lands.

Surface disturbance from each vibroseis buggy would typically consist of two, 3-foot wide tracks (total disturbance of six feet per vibroseis buggy) from the low impact floatation tire-equipped, approximately 10-12 foot wide vibroseis buggies. Total surface disturbance from vibroseis buggies was calculated to account for travel corridors, and travel between source lines. For this project four vibroseis buggies would travel abreast in a modified staggered formation or "Flying V' formation to minimize surface impacts or as directed by the Authorized Officer. Operation in topographically constricted areas and on existing roads would use an in-line formation as the vibroseis buggies will not be to able spread into a "Flying V".

No impacts or disturbances from pedestrian receiver point placement are anticipated, as such pedestrian-based activity would meet the criteria for classification as "casual use."

Disturbance calculations were made for all access routes proposed on BLM lands. Access may or may not be used by vibroseis vehicles and access may or may not utilize existing roads and trails. A maximum of 323 acres would be utilized on BLM administered lands. These 323 acres constitute approximately 4 percent of the total project area.

Table 2.1 Associated Disturbance – Proposed Action		
779398' total access	6' footprint, assuming in-line formation	107.557 Acres disturbance
779398' total access	12' footprint, assuming modified staggered formation	215.114 Acres disturbance
779398' total access	18' footprint, assuming "Flying V" formation	322.671 Acres disturbance

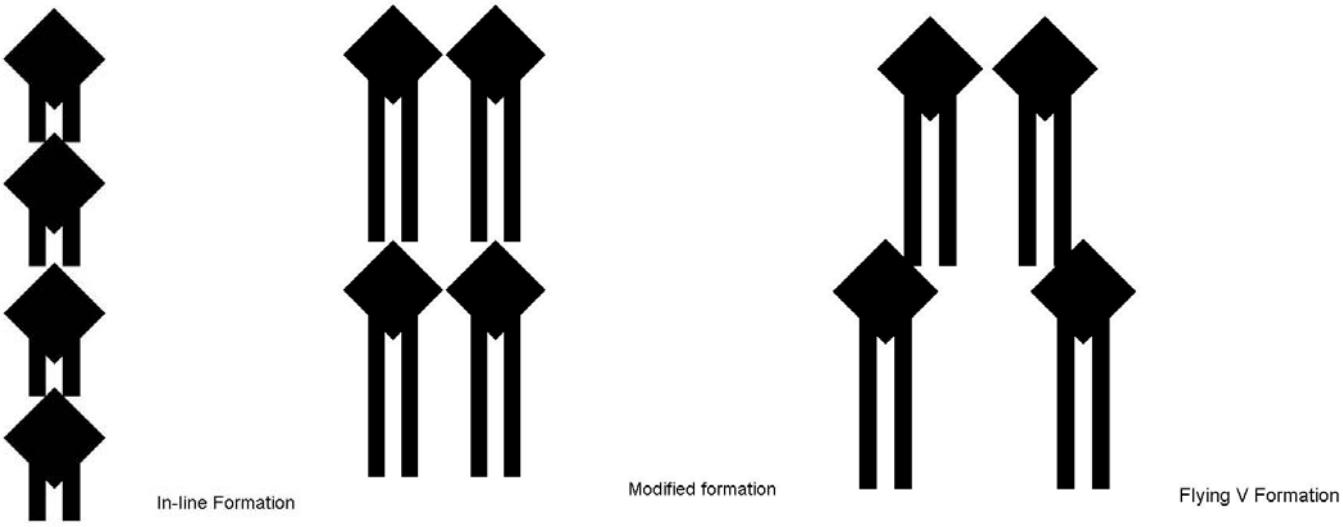


Illustration 1: Illustration of Buggy Formation Alternatives

2.2.5 Data Acquisition

Recording of seismic data will be conducted with a field crew of approximately 30 people. Equipment will be deployed by helicopter to reduce the impact to the environment along the receiver lines. Crews of 4-5 people will walk the lines deploying cables, geophones and boxes at the assigned locations. Up to 4 buggy mounted vibrators will be utilized during daylight recording operations.

All support vehicles will travel on existing roads or trails only while ATV's will be used to trouble-shoot and replace equipment as required along the receiver lines. As these lines are cleared after recording all pin flags, flagging and lathe will be picked up and flown out to a staging area for proper disposal. Any staging areas or landing zones will be located on private lands within the project area.

2.2.6 Demobilization

The demobilization task would proceed concurrently with data acquisition. All pin flags, flagging, and other "trash" would be gathered daily as the field groups and crew members complete data acquisition portions of the project. The "trash" would be collected at points on roads or trails and transported by vehicle to staging areas where personnel would organize materials, handle equipment, and dispose of used/unusable materials.

2.2.7 Support Operations

All equipment, including the buggies, would be initially brought to the project area by 12 to 20 transport trucks/tractor trailers as part of project mobilization. Operation of most support vehicles, including pickups, would be limited to existing roads and trails. A repair vehicle may need to travel off road if a drill or vibrator buggy needs repair and cannot return to a staging area or road/trail. The repair vehicle would limit travel to routes/areas surveyed and cleared previously for archaeological resources. Refueling of buggies will typically take place on existing roads and trail intersections.

2.3 Alternative 2 (Proposed Action with additional Conditions of Approval (COA's))

Based on BLM staff specialists input and comments made during the scoping period, it was felt that certain conditions of approval were necessary and proper to provide adequate protection of the surface resources.

2.4 Alternative 3 (No Action)

No action implies that on-going field development and activities would be allowed to continue in the area, but the proposed action would be disallowed. Additional actions would be considered by the BLM on a case-by-case basis.

3.0 AFFECTED ENVIRONMENT

Resources and features not present, and not discussed in this EA, include: riparian areas, Class I visual management areas, Class I Airsheds, prime or unique farmlands, Wild and Scenic Rivers, wetlands, wilderness. Other than livestock grazing, oil and gas, and wildlife use, there are no other known important land uses, or proposals for use, that occur in the project area, that would be affected by, or have the potential for cumulative impact with this proposed action.

3.1 Location and Land Ownership

The 3D geophysical seismic survey of the Murphy Dome area, is approximately 13.62 square miles (8716.8 acres) in size and occupies portions of townships T43-44N; R91-92W, Hot Springs, and Washakie Counties, Wyoming.

Approximately fifty-eight (58) percent (5055 ac.) of the project area consists of Bureau of Land Management (BLM) administered lands. Approximately thirty-one (31) percent (2702 ac.) of the project area consists of private lands, and approximately eleven (11) percent (959 ac.) of the project area consists of State of Wyoming lands. Analysis of the proposed action only pertains to those lands administered by the BLM.

The Murphy Dome oil field is an existing oil field discovered in 1949. The proposed 3-D geophysical project is not so much exploratory in nature but should be best characterized as normal on-going engineering work required to enhance and extend the life of an aging oil field.

3.2 Geology

Within the Murphy Dome Oil Field there are currently 33 producing wells, 1 shut-in well, 44 plugged and abandoned wells, 3 spudded wells and 3 additional wells permitted for drilling. (Wyoming Oil & Gas Conservation Commission records available via the internet at http://wogcc.state.wy.us.)

3.3 Hydrology

3.3.1 Surface Water

Through out the project area there are five discharge points from oil and gas produced water. This discharge is permitted through the Wyoming Department of Environmental Quality, Water Quality Division. Two of these discharge points occurs on BLM administered lands, one of which is not currently discharging water; the remaining occur on private lands. The outfall of this water source is to an un-named drainage that eventually flows into Mud Creek.

The following comments were provided by the Hot Springs County Commissioners:

> The Hot Springs Conservation District is the lead agency in the Kirby Creek Coordinated Resource Management Plan which is currently administering substantial grants for the purpose of restoring and improving the environmental balance in the entire Kirby Creek watershed. The Murphy Dome oil field, and the proposed 3-D geophysical project, is within the Kirby Creek watershed CRM. The Hot Springs County Board of County Commissioners supports and encourages the efforts of the Hot Springs Conservation District and their partners in the effort.

3.3.2 Riparian Areas

On BLM land within the project area there is one drainage with riparian vegetation and perennial water. A WYPDES discharge point that eventually flows into Mud Creek is the source of the water in the drainage and has a very consistent discharge level. The drainage bottom is primarily a 10-30 foot wide cattail marsh with extremely thick vegetation and no discernible stream channel. There is approximately 1.5 miles of this channel from the oil well water source to the edge of the project boundary.

3.4 Soils and Vegetation

3.4.1 Soils-- Soil Inventory of Hot Springs and Washakie Counties, Wyoming

The soils and associated vegetative communities in the project area reflect the desert environment in which they

were formed. For the most part, they are moderately deep to deep (20 – 60 inches) with loamy textures. The northern two thirds of the project area is dominated by salt desert shrub plant communities intermingled with stringers of sagebrush plant communities while sagebrush plant communities dominate the southern third of the project area. The six ecological sites listed below occur throughout the project area.

- Saline Upland 10 - 14 in. pz. R032XY344WY
- Loamy 10 - 14 in. pz. R032XY322WY
- Shallow Loamy10 - 14 in. pz. R032XY362WY
- Saline Lowland 10 - 14 in. pz. R032XY338WY
- Clayey 10 - 14 in. pz. R032XY304WY
- Shallow Clayey 10 - 14 in. pz. R032XY358WY

A soil susceptibility rating based on slope, surface texture and erosion hazard was assigned to each soil map unit in the project area, resulting in a geographical representation of soil susceptibility to damage from surface disturbing activities (Map 2). This map correlates closely with the Soils and Ecological Site Map and displays that most of the project area is moderately susceptible to damage following surface disturbing activities. This, in large part, is due to slopes that in places exceed 12 percent. Additionally, the loamy surface textures (loams, silty clay loams and clay loams) characteristic of the project area are susceptible to surface rutting and compaction during wet conditions.

3.4.2 Vegetation

The majority of the project area is mapped as desert shrub/saltbush plant community (60% of this vegetation type) as the primary vegetation type. This vegetative type forms a semi-arid, native rangeland made up primarily of saline upland and shale range sites. The Secondary Vegetation type is mapped as sagebrush/grass community (40%of this vegetation type). The major range sites in this vegetative community area sandy, shallow sandy, loamy, and shallow loamy, depending on annual precipitation. The sagebrush/grass community is important as cover and for forage production for many wildlife species.

3.4.2.1 Potential Plant Communities

Potential vegetation on the saline uplands is dominated by salt tolerant plants and drought resistant mid cool-season perennial grasses. The expected potential composition for this site is about 50% grasses, 10% forbs and 40% woody plants.

The Historic Climax Plant Community of Saline Upland range sites is dominated by Gardner's saltbush, Indian ricegrass, bottlebrush squirreltail, Sandberg bluegrass, and rhizomatous wheatgrasses. A variety of forbs also occurs in this state and plant diversity is high. Total annual production is about 350 pounds per acre, but it can range form 200 lbs/acre in unfavorable years to about 550 lbs/acre in above average years.

3.4.2.2 Invasive Species

As the saline uplands deteriorate, species such as birdfoot sagebrush and greasewood will increase. Weedy annuals will invade. Cool season grasses such as Indian ricegrass, bottlebrush squirreltail, and rhizomatous wheatgrasses will decrease in frequency and production.

A fire occurred in the project area in 1996; as a result, invasive species such as cheatgrass, Japanese brome, and cactus, have replaced more desirable vegetation in large areas.

3.5 Range

The area receives nine to ten inches of precipitation annually. Vegetation consists primarily of sagebrush/grassland communities with large areas dominated by cheatgrass and Japanese brome (1996 wildfires) interspersed with saline upland sites.

Grazing is permitted on the associated allotments during the following times:
#00077 Middle Walker Allotment - 220 cattle from March 1st to April 15th and 200 cattle from December 28th to January 22nd by Lyman Ranch Co., c/o Phillip Lyman.
#00079 Lake Creek Allotment - 500 cattle from October 22nd to November 23rd by Mishurda Mountain Ranches Partnership LTD, c/o Birgir Mishurda.

#00080 Murphy Dome Allotment - 75 cattle from April 15th to August 14th , 72 cattle from August 15th to December 21st , and 353 cattle from October 19th to December 21st by Dennis Ranch, LTD, c/o Joe Dennis.

3.6 Wildlife

3.6.1 Big Game

The project area is made up primarily of salt desert shrub and Wyoming sagebrush types. However, the sagebrush type was altered by the 1996 Nowater wildfire to a cheat grass (Bromus tectorum) dominated habitat. This event greatly reduced the habitat and forage value of the area for wildlife. Wildlife species recognized by the Bureau as being high priority species include sage grouse, mule deer and pronghorn. No Threatened or Endangered species habitat has been identified in the project area. Interagency wildlife distributions maps have about the eastern two thirds of the project are designated as crucial mule deer and pronghorn winter range. This designation was made before the 1996 wildfires and before the wintering populations of these two species dropped after 1996. Combinations of mild winters, habitat alteration and population numbers being down, the animals have been widely dispersed during the past ten years during the crucial period. Big game populations are cyclical so population numbers are expected to eventually come back up and the Bureau and Game and Fish are cooperatively trying to restore the habitat quality by trying to reestablish sagebrush over time.

The eastern half of the proposed project area lies within crucial winter/yearlong habitat for the Southwest Bighorns mule deer herd unit; while the western two thirds of the project area supports crucial winter/yearlong habitat for the Copper Mountain pronghorn herd unit.

3.6.2 Sage Grouse

Sage grouse have to have sagebrush for yearlong cover and for 100% of their dietary requirements from mid October through mid April. Because of the 1996 wildfire, about 95,000 acres of sage grouse habitat was made to be uninhabitable or the habitat quality was greatly reduced. Sage grouse have been largely extirpated from the area. Sage grouse use the produced water that flows toward Mud Creek during the summer months. Four old sage grouse lek sites have been identified within two miles of the project site. But, all of these sites were abandoned during the 1990's.

The following wildlife comments were provided by the Wyoming Game and Fish Department:
Only one known sage-grouse lek (UTM coordinates: Z13 0274755/4842637) occurs within the project area. Since the Mud Creek Road South lek has been very active during the past few years, with a high of 27 males and 8 females observed during April 2006, we recommend a 1/4-mile surface disturbance protection during the breeding season, from March 1-May 15.

The following wildlife comments were provided by the Hot Springs County Commissioners:
Hot Springs County participates in and supports the Big Horn Basin Sage Grouse Working Group which closely monitors the sage grouse population in the Big Horn Basin. Sage grouse populations currently show a normal, fluctuating increase well within parameters of cyclic variation even though the area has experienced 6 out of 7 years of severe drought.

3.6.3 Prairie Dogs

Two small white -tailed prairie dog towns were identified within the project area during the summer of 2004.

3.6.4 Fisheries

Murphy Dome oilfield lies on the north side of a ridge that is a continuation of the Lake Creek Divide. There are several seeps or springs that arise on the south side of the ridge, which drain to Lake Creek. Lake Creek is predominately intermittent in its flows, but has several small segments which are perennial. None of the segments support any fish species. Most of these perennial sections are upstream of any influence of Murphy Dome. Lake Creek flows approximately three miles past Murphy Dome to a confluence with Kirby Creek. Kirby Creek is ephemeral or intermittent from its confluence with Lake Creek to the Bighorn River 13 air miles to the west. It historically contained several species of small native minnows, chubs, or dace in its far upstream reaches, approximately 13 miles above its confluence with Lake Creek. The recent drought of approximately five years has apparently extirpated those populations. Kirby Creek has no known populations of fish at this time.

Most of the Murphy Dome oilfield drains to the north of the ridge. There are no springs within the oilfield. There

are two perennial streams of oilfield produced water that flow from the oilfield northward to join Mud Creek. Mud Creek flows two miles north to join Nowater Creek. Nowater Creek, an intermittent stream, flows approximately 18 miles northwest to join the Bighorn River. There are no permanent fish populations in either Mud Creek or the Nowater. While Mud Creek is perennial from the oilfield water, its water quality is poor and the Nowater often goes dry shortly after its confluence with Mud Creek.

3.7 Threatened or Endangered Species

3.7.1 Threatened, Endangered, Candidate, and BLM Sensitive -- Plant Species

There are no known Threatened, Endangered, or BLM Sensitive species identified in this project area.

3.7.2 Threatened and Endangered -- Wildlife

There are no Threatened or Endangered Species identified in the project area.

3.8 Recreation and Visual Resources

3.8.1 Recreation

This Special Recreation Management Area is designated as Extensive Resource Management Area. Such recreation use currently consists of site seeing, hunting, and driving for pleasure, destination travel for viewing the area and general dispersed recreation.

There are no Areas of Critical Environmental Concern or Wilderness Areas in the vicinity of these projects.

3.8.2 Visual Resources

The area of this action is identified as visual resource management class IV. Class IV-- changes in the basic elements of the landscape can attract attention and may be dominant features of the landscape in terms of scale, but the changes should repeat the form, line, color and texture of the characteristic landscape.

3.9 Cultural and Historical Resources

The BLM, after examination of the NOI, determined that a class III cultural survey must be conducted for the Federal Lands within the project area.

Kail Consulting Ltd. Conducted the Class III Cultural Resource Survey of the Murphy Dome 3D Seismic Project; Hot Springs and Washakie counties, Wyoming (Report No 1506096Y) in the Washakie Planning Area.

Michael T. Bies, Worland Field Office Archaeologist, has reviewed this report for technical adequacy and compliance with the Bureau of Land Management standards. Based on this review the following evaluations have been made: The report is acceptable to the Worland Field Office.

3.10 Socioeconomics

In compliance with the Mineral Leasing Act, the lessee has the right to explore, drill, and extract hydrocarbons from their lease. The oil and gas sector plays an important role, generating tax revenues and vendor/employment incomes.

A meeting was held on September 13, 2006 with the Hot Springs County Planner. The Hot Springs County Commissioners submitted comments supporting the project. The following socioeconomic information was provided by the Commissioners:

Hot Springs County has experienced a classic oil and gas declining production curve from oil and gas derived from all land ownership categories (fee minerals, State minerals and Federal minerals). Most of the County's oil fields are old aging fields, commonly on secondary or tertiary recovery methods, and to date, the County has not experienced rising production due to higher energy prices.

Nance Petroleum Corporation is the County's 4th largest taxpayer in a County which derives approximately 75% of its tax revenue from oil and gas activity.

According to the latest US Census Bureau figures, Hot Springs County has lost approximately 7.1% of its population during the time frame 2000-2005.

Hot Springs County has 21.5% of its population over the age of 65 versus a state-wide average of 12.1% and is an example of "aging-in-place". Similarly, the County has 956 disabled people out of a total population of 4537 for a rate of 21.07%. In addition, the County incurs a very substantial social welfare rate.

Recent figures in the Thermopolis *INDEPENDENT RECORD* on September 7, 2006 indicates a continuing drop in school enrollment.

The Wyoming Housing Database Partnership in their semiannual report entitled A PROFILE OF WYOMING - DEMOGRAPHICS. ECONOMICS AND HOUSING: Semiannual Report. Ending December 31.2005, page 105, indicates that IRS figures show a continuing decline in Income Tax Returns.

Various Hot Springs County entities monitor the wild ungulate population in the County and consider the wild ungulates vital to the County's economic health and custom and culture. The Wyoming Game and Fish Department publishes yearly herd population statistics which show steady, well managed ungulate numbers for elk, deer and antelope. The Copper Mountain pronghorn numbers and Southwest Bighorn mule deer herd numbers are shown to be quite consistent.

3.11 Health and Safety

As with any exploratory operations, there is a risk to public health and safety. These risks may include increased traffic to the project locations, snakes, etc. As may be expected, hazardous materials are present in the project area in the form of well drilling reserve pits, natural gas/oil pipelines, material transport containers on passing trucks, above ground fluid tanks at producing well locations, and fuel tanks in parked and moving vehicles. These materials, however, are contained and readily recognizable. Material Safety Data Sheets (MSDS's) for all hazardous materials associated with the proposed geophysical operations are maintained by the operator's Crew Safety Officer and are available for review upon request. The term "hazardous materials" as used here means: 1)any substance, pollutant, or contaminant (regardless of quantity) listed as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, 42 CFR U.S.C. 9601 et seq., and the regulations issued under CERCLA; 2) any hazardous waste as defined in the Resource Conservation and Recovery Act (RCRA) of 1976, as amended; and 3) any nuclear or nuclear byproduct as defined by the Atomic Energy Act of 1954, as amended, 42 U.D.C. 2011 et seq

The presence of H2S from oil and gas facilities is a known safety hazard for the project area.

4.0 ENVIRONMENTAL CONSEQUENCES

Critical elements and other resources potentially affected by the Proposed Action are described in this portion of the EA. This section also provides an analysis of impacts/potential environmental consequences resulting from project implementation, and presents the expected impacts/ environmental consequences of the No Action alternative. Finally, this section of the EA presents mitigation measures developed in response to the anticipated impacts, in conformance with the RMP that would be applied to the project if approved.

4.0.1 Mandatory Critical Elements

Table 4.1 Mandatory Critical Elements

	PROPOSED ACTION	PROPOSED ACTION WITH COA'S	NO ACTION
Air Quality	Not present		
Areas of Critical Environmental Concern	Not present		
Cultural Resources	See section 4.8.1	See section 4.8.2	NOT AFFECTED
Prime or Unique Farmlands	Not present		
Flood Plains	Not present		
Native American Religious Concerns	Not present		
Hazardous Wastes	See section 4.10.1	See section 4.10.2	NOT AFFECTED
Water Quality	See section 4.3.1	See section 4.3.2	NOT AFFECTED
Wetlands/Riparian Zones	See section 4.3.1	See section 4.3.2	NOT AFFECTED
Wild and Scenic Rivers	Not present		
Wilderness	Not present		
Environmental Justice	Not present		
Invasive, Non-Native Species (Weeds)	See section 4.4.1	See section 4.4.2	NOT AFFECTED
Threatened or Endangered Species	Not present		

4.1 Land Use

4.1.1 Alternative 1 (Proposed Action)

By their nature, geophysical operations traverse an area in a short time-frame. By design, the operations are intermittently spaced and their effects are localized, resulting in minimal surface disturbance. Therefore, many of the operations may be designed to avoid sensitive areas and, consequently, would have little or no effect on resource

values.

Impacts to lands would be minimal, as an existing field already has established roads and permits; and therefore, fewer geophysical access trails will be necessary.

4.1.2 Alternative 2 (Proposed Action with COA's)

No effects on additional land resources would be expected to occur beyond the existing situation.
Mitigation:

- Grant Geophysical will utilize the One Call service to obtain information in the planning for and avoidance of buried utilities.
- Energy source points shall be located a minimum of 300 feet from standing structures unless written permission to encroach closer has been given by the land owner (BLM H-3150-1 Handbook).
- Surveying paint shall not be applied to any existing structures or objects (i.e., buildings, fences, signs, rocks, etc.)
- The operator shall be required to repair any damage to facilities caused by their operations.

4.1.3 Alternative 3 (No Action)

Under the No Action Alternative, the development of the Proposed Action would not occur. No effects on additional land resources would be expected to occur beyond the existing situation.

4.2 Geology

4.2.1 Alternative 1 (Proposed Action)

Adoption of the Proposed Action would allow project participants to obtain and utilize 3D geophysical data, resulting in the greater likelihood of drilling producing wells, more efficient field development, and would be consistent with the National Energy Policy.

Vibroseis projects do not affect reservoir production/drainage.

4.2.2 Alternative 2 (Proposed Action with COA's)

Vibroseis and shot hole operations near existing oil/gas wells, buried pipelines, buried telephone cables, or overhead power lines could cause transmission interference. With implementation of the safe distance prescriptions below, no impact to oil and gas related facilities is foreseen. The proposed project would have no effect on saleable minerals permits or any lode and/or placer mining claims that may be present.

4.2.3 Alternative 3 (No Action)

Under the No Action Alternative, utilization of any potential oil resources would not be permitted at this time. The nation's demand for this resource likely would result in exploration and development elsewhere in the project area.

Adoption of the No Action alternative is likely to result in the drilling of more wildcat exploratory wells and possibly 'dry holes' than would occur following completion of the proposed geophysical project. Dry holes, in addition to being a financial waste, would result in unnecessary and undue surface disturbance caused by construction of well pads and roads.

4.3 Hydrology

4.3.1 Alternative 1 (Proposed Action)

No wetland/riparian vegetation would be removed during the project. Helicopters would be used to drop equipment to support placement of recording lines to reduce surface disturbance.

4.3.2 Alternative 2 (Proposed Action with COA's)

The project should have minimal aquatic impact if a 500- foot buffer zone restricting access is applied near riparian areas. This will reduce erosion and sediment release into the water zone while protecting aquatic habitat from compaction and bank destabilization.

Mitigation:

- Vehicles would not cross perennial water features, except on existing roads or pre-designed crossings.
- Access is restricted within 500 feet of riparian areas.

4.3.3 Alternative 3 (No Action)
No effect on water resources would be expected to occur beyond the current situation.

4.4 Soils and Vegetation

4.4.1 Alternative 1 (Proposed Action)
A soil susceptibility rating based on slope, surface texture and erosion hazard was assigned to each soil map unit in the project area, resulting in a geographical representation of soil susceptibility to damage from surface disturbing activities. This map correlates closely with the Soils and Ecological Site Map and displays that most of the project area is moderately susceptible to damage following surface disturbing activities. This, in large part, is due to slopes that in places exceed 12 percent. Additionally, the loamy surface textures (loams, silty clay loams and clay loams) characteristic of the project area are susceptible to surface rutting and compaction during wet conditions.

Vegetation would be disturbed on a maximum of 323 acres. This does not take into consideration existing roads that my not have vegetation present.

4.4.2 Alternative 2 (Proposed Action with COA's)
No additional consequences would be expected under this alternative.
Mitigation:

- All vehicles, including on-road and off-road equipment, shall be cleaned to remove weed seed and soil prior to commencing operations on public lands within the project area.
- Larger shrubs, trees, and other obstacles shall be avoided where possible.
- Project employees and contractors shall not be allowed to drive off-road or collect plants.
- Re-seeding measures shall be taken on disturbed areas to include the following seed mix:

Table 4.2 Seed Mix	
Species	PLS lbs/acre
Western wheatgrass	3
Bluebunch wheatgrass	3
Indian rice grass	3
Gardner saltbrush	1

- No vehicles shall be operated during periods of saturated soil conditions when surface ruts greater than 4 inches would occur along travel routes. Should ruts occur, the operator shall contact the Authorized Officer, within 10 days to address site specific reclamation measures.
- Vehicular traffic across/through dry drainage channels shall be limited to sloping drainage sides or to vertical banks of less than 2 feet as much as is practicable.
- Buggy vibrator traffic shall be planned to minimize the number of passes over the same ground when practicable and terrain permitting, to minimize the potential for soil compaction.
- Vehicles shall be instructed to travel at slow speeds to limit disturbance to soils and vegetation.
- Off-road travel shall be limited on slopes of 12 to 24 percent and restricted on slopes greater than 25 percent.

4.4.3 Alternative 3 (No Action)
Under the No Action Alternative, the development of the proposed Action would not occur. No resulting effects on vegetation resources or soils would be expected to occur beyond the current situation.

4.5 Range

4.5.1 Alternative 1 (Proposed Action)
Grazing occurs on the associated allotments during the following times:

#00077 Middle Walker - 220 cattle from 3/1 to 4/15 and 200 cattle from 12/28 to 1/22 (Lyman Ranch Co.,

c/o Phillip Lyman)
#00079 Lake Creek - 500 cattle from 10/22 to 11/23 (Mishurda Mtn Ranches Partnership LTD, c/o Birgir Mishurda)
#00080 Murphy Dome - 75 cattle from 4/15 to 8/14, 72 cattle from 8/15 to 12/21, and 353 cattle from 10/19 to 12/21 (Dennis Ranch, LTD, c/o Joe Dennis)

Disturbance and possible stress to livestock grazing in the allotment at the time of the survey which may alter routine grazing patterns, but should not reduce available forage any. Being able to see where the trucks drove over the vegetation, if primarily grasses would just be short term until growth started again next spring, but may be longer term if the vegetation is primarily sagebrush stands.

4.5.2 Alternative 2 (Proposed Action with COA's)

Mitigation measures would be taken by the Worland Field Office to ensure allotment boundary maintenance and livestock safety.

- Fences shall remain up at all times to control permitted livestock movements. Permitted fence letdowns shall be restricted to those points as indicated in the project proposal. The fence posts shall be replaced immediately after gaining access through the fence. New Fence clips shall be used to properly secure the fence, if necessary.
- All gates within the project area would be left as they are found (i.e., open gates would be left open, closed gates would be closed).
- Damage to existing fences and other range improvements as a result of the seismic survey would be immediately repaired per approved BLM specifications.
- Personnel shall be instructed to minimize contact and avoid harassment of livestock.

4.5.3 Alternative 3 (No Action)

Under the No Action Alternative, the proposed Action would not occur. No resulting effects range resources would be expected to occur beyond the current situation.

4.6 Wildlife

4.6.1 Alternative 1 (Proposed Action)

The proposed project should not cause any short or long term negative impacts to any high priority wildlife or habitat identified within the project area. There is no scientific data which has proven that this type of project will negatively impact prairie dogs. Therefore, no special restrictions are recommended. Big game numbers are down and combined with the poor habitat condition the deer and pronghorn are widely dispersed so that the project should have minimal impact on wintering animals. This is especially true if this year's winter holds true to the mild winter trend of the last several years. Probably there are no sage grouse wintering within the project area and therefore, no impacts to sage grouse are expected. No known T&E wildlife species or habitat will be impacted from the proposed project.

As there are no fish to be affected, there is no possibility that any seismic activity in or around the Murphy Dome area could have direct, indirect, and cumulative effects to native fish species.

4.6.2 Alternative 2 (Proposed Action with COA's)

With implementation of Conditions of Approval, no resulting effects on wildlife would be expected to occur beyond the current situation.
Grant Geophysical has requested a one time exception to Big Game Crucial Winter Range stipulations, from November 15-November 25. Worland Field Office has consulted with the Wyoming Game and Fish Department regarding this request. They concur, for reasons identified in the affected environment section of this document, that there would be no impact on wintering Big Game species.

Mitigation:
A one time exception to Big Game Crucial Winter Range stipulations is granted beginning November 15, 2006 and ending November 25, 2006. Should the project extend beyond this timing restriction, Grant Geophysical or Nance Petroleum shall request an additional exception in writing.

4.6.3 Alternative 3 (No Action)
Under the No Action Alternative, the development of the proposed Action would not occur. No resulting effects on wildlife would be expected to occur beyond the current situation.

4.7 Recreation and Visual Resources

4.7.1 Alternative 1 (Proposed Action)
The vibroseis trucks and ATVs would most likely create visible tracks trough vegetation; which would follow their permitted access routes and source points. There is a chance that the permitted access and source points associated with this project could result in the general public using the tracks and developing trails and two-track roads.

Hunters and other dispersed recreation users would be temporarily displaced.

4.7.2 Alternative 2 (Proposed Action with COA's)
The Worland Field Office would require mitigation measures by the operator to repair any visible tracks leaving main roads and trails on BLM lands. In addition to:

- Remove flagging, stakes, etc. upon completion of project.
- Signing may be required to prohibit new roads being pioneered upon completion of project.
- Obscure vibroseis tracks at points of departure from existing roads and trails by raking, erecting depressed sage brush, and placing locally available dead vegetation over tracks.
- Obscure vibroseis tracks within one mile of known sage-grouse lek locations.
- Modify vibroseis array configuration to an in-line or staggered configuration to minimize sage brush impacts and avoid sage brush when possible.

4.7.3 Alternative 3 (No Action)
Under the No Action Alternative, the development of the proposed Action would not occur. No resulting effects on recreation or visual resources would be expected to occur beyond the current situation.

4.8 Cultural and Historical Resources

4.8.1 Alternative 1 (Proposed Action)
Worland Field Office Archaeologist has reviewed the report, submitted by the operator, for technical adequacy and compliance with BLM standards. Based on this review, the Worland Field Office finds this report acceptable. No impacts would occur on associated sites.

4.8.2 Alternative 2 (Proposed Action with COA's)
No additional consequences would be expected under this alternative. The standard cultural conditions will be applied.

4.8.3 Alternative 3 (No Action)
Under the No Action Alternative, the development of the proposed Action would not occur. No resulting effects on cultural resources would be expected to occur beyond the current situation.

4.9 Socioeconomics

4.9.1 Alternative 1 (Proposed Action)
The Proposed Action would incrementally increase local and regional economic conditions and could result in the generation of local, state and federal government tax and royalty revenues. The relatively small, short-term project workforce would not generate noticeable population effects or demand for temporary housing or local government services.

Petroleum Association of Wyoming recognizes that the social and economic opportunities generated from the project would benefit the residents of Wyoming and the participating counties by directly creating new jobs and producing additional revenues, particularly if further development is conducted after the exploratory phase.

4.9.2 Alternative 2 (Proposed Action with COA's)

No additional consequences would be expected under this alternative.

4.9.3 Alternative 3 (No Action)
Under the No Action Alternative, the development of the proposed Action would not occur. No resulting effects on socioeconomics would be expected to occur beyond the current situation.

4.10 Hazardous Materials; Public Health and Safety

4.10.1 Alternative 1 (Proposed Action)
There would be no toxic or hazardous chemicals generated by the proposed activities.

Project markers in the form of wooden lath, ribbon flagging, pin-flags and spray paint could contribute litter/solid waste in the project area. However, the operator has made an operational commitment in their Proposed Action to remove project lath, flagging, and trash as recording operations progress, so no debris should remain behind the project as planned. No impact in this regard is foreseen and no Approval Conditions are recommended.
Hazardous substances such as gasoline, diesel, vehicle lubricating and hydraulic oil used in the field during project operations could contaminate natural resources, if spilled. With implementation of the waste disposal prescription, however, no long term impact is foreseen. Fires could be lit, causing serious safety hazards and loss of or damage to property.

4.10.2 Alternative 2 (Proposed Action with COA's)
No additional consequences would be expected under this alternative. The following mitigation measures would be implemented to ensure public health and safety and protection of the environment and natural resources:

- The Operator and their contractors shall comply with all applicable federal and state laws and regulations as they relate to hazardous materials. Hazardous materials being those chemicals listed in Title III List of Lists, EPA's Consolidated List of Chemicals Subject to Emergency Planning and the Community Right to Know Act (EPCRA) and Section 112(r) of the Clean Air Act, as amended, or the 40CFR 302.4 Table-List of Hazardous Substances and Reportable Quantities, as amended. In the event any hazardous materials are used, they would be handled in an appropriate manner to prevent environmental contamination. Any release of hazardous materials of reportable quantities, would be reported both to the National Response Center (NRC), as required in the National Oil and Hazardous Materials Contingency Plan (40 CFR 300), and the Worland Field Office, as per the Hazardous Materials Contingency Plan.
- Fuel and lubricants shall be temporarily stored in fuel trucks or transportable containment trailers at locations approved by the appropriate surface management agency (SMA) within staging areas to minimize potential for accidental releases/spills. No other hazardous or potentially hazardous materials shall be brought into the project area.
- All spills or leaks of diesel fuel, hydraulic fluid, lubricating oil, and coolant, including contaminated soil material, shall be excavated to an appropriate container and transported to an approved disposal site.
- All solid waste or trash shall be transported for disposal to an approved solid waste disposal facility.
- With the exception of the off-road buggy vehicles and ATV use, vehicle traffic shall be limited to existing roads and trails. Vehicles shall travel at speeds within set speed limits of main access roads and at slower speeds appropriate for conditions on more remote roads and trails.
- Survey crew/staff shall keep the public a safe distance away from all buggy drill and vibrator activity. In some cases source points may be located on roads or trails. Buggy vibrators may be accompanied by a pilot vehicle during recording of vibrator source points located on primary BLM roads.
- The helicopter shall follow flight paths chosen to be efficient while following activity-specific aviation operational safety standards for flight altitudes.
- Vehicles with catalytic converters shall be restricted to existing roads and trails; parking or idling would not be permitted in portions of roads or trails with taller vegetation.
- All vehicles shall be equipped with fire extinguishers and shovels. All all-terrain vehicles (ATVs) shall be equipped with spark arresters.
- Helicopter landing zones at each staging area shall be equipped with fire extinguishers.
- The following operational procedures shall be followed: All brush build-up around mufflers, radiators, headers, and other engine parts shall be avoided; periodic checks shall be conducted to prevent this build-up.

- Smoking shall only be allowed in company vehicles and/or designated smoking areas; all cigarette butts shall be placed in appropriate containers and not thrown on the ground or out windows of vehicles.
- Cooking, campfires, or fires of any kind shall not be allowed while working in designated high-hazard fire areas.
- Portable generators used in the project area shall be required to have spark arresters.
- Grant Geophysical/Nance Petroleum Corp. shall coordinate project activities with appropriate fire-fighting personnel in the Worland BLM Field Office and the crew contingency plan would include a fire communications protocol for contacting fire fighting and BLM personnel.

4.10.3 Alternative 3 (No Action)

Under the No Action Alternative, the development of the proposed Action would not occur. No resulting effects on public health and safety would be expected to occur beyond the current situation.

4.11 Cumulative Impacts

Any potential adverse long-term cumulative effects of the proposed action have been adequately mitigated through project design to such a degree that can be considered negligible.

The 3D geophysical exploration operation does, however, have the potential for contributing in a beneficial manner to reducing adverse effects on resources over the long-term if future oil/gas exploration and/or development would occur. While no data is available for a success ratio within the project area, fewer exploratory wells would be drilled if applicants have access to good seismic data processed with today's 3D technology. Likewise, development wells would have considerably higher success ratios with 3D seismic data. Fewer "dry holes" would result in fewer potential disturbances to resources, activities, and users from abandoned drill pads, roads, and other ancillary facilities over the long-term.

Although this action is neutral from a cumulative effects aspect, this action cannot offset or compensate for past, present, and reasonably foreseeable adverse cumulative effects caused by non-Federal actions or actions on non-Federal lands.

4.12 Residual Impacts

Vegetation would have to re-establish on disturbed areas, if any. This would require approximately two growing seasons.

5.0 Consultation and Coordination

5.1 List of Preparers

Table 5.1 List of Preparers

Name	Title
Mike Bies	Archaeologist
Mark Bollack	Archaeologist
Tom Ball	Wildlife Biologist
Jeff Johnson	Recreation Specialist
Teryl Shryack, Karen Hepp, Nancy Baker	Range Management Specialists
Alberta Settle	Civil Engineers
Carol Sheaff	Realty Specialist
Karen Hepp	T & E Plant Specialist
Steve Kiracofe	Soil Scientist
Chet Wheeless	Fisheries Biologist
Mark Dallon	Hydrologist

5.2 Persons/Agencies Consulted

Terry Murray– Agent for Grant Geophysical
Mike Mungas – Nance Petroleum Corp
Bart Kroger – WY Game & Fish Dept
Petroleum Association of Wyoming
Biodiversity Conservation Alliance
Lee Campbell -- Hot Springs County Planner
Wyoming Department of Game and Fish –Cheyenne Office
Public Lands Advocacy
Wyoming Wilderness Association
Wyoming Outdoor Council
Wyoming Oil & Gas Conservation Commission
Wyoming Chapter – Sierra Club

5.3 Scoping Comments

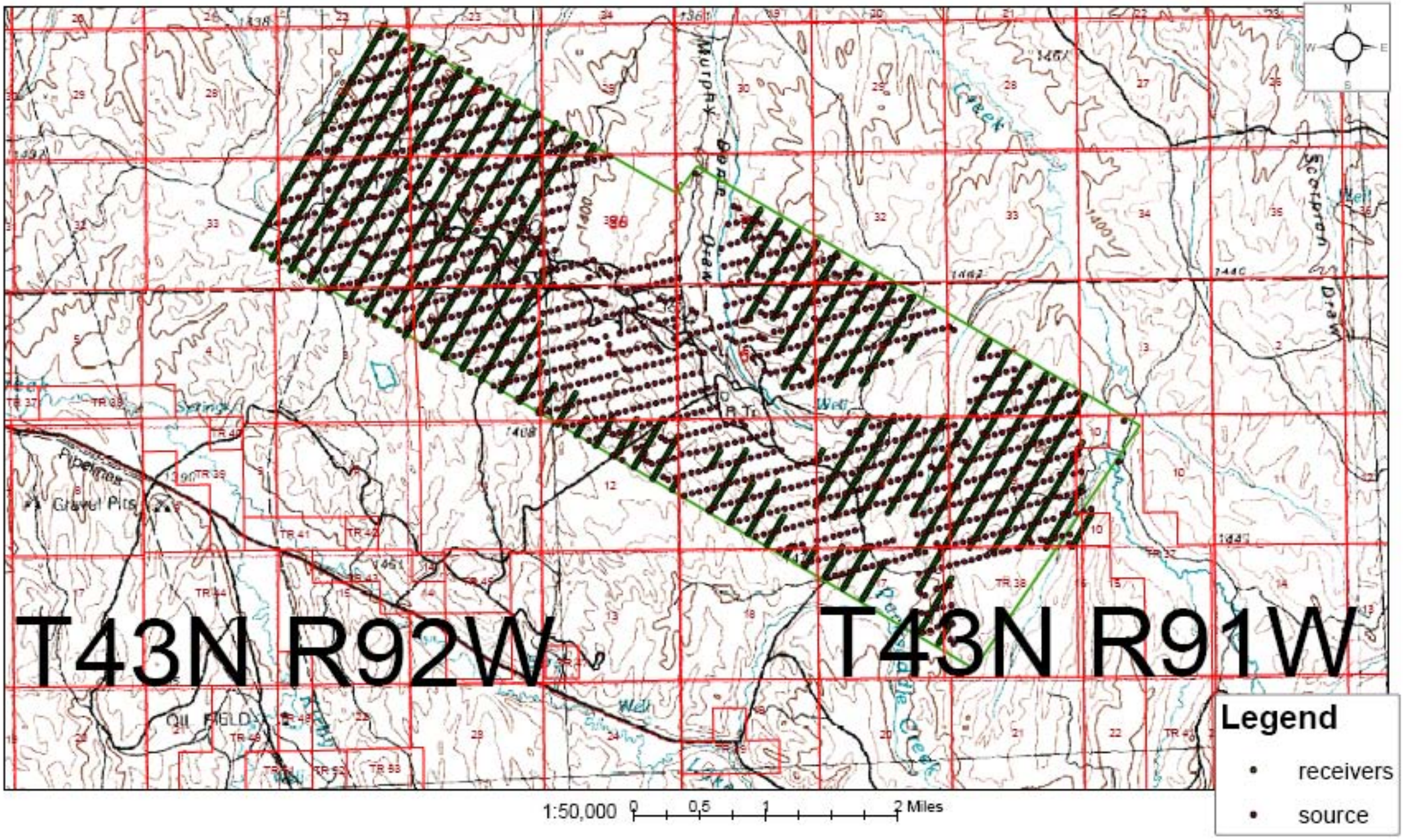
The BLM released the Scoping Notice for the Murphy Dome 3-D seismic survey on September 1, 2006. Four comment letters were received in response to BLM's request for public input. Comments were provided by the following individuals and organizations:

- Petroleum Association of Wyoming
- Biodiversity Conservation Alliance
- Lee Campbell -- Hot Springs County Planner
- Wyoming Department of Game and Fish –Cheyenne Office

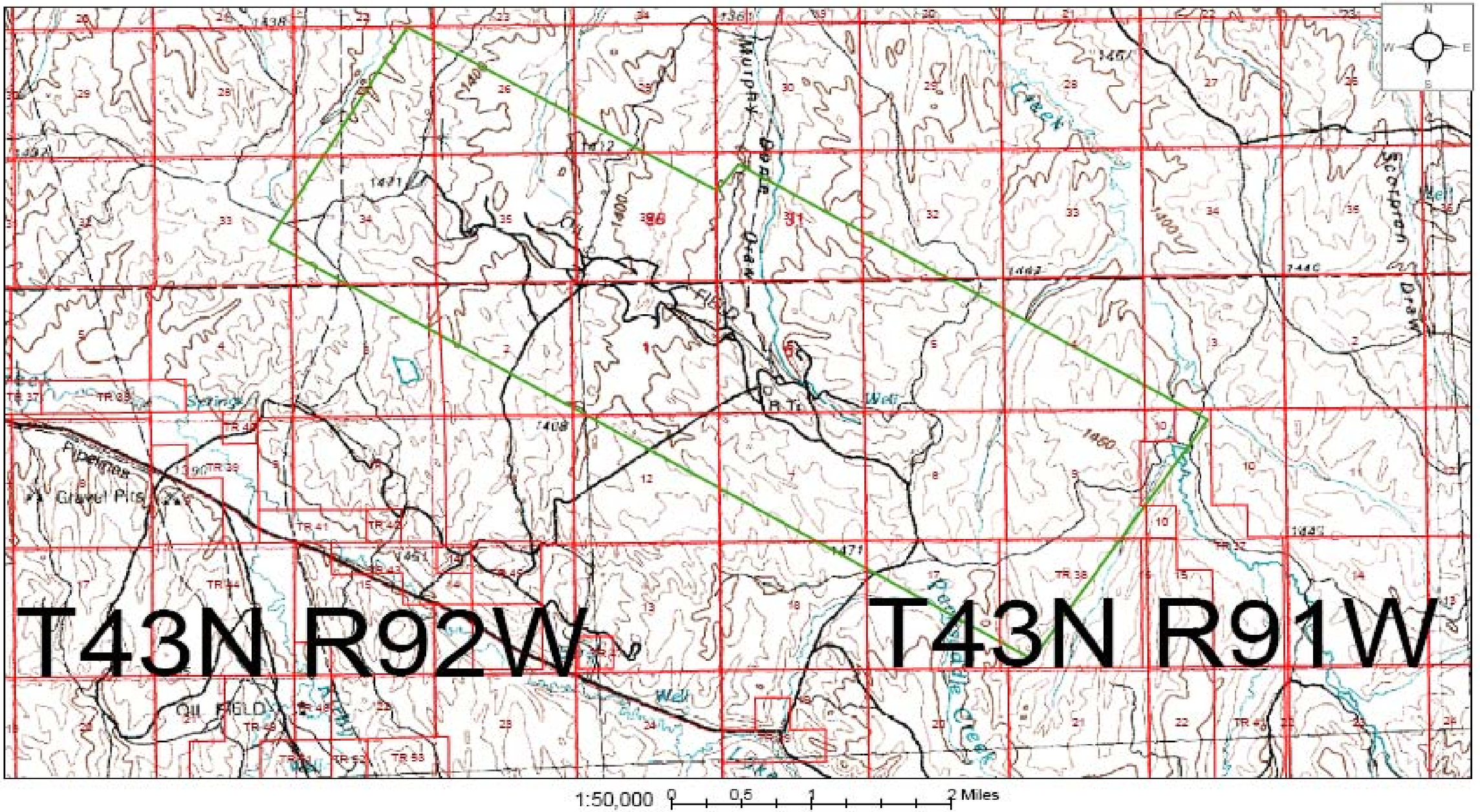
Issues brought forth during the scoping period include:

- Aquatic resources and fisheries
- Sagebrush and Grassland
- Riparian areas
- Sensitive plants and other plants of concern and their habitats
- Nonnative plants
- Native species of wildlife
- Recreation and Scenic Values
- Socio-economics
- Sage grouse habitat

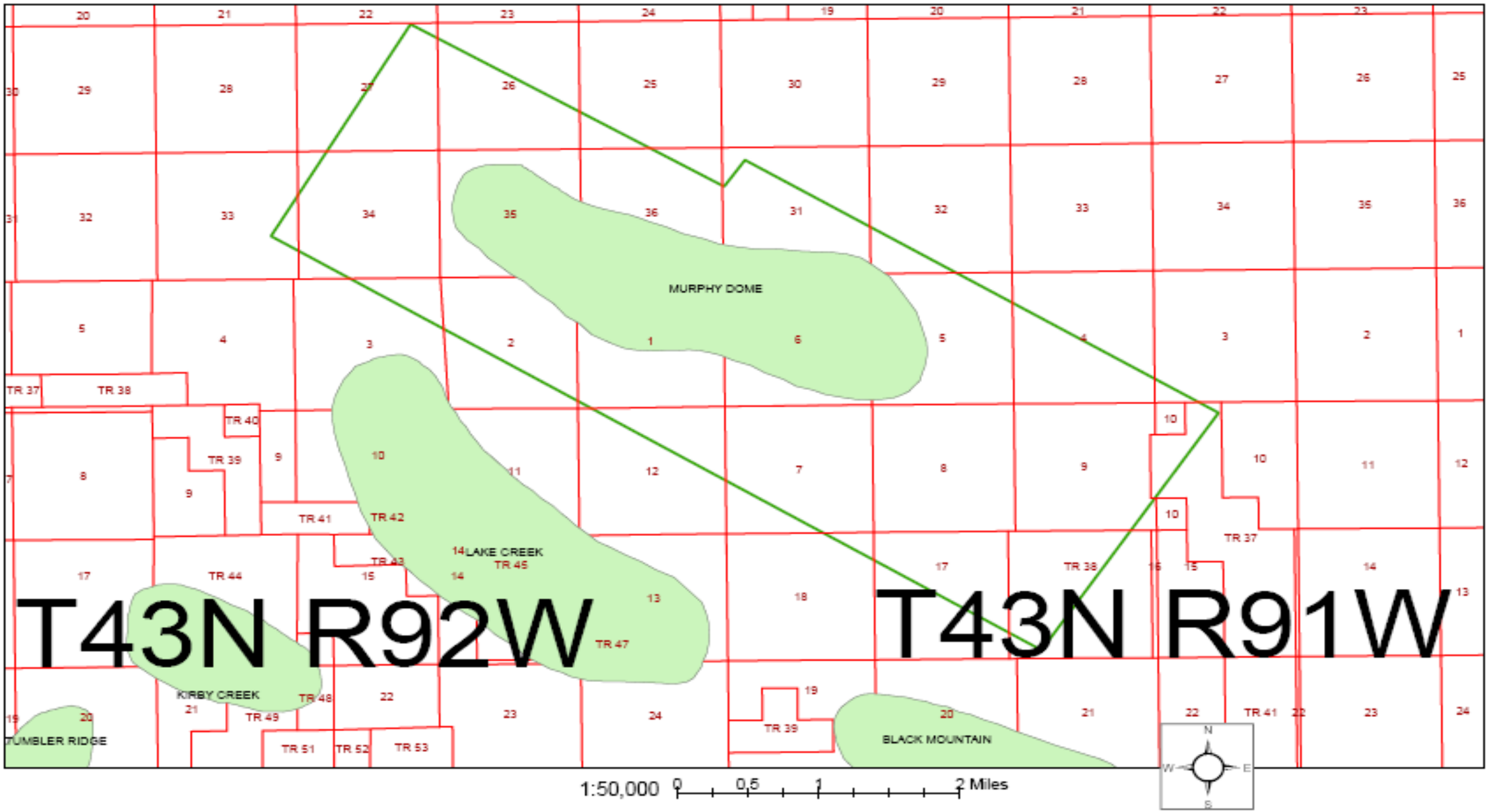
MAP 1: Topographic view of Project Area with source points and receiver lines



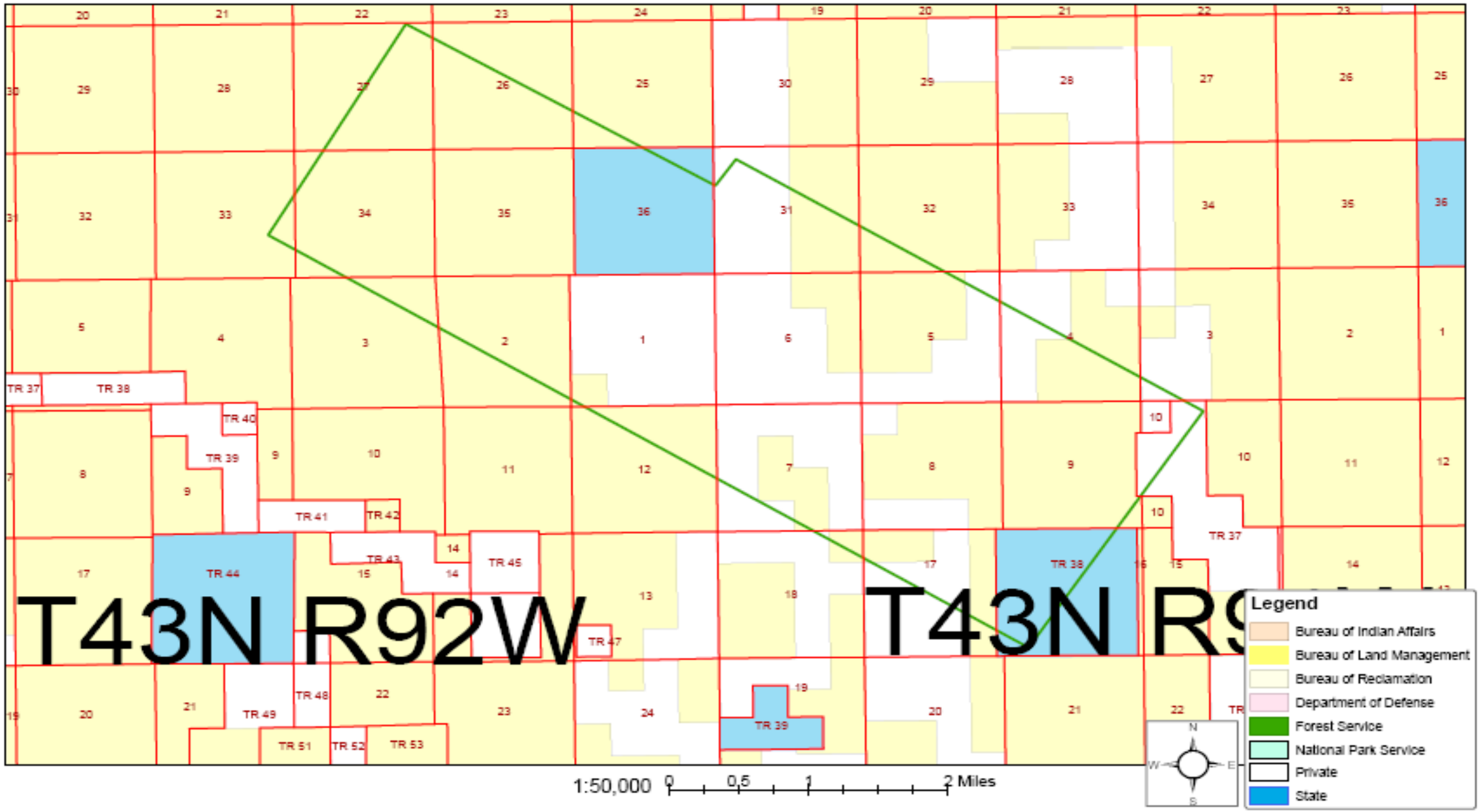
Map 2: Topographic view of Project Area



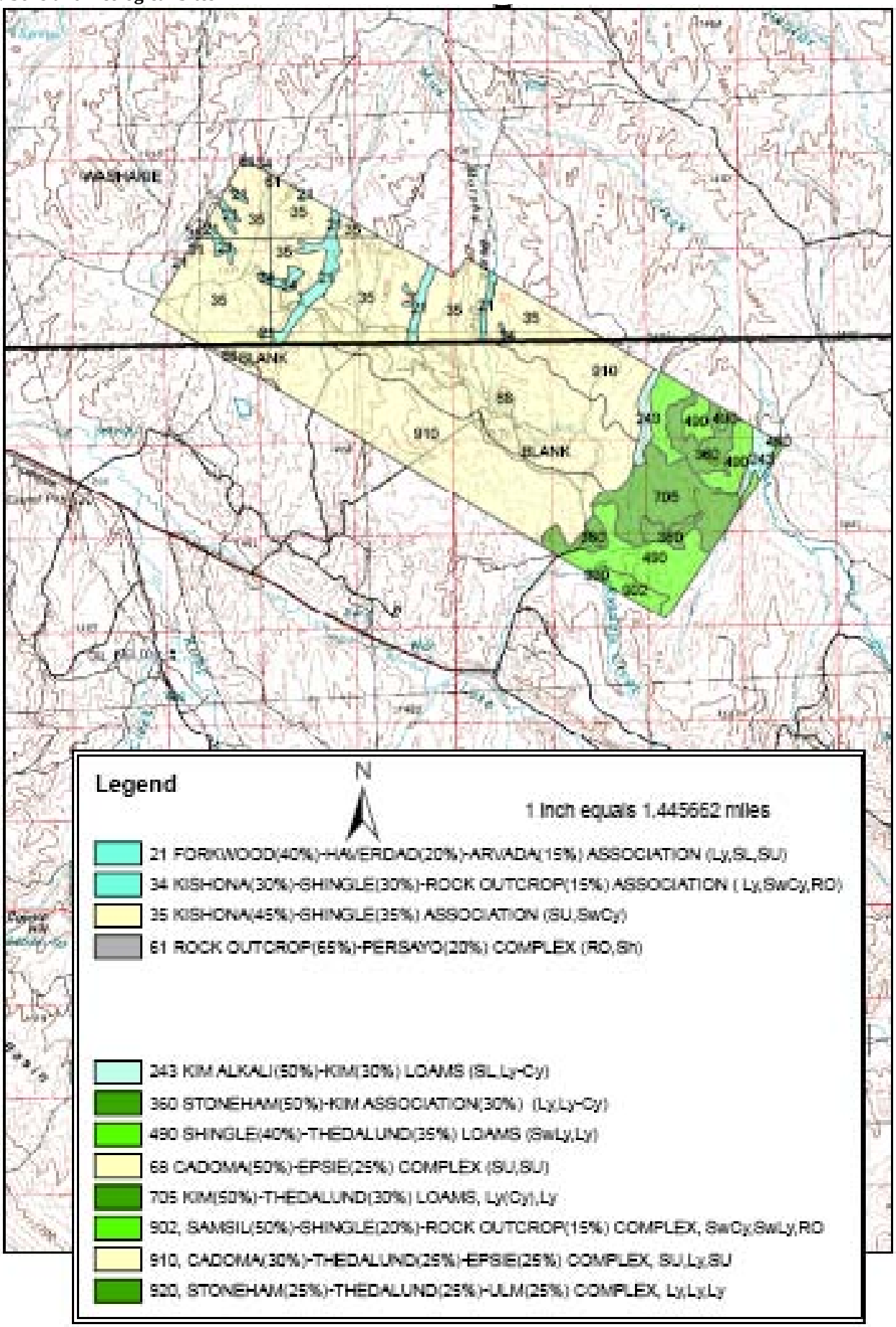
Map 3: Murphy Dome Oil Field Boundary



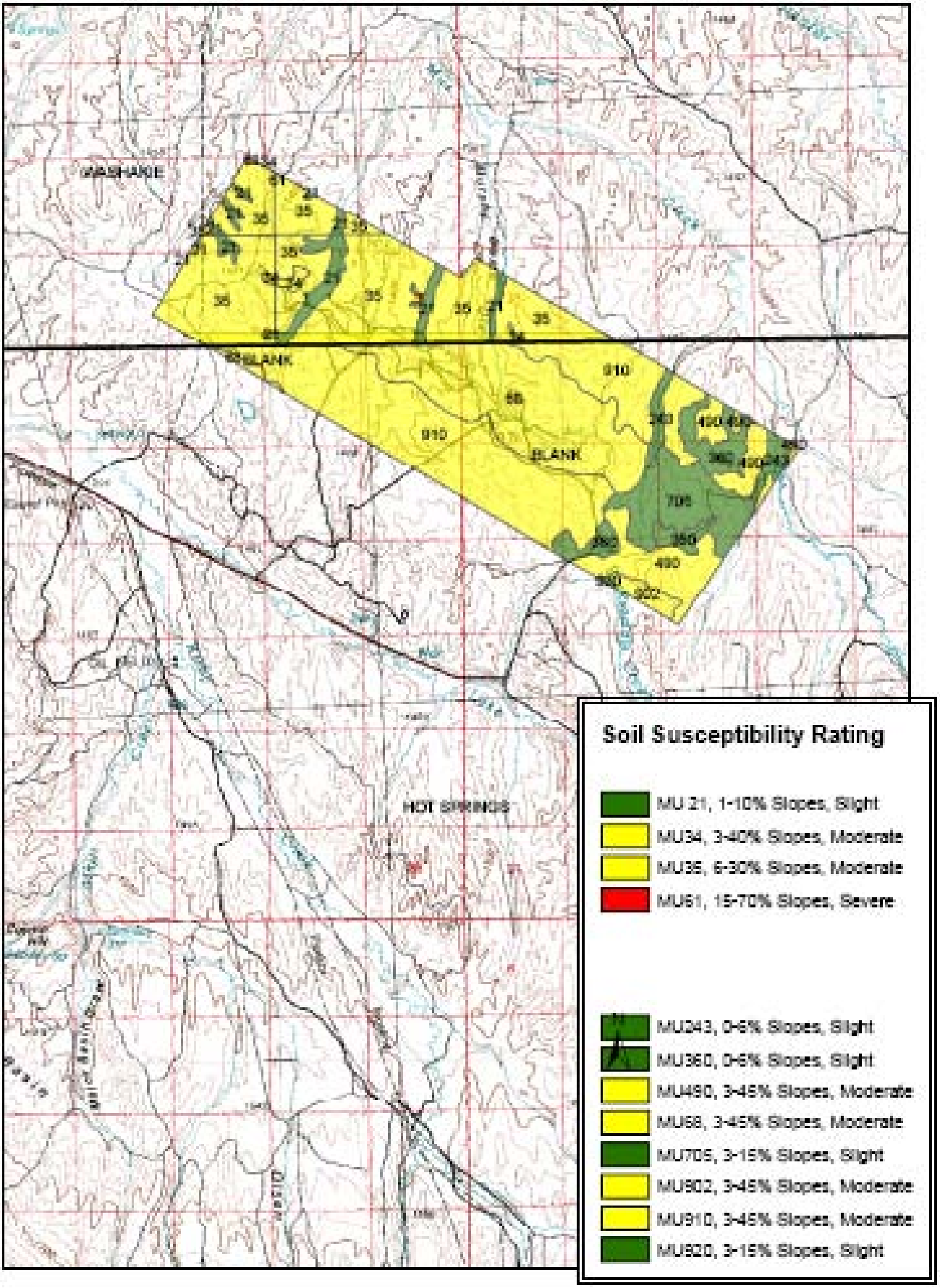
Map 4: Land Ownership



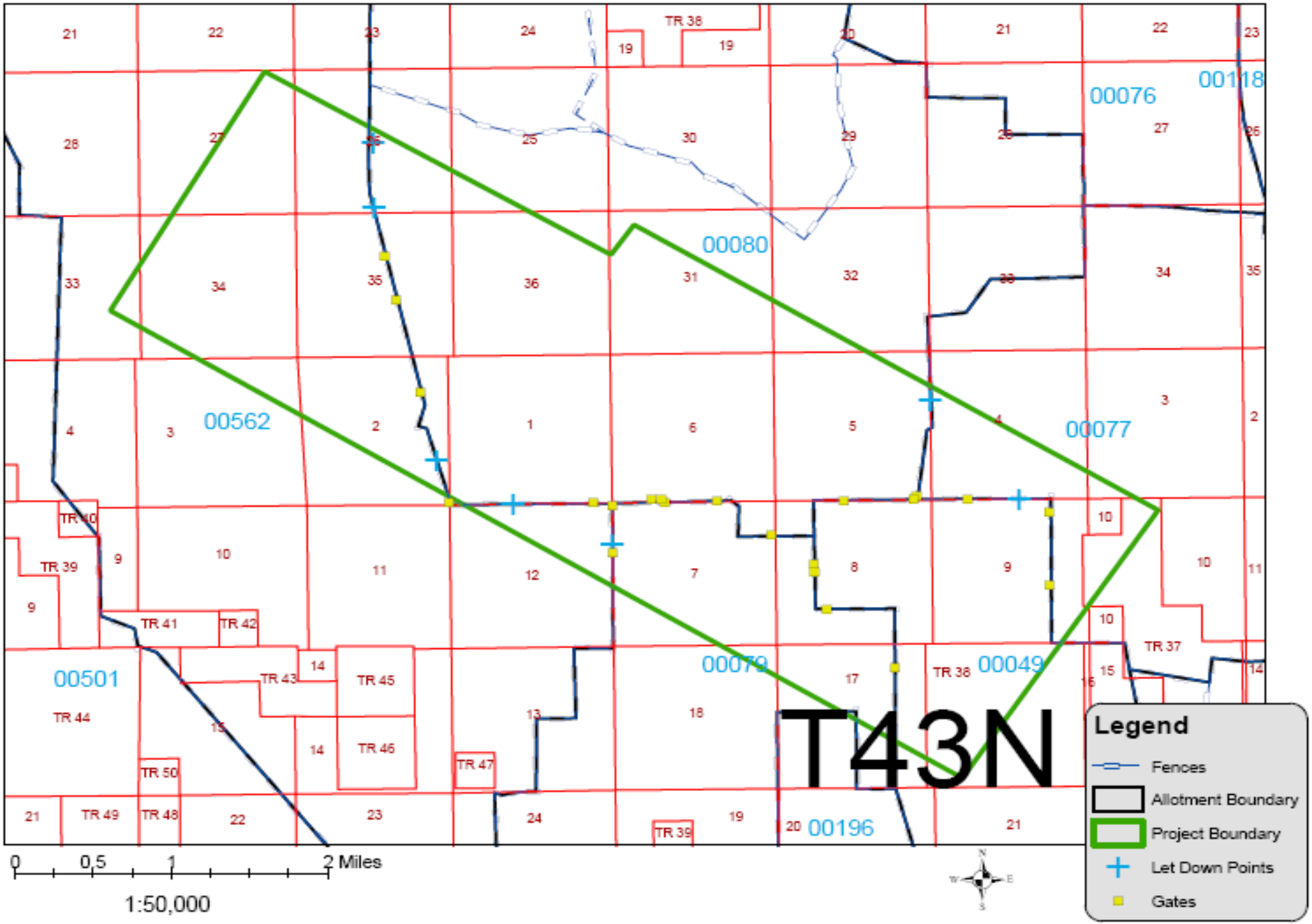
Map 5: Soils and Ecological Sites



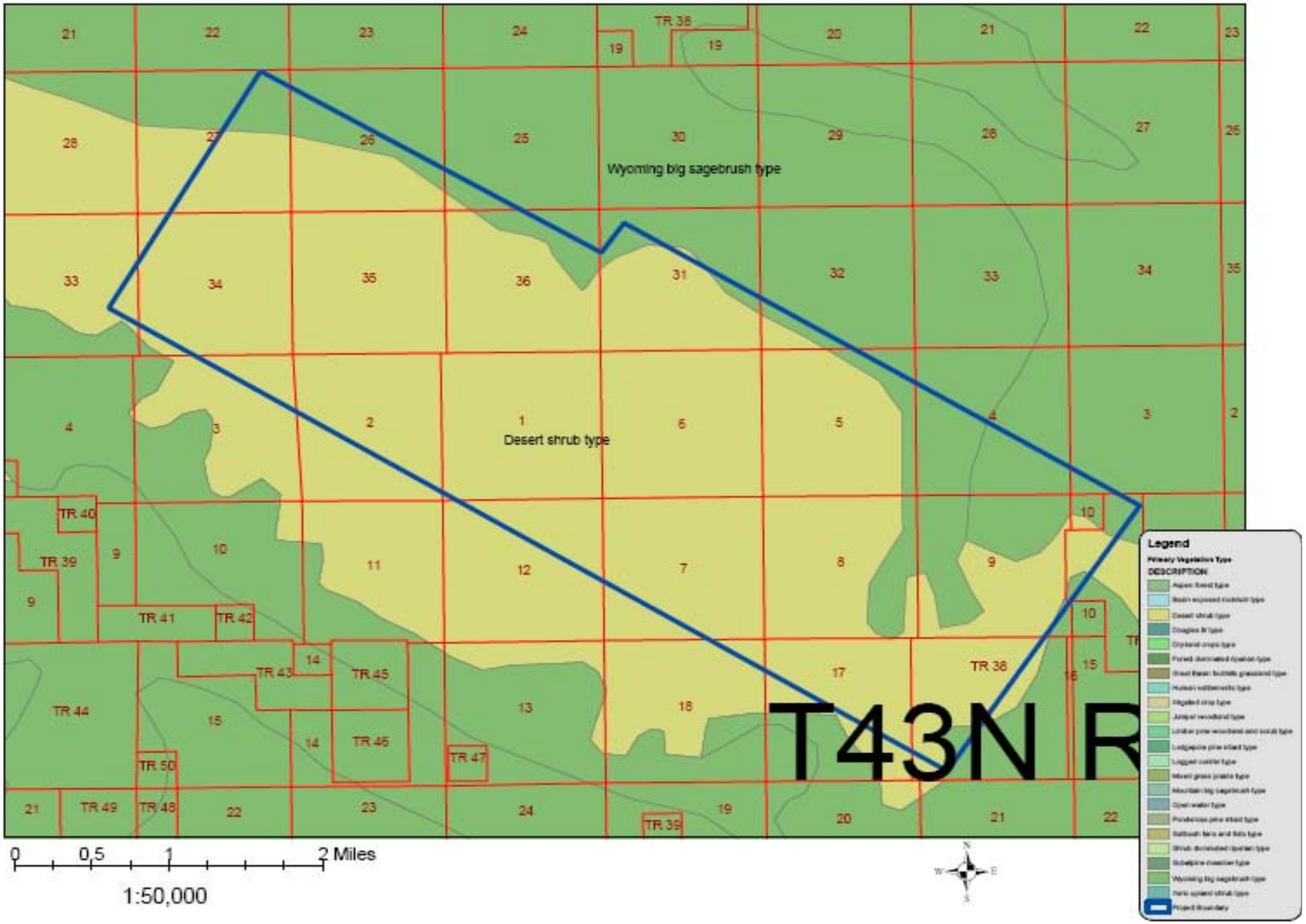
Map 6: Soil Susceptibility Rating



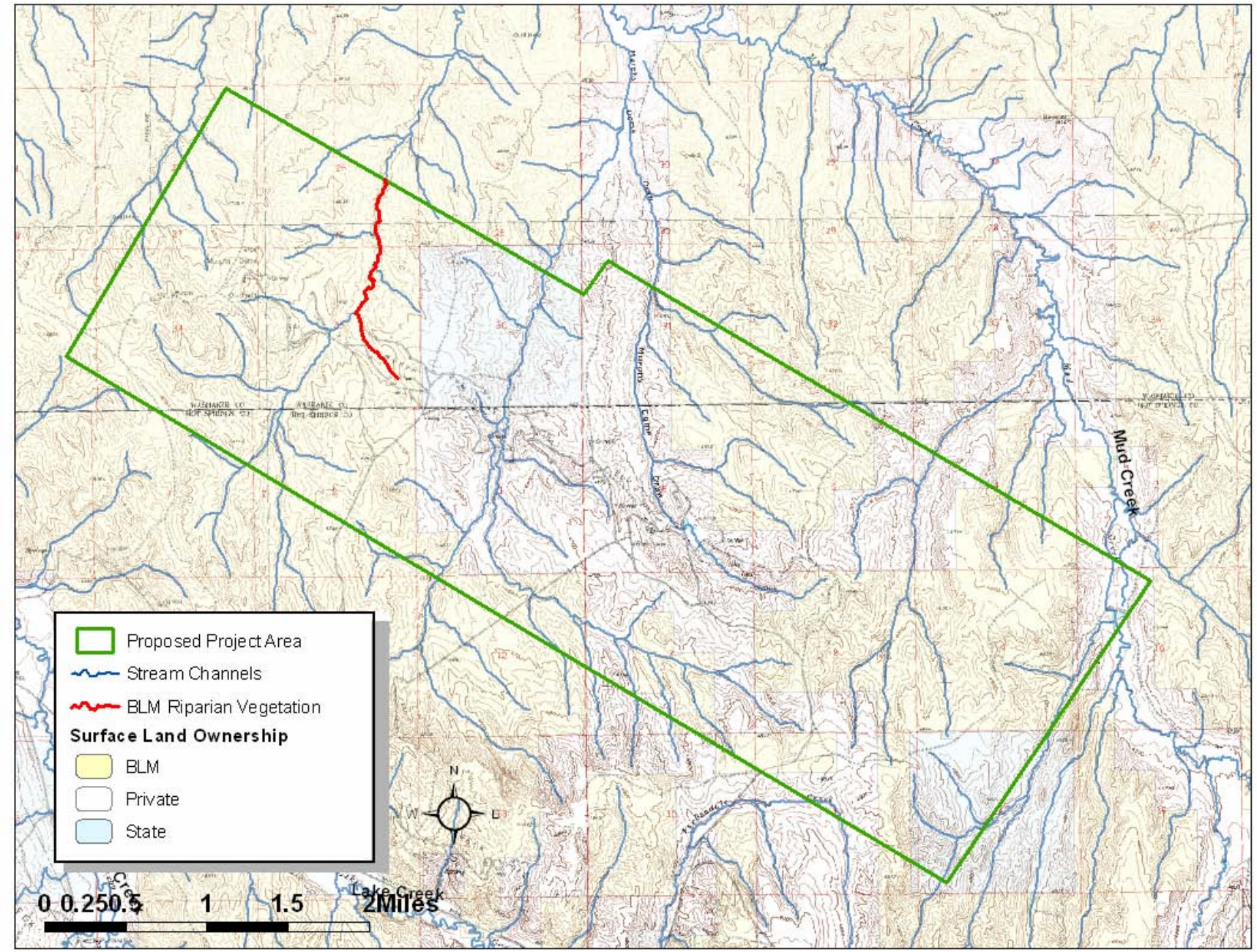
Map 7: Allotment Boundary with Fence Let-down points



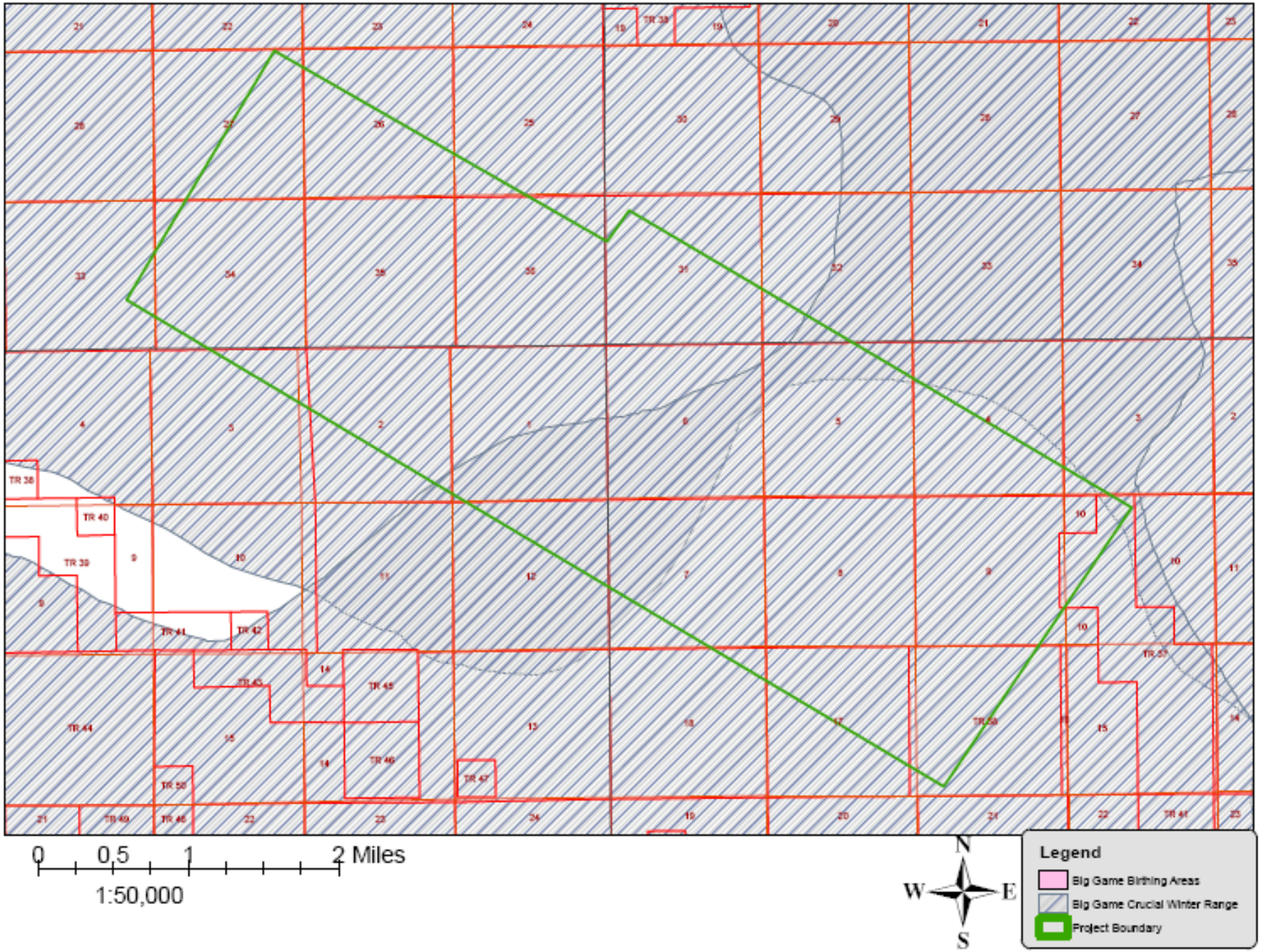
Map 8: Primary Vegetation Types



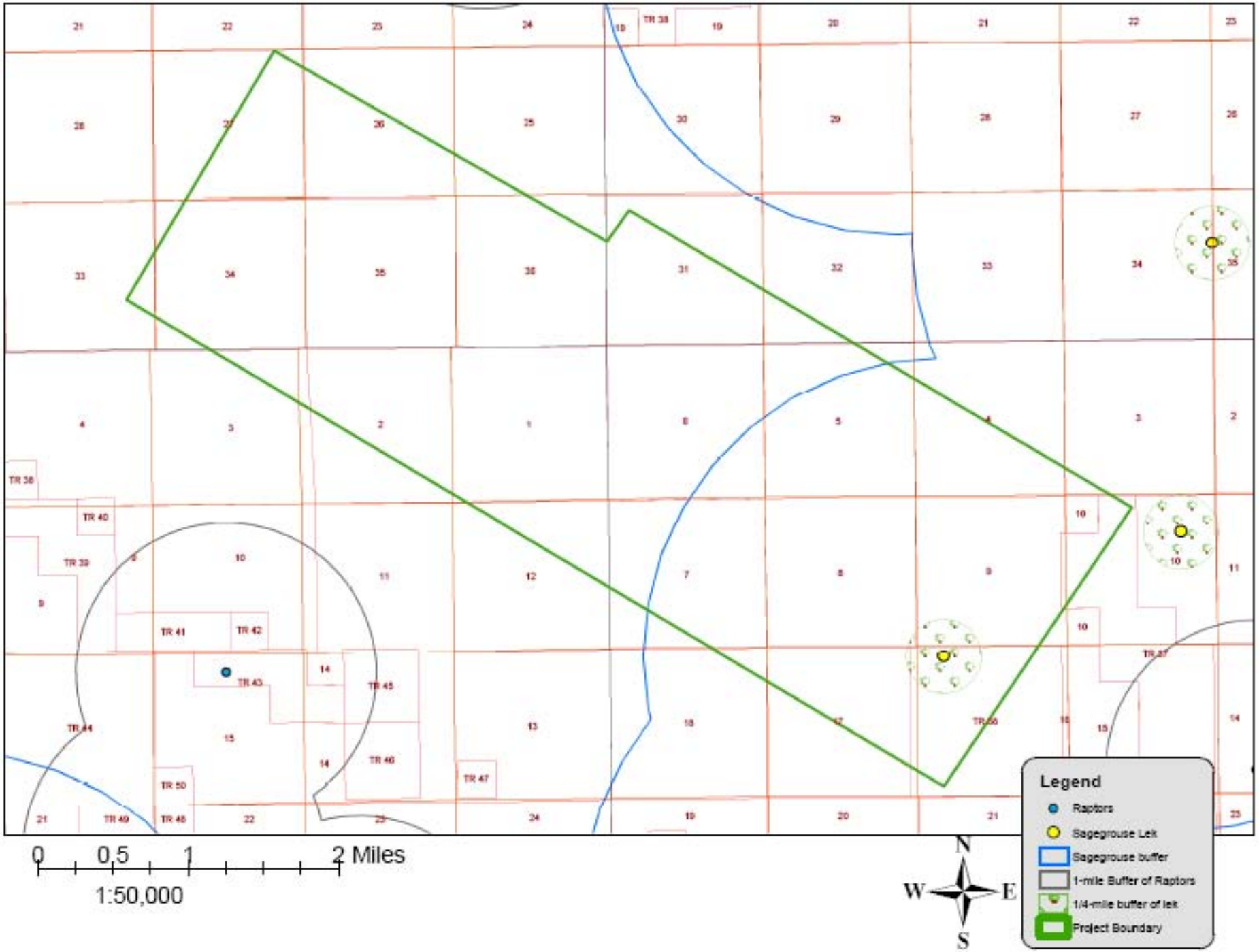
Map 9: Riparian Areas on BLM Lands



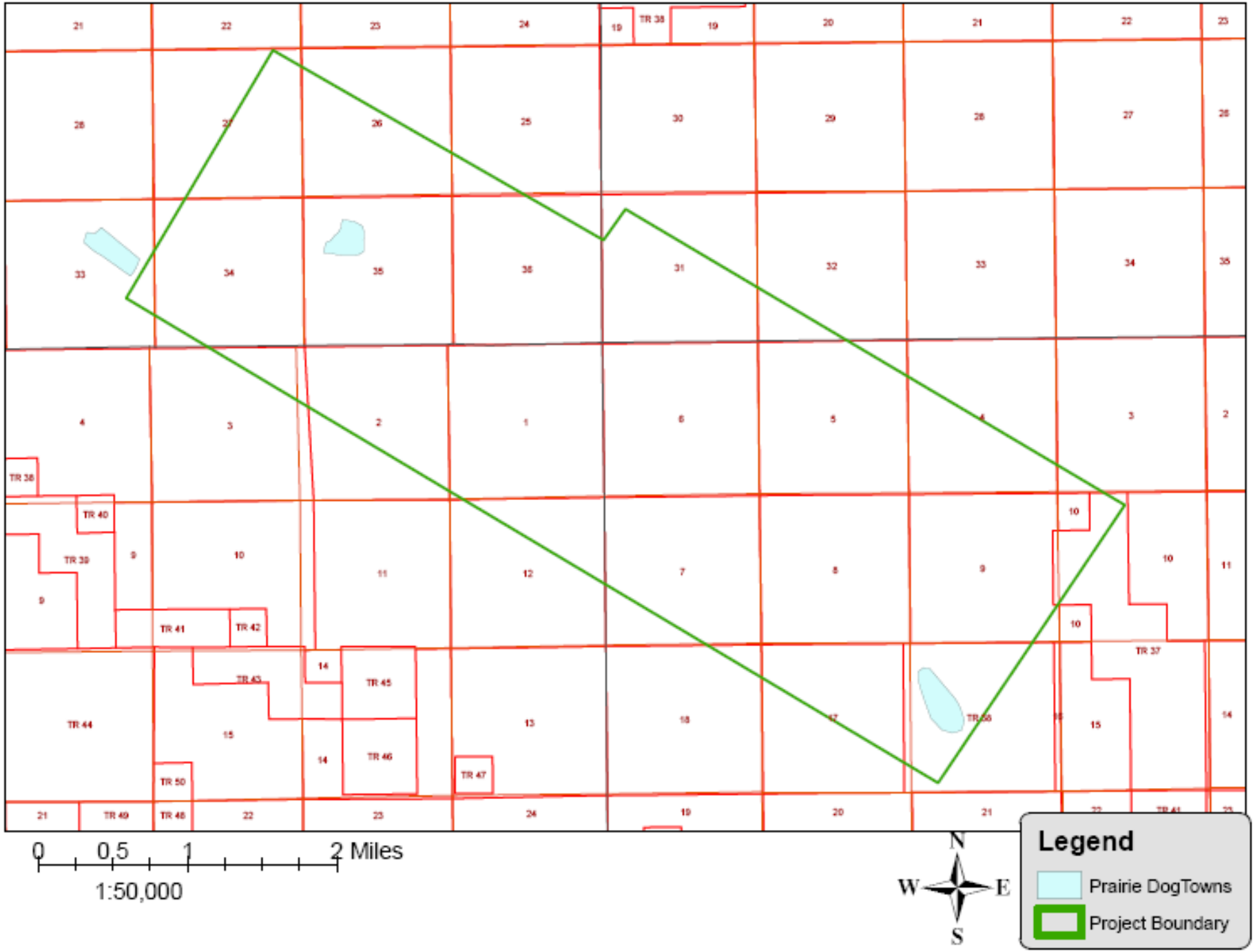
Map 10: Wildlife Habitat Areas – Big Game



Map 11: Wildlife Habitat Areas – Raptors and Sage Grouse



Map 12: Wildlife Habitat Areas – Prairie Dog Towns



Map 13: VRM Boundaries

Conditions of Approval

The following site specific conditions of approval are in addition to standard terms and conditions associated with geophysical exploration operations (Form 3150-4a).

Land Use

1. Grant Geophysical will utilize the One Call service to obtain information in the planning for and avoidance of buried utilities.
2. Energy source points shall be located a minimum of 300 feet from standing structures unless written permission to encroach closer has been given by the land owner (BLM H-3150-1 Handbook).
3. Surveying paint shall not be applied to any existing structures or objects (i.e., buildings, fences, signs, rocks, etc.)
4. The operator shall be required to repair any damage to facilities caused by their operations.

Hydrology

5. Vehicles shall not cross perennial water features, except on existing roads or pre-designed crossings.
6. Access is restricted within 500 feet of riparian areas.

Soils and Vegetation

7. All vehicles, including on-road and off-road equipment, shall be cleaned to remove weed seed and soil prior to commencing operations on public lands within the project area.
8. Larger shrubs, trees, and other obstacles shall be avoided where possible.
9. Project employees and contractors shall not be allowed to drive off-road or collect plants.
10. Re-seeding measures shall be taken on disturbed areas to include the following seed mix:

Species	PLS lbs/acre
Western wheatgrass	3
Bluebunch wheatgrass	3
Indian rice grass	3
Gardner saltbrush	1

Fall seeding shall be completed after September 1, and prior to ground frost. Spring seeding shall be completed after the frost has left the ground and prior to May 15. Seeding shall be repeated if a satisfactory stand is not obtained.

11. No vehicles shall be operated during periods of saturated soil conditions when surface ruts greater than 4 inches would occur along travel routes. Should ruts occur, the operator shall contact the Authorized Officer, within 10 days, to address site specific reclamation measures.
12. Vehicular traffic across/through dry drainage channels shall be limited to sloping drainage sides or to vertical banks of less than 2 feet as much as is practicable.
13. Buggy vibrator traffic shall be planned to minimize the number of passes over the same ground when practicable and terrain permitting, to minimize the potential for soil compaction.
14. Vehicles shall be instructed to travel at slow speeds to limit disturbance to soils and vegetation.
15. Off-road travel shall be limited on slopes of 12 to 24 percent and restricted on slopes greater than 25 percent.

Range

16. Fences shall remain up at all times to control permitted livestock movements. Permitted fence letdowns shall be restricted to those points as indicated in the project proposal. The fence posts shall be replaced immediately after gaining access through the fence. New Fence clips shall be used to properly secure the fence, if necessary.
17. All gates within the project area would be left as they are found (i.e., open gates would be left open, closed gates would be closed).
18. Damage to existing fences and other range improvements as a result of the seismic survey shall be immediately repaired per approved BLM specifications.
19. Personnel shall be instructed to minimize contact and avoid harassment of livestock.

Wildlife

20. A one time exception to Big Game Crucial Winter Range stipulations is granted beginning November 15, 2006 and ending November 25, 2006. Should the project extend beyond this timing restriction, Grant Geophysical or Nance Petroleum Corp. shall request an additional exception in writing.

Recreation and Visual Resources

21. Remove flagging, stakes, etc. upon completion of project.
22. Signing may be required to prohibit new roads being pioneered upon completion of project.
23. Obscure vibroseis tracks at points of departure from existing roads and trails by raking, erecting depressed sage brush, and placing locally available dead vegetation over tracks.
24. Obscure vibroseis tracks within 1/4 mile of known sage-grouse lek locations.
25. Upon the request of the Authorized officer, the operator shall modify vibroseis array configuration to an in-line or staggered configuration to minimize sage brush impacts and avoid sage brush when possible.

Cultural and Historical Resources

26. The operator is responsible for informing all persons in the area who are associated with this project that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials and contact the authorized officer (AO). Within five working days the AO will inform the operator as to:

    -whether the materials appear eligible for the National Register of Historic Places;

    -the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and,

    -a time frame for the AO to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation costs. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

Hazardous Materials; Public Health and Safety

27. The Operator and their contractors shall comply with all applicable federal and state laws and regulations as they relate to hazardous materials. Hazardous materials being those chemicals listed in Title III List of Lists, EPA's Consolidated List of Chemicals Subject to Emergency Planning and the Community Right to Know Act (EPCRA) and Section 112(r) of the Clean Air Act, as amended, or the 40CFR 302.4 Table-List of Hazardous Substances and Reportable Quantities, as amended. In the event any hazardous materials are used, they would be handled in an appropriate manner to prevent environmental contamination. Any release of hazardous materials of reportable quantities, would be reported both to the National Response Center (NRC), as required in the National Oil and Hazardous Materials Contingency Plan (40 CFR 300), and the Worland Field Office, as per the Hazardous Materials Contingency Plan.
28. Fuel and lubricants shall be temporarily stored in fuel trucks or transportable containment trailers at locations approved by the appropriate surface management agency (SMA) within staging areas to minimize potential for accidental releases/spills. No other hazardous or potentially hazardous materials shall be brought into the project area.
29. All spills or leaks of diesel fuel, hydraulic fluid, lubricating oil, and coolant, including contaminated soil material, shall be excavated to an appropriate container and transported to an approved disposal site.
30. All solid waste or trash shall be transported for disposal to an approved solid waste disposal facility.

31. With the exception of the off-road buggy vehicles and ATV use, vehicle traffic shall be limited to existing roads and trails. Vehicles shall travel at speeds within set speed limits of main access roads and at slower speeds appropriate for conditions on more remote roads and trails.
32. Survey crew/staff shall keep the public a safe distance away from all buggy drill and vibrator activity. In some cases source points may be located on roads or trails. Buggy vibrators may be accompanied by a pilot vehicle during recording of vibrator source points located on primary BLM roads.
33. The helicopter shall follow flight paths chosen to be efficient while following activity-specific aviation operational safety standards for flight altitudes.
34. Vehicles with catalytic converters shall be restricted to existing roads and trails; parking or idling would not be permitted in portions of roads or trails with taller vegetation.
35. All vehicles shall be equipped with fire extinguishers and shovels. All all-terrain vehicles (ATVs) shall be equipped with spark arresters.
36. Helicopter landing zones at each staging area shall be equipped with fire extinguishers.
37. The following operational procedures shall be followed: All brush build-up around mufflers, radiators, headers, and other engine parts shall be avoided; periodic checks shall be conducted to prevent this build-up.
38. Smoking shall only be allowed in company vehicles and/or designated smoking areas; all cigarette butts shall be placed in appropriate containers and not thrown on the ground or out windows of vehicles.
39. Cooking, campfires, or fires of any kind shall not be allowed while working in designated high-hazard fire areas.
40. Portable generators used in the project area shall be required to have spark arresters.
41. Grant Geophysical/Nance Petroleum Corp. shall coordinate project activities with appropriate fire-fighting personnel in the Worland BLM Field Office and the crew contingency plan would include a fire communications protocol for contacting fire fighting and BLM personnel.