



United States Department of the Interior

NATIONAL PARK SERVICE ROCKY MOUNTAIN REGIONAL OFFICE

655 Parfet Street
P.O. Box 25287
Denver, Colorado 80225

IN REPLY REFER TO:

L7617 (RMR)PC

SEP 17 1979

Memorandum

To: Superintendent, Fossil Butte National Monument

From: ~~Acting~~ Regional Director, Rocky Mountain Region

Subject: Environmental Assessment and Review, Spring Development

Enclosed, as requested, are 50 copies of the approved subject document.

You should prepare a news release for the local media announcing the availability of the document. The notice should indicate the nature of the selected alternative, where copies may be obtained, and state that the final decision on the alternative will not become effective until 30 days after publication of the notice. The Regional Office of Public Affairs will be glad to assist you in this.

We suggest a special effort be made to inform the Bureau of Land Management about the assessment and review, again explaining that it doesn't take effect for 30 days. You should carefully point out that any verbal commitments the Bureau of Land Management may have felt they had were made without benefit of a formal assessment such as this one.

We congratulate you on taking a positive stance to strongly defend the natural resources of the monument against exploitation.

Kenneth R. Ashley

Enclosures 50



Save Energy and You Serve America!

L7617

August 10, 1979

Memorandum

To: Regional Director, RMR
From: Superintendent, Fossil Butte National Monument
Subject: Transmittal of Environmental Assessment and Review,
Spring Development, Fossil Butte National Monument

By this memo we are transmitting the above Environmental Assessment
for review and approval.

We estimate that 50 copies of the document will be needed for
public comment.

Roger L. Martin

Enclosure

FOBU:RLMARTIN:jad:08/10/79

ENVIRONMENTAL ASSESSMENT
AND REVIEW

SPRING DEVELOPMENT

Fossil Butte National Monument
Wyoming

1979

A. Statement of Problem:

BLM has requested authority from Fossil Butte National Monument to drill a horizontal well into an aquifer or underground seep and to construct a distribution pipe for a stock tank located outside the monument boundary. The purpose of the tank is to effect better distribution of livestock on BLM grazing lands. On the strength of verbal commitments allegedly made, they have programmed the money, obtained a contractor and have requested a special use permit for the well.

There is a need to decide whether the request for a permit should be granted, based on assessment of water producing capacity, seasonal or cyclic variations, or whether there is water in excess to the needs of the existing environment and purposes of the monument.

B. Description of the Environment:

The location of the seep is in the N $\frac{1}{2}$, SE $\frac{1}{4}$, Sec. 11, T22N, R118W, 6th Principal Meridian. The availability of an underground water source is demonstrated by the presence of hydrophilic vegetation. The vegetation around the seep consists of a small stand of aspen trees, snowberry and other bushes, grasses, mosses and lichens. Aspen is the dominant large plant. The seep environment is situated in a moderate north facing slope and is surrounded by big sagebrush.

The soil is a reddish brown clay resulting from reworked wasatch deposits. The soil is very fine grained and of slow permeability. The strong probability that this seep depends on a perched water table must be considered. This seep is at approximately the same elevation as a flowing spring on the opposite or south slope of Cundick Ridge. There are several groves of aspen on the east flank of the ridge at about the same elevation. This area consists of an intertongued deposit of the wasatch formation of a slow permeability overlying the Angelo member of the Green River Shales which is the most permeable rock in the area. Most of the springs in the monument are found near the contact zone between the Green River Shales and Wasatch underlying the shale due to the differential permeability. In this case, where the

Wasatch sits atop the shale, the bentonitic clay component of the Wasatch could be expected to effectively seal the shale contact. Otherwise the water would percolate through the shale and there would be no springs, seeps or other ground water above the Green River Formation.

The Wasatch member represents an Eocene transition from lake bed to swamp to floodplain. The springs, seeps and aspen groves approximately delineate the contact zone between the Bullpen member of the Wasatch and the Angelo member of the Green River Formation. This indicates the water table is of rather small size - less than 160 acres. Recharge rates would be very slow due to the heavy clay soil and the lack of permeability. Precipitation in the area ranges between 12-15 inches annually, much of which is in the form of snow. The presence of large drifts would aid recharge while slopes blown clean of snow by the wind would reduce recharge. Much of the water from snow melt or rain is not available for recharge because of slope, soil, and evaporation.

No surface water flow is apparent from this particular seep nor is there an eroded channel from a spring head to indicate significant past flows. The above suggests that there is either no excess or that the excess percolates away through the soil. There is a channel running through the area caused by erosion from snow melt.

The presence of the variant plant community at this seep is important to the distribution and diversity of animal species ranging from small birds and mammals to deer, elk, and moose.

Artifacts and remains of prehistoric occupation have been found at most of the springs and seeps emanating from this Bullpen/Angelo contact zone. An archeological survey of Fossil Butte National Monument was conducted during the fall of 1973 under the direction of George Ziemens. Ziemens report states that surface materials were apparent on almost all parts of the monument. A large potentially significant campsite designated as site 48LN326 was located in the NE $\frac{1}{4}$, Sec. 14, T22N, R118W surrounding Cundick Spring. This spring is located less than $\frac{1}{2}$ mile south of the seep in section 11. This seep and others in the area could have been important sources of food and water to prehistoric inhabitants.

C. Alternatives:

1. No Action: Leave the water source untapped and undisturbed. Impacts: The effects of this alternative would be dictated by climate and other natural forces. No adverse impact would result from human manipulation. The distribution and diversity of wildlife would not be altered. This alternative would preserve the opportunity for interpretation of a very interesting ecology and geology.

2. Drill a horizontal well and construct a buried pipeline approximately 300 to 500 feet long to the monument boundary to deliver water to a stock trough located outside the monument on the ridge in the vicinity of the center of the north boundary of the SE $\frac{1}{4}$, of Sec. 11, T22N, R118W 6th Principal Meridian. Impacts: Withdrawal due to constant flow and overflow to prevent freezing could be extensive. It is possible that a small perched water table could be drained because of the above action. Assuming that the lateral dispersion of hydrophilic species is controlled by the available soil moisture, any diversion of water with resulting dessication could constrict the size of the hydrophilic plant community. Severe dessication would probably result in death of the community or at least elimination of the more water dependent species and eventual encroachment of sagebrush. Potential for recovery would be low and require considerable time. Replanting lost species would not be a viable mitigating measure because of lack of soil moisture, interdependence on other species, time required for establishment and in general the difficulty of attempting to reestablish the delicate balance of a total plant community. With significant alteration of the natural balance, loss of or change in species could result in loss of habitat for birds and animals.

If the seep is supplied by a perched water table, the effects of withdrawal could become apparent over the entire area supplied by that water table. There is no reliable estimate of the quantity of water which would be required for the stock trough. Short term disturbance of primarily sagebrush would result from equipment access to the area and construction of the pipeline. The fact that pipe would be buried and deliver water off the monument would help mitigate long range disturbance. Long term impact, if overutilization became a reality would be partial or total loss of the hydrophilic plant community. Damage would be apparent when plants began dying after which mitigating measures would be largely futile.

ENVIRONMENTAL REVIEW

Hydrologic information on the seep and others along the contact zone is sparse. Past observation of Cundick Spring indicate that it is a flowing source during the spring which should coincide with the period of highest recharge for the water table. In years of little snowfall, drought and during summer months there is little or no flow with standing water only in the spring. A horizontal well was drilled into Cundick Spring in the summer of 1978 consisting of about 80 feet of 1½ inch pipe. No testing of the well has been done and no pipeline has been constructed to a trough off the boundary as was originally planned. Piping water away from Cundick Spring where surface water is available should not lower the water table more than normal spring flow unless the well has a siphoning effect or is reaching water which would not normally be flowing from the spring. The seep is not flowing. Therefore, a horizontal well in the seep could cause an abnormal drain on the water table with potential adverse impact on the environment.

The hydrophilic environment has an intrinsic value, a natural purpose, and is an interacting part of the monument ecology. Therefore, its significance should not be underestimated and no action taken without sufficient knowledge which could result in loss or damage to this micro-environment.

Under the circumstances there are no mitigating measures apparently available which would effectively alleviate adverse impact.

Once a permit is given and water committed, the water right would be diluted or possibly given away. The amount of water to be obligated for stock use would certainly become contestable.

Utilization of such resources from monument lands by commercial interests would seem to be in violation of the direction in Public Law 95-250 from the Congress to take no action that is in derogation of the values and purposes for which the monument was established.

In the March 1977 Statement for Management, Fossil Butte National Monument, management objectives are stated as follows:

Protect and preserve within the constraints of the enabling legislation all elements of the natural and historic resources of Fossil Butte National Monument.

Develop an interpretive program and facilities that bring the visitor in contact with fossils in place and that enable the visitor to understand this geological period in juxtaposition with others (well represented in the National Park System) and in context with mans moment in the immense evolvement of ecosystems during earth's existence.

D. Recommendation:

In view of the foregoing circumstances and uncertainty of impacts to the monument resources, Alternative 1 "No Action" is recommended as the environmentally preferable alternative.

E. Finding of No Significant Impact:

The decision reached would not result in a large scale significant adverse impact on the environment and is not a major federal action and accordingly an environmental impact statement will not be prepared.

F. List of Preparers:

Roger L. Martin, Supt. Fossil Butte National Monument
Robert Kasperck, Compliance Officer, RMR

G. Consultation and Coordination with Others:

Harley Metz, BLM Range Conservationist, Kemmerer, WY
Royce Wheeler, BLM Range Conservationist, Alamosa, CO

H. References Cited:

Archeological Resources On Fossil Butte National Monument in Southwestern Wyoming by George M. Zeimens

Geology of the Sage and Kemmerer 15-Minute Quadrangles, Lincoln County, Wyoming Rubey, Oriel, Tracey, Jr.

The Geologic History of Fossil Butte National Monument and Fossil Basin Prepared by Paul O. McGrew and Michael Castilliano

Feasibility of Developing Ground Water Supplies In Fossil Butte National Monument, Wyoming by Peter W. Huntton

Draft General Management Plan, Fossil Butte National Monument United States Dept. of the Interior, National Park Service. Denver Service Center

Ground Water and Wells Johnson Division U.O.P.

Soil Survey - Fossil Butte National Monument - Lincoln
County, Wyoming Soil Conservation Service

Recommended

Superintendent, FOBUS

Date

Approval

Regional Director

Date