MINUTES

MONTANA HOUSE OF REPRESENTATIVES
51st LEGISLATURE - REGULAR SESSION

SUBCOMMITTEE ON LONG RANGE PLANNING

Call to Order: By Chairperson Connelly, on February 6, 1989, at 8:05 a.m.

ROLL CALL

Members Present: All

Members Excused: None

Members Absent: None

Staff Present: Claudia Montagne, Secretary; Carroll South, Staff Researcher, Legislative Fiscal Analyst's Office

Announcements/Discussion: None

RECLAMATION AND DEVELOPMENT GRANT PROGRAM

Tape 33:A:000

LEWIS AND CLARK COUNTY CONSERVATION DISTRICT, RANKING 1, Blackfoot River Abandoned Mines.
STAN BRADSHAW, Montana State Council, Trout Unlimited, spoke for the project. He said that it was the product of a joint effort of the Lewis and Clark County Conservation District and Blackfoot Chapter of Trout Unlimited, and introduced Jim Jensen of the Montana Environmental Information Center (MEIC), who was going to present a video on the project.

JIM JENSEN, MEIC, said that the project would address the headwaters area of the Blackfoot River, and distributed a photograph of the historic Mike Horse Mine, now abandoned, and the adit discharge which flowed into Mike Horse Creek, a major tributary of the Blackfoot River.

LAND LINDBERGH, (33:A:062), Greenough, Blackfoot River Trout Unlimited, testified for the project and stated that his concern was about the fishery in the corridor. He introduced into the record a study on heavy metals in the waters in and above the Lincoln area, EXHIBIT 1, Effects of Acid Mine Drainage on the Blackfoot River by Johnnie Moore.
REP. BARDANOUVE asked if the water could be shut off, and MR. LINDBERGH said no, and that the project would involve dirt work and revegetation to stop the discharge from getting into the river.

BEN MUNDIE, (33:A:105) Abandoned Mine Reclamation Bureau, Department of State Lands.

MR. MUNDIE testified as set forth in EXHIBIT 2. Regarding the Mike Horse Mine and in answer to Rep. Bardanouve's concerns, he said that if the mine was plugged, the discharge would leak out somewhere else. He elaborated on the process, saying that a concrete plug or wet seal would be applied, after which the mine tunnel would flood. He said that there would be a release valve at the mine opening. This method has been shown to eliminate atmospheric oxygen from the chemical reaction producing acid, thus decreasing the acid produced, possibly to zero. Another process used in the past to address the heavy metal problem in mine drainage was the construction of an artificial wetland. He said that it would be lined, and planted with acid tolerant species, with the result of reducing the metals.

SEN. HIMSL (33:A:165) asked if these projects would qualify for federal funding, and MR. MUNDIE said some possibly could in the future. He said that at the present time DSL could not prove to the Office of Surface Mining that the mine sites were affecting a population base, and were a threat to public health or safety. Therefore, the environmental and water quality concerns were not being addressed. He said that the only projects being funded by the federal government were closures of mine openings and projects where domestic water supply was threatened.

SEN. MANNING asked if the water from these mines filtered into the Lincoln water supply, and MR. MUNDIE said no, and that Lincoln's water supply was not from the river.

SEN. HIMSL (33:A:198) asked to whom would the grant be made, and MR. MUNDIE said that it would be made to the Lewis and Clark Conservation District, and that the $100,000 currently encumbered by the DSL would be included with the grant money into one project with one construction contract.

REED LOMMEN (33:A:208), Vice Chairman, Lewis and Clark Conservation District and Land Stream Manager with the state, spoke in favor of the project. He said that the district's qualifications as a sponsoring entity included projects completed south of Helena on Prickly Pear Creek.

REP. BARDANOUVE asked if there was a new mine in the area being opened, and MR. LOMMEN said there was potential for such a mine.

JIM JENSEN, MEIC, showed the video footage of the area and introduced the construction cost estimates, as set forth in EXHIBIT 3.

REP. CONNELLY asked about the exclusion of the Blackfoot tailings, and MR. JENSEN said that specific waste rock dump was three miles west of Lincoln, and was proposed for development by Sunshine Mining Company for a gold mine. He said that the review committee recommended that it therefore be excluded from this reclamation project. He also mentioned that Highway 200 would be widened in the area, and would affect these dumps.

BECKY GARLAND, Trout Unlimited, Lincoln, placed two letters into the record from the Lincoln Valley Chamber of Commerce, EXHIBIT 4, and the Lincoln Valley Economic Development Corporation, EXHIBIT 5. She testified for the project, and had one comment regarding the toxicity of the water. She stated that the water from the adits went underground just south of Lincoln, and that was where the metal content stopped. She said that the metals do get down to Lincoln.

RICHARD GRADY, Lewis and Clark County Conservation District, called and requested that his support of the project be included in the record. Letters of support from Paul Roos, Big Blackfoot Chapter, Trout Unlimited, and Clair Willits, Missouri River Flyfishers, were submitted to the committee (EXHIBITS 5A and 5B).

DEPARTMENT OF STATE LANDS, RANKINGS 2, 3 and 6, Elkhorn Creek Water Quality Improvement Project, Wood Chute Creek Basin Water Quality Improvement Project, and Middle Fork Warm Springs Creek Reclamation Project (33:A:338).
GARY AMESTOY, Administrator of the Reclamation Division, DSL, testified for the projects, outlining the function of the Reclamation Division in reclamation of abandoned mines, as set forth in EXHIBIT 6.

BEN MUNDIE, Abandoned Mines Reclamation Bureau, DSL, testified for the three projects as set forth in EXHIBIT 6.

SEN. MANNING (33:A:550) asked if there was any possibility of these mines being reopened, and MR. MUNDIE said he had no knowledge of any possibility. He added that what the department proposed to do would not preclude future mining activity.

MONTANA STATE UNIVERSITY RECLAMATION RESEARCH UNIT, RANKINGS 4 and 15, The Fate of Cyanide in Soils and Heap-leach Pads, and Toxic and Residual Cyanide (CN) Effects on Soil Microorganisms, Invertebrates, and Plants at Heap-leach Mine Sites, (33:A:573).
FRANK MUNSHOWER, Director of the Reclamation Research Unit, addressed both projects, stating that they were both closely related to each other and to one by the Montana Bureau of Mines and Geology. He described the heap-leaching method of extracting precious metals from low grade ore, and said that the study would cover the impact of CN on soils in cases of emergency and planned land applications, and also the impact of CN on the heap itself. See EXHIBITS 7A and 7B.

REP. BARDANOUVE (33:B:090) commented on the CN toxicity of the fine sands found in the creek above Hayes downstream from the old mine at Landusky, and asked how much CN was used in the process at Zortman/Landusky. DR. MUNSHOWER said there was a constant application, but that he could not quote an amount.

REP. THOFT asked if the pads would be abandoned eventually, and DR. MUNSHOWER said they would, and that since they were nutrient

deficient, there were questions regarding their ability to revegetate.

SEN. HIMSL asked DR. MUNSHOWER to explain the two phases of the project ranked 4, the Fate of CN in Soils and Heap-leach Pads. DR. MUNSHOWER said that the analysis of CN would be carried out by a Billings Laboratory; the site of Phase II had not yet been selected. REP. BARDANOUVE (33:B:126) asked if the Bureau of Mines and Geology had the ability to analyze CN, and JOHN SONDEREGGER from the Montana Bureau of Mines and Geology (MBMG) said that they did have that capacity. DR. MUNSHOWER said that they could contract with MBMG for the CN analyses if it was cost effective, and that they had not looked at this possibility yet.

REP. THOFT asked if CN at these concentrations was toxic to people and animals. DR. MUNSHOWER said that the concentrations employed in the spray applications to the heap-leach were not toxic to humans. REP. THOFT asked if the state through its regulations was going to ensure that the heap-leach piles were neutralized. DR. MUNSHOWER said no, that technical neutralization may not constitute total neutralization. He said that resurgences of CN solution could occur later. He said that the only CN complex measured, with an acceptable level set by regulation, was the weak acid dissociated WAD CN, but that other CN complexes could release CN later on.

REP. THOFT (33:B:184) asked about the old tailings from early CN process mines, and whether they could learn from these. DR. MUNSHOWER said that on the surface, they were fine, but that they did not know beyond what was going on below that. He said that where light, bacteria and oxygen were present, the CN levels were nontoxic after 50 years.

REP. BARDANOUVE asked how the CN got inside the rocks, and DR. MUNSHOWER said that at Zortman, the ore fractured on the surfaces where gold was originally deposited. Therefore the gold was on the fractured planes of the rock, and was able to be contacted by the CN solution. Otherwise, the ore would have to be ground into very fine particles to ensure contact by the CN.

SEN. HIMSL asked to whom they would report their findings, and if there was another similar study already completed in another state. DR. MUNSHOWER said that to his knowledge, there was no information available on this topic. He said that the information on what happens within the heap-leach itself would be filed as a report with DSL and would be disseminated to mining companies.

MONTANA BUREAU OF MINES AND GEOLOGY, RANKING 5, Land Application of Cyanide Leach Solutions, (33:B:235).
JOHN SONDEREGGER, Montana Bureau of Mines and Geology (MBMG)/Montana Tech, testified for the project, stating that what had been done to date had been done in the laboratory, and that this project would enable the research to be conducted in the

field on an actual mine site. In this way they could verify lab results in the field regarding the attenuation of CN and other metals by soils, and the potential release of these substances into the groundwater. The results of the research would enable DSL to have a better handle on regulations for future CN operations.

REP. BARDANOUVE asked if there had been any research done on the effects of CN on cattle. MR. SONDEREGGER said that he hadn't looked into this, and that the Water Quality Bureau would have information on that subject.

REP. THOFT (33:B:311) asked why the metals were not removed from the solutions before they were discharged, and MR. SONDEREGGER said that only the gold was recovered, and that the miners would prefer not to have the metals present in the ores at all as they increase the CN consumption.

GARY AMESTOY, (33:B:323) Administrator, Reclamation Division, DSL, testified for the project, stating that the DSL was the regulatory authority that administered the Montana Metal Mine Reclamation Act and would benefit from these studies. He said DSL was concerned about the use of CN because of its toxicity. Because of the low grades of ore currently being mined in the state, the CN heap-leach process was becoming a more popular means of extracting gold and silver. He said that there would be new legislation introduced regarding the use of CN by small miners, requiring that they get an operating permit. He said that there were many unknowns in the CN process and that the department was making permitting decisions based on the best information available at this time. MR. AMESTOY said the department could use the information proposed from these projects, both the MSU projects as well as the MBMG project. He encouraged both institutions to coordinate these projects so that the information would correlate and be more useful to the department.

GOVERNMENT OF BUTTE-SILVER BOW, RANKING 7, Public Lands Reclamation Project, (33:B:417).
DON PEOPLES, Chief Executive of Butte-Silver Bow, spoke on behalf of the project, stating that the completed Emma Mine site and the northwest ball fields were examples of the committee's activities. The monies in the project, the Public Lands Reclamation Project, would be used to reclaim 8 sites that were contaminated by mine waste fill material. The sites were used publicly or were public right of ways. MR. PEOPLES said that contaminants had been found in the soils.

JUDY TILLMAN (33:B:506), Community Development Department, referred to the report by Tetratech completed in 1985 on the trace mineral element concentrations on public land in Butte-Silver Bow. These elements included arsenic, lead, mercury, and cadmium, the metals of concern. MS TILLMAN went through the

eight sites, described them, and listed the concentrations of these metals found at each one.

REP. THOFT (33:B:603) asked what was done with the contaminated material, and MS TILLMAN said it was hauled away to an acceptable disposal site permitted by EPA and DSL. MR. PEOPLES said that the material could be processed at a later date to recover metal values using new processes such as a plasma arc furnace, in which case it would be temporarily stored in a repository.

JIM JOHNSTON, (33:B:635) Director of Public Works, Butte-Silver Bow, described the process as well as the budget. He said they would excavate 3-5 feet, install the zeolite, fabric or lime liner, backfill, topsoil and revegetate the sites for $120,800. He said they would be able to use the experience gained with past RIT sites.

MR. PEOPLES closed, saying the name of the project was "Get the Lead Out", and that the project applied not only to lead but to other trace elements hazardous to human health and safety. SEN. HIMSL (33:B:681) asked if they could complete the eight sites with the money recommended, and if the reclamation met EPA standards. MR. PEOPLES answered yes to both questions.

REP. FRITZ DAILY, House District 69, Butte-Silver Bow, testified for the projects, stating that the community had received other money from this program, and that the community had done a great job. He said that the projects had been completed in a prudent and competent manner using Butte-Silver Bow personnel. He particularly complemented Don Peoples and Jim Johnston for the projects they had completed.

REP. THOFT asked how the Urban Forestry project was going, and MR. PEOPLES said they would start in the spring.

GOVERNMENT OF BUTTE-SILVER BOW, RANKING 11, Ophir Mine Reclamation Project, (34:B:002).
DON PEOPLES, Chief Executive, Butte-Silver Bow, spoke for the project, distributing the site plan (EXHIBIT 8). He said that the Anaconda Company was participating, and had already removed the mine waste on the site, spending $75,000. The total amount of money they were requesting was $185,027 for much the same work as was done on the Emma Mine site. He said that a public park would be constructed in this central location, a primarily low-income, working class neighborhood.

JUDY TILLMAN spoke on the environmental conditions at the site, saying that significant concentrations of several metals had been found, as well as free silica and sulfates which were the major contributors to street dust.

SEN. MANNING asked if there had been any problems with children getting sick, and MS TILLMAN said that nothing had been documented, but that the levels of lead and arsenic and high

enough to cause potential health problems. She said the substances were potential carcinogens. MR. PEOPLES added that many times, these contaminants were taken into the body without any indication for years. However, he stated, Butte had a very high cancer rate, and urinalyses of children in the area showed a high level of lead and the other trace elements.

REP. THOFT (34:A:068) asked if the private yards showed this contamination, and how that would be dealt with. MR. PEOPLES said the yards also had contamination, and that EPA was looking at the problem.

JIM JOHNSTON (34:A:099) presented the budget, and said that besides the ambient air quality problems in the area, there was a drainage problem. The street dust, containing silica, sulfates and metals, affected the storm drain system and degradated Silver Bow Creek.

DNRC, CONSERVATION DISTRICTS DIVISION, RANKING 8, Nonpoint Source Pollution Control in Montana, (34:A:125).
RAY BECK, Administrator of the Conservation Districts Division at DNRC, testified for the project as set forth in EXHIBIT 9.

REP. BARDANOUVE (34:A:173) asked about the statement in the grant application and review that the reviewers were critical yet supportive and asked for clarification. JACK THOMAS, State Coordinator, Nonpoint Source Pollution, Water Quality Bureau, DHES, said they were critical because the information developed in the Section 208 program, the planning program, would be used in Section 319, the interpretation program.

SEN. HIMSL asked if this was a duplication with the Flathead Basin Commission or with the efforts of other agencies working on this issue. MR. THOMAS said that the Flathead Basin Commission is part of the program, and that they were coordinating with all federal and state agencies that are concerned with nonpoint source pollution. SEN. HIMSL asked if this unit would help fund these other agencies with this money, and MR. THOMAS said no, that most of the federal agencies were providing funds to help the state with its program. He did say that under this proposal the state would provide money to the Flathead Basin Commission for educational services.

REP. BARDANOUVE (34:A:219) asked how large their demonstration projects would be, and MR. THOMAS said the scope of the projects would vary. Otter Creek, for example, would be a 31 mile watershed, while others would be more confined, perhaps just a management program on a single landowner's land. The purpose of the demonstration projects would be two-fold: to demonstrate the use of alternative best management practices (BMP's) and to provide to landowners up to 95% of the cost share in order to show landowners that these alternative BMP's could work.

REP. BARDANOUVE asked if there would be any fencing off of livestock, and MR. THOMAS said that they would plan the area with landowner, and that they would not advocate exclusions.

REP. THOFT asked if this project was the same as Sen. Tveit's project, and MS CHENEY said that was a demonstration project for the movement of nitrates into groundwater in eastern Montana, and that the two were similar. JIM JENSEN (MEIC) stated that the 319 Program dealt with surface water while Sen. Tveit's project was concerned with the groundwater. MR. BECK said that their initial efforts would be concentrated on surface water, and that later, they would be putting together groundwater contamination education programs. He said that the Conservation Districts had been designated by EPA as part of the 319 process to carry out these assessments and management plans.

PEGGY HAAGLUND (34:A:272), Montana Association of Conservation Districts, testified for the project as set forth in EXHIBIT 10.

TOOLE COUNTY, RANKING 9, North Toole County Reclamation Project, (34:A:296).
REP. BARDANOUVE asked if this was an enlargement of a project funded two years prior, and MS CHENEY said this would be the third biennium this project would be continued. She said they had 13,000 acres affected, and that this project would add 1,200 acres in treatment. She said they had been selecting sites in the area, removing oil soaked soils, equipment and debris, liming the area, retilling and reseeding the areas, as well as monitoring the contamination of the groundwater. MS CHENEY said that they expected to expend all of the monies from the previous two grants by the end of the summer, 1989. REP. BARDANOUVE asked how many years more they would be needing funding, and MS CHENEY said that there were still serious sites needing to be addressed, and that she did not think they were close to being done.

MONTANA STATE LIBRARY, RANKING 10, Montana Natural Heritage Program, (34:A:343).
RICHARD MILLER, Montana State Library, spoke for the program and distributed the letter sent to users of the Heritage and NRIS programs, EXHIBIT 11. He also distributed the Legislative Brief on the two programs, EXHIBIT 12, and spoke of the purpose of the Montana Natural Heritage Program, a computer inventory of rare plants and animals in the state. The grant request would provide 2/3 of the funding for the core of the program, which was partial support for staff, operations and NRIS administration of the program. Its purposes include helping avoid duplication of effort, facilitation of the use of already collected data, provision of a timely, cost-effective clearing house linking users and providers of information, collection of data where no data exists, and an aid in the reclamation process. MR. MILLER spoke to the eligibility stipulations of the grant program, which the Heritage program met. MR. MILLER called attention to the letter from Pegasus Gold Corporation, EXHIBIT 13.

REP. THOFT asked for a breakdown on the cost for maintenance and information dissemination as opposed to gathering of new material. DAVID GENTER, Heritage Program, replied that 40% of the time and activity were devoted to preparation of information and consultation with the individual(s) who had requested the information. Surveys conducted in the field or the development of original field work and data came from other sources of funds, he said. REP. THOFT asked if the intent had been originally to generate revenue from providing information, which was how he remembered it.

REP. BARDANOUVE (34:A:481) spoke on behalf of the project. He said that he was concerned about the environment, and had supported legislation that regulated industry and companies in the use of natural resources. He said he felt it only fair to companies preparing Environmental Impact Statements (EIS) that the state make as much information as possible available quickly and easily. This information should be made available to both private and public entities in order to ensure wise development of resources. He said that this was a worthwhile program with apparent benefits that was not able to be funded out of the general fund.
REP. THOFT responded, stating that he agreed. However, he felt there was no problem with industry paying a reasonable fee for this valuable service.

MR. MILLER said that he had spoken with the Chairperson of the State Library Commission about this issue and made the following points:
1) If data is already available someplace, that location is cited, rather than gathered.
2) On the issue of fee payment, the letter will provide an answer. Also he said that the issue would be on the agenda of their March 1 meeting.

MR. MILLER said there was some concern regarding the balance between charges and limiting access to information.

REP. BARDANOUVE (34:A:556) said that the concept throughout history was to make information available. He said that a user that was a corporation was no different from any individual using the service.

MR. MILLER replied that this was a major issue in public library policy across the country. He mentioned the case of a company or consultant using the resources of the library in a program such as this and thereby garnering a profit. He said that each library needed to look at how much time and effort the request of a consultant or individual takes. He said that a subscription fee might be more workable.

GARY AMESTOY (34:A:611), Department of State Lands, stated that John North had testified for these programs during the previous hearing on the Renewable Resource Grant Program. He said that DSL supported this proposal because the department used the information.

JANET ELLIS, Montana Audubon Legislative Fund, testified for the program, stating that by making the best information possible available, it encouraged individuals and industry to make wise decisions about mineral resource development.

DONNA LOOP, Nature Conservancy, testified for the program as set forth in EXHIBIT 14.

Other letters of support of the program were entered into the record from the Montana Department of Fish, Wildlife and Parks, EXHIBIT 15 and 16, as well as from the Montana Salinity Control Association, EXHIBIT 17, and Lewis and Clark County, EXHIBIT 18. Also received during the course of the hearing process were responses to the committee's letter regarding a possible fee system for the service. Responses are included as EXHIBIT 19 A through E.

MONTANA BUREAU OF MINES AND GEOLOGY, RANKING 12, The Use of Natural Zeolites in Reducing Heavy Metal Concentrations at Mining Operations and Impacted Lands, (34:A:650).
MARVIN MILLER, Montana Bureau of Mines and Geology, spoke for the project as set forth in EXHIBIT 20. He said that the project was considered and not funded during the last session. The idea of the project was to look at the possibility of using zeolites, a clay mineral, to remove metals from the environment and to hold onto them. His handout addressed the action of several types of zeolites on different metals, how effective and how efficient they were. He said that the sources were out of state. One aspect of the project would be to look at natural occurrences of zeolites in Montana for testing as a potential source of in-state supply. Another part of the project would be to evaluate the effectiveness on a site.

REP. THOFT (34:B:028) asked if zeolites were being used in the Butte projects, and what the cost was per ton. MR. MILLER said that the people working on the Butte projects had used zeolites and had worked through MBMG. The zeolites had been supplied free of charge except for the freight. He said that they would now like to evaluate their effectiveness in removing the metals, and the sustaining the metal removal.

REP. BARDANOUVE asked where the zeolites originated, and if they were closely related to bentonite, and MR. MILLER said they were usually associated with large, volcanic terrain. He added that zeolites were associated with bentonite in some places.

ADJOURNMENT

Adjournment At: 11:05 a.m.

M. E. Connelly

REP. CONNELLY, Chairperson

MEC/cm

3125.min

DAILY ROLL CALL

Long Range Planning SUBCOMMITTEE

DATE 2-6-89

NAME	PRESENT	ABSENT	EXCUSED
Rep. Mary Ellen Connelly, Chair	✓		
Sen. Matt Himsl, Vice Chair	✓		
Rep. Francis Bardenouve	✓		
Sen. Harry McLane	✓		
Sen. Richard Manning	✓		
Rep. Bob Thoft	✓		

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EXHIBIT 1
DATE 2-6-89
HB RID Grants

* DRAFT *

EFFECTS OF ACID MINE DRAINAGE ON THE BLACKFOOT RIVER, MONTANA

Johnnie Moore, University of Montana, Missoula, Montana

Samuel N. Luoma, U. S. Geological Survey, Menlo Park, California

Don Peters, Montana Department of Fish, Wildlife and Parks, Missoula, MT

EXHIBIT 2
DATE 2-6-89
HB 84 Draft

DEPARTMENT OF STATE LANDS

STAN STEPHENS, GOVERNOR

CAPITOL STATION

STATE OF MONTANA

(406) 444-2074

1625 ELEVENTH AVENUE
HELENA, MONTANA 59620

February 5, 1989

MEMORANDUM

TO: Long Range Planning Committee

FROM: Ben Mundie BM
Department of State Lands

RE: Reclamation and Development Grants Program
Lewis and Clark County Conservation District -
Blackfoot River Abandoned Mines

Good morning, Madame Chairperson Connelly and members of the Committee. My name is Ben Mundie representing the Department of State Lands, Abandoned Mine Reclamation Bureau. I am here this morning to express Department of State Lands support for the Blackfoot River Abandoned Mines Project submitted by the Lewis and Clark County Conservation District.

The Department of State Lands supports the funding of this project because it would provide for additional reclamation in the Upper Blackfoot Drainage in conjunction with another project that was funded by this Committee in 1987. As many of you may remember, in 1987 this Committee approved the expenditure of $107,000.00 to the Department of Stat Lands to reclaim mine-related hazards in another area of the Upper Blackfoot River drainage, specifically the Mike Horse Mine and the Carbonate Mine. If the project proposed by the Lewis and Clark Conservation District to reclaim the Blackfoot Tailings, the Edith and Mary P. mines and the Anaconda Mine is approved, this would complement the reclamation project already approved for the Mike Horse and Carbonate mines and provide for more complete reclamation of the Upper Blackfoot drainage.

If the Conservation District Proposal is funded, the Department of State Lands will coordinate a reclamation project, utilizing both grants, into one construction contract. Therefore, the Mike Horse, Anaconda, Mary P., Edith and Carbonate Mine sites will all be addressed in a single construction contract. This approach will lower administration costs as well as construction costs.

All of these mine sites are listed in the 1986 Montana 305(b) Report, as severe non-point source water quality problems.

Thank you.

jlh

EXHIBIT 3
DATE 2-6-89
HB RRD Grants

BLACKFOOT RIVER PROJECT

Construction Cost Estimate - 1/6/89

SITE	QUANTITY	UNIT	COST/UNIT	TOTAL COST
EDITH MINE				
Revegetation w/Mulch	2.8	ACRE	1500	4,200
Debris Disposal	1	L.S.	500	500
Topsoil	3750	C.Y.	4.00	15,000
Excavate & Haul Waste	4150	C.Y.	2.00	8,300
Lime Application	38	TONS	52.00	2,000
			Site Total . .	$30,000
MARY P MINE				
Excavate & Haul Waste	1300	C.Y.	3.00	3,900
Lime Application	16	TONS	52.00	830
Topsoil	250	C.Y.	4.00	1,000
Revegetation w/Mulch	0.16	ACRE	3000	480
			Site Total . .	$ 6,210
ANACONDA MINE				
Excavate & Haul Waste	21,400	C.Y.	2.00	42,800
Lime Application	25	TONS	52.00	1,300
Topsoil	3,200	C.Y.	4.00	12,800
Revegetation w/Mulch	2.5	ACRE	1500	3,750
Debris Disposal	1	L.S.	300	300
Seepage Collector	1	L.S.	3000	3,000
Revegetation w/Erosion Mat	0.8	ACRE	4000	3,200
			Site Total . .	$67,150
WASTE DISPOSAL AREA				
Lime Application	66	TONS	52.00	2,430
Topsoil	2370	C.Y.	4.00	9,480
Rock/Gravel Layer	1775	C.Y.	2.50	4,440
Revegetation w/Erosion Mat	2.20	ACRE	4000	8,800
			Site Total . .	$25,150
MIKE HORSE SITE				
Mine Waste Excavation - Zone 1	1	L.S.	25,000	25,000
Mine Waste Relocation-Zone 1-2	5700	C.Y.	2.50	14,250
Mine Waste Excavation - Zone 2	1	L.S.	15,000	15,000
Mine Waste Excavation - Zone 3	1	L.S.	1500	1,500
Mine Waste Relocation-Zone 3-2	3500	C.Y.	2.50	8,750
Type I Ditch	950	L.F.	35.00	33,250
Type II Ditch	590	L.F.	2.00	1,180
Type III Ditch	110	L.F.	30.00	3,300
18" Culvert	60	L.F.	25.00	1,500
24" Culvert	80	L.F.	30.00	2,400
Road	1150	L.F.	10.00	11,500
Gate	2	EA.	1000	2,000
Mine Adit Air Seal	1	L.S.	4000	4,000
Structure & Debris Disposal	1	L.S.	2500	2,500

BLACKFOOT RIVER PROJECT (CONT'D)

Construction Cost Estimate - 1/6/89

SITE	QUANTITY	UNIT	COST/UNIT	TOTAL COST
MIKE HORSE SITE (cont'd)				
Lime Application	402	TONS	52.00	20,900
Topsoil	19,300	C.Y.	4.00	77,200
Revegetation w/Mulch	10.2	ACRE	1500	15,300
Revegetation w/Erosion Mat	4.1	ACRE	4000	16,400
			Site Total . .	$225,930
CARBONATE MINE				
Mine Waste Excavate & Haul On-Site	1	L.S.	1500	1,500
Mine Waste Excavate & Haul Off-Site	1600	C.Y.	7.00	11,200
Structure & Debris Disposal	1	L.S.	500	500
Lime Application	30	TONS	52.00	1,560
Topsoil	1130	C.Y.	3.00	3,390
Revegetation w/Mulch	1	ACRE	1500	1,500
			Site Total . .	$19,650
TOPSOIL BORROW AREA				
Revegetate w/Mulch	6	ACRE	1500	9,000
			Site Total . .	$ 9,000

CONSTRUCTION COST SUMMARY

Edith Mine	30,000
Mary P Mine	6,210
Anaconda Mine	67,150
Mike Horse Mine	255,930
Carbonate Mine	19,650
Waste Disposal Area	25,150
Topsoil Borrow Area	9,000
Estimated Project Total	$413,090

NOTE: Estimates for the Mike Horse and Carbonate Sites were derived from the bid results from an actual bid on these projects.

Estimate does not include any contingency.

EXHIBIT 4
DATE 2-6-89
HB R&D grants

The Lincoln Valley Chamber of Commerce
P.O. Box 985 • Lincoln, Montana 59639 - 0985

February 06, 1989

Representative Mary Ellen Connelly
Chairperson, Long Range Planning Sub-committee
Reclamation & Development Grants Program Funding
Capitol Station, Helena, Montana 59601

Re: BLACKFOOT ABANDONED MINES PROJECT

Dear Chairperson Connelly:

Please convey to your fellow committee members that the Lincoln Valley Chamber of Commerce enthusiastically supports the approval of the R.I.T. Grant proposal known as the BLACKFOOT ABANDONED MINES PROJECT which is currently being reviewed by your sub-committee. We trust your sub-committee will approve funding of the full $300,000.00 requested so that there will be adequate funding to accomplish the work of cleaning up these abandoned mines and tailings.

The clean-up of these abandoned mines and tailings is a long overdue project and when the clean-up is completed, the benefits to our valley and community will be long lasting, both economically and environmentally. The economic benefits to our community are needed and the public interest will be well served by your sub-committee's support of this R.I.T. Grant proposal.

Thank you for the opportunity for us to express our views.

Sincerely,

THE LINCOLN VALLEY CHAMBER OF COMMERCE

Betty Parmer

Betty Parmer, President

EXHIBIT 5
DATE 2-6-89
HB R+D Grant

LINCOLN VALLEY ECONOMIC DEVELOPMENT CORPORATION
Box 283
Lincoln, Montana 59639

February 6, 1989

Rep. Mary Ellen Connelly, Chairperson
Long Range Planning Sub-committee
Reclamation & Development Grants Program Funding
Capitol Station
Helena, Mt. 59620

RE: Blackfoot Abandoned Mines Project

Dear Chairperson Connelly,

Our organization was formed in 1987 for the purpose of supporting projects and business development that would be of economic benefit to our state and community.

The R.I.T. Grant proposal in the amount of $300,000.00, knowm as The Blackfoot Abandoned Mines Project will have both a short and long range economic benefit to our community and state. The short term benefits include jobs and purchase of local goods and services. The long range benefits will be increased tourist and recreational use of the upper Blackfoot River.

The Lincoln Valley Economic Development Corparation therefore urges your approval of this R.I.T. grant in the amount requested.

Sincerely,

Joseph R. Dolan
President

BIG BLACKFOOT CHAPTER

"Dedicated to preserving the fishery of the Big Blackfoot River and its tributaries."

P. O. Box 878 Lincoln, Montana 59639 Phone 406-362-4955

EXHIBIT 5A
DATE 2-6-89
HB R+D grant

February 6, 1989

Rep. Mary Ellen Connelly, Chairperson
Long Range Planning Sub-Committee
Reclamation & Development Grants Program Funding
Capital Station
Helena, MT 59620

Dear Rep. Connelly:

The Big Blackfoot Chapter Trout Unlimited would appreciate the support of your committee for full funding of the BLACKFOOT ABANDONED MINES PROJECT. Three separate studies conducted last summer give substantive evidence that the Blackfoot River is indeed in big trouble.

With completion of the work funded by this grant application, there is an excellent chance that the deterioration of quality of the river above Lincoln could be reversed. The Big Blackfoot River has been and can be again a quality fishery.

This type of project is unquestionably the kind of expenditure for which the RIT monies were intended.

Thank you.

Sincerely,

Paul S. Roos, President

EXHIBIT 5B
DATE 2-6-89
HB R+D grant

MISSOURI RIVER
FLYFISHERS

P.O. Box 6398
Great Falls, MT 59406

February 7, 1989

The Honorable Mary Ellen Connelly, Chairperson
Long Range Planning Sub-Committee
Capitol Station
Helena, Montana 59601

Dear Ms. Connelly:

We would like to indicate our full support for the funding of the Lewis & Clark Company Soil Conservation Service request for a grant titled, "The Blackfoot Abandoned Mines Project."

It is our understanding that your sub-committee will be considering grant applications soon and we urge you to give this worthwhile project top priority.

The Blackfoot was one of the great trout streams in Montana at one time and has deteriorated to a very poor fishery at this time. We believe that stopping the leaching from abandoned mines will have a very beneficial effect and restore it to its once pristine state.

Fly fishing is fast becoming a profitable tourist business in Montana and it is very important that we improve the quality and number of streams that have made Montana the destination of fly fishermen from all over our country.

Yours truly,

Clair A. Willits, Jr., President
Missouri River Flyfishers
Great Falls, Montana

EXHIBIT 6
DATE 2-6-89
HB Q+D Dept

DEPARTMENT OF STATE LANDS

TED SCHWINDEN, GOVERNOR

CAPITOL STATION

STATE OF MONTANA

(406) 444-2074

1625 ELEVENTH AVENUE
HELENA, MONTANA 59620

February 6, 1989

TESTIMONY OF THE DEPARTMENT OF STATE LANDS
FOR THE
RECLAMATION AND DEVELOPMENT GRANTS PROGRAM
PROJECT NUMBERS 2, 3, AND 6

Good morning, Madame Chairperson Connelly, and members of the Committee. For the record, my name is Gary Amestoy, I am the Administrator of the Reclamation Division of the Department of State Lands.

This morning, before the Department presents its testimony on behalf of the three Reclamation and Development Grant Proposals that the Department will present for your review, I would like to take a few minutes to explain the Reclamation Division's function with respect to the reclamation of abandoned mines in Montana.

The Department of State Lands administers the Montana Abandoned Mine Reclamation Program. This program exists largely because of federal legislation. In 1977, the federal government enacted the Surface Mining Control and Reclamation Act which established a federal tax on all coal mined in Montana. This federal tax, which is administered by the Department of Interior, Office of Surface Mining, Reclamation and Enforcement funds the Abandoned Mine Reclamation Program. The program was established primarily to reclaim abandoned coal mines. Since 1980 the AMR Program has received approximately five million dollars annually to reclaim abandoned coal mine sites.

In addition to the reclamation of abandoned coal mines, the Act also included provisions that some of these funds could be spent on non-coal abandoned mines if the Governor certified that the abandoned non-coal mine created an <u>immediate</u> hazard to public health and safety.

In 1982, in an effort to use some of these funds to reclaim abandoned hardrock sites similar to those that we are requesting funding for today, the Department submitted a grant request for three proposed reclamation projects to the Office of Surface Mining for funding. These three sites were identified by the State Water Quality Bureau as high priority sites requiring remedial action to correct water quality degradation. The Office of Surface Mining subsequently denied funding for these projects because the abandoned mine sites did not meet the funding criteria of posing an <u>immediate threat to human health or safety</u>. Thus federal funding is not available to reclaim these abandoned sites.

To date, the Montana Abandoned Mine Reclamation Program has not received funding for any proposed hardrock reclamation project that did not specifically address an immediate threat to public health or safety. Currently there are hundreds of abandoned hardrock mine sites in central and western Montana that

pose an environmental threat but are not eligible for federal funding under the OSM guidelines. The only abandoned hardrock mine sites that have qualified are abandoned shafts and portals.

Every day the abandoned hardrock mine sites that seep acid mine drainage, toxic heavy metals, and sediment off-site, violate the State Clean Water Act. Every major drainage from Libby to Lima has been impacted by past mining practices. The Department is currently undertaking an inventory of abandoned hardrock mine sites to determine the extent of the problem.

Currently, the Reclamation and Development Grants Program is the only means to address these environmental hazards. The Reclamation and Development Grants Program is, and will continue to be, the most important funding mechanism for abating environmental degradation from abandoned hardrock mine sites. Therefore, the Department requests that the Committee approve the expenditure of Reclamation and Development Grant Program funds for these projects.

Now, I would like to have Ben Mundie of the Abandoned Mine Reclamation Bureau explain the specific proposals that the Department has before you today for your consideration.

PROJECT TESTIMONY

Good morning, Madame Chairperson Connelly, and members of the Committee. My name is Ben Mundie representing the Department of State Lands, Abandoned Mine Reclamation Bureau.

The Department of State Lands has submitted grant applications for the reclamation of three abandoned hardrock mining sites. They are Project No.(2) the Elkhorn Creek Water Quality Improvement Project, Beaverhead County; Project No. (3) Wood Chute Creek Basin Water Quality Improvement Project, Jefferson County; and Project No. (6) Middle Fork Warm Springs Creek Reclamation Project, Jefferson County.

All three project sites are abandoned hardrock mines. Acid mine drainage, heavy metal contamination, and increased sediment adversely affect the streams that drain the surrounding areas at all three sites. The 1986 Montana 305(b) Report, prepared by the State Water Quality Bureau, lists these three sites as severe to moderate non-point source water quality problems. The Department will closely coordinate reclamation efforts with the Department of Natural Resources and Conservation, the Water Quality Bureau, Solid and Hazardous Waste Bureau, and the United States Forest Service to assure all regulatory concerns are addressed.

For the sake of brevity, I will explain each project in general terms and provide additional detail if you so desire.

ELKHORN CREEK PROJECT
(Project No. 2)

The Elkhorn Mine is located in Beaverhead County near Wise River, Montana in the uppermost drainage of the Wise River. The project site contains a mine adit, a mine tailings dump area and a mill tailings area. The mill tailings area is located in and adjacent to Elkhorn Creek and is being eroded by creek flows causing the tailings material to be transported and redeposited in the lower reaches of Elkhorn Creek. In addition, flows from the mine adit and surface water from rainfall and snowmelt seep through the tailings, leaching heavy metals into Elkhorn Creek. The leachate has degraded the water quality in Elkhorn Creek resulting in the absence of fish and other aquatic bottom life.

Specifically, the proposed reclamation plan will remove the mill tailings pile from the Elkhorn Creek floodplain. Discharge from the mine adit will be "piped around" the tailings to a wetlands/settling pond area, thus improving the quality of the water and eliminating seepage through the tailings. The mine tailings pile will be sloped and graded to provide drainage. The mill tailings site, the mine tailings pile and the mine entrance area will be recontoured, topsoiled and revegetated.

Reclamation at this site will improve water quality in Elkhorn Creek, re-establish the aquatic environment, eliminate safety hazards and improve the aesthetics of the area.

The Department agrees with the Department of Natural Resources and Conservation's recommendations outlined in the Project Evaluations and Recommendations publication.

WOODCHUTE CREEK PROJECT
(Project No. 3)

The Woodchute Creek Project is located in Jefferson County approximately seven miles southwest of Jefferson City, Montana. The project site includes three mine-specific mine sites, the Washington Mine, the Minah Mine and the Bluebird Mine. These sites are located in natural drainage where surface runoff and spring-fed streams continually flow over and through tailings piles located in the original stream channels. Contact between the water and the tailings creates continuous erosion and leaching that results in downstream depositions of the tailings along with the introduction of heavy metal and other pollutants to the receiving streams. There are also numerous safety hazards that pose a serious threat to persons, livestock and wildlife. Deteriorated mine structures and loose, steep slopes on tailings piles are other safety hazards. The tailings are void of all vegetation thus promoting erosion. In addition, these barren tailings piles also contrast negatively with the natural surroundings.

Specifically, reclamation of these sites will include disposing of hazardous mine structures, closing mine openings, recontouring the tailings, isolating the tailings from surface runoff and revegetating the disturbed areas. Reclamation at this site will improve water quality, re-establish the aquatic environment, eliminate safety hazards and improve the aesthetics of the area.

The Department agrees with the Department of Natural Resources and Conservation's recommendations outlined in the Project Evaluations and Recommendations publication.

MIDDLE FORK WARM SPRINGS CREEK PROJECT
(Project No. 6)

The Middle Fork Warm Springs Creek Project is located in Jefferson County approximately 5 miles southeast of Clancy, Montana. The site is a scattering of exploration pits, surface disturbances, abandoned wood and metal buildings, wooden structures, shafts, an open adit and numerous piles of barren mine wastes. Disturbance and debris are scattered over an area of 150 acres and is located on both banks of the Middle Fork Warm Springs Creek and an unnamed tributary.

The reclamation proposed for this site includes disposing of mine structures, closing mine openings, recontouring the tailings, isolating the tailings from surface runoff and revegetating the disturbed areas in much the same manner as has been discussed in the previous projects.

The Department agrees with the Department of Natural Resources and Conservation's recommendations outlined in the Project Evaluations and Recommendations publication.

RECLAMATION TECHNIQUES

In summary, all three project sites are abandoned hardrock mines. Acid mine drainage, heavy metal contamination, and increased sediment adversely affect the streams that drain the surrounding areas at all three sites. The 1986 Montana 305(b) Report, prepared by the State Water Quality Bureau, lists these three sites as severe to moderate non-point source water quality problems. The Department will closely coordinate reclamation efforts with the Department of Natural Resources and Conservation, the Water Quality Bureau, Solid and Hazardous Waste Bureau, and the United States Forest Service to assure all regulatory concerns are addressed.

Proposed reclamation techniques are similar for all three project sites. Mine openings that discharge acid drainage will be closed using the 'wet-seal method.' A concrete seal with a discharge pipe will be placed in the mine opening. The mine will then partially flood. By eliminating atmospheric oxygen from the mine tunnel, acid production will be reduced. To produce acid, the environment must contain: water, naturally occurring sulfides in the rock, and atmospheric oxygen. By eliminating one component, acid production ceases. The water that will be discharged from the mine seal should have a higher pH, indicating improved water quality.

Barren mine waste dumps that have remained without vegetation for eighty years will be removed from drainage channels. These waste dumps contain copper, lead, zinc, cadmium, and arsenic that are leached out by running water into receiving streams. Using accepted burial reclamation techniques, mine waste dumps can be isolated from the environment so that leaching of heavy metals to surface and groundwaters is eliminated. This shall be accomplished at all three project sites.

Mine openings not discharging water shall be backfilled or permanently sealed to prevent unauthorized entry. Deteriorated mine buildings found not have historic significance will be removed and disposed of following accepted procedures.

All areas disturbed by reclamation construction will be topsoiled or amended and revegetated utilizing state-of-the-art technology.

Draft reclamation plans for the Elkhorn and Wood Chute Projects have been compiled. Review and comments on these plans will be solicited from all interested parties should these projects be funded.

The technical assessments and recommendations for these three proposed projects made by the Department of Natural Resources and Conservation are agreed to, and will be strictly adhered to.

The Department requests that the Committee fund these projects as recommended by the Department of Natural Resources and Conservation.

If you have any questions, I would be happy to answer them for you. Thank you.

Testimony presented to the Long Range Planning Subcommittee for the Reclamatioin and Development Grants Program.

This testimony pertains to proposal ranked No. 4; The Fate of Cyanide in Soils and Heap Leach Pads.

EXHIBIT 7A
DATE 2-6-89
HB CRDB.

Date: Feb. 6, 1989

Thank you for this opportunity to appear before the subcommittee today.

During these hearings the Subcommittee will be made aware of three proposals that address problems associated with heap leaching of gold ores. These proposals, two from the Reclamation Research Unit at MSU and one from Montana Bureau of Mines and Geology address unique problems but all involve waste products from the extraction of precious metals with cyanide. I have discussed our proposals with members of the Hard Rock Bureau of the Department of State Lands and we agreed that all proposals if eventually funded should be implemented at one site to maximize benefits and minimize costs associated with the studies.

HEAP LEACHING

Heap leaching is the recovery of gold from low grade ores with cyanide. The name "heap" is derived from the fact that the ore is piled in a heap on some sort of temporary or permenent impermeable base. The gold is "leached" from the ore with a cyanide solution that is sprinkled on the ore and allowed to slowly flow or trinkle through the heap. This "pregnant" gold-cyanide solution is collected and processed to remove the precious metals.

The heaps are of two types. Smaller pads are constructed of asphalt or some similar impermeable material. Up to 10,000 tons of ore are placed on the "pad" to a depth of 8 to 10 feet. After

gold extraction the ore is removed, discarded and new ore placed on the pad. Permanent pads are constructed of impermeable clay with membrane liners upon which many tons of ore (up to two million tons) are placed, often to a depth of 50 feet or more. In either case the impermeable base of the heap is sloped such that the cyanide solution flows to a collection station or pump house. At this point the cyanide solution leaving the pad is collected, transported, and processed to remove the gold. After processing the cyanide solution is adjusted to the proper cyanide strength and pH and reused for additional gold extraction.

At some time in the cycle of gold extraction the spent ore and cyanide solution must be discarded. These are two of the waste products that are of concern. The third waste of concern is the solution from intentional or accidental spills. The toxicity of these three cyanide sources and the breakdown products of cyanide species in solution are of question.

Discarded solutions and exhausted heaps must be treated prior to discharge or reclamation. There are a number of treatment methods but the most widely used heap leach neutralization technique is the "alkaline-chlorination" method. In solutions this neutralization technique is being replaced by hydrogen peroxide treatment because of the phytotoxicity of the elevated chlorine levels found in the solutions after alkaline-chlorination.

PROPOSAL SPECIFIC TESTIMONY

The Hard Rock Bureau of the Department of State Lands is saddled with the responsibility of issuing permits to mining Co's. to extract and process gold ores. Because of the nature of the gold deposits remaining in this country and especially in Montana almost all present mining activity involves large quantities of low grade ores. This translates into some form of inexpensive gold extraction procedure. This almost always means the

cyanide extraction process. In some cases the ore is crushed and placed into large containers or vats and cyanide added to the vat. In others the ore is simply piled on a pad and cyanide poured over it. The latter process is a simplified version of heap leaching. While the technology for heap leaching is well developed the fate of the very toxic cyanide after extraction of the gold or closure of the mine is not clear. The Hard Rock Bureau must, therefore, make permit decisions on the best available information. This information is not adequate to the task at hand. In some cases the mine is burdened with unnecessaryly restrictive protective measures in others environmantal risks are unknownly accepted. These three studies of the wastes associated with cyanide leaching of gold ores attempt to answer some of the questions posed by permit applications received by the Hard Rock Bureau.

The study described in the proposal titled The Fate of Cyanide in Soils and Heap Leach Pads was divided into two phases:

Phase I Objective - describe the fate and transport of cyanide and cyanide metal complexes in three typical Montana Soils.

To meet this objective replicated soil columns will be constructed in the Plant Growth Center at MSU. These soil columns will be spiked with metal enriched process solution typical of a cyanide solution spill, and treated solution (<0.05 mg/L free cyanide solution) typical of alkaline-chlorination treated solution releases. Leachate will be extracted from various depths and analyzed for total, free and weak acid dissociable cyanide to describe the attenuation and changes to be expected as the cyanide solutions perculate through the soil

Phase II Objective - assess the fate of cyanide in abandoned heap leach materials.

An inplace heap of gold ore will be implemented for this stage of the study. Core sample access tubes will be installed in the heap to permit collection of solid samples of leached ore. Horizontal suction lysimeters will be installed to facilitate collection of soil cyanide solutions. Samples will be collected from these access tubes and lysimeters while the heap is being leached, while the heap is being neutralized and periodically for several months after the heap is certified as "neutralized".

The ore and solution samples will be analyzed for total, free, weak acid dissociable and thiocyanides. Data generated from these analyses will provide regulatory agencies with information about the fate of cyanide is soils and heaps. It will reduce the probability of accidental release of toxic concentrations of cyanide into ground or surface waters.

Testimony presented to the Long Range Planning Subcommittee for the Reclamation and Development Grants Program

EXHIBIT 7B
DATE 2-6-89
HB R&D grants

Date: Feb. 6, 1989

The second proposal (ranked 15) is titled Toxic and Residual Cyanide Effects on Soil Microorganisms, Invertebrates and Plants at Heap-Leach Sites. This proposal addresses the direct affects of cyanide spills and land applications on these organisms.

This proposal was part of the previous study during the preliminary writing phase. It builds upon and complements the other research. The two proposals were separated when it became clear that they were unmanageable as one study. The objectives of this study are :

To evaluate the effect of cyanide solution spills and land application on soil microorganisms, plants and invertebrates;

To evaluate amendments to ameliorate the impacts of cyanide spills and land application; and

To determine the effect of residual cyanide in soils and leached ore on the activity and population dynamics of soil microorganisms and plants.

This study would greatly enhance the cyanide investigations mentioned earlier from Reclamation Research Unit (ranked #4)and Montana Bureau of Mines (ranked #5). These two studies basically investigate cyanide in heaps and soils but do not evaluate impacts of cyanide on organisms. This study carries the previous investigations into the realm of impacts and corrective action.

Land application of treated cyanide solutions is common practice at the end of the season or during deactivation of permitted heaps. Accidental spills of untreated cyanide solution also occur, unfortunately all to frequently. Some soil microorganisms degrade cyanide or byproducts of cyanide reaction. Unfortunately, elevated concentrations of cyanide in solutions (125 to 350 mg/L) are usually toxic expecially to non-acclimated microorganisms. The low levels of cyanide in treated solutions are usually non-toxic or may even stimulate microorganism activity, but the chlorine in solutions treated by alkaline-chlorination (the most common method of neutralization of cyanide wastes used in Montana) may be directly toxic to the microorganisms. There is virtually no information on the effects of cyanide on natural microbial communities.

Similar to microorganisms, plants may tolerate low levels of cyanide. They can metabolize cyanide or accumulate it without apparent ill effect, but high levels, such as from undiluted or untreated cyanide spills, almost always cause mortality.

Department of State Lands regulation of the release of treated cyanide solution is based upon a limit of 0.05 mg/L weak acid dissociable cyanide in the solution. During cold weather this level may be unattainable and releases may be composed of solutions stronger than 0.05 mg/L. In addition, strongly complexed cyanide species are also present in these solutions and will eventually be converted to free cyanide and the metal. In this case the effective concentration is greater than the recommended cyanide limit.

There is general consensus that cyanide in soils is attenuated by several processes including volatilization, biodegradation, complexation with metals, and photodegradation. These processes help detoxify solutions with cyanide levels less than

100 mg/L, but they cannot ameliorate the impact of a release with cyanide levels normally present in the leach solution (125 to 350 mg/L).

Chronic impacts of residual cyanide in recently reclaimed heap leach pads have also received little attention. Since cyanide is highly reactive, it is considered extremely toxic by some people even after biodegradation or forming complexes with heavy metals. Others consider such reacted cyanide completely safe. In either case, chronic low levels of cyanide may have unforseen long-term impacts on populations of various organisms. These impacts may range from direct toxicities to simple sulfur deficiencies induced by cyanide complexing soil sulfur. Whatever the impact of chronic, low level cyanide in heaps it is unknown.

As long as cyanide heap leaching continues in the state of Montana, land application of spent and treated solutions will be needed because of design error, human error or unforseen hydrologic conditions. Accidental spills will also occur. Regulatory agencies, mining companies and consultants should know the effect of spills or land application on the soil and above ground biota if they are to minimize impacts and take effective corrective action after these emergencies.

Information about the effects of residual cyanide in reclaimed heaps on soil microorganisms, plants and invertebrates is needed to develop baseline data. Although cyanide heap leaches have operated for decades in the West, the growth and regeneration of biota on derelict heaps have not been determined. In reclaimed heap leach pads the residual cyanide allowed (0.05 mg/L WAD) is considered nontoxic, yet toxicity levels are based on results from controlled, laboratory experiments where other sources of organism stress such as drought and herbivory are not included. Nontoxic levels of cyanide may still affect the behavior, physiology, and populations of a variety of organisms. Furthermore, the 0.05 mg/L nontoxic level is for weak-acid-dissociable cyanide. Much of the cyanide in reclaimed pads may

form strong complexes with trace metals. Eventually, these cyanide-trace metal complexes degrade, thereby releasing free cyanide and trace metals. Chronic low level cyanide solutions will result with enhanced trace metal mobility. Information from this study will provide regulatory agencies an improved understanding upon which to base decisions on the toxicity and potential stability of recently reclaimed heap leach pads.

These potential problems exist, are chronic and will continue. They will become more threatening and ominous as the number of heap leach pads increases. Funding for these studies will prevent the creation of hazardous wastes or the expenditure of funds by mining companies for useless treatment of cyanide solutions.

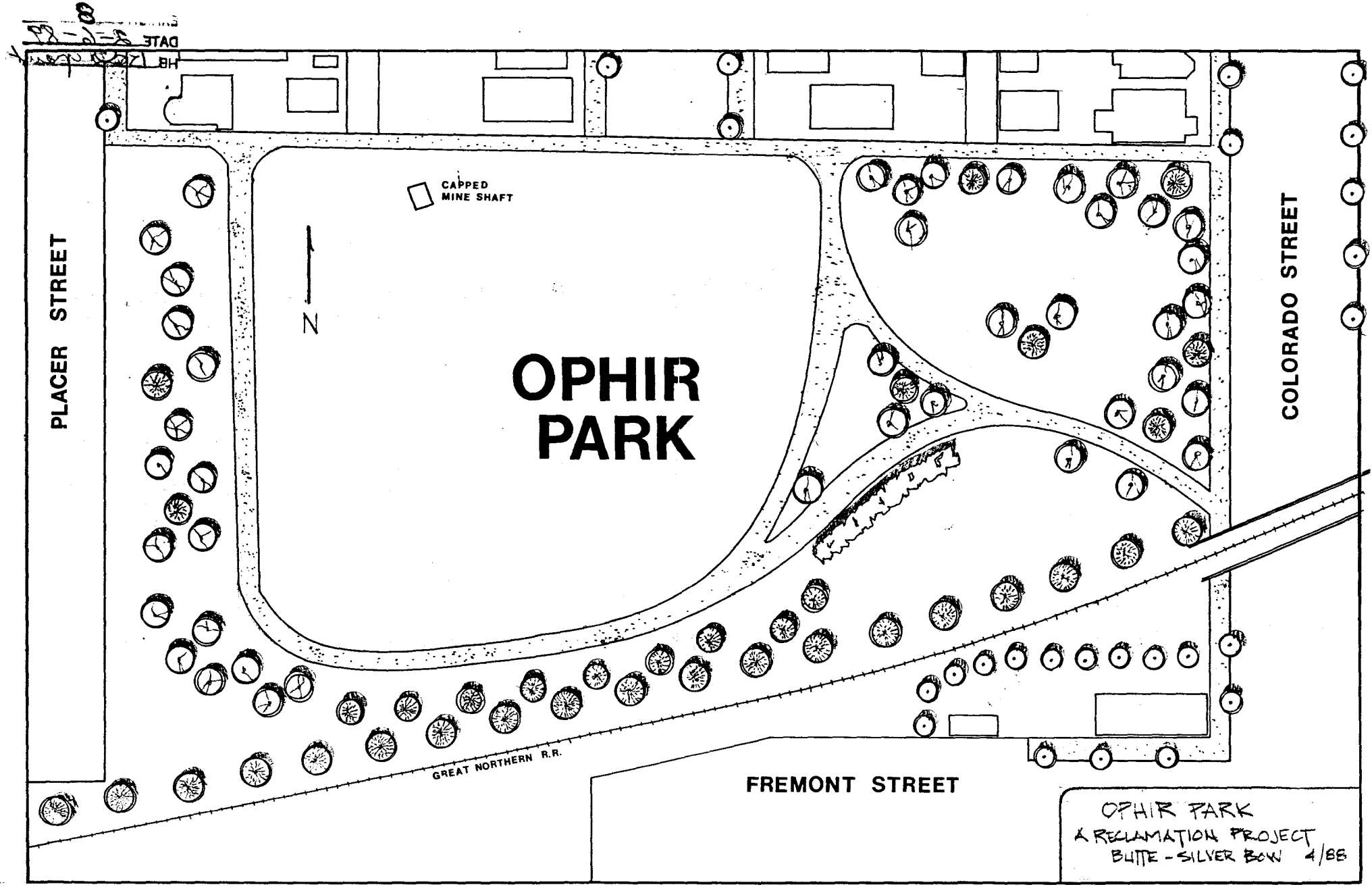

PLACER STREET
COLORADO STREET
CAPPED
MINE SHAFT
N
OPHIR
PARK
GREAT NORTHERN R.R.
FREMONT STREET
OPHIR PARK
A RECLAMATION PROJECT
BUTTE - SILVER BOW 4/88

EXHIBIT 9
DATE 2-6-89
HB RRD Grant

TESTIMONY - RDGP GRANT FOR NONPOINT SOURCE POLLUTION CONTROL
LONG RANGE PANNING COMMITTEE - FEBRUARY 6, 1989

MADAM CHAIRMAN AND MEMBERS OF THE COMMITTEE, I AM RAY BECK, ADMINISTRATOR OF THE CONSERVATION DISTRICTS DIVISION, DNRC:

The Conservation Districts Division submitted this grant proposal to provide partial state funding for the recently developed Nonpoint Source Management Program. The 1987 amendments to the federal Clean Water Act contained provisions for the development of nonpoint source pollution control programs by each state under Section 319. Nonpoint source pollution is simply water pollution that originates from diffuse sources rather than a point discharge such as a pipe.

Section 319 required each state to develop an ASSESSMENT REPORT and a MANAGEMENT PROGRAM by August, 1988. The ASSESSMENT REPORT identified waters in the state that are adversely impacted by NPS. The MANAGEMENT PROGRAM prescribed the action the state would take to address those problems.

DHES water quality assessments indicate that 95 percent of the water pollution in Montana's streams is caused by agriculture, forestry, or mining. Consequently, the state's program focuses on those three source categories. Our emphasis will be on a proactive rather than reactive program mainly consisting of landowner education programs and the implementation of demonstration projects that will illustrate the benefits of voluntarily implemented BEST MANAGEMENT PRACTICES.

The Division has assisted the Water Quality Bureau, DHES in the development of the program, as have other state and federal agencies. Funding for the program will come from a number of state and federal sources. This grant proposal was written to obtain the state funding needed to match federal funds available under Section 319. That Section authorized up to $400 million to be spent by the states over the next 4 years for NPS control. However, Congress has yet to appropriate funding for the program. The federal share of the program - originally proposed to be 60 percent - will now have to be secured from other sources. The WQB has worked with other federal and private funding sources and is confident that sufficient funding will be available to the program to match the funding requested in this proposal. We do expect, however, that the number of demonstration projects will be fewer than had been anticipated earlier due to the increased costs of the projects and the possible lack of sufficient funding.

Planning efforts have already started on two selected watershed demonstration projects - Otter Creek in Sweet Grass County, and East Spring Creek in Flathead County. We expect these projects will begin this spring, pending the availability of funding. Extensive planning efforts involving the landowners, the local conservation district, and state and federal agencies will take place on each project to ensure the goals of the program are met. The recently completed Otter Creek report is an

example of the planning that will take place. Likewise, the landowner education program is underway, beginning in 1988 with the formation of the MONTANA RIPARIAN EDUCATION COMMITTEE under the direction of this Division but in affiliation with the Montana Riparian Association.

Much national attention has recently been focused on water pollution and , in particular, nonpoint source pollution control. Because Montana is a headwaters state, and because of the economic importance of our water resources for recreation, agriculture, municipal, and industrial uses, it is imperative that the state supply the necessary funding to initiate the Montana Nonpoint Source Pollution Control Program. Your favorable consideration of this request will be appreciated. Thank you.

EXHIBIT 10
DATE 2-6-89
HB RRD Grant

WITNESS STATEMENT

NAME Peggy Haaglund BILL NO. RDG

ADDRESS 1 South Montana DATE 2/06/89 Grant

WHOM DO YOU REPRESENT? MT. Assoc. of Conservation Dist.

SUPPORT ✓ OPPOSE _____ AMEND _____

PLEASE LEAVE PREPARED STATEMENT WITH SECRETARY.

Comments:

MACD goes on record of supporting DNRC's application for a grant to address non-point source pollution in Montana by looking at BMP's for ag, forestry, mining.

Education of the public is important. This is one issue that involves many people & in the future all peoples are going to have to be aware of the problems & methods of curing the problems or preventing the problem.

Thankyou. Thank you for considering this project for funding.

EXHIBIT 11
DATE 2-6-89
HB RRD Asst

The Big Sky Country

MONTANA HOUSE OF REPRESENTATIVES

REPRESENTATIVE MARY ELLEN CONNELLY
HOUSE DISTRICT 8
HELENA ADDRESS:
CAPITOL STATION
HELENA, MONTANA 59620
HOME ADDRESS:
3315 WHITEFISH STAGE
KALISPELL, MONTANA 59901

February 2, 1989

COMMITTEES:
APPROPRIATIONS
CHAIR: LONG RANGE PLANNING SUBCOMMITTEE
MT. ADVISORY COUNCIL ON ALCOHOL & DRUG DEPENDENCY
MONTANA-WESTERN CANADIAN BOUNDARY COUNCIL

TO: Private-Sector Users of the Natural Resource Information System (NRIS) and the Natural Heritage Program

FROM: Long-Range Planning Committee, Montana Legislature Rep. M. E. Connelly Chair

SUBJECT: Funding Sources/Fees for Data

As many of you know, the NRIS/Heritage Program is largely dependent on grant money for its operation. For the 1990/1991 Biennium, funds were requested through the Renewable Resource Development Program and from the Reclamation and Development Grants Program.

In addition, NRIS/Heritage has contracted with various entities, including (among others) the Bonneville Power Administration, the Department of Health and Environmental Sciences, the Department of State Lands, and the Department of Fish, Wildlife and Parks to provide data management services.

Although some grant funds are available and these contractual agreements are expected to continue, it appears unlikely that the NRIS/Heritage Program will generate sufficient money to fully cover its costs. Therefore, the Long Range Planning Committee

of the Montana Legislature has recommended further study regarding potential funding formats and/or sources. This option could involve an investigation into general fund, user fees, and other potentials for long-term funding. Participation by committee member(s), the Legislative Fiscal Analyst, or other persons/entities are all possibilities.

As users of the NRIS/Heritage Program and its valuable data bases, you are in a position to provide support. As beneficiaries of the services offered through these programs, we are interested in your views regarding the possibility of paying for the services rendered. In other words, would you pay for the information and services, and how much? If you would be willing to provide support to the programs through some sort of user fee (subscription, small grant, etc.), we may be able to sustain the current program at present levels in the long term.

Please let us know your thoughts. Since the Long-Range Planning Committee is considering grants now for the 1990/1991 Biennium, your timely input is crucial to sustaining these two valuable programs.

NOTE: This letter was sent via the NRIS/Heritage Program in order to ensure confidentiality.

EXHIBIT
DATE 2-6-89
HB RQD Bills

Legislative Brief
January 1989

Montana Natural Resource Information System (NRIS)
Montana Natural Heritage Program (Heritage)

In 1983, the Montana Legislature created these two programs with one main objective: "*... to provide a ready, accessible means of finding information on Montana's natural resources.*" In 1985, the Legislature provided start-up funding, and after three years of development and operation, the NRIS and Heritage programs have achieved great success in helping business, industry, and government agencies.

The **Montana State Library** is the home for these programs for two reasons: 1) this agency's primary function is to provide information to those who need it; and 2) the Library remains neutral -- its role is to give out information without judging it.

THE NRIS Program: Making Connections Among Data Users

NRIS is a clearinghouse for natural resource information, a central access point to existing data collected by public and private agencies. The data remain at the respective agencies, but NRIS has created an index and catalog system to improve access to the data, especially to unpublished sources not indexed elsewhere. The system allows users to obtain a list of existing data sources on any natural resource for a specified area within the state.

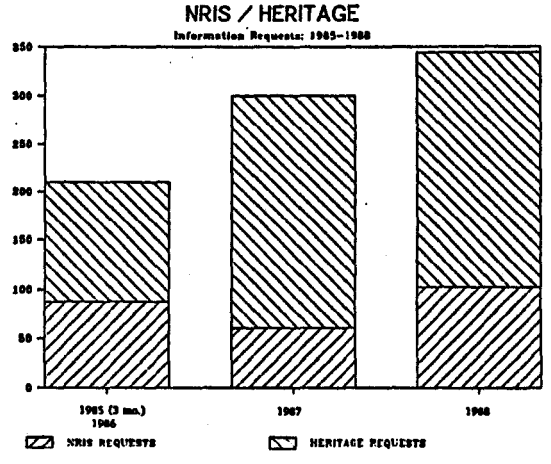
Besides the indexing system, NRIS also coordinates two other major information management projects: a Geographic Information System to help manage the huge amounts of data being collected for the Clark Fork Superfund Cleanup project and a Water Information System to provide a more efficient access to the many water data bases around the state.

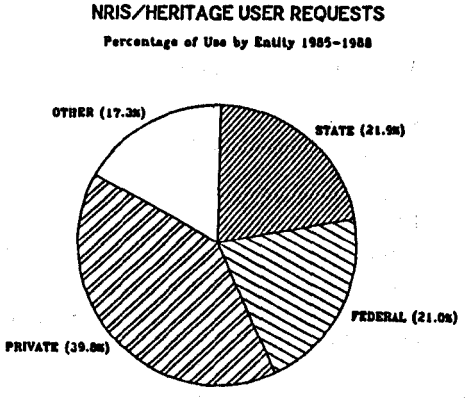
Natural Heritage Program: A Vital Resource Inventory

The Heritage Program is a computer-assisted inventory of rare or exemplary plants and animals in the state including threatened and endangered species. The data base is a record of facts: the existence, numbers, location, condition, and status of species. This information, which is not otherwise accessible, is unbiased, comprehensive and accurate, and as such, serves the broadest possible range of users.

With increases in mining activity, oil exploration, timber harvesting, and other resource extraction projects, companies, developers, and state agencies increasingly will need access to current, accurate, objective information about natural resources. With Heritage and the NRIS Program providing access to such information, economic development can occur even in environmentally sensitive areas without causing irreparable damage.

SYSTEM USERS





PROGRAM BENEFITS FOR MONTANA

Improved access to information has expedited permit processes and facilitated planning and resource development. Developers, planners, and other decision-makers are learning about the possible biological/resource impacts of projects while in the planning stage -- before significant commitments have been made. For example:

- A national telecommunications company planning a trans-Montana underground cable saved months of research time and considerable cash outlay when the Heritage Program discovered more than 100 listed or sensitive plant and animal species directly in the planned path of the cable.

- A large mining company revised its plan and avoided conflict with environmental interests over a government agency permit when the Heritage Program steered the company away from three occurrences of a rare plant near the proposed mine site operations.

- A utility company altered the route of a transmission line and saved thousands of dollars in pre-construction planning when the Heritage Program identified conflicts with nesting bald eagles, a federally protected species.

- A state agency needed an inventory of groundwater and surface water quality information in the areas of potential Superfund clean-up sites; access to the NRIS water data index eliminated the need to start from scratch, and agency staff quickly found out what monitoring had been done in the past.

The NRIS/Heritage Program provides an alternative to confrontation between development and conservation interests, helping business, industry, and government agencies prevent potential delays, litigation, or expense.

FUNDING

A variety of funding sources support NRIS/Heritage operations. For the 1990/91 Biennium, the primary funding source targeted is the Resource Indemnity Trust Fund through the Renewable Resource Development Program (RRD) and the Reclamation and Development Grants Program (RDGP). The NRIS/Heritage successfully meets the funding criteria for these programs by:

- providing for the long-term compilation and management of information on the natural resources of Montana (RRD); and

- helping to develop, promote, protect, or further Montana's total environmental and public interest, including the general health, safety, welfare, and public resources of Montana citizens and communities (RDGP).

MONTANA SUPPORTERS OF THE NRIS/HERITAGE PROGRAM

Industry and Business

Western Technology and Engineering
Champion International Corporation
MONTCO
Montana Power Company
ASARCO
Burlington Northern
Montana Mining Association
Montana Coal Council
MT International Trade Commission
OEA Consultants

Citizens Groups

MT Wildlife Federation
MT Audubon Council
American Fisheries Society
The Nature Conservancy
MT Guides and Outfitters
Native Plant Society
MT Association of Planners
MT Academy of Sciences
Trout Unlimited
Northern Lights Institute

FEB 3 1989

EXHIBIT 13
DATE 2-6-89
HB RRD Mac

PEGASUS GOLD
CORPORATION
Pride in Action!

January 31, 1989

Rep. Mary Ellen Connelly
Chairperson
Long Range Building and Planning Subcommittee
Joint Committee on Appropriations
51st Montana Legislative Assembly
State Capitol Station
Helena, Montana 59620

Dear Rep. Connelly:

Pegasus Gold Corporation and its three Montana subsidiaries, Beal Mountain Mining, Inc., Montana Tunnels Mining, Inc., and Zortman Mining, Inc., wish to go on record as supporting the grant proposals for the Natural Resource Information System and the Natural Heritage Program.

This company and consultants working on its behalf have used the Heritage Program to rapidly accumulate documents necessary for mine permits and amendments. Most recently the program played a vital role in allowing us to acquire and review information for rare plants and cultural resources in the German Gulch area of Silver Bow County where the Beal Mountain Mine is now located. The availability of such information saved many months of field work and several thousands of dollars.

Over the past several years, the Heritage Program has repeatedly demonstrated its utility to resource developers, regulatory agencies, and conservation groups. We urge you and other members of the committee to extend the program's funding from both the Reclamation and Development Grant account and the Renewable Resource Development Program.

If you have any questions or need additional information, please contact me.

Very truly yours,

John S. Fitzpatrick
Director
Community and Regulatory Affairs

JSF/pap

THE NATURE CONSERVANCY MONTANA
CENTENNIAL PROJECT 1985-1989

EXHIBIT 14
DATE 2-6-89
HB RRD Grants

TESTIMONY PRESENTED IN SUPPORT
OF THE MONTANA NATURAL HERITAGE PROGRAM

MONTANA CHAPTER, THE NATURE CONSERVANCY
Donna J. Loop

Before the Long Range Planning Subcommittee
Montana Legislature
February 6, 1989

The Montana Chapter of The Nature Conservancy supports the Montana Natural Heritage Program and respectfully requests funding be granted through the Reclamation and Development Grants Program, per the Department of Natural Resources and Conservation recommendation.

The Montana Natural Heritage Program is a computer-assisted inventory of biological information. The data base is a record of facts: the existence, numbers, location, condition, and status of species. This information, which is not otherwise accessible, is unbiased, comprehensive and accurate. As such, it serves the broadest range of users.

The Nature Conservancy invented Natural Heritage Programs. There are currently 49 Heritage programs located throughout the United States. Heritage programs have recently been established in Latin American countries, where they are called Conservation Data Centers. Heritage programs have proven themselves to be invaluable to industry, public agencies and private organizations in that they are the most reliable, comprehensive source of biological information available.

The Nature Conservancy respectfully requests that the Subcommittee recommend funding for Heritage from the Reclamation and Development Grants Program at the levels proposed by the Department of Natural Resources and Conservation and the Governor's office. Thank you for your consideration.

BIG SKY FIELD OFFICE POST OFFICE BOX 258 HELENA, MONTANA 59624 (406) 443-0303

Montana Department of Fish, Wildlife & Parks

EXHIBIT 15
DATE 2-6-89
HB R+D grants

1420 East Sixth Avenue
Helena, Montana 59620
January 26, 1989

Ms. Mary Ellen Connelly, Chairman
Long-Range Planning Subcommittee
House Appropriations Committee
Montana House of Representatives
Helena, MT 59601

Hearing: 2/6/89
8:00 am

Madam Chairman:

We recommend your favorable consideration and funding for the current grant proposal, "Montana Natural Heritage Program," submitted by the Montana State Library.

The Montana National Heritage Program, with it Natural Resource Information System, was enacted by Montana's 1985 Legislature. It filled a need to coordinate the location and dissemination of information about Montana's Natural Resources. This information has been and continues to be, requested by Montana businesses, local planning boards, various state and federal government agencies, and the general public.

In providing this informational service, the Montana State Library helps hundreds of requestors each year in their search for highly specialized information. It reduces the amount of time a searcher has to spend looking for certain information. The library also provides this information from a neutral or non-advocacy position. We believe the kind of service provided by the Montana Natural Heritage Program falls within the scope of the broader Reclamation and Development Grants Program. It should also be valuable in long-range planning for use of Montana's many valuable and varied natural resources.

We hope this committee concurs with our assessment that the services provided by the Montana Natural Heritage Program merits support of a broad financial base.

Thank you for accepting our testimony in support of this program.

Sincerely yours,

Ron Marcoux

Ron Marcoux
Interim Director

126.4a

Montana Department of Fish, Wildlife & Parks

EXHIBIT 16
DATE 2-6-89
HB R+D grant

1420 East Sixth Avenue
Helena, Montana 59620

Ms. Mary Ellen Connelly, Chairman
Long-Range Planning Subcommittee
House Appropriations Committee
Montana House of Representatives
Helena, MT 59601

Hearing: 1/31/89
8:00 am

Madam Chairman:

We recommend your favorable consideration, and full funding for three grant proposals by the Montana State Library. The proposals are:

Montana Natural Resource Information System
Montana Water Information System
Montana Natural Heritage Program

As a member of the Advisory Committee for these two systems and the Montana Natural Heritage Program since their initiation in 1985, we have been pleased with their development and extraordinary public service.

The volume and variety of information about Montana's natural resources is tremendous. Compiling and organizing that information into a usable format is just one major accomplishment of this program. Assisting hundreds of users each year in finding information appropriate to their needs is another!

The volume and variety of information about our natural resources continues to increase. This increase results from more demands for highly specialized information. Benefits of the improved availability of this information are evident:

1. Expansion of information available on a single resource and its relation to other resources
2. A better informed public and more responsive decisions by public servants
3. The prevention of duplication of generating information, with subsequent savings to the public.

We hope this subcommittee agrees with our evaluation, and that it will approve funding to continue the program and its two information systems.

Thank you for considering this testimony.

Sincerely,

Ron Marcoux

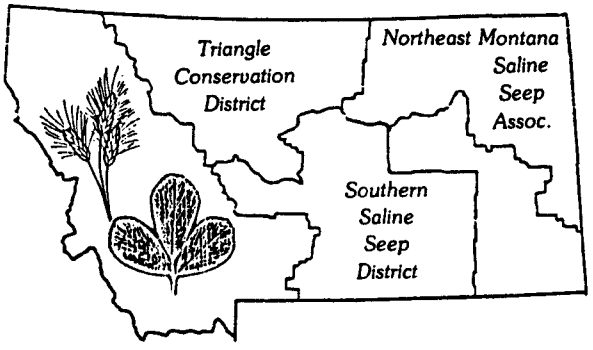
Ron Marcoux
Interim Director

ks
126.5a

EXHIBIT 17
DATE 2-6-89
HB RDGP

Montana
Salinity Control Association

P. O. Box 1411
Conrad, Montana 59425
Phone (406)278-3071



February 10, 1989

Representative Mary Ellen Connelly
House District 8
Capitol Station
Helena, MT 59620

Dear Representative Connelly,

This letter is in response to your request for our views on potential funding alternatives for the NRIS/Heritage Program. It is reasonable to investigate the possibility of charging a user fee or subscription for this service. Timely information transfer is a needed and valuable service for a state as large and spread out as Montana. Living in Conrad and working throughout the eastern part of the state we often find that resources are limited or unavailable in many of the smaller communities.

A $10.00/search or $100.00/year subscription fee would be worth your consideration. The goal of any search is to sort through and select only the desired information. The search should include service and followup that ensures customer satisfaction. Fees could be adjusted according to user demand, with an objective of providing this service to as many people as possible.

If we can be of any further assistance, please let me know.

Sincerely,

Glenn Hockett

Glenn Hockett
Assistant Team Leader

EXHIBIT 18
DATE 2-6-89
HB RDGG

LEWIS AND CLARK COUNTY

Planning Department

City-County Building 316 North Park P.O. Box 1725 Helena, Montana 59624 Phone 406/443-1010

February 9, 1989

Representative Mary Ellen Connelly
Chairperson, Joint Long Range Planning Committee
Montana House of Representatives
State Capitol
Helena, MT 59620

Subject: Funding of Natural Heritage Program

Dear Representative Connelly:

I would like to take this opportunity to express my support for continued funding of the Montana Natural Heritage Program. As a local planning agency, we utilize the resources of the Heritage Program on a regular basis. Comments are solicited on all subdivision proposals and land use changes under our review. We find the staff at the Heritage Program to be helpful, courteous, and prompt with their responses. The information provided is useful in assessing and mitigating potential impacts on the biotic community resulting from land use changes.

The Planning Department is presently up-dating a portion of the County Comprehensive Plan. We are preparing a request for comments from the Heritage Program for the entire study area; the response will provide guidance in the development of land use policies for the County.

I encourage your support of continued funding for the Natural Heritage Program. Please share this letter with your colleagues on the Long Range Planning Committee.

Thank you for your attention.

Sincerely,

Robert S. Rasmussen

Robert Rasmussen, Director
LEWIS AND CLARK COUNTY PLANNING DEPARTMENT

FILE: 1506 CONNELLY.LTR

EXHIBIT 19 A
DATE 2-6-89
HB RDMP

ECON ECOLOGICAL CONSULTING SERVICE

ECON INC.
130 Neill Ave.
Helena, Montana 59601
Telephone
406/442-4650

February 6, 1989

Representative Mary Ellen Connelly
Capitol Station
Helena, MT 59620-0144

Dear Representative Connelly:

Thank you for your kind letter concerning the Montana Natural Resource Information System MNRIS) and the Natural Heritage Program.

I would be willing to pay a user fee if all users paid a fee also. It is nice to have the service at "no cost", but as you know, there are no free lunches. I don't see why the public at large should subsidize the users.

When the MNRIS system gets to the point that on-line service is offered, an annual subscription basic fee plus a small per-time use fee might be tried.

It is doubtful that user fees will bring in enough money to make the billing, collection and so forth worth the effort, at this point. My suggestion would be to fund MNRIS from whatever sources are available now, and let the system mature another two years while a concerted effort is made to publicize its availability.

We are familiar with the genesis of the MNRIS and Natural Heritage programs, and the very hard work that has gone into bringing those programs to the point of present development.

I hope these comments assist you in formulating your long range planning. If I may be of further help, please call.

Sincerely,

Bob Carroll
Robert E. Carroll

REC/ow

EXHIBIT 19 B
DATE 2-6-89
HB RDGP

George M. Ochenski

journalism, politics
natural science

P.O. Box 689
Helena, MT 59624
406/442-9151

MEMO

To: LONG-RANGE PLANNING

Subject: NRIS

Date: FEB. 7, 1989

DEAR COMMITTEE MEMBERS;

AS A PAST USER OF THE NRIS SYSTEM TWO OPTIONS COME TO MIND.

1.) FOR COMMERCIAL USE (I.E., CLIENT RESEARCH) A USER FEE WOULD BE ACCEPTABLE PROBABLY THIS COULD BE BASED ON EXTENT OF INFO AVAILABLE + TIME REQUIRED TO COMPILE IT.

2.) FOR PRIVATE USE (I.E. INDIVIDUAL RESEARCH), NO FEE SHOULD BE CHARGED, BUT THE SYSTEM SHOULD

A) ESTABLISH USER SYSTEM THAT REQUIRES LESS STAFF TIME + PROVIDES ACCESS FOR PRIVATE RESEARCH

B.) ESTABLISH A COMPUTER BULLETIN BOARD THAT HOLDS AREA-SPECIFIC FILES FOR TELEPHONE ACCESS + DOWNLOADING W/OUT COSTS OF COPYING, POSTAGE, ETC.

THANKS FOR THE OPPORTUNITY TO

EXHIBIT 19C
DATE 2-6-89
HB RDGP

DON B. LeHEUP
CONSULTING GEOLOGIST
123 Anderson Boulevard
Helena, MT 59601
(406) 443-2801

February 12, 1989

Representative Mary Ellen Connelly
Long Range Planning Committee, Montana Legislature
Capitol Station
Helena, Montana 59620

Dear Ms. Connelly:

Thank you for your letter concerning funding for the NRIS/Heritage programme. As a geologist in the mining industry, I'm not sure what the the NRIS/Heritage programme is nor how I would need it. Should I need information from its data base, I would not be averse to a user fee. We are accustomed to paying for publications of the Montana Bureau of Mines and Geology or the U.S. Geological Survey which are our main data bases. I would find a similar means of disseminating NRIS/Heritage information acceptable.

This probably isn't very helpful to you, but at best I expect I would only be a very occasional user of the system. I'm certainly in no financial position to supply grant money and would also be disinclined to do so.

Yours truly,

Don LeHeup

MSE, INC.
P.O. Box 4078
Butte, MT 59702
(406) 723-8213

MSE, INC.
COMPONENT DEVELOPMENT
INTEGRATION FACILITY (CDIF)
P.O. Box 3767
Butte, MT 59702
(406) 494-7100

EXHIBIT 19 D
DATE 2-6-89
HB RDGP

February 13, 1989

Rep. M.E. Connelly, Chair
Long-Range Planning Committee
Montana Legislature
Capital Station
Helena, MT 59620

Honorable M.E. Connelly,

The NRIS/Heritage Program is beneficial to the State of Montana as it contributes to the timely and cost-effective preparation of environmental permit applications and environmental reviews. The professional environmental consultants here at MSE would like to see the program continued. We feel that support from the general fund is in order as this program actually benefits economic development in the state. However, should outside support be necessary, we feel that a user fee based on use would be most equitable, with a subscription service as the next alternative. For either case, though, we would like to see an increased capability for direct access by the user.

Sincerely,

Gordon J. Huddleston

Gordon J. Huddleston
Vice President

GH/hj

EXHIBIT 2-6-89
DATE 19E
HB RDGP

Representative Mary Ellen Connelly
Capitol Station
Helena, MT 59620

February 13, 1989

RE: Long term funding of NRIS

Dear Mary Connelly:

Having read your recent letter of February 2, 1989, and having given it considerable attention, my views are as follows:

1. charge a small fee for information and/or services that would be appropriate for the equivalent of time spent, such as an hourly rate.
2. or, charge yearly membership dues, with a lesser amount for low income or senior citizens. Such as $25 for those able to pay that amount, and maybe $10-$15 for others.
3. or, small grants or subscriptions.

Since I am unfamiliar with these two programs NRIS and the Natural Heritage Program and am not a member, I've probably not come up with any solutions to the long-range planing. Would appreciate knowing why you chose me for your questions.

Very Sincerely,

Barbara J. Linaburg

Barbara J. Linaburg

BL:bl

EXHIBIT 20
DATE 2-6-89
HB RRD Grant

ZEOLITES

Heavy Metal Contamination

Mining

Past Present

Reclamation

Water Vegetation

Other

Groundwater
Surface Water
Nutrients
Wastewater

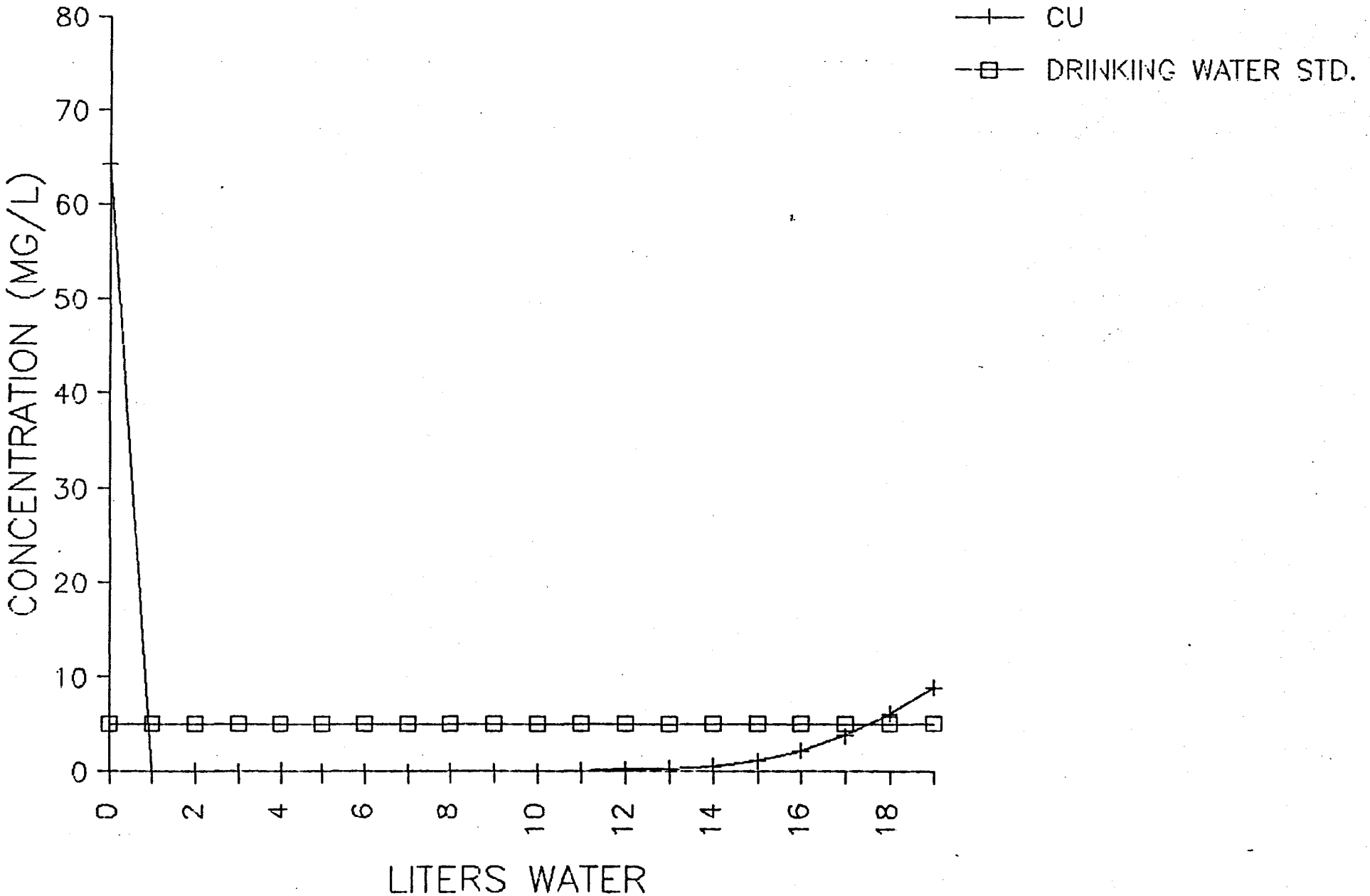
EXHIBIT 20
DATE 2-6-89
HB RRD Grant

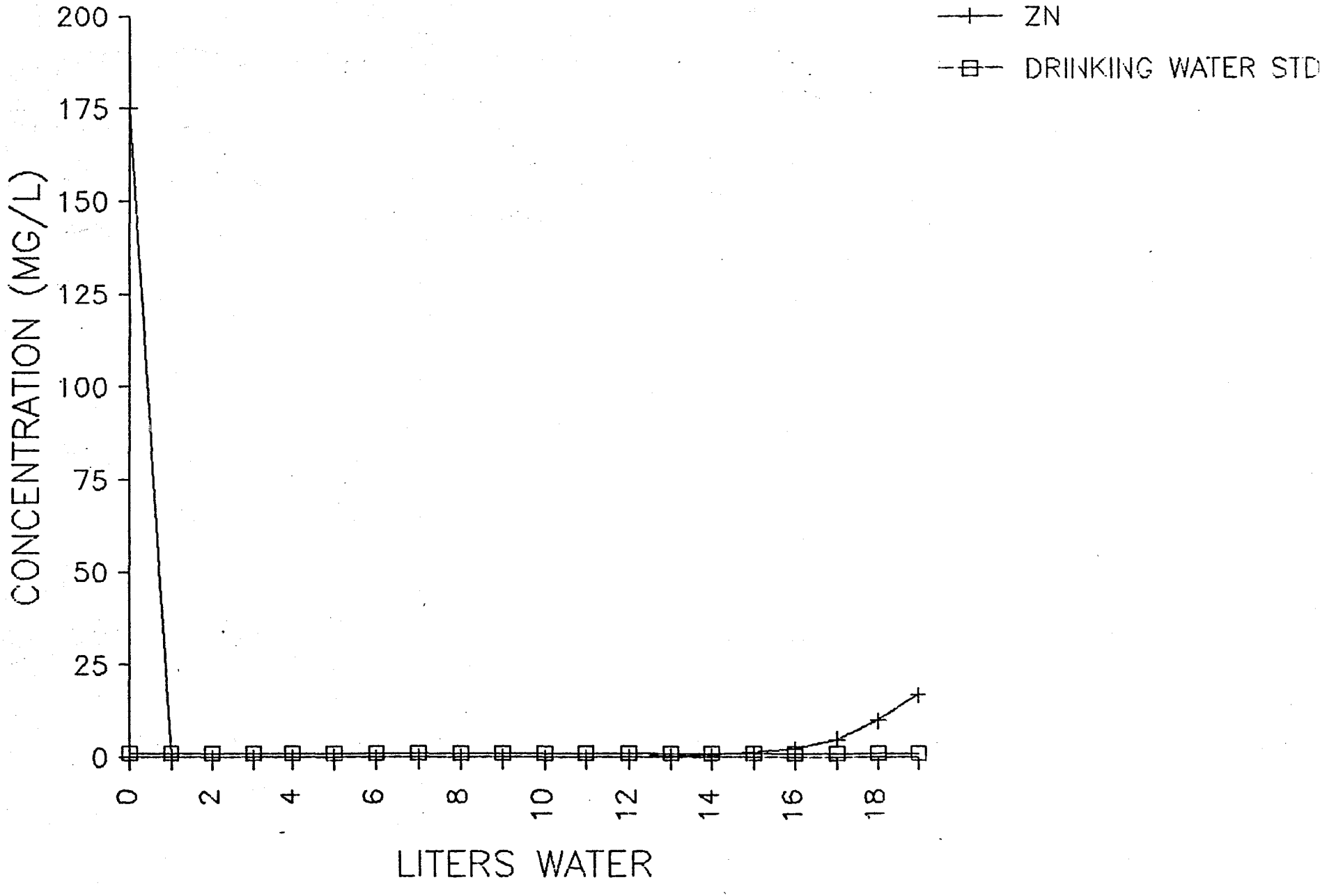
ZEOLITE REMOVAL VALUES

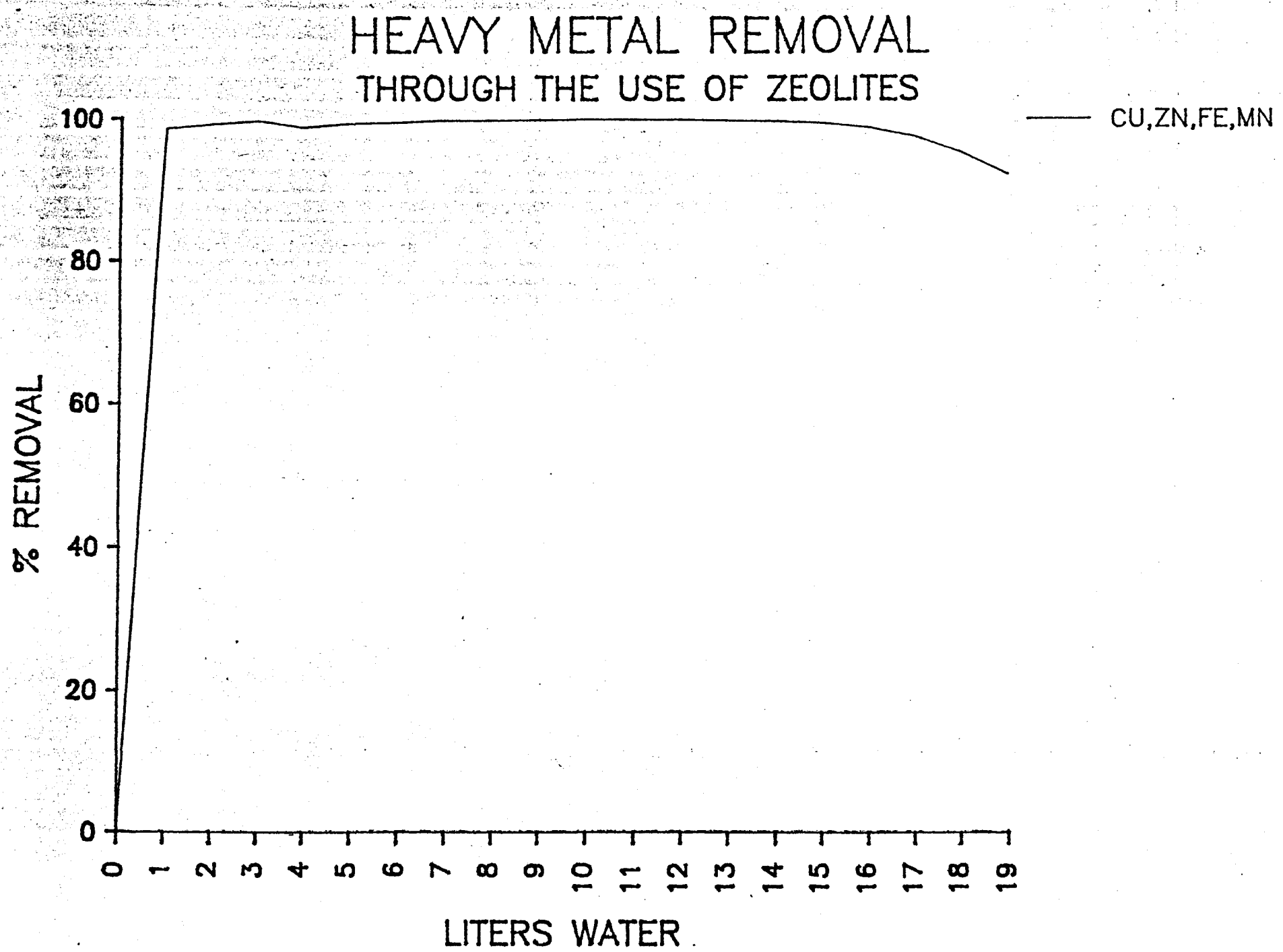
Volume (liters)	CU (mg/l)	ZN (mg/l)
.00	64.20	175.00
2.00	.05	.02
4.00	.07	.01
6.00	.02	.05
8.00	.02	.10
10.00	.01	.04
12.00	.26	.14
14.00	.51	.64
16.00	2.13	2.35
18.00	6.08	9.97

COPPER REMOVAL

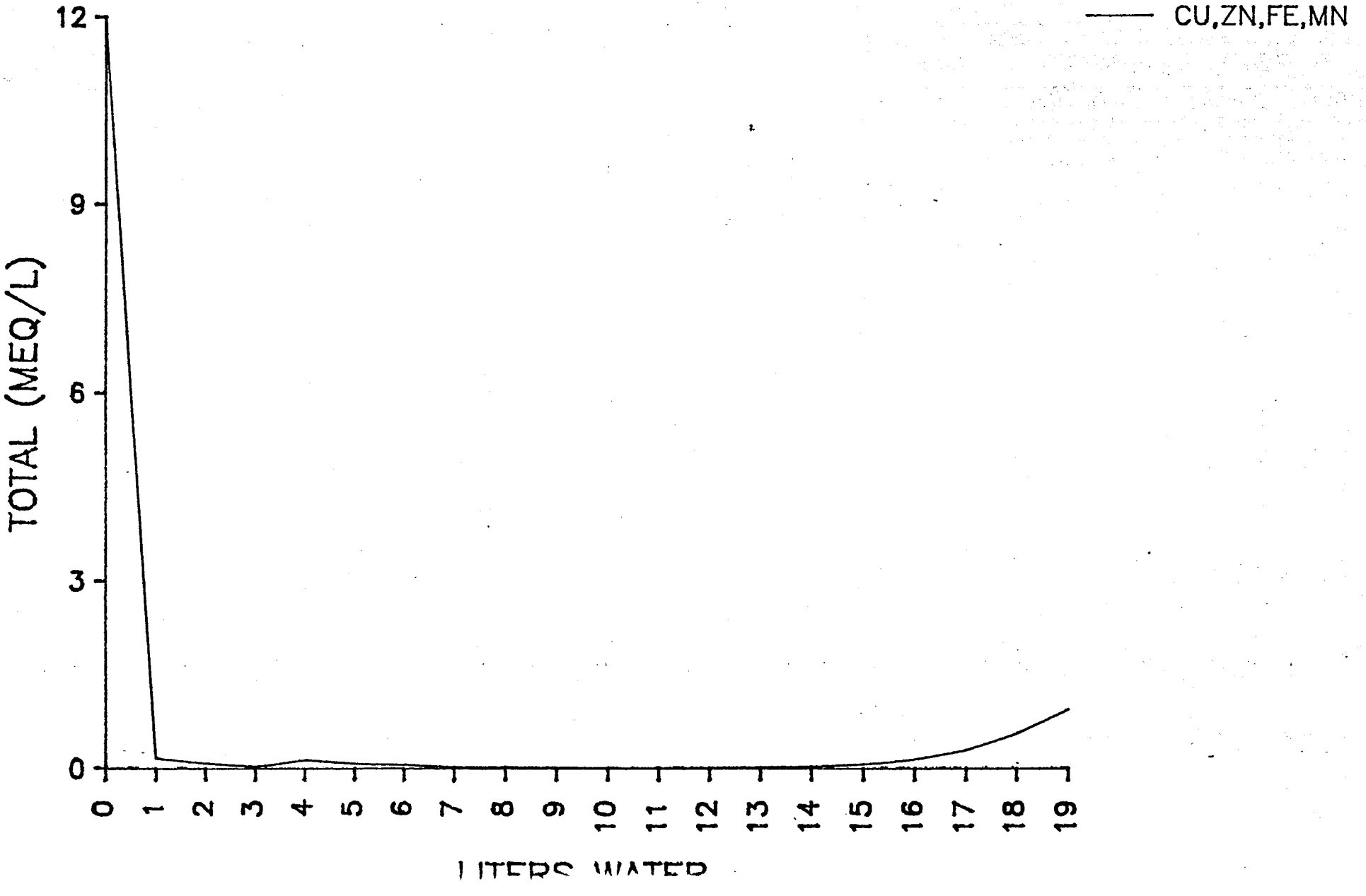
PER 500 GRAMS ZEOLITE




ZINC REMOVAL
PER 500 GRAMS ZEOLITE
ZN
DRINKING WATER STD
CONCENTRATION (MG/L)
200
175
150
125
100
75
50
25
0
0
2
4
6
8
10
12
14
16
18
LITERS WATER


HEAVY METAL REMOVAL
THROUGH THE USE OF ZEOLITES
CU,ZN,FE,MN
% REMOVAL
100
80
60
40
20
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
LITERS WATER

HEAVY METAL REMOVAL
THROUGH THE USE OF ZEOLITES



VISITOR'S REGISTER

H.R. Planning SUBCOMMITTEE

AGENCY(S) _____ DATE 2-6-89

DEPARTMENT RDGP Projects
Blackfoot River Project & Other RDGP Projects

NAME	REPRESENTING	SUPPORT	OPPOSE
Jim Jensen	MFTC	✓	
Ron Mundie	DSL - AMP	✓	
Beeby Garland	T.U. Lincoln MT L.V.C.C. L.E.D.C.	✓	
Land Lindbergh	Blackfoot River T.U	✓	
Reed Lommen	Lewis & Clark Cons. Dist.	✓	
Jon Sesso	MS Library	✓	
~~John Sonderegger~~	~~Montana Tech / MBMG~~		
Peggy Haagsund	MT Assoc. of Cons. Dist	✓	
Richard Miller	MT State Library	✓	
David Oster	MT Natl Heritage Prog	✓	
Ray Beck	Cons. Dist Div / DNRC	✓	
Janet Ellis	Audubon	✓ Heritage-NRIS	
Gary Amestoy	Dept of State Lands	✓	
Don Peoples	Butte Silver Bow Local Gov't	✓	
Donna Wood	The Nature Conservancy	✓	

IF YOU CARE TO WRITE COMMENTS, ASK SECRETARY FOR WITNESS STATEMENT.
IF YOU HAVE WRITTEN COMMENTS, PLEASE GIVE A COPY TO THE SECRETARY.

FORM CS-33A
Rev. 1985