SECTION 1:

EXECUTIVE SUMMARY

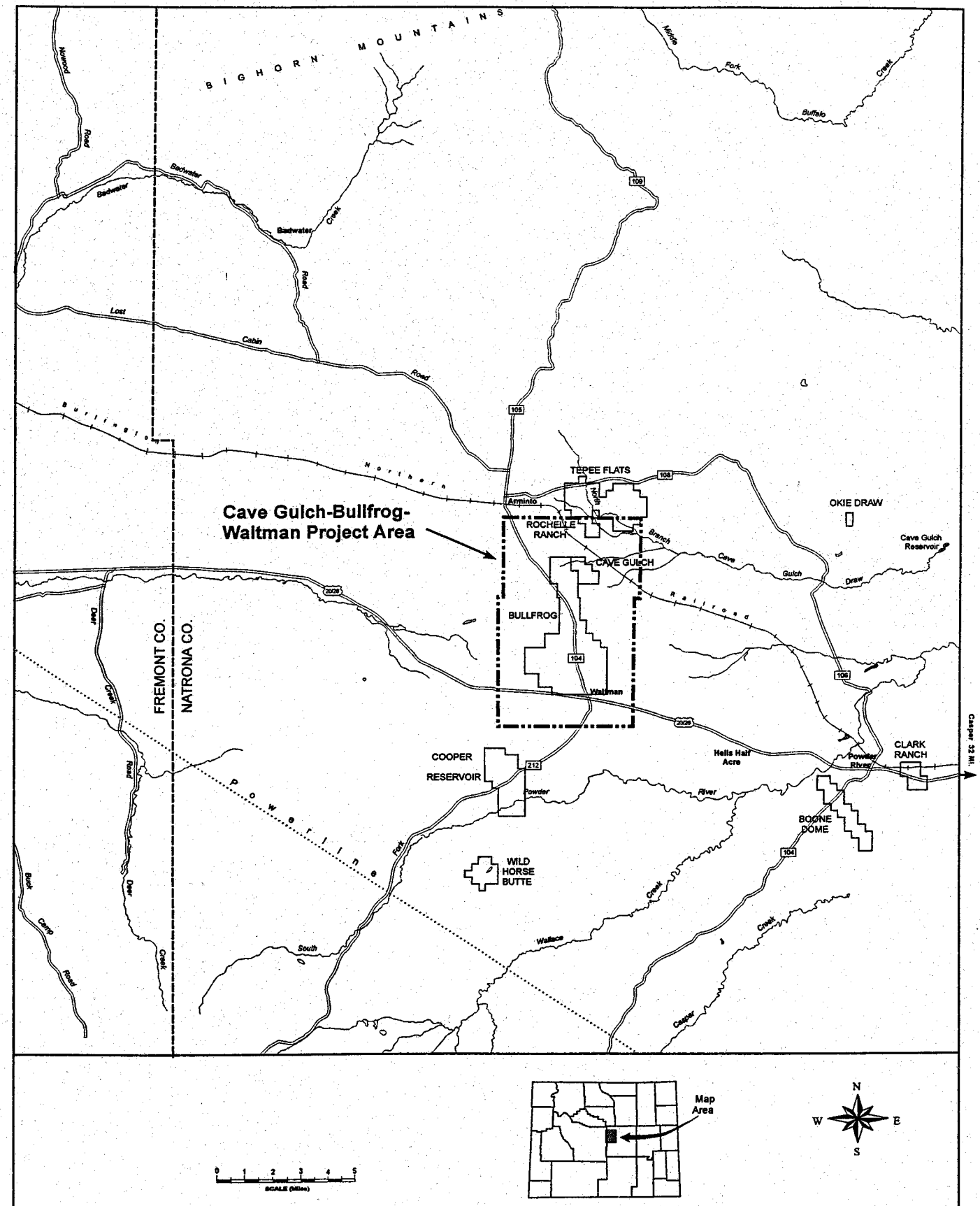

Figure 1-1. Area Map – Location of the Cave Gulch-Bullfrog-Waltman Project Area in Central Wyoming.

EXECUTIVE SUMMARY

1.O INTRODUCTION

This Final Environmental Impact Statement (FEIS) analyzes the impacts of drilling and production operations in the Cave Gulch-Bullfrog-Waltman natural gas producing area of central Wyoming (Figure 1-1). The Cave Gulch-Bullfrog-Waltman project area is located in Natrona County, Wyoming within Townships 36 and 37 North (T36-37N), Ranges 86 and 87 West (R86-87W), 6th Principal Meridian. The project area encompasses approximately 25,093 acres of mixed federal, State, and private lands. Of this total, approximately 7,375 acres are managed by the U.S. Department of the Interior (USDI) Bureau of Land Management (BLM), 1,244 acres are managed by the State of Wyoming, and 16,474 acres are private lands. Also, within the project area, 76.5 percent of the mineral estate is federal (19,182 acres) administered by the BLM, 3.2 percent is State (806 acres), and 20.3 percent is private (5,105 acres).

This FEIS has been prepared pursuant to the National Environmental Policy Act (NEPA) and addresses three field development scenarios (Proposed Action, Alternative A, and Alternative B), and a "No Action" alternative- Alternative C. Details on the Proposed Action and alternatives are described in the DEIS (USDI-BLM 1997) according to the following chapters. Chapter 1 defines the Purpose and Need for the proposed project. Chapter 2 details the parameters of the Proposed Action and other alternatives as well as providing a summary of proposed mitigation and monitoring measures to avoid or reduce impacts proposed by the project operators. Chapter 3 of the FEIS discusses the areas and resources that would be affected under each alternative. Chapter 4 examines the environmental consequences to each resource under each alternative and also provides a summary of additional mitigation measures by resource discipline which were identified during the analysis process. The measures and requirements in the FEIS describe how implementation of the Proposed Action or alternatives should be managed to assure minimal impacts in the Cave Gulch-Bullfrog-Waltman project area and adjacent lands. Chapter 5 examines the cumulative effects of implementing the Proposed Action and alternatives. Chapter 6 of the FEIS summarizes the consultation and coordination accomplished with various federal, State, county, and local agencies, elected representatives, environmental and citizen groups, industries, and individuals potentially concerned with issues regarding the proposed drilling action and alternatives.

Management of federal lands within the Cave Gulch-Bullfrog-Waltman project area, including natural gas drilling and development activities, is provided by the Platte River Resource Area Resource Management Plan (RMP) (USDI-BLM 1985). The proposed natural gas development project and alternatives are in conformance with management objectives provided in the RMP, subject to implementation of prescribed mitigation measures.

Following discovery of natural gas in the Cave Gulch Unit in 1994 by Barrett Resources Corporation (Barrett), an environmental assessment (EA) was prepared by the BLM (Barrett Resources Corporation Cave Gulch Area Natural Gas Development Environmental Assessment and FONSI/Decision Record, May 1995). Based on potential environmental impacts contained in the EA, the BLM determined that impacts were not expected to be significant and an EIS would not be required.

Subsequently, Barrett and Chevron USA Production Company (Chevron) received approval to drill additional wells and construct pipelines within the project area, under provisions provided in the Cave Gulch Area Natural Gas Development Project Environmental Assessment (May 1995).

The BLM issued a decision to vacate the Barrett Cave Gulch decision record in January, 1996 after BLM determined that the mitigation measures upon which the Barrett EA and FONSI were based could not be executed and/or were not sufficient to prevent potential significant impacts from development in the analysis area. A Chevron EA, being prepared for the Bullfrog Unit adjacent to Cave Gulch, was suspended when BLM determined that an EIS was required to assess the direct and cumulative impacts from exploration, development, production, and transportation of the natural gas and associated liquid petroleum products in the Cave Gulch-Bullfrog-Waltman project area.

Drilling attempts within the project area have been successful. As of February 1, 1997, 42 natural gas wells have been drilled in the project area.

The FEIS addresses a Proposed Action and three alternatives as described in greater detail in the following section and briefly summarized here.

- The Proposed Action would increase natural gas production in the Cave Gulch-Bullfrog-Waltman project area by allowing the operators to drill and develop approximately 160 natural gas wells on 107 new and 24 existing well sites, in addition to existing drilling and production operations. The Proposed Action was determined by summarizing drilling plans projected by the Cave Gulch-Bullfrog-Waltman Operators over the next ten-year planning period. Total life expectancy of the Cave Gulch-Bullfrog-Waltman Natural Gas Production Area is estimated by the Operators to be approximately 30 to 40 years. Drilling estimations were based on reasonably foreseeable spacing and drilling projections in areas within the project area where the planned production and development activities would occur, as well as development of related roads, pipelines, and production facilities.

- Alternative A would provide for a reduced density of surface well pads and production facilities. Alternative A would allow the operators to drill and develop approximately 97 new and 2 existing well sites. Within each unit, or within individual leases that are not unitized within the project area, centralized facilities would be constructed for compression, condensate, or water separation, and production treatment and storage. This alternative provides for a year-round raptor stipulation for selected nests and increased distance of the seasonal raptor stipulation for the selected ferruginous hawk nests. Under Alternative A, casual use and unusual maintenance activities would be managed during key raptor nesting periods.

- Alternative B would allow the operators to drill and develop approximately 114 new well sites. Under Alternative B, a proposed area adjacent to the project area would be managed as a Key Raptor Area (KRA). Development of existing leases would be subject to a seasonal raptor nesting restriction unless or until field development is proposed. If oil and gas field development is proposed in the proposed KRA, the year-round buffer, increased seasonal buffer, and unusual maintenance stipulations would have to be evaluated in an environmental assessment and selected in the decision document before being implemented. Casual uses, such as those associated with recreation, would not be managed specifically, unless there were documented disturbances to raptor nesting.

- Alternative C, the No Action Alternative, implies that Applications for Permit to Drill (APDs) and right-of-way (ROW) actions would be granted by the BLM on a case-by-case basis through individual project and site-specific environmental analyses.

Under any of the alternatives, development could occur on State and private lands within the analysis area under authorizations granted by the Wyoming Oil and Gas Conservation Commission (WOGCC).

The Cave Gulch-Bullfrog-Waltman Natural Gas Development Project EIS was prepared by a third party contractor working under the direction of, and in cooperation with the lead agency for the project, which is the Bureau of Land Management (BLM), Casper District Office, Casper, Wyoming.

1.1 PROPOSED ACTION AND ALTERNATIVES

1.1.1 Proposed Action

The Proposed Action would provide a maximum development scenario of approximately 160 natural gas wells on 107 new well sites and 24 enlarged existing well sites with related facilities over the next 10-year planning period (1996-2006) within the Cave Gulch-Bullfrog-Waltman Natural Gas development area. The proposed development is in addition to approximately 42 wells that have been drilled and developed or abandoned in the project area.

The Proposed Action was divided into four planning areas as shown on Figure 2-1 and discussed in Section 2.1.1 (Proposed Action) in the DEIS. The four planning areas were used by the Operators to better define drilling densities that would be necessary for maximum recovery of the natural gas resource. The precise number of new wells, locations of the wells, and timing of drilling would be directed by the success of development drilling and production technology, and economic considerations such as the cost of development of leases having marginal profitability. This proposed development level would also provide consideration of topographic and environmental limitations within the project area.

Construction of the Proposed Action would involve 313.45 acres of well pad disturbance, 256.02 acres of new road disturbance, 183.92 acres (37.93 miles) of cross-country pipeline disturbance, and 35 acres of ancillary facility disturbance, for a total of approximately 788.39 acres. Approximately 50 percent of this disturbed area would be reclaimed. Disturbances associated with well pads would be reduced by reclaiming cut, fill, and soil stockpiling areas. This would represent an approximate reduction of 82.45 acres for all new well pads and 128.01 acres for outside road ditches. All cross-country pipeline ROWs would be reclaimed representing an approximate reduction of 183.92 acres of disturbed area, thus reducing the total disturbance by 394.38 acres to 394.01 acres. The technical requirements for the Proposed Action are described in detail in the DEIS, Chapter 2, Section 2.2.

1.1.2 Alternative A

Alternative A would allow the Operators to drill and develop approximately 97 new well sites and enlarge 2 existing well sites, with related facilities over the 10-year planning period. Development under Alternative A is in addition to approximately 42 wells that have been drilled and developed or abandoned in the project area. Within each unit, or within individual leases that are not unitized within the project area, centralized facilities would be constructed for compression, condensate, or water separation, and production treatment and storage. This alternative provides for a year-round raptor stipulation for selected nests and increased distance of the seasonal raptor stipulation for the selected ferruginous hawk nests. Under Alternative A, casual use and unusual maintenance activities would be managed during key raptor nesting periods.

The technical requirements for Alternative A, including the project-wide mitigation measures, are the same as described for the Proposed Action. The construction of this alternative would involve 268.35 acres of well pad disturbance, 223.88 acres of new road disturbance, 142.78 acres of cross-

country pipeline disturbance, and 35 acres of ancillary facility disturbance, for a total of approximately 670.01 acres. A large portion of this area would be reclaimed as described under the Proposed Action, thus reducing the total disturbance by 362.97 acres to 307.04 acres.

1.1.3 Alternative B

Alternative B would allow the operators to drill and develop approximately 114 new well sites with related facilities over the 10-year planning period. Under Alternative B, a proposed area adjacent to the project area would be managed as a Key Raptor Area. Development of existing leases would be subject to a seasonal raptor nesting restriction unless or until field development is proposed. If oil and gas field development is proposed in the proposed KRA, the year-round buffer, increased seasonal buffer, and unusual maintenance stipulations would have to be evaluated in an environmental assessment and selected in the decision document before being implemented. Casual uses, such as those associated with recreation, would not be managed specifically, unless there were documented disturbances to raptor nesting.

The technical requirements for Alternative B, including the project-wide mitigation measures, are the same as described for the Proposed Action. The construction of this alternative would involve 313.50 acres of well pad disturbance, 256.86 acres of new road disturbance, 163.35 acres of cross-country pipeline disturbance, and 35 acres of ancillary facility disturbance, for a total of approximately 768.71 acres. A large portion of this area would be reclaimed as described under the Proposed Action, thus reducing the total disturbance by 420.28 acres to 348.43 acres.

1.1.4 Alternative C - No Action

Alternative C, the "No Action" alternative, implies that the on-going natural gas production activities would be allowed to continue by the BLM in the Cave Gulch-Bullfrog-Waltman project area, but the Proposed Action and Alternatives A and B would be disallowed. Additional APDs and ROW actions would be granted by the BLM on a case-by-case basis. Transport of natural gas products would be allowed from those wells within the analysis area that are currently productive.

1.1.5 Major Impact Conclusions

The Cave Gulch-Bullfrog-Waltman Natural Gas Development project could cause direct and indirect, short-term and long-term, as well as cumulative disturbance of the human and natural environments. Potential environmental impacts that could result from implementation of the Proposed Action and Alternatives A and B are detailed in Chapter 4 of the DEIS. A summary of proposed mitigation and monitoring measures to avoid or reduce impacts as committed by the Cave Gulch-Bullfrog-Waltman operators is presented in Chapter 2 of the DEIS. Chapters 4 and 5 summarize the environmental impacts for each resource discipline and mitigation measures identified to avoid or reduce the impacts, which were identified during the analysis process and which are summarized below.

2.0 RESOURCE ELEMENTS ANALYZED

2.1 Geology/Minerals/Paleontology

Implementation of the Proposed Action and Alternatives A, B and C would result in construction excavation associated with the development of well pads, access roads, pipelines and other production facilities which could directly result in the exposure and damage or destruction of

scientifically significant fossil resources. The potential magnitude of impact to fossil resources associated with the action alternatives (the Proposed Action and Alternatives A and B) varies proportionally with the total number of wells which would be developed under each alternative. The magnitude of impact for Alternative C - No Action, which would allow additional APDs and ROW action on a case-by-case basis, is unknown at present and would depend on the specific action taken and the specific area involved. Potential for impacts to project facilities as a result of seismic activity is low, as is the potential for landslides and road subsidence that would temporarily close access roads. No significant impacts to important surface resources or other geologic resources would occur under the Proposed Action. Mitigation measures discussed in Chapters 2 and 4 should reduce potential impacts to geologic/paleontologic resources.

Beneficial impacts under the action alternatives include the unanticipated discovery of previously unknown fossils which could occur as a result of construction anywhere in the analysis area.

Under the Proposed Action and Alternatives B and C, maximum ultimate recovery of the oil and gas reserves should be attainable. Under Alternative A, an estimated 54.9 bcf of gas could not be recovered from within the raptor nest buffer areas because those areas could not be drained by existing or new Alternative A wells.

2.2 Air Quality

Extensive analyses were performed to determine potential direct, indirect and cumulative air quality impacts from the Proposed Action and Alternatives for the Cave Gulch-Bullfrog-Waltman Natural Gas Development Project (as detailed in the "Cave Gulch-Bullfrog-Waltman Air Quality Technical Support Document: Cumulative Air Quality Impact Analysis.")

Although some deterioration of air quality would occur, potential impacts were not predicted to be significant. Short-term, local air quality degradation would occur due to site preparation and construction activities (involving particulate matter, sulfur dioxide, and hazardous air pollutants). Long-term, cumulative air quality degradation (due primarily to direct carbon monoxide and nitrogen dioxide emissions, and potential secondary ozone formation) would occur primarily due to compression, dehydration, separators, and storage tank operation. Findings of the extensive analyses include:

- Construction and operation would meet all applicable National Ambient Air Quality Standards (NAAQS) and Wyoming Ambient Air Quality Standards (WAAQS).

- Pollutant concentrations during operation would not significantly "overlap" between well locations, even with the densest assumed well spacing. That is, the maximum ground level concentrations occurred so close to each well that adding additional wells in the field would not increase the maximum concentration.

- Construction and operation impacts would be below applicable significance criteria for atmospheric deposition at the Cloud Peak Class II Wilderness Area.

- Assuming conservative "worst-case" emissions and modeling assumptions, operations would not result in any perceptible visibility impact on the cleanest days at the Cloud Peak Class II Wilderness Area.

The conservative "worst case" emission assumptions represent an upper bound which would not be exceeded. Review of current production activities in the area suggests this level of emissions

and potential impacts would not be reached. For example, the "worst case" emissions scenario assumes: (1) all of the potential sites become producing wells (e.g., no "dry holes"); (2) all producing wells would be operational for 10 to 20 years; and (3) all production activity occurs at the maximum assumed emission rate continuously.

Also, before actual development would occur, the Wyoming Department of Environmental Quality, Air Quality Division (WDEQ/AQD) requires air quality permits which would examine expected emissions from specific project components (such as compressors and certain wells) prior to their construction.

Additional site specific air quality analysis will be performed, and additional emission control measures may be required, to ensure protection of air quality resources. Therefore, predicted impacts should be viewed as a conservative upper bound estimate of potential air quality effects that are not likely to occur.

Air Quality impacts associated with the Proposed Action and alternatives is summarized as follows:

Proposed Action - Construction-related Impacts.

No violation of Wyoming or Federal standards. Slightly higher fugitive dust and sulfur dioxide levels.

Proposed Action - Production-related Impacts.

No violation of Wyoming or Federal standards. Slightly higher carbon monoxide, nitrogen dioxide and ozone levels. No significant visibility or atmospheric deposition impacts at the Cloud Peak Class II Wilderness Area.

Alternatives A and B - Construction-related Impacts.

No violation of Wyoming or Federal standards. Slightly higher fugitive dust and sulfur dioxide levels.

Alternatives A and B - Production-related Impacts.

No violation of Wyoming or Federal standards. Slightly higher carbon monoxide, nitrogen dioxide and ozone levels. No significant visibility or atmospheric deposition impacts at the Cloud Peak Class II Wilderness Area.

Alternative C - No Action - Construction-related Impacts.

No violation of Wyoming or Federal standards. Because specific development actions are unknown, potential impacts can not be evaluated at this time. However, under FLPMA and the Clean Air Act, the BLM can not conduct or authorize any activity which does not conform to all applicable local, State or Federal air quality laws, statues, regulations, standards or implementation plans.

Alternative C - No Action - Production-related Impacts.

No violation of Wyoming or Federal standards. Because specific development actions are unknown, potential impacts can not be evaluated at this time. However, under FLPMA and the

Clean Air Act, the BLM can not conduct or authorize any activity which does not conform to all applicable local, State or Federal air quality laws, statues, regulations, standards or implementation plans.

2.3 Soils

Impacts resulting from drill pad, access road, and pipeline ROW construction could include removal of vegetation, exposure of the soil, mixing of soil horizons, soil compaction, loss of topsoil productivity, and increased susceptibility of the soil to wind and water erosion.

Implementation of the Proposed Action would result in a total of 788.39 acres of disturbance. Assuming avoidance of sensitive soils to the maximum extent practicable, effective surface runoff, erosion, and sedimentation control combined with effective revegetation would reduce the severity of adverse impacts to non-significant levels. Alternative A would involve a reduced level of disturbance from the Proposed Action and would involve 670.01 acres of disturbance. Alternative B would involve a reduced level of disturbance from the Proposed Action, but greater than Alternative A, and would involve 768.71 acres of disturbance. Alternative C, No Action, would result in the least impact overall except that individual APDs could continue to be approved by the BLM resulting in impacts approaching the magnitude of the action alternatives. However, there would be an increased probability of occurrence of unexpected adverse impacts since overall field development would not happen in a well-planned out manner.

Alternative B (559.94 acres) would involve more disturbance in sensitive soils than the Proposed Action (549.08) and Alternative A (461.82 acres). Similarly, Alternative B (321.80 acres) would involve more disturbance in soils with a poor or very poor reclamation potential than the Proposed Action (302.70) and Alternative A (321.80 acres). Thus, Alternative B would potentially be the more damaging of the action alternatives in this regard.

Both the Proposed Action and Alternative B would involve siting of project facilities in areas of slope gradients greater than 25 percent. This could lead to significant impacts in regard to increased surface runoff, erosion, and sedimentation, as well as reclamation problems.

In regard to the amount of construction disturbance located in each of the nine watersheds, the Main Branch of Cave Gulch would sustain the most development pressure under each alternative. The Proposed Action and Alternative B would involve an increased level of disturbance in the South Branch of Cave Gulch. Significant cumulative impacts could occur in the Waltman Draw and Main Branch of Cave Gulch watersheds in the short term during construction, but total disturbance would be below the 10 percent threshold in the long-term production phase. Erosion impacts would follow a similar trend of magnitude commensurate with the area of disturbance associated with each alternative. Erosion modeling was used to evaluate the effectiveness of surface runoff, erosion, and sedimentation control measures, as well as reclamation measures. Assuming best management practices would be applied effectively, no significant erosion or sedimentation impacts would likely occur.

The analysis of direct and indirect impacts indicates that significant impacts could occur under each of the action alternatives as well as the No Action alternative. Mitigation would be required to avoid such significant impacts. Under the RMP management directives, a watershed management plan could be necessary for the Cave Gulch drainage since adverse cumulative impacts could be significant in the short term.

2.4 Water Resources

Potential impacts that could occur due to the proposed project include increased surface water runoff and off-site sedimentation due to soil disturbance; increased salt loading and water quality impairment of surface waters; and channel morphology changes due to road and pipeline crossings. The magnitudes of impacts to water resources would depend on the proximity of the disturbance to the drainage channel, slope aspect and gradient, degree and area of soil disturbance, soil character, duration of time within which construction activities would occur, and the timely implementation and success/failure of mitigation measures. Impacts would likely be greatest shortly after the start of construction activities and would likely decrease in time due to natural stabilization, reclamation, and revegetation efforts. Construction activities would occur over a relatively short period (probably within a 10-year period); therefore, the majority of the disturbance would be intense but short-lived. Petroleum products and other chemicals could be accidentally spilled resulting in surface and groundwater contamination. Similarly, reserve and evaporative pits could leak and degrade surface and groundwater if liners were punctured or liners were not installed. Authorization of the proposed project would require full compliance with RMP management directives that relate to surface and groundwater protection, Executive Order 11988 (flood plains protection), and the Federal Clean Water Act (CWA) in regard to protection of water quality and compliance with Section 404.

Most adverse impacts to water resources could be avoided or reduced through implementation of control measures identified in Chapter 2, mitigation listed in Chapers 4 and 5, Appendix A, and Appendix B. The Proposed Action would result in the greatest area of disturbance 788.39 acres, followed by Alternative B, 768.71 acres, with Alternative A causing the least disturbance, 670.01 acres. Alternative C, No Action, would result in the least impact overall except that individual APDs could continue to be approved by the BLM resulting in impacts approaching the magnitude of the action alternatives. However, there would be an increased probability of occurrence of unexpected adverse impacts since overall field development would not happen in a well-planned out manner.

Alternative B (559.94 acres) would involve more disturbance in sensitive soils than the Proposed Action (549.08) and Alternative A (461.82 acres) where impacts to water resources could be greatest. Both the Proposed Action and Alternative B would involve siting of project facilities in areas of slope gradients greater than 25 percent. This could lead to significant impacts in regard to increased surface runoff, erosion, and sedimentation, as well as reclamation problems. As discussed in Section 4.3.3, the Main Branch of Cave Gulch would sustain the most development pressure under each alternative. The Proposed Action and Alternative B would involve an increased level of disturbance in the South Branch of Cave Gulch. Significant cumulative impacts could occur in the Waltman Draw and Main Branch of Cave Gulch watersheds in the short term during construction, but total disturbance would be below the 10 percent threshold in the long term production phase. Demand on surface and groundwater for use during project construction, well drilling, and testing of pipelines would be small since such water would be used over several years and no surface water or groundwater rights would be adversely affected. Most other types of adverse impacts would be essentially the same for each of the action alternatives. The analysis of direct and indirect impacts indicates that significant impacts could occur under each of the action alternatives as well as the No Action alternative. Mitigation would be required to avoid such significant impacts.

2.5 Vegetation/Wetlands

Direct impacts would include the short-term loss of vegetation (modification of structure, species composition, and areal extent of cover types). Indirect adverse impacts would include the short-term

and long-term increased potential for weed invasion, establishment, and expansion; exposure of soils to accelerated erosion; shifts in species composition and/or changes in vegetative density away from a more desirable condition (e.g., native communities); a loss of natural biodiversity; reduction of wildlife habitat; and changes in visual aesthetics.

Impacts to vegetation include removal of cover types and the potential for noxious weed invasion. Except for waters of the U.S. (including wetlands) and special status plant species and their habitat, disturbance of vegetation cover types would not be important because upland types are common, have high frequencies of occurrence, cover large areas, and have wide distribution. However, construction in badland areas could have serious erosion and site stabilization consequences as discussed under Soils in the DEIS. Any construction activities that result in placing fill or removing material from wetlands areas or other waters of the U.S. would be important. Measures imposed by the Section 404 permitting process would reduce or avoid impacts to jurisdictional wetlands and remove the potential for significant impacts. In spite of the sandy nature of the soils in many locations, the technology exists to return disturbed areas to predisturbance conditions. As described in the DEIS, Chapter 4, Section 4.5, due to the poor reclamation potential, locating roads, well sites and facilities outside of badland areas would avoid adverse impacts to those areas. If impacts cannot be avoided, site-specific design and/or relocation of the proposed well sites could reduce the potential for negative impacts to this cover type. No significant impacts would occur to special status plant species or their habitat with avoidance and mitigation measures implemented as determined appropriate by the BLM. Weed invasion and establishment would be a major concern of project development. Careful monitoring and eradication and control measures would be required to minimize the spread of such unwanted species. No significant cumulative impacts would occur with implementation of the action alternatives or the No Action alternative if identified mitigation measures are employed.

2.6 Range Resources and Other Land Uses

Implementation of the Proposed Action would result in 313.45 acres of well pad disturbance. This disturbance, combined with new road and pipeline construction (439.94 acres), and ancillary facility construction (35 acres) would result in an estimated total disturbance of 788.39 acres of forage production during the initial stages of the project. Depending on the actual locations of the well sites with respect to forage productivity, lost forage during drilling, access road, and pipeline construction would vary between 98.63 and 37.6 AUMs, with an average of 92.8 AUMs (short-term loss of forage). Following reclamation and re-establishment of suitable range forage, approximately 394.01 acres (46.35 AUMs) of forage production would continue to be removed from livestock use (long-term loss of forage). This would be a reduction of about 1.57 percent of the current livestock forage use in the project area. Overall, this level of reduction should not affect the livestock use in the project area, unless the well sites and associated facilities are located predominately on a select few permittees and/or are located on areas where forage production is greater than average in the project area.

Implementation of Alternative A would result in the disturbance of approximately 670.01 acres (78.82 AUMs) in the short-term (initial construction and production phases). Following reclamation, approximately 307.04 acres (36.12 AUMs) would remain out of forage production. This represents a loss in stocking levels of about 1.22 percent throughout the Cave Gulch-Bullfrog-Waltman Project Area in the long-term. Overall, this level of reduction should not affect the livestock use in the project area, unless the well sites and associated facilities are located predominately on a select few permittees and/or are located on areas where forage production is greater than average in the project area.

Under Alternative B, approximately 768.71 acres (90.44 AUMs) would be disturbed in the short-term (initial construction and production phases). Following reclamation, approximately 348.43 acres (40.99 AUMs) would remain out of forage production. This represents a loss in stocking levels of about 1.39 percent throughout the Cave Gulch-Bullfrog-Waltman Project Area in the long-term. Overall, this level of reduction should not affect the livestock use in the project area, unless the well sites and associated facilities are located predominately on a select few permittees and/or are located on areas where forage production is greater than average in the project area.

Alternative C would result in on-going site disturbance with an associated loss in forage production. The amount of forage production lost is unquantifiable since the anticipated level of development is not known.

2.7 Wildlife

The implementation of the Proposed Action or Alternative A, B or C would result in direct losses of non-crucial big game, sage grouse, and general wildlife habitat from surface disturbance associated with the construction of pads and related access roads and pipelines. In addition, individuals of some wildlife species would be indirectly impacted by displacement from habitats in the vicinity of the project area due to the presence of human activities associated with the construction and operation of wells. The potential for collisions between wildlife and motor vehicles would also increase due to the construction of new roads and increased traffic levels on existing roads. The severity of these impacts would be expected to decrease with the completion of the construction phase and with the onset of reclamation efforts on many of the disturbed areas.

The acreages of wildlife habitats disturbed under the Proposed Action and Alternatives A and B are 783, 665, and 763, respectively, and the nature of impacts to wildlife is identical. The application of prescribed avoidance and mitigation measures (Chapter 4, Section 4.7.5 of the DEIS) as well as additional measures described in Chapter 2, Section 2.2.2.12 would reduce the impact potential and allow for any of the action alternatives to be performed without significant impacts to big game, sage grouse, and general wildlife species.

No impacts to black-footed ferrets are expected due to the lack of suitable habitats on the project area. Mitigation procedures described in the DEIS will ensure that adverse impacts to the mountain plover and swift fox, should they be found to occur on the project area, are avoided.

The principal potential impacts of the Proposed Action, Alternative A, and Alternative B on raptors are: (1) nest desertions and/or reproductive failure caused by project related disturbance, (2) temporary reductions in prey populations, and (3) increased public access and subsequent human disturbance resulting from new road construction. Although the nature of prescribed avoidance and mitigation measures varies considerably between the Proposed Action and alternatives, the application of these measures (Chapter 4, Section 4.7.5), as well as additional measures described in Chapter 2, Section 2.2.2.12, would reduce impact potentials and allow for any of the action alternatives to be performed without significant impacts to raptors.

Essentially the same levels of development as described under the Proposed Action and Alternative B would be allowed under the No Action Alternative. Under the No Action Alternative the consideration of individual APDs on public lands on a case by case basis would be allowed through site-specific environmental analysis, therefore, impacts would be comparable.

2.8 Recreation

Well drilling, testing and production operations, and associated site preparation and construction activities have the potential to cause some major alterations to the recreation setting and recreation opportunities available to persons using the area. Some recreationists could be temporarily or permanently displaced from using certain locations associated with drilling and production activities. Displacement of recreationists could also result from changes in the numbers or distribution patterns of wildlife that attract hunters and wildlife observers to the area. The presence of construction and drilling equipment and associated increased evidence of human industrial activities in the area could reduce opportunities for recreationists seeking to experience solitude and isolation from human activity. Such changes could also result in displacement or redistribution of recreationists who would choose to avoid such conditions, as well as reduced satisfaction among others who might continue to engage in recreation activities in the area.

The Proposed Action and Alternatives A and B would have significant short-term and long-term adverse impacts on the recreational resources of the project area. Impact Significant Criteria described in Chapter 4 , Section 4.8.2 of the DEIS, would be exceeded. Initially, the impacts associated with Alternative C would not be considered significant but in the long-term it too could produce significant impacts.

2.9 Visual Resources

Both short-term and long-term impacts to the visual resource would occur where patterns of area, line, form, color, and texture in the characteristic landscape would be contrasted by drilling equipment, production facilities, and/or construction related damage to vegetation, topography or other visible features. The severity of impact depends upon scenic quality, sensitivity level, and distance zone of the affected environment, reclamation potential of the landscape disturbed, and the level of disturbance to the visual resource created by the Proposed Action.

Adverse impacts from well construction would occur within the short term due to contrast in line, form, color and textures associated with equipment, surface disturbance, and fugitive dust juxtaposed with the existing landscape. Long-term impacts would result from production facilities, access roads, pipelines, and fugitive dust.

The Class 4 Visual Resource Management (VRM) classification for the entire project site is the most permissive VRM Class in terms of visual contrast permitted. Neither the Proposed Action nor Alternative A or B would exceed the level of contrast allowed in a Class 4 zone. The only site specific exception would be the liquids recovery plant included in the Proposed Action and Alternatives A and B, which would produce significant impacts.

Short-term impacts under Alternative C would exceed the level of contrast allowed in a Class 4 zone, however, they would not be considered significant because of their short duration. Over time, as the project area fills incrementally, it could approach well densities of the Proposed Action or either of the action alternatives (A or B). As densities approach or exceed these levels, impacts would be the same as those described for the Proposed Action.

The area of highest Scenic Quality within the project area would be seriously compromised by the Proposed Action and alternatives. Contrast in line, form, color, and texture would dominate the

badland breaks. In addition, the aesthetic experience of those traveling the South Bighorn/Redwall Backcountry Byway would be diminished by the Proposed Action and alternatives.

2.10 Cultural Resources

Potential impacts to specific eligible or unevaluated properties are unknown at this time. Given the Cave Gulch-Bullfrog-Waltman proposal is in an area of high to moderate site density, development would be likely to encounter significant cultural resources.

In general, the project area has a moderate to high site density, and therefore, high archaeological sensitivity. Certain geomorphic situations have a greater archaeological potential than other areas especially in terms of significant cultural resources. These situations include eolian deposits (sand dunes, sand shadows and sand sheets) and alluvial deposits along major drainages.

None of the cultural resources discovered in the core area are of the type, density or distribution to suggest that there is any potential for the presence of Native American sacred sites or Traditional Cultural Properties. Instead, the known site inventory consists of routine domestic and utilitarian debris which lies well below the threshold of materials that would invoke evaluation as potential Traditional Cultural Properties.

Although the project area has a high degree of archaeological sensitivity, impacts to known cultural properties would not be significant with implementation of the Proposed Action or alternatives. Potential impacts to known and anticipated cultural resources can be alleviated through appropriate mitigation measures.

2.11 Socioeconomics

The employment, income, and tax revenues expected to result from the Proposed Action and Alternatives would provide substantial positive impacts to Natrona County and other affected local governments. Development of mineral resources in the project area would strengthen the economic base of Casper and Natrona County. Secondary economic effects would increase employment and income in the local service sector.

The BLM, PRRA's standard operating procedures for raptor nesting restrictions are expected to limit access to only a very small portion of the project area under the Proposed Action and Alternatives B and C. The more stringent seasonal and year-round stipulations proposed for Alternative A would limit access to about one third of the project area, or 8,373 of the total 25,093 acres, for up to six months each year and restrict access to 1,961 acres, or 8 percent, of the field year-round. The errata for Section 4.11.4 provides a clarification of the socioeconomic impacts which would likely result from the seasonal access restrictions under Alternative A. This clarification is provided to fully disclose potential adverse socioeconomic impacts associated with the more stringent seasonal and year-round restrictions under Alternative A. Similar socioeconomic impacts are not expected to result under the Proposed Action or Alternatives B and C, provided the proposed artificial nesting structures for raptor mitigation are implemented.

2.12 Transportation

The Proposed Action and Alternatives A and B would result in levels of truck traffic on US Highway 20/26 and Natrona County Road 104 (Arminto Road) higher than recent (1995 and 1996) levels when 11 and 10 wells were drilled, respectively.

The increases in traffic associated with the Proposed Action and Alternatives A and B would create direct impacts from the construction of new roads and traffic associated with development and production activities. These impacts would occur steadily over the ten-year drilling program, although traffic impacts may be more concentrated during the periods when the seasonal restrictions are not in effect under Alternative A. Due to the low increases in traffic volumes associated with the Proposed Action and Alternatives A and B, and due to the existing condition and excess capacity on affected highways, these impacts are not considered significant.

The effects of the No Action Alternative on transportation cannot be estimated because the details of the proposals are not currently known.

2.13 Health and Safety

Potential health and safety hazards associated with the drilling program and associated construction activities could include improper sanitation, firearm accidents, criminal activities, occupational hazards, well blowouts, pipeline failure and exposure to hazardous materials. In most instances, however, exposure to these hazards would be limited to the project-related workforce. However, implementation of environmental protection and mitigation measures described in Chapters 2 and 4 would minimize the risk of exposure to these hazards. For example, sewage and solid-waste would be stored in closed containers and hauled off-site to a permitted disposal facility. Increased surveillance of the project area would minimize the risk of criminal activity and firearms-caused damage to production equipment. Safety and fire control measures already required and implemented at production and drilling sites would minimize the risk of wildfire. Some occupational hazards associated with oil and gas drilling are unavoidable but the risk of an accident would be reduced by the use of blowout preventers, protective clothing, safety equipment, and compliance with BLM and Federal safety regulations. Hydrogen sulfide has not been associated with exploration or production activities of this gas reservoir. Marking of pipeline routes and use of the latest pipe materials and coatings would help to reduce the potential for pipeline ruptures. Finally, the project has been designed to avoid the use of materials designated by Federal regulation as extremely hazardous. Waste minimization, recycling, implementation of spill control and response plans, and compliance with Federal regulations governing the identification, signing, transportation, storage and disposal of hazardous materials would minimize the environmental risks associated with the use of these materials. Taken together, the project would not result in any substantial, increased risks to public health and safety; nor would it introduce any unusual occupational hazards or threats to the health and safety of oil and gas field workers.

2.14 Noise

A temporary increase in ambient noise levels in the vicinity of drilling and construction activities would be unavoidable. Workers on drilling rigs and heavy equipment would be exposed to the highest noise levels which would require hearing protection under Federal regulations. Noise from drilling activities generally would recede below the EPA standard of 55 dBA in 0.1 mile or less. Regardless of the type of rig used, noise levels would recede to background level (35-40 dBA) within 0.75 miles. However, if diesel-electric rigs with mufflers were used, noise is expected to recede to background level within 0.4 miles of the well site. Given these conditions, the lack of residences, and the availability of timing restrictions to protect wildlife-related noise sensitive areas, noise impacts caused by drilling would be minimal. Temporary "spikes" in noise levels associated with project traffic and construction equipment would be unavoidable; but given the dissipation of noise impacts with distance, and Federal regulations requiring noise control equipment on heavy trucks and construction equipment, this impact is not expected to exceed 55 dBA at noise sensitive locations such as residences. Infrequent "spikes" in noise levels due to the operation of blow-down

stacks and relief valves would be unavoidable and necessary for safe field operations. Even with implementation of noise-control technologies, a long-term increase in ambient noise levels in the vicinity of field compressors and the liquids recovery plant would be unavoidable. However, it is estimated that noise levels from these types of facilities would approach the 55 dBA standard within 500 feet and therefore would be highly unlikely to adversely affect noise sensitive locations. Mitigation measures requiring the use of mufflers and other sound control measures at central compression facilities also would help to minimize the extent of this impact. No noise standards have been specified in affected leases and the project would be in compliance with RMP provisions related to noise.

3.0 SCOPE OF ANALYSIS

The purpose of the scoping process, as stipulated (40 CFR, Parts 1500-1508), is to identify important issues, concerns, and potential impacts that require analysis in the EIS and to eliminate insignificant issues and alternatives from detailed analysis. Public participation, consultation, and coordination have occurred throughout the planning process for this EIS through *Federal Register* notices, press releases, scoping meetings, individual contacts, and informal consultation. Contact dates and actions taken by BLM are summarized in Chapter 6 - Public Participation, Consultation, and Coordination. All information received during the scoping process is available for review at the Casper District Office.

Also, during preparation of the FEIS, the BLM and consultant Interdisciplinary Team (IDT) have communicated with, and received input from various federal, state, county, and local agencies, elected representatives, environmental and citizen groups, industries, and individuals potentially concerned with issues regarding the proposed drilling action.

4.0 SUMMARY OF CUMULATIVE EFFECTS

Chapter 5 of the DEIS provides a detailed, resource-by-resource analysis of cumulative impacts. In addition, a summary of impacts for each project alternative, including the No Action Alternative, and a comparison of the alternatives in terms of cumulative impacts has been provided as Table 5-8 of the DEIS. Assuming the implementation of environmental protection and mitigation measures discussed in Chapters 2 and 4 of the DEIS, no cumulative impacts in excess of threshold criteria would occur except in the case of recreation and visual resources.

Cumulative recreation impacts were found to be significant for the Proposed Action and Alternatives A and B because the project, in combination with past and reasonably foreseeable activities, would result in the complete displacement of non-motorized recreation activities from the project area. However, the actual size of this displacement and the adverse incremental impact caused by the project is low given the low rate of recreation use currently found in the area. Initially, the impacts associated with Alternative C would not be considered significant, but in the long-term the development could produce significant impacts. Importantly, the Proposed Action or project alternatives would not result in significant cumulative impacts to local or regionally significant recreation and tourism resources or destinations. The Proposed Action and project alternatives would be in compliance with recreation management provisions of the RMP.

Potential cumulative recreation impacts associated with implementation of the No Action Alternative would be unknown until alternative activities and locations were proposed.

Under the Proposed Action and Alternatives A and B, development of the liquids recovery plant would produce a locally-significant, adverse site specific impact on visual resources. Otherwise, while the Proposed Action and Alternatives A and B would add to cumulative changes in visual qualities of the project area, these changes would not be significant because they would be consistent with a VRM Class 4 designation and the RMP. Potential cumulative impacts on visual resources caused by implementation of the No Action Alternative are unknown as ongoing development and production activities would be considered on a case-by-case basis and it is possible that some activities could proceed outside of BLM jurisdiction if non-Federal lands and minerals were involved.

Regardless of the project alternative adopted (including the No Action Alternative), cumulative effects on air quality were found to be insignificant when compared to a number of parameters. Even under a worst-case cumulative emissions scenario, the project would comply with State and Federal air quality standards, would not visibly diminish views from the Cloud Peak Class II Wilderness Area, and would not exceed BLM and/or U.S. Forest Service unacceptable change criteria for visibility and acid neutralizing capacity.

As described in Chapters 2 and 4 for the Proposed Action and project alternatives, implementation of reclamation, sediment and erosion control measures would be instrumental in minimizing cumulative impacts to soils, vegetation, water quality, range and forage for wildlife species.

While impacts associated with water quality, geologic hazards, minerals and paleontological resources would not be significant if mitigation and environmental protection measures incorporated into the Proposed Action and Alternatives A and B were adopted, potentially significant impacts could occur under the No Action Alternative if such protective measures were not adopted. The Proposed Action and Alternatives A and B generally would produce positive, cumulative socioeconomic impacts but would vary in the magnitude of impact. The No Action Alternative is likely to have substantially less cumulative impact but the actual extent of that cumulative impact cannot be determined given the uncertain level of future activity under this alternative.

Overall, the Proposed Action and project alternatives (including the No Action Alternative) would increase long-term, cumulative impacts to the surface of the project area. Past and current activities have disturbed 1,041 acres (or 4.2 percent) of the project area. However, a majority of this disturbance (589 acres) has been reclaimed. This leaves an estimated 452 acres of long-term surface disturbance evident in the 25,093 acre project area, or about 1.8 percent of its total surface. Under the No Action Alternative, the existing 452 acres of long-term surface disturbance would continue. If one of the other alternatives were chosen--and assuming all wells were successful and all facilities were constructed--cumulative, long-term surface disturbance within the project area would increase by about 1.2 to 1.6 percent of total area.

Successful reclamation of abandoned well pads and other areas not needed for production activities would be instrumental in reducing long-term disturbance and cumulative impacts. Under the Proposed Action--and assuming all wells were successful and all facilities were constructed--up to 788 acres of new disturbance would occur. With the proposed reclamation of the 394 acres not needed for production activities, the Proposed Action would result in 394 acres of new, long-term surface disturbance. When added to existing disturbance, implementation of the Proposed Action would result in a long-term, cumulative impact of 846 acres. Under Alternative A, up to 670 acres of new surface disturbance would occur of which 363 acres would be reclaimed. When added to existing disturbance, the cumulative impact of Alternative A would be 759 acres of long-term surface disturbance. Under Alternative B, up to 769 acres would be disturbed of which 420 acres would be reclaimed. Adding this to existing, long-term surface disturbance would result in a cumulative

impact of 800 acres. These estimates do not take into account the likelihood that a significant percentage of the proposed locations may not be drilled, may result in unsuccessful wells or wells uneconomical to produce. Such locations and associated access roads would be reclaimed and would not contribute to cumulative, long-term impacts. Under the No Action Alternative cumulative disturbance would be 452 acres plus any long-term disturbance associated with an unknown level of additional development allowed to proceed on a case-by-case basis.

Given the application of mitigation procedures described in the DEIS, it is likely that no significant long-term cumulative impacts to wildlife populations would result from the implementation of the Proposed Action or alternatives. Under the Proposed Action and Alternatives B and C, short-term impacts to the golden eagle pair using nests 2 and 20 are likely to occur because of the time required by this species to adapt to and utilize ANSs. Under the Proposed Action and Alternative B, effective placement of ANSs may increase raptor production over the long-term to higher levels than existed prior to development. Monitoring would be conducted as necessary to ensure the success of mitigation measures. The positive, cumulative impacts of implementing activities that increase raptor production would not occur under the No Action Alternative.

5.0 AGENCY-PREFERRED ALTERNATIVE

Based on comments received and considered during the public review period of the Draft EIS, and as allowed under CEQ regulation 1503.4 and BLM's NEPA Handbook, H-1790-1, Chapter V, Section B.4.c, the BLM has reappraised the Agency-Preferred Alternative presented in the DEIS. In the Final EIS, BLM is selecting the Proposed Action as the Agency-Preferred Alternative. The change is based on additional information acquired during the DEIS public comment period, analysis provided in the DEIS, and public and BLM internal review comments.

Selection of the Proposed Action as the Agency-Preferred Alternative does not imply that this will be the BLM's final decision. Additional information acquired during the FEIS public comment period, and public and BLM internal review comments, may result in the selection of an Agency Preferred Alternative in the Record of Decision (ROD) that combines components of the Proposed Action and Alternatives A and B to provide the best mix of operational requirements and mitigation measures needed to reduce environmental harm.

The Agency-Preferred Alternative identified in the DEIS was Alternative B. Under Alternative B, a proposed Key Raptor Area was identified that was intended to provide for secure long-term raptor nesting habitat adjacent to the project area and serve as a core or refuge area where long-term reproduction opportunity for raptors of multiple species would be ensured. The proposed Key Raptor Area was also intended to serve as a dissemination area from which to populate or repopulate other areas in the Greater Cave Gulch Raptor Analysis Area (GRAA) where future disturbances may cause temporary depletions in raptor populations.

Analysis presented in the DEIS determined that, under the Proposed Action, the effective placement of artificial nesting structures (ANSs) throughout the GRAA would provide nesting opportunities for pairs of raptors displaced by activity in the project area, and mitigate adverse impacts to raptors and their habitat in the project area.

Based on new information and comments on the DEIS, consultation with the USFWS, and further analysis of the range of alternatives and actions presented in the DEIS, the BLM concluded that: (1) an adequate number of secure sites for the placement of ANSs are likely to be available, and (2) that the use of ANSs to mitigate the expected displacement of 4 to 7 raptor pairs from the project

area would be adequate without the use of the proposed KRA. The USFWS' concurrence with the placement of ANSs outside of existing raptor territories and outside of, but proximal to, the designated GRAA, and the offer to the BLM by Chevron and Barrett to provide long-term secure ANS sites on portions of their leaseholds within the GRAA, greatly expanded the area over which the BLM could select ANS sites and substantially increased the likelihood that 14 suitable sites for ANSs are available.

The selection of the Proposed Action incorporates compliance with the Platte River Resource Area Resource Management Plan (RMP) and implementation of various mitigation measures. Such measures include the following: (1) proponent-committed project-wide measures for preconstruction planning and design and specific resources, (2) Master Surface Use Plan and Natural Gas Pipeline Construction Master Plan (Appendix A), Reclamation Guidelines (Appendix B), and a Hazardous Substances Management Plan (Appendix D), and (3) additional mitigation measures recommended in Chapter 4 (Mitigation Summary of each resource element). The BLM has concluded that these detail a complete listing of practicable measures to reduce environmental harm resulting from the development and management in the Cave Gulch-Bullfrog-Waltman project area. The BLM also feels that the analyses demonstrate that the Proposed Action would meet the requirements of Federal Regulation 43 CFR 3162(a), which directs the Operators to conduct "....all operations in a manner which ensures the proper handling, measurement, disposition, and site security of leasehold production; which protects other natural resources and environmental quality; which protects life and property; and which results in maximum ultimate economic recovery of oil and gas with minimum waste and with minimum adverse effect on ultimate recovery of other mineral resources."