

# ANACONDA COPPER MINING COMPANY

RENO H. SALER, CHIEF GEOLOGIST  
F. A. LINFORTH, ASSISTANT CHIEF GEOLOGIST



BUTTE, MONTANA

## GEOLOGICAL DEPARTMENT

December 29, 1930/

Mr. A.E. Wiggin,  
Great Falls Reduction Works,  
Great Falls, Montana.

Dear Al:

I am enclosing herewith a letter from MacLellan, of the Walker mine, which speaks for itself.

I recall that they did some work in Anaconda in connection with the tailing dump down in the valley in an attempt to get the objectionable material out of the water before it got down into the Deer Lodge River country. Possibly their experience there might be of help to the situation at the Walker.

If you can refer this correspondence to the man who worked on the situation in Anaconda, he possibly can give MacLellan some advice.

Very truly yours,

*Reno H. Saler*

*Letter referred to in Benfle's memo. I should like to see what the results of the work at the Deer Lodge River were. I will look into it.*

*1/4/31 RHS:NS Enc.*

IN THE DISTRICT COURT OF THE UNITED STATES IN AND  
FOR THE STATE OF UTAH, CENTRAL DIVISION

In The Matter of ) No. B 16,087  
Walker Mining Company ) Trustee's Grant Deed  
Debtor )

KNOW ALL MEN BY THESE PRESENTS:

That I, Willard H. Davis, the duly appointed, qualified and acting Trustee of Walker Mining Company, a corporation, Debtor, in the above entitled proceedings, for and in consideration of the payment of more than Ten Dollars to me in hand

paid, the receipt whereof is hereby admitted, have bargained, sold, granted and conveyed, and by these presents do bargain, grant, sell and convey unto Safeway Signal Company, a corporation duly organized and existing under and in accordance with the laws of the State of California, all and sundry the following parcels of real property situated in Plumas County, California:

All and sundry the premises, lands, mining claims, and real property, as more particularly described on Exhibit "A" which is annexed to this Grant Deed and made a part hereof by reference, together with the improvements thereon and appurtenances thereunto belonging; together with and including all real property belonging to the undersigned as Trustee of Walker Mining Company, the above named Debtor, or in which he as said Trustee has any interest of whatsoever nature, wheresoever situate and whether specifically described in said Exhibit "A" or not.

All of the foregoing is hereby bargained, sold, granted and conveyed unto the Safeway Signal Company, a corporation, free and clear of and from all liens, claims, charges, taxes, mortgages and encumbrances whatsoever.

To Have and To Hold all and singular the premises with the improvements thereon and the appurtenances and privileges thereto incident, and belonging, with all the metals, lodes, ores, gold and silver bearing quartz rock and earth therein, and the dips, spurs and angles thereof, and all the rights, privileges and franchises thereunto incident, appendant and appurtenant, or therewith usually had and enjoyed, and the rents, issues and profits thereof, and all the estate, right, title, interest possession, claim and demand whatsoever, of the undersigned Trustee of, in or to the premises and every part and parcel thereof.

This Grant Deed is executed pursuant to the authority of an order of the above entitled Court made and entered in the above entitled proceeding on April 14, 1945.

In Witness Whereof, said Willard H. Davis, has hereunto set his hand and seal as such Trustee this 14 th. day of April, A. D. 1945.

Willard H. Davis  
Trustee for Walker Mining Company, Debtor.

State of \_\_\_\_\_ )  
County of \_\_\_\_\_ ) ss.

On this 14 day of April, A. D. 1945 before me Charles J. Katz a Notary Public in and for said County and State, residing therein, duly commissioned and sworn, personally appeared Willard H. Davis, known to me to be the person whose name is subscribed to the within instrument, and acknowledged to me that he executed the same as such Trustee.

In Witness Whereof, I have hereunto set my hand and official seal the day and year in this Certificate first above written.

(Seal)

Charles J. Katz Notary Public \_\_\_\_\_  
Residing at Los Angeles, Calif.  
My Commission Expires: March 29, 1949

EXHIBIT "A"

WALKER MINING COMPANY  
DESCRIPTION OF REAL PROPERTY

The following patented lands:

Lot 6; SW $\frac{1}{4}$  NW $\frac{1}{4}$  NW $\frac{1}{4}$  NW $\frac{1}{4}$ ; NW $\frac{1}{4}$  SW $\frac{1}{4}$  NW $\frac{1}{4}$  NW $\frac{1}{4}$ ; and SW $\frac{1}{4}$  SW $\frac{1}{4}$  NW $\frac{1}{4}$  NW $\frac{1}{4}$  of Section 5, Township 24 N. Range 12 E., M. D. M.

SE $\frac{1}{4}$  SE $\frac{1}{4}$  NE $\frac{1}{4}$  NE $\frac{1}{4}$  of Section 6, Township 24 N., Range 12 E., M. D. M.

NE $\frac{1}{4}$  NE $\frac{1}{4}$  NE $\frac{1}{4}$  NE $\frac{1}{4}$ ; S $\frac{1}{2}$  NE $\frac{1}{4}$  NE $\frac{1}{4}$  NE $\frac{1}{4}$ ; S $\frac{1}{2}$  NW $\frac{1}{4}$  NE $\frac{1}{4}$  NE $\frac{1}{4}$ ; SE $\frac{1}{4}$  NE $\frac{1}{4}$  NW $\frac{1}{4}$  NE $\frac{1}{4}$ ; E $\frac{1}{2}$  SE $\frac{1}{4}$  NW $\frac{1}{4}$  NE $\frac{1}{4}$ ; E $\frac{1}{2}$  NE $\frac{1}{4}$  SW $\frac{1}{4}$  NE $\frac{1}{4}$ ; SW $\frac{1}{4}$  NE $\frac{1}{4}$  NE $\frac{1}{4}$ ; NW $\frac{1}{4}$  SE $\frac{1}{4}$  NE $\frac{1}{4}$ ; SE $\frac{1}{4}$  NE $\frac{1}{4}$  NE $\frac{1}{4}$ ; NE $\frac{1}{4}$  SE $\frac{1}{4}$  NE $\frac{1}{4}$  of Section 7, Township 24 N. Range 12 E., M. D. M.

NW $\frac{1}{4}$  NW $\frac{1}{4}$  NW $\frac{1}{4}$  NW $\frac{1}{4}$ ; S $\frac{1}{2}$  NW $\frac{1}{4}$  NW $\frac{1}{4}$  NW $\frac{1}{4}$ ; SW $\frac{1}{4}$  NW $\frac{1}{4}$  NW $\frac{1}{4}$ ; and N $\frac{1}{2}$  NW $\frac{1}{4}$  SW $\frac{1}{4}$  NW $\frac{1}{4}$  of Section 8, Township 24 N. Range 12 E., M. D. M.

S $\frac{1}{2}$  SW $\frac{1}{4}$  SW $\frac{1}{4}$  SW $\frac{1}{4}$  of Section 32, Township 25 N., Range 12 E., M. D. M.

All in Plumas County, California - contains 108.22 acres.

The following patented lode mining claims:

Copper Center; Copper Center Extension, Bullion; Bullion Extension; Rob; Rob Extension; Walker; Walker Extension, Valley View; Valley View Extension.

(Designated as Survey No. 4865)

Reliable Extension; Standard; Pacific Nos. 1, 2, 4, 5, 6, 7 and 8; Panama Nos. 1, 2, 3, 4 and 5; Digger; Piute Nos. 1, 2, and 3.

(Designated as Survey No. 5582A)

September Morn Nos. 1, 2, 3, 4 and 5. (designated as Survey No. 5948)

Sioux (designated as Survey No. 5953)

The following unpatented lode mining claims;

Reliable; Standard Extension; Grizzly; Grizzly Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10; Grizzly Numbers Eleven and Twelve; Pacific No. 3; Pacific Nos. 9, 10, 11, 12, and 13; Dolly Gulch Placer.

(Designated as Survey No. 5582A)

Two Pounder; Three Pounder; Red Bird No. 1; Red Bird No. 13; Panama No. 6. (designated as Survey No. 6137)

Panama No. 7; Plumas; Plumas Nos. 1, 2, 3, and 4; Plumas No. 5 Fraction; Plumas No. 6 Fraction; Plumas Nos. 7, 8, 9 and Plumas Extension; Red Bird No. 3; Red Bird Nos. 7, 8, 9 and 10; Four Pounder; Five Pounder; Seven Pounder; Eight Pounder; Nine Pounder; Ten Pounder; Eleven Pounder; Twelve Pounder; Thirteen Pounder; Fourteen Pounder; Fifteen Pounder; Seventeen Pounder; Nineteen Pounder; Twenty-on Pounder; Twenty-three Pounder; Twenty-four Pounder; Twenty-five Pounder; Twenty-six Pounder; Twenty-seven Pounder; Twenty-eight Pounder; Twenty-nine Pounder; Scot Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40; York Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22; Victor Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 29, 30, 31, 32, 33, 34, 35, 36, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80; Shoshone No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50; Dolly #1, Dolly Nos. 2, 3, 4; Annex Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28; Add Extension; Add Nos. 1, 2, 3, 4, 5 and 6; Add 7; Add 8; Add 9; Add 10; Add 11; Add 12; Add 13; Add 14; Add 15; Add 16; Add 17; Add 18; Add 19; Add 20; Add 21; Add 22; Add 23; Add 24; Add 25; Add 26 Add 27; Add 28.

(All property in Plumas County, California)

No. 1330. Recorded at Request of Charles J. Katz, Att'y. at Law, April 23, 1945, at 34 min. past 10 A. M.

Ida E. Hogan, Recorder

COMPARED

Albion J. Joy et ux ) Deed  
to ) September 25, 1944  
Daniel A. Irwin et ux )

This Indenture made the Twenty fifth day of September one thousand nine hundred and Forty four Between Albion J. Joy and his wife Clara Ellen Joy, the party of the first part, and Daniel A. Irwin and his wife Kathleen Irwin the parties of the second part,

Witnesseth: That the said parties of the first part, in consideration of the sum of Ten Dollars (\$10.00) dollars, lawful money of the United States of America, to them in hand paid by the said parties of the second part, the receipt whereof is hereby acknowledged, do by these presents grant, bargain, and sell unto the said parties of the second part, in joint tenancy and to the survivor of them, and to the heirs and assigns of such survivor forever, all that certain lot, piece or parcel of land situate in Portola, County of Plumas, State of California, and bounded and described as follows, to wit:

Lot Four (4) in Block Twenty six (26) of Robert's Lumber Company's Addition to Portola Townsite, as per map now on file at the office of the County Recorder at Quincy, Plumas County California.

Together with the tenements, hereditaments, and appurtenances thereunto belonging or appertaining, and the reversion and reversions, remainder and remainders, rents, issues, and profits thereof.

To Have and to Hold the said premises, together with the appurtenances, unto the said parties of the second part, as joint tenants, and not as tenants in common, with right of survivorship, and to the heirs and assigns of such survivor forever.

In Witness Whereof the said parties of the first part, have executed this conveyance the day and year first above written.

Albion J. Joy  
Clara Ellen Joy

\$0.55 U. S. I. R. Stamps attached and cancelled 4/23/45. I. E. H.

State of California, )  
County of Plumas, ) ss.

On this 12th day of April in the year of our Lord one thousand nine hundred and forty five, before me, Ethel M. Williams a Notary Public in and for the said County of Plumas, State of California, residing therein, duly commissioned and sworn, personally appeared Albion Joy and Clara Ellen Joy known to me to be the persons described in and whose names are subscribed to the within instrument, and acknowledged to me that they executed the same.

In Witness Whereof I have hereunto set my hand and affixed my official seal in said County of Plumas the day and year in this certificate first above written.

Ethel M. Williams Notary Public in and for the County of Plumas, State of California.

Notary Public Expires May 12, 1946

State of California )  
County of Plumas ) ss.

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On this 13th day of August in the year one thousand nine hundred and forty six, before me, Sue E. Isbell, a Notary Public in and for the County of Plumas, State of California, residing therein, duly commissioned and sworn, personally appeared A. B. Irwin, known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same.

In Witness Whereof I have hereunto set my hand and affixed my official seal in the County of Plumas the day and year in this certificate first above written.

(Seal)

Sue E. Isbell, Notary Public in and for the  
County of Plumas, State of California.

My Commission Expires Feb. 7, 1949.

No. 526. Recorded at the Request of Chas. Criley August 16, 1946, at 30 min. past 10 o'clock  
A. M.

Ida E. Hogan, Recorder.

COMPARED

Safeway Signal Company, )  
A corporation )  
to )  
R. P. Wilson )

Deed  
August 16, 1946

Whereas, Safeway Signal Company, a corporation did heretofore, to-wit, on April 14, 1945, receive from Willard H. Davis, the duly appointed, qualified and acting Trustee of Walker Mining Company, a corporation, a Trustee's grant deed to the property hereinafter described, which said deed was thereafter duly recorded in the County Recorder's office of the County of Plumas, State of California, a copy of which deed (the description of the real property being omitted) is hereto attached and marked "Exhibit A"; and

Whereas, the undersigned represent that it is their intention to convey by this deed all of the interest in said real property, mining claims and patents conveyed to Safeway Signal Company by said Trustee's grant deed; and

Whereas, the undersigned do hereby represent that they have not conveyed or encumbered the property conveyed by said Trustee's grant deed, except for the assignment by Safeway Signal Company to Union Bank and Trust Company of Los Angeles, a corporation, one of the undersigned, and except for the contracts heretofore entered into between the undersigned, Safeway Signal Company, a corporation, as Seller, and R. P. Wilson, as Purchaser; now, therefore,

In consideration of the sum of more than Ten (\$10.00) Dollars, receipt of which is acknowledged, the undersigned do hereby quitclaim to R. P. Wilson all of their right, title, interest and estate in and to the real property in the County of Plumas, State of California, more particularly described as follows, to-wit:

The following patented lands:

Lot 6; SW $\frac{1}{4}$  NW $\frac{1}{4}$  NW $\frac{1}{4}$  NW $\frac{1}{4}$ ; NW $\frac{1}{4}$  SW $\frac{1}{4}$  NW $\frac{1}{4}$  NW $\frac{1}{4}$ ; and SW $\frac{1}{4}$  SW $\frac{1}{4}$  NW $\frac{1}{4}$  NW $\frac{1}{4}$  of Section 5, Township 24 North, Range 12 East, M.D.M.

SE $\frac{1}{4}$  SE $\frac{1}{4}$  NE $\frac{1}{4}$  NE $\frac{1}{4}$  of Section 6, Township 24 North, Range 12 East, M.D.M.

NE $\frac{1}{4}$  NE $\frac{1}{4}$  NE $\frac{1}{4}$  NE $\frac{1}{4}$ ; S $\frac{1}{2}$  NE $\frac{1}{4}$  NE $\frac{1}{4}$  NE $\frac{1}{4}$ ; S $\frac{1}{2}$  NW $\frac{1}{4}$  NE $\frac{1}{4}$  NE $\frac{1}{4}$ ; SE $\frac{1}{4}$  NE $\frac{1}{4}$  NW $\frac{1}{4}$  NE $\frac{1}{4}$ ; E $\frac{1}{2}$  SE $\frac{1}{4}$  NW $\frac{1}{4}$  NE $\frac{1}{4}$ ; E $\frac{1}{2}$  NE $\frac{1}{4}$  SW $\frac{1}{4}$  NE $\frac{1}{4}$ ; SW $\frac{1}{4}$  NE $\frac{1}{4}$  NE $\frac{1}{4}$ ; NW $\frac{1}{4}$  SE $\frac{1}{4}$  NE $\frac{1}{4}$ ; SE $\frac{1}{4}$  NE $\frac{1}{4}$  NE $\frac{1}{4}$ ; NE $\frac{1}{4}$  SE $\frac{1}{4}$  NE $\frac{1}{4}$  of Section 7, Township 24 North, Range 12 East, M.D.M.

NW $\frac{1}{4}$  NW $\frac{1}{4}$  NW $\frac{1}{4}$  NW $\frac{1}{4}$ ; S $\frac{1}{2}$  NW $\frac{1}{4}$  NW $\frac{1}{4}$  NW $\frac{1}{4}$ ; SW $\frac{1}{4}$  NW $\frac{1}{4}$  NW $\frac{1}{4}$ ; N $\frac{1}{2}$  NW $\frac{1}{4}$  SW $\frac{1}{4}$  NW $\frac{1}{4}$  of Section 8, Township 24 North, Range 12 East, M.D.M.

S $\frac{1}{2}$  SW $\frac{1}{4}$  SW $\frac{1}{4}$  SW $\frac{1}{4}$  of Section 32, Township 25 North, Range 12 East, M.D.M.  
Containing 108.22 acres.

The following patented lode mining claims;

Copper Center; Copper Center Extension; Bullion; Bullion Extension; Rob; Rob Extension; Walker; Walker Extension; Valley View; Valley View Extension; designated as Survey 4865.

Reliable Extension; Standard; Pacific Nos. 1, 2, 4, 5, 6, 7 and 8; Panama Nos. 1, 2, 3, 4 and 5; Digger, Piute Nos. 1, 2 and 3, designated as Survey No. 5582-A.

September Morn Nos. 1, 2, 3, 4 and 5, designated as Survey No. 5948.

Sioux, designated as Survey No. 5953.

The following unpatented lode mining claims:

Reliable; Standard Extension; Grizzly; Grizzly Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10; Grizzly Numbers Eleven and Twelve; Pacific No. 3, Pacific Nos. 9, 10, 11, 12 and 13; Dolly Gulch Placer, designated as Survey No. 5582A.

Two Pounder; Three Pounder; Red Bird No. 1; Red Bird No. 13; Panama No. 6, designated as Survey No. 6137.

Panama No. 7; Plumas; Plumas Nos. 1, 2, 3 and 4; Plumas No. 5 Fraction; Plumas No. 6 Fraction; Plumas Nos. 7, 8, 9 and Plumas Extension; Red Bird No. 3; Red Bird Nos. 7, 8, 9 and 10; Four Pounder; Five Pounder; Seven Pounder; Eight Pounder; Nine Pounder; Ten Pounder; Eleven Pounder; Twelve Pounder; Thirteen Pounder; Fourteen Pounder; Fifteen Pounder; Seventeen Pounder; Nineteen Pounder; Twenty-one Pounder; Twenty-three Pounder; Twenty-four Pounder; Twenty-five Pounder; Twenty-six Pounder; Twenty-seven Pounder; Twenty-eight pounder; Twenty-nine Pounder; Scot Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40; York Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22; Victor Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 29, 30, 31, 32, 33, 34, 35, 36, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80; Shoshone No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50; Dolly #1, Dolly Nos. 2, 3, 4; Annex Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21; Annex Nos. 22, 23, 24, 25, 26, 27, 28; Add Extension; Add Nos. 1, 2, 3, 4, 5, 6; Add 7; Add 8; Add 9; Add 10; Add 11; Add 12; Add 13; Add 14; Add 15; Add 16; Add 17; Add 18; Add 19; Add 20; Add 21; Add 22; Add 23; Add 24; Add 25; Add 26; Add 27; Add 28.

Together With such interest, if any, as the undersigned may have in and to the timber standing on the patented lands referred to in the foregoing description; provided, however, that there is expressly reserved unto the undersigned, and excepted herefrom, the following:

(1) An easement for the use of said premises, and the whole thereof, for the storage, use, removal and other disposal of any of the grantors' goods, wares, merchandise, or equipment which may be upon said premises; and

(2) A right of way over, in, and to all of said premises, together with ingress to and egress from and over all of said premises.

The said easement and the said right of way shall continue in full force and effect until August 1, 1949, unless the grantors herein elect to terminate it sooner.

The above is sold without any warranty whatsoever by the undersigned, except for the representations first hereinabove contained, and subject to all conditions, covenants,

Dated: This 16 day of August, 1946.

(Corporate Seal)

Safeway Signal Company, a corporation  
By Willis Hirsch, Its Secretary.

(Corporate Seal)

Union Bank & Trust Co. of Los Angeles,  
a corporation  
By J. W. Luhring, Its Asst. Vice-President  
By M. Morris, Its Ass't. Secretary.

\$23.10 U.S. I.R. Stamps attached  
and canceled 8/16/46.

State of California )  
County of Los Angeles ) ss.

On this 16th day of August, 1946, before me, the undersigned, a Notary Public in and for the said County and State, personally appeared Willis Hirsch, known to me to be the Secretary of Safeway Signal Company, the corporation that executed the within Instrument, known to me to be the person who executed the within Instrument, on behalf of the corporation herein named, and acknowledged to me that such corporation executed the same.

Witness my hand and official seal.

Alice Sarafian, Notary Public in and for  
said County and State.  
My Commission Expires Dec. 28, 1948.

(Seal)

State of California )  
County of Los Angeles ) ss.

On this 16th day of August, 1946, before me, the undersigned, a Notary Public in and for the said County and State, personally appeared J. W. Luhring, known to me to be the Asst. Vice Pres., and M. Morris, known to me to be the Asst. Secretary of Union Bank & Trust Co. of Los Angeles, the corporation that executed the within instrument, known to me to be the persons who executed the within instrument on behalf of the corporation herein named, and acknowledged to me that such corporation executed the same.

Witness my hand and official seal.

Florence Pitts, Notary Public in and for  
said County and State.  
My Commission Expires Sept. 30, 1947.

(Seal)

EXHIBIT "A"

IN THE DISTRICT COURT OF THE UNITED STATES IN AND FOR THE  
STATE OF UTAH, CENTRAL DIVISION

In the Matter of ) No. B 16,087  
Walker Mining Company )  
Debtor ) Trustee's Grant Deed

Know All Men By These Presents:

That I, Willard H. Davis, the duly appointed, qualified and acting Trustee of Walker Mining Company, a corporation, Debtor, in the above entitled proceedings, for and in consideration of the payment of more than Ten Dollars to me in hand paid, the receipt whereof is hereby admitted, have bargained, sold, granted and conveyed, and by these presents do bargain, grant, sell and convey unto Safeway Signal Company, a corporation duly organized and existing under and in accordance with the laws of the State of California, all and sundry the following parcels of real property situated in Plumas County, California:

All and sundry the premises, lands, mining claims and real property, as more particularly described on Exhibit "A" which is annexed to this Grant Deed and made a part hereof by refer-

ence, together with the improvements thereon and appurtenances thereunto belonging; together with and including all real property belonging to the undersigned as Trustee of Walker Mining Company, the above named Debtor, or in which he as said Trustee has any interest of whatsoever nature, wheresoever situate and whether specifically described in said Exhibit "A" or not.

All of the foregoing is hereby bargained, sold, granted and conveyed unto the Safeway Signal Company, a corporation, free and clear of and from all liens, claims, charges, taxes, mortgages and encumbrances whatsoever.

To Have And To Hold all and singular the premises with the improvements thereon and the appurtenances and privileges thereto incident, and belonging, with all the metals, lodes, ores, gold and silver bearing quartz rock and earth therein, and the dips, spurs and angles thereof, and all the rights, privileges and franchises thereunto incident, appendant and appurtenant, or therewith usually had and enjoyed, and the rents, issues and profits thereof and all the estate, right, title, interest, possession, claim and demand whatsoever, of the undersigned Trustee of, in or to the premises and every part and parcel thereof.

This Grant Deed is executed pursuant to the authority of an order of the above entitled Court made and entered in the above entitled proceeding on April 14, 1945.

In Witness Whereof, said Willard H. Davis has hereunto set his hand and seal as such Trustee this 14th day of April, A. D. 1945.

Willard H. Davis,  
Trustee for Walker Mining Company, Debtor.

State of \_\_\_\_\_ )  
County of \_\_\_\_\_ ) ss.

On this 14 day of April, A.D. 1945 before me, Charles J. Katz, a Notary Public in and for said County and State, residing therein, duly commissioned and sworn, personally appeared Willard H. Davis, known to me to be the person whose name is subscribed to the within instrument, and acknowledged to me that he executed the same as such Trustee.

In Witness Whereof, I have hereunto set my hand and official seal the day and year in this Certificate first above written.

Charles J. Katz; Notary Public  
Residing at Los Angeles, Calif.  
My Commission Expires: March 29, 1949.

(Seal)

No. 548. Recorded at Request of Plumas County Abstract Co. Aug. 19, 1946, at 40 min. past 11 A. M.

Ida E. Hogan, Recorder.

COMPARED

J. H. Booth et al ) Deed  
to ) August 3, 1946  
Bertram D. Janes et ux )

We, J. H. Booth and Minnie J. Booth, hereby grant to Bertram D. Janes and Norma M. Janes, his wife, as joint tenants, and not as tenants in common or co-owners of community property, all that real property situated in the town of Portola, County of Plumas, State of California, bounded and described as follows:

BK 85 DEEDS PG 5

State of California )  
County of Plumas ) ss.

On this 31st day of July, 1946, before me, Stanley C. Young, a Notary Public in and for the County of Plumas, State of California, residing therein, duly commissioned and sworn, personally appeared Geraldine Johnson, known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that she executed the same.

In Witness Whereof I have hereunto set my hand and affixed my official seal at my office in the County of Plumas the day and year in this certificate first above written.

(Seal)

Stanley C. Young, Notary Public in and for  
the County of Plumas, State of California.

No. 868. Recorded at Request of J. F. Williamson, Sept. 20, 1946, at 10 min. past 11 A. M.  
Ida E. Hogan, Recorder.

COMPARED

R. P. Wilson ) Deed  
to ) September 20, 1946  
Plumas Land Company, )  
A Corporation )

Whereas, R. P. Wilson did heretofore, to-wit on August 16, 1946, receive from Safeway Signal Company, a corporation, a quitclaim deed to the property hereafter described, being the same premises previously received by Safeway Signal Company from the Trustee of Walker Mining Company, which said deed was thereafter duly recorded in the County Recorder's office of the County of Plumas, State of California, on August 19, 1946; and

Whereas, the undersigned represents that it is his intention to convey by this deed all of the interest in said real property, mining claims and patents conveyed to him by said Safeway Signal Company and by Union Bank and Trust Company of Los Angeles, California, a corporation, to which Safeway Signal Company had assigned said property as collateral security,

Now, Therefore, in consideration of the sum of more than Ten Dollars (\$10.), receipt of which is hereby acknowledged, the undersigned, R. P. Wilson, does hereby quitclaim to Plumas Land Company, a corporation, all his right, title and interest and estate in and to the real property in the County of Plumas, State of California, more particularly described as follows; to-wit:

The following patented lands:

Lot 6; SW- $\frac{1}{4}$  NW- $\frac{1}{4}$  NW- $\frac{1}{4}$  NW- $\frac{1}{4}$ ; NW- $\frac{1}{4}$  SW- $\frac{1}{4}$  NW- $\frac{1}{4}$  NW- $\frac{1}{4}$ ; and SW- $\frac{1}{4}$  SW- $\frac{1}{4}$  NW- $\frac{1}{4}$  NW- $\frac{1}{4}$  of Section 5, Township 24 North, Range 12 East, M.D.M.

SE- $\frac{1}{4}$  SE- $\frac{1}{4}$  NE- $\frac{1}{4}$  NE- $\frac{1}{4}$  of Section 6, Township 24 North, Range 12 East, M.D.M.

NE- $\frac{1}{4}$  NE- $\frac{1}{4}$  NE- $\frac{1}{4}$  NE- $\frac{1}{4}$ ; S $\frac{1}{2}$  NE- $\frac{1}{4}$  NE- $\frac{1}{4}$  NE- $\frac{1}{4}$ ; S $\frac{1}{2}$  NW- $\frac{1}{4}$  NE- $\frac{1}{4}$

NE- $\frac{1}{4}$  SE- $\frac{1}{4}$  NE- $\frac{1}{4}$  NW- $\frac{1}{4}$  NE- $\frac{1}{4}$ ; E $\frac{1}{2}$  SE- $\frac{1}{4}$  NW- $\frac{1}{4}$  NE- $\frac{1}{4}$ ; E $\frac{1}{2}$  NE- $\frac{1}{4}$

SW- $\frac{1}{4}$  NE- $\frac{1}{4}$ ; SW- $\frac{1}{4}$  NE- $\frac{1}{4}$  NE- $\frac{1}{4}$ ; NW- $\frac{1}{4}$  SE- $\frac{1}{4}$  NE- $\frac{1}{4}$ ; SE- $\frac{1}{4}$  NE- $\frac{1}{4}$  NE- $\frac{1}{4}$ ; NE- $\frac{1}{4}$  SE- $\frac{1}{4}$  NE- $\frac{1}{4}$  of Section 7, Township 24 North, Range 12 East, M.D.M.

NW- $\frac{1}{4}$  NW- $\frac{1}{4}$  NW- $\frac{1}{4}$ ; S $\frac{1}{2}$  NW- $\frac{1}{4}$  NW- $\frac{1}{4}$  NW- $\frac{1}{4}$ ; SW- $\frac{1}{4}$  NW- $\frac{1}{4}$  NW- $\frac{1}{4}$ ; N $\frac{1}{2}$  NW- $\frac{1}{4}$  SW- $\frac{1}{4}$  NW- $\frac{1}{4}$  of Section 8, Township 24 North, Range 12 East, M.D.M.

S $\frac{1}{2}$  SW- $\frac{1}{4}$  SW- $\frac{1}{4}$  SW- $\frac{1}{4}$  of Section 32, Township 25 North, Range 12 East, M.D.M.

Containing 108.22 acres.

The following patented lode mining claims:

Copper Center; Copper Center Extension; Bullion; Bullion Extension; Rob; Rob Extension; Walker; Walker Extension; Valley View; Valley View Extension; designated as Survey 4865.

Reliable Extension; Standard; Pacific Nos. 1, 2, 4, 5, 6, 7 and 8; Panama Nos. 1, 2, 3, 4 and 5; Digger, Piute Nos. 1, 2 and 3, designated as Survey No. 5582-A.

September Morn Nos. 1, 2, 3, 4 and 5, designated as Survey No. 5948.

Sioux, designated as Survey No. 5953.

The following unpatented lode mining claims:

Reliable; Standard Extension; Grizzly; Grizzly Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10; Grizzly Numbers Eleven and Twelve; Pacific No. 3, Pacific Nos. 9, 10, 11, 12 and 13; Dolly Gulch Placer, designated as Survey No. 5582A.

Two Pounder; Three Pounder; Red Bird No. 1; Red Bird No. 13; Panama No. 6, designated as Survey No. 6137.

Panama No. 7; Plumas; Plumas Nos. 1, 2, 3 and 4; Plumas No. 5 Fraction; Plumas No. 6 Fraction; Plumas Nos. 7, 8, 9 and Plumas Extension; Red Bird No. 3; Red Bird Nos. 7, 8, 9, and 10; Four Pounder; Five Pounder; Seven Pounder; Eight Pounder; Nine Pounder; Ten Pounder; Eleven Pounder; Twelve Pounder; Thirteen Pounder; Fourteen Pounder; Fifteen Pounder; Seventeen Pounder; Nineteen Pounder; Twenty-one Pounder; Twenty-three Pounder; Twenty-four Pounder; Twenty-five Pounder; Twenty-six Pounder; Twenty-seven Pounder; Twenty-eight pounder; Twenty-nine Pounder; Scot Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40; York Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22; Victor Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 29, 30, 31, 32, 33, 34, 35, 35, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80; Shoshone No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50; Dolly #1, Dolly Nos. 2, 3, 4; Annex Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21; Annex Nos. 22, 23, 24, 25, 26, 27, 28; Add Extension; Add Nos. 1, 2, 3, 4, 5, 6; Add 7; Add 8; Add 9; Add 10; Add 11; Add 12; Add 13; Add 14; Add 15; Add 16; Add 17; Add 18; Add 19; Add 20; Add 21; Add 22; Add 23; Add 24; Add 25; Add 26; Add 27; Add 28.

Together With such interest, if any, as the undersigned may have in and to the timber standing on the patented lands referred to in the foregoing description.

The above is sold without any warranty whatsoever by the undersigned except for the representations first hereinabove contained and is subject to all conditions, covenants, easements, reservations, liens and claims of record.

Dated: This 20 day of September, 1946.

R. P. Wilson

R. P. Wilson

State of California )  
                                  ) ss.  
County of Plumas     )

On this 20 day of September, A.D. 1946 before me, Leon L. Clough, a Notary Public in and for said County and State, residing therein, duly commissioned and sworn, personally appeared R. P. Wilson, known to me to be the person whose name is subscribed to the within instrument, and acknowledged to me that he executed the same as Grantor.

In Witness Whereof, I have hereunto set my hand and official seal the day and year in this Certificate first above written.

(Seal)

Leon L. Clough, Notary Public in and for the County of Plumas, State of California. My Commission Expires January 29, 1947.

No. 869. Recorded at Request of Plumas County Abstract Co. September 20, 1946, at 15 min. past 3 P. M.

Ida E. Hogan, Recorder.

COMPARED

L. O. Gray et ux ) Deed  
to ) September 14, 1946  
Wilbur C. Batson et ux )

This Indenture, made the 14th day of September, 1946, between L. O. Gray and Wynette A. Gray, his wife, of Greenville, California, the parties of the first part, and Wilbur C. Batson and Bertha I. Batson, his wife, of the same place, the parties of the second part,

Witnesseth: That the said parties of the first part, in consideration of the sum of Ten (\$10.00) Dollars, lawful money of the United States, to them in hand paid by the said parties of the second part, the receipt whereof is hereby acknowledged, do by these presents grant, bargain and sell unto the said parties of the second part, in joint tenancy and to the survivor of them, and to the heirs and assigns of such survivor forever, all those certain lots, pieces or parcels of land situate in the Town of Greenville, County of Plumas, State of California, described as follows, to-wit:

Parcel 1:

Portion of Lot 6, of Block 3, of the said Town of Greenville, as said lot and block are designated on the Official Plat of said Townsite, now on file as of record in the office of the County Recorder of the County of Plumas, described as Beginning at the Southwest corner of said Lot 6 and running thence back at right angles to Main Street 212 feet to the Northwest corner of said Lot 6; thence Northeasterly and parallel to Main Street 91.5 feet to the "Barn Lot" fence; thence Southeasterly 212 feet, more or less, to the North line of Main Street; thence Southwesterly along the North line of Main Street 95.5 feet to the place of beginning.

Parcel 2:

Portion of Lot 17 of Block 3, of the said Town of Greenville, as said lot and block are designated on the Official Plat of said Townsite, now on file as of record, as aforesaid, particularly described as Beginning at the Northwest corner of said Lot 6 of Block 3 and running thence Northeasterly and parallel with Main Street 250 feet to the West line of Lot 8 of Block 3 (Greenville School Lot); thence Northwesterly along the West line of said School Lot 93 feet, more or less, to Upper Ditch; thence S. 55° 10' W. along said Upper Ditch 257 feet; thence S. 49° 30' E. 157 feet to the place of beginning.

Together with all and singular the tenements, hereditaments and appurtenances thereunto belonging or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof.

Subject to a certain lease, dated the 9th day of July, 1946, between L. O. Gray, as lessor, and Mr. and Mrs. H. A. Van Fleet, as lessees.

To Have And To Hold the said premises, together with the appurtenances, unto the said

Plumas Land Company )  
a corporation )  
Plumas Lumber Company )  
a corporation )

Deed  
March 13, 1947

THIS INDENTURE made this 13th day of March, 1947, by and between PLUMAS LAND COMPANY, a corporation, hereinafter called the Party of the First Part, and PLUMAS LUMBER COMPANY, a California corporation, hereinafter called the Party of the Second Part,

W I T N E S S E T H:

That the Party of the First Part in consideration of the sum of Twenty-five Thousand Dollars (\$25,000.00), lawful money of the United States, to it in hand paid by the Party of the Second Part, the receipt whereof is hereby acknowledged, does by these presents grant, bargain, sell and convey to the Party of the Second Part and to its successors and assigns forever, all of the timber and trees standing or growing in and upon the following patented lands:

Lot 6; SW 1/4 NW 1/4 NW 1/4 NW 1/4; NW 1/4 SW 1/4 NW 1/4 NW 1/4; and SW 1/4 SW 1/4 NW 1/4 NW 1/4 of Section 5, Township 24 N., Range 12 E., M. D. M.

SE 1/4 SE 1/4 NE 1/4 NE 1/4 of Section 6, Township 24 N., Range 12 E., M. D. M.  
NE 1/4 NE 1/4 NE 1/4 NE 1/4; S 1/2 NE 1/4 NE 1/4 NE 1/4; S 1/2 NW 1/4 NE 1/4 NE 1/4; SE 1/4 NE 1/4 NW 1/4 NE 1/4; E 1/2 SE 1/4 NW 1/4 NE 1/4; E 1/2 NE 1/4 SW 1/4 NE 1/4; SW 1/4 NE 1/4 NE 1/4; NW 1/4 SE 1/4 NE 1/4; SE 1/4 NE 1/4 NE 1/4; NE 1/4 SE 1/4 NE 1/4 of Section 7, Township 24 N., Range 12 E., M. D. M.

NW 1/4 NW 1/4 NW 1/4 NW 1/4; S 1/2 NW 1/4 NW 1/4 NW 1/4; SW 1/4 NW 1/4 NW 1/4; and N 1/2 NW 1/4 SW 1/4 NW 1/4 of Section 8, Township 24 N., Range 12 E., M. D. M.

S 1/2 SW 1/4 SW 1/4 SW 1/4 of Section 32, Township 25 N., Range 12 E., M. D. M.

All in Plumas County, California - contains 108.22 acres; and on the following patented lode mining claims:

Copper Center; Copper Center Extension; Bullion; Bullion Extension; Rob; Rob Extension; Walker; Walker Extension; Valley View; Valley View Extension ( designated as Survey No. 4865).

Reliable Extension; Standard; Pacific Nos. 1, 2, 4, 5, 6, 7 and 8; Panama Nos. 1, 2, 3, 4 and 5; Digger; Piute Nos. 1, 2 and 3. (designated as Survey No. 5582A) September Morn Nos. 1, 2, 3, 4 and 5, ( designated as Survey No. 5948). Sioux ( designated as Survey No. 5953).

TOGETHER WITH the right of ingress and egress in, to, upon and from said land for the Party of the Second Part, its agents, employees, teams, vehicles and appliances, for the purpose of cutting and removing said timber at any time within twenty (20) years from the date of the execution of this indenture, together with the exclusive right at any time hereafter to build, maintain and operate a sawmill upon said land to build and operate any roads, railroads or other contrivance for transporting timber from any of the lands above described within twenty (20) years from the date of the execution of this indenture.

TO HAVE AND TO HOLD the above described timber, trees, rights, privileges, right-of-way, with all and singular the rights and appurtenances thereto, to the Party of the Second Part, its successors and assigns.

The Party of the Second Part shall conduct its operations in accordance with established practice prevailing in that region in conformity with state and federal law and regulations pertaining thereto.

The Party of the First Part shall not be held liable for any debts or losses resulting from labor or otherwise which shall or could arise from the operations of the Party of the Second Part, and if Party of the First Part wishes it may deliver to the Party of the Second Part notices of non-responsibility which the Party of the Second Part agrees to post and maintain on the premises.

This conveyance is subject to the obligation on the Party of the Second Part to run such boundary and survey lines as may be necessary to its operations on these lands and the further obligation to hold the Party of the First Part harmless and free from all liability which might arise by reason of said operations within the boundaries of the property hereinabove described.

IN WITNESS WHEREOF, the Party of the First Part has executed these presents the day and year first above written.

( \_ \_ )

PLUMAS LAND COMPANY

By Coleman Burke Secretary

State of New York )  
County of New York ) ss.:

On this 13th day of March, 1947 before me, the undersigned, a notary public in and for the said County and State, personally appeared COLEMAN BURKE, known to me to be the Secretary of PLUMAS LAND COMPANY, the corporation that executed the within instrument on behalf of the corporation herein named, and acknowledged to me that such corporation executed the same.

WITNESS my hand and official seal.

(SEAL)

Marjorie E. Sickinger, Notary Public in and for said County and State  
Marjorie E. Sickinger, Notary Public, Westchester County New York County Clerk's No. 1385 New York County Register's No. 1226-S-7  
Term Expires March 30, 1947

No. 1776 Recorded at Request of R. P. Wilson March 5, 1948 at 45 Min. past 9 A. M.,  
Ida E. Hogan, Recorder.

COMPLETED

Luella Parcher Herrin et al ) Deed  
to ) March 4, 1948  
E. B. Bangston et ux )

THIS INDENTURE, made the 4th day of March, 1948, between LUELLE PARCHER HERRIN and E. B. BANGSTON, both of Quincy, California, the Parties of the First Part, and E. B. BANGSTON and FAYE BANGSTON, his wife, of the same place, the Parties of the Second Part,

W I T N E S S E T H:

That the said Parties of the First Part, in consideration of the sum of Ten Dollars (\$10.00) lawful money of the United States of America, to them in hand paid by

WALKER MINE

The On-Going Effort To Improve the Environment

The continuous charge by the Water Quality Control Board that the owners and operators of Walker Mine have done nothing for 28 years to abate the pollution of Grizzly Creek is totally inaccurate, misleading and capricious as the chronological record will reveal. Let's examine that record.

1928 Anaconda created an evaporation pond and constructed a ditch around the tailings pond so the effluent could first go through a process of sedimentation and then be channeled to the side of the tailings pond rather than picking up toxicity by going through it. This procedure was followed until the Anaconda shut down in 1942 and was operative for several years thereafter.

1942 During this period, the tailings dam on U.S. Forestry property to  
1959 broke - and the carefully constructed diversionary ditches which Anaconda had built broke their banks and water freely went through the tailings pond picking up toxicity. The U.S. Forestry were notified by the newly created California Water Control Board and did nothing about reconstituting the diversionary ditches or in re-constructing the dam so water continued to be toxic to the extent it would not support a fishery.

1960 Before the Porter-Cologne Act S 13305 was passed, the owners of Walker Mine re-created settling ponds, and re-created ditches around cave-ins to reduce toxicity. We have pictures taken and a report by C.D. Barnes of Oroville substantiating the effort made. At this time there was no penalty and the owners

proceeded with due dilligence although the Forestry did nothing to repair the dam.

1960 Commenting on what the owners had done, L. E. Trumbell wrote to Col. J. S. Gorlinski, the chairman of the California Water Control Board on 6/10/60:

"There is ample evidence . . . mine operators found it prudent to carefully divert water around the glory hole area . . . "

1961 L. E. Trumbell to Col. J. S. Gorlinski 8/4/61: "Currently excellent water conditions in Little Grizzly Creek."

1962 L. E. Trumbell to Col. J. S. Gorlinski 8/20/62: "Walker Mine drainage has stopped . . . coupled with a year of normal precipitation. Trout survived winter and spring in all parts of Grizzly Creek."

During ensuing years, a substantial cave-in occurred and several years may have been taken to fill up the mine until water began to flow from the ventilator shaft several hundred feet above the main portal.

Darrell Payne, County Surveyor-Engineer, wrote on 6/16/69:

"It would be a simple matter to prevent at least 95% of the upper runoff from entering the mine shafts ~~and~~ and glory holes by reconstructing diversion ditches and furrows thereby directing the runoff and away from the mine entrance. Little Dolly Creek below the mine site should then be sufficient to dilute what minor amounts occur from underground seepage within the mine workings."

1969 Noranda Report: During 1969, Norandex constructed several ditches around <sup>A</sup>te surface subsidences near Piute and Discovery Shafts. This action diverted all visible surface water away from the underground workings, and a noticeable decrease in in discharge flow was observed several days later.

1970 Noranda Mining Engineer Frank Condon 12/14/70: "CWQCB have made no recommendations to avert the pollution - and admit there may not be a feasible solution to the problem. I presented Norandex Program and they were impressed. They asked that the stipulations concerning cooperative government approval be removed."

#### The Plan By Norandex

- 1) Ditch diversion - needing U.S. Forest and Plumas County Road Department cooperation.
- 2) Opening the portal (which had caved) to the 712 orebody to reduce toxicity for which they needed Fish & Game cooperation for a temporary stay of pollution standards.
- 3) Construction of settling ponds to lessen the sudden rush of water in opening the portal.
- 4) Maintenance of diversionary ditches near Piute and Old Discovery Shafts.

1971 Norandex Report (page 22):

and

1972

"Norandex offered to put pollution plans into effect, but was rebuffed by a threat from Fish & Game to the effect that they would be liable for \$6,000/day fine if the process caused pollution . . . of Grizzly Creek."

Norandex, a Canadian based company, had great difficulty in equating the harsh requirements and rhetoric with nothing being done by the U.S. Forestry when they judged that an equal or more pollution was caused by failure to repair the tailings

dam and diversionary ditches around the tailings.

1973 The owners of the mine engaged Dr. Frederick Kruger, Dean of the School of Mines, Stanford University, to advise them.

His report of 12/4/73: Following two measure would greatly reduce the flow, and possibly reduce concentration of copper, zinc and sulfate:

- 1) Bulldoze diversion ditches around old mine workings . . . much oxidation and leaching can be prevented.
- 2) Repair 'windrowed' settling area so it can suspend solids before discharging into Dollie Creek.

The following two measures by the U.S. Forestry are necessary:

- 1) Divert natural drainage of creek around old tailings pond to prevent it from becoming a leachant, etc.
- 2) Repair tailings dam at end of tailings pond so that fine grained tailings cannot be eroded and washed downstream into Little Grizzly Creek.

During this year, the owners also hired Jones & Stokes Associates, prominent fish consultants, who advised them:

"The normal numbers of adult trout in Little Grizzly may be 100 to 300 per mile - where people like to fish it amounts to 50 user days per mile per year. The amount of money value is not great - if 100 catchable fish per mile there are 1000 catchable fish at 1/4 lb. or 250 lbs. worth \$250 at the hatchery and \$1250 in the stream."

1974 The owners were introduced by Dr. Kruger to William McClung, a mining engineer with considerable experience with toxic mine drainage, who concurred in Nornada's evaluation to drain the mine and possible cut off or divert the underground water at its point of entry into the mine. This was almost complete when The CWQCB obtained an injunction to halt further progress, but the owners were able to convince the court of the folly of CWQCB's challenge and draining the mine continued. (See

Feather River Bulletin article of Nov. 14, 1974.)

The owners also began a two year systematic clean up of 40 acres of mining camp that was cluttered with metal debris that was partially causing the drain off water to become toxic.

1975 Mine was retimbered 500 feet and a pipeline was constructed at the portal to channel the water from the mine to cement tanks. Railroad tracks were replaced at mine entrance to provide access for further cleaning the tunnel.

1976 Pipeline was buried and two settling tanks were activated to settle water before tin-tank operation commences. Underground machinery acquired and constructed for further clean-out. An interior settling pond within the mine was constructed.

Amax was now the operator and cleaned the flumes inside the mine and reconstructed the tunnel up to the next cave-in.

1977 Amax timbered and cleaned out a major cave-in at the 900 ft. level.

By November 24th, the water volume had been reduced to 15 gallons per minute.

Amax reconstructed tunnel to 1000 ft and covered their earlier construction with earth.

1978 Conoco is now the mine operator and cleaned the tunnel to 1500 ft., and constructed a settling pond of a larger dimension. Conoco also constructed a new pipeline from the settling pond to below the mine property entrance. They further diverted flume water away from general drainage area to the settling pond.

1979 Conoco, with a 4 to 6 man crew, worked extensively to clean out the tunnel, replaced 12" pipe with 30" pipe to avoid washouts, repaired snow shed, and constructed an airline for use in further cleaning of the tunnel. During this time, the owners were constructing a mine trammer for use in tunnel work.

1980 Conoco had spent \$85,000 on the portal and settlement ponds when the CWQCB put a stop order on further finishing of the pond when it was 95% complete. (Conoco totally cancelled their plans even though they were in the process of making a show place complete with landscaping.) Mr. William Crooks, Executive Director of the CWQCB, stated to Conoco water specialists that "the tailings don't contribute to pollution in any appreciable way." This was disputed by Conoco's water specialist and is contrary to the earlier advice given by Dr. Kruger, Dean of the School of Mines, Stanford University, and by Amax engineers and Noranda engineers, and the owner's consultants.

1981 Instead of proceeding with Dr. Kruger's policy and Conoco's planned operation for abating pollution, the CWQCB sent their engineer Frank Pearson to advise, and channels were constructed by the owners and Conoco to his design. Pearson was working on a process for water treatment that he claimed was economically feasible and his pilot project was put in operation.

1982 Pearson's plan was finally produced in a form not understandable to the average mining engineer, but costing-out the project proved far too expensive for implementation.

1983 Property owners entered into a contract with Triad Minerals to mine the water to acceptable standards. This contract was never implemented because the CWQCB brought a law suit against the owners.

There was also proposed and in the designing stage by water consultants and engineers another plan which also was arrested by the untimely law suit brought by the CWQCB.

1984 The mine is now operated by SBC Corporation International formerly the Standard Bullion Corporation of Salt Lake City. The owners have a plan and the operators have a plan that will abate the pollution using a technique developed by the Canadian government to extract metals from polluting mine streams. They are currently negotiating for such a plan to become operative. Prior to instituting such a plan, the owners and operators filed with the CWQCB to lower the standards required by the CWQCB to that of drinking water standards set by the national Environmental Protective Agency (NPDES). The regional board turned down this request, and the owners and operators have appealed the decision to the State Water Resources Board stating that the action of the regional board was arbitrary, misleading, capricious and contrary to law.

The water from Walker Mine is drinkable in its natural state as it flows from the portal, and contains many minerals found in purchased mineral water for human consumption, or found on the label of many favorite cereals where minerals are put back into grain for health purposes.

Pollution Problems: During the 1916-1941 period of operation of the Walker Mine by Anaconda's subsidiary, the tailings from the flotation plant flowed down Dolly Creek to Grizzly Creek, where they were dammed to form a pond many acres in extent. The trees which were inundated were killed. These dead snags together with the barren tailings form an unsightly area, which although it is on Forest Service lands, calls attention to past mining activity, and focusses attention upon the present effluent from the mine.

For perhaps the last ten years there have been complaints of fish kill in Grizzly Creek. Investigations have shown two sources of pollution. First, the most obvious, but perhaps the least offensive, is the drainage from the Seventh Level adit. This drainage from the portal of the mine reaches a maximum estimated flow of 150 gallons per minute during the peak of runoff from melting snow in the Spring, and diminishes to 30 gallons per minute during the summer. This outflow may be decreased by ditching around the old mine workings to prevent the inflow of surface waters. The pH of the water may be as acid as 3.7, and the content of copper may be as high as 22 parts per million. However, a few hundred yards down stream the copper content may be less than 2 parts per million.

Second, the least obvious, but probably the largest contributor of acidity and heavy metals to the waters of Grizzly Creek, is the leaching of the tailings pond. This has been lessened by diverting the waters of Dolly Creek and Grizzly Creek around the tailings, but the diversion has not been maintained and so the waters percolate through the tailings and pick up polluting acid and heavy metals. The old scars of mining have become overgrown and camouflaged by vegetation so that they have not been mentioned as yet as a form of "visual pollution."

#### POTENTIAL OF THE WALKER MINE

From a geological viewpoint the Walker Mine has potential for the development of additional ore reserves, both for underground and for surface mining.

Ore in Depth on the Shear Zone: Anaconda, the operating company during the 1917 to 1941 period of production, encountered the multiple problems of heavy ground, flattening dip, increased pumping, and increased hoisting from the lower levels of 1000 and 1200 feet, and therefore did not pursue the

WALKER GOLD-COPPER MINE

PLUMAS COUNTY, CA

INTRODUCTION

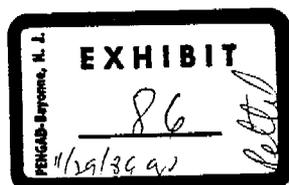
At the request of Mr. Robert Barry available historical and technical records of his Walker gold-copper mine, Plumas County, California have been reviewed and summarized. Intent has been to describe and rank both short and long term targets for additional exploration and development. The information used has been drawn from the records in Mr. Barry's possession as well as several brief personal examinations carried out over the past several years.

SUMMARY

The Walker mine was operated semi-continuously by the Anaconda Company between 1923 and 1942 and produced 5,300,000 tons of ore grading 1.55 percent copper, 0.70 opt silver and 0.04 opt gold. The operation was closed in 1942 due to the combination of rising costs and labor shortages because of the war effort.

Mineralization at Walker occurs within a lenticular quartz zone hosted by Jurassic metasediments and metavolcanics. The zone is up to 75 feet thick and has been traced and developed along a strike length of 8000 feet and through a vertical range of about 1200 feet. The developed ore shoots remain open to depth below the existing workings and along strike to the north where they pass under Tertiary volcanics. Blocked underground reserves, as estimated by Anaconda at closure of the mine, are on the order of 1,200,000 tons at historical grades.

The Walker mine property contains a number of near and longer term exploration and development targets. The Piute zone, a low risk geologic target for one to two million tons of near-surface ore averaging 0.06 opt gold, offers best opportunity for near term development if amenable to heap leaching. Potentially enhanced gold grades in other, near-surface portions of the main Walker quartz zone, and in less explored parallel zones elsewhere on the property, offer more speculative but worthwhile exploration opportunities. Re-consideration of Walker's base metal potential, as a conventional underground mine at historical grades, a bulk tonnage open pit operation taking the main zone and flanking lower grade halo mineralization, or perhaps an in-situ leach do not appear very attractive under present economic conditions but represent longer term opportunities.



LOCATION AND PHYSICAL SETTING

The Walker mine is located at south end of the Plumas Copper Belt some 25 miles northwest of Portola, Plumas, County, CA (Figures 1&2). Claims specifically lie within Sections 5-8 incl., T24N, R12E; Section 12, T24N, R11E; Sections 7-8, 17-20 incl., and 29-32 incl., T32N, R12E; and Sections 11-14 incl., 23-26 incl., 35-36 incl., T25N, R11E MDM.

Access is via State Route 70 two miles east from Portola and then by paved or well maintained gravel road up Grizzly Creek, by Lake Davis, about 25 miles to the property.

Terrain and physical setting are typical of the Sierra with elevations at the mine site of 6500 to 7000 feet. Property lies in a heavy snow belt and has an average operating season of mid April through early December.

PROPERTY AND OWNERSHIP

Thirty-four patented mining claims	687 acres
Mill and townsite patents	108 acres
Three hundred forty-seven unpatented claims	<u>7169</u> acres
	Total 7964 acres

Owned by Mr. Robert R. Barry  
PO Box Y  
Rancho Mirage, California 02270

MINING HISTORY

1905 Discovery.

1910 Initial development by Walker Mining Company.

1916-20 Acquired by International Smelting (Anaconda subsidiary). 700 level adit x-c driven and principal orebodies developed. 75 tpd mill constructed and minor production.

1923-42 500 tpd flotation mill constructed. Principal operating period by International Smelting. Production 5,300,000 tons grading 1.55% Cu, 0.70 opt Ag, 0.04 opt Au.

POST-MINING HISTORY

1946 Acquired by Robert Barry.

1969-70 Noranda. Target; bulk tonnage copper-gold. Work included mapping, geochem, geophysics, 11 core holes.

1976-77 AMAX. Target; extension of main copper gold zone under volcanics to north. Work included 3 core holes.

- 1979-81 Conoco. Targets; extensions of main zone at depth and to north under volcanics, parallel "exhalite" zones. Re-interpreted mineralization as volcanogenic. Work included surface surveys and 11 core holes.
- 1985 Standard Bullion Company/Century 2000. Limited assessment of gold potential of Piute Zone.

#### MINE DEVELOPMENT, EXISTING FACILITIES AND RECORDS

The Walker mine is developed by a 3600 foot long adit crosscut and 8000 foot haulage drift at the 700 level and an internal shaft to 1200 feet. The 700 level crosscut and drift have been re-opened and maintained in excellent shape. They are accessible by tram to the vicinity of the Central orebody and internal shaft station. Much of the remainder of the 700 level to the North, 712 and Piute orebodies is accessible on foot. The mine is flooded below the adit level. Parts of the mine above the 700 can be entered through raises and stopes from the adit level and limited surface workings. In particular, the Piute shaft and first level are open and partially accessible for examination and sampling.

The mill was dismantled and sold years ago. However, remaining surface buildings and equipment are in good shape. All of the drill core remains neatly stored on site. Extensive historical records, including the modern exploration data of Noranda, AMAX, and Conoco, are available at Mr. Barry's Redwood City residence.

#### GENERAL GEOLOGY OF THE MINE PROPERTY

The Walker claims are principally underlain by a five mile long belt of Jurassic metasediments and metavolcanics overthrust by Paleozoic sediments on the west and intruded and terminated by Nevadan granite to the north and south. Tertiary volcanics cap the older rocks, including north and south extensions of the mineralized quartz zone, over most of the east half of the property (Figures 2&3).

The Jurassic units include schists that are probably derived from intermediate to felsic tuffs and agglomerates. They strike consistently north-northwesterly and dip steeply west except in the mine area where dips are reversed to the east. Conoco interpreted the quartz-sulfide-magnetite zone hosting the Walker gold-copper orebodies as an exhalite unit in the volcanic assemblage and there is a good deal of evidence to support their conclusions (general geologic environment, conformability of mineralized zone to enclosing rocks, remarkable continuity along strike and down dip, quartz-sulfide-magnetite association). Although debate over whether the deposit is an epigenetic vein or synvolcanic has little impact upon assessment of the direct targets, a synvolcanic origin could suggest a more attractive longer term exploration potential for significant gold or polymetallic mineralization.

Detailed descriptions of the geologic setting at Walker, and more detailed arguments for volcanogenic origin of the mineralization, are available in numerous Conoco reports.

#### ORE DEPOSITS AND MINERALIZATION

The Walker gold-copper deposits are lenticular "veins" consisting of massive chalcopyrite-pyrite seams and stringers in a granular quartz gangue with locally heavy magnetite. The veins are essentially conformable with the enclosing schists, strike north-north-westerly and dip variably east. Ore shoots rake directly down dip. Where examined in the field, particularly the Piute area, footwall of the quartz zone is sharp against an unmineralized sericitic schist. Hangwall is more gradational through variably silicified and mineralized quartz-mica schist.

The main mineralized zone has an overall strike length, developed by underground workings, of 8000 feet with a little under half this length "making ore" in six distinct shoots. Developed slope length is 1200 feet. Thickness of the quartz zone itself varies up to 75 feet but overall widths of mineralized, or potentially mineralized, silicified rock are up to 200 feet.

Following is a tabulation of ore shoot dimensions taken from Anaconda's historical records.

<u>Ore Shoot</u>	<u>Length (Ft)</u>	<u>Mineable Thickness (Ft)</u>	<u>Slope Length (Ft)</u>
South	250	20	300
South Hangwall	400	6	200
Central	800	30	700
North	1200	40	700
712	200	35	600
Piute	800	60	500

These dimensions, and historical production, suggest an overall ore incidence of about 11,000 tpmf, certainly impressive for this style of mineralization.

Level of oxidation has not been determined throughout the zone but sulfides are apparent in shallow workings below Pit 3 in the Piute area (Figure 4). The effect of sulfides and oxide copper on leach characteristics of the near surface gold ore is not adequately known at this time.

A number of similar quartz zones have been identified west of the Main Walker zone in its structural footwall, and to the north where

the favorable Jurassic host rocks reappear beyond volcanic cover. These zones are poorly known and require more extensive prospecting.

#### GOLD EXPLORATION - SHORT TERM TARGETS

Piute Gold Zone - The Piute area is most northerly segment of the Main Walker Zone. It has been exposed at surface by trenching for a length of 600 feet and developed underground for about 1000 feet. Gold values on surface average 0.059 opt across an exposed horizontal width of 35 feet (Figure 4). Historical sample data on the first level, at a vertical depth of 105 feet, average about 0.06 opt gold across 40-50 feet if low grade footwall material is excluded (Figure 4a). The zone above this level appears to be mostly intact. Impact of historical mining at greater depth is not known although stoping records may be available in Mr. Barry's files.

These data suggest a probable surface mineable deposit of 350,000 to 450,000 tons to 100 feet. Lower grade hangwall mineralization in the .03 to .04 range can't be accurately measured on basis of present information but could significantly increase contained ounces and reduce stripping costs. The occurrence appears to be open in both strike directions. From the information at hand I believe an ultimate surface mineable deposit in the 1-2 million ton range at a grade of 0.06 opt gold is a realistic expectation at Piute.

Geologic confidence in the Piute gold zone is high. However, sulfides occur at fairly shallow depths and metallurgical characteristics are much more questionable. A 72 hour bottle roll test on oxidized ore from the shaft outcrop, crushed to  $-\frac{1}{4}$ ", yielded a 76 percent recovery with moderate reagent consumption but sulfide-rich material from workings off the No. 3 pit yielded poor recoveries and had high cyanide consumptions. More work is required to determine metallurgical characteristics of the Piute ores.

Walker Vein Zone South of Piute - The surface trace of the Walker Vein Zone is intermittently exposed for a length of 4500 feet between the Piute area on the north and the Central mine area to the south where it again passes under volcanic cover (Figures 2&3).

Surface assay data is limited to a few reconnaissance-type samples which confirm anomalous gold where expected (Figure 3). Anaconda assay plans for shallow workings on the North, South and 712 ore shoots provide more information on potential gold grades. The following data represent simple arithmetic averages of Anaconda samples.

<u>Ore Shoot</u>	<u>#Assays</u>	<u>Est. Thick.</u>	<u>Strike Length</u>	<u>Ave. Gold</u>
North	41	±20'	1050'	0.034
South	28	?	1450'	0.044
712	38	?	820'	0.022

These grades are certainly modest but do suggest the surface remnants of the entire zone above historical workings represent a reasonable target for more detailed work. Impact of former mining operations is not known but, if the Piute is typical, considerable surface pillars are probably intact.

The Central Zone is partially exposed in the series of pits shown on Figure 5. Vein here appears to run about 0.035 opt gold with ±3.0 opt silver. Thickness can't be determined from surface exposures.

A 72 hour bottle roll on vein material crushed to  $-\frac{1}{4}$ " from the shaft outcrop yielded 73% and 59% recoveries respectively for gold and silver suggesting oxidized ores are probably leachable. However, depth of oxidation is not known.

Other Zones - Conoco's geological mapping of the entire Walker property defined other vein zones and iron formation both west of the Walker zone in its footwall and to the north where the Jurassic rocks are again exposed beyond volcanic cover. Apart from a few drill holes, prospecting and exploration of these zones has been very limited. They certainly represent less direct but reasonable exploration targets for precious metal or polymetallic base/precious metal mineralization.

#### BASE METAL EXPLORATION - LONG TERM TARGETS

Underground Copper Gold - Mineable reserves blocked out by Anaconda at mine closure in 1942 are 1,200,000 tons grading 1.55% copper, 0.70 opt silver, and 0.04 opt gold. Reserves in all categories were estimated to be 3,000,000 tons at like grades. Much of the mineable reserve is tied up in pillars and on fringes of old stopes and, after 40 years, may not be recoverable at realistic cost.

Anaconda's closure of the mine in 1942 reflected current economic conditions and was not because reserves were exhausted. In fact, there is nothing to indicate the known ore shoots have bottomed and I think one can reasonably predict maintenance of the historical ore incidence of 11,000 tpfv below the existing workings. Apart from two very deep holes by Conoco (respectively 1000 and 1500 feet below the 1200 level) I'm not aware of any drilling below the developed ore shoots, although anyone seriously interested in this target should research the Anaconda records in more detail.

Potential extension of the Walker zone to the north under volcanic cover has been a target of Noranda, AMAX, and Conoco during their exploration programs. However, these efforts have been limited to geophysics followed by only five drill holes, two of which did not get through the volcanics. Considering fact that a new blind ore shoot north of the Piute was discovered and only partly developed at the time of mine closure I'd say chances of developing additional deep underground ore to the north are almost certain. However, in my view, surface exploration in this area, as well as to depth, is probably unrealistic. Effective work is likely going to have to be carried out as part of a major and expensive underground program.

Low Grade Halo Ore - Conventional Open Pit - Potential for developing a large tonnage, low grade copper (gold) deposit by taking the entire Walker Zone was considered and partially tested by Noranda and others. Target here is a tabular zone with a strike length of about 8000 feet, and widths of  $\pm 200$  feet, capable of generating a deposit on the order of 30 million tons to a depth of 200 feet. Possible grade, as indicated by material in pillars and crosscuts, has been estimated at about 0.70% copper and, say, 0.02 opt gold. However, the few drill holes testing this idea are not so encouraging. The best, WM-1, averaged only 0.46% Cu along 170 feet.

Low grade, open pit copper (gold) target at Walker is not very attractive under current conditions but does constitute a potentially significant future resource.

Low Grade Halo Ore - In Situ Leach - Natural leaching of copper mineralization above the 700 level at Walker suggests that in-situ leaching is a possible option for eventual development of the copper reserve. Because of its attractiveness, both in terms of capital requirements and environmental acceptance, it is an option that should be seriously considered when economics of copper improve. However, at this time we have no hard data regarding efficiency or economy of the process on a significant operating scale.

#### CONCLUSIONS

The Walker mine in Plumas County, California is a major historical producer of copper and gold which was operated semi-continuously by Anaconda between 1923 and 1942. Overall production has been 5,300,000 tons of ore grading 1.55% copper, 0.70 opt silver, and 0.04 opt gold from a quartz-sulfide zone with a developed strike length of 8000 feet, known vertical range of 1200 feet and width up to 75 feet. The property has been explored by a number of major Companies in the 1970's and 80's all of whom considered copper as the principal target commodity.

Given current economic conditions in the mining industry, Walker should be re-evaluated for its considerable gold potential. In particular, the Piute segment of the Main Walker quartz-sulfide zone represents a direct target with good geologic evidence for one to two million tons of near surface ore averaging 0.06 opt gold which can be quickly tested at modest cost. Limited metallurgical test work indicates surface oxidized ores at Piute are leachable but more work must be done to determine extent of oxide zone and metallurgical characteristics of copper-bearing sulfide ores.

Remainder of the main Walker quartz-sulfide zone, representing about 7000 feet of known strike length, and poorly known footwall zones, constitute additional target areas for potential near surface gold deposits similar to Piute, or precious metals-rich polymetallic deposits.

The known copper resources at Walker have potentially important long term potential but are of little interest at current metal prices.

John Prochnau  
Consulting Mining Geologist  
Reno, Nevada

December 30, 1986

JP:cb

ADDENDUM

ENVIRONMENTAL MATTERS

There has been concern on the part of the California Water Quality Control Board over the past several years regarding acid waters draining the Walker Mine workings and entering Grizzly Creek. Despite considerable expense incurred during the past 20 years by Mr. Barry, and various lessees, in rehabilitating the 700 level adit and directing effluent into settling ponds, some pollutants continue to drain into Grizzly Creek and the CWQCB has unsuccessfully attempted to enforce a seal of the 700 level adit portal.

Such an action would seriously impact long term development of the mine but would not effect the near term development of the Piute area or other shallow gold targets which may be generated through additional exploration.

The status of actions between the CWQCB and Mr. Barry was not a part of this review. However, any serious party can be thoroughly advised of the situation through direct contact with Mr. Barry or his consultant, Mr. Peter Dohms of Condor Mineral Consultants, Sonora, California.

JP:cb

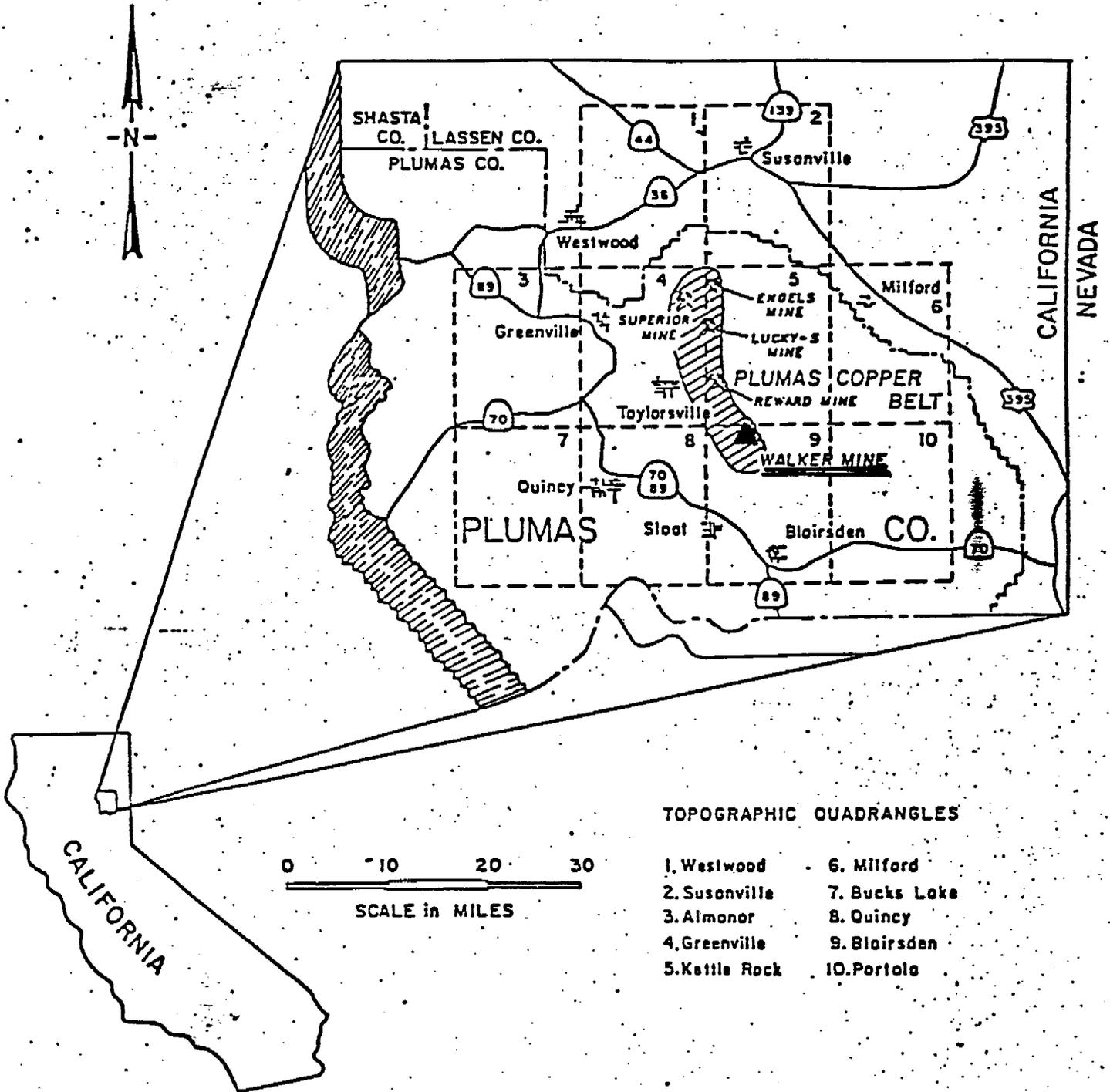
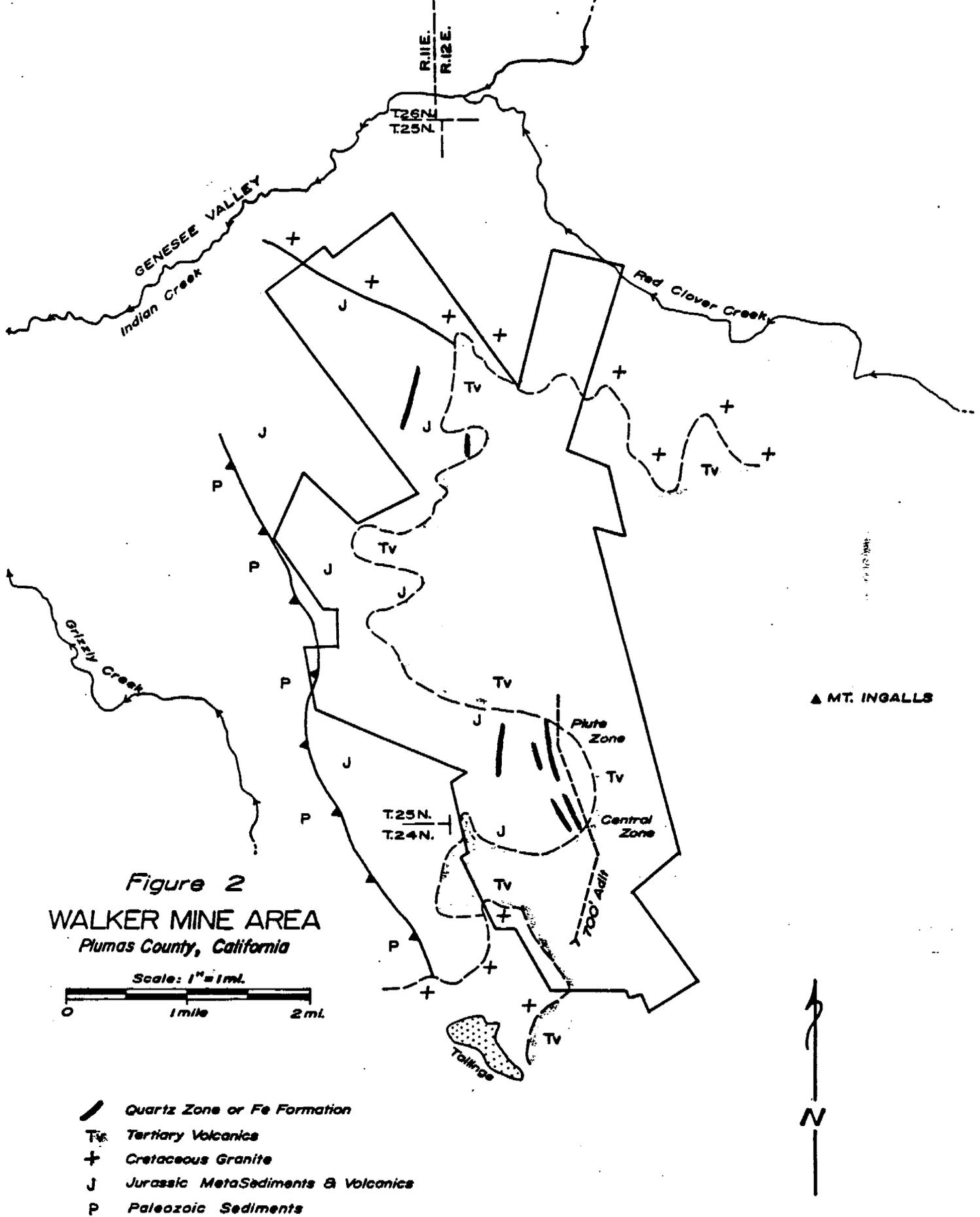


Figure 1  
Location Map  
Walker Mine  
Plumas County  
California



Base Map from: BLAIRSDEN & KETTLE FALLS 15' Quad.

500153

NOTICE OF LIEN FOR ABATEMENT OF  
POLLUTION AT NONOPERATING  
INDUSTRIAL LOCATION

(Water Code section 13305)

NOTICE IS HEREBY GIVEN by the California Regional Water Quality Control Board, Central Valley Region, ("Board") as follows:

1. The Board claims a lien, pursuant to the provisions of Water Code section 13305, in the amount of \$453,423.00 for a construction project abating a water pollution problem at the property known as the Walker Mine, located in Plumas County.

2. The Walker Mine property is more specifically described as follows:

In Township 24 North, Range 12 East, M.D.M.

Assessor Parcel No. 009-090-01, containing approximately 420.533 acres; No. 009-090-02, containing approximately 13.24 acres; No. 009-080-01, containing approximately 257.923 acres and No. 009-100-09, containing approximately 108.22 acres. These lands are contained within Township 24 North, Range 12 East, Sections 5, 6, 7, 8 and Township 25 North, Range 12 East, sections 19, 29, 30, 31, and 32 MDR&N.

3. The owners of record of the property are Robert R. Barry and the Calicopia Corporation, a Nevada Corporation.

4. The pollution-abatement construction project was carried out pursuant to the Board's duly adopted Resolution 86-

057 and the "Order Granting Entry to Property for Pollution Abatement", entered on July 9, 1986, by the Plumas County Superior Court in the action No. 11901, People of the State of California v. Robert R. Barry, Calicopia Corporation, et al.

5. Claimant's address is 3443 Routier Road, Sacramento, California, 95827-3098.

DATED: 27 January 1988

*William H. Crooks*

WILLIAM H. CROOKS  
Executive Officer

California Regional Water Quality  
Control Board, Central Valley  
Region

**5458**

RECORDING REQUESTED BY AND MAIL TO  
NAME Cal. Regional Water Quality Control Board  
STREET 3443 Routier Routier Rd.  
CITY & STATE Sacramento, CA 95827-3098

RECEIVED BY OF  
Water Quality Control Board  
DATE 25 1988  
AT 30 TIME 11  
VOL 475 PAGE 92  
Official Records  
PLUMAS CO., CALIFORNIA  
ILA ENG. REC'D  
FEE No Fee

EXHIBIT A

Description of the Mining Property

The following patented lands:

Lot 6, SW $\frac{1}{4}$  of NW $\frac{1}{4}$  of NE $\frac{1}{4}$  of NW $\frac{1}{4}$ , NW $\frac{1}{4}$  of SW $\frac{1}{4}$  of NW $\frac{1}{4}$ , SW $\frac{1}{4}$  of SW $\frac{1}{4}$  of NW $\frac{1}{4}$  of NE $\frac{1}{4}$  of Section 5, T24N, 12E, MDB&M

SW $\frac{1}{4}$  of SW $\frac{1}{4}$  of NE $\frac{1}{4}$  of NE $\frac{1}{4}$  of Section 6, T24N, R12E, MDB&M

NE $\frac{1}{4}$  of NE $\frac{1}{4}$  of NE $\frac{1}{4}$  of NE $\frac{1}{4}$ , S $\frac{1}{2}$  of NE $\frac{1}{4}$  of NE $\frac{1}{4}$  of NE $\frac{1}{4}$ , S $\frac{1}{2}$  of NW $\frac{1}{4}$  of NE $\frac{1}{4}$  of NE $\frac{1}{4}$ , SW $\frac{1}{4}$  of NE $\frac{1}{4}$  of NE $\frac{1}{4}$  of NE $\frac{1}{4}$ , E $\frac{1}{2}$  of SW $\frac{1}{4}$  of NW $\frac{1}{4}$  of NE $\frac{1}{4}$ , E $\frac{1}{2}$  of NW $\frac{1}{4}$  of SW $\frac{1}{4}$  of NE $\frac{1}{4}$ , SW $\frac{1}{4}$  of NE $\frac{1}{4}$  of NW $\frac{1}{4}$ , NW $\frac{1}{4}$  of SW $\frac{1}{4}$  of NE $\frac{1}{4}$ , SE $\frac{1}{4}$  of NE $\frac{1}{4}$  of NW $\frac{1}{4}$ , NE $\frac{1}{4}$  of SE $\frac{1}{4}$  of NW $\frac{1}{4}$  of Section 7, T24N, R12E, MDB&M

NW $\frac{1}{4}$  of NW $\frac{1}{4}$  of NW $\frac{1}{4}$  of NW $\frac{1}{4}$ , S $\frac{1}{2}$  of NW $\frac{1}{4}$  of NW $\frac{1}{4}$  of NW $\frac{1}{4}$ , SW $\frac{1}{4}$  of NW $\frac{1}{4}$  of NW $\frac{1}{4}$ , N $\frac{1}{2}$  of NW $\frac{1}{4}$  of SW $\frac{1}{4}$  of NW $\frac{1}{4}$  of Section 8, T24N, R12E, MDB&M

S $\frac{1}{2}$  of SW $\frac{1}{4}$  of SW $\frac{1}{4}$  of SW $\frac{1}{4}$  of Section 32, T25N, R12E, MDB&M

Plumas County, California. Containing 108.22 acres.

The following patented lode mining claims:

<u>Claim</u>	<u>Book</u>	<u>Page</u>
The Copper Center Extension		
Bullion		
Copper Center		
Bullion Extension		
Rob		
Rob Extension		
Walker		
Valley View Extension		
Valley View		
Walker Extension		
embracing a portion of Sections 30, 31 and 32 in Township 25 North, Range 12 East, M.D.M. Containing 204.036 acres, more or less		

<u>Claim</u>	<u>Book</u>	<u>Page</u>
The Reliable Lode Extension		
Standard		
Pacific No. 1		
Pacific No. 2		
Pacific No. 4		
Pacific No. 5		
Pacific No. 6		
Pacific No. 7		
Pacific No. 8		
Panama No. 1		
Panama No. 2		
Panama No. 3		
Panama No. 4		
Panama No. 5		
Digger		
Piute No. 1		
Piute No. 2		
Piute No. 3		
Sioux		

embracing a portion of Section 5 in Township 24 North and Sections 29, 30, 31 and 32 in Township 25 North, Range 12 East, M.D.M. Containing 389.426 acres

Claim

Book

Page

- September Horn No. 1
- September Horn No. 2
- September Horn No. 3
- September Horn No. 4
- September Horn No. 5

embracing a portion of Sections 19 and 30 in Township 23 North, Range 12 East, N.D.M. Containing 93.233 acres



**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION**

3443 Routier Road, Suite A  
Sacramento, CA 95827-3098  
Phone: (916) 255-3000  
Fax: (916) 255-3015

Cal/EPA



Pete Wilson, Governor

Larry D. Milner  
ARCO  
555 17th Street, 16th Floor  
Denver, CO 80202

13 August 1997

**WALKER MINE, PLUMAS COUNTY**

Walker Mine is an inactive copper mine in Plumas County, California. Acid mine drainage from the main portal and onsite wastes discharge to Dolly Creek where they impair beneficial uses of surface waters of the United States. The mine has been a continuous source of pollutants to the Little Grizzly Creek watershed since the mine was operated by the Walker Mining Company prior to becoming inactive in 1941. During the mine's operation, International Smelting and Refining Company (ISRC), a subsidiary of the Anaconda Copper Mining Company, owned a majority of the company's stock. It is well documented that ISRC was actively involved in managing the daily operations of the mine. Since ARCO is the successor to Anaconda, we believe that ARCO is a responsible party for the required environmental remediation at Walker Mine.

While some money has been spent by other responsible parties to provide remediation at Walker Mine, there is a continuing need for additional remediation. We are seeking reimbursement for costs associated with past and future remedial activities. In the alternative, ARCO may undertake the remedial activities. California Water Code section 13304, requires responsible parties to be liable for cleanup and abatement of waste discharge. As a responsible party, ARCO's participation in the cleanup and abatement work is essential.

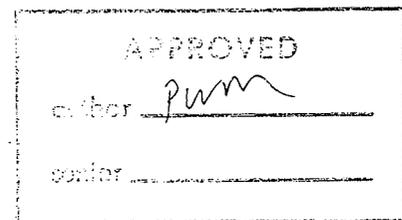
We would like to begin negotiating an agreement with ARCO for undertaking or reimbursing past and future remediation activities. Please contact Patrick Morris at (916) 255-3121 so that we can begin discussions on an agreement for future remediation activities at Walker Mine.

*William J. Marshall*

WILLIAM J. MARSHALL, Chief  
Waste Discharge to Land Unit  
Lower Sacramento River Watershed

WJM:PWM

cc: Betsy Jennings, OCC, SWRCB, Sacramento  
Rose Miksovsky, USDA, San Francisco  
Terry Benoit, USFS, Quincy  
Chris Garlasco, ARCO, Denver, Colorado  
Carl Leverenz, Chico  
Dan Kennedy, Paradise



Recycled Paper

*Our mission is to preserve and enhance the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations.*

FILE



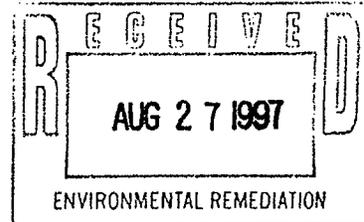
United States  
Department of  
Agriculture

Office of  
the General  
Counsel

Pacific Region  
San Francisco Office  
33 New Montgomery, 17th Floor  
San Francisco, CA 94105-4511  
415-744-3011; FAX 415-744-3170

August 19, 1997

Neal Brody  
Senior Attorney  
Atlantic Richfield Corp.  
444 S. Flower St.  
Los Angeles, CA 90071



Dear Mr. Brody:

Per our discussion, I've spoken with Terry Benoit, and I'd like to confirm our meeting for the afternoon of September 29, 1997 at the Plumas National Forest Supervisor's Office in Quincy, California. We can do a site visit that afternoon, and meet Tuesday morning, Sept. 30, to continue our discussions.

Enclosed is a copy of the ROD for the Walker Mine Tailings.

If you have any questions, please let me know.

Very truly yours,

*Rose Miksovsky*  
Rose Miksovsky

cc: Terry Benoit, PNF (w/o encl.)  
Cecilia Horner (w/o encl.)  
Lloyd Rowsey (w/o encl.)

RECORD OF DECISION  
FOR REMEDIATION OF THE WALKER MINE TAILINGS  
BECKWOURTH RANGER DISTRICT, PLUMAS NATIONAL FOREST

April, 1994

RECORD OF DECISION  
FOR REMEDIATION OF THE WALKER MINE TAILINGS  
PLUMAS NATIONAL FOREST  
PLUMAS COUNTY, CALIFORNIA

PREPARED BY:

Terry A. Benoit  
TERRY A. BENOIT  
Forest Hydrologist

4/26/94  
Date

RECOMMENDED BY:

Jeff Withroe  
JEFF WITHROE  
Acting District Ranger  
Beckwourth Ranger District

May 20, 1994  
Date

RECOMMENDED BY:

H. Wayne Thornton  
H. WAYNE THORNTON  
Forest Supervisor

May 25, 1994  
Date

APPROVED BY:

Melroy H. Teigen  
MELROY H. TEIGEN  
Acting Director, Engineering  
Pacific Southwest Region

June 10, 1994  
Date

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- Walker Mine Tailings Site Map	
Significant Comments Received During the Public Comment Period	

DECLARATION FOR THE RECORD OF DECISION FOR THE WALKER MINE TAILINGS

- Close the site to public access where needed to protect treatment features.
- Monitor for success and compliance with Applicable, Relevant and Appropriate Requirements (ARARs).

Declaration

The selected remedy is protective of human health and the environment, meets Federal and State requirements that are applicable, relevant and appropriate to this remedial action and is cost-effective. The remedy satisfies the statutory preferences for remedies that employ treatment that reduces toxicity, mobility or volume as a principal element and utilizes permanent solutions to the maximum extent practicable. The remedy meets requirements provided by the State of California.



MELROY H. TEIGEN  
Acting Director, Engineering  
Pacific Southwest Region

6/10/94

Date

## DECISION SUMMARY

### I. Site Name and Location

The Walker Mine Tailings are located on National Forest land approximately 15 miles east of the Plumas County community of Quincy in Section 12, T24N, R11E; and Sections 7 and 18, T24N, R12E; Mt. Diablo Baseline and Meridian (Figure 1).

At an elevation of 5750 feet mean sea level, the tailings area is at the confluence of Dolly Creek and Little Grizzly Creek, tributary to Indian Creek, then the East Branch North Fork Feather River. Dolly Creek flows from northeast to southwest from near the Walker Mine and across the tailings area. Little Grizzly Creek flows along the southern edge of the tailings area from southeast to northwest (Figures 2 and 3).

### II. Site Description, History and CERCLA Response Actions

The Walker Mine, located on patented lands, produced copper and minor quantities of gold and silver from 1915 through 1941. The 1941 operation was shut down and has since remained idle except for occasional exploration activities.

The tailings area is located in a natural basin three-quarters of a mile southwest and downstream of the Walker Mine on Dolly Creek at its confluence with Little Grizzly Creek. The tailings were produced as a slurry at the mill located at the mine site. This slurry flowed by gravity to the tailings site where it was impounded by a small dam on Dolly Creek. Much of the free water from the milling process evaporated, leaving behind a well distributed pile of fine-grained, sandy, silty, and clay-like tailings material covering an area of approximately 100 acres to an average depth of 28 feet (based on borings made in 1992).

The Walker Mine has a long history of pollution, acid mine drainage, heavy metals contamination, and noncompliance with Waste Discharge Requirements (WDRs) established by the California Regional Water Quality Control Board, Central Valley Region (CVRWQCB). In 1987, the CVRWQCB retained an engineering contractor to design and install a concrete seal in the mine tunnel to minimize acid mine drainage and discharge of heavy metals into waters from the mine. The seal appears to be effective in reducing mine discharge into the nearest receiving water, Dolly Creek, then Little Grizzly Creek. See Figure 2 for a summary of the current effectiveness of the mine seal.

The Walker Mine Tailings also adversely affect the water quality of Dolly Creek and Little Grizzly Creek. Dolly Creek, and any remaining drainage from the Walker Mine, flow from northwest to southwest along the northern portion of the tailings, picking up leachate water and resulting in release of tailings, heavy metals (copper, iron, and zinc), and turbid water to the receiving waters. In 1958 the CVRWQCB adopted Resolution No. 58-181 prescribing discharge requirements for the tailings, and named the USFS and the owners of the Walker Mine as the dischargers. In 1986 the CVRWQCB rescinded Resolution No. 58-181 and issued WDRs Order No. 86-073, naming the USFS as the sole discharger. New receiving water quality criteria for the compliance station on Little Grizzly Creek, downstream of the Walker Mine Tailings were established.

The Walker Mine tailings site was placed on the Federal Agency Hazardous Waste Compliance Docket ("the docket"), pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, 42 USC 9620 (c)) by the U.S. Environmental Protection Agency (EPA) in 1991.

A site investigation was started in 1990 and completed in 1992 with the installation of monitoring wells and a waste characterization program. the 1990-1991 investigation focused on the release and transport of copper and sediment from the tailings and the development of alternatives for stabilizing and reclaiming the tailings area. Included in the study was an investigation and preliminary assessment of health risks to forest users and workers at the site.

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Other contamination pathways, such as groundwater, were studied and determined to be insignificant or non-existent, although questions still remain because of increased concentrations of copper detected in Little Grizzly Creek between the confluence with Dolly Creek and the Brown's Cabin monitoring site.

### III. Community Relations

Community relations were initiated in 1989 when the East Branch North Fork Feather River Coordinated Resource Management group (EBNFFR CRM) added the treatment of the Walker Mine Tailings into their water quality improvement program. The EBNFFR CRM is a formal partnership that includes 19 local, state and federal agencies plus private land owners and the Pacific Gas and Electric Company. The primary goal of the EBNFFR CRM is water quality improvement in the East Branch North Fork Feather River.

A formal public involvement plan was initiated in September 1991, to facilitate public involvement with the proposed project. The public includes the EBNFFR CRM, local, State and Federal agencies, interested and affected individuals and groups, and Potential Responsible Parties (PRPs). Communications included direct mailings, newspaper notices, news releases, and public meetings. Interested parties also became informed and involved through personal communications.

Public support for the project has been positive, except for a few people who use the site as a "playground" with their off-highway vehicles (OHV). Support from the various government agencies has also been positive.

The primary support agency has been the CVRWQCB. United States Forest Service (USFS) personnel and water quality engineers for the State agency have worked closely to analyze the site and develop treatment alternatives.

The PRPs have been identified and requested to participate in the planning process. Little response has been received until lately, when the Atlantic Richfield Company (ARCO) was identified in 1993. ARCO responded immediately and positively (See Appendix).

Copies of all relevant documents have been sent to interested parties, the CVRWQCB, and PRPs. Comments on the draft documents were solicited. The Proposed Plan for remediation of the site was also handled in this way.

Very little public interest has been demonstrated. Homeowners in Genessee Valley, downstream from the tailings area have informally expressed their support of the proposed treatments, as have other interested parties.

Recreation users of the site, as mentioned above, have informally expressed their desire to leave the site as it is and allow them to continue to use the area for off-highway vehicle use.

Mr. Leroy Pedersen of Four Hills Mining Company has made numerous contacts with the USFS regarding the treatment of the tailings material. He is working with a patented process to treat tailings material containing high amounts of silica, removing the metals and the silica. Further testing of the process is required before it can be evaluated and approved for use. If this or any process is found to be a desirable remedy for the site in the future, there is nothing in the proposed treatment that will preclude their use and effectiveness.

No response has been received from Mr. Henry R. Barry, CEO, Calicopia Corporation, owners of the Walker Mine and a Potential Responsible Party (PRP) for remediation of the tailings area. The latest mailing to Mr. Barry resulted in a return mailing and no forwarding address. Efforts to locate him suggest that he is no longer in the country and that Calicopia Corporation no longer exists.

Three PRPs hold mining claims on the tailings area. No work has been performed by them, except for a minimal amount of exploratory work. Contact was made with one of the claimants, Mr. Archie Sparkman, who spoke for all of the claimants. They would like to dissolve all interest in the site. They have not paid taxes on the claim for the past three years. Mr. Sparkman said they fully support the treatments that are proposed for the site.

Recently, another PRP has surfaced as a result of research conducted for the USFS by TechLaw Inc. TechLaw has established a fairly solid link between the Walker Mining Company and Anaconda Company. Additionally, TechLaw has substantiated Anaconda Company's relationship to Atlantic Richfield Company (ARCO). The USFS notified ARCO of their potential responsibility and received a positive response with a willingness to participate in remediation efforts to the limit of their liabilities, which still needs to be determined. They have also responded in support of the proposed treatments for the site, stating that they believe them to be very practical and reasonable.

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#### IV. Site Characteristics

Where Dolly Creek flows across the tailings area, the upper channel section has incised 20 feet through the tailings material to native soil. It is here where most of the sediment enters Dolly Creek for transport downstream. Water is the primary agent eroding the tailings material from the surface of the tailings to the gully banks, where it is then picked up by flowing water. Below this incised section, Dolly Creek becomes braided and is dominated by alluviation and continuous bed movement. Some natural wetland development is occurring in this area. The base level is controlled by a sediment retention dam constructed originally by the operators of the Walker Mine and then reconstructed in 1979 by the USFS.

he beneficial uses of the water from Dolly Creek and Little Grizzly Creek are:

1. Agricultural water supply.

2. Recreation.
3. Aesthetic enjoyment.
4. Preservation and enhancement of fish, wildlife, and other aquatic resources.

Downstream beneficial uses of the Feather River include:

1. Municipal water supply.
2. Industrial water supply.
3. Ground water recharge.
4. Hydroelectric power generation.

The mean annual precipitation for the area is about 40 inches, with a significant portion in the form of snow. The mean minimum temperatures at the site for the months of January and July are 16 degrees Fahrenheit and 42 degrees Fahrenheit, respectively. Surface runoff usually results from snowmelt, but fall and spring rains and summer thundershowers are also common.

Vegetation in the vicinity of the mine and tailings area consists largely of mixed conifer forest. The tailings area is mostly nonvegetated but does support locally vegetated areas containing rushes in low-lying areas, islands of pines and shrubs, and islands of sedges along Dolly Creek. Because of this general lack of vegetation, moisture levels in the tailings material rarely drops below field capacity even during the summer months. Only the top three to six inches completely dries out.

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Groundwater in the surrounding area is found in seasonal shallow or perched aquifers (decomposed granite) mantling bedrock surfaces or fractured-rock aquifers formed by the interconnected joints and fractures in the bedrock. Ground water in the tailings area is controlled primarily by the elevation of the sediment dam, but does reflect moisture conditions during winter and summer months. During the monitoring well installation in October, 1992, water elevations averaged 5.73 feet below the surface of the tailings material, ranging from 0.40 feet to 17.23 feet below the tailings surface.

The tailings aquifer is recharged by snow and rain falling onto the tailings area, by several springs surrounding the site and possibly buried by the tailings material, by conveyance along the original Little Grizzly Creek channel (now buried by tailings material), and directly by Dolly Creek as it flows across the tailings area. Discharge occurs by evaporation from the surface, by seepage along the base of the levee separating Little Grizzly Creek from the tailings material, by surface and seepage flow over and through the sediment retention dam, and, possibly, by seepage through rock fractures and the original Little Grizzly Creek channel.

## V. Risk Assessment Summary

Copper, iron and zinc are continually released into Dolly Creek and Little Grizzly Creek through a variety of pathways, exposing aquatic organisms to lethal or otherwise stressful concentrations of these metals. These organisms have been shown to be either killed outright or their life cycles affected to such a degree that they cannot maintain viable and productive populations. Approximately 3800 feet of Dolly Creek and about one mile of Little Grizzly Creek are affected by the contaminants released from the tailings. Within that one-mile section of Little Grizzly Creek, dilution and biological uptake reduce contaminant concentrations to near background levels.

Human health is potentially affected when dust emanating from the tailings area is inhaled. The respirable free silica is crystalline in form and can cause silicosis and lung cancer, especially under occupational exposure for several years. Concentrations of metals in the tailings material known to cause human health problems have been identified, but are at levels in the surface material that is indistinguishable from soils at background sites. Table 1 displays metals found in the tailings material at well sites and bore holes. Table 2 displays metals released into the waters of Dolly Creek (Station R1, above the tails; and Station R2, below the tails) and Little Grizzly Creek (Station R3, above the tails; Station R4 below the tails; and Station R5, the compliance station located below the confluence with Dolly Creek). Station R6 is an overflow pipe located near the middle of the tailings area and next to Little Grizzly Creek. Refer to Figure 4.

Metals found in the tailings material, but not released into the environment in amounts detrimental to human health or the environment include:

Arsenic	Barium	Cobalt	Chromium
Iron	Lead	Mercury	Nickel
Silver	Thorium	Vanadium	

The primary land and resource uses in the area include timber harvesting, mining and recreation. Downstream uses include recreation, fishing, and irrigation of pasture land at the mouth of Little Grizzly Creek. There are no known diversions of water for domestic purposes.

Human exposure to dust is limited to recreational use of the site and to workers in and around the site. Recreation on the site is primarily OHV use. This activity causes large amounts of the tailings material to become airborne, especially where these vehicles are concentrated. Wind also causes large amounts of the tailings material to become airborne, often making it difficult to see and breath.

In addition, wind erosion affects the surface of the tailings area on a daily basis during the growing season. Plants emerging on the site are sheared, buried, or eroded away. The lack of nutrients for plant growth makes it difficult for all but the hardiest plants, usually pioneering varieties, to emerge in the first place.

Towards the end of the mining and milling operations at Walker Mine, ore was completely processed then discharged into Dolly Creek to flow freely downstream to the tailings dump. The areas of the tailings covered by this

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material are distinctly different from the rest of the tailings area. These areas are limiting plant growth due to acidic conditions, increased solubility of metal ions, elevated levels of iron, and deficiency of sulphur, calcium, and molybdenum. Molybdenum is required by many pioneer species, especially legumes which typically will not grow without sufficient molybdenum for nitrogen fixation.

Most of the tailings material is affected by a lack of similar nutrient chemistry. This includes both macronutrients (nitrogen, phosphorous, potassium, sulfur, calcium, and magnesium) and micronutrients (manganese, boron, and molybdenum). There is a general low level of nitrogen, phosphorous, iron, and molybdenum. The obvious lack of organic matter, necessary for cation exchange, limits the uptake of nutrients. For the purposes of plant growth, all of the tailings are deficient in all of the major plant nutrient cations (potassium, calcium, and magnesium).

Since treatment of the tailings is proposed on-site and none of it removed, there is a risk that treatments may not be fully successful and release of contaminants could continue above levels described in section VII, Remedial Action Goals and Objectives.

#### VI. Applicable or Relevant and Appropriate Requirements (ARARs) Analysis

Any alternative should comply with applicable or relevant and appropriate requirements (ARARs). The Environmental Protection Agency (EPA) determined that this site does not warrant placement on the National Priorities List (NPL) by evaluating its hazards and vicinity to human habitations. As a consequence, the site falls under the jurisdiction of California's Environmental Protection Agency and their mandated clean-up standards.

Requirements applicable or relevant and appropriate to the site have been identified through formal communication and consultation with the California State Attorney General, and the CVRWQCB, plus other relevant State and local agencies. None of the ARARs listed have been waived.

Identified ARARs are as follows:

##### 1. State Water Board Resolution 68-16 (anti-degradation policy):

This resolution satisfies the Federal Clean Water Act anti-degradation policy requirement.

It requires the continued maintenance of high quality waters of the State even where that quality is better than needed to protect beneficial uses, unless specific findings are made.

Water quality may not be allowed to be degraded below what is necessary to protect beneficial uses in any case.

##### 2. Order No. 91-017. Waste Discharge Requirements (WDR) for the U.S. Department of Agriculture, Forest Service, Plumas National Forest, Walker Mine Tailings, Plumas County:

###### A. Discharge specifications (water over the dam and from the culvert):

1. Neither the treatment nor the discharge shall cause a pollution or nuisance as defined in Section 13050 of the California Water Code.
2. The discharge shall not cause degradation of any water supply.
3. The discharge shall not have a pH less than 6.5 nor greater than 8.5.
4. The discharge shall not contain more than 0.2 ml/l settleable solids.

B. Sludge and Solid Waste Disposal:

1. Sludge and/or solid wastes generated by remediation activities shall only be discharged to a waste management unit which is in compliance with the requirements of Title 23, Division 3, Chapter 15, California Code of Regulations (CCR), or to a site(s) which has been approved by the Executive Officer.
2. The Discharger may propose alternative sludge or solid waste disposal alternatives if the waste is to be treated. Disposal of treated waste must comply with Chapter 15 requirements and be approved by the Executive Officer.

C. Receiving Water Limitations:

1. The discharge(s) shall not cause concentrations in Little Grizzly Creek, at a point immediately above Road 25N42 and above the west side spring discharge (R-5) to exceed the following limits:

<u>Constituents</u>	<u>Units</u>	<u>Limitation*</u>
Aluminum	ug/l	750.00
Cadmium	ug/l	1.80
Copper	ug/l	9.22
Iron	ug/l	1000.00
Lead	ug/l	33.80
Mercury	ug/l	2.40
Zinc	ug/l	65.00

\* [Copper and zinc are the only constituents presently detected at the water monitoring stations. Copper and zinc are synergetic in their effects to aquatic organisms. The current goal of remedial actions at the site is to reduce the release of copper and zinc (Cu + Zn) to 10 mg/l, or less, at hardness of 50 mg/L CaCO<sub>3</sub>. See Figure 2, Browns Cabin Station.]

Receiving water limitations for cadmium, copper, lead, and zinc are adjusted for hardness at the Little Grizzly Creek upstream station (R-3), according to equations established in the Waste Discharge Requirements order.

The discharge shall not cause visible oil, grease, scum, foam, floating suspended material in the receiving waters or watercourses.

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3. The discharge shall not cause concentrations of any materials in the receiving waters which are deleterious to human, animal, aquatic, or plant life.
4. The discharge shall not cause aesthetically undesirable discoloration of the receiving waters.
5. The discharge shall not cause bottom deposits in the receiving waters.
6. The discharge shall not cause fungus, slimes, or other objectionable growths in the receiving waters.
7. The discharge shall not increase the turbidity of the receiving waters by more than 20% over background levels.
8. The discharge shall not alter the normal ambient pH of the receiving water more than 0.5 units.

3. Crystalline silica dust presents the highest public health concern at the tailings. The Safe Drinking Water and Toxic Enforcement Act of 1986 identifies airborne particles of respirable size, crystalline silica (Chemical Abstracts Services Registry date: October 1, 1988) as known to the State to cause cancer. Although listed, the State of California, Environmental Protection Agency, Department of Toxic Substances Control did not identify any specific air quality ARARs for the site. The Plumas County Department of Environmental Health has provided general comments that it will enforce exposure restrictions upon frequent users and workers at the site by requiring restricted access and/or use of proper respiratory equipment.

#### VII. Remedial Action Goals and Objectives

GOALS. Protection of the beneficial uses of Little Grizzly Creek from the release of contaminants to the environment (receiving waters) from the tailings area.

Protection of the health of users and workers at the site from the exposure to tailings dust.

OBJECTIVES. To reduce the release of contaminants from the tailings area to Dolly Creek and Little Grizzly Creek by meeting the requirements for receiving water as stated in State Water Board Resolution No. 68-16 (the antidegradation policy requirement), or, if not feasible, the requirements in Waste Discharge Requirements Order No. 91-017 within five (5) years of completion of remediation work.

To eliminate the inhalation of fugitive dust by humans using and working at the site within five (5) years of completion of remediation work.

#### VIII. Description of Remedial Alternatives

The no action alternative serves as a baseline for comparison of the other alternatives. No action means that no remedial activities will be conducted to reduce or cleanup the hazards associated with the generation and release of

contaminants from the tailings material. Surface and perched groundwater monitoring would be conducted as part of this alternative; however, to quantify the impact associated with a no remedial response action. The site conditions would be re-evaluated periodically to determine whether there have been any changes regarding risk to human health and the environment.

The following is a brief summary of the alternatives considered:

The tailings have been divided into two areas for treatment; (1) Dolly Creek and (2) the remainder of the tailings. The Dolly Creek area includes the active stream channel and the area extending out to, and including, the gully banks.

Treatment alternatives considered, but dropped from the analysis include:

Alternative 6: Covering the tailings area with impermeable material to reduce the amount of oxygen and water that contact sulfide materials. This would be very costly and impractical for this site.

Alternative 7: Actively treating water leaving the site to remove contaminants. This also would be very costly and impractical for this site.

Alternative 8: Use of bactericides to stop the ferric to ferrous transfer. The bacteria to be treated would be found in the upper layers of the tailings material. These bacteria have been found to be, for all practical purposes, non-existent in this area.

Any of these treatments could be revisited if the proposed treatments are found to be ineffective on the site or if new information about the site or these treatments arises.

There are two proposed alternatives, plus the no action alternative, for each of the two areas. The four alternatives considered in detail are summarized below.

The Dolly Creek area, would be treated by either Alternative 2 or 3.

Alternative 2: Channel Erosion Control and Development of a Wetland for Passive Water Treatment.  
Under this alternative, Dolly Creek would be stabilized by reconstructing the channel geometry of the channel and revegetating all banks in the upstream portion of the channel and by constructing a wetland in the lower portion. The wetland would not only stabilize the lower portion of Dolly Creek, but it would also passively treat contaminated water leaching through the tailings material to Dolly Creek before it flows to Little Grizzly Creek.

Alternative 3: Diversion of Dolly Creek Around the Tailings Area, Stabilization of Dolly Creek Below the Diversion and Passive Water Treatment.  
Alternative 3 would include the treatments described above in Alternative 2 and a diversion of Dolly Creek around the tailings area to Little Grizzly Creek. This would separate the "good" water from the "bad" water. Water from

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rain and snow melt plus spring and other groundwater flows would still leach metals from the tailings material to Dolly Creek. Flood flows from the upper watershed area would still pass through the existing Dolly Creek channel on the tailings.

Area 2, the remainder of the tailings area, would be treated by either Alternative 4 or 5;

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Alternative 4: Revegetation and Wind Erosion Control.

Alternative 4 would involve modest, low-cost efforts to revegetate the area plus provide wind erosion control measures. The surface of the tailings area is constantly blowing around, inhibiting natural revegetation from occurring. Wind on the area also causes large dust clouds to form, creating a health hazard because it contains large amounts of very fine grained, crystalline silica.

Revegetating the surface of the tailings area is expected to not only eliminate the wind problems over the long-term, but to eventually reduce oxygen in the acid producing, aerated upper layer of the tailings material (the vadose zone), thus reducing the release of contaminating metals to Dolly Creek, and the wetland.

This alternative would use plants that are known to survive conditions existing at the site. Fertilizers would also be used where needed. Mixing plant species such as lodgepole pine and legumes is expected to enhance plant survival. lodgepole pine would provide one of the major tree components and legumes would provide a long-term nitrogen supply to the trees. The underlying principle for successful revegetation of the site is the maximization of plant diversity utilizing plants of known tolerance to the site. This should provide a stable plant community that would require little to no long-term maintenance.

Alternative 5: Vegetated Soil Islands and Wind Erosion Control.

Alternative 5 would employ the same wind erosion control measures as in Alternative 4, but instead of immediately revegetating the entire area, islands of imported soil would be constructed and vegetated. Because covering the entire tailings area with soil was determined to be impractical and too costly, this alternative was developed. The vegetation on these islands would be expected to migrate into unvegetated areas; areas containing no imported soils.

None of the above described treatment alternatives would preclude future treatments that employ improved technologies, providing that they meet treatment objectives and site requirements. Potentially, technologies that would result in total removal and treatment of the tailings material would provide a more permanent solution than the alternatives considered, if cost effective and environmentally acceptable.

IX. Comparative Analysis of Alternatives

Discussion. Each alternative was evaluated using the nine criteria outlined in 40 CFR 300.430, paragraph (e) (9) (iii). These evaluation criteria are as follows: overall protection of human health and the environment; compliance with ARAR's; long-term effectiveness and permanence; reduction of toxicity,

mobility, or volume through treatment; short-term effectiveness; implementability; cost; State acceptance; and community acceptance.

Upon completion of the detailed analysis of each alternative against each of the nine evaluation criteria, a comparative analysis was conducted that focused on the relative performance of each alternative against those criteria. A preferred treatment was selected and a proposed plan developed and presented for review and comment to the public, State agencies involved with the project, and identified Potential Responsible Parties (PRPs). Two public meetings were held to discuss the proposed plan, one in Portola and one in Taylorsville. Comments were reviewed in consultation with the State in order to determine if the proposed plan is the most appropriate treatment for the site. Changes to the proposed plan are discussed in the following section.

Analysis. There are two areas to be treated, Dolly Creek and the remainder of the tailings area. Alternatives should be combined to provide total site remediation. Alternatives 2 and 3 treat Dolly Creek and its riparian areas and banks. Alternatives 4 and 5 treat the remainder of the tailings area. For this reason, only Alternative 2 and 3 can be compared together and Alternative 4 and 5 compared together. Each alternative and its treatment area are as follows:

Alternative

Treatment Area

1	No Action.....	N/A
2	Channel Erosion Control and Developed Wetland.....	Dolly Creek
3	Alternative 2 plus Diverison of Dolly Creek.....	Dolly Creek
4	Revegetation and Wind Erosion Control.....	Remainder of Tails
5	Vegetated Soil Islands and Wind Erosion Control.....	Remainder of Tails

The following summarizes the comparative analysis using the nine evaluation criteria listed above.

Overall Protection of Human Health and the Environment

The implementation of either Alternative 2 or 3 alone would not provide protection of the health of humans using or working at the site because they are strictly designed to treat the problems associated with the flow of Dolly Creek on the tailings area and contaminants that have leached into Dolly Creek.

The control of wind and water erosion and dust containing respirable crystalline silica would require the implementation of either Alternative 4 or Long-term institutional controls, similar in all alternatives, would provide immediate protection of human health.

Alternatives, except the No Action alternative, reduce contaminant release some level. Alternatives 2 and 3 would passively treat the waters of Dolly Creek in a wetland environment before it enters Little Grizzly Creek. Alternatives 4 and 5 would reduce oxygen in the vadose zone of the tailings area, thereby reducing contaminant concentrations in the leachate water flowing Dolly Creek.

The implementation of Alternative 2 or 3 would also stabilize the Dolly Creek channel and gully walls, reducing erosion and sedimentation. Alternative 3

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provides exactly the same treatment as Alternative 2 with the addition of a diversion on Dolly Creek upstream of the tailings area and routed around the site to Little Grizzly Creek. This would reduce the amount of water flowing in the Dolly Creek channel located on the tailings area. Water would still flow in the abandoned channel, but at a much reduced rate, along with the leachate water from the tailings material. Passive water treatment would still be relied upon.

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An unknown problem would be the reduction of the water table in the tailings material if Dolly Creek is diverted around the tailings area. It is unknown whether or not springs and seeps in the area would maintain the existing water level alone. It is important that the tailings water table be kept as high as possible to limit the amount of tailings material that is exposed to water and oxygen.

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Alternatives 4 and 5 would stabilize the remainder of the tailings area. Alternative 4 would result in the immediate revegetation of the site through use of special plant material adapted to the site, fertilizers, some organic material, and wind erosion control. Total vegetation coverage of the site from the implementation of Alternative 4 is expected to occur in approximately 10 years.

Alternative 5 would import soil to form islands to be revegetated. Importing soil to the site would increase costs considerably. It is expected that over time (30 years) this vegetation would spread into the inter-island areas, where wind erosion control measures would be used. Wind erosion control measures would utilize logs, straw, forest debris and "brush trench packs," vegetation, and wind fences. Water erosion would also be minimized by these measures.

#### Compliance with ARARs

Since Waste Discharge Requirements are not currently being met, the no action alternative cannot meet ARARs. All other alternatives would be expected to meet the specific ARARs they are designed to address.

The implementation of Alternative 2 alone (no upstream diversion) is expected to meet water quality ARARs. The success of the treatments would be evaluated at five year intervals. If water quality improvements are occurring, no further actions would be taken except monitoring. If water quality is not improving, or doesn't appear to be able to meet ARARs, further remedial actions would be considered, including the diversion of Dolly Creek around the tailings area (Alternative 3). Alternative 3 would be expected to reduce the amount of contaminants entering Little Grizzly Creek from Dolly Creek, but water treatment would still be required to reduce metal concentrations in the leachate water from the tailings material. Alternative 3 would reduce the amount of contaminated water flowing to Little Grizzly Creek, but may not reduce the amount of contaminants released from the site to Little Grizzly Creek without the wetland water treatment system.

Alternatives 4 and 5 are expected to help reduce acid generation and the release of contaminants to leachate water. By themselves they would not meet ARARs, but do address the human health hazards caused by inhalation of dust from the site. It is expected that Alternative 4 or 5 would begin reducing acid generation in less than ten years.

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The evaluation of the ability of the alternatives to comply with ARARs includes a review of chemical and physical specific ARARs plus action items to prevent human exposures. These were presented earlier in this report. There are no known location-specific ARARs for this site.

### Long-term Effectiveness and Permanence

The treatment of Dolly Creek with either Alternative 2 or 3, PLUS the treatment of the remainder of tailings area with either Alternative 4 or 5 provides the highest degree of long-term effectiveness and permanence, treating all known contaminant pathways plus the generation of contamination over the entire site. If either Alternative 2 or 3 is implemented alone, only partial treatment would be provided, leaving natural mechanisms to treat the remainder of the site. The implementation of either Alternative 4 or 5 alone would not meet water quality goals, no matter how long they are in place.

Long-term protection of human health would best be achieved by institutional controls if either Alternative 2 or 3 is implemented alone. Institutional controls could be terminated after site stabilization if either Alternative 4 or 5 is implemented along with Alternative 2 or 3.

There is no evidence that there is any long-term advantages between Alternatives 2 and 3 at this time. Monitoring water quality is expected to give the evidence needed to consider the installation of the diversion structures in Alternative 3.

It is expected that both Alternative 4 and 5 would meet project goals, although it is estimated that Alternative 5 would require at least 30 years to become fully effective. Acid generation and mobility of contaminants would be reduced by site stabilization and reduced oxygen in the vadose zone. Passive treatment, leaving the site would eliminate release of contaminants leaching to Dolly Creek, or, at least, reduce them to acceptable levels.

The difference between Alternatives 4 and 5 is the time of effectiveness and probability of success. Alternative 4 would address the entire treatment area but would not use any soil amendments. It would rely solely on the proper vegetation and planting techniques. Alternative 5 creates a layer of soil where revegetation is expected to flourish, then it relies on the wind erosion between the islands, finally covering the entire area slowly. Revegetation of the entire site would probably not be as effective in Alternative 4 and, therefore, less effective in the long-term. Alternatives are expected to be permanent, requiring little maintenance once vegetation establishment. Institutional control of public access would be required to protect rehabilitation features and plants once they have become fully rehabilitated.

The wetland of Dolly Creek would be permanent, but would require 5-10 years to facilitate its effectiveness. Monitoring water quality is a long-term element to ensure that all treatments are met, and ARARs continue to be met.

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## Reduction of Toxicity, Mobility, or Volume Through Treatment

**TOXICITY:** Copper and zinc toxicity in Dolly Creek and Little Grizzly Creek is expected to be reduced to levels required by the Central Valley Regional Water Quality Control Board by reducing the amount of copper and zinc released into these streams. All alternatives, except Alternative 1 (No Action), would reduce the release of copper, but in different ways.

Alternatives 2 and 3 would reduce the transport of copper that is attached to sediment particles by stabilizing the Dolly Creek channel and its gully. Both alternatives would then treat Dolly Creek water and the tailings leachate by passing the water through a constructed wetland. In addition, Alternative 3 would divert the lesser contaminated water of Dolly Creek around the tailings area, discharging it into Little Grizzly Creek. Leachate water flowing from the tailings into Dolly Creek below the diversion would be treated by the constructed wetland. Without the full flow of Dolly Creek, the wetland size would be much smaller than needed for full treatment of leachate water, and the level of the aquifer now maintained at near the level of the sediment dam may drop during the drier season of the year, exposing more tailings material to oxygen and acid generation.

Alternatives 4 and 5 would reduce the release of copper to Dolly Creek by reducing the generation of acid within the tailings vadose zone. Much of the oxygen needed for the production of acid would be consumed by decomposing organic debris. The difference between these alternatives is the length of time for this process to become fully effective. Alternative 4 is expected to take much less time to become fully effective (approximately 10 years) than Alternative 5 (approximately 30 years).

Blowing sand and dust (containing crystalline silica particles) would be reduced or eliminated by implementing either Alternatives 4 or 5. Both alternatives would reduce or eliminate dust emanating from the site, but again, Alternative 4 would be expected to become fully effective much sooner than Alternative 5. Wind erosion control features would be installed with the implementation of either alternative. These devices are expected to reduce the transport of sand and the generation of dust to very low levels, but need to be replaced by plants for long-term success. Alternative 4 would require maintenance of these devices for approximately 10 years, while Alternative 5 would require approximately 30 years.

**MOBILITY:** The constituents of concern are sediment, blowing sand and dust, and metals in solution (copper and zinc). As discussed above, Alternatives 2 and 4 are expected to best control the release and transport of these constituents.

**VOLUME:** None of the alternatives reduce the volume of tailings material. All material would be treated on-site.

**GENERAL DISCUSSION:** As mentioned in the previous section, both Alternative 4 and 5 would reduce wind erosion and airborne contaminants. Vegetation growing over the tailings area is expected to reduce oxygen in the vadose zone of the tailings material by normal plant respiration processes as roots and other organic matter decomposes, thereby reducing the generation of acid and

mobilization of copper and zinc, the primary contaminants released from the site.

The wetland would be relied upon to extract soluble copper and zinc (plus other metals if released), transforming them into inert precipitates. Some of the metal contaminants would be taken up by the plants. The effectiveness of the wetland is expected to vary with the seasons and the amount of water required to be treated. Raising the elevation of the tailings dam about one foot may be needed to facilitate wetland establishment and size.

Stabilizing Dolly Creek is expected to reduce sediment production to acceptable levels or lower. This would reduce the release of copper and zinc from sediment to downstream areas.

**Remediation of Air Quality.** Concentrations of total crystalline silica are present in the tailings dust at levels of 19-23 percent. Silicosis, lung cancer, and secondary respiratory infections could result from repeated exposure to the dust. It is not known what the lower level of human exposure is, although respiratory effects are usually documented after occupational exposure to silica concentrations for several years. Expected results of implementing either Alternative 4 or 5 is the near total reduction of dust generated at the site. The near total reduction of fugitive dust at the site is expected to take approximately 10 years if Alternative 4 is implemented and 30 or more years with Alternative 5.

**Remediation of Water Quality.** Recent concentrations of copper and zinc at the compliance station for water quality (located downstream from the confluence of Dolly Creek with Little Grizzly Creek) ranged from 0.036 mg/L to 0.14 mg/L for copper and 0.0044 mg/L to 0.013 mg/L for zinc. The synergistic effect of copper and zinc on aquatic biota is well documented. For this reason, the water quality goal at the compliance station has been established or copper plus zinc at a concentration not to exceed 0.01mg/L. Examining the recent concentrations of copper and zinc, copper plus zinc has ranged from 0.040 mg/L to 0.15 mg/L. These concentrations are lowest during the high runoff and winter (cold) months and highest during mid-summer months.

INTERACTING  
OF COPPER  
ZINC AMOUNTS  
AFFECTED BY  
UPSTREAM  
ACTIVITY?

Even though copper is required in animal metabolism, concentrations in fresh water above 0.01 mg/L (dependent on the alkalinity of the water) can have adverse effects, especially to the young or juvenile forms of aquatic animals.

Alternatives 2 and 3 include water treatment using a basic compost wetland, which is expected to remove copper and zinc from Dolly Creek to near background levels if properly maintained. Walker Mine, the primary source of copper to Dolly Creek and Little Grizzly Creek for many years, was sealed in November, reducing copper and zinc levels in Dolly Creek above the tailings area to background levels during most of the year. Some copper is still released from the site; not from the sealed tunnel, but rather the waste rock and mined soil areas at the mine and milling sites. This problem is currently being addressed by the CVRWQCB and is expected to be remediated in the future, possibly by 1995. The existing source of copper and zinc is the water that moves from the tailings material into Dolly Creek as it flows across the tailings area.

NEED FOR  
ACTIVITIES  
AT MINE  
SITE

Since the primary source of copper, the mine portal, has apparently been successfully treated, only the small amount of copper and zinc released from the tailings material and the mine site remains. The mine site will soon be treated. Passive water treatment using a wetland should successfully remove the remaining copper and zinc without specialized wetland treatment technology. Periodic maintenance will require removing and treating contaminated soil, compost, and plant material and rejuvenating the wetland to its proper size and replacing lost compost and plant material. Structures designed to slow water movement will have to be replaced periodically, but should last longer than 30 years. Since iron is usually below the water quality objective of 1.0 mg/L and pH values are always near neutral, the use of an anoxic limestone drain for iron removal and neutralization is not warranted.

Proper wetland functioning also relies on active plant and bacterial metabolism, which is highest during the active growing season. This is also when the concentrations of copper and zinc in the receiving water are highest. Winter months will result in lower wetland activity and lower copper and zinc concentrations, because of dilution and lower activity of the mechanisms that cause release of the metals in the first place.

Revegetation of the tailings area will not only reduce wind erosion and the generation of fugitive dust, but it will also reduce the release of copper and zinc (and any other metals that could become mobilized over the years) by reducing the amount of oxygen in the vadose zone (the oxygenated zone between the top of the water table and the top of the tailings). This will reduce the release of copper and zinc to Dolly Creek and the amount of these metals to be removed by the wetland. An estimated reduction of metal mobility has not been made, but monitoring the several wells already installed in the tailings should give some indication of the relative changes in metal mobility achieved.

#### Short-Term Effectiveness

The implementation of Alternative 2 plus 4 is expected to have the greatest short-term effectiveness by treating all pathways and providing immediate reduction of respirable silica dust. Some particulate emissions is anticipated during the implementation of all alternatives, however, and proper respirators would be required to be worn by all workers whenever dust conditions warrant.

#### Implementability

Alternative 3 treatments are the same as Alternative 2 with the addition of the diversion works. This is an additional construction and maintenance complication.

Alternative 4 and 5 require similar wind erosion control features and installation requirements. Alternative 4 revegetation would be the simplest to conduct. Alternative 5 would require importing soil and construction of islands, mulch, and vegetation. The location of these islands would be critical for aiding the spread of plants to adjacent areas.

All alternatives use proven techniques and readily available services and materials.

The implementation of Alternative 3 with Alternative 5 would be the most complex to construct and maintain. The simplest treatment would be the implementation of Alternative 2 alone with institutional controls.

**Cost**

Alternative 2 alone has the lowest capital cost and Operation and Maintenance (O&M), but doesn't provide full site treatment and long-term effectiveness. The implementation of either Alternative 4 or 5 with either Alternative 2 or 3 would provide full treatment of the site. Mixing Alternative 2 with Alternative 4 would require a lower capital cost than mixing Alternative 2 with Alternative 5. The use of Alternative 3 would greatly increase the cost of treating the site, both in its capital cost and O&M cost. Additional work and expense could be required if revegetation doesn't meet expectations, increasing O&M costs over the estimates.

Combining Alternatives 2 and 4, provides the best overall effectiveness proportional to costs. The following table compares values and costs of each alternative. Refer to the Feasibility Study for a more detailed discussion.

<u>ALTERNATIVE</u>	<u>30-YEAR NET VALUE</u>	<u>CAPITAL COST</u>	<u>O&amp;M COST</u>
1	\$0		
2	\$81,000	\$0	\$8,000
3	-\$21,000	\$240,000	\$8,400
4	\$63,000	\$1,544,000	\$20,400
5	\$42,000	\$180,000	\$4,200
		\$330,600	\$1,400

**State Acceptance**

The State does not accept the No Action alternative. No "cease-and-desist order" for the site has been imposed on the Forest Service, but has been mentioned. Through conversations with State personnel, the CVRWQCB favors those alternatives that more completely treat the site and as quickly as possible. They favor most the proposed plan, discussed in section X, below.

**Community Acceptance**

Very few responses were received from the public. Of the responses received, most were informal and favored implementation of the proposed plan. No formal response was received from those who oppose work at the site. Through informal channels, it was learned that several people who use the site for off-highway vehicle recreation would prefer that the site remain as it is and that it remain open for their use.

Table 3 summarizes the advantages and disadvantages of each alternative.

The Proposed Treatment Plan and Modifications

The assembled remedial action alternatives represent a range of distinct waste management strategies which address human health and environmental concerns associated with the site. They build on one another, enhancing each other,

except the no action alternative. The ability of each alternative to meet ARARs and the other evaluation criteria, discussed in the previous section, was evaluated.

T  
C  
E  
I

Alternative 2 was selected in combination with Alternative 4 (Channel Erosion Control and Development of a Wetland for Passive Water Treatment + Revegetation and Wind Erosion Control) as the "preferred treatment". By analyzing the alternatives using the evaluation criteria discussed in the previous section, Alternative 2 plus Alternative 4 were determined to permanently treat the entire site and best meet the remediation goals and objectives discussed in Section VIII in a timely and cost-effective manner. These alternatives also have the support of the State agencies overseeing these matters, the local communities, and most PRPs.

SECRET  
REMEDY

Because little rejection of the proposed treatment plan was received and no new information was introduced, no modifications to the proposed plan are made.

Because hazardous substances will remain at the site at levels above that allowed for unlimited use and unrestricted exposure, the Forest Service, in cooperation with the CVRWQCB, will review the remedial action no less often than every five years after initiation of the selected remedial action [(40 CFR 300.430, paragraph (f)(4)(ii) and (f)(5)(iii)(C)].

SECRET

TABLES

WALKER MINE TAILINGS TOTAL METALS CONCENTRATIONS

2762/732  
August 18, 1983

ELSH ENGINEERING SCIENCE & TECHNOLOGY, INC.  
WM-01-82

SAMPLE	FOOTAGE	LITHOLOGY	PH	PH UNIT	SULFATE	Sb	As	Ba	Be	Cd	Cr	Co	Cu	Fe
TILC														
STLC						500	500	10000	75	100	2500	8000	2500	
DETECTION LIMIT	WATER	mg/l	0.1		2.0	0.30	0.20	0.05	0.75	1.0	5	80	25	
	SOIL	mg/kg	0.1		2.0	15	0.20	0.05	0.02	0.02	0.05	0.05	0.02	0.10
W-1	10	O	4.5		62	15	10	2.5	1.0	2.0	2.5	2.5	1.0	2.5
W-2	15	U	6.6		20	ND	13	2000	ND	ND	2.6	11	480	42000
W-3	15	U	7.8		29	ND	15	1700	ND	ND	3.0	11	380	38000
W-4	15	O	4.5		80	18	16	1400	ND	ND	3.4	17	1800	43000
W-5	6	O	4.3		22	ND	27	2000	ND	ND	5.5	23	2700	52000
W-6	12.5	U	7.8		54	ND	ND	2700	ND	ND	2.7	11	1100	35000
W-7	5	S	6.9		3.4	ND	17	60	ND	ND	2.6	12	660	41000
101	6	O	4.4		31	ND	ND	2000	ND	ND	2.8	7.7	20	8000
101	10	O	4.1		58	ND	ND	1900	ND	ND	4.1	8.1	480	39000
101	15	O	4.2		67	18	ND	2200	ND	ND	3.8	7.3	730	37000
102	10	U	7.3		19	18	13	1400	ND	ND	3.8	7.3	730	37000
103	15	U	7.5		50	ND	ND	2300	ND	ND	12	12	2000	32000
104	25	S	7.7		8.3	ND	27	340	ND	ND	14	14	630	47000
105	5	U	7.7		38	ND	ND	3400	ND	ND	28	15	62	47000
106	15	U	5.7		140	ND	42	2800	ND	ND	3.5	13	590	36000
107	10	U	8.1		19	ND	24	2800	ND	ND	5.3	18	720	37000
W-3	QA/QC	WATER	1.6*		3.1	ND	ND	0.66	ND	ND	11	11	550	28000

O = OXIDE TAILINGS  
 U = UNOXIDIZED TAILINGS  
 S = SOIL  
 GS = GRANITIC SOIL  
 DG = DECOMPOSED GRANITE  
 \* = WATER SAMPLE PRESERVED WITH HNO3  
 1000 EXCEED 10 TIMES STLC  
 EXCEED TILC

STLC = SOLUBLE THRESHOLD LIMIT CONCENTRATION  
 TILC = TOTAL THRESHOLD LIMIT CONCENTRATION  
 ND = NON DETECT

Urban samples were taken and field tests made at five of the six prescribed sampling sites. Sample site R-6 was dry. All samples were tested in certified laboratories using the techniques prescribed in the Waste Discharge Requirements, Order No. 91-017. Water discharge, water and air temperature, specific conductance, and pH were measured in the field at the time of sampling. Test results are as follows:

Receiving Water Constituent	MAY, 1993						Limitations
	R-1	R-2	-----Stations 1-----			R-6	
			R-3	R-4	R-5		
Discharge (cubic feet/sec.)	7.28	7.28	39.6	44.7	46.1	0.00	
Air Temperature (°C)	12	10	8	14	11		
Water Temperature (°C)	9	14	7	9	10		
Conductivity (microhm/cm)	60	80	40	4	40		
pH (pH units)	7.6	7.8	7.4	7.7	7.6		
Hardness (CaCO3) (mg/l)	25	28	18	16	17		
Alkalinity (CaCO3) (mg/l)	32	30	24	22	22		6.5-8.5
Acidity (CaCO3)	1	1	1	1	1		
Suspended Solids (mg/l)	9.2	84.0	0.8	3.2	16.8		
Settleable Solids (mg/l)	<0.1	<0.1	<0.1	<0.1	<0.1		
Turbidity (NTU)	0.10	0.25	0.05	0.15	0.05		0.20
Bicarbonate (mg/l)	39	36	29	27	27		
Calcium (mg/l)	5.1	6.6	4.7	3.8	4.2		
Carbonate (mg/l)	<1	<1	<1	<1	<1		
Chlorides (mg/l)	<0.5	<0.5	<0.5	<0.5	<0.5		
Magnesium (mg/l)	2.9	2.8	1.5	1.5	1.6		
Potassium (mg/l)	0.8	1.0	0.6	0.7	0.7		
Nitrate as N (mg/l)	<1.0	<1.0	<1.0	<1.0	<1.0		
Sodium (mg/l)	1.9	2.1	2.2	2.4	2.2		
Sulfates (mg/l)	0.5	4.0	<0.5	<0.5	<0.5		
Dissolved Solids (mg/l)	42	56	32	29	37		

WALKER MINE TAILINGS TOTAL METALS CONCENTRATIONS

SAMPLE	FOOTAGE	LITHOLOGY	PH	SULFATE	Pb	Hg	Mo	Ni	Se	Ag	Th	V	Zn
			UNIT	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TLIC													
STLC					1000	20	3500	2000	100	500	700	2400	5000
DETECTION	WATER		mg/l		5.0	0.2	0.0002	0.05	2.0	5	7.0	24	250
LIMIT	SOIL		mg/kg		0.10	0.0002	0.05	0.05	1.0	0.02	0.40	0.05	0.05
W-1	10	O	4.5	62	72	0.17	ND	4.2	15	1.0	20	2.5	5.0
W-2	15	U	6.6	20	38	0.28	ND	ND	ND	2.5	ND	36	77
W-3	15	U	7.8	29	94	0.44	ND	3.5	ND	1.2	ND	33	90
W-4	15	O	4.5	80	400	1.3	ND	3.0	ND	3.0	ND	41	86
W-5	6	O	4.3	22	140	0.59	ND	ND	ND	1.7	143	53	200
W-6	12.5	U	7.8	54	78	0.25	ND	ND	ND	4.6	ND	38	72
W-7	5	S	6.9	3.4	ND	ND	ND	2.8	ND	1.6	ND	33	77
101	6	O	4.4	31	54	0.17	ND	ND	ND	ND	ND	14	25
101	10	O	4.1	58	54	0.18	ND	ND	ND	4.8	ND	34	49
101	15	O	4.2	67	23	0.27	ND	ND	ND	3.2	ND	33	67
102	10	U	7.3	19	87	0.18	4.0	ND	ND	4.7	ND	30	49
103	15	U	7.5	50	54	0.40	ND	ND	ND	5.1	ND	28	91
104	25	S	7.7	8.3	15	ND	ND	3.0	ND	2.3	ND	43	78
105	5	U	7.7	38	110	0.41	ND	15	ND	ND	ND	97	66
106	15	U	5.7	140	120	0.21	ND	2.9	ND	1.6	ND	34	78
107	10	U	8.1	19	110	0.29	ND	5.4	ND	2.3	ND	41	300
W-3	QA/QC	WATER	1.6*	3.1	ND	ND	ND	ND	ND	1.9	ND	31	73

STLC = SOLUBLE THRESHOLD LIMIT CONCENTRATION  
 TLIC = TOTAL THRESHOLD LIMIT CONCENTRATION  
 ND = NON DETECT

O = OXIDE TAILINGS  
 U = UNOXIDIZED TAILINGS  
 S = SOIL  
 GS = GRANITIC SOIL  
 DG = DECOMPOSED GRANITE  
 \* = WATER SAMPLE PRESERVED WITH HNO3  
 1000 EXCEED 10 TIMES STLC  
 1030 EXCEED TLIC

Report of Findings Under Program No. 91-017, Walker Mine Tailings - May, 1993

Receiving Water Constituent	-----Stations-----						Limitations
	R-1	R-2	R-3	R-4	R-5	R-6	
Chromium (ug/l)	<10	<10	<10	<10	<10		
Arsenic (ug/l)	<10	<10	<10	<10	<10		
Mercury (ug/l)	<1	<1	<1	<1	<1		2.4
Selenium (ug/l)	<5	<5	<5	<5	<5		
Aluminum (mg/l)	ND	0.16	ND	ND	ND		0.750
Antimony (mg/l)	ND	ND	ND	ND	ND		
Cadmium (mg/l)	ND	ND	ND	ND	ND		0.00532
Chromium (mg/l)	ND	ND	ND	ND	ND		
Copper (mg/l)	0.11	0.37	ND	ND	0.036		0.00342
Iron (mg/l)	0.09	0.59	0.06	0.06	0.11		1.00
Lead (mg/l)	ND	ND	ND	ND	ND		0.0102
Manganese (mg/l)	ND	0.11	ND	ND	ND		
Nickel (mg/l)	ND	ND	ND	ND	ND		
Silver (mg/l)	ND	ND	ND	ND	ND		
Thallium (mg/l)	ND	ND	ND	ND	ND		
Zinc (mg/l)	0.0080	0.0240	0.0063	0.0026	0.0044		0.0262
Dissolved Organic Carbon (mg/l)	2.2	2.0	2.3	2.2	2.4		

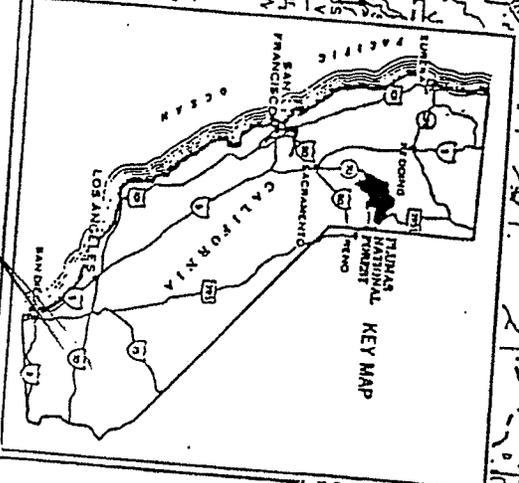
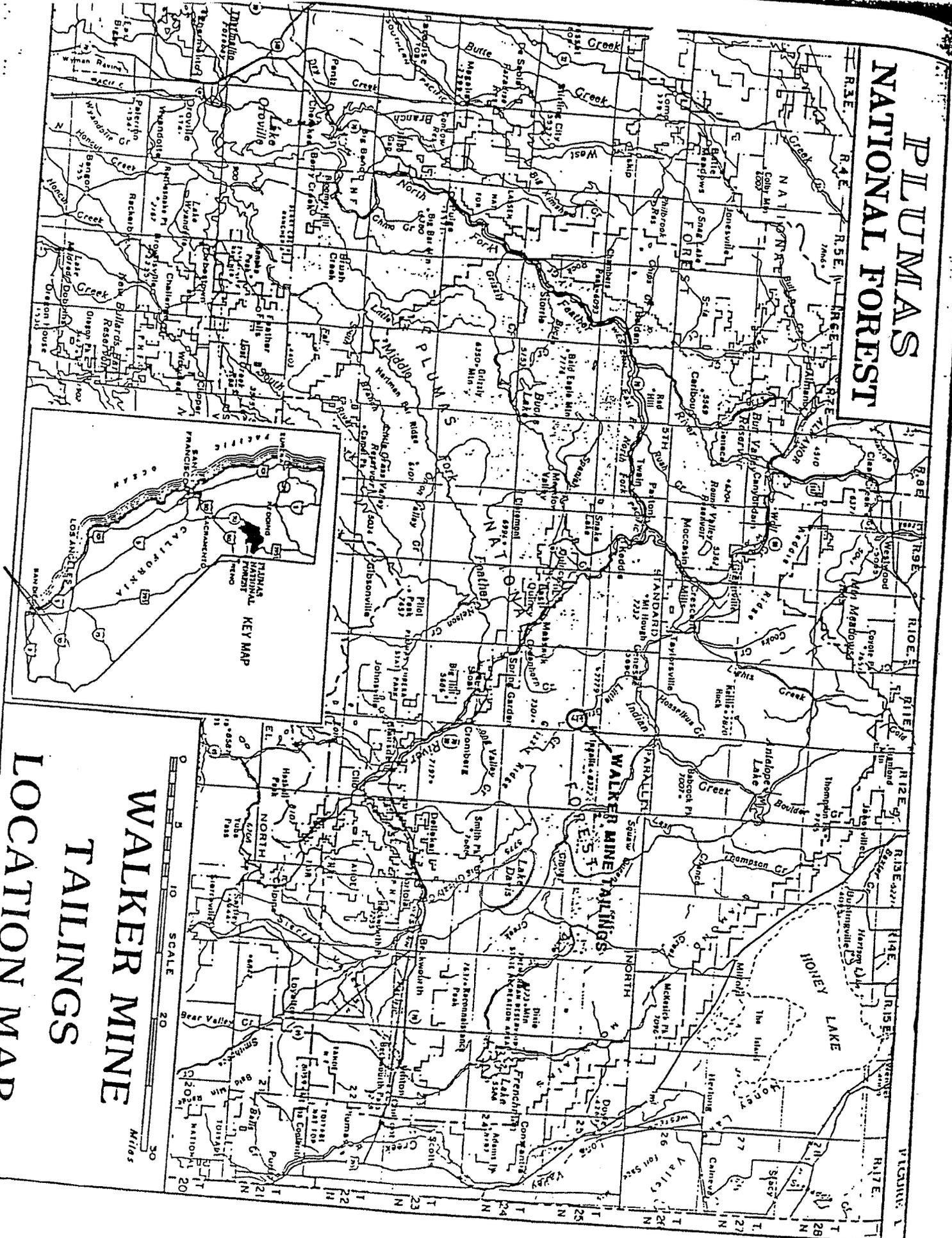
- R-3 is the background station located above the tailings area on Little Grizzly Creek. R-5 is the Waste Discharge Requirement (WDR) compliance station and is located downstream from the confluence of Dolly Creek and Little Grizzly Creek near Brown's Cabin.
- The compliance value for cadmium, copper, lead, and zinc is calculated with hardness from background station R-3.

Summary of Detailed Analysis of Treatment Alternatives for the Walker Mine Tailings

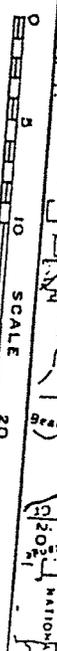
TABLE

EVALUATION CRITERIA	ALTERNATIVE 1: NO ACTION				ALTERNATIVE 2: CHANNEL STABILITY + WETLAND				ALTERNATIVE 3: ALT 2 + DIVERSION OF DOLLY CREEK				ALTERNATIVE 4: REVEGETATE + WIND EROSION CONTROL				ALTERNATIVE 5: VEG. SO ISLANDS + EROSION CONTR.										
	Overall	Protection of Human Health and the Environment	Compliance with ARARs	Reduction of Toxicity, Mobility, and Volume through Treatment	Short and Long-term Effectiveness	Implementability	Cost	Degree of Regulatory Acceptance	Overall	Protection of Human Health and the Environment	Compliance with ARARs	Reduction of Toxicity, Mobility, and Volume through Treatment	Short and Long-term Effectiveness	Implementability	Cost	Degree of Regulatory Acceptance	Overall	Protection of Human Health and the Environment	Compliance with ARARs	Reduction of Toxicity, Mobility, and Volume through Treatment	Short and Long-term Effectiveness	Implementability	Cost	Degree of Regulatory Acceptance			
Overall	No action taken. Not considered to be protective of human health and the environment.	No action taken. Not considered to be in compliance with ARARs.	No action taken. Not considered to reduce toxicity, mobility, or volume of hazardous material.	No action taken. Not considered to reduce environmental impacts or risks of exposure.	No action taken. Water monitoring would still occur.	No action taken. Cost to monitor water quality only.	Low	Overall	Would not reduce human health risks, but would reduce the release of copper to environment. Both physical and chemical water quality requirements would be met.	Would not reduce human health risks, but would reduce the release of copper to environment. Both physical and chemical water quality would be met.	Would not reduce human health risks. Copper release would be reduced to acceptable level.	Would not reduce human health risks. Sediment release would be minimal.	Would reduce copper in the leachate draining to the wetland to an unknown level within 10 years.	Would reduce air borne contaminants to acceptable levels within 10 years. Potential risk to workers from silica dust inhalation reduced by use of protective equipment.	Would reduce air borne contaminants to acceptable levels within 30 years. Potential risk to workers from silica dust inhalation reduced by use of protective equipment.	Locally available material would be used for wind erosion control. Native plants adapted to the site would be planted. Planting should be phased over 3 years. Full site occupation would take 10 years.	Locally available material would be used for wind erosion control. Native plants adapted to site would be planted onto islands of imported soil. Planting would take place in a single year if funded take 30 years.	Overall	Would reduce human health risks from inhalation of silica dust.	Would reduce copper in the leachate draining to wetland to an unknown level within 30 years.	Would reduce human health risks from inhalation of silica dust.	Would reduce copper in leachate draining to wetland to an unknown level within 30 years.	Would reduce air borne contaminants to acceptable levels within 30 years. Potential risk to workers from silica dust inhalation reduced by use of protective equipment.	Long-term monitoring and maintenance would insure success of revegetation.	Locally available material would be used for wind erosion control. Native plants adapted to site would be planted onto islands of imported soil. Planting would take place in a single year if funded take 30 years.	Full site occupation would take 10 years. Full site occupation would take 30 years.	Low
Overall	No action taken. Not considered to be protective of human health and the environment.	No action taken. Not considered to be in compliance with ARARs.	No action taken. Not considered to reduce toxicity, mobility, or volume of hazardous material.	No action taken. Not considered to reduce environmental impacts or risks of exposure.	No action taken. Water monitoring would still occur.	No action taken. Cost to monitor water quality only.	Low	Overall	Would not reduce human health risks, but would reduce the release of copper to environment. Both physical and chemical water quality requirements would be met.	Would not reduce human health risks, but would reduce the release of copper to environment. Both physical and chemical water quality would be met.	Would not reduce human health risks. Copper release would be reduced to acceptable level.	Would not reduce human health risks. Sediment release would be minimal.	Would reduce copper in the leachate draining to the wetland to an unknown level within 10 years.	Would reduce air borne contaminants to acceptable levels within 10 years. Potential risk to workers from silica dust inhalation reduced by use of protective equipment.	Would reduce air borne contaminants to acceptable levels within 30 years. Potential risk to workers from silica dust inhalation reduced by use of protective equipment.	Locally available material would be used for wind erosion control. Native plants adapted to the site would be planted. Planting should be phased over 3 years. Full site occupation would take 10 years.	Locally available material would be used for wind erosion control. Native plants adapted to site would be planted onto islands of imported soil. Planting would take place in a single year if funded take 30 years.	Overall	Would reduce human health risks from inhalation of silica dust.	Would reduce copper in the leachate draining to wetland to an unknown level within 30 years.	Would reduce human health risks from inhalation of silica dust.	Would reduce copper in leachate draining to wetland to an unknown level within 30 years.	Would reduce air borne contaminants to acceptable levels within 30 years. Potential risk to workers from silica dust inhalation reduced by use of protective equipment.	Long-term monitoring and maintenance would insure success of revegetation.	Locally available material would be used for wind erosion control. Native plants adapted to site would be planted onto islands of imported soil. Planting would take place in a single year if funded take 30 years.	Full site occupation would take 10 years. Full site occupation would take 30 years.	Low

# PLUMAS NATIONAL FOREST



## WALKER MINE TAILINGS LOCATION MAP

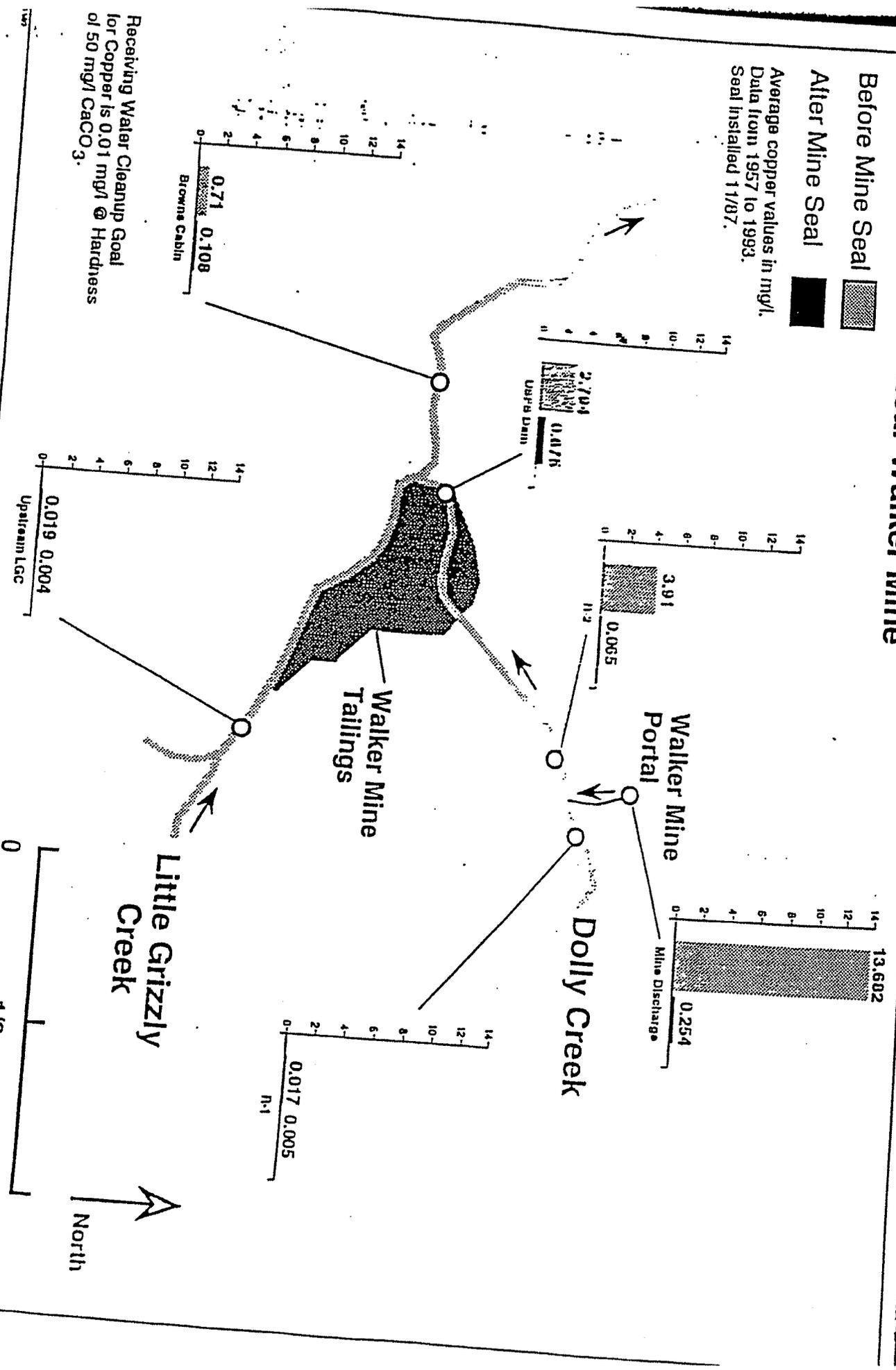


# Copper in Streams near Walker Mine

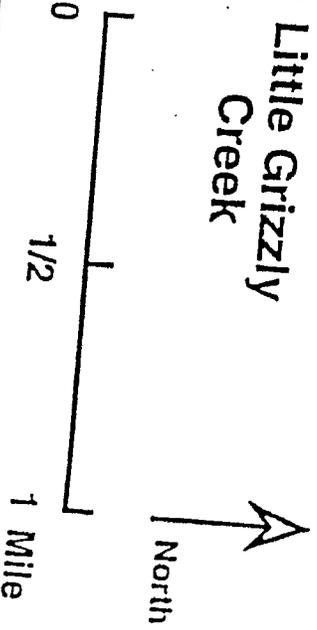
Before Mine Seal

After Mine Seal

Average copper values in mg/l.  
Data from 1957 to 1993.  
Seal installed 11/87.

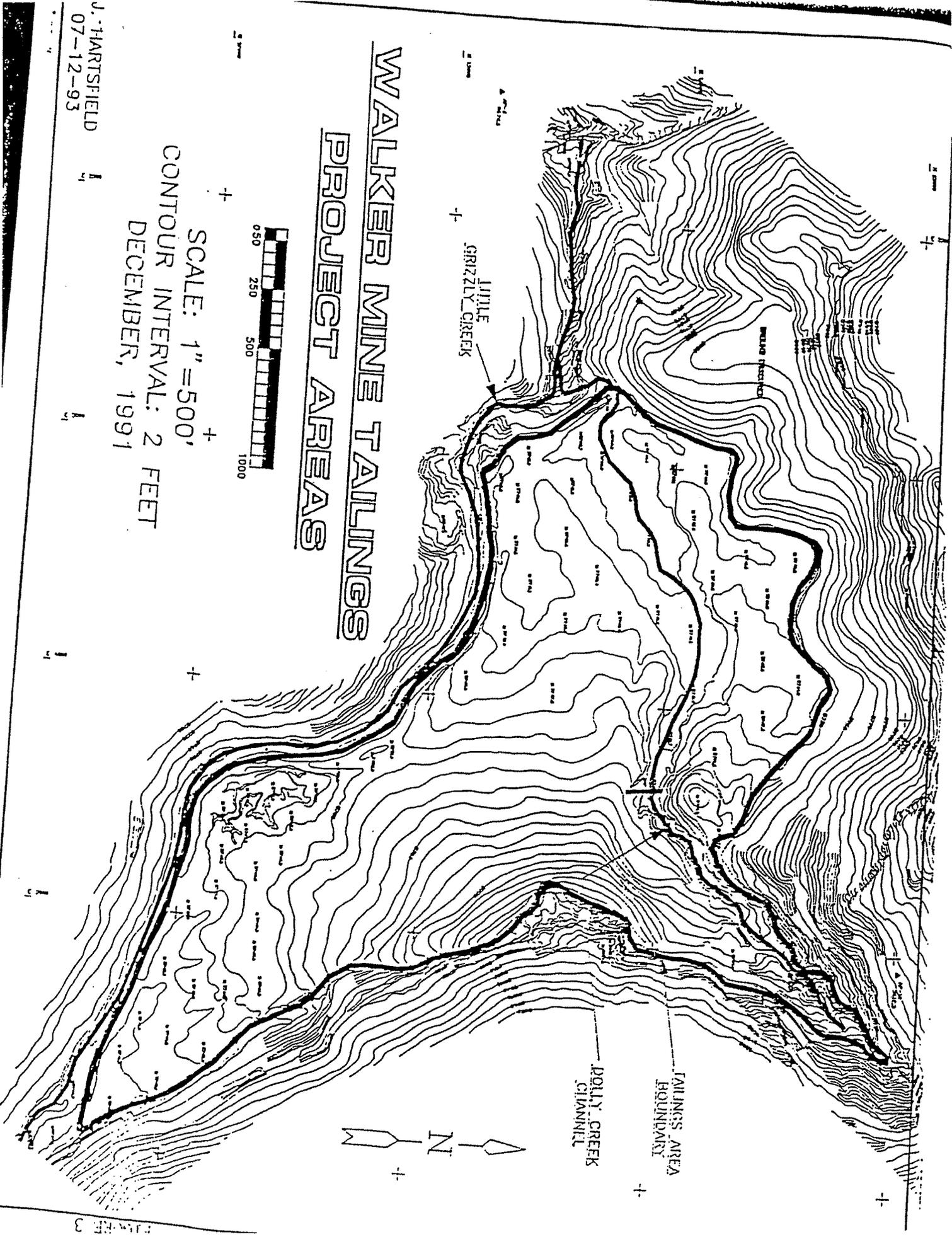
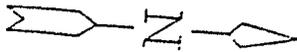


Receiving Water Cleanup Goal for Copper is 0.01 mg/l @ Hardness of 50 mg/l CaCO<sub>3</sub>.



# WALKER MINE TAILINGS PROJECT AREAS

SCALE: 1" = 500'  
CONTOUR INTERVAL: 2 FEET  
DECEMBER, 1991



J. HARTSFIELD  
07-12-93

PLATE 3

APPENDIX

Reply to: 2110/2120

Date: July 1, 1993

Subject: Public Meetings to Present Proposed Treatments at  
the Walker Mine Tailings

To: District Ranger, Beckwourth RD

Two meetings were held to receive comments and concerns from the community regarding proposed treatments for the Walker Mine Tailings. This letter documents the outcome of those meetings.

The meetings were conducted by representatives from the Forest Service, the Central Valley Regional Water Quality Control Board, and the Plumas Corporation.

The first meeting was held June 23 in Taylorsville. Taylorsville is located on Indian Creek downstream from Little Grizzly Creek and the Walker Mine Tailings. The reason for selecting Taylorsville for the meeting place was to solicit comments from those people most affected by changes in water quality due to the proposed treatments at the tailings area.

Two people attended the meeting, one from the community and one outside. The person from the community was concerned that the site may be mined in the future, destroying treatments implemented at the site. He believes that we should treat the site as soon as possible.

The second person expressed concern that any treatments implemented at the site at this time not preclude future treatments as technology advances and more permanent treatments are made available. Upon review of the proposed treatments, his concerns were satisfied. The proposed treatments would not preclude such treatments if they prove reliable and economical.

The second meeting was held June 30 in Portola. Portola was chosen for this meeting to solicit comments and concerns from Off Highway Vehicle (OHV) users who may be frequenting the site and who would be concerned about the site being closed to their use. Over 200 letters were sent out prior to the meetings to interested parties, including a large OHV constituency, to coax them into attending one of the meetings. The meetings were also announced in the local newspapers.

Three members of the community attended the second meeting plus two people from the Plumas County Health Department. Three concerns surfaced. There was a concern that future technologies not preclude future treatments. A tag on concern is that future treatments should provide a boost to the local economy, specifically Portola.

United States  
Department of  
Agriculture

Forest  
Service

SO

Reply to: 2110/2120

Date: September 27, 1993

Subject: Phone Conversation with Mr. Archie Sparkman

The following key points were discussed with Mr. Archie Sparkman, one of the claimants of the Walker Mine Tailings and a Potentially Responsible Party (PRP). He spoke for himself and the other claimants.

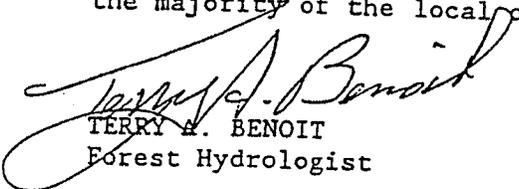
1. The assessment taxes haven't been paid for three years.
2. He and Buzz Lally are retired and were talked into this venture.
3. No work as been performed at the site. They've never performed any work at the site.
4. They are okay with the Forest Service proposal. He doesn't know anything about that type of work anyway.
5. He considers himself and the others as having dissolved their interest in the site three years ago.

  
TERRY A. BENOIT  
Forest Hydrologist

The third concern expressed by the County Health Department representatives over the potential health hazardous of workers and the public exposed to dust from the tailings area. The County Health Department was unaware that the public was using the area for OHV play and they expressed an opinion that the area be posted with health warning signs.

Because dialogue concerning the closure of the site to OHV use did not occur at either of the meetings, and because it is assumed that some OHV users will ignore signs and gates warning of the health risks and need to stay off the site, an information brochure was suggested. The brochure could be made available to all users of the site, including those who violate closure signs and gates.

No other comments were received and it is assumed that we have acceptance from the majority of the local communities.

  
TERRY A. BENOIT  
Forest Hydrologist

United States  
Department of  
Agriculture

Forest  
Service

SO

Reply to: 2110/2120

Date: January, 1994

Subject: Documentation of Public and Agency Acceptance of Proposed Remediation  
Walker Mine Tailings Remediation Project

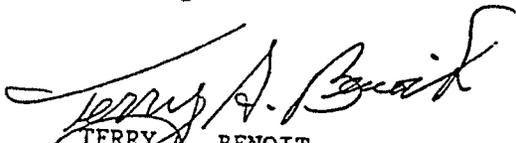
To: Files

PUBLIC RESPONSE. All formal response was received at the two public meetings and over the phone. I was able to gather information through other sources about how other people felt about the proposed project for Walker Mine Tailings. Except for Off-highway Vehicle (OHV) users who use the site, most people are in favor of the proposal. The primary people in favor live downstream of the tailings area and near Genessee. The OHV recreationists have expressed a desire that the area be left a playground and that no restrictions be placed on use of the area.

AGENCY RESPONSE. The primary agency we are dealing with in the treatment of the site is the Central Valley Regional Water Quality Control Board (CVRWQCB). Mr. William Croyle, Water Quality Engineer working for the Board, is my primary contact. Through him I have learned that the CVRWQCB is okay with the preferred treatment plan (Alternative 2 + Alternative 4). They are most interested in our attempt to show a good faith effort with good science.

Our attempt to obtain a formal response from them regarding their acceptance of the proposed treatment plan resulted in no response. We attempted to solicit their approval/disapproval by asking for criticism of the Proposed Plan.

No other responses have been received, except from miners who always seem to have a new and innovative approach to our problem and, it just so happens, to their gain.

  
TERRY A. BENOIT  
Forest Hydrologist

STATE WATER RESOURCES CONTROL BOARD  
RESOLUTION NO. 97-082

APPROVAL OF FUNDS FROM THE STATE WATER POLLUTION  
CLEANUP AND ABATEMENT ACCOUNT TO CONTINUE MONITORING AND  
MAINTENANCE OF THE ACID MINE DRAINAGE ABATEMENT PROJECT AT WALKER  
MINE

WHEREAS:

1. Discharges of acid mine drainage from Walker Mine can impair beneficial uses of Dolly Creek, Little Grizzly Creek and the Feather River; and
2. In settlement of a lawsuit against the former owner, \$1,500,000 was added to previous allocations from the State Water Pollution Cleanup and Abatement Account (Account) for cleanup activities at Walker Mine; and
3. The Regional Water Quality Control Board, Central Valley Region, (Regional Water Quality Control Board) has expended all Account funds allocated for Walker Mine except for \$266,200; and
4. The Regional Water Quality Control Board has determined there are sufficient funds allocated for 1997. However additional funding of \$1,200,000 is needed to continue monitoring and maintenance for the next 10 years; and
5. The Regional Water Quality Control Board has requested \$1,200,000 over a ten (10) year period from the Account for activities detailed in the Operations and Maintenance Procedures for Walker Mine; and
6. The Regional Water Quality Control Board has resolved that before using funds from the Account the Executive Officer is directed to seek funding from any responsible party; and
7. The Regional Water Quality Control Board has resolved that if funds are expended the Executive Officer is directed to seek reimbursement from any responsible party; and
8. The Account is currently over committed. To insure that it remains solvent, any major projects funded by the Account must be segmented; and
9. It has been determined that an additional commitment of \$111,000 per year will not jeopardize the security of the Account.

THEREFORE BE IT RESOLVED THAT:

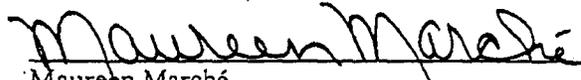
The State Water Resources Control Board:

1. Allocates up to \$1,200,000 from the Account over a ten (10) year period to the Regional Water Quality Control Board to operate and maintain the Acid Mine Drainage Abatement Project at Walker Mine in accordance with the Operation and Maintenance Procedures adopted by the Regional Water Quality Control Board.

2. The Regional Water Quality Control Board will segment major procurement to the degree possible, and before entering any contract in excess of \$250,000, will obtain approval from the Executive Director to ensure sufficient funds are in the Account to cover the contract.
3. The unused portions of the Account funds previously allocated to Walker Mine must be expended before these additional funds may be expended.

#### CERTIFICATION

The undersigned, Administrative Assistant to the Board, does hereby certify that the forgoing is a full, true, correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on September 18, 1997.



Maureen Marché  
Administrative Assistant to the Board



**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION**

3443 Routier Road, Suite A  
Sacramento, CA 95827-3003  
Phone: (916) 255-3000  
Fax: (916) 255-3015

Cal/EPA



Pete Wilson, Governor

17 March 1998

**CERTIFIED MAIL**  
Z 684 995 573

Cedar Point Properties  
c/o Daniel Kennedy  
800 Cynthia Lane  
Paradise, CA 95969

**CLEANUP AND ABATEMENT ACCOUNT LIEN, WALKER MINE PROPERTY,  
PLUMAS COUNTY**

As described in the enclosed notice of lien, a lien has been placed on the Walker Mine real property (including timber harvestable or harvested for commercial sale) pursuant to Water Code Section 13304(c) in the amount of \$238,334. The lien is for the amount of costs expended to date from the State Water Pollution Cleanup and Abatement Account on cleanup activities at the property described above. This notice has been sent to you because you are the current owner of record.

**In order to release this lien or reduce its amount, you must file a petition in the appropriate court of law no later than 45 days from the date of receipt of the attached notice.** In the alternative, the State Water Resources Control Board, which administers the Cleanup Account, will release the lien if you pay the lien amount. To discuss payment arrangements or if you have any other questions, please contact William Marshall at (916) 255-3140.

JACK E. DEL CONTE  
Supervising Engineer

Enclosure

cc: Frances McChesney, OCC, SWRCB  
Mark Harvey, RWQCB, Redding  
Carl Leverenz, Chico



*Our mission is to preserve and enhance the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations.*

PWM

RECORDED AT REQUEST OF

*State Water Resources Control Board*

at 20 min. past 10 M.

Plumas County Recorder's Office  
Room 102  
520 Main Street  
Quincy, CA 95971

1740 MAR 13 1998

PLUMAS COUNTY, CALIFORNIA

JUDITH WELLS

Fee \$ 6 Recorder

Please return conformed copy to:

Regional Water Quality Control Board, Central Valley Region  
3443 Routier Road, Suite A  
Sacramento, CA 95827-3003

Attn.: Patrick Morris (916) 255-3121

RECEIVED  
MAR 13 1998  
CALIF. GOV. CODE SECTION 26100

RECEIVED  
SACRAMENTO  
CVRWQCB  
98 MAR 25 PM 1:36

<p>RECORDING REQUESTED BY AND RETURN TO:</p> <p>State Water Resources Control Board          P.O. Box 100          Sacramento, CA 95812-0100          Contact: Frances L. McChesney (916) 657-2106</p>	<p>FOR RECORDER'S USE ONLY</p>
<p style="text-align: center;"><b>NOTICE OF LIEN</b></p>	

AFFECTED PARTIES ARE NOTIFIED THAT

1. A lien is created by this notice under Water Code Section 13304(c).
2. The name and address of the lien claimant is:

State Water Resources Control Board  
 P.O. Box 100  
 Sacramento, CA 95812-0100

3. The name and last known address of the owner of record of the real property that is subject to the lien is:

Cedar Point Properties  
 c/o Daniel Kennedy  
 800 Cynthia Lane  
 Paradise, CA 95969

4. A description of the real property (including timber harvestable or harvested for commercial sale) on which the condition was abated and to which the lien attaches is as follows:

Walker Mine Property, Plumas County  
 Assessor's Parcel Numbers 009-080-01, 009-090-01, and 009-100-09

5. The amount of the lien at the time of the notice is:

\$238,334

Date: March 6, 1998

FRANCES L. McCHESNEY  
 TYPE OR PRINT NAME OF ATTORNEY

  
 SIGNATURE OF ATTORNEY

**NOTICE** In order to release this lien or reduce its amount, the owner must file a petition in the appropriate court of law no later than 45 days from the date of receipt of this notice.

Walker Mine property lien-

This is an updated estimate of the funds expended on Walker Mine. The amount for the proposed lien was included in the 4 November 1997 Memorandum from Gary Carlton to Frances McChesney. This revised amount includes work completed at the site in 1997.

1984-1990 SRK (design, CQA)	\$	100,000.00
CA 18 mine seal construction, misc	\$	296,317.03
CA 69 1992-1995 Site Assessment, Tunnel Rehab.	\$	753,617.80
CA 69 1997 Tunnel Rehab	\$	474,973.00
CA 69 1997 Monitoring Well	\$	102,293.31
CA 69 Misc. Invoices	\$	<u>11,132.47</u>
	total	\$ 1,738,333.61
	1991 Settlement	<u>(1,500,000)</u>
	net lien	(\$238,334)



# California Regional Water Quality Control Board Central Valley Region



**Peter M. Rooney**  
Secretary for  
Environmental  
Protection

**Sacramento Main Office**  
Internet Address: <http://www.swrcb.ca.gov/~rwqcb5/home.html>  
3443 Routhier Road, Suite A, Sacramento, California 95827-3003  
Phone (916) 255-3000 • FAX (916) 255-3015

**Ed J. Schnabel**  
Chair

CERTIFIED MAIL  
Z 684 995 670  
Mr. Neal Brody  
Atlantic Richfield Company  
ALF 3587  
444 South Flower Street  
Los Angeles, CA 90071

**RECEIVED**

15 June 1998

**JUN 17 1998**

**LEGAL ENV.**

## **WALKER MINE PROPERTY, PLUMAS COUNTY**

On 13 August 1997 we requested (see enclosure) that Atlantic Richfield Company (ARCO) begin negotiating an agreement with the California Regional Water Quality Control Board (Regional Board) for past and future environmental remediation activities at the Walker Mine in Plumas County, California. We have not received a response from ARCO regarding this matter.

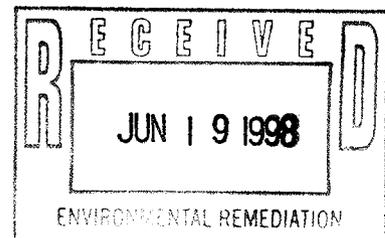
The Regional Board is continuing to seek reimbursement for costs associated with remedial activities required at the Walker Mine site. California Water Code, Division 7, Section 13304, requires responsible parties to clean up and abate waste discharges. The Board has spent over \$1.5 million on past remedial activities at the site. Most of this was reimbursed by now defunct parties. The site requires about \$120,000 annually to maintain existing remedial structures and to continue monitoring activities. Additional funding is required to remediate continuing discharges from onsite mine tailings.

We propose to either include ARCO as a discharger under Cleanup and Abatement Order No. 97-715 (enclosed), or adopt a similar Order for ARCO. Order No. 97-715 requires responsible parties in part to (1) reimburse the Regional Board for reasonable costs associated with oversight and remedial activities at this facility, and (2) continue operations and maintenance of existing remedial structures to minimize waste discharges from the site.

We request that ARCO respond to this letter by **1 August 1998** and so that we can begin to negotiate an agreement with ARCO for undertaking or reimbursing past and future remediation activities. In the alternative, Regional Board staff will draft a tentative Cleanup and Abatement Order naming ARCO as a responsible party at the Walker Mine site. If you have any questions regarding this matter, please contact Patrick Morris at (916) 255-3121.

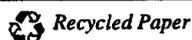
*William J. Marshall*

**WILLIAM J. MARSHALL**, Chief  
Waste Discharge to Land Unit  
Lower Sacramento River Watershed



*cc: Tony Schwanz ✓*

**California Environmental Protection Agency**



Enclosures

13 August 1997 Regional Board letter  
Cleanup and Abatement Order No. 97-715

cc w/o encl: Ms. Rose Miksovsky, United States Department of Agriculture, San Francisco  
Mr. Terry Benoit, United States Forest Service, Quincy  
Ms. Tracy Knorr, Office of the Attorney General, Sacramento  
Ms. Frances McChesney, State Water Resources Control Board, Office of Chief  
Counsel, Sacramento  
Mr. Phil Woodward, Central Valley Regional Water Quality Control Board,  
Redding  
Mr. Jim Richey, Atlantic Richfield Company, Los Angeles  
Mr. Dan Kennedy, Cedar Point Properties, Paradise  
Mr. Carl Leverenz, Chico

# California Regional Water Quality Control Board

## Central Valley Region

Steven T. Butler, Chair



Winston H. Hickox  
Secretary for  
Environmental  
Protection

Sacramento Main Office  
Internet Address: <http://www.swrcb.ca.gov/~rwqcb5>  
3443 Routier Road, Suite A, Sacramento, California 95827-3003  
Phone (916) 255-3000 • FAX (916) 255-3015



Gray Davis  
Governor

1 December 1999

Mr. Terry Benoit  
Plumas National Forest  
P.O. Box 11500  
Quincy, CA 95971-6025

Mr. Neal Brody  
Senior Attorney  
ARCO Legal Department  
444 South Flower Street  
Los Angeles, CA 90071

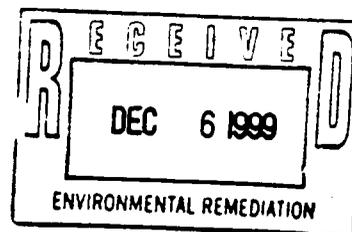
**NOTICE  
TENTATIVE ORDER REVISING  
WASTE DISCHARGE REQUIREMENTS  
ATLANTIC RICHFIELD COMPANY  
AND  
U.S. DEPARTMENT OF AGRICULTURE  
FOREST SERVICE, PLUMAS NATIONAL FOREST  
WALKER MINE TAILINGS  
PLUMAS COUNTY**

Enclosed is a copy of a tentative order revising Waste Discharge Requirements (WDRs) Order No. 91-017 for the Walker Mine Tailings. The tentative WDRs name the US Forest Service and Atlantic Richfield Company as Discharger. The WDRs are being updated to reflect water quality improvements at the site and to provide a compliance time schedule for additional improvements. These revised requirements also modify the monitoring and reporting program. Any comments you may have concerning this revision should be submitted to this office by **30 December 1999**. Please contact Patrick Morris at (916) 255-3121 if you have any questions.

STEVE E. ROSENBAUM  
Senior Engineering Geologist

Enclosures: Tentative Orders  
Standard Provisions (Discharger only)

cc: See Attached List



*California Environmental Protection Agency*

MIN 000011437



cc: Ms. Rose Miksovsky, US Department of Agriculture, San Francisco  
Ms. Tracy Winsor, Office of the Attorney General, Sacramento  
Mr. Banky Curtis, Department of Fish and Game, Region II, Rancho Cordova  
Department of Health Services, Office of Drinking Water, Redding  
Department of Water Resources, Northern District, Red Bluff  
Ms. Frances McChesney, State Water Resources Control Board, OCC, Sacramento  
Ms. Liz Haven, State Water Resources Control Board, DWQ, Sacramento  
Plumas County Environmental Health Department, Quincy  
Plumas County Planning Department, Quincy  
Mr. James Richey, Atlantic Richfield Company, Los Angeles  
Mr. Dan Kennedy, Cedar Point Properties, Paradise

**MIN 000011438**

## INFORMATION SHEET

WASTE DISCHARGE REQUIREMENTS ORDER NO. \_\_\_\_\_  
ATLANTIC RICHFIELD COMPANY AND  
U. S. DEPARTMENT OF AGRICULTURE,  
FOREST SERVICE, PLUMAS NATIONAL  
FOREST, WALKER MINE TAILINGS,  
PLUMAS COUNTY

The Walker Mine Tailings (tailings) are an existing copper mine tailings dump. Tailings from the Walker Mine mill were deposited in a natural basin at the confluence of Dolly and Little Grizzly Creeks on public land administered by the U. S. Department of Agriculture, Plumas National Forest (USFS). Historical records show that Atlantic Richfield Company (ARCO), as the successor of several companies that owned and operated the mine, is a responsible party of the Walker Mine. The WDRs jointly name the USFS and ARCO as Discharger.

During the time the Walker Mine was operating, from 1916 to 1941, Dolly Creek was diverted around the tailings area. The diversion is almost completely filled in or in disrepair. After the mine ceased operations, the tailings area also fell into disrepair. Portions of a containment levee eroded and timbers of a flashboard dam disintegrated, which resulted in a discharge of tailings and turbid water to Little Grizzly Creek. To contain the tailings, the USFS reconstructed the levee along the west bank of Little Grizzly Creek and the flashboard dam across the mouth of Dolly Creek. However the tailings continue to erode and flow into surface waters during rainfall events and snow melt periods.

Acid mine drainage from the upstream Walker Mine property flows into Dolly Creek prior to Dolly Creek entering the tailings site. While effluent from the Walker Mine causes upstream receiving water limits for copper to be exceeded, the tailings continue to contribute significant concentrations of copper to Dolly Creek. Data collected by Board staff indicates that the dissolved copper concentration upstream of the tailings averages 22  $\mu\text{g/l}$  while copper concentrations at the USFS dam averages 119  $\mu\text{g/l}$  (data from 1996 through 1998).

The USFS has prepared a Record of Decision (ROD) pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act. The objectives of the ROD were to reduce sediment loading from the tailings into Dolly Creek, to reduce the export of copper from the tailings and Dolly Creek and Little Grizzly Creek, and to stabilize the tailings from water and wind erosion. The ROD proposed reconstructing Dolly Creek, constructing a 15-acre wetland to treat metal discharges, and raising the flashboard dam. The Rod also recommended constructing wind barriers on the tailings and revegetating 60 acres with grasses, shrubs, and trees. The USFS has initiated stabilization of the tailings by planting trees and grasses. However, the revegetation efforts were marginally successful primarily because there is not enough nutrient material in the tailings to sustain growth.

These WDRs incorporate receiving water limitations at the Point of Compliance (R-5). These limitations are based on USEPA National Recommended Water Quality Criteria (April 1999) for copper, iron, and zinc. Receiving water limitations for copper and zinc vary with hardness of the receiving waters. The hardness is based on Little Grizzly Creek at R-5. The copper and zinc limitations are calculated using a hardness of 50  $\text{mg/l}$  as  $\text{CaCO}_3$  (based on historic data). Due to infrequent sampling, the limitations conservatively apply the 4-day average equation as an instantaneous maximum concentration:

WASTE DISCHARGE REQUIREMENTS ORDER NO. \_\_\_\_\_  
ATLANTIC RICHFIELD COMPANY AND  
U. S. DEPARTMENT OF AGRICULTURE,  
FOREST SERVICE, PLUMAS NATIONAL  
FOREST, WALKER MINE TAILINGS,  
PLUMAS COUNTY

$$\text{Copper} = e^{0.9422(\ln(\text{hardness})) - 1.7} \times 0.96$$
$$\text{Zinc} = e^{0.8473(\ln(\text{hardness})) + 0.884} \times 0.978$$

The current discharge from the Walker Mine tailings does not meet the receiving water limitations. Therefore, these WDRs provide a time schedule for compliance with receiving water limitations. The schedule requires additional improvements in Dolly Creek and a continuation of the tailings rehabilitation.

These WDRs remove the numerical standard for settleable solids discharges and the requirement to monitor total suspended solids and total settleable solids. The Basin Plan provides narrative standards for suspended and settleable solids. The WDRs require the Discharger to follow the applicable water quality standards contained in the Basin Plan.