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THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF IDAHO

UNITED STATES OF AMERICA and the STATE OF IDAHO, Plaintiffs, v. ASARCO INCORPORATED, COEUR D'ALENE MINES CORPORATION, CALLAGHAN MINING COMPANY, HECLA MINING COMPANY, SUNSHINE PRECIOUS METALS, and SUNSHINE MINING COMPANY, Defendants.	Case No. CV94-206-N-EJL PLAINTIFFS' RESPONSE TO DEFENDANTS' REQUEST FOR FINAL RELIEF ON MOTION TO MODIFY CONSENT DECREE

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I. INTRODUCTION

Defendants are asking this Court to extinguish any further liabilities they may have under the Consent Decree entered in this action (the "Box Decree"), including the responsibilities that they have to implement work designed to protect human health and the environment. At the same time, they continue to seek the benefits granted under that Decree, most notably, covenants not sue to sue for response costs incurred by the State of Idaho and the United States for work in the Box. This is an unreasonable request that makes no effort to tailor the proposed modification in a manner that is limited to resolving any problems caused by the alleged "changed circumstance." Defendants' proposed modification would arbitrarily end their responsibilities to perform or fund work that remains crucial to the successful completion of the remedy designed to protect the health of residents of the Box, particularly children. Such a modification would void the fundamental basis of the bargain made by the parties in 1994 and would result in a "consent decree" that would never have been voluntarily agreed to by Plaintiffs.

In addition, in presenting their argument, Defendants fail to recognize that: (1) the remedial actions selected by EPA the record of decision issued in September 2002 ("2002 ROD") are not expected to be as costly as Defendants had feared and have been described by Hecla itself as "manageable"; (2) even if EPA had not decided to use its remedial authorities, Defendants' clean-up liabilities outside of the Box would have been very large; and, (3) increases in the estimated cleanup costs outside the Box between 1994 and today resulted primarily from the discovery of new information, and not from the process by which the cleanup would occur.[1]

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[1] Plaintiffs continue to believe that the decision to use EPA's remedial authorities outside the Box (the change of circumstance at issue) has no legal or logical effect on the "burdensomeness" of Defendants's work obligation in the Box and cannot serve as a basis for modification of the Box Decree under Fed. R. Civ. P. 60(b)(5).

Therefore, Defendants have not only failed in their burden to present a modification reasonably tailored to the changed circumstances, but have failed to demonstrate that *any* relief would be justified by the changed circumstances found by the Court in its Order of September 30, 2001 ("Order").

II. STATEMENT OF FACTS

The nature of the public health and environmental problems that have existed and still exist in the Box has been extensively discussed in prior proceedings in this and related matters and need not be repeated here. Over the last several years substantial work has been performed by all parties to address and correct such problems. The State of Idaho and the United States have thus far paid for more of the work related costs in the Box than any other party.

Although Defendants focus on the costs they have incurred in the Box, EPA and the State of Idaho have incurred approximately $116 million in costs on cleanup activities in the Nonpopulated Areas. Declaration of Angela Chung ("Chung Decl.") ¶ 19, attached to this Response as Exhibit 1. Of this amount, approximately $33 million has been incurred performing remedial actions in the floodplain, and an additional $340,000 has been incurred designing the remedial action for interior house dusts. Chung Decl. ¶ 19. The actions taken in the floodplain by the governments were undertaken to address tailings ASARCO and Hecla and other mining companies released into the Coeur d'Alene river system and which came to be located within the floodplain. Id. The original estimate of the costs to be borne by Plaintiffs in performing this work was substantially less. For example, the original cost estimate for implementing all of the work in the Nonpopulated Areas ROD was approximately $68 million. Chung Decl. ¶ 3.

Defendants assert that they have incurred approximately $44.7 million implementing the Consent Decree, including approximately $11.9 million in Pinehurst where they allege they have

no liability. Request for Defendants Hecla Mining Company and ASARCO Inc. for Final Relief on Motion to Modify Consent Decree ("Defendants' Brief") at p.4. Defendants estimate their remaining obligations under the Box Decree will cost $ 18.1 million. Id. at p.5. However, this estimate does not appear to include the costs associated with the permanent funding of the institutional control program, which are estimated to be between $9 million and $17.7 million. Declaration of Robert Hanson ("Hanson Decl.") ¶¶ 6 & 7, attached to this brief as Exhibit 2.

The work performed throughout the Box has significantly reduced risks to human health and the environment. However, important work remains. For example, within the Populated Areas of the Box the remaining work includes the remediation of approximately 550 residential yards, commercial properties and rights of way, in addition to the remediation of large outlying properties and implementation of the final remedy for the Page Pond. Chung Decl. ¶ 13. The Defendants are also obligated under the Box Decree to fund an Institutional Controls Program that is intended to ensure the ongoing protectiveness of the remedial action after it is completed. The Institutional Control Program ("ICP") is an integral part of the Populated Areas remedy and is necessary to preserve the integrity of the cleanup long after it has been implemented. See Hansen Decl. ¶ 6; Chung Decl. ¶ 2. The selected remedy relies heavily on the placement of barriers to prevent human contact with contaminated soils. If Defendants do not adequately fund the ICP these barriers will fail unless the United States and the State of Idaho assume that obligation. Hansen Decl. ¶ 8. In the Nonpopulated Area, work yet to be completed by the United States and the State includes the treatment of surface and groundwater and the remediation of lead-contaminated interior house dust.

In the Box Decree, Hecla and Asarco agreed to submit a work plan for the clean-up of approximately 200 residential yards by April 15 of each year, and to begin that work by June 15.

On April 15, 2003, Hecla submitted a work plan that provided for the remediation of only approximately 18 residential properties.[2] On April 18, 2003, EPA and IDEQ informed Hecla of the inadequacy of the work plan, but stated that Plaintiffs were willing to entertain a work plan from Hecla that provides for the performance of approximately half of the work required under the 1994 Consent Decree. See Attachment A to Chung Decl.[3] On April 24, Hecla submitted a letter to EPA and IDEQ invoking the dispute resolution process under the Consent Decree. See, Attachment B to Chung Decl.

III. LEGAL ARGUMENT

It is well established that if a court concludes that it has the authority to modify a consent decree, that modification must be limited and, among other things, be "suitably tailored to the changed circumstance." Rufo v. Inmates of Suffolk County Jail, 502 U.S. 367 at 383, 391 (1992). In other words, "Rufo requires that a consent decree be changed no more than necessary to resolve the problems created by the change of circumstances." King v. Greenblatt, 149 F.3d 9, 15 (1st Cir. 1998). This Court has already concluded that the only "changed circumstance" that can be considered in connection with the present request is the decision by EPA to use its CERCLA remedial authorities in the Coeur d'Alene Basin in areas outside the Box. See Order at p. 10. Hence the question before the Court is how are Defendants' burdens of implementing the

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[2] As discussed infra,, at footnote 8, Asarco's role under the Box Decree - and in fact its role at all sites where the United States is lead agency - will be addressed, primarily through funding from the Environmental Trust established under the Arizona Decree.

[3] The State and EPA have handled prior refusals by Defendants to meet their obligations under the Box Decree with similar flexibility. For example, last year the Plaintiffs and the mining companies reached an agreement whereby Hecla and ASARCO performed only one half of the work required under the Consent Decree. EPA and IDEQ performed the other half of the work at a cost of $2.9 million, and are entitled to reimbursement from Hecla and ASARCO. Chung Decl. ¶¶ 16 and 17.

Box Decree presently increased because of that decision? Without first answering that question, neither the Parties nor the Court can fashion an appropriate modification. Plaintiffs continue to believe that Defendants have not, and cannot, carry their burden of establishing that a significant modification to the Box Decree is either necessary or appropriate.

It is established that EPA's decision to use CERCLA remedial authorities in the Basin did not increase Defendants' cleanup obligations in the Box in any way. See, Order at p. 7. The essence of Defendants' argument is that they might not have agreed to a settlement – or more precisely this settlement – if in 1994 they had believed EPA would exercise its CERCLA remedial authorities in 1998 outside the Box. The Court has correctly ruled, however, that the Box Decree contained no condition or limitation of EPA's remedial authorities outside the Box. Hence, this Court appears to be faced with the daunting challenge of revising the Box Decree based not on a change of circumstances that suggest the prior settlement was substantively unfair, but based on a change of Defendants' subjective motivation to enter into the settlement.

Not only must any modification be tailored to addressing the specific change of circumstances and its impact on performance under the Box Decree, it should also be fashioned to achieve the goals of the underlying enabling legislation: in this case CERCLA. United States v. State of Michigan, 940 F.2d 143, 155 (6th Cir. 1991). The goals of CERCLA are clear and oft-stated. Congress enacted CERCLA in 1980 in response to the grave environmental problems posed by improper handling, treatment, and disposal of hazardous substances. *See* United States v. Bestfoods, 524 U.S. 51, 55 (1998). In passing this statute, Congress had two principal goals in mind: "to facilitate the cleanup of potentially dangerous hazardous waste sites, and to force polluters to pay the costs associated with their pollution." United States v. CDMG Realty Co., 96 F.3d 706, 717 (3d Cir. 1996). In this way, the statute ensures that "those actually 'responsible

for any damage, environmental harm, or injury from chemical poisons [may be tagged with] the cost of their actions.'" *Bestfoods*, 524 U.S. at 55-56 (quoting S. Rep. No. 96-848, at 6119 (1980)) (brackets in original). Accordingly, any modification to the Box Decree must adhere to those goals.

The 1994 Decree was intended to achieve the general goal of cleaning up of the Box while ensuring that, at least in part, CERCLA's mandate that such clean-ups be paid for by the parties responsible for the pollution be honored. As the prior testimony before this Court has established, the Consent Decree included a series of compromises from all participants that were necessarily interrelated. See, e.g., Testimony of C. Mackey, Sept. 19, 2001, p. 281, l.4 - p.284, l.1. These compromises were driven by a wide variety of practical considerations. One of the well recognized trade-offs was the fact that Defendants agreed to perform work in the Pinehurst area in exchange for Plaintiffs willingness to perform work in areas of the Nonpopulated area where Defendants were liable. 9/19/01 Tr. at 282-86 (Mackey); 9/19/01 Tr. at 331-40 (Hanson); 9/19/01 Tr. at 373-74 (Ceto); 9/18/01 Tr. at 134-36 (Pfahl). Of the $116 million incurred by EPA and IDEQ in the Nonpopulated Areas, at least $33 million of these costs have been incurred responding to contamination, including tailings, in the floodplain. Chung Decl. ¶ 19. Additionally, under the Box Decree, EPA and IDEQ agreed to bear the cost of surface and groundwater treatment in the Nonpopulated Areas, plus the cost of implementing the interior dust remedy. These costs have not yet been incurred, but are likely to be substantial. Chung Decl. ¶ 20. Thus, to the extent that Defendants assert that as part of the bargain represented in the Box Decree they agreed to undertake work in Pinehurst where they may otherwise have not been liable, they present only one side of the bargain insofar as the State and the United States undertook important and costly obligations in areas where Defendants clearly were liable.

A. Defendants Have Not Carried Their Burden of Establishing Their Proposed Modification is Appropriate.

In its prior order this Court held:

> The Court is putting the parties on notice that it believes it is highly likely the Defendants will be able to establish that compliance under the Consent Decree has become significantly more onerous. Then the Court will have to determine whether Defendants' proposed modification is "suitably tailored to the changed circumstances." Rufo at 370-71.

Order at p. 9. Defendants have submitted the 2002 ROD. However, as discussed below, Defendants simply have not meet their burden of proving that, at this point in time, their burden of complying with the Box Decree has become significantly more onerous, thus requiring broad modifications to the Box Decree.

Plaintiffs understand that the Court's prior order provided notice of its belief that the Defendants would be able to establish a substantially increased burden of compliance as a result of the changed circumstances. Id. However, it remains Defendants' legal burden to establish a direct relationship between EPA's decision to utilize its remedial authorities outside the Box and a significantly increased burden of complying with this decree and to establish that its proposed modification is tailored to the changed circumstances. Rufo, at 383, 391. Defendants' submission fails on both accounts.

1. Defendants have failed to demonstrate the difference between their potential liabilities for clean-up of the Basin under the "multi-media approach" and as presently structured.

Establishing and comparing the potential scope of liability Defendants would have faced should their liability have been "limited" to costs of any of EPA's removal activities, claims for natural resource damages under CERCLA and other potential liabilities that might have accrued under the "multi-media approach" and their present exposure to liabilities as a result of EPA's decision to use its remedial authorities outside the Box is a daunting and perhaps impossible

task.[4] However Defendants' briefings clearly overestimate the disparity in their potential liability under the two related schemes because: (1) Defendants' potential liability under the 2002 ROD is not as large as they previously feared; and (2) Defendants substantially understate their potential liability under the "multi-media approach" historically contemplated.

a. *Defendants' potential liability for clean-up costs of environmental contamination outside the Box is not as large as once feared and is recognized by Hecla to be "very manageable."*

With the issuance of the 2002 ROD, the specter of billion dollar remedies and liabilities that Defendants allegedly felt they faced at the time of the September 2001 hearing has not been realized.[5] The cost of the selected remedy of the 2002 ROD is estimated at $360 million dollars in 2002 dollars and will be implemented over thirty years. The remedy selected and the fact those costs will be incurred over the course of thirty years has substantially reduced the burden to Defendants. As recently noted by a spokesman for Hecla, EPA's proposal for a $360 million cleanup over 30 years "will be very manageable." See, Idaho Statesman (April 16, 2003) Attachment E to Gormley Decl.

It must also be noted that Defendants have argued vigorously that their liability outside the Box is not joint and several. The United States has opposed that defense as to all areas where

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[4] Under CERCLA, there are essentially two types of cleanups: "removal actions" and "remedial actions." Moreover, the natural resource trustees always maintained their claims related to the potential restoration or replacement of affected natural resources. Hence, Defendants' argument is limited to the assertion that they anticipated removal actions and/or natural resource damage claims for restoration, but not remedial actions.

[5] The 2002 ROD identifies approximately 30 years of prioritized actions in the Basin. During that time period, EPA will evaluate the effectiveness of the remedial actions selected in the ROD. At the end of the period, EPA will evaluate whether additional CERCLA remedial actions are necessary. 2002 ROD Part 1: Declaration; at p. 2. However, whether or not additional remedial actions might be appropriate in the Basin 30 years from now, does not have an impact on Defendants' burden over the next few years in completing their work under the Box Decree.

hazardous substances released by Defendants were commingled. Nonetheless, that defense has been presented to the Court and the decision of the Court on this issue will materially impact the extent of Defendants' potential liability outside the Box and, hence, will be relevant to Defendants' argument about how "onerous" compliance with the Box Decree will be.[6]

b. *Defendants were always exposed to the possibility of substantial clean-up liabilities.*

Any attempt to estimate what Defendants' potential liabilities would have been had EPA not chosen to utilize its remedial authorities under CERCLA outside the Box is necessarily extremely speculative. Nonetheless, three points are demonstrable at this time. First, such liabilities would likely have been substantial. See i.e. Declaration of Earl Liverman ("Liverman Decl.") ¶ 6, attached as Exhibit 5 (discussing a 1995 report released by Hecla and ASARCO proposing a plan that would cost $107 million and a 1995 report by the Coeur d'Alene Tribe estimating costs at between $352 million and $968 million). Second, any attempt to analyze those potential liabilities must recognize that substantial information regarding the nature and scope of the environmental problems faced outside the Box arose after the entry of the Box Decree, particularly information on threats to the health of children. That information would have substantially increased the scope, and hence expense, of the clean-up that will be required outside the Box even if EPA's remedial authorities were not invoked. See 2002 ROD at p 2-6.

Third, Defendants' focus on the costs associated with the Silver Valley Natural Resource Trust (SVNRT) in no way fairly estimates the costs of the clean-up that would have eventually been required even if EPA's remedial CERCLA authorities had not been used. In presenting their

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[6] Plaintiffs have argued, and continue to argue, that the Court should not relieve Defendants of any of their obligations under the Box Decree until the Court has issued decisions about the extent of Defendants' liabilities outside the Box.

view of their potential liability under the "multi-media approach," Defendants focus exclusively on the limited activities and expenditures of the SVNRT. However, the activities of SVNRT do not approximate the potential costs of EPA's multi-media approach to the cleanup of the Basin. The role and processes of the SVNRT were limited and completely distinct from the role and processes of the Coeur d'Alene Basin Restoration Project ("CBRP"). The specific purpose of SVNRT was to expend limited state settlement funds on cleanup actions as defined by the settlement and trust agreement by which it was created. CBRP, on the other hand, was a much broader multi-party cooperative effort to coordinate restoration of the Coeur d'Alene Basin related to past injury and future threats to the environment and public health from heavy metals and other contaminants. Liverman Decl. at ¶ 2.

Defendants argue that when they signed the 1994 Consent Decree "it was with the expectation that environmental cleanup needs outside the Box would continue to be addressed, perhaps under the auspices of the [CBRP], at a level of funding consistent with then ongoing efforts of the individual companies and the [SVNRT]." Request p.6. Defendants then reference the limited actions and expenditures of the SVNRT between 1994 and 1999 and argue that because of the Basin lawsuit and so-called expansion of Superfund Basin-wide, "future funding and the cooperative efforts to move forward in this incremental fashion evaporated." Request p.7. Defendants' argument is refuted by a simple review of the origin, purpose, organization, scope and activities of SVNRT versus those of CBRP.

The SVNRT was a trust fund established by a settlement agreement approved by Judge Ryan of this Court in State of Idaho v. Bunker Hill Company, et al., 83-3161, resolving state claims under federal and state law against several mining companies (including Asarco but not Hecla) for contamination in the Coeur d'Alene River drainage. Attached hereto as Exhibit 3 is

the Declaration of Charles Moss ("Moss Decl."). In that Declaration Mr. Moss explains the limited nature and role of the SVNRT. Moss Decl. ¶ 3 and Attachment 1, Final Judgment, Settlement Agreement and Trust Fund Agreement. In short, the purpose of SVNRT was to expend its settlement funds for cleanup projects in the Silver Valley. SVNRT projects continued only until the exhaustion of the settlement funds and SVNRT was closed out in June, 2002. Moss Decl. ¶ 6.

CBRP on the other hand was formally created pursuant to a Memorandum of Agreement (MOA) between the State, EPA and Coeur d'Alene Tribe in late 1992. Attached hereto is a declaration of Earl Liverman discussing the nature and scope of the work performed by CBRP. See Exhibit 5. It suffices to state that: the CBRP's long-term goals, plans and tools were much broader than those of SVNRT; it is clear that CBRP recognized or set in motion processes and actions which had or would have had, significant impacts on Defendants, and these impacts were not necessarily different in scope or scale from those that eventually arose from EPA's decision to utilize its remedial authorities.

Moreover, Defendants' arguments simply ignore that in the years since the signing of the Box Decree, investigations in the Basin resulted in the discovery of previously unknown risks that would have triggered substantial additional work even if EPA had not elected to utilize its remedial authorities. See, 2002 ROD at pp 2-6. For instance, Defendants' claim that certain soil cleanups were "not envisioned at the time of the 1994 Consent Decree" and their suggestion that those cleanups would not have been required of them under the multi-media approach is likely not true. Given the gravity of the information discovered, such soil cleanups while not contemplated in 1994 would have been necessary under any process EPA might have chosen, and Defendants' liability for such cleanup stems not from the process utilized but from problems

present in the Basin.

It bears emphasizing that to a large extent CBRP was not a promise to Defendants that they would not ultimately be held responsible or liable for solutions to problems that needed to be addressed. CBRP was not so much a guarantee of cleaning up the Basin through voluntary activities as it was a recognition and endorsement of the various existing resources, authorities and processes of its participants. No means of addressing Basin issues was ruled out by CBRP. Liverman Decl at ¶¶ 2 and 3.

While Plaintiffs in no way concede that the "multi-media approach" would have resulted in Defendants being liable for a less expensive cleanup, we recognize that such an arrangement would have been understandably preferred by Defendants. The purpose of this discussion is to emphasize a fundamental issue that is plainly missing from Defendants' submission: a recognition that the potential liabilities of Defendants under either approach would be significant.

2. Hecla has not established that EPA's decision has made its ability to comply with the Consent Decree substantially more onerous.

As previously noted, in a recent article in the Idaho Statesman, a spokesman for Hecla is quoted as saying that EPA's proposal for a $359 million cleanup over 30 years "will be very manageable." Attachment E to Gormley Decl. This is consistent with Plaintiffs' expectations of the true impact of the 2002 ROD.

Moreover, Hecla's implied assertion in its recent submission that the company cannot afford to conduct the work it agreed to perform in the Box contrasts sharply with its statements to the investment community. In an article in Businesswire, Arthur Brown, Hecla's Chairman and Chief Executive Officer, touted Hecla's financial performance. Mr. Brown was quoted as saying:

> Hecla had an astounding year in 2002. We're very pleased with our production levels and production costs. We've also made gigantic strides forward in terms of

> our financial health over the past two years. The market clearly recognized these accomplishments, making Hecla the best percentage performer on the New York Stock Exchange during 2002.

See Hecla Reports Record Gold and Silver Production in 2002; Second Consecutive Year of Net Income. Attachment A to Declaration of Paul Gormley ("Gormley Decl."), Exhibit 4 to this brief. That same article highlighted the following features of Hecla's "astounding year:"

> (a) Hecla produced more gold and silver than in any other year during the company's 112 year history;
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> (b) In 2002, Hecla reported a net income of $8.6 million which represented a 269 percent increase in net income over 2001;
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> (c) Hecla's gross profit in 2002 increased five-fold over 2001;
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> (d) At the end of 2002, Hecla's cash and cash-equivalents were $19.5 million;
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> (e) In January 2003, "net proceeds from a common stock offering totaled approximately $92 million, increasing Hecla's cash position by that amount."

According to Hecla, the $92 million net proceeds from the common stock offering will be used "to fund future exploration and development, working capital requirements, capital expenditures, possible future acquisitions and for other general corporate purposes." Id.

These statements and other public statements by Hecla leave little doubt of Hecla's stronger financial condition and fundamentally rebut Hecla's contention that its financial condition today has been so deeply impacted by EPA's 1998 decision to pursue remedial authorities in the Basin that the broad modification demanded - or in fact any modification to the Box Decree at all – is necessary.[7] See, also Hecla Releases Year-End and Fourth Quarter

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[7] In fact, Hecla has already budgeted $6 million to $8 million for environmental remediation in 2003, "principally for water management activities at the Grouse Creek property, the yard remediation program at the Bunker Hill Superfund site and reclamation activities at other locations." Hecla Mining Company Form 10-K for Fiscal Year ended December 31, 2002 at 57. Attachment C to Gormley Decl. (relevant portion).

Financial Results, Reports 2001 Turnaround, p.1. Attachment B to Gormley Decl.

3. Asarco has presented no competent evidence that EPA's decision has made its ability to comply with the Consent Decree more onerous.[8]

In the prior hearing, Asarco's evidence on the issue of why its compliance with the Box Decree has become substantially more onerous was extremely limited both in scope and in time frame. Asarco's evidence was primarily limited to the generic impact of a site being listed on the National Priorities List ("NPL") noting: it "concerned Asarco's management;" it typically triggers an SEC disclosure obligation; and it typically requires additional devotion of human resources. Asarco Closing Brief at pp. 9 & 16. However, these broad assertions do not establish that Asarco faces any significantly increased burden in its effort at compliance under the Box Decree as a result of EPA's decision to use its remedial authorities outside of the Box.

In particular, Asarco has not and cannot argue that it was ever denied financing as a result of this decision; its cash flow was ever affected in any material way; or that its financial

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[8] Defendants attach as an exhibit to their motion the consent decree recently entered involving the United States, Asarco and Asarco's parent corporations ("Arizona Decree"). The Arizona Decree settled the United States' allegations that Grupo Mexico was attempting to have Asarco transfer ASARCO's premier remaining asset -- its 54% interest in the Southern Peru Copper Corporation ("SPCC") -- to Asarco's parent corporation Americas Mining Corporation ("AMC") for less than its reasonably equivalent value. That settlement required AMC to add over $100 million in additional consideration to its proposed purchase and required that the major component of the new consideration – a $100 million promissory note from AMC to Asarco – be assigned to an environmental trust which will be used for the purpose of funding environmental remediation at sites across the nation where ASARCO is a potentially responsible party. As part of the settlement, the United States agreed to limit Asarco's cleanup expenditures at federally managed sites for three years, to compromise certain past EPA costs at four sites, and to forego stipulated or statutory penalties for past noncompliance with Asarco's cleanup-related obligations under federal consent decrees and administrative orders. Defendants' Exhibit 12 at ¶¶ 6, 12-15 and 33-37. While expensive for Grupo Mexico, this settlement has been advantageous for Asarco and all its creditors as Asarco received significantly more in value for the stock, has less debt and is better positioned to address the demands of its business and other creditors than if Grupo Mexico had been allowed to proceed with the sale as initially proposed.

condition following acquisition by Grupo Mexico in 1999 was negatively affected by EPA's decision. The last omission is notable because in December 1999, following a public bidding competition, Asarco was acquired by Grupo Mexico. That event substantially impacted Asarco's business and financial condition in numerous ways. Yet, Asarco has not presented any evidence of any kind that EPA's decision has affected the restructured Asarco in any material manner or significantly increased its present burden of complying with the Box Decree.[9]

Moreover, any possible impact EPA's decision may have had on Asarco was, as a practical matter, further diluted by the recent Arizona Decree that has resulted in the United States and Asarco reaching an agreement that limits Asarco's performance obligations to the United States for the next three years. Under the terms of that agreement for the next three years, Asarco's clean-up responsibilities at federally managed sites will be primarily funded from the environmental trust created under the terms of the Arizona Decree, and the United States agreed to limit the amount of additional money it seeks to require Asarco to expend on environmental remediation to: $2 million in 2003, $2.5 million in 2004 and $3 million in 2005. At the end of those three years, or possibly before, the United States and Asarco will again have to address Asarco's liabilities. Until that time, however, the Arizona Decree eliminates or limits Asarco's claim that immediate relief is necessary or appropriate.

4. Defendants Cannot be Excused From Performing the Remainder of the Work Under The Box Decree By Their Allegation that the Goals of the ROD Have Been Achieved.

For the first time, Defendants argue that modification of the Box Decree is appropriate

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[9] Based on the extensive discovery taken by the United States as to Asarco's financial condition over the last 18 months, Plaintiffs assert that the reason Asarco has failed to provide evidence that EPA's decision to proceed with its remedial authorities presently places any substantial burden on Asarco's ability to perform under the Box Decree is because no such evidence exists.

because "little, if any, of the work remaining under the Consent Decree may actually be necessary, because the ROD's remedial objective has already been achieved." Defendants' Brf. at p. 5. In other words Defendants claim that the remaining yards of residents that are contaminated with lead do not need to be cleaned up. This argument is patently incorrect and cannot serve to modify the decree in any event.

As a threshold matter Defendants' argument cannot be brought in the context of this motion. This Court has previously ruled that if Defendants disagree with work requirements set forth in the Consent Decree, the remedy for any such dispute lies with the dispute resolution provisions of the Decree and may not serve as the basis for modifying the Decree itself. Order at 3. Moreover, the only issue before the Court at this time is what if any modification is appropriate in light of the prior order of the Court. Defendants' arguments basically seek modification of the Decree under a new theory.

More importantly, Defendants substantive assertions are patently incorrect. For example, the yards still to be remediated exceed the lead cleanup levels provided in the 1991 ROD. Specifically, the 1991 ROD expressly concluded that a child living in a yard having a soil concentration of greater than 1000 ppm lead will face an unacceptable risk. 1991 ROD at 9-8. Each of the 550 yards remaining to be remediated in the Box has a concentration of greater than 1000 ppm lead. Chung Decl. ¶ 13. Moreover, to ensure future groups of children will not be exposed to significant risks of elevated blood lead levels, the yard cleanups must be completed to achieve other performance standards. For example, each of the eight communities in the Populated Areas of the Box must have average soil concentration below 350 ppm of lead. Chung Decl. 5 & 14. The Defendants have only been certified complete in one of the eight "Reasonably Segregable Areas" within the Box. Chung Decl. ¶ 14.

B. Based on the Information Now Before the Court, the Court Must Reject Defendants' Request that the Box Decree Be Drastically Modified.

The requirement of Rufo, that any modification be "suitably tailored to the changed circumstance" is a critical one. This language acts as a limitation on a court's authority to interject itself into a settlement. The need to cautiously approach the judicial re-writing of a settlement agreement is particularly important in this instance. A review of the outstanding case law suggests there is little precedent for judicial restructuring of agreements when - as here - the settlement was reached as a result of lengthy bargaining and compromises by both Plaintiffs and Defendants, driven by a wide range of motivations, that resulted in commitments that are essentially monetary in nature. Most of the cases regarding modifications of decrees that serve as relevant legal guidance focus on matters that involve institutional reforms (See, i.e. Rufo, (prison reform); King v. Greenblatt, 149 F.3d 9 (custody and treatment of sexually dangerous persons); David C. v. Leavitt, 242 F.3d 1206 (10th Cir. 2001), cert. denied, 534 U.S. 822 (2001)(reform of child-welfare system). In those cases, while modifications to the decrees were still approached with great caution, the courts were often aided by the fact that the essence of the decree was an objective standard that was necessarily injunctive in nature. The specific constitutional or statutory standards sought to be achieved through the injunctive relief sections of those decrees provided objective benchmarks with which the Court could assess the need for and scope of a modification without doing unnecessary damage to the integrity of the settlement itself.

In contrast, Defendants do not propose any objective goal to work to achieve and/or protect. Defendants merely seek a less expensive arrangement than they received through their actual settlement. In this type of situation, Plaintiffs urge that the Court forbear or limit any modification of the negotiated resolution so as to avoid disrupting a very basic truth: there is

nothing unfair or unduly burdensome about Defendants completing the residential yard clean-ups or funding the Institutional Control Program needed to maintain the effectiveness of the remedy.

This Court should not lose sight of the fact that the Box Decree has achieved substantial improvements in environmental and human health conditions in the Box. The settlement occurred only after important concessions were made by both sides, and even Defendants urge the Decree's continued vitality and do not seek that it be deemed null and void. The clean-up that has occurred as a result of this arrangement has been expensive, yet has undeniably resulted in significant accomplishments that will serve to help protect the health and welfare of the citizens and affected environment. Those efforts are not complete, however, and Defendants' argument that they should be allowed to simply walk away from their core liabilities under the Decree, and as a practical matter walk away from statutory liabilities, is neither fair, necessary or suitably tailored to the situation.

Defendants use as the focus of their remedy request the costs they have allegedly incurred cleaning up the Pinehurst area. That measurement is arbitrary and fails to account for the fact that the agreement to perform that work was a direct trade-off for the Plaintiffs' agreement to perform work elsewhere in the Box where Defendants did have liability.[10]

Additionally, in attempting to suggest the logic of "offsetting" the alleged $11.9 million Pinehurst costs with the future costs they might incur in performing the remainder of the work at the Site, Defendants have suggested the future costs in the Populated Areas will be approximately $18.7 million. The basis for that estimate is entirely unclear and, in any event, is

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[10] If the Court grants relief to Hecla and ASARCO in the Populated Areas based on the mining companies' work in Pinehurst, then in all fairness the United States and the State of Idaho should be relieved of their covenant not to sue Hecla and ASARCO for the Nonpopulated Areas.

not a fair estimate. See Hanson Decl. ¶¶ 6-8. As for the Nonpopulated Areas, Hecla and ASARCO imply that they have no liability for these portions of the Box. While this may be true for certain parts of the Nonpopulated areas, such as hillsides impacted by smelter emissions, it certainly is not true for the floodplain areas impacted by the tailings released by Hecla and ASARCO into the South Fork and its tributaries.[11]

More significantly, Defendants' proposal seeks relief from the most fundamental commitments they made in the Box Decree that served as the basis of the settlement: Defendants' agreement to perform yard clean-ups and to fund the Institutional Control Program. This is the fundamental work that the United States, the State and the community expect Defendants to perform. It seems beyond argument that Plaintiffs would never have agreed to a settlement where Defendants were granted a covenant not to sue for the entire Box if Defendants had rejected the responsibility to perform these core activities. This Court should refuse to grant Defendants a modification to a settlement when it is aware that the terms of the modification would never have been the basis for an acceptable settlement to Plaintiffs.[12]

The State of Idaho and the United States continue to believe that no modification is

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[11] As argued by the United States in the trial relating to Hecla and ASARCO's liability in the Basin, tailings from numerous mining and milling facilities of Defendants' were released into the South Fork of Coeur d'Alene River and its tributaries, after which the tailings were deposited on the floodplain during high water flows. See U.S. Findings of Fact, Attachment C to Gormley Decl.

[12] Obviously, absent a settlement the United States could have ordered the Defendants to do clean-up, including work in almost all of the Populated Areas and in a significant portion of the Nonpopulated Areas. 42 U.S.C. § 9606.

appropriate. However, should the Court choose to modify the Decree, Plaintiffs suggest that the Court focus on Defendants' obligations to pay Plaintiffs' outstanding past costs. Modifying the Decree by eliminating that liability would relieve Defendants of approximately $3 million[13] in claims that are presently outstanding. Such a modification would relieve Defendants of an immediate and present burden without impacting the critical work which remains.

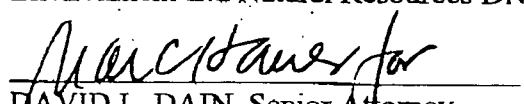
IV. CONCLUSION

Defendants' proposed modification would eliminate their remaining liabilities under the Box Decree and would fundamentally alter the Decree in a manner not justified by the limited additional burden – if any – that EPA's decision to use its remedial authorities outside the Box has had on Defendants' performance obligations in the Box.

Respectfully submitted,

FOR THE UNITED STATES

JOHN C. CRUDEN
Deputy Assistant Attorney General
Environment and Natural Resources Division



DAVID L. DAIN, Senior Attorney
PAUL GORMLEY, Trial Attorney
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, DC 20044-7611

[13] This includes $2.9 million incurred by the State and the United States in taking over the Defendants' work obligations last year, and unpaid oversight costs for recent years. Chung. Decl. ¶ 18.

OF COUNSEL:

TED YACKULIC
Office of Regional Counsel
U.S. Environmental Protection Agency, Region 10
1200 Sixth Avenue
Seattle, WA 98101

FOR THE STATE OF IDAHO

LAWRENCE G. WASDEN
Attorney General
State of Idaho

CLIVE J. STRONG
Chief, Natural Resources Division

Mark Fauvs for

CURT A. FRANSEN
Deputy Attorney General
Office of the Idaho Attorney General
2005 Ironwood Parkway, Suite 210
Coeur d'Alene, ID 83814-2647

CERTIFICATE OF SERVICE

I hereby certify that the foregoing PLAINTIFFS' RESPONSE TO DEFENDANTS' REQUEST FOR FINAL RELIEF ON MOTION TO MODIFY CONSENT DECREE was served by FEDERAL EXPRESS on this date on the individuals listed below:

Curt Fransen
Deputy Attorney General
Office of the Attorney General
2005 Ironwood Parkway, Suite 120
Coeur d'Alene, Idaho 83814-2647
Fax: 208-666-6777

Michael Thorp
Heller, Ehrman, White & McAuliffe
701 Fifth Avenue, Suite 6100
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Fax: 206-447-0849

Elizabeth Temkin
Temkin, Wielga and Hardt
1900 Wazee Street, Suite 303
Denver, Colorado 80202
Fax: 303-292-4921

DATED: 4/28/03

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF IDAHO

UNITED STATES OF AMERICA, Plaintiff, v. ASARCO INCORPORATED, et. al, Defendants.	)	Case Number CV94-206--N-EJL
and CONSOLIDATED CASE	)	DECLARATION OF ANGELA CHUNG

Angela Chung, by her signature below, hereby swears under penalty of perjury that the following is true and correct:

1. I am employed by the United States Environmental Protection Agency (EPA) regional office in Seattle, WA. I currently serve as a Remedial Project Manager (RPM) working on CERCLA matters related to the Bunker Hill Mining and Metallurgical Complex, which is comprised of three operable units – Operable Unit 01 is the Populated Areas of the Box ("Populated Areas"), Operable Unit 02 is the Nonpopulated Areas of the Box ("Nonpopulated Areas"), and Operable Unit 03 is the Coeur d'Alene Basin ("Basin"). I work with a team of EPA RPMs, and closely coordinate with staff from the State of Idaho, including the Idaho Department of Environmental Quality (IDEQ). I am primarily responsible for matters related to human health issues. In this capacity, I am responsible for both the development and implementation of response actions in the Populated Areas and in the residential and community

areas of the Basin. I also work with Cami Grandinetti, the lead RPM for the Nonpopulated Areas, on matters related to the Nonpopulated Areas. I have personal knowledge of the matters described herein.

2. EPA issued a Record of Decision (ROD) for the Populated Areas in 1991. The Populated Areas ROD selected the remedy for residential properties and the institutional controls program (ICP). The ICP is an integral part of the remedy and necessary to assure the long-term protectiveness of the remedy after the remedy is completely performed. The selected remedy relies heavily on the placement of barriers to prevent human contact with contaminated soils and dust. The ICP is a regulatory program that protects and maintains these barriers in the event that they fail or that there is a need to remove and replace them to allow for home repairs, landscaping or further development within the Box. In addition, the ICP provides community members with a repository to dispose of contaminated soils and clean soils to re-establish a protective barrier. In the 1991 ROD, EPA estimated that the cost of implementing the selected remedy would be approximately $41 million within a range of plus 50 percent to minus 30 percent.

3. In 1992, EPA issued a ROD for the Nonpopulated Areas. This ROD selected remedial actions for the following areas:

Hillside areas with less than 50% vegetative cover;

Smelterville Flats;

Central Impoundment Area;

Page Pond;

Smelter Complex and Mine Operations Area;

Rights-of-Way;

Commercial Buildings and Lots.

Residential Interiors; and

Future Development in Nonpopulated Areas

The 1992 ROD also selected remedial actions for contaminated ground and surface water, contaminated drinking water wells, institutional controls, and operation and maintenance of the selected remedy. In the 1992 ROD, EPA estimated that the cost of implementing the selected remedy would be approximately $68 million within a range of plus 50 percent to minus 30 percent.

4. Pursuant to the 1994 Consent Decree, the Settling Defendants, which include ASARCO Inc. and Hecla Mining Company, agreed to perform remedial actions selected in both the 1991 and the 1992 RODs. These actions include water well closures; the remediation of the residential yards, rights-of-ways, commercial properties, and Page Pond; and implementation of the ICP. This is commonly referred to as the "Populated Areas" cleanup. The 1994 Consent Decree obligations are outlined in attachments to the Consent Decree, including the Bunker Hill Remedial Design and Remedial Action Area I Statement of Work ("SOW") and the Remedial Design Reports ("RDR"). The 1994 Consent Decree requires the Settling Defendants to implement all deliverables identified in the SOW and RDRs once they are approved by EPA (see page 27, paragraph 14.a of the 1994 Consent Decree), and to fully perform the required remedial actions and attain the performance standards for each remedial action (see page 46 at paragraph 51.a of the 1994 Consent Decree). The 1994 Consent Decree defines the performance standards to mean "those cleanup standards, standards of control and other substantive requirements,

criteria, or limitations set forth in the RODs as clarified by the SOW or RDRs . . ." (see, page 15 of the Consent Decree). The Consent Decree defines RODs to mean "both the 1991 ROD and the 1992 ROD." Id.

5. The Performance Standards for the Populated Areas are designed to reduce risks to young children from lead exposure. The two most significant Performance Standards in this regard are the standards based upon the annual blood lead surveys and upon the community-wide lead soil concentrations. The first of these Performance Standards requires that the cleanup result in at least 95 percent of the children tested in the blood lead survey with blood lead levels below 10ug/dl and less than 1 percent with blood lead levels greater than 15 ug/dl. See, page 1-3 of Bunker Hill Superfund Site Final Residential Yards Remedial Design Report ("Residential RDR" or "Community"). The 2002 blood lead sampling results in the Box indicated that both parts of this performance standard had been met for the first time since residential yard cleanups had been initiated within the Populated Areas. These results suggest the effectiveness of the Populated Areas cleanup effort. However, the 2002 blood lead survey results do not by themselves ensure that this Performance Standard will be met in future years. As noted in Paragraph 13 of this declaration, approximately 550 residential yards, commercial properties and rights-of-way have not been remediated. Each of these properties have soils contaminated by lead at concentrations of at least 1000 ppm lead, which presents an unacceptable risk to young children. Until each of these properties has been remediated, children residing within the Box will face a significant risk of elevated blood lead levels. When the 1994 Consent Decree was entered, EPA, IDEQ and the Settling Defendants recognized the need to remediate all contaminated residential yards as well as commercial properties and rights-of-way in each

Reasonably Segregable Area. (The Consent Decree defines Reasonably Segregable Areas to mean Pinehurst; Smelterville; Wardner; Kellogg north of I-90; Kellogg south of I-90; Page; Elizabeth Park, Ross Ranch and Montgomery Gulch; and Page Pond. See, 1994 Consent Decree at 16.) Thus, the Settling Defendants agreed that they would be subject to the second of these important Performance Standards. The community average Performance Standard requires the Settling Defendants to demonstrate, prior to certification of completion of the Remedial Action in a Reasonably Segregable Area, that the average residential soil lead concentration for each Reasonably Segregable Area is less than 350 ppm lead. If the average residential soil lead concentration is 350 ppm lead or greater, the Settling Defendants are required to remediate additional yards until the average is below the 350 ppm criterion. See, page 1-7 Residential RDR. Cleanup of residential yards until the site-wide average is below 350 ppm is necessary to ensure that young children will not experience unacceptable risks from elevated blood lead levels. The SOW and RDRs include several other performance standards.

6. The Consent Decree also requires the Settling Defendants to fund the ICP. Funding for the ICP is described in Attachment D of the Consent Decree. The Settling Defendants agreed to fund eight components of the ICP, including administration, education, and health intervention costs, interior and exterior material supply programs, a collection program, monitoring and repair, and project disposal and repository. The Settling Defendants are responsible for paying annually for the ICP program elements until permanent funding is established. Permanent funding is to be provided within sixty days of certification that all remedial actions have been completely performed and performance standards have been achieved. The total amount of permanent funding shall be calculated based on actual expenditure

and activity level history, the current scope and program elements of the ICP, and the projected activity levels and necessary contingency amounts for the future. The funds shall be placed in a trust fund or similar mechanism.

7. The Consent Decree requires the Settling Defendants to perform work annually. See page 25 of the SOW. The Settling Defendants are required to remediate a minimum of 200 residential yards in a Reasonably Segregable Area each construction season unless EPA and IDEQ agree otherwise. See, Residential RDR at page 4-1. In addition, the Settling Defendants are annually required to remediate all identified high risk yards, see page 25 of the SOW, remediate commercial properties and rights-of-way within a Reasonably Segregable Area, operate and maintain the Page Ponds repository, reimburse EPA and IDEQ for response costs each incurs in connection to the work being performed, and fund the ICP.

8. Section 5.1 of the SOW requires the Settling Defendants to submit a draft Residential Areas Annual Remedial Action Work Plan (Work Plan) by April 15th each year, and to initiate the year's work by June 15th of each year.

9. On March 12, 2003, EPA, IDEQ, and Hecla representatives met in person to discuss the 2003 Work Plan. The attendees were: Angela Chung, Rob Hanson, Scott Peterson, Curt Fransen, Ted Yackulic, Betsy Temkin, and Dan Meyer. At the meeting, EPA and IDEQ indicated their willingness to consider a Hecla Work Plan that provides for performance of at least half of the work required under the Consent Decree for the 2003 construction season.

10. On April 15, 2003, Hecla submitted a draft Residential Areas Annual Remedial Action Work Plan (Work Plan) that neither met the requirements of the Consent Decree nor provided for performance of at least half of the work required under the Consent Decree. The

Work Plan provides for Hecla's expenditure of up to $1 million during the 2003 construction season, including Hecla project management costs, annual ICP funding, and one half of the estimated annual cost for IDEQ oversight. The Work Plan estimates that the funding will result in the remediation of approximately 18 residential properties, including high-risk yards, this construction season.

11. EPA and IDEQ, by letter of April 18, 2003, partially approved and partially disapproved Hecla's Work Plan (attached as Attachment A to this declaration). In this letter, EPA and IDEQ approved Hecla's proposal to remediate residential properties, including high-risk yards, and to fund the Institutional Controls Program and IDEQ oversight costs. In addition, EPA and IDEQ disapproved Hecla's Work Plan due to Hecla's failure to provide for the performance of the other work required by the Consent Decree. In this letter, EPA and IDEQ also directed Hecla to modify its Work Plan to include the remediation of 100 residential yards (including high risk yards) plus associated rights-of-ways and commercial properties in the City of Wardner.

12. On April 24, 2003, Hecla notified EPA that it was disputing EPA's decision to disapprove Hecla's Work Plan and require a re-submittal of its Work Plan that provides for the performance of at least half of the work required under the Consent Decree this construction season.

13. The work that has been performed throughout the Box has resulted in significant reductions in risk to human health. However, important work remains. For example, within the Populated Areas the Settling Defendants have not completed performance of the following work: remediation of approximately 550 residential yards including associated rights-of-way and

commercial properties; remediation of large outlying properties (i.e., platted but undeveloped residential lots that were accessed by a maintained road on or before December 31, 1993); implementation of all components described in the April 1999 Page Pond Closure Remedial Action Work Plan; completion certification for seven of the eight reasonably segregable areas identified in the Consent Decree and the Residential RDR, which includes a cash-out process for yard remediation and well closure refusals; and permanent funding for the Institutional Controls Program.

14. In addition, the Settling Defendants have not attained all of the performance standards as required by the 1994 Consent Decree. For example, the Settling Defendants have not demonstrated that the average residential soil lead concentration for each Reasonably Segregable Area is less than 350 ppm lead. At most, the Settling Defendants only assert that they have made this demonstration in two Reasonably Segregable Areas, Smelterville and Kellogg north of I-90, and as noted above, EPA and the State of Idaho have only certified that the Settling Defendants have completed the remedial action and attained performance standards in Smelterville.

15. Should the Settling Defendants fail to complete performance of the cleanup work they agreed to perform, both the State of Idaho and EPA will incur substantial costs. CERCLA section 104(c)(1) would require the State of Idaho to pay 10 percent of all remedial actions that are funded by the governments. EPA would pay the other 90 percent. In addition, the same section of CERCLA would require the State of Idaho to fund all operation and maintenance of the implemented remedy.

16. The 1994 Consent Decree also requires the Settling Defendants to reimburse the

United States and the State of Idaho for all response costs incurred from the date the Consent Decree was lodged (May 10, 1994) to the present. Such response costs include, among other things, the costs the United States and the State incur overseeing the Settling Defendant's performance of the cleanup or the costs the United States and the State incur by performing the cleanup themselves.

17. During the 2002 construction season, EPA and IDEQ took over a portion of the Consent Decree work obligations to protect human health, minimize the potential for recontamination, and respond to community concerns about maintaining the pace of residential cleanup in the Populated Areas. The work takeover was due to the Settling Defendant's failure to fully comply with the Consent Decree requirements. EPA used the Army Corps of Engineers to remediate approximately 80 properties during 2002 and incurred response costs of approximately $2.9 million for construction and oversight. As previously noted, the 1994 Consent Decree requires the Settling Defendants to reimburse EPA for these response costs.

18. In addition to the monies EPA spent performing remedial action in 2002, EPA has incurred approximately $415,000 overseeing the Settling Defendants work under the 1994 Consent Decree. The Settling Defendants have reimbursed EPA for $212,412.07. Thus, Settling Defendants have not satisfied their cost reimbursement obligation under the terms of the 1994 Consent Decree.

19. EPA and the IDEQ are implementing all remedial actions selected in the 1992 ROD that the Settling Defendants did not agree to implement. This work is generally referred to as the "Nonpopulated Areas" cleanup. To date, EPA and IDEQ have spent approximately $116 million on cleanup activities outlined in the 1992 ROD. Of this amount, at least $33 million has

been incurred in cleanup within the floodplain and an additional $340,000 has been incurred designing the remedial action for interior house dust. These actions were undertaken to address tailings ASARCO and Hecla and other mining companies released in to the Coeur d'Alene river system and came to be located within the floodplains and community areas of the Box. Such tailings were transported throughout the Populated Areas and are the primary source of lead in soils and dust in these areas, including interior house dust, and such tailings were transported throughout the flood plains of the Nonpopulated Areas. In addition, EPA has spent approximately $16.2 million that it has received from other potentially responsible parties, not including the Settling Defendants, on the Nonpopulated Areas cleanup.

20. EPA and the IDEQ have not completed all of the remedial actions selected for the Nonpopulated Areas. For example, EPA and IDEQ have not implemented a remedial action for either contaminated surface and groundwater or lead contaminated interior house dust. EPA has not estimated the cost of these actions but anticipates that they will be substantial. Floodplain tailings are a source of contamination for both surface and groundwater.

21. The United States had spent approximately $16.9 million in past response costs before the 1994 Consent Decree was lodged. The Consent Decree provided that Hecla should only reimburse the United States for no more than $3 million of such costs and that ASARCO should only reimburse the United States for $4 million of such costs. Thus, the United States forgave Hecla $13.9 million and ASARCO $12.9 million in past response costs.

22. Attached to this declaration as Attachment A is true and correct copy of a letter dated April 18, 2003 and entitled Notice of Partial Approval and Partial Disapproval of Hecla's Annual Remedial Action Work Plan for the Bunker Hill Superfund Site.

23. Attached to this declaration as Attachment B is true and correct copy of a letter dated April 24, 2003 and entitled Notice of Dispute – Hecla's 2003 Bunker Hill Work Plan.

I declare under penalty of perjury that the foregoing is true and correct and is executed this 25th day of April, 2003 in Seattle, WA.

Angela Chung

Angela Chung

ATTACHMENT A

State of Idaho
Department of Environmental Quality
1410 North Hilton
Boise, Idaho 83706

U.S. Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, Washington 98101

April 18, 2003

VIA FACSIMILE

Daniel E. Meyer
Site Manager/Project Coordinator
Upstream Mining Group
P.O. Box 1080
Kellogg, ID 83837

Re: Notice of Partial Approval and Partial Disapproval of Hecla's Annual Remedial Action Work Plan for the Bunker Hill Superfund Site

Dear ~~Mr. Meyer~~: Dan

This letter partially approves and partially disapproves the draft Residential Areas Annual Remedial Action Work Plan (Work Plan) that Hecla Mining Company submitted to the U.S. Environmental Protection Agency (EPA) and the Idaho Department of Environmental Quality (IDEQ) on April 15, 2003. Hecla is required to submit this Work Plan pursuant to the 1994 Consent Decree entitled United States of America v. ASARCO Inc. et al, Civ 94-0206-N-HLR (CD).

In your April 15 submittal, Hecla proposes only to fund Hecla project management, the Institutional Controls Program (ICP), half of IDEQ oversight costs, and the remediation of approximately 18 residential properties, including high-risk yards, this year. Hecla's proposal does not fully comply with the requirements of the CD. The CD requires the Settling Defendants, jointly and severally, to remediate a minimum of 200 yards per year, address water well closures, remediate Rights-of-Way (ROWs) and commercial properties, and conduct other work outlined in the Remedial Design Reports.

Pursuant to Paragraph 39 of Section XII (Submissions Requiring Agency Approval) of the CD, EPA and IDEQ approve Hecla's draft Work Plan to the extent Hecla proposes to remediate residential properties in the Populated Areas and fund the ICP and IDEQ oversight costs this year. Pursuant to the same CD authority, EPA and IDEQ disapprove Hecla's draft Work Plan to the extent Hecla has failed to meet the remainder of its CD obligations, including remediating a minimum of 200 yards, addressing water well closures, remediating ROWs and commercial properties, and conducting other work outlined in the Remedial Design Reports.

As mentioned during our meeting on March 12, 2003, EPA and IDEQ are willing to entertain a proposal by Hecla to modify the Work Plan to provide for the performance of at least half of the work required under the CD for this construction season. EPA's and IDEQ's

willingness to consider less than full performance by Hecla this construction season does not indicate our intent to modify the Settling Defendants joint and several obligations under the CD for future years. In addition, absent the submittal and approval of a revised Work Plan. EPA and IDEQ do not waive their authority to seek relief for the Settling Defendants failure to meet the requirements of the CD.

Pursuant to Paragraph 41.a. of the CD, EPA directs Hecla to correct the deficiencies and resubmit the Work Plan to EPA and IDEQ for approval within seven (7) calendar days of receipt of this letter. Specifically, EPA directs Hecla to modify the Work Plan to include the remediation of 100 residential yards (including high-risk yards) plus associated ROWs and commercial properties in the City of Wardner.

Hecla's failure to resubmit the Work Plan as directed will constitute a violation of the terms and conditions of the CD. As you are aware, with limited exceptions, the dispute resolution procedures outlined in the CD provide the exclusive mechanism for resolving disputes regarding CD requirements, including the matters addressed by this letter. Violations of the CD subject the Settling Defendants to stipulated penalties under Section XXI of the CD. Should Hecla fail to resubmit an approvable Work Plan, Hecla will be subject to the stipulated penalties section of the CD. Pursuant to the CD, stipulated penalties begin to accrue on the date that the deficient submittal was originally due, in this instance, April 15, 2003.

We look forward to receiving this year's Work Plan for cleanup of contaminated residential properties in the Populated Areas. Should you be interested, we are available to meet with you in an expedited fashion to discuss the matters addressed by this letter. Please contact us if you have any questions.

Sincerely,

Angela Chung
EPA Superfund Project Manager

Scott Peterson
IDEQ Project Manager

Cc: Chris Pfahl
Paul Glader
Rob Hanson (by email)
Curt Fransen (by email)
Ted Yackulic (by email)

Hecla
MINING COMPANY

ATTACHMENT B

April 24, 2003

Angela Chung
EPA Superfund Project Manager
U.S. Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, WA 98101

Scott Peterson
IDEQ Project Manager
Idaho Department of Environmental Quality
1410 North Hilton
Boise, ID 83706

Re: Notice of Dispute – Hecla's 2003 Bunker Hill Work Plan

Dear Ms. Chung and Mr. Peterson:

The purpose of this letter is to provide written notice of a dispute pursuant to ¶ 67 of the 1994 Bunker Hill Consent Decree, thereby triggering a 20-day informal negotiation period. In providing this notice, Hecla Mining Company ("Hecla") is not conceding that the dispute resolution provisions of the Consent Decree govern this dispute, particularly given the pendency of the Request of Defendants Hecla Mining Company and Asarco, Incorporated for Final Relief on the Motion to Modify the Bunker Hill Consent Decree ("Request for Final Relief").

Hecla disputes the decision of the U.S. Environmental Protection Agency and the Idaho Department of Environmental Quality, as reflected in the governments' April 18, 2003 letter, to reject Hecla's April 15, 2003 Residential Areas Annual Remedial Action Work Plan and require submittal of a modified work plan providing for "the performance of at least half of the work required under the Consent Decree for this construction season." Hecla does not believe that this outcome is warranted by the facts and equities of the situation as outlined in the Request for Final Relief and otherwise.

6500 Mineral Drive • Coeur d'Alene, Idaho 83815-8788 • 208/769-4100 • FAX 208/769-4107 • www.hecla-mining.com

Nonetheless, Hecla does think it would be useful to attempt to resolve the 2003 Work Plan issues through informal negotiations, as we successfully did in 2002. Please contact the undersigned so we can identify available dates and times in the next 20 days for the likely participants in these further discussions.

Sincerely,

Daniel E. Meyer

Daniel E. Meyer
Project Coordinator

cc: Curt Fransen
Ted Yackulic
Michael B. White
Elizabeth H. Temkin
Paul Glader
Rob Hanson

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF IDAHO

COPY

UNITED STATES OF AMERICA, Plaintiff, v. ASARCO INCORPORATED, et. al, Defendants.	Case Number CV94-206--N-EJL
and CONSOLIDATED CASE	DECLARATION OF ROBERT HANSON

I, Robert Hanson, hereby swear under penalty of perjury that the following is true and correct:

1. I have been employed by the Idaho Department of Environmental Quality (IDEQ), State of Idaho since 1989 and am currently in the position of Mine Waste Program Manager. My responsibilities include overseeing IDEQ actions regarding clean up of various mine sites and related contamination including the Bunker Hill "Box", the Coeur d'Alene Basin, Stibnite, Triumph and several others.

2. On September 19, 2001 I testified at the evidentiary hearing in this matter.

3. The IDEQ is the lead government agency in overseeing mining company implementation of the residential area cleanup required by the 1994 Bunker Hill Consent Decree as entered by this Court, a role important to the State for ensuring appropriate actions are taken to address health impacts to Idaho citizens in the "Box" and their private property.

4. I have reviewed the Declaration of J. Christopher Pfahl in this matter dated March

28, 2003. Mr. Pfahl correctly states that the 1991 Record of Decision regarding the Residential Soils Operable Unit of the Bunker Hill Mining and Metallurgical Complex estimated a cost, in n 1991 dollars, of $40.6 million dollars. Of that amount, $7.1 million dollars was operation and maintenance which is the so-called institutional control program that is integral to maintaining the effectiveness of the residential soil replacements and protecting public health. The 1991 Record of Decision estimates were developed as a tool in evaluating the relative merits and costs of various cleanup options and represent a range of plus 50% to minus 30% of costs; those estimates are not limits on the obligations agreed to by the mining companies pursuant to the 1994 Consent Decree.

5. IDEQ's oversight role over performance of the 1994 Consent Decree extends to the work required thereunder and not the amounts expended. IDEQ has not been provided accounting as to amounts expended by Hecla and Asarco and have no reasonable means to assess the representation of Mr. Pfahl that Hecla and Asarco have expended $44.7 million to date in overall implementation in the Box or $11.9 million in Pinehurst . Mr. Pfahl does not state whether the claimed expenditures are in 1991 dollars or some other dollar year.

6. Mr. Pfahl's estimate that completion of the Consent Decree obligations will cost an additional expenditure of $18.1 million appears generally consistent with Hecla and Asarco's obligation to complete approximately 550 residential yards, associated right of ways and commercial properties, oversight and annual funding of Institutional Control Program. The $18.1 estimate does not appear to include current estimates of the long-term funding of the Institutional Control Program. Without long-term funding of the Institutional Control Program, the remedial work that has been performed and remains to be completed in the residential area of

the Box will fail over time and residents will once again be exposed to high levels of lead and other contaminants. The Institutional Control program simply maintains the physical effectiveness of the protective barriers of soil, gravel, asphalt and other remedies to prevent recontamination of the communities and unacceptable human exposures within the Box.

7. IDEQ estimates the cost of long-term funding of the Institutional Control Program for the populated areas of the Box as required of Hecla and Asarco by the 1994 Consent Decree as ranging between $9.3 and $17.7 million (70% of $25.3 million) in 2006 dollars depending on reasonable investment and inflation scenarios and whether provision of a repository will be necessary. Copies of memorandums dated November 1, 2002 and November 13, 2002 as prepared by IDEQ's contractor TerraGraphics regarding Institutional Control Program cost estimates is attached hereto as Attachments 1 and 2 respectively.

8. Based on my knowledge and experience in performing residential cleanups, past payments by Hecla and Asarco and Mr. Pfahl's estimates and the estimated long-term cost of the Institutional Control Program, I would estimate the costs of the remaining Hecla and Asarco obligations under the Consent Decree at between $27 and $35 million dollars, present value. In the event Hecla and Asarco do not satisfy their remaining obligations, the cleanup will fail and resident will be exposed to high levels of contaminant unless EPA and DEQ assume those obligations. The cost to the State of Idaho, which is currently experiencing a financial crises and is without any appropriated or expected funds for this purpose, would be 10% or between $2.6 and $4 million dollars plus any related operation and maintenance obligation into perpetuity. This cost would be in addition to Idaho's existing 10% share of the $116 million spent on remediating the non-populated portion of the Box through January 31, 2003.

9. I participated on behalf of the State of Idaho in EPA's RI/FS process for the Basin and am familiar with the various cleanup alternatives and related cost estimates that were evaluated in the Feasibility Study and the remedy which was then selected by the September 2002 Record of Decision (Basin ROD). The estimated costs of the Ecological Alternatives which were considered in the Feasibility Study, other than the no action alternative, ranged from the mining company plan which was Alternative 6 at $215 million to the plan derived from the Coeur d'Alene Tribe and other trustees which was Alternative 4 at $2.8 billion as indicated on page 10-25 of the Basin ROD. The State plan was Alternative 5 at an estimated cost of $282 million which with some adjustments became the basis of the selected remedy. The estimated cost of ecological alternative selected by the Basin ROD is $290 million which when added to the selected human health alternative came to a total estimated cost of approximately $370 million.

I, Robert Hanson, under penalty of perjury, declare that the foregoing is true and correct.

Dated this 25 day of April, 2003.

Robert Hanson

SUBSCRIBED AND SWORN to before me this 25th day of April, 2003.

SUZANNE K. CROCKETT
NOTARY PUBLIC
STATE OF IDAHO

Notary Public for Idaho
Residing at Boise, Idaho
Commission Expires: 12-30-04

ATTACHMENT 1

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Date: November 1, 2002

To: Rob Hanson, IDEQ (Boise)
Jerry Cobb, PHD (Kellogg)

From: Michael McCurdy, TG (Kellogg)

Subject: BHSS ICP Cost Estimate

The Record of Decision (ROD) for Operable Unit 1, Residential Soils (also known as the populated areas) at the Bunker Hill Mining and Metallurgical Complex Site (USEPA 1991) and the ROD for Operable Unit 2, Bunker Hill Mining and Metallurgical Complex (also known as the non-populated areas) (USEPA 1992) together identify the prescribed remedy to protect human health and the environment for the site. The selected remedy of partial removal and contaminated material consolidation and stabilization was selected to avoid extremely high costs associated with complete removal and disposal of contaminated material, the local disposal capacity not able to handle the volume generated for a complete removal effort, and the limit of available clean soil to import while maintaining human health protection. Both RODs require an Institutional Control Program (ICP) to insure contaminants are controlled and limit direct human contact with contaminants. The RODs identify the ICP as "acceptable and integral" to the remedial actions at the Bunker Hill Superfund Site (BHSS).

The BHSS ICP cost estimate is based on historical ICP costs from 1995 to present, information provided by ICP staff, and engineering estimates of anticipated activities under the ICP. Attached are four spreadsheets that present the BHSS ICP cost estimate. The cost estimate is for Operable Unit 1 (populated areas) and Operable Unit 2 (non-populated areas) of the BHSS only. They do not include Panhandle Health District (PHD) costs associated with potential operation of an ICP for Operable Unit 3 (i.e., Coeur d'Alene Basin), potential involvement in the Trail Long-Term Oversight Program (TLOP), potential involvement in the State Operation and Maintenance Program, or other current activities conducted by PHD that are not related to the ICP (e.g., community relations and lead study). The ICP cost estimate is divided into the following four ICP categories:

1. General ICP annual costs associated with ongoing educational, sampling assistance, contractor licensing, project permitting and tracking, vacuum loan program, and small project material supply and collection program.

2. Annual disposal operating costs associated with the operation of a contaminated material disposal site without recycling and without a full-time attendant.

3. Annual disposal operating costs associated with the operation of a contaminated material disposal site with recycling and with a full-time attendant.

4. Disposal site identification costs associated with identifying and preparing a site for use as a contaminated material disposal site.

The cost estimates are divided between populated area and non-populated area expenses. The numbers shown under the populated and non-populated headings are 2006 dollars. Populated areas include those residential areas that were platted before 1994 and non-populated areas include all other areas. A 70/30 split between the populated and non-populated area effort was assumed based on the non-populated area effort increasing as development occurs at the site. Currently, the split is 84/16 between populated and non-populated area effort. The year 2006 was chosen as the base year by assuming that the cleanup within the populated and non-populated areas would be essentially completed by 2006. Estimated costs in 2002 dollars were inflated at 5% to obtain 2006 costs. Periodic costs were annualized to 2006 present worth values. The 5% rate was chosen based on the historic average change (i.e., inflation/deflation) in the Consumer Price Index (CPI) from 1971 to 2001. Within this time period the inflation (i.e., percent change) in the CPI ranged from 1.6 (1998) to 13.5 (1980), with an average of 5.06. The calculations conducted are similar to those conducted for the 1993 study for PHD. A 10% contingency factor was applied to all estimated costs before conducting the present worth calculations. For comparison, the total annual estimated costs without the contingency factor are provided for each cost spreadsheet previously identified. Assumptions for each of the identified ICP categories are presented in the following sections and on the attached spreadsheets.

General Annual ICP Costs

The General ICP – Annual spreadsheet shows the personnel, travel, equipment, operating and contracting breakdown with underlying assumptions. The personnel requirements were estimated assuming increased activity will be necessary after the populated area cleanup is completed and as development occurs within Kellogg, Wardner, Smelterville, Pinehurst and other local areas within the BHSS in the populated and non-populated areas. It is assumed that the ICP Coordinator will spend approximately one-third (1/3) of a Full-Time Equivalent (FTE) overseeing the program, writing quarterly reports, and performing other administrative duties. Because of the increased number of residential property being completed by 2006 and the potential for increased development in the near future, it is assumed that ICP inspectors will spend 1.5 FTEs completing site inspections, working with contractors, training contractors, issuing permits, and performing other ICP duties. Database, accounting, and clerical duties under the ICP, including providing property disclosure information, are estimated to require 1.5 FTEs. Assistance with the interior project, and small project material supply and collection programs is assumed to required one-half (1/2) of an FTE for part-time staff. The part-time staff will assist with delivery of up to 1 cubic yard of clean gravel, soil and sand and collection of up to 1 cubic yard of contaminated material from residential projects, as needed and requested. The part-time staff will also assist with providing plastic, respirators, tyvek suits, plastic bags, snow fence and silt fence to residential projects, as needed and requested. It is assumed that one-fifth (1/5) of an FTE is required to clean the HEPA vacuums loaned to residents under the interior project program. Personnel charge-out rates were estimated using the pay scales for each labor category from the July 1, 2001 to June 30, 2002 ICP budget spreadsheet provided by PHD.

Travel under the ICP is estimated from input provided by PHD ICP inspectors and assuming an increase in activities, including travel, after 2006. Mileage was estimated at 150 miles per week for 52 weeks (on average) at $0.345 per mile (2002 cost). Travel out of the valley was assumed for 8 man-days. Two trips to Boise are also assumed with an airfare of $200 (2002 cost) and car rental of $30 per day (2002 cost) per trip. The 2002 per diem rate of $34.5 per day is applied for the 8 man-days.

The equipment costs were estimated from ICP expense spreadsheets from 1995 to 2002 provided by PHD and input provided by PHD ICP staff. Increases in costs were identified where applicable (e.g., health and safety costs) based on the anticipated increase in effort and number of field staff as the cleanup programs near completion and as development occurs within the site. Equipment costs assume the need to have 2 mid-size inspection vehicles, one 1-ton truck with four wheel drive and a tilting bed, and at least three 2-cubic yard trailers with tilting beds. The truck and trailers are utilized to provide clean material (e.g., sand, soil or gravel) to residential projects requiring no more than 1 cubic yard of material and collecting no more than 1 cubic yard of contaminated material from residential projects. It is assumed that the vehicles and trailers will be replaced every 10 years. In addition, the ICP currently has 12 HEPA vacuums for the interior project program. It is assumed that one HEPA vacuum will be replaced per year beginning in 2006. This assumes each vacuum has a life of approximately 12 years. The cost for the HEPA vacuum is based on the current (2002) price of UZ 930 Dry canister HEPA vacuum from Euroclean. Annual hardware and software upgrades are necessary to keep current with database and computer requirements. Also, sampling and video equipment is assumed to be replaced or supplemented every 10 years. Health and safety equipment costs, including boots, respirators, hard hats, coveralls, safety vests, and traffic cones, are estimated based on expenses incurred to date and assuming an increase in activity.

The operating costs were estimated from the ICP expense spreadsheets from 1995 to 2002 provided by PHD and input provided by PHD ICP staff. Increases in costs were identified where applicable (e.g., sampling supplies, general office supplies, equipment maintenance, photograph processing, educational supplies) based on the anticipated increase in effort as the cleanup programs near completion and as development occurs within the site. Assumptions are as follows:

- The zenith number allows the ICP to be contacted whenever a utility locate mark is requested for excavation work. The utilities are charged approximately $1.09 (2002 costs) per request. Therefore this number will vary based on the number of calls the One-Call system receives.

- HEPA vacuum supplies and accessories include HEPA cartridge filters, suction hoses, telescopic wand, crevice tool, combination brush and small nozzle, turbo floor nozzle, and paper dust bags. HEPA cartridges are replaced every 6 months therefore each of the 12 HEPA vacuums will have 2 HEPA filter replacements per year. Bags are replaced as necessary, and it is assumed that 40 bags will be changed per year for all 12 HEPA vacuums. For the other HEPA vacuum accessories, it is assumed that one-third (1/3) will require replacement each year as items are lost, broken or otherwise damaged impairing or impeding their use. The costs for the HEPA vacuum supplies are based on the current (2002) prices from Euroclean. Interior program supplies include 6 mil and 4 mil plastic, 6 mil plastic bags, respirators, tyvek suits, snow fence and silt fence. These are provided upon request for residential projects. Based on the information provided by PHD ICP staff, the following annual requirements are assumed:
  - 5 boxes with 4 rolls per box of 10 foot by 25 foot, 6 mil, black plastic at $35.80 per box
  - 5 boxes with 4 rolls per box of 20 foot by 25 foot, 6 mil, clear plastic at $54.00 per box
  - 100 boxes with 30 bags per box of 42 gallon, contractor grade plastic at $13.30 per box
  - 50 Drager respirators and 5 filters at $24.97 per respirator
  - 50 hooded tyvek coveralls at $4.74 per suit
  - 1000 feet of silt fence at $38.00 per 100 feet
  - 500 feet of snow fence at $29.84 per 50 feet

- The $13.20 per cubic yard of soil and $9.60 per cubic yard of gravel and sand is the current (2002) rate at Zanetti Brothers. The sand, gravel and soil estimate is based on the ICP delivering 150 cubic yards of gravel, 150 cubic yards of sand, and 150 cubic yards of soil per year.

- Medical monitoring is provided for all field staff. It is estimated that 4 field staff will require medical monitoring in 2006.

- Staff development and training includes estimated costs for the ICP staff (estimated at 6 in 2006) to attend professional development seminars, conferences, or other training activities on a continuing basis.

The contracting costs were estimated from the ICP expense spreadsheets from 1995 to 2002 provided by PHD and input provided by PHD ICP staff. Increases in costs were identified where applicable (e.g., laboratory costs) based on the anticipated increase in effort as the cleanup programs near completion and as development occurs within the site. Legal advice costs are based on previous expenses incurred. Legal subcontracting costs associated with prosecuting violators of the ICP or defending the ICP in legal actions were assumed. Engineering effort to provide technical input or assistance to the ICP is assumed on an annual basis and more extensive engineering technical review, assistance, or input is assumed to occur every 5 years. The more extensive engineering effort may be associated with reviewing new development plans and drawings, assisting in the 5 Year Review process, or other technical issues.

Annual Disposal Site Operation Costs
(Alternative 1: Without recycling and without full-time attendant)
The Disposal – Annual Operating (without recycling and without full-time attendant) spreadsheet shows the personnel, travel, equipment, operating and contracting breakdown with underlying assumptions for the operation of a local repository without any recycling and without a full-time attendant. This is similar to how the Page Repository is currently operated. The personnel requirements were estimated assuming an ICP inspector would spend approximately half (0.5) of an FTE in overseeing and directing activities at the repository. Other personnel time is assumed to assist with these activities. Personnel charge-out rates were estimated using the pay scales for each labor category from the July 1, 2001 to June 30, 2002 ICP budget spreadsheet provided by PHD.

Travel under the ICP is estimated from input provided by PHD ICP inspectors. Mileage was estimated at 25 miles per week for 52 weeks (on average) at $0.345 per mile (2002 cost). No travel out of the valley was assumed.

The equipment and operating costs were assumed to be incorporated under the General ICP annual expenses and are not included herein.

The contracting costs were estimated based on periodic inspection of the disposal area, and periodic grading and compaction of deposited material. Disposal operation was assumed to be open 24 hours per day, 7 days per week for 52 weeks as is the current practice. Additional assumptions are as follows:

- Subcontracting for grading and compaction of deposited material was assumed. It was estimated that a D8 caterpillar track dozer would be hired and operated an average of 24 hours per week for 32 weeks to conduct grading and compaction activities. A 10%

mobilization/demobilization cost was included. The equipment rate is based on blue book rental rates from 2001. Operator rates from 2002 were used.

- In addition to grading and compacting, it was assumed that gravel will be required for maintenance of an access road to the repository and for a dumping pad. An estimate of 100 cubic yards of gravel for access road maintenance will be necessary 4 times per year, and 100 cubic yards of gravel for creating dumping pads will also be required 4 times per year. Therefore a total of 800 cubic yards of gravel per year is estimated. The $14.50 per cubic yard to supply gravel for the access road and dumping pads is based on the current (2002) rate for delivery of gravel from Zanetti Brothers. The $2.92 per cubic yard to spread gravel are based on information provided in Section 2.13 of the unit price analysis of the Coeur d'Alene Basin cleanup plan conducted for IDEQ in 2000. A 10% mobilization/demobilization cost was applied and the cost was inflated at 5% to 2006.

- Snow plowing is assumed to be contracted. It is further assumed that a 10 to 12 cubic yard dump truck with an 11-foot blade and rear-mounted gravel spreader will perform these activities. It is estimated that plowing will average 8 hours per month for 4 months. The equipment rate is based on blue book rental rates from 2001. Operator rates from 2002 were used.

- In addition to snow plowing, it is assumed that a snow removal storage area will need to be established each year. It is assumed that a 1 to 2 acre site is necessary to store contaminated snow. The $1,200 per acre for establishing site surface water controls is based on information provided in Section 2.7 of the unit price analysis.

- Legal advice and engineering services were estimated at 20 hours per year.

The annual disposal operation costs presented in this section do not include a decontamination station, roller compaction, material separation, material recycling or transfer station tasks. The disposal costs assume the site is local (within the BHSS Box), is free to residents and cities, is accessible year-round to residents and cities, is convenient to residents and cities, is not a burden to residents or cities and is not a burden to economic development. These are the ground rules under which the ICP was developed and approved.

Annual Disposal Site Operation Costs
(Alternative 2: With recycling and with full-time attendant)

An alternative would be to have more control over disposal operation by having full-time on-site oversight of disposal operations and operation of a material recovery system to generate a useable product for the area. The site would be open 12 hours per day, 7 days per week for 52 weeks per year. This will require site closure for 12 hours per day (e.g., 7 p.m. to 7 a.m.).

The Disposal – Annual Operating (with recycling and with full-time attendant) spreadsheet shows the personnel, travel, equipment, operating and contracting breakdown with underlying assumptions for the operation of a local repository with 3 part-time personnel operating and managing the disposal area. The personnel requirements were estimated assuming additional ICP staff support in overseeing

and directing activities at the repository. Personnel charge-out rates were estimated using the pay scales for each labor category from the July 1, 2001 to June 30, 2002 ICP budget spreadsheet provided by PHD.

Travel under the ICP is estimated from input provided by PHD ICP inspectors. Mileage was estimated at 25 miles per week for 52 weeks (on average) at $0.345 per mile (2002 cost). No travel out of the valley was assumed.

The equipment costs would include computer and general office equipment for a field office located at the repository as well as health and safety equipment for the repository personnel. Other equipment is assumed to be incorporated under the General ICP annual expenses and not included herein.

Some of the operating costs were assumed to be incorporated under the General ICP annual expenses and are not included herein. The on-site field office at the repository would include an 8-foot by 24-foot trailer. The trailer rate is based on blue book rental rates from 2001. Additional operating costs are assumed to support the on-site office and disposal site operation activities.

The contracting costs were estimated based on continuous monitoring of the disposal area, operation of a screening plant, and periodic grading and compaction of deposited material. Additional assumptions are as follows:

- A screening plant would operate at the site to separate material into useable fractions. Material not meeting acceptance criteria would be placed in the disposal area for grading and compaction. Acceptable material would be provided to end users as a product, reducing the quantity of material requiring disposal. It was assumed that a portable, triple deck plant with a 36-inch wide and 60-foot long conveyor and 5-foot by 10-foot screen would be utilized. The plant would be operated an average of 40 hours per week for 32 weeks. The plant would be diesel powered and capable of processing 400 tons/hour. A 966 articulated wheeled loader with a 5 cubic yard bucket would be necessary to load the screening plant. The loader would be operated an average of 40 hours per week for 32 weeks. This loader could also be used to place the end product material into trucks to haul off-site to various projects. The equipment rates are based on blue book rental rates from 2001. Operator rates from 2002 were used.

- Subcontracting for grading and compaction of deposited material was assumed. It was estimated that a D8 caterpillar track dozer would be hired and operated an average of 24 hours per week for 32 weeks to conduct grading activities. A self-propelled compactor was also assumed to operate 24 hours per week for 32 weeks to conduct compaction activities. A 10% mobilization/demobilization cost was included. The equipment rate is based on blue book rental rates from 2001. Operator rates from 2002 were used.

- In addition to grading and compacting, it was assumed that gravel will be required for maintenance of an access road to the repository and for a dumping pad. An estimate of 100 cubic yards of gravel for access road maintenance will be necessary 4 times per year, and 100 cubic yards of gravel for creating dumping pads will also be required 4 times per year. Therefore a total of 800 cubic yards of gravel per year is estimated.

The $14.50 per cubic yard to supply gravel for the access road and dumping pads is based on current (2002) costs. The $2.92 per cubic yard to spread gravel is based on information provided in Section 2.13 of the unit price analysis of the Coeur d'Alene Basin cleanup plan conducted for IDEQ in 2000. A 10% mobilization/demobilization cost was applied and the cost was inflated at 5% to 2006.

- Snow plowing is assumed to be contracted. It is further assumed that a 10 to 12 cubic yard dump truck with an 11-foot blade and rear-mounted gravel spreader will perform these activities. It is estimated that plowing will average 8 hours per month for 4 months. The equipment rate is based on blue book rental rates from 2001. Operator rates from 2002 were used.

- In addition to snow plowing, it is assumed that a snow removal storage area will need to be established each year. It is assumed that a 1 to 2 acre site is necessary to store contaminated snow. The $1,200 per acre for establishing site surface water controls is based on information provided in Section 2.7 of the unit price analysis.

- Legal advice and engineering services were estimated at 20 hours per year.

Disposal Site Identification Costs

The Disposal – Site Identification spreadsheet shows the personnel, travel, equipment, operating and contracting breakdown with underlying assumptions. The personnel requirements were estimated assuming that the ICP would operate an existing repository beginning in 2006 and that another repository will be necessary every 25 years. The personnel requirements were estimated assuming ICP involvement in identifying potential sites and providing input in selecting final sites to use as a repository. Personnel charge-out rates were estimated using the pay scales for each labor category from the July 1, 2001 to June 30, 2002 ICP budget spreadsheet provided by PHD.

Over the 25 year period, it is assumed that ICP staff will travel to meetings regarding repository site identification 4 times outside the valley. Mileage was estimated at 250 miles per 25 years at $0.345 per mile (2002 cost). Travel out of the valley was assumed for 4 man-days. The 2002 per diem rate of $34.5 per day is applied for the 4 man-days.

No equipment and operating costs were assumed.

The contracting costs were estimated based on legal advice to assist in determining potential sites and selecting final sites, engineering to provide technical evaluation of potential sites and design of selected sites, laboratory analysis of samples collected as a baseline for selected sites and site preparation. Site clearing and grubbing in preparation for use as a repository is estimated at $5,000 per acre based on information provided in Section 2.4 of the unit price analysis of the Coeur d'Alene Basin cleanup plan conducted for IDEQ in 2000. The $1,200 per acre for establishing site surface water controls is based on information provided in Section 2.7 of the unit price analysis. The site preparation costs assume each site has a disposal capacity of at least 37,500 cubic yards, based on 15,000 cubic yards per year for 25 years. A 6 acre site filled to a depth of 10 feet would provide sufficient capacity for 375,000 cubic yards. This assumes that the property does not need to be purchased. It further assumes liner placement under or over the disposed material is not necessary or required.

Total Estimated Annual Costs

The estimated total annual costs for each ICP category are presented in Table 1. The total annual 2006 costs for each category (general ICP, annual disposal, and disposal site identification) were added together to obtain the combined annual cost estimate for the ICP. A separate total is provided for the two annual disposal operation alternatives; with and without recycling and full-time attendant.

Table 1. Total Estimated Annual Costs for Each ICP Category.

Category	Annual Cost*
General ICP	$376,196
Disposal – Annual Operating (Alternative 1[A])	$338,181
Disposal – Site Identification	$7,292
Total (without)	$721,669
General ICP	$376,196
Disposal – Annual Operating (Alternative 2[B])	$907,872
Disposal – Site Identification	$7,292
Total (with)	$1,291,360

* Present worth is based on total estimated annual costs for each category and is in 2006 dollars

A – Alternative 1 is operation of a disposal site without recycling or an attendant.

B – Alternative 2 is operation of a disposal site with recycling and an attendant.

Present Worth Calculations

The present worth funding estimates for the BHSS ICP are summarized in Table 2. The total annual costs were inflated at 1.5%, 3.5%, 5%, and 7% to obtain the present worth (2006 dollars) of the annual expenses over a period of 50 years. Previous practice utilized a 30-year period for conducting present worth calculations. The Guide to Developing and Documenting Cost Estimates During the Feasibility Study (USEPA 2000) states that the actual time period should be used whenever possible in determining costs. The 50 year period provides 52% of the maximum present worth at 1.5% inflation, 82% of the maximum at 3.5% inflation, 91% of the maximum at 5% inflation, and 97% of the maximum at 7% inflation. A time period of 400 years was used to provide the maximum multiplier in the present worth (given an annual cost) calculation. Therefore, a 50 year time period and 400 year time period were used in the present worth calculations. The historical average change (i.e., inflation/deflation) in the CPI from 1913 to 2001 is 3.54%. The current inflation rate is 1.51%. The historic change in CPI is available through the U.S. Bureau of Labor Statistics. As a comparison, a rate of 7% is specified in the Guide to Developing and Documenting Cost Estimates During the Feasibility Study (USEPA 2000). The present worth of annual expenses over the two time periods was calculated using an annual expense of $721,700 for Alternative 1 and $1,291,360 for Alternative 2. These calculations resulted in the estimated total present worth (2006 dollars) of the estimated annual ICP costs. It is assumed that "perpetuity costs" are estimated by these calculations.

A similar study was conducted in 1993 for PHD. For comparison, the 1993 study estimated a present worth (2003 dollars) of $17.4M for general ICP operation and $4.6M for annual repository operation. The total present worth (2003 dollars) estimated in 1993 was $22M. The 1993 study used a rate of 5% in the present worth calculations. The 5% rate was specified in the Guidance for Conducting Remedial Investigations and Feasibility Studies (USEPA 1988).

The net rate of return is another consideration in the cost estimate. The required net rate of return (i.e., the difference between the rate of return and inflation) is presented in Table 3 for the 50 year present worth amounts for Alternative 1, which assumes no recycling and no full-time attendant. The net rate of return will allow a balance of approximately the present worth value to be maintained into perpetuity. This was calculated using a constant annual expense of $721,700 for Alternative 1.

Table 2. Present Worth of Annual Costs.

Time Period	Inflation Rate	Present Worth*
50 Years (Alternative 1[A])	1.5% (current)	$25,258,215
	3.5% (historical 90 year average)	$16,927,210
	5.0% (historical 30 year average)	$13,174,751
	7.0% (EPA guidance)	$9,959,583
400 Years (Alternative 1[A])	1.5% (current)	$47,986,625
	3.5% (historical 90 year average)	$20,619,114
	5.0% (historical 30 year average)	$14,433,394
	7.0% (EPA guidance)	$10,309,564
50 Years (Alternative 2[B])	1.5% (current)	$45,197,199
	3.5% (historical 90 year average)	$30,289,649
	5.0% (historical 30 year average)	$23,574,977
	7.0% (EPA guidance)	$17,821,736
400 Years (Alternative 2[B])	1.5% (current)	$85,867,550
	3.5% (historical 90 year average)	$36,895,963
	5.0% (historical 30 year average)	$25,827,200
	7.0% (EPA guidance)	$18,447,994

* Present worth is based on estimated total annual ICP costs for specified time period and is in 2006 dollars

A – Alternative 1 is operation of a disposal site without recycling or an attendant.

B – Alternative 2 is operation of a disposal site with recycling and an attendant.

Table 3. Required Net Rate of Return for Alternative 1[A].

Time Period	Present Worth*	PW Inflation Rate	Net Rate of Return
50 Years	$25,258,215	1.5% (current)	5.9%
	$16,927,210	3.5% (90 year historical)	8.925%
	$13,174,751	5.0% (30 year historical)	11.6%
	$9,959,583	7.0% (EPA guidance)	15.625%
400 Years	$47,986,625	1.5% (current)	3.06%
	$20,619,114	3.5% (90 year historical)	7.26%
	$14,433,394	5.0% (30 year historical)	10.6%
	$10,309,564	7.0% (EPA guidance)	15.625%

* Present worth is based on estimated total annual ICP costs for specified time period and is in 2006 dollars

A – Alternative 1 is operation of a disposal site without recycling or an attendant.

The minimum rate of return required to maintain the present worth value for Alternative 1 is provided in Table 4. The historical rate of return for 6-month certificates of deposit is 7.17% from 1964 to 2001, for treasury bills (30 year maturities) is 8.5% from 1977 to 2001, for AAA corporate bonds is 9.24% from 1976 to 2001, and for BAA corporate bonds is 10.32% from 1976 to 2001 based on historic records available through the Federal Reserve. These return rates average to 8.8%. The present worth values that will provide the necessary yield at return rates of 10% or less are highlighted in Table 4. Based on this analysis, the Alternative 1 funding requirement for the ICP can be satisfied with $48M, $25M, and $21M, depending on rate of return and inflation rates into perpetuity. All other calculated funding amounts require too high of an average return rate than is historically observed. A $21M funding level would only provide sufficient annual interest income to cover annual ICP costs under low inflation and higher return rate conditions. There is more risk having $21M instead of $25M funding the ICP. A funding level of $48M would provide sufficient annual interest income to cover annual ICP costs under historical inflation and return rate conditions; however, the possibility of obtaining such funding is remote.

Therefore, the funding required to support the ICP into perpetuity for Alternative 1 is estimated at $25M. A funding amount of $25M would provide sufficient annual interest income to cover annual ICP costs under historical inflation and return rate conditions. The $25M is also comparable to the $22M calculated in the 1993 study. The 1993 study had to rely on projections and estimates of labor and equipment, whereas the current estimate is based on actual annual expenses on the ICP, and input from ICP staff that have conducted various ICP activities and understand the ICP.

Table 4. Required Minimum Rate of Return for Alternative 1[A]:			
Present Worth	**Net Rate of Return**	**Average Inflation into Perpetuity**	**Minimum Rate of Return**
$25,258,215 (50 year period)	5.9%	***1.5%***	***7.4%***
		3.5%	***9.4%***
		5.0%	***10.9%***
		7.0%	12.9%
$16,927,210 (50 year period)	8.925%	1.5%	10.425%
		3.5%	12.425%
		5.0%	13.925%
		7.0%	15.925%
$13,174,751 (50 year period)	11.6%	1.5%	13.1%
		3.5%	15.1%
		5.0%	16.6%
		7.0%	18.6%
$9,959,583 (50 year period)	15.625%	1.5%	17.125%
		3.5%	19.125%
		5.0%	20.625%
		7.0%	22.625%
$47,986,625 (400 year period)	3.06%	***1.5%***	***4.56%***
		3.5%	***6.56%***
		5.0%	***8.06%***
		7.0%	***10.06%***
$20,619,114 (400 year period)	7.26%	***1.5%***	***8.76%***
		3.5%	***10.76%***
		5.0%	12.26%
		7.0%	14.26%
$14,433,394 (400 year period)	10.6%	1.5%	12.1%
		3.5%	14.1%
		5.0%	15.6%
		7.0%	17.6%
$10,309,564 (400 year period)	15.625%	1.5%	17.125%
		3.5%	19.125%
		5.0%	20.625%
		7.0%	22.625%

* Present worth in 2006 dollars of annual expenses inflated over 50 year period

A – Alternative 1 is operation of a disposal site without recycling or an attendant.

The net rates of return and minimum rates of return required to maintain the present worth value for Alternative 2 are essentially the same as for Alternative 1 (see Table 4). The present worth values that will provide the necessary yield at return rates of 10% or less are $45M, $86M, and $37M (see Table 2). Based on this analysis, the Alternative 2 funding requirement for the ICP can be satisfied with $86M, $45M, and $36M, depending on rate of return and inflation rates into perpetuity. All other calculated funding amounts require too high of an average return rate than is historically observed. A $36M funding level would only provide sufficient annual interest income to cover annual ICP costs under low inflation and higher return rate conditions. There is more risk having $36M instead of $45M funding the ICP. A funding level of $86M would provide sufficient annual interest income to cover annual ICP costs under historical inflation and return rate conditions; however, the possibility of obtaining such funding is remote.

Therefore, the funding required to support the ICP into perpetuity for Alternative 2 is estimated at $45M. A funding amount of $45M would provide sufficient annual interest income to cover annual ICP costs under historical inflation and return rate conditions. The current estimate is based on actual annual expenses on the ICP, and input from ICP staff that have conducted various ICP activities and understand the ICP.

References

U.S. Environmental Protection Agency. 1991. Record of Decision (ROD) – Bunker Hill Mining and Metallurgical Complex, Residential Soils Operable Unit, Shoshone County, Idaho. August 1991.

U.S. Environmental Protection Agency. 1992. Record of Decision (ROD) – Bunker Hill Mining and Metallurgical Complex, Residential Soils Operable Unit, Shoshone County, Idaho. September 1992.

U.S. Environmental Protection Agency. 1988. Guidance for Conducting Remedial Investigations and Feasibility Studies. 1988.

U.S. Environmental Protection Agency. 2000. Guide to Developing and Documenting Cost Estimates During the Feasibility Study. July 2000.

ATTACHMENT 2

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Date: November 13, 2002

To: Rob Hanson, IDEQ (Boise)
Jerry Cobb, PHD (Kellogg)

From: Michael McCurdy, TG (Kellogg)

Subject: BHSS ICP Cost Estimate – General ICP Breakout from November 1, 2002 Estimate

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The information provided in this memorandum is a breakout of the information provided in the November 1, 2002 BHSS ICP Cost Estimate memorandum. Specifically, this memorandum includes only the General ICP costs and shows the division of the cost estimate between Populated Areas (Operable Unit 1, Residential Soils) and Non-Populated Areas (Operable Unit 2, Bunker Hill Mining and Metallurgical Complex). The total General ICP cost estimate is the same as presented in the November 1, 2002 BHSS ICP Cost Estimate memorandum. The cost estimates for the two annual disposal operation alternatives and identifying disposal sites are not included herein. Refer to the November 1, 2002 BHSS ICP Cost Estimate memorandum for disposal cost estimates. The following paragraphs and the information under the General Annual ICP Cost heading are repeated from the November 1, 2002 BHSS ICP Cost Estimate memorandum and are provided for convenience. The discussion under the subsequent headings presents the breakout between Populated Areas and Non-Populated Areas for the General ICP cost estimate.

The BHSS ICP cost estimate is based on historical ICP costs from 1995 to present, information provided by ICP staff, and engineering estimates of anticipated activities under the ICP. Attached is one spreadsheet that presents the BHSS ICP cost estimate. The cost estimate is for Operable Unit 1 (Populated Areas) and Operable Unit 2 (Non-Populated Areas) of the BHSS only. They do not include Panhandle Health District (PHD) costs associated with potential operation of an ICP for Operable Unit 3 (i.e., Coeur d'Alene Basin), potential involvement in the Trail Long-Term Oversight Program (TLOP), potential involvement in the State Operation and Maintenance Program, or other current activities conducted by PHD that are not related to the ICP (e.g., community relations and lead study). The ICP cost estimate is for General ICP activities including ongoing education, sampling assistance, contractor licensing, project permitting and tracking, vacuum loan program, and small project material supply and collection program.

The General ICP cost estimate is divided between Populated Area and Non-Populated Area expenses. The numbers shown under the Populated and Non-Populated headings are in 2006 dollars. Populated Areas include those residential areas that were platted before 1994 and are under the consent decree with the mining companies. The Non-Populated Areas include all other areas and are the responsibility of the State of Idaho in accordance with the State Superfund Contract for the BHSS. A 70/30 split between the Populated and Non-Populated Area effort was assumed. This assumption is based on projections that

the Non-Populated Area effort will increase as development occurs within the areas under the State's responsibility. Currently, the split is 84/16 between Populated and Non-Populated Area effort.

The year 2006 was chosen as the base year by assuming that the cleanup within the Populated and Non-Populated Areas would be essentially completed by 2006. Estimated costs in 2002 dollars were inflated at 5% to obtain 2006 costs. Periodic costs were annualized to 2006 present worth values. The 5% rate was chosen based on the historic average change (i.e., inflation/deflation) in the Consumer Price Index (CPI) from 1971 to 2001. Within this time period the inflation (i.e., percent change) in the CPI ranged from 1.6 (1998) to 13.5 (1980), with an average of 5.06. A 10% contingency factor was applied to all estimated costs before conducting the present worth calculations. For comparison, the total annual estimated costs without the contingency factor are provided for each cost spreadsheet previously identified. Assumptions for each of the identified ICP categories are presented in the following sections and on the attached spreadsheet.

General Annual ICP Costs

The General ICP – Annual spreadsheet shows the personnel, travel, equipment, operating and contracting breakdown with underlying assumptions. The personnel requirements were estimated assuming increased activity will be necessary after the Populated Area cleanup is completed and as development occurs within Kellogg, Wardner, Smelterville, Pinehurst and other local areas within the BHSS in the Populated and Non-Populated Areas. It is assumed that the ICP Coordinator will spend approximately one-third (1/3) of a Full-Time Equivalent (FTE) overseeing the program, writing quarterly reports, and performing other administrative duties. Because of the increased number of residential properties being completed by 2006 and the potential for increased development in the near future, it is assumed that ICP inspectors will spend 1.5 FTEs completing site inspections, working with contractors, training contractors, issuing permits, and performing other ICP duties. Database, accounting, and clerical duties under the ICP, including providing property disclosure information, are estimated to require 1.5 FTEs. Assistance with the interior project, and small project material supply and collection programs is assumed to required one-half (1/2) of an FTE for part-time staff. The part-time staff will assist with delivery of up to 1 cubic yard of clean gravel, soil and sand and collection of up to 1 cubic yard of contaminated material from residential projects, as needed and requested. The part-time staff will also assist with providing plastic, respirators, tyvek suits, plastic bags, snow fence and silt fence to residential projects, as needed and requested. It is assumed that one-fifth (1/5) of an FTE is required to clean the HEPA vacuums loaned to residents under the interior project program. Personnel charge-out rates were estimated using the pay scales for each labor category from the July 1, 2001 to June 30, 2002 ICP budget spreadsheet provided by PHD.

Travel under the ICP is estimated from input provided by PHD ICP inspectors and assuming an increase in activities, including travel, after 2006. Mileage was estimated at 150 miles per week for 52 weeks (on average) at $0.345 per mile (2002 cost). Travel out of the valley was assumed for 8 man-days. Two trips to Boise are also assumed with an airfare of $200 (2002 cost) and car rental of $30 per day (2002 cost) per trip. The 2002 per diem rate of $34.5 per day is applied for the 8 man-days.

The equipment costs were estimated from ICP expense spreadsheets from 1995 to 2002 provided by PHD and input provided by PHD ICP staff. Increases in costs were identified where applicable (e.g., health and safety costs) based on the anticipated increase in effort and number of field staff as the cleanup programs near completion and as development occurs within the site. Equipment costs assume the need to have 2 mid-size inspection vehicles, one 1-ton truck with four wheel drive and a tilting bed,

and at least three 2-cubic yard trailers with tilting beds. The truck and trailers are utilized to provide clean material (e.g., sand, soil or gravel) to residential projects requiring no more than 1 cubic yard of material and collecting no more than 1 cubic yard of contaminated material from residential projects. It is assumed that the vehicles and trailers will be replaced every 10 years. In addition, the ICP currently has 12 HEPA vacuums for the interior project program. It is assumed that one HEPA vacuum will be replaced per year beginning in 2006. This assumes each vacuum has a life of approximately 12 years. The cost for the HEPA vacuum is based on the current (2002) price of UZ 930 Dry canister HEPA vacuum from Euroclean. Annual hardware and software upgrades are necessary to keep current with database and computer requirements. Also, sampling and video equipment is assumed to be replaced or supplemented every 10 years. Health and safety equipment costs, including boots, respirators, hard hats, coveralls, safety vests, and traffic cones, are estimated based on expenses incurred to date and assuming an increase in activity.

The operating costs were estimated from the ICP expense spreadsheets from 1995 to 2002 provided by PHD and input provided by PHD ICP staff. Increases in costs were identified where applicable (e.g., sampling supplies, general office supplies, equipment maintenance, photograph processing, educational supplies) based on the anticipated increase in effort as the cleanup programs near completion and as development occurs within the site. Assumptions are as follows:

- The zenith number allows the ICP to be contacted whenever a utility locate mark is requested for excavation work. The utilities are charged approximately $1.09 (2002 costs) per request. Therefore this number will vary based on the number of calls the One-Call system receives.

- HEPA vacuum supplies and accessories include HEPA cartridge filters, suction hoses, telescopic wand, crevice tool, combination brush and small nozzle, turbo floor nozzle, and paper dust bags. HEPA cartridges are replaced every 6 months therefore each of the 12 HEPA vacuums will have 2 HEPA filter replacements per year. Bags are replaced as necessary, and it is assumed that 40 bags will be changed per year for all 12 HEPA vacuums. For the other HEPA vacuum accessories, it is assumed that one-third (1/3) will require replacement each year as items are lost, broken or otherwise damaged impairing or impeding their use. The costs for the HEPA vacuum supplies are based on the current (2002) prices from Euroclean. Interior program supplies include 6 mil and 4 mil plastic, 6 mil plastic bags, respirators, tyvek suits, snow fence and silt fence. These are provided upon request for residential projects. Based on the information provided by PHD ICP staff, the following annual requirements are assumed:
  - 5 boxes with 4 rolls per box of 10 foot by 25 foot, 6 mil, black plastic at $35.80 per box
  - 5 boxes with 4 rolls per box of 20 foot by 25 foot, 6 mil, clear plastic at $54.00 per box
  - 100 boxes with 30 bags per box of 42 gallon, contractor grade plastic at $13.30 per box
  - 50 Drager respirators and 5 filters at $24.97 per respirator
  - 50 hooded tyvek coveralls at $4.74 per suit
  - 1000 feet of silt fence at $38.00 per 100 feet
  - 500 feet of snow fence at $29.84 per 50 feet

- The $13.20 per cubic yard of soil and $9.60 per cubic yard of gravel and sand is the current (2002) rate at Zanetti Brothers. The sand, gravel and soil estimate is based on the ICP delivering 150 cubic yards of gravel, 150 cubic yards of sand, and 150 cubic yards of soil per year.

- Medical monitoring is provided for all field staff. It is estimated that 4 field staff will require medical monitoring in 2006.

- Staff development and training includes estimated costs for the ICP staff (estimated at 6 in 2006) to attend professional development seminars, conferences, or other training activities on a continuing basis.

The contracting costs were estimated from the ICP expense spreadsheets from 1995 to 2002 provided by PHD and input provided by PHD ICP staff. Increases in costs were identified where applicable (e.g., laboratory costs) based on the anticipated increase in effort as the cleanup programs near completion and as development occurs within the site. Legal advice costs are based on previous expenses incurred. Legal subcontracting costs associated with prosecuting violators of the ICP or defending the ICP in legal actions were assumed. Engineering effort to provide technical input or assistance to the ICP is assumed on an annual basis and more extensive engineering technical review, assistance, or input is assumed to occur every 5 years. The more extensive engineering effort may be associated with reviewing new development plans and drawings, assisting in the 5 Year Review process, or other technical issues.

Total Estimated Annual Costs

The estimated total annual costs for each ICP category are presented in Table 1. The total annual 2006 costs for each category (Populated and Non-Populated) were added together to obtain the combined annual cost estimate for the General ICP.

Table 1. Total Estimated Annual Costs for Each ICP Category.

Category	Annual Cost*
General ICP – Populated Areas	$264,464
General ICP – Non-Populated Areas	$111,732
Total	$376,196

* Annual costs are based on the total estimated annual costs with 70% applied for Populated Areas and 30% applied for Non-Populated areas and are in 2006 dollars

Present Worth Calculations

The present worth funding estimates for the BHSS ICP are summarized in Table 2. The total annual costs were inflated at 1.5%, 3.5%, 5%, and 7% to obtain the present worth (2006 dollars) of the annual expenses over a period of 50 years. Previous practice utilized a 30-year period for conducting present worth calculations. The Guide to Developing and Documenting Cost Estimates During the Feasibility Study (USEPA 2000) states that the actual time period should be used whenever possible in determining costs. The 50 year period provides 52% of the maximum present worth at 1.5% inflation, 82% of the maximum at 3.5% inflation, 91% of the maximum at 5% inflation, and 97% of the maximum at 7% inflation. A time period of 400 years was used to provide the maximum multiplier in the present worth (given an annual cost) calculation. Therefore, a 50 year time period and 400 year time period were used in the present worth calculations. The historical average change (i.e., inflation/deflation) in the CPI from 1913 to 2001 is 3.54%. The current inflation rate is 1.51%. The historic change in CPI is available through the U.S. Bureau of Labor Statistics. As a comparison, a rate of 7% is specified in the Guide to Developing and Documenting Cost Estimates During the Feasibility Study (USEPA 2000). The present worth of annual expenses over the two time periods was calculated using an annual expense of $376,196 for the total General ICP, $264,464 for the Populated Areas, and $111,732 for the Non-Populated Areas.

These calculations resulted in the estimated total present worth (2006 dollars) of the estimated annual ICP costs. It is assumed that "perpetuity costs" are estimated by these calculations.

Total

The 50-year buyout for the ICP with annual expenses of $376,196 is $18,809,800, assuming inflation and return rates counter each other for zero net change. The present worth values shown in Table 2 indicate the 2006 value of the $18.8M for the listed inflation rates. As inflation increases, the buying power (worth) continually degrades, as reflected in the present worth shown in Table 2. Therefore, $13M (annual expenses increased at the current inflation rate of 1.5%) will provide approximately 70% of the required funding over a 50 year period and $8.8M (annual expenses increased at the 90-year historic inflation rate of 3.5%) will provide approximately 47% of the required funding over a 50 year period. Therefore, if $18.8M were placed as a lump sum into a fund, the fund would be exhausted after 34.5 years if inflation stays at 1.5%, after 23.5 years if inflation averages 3.5%, after 18 years if inflation averages 5% and after 14 years if inflation averages 7%. Also, if $376,196 is contributed annually to the ICP, without increases consistent with inflation, this amount would soon become insufficient because inflationary pressures would increase the cost of implementing the program.

Populated Areas

The 50-year buyout for the ICP with annual expenses of $264,464 is $13,223,200, assuming inflation and return rates counter each other for zero net change. The present worth values shown in Table 2 indicate the 2006 value of the $13.2M for the listed inflation rates. As inflation increases, the buying power (worth) continually degrades, as reflected in the present worth shown in Table 2. Therefore, $9.3M (annual expenses increased at the current inflation rate of 1.5%) will provide approximately 70% of the required funding over a 50 year period and $6.2M (annual expenses increased at the 90-year historic inflation rate of 3.5%) will provide approximately 47% of the required funding over a 50 year period. Therefore, if $13.2M were placed as a lump sum into a fund, the fund would be exhausted after 34.5 years if inflation stays at 1.5%, after 23.5 years if inflation averages 3.5%, after 18 years if inflation averages 5% and after 14 years if inflation averages 7%. Also, if $264,464 is contributed annually to the ICP, without increases consistent with inflation, this amount would soon become insufficient because inflationary pressures would increase the cost of implementing the program.

Non-Populated Areas

The 50-year buyout for the ICP with annual expenses of $111,732 is $5,586,600, assuming inflation and return rates counter each other for zero net change. The present worth values shown in Table 2 indicate the 2006 value of the $5.6M for the listed inflation rates. As inflation increases, the buying power (worth) continually degrades, as reflected in the present worth shown in Table 2. Therefore, $3.9M (annual expenses increased at the current inflation rate of 1.5%) will provide approximately 70% of the required funding over a 50 year period and $2.6M (annual expenses increased at the 90-year historic inflation rate of 3.5%) will provide approximately 47% of the required funding over a 50 year period. Therefore, if $5.6M were placed as a lump sum into a fund, the fund would be exhausted after 34.5 years if inflation stays at 1.5%, after 23.5 years if inflation averages 3.5%, after 18 years if inflation averages 5% and after 14 years if inflation averages 7%. Also, if $111,732 is contributed annually to the ICP, without increases consistent with inflation, this amount would soon become insufficient because inflationary pressures would increase the cost of implementing the program.

Table 2. Present Worth of Annual Costs.		
Time Period	**Inflation Rate**	**Present Worth***
Total General ICP 50 Years	1.5% (current)	$13,166,758
	3.5% (historical 90 year average)	$8,823,920
	5.0% (historical 30 year average)	$6,867,816
	7.0% (EPA guidance)	$5,191,793
Populated Areas 50 Years	1.5% (current)	$9,256,174
	3.5% (historical 90 year average)	$6,203,178
	5.0% (historical 30 year average)	$4,828,045
	7.0% (EPA guidance)	$3,649,808
Non-Populated Areas 50 Years	1.5% (current)	$3,910,584
	3.5% (historical 90 year average)	$2,610,742
	5.0% (historical 30 year average)	$2,039,771
	7.0% (EPA guidance)	$1,541,985
Total General ICP 400 Years	1.5% (current)	$25,014,764
	3.5% (historical 90 year average)	$10,748,459
	5.0% (historical 30 year average)	$7,523,929
	7.0% (EPA guidance)	$5,374,233
Populated Areas 400 Years	1.5% (current)	$17,585,270
	3.5% (historical 90 year average)	$7,556,120
	5.0% (historical 30 year average)	$5,289,289
	7.0% (EPA guidance)	$3,778,062
Non-Populated Areas 400 Years	1.5% (current)	$7,429,494
	3.5% (historical 90 year average)	$3,192,339
	5.0% (historical 30 year average)	$2,234,640
	7.0% (EPA guidance)	$1,596,171

* Present worth is based on estimated General ICP costs for the specified time period and is in 2006 dollars

Net Rate of Return

Utilizing a net rate of return is a mechanism to counter the effects of inflation. The required net rate of return (i.e., the difference between the rate of return and inflation) is presented in Table 3 for the 50 year and 400 year present worth amounts for the total General ICP. The net rates of return for the Populated Area and Non-Populated Area are essentially the same for corresponding inflation rates. The net rate of return will allow a balance of approximately the present worth value to be maintained into perpetuity. This was calculated using a constant annual expense of $376,196 for the total, $264,464 for the Populated Areas and $111,732 for the Non-Populated Areas.

Table 3. Required Net Rate of Return for Total General ICP.			
Time Period	Present Worth*	PW Inflation Rate	Net Rate of Return
50 Years	$13,166,758	1.5% (current)	5.9%
	$8,823,920	3.5% (90 year historical)	8.925%
	$6,867,816	5.0% (30 year historical)	11.6%
	$5,191,793	7.0% (EPA guidance)	15.625%
400 Years	$25,014,764	1.5% (current)	3.06%
	$10,748,459	3.5% (90 year historical)	7.26%
	$7,523,929	5.0% (30 year historical)	10.6%
	$5,374,233	7.0% (EPA guidance)	15.625%

* Present worth is based on estimated total annual ICP costs for specified time period and is in 2006 dollars

Recommendation

The minimum rate of return required to maintain the present worth value for the total General ICP is provided in Table 4. The minimum rate of return required to maintain the present worth value for the Populated Areas portion of the General ICP is provided in Table 5. The minimum rate of return required to maintain the present worth value for the Non-Populated Areas portion of General ICP is provided in Table 6. The historical rate of return for 6-month certificates of deposit is 7.17% from 1964 to 2001, for treasury bills (30 year maturities) is 8.5% from 1977 to 2001, for AAA corporate bonds is 9.24% from 1976 to 2001 and for BAA corporate bonds is 10.32% from 1976 to 2001 based on historic records available through the Federal Reserve. These return rates average to 8.8%. The present worth values that will provide the necessary yield at return rates of 10% or less are highlighted in Tables 4, 5, and 6 for the total General ICP, Populated Areas and Non-Populated Areas costs, respectively.

Total

Based on this analysis, the General ICP funding requirement, excluding costs associated with disposal site operation and disposal site identification, can be satisfied with $25M, $13.2M, and $10.75M, depending on rate of return and inflation rates into perpetuity. All other calculated funding amounts require too high of an average return rate than is historically observed. A $10.75M funding level would only provide sufficient annual interest income to cover annual ICP costs under low inflation and higher return rate conditions. There is more risk having $10.75M instead of $13.2M funding the ICP. A funding level of $25M would provide sufficient annual interest income to cover annual ICP costs under historical inflation and return rate conditions with less risk.

Therefore, the funding required to support the General ICP activities into perpetuity is estimated at $13.2M. A funding amount of $13.2M would provide sufficient annual interest income to cover annual ICP costs under historical inflation (less than 5%) and return rate (less than 10%) conditions with some risk. The $13.2M is less than the $17.4M calculated in the 1993 study. The 1993 study had to rely on projections and estimates of labor and equipment, whereas the current estimate is based on actual annual expenses of the ICP, and input from ICP staff that have conducted various ICP activities and understand the ICP.

Populated Areas

Based on the above analysis, the Populated Area portion of the General ICP funding requirement, excluding costs associated with disposal site operation and disposal site identification, can be satisfied with $17.6M, $9.25M, and $7.6M, depending on rate of return and inflation rates into perpetuity. All other calculated funding amounts require too high of an average return rate than is historically observed. A $7.6M funding level would only provide sufficient annual interest income to cover the Populated portion of the General ICP costs under low inflation and higher return rate conditions. There is more risk having $7.6M instead of $9.25M funding the ICP. A funding level of $17.6M would provide sufficient annual interest income to cover the Populated portion of the General ICP costs under historical inflation and return rate conditions with less risk.

Therefore, the funding required to support the Populated Area effort under the General ICP activities into perpetuity is estimated at $9.25M. A funding amount of $9.25M would provide sufficient annual interest income to cover the Populated portion of the General ICP costs under historical inflation (less than 5%) and return rate (less than 10%) conditions with some risk. This amount would be the responsibility of the mining companies, as established under the consent decree.

Non-Populated Areas

Based on this analysis, the Non-populated Area portion of the General ICP funding requirement, excluding costs associated with disposal site operation and disposal site identification, can be satisfied with $7.4M, $3.9M, and $3.2M, depending on rate of return and inflation rates into perpetuity. All other calculated funding amounts require too high of an average return rate than is historically observed. A $3.2M funding level would only provide sufficient annual interest income to cover annual ICP costs under low inflation and higher return rate conditions. There is more risk having $3.2M instead of $3.9M funding the Non-Populated portion of the General ICP. A funding level of $7.4M would provide sufficient annual interest income to cover the Non-Populated portion of the General ICP costs under historical inflation and return rate conditions with less risk.

Therefore, the funding required to support the Non-Populated portion of the General ICP activities into perpetuity is estimated at $3.9M. A funding amount of $3.9M would provide sufficient annual interest income to cover the Non-Populated portion of the General ICP costs under historical inflation (less than 5%) and return rate (less than 10%) conditions with some risk. This amount would be the responsibility of the State of Idaho, as established in the State Superfund Contract.

Conclusion

The General ICP funding requirement is estimated at $13.2M. This assumes that no disposal site operation or disposal site identification and development will occur under the ICP. This also assumes some risk associated with future inflation rates and rates of return. The $13.2M is divided into $9.25M for the Populated Area effort under the General ICP and $3.9M for the Non-Populated Area effort under the General ICP. The mining companies would be responsible for funding the $9.25M and the State of Idaho would be responsible for funding the $3.9M.

Table 4. Required Minimum Rate of Return for Total General ICP.			
Present Worth	**Net Rate of Return**	**Average Inflation into Perpetuity**	**Minimum Rate of Return**
$13,166,758 (50 year period)	5.9%	***1.5%***	***7.4%***
		3.5%	***9.4%***
		5.0%	***10.9%***
		7.0%	12.9%
$8,823,920 (50 year period)	8.925%	1.5%	10.425%
		3.5%	12.425%
		5.0%	13.925%
		7.0%	15.925%
$6,867,816 (50 year period)	11.6%	1.5%	13.1%
		3.5%	15.1%
		5.0%	16.6%
		7.0%	18.6%
$5,191,793 (50 year period)	15.625%	1.5%	17.125%
		3.5%	19.125%
		5.0%	20.625%
		7.0%	22.625%
$25,014,764 (400 year period)	3.06%	***1.5%***	***4.56%***
		3.5%	***6.56%***
		5.0%	***8.06%***
		7.0%	***10.06%***
$10,748,459 (400 year period)	7.26%	***1.5%***	***8.76%***
		3.5%	***10.76%***
		5.0%	12.26%
		7.0%	14.26%
$7,523,929 (400 year period)	10.6%	1.5%	12.1%
		3.5%	14.1%
		5.0%	15.6%
		7.0%	17.6%
$5,374,233 (400 year period)	15.625%	1.5%	17.125%
		3.5%	19.125%
		5.0%	20.625%
		7.0%	22.625%

* Present worth in 2006 dollars of annual expenses inflated over 50 year period

Table 5. Required Minimum Rate of Return for Populated Area Portion of the General ICP.			
Present Worth	**Net Rate of Return**	**Average Inflation into Perpetuity**	**Minimum Rate of Return**
$9,256,174 (50 year period)	5.9%	***1.5%***	***7.4%***
		3.5%	***9.4%***
		5.0%	***10.9%***
		7.0%	12.9%
$6,203,178 (50 year period)	8.925%	1.5%	10.425%
		3.5%	12.425%
		5.0%	13.925%
		7.0%	15.925%
$4,828,045 (50 year period)	11.6%	1.5%	13.1%
		3.5%	15.1%
		5.0%	16.6%
		7.0%	18.6%
$3,649,808 (50 year period)	15.625%	1.5%	17.125%.
		3.5%	19.125%
		5.0%	20.625%
		7.0%	22.625%
$17,585,270 (400 year period)	3.06%	***1.5%***	***4.56%***
		3.5%	***6.56%***
		5.0%	***8.06%***
		7.0%	***10.06%***
$7,556,120 (400 year period)	7.26%	***1.5%***	***8.76%***
		3.5%	***10.76%***
		5.0%	12.26%
		7.0%	14.26%
$5,289,289 (400 year period)	10.6%	1.5%	12.1%
		3.5%	14.1%
		5.0%	15.6%
		7.0%	17.6%
$3,778,062 (400 year period)	15.625%	1.5%	17.125%
		3.5%	19.125%
		5.0%	20.625%
		7.0%	22.625%

* Present worth in 2006 dollars of annual expenses inflated over 50 year period

Table 6. Required Minimum Rate of Return for Non-Populated Area Portion of the General ICP.			
Present Worth	**Net Rate of Return**	**Average Inflation into Perpetuity**	**Minimum Rate of Return**
$3,910,584 (50 year period)	5.9%	***1.5%***	***7.4%***
		3.5%	***9.4%***
		5.0%	***10.9%***
		7.0%	12.9%
$2,610,742 (50 year period)	8.925%	1.5%	10.425%
		3.5%	12.425%
		5.0%	13.925%
		7.0%	15.925%
$2,039,771 (50 year period)	11.6%	1.5%	13.1%
		3.5%	15.1%
		5.0%	16.6%
		7.0%	18.6%
$1,541,985 (50 year period)	15.625%	1.5%	17.125%
		3.5%	19.125%
		5.0%	20.625%
		7.0%	22.625%
$7,429,494 (400 year period)	3.06%	***1.5%***	***4.56%***
		3.5%	***6.56%***
		5.0%	***8.06%***
		7.0%	***10.06%***
$3,192,339 (400 year period)	7.26%	***1.5%***	***8.76%***
		3.5%	***10.76%***
		5.0%	12.26%
		7.0%	14.26%
$2,234,640 (400 year period)	10.6%	1.5%	12.1%
		3.5%	14.1%
		5.0%	15.6%
		7.0%	17.6%
$1,596,171 (400 year period)	15.625%	1.5%	17.125%
		3.5%	19.125%
		5.0%	20.625%
		7.0%	22.625%

* Present worth in 2006 dollars of annual expenses inflated over 50 year period

References

U.S. Environmental Protection Agency. 2000. Guide to Developing and Documenting Cost Estimates During the Feasibility Study. July 2000.

U.S. Environmental Protection Agency. 1992. Record of Decision (ROD) – Bunker Hill Mining and Metallurgical Complex, Residential Soils Operable Unit, Shoshone County, Idaho. September 1992.

U.S. Environmental Protection Agency. 1991. Record of Decision (ROD) – Bunker Hill Mining and Metallurgical Complex, Residential Soils Operable Unit, Shoshone County, Idaho. August 1991.

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF IDAHO

UNITED STATES OF AMERICA, Plaintiff, v. ASARCO INCORPORATED, et. al, Defendants.	)	Case Number CV94-206--N-EJL
and CONSOLIDATED CASE	)	DECLARATION OF CHARLES W. MOSS

I, Charles (Chuck) Moss, hereby swear under penalty of perjury that the following is true and correct:

1. I have been involved with efforts to clean up the Bunker Hill "Box" and the Silver Valley since 1987. Between 1987 and 1988 I was Deputy Director of the Idaho Department of Health and Welfare, with direct responsibility over the Division of Environmental Quality, the predecessor of the present-day Idaho Department of Environmental Quality (IDEQ). In 1988 I was appointed by Governor Cecil Andrus as his Budget Director and Administrator of the Division of Financial Management within the Office of the Governor. At the request of Governor Andrus, I maintained direct responsibilities over Bunker Hill and Silver Valley cleanup efforts as both the Director of the State of Idaho Bunker Hill Project Team and the Governor's representative as a trustee to the Silver Valley Natural Resource Trust (SVNRT). I retired from full-time public service in 1995 but, under Governors Batt and Kempthorne,

COPY

continued my duties as Director the Bunker Hill Project Team and SVNRT Trustee. I served as Trustee and was the Chair of the SVNRT from the time of its activation in 1992 to its closure in June 2002. I currently continue to act as Director of the Bunker Hill Project Team.

2. The SVNRT was created as the result of a 1986 settlement between the State of Idaho and a number of mining companies including Defendant Asarco regarding State claims for natural resource damages, cleanup costs and related matters for mining related contamination of the Coeur d'Alene River drainage. A copy of the Judge Ryan's Final Judgement and the Settlement Agreement and Trust Fund Agreement is attached hereto as Attachment 1.

3. The SVNRT was largely inactive until approximately 1992 at which time the Trustees organized and began a series of regular meeting to plan and implement cleanup projects focused on improving water quality of waters heavily impacted by metals within the South Fork of the Coeur d'Alene River. In general, SVNRT projects were selected and performed according to the prioritization of an action plan created and adopted by SVNRT in 1994 which was entitled "Idaho State Natural Resource Trust Fund Trustee Action Plan, 1994, South Fork of the Coeur d'Alene River." A copy of this Action Plan is attached hereto as Attachment 2. The Action Plan prioritized potential projects upstream of the Box according to the amount of metals loading which appeared to be occurring in particular stretches of the South Fork of the Coeur d'Alene and its tributaries. Accordingly, SVNRT's efforts primarily focused on the Nine Mile and Canyon Creek areas in an attempt to improve water quality to the maximum extent with available funds.

4. SVNRT projects were funded by settlement funds and related investment interest and, to a lessor extent other government funding such as Clean Water Act Section 319 grants and

contributions or payments by private parties. Hecla Mining Company provided assistance the SVNRT projects in the form of staff assistance, contractor assistance, repository space and direct payments. Hecla payments were made pursuant to a 1996 "Tolling and Credit Agreement" by which the statute of limitations was tolled and the State agreed to not bring certain causes of action for a specified period of time and Hecla agreed to make certain payments toward SVNRT projects in return for a credit for such payments and other assistance to SVNRT and other cleanup projects against any future recovery by the State of natural resource damages. A copy of the Tolling and Credit Agreement is attached hereto as Attachment 3.

5. The SVNRT was at all times a separate and independent entity from the Coeur d'Alene Basin Restoration Project (CBRP). SVNRT had no formal relationship with and was not subject to direction by CBRP and was not CBRP's operating arm. SVNRT was one of a number of entities in the Coeur d'Alene Basin that was involved in planning and implementing actions to improve environmental conditions and through staff and trustee contacts and personal involvement did generally attempt to coordinate and cooperate to the extent possible with CBRP to advance mutual interests.

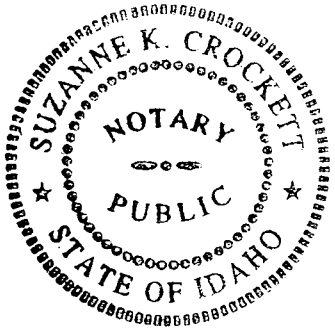
6. SVNRT projects continued well after the 1998 when the Environmental Protection Agency initiated its Remedial Investigation/Feasibility of the Coeur d'Alene Basin. SVNRT projects ended with the exhaustion of SVNRT settlement funds and formally closed in June 2002. Between 1991 and 2002, SVNRT spent a total of $9.8 million dollars on projects.

I, Charles W. Moss, declare that the foregoing is true and correct.

Dated this 25 day of April, 2003.

Charles W. Moss

SUBSCRIBED AND SWORN to before me this 25th day of April, 2003.



Notary Public for Idaho
Residing at Boise, Idaho
Commission Expires: 12-30-04

ATTACHMENT 1

FILED
U.S. DISTRICT COURT
1986 JUN 27 PM 1:50
DISTRICT OF IDAHO
JERRY L. CLAPP, CLERK

UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF IDAHO

THE STATE OF IDAHO, Plaintiff, vs. THE BUNKER HILL COMPANY, a Delaware corporation, PINTLAR CORPORATION, a Delaware corporation, GULF RESOURCES & CHEMICAL CORPORATION, a Delaware corporation, BUNKER LIMITED PARTNERSHIP, an Idaho limited partnership, SUNSHINE MINING COMPANY, a Delaware corporation, COEUR d'ALENE MINES CORPORATION, an Idaho corporation, ASARCO, INCORPORATED, a New Jersey corporation, and JOHN DOES 1 to 500, Defendants.	Case No. CIV 83-3161 FINAL JUDGMENT AS TO PLAINTIFF, THE STATE OF IDAHO, AND DEFENDANTS, PINTLAR CORPORATIÓN (FORMERLY THE BUNKER HILL COMPANY), GULF RESOURCES & CHEMICAL CORPORATION, BUNKER LIMITED PARTNERSHIP, SUNSHINE MINING COMPANY, COEUR d'ALENE MINES CORPORATION, AND ASARCO, INCORPORATED

WHEREAS, on June 27, 1986, the State of Idaho filed a second amended complaint against The Bunker Hill Company, Pintlar Corporation, Gulf Resources & Chemical Corporation, Bunker Limited Partnership, Sunshine Mining Company, Coeur d'Alene Mines Corporation and Asarco, Incorporated, and John Does 1 to 500 alleging causes of action for relief under 42 U.S.C. §§ 9607(a) and 9607(f); 26 U.S.C. § 4611; Idaho Code §§ 39-101 and 39-11B; Idaho Code §§ 52-201 to 52-206; and under Idaho's common law of public nuisance; and

WHEREAS, the plaintiff, the State of Idaho, and the defendants, Gulf Resources & Chemical Corporation, Pintlar Corporation (formerly The Bunker Hill Company), Bunker Limited Partnership, Sunshine Mining Company, Coeur d'Alene Mines Corporation and Asarco, Incorporated, have entered into a Settlement Agreement dated May 31, 1986, resolving their respective claims in the above-captioned action by settlement prior to trial; and

WHEREAS, the aforesaid parties, pursuant to the Settlement Agreement, have entered into a stipulation for the dismissal with prejudice of all claims for relief alleged by plaintiff in its Amended Complaint and all counterclaims of defendants, the original of which has been filed with the Court; and

WHEREAS, the Court having considered the aforesaid Stipulation For Settlement and Settlement Agreement and on application of the aforesaid parties:

NOW, THEREFORE, IT IS HEREBY

ORDERED, ADJUDGED AND DECREED, that all of plaintiff's claims against defendants and the counterclaim of defendants Gulf Resources & Chemical Corporation and Pintlar Corporation against the plaintiff in action number CIV-83-3161 be, and the same hereby are, dismissed with prejudice and without costs; and it is

ORDERED, ADJUDGED AND DECREED, that this is a partial settlement of the above-entitled action, relating only to the claims made between the plaintiff and defendants, and does not affect the remainder of the action between the defendants and the various insurance companies; and it is

ORDERED, ADJUDGED AND DECREED, that the terms of the Settlement Agreement are approved and incorporated by reference herein as if set forth in full; and it is

ORDERED, that there being no just reason for delay, the Clerk is directed to enter this judgment pursuant to Rule 54(b) of the Federal Rules of Civil Procedure.

DATED this 24 day of June, 1986.

HAROLD L. RYAN
UNITED STATES DISTRICT JUDGE

COPY

JAMES B. LYNCH
CHARLES R. CLARK
IMHOFF & LYNCH
1607 West Jefferson Street
Post Office Box 739
Boise, Idaho 83701
Telephone: (208) 336-6900

Attorneys for Third-Party Defendant,
Admiral Insurance Company

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF IDAHO

THE STATE OF IDAHO, Plaintiff, vs. THE BUNKER HILL COMPANY, a Delaware corporation; PINTLAR CORPORATION, a Delaware corporation; GULF RESOURCES & CHEMICAL CORPORATION, a Delaware corporation; and JOHN DOES 1 TO 500, Defendants.	CASE NO. 83-3161 ADMIRAL'S REQUESTS FOR PRODUCTION OF DOCUMENTS TO GULF AND PINTLAR
GULF RESOURCES & CHEMICAL CORPORATION, Third-Party Plaintiff, vs. THE AETNA CASUALTY AND SURETY COMPANY; and THE HOME INDEMNITY COMPANY, Third-Party Defendants.	

GULF RESOURCES & CHEMICAL CORPORATION and PINTLAR CORPORATION,

Third-Party Plaintiffs,

vs.

THE FIDELITY AND CASUALTY COMPANY OF NEW YORK; PACIFIC INSURANCE COMPANY; CONTINENTAL RE-INSURANCE CORPORATION; FIRST STATE INSURANCE COMPANY; NORTHWESTERN NATIONAL INSURANCE COMPANY; NORTHWESTERN NATIONAL CASUALTY COMPANY; ADMIRAL INSURANCE COMPANY; THE INSURANCE COMPANY OF THE STATE OF PENNSYLVANIA; and PACIFIC INDEMNITY COMPANY (CHUBB),

Third-Party Defendants.

PINTLAR CORPORATION,

Third-Party Plaintiff,

vs.

UNDERWRITERS AT LLOYD'S, LONDON,

Third-Party Defendant.

AETNA CASUALTY AND SURETY COMPANY,

Third-Party Plaintiff,

vs.

FIRST STATE INSURANCE COMPANY; NORTHWESTERN NATIONAL INSURANCE COMPANY; and NORTHWESTERN NATIONAL CASUALTY COMPANY,

Third-Party Defendants.

CONTINENTAL RE-INSURANCE CORPORATION, a California corporation; PACIFIC INSURANCE COMPANY, a California corporation; and FIDELITY & CASUALTY COMPANY OF NEW YORK, a New York corporation,

Third-Party Plaintiffs,

vs.

FIRST STATE INSURANCE COMPANY; NORTHWESTERN NATIONAL INSURANCE COMPANY; and NORTHWESTERN NATIONAL CASUALTY COMPANY,

Third-Party Defendants.

PINTLAR CORPORATION,

Third-Party Plaintiff,

vs.

INSURANCE COMPANY OF NORTH AMERICA,

Third-Party Defendant.

TO: GULF RESOURCES & CHEMICAL CORPORATION and PINTLAR CORPORATION:

COMES NOW the Third-Party Defendant, ADMIRAL INSURANCE COMPANY, by and through its attorneys of record, Imhoff & Lynch, pursuant to Rules 33 and 34, Federal Rules of Civil Procedure, and hereby requests that Gulf Resources & Chemical Corporation and Pintlar Corporation (formerly The Bunker Hill Company) produce for inspection, examination, marking for copying, and copying by or for counsel for Admiral Insurance Company, at the offices of Imhoff & Lynch, 1607 West Jefferson Street, Boise, Idaho 83701, beginning on Monday, October 24, 1988 at 9:00

o'clock, a.m., or at some other location or time mutually agreed to by counsel for Gulf, Pintlar (Bunker Hill), and Admiral, the documents requested below.

Document has been used throughout this discovery request in its broadest sense and it should be understood to mean any typewritten, handwritten, printed, recorded, or other graphic, phonic or visual material of any nature, including computer stored or generated information, together with instructions and programs necessary to search or retrieve such data, and including specifically, but without limitation, books, pamphlets, periodicals, letters, reports, memoranda, handwritten notes, notations, messages, telegrams, cables, records, drafts, diaries, studies, analyses, summaries, booklets, circulars, bulletins, brochures, instructions, minutes, photographs, maps, surveys, drawings, sketches, working papers, charts, graphs, indexes, tapes, and correspondence. The word "document" shall also include attachments and enclosures to any requested item, and shall include copies or reproductions of any of the foregoing where the original is unavailable or where the copy or reproduction contains entries or notations not present on the original.

REQUEST FOR PRODUCTION NO. 1: Please provide all documents and contents of the brown plastic three-ring binder entitled on the spine "Environmental 1982 Book 2" identified by counsel for Gulf and Pintlar on June 15, 1988 in Kellogg, Idaho. This binder was labeled on the front with "T.B. Tierney."

REQUEST FOR PRODUCTION NO. 2: Please provide all documents related to the environmental meetings held on or about March 17, 1982, at which attendees were or may have been Gene Baker, Ralph Gilges, Dennis Brendel, T. Barry Tierney, Alfred Juhl, Richard Padget, Tom Olson, and William Boyd. These documents should include all files of Gulf and Pintlar and their agents or representatives, including their attorneys, that relate to the topics addressed or scheduled to be addressed at the above environmental meetings of Gulf and Pintlar.

REQUEST FOR PRODUCTION NO. 3: Please provide all documents related to the OSHA meeting that was apparently held on or about March 17, 1982, at which attendees were or may have been Gene Baker, Ralph Gilges, Dennis Brendel, T. Barry Tierney, Wally Kenyon, John Mee, and William Boyd. These documents should include all files of Gulf and Pintlar and their agents or representatives, including their attorneys, that relate to the topics addressed or scheduled to be addressed at the above meeting or meetings.

REQUEST FOR PRODUCTION NO. 4: Please provide the following documents: a memo dated July 20, 1982 from Padget to Gilges, together with its attachments; plant cleanup report from Jasberg to Gilges dated July 13, 1982; memo from Copeland to Turnbow dated June 24, 1982; memo from Copeland to Gilges dated May 26, 1982; memo from Copeland to Gilges dated April 7, 1982, regarding Carol Young, and memo from Copeland to Tierney dated April 19, 1982, regarding NPDES excursions breakdown, including

its attachments. These documents or copies of them were observed to be within the binder discussed and requested in Request for Production No. 1 above.

REQUEST FOR PRODUCTION NO. 5: Please provide a copy of the Bunker Hill Company lead smelter plant handbook effective and current for the years 1981 and 1982.

REQUEST FOR PRODUCTION NO. 6: Please provide copies of smelter flow sheets effective and current for the years 1981 and 1982, and those that accompanied a title page dated September 1977, signed by R.N. Gilges, Smelter Manager, and any documents or pictorial flow sheets or other documents that replaced them.

REQUEST FOR PRODUCTION NO. 7: Please provide copies of the Bunker Hill electrolytic zinc plant flow sheets that were current and effective for the years 1981 and 1982.

REQUEST FOR PRODUCTION NO. 8: Please provide all documents and contents of binders that may be described or identified as preceding or following the "Environmental 1982 Book 2," or were associated with it. "Environmental 1982 Book 2" is the subject of Request for Production No. 1 above.

REQUEST FOR PRODUCTION NO. 9: Please provide all documents and contents of the binder entitled "Metallurgical Accounting 1982" that contains in part a memo from F. Breidt to R. Gilges dated June 30, 1982, with its attachments. This binder on June 15, 1988 was in the same room as the binder referred to in Request for Production No. 1. The binder at issue in this

request also contains a memo from F. Breidt to R. Gilges dated March 10, 1982, regarding zinc plant settling pond residue.

DATED this 22nd day of September, 1988.

IMHOFF & LYNCH

By _____
CHARLES R. CLARK
Attorneys for Admiral Insurance Company

CERTIFICATE OF MAILING

I HEREBY CERTIFY that on the 22nd day of September, 1988, I mailed a true and correct copy of the foregoing ADMIRAL'S REQUEST FOR PRODUCTION OF DOCUMENTS TO GULF AND PINTLAR in the United States mail, postage prepaid, to the following:

Mr. R. B. Rock
Moffatt, Thomas, Barrett
& Blanton, Chartered
First Security Bank Building
Post Office Box 829
Boise, Idaho 83701

Mr. John P. Howard
Quane, Smith, Howard & Hull
Idaho First Plaza, 16th Floor
Post Office Box 519
Boise, Idaho 83701

Mr. Patrick A. Cathcart
Hancock, Rothert & Bunshoft
Suite 1000
Four Embarcadero Center
San Francisco, CA 94111-4168

Mr. Richard C. Mellon, Jr.
Mr. Alan Kofoed
Elam, Burke and Boyd
Suite 1010
First Interstate Bank Bldg.
Post Office Box 1559
Boise, Idaho 83701

Mr. Howard Humphrey
Clemons, Cosho & Humphrey
Carnegie Building
815 West Washington St.
Boise, Idaho 83702

Mr. Jerry B. Edmonds
Williams, Kastner & Gibbs
1400 Washington Bldg.
Post Office Box 21926
Seattle, Washington 98111

Mr. William F. Boyd
Evans, Keane, Koontz, Boyd
& Ripley
111 Main Street
Post Office Box 659
Kellogg, Idaho 83837-0659

Mr. James P. Keane
Evans, Keane, Koontz,
Boyd & Ripley
301 First Interstate Plaza
505 Front Avenue
Coeur d'Alene, Idaho 83814

Mr. Richard B. Kading, Jr.
Mr. Warren E. Jones
Eberle, Berlin, Kading,
Turnbow & Gillespie
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Post Office Box 1386
Boise, Idaho 83701

Mr. Gardner W. Skinner, Jr.
Cantrill, Skinner, Sullivan
& King
Post Office Box 359
Boise, Idaho 83701

Ms. Sheila Glusco Bush
Deputy Attorney General
Statehouse, Room 210
Boise, Idaho 83720

Mr. Frank R. Morrison, Jr.
Bassett & Morrison
Market Place One, Suite 600
2001 Western Avenue
Seattle, Washington 98121

Richard Mancino
WILLKIE, FARR & GALLAGHER
One Citicorp Center
153 East 53rd Street
New York, N.Y. 10022-4669

CHARLES R. CLARK

SETTLEMENT AGREEMENT

This Settlement Agreement is entered into this 31st day of ~~June~~ May, 1986, by and among the STATE OF IDAHO ("State"); PINTLAR CORPORATION ("Pintlar"), a Delaware corporation, formerly The Bunker Hill Company ("Bunker Hill"); GULF RESOURCES & CHEMICAL CORPORATION ("Gulf Resources"), a Delaware corporation; BUNKER LIMITED PARTNERSHIP ("Bunker Limited"), an Idaho limited partnership; SUNSHINE MINING COMPANY ("Sunshine"), a Delaware corporation; COEUR D'ALENE MINES CORPORATION ("Coeur d'Alene Mines"), an Idaho corporation; and ASARCO, INCORPORATED ("ASARCO"), a New Jersey corporation. For purposes of this Settlement Agreement, Pintlar, Gulf Resources, Bunker Limited, Sunshine, Coeur d'Alene Mines and ASARCO will sometimes collectively be referred to as the "Companies."

W I T N E S S E T H:

WHEREAS, by summons and complaint dated December 8, 1983, the State commenced a civil action against Bunker Hill, Gulf Resources and 500 "John Does" in the United States District Court for the District of Idaho entitled State of Idaho v. The Bunker Hill Company, Gulf Resources & Chemical Corporation, John Does 1 to 500, Civil No. 83-3161 (Dist. Idaho), under Section 107(a) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. § 9607(a) ("CERCLA"), the Environmental Protection Act of 1972 (I.C. §§ 39-101 through 39-118), and Idaho public nuisance law,

alleging, inter alia, that the mining-related activities of Bunker Hill and others have, for more than 100 years, caused or contributed to releases of pollutants, contaminants, hazardous substances, and other materials, which have in turn caused injury to and loss or destruction of the natural resources and environment in the area of the drainage of the Coeur d'Alene River and its tributaries, and have caused and will cause the State to incur legal, administrative, response, removal, restoration and remedial costs as those terms are defined under CERCLA; and

WHEREAS, the State has authority under both state law and CERCLA to bring this action; and

WHEREAS, on April 2, 1984, the State served and filed a First Amended Complaint, which added Pintlar as a named defendant and in all other relevant respects repeated the allegations contained in the original complaint; and

WHEREAS, on March 20, 1985, Pintlar and Gulf Resources served and filed an Answer to the First Amended Complaint, denying the charging allegations of the First Amended Complaint, asserting certain defenses, and asserting a counterclaim against the State seeking contribution or indemnity against it in the event Pintlar or Gulf Resources is deemed liable for any of the matters alleged in the First Amended Complaint; and

WHEREAS, Pintlar and Gulf Resources are involved in litigation with certain insurance carriers, which litigation is

pending and consolidated with Civil No. 83-3161 and will be referred to herein as the "insurance litigation;" and

WHEREAS, nothing herein (including Exhibit "A" and Exhibit "B") is, or shall be deemed to be, an admission or acknowledgment of liability or responsibility by any of the Companies for any of the matters alleged in the First Amended Complaint or the amended complaint filed in accordance with Section E-1 of this agreement, and the Companies hereby specifically deny legal or equitable liability under any statute, regulation, ordinance or common law, including without limitation CERCLA and the Idaho law of public nuisance and the Environmental Protection and Health Act of 1972 (Idaho Code §§ 39-101 through 39-118), for any response costs, costs for remedial action, damages for restoration of natural resources or related damages caused by any past or continuing releases, disposals or threatened releases or disposals of pollutants, contaminants, hazardous substances or other materials into the environment. The Companies deny any liability for injury to or loss of natural resources in the area of the drainage of the Coeur d'Alene River and its tributaries which were or may have been caused by or related to any of the activities of the Companies; and

WHEREAS, other corporations, partnerships and individuals caused or contributed to the damages alleged by the State in Civil No. 83-3161 during the 100 years of mining activity in

the area of the drainage of the Coeur d'Alene River and its tributaries; and

WHEREAS, the State as trustee of natural resources within the State or belonging to, managed by, controlled by or appertaining to the State and owner of all the streambeds and lake beds and, as representative of the interests of the People of the State of Idaho, has determined, and the Companies recognize, that the public interest is best served by the compromise and settlement of Civil No. 83-3161, which provides for the Companies' contribution to prompt and effective rehabilitation and restoration of the natural resources and environment in the area of the drainage of the Coeur d'Alene River and its tributaries, and for payment of damages for all matters alleged in the State's amended complaint; and

WHEREAS, to avoid further litigation and the expense that would be incurred in connection with such litigation, and to set to rest forever the differences existing among them, and to render their responsibilities certain, the parties have agreed to compromise and settle any and all judicial or administrative claims, actions, causes of action, proceedings or demands, in law or equity, of any nature or kind, judicial or administrative, arising out of all matters covered by the First Amended Complaint and the amended complaint filed in accordance with Section E-1 of this agreement, including any injury to or loss or destruction of natural resources or the environment in the area of the

drainage of the Coeur d'Alene River and its tributaries, including the costs of assessing such injury, loss or destruction, and any legal, administrative, response, removal, remedial or clean-up costs that have been or will be incurred by the State or its political subdivisions or any of its agents, contractors, employees, representatives, officials, or any other person or entity acting for or on behalf of or in privity with the State, which injuries are allegedly caused by or related to any of the activities of the Companies prior to the effective date of this Settlement Agreement, including the past or continuing releases or threatened releases or disposals of pollutants, contaminants, hazardous substances or other materials occurring as a result of such past activities. It is not the parties' intent that the releases contained herein release any of the parties from damages occurring in the future as a result of future acts or events. It is the parties' intent that the releases contained herein release the parties from future damages which occur as a result of past acts or events. By way of explanation only, and not by way of limitation, the following examples illustrate the parties' intent: If, because of a future breach of a dike at a settling pond belonging to one of the Companies, pollutants are released, this agreement does not create a release from liability. If, in the future, mine waste is discovered in the South Fork of the Coeur d'Alene River and no settling company has discharged

such waste into the river after the date of this agreement, then this agreement provides a release from liability.

The parties recognize that the State and its political subdivisions, agencies, employees and contractors from time to time act as agent, contractor, subcontractor or grantee for third parties, and the Companies agree that nothing contained herein is intended to limit or restrict such activities or affect the ability, if any, of any such third party to recover any amounts paid to the State, its political subdivisions, agencies, employees or contractors. The Parties specifically acknowledge that the Idaho Department of Health and Welfare is presently working as a contractor or agent of the United States Environmental Protection Agency on certain projects arising under the authority of CERCLA and relating to the same general geographic area as is involved in this litigation.

NOW, THEREFORE, in consideration of the mutual promises, covenants, and releases herein contained, the parties hereto agree as follows:

A. DEFINITIONS

1. As used in this Settlement Agreement, the terms "hazardous substances," "pollutant or contaminant," "natural resources," "release," "remove," "removal," "remedy," "remedial action," "respond", "disposal" and "response" shall have the meanings and definitions ascribed to them by CERCLA, 42 U.S.C.A. § 9601 *et seq*.

2. "Covered Matters" as used in this agreement means any allegations made in the State's complaint and the amended complaint filed in accordance with Section E-1 of this agreement.

B. TERMS AND CONDITIONS OF SETTLEMENT

1. In consideration of each of the promises, covenants and releases set forth herein, the Companies agree to pay to the Trust Fund, to be established and administered as hereinafter provided in part C of this Settlement Agreement and Exhibit "A" hereto, the aggregate sum of FOUR MILLION FIVE HUNDRED THOUSAND DOLLARS ($4,500,000.00) (the "Settlement Amount").

2. The Settlement Amount shall be payable in five annual installments of NINE HUNDRED THOUSAND DOLLARS ($900,000.00) each, the first of which shall be made by the Companies on or before fifteen (15) days after entry of judgment dismissing with prejudice Civil No. 83-3161 as provided herein; thereafter, each of the four subsequent installments shall be made by the Companies in each of the next four years on or before the anniversary date of the dismissal with prejudice of Civil No. 83-3161.

3. The obligations of each of the Companies for its respective part of the Settlement Amount, and of each installment payment thereof, shall be as set forth in Exhibit "B" hereto, which is hereby incorporated and made a part of this Settlement Agreement as if it were set forth herein in full.

4. The payment by the Companies of the Settlement Amount and of each of the installments thereof is not a fine or penalty for violation of any state or federal law.

C. TRUST FUND

1. The parties agree to establish a fund ("Trust Fund") into which all the payments of the Settlement Amount shall be made.

2. The Trust Fund shall hold in trust all funds ("Trust Funds") paid into it pursuant to the terms and conditions of this Settlement Agreement. All Trust Funds shall be used solely and exclusively to fund and complete the recommended projects described in Exhibit "A" hereto or to fund and complete different projects as chosen by the Trustees in their discretion; provided that if the Trustees choose to undertake and complete different projects, such projects shall be consistent with state and federal law. Exhibit "A" hereto, entitled "Trust Fund Agreement," is hereby incorporated and made a part of this Settlement Agreement as if it were set forth herein in full. The projects described in Exhibit "A" involve the restoration and rehabilitation of the natural resources and environment in the area of the drainage of the Coeur d'Alene River and may also involve response, removal, remedial and clean-up actions.

3. There shall be seven (7) Trustees of the Trust Fund who shall be authorized and empowered to administer the Trust Fund and the expenditure of the Trust Funds so as to undertake

and complete the projects described in Exhibit "A" or different projects specified by the Trustees. The powers, duties and obligations of the Trustees shall be as set forth in Exhibit "A." The Trustees of the Trust Fund shall be comprised of the following persons or their duly designated representatives: the Governor of the State of Idaho, the Attorney General of the State of Idaho, the Chairman of the Board of Commissioners of Shoshone County, two persons to be appointed by the majority vote of the above three Trustees, and two persons to be designated by the Companies.

4. The Trust Fund Agreement shall provide for the funding of and completion of the projects described therein, or different projects as determined by the Trustees consistent with state and federal law. The Trust Fund Agreement shall authorize the Trustees to employ a qualified engineering firm or other technical advisers as the Trustees deem necessary to supervise the completion of the projects and to ensure that all actions taken in connection therewith are in accordance with state and federal law.

5. The Trustees shall be authorized to invest any Trust Funds that are not currently in use in accordance with the "prudent man" standard. To the extent income is available from such investments, it may be used to pay the administrative expenses of the Trust Fund and of any project. However, to the extent such income is not available, the administrative expenses

of the Trust Fund and of any project shall be borne equally by the State and the Companies. No portion of the principal of the Trust Funds shall be used to pay for such expenses. "Administrative Expenses" as used herein means out-of-pocket expenses incurred by the Trustees in administering the trust. Administrative expenses as defined herein do not include engineering costs, costs of technical advisors or costs of studies, which costs are to be paid from the income derived from investment of settlement funds not in use to the extent such income is available; if such income is not available, such expenses shall be borne from the corpus of the trust. The parties acknowledge, however, that their mutual intent is that settlement funds be used primarily for actual on-the-ground work and that expenditures for engineering costs, costs of technical advisors, or costs of studies be kept to a minimum. Every effort should be made to use available technical information and to avoid commissioning studies which are duplicative of those which have already been undertaken by other individuals or entities.

6. Any labor or services required to be performed in connection with the completion of the projects described in Exhibit "A" or different projects as determined by the Trustees, or the administration of the Trust Fund shall, to the fullest extent possible, be performed by residents of Shoshone County, Idaho.

D. RELEASES

1. In consideration of the payment by the Companies of the Settlement Amount, and except as provided in paragraphs 4, 5 and 6 of this part D, the State, on behalf of itself and all of its political subdivisions, hereby releases and forever discharges the Companies, their subsidiaries, divisions, parents, and each of their respective present and past directors, officers, general and limited partners, employees, agents, successors and assigns from any and all claims, actions, causes of action, proceedings and demands, in law or equity, of any nature or kind, judicial or administrative, arising out of all matters covered by the First Amended Complaint and the amended complaint filed in accordance with Section E-1 of this agreement, including any injury to or loss or destruction of natural resources or the environment in the area of the drainage of the Coeur d'Alene River and its tributaries, including the costs of assessing such injury, loss, or destruction, or any legal, administrative, response, removal, remedial or clean-up costs that have been or will be incurred by the State or its political subdivisions or any of its agents, contractors, employees, representatives, officials, or any other person or entity acting for or on behalf of or in privity with the State, which injuries are allegedly caused by any of the activities of the Companies prior to the effective date of this Settlement Agreement, including the past or continuing releases or

threatened releases or disposals of pollutants, contaminants, hazardous substances or other materials relating to or resulting from such past activities. It is not the parties' intent that the releases contained herein release any of the parties from damages occurring in the future as a result of future acts or events. It is the parties' intent that the releases contained herein release the parties from future damages which occur as a result of past acts or events. By way of explanation only, and not by way of limitation, the following examples illustrate the parties' intent: If, because of a future breach of a dike at a settling pond belonging to one of the Companies, pollutants are released, this agreement does not create a release from liability. If, in the future, mine waste is discovered in the South Fork of the Coeur d'Alene River and no settling company has discharged such waste into the river after the date of this agreement, then this agreement provides a release from liability.

The parties recognize that the State and its political subdivisions, agencies, employees and contractors from time to time act as agent, contractor, subcontractor or grantee for third parties, and the Companies agree that nothing contained herein is intended to limit or restrict such activities or affect the ability, if any, of any such third party to recover any amounts paid to the State, its political subdivisions, agencies, employees or contractors. The parties specifically acknowledge that the Idaho Department of Health and Welfare is

presently working as a contractor or agent of the United States Environmental Protection Agency on certain projects arising under the authority of CERCLA and relating to the same general geographic area as is involved in this litigation.

In the event the State files suit against any other parties for Covered Matters, then this agreement shall operate to and does release the Companies from any duty to contribute any pro rata share of any judgment. Accordingly, the State agrees to reduce any recovery it may obtain from nonsettling parties by an amount sufficient to guarantee that a settling party will not be required to pay any amount in contribution to any nonsettling party. The State specifically reserves its right to seek recovery from Hecla Mining Company and Callahan Mining Corporation for Covered Matters.

2. Except as provided in paragraphs 4, 5 and 6 of this part D, the Companies, on behalf of themselves, their subsidiaries, divisions, parents, successors and assigns, hereby release the State, and its political subdivisions, from any and all claims, counterclaims, controversies, actions, causes of action, proceedings and demands, in law or equity, of any nature or kind, judicial or administrative, arising out of the Covered Matters. In the event the Companies or one of them files suit against other parties for Covered Matters, then this agreement shall operate to and does release the State from any duty to contribute any pro rata share of any judgment.

Accordingly, the Companies agree to reduce any recovery they may obtain from nonsettling parties by an amount sufficient to guarantee that the State will not be required to pay any amount in contribution to any nonsettling party.

3. Each of the Companies hereby releases and discharges all of the other Companies, their subsidiaries, divisions, parents, affiliates and each of their respective past or present directors, officers, general and limited partners, employees, agents, successors and assigns, from any and all claims, controversies, actions, causes of action, proceedings and demands, in law or equity, in the nature of contribution or indemnity respecting the amounts paid by each of the Companies pursuant to part B of this Settlement Agreement, as well as any costs and expenses, including but not limited to attorneys fees, incurred or to be incurred by each of the Companies in connection with the litigation of Civil No. 83-3161, the investigation of any matter connected with the litigation and settlement of Civil No. 83-3161, or the negotiation, consummation or effectuation of this Settlement Agreement.

4. The parties agree that this Settlement Agreement shall not release or discharge any claims, controversies, actions, causes of action, proceedings or demands, in law or equity, in the nature of contribution or indemnity or otherwise, that any of the Companies or the State may have or which may hereafter arise against any other private or public person,

corporation or entity not a party to this Settlement Agreement, including without limitation the Hazardous Substance Response Fund.

5. The parties agree that this Settlement Agreement shall not release or discharge any claims, counterclaims, third party claims, controversies, actions, causes of action, proceedings or demands, in law or equity, judicial or administrative, in the nature of contribution or indemnity, which any of the parties may have or which may hereafter arise against any of the parties hereto, relating in any way to any judicial or administrative claim, controversy, action, cause of action, proceeding, enforcement action or demand, judgment or liability, in law or equity, that may be brought, asserted, commenced or threatened to be brought, asserted or commenced by any private or public person, corporation or entity, including without limitation the United States Government or any of its agencies, departments or employees claiming (1) any alleged injury to or loss or destruction of natural resources; (2) legal, administrative, response, removal, remedial or clean-up costs; or (3) personal injury or property damage of any kind, which was or may have been allegedly caused by, or contributed to by, or related to any of the activities of the Companies in the area of the drainage of the Coeur d'Alene River and any past or continuing releases or disposals or threatened releases or

disposals of pollutants, contaminants, hazardous substances or other materials relating to such activities.

6. The parties agree that this Settlement Agreement shall not release or discharge any claims, controversies, actions, causes of action or demands, in law or equity, that they now have or which may hereafter arise against any insurance carrier, including those with which Pintlar and Gulf Resources are currently engaged in litigation, arising out of or relating to any of the Covered Matters. This Settlement Agreement does not bar any of the Companies from pursuing their remedies against their respective insurance carriers.

E. ADJUDICATION OF ISSUES

1. Upon execution of this Settlement Agreement, a second amended complaint shall be filed in the Superfund action for the sole purpose of naming all of the Companies as defendants in the lawsuit in place of the John Does.

2. After execution of this Settlement Agreement and filing of the second amended complaint in Civil No. 83-3161, the parties shall submit the Settlement Agreement to the court for approval. The parties shall also submit to the court stipulated findings of fact and conclusions of law containing the terms of this agreement. The parties may present additional evidence if necessary to enable the court to enter the proposed findings of fact and conclusions of law. Upon entry of the findings of fact and conclusions of law, the parties shall

present a proposed final judgment to the court approving this Settlement Agreement and dismissing Civil No. 83-3161 with prejudice as to the parties to this Settlement Agreement.

3. The State acknowledges that Gulf Resources has contended and continues to contend that it is not and never has been an owner or operator of a facility within the State of Idaho, as that phrase is used in CERCLA and construed by the federal courts. The State does not agree with this contention. However, this Settlement Agreement is entered into without prejudice to or resolution of such contention.

F. INSURANCE CLAIMS

The State, Pintlar and Gulf Resources agree that after entry of judgment in Civil No. 83-3161, the pending insurance litigation among Pintlar and Gulf Resources and their respective insurance carriers shall not be dismissed or otherwise affected by the dismissal with prejudice of the Superfund action and the judgment dismissing Civil No. 83-3161 as to these parties shall so reflect.

G. FAILURE TO APPROVE BY COURT

If for any reason the court in Civil No. 83-3161 should fail to approve this Settlement Agreement and enter judgment as stated above within sixty (60) days of the execution hereof, this Settlement Agreement shall be of no force or effect and the terms hereof cannot be used as evidence in any litigation.

H. MISCELLANEOUS

The State agrees that upon reasonable notice and time to comply, it will provide the Companies the opportunity to inspect and copy all records accumulated in this case desired by the Companies for use in any other judicial or administrative claim or for any other purpose, except those that are subject to privilege, confidentiality, or covered in any manner by confidentiality manuals or regulations. This does not mean, however, that the Companies are waiving any right they may have to obtain all documents pursuant to rules of discovery and applicable laws.

I. AUTHORITY

Each party represents and warrants that it has the authority to enter into this Settlement Agreement and to take all actions provided for herein and that no further action or authorization of any nature is required.

J. SUCCESSORS AND ASSIGNS

This Settlement Agreement is binding upon the parties hereto and their respective successors and assigns, and shall inure to the benefit of the parties hereto and their respective employees, officers, general and limited partners, directors, agents, representatives, successors, administrators and assigns.

K. ENTIRE AGREEMENT

1. This Settlement Agreement and the Exhibits hereto contain the entire agreement between and among the parties.

This Settlement Agreement supersedes and cancels all prior agreements, understandings and discussions among the parties hereto concerning any of the matters contained herein. Any such prior agreements, understandings or discussions between or among the parties hereto concerning any of the matters contained herein, whether in writing or otherwise, shall have no force or effect upon or after the date of the execution of this Settlement Agreement. Nothing herein shall serve to invalidate any pre-existing permits the Companies may have been issued by relevant regulatory authorities nor shall this agreement cancel any pre-existing agreements unrelated to the Covered Matters which the Companies may have entered into with the Idaho Department of Health and Welfare.

2. This Settlement Agreement cannot be modified except in writing and with the consent or agreement of all the parties hereto.

3. The Recitals are a part of this Settlement Agreement and are hereby incorporated herein and made a part hereof as if set forth in full.

L. SPECIFIC PERFORMANCE

The parties agree that in the event of the breach by any party of any of the terms of this Settlement Agreement, the non-breaching or aggrieved party or parties may commence an action for specific performance of the terms and conditions hereof in addition to any other legal or equitable remedies

that may be available. The parties hereby consent to the jurisdiction of the United States District Court for the District of Idaho for the sole and exclusive purpose of adjudicating any action so commenced to enforce the terms of this Settlement Agreement. The parties further agree that the prevailing party or parties in any such action shall be entitled to the costs and expenses, including reasonable attorneys fees, incurred by it or them in connection with such an action.

M. NOTICES

All notices required or desired to be sent pursuant to this Settlement Agreement shall be in writing and shall be sent by certified mail, return receipt requested, addressed to the respective parties as follows, or at such other addresses as any party may designate by written notice:

1. State of Idaho
   Office of the Attorney General
   Statehouse, Room 210
   Boise, ID 83720

2. Gulf Resources & Chemical Corporation
   Attn: Vice President and General Counsel
   99 High Street, Sixteenth Floor
   Boston, MA 02110

3. Pintlar Corporation
   P.O. Box 2199
   Coeur d'Alene, ID 83814

4. BH Properties, Inc., General Partner
   Bunker Limited Partnership
   P.O. Box 29
   Kellogg, ID 83837

5. Sunshine Mining Company
   815 Park Blvd., Suite 100
   Boise, ID 83702

6. Coeur d'Alene Mines Corporation
First Interstate Plaza
505 Front Avenue
Coeur d'Alene, ID 83814

7. ASARCO, INCORPORATED
P.O. Box 440
Wallace, ID 83873

IN WITNESS WHEREOF, the parties hereto have signed this Settlement Agreement on the date first above written.

STATE OF IDAHO

By _____
John V. Evans, Governor

By _____
Jim Jones, Attorney General

GULF RESOURCES & CHEMICAL CORPORATION

By _____
Vice President

BUNKER LIMITED PARTNERSHIP
By BH Properties, Inc., General Partner

By _____
President

SUNSHINE MINING COMPANY

By _____
Vice President

COEUR D'ALENE MINES CORPORATION

By _____
President

ASARCO, INCORPORATED

By _____
Vice President

PINTLAR CORPORATION

By _____
President

EXHIBIT "A"

RECOMMENDED PROJECTS

A. Heavy Metal Project (the area generally described as being within a four-mile radius from the lead smelter main stack.)

The parties recognize that heavy metals and other pollutants exist in the above-described area. The existence of these pollutants may be detrimental to natural resources and may also have adverse health effects in the above-described area. While the parties lack certainty regarding the appropriate measures to restore natural resources and concomitantly assist in the amelioration of health concerns, the following measures may be appropriate:

1. Reconditioning, stabilization, or replacement of contaminated soil.
2. Revegetation of barren areas to control wind-blown dust and protect air quality.

The amount to be expended on this project shall be approximately the sum of $550,000.00, but said expenditures for this project shall not exceed $550,000.00.

B. The projects listed below are located between Mission Flats and Wallace on the Coeur d'Alene River and were selected to accomplish the following:

(1) Stabilization of the river channel to develop a natural meandering river channel providing for energy dissipation

and fish habitat, to avoid erosion of tailings and subsequent degradation of surface water and ground water by their contribution to bed load of surface water and dissolved metals concentrations, and to provide for natural redevelopment of fish and wildlife habitat.

(2) Establishment of vegetation along the river channel and control of meandering of the channel in selected areas to provide increased wildlife habitat and improve aesthetic values.

(3) Control of windblown dust from exposed tailings areas to prevent air quality degradation and other adverse effects.

The projects are listed in order of the parties' belief as to relative importance with the project ranked most important appearing first. In the event the Trustees determine that the available funds are insufficient to complete all the projects, they may in their discretion eliminate projects of lower priority. If after all projects listed are completed funds remain in the Trust Fund, the Trustees may use their discretion to cause the funds to be spent for other projects not listed above which they deem beneficial, but in the area of the drainage of the Coeur d'Alene River and its tributaries, and preferably in Shoshone County.

The parties agree that the projects are recommendations only, and the Trustees shall have the discretion to carry out

different work, so long as any work performed is in accordance with state and federal law and is within:

1. Smelterville Flats (1.75 Miles; the area generally bounded on the north by the South Fork Coeur d'Alene River, on the east by the Smelterville/Interstate 90 Exit, on the west by Pine Creek mouth and on the south by Highway 10.)

(a) Riprap 1.75 miles of the south river bank to control tailings erosion and to stabilize and maintain a natural meander pattern.

(b) Proceed with revegetation project of barren areas within the above-described boundaries to control windblown tailings and protect air quality. Revegetation may be accomplished through reconditioning and replacement of soils and planting grasses, legumes, shrubs, and coniferous and deciduous trees, according to probabilities of success.

2. Bunker Hill Complex Area (the general area of the Bunker Hill CIA complex in Kellogg)

Options for control measures in the event of excessive outflow of pollutants from the CIA site include:

(1) installation of grout curtain;

(2) installation of pump back-systems;

(3) sealage with liner;

(4) seeding or covering portions as necessary and feasible; or

(5) a combination of 2 or more of the above options;

(6) other appropriate measures.

3. River Channel Stabilization Between Kellogg and the Confluence of the Coeur d'Alene River (approximately 7 miles)

(a) Employ measures described in 1(a) [Smelterville Flats] where necessary and appropriate.

4. Stabilization of South Fork Tributary Drainages

The tributary drainages to the South Fork may also be in need of stabilization to control erosion and rehabilitate water quality and fish and wildlife habitat. Possible areas could include Government Gulch, Bunker Creek, Milo Creek, Deadwood Gulch, Grouse Gulch and Pine Creek.

(a) Employ rehabilitative revegetation measures similar to those described in 1(b) [Smelterville Flats] where necessary and appropriate.

(b) Installation of sediment dams may provide an appropriate interim measure.

(c) Dedication of money to a tree farm-type operation may be advisable given the quantity of recommended revegetation.

5. Cataldo/Mission Flats (The area west of Cataldo Mission, bounded on the south by the Coeur d'Alene River, and on the north by Interstate 90.)

(a) Riprap selected portions of 1000 feet of north river bank in the vicinity of the log dump to control tailings erosion.

(b) Revegetate approximately 100 acres of barren sand dunes to control windblown tailings to rehabilitate air quality and improve aesthetics.

6. Elk Creek (0.4 miles; the appropriate areas lying adjacent to the South Fork Coeur d'Alene River, bounded on the west by the mouth of Elk Creek and on the east by the mouth of Big Creek.)

(a) Relocate tailings above water line and stabilize.

(b) Reshape river channel for water control, energy dissipation and to provide for fish habitat.

(c) Riprap 700 feet of river bank for stabilization.

(d) Revegetation of area to reduce erosion, to develop a riparian zone, and to improve aesthetics.

(e) Place instream structures to provide fish habitat.

7. Big Creek (1.0 miles; the area generally bounded on the west by the Big Creek/Interstate 90 Exit, on the east by Polaris Gulch and on the north by Interstate 90.)

(a) Perform rehabilitation measures as generally described above for Elk Creek Project.

8. Osburn (0.6 miles; the area generally bounded on the west by the junction of Interstate 90 and the South Fork, on the south by Interstate 90, on the east by the mouth of Terror Gulch, and on the north by the hillside base.)

(a) Perform rehabilitation measures as generally described for Elk Creek Project.

TRUST FUND AGREEMENT

PINTLAR CORPORATION, a Delaware corporation, formerly The Bunker Hill Company; GULF RESOURCES & CHEMICAL CORPORATION, a Delaware corporation; BUNKER LIMITED PARTNERSHIP, an Idaho limited partnership; SUNSHINE MINING COMPANY, a Delaware corporation; COEUR d'ALENE MINES CORPORATION, an Idaho corporation; and ASARCO, INCORPORATED, a New Jersey corporation (hereinafter sometimes collectively referred to as the "Companies"), hereby make a Declaration of Trust according to the terms and conditions which follow:

1. This Declaration of Trust is made for the use and benefit of the State of Idaho pursuant to that certain Settlement Agreement made between the State and Companies dated the ____ day of _____, 1986, a copy of which is attached hereto as Exhibit "A," and in satisfaction of that certain judgment made and entered by the United States District Court for the District of Idaho in the case entitled State of Idaho v. The Bunker Hill Company, Gulf Resources & Chemical Corporation, John Does 1 to 500, Civil No. 83-3161, on the ____ day of _____, 1986, a copy of said judgment being attached hereto as Exhibit "B."

The Companies agree to pay to the Trustee named below the aggregate sum of FOUR MILLION FIVE HUNDRED THOUSAND DOLLARS ($4,500,000.00) in five (5) annual installments of NINE HUNDRED THOUSAND DOLLARS ($900,000.00) each, the first of which shall

be made by the Companies on the date provided in the Settlement Agreement. Thereafter, each of the four (4) subsequent installments shall be made by the Companies in each of the next four years on or before the anniversary date of the dismissal with prejudice of Civil No. 83-3161. The obligations of each of the Companies for its respective part of the settlement amount and of each installment payment thereof shall be as set forth on Exhibit "C," attached to this Declaration of Trust.

3. All monies paid in compliance with the Settlement Agreement shall be used solely and exclusively to fund and complete the projects described above in this Exhibit "A" to the Settlement Agreement or such different projects as the Trustees may choose to undertake and complete; provided that, if the Trustees choose to undertake and complete different projects, such projects shall be consistent with state and federal law. Any labor or services required to be performed in connection with the completion of the projects shall to the fullest extent possible be performed by residents of Shoshone County, Idaho.

4. There shall be seven (7) Trustees of the Trust Fund who shall be authorized and empowered to administer the Trust Fund and expenditure of the Trust Funds so as to undertake and complete the projects listed above or different projects within the discretion of the Trustees but in accordance with the Settlement Agreement and this Declaration of Trust. The

Trustees shall be comprised of the Governor of the State of Idaho, the Attorney General of the State of Idaho, the Chairman of the Board of Commissioners of Shoshone County, two (2) persons to be appointed by the majority vote of the above three Trustees, and two (2) persons to be designated by the Companies.

5. The Trustees are authorized to employ a qualified engineering firm or other technical advisors as the Trustees deem necessary to supervise the undertaking and completion of the projects contemplated by this Declaration of Trust and to insure that all actions taken in connection therewith are in accordance with state and federal law; provided that, as stated in the Settlement Agreement, the costs and expenses of engineers and other technical advisors shall be paid as provided in the Settlement Agreement.

6. The Trustees are authorized to invest any Trust Funds that are not in use in accordance with the "prudent man" standard, or if in the opinion of the Attorney General the law of the State of Idaho so requires, then in accordance with the provisions of Section 67-1210, Idaho Code. To the extent income is available from such investments, it may be used to pay the administrative expenses of the Trust Fund and of any project. However, to the extent such income is not available, administrative expenses of the Trust Fund and of any project shall be paid as provided in the Settlement Agreement.

7. If the Attorney General of the State of Idaho concludes that the applicable law of the State of Idaho so requires, then

the Treasurer of the State of Idaho may be designated by the Trustees as Custodian of the Trust Funds pursuant to the provisions of Sections 67-1301 and 67-1209, Idaho Code.

8. At the end of each calendar quarter subsequent to the date of execution of this Declaration of Trust, the Trustees shall cause a brief report to be rendered to the Companies as to the use of the Trust Funds and the Trustees' plans for the future use of said funds.

IN WITNESS WHEREOF, the parties hereto have signed this Declaration of Trust on the date shown below.

DATED _____.

PINTLAR CORPORATION

By_____
President

GULF RESOURCES & CHEMICAL CORPORATION

By_____
President

BUNKER LIMITED PARTNERSHIP
By BH Properties, Inc., General Partner

By_____
President

SUNSHINE MINING COMPANY

By_____
Vice President

COEUR d'ALENE MINES CORPORATION

By_____
President

ASARCO, INCORPORATED

By_____
Vice President

Exhibit A

The foregoing Trust is hereby accepted.

DATED _____.

STATE OF IDAHO

By_____
Governor

By_____
Attorney General

EXHIBIT "B"

OBLIGATIONS OF EACH COMPANY
FOR ITS RESPECTIVE PAYMENT
OF THE SETTLEMENT AMOUNT

Company	Total Amount	Initial Payment and Annual Contribution
Gulf Resources/ Pintlar	$2,939,000	$ 587,800
Asarco	783,000	156,600
Sunshine	509,000	101,800
Bunker Limited	175,000	35,000
Coeur d'Alene Mines	94,000	18,800
TOTAL	$4,500,000	$ 900,000

ATTACHMENT 2

IDAHO STATE NATURAL RESOURCE DAMAGE TRUST FUND
TRUSTEE ACTION PLAN 1994 - SOUTH FORK COEUR d'ALENE RIVER

INTRODUCTION

In 1986, a settlement was reached between the State of Idaho and several mining companies who were the subject of a Comprehensive Environmental Response, Compensation Liability Act (CERCLA) State Natural Resource Damage Assessment (NRDA) lawsuit, State of Idaho vs. The Bunker Hill Company, et. al., Civ. No. 83-3161. The Settlement amount was $4.5 Million. The Settlement document (U.S. District Court) provided the method for appointment of seven Trustees and, in Exhibit "A", recommended specific remediation projects. General conditions outlined in the Settlement document included geographic limits for remedial activities, encouraged local hire, and stated that the fund principal could not be used for administration of the fund or for additional studies. As of January 1994, the fund balance was at $5.5 million.

In a 1992 document, the general objective of the Trustees was stated as:

"Restoration, to the maximum practicable extent, of water quality and aquatic habitat in the Coeur d'Alene River basin through limitation of the transport of dissolved- and solid-phase metallic contaminants originating from mining-related sources to and within the South Fork of the Coeur d'Alene River and its tributaries."

The purpose of this Trustee Action Plan, 1994 is to present the current plan developed by the Trustees to accomplish the maximum practicable restoration with the trust fund resources. The current plan was developed by considering the legal and regulatory constraints currently in place and other restoration projects currently planned or anticipated by other organizations. As those constraints and projects evolve, the plan will be modified to ensure that restoration accomplished by the fund is maximized. An annual review of this plan document is anticipated beginning in January, 1995.

SITE BACKGROUND

The South Fork of the Coeur d'Alene River (SFCDR) and its tributaries were the location for hundreds of historic mining operations. Large quantities of mine wastes have been discharged to the river since mining activities began in the late nineteenth century. Significant filling of the main channel of the SFCDR resulted in deep mixed layers of alluvium and tailings spread over much of the valley floor which contributed to significant alteration of the river course and the resulting deterioration of its system. Historic mean flows recorded suggest a significant surface-water/ground water interaction. The river has also been channelized to accommodate population centers, railroad lines, and roads including an Interstate highway, which runs parallel to the river the entire length of the SFCDA. Various dredging and reprocessing activities contributed to the severe lack of habitat and riparian vegetation.

The Bunker Hill Superfund Site, which covers 21 square miles of the lower SFCDR basin was placed on the National Priorities List in September 1983. Remedial Investigations to characterize the site,

initiated in 1984 and continuing until 1992, resulted in the production of approximately 200 documents describing the environmental conditions at the site in detail. Feasibility Studies were done to develop a site-wide cleanup plan using the information developed from the site characterization. These efforts culminated in two Records of Decision (ROD) issued in 1991 and 1992 by the Environmental Protection Association (EPA) and the State of Idaho which describes the plans for cleaning up the Bunker Hill Superfund Site. Remediation off the site was also considered because of the effects of upstream problems on the site cleanup. A Bunker Hill Remedial Investigation/Feasibility Study (RI/FS) Technical Memorandum "Post-Remediation Water Quality Projections for Feasibility Study Alternatives 2, 3, and 4 in December 1991 noted that water entering the Site did not meet aquatic life criteria. Upstream remedial measures would be required to achieve acceptable water quality in the SFCDR at the Bunker Hill Site. The magnitude of upstream loading was illustrated by a figure in this document showing "Combined Metal Loadings". The need for upstream cleanup is also reflected in the 1992 ROD (EPA 1992) on page 6-11:

> "Remedial actions at the Site can have a significant beneficial impact on the re-establishment of native terrestrial and aquatic communities within the Site and are expected to contribute to improvements to water quality in lower reaches of the Coeur d'Alene River. Establishment of vegetative cover in areas impacted by past mining, milling, and smelting operations; control of wind and water erosion; and minimization of metals loading to surface and ground water will enhance recovery of the local environment.
>
> However, remediation of the Site will not restore the Coeur d'Alene Basin, as a whole, to a condition that existed prior to the advent of mining in the region. Remediation of the Bunker Hill Site is only one component of what will be a basin wide approach to addressing impacts from decades of mining, forestry, agriculture and development in the Coeur d'Alene Basin. Recently, federal, state, tribal, and local interests have held discussions to build upon past efforts in understanding basin environmental problems in order to develop a Coeur d'Alene Basin Restoration Project. Successful efforts by groups involved, coupled with remedial actions at the Site, have the potential to enhance recovery of many of the environmental features of the Coeur d'Alene Basin that have been compromised over the past 100 years"

The Coeur d'Alene Basin Restoration Project's Committees reached consensus on a general remediation plan over a two year period. The plan is based on a watershed approach to ecosystem restoration with the key components of reducing metals contamination and initiating activities in the headwaters. The Basin Steering Committee chose activities in the East Fork of Nine Mile Creek as the highest priority for initial activities. The draft Basin Priority List (Appendix A) reflects this priority.

Restoration activities on the SFCDR are complicated by the fact that the problems associated with upstream and tributary mine wastes and sediments are not well understood in detail and have not been characterized in a comprehensive manner as was done on the Superfund Site. It is assumed that contamination is the rule rather than the exception. Because of the magnitude and pervasiveness of the contamination, a "total cleanup" to pre-mining conditions would be very difficult (if not impossible), expensive and would require a great deal of time. In order to proceed with immediate restoration, it is necessary to make judgements and consider projects that provide the maximum cleanup at reasonable costs while minimizing the potential for recontamination from unremediated areas.

For these reasons, the geographic locations of the recommended projects in the 1986 Settlement

document, Exhibit A, do not fully conform to current thinking on how to proceed with restoration activities. A general consensus has been reached by groups involved in the Basin Restoration Project that coordinated activities in the headwaters offer the most promise because the remediated areas will not be at risk to potential recontamination by flood events. A source reduction strategy which focuses on non-permitted discharges from historic properties has also been proposed by the EPA.

TRUST FUND BACKGROUND

The 1986 settlement document specified that the Governor, Attorney General of Idaho, and Chairman of the Shoshone County Commissioners would be Trustees for the fund together with two trustees representing local communities and two trustees representing the mining companies. The local community and mining company Trustees were appointed by Governor John Evans in 1987 but the fund was not active until 1991 when the Trustees commissioned two water sampling programs in the upper river system above the Superfund Site in order to better characterize the nature and extent of the upstream contamination.

Done during high flow, Spring 1991 (MFG 1991), and low flow, Fall 1991(MFG 1992a), the results of these sampling programs increased the understanding of metals loading to water quality upstream of the impacts of the Superfund Site. These data, when used with historical data, were judged to be adequate to define the general extent and nature of degradation in the upstream drainage. The results of the sampling events identified three areas of concern: unpermitted point sources from historic works, non-point sources caused by ground water and tailing interaction, and tailings throughout the system in constant resuspension as a continual pervasive non-point source of metals loading to surface water.

In 1992, the Trustees commissioned the preparation of two reports. The Upper South Fork Coeur d'Alene Basin Remedial Action Selection Report (MFG 1992d) identified potential remedial action technologies. The Upper South Fork Coeur d'Alene River Basin Remedial Action Prioritization Report (MFG 1992e) identified areas above the Bunker Hill Superfund Site which appeared to have the highest priority in requiring remediation. Analyses done for the Prioritization Report indicate that the largest source of contamination to both surface and ground water is the accumulation of mixed mine wastes in the beds and banks throughout the SFCDR system.

The Trustees selected the first project for remediation in late 1992. This project included construction of tailings containment along the main stem of the SFCDR near Elizabeth Park. An engineering design was prepared and permit applications were submitted to the Idaho Department of Water Resources and the US Army Corps of Engineers. The project, as originally proposed, included relocation of eroding tailings into an area above the normal high water level and behind a levee. After reviewing public and agency comments, the project was redesigned to include a modified levee configuration and added stabilization, habitat and vegetation components. Permits were obtained and the project will begin construction in August 1994.

In the Spring of 1993, the Trustees embarked on a more detailed planning process, recognizing that the fund was a limited resource and that a more complete restoration of water quality and aquatic habitat in the upper basin would be accomplished by coordinating Trustee activities with those of the Basin Restoration Project to accomplish additional remediation by using a variety of funding sources.

As the first step in the planning process, the Trustees reviewed the goals from the key planning documents addressing to natural resource restoration on the SFCDR. The Trustee Coordinator participated in dozens of meetings and work groups considering remediation projects and unresolved issues. As the second step in the planning process, the Trustees identified site-specific projects.

THE 1993 INVENTORY

In 1993, the Trustees completed an inventory of potential remediation projects along the SFCDR. A survey was conducted to identify specific sites where the general response actions identified in the Remedial Action Selection Report (MFG 1992d) could be applied to contribute to the restoration of water quality and aquatic habitat in the SFCDR. The survey was not intended to be all-inclusive since it was agreed that the cost for complete restoration of the basin would far exceed the fund resources. A team was assembled including members from an environmental consulting company, industry, and government. The team agreed to present a good range of projects that could be evaluated to select appropriate sites to be addressed by fund resources. In most cases, a preliminary conceptual plan for remediating each site was developed. Detailed formal evaluations of technical alternatives were not done. These are best done in the more detailed engineering stage of each project when adequate information is available. Only conventional proven technology was considered because it was felt the settlement agreement's prohibition of conducting further studies precludes the use of speculative technologies that may have large research and development components. At some sites, data gaps were identified that make it difficult or impossible to select a specific remediation technology at this time. At these sites, filling data gaps is the first priority. Thirty-eight (38) sites for potential remediation were identified.

A series of informational articles were published and brief presentations of the planning cycle were made in 1993. After the completion of the Inventory document, 37 copies were distributed to agencies or individuals who had interest or might comment. A concerted effort was made to solicit comments on the Inventory document. Trustees were advised of all public or agency comments at the time they were received. The public should be informed that the projects listed by the Trustees may or may not reflect a priority listing for others to follow. A copy of the Basin Priority listing and timetable is attached as Appendix A.

THE 1994 ACTION PLAN

The Trustees then evaluated the 38 sites identified for potential remediation and selected ten (10) of these sites to receive some action using the resources of the fund. These ten (10) sites were then prioritized to identify the appropriate level of effort to be expended on each site during 1994.

A partial listing of the factors influencing the Trustee decisions includes:

- Consideration of all applicable information on the state of the river system, including water quality, sediment transport, habitat, and vegetation,
- Consideration of all known proposed or potential sites for remediation projects.
- The anticipated effectiveness of each proposed activity to restore water quality and

aquatic habitat in the Coeur d'Alene River basin.

- The feasibility of each proposed activity based on technical and economic constraints.
- Regulatory constraints and potential long-term liabilities that could be incurred by the State or the Trustees such as continuing operating and maintenance requirements after initial construction,
- Review of all applicable planning documents, historic and current,
- Review of public and agency comments obtained during the development of the Basin Group Prioritization and other planning documents, the Elizabeth Park Project permitting process, and the Trustees planning cycle,
- The potential for cooperative efforts, and projects in areas where it is unlikely that some other party will accept responsibility for cleanup,
- The possibility that financing from other entities may be more appropriate to address a specific site.
- The interest and cooperation of owners of property,

The ten (10) sites selected are:

1. The Elizabeth Park Site,
2. McCarthy to Dayrock Site in the Nine Mile drainage,
3. Miners Union Cemetery Site in the Nine Mile drainage,
4. Lower East Fork Tailings in the Nine Mile drainage,
5. Lower Canyon Creek Flats in the Canyon Creek drainage,
6. Canyon Silver/Formosa Site in the Canyon Creek drainage,
7. Dayrock to the Dobson Pass Road Site in the Nine Mile drainage,
8. The Elk Creek Pond Site,
9. The Osburn Flats Ground water Site,
10. The Milo Creek Diversion Site.

The locations of these sites are shown on Figure 1.

The specific site projects were grouped into five (5) area projects that are:

1. The Nine Mile Drainage Projects,
2. The Lower Canyon Creek Projects,
3. The Elk Creek Pond Site and Elizabeth Park Site Projects,
4. The Milo Creek Diversion Site project,
5. The Osburn Flats Ground water Site project.

Discussions of the specific areas follows.

The Nine Mile Drainage Projects

Ten (10) sites were listed in the Inventory for the Nine Mile Drainage. Four (4) of these are being addressed by other agencies and organizations. In the 1993 construction season projects were initiated to isolate tailings from the East Fork of Nine Mile at the Interstate Mill, Rex Mill, and Success Mill Sites. Ongoing monitoring will establish the effectiveness of the remedial measures over a several year period. Another project, the remediation of tailings on the banks and bottom of the East Fork of Nine Mike Creek between the Interstate and Success Mines, was judged to be very difficult to accomplish for a limited benefit. Remediation of the flow from the Success Mine adits cannot be addressed by the Trustees at this time because of the permitting requirements for a point source discharge.

The remaining four (4) projects, the Lower East Fork Tailings, the Dayrock to Dobson Pass Road, McCarthy to Dayrock, and the Miners Union Cemetery were selected for priority action by the Trustees. These are relatively simple projects involving removal and/or stabilization of historic tailings deposits along the banks of Nine Mile Creek and the East Fork of Nine Mile Creek. The Nine Mile Drainage was identified by the Basin Group steering committee as the highest priority area for initial action. The projects in process at the Interstate, Rex, and Success areas will stabilize those areas thus protecting the downstream projects and limiting potential recontamination of the downstream sites during floods. The Nine Mile Drainage projects are also of moderate size and scope which, when accomplished, will allow evaluation of the effectiveness of this type of remediation. Continuing monitoring of Nine Mile Creek, which, during the 1991 sampling, had the highest concentrations of cadmium and zinc of any tributary to the South Fork of the Coeur d'Alene River above the Superfund Site, will demonstrate the metal loading reduction that can be expected from this type of project before it is necessary to commit much larger portions of the fund resource to similar, though larger, remediation sites elsewhere in the basin.

The trustees also placed a high priority on Nine Mile projects in part because of the opportunities for cooperative funding and concurrent projects.

Late in 1993, the Idaho Department of Environmental Quality (DEQ) applied for a grant from the USEPA 319 grant funding program to do part of the Lower East Fork Tailings Project. In December 1993 and January 1994, coordination meetings were held with key land owners and possible sponsors of 1994 projects on the Nine Mile Drainage. Preliminary agreements were reached that should allow cooperation to accomplish the design and permitting of the projects simultaneously. The following sites and sponsors were identified:

- The lower East Fork of Nine Mile tailings removal will be performed by the Idaho DEQ with matching funds from the Trustees and Hecla Mining Company while the BLM, the major landowner, will attempt to identify an expedited approval process;

- Remediation of the Dayrock to the Dobson Pass Road Site will be performed by Hecla Mining Company;

- The McCarthy to Dayrock and the Miner's Cemetery Tailing Removals will be

performed by the Trustees with a contribution from Hecla Mining Company; and

- The BLM has been asked to explore funding for continuing water management at the Rex Mill Site.

The successful siting of a repository to receive the removed tailings is a key component for initiating work in 1994. Several possible repository sites are being screened. A permit pre-application meeting will also be held to discuss the necessary stream channel alteration permits. Participants will include the U.S. Army Corps of Engineers and all interested parties who will review the final design and permitting. Such a meeting should allow the incorporation of design changes at an earlier stage in the process prior to actual permitting. The goal of this coordinated effort will be to remediate the streamside tailings along Nine Mile Creek and the lower east fork of Nine Mile Creek during 1994 and possibly 1995 while minimizing engineering and permitting costs.

The Lower Canyon Creek Projects

Seventeen (17) sites were listed in the Inventory for the Canyon Creek drainage. Most of the projects identified for the upper part of Canyon Creek have the potential for remediation by resources other than Trustee funds. Some of these projects have been started by private parties and others are in the planning stages. It will be necessary to allow time for these projects to develop before an accurate assessment can be made of the possible need for Trustee funding in this area. A coordinating group has been formed to facilitate cooperation in remediation planning for this area. The first Canyon Creek Coordinating meeting was held in January 1994 to discuss the status of present design documents and discuss the areas to be addressed by various entities.

Two lower Canyon Creek project areas are the Canyon Silver/Formosa area and the Lower Canyon Creek Flats area. Information generated during the 1991 Trustee sampling study suggests that this area is the source of 250 pounds of zinc per day during high flow and 120 pounds of zinc per day during low flow loading to Canyon Creek. These estimated loadings represent approximately 14% and 36% respectively of the estimated zinc loading in the SFCDR below Wallace. This area must be remediated if water quality in the SFCDR is to be significantly improved. There is currently no other clear source of funding for remediation at these sites, therefore the Trustees have initiated the information gathering and planning actions to begin developing a specific remedial action plan for this area. Options for remedial actions have been identified but more information must be obtained before a specific remedial action plan for these areas can be fully developed. At this point, it appears that the best option for remediation in these areas is a removal of the tailings in the lower area to a repository on or near the site coupled with stream channel rehabitation work and the construction of a sediment trap in the Canyon Silver/Formosa area. Actions in these two areas are interdependent and that planning should include both sites. Additional information regarding the extent and nature of the tailings deposits in the lower flats area is needed. A survey to gather this information is planned for 1994. This information will then be used to further develop the site remedial action plan. A cooperative planning effort has been initiated for the Canyon Creek drainage, and multiple coordinated activities, over several years, can be expected.

The Elk Creek Pond Site and Elizabeth Park Site Projects

The Elk Creek Pond Site, between Osburn and Kellogg, is the location of deposits of exposed tailings in an area used by children for play. The banks of this locally popular "swimming hole" consist in part of tailings containing relatively high lead concentrations. The Trustees have selected this as a priority site for remediation in 1994 in part because of the health risk to children utilizing the area for play. Information is being gathered regarding property ownership and previous sampling in the area. Additional sampling may have to be done. The most appropriate remediation for this area appears to be a partial removal of tailings with replacement by clean sand-fill and general revegetation in the area. A remedial design will be developed, permits obtained, and remediation done.

The Elizabeth Park Site is located along the south side of the SFCDR at the mouth of Gold Run Gulch. A relatively thick deposit of historical jig tailings has been actively eroding into the river for several years. An engineering design was developed and permits were obtained to construct a floodway levee along the riverbank in this area to stop the erosion. Tailings located on the river side of the proposed levee will be moved in back of the levee. Revegetation of the riparian zone and construction of aquatic habitat features are also included in this project. A contractor has been selected and construction is scheduled to start in July or August of 1994.

The Milo Creek Diversion Site Project

The Milo Creek Diversion Site, located above Wardner in and above the Superfund Site, is an area where surface water enters the Bunker Hill mine workings and becomes contaminated. Construction of diversion structures to reduce the volume of water entering the mine would likely reduce the volume of contaminated water discharging from the Kellogg Tunnel. However, diverting this water back into Milo Creek would exacerbate potential flooding problems in Wardner associated with the deteriorating stream channel structures. Wooden culverts constructed long ago are failing and have become partially filled with alluvium thus reducing their capacity to pass a flood. Planning by Welch-Comer Engineers is being done to obtain funds for repair or replacement of a floodway stream channel through Wardner. The Trustees have begun planning to coordinate the design, permitting, and construction of the Milo Creek diversion with that of the Wardner floodway.

The Osburn Flats Ground water Site Project

The Osburn Flats are also a very large source of loading to the SFCDR. The Trustees 1991 study indicated that this area contributed approximately 232 pounds of zinc per day during low flow and 1086 pounds of zinc per day during high flow to the SFCDR. However, the exact source of this loading is unclear. Additional information to better assess the actual ground water hydrology in the area should be developed to provide direction to further efforts. A limited ground water sampling effort in 1994 may provide a better understanding of the situation.

Additional Areas

The 1993 Inventory identified nine other projects along the main stem of the SFCDR. Three of these, The Smelterville Flats tailing removal, Smelterville Flats floodway, and the Government Creek channel, are located on the Superfund Site and appear to have other funding for remediation. The

Caladay dump should be remediated by the owner. Three others, the floodplain above Big Creek, Terror Gulch and Two Mile Creek should be stabilized and revegetated but this work should not be done until the upstream remediation is complete to stabilize the system there. These floodplain projects were included as probable projects in the Trustee Plans for 1996, 1997 and 1998. Two other projects, the Evolution Bridge tailings and the Silverton tailings, will require eventual remediation. These were included with others that may be identified as probable 1998-1999 Trustee projects.

Trust Fund Expenditure Plan

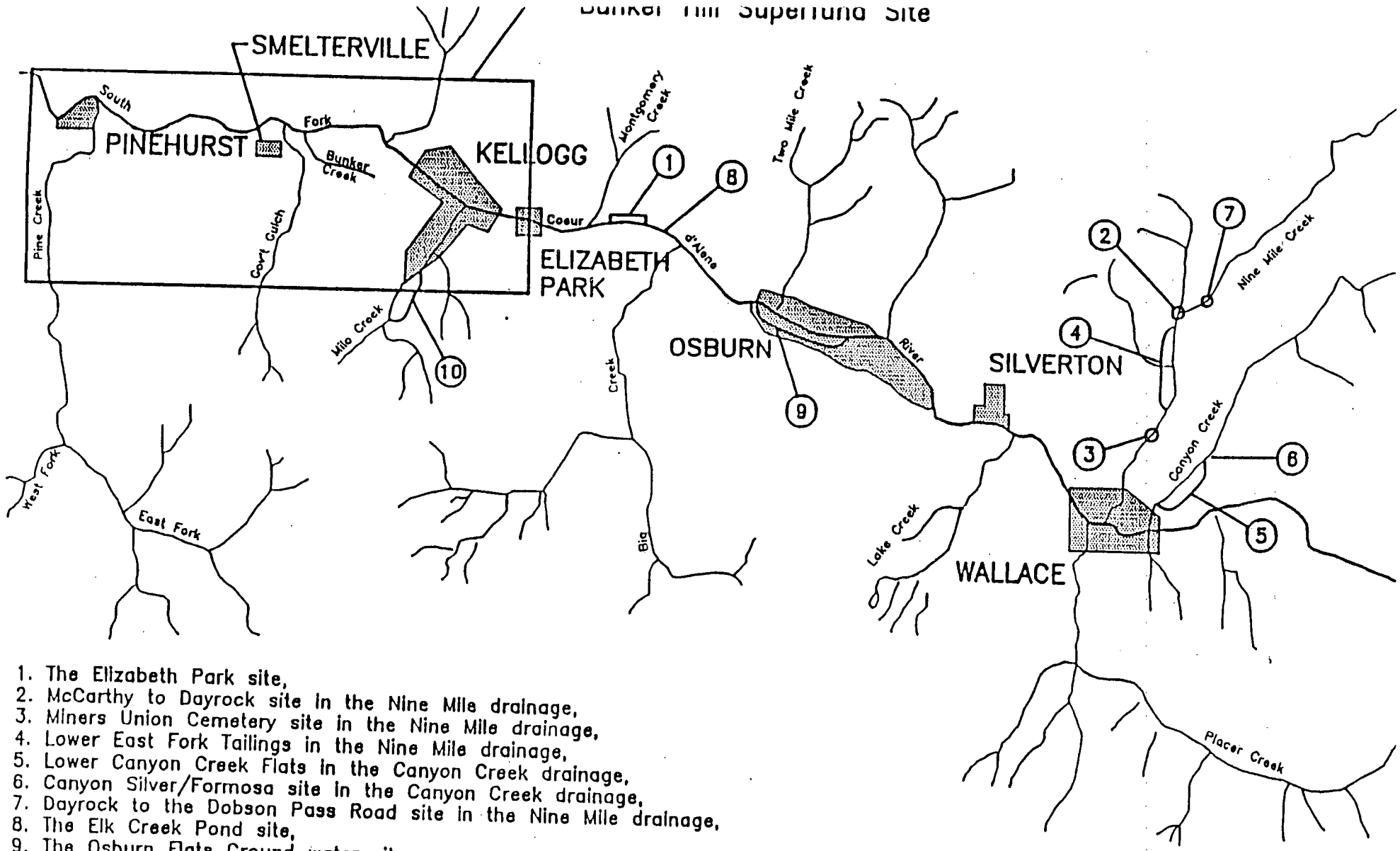
An overall Trust Fund expenditure plan was also prepared showing the resource and the foreseeable expenditures at this time. The cost estimates are uncertain, as they were prepared without the benefit of detailed engineering. However, the estimates are considered sufficient for general guidance purposes.

THE TRUST FUND RESOURCE

Balance: 1/94	$5,500,000
Estimated PRP's Contribution	$ 735,000
Estimated Interest Income	$ 220,000
TOTAL	$6,455,000

TRUST FUND EXPENDITURE PLAN 1994 -2000

Year	Project	Estimated cost
1994	Tailings Isolation Project at Elizabeth Park on the SFCDR	$ 300,000
1994	Tailings Removal and Restoration of Creek Channel	
	East Fork Nine Mile Cooperative Project: Matching Funds	$ 10,000
	Nine Mile Creek below Day Rock	$ 500,000
1994	Canyon Creek Tailings removal Pre-design	$ 50,000
1994	Tailings Removal and beach replacement at Elk Creek Pond	$ 75,000
1994	Milo Creek Diversion Planning	$ 10,000
1994	Osburn Ground Water Characterization	$ 25,000
1995	Removal and channel restoration near Formosa Mine Site in Canyon Creek Drainage	$ 500,000
1995	Milo Creek Diversion Planning	$ 10,000
1995	Osburn Ground Water Characterization	$ 25,000
1995 - 1996	Tailing removal and channel restoration at Canyon Creek flats near Woodland Park	$2,000,000
1996 - 1997	Clean water diversion of upper Milo Creek above mine workings	$ 530,000
1996 - 1997	Osburn Flats tailings removal or other activities to reduce ground water loading	$1,000,000
1997 - 1998	Osburn Flood Plain restoration and revegetation	$ 200,000
1997 - 1998	Big Creek Flood Plain restoration and revegetation	$ 200,000
1998 - 1999	Discrete tailings removal along SFCDR Flood Plain, and generic rehabilitation and revegetation	$ 440,000
	Subtotal Remedial Work	$5,875,000
1994 - 1999	Administrative Support	$ 580,000
	TOTAL	$6,455,000



1. The Elizabeth Park site,
2. McCarthy to Dayrock site in the Nine Mile drainage,
3. Miners Union Cemetery site in the Nine Mile drainage,
4. Lower East Fork Tailings in the Nine Mile drainage,
5. Lower Canyon Creek Flats in the Canyon Creek drainage,
6. Canyon Silver/Formosa site in the Canyon Creek drainage,
7. Dayrock to the Dobson Pass Road site in the Nine Mile drainage,
8. The Elk Creek Pond site,
9. The Osburn Flats Ground water site,
10. The Milo Creek Diversion site.

IDAHO STATE NATURAL RESOURCE DAMAGE TRUST FUND
1994 ACTION PLAN
TRUSTEE PROJECTS AND COOPERATIVE PROJECTS
LOCATION MAP

Figure 1

REFERENCES AND SUPPORT DOCUMENTS

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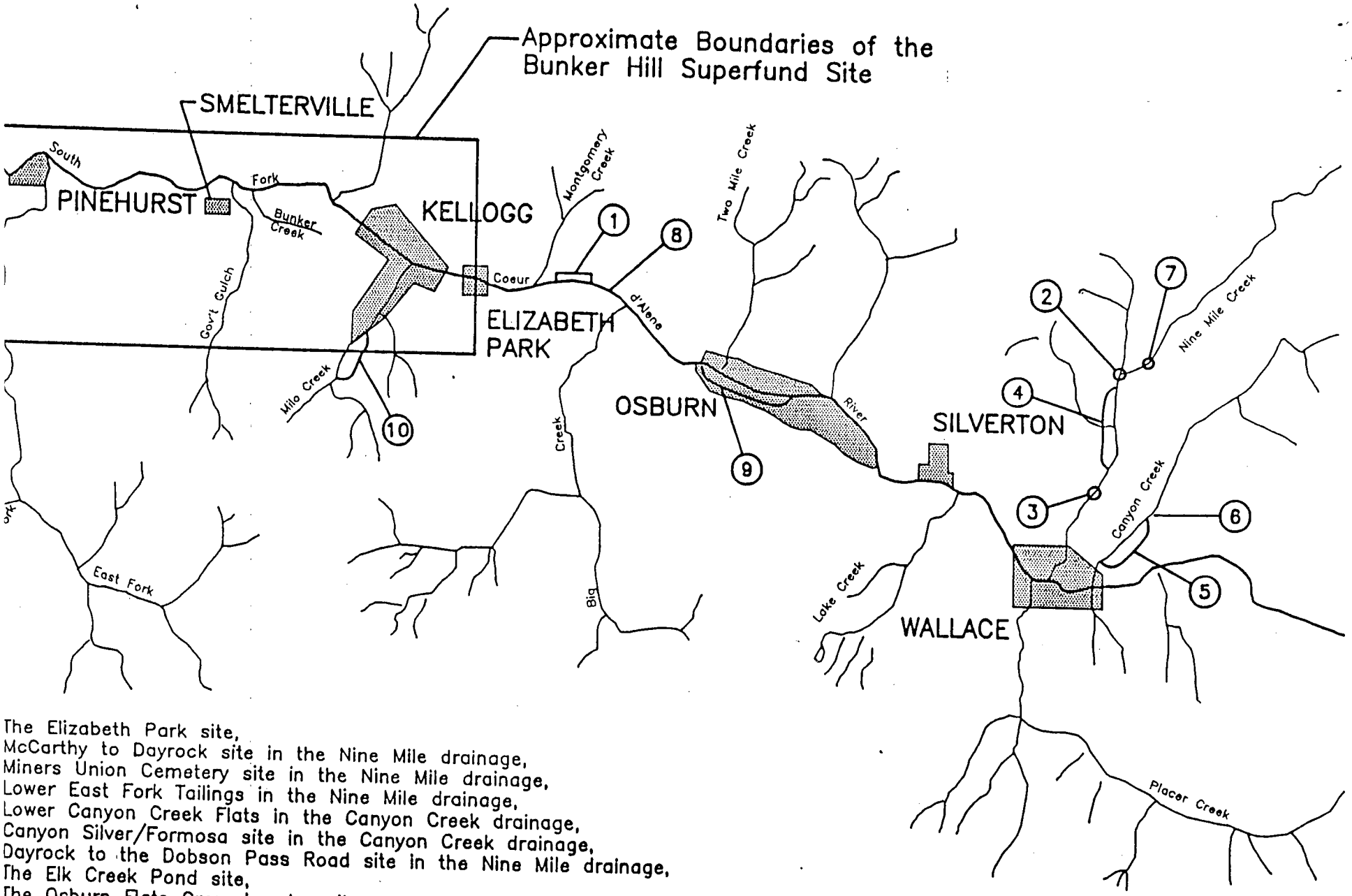

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Dayrock to the Dobson Pass Road site in the Nine Mile drainage,
The Elk Creek Pond site,
The Osburn Flats Ground water site,
The Milo Creek Diversion site.

HO STATE NATURAL RESOURCE DAMAGE TRUST FUND
)4 ACTION PLAN
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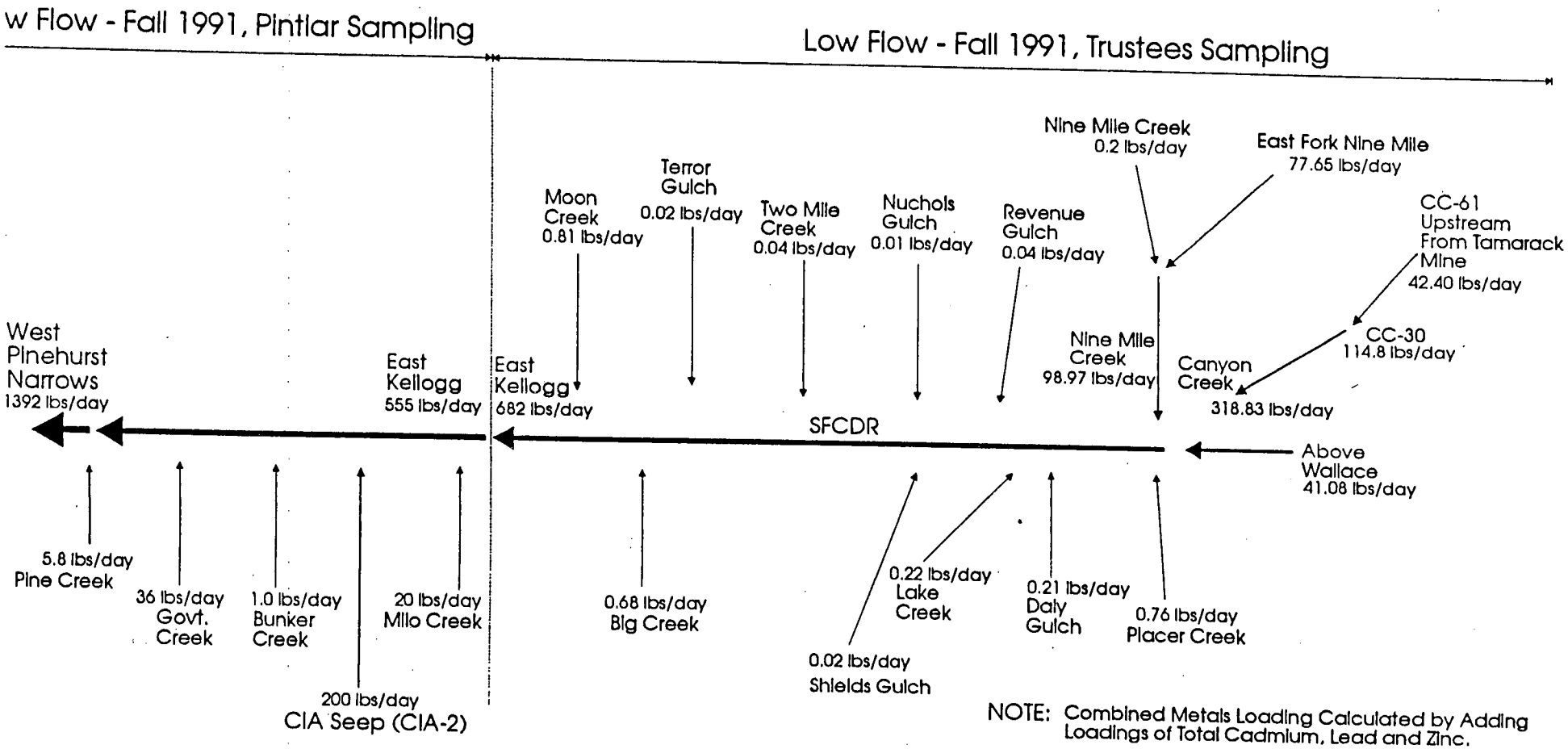
:ATION MAP

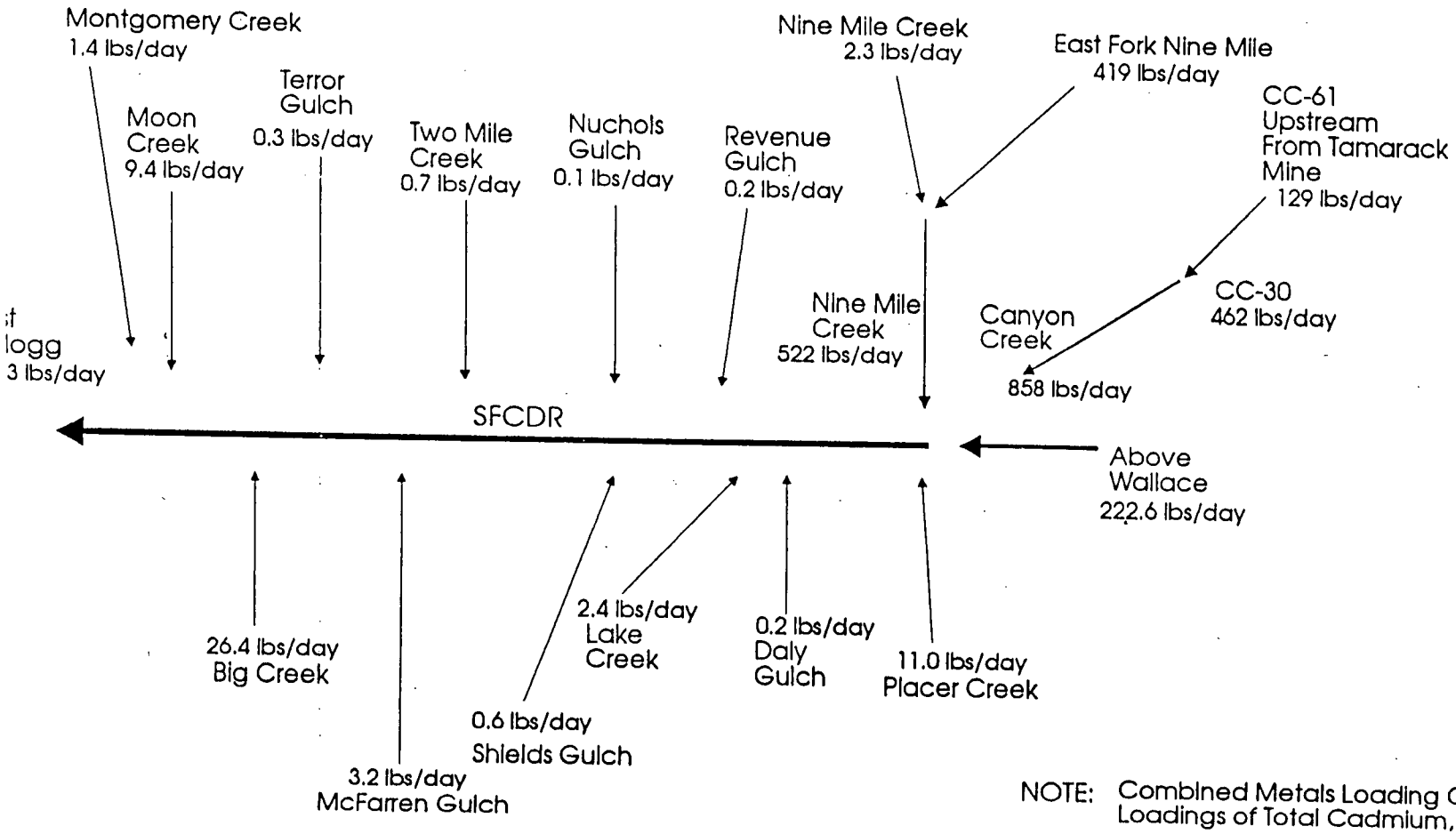
Low Flow Surface-Water Loading - Combined Metals Loading



NOTE: Combined Metals Loading Calculated by Adding Loadings of Total Cadmium, Lead and Zinc.

High Flow Surface-Water Loading - Combined Metals Loading

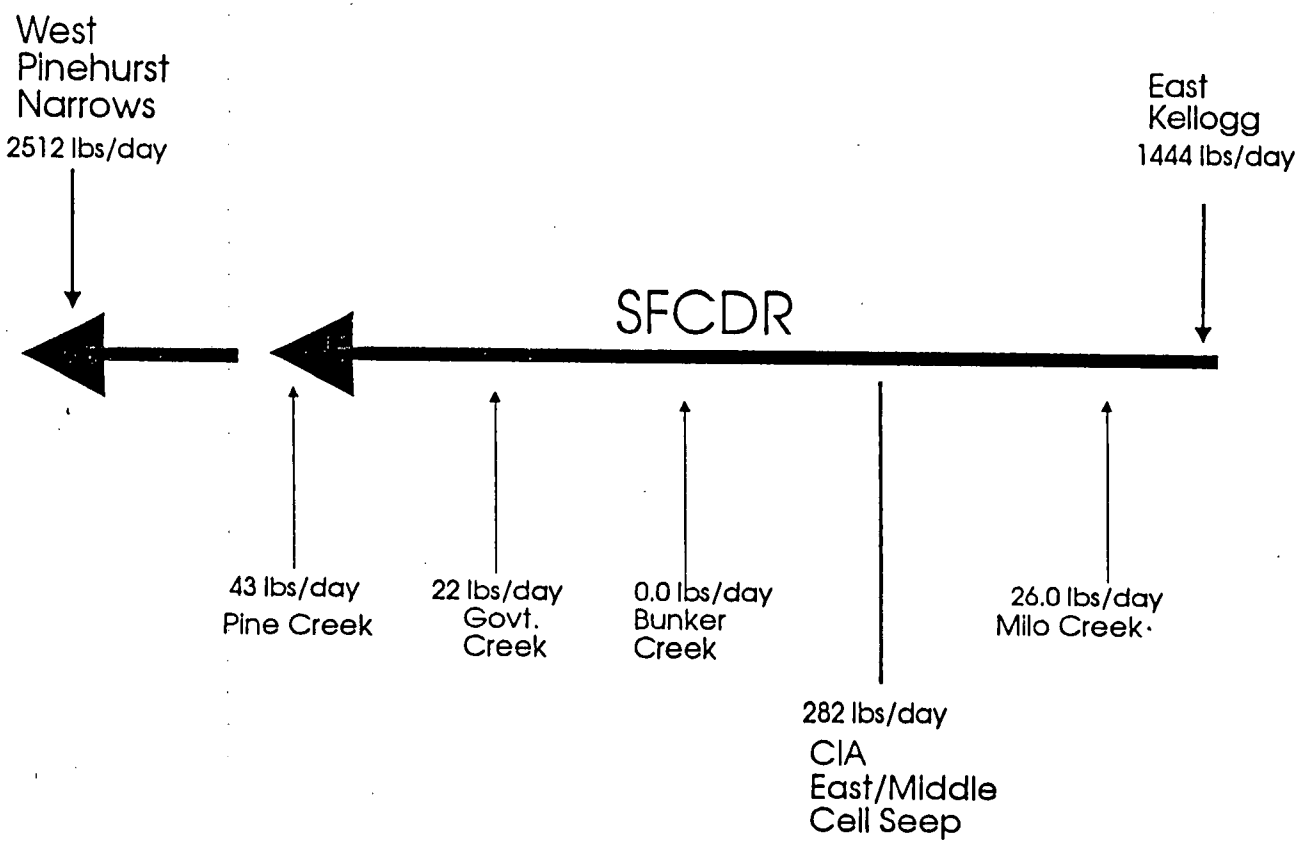
High Flow - Spring 1991, Trustees Sampling



NOTE: Combined Metals Loading Calculated by Adding Loadings of Total Cadmium, Lead and Zinc.

ligh Flow Surface-Water Loading - Combined Metals Loading

High Flow - Spring, May 1992, Pintlar Sampling



NOTE: Combined Metals Loading Calculated by Adding Loadings of Total Cadmium, Lead and Zinc.

APPENDIX A

COEUR D'ALENE BASIN METALS REMEDIAL PRIORITIES

:AR	PROJECT	WORK TYPE	TIME FRAME	PROJECT SPONSOR
)4	Elizabeth Park/Elk Creek Pond	Tailings removal, beach replacement	Complete	State Trustees
	Gertie Waste Dump	Waste rock removal	Complete	Hecla
	Interstate Re-vegetation	Re-vegetation	Complete	Hecla
	East Fork & Nine Mile Creeks	Tailings removal	Start	DEQ, Hecla, State Trustees
	Cataldo Mission	Tailings removal, barriers, bank stabilization	Complete	Cd'A Tribe
	Cataldo Boat Ramp	Barriers, potable water, bank stabilization	Complete	DEQ, EPA, SORE, Shoshone Co.
	Tamarack Waste Rock	Stabilization	Complete	Hecla
	Rex Mill Pond	Water management	Complete	BLM, DEQ, Goldback Mining
	Woodland Park Flats	Tailings removal	Design	State Trustees, Hecla, BLM, EPA, DEQ

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COEUR D'ALENE BASIN METALS REMEDIAL PRIORITIES

EAR	PROJECT	WORK TYPE	TIME FRAME	PROJECT SPONSOR
95	Nine Mile Creek	Tailings removal	Complete	State Trustees, BLM, DEQ
	Tamarack Mill	Tailings removal, source abatement	Start	Hecla
	Formosa Area, Canyon Creek	Tailings removal, channel restoration	Complete	State Trustees
	Killarney Lake Recreation Area	Barriers, potable water, road & lot paving	Complete	BLM
	Upper Constitution	Pull back tailings, waste rock cover	Complete	BLM

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COEUR D'ALENE BASIN METALS REMEDIAL PRIORITIES

EAR	PROJECT	WORK TYPE	TIME FRAME	PROJECT SPONSOR
'96	Woodland Park Flats	Tailings removal	Start	State Trustees, DEQ, BLM
	Tamarack Mill	Tailings removal, source abatement	Complete	Hecla
	Rainy Hill	Barriers, tailings removal, paving, potable water	Complete	USFS
	Canyon Creek Portals (Gem, Tamarack, Hecla Tiger & Hercules)	Treatment if trend data justifies	Design	Hecla, ASARCO, EPA, DEQ
	Milo Creek Water Diversion	Water management	Start	State Trustees, EPA, DEQ
	Silver Crescent	Tailings removal, seep treatment, adit treatment	Complete	USFS

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COEUR D'ALENE BASIN METALS REMEDIAL PRIORITIES

YEAR	PROJECT	WORK TYPE	TIME FRAME	PROJECT SPONSOR
997	Woodland Park Flats	Tailings removal, channel restoration	Continue	State Trustees, DEQ, BLM
	Canyon Creek Portals (Gem, Tamarack, Hecla Tiger & Hercules)	Treatment if trend data justifies	Start	Hecla, ASARCO
	Osburn Flats	Tailings removal	Start	State Trustees, EPA, DEQ
	Milo Creek Water Diversion	Water management	Complete	State Trustees, EPA, DEQ
	Thompson Lake Access	Barriers, potable water, bank stabilization	Complete	IDFG, DEQ
	Douglas Mill Site	Tailings removal	Complete	BLM, DEQ

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COEUR D'ALENE BASIN METALS REMEDIAL PRIORITIES

YEAR	PROJECT	WORK TYPE	TIME FRAME	PROJECT SPONSOR
1998	Osburn Flats	Tailings removal, channel restoration	Complete	State Trustees, EPA, DEQ
	Canyon Creek Portals (Gem, Tamarack, Hecla Tiger & Hercules)	Treatment if trend data justifies	Complete	Hecla, ASARCO, EPA, DEQ
	NF - SF Cd'A Rivers Confluence Sites	Barriers, potable water	Complete	DEQ, Water District, IDFG
	Highland Surprise Mill	Tailings removal, stabilization, water management	Complete	EPA, DEQ
	Sydney Mill (Red Cloud) Nevada Stewart	Tailings removal, adit drainage (Nev-Stw)	Complete	BLM

Priority list assumes Superfund work on the South Fork Floodway in year 5 or 6 and CIA closure in year 7 to be paid for by bankruptcy proceeds and Superfund as a result of the Gulf bankruptcy.

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ATTACHMENT 3

APR 10 1996

CREDIT AND TOLLING AGREEMENT

This Agreement is entered into by and between the State of Idaho and Hecla Mining Company, Inc. ("Hecla") (collectively, the "Parties").

RECITALS

1. On December 8, 1983, the State of Idaho brought an action in the United States District Court for the District of Idaho, captioned State of Idaho v. The Bunker Hill Company, et al., No. CV 83-3161 (D. Idaho), against The Bunker Hill Company and Gulf Resources & Chemical Corporation under the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. § 9601, et seq. ("CERCLA"), the Idaho Environmental Protection and Health Act of 1972, Idaho Code §§ 39-101 through 39-118, and Idaho Public Nuisance Law, the Complaint for which was twice amended to include Pintlar Corporation, Bunker Limited Partnership, Sunshine Mining Company, Coeur d'Alene Mines Corporation and ASARCO Incorporated (hereinafter, "State NRD Suit"), in which the State of Idaho alleged, among other things, that mining-related activities had caused or contributed to injury to and loss of natural resources in the area of the Coeur d'Alene River and its tributaries in northern Idaho ("State Resources");

2. By Final Judgment of the District Court dated June 27, 1986, the State NRD Suit was dismissed pursuant to a Settlement Agreement dated May 31, 1986 (the "1986 Settlement Agreement") which was approved and incorporated by the Court into the Judgment;

3. Hecla was not a party to the State NRD Suit or the 1986 Settlement Agreement;

4. The 1986 Settlement Agreement provided for the establishment of a trust fund known as the Silver Valley Natural Resources Trust Fund ("Trust Fund"). The Trust Fund consists of those funds paid by the settling mining companies that were party to the 1986 Settlement Agreement and interest accrued thereon, and said funds were to be used to fund and complete project identified in the 1986 Settlement Agreement or such different projects as chosen by the Trustees of the Trust Fund;

5. The Trustees have developed "The Trustee Action Plan 1994-South Fork Coeur d'Alene River" ("The Trustee Action Plan"), which sets forth a plan to accomplish restoration of natural resources in certain portions of the South Fork of Coeur d'Alene River Drainage above Kellogg, Idaho;

6. The State of Idaho contends that it presently has causes of action against Hecla under CERCLA and the Clean Water Act, 33 U.S.C. §§ 1251, et seq., to seek damages for State Resources.

7. As of September 21, 1995, the State of Idaho and Hecla, along with the United States of America and others, entered into a Tolling Agreement, wherein the Parties agreed that

the time from September 20, 1995 through March 22, 1996 would not be included in computing the time permitted by any statute of limitations applying to the causes of action referred to in these Recitals ("Tolling Agreement"). The State of Idaho further agreed in the Tolling Agreement not to institute any cause of action referred to in these Recitals against Hecla prior to March 8, 1996, subject to certain conditions;

8. The Parties desire to avoid litigation and the expense that would be incurred in connection with such litigation and desire to resolve all issues of liability between them without litigation once adequate information is known about the extent of damages to State Resources and Hecla's liability, if any, to the State of Idaho for those damages. To that end, the Parties intend by way of this Agreement to extend the Tolling Agreement referenced in the Recitals hereof and, according to the terms and conditions set forth herein, agree to a credit for certain actions against Hecla's liability, if any, to the State of Idaho for State Resources.

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing and the mutual covenants hereinafter made by each of the Parties to the other, it is mutually agreed that:

A. Payment Provision.

Except as provided herein, during the tolling period of this Agreement, Hecla agrees to pay to the Trust Fund, as that Fund is defined in the Recitals hereof, 14.8% of all costs

incurred by the Trustees from the Trust Fund in implementing the Trustee Action Plan.

B. Credit Provisions.

1. Hecla has incurred past expenses by way of funding and support for certain cleanup and restoration projects performed in the Coeur d'Alene River Basin, both in conjunction with the Trustees and independently. Hecla will incur future expenses as delineated in Paragraph A above, may provide other support of the Trustees' implementation of the Trustee Action Plan, and may incur future expenses for cleanup and restoration projects independent of the Trustees' implementation of the Trustee Action Plan.

2. To the extent the State of Idaho seeks, at any time in the future, to recover damages from Hecla for injury to State Resources, the State of Idaho will provide Hecla a credit to reduce such damages sought from Hecla by:

a. The amount of Hecla's past expenses for cleanup and restoration projects in the Coeur d'Alene Basin as approved and identified in Paragraph B.3 below;

b. The amount of Hecla's future expenses for cleanup and restoration projects in the Coeur d'Alene Basin as approved in accordance with Paragraph B.4 below.

3. Past Approved Expenditures.

a. Direct Hecla payments made to the Trust Fund or Trustee Contractors and, in addition, Hecla's internal technical costs and expenditures to support the activities of the Trustees, develop plans and perform studies in a total amount

(costs and expenditures) not to exceed 20% of such direct payments. Direct payments claimed by Hecla and subject to auditing and approval by the State are as follows:

(1) 1990, 1991	McCulley, Frick & Gilman, Inc. (MFG) - Consulting	$16,170.89
(2) 1992	MFG - Consulting	$10,662.61
(3) 1993	MFG - Consulting	$11,742.60
(4) 1994	MFG - Consulting	$19,245.69
	University of Idaho - Canyon Creek Aquifer Study	$4,419.48
	Ninemile Creek Project	$4,868.24
	Elizabeth Park Project	$35,052.21
(5) 1995	MFG and other consultants - Consulting	$2,739.00
	Canyon Creek Project	$78,660.00
	Elk Creek Pond Project	$702.00
	Ninemile Creek Project	$21,333.00
	Elizabeth Park Project	$2,549.00

b. The value as approved by the State of the repository provided and maintained by Hecla for the Trustees' Ninemile Project. Such value is the reasonable avoided cost to the Trustees of otherwise acquiring, operating and maintaining the repository, including consideration of the potential liability associated with such actions and the facts associated with Hecla's acquisition of the repository location.

c. The value as approved by the State of repositories provided and maintained by Hecla for the Trustees' Canyon Creek Projects. Such value is the reasonable avoided cost to the Trustees of otherwise acquiring, operating and maintaining a repository at the next closest feasible location to the project and any additional cost to transport disposal materials to such location which are greater than the cost of transport to the

repository provided by Hecla, including consideration of the potential liability associated with such actions.

d. Hecla costs and expenditures as approved by the State for cleanup and restoration projects independent of the Trustees and the Trustee Action Plan.

e. Within sixty days of the effective date of this Agreement, Hecla shall submit information to the State documenting the payments referenced in 3.a, the value of the repositories referenced in 3.b and c, and the costs and expenditures of independent projects referenced in 3.d. The Governor of the State of Idaho shall determine the credit amount of the payments, values, costs and expenditures within thirty days of receiving such information. In the event Hecla disagrees with any determination of the Governor pursuant to Paragraph 3.e, Hecla will notify the State of the same, and as to the disputed credits, Hecla will retain its right to dispute the determination and establish an alternative credit value in any action against Hecla for natural resource damages.

4. Future Approved Expenditures.

a. Hecla payments made to the Trust Fund or Trustee Contractors pursuant to Paragraph A above and, in addition, Hecla's internal technical costs and expenditures to support the activities of the Trustees, develop plans and perform studies in a total amount (costs and expenditures) not to exceed 20% of such payments.

b. The value of future repositories, if any, provided and maintained by Hecla for future Trustee or State of

Idaho projects. The value shall be the reasonable avoided cost to the Trustees or State of Idaho of otherwise acquiring, operating and maintaining a repository at the next closest feasible and reasonable location to the project and any additional costs to transport disposal materials to such location which are greater than the transport costs to the repository provided by Hecla, including consideration of the potential liability associated with such actions. The value of such repositories shall be approved by the State prior to the use of such repository by the Trustees or the State of Idaho.

c. Hecla costs and expenditures for cleanup and restoration projects independent of the Trustees and the Trustee Action Plan as approved by the State prior to such expenditure.

d. In the event the State does not approve, in advance, values, costs and expenditures referenced in 4.a (other than payments to the Trust Fund or Trustee Contractors), b and c, which are acceptable to Hecla, Hecla will be under no obligation to undertake or support the activities at issue.

C. Tolling Provisions.

1. The Parties agree that the time from March 22, 1996, through March 22, 2001, will not be included in computing the time limited by any statute of limitations that applies or may apply to the causes of action referred to in the Recitals hereof, nor will that time period be considered on a defense of laches or similar defense concerning timeliness of commencing a civil action, for the recovery of the damages referred to in the Recitals hereof. With respect to said causes of action, Hecla

shall not assert, plead or raise the period of time covered by any tolling agreement to which Hecla and the State are parties against the State of Idaho in any fashion, whether by answer, motion or otherwise, any defense or avoidance based on the running of any statute of limitations, laches or other timeliness defenses, and any statute of limitations shall be tolled during and for that period. Except as specifically set forth in these Tolling Provisions, Hecla does not waive or otherwise forego any other defense to any claim by the State of Idaho.

2. The State of Idaho agrees not to institute or maintain any cause of action for damages to State Resources against Hecla prior to March 22, 2001. The Parties acknowledge that other entities have or may initiate actions against Hecla and others for damages to natural resources and that the State of Idaho may be made a party to such actions as either a party plaintiff or defendant. The State of Idaho also acknowledges that it may desire to initiate its own action for State Natural Resources or voluntarily join other actions against entities other than Hecla and will provide twenty (20) days advance notice to Hecla before initiating or joining such actions. Nothing in this Agreement precludes or limits the claims or defenses of the State of Idaho in any such proceedings, except as provided in this paragraph as to claims against Hecla relating to State Resources.

3. The Parties acknowledge that if they are unable to resolve all issues of liability between them as to State Resources without litigation prior to the expiration of the

tolling period of this Agreement, the State of Idaho then would be free to initiate an action against Hecla for State Resources. In any such action, Hecla agrees that it will not assert any defense or claim of res judicata, collateral estoppel or waiver, based upon the State of Idaho's forbearance of claims against Hecla pursuant to, and for the term of, this Agreement.

4. If during the tolling period prescribed by this Agreement, Hecla is made a party to judicial proceedings on claims for damages to State Resources, Hecla may, upon seven (7) days advance written notice to the Attorney General for the State of Idaho (the "Termination Date"), terminate any and all funding obligations under Paragraph A of this Agreement, retaining as a credit against liability for State Resources, all credit which has accrued under Paragraph B of this Agreement. Additionally, as of fifty (50) days after the Termination Date, the five-year tolling period provided in Paragraph C.1 of this Agreement and the companion standstill period provided in Paragraph C.2 will cease to be effective. Remaining obligations under the Agreement, including remaining obligations under Paragraphs C.1 and C.2, would continue in effect.

D. Miscellaneous Provisions.

1. This Agreement and its contents shall not be admissible in evidence against Hecla or the State except in a proceeding by one Party to enforce its terms against the other Party. Nor shall this Agreement constitute an admission or acknowledgment by either Party as to the operation of any applicable statute of limitations, including any fact or position

that might be relevant thereto. The State of Idaho reserves the right to assert that no statute of limitations applies, and Hecla reserves the right to assert that the statute of limitations has run except as provided in Paragraph C above.

2. This instrument contains the entire agreement between the Parties. This Agreement may not be enlarged, modified or altered, except in writing signed by the Parties.

3. Each Party represents and warrants that it has the authority to enter into this Agreement and to take all actions provided for herein and that no further action or authorization is required.

4. This Agreement shall become effective upon execution by all the Parties to the Agreement.

For the Hecla Mining Company

By: Michael B. White
Michael B. White
Vice President - General Counsel

Dated: March 22, 1996

For the State of Idaho

By: Philip E. Batt
Philip E. Batt, Governor

Dated: 3/22/96

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF IDAHO

UNITED STATES OF AMERICA, Plaintiff, v. ASARCO INCORPORATED, et. al, Defendants.	)	No. 94-206-N-EJL
and CONSOLIDATED CASE	)	DECLARATION OF PAUL GORMLEY

Paul Gormley, by his signature below, hereby swears under penalty of perjury that the following is true and correct:

1. I am employed as a trial attorney in the Environmental Enforcement Section of the United States Department of Justice.

2. Attached as Attachments A and B to this declaration are true and correct copies of the following Businesswire articles regarding Hecla Mining Company: "Hecla Reports Record Gold and Silver Production in 2002; Second Consecutive Year of Net Income" (Attachment A); and "Hecla Releases Year-End and Fourth Quarter Financial Results, Reports 2001 Turnaround," (Attachment B).

3. I obtained these articles by accessing the Hecla Mining Company web site at the following internet address: www.hecla-mining.com/index.html

4. From the Hecla Mining Company web site, I followed the link to "News Releases," which in turn took me to the web site for Businesswire, which can be found at : http://www.businesswire.com/cnn/hl.htm

5. From that location, Attachments A and B were printed.

6. Attached as Attachment C to this declaration is a true and correct copy of Hecla mining Company's Form 10-K Annual Report to the Securities and Exchange Commission for the fiscal year ended December 31, 2002 (title page and relevant page only; a complete copy of the document will be provided upon request).

7. Attachment C was also obtained from Hecla's web site by following the link to "Investor Relations," then to "SEC Filings." At that point Hecla provided a link to "Hecla Mining Company's Current 10-K."

8. Attached to this declaration as Attachment D is a true and correct copy of selected portions of the United States' and Coeur d'Alene Tribe's First Set of Proposed Findings of Fact submitted to this Court on April 6, 2001 in the litigation captioned United States v. ASARCO, et al, CV No. 96-0122-N-EJL. A complete copy of that submission will be provided upon request.

9. Attached to this declaration as Attachment E is a true and correct copy of the following article from the Coeur d'Alene Press regarding Hecla Mining Company: "Hecla enjoys banner year."

10. I obtained this article from the web site for the Coeur d'Alene Press. The article can be found at the following internet address:

http://www.cdapress.com/index.asp?str=10756

Signed and sworn to this 25th day of April, 2003.

Paul Gormley

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ATTACHMENT A

(BW)(ID-HECLA-MINING)(HL) Hecla Reports Record Gold and Silver Production in 2002; Second Consecutive Year of Net Income

Business Editors

COEUR D'ALENE, Idaho--(BUSINESS WIRE)--Feb. 11, 2003--Hecla Mining Company (NYSE:HL) today reported that in 2002, the company produced more gold and silver than in any other year during the company's 112-year history, mining about 240,000 ounces of gold and 8.7 million ounces of silver.

Hecla also reported a 269% increase in net income for 2002 of $8.6 million, or 11 cents per share, before preferred stock dividends, compared to net income of $2.3 million, or 3 cents per share, in 2001.

Gross profit increased five-fold compared to last year, from $4.7 million in 2001 to $23.7 million in 2002. Sales increased 24% year-on-year, from $85.2 million in 2001 to $105.7 million in 2002. Cash provided by operating activities followed suit, at $20.2 million in 2002 compared to $8 million in 2001. Cash and cash equivalents at the end of 2002 were $19.5 million, compared to $7.6 million at the end of 2001. In January 2003, net proceeds from a common stock offering totaled approximately $92 million, increasing Hecla's cash position by that amount. Long-term debt was again reduced during 2002, to $12 million at the end of the year, compared to $19 million at the end of 2001. If adjusted for the proceeds of the common stock offering, Hecla's current ratio at the end of 2002 would be a robust 4:1.

Arthur Brown, Hecla's Chairman and Chief Executive Officer, said, "Hecla had an astounding year in 2002. We're very pleased with our production levels and production costs. We've also made gigantic strides forward in terms of our financial health over the past two years. The market clearly recognized these accomplishments, making Hecla the best percentage performer on the New York Stock Exchange during 2002."

For the fourth quarter of 2002, Hecla reported net income of $1.9 million, or 2 cents per share, before preferred stock dividends, compared to a net loss of $3.2 million, or 4 cents per share in 2001. Gross profit in the fourth quarter of 2002 was $5.7 million, a substantial increase over 2001's fourth quarter gross profit of $1.2 million. Included in the fourth quarter 2002 results is an income tax benefit of approximately $3.0 million. The tax benefit is the result of the outstanding performance at the San Sebastian mine, which allowed for the recognition of the value of existing net operating loss carryforwards in Mexico. Cash flow provided by operations increased in the fourth quarter of 2002 compared to the same period in 2001, from $2.6 million to $5.6 million. Silver production in the fourth quarter of 2002 was about 2.2 million ounces, a 46% increase over production in the same period last year. The average total cash cost per ounce of silver during the fourth quarter of 2002 was $1.96, compared to $3.75 per ounce in the fourth quarter of 2001. Gold production decreased in the fourth quarter of 2002 compared to the previous year's fourth quarter, from 56,749 ounces to 52,606 ounces, primarily a result of expected lower ore grades during the fourth quarter at the La Camorra gold mine in Venezuela. Gold production total cash costs averaged $165 per ounce of gold in the fourth quarter of 2002, compared to $130 per ounce of gold in the last quarter of 2001. The increased costs were primarily due to lower production at La Camorra.

2002 HIGHLIGHTS

-- Record gold production of 240,000 ounces of gold, a 23% increase over 2001
-- Record silver production of 8.7 million ounces of silver, a 17% increase over 2001
-- 39% reduction in average total cash cost of silver to $2.16 per ounce
-- Maintained a low average total cash cost of gold at $137 per ounce
--
Exploration advancement on several fronts, including acquisition of the Block B and Hollister Development Block

projects
-- Successful tender offer for Hecla's Preferred B stock
-- Significant increases in sales, gross profit, net income and cash flow
-- Long time CEO Arthur Brown announced his upcoming retirement

OPERATIONS

Hecla's La Camorra gold mine in Venezuela turned in an excellent performance in 2002, producing 167,386 ounces of gold at an average total cash cost of $137 per ounce. Production costs were higher in the fourth quarter of the year because mining was being conducted in an area of lower gold grade and due to a scheduled maintenance shutdown during the holiday period. The mine plan had anticipated the lower grade in the fourth quarter and the target production for the year was achieved. As expected, during the month of January 2003 the gold ore grade at La Camorra rose from its low point in the fourth quarter of 2002. In 2003, Hecla expects the gold ore grade at La Camorra to be in the range of approximately 0.74 ounce of gold per ton, which is about the estimated average grade of La Camorra's proven and probable reserves. Hecla's President and Chief Operating Officer, Phil Baker, said, "La Camorra continues its trend of being a solid, low-cost producer for Hecla. We are very pleased with its performance in 2002, particularly in light of some political unrest in Venezuela. However, due in good portion to the foresight and planning of our management team there, the political situation has had little impact on our planned production to this point. Although conditions in Venezuela have made it more difficult to operate there, we continue to monitor and respond successfully to the situation, and do not believe it will have a long-term impact on our company."

The San Sebastian silver mine in Mexico was truly a success story in 2002, producing 3.4 million ounces of silver and nearly 42,000 ounces of gold at an average total cash cost per ounce of silver of just $1.09. Incredibly, during the fourth quarter of the year, San Sebastian produced silver at an average total cash cost of $0.58 per ounce. Baker said, "Let me illustrate how successful San Sebastian is by telling you that at the beginning of 2002, we had a net equity investment there of about $4 million. During 2002 alone, it generated cash flow of about $10 million. And thanks to San Sebastian, Hecla was the lowest-cost primary silver producer in the U.S. and Canada."

The Greens Creek silver mine in Alaska, in which Hecla holds a 29.73% interest, produced about 3.2 million ounces of silver and almost 31,000 ounces of gold for Hecla's account, at an average total cash cost of $1.81 per ounce of silver. The Lucky Friday silver mine in northern Idaho produced 2 million ounces of silver in 2002. The depth of the mine and a lower grade of ore make this mine higher cost, at an average total cash cost per ounce of silver of $4.57 during 2002.

EXPLORATION

(Please refer to an exploration news release issued 2/10/03 for more details. It can be found at Hecla's website at www.hecla-mining.com.)

Hecla's exploration programs continue to turn up good results. One prospective target is Hecla's Block B project in Venezuela. The Block B lease was acquired by Hecla in September 2002 from the Venezuelan government, and is a seven-square-mile property position in a historically rich gold mining district. Hecla is currently focusing on an area adjacent to and below the old Chile mine, which produced more than 550,000 ounces of gold at an average ore grade of more than one ounce of gold per ton. The Chile mine was shut down near the end of World War II due to war events and technical difficulties which are no longer an issue. Hecla began drilling on the property in the fourth quarter of 2002 and initial assays are extremely encouraging, confirming the prior mineralized material estimate of 0.63 ounce per ton.

Exploration work also continues on the Betzy vein at the La Camorra gold mine in Venezuela, about 70 miles south of the Block B property. Underground drilling between the -425 and -500 meter elevation levels on the Betzy vein has increased the estimated strike length on the east flank of the Betzy ore shoot from 150 meters to over 200 meters, into an area previously thought to be waste. Recent drilling on the Betzy vein returned assay results including 1 ounce of gold per ton over 2.6 meters, 0.76 ounce of gold per ton over 2 meters and 3.27 ounces of gold per ton over 2 meters. "These encouraging high-grade results could lead to an expanded life for the mine and possibly the construction of a shaft," said Baker.

Hecla has also been focusing attention on the Canaima property, located 9 kilometers northeast of the main La Camorra

mine in Venezuela. Hecla is conducting a combination of hydrologic and geotechnical studies, as well as a drilling program to confirm previous information. Initial drilling results have confirmed and possibly upgraded the original multi-vein findings. A feasibility study for Canaima is expected to be completed in the second quarter of 2003.

In Mexico, an aggressive drilling program during the fourth quarter on the Don Sergio vein on the Cerro Pedernalillo project sets the stage for the 2003 drilling program and feasibility study for ramp development. Cerro Pedernalillo is located about 6 kilometers south of Hecla's San Sebastian silver mine.

Baker said, "Due to excellent exploration results on several fronts, Hecla increased its exploration expenditures in the fourth quarter of 2002 to nearly $3 million. As progress warrants, we could easily see continuing to make those kinds of expenditures throughout 2003."

OTHER

In January 2003, Hecla agreed to accept a payment of $3.95 million from Zemex Corporation to settle a lawsuit brough by Hecla against Zemex in 2001. The lawsuit charged Zemex with breach of contract over its failure to close on their agreement to purchase Hecla's subsidiary, Kentucky-Tennessee Clay Company, in early 2001.

During 2002, Hecla converted two-thirds of its Preferred B stock to common stock. With the numerous exploration, development and acquisition opportunities available for the company to invest in that could potentially generate excellent returns, Hecla is not planning to reinstate the preferred stock dividend at this time. In January 2003, Hecla completed a public offering of 23 million previously unissued shares of common stock. Net proceeds to the company were approximately $92 million. Hecla plans to use the net proceeds of the offering to fund future exploration and development, working capital requirements, capital expenditures, possible future acquisitions and for other general corporate purposes.

In December, Hecla's Chairman and Chief Executive Officer Arthur Brown announced his intention to retire from the position of CEO effective at Hecla's 2003 Annual Meeting of Shareholders, currently scheduled for May 9. He will retain his position as Chairman of the Board. Brown said it is the intention of the board that Phil Baker succeeds him as CEO.

Hecla Mining Company, headquartered in Coeur d'Alene, Idaho, mines and processes silver and gold in the United States, Venezuela and Mexico. A 112-year-old company, Hecla has long been well known in the mining world and financial markets as a quality silver and gold producer. Hecla's common and preferred shares are traded on the New York Stock Exchange under the symbols HL and HL-PrB.

Statements made which are not historical facts, such as anticipated payments, litigation outcome, production, sales of assets, exploration results and plans, costs, prices or sales performance are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, and involve a number of risks and uncertainties that could cause actual results to differ materially from those projected, anticipated, expected or implied. These risks and uncertainties include, but are not limited to, metals price volatility, volatility of metals production, exploration risks and results, project development risks and ability to raise financing. Refer to the company's Form 10-Q and 10-K reports for a more detailed discussion of factors that may impact expected future results. The company undertakes no obligation and has no intention of updating forward-looking statements.

Hecla Mining Company news releases can be accessed on the Internet at: http://www.hecla-mining.com.

HECLA MINING COMPANY
(dollars in thousands, except per share,
per ounce and per pound amounts - unaudited)

	Fourth Quarter Ended		Year Ended	
HIGHLIGHTS	Dec. 31, 2002	Dec. 31, 2001	Dec. 31, 2002	Dec. 31, 2001
FINANCIAL DATA				

Sales of products	$25,864	$21,768	$105,700	$85,247
Gross profit	5,710	1,239	23,715	4,719
Income (loss) from operations	732	(1,561)	9,755	(6,232)
Net income (loss)	1,865	(3,184)	8,639	2,340
Basic and diluted loss per common share (1)	0.01	(0.07)	(0.18)	(0.08)
Cash flow provided by operating activities	5,588	2,606	20,235	8,038
SALES OF PRODUCTS BY SEGMENT				
Silver operations	$13,686	$ 9,057	$ 56,404	$43,795
Gold operations	12,178	12,711	49,296	41,452
Total sales	$25,864	$21,768	$105,700	$85,247
GROSS PROFIT (LOSS) BY SEGMENT				
Silver operations	$ 2,897	$(3,135)	$ 7,066	$(7,474)
Gold operations	2,813	4,374	16,649	12,193
Total gross profit	$ 5,710	$ 1,239	$ 23,715	$ 4,719
PRODUCTION SUMMARY - TOTALS				
Silver - Ounces	2,241,415	1,537,137	8,681,293	7,434,290
Gold - Ounces	52,606	56,749	239,633	194,742
Lead - Tons	4,997	3,903	18,291	28,378
Zinc - Tons	6,606	5,756	26,134	23,664
Average cost per ounce of silver produced (2):				
Cash operating costs ($/oz.)	1.87	3.72	2.07	3.49
Total cash costs ($/oz.)	1.96	3.75	2.16	3.52
Total production costs ($/oz.)	3.29	5.62	3.59	5.04
Average cost per ounce of gold produced:				
Cash operating costs ($/oz.)	165	130	137	133
Total cash costs ($/oz.)	165	130	137	133
Total production costs ($/oz.)	235	197	206	200
AVERAGE METAL PRICES				
Silver - Handy & Harman ($/oz.)	4.54	4.30	4.63	4.36
Gold - Realized ($/oz.)	305	281	303	280
Gold - London Final ($/oz.)	323	278	310	272
Lead - LME Cash (cents/pound)	19.7	21.7	20.5	21.6
Zinc - LME Cash (cents/pound)	35.0	34.6	35.3	40.2

(1) For the quarters and years ended December 31, 2002 and 2001, preferred stock dividends of $0.7 million and $2.0 million, respectively, and $23.3 million and $8.0 million, respectively, were not declared. The preferred dividends are not included in the determination of net income; however, they are included in determining income (loss) applicable to common shareholders and earnings per share. The year ended December 31, 2002, amount includes a one-time, noncash dividend of approximately $17.6 million incurred in July 2002 related to the completion of an exchange offering, whereby approximately 1.55 million preferred shares were converted into approximately 10.8 million common shares. Including the effects of preferred stock dividends, income applicable to common shareholders totaled $1.2 million for the three months ended December 31, 2002, as compared to a loss applicable to common shareholders of $5.2 million during the same period in 2001. For the twelve months ended December 31, 2002 and 2001, losses applicable to common shareholders totaled $14.6 million and $5.7 million, respectively.

(2) During the fourth quarter and for the twelve months ended December 31, 2002, approximately $0.2 million and $0.8 million, respectively, of costs were classified as care-and-maintenance costs and excluded from the determination of the costs per ounce at the Lucky Friday mine. Including the care-and-maintenance costs, the cash operating, total cash and total production costs per ounce total $1.96, $2.05 and $3.38, respectively, for the fourth quarter and $2.16, $2.25 and $3.68, respectively, for the twelve months ended December 31, 2002. During the fourth quarter of 2001, approximately $0.4 million of costs were classified as care-and-maintenance costs and excluded from the determination of the cost per ounce at Lucky Friday. Including the $0.4 million in costs, the cash operating, total cash and total production costs per ounce total $4.00, $4.03 and $5.90, respectively, for the fourth quarter and $3.55, $3.57 and $5.09, respectively, for the year.

HECLA MINING COMPANY
Consolidated Condensed Statements of Operations
(dollars and shares in thousands, except per share amounts - unaudited)

	Fourth Quarter Ended		Year Ended	
	Dec. 31, 2002	Dec. 31, 2001	Dec. 31, 2002	Dec. 31, 2001
Continuing operations:				
Sales of products	$25,864	$ 21,768	$ 105,700	$85,247
Cost of sales and other direct production costs	15,201	14,986	59,449	60,053
Depreciation, depletion and amortization	4,953	5,543	22,536	20,475
	20,154	20,529	81,985	80,528
Gross profit	5,710	1,239	23,715	4,719

Other operating expenses:				
General and administrative	1,984	2,243	7,121	7,219
Exploration	2,838	408	5,825	2,157
Depreciation and amortization	26	62	116	265
Provision for closed operations and environmental matters	130	87	898	1,310
	4,978	2,800	13,960	10,951
Income (loss) from operations	732	(1,561)	9,755	(6,232)
Other income (expense):				
Interest and other income	404	966	1,865	3,491
Miscellaneous, net	(1,017)	(1,444)	(1,859)	(2,954)
Interest expense	(442)	(608)	(1,816)	(3,887)
	(1,055)	(1,086)	(1,810)	(3,350)
Income (loss) from continuing operations before income taxes	(323)	(2,647)	7,945	(9,582)
Income tax benefit	3,086	- -	2,918	- -
Income (loss) from continuing operations	2,763	(2,647)	10,863	(9,582)
Discontinued operations, net of income tax	(898)	(537)	(2,224)	11,922
Net income (loss)	$1,865	$ (3,184)	$ 8,639	$2,340
Basic and diluted income (loss) per common share (1)	$ 0.01	$ (0.07)	$ (0.18)	$(0.08)
Basic weighted average number of common shares outstanding	86,116	73,000	80,250	69,396
Diluted weighted average number of common shares outstanding	86,894	73,000	80,250	69,396

(1) For the quarters and years ended December 31, 2002 and 2001, preferred stock dividends of $0.7 million and $2.0 million, respectively, and $23.3 million and $8.0 million, respectively, were not declared. The preferred dividends are not included in the determination of net income; however, they are included in determining income (loss) applicable to common shareholders and earnings per share. The year ended December 31, 2002, amount includes a one-time, noncash dividend of approximately $17.6 million incurred in July 2002 related to the completion of an exchange offering, whereby approximately 1.55 million preferred shares were converted into approximately 10.8 million common shares. Including the effects of preferred stock dividends, income applicable to common shareholders totaled $1.2 million for the three months ended December 31, 2002, as compared to a loss

applicable to common shareholders of $5.2 million during the same period in 2001. For the twelve months ended December 31, 2002 and 2001, losses applicable to common shareholders totaled $14.6 million and $5.7 million, respectively.

HECLA MINING COMPANY
Consolidated Balance Sheets
(dollars and shares in thousands - unaudited)

	Dec. 31, 2002	Dec. 31, 2001
ASSETS		
Current assets:		
Cash and cash equivalents	$19,542	$7,560
Accounts and notes receivable	10,154	6,648
Inventories	14,758	10,868
Deferred income taxes	2,700	- -
Other current assets	1,780	1,426
Net assets of discontinued operations	- -	2,714
Total current assets	48,934	29,216
Investments	76	69
Restricted investments	6,428	6,375
Properties, plants and equipment, net	92,365	104,593
Deferred income taxes	300	- -
Other noncurrent assets	12,038	12,863
Total assets	$160,141	$153,116
LIABILITIES		
Current liabilities:		
Accounts payable and accrued expenses	$11,731	$7,938
Accrued payroll and related benefits	7,603	7,832
Current portion of long-term debt	7,296	7,043
Accrued taxes	1,572	787
Current portion of accrued reclamation and closure costs	7,005	6,026
Total current liabilities	35,207	29,626
Deferred income taxes	- -	300
Long-term debt	4,657	11,948
Accrued reclamation and closure costs	42,718	46,455
Other noncurrent liabilities	5,629	6,823
Total liabilities	88,211	95,152
SHAREHOLDERS' EQUITY		
Preferred stock	188	575
Common stock	21,547	18,267
Capital surplus	405,959	404,354
Accumulated deficit	(355,544)	(364,183)
Accumulated other comprehensive income (loss)	(36)	173

Stock held by grantor trust	(66)	(330)
Unearned stock compensation	- -	(6)
Treasury stock	(118)	(886)
Total shareholders' equity	71,930	57,964
Total liabilities and shareholders' equity	$160,141	$153,116
Common shares outstanding at end of period	86,179	73,007

HECLA MINING COMPANY
Consolidated Statements of Cash Flows
(dollars in thousands - unaudited)

	Year Ended	
	Dec. 31, 2002	Dec. 31, 2001
OPERATING ACTIVITIES		
Net income	$8,639	$2,340
Noncash elements included in net income:		
Depreciation, depletion and amortization	22,652	20,740
Gain on sale of discontinued operations	- -	(12,665)
Gain on disposition of properties, plants and equipment	(329)	(338)
Provision for reclamation and closure costs	1,931	1,061
Deferred incomes taxes	(3,300)	- -
Change in net assets of discontinued operations	- -	1,234
Change in assets and liabilities:		
Accounts and notes receivable	(3,506)	4,516
Inventories	(3,890)	(1,738)
Other current and noncurrent assets	575	(1,435)
Accounts payable and accrued expenses	1,581	417
Accrued payroll and related benefits	312	3,100
Accrued taxes	395	(1,401)
Accrued reclamation and closure costs and other noncurrent liabilities	(4,825)	(7,793)
Net cash provided by operating activities	20,235	8,038
INVESTING ACTIVITIES		
Proceeds from sale of discontinued operations	1,585	59,761
Additions to properties, plants and equipment	(11,219)	(17,890)
Proceeds from disposition of properties, plants and equipment	5,710	545
Increase in restricted investments	(3)	(107)
Purchase of investments and change in cash surrender value of life insurance, net	- -	406
Other, net	(285)	(173)
Net cash provided (used) by investing activities	(4,212)	42,542
FINANCING ACTIVITIES		

Common stock issued under warrants and stock option plans	2,997	428
Issuance of common stock, net of offering costs	- -	5,462
Borrowings on debt	3,317	15,909
Repayments on debt	(10,355)	(66,192)
Net cash used by financing activities	(4,041)	(44,393)
Net increase in cash and cash equivalents	11,982	6,187
Cash and cash equivalents at beginning of period	7,560	1,373
Cash and cash equivalents at end of period	$19,542	$7,560

HECLA MINING COMPANY
Production Data

	Fourth Quarter Ended		Year Ended	
	Dec. 31, 2002	Dec. 31, 2001	Dec. 31, 2002	Dec. 31, 2001
LA CAMORRA UNIT				
Tons of ore processed	44,461	43,722	194,960	163,139
Days of operation	75	77	310	319
Mining cost per ton	$39.96	$40.79	$39.81	$36.18
Milling cost per ton	$15.34	$20.40	$15.73	$19.39
Ore grade crushed - Gold (oz./ton)	0.774	1.034	0.891	0.977
Gold produced (oz.)	33,486	44,662	167,386	152,303
Average cost per ounce of gold produced:				
Cash operating costs	$165	$130	$137	$133
Total cash costs	$165	$130	$137	$133
Total production costs	$235	$197	$206	$200
GREENS CREEK UNIT (Reflects Hecla's 29.73% share)				
Tons of ore milled	55,763	51,546	218,072	195,646
Days of operation	92	92	365	365
Mining cost per ton	$27.74	$28.12	$27.87	$28.70
Milling cost per ton	$16.45	$19.07	$15.58	$18.72
Ore grade milled - Silver (oz./ton)	17.42	19.63	19.73	21.76
Silver produced (oz.)	729,531	765,495	3,244,495	3,259,915
Gold produced (oz.)	7,482	6,537	30,531	26,041
Lead produced (tons)	2,006	1,883	8,200	7,394
Zinc produced (tons)	6,020	5,332	23,875	20,875
Average cost per ounce of silver produced (1):				
Cash operating costs	$1.93	$2.97	$1.76	$2.41
Total cash costs	$1.98	$2.96	$1.81	$2.41
Total production costs	$4.45	$5.46	$4.28	$4.79

SAN SEBASTIAN UNIT (2)

Tons of ore processed	42,218	21,421	156,532	69,779
Days of operation	79	46	306	151
Mining cost per ton	$33.10	$49.27	$34.80	$39.61
Milling cost per ton	$33.05	$36.89	$31.62	$32.03
Ore grade milled - Silver (oz./ton)	24.58	20.44	24.10	16.05
Ore grade milled - Gold (oz./ton)	0.304	0.270	0.298	0.257
Silver produced (oz.)	960,244	403,442	3,432,394	950,002
Gold produced (oz.)	11,582	5,509	41,510	15,983
Average cost per ounce of silver produced (1):				
Cash operating costs	$0.41	$2.54	$0.91	$1.64
Total cash costs	$0.58	$2.64	$1.09	$1.81
Total production costs	$1.53	$3.47	$2.06	$2.89

LUCKY FRIDAY UNIT

Tons of ore milled	43,693	28,823	159,651	239,330
Days of operation	75	63	304	280
Mining cost per ton	$38.07	$48.25	$39.51	$45.68
Milling cost per ton	$6.44	$10.52	$6.70	$8.12
Ore grade milled - Silver (oz./ton)	13.47	13.71	13.33	14.30
Silver produced (oz.)	551,640	368,200	2,004,404	3,224,373
Lead produced (tons)	2,991	2,020	10,091	20,984
Zinc produced (tons)	586	424	2,259	2,789
Average cost per ounce of silver produced (3):				
Cash operating costs	$4.35	$6.59	$4.57	$5.14
Total cash costs	$4.35	$6.59	$4.57	$5.14
Total production costs	$4.83	$8.30	$5.09	$5.92

(1) Gold produced is treated as a by-product credit in calculating silver costs per ounce.

(2) Production from the San Sebastian mine commenced in May 2001.

(3) During the fourth quarter and the twelve months ended December 31, 2002, approximately $0.2 million and $0.8 million, respectively, of costs were classified as care-and-maintenance costs and excluded from the determination of the costs per ounce at the Lucky Friday mine. Including the care-and-maintenance costs, the cash operating, total cash and total production costs per ounce total $4.70, $4.70 and $5.18, respectively, for the fourth quarter and $4.97, $4.97 and $5.49, respectively, for the twelve months ended December 31, 2002. During the fourth quarter of 2001, approximately $0.4 million of costs were classified as care-and-maintenance costs and excluded from the determination of the cost per ounce at Lucky Friday. Including the $0.4 million in costs, the cash operating, total cash and total production costs per ounce total $7.76, $7.76 and $9.47, respectively, for the fourth quarter and $5.27, $5.27 and $6.05, respectively, for the year.

CAPITAL ADDITIONS
(dollars in thousands)

	Year Ended	
	Dec. 31, 2002	Dec. 31, 2001
Lucky Friday	$ - -	$ 112
Greens Creek (29.73%) (1)	2,856	5,328
La Camorra	5,814	4,692
San Sebastian	1,834	7,743
Block B Concessions (2)	2,750	- -
Hollister Development Project (2)	1,782	- -
Other	215	160
Total Capitalized	$15,251	$18,035

(1) Hecla's share

(2) Includes cash and noncash capital additions.

HEDGED POSITIONS
As of December 31, 2002
Gold: 103,430 ounces hedged @ average price of $288

--30--MRO/se*

CONTACT: Hecla Mining Company
Vicki J. Veltkamp, 208/769-4144
http://www.hecla-mining.com

KEYWORD: IDAHO
INDUSTRY KEYWORD: MINING/METALS EARNINGS
SOURCE: Hecla Mining Company

BW0070 FEB 07,2002 5:03 PACIFIC 08:03 EASTERN

ATTACHMENT B

(BW)(ID-HECLA-MINING)(HL) Hecla Releases Year-End and Fourth Quarter Financial Results: Reports 2001 Turnaround

Business Editors

COEUR D'ALENE, Idaho--(BUSINESS WIRE)--Feb. 7, 2002--

For the Period Ended December 31, 2001

Hecla Mining Company (NYSE:HL) (NYSE:HL-PrB) reported net income of $2.3 million, or 3 cents per share, for the year 2001, compared to a net loss of $84 million, or $1.26 per share, in 2000.

Despite lower average precious metals prices, improved results were accomplished through increased gold production, lower gold and silver production costs, lower interest expense and a gain on the sale of Hecla's subsidiary, Kentucky-Tennessee Clay Company. In addition, year 2000 results were negatively impacted by property write-downs totaling $40.2 million and environmental accruals of $20 million. Dividends for Preferred B shares, which were not paid but are recorded on the income statement, brought the loss applicable to common shareholders for 2001 to $5.7 million, or 8 cents per share, compared to a loss of $92 million, or $1.38 per share in 2000.

For the fourth quarter of 2001, Hecla reported a net loss of $3.2 million, or 4 cents per share, compared to a net loss of $56.3 million, or 84 cents per share, in the corresponding period of 2000. The fourth quarter of 2001 showed a $4.1 million improvement in gross profit from precious metals operations, from a loss of $2.9 million in the fourth quarter of 2000 to a gross profit of $1.2 million in the fourth quarter of 2001. This was mainly attributable to outstanding performance from gold operations.

2001 HIGHLIGHTS

-- Exceptional turnaround in net income
-- 33% increase in gold production
-- 37% decrease in average total cash cost per ounce of gold
-- 12% decrease in average total cash cost per ounce of silver
-- Increased cash on hand
-- Significantly decreased debt
-- Increased proven and probable reserves at La Camorra and San Sebastian
-- Sale of Kentucky-Tennessee Clay Company
-- Completion of an environmental Agreement in Principle with the U.S. and Idaho State governments

Hecla Chairman and Chief Executive Officer Arthur Brown said, "2001 was definitely a turnaround year for Hecla. We have improved our net income, increased gold production, lowered our costs to produce both gold and silver and improved our balance sheet. As we reported yesterday, our proven and probable reserves increased at both the La Camorra gold mine in Venezuela and the San Sebastian silver/gold mine in Mexico, and exploration potential at those properties and others is excellent. We have made tremendous progress in many areas over the past twelve months. Hecla is positioned not only to survive this low precious metals price cycle, but to reap immediate benefits as the prices of gold and silver increase."

OPERATIONS

Hecla produced 194,742 ounces of gold during 2001, an increase of nearly 50,000 ounces over the previous year. The average total cash cost per ounce of gold production in 2001 was $133, a 37% decrease compared to the average total cash cost per ounce of $211 in 2000. For silver, Hecla decreased the year-on-year average total cash cost by 50 cents to $3.52 per ounce. Total silver production in 2001 was 7.4 million ounces, a 7% decrease compared to 2000. The decrease was due to reduced operations at the Lucky Friday mine.

La Camorra produced more tons at a higher grade in 2001, yielding about 60,000 more ounces of gold compared to 2000, at an average total cash cost of $55 less per ounce, at $133 per ounce. Increased tonnage was achieved through improvements in mine planning and equipment availability. Higher grade was due to the combination of improved grade control and mining in a higher-grade zone. Brown said, "I am very proud of the job our team at La Camorra has done, exceeding production goals while lowering costs. It is a tribute to their operating skills that the mine has become the success it is."

San Sebastian, Hecla's new mine located in Durango, Mexico, had a tremendous start-up in 2001, going from an exploration project to an operating mine, while being cash self-sustaining. This new property produced nearly 1 million ounces of silver at an average total cash cost of $1.81 per ounce, using less than $200,000 of nonmill-related capital. According to Brown, "Our people in Mexico have made a resounding success of this project by bringing a new mine on line, purchasing a mill and developing reserves, all without requiring a significant capital investment. This is only the start of an exploration program and operation that has the potential to continue well into the future."

Lower silver, lead and zinc prices and grade made operations more difficult at the Greens Creek and Lucky Friday silver mines in 2001. However, the Greens Creek mine in Alaska, in which Hecla holds a 30% interest, managed to increase tonnage in 2001 and institute a program to further reduce operating costs during 2002. At an average total cash cost of $2.41 per ounce of silver, Greens Creek is still a good cash producer. At the Lucky Friday mine in northern Idaho, a reduced production program has been implemented to cut costs and preserve the resource.

Hecla estimates total gold production in 2002 will be around 195,000 ounces, at an average total cash cost of about $150 per ounce. Total silver production in 2002 is expected to range from 6 million to 7 million ounces, at an average total cash cost of under $3.50 per ounce. These cash costs are some of the lowest reported by precious metals mining companies in North America. Brown said, "If metals prices in 2002 remain at 2001 levels, we don't necessarily expect revenue growth this year. However, we do expect to see decreasing silver production costs, a significant step toward our goal of increased profitability and net income."

FINANCIAL

Hecla's cash on hand increased from $1.4 million at the end of 2000 to $7.6 million at the end of 2001. During the same period, debt decreased by more than $50 million as a result of using proceeds from the sale of Kentucky-Tennessee Clay Company to pay down debt. Brown said the improved financial condition and low-cost operations give the company the ability to expand its exploration program and to even further improve the balance sheet with new debt capital. He said, "It does not appear that we will have the need to raise capital this year to meet our budget. However, if a capital-raising opportunity presents itself, we may take advantage of it to move our exploration projects forward more quickly or for other corporate or mine development purposes."

NYSE NOTICE

Hecla was notified in late December by the New York Stock Exchange (NYSE) that it had fallen below the NYSE listing criterion of a 30-day-average price of $1 per share. Hecla has since traded above the $1 minimum, and the common stock closed at $1.17 yesterday. The NYSE will continue to monitor the situation.

PREFERRED DIRECTORS

Hecla has deferred six quarterly dividends of its Series B Cumulative Convertible Preferred Stock. This gives holders of the preferred stock the right to elect two additional members to Hecla's board of directors at the company's next annual shareholders' meeting. Nominations from preferred shareholders

for persons to stand for election for these two directorships will be accepted through March 7, 2002. If you are a shareholder of preferred stock and wish to obtain specific instructions for the nominating procedure, please call Vicki Veltkamp, Vice President - Investor and Public Relations, at 208/769-4144.

OTHER

Phillips S. Baker, Jr., was appointed President and Chief Operating Officer of Hecla in November 2001. Baker was also appointed to Hecla's board of directors. Brown said, "I am pleased to have Phil with us to lead the day-to-day operating activities. He is an excellent addition to our management team."

In January 2002, Hecla announced it had signed an agreement for the sale of its headquarters building in Coeur d'Alene, Idaho, for approximately $5.6 million. Hecla is leasing back a portion of the building, so its headquarters will remain in its current location. The sale is expected to close during the second quarter of 2002. In January, Hecla announced that about 30% of the corporate staff accepted early retirement offers, with most of them effective January 1, 2002. The early retirement program is expected to save the company up to $1.5 million on an annualized basis.

Progress on environmental matters in 2001 included signing an Agreement in Principle with the U.S. and Idaho State governments that will, when finalized, settle the governments' claims for natural resource damages and clean-up costs related to historic mining practices in the Coeur d'Alene Basin in northern Idaho. The agreement would result in a substantial reduction in environmental expenditures and settle litigation that has been ongoing for 10 years. The parties are moving forward with working out the details of that settlement.

Hecla Mining Company, headquartered in Coeur d'Alene, Idaho, mines and processes silver and gold in the United States, Venezuela and Mexico. A 110-year-old company, Hecla has long been well known in the mining world and financial markets as a primary silver producer. Hecla's common and preferred shares are traded on the New York Stock Exchange under the symbols HL and HL-PrB.

Statements made which are not historical facts, such as anticipated payments, production, sales of assets, exploration results and plans, costs, prices or sales performance are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, and involve a number of risks and uncertainties that could cause actual results to differ materially from those projected, anticipated, expected or implied. These risks and uncertainties include, but are not limited to, metals price volatility, volatility of metals production, project development risks and ability to raise financing. Refer to the company's Form 10-Q and 10-K reports for a more detailed discussion of factors that may impact expected future results. The company undertakes no obligation and has no intention of updating forward-looking statements.

Hecla Mining Company news releases can be accessed on the Internet at: http://www.hecla-mining.com

HECLA MINING COMPANY
(dollars in thousands, except per share, per ounce and per pound amounts - unaudited)

	Fourth Quarter Ended		Year Ended	
	Dec. 31, 2001	Dec. 31, 2000	Dec. 31, 2001	Dec. 31, 2000
HIGHLIGHTS				
FINANCIAL DATA				
Total revenue	$ 22,734	$ 17,813	$ 88,738	$ 80,459
Gross profit (loss)	1,239	(2,850)	4,719	(5,329)
Net income (loss)	(3,184)	(56,312)	2,340	(83,965)
Net loss from continuing				

operations	(2,647)	(54,611)	(9,582)	(84,847)
Loss applicable to common shareholders	(5,196)	(58,324)	(5,710)	(92,015)
Basic and diluted loss per common share	(0.07)	(0.87)	(0.08)	(1.38)
Cash flow provided (used) by operating activities	2,606	(1,028)	8,038	(5,734)

SALE OF PRODUCTS BY SEGMENT				
Gold operations	$ 12,711	$ 8,381	$ 41,452	$ 31,573
Silver operations	9,057	8,792	43,795	44,277
Total sales	$ 21,768	$ 17,173	$ 85,247	$ 75,850

GROSS PROFIT (LOSS) BY SEGMENT				
Gold operations	$ 4,374	$ 574	$ 12,193	$ (102)
Silver operations	(3,135)	(3,424)	(7,474)	(5,227)
Total gross profit (loss)	$ 1,239	$ (2,850)	$ 4,719	$ (5,329)

OTHER DATA

EBITDA BY OPERATING SEGMENT(1)				
Gold operations	$ 7,233	$ 2,002	$ 22,061	$ 7,180
Silver operations	(450)	(788)	3,134	5,582
Total EBITDA	$ 6,783	$ 1,214	$ 25,195	$ 12,762

PRODUCTION SUMMARY - TOTALS				
Gold - Ounces	56,749	34,184	194,742	146,038
Silver - Ounces	1,537,137	1,947,353	7,434,290	7,998,677
Lead - Tons	3,903	8,960	28,378	39,430
Zinc - Tons	5,756	5,878	23,664	25,054
Industrial minerals - Tons shipped	3,749	239,863	260,716	1,268,579
Average cost per ounce of gold produced:				
Cash operating costs ($/oz.)	130	192	133	208
Total cash costs ($/oz.)	130	192	133	211
Total production costs ($/oz.)	197	253	200	275
Average cost per ounce of silver produced:(2)				
Cash operating costs ($/oz.)	3.72	4.46	3.49	4.02

Total cash costs ($/oz.)	3.75	4.43	3.52	4.02
Total production costs ($/oz.)	5.62	6.00	5.04	5.49
AVERAGE METAL PRICES				
Gold - Realized ($/oz.)	281	278	280	284
Gold - London Final ($/oz.)	278	269	272	279
Silver - Handy & Harman ($/oz.)	4.30	4.75	4.36	5.00
Lead - LME Cash (cents/pound)	21.7	21.4	21.6	20.6
Zinc - LME Cash (cents/pound)	34.6	48.6	40.2	51.2

(1) EBITDA represents earnings before interest, income taxes, depreciation, depletion, amortization and items classified as other operating expenses not occurring at the operating sites. The company believes EBITDA is helpful in understanding cash flow generated from operations that is available for income taxes, debt service, capital expenditures, and other nonsite operating expenses.

(2) During the fourth quarter of 2001, approximately $0.4 million of costs were classified as care-and-maintenance costs and excluded from the determination of the cost per ounce at Lucky Friday. Including the $0.4 million in costs, the cash operating, total cash and total production costs per ounce total $4.00, $4.03 and $5.90, respectively, for the fourth quarter and $3.55, $3.57 and $5.09, respectively, for the year.

HECLA MINING COMPANY
Consolidated Statements of Operations
(dollars and shares in thousands,
except per share amounts - unaudited)

	Fourth Quarter Ended		Year Ended	
	Dec. 31, 2001	Dec. 31, 2000	Dec. 31, 2001	Dec. 31, 2000
Continuing operations:				
Sales of products	$ 21,768	$ 17,173	$ 85,247	$ 75,850
Cost of sales and other direct production costs	14,986	15,959	60,053	63,088
Depreciation, depletion and amortization	5,543	4,064	20,475	18,091
	20,529	20,023	80,528	81,179
Gross profit (loss)	1,239	(2,850)	4,719	(5,329)
Other operating expenses:				
General and administrative	2,243	1,493	7,219	7,303
Exploration	408	1,121	2,157	6,332

Depreciation and amortization	62	69	265	282
Reduction in carrying value of mining properties	--	31,168	--	40,240
Provision for closed operations and environmental matters	87	16,009	1,310	20,029
	2,800	49,860	10,951	74,186
Loss from operations	(1,561)	(52,710)	(6,232)	(79,515)
Other income (expense):				
Interest and other income	966	640	3,491	4,609
Miscellaneous expense	(1,444)	(236)	(2,954)	(1,809)
Interest expense	(608)	(2,305)	(3,887)	(8,119)
	(1,086)	(1,901)	(3,350)	(5,319)
Loss from continuing operations before income taxes and extraordinary charge	(2,647)	(54,611)	(9,582)	(84,834)
Income tax provision	--	--	--	(13)
Loss from continuing operations, before extraordinary charge	(2,647)	(54,611)	(9,582)	(84,847)
Discontinued operations:				
Income (loss), net of income tax	(551)	(1,587)	(743)	2,572
Gain (loss) on disposal, net of income tax	14	(114)	12,665	(1,043)
Extraordinary charge	--	--	--	(647)
Net income (loss)	(3,184)	(56,312)	2,340	(83,965)
Preferred stock dividends(1)	(2,012)	(2,012)	(8,050)	(8,050)
Loss applicable to common shareholders	$ (5,196)	$(58,324)	$ (5,710)	$(92,015)
Basic and diluted loss per common share before extraordinary charge:				
Loss from continuing operations after preferred stock dividends	$ (0.06)	$ (0.85)	$ (0.25)	$ (1.39)
Income (loss) from discontinued operations, including gain (loss) on disposal	(0.01)	(0.02)	0.17	0.02

Extraordinary charge	--	--	--	(0.01)
Basic and diluted loss per common share	$ (0.07)	$ (0.87)	$ (0.08)	$ (1.38)
Weighted average number of common shares outstanding	73,000	66,798	69,396	66,791

(1) For the quarter and year ended December 31, 2001, preferred stock dividends of $2 million and $8 million, respectively, were not declared but are included in loss applicable to common shareholders. For the quarter and year ended December 31, 2000, preferred stock dividends of $2 million and $4 million, respectively, were not declared but are included in loss applicable to common shareholders.

HECLA MINING COMPANY
Consolidated Balance Sheets
(dollars and shares in thousands - unaudited)

	Dec. 31, 2001	Dec. 31, 2000
ASSETS		
Current assets:		
Cash and cash equivalents	$ 7,560	$ 1,373
Accounts and notes receivable	6,648	11,164
Inventories	10,868	11,269
Other current assets	1,426	2,105
Net assets of discontinued operations	2,714	44,057
Total current assets	29,216	69,968
Investments	69	502
Restricted investments	6,375	6,268
Properties, plants and equipment, net	104,593	108,343
Other noncurrent assets	12,863	9,755
Total assets	$ 153,116	$ 194,836
LIABILITIES		
Current liabilities:		
Accounts payable and accrued expenses	$ 7,938	$ 7,520
Accrued payroll and related benefits	7,832	4,732
Current portion of long-term debt	7,043	59,274
Accrued taxes	787	2,188
Current portion of accrued reclamation and closure costs	6,026	12,060
Total current liabilities	29,626	85,774
Deferred income taxes	300	300
Long-term debt	11,948	10,041
Accrued reclamation and closure costs	46,455	46,650
Other noncurrent liabilities	6,823	7,326
Total liabilities	95,152	150,091

SHAREHOLDERS' EQUITY		
Preferred stock	575	575
Common stock	18,267	16,715
Capital surplus	404,354	400,236
Accumulated deficit	(364,183)	(366,523)
Accumulated other comprehensive income (loss)	173	(4,858)
Stock held by grantor trust	(330)	(514)
Unearned stock compensation	(6)	--
Treasury stock	(886)	(886)
Total shareholders' equity	57,964	44,745
Total liabilities and shareholders' equity	$ 153,116	$ 194,836
Common shares outstanding at end of period	73,007	66,798

HECLA MINING COMPANY
Consolidated Statements of Cash Flows
(dollars in thousands - unaudited)

	Year Ended	
	Dec. 31, 2001	Dec. 31, 2000
OPERATING ACTIVITIES		
Net income (loss)	$ 2,340	$ (83,965)
Noncash elements included in net income (loss):		
Depreciation, depletion and amortization	20,740	22,363
Extraordinary charge	- -	647
(Gain) loss on sale of discontinued operations	(12,665)	1,043
Gain on disposition of properties, plants and equipment	(338)	(1,460)
Reduction in carrying value of mining properties	- -	40,240
Provision for reclamation and closure costs	1,061	17,601
Change in net assets of discontinued operations	1,234	1,347
Change in assets and liabilities:		
Accounts and notes receivable	4,516	6,486
Inventories	(1,738)	(108)
Other current and noncurrent assets	(1,435)	100
Accounts payable and accrued expenses	417	(1,266)
Accrued payroll and related benefits	3,100	669
Accrued taxes	(1,401)	97
Accrued reclamation and closure costs and other noncurrent liabilities	(7,793)	(9,528)
Net cash provided (used) by operating activities	8,038	(5,734)

INVESTING ACTIVITIES		
Proceeds from sale of discontinued operations	59,761	9,562
Additions to properties, plants and equipment	(17,890)	(15,210)
Proceeds from disposition of properties, plants and equipment	545	2,671
Proceeds from sale of investments	- -	283
Increase in restricted investments	(107)	(270)
Purchase of investments and change in cash surrender value of life insurance, net	406	1,354
Other, net	(173)	381
Net cash provided (used) by investing activities	42,542	(1,229)
FINANCING ACTIVITIES		
Common stock issued under warrants and stock option plans	428	35
Issuance of common stock, net of offering costs	5,462	- -
Dividends paid on preferred stock	- -	(6,037)
Payment for debt issuance costs	- -	(1,811)
Borrowings on debt	15,909	80,524
Repayments on debt	(66,192)	(67,094)
Net cash provided (used) by financing activities	(44,393)	5,617
Net increase (decrease) in cash and cash equivalents	6,187	(1,346)
Cash and cash equivalents at beginning of period	1,373	2,719
Cash and cash equivalents at end of period	$ 7,560	$ 1,373

HECLA MINING COMPANY
Production Data

	Fourth Quarter Ended		Year Ended	
	Dec. 31, 2001	Dec. 31, 2000	Dec. 31, 2001	Dec. 31, 2000
LA CAMORRA UNIT				
Tons of ore processed	43,722	34,225	163,139	138,216
Days of operation	77	65	335	260
Mining cost per ton	$40.79	$32.57	$36.18	$30.71
Milling cost per ton	$20.40	$19.13	$19.39	$17.38
Ore grade crushed - Gold (oz./ton)	1.034	0.730	0.977	0.702
Gold produced (oz.)	44,662	24,257	152,303	92,848
Average cost per ounce of gold produced:				
Cash operating costs	$130	$192	$133	$188
Total cash costs	$130	$192	$133	$188

Total production costs	$197	$253	$200	$246
GREENS CREEK UNIT (Reflects Hecla's 29.73% share)				
Tons of ore milled	51,546	45,191	195,646	184,178
Days of operation	92	92	365	365
Mining cost per ton	$28.12	$31.50	$28.70	$30.20
Milling cost per ton	$19.07	$19.60	$18.72	$19.05
Ore grade milled -				
Silver (oz./ton)	19.63	20.03	21.76	20.07
Silver produced (oz.)	765,495	662,730	3,259,915	2,754,067
Gold produced (oz.)	6,537	6,249	26,043	24,882
Lead produced (tons)	1,883	1,827	7,394	7,484
Zinc produced (tons)	5,332	5,141	20,875	21,947
Average cost per ounce of silver produced:				
Cash operating costs	$2.97	$2.48	$2.41	$2.20
Total cash costs	$2.96	$2.40	$2.41	$2.20
Total production costs	$5.46	$5.11	$4.79	$4.87
SAN SEBASTIAN UNIT (1)				
Tons of ore processed	21,421	- -	69,779	- -
Days of operation	50	- -	155	- -
Mining cost per ton	$49.27	- -	$39.61	- -
Milling cost per ton	$36.89		$32.03	
Ore grade milled -				
Silver (oz./ton)	20.44	- -	16.05	- -
Ore grade milled -				
Gold (oz./ton)	0.270	- -	0.257	- -
Silver produced (oz.)	403,442	- -	950,002	- -
Gold produced (oz.)	5,509	- -	15,983	- -
Average cost per ounce of silver produced:				
Cash operating costs	$2.54	- -	$1.64	- -
Total cash costs	$2.64	- -	$1.81	- -
Total production costs	$3.47	- -	$2.89	- -
LUCKY FRIDAY UNIT				
Tons of ore milled	28,823	75,517	239,330	321,719
Days of operation	63	75	280	306
Mining cost per ton	$48.25	$52.96	$45.68	$49.48
Milling cost per ton	$10.52	$7.05	$8.12	$7.07
Ore grade milled -				
Silver (oz./ton)	13.71	15.62	14.30	16.58
Silver produced (oz.)	368,200	1,107,710	3,224,373	5,011,507
Lead produced (tons)	2,020	7,133	20,984	31,946
Zinc produced (tons)	424	737	2,789	3,107
Average cost per ounce of silver produced: (2)				
Cash operating costs	$6.59	$5.65	$5.14	$5.02
Total cash costs	$6.59	$5.63	$5.14	$5.02
Total production costs	$8.30	$6.53	$5.92	$5.83
OTHER (3)				
Gold produced (oz.)	41	3,678	415	28,308
Silver produced (oz.)	- -	176,913	- -	233,103

(1) The San Sebastian mine commenced operations in May 2001.

(2) During the fourth quarter of 2001, approximately $0.4 million of costs were classified as care-and-maintenance costs and excluded from the determination of the cost per ounce at Lucky Friday.

Including the $0.4 million in costs, the cash operating, total cash and total production costs per ounce total $7.76, $7.76 and $9.47, respectively, for the fourth quarter and $5.27, $5.27 and $6.05, respectively, for the year.

(3) Includes production from the Rosebud mine, which completed mining operations in July 2000 and milling operations in August 2000, and other sources.

CAPITAL EXPENDITURES
(dollars in thousands)
Year Ended

	Dec. 31, 2001	Dec. 31, 2000
Lucky Friday	$112	$1,837
Greens Creek (29.73%(a))	5,328	4,833
La Camorra	4,692	4,526
San Sebastian	7,743	- -
Industrial minerals	145	3,920
Other	15	94
Total Capitalized	$18,035	$15,210

(a) Hecla's share

HEDGED POSITIONS
As of December 31, 2001

Gold: 199,158 ounces hedged @ average price of $289

...30--CER/se* DS/se BRM/se

CONTACT: Hecla Mining Company
Vicki Veltkamp, 208/769-4100
FAX 208/769-7612
http://www.businesswire.com/cnn/hl.shtml

KEYWORD: IDAHO
INDUSTRY KEYWORD: MINING/METALS EARNINGS
SOURCE: Hecla Mining Company

ATTACHMENT C

THE UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

[X] ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the Fiscal Year Ended **December 31, 2002**

Commission File No. 1-8491

HECLA MINING COMPANY

(Exact name of registrant as specified in its charter)

Delaware	82-0126240
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
6500 N. Mineral Drive, Suite 200 Coeur d'Alene, Idaho	83815-9408
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code 208-769-4100

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which each class is registered
Common Stock, par value $0.25 per share Preferred Share Purchase Rights for Series A Junior Participating Preferred Stock, par value $0.25 per share Series B Cumulative Convertible Preferred Stock, par value $0.25 per share	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months, and (2) has been subject to such filing requirements for the past 90 days. Yes X. No __.

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. []

Indicate by check mark whether the Registrant is an accelerated filer (as defined in Rule 12b-2 of the Act). Yes X. No __.

The aggregate market value of the Registrant's voting Common Stock held by nonaffiliates was $412,835,348 as of February 28, 2003. There were 109,377,249 shares of the Registrant's Common Stock outstanding as of February 28, 2003.

Documents incorporated by reference herein:

To the extent herein specifically referenced in Part III, the information contained in the Proxy Statement for the 2002 Annual Meeting of Shareholders of the Registrant, which will be filed with the Commission pursuant to Regulation 14A within 120 days of the end of the Registrant's 2002 fiscal year is incorporated herein by reference. See Part III.

ENVIRONMENTAL

In August 2001, we entered into an Agreement in Principle with the United States and the State of Idaho to settle the governments' claims for natural resource damages and clean-up costs related to the historic mining practices in the Coeur d'Alene Basin in northern Idaho. Due to a number of changes that occurred since the signing of the Agreement in Principle, including improvements in the environmental conditions at Grouse Creek and lower estimated clean-up costs in the Coeur d'Alene Basin as well as our improved financial condition, in 2002 we agreed with the United States and the State of Idaho to discontinue utilizing the Agreement in Principle as a settlement vehicle.

However, we may participate in further settlement negotiations with the United States and the State of Idaho in the future to limit our environmental clean-up liabilities for historic mining practices in the Coeur d'Alene Basin. Due to a number of uncertainties related to this matter, including the outcome of pending litigation and the result of any settlement negotiations, we do not have the ability to estimate what, if any, liability exists related to the Coeur d'Alene Basin at this time. It is reasonably possible our ability to estimate what, if any, liability we may have relating to the Coeur d'Alene Basin may change in the near or long term depending on a number of factors. In addition, an adverse ruling against us for liability and damages in this matter could have a material adverse effect on us. For additional information, see Note 8 of Notes to Consolidated Financial Statements.

Reserves for closure costs, reclamation and environmental matters totaled $49.7 million at December 31, 2002. We anticipate that expenditures relating to these reserves will be made over the next five to ten years. Although we believe the reserve is adequate based on current estimates of aggregate costs, we periodically reassess our environmental and reclamation obligations as new information is developed. Depending on the results of the reassessment, it is reasonably possible that our estimate of our obligations may change in the near or long term.

Expenditures for environmental remediation and reclamation for 2003 are estimated to be in the range of $6.0 million to $8.0 million, principally for water management activities at the Grouse Creek property, the yard remediation program at the Bunker Hill Superfund site and reclamation activities at other locations.

EXPLORATION

Exploration expenditures for 2003 are estimated to be in the range of $10.0 million to $15.0 million. In Venezuela, expenditures will focus on the down-dip extension of the Main and Betzy veins at the La Camorra mine and drilling and feasibility studies at Canaima and on the Block B concessions. In Mexico, expenditures will focus on the San Sebastian and Cerro Pedernalillo areas. Exploration in the United States will include expenditures at the Hollister Development Block in Nevada and work at the Greens Creek mine in Alaska to explore an area across the Gallagher fault.

ATTACHMENT D

ORIGINAL

JOHN C. CRUDEN
Acting Assistant Attorney General
United States Department of Justice
Environment & Natural Resources Division

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JAMES NICOLL, Senior Lawyer
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Attorney for Coeur d'Alene Tribe

U.S. COURTS
01 APR -6 PM 4:39
REC'D ____ FILED ____
CAMERON S. BURKE
CLERK IDAHO

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF IDAHO

UNITED STATES OF AMERICA, Plaintiff, v. ASARCO INCORPORATED, et. al, Defendants.	No. 96-0122-N-EJL No. 91-0342-N-EJL
and CONSOLIDATED CASE.	

UNITED STATES AND COEUR D'ALENE TRIBE'S FIRST SET OF PROPOSED FINDINGS OF FACTS

The plaintiffs, United States of America and the Coeur d'Alene Tribe, hereby respectfully

1106

13. **Waste Rock Piles:** During the time that ASARCO's predecessors conducted mining operations at the Tiger-Poorman Mine, waste rock was deposited at each portal that was driven into the ore body. When water from rain and snowmelt comes into contact with these waste rock piles, a leaching process ensues whereby hazardous substances in the waste rock, including lead, zinc, and cadmium are released into area surface waters (including Canyon Creek) and the groundwater.

> Tr., Vol. X, Feb. 5, 2001 (Chris Pfahl), pp. 1959-62 (portion reciting from Tiger Dep., at 193:21-194:4); Tr., Vol. X, Feb. 5, 2001 (Chris Pfahl), pp. 1962-63; Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), pp. 3259-69, 3327-36; Govt. Exhs. 966 and 968.

14. **Mine Water Discharges:** During ASARCO's predecessors' ownership and operation of the Tiger-Poorman Mine, the mine would fill with water from the creek above as well as precipitation, and the operator would pump that water out of the mine to the mill and it would be discharged with the tailings. Water that is discharged from mine openings contains hazardous substances including lead, cadmium and zinc.

> Tr., Vol. X, Feb. 5, 2001 (Chris Pfahl), pp. 1955-56; Tr.,Vol. XIV, Feb. 9, 2001 (Chris Pfahl), pp. 2698-99; Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), pp. 3243-44, 3248-58; Govt. Exhs. 951C and 951D.

15. **Mill Ownership:** From 1901 until 1912, ASARCO's predecessors (Empire State and Federal) owned the Tiger-Poorman Mill, which is located adjacent to Canyon Creek near the town of Burke, Idaho. The land upon which the Tiger-Poorman Mill was located was owned by ASARCO's predecessors from 1901 until 1920.

> Tr., Vol. X, Feb. 5, 2001 (Chris Pfahl), pp. 1968-1973 (portion reciting from ASARCO Orig. Resp. to RFA No. 775); Tr., Vol. II, Jan. 23, 2001 (Dr. Fred Quivik), pp. 377-79; Govt. Exh. 2281 at 15 (Stipulation of Defendant ASARCO

Inc. and Plaintiffs United States of America and Coeur d'Alene Tribe filed Feb. 7, 2001).

16. **Mill Operation:** From 1901 until 1907, ASARCO's predecessors (Empire State and Federal) processed ore at the Tiger-Poorman Mill, and from 1909 to 1911 or 1912, Federal leased this Mill to the Hercules Mining Company Partnership.

Tr., Vol. X, Feb. 5, 2001 (Chris Pfahl), p. 1974-1976, 1978; Tr., Vol. II, Jan. 23, 2001 (Dr. Fred Quivik), p. 377; Tr., Vol. XI, Feb. 6, 2001 (Chris Pfahl), pp. 2007-2013 (Exhibit 601); Tr.,Vol. XIV, Feb. 9, 2001 (Chris Pfahl), p. 2697.

17. **Mill Operation:** The Tiger-Poorman Mill processed ore extracted from the Tiger-Poorman Mine and Hercules Mine.

Tr., Vol. X, Feb. 5, 2001 (Chris Pfahl), p. 1978.

18. **Releases of Tailings:** Tailings containing lead, zinc, and cadmium were deposited from the Tiger-Poorman Mill into Canyon Creek at the mill site. From 1896 to 1910, the milling of ore at the Tiger-Poorman Mill created an estimated 980,000 tons of tailings.

Tr., Vol. X, Feb. 5, 2001 (Chris Pfahl), pp. 1953-54, 1978-81; Govt. Exh. 595 (two maps of Empire State: Idaho Mining & Developing Company's Plant (Lead & Silver Mine, Hoist, Compressor & Light Plant & Concentrator Mill); Tr.,Vol. XVI, Feb. 13, 2001 (Dr. Rex Bull), pp. 3085-86; Govt. Exh. 919R (Tiger-Poorman Mill Table 1896-1910); Tr., Vol. II, Jan. 23, 2001 (Dr. Fred Quivik), pp. 380-84, 394-97; Govt. Exh. 2000.

B. <u>Morning Mine and Mills</u>

19. **Mine Ownership:** From 1905 until 1966, Federal and then ASARCO (after 1953) owned the Morning Mine, which is located adjacent to Grouse Creek and the South Fork of the Coeur d'Alene River near the town of Mullan Idaho.

Tr., Vol. X, Feb. 5, 2001 (Chris Pfahl), pp. 1986-88, 1990-1994; Govt. Exhs. 604 (Map of Morning Mine), 582 (Idaho Annual Report to Inspector of Mines for

Tiger Mine), and 2281 at 10, 11 (Stipulation of Defendant ASARCO Inc. and Plaintiffs United States of America and Coeur d'Alene Tribe filed Feb. 7, 2001).

20. **Mine Operation:** From 1905 to 1957, Federal and then ASARCO (after 1953) engaged in exploration activities and extracted ore from the Morning Mine.

Tr., Vol. X, Feb. 5, 2001 (Chris Pfahl), pp. 1994-98; Tr., Vol. XI, Feb. 6, 2001 (Chris Pfahl), pp. 2014-2020, 2023-2025 (portion reciting from ASARCO's 2nd Am. Resp. to RFA No. 577); Govt. Exh. 618 (May 1, 1961 Agreement and Mining Lease between ASARCO and Hecla Mining Co.).

21. **Waste Rock Piles and Runoff:** There were at least eight waste rock piles containing lead, cadmium, and zinc at the Morning Mine site at the time Federal and ASARCO owned the property. At the time Federal and ASARCO owned the Morning Mine, all of these waste rock piles at the Morning Mine came into contact with water from natural precipitation, which ran off the piles into the Mill Creek drainage or the South Fork of the Coeur d'Alene River. Runoff from the waste rock piles at the Morning Mine and Mill contains hazardous substances including levels of zinc as high as 80 pounds per day during high water events.

Tr., Vol. XI, Feb. 6, 2001 (Chris Pfahl), pp. 2027-2029; Tr.,Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), pp. 3260, 3262, 3394-98, 3404-3405; Govt. Exhs. 953A and 973C (Chart showing zinc loading data) and 978 (four animations of loadings at Star Ponds, Morning Mill Site, Interstate Callahan, gaining/losing sections, and Osburn Flats); Tr.,Vol. XXXVI, March 19, 2001 (Callie Ridolfi) pp. 7528- 31 (Govt. Exh. 2356, summary of sampling data from Morning Mine waste rock piles).

22. **Mine Water Discharges:** During the time that Federal and ASARCO operated the Morning Mine, they pumped water out of the No. 6 portal to the Morning Mill from where it was discharged with the tailings. After mining operations ceased at the Morning Mine, mine water naturally drained out of the No. 6 portal and in 1992 sampling showed that this water

contained .44 pounds of metal per day. Discharges from adits at the Morning Mine contain lead, cadmium and zinc.

> Tr., Vol. XI, Feb. 6, 2001 (Chris Pfahl), pp. 2029-2035, 2037-38 (portion reciting ASARCO 2nd Am. Resp. to RFA No. 592 and Deposition of C. John Pfahl re: Morning Mine and Mills, August 3, 1999 at 84:9-86:21) (hereinafter "Morning Dep."); Tr.,Vol. XXXVI, March 19, 2001 (Ridolfi), pp. 7518-20, 7526-28 (Govt. Exh. 2355, summary of discharges from the Morning Mine).

23. **Mill Ownership:** From 1905 until 1957, Federal and then ASARCO (after 1953) owned the Morning Mills, which were situated along the South Fork with the older of the two mills being located on the Morning Mill site and the newer mill situated on the Evening Mill site. Portions of property upon which mills were located are still owned by ASARCO today.

> Tr., Vol. XI, Feb. 6, 2001 (Chris Pfahl), pp. 2041-2042, 2044, 2046-2047; Tr., Vol. IV, Jan. 25, 2001 (Dr. Fred Quivik), p. 654; Tr., Vol. II, Jan. 23, 2001 (Dr. Fred Quivik), p. 353; Tr.,Vol. XIII, Feb. 8, 2001 (Chris Pfahl), p. 2488.

24. **Mill Operation:** From 1905 until mill burned down, Federal and then ASARCO (after 1953) processed ore at the Morning Mill.

> Tr., Vol. XI, Feb. 6, 2001 (Chris Pfahl), pp. 2046- 2056 (portion reciting from Deposition of C. John Pfahl re Standard Mammoth Properties, June 3, 1999 (hereinafter "S/M Dep.") at 119:6-8); Govt. Exh. 2281 at 11,12 (Stipulation of Defendant ASARCO Inc. and Plaintiff's United States of American and Coeur d'Alene Tribe filed Feb. 7, 2001); Tr., Vol. IV, Jan. 25, 2001 (Dr. Fred Quivik), p. 659; Tr.,Vol. XIV, Feb. 9, 2001 (Chris Pfahl), p. 2714.

25. **Mill Operation:** The Morning Mill also processed ore extracted from the Standard-Mammoth Mine, the Helena-Frisco Mine, and the Galena Mine.

> Tr., Vol. XI, Feb. 6, 2001 (Chris Pfahl), pp. 2051-53 (portion reciting from Deposition of C. John Pfahl re Standard Mammoth Properties, June 3, 1999 (hereinafter "S/M Dep.") at 119:6-8); Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2249, 2296 (reciting the Rule 30(b)(6) testimony of Mr. Pfahl, Vol. 1, June 17, 1999, p. 57); Tr. Vol. XIV, Feb. 9, 2001 (Chris Pfahl), p. 2714.

26. **Releases of Tailings:** Tailings containing lead, cadmium and zinc from the Morning Mills were deposited into or adjacent to the South Fork of the Coeur d'Alene River. Tailings deposited adjacent to the river would have flowed downhill into the river. From 1905 to 1957, the milling of ore at the Morning Mill created an estimated 10,990,000 tons of tailings.

> Tr., Vol. XI, Feb. 6, 2001 (Chris Pfahl), pp. 2025, 2043-44, 2056-57; Government Exh. 2163A; Tr.,Vol. XVI, Feb. 13, 2001 (Dr. Rex Bull), pp. 3085-86; Govt. Exh. 914R (Morning Mill Table 1905-1957); Tr., Vol. IV, Jan. 25, 2001 (Dr. Fred Quivik), pp. 662, 660-664; Government Exh. 2163A; Tr., Vol. II, Jan. 23, 2001 (Dr. Fred Quivik), pp. 339-41; Government Exh. 118.

C. **Last Chance Mine and Mill**

27. **Mine Ownership:** From 1898 until 1918, ASARCO's predecessors (Empire State and Federal) owned the Last Chance Mine, which was located adjacent to Milo Creek and Deadwood Gulch adjacent to Wardner, Idaho and south of Kellogg, Idaho.

> Tr., Vol. XI, Feb. 6, 2001 (Chris Pfahl), pp. 2060-2068 (portion reciting from ASARCO Am. Resp. to U.S. Interrogatory No. 1B); Govt. Exhs. 673 (Federal Mining Wardner Mines Map for Page/Last Chance) and 585 (November 4, 1980 List of Various Transactions for Tiger Poorman: agreements, deeds, and affidavits); Tr., Vol. IV, Jan. 25, 2001 (Dr. Fred Quivik), p. 737; Govt. Exh. 2281 at 9-10 (Stipulation of Defendant ASARCO Inc. and Plaintiffs United States of America and Coeur d'Alene Tribe filed Feb. 7, 2001); Tr.,Vol. XIV, Feb. 9, 2001 (Chris Pfahl), pp. 2702-03.

28. **Mine Operation:** From 1898 to 1918, ASARCO's predecessors (Empire State and Federal) extracted ore from the Last Chance Mine.

> Tr., Vol. XI, Feb. 6, 2001 (Chris Pfahl), p. 2068-69, 2072-73; Tr., Vol. IV, Jan. 25, 2001 (Dr. Fred Quivik), p. 740-41.

29. **Waste Rock Piles and Runoff:** ASARCO's predecessors' mining operations at the Last Chance Mine generated waste rock which was placed into piles at the Arizona Tunnel and Last Chance tunnel. During the time that ASARCO's predecessors owned the Last Chance

wind would whip across the tailings ponds, carrying dust on to the freeway at times "making visibility close to zero."

Tr., Vol. XI, Feb. 6, 2001 (Chris Pfahl), pp. 2203, 2206-07 (portion reciting from Govt. Exh. 664 (September 1992 Record of Decision, Bunker Hill Mining and Metallurgical Complex, and from Govt. Exh. 669 (August 13, 1973 memo to Mr. Kesten to Mr. Nelson re: Land Reclamation).

G. **Standard-Mammoth Mine and Mills**

65. **Mine Ownership:** From 1903 until 2000, Federal and then ASARCO (after 1953) owned the Standard-Mammoth Mine, which was located approximately four miles up Canyon Creek from Wallace. Today, three mining claims of the Standard-Mammoth Mine are still owned by ASARCO as well as the owners of the Greenhill-Cleveland property.

Stipulations, Govt. Exh. 2281, §T, ¶¶ 2, 3, 4 p. 13-14 (Stipulation of Defendant ASARCO Inc. and Plaintiffs United States of America and Coeur d'Alene Tribe filed Feb. 7, 2001); Tr., Vol. XI, Feb. 6, 2001 (Chris Pfahl), pp. 2212-2214; Govt. Exh. 708 (Standard-Mammoth Mines and Mills Liability Chart).

66. **Mine Operation:** From 1903 until 1912, Federal engaged in exploration activities and extracted ore from the Standard-Mammoth Mine.

Govt. Exhs. 708 (Standard-Mammoth Mines and Mills Liability Chart), 2281 (Stipulations, § T, ¶¶ 5, 6, p. 14), and 695 (Index for Mace Mine Group leases from Federal Mining Company); Tr., Vol. XI, Feb. 6, 2001 (Chris Pfahl), pp. 2214-2217, 2229-2230; Tr., Vol. XIII, Feb. 8, 2001 (Chris Pfahl), p. 2519.

67. **Waste Rock Piles:** During the time Federal owned and operated the Standard-Mammoth Mine, seven (7) piles of waste rock were deposited at each of the Standard-Mammoth Mine openings, including adit numbers 1 through 5 plus the Campbell Tunnel/Adit and the Tamarack No. 7 portal.

Tr., Vol. XI, Feb. 6, 2001 (Chris Pfahl), pp. 2225-2226.

68. **Runoff from Waste Rock Piles:** During the time Federal and ASARCO owned the Standard-Mammoth Mine, the waste rock piles at the Standard Mammoth No. 5 and the Campbell Tunnel were sampled in 1946, and contained lead and zinc. These metal concentrations would not have changed since then. During the time Federal and ASARCO owned the Standard-Mammoth Mine, surface water from precipitation, such as rain or snowmelt, seeped through these piles of waste rock, and ultimately drained into Canyon Creek.

> Tr., Vol. XI, Feb. 6, 2001 (Chris Pfahl), pp. 2226-2229 (portion reciting S/M Dep. June 3, 1999, at 131:1-3); Govt. Exh. 694 (June 3, 1946 drawings of Standard-Mammoth No. 5 Dump).

69. **Mine Water Discharges:** During Federal and ASARCO's ownership and operation of the Standard-Mammoth Mine, water containing lead, zinc, and cadmium from the Tamarack No. 7 adit, including some water from the Standard-Mammoth property was discharged into the environment.

> Tr., Vol. XIII, Feb. 8, 2001 (Chris Pfahl), pp. 2519-2520; Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), pp. 3243-44, 3248-58; Govt. Exhs. 951C, 951D.

70. **Mill Location:** The Standard-Mammoth Mill was comprised of the Mammoth Mill (a.k.a. Mace Mill No. 1) and the Standard Mill (a.k.a. Mace Mill No. 2), located 200 yards up Canyon Creek, near the confluence of the Canyon Creek with the South Fork, outside Wallace, Idaho.

> Stipulations, Govt. Exh. 2281, § U, ¶ 2, p. 14; Tr., Vol. XI, Feb. 6, 2001 (Chris Pfahl), pp. 2211-12, 2220; Vol. III, Jan. 24, 2001 (Dr. Fred Quivik), pp. 435-436; Govt. Exh. 128 (1907 photograph of Mammoth & Standard Mills, Wallace, Idaho).

71. **Mill Ownership:** From 1903 through 1953, Federal owned the Standard-Mammoth Mills and mill sites, and from 1953 through to the present day, ASARCO has owned the Standard-Mammoth mill sites.

> Stipulations, Govt. Exh. 2281, § U, ¶ 1, p. 14; Tr., Vol. XI, Feb. 6, 2001 (Chris Pfahl), p. 2217; Govt. Exh. 708 (Standard-Mammoth Mines and Mills Liability Chart).

72. **Mill Operation:** From 1903 to 1912, Federal operated the Standard Mill. From 1903 until 1910, Federal operated the Mammoth Mill.

> Tr., Vol. XI, Feb. 6, 2001 (Chris Pfahl), pp.2218-2219; Govt. Exhs. 708 (Standard-Mammoth Mines and Mills Liability Chart) and 2281 (Stipulations, § U, ¶¶ 3-5, pp. 14-15); Tr., Vol. XIII, Feb. 8, 2001 (Chris Pfahl), p. 2518; Tr., Vol. III, Jan. 24, 2001 (Dr. Fred Quivik), pp. 439-441.

73. **Mill Operation:** The Standard-Mammoth Mills also processed ore extracted by ASARCO's predecessors from the Tiger-Poorman Mine and Morning Mine.

> Tr., Vol. X, Feb. 5, 2001 (Chris Pfahl), pp.1953, 1975; Tr., Vol. XI, Feb. 6, 2001 (Chris Pfahl), pp. 2023-24.

74. **Releases of Tailings:** Between 1903 and 1912, Federal conveyed the tailings containing lead, zinc, and cadmium from the Standard-Mammoth Mills via a tailings race or flume into Canyon Creek, and ultimately the tailings were conveyed downstream to Osburn dam, where at that time Osburn was the location of a tailings dam that impounded tailings from the Standard-Mammoth Mills. Between 1903 and 1917, a total of 3,790,000 tons of tailings were generated by Federal and the lessees at the Standard-Mammoth Mills.

> Tr., Vol. XI, Feb. 6, 2001 (Chris Pfahl), pp. 2219-2221; Tr., Vol. III, Jan. 24, 2001 (Dr. Fred Quivik), p. 457-458; Govt. Exhs. 708 (Standard-Mammoth Mines and Mills Liability Chart) and 915 (Standard-Mammoth Mills Table 1887-1917); Tr., Vol. XV, Feb. 12, 2001 (Bull), pp. 2900-2901.

H. Helena-Frisco Mine and Mill

75. **Mine Ownership:** In 1913, Federal acquired title to the Helena-Frisco Mine (a consolidation of the Frisco, Gem, and the Black Bear Mines), which was located adjacent to Canyon Creek, a tributary to the South Fork of the Coeur d'Alene River, about two miles west of Burke, Idaho.

> Stipulations, Govt. Exh. 2281, § L, ¶ 1, p. 9; Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2239, 2241.

76. **Mine Ownership:** From 1913 until 2000, Federal and then ASARCO (after 1953) owned the Helena-Frisco Mine (except for the surface rights of seven mining claims comprising the Frisco Mill, which were transferred to Tamarack and Custer Consolidated Mining Company in 1917).

> Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2241-2246 (portion reciting Frisco Dep., p. 17:10-18); Govt. Exhs. 709 (Helena-Frisco Mine and Mill Liability Chart) and 710 (Idaho 5, Frisco, Mace & Green Hill - Cleveland Groups).

77. **Mine Ownership:** ASARCO currently owns the mineral rights of those seven mining claims (Akron, Yankee Doodle, Cape Horn, Idaho Fraction, Esler Fraction, Badger, and Esler) transferred to Tamarack and Custer Consolidated Mining Company in 1917 as well as the mineral rights of the Chief and Jose mining claims, all of which are located at the Helena-Frisco Mine property.

> Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2246-2247; Govt. Exh. 710 (Idaho 5, Frisco, Mace & Green Hill - Cleveland Groups).

78. **Mine Operation:** From 1913 until 1916, and then again between 1942 and 1956, Federal and then ASARCO (after 1953) engaged in exploration activities and extracted ore from the Helena-Frisco Mine.

Govt. Exhs. 709 (Helena-Frisco Mine and Mill Liability Chart) and 2281 (Stipulation, § L, ¶¶ 2, 4, p. 9); Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2247-2248.

79. **Mine Operation:** From 1917 to 1967, Federal and then ASARCO (after 1953) leased to others parts of the Helena-Frisco Mine and the mine's tailings dumps, all of which yielded royalties to Federal.

Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2248-2249; Stipulations, Govt. Exh. 2281, § L, ¶ 3, p. 9; Tr., Vol. III, Jan. 24, 2001 (Dr. Fred Quivik), pp. 493-496; Tr., Vol. XIV, Feb. 9, 2001 (Chris Pfahl), pp. 2714-2716; Govt. Exh. 709 (Helena-Frisco Mine and Mill Liability Chart).

80. **Waste Rock Piles and Runoff:** During the time that Federal owned or operated the Helena-Frisco Mine, there were waste rock piles located at the upper adits of the Helena-Frisco Mine. Portions of the No.1 and No. 2 waste rock dumps still exist today, and when they were sampled in 1946, they contained silver, lead, and zinc. During the time that Federal and ASARCO owned the Helena-Frisco Mine, some portion of surface water from precipitation, such as rain or snowmelt, seeped through these piles of waste rock, and would have potentially made its way to Canyon Creek. The waste rock piles were located about 600 to 800 feet from Canyon Creek.

Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2257, 2259-2261 (portion reciting from Govt. Exh. 723 at p. 147/ASAID100-00036) (October 18, 1946 memo to J. E. Berg re: Frisco Mine No. 1 and No. 2 Dump Sample Report); Govt. Exh. 723 (October 18, 1946 memo to J. E. Berg re: Frisco Mine No. 1 and No. 2 Dump Sample Report).

81. **Mine Water Discharges:** Water from the Helena-Frisco Mine naturally drains from the Gem No. 3 tunnel because it is the lowest surface opening. In 1974, the mine water discharge from Gem No. 3 tunnel showed "quantities of Fe (iron) and Zn (zinc) ions in excess of

EPA standards." Prior to 2000, the discharge from the Gem No. 3 was untreated and contained zinc.

> Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2261-2262, 2265-2267 (reciting from Govt. Exh. 713 at ASAID176-00022 (December 4, 1974 memo for Mr. F.D. Owsley from R.F. Pettit, Jr., Chief Engineer re: Idaho, Shoshone County Frisco Mine)); Tr., Vol. IX, Feb. 9, 2001, pp. 2720, 2724.

82. **Mine Water Discharges:** When Federal was operating the Helena-Frisco Mine, precipitation worked its way through the mine workings, and ended up in the lower levels of the mine where workers were extracting ore. As a result, from 1913 until 1916, when Federal was operating the Helena-Frisco Mine, Federal pumped mine water out of the mine and conveyed it to the Frisco Mill for reuse, which, in turn, generated excess water that ultimately was discharged, along with the tailings, to Canyon Creek. In the 1940s and 1950s, when the Helena-Frisco Mine was reopened and operated by Federal (and later ASARCO), the mine water was pumped from the mine by Federal (and later ASARCO), and discharged to Canyon Creek because the mine water was no longer being sent to the Frisco Mill as the mill was no longer operating during this time period.

> Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2262-2264 (portion reciting Frisco Dep., p. 137:14-20).

83. **Mill Ownership:** From 1913 until 1917, Federal owned the Frisco Mill and mill site, which was located within 100 to 200 feet from Canyon Creek. In 1917, Federal sold the Frisco Mill and the Helena-Frisco Mill's surface property to Tamarack and Custer Consolidated Mining Company.

> Stipulations, Govt. Exh. 2281, § K, ¶ 1, p. 9; Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2240, 2249-2250; Tr., Vol. II, Jan. 23, 2001 (Dr. Fred Quivik), pp. 398-399, 402-405; Govt. Exhs. 709 (Helena-Frisco Mine and Mill Liability

Chart), 710 (Idaho 5, Frisco, Mace & Green Hill - Cleveland Groups), 124 (photograph of the Frisco Mine & Mill, 1907 & Mining Frisco, 1910).

84. **Mill Operation:** From 1914 until December 22, 1916, Federal processed all ore from the Helena-Frisco Mine at the Helena-Frisco Mill. In 1942, when Federal reopened the Frisco Mine, Federal and ASARCO (after the merger in 1953) shipped all ore it extracted from the mine to its Morning Mill for processing.

Stipulations, Govt. Exh. 2281, § K, ¶ 2, p. 9; Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2249, 2251-52, 2254; Vol. II, Jan. 23, 2001 (Dr. Fred Quivik), p. 404; Govt. Exh. 709 (Helena-Frisco Mine and Mill Liability Chart).

85. **Releases of Tailings:** From 1914 until 1916, the tailings containing lead, zinc, and cadmium produced by Federal when processing ore at the Frisco Mill were discharged directly into Canyon Creek. Between 1913 and 1917, a total of 140,000 tons of tailings were generated by Federal at the Frisco Mill.

Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2252-2254 (portion reciting Frisco Dep., p. 133:11-23); Vol. II, Jan. 23, 2001 (Dr. Fred Quivik), pp. 410-411; Govt. Exhs. 709 (Helena-Frisco Mine and Mill Liability Chart) and 918 (Helena-Frisco Mill Table 1890-1955); Tr., Vol. XV, Feb. 12, 2001 (Bull), p. 2899.

86. **Releases of Tailings:** Tailings from ore milled at the Frisco Mill backed up behind the Canyon Creek Tailings Dam. At some point, these tailings were re-milled. Federal received royalties from this re-milling.

Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2255-2256.

I. <u>Coeur Mine and Coeur Mill</u>

87. **Mine Operation:** In 1964, ASARCO entered into a leasing agreement with Rainbow Mining and Mill Company and Coeur d'Alene Mines Corporation, to lease and develop the Rainbow property and adjacent mining claims that were owned by Coeur d'Alene Mines

(often known collectively as the Coeur Project, Coeur Unit, or Rainbow Project (hereafter "Coeur Project"), located on Shields Creek, within about one-half mile from the town of Osburn. Shields Creek is a tributary of the South Fork of the Coeur d'Alene River.

Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2270-2272, 2274; Stipulations, Govt. Exh. 2281, § D, ¶¶ 2-4, 8, 12-16, pp. 3-5.

88. **Mine Operation:** In 1964 or early in 1965 until 1976, ASARCO conducted exploration and development activities at the Coeur Mine. From 1976 until 1991, ASARCO extracted ore from the Coeur Mine.

Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), p. 2271.

89. **Mill Operation:** From 1976 until 1991, ASARCO processed ore from the Coeur Mine at the Coeur Mill, which was a 450-tons-per-day mill built by ASARCO.

Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2274-2275; Stipulations, Govt. Exh. 2281, § D, ¶¶ 9, 10, p. 4.

90. **Releases of Tailings:** The tailings generated by ASARCO at the Coeur Mill contained lead, zinc, copper, silver and cadmium. From 1976 through 1998, a total of 2,440,000 tons of tailings have been produced at the Coeur Mill.

Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), p. 2276; Tr., Vol. XV, Feb. 12, 2001, (Bull), p. 2912; Govt. Exh. 921 (Coeur Mill Table 1976-1998).

91. **Releases of Tailings:** From 1976 to 1991, approximately fifty percent of the tailings generated at the Coeur Mill were used as sandfill in the Coeur Mine and the remaining fifty percent of tailings were discharged to the Osburn Tailings Impoundment. There have been releases of tailings associated with the processing of ore at the Coeur Mill, some of which were discharged into Shields Creek.

Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2276-2279.

J. **Galena Mine and Mill**

92. **Mine Operation:** From 1947 until 1992, pursuant to its lease agreement with Vulcan Silver-Lead Corporation ("Vulcan"), ASARCO engaged in exploration activities and extracted ore from the Galena Mine, which was located approximately one mile up Lake Creek from the South Fork of the Coeur d'Alene River, approximately two miles southeast of Osburn, Idaho.

Stipulations, Govt. Exh. 2281, § F, ¶¶ 2, 3, p. 6; Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2283, 2286-2297 (reciting the Rule 30(b)(6) testimony of Mr. Pfahl, Vol. 1, June 17, 1999, p. 57); Govt. Exh. 752 (Jan. 16, 1947 lease between Vulcan Silver-Lead Corporation and American Smelting and Refining Company, Galena Unit); ASARCO's 2nd Resp. to RFA No. 274; Govt. Exh. 756 (March 1983, map entitled Idaho 27, Galena Unit).

93. **Mill Ownership:** From 1954 until 1956, ASARCO owned the Galena Mill (including associated buildings and equipment) and mill site, located approximately 700 feet from the main Galena shaft on Lake Creek, a tributary of the South Fork just west of Wallace. From Feb. 1956 until 1995, ASARCO retained ownership of the Galena Mill buildings, property, and equipment, but not the property upon which the mill was located.

Stipulations, Govt. Exh. 2281, § G, ¶ 1, p. 6; Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2283, 2295-2297, 2309-2312 (portion reciting the Rule 30(b)(6) testimony of Mr. Pfahl, Vol. 1, June 17, 1999, p. 57); Tr., Vol. IV, Jan. 25, 2001 (Dr. Fred Quivik), pp. 707-708, 712; Govt. Exhs. 336 (April 20, 1956 letter to R. W. Vaughan (ASARCO) and J. C. Kieffer (Northwestern Mining) re: original quitclaim deed dated 2/27/56 between ASARCO & Vulcan Silver-Lead Corp. and actual deed) and 380 (April 20, 1956 letter from Kieffer to Vaughan re: quitclaim deed for Galena Mill Site).

94. **Mill Operation:** From 1954 until 1992, ASARCO operated the Galena Mill.

Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), p. 2312.

95. **Releases of Tailings:** From 1954 until October 1968 when ASARCO was operating the Galena Mill, tailings containing lead, zinc, and cadmium from the Galena Mill were discharged (via flume) either directly to Lake Creek, a tributary of the South Fork or directly into the South Fork.

> Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2304, 2314-2315; Tr., Vol. IV, Jan. 25, 2001 (Dr. Fred Quivik), pp. 714-719; Govt. Exhs. 307 (December 31, 1926 Annual Report for Callahan Zinc-Lead Company), 862R (Feb. 1928 article by W. L. Zeigler: "Galena Flotation Concentrator, Lake Gulch, Idaho), and 763 (December 1990 Certificate of Assay - ASARCO Inc., Galena Mill).

96. **Releases of Tailings:** From October 1968 until 1974 when ASARCO was operating the Galena Mill, tailings from the Galena Mill (except 50% of tailings used as sandfill in the Galena Mine) were discharged to the Galena Tailings Impoundment. From 1974 until 1992 when ASARCO was operating the Galena Mill, tailings from the Galena Mill (except 50% of tailings used as sandfill in the Galena Mine) were primarily discharged to the Osburn Tailings Impoundment. Between 1954 and 1992 when ASARCO was operating the Galena Mill, the Galena Mill produced 5,780,000 tons of tailings (excluding remilling of old tailings).

> Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2308, 2313; Tr., Vol. XV, Feb. 12, 2001 (Bull), p. 2910; Govt. Exh. 916 (Galena Mill Table 1926-1992).

K. <u>Galena and Osburn Tailings Impoundments</u>

97. **Ownership of Impoundment:** The Galena Tailings Impoundment, located along the east side of Lake Creek, was constructed on property owned 75 percent by ASARCO and 25 percent by Day Mines, Inc. The Galena Tailings Impoundment, consisting of three cells and a decant pond bounded by dikes constructed out of rock, had no synthetic liners.

Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2284-2285, 2328-2329, 2339, 2341 (portion reciting the Rule 30(b)(6) testimony of Mr. Pfahl, Vol. 1, June 17, 1999, p. 180).

98. **Ownership of Impoundment:** ASARCO paid for the construction of the Osburn Tailings Impoundment, which was built on ASARCO property on the north side of the South Fork, about 250 feet from the River. The Osburn Tailings Impoundment has three ponds and a decant pond made of native gravels. One of the ponds was covered and seeded in 1992. The other ponds and the decant pond are still in use.

Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2285, 2329, 2335-2336, 2339, 2341 (portion reciting the Rule 30(b)(6) testimony of Mr. Pfahl, Vol. 1, June 17, 1999, p. 180).

99. **Ownership and Operation of Impoundments:** From 1968 until 1995, ASARCO owned and operated the Osburn and Galena Tailings Impoundments, making all decisions regarding their construction and maintenance, including what was discharged into both impoundments.

Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2335, 2340-2342.

100. **Releases Associated with Impoundments:** During the time that ASARCO owned and operated the Osburn and Galena Tailings Impoundments, (1) the tailings pipeline was occasionally plugged or frozen, causing the back up and overflow of tailings; and (2) the tailings lines sometimes broke, causing some tailings to be discharged onto surrounding lands. Such spills were not reported by ASARCO to the EPA.

Tr., Vol. XII, Feb. 7, 2001 (Chris Pfahl), pp. 2336-2337 (reciting the Rule 30(b)(6) testimony of Mr. Pfahl, Vol. 1, June 17, 1999, p. 177); Tr., Vol. XIV, Feb. 9, 2001 (Chris Pfahl), p. 2687 (portion reciting the Rule 30(b)(6) testimony of Mr. Pfahl, Vol. 1, June 18, 1999, p. 242).

2001, p. 1314 (reciting the Rule 30(b)(6) deposition testimony of Michael White, Aug. 24-25, 1999, p. 192).

115. The ore processed from the Hecla Mine produced approximately 6.7 million tons of tailings over the life of the Hecla Mine.

Tr., Vol. VII, Jan. 30, 2001, pp. 1320-1321 (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, Aug. 27, 1999, p. 695).

116. **Waste Rock:** During the time Hecla operated the Hecla Mine, unlined waste rock piles of between two and ten acres in size, containing lead, zinc, cadmium and mercury, were located at each of the three portals of the Hecla Mine. Rainwater and precipitation that fall on the waste rock piles at the Hecla Mine generally runs off the piles and soaks into the ground, releasing hazardous substances, including lead, zinc and cadmium, into surface waters and groundwater.

Tr., Vol. VIII, Jan. 31, 2001, pp. 1360-1363 (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, Aug. 27, 1999, p. 619, 624 & 663-64); Tr., Vol. VIII, Jan. 31, 2001, pp. 1363-1364 (reciting the Rule 30(b)(6) deposition testimony Michael White, Aug. 24-25, 1999, p. 204); Tr., Vol. IX, Feb. 1, 2001, pp. 1737-1738 (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, Aug. 27, 1999, p. 663); Tr.,Vol. XVII, Feb. 14, 2001, pp. 3259-69, 3327-36 (Dr. Ann Maest); Govt. Exhs. 966 (Diagram showing rain and snow falling on mine wastes and infiltration into groundwater) and 968 (Animation of chemical fate and transport).

117. **Mine Water Discharges:** During the time Hecla operated the Hecla Mine, water containing hazardous substances, including lead, cadmium and zinc, discharged from the Hecla No. 3 portal into the Hecla Star tailings ponds, from the Hecla Shaft portal into Canyon Creek, and from the Russell portal into the waste rock pile at that portal. These discharges continue today.

Govt. Exh. 560 (October 21, 1999 Summary Report of Hecla Information re: Adit and Portal Discharges); Tr.,Vol. VIII, Jan. 31, 2001, pp. 1375-1378 (reciting the Rule 30(b)(6) testimony of Paul Rosasco, October 22, 1999, pp. 27-30); Tr.,Vol. XVII, Feb. 14, 2001, pp. 3243-44, 3248-58 (Dr. Ann Maest) & Govt. Exh. 951C (map showing lead concentrations), Govt. Exh. 951D (map showing zinc concentrations); Tr.,Vol. XXXVI, March 19, 2001, p 7536 (Callie Ridolfi) & Govt. Exh. 2357 (chart showing adit discharges from Hecla No. 3 adit).

B. <u>The Gem Mill</u>

118. The Gem Mill was located on and partly over Canyon Creek, to the southwest of the Hecla mine properties. In 1903, Hecla purchased the Gem Mill, and the property underlying the mill, and continues to own them today.

Govt. Exh. 202 (GIS Map of Hecla Gem); Govt. Exh. 407 (Hecla Map Canyon Creek); Tr., Vol. VII, Jan. 30, 2001, p. 1316 (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, Aug. 27, 1999, p. 608); Tr., Vol. VII, Jan. 30, 2001, pp. 1315-1316 (reciting the Rule 30(b)(6) deposition testimony of Michael White, Aug. 24-25, 1999, pp. 161-162).

119. From 1904 until 1944, Hecla Mining Co. owned and operated the Hecla Gem Mill. That Mill processed ore from the Hecla Mine. After 1944, the Hecla Gem Mill processed tailings previously generated at the Osburn Mill.

Tr., Vol. III, June 24, 2001 pp. 420-24 (Dr. Quivik); Tr., Vol. VII, Jan. 30, 2001, pp. 1317-1318 (reciting the Rule 30(b)(6) deposition testimony of Ralph Noyes, Aug. 25-26, 1999, p. 392); Tr., Vol. VII, Jan. 30, 2001, p. 1317 (reciting the Rule 30(b)(6) deposition testimony of Michael White, Aug. 24-25, 1999, p. 163).

120. **Releases of Tailings:** During the time that Hecla owned and operated the Gem Mill, tailings were generated at the Gem Mill. The Hecla Gem Mill generated approximately 6,280,000 tons of tailings.

Tr., Vol. VII, Jan. 30, 2001, p. 1319 (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, Aug. 27, 1999, p. 640); Tr., Vol. XV, Feb. 12, 2001 (Dr. Rex Bull), pp. 2894-95; Tr.,Vol. XVII, Feb. 13, 2001, pp. 3023 (Dr. Rex Bull); Govt. Exh. 2275R; Govt. Exh. 2224

121. Tailings generated at the Hecla Gem Mill contained lead and zinc.

Tr., Vol. III, Jan. 24, 2001, p. 434-435 (Dr. Fred Quivik); Tr., Vol. VII, Jan. 30, 2001, pp. 1319-1320, 1322-24 (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, Aug. 27, 1999, pp. 640 & 716-17).

122. During the time that Hecla owned and operated the Gem Mill, the large majority of tailings from the Gem Mill were disposed directly into Canyon Creek, while some were stacked adjacent to Canyon Creek. The tailings that the Gem Mill disposed directly into Canyon Creek washed down the creek. Some of the tailings that the Gem Mill stacked adjacent to Canyon Creek were re-milled, and the tailings generated from this re-milling were discharged to Canyon Creek.

Tr., Vol. III, Jan. 24, 2001, p. 434 (Dr. Fred Quivik); Tr., Vol. VII, Jan. 30, 2001, pp. 1324-1328 (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, Aug. 27, 1999, pp. 643-645, 657-658).

123. **Hecla Ore Processed at Other Mills:** In 1897, and from 1900 to 1904, ore from the Hecla Mine was milled at the Milwaukee Mining Company Gem Mill. Tailings generated at the Milwaukee Company Gem Mill contained lead and zinc and were disposed into Canyon Creek.

Govt. Exh. 436 (Ore for mills for Hecla, Star and Star/Morning); Tr., Vol. VIII, Jan. 31, 2001, p. 1366-67 (reciting the Rule 30(b)(6) deposition testimony of Michael White, Aug. 24-25, 1999, pp. 77-78); Govt. Exh. 436 (Ore for mills for Hecla, Star and Star/Morning); Tr., Vol. III, Jan. 24, 2001, p. 422, 434-35 (Dr. Fred Quivik).

124. From 1897 to 1900, ore from the Hecla Mine was milled at the Standard Mining Company Mill at Wallace, Idaho. Tailings generated at the Standard Mining Company Mill at Wallace, Idaho contained lead and zinc and were disposed into Canyon Creek.

Govt. Exh. 436 (Ore for mills for Hecla, Star and Star/Morning); Tr., Vol. VIII, Jan. 31, 2001, p. 1366 (reciting the Rule 30(b)(6) deposition testimony of Michael White, Aug. 24-25, 1999, pp. 77-78); Tr., Vol. III, Jan. 24, 2001, p. 444-445, 451-452, 457-58 (Dr. Fred Quivik).

125. In 1917, Hecla leased the Marsh Mining Company Black Cloud Mill and processed ore from the Hecla Mine there. The Black Cloud Mill, also known as the Marsh Mill, was located adjacent to Nine Mile Creek. During the time it was leased by Hecla, the Black Cloud Mill discharged tailings containing lead and zinc into Nine Mile Creek.

Govt. Exh. 436 (Ore for mills for Hecla, Star and Star/Morning); Tr., Vol. VIII, Jan. 31, 2001, p. 1368 (reciting the Rule 30(b)(6) deposition of Michael White, Aug. 24-25, 1999, p. 79); Tr., Vol. III, Jan. 24, 2001, p. 609-612 (Dr. Fred Quivik).

C. <u>The Star Mine and Mill</u>

126. The Star Mine is located in Canyon Creek, near Burke, Idaho. In 1961, Hecla obtained a 30% interest in the production from the Star and Morning Mines, and retained that interest until 1981. In 1966, the Hecla Mining Company acquired title to portions of the Morning Mine from ASARCO. The portions of the Morning Properties and Star properties held by Hecla have also been referred to as the Star-Morning Unitized Area, the Star-Morning Unit, and the Star-Morning Mine.

Govt. Exh. 216; Tr., Vol. III, Jan. 24, 2001, pp. 542-543 (Dr. Fred Quivik); Tr., Vol. VIII, Jan. 31, 2001, pp. 1384-1386 (reciting from Hecla's Objections to Requests to Admit and Responses to Requests Nos. 574-628 and 1231-1338 (June 24, 1999) (hereafter "Hecla 6/24/99 Resp. to RFA No.___") 1312, 1316 & 1317).

127. From May 1, 1981 until 1982, Hecla held a 50 percent interest in the production of the Star-Morning Unit Properties. Since 1995, Hecla has owned 100% of the Star group mine properties.

Tr., Vol. VIII, Jan. 31, 2001, p. 1386 (reciting from Hecla 6/24/99 Resp. to RFA No. 1326); Tr., Vol. VIII, Jan. 31, 2001, p. 1388 (reciting the Rule 30(b)(6) deposition testimony of Michael White, Aug. 24, 25, 1999, pp. 30-31).

128. Hecla operated the Star Mine from 1921 to 1982. Additionally, from 1961 to 1966, Hecla conducted activities on portions of the Star Unit Area, the combination of portions of the Morning Properties and the Star Properties. At the Star Unit Area, Hecla's responsibilities included making decisions as to where to drill and drift within the mine, the processes used to extract ore from the mine, deciding how many employees should work in the mine and how much production was required.

Tr., Vol. VIII, Jan. 31, 2001, pp. 1390-1391 (reciting the Rule 30(b)(6) deposition testimony of Michael White, Aug. 24-25, 1999, pp. 11-13); Tr., Vol. VIII, Jan. 31, 2001, pp. 1392-1393 (reciting from Hecla 6/24/99 Resp. to RFA No. 1306); Tr., Vol. VIII, Jan. 31, 2001, pp. 1393-1394 (reciting the Rule 30(b)(6) deposition testimony of Ralph Noyes, Aug. 27, 1999, pp. 184-185).

129. Together, the Star Mine and the Star-Morning Unit Area produced over 31 million tons of ore through 1981.

Tr., Vol. VIII, Jan. 31, 2001, pp. 1395-1396 (reciting the Rule 30(b)(6) deposition testimony of Ralph Noyes, Aug. 26, 1999, pp. 257-258).

130. **Waste Rock:** During the time Hecla owned the Hecla Mine, there were waste rock piles outside of the portals to the Star Mine. When water comes into contact with waste rock piles a leaching process ensues whereby hazardous substances in the waste rock, including lead, zinc and cadmium, are released into area surface waters and groundwater. Data collected from the waste rock piles at the Morning No 4 adit, the Morning No. 5 adit, the Star 1200 adit, and the Grouse Mine adit show that the waste rock piles contain cadmium, lead and zinc.

Tr., Vol. VIII, Jan. 31, 2001, p. 1413 (reciting the Rule 30(b)(6) testimony of Larry Drew, September 29, 1999, p. 314); Tr., Vol. XVII, Feb. 14, 2000 (Dr. Ann

Maest), pp. 3259-69, 3327-36; Govt. Exhs. 966 (Diagram showing rain and snow falling on mine wastes and infiltration into groundwater) and 968 (Animation of chemical fate and transport) (admitted for illustrative purposes); Tr., Vol. XXXVI, March 19, 2000 (Callie Ridolfi), pp. 7529-31; Govt. Exh. 2356 (chart showing waste rock sampling data).

131. **Mine Water Discharges:** During the time Hecla owned the Star Mine property, water that discharged from mine openings contained hazardous substances including lead, cadmium and zinc. Mine water drainage from the Hecla No. 3 or Star 2000 portal and from the Omaha Portal discharges to the Star No. 6 tailings pond. Mine water drainage from the Morning Mine No. 6 portal discharges to Slaughterhouse Gulch and thence to the South Fork of the Coeur d'Alene River. Mine water drainage from the Star 2000 and 1000 level portals discharge to Grouse Gulch, and thence to Canyon Creek. Mine water drainage from the Star 700 level, Morning Mine No. 5, Fanny Gem and Morning Mine No. 3 portals infiltrate into the ground at their discharge point. Data collected from the Morning No. 4 adit shows that the discharge currently contains lead and zinc. Data collected from the Morning No. 5 adit shows that the discharge currently contains cadmium, zinc and lead. Data collected from the Morning No. 6 adit shows that the discharge currently contains cadmium, zinc and lead. Data collected from the Star 1200 adit shows that the discharge currently contains cadmium, zinc and lead. Data collected from the Grouse Mine adit shows that the discharge contains zinc and lead.

Tr.,Vol. XVII, Feb. 14, 2001, pp. 3243-44, 3248-58 (Dr. Ann Maest); Govt. Exh. 951C (map showing lead concentrations); Govt. Exh. 951D (map showing zinc concentrations); Tr., Vol. VIII, Jan. 31, 2001, pp. 1410-1412 (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, September 29, 1999, pp. 326-328); Tr.,Vol. XXXVI pp. 7518-19, 7526-228 (Callie Ridolfi) & Govt. Exh. 2355 (chart showing discharge data for the Morning adits).

132. The Star Mill was located on Canyon Creek, in Burke, Idaho. In 1981, Hecla acquired a 50% ownership interest in the Star Mill, and in 1995 Hecla acquired full ownership of the Mill.

> Tr., Vol. VIII, Jan. 31, 2001, p. 1402 (reciting the Rule 30(b)(6) deposition testimony of Ralph Noyes, Aug. 27, 1999, p. 166); Tr., Vol. VIII, Jan. 31, 2001, pp. 1399-1402 (reciting the Rule 30(b)(6) deposition testimony of Michael White, Aug. 24-25, 1999, pp. 51-53).

133. From 1937 until 1982, Hecla operated and managed day-to-day operations at the Star Mill. From 1937 until 1961, Hecla processed all of the ore extracted from the Star Mine properties at the Star Mill. From 1961 to 1982, the vast majority of ores extracted from the Star Mine were processed at the Star Mill.

> Tr., Vol. VIII, Jan. 31, 2001, p. 1402-04 (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, September 29, 1999, p. 357); Tr., Vol. III, Jan. 24, 2001, p. 542 (Dr. Fred Quivik); Tr., Vol. VIII, Jan. 31, 2001, pp. 1402-1403 (reciting the Rule 30(b)(6) deposition testimony of Ralph Noyes, Aug. 27, 1999, pp. 166-167).

134. **Releases of Tailings:** From 1937 until 1982, when Hecla managed the Star Mill, the mill generated approximately 8,198,911 tons of tailings.

> Tr., Vol. XV, Feb. 12, 2001 (Dr. Rex Bull), pp. 2956; Govt. Exh. 2266 (Star Mill Performance Table reflecting tailings discharge).

135. The tailings generated by the Star Mill contained lead, cadmium, zinc and other metals classified as hazardous substances.

> Tr., Vol. VIII, Jan. 31, 2001, p. 1405 (reciting from Hecla 6/24/99 Resp. to RFA No. 1334); Tr., Vol. III, Jan. 24, 2001, p. 546 (Dr. Fred Quivik).

136. During the time Hecla operated the Star Mill, until 1968, all of the tailings generated by Hecla at the Star Mill were disposed into Canyon Creek. The tailings disposed to

Canyon Creek from the Star Mill became intermingled with tailings from other mills along Canyon Creek.

> Tr., Vol. VIII, Jan. 31, 2001, p. 1405 & 1407-08 (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, Aug. September 29, 1999, pp. 341-42 & 345); Tr., Vol. III, Jan. 24, 2001, p. 544-546 (Dr. Fred Quivik).

137. The tailings ponds at the Star Mill contain between 1.6 and 1.9 million tons of tailings, and cover an area approximately 50 acres in size. Hecla began impounding tailings from the Star Mill in 1968. Seeps and other releases from the tailings ponds at the Star Mill consist of water containing concentrations of between 50 to 500 micrograms per liter of lead and 5,000 to 50,000 micrograms per liter of zinc.

> Tr., Vol. VIII, Jan. 31, 2001, pp. 1408-1410 (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, September 29, 1999, pp. 399-400 & 373-74); Tr., Vol. XVII, Feb. 14, 2001, p. 3269 & 3273 (Dr. Anne Maest); Tr.,Vol. III, Jan. 24, 2001, p. 543 (Dr. Fred Quivik).

138. **Star Mine Ores Processed at Other Mills:** From 1925 to 1930, approximately 400, 000 tons of ore produced from the Star Mine was processed at the Bunker Hill South Mill in Kellogg, Idaho. The Bunker Hill South Mill was located along the South Fork of the Coeur d'Alene River

> Govt. Exh. 436 (Ore for mills for Hecla, Star and Star/Morning); Tr., Vol. III, Jan. 24, 2001, p. 537-540 (Dr. Fred Quivik).

139. In 1936, ore produced from the Star Mine was processed at the Hercules Mill in Wallace, Idaho.

> Tr., Vol. VIII, Jan. 31, 2001, p. 1413 (reciting from Hecla 6/24/99 Resp. to RFA No. 1291); Tr., Vol. III, Jan. 24, 2001, p. 540-541 (Dr. Fred Quivik).

D. The Hercules Mine and Mills

140. The Hercules properties currently consist of 115 patented mining claims owned by Hecla. The claims are located on the north side of Canyon Creek, approximately two miles north of Burke, Idaho, and within the drainage of the South Fork of the Coeur d'Alene River.

> Tr., Vol. VIII, Jan. 31, 2001, p.1420 (reciting Defendant Hecla Mining Company's Rule 16.1(c) Pre-Trial Statement, December 4, 2000, at Undisputed Fact Nos. 8, 9, 10 (hereafter referred to as "Hecla Undisputed Fact No. ___"); Govt. Exhs. 424 (July 7, 1999 Deposition Notes relating to Hercules/Sherman Properties List) & 425 (July 7, 1999 Deposition Notes relating to the Hercules/Sherman Mines Chart).

141. From approximately 1901 through 1959, Hecla and its predecessors conducted mining activities on the Hercules property. At least 3.4 million tons of ore were produced from the Hercules mine.

> Tr., Vol. VIII, Jan. 31, 2001, pp. 1420-21 (reciting Hecla Mining Company's Objections to Requests to Admit and Responses to Requests Nos. 629-690 and Nos. 1388-1443, dated June 4, 1999 (hereafter Hecla's 6/4/99 Resp. to RFA No. __"), No. 680); Tr., Vol. VIII, Jan. 31, 2001, pp. 1426-27 (reciting from Govt. Exh. 506 (July 4, 1999 Deposition Notes by Gene Pierson regarding the Hercules/Sherman Operations] at pp. 9-10); Tr., Vol. VIII, Jan. 31, 2001, p. 1425 (reciting the Rule 30(b)(6) deposition testimony of Gene Pierson, July 7 & 8, 1999, pp. 69-70).

142. From 1889 until 1923, a partnership of individuals known as "the Hercules Mining Company, a mining partnership" conducted mining activities on the Hercules property. The partnership owned and operated the Hercules mine until 1923. From 1923 to 1947, the Hercules mine was owned and operated by the Hercules Mining Company. Beginning in 1947, Day Mines, Inc., owned and operated the Hercules mine. Day Mines Inc. operated the mine until it ceased production in 1959. Day Mines Inc. owned the mine until its merger into Hecla Day Mining Copmany in 1981.

Tr., Vol. VIII, Jan. 31, 2001, pp. 1420-21 (reciting Hecla's 6/4/99 Resp. to RFA No. 631 & 632); Tr., Vol. VIII, Jan. 31, 2001, p. 1443 (reciting from Hecla Exhibit 13192); Tr., Vol. VIII, Jan. 31, 2001, p. 1421-22, 1441 (reciting the Rule 30(b)(6) deposition testimony of Michael White, July 7, 1999, pp. 114-16); Govt. Exhs. 424 (July 7, 1999 Deposition Notes relating to the Hercules/Sherman Properties List), 425 (July 7, 1999 Deposition Notes relating to the Hercules/Sherman Mines Chart); 506 (July 4, 1999 Deposition Notes by Gene Pierson regarding the Hercules/Sherman Operations).

143. **Waste Rock:** There are approximately 20-30 waste piles associated with the Hercules and Sherman properties. Hecla owns the waste rock piles located on Hecla claims. When water comes into contact with waste rock piles a leaching process ensues whereby hazardous substances in the waste rock, including lead, zinc and cadmium, are released into area surface waters and groundwater.

Tr., Vol. VIII, Jan. 31, 2001, p. 1436 (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, July 8, 1999, pp. 25-26 & 30-31); Tr., Vol. VIII, Jan. 31, 2001, p 1437 (reciting the Rule 30(b)(6) deposition testimony of Michael White, July 7, 1999, p. 95); Tr.,Vol. XVII pp. 3259-69, 3327-36 (Dr. Ann Maest); Govt. Exhs. 966 (Diagram showing rain and snow falling on mine wastes and infiltration into groundwater) and 968 (Animation of chemical fate and transport) (admitted for illustrative purposes).

144. **Mine Water Discharges:** Water is discharged from Hercules Adit No.5 and two others. Water that is discharged from mine openings contains hazardous substances including lead, cadmium and zinc. Sampling data shows that cadmium, zinc and lead currently are discharged from the Hercules No. 5 adit, and that cadmium and zinc currently are discharged from the Hidden Treasure adit.

Tr., Vol. VIII, Jan. 31, 2001, pp. 1438-39 (reciting the Rule 30(b)(6) deposition testimony of Paul Rosasco, October 22, 1999, pp. 69-70); Govt. Exh. 560 (October 21, 1999 Summary Report of Hecla Information re: Adit and Portal Discharges); Tr.,Vol. XVII, Feb. 14, 2001, pp. 3243-44, 3248-58 (Dr. Ann Maest); Govt. Exh. 951C (map showing lead concentrations); Govt. Exh. 951D (map showing zinc concentrations); Tr., Vol. XXXVI, March 19, 2000 (Callie

Ridolfi), pp. 7533-35; Govt. Exh. 2359 (chart showing sampling data for adits on the Hercules property).

1. Hercules No. 4 Mill

145. Some ore from the Hercules property were milled at a mill located near the Hercules No. 4 portal. From approximately 1905 though 1909, the Hercules Mining Company owned and operated this Mill.

Tr., Vol. VIII, Jan. 31, 2001, p. 1428-29 (reciting the Rule 30(b)(6) deposition testimony of Michael White, July 7, 1999, pp. 60-61, 63, & 66-67); Tr., Vol. III, Jan. 24, 2001 (Dr. Fred Quivik), pp. 473-74 & 477-79; Govt. Exh. 506 at 1 (July 4, 1999 Deposition Notes by Gene Pierson regarding the Hercules/Sherman Operations).

146. During the time the Hercules Mining Company owned and operated the Hercules No 4 Mill, the tailings from that mill were discharged to Gorge Gulch. The tailings discharged from the Hercules No. 4 Mill contained lead and zinc. A total of 310,000 tons of tailings were produced at the Hercules No. 4 Mill.

Tr., Vol. III, Jan. 24, 2001 (Dr. Fred Quivik), pp. 479-81; Tr., Vol. VIII, Jan. 31, 2001, pp. 1432-36 (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, July 8, 1999, pp. 74-75 & 86-88); Govt. Exh. 2276 (Table of the Hercules Mill 1906-1949).

2. The Hercules Mill Near Wallace

147. In 1911 (or 1912), the Hercules Partnership built a mill near Wallace, Idaho. The Hercules partnership owned the Hercules mill near Wallace. In 1923, the Hercules Partnership deeded all of its assets to the Hercules Mining Company.

Tr., Vol. IV, Jan. 25, 2001 (Dr. Fred Quivik), pp. 697-98; Tr., Vol. VIII, Jan. 31, 2001, p. 1430-31 (reciting the Rule 30(b)(6) deposition testimony of Michael White, July 7, 1999, pp. 64-65 & 67); Govt. Exh. 426 (July 7, 1999 Deposition Response Notes relating to the history of Hercules Mining Co. Corp.); Hecla Exhibit 13192 at pp. 9 & 14.

148. For most of the time period from 1911 until approximately 1950, the Hercules Mining Company processed ore at the Hercules Mill near Wallace.

Tr., Vol. IV, Jan. 25, 2001 (Dr. Fred Quivik), pp. 698-702.

149. From 1911-1925, the Hercules Mill near Wallace milled ore from the Hercules mine. From 1925 until 1940, the mill processed ores from other properties, including the Sherman property.

Tr., Vol. VIII, Jan. 31, 2001, p. 1432 (reciting Hecla Undisputed Fact No. 17); Tr., Vol. VIII, Jan. 31, 2001, pp. 1430-31 (reciting the Rule 30(b)(6) deposition testimony of Michael White, July 7, 1999, pp. 64); Tr., Vol. IV, Jan. 25, 2001 (Dr. Fred Quivik), pp. 700-01.

150. During the time the Hercules Mining Company operated the Hercules Mill near Wallace, tailings from that mill were discharged to the South Fork of the Coeur d'Alene River. Tailings discharged from the Hercules Mill near Wallace contained lead and zinc. Tailings were discharged to the creek and then conveyed downstream. A total of 2,830,000 tons of tailings were produced at the Hercules Mill near Wallace from 1911-1949.

Tr., Vol. IV, Jan. 25, 2001, p. 706 (Dr. Fred Quivik); Tr., Vol. VIII, Jan. 31, 2001, pp. 1432-36 (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, July 8, 1999, pp. 74-75 & 86-88); Govt. Exh. 2276 (Table of the Hercules Mill 1906-1949).

151. Some ores from the Hercules property were sent to the Tiger Mill for milling.

Tr., Vol. III, Jan. 24, 2001 (Dr. Fred Quivik), pp. 478-79; Tr., Vol. VIII, Jan. 31, 2001, p. 1439 (reciting the Rule 30(b)(6) deposition testimony of Michael White, July 7, 1999, pp. 63-64).

3. Hecla's Assumption of Liability for the Hercules Mine and Mill

152. Hecla has succeeded to the liabilities of the Hercules Mining Company, Day Mines, Inc., and Hecla Day Mining Company.

Tr., Vol. VIII, Jan. 31, 2001, pp. 1440-42 (reciting the Rule 30(b)(6) deposition testimony of Michael White, July 7, 1999, pp. 116-119); Tr., Vol. VIII, Jan. 31, 2001, pp. 1442-43 (reciting Hecla's 6/4/99 Resp. to RFA No. 689); Govt. Exh. 426 (July 7, 1999 Deposition Response Notes relating to the history of Hercules Mining Co. Corp.).

153. In 1923, the partnership that owned and operated the Hercules mine and mill dissolved and the Hercules Mining Company was incorporated. At that time, the Hercules property, including the Hercules Mill near Wallace, transferred from the partnership known as the Hercules Mining Company to the corporation of the same name. The corporation known as the Hercules Mining Company was formed so that the business conducted by the partnership could continue as a "going concern." Shares were distributed to the shareholders in the corporation in the same proportion as the shareholders' interest in the partnership known as the Hercules Mining Company.

Tr., Vol. VI, Jan. 29, 2001 (Dr. Fred Quivik), pp. 937-38; Tr., Vol. VIII, Jan. 31, 2001, p. 1421-22, 43 (reciting the Rule 30(b)(6) deposition testimony of Michael White, July 7, 1999, p. 67); Tr., Vol. VIII, Jan. 31, 2001, p. 1445 (reciting from Hecla Exhibit 13192).

E. <u>The Sherman Mine and Mill</u>

154. The Sherman properties are located on Canyon Creek. In 1947, the Sherman Lead Company purchased the Sherman properties. In 1947, ownership of the Sherman properties was transferred to Day Mines, Inc. and later transferred to Hecla-Day Mining Corporation in 1981 and to Hecla Mining Company in 1982.

Govt. Exh. 407 (Hecla Map Canyon Creek); Tr., Vol. VIII, Jan. 31, 2001, pp. 1451-54 (reciting the Rule 30(b)(6) deposition testimony of Michael White, July 7, 1999, p. 24 & 119-20); Govt. Exh. 424 (July 7, 1999 Deposition Notes regarding the Hercules/Sherman Properties List); and Govt. Exh. 427 (July 7, 1999 Deposition Response Notes regarding the history of the Sherman Lead Co. Corp.).

155. Between 1925 and 1960, the Sherman Lead Company and Day Mines, Inc. produced at least 650,000 tons of ore from the Sherman Properties. There was some limited production after 1960.

> Tr., Vol. VIII, Jan. 31, 2001, p. 1455 (reciting from Govt. Exh. 506 at 12C -12D (July 4, 1999 Deposition Notes by Gene Pierson regarding the Hercules/Sherman Operations)); Tr.,Vol. III, Jan. 24, 2001, pp. 488-89 (Dr. Fred Quivik).

156. **Waste Rock:** There are approximately 20-30 waste piles associated with the Hercules and Sherman claims owned by Hecla, several of which are on the Sherman properties. Hecla owns the waste rock piles located on Hecla claims. When water comes into contact with waste rock piles a leaching process ensues whereby hazardous substances in the waste rock, including lead, zinc and cadmium, are released into area surface waters and groundwater.

> Tr., Vol. VIII, Jan. 31, 2001, p. 1436 & 1458-59 (reciting Rule 30(b)(6) deposition testimony of Larry Drew, July 8, 1999, pp. 25-26, & 28-31); Tr., Vol. VIII, Jan. 31, 2001, p.1437 (reciting Rule 30(b)(6) deposition testimony of Michael White, July 7, 1999, p. 95); Tr.,Vol. XVII pp. 3259-69, 3327-36 (Dr. Ann Maest); Govt. Exhs. 966 (Diagram showing rain and snow falling on mine wastes and infiltration into groundwater) and 968 (Animation of chemical fate and transport) (admitted for illustrative purposes).

157. **Mine Water Discharges:** Water is discharged from adits on the Sherman mine properties. During the time Sherman Lead Company, Day Mines, Inc., and later Hecla-Day Mining Corporation and Hecla Mining Company owned the Sherman Mine property, water discharging from mine openings contained hazardous substances including lead, cadmium and zinc

> Govt. Exh. 506 (July 4, 1999 Deposition Notes by Gene Pierson regarding the Hercules/Sherman Operations); Tr.,Vol. XVII, Feb. 14, 2001, pp. 3243-44, 3248-58 (Dr. Ann Maest); Govt. Exh. 951C (map showing lead concentrations); Govt. Exh. 951D (map showing zinc concentrations).

158. Until 1940, Sherman ores were processed at the Hercules Mill near Wallace.

Tr., Vol. III, Jan. 24, 2001 (Dr. Fred Quivik), p. 488; Tr., Vol. VIII, Jan. 31, 2001, pp. 1459-60 (reciting the Rule 30(b)(6) deposition testimony of Michael White, July 7, 1999, p. 64).

159. The Sherman Mill was located in Burke, Idaho. From 1940 until at least 1960, the Sherman Lead Company, then Day Mines, Inc., owned and operated the mill. During that period, the Sherman Mill processed all ore from the Sherman property.

Tr., Vol. VIII , Jan. 31, 2001, p.1456-57 (reciting the 30(b)(6) deposition testimony of Michael White, July 7, 1999, p. 65 & 69-70); Tr., Vol. III, Jan. 24, 2001 (Dr. Fred Quivik), p. 485 & 487-89; Tr., Vol. VIII, Jan. 31, 2001, p. 1455 (reciting from Govt. Exh. 506 at 1: July 4, 1999 Deposition Notes by Gene Pierson regarding the Hercules/Sherman Operations).

160. **Release of Tailings:** During the time that the Sherman Lead Company, and later Day Mines, Inc., owned and operated the Sherman Mill, tailings from the Sherman Mill were discharged into Canyon Creek. These tailings contained lead and zinc. A total of 570,000 tons of tailings were produced at the Sherman Mill between 1940 and 1959.

Tr., Vol. III, Jan. 24, 2001 (Dr. Fred Quivik), pp. 489-91; Tr., Vol. VIII, Jan. 31, 2001, pp. 1457-58 (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, July 8, 1999, p. 87-89); Tr., Vol. XV, Feb. 12, 2001 (Dr. Rex Bull), pp. 2897-98; Govt. Exh. 2274 (Table of the Sherman Mill 1940-1959).

161. **Hecla's Assumption of Liabilities:** In 1947, Sherman Lead Company consolidated into Day Mines, Inc., and Day Mines Inc. obtained the assets and liabilities of Sherman Lead Company. In 1981, Hecla Day Mining Corporation acquired the liabilities of Day Mines, Inc., including the liabilities of Sherman Lead Company. In 1982, Hecla Mining Company acquired the liabilities of Hecla-Day Mining Corporation, including the liabilities of the Sherman Lead Company.

Tr., Vol. VIII, Jan. 31, 2001, pp. 1452-53, 1460-61 (reciting the Rule 30(b)(6) deposition testimony of Michael White, July 7, 1999, pp. 119-20, 126-127); Tr., Vol. VIII, Jan. 31, 2001, p. 1454 (reciting from Govt. Exh. 427: July 7, 1999 Deposition Response Notes regarding the history of Sherman Lead Co. Corp. History).

F. <u>The Dayrock Mine and Mill</u>

162. In 1960, the Dayrock property consisted of approximately 70 mining claims, including three patented mill site claims. The Dayrock Property is located near Ninemile Creek about three miles north of Wallace, Idaho, within the drainage of the South Fork of the Coeur d'Alene River. In 1928, as a result of the reorganization of Strattons Mines Co., Dayrock Mining Company took title to the Dayrock Mine and owned it until 1947. From 1947 to 1981, Day Mines, Inc. owned the Dayrock Mine.

Tr., Vol. VIII, Jan. 31, 2001, pp. 1521-22, 1524 & 1540 (reciting Hecla Mining Company's Objections to Requests to Admit and Responses to Requests Nos. 375-416, dated May 28, 1999 (hereafter referred to as "Hecla 5/28/99 Resp. to RFA No. ___"), Nos. 375-376, No. 389, No. 403, & No. 678); Tr., Vol. VIII, Jan. 31, 2001, pp. 1523-24 (reciting the 30(b)(6) deposition testimony of Michael White, June 29, 1999, p. 45).

163. From 1928 to 1947, Dayrock Mining Company operated the Dayrock mine. From 1947 to 1974, Day Mines, Inc. operated the Dayrock Mine.

Tr., Vol. VIII, Jan. 31, 2001, pp. 1524-25 (reciting Hecla 5/28/99 Resp. to RFA Nos. 377 & 394); Tr., Vol. VIII, Jan. 31, 2001, p. 1524 (reciting the 30(b)(6) deposition testimony of Michael White, June 29, 1999, p. 35).

164. **Waste Rock:** During the time Dayrock Mining Company and Day Mines, Inc. owned and operated the Dayrock Mine, piles of waste rock were deposited near the adits to the mine. Additionally, waste rock from the Dayrock property was placed near the confluence of the East Fork of Nine Mile Creek and Nine Mile Creek. When water comes into contact with waste

rock piles a leaching process ensues whereby hazardous substances in the waste rock, including lead, zinc and cadmium, are released into area surface waters and groundwater

> Tr., Vol. VIII, Jan. 31, 2001, pp. 1533-35 (reciting the 30(b)(6) deposition testimony of Larry Drew, June 30, 1999, pp. 14-15 & 64); Tr., Vol. XVII, Feb. 14, 2000 (Dr. Ann Maest), pp. 3259-69, 3327-36; Govt. Exhs. 966 (Diagram showing rain and snow falling on mine wastes and infiltration into groundwater) and 968 (Animation of chemical fate and transport) (admitted for illustrative purposes).

165. **Mine Water Discharges:** Water is discharged from adits and portals on the Dayrock property. Water discharged from mine openings contained hazardous substances including lead, cadmium and zinc. Data shows that the Dayrock 100 level adit currently discharges cadmium, zinc and lead, and that the Dayrock main level discharges zinc, lead, and small amounts of cadmium.

> Govt. Exh. 560 (October 21, 1999 Summary Report of Hecla Information re: Adit and Portal Discharges); Tr., Vol. XVII , Feb. 14, 2000 (Dr. Ann Maest), pp. 3243-44, 3248-58; Govt. Exhs. 951C (map showing lead concentrations) and 951D (map showing zinc concentrations); Tr., Vol. XXXVI, March 19, 2000 (Callie Ridolfi), pp. 7548-49; Govt. Exh. 2367 (chart showing sampling data for Dayrock adits).

166. In 1941, a mill was constructed on the Dayrock property. That mill processed ores from the Dayrock mine from 1941 until approximately 1970. From 1941 until 1947, Dayrock Mining Company owned and operated the Dayrock Mill. From 1947 to approximately 1970, Day Mines, Inc. owned and operated the Dayrock Mill.

> Tr., Vol. VIII, Jan. 31, 2001, pp. 1525-26 (reciting the 30(b)(6) deposition testimony of Michael White, June 29, 1999, p. 52); Tr., Vol. VIII, Jan. 31, 2001, pp. 1526-27 (reciting the 30(b)(6) deposition testimony of Gene Pierson, June 29 & 30, 1999, pp. 25-26); Tr., Vol. III, Jan. 24, 2001 (Dr. Fred Quivik), p. 615-16; Tr., Vol. VIII , Jan. 31, 2001, p. 1525 (reciting Hecla 5/28/99 Resp. to RFA No. 377).

167. **Release of Tailings:** During the time Dayrock Mining Company and Day Mines, Inc. owned and operated the Dayrock Mill, until 1968, tailings from the Dayrock mill were discharged to Ninemile Creek. Some tailings were sandfilled. The tailings discharged from the Dayrock Mill contained lead, zinc, and other hazardous substances. Between 1941 and 1974, approximately 1,030,000 tons of tailings were produced at the Dayrock Mill.

> Tr., Vol. III, Jan. 24, 2001 (Dr. Fred Quivik), pp. 616-19; Tr., Vol. VIII, Jan. 31, 2001, pp. 1527-28 & 1535-36 (reciting the 30(b)(6) deposition testimony of Larry Drew, June 30, 1999, pp. 18-20, 63-64 & 83); Govt. Exh. 2278 (Table of the Dayrock Mill 1941-1974);

168. There is one tailings impoundment associated with the Dayrock properties. The tailings impoundment was constructed in 1966 or 1967 in response to historical concerns about discharges of tailings to streams, and was constructed without a liner. The tailings impoundment discharged water through a single outfall to Nine Mile Creek.

> Tr., Vol. VIII, Jan. 31, 2001, pp. 1528-29 (reciting the 30(b)(6) deposition testimony of Michael White, June 29, 1999, p. 30); Tr., Vol. VIII, Jan. 31, 2001, pp. 1529-33 (reciting the 30(b)(6) deposition testimony of Larry Drew, June 30, 1999, pp. 18, 28-29, 54, & 80-81).

169. **Hecla's Assumption of Liabilities:** Day Mines, Inc. assumed the liabilities of Dayrock Mining Company. In 1981, Day Mines, Inc. merged into Hecla Day Mining Corporation and Hecla Day Mining Corporation acquired all the assets and liabilities of Day Mines, Inc. In 1982, Hecla Day Mining Corporation merged into Hecla Mining Company and Hecla Mining Company acquired all the assets and liabilities of Hecla Day Mining Corporation, including the liabilities of Day Mines, Inc. and Dayrock Mining Company.

> Tr., Vol. VIII, Jan. 31, 2001, pp. 1538-39 (reciting the 30(b)(6) deposition testimony of Michael White, June 29, 1999, pp. 38-39); Tr., Vol. VIII, Jan. 31, 2001, pp. 1539-41 (reciting Hecla 5/28/99 Resp. to RFA Nos. 379, 399, 415).

G. The Lucky Friday Mine and Mill

170. The Lucky Friday Mine is located in the upper reaches of the South Fork of the Coeur d'Alene River, to the east and upstream of Mullan, Idaho. At that time Hecla assumed complete ownership of the Lucky Friday mine pursuant to a 1964 merger with the Lucky Friday Silver-Lead Mines Company. Hecla also assumed all assets and liabilities of the Lucky Friday Silver-Lead Mines Company. Hecla owns the property upon which the Lucky Friday waste rock dumps are located.

> Tr., Vol. IV, Jan. 25, 2001, pp. 683-684; Tr., Vol. VIII, Jan. 31, 2001, p. 1466 (reciting from Hecla Mining Company's Objections and Requests to Admit and Responses to Requests Nos. 417-439, Nos. 537-573, Nos. 753-774, and Nos. 826-863 (June 10, 1999) (hereafter "Hecla 6/10/99 Resp. to RFA No. ___"); Govt. Exh. 415 (June 22, 1999 Deposition Response Notes regarding the Lucky Friday/Gold Hunter/DIA); Tr., Vol. VIII, Jan. 31, 2001, pp. 1468-1469, 1472-73, & 1490 (reciting the Rule 30(b)(6) deposition testimony of Michael White, June 23, 1999, pp. 65 & 123-126); Govt. Exh. 416a (March 31, 1964 Merger Agreement between Lucky Friday Silver-Lead Mines Company and Hecla Mining Company); Tr., Vol. VIII, Jan. 31, 2001, pp. 1470-1472 (reciting from Govt. Exh. 416a: March 31, 1964 Merger Agreement between Lucky Friday Silver-Lead Mines Company and Hecla Mining Company);

171. In 1942, the Lucky Friday Mine began producing ore, and it continues in operation today. From 1942 until 1964, the Lucky Friday Silver-Lead Mines Company owned and operated the Lucky Friday Mine. In December 1958 Hecla obtained an interest in the Lucky Friday Mine and Hecla management began to assist in managing that Mine. Since its 1964 merger with Lucky Friday Silver-Lead Mines Company, Hecla has owned and operated the Lucky Friday Mine. The Lucky Friday Mine produced approximately 3,998,747 tons of ore through 1980.

> Tr., Vol. VIII, Jan. 31, 2001, pp. 1476-1477 (reciting the Rule 30(b)(6) deposition testimony of Michael White, June 23, 1999, p. 131); Tr., Vol. VIII, Jan. 31, 2001,

pp. 1473-1476 (reciting the Rule 30(b)(6) deposition testimony of Ralph Noyes, June 24, 1999, pp. 86-87, 104-105, & 186-87).

172. **Waste Rock:** There are waste rock piles at all six portals and entries to the Lucky Friday and Gold Hunter mine properties. During Hecla's ownership of the Lucky Friday Mine property, water coming into contact with waste rock piles leached hazardous substances in the waste rock, including lead, zinc and cadmium, into area surface waters and groundwater.

Tr., Vol. VIII, Jan. 31, 2001, pp. 1504-1505 (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, June 23, 1999, pp. 19-20); Tr., Vol. XVII, Feb. 14, 2000 (Dr. Ann Maest), pp. 3259-69, 3327-36; Govt. Exhs. 966 (Diagram showing rain and snow falling on mine wastes and infiltration into groundwater) and 968 (Animation of chemical fate and transport) (admitted for illustrative purposes).

173. In 1959, Lucky Friday Silver-Lead Mines Company built a mill at the portal to the Lucky Friday Mine. Lucky Friday Silver-Lead Mines Company operated the Mill until the company merged with Hecla in 1964. From 1964 until today, Hecla has owned and operated the Lucky Friday Mill. From 1959 through today, substantially all of the ore from the Lucky Friday property has been milled at the Lucky Friday Mill.

Tr., Vol. VIII, Jan. 31, 2001, pp. 1483-1484 (reciting Hecla 6/10/99 Resp. to RFA No. 837); Tr., Vol. VIII, Jan. 31, 2001, p. 1470-1471 (reading from Govt. Exh. 416a: March 31, 1964 Merger Agreement between Lucky Friday Silver-Lead Mines Company and Hecla Mining Company); Tr., Vol. VIII, Jan. 31, 2001, pp. 1484-1485 (reciting the Rule 30(b)(6) deposition testimony of Michael White, June 23, 1999, pp. 27-28); Tr., Vol. VIII, Jan. 31, 2001, p. 1484 (reciting paragraph 35 from the Hecla Pre-Trial Statement); Tr.,Vol. IV, Jan. 25, 2001 p. 684 (Dr. Fred Quivik).

174. Between 1960 and 1998, the Lucky Friday Mill generated approximately 550,000 tons of tailings. Tailings generated at the Lucky Friday mill contained lead and zinc.

Tr., Vol. XV, Feb. 12, 2001 (Dr. Rex Bull), pp. 2904-2905; Govt. Exh. 2277 (Table of the Lucky Friday Mill 1960-1998); Tr., Vol. VI, Jan. 25, 2001, p. 694 (Dr. Fred Quivik).

175. **Releases of Tailings:** Beginning in 1960 until 1968 tailings from the Lucky Friday Mill were disposed into the South Fork of the Coeur d'Alene River. Tailings generated at the Lucky Friday Mill contained lead and zinc.

> Tr., Vol. VIII, Jan. 31, 2001, pp. 1485-1486 (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, June 24, 1999, pp. 41, 42); Tr., Vol. IV, Jan. 25, 2001, p. 694 (Dr. Fred Quivik).

176. Hecla began impounding tailings from the Lucky Friday Mill in 1968.

> Tr., Vol. IV, Jan. 25, 2001, p. 685 (Dr. Fred Quivik); Tr., Vol. VIII, Jan. 31, 2001, pp. 1486-1487 (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, June 24, 1999, pp. 45-46).

177. There are three tailings ponds at the Lucky Friday Mill. The first was put into operation in 1968, the second in 1972 and the third in 1979. Hecla owns the property upon which the Lucky Friday Tailings Ponds are located. The three Lucky Friday tailings ponds discharge wastewater containing metals, including zinc, to the South Fork of the Coeur d'Alene River. Some of the discharges have been in excess of the limits set forth in the NPDES permits for the Lucky Friday tailings ponds, and there have been discharges of tailings that bypassed the tailings ponds completely.

> Tr., Vol. VIII, Jan. 31, 2001, p. 1486 (reciting paragraph 38 of Hecla's Pre-Trial Statement); Tr., Vol. VIII, Jan. 31, 2001, pp. 1487-1488 (reciting the Rule 30(b)(6) deposition testimony of Michael White, June 23, 1999, pp. 37, 60); Tr., Vol. VIII, Jan. 31, 2001, pp. 1488-1489 (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, June 24, 1999, p. 53-54); Tr., Vol. XVII, Feb. 14, 2001, p. 3401, 3403-3404 (Dr. Anne Maest); Tr., Vol. IX, Feb. 1, 2001, pp. 1747-1748 (Reciting the Rule 30(b)(6) deposition testimony of Larry Drew, June 23, 1999, pp. 98-99).

178. **Processing Lucky Friday Ore at the Golconda Mill:** The Golconda Mill was located on the South Fork of the Coeur d'Alene River, downstream of the Lucky Friday Mine.

From 1942 through 1958, ore from the Lucky Friday Mine was processed at the Golconda Mill. The Lucky Friday Silver-Lead Mines Company continued to own the ore throughout the milling process at the Golconda Mill. The tailings generated at the Golconda Mill were disposed into the South Fork of the Coeur d'Alene River, or were placed on the banks of the river and were later swept away by the waters of the river. From 1928 until 1959, the Golconda Mill generated approximately 780,000 tons of tailings. The tailings generated at the Golconda Mill contained lead, cadmium, zinc, mercury, arsenic and other hazardous substances.

> Govt. Exh. 200 (GIS Map of Golconda 2); Tr., Vol. VIII, Jan. 31, 2001, pp. 1478-1479 (reciting the Rule 30(b)(6) deposition testimony of Michael White, June 23, 1999, pp. 113-114); Tr., Vol. VIII, Jan. 31, 2001, pp. 1481-1483 (reciting the Rule 30(b)(6) deposition testimony of Ralph Noyes, June 24, 1999, pp. 111-114); Tr., Vol. XVI, Feb. 13, 2001, pp. 3047-48 (Dr. Rex Bull); Tr., Vol. VIII, Jan. 31, 2001, p. 1480 (reciting Hecla 6/10/99 Resp. to RFA No. 859).

H. <u>The Gold Hunter Mine and Associated Mills</u>

179. The Gold Hunter Mine and Mill are located on the upper reaches of the South Fork of the Coeur d'Alene River, east of Mullan, Idaho. By 1893, the Gold Hunter Mining and Smelting Company owned the Gold Hunter Mine, and began producing ore from the mine in 1902.

> Tr., Vol. IV, Jan. 25, 2001, p. 636; Govt. Exh. 415 (June 22, 1999 Deposition Response Notes regarding the Lucky Friday/Gold Hunter/DIA); Tr., Vol. VIII, Jan. 31, 2001, pp. 1493-1494 (reciting Hecla 6/10/99 Resp. to RFA No. 543); Tr., Vol. VIII, Jan. 31, 2001, p. 1494 (reciting the Rule 30(b)(6) deposition testimony of Ralph Noyes, June 22, 1999, p. 31).

180. The Gold Hunter Mine continued producing until the 1950s, and closed sometime around the Korean War. From 1902 until the 1950s, the mine was owned and operated by Gold Hunter Mining and Smelting Company and its corporate successors.

Tr., Vol. VIII, Jan. 31, 2001, p. 1495 (reciting the Rule 30(b)(6) deposition testimony of Ralph Noyes, June 22, 1999, p. 31). See also, discussion infra of "Hecla's Responsibility for the Liabilities of Gold Hunter Mines, Inc."

181. Since 1998, pursuant to an agreement known as the "DIA unitization agreement," Hecla has been producing ore from Gold Hunter Mine. Hecla has the exclusive right to remove ore from the DIA unitization area, and is currently producing ore from that property. The ore that Hecla produces from the DIA unitization area is processed at the Lucky Friday Mill.

Tr., Vol. VIII, Jan. 31, 2001, p. 1516-17, 1518 (reciting the Rule 30(b)(6) deposition testimony of Michael White, June 22, 1999, p. 25, 28, 85 & 86); Tr., Vol. VIII, Jan. 31, 2001, p. 1519 (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, June 23, 1999, p. 27).

182. **Waste Rock:** There are waste rock piles at all six portals and entries to the Lucky Friday and Gold Hunter mine properties. When water comes into contact with waste rock piles a leaching process ensues whereby hazardous substances in the waste rock, including lead, zinc and cadmium, are released into area surface waters and groundwater.

Tr., Vol. VIII, Jan. 31, 2001, pp. 1504-1505 (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, June 23, 1999, pp. 19-20); Tr., Vol. XVII, Feb. 14, 2000 (Dr. Ann Maest), pp. 3257-69, 3327-36; Govt. Exhs. 966 (Diagram showing rain and snow falling on mine wastes and infiltration into groundwater) and 968 (Animation of chemical fate and transport) (admitted for illustrative purposes).

183. **Mine Water Discharges:** Gold Hunter Adit No. 5 discharges to Gold Hunter Gulch, a tributary to the South Fork of the Coeur d'Alene River, and No. 6 discharges to Lucky Friday Tailings Pond No. 1. Water discharging from mine openings contains hazardous substances including lead, cadmium and zinc.

Govt. Exh. 560 (October 21, 1999 Summary Report of Hecla Information re: Adit and Portal Discharges); Tr., Vol. VIII, Jan. 31, 2001, p. 1503; Tr., Vol. XVII, Feb. 14, 2000 (Dr. Ann Maest), pp. 3243-44, 3248-58; Govt. Exhs. 951C (map showing lead concentrations) and 951D (map showing zinc concentrations).

184. In 1889, the Gold Hunter Mining and Smelting Company built a mill on the Gold Hunter property. In the late 1960s, the Gold Hunter Mill was either torn down or burned down.

> Tr., Vol. VIII, Jan. 31, 2001, p. 1496 (reciting the Rule 30(b)(6) deposition testimony of Michael White, June 22, 1999, pp. 30 & 111).

185. Between 1889 and 1949, Gold Hunter operated the Mill, and the Gold Hunter Mill generated approximately 3,100,000 tons of tailings, which contained lead and zinc.

> Tr., Vol. XV, Feb. 12, 2001 (Dr. Rex Bull), pp. 2901-2905; Govt. Exh. 2280 (Table of Gold Hunter 1889-1949; Total Amount of Tailings Discharged to River); Tr., Vol. IV, Jan. 25, 2001, p. 648 (Dr. Fred Quivik).

186. **Releases of Tailings:** The tailings generated at the Gold Hunter Mill were disposed to the South Fork of the Coeur d'Alene River through a tailings line that ran from the mill to the river, and there was never any change in this practice. The tailings disposed into the South Fork at the Hunter Mill were carried downstream as far as Kellogg, Idaho.

> Tr., Vol. VIII, Jan. 31, 2001, pp. 1497-1502, (reciting the Rule 30(b)(6) deposition testimony of Larry Drew, June 23, 1999, pp. 30-32, 54-55 & 57); Tr., Vol. VIII, Jan. 31, 2001, pp. 1500-1501 (reciting the Rule 30(b)(6) deposition testimony of Ralph Noyes, June 22, 1999, p. 80).

187. **Hecla's Assumption of Liabilities:** In 1955, the assets of Gold Hunter Mining Company were conveyed to the newly-incorporated Gold Hunter Mines, Inc., so that the business and mining operations conducted by Gold Hunter Mines, Inc. could be continued as a going concern. In August, 1962, Gold Hunter Mines, Inc. conveyed the assets of Gold Hunter Mines, Inc., including the Gold Hunter Mine and Mill, to Day Mines, Inc., so that the business and mining operations of Gold Hunter Mines, Inc. could be continued by Day Mines, Inc. as a going concern. Pursuant to the 1981 statutory merger of Day Mines, Inc. and Hecla-Day Mining Corporation, a wholly-owned subsidiary of Hecla Mining Company, Hecla obtained the interest

of Day Mines, Inc. in the Gold Hunter property, subject to the DIA Unitization Agreement. Hecla Mining Company acquired the liabilities of Day Mines, Inc. and Hecla-Day Mining Corporation.

> Govt. Exh. 418a (Jan. 13, 1955 Indenture Agreement between Gold Hunter Mines, Inc. and Gold Hunter Mining Company); Tr., Vol. VIII, Jan. 31, 2001, pp. 1511-1512; Tr., Vol. VIII, Jan. 31, 2001, pp. 1511-1512 (reciting from Govt. Exh. 418a: Jan. 13, 1955 Indenture Agreement between Gold Hunter Mines, Inc. and Gold Hunter Mining Company); Govt. Exh. 419 (Aug. 6, 1962 Indenture Agreement between Gold Hunter Mining Co. and Day Mines, Inc.); Tr., Vol. VIII, Jan. 31, 2001, pp. 1512-1514 (reciting from Govt. Exh. 419: Aug. 6, 1962 Indenture Agreement between Golden Hunter Mining Co. and Day Mines, Inc.); Tr., Vol. VIII, Jan. 31, 2001, p. 1514 (reciting 6/10/99 Hecla's Resp. to RFA No. 540); Tr.,Vol. VIII, Jan. 31, 2001, pp. 1440-1442 (reciting the Rule 30(b)(6) deposition testimony of Michael White, July 7, 1999 pp. 116-18).

I. The Tamarack and Custer Mine and Associated Mills

188. The Tamarack and Custer Mine properties are located 1.5 miles north of Blackbear, Idaho, between the East Fork of Ninemile Creek and Canyon Creek. The Tamarack and Custer Mine properties are presently comprised of approximately 108 patented and unpatented mining claims. Hecla and its predecessor companies have owned the Tamarack Mine from 1912 to the present.

> Tr., Vol. VIII, Jan. 31, 2001, pp. 1545-1546 (reciting Hecla 6/4/99 Resp. to RFA No. 1388); Tr., Vol. VIII, Jan. 31, 2001 (Michael White), p. 1548 (reciting from Govt. Exh. 441: Tamarack & Custer Mine Deposition Responses regarding patented and unpatented mining claims that encompass the Tamarack & Custer Properties); Tr., Vol. IX, Feb. 1, 2001 (Michael White), pp. 1667 (reciting Govt. Exh. 444: Tamarack & Custer Mine Deposition Responses regarding Corporate History); Tr., Vol. VIII, Jan. 31, 2001 (Michael White), p. 1548-49 (reciting from Hecla 6/4/99 Resp. to RFA No. 1397 and from Govt. Exh. 441: Tamarack & Custer Mine Deposition Responses regarding patented and unpatented mining claims that encompass the Tamarack & Custer Properties).

189. There are seven portals to the Tamarack mine workings designated as Custer 1, Custer 2, and Tamarack 3, 4, 5, 6 and 7. The Custer portals 1 and 2, and Tamarack portals 3, 4, 5 and 6 are located within the Ninemile Creek drainage.

Tr., Vol. VIII, Jan. 31, 2001 (Gene Pierson), p. 1546-47; Tr., Vol. VIII, Jan. 31, 2001 (Michael White), p. 1547.

190. From 1912 until approximately 1979, Hecla or its predecessor companies have extracted ore from the Tamarack Mine.

Tr., Vol. VIII, Jan. 31, 2001 (Michael White), pp. 1550-1551; Govt. Exh. 509 (Gene Pierson's June 2, 1999 handwritten notes on deposition issues).

191. **Waste Rock:** Waste rock from mining was disposed near each of the Tamarack mine openings. Water run-off from the waste rock piles at the Tamarack mine openings contains metals and seeps through the ground to groundwater. Runoff from the waste rock piles at the Tamarack Mine has high concentrations of many hazardous substances, including approximately 10 pounds per day of zinc. When water comes into contact with waste rock piles a leaching process ensues whereby hazardous substances in the waste rock, including lead, zinc and cadmium, are released into area surface waters and groundwater. Data shows that the waste rock pile at the Tamarack No. 7 waste rock pile contains cadmium, zinc and lead.

Tr., Vol. VIII, Jan. 31, 2001 (Larry Drew), pp. 1551- 1557 (portion of testimony reciting Govt. Exh. 559: Larry Drew's Deposition Notes regarding the Tamarack & Custer re: tailings); Tr., Vol. XVII, Feb. 14, 2001, pp. 3257-69, 3327-36 & 3364 (Dr. Ann Maest); Govt. Exhs. 966 (Diagram showing rain and snow falling on mine wastes and infiltration into groundwater) and 968 (Animation of chemical fate and transport) (admitted for illustrative purposes); Tr., Vol. XXXVI, March 19, 2001 (Callie Ridolfi), pp. 7539; Govt. Exh. 2361 (chart showing data regarding Tamarack No. 7).

192. **Mine Water:** Water discharges from Tamarack portal Nos. 4, 5 and 7. Discharges of minewater from the Tamarack Mine portals and adits contain metals. Adit discharge from the Tamarack Mine flows to Canyon Creek. Data shows that the Tamarack No. 7 adit currently discharges cadmium, zinc and lead, that the Tamarack No. 5 adit currently discharges cadmium, zinc and lead, and that the Tamarack 400 level adit currently discharges cadmium and zinc.

> Tr., Vol. VIII, Jan. 31, 2001, pp. 1557-1558 (reciting Govt. Exh. 560: October 21, 1999 Summary Report of Hecla Information re: Adit and Portal Discharges); Tr., Vol. IX, Feb. 1, 2001 (Larry Drew), p. 1690; Tr., Vol. IX, Feb. 1, 2001 (Gene Pierson), pp. 1690-1691.Tr.,Vol. XVII pp. 3243-44, 3248-58 (Dr. Ann Maest); Govt. Exh. 951C (map showing lead concentrations); Govt. Exh. 951D (map showing zinc concentrations); Tr., Vol. XXXVI, March 19, 2001 (Callie Ridolfi), pp. 7538-39 & 7545; Govt. Exh. 2361 (chart showing data regarding Tamarack No. 7); Govt. Exh. 2365 (chart showing data regarding the Tamarack No. 5 adit and the Tamarack 400 level adit).

193. **Milling Tamarack Ores:** Ore extracted by Hecla from the Tamarack and Custer Mine was processed or milled at the Rex Mill (1913-1916), Frisco Mill (1916-1926), Hercules Mill (1926-1940), and the Dorn Mill (1940-1978). The Tamarack Mine also sent small amounts of ore to other mills, such as the Galena Mill, the Dayrock Mill, the New Rex Mill and the Bunker Hill Mill.

> Tr., Vol. VIII, Jan. 31, 2001 (Michael White), p. 1558-1559; Tr., Vol. IX, Feb. 1, 2001 (Michael White), pp. 1671, 1675-76; Tr., Vol. IX, Feb. 1, 2001 (Gene Pierson), p. 1675; Tr., Vol. IX, Feb. 1, 2001 (Larry Drew), pp. 1679-1882.

194. Of the 2.8 million tons of ore produced during the life of the Tamarack and Custer Mine, approximately 2.3 million tons was discharged as tailings. These tailings contained lead, zinc and cadmium.

> Tr., Vol. IX, Feb. 1, 2001 (Larry Drew), pp. 1682-1686.

195. The Rex Mill was located in the Ninemile Creek drainage in the immediate vicinity of Ninemile Creek. From 1913 until 1916, the Rex Mill was leased and operated by the Tamarack and Custer Consolidated Mining Company. During that time, the Rex Mill processed exclusively the ores generated from the Tamarack Mine.

> Tr., Vol. VIII, Jan. 31, 2001 (Michael White), pp. 1558-1559, 1561; Tr., Vol. VIII, Jan. 31, 2001 (Larry Drew), pp. 1563-64.

196. **Releases of Tailings from the Rex Mill:** A total of 480,000 tons of tailings were produced from the Rex Mill, during the period 1939-1958. Twenty five percent of the lead in the ore remained in the Rex Mill tailings. The mill tailings produced by Hecla's predecessor, Tamarack & Custer Consolidated Mining Company, at the Rex Mill from 1912 to 1916 were disposed onto the nearby land and into Nine Mile Creek.

> Tr., Vol. XVI, Feb. 13, 2001 (Dr. Rex Bull), p. 3050; Tr., Vol. VIII, Jan. 31, 2001 (Gene Pierson), pp. 1563-1567.

197. The Frisco Mill was located on Canyon Creek, downstream from Portal No. 7 of the Tamarack and Custer Mine properties. From 1917 until 1928, Hecla's predecessor, Tamarack and Custer Consolidated Mining Company, owned and operated the Frisco Mill. During that time, the Frisco Mill processed ore from the Tamarack and Custer Mine.

> Tr., Vol. IX, Feb. 1, 2001 (Michael White), p. 1669 & 1671; Tr., Vol. IX, Feb. 1, 2001, p. 1670 (reciting Hecla 6/4/99 Resp. to RFA No. 1407).

198. **Releases of Tailings from the Frisco Mill:** During Tamarack & Custer Consolidated Mining Company's operation of the Frisco Mill, the Frisco Mill generated mill tailings from the ore that it received from the Tamarack and Custer property. The mill tailings produced by the Frisco Mill contained lead, silver, and zinc. The mill tailings produced by the Frisco Mill were disposed onto the nearby land and into Canyon Creek.

Tr., Vol. IX, Feb. 1, 2001 (Gene Pierson), pp. 1671-1674.

199. The Dorn Mill was located near the No. 7 portal at the Tamarack and Custer Mine properties, adjacent to Canyon Creek. From 1940 to 1978, Tamarack and Custer Consolidated Mining Company, then Day Mines, Inc., owned and operated the Dorn Mill. During that time, ore from the Tamarack and Custer property was sent primarily to the Dorn Mill.

Tr., Vol. IX, Feb. 1, 2001 (Michael White), pp. 1675-1676; Tr., Vol. IX, Feb. 1, 2001 (Larry Drew), pp. 1676-1677.

200. **Releases of Tailings from the Dorn Mill:** During Hecla predecessors' operation of the Dorn Mill, the mill tailings produced by the Dorn Mill were disposed onto the nearby land and into Canyon Creek. The mill tailings produced by the Dorn Mill contained zinc, lead, arsenic and cadmium, as well as other chemicals used in the milling process. A total of 970,000 tons of tailings were produced from the Dorn Mill, during the period 1939-1958.

Tr., Vol. VIII, Feb. 1, 2001 (Gene Pierson), pp. 1677-1679; Tr., Vol. XV, Feb. 12, 2001 (Dr. Rex Bull) (reciting Govt. Exh. 920: Tamarack & Custer Mill Table), p. 2898-2899.

201. **Hecla's Assumption of Liabilities:** In August of 1912, Tamarack and Chesapeak Mining Company and Custer Consolidated Mining Company deeded the Tamarack and Custer properties to Tamarack and Custer Consolidated Mining Company. On October 1, 1947, Tamarack and Custer Consolidated Mining Company was consolidated into Day Mines, Inc. and Day Mines obtained all assets and liabilities of Tamarack and Custer Mining Company, including the Tamarack and Custer property.

Tr., Vol. IX, Feb. 1, 2001, p. 1692-93 (reciting Govt. Exh. 444: Tamarack & Custer Mine Deposition Responses regarding Corporate History); Tr., Vol. IX, Feb. 1, 2001, p. 1694-96 (reciting Hecla 6/4/99 Resp. to RFA Nos. 1442 & 1426); Tr., Vol. IX, Feb. 1, 2001, p. 1695 (reciting Govt. Exh. 433: June 25, 1947 Joint Agreement of Consolidation between Tamarack & Custer).

202. From 1947 to 1981, Day Mines, Inc. owned the Tamarack and Custer property. In 1981, Day Mines, Inc. merged with Hecla-Day Mining Corporation and Hecla-Day Mining Corporation acquired the Tamarack and Custer property. On Aug. 3, 1982, Hecla-Day Mining Corporation merged with Hecla Mining Company and Hecla obtained the Tamarack and Custer property. Hecla succeeded to the liabilities of Day Mines, Inc.

Tr., Vol. IX, Feb. 1, 2001, pp. 1694-97 (reciting Hecla 6/4/99 Resp. to RFA Nos. 614, 1427, 1430, 1431, 1442); Tr., Vol. IX, Feb. 1, 2001, pp. 1695-1696 (reciting Hecla 6/24/99 Resp. to RFA No. 613);

J. Interstate-Callahan Mine and Mill

203. The Interstate mine, located in Ninemile Creek, and also known as the Interstate-Callahan mine or the Interstate-Callahan group, was acquired by the Monitor Mining Company in 1945. In 1947, Day Mines, Inc., acquired title to the Interstate-Callahan claims. Pursuant to the 1981 merger of Day Mines, Inc. into Hecla-Day Mining Corporation, and the 1982 merger of Hecla-Day Mining Corporation into Hecla Mining Company, Hecla Mining Company has succeeded to Day Mines, Inc.'s interest in the properties owned by Monitor Mining Company, including the Interstate Callahan Mine.

Tr., Vol. XXXIX, March 22, 2001, pp. 8122-25 (reciting Hecla 6/4/99 Resp. to RFA Nos. 913, 915, 920, 921, 929, 942); Tr., Vol. III, Jan. 24, 2001, pp. 564-65 (Dr. Fred Quivik); Govt. Exh. 206.

204. The Interstate-Callahan No. 4 adit discharges zinc.

Tr., Vol. XXXVI, March 19, 2001 (Callie Ridolfi), pp. 7542-43; Govt. Exh. 2364 (chart showing data regarding Interstate-Callahan).

205. Ores from the Interstate mine were milled at the Interstate-Callahan mill.

Tr., Vol. III, Jan. 24, 2001, pp. 566 (Dr. Fred Quivik).

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), pp. 3258, 3300-01; Govt. Exh. 965.

277. Waste rock is material that is removed in the process of drilling to get to ore.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), p. 3259; Govt. Exh. 57 at 2-28.

278. Waste rock contains hazardous substances associated with the ore.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), p. 3259.

279. When waste rock is exposed at the surface, it begins to weather and release hazardous substances into the environment.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), pp. 3259-60.

280. Tailings are by far the most important source of hazardous substances in the Basin.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), p. 3274.

281. Tailings were discharged into streams, left in piles next to streams or put in impoundments.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), pp. 3215, 3274, 3285; Govt. Exh. 57 at 2-3 - 2-7, 2-28.

282. It has been estimated that over 70 million tons of tailings were discharged by mining companies directly into the streams of the Basin.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), p. 3276.

283. When tailings move downstream they become mixed with alluvium, which is the natural sediment that exists in streams and floodplains.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), pp. 3284, 3304-05; Govt. Exh. 57 at 2-28, 2-64.

284. Tailings that are left in unlined piles, as they were and are in the Basin, release hazardous substances into groundwater and streams.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), p. 3289.

285. Seeps or springs discharge from the toe of a number of waste rock piles or tailings piles in the Basin, as well as from the beds and banks of the Coeur d'Alene River.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), pp. 3215, 3239, 3265-66; Govt. Exhs. 57 at 2-54; 954B.

286. Sampling from seeps in the Basin shows that they contain elevated concentrations of lead, zinc and other hazardous substances.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), pp. 3269, 3272-73, 3420-23; Govt. Exhs. 57 at 2-55 - 2-63; 955C; 955D.

287. The release of metals from the lead smelter at Bunker Hill was relatively insignificant compared to the release of metals from tailings.

Tr., Vol. XVIII, Feb. 15, 2001 (Dr. Ann Maest), pp. 3536-38.

288. Other man-made sources of hazardous substances, such as sewage discharges, runoff from highways and urban runoff, are relatively minor sources of hazardous substances in the Basin compared to mining-related sources.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), pp. 3240, 3297-99.

289. Mining in the Basin has resulted in the release into the environment of antimony and compounds, including antimony trichloride, antimony trifluoride and antimony trioxide; arsenic and compounds, including arsenic trioxide; beryllium and compounds; cadmium and compounds, including cadmium chloride; cobalt and compounds; copper and compounds, including cupric chloride and cupric sulfate; ferrous sulfate; lead and compounds, including lead

300. Surface water transports metals downstream both in dissolved form and on particles that are suspended in the stream or carried along the bottom of the stream as bedload.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), pp. 3303-04, 3310-11; Govt. Exhs. 57 at 3-8; 979; 986.

301. Metals attached to particles can later be dissolved back into surface water.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), p. 3305; Govt. Exh. 979.

302. The movement of metals from mine waste sources such as tailings, mixed tailings and alluvium, waste rock, seeps and adits, into surface water causes the high metals concentrations in surface water observed at and downstream of mining activity.

Tr., Vol. XVIII, Feb. 15, 2001 (Dr. Ann Maest), pp. 3624, 3632-33.

303. During high water flow, streams and rivers in the Basin carry mixed tailings and alluvium onto the floodplain.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), pp. 3307, 3311-12; Govt. Exhs. 57 at 2-28; 986.

304. When the water recedes, it leaves the mixed tailings and alluvium behind on the floodplain.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), pp. 3307, 3311-13; Govt. Exhs. 57 at 2-28; 986.

305. Mixed tailings and alluvium are found along the floodplains of the South Fork and mainstem Coeur d'Alene River, in the lateral lakes and in Coeur d'Alene Lake.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), pp. 3274-75, 3448; Govt. Exh. 57 at 2-28.

306. During high water flow, the Coeur d'Alene River causes mixed tailings and alluvium to slough off from its banks into the river.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), p. 3312-13; Govt. Exh. 986.

307. Concentrations of metals are high in surface water in the mainstem Coeur d'Alene River because mixed tailings and alluvium are an important source of metals.

Tr., Vol. XVIII, Feb. 15, 2001 (Dr. Ann Maest), pp. 3573-74, 3576; Govt. Exhs. 31; 32; 40; 1024C; 1024H.

308. Once tailings from different mills become mixed together downstream of the mills, one cannot tell from the mixed tailings and alluvium which mill the tailings came from.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), p. 3306; Tr., Vol. XIX, Feb. 20, 2001 (Dr. Ann Maest), pp. 3764-66; Govt. Exh. 57 at 2-54, 2-64.

309. Some of the tailings discharged by a mill in the upper Basin will move downstream as far as the Spokane River, some will move into Coeur d'Alene Lake and some will remain in the beds and banks of streams and rivers.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), pp. 3324-25, 3516; Tr., Vol. XIX, Feb. 20, 2001 (Dr. Ann Maest), pp. 3765-66.

310. During high water flow, the Coeur d'Alene River carries a plume of mixed tailings and alluvium into Coeur d'Alene Lake, forming a delta of contaminated sediment in the Lake.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), pp. 3314-15; Govt. Exh. 982.

311. A large amount of suspended material in the plume is deposited in Coeur d'Alene Lake and becomes part of the bed sediment of the Lake, while some of the suspended material flows out into the Spokane River.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), pp. 3315-16; Govt. Exh. 987A.

312. Metals in surface water entering Coeur d'Alene Lake are deposited in lake sediments by the inflowing water plume, detrital rain, chemical precipitation and particle settling.

Tr. Vol. XXVIII, Mar. 6, 2001 (Dr. Falter), pp. 5912 - 5915; 5919 - 5923, 5938; Exhibits 293A, 1025A.

313. Sampling and analysis by the U.S. Geological Survey shows that metals-enriched sediment began being deposited in Coeur d'Alene Lake between 1895 and 1910, which corresponds with the onset of mining in the Coeur d'Alene Basin.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), pp. 3326-27; Tr., Vol. XVIII, Feb. 15, 2001 (Dr. Ann Maest), pp. 3498-3500; Govt. Exh. 1009.

314. There are high concentrations of lead, zinc and cadmium in soil and sediment downstream of mining sources along Canyon and Ninemile Creeks, along the South Fork Coeur d'Alene River, along the mainstem Coeur d'Alene River and in Coeur d'Alene Lake.

Tr., Vol. XVII, Feb. 14, 2001 (Dr. Ann Maest), pp. 3445-47, 3450-51; Tr., Vol. XVIII, Feb. 15, 2001 (Dr. Ann Maest), pp. 3465-69, 3651; Govt. Exhs. 12, 57 at 2-31 - 2-54, 5-6 - 5-21; 989C; 989D; 989E; 989F; 989G; 989H.

315. Metals in Coeur d'Alene Lake sediments are remobilized by water currents and by microbial and bacterial processing of those sediments.

Tr. Vol. XXVIII, Mar. 6, 2001 (Dr. Falter), pp. 5922 - 5923, 5932 - 5934, 5938 ; Exhibit 293A.

316. The Trustees have determined that surface water, groundwater, sediment and biological resources provide pathways between releases of hazardous substances by mining activity and injured natural resources.

Tr., Vol. XXXIX, March 22, 2001 (Dr. Joshua Lipton) pp. 8062-63; Govt. Exhs. 57 at 3-25 - 3-26; 1932.

317. Concentrations of metals in surface water, soil and sediments are not recovering naturally.

Tr., Vol. XVIII, Feb. 15, 2001 (Dr. Ann Maest), p. 3696; Tr., Vol. XXXIX, March 22, 2001 (Dr. Joshua Lipton) pp. 8118-19; Govt. Exh. 57 at 10-73 - 10-85.

ATTACHMENT E

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Hecla enjoys banner year

Mining company makes strong turnaround in 2002

By NICHOLAS K. GERANIOS
Associated Press writer

COEUR d'ALENE -- It may be a relic of the Old Economy, but Hecla Mining Co. continued an astonishing turnaround in 2002.

The Coeur d'Alene, Idaho-based company produced more gold and silver than ever, and its stock was the second-best performer on the New York Stock Exchange.

Chief Executive Officer Arthur Brown, 62, will retire in May, although he will remain as chairman. President Phillips Baker, 43, will assume CEO duties.

Brown believes Hecla, which has 700 employees, will continue to thrive.

"Hecla has been around for 112 years and along with our skills as underground miners, we have always been known for our honesty, integrity and as dealing fairly with people," Brown, who began with Hecla in 1967, wrote in the annual report released this week.

In 2002, Hecla produced 240,000 ounces of gold and 8.7 million ounces of silver. Income rose dramatically as the prices for gold and silver climbed while Hecla's costs dropped, the company said.

Hecla posted net income for the year of $8.6 million, or 11 cents a share, compared to net income of $2.3 million, or 3 cents a share in 2001. Sales rose from $85 million in 2001 to $105 million in 2002.

Back-to-back profitable years were dramatic improvements from a decade of losses caused by low mineral prices. In 2000, the company lost $92 million.

In 2002, Hecla Mining was the second-biggest gainer on the New York Stock Exchange, rising by 438 percent when the stock reached $5.06 a share. The biggest gainer was a Chinese maker of diesel engines, China Yuchai International, which rose 485 percent to $4.57. Hecla stock has since settled around $3.40 per share.

Much of the company's financial health can be traced to

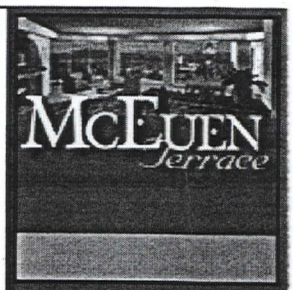
efficient production. Hecla produced gold for an average cost of $137 an ounce in 2002. Gold this week was selling for $324.

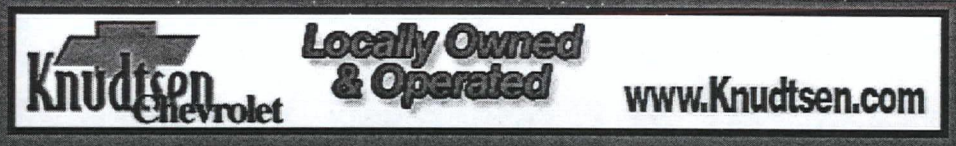
It produced silver at an average cost of $2.16 per ounce, down 39 percent from 2001. Silver sold this week for $4.53.

Hecla's only mine in Idaho is the Lucky Friday, near Wallace. About 100 workers were laid off and operations were cut back sharply there in 2002, largely because of high production costs for silver. But the Lucky Friday has a vast quantity of minerals left to mine, and rising silver prices would allow the company to ramp up production there, the report said.

Hecla officials were cheered in 2002 by progress in a massive lawsuit against mining companies for historical pollution in the Silver Valley. The U.S. Environmental Protection Agency proposal for a $359 million cleanup over 30 years "will be very manageable," the company said.

On the Net: http://www.hecla-mining.com





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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF IDAHO

UNITED STATES OF AMERICA, Plaintiff, v. ASARCO INCORPORATED, et. al, Defendants.	)	Case Number CV94-206--N-EJL
and CONSOLIDATED CASE	)	DECLARATION OF EARL LIVERMAN

I, Earl Liverman, hereby swear under penalty of perjury that the following is true and correct:

1. I am currently employed by the United States Environmental Protection Agency (EPA) as an On-Scene Coordinator. I have been employed by EPA since approximately 1991 and have been involved in EPA activities regarding the so-called Bunker Hill "Box" and "Basin" since 1994. I was EPA's technical representative to the Coeur d'Alene Basin Restoration Project (CBRP) beginning in 1994 through the late 1990's. I was also involved in EPA's Remedial Investigation/Feasibility Study (RI/FS) beginning in approximately 1998 through completion of the Record of Decision in September of 2002.

2. The Coeur d'Alene Basin Restoration Project (CBRP) was a broad multi-media, multi-party effort to coordinate restoration of the Coeur d'Alene Basin with respect to past injuries and future threats to the environment and public health from heavy metals, nutrients,

sediment and other contaminants. CBRP was formally created pursuant to a Memorandum of Agreement (MOA) between the State, EPA and Coeur d'Alene Tribe in late 1992 with those three governmental entities forming CBRP's Steering Committee. The three participating government entities expressly reserved their respective rights, powers and remedies and agreed to operate under the authorities of CERCLA, the Clean Water Act and any other appropriate law. The MOA provided the Steering Committee would oversee development and coordinate implementation of a broad plan to inventory, eliminate and manage contamination sources to improve, restore and protect the Basin. The plan was completed in June 1993 and was entitled "Coeur d'Alene Basin Restoration Project Framework" (Framework). A true and correct copy of the 1992 MOA and the Framework are attached hereto as Attachments 1 and 2 respectively.

3. The CBRP Framework described itself on page 2 as a "road map designed to guide protection of water quality, human health and wildlife habitats and to restore the elements of these qualities damaged by past practices. The Framework described and endorsed a broad range of authorities, resources, ongoing activities and proposed activities to address concerns regarding four overlapping areas-- water quality, hazardous materials, human health and fish and wildlife habitat.

4. The "Hazardous Materials" portion of the Framework included in its "Objectives" the use of CERCLA activities including Preliminary Assessments, Site Investigations and Removal Assessments and on page 15 stated "utilization if appropriate of CERCLA authorities to conduct, or require cleanup of sites identified in the prioritization process." Long-term objectives included implementation of removal actions. Implementation

of remedial actions for the Bunker Hill Superfund Site and completion of the Natural Resource Damage Assessment were recognized on page 16 as Basin objectives but not as components of CBRP. The Hazardous Materials section specifically described EPA's approach on page 16 as one seeking voluntary actions but specifically stated that "EPA may fund clean-up activities or take enforcement actions to compel other parties to undertake cleanup-ups, as appropriate. Further, this section recognized on pages 16-17 that CERCLA action "might include either implementation of removal actions or addition to the National Priorities List."

5. The "Human Health Objectives and Program Requirements" section of the Framework on page 20 listed as its first objective; "identify the risks to human health posed by heavy metals contamination of the South Fork and lower Coeur d'Alene Rivers and Lake Coeur d'Alene" and specifically noted that "comprehensive health risks assessments have not been developed for specific areas of the basin known to be contaminated." The Framework stated that the Idaho Department of Health and Welfare and the Agency for Toxic Substance and Disease Registry should provide such assessments.

6. During the period and course of the CBRP process, a variety of cleanup plans and related cost estimates were raised and discussed by the various participants in that process including private individuals, industry, various government entities, the Coeur'Alene Tribe and interest groups. For instance, a February, 1995 report released by Hecla and Asarco entitled "A Conceptual Action Plan for Mining & Mineral Processing Impacts within the Coeur d'Alene River Basin." This Conceptual Action Plan was reviewed and discussed by the Citizens Advisory Committee (CAC). CAC was a part of the CBRP. The cost estimate of this Conceptual Action

Plan was $107.7 million. A true and correct copy of the February 1995 Conceptual Action Plan from the files of EPA is attached hereto as Attachment 3. Likewise, a June 1995 report released by the Coeur d'Alene Tribe entitled "1995 Basin Legislation: Restoration Alternative for Mining Impacts in the Coeur d'Alene Basin" was also reviewed and discussed in the CBRP process. The costs estimates in this report range from $352.3 to $968.1 million. A true and correct copy of this June 1995 report from the files of EPA is attached hereto as Attachment 4.

I, Earl Liverman, under penalty of perjury, declare that the foregoing is true and correct. Dated this 25th day of April, 2003.

EARL LIVERMAN

Earl Liverman

SUBSCRIBED AND SWORN to before me, a notary public in and for the State of Idaho on this 25th day of April, 2003.

Ronda K. Mein

RONDA K. MEIN
- NOTARY PUBLIC -
STATE OF IDAHO

Notary Public in and for the State of Idaho
Residing at: Coeur d'Alene
Commission expires: 2/26/2005

ATTACHMENT 1

I HEREBY CERTIFY THAT THIS IS A TRUE COPY
OF THE ORIGINAL THEREOF.
Linda Queen
OF ATTORNEYS FOR THE U.S. EPA

MEMORANDUM OF AGREEMENT
COEUR D'ALENE BASIN RESTORATION

Preamble

The Parties to this Memorandum of Agreement ("MOA") are the Coeur d'Alene Tribe ("Tribe"), the State of Idaho Division of Environmental Quality ("Idaho DEQ"), and the United States Environmental Protection Agency ("EPA").

The Parties agree that restoration of the Coeur d'Alene Basin is the area of concern of this MOA with respect to past injury and future threats to the environmental quality and human health, particularly from heavy metals, nutrients, sediment, and other contaminants.

The Parties to this MOA recognize the importance of integrating the restoration activities in the Coeur d'Alene Basin ("Basin") and agree that it is of mutual benefit of all Parties, and particularly the Coeur d'Alene Basin, to coordinate efforts to improve, restore, and protect the quality of the aquatic and terrestrial ecosystems, human health, and other related natural resources in the Basin.

The purpose of this MOA is to identify and coordinate the respective activities, roles, and responsibilities of the Tribe, Idaho DEQ, and EPA with respect to restoration of the Basin.

Objectives

The Parties to this MOA agree that their mutual objectives

are as follows:

1. To enter into full, frank, and honest discussions to resolve important issues regarding restoration of the Basin.

2. To coordinate the Parties' authorities in a manner consistent with maximizing cooperation in the restoration of the Basin.

3. To provide policy direction and management to the Coeur d'Alene Basin Restoration Project.

4. To coordinate with any Natural Resources Damage Assessment process under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

5. To coordinate with State Natural Resource Damage Settlement Trustees.

6. To coordinate a multi-media effort to improve, restore, and protect the Basin.

7. To afford this coordinated multi-media effort a high priority in each Party's environmental programs.

8. To recognize the key roles of other organizations and to work with these organizations in this Basin Restoration effort.

9. To inform the public of the Parties' plans and progress in restoration of the Basin.

Steering Committee

In recognition of the concerns of each Party, the Parties agree to undertake cooperative efforts to effectively manage the improvement, restoration, and protection of the Basin and to fairly resolve dispute arising under this MOA.

The Parties agree to create a three-member Steering Committee composed of one policy-level designee representing each Party.

The Steering Committee shall oversee development and implementation of a Plan for improving, restoring, and protecting the Basin. Such Plan shall include a coordinated approach for inventorying, eliminating, and managing sources of contamination to the Basin. The Steering Committee shall operate by consensus.

The Steering Committee shall encourage the involvement and input from the federal and state trustees, local governments, citizens, landowners, Coeur d'Alene Basin Interagency Group ("CBIG"), and other interested persons. The Steering Committee shall meet on an as needed basis, but not less than quarterly. The meetings shall be open to the public.

Authorities

The Parties operate pursuant to the authorities of CERCLA, the Clean Water Act (CWA), and other federal, state, and tribal laws, as appropriate.

Reservations and Limitations

For the purposes of this MOA, the Parties agree to set aside conflicting claims of jurisdiction and ownership of the waters as established in the attached "Agreement" among the Parties, dated March 6, 1991.

The proposed remedial action for the twenty-one (21) square mile Bunker Hill Superfund area shall be separately addressed by the Parties outside the context of this MOA.

The Parties recognize that each has and reserves all rights, powers, and remedies now or hereafter existing at law or in equity, or by statute, treaty, or otherwise. This MOA does not

modify, diminish, or alter the rights and entitlement of the Parties. Further, this MOA does not constitute a delegation of any authorities or responsibilities of the Parties.

This MOA is intended to facilitate inter-governmental coordination among the Parties and neither creates any rights in third parties nor gives rise to any right of judicial review.

This MOA is executed for the purpose of facilitating joint action by the Parties. Neither this MOA nor any action pursuant to the MOA shall be construed as an admission by any Party as to the respective rights or authority of any Party with respect to the Coeur d'Alene Basin. The Parties agree that this MOA, its provisions and contents, and all discussions and negotiation leading to the execution thereof shall be inadmissible as to the respective rights or authority of any Party with respect to the Coeur d'Alene Basin in any administrative or judicial action involving any party or any third party. Any discussions of the Steering Committee during a Steering Committee meeting shall be inadmissible in any administrative or judicial action between the Parties.

The Parties agree to protect the Confidentiality of information, documents strategies, and confidences that are shared, exchanged, or revealed during the planning and implementation of this MOA. Specifically, any such sharing and exchange does not waive any privilege, including, but not limited to, attorney-client, attorney work product, and deliberative process. The Parties intend for those privileges to remain

attached to such information. The Party claiming confidentiality must clearly identify the confidential information and the basis for the claim at the time the information is shared. The Parties agree not to reveal to any non-party, to the extent permitted by applicable law, including the Freedom of Information Act, 5 U.S.C. § 552, the Idaho Public Record Act, Idaho Code § 9-337 *et seq.*, any such confidential information without the written consent of the Party who contributed the same.

Effect and Duration of Agreement

This MOA shall take effect upon signature of all the Parties.

This MOA will remain in effect until terminated by mutual agreement of the Parties, provided, however, that any Party to this MOA may terminate it by providing thirty (30) days written notice to the other parties.

The Parties will formally review this MOA once a year (at the end of each calendar year), and the MOA may be modified, in writing, upon the request of any Party. All modifications must be mutually agreeable, in writing, and signed by the signatories or their duly appointed representatives. The Parties agree to modify this MOA in order to simplify or refine procedures set forth herein. Each Party will keep the other Parties informed of proposed and enacted modifications to relevant statutory or regulatory authority, procedures, or priorities which impact the restoration of the Coeur d'Alene Basin. The Parties will endeavor to negotiate and make modifications to this MOA where it

appears appropriate to do so in light of any such proposed or enacted modifications.

Signature sheet for the foregoing Memorandum of Agreement for Coeur d'Alene Basin.

Ernest L Stensgar

EARNEST STENSGAR, Chairman
Coeur d'Alene Tribe of Idaho

11-9-92
Date

Signature sheet for the foregoing Memorandum of Agreement for Coeur d'Alene Basin.

Dana A. Rasmussen

DANA A. RASMUSSEN
Regional Administrator, Region 10
U.S. Environmental Protection Agency

NOV 04 1992
Date

Signature sheet for the foregoing Memorandum of Agreement for Coeur d'Alene Basin.

Cecil D. Andrus

CECIL D. ANDRUS
Governor, State of Idaho

11-9-92
Date

AGREEMENT

The following Agreement is entered into between the United State Environmental Protection Agency (EPA), the State of Idaho (State), and th Coeur d'Alene Tribe of Idaho (Tribe).

WHEREAS, the Coeur d'Alene Reservation was established by Executiv Order on November 8, 1873 and modified by subsequent Agreements; and

WHEREAS, the State of Idaho became a State and was admitted into th Union on July 3, 1890; and

WHEREAS, there exists a disagreement between Tribe and the State as t what rights and incidents of ownership each sovereign possesses in variou waters; and

WHEREAS, all parties are desirous of doing everything possible t protect and improve the quality of the waters in question; and

WHEREAS, both the Tribe and the State have applied to EPA for funding o programs designed to analyze and enhance the quality of these waters; and

WHEREAS, it is to the mutual benefit of all parties that the disput regarding the rights and incidents of ownership of these waters not adversel impact programs designed to analyze and enhance the quality of these waters

THEREFORE, IT IS HEREBY AGREED BETWEEN EPA, THE STATE AND THE TRIBE A FOLLOWS:

1. This Agreement is limited to the matters contained herein.

2. All competing or conflicting claims of jurisdiction and ownershi of the waters in question are reserved and set aside for the limited purpos of this Agreement so that this Agreement may be used by EPA as the basis fo making affirmative determinations necessary for the allocation of federa funds by EPA to the State and Tribe for the analysis and enhancement of wate quality.

3. The State and the Tribe shall plan, conduct and coordinate wate quality activities with the common goal of protecting and enhancing wate quality and beneficial uses. Water quality activities may include regulatic development, enforcement, field studies and public education. Work plannir and coordination meetings will be held on a quarterly basis to provide statu reports, information exchange and coordinate future activities.

DATED this 6th day of March, 1991.

Ernest L. Stensgar

ERNEST L. STENSGAR, CHAIRMAN
COEUR D'ALENE TRIBE OF IDAHO

Dana A. Rasmussen

DANA RASMUSSEN, REGIONAL
ADMINISTRATOR, REGION X, U.S.

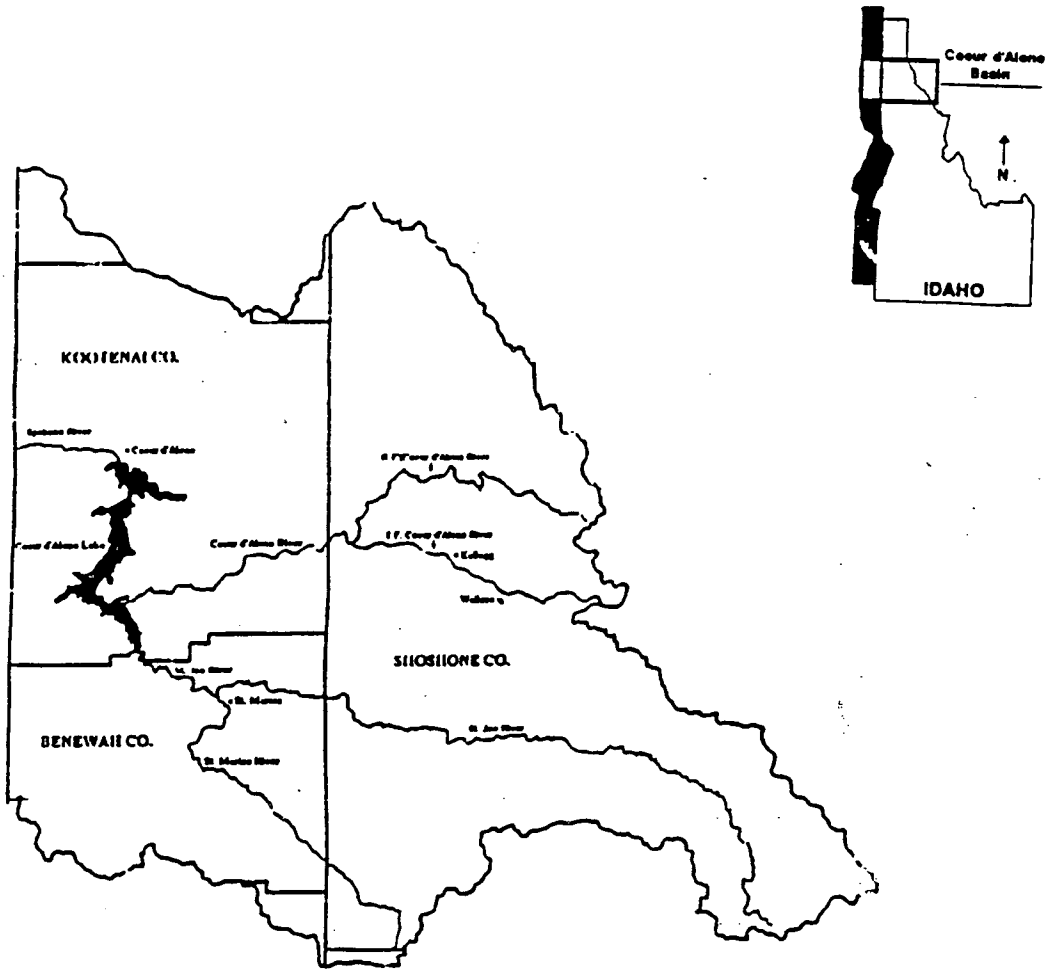
Cecil D. Andrus

CECIL ANDRUS, GOVERNOR
STATE OF IDAHO

ATTACHMENT 2

COEUR D'ALENE BASIN RESTORATION PROJECT

FRAMEWORK
JUNE, 1993



"A Road Map for Environmental Restoration and Protection of the Basin"

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ACRONYMS

APA - Administrative Procedures Act (Idaho)

APP - Aquifer Protection Plan

ATSDR - Agency for Toxic Substances and Disease Registry

BAT - Best Available Technology

BH - Bunker Hill

BIA - Bureau of Indian Affairs

BLM - Bureau of Land Management

BLP - Bunker Limited Partnership

BMP - Best Management Practices

BMR - Baseline Monitoring Report (Clean Water Act)

BOM - Bureau of Mines

BPA - Bonneville Power Administration

CAC - Citizens' Advisory Committee

CBIG - Coeur d'Alene Basin Interagency Group

CBRP - Coeur d'Alene Basin Restoration Project

CDC - Center for Disease Control

CERCLA - Comprehensive Environmental Response Compensation and Liability Act of 1980

CLCC - Clean Lakes Coordinating Council

CMI - Council for Mineral Information

COE - Corps of Engineers (U.S. Army)

CWA - Clean Water Act (aka FWPCA - Federal Water Pollution Control Act)

DEQ - Division of Environmental Quality

EPA - Environmental Protection Agency

FFY - Federal Fiscal Year

FWPCA - Federal Water Pollution Control Act (aka CWA - Clean Water Act)

FY - Fiscal Year

GIS - Geographic Information System

HSP - Heyburn State Park

IDFG - Idaho Department of Fish and Game

IDHW - Idaho Department of Health and Welfare

IDL - Idaho Department of Lands

IDPR - Idaho Department of Parks & Recreation

IDT - Idaho Department of Transportation

IDWR - Idaho Department of Water Resourses

IFIA - Intermountain Forest Industry Associates

IFIC - Idaho Forest Industry Council

ITD - Idaho Transportation Department

ITFC - Idaho Trust Fund Committee

IWRRI - Idaho Water Resource Research Institute

L&WCF - Land and Water Conservation Fund

LMP - Lake Management Plan

MAC - Management Advisory Committee

MOA - Memorandum of Agreement

MOU - Memorandum of Understanding

NEPA - National Environmental Policy Act

NF - North Fork

NMA - Nutrient Management Act (Idaho)

NPDES - National Point Discharge Elimination System

NPL - National Priority List

NPS DATABASE - State of Idaho database

NPS - Non-Point Source

NRDA - Natural Resource Damage Assessment

NRDTF - National Resources Damages Trust Fund

NTCF - National Toxics Campaign Fund

ORV - Off-road Vehicle

PA/SI - Preliminary Assessment/Site Inspection

PHD - Panhandle Health District

PRP - Potentially Responsible Party

PS - Point Source

RCRA - Resource Conservation Recovery Act

T13170

ROD - Record of Decision

RV Fund - Recreational Vehicle Fund

SARA - Superfund Amendments and Reauthorization Act of 1986

SCC - Soil Conservation Commission

SCD - Soil Conservation District

SCS - Soil Conservation Service

SE - Site Evaluation

SF - South Fork

SORE - Save Our River Environment

STORET/BIOS - National databases

TMDL - Total Maximum Daily Load

TSCA - Toxic Substances Control Act

UAS - Use Attainability Study

USBM - United States Bureau of Mines

USDI - U.S. Department of Interior

USF&WS - United States Fish and Wildlife Service

USFS - United States Forest Service

USGS - United States Geological Survey

WES - Waterways Experimental Station (US Army Corps of Engineers)

WIF - Waterways Improvement Fund

WQLS - Water Quality Limited Segment

WWP - Washington Water Power

EXECUTIVE SUMMARY

What is the Coeur d'Alene Basin?

The Coeur d'Alene River Basin is approximately 3,700 square miles of land in the Panhandle area of Idaho. The Basin includes the Coeur d'Alene Lake; the South and North Forks and main stem of the Coeur d'Alene River; the lakes along the lower Coeur d'Alene River; the Spokane River; the St. Joe River; the St. Maries River; and various tributaries.

Why is the Coeur d'Alene Basin important?

The high prairies, rolling palouse hills, and mountainous forests of the Coeur d'Alene Basin offer a wealth of wildlife and plant life as well as natural resources--rich, fertile farm lands; precious minerals; majestic forests; and pristine waters. These attributes are the foundation of the region's economy. Historic natural resource industries--farming, grazing, mining, and timber harvesting--coexist with a burgeoning international tourism industry that attracts an estimated 800,000 visitors annually. Additionally, the waters of the Basin feed into the Spokane River drainage and provide thirty percent of the water to the region's sole-source aquifer. This aquifer supplies potable water to over 400,000 people in northern Idaho and eastern Washington. Finally, the Basin's cultural heritage, the ancestral home of the Coeur d'Alene Tribe, is equally valuable. Appropriately, it focuses attention on the ties between the natural environment and the region's peoples, then and now.

What are the environmental concerns in the Basin?

Two significant environmental concerns exist--accelerated eutrophication (aging) of the Coeur d'Alene Lake and the presence of heavy metals. The combination of the first two environmental concerns heightens the negative impacts each has individually.

Eutrophication:

Eutrophication is the natural aging process of a lake. This natural process has been accelerated by higher than natural amounts of nutrients (such as fertilizers) and sediments (from erosion) entering the water bodies feeding into the lake. Human activities such as agriculture, logging, urbanization, and recreation cause this increase in nutrients and sediments. Higher than natural levels of nutrients and sediments lead to increased algae and aquatic weed growth. When this algae and aquatic weed growth dies and decomposes the level of oxygen in the water available to support fish and other aquatic creatures is reduced. The result is less aquatic life in the lakes and streams. Thus, accelerated eutrophication impacts water quality and aquatic habitat.

Sedimentation also directly impacts the organisms living in the Basin's rivers and streams by reducing the quality of the habitat necessary for life--in some cases, to the point of threatening the survival of a species. Sedimentation in stream channels also causes the peak water level during a flood to rise. This rise in peak flood water level increases erosion of the streambanks and affects the stability of the water channel itself. The increased erosion causes additional sedimentation thereby furthering the negative cycle of events.

Heavy Metals Contamination:

The second concern is the presence of heavy metals (lead, cadmium, and zinc) in the stream and river sediments of the South Fork of Coeur d'Alene River and its tributaries, in Lake Coeur d'Alene, as well as along the shores of these water bodies. These deposits are the result of a century of silver, lead and zinc mining in the Silver Valley of Shoshone County. Early mining practices included

the depositing of mine tailings and sediments in the nearby river, creeks, or floodways. Large deposits remain in the river system, today. Spring storms and periodic floods wash the tailings and their heavy metals downstream, redepositing them along the river, throughout some chain lakes and in Lake Coeur d'Alene. An estimated 72 million tons of mine tailings entered the Coeur d'Alene River system from the 1880's to the late 1960's.

These deposits of lead and other heavy metals pose potential health threats. Lead is known to cause adverse health effects in humans, such as brain and nervous system damage in children, birth defects and developmental impairment in fetuses, and chronic kidney and cardiovascular system damage in adults. Even small amounts of lead can cause short-term memory loss and slow reflexes. Since lead enters the body either through the lungs or through the mouth, it is important to break these two significant exposure pathways.

Eutrophication Combined with the Presence of Heavy Metals:

Managing both eutrophication and heavy metals contamination are important to protect and enhance the natural resources of the Coeur d'Alene Basin. When these two environmental concerns occur together, another possible scenario must be given consideration.

Most of the lead, cadmium and other metals in Lake Coeur d'Alene are chemically bound in sediment on the floor of the lake. A depleted supply of oxygen (via eutrophication) in portions of the lake can cause metals to be released back into the water column. Increased levels of metals in the water column further weaken aquatic organisms already threatened by the depleted oxygen levels. Hence the negative cycle caused by accelerated eutrophication is amplified.

Why address these environmental concerns now?

One hundred years of natural resource industry impacts--mining, timber harvesting, farming and grazing--combined with a significant increase in recreational use and population growth have lead to extensive environmental problems. Addressing these challenges before anticipated, on-going growth and use further deteriorates the environment is the most prudent, cost-effective approach.

What is the Coeur d'Alene Basin Project?

The Coeur d'Alene Basin Restoration Project, begun in the fall of 1991, will address environmental concerns--water quality, hazardous waste, human health, and fish and wildlife habitat--in the Coeur d'Alene Basin. The project's general goals are restoration of the Coeur d'Alene Basin from past injury and protection of resources from future threats to environmental quality. A long-term approach stretching into the 21st century will be combined with short-term actions designed to address specific problem areas and to demonstrate cost-effective, long-range solutions.

Who will participate?

The Project is designed to be a public and private venture. Local, state, and federal agencies and the Coeur d'Alene Tribe are coordinating their efforts with those of private property owners in the Basin. This coordination of efforts does not add to or delete from the established authorities and responsibilities of any party. It is intended to facilitate sharing of information, eliminate duplication of efforts, and encourage a basin-wide approach to problem-solving.

What is the Project Management Structure?

The Project management structure consists of a Steering Committee, a Management Advisory Committee, the Coeur d'Alene Basin Interagency Group serving as a

technical advisory committee, and a Citizens' Advisory Committee. The project manager and staff are directed by the Steering Committee. The Steering Committee and project staff are advised by the three standing committees.

What is the Project FRAMEWORK?

The FRAMEWORK is a long-range road map charting the activities of all Project participants (public and private) down a common path towards the common goals of water quality improvement, remediation of hazardous waste, and protection of human health as well as fish and wildlife habitat.

Broad and specific long-term objectives for each of these common goals are addressed in the FRAMEWORK's four modules--water quality, hazardous materials, human health, and fish and wildlife habitat.

What is the Project ACTION PLAN?

The ACTION PLAN provides short-term focus for the Project. It is action-oriented and task specific. Lead entities for specific tasks or activities are identified and dates are set for accomplishment of work. As new information surfaces and as funding for implementation is identified additional activities will be added. The ACTION PLAN will provide on-going direction and focus until a final Lake Management Plan and a Basin Management Plan are developed and adopted.

Who prepared the FRAMEWORK and ACTION PLAN?

Project staff with input from public agencies and private parties developed the FRAMEWORK and ACTION PLAN. Both have been reviewed and revised by the Project's three standing committees and the Steering Committee.

These documents do not create any additional rights or obligations; nor are they intended to supersede existing statutes, regulations and policies.

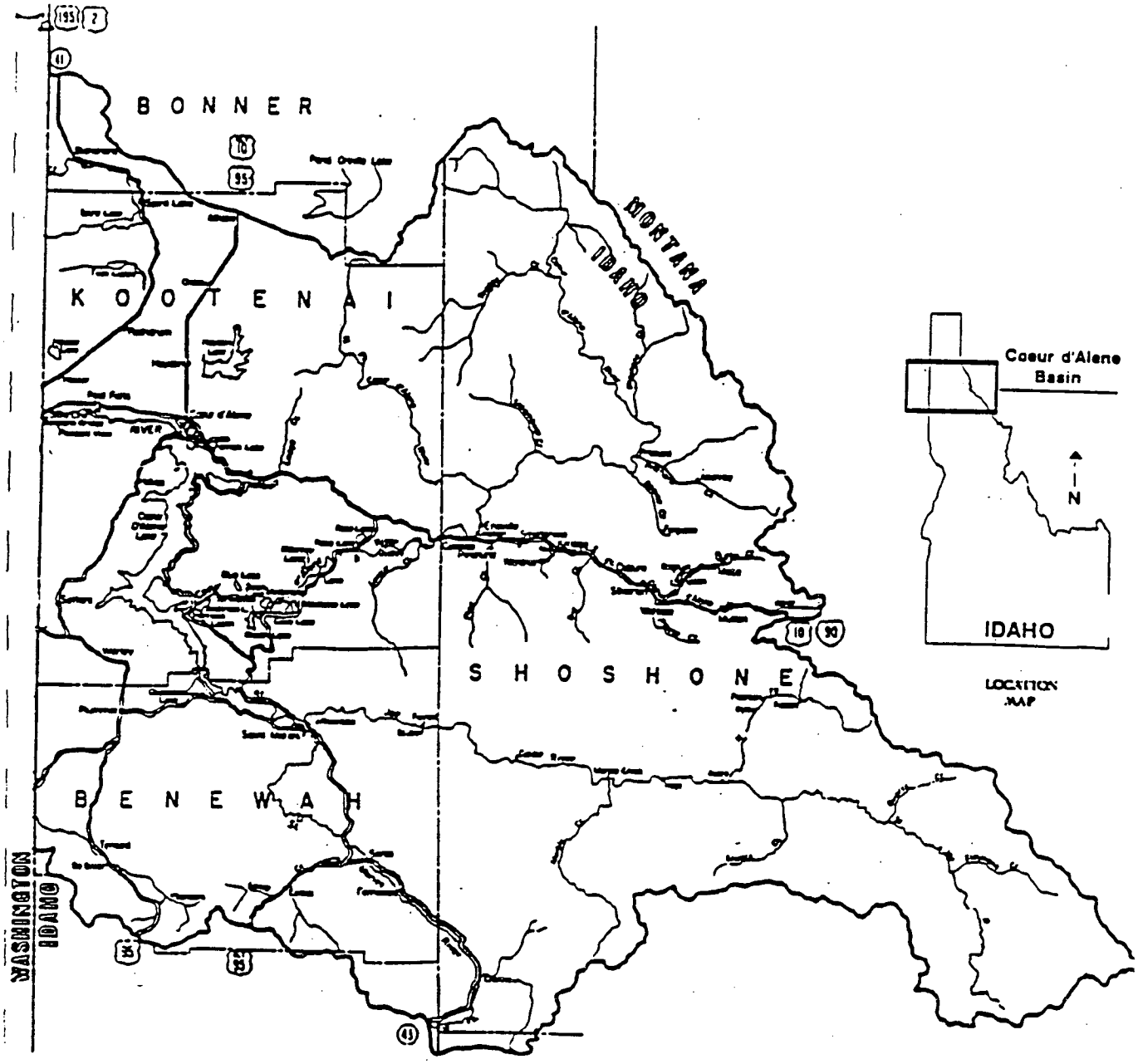

Figure 1
Coeur d'Alene Basin

sediment and other contaminants. Both long-and short-term actions to protect human health and which will restore and enhance fishing, swimming, recreation and other uses in the basin will be identified and implemented.

The framework outlined in this document is a road map designed to guide protection of water quality, human health and wildlife habitats and to restore the elements of these qualities damaged by past practices. It provides a mechanism to facilitate discussion and agreement regarding the activities of all of the participants in the Coeur d'alene Basin restoration activities. The framework should focus all participants' efforts in a common direction. It identifies the activities of local government, the state of Idaho, the Coeur d'Alene Tribe, the federal government and private parties which are directed towards improvement of water quality, remediation of hazardous waste, and protection of human health and wildlife habitat.

Toward these ends, the framework is divided into water quality, hazardous waste (CERCLA/RCRA), human health and wildlife habitat protection modules. These modules overlap in practice in their goals and interests. Where these occur, they are identified and the need for agency and program coordination is targeted.

The framework includes the following objectives and activities:

- gather information about the basin using existing data bases and identify where additional information is needed.
- identify environmental problems in the basin using this information.
- identify the problems which can be addressed quickly, within the next 2-3 years, under existing federal, state, tribal and local authorities using currently available resources.
- take necessary short and long term actions to protect human health and which will restore and enhance fishing, swimming, recreation, and other uses in the basin.
- avoid duplication of effort by attempting to coordinate activities of the Coeur d'Alene Basin Project with those associated with the federal/tribal Natural Resources Damage Assessment (NRDA), State Trustees and private parties..
- Develop funding mechanisms to provide the Coeur d'Alene Basin Restoration Project with the ability to set priorities and implement project specific activities.

The scope of the natural resource, human health and wildlife values to be protected in the Coeur d'Alene basin together with the waters, environments and habitats requiring restoration to a higher standard, demands that the Coeur d'Alene Basin Project pursue a multifaceted and multidisciplinary approach. The approach will require attention to and expertise in the fields of environmental quality, human health, fish and wildlife resources. This array of expertise is not housed in any single agency but rather spread across a number of local, tribal, state and federal agencies, and private parties operating in the basin. The cooperation of and coordination with these parties will be required to address the long term objectives of resource protection and restoration.

Addressing the environmental and human health issues is a long term proposition. The time frames involved and the complexity of the problems requiring solutions necessitates the development of a long term strategy and long term commitment of all involved public agencies, the Coeur d'Alene Tribe and private parties. While long term agency funding and staff support for this project is a major need, there are steps that can be taken in the short term that will foster interim implementation of programs

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COEUR D'ALENE BASIN RESTORATION PROJECT FRAMEWORK

INTRODUCTION:

The Coeur d'Alene basin, located in the Spokane River drainage, covers approximately 3,700 square miles in the panhandle area of Idaho (figure 1). The basin has land types varying from high prairie and palouse hills to forested mountains. The basin is a major recreational area for two population centers (Coeur d'Alene, Idaho and Spokane, Washington) with a total population of about 400,000 people, as well as an internationally known tourist area. Spokane residents also have substantial property holdings in the basin. Land use activities in the basin impact surface and ground waters within Idaho and Washington (e.g., Lake Coeur d'Alene, the Spokane River and the Spokane/Rathdrum aquifer, a sole source of drinking water).

The waters, human environments, fish and wildlife resources of the Lake Coeur d'Alene watershed and its outlet, the Spokane River cover a broad range of qualities. The basin has some of the most attractive, clean and undisturbed environments in the nation, drawing residents and tourists to the area. However, severe impacts to watersheds, streams and lakes have resulted from more than one-hundred years of human activities. Many of these activities caused damage to localized areas prior to the institutionalization of point source controls of pollutants and the application of best management practices. Other impacts are the result of past watershed management activities which are only now known to cause deleterious alterations of watersheds and their streams.

Past activities have resulted in the following specific concerns: an acceleration of the natural process of eutrophication; metals contamination of water and sediment in many areas of the basin; excessive erosion, sedimentation, and stream bank stabilization problems; adverse impacts to fish and wildlife; and potential risk to human health from lead and other metals.

Undeveloped areas present the opportunity to safeguard resources if they are developed. Other natural resources have been adversely impacted by human activities. These resources require restoration. In the context of the basin project, restoration means "a bringing back to an improved condition or use."

COEUR D'ALENE BASIN RESTORATION PROJECT:

The Coeur d'Alene Basin Restoration Project (CBRP) is a multiagency, private interest, and public cooperative effort. The project will address multimedia, environmental problems and potential threats within the basin. Funding and staffing resources of public agencies and private interests will be coordinated to achieve consistent and effective efforts. CBRP relies upon federal Clean Water Act and CERCLA (Superfund) laws together with other local, tribal, state, and federal authorities to develop and implement clean-up and management strategies. No new additional authorities or bureaucratic layers were established in forming the CBRP. The authority to form CBRP comes from mandated responsibilities of the EPA, DEQ, and the Coeur d'Alene Tribe. Roles and responsibilities of EPA, DEQ, and the Tribe for CBRP are identified in the Memorandum of Agreement (MOA) contained in Appendix A.

FRAMEWORK OVERVIEW:

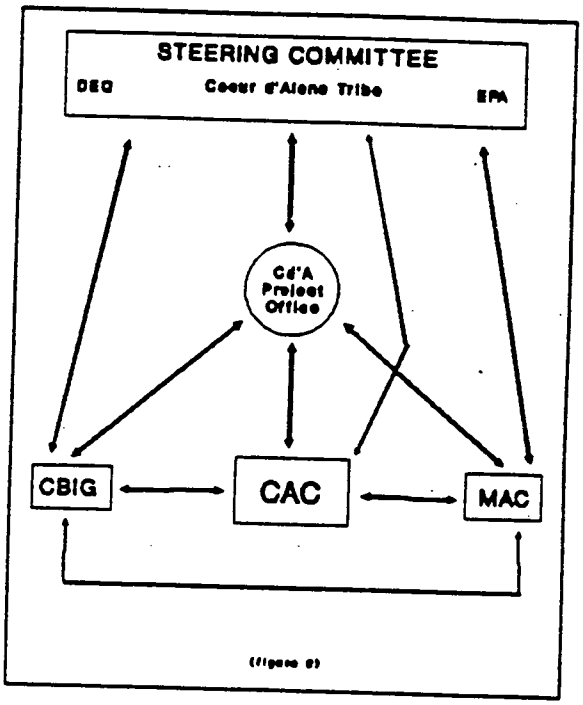
The project framework is established to chart the route to the accomplishment of the general goal of restoring the Coeur d'Alene Basin from past injury and protecting it from future threats to the environmental quality and human health particularly from heavy metals, excess nutrients, excess

already planned and construct a foundation for full implementation of the long term strategy outlined in this document. Interim planning and implementation will be discussed further in a later section.

PROJECT MANAGEMENT:

The Coeur d'Alene Basin Restoration Project is undertaking the development and implementation of solutions dealing with the, complex, large-scale environmental problems. Projects and initiatives undertaken should be guided by legal requirements and authorities and tempered by the concerns of the federal, state, tribal and local agencies cooperating in the efforts, the various concerned interest groups and the general public. The management scheme has been designed to respond to these needs (figure 2). The project manager and staff will be directed by a Steering Committee. Project staff and the Steering Committee will be advised by three separate standing committees.

The Steering Committee is comprised of representatives of the sovereign governments with environmental authorities in the Coeur d'Alene Basin. EPA, DEQ and the Coeur d'Alene Tribe are represented on the Steering Committee. The Steering Committee will be governed by the EPA/DEQ/Tribal memorandum of agreement to (Appendix A2) work by consensus to solve the common environmental and related human health problems of the basin (Appendix A). The agreement fosters this cooperative partnership while not ceding any individual authorities of the respective governments.



(Figure 2)

CBIG is a long standing technical work group pre-dating the project. It has acted as the technical advisory committee to the Clean Lakes Coordinating Council (CLCC) for issues in the Lake Coeur d'Alene watershed. CBIG will provide the project broad-based technical support.

Oversight and input from interest groups, local government and the public will be provided by a Citizens Advisory Committee (CAC). This is a large group of concerned citizens and interest group representatives. The CAC will provide for ongoing public review and help foster public information, education and out-reach.

Since both the CAC and CBIG are large groups with broad membership and tend to meet less frequently, a committee of smaller size capable of meeting on a more frequent basis is required to provide more frequent, focused guidance on issues. The Management Advisory Committee (MAC) is charged with the more specific and frequent oversight of the project activities. The MAC is composed of representatives of nine agencies (DEQ, IDFG, IDL, PHD, Kootenai County, USFS, BLM, SCS and EPA), one representative each from mining, agriculture and timber interests, the Coeur d'Alene Tribe, and the chairman of CBIG and the CAC. As the priorities of the project change over time, the composition of the management group may be revised in response to the changing priorities.

The Coeur d'Alene Basin Restoration Project has overlapping interests and authorities with the CLCC which was created by the Idaho Clean Lakes Act. The Council has no regulatory authority but is charged with the review and local approval of lake management plans in the five northern counties of Idaho. In this capacity, the council conducts public hearings on lake plans and assists in their implementation. The council operates with the assistance of technical and policy advisory committees. CBIG is the technical advisory committee for Lake Coeur d'Alene and its watersheds. Lake and basin management plans developed by the project will be transmitted to the council for its review and approval process, as appropriate. The council's assistance will be sought in the implementation of approved plans.

The Project Manager will be responsible for day to day management of the project and coordination with the Coeur d'Alene Tribe and the various participating agencies. The Manager is an employee of the University of Idaho Water Resources Research Institute (IWRRI). A senior staff scientist will be responsible for development of the various technical aspects of the Project including, but not limited to, the pollution loading and allocation process, use attainability studies, problem assessments, and coordination of other technical studies. The staff scientist is an employee of the Idaho Division of Environmental Quality. A Public Involvement Coordinator will be responsible for developing and implementing the public involvement program, providing public outreach, and providing administrative support to the CAC. The coordinator will be an employee of the IWRRI. A secretary is employed by the IWRRI to provide clerical support for project staff. The CBIG Coordinator is also an employee at the IWRRI and provides some administrative and planning support for the CBRP.

PROJECT FUNDING:

The first two years of operation of the Project are funded by a mix of state (Division of Environmental Quality (DEQ) and federal Environmental Protection Agency (EPA) funds. The source of federal funds is a variety of programs including the Clean Water Act and CERCLA as revised by SARA. Approximately $500,000 was originally available to cover staffing, technical studies, and mining reclamation demonstration project costs. EPA Region 10 and the CBRP office are seeking funds at the national level for Federal Fiscal Year 94 (October, 1993 through September, 1994) and beyond to continue project support and implementation. The Coeur d'Alene Basin Restoration Project (CBRP) should assist in securing long term funding commitments to supplement existing funding authorities of the U.S. Department of Interior (USDI), U.S. Department of Agriculture (USDA), and the EPA Phase II Clean Lakes Program. The CBRP shall assist in efforts to develop "line item" funding support for the project by congressional representatives. Implementation of the Project and achieving the general goals that have been identified will require a long term funding commitment from both private and public sources.

SUMMARY OF ISSUES:

Human activities which have impacted or threaten beneficial uses of water and fish and wildlife and/or posed potential human health hazards in the basin include, but are not limited to, mining, agriculture, and forest practices.

Mining Impacts:

As a result of a century of metals mining and refinement, parts of the Coeur d'Alene River system have been adversely affected by heavy metals contamination. Although the South Fork of the Coeur d'Alene River valley (Silver Valley) has been the primary focus of this activity, mining activities have also taken place on the North Fork of the Coeur d'Alene River in areas such as Prichard Creek. The South Fork is currently listed by the state as water quality limited, resulting from the aggregate of point and nonpoint source loads of heavy metals and sediments which impair the beneficial uses. These

metals have contaminated wildlife habitat in the Silver Valley, the lower Coeur d'Alene River and the lake. Human health impacts from lead contaminated soils, airborne emissions and dust in the area surrounding the Bunker Hill mining complex has prompted designation of the Bunker Hill Superfund Site. Cleanup efforts are ongoing.

Mining wastes have been carried by a hundred plus years of runoff events into the lower reach of the Coeur d'Alene River, its lateral lakes and wetlands and Lake Coeur d'Alene. These wastes reside in bottom sediments of rivers and lakes and in wetlands adjacent to the lower river. The sediments are enriched in heavy metals. Within the river system the mining waste sediments are continually reworked by the flowing water. In the sediments of Lake Coeur d'Alene, the metals exist in a chemical form which could be mobilized into the water column under low oxygen (anoxic) conditions. Anoxic conditions result from the decomposition of organic materials. Accelerated nutrient loading into the lake as the result of land disturbing activities is considered the primary cause of accelerated eutrophication which results in increased levels of organic material. In the lateral lakes of the Coeur d'Alene River the existing data suggests metals exist in a form less mobile under anoxic conditions.

Management approaches are required which will reduce the mining waste sources entering the river system. Approaches are required to remove or stabilize the mining waste stored in the river floodplain, its wetlands and the lake sediments. Management approaches are also required to protect against the contamination of the public and wildlife using the lake, river and its adjacent environments. Approaches that will break contamination pathways of lead and other metals may be necessary.

Agricultural Impacts:

The Palouse Region of Idaho and Washington reaches into the southwest area of the Lake Coeur d'Alene watershed. Intense agricultural development of the productive but highly erodible soils of this area has caused stream and lake sedimentation and accelerated yield of plant growth nutrients to Lake Coeur d'Alene and associated lakes near its southern end. The continued accelerated eutrophication of Lake Coeur d'Alene by plant growth nutrients from all sources could have consequences well beyond poor lake water quality, the impacts on fisheries and nuisance plant growth. Development of anoxic conditions resulting from the decay of increased plant biomass could foster the release of heavy metals stored in the sediments into the water column as well as impacting aquatic organisms. Implementation of best management practices is needed to reduce nutrient and sediment loading to the lake from agricultural sources.

Forest Practices Impacts:

Timber harvest practices have also had an impact on the basin. Some plant growth nutrients are yielded by these practices but the yield of sediments and water have the most significant impact. Sedimentation of some fourth and fifth order channels by cobble size sediments has directly impacted aquatic biota uses in some river reaches. Intense timber harvests (extensive canopy removal and road building) have altered the response of watersheds to precipitation events. These changes can raise flood crest levels, foster bank erosion and channel instability and cause additional sedimentation. Channel sedimentation and effects on flood flows are apparent on the North Fork Coeur d'Alene River above the South Fork confluence and in the lower river where sedimentation from the South Fork aggravates these problems. Improvements to the forest practice regulations and other approaches may be needed to reduce sediment and nutrient loading to streams and Lake Coeur d'Alene from forest practices.

Additional Impacts and Issues:

Additional threats to water quality are scattered about the basin. The lake and Spokane River supply approximately thirty percent of the water entering the Rathdrum-Spokane Aquifer. Declining water quality in the lake might eventually result in contamination of this sole source aquifer relied on by Spokane-Coeur d'Alene area (400,000 population) as a source of potable water. Nutrient discharge from wastewater treatment facilities, onsite wastewater treatment facilities and stormwater runoff discharging to Lake Coeur d'Alene and the Spokane River are a concern. The St. Maries River periodically exceeds thermal criteria during the summer. Large power boat recreation and fluctuating lake water levels may contribute to bank erosion problems along the St. Joe and Coeur d'Alene Rivers. There are many streams in the St. Joe River system and some in the Coeur d'Alene River system that have existing high water quality. These streams require judicious management to maintain their condition.

WATER QUALITY OBJECTIVES AND PROGRAM REQUIREMENTS:

Objectives:

The broad objectives of water quality management in the Coeur d'Alene Basin are to:

: Improve, restore and protect beneficial uses of the waters.

: Apply water quality based controls where required to restore beneficial uses.

: Implement nutrient management activities to assure maintenance of high lake water quality and to contain heavy metals within the sediments of Lake Coeur d'Alene,

: Augment the nonpoint source, NPDES and groundwater management programs to protect current reaches and aquifers of high water quality,

The specific long term objectives for water quality include:

: Management of Lake Coeur d'Alene and its watershed to control the rate of nutrient loading.

: Elimination or reduction of heavy metals loading from mining waste sources in the S.F Coeur d'Alene River drainage.

: Management of plant growth nutrient loads and biological oxygen demand in the Spokane River.

: Management of water quality impacts resulting from sedimentation (pool habitat loss and spawning gravel siltation) and the associated bank erosion in the Coeur d'Alene Basin including the St. Joe, St. Maries, and Coeur d'Alene Rivers.

: Management of the St. Maries River to address thermal criteria exceedance.

: Management of mining wastes deposited along the Coeur d'Alene River including consideration for soil amendment to encourage revegetation.

In order to meet all of these objectives, a current and thorough knowledge of the existing beneficial uses and those uses that are attainable will be required. A beneficial use attainability assessment for the entire basin is required to develop this knowledge. Based on the uses, existing and attainable, very specific water quality criteria upon which objective attainment can be assessed will be identified from existing EPA criteria and proposed state sediment criteria. When site-specific water quality criteria are developed and approved by appropriate enacting agencies for particular water bodies, such criteria will be used in place of general criteria.

Legal Requirement and Authorities:

The legal authorities under which DEQ, tribe and EPA will operate in the Coeur d'Alene basin may include the federal Clean Water Act, the Idaho Environmental Protection and Health Act, the Idaho Water Quality Protection Act, the Idaho Nutrient Management Act, and tribal authorities. Where appropriate, selected CERCLA authorities may be used.

Such water quality related authorities include, but are not limited to, National Pollutant Discharge Elimination System (NPDES) permitting for point sources including stormwater provisions, Section 319 planning for nonpoint sources, water quality standards, Section 401 certifications, Sections 301 and 303 pollution control methodologies, and development of nutrient management plans. Hazardous material related authorities include, but are not limited to, removal actions and site assessments and investigations.

Lake Coeur d'Alene Management:

The management of Lake Coeur d'Alene will be directed by a lake management plan. The State of Idaho and the Coeur d'Alene Tribe are cooperatively developing a lake management plan under the March, 1991 tri-party, state/EPA/Coeur d'Alene Tribe cooperative agreement (Appendix A1). The plan is being developed under authority of the Nutrient Management Act, which requires nutrient management plans for major lakes of Idaho. In the case of Lake Coeur d'Alene, the requirement has added relevance since controlling lake eutrophication provides the best approach to containment of heavy metals deposited in lake bed sediments. The lake management plan should be implemented through a Clean Lakes Phase II grant (Section 314 CWA) or other federal, state and Tribal funding sources.

The Tribe is using Clean Lakes Phase I funds to collect water quality data to be used in conjunction with the state's nutrient management planning effort in the development of a final Lake Coeur d'Alene Water Quality Management Plan. The plan will address the management of nutrient loading of the lake to retard eutrophication. The primary objectives of the plan are to prevent oxygen depletion in the lake and contain heavy metals bound within some lake bed sediments. The plan is scheduled for completion by 1994. The plan will be developed jointly by DEQ, the Coeur d'Alene Tribe, and the U. S. Geological Survey (USGS) who has been retained by both groups to complete baseline water quality monitoring. The management plan will be modified into a TMDL as required by EPA Region 10 Clean Lakes guidance.

Since the basic tenet of this plan will be managing the lake through managing the watershed, elements of existing water quality programs will be adapted and applied. The current antidegradation program managed by Idaho Department of Lands (IDL), DEQ and the Soil Conservation Commission (SCC) addressing nine stream segments of concern in the basin will be incorporated into the plan. The Forest Practices Nonpoint Source program is managed by DEQ, IDL, U. S. Forest Service (USFS) and the Bureau of Land Management (BLM). It will encourage strict adherence to forest practices best management practices (BMPs) basin-wide. However, work carried out in the River Basin Studies may support the need for additional best management practices in order to limit phosphorous loading from

forest activities. The mining nonpoint source program is implementing BMPs basin-wide on surface features of mines. The program is managed by IDL and DEQ. It may identify additional mining BMPs needed to limit sediment and metal loads. The State Agricultural Water Pollution Abatement Program managed by DEQ and the SCC implements voluntary BMPs through a cost-share program. Currently five streams draining to the lake with high levels of agricultural activities in their watersheds have agricultural plans. As River Basin Studies on the Coeur d'Alene and St. Joe River systems identify additional agricultural sources of water pollution, additional watershed specific programs may be required. The voluntary road activity best management practices developed by DEQ and Idaho Transportation Department (ITD) and the stream alteration rules managed by Idaho Department of Water Resources (IDWR) may also be used to implement specific programs to manage the water quality of Lake Coeur d'Alene. The National Pollutant Discharge Elimination System (NPDES) is managed by EPA with Section 401 certification provided by DEQ. The Coeur d'Alene Tribe is planning to develop and apply to EPA for NPDES primacy for pollution discharging facilities within the borders of the reservation. The NPDES program controls 28 point source discharges to waters flowing to Lake Coeur d'Alene. The lake management plan may recommend additional limitations to these point discharges to foster lake protection. The water quality condition of all the waters of the state are archived by the water quality data management program (DEQ, EPA). Data stored in national databases (STORET/BIOS), state databases (NPS Database) and the local (DEQ) Coeur d'Alene database will be used to assess conditions and develop management approaches for the lake management as well as all other efforts in the basin project.

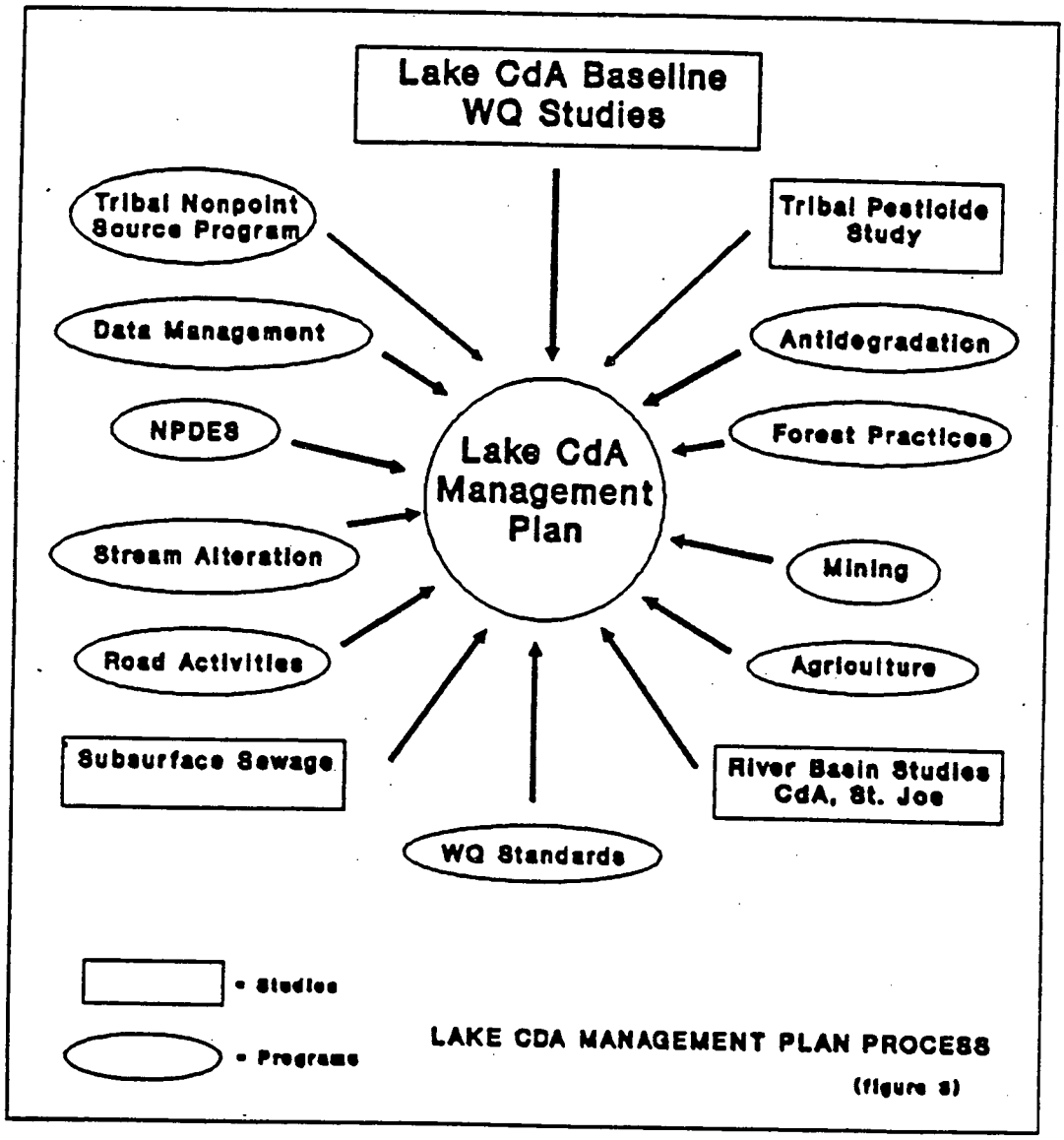
These programmatic efforts should be matched with information developed through cooperative effort with other agencies. Base-line water quality and sediment monitoring is being completed by the USGS under contract to both the DEQ and Coeur d'Alene Tribe. The data developed will provide basic information on the water quality of the lake as well as the scope of contamination of the lake bed sediments by heavy metals. The data will be invaluable in recognizing pollution problems and sources to be addressed by the plan through the programs described earlier. The River Basin Studies sponsored by the Soil Conservation Service (SCS) with the participation of the USFS, DEQ and U.S. Bureau of Mines (USBM) are identifying and documenting pollution sources in the watershed of the lake. These sources include plant growth nutrients from agriculture and forest practices as well as mining wastes. This information will be used to plan and implement solutions through the programs and the lake management plan. Currently a River Basin Study is underway for the Coeur d'Alene River system. Another study is needed for the St. Joe River system which has been identified by the USGS based on preliminary water quality data to be a large source of plant growth nutrients. A study of shore line, individual wastewater disposal systems is planned. The study, to be conducted by the PHD, will locate problem systems and estimate the nutrient yield from these sources. The information could be used in a proposed on-site system up-grade program administered by DEQ and PHD to cost-share the expense of up-grades with the owners.

The Idaho Clean Lakes Act planning authorities should be used by the Clean Lakes Coordinating Council (CLCC) to address non-water quality lake management issues. Shoreline subdivision, boat numbers and boat operation are among the issues which can be addressed under these authorities. Shoreline and near shore development should be addressed by the plan. Zoning and ordinances to plan and guide development will be required. These controls can be provided by the county and tribal governments to minimize environmental impacts especially from sediment and nutrients. The number of boats and rules of operation should also be regulated by these authorities.

As the Lake Coeur d'Alene Management Plan is implemented, monitoring will be required to determine its effectiveness. A surveillance monitoring program will be required. In addition, citizen monitoring efforts are envisioned on many key bays to assess the effectiveness of disposal system up-grades as well as application of agricultural and forest practices BMPs.

The key components identified above provide a foundation for development of a Lake Coeur d'Alene Management Plan. Some activities are currently in operation while others such as a St Joe River Basin Study and on-site wastewater treatment survey require initiation. All may be required to competently safeguard the water quality of the lake by retarding eutrophication. More oligotrophic conditions in the northern part of the lake should assure that metals remain bound to the lake bed sediments.

The conceptual framework for the development of the Lake Coeur d'Alene management plan is shown in figure 3.



LAKE CDA MANAGEMENT PLAN PROCESS

(figure 3)

The development and implementation of a Lake Coeur d'Alene Management Plan should follow the rough schedule:

1993	Completion Reports: Lake Water Quality Monitoring, Coeur d'Alene River Basin Study
1994	Lake Coeur d'Alene Management Plan Completed
1995	Phase 2 Clean Lakes Grant Application
1994-2000+	Lake Plan Implementation

South Fork Coeur d'Alene River Water Quality Plan:

The lower South Fork Coeur d'Alene River has been listed as "water quality limited" for over ten years. At this time, the river does not fully support all designated beneficial uses. Even with the application of best available technology (BAT) to point source discharges and BMPs for nonpoint sources, these measures may not fully recover beneficial uses.

Water quality based pollutant controls are addressed in Sections 301 and 303 of the Clean Water Act. Section 303(d) requires the state to list and notify EPA of water quality limited segments. Other segments in the Coeur d'Alene basin are suspected to be water quality limited or require implementation of water quality based controls. Section 303(d) further requires that the state complete a water quality plan to abate problem pollution sources (Total Maximum Daily Load, or TMDL) for water quality limited segments.

The water quality plan will provide a cost effective approach to dealing with the widespread contamination of the waters of the South Fork Coeur d'Alene by heavy metals and sediments, and bacteria contamination, where applicable. Application of water quality planning to address nonpoint sources was first employed for the South Fork Salmon River. A similar approach will be implemented for the South Fork Coeur d'Alene River. This guided, incremental approach targeted to improve existing and attainable uses is designed to foster recovery. The approach requires knowledge of the load reduction of metals and sediment expected from a specific restoration project. This information on load reduction is a major knowledge gap which must be bridged before a water quality plan can be implemented. For this reason an interim plan, and demonstration and pilot remediation projects will be necessary, intermediate steps.

Development of the water quality plan will be an incremental approach utilizing existing data and refining estimated loads as further data becomes available. The water quality data management program and data from the State Natural Resource Fund Trustees study will be used to develop rough load estimates for the South Fork tributaries and the river. From the load estimates, an interim plan will be developed. The interim plan will provide a basis for targeting specific mining waste remediation areas as demonstration and pilot projects. These projects will be implemented and monitored for effectiveness to assess the load reduction achieved from each project. As remediation projects on the Bunker Hill Superfund Site are implemented, applicable results will be incorporated into the interim water quality plan and load reduction assessed.

The location of mining wastes and the assessment of their composition will be conducted by the Western Operations Office of the U.S. Bureau of Mines (USBM). The EPA and other federal agencies will be conducting preliminary site assessments, site investigations, and PRP searches to deal with hazardous materials problems pursuant to CERCLA. Additional water quality data will be developed by DEQ, EPA, the Tribe, and other state and federal agencies to allow more accurate assessment of

the heavy metals loads and tributaries or locations yielding loads. Mining waste location and assessment data will be compared with pollutant loading data to pinpoint the mining nonpoint sources contributing most significantly to the loads. Remediation plans and their projected effect on metals load reduction will be developed for high priority mining wastes. Load reduction estimates for each remediation project will be developed from the monitoring results of demonstration projects.

To implement remediation projects it is expected that funds will be sought from private industry, the State Natural Resources Trust Fund, State of Idaho and the federal government. Where viable responsible parties are identified, compliance and clean-up actions will be sought by the appropriate regulatory agency.

The final water quality plan will allocate load reduction projects requiring implementation to lower the metals load by a specific level and to decrease sediment load. Additionally, effectiveness monitoring requirements will be incorporated to assure that project implementation provides the desired load reduction after a specific time period. It is unrealistic to expect that one allocation of load reduction projects will have the full desired effect. The plan will be revised to reflect additional monitoring results, new data and revised load estimates in order to continue to improve water quality and achieve beneficial use protection in the S.F. Coeur d'Alene River.

Stormwater runoff which carries metals, sediment, and other pollutants is also a concern in the S.F. Coeur d'Alene River system. To alleviate stormwater impacts, EPA should implement recently adopted NPDES requirements and local government should develop, adopt, and implement control ordinances.

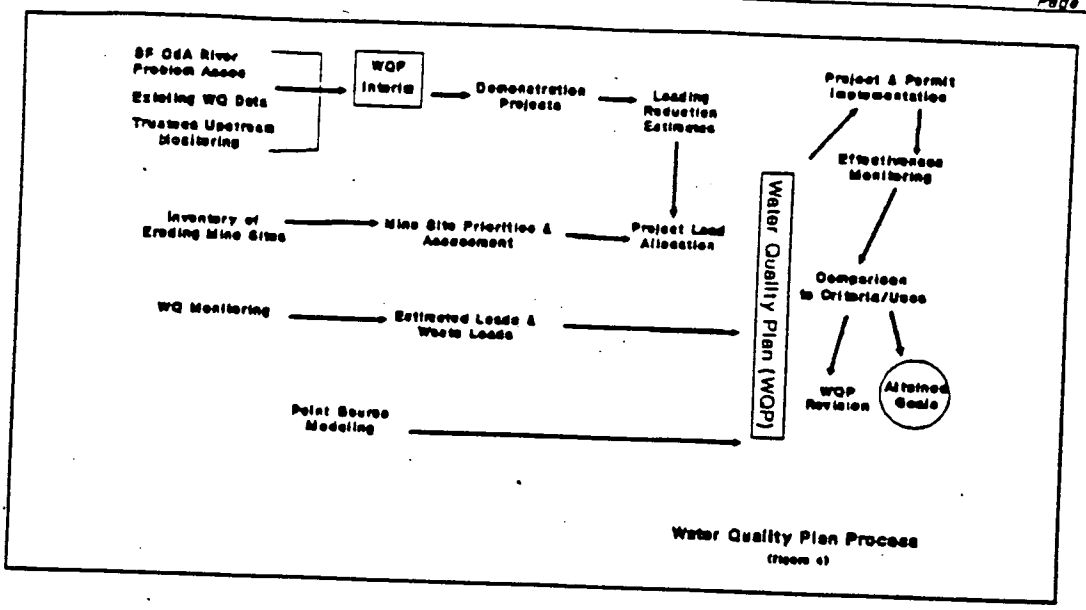
The conceptual framework for development of the South Fork Coeur d'Alene River water quality plan is shown in figure 4. The development and implementation of a South Fork Coeur d'Alene River water quality plan to abate problem pollution sources should follow the rough schedule:

1993	Interim water quality plan
1993-95	Demonstration and pilot Project(s) Implementation Project Effectiveness Monitoring
1996	Water quality plan
1996-2000 +	Implementation of plan provisions

Spokane River Waste Load Allocation:

The Spokane River currently has a waste load allocation in place to manage phosphorous loading. In the Idaho reach of the river, especially above the Post Falls impoundment, nitrogen compounds and dissolved oxygen have become water quality issues. The population growth of Coeur d'Alene, Post Falls and Hayden together with sewering of subdivisions located on the Rathdrum Aquifer has mandated that an evaluation be conducted on the Idaho reach. Use of a waste load allocation format will identify the nitrogen compound and biological oxygen demand loads the river can assimilate before water quality criteria are exceeded. With knowledge of the loads and discharge limitations the wastewater treatment facilities will be required to meet, pre-planning by the municipalities will be possible.

The Spokane River waste load allocation provisions will deal primarily with the point source discharges. and, as identified, nonpoint source concerns will be addressed. This approach is the most reasonable since point source discharges cause the major water quality impact and it will permit use of the model developed to complete the Spokane River phosphorous waste load allocation. Wasteload allocation

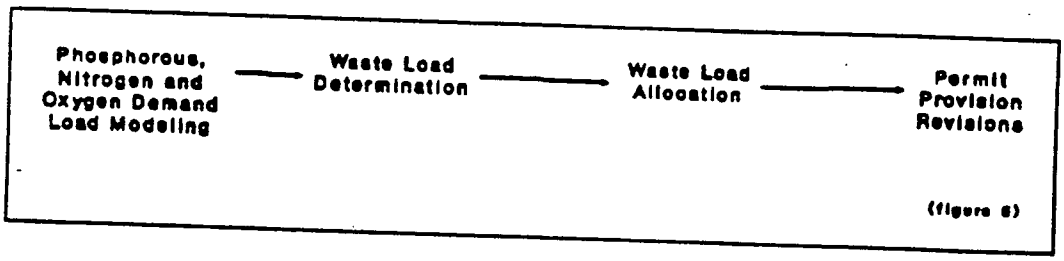


Water Quality Plan Process
(figure 4)

development by DEQ will be coordinated with the Washington Department of Ecology (WDOE) and will take into consideration State of Washington water quality standards' requirements. A problem assessment will be developed to clarify the issues and current and potential future loadings. Modeling will be completed to identify the loads that can be discharged to the river and support the beneficial use criteria. The calculated loadings will be apportioned in a wasteload allocation. The waste load allocation provisions will be implemented through discharge permit limitations. The waste load allocations will require in-stream monitoring on a periodic basis to assure the effectiveness of the discharge limitations.

Stormwater runoff which carries sediment and other pollutants is a concern in the Spokane River drainage. To alleviate stormwater impacts, EPA should implement NPDES controls and local governments should adopt and implement control ordinances.

The conceptual framework for development of the Spokane River waste load allocation is shown in figure 5.



(figure 5)

The development and implementation of a Spokane River waste load allocation should follow the rough schedule:

1992 - 93 Develop Problem Assessment
Model River Water Quality

Determine Maximum Daily Loads of Pollutants of Concern
Develop Waste Load Allocation

1993 - 94 Initiate Implementation of New Permit Provisions as Required

North Fork Coeur d'Alene River Problem Assessment and Related Actions.

The North Fork of the Coeur d'Alene River and some tributaries above the confluence with the South Fork Coeur d'Alene River has have been extensively logged and roaded, and have extremely low fish population densities. The river has lost most of its pool and riffle structure, becoming a continuous run of cobble size substrate. Measurements indicate the stream bed has risen dramatically over the past several decades. Deposition of cobble size material has filled pool habitats of the reach.

Extensive mining operations were conducted near Murray along Prichard Creek, and in the East Fork Eagle Creek drainage (e.g. Jack Waite Mine). In-stream water quality monitoring will be needed to assess pollution loadings from specific sites, and metals and other pollutant loading impacts to the North Fork Coeur d'Alene River.

A problem assessment is required to determine if the segment is water quality limited as a result of sedimentation or other pollutants caused by human activities. The assessment can draw information from a modeling effort which will focus on the entire river (discussed later) as well as headwater hydrology and sedimentation data being developed by the Forest Service as a part of the Coeur d'Alene River Basin Study. The modeling effort will be tasked with recommending potential pollution abatement actions. If a determination is made that the river is water quality limited, a water quality planning process will be undertaken to foster recovery of cold water biota beneficial uses. Water quality planning on this segment would focus on nonpoint sources. If the stream is not found to be water quality limited, other approaches will be developed by DEQ to improve beneficial use impairment.

The need for an additional process after problem assessment is not clear at this time. Assistance and participation by the USFS will be needed to address water quality in the North Fork Coeur d'Alene River, the Little North Fork Coeur d'Alene River and tributaries above Enaville. The nature of that process and its schedule can not be anticipated.

The Forest Service is also inventorying the number of acres of logging activity and miles of road construction in the watershed. The need for road rehabilitation is also being evaluated by the USFS.

EPA and local governments should implement appropriate stormwater control provisions to abate impacts on the N.F. Coeur d'Alene River.

St. Maries River Problem Assessment:

The St. Maries River has been identified as exceeding thermal water quality criteria over significant reaches. The wide, shallow channel morphology affected by land and river management activities may be responsible for these exceedances. A problem assessment is required to assess the possible water quality limitation of the St. Maries River. If the thermal exceedance is from human impacts which are currently not addressed by BMPs and best available technology (BATs), the stream may be found water quality limited and a water quality remediation process required. If other programs could more expeditiously address the problems, action could be referred to these programs (agricultural riparian impacts, forest practices, mining, nonpoint source programs). To alleviate stormwater impacts, EPA should implement applicable NPDES controls and local governments should adopt and implement control ordinances.

The need for an additional process after problem assessment is not clear at this time. The assistance and participation of the USFS, IDL, SCS and Benewah Conservation District will be needed to adequately address water quality of the St. Maries River. The nature of that process and its schedule can not be projected.

Lower Coeur d'Alene River Management:

The lower Coeur d'Alene River has been impacted by mining wastes, and sediment from forest practices and other activities carried down from the Silver Valley and other upper watershed areas. Flood events constantly rework the contaminated sediments, spreading these sediments into some of the lateral lakes and wetlands adjacent to the river. In addition, large sediment loads currently stored in the river above the South Fork confluence may alter the channel characteristics; flooding and bank erosion occur dramatically if these move into the lower river. Bank stability has been a constant problem along the lower river.

Bank stabilization plans have been proposed by Save Our River Environment (SORE). The Army Corp of Engineers (COE) organized a site visit in mid-1992 by personnel of its Waterways Experimental Station. During the site visit several locations on the lower river with bank instability were inspected. Sites which are typical of the general bank instability problems of the river will be chosen for the development of a bank stabilization demonstration project. If successful, these solutions may be applied elsewhere on the lower river.

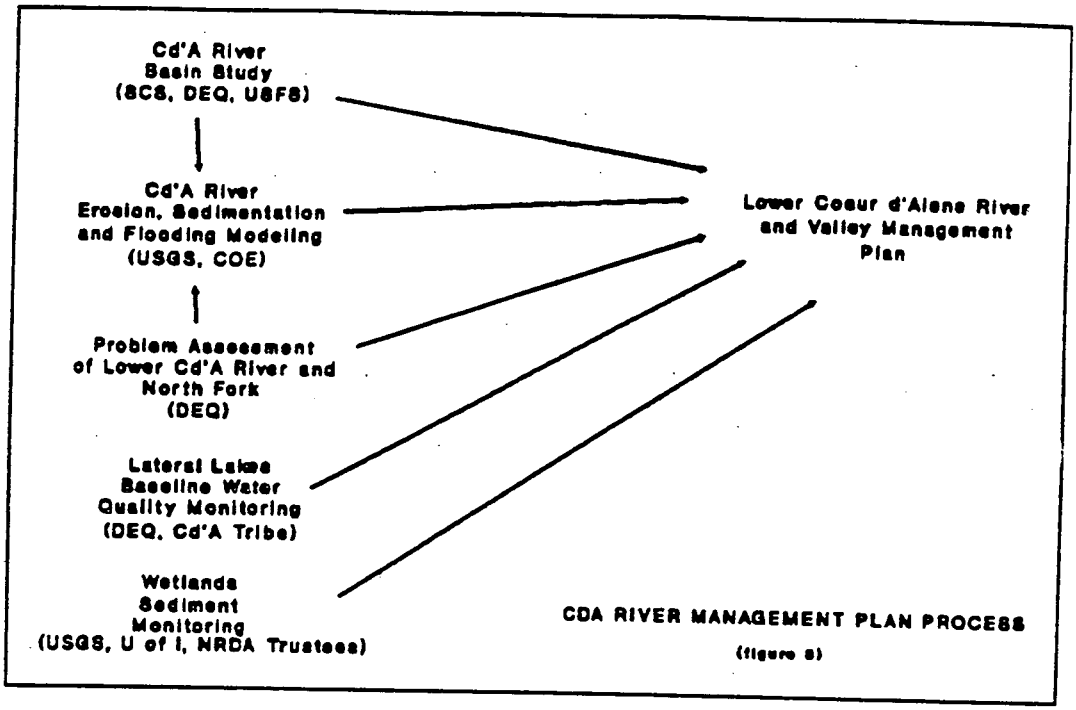
Bank instability is one of the inter-related problems of the lower river. Addressing and clearly identifying the inter-related problems and potential remedies for the lower river will require an in-depth problem assessment. Although considerable information has been developed on the lower river systems which will be tapped for a problem assessment, additional information will be required to complete this task and develop possible remedial and management action. The Coeur d'Alene River Basin Study (SCS & USFS) is developing documentation of the extent of bank erosion as well as headwater hydrology and sedimentation values to feed sediment modeling. A major large river modeling effort is required to define the interactions between sedimentation, flooding and bank erosion problems. A modeling effort has been conceived by the USGS and Army Corps of Engineers. Support by the federal/tribal Natural Resource Damage Assessment has been secured to fund this study. The modeling should not only define mechanisms, but recommend solutions to the bank erosion and flooding problems in the lower river.

In addition to modeling the river, the location and level of mining waste and metals contamination of the lateral lakes and wetland requires assessment. Some monitoring of the water quality of the lateral lakes, their lake bed sediments and wetland sediments has been completed, but more data is required. Agencies working on the federal/tribal Natural Resource Damage Assessment may further characterize the sediments and water quality. Additional baseline water quality monitoring and trophic status determination are required to assess the potential for metals release into the water column. This work will be scheduled by DEQ in its clean lakes program.

These studies will provide a water quality basis from which a lower river valley management plan can be developed. The problem assessment may also identify water quality limitations. However, since the problem sources are in the South Fork and potentially the North Fork systems, effective remediation should be centered in those locations initially. A management plan for the lower river, lateral lakes and wetlands should incorporate water quality concerns, but should also embrace human health and fish and wildlife habitat concerns. Development and implementation of a useful, workable remediation and management plan needs to be a multi-agency undertaking. Among the agencies that should be involved are the USFS, BLM, IDL, IDFG, USFS, University of Idaho, SCS, Kootenai- Shoshone Conservation District, the Coeur d'Alene Tribe, DEQ and EPA.

To alleviate stormwater impacts, EPA and local government should implement appropriate stormwater runoff control provisions for the lower Coeur d'Alene River.

A conceptual diagram of development of a lower Coeur d'Alene River management plan is shown in figure 6.



A schedule of this work has not been projected.

HAZARDOUS MATERIALS OBJECTIVES AND PROGRAM REQUIREMENTS:

Objectives:

The broad objectives of hazardous materials management in the Coeur d'Alene Basin Project include:

- Identification, evaluation and prioritization of hazardous substances releases; including Preliminary Assessment, Site Investigations, and/or Removal Assessments as appropriate.

- Develop strategies for managing, controlling and cleaning up hazardous substances in the Basin, both from an environmental and human health perspective.

- Utilization of appropriate CERCLA authorities to conduct, or require cleanup of sites identified in the prioritization process.

Specific long-term remedial objectives for hazardous materials include:

: Completion of the Preliminary Assessment/Site Inspection and Removal Assessments for sites identified in the basin.

: Remediation on the dredged mining waste site located on Cataldo Flats.

: Implement removal actions where required outside the superfund site.

Although not components of CBRP, two additional broad objectives in the Basin are:

: Implementation of Remedial Actions selected for the Bunker Hill Superfund Site.

: Completion of the Natural Resource Damage Assessment, restoration of alleged injured natural resources, and compensation for those which cannot be restored.

Legal Requirement and Authorities:

The Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) amended in 1986 by the Superfund Amendments and Re-authorization Act (SARA) also known as Superfund, provides the authority for cleanup and emergency response for hazardous substances released into the environment, including cleanup of inactive waste disposal sites. Key components of the law are the liability and compensation statutes based on the principle that the polluter pays for clean up and damage to natural resources. The National Contingency Plan (NCP) provides a hazardous substance response plan that establishes procedures for responding to releases of hazardous substances, pollutants and contaminants. CERCLA clearly assigns the liability for clean up. Owners, operators and generators are the primary responsible parties.

The Resource Conservation and Recovery Act (RCRA) governs the generation and proper disposal of hazardous wastes. Mining extraction and beneficiation wastes are excluded from RCRA Subtitle C disposal guidelines for hazardous wastes under the Bevill Amendment, but can be addressed under existing state authorities. A policy to address Bevill excluded mining wastes is being developed by DEQ. The Bevill exclusion does not extend to the authorities of CERCLA and SARA.

The CERCLA/SARA authorities are implemented primarily by the EPA with the cooperation of DEQ. The State of Idaho is authorized to implement RCRA. The recovery for natural resource damages is sought by Natural Resource Trustees, which include the federal agencies responsible for the management of those resources and the Coeur d'Alene Tribe. The State of Idaho has settled its natural resources damages suit with several mining companies in the Basin.

EPA General Approach to CBRP:

In general, EPA will seek to work with private parties to encourage voluntary clean-up actions at sites identified as posing environmental or human health risks from hazardous materials releases. However, EPA may fund clean-up activities or take enforcement actions to compel other parties to undertake clean-ups, as appropriate.

Site Evaluation (SE) Program:

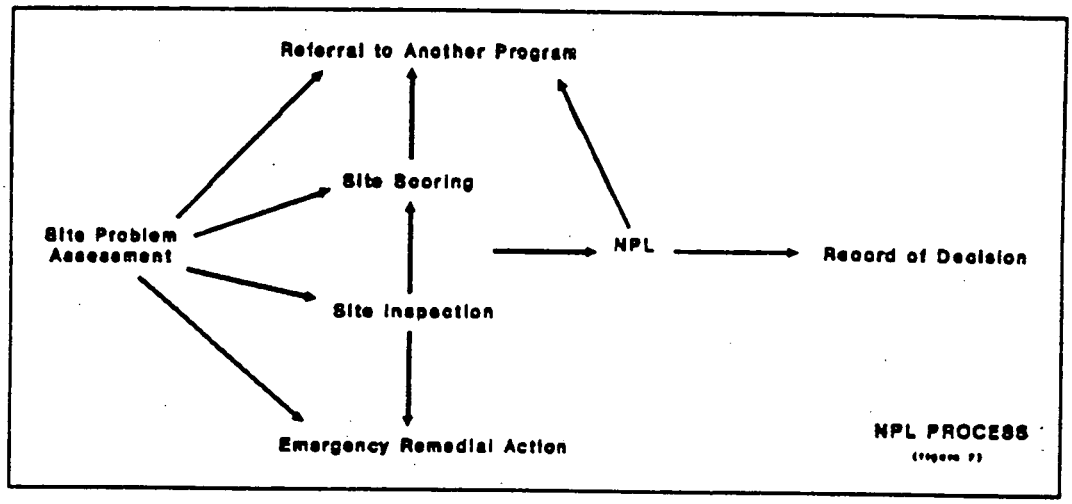
The SE program requires the identification and assessment of releases of hazardous substances into the environment. Such investigations are intended to identify those releases that warrant further action. Appropriate CERCLA actions might include either implementation of removal actions or addition

to the National Priority List (NPL). EPA expects to coordinate preliminary site identification efforts with other components of the Basin Project as appropriate to assure efficient utilization of resources.

Early actions may be conducted by either EPA or other parties to address the immediate risks posed by releases of hazardous substances. In many instances early actions will mitigate environmental or human health risk and thus minimize the need for additional site investigations. In other cases early actions may be inadequate to address all risks posed by a release; in those instances further investigation are undertaken to evaluate releases. Releases which have the potential to pose a continuing risk of human health or environmental exposure are scored according to a established criteria and may be proposed for the NPL.

When sites are determined to be appropriate for inclusion on the NPL, additional investigations to determine the nature and extent of releases of hazardous substances and necessary actions to protect human health and the environment are required. The ROD is the document specifying additional remedial actions that may be required.

A conceptual diagram of the NPL program is shown in figure 7. A schedule of this work has not been projected.



Cataldo Flats Remediation:

The mining wastes and clean bed materials dredged from the Coeur d'Alene River near the Cataldo Mission and deposited on the Cataldo Flats are technically no different from any other potential hazardous waste site in the basin. This site should be evaluated in the site assessment program by the US EPA and BLM. The Cataldo deposits are unique because their location is highly visible and under dry windy conditions may pose a hazard to highway safety. Interstate 90 crosses through the dredge deposits in an area which has resisted re-vegetation. Use of the heavily traveled road makes the wastes very visible. Under dry and windy conditions the fine materials of the un-vegetated dredge materials are suspended and blown across the interstate adversely affecting traffic safety. A nearly forty-acre area of the dredge deposit is in a non-vegetated condition. Use by off road vehicle (ORV) enthusiasts further retards the re-vegetation process and potentially exposes the ORV users to heavy metals ingestion.

A problem assessment of the Cataldo Flats dredge deposits is the initial step to the remediation of the current situation. Several studies have been developed on the nature, groundwater hydrology, impacts and re-vegetation of the deposits. Several trial re-vegetation efforts have been completed. These studies should be gathered and assessed in a single document. The assessment should suggest a remedial plan. The plan should be implemented as a high priority in response to the public concern and the potential highway safety hazard created by this site.

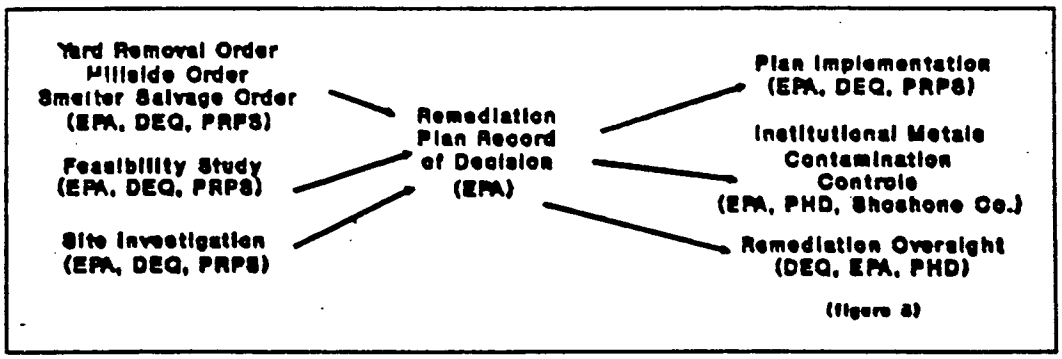
Re-vegetation and stabilization of the site on Cataldo Flats is a high priority of the public and agency staff. Funds have not been identified to complete the work and a schedule has not been developed.

Bunker Hill Superfund Site (outside scope of CBRP):

The Bunker Hill Superfund Site encompasses a twenty-one square mile rectangle with its long axis aligned along the South Fork Coeur D'Alene River. The site is seven miles long stretching from Elizabeth Park down river to just upstream of the Pine Creek confluence, and is three miles wide. The site was added to the National Priority List (NPL) in 1983 based on elevated lead levels in children's blood within the area. Remedial investigations and feasibility studies have been refined into proposed remedial plans.

Following extensive site investigations EPA issued two Records of Decision (RODs) for the Bunker Hill Superfund Site. This first ROD focused exclusively on remedial actions required for residential soils, the second ROD addressed human health and environmental risks posed by contamination in other areas of the site. These remedial actions are expected to substantially lower heavy metals loading from the Bunker Hill Superfund Site to the South Fork Coeur d'Alene River. Until full scale implementation of remedial actions required in the ROD are completed, EPA will continue to require interim actions to be conducted by potentially responsible parties; including actions to stabilize fugitive dust, replace residential soils in homes of young children and pregnant women, and stabilization and revegetation of eroding hillside soils.

A conceptual diagram of the Bunker Hill remediation is shown in figure 8.



(figure 8)

Implementation of Remedial Actions at the Bunker Hill Site is expected to follow the following schedule:

1992	Site-wide Record of Decision
1993	Consent Decree requiring implementation of Remedial actions by PRPs

1993	Adoption and implementation of Institutional Control Programs
1993-2000	Remedial Action Implementation

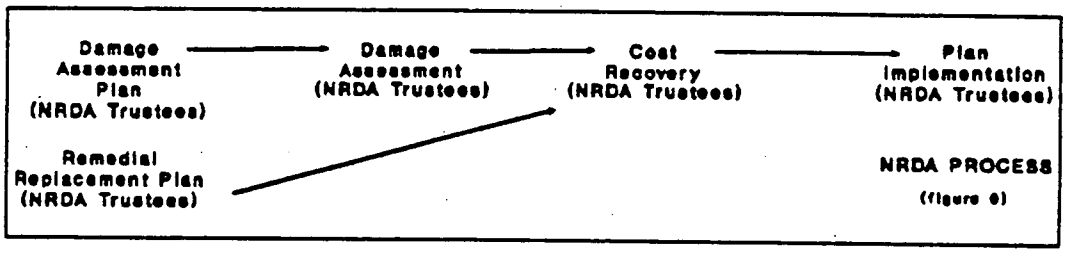
Natural Resource Damage Assessment (NRDA) and Compensation (outside scope of CBRP):

CERCLA provides for the cleanup of Superfund sites, and recovery for damages to natural resources. The Coeur d'Alene Tribe has filed a natural resource damage lawsuit naming several mining companies as defendants. This action has been administratively terminated by the court pending resolution of jurisdictional issues. Although the State of Idaho has settled with some of the potentially responsible parties for the mining activity damage to State natural resources to the basin, final resolution of the Coeur d'Alene Tribe/Federal Trustees natural resource damage claim has not occurred. The damage assessment process is proceeding in parallel with the Superfund remediation efforts at Bunker Hill, the Superfund site assessment program and the water quality restoration efforts in the basin.

The federal/Tribal trustees are developing a plan to assess the natural resource damages. The assessment will require approximately three years to complete. The trustees will also develop a remediation/replacement plan. The time required to carry out legal negotiations or actions to recover the assessed damages, and assessment and planning costs, and degree of success cannot be projected.

To some extent, the Coeur d'Alene Basin Restoration Project and the NRDA damage assessment have similar data requirements. The two projects should share data where this is legally possible, to avoid duplication.

A general diagram depicting the NRDA process is shown in figure 9.



The schedule for development of a damage assessment plan and the assessment of damages to resources should follow the rough schedule:

1992	Damage Assessment Plan Initiated
1993	NRDA Plan Completed
1995	Damage Assessment Plan Completed

HUMAN HEALTH OBJECTIVES AND PROGRAM REQUIREMENTS:

Objectives:

The human health objectives are to limit the threat of heavy metals contamination of the public and to protect the Rathdrum-Spokane Aquifer from contamination. The specific objectives include:

- Identify the risks to human health posed by heavy metals contamination of the South Fork and lower Coeur d'Alene Rivers and Lake Coeur d'Alene.
- As needed, implement management (institutional controls) actions to curtail potential human health risks.
- Protect the Rathdrum-Spokane aquifer from metals contamination.

Legal Requirements and Authorities:

The Panhandle Health District (PHD) is the lead health agency operating in the Coeur d'Alene Basin. The district was created and is provided many of its authorities for health protection by the Idaho Health Districting Law. Health districts are authorized to enforce the Idaho Environmental Protection and Health Act. Regulation designed to protect the water quality of the Rathdrum-Spokane Aquifer from contamination are found in the PHD Environmental Code.

Identification of Human Health Risks:

The risks to human health of the heavy metals contaminating the waters, sediments and soils of some areas of the basin are not fully understood. Elevated blood lead levels in children were detected in the Kellogg area. This information resulted in the NPL designation of the Bunker Hill (BH) superfund site. Risks to human health in the lower Coeur d'Alene River valley and Lake Coeur d'Alene have not been adequately evaluated. Two reports have provided conflicting assessments of the severity of the threat. The reports lack sufficient information to establish clear direction for the PHD.

A number of health programs currently in operation are developing the information required to identify the risks to human health. Blood lead level assessment continues in the Silver Valley and in the opinion of the PHD and EPA, these assessments need to be extended to the lower Coeur d'Alene River Valley to determine health risks in this area. The existing blood lead monitoring program is administered by the PHD. The health district also administers a program of biological and environmental monitoring. Soils, vegetation, gardens, dust and water supplies are monitored to provide data necessary for the accurate identification of health risks.

The ground water of the lower valley provides domestic water supply for some residents and could be developed by others in the future. An assessment of the ground water quality is currently in progress by DEQ.

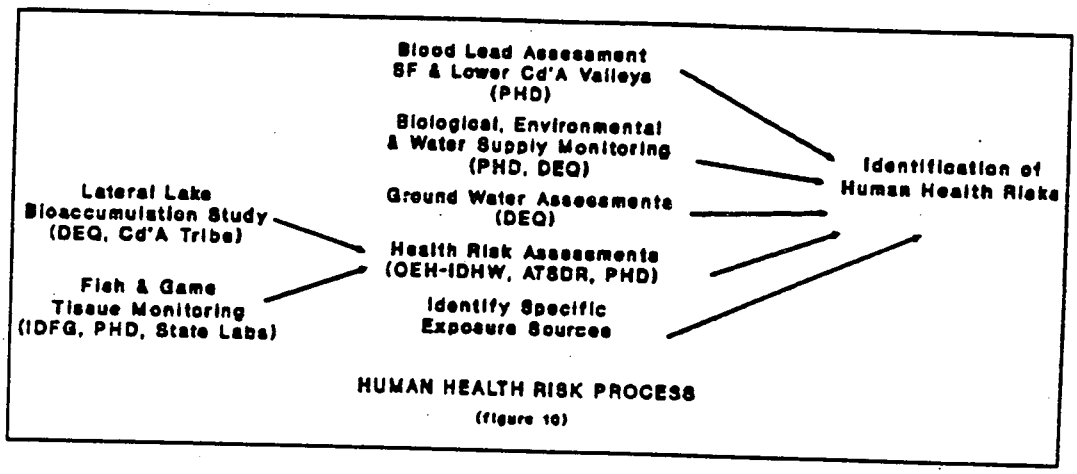
Some concentration assessment studies have been and continue to be conducted on the metals levels found in fish and game species. This data will be evaluated by health officials, and advisories will be issued when test results identify unacceptable concentrations in those tissues consumed by sportsmen.

Although a considerable volume of data has been developed on the heavy metals concentrations of soils, sediments, water, plants, fish, fowl and game, comprehensive health risk assessments have not been developed for specific areas of the basin known to be contaminated. A detailed and conclusive assessment made by unbiased professional toxicologists is required. The Office of Environmental

Health of IDHW and the Agency for Toxic Substances and Disease Registry (ATSDR) should cooperate to provide the PHD with in-depth assessments. ATSDR has a significant role in the health aspects of heavy metals impacts in addition to its role of providing health advisories and assessments. The agency operates as EPA's health advisor in the Superfund programs. It can also fund state and local health studies. EPA has recently requested that ATSDR expand existing blood lead studies beyond the Bunker Hill (BH) Superfund Site to further evaluate potential human health risks. In January, 1993, the PHD submitted a request to ATSDR to fund such a study outside the BH site.

The sampling results of soils and sediments should also be used to identify metals contamination "hot spots" in the basin. With identification of "hot spots" the PHD could develop warnings and management programs to protect the public health.

A conceptual diagram of the process used to identify human health risks is shown in figure 10.



HUMAN HEALTH RISK PROCESS

(Figure 10)

Some of the tasks required to identify health risks are currently implemented by PHD and DEQ. Others are needed but financial support and a schedule for their implementation have not been developed. Wider participation by the Office of Environmental Health of IDHW and the ATSDR is needed to address health questions beyond the resources of local health officials.

Implement Management Actions to Curtail or Prevent Human Health Risks:

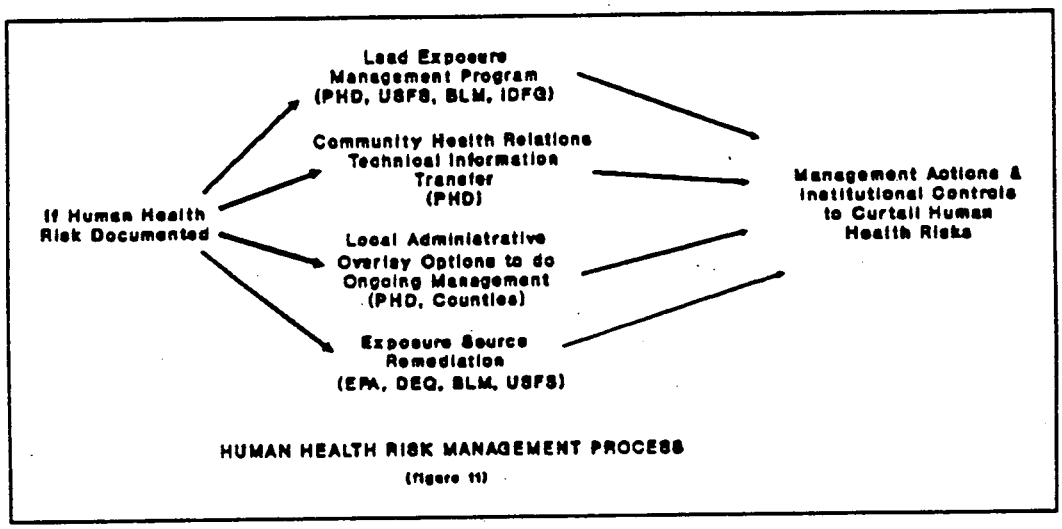
Several programs and initiatives may be required to break the pathways of heavy metals contamination of the public. The programs range from warnings to institutional controls and site remediations.

A lead exposure warning program has been implemented in part at the South Fork and lower Coeur d'Alene River Valleys. Lead contamination warnings have been posted by BLM and the USFS at popular lower river recreational sites. Dust abatement and yard removal projects on the Superfund site are additional actions being implemented. Additional measures may be required in the lower river to develop barriers over contaminated soils and sediments, to provide safe domestic water supplies and, where required, to remove contaminated sediments. In addition, those "hot spots" identified which do not score sufficient points for NPL designation, may require either removal or barrier development where regular public use is expected.

Engineered solutions to prevent public contamination are not the only approaches which should be considered. Public education and instutional controls may be considered, depending on the level of risk.

A conceptual diagram of the approaches to curtail human health risks is shown in figure 11.

Some of the tasks required to identify health risks are currently implemented by PHD and DEQ. Others are needed but financial support and a schedule for their implementation have not been developed. Wider participation by the Office of Environmental Health of IDHW and the ATSDR is needed to address health questions beyond the resources of local health officials.



HUMAN HEALTH RISK MANAGEMENT PROCESS

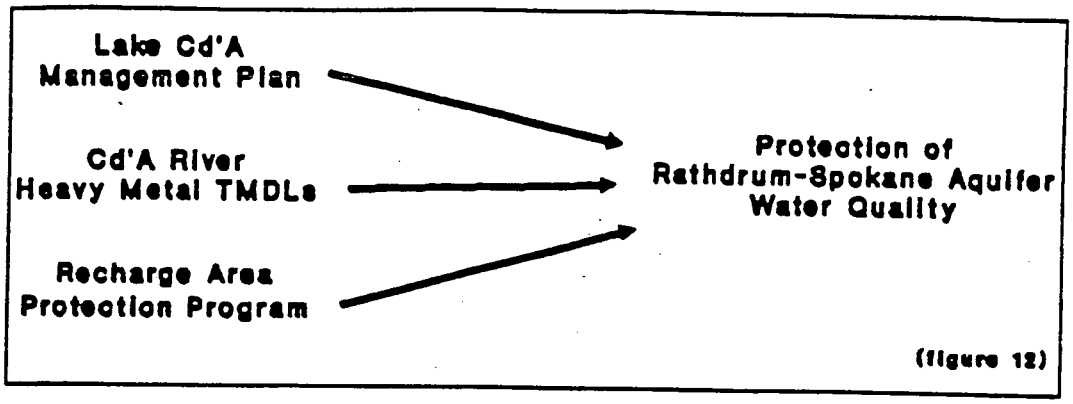
(Figure 11)

Protection of the Rathdrum-Spokane Aquifer:

The Rathdrum-Spokane Aquifer is a sole source providing potable domestic water to many of the 400,000 residents of northern Idaho and the greater Spokane area. Safeguarding the quality of the aquifer is safeguarding the public health.

The aquifer receives approximately 30% of its recharge from Lake Coeur d'Alene and the Spokane River. Studies have not identified contamination of the aquifer by heavy metals currently bound to lake bed sediments. The potential for such contamination has not been fully assessed. The Lake Coeur d'Alene Management Plan outlined in the water quality section has as an objective of maintaining a lake quality to prohibit anoxic conditions. Another threat to the aquifer is from contamination through the aquifer sensitive zone. Management actions are being implemented by DEQ, EPA and the health district to carry out provisions to safeguard the surface recharge of the aquifer.

A conceptual diagram of the protection of the Rathdrum-Spokane Aquifer is shown in figure 12.



(figure 12)

FISH AND WILDLIFE OBJECTIVES AND PROGRAM REQUIREMENTS:

Objectives:

The broad objectives are to restore fish and wildlife, where necessary, and protect habitat from heavy metals and sedimentation impacts. The specific objectives include:

- habitat restoration, and protection by reduction of metals and sediment contamination through source control, containment and management;
- surveillance monitoring of the metals content of tissues for health risk advisories and to assess the effectiveness of remedial and management efforts.

Habitat Restoration and Protection:

Many of the water quality measures concerning metals source reduction using water quality remediation and metals containment should curtail heavy metals and sedimentation impacts to habitats required for fish propagation and rearing. The source control measures should limit additional, metals-contaminated, sediment deposition in wetlands, lakes and riparian areas adjacent to the rivers. Addressing and remediating sedimentation and thermal problems elsewhere in the basin will benefit fish populations. These measures will not address the disturbance of deposited mining wastes in the floodplains by cultural activities. Disturbance of stabile mining wastes may be addressed by a set of guidelines or BMPs designed to restrict remobilization of metals-contaminated materials into forms or locations which are available to contaminate the biota.

Although water quality improvement efforts will decrease the sediment loads in the South Fork and North Fork Coeur d'Alene River and their tributaries, sedimentation has caused habitat degradation. Projects implemented by the USFS and IDFG have placed structures designed to improve habitat at many locations in these streams and their tributaries. An expanded program of fish habitat improvement will be needed to provide the proper mix of the habitat components required for maintenance of healthy fisheries. Concerted, cooperative efforts between IDFG, USFS, BLM and the conservation districts are needed to address habitat improvement issues.

Surveillance Tissue Monitoring:

The lower Coeur d'Alene River Valley and Lake Coeur d'Alene with their associated wetlands and lateral lakes provide exceptional wildlife habitat. A significant level of fish and game harvest as well

as harvest of plants occur in areas where heavy metals contamination is found. A surveillance monitoring program of key plant, fish and game tissues should be designed and implemented to meet two objectives. The monitoring will provide important information to health officials for the appraisal of health risks associated with consumption of the tissues. The test results would also provide an ongoing assessment of the effectiveness of the programs designed to abate and contain the metals contamination.

INTERIM AND BASIN MANAGEMENT PLANS:

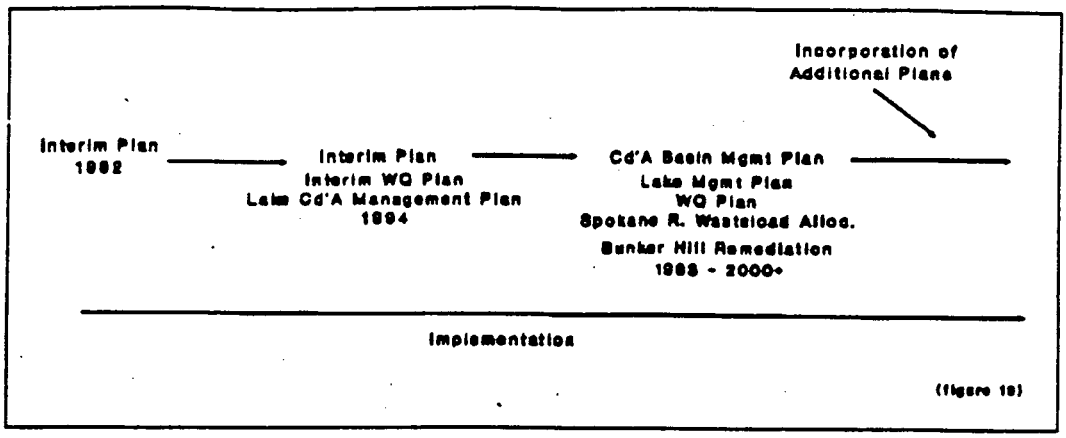
In a series of public meetings held throughout the basin in December, 1991 the public stated a desire for the project to begin implementation of solutions where this was possible in the basin. An interim management plan which can be implemented as the studies and plans are developed during the next four years was identified as the device to address this public comment. An interim plan should contain four components:

- identification of issues or problems requiring immediate action to further the project goals and program elements of the framework,
- identification of controls and projects which can be implemented without delay to protect and restore resources,
- provision for wider public involvement in the program plus education about the lake/river ecosystems and methods to prevent or minimize nonpoint source pollution of basin waterways,
- provision to develop the required public support and funding.

The interim plan would be implemented soon after its three to six month development period. The initial effort will cover the period 1992 through 1993. The plan will be reviewed and updated annually, thereafter. The Action Plan is contained in Appendix E.

The interim plan is more than an initial "stop-gap" document. It should be the core around which the basin wide management plan grows. By 1994 a Lake Management Plan should join the interim plan in the implementation phase. By 1996, a water quality remediation plan for the South Fork Coeur d'Alene River and waste load allocation for the Spokane River should be completed, while implementation of the Bunker Hill remedial plan should be underway. These plans should be wrapped into an initial basin management plan, but it will not be a completed plan. A lower Coeur d'Alene River valley management plan and possible additional water quality remediation plans might be added between 1996 and 2000+. The interim plan which evolves into a basin management plan should retain its dynamic character to adapt to and address additional environmental problems as these may arise in the basin.

A conceptual diagram of the interim and basin plan development is shown in figure 13.



SUMMARY AND CHALLENGE:

Over a hundred years mining, timber harvest, urban development, agriculture, and more recently, recreational impacts have caused extensive environmental problems for water quality, hazardous materials, human health and wildlife habitat in the Coeur d'Alene Basin. The Basin still enjoys an environment capable of attracting considerable additional population growth. These problems must be remediated while the environment is protected from the impacts of additional population growth.

The environmental problems and some mechanisms for their solution have been outlined. The framework does not provide a pathway to the solution of every problem. Some mechanisms to address water quality protection and remediation and hazardous waste remediation are clearly defined. The agencies, interest groups and citizens must work jointly in the implementation of these mechanisms in a manner that works most smoothly for the residents and efficiently in remediating the problems. Some identified environmental problems do not have clear cut mechanisms defined which address the perceived solution. The agencies, interest groups and citizens must develop the mechanisms to address these needs and implement solutions. The challenge to all concerned with protection and improvement of the Coeur d'Alene Basin environment is to work cooperatively to focus the limited resources available to implement viable solutions through established mechanisms and programs, and, where needed, innovative approaches.

Appendix G:

G1. Authorities
G2. Glossary of Terms

AUTHORITIES:

A. EPA/DEQ

- Clean Water Act
- Comprehensive Environmental Response, Compensation & Liability Act (CERCLA)
- Superfund Amendments & Reauthorization Act (SARA)
- Resource Conservation & Recovery Act (RCRA)
- Idaho Environmental Protection & Health Act
- Idaho Water Pollution Abatement Act
- Idaho Nutrient Management Act
- Safe Drinking Water Act
- Idaho Groundwater Protection Act

B. COEUR D'ALENE TRIBE AUTHORITIES

- CERCLA
- Clean Water Act
- Tribal Law

C. BLM

- Taylor Grazing Act
- Federal Land Policy and Management Act (FLPMA)
- Public Rangelands, Imp Act:
- Federal Water Pollution and Control Act:
  Section 313 - Meet State Water Quality Standards
  Section 319 - Comply with State Nonpoint Source Management Plans
  C.E.R.L.A: Trustee for resources managed
- National Environmental Policy Act

D. U.S. FISH & WILDLIFE SERVICE

- Endangered Species Act
- Migratory Bird Treaty Act
- Fish - Wildlife Coordination Act
- CERCLA: Trustee for Resources Managed

E. USDA - FOREST SERVICE

- Organic Act
- Multiple Use - Sustained Yield Act
- National Forest Management Act
- CERCLA: Trustee for Resources Managed
- Federal Water Pollution Control Act
  Section 313 - Meet State Water Quality Standards
  Section 319 - Comply with State Nonpoint Source Management Plan

F. PANHANDLE HEALTH DISTRICT

- Idaho Health Districting Law
- Idaho Environmental Protection & Health Act
- Panhandle Health District Environmental Code

G. CITY AND COUNTY AUTHORITIES

- Local Planning Act
  Applicable Ordinances

H. IDAHO DEPARTMENT of PARKS & RECREATION

- 67-4219 Legislature Intent
- 67-4223 Powers of IDPR Board
- 67-7001 Purpose of Idaho Safe Boating Act

GLOSSARY OF TERMS

abatement - Reducing the degree or intensity of, or eliminating pollution.

acute toxicity - Any poisonous effect produced by a single short-term exposure, that results in severe biological harm or death.

aerobic - Life or processes that depend on the presence of oxygen.

agricultural pollution - The liquid and solid wastes from farming, including: runoff from pesticides, fertilizers, and feedlots; erosion and dust from plowing; animal manure and carcasses, crop residues, and debris.

algae - Simple rootless plants that grow in bodies of water in relative proportion to the amounts of nutrients available. Algal blooms, or sudden spurts, can affect water quality adversely.

anadromous - Fish that swim upriver to spawn, like salmon.

anaerobic - Life or processes that can occur without free oxygen.

anti-degradation clause - Part of air quality and water quality laws that prohibits deterioration where pollution levels are within the legal limit.

aquifer - An underground bed or layer of earth, gravel, or porous stone that contains water.

bacteria - Single-celled microorganisms that lack chlorophyll. Some cause diseases, others aid in pollution control by breaking down organic matter in air and water.

bank stabilization - Implementation of structural features along a streambank to prevent or reduce bank erosion.

baseline - A point serving as a base for measurement or comparison.

basin - A physiographic region bounded by a drainage system comprised of streams and often natural or man-made lakes. (Also called drainage basin or watershed.)

Basin Management Plan - Plan to manage activities in the Cd'A basin to protect and enhance water quality.

bedload - The larger or heavier particles of the stream load moved along the bottom of a stream by the moving water and not continuously in suspension or solution.

beneficiation - (from Framework) - Milling of metals ore for enrichment.

Best Management Practices (BMP's) - Accepted methods for controlling nonpoint source pollution; may include one or more conservation practices.

Bevill Amendment - Amendment to RCRA which excludes certain materials from regulations under subtitle C. Subtitle C requires removal to specific waste disposal sites, if material does not pass tests.

biomass - The amount of living matter in a given unit of the environment.

biomonitoring - The use of living organisms to test water quality at a discharge site or downstream.

biota - All living organisms that exist in an area.

bloom - A proliferation of algae and/or higher aquatic plants in a body of water, often related to pollution.

bog - Wet, spongy land usually poorly drained, highly acid and rich in plant residue, the result of lake eutrophication.

by-product - Material, other than the principal product, that is generated as a consequence of an industrial process.

buffer strip - Strips of grass or other erosion-resisting vegetation between or below cultivated strips or fields.

cadimium - A heavy metal element that accumulates in the environment.

canopy removal - Harvest of timber stands which removes the closure caused by tightly spaced tree tops.

channel (stream) - Made up of the stream bed and stream banks.

channelization - To straighten and deepen streams so water will move faster, a flood reduction or marsh drainage tactic that can interfere with waste assimilation capacity and disturb fish habitat.

channel instability - Conditions which cause excessive movement of the bed materials of a stream with resultant bed and bank erosion.

Clean Water Act - Federal act and amendments regulating water quality.

cleanup - Actions taken to deal with a release or threat of release of a hazardous substance that could affect humans and/or the environment. The term "cleanup" is sometimes used interchangeably with the terms remedial action, removal action, or corrective action.

clear-cut - A forest management technique that involves harvesting all the trees in one area at one time. Under certain soil and slope conditions it can contribute sediment to water pollution.

Coeur d'Alene Lake Management Plan - Management plan designed to protect and enhance the water quality of Lake Coeur d'Alene.

confluence - The point where two or more streams flow together.

contaminant - Any physical, chemical, biological, or radiological substance or matter that has an adverse affect on air, water or soil.

contamination - The presence of substances that make the water impure and perhaps unsafe. The substances may come from natural processes or from human activities.

contamination pathway - The route by which a contaminant or toxic substance enters the human body.

Cooperative River Basin Study - Study of a river watershed coordinated by the U.S. Soil Conservation Service to identify and document environmental problems.

criteria - The standards established for certain pollutants, which can not only limit the concentration, but also set a limit to the number of violations per year.

cultural eutrophication - Increasing rate at which water bodies "die" by pollution from human activities.

degradation (river beds) - The general lowering of the streambed by erosive processes, such as scouring by flowing water.

designated uses - Those water used identified in state water quality standards which must be achieved and maintained as required under the Clean Water Act. Uses can include cold water fisheries, public water supply, agriculture, etc.

drainage area - The land area contributing runoff to a stream or other body of water, and generally defined in terms of acres or square miles.

dump - A site used to dispose of solid wastes without environmental controls.

effluent - Waste material discharged into the environment, it can be treated or untreated. Generally refers to water pollution.

environment - The sum of all external conditions affecting the life, development and survival of an organism.

environmental impact statement (EIS) - A document required of Federal agencies by the National Environmental Policy Act for major projects or legislative proposals. They are used in making decisions about the positive and negative effects of the undertaking, and list alternatives.

Environmental Protection Agency (EPA) - The U.S. agency established in 1970 by Presidential Executive Order, bringing together parts of various government agencies involved with the control of pollution.

erosion - The wearing away of land surface by wind or water. Erosion occurs naturally from weather or run-off but can be intensified by land-clearing practices.

eutrophication - The slow aging process of a lake evolving into a marsh and eventually disappearing. During eutrophication the lake is choked by abundant plant life. Human activities that add nutrients to a water body can speed up this action.

eutrophic lakes - Shallow murky water bodies that have lots of algae and little oxygen.

exceedance - Violation of environmental protection standards by exceeding allowable limits or concentration levels.

feasibility study - A complete assessment of alternative courses of action to solve one or more problems, to meet needs, and to recommend the most practical course of action consistent with state and local planning objectives.

federal trustees - Federal government agency responsible for claiming damages for federal resources damaged by discharge of hazardous materials in accordance with NRDA provisions of CERCLA.

fifth order channel - Channel of a larger river.

filtration - Removing particles of solid materials from water, usually by passing it through sand.

flood crest level - Water level at the peak of a flood event.

floodplain - Any normally dry land area that is susceptible to being inundated by water from any natural sources. This area is usually lowland adjacent to a stream or lake.

fourth order channel - Channel of a moderate size river.

groundwater - The supply of fresh water under the Earth's surface that forms a natural reservoir.

habitat - The sum of environmental conditions in a specific place that is occupied by an organism, population, or community.

hazardous waste - Waste materials which by their nature are inherently dangerous to handle or dispose of, such as old explosives, radioactive materials, some chemicals, and some biological wastes; usually produced in industrial operations.

heavy metals - Metallic elements like mercury, chromium, cadmium, arsenic, and lead, with high molecular weights. They can damage living things at low concentrations and tend to accumulate in the food chain.

holistic wildlife management - A system that considers all species, as opposed to the "featured species" concept that selects only a few species for management.

hydrologic unit - Any area of a watershed defined by watershed boundaries.

hydrology - The science dealing with the properties, distribution, and circulation of water.

Idaho Natural Resource Damage Trust Fund - Fund created to compensate Idaho for resources damaged by discharge of hazardous materials under the NRDA provisions of CERCLA.

impact area - Area where pollutants have damaged resources.

implementation plan - An outline of steps needed to meet environmental quality standards by a set time.

impoundment - A body of water or sludge confined by a dam, dike, floodgate, or other barrier.

infiltration - The action of water moving through small openings in the earth as it seeps down into the groundwater.

institutional controls - A set of best management practices and plan for long-term maintenance of those practices designed to establish and maintain protection of human population from hazardous materials.

lateral lake - Lake in the floodplain and next to a parallel river.

leachate - Materials that pollute water as it seeps through solid waste.

leaching - The process by which nutrient chemicals or contaminants are dissolved and carried away by water, or are moved into a lower layer of soil.

lead - A heavy metal that may be hazardous to health if breathed or swallowed.

limnology - The study of the physical, chemical, meteorological, and biological aspects of fresh water.

littoral - The region along the shore, extending to the greatest depth occupied by rooted aquatic plants.

load estimate - An estimate of the amount of pollutant in weight per unit time carried by a stream.

load modelling - using mathematical methods to predict pollutant loads carried by a water body.

loam - Soil consisting mainly of sand, clay, silt, and organic matter.

loess - A yellow to gray fine-grained silt or clay, thought to be deposited as dust blown by the wind.

macroinvertebrates - Aquatic insects, worms, clams, snails, and other animals visible without aid of a microscope; associated with, or live on substrates such as sediments and macrophytes. They supply a major portion of fish diets and consume detritus and algae.

mitigation - Measures taken to reduce adverse impacts on the environment.

monitoring - Periodic or continuous sampling to determine the level of pollution or radioactivity.

mouth of stream - The point of discharge of a stream into another stream, a lake, or the sea.

multiple use - Harmonious use of land for more than one purpose: i.e. grazing of livestock, wildlife production, recreation, watershed and timber production. Not necessarily the combination of uses that will yield the highest economic return or the greatest unit output.

National Pollutant Discharge Elimination System (NPDES) - A provision of the Clean Water Act which prohibits discharge of pollutants into waters of the United States unless a special permit is issued by EPA, a state, or (where delegated) a tribal government on an Indian reservation.

National Priorities List (NPL) - EPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under Superfund. A site must be on the NPL to receive money from the Trust Fund for remedial action. The list is based primarily on the score a site receives from the Hazard Ranking System. EPA is required to update the NPL at least once a year.

nonpoint source - A contributing factor to water pollution that can't be traced to a specific spot; like agricultural fertilizer runoff, sediment from construction.

nutrients - Elements or compounds essential to growth and development of living things; carbon, oxygen, nitrogen, potassium, and phosphorus.

nutrient discharge - Release of plant growth nutrients from a point or nonpoint source.

off-road vehicles - Forms of motorized transportation that do not require prepared surfaces--they can be used to reach remote areas.

oligotrophic lakes - Deep clear lakes with low nutrient supplies. They contain little organic matter and have a high dissolved oxygen level.

overhead canopy - Vegetation that overhangs a stream.

permit - An authorization, license, requivalent control document issued by EPA or an approved state agency to implement the requirements of an environmental regulation: e.g., a permit to operate a wastewater treatment plant or to operate a facility that may generate harmful emissions.

point source - A stationary location where pollutants are discharged, usually from an industry.

pollutant - Any introduced substance that adversely affects the usefulness of a resource.

pollution - The presence of matter or energy whose nature, location, or quantity produces undesired environmental effects.

potable water - Appetizing water that is safe for drinking and use in cooking.

Potentially Responsible Party (PRP) - Any individual or company--including owners, operators, transporters or generators--potentially responsible for, or contributing to, the contamination problems at a Superfund site. Whenever possible, EPA requires PRP's through administrative and legal actions, to clean up hazardous waste sites they have contaminated.

precipitation - Water falling in a liquid or solid state from the atmosphere to a land or water surface.

preliminary assessment - The process of collecting and reviewing available information about a known or suspected waste site or release.

problem assessment - An overview of the environment and pollution problems of a water body or location with detailed data documenting pollution levels and impact.

recharge - Process by which water is added to the zone of saturation, as recharge of an aquifer.

rehabilitation - To restore to a previous normal condition.

remediation - Action intended to correct something, to counteract or rectify.

removal action - Short-term immediate actions taken to address releases of hazardous substances that require expedited response.

response action - A CERCLA-authorized action involving either a short-term removal action or a long-term response that may include but is not limited to: removing hazardous materials from a site to an EPA-approved hazardous waste facility for treatment, containment, or destruction; containing the waste safely on-site; destroying or treating the waste on-site; and identifying and removing the source of ground-water contamination and halting further migration of contaminants. (See cleanup.)

restoration - A bringing back to an improved condition or use.

revegetate - To establish vegetation on an area where it once existed.

risk assessment - The qualitative and quantitative evaluation performed in an effort to define the risk posed to human health and/or the environment by the presence or potential presence and/or use of specific pollutants.

river basin - The land area drained by a river and its tributaries.

runoff - Water from rain, snow melt, or irrigation that flows over the ground surface and returns to streams. It can collect pollutants from air or land and carry them to the receiving waters.

salmonid - Trout and salmon species of fish.

sanitary landfill - Protecting the environment when disposing of solid waste. Waste is spread in thin layers, compacted by heavy machinery and covered with soil daily.

sanitary sewers - Underground pipes that carry only domestic or commercial waste, not stormwater.

sediment - Soil, sand, and minerals washed from land into water usually after rain. They pile up in reservoirs, rivers and harbors, destroying fish-nesting areas and holes of water animals, and clouding the water so that needed sunlight might not reach aquatic plants. Careless farming, mining, and building activities will expose sediment materials, allowing them to be washed off the land after rainfalls.

sedimentation - Letting solids settle out of waste water by gravity during waste water treatment.

septic tank - An enclosure that stores and (processes) wastes where no sewer system exists, as in rural areas or on boats. Bacteria decompose the organic matter into sludge, which is pumped off periodically.

stream load - All the material transported by a stream either as visible sediment (bed load and suspended load) or in solution (dissolved load).

sewage - The organic waste and waste water produced by residential and commercial establishments.

sewer - A channel that carries waste water and stormwater runoff from the source to a treatment plant or receiving stream. Sanitary sewers carry household and commercial waste. Storm sewers carry runoff from rain or snow. Combined sewers are used for both purposes.

silt - Fine particles of soil or rock that can be picked up by air or water and deposited as sediment.

silviculture - Management of forest land for timber. Sometimes contributes to water pollution, as in clear-cutting.

sludge - The concentration of solids removed from sewage during waste water treatment.

slurry - A watery mixture of insoluble matter that results from some pollution control techniques.

sole source aquifer - An aquifer that supplies 50 percent or more of the drinking water of an area.

solid waste - Useless, unwanted, or discarded material with insufficient liquid to be free-flowing.

stormwater runoff - Water discharge from a surface during or after a rain or snow melt event.

stream channel - The bed of a stream below the ordinary high water mark.

Superfund - The program operated under the legislative authority of CERCLA and SARA that funds and carries out emergency and long-term response actions to address releases of hazardous substances. These activities include establishing the National Priorities List, investigating sites for inclusion on the list, determining their priority level on the list, and conducting and/or supervising the ultimately determined cleanup and other remedial actions.

tailings - Residue of raw materials or waste separated out during the processing of crops or mineral ores.

toxic - Harmful to living organisms.

toxic pollutants - Materials contaminating the environment that cause death, disease, birth defects in organisms that ingest or absorb them. The quantities and length of exposure necessary to cause these effects can vary widely.

toxic substances - A chemical or mixture that may present an unreasonable risk of injury to health or the environment.

toxicity - The degree of danger posed by a substance to animal or plant life.

urban runoff - Storm water from city streets, usually carrying litter and organic wastes.

waste - Unwanted materials left over from manufacturing processes, refuse from places of human or animal habitation.

waste load allocation - The maximum load of pollutants each discharge of waste is allowed to release into a particular waterway. Discharge limits are usually required for each specific water quality criterion begin, or expected to be, violated.

waste load determination - A measurement of the load of a pollutant which a waterbody can carry without impact to its beneficial uses.

wastewater - Water carrying dissolved or suspended solids from homes, farms, businesses, and industries.

water pollution - The presence in water of enough harmful or objectionable material to damage the water's quality.

water quality - A term used to describe the chemical, physical, and biological characteristics of water with respect to its suitability for a particular use.

water quality criteria - The levels of pollutants that affect use of water for drinking, swimming, raising fish, farming or industrial use.

water quality standard - A management plan that considers: 1) what water will be used for, 2) setting levels to protect those uses, 3) implementing and enforcing the water treatment plans and, 4) protecting existing high quality waters.

watershed - The land area that drains into a stream.

wetland - An area that is regularly saturated by surface or ground water and subsequently is characterized by a prevalence of vegetation that is adapted for life in saturated soil conditions. Examples include: swamps, bogs, fens, marshes, and estuaries.

*Sources for definitions of environmental terms:
EPA Glossary of Environmental Terms and Acronym List (8/88)
EPA Common Environmental Terms (11/77)
Idaho Water Resource Research Institute - Project WET (1993)

Appendix H:

H1. Public Notice for Review
H2. Response Summary

T18209

NEWS RELEASE

March 5, 1993
FOR IMMEDIATE RELEASE
Contact: Kathryn Keen-Hoene
Public Involvement Coordinator

COEUR D'ALENE BASIN RESTORATION PROJECT
SEEKS PUBLIC INPUT ON
DRAFT FRAMEWORK

The Coeur d'Alene Basin Restoration Project is requesting public comment and review on the Project's DRAFT FRAMEWORK. To encourage public input, copies of the DRAFT FRAMEWORK are available at county commission offices, city clerk offices, and public libraries in Benewah, Kootenai, and Shoshone Counties. Final date for comment is April 5, 1993.

Individual copies of the DRAFT FRAMEWORK are available at the Coeur d'Alene Basin Restoration Project office at 2110 Ironwood Parkway, Coeur d'Alene, Idaho. The telephone number for requests is 765-0590.

Development of the DRAFT FRAMEWORK has involved in-depth review by federal, state, and local agencies, the Coeur d'Alene Tribe, private property owners (industry and individuals), as well as a variety of interest groups participating on one of the Project's standing committees.

The final FRAMEWORK will be a long-range road map charting the activities of all Project participants (public and private) down a common path towards the common goals of water quality improvement, remediation of hazardous waste, and protection of human health as well as fish and wildlife habitat. The Action Plan, an appendix to the FRAMEWORK, provides short-term focus for the Project. It is action oriented and task specific. Lead entities for specific completion of work are set. The Action Plan will provide ongoing direction and focus until a final Lake Management Plan and a Basin Management Plan are developed and adopted.

NOTE: The press release was sent to all media covering the three counties within the Coeur d'Alene basin. Display ads were placed in the print media covering the three counties.

COEUR D'ALENE BASIN RESTORATION PROJECT
FRAMEWORK COMMENTS: RESPONSE SUMMARY
May, 1993

A public comment period which closed April 5, 1993 on the draft framework resulted in the following comments. A response to each comment is listed.

Comment (C): State of Washington surface water standards should be considered in TMDL/WLA process for Spokane River.

Response (R): Agreed. Their standards were basis for phosphorus WLA in Idaho.

C: Include metals as part of TMDL/WLA process for Idaho dischargers to Spokane River.
R: Disagree. A metals TMDL for the Spokane River won't deal with the problem. Sources are upstream of the Spokane River.

C: Imperative that QA/QC plan be developed and implemented for data acquisition.
R: Agree. A QA/QC plan is being used.

C: Washington Department of Ecology role should be more clearly defined with interstate coordination of TMDL/WLA process.
R: Agree.

C: The same forest practice impacts mentioned as occurring on the North Fork CdA River have occurred on the Little North Fork CdA River and need to be addressed.
R: The mention of forest practice impacts on the NF CdA River was not intended to apply just to the main stem, but to applicable tributaries. A clarification has been made.

C: Emphasis needs to be given to gathering data regarding total number of acres that have had logging activity and miles of road built in Little NF and NF CdA rivers.
R: This is being done by the Panhandle National Forest.

C: Page 13; will CBIG be involved in the problem assessment?
R: Yes, in a review capacity.

C: The report states that the process for determination of water quality limited status and its schedule can't be anticipated. Does that mean that no action will take place if the Forest Service does not participate?
R: No. It will be done by DEQ when other priority activities have been accomplished.

C: A list of current and proposed Forest Service activities in the basin should be included in the appendix similar to the list provided by BLM.
R: A list was requested by the project office previously and not provided. The request will be made again.

C: A request was made by the Idaho Department of Parks & Recreation to appoint a representative to the project steering committee to represent recreation interests in the basin. IDP&R believes they should play a more active role in the CBRP.
R: The steering committee approved the request and IDP&R has been notified.

C: IDP&R through Heyburn State Park has an ongoing environmental education program in local schools which supports one of the CBRP objectives described in the action plan, page E2-18.
R: IDP&R activity in this area is recognized and encouraged.

C: Are marinas on Lake CdA designing/installing fuel storage and delivery systems that minimize and contain spills?
R: DEQ is not aware of a problem with fuel storage. Both DEQ and EPA have regulations which address prevention of such spills.

C: IDP&R needs to include a description of ongoing and planned activities in the basin as part of the appendix.
R: Agree. Such list will be included if received before final printing.

C: A description of how the program will be funded and what will happen if funding is not available needs to be addressed.
R: Disagree. Existing funding is explained on page 4 and future funding approaches on page E2-2.

C: A component for public education and involvement is needed.
R: Disagree. This is discussed on pages E2-17 through E2-21.

C: A plan for implementation is lacking.
R: As pointed out in the beginning of the framework, it is a road map and not a management plan. Management plans will be developed as described in the document.

C: EPA must take full leadership responsibility for cleaning up the basin.
R: EPA is in a lead role together with the State of Idaho and Coeur d'Alene Tribe.

C: Description of forest practice impacts on the NF CdA River seem inadequate. Extensive USFS road construction has made a bad situation worse. A substantial Forest Service effort to reduce and eliminate roads is badly needed and should be reflected in the document.
R: Add additional sentences about extensive roading and logging that has occurred and need for USFS to address impacts and implement road rehabilitation.

C: The organizational structure and chart are too complex and may be unworkable.
R: The committee structure has been working effectively to date. No change will be made at this time. Adjustments will be considered by the steering committee if obstacles develop.

C: Involve landowners on the west side of Lake CdA.
R: Landowners who participate in the soil conservation districts will be involved. Other landowners may be involved through CBIG and the CAC.

C: There is a problem with the use of acronyms.
R: The list of acronyms in the appendix will be moved to the front of the document.

C: Use public libraries as repositories of data and publications.
R: The public involvement coordinator is assigned the task of developing a process to ensure that materials are provided to libraries, whenever possible.

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C: The goal to protect Lake CdA must be nutrient load reduction. Logging and agricultural practices, lakeshore development, and recreation activities must be strictly regulated to protect the lake.

R: This will be determined by the USGS studies and modeling analyses which have been underway for the past two years. The results will be reflected in the lake management plan.

C: The objective of management of water quality impacts from sedimentation in the St. Joe, St. Maries and CdA Rivers should be extended to all tributaries.

R: The objective is already all inclusive.

C: Why wasn't RCRA listed as a legal requirement and authority?

R: It is referenced on page 16 and listed in the appendix.

C: The framework is lacking in several areas including plans for tributaries, shoreline development, and urban development away from the lake. The plan needs to deal with population growth.

R: The lake management plan will take these factors into account. The framework is not a management plan.

C: No tangible goals have been listed for the SF CdA River water quality plan.

R: This is being done through work groups.

C: The NRDA process is not described in adequate detail to enable evaluation of the process.

R: As the report indicates, NRDA is a process separate from the CBRP. Public NRDA documents will be soon available for review and evaluation.

C: Why aren't the Indian Health Service and Center for Disease Control (CDC) participating in the human health risk studies? Insufficient detail was provided to evaluate this section.

R: There is no intent to exclude any appropriate agencies; this comment will be communicated to the Panhandle Health District (PHD). ATSDR is a branch of CDC. As the action plan indicates, the PHD will form a work group and scope out the necessary details for conducting health studies.

C: Surveillance tissue monitoring should be done. Monitor benthic organisms.

R: This is costly monitoring. USGS will be evaluating metals in some benthic invertebrates in the SF CdA River, where highest metals concentrations might be expected.

C: The action plan is excellent but water quality problems associated with tributary streams should also be addressed.

R: The water quality of tributaries that adversely impact the major streams and lakes will be addressed. Also, the project staffing and funding resources are very limited and an attempt has been made to deal with priority issues that are believed to be within the scope of available resources.

C: Recommend the action plan be prioritized and some activities postponed.

R: This has been done resulting in the 1993 action plan, and one for 1994 and beyond.

C: The project is too focused on mining impacts concerning the SF CdA River. There are significant problems due to channelization, urban development and sewage discharge.

R: Some revisions were made in an earlier draft as a result of a similar comment. No additional changes are needed.

C: The framework does a poor job of defining how the numerous "shoulds" will be accomplished. This could be accomplished by describing: 1) who has committed to do what; 2) what remains to be done, and who should be asked to do it?; and 3) who will do the asking, and by what date?

R: The plans described in the framework will define methods and solutions to deal with the problems, which is not the intent of the framework. In the interim period until final plans are completed, the action plan serves this purpose.

C: It appears that private landowners will be expected to restore their lands regarding metals contamination, but that public landowners aren't expected to do likewise. A double standard is advocated by the CBRP.

R: Disagree. Project goals apply regardless of ownership.

C: Restoration of soil fertility to allow adequate vegetative growth to withstand flooding is not mentioned.

R: The need and extent for improving soil fertility must be done on a site specific basis. Modify mining wastes management objective on page 6 to include necessary soil amendment to encourage revegetation.

C: There is an implication that if funds and staff are available, then agency lands will be treated on a spot basis, but even with adequate resources public land restoration will not be addressed in a comprehensive way.

R: Disagree. The intent on page E2-11 is to encourage public land managers to prioritize their problem areas and address most significant problems first since funding will likely be limited for all agencies.

C: There was some objection raised to the statement that a significant portion of waterfront and flood plain tracts impacted by old mine tailings, logging activities, and cultural development are privately owned.

R: This statement is based on an assessment of a Panhandle National Forest ownership map.

C: There was concern expressed that activities that caused pollution problems may continue to cause problems and about what will change as a result of the project to cause compliance.

R: The framework points out that adverse mining impacts are due to historical practices and residual wastes. Other adverse impacts such as sediment and nutrient have resulted from activities that were carried out in the absence of best management practice requirements or under less stringent practices. Existing BMP's will need to be evaluated for their adequacy in protecting the basin waters.

C: How can lines of communication be kept open and under the table deals prevented?

R: The purpose of the memorandum of agreement between the state, federal and tribal governments, and the established committee structure is to ensure open communication including "full, frank and honest discussions".

C: The lower CdA River, lateral lakes, and Lake CdA must still be included in the superfund clean-up.

R: EPA does not support a major expansion of the Bunker Hill superfund site. As the framework states, EPA may fund clean-up activities or take enforcement actions using applicable authorities including CERCLA to compel other parties to undertake clean-ups.

C: Reasons for listing SF CdA River as water quality limited are incorrect.
R: Disagree. DEQ made this determination based on available data and CWA guidance.

C: Mining companies are strongly opposed to use of "gold book" standards as the interim (and possibly final) TMDL criteria for the SF CdA River.
R: The interim goal for clean-up is in the process of being determined. Idaho and, when applicable, federal water quality standards dictate legal goals which may be modified by the adoption of site specific criteria.

C: Bevill mining wastes are exempted as hazardous wastes under CERCLA. The Iron Mountain case was referenced.
R: EPA legal staff disagree with this contention.

C: Very little risk to human health results from normal exposure to mill tailings containing lead. Studies suggest that lead from mill tailings is not readily bioavailable and therefore does not cause elevated blood lead levels. Therefore, it is suggested that changes be made to the way the blood lead study is conducted. A probability-based approach is recommended for the health risk assessment.
R: The CBRP recommends that PHD involve interested parties in developing a study plan for the blood lead analysis and determining the risk assessment approach.

C: An objection was made to the use of the term "voluntary compliance" on page E1-2. The statement implies that private parties are in noncompliance.
R: The page cited is incorrect. It should be page E2-2. Delete "through voluntary compliance".

C: On page 2, the major issue should be explained as it is not clear.
R: Delete "resource" and replace with "funding and staff" and substitute the word "need" for "issue".

C: Funds supporting the project need to be listed.
R: The citizen's advisory and steering committee's have requested an accounting of available funds and expenditures which will be developed and made available to interested parties.

C: The section on forest practices, page 5, needs to be rewritten to adequately address the impacts on the basin from past practices. The USFS needs to become a proactive participant in the CBRP to make it a success.
R: Some revisions have been made pertaining to impacts on the NF CdA River watershed. A USFS representative is chairman of the management advisory committee and participates in the project.

C: The word "may" should be changed to "will" in lines 1 and 4 of the first paragraph under Legal Requirements and Authorities, pg 7.
R: EPA legal counsel disagrees.

C: Significant pressure needs to be put on USFS to address water quality problems and prepare corrective action plans for the NF CdA and St. Maries rivers.
R: The PNF is participating in the CBRP and is planning rehabilitation actions on some watersheds.

C: Pressure should be put on IDL, SCS, and Benewah Soil Conservation District to participate in the process for the St. Maries River.
R: IDL and SCS are members of the management advisory committee. The Benewah SCD has been invited to participate on the St. Maries action item.

C: BH is used on page 20, last line and is not shown on the acronyms list.
R: BH which is Bunker Hill has been added to the list.

C: Is the final report and maps for the Moon Creek Project available for review?
R: Not at this time.

C: In appendix F1, page F1-2, project 18, the schedule dates for the Dobson Pass Timber Sale need to be updated.
R: BLM will be consulted and schedule updated as necessary.

C: Thermal problems of the St. Maries River are referenced in several places such as page 6, "Management of the St. Maries River to address channel changes causing thermal criteria exceedance". While management of thermal problems is appropriate, what studies demonstrate that such problems are caused by channel changes. It is suggested that the objective be reworded. There is a related contradiction on page 13 that needs revision.
R: Agree.

ATTACHMENT 3

A CONCEPTUAL ACTION PLAN
FOR
MINING & MINERAL PROCESSING IMPACTS
WITHIN
THE COEUR D'ALENE RIVER BASIN

February 1995

Presented by:

HECLA MINING COMPANY
6500 Mineral Drive
Coeur d'Alene, ID 83814-1931

and

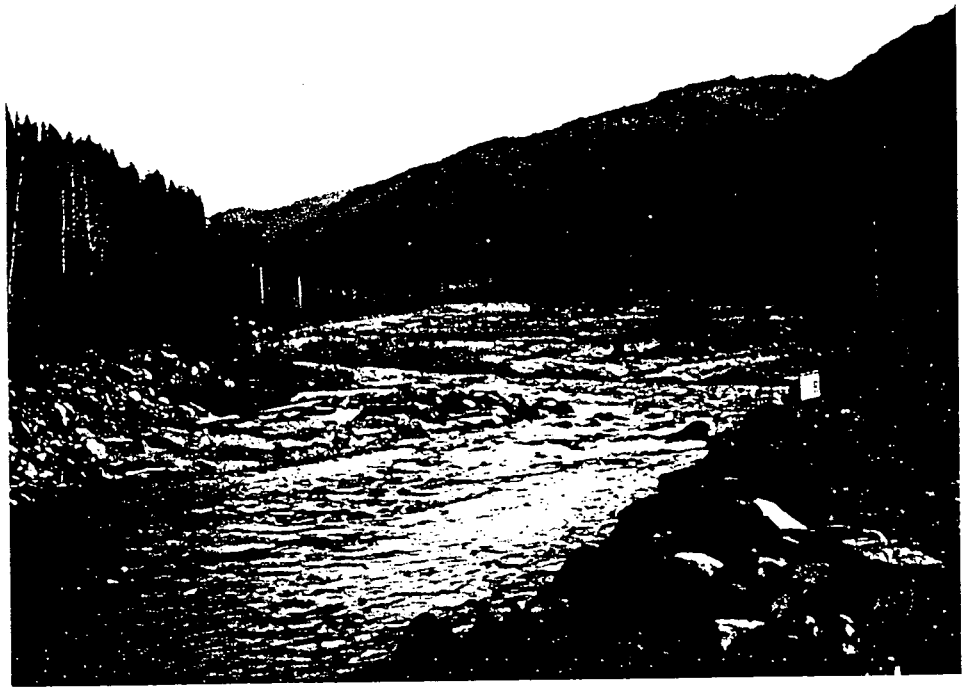
ASARCO INCORPORATED
Box 440
Wallace, ID 83873

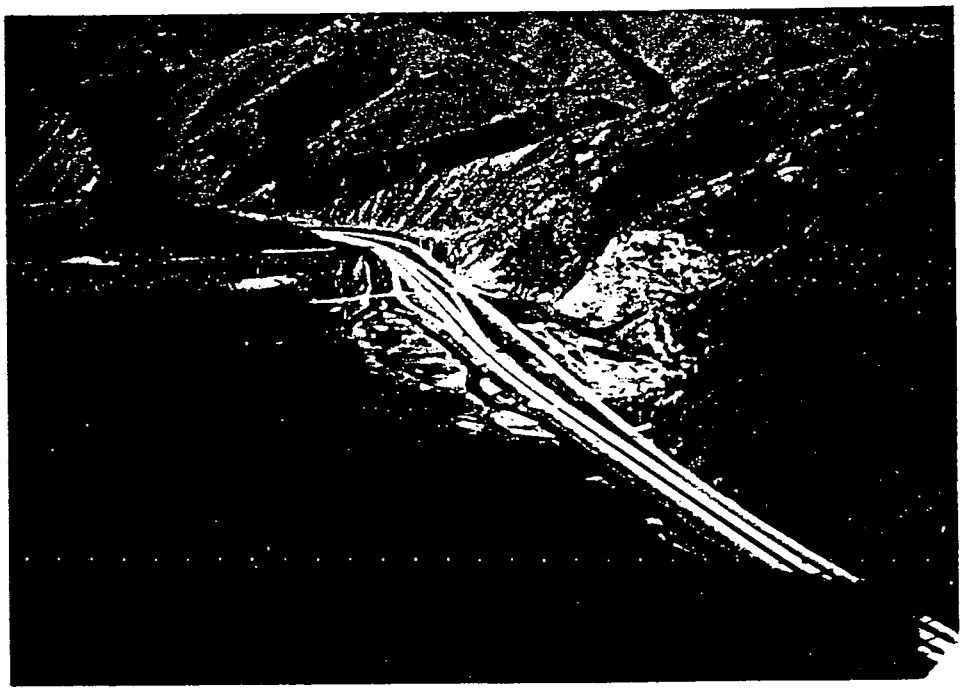
Coeur d'Alene River Basin - - Environmental Setting

- Focus Area - Geographical Limits

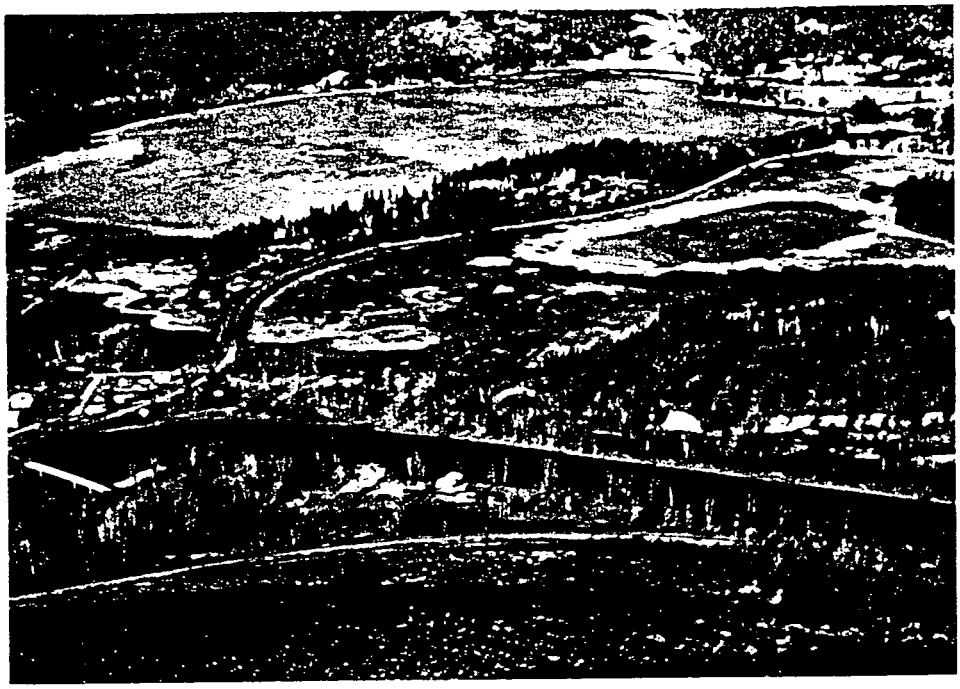
- Upstream Vs. Downstream -- Differences

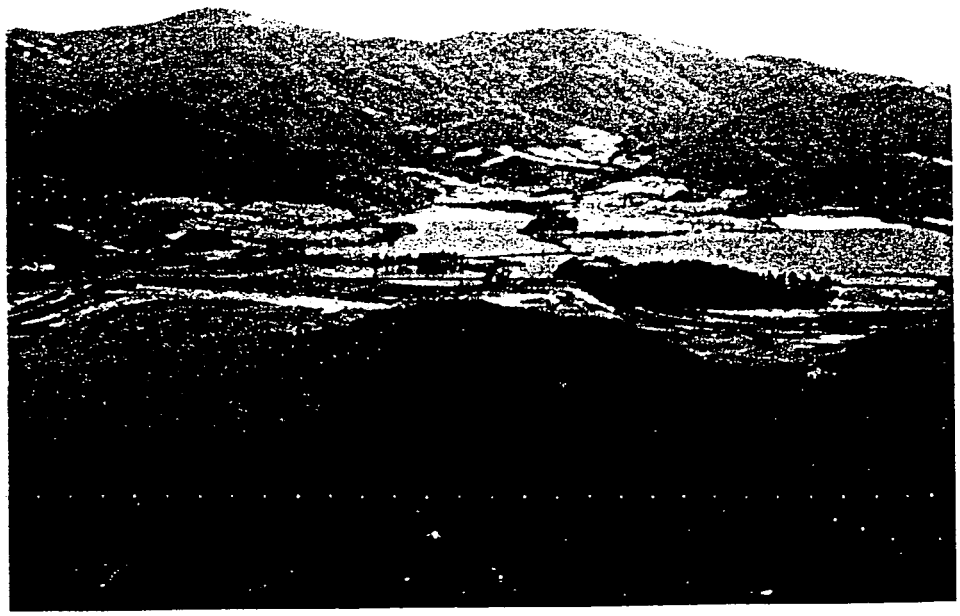
- Dynamic Nature of System





Upstream Areas





Downstream Areas

Man-Induced Changes in Basin

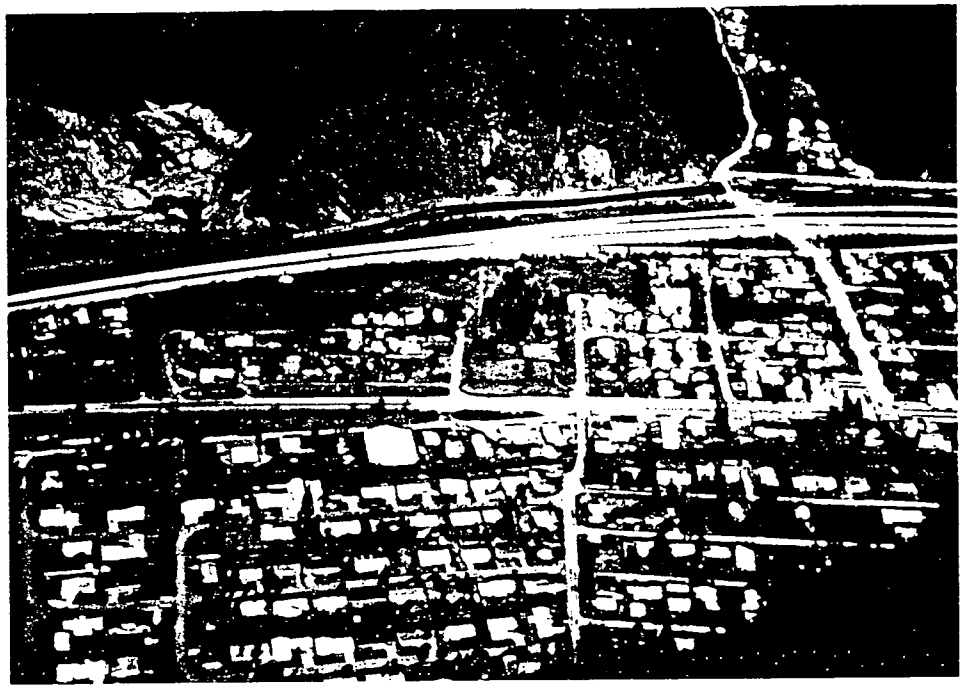
- Historic Mining Activities

- Transportation Corridors

- Urbanization

- Other Past and Current Activities
  - -- Logging
  - -- Post Falls Dam Construction and Operation
  - -- Agriculture

Historic Mining Activities



Upstream Transportation Corridor

Downstream Transportation Corridor

Environmental Issues Related/Common to All Historic Influences

- Water Quality

- Sediment Quality and Quantity

- Human Health Concerns

- Habitat Quality

Example of Tailings Impacts

Example of Leaching Impacts

Objectives of Conceptual Action Plan

- Achieve Overall Watershed Improvement

- Enhance Habitat
  - -- Aquatic/Riparian/Wetland/Terrestrial

- Provide Lasting Improvements in the Basin

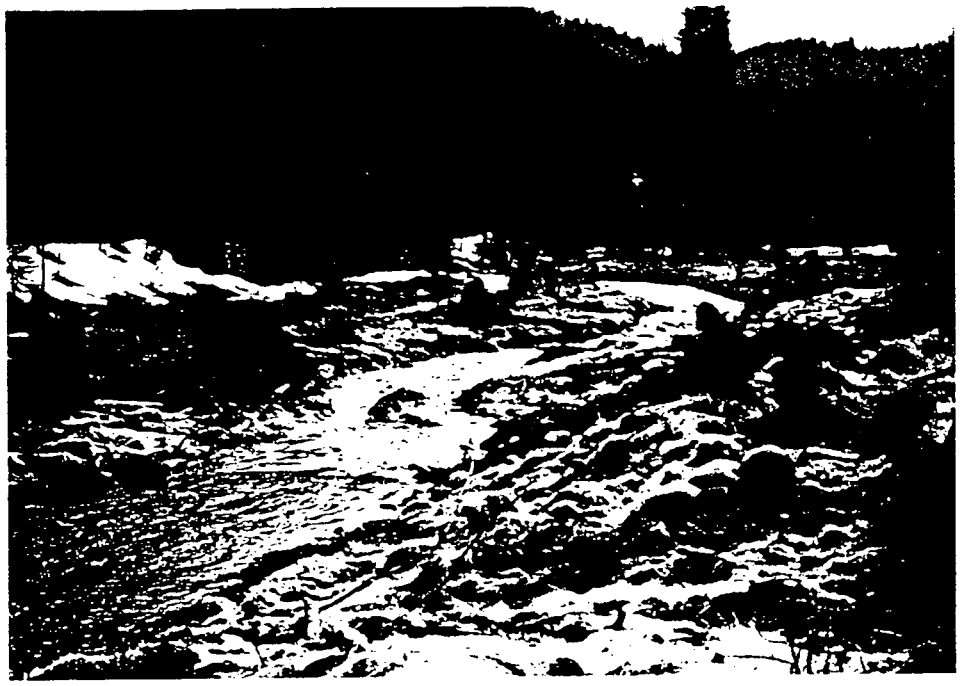
Approaches to Improvement of Environmental Conditions

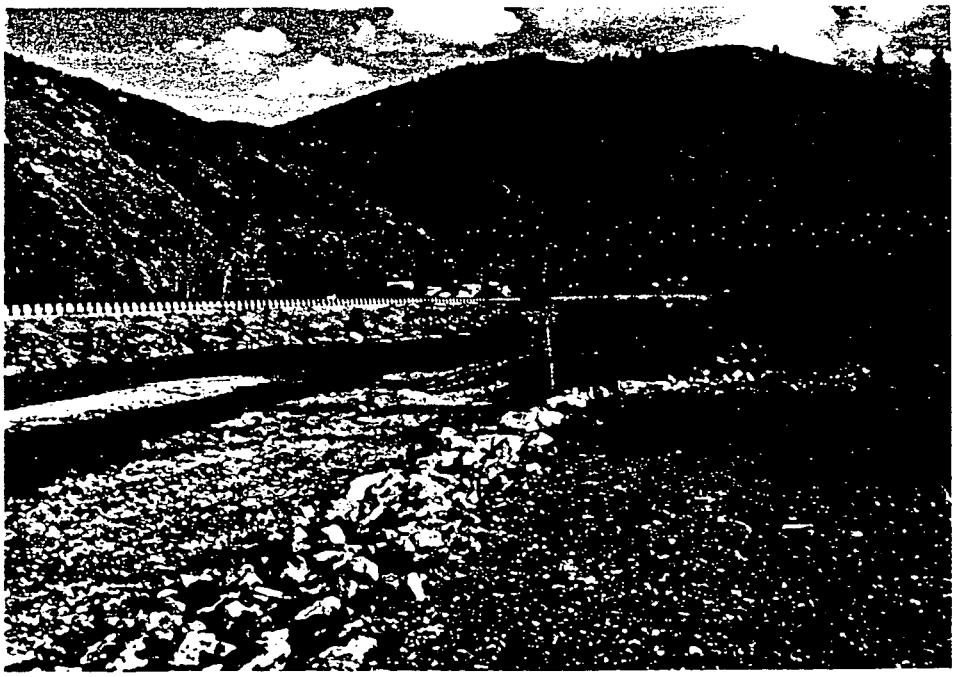
- Utilization and Acceleration of Natural Recovery Processes

- Limit Disturbances Associated with "Overly Aggressive" Removal of Tailings

- Source Control and Bioengineering

- Conduct Actions First Upstream then Downstream to Limit Potential for Reimpacting Areas





Example of Actions

Table 3

COEUR D'ALENE RIVER BASIN
REACH IDENTIFICATION AND SUMMARY OF RECOMMENDED ACTIONS*

REACH #	MAP KEY	DESCRIPTION/LOCATION	PROPOSED ACTIONS
10		Jack Waite Mine in the Eagle Creek Drainage	Relocate the upper and middle tailings piles, cap and revegetate. Regrade and revegetate the waste rock dump. Install riprap and gabion erosion control structures.
10		Amy-Matchless, Liberal King, Denver, Sidney, Nevada-Stewart, Highland-Surprise, Douglas and Constitution Mines in the Pine Creek Drainage	Relocate tailings to the Douglas Mine site and cap, regrade and revegetate all mine sites, install erosion control structures, diversion ditches and infiltration control as necessary. Collect and treat mine adit discharges, as appropriate.
10		Page Pond Wastewater Treatment Plant (PPWTP)	Upgrade of PPWTP for removal of nitrogen and phosphorous
N/A	N/A	Lateral Lakes and Wetlands	For the Lateral Lakes and Wetland Areas in the reaches below the Site, conduct various removal/replacement, in-place stabilization and revegetation actions, as proposed.

N/A = Not Applicable

*See Section 2 and Appendix C for descriptions of proposed restoration activities.

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Table 3

COEUR D'ALENE RIVER BASIN
REACH IDENTIFICATION AND SUMMARY OF RECOMMENDED ACTIONS*

REACH #	MAP KEY	DESCRIPTION/LOCATION	PROPOSED ACTIONS
6	R-6-3	Mission Flats	Rework areas of high tailings banks along river; pull back, armor with living revetments of willows, planted river barbs and riprap or woody structure, as appropriate; revegetate disturbed shoreline and placement areas for regraded tailings; do spot revegetation on Mission Flats as required; possibly provide additional soil amendments to existing revegetated areas.
6	R-6-4	River Below Mission Flats to RM 156.3	No evident point bar deposition; conduct general river bank stabilization and revegetation as required.
7	R-7	RM 156.2 to 145.2	Approximately 11.1 miles of river without apparent point bar deposition; river channel controlled in part by Railroad embankment; assume general restoration needs including removal of tailings lens to an appropriate repository and bank stabilization at selected sites.
8	R-8	RM 145.2 to 136.8	Approximately 8.4 miles of river without apparent point bar deposition; river channel controlled in part by Railroad embankment; assume general restoration needs including removal of tailings lens to an appropriate repository and bank stabilization at selected sites.
9	R-9	RM 136.8 to Mouth	Approximately 6 miles of river; except for lower 1 mile immediately upstream from mouth, river channel and banks similar to R-8.
9	R-9-1	RM 136.8 to 132	Approximately 5 miles of river without apparent point bar deposition; river channel controlled in part by Railroad embankment; assume general restoration needs including removal of tailings lens to an appropriate repository and bank stabilization at selected sites.
9	R-9-2	First 1 Mile Above River Mouth	Due to high deposition zone at river mouth and potential resuspension of bed load via boat/lake wave action and human activities, need to armor the river mouth section; armoring will be accomplished with combination of living revetments of willows, planted river barbs, and riprap or woody structure, as appropriate; upper levee areas also may require revegetation of appropriate deciduous trees; armor approximately 0.5 miles of lake shore line from river mouth toward Harrison using living revetments of woody vegetation and some rock and log placement.
10		Carlisle/Ray Jefferson Tailings Ponds in the Beaver Creek Drainage	Construct a diversion ditch and riprap dike around tailings piles. Regrade and revegetate.

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Table 3

COEUR D'ALENE RIVER BASIN
REACH IDENTIFICATION AND SUMMARY OF RECOMMENDED ACTIONS*

REACH #	MAP KEY	DESCRIPTION/LOCATION	PROPOSED ACTIONS
5	R-5-11	Large Deposit	Stabilize up-stream bank with living revetment of willows, planted river barbs and riprap or woody structure, as appropriate; revegetate mixed tailings/alluvium.
5	R-5-12	Point Bar	Stabilize with living revetment of willows and planted river barbs or woody structure, as appropriate; revegetate mixed tailings/alluvium.
5	R-5-13	Point Bar	Stabilize with living revetment of willows and other riparian vegetation; revegetate mixed tailings/alluvium.
5	R-5-14	Large Point Bar	Stabilize up-stream bank with living revetment of willows and planted river barbs or woody structure, as appropriate; revegetate mixed tailings/alluvium.
5	R-5-15	Large Point Bar	Stabilize up-stream bank with living revetment of willows, planted river barbs and riprap or woody structure, as appropriate; revegetate mixed tailings/alluvium.
5	R-5-16	Small Point Bar	Stabilize with living revetment of willows and other riparian vegetation; revegetate mixed tailings/alluvium.
5	R-5-17	Point Bar	Stabilize up-stream bank with living revetment of willows and planted river barbs or woody structure, as appropriate; revegetate mixed tailings/alluvium.
5	R-5-18	Point Bar	Stabilize with living revetment of willows and planted river barbs or woody structure, as appropriate; revegetate tailings/alluvium.
5	R-5-19	Deposit	Revegetate with riparian or upland species as appropriate.
5	R-5-20	Point Bar	Stabilize with living revetment of willows and other riparian vegetation; revegetate tailings/alluvium.
6	R-6	Cataldo Mission and Mission Flats	For entire reach, assume some tailings removal required along river banks and deposit areas.
6	R-6-1	Small Point Bar	Extension of activities described under Subreach R-5-20 above.
6	R-6-2	Cataldo Mission	As appropriate to state park restoration plan, restore picnic and parking areas; armor high public use areas; pull back high tailings banks and armor and revegetate.

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Table 3

COEUR D'ALENE RIVER BASIN
REACH IDENTIFICATION AND SUMMARY OF RECOMMENDED ACTIONS*

Reach #	Map Key	Description/Location	Proposed Actions
4	R-4	Bunker Hill Superfund Site	Restoration conducted under Superfund.
5	R-5	Pinehurst to Cataldo	For entire reach, assume some tailings removal to an appropriate repository is required along bank/shoreline area.
5	R-5-1	Long Point Bars, Both Sides of River	Stabilize bank with living revetments of willows and other riparian vegetation combined with planted river barbs and large woody structures, as appropriate; revegetate mixed tailings/alluvium.
5	R-5-2	Point Bar	Stabilize bank by revegetation of riparian zone; revegetate mixed tailings/alluvium.
5	R-5-3	Point Bar	Stabilize bank with living revetment of willows and other riparian vegetation combined with planted river barbs and large woody structures, as appropriate; revegetate mixed tailings/alluvium.
5	R-5-4	River Bars and Small Bank Deposits	Stabilize with riparian bank vegetation and planted river barbs or woody structures, as appropriate.
5	R-5-5	Large Deposit Area	Pull back tailings from river bank; substantially stabilize river bank with living revetment of willows and other riparian vegetation combined with planted river barbs and riprap or woody structure; revegetate mixed tailings/alluvium.
5	R-5-6	Large Deposit Area	Pull back tailings from river banks; substantially stabilize river bank with living revetment of willows and other riparian vegetation combined with planted river barbs and riprap or woody structure; revegetate mixed tailings/alluvium.
5	R-5-7	Large Deposit Area	Pull back tailings from river banks; substantially stabilize river channel and shoreline with living revetment of willows and other riparian vegetation combined with planted river barbs and riprap or woody structure; revegetate mixed tailings/alluvium.
5	R-5-8	Point Bar	Stabilize bank with living revetment of willows and other riparian vegetation; revegetate mixed tailings/alluvium.
5	R-5-9	Large Point Bar	Stabilize up-stream bank with living revetment of willows, planted river barbs and riprap or woody structure, as appropriate; revegetate mixed tailings/alluvium.
5	R-5-10	Small Point Bar	Stabilize bank with living revetment of willows and other riparian vegetation; revegetate mixed tailings/alluvium.

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Table 3

COEUR D'ALENE RIVER BASIN
REACH IDENTIFICATION AND SUMMARY OF RECOMMENDED ACTIONS*

REACH #	MAP KEY	DESCRIPTION/LOCATION	PROPOSED ACTIONS
1	R-1-19	Hercules Mill Area Metals Load To The River - SFCDA just below Wallace.	The Hercules Mill Area will have debris removed, resloped, soil capped, and revegetated.
1	R-1-20	Caladay Dump - South Fork of the Coeur d'Alene River	Flood flows probably contribute a large amount of exposed sediment to the river; a stable stream channel will be constructed to route the flow over the dump and down to the lower channel.
2	R-2-1	Silverton Tailings - SFCDA	A majority of the tailings will be removed from the wetland/creek channel area to an appropriate repository. The area will then be capped with soil and vegetated.
2	R-2-2	River Channel Restoration above Two Mile - SFCDR, Osburn Flats above Two Mile	Wetland and riparian habitat will be re-established, a stable stream channel improved; and habitat will be developed.
2	R-2-3	Old Coeur d'Alene Mines Site in McFarren Gulch	Part of the dump will be moved to create a stable stream channel. A general cleanup of old structures and other debris will be done.
2	R-2-4	Osburn Flats Ground Water - South Fork of the Coeur d'Alene River	Removal of Accessible Historic Jig Tailings deposits will be removed as practicable. Additional information is needed for engineering design.
2	R-2-5	River Channel Restoration above Terror Gulch - SFCDR, upstream from Terror Gulch	Grade control structures will be added, as appropriate; a stable channel will be developed; and disturbed areas will be revegetated.
2	R-2-6	Evolution Bridge Tailings - South Fork of the Coeur d'Alene River	Additional information is needed to assess the need for action, but. selected areas probably will be removed and placed in a repository. The disturbed areas and other mixed tailings areas will be capped and revegetated.
3	R-3-1	Elk Creek Pond Removal and Revegetation - Elk Creek Pond north of the frontage road and east of the Moon	Tailings in the beach area will be moved to an appropriate repository. The beach area will be enhanced with clean sand; other exposed tailings in the area will be capped with clean soil and revegetated.
3	R-3-2	Floodplain restoration above Big Creek - SFCDR, upstream of Big Creek	An appropriate floodplain and wetlands will be re-established including, a sediment trap pond and wildlife habitat. Rock grade control structures and wood structures will be used to re-establish meanders, as appropriate. Disturbed areas and the riparian zone will be revegetated.
3	R-3-3	Moon Gulch Reclamation - Moon Gulch	Mine dumps will be regraded, capped, and revegetated. Tailings in ponds will be consolidated in an appropriate repository located against the east hillside; structures will be demolished; and the area will then be capped and revegetated.

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Table 3

COEUR D'ALENE RIVER BASIN
REACH IDENTIFICATION AND SUMMARY OF RECOMMENDED ACTIONS*

REACH #	MAP KEY	DESCRIPTION/LOCATION	PROPOSED ACTIONS
1	R-1-14	Rex Mill Reclaimation - East Fork of Nine Mile, approximately 1200 feet Northwest of the Stream.	The State working with federal mine reclamation funds is planning the improvement of the surface water diversion around the Rex tailing pond. The pond surface may also be reshaped and treated to retard the infiltration of water into the tailings. These measures will limit water movement through the Rex tailings and metals discharge at the base of the impoundment. The tailings dam is very steep and some of the tailings may be moved to lower the dam height and increase stability. The area will then be regraded, soil capped and revegetated.
1	R-1-15	East Fork of Nine Mile from the Success Mill Site to the Interstate Mill Site - East Fork of Nine Mile.	Residual tailings will be removed from the stream channel. Large boulders encountered during excavation will be used to construct grade control structures.
1	R-1-16	Success Mill Site - East Fork Nine Mile	The EPA previously relocated the stream channel and road to stabilize the pile and prevent erosion from the pile. In order to complete restoration, the pile will be regraded, soil capped and revegetated.
1	R-1-17	Success Mine Adits Discharge to East Fork of Nine Mile	Due to the difficulties of water treatment, a centralized treatment facility using wetlands water treatment would be built to treat all the point sources in Ninemile. A 28,000 foot pipeline may be constructed to collect and convey all point sources to be treated to this facility in the Woodland Park area of Canyon Creek.
1	R-1-18a	Lower East Fork of Ninemile Tailings Removal	There are varying depths of tailings deposits over the entire canyon bottom between Sunset on the East Fork of Ninemile and the Miners Union Cemetery on Ninemile. Mixed with these are cedar stumps and other debris. The tailings will be removed and disposed in an appropriate repository on the Dayrock tailing pond during 1994 and 1995. The stumps and other woody debris will be removed or cleaned of tailings and incorporated into stream channel stabilization structures as appropriate. Incorporate stream stabilization structures as necessary by building grade control structures, develop meanders, and provide a high-flow channel network. Cover selected parts of the disturbed area with soil and revegetate (riparian zones).
1	R-1-18b	Dayrock to Dobson Pass Road Stream Channel	
1	R-1-18c	Lower Nine Mile Tailings Removal - Lower Nine Mile from McCarthy to Dayrock	
1	R-1-18d	Miners Union Cemetery Site Waste Removal - Lower Nine Mile	

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Table 3

COEUR D'ALENE RIVER BASIN
REACH IDENTIFICATION AND SUMMARY OF RECOMMENDED ACTIONS*

REACH #	MAP KEY	DESCRIPTION/LOCATION	PROPOSED ACTIONS
1	R-1-9	Gem Portal Adit Discharge to Canyon Creek	Treat water, as appropriate. Due to cost efficiencies, a centralized treatment facility using wetlands water treatment is proposed to treat all point sources in Canyon Creek. A pipeline to collect and convey all point sources to be treated at this facility is included in this estimated cost.
1	R-1-10	Canyon Creek - Canyon Creek above Star tailings ponds at Canyon Silver/Formosa	Eliminate the levee to develop a wider floodplain between the channel and highway. Construct grade control features compatible with a meandering pattern to: provide habitat variety; dissipate excess energy; raise groundwater on adjacent banks to aid revegetation efforts; construct sediment trap/pond; and revegetate banks and adjacent riparian corridor.
1	R-1-11	Star Tailings Ponds - Canyon Creek East of Woodland Park	Reclaim or partially reclaim the impoundments and modify the hydrologic conditions in this area, as appropriate, to reduce soluble metals loading, if any, to groundwater and surface water. Additional information will be required before an action can be designed.
1	R-1-12	Woodland Park Tailing Removal - Canyon Creek Floodplain east of Woodland Park	In order to reduce the metals load, hydrologically isolate tailings from precipitation and ground-water and mechanically isolate from wind and water erosion. The following actions will be taken: Collecting the mixed tailings and gravel and processing the material, as practicable, by screening. The tailings would be included in the fine fraction which would be placed in an appropriate repository. The coarse material will be mixed with other material to form the stream channel enhancement embankments. A fraction of the coarse material will be screened out for substrate if a wetland ground-water treatment system were to be constructed. The associated repository and selected areas of the floodplain will be covered with soil and revegetated.
1	R-1-13	Interstate Mine Dump Area - East Fork of Nine Mile	The upper dump has the stream flowing around the toe. This material will be relocated away from the stream and parts of the area will be resloped and revegetated.

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Table 3

COEUR D'ALENE RIVER BASIN
REACH IDENTIFICATION AND SUMMARY OF RECOMMENDED ACTIONS*

REACH #	MAP KEY	DESCRIPTION/LOCATION	PROPOSED ACTIONS
0	R-0-1	Morning Mine Dump, Adit & Mill Site. Upper SFCDR - Just below Mullan.	The dump will be regraded, topsoiled and revegetated. Small amounts of tailings around the mill site will be removed.
0	R-0-2	Golconda Area. Remains of an old mine/mill located on the north side of the river.	The dump will be moved back to prevent it from eroding into the river. Mine waste will be moved back and placed on the mill/tailing pond area which will then be resloped, topsoiled, and revegetated.
1	R-1-1	Ajax Dump Stabilization. Canyon Creek above the water intake.	A portion of the dump will be pulled back from the stream to reduce sediment loading during floods. The disturbed area will be resloped and revegetated.
1	R-1-2	Gorge Gulch above confluence with Canyon Creek and Canyon Creek below the confluence.	Gorge Gulch: Upper Gorge Gulch - stabilize the Hercules dump; Lower Gorge Gulch - move the house, realign and widen the channel, and provide grade control by constructing a stair-step profile. Canyon Creek: use grade control, raise the base level, and recontour banks.
1	R-1-3	Hercules Dump along Canyon Creek.	The dump will be resloped and stabilized. The area will be resloped, topsoiled and revegetated.
1	R-1-4	Hercules Mine Adit Discharge to Canyon Creek above the Star Mill Complex	Treat water, as appropriate. Due to cost efficiencies, a centralized water treatment facility using wetland water treatment is proposed to treat all point sources in Canyon Creek. See Map Key R-1-9.
1	R-1-5	Omaha Mine Area	A stable stream channel will be constructed through this area. The area will be revegetated.
1	R-1-6	Tamarack/Custer Mine Adit Discharge to Canyon Creek at the Tamarack Mine.	Treat water, as appropriate. Due to cost efficiencies, a centralized water treatment facility using wetland water treatment is proposed to treat all point sources in Canyon Creek. See Map Key R-1-9.
1	R-1-7	Tamarack/Custer Mine Area Stream Channel on Canyon Creek	A stable stream channel is being constructed through the area. Waste material and structures are being partially removed from both banks; stable berms and grade control structures are being constructed.
1	R-1-8	Helena/Frisco Stream Channel on Canyon Creek in the Old Frisco Mill Area	Recontour the stream banks; construct a stable stream channel with grade control structures; and cover selected areas of the canyon bottom with soil and revegetate.

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Table 2

COST ESTIMATE SUMMARY

COST COMPONENT				ESTIMATED COST
Reaches 0 through 3				
Capital Costs				$27,092,000
Operation and Maintenance (O&M) Projection	2 yrs	@	5 %	$2,709,000
	18 yrs	@	2 %	$9,753,000
Reserve Funds		@	30 %	$11,866,000
SUBTOTAL				$51,420,000
Reaches 5 through 9, Lateral Lakes & Wetlands, Lower Basin Repository				
Capital Costs				$32,608,000
Operation and Maintenance (O&M) Projection	2 yrs	@	2 %	$1,304,000
	8 yrs	@	1 %	$2,608,000
Swan Program	10 yrs	@	$100,000 yr	$1,000,000
Reserve Funds		@	50 %	$18,760,000
SUBTOTAL				$56,280,000
GRAND TOTAL				**$107,700,000**

Table 1

SUMMARY OF ESTIMATED CAPITAL COSTS BY REACH

REACH	ESTIMATED COST
0	$700,000
1	$23,617,000
2	$2,000,000
3	$775,000
4	N/A
5	$7,740,000
6	$2,328,000
7	$1,472,000
8	$1,120,000
9	$2,560,000
10	$7,926,000
Lateral Lakes and Wetlands	$6,962,000
Lower Basin Repository	$2,500,000
TOTAL	$59,700,000

Summary

- Presently at Draft Stage of Conceptual Action Plan
  - -- Is a Basis for Discussions -- Builds on Work of Many
  - -- Cooperative Interaction Needed to Build Consensus on Elements of Plan
  - -- Need to Develop Concepts into Implementable Plan
- Overview of Important Concepts
  - -- More Aggressive Upstream Versus More Bioengineering/Management Downstream
  - -- Additional Reconnaissance in Support of Actions Required
- Need to Plan Constructive Interactive Process among Parties
  - -- All Need to Participate to Make Plan Effective
  - -- Schedule for Feedback

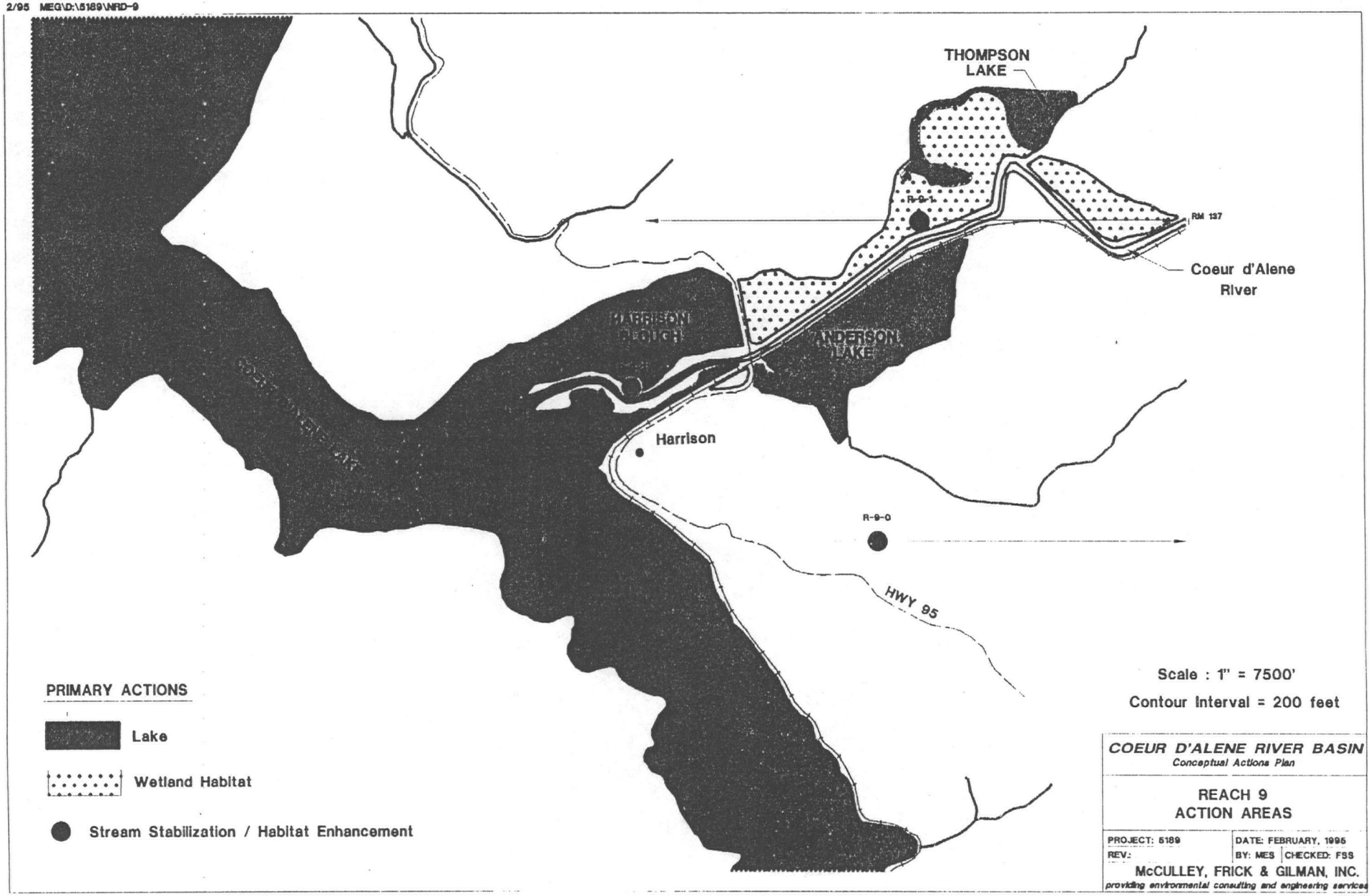
Essential Requirements for Implementation

- Cooperative Effort
- Sound Technical Planning Among Parties
- Time as an Ally
- Funding

Benefits of Proposed Action Plan

- Enhancement of Wildlife/Fisheries/Aesthetics
- Increased Recreational Potential
- Regional Economic Benefits
- Continual Improvement
- Cost Effective
- Consistent with Current Efforts by State Trustees

2/95 MEG\D:\5189\NRD-9



COEUR D'ALENE RIVER BASIN
Conceptual Actions Plan

REACH 9
ACTION AREAS

PROJECT: 5189	DATE: FEBRUARY, 1995
REV.:	BY: MES CHECKED: FSS

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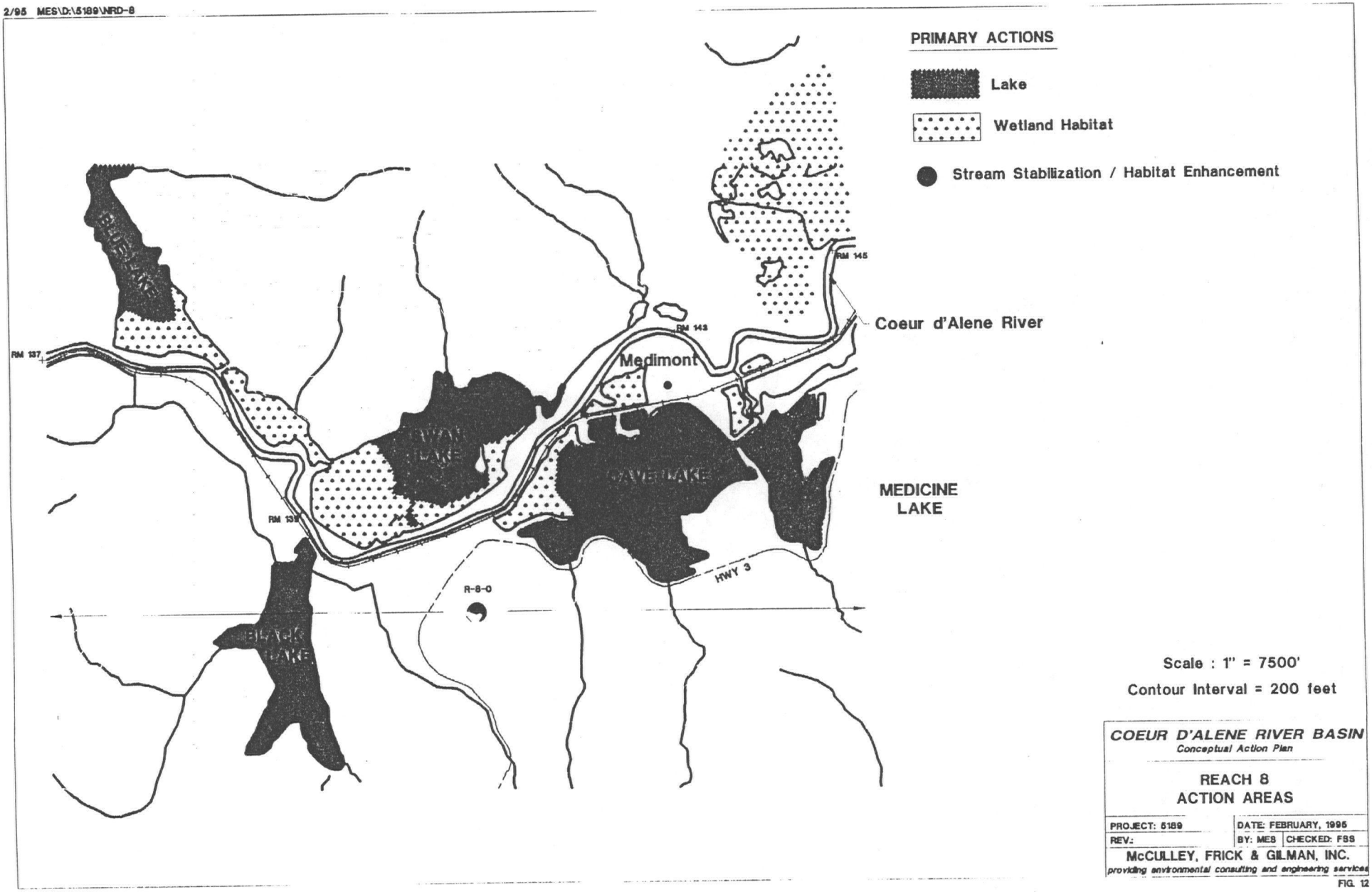
FIG. 13

2/95 MES\D:\5189\NRD-8



COEUR D'ALENE RIVER BASIN
Conceptual Action Plan

REACH 8
ACTION AREAS

PROJECT: 5189	DATE: FEBRUARY, 1995
REV.:	BY: MES CHECKED: FSS

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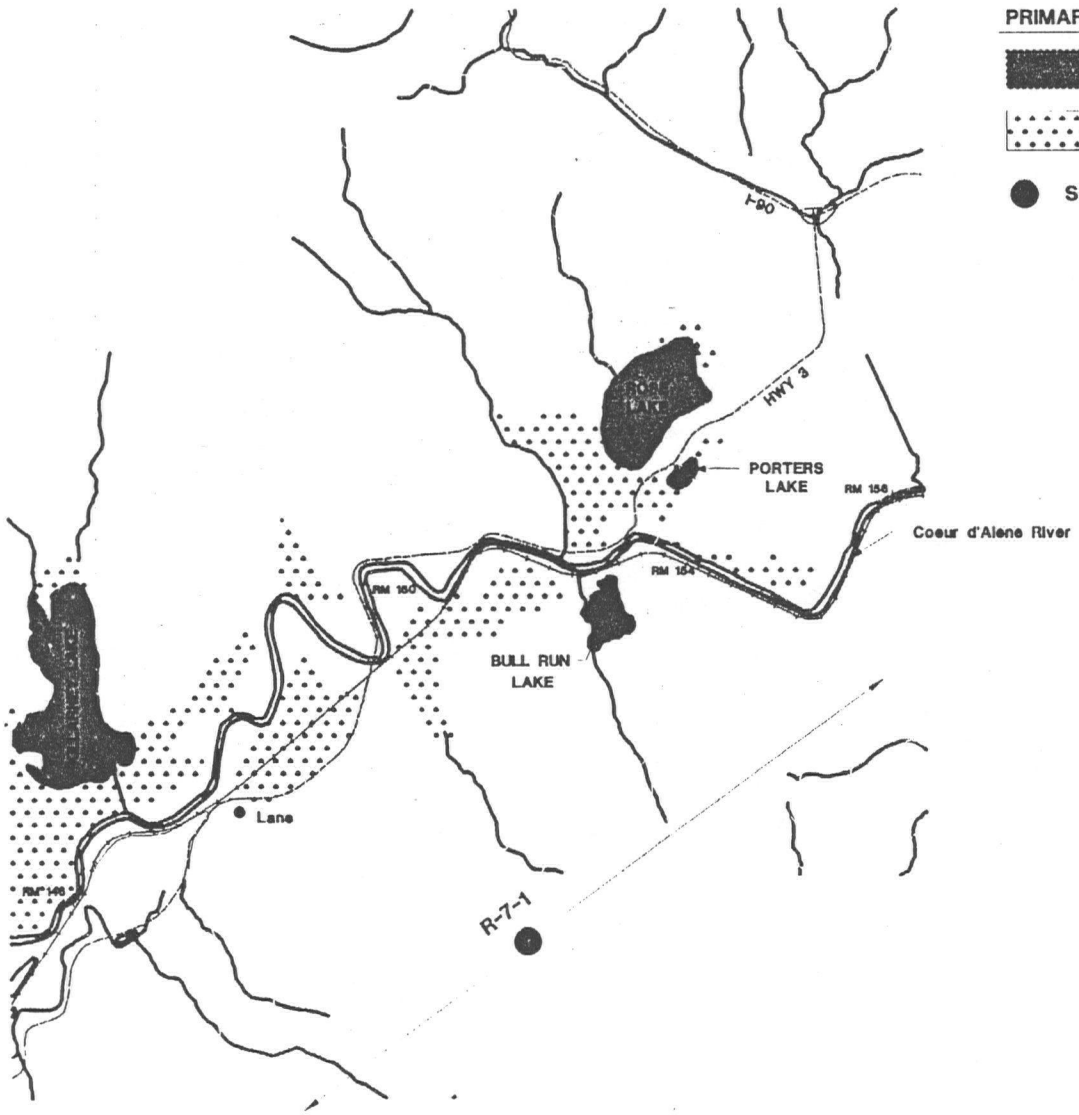
FIG. 12

2/95 MEQ\D:\5189\NRD-7



PRIMARY ACTIONS

- Lake
- Wetland Habitat
- Stream Stabilization / Habitat Enhancement

Scale : 1" = 5000'

Contour Interval = 200 feet

COEUR D'ALENE RIVER BASIN
Conceptual Action Plan

REACH 7
ACTION AREAS

PROJECT: 5189	DATE: FEBRUARY, 1995	
REV.:	BY: MES	CHECKED: FSS

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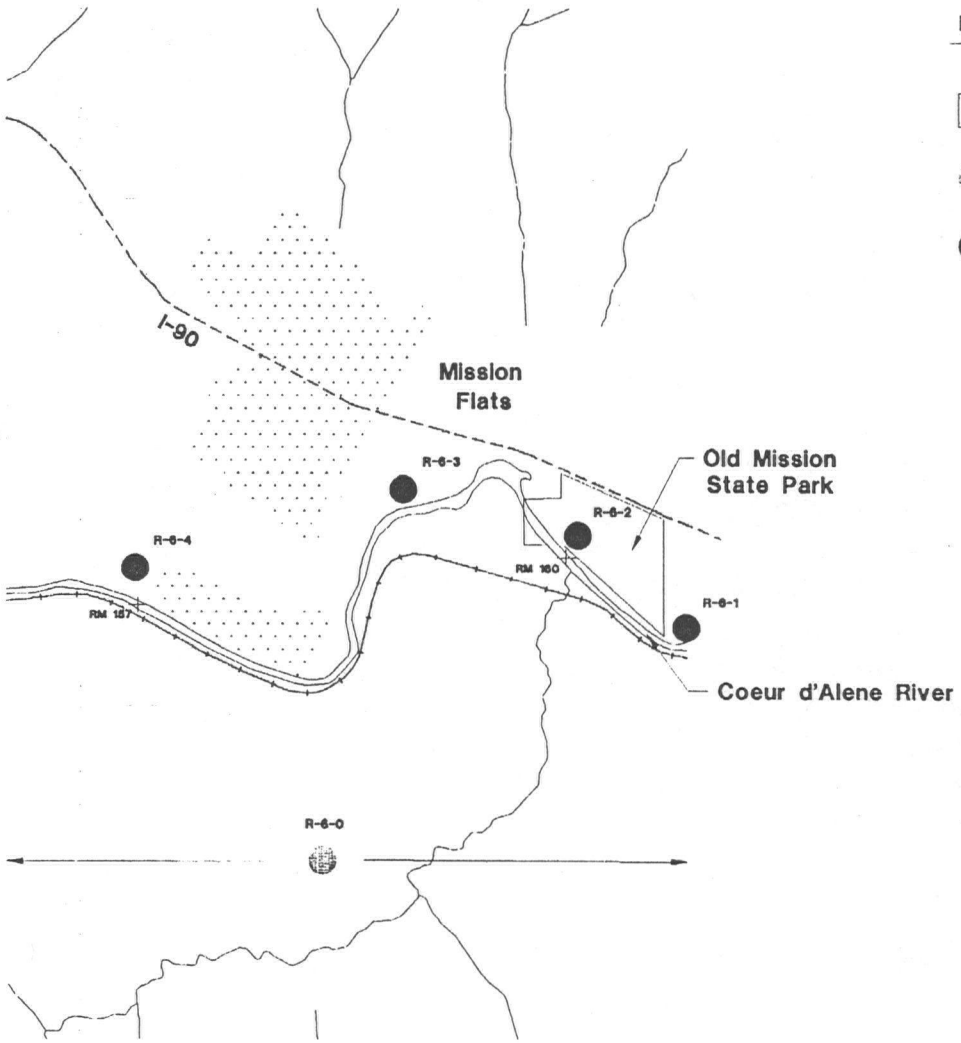
FIG. 11

2/95 MEG\D:\5189\NRD-6



PRIMARY ACTIONS

Wetland Habitats

Mine / Mill Waste Removal

Stream Stabilization / Habitat Enhancement

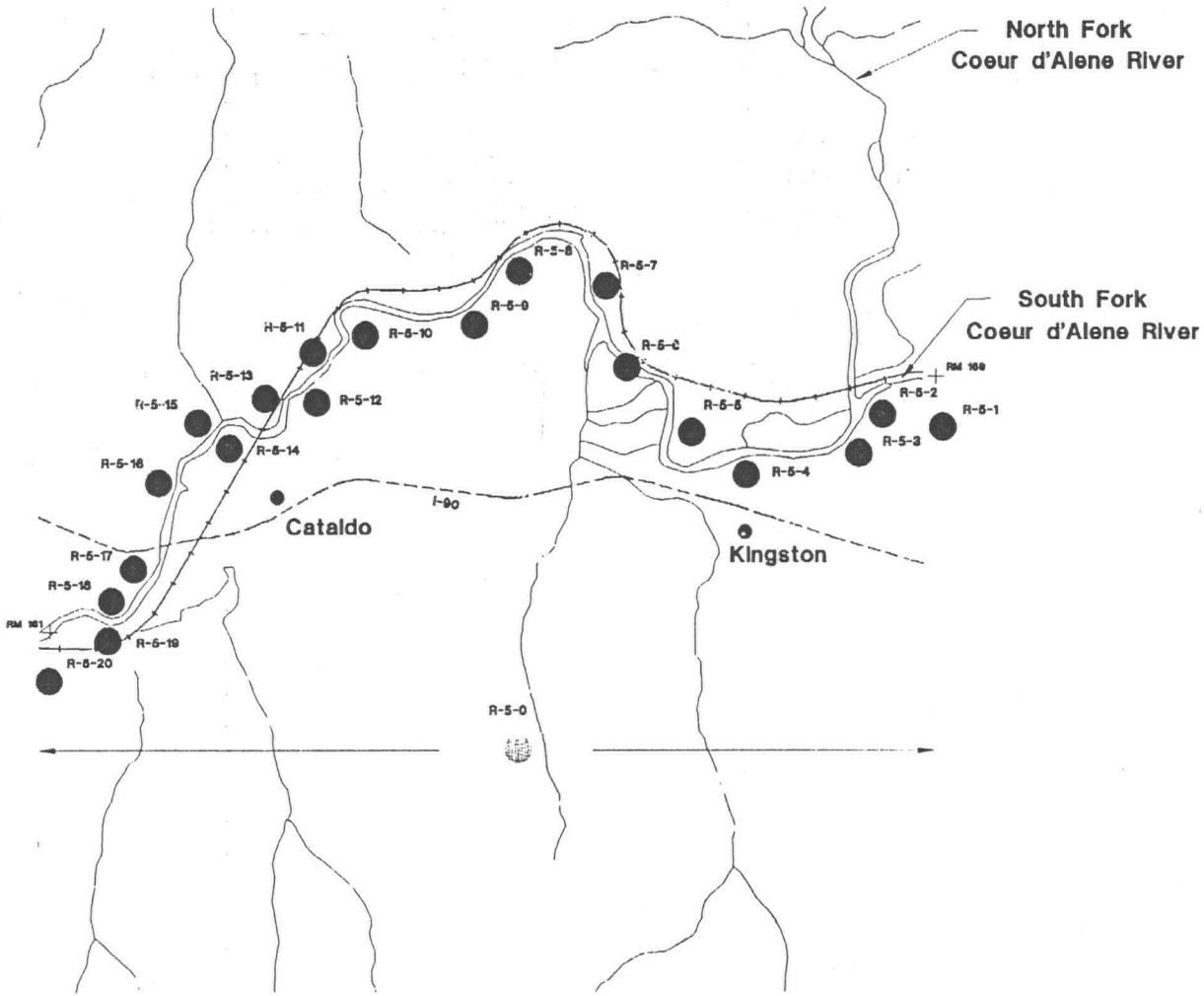
Scale : 1" = 7500'

Contour Interval = 200 feet

COEUR D'ALENE RIVER BASIN *Conceptual Action Plan*		
REACH 6 ACTION AREAS		
PROJECT: 5189	DATE: FEBRUARY, 1995	
REV.:	BY: MES	CHECKED: FSS
McCULLEY, FRICK & GILMAN, INC. *providing environmental consulting and engineering services*		

FIG. 10

2/95 MEG\D:\5189\NRD-5



PRIMARY ACTIONS

Mine / Mill Waste Removal

Stream Stabilization / Habitat Enhancement

Scale : 1" = 7500'

Contour Interval = 200 feet

COEUR D'ALENE RIVER BASIN
Conceptual Action Plan

REACH 5
ACTION AREAS

PROJECT: 5189	DATE: FEBRUARY, 1995	
REV.:	BY: MES	CHECKED: FSS

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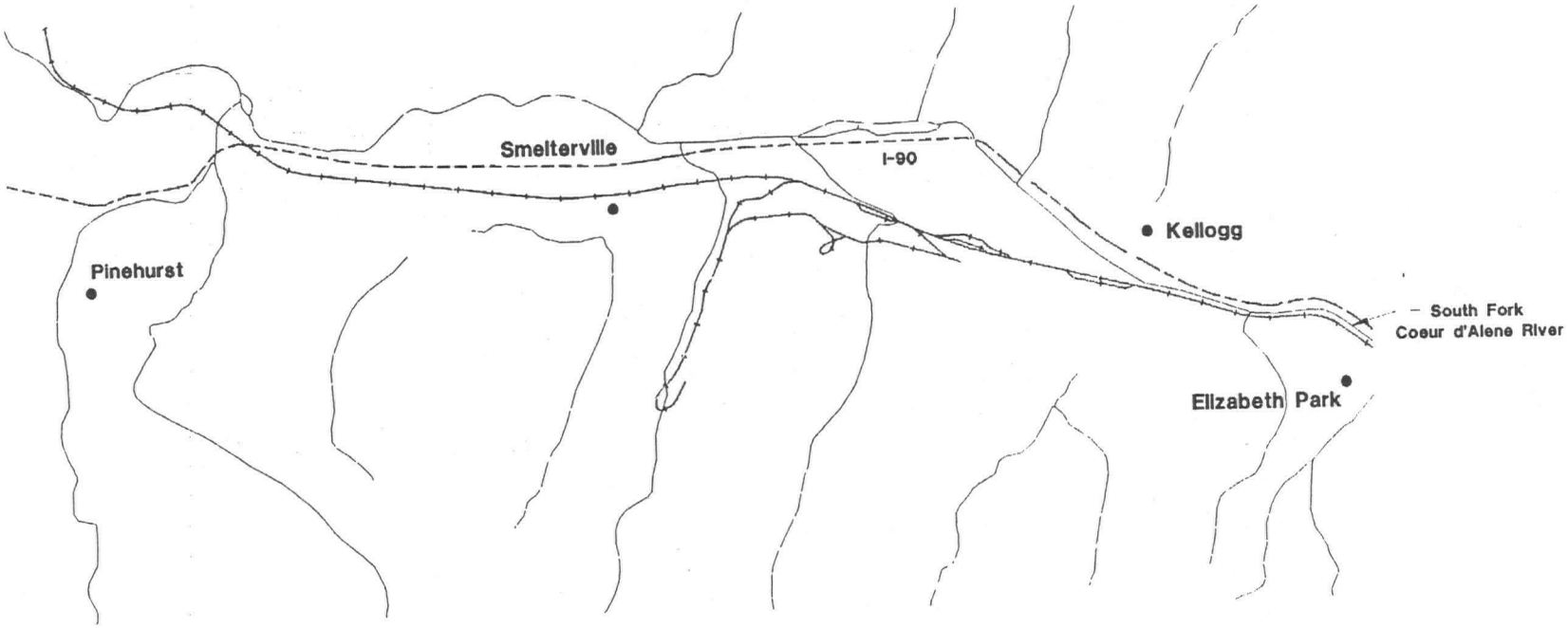
FIG. 9

2/95 MEG\D:\5189\NRD-4



Scale : 1" = 7500'

Contour Interval = 200 feet

PRIMARY ACTIONS

The borders of this REACH are those of the Bunker Hill Superfund Site.
It is assumed that the ongoing and planned action for this area is sufficient.

COEUR D'ALENE RIVER BASIN
Conceptual Action Plan

REACH 4
ACTION AREAS

PROJECT: 5189	DATE: FEBRUARY, 1995
REV.:	BY: MES / CHECKED: FSS

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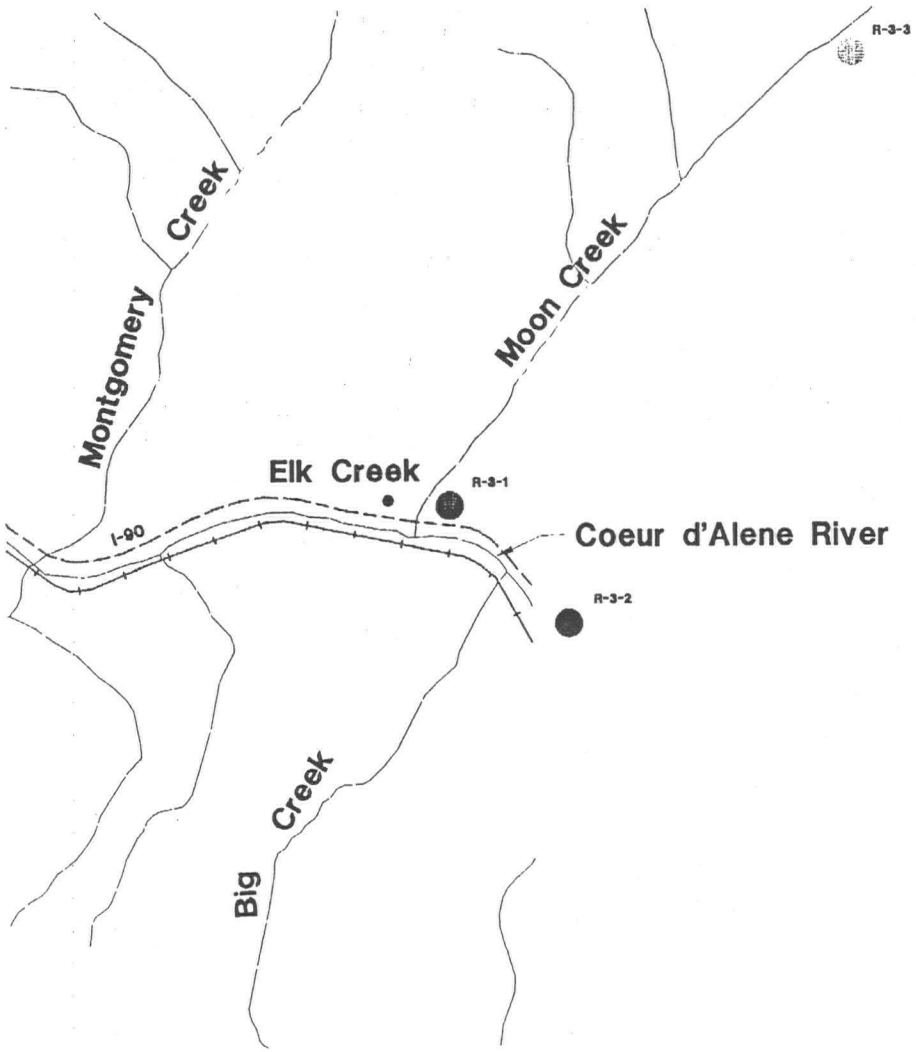
FIG. 8

2/95 MEQ\D:\5189\NRD-3.DWG



PRIMARY ACTIONS

- Mine / Mill Waste Stabilization
- Mine / Mill Waste Removal
- Stream Stabilization / Habitat Enhancement

Scale : 1" = 10,000'

Contour Interval = 200 feet

COEUR D'ALENE RIVER BASIN
Conceptual Action Plan

REACH 3
ACTION AREAS

PROJECT: 5189	DATE: FEBRUARY, 1995	
REV.:	BY: MES	CHECKED: FSS

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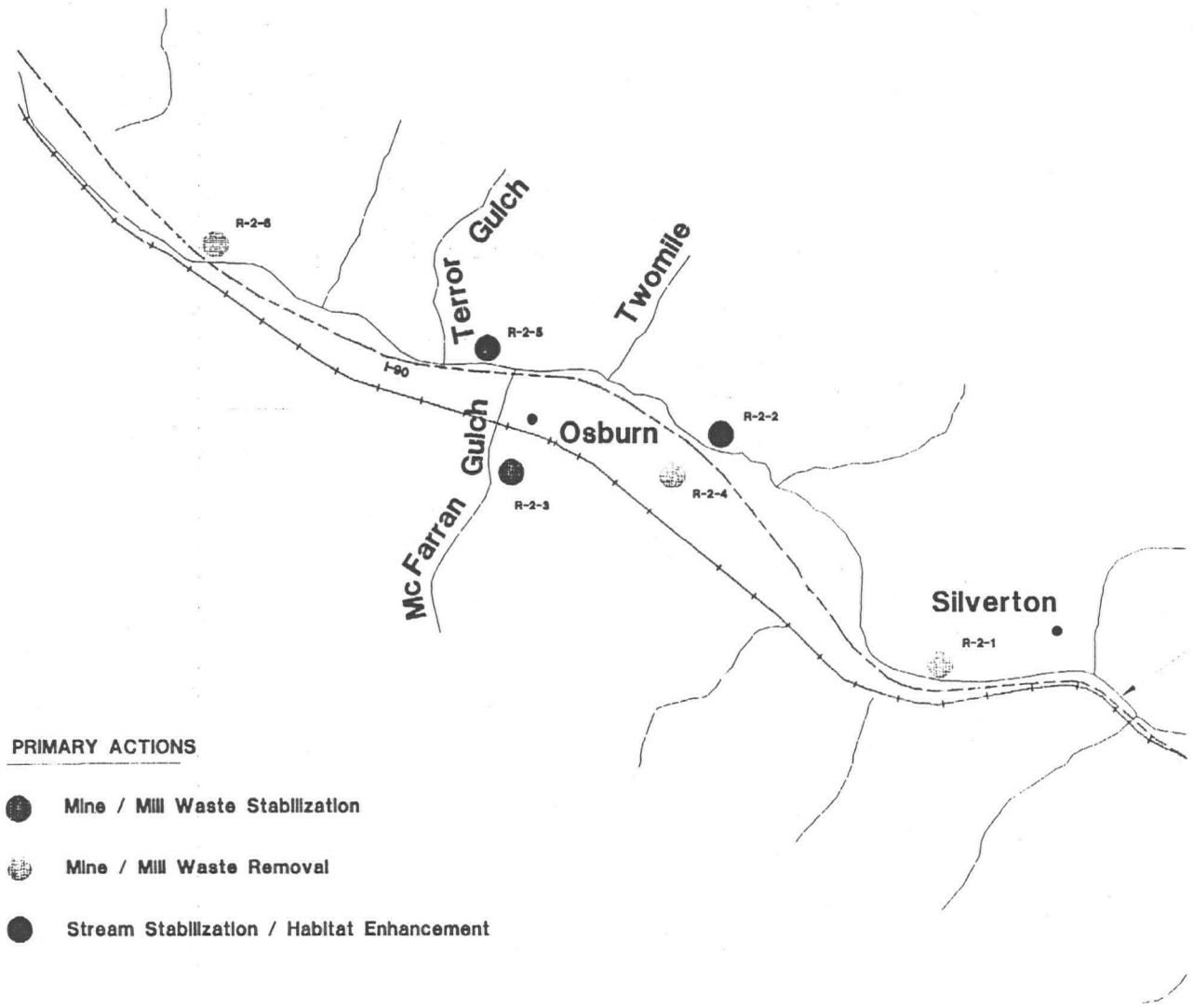
FIG. 7

2/95 MEG\D:\5189\NRD-2



PRIMARY ACTIONS

- Mine / Mill Waste Stabilization
- Mine / Mill Waste Removal
- Stream Stabilization / Habitat Enhancement

Scale : 1" = 10,000"

Contour Interval = 200 feet

COEUR D'ALENE RIVER BASIN
Conceptual Action Plan

REACH 2
ACTION AREAS

PROJECT: 5189	DATE: FEBRUARY, 1995	
REV.:	BY: MES	CHECKED: FSS

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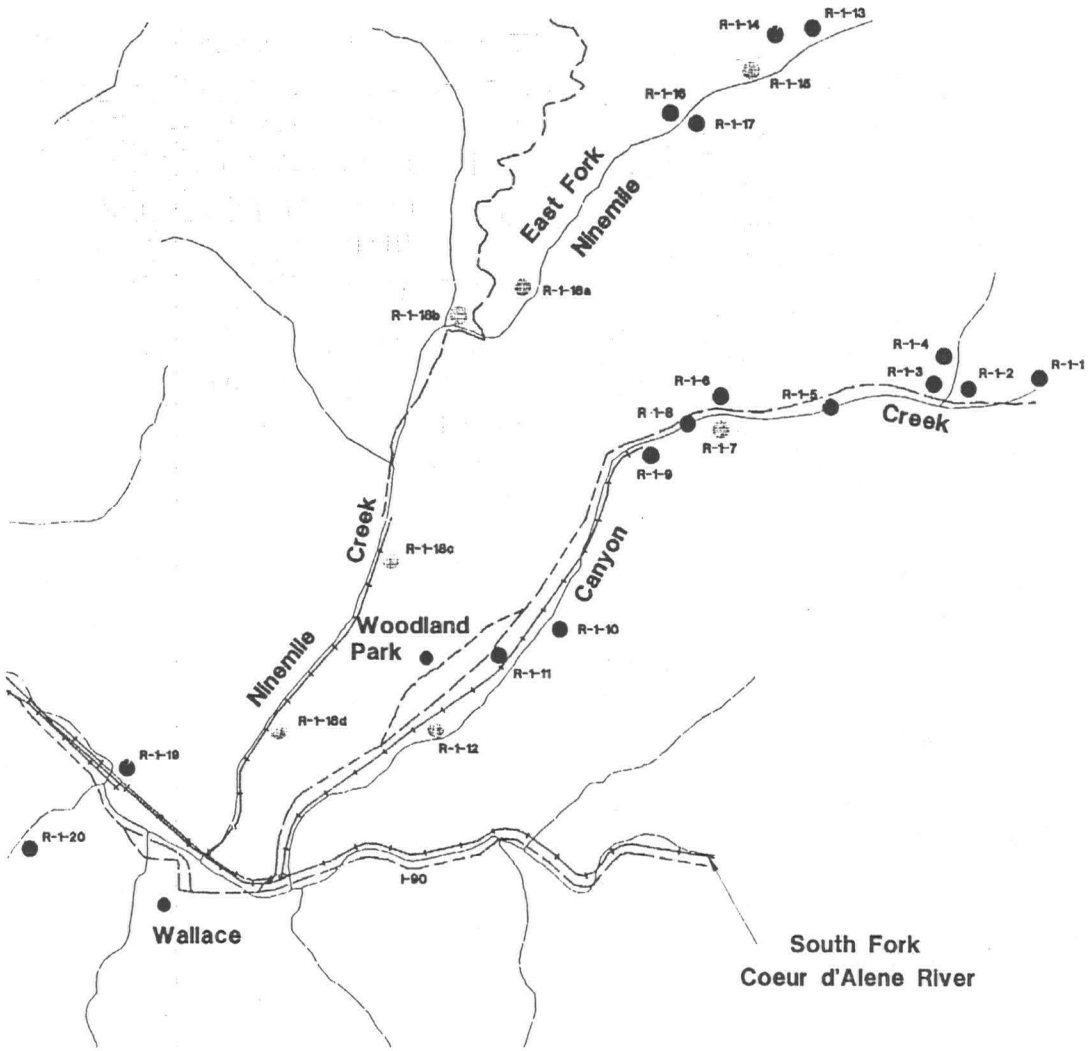
FIG. 6

2/95 MEG\D:\5189\NRD-1



PRIMARY ACTIONS

- Mine / Mill Waste Stabilization
- Mine / Mill Waste Removal
- Passive Water Treatment
- Stream Stabilization / Habitat Enhancement

Scale : 1" = 7500'

Contour Interval = 200 feet

COEUR D'ALENE RIVER BASIN
Conceptual Action Plan

REACH 1
ACTION AREAS

PROJECT: 5189	DATE: FEBRUARY, 1995	
REV.:	BY: MES	CHECKED: FSS

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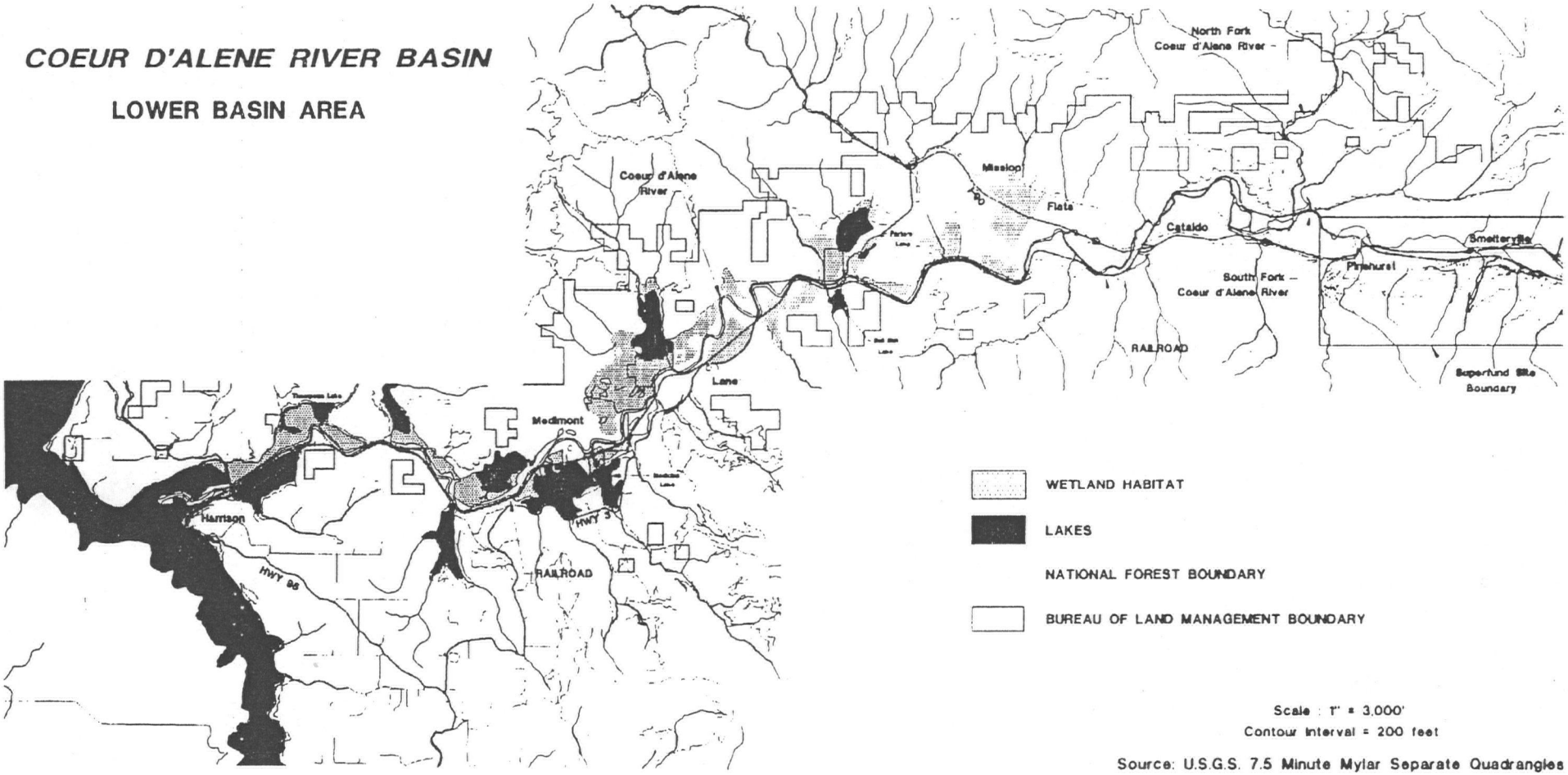
FIG. 5

COEUR D'ALENE RIVER BASIN

LOWER BASIN AREA



Scale : 1" = 3,000'
Contour Interval = 200 feet

Source: U.S.G.S. 7.5 Minute Mylar Separate Quadrangles

COEUR D'ALENE RIVER BASIN

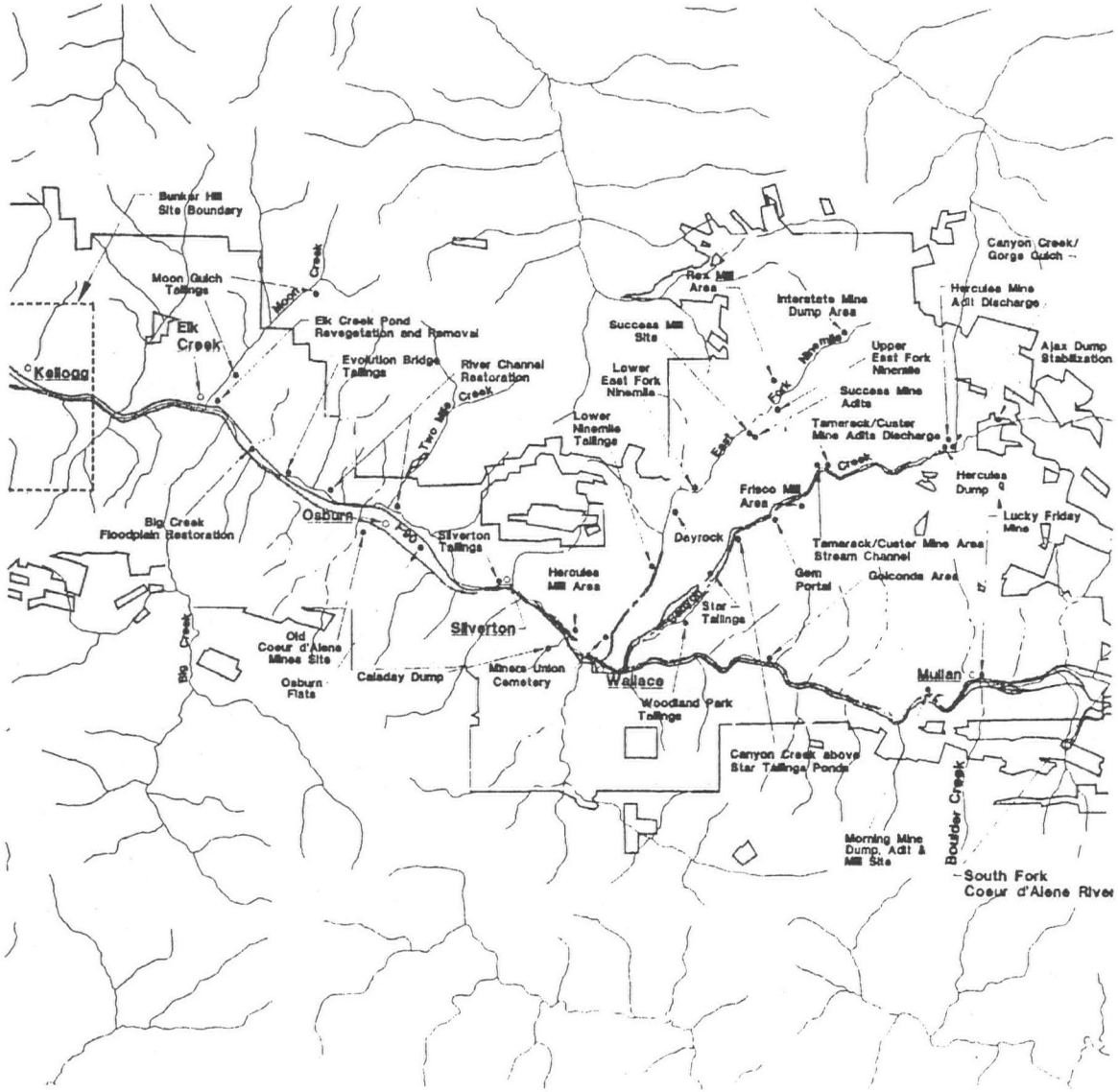
UPPER BASIN AREA

NATIONAL FOREST BOUNDARY

BUREAU OF LAND MANAGEMENT BOUNDARY

LAKES AND RIVERS

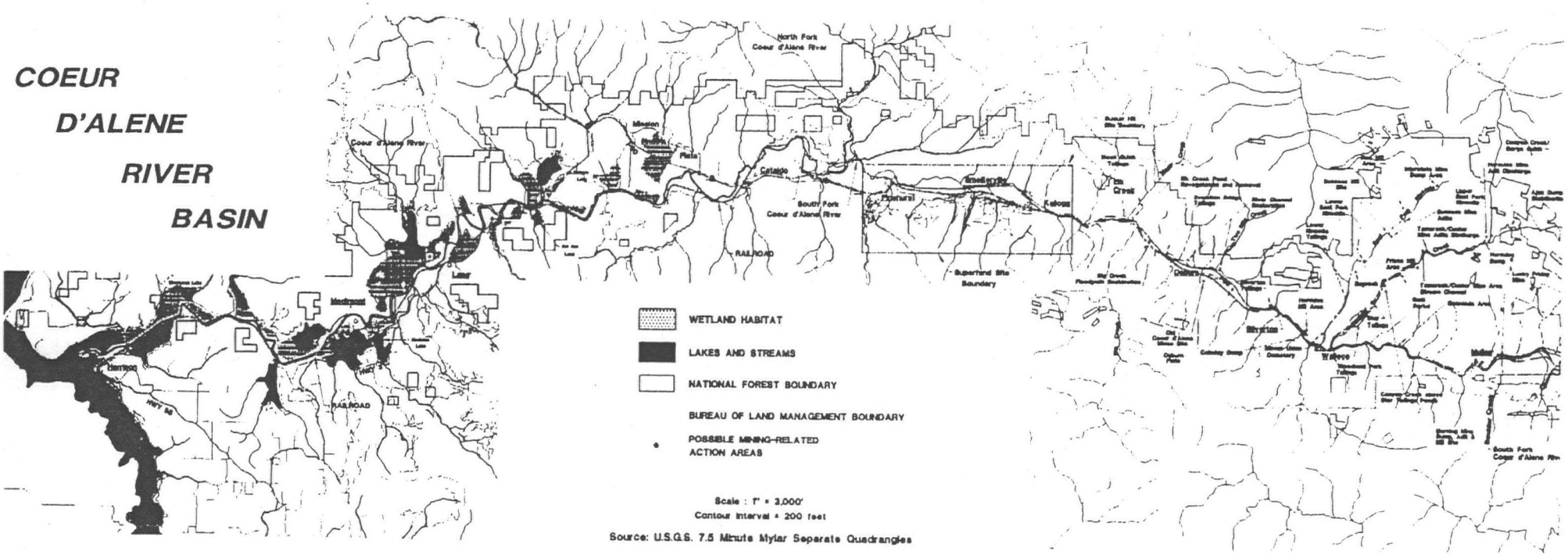
POSSIBLE MINING-RELATED ACTION AREAS



Scale : 1" = 3,000'
Contour Interval = 200 feet

Source: U.S.G.S. 7.5 Minute Mylar Separate Quadrangles

COEUR D'ALENE RIVER BASIN



Plan Overview

- Higher Intensity Upstream

- More Aggressive Activities Upstream

- Downstream Focus on Bioengineering

ATTACHMENT 4

1995 BASIN LEGISLATION: RESTORATION ALTERNATIVE FOR MINING IMPACTS IN THE COEUR D'ALENE BASIN

June 5, 1995

Prepared by:
The Coeur d'Alene Tribe
and Ridolfi Engineer and Associates, Inc.

Prepared for:
The Coeur d'Alene Basin Restoration Project
Citizens Advisory Committee
Sub-Committee on Basin Restoration Legislation

Introduction

Over the last three years the Tribe has been very active in seeking solutions to address the injury that has occurred throughout the ecosystem due to heavy metals pollution. Several of the key efforts that have been made to seek this solution include the following: 1) filing a Natural Resource Damage Assessment (NRDA) law suit against 8 mining companies and Union Pacific Railroad, 2) development of the NRDA Trustees draft preliminary cost estimate for full restoration (approximately $1 billion), 3) restructuring, participating and providing oversight to the Coeur d'Alene Basin Restoration Project and Bunkerhill Superfund Remediation, 4) as lead and co-trustee with the United States Department's of Agriculture and the Interior to conduct the NRDA, 5) Elevating the level of public awareness and concern about the problems and solutions related to mine pollution, 6) encouraging the mining industry to begin to effectively address cleanup issues and, 7) stimulating political awareness and submitting 1994 legislation to seek a solution to the remediation of the Coeur d'Alene Basin.

Although the 1994 legislation (state/tribal) did not provide immediate funds for basin cleanup, it significantly increased the awareness of many political representatives, and suggests an organizational structure in which to manage the cleanup. The 1994 congressional legislative effort set the stage for increased coordination among stakeholders in attempts to undertake future legislative initiatives.

Over six months ago efforts were reinitiated to try to develop a "global" restoration solution via legislation. At that time it was determined that a sub-group comprised of public and private interest groups and the Tribe should help design a legislative solution. Once formulated and agreed upon these components for a basin restoration plan will be drafted into a congressional bill. During this same time period Hecla and Asarco developed a document entitled, "A Conceptual Action Plan for Mining and Milling Processing Impacts Within the Coeur d'Alene River Basin".

Recently the Coeur d'Alene Tribe was asked by the Citizens Advisory Sub-Committee on Basin Restoration Legislation to provide input into development of legislation. The Tribe has participated throughout the process. Initially, the Tribe submitted the NRDA Trustees billion dollar preliminary cost estimation and engineering alternative for full restoration of the Basin. Subsequently, the mining industry proposal was submitted as their "starting point" from which a restoration plan could be developed. The stakeholders are now attempting to reach a compromise on effective remediation of the Basin. Good science, cost effectiveness and protection of human health and the environment are the guiding parameters. It is the Tribe's opinion that although industry's plan does address some of the problems in the basin there are also some significant problem areas that need to be more fully reviewed and addressed. For the sake of this basin restoration legislative effort the Tribe has developed a significantly scaled-down restoration alternative which is the primary focus of this document. In the presentation of this restoration alternative, the Tribe feels that the general approach and cost of restoration is only one of several issues to resolve. Some of these issues need to be more fully addressed and are included as Part six of this paper.

It is important to understand the Tribe is currently involved in both this legislative initiative as well as the NRDA litigation. Until the NRDA is complete and the NRDA Trustees complete their restoration plan our best estimate for the cost of full restoration is approximately $ 1 billion. Realizing however, that the billion dollar price-tag for a high level restoration effort is not politically achievable, the Tribe (not the NRDA Trustees) has developed this scaled down restoration alternative that should also be viewed as a "starting point" for the development of 1995 legislation. It should be recognized that the Tribe feels that any restoration alternative that fails to completely restore the basin to those conditions that would be here except for the release of hazardous substances leaves the public to shoulder the burden of future environmental injury, and economic damage and loss. The amount of restoration completed up-front will determine the subsequent amount of injury, damage and loss over time. More restoration means less long-term subsequent injury, damage and loss. The Tribe feels strongly that this risk should be eliminated. Ultimately the citizens of this basin must compare restoration cost with these long term risks before determining the level of clean desired.

The information that follows is divided into 6 parts. Part 1 is a brief narrative defining restoration needs to accomplish full restoration (the one billion dollar solution) and moderate restoration (legislative alternative). Part 2 outlines the capital, operation and maintenance, monitoring, contingency costs associated with both the full and moderate restoration approaches. Part 3 compares the similarities and differences among full restoration, moderate restoration and the mining industry plan as to cleanup techniques by basin. Part 4 compares the cost of restoration for these three alternatives by reach. Part 5 provides a detailed cost breakdown for the Tribe's Moderate Restoration Alternative. Finally, Part 6 outlines the Coeur d'Alene Tribe's other issues which need to be addressed in the 1995 basin restoration legislation effort.

PART 1. DESCRIPTION OF RESTORATION ALTERNATIVES

Full Restoration

Under Full Restoration, 100% of the mine waste and rock dumps would be removed to and consolidated in nearby abandoned mines. Former dump sites would be revegetated after removal of wastes. Shafts and adits would be sealed with concrete. Mine roads would be ripped, recontoured to original topography, and vegetation restored. Runoff from I-90 to the river would be controlled with gravel and/or stabilizing vegetation on the river side slopes of the highway. To restore damaged fish resources, all tailings and slickens/alluvium material would be removed from tributary channels. The tributaries banks would be reshaped and restored with tow rock, willows, logs, and riparian revegetation.

All tailing ponds would be excavated and removed to constructed landfills which meet RCRA subtitle "C" technical requirements. These landfills would also receive all excavated slickens/alluviums and contaminated sediments. Landfills would be capped with a cover system and would include a leachate collection and treatment system. An estimated six such landfills would be needed; one landfill would be located in each of the following geographic areas:

1) South Fork Coeur d' Alene drainage upstream of Wallace
2) Canyon and Nine Mile Creeks
3) Wallace to Elizabeth Park including Big, Lake and Moon Creeks
4) Bunker Hill
5) Cataldo Flats and the Lower CDA River
6) Coeur d'Alene Lake

In the Bunker Hill area, all tailing ponds and slickens/contaminated alluvium in the SFCDR would be removed to a constructed landfill. The river channel would be reconstructed with breakwater/deflector structures and rehabilitated with riparian vegetation. Approximately 50% of the removed tailings would be replaced with clean fill. The hillslopes would be reseeded and all of the impacted acreage reforested with a combination of erosion control structures, jute netting, top soil, and tree planting.

From Pinehurst downstream to Cataldo, tailings and contaminated alluvium slickens would be removed from along the river and disposed of in a constructed landfill. Tailings in the Cataldo Flats area would also be removed and transported to the landfill. In the lower CDR, the tailings would be removed from along the river and the channel reconstructed and rehabilitated with riparian vegetation. Contaminated wetland sediment would be removed and disposed of in a constructed upland landfill area. Wetland sediments would be replaced with clean fill and the wetlands revegetated. A cutthroat trout hatchery would be constructed in the year following restoration construction completion and would be operated and maintained for a decade until a healthy fish population is restored. For Lake Coeur d'Alene, the contaminated bottom sediments would be suction dredged, dewatered, and then disposed of in a constructed landfill. Water from the sediments will be treated to meet Aquatic Life Criteria Levels and discharged back to the lake.

Moderate Restoration Alternative

No actions on mine roads, adits, and waste dumps. Runoff from I-90 to the river would be controlled with gravel and/or stabilizing vegetation on the river side slopes of the highway. To restore damaged fish resources, 36% of tailings and slickens/alluvium material would be removed from tributary channels. The tributaries banks would be reshaped and restored with tow rock, willows, logs, and riparian revegetation. The existing tailings ponds will be capped in place with 2 feet of clay/soil, geotextile barrier fabric, 6 inches of topsoil, and revegetated.

At the area around the former Bunker Hill operations, accessible tailings/contaminated alluvium materials will be removed from Smelterville Flats. The hill slopes around the smelter will be reseeded and approximately 25% of the impacted acreage will be reforested with a combination of erosion control structure, jute netting, topsoil, and tree planting.

Four new repositories will be constructed in the basin to meet the substantive technical requirements of RCRA solid waste landfills. These repositories will receive the tailings excavated from the floodplain. The repositories will be lined with two feet of clayey-soil and a geomembrane liner. Prior to closure, they will be capped with 2 feet of clay and soil, a geotextile barrier fabric, 6 inches of topsoil, and vegetation.

From Pinehurst downstream to Cataldo, tailings will be removed from along the river and disposed of at either the Cataldo Mission Flats area north of I-90, or in a newly constructed repository. The Cataldo Mission Flats disposal area will then be capped with clay, soil, topsoil, and vegetation. In the lower CDR, tailings will be removed from along the river and the channel will be reconstructed and rehabilitated with riparian vegetation. About 75% of the wetland and lakebed lateral lakes areas will be restored. Contaminated lake bed and wetland sediments will be removed and disposed of in a newly constructed upland repository. Half of the wetland and lake bed sediments will be replaced with clean fill and the wetlands will be revegetated.

Along the Lake Coeur d'Alene shoreline, the contaminated sediments from the mouth of the river at the delta and along the lake perimeter will be suction dredged to a depth of two feet. Sediments will be dewatered and disposed of in a newly constructed repository. Water from the sediments will be treated to meet Aquatic Life Criteria Levels and discharged back to the lake.

PART 2. RESTORATION ALTERNATIVE COST SUMMARY

FULL RESTORATION ALTERNATIVE			
DESCRIPTION	CAPITAL COST	O&M/MONITORING & CONTINGENCY	TOTAL COST
MONTANA TO LUCKY FRIDAY	$ 8,478,853	$ 1,992,530	$ 10,471,383
LUCKY FRIDAY TO WALLACE	$ 16,924,461	$ 3,977,248	$ 20,901,709
WALLACE TO ELIZABETH PRK	$ 89,715,817	$ 21,083,217	$ 110,799,034
CANYON CREEK	$ 19,839,675	$ 4,662,324	$ 24,501,999
LAKE CREEK	$ 3,306,439	$ 777,013	$ 4,083,452
BIG CREEK	$ 13,924,250	$ 3,272,199	$ 17,196,449
NINE MILE CREEK	$ 41,013,504	$ 9,638,173	$ 50,651,677
MOON CREEK	$ 125,949,931	$ 29,598,234	$ 155,548,165
PINE CREEK	$ 2,562,297	$ 602,140	$ 3,164,437
BUNKER HILL AREA	$ 190,300,340	$ 44,720,580	$ 235,020,920
PINEHURST TO CATALDO	$ 19,519,821	$ 4,587,158	$ 24,106,979
CATALDO FLATS	$ 12,770,176	$ 3,000,991	$ 15,771,167
LOWER COEUR D'ALENE	$ 384,931,561	$ 90,458,917	$ 475,390,478
LAKE CD'A	$ 38,904,141	$ 9,142,473	$ 48,046,614
RAILROAD CORRIDOR	INCL. IN LOWER CDAR		
TOTAL	$ 968,141,300	$ 227,513,200	$ 1,195,654,500

MODERATE RESTORATION ALTERNATIVE

DESCRIPTION	CAPITAL COST	O&M/MONITORING & CONTINGENCY	TOTAL COST
MONTANA TO LUCKY FRIDAY	$ 2,270,000	$ 760,450	$ 3,030,450
LUCKY FRIDAY TO WALLACE	$ 2,070,000	$ 693,450	$ 2,763,450
WALLACE TO ELIZABETH PAR	$ 8,210,000	$ 2,750,350	$ 10,960,350
CANYON CREEK	$ 4,940,000	$ 1,654,900	$ 6,594,900
LAKE CREEK	$ 930,000	$ 311,550	$ 1,241,550
BIG CREEK	$ 3,330,000	$ 1,115,550	$ 4,445,550
NINE MILE CREEK	$ 7,450,000	$ 2,495,750	$ 9,945,750
MOON CREEK	$ 890,000	$ 298,150	$ 1,188,150
PINE CREEK	$ 3,720,000	$ 1,246,200	$ 4,966,200
BUNKER HILL AREA	$ 37,200,000	$ 12,462,000	$ 49,662,000
PINEHURST TO CATALDO	$ 21,740,000	$ 7,282,900	$ 29,022,900
CATALDO FLATS	$ 34,720,000	$ 11,631,200	$ 46,351,200
LOWER CD'A RIVER BASIN	$ 206,240,000	$ 69,090,400	$ 275,330,400
LAKE CD'A	$ 17,240,000	$ 5,775,400	$ 23,015,400
RAILROAD CORRIDOR	$ 1,380,000	$ 462,300	$ 1,842,300
TOTAL	$ 352,330,000	$ 118,030,550	$ 470,360,550

PART 3. ALTERNATIVES COMPARISON
COEUR D'ALENE RIVER BASIN

ITEM	FULL RESTORATION	MODERATE RESTORATION	INDUSTRY PROPOSAL
REPOSITORIES	new RCRA hazardous waste disposal sites	use existing tailings ponds build several new low-tech sites	use existing tailings ponds build some smaller, low-tech sites
SFCD RIVER AND TRIBUTARIES	100% removal & disposal of tailings	36% of tailings removed & disposed	unknown quantities of tailings removed & disposed
LOWER COEUR D'ALENE RIVER	100% removal & disposal of tailings restoration of 1000 acres of habitat	50% of tailings volume removed and riparian habitat restored	removal of 1% of tailings volume; 2,2 Ger structures to stabilize river banks
LATERAL LAKES & WETLANDS	100% removal & disposal of tailings restoration of 3000 acres of habitat	removal of 72% of tailings volume over 75% of the impacted area	no removal of tailings; 2,2 manage in place
COEUR D'ALENE LAKE	complete dredging of tailings	dredging of Harrison slough & CDA River delta (500 acres) and nutrient source controls	no removal
CATALDO MISSION AREA	tailings removed; Flats restored	Flats is used for disposal; final elevation at least 8 feet higher	small amount (less than 10%) of tailings removal along river
TROUT HATCHERY	yes	no	no
RAILROAD CORRIDOR	removal & restoration along river	hot spot removal & capping 100%	unspecified
BUNKER HILL SITE	floodplain tailings removal and disposal; revegetate hillsides	some floodplain tailings removal; revegetate hillsides	no action; assume Superfund action is complete
MINE DUMPS, ROADS & ADITS	removal of unstable dumps, closure of adits, remove/restore roaded areas	no action	no action

PART 3. ALTERNATIVES COMPARISON
COEUR D'ALENE RIVER BASIN

ITEM	FULL RESTORATION	MODERATE RESTORATION	INDUSTRY PROPOSAL
CAPITAL COST	$ 968 million	$ 352 million	$ 62.4 million
OPERATIONS & MAINTENANCE	$19 million (use 2% of capital cost)	$42 million (use 12% of capital cost)	$17.6 million
ENVIRONMNTL MONITORING	$15 million(use 1.5 % of capital cost)	$5 million (use 1.5 % of capital cost)	
CONTINGENCY	$194 million(use 20% of capital cost)	$70 million (use 20% of capital cost)	$ 41.5 million [1]
TOTAL METALS CLEANUP COST	$ 1,196 million	$ 470 million	$ 121.5 million
NUTRIENT MANAGEMENT	$ 0	$ 45 million	
TOTAL COST	$ 1,196 million	$ 515 million	
RELATIVE RISK	NONE	LOW	UNKNOWN

[1] includes $ 1 million for swan program

PART 4. CAPITAL COST COMPARISON

REACH LOCATION	FULL RESTORATION ALTERNATIVE	MODERATE RESTORATION ALTERNATIVE	MINING COMPANY CONCEPTUAL ACTION PLAN
MONT. TO LUCKY FRIDAY	$8,480,000	$2,270,000	
L.F. TO WALLACE	$16,924,000 *	$2,070,000	$500,000
WALL. TO ELIZABETH PK.	$89,720,000	$8,210,000	$5,660,000
CANYON CREEK	$19,840,000	$4,940,000	$17,650,000
LAKE CREEK	$3,310,000	$930,000	
BIG CREEK	$13,920,000	$3,330,000	
NINE-MILE CREEK	$41,010,000 *	$7,450,000 *	$5,450,000
MOON CREEK	$125,950,000 *	$890,000	$500,000
PINE CREEK	$2,560,000	$3,720,000 *	$1,304,000
OTHER TRIBUTARIES			$1,622,000
BUNKER HILL AREA	$190,300,000 *	$37,200,000	$5,000,000
PINEHURST TO CATALDO	$19,520,000	$21,740,000	$7,740,000
CATALDO FLATS	$12,770,000	$34,720,000	$2,328,000
LOWER COEUR D' ALENE	$384,932,000 *	$206,240,000 *	$14,614,000
LAKE COEUR D'ALENE	$38,904,000 *	$17,240,000 *	
RAILROAD CORRIDOR	incl. in LOWER CDA	$1,380,000	
TOTAL CAPITAL COST	**$968,140,000**	**$352,330,000**	**$62,368,000**

* Includes cost of new repository construction

Moderate Restoration Alternative

Location: Cataldo Flats

CODE	MEDIA	ACTIVITY	QUANTITY	UNIT	COST/UNIT SOURCE YR	COST/UNIT in 1993 $	TOTAL LINE ITEM COST	SOURCE: QUANTITY	SOURCE: COST/UNIT
131	River	Tailings removal along rvr	1,223,000.00	cy	$5.41	$5.57	6,814,922.90	SCS 1989	MF&G 1992, SFCDR
132	River	Channel reconstr/rehab	59,280.00	lf	$45.00	$49.17	2,914,958.55	USGS 7.7 min map '88	NRC 1992, San J & Rio Bl
135	River	Riparian revegetation	270.00	acre	$1,898.00	$1,954.94	527,833.80	calculated	MF&G 1992, BH FS
136	River	Breakwater/deflector	29,640.00	lf	$19.05	$19.62	581,581.26	calculated	USACOE 1992, Lower CDR
144	Dmgd Fish Res	Consolidate materials on po	3,482,000.00	cy	$3.70	$3.70	12,883,400.00	calculated	Means 1993
105	Ponds	Revegetate pond	273.00	acre	$1,898.00	$1,954.94	533,698.62	SCS 1989	MF&G 1992, CIA
156	Water Quality	1' clay cap	440,440.00	cy	$3.89	$3.94	1,737,491.76	calculated	MF&G 1992, CIA
157	Water Quality	1' soils cover	440,440.00	cy	$2.40	$2.47	1,088,767.68	calculated	MF&G 1992, Repository
158	Water Quality	6" top soil	220,220.00	cy	$20.56	$21.18	4,663,554.90	calculated	MF&G 1992, CIA
164	Aesthetic	Improve visual impacts		0	$0.00	($0.00)	0.00		0
166	Restore	Wildlife habitat		0	$0.00	($0.00)	0.00		0
170	River	Clean fill to replace tailings	611,500.00	cy	$2.40	$2.47	1,511,628.00	calculated	MF&G 1992 EARTHWORK

COST 1993 DOLLARS $33,257,837

TOTAL COSTS FOR CATALDO FLATS IN 1995 DOLLARS 34,720,000

Moderate Restoration Alternative

Location: Lower CDR

CODE	MEDIA	ACTIVITY	QUANTITY	UNIT	COST/UNIT SOURCE YR	COST/UNIT In 1993 $	TOTAL LINE ITEM COST	SOURCE: QUANTITY	SOURCE: COST/UNIT
191	River	Tailings removal along rvr	7,060,000.00	cy	$5.41	$5.57	39,340,438.00	SCS 1989	MF&G 1992, SFCDR
192	River	Channel reconstr/rehab	110,880.00	lf	$45.00	$49.17	5,452,270.64	USGS 7.5 min map '88	NRC 1992, San J & Rio Bl
195	River	Riparian revegetation	510.00	acre	$1,898.00	$1,954.94	997,019.40	calculated	MF&G 1992, BH FS
198	River	Breakwater/deflector	55,440.00	lf	$19.05	$19.62	1,087,815.96	calculated	USACOE 1992, Lower CDR
149	River	Wetland sediment excavation	9,662,400.00	cy	$4.43	$4.56	44,088,564.96	calculated	MF&G 1992, Page Swamp
152	Water Quality F	Liner System	1,872,240.00	sy	$5.40	$5.56	9,300,998.68	calculated	MF&G 1992, Repository
153	Water Quality F	geomembrane	15,050,160.00	sf	$0.44	$0.44	6,622,070.40	calculated	Layfield Plastics 1993
166	Water Quality F	1' clay cap	566,865.92	cy	$3.83	$3.94	2,196,740.82	calculated	MF&G 1992, CIA
167	Water Quality F	1' soils cover	566,855.92	cy	$2.40	$2.47	1,376,547.83	calculated	MF&G 1992, Repository
168	Water Quality F	6" top soil	278,427.96	cy	$20.56	$21.18	5,896,213.22	calculated	MF&G 1992, CIA
170	River	Clean fill to replace tailings	3,590,000.00	cy	$2.40	$2.47	8,726,160.00	calculated	MF&G 1992 EARTHWORK
161	Water Quality F	Cons. tailings in disposal area	16,722,400.00	cy	$3.70	$3.70	61,872,880.00	calculated	Means 1993
155	Water Quality F	Vegetate landfill	345.50	acre	$1,898.00	$1,954.94	675,439.85	calculated	MF&G 1992, CIA
176	Landfill	Land Purchase	414.60	acre	$1,000.00	$1,000.00	414,604.96	calculated	BLM, 1993
189	Landfill	monitoring wells	1,000.00	lf	$60.35	$62.16	62,160.50	calculated	MF&G 1992 repository
190	Landfill	Excavation	1,858,044.44	cy	$2.44	$2.51	4,669,837.30	calculated	USFS 1992, Excv. & Load
172	River	Wetland veg purchase & plant	1,986.36	acre	$2,319.13	$2,388.70	4,766,721.60	calculated	MF&G 1992, Wetland

COSTS IN 1993 DOLLARS $187,548,284.42

TOTAL COSTS FOR LOWER CDR IN 1995 DOLLARS $206,240,000

Location: Lake Coeur d'Alene

196	Lake	Suction dredge	1,600,000.00	cy	$6.50	$6.50	10,400,000.00	calculated	Means 1993
197	Lake	de-water sediments	1,600,000.00	cy	$0.33	$0.33	528,000.00	calculated	Means 1993
198	Lake	treat water	100,800.00	th. gal	$0.15	$0.20	20,164.56	calculated	AWWA 1993
199	Lake	haul & place sediments	1,120,000.00	cy	$0.80	$0.82	922,880.00	calculated	USFS 1992, Haul & Place
152	Water Quality F	Liner System	112,000.00	sy	$5.40	$5.56	622,844.00	calculated	MF&G 1992, Repository
153	Water Quality F	geomembrane	1,006,000.00	sf	$0.44	$0.44	443,620.00	calculated	Layfield Plastics 1993
166	Water Quality F	1' clay cap	38,960.00	cy	$3.83	$3.94	145,803.50	calculated	MF&G 1992, CIA
167	Water Quality F	1' soils cover	36,960.00	cy	$2.40	$2.47	91,365.12	calculated	MF&G 1992, Repository
168	Water Quality F	6" top soil	18,480.00	cy	$20.56	$21.18	391,347.26	calculated	MF&G 1992, CIA
155	Water Quality F	Vegetate landfill	23.14	acre	$1,898.00	$1,954.94	45,236.28	calculated	MF&G 1992, CIA
176	Landfill	Land Purchase	27.77	acre	$1,000.00	$1,000.00	27,768.60	calculated	BLM, 1993
189	Landfill	monitoring wells	1,000.00	lf	$60.35	$62.16	62,160.50	calculated	MF&G 1992 repository
190	Landfill	Excavation	1,120,000.00	cy	$2.44	$2.51	2,814,784.00	calculated	USFS 1992, Excv. & Load

COSTS IN 1993 DOLLARS 16,515,985.81

TOTAL COSTS FOR LAKE COEUR D'ALENE IN 1995 DOLLARS $17,240,000

Moderate Restoration Alternative

Location: Railroad Corridor

CODE	MEDIA	ACTIVITY	QUANTITY	UNIT	COST/UNIT SOURCE YR	COST/UNIT in 1993 $	TOTAL LINE ITEM COST	SOURCE: QUANTITY	SOURCE: COST/UNIT
203	Railroad	Removal along right of way	2,000.00	cy	$2.44	$2.51	5,026.40	calculated	USFS 1992, Excv. & Load
204	Railroad	Haul to repository	2,000.00	cy	$6.62	$6.62	13,240.00	calculated	Means 1993
205	Railroad	Consolidate in repository	2,000.00	cy	$3.70	$3.70	7,400.00	calculated	Means 1993
206	Railroad	Cap with asphalt	420,000.00	sy	$3.00	$3.09	1,297,800.00	calculated	Ridolfi 1992

COST IN 1993 DOLLARS $1,323,466

TOTAL COSTS FOR RAILROAD CORRIDOR IN 1995 DOLLARS $1,380,000