To: File, DILTS RANCH COMPANY, OBJECTION TO NPDES PERMIT NO. WY0049255, Docket No. 03-3800

From: Joe Girardin

Date: December 9, 2004

Re: Closing DILTS RANCH COMPANY, OBJECTION TO NPDES PERMIT NO. WY0049255, Docket No. 03-3800

During the public comment period for NPDES permit no. WY0049255 the Department of Environmental Quality (Department) and the Environmental Quality Council received a letter from Dilts Ranch Company commenting on the permit. This comment was mistaken for an objection and this case file was created. As the EQC hasn't received any objections to this permit after the permit was issued, the EQC does not have jurisdiction to hold a hearing.

Therefore, with this memo, the EQC is closing this file and removing it from the docket.

LAW OFFICES
LONABAUGH AND RIGGS
SUITE 110, 50 EAST LOUCKS STREET
DRAWER 5059
SHERIDAN, WYOMING 82801

TELEPHONE (307) 672-7444
FAX (307) 672-2230
E-MAIL: Lawyers@Lonabaugh.com

DAN B. RIGGS
JEFFREY J. GONDA
ROBERT G. BERGER
ROBERT W. BROWN
HAULTAIN E. CORBETT
THOMAS J. KLEPPERICH*
JONATHAN A. BOTTEN**

LORI A. McMULLEN
DAVID C. SMITH*
MICHAEL C. STEEL

* ADMITTED IN COLORADO
** ADMITTED IN MONTANA

E. E. LONABAUGH
(1861-1938)

A. W. LONABAUGH
(1896-1971)

RETIRED:
E. E. LONABAUGH

#03-3800

February 14, 2003

Department of Environmental Quality
Water Quality Division
Attention: Leah Krafft
Herschler Building - 4W
122 W. 25th Street
Cheyenne, WY 82002

VIA FAX & CERTIFIED MAIL
(307) 777-5973

FILED
FEB 20 2003
Terri A. Lorenzon, Director
Environmental Quality Council

Re: **Objection to NPDES Permit No. WY0049255**
Phillips Petroleum Company
Antelope Creek Water System
Converse County, Wyoming

Dear Ms. Krafft:

This office represents the Dilts Ranch Company of Douglas, Wyoming. Our client owns lands along Antelope Creek downstream of Phillips Petroleum Company's ("Phillips") proposed Antelope Creek Water System.

This is the third time our client has objected to a proposed permit for the Antelope Creek Water System. By letter dated May 25, 2001, we objected on behalf of our client to issuance of NPDES Permit No. WY0044008. By letter dated September 26, 2001, we objected on behalf of our client to Phillips' revised application for NPDES Permit No. WY0044008. We are now objecting to issuance of NPDES Permit No. WY0049255, which is a further revision of earlier permit applications.

We recognize that the current application by Phillips contains far more detail than prior applications. Further, we appreciate DEQ's efforts to evaluate the permit application and impose conditions on the application which are designed to protect downstream agricultural uses. Nevertheless, our client believes that WY0049255, as currently submitted, does not adequately demonstrate that Phillips' proposed project will not harm downstream agricultural uses, will not degrade water quality in the Antelope Creek and Cheyenne River drainage system, and will adequately protect existing crop and livestock production.

Factual Background

The Dilts Ranch Company owns land along approximately eight miles of Antelope Creek in Converse County, Wyoming, immediately downstream of Phillips' proposed discharged point. Our client runs a cattle and sheep operation on these lands and other lands in Converse County.

The Dilts Ranch Company holds two water permits in Antelope Creek. Permit No. 21386 is an adjudicated right to irrigate 36.0 acres in Sections 10 and 11, T40N/R73W. Water is diverted out of Antelope Creek through the Jack No. 1 Ditch at a point located approximately 2.8 miles downstream from Phillips' proposed discharge point. Permit No. 5797 is an unadjudicated right to irrigate 37.0 acres in Sections 12 and 13, T40N/R73W. Water is diverted from Antelope Creek through the Datus Ditch at a point located approximately 4.8 miles downstream from Phillips' proposed discharge point. In addition, our client has two spreader dikes in the Antelope Creek drainage which, in the past, have been used to spread the natural flow of Antelope Creek onto its lands.

Over the course of the last several months, Mr. Steve Dilts, President of the Dilts Ranch Company, has had a number of discussions with Phillips' employees and consultants concerning mitigation measures which would help protect the Dilts Ranch Company's operations and the possibility of using produced water to irrigate test plots on the Dilts Ranch Company's surface estate. The Dilts Ranch Company has also permitted Phillips to survey and conduct water and soil tests on its lands. Unfortunately, Phillips has thus far refused to enter into any binding commitments with the Dilts Ranch Company which would address any of our client's concerns about possible adverse effects to its operation caused by Phillips' proposed project.

The Regulatory Standard

As you know, Chapter 1 of the Water Quality Rules and Regulations of the Department of Environmental Quality govern quality standards for surface waters in the State of Wyoming. Section 20 of Chapter 1 provides, in relevant part, as follows:

> **Section 20. Agricultural Water Supply.** All Wyoming surface waters which have the natural water quality potential for use as an agricultural water supply shall be maintained at a quality which allows continued use of said waters for agricultural purposes.

> Degradation of such water shall not be of such an extent to cause a measurable decrease in crop or livestock production.
>
> Unless otherwise demonstrated, all Wyoming surface water shall have the natural water quality potential for use as an agricultural water supply.

Further, under Option 2 of the Coalbed Methane Permitting Options, effluent limits established by the DEQ must be protective of all of the designated uses defined in Chapter 1 of the Wyoming Water Quality Rules and Regulations, including drinking water, game and nongame fish, fish consumption, aquatic life other than fish, recreation, agriculture, wildlife, industry, and scenic value.

Summary

Phillips' proposed Antelope Creek Water System is a massive transbasin diversion of produced ground water from the Powder River and Belle Fourche drainages to the surface in the Cheyenne River drainage. The discharge of produced CBM water proposed by Phillips has the potential to affect over 205 miles of Antelope Creek and the Cheyenne River, from the discharge point immediately above Dilts Ranch Company lands all the way to the Angostura Reservoir in South Dakota, for a period of time in excess of 20 years. Figure 2 in the Phillips application indicates that Phillips proposes to collect produced CBM water from wells located as far as 70 miles away from the discharge point. The estimated collection area shown on Figure 2 consists of at least 40 townships, or almost one million acres. The actual quality of the water which Phillips proposes to collect from CBM wells is currently unknown.

The potential effects of this project on the Antelope Creek and Cheyenne River drainages are currently unknown. Unfortunately, despite the assurances of Phillips and its consultants that the effects of this project are benign, and despite DEQ's best efforts to condition the proposed permit in order to protect downstream land and water uses, the science is not certain; water chemistry in the Cheyenne River drainage, the effects of sodic and saline water on irrigated lands and crops, and the potential adverse effects of changing Antelope Creek and parts of the Cheyenne River from ephemeral to perennial streams are not well understood. For the specific reasons described below, the Dilts Ranch Company believes that Phillips has not adequately demonstrated that its huge project will not adversely affect downstream lands, water, vegetation communities, or irrigated crops.

Further, in view of the scientific uncertainty as to the long-term effects of this project on downstream landowners, the project should not be lightly approved by the DEQ. Essentially, Phillips is asking the DEQ and downstream landowners to participate in a huge experiment for the economic benefit of Phillips. Unfortunately, all of the risk in the event that the experiment goes awry is placed on the downstream landowners. Further, in the event that the project harms downstream lands and vegetation, the owners of those lands will have the burden of proving damage (including but not limited to reduced crop yields, loss of livestock, increased agricultural operation costs, death of cottonwoods, instability of stream banks, and changes in riparian vegetation), seeking compensation from Phillips, and attempting to remediate any damage caused by Phillips' discharge of produced water.

Under the circumstances, Dilts Ranch Company believes that DEQ has no choice but to deny Phillips' application in its current form.

Objection

The Dilts Ranch Company objects to issuance of proposed NPDES Permit WY0049255 for the following reasons:

1. **Phillips Has Not Adequately Considered the Effect of Ice Jams.** By turning Antelope Creek and sections of the Cheyenne River from ephemeral streams into perennial streams, the possibility exists that during winter and spring conditions, ice jams will cause produced CBM water to spread out across fields and pastures. For illustrative purposes, attached as **Exhibits 1A and 1B** are photographs of flooding of produced CBM water caused by ice jams in the Spotted Horse Creek drainage in northeastern Wyoming in January 2001. The possible adverse results from such ice jams include the pooling of poor quality produced water on fields and pastures with resulting damage to soils and vegetation; loss of or injury to livestock either as a result of slipping on ice or getting bogged down; and potential damage to cottonwood trees resulting from long-term inundation. Attached as **Exhibits 2A and 2B** are photographs of the same fields in Spotted Horse Creek subjected to the flooding depicted on Exhibits 1A and 1B. In those fields, cottonwood trees have been killed as a direct result of flooding of produced CBM water. It is certainly possible that the same results may occur in the Antelope Creek and Cheyenne River drainages.

In its application (pages 22 and 23; Appendix E - Riparian Vegetation Analysis, page 3), Phillips leaves the problem of ice jamming virtually unaddressed, except to state that it will be prepared to break up ice in order to prevent pooling and potential problems. As a practical matter, the Dilts Ranch Company questions whether Phillips has the necessary

manpower and resources to address ice jamming and break up ice jams on the entire 205 miles of the affected reaches of Antelope Creek and the Cheyenne River.

2. **Phillips Has Failed to Adequately Address Potential Loss of Cottonwoods.** Cottonwood trees are important to landowners in the Cheyenne River drainage. Not only do cottonwoods provide summer shade and winter shelter for livestock, they also provide wildlife habitat and scenic beauty. DEQ is obligated to protect cottonwoods and the positive benefits provided by cottonwoods.

The Phillips application (Appendix E - Riparian Vegetation Analysis, page 3) admits that ice buildup during the winter and damming during spring thaw may periodically create pools of water that inundate vegetation, including cottonwoods. Phillips also admits that cottonwood seedlings suffer heavy mortality after a few days or weeks of flooding. With respect to flooding caused by ice jams, Phillips states that it intends to break up ice if damming causes problems (Appendix E - page 3). As noted above, the Dilts Ranch Company doubts that this is a practical solution to the potential problem.

The Niobrara Conservation District ("NCD") has provided thoughtful comments on this application to DEQ which, among other things, address potential loss of cottonwoods. The scientists with NCD conclude that increased flows in the Antelope Creek and Cheyenne River drainages will inundate the recruitment of young cottonwood that have established both on the gravel bars and the channel as well as in grass stands along the channel edge. Phillips also admits that cottonwood saplings are intolerant of salinity (Appendix E - page 9). Thus, cottonwoods are threatened not only by increased quantity of water, but also decreased quality of the water which Phillips proposes to discharge in the Cheyenne River drainage.

A second question arises with respect to a potential rise in the alluvial water table caused by Phillips' discharge. Phillips admits that the water table varies from zero to over 10 feet below surface along the channel on low terraces in the Cheyenne River drainage. However, Phillips rather summarily concludes that because the cottonwoods occur on flood plains which are several feet higher than the channel, cottonwood trees will not be inundated by CBM water. NCD, on the other hand, has found all age classes of cottonwoods very close to the channel along sandbars and lower benches of the Cheyenne River drainage. NCD also suggests that alluvial flow away from the river supports the mature stands of cottonwoods on the upper terraces, as well as near the stream channel.

Phillips' only proposal to address potential loss of cottonwood trees is to design and implement a cottonwood/riparian monitoring plan (Appendix E - page 11). However, Phillips makes no further commitments with respect to potential loss of cottonwoods. If, for example, long-term monitoring shows loss of cottonwood, will Phillips abandon its Antelope Creek Water System project? Dilts Ranch Company questions how one can mitigate for the loss of mature cottonwoods, which are irreplaceable. Similarly, the loss of cottonwood seedlings or saplings could mean long-term change in the biodiversity of the riparian areas affected by Phillips' discharge.

The Dilts Ranch Company would respectfully submit that the Phillips application has not adequately studied and does not adequately address potential loss of cottonwood trees along Antelope Creek and the Cheyenne River. The result could be significant adverse effect to its ranching operations on Antelope Creek, and to the vegetation and wildlife biodiversity in the entire Cheyenne River drainage.

3. **Fence, Road and Livestock Crossings.** By turning Antelope Creek into a perennial stream, Phillips' proposed project will impair the Dilts Ranch Company's ability to cross the stream channel with vehicles and with livestock. As a result, the Dilts Ranch Company will need appropriately designed and constructed livestock and vehicle crossings in at least seven locations along Antelope Creek. Further, increased flow in Antelope Creek will likely wash out fences which currently cross Antelope Creek and which separate various pastures and the lands of the Dilts Ranch Company from the lands of its neighbors. Both vehicle crossings and fence crossings will require periodic maintenance. Despite the assurances given to DEQ in its application, Phillips has thus far declined to enter into binding agreements or commitments to construct crossings or to maintain crossings or fences. The Dilts Ranch Company believes that any permit issued to DEQ should be conditioned on pre-discharge commitment by Phillips to construct and maintain fence, road and livestock crossings to all affected landowners.

4. **Phillips' Water Quality Monitoring Appears to be Based on Insufficient Data.** In its comment on the Phillips application, the Niobrara County Conservation District has disagreed with the methodology used by Phillips' consultants to model water quality in the Cheyenne River drainage. Further, NCD does not believe that the model is representative of water quality in the whole drainage, and suggests that there is not enough historical or current data to satisfactorily model water quality to the degree of accuracy attempted by Phillips' consultants. NCD further suggests that the predictable relationship between flow and electrical conductivity (EC) and between EC and sodium adsorption ratio (SAR) constituents assumed by the Phillips model does not exist. NCD scientists argue that more

data should be collected in order to accurately assess the water chemistry in the Cheyenne River watershed and that the lack of information available to Phillips and DEQ makes it impossible for Phillips to prove that the irrigation and alluvial waters of the Cheyenne River drainage will be protected if Phillips discharges produced CBM water as proposed in its application. The Dilts Ranch Company adopts NCD's objections in this respect. We would suggest that DEQ should not issue the proposed permit to Phillips until adequate baseline information has been collected over a sufficient period of time to adequately address the questions raised by NCD.

5. **The Proposed Discharge Limits are not Protective of Future Irrigation Methods.** The discharge permit proposed by DEQ creates lower limits for EC and SAR (2,000 uohms/cm and 10, respectively) when the volume of water at the irrigation compliance points are high enough to permit irrigation. The first irrigation compliance point is at or above the inlet of the Jack No. 1 Ditch, which, in the past, has irrigated Dilts Ranch Company lands. Phillips has calculated that it will take 344 cfs of water in Antelope Creek before the Jack No. 1 Ditch will accept and transport water to Dilts Ranch Company lands. However, by requiring lower EC and SAR limits only at elevated flows, DEQ will have effectively precluded Dilts Ranch Company from employing some other method of water diversion which will allow irrigation at lower flows in Antelope Creek. For example, like other irrigators further downstream, Dilts Ranch Company may in the future wish to use pumps to lift water from the river for irrigation purposes. By requiring lower EC and SAR limits only during high flow events, the permit may effectively preclude the Dilts Ranch Company from using a different method to irrigate its lands. Accordingly, the Dilts Ranch Company would respectfully submit that both for it and for downstream landowners, the most protective limitation would be to impose the lower EC and SAR limits of 2,000 and 10, respectively, along the entire reach of Antelope Creek and the Cheyenne River drainage, regardless of flow conditions in the drainage.

6. **The Baseline Soil and Water Monitoring Required by the Permit is Inadequate.** Under the terms of the proposed permit, Phillips is required to commence water and soil monitoring prior to the commencement of discharge in order to establish baseline levels. Phillips must begin to collect baseline data within three months of permit issuance and prior to discharge. However, the permit does not state the period of time baseline data must be collected before discharge may commence. The Dilts Ranch Company joins with the objection of the Niobrara Conservation District that this is not an adequate time frame to collect the baseline data set for a watershed demonstrating such extreme variability over time as the Cheyenne River drainage. The Dilts Ranch Company agrees with NCD that the baseline data set should be collected for a significant period of time prior to discharge.

7. **Phillips Has Not Adequately Demonstrated How it Will Meet Permit Effluent Limits.** Phillips' plan calls for "blending" water produced from various CBM wells in order to meet the effluent limitations contained in the proposed permit, and in particularly the proposed EC limits of 2,500 uohms/cm and SAR of 15 (2,000 uohms/cm and SAR of 10, respectively, at the irrigation compliance points during those periods of time when it is possible to withdraw irrigation water from the stream).

a. Monitoring Requirements are Inadequate. Under the proposed permit, Phillips is required to monitor water quality weekly and report results monthly. Further, Phillips has represented that it will install continuous monitoring equipment to measure flow, SAR and EC on a real-time basis at the inlet of the Bell No. 2 Reservoir, the point of discharge into Antelope Creek, the irrigation compliance points, and the water quality monitoring locations. The problem, however, is that, by Phillips' own admission (Attachment 2, December 4, 2002 Responses to DEQ Comments) continuous real-time monitors for SAR and EC are not yet currently available, and may not be available in the future. Accordingly, if such technology is unavailable or unreliable at the time that Phillips begins discharging produced water, Phillips, DEQ, and the downstream landowners will have to rely on the weekly grab samples and the monthly reporting required by the permit. The permit proposed by DEQ requires that when SAR or EC values come with 20% of permit limits, Phillips must cease discharge. Depending on the length of time it takes to analyze grab samples, it could be several weeks or up to a month before DEQ and downstream landowners learn of an "upset" when EC and SAR limitations have been exceeded. During that lag time, huge volumes of noncompliant water could be flowing down the Cheyenne River drainage, with resultant damage to downstream lands, vegetation, and crops.

DEQ's proposed permit, in Special Condition No. 8, explicitly recognizes that the efficiency, accuracy, and practicality of much of the proposed monitoring equipment is not currently available. The Dilts Ranch Company would suggest that the permit should not issue unless and until such equipment is both available and demonstrated to be reliable. Absent the availability and reliability of such equipment, discharge quality cannot be adequately monitored so as to avoid exceeding discharge limits.

b. Phillips' Contingency Plan to Avoid System Upset is Inadequate. In response to a specific request from DEQ, Phillips has prepared a contingency plan in order to prevent violation of permit discharge limits (Attachment 2, December 4, 2002 Responses to DEQ Comments). However, this contingency plan raises more questions than it answers.

First, in the event that water quality limitations are exceeded, and discharge into Antelope Creek is terminated, the ability of the Bell No. 1 and Bell No. 2 Reservoirs to hold sufficient water is dependent on the upstream volume of water coming down to those reservoirs.

Phillips has represented to DEQ that the maximum quantity of water in the pipeline is 7.5 acre feet (Response 9, December 4, 2002 Responses to DEQ Comments). Elsewhere, however, the capacity of the pipeline is recited to be 6.4 acre feet (Attachment 2 to December 4, 2002 Responses to DEQ Comments, page 3). In either event, however, the capacity of the pipeline system assumes that the main pipeline is only 20 miles long and 24 inches in diameter. Figure 2 attached to the Phillips application demonstrates that CBM water may be collected from as far away as 70 miles from the Bell No. 1 and Bell No. 2 Reservoirs. Clearly, the collection system which will be filled with produced CBM water will be many times longer than 20 miles, and therefore will contain a much higher volume of produced water than that represented by Phillips.

Further, Figure 1 attached to the Contingency Plan indicates the main pipeline could be 36 inches in diameter, which would result in a greater volume of water in the pipeline than represented by Phillips. This, in turn, raises questions about the capacity of the Bell No. 1 Reservoir to hold pipeline capacity in the event SAR and EC limits are exceeded and discharge into Antelope Creek ceases.

Phillips represents that a valve will exist between each group of CBM wells and the main header, and the valve can be closed if necessary for operational reasons or compliance issues. Phillips does not describe, however, how such valves might be closed, or the time it might take to shut off incoming water. Will the valves be automatic or manual? If so, will Phillips personnel have to drive from Casper or Gillette in order to close valves in the event that water discharged into Antelope Creek exceeds permit limitations? Phillips

does not state the time which might be required in order to respond to a water quality upset at the discharge point.

Phillips' contingency plan extensively relies on what is termed a Supervisory Control and Data Acquisition (SCADA) system in order to provide continuous monitoring of EC and SAR measurements at the inlet of the Bell No. 2 Reservoir and the discharge point into Antelope Creek. Phillips represents that the system will provide alarming functions if monitoring of EC or SAR comes within 5% of discharge limits. This would appear to be inconsistent with the permit requirement that water discharge cease if water quality comes within 20% of permit limits. Further, Phillips provides no information on the availability or reliability of such a SCADA system, except to note that technology is currently unavailable for continuous monitoring of SAR and EC.

The Dilts Ranch Company would respectfully submit to DEQ that, despite the assurances contained in the Phillips application, because of the technology for continuous SAR and EC measurement is currently unavailable, and because Phillips has not adequately described how it will control a complex piping and valving system extending as much as 70 miles north from the Bell No. 2 Reservoir, Phillips' contingency plan is inadequate, and, in the event that permit limitations are exceeded, particularly with respect to EC and SAR, Phillips will not be able to cease the discharge of produced water in sufficient time to avoid damage to downstream lands and vegetation.

Conclusion

For the foregoing reasons, the Dilts Ranch Company respectfully requests that DEQ decline to issue NPDES Permit No. WY0049255 to Phillips Petroleum Company.

Thank you for your attention to this matter. Please advise us of the action which DEQ takes with respect to the application.

Very truly yours,

LONABAUGH AND RIGGS

By: Haultain E. Corbett

HEC:bw

cc: Dilts Ranch Company
Environmental Quality Council - Attn: Terri Lorenzon
Phillips Petroleum Company
Niobrara Conservation District

EXHIBIT 1-A - Winter flooding of CBM water caused by ice jams

Spotted Horse Creek
Campbell County, Wyoming
January 25, 2001

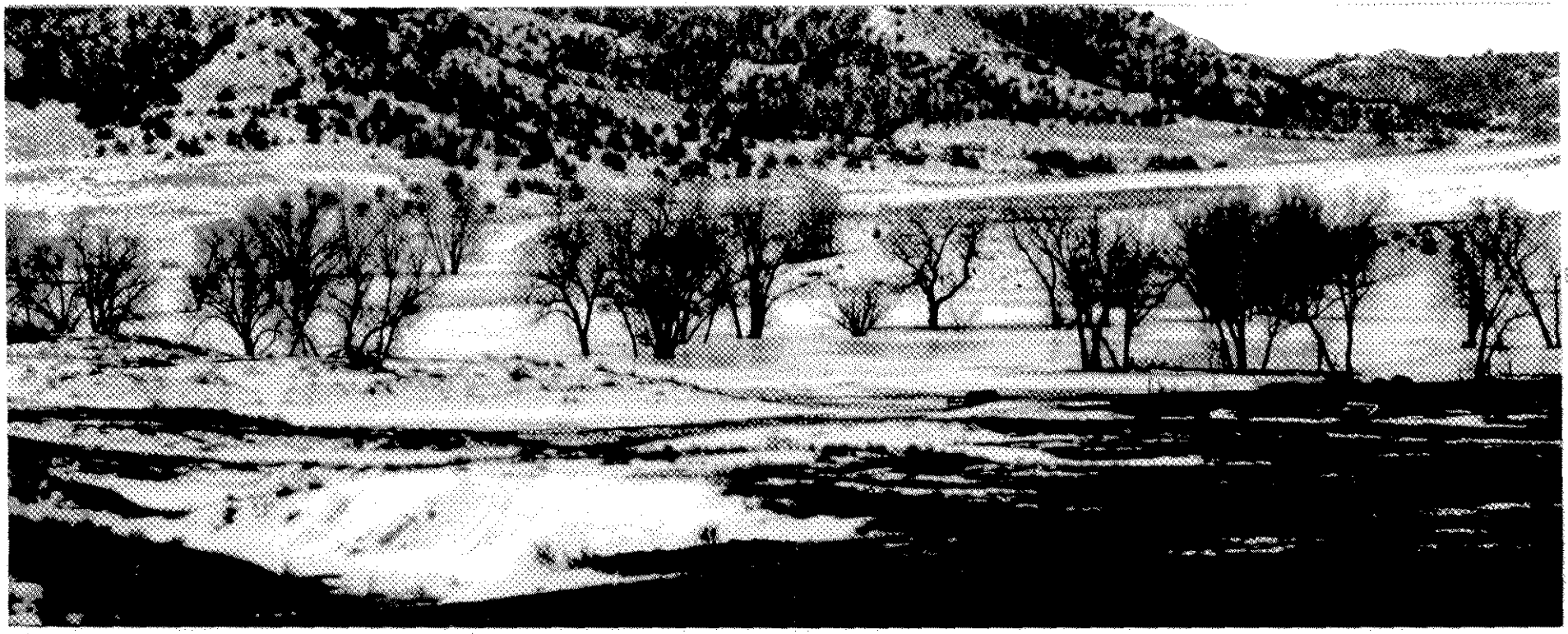

EXHIBIT 1-B - Winter flooding of CBM water caused by ice jams

Spotted Horse Creek
Campbell County, Wyoming
January 25, 2001

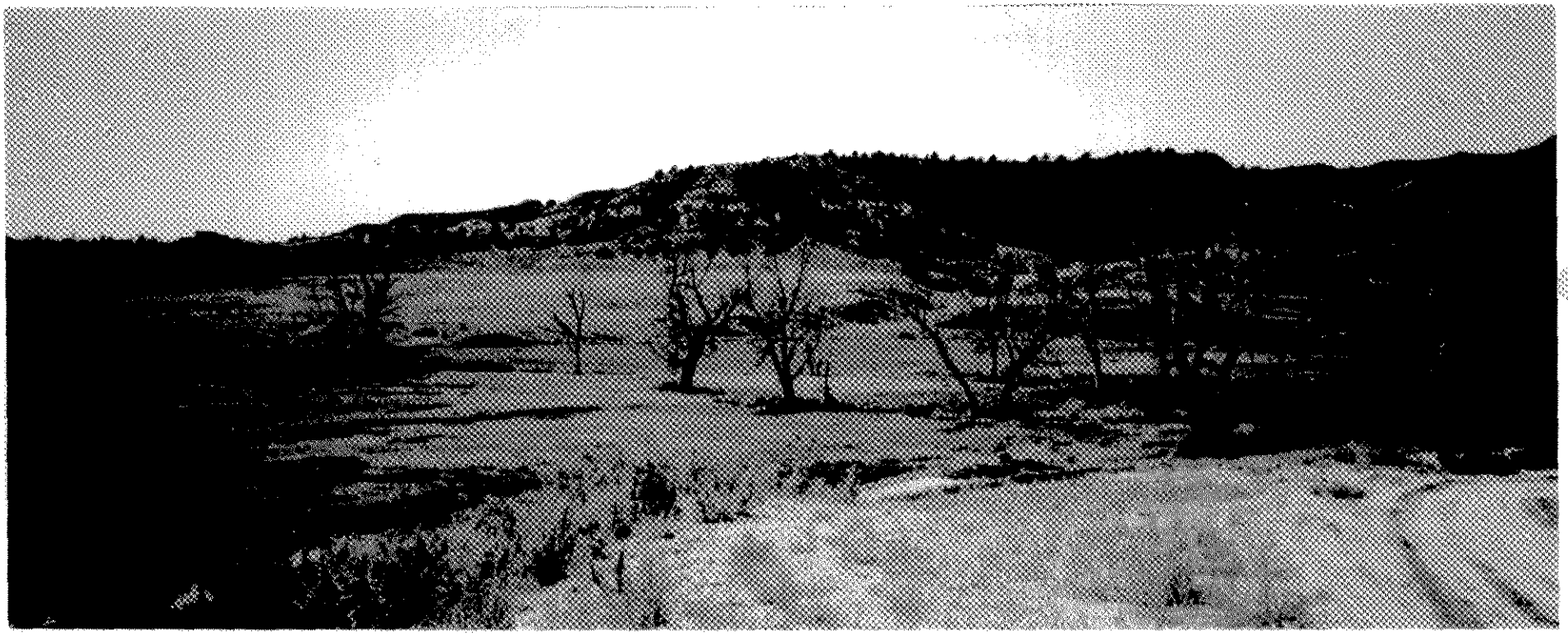

EXHIBIT 2-A - Cottonwood trees killed by winter flooding of CBM water caused by ice jams

Spotted Horse Creek
Campbell County, Wyoming
August 2001

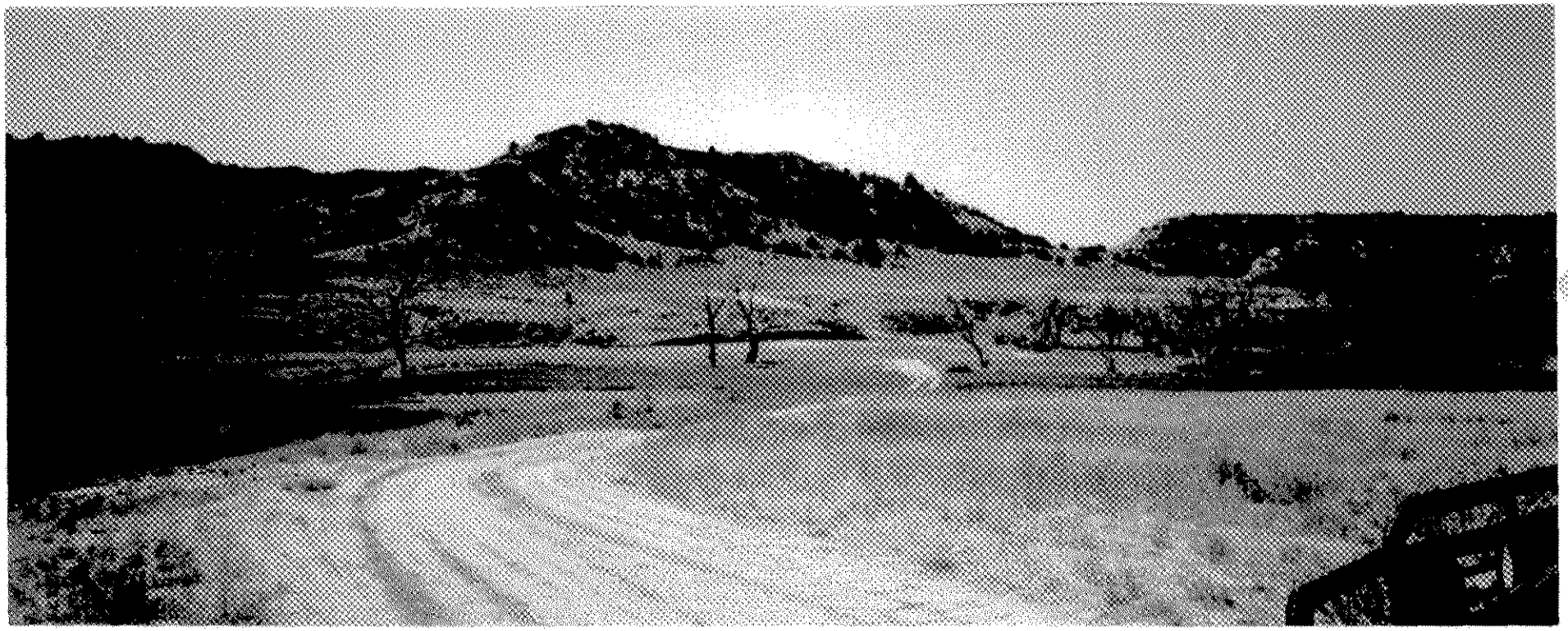

EXHIBIT 2-B - **Cottonwood trees killed by winter flooding of CBM water caused by ice jams**

Spotted Horse Creek
Campbell County, Wyoming
August 2001