



U.S. Department of the Interior

Bureau of Land Management

Wyoming State Office

Rawlins Field Office

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**DECISION RECORD and
FINDING OF NO SIGNIFICANT IMPACT for the
Hay Reservoir Unit Natural Gas Infill
Development Project**

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.

BLM/WY/PL-05/007+1310

WY-030-05-EA-012

DECISION RECORD AND FINDING OF NO SIGNIFICANT IMPACT

Tom Brown, Inc.

Hay Reservoir Unit Natural Gas Infill Development Project Environmental Assessment (EA)

EA Number WY-030-05-EA-012

INTRODUCTION

Tom Brown, Inc. (TBI), of Denver, Colorado, has notified the Bureau of Land Management (BLM), Rawlins Field Office, that they propose infill drilling of additional natural gas wells within the existing Hay Reservoir Federal Oil and Gas Unit (HRU), located in Sweetwater County, Wyoming. Tom Brown is the unit operator for the HRU, of which approximately 95 percent lies within the administrative boundaries of BLM's Rawlins Field Office, with the remaining 5 percent within the boundaries of BLM's Rock Springs Field Office. The Rawlins Field Office has jurisdiction over oil and gas development of the entire HRU, which is located primarily on federal surface and mineral estate. The Rawlins Field Office has prepared an environmental assessment (EA) for the proposed project which is known as the Hay Reservoir Unit Natural Gas Infill Development Project (HRIP).

The HRIP is located within the existing HRU, which is comprised of multiple sections or portions thereof, within T. 23 N., R. 96 W.; T. 23 N., R. 97 W.; T. 24 N., R. 96 W.; and T. 24 N., R. 97 W., Sweetwater County, Wyoming. The HRIP is approximately 30 miles northwest of the town of Wamsutter, Wyoming, and access is provided by several Sweetwater County Roads. The BLM and TBI agreed on a proposed EA study area which is confined to the existing Hay Reservoir Unit boundaries, or approximately 11,620 acres. Of this acreage, approximately 9,780 acres are federal surface, 1,280 acres State of Wyoming surface, and 560 acres private surface.

The project entails the construction, drilling, completing, and producing of up to 25 infill natural gas well locations within the project area (Unit), along with the construction, utilization, and maintenance of appurtenant access roads, pipelines, production facilities and subsequent reclamation. The proposed wells are considered development wells and much of the infrastructure (main access roads, gas sales pipelines, compressors, etc.) is already in place. Construction of access roads and pipelines to the individual well locations would still be required. Production equipment would be powered by natural gas.

The drilling project would be implemented over a period of approximately three years and the life of the project is estimated to be between 10 to 30 years should any/all of the wells prove to be commercially productive. Any water produced in conjunction with the natural gas production would be temporarily contained and stored in tanks on the individual locations and periodically, as required, trucked to commercial, authorized water disposal facilities.

ALTERNATIVES CONSIDERED

The Environmental Assessment for the Hay Reservoir Unit Natural Gas Infill Development Project considered two alternatives. The Proposed Action Alternative assessed and disclosed the projected effects of TBI's proposal as outlined above and detailed in the "Proposed Action" portion of the Environmental Assessment. Under the No Action Alternative, the RFO analyzed the effects of a denial of further development associated with this project.

The alternative of BLM-mandated directional drilling of all wells was considered, but not analyzed in further detail due to the technological and economical infeasibility of this alternative for this particular project.

DECISION

Based upon the analysis of the potential environmental impacts described in the EA and in consideration of the public, agency, and industry comments received for the EA, the RFO has selected the Proposed Action alternative to be implemented. The decision includes the attached ERRATA found in Appendix A of this Decision Record, and incorporates the mitigation and reclamation measures identified in Chapter 2, Section 2.1.3 and 2.1.4; the mitigation measures identified for specific resource components in Chapter 4; and the Applicant-Committed Mitigation Measures identified in Appendix B of the EA. Approval conditions would include applicable oil and gas operation Best Management Practices in compliance with BLM Instruction Memorandum 2004-194.

The HRIP EA is programmatic in nature and assesses the cumulative impacts of implementation of the overall project. Individual, site-specific environmental assessments (EAs) will still be required for each of the 25 individual Applications for Permit to Drill (APDs). In addition to the requirements identified in the HRIP EA, additional site-specific Conditions of Approval/Terms and Conditions and Best Management Practices may be applied to each APD or right-of-way (ROW). The individual EAs will be tiered to and reference the HRIP EA and this Decision Record.

RATIONALE FOR DECISION

The decision to approve the operator's proposed development was based upon the following factors:

1. Consistency with the Great Divide Resource Management Plan
2. National policy
3. Agency statutory requirements
4. Relevant resource and economic considerations
5. Application of measures to avoid or minimize environmental harm
6. Finding of no significant impact
7. Public comments, and
8. Consistency with the purpose and need for action

1. Consistency with Land Use and Resource Management Plans

The proposed action is in conformance with the planning direction developed for this area. The objective for oil and gas management decisions described in the Great Divide Resource Management Plan (1990) is to "provide for leasing, exploration, and development of oil and gas while protecting other resource values."

2. National Policy

Private exploration and development of federal oil and gas leases is an integral part of the Bureau of Land Management's oil and gas leasing program, under the authority of the *Mineral Leasing Act of 1920* and the *Federal Land Policy and Management Act of 1976*. The United States continues to rely heavily upon foreign energy sources. Oil and gas leasing encourages development of domestic oil and gas reserves, and reduces the United States' dependence upon foreign energy supplies. Therefore, the decision is consistent with national policy.

3. Agency Statutory Requirements

The decision is consistent with all federal, state, and county authorizing actions required to implement the Proposed Action. All pertinent statutory requirements applicable to this proposal were considered.

4. Relevant Resource and Economic Considerations

Project environmental impacts to resources identified in the EA are minor and all deemed acceptable. Selection of the Proposed Action allows the operator to extract natural gas from their lease. Positive economic benefits are expected from this proposal.

5. Application of Measures to Avoid or Minimize Environmental Harm

Federal environmental protection laws such as the *Clean Air Act*, the *Clean Water Act*, and *The Historic Preservation Act* apply to all public lands and are included as part of the standard oil and gas lease terms. The adoption of the mitigation and monitoring measures identified in Chapters 2 and 4 of the project EA, along with Best Management Practices, Applicant-Committed Mitigation Measures (Appendix B of the EA), and site-specific Conditions of Approval to be found in the APDs or ROWs, represent the best means to avoid or minimize environmental impacts.

6. Finding of No Significant Impact

Based upon the analysis of potential environmental impacts contained in the EA, the Authorized Officer has determined that the Proposed Action, with implementation of the protective measures identified in Chapters 2 and 4 and Appendix B of the EA, Best Management Practices, and site-specific Conditions of Approval applied to each APD and ROW, would not cause a significant impact to the quality of the human environment. An environmental impact statement is not necessary.

7. Public Comments

The BLM conducted public scoping for this project between March 24 and April 26, 2004. A total of ten comments were received by the BLM. The BLM subsequently requested comments on the prepared EA from the public, local landowners; and federal, state, local and county agencies. The BLM issued a press release with a brief summary of the Proposed Action, location of the project, and information about how the public could comment. In addition, the EA and its appendices and reference documents were posted on the BLM Wyoming internet site for review and downloading. The comment period ran from November 10 to December 10, 2004. A total of six comments were received by the BLM. The summarized comments and BLM's responses are found in Appendix B of this Decision Record.

8. Purpose and Need for Action

The purpose of the proposed development is to exercise the lease holders' rights within the project to drill for, extract, and market gas products. National mineral leasing policies and the regulations by which they are enforced recognize the statutory right of lease holders to develop federal mineral resources to meet continuing national needs and economic demands so long as undue and unnecessary environmental degradation is not incurred.

APPEAL

Under BLM regulation, this decision is subject to administrative review in accordance with 43 CFR 3165. Any request for administrative review of this decision must include information required under 43 CFR 3165.3(b) (State Director Review), including all supporting documentation. Such a request must be filed in writing with the State Director, Bureau of Land Management, P.O. Box 1828, Cheyenne, Wyoming 82003, within 20 business days of the date this Decision Record is received or considered to have been received.



Field Manager, Rawlins Field Office

December 22, 2004

Date

APPENDIX A

ERRATA

**Modifications and Corrections To The
Hay Reservoir Unit Natural Gas Infill Development Project
Environmental Assessment**

Chapter 4 – Analysis of Environmental Consequences

Page 4-13, Figure 4.1, The Luman Rim Sage Grouse lek and two-mile buffer zone were inadvertently left off the published Project wildlife map (Figure 4-1), although it was included in the EA analysis. The revised Figure 4-1, showing the buffer zone of the lek affecting the western edge of the HRIP is located on the following page.

[Click here to view the map
\(460kb\)](#)

APPENDIX B

Summary of EA Comments and BLM Responses

The HRIP EA was released for a 30-day public review period on November 10, 2004. A total of six comment letters were received. The letters have been reviewed to determine whether the information they provided would warrant a determination other than a Finding of No Significant Impact (FONSI). Substantive comments are summarized below, with BLM responses to the comments in italics. The RFO would like to thank those who commented for taking the time to review the EA and provide comments.

1. Wyoming Game and Fish Department

- a. **“This EA does not address this project’s contribution to fragmentation of important sage grouse habitats, particularly nesting and early brood-rearing habitat within the Red Desert.”**

Specific effects resulting from new road and/or pipeline construction would be considered during site-specific EAs at the time that final locations of proposed wells and supporting facilities are determined. Existing fragmentation of habitat is indicated in Table 2.3, along with a "worst-case" estimate of probable future fragmentation. No powerlines or fencing, other than temporary fencing around pits and protective fencing around production tanks/facilities, are planned under the Proposed Action. Additional wells would require new storage tanks; however the proposed project is located in an existing gas field in which depleted wells are being abandoned and associated roads, pipelines, and storage facilities are being reclaimed, resulting in minimal increase in potential raptor perches.

- b. **“This EA does not address potential impacts of gas field noises on sage-grouse, instead concluding that ‘noise levels in the area would compare to typical levels representative of a rural environment with the absence of any noise generating facilities in the Project Area.’”**

Potential noise effects on special status species are discussed in Section 4.9.1.2. As indicated there, timing and avoidance limitations on drilling or well workover activities would eliminate noise impacts to strutting grouse (see Appendix B, measures 51 and 52). As discussed in Section 2.1.1.7, all current compression for the Hay Reservoir Unit is provided by the Hay Reservoir Compressor Station. No new compression facility or upgrades to the existing compressor station are proposed and individual well compression on older wells has been replaced over time with the centralized facility.

Other than workover activity discussed above, noise from production activities would be limited to occasional vehicular traffic in support of well inspection and/or routine maintenance. An unnamed road connecting the Tipton North and Bar X roads approaches within 1.6 miles of the Luman Rim lek outside of the project area. BLM Road 3219 approaches within 0.5 miles of the East Luman lek outside of the project area. Typical noise associated with field-type pickup trucks is estimated to be approximately 70 dBA at 50 ft. from a vehicle traveling at a speed of 50 mph (Noise Pollution Clearinghouse, online data retrieved from <http://www.nonoise.org/library/highway/traffic/traffic.htm>). Field vehicles would be expected to exhibit lower noise levels resulting from lower travel speeds. Such noise would be highly sporadic and would diminish rapidly with distance. Animals several hundred feet from the road would not be expected

to be affected by noise from the traffic levels anticipated in the vicinity of the project area. Most traffic would occur during daylight hours outside of grouse strutting periods.

- c. **“Figure 4-1 of the EA does not show the two-mile buffer around Luman Rim sage-grouse lek in NW/SE S25, T24, R98 (in the Rock Springs Field Office) that should affect seasonal stipulations for some gas wells in the western portion of this project area.”**

Thank you for the correction. This lek and buffer zone were inadvertently left off the published project wildlife map (Figure 4-1) although it was included in the EA analysis. The corrected map is attached to this Decision Record in Appendix A, ERRATA.

- d. **“The EA did not address impacts of fencing on antelope migrations through the project area.”**

There are no fenced roads within the Hay Reservoir Unit and additional fencing, other than temporary fencing around pits and protective fencing around individual storage tanks, is not proposed.

- e. **“Potential impacts of this proposal to this species (pygmy rabbits) should have been evaluated.”**

Pygmy rabbits are not known to occur within the Rawlins Field Office management area and are not listed as a sensitive species for the Rawlins Field Office on the list available from the Wyoming State BLM Office (BLM Wyoming Sensitive Species Policy List, online data retrieved from <http://www.blm.gov/nhp/efoia/wy/2003ib/Wy2003-001atch1.pdf>).

2. Wyoming Outdoor Council

- a. **“The EA fails to make a commitment to abide by BLM Instruction Memorandum (IM) No. 2004-194 and IM No. 2004-110 Change 1,” relating to the requirement of BLM to incorporate Best Management Practices (BMPs) into well-drilling activities. Specifically,**

- 1) **The BLM "failed to commit to requiring the use of this" [directional drilling] “technology to the extent possible.”**

As indicated in Section 2.3, project alternatives are required to be technically and economically feasible and to provide the opportunity to achieve the proposed project (CEQ, Forty Questions, 2a). Directional drilling is listed as one of a number of case-by-case BMPs in IM 2004-194. In the case of the Proposed Action, involving infill drilling in an established gas field in which depleted wells are being reclaimed, BLM feels that imposition of a mandated directional drilling requirement for every well on the Proponent is unwarranted. The BLM will deny drilling proposals where well pad locations cause unacceptable effects upon the environment. Please also refer to response under 4.e.

- 2) **“Appendix B contradicts the IM, indicating that constructing roads to the highest engineering standard possible will be pursued, not to a level ‘no higher than necessary.’”**

*The reference cited is not found in Appendix B. In the IM, the BMP dealing with road construction suggests "design and construction of all new roads to a **safe and appropriate standard**, 'no higher than necessary' to **accommodate their intended use**"[emphasis added]. BLM standard conditions of approval would be in compliance with this BMP.*

- 3) **The BLM should consider applicability of “other BMPs, such as burying power lines, requiring anti-perching devices, requiring camouflage painting, minimizing lighting, using high-quality mufflers, etc.”**

No above-ground power lines are proposed. No structures for which anti-perching devices would be effective are proposed. Painting of storage tanks and similar above-ground facilities to blend into the landscape are discussed in Appendix B, Measure 46. No external lighting is proposed. No additional compression requiring noise reduction is proposed.

BLM believes that it is in full compliance with the policies indicated in IM 2004-194 and IM 2004-110 Change 1.

3. **Wyoming Department of Environmental Quality**

- a. **“There are three Water Quality Division (WQD) permits that may apply to the project.”**

- 1) **NPDES discharge Permit**

No surface discharge is proposed.

- 2) **Storm Water Pollution Prevention Plan**

Such a plan will be required for all relevant construction.

- 3) **Underground Injection Control Permit**

No underground injection is proposed.

- 4) **Section 404 Permit**

No Corps of Engineers jurisdictional waters are affected by the Proposed Project.

- b. **The BLM should address “potential effects to surface water quality that may occur as a result of existing or proposed construction practices in riparian areas.”**

Riparian vegetation within the project area is limited to a small area immediately below Hay Reservoir. Construction activities have not been proposed in this area. Should such construction be proposed in the future, the area would be effectively protected by application of relevant Conditions of Approval at the time of site-specific NEPA compliance. Any water produced in conjunction with the natural gas production would be temporarily contained and stored in tanks on the individual locations, and periodically as required, trucked to commercial, authorized water disposal facilities.

4. Biodiversity Conservation Alliance

- a. **“The EA should contain a full analysis of construction and drilling impacts in areas of stabilized sand dunes.”**

Specific locations of wells and supporting roads and pipelines have not been determined at this time. Development in sand dune areas has not been proposed. In the event that such developments were proposed, BLM would disallow the location or require appropriate protective measures indicated by analysis done for site-specific NEPA compliance.

- b. **“The BLM should set a timetable for reclamation that is rigorously enforced... approval of additional APDs should be withheld pending completion of reclamation responsibilities.”**

The BLM is required to enforce reclamation of public lands following development projects. Timing of reclamation efforts is designed to allow for the best chance of early success. Reclamation Conditions of Approval will require interim reclamation within the first year of drilling. In the event of initial failure of reclamation efforts because of climatic or other conditions, the BLM would require further attempts on the part of the Proponent. The BLM has no intention of failing in its duty to adequately protect public lands.

- c. **“As an alternative, the BLM should consider, and implement, brush-hogging as a means for clearing pipeline ROWs prior to the laying of pipe.”**

The BLM will require either brush-hogging or surface scalping for pipeline installation except where precluded by topography, physical barriers, or safety issues.

- d. **“Lands between the current WSA boundary and the roads, wells, and pipelines, being of wilderness quality and retaining their wilderness character, should be protected with special provisions preventing industrial intrusions on these lands.”**

As indicated in Section 2.3, the "citizen's proposal" to establish a Red Lake Wilderness Study Area is without legal merit. The area of the "proposal" includes a portion of the existing federal oil and gas unit and the proposed WSA is located in an area of extensive leasing and development, and which is open for oil and gas development under the GDRMP. Further, designation of WSAs is beyond the scope of the NEPA analysis and beyond BLM's legal authority.

- e. **“The agency dismissed mandatory directional drilling because ‘the geological nature of the target horizons ...rendered mandatory directional drilling technology technically and economically unfeasible.’ However, the BLM provided no evidence or analysis to support this assertion.”**

The Proposed Action does not preclude the use of directional or horizontal drilling where such use is deemed technically and economically desirable and feasible. Various conditions, including surface topography, could result in a decision by the Proponent to employ directional drilling techniques, a decision usually made at the APD stage. However, directional or horizontal drilling techniques present a number of challenges.

Target productive horizons for the Proposed Action are Cretaceous-age sandstone formations. Objective units would be the Lance (shallowest) and Lewis Formations, and

the Almond Formation of the underlying Mesaverde Group. Required well depths would range from approximately 8,000 to approximately 10,000 feet, with production possible as shallow as approximately 5,000 feet, according to WOGCC records. The formations are productive of gas and condensate in the vicinity of the Proposed Action and south into the Washakie Basin.

An important characteristic of all of the objective horizons is that they consist of a series of lenticular, low permeability, discontinuous sands deposited in a variety of fluvial to marine marginal environments. Individual sand units behave as distinct reservoirs with limited areal extent. A given field may produce from a large number of separate sand reservoirs, only a few of which may be productive in a particular well.

Directional drilling offers technical challenges different than vertical drilling, including:

- All directional wells increase the risk of mechanical failure because of the complexity of the wellbore bend(s).
- Highly inclined wells increase the risk of hydraulic fracturing well stimulation failure due to frequent screenouts (packing off of the sand during the fracturing process). Fracture stimulation is a necessity for economic recoveries with all of the target reservoirs. Screenouts are a common problem in wellbores deviated above 10 degrees. If a fracture treatment fails initially, subsequent fracture attempts are generally unsuccessful. Failure rates of approximately two failures in three attempts have been reported.
- S-shaped wellbores, with vertical upper and lower segments, are most commonly used for field development. Because the shallowest potentially productive horizons within the HRU are located at around 5,000 feet, maximum horizontal displacement of an S-curve well from the surface location is approximately 1,200 feet, limiting the utility of directional techniques.

Alternatives must be both economically and technically feasible and accomplish the purpose and need of the Project (Council on Environmental Quality, 40 Questions, 2a). Directional holes are significantly (typically 25%) more costly than vertical holes, due to longer drilling times and use of more costly technologies. Both geological and technical risks would be increased using directional drilling for the Proposed Project, thus decreasing economic return. In addition, along with interim reclamation of new wells, depleted wells will be abandoned and reclaimed along with their associated roads and pipelines.

In summary, agency-mandated directional drilling would not accomplish the purpose and need of the Project. The BLM has recently reached a similar conclusion in its Decision Record for the Vermillion Basin Natural Gas Exploratory and Development Project (2002) and in the Record of Decision for the Desolation Flats Natural Gas Field Development Project (2004). The geological and cost factors for those projects are similar to those at HRU. BLM's reasoning for those projects is applicable to the Proposed Project.

- f. **“If new routes must be built to accommodate additional drilling, we urge the BLM to consider in detail the use of two-tracks as access roads and fair weather access for heavy equipment.”**

The development cited by Commenter in the Thunder Basin National Grassland is for exploitation of very shallow coalbed natural gas (CBNG). Equipment requirements to drill and complete these wells are very different than those required for development of deep

conventional gas resources. In compliance with Best Management Practices discussed in BLM Instruction Memorandum 2004-194, BLM will require road construction to a standard which is no greater than necessary to achieve the intended purpose while permitting safe operations.

5. Wyoming State Geological Survey

- a. “Review of the Hay Reservoir Unit Natural Gas Infill Development EA indicated no comments or concerns relating to general geology and paleontology.”**

Thank you for your comment.

6. U.S. Geological Survey

- a.) “The U.S. Geological Survey has reviewed the draft EA for the hay Reservoir Unit Natural Gas Development Project and has no comments.”**

Thank you for your comment.

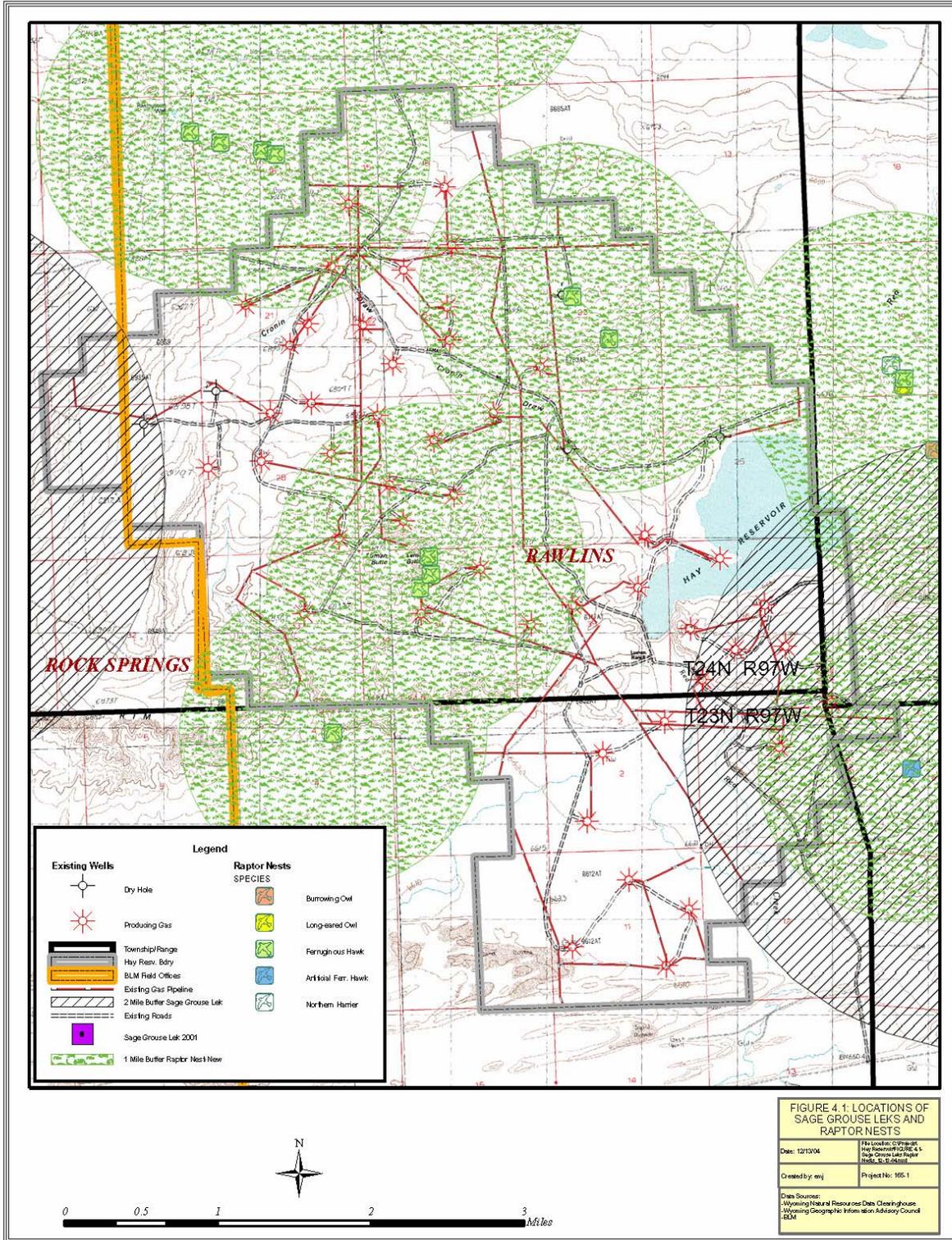


FIGURE 4.1: LOCATIONS OF SAGE GROUSE LEKS AND RAPTOR NESTS

Date: 12/13/04	File Source: C:\GIS\MapDocs\Hay Reservoir\02_006_4_5 Sage Grouse Lek Raptor Nests_04_0608.mxd
Created by: enj	Project No: 165-1
Data Sources: Wyoming Natural Resources Data Clearinghouse Wyoming Geographic Information Advisory Council BEM	