

POWDER RIVER BASIN RESOURCE COUNCIL  
MONTANA DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES  
MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

IBLA 90-511, 91-11

Decided July 12, 1991

Consolidated appeals from decisions of the Deputy State Director, Wyoming State Office, Bureau of Land Management, affirming a decision by the Buffalo Resource Area Manager finding no significant environmental impact associated with a proposal to allow drilling of numerous gas wells for the extraction of methane gas associated with large coal deposits. SDR No. WY-90-25; SDR No. WY-90-28.

Set aside and remanded.

1. Environmental Policy Act–Environmental Quality: Environmental Statements–National Environmental Policy Act of 1969: Environmental Statements–National Environmental Policy Act of 1969: Finding of No Significant Impact–Oil and Gas Leases: Drilling

Issuance of oil and gas lease does not confer such an unfettered right to development of the oil and gas resources as to preclude detailed consideration of a range of alternatives, including the limitation or regulation of the manner and pace of development, when preparing an environmental analysis or environmental impact statement regarding development of methane gas from coal deposits underlying a 2,160-square mile area. Approval of applications for permit to drill for exploration and/or development of the gas is subject to regulation to avoid adverse environmental impacts in the interest of conservation of natural resources.

2. Environmental Policy Act–Environmental Quality: Environmental Statements–National Environmental Policy Act of 1969: Generally–National Environmental Policy Act of 1969: Finding of No Significant Impact–Oil and Gas Leases: Drilling

The Board is unable to affirm a finding that no significant impact to the environment will result from a proposal for drilling coalbed methane gas wells in a

2,160-acre area where the environmental analysis upon which the finding is based fails to give appropriate consideration to obvious alternatives, such as staggering development over time, as required by 42 U.S.C. § 4332(2)(E) (1988), 40 CFR 1508.9(b), and 516 DM 3.4(A).

3. Environmental Policy Act–Environmental Quality: Environmental Statements–National Environmental Policy Act of 1969: Environmental Statements–National Environmental Policy Act of 1969: Finding of No Significant Impact

On appeal from the finding of no significant impact after completion of an environmental analysis of the effects of a proposed action, the issue is whether the record supports a finding that the agency took a "hard look" at the environmental consequences of the proposed action, identified relevant areas of environmental concern, and established that the impacts studied are insignificant, or, with respect to any potentially significant impacts, that mitigating measures incorporated in the proposal have reduced the potential impacts to insignificance.

4. Environmental Policy Act–Environmental Quality: Environmental Statements–National Environmental Policy Act of 1969: Environmental Statements–National Environmental Policy Act of 1969: Finding of No Significant Impact

The degree to which possible effects on the human environment are "highly uncertain or involve unique or unknown risks" is a relevant factor in determining the significance of the impact associated with a proposed action.

APPEARANCES: William J. Opitz, Acting Director, Montana Department of Health and Environmental Sciences, Helena, Montana; Karen L. Barclay, Director, Montana Department of Natural Resources and Conservation, Helena, Montana; Ronn Smith, Chairman, and Dave Stueck, Jr., Powder River Basin Resource Council, Douglas, Wyoming; and John R. Kunz, Esq., Office of the Regional Solicitor, Denver, Colorado, for the Bureau of Land Management.

#### OPINION BY ADMINISTRATIVE JUDGE GRANT

These are consolidated appeals from decisions of the Deputy State Director, Wyoming State Office, Bureau of Land Management (BLM), affirming the record of decision of the Buffalo Resource Area Manager approving

the proposed action analyzed in the Coal Bed Methane Environmental Assessment (EA) for Western Campbell County and Eastern Johnson County, Wyoming (EA WYO-061-0-EA064). <sup>1/</sup> The proposed action analyzed in the EA was the contemplated drilling of up to 1,000 gas wells for the extraction of methane gas associated with large coal deposits underlying an area of 2,160 square miles in Campbell and Johnson Counties. The decision included a finding of no significant impact (FONSI) for the proposed action based on the analysis in the EA and certain mitigating measures that would be required, including plans for monitoring impacts to groundwater resources. The FONSI obviated the necessity to prepare an environmental impact statement (EIS) which would have been required if BLM had determined that its proposal constituted a major Federal action "significantly affecting the quality of the human environment." National Environmental Policy Act of 1969 (NEPA), § 102(2)(C), 42 U.S.C. § 4332(2)(C) (1988).

The Powder River Basin in northeastern Wyoming is underlain by deep, thick coalbeds that are believed to hold methane gas that can be produced by drilling gas wells. Economically viable coalbed methane projects have been developed elsewhere, notably in the Black Warrior basin of Alabama and in the San Juan basin of New Mexico and Colorado (EA at 1).

BLM has authorized the extraction of methane from coal deposits under oil and gas leases issued pursuant to 30 U.S.C. § 226 (1988). The EA discloses that BLM's Buffalo Resource Area Office has approved three projects to drill for and develop coalbed methane. Coastal Oil and Gas Corporation has drilled two Federally approved wells and two wells on private leases within the Sasquatch unit. <sup>2/</sup> Betop, Inc., has drilled four wells out of

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<sup>1/</sup> Two agencies of the State of Montana, the Montana Department of Natural Resources and Conservation and the Montana Department of Health and Environmental Sciences, have jointly appealed from a July 16, 1990, decision of the Deputy State Director. SDR No. WY-90-25. Their appeal has been docketed as IBLA 90-511.

The Powder River Basin Resource Council (Powder River) had previously filed an appeal of the Area Manager's decision to this Board. That appeal, docketed as IBLA 90-443, was dismissed by order dated Aug. 17, 1990, as premature and the case was remanded to the State Director because the initial appeal of such matters is to the State Director as required by regulation. 43 CFR 3165.3(b).

On Aug. 30, 1990, the Deputy State Director issued a decision to Powder River similar to the decision sent to the State. SDR No. WY-90-28. Powder River's appeal from that decision has been docketed as IBLA 91-11. By order dated Oct. 25, 1990, we consolidated Powder River's appeal with that of the State and granted an interim stay of the effectiveness of BLM's decision. Pursuant to the terms of that order, we have expedited our review of this case in view of the stay which was entered.

<sup>2/</sup> Statutory authority for unit development of oil and gas leases is set forth at 30 U.S.C. § 226(m) (1988).

a Federally approved eight-well project now operated by Petroleum, Inc. Gilmore Oil and Gas has submitted applications for permits to drill (APD's) for six wells and is now considering the formation of a unit. Four other coal bed methane wells have been approved on an individual basis (EA at 8). BLM has received 27 APD's for coalbed methane wells within the 2,160 mile area studied in the EA (EA at 1).

The proposed action studied by the EA assumed that a maximum of 1,000 wells would be drilled to develop the methane resource in the Big George and adjacent coalbeds over a 5-year period. The EA further assumed that 500 of the 1,000 wells would be drilled prior to the expiration on December 31, 1990, of the tax credit for unconventional fuels made available by the Windfall Profits Tax Act of 1980 (EA at 1, 8). <sup>3/</sup> The remaining 500 wells would be drilled within the following 4 years at a rate of 125 per year. The life of these wells is assumed to be 20 years. BLM considers this degree of development to be a "worst case" assumption and does not anticipate that this much development will actually occur within the specified timeframe (EA at 8).

Although the EA addresses the effects of the proposal across a broad spectrum of environmental concerns, the issues raised by appellants primarily focus upon the anticipated hydrologic effects that may occur because the coalbeds comprise aquifers and must be dewatered before methane can be produced. For each well, this may require pumping up to 2,000 barrels or 84,000 gallons of water per day (EA at 1), although BLM expects an average daily volume of 1,000 barrels (EA at 86). Dewatering may require a period of up to 2 years for each well before methane gas is produced (EA at 1). The disposal of large volumes of water on the surface will affect the channels and streams into which it flows (EA at 86-87). The withdrawal of water from the coalbed aquifers may adversely affect the quality, quantity, and availability of groundwater throughout the study area (EA at 87-88).

The sole concern voiced by the State of Montana relates to the quality of the water discharged from the methane wells. This concern arises from the fact that the study area forms the drainage basin of the Powder River which flows into Montana where water is withdrawn from the river for irrigation. In its appeal of the Area Manager's decision to the State Director, the State contended that BLM's monitoring plan was inadequate to define effects on Powder River water quality in Montana, indicating that the quality and suitability of Powder River water for use for irrigation in Montana has become a key interstate issue with Wyoming. Montana stated that irrigation water in its portion of the Powder River during the May to July irrigation season is already marginal for alfalfa production, and if the quality of the water discharged by coalbed methane dewatering approaches the limits established under the drillers' discharge permits and the volume

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<sup>3/</sup> Although such development has not occurred, counsel for BLM has indicated that this credit has subsequently been extended for 2 additional years.

suggested in the EA is realized, the suitability of Powder River water for irrigation would be significantly affected.

The State recommended specific changes to BLM's monitoring plan, some of which the Deputy State Director adopted. These included quarterly sampling at discharge points and the addition of specific conductance and sodium to the parameter list. BLM declined to require additional monitoring at Arvada, Wyoming, which is near where the river enters Montana, citing the adequacy of the existing program to monitor during the spring melt which, it asserted, also coincides with the irrigation season.

The Deputy State Director's decision noted that Montana only addressed the "worst case" analysis, and that meetings with various interested parties indicated that "the projected number of coalbed methane wells expected to be drilled in the study area by December 31, 1990, was 50" (Decision (SDR No. WY-90-25) at 1). Further, the decision stated that "tests to date have not been as positive as expected and two major oil and gas companies have already backed out of the project. Dewatering of the Big George coal bed may make the project uneconomical." Id. The State Director then calculated the effect of 50 wells on the volume of the Powder River.

Initial water production from a single well could be as high as 2000 barrels of water per day (page 12 of the EA). One barrel is equal to 42 gallons. This means one well could produce up to 84,000 gallons of water, initial production, in one day. This is equivalent to 0.31 acre feet per day or, in terms of stream flow, 0.13 cubic feet per second. Fifty wells would contribute about 6.5 cubic feet per second. Fifty wells would contribute about 6.5 cubic feet per second to the total stream flow. Given the expected average flow of 1000 barrels of water per day, if the total flow reached the Powder River, this would contribute 1,764 acre feet per year or 0.53% of the average annual flow of 330,000 acre feet in the Powder River at Moorehead, Montana.

Id. at 1-2.

In its appeal to this Board, the State points out that the existing data collection program at Arvada is not documented in the monitoring plan presented in the decision record. Further, it is noted that BLM monitoring of the river downstream at Arvada is focused on "spring melt" and does not explicitly include the May-July irrigation season, nor does it include the daily or weekly specific conductance (Statement of Reasons (SOR) at 2-3). The State seeks increased water quality monitoring downstream at Arvada to include daily or weekly specific conductance and near-monthly field parameters and common ions a threshold level of development of 200 wells is crossed (SOR at 5).

In its response, BLM characterizes Montana's position as "without merit" and states that BLM "has already done everything it can do to implement the monitoring provisions suggested by Montana" (Response at 66). While we understand the State's concerns, we too consider the State's fears

to be unfounded. Even in the unlikely event that as many as 500 wells were drilled and producing water at the same time, they would add about 5 percent to the average annual flow of the Powder River. Because the flow of the river is much higher than average during the May-July irrigation season, which is the time of critical concern to the State, 4/ the production from the wells during that period would constitute a much smaller percentage of the flow at that time than of the annual average. The State expressed concern in its appeal to the BLM State Director that a discharge permit may be issued as long as the dissolved solids concentration is less than 5,000 milligrams/liter (mg/l), whereas the quality of the irrigation water in the Montana portion of the Powder River during the May-July irrigation season is typically 700 to 1,200 mg/l which is marginal for alfalfa production. However, the State acknowledges that:

[A]ccording to information presented in the BLM's EA, the possibility exists that some dewatering wells will discharge water of relatively high quality (dissolved solids concentration of 250 to 700 mg/l). 5/ This could compensate for lower quality water generated from other sources or if encountered on a large-scale could result in overall improvement of Powder River water quality in Montana.

(SOR, Exh. B at 4). Accordingly, we are not persuaded that the State has shown a significant environmental impact of the proposed action with respect to the surface water which would justify overturning BLM's decision. We turn now to the issues raised by Powder River.

Powder River contended in its appeal to the State Director 6/ that the EA did not adequately address the total cumulative impacts of coalbed methane development and, particularly, the impacts on groundwater quantity and quality. Appellant requested the preparation of a basin-wide EIS that would incorporate a hydrological study of the entire basin, not just the study area, and address the "potential cumulative impact on groundwater, surface water, and surface by large scale coalbed methane development" (Notice of Appeal dated July 4, 1990). Finally, in an accompanying document Powder River noted that EIS's have been required in other areas affected by coalbed methane development.

As in the decision addressing Montana's appeal, the Deputy State Director again pointed out that the actual projected development was for only 50 wells by the end of the year. Nevertheless, he concluded that

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4/ See Fig. 7, EA at 31.

5/ Analysis of the quality of groundwater obtained from various wells in the coalbed aquifers is found in the EA at Table 17.

6/ This appeal was originally directed to this Board and was dismissed by order dated Aug. 17, 1990, because appellants had not previously appealed the matter to the State Director as required by 43 CFR 3165.3(b). See note 1, supra.

even in the "worst case" scenario analyzed in the EA, an EIS was not required. The Deputy State Director rejected Powder River's request for a basin-wide hydrologic study, stating as follows:

Due to the fluvial environment that the coal and the associated clays, silts, and sands were deposited in, the vertical and lateral geometry is not consistent. Doing a basinwide study would be a monumental task both in time and money.

(Decision (SDR No. WY-90-28) at 1). The Deputy State Director cited differences in the study area and other areas where coalbed methane has been produced, noting that in Wyoming, the coalbed methane project is in an exploratory phase where no production has been achieved, while the project in the San Juan basin has had several years of development.

In its appeal to this Board, Powder River asserts that an EIS is required for the proposal because the effects listed in the EA are significant. Powder River also contends that the Deputy State Director erred in basing his decision on the likelihood that only 50 wells will be drilled by the end of the year.

This latter argument places into issue BLM's belated attempt to recharacterize the nature of the proposed action. Regardless of the accuracy of BLM's forecast that only 50 wells would be drilled before the previously anticipated expiration of the tax advantage at the end of 1990, <sup>7/</sup> the proposal addressed by the EA establishes no such limit on the number of wells to be drilled. Even though production may not yet have been achieved, the proposal is clearly developmental rather than exploratory in nature. <sup>8/</sup> The EA does not even identify the limitation of activity to exploration as an alternative to the proposal. Further, the EA expressly declines to analyze an alternative to the proposal under which development would be staggered (EA at 13). <sup>9/</sup> The EA explains the failure to consider the alternative of staggered development of the study area as follows:

The possibility of requiring companies to develop a particular area and then move on to another area was considered. Development of this type would limit impacts to one area at a time and could theoretically reduce cumulative impacts. This alternative was considered but not analyzed in detail because existing regulations and policy require the BLM to allow economic development of existing leases. Placing unreasonable time and general location constraints on development where numerous

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<sup>7/</sup> As noted above, counsel for BLM has advised the tax incentive has now been extended for 2 additional years.

<sup>8/</sup> The description of the proposed action in the EA itself explicitly refers to the action as a proposal for "development" (EA at 8).

<sup>9/</sup> The purpose of the EA was described as analysis of "the cumulative impacts of producing and discharging large amounts of water" (EA at 1).

operators are involved could lead to undue burdens or discrimination. The BLM can only require such reasonable measures as needed to minimize adverse impacts to resource values.

(EA at 13). It is true that at least one court, in determining that an EIS must be undertaken prior to large-scale issuance of Federal oil and gas leases on the public lands, as opposed to deferring environmental analysis until development plans are proposed, found that "[o]n land leased without a no surface occupancy stipulation the department cannot deny the permit to drill." Sierra Club v. Peterson, 717 F.2d 1409, 1411, 1414 n.7 (D.C. Cir. 1983). <sup>10/</sup> However, this precedent hardly supports the failure of BLM to consider other alternatives when analyzing the impacts of proposed drilling on previously issued leases.

[1] There is ample support for the authority of the lessor to regulate the manner and pace of development subsequent to lease issuance. In reviewing approval of plans to conduct exploratory drilling at 22 sites on a block of 149 unpatented mining claims within a wilderness area, the same court found that an EIS was not required where the proposal was modified prior to implementation by adding specific mitigating measures to compensate for any significant adverse impacts stemming from the original proposal. Cabinet Mountains Wilderness v. Peterson, 685 F.2d 678, 682-84 (D.C. Cir. 1982). <sup>11/</sup> This precedent approving exploratory drilling with imposition of measures calculated to reduce adverse impacts to insignificance has been applied by another court in the oil and gas leasing context to hold that: "To require a cumulative EIS contemplating full field development at the leasing stage would thus result in a gross misallocation of resources, 'would trivialize NEPA and would 'diminish its utility in providing useful environmental analysis for major federal actions that truly affect the environment.'"<sup>12/</sup> Park County Resource Council, Inc. v. United States, 817 F.2d 609, 623 (10th Cir. 1987) (quoting Cabinet Mountains Wilderness v. Peterson, supra at 682). The Park County court, noting that at some point as "an overall regional pattern or plan evolves" a particular APD for a specific site will trigger the need for a broader-based EIS dealing with region-wide cumulative impacts of development, rejected plaintiffs' contention that such EIS must be prepared at the leasing stage "because of the eventual cumulative and foreseeable effects of exploratory drilling

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<sup>10/</sup> The court did, however, recognize the Department's authority to "impose 'reasonable' conditions." Sierra Club v. Peterson, supra at 1411, 1414 n.7.

<sup>11/</sup> While the NEPA implications of mining claims located by the unilateral action of the claimant are properly distinguished in some respects from mineral leases issued in the exercise of the Secretary's discretion, this distinction may have limited significance where subsequent exploration and development of mining claims is subject to regulation by the surface management agency.

and then full field development." 817 F.2d at 622. <sup>12/</sup> The court held that development plans were not concrete enough at the leasing stage to require an EIS in that case. 817 F.2d at 623. The Park County ruling is predicated in significant part on recognition of the authority and responsibility retained by the Federal lessor to regulate and modify any future plans for exploration and development in order to address environmental considerations: "In order to work the lease, the lessee must submit site-specific proposals to the Forest Service and BLM who can then modify those plans to address any number of environmental considerations. Each action is subject to continuing NEPA review." 817 F.2d at 622.

There is substantial support for the right of the Secretary of the Interior to regulate drilling rights in order to avoid adverse environmental impacts when adjudicating APD's. Thus, restriction to drilling to winter months only to protect the tundra in a permafrost region of Alaska has been upheld as an exercise of the Secretary's authority under section 39 of the Mineral Leasing Act, as amended, 30 U.S.C. § 209 (1988), to suspend operations on oil and gas leases in the interest of conservation of natural resources. Copper Valley Machine Works, Inc. v. Andrus, 653 F.2d 595 (D.C. Cir. 1981); see Union Oil Company of California v. Morton, 512 F.2d 743, 749-51 (9th Cir. 1975) (temporary suspension of operations on Outer Continental Shelf oil and gas lease to protect the environment). Thus, we find that BLM had no legal basis for failing to fully consider a wider range of alternatives, including the limitation or regulation of the manner and pace of development, than was analyzed in the EA in this case.

[2] Furthermore, BLM's attempt to recharacterize the proposal as exploratory rather than developmental clearly demonstrates that an alternative under which development would be limited was both obvious and reasonable. Although 42 U.S.C. § 4332(2)(C) (1988) requires consideration of alternatives only in an EIS, another provision of that statute, section 4332(2)(E), sets forth a requirement that has been construed as requiring consideration of alternatives in EA's which form the basis for FONSI's. Bob Marshall Alliance v. Hodel, 852 F.2d 1223, 1228-29 (9th Cir.), cert. denied, 489 U.S. 1066 (1989); see 40 CFR 1508.9(b); 516 DM 3.4(A). In State of Wyoming Game & Fish Commission, 91 IBLA 364 (1986), the Board set aside and remanded a timber sale for failure to study alternatives as required by 516 DM 3.4(A) and 40 CFR 1508.9(b). We stated:

The requirement that appropriate alternatives be studied applies to the preparation of EA's which serve as a basis for a FONSI. See Kelly v. Butz, 404 F. Supp. 925, 934-35 (W.D. Mich. 1975).

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<sup>12/</sup> We need not determine in the context of the present appeal whether the number of APD's granted and applied for to this point requires analysis of the cumulative impacts of full field development notwithstanding the absence of production to date. The scope of the proposed action has been defined by BLM in the EA.

Under this requirement all reasonable alternatives must be considered (North Slope Borough v. Andrus, 486 F.Supp. 326, 330 (D.D.C. 1979)) and obvious alternatives may not be ignored (California v. Bergland, 483 F.Supp. 465, 488 (E.D.Cal. 1980)).

Id. at 369. Thus, BLM's failure to consider obvious alternatives in this case would require us to set aside the decision, even if we agreed that the proposal would have no significant impact.

[3] Critical criteria applied in reviewing the sufficiency of the EA to support the FONSI with respect to the proposed action include whether the record establishes that BLM took a "hard look" at the environmental consequences of the proposed action, identified the relevant areas of environmental concern, made a reasonable finding that the impacts studied are insignificant, and, with respect to any potentially significant impacts, whether the record supports a finding that mitigating measures have reduced the potential impact to insignificance. Cabinet Mountains Wilderness v. Peterson, *supra* at 681-82; Maryland-National Capital Park & Planning Commission v. U.S. Postal Service, 487 F.2d 1029 (D.C. Cir. 1973); Owen Severance, 118 IBLA 381 (1991).

Review of the EA discloses that the coalbeds to be dewatered would be in the Wasatch and Fort Union geologic formations (EA at 41). The Wasatch/Fort Union aquifer system within these formations is the most important local source of groundwater and is developed extensively by shallow domestic and stock wells (EA at 50). Outside the study area, they are a source of water for several municipalities. The EA states that there are approximately 3,741 water wells completed in the Wasatch and Fort Union formations within the EA study area, 455 of which are used for domestic purposes, 1,580 for stock and irrigation purposes, and the remainder for miscellaneous purposes such as monitoring, and commercial or industrial uses. Id.

The EA identifies the major impact to the groundwater resource as the loss of the groundwater caused by the dewatering process:

In order to remove the methane the aquifer will be pumped to induce a cone of depression i.e., a lowering of the water table. The variability in aquifer properties (permeability, storativity, specific capacity, transmissivity, and thickness—all ranging 1 to 4 orders of magnitude) as a result of the anisotropic nature and the secondary permeability of the aquifer(s) and, the scarcity of data on most of the EA study area make it difficult to pin down either site specific or cumulative impacts. In the USGS investigation of cumulative hydrologic impacts of surface coal mining in the Eastern Powder River Basin (Martin and others 1988), the area of influence was defined as that area with more than 5 feet of water level lowering. In case of the mines, the area of influence was less than 1/2 mile in the Wasatch aquifer and generally less than 8 miles in the Fort Union, depending on local

hydraulic properties. The mines can be conceptually thought of as individual point sources and as such are analogous to the coal gas wells or groups of wells. [Emphasis added.]

(EA at 87).

The threat that BLM's proposal poses to these wells is the issue of greatest concern to Powder River. Included with Powder River's appeal were affidavits from landowners in the area expressing their opinion that dewatering the coal seam will deplete or damage their livestock watering wells. A native of the area who has been in the water well service business for 15 years provided an affidavit containing some more detailed observations. He pointed out that most stock wells in the area range between 100 and 400 feet in depth and are drilled into the coal veins. This affiant expressed his concern that seismic holes and other wells have never been plugged properly, letting water zones intermingle. He believes that dewatering the coal seams will pull water from adjacent stock wells, and states he has also seen a pronounced lowering of water levels in the deeper zones ranging in the 400- to 1,200-foot depth (Affidavit of Steve Barbour (July 30, 1990)).

The EA confirms the possibility that other aquifers may be affected because of poor completion techniques for older wells:

A complicating problem exists in predicting groundwater movement and chemical quality in the Powder River Basin. Leakage between aquifers occurs due to poor well completion techniques and to corrosion of casing in old wells where water of poor quality was initially cased off (Northern Great Plains Resource Program 1974).

(EA at 52).

The EA also confirms the significance of these impacts:

The impacts to individual wells will depend on proximity to dewatering wells, depth and perforation interval of the well, and the well yield required to maintain it as a useable source. The impacts to individual wells could range from no impact to reduction or loss of flow in flowing wells, lowering of the water level, or loss of the well due to dewatering of the aquifer. With the exception of wells which are not affected, these impacts would result in increased costs to the surface operators. These costs would be in the form of increased pumping expenses or new well drilling costs. As with the mine scenario, the area of significant impact should be within approximately eight miles of the pumping wells. \* \* \*

Wells completed in the aquifers underlying the coal bed methane target formation should be unaffected. Wells completed

in or near the production zone (coal) will likely be impacted. Wells completed above the coal and associated sands have a low probability of being significantly affected based on the presence of aquitards (impermeable layers) as described in the geology section of this analysis.

Wells which would be most significantly impacted are those which are in the 1,000 to 2,000 foot range. According to table 18, three percent of the wells which are in the EA study area are in this depth range. However, the coal beds are not a uniform depth below the surface in the EA study area, and there is significant topographic relief in parts of the study area. As a result, there is not a direct relationship between depth of the well and the zone of completion.

Alternative sources of water are available in the deeper underlying aquifers. These, however would not be as economically available or useable as the Wasatch and Fort Union.

Since little is known about the source and rate of groundwater recharge in the center of the Powder River Basin, duration of the impact to the water levels after completion of the gas removal in the aquifers is unknown. [Emphasis added.]

(EA at 87-88).

[4] In determining the significance of impacts associated with proposed actions, relevant factors include the degree to which proposed actions would affect the public health or safety and the degree to which possible effects on the human environment are "highly uncertain or involve unique or unknown risks." 40 CFR 1508.27(b)(2) and (5). Additionally, the degree to which a proposed action may be considered as highly controversial is a material factor to be considered in analysis of the intensity of the impact of the proposed action on the human environment. 40 CFR 1508.27(b)(4). Controversy, in this sense, stems not from the mere existence of opposition to the proposal, but from the existence of a dispute as to the effects of the proposed action. Glacier-Two Medicine Alliance, 88 IBLA 133, 143-44 (1985). Applying these factors, it is clear from the preceding discussion in the EA itself that the potential impact of the proposed action on the human environment is significant.

The BLM answer contends that the EA was utilized to thoroughly analyze potential environmental impacts to virtually every conceivable resource element and BLM either found that the impacts were not significant or that they would not be allowed to become significant through mitigation efforts (Response at 7-8). <sup>13/</sup> The discussion in the EA of mitigation measures

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<sup>13/</sup> In this regard, BLM cites our decision in Glacier-Two Medicine Alliance, *supra* at 148, in which we held: "Even if an action would have

regarding groundwater impacts is limited to the statement that: "Oil and gas operators should augment or provide an alternate source of water where water wells are impacted" (EA at 102). However, it is clear from the record of decision and FONSI that the BLM case for avoidance of significant impact to the aquifers is predicated on monitoring the impact of development on nearby water wells. <sup>14/</sup> Although BLM recognizes the lack of needed information, it contends that the most effective way of acquiring it is by monitoring water resources as the proposed development occurs:

Monitoring of the water resources in the area needs to be initiated to ensure that undue [<sup>15/</sup>] resource degradation does not occur as a result of the development of coal bed methane. There is not enough data currently available to determine which aquifers or which wells will be impacted, how severe those impacts will be, or how much mitigation will be necessary to prevent surface erosion and protect surface water quality. Further study of the data now available will not fully resolve these unknowns. Essentially, the only way to obtain the data necessary to evaluate the impacts is to establish a monitoring program to assess the effects of drilling and producing coal bed methane wells. Monitoring will provide some of the information needed to make decisions on future well permits, location of discharge points, and development/application of mitigating measures. Monitoring will also provide the data needed to resolve future resource conflicts and/or claims. [Emphasis added.]

(EA at 103).

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fn. 13 (continued)

significant effects, the proposal may be modified to mitigate those effects to the point they are no longer significant. If the mitigation accomplishes this purpose, an EIS need not be prepared. See Cabinet Mountain Wilderness v. Peterson, 685 F.2d 678 (D.C. Cir. 1982)."

<sup>14/</sup> Attached to the record of decision and incorporated by reference therein is a copy of a document issued by the Wyoming State Engineer's Office entitled "Additional Conditions and Limitations Required When A Permit To Withdraw Water For the Purpose of Producing Coalbed Methane is Granted." Stipulation 7 provides in part that: "The permittee shall be responsible for measuring and reporting water levels in selected nearby water wells at specified time intervals."

<sup>15/</sup> Use of the modifier "undue" in the EA in referencing degradation of other natural resources associated with coalbed methane development is unexplained. To the extent the term implies a right of the oil and gas lessee to damage the groundwater or other resources in development of a lease, we are unaware of the authority for this proposition. In any event, the issue in reviewing an EA is the significance of the impact of the proposed action regardless of whether it is necessary or appropriate to the proposed action.

BLM proposes the following steps for monitoring the impact of the methane wells:

1. Establish a monitoring network throughout the study area. Wells in all potentially affected aquifers should be included. Water levels in wells in this extensive network should be measured at least annually.
2. All potentially affected wells within one mile of any coal bed wells should be measured on bimonthly basis.
3. Observation wells should be established in the vicinity of each project and intensively monitored (continuous recorders). Wells in and near the production zone should be included. As the magnitude and rate of change is determined, the intensity of monitoring can be adjusted.
4. As production and monitoring wells are installed, aquifer pump testing should be done in order to build a database on aquifer characteristics such as transmissivity and storage properties. This data would allow more beneficial placement of monitoring wells and better prediction of the area of influence and recovery time.

(EA at 104).

Appellant raises a number of objections about perceived inadequacies in the groundwater monitoring plan, but the key contention is that the monitoring plan is not adequate to prevent significant impacts. Powder River states that if groundwater production at the methane well were stopped at the moment an impact was detected in a water well a mile away, the impact would triple over the following year (SOR at 7; Affidavit of Bern S. Hinckley, hydrogeologist, dated Oct. 27, 1990). Because the rate of groundwater recharge is unknown, even a cessation of operations may be insufficient to mitigate impacts that have already occurred. Where a FONSI is predicated on a finding that restrictions on a project will eliminate any significant environmental impact, NEPA requires an analysis of the proposed mitigation measures and how effective they would be in reducing the impact to insignificance. Nez Perce Tribal Executive Committee, 120 IBLA 34 (1991); Idaho Natural Resources Legal Foundation, Inc., 115 IBLA 88, 91 (1990); see Cabinet Mountains Wilderness v. Peterson, *supra* at 682. Accordingly, we are unable to conclude that the record in this case supports the FONSI. <sup>16/</sup>

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<sup>16/</sup> We find it unnecessary to rule on Powder River's contention that a hydrological study of the entire basin must be a part of the environmental analysis. Although the absence of the information such a study would yield may make it more difficult to establish a record supporting a FONSI, it

As mentioned above, the only mitigative measure identified in the EA is a suggestion that oil and gas operators augment or provide an alternative source of water where water wells are impacted (EA at 102). In response to comments on this suggestion, BLM refers to a Solicitor's opinion stating the owner of a surface estate over the Federal mineral estate may be able to secure payment for damages as part of his agreement with the operator or make sure that the bond posted by the operator is sufficient to cover the loss of any water wells (Decision Record at A3-2). Adjoining landowners, however, would have to look to the Wyoming State Engineer for relief. Id. Regardless of the right to compensation which may lie, the existence of any such remedy is properly distinguished from mitigation which would serve to avoid the occurrence of a significant impact.

In response to Powder River's challenge to the efficacy of the monitoring program to avoid significant impacts to groundwater resources, BLM points out that NEPA's mandate is procedural, not substantive, citing Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 353 n.16 (1989): "Because NEPA imposes no substantive requirement that mitigation measures actually be taken, it should not be read to require agencies to obtain an assurance that third parties will implement particular measures."

However, we find the Robertson case to be distinguishable from the case at hand in one crucial respect. In that case, the Forest Service prepared an EIS prior to issuance of a special recreation permit for a ski area. In the context of Forest Service compliance with the procedural requirements of NEPA and preparation of an EIS, the Court held that it was not required to ensure that mitigation measures which are within the authority and jurisdiction of third-party agencies would be effectively implemented. Unlike BLM, the Forest Service was not relying upon mitigation as a basis for making a FONSI and not preparing an EIS. BLM, on the other

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fn. 16 (continued)

does not preclude the agency from issuing an EIS. An agency is required to consider the alternative of delaying a proposal while additional information is developed, but it is not required to adopt that alternative. The leading cases on this issue have arisen in the context of mineral development. In refusing to enjoin a sale of oil and gas leases on the Outer Continental Shelf and require the agency to gather more information, one court stated:

"One of the costs that must be weighed by decisionmakers is the cost of uncertainty—i.e., the costs of proceeding without more and better information. Where that cost has been considered, and where the responsible decisionmaker has decided that it is outweighed by the benefits of proceeding with the project without further delay, the courts may not substitute their judgment for that of the decisionmaker and insist that the project be delayed while more information is sought. Kleppe v. Sierra Club, 427 U.S. 410 n. 21, 96 S.Ct. 2718, 49 L.Ed.2d 576 (1976). [Footnote omitted]."  
State of Alaska v. Andrus, 580 F.2d 465, 473-74 (D.C. Cir.), vacated in part on other grounds sub nom. Western Oil & Gas Ass'n v. Alaska, 439 U.S. 922 (1978).

hand, is trying to avoid the EIS requirements of NEPA by claiming that the impacts of its proposal are insignificant, even though BLM's EA makes it explicitly clear that BLM does not know how significant the groundwater impacts will be or how they will be mitigated.

Therefore, pursuant to the authority delegated to the Board of Land Appeals by the Secretary of the Interior, 43 CFR 4.1, the decision appealed from is set aside and remanded for further action consistent with this opinion.

C. Randall Grant, Jr.  
Administrative Judge

I concur.

Bruce R. Harris  
Administrative Judge

