MINUTES OF THE MEETING
LONG-RANGE PLANNING SUBCOMMITTEE
MONTANA STATE
HOUSE OF REPRESENTATIVES

March 15, 1985

The meeting of the Long-Range Planning Subcommittee was called to order by Chairman Robert Thoft on March 15, 1985 at 5:22 p.m. in Room 108 of the State Capitol.

ROLL CALL: All members were present except for Senators Van Valkenburg, Fuller and Tveit who were excused.

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, LEGACY PROGRAM PROJECTS

City of Red Lodge, Park Revegetation and Irrigation, Project 15: A description of this project can be found on pages 49, 50 and 51 of the Legacy Program Book (Exhibit 1, 3-14-85).

Proponents: Edrie Vinson (82:A:018), Red Lodge resident, showed the committee pictures of the coal slag pile which has been reclaimed and will be made into a community park. Ms. Vinson gave the committee numerous letters of support from Red Lodge citizens (EXHIBIT 1).

Representative Gary Spaeth (82:A:038), District 84, said this project is truly a reclamation project and will create an area to be used for public benefit.

There were no opponents to the project.

Department of Fish, Wildlife and Parks, Gartside Dam Repair, Project 26: Caralee Cheney (82:A:065), Chief, Water Development Bureau, Water Resources Division, Department of Natural Resources and Conservation (DNRC) introduced this project which is on pages 70, 71 and 72 of the program book.

There were no proponents or opponents to this project.

Don Hyyppa (82:A:085), Administrator, Parks Division, Department of Fish, Wildlife and Parks (FW&P), said a number of the Legacy Program projects proposed by FW&P were heard by the committee during the department's presentation on the Capital Construction Program. He suggested the committee skip over these projects to save time, unless there are witnesses present to give testimony on them. The FW&P projects are 37, 39, 42, 43, and 44.

University of Montana, Impacts of Natural Resource Development to the Montana Beekeeping Industry, Project 27: Ms. Cheney (82:A:104) explained this project which is on pages 72, 73, and 74 of the program book.

Proponents: Jerry Bromenshenk (82:A:129), Associate Professor of Research, Department of Zoology, University of Montana (UM), submitted written testimony (EXHIBIT 2).

Paul Peterson (82:A:193), Manager, Arrowhead Acres, Deer Lodge Valley, said the apiary has between 1,200 and 1,400 bee colonies. He said commercial beekeepers in this area have lost many colonies of bees as a backlash effect of the cleanup operation at the Anaconda Smelter. He said environmental conditions were actually better when the smelter was operating because ponds used by the smelter were maintained. Now these ponds have dried up and the dust from them is blown throughout the entire Deer Lodge Valley. Mr. Peterson said the ponds are a potential hazard during cloud bursts because the ponds fill with water and then the water runs off and into the Clark Fork River. He said he would like to see the base line study funded because once it is completed, it will be of great benefit to the public.

There were no opponents to the project.

Committee Discussion: Chairman Thoft (82:A:238) asked if the ponds can be damned so that water from cloudbursts does not run into the Clark Fork River. Mr. Peterson said he did not know, but there are 6,000 acres of ponds which would have to be damned.

Representative Bardanouve (82:A:252) asked if the proposal offers any solutions to the pollution problems. Mr. Peterson said the base line study with the bees will supply information which should be helpful in measuring future pollution problems.

Representative Bardanouve asked if the ponds are responsible for the bee colonies dying. Mr. Peterson said the ponds might be one of the reasons for this. Representative Bardanouve asked if the Environmental Protection Agency (EPA) will ask to have the ponds cleaned up. Mr. Bromenshenk said EPA will not do this until the ponds are determined to be the source of the problem. The purpose of the study is to determine the source of the pollution. The bees will help to identify where the pollutants are coming from.

Chairman Thoft (82:A:292) asked if the beekeepers are willing to sacrifice bees for the sake of the study. Mr. Peterson said bees have a tremendous ability to bounce back through reproduction and he is continually enlarging

his operation to areas which are not affected.

Chairman Thoft asked if the honey produced by the bees contains arsenic. Mr. Peterson said no because the bee body filters it out.

Representative Bardanouve (82:A:308) asked how the keepers figure the number of bees lost. Mr. Peterson said a colony of bees is between 40,000 and 75,000 bees and there are 3,500 bees in one pound of bees.

Triangle Conservation District, Expanded State Salinity Program, Project 28: Ms. Cheney (82:A:332) introduced this project which is on pages 74, 75, and 76 of the program book. DNRC is only recommending funding for the startup cost of field offices. The department does not want the Legacy Program to be an ongoing funding source for the project.

Proponents: John Zinne (82:A:366), said he is appearing on behalf of the Triangle Conservation District and he gave the committee information on the Expanded Salinity Program (EXHIBIT 3).

Butch Andresen (82:A:421), from Poplar, is a member of the Northeastern Saline Seep Organization. He spoke as a proponent of the project and explained the Potential Growth Rate of Saline Seep Acreage and Associated Potential Loss In Cash Input Costs (EXHIBIT 4).

Senator Bob Williams (82:A:475), District 15, said the thing he appreciates about the Triangle Conservation District program is that it is trying to preserve drinking water. The town of Geraldine is having problems with its drinking water because of saline seep. He said he supports this program for the following reasons: 1) the farmers involved with the program are paying 30 percent of the technical assistance cost; 2) the program is beyond the research stage and is using state of the art techniques for a solution; and, 3) other counties are seeking the district's help.

Senator Delwyn Gage (82:A:528), District 5, said this program originated in the area he represents. Senator Gage said the positive effects of the program are: 1) it increases income tax for the state, and, 2) it increases the tax base of counties. He said he believes an ounce of prevention is worth a pound of cure and the saline seep problem needs to be brought under control. The growth rate of saline seep is 10 percent per year.

Representative Loren Jenkins (82:A:599), District 13, said he is very supportive of the program. The town of Geraldine is in his district and it has a water quality problem because of saline seep. He said the town of Big Sandy is on the edge of having the same problem. Representative Jenkins said farmers need to be educated on how to cure this problem of saline seep.

Representative Bardanouve (82:A:627) said he is also a proponent of this project.

There were no opponents to the project.

Glen Lake Irrigation District, Therriault Creek Syphon Construction, Project 38: A description of this project is on pages 91, 92, and 93 of the program book.

Proponents: Representative Mary Lou Peterson (82:A:700), District 1, said the irrigation district has been improved and because of this, the farmers are bonded at $20/acre. The sloughing line of the creek is over a mile long and the syphon will help to overcome this problem. Representative Peterson submitted additional information on the project (EXHIBIT 5).

Joe Purdy (82:B:007), ditch commissioner and rancher in the Eureka area, gave the committee several letters of support for this project (EXHIBIT 6). Mr. Purdy showed the committee pictures which illustrated the sloughing problem. He said the sloughing is occurring before reservoirs which are used to store irrigation water. If the ditch bank gives and the reservoirs are flooded, the loss of water to the ranchers will be devastating. The ranchers in the area cannot afford to buy hay if they are unable to irrigate their fields.

Ian Jeffcock (82:B:037), Ditch Manager, Glen Lake Irrigation District, said the district is trying to stay on top of the problem. He said maintenance cannot be done on the ditch because it is too unstable to get equipment on the bank. Other than monitoring the erosion, the situation cannot be improved unless the syphon is installed. Mr. Jeffcock said if this portion of the ditch is lost, 86 ranchers in the area will be completely shut down.

There were no opponents to Project 38.

Committee Discussion: Representative Bardanouve (82:B:062) asked if the district has tried using bentonite on the ditch. Mr. Purdy said yes, but the ground is too saturated and the banks too steep for this to be effective. Mr. Jeffcock said there are springs above and below the cut of the ditch which are causing the erosion, not the water in the irrigation canal.

Representative Bardanouve said he recalls the Legislature appropriating money for this ditch before. Representative Peterson said the Legislature appropriated money for a syphon on Sinclair Creek. The Therriault Creek project was also submitted before but did not receive funding.

Representative Bardanouve (82:B:101) asked if the land owners are proposing to fund a portion of the project. Mr. Purdy said the ditch is bonded up to $20/acre.

Chairman Thoft (82:B:108) asked what the total cost of water is to the ranchers. Representative Peterson said the water is free, but each rancher is paying $20/acre to get the water in the ditch and to their land.

Chairman Thoft asked the size of the syphon. Mr. Purdy said it is 46 inches. Chairman Thoft asked if the saturated ground can support the weight of the syphon. Mr. Purdy said the syphon will bypass 2 miles of the ditch and the ground it will be on is not saturated.

Whitefish County Water District, Whitefish River Cleanup, Project 32: Caralee Cheney (82:B:146) described this project which is on pages 81, 82, and 83 of the program book.

Proponents: Representative Mary Ellen Connelly, District 8, asked to be recorded as a proponent of this project (EXHIBIT 7).

Jo Messex (82:B:174) represents the Whitefish County Water District. She gave the committee a fact sheet on the clean-up project (EXHIBIT 8). She also submitted letters of support for the project (EXHIBIT 9). Ms. Messex said she believes administrative costs for the project can be cut. She said the community interest in this project is high and people are willing to donate the use of equipment and machinery needed to remove debris from the river. The water district will organize all the permits and private access needed to get the project accomplished. The project funds are needed to coordinate the entire cleanup effort.

Senator Bob Brown (82:B:302), District 2 , said the Whitefish area is used for tourism and the Whitefish River has been badly abused ever since the turn of the century. He said the river is unsightly and unclean. He said there is a lot of support in the Flathead Valley for the project.

Representative Ben Cohen (82:B:318), District 3, said two years ago Whitefish had a cleanup day on the river and nine cubic yards of garbage were pulled from 100 yards of the river.

Committee Discussion: Representative Bardanouve (82:B:349) said it is one of the most beautiful areas of Montana and it is a shame it has been abused and misused.

Representative Cohen (82:B:371) said he is also sick about the pollution problems which exist around Whitefish. He said he has lived there since 1972 and during this time no one has tried to misuse the lake or river. There have only been efforts to clean up problems inherited from people who polluted the river in the past.

Representative Bardanouve (82:B:384) asked why the community cannot have a bonding issue to raise funds for the project or pass a mill levy for this purpose. He said if the problem were in his backyard, he would support such an effort. Representative Cohen said the people are being taxed to the hilt and there are no impact funds being spent in this area. Ms. Messex said the business community in the area is paying for half of the project cost and labor will be donated.

Chairman Thoft (82:B:412) asked if the Soil Conservation Service (SCS) will be providing planning money for the project. Ms. Messex said SCS will tell the community what should come out of the river and what should not and SCS is willing to do this for no charge.

MSU, Reclamation Research Unit/MBMG, Acid Generation from Western Mining,Project 33: Caralee Cheney (82:B:445) described this project which is on pages 83, 84, and 85 of the program book.

Proponents: Frank Munshower (82:B:487), Director, Reclamation Research Unit, MSU, submitted written testimony on this project (EXHIBIT 10).

Henry McClernan (82:B:555), Acting Director, Bureau of Mines and Geology, said he helped Dr. Munshower prepare this project proposal. Mr. McClernan said this project will cover up old mine dumps or insulate them from the environment. He said the project will do this in a manner which will not create more problems in the future.

There were no opponents to the project.

Committee Discussion: Chairman Thoft (82:B:585) asked if there is a project similar to this one in the Renewable Resource Development (RRD) Program. Ms. Cheney said yes, there is.

Representative Bardanouve (82:B:594) asked if the Hard Rock Mining Act does not require the mine dumps to be reclaimed. Mr. McClernan said these dumps were created at the turn of the century before the Hard Rock Mine Act was in effect. Representative Bardanouve asked if the state does not receive $1 million in federal funds for this purpose. Mr. McClernan said yes, but it just does not stretch far enough to do this project. Dr. Munshower said the Abandoned Mine Lands Program has over $15 million for abandoned mine land reclamation, but, to date, the bureaucracy in Washington has not released it to Montana.

MSU, Reclamation Research Unit, Reclamation of Bentonite Mined Areas, Project 30: Ms. Cheney (82:B:630) explained this project which is on pages 78, 79, and 80 of the program book.

Proponents: Frank Munshower (82:B:662) said the original study for this project was funded in 1979 by the Bureau of Land Management. He said after one year of funding, the study was cut because of the federal budget crunch. The information from the original study is still available and this request is for a demonstration project to utilize the data gathered from the study.

There were no opponents to the project.

Committee Discussion: Representative Ernst (82:B:689) asked where the sites are which will be used in the project. Dr. Munshower said the bentonite sites are in southeastern Montana. Representative Ernst asked if all of the sites are abandoned. Dr. Munshower said yes.

Representative Bardanouve asked if anything will actually grow in bentonite. Dr. Munshower said wheat grasses and purple clover will grow in bentonite if wood chips are added to the soil about two feet deep. It takes 50 tons of wood chips per acre.

Representative Bardanouve (83:A:008) said farmers and ranchers will not want to spend thousands of dollars incorporating woodchips into land that is only worth $.50/acre.

DNRC, Conservation Districts Division, Soil Survey and Mapping Project, Project 31: Caralee Cheney (83:A:018) described this project which is on pages 80 and 81 of the program book.

Proponents: Ray Beck (83:A:029), Administrator, Conservation Districts Division, DNRC, spoke as a proponent (EXHIBIT 11) and gave members information on the status of soil surveys in Montana (EXHIBIT 12).

There were no opponents to this project.

Committee Discussion: Chairman Thoft (83:A:040) said the soil survey map in Ravalli County is an excellent piece of work. Representative Bardanouve said he has been told some of the maps are obsolete. Mr. Beck said some older maps do not need to be updated.

Representative Ernst (83:A:050) asked where funds for soil survey maps are currently coming from. Mr. Beck said they are funded through the Soil Conservation Service or federal funds. He said Montana is receiving more federal funds right now than any other state because there is so much more land that still needs to be surveyed. Mr. Beck said Montana has more land unsurveyed than some states had to survey.

Montana Bureau of Mines and Geology, Butte Mine Flooding Monitoring, Project 40: Ms. Cheney (83:A:064) explained this project by reading from pages 94, 95, and 96 of the program book.

Proponents: Henry McClernan (83:A:075) said he realizes this is a controversial project, but research needs to be done to determine what will happen to the ground and surface water in the Butte area as the pit is flooded. He said the research from the project will be used for mines in the Clancy area and another one between Butte and Dillon. He said most open pit mines are in arid climates and do not fill with water.

There were no opponents to the project.

Committee Discussion: Chairman Thoft (83:A:091) asked if work has been done to a 5' water depth only. Mr. McClernan said samples are also being done in the mine shafts and pit. Ted Duaine (83:A:095), Montana Bureau of Mines and Geology, said because the water level was so deep in the shafts to begin with, only the top 5' has been sampled. Now the water has risen 2,000 more feet and the bureau would like to sample the water further down in the column to see at what point it becomes stable.

Chairman Thoft asked if someone actually has to go down in the shaft to get the sample. Mr. Duaine said a wench or cable with special equipment is put down the shaft for the sample. He said the shafts are actually more accessible for sampling than the pit itself.

Representative Ernst (83:A:124) asked what the depth of the water is in the pit. Mr. Duaine said the last reading the bureau had is two months old and the water was in excess of 300 feet deep in the pit itself.

Mr. Duaine gave the committee information on the flood monitoring project (EXHIBIT 13).

Chairman Thoft (83:A:132) asked how long it will take before the water filling the pit might overflow. Mr. Duaine said he does not know exactly, but some estimates are for 30 years.

Representative Bardanouve (83:A:147) said the Anaconda Company created the Berkeley Pit and it should take care of the problems associated with it, not Montana. Mr. Duaine said the pit is giving researchers an opportunity to study the flooding and apply data gained from the project to other sites in the state. Mr. Duaine also said the mining industry can use the data gathered from this project. Representative Bardanouve said Montana should not be spending money to help ARCO; ARCO should be doing its own research. Ms. Cheney said the Department of State Lands does not feel regulations allow it to demand that ARCO get this data, but the department does feel the information will be helpful in assessing ARCO's liability in the situation.

MSU, Water Resources Research Center, Role of Clinker in Hydrogeology, Project 41: Ms. Cheney (83:A:192) described this project which is on pages 96, 97, 98, and 99 of the program book.

Proponents: Bill Woessner (83:A:211), Montana Water Resources Research Center, University of Montana, said clinkers are fractured material left in underground coal seams after the seams have burned for long periods of time. Clinkers are important to the hydrologic system in southeastern Montana, because they allow precipitation to seep into the groundwater system, and therefore, replenish aquifers which supply domestic water. Mr. Woessner used several diagrams to explain clinker deposits. He said in areas where clinkers are not present, there is very little recharging of the groundwater system and small amounts of water. Twenty percent of southeastern Montana is overlaid with clinker deposits of 1,000 square miles.

There were no opponents to the project.

Committee Discussion: Representative Ernst (83:A:331) asked if this study might preclude future coal mining. Mr. Woessner said he looks at the study as a management tool. The state cannot manage resources unless it understands the system which supports the resources. He said this study might help to determine which areas should be mined and which should not be mined.

Chairman Thoft (83:A:357) asked if clinkers are being made underground now. Mr. Woessner said yes, some coal seams are still burning, but most clinkers in southeastern

Montana are between 10,000 and 100,000 years old.

UM, Botany Department, Clark Fork Basin Sediment: Effect on Grasses, Project 46: Caralee Cheney (83:A:376) introduced this project which is on pages 104, 105, and 106 of the program book.

Proponents: Gary Ray (83:A:392) said he is currently doing a masters thesis on the Grant Kohrs Ranch National Historic Site in the Deer Lodge Valley. Mr. Ray submitted written testimony on this project (EXHIBIT 14). He said his masters thesis studies the effects of metal mining on plant distribution in Riparian zones and this will help him with this project.

There were no opponents to this project.

Committee Discussion: Representative Ernst (83:A:492) asked if the grasses will be grown in greenhouses at the university or on-site. Mr. Ray said the grass will be grown in the UM greenhouses and he will also use the college's lab facilities.

Chairman Thoft (83:A:504) asked if the grasses grown in the Deer Lodge Valley are toxic. Mr. Ray said yes, but the plants retain the metals in their roots and not in the upper portion. He said large amounts of copper can get into the upper part of the plant and can be hazardous to livestock operations.

Chairman Thoft (83:A:557) asked if animals in the area have been tested for various metals. Mr. Ray said research has been done on livestock in the Valley. He said he has analyzed small mammals and found they can acquire high levels of Cadmium in a period of 3 months to 1 year. Mr. Ray said no large scale sampling of livestock has been done in the Deer Lodge Valley.

Department of Fish, Wildlife and Parks, Clark's Lookout State Monument Development, Project 48: A description of this project can be found on pages 108 and 109 of the program book.

Proponents: Don Hyyppa (83:A:602) said Clark's Lookout is a Coal Tax Park project which was funded in the 1983 Session. He said FW&P submitted this project at the request of the National Lewis & Clark Trail Foundation, the business community of Dillon, and Representative Bill Hand. The proposal will develop this site.

Edrie Vinson (83:A:626), Secretary, Lewis & Clark Heritage Foundation, which has a nationwide membership of 700, said the foundation is hoping the site will be developed in time for the 1989 centennial celebration. She said Clark's Look-

out is one of the few places where a person can actually stand in the footsteps of Captain Clark. If it is developed, it will be a part of the trans-Northwestern tour proposed by the foundation. Ms. Vinson said the foundation feels the Legacy Program in an appropriate funding source for this project because the Lewis & Clark Expedition began the legacy of Montana.

There were no opponents to this project.

Committee Discussion: Chairman Thoft (83:A:680) asked if the road easement problem on the site has been resolved. Mr. Hyyppa said there was not any problem with a road easement, but there were some negotiating problems in purchasing the site. These problems are completely resolved now.

East Bench Irrigation District, McHessor-Dry Gulch Gravity Irrigation Project, Project 49: Ms. Cheney (83:B:013) described this project which is on pages 110 and 111 of the program book.

Proponents: Wally Closy (83:B:020), from Twin Bridges, appeared as a proponent to this project.

Chairman Thoft (83:B:024) asked how this project relates to the action taken by the subcommittee on the East Bench project in the Water Development Program. (See the minutes for March 6, 1985). Ms. Cheney said the applicants are unaware of the committee's action. She explained to the proponents of the project who were present that the subcommittee has recommended the East Bench project be given a 30-year loan at a flat 3% interest rate. She said the loan amount is for $1.3 million.

MSU, Institute of Natural Resources, Computerized Coal Mine Reclamation Planning, Project 51: Caralee Cheney, (83:B:064) introduced this project which is on pages 113, 114, and 115 of the program book.

Proponents: Douglas Scott (83:B:085), Director, Institute of Natural Resources, MSU, submitted written testimony (EXHIBIT 15) and letters of support for the project from the mining industry (EXHIBIT 16).

There were no opponents to Project 51.

Committee Discussion: Chairman Thoft (83:B:215) asked why the coal companies will not fund the computerized reclamation planning project. Mr. Scott said the coal companies feel the Department of State Lands will benefit most from the project because it will use the information to evaluate permit applications. The department could also

use it to release bonds early. Mr. Scott said right now the coal industry is very soft and is experiencing massive layoffs and because of this, they are reluctant to finance something they feel the state will benefit from more than they. He said the companies will supply in kind services such as manpower, equipment, and time with their supervisors. They are willing to be honest about their reclamation costs and will allow the project to aid them in calculating such costs.

There being no further business before the subcommittee the meeting was adjourned at 8:00 p.m.

Robert Thoft

ROBERT THOFT, Chairman

DAILY ROLL CALL

LONG-RANGE PLANNING SUB COMMITTEE

49th LEGISLATIVE SESSION -- 1985

Date March 15, 1985

NAME	PRESENT	ABSENT	EXCUSED
Rep. Robert Thoft, Chairman	X		
Sen. Fred Van Valkenburg, Vice Chair			X
Sen. Dave Fuller			X
Sen. Larry Tveit			X
Rep. Francis Bardanouve	X		
Rep. Gene Ernst	X		

Exhibit # 1
3-15-85
Project 15

1

WITNESS STATEMENT

NAME Edwin Vinson BILL NO. 922

ADDRESS Box 1651, Red Lodge 59068 DATE 3-15-85

WHOM DO YOU REPRESENT? Citizens of Red Lodge

SUPPORT ✓ OPPOSE _____ AMEND _____

PLEASE LEAVE PREPARED STATEMENT WITH SECRETARY.

Comments:

Support funding of Irrigation and Revegetation of old coal slag pile for Coal Miners' Memorial Park.

See attached letters of support.

Sent to all Long Range Planning Comm Members
feb 14 85

I am writing to urge you to support funding for the City of Red Lodge Irrigation System and Park Development Grant.

One of the legacies of our coal mining heritage is the 60 acre pile of coal "slack" (powdery coal residue and mine tailings) along Rock Creek at the north end of Red Lodge. In recent years a portion of this waste-land has been used as a sanitary landfill. The rest of it grew a few weeds and gradually eroded into the creek or blew into town in a gritty dust cloud along Main Street.

Last summer the area was graded and contoured under the mine reclamation program. This spring, top soil is to be spread and seeding done under the same program. The Irrigation and Park Development Grant will provide the means for the City of Red Lodge to maintain the vegetative cover on this property and prevent its return to an eyesore and hazzard to clean air and water. A group of local citizens is actively pursuing plans to convert this dustbowl into a rustic city park, to the benefit of residents and tourists alike. Approval of this grant, added to the increasing momentum of bootstrap efforts on the part of local citizens and city and county government, may well be the catylist that is needed to bring this community out of the economic doldrums.

Please call on me if I can provide additional information that would help you in your deliberations.

Sincerely,

Ernest C. Strum
Box 957
Red Lodge, MT 59068

Carbon County Historical Society

Post Office Box 476
RED LODGE, MONTANA 59068

February 13, 1985

Rep. Bob Thoft
Capitol Station
Montana State Capitol Bldg.
Helena, MT 59620

Dear Rep. Thoft:

Your Long-Range Planning Subcommittee is currently considering the City of Red Lodge's application for Natural Resources Land and Water Conservation funds for an irrigation/re-vegetation system for our new Coal Miners' Memorial Park.

Senator, for decades a huge, dusty, smoky slag pile stood at the northeast side of Red Lodge near highway 212 from Billings. Today, thanks to the state's Mine Reclamation Project that eyesore has been changed into a beautiful 64 acres rolling hill area that will be the site of the new Red Lodge Zoo and our new Coal Miners' Memorial Park recreation area.

However, without irrigation/re-vegetation this beautiful area is going to be covered with useless scrub, or worse yet, if we should have another storm with 80 + m.p.h. gusts, the valuable topsoil provided by the state would be lost.

Would you please vote to grant Red Lodge's request for those funds? It would be greatly appreciated by our organization.

Sincerely yours,

D Borgstrand

Dr. Dwayne S. Borgstrand, President
Carbon County Historical Society

BOARD OF COMMISSIONERS

County of Carbon

Red Lodge, Montana
59068

Long Range Planning Committee
Capitol Station
Helena, Montana 59620

February 14, 1985

Dear Long Range Planning Committee:

I wish to direct your attention to an application for grant funding submitted to the Renewable Resource and Water Development Program by the City of Red Lodge for an irrigation system and park development on Page 85 of DNRC's report.

We, the Carbon County Commissioners, strongly urge your support for full funding of this important proposal.

Through a considerable amount of County, City, organizational and private effort this application has been submitted to solicit funding for a long needed project to reclaim an abandoned coal mine dump. The Department of State Lands secured funding to level, lime, and place top soil on the area through the abandoned Mine Reclamation Program, and now is the opportune time to stabilize and develop the area for the Public through the installation of an irrigation system and the planting of trees and shrubs to hold the soil in place. If we get more 100 mile-an-hour winds here before this is accomplished, we'll have lost all that expensive top soil that State purchased. While the State has agreed to seed the area, there are currently no means to keep the soil moist to ensure its sprouting and growth.

This is a project which, once completed, you could point to with pride in your involvement, transforming a waste land and environmental hazard into a useful, beautiful, and environmentally safe place for our people.

Again, we strongly urge your active support on behalf of this proposal.

Sincerely,

Frank Cole, Commissioner

Box 249
Red Lodge, MT 59068
2/14/05

Senator David Fuller
Capitol Station
MT State Capitol Building
Helena, MT 59620

RE: City of Red Lodge Irrigation System
and Parks Development

Dear Senator Fuller:

When I first laid eyes on Red Lodge four years ago, and saw that old slag pile and landfill and the abandonned B.N. lands covered with weeds greeting me at the north entrance of town, I felt like heading back east!

Red Lodge citizens have put up with the old mine and the dust from the slag pile for nearly 100 years! We are grateful that the state as part of the Mine Reclamation Project has finally graded the area and covered up the dump, but unless we get help from grant money for re-vegetation and irrigation, we'll be worse off than ever with the freshly-graded slag dust blowing and maybe eventually knappweed growing!

Please support our grant application!

Sincerely,

Lilo Klaehn, R.N.

BOARD OF COMMISSIONERS

County of Carbon

Red Lodge, Montana
59068

Long Range Planning Committee
Capitol Station
Helena, Montana 59620

February 14, 1985

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This is a project which, once completed, you could point to with pride in your involvement, transforming a waste land and environmental hazard into a useful, beautiful, and environmentally safe place for our people.

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Sincerely,

Frank Cole, Commissioner

Sent to all Comm Members

February 14, 1985

Rep. Francis Bardanouve
Long Range Planning Committee
Capitol Station
Helena, Mt. 59620

Dear Representitive Bardanouve

Re: City of Red Lodge Land and Water Conservation Fund Grant, Irrigation Systems and Park Development.

As Chairman of Coal Miners' Park Foundation, I would like to request your support for the above grant for full funding for the 1985 legislative session. The project is important to Red Lodge for the following reasons.

1) The site for the project is an old mine tailings dump as well as the "city dump". The area could be one of the most beautiful spots in the Red Lodge area, as it borders one-half mile of Rock Creek and offers tremendous views of Red Lodge and the surrounding mountains. However, the mine tailings have been an eyesore for many decades. The proposed project would greatly enhance the esthetic beauty of the area by providing vegetative plantings, a source of water for maintenance and ponds and waterways for water storage.

2) The mine tailings dump area, about 65 acres in size, has not supported any vegetation for all those years except for a few undesireable weeds. As a result, the tailing material has been subject to wind and water erosion, causing air pollution, and runnoff contamination into Rock Creek. The site has been graded and sloped and will be covered with topsoil this spring and then planted to grass. The proposed irrigation system and vegetative plantings are vital to stabilizing the site and preventing the invasion of noxious weeds in the future.

3) The site has also been used indiscriminately by off-road vehicles, motorcycles and drinking parties, creating a health and safety hazard. The area, through the aid of this grant and the work of many citizens of Red Lodge and Carbon County, will become a useful and vital asset to the state of Montana.

4) The Coal Miners' Park Foundation is a six member citizen board created to assist the city of Red Lodge in the development, management and administration of the new park. We would be happy to provide additional information about the site and the project if it would be helpful to you.

Thank you for your consideration.

Mervin D. Coleman

Chairman
Coal Miners' Park Foundation
Box M
Red Lodge, Mt. 59068

SPECIALIZING IN RANCHES AND RURAL PROPERTY

GRIZZLY PEAK REALTY

DRAWER 1678
RED LODGE, MONTANA 59068

Paul Pilati
Broker/Owner

Phone
Home: 406 446-2874
Office: 446-3030

February 20, 1985

Dear

Please do your best to back the $100,000.00 City of Red Lodge Irrigation System and Parks Development grant application.

Since 1889, Red Lodge has had to overcome environmental problems caused by the mine dump sites located right within the city limits.

One of these dump sites is to become the future Coal Miners' Park.

Obtaining this grant would greatly help to stabilize that area, adding vegetation and beauty where both have been destroyed for close to 100 years.

In this age of concern for our environment, I feel that restoring such an area for the pleasure and enjoyment of those who live here or appreciate Montana's unspoiled nature, is a step in the right direction.

Thank you for your concern and your time.

Very sincerely,

Claudette Pilati

February 14, 1985

Capitol Station
Montana State Capitol Building
Helena, Montana 59620

Dear

I am writing to express my support for the proposal of the City of Red Lodge for funds to irrigate and revegetate a recently reclaimed coal slag site with the Renewable Resources funds administered by DNRC.

While historic preservation is my main official concern, I realize that historic activities, particularly those involving mining, have created serious health and environmental problems, and that the dangerous situations created must be rectified. I was particularily pleased that the people working on this reclamation and revegetati program were also concerned that, while removing the dangerous waste of the past, they not lose sight of their heritage. The have proposed to establish exhibits of Red Lodge's coal mining history for placement on the reclaimed park land.

Since moving to Red Lodge in June of last year I have become a serious student of her history. It is amazing that this town has survived and is still bubbling with energy and optimism despite the century of economic and environmental hardship. Never have I seen a group of people who work harder to create a better place in which to live. The deserve your respect and your greatest consideration for their proposal.

Sincerely,

Edrie Vinson
Carbon County Historic Preservation Officer

EV/tct

February 14, 1984

Capitol Station
Montana State Capitol Building
Helena, Montana 59620

Dear

The Red Lodge City Council requests your serious and favorable consideration of our application for the funding of an irrigation and revegetation proposal now before your committee in the Renewable Resource and Water Development Program.

Our proposal is to be implemented on the site of an abandoned coal slack pile. In 1889 the Northern Pacific Railroad opened coal mines, and the dump piles began to accumulate. Five generations of Red Lodge citizens have had to put up with the odor of burning slack heaps, the coal dust blowing in their faces and into their homes during windstorms, and the washing of heavy metals into Rock Creek during the spring thaw and rainstorms. Though we live in the foothills of the beautiful Beartooth Range, our city was bordered East and West by the mounds of black waste. There were no federal or state laws requiring reclamation or monitoring impacts on the environment. No one made studies to determine the effect on our citizens.

The lands embraced by the dumps were worse than useless, they were a hazard to our health, to air and water quality. The Department of State Lands felt that a sufficient danger existed to expend a considerable sum grading, dusting with lime, and applying top soil to the areas. Now after a century of suffering through this problem, we are at the threshold of opportunity to turn the tables in favor of our citizens for the future. We have plans to move into the reclaimed area immediately before wind damage occurs, install irrrigation and revegetate with trees and shrubs to stabilize the fresh top soil and create a beautiful and healthful environment for our people and our guests.

Through the initiative of private citizens of Red Lodge we have developed impressive plans for use of the area as a zoo, a park, ball fields, and a myriad of recreational opportunities. This grant request now before you is a grant first step in the realization of these plans. Should you in your wisdom determine to fund this important beginning, you will look back with pride years from now to see how far our people will carry this project. These folks are worthy of your fullest consideration.

Thank you for your attention.

Sincerely,

Ron Kotar, Mayor

Red River Oil & Gas Inc.

Phone [406] 446-2630 P. O. Box 250, Red Lodge, Montana 59068

February 19, 1985

Dear

As a resident and businessman of Carbon County, Montana, I wish to urge your support in funding the City of Red Lodge Irrigation System and Park Development Project. This will allow the restoration of an area formally covered by slag piles, and allow it to be fully utilized by the public.

The efforts of our community to establish a native animal zoo in conjunction with the Coal Miner's Park restoration project should have a beneficial effect on the economy of Red Lodge, Carbon County and the State of Montana. The Beartooth Highway, the northeast entrance to Yellowstone Park, brings many tourists through this portion of Montana. However, the majority of tourists pass through primarily to get to or leave the park which is in Wyoming. The presence of the zoo and theme park would encourage these visitor's to spend an extra day or two in Montana.

Sincerely yours,

William W. Wilson

WW/mo

Exhibit #2
3-15-85
Project 27

Long-Range Planning Subcommittee
of the Montana Legislature
House Appropiations Committee
Senate Finance and Claims Committee
Capitol Building
Helena, Montana 59601

Dear Mr. Chairman and Members of the Committee:

For the record, my name is Jerry J. Bromenshenk. I am an associate professor of research, department of zoology, University of Montana. I also am an associate of the Gordon Environmental Laboratory, Department of Botany.

I am here to testisfy regarding the Montana Legacy Program and to discuss the ranking and funding recommendations. It is clear that this program addresses a wide array of natural resource based issues and problems. It is particularly needed where funding is unavailable from other sources such as responsible parties or the Comprehensive Environmental Resource Compensation and Liability Act.

The 51 grants recommended for funding during the FY 86-87 biennium contain many needed and meritorius projects. I urge your support in establishing a funded Legacy Program.

More specifically, I would like to address the proposal entitled " Mitigation of Impacts of Natural Resource Development to the Montana Beekeeping Industry", which has been given a priority ranking of 27 for funding.

The original work plan proposed a study of pollutant distribution in the Deer Lodge valley, a study of pollutant distribution in the East Helena valley, and a contigency fund to assist beekeepers in assessing sudden and unexplained losses of bees in other areas of the state. We believe that these objectives are consistent with those of the initial intent of the Legacy program.

The intent of this project is not to demonstrate that bees are useful environmental monitors. The U.S. Environmental Protection agency has invested through grants to the University of Montana nearly 0.5 million over the last 10 years in developing that capability. I have attached a recent article from SCIENCE that illustrates how we use bees to identify pollutant sources and to map the distribution of environmental contaminants over large geographical areas.

Our work shows that honey bees provide a spatially integrated

sample of all three (liquid, gas, and particulate) modes in which pollutants may be transported. Thus, they sample air, soils, dusts, and to some extent water. Moverover, our experience indicates that this monitoring is less expensive than arrays of instruments or other more labor intensive field sampling methods. In addition, bees have a low tolerance for many toxic chemicals and are vulnerable to harm. Damage to bees often translates to losses in products such as honey, wax, and pollen and reduced pollination.

Beekeeping is a major agricultural (@$6.4 million/year) industry in Montana. The state is one of the largest honey producers in the nation, and Montana bees are invaluable as pollinators not only in Montana but in other states as well.

The problems of bees and environmental pollution in Montana is not just an academic issue. For decades, beekeepers have experienced difficulty in keeping bees in some parts of the state. In the Deer Lodge valley region, suspected losses of bees from heavy metal poisoning have occurred as far away as Whitehall.

With the closing of the Anaconda smelter, beekeepers expected that conditions would improve. Unfortunately, in May, 1983, severe losses of more than 90 colonies of bees occurred at a beeyard near the old smelter site. Later that summer, bees at several other sites displayed symptoms of metal poisoning. We carried out chemical analyses of bees and pollen at these sites and found some of the highest levels of arsenic and other toxic metal ever recorded. These levels were as high if not higher than those observed during periods when the smelter was in operation.

Pollen had as much as 17 ppm of arsenic, while bees contained as much as 12 ppm. Normally, bees and pollen contain less than 0.5 ppm of arsenic, often less than 0.1 ppm. A level of 4 ppm of arsenic in bees is considered to be hazardous, 8-12 is poisonous. Levels of 12 to 17 ppm in pollen would deliver 3 to 13 times the amount of arsenic considered to be fatal. Even if bees are not killed outright, our experience indicates that be exposed to levels comparable to those seen in the Deer Lodge valley can result in as much as a 50% reduction in honey production.

At this time, the source(s) of these toxic metals are unknown. Whether this is material still being released from the old smelter site, due to re-release from contaminated soils, or some other source remains to be seen. Similarly, how widely distributed and for how far this problem extends is unknown.

What is known is that this problem has had and is likely to

continue to have substantial impacts on beekeepers, with known and potential losses of thousands of dollars. In addition, the presence of these substances in bees indicates potential for harm to other animals such as livestock and wildlife, and for human exposure. The critical point is that if these materials are getting into bee systems, they are mobile and biologically available, and therefore other living organisms are at risk. It is our intent to provide the data necessary to address these issues.

We have attempted to find other sources of funding for this work. Superfund monies are not available, since our emphasis is on conditions off the old smelter site and therefore outside the Superfund designated site boundaries. In short, the beekeepers bees are on the wrong side of the fence. In addition, completion of the current Superfund clean-up activities may not improve conditions off-site. Our proposed mapping would establish a means of evaluating the effectiveness of these activities in terms of the overall valley. Also, if there are sources of these toxic materials that are not currently recognized, our best opportunity for accessing superfund assistance is now, while these activities are ongoing in the state.

In terms of the recommendation to fund the bee study at $61,482, we would like to clarify one issue. Under that level of funding, we could fund a study of the Deer Lodge valley or the Helena valley, which has similar problems, but not both. The suggestion that the 'project sponsor' provide the other 50% is not a viable option. We are unsure of who that sponsor might be. The Research Administration of the University of Montana is supportive of this work, but the University is not budgeted to underwrite research projects of this nature and scope.

Thank you for your time and consideration this afternoon. Please feel free to contact us if you would like additional information.

Reprint Series
8 February 1985, Volume 227, pp. 632–634

SCIENCE

Pollution Monitoring of Puget Sound with Honey Bees

J. J. Bromenshenk, S. R. Carlson, J. C. Simpson, and J. M. Thomas

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Pollution Monitoring of Puget Sound with Honey Bees

Abstract. *To show that honey bees are effective biological monitors of environmental contaminants over large geographic areas, beekeepers of Puget Sound, Washington, collected pollen and bees for chemical analysis. From these data, kriging maps of arsenic, cadmium, and fluoride were generated. Results, based on actual concentrations of contaminants in bee tissues, show that the greatest concentrations of contaminants occur close to Commencement Bay and that honey bees are effective as large-scale monitors.*

Honey bees have been used as monitors of a variety of environmental contaminants, including trace elements, low-level radioactivity, and pesticides (*1*). However, most work has emphasized deleterious impacts to bees rather than the use of bees as chemical monitors. An averaged sample of pollutants can be obtained from an area of more than 7 km^2 with honey bees (*1, 2*). Because bees have low tolerance to many toxic chemicals (*3*), they provide a potentially sensitive indication of pollutant-induced harm. Pollination services and bee products such as wax, pollen, and honey can be affected by environmental contamination. Bees are thus a rather unusual biological monitor since they are of considerable economic value. In 1981, U.S. bees provided $124.6 million worth of honey and wax (*4*) while pollinating $8 billion to $40 billion of crops (*5*).

Pollutants may reach honey bee colonies by several routes. Contamination of the body, mouth parts, and spiracles during flight is possible, and bees may mistake dust for pollen (*6*). Our observations indicate that some particulate pollutants may become intermixed with pollen grains, since particles can readily be seen with a light microscope (*7*). Electrostatic charges on the surface of the bee body may contribute to the insect's ability to gather pollen (*8*). We speculate that this may partially account for the gathering of other small particles.

Nectar and pollen may become contaminated by atmospheric deposition of pollutants onto plants as well as by plant uptake of these substances from soil. Uptake dynamics from food have been studied with radiotracers (*9, 10*). Feeding tests in which a uranium tracer was used resulted in high concentrations in bee tissues, with lower levels in comb, larvae, and honey (*10*). These findings are consistent with field studies, which indicate that levels of trace elements tend to be highest in or on bees and pollen (*1*).

Pollutants, which are likely to be encountered either in a gaseous form or a water-soluble form, such as fluoride, appear to be taken up by both the hard external and soft internal body tissues by ingestion, inhalation, or absorption (*11, 12*). Regardless of pollutant form, colonies may become contaminated not only through foraging activities but also by forced-air circulation and evaporative cooling employed by bees to control hive temperature and humidity. Contaminant levels in the environment may be reflected in the bees themselves or in hive components, including wax, pollen, and honey (*1*).

How best to use the potential of bees as environmental pollution monitors on a large geographic scale has been the subject of considerable debate. The several million existing bee colonies in the United States provide an in-place and accessible monitoring network from which beekeepers can take samples (*13*). We implemented this concept in 1982 in the Puget Sound region of Washington where a large number of beekeepers keep bees in rural and urban locations.

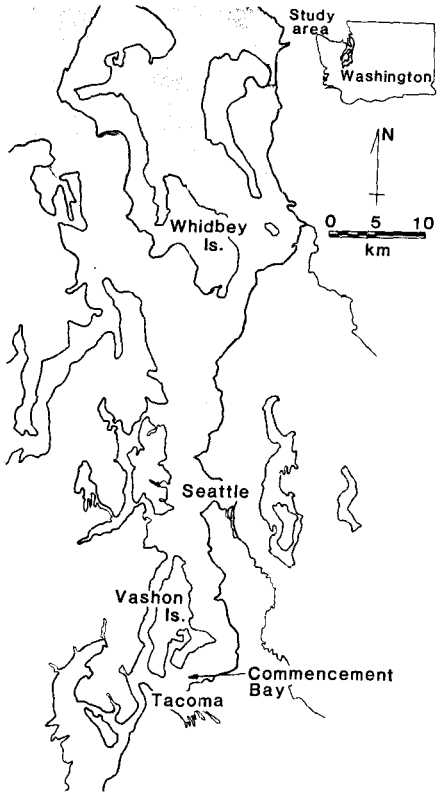

Fig. 1. Location map showing Puget Sound study area.

The region, although large, is clearly bounded by the Pacific Ocean and the Cascade Mountains. Over 130 pollutant sources are routinely monitored by regulatory agencies (*14*). These sources include smelters, chemical plants, and other large industries, but the actual distribution and extent of emissions has never been adequately established.

From July through mid-September 1982, 64 beekeepers collected samples and performed measurements at 72 sites over approximately 7500 km^2 (Fig. 1). Each volunteer was asked to (i) establish at least one sampling site, (ii) measure the percentage of brood survival, (iii) collect forager bees, and (iv) trap pollen. The methods employed were developed and tested during a study of a lead smelting complex in Montana (*15*).

For the brood-survival test, dressmaker pins were used to mark six rows of 20 cells on a brood comb, and two independent determinations were made. An initial record was made of eggs and young larvae, and a follow-up scoring of cell contents by developmental stage was performed 13 to 17 days later. Observations were scored on a standardized data sheet and later processed by a computer program that we had developed (*15*). Pollen was trapped at the hive entrance through a tube of polyvinyl chloride (PVC) with a grid of 5-mm holes (*15*). As bees passed through the holes, pollen was scrapped off the legs into the tube. Pollen traps were left on hives for 6 to 10 hours. Blocking the hive entrance with a strip of fiber glass screening allowed collection of bees returning to the hive. These bees were aspirated into a polyethylene sample bag with a PVC and acrylic aspirator attached to a 12-volt vacuum (*15*). Pollen traps and nozzles were washed with acid before use. Bee and pollen samples were placed into Whirl-Pac bags and frozen.

Samples, in acid-washed beakers, were covered with a clean watch glass and dried in a forced-air oven at 45°C. For fluoride measurement, samples were dry-ashed at 600°C and analyzed by an Orion 601 ion specific electrode (*16*). For arsenic and heavy metal measurements, samples were dissolved in Instra-analyzed nitric acid in a sealed-tube pressured system for 3 hours at 175°C (*17*). Analyses were performed with a Varian AA 275BD and an Instrumentation Laboratories IL 251 atomic absorption spectrophotometer, the former equipped with a model 65 vapor generator for the introduction of arsenic as arsine and the latter with a model 555 flameless atomizer, which was used for some of the cadmium analyses. Vapor generation, flameless

atomization, and flame aspiration were done as described (*18, 19*). Performance was monitored by standard additions and National Bureau of Standards reference materials (SRM orchard leaves 1571 and SRM bovine liver 1577), as well as our own standard bee tissue.

Kriging (*20–22*), a weighted moving average technique in which point estimates or block averages can be calculated over a specified grid, was used to map the distribution of pollutants. The derivation of the kriging weights takes into account the proximity of the observations to the point or area of interest, the "structure" of the observations (that is, the relation of the squared difference between pairs of observations and the intervening distance between them), and any systematic trend or drift in the observations. Kriging also provides a variance estimate for constructing a confidence interval for the kriging estimate. From the grid of estimates, contour maps can be obtained. From the confidence intervals for the kriging estimates, confidence bands for individual isopleths can be obtained. For the analysis natural logarithms were used.

Over 64 percent of the colonies tested displayed low brood viability; 40 percent sustained a 75 percent or greater loss of eggs and larvae. At some locations, colonies lost 97 to 100 of the brood.

Kriging maps of arsenic (Fig. 2A), fluoride (Fig. 2E), and cadmium (Fig. 2D), based on actual concentrations from bee tissues, display distinct distributional patterns. Fig. 2B illustrates the 5 parts per million (ppm) arsenic confidence band, and Fig. 2C presents kriging standard deviations. The highest arsenic concentrations occur northwest of Tacoma and apparently are rather smoothly disbursed by atmospheric forces, at least to the Lake Sammamish Plateau. In contrast, cadmium seems to follow a similar pattern but for a much shorter distance, and fluoride appears to be concentrated east of Tacoma. Measured levels of arsenic and fluoride for bees near Commencement Bay were as high as 12.5 and 182 ppm, respectively, whereas bees from Whidbey Island generally contained less than 0.5 ppm arsenic and 4 ppm fluoride.

Arsenic, cadmium, lead, zinc, copper, and fluoride concentrations in pollen were of little use for mapping, both because too few pollen samples were received and because no patterns could be identified. Copper, zinc, and lead concentrations in or on bees showed no patterns related to pollutant distribution. However, high lead values tended to be associated with highways, and individual pollen samples displayed values for heavy metals comparable to those for bees.

Arsenic and fluoride concentrations in bees near Commencement Bay were higher than any we have previously observed [that is, 8.2 ppm arsenic (*23*) and 123 ppm fluoride (*12*)]. Our kriging maps of arsenic and cadmium in bee tissues show patterns similar to isopleth maps developed by regulatory agencies (based on measured soil concentrations) and to deposition isopleths produced by the industrial source complex long-term model

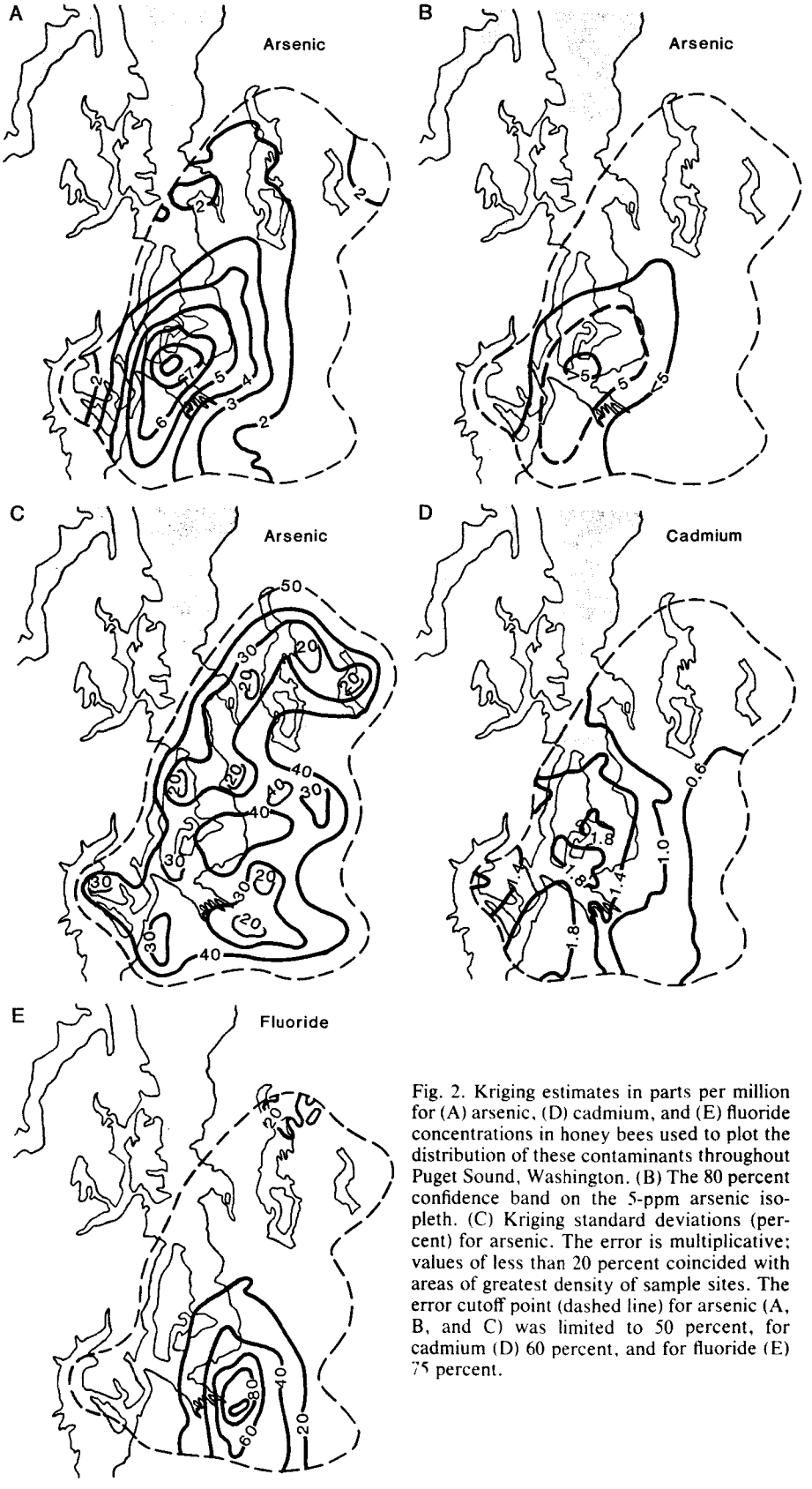

Fig. 2. Kriging estimates in parts per million for (A) arsenic, (D) cadmium, and (E) fluoride concentrations in honey bees used to plot the distribution of these contaminants throughout Puget Sound, Washington. (B) The 80 percent confidence band on the 5-ppm arsenic isopleth. (C) Kriging standard deviations (percent) for arsenic. The error is multiplicative; values of less than 20 percent coincided with areas of greatest density of sample sites. The error cutoff point (dashed line) for arsenic (A, B, and C) was limited to 50 percent, for cadmium (D) 60 percent, and for fluoride (E) 75 percent.

(*24*). However, these other maps describe an area circumscribed by our 5 and 6 ppm arsenic isopleth (soil map) and our 3 and 4 ppm isopleth (dispersion model). Thus, our maps cover a more extensive area. Further, our map (Fig. 2A) suggests long-range transport of arsenic from Commencement Bay to the Lake Sammamish Plateau. This observation may explain reports of somewhat elevated arsenic levels occasionally observed at distant monitoring stations (*24*).

There were no statistical differences for arsenic or fluoride for bees collected during July or September at similar sites. However, limited data were available so that the power of the test was low. The same result was obtained in a follow-up experiment conducted in 1983. Bees sampled weekly for 10 weeks at two sites near Commencement Bay displayed temporal coefficients of variation of about 20 percent.

Kriging errors for arsenic (Fig. 2C) show that estimated error is related to data density (that is, the number of sites sampled in a given area). Error was relatively small in the urban areas of Seattle and near Tacoma where many beekeepers obtained samples. In contrast, errors were larger in the rural areas, where sample locations were more scattered. Largest errors occurred at the perimeter of the study area and in those places where a section of the kriging grid encompassed a large mass of water. Kriging error is not synonymous with a standard deviation determined from replicate hives at a single location. Results from our studies indicate that coefficients of variation of about 20 percent with a range of 1.7 to 43 percent can be expected, depending on time of year, proximity to source, and other factors.

The predicted fluoride concentration map (Fig. 2E) suggests a different source and dispersion mechanism. On the basis of our studies in Montana (*12*), we predicted that fluoride concentrations in nearby vegetation would also be proportionately high. Data provided by the Washington State Department of Ecology show that levels in grasses near the tide flats area of Commencement Bay contained up to 100 ppm (*25*), whereas background levels for grass should be about 1 to 6 ppm (*26*). In much of the area of high concentrations of arsenic and cadmium in bees, levels are also so high in vegetables that the Pierce County Department of Health has advised against consumption (*27*).

Our results show that beekeepers can effectively use colonies of bees as a self-sustained system for environmental monitoring over large geographical areas. Honey bees provide a spatially integrated sample of all three (gas, liquid, and particulate) modes in which pollutants may be transported. Moreover, our experience indicates that this monitoring system is less expensive than, for example, high volume air samplers that only monitor particulate pollutants. To determine how bee colonies can most effectively contribute to monitoring needs, especially in terms of integrating the information obtained with decision-making and regulatory processes, will require better understanding of the extent and limitations to which colonies of bees can be used in other places and for other pollutants.

J. J. BROMENSHENK
S. R. CARLSON
Gordon Environmental Studies Laboratory, University of Montana, Missoula 59812

J. C. SIMPSON
J. M. THOMAS
Statistics and Quantitative Ecology Sections, Pacific Northwest Laboratory, Richland, Washington 99352

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13. Reports of the Ecology Committee of the Scientific Advisory Board of EPA (Environmental Protection Agency, Washington, D.C., 1980).
14. Point Source Emission Inventory (Engineering Division, Puget Sound Air Pollution Control Agency, Seattle, Wash., 1980).
15. Developed during a 1981 study of a lead smelting complex. A copy of the data processing program written in BASIC and diagrams of the pollen traps and bee aspirator can be obtained from J.J.B.
16. Although fluoride is easily lost at elevated temperatures, recoveries for fluoride added to samples before ashing ranged from 89 to 99 percent ($r^2 = 0.998$ for additions of 5, 10, 20, 50, and 100 μg).
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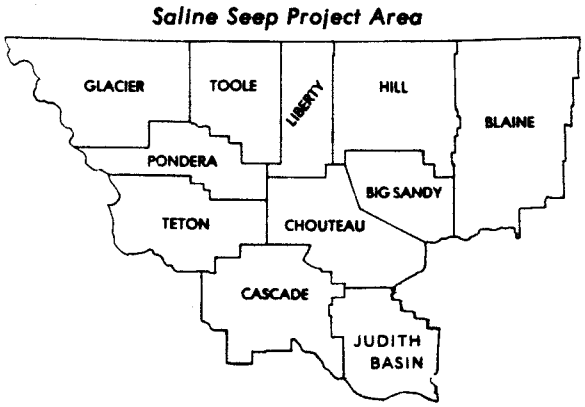
27. "Cadmium and arsenic in your garden?" (Tacoma-Pierce County Health Department and Seattle–King County Department, Wash., 1982).
28. We wish to thank the beekeepers of Puget Sound for their assistance and support and R. Hinds and P. Tucker for editorial assistance. Supported by Cooperative Agreement CR-810035-01-0 for EPA's Environmental Research Laboratory in Corvallis, Ore. (to J.J.B.), and supported by EPA under a related services agreement (TD 1589) with the Department of Energy under contract DE-AC06-76RLO 1830 (with J.M.T.).

7 November 1983; accepted 21 November 1984

Exhibit #3
3-15-85
Zinne
Project 28



TRIANGLE Conservation District
P.O. Box 1411
PHONE (406)278-3071
CONRAD, MT 59425

EXPANDED SALINITY PROGRAM FACT SHEET

PROBLEM: Saline seeps are recently developed low-volume springs caused by a change in land-use, predominantly from native perennial vegetation to the alternate crop-fallow dryland cropping system. The saline seep or discharge area, is actually the symptom to the problem of inefficient use of annual precipitation in the up-slope or recharge area. Saline seeps, water quality degradation, erosion and soil organic matter decline, are only symptoms of the problem.

NEED AND URGENCY: Saline seep is among the top 4 resource problems in MT. with over 280,000 ac. of cropland estimated out of production, and the rate grows at 10% per year. Using an average of $40/ac net return in a crop-fallow system, $5,600,000.00 is lost in annual production. The taxes on the salinized land can be reassessed at a lower value (from a $2.30/ac avg. for cropland to $0.34/ac avg.) for a potential yearly loss in tax revenue of $548,000.00. The degradation to surface and groundwater is not easily quantified but is perhaps the most severe consequence. Degraded water quality goes beyond the individual landowner to affect both the rural and urban population. Wells and reservoirs are abandoned and irrigation is reduced or eliminated. Numerous rural water lines have been needed because of poor water quality. It has cost the state over $2.5 million in grants and loans to help finance these, not to mention the increased maintenance costs to the users. The water quality in most seeps exceeds the recommended limits for any domestic use and has been documented as high as 78,000 mg/l TDS or twice that of sea water. At present levels, saline seep is costing MT in excess of $11,352,000.00 per year. If allowed to go unchecked, this figure could grow in the next 20 yrs. to $76,370,000.00 for 1.8 million ac (assuming 10% growth rate). Therefore the prevention of saline seeps is just as important as reclamation to existing ones.

TECHNIQUE: The Triangle Conservation District technical field team has developed a proven technique to work on a farm-by-farm basis to achieve saline seep prevention and reclamation using the state-of-the-art of recharge area identification, intensive cropping, and reclamation techniques. In the 5 years the TCD has been working on the problem, 216 individual reclamation plans have been developed to work on 6,810 acres of seep. The implementation rate has been 84%, a very impressive rate considering the increased costs and management necessary for the cooperators.

RECOGNITION

NATIONAL: TCD has written and presented technical papers on vegetation management for the control of groundwater contamination and dryland salinity.
- International Symposium on State-of-the-Art Control of Salinity, July 1983, Salt Lake City, UT.
- 7th National Ground Water Quality Symposium, September 1984, Las Vegas, NV.
- Rocky Mountain Ground Water Conference, April 1984, Great Falls, MT.

INTER-NATIONAL: A Memorandum of Understanding between MT and Alberta provides an avenue for technical exchange. Alberta's original approach to salinity was drainage, which was not acceptable economically or ecologically, nor was it effective. The Dryland Salinity Control Assoc. pays the expenses for the TCD team to travel yearly to Alberta to review and provide technical expertise on projects. After a similar trip to Saskatchewan in August 1984, TCD is also pursuing a memorandum with their farm organization, Wheatland Conservation Area Assoc. Both provinces are patterning their salinity control programs after the TCD; using their team approach and field technique.

Australia is suffering from a severe salinity problem also brought on by inefficient water-use by their current farming practices. The Australian government has invited and paid for MT researchers to come to their country to observe and provide assistance. Numerous Australians have visited MT and spent time with TCD to observe techniques that may be applicable to them.

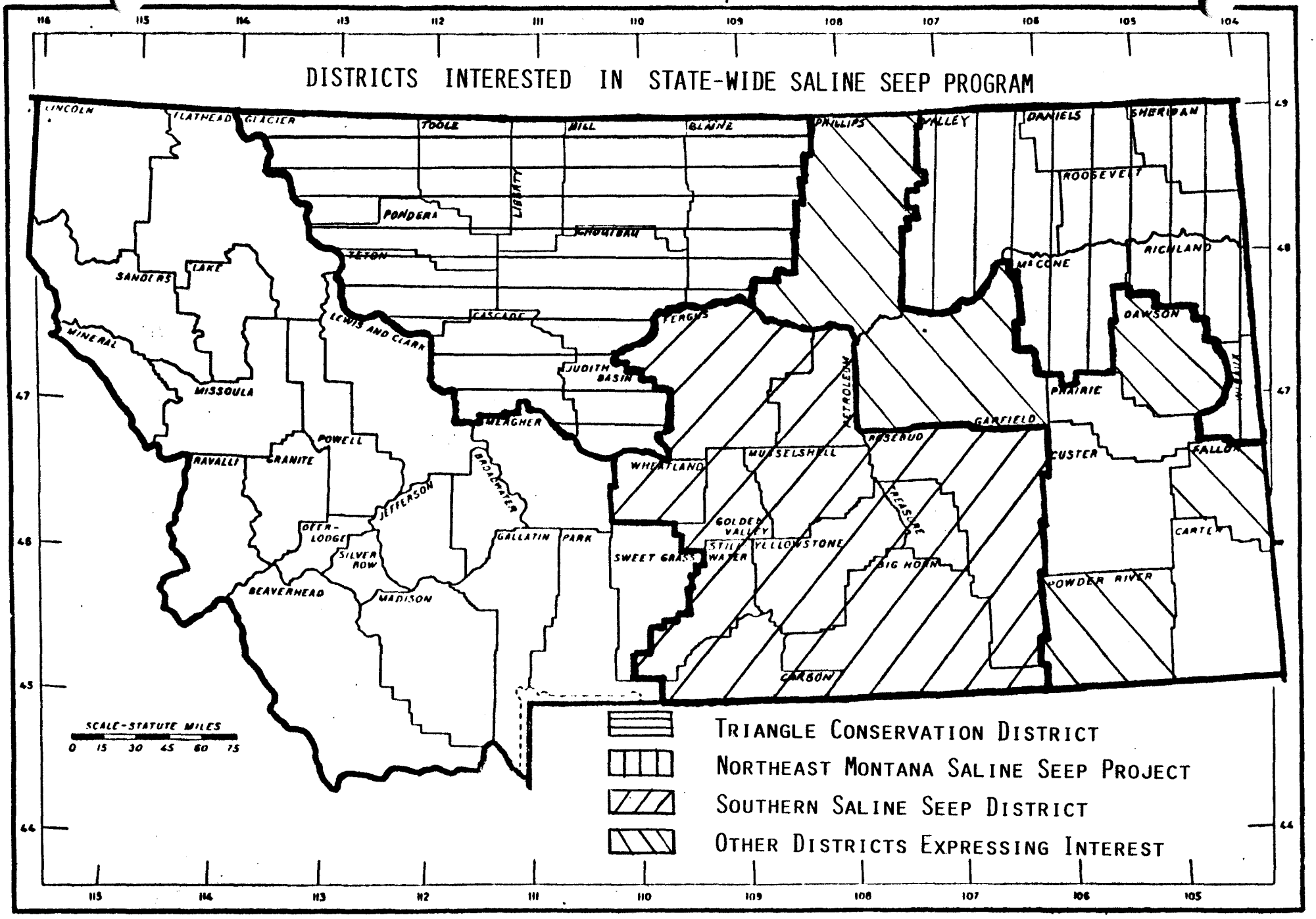
RECOGNITION STATE: TCD is widely recognized for its work with cropping systems and the economics of implementing them. Since conservation practices must pay to be widely adopted, TCD recommends intensive cropping practices that maximize water use efficiency as well as profits. TCD has developed Economic Yield Strategies to compare variable costs and yields, that are being used by the SCS and Extension Service. TCD staff has participated in numerous tillage and agriculture conferences across the state.

NEW STATE GROUPS: Northeast Montana Saline Seep Project (NMSSP) - The conservation districts from 7 NE counties Valley, Daniels, Sheridan, Roosevelt, McCone, Richland and Wibaux organized in 1982 to work on salinity control. Through a 223 grant from DNRC in 1983, the TCD technical team has worked on a pilot basis in the area. 17 reclamation plans have been prepared concerning 233 acres of saline seep. Merton "Pete" Purvis, Froid, MT. (Roosevelt) is the chairman of the board.

Southern Saline Seep District (SSSD) - 10 conservation districts are in the organizational process and will also have a cooperative working agreement with TCD for future projects. The main emphasis will remain with dryland saline seep but several districts are very concerned with their irrigated salinity problems. The board chairman is John Zinne, Rapelje, MT. (Stillwater).

LONG RANGE PLANS: There is currently no other agency in the state working on saline seep reclamation plans and implementation as extensively as the TCD program. The TCD is limited to the 10-county area by budget, staff, time and distance constraints. When surveyed, 23 other counties expressed a concern for their growing salinity problems or the potential for saline seeps based on the ongoing sod-busting of marginal land, and would like access to a technical field team. It is being proposed to increase the field teams from 1 to 3 to service the 33-county area or roughly the eastern 2/3's of MT. The placement of the 2 new teams will be associated with the new state organizations, NMSSP AND SSSD. The proposed continuation and expansion of the present program will increase the technical assistance to the agricultural cropping community to more easily adopt an intensive cropping system for resource conservation.

CURRENT PROGRAM: Conservation districts from the 10-county Triangle Area sponsor the saline seep reclamation and prevention program. Each district is a legal entity of state gov't. and an elected supervisor from each board is represented. The Board chairman is Herb Pasha, Highwood, MT (Chouteau). The technical field team consists of an agronomist, soil scientist, hydrogeologist and reclamation specialist.


DISTRICTS INTERESTED IN STATE-WIDE SALINE SEEP PROGRAM
LINCOLN
FLATHEAD
GLACIER
TOOLE
PONDERA
TETON
SANDERS
LAKE
MINERAL
MISSOULA
LEWIS AND CLARK
CASCADE
JUDITH BASIN
FERGUS
PHILLIPS
VALLEY
DANIELS
SHERIDAN
ROOSEVELT
RICHLAND
McCONE
DAWSON
WILLIAM
PRAIRIE
GARFIELD
CUSTER
FALLON
CARTER
POWDER RIVER
CARBON
BIG HORN
YELLOWSTONE
STILLWATER
SWEET GRASS
GOLDEN VALLEY
MUSSELSHELL
WHEATLAND
PETROLEUM
ROSEBUD
TREASURE
GALLATIN
PARK
MADISON
BEAVERHEAD
SILVER BOW
DEER LODGE
JEFFERSON
BROADWATER
POWELL
GRANITE
RAVALLI
GLACIER
LIBERTY
SCHOOLEY
BLAINE
HILL
SCALE-STATUTE MILES
0 15 30 45 60 75
TRIANGLE CONSERVATION DISTRICT
NORTHEAST MONTANA SALINE SEEP PROJECT
SOUTHERN SALINE SEEP DISTRICT
OTHER DISTRICTS EXPRESSING INTEREST

AD - 400.24 -

Exhibit # 4
3-15-85
Andresen
Project 28

POTENTIAL GROWTH RATE OF SALINE SEEP ACREAGE
AND ASSOCIATED POTENTIAL LOSS IN CASH INPUT COSTS

Year	Compounded at 10%/Yr. Acres		Cash Inputs Per Acre Not Spent		Total Cash Inputs Not Spent on Acres/Year	8% Present Value Factor	Total Cash Input Purchases Lost to Montana Economy each year Discounted to Present Value
0	280,000		0		0		0
1	308,000	x	$55.00	=	$ 16,940,000.00	.926	$15,686,440.00
2	338,800	x	$55.00	=	$ 18,634,000.00	.857	$15,969,338.00
3	372,680	x	$55.00	=	$ 20,497,400.00	.794	$16,274,935.00
4	409,948	x	$55.00	=	$ 22,547,140.00	.735	$16,572,147.00
5	450,942	x	$55.00	=	$ 24,801,810.00	.681	$16,890,032.00
6	496,037	x	$55.00	=	$ 27,282,035.00	.630	$17,187,682.00
7	545,640	x	$55.00	=	$ 30,010,200.00	.583	$17,495,946.00
8	600,204	x	$55.00	=	$ 33,011,220.00	.540	$17,826,058.00
9	660,225	x	$55.00	=	$ 36,312,375.00	.500	$18,156,187.00
10	726,247	x	$55.00	=	$ 39,943,585.00	.463	$18,493,879.00
11	798,872	x	$55.00	=	$ 43,937,960.00	.429	$18,849,384.00
12	878,754	x	$55.00	=	$ 48,331,745.00	.397	$19,187,702.00
13	966,635	x	$55.00	=	$ 53,164,925.00	.368	$19,564,692.00
14	1,063,329	x	$55.00	=	$ 58,483,095.00	.340	$19,884,252.00
15	1,169,629	x	$55.00	=	$ 64,329,595.00	.315	$20,263,822.00
16	1,286,592	x	$55.00	=	$ 70,762,560.00	.292	$20,662,667.00
17	1,415,251	x	$55.00	=	$ 77,838,805.00	.270	$21,016,477.00
18	1,556,776	x	$55.00	=	$ 85,622,680.00	.250	$21,405,670.00
19	1,712,453	x	$55.00	=	$ 94,184,915.00	.232	$21,850,900.00
20	1,883,698	x	$55.00	=	$103,603,390.00	.215	$22,274,728.00
						Present Value of Cash Inputs	$375,512,938.00

Note: If land is idle as a result of saline seep, then the associated production input costs are lost to the Montana economy. An average of $55-65.00/acre cash inputs or variable costs are being spent to produce a crop.

Saline seep acreage has an average growth rate of 10% per year.

POTENTIAL GROWTH RATE OF SALINE SEEP ACREAGE
AND ASSOCIATED POTENTIAL LOSS IN NET INCOME

Year	Acres	Net Income/Yr. Per Acre		Total Net Income for all Seep Acres Lost/Year	8% Present Value Factor	Discounted Net Income for each Year to Present Value
0	280,000	x $15.00	=	$ 4,200,000.00		
1	308,000	x $15.00	=	$ 4,620,000.00	.926	$4,278,120.00
2	338,800	x $15.00	=	$ 5,082,000.00	.857	$4,355,274.00
3	372,680	x $15.00	=	$ 5,590,200.00	.794	$4,438,618.00
4	409,948	x $15.00	=	$ 6,149,220.00	.735	$4,519,676.00
5	450,942	x $15.00	=	$ 6,764,130.00	.681	$4,606,372.00
6	496,037	x $15.00	=	$ 7,440,555.00	.630	$4,687,549.00
7	545,640	x $15.00	=	$ 8,184,600.00	.583	$4,771,621.00
8	600,204	x $15.00	=	$ 9,003,060.00	.540	$4,861,652.00
9	660,225	x $15.00	=	$ 9,903,375.00	.500	$4,951,687.00
10	726,247	x $15.00	=	$10,908,705.00	.463	$5,050,730.00
11	798,872	x $15.00	=	$11,983,080.00	.429	$5,080,825.00
12	878,759	x $15.00	=	$13,181,385.00	.397	$5,233,009.00
13	966,635	x $15.00	=	$14,499,525.00	.368	$5,335,825.00
14	1,063,329	x $15.00	=	$15,949,935.00	.340	$5,422,977.00
15	1,169,629	x $15.00	=	$17,544,435.00	.315	$5,526,497.00
16	1,286,592	x $15.00	=	$19,298,880.00	.292	$5,635,272.00
17	1,415,251	x $15.00	=	$21,228,765.00	.270	$5,731,766.00
18	1,556,776	x $15.00	=	$23,351,640.00	.250	$5,837,910.00
19	1,712,453	x $15.00	=	$25,686,795.00	.232	$5,959,336.00
20	1,883,698	x $15.00	=	$28,255,474.00	.215	$6,074,926.00

Present Value of Lost Net Income = $102,359,642.00

Note: Net income figured using an average of $80.00/ac for fixed and variable costs, including real estate and personal property taxes, and a 30 bus/ac average yield on crop fallow.

30 bus/ac X $3.50/bus = $105.00/ac Gross Income

$105.00/ac - $80.00/ac = $30.00/ac ÷ 2 yrs. = $15.00/ac

The total net income lost of $102 million + total cash input lost of $375 million would mean a loss of $477 million to Montana's economy over a 20 year period if saline seep reclamation and prevention is not addressed aggressively. Using a 2.5 multiplier effect from agriculture dollars spent and earned, $1 billion 192 million would be lost to Montana's economy.

POTENTIAL GROWTH RATE OF SALINE SEEP ACREAGE

AND ASSOCIATED POTENTIAL LOSS IN CASH INPUT COSTS

Year	Compounded at 10%/Yr. Acres		Cash Inputs Per Acre Not Spent		Total Cash Inputs Not Spent on Acres/Year	8% Present Value Factor	Total Cash Input Purchases Lost to Montana Economy each year Discounted to Present Value
0	280,000		0		0		0
1	308,000	x	$55.00	=	$ 16,940,000.00	.926	$15,686,440.00
2	338,800	x	$55.00	=	$ 18,634,000.00	.857	$15,969,338.00
3	372,680	x	$55.00	=	$ 20,497,400.00	.794	$16,274,935.00
4	409,948	x	$55.00	=	$ 22,547,140.00	.735	$16,572,147.00
5	450,942	x	$55.00	=	$ 24,801,810.00	.681	$16,890,032.00
6	496,037	x	$55.00	=	$ 27,282,035.00	.630	$17,187,682.00
7	545,640	x	$55.00	=	$ 30,010,200.00	.583	$17,495,946.00
8	600,204	x	$55.00	=	$ 33,011,220.00	.540	$17,826,058.00
9	660,225	x	$55.00	=	$ 36,312,375.00	.500	$18,156,187.00
10	726,247	x	$55.00	=	$ 39,943,585.00	.463	$18,493,879.00
11	798,872	x	$55.00	=	$ 43,937,960.00	.429	$18,849,384.00
12	878,754	x	$55.00	=	$ 48,331,745.00	.397	$19,187,702.00
13	966,635	x	$55.00	=	$ 53,164,925.00	.368	$19,564,692.00
14	1,063,329	x	$55.00	=	$ 58,483,095.00	.340	$19,884,252.00
15	1,169,629	x	$55.00	=	$ 64,329,595.00	.315	$20,263,822.00
16	1,286,592	x	$55.00	=	$ 70,762,560.00	.292	$20,662,667.00
17	1,415,251	x	$55.00	=	$ 77,838,805.00	.270	$21,016,477.00
18	1,556,776	x	$55.00	=	$ 85,622,680.00	.250	$21,405,670.00
19	1,712,453	x	$55.00	=	$ 94,184,915.00	.232	$21,850,900.00
20	1,883,698	x	$55.00	=	$103,603,390.00	.215	$22,274,728.00
						Present Value of Cash Inputs	$375,512,938.00

Note: If land is idle as a result of saline seep, then the associated production input costs are lost to the Montana economy. An average of $55-65.00/acre cash inputs or variable costs are being spent to produce a crop.

Saline seep acreage has an average growth rate of 10% per year.

Exhibit #5
3-15-85
Peterson
Project 38

Glen Lake Irrigation District
P. O. Box 297
Eureka, Montana 59917

Feb.25th, 1985.

Dear Committee Member,

Enclosed please find copies of correspondence and reports showing the extreme importance of the "Therriault Creek Siphon".

At the hearing on Feb.15th, in the Capitol, Coralee Cheney of the Water Development Bureau, reported that their engineers had stated that the situation could be controlled by "minor maintenance". I immediately talked with the engineers from the S.C.S., Bob Bishop, and Lee Hofferber, who made the report. They informed me that the Water Development Bureau had talked to them on the 'phone, but not actually visited the site. They agreed with me that the statement in the "Renewable Resource and Water Development Programs" book, that reads "They indicated that the problem requires ongoing minor maintenance work to decrease the risk of canal failure" was mis-quoted or used out of context. The original report reads "minor maintenance work is ongoing." That means we are monitoring the problem and doing what little maintenance is possible in these extreme conditions.

I would appreciate it if you could find the time to read the enclosed information, and realise that although just a play on words, it drastically changes the meaning of the report.

Yours sincerely,

Ian A. Jeffcock,
Ditch Manager.

United States Department of Agriculture

Soil Conservation Service

Subject: ENG - GLID Slump Investigation near Eureka

Date: April 20, 1984

To: Donald J. Anderson, SCS
Area Conservationist
Missoula, Montana

File Code:

An on-site investigation of the Glen Lake Irrigation District Canal slumps and drainage problems was made on April 18, 1984. Participants included Ian Jeffcock, ditch manager, Bob Bishop, Glen Green, Lee Hofferber and Ed Juvan, all with the SCS.

The location of the problem area is just above Glen Lake and located in the NW¼ of Section 35, T36N, R26W. The critical ditch section is approximately one mile in length and is excavated in a steep hillside along Therriault Creek.

The downstream bank of this section of canal, consisting of earth fill, is unstable. Small to medium size bank sloughs were numerous along this section of canal. The unstable condtion is the result of seepage flows in the upland area adjacent to the canal and of seepage from the canal.

Seepage is saturating the toe of the fill section of the canal bank. The saturation results in low strength materials on very steep slopes. This condition results in sloughing.

As sloughing occurrs, seepage areas are covered with fine materials and flows are restricted causing a buildup of water levels in the fill section. This condition is condusive to accelerated bank sloughing and unstable conditions.

Alternatives Considered

1. Operate canal as is and monitor the canal frequently during operation.

2. Line the canal with an impervious liner and install a drainage system along the downstream toe of the fill section.

3. Replace approximately two miles of canal by installing a pipe siphon that would permit by passing the unstable section of the canal. The length would be approximately 2000 feet.

Discussion

1. Alternative one is being followed, because of lack of funds. Minor maintenance work is ongoing in this section of canal. The potential risk of canal failure is high. Failure would result in loss of irrigation water supply for the entire Glen Lake System and could result in extensive property damage along Therriault Creek.

2. Alternative two would be costly, because lining materials would have to be imported and construction access to the area would be very difficult. Installation of the drainage system would also be costly, because of steep hillside conditions and construction difficulty. Extensive vegetative removal would be required resulting in sedimentation damage to the adjacent stream. This alternative does not eliminate the potential sloughing of the upslope and plugging of the canal and possible failure.

3. Alternative three would be costly, but would eliminate approximately two miles of canal, which includes the high risk unstable section. The sipon size would be between 40 - 46 inches in diameter.

Recommendations

Because of the comparative cost and longer life, alternative three would be recommended. This would reduce the high maintenance cost and risk. If financing could be obtained this alternative should be implemented as soon as possible.

Ed Juvan
State Geologist

L. J. Hofferber
Area Engineer

cc: R. Bishop
Eureka (2)

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
Route 1, Box 319 Eureka, Montana 59917 296-2233

May 30, 1984

Inter-office Memo

To: Glen Lake Irrigation District

From: Robert J. Bishop, Agricultural Engineer

RE: Preliminary cost estimate for Therriault Creek Siphon

Number	Item	Units	Quantity	Unit Cost	Cost
1.	46" Dia. WSP	L. Ft.	1300	*$92.00	$119,600.00
2.	Concrete (inlet & outlet)	c. y.	30	$300.00	$ 9,000.00
3.	Rebar	lbs.	5600	0.75	$ 4,200.00
4.	Appurtenances	Job	xxx	$2,000.	$ 2,000.00
5.	Mobilization	Job	xxx	$4,000.	$ 4,000.00
				Total	$138,800.00
				+ 10% contingency	$ 13,880.00
				Adjusted total est.	$152,680.00
				Use this figure	$155,000.00

*1. Used $1.25 per inch diameter plus $.75 for hauling and placing selected fill (site includes rocky soil conditions).

$2.00/in. diam. $2.00 x 46" =$92.00/ft.

2. This does not include cost to build access roads and clearing trees.

By: Glen P. Green
Glen P. Green, District Conservationist

RJB:GPG/vkm

RECOMMENDATION: COPY RENEWABLE RESOURCE & WATER DEVELOPMENT PROGRAMS.

The Department recommends $25,000 for the project. Prior to contracting, the Department of Health and Environmental Sciences as well as the Department must approve the scope of work for the project and all funding must be committed.

-46-

APPLICANT NAME: Glen Lake Irrigation District

PROJECT/ACTIVITY NAME: Therriault Creek Syphon Construction

AMOUNT REQUESTED: $155,000

TOTAL PROJECT COST: $155,000

AMOUNT RECOMMENDED: $32,000 grant and $123,000 loan

PROJECT DESCRIPTION:

The Glen Lake Irrigation District of Eureka, Montana provides irrigation water to 3,156 acres. The district has a persistent bank sloughing problem in an unstable section of their main canal. The critical section is approximately one mile long and is located on a relatively steep hillside along Therriault Creek. The bank sloughing action results in restricted ditch flows and increased maintenance costs. The district is concerned that a canal failure might occur, which would interrupt their irrigation water supply and result in erosion damage to the creek below.

The district has proposed installation of a 46-inch syphon to eliminate the problem ditch section. The project would eliminate over two miles of canal and reduce associated maintenance costs.

TECHNICAL FEASIBILITY ASSESSMENT:

The major problem identified is bank sloughing in a one-mile section of canal. The Soil Conservation Service (SCS) has indicated the cause is saturated soils on very steep slopes. They indicated that the problem requires ongoing minor maintenance work to decrease the risk of canal failure. Failure would result in loss of irrigation water supply for the entire Glen Lake District until the ditch could be repaired. Failure may also result in extensive property damage along Therriault Creek.

The SCS conducted a preliminary on-site investigation and considered three alternatives as follows: 1) operate the canal as is with close monitoring; 2) line the canal and install a toe drain; or 3) replace approximately two miles of canal with approximately 2,000 feet of syphon. They recommended Alternative 3 because it would eliminate the existing risk of failure and has a longer life than Alternative 2 at a comparable cost.

The proposed solution is technically feasible and will eliminate the problem.

FINANCIAL FEASIBILITY ASSESSMENT:

The total project cost is estimated to be $155,000 which includes $138,800 construction and $16,200 contingency. The SCS will provide assistance to the Glen Lake Irrigation District for design and construction management activities at no cost to the owner.

The district currently charges an annual fee of $20 per acre for water delivered to all lands in the project area.

ENVIRONMENTAL IMPACT ASSESSMENT:

The project will require crossing Therriault Creek with a large-diameter syphon pipe. Clearing of timber and construction of an access road will also be required in the drainage. Final short- and long-term impacts should be addressed during the design and permit acquisition phase of the project.

Completion of the project will eliminate potential damage associated with the failure of the canal.

SUMMARY OF PUBLIC BENEFITS:

The proposed project will benefit members of the Glen Lake Irrigation District. Primary benefits include: improved agricultural water supply; improved water quality; water conservation; and prevention of property damage.

RECOMMENDATION:

DNRC recommends a grant of $32,000 and a loan of $123,000 for construction of the Therriault Creek syphon. Any reduction in the scope of the proposed project shall result in a proportionate decrease in grant funds.

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

WATER RESOURCES DIVISION

TED SCHWINDEN, GOVERNOR

32 SOUTH EWING

STATE OF MONTANA

(406) 444-6601 ADMINISTRATOR
(406) 444-6646 ENGINEERING BUREAU
(406) 444-6668 WATER DEVELOPMENT BUREAU
(406) 444-6601 WATER MANAGEMENT BUREAU
(406) 444-6610 WATER RIGHTS BUREAU

HELENA, MONTANA 59620

October 12, 1984

Glen Lake Irrigation District
c/o Neva Bolen
Box 297
Eureka, MT 59917

Dear ~~Ms. Bolen~~ Neva:

The Montana Department of Natural Resources and Conservation Water Development Program Advisory Council met on October 3 to make ranking and funding recommendations for the loan and grant applications received this year. It is estimated that we will have enough revenue to fund only the top 31 of the 76 applications received.

Your Therriault Creek Siphon Construction project ranked 46th out of these 76 projects. While it is unlikely that you will receive a grant, loan funds will still be available and offered to you for your project. Please note that these ranking and funding recommendations are not final, but that the final decision will be made by the 1985 Montana Legislature this winter. We will try to let you know when the legislative hearings for the Water Development Program are scheduled.

We will be contacting you again after the Legislative session to inform you of the final funding decision and to discuss contracting procedures where appropriate. Feel free to call our office at 444-6668 if you have any questions.

Sincerely,

Caralee

Caralee Cheney
Bureau Chief

4 2 93+41 94

"AN EQUAL OPPORTUNITY EMPLOYER"

October 26, 1984

Caralee Chaney, Chief of the Water Bureau
32 So. Ewing
Helena, Montana.

Dear Caralee,

I have talked to the Board members and they are very disappointed in the fact they were not notified of your meeting to review the grant applications. They would liked to have had the opportunity to explain our situation more thoroughly and to have answered questions your Board would have. Evidentally there were questions in their minds.

We have talked to some of the field people from S.C.S. that are from Kalispell and other places who have examined this project on the spot and do to it's critical condition we are asking that your board reconsider our rating so the grant funds could be available to us.

This problem lies only about ½ miles from U.S. Hiway 93. If it should break out during irrigation season we have been told by the engineers it would no doubt take out part of the Hiway. Our insurance would in no way cover such a catastrophe. This we cannot afford.

Our concern too is the many families in our district that would left absolutely without irrigation water and farming is their livlihood. It would be a disaster for our farming area.

The engineers tell us that due to the water springs along the bank of the area, putting in a syphon is the only solution but without this grant this cannot happen.

Thru one grant and a big loan from F.H.A. our district has put in 4 syphons striving very hard to conserve water. Unless we can put in this one now our efforts have been wasted.

Our loan is on a 40 yr. basis and our members are now paying $20 per acre water tax so there is no way we can get another loan.

Please reconsider our application and if you have any questions call 2960260 between 6 and 11 A.M.

Sincerely

Vera Dolen

Vera Dolen, Sec for G'I

DEPARTMENT OF HIGHWAYS

STATE OF MONTANA

Kalispell, Montana

December 18, 1984

Mr. Steve Schmitz
Department of Natural Resources
32 South Ewing
Helena, Montana 59620

Dear Mr. Schmitz:

I met with Ian Jeffcock in Eureka this morning to discuss possible problems concerning the Glen Lake Irrigation District.

We did not view the problem area itself, but Mr. Jeffcock thoroughly explained the situation and his concerns. It is, of course, difficult to speculate as to the damage that may be caused should the ditch fail, however I believe U.S. 93 would be affected by such a failure.

Considering the beaver dams involved and the large amount of dead timber and debris in the creek bottom the Department of Highways would, at the least, have a considerable mess to clean up. There is also a good possibility that our box culvert would become plugged and damage to the highway fill and the culvert itself would occur.

Looking forward, we urge the parties involved to rectify this situation as soon as possible.

Sincerely,

Steve Miller

Steve Miller
Maintenance Superintendent

SM:db

cc: Glen Lake Irrigation District
Hubert McKenzie
File

Lincoln County Parks & Recreation Department

418 Mineral Avenue
Libby, Montana 59923
(406) 293-7781

17 December 1984

Mr. Steve Schmitz
Department of Natural Resources
32 South Ewing
Helena, Montana 59620

Dear Mr. Schmitz:

I am writing to voice my deep concern about the Water Resource Board's refusal to fund an irrigation project proposed by the Glen Lake Irrigation District. The proposed project has been strongly endorsed by the Soil Conservation Service as well as other governmental agencies.

My concern is centered upon the devastating potential loss of prime recreational water. The water in question is Glen Lake. Without the ditch to augment the water level in Glen Lake with water from Graves Creek, the recreational use of Glen Lake could be almost totally destroyed.

The ditch at this point in time is in critical condition. The evidence submitted by the Glen Lake Irrigation District unhesitatingly points this out. If the ditch fails, which at this time seems most likely, the results will be most destructive. At the same time this would put the Glen Lake Irrigation District in an unenviable position.

Without the ditch to keep the water level in Glen Lake up to useable levels, the Glen Lake Irrigation District would be forced to draw down the top ten (10) feet of the lake they are entitled to by water rights. The farmers and ranchers who comprise the Glen Lake Irrigation District rely on the water they receive from Glen Lake to survive. Even if the lake is drawn down as far a possible it would only allow for two to three weeks of irrigation.

Glen Lake with the top ten (10) feet removed resembles a puddle with islands sticking up all over. The primary recreational use of Glen Lake is boating and those activities associated with boating such as water skiing and fishing. Glen Lake currently receives many thousands of man days devoted to boating recreation. The boating activity on Glen Lake would be in serious jeopardy without the ditch from Graves Creek.

The Lincoln County Parks and Recreation Department is currently involved in a multi-thousand dollar project to build new boating and swimming docks and areas at Glen Lake. If there is a severe decrease in the level of Glen Lake theses facilities will be useless.

Glen Lake receives heavy useage from tourists from many areas, most notably from Canada, who have returned year in and year out to enjoy the recreational opportunities provided by Glen Lake. The loss of revenue gained from the campers and users of Glen Lake would have a detrimental effect on the Tobacco Valley economy. Also, severely affected would be the property values around the lake. Without the added value of the recreational use of Glen Lake, the already depressed housing market in the Eureka area would be considerably diminished.

The Lincoln County Parks and Recreation Department most strongly encourages the Water Resource Board of the Department of Natural Resources to reconsider their current position concerning the grant request submitted by the Glen Lake Irrigation District. The ramifications of a denial go far beyond the seemingly simple abrogation of an irrigation project.

Thank you for your reconsideration. I remain

Sincerely,

Stephen Pray

Stephen Pray
Director
Parks and Recreation

Montana Department of Fish, Wildlife & Parks

Region One
Box 67
Kalispell, MT 59901
December 14, 1984
Ref: JH 6

Glen Lake Irrigation District
111 A Dewey Avenue
Eureka, MT 59917

Dear Sirs:

I examined the Glen Lake inlet canal from Graves Creek in the vicinity of Therriault Creek December 12, 1984.

It would appear to me that the canal, where it loops around and crosses Theriault Creek, is in some danger of spilling over or rupturing into Therriault Creek. If the contents of this canal were to suddenly run into Therriault Creek, impacts of the increased flow would be very detrimental to both the physical environment of the Therriault Creek Valley and the aquatic life in the creek proper.

I would expect that considerable damage would be done by the "flood waters" to agricultural and pasture lands and human habitation. It is likely that considerable existing creek channel would be lost and replaced by new channel. Large quantities of woody materials such as trees would be relocated and mostly in undesirable places. The present culverts carrying Therriault Creek under the county road and under U. S. Highway 93 probably would not have the capacity to carry the "flood water" and would undoubtedly be lost or damaged.

Therriault Creek does support a significant spawning run of rainbow and cutthroat trout originating in Lake Koocanusa. Flood waters from the Glen Lake canal would have very deleterious effects on both fish, spawning areas, and rearing habitats.

Sincerely yours,

Joe E. Huston

Joe E. Huston
Supervisory Fisheries Biologist

JEH/bj

1st NATIONAL BANK
P.O. BOX 326 • (406) 296-2521 • EUREKA, MONTANA 59917

December 13, 1984

Governor Ted Schwinden
Room 204
State Capitol Building
Helena, MT 59620

Dear Mr. Schwinden:

I am writing you on behalf of the Glen Lake Irrigation District. The District is seeking a grant to construct the Therriault Creek Siphon to prevent a portion of the canal, which runs from Graves Creek to Glen Lake, from slumping off into Therriault Creek. The District was not high enough on the list to receive a loan or grant from the Montana Department of Natural Resources and Conservation Water Development Program Advisory Council. The District is now seeking funds from the Governor's Legacy Program.

On behalf of the Glen Lake Irrigation District, I want you to know that the canal that carries water to Glen Lake for storage is vital to our economy. Much of the irrigation in the area is from the Glen Lake Irrigation District and should the canal bank wash out, it would cause a hardship on all the farmers and ranchers who depend on the water for grain, hay, and pasture. In addition, the extra water in Therriault Creek would also cause problems.

If there is any way the Governor's Legacy Program could fund money to construct the Therriault Creek Siphon, it would certainly help the members of the Irrigation District who are already servicing a debt of approximately $20.00 per acre per year.

Thank you for your consideration.

Sincerely yours,

Jack Kelly

Jack Kelly
President

JK/bh

cc: Steve Schmitz
Dept. of Natural Resources
32 S. Ewing
Helena, MT 59620

BOARD OF COUNTY COMMISSIONERS

LINCOLN COUNTY
STATE OF MONTANA

DISTRICT NO. 1, LIBBY
JIM R. MOREY

DISTRICT NO. 2, TROY
R. W. LINDSEY

DISTRICT NO. 3, EUREKA
NOEL E. WILLIAMS

CLERK OF THE BOARD AND COUNTY RECORDER, JANET B. F. SIEGEL
512 CALIFORNIA AVENUE
LIBBY, MONTANA 59923

Copy

February 22, 1985

Long Range Planning Committee
Capitol Station
Helena, Mt. 59620

RE: House Bill 205

Dear Committee Member:

I would like to give testimony to the extreme need that precipitated HB 205 submitted by Rep. Mary Lou Peterson.

Lincoln County has relatively little area suitable for agriculture, but the majority of what is suitable is concentrated in the Tobacco Valley, and the majority of that is, in turn, sustained by the Glen Lake Irrigation District Canal. The importance of this water source, historically and currently, cannot be over-emphasized. Lincoln County is the tenth most heavily populated county in the state and nearly a quarter of this population is concentrated in the Tobacco Valley area. The loss of this irrigation system would impact not only the farmers and ranchers who so heavily depend on it, but also the economy of the entire area. Much of the money that currently circulates locally would have to be spent out of the area to import the hay and other produce normally sustained by the water of GLID canal --there is no other viable source. And furthermore, I'm sure you all are aware of the problems the small farmers are having in their fight for economic survival.

I understand that testimony was earlier given by Caralee Cheney of the Water Development Bureau that the problem possibly could be effectively controlled by frequent maintenance. That is not true. All that have inspected the site, including geologists, engineers, and SCS personnel, have agreed that the risk of failure is extremely high, regardless of how frequently it is monitored, regardless of any maintenance program. Like the unstable hillsides of southern California, the area will inevitably slough away suddenly if left unchanged.

Such an occurrence would result in not only the loss of irrigation water for the entire system, but also in extensive flooding of the Therrialt Creek drainage, the protection of which in itself should be reason enough for funding the project.

If you're wondering why the project, if so necessary, can't be funded through normal procedures such as raising the assessment levied on the users, it is because the members of this district are already paying what I understand to be the highest rates in the state and, again, farmers being in the straits that they are, simply cannot bear the burden of the increase that would be necessary to fund this project.

This request is not one for "pie-in-the-sky" but rather, for a project that would eliminate the potential for a much higher future cost, in terms of production loss, property damage, fisheries damage, and ecomic well-being of a significant sector of our state.

Noel E. Williams COUNTY COMMISSIONER

Exhibit #6
3-15-85
Purdy
Project 38

DEPARTMENT OF HIGHWAYS

STATE OF MONTANA

Kalispell, Montana

December 18, 1984

Mr. Steve Schmitz
Department of Natural Resources
32 South Ewing
Helena, Montana 59620

Dear Mr. Schmitz:

I met with Ian Jeffcock in Eureka this morning to discuss possible problems concerning the Glen Lake Irrigation District.

We did not view the problem area itself, but Mr. Jeffcock thoroughly explained the situation and his concerns. It is, of course, difficult to speculate as to the damage that may be caused should the ditch fail, however I believe U.S. 93 would be affected by such a failure.

Considering the beaver dams involved and the large amount of dead timber and debris in the creek bottom the Department of Highways would, at the least, have a considerable mess to clean up. There is also a good possibility that our box culvert would become plugged and damage to the highway fill and the culvert itself would occur.

Looking forward, we urge the parties involved to rectify this situation as soon as possible.

Sincerely,

Steve Miller

Steve Miller
Maintenance Superintendent

SM:db

cc: Glen Lake Irrigation District
Hubert McKenzie
File

Lincoln County Parks & Recreation Department

418 Mineral Avenue
Libby, Montana 59923
(406) 293-7781

17 December 1984

Mr. Steve Schmitz
Department of Natural Resources
32 South Ewing
Helena, Montana 59620

Dear Mr. Schmitz:

I am writing to voice my deep concern about the Water Resource Board's refusal to fund an irrigation project proposed by the Glen Lake Irrigation District. The proposed project has been strongly endorsed by the Soil Conservation Service as well as other governmental agencies.

My concern is centered upon the devastating potential loss of prime recreational water. The water in question is Glen Lake. Without the ditch to augment the water level in Glen Lake with water from Graves Creek, the recreational use of Glen Lake could be almost totally destroyed.

The ditch at this point in time is in critical condition. The evidence submitted by the Glen Lake Irrigation District unhesitatingly points this out. If the ditch fails, which at this time seems most likely, the results will be most destructive. At the same time this would put the Glen Lake Irrigation District in an unenviable position.

Without the ditch to keep the water level in Glen Lake up to useable levels, the Glen Lake Irrigation District would be forced to draw down the top ten (10) feet of the lake they are entitled to by water rights. The farmers and ranchers who comprise the Glen Lake Irrigation District rely on the water they receive from Glen Lake to survive. Even if the lake is drawn down as far a possible it would only allow for two to three weeks of irrigation.

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Thank you for your reconsideration. I remain

Sincerely,

Stephen Pray

Stephen Pray
Director
Parks and Recreation

Montana Department of Fish, Wildlife & Parks

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December 14, 1984
Ref: JH 6

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Sincerely yours,

Joe E. Huston

Joe E. Huston
Supervisory Fisheries Biologist

JEH/bj

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Thank you for your consideration.

Sincerely yours,

Jack Kelly
President

JK/bh

cc: Steve Schmitz
Dept. of Natural Resources
32 S. Ewing
Helena, MT 59620

Exhibit #7
3-15-85
Connelly
Project 32

Bob,

Will you record me as being in support of the Whitefish Grant — Long Range Bldg — today.

Mary Ellen Connelly

Exhibit #8
3-15-85
Messex, Proj.
32

WHITEFISH RIVER CLEANUP

PROBLEM:
1) Debris and sediment obstruct the River channel, reduce fisheries habitat and aesthetic values
2) Coliform bacteria from direct animal access contaminates the River
3) 88% of streambank erosion in this area is man-caused
4) The unsightly River area detracts from a resort community dependent on natural resources and aesthetics for its economic livelihood

BACKGROUND:

Residents of the Whitefish area have neglected the Whitefish River for years, allowing it to be used for a community sewage disposal system and dump. Although the River continues to be used as a domestic water supply and irrigation source, the channel has become choked with debris and sediments which limit fisheries and recreational uses. Over the past several years, small groups have attempted to remove debris and improve habitat but they lack the manpower, equipment and knowledge of riparian areas needed to accomplish a thorough job in the best interests of both the community and the environment.

PROPOSED PROJECT:

In conjunction with the Soil Conservation Service (SCS) and MT Department of Fish, Wildlife and Parks (FWP), we have developed a program which calls for identification and removal of debris, habitat improvement, revegetation and bank stabilization. The following time schedule centers around low water periods, spawning and growing seasons and was prepared with the SCS and FWP.

Summer - Fall, 1985 - reinventory, project planning

Winter - Spring, 1986 - obtain permits and access permission, design new livestock access, develop program to maintain water quality in the future

Summer - Fall, 1986 - debris removal, fencing, access ramps, stream modifications, public education

Spring - Summer, 1987 - revegetation, public education

CONCLUSION:

The River plays an important role in the community, providing water, fisheries and waterfowl habitat, recreation and open space. Its maintenance, preservation and enhancement is of widespread interest and benefit. Resources are not locally available for a coordinated cleanup and restoration project. Cleaning the River and stabilizing the riverbanks are an essential goal in maintaining water quality in the watershed.

RECOMMENDATION:

That the Legislature assist the Whitefish community to protect and enhance the River resource. An allocation of $ 60,000 will enable us to provide equipment, supplies and engineering design for the completion of this project. Most of the labor will be provided by the local community.

Montana Department of Fish, Wildlife & Parks

Exhibit #9
3-15-85
Messex
Project 32

November 15, 1984

Jo Messex
Manager
Whitefish Sewer and Water District
City Hall
Whitefish, MT 59937

Dear Jo:

I would like to add my support for your proposal to clean up a portion of the Whitefish River. A healthy river system provides fish and wildlife resources and recreational and aesthetic opportunities for nearby communities. A parallel drainage, the Stillwater River, has suffered from land use abuse; thus increasing the value of the Whitefish system to the area. Our current estimates are that the Whitefish River provides over 3,000 man days of fishermen use annually. Much of that use is concentrated in the upper end due to a popular localized northern pike population and a section of river that is open to year-round fishing. Good aesthetics, ease of floating, and proximity to population centers also makes the Whitefish River a popular floating stream. We estimate there are a minimum of 400-500 floater-days of use on the river each year. The river is also used incidentally by duck hunters, swimmers, and trappers.

Unfortunately, the Whitefish River has also had its share of neglect and abuse. Accumulations of debris from past log drives and domestic refuse have created hazards for recreational users, encouraged sediment deposition, reduced aesthetic values, and probably impacted channel stability. A program to remove or manage the debris would definitely benefit the river system, and my office would be pleased to provide technical assistance if you are provided the opportunity to implement your program.

Sincerely,

Jim Vashro
Regional Fishery Manager

Terry Knupp
Regional Parks Manager

JV/blj

OCT 2 9 1984

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

35 W. Reserve Drive; Kalispell, Mt. 59901

October 23, 1984

Jo Messex
Whitefish County Water and Sewer District
Box 1755
Whitefish, Mt. 59937

RE; Whitefish River Cleanup

Jo,

I want to encourage you in your efforts to cleanup the Whitefish River from the lake to the Highway 40 bridge.

In 1976 SCS, along with the Montana Dept. of Fish and Game and U.S. Fish and Wildlife Service, floated the river and conducted an inventory of the stream bed, banks and other features. They found this section to have alot of junk in the river such at tires and refrigerators as well as eroding, overgrazed banks.

The survey was in preparation for a planned Small Watersheds project that would have addressed some of this cleanup you propose. The project was not approved and there has been no concerted efforts since.

If I can be of any assistance let me know. The large scale photos used in the stream inventory show locations of problem areas. You may want to borrow them for your cleanup program.

Sincerely,

Tim Wiersum
District Conservationist

WHITEFISH COMMUNITY DEVELOPMENT CORPORATION
P.O. BOX 1214 • 433 - 2ND STREET • WHITEFISH, MONTANA 59937 • 862-4612

November 12, 1984

Jo Messex, General Manager
Whitefish County Water & Sewer District
P.O. Box 1755
Whitefish, Montana 59937

Dear Jo;

The Whitefish Community Development Corporation would like to take this opportunity to endorse and support your efforts in behalf of the Whitefish County Water and Sewer District in initiating a program to coordinate and undertake a clean-up project for a portion of the Whitefish River. For a great many years, this beautiful physical amenity and community asset has been abused and ignored. It is with pleasure we anticipate a concerted effort to undertake the rehabilitation of this portion of the river.

While the Development Corporation cannot at this time offer to assist with the financial aspects of this project, we will be happy to cooperate with your organization and with all of the other many agencies and entities that have indicated support. We do feel that the fish and wildlife benefits will alone prove cost effective for this project, and aesthetic and economic gains will have a far reaching benefit to the Whitefish Community.

Please keep our organization informed of the progress of this venture, and do call on us as we will assist you in whatever ways we can. We do understand you have applied for a grant funded by the Legacy Program, and would encourage the agency administering this program to rate this project very high due to its far-reaching and beneficial impacts.

Sincerely,

Jerry E. Hanson

JERRY E. HANSON, President
Whitefish Community Development
Corporation

City of Whitefish

Box 158, Whitefish, Montana 59937 (406) 862-2640

OCT 29

October 24, 1984

Ms. Jo Messex, Manager
Whitefish County Water and Sewer District
P. O. Box 1755
Whitefish, MT 59937

Dear Ms. Messex:

Please be advised that the City of Whitefish supports and advocates your grant proposal for restoration of the Whitefish River from damage caused by logging activity and related "booms" during such activity. We feel such a proposal fits well into the Governor's Legacy Program. Such a project would improve the environment, enhance the rivers visual impact and upgrade recreational uses, particularly fishing. In a recreation oriented area such a project is not only environmentally sound but economically beneficial.

With recent national publicity on river restoration in other states, such as Maine and Oregon, we think such a project would demonstrate Montana's commitment to restoration of damaged areas. Such projects lend themselves to good visual presentations and we urge you to be sure "before" film footage is taken to compare with the completed project. This film footage could not only generate good publicity for the state but be most useful in demonstrating to the legislature the desirability of continuing the program in future years if it is funded in 1985.

Sincerely,

Jack B. Arnold
City Manager

JBA/rb
cc: Mayor
Councilmembers

Whitefish Area Chamber of Commerce

505 SPOKANE AVENUE • P.O. BOX 1309 • WHITEFISH, MONTANA 59937 • 406-862-3501

October 25, 1984

Whitefish County Water & Sewer District
P.O. Box 1755
Whitefish, MT 59937
ATTN: Jo Messex

Dear Jo:

The Whitefish Area Chamber of Commerce strongly supports your grant request for funds to clean up the Whitefish River.

The City of Whitefish is a recreational and resort community. As such, we are dependent on our aesthetic appeal, recreational opportunities and natural resources to attract visitors. The Whitefish River winds through the center of our community and is an important visual and recreational resource.

In its present condition, the river is not an asset to the community.

It is essential that the Whitefish River be restored to its natural condition. It can provide a focal point for residents and visitors and become a source of community pride.

Sincerely,

Lynn Walker

Lynn Walker
Executive Manager

October 25, 1984

Jo Messex
Whitefish County Water & Sewer District
Box 1755
Whitefish, MT. 59937

Dear Jo:

We understand that the Whitefish County Water and Sewer District is submitting a grant request to the D.N.R.C. for funds to clean up the Whitefish River. This program will provide for removal of debris from the river, stabilization of streambanks and enhancement of fisheries and recreation resources.

The City of Whitefish approved a plan for Riverside Park in 1983. This is a community park along the Whitefish River that includes a trail system, outdoor ampitheater and picnic area. It is designed to emphasize the river and it's natural and recreational opportunities.

We strongly support the proposed program as cleaning up the river is an essential part of developing this facility.

Sincerely,

Susan Abell

Susan Abell
Chairperson, Parks Advisory Board
City of Whitefish

Exhibit # 10
3-15-85
Munshower
Project 33

Testimony on Legacy Programs

Prepared by: Dr. Frank F. Munshower
Director Reclamation Research Unit
Montana State University

Date: March 15, 1985

No one can question the Project Guidelines and I am not here to attack any proposals recommended for funding, however, I believe that the emphasis of those proposals tentatively selected for funding completely misses an important point. They address weeds, hazardous wastes, water, soil erosion and abandoned mine lands, but where in these proposals is any thought given to the present or future environmental impact of the industry that generated this money. That is, where are the investigations that meet Project Guideline No. 6, "Provide for research, demonstration, and technical assistance to promote the wise use of Montana's natural resources and make processing environmentally compatable." You must go all the way through the list to the study ranked No. 33 to find an investigation that addresses this guideline.

Montana has some $15,000,000 for abandoned mine land programs tied up in the Federal Bureaucracy, we have the E.P.A. Hazardous Waste Program, and the Soil Conservation Science; but where do we have a program for the amelioration of the environmental problems of the mining industry.

I consider myself some sort of an environmentalist but I also believe that mineral extraction and processing can be compatible with existing ecosystem uses in Montana, be these ecosystems rangelands or mountain forests. To preserve the environmental amenities of disturbed areas requires research and very often this research is expensive. The mining industry should not be supported at the expense of the tax payer but the Legacy Program is funded by an industry tax. The hard rock part of this tax base is being destroyed in the present economic squeeze. It seems appropriate since the source of the money is threatened and the project guidelines call for research assistance to promote the wise use of our natural resources and make their processing environmentally compatable that some of the money in the Legacy Program would be directed to proposals that will help make the processing of minerals environmentally compatable. Such is not the case.

One of the major environmental problems facing hard rock mining and ore processing is the acid generation problems. It has been known for many years that lime can be added to acid generating mine wastes to neutralize them and alleviate toxic trace metal problems. Means of predicting the presence of the problem prior to mining, how much lime will be required to neutralize the wastes, how to incorporate the lime deep enough to provide a suitable plant root zone and what plant species will

perform best on these materials are not known. We are beginning to address segments of these problems with funding from the Montana Department of State Lands Abandoned Mine Lands program and a mining company in Wyoming but this is a very large problem area, its solutions will not be found quickly or cheaply. No single mine today could afford such an expensive undertaking, yet the information is vital to the health of the mineral extraction industry. The Legacy Program would appear to be an ideal vehicle to support such research.

A proposal prepared as a joint study by the Reclamation Research Unit at Montana State University and the Montana Bureau of Mines and Geology at the Montana School of Mines addressed the generation of acid drainage and minesoils. These problems are associated with most of the abandoned hard rock mine wastes and tailings throughout western Montana and are even found at abandoned coal mines in this state. In addition, acid problems usuallly develop from the extraction and processing of sulfide ores at active mines. This study would benefit present hard rock mining and would address basic acid problems which must be answered before large scale rehabilitation of abandoned mine lands can occur.

Since this acid generation study met so many of the project guidelines, I was surprised at its low rating. Since it was the highest ranked proposal addressing Project Guideline No. 6 it was even more surprising. In view of the present economic state of the industry that generates this fund, this industry's environmental needs and the employment picture in this industry it is astounding that some of this program funding will not be directed to the alleviation of the mineral industries environmental problems.

Exhibit #11
3-15-85
Beck
Project 31

DEPARTMENT OF NATURAL RESOURCES
AND CONSERVATION
CONSERVATION DISTRICTS DIVISION

TED SCHWINDEN, GOVERNOR

32 SOUTH EWING

STATE OF MONTANA

(406) 444-6667

HELENA, MONTANA 59620

Mr Chairman, members of the long range planning committee, my name is Ray Beck, I represent the Conservation Districts Division of the Department of Natural Resources and Conservation.

Soil properties are a major consideration, or at least should be, for all community planners, farm and ranch managers, construction engineers, appraisers, developers and builders, homebuyers, land use and recreation planners, and anyone else that will deal with an activity involving the soil. Among the important soil properties described in soil surveys are: drainage, permeability; infiltration rate; flood hazards; depth to water table; seasonal wetness; depth to bedrock; erodibility; slope; content of sand, silt and clay; shrink-swell; corrosivity; and soil structure.

Montana is approximately 55 percent complete with the states survey. At present federal funding rates, it will be into the two thousand twenties before the survey is complete.

We feel that there is an urgent need to expedite this process and urge your consideration of funding this soil survey request.

Thank you.

Ray Beck

publications & graphics

"AN EQUAL OPPORTUNITY EMPLOYER"

FACT SHEET

MONTANA SOIL SURVEY STATUS

United States Department of Agriculture

Soil Conservation Service

Federal Building, Room 443
10 East Babcock Street
Bozeman, MT 59715

Exhibit #12
3-15-85
Beck
Project 31

For More Information: Soil Conservation Service Office in your county.

WHAT: The U.S. Soil Conservation Service makes and publishes soil surveys of agricultural and built-up areas for nonfederal lands.

Each soil survey describes the physical and chemical characteristics of the soils in the survey area--generally a county. It names and classifies the soils according to a nationwide system and provides information on the potential and limitations of the soils for various uses. Detailed maps show where each soil is located.

HOW: In making the survey, soil scientists determine the soils' texture, structure, chemical composition, depth, slope, and other features that affect their response to various uses and various kinds of management.

WHY: These surveys form the basis of nearly all conservation planning. They are carried out in cooperation with state agricultural experiment stations and other federal and state agencies. SCS also helps other agencies prepare special maps and reports based on soil surveys.

Soil surveys are important tools for planning the use and management of land and water resources.

WHO USES: They are used by farmers and ranchers; city, county, state, and federal agency personnel; and land use planners, engineers, contractors, developers, builders, and others.

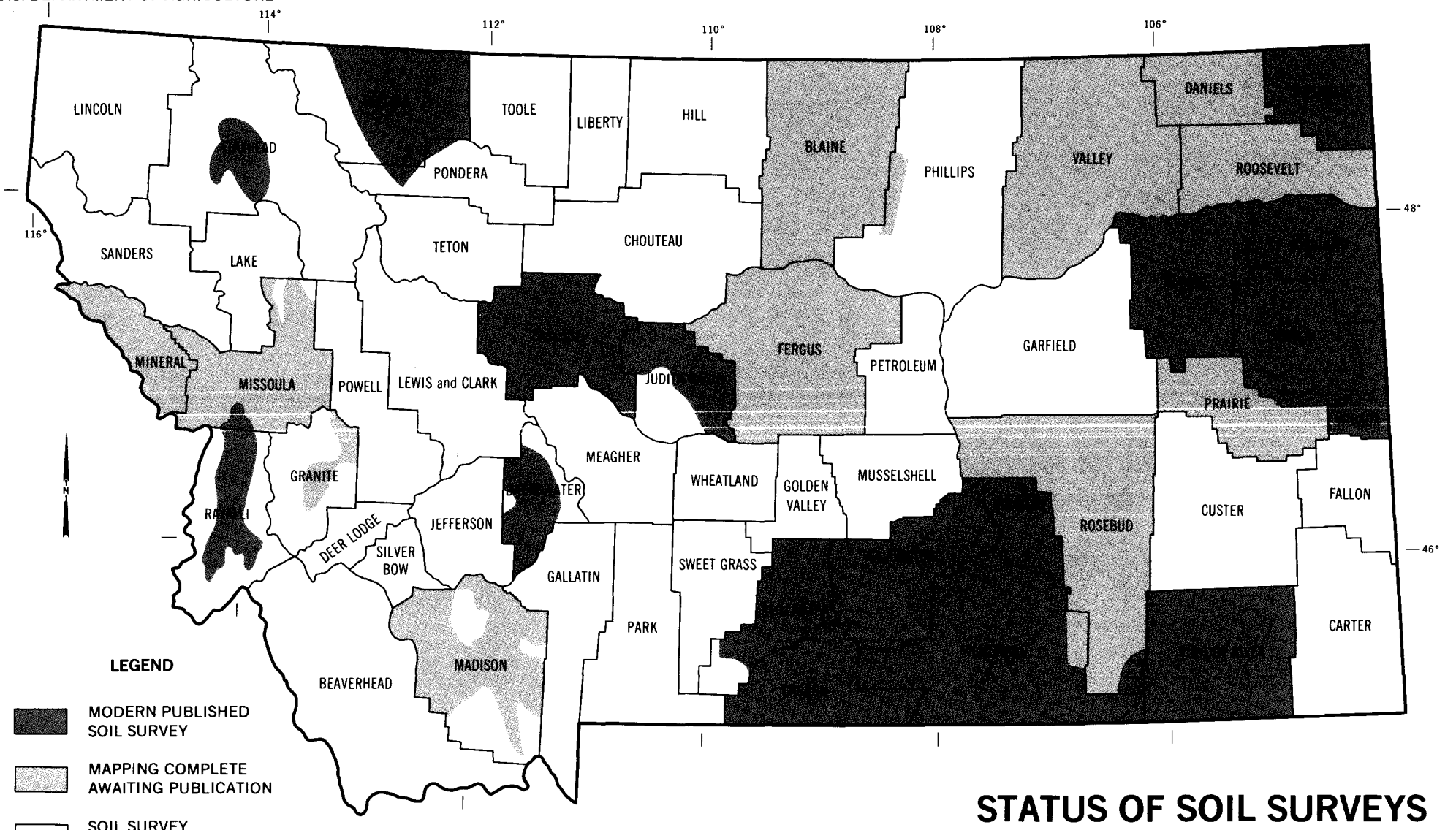
The survey is useful to many people, ranging from the farmer who wants to control erosion . . . to the engineer who needs to know what kind of structure the soil can support . . . to the planner looking for a suitable site for a municipal reservoir.

STATUS: In Montana, soil scientists have mapped about 57 percent of the state by the end of 1984. This amounts to about 53.5 million acres.

November 1984

U.S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE



LEGEND

- MODERN PUBLISHED SOIL SURVEY
- MAPPING COMPLETE AWAITING PUBLICATION
- SOIL SURVEY IN PROGRESS
- NO SOIL SURVEY IN PROGRESS

STATUS OF SOIL SURVEYS

MONTANA

AUGUST 1984

0 25 50 75 100 MI

0 50 100 150 KM

SOURCE: Data ... iled by SCS Field ... nnel.

REVISED JU... 984 4-R-38829

USDA-SCS-FORT WORTH, TEXAS 1984

Exhibit # 13
3-15-85
Duaine
Project 40

BUTTE MINE-FLOODING MONITORING

Situation:

- Cessation of pumping of underground workings on April 23, 1982.
- Inflow of water from 3,000 gpm to greater than 10,000 gpm.
- Water levels have risen over 2,400 feet in underground workings.
- Water in the Berkeley Pit is over 300 feet deep.
- Water quality is quite dynamic, i.e., TDS varies from 4,000 ppm to greater than 10,000 ppm within two weeks' time with no change in pH.
- Water quality in the underground workings appears to change with depth; within 100 feet iron changes from 90. ppm to 2,500. ppm.
- Water quality also appears to change with depth in the Berkeley Pit itself, but not as dynamically as the underground workings at the present time; copper from 84. ppm to 164. ppm.
- At the present time there are three newly proposed open pit mines within the state having plans for flooding once mining is complete; they are the Centennial Minerals - MT Tunnels Project at Corbin-Wicks, the Western Energy Company's - Winston Area Project, and the Montoro Project - German Gulch Mine at German Gulch.

Proposed Solution:

- o Initiate a sampling program that addresses the water quality variabilities and changes with depth.

- o Purchase sampling equipment to profile the water columns, in order to better understand the chemical changes taking place; presently this equipment is not available from any entity within the state; the equipment is quite portable and could be used at numerous sites.

- o The amount of compliance monitoring presently necessary with mining properties could be substantially reduced through information gleaned by use of the above-mentioned equipment.

- o Information gathered might show alternative mining methods, or metal extraction to be feasible from flooded sites.

- o Information gathered would benefit the state and mining industries within and outside of Montana alike.

- o Research of the flooding of the Berkeley Pit and associated underground workings in Butte can be considered a worse-case situation; therefore, environmental problems associated with it could be used to better design reclamation plans at other sites.

- o The Butte Mine-Flooding presents an opportunity for establishment of state-of-the-art monitoring at a novel site; it is an opportunity that does not happen often and could lead to the establishment of Montana's research reputation in hardrock mining reclamation activities.

CROSS SECTION LOOKING WEST

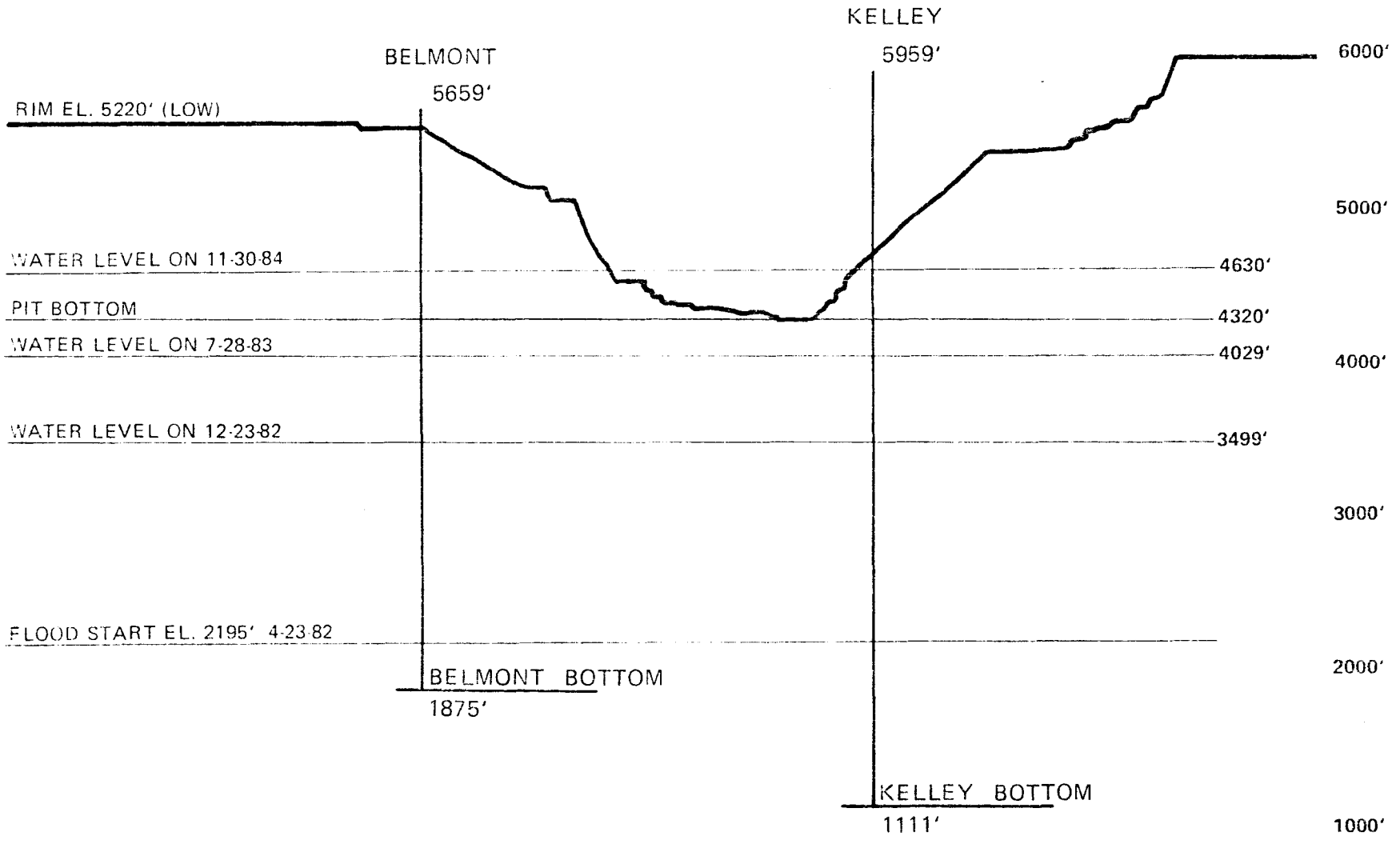


Exhibit #14
3-15-85
Project 46

Before the Senate Long Term Planning Subcommittee
of the Montana Legislature

Statement by Gary Ray

Concerning Section 2(2)
of House Bill 922

March 15, 1985

A Statement in Support of the Following Research Proposal:

Clark Fork Basin Denuded Zone Sediments: Effects on Germination and Net Productivity of Two Riparian Grasses

Investigators: G. Ray, S. Carlson, & P. Tourangeau,
Botany Dept., University of Montana

Amount Requested: $21,797

Present Ranking: 46 (in Section 2(2) of HB 922)

Our project will measure the performance of two grass species under heavy metal stress. These grasses inhabit highly contaminated segments of the Upper Clark Fork flood plain. In the decades since metal mining discharges began on the Clark Fork's headwaters, these forage grasses have adapted to toxic levels of heavy metals by developing effective means of tolerance.

Research that measures the tolerance of grasses grown in soils of varying metal content will determine maximum allowable levels of soil contamination that will permit recolonization of devegetated sites. The proposed research is based on studies recently completed by the investigators on the Grant Kohrs Ranch and from Deer Lodge to Milltown.

The establishment of a long term research program aimed at developing tolerant plant varieties is urgently needed. Greenhouse tolerance tests, field selection of tolerant varieties, and subsequent seed production needed for restoration will take many years. Our proposed study is a first step, and a necessary prerequisite, for future remedial work on the Upper Clark Fork River.

We recognize the difficult judgements required to prioritize the many proposals in HB 922. We urge, however, that due consideration be given to a priority ranking of our proposal which is consistant with its anticipated output- especially in terms of overall research and rehabilitation measures on streams affected by past mining and smelting.

Exhibit #15
3-15-85
Scott
Project 51

DEMONSTRATION OF THE CLAIM-II

COMPUTERIZED COAL MINE RECLAMATION PLANNING SYSTEM

A Project Proposal
Submitted to the
Natural Resource Legacy Program
Montana Dept. of Natural Resources and Conservation
Helena, Montana

by the

Institute of Natural Resources
Montana State University
Bozeman, MT 59717
M. Douglas Scott, Director

15 October, 1984

PROJECT SUMMARY

The CLAIM-II computerized reclamation planning system was created at Montana State University during 1977-1983, with U.S. Forest Service support. It was designed as a practical tool to be used by the mining industry and regulatory agencies. The purpose of this project is to demonstrate, and evaluate, the usefulness of this system for reclamation planning at active surface mines. Once it is refined to match actual operating practices, the system can be used to meet four significant needs of the mining industry and regulatory agencies. These are: a) need for improved planning efficiency; b) need to avoid reclamation failures due to unrealistic land use goals; c) need to speed up the reclamation permitting process; and d) need for speeding up and standardizing the evaluation of public lands for coal tract leasing. By answering these needs, reclamation planning costs can be greatly reduced, which will result in lower energy costs for Montanans and citizens throughout the United States. Also, reclamation may be done in a more timely fashion, which enhances the quality of life for those people living near surface mines in Montana.

Reclamation plans produced by the CLAIM-II system would be compared to actual plans developed by the professional staff at three operating mines in the State. If significant differences were found, the CLAIM-II programs would be modified so as to more closely reflect current reclamation practices. The revised CLAIM-II programs would then be released to all interested regulatory agencies and mining companies for their own reclamation planning use.

This project would be conducted by the Institute of Natural Resources, at Montana State University. The total amount requested for the 19 month project period is $87,048.

PROJECT OVERVIEW

When we read the newspapers, and hear comments from industry groups, it is obvious that Montana has a reputation of being "anti-industry". This attitude is especially prevalent in the coal mining and utilization industries. Even though a recent ranking of Montana's business climate shows the State to be relatively favorable for business operations, as Governor Schwinden recently noted, what people perceive to be true is reality, at least for them.

In the case of coal mining, Montana is well known for its stringent, detailed regulatory requirements for obtaining mining and reclamation permits. It literally takes years for a mining company to gather and submit data for a reclamation plan and, with the usual required resubmittals, it often takes over a year for agency review and approval of the permit.

We do not propose that Montana's reclamation laws be weakened - they were created after much study, and represent the will of the people. What we do propose, however, is that the reclamation planning and permit review process be made as objective and efficient as possible, through the help of computer technology. If this can be done, Montana can demonstrate to the coal mining and utilization industries that the State is responsive to their concerns, yet we do not have to compromise our reclamation standards. In this way, we can help encourage the coal industry to do business in the State which, in turn, can provide more jobs for Montanans without sacrificing environmental quality. This is what our proposal for a reclamation planning demonstration project is all about.

Letters of support for the project have been obtained from the mining industry.

TABLE I

RESOURCE INDEMNITY TRUST TAX RECEIPTS

Fiscal Year	Coal	Oil	Natural Gas	Metals	Other	Total
1974	$ 61,687	$ 640,771	$ 44,475	$ 352,960	$ 38,009	$1,137,902
1975	239,391	1,201,125	49,861	513,940	45,722	2,050,039
1976	409,810	1,294,364	82,754	130,632	63,804	1,981,364
1977	496,340	1,399,698	74,268	160,104	79,309	2,209,719
1978	522,333	1,316,917	165,348	145,173	96,644	2,246,415
1979	225,681	1,434,472	231,530	93,872	121,803	2,107,358
1980	928,798	1,828,947	355,054	353,130	164,393	3,630,322
1981	825,496	3,328,426	419,647	238,595	146,861	4,959,025
1982	1,000,195	5,308,525	491,832	215,776	142,825	7,159,153
1983	1,892,248	4,768,072	522,396	442,858	212,162	7,837,736
Total	$6,601,979	$22,521,317	$2,437,165	$2,647,040	$1,111,532	$35,319,033
% Total	18.7%	63.8%	6.9%	7.5%	3.1%	100.0%

SOURCE: Office of Budget and Program Planning, Governors Office

Exhibit #16
3-15-85
Scott
Project 51

PEABODY COAL COMPANY

ROCKY MOUNTAIN DIVISION
10375 EAST HARVARD AVENUE
SUITE 400
DENVER, COLORADO 80231
(303) 337-5903

November 14, 1984

Natural Resource Legacy Program
Department of Natural Resources and Conservation
Water Resources Division
32 South Ewing
Helena, MT 59620

Gentlemen:

Earlier this year Mr. Douglas Scott, Director of the Institute of Natural Resources at Montana State University, contacted Peabody Coal Company for possible participation in a demonstration of the Claim-II computerized reclamation planning system. Further discussions with Mr. Scott and a review of literature pertinent to the Claim-II program has provided a good level of background information on this program.

After discussing the program and its merits with various individuals at Peabody's Big Sky Mine in Montana, and the Rocky Mountain Division Office in Denver, it is the consensus that this program demonstration can provide benefits to Peabody Coal Company. Furthermore, in the future other companies in the industry will have the opportunity for access to a program that has been demonstrated in the field and fine tuned based on actual field conditions.

Peabody Coal Company is willing to provide the appropriate sites, baseline data and man hours necessary to implement the Claim-II demonstration project. Peabody's operating Big Sky Mine near Colstrip, Montana would be the location of reclamation sites necessary for the project demonstration. Reg Hoff, Reclamation Supervisor, at the Big Sky Mine and Vern Pfannenstiel, Range Scientist, at the Rocky Mountain Division Office would aid in assembling and providing the appropriate data necessary for implementation of the project.

Peabody Coal Company feels that this project has the potential to provide time and cost savings during reclamation activities. Furthermore,

the transfer of technology from the research level to the field level should be achieved at every opportunity. It is our hope that this project may be implemented in the near future.

Sincerely,

Leonard Shearer
Director of Engineering

Vern Pfannenstiel
Range Scientist

kmt

c: Reg Hoff
Jim Lunan
Doug Scott
Leonard Shearer

NERCO MINING COMPANY
WESTERN DIVISION OFFICE
P.O. BOX 4000
SHERIDAN, WYOMING 82801
TELECOPIER 307·672·0906
TELEPHONE 307·672·0451

NERCO

October 22, 1984

Natural Resource Legacy Program
Depart. of Natural Resources and Conservation
Water Resources Division
32 South Ewing
Helena, MT 59620

To Whom it May Concern:

Mr. Doug Scott, director for the Institute of Natural Resources, at Montana State University, has informed me of his attempt to secure funding from the Natural Resources Legacy Program for a demonstration of CLAIM II. CLAIM II is a computer based surface mine reclamation planning program.

Mr. Scott discussed this proposal with me and indicated that an important step towards funding is interest expressed in writing by a company in an applicable industry. After discussing the proposal with Mr. Scott and reclamation people within NERCO Mining Company, NERCO Mining Company feels that the steps being taken by Mr. Scott are practical and necessary prior to applying the tool in real world situations. If in the future Mr. Scott requires assistance from NERCO Mining Company, we would welcome the opportunity to discuss in more detail the scope of work for the study and any participation which may be required.

If I can be of further assistance concerning Mr. Scott's request, please feel free to contact me.

Sincerely,

Glen A. Sattoriva

Glen A. Sattoriva
Manager, IS

GS/fp

cc: Doug Scott
J. R. Phillips
I1022842

AMAX COAL COMPANY
A DIVISION OF AMAX INC
105 SOUTH MERIDIAN STREET, P.O. BOX 967
INDIANAPOLIS, INDIANA 46206 · (317)266-2626

April 18, 1983

Dr. David A. Langegran
Program Associate
Macalester College
14 Carnegie Hall
St. Paul, MN 55105

Dear Dr. Lanegran:

We have reviewed the project proposal entitled, "Demonstration and Evaluation of the CLAIM-II Computerized Coal Mine Reclamation Planning System" dated March 8, 1983, by Montana State University and would like to provide our comments.

At this point in time, I must say that we are most interested in the possibilities of cooperating on the project. I should note that before we can make any obligation, we will have to enter into a cooperative agreement between Montana State University, Institute of Natural Resources and AMAX Coal Company. We have a standard type cooperative agreement which I feel would be appropriate for the project.

I understand that AMAX Coal Company would not be obligated in any way to provide funds; however, our contribution would be in the form of providing a site, mining data and limited staff time necessary to complete the project.

With the information given us, I can say that AMAX Coal Company is most interested in working with you on the project. I would suggest that once you have the logistics worked out, please contact me, and we can then proceed to work out the details of our cooperative agreement.

Sincerely,

James D. Spencer, Director
Environmental Engineering

JDS/GDD/11

cc: Douglas Scott

NORTHERN PLAINS RESOURCE COUNCIL

Field Office
Box 858
Helena, MT 59624
(406) 443-4965

Main Office
419 Stapleton Building
Billings, MT 59101
(406) 248-1154

Field Office
Box 886
Glendive, MT 59330
(406) 365-2525

Ms. Sandy Olsen-Johnson
Bureau Chief
Coal & Uranium Bureau
Montana Department of State Lands
1623 Eleventh Ave.
Helena, Montana 59601

March 9, 1983

Dear Sandy,

As you are aware, Dr. Doug Scott, Institute of Natural Resources, Montana State University, has developed a computerized reclamation planning system for Northern Great Plains Surface Coal mines called "Claim II"(see enclosed).

The strength of this program lies in its ability to help determine the relative feasibility of returning mined land to several land use options and to determine the costs and techniques involved.

We have examined the Claim II system and suggest that DSL contact Dr. Scott about the feasibility of applying it to the Montco project. Dr. Scott, who is familiar with the area and the project could give you an accurate assessment of the costs and benefits that would result in DSL's using this program.

Futhermore, this system might prove to be an invaluable tool in helping DSL analyze other pending and future mine applications.

Sincerely,

Russ Brown

Russ Brown
NPRC Staff

encl/

cc: Dr. Doug Scott

WITNESS STATEMENT

NAME Walt Klose BILL NO. 49

ADDRESS Star Rt Twin Bridges DATE 3-15-85

WHOM DO YOU REPRESENT? McHesson-Dry Gulch Gravity

SUPPORT ✓ OPPOSE _____ AMEND _____

PLEASE LEAVE PREPARED STATEMENT WITH SECRETARY.

Comments: Statement will be submitted later.

WITNESS STATEMENT

NAME Jerry J. Bromenshenk BILL NO. 622

ADDRESS University of Montana, Dept. Zoology DATE _____

WHOM DO YOU REPRESENT? University of University

SUPPORT ✓ OPPOSE _____ AMEND _____

PLEASE LEAVE PREPARED STATEMENT WITH SECRETARY.

Comments: Statement left

WITNESS STATEMENT

NAME Paul Peterson BILL NO. 422

ADDRESS 990 Yellowstone Trail DATE

WHOM DO YOU REPRESENT? Arrowhead Apiaries

SUPPORT ✓ OPPOSE AMEND

PLEASE LEAVE PREPARED STATEMENT WITH SECRETARY.

Comments: Oral only

WITNESS STATEMENT

NAME Edrie Vinson BILL NO. 922

ADDRESS Box 1651 DATE _____

WHOM DO YOU REPRESENT? ~~City of Lolo~~ Lewis + Clark Trail Heritage Found

SUPPORT ✓ OPPOSE _____ AMEND _____

PLEASE LEAVE PREPARED STATEMENT WITH SECRETARY.

Comments:

Support funding of Clark's Lookout State Monument site development

VISITORS' REGISTER

LONG-RANGE PLANNING SUBCOMMITTEE

BILL NO. HOUSE BILL 922 - LEGACY PROGRAM PROJECTS #26 through #51 DATE MARCH 15, 1985

SPONSOR REPRESENTATIVE HAL HARPER

* NAME (please print) *	RESIDENCE	SUPPORT	OPPOSE
Joe Purdy	Eureka	✓	
Ian Jelfrock	Eureka	✓	
Bill Woessner	U of MT - MTDWRRC	✓	
Dick Kennedy	Dillon	✓	
Paul Peterson	Deer Lodge	✓	
Jerry Brannenshenk	Univ. of MT	✓	
Tom Burns	Dillon MT	✓	
Frank Munshower	~~U~~ of Mont State U	✓	
Ted Ducaine	MT Bureau of Mines & Geo	✓	
ALVIN D. BOXWELL	CUT BANK F.O.C.	✓	
Henry McClernan	Mont. Bureau of Mines & Geol	✓	
Edrie Vinson	Red Lodge	✓	
MaryLou Peterson	HD# 1	✓	
Jo Messex	Whitefish	✓	
T.M. Casey	Kalispell	✓	
Gary Ray	Missoula	✓	
Herb Pasha	Highwood	✓	
Loyd Berry	Roycroft	✓	
John Zinne	Rapelje	✓	
Dr. M. Douglas Scott	Bozeman. I support full use of ~~the~~ RIT funds for legacy program		

IF YOU CARE TO WRITE COMMENTS, ASK SECRETARY FOR WITNESS STATEMENT FORM.

PLEASE LEAVE PREPARED STATEMENT WITH SECRETARY.

VISITORS' REGISTER

LONG-RANGE PLANNING SUBCOMMITTEE

BILL NO. LEGACY PROGRAM PROJECTS 26 - 51 DATE MARCH 15, 1985

SPONSOR House Bill 922
Hal Harper

NAME (please print)	RESIDENCE	SUPPORT	OPPOSE
Butch Andresen	Poplar	T<D	
Jane Holzer	Conrad	TCD	
Pete Purvis	Froid, Roosevelt Co	T.C.D	
DON HYYPPA	HELENA DFWP	—	
DELWYN GAGE	CUT BANK	✓	
Bob Williams	HOLOSOM	✓	
Loren Jenkins	Big Sandy	T.C.D ✓	
Ellis Hagen	Wesley Mont	T.C.D	
Ray Beck	CSD/PWRC	#31 ✓	

IF YOU CARE TO WRITE COMMENTS, ASK SECRETARY FOR WITNESS STATEMENT FORM

PLEASE LEAVE PREPARED STATEMENT WITH SECRETARY.